



2025-2026 | KYOCERA Precision Tools

GENERAL CATALOG





ADVANCING PRODUCTIVITY

Contributing to the betterment of world-wide
manufacturing and our customers' productivity by
providing efficient cutting tool products and
high-precision machining solutions

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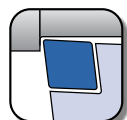
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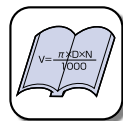
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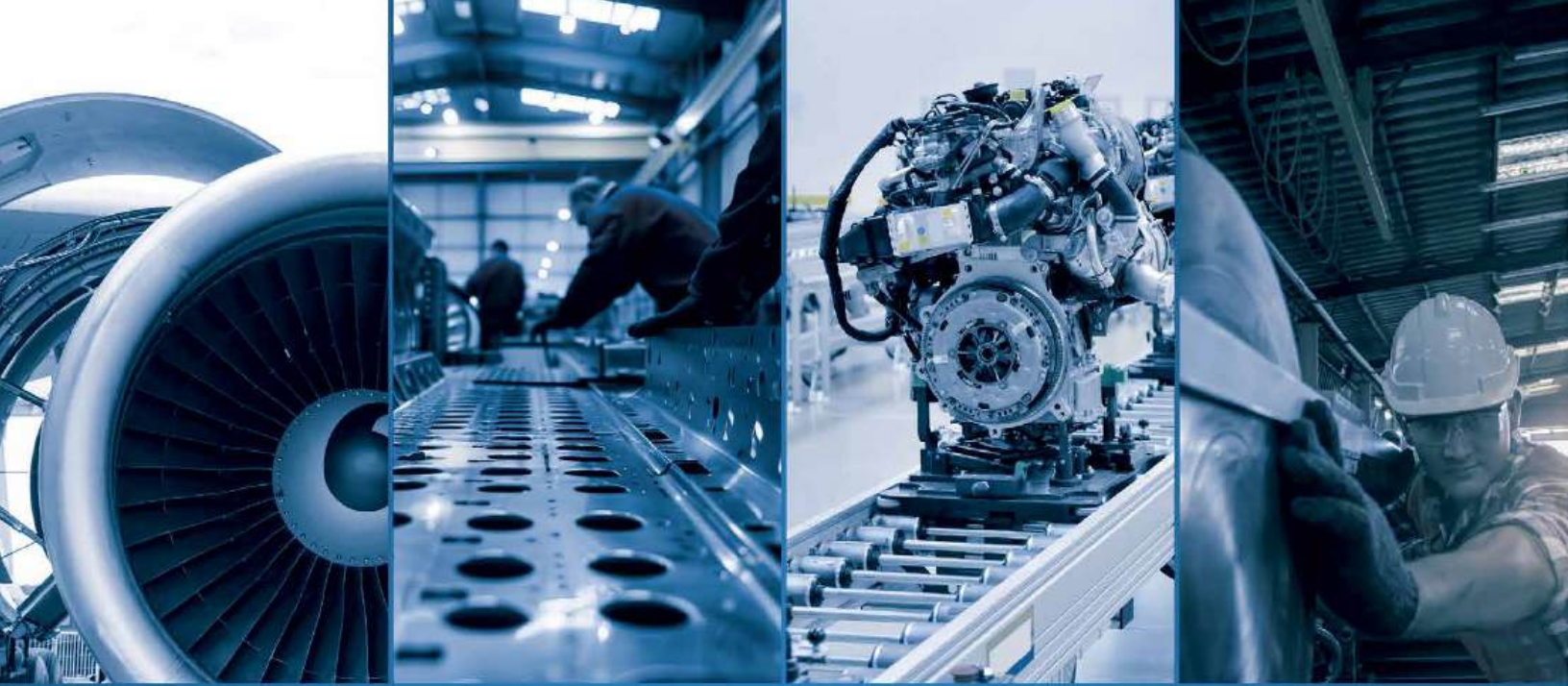


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KYOCERA Precision Tools

KYOCERA Precision Tools, a division of the KYOCERA SGS Precision Tools group, provides indexable tooling solutions and service to a variety of industries, including aerospace, automotive, medical, dental, oil & gas, and power generation.





TRUSTED PRECISION RELIABLE PERFORMANCE

At KYOCERA Precision Tools, we're passionate about revolutionary cutting tool technology. We design and develop advanced indexable cutting tools that not only meet but exceed quality expectations, all while delivering the cost-efficiency that today's metalworking professionals need to stay competitive.

Though ceramic technologies were the nucleus of the original business model, we've evolved over the years to become a global leader in the metal removal industry. Our expertise extends across a wide range of materials, including carbide, cermet, CBN, and PCD, allowing us to provide innovative solutions for every machining challenge.

For more than 40 years, we've been dedicated to creating some of the most reliable and cutting-edge indexable tooling solutions in the industry. From our **MEC Ultra-Hurricane 90° Milling Cutters** and **MFH-RAPTOR High-Feed Milling Cutters** to the groundbreaking **DRZ & DRV Magic Drills** and the industry-first **CCX CVD Coated Cermet**, we take pride in delivering tools that empower machinists to do more.



Turning & Boring



Holemaking



Indexable Milling



Small Tools for
Swiss Lathes

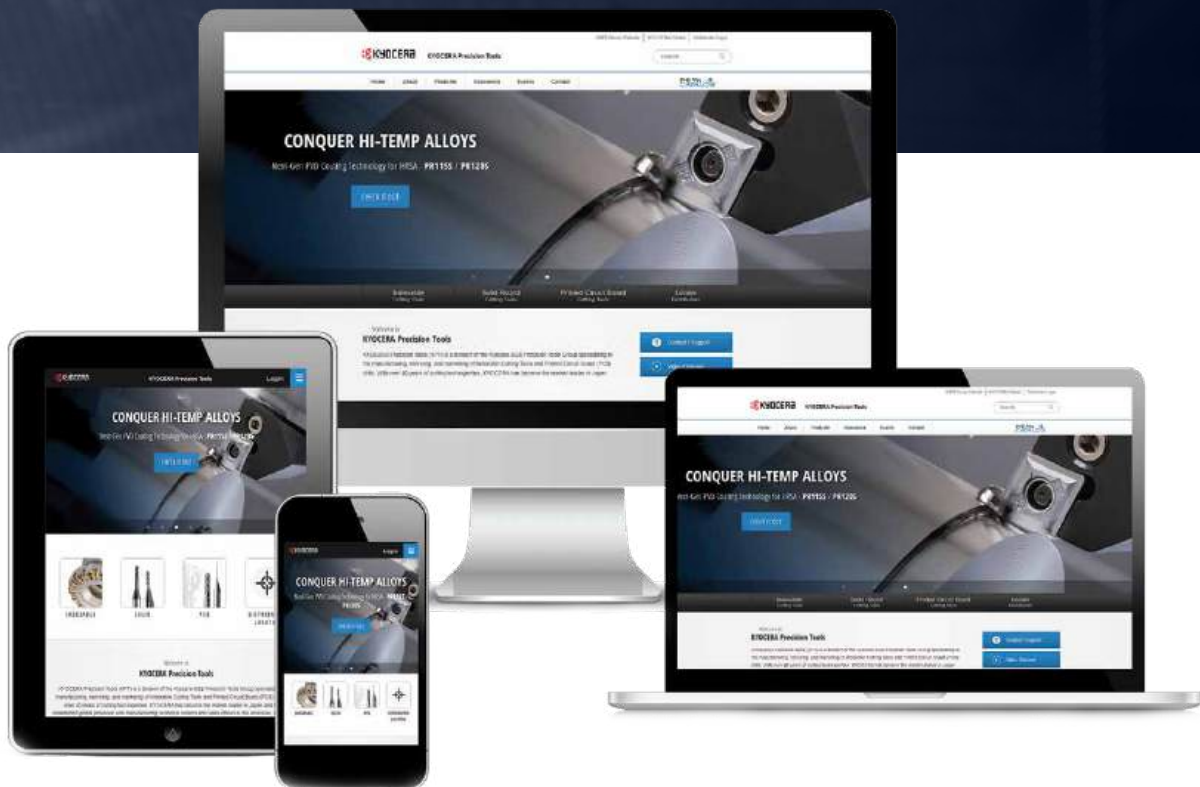


Quick-Change Tooling &
Specialty Tools



Grooving & Cut-Off
Solutions

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In addition to placing orders, the distributor portal allows you to view real-time product availability, pricing, in-depth item attributes and dimensions, download product and promotional literature, and more.



Catalog Product Availability Symbols

- Indicates that an item is a **Standard Item** and is available to order.
If there is stock in the U.S., items will ship the same day if ordered by the following destination cut-offs:
 - Shipments within the U.S. **3:30pm (EST)**
 - Shipments to Canada: **2:00pm (EST)**
 - Shipments to Mexico: **12:30pm (EST)**
 - If there is no U.S. stock, please allow 7-10 business days for items to arrive
- △ Indicates that an item is being phased out of production.
Please contact your local Kyocera sales engineer to determine a replacement solution.
- Made to order or quoted item. Please contact sales@kyocerapti.com

*All **Standard Items** are subject to U.S. or International availability

FEATURED PRODUCT

Electric Torque Insert Driver

DTD500



Quick and easy insert replacements with precise torque control

[View Online](#)



2-in-1 electric driver and torque wrench

Quickly loosen and tighten insert screws with precise, adjustable torque settings. Clutch operates and idles when the set torque is reached, reducing operator over or under tightening.



Rechargeable with USB Type-C



Bright LED Light

Illuminate dark areas inside the machine



Li-ion
3.7v

Max
Electric Torque

1 Nm

Manual
Preset Torque

1-5 Nm

5 Bit Options

Compatible with a variety
of screw types and sizes



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Kyocera promotes research and development to help improve customers' productivity and profitability. Kyocera provides high-quality inserts in various grades including cermet, coated carbide, coated super micro grain carbide, uncoated carbide, ceramic, PCD and CBN.

Turning

Workpiece material		Steel					Stainless steel / Cast steel					Cast iron			
Cutting range		Finishing ← → Roughing					Finishing ← → Roughing					Finishing ← → Roughing			
Classification		P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Cermet	TN series	TN610					TN610								
		TN620					TN620								
		TN60					TN60					TN60			
		TN90					TN90								
	TC series		TC60					TC60							
	CCX (CVD coated)	CCX										CCX			
Coated carbide	PV series		PV90					PV90							
	MEGACOAT											PV7005			
	MEGACOAT NANO	PV710					PV710								
		PV720					PV720								
		PV730					PV730								
	CA series	CA115P										CA410K			
		CA125P					CA6515					CA415K			
		CA510					CA6525					CA310			
		CA515										CA315			
		CA025P										CA320			
		CA525										CA4505			
		CA530										CA4515			
	PR series	PR930					PR930								
		PR1025					PR1025								
	MEGACOAT		PR1225					PR1225							
	MEGACOAT NANO		PR1535					PR1535							
	MEGACOAT NANO PLUS	PR1705													
		PR1725					PR1725								
	MEGACOAT TOUGH						PR1205								
Ceramic												KA30			
												KT66			
												A66N			
												PT600M			
												KS6015			
												KS6050			
												CS7050			
Carbide												KW10			
CBN												KBN475			
												KBN60M			
												KBN900			

*White bars indicate older grades

Turning

Workpiece Material		Non-ferrous Metals				Difficult-to-cut materials Titanium / Titanium Alloys				Hard Materials				Powdered Steel			
Cutting Range		Finishing			Roughing	Finishing			Roughing	Finishing			Roughing	Finishing			Roughing
Classification		N01	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20	H30	01	10	20	30
Coated Carbide	CA Series						CA6515		CA6525								
	MEGACOAT HARD					PR005S											
	MEGACOAT TOUGH					PR115S		PR120S									
	MEGACOAT NANO							PR153S									
Cermet														TN610		TN60	
Ceramic							KS001			KT66							
							KS6030			A66N							
							KS6040			PT600M							
CBN										KBN510							
										KBN525							
										KBN900							
MEGACOAT										KBN05M							
										KBN10M							
										KBN25M						KBN70M	
MEGACOAT TOUGH										KBN35M						KBN570	
										KBN010							
										KBN015							
										KBN020							

Workpiece material		Non-ferrous metals				Difficult-to-cut materials Heat-resistant alloys / Ni-base heat-resistant alloys				Hard materials				Powdered Steel			
Cutting range		Finishing			Roughing	Finishing			Roughing	Finishing			Roughing	Finishing			Roughing
Classification		N01	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20	H30	01	10	20	30
MEGACOAT NANO Coated carbide									PR153S								
Carbide						SW05											
		GW05				SW10											
		KW10				KW10		SW25									
		GW15				GW15											
DLC coated carbide		PDL010															
		PDL025															
PCD		KPD001				KPD001											
		KPD010				KPD010											
		KPD230															
		KPD250															

Small Parts Machining

Workpiece material		Steel					Stainless steel / Cast steel					Cast iron			
Cutting range		Finishing ↔ Roughing					Finishing ↔ Roughing					Finishing ↔ Roughing			
Classification		P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Coated carbide	PR series	PR930					PR930								
		PR1025					PR1025								
	MEGACOAT	PR1225					PR1225								
	MEGACOAT NANO	PR1535					PR1535								
	MEGACOAT NANO PLUS	PR1705													
PR1725					PR1725										

Workpiece material		Non-ferrous metals				Difficult-to-cut materials Heat-resistant alloys / Ni-base heat-resistant alloys				Hard materials				Sintered steel			
Cutting range		Finishing			Roughing	Finishing			Roughing	Finishing			Roughing	Finishing			Roughing
Classification		N01	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20	H30	01	10	20	30
Carbide		GW05															
DLC coated carbide		PDL010															
		PDL025															

Grooving / Cut-Off / Threading

Workpiece material		Steel					Stainless steel / Cast steel					Cast iron			
Cutting range		Finishing ← → Roughing					Finishing ← → Roughing					Finishing ← → Roughing			
Classification		P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Cermets	MEGACOAT	PV7040										PV7040			
	TN series	TN620					TN620								
		TN6020					TN6020								
		TN60					TN60					TN60			
		TN90					TN90								
Coated carbide	TC series	TC40										TC40			
			TC60												
	CR series			CR9025					CR9025						
	PR series	PR915					PR915					PR905			
		PR930					PR930								
		PR1025					PR1025								
		PR1115													
	MEGACOAT		PR1215				PR1215					PR1215			
			PR1225				PR1225								
	MEGACOAT NANO			PR1535			PR1515								
Ceramic	MEGACOAT NANO EX		PR1625				PR1535								
			PR2015				PR1625					PR2015			
			PR2025				PR2025								
							PR2035								
												A65			
Carbide												A66N			
												PT600M			
												KW10			
												GW15			

Workpiece material		Non-ferrous metals				Difficult-to-cut materials Titanium / Titanium alloys				Hard materials				Sintered Steel			
Cutting range		Finishing ← → Roughing				Finishing ← → Roughing				Finishing ← → Roughing				Finishing ← → Roughing			
Classification		N01	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20	H30	01	10	20	30
MEGACOAT Coated carbide															PR1215		
															PR1225		
Cermets															TN60		
Ceramic										A65							
										A66N							
										PT600M							
Carbide		KW10				KW10											
		GW05															
		GW15				GW15											
DLC coated carbide		PDL015															
		PDL025															
CBN										KBN510					KBN570		
										KBN525							
PCD		KPD001				KPD001											
		KPD010				KPD010											

*White bars indicate older grades

Drilling

Workpiece material		Steel					Stainless steel / Cast steel					Cast iron			
Cutting range		Finishing ← → Roughing					Finishing ← → Roughing					Finishing ← → Roughing			
Classification		P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Coated carbide	CA series		CA520D					CA6535				CA415D			
	MEGACOAT		PR1225					PR1225				PR1210			
			PR1230												
	MEGACOAT NANO		PR1535					PR1535							
Carbide												KW10			
												GW15			

Workpiece material		Non-ferrous metals				Difficult-to-cut materials Titanium / Titanium alloys				Hard materials			
Cutting range		Finishing ← → Roughing				Finishing ← → Roughing				Finishing ← → Roughing			
Classification		N01	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20	H30
MEGACOAT Coated carbide										PR1230			
Carbide		KW10				KW10							
		GW15				GW15							

Milling

Workpiece material		Steel					Stainless steel / Cast steel					Cast iron			
Cutting range		Finishing ← → Roughing					Finishing ← → Roughing					Finishing ← → Roughing			
Classification		P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Cermet	TN series		TN620M					TN60							
			TN60					TN60							
			TN100M					TN100M							
	MEGACOAT NANO		PV60M												
Coated carbide	CA series							CA6535				CA420M			
	MEGACOAT		PR1225					PR1225				PR1210			
			PR1230												
	MEGACOAT NANO		PR1525					PR1525				PR1510			
			PR1535					PR1535							
Coated carbide	MEGACOAT NANO EX		PR1825					PR1835				PR1810			
			PR1835												
	Carbide											KW10			
												GW25			

Workpiece material		Non-ferrous metals				Difficult-to-cut materials Heat-resistant alloys / Ni-base heat-resistant alloys				Difficult-to-cut materials Titanium / Titanium alloys				Hard materials			
Cutting range		Finishing ← → Roughing				Finishing ← → Roughing				Finishing ← → Roughing				Finishing ← → Roughing			
Classification		N01	N10	N20	N30	S01	S10	S20	S30	S01	S10	S20	S30	H01	H10	H20	H30
Coated carbide	CA series					CA6535				CA6535							
	MEGACOAT									PR1210							
	MEGACOAT HARD													PR015S			
	MEGACOAT NANO					PR1535				PR1535							
Carbide		KW10								KW10							
		GW25								GW25							
DLC coated carbide		PDL025															
PCD		KPD001								KPD001							
		KPD010								KPD010							
		KPD230															
		KPD250															

*White bars indicate older grades

Cermet

Cermet

KYOCERA is known as one of the leading manufacturer of cermets. Cermets combine toughness with superior wear resistance, and provide longer tool life and excellent surface finishes. Typical materials used in cermets are TiC, TiN, TiCN and NbC.

PVD Coated Cermet (MEGACOAT / MEGACOAT NANO Cermet)

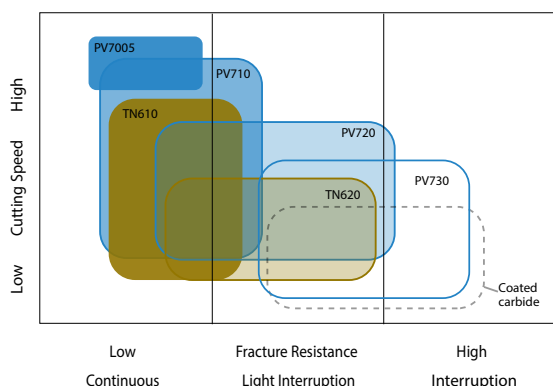
PVD coated cermet is coated on cermet substrate with a thin layer of high wear resistance and high adhesion resistance by PVD (Physical Vapor Deposition) technology. Generally because of the low processing temperature of PVD compared with CVD, PVD coated cermet features less deterioration and more bending strength.



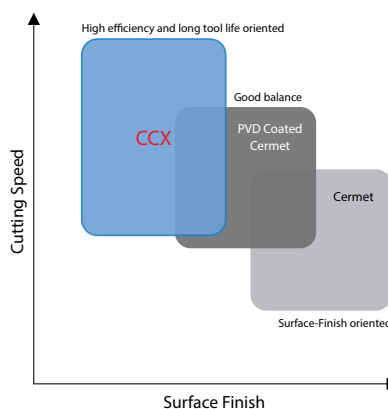
Features of cermet and PVD coated cermet

Classification	Grade	Color	Main Component (Coating Composition)	Advantages and Applications
P Steel	Cermet	Gray	TiCN	- High wear resistant cermet due to three types of special reinforcement technology - Application: Cermet for steel machining, long tool life in high speed and continuous
			TiCN	- Three types of special reinforcement technology realized the superior fracture resistance and wear resistance - Application: Stable machining of steel
			TiCN+NbC	Application: Machining of steel, continuous to interruption
			TiCN	Application: Uncoated cermet for grooving of steel
			TiCN	- Tough cermet for milling with excellent balance of wear resistance and toughness - Application: Milling of steel with high quality surface finish and long tool life
			TiCN+NbC	- Tough cermet with improved oxidation resistance and thermal shock resistance - Application: Milling of steel at high speed
			TiC+TiN	- Good balance of wear resistance and toughness - Application: Grooving and threading of steel
	CVD Coated Cermet	Gold	TiCN (TiCN+Al ₂ O ₃ +TiN)	- Specialized high-strength micro grain cermet base material with superior wear-resistant thick CVD coating - Excellent wear resistance leads long tool life in high speed machining - Application: High speed finishing to light interrupted machining of steel
	MEGACOAT NANO Cermet	Gold	TiCN (MEGACOAT NANO)	- Superior wear and adhesion resistant MEGACOAT NANO on the high wear resistant cermet - Application: Long tool life and stability in high speed continuous machining of steel, excellent surface
				- Superior wear and adhesion resistant MEGACOAT NANO on the special reinforcement cermet - Application: First choice PVD coated cermet for steel machining, high efficient machining and high quality surface finish
				- Fracture resistant grade with MEGACOAT NANO on wear resistant, tough cermet - Application: Wear resistant PVD coated cermet for steel machining and high quality surface finish
			TiCN+NbC (MEGACOAT NANO)	- Improved stable grade for milling by MEGACOAT NANO coating technology - Application: Milling of steel with high quality surface finish and stable machining
K Cast iron	MEGACOAT Cermet	Blackish Red	TiC+TiN (MEGACOAT)	- MEGACOAT Cermet for Grooving - Application: Excellent surface finish and longer tool life in steel grooving
			TiC+TiN MEGACOAT	- Heat-resistant MEGACOAT on cermet with excellent wear resistance - Application: High speed finishing of gray and nodular cast iron

Application Map



Coating Properties



Uncoated CERMET

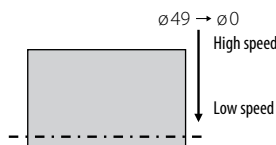
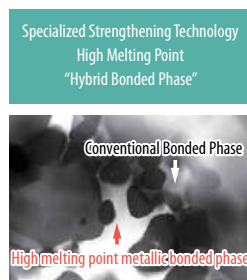
TN610/TN620

Special reinforcement technology (hybrid technology)
Superior surface finish and machining stability

1

Excellent surface finish

- Combining the conventional cermet bonded phase (nickel, cobalt) and the special high melting point metallic bonded phase.
- Provides high adhesion resistance to eliminate galling of the work piece.

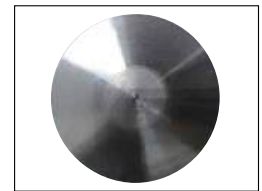
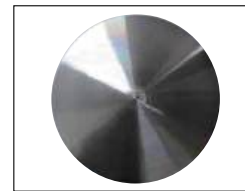


Surface finish comparison
(In-house evaluation)

Cutting Conditions: $V_c = 590 \sim 0$ sfm (Constant Rate), D.O.C. = $0.020''$
 $f = 0.004$ ipr, Wet, CNMG431 type Workpiece: 1010

PV720

Competitor A

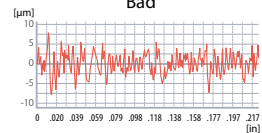
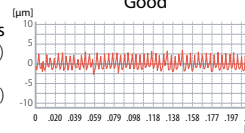


Surface Finish

Good

Bad

Surface roughness
($\phi 0.158'' \sim \phi 0.591''$)
($V_c = 50 \sim 180$ sfm)



CVD Coated Cermet for Finishing

CCX

Excellent high speed finishing leads to greater productivity
Applicable to a wide range of cutting conditions from general to high speed machining
Maintains long tool life in soft steel, general steel and cast iron machining

1

Superior wear resistance to PVD coated cermets

2

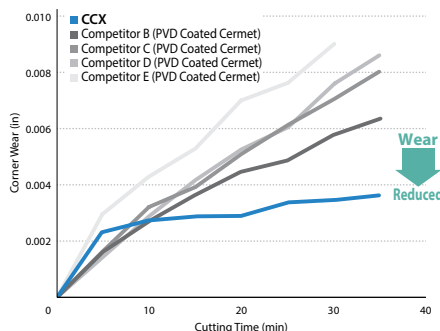
Unique cermet base material with thick CVD coating

Alloy Steel

High Speed Comparison: $V_c = 1,310$ sfm

CCX provided better tool life than competitor's CVD cermets by greatly reducing the amount of wear

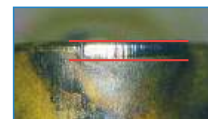
Wear Resistance Comparison (Internal evaluation)



Cutting Conditions: $V_c = 1,310$ sfm, D.O.C. = $0.012''$, $f = 0.005$ ipr, Wet
CNMG432 Type External Turning

Cutting Edge (After machining 35 min)

CCX



Competitor A (PVD coated cermet)



Competitor B (PVD coated cermet)



Competitor C (PVD coated cermet)



Competitor D (PVD coated cermet)



* Picture shows 30 min after machining due to a large amount of wear

INSERT GRADES A

TURNING INSERTS B

CBN / PCO INSERTS C

TURNING HOLDERS D

SMALL TOOLS E

BORING F

GROOVING G

CUT-OFF H

THREADING J

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MILLING M

QUICK CHANGE TOOLING N

SPARE PARTS P

TECHNICAL R

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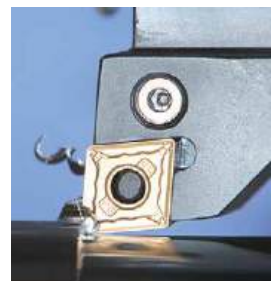
CVD Coated Carbide (Turning)

CVD Coated Carbide

Using chemical vapor deposition coating technology, CVD coated carbide grades provide stable, efficient machining at high speeds or for heavy interrupted applications.

Features

- Applicable from low to high speed machining and from finishing to roughing
- Stable machining is achieved due to the superior toughness and crack resistance
- Cutting times are reduced due to good chip control from effective chipbreakers



Features of CVD coated carbide

Classification	Grade	Color	Coated Composition	Advantages and Applications
P Steel	CA115P	Black + Gold	TiCN+Al ₂ O ₃ +TiN	• Combination of a high-hardness + high-temperature, deformation-resistant and special base material and crystallization control technology enables a thick film with both wear resistance and chipping resistance • Application: Highly versatile and wide application range, the first recommendation for steel machining
	CA125P		TiCN+Al ₂ O ₃ +TiN	• High toughness + high temperature deformation resistance and special base material combined with crystallization control technology to achieve high toughness with both wear resistance and chipping resistance • Application: High speed and high efficiency steel machining
	CA510	Gold	TiCN+Al ₂ O ₃ +TiN	• Special substrate with thermal deformation resistance along with a thick and tough coating layer providing high wear resistance • Application: High speed and high efficiency steel machining
	CA515		TiCN+Al ₂ O ₃ +TiN	• Improved wear resistance and stability due to special substrate with heat deformation resistance and hard, tough coating layer • Application: Light interrupted machining of steel
	CA025P		TiCN+Al ₂ O ₃ +TiN	• CVD coating with improved wear resistance, adopted base material, excellent chipping resistance and resistance to wear • Application: Continuous to interrupted processing of steel
	CA525		TiCN+Al ₂ O ₃ +TiN	• Stable and long tool life machining due to special substrate with heat deformation resistance and tougher coating layer • Application: Interrupted to general machining of steel
	CA530		TiCN+Al ₂ O ₃ +TiN	• Special tough substrate and tough coating layer providing high stability and wear resistance • Application: General to heavy interrupted machining (stability oriented)
	CR9025		TiCN+TiN	• Improved toughness and stability due to specialized carbide substrate with plastic deformation resistance • Application: Cut-off, grooving and multi-function machining of steel
M Stainless Steel	CA6515		TiCN+Al ₂ O ₃ +TiN	• Specialized carbide substrate for machining stainless steel, excellent wear resistance • Application: Continuous machining of stainless steel
	CA6525		TiCN+Al ₂ O ₃ +TiN	• Specialized carbide substrate for machining stainless steel, excellent notching resistance and toughness • Application: First choice for general machining of stainless steel, from finishing to roughing, continuous to interruption
K Cast Iron	CA410K	Black + Gold	TiCN+Al ₂ O ₃ +TiN	• Thick alumina layer with excellent heat and wear resistance close to that of ceramics during high-speed and dry machining • Application: 1st recommendation for continuous, high-speed machining of gray and nodular cast iron
	CA415K		TiCN+Al ₂ O ₃ +TiN	• Thick, micro TiCN layer for stable machining with high wear and chipping resistance • Application: 1st recommendation for interrupted to heavily interrupted machining of gray and nodular cast iron
	CA310	Rose Gold	TiCN+Al ₂ O ₃ +Ti base	• Grade for high-speed continuous machining and improved tool life through the deposition of a thickened Al₂O₃ coating layer • Application: For finishing to roughing of gray cast iron
	CA315		TiCN+Al ₂ O ₃ +Ti base	• Both high abrasion resistance and stability are compatible, high efficiency and long life performance are demonstrated. • Application: Compatible with a wide processing area for cast iron and gray cast iron
	CA320		TiCN+Al ₂ O ₃ +Ti base	• Improved stability with CVD layer structure with high adhesion • Application: Heavily interrupted or High-speed machining for Nodular Cast Iron. 1st Recommendation for 70-50-05 cast iron or higher
	CA4505	Blackish Gray	TiCN+Al ₂ O ₃	• Stable, longer tool life due to improved bonding strength of coating layers and special treatment of the surface of the top coating layer • Application: For gray cast iron and nodular cast iron at high speed in continuous to light interrupted machining
	CA4515		TiCN+Al ₂ O ₃	• Stable, longer tool life due to improved bonding strength of coating layers and special treatment of the surface of the top coating layer • Application: First choice for gray cast iron and nodular cast iron in light to heavy interrupted machining

Next Generation CVD Coated Carbide Grade for Steel

CA115P / CA125P

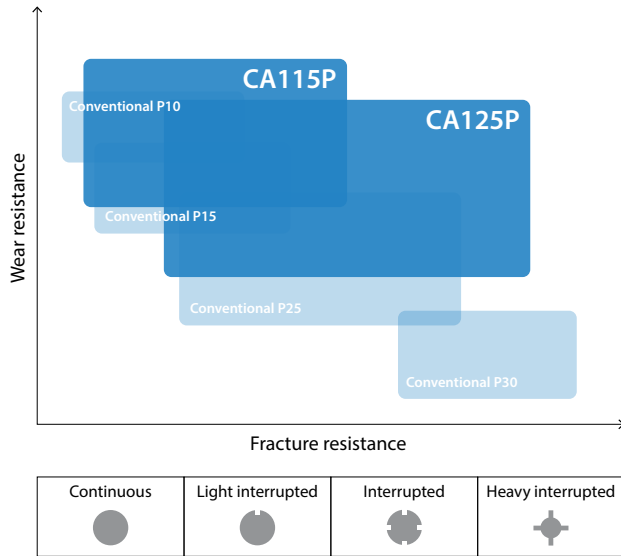
The new standard for steel machining

Longer tool life in a wide range of machining environments

Expanded lineup of chipbreakers for steel machining in various applications

1 Extended tool life in a wide variety of applications

Application Map



CA115P

Continuous-light interrupted machining of steel

For high-efficiency machining with wear and chipping resistance

CA125P

Continuous-heavy interrupted steel machining

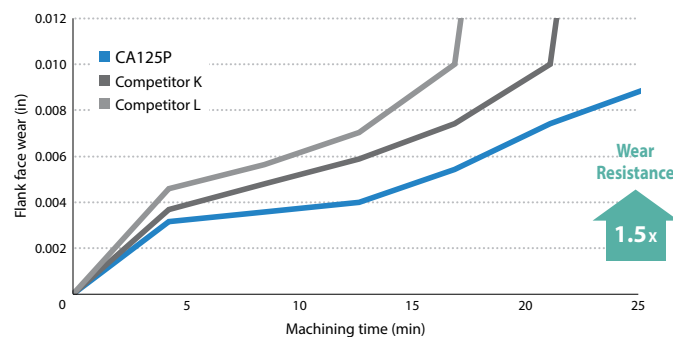
First recommendation for steel machining
High versatility

2 Newly developed proprietary coating and carbide substrate with superior wear and fracture resistance

Optimized coating properties on rake and flank faces provide wear resistance and fracture resistance

Ultra-uniform alumina film reduces crater wear

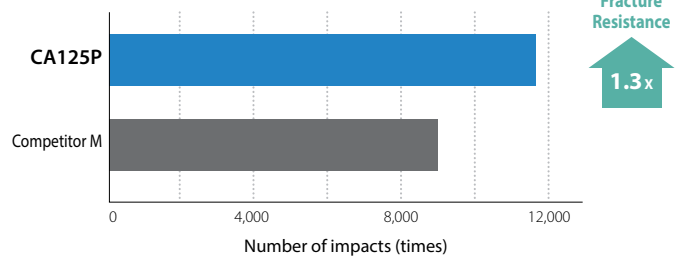
Wear resistance comparison (Internal evaluation)



Cutting Conditions : Vc = 980 sfm, D.O.C. = 0.059", f = 0.012 ipr, Wet Workpiece : 4137

Fracture resistance comparison (Internal evaluation)

Interrupted machining n = 3 mean



Cutting Conditions : Vc = 980 sfm, D.O.C. = 0.059", f = 0.014 ipr, Wet Workpiece : 1045 (4 grooves)

3 A large variety of chipbreakers cover a wide range of machining applications and conditions

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

PVD Coated Carbide (Turning)

PVD Coated Carbide (MEGACOAT / MEGACOAT NANO)

Using a physical vapor deposition coating technology, generally because of the low processing temperature of PVD compared with CVD, PVD coated carbide features less deterioration and improved bending strength. PVD coated carbide grades are coated on a very tough carbide substrate and suitable for turning.

PVD Coated Super Micro-Grain Carbide

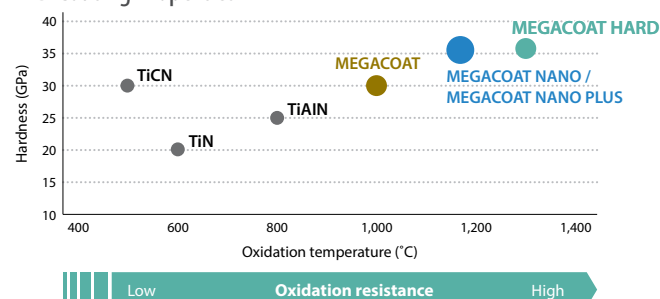
- Smooth fine surface of PVD coated carbide provides good surface finish and high precision machining
- Stable machining with excellent toughness

Features of PVD coated carbide



Classification	Grade	Color	Coated Composition	Advantages and Applications
P Steel	PR915 Super Micro-Grain	Bluish Violet	TiAlN	• Application: Stable and reliable high precision machining of steel
	PR930 Super Micro-Grain	Reddish Gray	TiCN	• Application: Low machining speed, precise machining with sharp edge
	PR1025	Reddish Gray	TiCN	• Application: General machining of steel and stainless steel, stable and longer tool life
	PR1115	Purple Red	TiAlN	• Superior oxidation resistance with well balanced wear resistance and toughness • Application: Machining of steel and stainless steel, for grooving, cut-off and threading
	PR1215	Blackish Red	MEGACOAT	• Superior wear and oxidation-resistant MEGACOAT on micro-grain carbide substrate • Application: Superior adhesion resistance and longer tool life for steel and stainless steel machining
	PR1625	Blackish Red	MEGACOAT NANO	• Adopted special nano multi-layer coating "MEGACOAT NANO" excellent in wear resistance and lubricity • Stable processing with steel and stainless steel grooving - Long tool life
	PR1705	Silver	MEGACOAT NANO PLUS	• High-hardness ultrafine particle carbide substrates with special multilayer nano coating MEGACOAT NANO PLUS offer excellent wear resistance and high precision machining • Application: For free-cutting steel turning. Long tool life with excellent wear resistance and high-precision machining
	PR1725	Silver	MEGACOAT NANO PLUS	• New coating technology [MEGACOAT NANO PLUS] with superior wear resistance and adhesion resistance • Application: General grade for steel and stainless steel machining provides stability and longer tool life
	PR2025	Blackish Red	MEGACOAT NANO EX	• Long tool life and high stability with the combination of high content aluminum nano coating layer for excellent wear and fracture resistance • Application: Grooving and cut-off operations in carbon steels and alloy steels
M Stainless Steel	PR1225	Blackish Red	MEGACOAT	• Superior wear and oxidation-resistant MEGACOAT on micro-grain carbide substrate • Application: Light interrupted to interrupted machining of stainless steel
	PR1515	Blackish Red	MEGACOAT NANO	• Improved wear resistance and stability by using fine granite carbide base metal and special nano multi-layer coating "MEGACOAT NANO" • Application: For thread cutting of stainless steel
	PR1535			• Nano thin multi-layer coating (MEGACOAT NANO) improved wear resistance and stability • Application: Medium to roughing of stainless steel and heat-resistant alloys, cut-off of stainless steel
	PR2035	Blackish Red	MEGACOAT NANO EX	• Long tool life and high stability with the combination of high content aluminum nano coating layer with high fracture resistance • Application: Grooving and cut-off operations in stainless steel (
K Cast Iron	PR905	Bluish Violet	TiAlN	• Smooth fine surface PVD coated hard carbide with plastic deformation resistance • Application: Suitable for machining gray and nodular cast iron
	PR2015	Blackish Red	MEGACOAT NANO EX	• Long tool life and high stability with the combination of high content aluminum nano coating layer for high wear resistance • Application: Grooving and cut-off operations in gray and nodular cast iron
S Heat-Resistant Alloys	PR005S	Dark Gray	MEGACOAT HARD	• Superior high temperature properties of special carbide substrate and excellent heat-resistance of MEGACOAT HARD enables high wear resistance • Application: Finish processing of heat-resistant alloys, also for high speed machining
	PR115S	Dark Gray	MEGACOAT TOUGH	• Special carbide substrate with excellent heat resistance and "MEGACOAT TOUGH" coating technology with excellent adhesion enables high wear resistance • Application: Continuous, finishing of heat-resistant alloys
	PR120S			• Special carbide substrate with excellent heat resistance and stability "MEGACOAT TOUGH" coating with excellent adhesion for improved wear resistance • Application: Continuous finishing of stainless steel, continuous to light interrupted machining of heat-resistant alloys

PVD Coating Properties



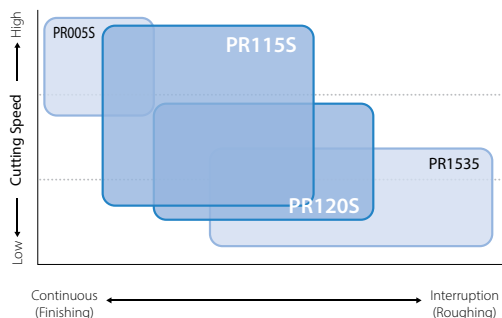
PVD Coating for Heat-Resistant Alloy

PR115S/PR120S

Unique carbide substrate with excellent heat-resistant properties and new coating technology "MEGACOAT TOUGH" provides longer tool life for heat-resistant alloy machining

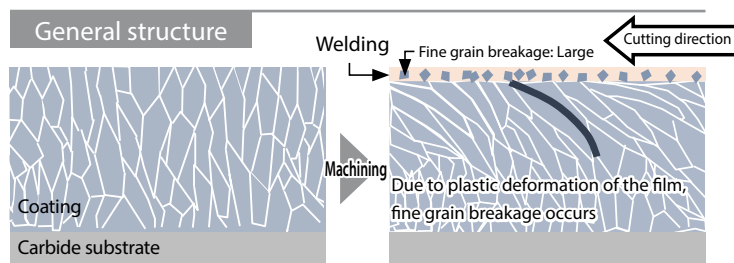
Low cutting force and stable machining with specialized chipbreakers (SQ/SG/SX)

S Heat-Resistant Alloys Application map



1. Wear Resistant Layer

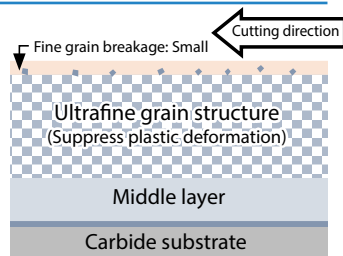
Thick-film PVD suppresses abrasive wear
Reduces notch damage with ultra-fine grain structure
Damage to the coating during machining of heat-resistant alloys (Image)



PR115S/PR120S

Due to ultrafine structure of the membrane, controls fine grain breakage

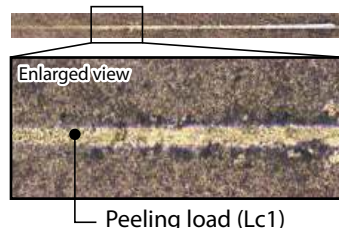
Due to grain breakage and dropping of welding, controls wear and tear



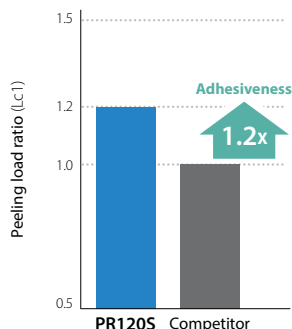
3. Special Adhesive Layer

Adhesion layer at carbide substrate/main layer interface, high affinity and improved adhesion

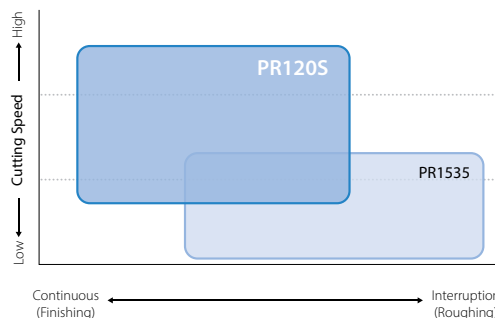
Scratch test results



Peeling load (Lc1) (Internal evaluation)



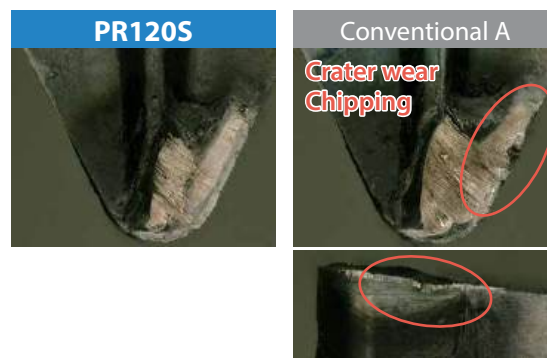
M Stainless Steel Application map



2. Middle Layer

TiAlN layer provides superior oxidation resistance
Controls crater wear

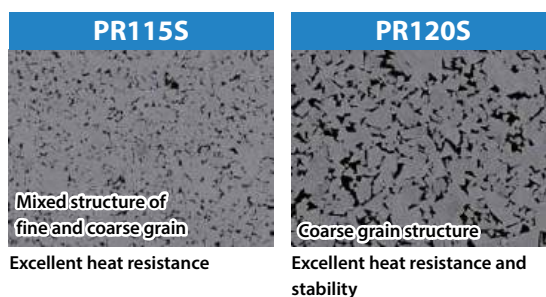
Crater wear comparison (Internal evaluation) After machining for 50 min



Cutting conditions : Vc = 490 sfm, D.O.C. = 0.039", f = 0.003 ipt, Wet 316L DCGT3251 Type

4. Unique Carbide Substrate

Carbide substrate for heat-resistant alloy machining
Excellent thermal properties with high thermal conductivity



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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PVD / CVD Coated Carbide (Milling / Drilling)

PVD Coated Carbide (MEGACOAT / MEGACOAT NANO)

KYOCERA's PVD coated carbides for milling and drilling utilize very tough carbide substrates. The low processing temperature, compared with CVD, leads to improved bending strength, less deterioration of the coating and superior tool life with stable machining.

CVD Coated Carbide

CVD coated carbide grades provide stable, efficient machining at high speeds or for heavy interrupted applications. Ti-base (TiN, TiCN) coating with superior hardness and wear resistance or ceramic-base (Al_2O_3) coating with high-thermal stability is applied on a tough carbide substrate. Superior fracture resistance and wear resistance.



Features of PVD / CVD Coated Carbide for Milling and Drilling

Classification	Grade	Color	Coated Composition	Advantages and Applications
P Steel	PR1230	Blackish Red	MEGACOAT	- Superior wear and oxidation-resistant MEGACOAT on a special tough carbide substrate - Application: Stable and high feed milling and drilling of steel
	PR1525	Blackish Red	MEGACOAT NANO	- MEGACOAT NANO Nano thin multi-layer coating performs superior wear resistance and high oxidation resistance - Application: Stable and longer tool life for milling of steel and stainless steel
	PR1825	Blackish Gray	MEGACOAT NANO EX	- Special nano layer + multi-layer lamination technology for excellent abrasion resistant, oxidation resistant, and fracture resistance - Application: Next-generation wear resistant grade for steel milling
	CA520D	Gold	TiCN+ Al_2O_3 +TiN (CVD)	- Improved abrasion resistance and fracture resistance by improving high toughness - Combination of high toughness substrate, toughened coating and enhanced interface allow both wear and fracture resistance - Application: Drilling of steel - first recommended grade (for high speed machining)
M Stainless Steel	PR1225	Blackish Red	MEGACOAT	- Superior wear and oxidation-resistant MEGACOAT on micro-grain carbide substrate - Application: General machining and high feed milling and drilling of steel and stainless steel
	PR1835	Blackish Gray	MEGACOAT NANO EX	- Special nano layer + multi-layer lamination technology for excellent abrasion resistant, oxidation resistant, and fracture resistance - Application: Next-generation grade for stainless steel and stable steel milling
K Cast Iron	PR1210	Blackish Red	MEGACOAT	- Superior wear and oxidation-resistant MEGACOAT coated on special carbide substrate - Application: Highly efficient stable milling and drilling of gray and nodular cast iron
	PR1510	Blackish Red	MEGACOAT NANO	- MEGACOAT NANO Nano thin multi-layer coating performs superior wear resistance and high oxidation resistance - Application: Highly fracture resistance and wear resistance for gray and nodular cast iron
	PR1810	Blackish Gray	MEGACOAT NANO EX	- Special nano layer + multi-layer lamination technology for excellent abrasion resistant, oxidation resistant, and fracture resistance - Application: Next-generation grade for cast iron milling
	CA415D	Gold	TiCN+ Al_2O_3 +TiN	- Special carbide substrate for cast iron, toughened coating and enhanced interface allow both wear and fracture resistance - Application: Drilling of cast iron - 1st recommended material for high speed processing
	CA420M		TiCN+ Al_2O_3 +TiN (CVD)	- Kyocera's unique crystal control technology and advanced layer adhesion CVD coating with superior wear resistance and toughness - Application: Milling of gray and nodular cast iron
S Heat-Resistant Alloys Titanium Alloys	PR1535	Blackish Red	MEGACOAT NANO	- Nano thin multi-layer coating (MEGACOAT NANO) improved wear resistance and stability - Application: For milling of Ni-base heat-resistant alloys, titanium alloys and precipitation hardened stainless steel
S Heat-Resistant Alloys	CA6535	Gold	TiCN+ Al_2O_3 +TiN (CVD)	- High heat-resistance and wear resistance with CVD coating - Application: For milling of Ni-base heat-resistant alloys and martensitic stainless steel
H Hard Material	PR015S	Blackish Gray	MEGACOAT HARD	- Substrate with improved thermal properties reduces sudden fracture and decrease edge wear with MEGACOAT HARD coating technology to deliver high hardness and superior wear resistance - Excellent wear and chipping resistance maintains stable machining for high hard materials - Application: Difficult-to-cut materials and high hardness (less than 60HRC) machining

Next-Generation PVD Coating for Milling

PR18 Series

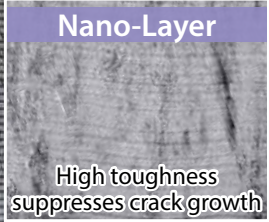
Double lamination technology with special nano layer MEGACOAT NANO EX provides longer tool life
Features 3 grades: PR1825/PR1835/PR1810 Available for various machining environments



Double Lamination Technology Maintains Longer Tool Life

Multi-layer structure with two unique nano layers
Superior abrasion resistance and fracture resistance

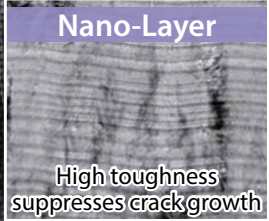
Special Nano Layer x Multi-layer Lamination



Nano-Layer

AlCr-based coating
with excellent abrasion resistance

High toughness
suppresses crack growth



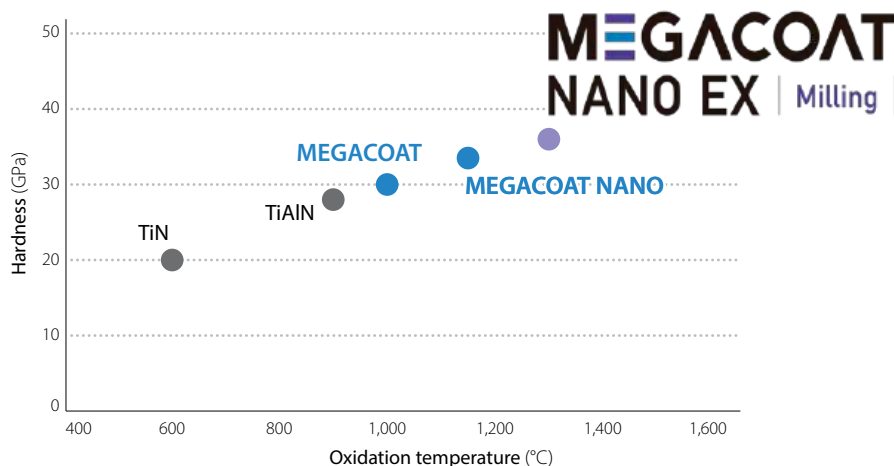
Nano-Layer

AlTi-based coating
with excellent heat resistance

High toughness
suppresses crack growth

Multi-layering of high-performance nano layers
Increases toughness with the suppression of crack growth and optimization of internal stress

Coating Characteristics (Internal Evaluation)



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Carbide

Carbide

Uncoated tungsten carbide grade is used in a variety of applications due to its superior mechanical properties.

Features

- KW10: Suitable for machining cast iron with high hardness and toughness
- GW05, GW15, GW25: Suitable for machining cast iron, non-ferrous metals and non-metals
- SW series: Suitable for machining of titanium and titanium alloy



Features of carbide

Classification	Grade	Color	Main Component	Advantages and Applications
	KW10	Gray	WC+Co	• ISO identification symbol K carbide (K10 class) • Application: Machining cast iron, non-ferrous materials and non-metals
	GW05			• ISO identification symbol K carbide (K05 class) • Application: Excellent wear resistance for machining of cast iron and non-ferrous metal
	GW15			• ISO identification symbol K carbide (K10 class), tough micro-grain carbide • Application: Machining cast iron, non-ferrous materials and non-metals
	GW25			• ISO identification symbol K carbide (K30 class) • Application: Milling operations of aluminum
	SW05			• ISO identification symbol K carbide (K05 class) • Application: Titanium alloys for continuous machining and finishing
	SW10 (Made to Order)			• ISO identification symbol K carbide (K10 class) • Application: Titanium alloys for continuous and light interrupted machining
	SW25 (Made to Order)			• ISO identification symbol K carbide (K25 class) • Application: Titanium alloys for interrupted and light interrupted machining

DLC Coated Carbide

DLC Coated Carbide

DLC (Diamond-Like Carbon) Coated carbide is coated on carbide substrate with a thin layer of amorphous carbon.

Features

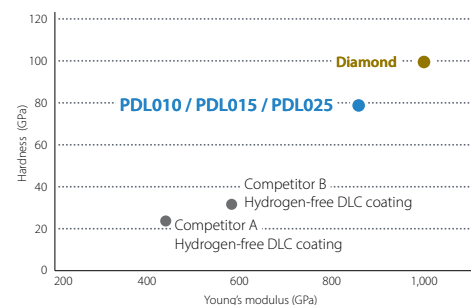
- High Hardness with Kyocera's proprietary hydrogen-free DLC coating
- Excellent surface finish achieved through anti-adhesion performance



Features of DLC coated carbide

Classification	Grade	Color	Main Component	Advantages and Applications
	PDL010	Iridescent	C	• DLC coating of original technology has high hardness, excellent adhesion resistance and film peeling resistance • Application: Excellent surface finish and long tool life machining of aluminum alloys
	PDL015			• DLC coating of original technology has high hardness, excellent adhesion resistance and film peeling resistance • Application: Grooving of aluminum alloy
	PDL025			• DLC coating of original technology has high hardness, excellent adhesion resistance and film peeling resistance • Application: General purpose long tool life and stable machining of aluminum alloys

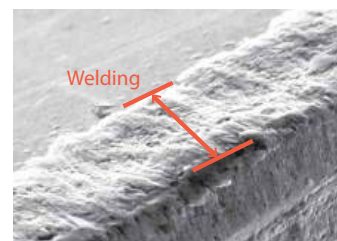
Coating Properties



Welding Resistance Comparison



PDL025



Competitor A

Cutting Conditions: Vc = 2,630 sfm, fz = 0.004 ipt, D.O.C. × ae = 0.118" × 0.197", Dry
Cutter Dia. Ø1.000" Workpiece: 5052 Cutting Length: 187ft

Ceramic

Ceramic

Ceramics inserts are capable of machining at high speeds. Recommended for hard turning of hardened steel or rough to finish turning of cast iron and heat-resistant alloys.

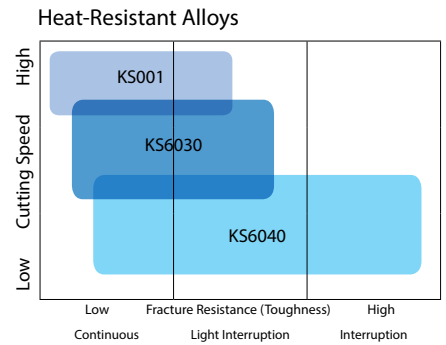
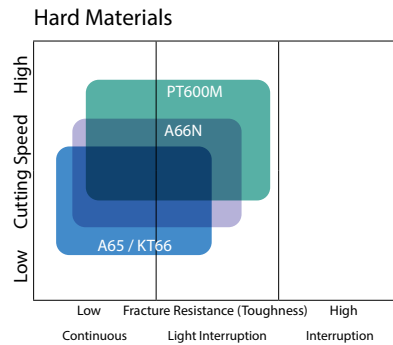
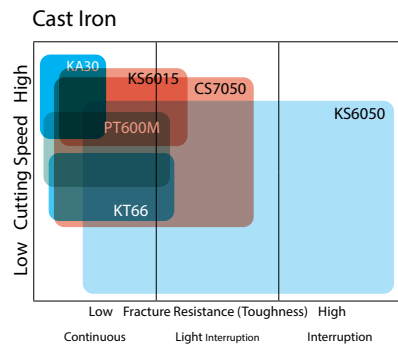
Features

- Excellent wear resistance enables high speeds machining of cast iron
- Ceramic maintains good surface finishes due to the low affinity to workpiece materials
- Silicon nitride ceramic can machine cast iron with coolant due to its superior thermal shock resistance

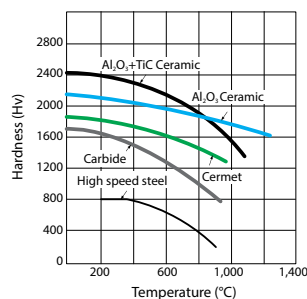
Features of Ceramic

Classification	Grade	Color	Main Component (Coating Composition)	Coating Layer	Substrate Hardness (GPa)	Fracture Toughness (MPa·m ^{1/2})	Transverse Strength (MPa)	Advantages and Applications
K Cast Iron	KA30	White	Al ₂ O ₃	-	17.5	4.0	750	- Aluminum oxide ceramic (Al₂O₃) - Application: Finishing of cast iron at high cutting speeds without coolant
	KS6015	Gray	Si ₃ N ₄		15.2	7.8	1,000	- Silicon nitride ceramic with superior wear resistance reduces heat at the cutting edge - Application : Roughing and high speed machining of cast iron (with or without coolant)
	KS6050	Gray	Si ₃ N ₄		15.6	8.0	1,200	- Silicon nitride ceramic (Si₃N₄) - Application: Roughing and interrupted machining of cast iron. Focusing on stability (with or without coolant)
	CS7050	Grayish White	Si ₃ N ₄ (Special Al ₂ O ₃ COAT)	Thin Coating				- Silicon nitride ceramic (Si₃N₄) + CVD Coating (Special Al₂O₃ COAT) - Application: Finishing and continuous machining, and high speed and high efficient machining (with or without coolant)
K Cast Iron H Hard Material	KT66	Black	Al ₂ O ₃ +TiC	-	20.1	4.1	980	- Aluminum oxide and titanium carbide ceramic (Al₂O₃+TiC) - Application: Semi-roughing to finishing of cast iron, hard materials and hardened roll materials
	A65	Black	Al ₂ O ₃ +TiC					- Aluminum oxide and titanium carbide ceramic (Al₂O₃+TiC) - Application: Semi-roughing to finishing of cast iron and hard materials
	A66N	Gold	Al ₂ O ₃ +TiC (TiN COAT)	Thin Coating				- TiN PVD coated aluminum oxide and titanium carbide ceramic (TiN coated Al₂O₃+TiN) - Application: Semi-roughing to finishing of hard materials
	PT600M	Blackish Red	Al ₂ O ₃ +TiC (MEGACOAT)					- Heat-resistant MEGACOAT on aluminum oxide and titanium carbide ceramic (MEGACOAT Al₂O₃+TiC) - Application: Semi-roughing to finishing of cast iron, hard materials and hardened roll materials
S Heat-Resistant Alloys	KS001	Gray	Al ₂ O ₃ +SiC	-	20.6	7.0	-	- Silicon-carbide ceramic inserts with ultra-strong whiskers for excellent wear and fracture resistance - Application: High-speed machining of HRSA, roughing-finishing with continuous to light interruption
	KS6030	Gray	SiAlON		15.2	6.0	600	- SiAlON Ceramic with superior wear resistance and high resistance against boundary wear - Application: Finishing to medium machining of heat-resistant alloys
	KS6040	Brown			16.7	7.0	900	- High stability SiAlON ceramic with wear resistance and fracture resistance - Application: Roughing of heat-resistant alloys

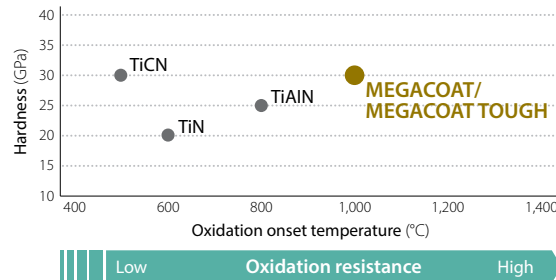
Application Maps



High-Temperature Hardness



PVD Coating Properties



CBN (Cubic Boron Nitride)

CBN

CBN (Cubic Boron Nitride) is second only to diamond in hardness, and is a synthetically produced material with high thermal conductivity.

Features

- Superior wear resistance when machining hard materials
- Suitable for high speed machining of hard materials, sintered steel and cast iron
- High thermal conductivity provides stable machining



Features of CBN

Classification	Grade	Color	Ave. Grain Size (μm)	Substrate Hardness (GPa)	Transverse Strength (MPa)	Advantages and Applications
H Hard Material	KBN510	Black	2	28	1,000	• Excellent wear resistance and crack resistance, uncoated CBN • Application: Finishing and continuous machining of hardened die steel
	KBN525		1 and under	25	1,250	• Application: General purpose for hardened steel
	KBN05M (MEGACOAT)	Blackish Red	0.5-1.5	27	1,000	• Heat-resistant MEGACOAT on highly heat-resistant CBN substrate • Application: High speed finishing of hardened steel
	KBN10M (MEGACOAT)		2	28		• Application: High speed finishing of hardened die steel
	KBN25M (MEGACOAT)		1 and under	25		• Heat-resistant MEGACOAT on micro-grain CBN with heat-resistant binder phase • Application: Stable machining of hardened steel at high cutting speeds
	KBN010 (MEGACOAT TOUGH)	Gray	0.5-1.5	27	1,000	• Mixed structure of micro grain CBN and coarse grain CBN for excellent heat resistance and surface quality • Application: Continuous finishing of hardened steel
	KBN015 (MEGACOAT TOUGH)	Grayish Red	3	27-29	1,150	• High toughness CBN maintains heat resistance and fracture resistance • Application: Continuous to interrupted machining of hardened steel
	KBN020 (MEGACOAT TOUGH)	Gray	3	31-32	1,300	• High content CBN with high purity TiN binder and high fracture resistance • Application: Continuous to heavy interrupted machining of hardened steel
Sintered Steel	KBN570	Black	2-4	34	1,350	• High content CBN • Application: Processing of Sintered steel (burr suppression)
	KBN70M (MEGACOAT)	Blackish Red				• Heat-resistant MEGACOAT on CBN rich substrate • Application: Stable machining of sintered steel (ferrous Sintered alloys)
K Cast Iron	KBN475	Black	2	39	1,400	• Excellent wear resistance due to high CBN content and special binder • Application: High speed machining of gray cast iron
	KBN60M (MEGACOAT)	Blackish Red	0.5-6	33	1,250	• Heat-resistant MEGACOAT on CBN rich substrate with hard binder phase • Application: High speed finishing of gray cast iron
	KBN900 (TiN COAT)	Gold	9	31	630	• TiN coated solid CBN • Application: Heavy duty, interrupted machining and finishing of hardened steel, hardened roll steel and cast iron

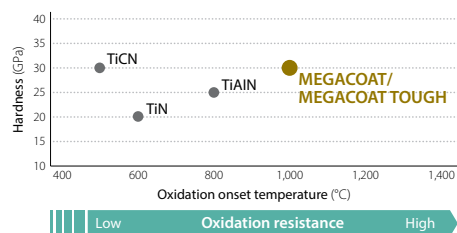
For KBN35M, see page A18.

MEGACOAT TOUGH CBN

An adhesion layer is laminated between the high wear resistance layer and the CBN. This reduces layer peeling to achieve long tool life and stable machining.

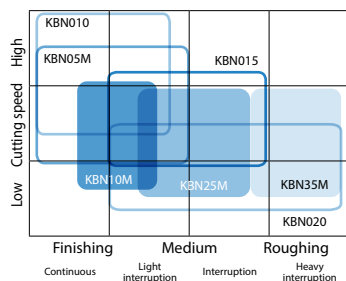


PVD Coating Properties

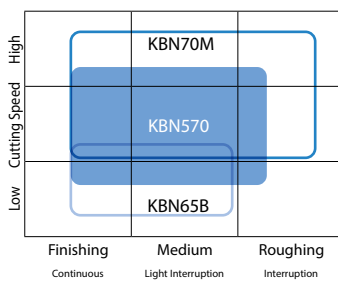


Application Map

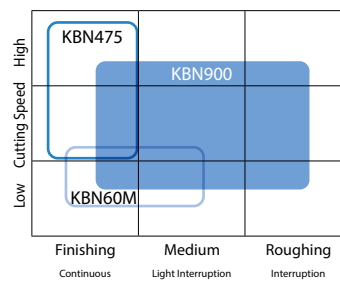
Hard Materials



Sintered Steel



Cast Iron



PCD (Polycrystalline Diamond)

PCD

PCD is a synthetic diamond sintered under high temperatures and pressures.

Features

- Applicable for milling of non-ferrous metals and non-metals
- Reduced edge build-up allows for high precision machining
- Diversified applications for machining of non-ferrous metals and non-metals
- Finished surface will be rainbow colored (A mirror-like finished surface will not be obtained)

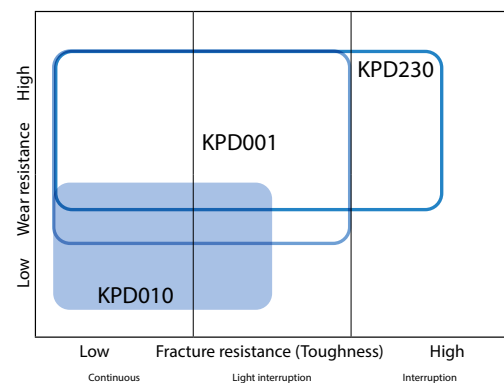
Features of PCD

Classification	Grade	Ave. Grain Size (μm)	Advantages and Applications
N Non-Ferrous Metals	KPD001	0.5	• Super Micro-Grain PCD features cutting edge strength, wear resistance, fracture resistance, good edge-sharpening performance and longer, stable tool life • Application: High speed machining of aluminum alloys, brass, non-ferrous metals and non-metals including plastics, and carbide.
	KPD010	10	• Good wear resistance and toughness, good grindability • Application: High speed machining of aluminum alloys, brass, non-ferrous metals and non-metals including plastics, and carbide.
	KPD230	2-30	• Superior abrasive wear resistance and toughness due to high density PCD with mixed rough and fine grains • Application: High speed machining of aluminum alloys, brass, non-ferrous metals and non-metals including plastics.
	KPD250 (Made to Order)	25	• Superior wear resistance due to rough grain PCD (25μm) • Application: High speed machining of high silicon aluminum alloy and machining of carbide

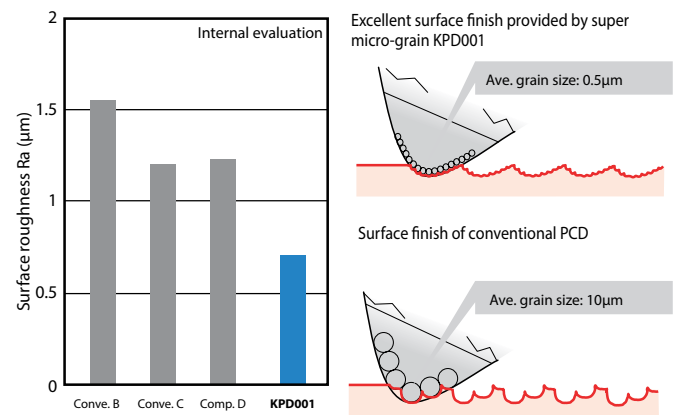
Applications

Workpiece Material		Non-Ferrous Metals				Difficult-to-Cut Materials			
Cutting Range		Finishing ← → Roughing				Finishing ← → Roughing			
Classification		N01	N10	N20	N30	S01	S10	S20	S30
Turning Milling	PCD	KPD001				KPD001			
		KPD010				KPD010			
		KPD230							
		KPD250							

Application Map



Surface finish roughness comparison of aluminum machining



(Grain size affects surface finish quality)

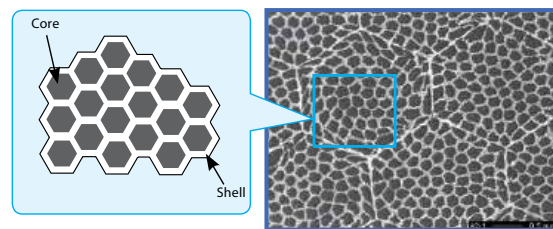
Honeycomb Structure CBN

Honeycomb Structure CBN

Honeycomb structure is the high structural controlled composite material consisting of a hard and superior wear-resistant core (gray portion) and a tough shell (white portion).

Features

- Honeycomb structure CBN combine a hard, wear-resistant core and a tough shell into one insert.
- The tough shell stops cracks that form in the core.
- CBN is suitable for interrupted machining of exceptionally hard material

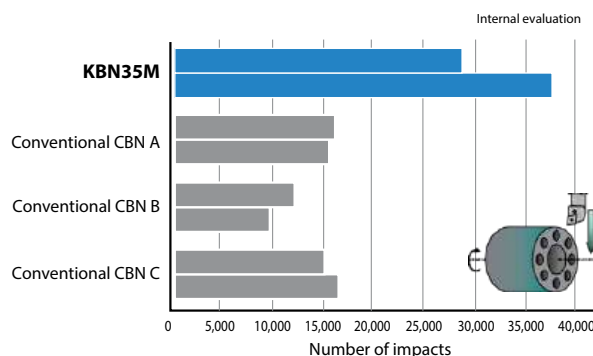
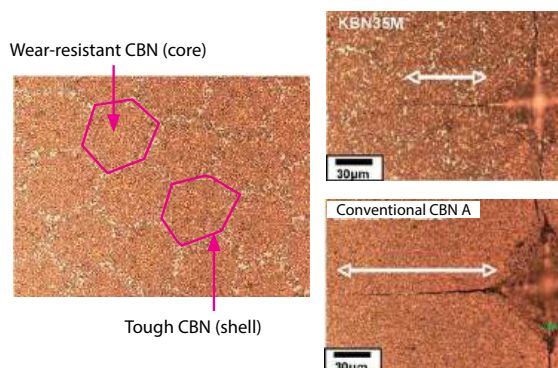


Features of Honeycomb Structure CBN

Classification	Grade	Color	Main Component	Advantages and Applications
H Hard Material	KBN35M (MEGACOAT)	Blackish Red	CBN	• Honeycomb structure CBN composite material consisting of wear resistant CBN (core) and tough CBN (shell) with heat-resistant MEGACOAT • Application: Stable machining of hardened steel with interrupted machining

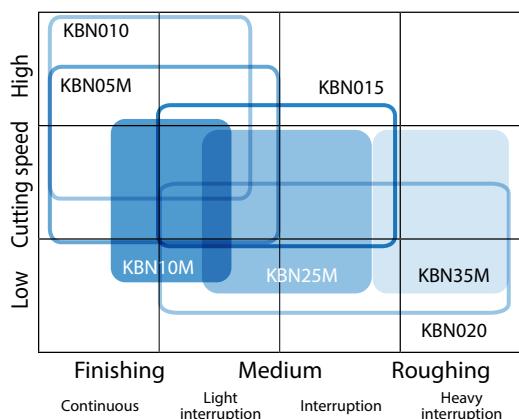
KBN35M (MEGACOAT honeycomb structure CBN)

Tough CBN (shell) prevents crack growth



Application Map

Hard Materials



Insert Material Selection Table

Highlighted items are recommended choices.

Applications	Cutting Range	Steel	Stainless Steel	Gray Cast Iron	Nodular Cast Iron	Non-ferrous Metals	Heat-Resistant Alloys	Titanium Alloys	Hard Materials	Sintered Steel
Turning	Finishing	TN610 CCX TN620 TN60 PV710 PV720 PV730 CA510 CA115P CA125P	TN610 TN620 TN60 PV720 CA6515 PR1535	KBN475 KBN60M KA30 PV700S CA550S CA410K CA415K	TN60 PV700S CA550S CA410K CA415K	KPD001 KPD010 PDL010 PDL025 KW10	KS6040 KW10 CA6515 CA6525 PR005S PR115S PR120S PR153S	KW10 KPD001 KPD010 SW05 SW10 SW25	KT66 A66N PT600M KBN010 KBN05M KBN015 KBN020 KBN25M KBN35M KBN900	TN610 TN60 KBN570 KBN70M
	Roughing	CA530								
Small Tools	Finishing	TN610 TN620 PV710 PV720 PR170S PR172S PR930 PR102S PR153S	TN610 TN620 PV720 PR172S PR102S PR122S PR153S	CA410K CA415K KW10	CA410K CA415K KW10	KPD001 KPD010 PDL010 PDL025 GW05 KW10	CA6515 PR112S PR122S PR153S	KPD001 KPD010 KW10 PR153S	KBN010 KBN05M KBN015 KBN020 KBN25M	TN610 TN60 KBN570 KBN70M
	Roughing									
Boring	Large	TN610 TN620 PV710 PV720 PV730 CA115P CA125P CA530 PR170S PR172S PR102S PR930 PR153S	TN60 CA6515 CA6525 PR172S PR102S PR122S PR930 PR153S	KBN475 KBN60M PV700S CA410K CA415K KW10	PV700S CA410K CA415K KW10	KPD001 KPD010 PDL010 PDL025 GW05 KW10	CA6515 CA6525 PR112S PR122S PR153S	KPD001 KPD010 KW10 SW05 PR153S	PT600M KBN010 KBN05M KBN015 KBN020 KBN25M	TN610 TN60 KBN570 KBN70M
	Small									
Cut-Off	Large	CR902S PR930 PR915 PR121S PR122S PR153S	CR902S PR930 PR915 PR121S PR122S PR153S	KW10 PR121S	KW10 PR121S	PDL02S KW10	KW10 PR122S PR660	KW10	-	-
	Small									
Cut-Off	Depends on the workpiece material	PR102S PR202S PR153S	PR102S PR153S PR203S	KW10 PR201S	KW10 PR201S	PDL02S KW10	KW10 PR102S PR122S	KW10	-	-
Grooving	Glossy Finish	TC40 TN620 TN90 PV7040 PR930 PR111S PR121S PR122S PR202S	TC40 TN620 TN90 PV7040 PR930 PR111S PR121S PR122S PR202S	KW10 GW15 PR90S PR201S PR121S	KW10 GW15 PR90S PR201S PR121S	KPD001 PDL02S KW10 GW15	PR91S KW10 PR121S PR122S PR153S	KPD001 KW10 KW10 PR153S	KBN510 KBN52S PT600M	TC40 KBN570
	Stable									
Threading	Glossy Finish	TC60 PR121S PR111S PR930	TC60 PR151S PR111S PR930	KW10 GW15	KW10 GW15	KW10 GW15	KW10 GW15	KW10 GW15	-	PR151S PR111S
	Stable									
Drilling	Wear Resistance	CA520D PR122S PR1230 PR153S	PR122S PR153S	CA415D PR1210 KW10	PR1210 KW10	KW10 GW15	PR122S KW10 GW15	KW10	-	-
	Toughness									
Milling	Finishing	TN100M TN620M PV60M PR182S PR183S	CA653S PR152S PR183S PR153S	PR1810 PR1510 KW10	PR1810 PR1510 KW10	KPD230 KPD001 KPD010 PDL02S KW10 GW2S	CA653S PR122S PR153S	KPD230 KPD001 KW10 PR90S PR1210 PR153S	PR015S	-
	Roughing									

Grade Properties

Cermet

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness (MPa·m ^{1/2})	Transverse Strength (MPa)		
					(HV)	(GPa)				
TN610	Gray	TiCN	-	6.6	1,750	17.2	6.0	2,100		
TN620				6.9	1,550	15.2	9.0	2,500		
TN620M				6.9	1,550	15.2	9.0	2,500		
TN6020				6.4	1,500	14.7	10.0	2,500		
TN60		TiCN+NbC		6.6	1,600	15.7	9.0	1,760		
TN90				6.4	1,450	14.2	10.0	1,960		
TN100M				6.7	1,520	14.9	10.5	1,860		
TC40				TiC+TiN		6.0	1,650	16.2	9.0	1,570
TC60				NbC		8.1	1,500	14.7	10.5	1,670

CVD Coated Cermet

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness (MPa·m ^{1/2})	Transverse Strength (MPa)
					(HV)	(GPa)		
CCX	Gold	TiCN+Al ₂ O ₃ +TiN	Thin Coating	7.0	1,500	14.7	10.0	2,600

PVD Coated Cermet

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness (MPa·m ^{1/2})	Transverse Strength (MPa)
					(HV)	(GPa)		
PV710	Gold	MEGACOAT NANO	Thin Coating	6.6	1,750	17.2	6.0	2,100
PV720				6.9	1,550	15.2	9.0	2,500
PV730				7.0	1,550	14.2	10.0	2,500
PV7005	Blackish Red	MEGACOAT		6.0	1,650	16.2	8.5	1,470
PV7040				6.0	1,650	16.2	9.0	1,570
PV60M	Gold	MEGACOAT NANO		6.6	1,600	15.7	9.0	1,760

CVD Coated Carbide

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness (MPa·m ^{1/2})	Transverse Strength (MPa)
					(HV)	(GPa)		
CA025P	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	14.2	1,400	13.7	13.5	2,800
CA115P	Gold + Black	TiCN+Al ₂ O ₃ +TiN		13.9	1,440	14.1	13.0	2,250
CA125P				13.8	1,400	13.7	14.5	2,300
CA310	Rose Gold	TiCN+Al ₂ O ₃ +Ti Base		15	1,570	15.4	12.0	2,780
CA315				15	1,570	15.4	12.0	2,780
CA320				15	1,570	15.4	12.0	2,780
CA410K	Gold + Black	TiCN+Al ₂ O ₃ +TiN		15	1,570	15.4	12.0	2,780
CA415K				15	1,570	15.4	12.0	2,780
CA415D	Gold	TiCN+Al ₂ O ₃ +TiN		15	1,570	15.4	12.0	2,780
CA420M				14.5	1,600	15.8	13.0	3,400
CA4505	Blackish Gray	TiCN+Al ₂ O ₃		15.0	1,790	17.5	9.5	2,350
CA4515				15.0	1,570	15.4	12.0	2,780
CA510	Gold	TiCN+Al ₂ O ₃ +TiN		14.5	1,470	14.4	11.5	2,500
CA515				14.4	1,440	14.1	12.5	2,650
CA520D				14.7	1,370	13.4	16.0	3,100
CA525				14.2	1,360	13.3	13.5	2,750
CA530				13.9	1,340	13.1	14.5	2,850
CA6515			Thin Coating	14.7	1,530	15.0	12.0	2,780
CA6525				14.7	1,370	13.4	16.0	3,100
CA6535				14.3	1,320	12.9	16.0	3,700
CR9025				TiCN+TiN	Thick Coating	14.5	1,400	13.7

INSERT GRADES	A
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CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
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GROOVING	G
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THREADING	J
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MILLING	M
QUICK CHANGE TOOLING	N
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Grade Properties

PVD Coated Carbide

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness (MPa·m ^{1/2})	Transverse Strength (MPa)
					(HV)	(GPa)		
PR005S	Gray Black	MEGACOAT HARD	Thin Coating	15.0	1,750	17.2	8.0	2,000
PR015S				14.9	1,680	16.5	9.0	2,400
PR115S		MEGACOAT TOUGH		14.9	1,680	16.5	9.0	2,400
PR120S				14.6	1,500	14.7	14.0	2,700
PR90S	Bluish violet	TiAlN		14.8	1,720	16.8	9.0	2,450
PR91S				14.1	1,700	16.7	11.0	4,140
PR930	Reddish Gray	TiCN		14.1	1,700	16.7	11.0	4,140
PR102S				14.5	1,600	15.8	13.0	3,400
PR111S	Purple Red	TiAlN		14.7	1,700	16.7	11.0	3,000
PR1210	Blackish Red	MEGACOAT		14.8	1,720	16.8	9.0	2,450
PR121S				14.7	1,700	16.7	11.0	3,000
PR122S				14.5	1,600	15.8	13.0	3,400
PR1230				13.7	1,450	14.2	13.0	2,250
PR1510	Redish Gray	MEGACOAT NANO		14.8	1,720	16.8	9.0	2,450
PR151S				14.7	1,700	16.7	11.0	3,000
PR152S				14.5	1,600	15.8	13.0	3,400
PR153S				14.3	1,320	12.9	16.0	3,700
PR162S	Silver	MEGACOAT NANO PLUS		14.5	1,600	15.8	13.0	3,400
PR170S				14.9	1,800	17.6	10.0	3,300
PR172S				14.5	1,600	15.8	13.0	3,400
PR1810	Redish Gray	MEGACOAT NANO EX		14.9	1,680	16.5	9.0	2,400
PR182S				14.5	1,600	15.8	13.0	3,400
PR183S				14.3	1,320	12.9	16.0	3,700
PR201S	Blackish Red			14.7	1,700	16.7	11.0	3,000
PR202S				14.5	1,600	15.8	13.0	3,400
PR203S				14.3	1,320	12.9	16.0	3,700

Carbide

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness (MPa·m ^{1/2})	Transverse Strength (MPa)
					(HV)	(GPa)		
KW10	Gray	WC+Co	-	15.0	1,650	16.2	10.0	1,470
GW05				14.9	1,800	17.6	10.0	3,300
GW15				14.7	1,700	16.7	11.0	3,000
GW25				14.5	1,600	15.8	13.0	3,400
SW05				15.0	1,790	17.5	9.5	2,350
SW10				14.8	1,720	16.8	9.0	2,450
SW25				14.7	1,370	13.4	16.0	3,100

DLC Coated Carbide

Grade	Color	Main Component	Coating Layer	Relative Density (RD)	Hardness of Substrate		Fracture Toughness (MPa·m ^{1/2})	Transverse Strength (MPa)
					(HV)	(GPa)		
PDL010	Iridescent	C	Thin Coating	15.0	1,650	16.2	10.0	1,470
PDL015				14.7	1,700	16.7	11.0	3,000
PDL025				14.5	1,600	15.8	13.0	3,400

B

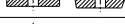
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Positive Chipbreaker Selection		B12
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	RN Type	B116
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	SP Type	B121
	TB / TP Type	B122
Roll Machining Inserts	RBG / RCGX / RPGX	B123
Grooving Inserts	GH	B124

Turning Indexable Inserts Identification System

Symbol	Insert
H	Hexagon
O	Octagon
P	Pentagon
S	Square
T	Triangle
C	80° Diamond
D	55° Diamond
E	75° Diamond
F	50° Diamond
M	86° Diamond
J	70° Diamond
V	35° Diamond
Z	25°/15° Diamond
W	80° Trigon
L	Rectangle
A	85° Parallelogram
B	82° Parallelogram
K	55° Parallelogram
R	Round
Shown angle stands for acute angle for diamond and parallelogram inserts.	
① Shape Symbol	

Symbol	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
② Relief Angle Symbol	

Symbol Class	Tolerance					
	Corner Height		Thickness		I.C. Size	
	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)
A	0.0002	0.005	0.0010	0.025	0.0010	0.025
F	0.0002	0.005	0.0010	0.025	0.0005	0.013
C	0.0005	0.013	0.0010	0.025	0.0010	0.025
H	0.0005	0.013	0.0010	0.025	0.0005	0.013
E	0.0010	0.025	0.0010	0.025	0.0010	0.025
G	0.0010	0.025	0.0050	0.130	0.0010	0.025
J	0.0002	0.005	0.0010	0.025	0.002~0.006	0.05~0.15
K*	0.0005	0.013	0.0010	0.025	0.002~0.006	0.05~0.15
L*	0.0010	0.025	0.0010	0.025	0.002~0.006	0.05~0.15
M*	0.003~0.007	0.080~0.180	0.0050	0.130	0.002~0.006	0.05~0.15
N*	0.003~0.007	0.080~0.180	0.0010	0.025	0.002~0.006	0.05~0.15
U*	0.005~0.015	0.130~0.380	0.0050	0.130	0.003~0.009	0.08~0.25
*Insert's periphery is as fired. Tolerance difference depends on size and shape of insert						
③ Tolerance Symbol						

Symbol	Hole	Hole Shape	Chipbreaker	Insert
N	No	-	No	
R			One Side	
F			Two Sides	
A	Yes	With Hole	No	
M			One Side	
G			Two Sides	
W		With Hole and One Countersink 40°~60°	No	
T			One Side	
Q		With Hole and Two Countersink 40°~60°	No	
U	Two Sides			
B	With Hole and One Countersink 70°~90°	No		
H		One Side		
C	With Hole and Two Countersink 70°~90°	No		
J		Two Sides		
X	-	-	-	-

④ Hole / Chipbreaker Symbol

ISO
Metric

C ①	N ②	M ③	G ④	12 ⑤	04 ⑥	08 ⑦	PG ⑧
---------------	---------------	---------------	---------------	----------------	----------------	----------------	----------------

ANSI
Inch

C ①	N ②	M ③	G ④	4 ⑤	3 ⑥	2 ⑦	PG ⑧
---------------	---------------	---------------	---------------	---------------	---------------	---------------	----------------

⑤ Edge Length Symbol (ISO)							I.C. Size (mm)	⑤ I.C. Size (ANSI)	
								I.C. Size (inch)	Symbol
03	04		03	06	08		3.97	5/32	1.2
04	05		04	08			4.76	3/16	1.5
		05					5		
05	06		05	09		03	5.56	7/32	1.8
		06					6		
06	07		06	11	11	04	6.35	1/4	2
08	09		07	13		05	7.94	5/16	2.5
		08					8		
09	11	09	09	16	16	06	9.525	3/8	3
		12					10		
		12					12		
12	15	12	12	22	22	08	12.7	1/2	4
16	19	15	15	27	27	10	15.875	5/8	5
		16					16		
19	23	19	19	33	33	13	19.05	3/4	6
		20					20		
22	27		22	38			22.225	7/8	7
		25					25		
25	31	25	25	44	44	17	25.4	1	8
32	38	31	31	54	54	21	31.75	1-1/4	10
		32					32		

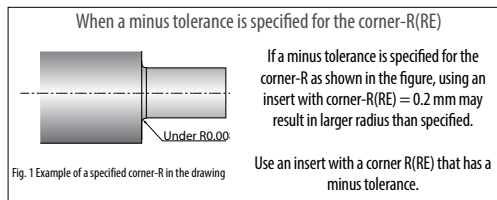
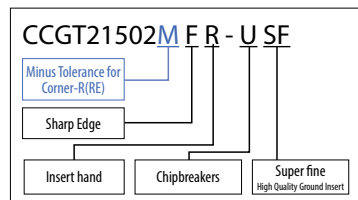
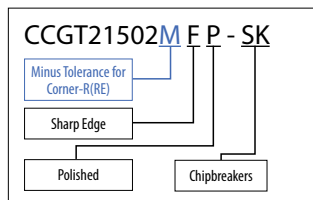
⑥ Thickness Symbol			
ISO		ANSI	
Thickness (mm)	Symbol	Thickness (inch)	Symbol
1.59	01	1/16	1
1.98	T1	5/64	1.2
2.38	02	3/32	1.5
2.78	T2	-	-
3.18	03	1/8	2
3.97	T3	5/32	2.5
4.76	04	3/16	3
5.56	05	7/32	3.5
6.35	06	1/4	4
7.94	07	5/16	5
9.525	09	3/8	6
 Thickness displayed as the distance between bottom surface and highest point on cutting edge.			

⑦ Corner-R (RE) Symbol			
ISO		ANSI	
Corner-RE (mm)	Symbol	Corner-RE (inch)	Symbol
Sharp Edge	00	0.000	00
0.03	003	0.001	0.1
0.05	005	0.002	0.13
0.10	01	0.004	0.2
0.20	02	0.008	0.5
0.40	04	1/64	1
0.80	08	1/32	2
1.20	12	3/64	3
1.60	16	1/16	4
2.00	20	5/64	5
2.40	24	3/32	6
2.80	28	7/64	7
3.20	32	1/8	8
Round Insert	00 (Inch) or M0 (Metric)	Round Insert	

⑧ Manufacturer's Option
Hand Symbol, Chipbreaker, Symbol, Etc.

- Expressed as edge length for ISO.
- ANSI expresses the inscribed circle diameter in inches.

Positive Inserts Identification System



Insert Color

*Newer grades in red are recommended

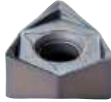
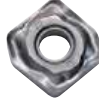
Cermet

Grades	Cermet									CVD Coated Cermet	MEGACOAT NANO cermet				MEGACOAT Cermet		PVD coated cermet
	TN610	TN620	TN620M	TN6020	TN60	TN90	TN100M	TC40N	TC60M	CCX	PV710	PV720	PV730	PV60M	PV7005	PV7040	PV90
Insert Color																	

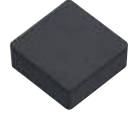
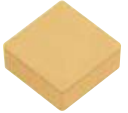
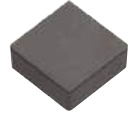
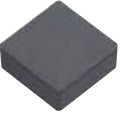
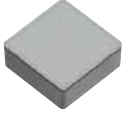
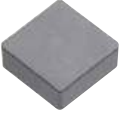
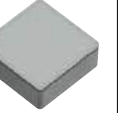
CVD Coated Carbide

Grades	CVD Coated Carbide																	
	CA310	CA315	CA320	CA410K	CA415K	CA415D	CA520D	CA420M	CA45 Series	CA510	CA515	CA025P	CA525	CA530	CA55 Series	CA65 Series	CR9025	CA115P	CA125P
Insert Color																		

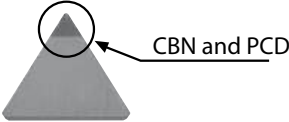
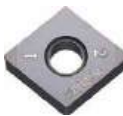
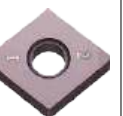
PVD Coated Carbide

Grades	MEGACOAT NANO					MEGACOAT NANO PLUS		MEGACOAT HARD		MEGACOAT				PVD Coated Carbide					MEGACOAT TOUGH		MEGACOAT NANO EX		
	PR1510	PR1515	PR1525	PR1535	PR1625	PR1705	PR1725	PR005S	PR015S	PR1210	PR1215	PR1225	PR1230	PR905	PR915	PR930	PR1025	PR1115	PR115S	PR120S	PR1810	PR1825	PR1835
Insert Color																							

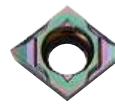
Ceramic

Grades	Aluminum Oxide Ceramic			PVD Coated Ceramic		MEGACOAT Ceramic		Silicon Nitride Ceramic		CVD Coated Silicon Nitride Ceramic		SiAlON Ceramic		Whisker Reinforced Ceramic	
	KA30	A65	KT66	A66N		PT600M		KS6015	KS6050	CS7050		KS6030	KS6040	KS001	
Insert Color															

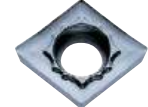
CBN & PCD

Grades	CBN				PCD			MEGACOAT TOUGH CBN / MEGACOAT CBN			PVD Coated CBN
	KBN475	KBN510	KBN525	KBN570	KPD001	KPD010	KPD230	KBN010 KBN020 KBN.M	KBN015	KBN900	
Insert Color											

DLC Coated Carbide

Grades	DLC Coated Carbide		
	PDL010	PDL015	PDL025
Insert colour			

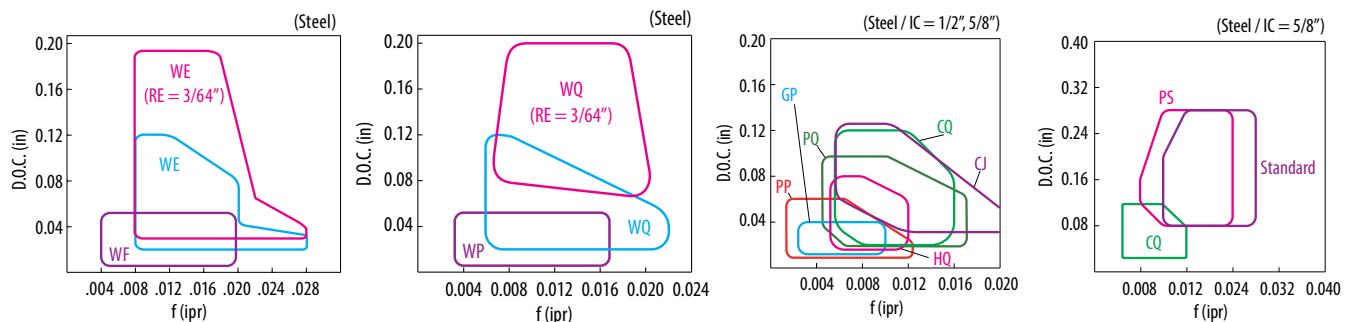
Uncoated Carbide

Grades	Carbide				
	GW05	GW15	GW25	KW10	SW05
Insert colour					

Steel (Molded Chipbreaker)

Cutting Range	Name	Design	Advantages
Finishing	WF		• Wiper insert • Good chip control in finishing operations • Excellent surface finish by controlling adhesion • Less cutting force due to sharp cutting edge
Finishing	WP		• Wiper insert • Good chip control at small depths of cut
Finishing - Medium	WE		• Wiper insert • Good surface finish at high feed rates • High productivity with smooth chip control in a wide range of applications
Finishing - Medium	WQ		• Wiper insert • Double feed rate possible while maintaining a smooth finish • High efficiency and good chip control
Finishing	PP		• 3-step dot structure creates stable chip control in a wide range of feed rates • Less cutting force due to sharp cutting edge and smooth rake face
Finishing - Medium	PQ		• Stable chip control in a wide feed rate range by breaking chips effectively • Well-balanced edge sharpness and toughness
Finishing	GP		• Finishing to light machining • Good chip control
Finishing - Medium	HQ		• Sharp cutting performance with 3-D rake angle and double projection design
Finishing - Medium	CQ		• Good chip control for varying depths of cut such as copying • Applicable for up facing

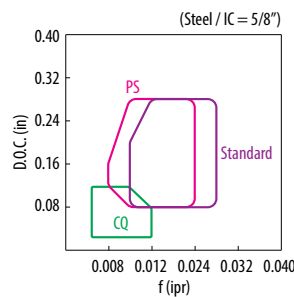
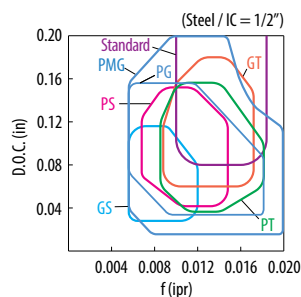
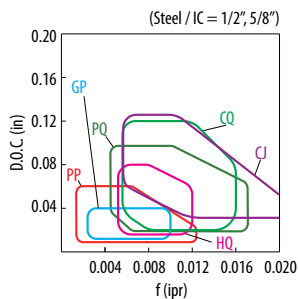
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Steel (Molded Chipbreaker)

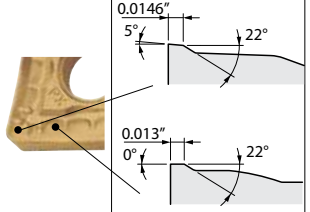
Cutting Range	Name	Design	Advantages
Finishing - Medium / up facing	CJ		- Improved chip curling in small depth and high feed rate machining - Improved chip evacuation when copying and up facing
Medium - Roughing	PMG		- Covers a wide range of machining applications from medium machining to roughing - Excellent wear resistance with low cutting force design - Reduces chip shape inconsistencies and improves tool life
Medium - Roughing	PG		- Stable machining with good balance of edge sharpness and strength - Prevents chip clogging at high feed rate - Good chip control at low feed rates - Stable machining with wide chip control range
Medium - Roughing	GS		- Strong edge chipbreaker - Stable for continuous machining and light interrupted machining
Medium - Roughing	PS		- General purpose chipbreaker - More stable due to large contact surface
Medium - Roughing / High Feed Rate	PT		- Low cutting force during high feed machining - Land support structure
Medium - Roughing / High Feed Rate	GT		- Strong edge chipbreaker - Wide land design and smooth chip control even at high feed rate machining
Roughing	Standard (No Callout)		Low cutting force and suitable for large D.O.C. roughing

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

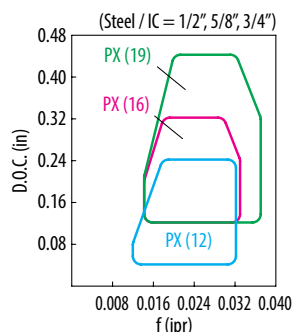
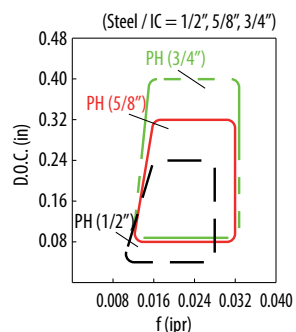


Steel (Molded Chipbreaker)

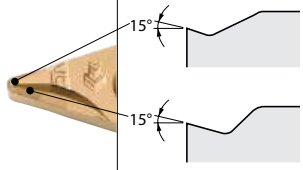
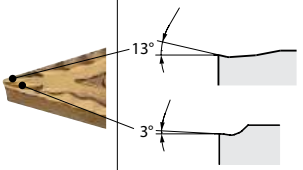
Cutting Range	Name	Design		Advantages
Roughing	PH			• Suitable for heavily interrupted machining and for workpieces with scale due to strong cutting edge

Cutting Range	Name	Design		Advantages
Roughing (High Feed Rate)	PX			• Roughing and high feed rate operation • Low cutting force chipbreaker

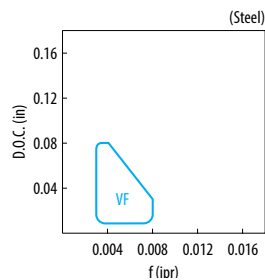
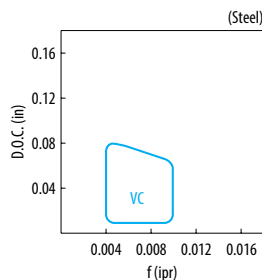
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Steel (Copying / Undercutting, Varied D.O.C.)

Cutting Range	Name	Design		Advantages
Finishing - Medium	VC			• Handed chipbreaker for copying • Good chip control at varied D.O.C. because of the large space on the main cutting edge side
Finishing - Medium	VF			• Good chip control at varied D.O.C. such as copying and undercutting

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

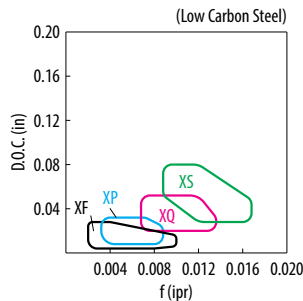


Chipbreaker Selection (Negative Inserts)

Low Carbon Steel (Pipe, Rolled Plate, Rolled Steel)

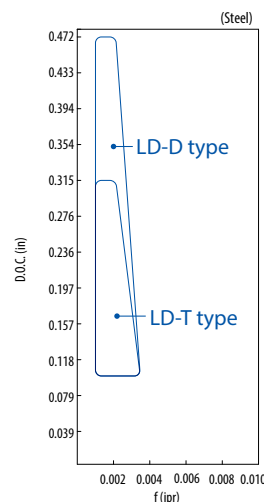
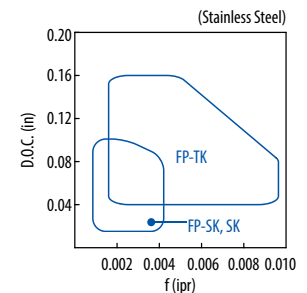
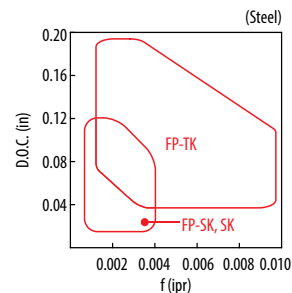
Cutting Range	Name	Design	Advantages
Finishing	XF		Excellent chip control at high speed and small D.O.C. machining of low carbon steel
Finishing	XP		Short chips due to sharp cutting and special design
Medium	XQ		Consistent chip breaking due to moderate rake face and special design
Roughing	XS		Consistent chip breaking due to special rake face and rake angle design

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

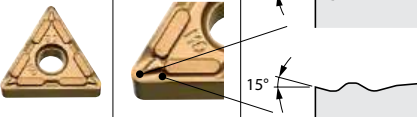
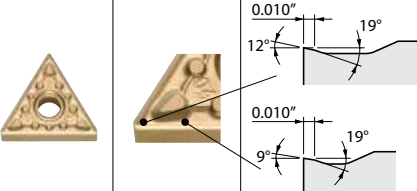
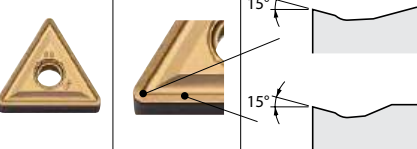


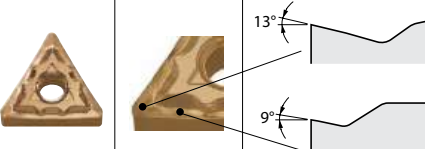
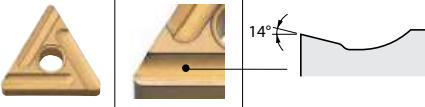
Steel / Stainless Steel (Small Parts Machining)

Cutting Range	Name	Design	Advantages
Finishing - Medium	SK	- FP-SK: Polished Sharp Edge - SK: Honed	- Machining in automatic lathes - Sharp cutting performance equivalent to positive inserts 2-step dot design provides reliable chip control at various ap
Medium - Roughing	FP-TK		- Good in automatic lathes (When machining workpieces of medium to large diameter) - Superior cutting performance achieved by sharp edge and polished surface - Smooth chipbreaker geometry improves chip flow with less adhesion - Large curled chips
Large D.O.C.	LD		- Available for greater depths of cut than many conventional chipbreakers - Achieves high-precision machining in a single pass - Chipbreaker shape optimized for various depths of cut - Stable chip control in a wide range of machining applications

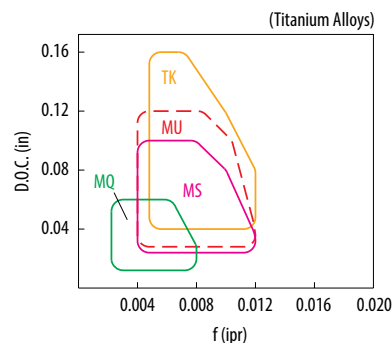
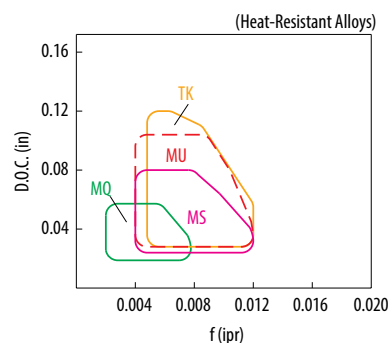
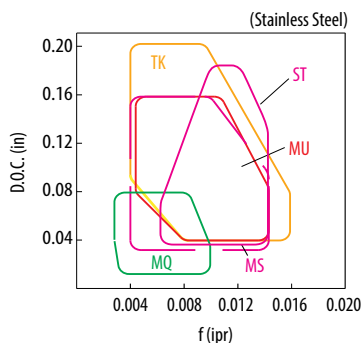


Stainless Steel / Heat-Resistant Alloy / Titanium Alloy

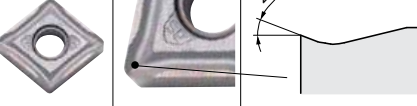
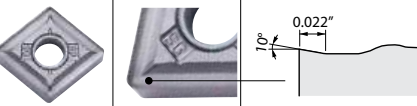
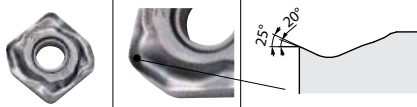
Cutting Range	Name	Design	Advantages
Finishing	MQ		• Large rake angle • Low cutting force and good chip control
Medium - Roughing	MS		• Superior cutting edge sharpness and strength achieved by a positive land • Extra strength of cutting edge inhibits damage from wall shouldering
Medium - Roughing	MU		• Large rake angle reduces cutting force • Less burring achieved by diminishing damage from notching

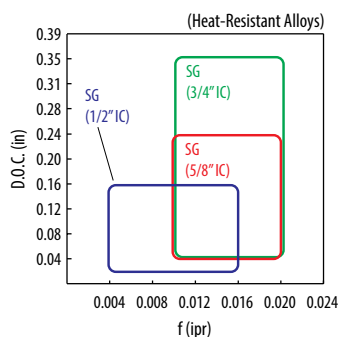
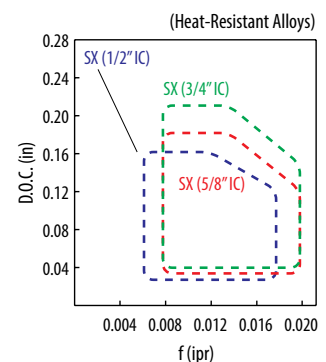
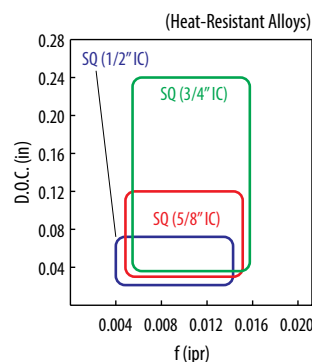
Cutting Range	Name	Design	Advantages
Medium - Roughing	TK		• Smooth chipbreaker geometry improves chip flow with less adhesion • Large curled chips
Medium - Roughing	ST		• Less cutting force due to large rake angle • Less notching with special design

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



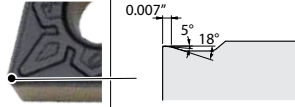
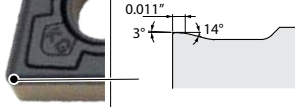
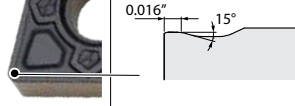
Heat-Resistant Alloys

Cutting Range	Name	Design	Advantages
Finishing - Medium	SQ		• Effective for burr suppression and reducing notching by slant cutting edge (inclined in (-) direction)
Roughing	SG		• Well-balanced edge strength • Cutting force reduction for stable machining at high-load cutting • Shallow and gently curved breaker controls chips smoothly
Roughing	SX		• Slant cutting edge reduces cutting force • Less burring achieved by unique cutting edge design

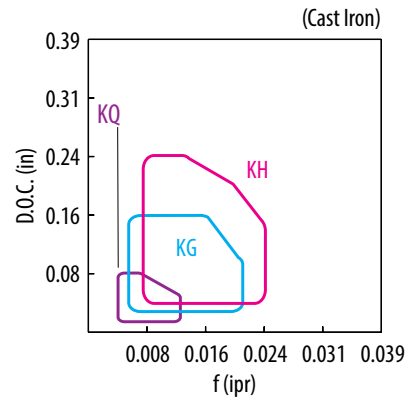


Chipbreaker Selection (Negative Inserts)

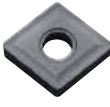
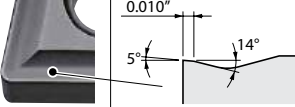
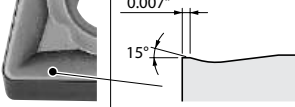
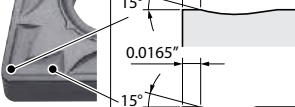
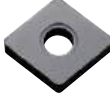
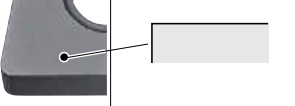
Cast Iron (K Series)

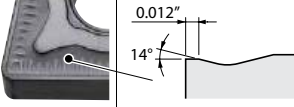
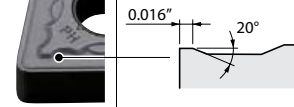
Cutting Range	Name	Design		Advantages
Sharp Cutting Oriented	KQ			• Sharp cutting chipbreaker • Edge geometry is suitable for workpieces that require sharpness such as thin-walled
Roughing	KG			• Excellent balance of sharpness and strength • Excellent stability in continuous machining
Roughing	KH			• Good for heavily interrupted machining • Strong edge chipbreaker • Improved locating / seating in the toolholder pocket with high reliability

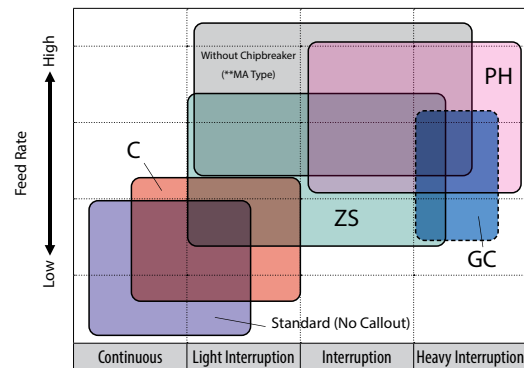
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Cast Iron

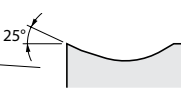
Cutting Range	Name	Design		Advantages
Sharp Cutting Oriented	Standard (No Callout)			• Standard type for continuous to light interrupted cuts (Low cutting force)
	C			• High feed rate chipbreaker for continuous to light interrupted cuts
	ZS			• Standard type for light interrupted to interrupted cuts (Stability oriented)
	Without Chipbreaker			• High feed rate chipbreaker for light interrupted to interrupted cuts

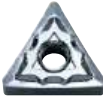
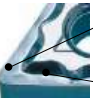
Cutting Range	Name	Design		Advantages
Stability Oriented	GC			• For heavy interrupted machining of cast iron (Tough edge chipbreaker)
	PH			• For roughing • Suitable for heavy interrupted cuts and for workpieces with scale due to strong cutting edge



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

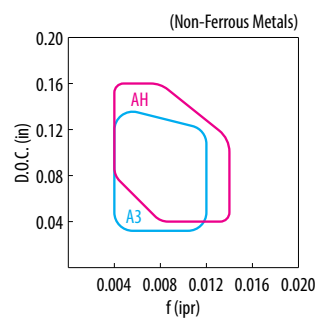
Non-Ferrous Metals

Cutting Range	Name	Design			Advantages
Finishing - Medium	A3				• Large rake angle and smooth surface • Good chip control and less adhesion

Cutting Range	Name	Design			Advantages
Medium - Roughing	AH				• Polished chipbreaker • Smooth chip control and less adhesion

G Class: Sharp Edge
M Class: Honed Edge Prep

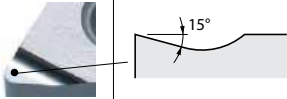
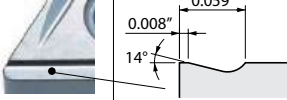
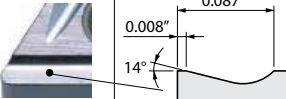
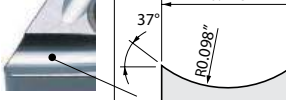
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



A3 Chipbreaker	
	D.O.C. = 0.079" f = 0.008 ipr
	D.O.C. = 0.079" f = 0.012 ipr

AH Chipbreaker	
	D.O.C. = 0.079" f = 0.008 ipr
	D.O.C. = 0.079" f = 0.012 ipr

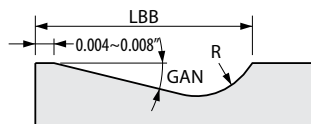
Steel (Ground Chipbreaker)

Cutting Range	Name	Design			Advantages
Finishing	S				- Sharp edge and less cutting force - Good chip control and smooth chip evacuation
Finishing - Medium	B				Suitable for general purpose machining at feed rate 0.15 to 0.25 mm/rev
Medium - Roughing	C				Suitable for general purpose machining at feed rate 0.20 to 0.35 mm/rev
Medium - Roughing / Low Cutting Force	25R				- Applicable to sticky material such as low carbon steel - Large rake angle and suitable for stainless steel

Effectiveness of a Ground Chipbreaker

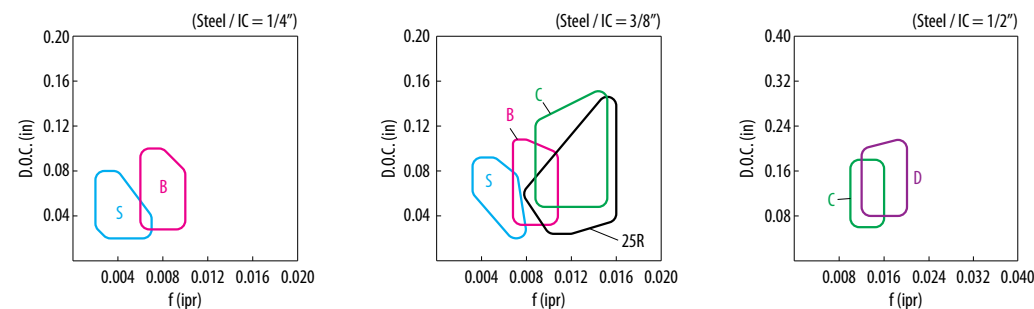
1. Lower cutting force and sharper cutting edge
2. Improved adhesion resistance
3. Improved dimensional accuracy and surface finish
4. Controlled chip evacuation flow

Specification of B, C and Parallel Ground Chipbreaker



Insert Type	IC Size (in)	Chipbreaker Name	LBB	GAN	R
CNGG	3/8, 1/2	No Callout (Similar to C)	0.087"	14°	0.039"
WNGG	3/8	No Callout (Similar to C)	0.087"	14°	0.039"
TNGG	1/4, 3/8	B	0.059"	14°	0.020"
	3/8, 1/2	C	0.087"	14°	0.039"
DNGG	3/8, 1/2	No Callout (Similar to C)	0.098"	14°	0.079"
VNGG	3/8	No Callout (Similar to B)	0.059"	14°	0.020"
SNGG	3/8, 1/2	B	0.059"	14°	0.020"
	1/2	C	0.087"	14°	0.039"

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

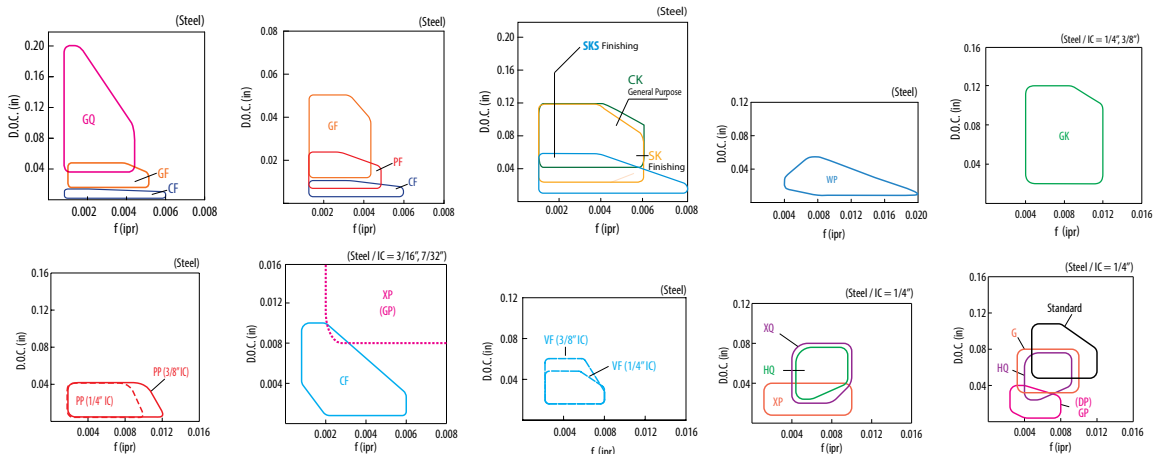


Steel (Molded Chipbreaker)

Name	Design	Advantages
Minute D.O.C CF		• Available for minute D.O.C. (0.0008" to 0.008") finishing
Finishing PF		• Chipbreaker for finishing boring available from D.O.C. 0.006" ~ 0.024"
Finishing GF		• Breaks chips into small pieces at small D.O.C.
Finishing - Medium GQ		• Wide range of conditions by using an optimum chipbreaker width according to the cutting depth
Finishing SKS		• Finishing chipbreaker for 0.008-0.059" D.O.C. • Rake face, bottom face and chipbreaker face provide stable chip control
Finishing SK		• Sharp cutting performance due to large rake angle • Large dot to the corner edge for improved chip control in a wide feed rate range
Finishing CK		• Good cutting performance • Applicable without hand for two-direction machining on automatic lathe
Finishing WP		• Wiper insert • Good surface finish and good chip control at high feed rates • Reduces surface finish galling

Name	Design	Advantages
Finishing - Medium GK		• Good chip evacuation in a wide machining range with breaker dot and wide chip pocket
Finishing PP		• 1st Recommendation • Stable chip control in a wide feed rate range • Stable tool life due to special edge design with sharpness and improved strength
Finishing DP		• Consistent chip breaking performance for finishing
Finishing GP		• Good chip control
Finishing VF		• Good chip control for varied D.O.C. such as copying and undercutting
Finishing - Medium HQ		• General purpose chipbreaker for medium machining
Medium G		• Chipbreaker for short chips
Medium Standard (No Callout)		• Strong edge chipbreaker

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Steel (Ground Chipbreaker)

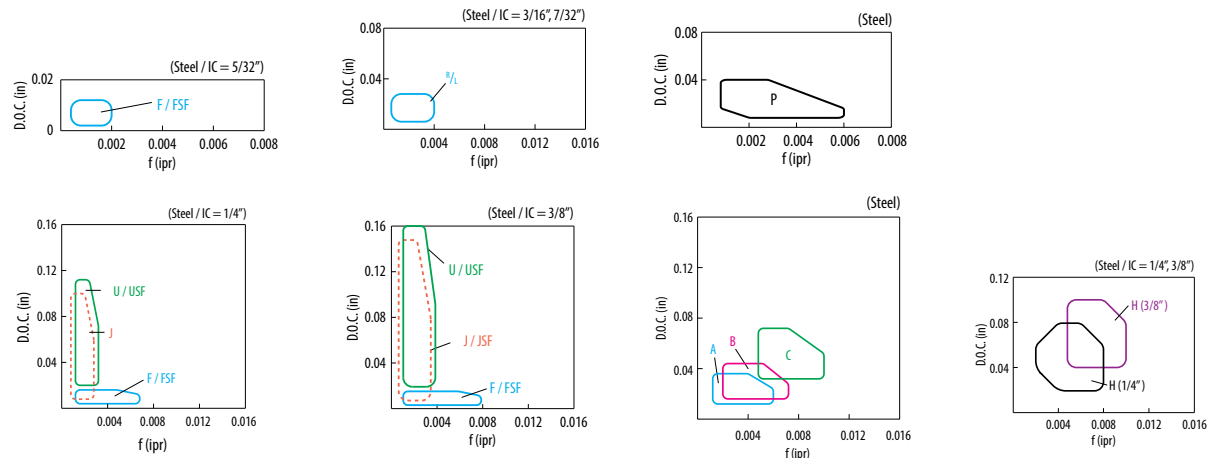
Cutting Range	Name	Design	Advantages
Finishing	No Callout		Good chip control at finishing to light machining with low cutting force
Finishing	F		Good chip control at finishing to light machining with low cutting force
Finishing	P		- Smoothly breaks chips and directs them towards the outside of the workpiece when boring - Sharp edge
Medium	Y		Sharp cutting performance and good surface finish
Low Feed	J		- Slant chipbreaker width and chip control at various D.O.C. - Applicable to automatic lathes
Low Feed	U		Good chip control at low feed rates and varied D.O.C. with low cutting force

Cutting Range	Name	Design	Advantages
Finishing	A		- Large rake angle and low cutting force - Narrow chipbreaker width and consistent chip control
Finishing - Medium	B		- General purpose chipbreaker for medium machining - Good balance between chip control and sharp cutting
Medium	C		- Applicable to high load machining - Good chip flow and less resistance
Medium	H		Sharp cutting performance and small curled chips

Specification of A, B, C and Parallel Ground Chipbreaker

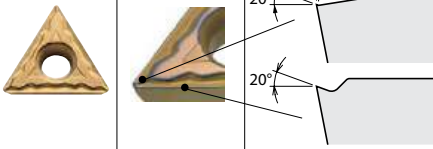
Insert Type	IC Size (in)	Chipbreaker name	LBB	GAN	R
TPGR	1/4	A	0.039"	17°	0.020"
	1/4, 3/8	B	0.059"	14°	0.020"
	3/8	C	0.087"	14°	0.039"
SPGR	3/8	No Callout (Similar to B)	0.059"	14°	0.020"
	1/2	No Callout (Similar to C)	0.087"	14°	0.039"

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

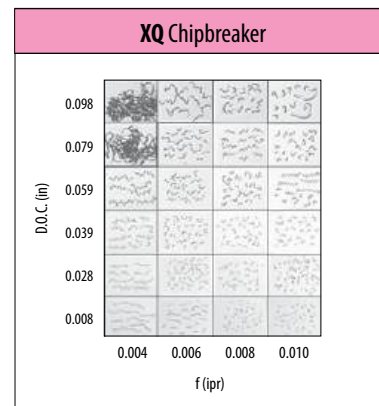
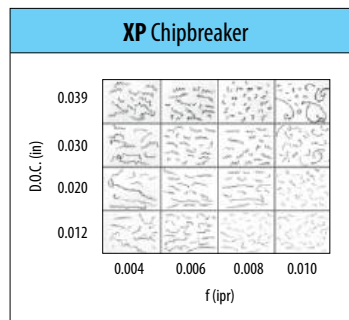
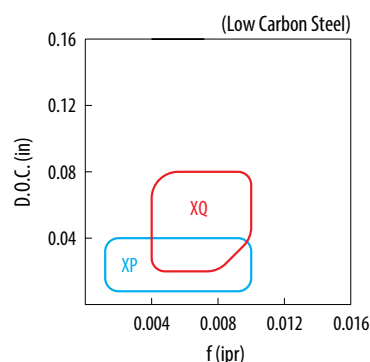


Low Carbon Steel (Pipe, Rolled Plate, Rolled Steel)

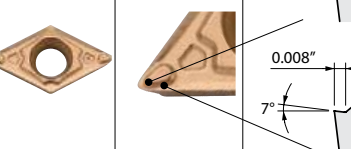
Cutting Range	Name	Design	Advantages
Finishing	XP		Consistent chip breaking performance even for low carbon steel and sticky material

Cutting Range	Name	Design	Advantages
Finishing - Medium	XQ		- Wide chip control range and sharp cutting performance - Suitable for low carbon steel and sticky material

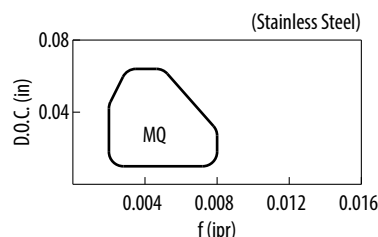
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



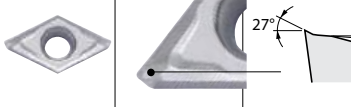
Stainless Steel

Cutting Range	Name	Design	Advantages
Finishing	MQ		- Good chip evacuation when boring / ID turning - Small curled chips - Prevents chip entanglement with toolholder and stabilizes surface roughness

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

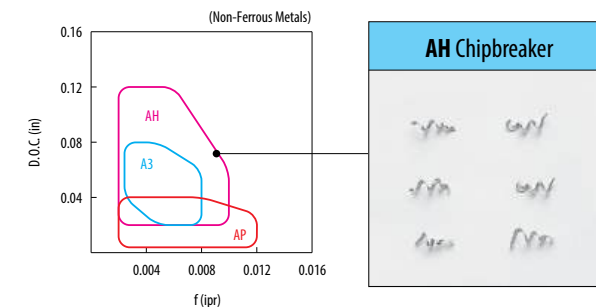


Non-Ferrous Metals

Cutting Range	Name	Design	Advantages
Finishing	AP		- Curved edge and shape of chipbreaker create good chip control - Sharp cutting edge provides excellent surface finish - Polished chipbreaker
Finishing - Medium	AH		- Positive chip groove and good chip control with low cutting force - Polished surface reduces adhesion

Cutting Range	Name	Design	Advantages
Finishing - Medium	A3		- Large rake angle, smooth chip flow and less adhesion - Superior cutting performance achieved by sharp edge

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



How to Read Turning Insert Table Pages

- Refer to below on how to read the "Turning Inserts" tables
- Section C contains similar content

Usage Classification	Recommended grades for each application and workpiece materials are shown here.
✱ : Interruption / 1st Choice	
✱✱ : Interruption / 2nd Choice	
☉ : Light interruption / 1st Choice	
☉☉ : Light interruption / 2nd Choice	
● : Continuous / 1st Choice	
○ : Continuous / 2nd Choice	
(Hardness 45HRC or under)	

Turning Inserts (Negative)

80° Diamond

Insert Corner Radius

How to read this page See page B15

Insert	Part Number	Part Number	Chipbreaker Range	Dimensions (in)				Carbide		Cermets		Applicable Toolholder Page
				IC	S	D1	RE	CVD	PVD			
Finishing With Wiper Edge	CNMG 431WF	CNMG 120404WF	1	4	1/2	3/16	0.203	1/64	●	●	●	P M K N S H
	432WF	120408WF					1/32	●	●	●		
Finishing With Wiper Edge	CNMG 431WP	CNMG 120404WP	2	4	1/2	3/16	0.203	1/64	●	●	●	P M K N S H
	432WP	120408WP					1/32	●	●	●		
Finishing With Wiper Edge	CNMG 431WE	CNMG 120404WE	1	4	1/2	3/16	0.203	1/64	●	●	●	P M K N S H
	432WE	120408WE					1/32	●	●	●		
Finishing With Wiper Edge	CNMG 431WE	CNMG 120412WE					3/64	●	●	●	P M K N S H	
	433WE	120412WE					3/64	●	●	●		
Finishing With Wiper Edge	CNMG 431WQ	CNMG 120404WQ	2	4	1/2	3/16	0.203	1/64	●	●	●	P M K N S H
	432WQ	120408WQ					1/32	●	●	●		
Finishing With Wiper Edge	CNMG 433WQ	CNMG 120412WQ					3/64	●	●	●	P M K N S H	
	433WQ	120412WQ					3/64	●	●	●		
Finishing	CNMG 4305PP	CNMG 120402PP	3	4	1/2	3/16	0.203	0.008	●	●	●	P M K N S H
	431PP	120404PP					1/64	●	●	●		
Finishing	432PP	120408PP					1/32	●	●	●	P M K N S H	
	433PP	120412PP					3/64	●	●	●		
Finishing	CNMG 331GP	CNMG 090404GP	4	4	3/8	3/16	0.150	1/64	●	●	●	P M K N S H
	332GP	090408GP					1/32	●	●	●		
Finishing	CNMG 4305GP	CNMG 120402GP	3	4	1/2	3/16	0.203	0.008	●	●	●	P M K N S H
	431GP	120404GP					1/64	●	●	●		
Finishing	432GP	120408GP					1/32	●	●	●	P M K N S H	
	433GP	120412GP					3/64	●	●	●		
Finishing	CNMG 431PQ	CNMG 120404PQ	3	4	1/2	3/16	0.203	1/64	●	●	●	P M K N S H
	432PQ	120408PQ					1/32	●	●	●		
Finishing	433PQ	120412PQ					3/64	●	●	●	P M K N S H	

See "Precautions when using Wiper inserts" on page R34 and R35 for WF/WE chipbreakers.

Chipbreaker Range

1

2

3

4

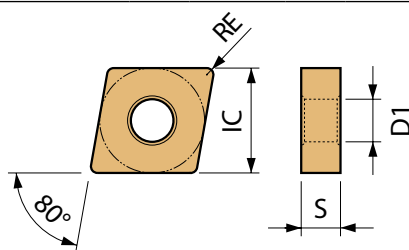
B16 KYOCERA Inserts sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Availability

80° Diamond

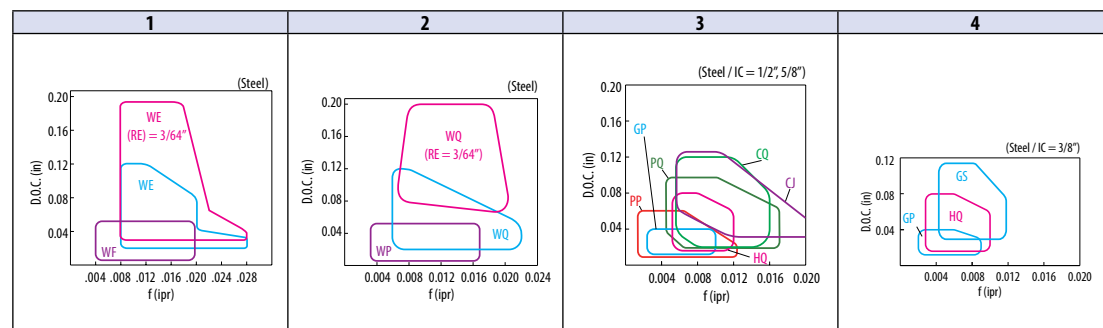
How to read this page ➡ See page **B15**

[illegible]

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	Dimensions (in)				Carbide										Cermet				Applicable Toolholder Page								
					No. of Edges	IC	S	D1	RE	CVD										CVD	PVD	-									
										CA025P	CA115P	CA125P	CA315	CA410K	CA415K	CA4515	CA510	CA515	CA525					CA530	CCX						
																										PV710	PV720	PV730	TN60	TN610	TN620
Finishing	 With Wiper Edge	CNMG 431WF	CNMG 120404WF	1	4	1/2	3/16	0.203	1/64	●	●	●				●	●	●	●	●	●	●	●	●	●		D8~D11 F138 F147 F148				
		432WF	120408WF						1/32	●	●	●				●	●	●	●	●	●	●	●	●	●	●		●	●	●	
Finishing	 With Wiper Edge	CNMG 431WP	CNMG 120404WP	2	4	1/2	3/16	0.203	1/64	●	●				●			●	●												
		432WP	120408WP						1/32	●	●	●				●	●				●	●				●				●	
Finishing - Medium	 With Wiper Edge	CNMG 431WE	CNMG 120404WE	1	4	1/2	3/16	0.203	1/64	●	●				●	●	●	●	●	●	●	●	●	●	●	●					
		432WE	120408WE						1/32	●	●	●				●	●	●	●	●	●	●	●	●	●	●		●	●	●	●
		433WE	120412WE						3/64	●	●	●				●	●	●	●	●	●	●	●	●	●	●		●	●	●	●
Finishing - Medium	 With Wiper Edge	CNMG 431WQ	CNMG 120404WQ	2	4	1/2	3/16	0.203	1/64	●	●							●													
		432WQ	120408WQ						1/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	
		433WQ	120412WQ						3/64	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●
Finishing		CNMG 4305PP	CNMG 120402PP	3	4	1/2	3/16	0.203	0.008	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●					
		431PP	120404PP						1/64	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		432PP	120408PP						1/32	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		433PP	120412PP						3/64	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Finishing		CNMG 331GP	CNMG 090404GP	4	4	3/8	3/16	0.150	1/64										●	●	●	●	●	●	●	●					
		332GP	090408GP						1/32															●	●	●	●	●	●	●	
		CNMG 4305GP	CNMG 120402GP	3	4	1/2	3/16	0.203	0.008	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●					
		431GP	120404GP						1/64	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
		432GP	120408GP	1/32	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
Finishing - Medium		CNMG 431PQ	CNMG 120404PQ	3	4	1/2	3/16	0.203	1/64	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●					
		432PQ	120408PQ						1/32	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
		433PQ	120412PQ						3/64	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

See "Precautions when using Wiper inserts" on page **R40** and **R41** for WF/WE chipbreakers.

Chipbreaker Range



How to read this page ➡ See page **B15**

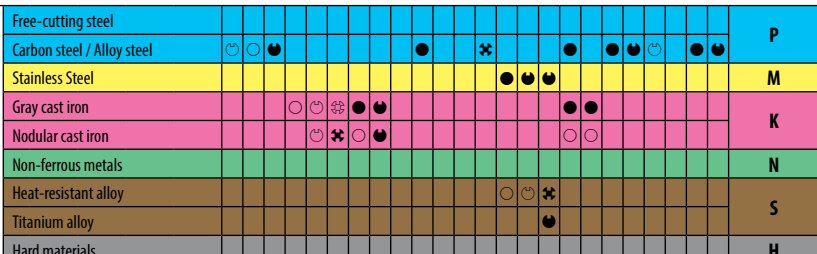
A	INSERT GRADES
B	TURNING INSERTS
C	CBN / PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

1	2	3	4	5

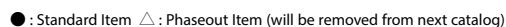
Inserts sold in 10 piece boxes

How to read this page ➞ See page **B15**

11



Chipbreaker Range



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How to read this page ➡ See page **B15**

Insert with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Figure 10 consists of three subplots labeled 1, 2, and 3, showing the relationship between D.O.C. (in) and f (ipr) for different materials and conditions.

Subplot 1: Steel (IC = 1/2, 5/8, 3/4)

The y-axis (D.O.C. (in)) ranges from 0.08 to 0.48. The x-axis (f (ipr)) ranges from 0.008 to 0.040. Three curves are shown:

- PX (3/4) (Green curve)
- PX(HX) (5/8) (Pink curve)
- PX (1/2) (Blue curve)

Subplot 2: Low Carbon Steel

The y-axis (D.O.C. (in)) ranges from 0.04 to 0.20. The x-axis (f (ipr)) ranges from 0.004 to 0.020. Four curves are shown:

- XF (Black curve)
- XP (Blue curve)
- XQ (Pink curve)
- XS (Green curve)

Subplot 3: Steel (Stainless Steel)

The y-axis (D.O.C. (in)) ranges from 0.04 to 0.20. The x-axis (f (ipr)) ranges from 0.002 to 0.010. Two sets of curves are shown:

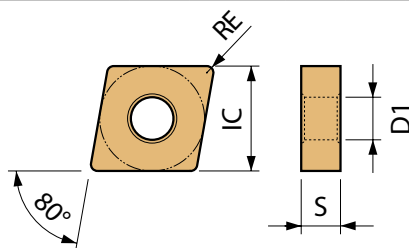
- Steel (Red curves):** FP-TK (top) and FP-SK, SK (bottom).
- Stainless Steel (Blue curves):** FP-TK (top) and FP-SK, SK (bottom).

Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

80° Diamond

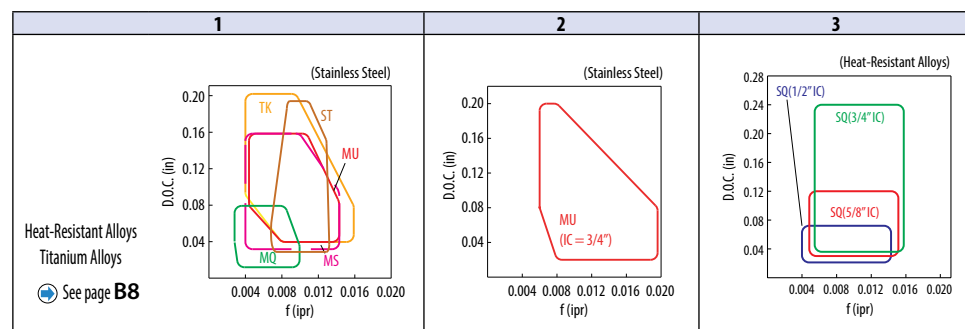
How to read this page ➡ See page **B15**



Free-cutting steel								P
Carbon steel / Alloy steel								
Stainless Steel	●	●		○	☺	●		M
Gray cast iron								K
Nodular cast iron								
Non-ferrous metals								N
Heat-resistant alloy	○	☺	●	☺	○	⚙		S
Titanium alloy						●	☺	
Hard materials								H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Carbide						Applicable Toolholder Page				
						IC	S	D1	RE	CVD		PVD			-					
										CA6515	CA6525	PR0055	PR0155	PR1155			PR1205	PR1535		
Stainless Steel / Heat-Resistant Alloys		CNGG 431TK	CNGG 120404TK	1	4	1/2	3/16	0.203	1/64								●	D8~D11 F138 F147 F148		
	Medium - Roughing / Sharp Edge	432TK	120408TK						1/32								●			
		CNMG 431TK	CNMG 120404TK	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●				
	Medium - Roughing	432TK	120408TK						1/32	●	●	●	●	●	●	●				
		CNMG 431MQ	CNMG 120404MQ	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●				
	Finishing - Medium	432MQ	120408MQ						1/32	●	●	●	●	●	●	●				
	Heat-Resistant Alloys		CNMG 431SQ	CNMG 120404SQ	3	4	1/2	3/16	0.203	1/64		●	●	●	●					D10~D11
			432SQ	120408SQ						1/32		●	●	●	●					
			433SQ	120412SQ						3/64		●	●	●	●					
CNMG 543SQ			CNMG 160612SQ	3	4	5/8	1/4	0.250	3/64		●	●	●	●						
544SQ			160616SQ						1/16		●	●	●	●						
CNMG 643SQ			CNMG 190612SQ						3	4	3/4	1/4	0.313	3/64		●	●	●		
644SQ	190616SQ	1/16		●	●	●	●													
Stainless Steel / Heat-Resistant Alloys		CNMG 431MS	CNMG 120404MS	1	4	1/2	3/16	0.203						1/64	●	●	●	●	●	●
		432MS	120408MS						1/32	●	●	●	●	●	●	●				
		433MS	120412MS						3/64	●	●	●	●	●	●	●				
		434MS	120416MS						1/16	●	●	●	●	●	●					
		CNMG 431MU	CNMG 120404MU	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●				
		432MU	120408MU						1/32	●	●	●	●	●	●	●				
		433MU	120412MU						3/64	●	●	●	●	●	●	●				
		CNMG 542MU	CNMG 160608MU	1	4	5/8	1/4	0.250	1/32	●	●	●	●	●	●	D10~D11				
		543MU	160612MU						3/64	●	●	●	●	●	●		●			
		544MU	160616MU						1/16	●	●	●	●	●	●		●			
		CNMG 643MU	CNMG 190612MU						2	4	3/4	1/4	0.313	3/64			●	●	●	●
		644MU	190616MU	1/16		●	●	●						●						

Chipbreaker Range



How to read this page ➞ See page **B15**

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Figure 10 consists of three subplots showing the relationship between D.O.C. (in) and f (ipr) for different materials and IC values.

Subplot 1: Heat-Resistant Alloys

The y-axis (D.O.C. (in)) ranges from 0.04 to 0.28. The x-axis (f (ipr)) ranges from 0.004 to 0.020. Three curves are shown for different IC values:

- SG(1/2"IC) (Blue solid line)
- SG(3/4"IC) (Green solid line)
- SG(5/8"IC) (Red solid line)

Subplot 2: Heat-Resistant Alloys

The y-axis (D.O.C. (in)) ranges from 0.04 to 0.28. The x-axis (f (ipr)) ranges from 0.004 to 0.020. Three curves are shown for different IC values:

- SX(1/2"IC) (Blue dashed line)
- SX(3/4"IC) (Green dashed line)
- SX(5/8"IC) (Red dashed line)

Subplot 3: Cast Iron

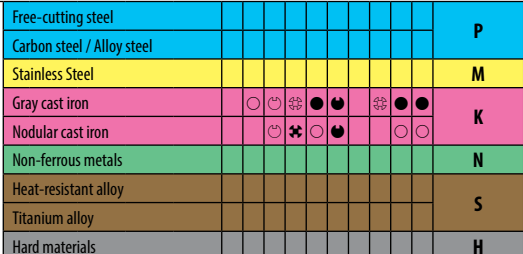
The y-axis (D.O.C. (in)) ranges from 0.08 to 0.40. The x-axis (f (ipr)) ranges from 0.008 to 0.040. Three curves are shown for different IC values:

- KH (Pink solid line)
- KG (Cyan solid line)
- KO (Magenta solid line)

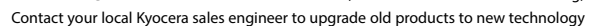
Inserts sold in 10 piece boxes

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D22



Chipbreaker Range



How to read this page ➡ See page **B15**

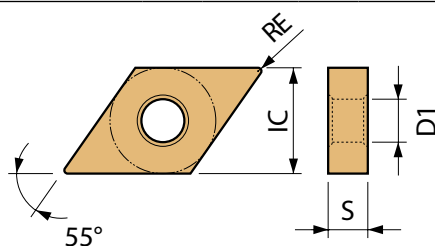
A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Figure 10 consists of three subplots, labeled 1, 2, and 3, each showing the relationship between D.O.C. (in) on the y-axis and f (ipr) on the x-axis. The y-axis ranges from 0.04 to 0.20, and the x-axis ranges from 0.004 to 0.020.

- Plot 1: (Non-Ferrous Metals)** shows two regions: AH (top) and A3 (bottom).
- Plot 2: (Steel / IC = 3/8")** shows two regions: S (bottom) and 1/2 (No Callout) (top).
- Plot 3: (Steel / IC = 1/2")** shows three regions: 1/2 (No Callout) (top), Z (middle), and 2SR (bottom).

Inserts sold in 10 piece boxes

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[illegible][illegible]

See "Precautions when using Wiper inserts" on page **R40** and **R41** for WF/WE chipbreakers.

Figure 10 consists of three graphs showing the relationship between D.O.C. (in) and f (ipr) for different steel grades and plate thicknesses.

- Graph 1 (Steel):** Shows a single curve labeled 'WF' (Wide Flange) for Steel. The y-axis (D.O.C. (in)) ranges from 0.00 to 0.20, and the x-axis (f (ipr)) ranges from 0.004 to 0.028.
- Graph 2 (Steel / IC = 3/8"):** Shows two curves labeled 'HQ' (Heavy Quarter) and 'GP' (Light Quarter) for Steel with a thickness of $IC = 3/8"$. The y-axis (D.O.C. (in)) ranges from 0.00 to 0.12, and the x-axis (f (ipr)) ranges from 0.004 to 0.020.
- Graph 3 (Steel / IC = 1/2"):** Shows multiple curves labeled 'GP', 'HQ', 'CQ', and 'PJ' for Steel with a thickness of $IC = 1/2"$. The y-axis (D.O.C. (in)) ranges from 0.00 to 0.20, and the x-axis (f (ipr)) ranges from 0.004 to 0.020.

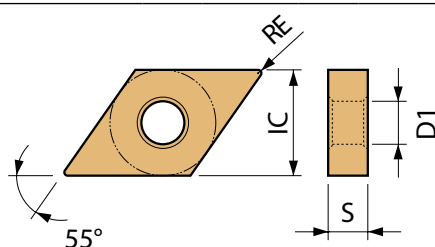
How to read this page ➡ See page **B15**

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

1	2	3	4

Inserts sold in 10 piece boxes

How to read this page See page **B15**

[illegible]

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges		Dimensions (in)				Carbide						Cermet				Applicable Toolholder Page		
							IC	S	D1	RE	CVD						PVD	PVD	-				
											CA025P	CA115P	CA125P	CA310	CA315	CA325				CA330		CA6515	CA6525
Medium - Roughing		DNMG 431PG	DNMG 150404PG	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	●	D14~D19 F140, F152 F154~F156				
		432PG	150408PG						1/32	●	●	●	●	●	●	●	●	●		●			
		433PG	150412PG						3/64	●	●	●	●	●	●	●	●	●		●			
		434PG	150416PG						1/16	●	●	●	●	●	●	●	●	●		●			
Medium - Roughing		DNMG 441PG	DNMG 150604PG	1	4	1/2	1/4	0.203	1/64	●	●	●	●	●	●	●	●	D14, D16 D18					
		442PG	150608PG						1/32	●	●	●	●	●	●	●	●		●	●			
		443PG	150612PG						3/64	●	●	●	●	●	●	●	●		●	●			
		444PG	150616PG						1/16	●	●	●	●	●	●	●	●		●	●			
Medium - Roughing		DNMG 431PS	DNMG 150404PS	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	D14~D19 F140, F152 F154~F156					
		432PS	150408PS						1/32	●	●	●	●	●	●	●	●		●	●			
		433PS	150412PS						3/64	●	●	●	●	●	●	●	●		●	●			
		DNMG 441PS	DNMG 150604PS						1/64	●	●	●	●	●	●	●	●		●	●			
Medium - Roughing		442PS	150608PS	1	4	1/2	1/4	0.203	1/32	●	●	●	●	●	●	●	●	D14, D16 D18					
		443PS	150612PS						3/64	●	●	●	●	●	●	●	●		●	●			
		444PS	150616PS						1/16	●	●	●	●	●	●	●	●		●	●			
		DNMG 432PT	DNMG 150408PT						1/32	●	●	●	●	●	●	●	●		●	●			
Medium - Roughing		433PT	150412PT	1	4	1/2	3/16	0.203	3/64	●	●	●	●	●	●	●	●	D14~D19 F140, F152 F154~F156					
		DNMG 442PT	DNMG 150608PT						1/32	●	●	●	●	●	●	●	●		●	●			
		443PT	150612PT						3/64	●	●	●	●	●	●	●	●		●	●			
		DNMG 432GT	DNMG 150408GT						1/32	●	●	●	●	●	●	●	●		●	●			
Medium - Roughing		433GT	150412GT	1	4	1/2	3/16	0.203	3/64	●	●	●	●	●	●	●	●	D14~D19 F140, F152 F154~F156					
		DNMG 442GT	DNMG 150608GT						1/32	●	●	●	●	●	●	●	●		●	●			
		443GT	150612GT						3/64	●	●	●	●	●	●	●	●		●	●			
		DNMG 442GT	DNMG 150608GT						1/32	●	●	●	●	●	●	●	●		●	●			
Medium - Roughing		443GT	150612GT	1	4	1/2	1/4	0.203	3/64	●	●	●	●	●	●	●	●	D14, D16 D18					

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A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Inserts sold in 10 piece boxes

55° Diamond

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				Free-cutting steel															P																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Carbide										Cermets	Applicable Toolholder Page																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
						IC	S	D1	RE	CVD		PVD					- SW05	PVD PV730																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
										CA6515	CA6525	PR00S5	PR11S5	PR120S	PR122S	PR153S			PR172S			PR930																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Finishing - Medium		DNGG 4305MFP-SK	DNGG 150402MFP-SK	1	4	1/2	3/16	0.203	< 0.008																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

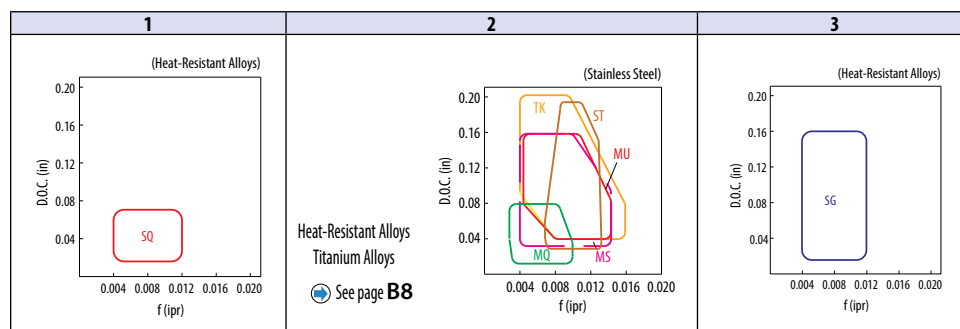
55° Diamond

How to read this page ➔ See page B15

				Free-cutting steel										P	
				Carbon steel / Alloy steel											
				Stainless Steel										M	
				Gray cast iron											
				Nodular cast iron										K	
				Non-ferrous metals											
				Heat-resistant alloy										S	
				Titanium alloy											
				Hard materials										H	

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Carbide							Applicable Toolholder Page	
						IC	S	D1	RE	CVD		PVD		-				
										CA115P	CA125P	CA6515	CA6525		PR0055	PR1155		PR1205	PR1335	SW05
Heat-Resistant Alloys	 Finishing - Medium	DNMG 431SQ	DNMG 150404SQ	1	4	1/2	3/16	0.203	1/64				●	●	●			D14~D19 F140, F152 F154~F156
		432SQ	150408SQ										●	●	●			
		433SQ	150412SQ										●	●	●			
Stainless Steel / Heat-Resistant Alloys	 Medium - Roughing	DNMG 441SQ	DNMG 150604SQ	1	4	1/2	1/4	0.203	1/64				●	●	●			D14, D16 D18
		442SQ	150608SQ										●	●	●			
		443SQ	150612SQ										●	●	●			
	 Medium - Roughing	DNMG 431MS	DNMG 150404MS	2	4	1/2	3/16	0.203	1/32		●	●	●	●	●	●		D14~D19 F140, F152 F154~F156
		432MS	150408MS								●	●	●	●	●	●		
		433MS	150412MS								●	●	●	●	●	●		
	 Medium - Roughing	DNMG 441MS	DNMG 150604MS	2	4	1/2	1/4	0.203	1/64		●	●	●	●	●	●		D14, D16 D18
		442MS	150608MS								●	●	●	●	●	●		
		443MS	150612MS								●	●	●	●	●	●		
Heat-Resistant Alloys	 Roughing	DNMG 431MU	DNMG 150404MU	2	4	1/2	3/16	0.203	1/32		●	●	●	●	●	●		D14~D19 F140, F152 F154~F156
		432MU	150408MU								●	●	●	●	●	●		
		442MU	150608MU								●	●	●	●	●	●		
Heat-Resistant Alloys	 Roughing	DNMG 432SG	DNMG 150408SG	3	4	1/2	3/16	0.203	1/32				●	●	●	●		D14~D19 F140, F152 F154~F156
		433SG	150412SG										●	●	●	●		
		442SG	DNMG 150608SG	3	4	1/2	1/4	0.203	1/32				●	●	●	●		D14, D16 D18
Stainless Steel	 Medium - Roughing	DNMG 441R-ST	DNMG 150604R-ST								●							
		441L-ST	150604L-ST								●							
		442R-ST	150608R-ST								●							
442L-ST	150608L-ST		●															

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

55° Diamond

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B
TURNING
INSERTS

NEGATIVE

C

D

R

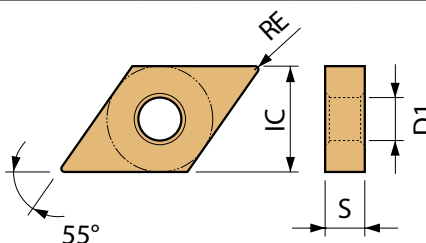
S

T

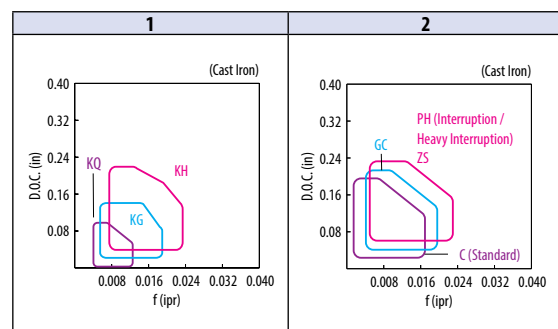
V

W

CERAMIC

		Free-cutting steel																	P	
		Carbon steel / Alloy steel																		
		Stainless Steel																		M
		Gray cast iron			☉	☉	☉	☉	☉	☉	☉	☉	☉	☉	☉	☉	☉	☉	☉	
Nodular cast iron			☉	☉	☉	☉	☉	☉	☉	☉	☉	☉	☉	☉	☉	☉	☉	☉		K
Non-ferrous metals																			N	
Heat-resistant alloy																			S	
Titanium alloy																			S	
Hard materials																			H	
Insert		Part Number ANSI		Part Number ISO		Chipbreaker Range		Dimensions (in)				Carbide						Applicable Toolholder Page		
								No. of Edges	IC	S	D1	RE	CVD							
													CA310	CA315	CA320	CA410K	CA415K			CA4515
Cast Iron	 Sharp Cutting Oriented	DNMG 431KQ	DNMG 150404KQ	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	D14~D19 F140, F152 F154~F156		
		432KQ	150408KQ						1/32	●	●	●	●	●	●	●	●		●	
		DNMG 441KQ	DNMG 150604KQ	1	4	1/2	1/4	0.203	1/64	●	●	●	●	●	●	●	D14, D16 D18			
		442KQ	150608KQ						1/32	●	●	●	●	●	●	●		●	●	
Cast Iron	 Medium-Roughing	DNMG 431KG	DNMG 150404KG	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	D14~D19 F140, F152 F154~F156			
		432KG	150408KG						1/32	●	●	●	●	●	●	●		●	●	
		433KG	150412KG						3/64	●	●	●	●	●	●	●		●	●	●
		DNMG 441KG	DNMG 150604KG	1	4	1/2	1/4	0.203	1/64	●	●	●	●	●	●	●	D14, D16 D18			
		442KG	150608KG						1/32	●	●	●	●	●	●	●		●	●	
		443KG	150612KG						3/64	●	●	●	●	●	●	●		●	●	●
Cast Iron	 Roughing	DNMG 432KH	DNMG 150408KH	1	4	1/2	3/16	0.203	1/32	●	●	●	●	●	●	●	D14~D19 F140, F152 F154~F156			
		433KH	150412KH						3/64	●	●	●	●	●	●	●		●	●	
		DNMG 442KH	DNMG 150608KH	1	4	1/2	1/4	0.203	1/32	●	●	●	●	●	●	●	D14, D16 D18			
		443KH	150612KH						3/64	●	●	●	●	●	●	●		●	●	
Cast Iron	 Roughing	DNMG 431C	DNMG 150404C	2	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	D14~D19 F140, F152 F154~F156			
		432C	150408C						1/32	●	●	●	●	●	●	●		●	●	●
		433C	150412C						3/64	●	●	●	●	●	●	●		●	●	●
		DNMG 441C	DNMG 150604C	2	4	1/2	1/4	0.203	1/64	●	●	●	●	●	●	●	D14, D16 D18			
		442C	150608C						1/32	●	●	●	●	●	●	●		●	●	●
		443C	150612C						3/64	●	●	●	●	●	●	●		●	●	●
Cast Iron	 Roughing	DNMG 432ZS	DNMG 150408ZS	2	4	1/2	3/16	0.203	1/32	●	●	●	●	●	●	●	D14~D19 F140, F152 F154~F156			
		433ZS	150412ZS						3/64	●	●	●	●	●	●	●		●	●	●
		DNMG 442ZS	DNMG 150608ZS	2	4	1/2	1/4	0.203	1/32	●	●	●	●	●	●	●	D14, D16 D18			
		443ZS	150612ZS						3/64	●	●	●	●	●	●	●		●	●	●
Cast Iron	 Roughing	DNMG 432GC	DNMG 150408GC	2	4	1/2	3/16	0.203	1/32	●	●	●	●	●	●	●	D14~D19 F140, F152 F154~F156			
		433GC	150412GC						3/64	●	●	●	●	●	●	●		●	●	●
		DNMG 442GC	DNMG 150608GC						2	4	1/2	1/4	0.203	1/32	●	●		●	●	●
443GC	150612GC	3/64	●	●	●	●	●	●						●	●	●	●			

Chipbreaker Range

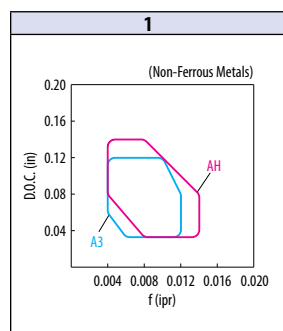


55° Diamond

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				Free-cutting steel										P					
				Carbon steel / Alloy steel															
				Stainless Steel										M					
				Gray cast iron				○	☺	☼	☼	●							☼
				Nodular cast iron					☺	☼	☼	●				○	○		
				Non-ferrous metals										N					
				Heat-resistant alloy														S	
				Titanium alloy										H					
Hard materials																			
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Carbide						Cermet	Applicable Toolholder Page		
						IC	S	D1	RE	CVD				DLC	-			CVD	PVD
										CA310	CA315	CA320	CA410K							CA415K	CA4515	PDL010	PDL025	KW10	CCX	PV700S
Cast Iron		DNMA 431	DNMA 150404	-	4	1/2	3/16	0.203	1/64	●	●	●	●	●		●			D14~D19 F140, F152 F154~F156
		432	150408							●	●	●	●	●		●	●	●	
	Without Chipbreaker	DNMA 441	DNMA 150604	-	4	1/2	1/4	0.203	1/64	●	●	●	●					D14, D16 D18	
		442	150608							●	●	●	●						
Non-Ferrous Metals		DNGG 431R-A3	DNGG 150404R-A3	1	4	1/2	3/16	0.203	1/64						●	●	●	D14~D19 F140, F152 F154~F156	
		431L-A3	150404L-A3												●	●	●		
		432R-A3	150408R-A3												●	●	●		
		432L-A3	150408L-A3												●	●	●		
Non-Ferrous Metals		DNGG 431AH	DNGG 150404AH	1	4	1/2	3/16	0.203	1/64						●	●	●	D14, D16 D18	
		432AH	150408AH												●	●	●		
		DNGG 441AH	DNGG 150604AH	1	4	1/2	1/4	0.203	1/64						●		D14, D16 D18		
		442AH	150608AH												●				
Non-Ferrous Metals		DNMG 431AH	DNMG 150404AH	1	4	1/2	3/16	0.203	1/64						●	●	●	D14~D19 F140, F152 F154~F156	
		432AH	150408AH												●	●	●		
		DNMG 441AH	DNMG 150604AH	1	4	1/2	1/4	0.203	1/64						●		D14, D16 D18		
		442AH	150608AH												●				

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

55° Diamond

How to read this page ➡ See page B15

				Free-cutting steel														P	
				Carbon steel / Alloy steel															
				Stainless Steel														M	
				Gray cast iron														K	
				Nodular cast iron															
				Non-ferrous metals														N	
				Heat-resistant alloy														S	
				Titanium alloy															
				Hard materials														H	
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	Dimensions (in)				RE	Carbide		Cermet						Applicable Toolholder Page	
					No. of Edges	IC	S	D1		PVD	-	PVD				-			
												PR930	KW10	PV7005	PV710		PV720		PV730	PV90	TN60	TN610	TN620
Finishing		DNGG 3305R-S	DNGG 110402R-S	1	4	3/8	3/16	0.150	0.008	●						●	D18 F150		
		3305L-S	110402L-S						0.008	●						●			
		331R-S	110404R-S						1/64	●						●			
		331L-S	110404L-S						1/64	●						●			
		332R-S	110408R-S						1/32					△	●				
		332L-S	110408L-S						1/32					△					
Medium		DNGG 331R	DNGG 110404R	1	4	3/8	3/16	0.150	1/64	●					●	D14~D19 F140, F152 F154~F156			
		331L	110404L						1/64	●							●		
		DNGG 431R	DNGG 150404R	1	4	1/2	3/16	0.203	1/64	●	●	●	●	●	●		●		
		431L	150404L						1/64	●	●	●	●	●	●		●		
		432R	150408R						1/32	●	●	●	●	●	●		●		
		432L	150408L						1/32	●	●	●	●	●	●		●		

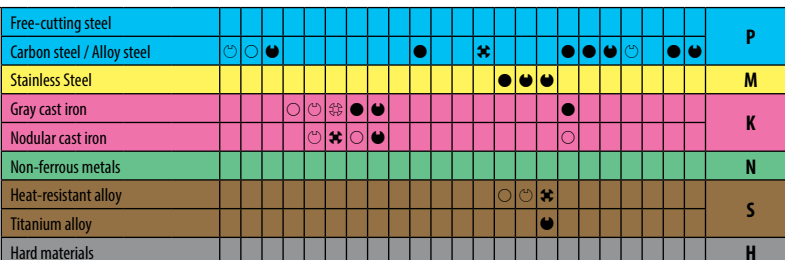
How to read this page ➞ See page B15

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Figure 1 is a graph showing the relationship between the Depth of Cut (D.O.C.) in inches and the Feed Rate (f) in inches per revolution (ipr) for Steel. The graph displays three curves for different cutting speeds: 1/2" IC, 5/8" IC, and 3/8" IC. The D.O.C. ranges from 0.04 to 0.16 inches, and the feed rate ranges from 0.008 to 0.040 ipr. The 1/2" IC curve is the leftmost, followed by the 5/8" IC curve, and the 3/8" IC curve is the rightmost.

Inserts sold in 10 piece boxes

How to read this page ➡ See page **B15**

TURNING
INSERTS

NEGATIVE



CERAMIC

**D21~D23
F158**

1	2	3
(Steel / IC = 3/8", 1/2")	(Steel / IC = 1/2")	(Steel / IC = 1/2")

How to read this page ➡ See page **B15**

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Figure 10 consists of three subplots showing the relationship between D.O.C. (in) and f (ipr) for different steel grades and wall thicknesses (IC).

- Subplot 1: Steel ($IC = 1/2", 5/8", 3/4"$)**
 - Y-axis: D.O.C. (in) from 0.08 to 0.48.
 - X-axis: f (ipr) from 0.008 to 0.040.
 - Curves: PH ($3/4"$) (green dashed), PH ($5/8"$) (red solid), PH ($1/2"$) (black solid).
- Subplot 2: Steel**
 - Y-axis: D.O.C. (in) from 0.08 to 0.48.
 - X-axis: f (ipr) from 0.008 to 0.040.
 - Curves: PX ($3/4"IC$) (green solid), PX ($5/8"$) (red solid), PX ($1/2"IC$) (blue solid).
- Subplot 3: Low Carbon Steel**
 - Y-axis: D.O.C. (in) from 0.04 to 0.20.
 - X-axis: f (ipr) from 0.004 to 0.020.
 - Curves: XQ (green solid), XS (pink solid), XP (blue solid).

Inserts sold in 10 piece boxes

How to read this page ➡ See page **B15**

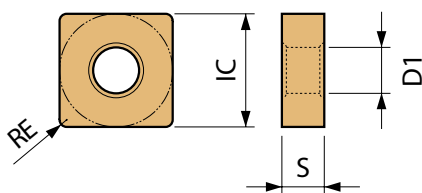
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Figure 10 consists of four graphs showing the relationship between D.O.C. (in) and f (ipr) for different materials and conditions. The graphs are labeled 1 through 4.

- Graph 1 (Stainless Steel):** Shows three curves: MU (IC = 3/4") in red, MS in black, and MQ in green. The y-axis (D.O.C. (in)) ranges from 0.04 to 0.20, and the x-axis (f (ipr)) ranges from 0.004 to 0.020.
- Graph 2 (Heat-Resistant Alloys):** Shows two curves: SG(3/4" IC) in green and SG(1/2" IC) in blue. The y-axis (D.O.C. (in)) ranges from 0.04 to 0.40, and the x-axis (f (ipr)) ranges from 0.004 to 0.024.
- Graph 3 (Cast Iron):** Shows two curves: KH in pink and KG in blue. The y-axis (D.O.C. (in)) ranges from 0.08 to 0.40, and the x-axis (f (ipr)) ranges from 0.008 to 0.040.
- Graph 4 (Cast Iron):** Shows four curves: PH (Interruption / Heavy Interruption, ZS) in pink, GC in blue, C (Standard) in black, and an unlabeled curve in purple. The y-axis (D.O.C. (in)) ranges from 0.08 to 0.40, and the x-axis (f (ipr)) ranges from 0.008 to 0.040.

How to read this page ➡ See page **B15**

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

1

(Cast Iron)

D.O.C. (in)

PH (Interruption / Heavy Interruption), ZS

CC

C (Standard)

f (ipr)

2

(Steel / IC = 3/8", 1/2")

D.O.C. (in)

C

25SR

f (ipr)

Inserts sold in 10 piece boxes

90° Square

How to read this page ➡ See page B15

B
TURNING
INSERTS

NEGATIVE

C

D

R

S

T

V

W

CERAMIC

					Free-cutting steel						P			
					Carbon steel / Alloy steel									
					Stainless Steel						M			
					Gray cast iron		○	☺	☼	●	K			
					Nodular cast iron		☺	✱	○	●				
					Non-ferrous metals						N			
					Heat-resistant alloy						S			
					Titanium alloy									
					Hard materials						H			
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)			Carbide					Applicable Toolholder Page
						IC	S	RE	CVD					
									CA310	CA315	CA320	CA410K	CA415K	
Cast Iron Without Chipbreaker	SNMN 432	SNMN 120408	-	8	1/2	3/16	1/32	●	●	●	●	●	D56~D60 D69 D70	
	433	120412					3/64	●	●	●	●	●		

How to read this page ➡ See page **B15**

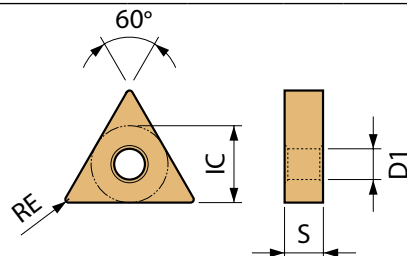
See "Precautions when using Wiper inserts" on page R40 and R41 for WF/WE chipbreakers.

1	2	3	4
(Steel)	(Steel / IC = 1/4")	(Steel / IC = 3/8")	(Steel / IC = 1/2")

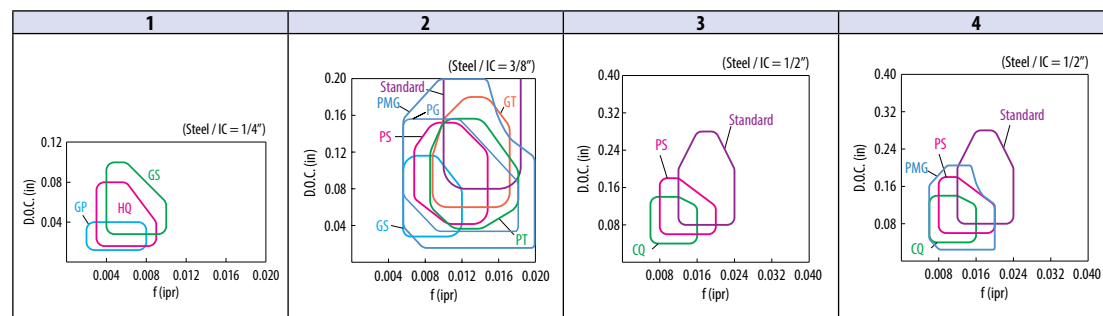
Inserts sold in 10 piece boxes

60° Triangle

How to read this page ➡ See page **B15**

[illegible][illegible]

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

How to read this page ➡ See page **B15**

A	INSERT GRADES
B	TURNING INSERTS
C	GBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Figure 10 consists of three subplots labeled 1, 2, and 3, showing D.O.C. (in) vs. f (ipr) for Steel and Low Carbon Steel.

- Subplot 1 (Steel):** Shows two regions: PH (3/8" C) and PH (1/2" C). The y-axis ranges from 0.08 to 0.40, and the x-axis ranges from 0.008 to 0.040.
- Subplot 2 (Steel):** Shows two regions: PX (1/2" C) and PX (3/8" C). The y-axis ranges from 0.08 to 0.40, and the x-axis ranges from 0.008 to 0.040.
- Subplot 3 (Low Carbon Steel):** Shows four regions: XF, XP, XQ, and XS. The y-axis ranges from 0.04 to 0.20, and the x-axis ranges from 0.004 to 0.020.

Inserts sold in 10 piece boxes

60° Triangle

How to read this page ➔ See page B15

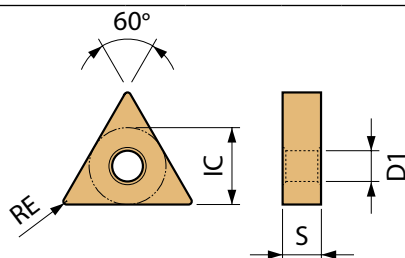
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Finishing - Medium		TNGG 3302MFP-SK 3305MFP-SK 331MFP-SK	TNGG 160401MFP-SK 160402MFP-SK 160404MFP-SK	1	6	3/8	3/16	0.150	< 0.004 < 0.008 < 1/64																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

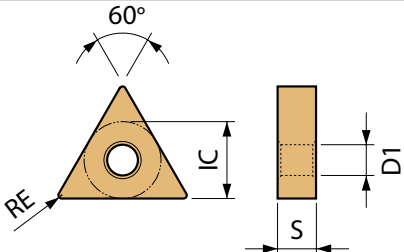
How to read this page ➡ See page **B15**

A	INSERT GRADES
B	TURNING INSERTS
C	CBN / PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Inserts sold in 10 piece boxes

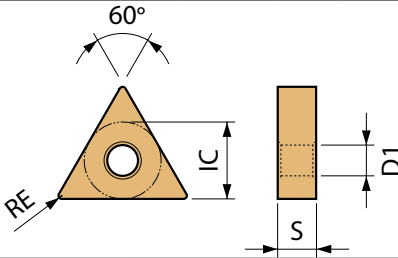
How to read this page See page **B15**



						Free-cutting steel																	P				
						Carbon steel / Alloy steel																					
						Stainless Steel																	M				
						Gray cast iron																	K				
						Nodular cast iron																	K				
						Non-ferrous metals																	N				
						Heat-resistant alloy																	S				
						Titanium alloy																	S				
						Hard materials																	H				
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Carbide						Cermet				Applicable Toolholder Page							
						IC	S	D1	RE	CVD					DLC	-	CVD	PVD	-								
										CA310	CA315	CA320	CA410K	CA415K	CA4505	CA4515	PD1010	PD1025	KW10		CCX	PV7005	PV720	TN60	TN620		
Cast Iron	 Without Chipbreaker	TNGA 221	TNGA 110304	-	6	1/4	1/8	0.089	1/64																	D28 D29	
		TNGA 331	TNGA 160404	-	6	3/8	3/16	0.150	1/64																		D25~D32 F142 F159 F160
		332	160408					1/32																			
		TNMA 331	TNMA 160404					1/64	●	●	●	●	●	●	●	●			●	●	●	●	●	●	●		
		332	160408					1/32	●	●	●	●	●	●	●	●			●	●	●	●	●	●			
		333	160412	-	6	3/8	3/16	0.150	3/64	●	●	●	●	●	●	●											
		334	160416					1/16	●	●	●	●	●	●	●	●											
335	160420					5/64	●	●	●	●	●	●	●	●													
Non-Ferrous Metals	 Finishing - Medium / Sharp Edge	TNGG 331R-A3	TNGG 160404R-A3	1	6	3/8	3/16	0.150	1/64									●	●	●						D25~D32 F142 F159 F160	
		331L-A3	160404L-A3						1/64											●	●	●					
		332R-A3	160408R-A3						1/32											●	●	●					
		332L-A3	160408L-A3						1/32											●	●	●					
									1/32											●	●	●					
Non-Ferrous Metals	 Medium - Roughing / Sharp Edge	TNGG 331AH	TNGG 160404AH	1	6	3/8	3/16	0.150	1/64									●	●	●							
		332AH	160408AH						1/32											●	●	●					
Non-Ferrous Metals	 Medium - Roughing	TNMG 331AH	TNMG 160404AH	1	6	3/8	3/16	0.150	1/64									●	●	●							
		332AH	160408AH						1/32											●	●	●					

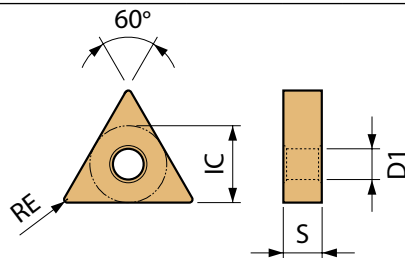
60° Triangle

How to read this page ➔ See page B15

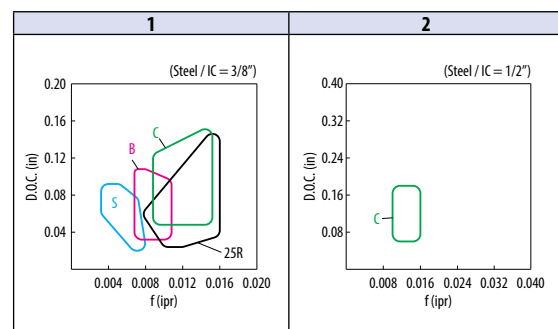
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60° Triangle

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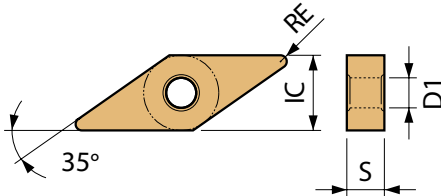
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Chipbreaker Range



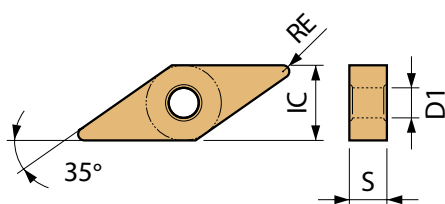
35° Diamond

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				Free-cutting steel																												
				Carbon steel / Alloy steel																P												
Stainless Steel																M																
Gray cast iron																K																
Nodular cast iron																K																
Non-ferrous metals																N																
Heat-resistant alloy																S																
Titanium alloy																S																
Hard materials																H																
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Carbide										Cermet					Applicable Toolholder Page							
						IC	S	D1	RE	CVD										CVD	PVD	-										
										CA025P	CA115P	CA125P	CA310	CA315	CA320	CA410K	CA415K	CA4515	CA510				CA515	CA525		CA530	CA6515	CA6525				
Finishing		VNMG 3305PP	VNMG 160402PP	1	4	3/8	3/16	0.150	0.008	●	●	●						●	●	●	●	●	●	●	●	●	●	D34~D44				
		331PP	160404PP						1/64	●	●	●											●	●	●	●	●		●	●	●	
		332PP	160408PP						1/32	●	●	●												●	●	●	●		●	●	●	●
		333PP	160412PP						3/64	●	●	●												●	●	●	●		●	●	●	●
Finishing		VNMG 3305GP	VNMG 160402GP	1	4	3/8	3/16	0.150	0.008	●	●	●																				
		331GP	160404GP						1/64	●	●	●																				
		332GP	160408GP						1/32	●	●	●																				
Finishing - Medium		VNMG 331R-VC	VNMG 160404R-VC	2	4	3/8	3/16	0.150	1/64	●	●	●							●	●	●	●	●	●	●	●	●					
		331L-VC	160404L-VC						1/64	●	●	●												●	●	●	●	●	●	●	●	
		332R-VC	160408R-VC						1/32	●	●	●													●	●	●	●	●	●	●	●
		332L-VC	160408L-VC						1/32	●	●	●														●	●	●	●	●	●	●
		333R-VC	160412R-VC						3/64	●	●	●														●	●	●	●	●	●	●
		333L-VC	160412L-VC						3/64	●	●	●															●	●	●	●	●	●
Finishing - Medium		VNMG 331VF	VNMG 160404VF	3	4	3/8	3/16	0.150	1/64	●	●	●							●	●	●	●	●	●	●	●	●					
		332VF	160408VF						1/32	●	●	●																				
		333VF	160412VF						3/64	●	●	●																				
Finishing - Medium		VNMG 331PQ	VNMG 160404PQ	1	4	3/8	3/16	0.150	1/64	●	●	●																				
		332PQ	160408PQ						1/32	●	●	●																				
		333PQ	160412PQ						3/64	●	●	●																				
Finishing - Medium		VNMG 331HQ	VNMG 160404HQ	1	4	3/8	3/16	0.150	1/64	●	●	●																				
		332HQ	160408HQ						1/32	●	●	●																				
		333HQ	160412HQ						3/64	●	●	●																				
Medium		VNMG 331TN-V	VNMG 160404TN-V	3	4	3/8	3/16	0.150	1/64																							
		332TN-V	160408TN-V						1/32																							
		333TN-V	160412TN-V						3/64																							
Roughing		VNMG 331	VNMG 160404	3	4	3/8	3/16	0.150	1/64	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
		332	160408						1/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		

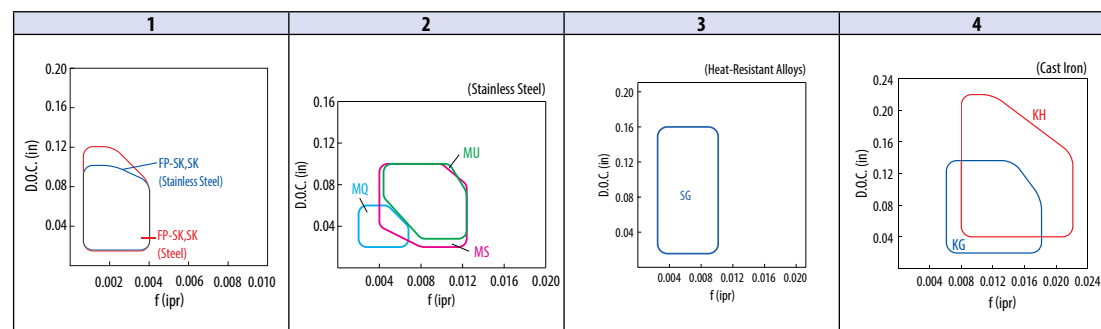
35° Diamond

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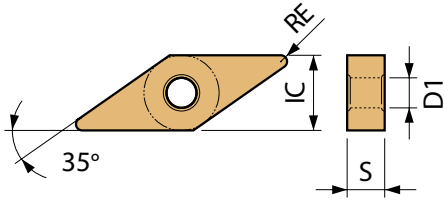
Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002 , <0.004 , <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

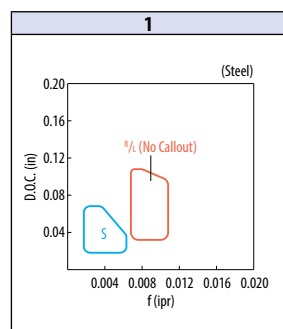


35° Diamond

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				<table><tr><td>Free-cutting steel</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>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Chipbreaker Range



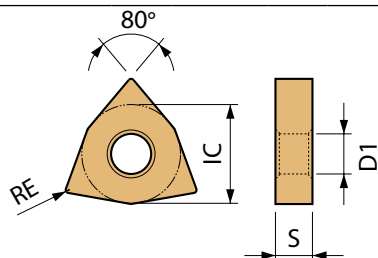
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

80° Trigon

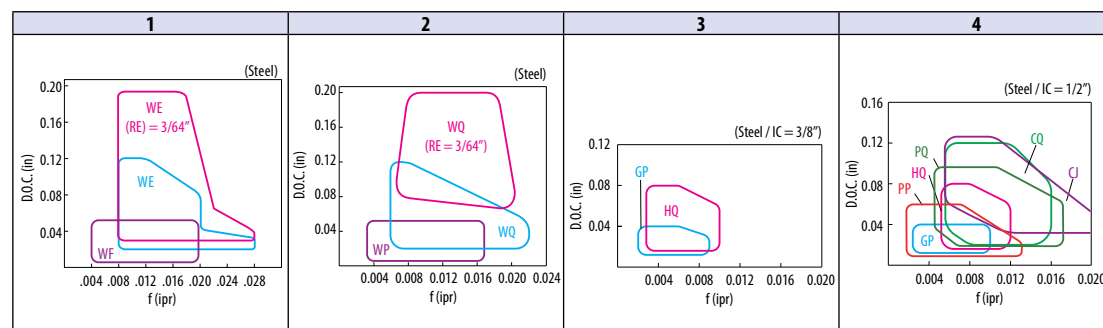
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Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Carbide					Cermet				Applicable Toolholder Page							
						IC	S	D1	RE	CVD					CVD	PVD	-									
										CA025P	CA115P	CA125P	CA510	CA515			CA525	CA530		CCX	PV710	PV720	PV730	Ti60	Ti610	Ti620
Finishing	 With Wiper Edge	WNMG 431WF	WNMG 080404WF	1	6	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	●	●	D48~D51 F162 F164 F165						
		432WF	080408WF						1/32	●	●	●	●	●	●	●	●	●	●		●	●	●	●		
Finishing	 With Wiper Edge	WNMG 431WP	WNMG 080404WP	2	6	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	●	●							
		432WP	080408WP						1/32	●	●	●	●	●	●	●	●	●	●		●	●	●	●		
Finishing - Medium	 With Wiper Edge	WNMG 431WE	WNMG 080404WE	1	6	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	●	●	D48~D51 F162 F164 F165						
		432WE	080408WE						1/32	●	●	●	●	●	●	●	●	●	●		●	●	●	●		
		433WE	080412WE						3/64	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	
Finishing - Medium	 With Wiper Edge	WNMG 431WQ	WNMG 080404WQ	2	6	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	●	●							
		432WQ	080408WQ						1/32	●	●	●	●	●	●	●	●	●	●		●	●	●	●		
		433WQ	080412WQ						3/64	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	
Finishing	 With Wiper Edge	WNMG 4305PP	WNMG 080402PP	4	6	1/2	3/16	0.203	0.008	●	●	●	●	●	●	●	●	●	●	D50 F162						
		431PP	080404PP						1/64	●	●	●	●	●	●	●	●	●	●		●	●	●	●		
		432PP	080408PP						1/32	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	
		433PP	080412PP						3/64	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	
Finishing	 With Wiper Edge	WNMG 331GP	WNMG 060404GP	3	6	3/8	3/16	0.150	1/64	●	●	●	●	●	●	●	●	●	●	D48~D51 F162 F164 F165						
		332GP	060408GP						1/32	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	
Finishing - Medium	 With Wiper Edge	WNMG 431GP	WNMG 080404GP	4	6	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	●	●							
		432GP	080408GP						1/32	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	
Finishing - Medium	 With Wiper Edge	WNMG 431PQ	WNMG 080404PQ	4	6	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	●	●							
		432PQ	080408PQ						1/32	●	●	●	●	●	●	●	●	●	●		●	●	●	●		
		433PQ	080412PQ						3/64	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	
Finishing - Medium	 With Wiper Edge	WNMX 431ER	WNMX 080404GER	-	6	1/2	3/16	0.203	1/64	●	●	●	●	●	●	●	●	●	●							
		431EL	080404GEL						1/64	●	●	●	●	●	●	●	●	●	●		●	●	●	●		
		432ER	080408GER						1/32	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	
		432EL	080408GEL						1/32	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	

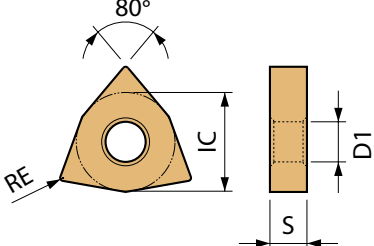
See "Precautions when using Wiper inserts" on page **R40** and **R41** for WF/WE chipbreakers.

Chipbreaker Range



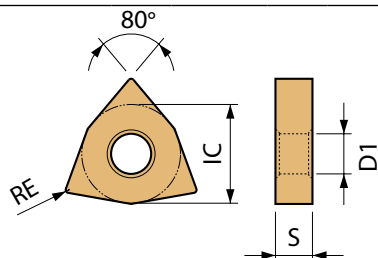
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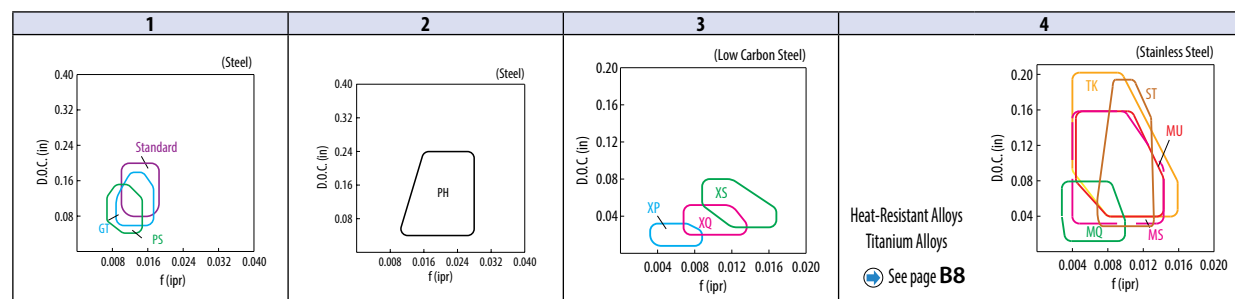
				Free-cutting steel												P												
				Carbon steel / Alloy steel												M												
				Stainless Steel												K												
				Gray cast iron												N												
				Nodular cast iron												S												
				Non-ferrous metals												H												
				Heat-resistant alloy												P												
				Titanium alloy												M												
				Hard materials												K												
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Carbide						Cermet				Applicable Toolholder Page								
						IC	S	D1	RE	CVD						PVD CVD	PVD	-										
										CA025P	CA115P	CA125P	CA310	CA315	CA325			CA330	CA6515		PR1535	CCX	PV710	PV720	PV730	TN610	TN620	
Finishing - Medium		WNMG 3251HQ 3252HQ	WNMG 06T304HQ 06T308HQ	1	6	3/8	5/32	0.150	1/64 1/32	●	●	●			●	●	●	●	●	●	●	-						
		WNMG 331HQ 332HQ	WNMG 060404HQ 060408HQ							1	6	3/8	3/16	0.150	1/64 1/32	●	●	●	●	●	●		●	●	●	●	●	D50 F162
		WNMG 431HQ 432HQ 433HQ	WNMG 080404HQ 080408HQ 080412HQ	2	6	1/2	3/16	0.203	1/64 1/32 3/64	●	●	●	●	●	●	●	●	●	●	●	●		●	D48~D51 F162 F164 F165				
Finishing - Medium		WNMG 431CQ 432CQ 433CQ	WNMG 080404CQ 080408CQ 080412CQ	2	6	1/2	3/16	0.203	1/64 1/32 3/64	●	●	●	●			●	●	●	●	●	●	D48~D51 F162 F164 F165						
Finishing - Medium		WNMG 432CJ 433CJ	WNMG 080408CJ 080412CJ	2	6	1/2	3/16	0.203	1/32 3/64	●	●	●	●									D48~D51 F162 F164 F165						
Medium - Roughing		WNMG 431PMG 432PMG 433PMG 434PMG	WNMG 080404PMG 080408PMG 080412PMG 080416PMG	3	6	1/2	3/16	0.203	1/64 1/32 3/64 1/16	●	●											D50 F162						
Medium - Roughing		WNMG 331GS 332GS	WNMG 060404GS 060408GS	3	6	3/8	3/16	0.150	1/64 1/32	●	●	●	●					●	●	●	●	D50 F162						
		WNMG 431GS 432GS 433GS	WNMG 080404GS 080408GS 080412GS							6	1/2	3/16	0.203	1/64 1/32 3/64	●	●	●	●	●	●	●		●	●	●	●	D48~D51 F162 F164 F165	
		WNMG 431PG 432PG 433PG 434PG	WNMG 080404PG 080408PG 080412PG 080416PG	3	6	1/2	3/16	0.203	1/64 1/32 3/64 1/16	●	●	●	●	●	●	●	●	●	●	●	●	●	D48~D51 F162 F164 F165					
		WNMG 431PS 432PS 433PS 434PS	WNMG 080404PS 080408PS 080412PS 080416PS	3	6	1/2	3/16	0.203	1/64 1/32 3/64 1/16	●	●	●	●	●	●	●	●	●	●	●	●	●		●	D48~D51 F162 F164 F165			
Medium - Roughing		WNMG 432PT 433PT	WNMG 080408PT 080412PT	3	6	1/2	3/16	0.203	1/32 3/64	●	●	●	●	●	●	●	●	●	●	●	●	D48~D51 F162 F164 F165						

80° Trigon

How to read this page ➡ See page **B15**

[illegible][illegible]

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

How to read this page ➡ See page **B15**

A	INSERT GRADES
B	TURNING INSERTS
C	CBN / PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

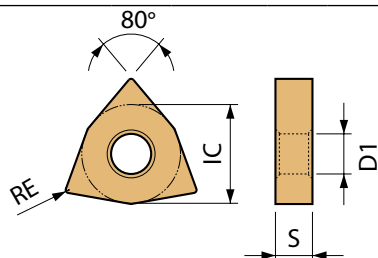
Figure 1 consists of three graphs labeled 1, 2, and 3, showing the relationship between Depth of Cut (D.O.C.) in inches and Feed Rate (f) in inches per revolution (ipr).

- Graph 1 (Stainless Steel):** The y-axis (D.O.C. (in)) ranges from 0.04 to 0.20. The x-axis (f (ipr)) ranges from 0.004 to 0.020. The graph shows several tool configurations (TK, ST, MU, MS, MQ) forming a complex boundary. The legend indicates Heat-Resistant Alloys (orange) and Titanium Alloys (green).
- Graph 2 (Heat-Resistant Alloys):** The y-axis (D.O.C. (in)) ranges from 0.04 to 0.20. The x-axis (f (ipr)) ranges from 0.004 to 0.020. The graph shows a single tool configuration (SG) forming a square boundary. The legend indicates Heat-Resistant Alloys (blue).
- Graph 3 (Cast Iron):** The y-axis (D.O.C. (in)) ranges from 0.08 to 0.40. The x-axis (f (ipr)) ranges from 0.008 to 0.040. The graph shows several tool configurations (KQ, KH, KG) forming a complex boundary. The legend indicates Heat-Resistant Alloys (pink) and Titanium Alloys (blue).

Inserts sold in 10 piece boxes

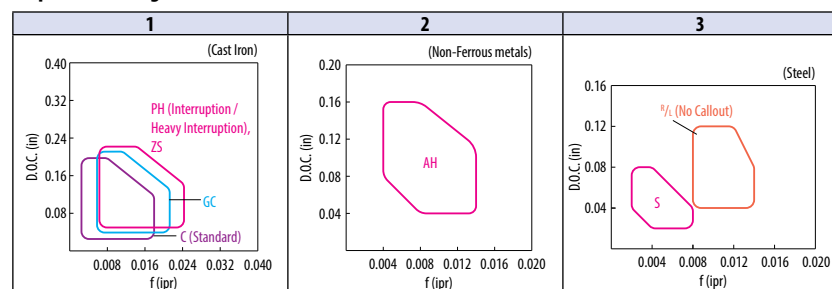
80° Trigon

How to read this page ➡ See page **B15**



				Material Compatibility																Applicable Toolholder Page	
				Free-cutting steel																	P
				Carbon steel / Alloy steel																	
				Stainless Steel																	M
Gray cast iron				○	☺	☼	☼	●						☼	●	K					
Nodular cast iron					☺	☼	☼	●							○						
Non-ferrous metals													●	☼	☼	N					
Heat-resistant alloy																S					
Titanium alloy														☼							
Hard materials																H					
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Carbide						Cermet		Applicable Toolholder Page			
						IC	S	D1	RE	CVD				DLC	-	CVD	-				
										CA310	CA315	CA320	CA410K						CA415K	CA4515	PDL010	PDL025	KW10	CCX	TN60
Cast Iron		WNMG 431C	WNMG 080404C	1	6	1/2	3/16	0.203	1/64	●	●	●		●				D48~D51 F162 F164 F165			
		432C	080408C						1/32	●	●	●		●							
		433C	080412C						3/64	●	●	●		●							
Cast Iron		WNMG 432ZS	WNMG 080408ZS	1	6	1/2	3/16	0.203	1/32	●	●	●	●	●							
		433ZS	080412ZS						3/64	●	●	●	●	●							
Cast Iron		WNMG 432GC	WNMG 080408GC	1	6	1/2	3/16	0.203	1/32	●	●	●		●							
		433GC	080412GC						3/64	●	●	●		●							
Cast Iron		WNMA 432	WNMA 080408	-	6	1/2	3/16	0.203	1/32	●	●	●	●	●		●					
		433	080412						3/64	●	●	●	●	●							
Non-Ferrous Metals		WNGG 431AH	WNGG 080404AH	2	6	1/2	3/16	0.203	1/64					●	●	●					
		432AH	080408AH						1/32					●	●	●					
Finishing		WNGG 3305R-S	WNGG 060402R-S	3	6	3/8	3/16	0.150	0.008						●	●	●				
		3305L-S	060402L-S						0.008						●	●	●				
		331R-S	060404R-S						1/64						●	●	●				
		331L-S	060404L-S						1/64						●	●	●				
		332R-S	060408R-S						1/32							●	●				
Medium		WNGG 331R	WNGG 060404R	3	6	3/8	3/16	0.150	1/64						●	●					
		331L	060404L						1/64							●	●				

Chipbreaker Range



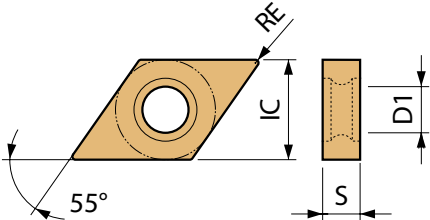
Small Double-Sided / 80° Diamond

How to read this page ➔ See page B15

				Free-cutting steel								P	
				Carbon steel / Alloy steel				☺			☹		M
				Stainless Steel				☺	☹	☺		K	
				Gray cast iron								K	
				Nodular cast iron									
				Non-ferrous metals								N	
				Heat-resistant alloy					✖			S	
				Titanium alloy					☹				
				Hard materials								H	
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Carbide			Applicable Toolholder Page
						IC	S	D1	RE	PVD			
										PR1225	PR1335	PR1705 PR1725	
Finishing - Medium		CNGU 24202MFP-SK	CNGU 070301MFP-SK	1	4	0.295	1/8	0.124	< 0.004	●	●	●	E64
		24205MFP-SK	070302MFP-SK						< 0.008	●	●	●	
Medium - Roughing		CNMU 24205E-GK	CNMU 070302E-GK	1	4	0.295	1/8	0.124	0.008	●	●	●	
		2421E-GK	070304E-GK						1/64	●	●	●	
Finishing		CNGU 242013MFR-F	CNGU 0703005MFR-F	1	4	0.295	1/8	0.124	< 0.002	△	●		
		24202MFR-F	070301MFR-F						< 0.004		●	●	
		24205MFR-F	070302MFR-F						< 0.008		●	●	
		2421MFR-F	070304MFR-F						< 1/64		●	●	
Low Feed		CNGU 242013MFR-U	CNGU 0703005MFR-U	1	4	0.295	1/8	0.124	< 0.002	●	●		
		24202MFR-U	070301MFR-U						< 0.004		●	●	
		24205MFR-U	070302MFR-U						< 0.008		●	●	
		2421MFR-U	070304MFR-U						< 1/64		●	●	

Small Double-Sided / 55° Diamond

How to read this page ➔ See page B15

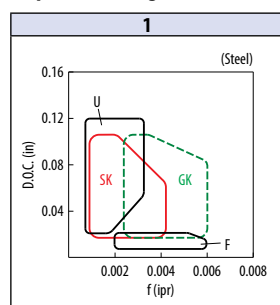
				Free-cutting steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Selection (Negative Inserts)

Cutting Range	Name	Cross-Section	Advantages
Finishing - Medium	SK		A low cutting force chipbreaker designed for chip control in steel and stainless steel. Cutting performance is similar to comparably sized positive inserts.
Medium - Roughing	GK		Chipbreaker "dot" and pocket design provide chip control at multiple depths of cut and feed rates.
Finishing	F		Controlled chip evacuation direction with low cutting forces.
Low Feed	U		Good chip control at low feed rates and varied depths of cut with low cutting forces.

Chipbreaker Range



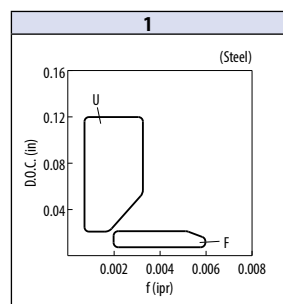
Small Double-Sided / 60° Triangle

How to read this page ➔ See page B15

				Free-cutting steel Carbon steel / Alloy steel Stainless Steel Gray cast iron Nodular cast iron Non-ferrous metals Heat-resistant alloy Titanium alloy Hard materials				P M K N S H				
Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range No. of Edges	Dimensions (in)				Carbide				Applicable Toolholder Page
				IC	S	D1	RE	PVD				
								PR1225	PR1535	PR1705	PR1725	
Finishing 	TNGU 182013MFR-F 18202MFR-F 18205MFR-F 1821MFR-F	TNGU 0903005MFR-F 090301MFR-F 090302MFR-F 090304MFR-F	1	6	7/32	1/8	0.118	< 0.002 < 0.004 < 0.008 < 1/64	● ● ● ●	● ● ● ●	● ● ● ●	E66
Low Feed 	TNGU 18202MFR-U 18205MFR-U 1821MFR-U	TNGU 090301MFR-U 090302MFR-U 090304MFR-U	1	6	7/32	1/8	0.118	< 0.004 < 0.008 < 1/64	● ● ●	● ● ●	● ● ●	
Low Feed 	TNGU 1821MER-U	TNGU 090304MER-U	1	6	7/32	1/8	0.118	< 1/64	●	●	●	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

80° Diamond

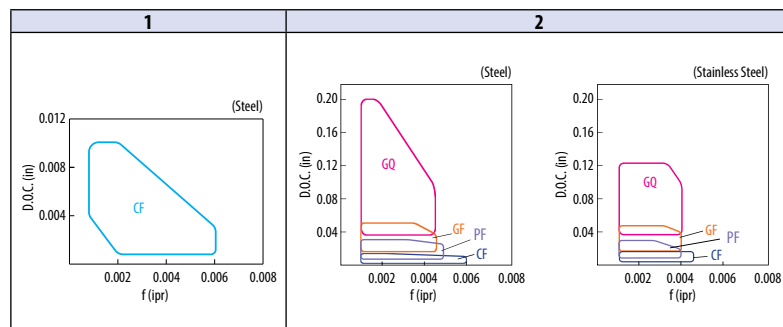
How to read this page ➔ See page B15

					Free-cutting steel														P
					Carbon steel / Alloy steel														
					Stainless Steel														M
					Gray cast iron														
					Nodular cast iron														
					Non-ferrous metals														
					Heat-resistant alloy														S
					Titanium alloy														
					Hard materials													H	

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Angle (°)	Carbide				Applicable Toolholder Page
						IC	S	D1	RE		AN	DLC		PVD	
										PDL010		PDL025	PR1225	PR1535		PR1705	PR1725
Minute D.O.C.  Polished / Sharp Edge	CCGT 110902MP-CF	CCGT 030101MP-CF	1	2	0.138	0.055	0.079	< 0.004 < 0.008	7	●	●	●	●	●	F33~F34 F62, F64 F66
	110905MP-CF	030102MP-CF								●	●	●	●	●	
	CCGT 141102MP-CF	CCGT 040101MP-CF	1	2	0.169	0.071	0.094	< 0.004 < 0.008	7	●	●	●	●	●	F33~F34 F62, F64
	141105MP-CF	040102MP-CF								●	●	●	●	●	
Finishing  Polished / Sharp Edge	CCGT 110902MFP-PF	CCGT 030101MFP-PF	2	2	0.138	0.055	0.079	< 0.004 < 0.008	7	●	●	●	●	●	F33~F34 F62, F64 F66
	110905MFP-PF	030102MFP-PF								●	●	●	●	●	
	CCGT 141102MFP-PF	CCGT 040101MFP-PF	2	2	0.169	0.071	0.094	< 0.004 < 0.008	7	●	●	●	●	●	F33~F34 F62, F64
	141105MFP-PF	040102MFP-PF								●	●	●	●	●	
	CCGT 21502MFP-PF	CCGT 060201MFP-PF	2	2	1/4	3/32	0.118	< 0.004 < 0.008 < 1/64	7	●	●	●	●	●	E26~E27 E58, E72 F33~F34 F64 F67~F68 F134
	21505MFP-PF	060202MFP-PF								●	●	●	●	●	
	2151MFP-PF	060204MFP-PF								●	●	●	●	●	
Finishing  Polished / Sharp Edge	CCGT 21502MFP-GF	CCGT 060201MFP-GF	2	2	1/4	3/32	0.118	< 0.004 < 0.008 < 1/64	7	●	●	●	●	●	E26~E29 E58, E72 F62~F64 F134
	21505MFP-GF	060202MFP-GF								●	●	●	●	●	
	2151MFP-GF	060204MFP-GF	2	2	3/8	5/32	0.185	< 0.004 < 0.008 < 1/64	7	●	●	●	●	●	E26~E29 E58, E72 F62~F64 F134
	CCGT 32502MFP-GF	CCGT 09T301MFP-GF								●	●	●	●	●	
	32505MFP-GF	09T302MFP-GF								●	●	●	●	●	
	3251MFP-GF	09T304MFP-GF								●	●	●	●	●	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

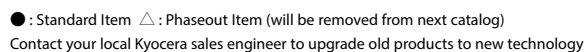
Chipbreaker Range



How to read this page ➡ See page **B15**

A	INSERT GRADES
B	TURNING INSERTS
C	CBN / PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

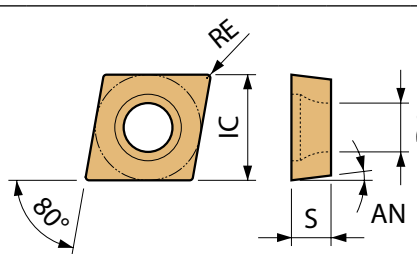
Chipbreaker Range



B59

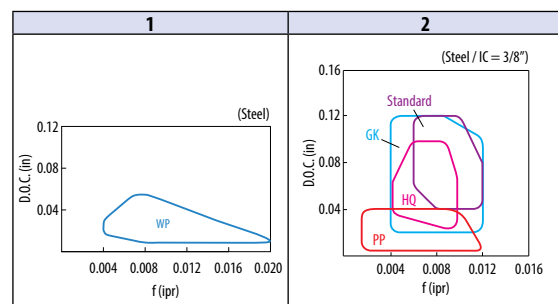
80° Diamond

How to read this page ➡ See page **B15**

[illegible]

See "Precautions when using Wiper inserts" on page R42 and R43 for WP chipbreaker.

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

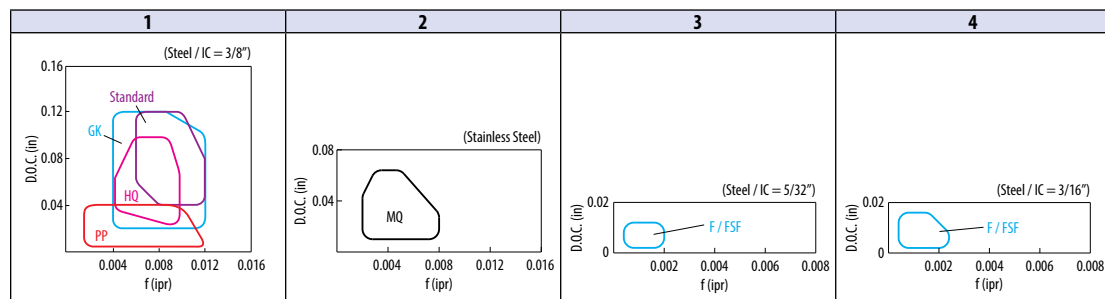
80° Diamond

How to read this page ➔ See page B15

				Free-cutting steel																P	
				Carbon steel / Alloy steel																	
				Stainless Steel																M	
				Gray cast iron																		K
				Nodular cast iron																	
				Non-ferrous metals																		N
				Heat-resistant alloy																S	
				Titanium alloy																	
				Hard materials																H	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



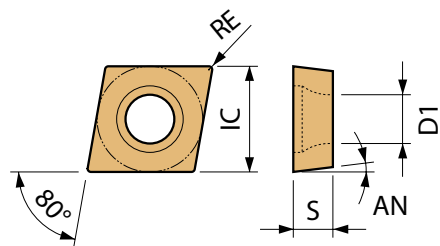
● : Standard Item △ : Phaseout Item (will be removed from next catalog)

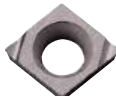
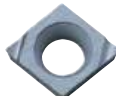
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

80° Diamond

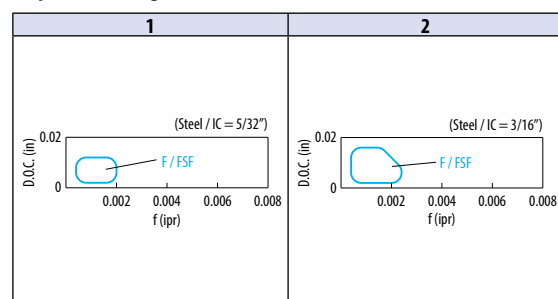
How to read this page ➡ See page **B15**

[illegible]

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Angle (°)	Carbide					Cermet				Applicable Toolholder Page							
						IC	S	D1	RE		AN	PDL010	PDL025	PR1225	PR1535	PR1705	PR1725	PR930	KW10		PW170	PW720	PW730	TN60	TN620		
																										DLC	PVD	-	PVD	-
Finishing		CCET 1109013MR-F	CCET 0301005MR-F	1	2	0.138	0.055	0.075	< 0.002	7													F33~F34 F62, F64 F66				
		1109013ML-F	0301005ML-F																								
		110902MR-F	030101MR-F																								
		110902ML-F	030101ML-F																								
		110905MR-F	030102MR-F																								
		110905ML-F	030102ML-F																								
		11091MR-F	030104MR-F																								
		CCET 141102MR-F	CCET 040101MR-F	2	2	0.169	0.071	0.091	< 0.004	7												F33~F34 F62, F64					
		141102ML-F	040101ML-F																								
		141105MR-F	040102MR-F																								
		141105ML-F	040102ML-F																								
		14111MR-F	040104MR-F																								
		14111ML-F	040104ML-F																								
Finishing		CCGT 110901L-F	CCGT 0301003L-F	1	2	0.138	0.055	0.075	0.001	7												F33~F34 F62, F64 F66					
		110902R-F	030101R-F																								
		110902L-F	030101L-F																								
		110905R-F	030102R-F																								
		110905L-F	030102L-F																								
		11091R-F	030104R-F																								
		11091L-F	030104L-F																								
				CCGT 141101L-F	CCGT 0401003L-F	2	2	0.169	0.071	0.091	0.001	7											F33~F34 F62, F64				
				141102R-F	040101R-F																						
				141102L-F	040101L-F																						
				141105R-F	040102R-F																						
				141105L-F	040102L-F																						
				14111R-F	040104R-F																						
				14111L-F	040104L-F																						
				CCGT 1109013ML-F	CCGT 0301005ML-F	1	2	0.138	0.055	0.075	< 0.002	7												F33~F34 F62, F64 F66			
				110902MR-F	030101MR-F																						
				110902ML-F	030101ML-F																						
				110905MR-F	030102MR-F																						
				110905ML-F	030102ML-F																						
				11091MR-F	030104MR-F																						
				11091ML-F	030104ML-F																						
		CCGT 1411013ML-F	CCGT 0401005ML-F	2	2	0.169	0.071	0.091	< 0.002	7												F33~F34 F62, F64					
		141102ML-F	040101ML-F																								
		141105MR-F	040102MR-F																								
		141105ML-F	040102ML-F																								
		14111MR-F	040104MR-F																								
		14111ML-F	040104ML-F																								

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



How to read this page ➡ See page **B15**

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

1	2	3
(Steel) D.O.C. (in) f (ipr)	(Steel / IC = 1/4") D.O.C. (in) f (ipr) U / USF	(Steel / IC = 3/8") D.O.C. (in) f (ipr) U / USF

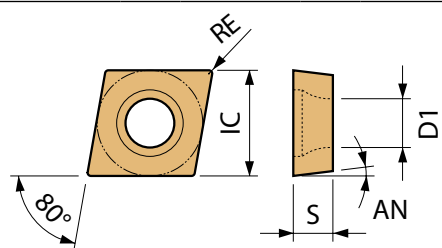
Contact your local Kyocera sales engineer to upgrade old products to new technology

B63

A	INSERT GRADES
B	TURNING INSERTS
C	CBN / PCBN HOLDERS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

80° Diamond

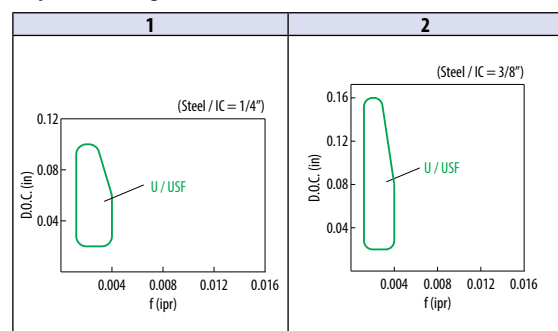
How to read this page See page **B15**



Free-cutting steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					</
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Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



How to read this page ➡ See page **B15**

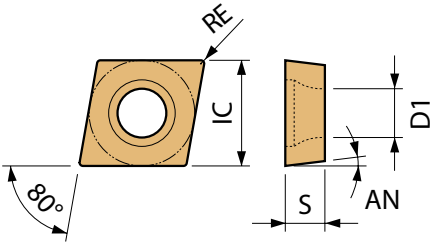
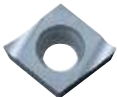
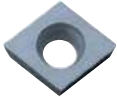
Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

1	2	3
(Steel / IC = 1/4")	(Steel / IC = 3/8")	(Steel)

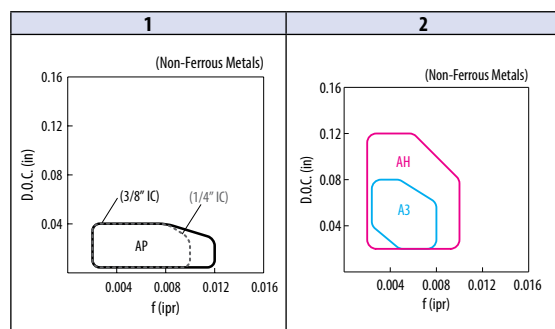
Inserts sold in 10 piece boxes

80° Diamond

How to read this page ➔ See page B15

				Free-cutting steel																				P
				Carbon steel / Alloy steel																				
				Stainless Steel																				M
				Gray cast iron																				K
Nodular cast iron																								
Non-ferrous metals																				N				
Heat-resistant alloy																				S				
Titanium alloy																								
Hard materials																				H				
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	Dimensions (in)				Angle (°)	Carbide					Cermet	Applicable Toolholder Page								
					No. of Edges	IC	S	D1		RE	AN	PDL010	PDL025	KW10			PR1535	PR1725	PR930	PV720	TNG0			
Non-Ferrous Metals		 Finishing / Sharp Edge	CCGT 21505AP 2151AP	CCGT 060202AP 060204AP	1	2	1/4	3/32	0.118	0.008 1/64	7	●	●							E26~E27, E58 E72, F33~F34 F64, F67~F68 F134				
			CCGT 32505AP 3251AP 3252AP	CCGT 09T302AP 09T304AP 09T308AP	1	2	3/8	5/32	0.185	0.008 1/64 1/32	7	●	●							E26~E29 E58, E72 F62~F64 F134				
Non-Ferrous Metals		 Finishing - Medium / Sharp Edge	CCGT 32505R-A3 32505L-A3 3251R-A3 3251L-A3 3252R-A3 3252L-A3	CCGT 09T302R-A3 09T302L-A3 09T304R-A3 09T304L-A3 09T308R-A3 09T308L-A3	2	2	3/8	5/32	0.173	0.008 0.008 1/64 1/64 1/32 1/32	7	●	●	●	●	●	●	●		E26~E29 E58, E72 F62~F64 F134				
			CCGT 4305R-A3 4305L-A3 431R-A3 431L-A3 432R-A3 432L-A3	CCGT 120402R-A3 120402L-A3 120404R-A3 120404L-A3 120408R-A3 120408L-A3	2	2	1/2	3/16	0.217	0.008 0.008 1/64 1/64 1/32 1/32	7	●	●	●	●	●	●	●		E29				
Non-Ferrous Metals		 Finishing - Medium / Sharp Edge	CCGT 3251AH 3252AH	CCGT 09T304AH 09T308AH	2	2	3/8	5/32	0.173	1/64 1/32	7	●	●	●	●	●	●	●	●	E26~E29 E58, E72 F62~F64 F134				
Cast Iron		 Without Chipbreaker	CCGW 21502 21505	CCGW 060201 060202	-	2	1/4	3/32	0.110	0.004 0.008	7		●							E26~E27, E58 E72, F33~F34 F64, F67~F68 F134				
			CCGW 32500 32502 32505 3251	CCGW 09T300 09T301 09T302 09T304	-	2	3/8	5/32	0.173	0 0.004 0.008 1/64	7		●							E26~E29 E58, E72 F62~F64 F134				
Medium			CPGT 21505 2151	CPGT 060202 060204	-	2	1/4	3/32	0.110	0.008 1/64	11						●	●	●	F70				
			CPGT 32505 3251 3252	CPGT 09T302 09T304 09T308	-	2	3/8	5/32	0.185	0.008 1/64 1/32	11		●				●	●	●	-				

Chipbreaker Range



How to read this page ➡ See page **B15**

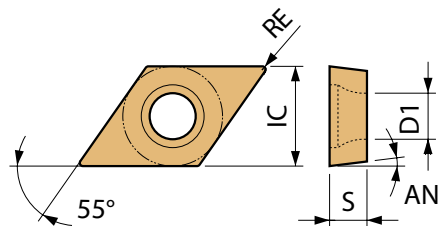
A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

1	2	3
(Steel) D.O.C. (in) f (ipr) Standard XQ HQ XP (GP) PP	(Low Carbon Steel) D.O.C. (in) f (ipr) XQ XP	(Steel) D.O.C. (in) f (ipr) Y

Inserts sold in 10 piece boxes

55° Diamond

How to read this page ➡ See page **B15**

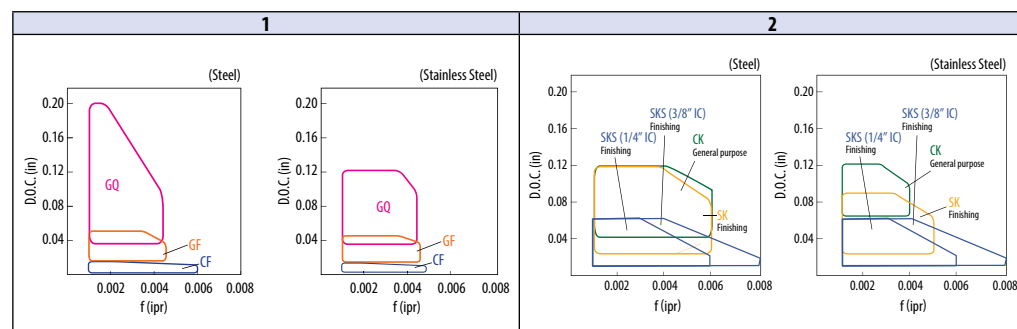
[illegible][illegible]

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

*1: DC..215... E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135

*2: DC..325... E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135

Chipbreaker Range

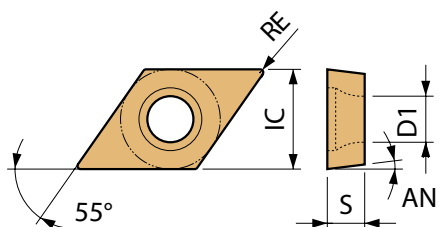


How to read this page ➡ See page **B15**

Inserts sold in 10 piece boxes

55° Diamond

How to read this page ➞ See page **B15**

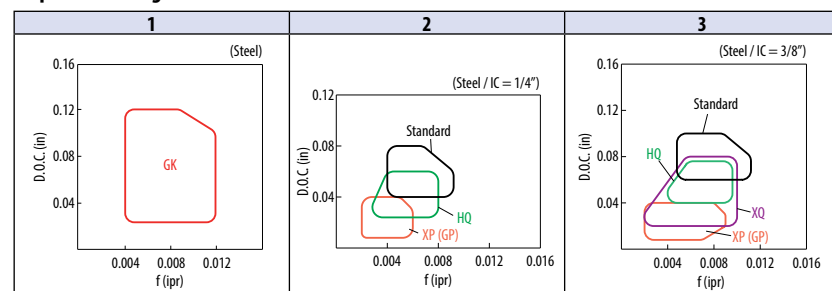
[illegible][illegible]

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002 , <0.004 , <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

*1: DC, 215... E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135

*2: DC.325... E23, E30~E34, E36~E37, E59~E60, E72, E74~E87, F135

Chipbreaker Range

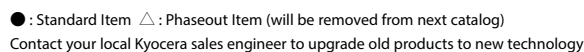


● : Standard Item △ : Phaseout Item (will be removed from next catalog)

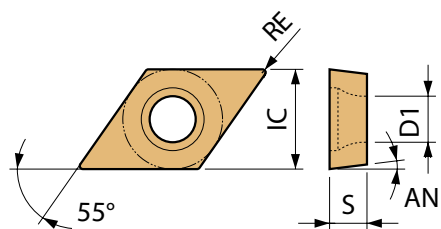
Contact your local Kyocera sales engineer to upgrade old products to new technology

How to read this page ➡ See page **B15**

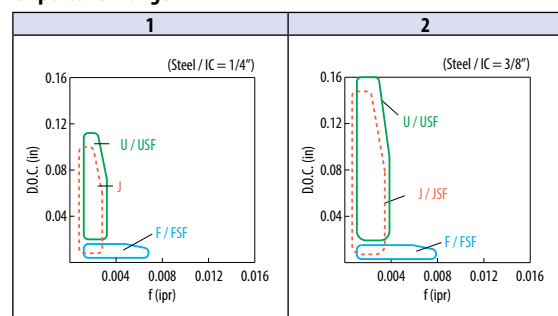
*1: DC..215... E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135
*2: DC..325... E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135



How to read this page ➞ See page **B15**

[illegible][illegible]

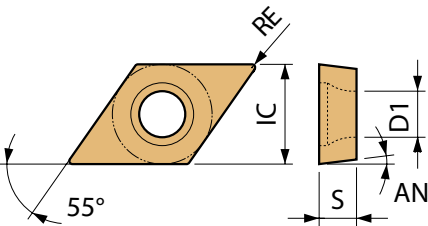
Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).



*2: DC.325... E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135

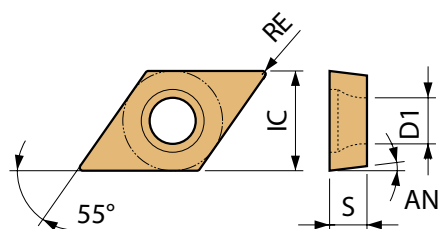
55° Diamond

How to read this page ➔ See page B15

										Free-cutting steel								P			
										Carbon steel / Alloy steel				☺☺						M	
										Stainless Steel				☺☺						K	
										Gray cast iron						☺				N	
										Modular cast iron								☺		S	
										Non-ferrous metals				●		H					
										Heat-resistant alloy								S			
										Titanium alloy						☺		H			
										Hard materials											
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Angle (°)	Carbide			Applicable Toolholder Page							
						IC	S	D1	RE		AN	PVD	-		-						
												PR125	PR30		KW10	TN60					
Finishing - Medium		DCGT 21505L-FS 2151R-FS 2151L-FS	DCGT 070202L-FS 070204R-FS 070204L-FS	1	2	1/4	3/32	0.110	0.008 1/64 1/64	7				●	*1						
		DCGT 32505R-FS 32505L-FS 3251R-FS 3251L-FS	DCGT 11T302R-FS 11T302L-FS 11T304R-FS 11T304L-FS											●							
														●							
Finishing	 Sharp Edge	DCGT 21501R-F 21501L-F 21502R-F 21502L-F 21505R-F 21505L-F 2151R-F 2151L-F	DCGT 0702003R-F 0702003L-F 070201R-F 070201L-F 070202R-F 070202L-F 070204R-F 070204L-F	1	2	1/4	3/32	0.110	0.001 0.001 0.004 0.004 0.008 0.008 1/64 1/64	7				●	*1						
		DCGT 32501R-F 32501L-F 32505R-F 32505L-F 3251R-F 3251L-F	DCGT 11T3003R-F 11T3003L-F 11T302R-F 11T302L-F 11T304R-F 11T304L-F										●								
													●								
				DCGT 215013MR-F 215013ML-F 21502MR-F 21502ML-F 21505MR-F 21505ML-F 2151MR-F 2151ML-F	DCGT 0702005MR-F 0702005ML-F 070201MR-F 070201ML-F 070202MR-F 070202ML-F 070204MR-F 070204ML-F	1	2	1/4	3/32	0.110	< 0.002 < 0.002 < 0.004 < 0.004 < 0.008 < 0.008 < 1/64 < 1/64	7				●	*1				
		DCGT 325013MR-F 32502MR-F 32502ML-F 32505MR-F 32505ML-F 3251MR-F 3251ML-F	DCGT 11T3005MR-F 11T301MR-F 11T301ML-F 11T302MR-F 11T302ML-F 11T304MR-F 11T304ML-F										●								
													●								
				DCGT 325013MR-F 32502MR-F 32502ML-F 32505MR-F 32505ML-F 3251MR-F 3251ML-F	DCGT 11T3005MR-F 11T301MR-F 11T301ML-F 11T302MR-F 11T302ML-F 11T304MR-F 11T304ML-F	2	2	3/8	5/32	0.173	< 0.002 < 0.004 < 0.004 < 0.008 < 0.008 < 1/64 < 1/64	7				●	*2				
															●						
															●						

55° Diamond

How to read this page ➡ See page **B15**

[illegible]

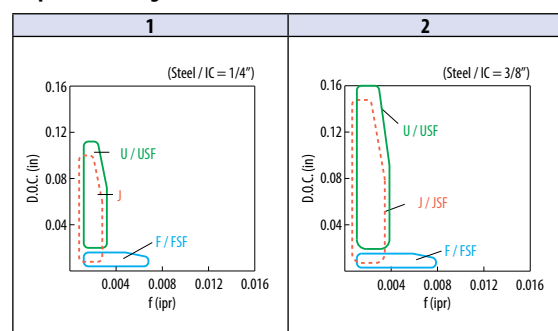
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	Dimensions (in)				Angle (°)	Carbide				Cermet				Applicable Toolholder Page		
					No. of Edges	IC	S	D1		RE	AN	DLC		PVD		PVD			-	
									PD010 PD025			PR125 PR135	PR155 PR175	PR175 PR175	PR930 PR930	PV710 PV720	PV730 PV730		TN60 TN610	TN620 TN620
Low Feed	 Precision / Sharp Edge	DCET 21501FR-USF	DCET 0702003FR-USF	1	2	1/4	3/32	0.110	0.001	7									*1	
		21501FL-USF	0702003FL-USF						0.001											
		21502FR-USF	070201FR-USF						0.004											
		21502FL-USF	070201FL-USF						0.004											
		21505FR-USF	070202FR-USF						0.008											
		21505FL-USF	070202FL-USF	0.008																
		DCET 32501FR-USF	DCET 11T3003FR-USF	2	2	3/8	5/32	0.173	0.001	7									*2	
		32501FL-USF	11T3003FL-USF						0.001											
		32502FR-USF	11T301FR-USF						0.004											
		32502FL-USF	11T301FL-USF						0.004											
		32505FR-USF	11T302FR-USF						0.008											
		32505FL-USF	11T302FL-USF	0.008																
		DCET 215013MFR-USF	DCET 0702005MFR-USF	1	2	1/4	3/32	0.110	< 0.002	7									*1	
		21502MFR-USF	070201MFR-USF						< 0.004											
		21505MFR-USF	070202MFR-USF						< 0.008											
		21505MFL-USF	070202MFL-USF						< 0.008											
DCET 325013MFR-USF	DCET 11T3005MFR-USF	2	2	3/8	5/32	0.173	< 0.002	7									*2			
32502MFR-USF	11T301MFR-USF						< 0.004													
32502MFL-USF	11T301MFL-USF						< 0.004													
32505MFR-USF	11T302MFR-USF						< 0.008													
32505MFL-USF	11T302MFL-USF						< 0.008													
Low Feed	 Sharp Edge	DCET 21501FR-U	DCET 0702003FR-U	1	2	1/4	3/32	0.110	0.001	7									*1	
		DCET 215013MFR-U	DCET 0702005MFR-U	1	2	1/4	3/32	0.110	< 0.002	7										
		21502MFR-U	070201MFR-U						< 0.004											
		21502MFL-U	070201MFL-U						< 0.004											
		21505MFR-U	070202MFR-U						< 0.008											
		21505MFL-U	070202MFL-U	< 0.008																
		DCET 325013MFR-U	DCET 11T3005MFR-U	2	2	3/8	5/32	0.173	< 0.002	7									*2	
		32502MFR-U	11T301MFR-U						< 0.004											
		32502MFL-U	11T301MFL-U						< 0.004											
		32505MFR-U	11T302MFR-U						< 0.008											
		32505MFL-U	11T302MFL-U						< 0.008											
		3251MFR-U	11T304MFR-U						< 1/64											

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

*1: DC..215... E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135

*2: DC...325... E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135

Chipbreaker Range



55° Diamond

How to read this page ➔ See page B15

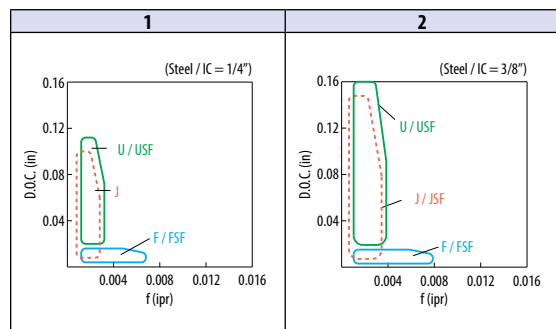
				Free-cutting steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			</
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*1: DC..215... E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135

*2: DC..325... E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)

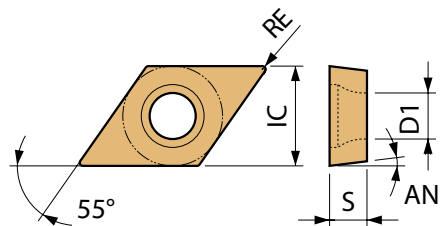
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

55° Diamond

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[illegible]

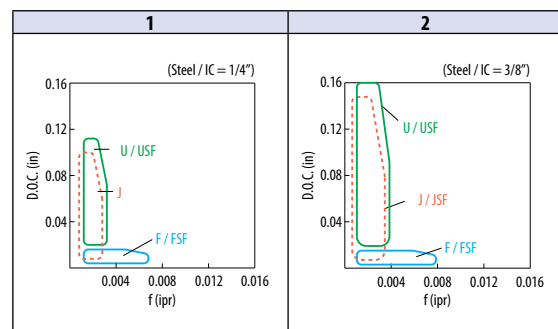
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Angle (°)	Carbide		Cermet		Applicable Toolholder Page
						IC	S	D1	RE		AN	PVD	PVD	-	
												PR1225 PR1725	PV710 PV720	PV730 TN610 TN620	
Low Feed	 Honed Edge	DCGT 21502ER-U	DCGT 070201ER-U	1	2	1/4	3/32	0.110	0.004	7					*1
		21502EL-U	070201EL-U												
		21505ER-U	070202ER-U												
		21505EL-U	070202EL-U												
		2151ER-U	070204ER-U												
		2151EL-U	070204EL-U												
		DCGT 32502ER-U	DCGT 11T301ER-U	2	2	3/8	5/32	0.173	0.004	7					*2
		32502EL-U	11T301EL-U												
		32505ER-U	11T302ER-U												
		32505EL-U	11T302EL-U												
		3251ER-U	11T304ER-U												
		3251EL-U	11T304EL-U												
	DCGT 21502MER-U	DCGT 070201MER-U	1	2	1/4	3/32	0.110	< 0.004	7					*1	
	21505MER-U	070202MER-U						< 0.008							
	21505MEL-U	070202MEL-U						< 0.008							
	2151MER-U	070204MER-U						< 1/64							
	2151MEL-U	070204MEL-U						< 1/64							
	DCGT 32502MER-U	DCGT 11T301MER-U						2		2	3/8	5/32	0.173		< 0.004
32502MEL-U	11T301MEL-U	< 0.004													
32505MER-U	11T302MER-U	< 0.008													
32505MEL-U	11T302MEL-U	< 0.008													
3251MER-U	11T304MER-U	< 1/64													
3251MEL-U	11T304MEL-U	< 1/64													
Low Feed	 Precision / Sharp Edge	DCET 32501FR-JSF	DCET 11T3003FR-JSF	2	2	3/8	5/32	0.173	0.001	7					*2
		32501FL-JSF	11T3003FL-JSF						0.001						
		32502FR-JSF	11T301FR-JSF						0.004						
		32502FL-JSF	11T301FL-JSF						0.004						
		32505FR-JSF	11T302FR-JSF						0.008						
		32505FL-JSF	11T302FL-JSF						0.008						
		DCET 325013MFR-JSF	DCET 11T3005MFR-JSF	< 0.002											
		32502MFR-JSF	11T301MFR-JSF	< 0.004											
32505MFR-JSF	11T302MFR-JSF	< 0.008													
32505MFL-JSF	11T302MFL-JSF	< 0.008													

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

*1: DC..215... E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135

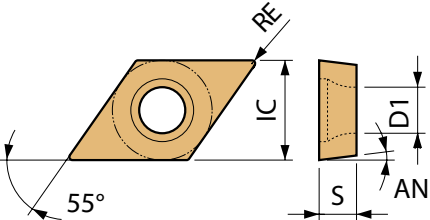
*2: DC..325... E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135

Chipbreaker Range



55° Diamond

How to read this page ➔ See page B15

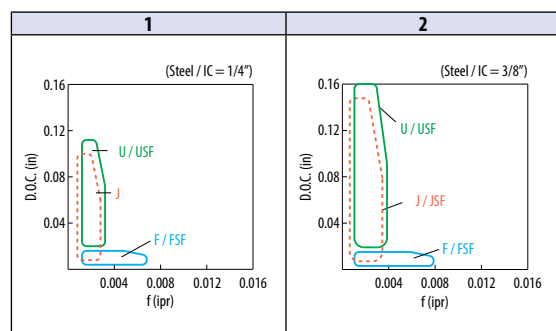
					<table><tr><td>Free-cutting steel</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Carbon steel / Alloy steel</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>P</td></tr><tr><td>Stainless Steel</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>M</td></tr><tr><td>Gray cast iron</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>K</td></tr><tr><td>Modular cast iron</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>K</td></tr><tr><td>Non-ferrous metals</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>N</td></tr><tr><td>Heat-resistant alloy</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>S</td></tr><tr><td>Titanium alloy</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>S</td></tr><tr><td>Hard materials</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>H</td></tr></table>																Free-cutting steel																	Carbon steel / Alloy steel																P	Stainless Steel																M	Gray cast iron																K	Modular cast iron																K	Non-ferrous metals																N	Heat-resistant alloy																S	Titanium alloy																S	Hard materials																H
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Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Angle (°)	Carbide				Cermet				Applicable Toolholder Page																																																																																																																																																											
					IC	S	D1	RE		AN	PVD		-	PVD	-																																																																																																																																																														
											PR125	PR155	PR1705	PR1725	PR830	KW10	PV710		PV720	PV730	TN60	TN620																																																																																																																																																							
 Sharp Edge	DCET 215013MFR-J	DCET 0702005MFR-J	1	2	1/4	3/32	0.110	< 0.002 < 0.004 < 0.004 < 0.008 < 0.008 < 0.008	7	●	●	●	●						*1																																																																																																																																																										
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	21502MFL-J	070201MFL-J								●	●	●	●																																																																																																																																																																
	21505MFR-J	070202MFR-J								●	●	●	●																																																																																																																																																																
	21505MFL-J	070202MFL-J								●	●	●	●																																																																																																																																																																
	DCET 325013MFR-J	DCET 11T3005MFR-J	2	2	3/8	5/32	0.173	< 0.002 < 0.004 < 0.004 < 0.008 < 0.008 < 0.008 < 1/64 < 1/64	7	●	●	●	●				●																																																																																																																																																												
	32502MFR-J	11T301MFR-J								●	●	●	●				●																																																																																																																																																												
32502MFL-J	11T301MFL-J	●								●	●	●				●																																																																																																																																																													
32505MFR-J	11T302MFR-J	●								●	●	●				●																																																																																																																																																													
32505MFL-J	11T302MFL-J	●								●	●	●				●																																																																																																																																																													
3251MFR-J	11T304MFR-J	●								●	●	●																																																																																																																																																																	
3251MFL-J	11T304MFL-J	●	●	●	●																																																																																																																																																																								
 Sharp Edge	DCGT 32505FR-J	DCGT 11T302FR-J	2	2	3/8	5/32	0.173	0.008 0.008	7					●	●		●		*2																																																																																																																																																										
	32505FL-J	11T302FL-J												●	●		●																																																																																																																																																												
	DCGT 325013MFR-J	DCGT 11T3005MFR-J	2	2	3/8	5/32	0.173	< 0.002 < 0.004 < 0.004 < 0.008 < 0.008 < 0.008 < 1/64 < 1/64	7	●	●	●	●																																																																																																																																																																
	32502MFR-J	11T301MFR-J								●	●	●	●																																																																																																																																																																
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	32505MFR-J	11T302MFR-J								●	●	●	●																																																																																																																																																																
	32505MFL-J	11T302MFL-J								●	●	●	●																																																																																																																																																																
3251MFR-J	11T304MFR-J	●								●	●	●																																																																																																																																																																	
3251MFL-J	11T304MFL-J	●	●	●	●																																																																																																																																																																								
 Honed Edge	DCGT 32501ER-J	DCGT 11T3003ER-J	2	2	3/8	5/32	0.173	0.001 0.004 0.004 0.008 0.008 1/64 1/64	7					●																																																																																																																																																															
	32502ER-J	11T301ER-J													●	●	●	●																																																																																																																																																											
	32502EL-J	11T301EL-J																																																																																																																																																																											
	32505ER-J	11T302ER-J														●	●	●		●	●	●	●	●	●																																																																																																																																																				
	32505EL-J	11T302EL-J															●	●		●	●	●	●	●	●																																																																																																																																																				
	3251ER-J	11T304ER-J															●	●		●	●	●	●	●	●																																																																																																																																																				
	3251EL-J	11T304EL-J															●	●		●	●	●	●	●	●																																																																																																																																																				
	DCGT 325013MER-J	DCGT 11T3005MER-J	2	2	3/8	5/32	0.173	< 0.002 < 0.004 < 0.008 < 1/64 < 1/64	7					●																																																																																																																																																															
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	3251MER-J	11T304MER-J														●	●	●	●	●	●	●	●																																																																																																																																																						
	3251MEL-J	11T304MEL-J															●	●	●	●	●	●	●																																																																																																																																																						
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Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

*1: DC.215... E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135

*2: DC.325... E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

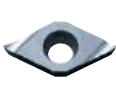
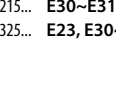
Inserts sold in 10 piece boxes

B77

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

55° Diamond

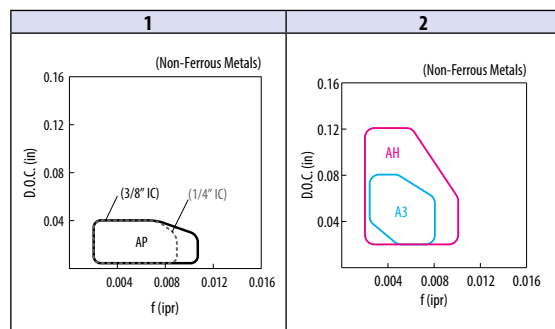
How to read this page ➔ See page B15

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	Dimensions (in)				Angle (°)	Carbide			Applicable Toolholder Page
					No. of Edges	IC	S	D1	RE	AN	DLC	PD1010 PD1025 KN10	
Non-Ferrous Metals		DCGT 21505AP	DCGT 070202AP	1	2	1/4	3/32	0.110	0.008	7	●	●	*1
		2151AP	070204AP										
		DCGT 32505AP	DCGT 11T302AP	1	2	3/8	5/32	0.173	1/64	7	●	●	*2
		3251AP	11T304AP										
Non-Ferrous Metals		DCGT 32505R-A3	DCGT 11T302R-A3	2	2	3/8	5/32	0.173	0.008	7	●	●	*2
		32505L-A3	11T302L-A3										
		3251R-A3	11T304R-A3	2	2	3/8	5/32	0.173	1/64	7	●	●	*2
		3251L-A3	11T304L-A3										
Non-Ferrous Metals		DCGT 3252R-A3	11T308R-A3	2	2	3/8	5/32	0.173	1/32	7	●	●	*2
		3252L-A3	11T308L-A3										
Non-Ferrous Metals		DCGT 3251AH	DCGT 11T304AH	2	2	3/8	5/32	0.173	1/64	7	●	●	*2
		3252AH	11T308AH										
Cast Iron		DCGW 21502	DCGW 070201	-	2	1/4	3/32	0.110	0.004	7	●	●	*1
		21505	070202										
		DCGW 32502	DCGW 11T301	-	2	3/8	5/32	0.173	0.004	7	●	●	*2
		32505	11T302										
Cast Iron		DCGW 3251	11T304	-	2	3/8	5/32	0.173	1/64	7	●	●	*2
		3251	11T304										

*1: DC..215... E30~E31, E33, E36~E37, E59~E60, E72, F74~F87, F135

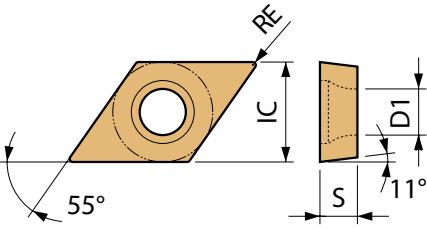
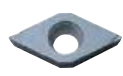
*2: DC..325... E23, E30~E34, E36~E37, E59~E60, E72, F74~F87, F135

Chipbreaker Range



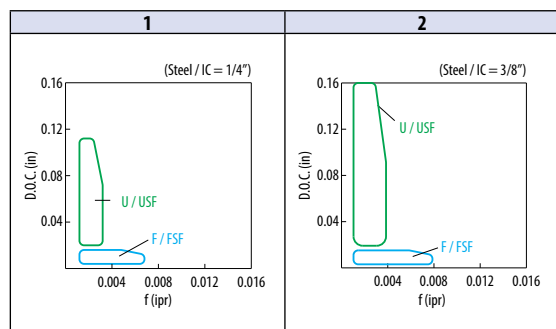
55° Diamond

How to read this page ➔ See page B15

					Free-cutting steel							P	
					Carbon steel / Alloy steel				●	●	●		
					Stainless Steel				●	●	●	M	
					Gray cast iron							K	
					Nodular cast iron								
					Non-ferrous metals							N	
					Heat-resistant alloy							S	
					Titanium alloy								
					Hard materials							H	
Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	Dimensions (in)				Angle (°)	Carbide PR1725 PR930 TN60	Cermet	Applicable Toolholder Page		
				No. of Edges	IC	S	D1					RE	AN
 Precision / Sharp Edge	DPET 21501R-FSF	DPET 0702003R-FSF	1	2	1/4	3/32	0.110	0.001	11	●	E39		
	21502R-FSF	070201R-FSF						0.004		●			
	21505R-FSF	070202R-FSF						0.008		●			
	21505L-FSF	070202L-FSF						0.008		●			
	DPET 32501R-FSF	DPET 11T3003R-FSF	2	2	3/8	5/32	0.173	0.001	11	●			
	32502R-FSF	11T301R-FSF						0.004		●			
	32505R-FSF	11T302R-FSF						0.008		●			
	32505L-FSF	11T302L-FSF						0.008		●			
	DPET 21505MR-FSF	DPET 070202MR-FSF	1	2	1/4	3/32	0.110	< 0.008	11	●			
	21505ML-FSF	070202ML-FSF						< 0.008		●			
	DPET 325013MR-FSF	DPET 11T3005MR-FSF	2	2	3/8	5/32	0.173	< 0.002	11	●			
	32502MR-FSF	11T301MR-FSF						< 0.004		●			
	32505MR-FSF	11T302MR-FSF						< 0.008		●			
 Precision / Sharp Edge	DPET 21501FR-USF	DPET 0702003FR-USF	1	2	1/4	3/32	0.110	0.001	11	●			
	21502FR-USF	070201FR-USF						0.004		●			
	21502FL-USF	070201FL-USF						0.004		●			
	21505FR-USF	070202FR-USF						0.008		●			
	21505FL-USF	070202FL-USF	2	2	3/8	5/32	0.173	0.001	11	●			
	32501FR-USF	DPET 11T3003FR-USF						0.004		●			
	32502FR-USF	11T301FR-USF						0.004		●			
	32502FL-USF	11T301FL-USF						0.004		●			
	32505FR-USF	11T302FR-USF						0.008		●			
	32505FL-USF	11T302FL-USF						0.008		●			
	DPET 215013MFR-USF	DPET 0702005MFR-USF	1	2	1/4	3/32	0.110	< 0.002	11	●			
	21502MFR-USF	070201MFR-USF						< 0.004		●			
	21505MFR-USF	070202MFR-USF						< 0.008		●			
	DPET 325013MFR-USF	DPET 11T3005MFR-USF	2	2	3/8	5/32	0.173	< 0.002	11	●			
	32502MFR-USF	11T301MFR-USF						< 0.004		●			
	32505MFR-USF	11T302MFR-USF						< 0.008		●			

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)

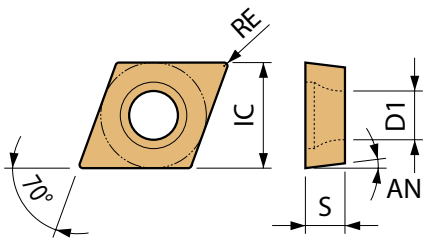
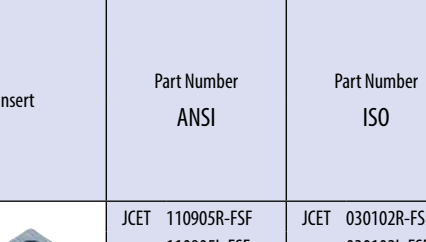
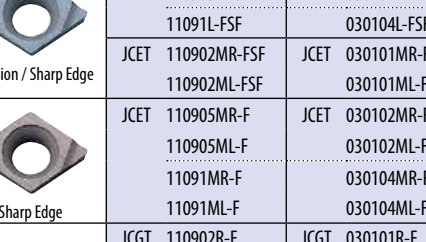
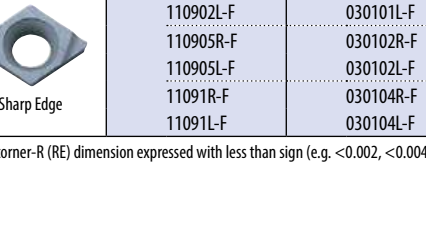
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

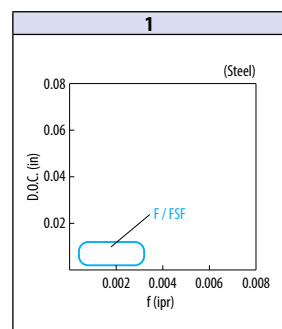
70° Diamond

How to read this page ➡ See page B15

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Angle (°)	Carbide				Cermet	Applicable Toolholder Page
						IC	S	D1	RE		PR153S	PR172S	PR930	KW10	TN60	
		JCET 110905R-FSF	JCET 030102R-FSF	1	2	0.138	0.055	0.075	0.008	7						F88 F89
		110905L-FSF	030102L-FSF						0.008							
		11091L-FSF	030104L-FSF						1/64							
		JCET 110902MR-FSF	JCET 030101MR-FSF						< 0.004							
		110902ML-FSF	030101ML-FSF	1	2	0.138	0.055	0.075	< 0.004	7						
		JCET 110905MR-F	JCET 030102MR-F						< 0.008							
		110905ML-F	030102ML-F						< 0.008							
		11091MR-F	030104MR-F						< 1/64							
		11091ML-F	030104ML-F	1	2	0.138	0.055	0.075	< 1/64	7						
		JCGT 110902R-F	JCGT 030101R-F						0.004							
		110902L-F	030101L-F						0.004							
		110905R-F	030102R-F						0.008							
		110905L-F	030102L-F	1	2	0.138	0.055	0.075	0.008	7						
		11091R-F	030104R-F						1/64							
		11091L-F	030104L-F						1/64							

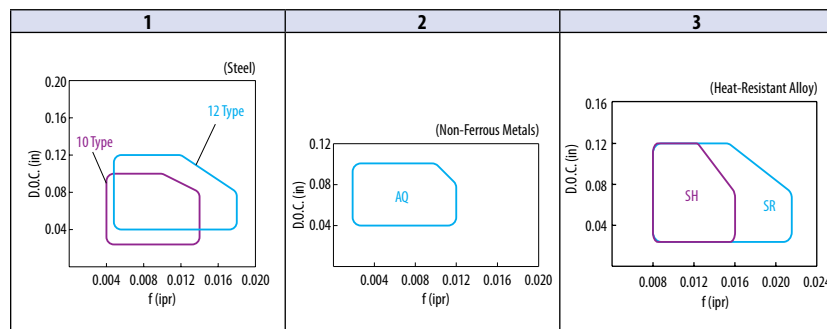
Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



How to read this page ➡ See page **B15**

Chipbreaker shape of RCMX... varies by grade (cermet / PVD coated cermet / CVD coated carbide)



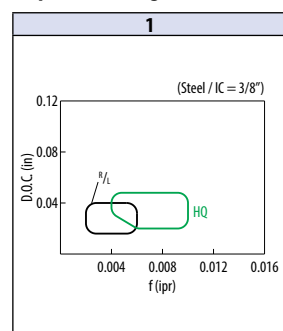
Inserts sold in 10 piece boxes

90° Square

How to read this page ➔ See page B15

					Free-cutting steel												P						
					Carbon steel / Alloy steel																		
					Stainless Steel												M						
					Gray cast iron													K					
					Nodular cast iron												N						
					Non-ferrous metals													S					
					Heat-resistant alloy												H						
					Titanium alloy																		
Hard materials																							
Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Angle (°)	Carbide		Cermet		Applicable Toolholder Page								
						IC	S	D1	RE		AN	CVD		PVD		-							
												CA025P	CA115P	CA125P		CA510	CA515	CA525	CA530	PV710	PV720	PV730	TN610	TN620
Finishing - Medium		SCMT 3251HQ 3252HQ	SCMT 09T304HQ 09T308HQ	1	4	3/8	5/32	0.173	1/64 1/32	7	●	●	●	●	●	●	●	●	●	●	●	●	-
											●	●	●	●	●	●	●	●	●	●	●	●	
Finishing		SPGH 321L	SPGH 090304L	1	4	3/8	1/8	0.181	1/64	11													F129

Chipbreaker Range



How to read this page ➡ See page **B15**

A	INSERT GRADES
B	TURNING INSERTS
C	CBN / PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Figure 10 consists of two graphs, labeled 1 and 2, comparing the Design of Construction (D.O.C.) in inches versus the frequency f in inverse per inch (ipr) for different Steel / IC ratios.

Graph 1 (Steel / IC = 3/8") shows the D.O.C. (in) on the y-axis (0.04 to 0.12) versus f (ipr) on the x-axis (0.004 to 0.016). It includes three curves: a black curve labeled "Standard", a red curve labeled "G", and a magenta curve labeled "1/2 (No Callout)".

Graph 2 (Steel / IC = 1/2") shows the D.O.C. (in) on the y-axis (0.04 to 0.16) versus f (ipr) on the x-axis (0.004 to 0.016). It includes three curves: a black curve labeled "Standard", a red curve labeled "G", and a magenta curve labeled "1/2 (No Callout)".

Inserts sold in 10 piece boxes

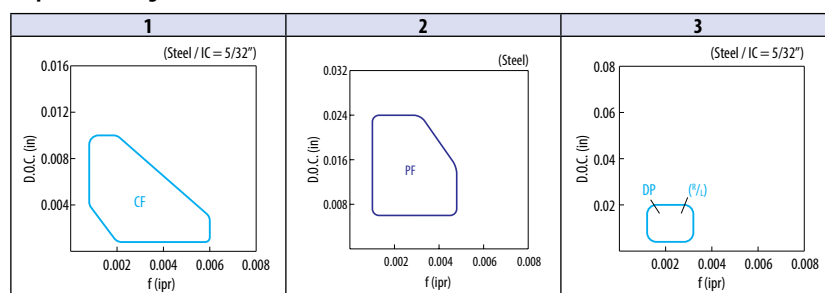
60° Triangle

How to read this page ➡ See page B15

				Free-cutting steel														P
				Carbon steel / Alloy steel		☺☹☹												

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



How to read this page ➡ See page **B15**

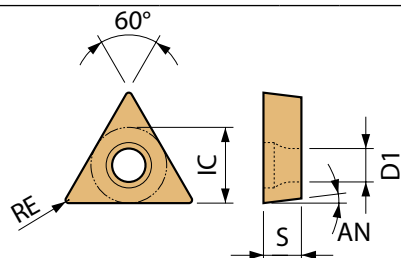
Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE). See "Precautions when using Wiper inserts" on page **R42** and **R43** for WP chipbreaker.

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A	INSERT GRADES
B	TURNING INSERTS
C	CBN / PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

60° Triangle

How to read this page ➡ See page **B15**

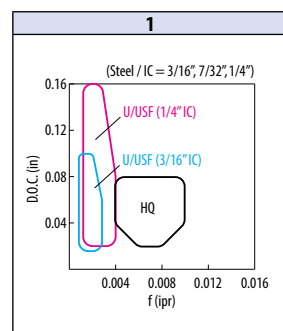


Free-cutting steel					P
Carbon steel / Alloy steel	☺	☹	☺		
Stainless Steel	☺	☺	☺		M
Gray cast iron				☹	K
Nodular cast iron					
Non-ferrous metals			☹		N
Heat-resistant alloy					S
Titanium alloy			☺		
Hard materials					H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Angle (°)	Carbide				Cermat	Applicable Toolholder Page
						IC	S	D1	RE		AN	PVD	-	-		
Low Feed	 Sharp Edge	TCGT 151502FR-U	TCGT 080201FR-U	1	3	3/16	3/32	0.098	0.004	7		●	●	E40		
		151505FR-U	080202FR-U						0.008			●	●			
		151505FL-U	080202FL-U						0.008			●	●			
		TCGT 2201FR-U	TCGT 1103003FR-U	1	3	1/4	1/8	0.110	0.001	7		●	●			
		2202FR-U	110301FR-U						0.004			●	●			
		2202FL-U	110301FL-U						0.004			●	●			
		2205FR-U	110302FR-U						0.008			●	●			
		2205FL-U	110302FL-U						0.008			●	●			
		TCGT 151502MFR-U	TCGT 080201MFR-U	1	3	3/16	3/32	0.098	< 0.004	7	●					
		151505MFR-U	080202MFR-U						< 0.008		●					
		151505MFL-U	080202MFL-U						< 0.008		●					
		TCGT 22013MFR-U	TCGT 1103005MFR-U	1	3	1/4	1/8	0.110	< 0.002	7	●					
		22013MFL-U	1103005MFL-U						< 0.002		●					
		2202MFR-U	110301MFR-U						< 0.004		●					
		2202MFL-U	110301MFL-U						< 0.004		●					
2205MFR-U	110302MFR-U	< 0.008	●													
2205MFL-U	110302MFL-U	< 0.008	●													
221MFR-U	110304MFR-U	< 1/64	●													
221MFL-U	110304MFL-U	< 1/64	●													
Low Feed	 Honed Edge	TCGT 151505ER-U	TCGT 080202ER-U	1	3	3/16	3/32	0.098	0.008	7		●	●			
		151505EL-U	080202EL-U						0.008			●	●			
		TCGT 2202ER-U	TCGT 110301ER-U	1	3	1/4	1/8	0.110	0.004	7		●	●			
		2205ER-U	110302ER-U						0.008			●	●			
		2205EL-U	110302EL-U						0.008			●	●			
		221ER-U	110304ER-U						1/64			●	●			
		221EL-U	110304EL-U						1/64			●	●			
		TCGT 151505MER-U	TCGT 080202MER-U	1	3	3/16	3/32	0.098	< 0.008	7	●					
		TCGT 2205MER-U	TCGT 110302MER-U	1	3	1/4	1/8	0.110	< 0.008	7	●					
		2205MEL-U	110302MEL-U						< 0.008		●					
		221MER-U	110304MER-U						< 1/64		●					

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002 , <0.004 , <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

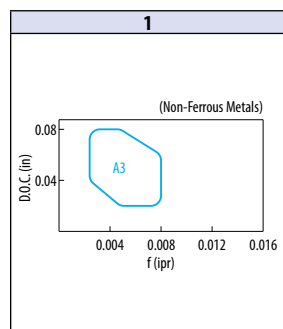


60° Triangle

How to read this page ➔ See page B15

										Free-cutting steel Carbon steel / Alloy steel Stainless Steel Gray cast iron Nodular cast iron Non-ferrous metals Heat-resistant alloy Titanium alloy Hard materials				P M K N S H			
Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	Dimensions (in)					Angle (°)	Carbide			Applicable Toolholder Page				
				No. of Edges	IC	S	D1	RE	AN	PDL010 PDL025 KW10	DLC	-					
Non-Ferrous Metals Finishing - Medium / Sharp Edge	TCGT 2205R-A3 2205L-A3 221R-A3 221L-A3 222R-A3 222L-A3	TCGT 110302R-A3 110302L-A3 110304R-A3 110304L-A3 110308R-A3 110308L-A3	1	3	1/4	1/8	0.110	0.008 0.008 1/64 1/64 1/32 1/32	7	●●● ●●● ●●● ●●● ●●●	●●● ●●● ●●● ●●● ●●●						
Cast Iron Without Chipbreaker	TCGW 151502 151505 TCGW 2202 2205 221	TCGW 080201 080202 TCGW 110301 110302 110304	-	3	3/16	3/32	0.098	0.004 0.008 0.004 0.008 1/64	7	●●● ●●● ●●● ●●● ●●●	●●● ●●● ●●● ●●● ●●●		E40				

Chipbreaker Range

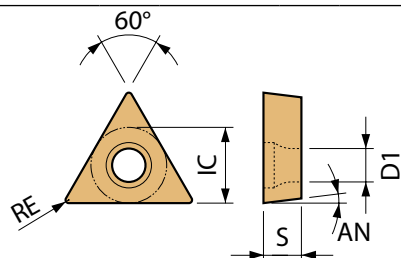


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

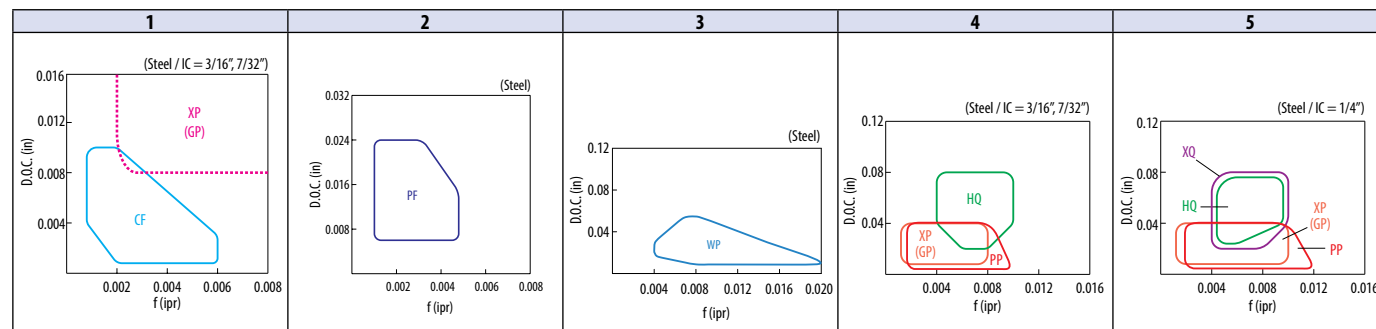
How to read this page ➞ See page **B15**

[illegible]

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range		Dimensions (in)					Angle (°)	Carbide								Cermet					Applicable Toolholder Page			
						No. of Edges	IC	S	D1	RE		AN	CVD					PVD			CVD	PVD	-					
													CA025P	CA115P	CA125P	CA310	CA315	CA325	CA330	PR1225				PR1535		PR1705	PR1725	PR930
Minute D.O.C.	 Sharp Edge	TPGT 151505CF	TPGT 080202CF	1	3	3/16	3/32	0.091	0.008	11															E41 F90~F94 F98			
		TPGT 181505CF	TPGT 090202CF	1	3	7/32	3/32	0.110	0.008	11															F35~F36 F90~F94 F98			
Minute D.O.C.	 Polished / Sharp Edge	TPGT 151502MP-CF 151505MP-CF	TPGT 080201MP-CF 080202MP-CF	1	3	3/16	3/32	0.091	< 0.004 < 0.008	11															E41 F90~F94 F98			
		TPGT 181502MP-CF 181505MP-CF	TPGT 090201MP-CF 090202MP-CF	1	3	7/32	3/32	0.110	< 0.004 < 0.008	11															F35~F36 F90~F94 F98			
Finishing	 Polished / Sharp Edge	TPGT 181502MFP-PF 181505MFP-PF 18151MFP-PF	TPGT 090201MFP-PF 090202MFP-PF 090204MFP-PF	2	3	7/32	3/32	0.110	< 0.004 < 0.008 < 1/64	11															F35~F36 F90~F94 F98			
Finishing	 With Wiper Edge	TPMX 181505WP 18151WP 18152WP	TPMX 090202WP 090204WP 090208WP	3	3	7/32	3/32	0.110	0.008 1/64 1/32	11															F35~F36 F90~F94			
		TPMX 2205WP 221WP 222WP	TPMX 110302WP 110304WP 110308WP	3	3	1/4	1/8	0.130	0.008 1/64 1/32	11															F35~F36 F90~F94			
Finishing	 With Wiper Edge	TPMX 221R-WP 221L-WP	TPMX 110304R-WP 110304L-WP	3	3	1/4	1/8	0.130	1/64 1/64	11															F90~F94 F136			
Finishing		TPMT 181505PP 18151PP	TPMT 090202PP 090204PP	4	3	7/32	3/32	0.110	0.008 1/64	11															F35~F36 F90~F94 F98			
		TPMT 2205PP 221PP 222PP	TPMT 110302PP 110304PP 110308PP	5	3	1/4	1/8	0.130	0.008 1/64 1/32	11															E41 F90~F97 F136			

See "Precautions when using Wiper inserts" on page R42 and R43 for WP chipbreaker.

Chipbreaker Range



Contact your local Kyocera sales engineer to upgrade old products to new technology

How to read this page ➡ See page **B15**

A	INSERT GRADES
B	TURNING INSERTS
C	GN / PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

1	2	3
(Steel / IC = 3/16", 7/32")	(Steel / IC = 1/4")	(Steel / IC = 3/8")

Inserts sold in 10 piece boxes

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CERAMIC

Finishing

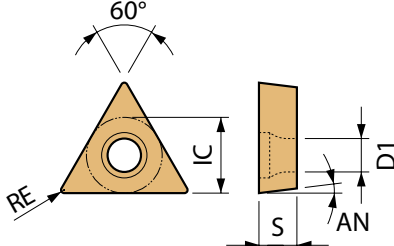
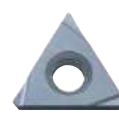
Figure 10 consists of two subplots, labeled 1 and 2, showing the relationship between D.O.C. (in) and f (ipr) for two different specimens.

Subplot 1 (left) is for specimen 1 (Steel / IC = 3/16", 7/32"). The y-axis (D.O.C. (in)) ranges from 0 to 0.08, and the x-axis (f (ipr)) ranges from 0 to 0.016. A single blue curve is shown, labeled $\frac{1}{4}$ " (1/4" IC).

Subplot 2 (right) is for specimen 2 (Steel / IC = 1/4", 3/8"). The y-axis (D.O.C. (in)) ranges from 0 to 0.12, and the x-axis (f (ipr)) ranges from 0 to 0.016. Two curves are shown: a blue curve labeled $\frac{1}{4}$ " (1/4" IC) and a black curve labeled $\frac{3}{8}$ " (3/8" IC).

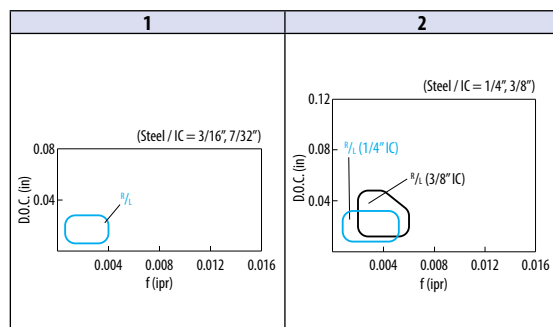
60° Triangle

How to read this page ➔ See page B15

				Free-cutting steel						P	
				Carbon steel / Alloy steel						M	
				Stainless Steel						K	
				Gray cast iron						N	
				Nodular cast iron						S	
				Non-ferrous metals						H	
				Heat-resistant alloy							
				Titanium alloy							
				Hard materials							
Insert	Part Number ANSI	Part Number ISO	Chipbreaker Range	Dimensions (in)				Angle (°)	Carbide	Applicable Toolholder Page	
				No. of Edges	IC	S	D1	RE	AN		PVD PR1705 PR1725
	TPGH 151502ML	TPGH 080201ML	1	3	3/16	3/32	0.091	< 0.004	11	●	E41 F90~F94 F98
	151505MR	080202MR						< 0.008		●	
	151505ML	080202ML						< 0.008		●	
	15151MR	080204MR						< 1/64		●	
	15151ML	080204ML						< 1/64		●	
	TPGH 181502ML	TPGH 090201ML	1	3	7/32	3/32	0.126	< 0.004	11	●	F35~F36 F90~F94 F98
	181505MR	090202MR						< 0.008		●	
	181505ML	090202ML						< 0.008		●	
	18151MR	090204MR						< 1/64		●	
	18151ML	090204ML						< 1/64		●	
	TPGH 21505ML	TPGH 110202ML	2	3	1/4	3/32	0.146	< 0.008	11	●	F96 F97
	2151ML	110204ML						< 1/64		●	
	TPGH 2205MR	TPGH 110302MR	2	3	1/4	1/8	0.130	< 0.008	11	●	E41 F90~F97 F136
	2205ML	110302ML						< 0.008		●	
	221MR	110304MR						< 1/64		●	
	221ML	110304ML						< 1/64		●	
	222ML	110308ML						< 1/32		●	
	TPGH 3205ML	TPGH 160302ML	4	3	3/8	1/8	0.185	< 0.008	11	●	F90~F92 F96, F136
	321MR	160304MR						< 1/64		●	
	321ML	160304ML						< 1/64		●	
	322ML	160308ML						< 1/32		●	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range

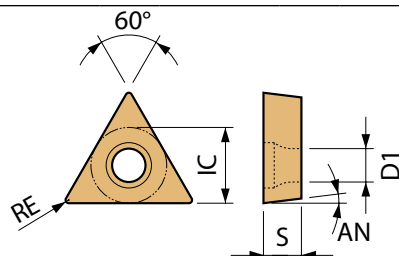


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

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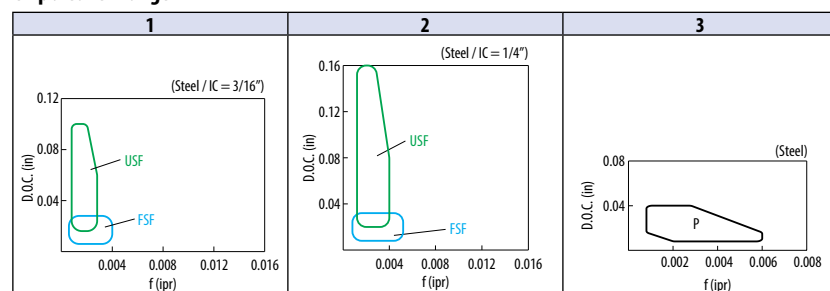


Free-cutting steel					P
Carbon steel / Alloy steel	☛	☺			
Stainless Steel	☛	☺	☺		M
Gray cast iron					K
Nodular cast iron					
Non-ferrous metals					N
Heat-resistant alloy	☛				S
Titanium alloy	☛				
Hard materials					H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	Dimensions (in)				Angle (°)	Carbide		Cermet	Applicable Toolholder Page			
					IC	S	D1	RE		AN	PR1535 PR1725 PR930			TiN60 TiN610		
															PVD	-
Finishing		TP 405	TP 110202	-	3	1/4	3/32	0.110	0.008	11			●	-		
		41	110204													
Finishing		TPET 151501L-FSF 151502R-FSF 151502L-FSF 151505R-FSF 151505L-FSF	TPET 0802003L-FSF 080201R-FSF 080201L-FSF 080202R-FSF 080202L-FSF	1	3	3/16	3/32	0.091	0.001	11			●	E41 F90~F94 F98		
									0.004							
									0.004							
									0.008							
		TPET 2201R-FSF 2201L-FSF 22013L-FSF 2202R-FSF 2202L-FSF 2205R-FSF 2205L-FSF	TPET 1103003R-FSF 1103003L-FSF 1103005L-FSF 110301R-FSF 110301L-FSF 110302R-FSF 110302L-FSF	2	3	1/4	1/8	0.130	0.001	11			●	E41 F90~F97 F136		
									0.001							
									0.002							
									0.004							
		TPET 151505ML-FSF	TPET 080202ML-FSF	1	3	3/16	3/32	0.091	< 0.008	11			●	E41 F90~F94 F98		
TPET 22013ML-FSF 2202MR-FSF 2202ML-FSF 2205MR-FSF 2205ML-FSF	TPET 1103005ML-FSF 110301MR-FSF 110301ML-FSF 110302MR-FSF 110302ML-FSF	2	3	1/4	1/8	0.130	< 0.002	11			●	E41 F90~F97 F136				
							< 0.004									
							< 0.004									
							< 0.008									
Finishing		TPEH 151502MR-P 151502ML-P 151505MR-P 151505ML-P 15151MR-P 15151ML-P	TPEH 080201MR-P 080201ML-P 080202MR-P 080202ML-P 080204MR-P 080204ML-P	3	3	3/16	3/32	0.091	< 0.004	11			●	E41 F90~F94 F98		
									< 0.004							
									< 0.008							
									< 0.008							
									< 1/64							
									< 1/64							
		TPEH 181502MR-P 181502ML-P 181505MR-P 181505ML-P 18151MR-P 18151ML-P	TPEH 090201MR-P 090201ML-P 090202MR-P 090202ML-P 090204MR-P 090204ML-P	3	3	7/32	3/32	0.126	< 0.004	11			●	F35~F36 F90~F94 F98		
									< 0.004							
									< 0.008							
									< 0.008							
									< 1/64							
									< 1/64							
		TPEH 2202MR-P 2202ML-P 2205MR-P 2205ML-P 221MR-P 221ML-P	TPEH 110301MR-P 110301ML-P 110302MR-P 110302ML-P 110304MR-P 110304ML-P	3	3	1/4	1/8	0.130	< 0.004	11			●	E41 F90~F97 F136		
									< 0.004							
									< 0.008							
									< 0.008							
									< 1/64							
									< 1/64							

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

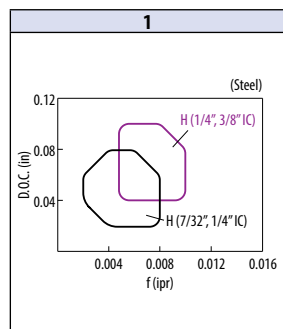
60° Triangle

How to read this page ➡ See page B15

				Free-cutting steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



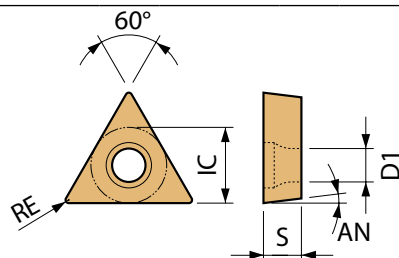
● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

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[illegible]

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range No. of Edges		Dimensions (in)				Angle (°)	Carbide			Cermet			Applicable Toolholder Page
						IC	S	D1	RE		AN	DLC	PVD	-	PVD	-	
Low Feed  Precision / Sharp Edge	TPET 151502FL-USF	TPET 080201FL-USF	1	3	3/16	3/32	0.091	0.004	11		●						E41 F90~F94 F98
	151505FR-USF	080202FR-USF						0.008		●							
	151505FL-USF	080202FL-USF						0.008		●							
	TPET 2202FR-USF	TPET 110301FR-USF	2	3	1/4	1/8	0.130	0.004	11		●					E41 F90~F97 F136	
	2202FL-USF	110301FL-USF						0.004		●							
2205FR-USF	110302FR-USF	0.008						●									
TPET 151505MFR-USF	TPET 080202MFR-USF	1	3	3/16	3/32	0.091	< 0.008	11	●							E41 F90~F94 F98	
151505MFL-USF	080202MFL-USF						< 0.008		●								
TPET 2202MFL-USF	TPET 110301MFL-USF						< 0.004		●								
TPET 2205MFR-USF	110302MFR-USF	2	3	1/4	1/8	0.130	< 0.008	11	●							E41 F90~F97 F136	
2205MFL-USF	110302MFL-USF						< 0.008		●								
Non-Ferrous Metals  Finishing / Sharp Edge	TPGT 181505AP	TPGT 090202AP	3	3	7/32	3/32	0.110	0.008	11	●	●					F35~F36 F90~F94 F98	
	18151AP	090204AP						1/64		●	●						
	18152AP	090208AP						1/32		●	●						
TPGT 2205AP	TPGT 110302AP	3	3	1/4	1/8	0.130	0.008	11	●	●						E41 F90~F97 F136	
221AP	110304AP						1/64		●	●							
222AP	110308AP						1/32		●	●							
Cast Iron  Without Chipbreaker	TPGB 151505	TPGB 080202	-	3	3/16	3/32	0.091	0.008	11		●			●		E41 F90~F94 F98	
	15151	080204						1/64									
	15152	080208						1/32									
	TPGB 181505	TPGB 090202	-	3	7/32	3/32	0.126	0.008	11		●			●		F35~F36 F90~F94 F98	
	18151	090204						1/64			●						
	TPGB 21502	TPGB 110201						0.004			●						
	21505	110202	-	3	1/4	3/32	0.146	0.008	11	●	●			●		F96 F97	
	2151	110204						1/64		●	●						
	TPGB 22013	TPGB 1103005						0.002			●						
	2202	110301	-	3	1/4	1/8	0.130	0.004	11					●		E41 F90~F97 F136	
	2205	110302						0.008		●	●		●				
	221	110304						1/64		●	●		●				
222	110308	1/32						●		●		●					
TPGB 321	TPGB 160304	1/64								●	●	●	●	●	●		●
322	160308	1/32		●	●	●	●	●	●	●	●	●					

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

1	2	3
(Steel / IC = 3/16")	(Steel / IC = 1/4")	(Non-Ferrous Metals)

How to read this page ➡ See page **B15**

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

1	2	3
(Steel / IC = 1/4")	(Steel / IC = 3/8")	(Steel / IC = 7/32")

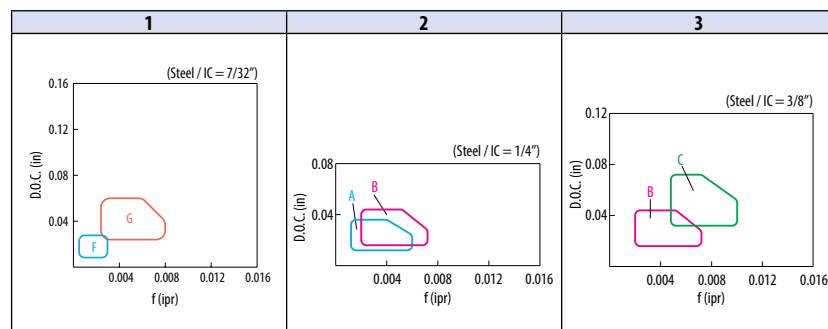
Inserts sold in 10 piece boxes

60° Triangle

How to read this page ➔ See page B15

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Chipbreaker Range

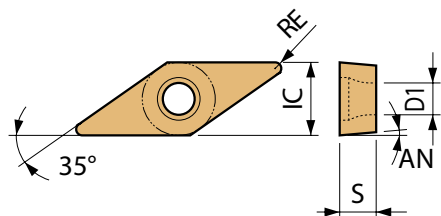


How to read this page ➡ See page **B15**

A	INSERT GRADES
B	TURNING INSERTS
C	CBN / PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Inserts sold in 10 piece boxes

How to read this page ➡ See page **B15**

[illegible]

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	No. of Edges	Dimensions (in)				Angle (°)	Carbide				Cermet				Applicable Toolholder Page					
						IC	S	D1	RE		AN	PVD		-	PVD		-							
												PR125	PR155	PR1705	PR1725	PR830	KV10	PV710		PV720	PV730	TN60	TN610	TN620
Finishing	 Precision / Sharp Edge	VBET 2201R-FSF	VBET 1103003R-FSF	1	2	1/4	1/8	0.110	0.001	5														
		2201L-FSF	1103003L-FSF																					
		2202R-FSF	110301R-FSF																					
		2202L-FSF	110301L-FSF																					
		2205R-FSF	110302R-FSF																					
		2205L-FSF	110302L-FSF																					
		VBET 22013MR-FSF	VBET 1103005MR-FSF	1	2	1/4	1/8	0.110	< 0.002	5														
		22013ML-FSF	1103005ML-FSF						< 0.002															
		2202MR-FSF	110301MR-FSF						< 0.004															
		2202ML-FSF	110301ML-FSF						< 0.004															
2205MR-FSF	110302MR-FSF	< 0.008																						
2205ML-FSF	110302ML-FSF	< 0.008																						
Finishing	 Sharp Edge	VBET 22013MR-F	VBET 1103005MR-F	1	2	1/4	1/8	0.110	< 0.002	5														
		22013ML-F	1103005ML-F						< 0.002															
		2202MR-F	110301MR-F						< 0.004															
		2202ML-F	110301ML-F						< 0.004															
		2205MR-F	110302MR-F						< 0.008															
		2205ML-F	110302ML-F						< 0.008															
Finishing	 Sharp Edge	VBGT 2201R-F	VBGT 1103003R-F	1	2	1/4	1/8	0.110	0.001	5														
		2201L-F	1103003L-F						0.001															
		2202R-F	110301R-F						0.004															
		2202L-F	110301L-F						0.004															
		2205R-F	110302R-F						0.008															
		2205L-F	110302L-F						0.008															
		VBGT 22013MR-F	VBGT 1103005MR-F	1	2	1/4	1/8	0.110	< 0.002	5														
		22013ML-F	1103005ML-F						< 0.002															
		2202MR-F	110301MR-F						< 0.004															
		2202ML-F	110301ML-F						< 0.004															
		2205MR-F	110302MR-F						< 0.008															
		2205ML-F	110302ML-F						< 0.008															
Medium	 Sharp Edge	VBGT 2202FN-Z	VBGT 110301FN-Z	-	2	1/4	1/8	0.110	0.004	5														
		2205FN-Z	110302FN-Z						0.008															
		221FN-Z	110304FN-Z						1/64															

E42~E47
E62
F102, F103
F106~F114
F137

E42~E47
E62
F102, F103
F106~F114
F137

Figure 1 is a graph showing the relationship between D.O.C. (in) and f (ipr) for Steel / IC = 1/4", 3/8". The graph displays three curves: Y (3/8" IC), Y (1/4" IC), and F / FSF. The Y (3/8" IC) curve is the highest, followed by Y (1/4" IC), and then F / FSF. The curves show a peak in D.O.C. around $f = 0.008$.

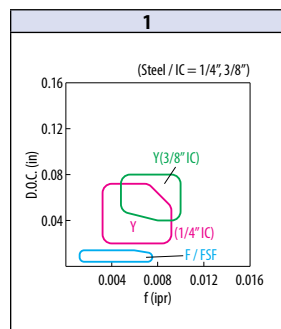
35° Diamond

How to read this page ➡ See page B15

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Chipbreaker Range

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

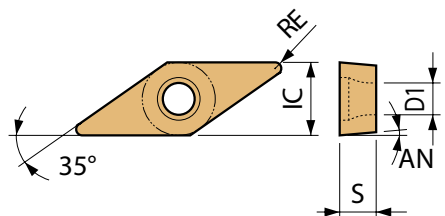


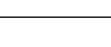
● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

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[illegible]

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	Dimensions (in)				Angle (°)	Carbide										Cermet				Applicable Toolholder Page					
					No. of Edges	IC	S	D1		RE	AN	CVD					PVD					CVD	PVD		-				
												CA02SP	CA11SP	CA12SP	CA510	CA515	CA525	CA530	CA6515	CA6525	PR01SS					PR11SS	PR1205	PR1225	PR1335	PR1705	PR1725	PR930	CCX	PV710	PV720	PV730	TN60	TN610	TN620
Minute D.O.C. 	Polished / Sharp Edge	VCGT 2202MP-CF	VCGT 110301MP-CF	1	2	1/4	1/8	0.110	< 0.004	7																			
		2205MP-CF	110302MP-CF																										< 0.008
Finishing 	Polished / Sharp Edge	VCGT 2202MFP-GF	VCGT 110301MFP-GF	2	2	1/4	1/8	0.110	< 0.004	7																			
		2205MFP-GF	110302MFP-GF																										< 0.008
Finishing 	Polished / Sharp Edge	VCGT 2202MFP-SKS	VCGT 110301MFP-SKS	3	2	1/4	1/8	0.110	< 0.004	7																			
		2205MFP-SKS	110302MFP-SKS																										< 0.008
		221MFP-SKS	110304MFP-SKS						< 1/64																				
Finishing 		VCMT 151505PP	VCMT 080202PP	4	2	3/16	3/32	0.091	0.008	7																			
		15151PP	080204PP																										1/64
		VCMT 331PP	VCMT 160404PP	4	2	3/8	3/16	0.173	1/64	7																			
332PP	160408PP	1/32																											
Finishing 		VCMT 151505VF	VCMT 080202VF	4	2	3/16	3/32	0.091	0.008	7																			
		15151VF	080204VF																										1/64
Finishing - Medium 		VCMT 151505HQ	VCMT 080202HQ	4	2	3/16	3/32	0.091	0.008	7																			
		15151HQ	080204HQ																										1/64
		VCMT 221HQ	VCMT 110304HQ																										4
		VCMT 331HQ	VCMT 160404HQ	4	2	3/8	3/16	0.173	1/64	7																			
332HQ	160408HQ	1/32																											
																												E45~E47 F102~F103 F106~F114	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002 , <0.004 , <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Figure 10 consists of four subplots, labeled 1, 2, 3, and 4, each showing the relationship between D.O.C. (in) on the y-axis and f (ipr) on the x-axis. The x-axis for all plots ranges from 0.002 to 0.008. The y-axis for all plots ranges from 0.04 to 0.16.

- Plot 1:** Shows a blue line labeled "Steel" and a cyan area labeled "CF". The blue line starts at $f \approx 0.0015$, $D.O.C. \approx 0.04$, rises to $D.O.C. \approx 0.09$ at $f \approx 0.002$, then decreases to $D.O.C. \approx 0.04$ at $f \approx 0.006$. The cyan area is bounded by this line and the y-axis.
- Plot 2:** Shows a blue line labeled "Steel" and a magenta area labeled "GF". The blue line starts at $f \approx 0.0015$, $D.O.C. \approx 0.04$, rises to $D.O.C. \approx 0.045$ at $f \approx 0.002$, then decreases to $D.O.C. \approx 0.04$ at $f \approx 0.006$. The magenta area is bounded by this line and the y-axis.
- Plot 3:** Shows a blue line labeled "Steel" and a blue area labeled "SKS". The blue line starts at $f \approx 0.0015$, $D.O.C. \approx 0.04$, rises to $D.O.C. \approx 0.045$ at $f \approx 0.002$, then decreases to $D.O.C. \approx 0.04$ at $f \approx 0.006$. The blue area is bounded by this line and the y-axis.
- Plot 4:** Shows a blue line labeled "Steel" and several other configurations: "PP(3/8"I)" (red line), "PP(3/16"I)" (green line), "VF" (blue line), and "HQ" (magenta line). The blue line starts at $f \approx 0.0015$, $D.O.C. \approx 0.04$, rises to $D.O.C. \approx 0.045$ at $f \approx 0.002$, then decreases to $D.O.C. \approx 0.04$ at $f \approx 0.006$. The other configurations are shown as nested areas within the blue line.

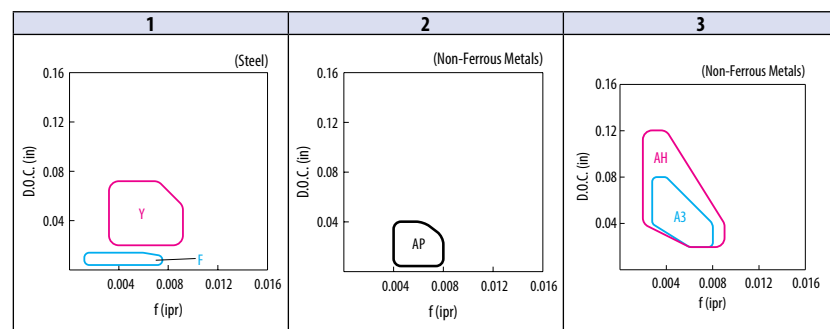
35° Diamond

How to read this page ➔ See page B15

										<table><tr><td>Free-cutting steel</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>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Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



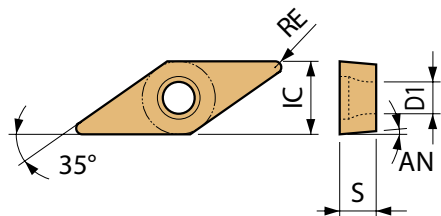
● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes

35° Diamond

How to read this page See page **B15**

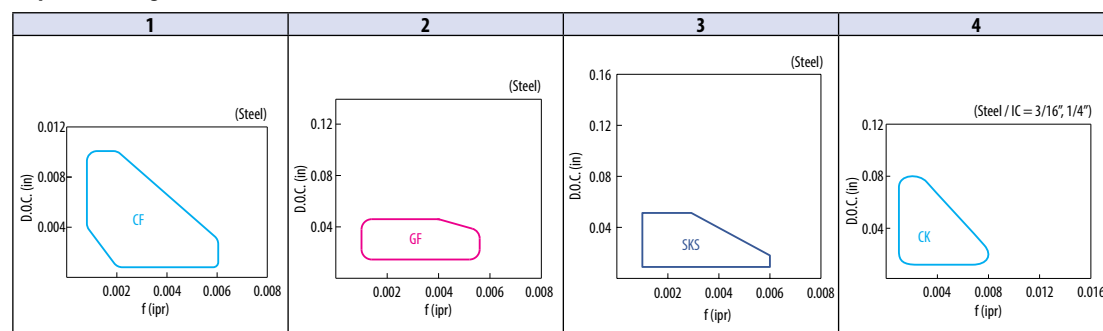


Free-cutting steel						☹			P
Carbon steel / Alloy steel				😊		☹	😊		
Stainless Steel			😊	😊	😊	☹	😊	😊	M
Gray cast iron									
Nodular cast iron									K
Non-ferrous metals	☹	☹							
Heat-resistant alloy			☹	☹		✖			S
Titanium alloy					☹				
Hard materials									H

[illegible]

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

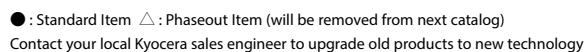
Chipbreaker Range



How to read this page ➡ See page **B15**

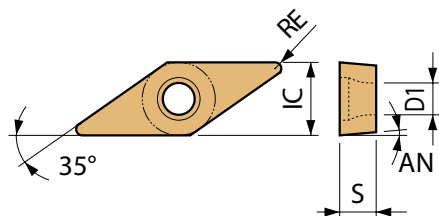
A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Chipbreaker Range



35° Diamond

How to read this page ➡ See page **B15**

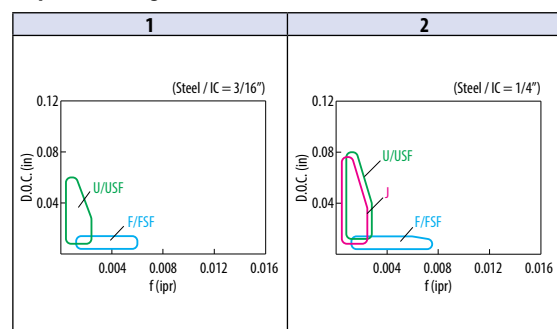


Free-cutting steel					P
Carbon steel / Alloy steel	☺	☹	☺		
Stainless Steel	☺	☹	☺		M
Gray cast iron					K
Nodular cast iron					
Non-ferrous metals					N
Heat-resistant alloy		☹			S
Titanium alloy		☹			
Hard materials					H

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range	Dimensions (in)				Angle (°)	Carbide				Cermets	Applicable Toolholder Page	
					No. of Edges					AN	PR125	PR135	PR175			PR930
					IC	S	D1	RE								
Low Feed	 Precision / Sharp Edge	VPET 151502FR-USF	VPET 080201FR-USF	1	2	3/16	3/32	0.091	0.004	11					E52~E53 F102~F103	
		151502FL-USF	080201FL-USF													
		151505FR-USF	080202FR-USF													
		151505FL-USF	080202FL-USF													
		VPET 2201FR-USF	VPET 1103003FR-USF	2	2	1/4	1/8	0.110	0.001	11					E24 E51~E53	
		2201FL-USF	1103003FL-USF													
		2202FR-USF	110301FR-USF													
		2202FL-USF	110301FL-USF													
		2205FR-USF	110302FR-USF													
		2205FL-USF	110302FL-USF													
VPET 151502MFR-USF	VPET 080201MFR-USF	1	2	3/16	3/32	0.091	< 0.004	11					E52~E53 F102~F103			
151505MFR-USF	080202MFR-USF															
151505MFL-USF	080202MFL-USF															
VPET 22013MFR-USF	VPET 1103005MFR-USF	2	2	1/4	1/8	0.110	< 0.002	11					E24 E51~E53			
2202MFR-USF	110301MFR-USF															
2202MFL-USF	110301MFL-USF															
2205MFR-USF	110302MFR-USF															
Low Feed	 Sharp Edge	VPET 151502MFR-U	VPET 080201MFR-U	1	2	3/16	3/32	0.091	< 0.004	11					E52~E53 F102~F103	
		151502MFL-U	080201MFL-U													
		151505MFR-U	080202MFR-U													
		151505MFL-U	080202MFL-U													
		VPET 22013MFR-U	VPET 1103005MFR-U	2	2	1/4	1/8	0.110	< 0.002	11					E24 E51~E53	
		22013MFL-U	1103005MFL-U													
		2202MFR-U	110301MFR-U													
		2202MFL-U	110301MFL-U													
		2205MFR-U	110302MFR-U													
		2205MFL-U	110302MFL-U													
Low Feed	 Sharp Edge	VPET 22013MFR-J	VPET 1103005MFR-J	2	2	1/4	1/8	0.110	< 0.002	11					E24 E51~E53	
		2202MFR-J	110301MFR-J													
		2202MFL-J	110301MFL-J													
		2205MFR-J	110302MFR-J													
		2205MFL-J	110302MFL-J													

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002 , <0.004 , <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



How to read this page ➡ See page **B15**

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

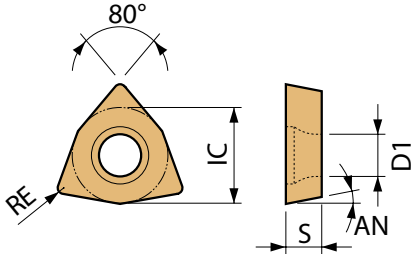
1	2	3
(Steel / IC = 5/32")	(Steel)	(Steel / IC = 5/32", 3/16")

Inserts sold in 10 piece boxes

A	INSERT GRADES
B	TURNING INSERTS
C	CN / PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

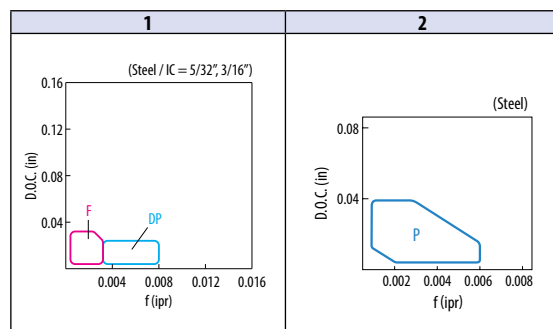
80° Trigon

How to read this page ➡ See page B15

Insert		Part Number ANSI	Part Number ISO	Chipbreaker Range No. of Edges	Dimensions (in)				Angle (°)	Carbide				Applicable Toolholder Page
					IC	S	D1	RE		PR1535 PR1725 PR930	KW10	TN60	Cermet	
 Finishing  Sharp Edge		WBG T 12101L-F	WBG T 0601003L-F	1	3	5/32	1/16	0.001	5					F38 F116~F118 F120~F121
		12102R-F	060101R-F											
		12102L-F	060101L-F											
		12105R-F	060102R-F											
		12105L-F	060102L-F											
		1211R-F	060104R-F											
		1211L-F	060104L-F											
		WBG T 151502L-F	WBG T 080201L-F	1	3	3/16	3/32	0.001	5					
		151505R-F	080202R-F											
		151505L-F	080202L-F											
		15151R-F	080204R-F											
		15151L-F	080204L-F											
Finishing  Sharp Edge		WBET 151502MR-P	WBET 080201MR-P	2	3	3/16	3/32	0.001	5					
		151502ML-P	080201ML-P											
		151505MR-P	080202MR-P											
		151505ML-P	080202ML-P											
		15151MR-P	080204MR-P											
		15151ML-P	080204ML-P											
Cast Iron  Without Chipbreaker		WBGW 12105L	WBGW 060102L	-	3	5/32	1/16	0.001	0.008	5				
		WBGW 151505L	WBGW 080202L	-	3	3/16	3/32	0.001	0.008	5				
		15151L	080204L	-	3	3/16	3/32	0.001	1/64	5				

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Chipbreaker Range



How to read this page ➡ See page **B15**

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002 , <0.004 , <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Figure 10 consists of two plots, labeled 1 and 2, showing the relationship between D.O.C. (m) and f (ipr) for different Steel/IC ratios.

Plot 1 (Steel/IC = 1/4'') shows D.O.C. (m) on the y-axis (0.04 to 0.12) versus f (ipr) on the x-axis (0.004 to 0.016). The curves are labeled HQ (green), GP (pink), and Y (magenta). The HQ curve is the highest, followed by Y, and then GP.

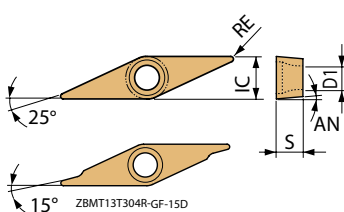
Plot 2 (Steel/IC = 3/8'') shows D.O.C. (m) on the y-axis (0.04 to 0.16) versus f (ipr) on the x-axis (0.004 to 0.016). The curves are labeled Y (magenta), HQ (green), and GP (pink). The Y curve is the highest, followed by HQ, and then GP.

Inserts sold in 10 piece boxes

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

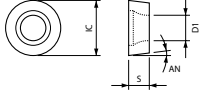
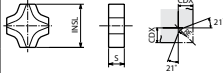
25° / 15° Diamond

How to read this page ➡ See page B15

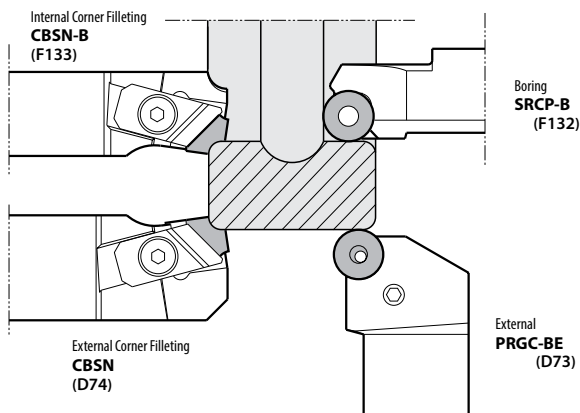
		Free-cutting steel						●	●	☺	●	P	
		Carbon steel / Alloy steel						●	●	☺	●		
		Stainless Steel						●	☺				M
		Gray cast iron											
		Nodular cast iron											
		Non-ferrous metals											N
		Heat-resistant alloy						✱					
		Titanium alloy						●					
		Hard materials											
Insert		Part Number ISO	No. of Edges	Dimensions (in)				Angle (°)	Carbide		Cermet		Applicable Toolholder Page
				IC	S	D1	RE		AN	PVD	PVD	-	
										PR1535	PR1725	PV720		PV730	TN620
Finishing		ZBMT 13T302GF 13T304GF 13T308GF	2	1/4	5/32	0.209	1/64 1/32	5	● ● ●	● ● ●	● ● ●	● ● ●	E56~E57 F124~F128
Finishing		ZBMT 13T304R-GF-15D	2	1/4	5/32	0.209	1/64	5	● ●	● ●			

Round / SNMF Type

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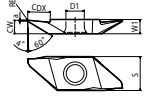
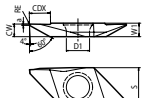
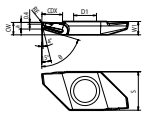
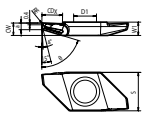
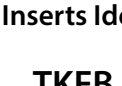
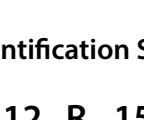
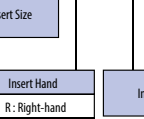
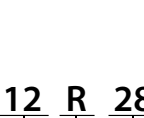
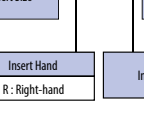
				Free-cutting steel								P															
				Carbon steel / Alloy steel																							
				Stainless Steel								M															
				Gray cast iron										K													
				Nodular cast iron																							
				Non-ferrous metals								N															
				Heat-resistant alloy										S													
				Titanium alloy																							
Hard materials								H																			
Insert				Part Number ANSI						Part Number ISO				No. of Edges		Dimensions (in)						Angle (°)		Cerm ^{et}		Applicable Toolholder Page	
								CDX								INSL		IC		S		D1		RE				AN		TN90
				Use ISO Part Number		RCMT 1204M0-BB		-		-		-		0.472		3/16		0.165		-		7		●		D73	
				RCMT 1606M0-BB		-		-		-		0.630		1/4		0.217		-		7		●					
				RPMT 42M0-BB		RPMT 1203M0-BB		-		-		-		0.472		1/8		0.173		-		11		●		F132	
				Use ISO Part Number		RPMT 1604M0-BB		-		-		-		0.630		3/16		0.217		-		11		●			
				SNMF 120406-21		SNMF 120406-21		8		1/2		-		4.76		-		0.024		-		●		D74 F133			
				120410-21		120410-21												0.039				●					
				120416-21		120416-21												0.063				●					
				120421-21		120421-21												0.083				●					
				120426-21		120426-21												0.102				●					
				120410-21		120410-21												0.118				●					

Tooling for Bearing Machining



TKFB

How to read this page ➔ See page B15

			Free-cutting steel										P					
			Carbon steel / Alloy steel										M					
			Stainless Steel										K					
			Gray cast iron										N					
			Nodular cast iron										S					
			Non-ferrous metals										H					
			Heat-resistant alloy															
			Titanium alloy															
			Hard materials															
Insert		Part Number		No. of Edges	Dimensions (mm)								Angle (°)		Carbide		Applicable Toolholder Page	
					CW		CDX	S	D1	RE	W1	a	θ	PVD	-			
					in	mm								PR125	PR1535	PR1725		KW10
		TKFB 12R15005M	2	0.059	1.5	2.6	8.7	5.2	< 0.05	0.25	-	●	●	●	E15 E16			
		12R28005M		0.110	2.8	4.6			< 0.05	0.3		●	●	●				
		12R28010M		0.110	2.8	4.6			< 0.1	0.3		●	●	●				
		TKFB 16R38005M	2	0.150	3.8	6.3	9.5	5.2	< 0.05	0.3	-	●	●	●				
		16R38010M						< 0.1			●	●	●					
											●	●	●					
		TKFB 12L28005MR	2	0.110	2.8	4.6	8.7	5.2	< 0.05	0.3	-	●	●	●				
		12L28010MR						< 0.1			●	●	●					
											●	●	●					
		TKFB 16L38005MR	2	0.150	3.8	6.3	9.5	5.2	< 0.05	0.3	-	●	●	●				
		16L38010MR						< 0.1			●	●	●					
											●	●	●					
		TKFB 12R28005P-GQ	2	0.110	2.8	4.6	8.7	5.2	0.05	1.5	74	●	●	●				
		12R28015P-GQ						0.15	3	1.8	72	●	●	●				
											●	●	●					
		TKFB 16R38005P-GQ	2	0.150	3.8	6.3	9.5	5.2	0.05	1.8	72	●	●	●				
		16R38015P-GQ						0.15	4	1.8	72	●	●	●				
											●	●	●					
		TKFB 12R28005-GQ	2	0.110	2.8	4.6	8.7	5.2	0.05	1.5	74	●	●	●				
		12R28015-GQ						0.15	3	1.5	74	●	●	●				
											●	●	●					
		TKFB 16R38005-GQ	2	0.150	3.8	6.3	9.5	5.2	0.05	1.8	72	●	●	●				
		16R38015-GQ						0.15	4	1.8	72	●	●	●				
											●	●	●					

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Inserts Identification System (Ref. Tables 1 and 2)

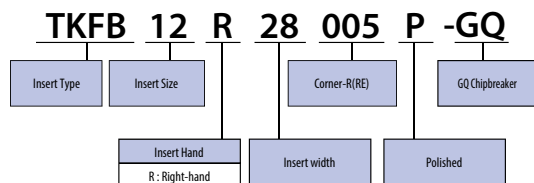
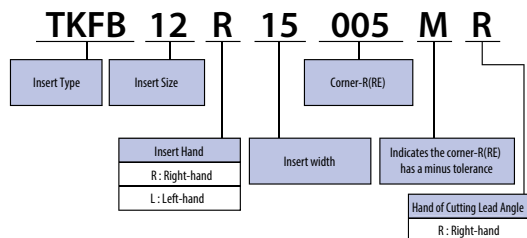


Table 1

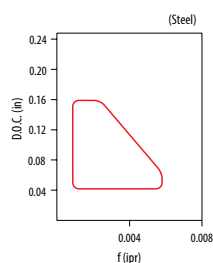
Small machining	General purpose	Large machining
 TKFB12R15..	 TKFB12R28..	 TKFB16R38..

Table 2

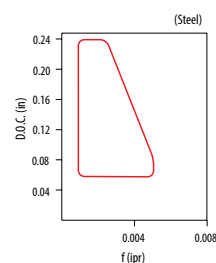
Toolholder	Right-hand	Toolholder	Left-hand
Insert	Right-hand	Insert	Left-hand
Lead angle	Right-hand	Lead angle	Right-hand

Applicable Chipbreaker Range

TKFB12R28...GQ



TKFB16R38...GQ

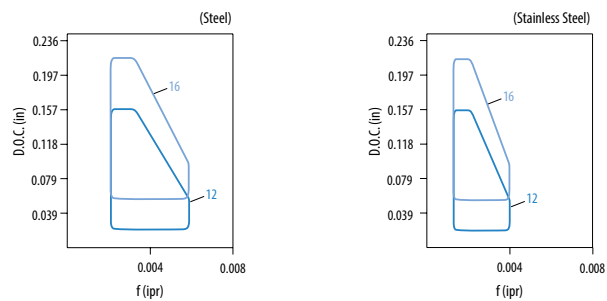


TKF-GTP

How to read this page ➔ See page B15

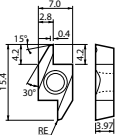
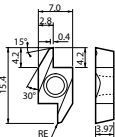
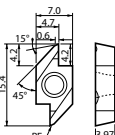
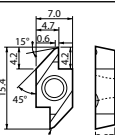
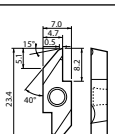
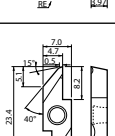
		Free-cutting steel												P		
		Carbon steel / Alloy steel										☺●				
		Stainless Steel										●☺		M		
		Gray cast iron												K		
		Nodular cast iron														
		Non-ferrous metals												N		
		Heat-resistant alloy										☒☺		S		
		Titanium alloy										●				
		Hard materials												H		
Insert		Part Number		No. of Edges	Dimensions (mm)							Angle (°)	Carbide		Applicable Toolholder Page	
					CW		CDX	S	D1	RE	W1		PSIRR	PVD		
					in	mm								PR1535		PR1725
	TKF 12R200-GTP	2	0.079	2	4.3	8.7	5.2	0.08	3	0	●	●	E15 E16			
	TKF 16R300-GTP	2	0.118	3	5.8	9.5	5.2	0.08	4	0	●	●				

Applicable Chipbreaker Range



ABS / ABW

How to read this page ➡ See page B15

			Free-cutting steel							P	
			Carbon steel / Alloy steel	☺	☹	☺					
			Stainless Steel	☹	☹	☺					M
			Gray cast iron					☹			K
			Nodular cast iron					☺			
			Non-ferrous metals					☹			N
			Heat-resistant alloy		☹	☺					S
Titanium alloy						☹					
			Hard materials							H	
Insert		Part Number	No. of Edges	Dimensions (mm)	Carbide					Cermet	Applicable Toolholder Page
				RE	PVD				-		
					PR1225	PR1705	PR1725	PR930			
		ABS 15R4005M	2	< 0.05	●	●	●				E20
		15R4015M		< 0.15	●	●	●				
		ABS 15R4005	2	0.05				●	●	●	E20
		15R4015		0.15				●	●	●	
		ABW 15R4005M	2	< 0.05	●	●	●				E21
		15R4015M		< 0.15	●	●	●				
		ABW 15R4005	2	0.05				●	●	●	E21
		15R4015		0.15				●	●	●	
		ABW 23R5005M	2	< 0.05	●	●	●				E22
		23R5015M		< 0.15	●	●	●				
		ABW 23R5005	2	0.05				●	●		E22
		23R5015		0.15				●	●		

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

80° Diamond

How to read this page See page B15

Cutting Edge Preparation				Material Groups											
Symbol	Specification	Example													
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed												
T	Chamfered	T00825	0.008" × 25° Chamfered												
				Gray cast iron (with scale)											
				Gray cast iron (without scale)											
				Nodular cast iron (with scale)											
				Nodular cast iron (without scale)											
				Heat-resistant alloy											
				Hard materials											

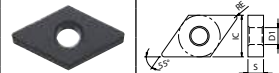
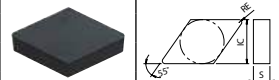
● :

How to read this page ➡ See page **B15**

Cutting Edge Preparation

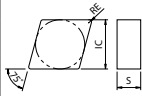
Symbol	Specification	Example	
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed
T	Chamfered	T00825	0.008" × 25° Chamfered

Gray cast iron (with scale)				K
Gray cast iron (without scale)		☺	☺	
Nodular cast iron (with scale)				
Nodular cast iron (without scale)				
Heat-resistant alloy				S
Hard materials	○	●		H

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)				Ceramic			Applicable Toolholder Page
							IC	S	D1	RE	PVD	-		
Ag6N	Pt600M	Ag5												
	DNGA 432T00325 433T00325	T00325	DNGA 150408T00825 150412T00825	T00825	4	1/2	3/16	0.203	1/32 3/64	●	●	D14~D19 F140, F152 F152~F156		
	DNGA 432T00625 433T00625	T00625	DNGA 150408T01525 150412T01525	T01525	4	1/2	3/16	0.203	1/32 3/64	●	●			
	DNGA 431T00625AA 432T00625AA 433T00625AA	S00625	DNGA 150404S01525 150408S01525 150412S01525	S01525	4	1/2	3/16	0.203	1/64 1/32 3/64	●	●			
	DNGA 431T00625	T00625	DNGA 150404T01525	T01525		1/2	3/16	0.203	1/64	●	●			
	DNGA 431S00825 432S00825	S00825	DNGA 150404S02025 150408S02025	S02025	4	1/2	3/16	0.203	1/64 1/32	●	●			
	DNGA 431T00825 432T00825 433T00825 434T00825	T00825	DNGA 150404T02025 150408T02025 150412T02025 150412T02025	T02025	4	1/2	3/16	0.203	1/64 1/32 3/64 1/16	●	●	D14, D16 D18		
	DNGA 432T01230AA	S01230	DNGA 150408S03030	S03030	4	1/2	3/16	0.203	1/32	●	●			
	DNGA 441S00625 442T00625AA 443T00625AA 444T00625AA	S00625	DNGA 150604S01525 150608S01525 150612S01525 150616S01525	S01525	4	1/2	1/4	0.203	1/64 1/32 3/64 1/16	●	●			
	DNGA 441T00625 443T00625	T00625	DNGA 150604T01525 150612T01525	T01525	4	1/2	1/4	0.203	1/64 3/64	●	●			
		DNGA 441T00825 442T00825 443T00825	T00825	DNGA 150604T02025 150608T02025 150612T02025	T02025	4	1/2	1/4	0.203	1/64 1/32 3/64	●	●		
	DNG 451T00625AA 452T00625AA 453T00625AA	S00625	DNGN 150704S01525 150708S01525 150712S01525	S01525	4	1/2	5/16	-	1/64 1/32 3/64	●	●	D54		
	DNG 452S00825	S00825	DNGN 150708S02025	S02025	4	1/2	5/16	-	1/32	●	●			
	DNG 451T00825 452T00825 453T00825 454T00825	T00825	DNGN 150704T02025 150708T02025 150712T02025 150716T02025	T02025	4	1/2	5/16	-	1/64 1/32 3/64 1/16	●	●			

75° Diamond

How to read this page ➡ See page B15

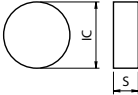
Cutting Edge Preparation				Gray cast iron (with scale)				K				
Symbol	Specification	Example		Gray cast iron (without scale)			☺					
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed	Nodular cast iron (with scale)								
T	Chamfered	T00825	0.008" × 25° Chamfered	Nodular cast iron (without scale)								
				Heat-resistant alloy				S				
				Hard materials		○		H				
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)			Ceramic		Applicable Toolholder Page
							IC	S	RE	PVD	-	
										A66N	A65	
		ENG 452T00625AA	S00625	ENGN 130708S01525	S01525	4	1/2	5/16	1/32	●		D55 F167
		ENG 451T00825	T00825	ENGN 130704T02025	T02025	4	1/2	5/16	1/64	●		
		452T00825		130708T02025					1/32	●		
		453T00825		130712T02025					3/64	●		
		454T00825		130716T02025					1/16	●		
		455T00825		130720T02025					5/64	●		

Round

How to read this page ➡ See page B15

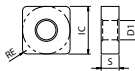
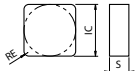
Cutting Edge Preparation				Material									
Symbol	Specification	Example											
E	R-Honed	E002	R0.002" Honed										
K	Double Chamfered	K06015	0.060" × 15° Chamfered										
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed										
T	Chamfered	T00825	0.008" × 25° Chamfered										
				Gray cast iron (with scale)									
				Gray cast iron (without scale)									
				Nodular cast iron (with scale)									
				Nodular cast iron (without scale)									
				Heat-resistant alloy									
				Hard materials									
				K									
				S									
				H									

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	Dimensions (in)		Ceramic						Applicable Toolholder Page
					IC	S	PVD	-					
								Ac6N PT600M	Ac5 KS001	KS6015	KS6030	KS6040	

 	RNG 32T00420	T00420	RNGN 090300T01020	T01020	3/8	1/8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																</
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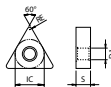
90° Square

How to read this page ➡ See page B15

Cutting Edge Preparation				Material Compatibility												Applicable Toolholder Page	
Symbol	Specification	Example															
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed	●	●	●	●	●	●	●	●	●	●	●	K		
T	Chamfered	T00825	0.008" × 25° Chamfered	●	●	●	●	●	●	●	●	●	●	●			
				Heat-resistant alloy											S		
				Hard materials											H		
Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)				Ceramic							
						IC	S	D1	RE	CVD	PVD	-					
		SNGA 431T00625AA 432T00625AA 433T00625AA	SNGA 120404S01525 120408S01525 120412S01525	S01525	8	1/2	3/16	0.203	1/32 3/64	●	●	●	●	●	●	D21~D23 F158	
		SNGA 432S00825 433S00825	SNGA 120408S02025 120412S02025	S02025	8	1/2	3/16	0.203	1/32 3/64	●	●	●	●	●	●		
		SNGA 432T00625 433T00625	SNGA 120408T01525 120412T01525	T01525	8	1/2	3/16	0.203	1/32 3/64	●	●	●	●	●	●		
		SNGA 432T00825 433T00825 434T00825	SNGA 120408T02025 120412T02025 120416T02025	T02025	8	1/2	3/16	0.203	1/32 3/64 1/16	●	●	●	●	●	●		
		SNMA 432T01230AA	SNMA 120408S03030	S03030	8	1/2	3/16	0.203	1/32	●	●	●	●	●	●		
		SNG 432T00220	SNGN 120408T00520	T00520	8	1/2	3/16	-	1/32	●	●	●	●	●	●	D56~D60 D69 D70	
		SNG 433T00420	SNGN 120412T01020	T01020	8	1/2	3/16	-	3/64	●	●	●	●	●	●		
		SNG 432T00425AA 433T00425AA 434T00425AA 435T00425AA	SNGN 120408S01025 120412S01025 120416S01025 120420S01025	S01025	8	1/2	3/16	-	1/32 3/64 1/16 5/64	●	●	●	●	●	●		
		SNG 432T00625AA 433T00625AA 434T00625AA	SNGN 120408S01525 120412S01525 120416S01525	S01525	8	1/2	3/16	-	1/32 3/64 1/16	●	●	●	●	●	●		
		SNG 432S00825 433S00825 434S00825	SNGN 120408S02025 120412S02025 120416S02025	S02025	8	1/2	3/16	-	1/32 3/64 1/16	●	●	●	●	●	●		
		SNG 433T00625	SNGN 120412T02025	T02025	8	1/2	3/16	-	3/64	●	●	●	●	●	●		
		SNG 431T00825 432T00825 433T00825 434T00825 435T00825	SNGN 120404T02025 120408T02025 120412T02025 120416T02025 120420T02025	T02025	8	1/2	3/16	-	1/64 1/32 3/64 1/16 5/64	●	●	●	●	●	●		
		SNG 434T01230AA	SNGN 120416S03030	S03030	8	1/2	3/16	-	1/16	●	●	●	●	●	●		
		SNG 451T00625AA 452T00625AA 453T00625AA 454T00625AA 455T00625AA	SNGN 120704S01525 120708S01525 120712S01525 120716S01525 120720S01525	S01525	8	1/2	5/16	-	1/64 1/32 3/64 1/16 5/64	●	●	●	●	●	●		
		SNG 452S00825 453S00825 454S00825 455S00825	SNGN 120708S02025 120712S02025 120716S02025 120720S02025	S02025	8	1/2	5/16	-	1/32 3/64 1/16 5/64	●	●	●	●	●	●		
		SNG 451T00825 452T00825 453T00825 454T00825 455T00825	SNGN 120704T02025 120708T02025 120712T02025 120716T02025 120720T02025	T02025	8	1/2	5/16	-	1/64 1/32 3/64 1/16 5/64	●	●	●	●	●	●		
		SNM 454T00825	SNMN 120716T02025	T02025	8	1/2	5/16	-	1/16	●	●	●	●	●	●		
		SNG 553T00825 554T00825	SNGN 150712T02025 150716T02025	T02025	8	5/8	5/16	-	3/64 1/16	●	●	●	●	●	●		

60° Triangle

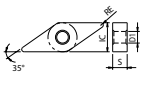
How to read this page ➡ See page B15

Cutting Edge Preparation				Gray cast iron (with scale)													
Symbol	Specification	Example		Gray cast iron (without scale)													
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed	Nodular cast iron (with scale)													
T	Chamfered	T00825	0.008" × 25° Chamfered	Nodular cast iron (without scale)													
				Heat-resistant alloy										S			
				Hard materials										H			
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)				Ceramic						Applicable Toolholder Page
							IC	S	D1	RE	PVD	-					
												A66N PT600M	A65 KA30	KS6015 KS6050	KT66		
		TNGA 332T00220	T00220	TNGA 160408T00520	T00520	6	3/8	3/16	0.150	1/32						D25~D32 F142 F159 F160	
		TNGA 331T00625AA 332T00625AA 333T00625AA	S00625	TNGA 160404S01525 160408S01525 160412S01525	S01525	6	3/8	3/16	0.150	1/64 1/32 3/64	● ● ●						
		TNGA 331S00825 332S00825 333S00825	S00825	TNGA 160404S02025 160408S02025 160412S02025	S02025	6	3/8	3/16	0.150	1/64 1/32 3/64	● ● ●						
		TNGA 331T00625 332T00625 333T00625	T00625	TNGA 160404T01525 160408T01525 160412T01525	T01525	6	3/8	3/16	0.150	1/64 1/32 3/64	● ● ●						
		TNGA 331T00825 332T00825 333T00825	T00825	TNGA 160404T02025 160408T02025 160412T02025	T02025	6	3/8	3/16	0.150	1/64 1/32 3/64	● ● ●	● ● ●	△ △ △				
		TNGA 332T01230AA	S01230	TNGA 160408S03030	S03030	6	3/8	3/16	0.150	1/32	●						
		TNGA 432T00825 433T00825	T00825	TNGA 220408T02025 220412T02025	T02025	6	1/2	3/16	0.150	1/32 3/64		●			●		
		TNG 221T00220 222T00220	T00220	TNGN 110304T00520 110308T00520	T00520	6	1/4	1/8	-	1/64 1/32	● ●	● ●					D72 F168
		TNG 221T00625	T00625	TNGN 110304T01525	T01525	6	1/4	1/8	-	1/64	●						
		TNG 322T00825	T00825	TNGN 160208T00520	T02025	6	3/8	1/8	-	1/32		●					-
		TNG 331T00220 332T00220 333T00220	T00220	TNGN 160404T00520 160408T00520 160412T00520	T00520	6	3/8	3/16	-	1/64 1/32 3/64		● ● ●					D62
		TNG 331T00425AA 332T00425AA 333T00425AA	S00425	TNGN 160404S01025 160408S01025 160412S01025	S01025	6	3/8	3/16	-	1/64 1/32 3/64		● ● ●					
		TNG 331T00625AA 332T00625AA 333T00625AA	S00625	TNGN 160404S01525 160408S01525 160412S01525	S01525	6	3/8	3/16	-	1/64 1/32 3/64	● ● ●						
		TNG 331S00825 332S00825 333S00825	S00825	TNGN 160404S02025 160408S02025 160412S02025	S02025	6	3/8	3/16	-	1/64 1/32 3/64	● ● ●						
TNG 332T00625	T00625	TNGN 160408T01525	T01525	6	3/8	3/16	-	1/32	●								
TNG 331T00825 332T00825 333T00825	T00825	TNGN 160404T02025 160408T02025 160412T02025	T02025	6	3/8	3/16	-	1/64 1/32 3/64	● ● ●	● ● ●							
TNG 351T00825 352T00825 353T00825	T00825	TNGN 160704T02025 160708T02025 160712T02025	T02025	6	3/8	5/16	-	1/64 1/32 3/64	● ● ●								
TNG 432T00825 434T00825	T00825	TNGN 220408T02025 220416T02025	T02025	6	1/2	3/16	-	1/64 1/32	● ●					D62			

35° Diamond

How to read this page ➡ See page B15

Cutting Edge Preparation				Gray cast iron (with scale)				Gray cast iron (without scale)				Nodular cast iron (with scale)				Nodular cast iron (without scale)				Heat-resistant alloy				Hard materials			
Symbol	Specification	Example																									
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed																								
T	Chamfered	T00825	0.008" × 25° Chamfered																								

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)				Ceramic				Applicable Toolholder Page
							IC	S	D1	RE	PVD	-	A66N PT600M	A65 KT66	
		VNGA 331T00625AA 332T00625AA	S00625	VNGA 160404S01525 160408S01525	S01525	4	3/8	3/16	0.150	1/64 1/32	●				D34~D44
		VNGA 331S00825 332S00825	S00825	VNGA 160404S02025 160408S02025	S02025	4	3/8	3/16	0.150	1/64 1/32	●				
		VNGA 331T00625 332T00625	T00625	VNGA 160404T01525 160408T01525	T01525	4	3/8	3/16	0.150	1/64 1/32	●				
		VNGA 331T00825 332T00825 333T00825	T00825	VNGA 160404T02025 160408T02025 160412T02025	T02025	4	3/8	3/16	0.150	1/64 1/32 3/64	●	●	△	△	
		VNMA 332T00625AA	S00625	VNMA 160408S01525	S01525	4	3/8	3/16	0.150	1/32	●				

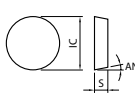
80° Trigon

Cutting Edge Preparation				Gray cast iron (with scale)						K
Symbol	Specification	Example		Gray cast iron (without scale)						
S	Chamfered and R-Honed	S00625	0.006" × 25° Chamfered and R-Honed	Nodular cast iron (with scale)						
T	Chamfered	T00825	0.008" × 25° Chamfered	Nodular cast iron (without scale)						
				Heat-resistant alloy						S
				Hard materials				○		H

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)				Ceramic		Applicable Toolholder Page
						IC	S	D1	RE	PVD	-	
	WNGA 432T00625AA	S00625	WNGA 080408S01525	S01525	4	1/2	3/16	0.203	1/32	●		D48~D51 F162 F164 F165
	WNGA 431T00625		WNGA 080404T01525						1/64	●		
	432T00625	T00625	080408T01525	T01525	4	1/2	3/16	0.203	1/32	●		
	433T00625		080412T01525						3/64	●		
	WNGA 433T00825	T00825	WNGA 080412T02025	T02025	4	1/2	3/16	0.203	3/64		●	

Round

How to read this page ➡ See page B15

Cutting Edge Preparation <table><tr><th>Symbol</th><th>Specification</th><th colspan="2">Example</th></tr><tr><td>E</td><td>R-Honed</td><td>E001</td><td>R0.001" Honed</td></tr><tr><td>T</td><td>Chamfered</td><td>T00420</td><td>0.004" × 20° Chamfered</td></tr></table>						Symbol	Specification	Example		E	R-Honed	E001	R0.001" Honed	T	Chamfered	T00420	0.004" × 20° Chamfered	Gray cast iron (with scale)		K
						Symbol	Specification	Example												
						E	R-Honed	E001	R0.001" Honed											
						T	Chamfered	T00420	0.004" × 20° Chamfered											
						Gray cast iron (without scale)														
Nodular cast iron (with scale)																				
Nodular cast iron (without scale)																				
Heat-resistant alloy		●	S																	
Hard materials			H																	
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	Dimensions (in)		Angle (°)	Ceramic - KS6030	Applicable Toolholder Page										
						IC	S	AN												
		RPG 32E001	E001	RPGN 090300E003	E003	3/8	1/8	11	●	-										
		RPG 32T00420	T00420	RPGN 090300T01020	T01020	3/8	1/8	11	●											
		RPG 43E001	E001	RPGN 120400E003	E003	1/2	3/16	11	●											
		RPG 43T00420	T00420	RPGN 120400T01020	T01020	1/2	3/16	11	●											

Square

How to read this page ➡ See page B15

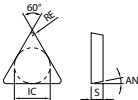
Cutting Edge Preparation					Gray cast iron (with scale)					K
Symbol	Specification	Example		Gray cast iron (without scale)						
S	Chamfered and R-Honed	S00320	0.003" × 20° Chamfered and R-Honed	Nodular cast iron (with scale)						
T	Chamfered	T00320	0.003" × 20° Chamfered	Nodular cast iron (without scale)						
					Heat-resistant alloy					S
					Hard materials					H

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)			Angle (°)	Ceramic		Applicable Toolholder Page
						IC	S	RE		AN	PVD	
									A66N		A65	

		SPG 322T00320AA	S00320	SPGN 090308S00820	S00820	4	3/8	1/8	1/32	11	●	F130
		SPG 322T00320	T00320	SPGN 090308T00820	T00820	4	3/8	1/8	1/32	11	●	
		SPG 422T00320	T00620	SPGN 120308T00820	T00820	4	1/2	1/8	1/32	11	●	
		423T00320		120312T00820								

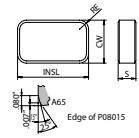
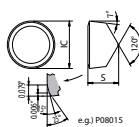
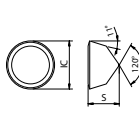
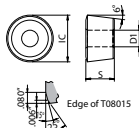
60° Triangle

How to read this page ➔ See page B15

Cutting Edge Preparation				Gray cast iron (with scale)												K	
				Gray cast iron (without scale)										☺ ☺			
				Nodular cast iron (with scale)													
				Nodular cast iron (without scale)													
				Heat-resistant alloy										S			
Hard materials				○ ●		H											
Insert		Part Number ANSI		Edge Prep (in)	Part Number ISO		Edge Prep (mm)	No. of Edges	Dimensions (in)			Angle (°)	Ceramic			Applicable Toolholder Page	
									IC	S	RE		AN	PVD	-		
																	AG6N PT600M	AG6S
 	TBG	1211T00320AA	S00320	TBGN	060104S00820	S00820	3	5/32	1/16	1/64	5	●	●	-			
		1211S00320			060104S00820					1/64		●	●				
		1212T00320AA			060108S00820					1/32		●	●				
		1212S00320			060108S00820					1/32		●	●				
	TPG	18151T00320	T00320	TPGN	090204T00820	T00820	3	7/32	3/32	1/64	11	●	●				
		18152T00320			090208T00820					1/32		●	●				
	TPG	2205T00320AA	S00320	TPGN	110302S00820	S00820	3	1/4	1/8	0.008	11	●	●	F131			
		221T00320AA			110304S00820					1/64		●	●				
		221S00320			110304S00820					1/64		●	●				
		222T00320AA			110308S00820					1/32		●	●				
		222S00320			110308S00820					1/32		●	●				
	TPG	221T00320	T00320	TPGN	110304T00820	T00820	3	1/4	1/8	1/64	11	●	●	●			
		222T00320			110308T00820					1/32		●	●		●		
	TPG	321T00320AA	S00320	TPGN	160304S00820	S00820	3	3/8	1/8	1/64	11	●	●				
		321S00320			160304S00820					1/64		●	●				
		322T00320AA			160308S00820					1/32		●	●				
		322S00320			160308S00820					1/32		●	●				
		323T00320AA			160312S00820					3/64		●	●				
	TPG	3205T00320	T00320	TPGN	160302T00820	T00820	3	3/8	1/8	0.008	11	●	●	●			
		321T00320			160304T00820					1/64		●	●		●		
		322T00320			160308T00820					1/32		●	●		●		

Inserts for Roll Machining

How to read this page ➔ See page B15

Cutting Edge Preparation				Gray cast iron (with scale)										✱										K
Symbol	Specification	Example		Gray cast iron (without scale)																				
E	R-Honed	E002	R0.002" Honed	Nodular cast iron (with scale)																				
K	Double Chamfered	K20003	2mm × 3° Chamfered	Nodular cast iron (without scale)																				
P	Double Chamfered and R-Honed	P08015	0.080" × 15° Chamfered and R-Honed	Heat-resistant alloy												● ● ✱						S		
T	Chamfered	T00420	0.004" × 20° Chamfered	Hard materials										○ ●										H
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	Dimensions (in)						Ceramic					Applicable Toolholder Page							
						IC	CW	INSL	D1	S	RE	PVD	-											
													A66N PT600M	A65	KS001	KS6030		KS6040	KXW1					
		LNU 6688T08015625A	P08015	LNUN 381232P20015	P20015	-	3/4	1-1/2	-	1/2	1/8			●							-			
		RCGX 24E002	E002	RCGX 060600E005	E005	1/4	-	-	-	1/4	-					●					D64			
		RCGX 24T00220	T00220	RCGX 060600T00520	T00520	1/4	-	-	-	1/4	-								△					
		RCGX 24T00420	T00420	RCGX 060600T01020	T01020	1/4	-	-	-	1/4	-					●	●							
		RCGX 102T04015*	T04015	RCGX 060400*	T10015	1/4	-	-	-	0.180	-	●	●											
		RCGX 102H315T04015	T04015	RCGX 060700	T10015	1/4	-	-	-	0.315	-	●	●								-			
		RCGX 35T00220	T00220	RCGX 090700T00520	T00520	3/8	-	-	-	0.315	-			●							D64			
		RCGX 35T00420	T00420	RCGX 090700T01020	T01020	3/8	-	-	-	0.315	-					●	●							
		RCGX 103T08015625AA	P08015	RCGX 090700P20015	P20015	3/8	-	-	-	0.315	-	●	●	●										
		RCGX 45E001	E001	RCGX 120700E003	E003	1/2	-	-	-	0.315	-					●								
		RCGX 45T00220	T00220	RCGX 120700T00520	T00520	1/2	-	-	-	0.315	-					●								
		RCGX 45T00420	T00420	RCGX 120700T01020	T01020	1/2	-	-	-	0.315	-							●						
		RCGX 104T08015625AA	P08015	RCGX 120700P20015	P20015	1/2	-	-	-	0.315	-	●	●	●										
RCGX 106T08015625AA	P08015	RCGX 191000P20015	P20015	3/4	-	-	-	0.394	-	●	●													
		RPGX 24E001	E001	RPGX 060600E003	E003	1/4	-	-	-	1/4	-					●				-				
		RPGX 24T00420	T00420	RPGX 060600T01020	T01020	1/4	-	-	-	1/4	-							●						
		RPGX 35E001	E001	RPGX 090700E003	E003	3/8	-	-	-	0.315	-							●						
		RPGX 35T00420	T00420	RPGX 090700T01020	T01020	3/8	-	-	-	0.315	-							●	△					
		RPGX 45E001	E001	RPGX 120700E003	E003	1/2	-	-	-	0.315	-							●						
		RCMA 66T08015625AA	P08015	RCMA 190900P20015	P20015	3/4	-	-	0.250	3/8	-	●	●											
		RCMA 88T08015625AA		RCMA 251200P20015	P20015	1	-	-	0.266	1/2	-			●										
		RCMA 106T08015625AA		RCMA 310900P20015	P20015	1-1/4	-	-	0.390	3/8	-	●	●											
		RCMA 1012T08015625AA		RCMA 311800P20015	P20015	1-1/4	-	-	0.390	3/4	-			●										

*IC may differ based on edge prep.

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

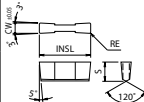
RBG Inserts sold in 1 piece boxes

Inserts sold in 10 piece boxes

Grooving inserts

How to read this page  See page **B15**

Cutting Edge Preparation						Gray cast iron (with scale)								K
Gray cast iron (without scale)														
Nodular cast iron (with scale)														
Nodular cast iron (without scale)														
Heat-resistant alloy													S	
Hard materials													H	

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (mm)				Tolerance (mm)		Ceramic		Applicable Toolholder Page	
						CW		S	RE	INSL	CW min.	CW max.	PVD		-
						in	mm								
 	GH 4020-05	S00420 T00420	GH 4020-05	S01020 T01020	2	0.157	4	7.5	0.5	20	-0.05	+0.05	●	●	G67 G68 G93
	GH 5020-05	S00420 T00420	GH 5020-05	S01020 T01020	2	0.197	5	7.5	0.5	20	-0.05	+0.05	●	●	
	GH 6020-05	T00420	GH 6020-05	T01020	2	0.236	6	7.5	0.5	20	-0.05	+0.05	●	●	
	GH 7020-05	T00420	GH 7020-05	T01020	2	0.276	7	7.5	0.5	20	-0.05	+0.05	●	●	

CBN and PCD Inserts



CBN Inserts		C2~C32
Negative Turning Inserts	CN Type	C8
	DN Type	C10
	SN Type	C12
	TN Type	C13
	VN Type	C14
	WN Type	C15
	CN Type (Solid)	C16
	RN Type (Solid)	C17
	SN Type (Solid)	C18
	TN Type (Solid)	C19
Positive Turning Inserts	CC Type	C20
	CP Type	C21
	DC Type	C22
	TP Type	C23
	VB Type	C26
	VC Type	C27
	WB Type	C28
Grooving Inserts	GBA	C29
	GDGS	C30
	GMN	C31
Solid Bar	EZB-NB	C32
PCD Inserts		C33~C62
Negative Turning Inserts	CN Type	C34
	DN Type	C35
	TN Type	C36
	VN Type	C37
	WN Type	C38
Positive Turning Inserts	CC Type	C39
	CP Type	C41
	DC Type	C42
	SP Type	C43
	TB Type	C44
	TC Type	C45
	TP Type	C46
	VB Type	C49
	VC Type	C50
	WB / WP Type	C51
Grooving Inserts	GBA	C52
	GV / GVf	C53
	GDGS	C54
	GMN	C55
	GMGW	C56
	TKF	C57
Solid Bar	EZB-NB	C58
	VNBR-NB	C59
	VNGR-NB	C60
	VNFGR-NB	C61

Identification System (CBN Turning Inserts)



Turning Indexable Inserts Identification System" See B2

Insert Type	Part Number	Edge Preparation	Manufacturer's Option	Edge Length	Number of Edges	Re-Grinding
Negative	CNGA431MEF	F	MEF	Short (Small Edge)	2	Not Recommended
	CNGA431ME4	S00525	ME4		4 (Multi-Edge Double-Sided)	
	CNGA431S00525ME		ME		2	
	CNGA431S00245MEP		MEP		2	
	CNGA431S00525SE		SE		1	
	CNMN431S00820	S00820	No Indication (Only KBN900)	Long	Multi Edge	Possible
Positive	CCMW3251MEF	F	MEF	Short (Small Edge)	2	Not Recommended
	CCMW3251T00315ME	T00315	ME		2	
	CCMW3251S00525MES	S00525	MES		2	
	CCMW3251T00315SE	T00315	SE		1	

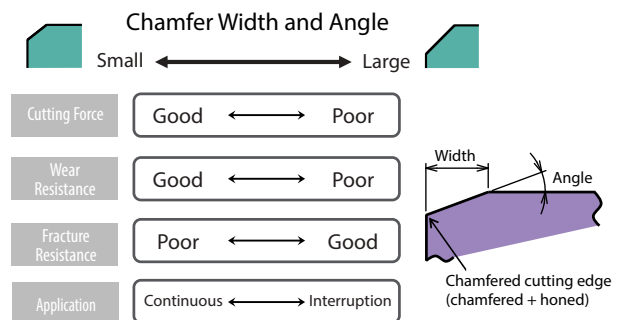
Re-grinding

- Re-grinding is possible for inserts without any indication in manufacturer's option. Regrinding may not be available depending on the edge condition.
- Re-grinding is not recommended for inserts with manufacturer's symbol like "ME" or "SE"

Edge Preparation Identification System

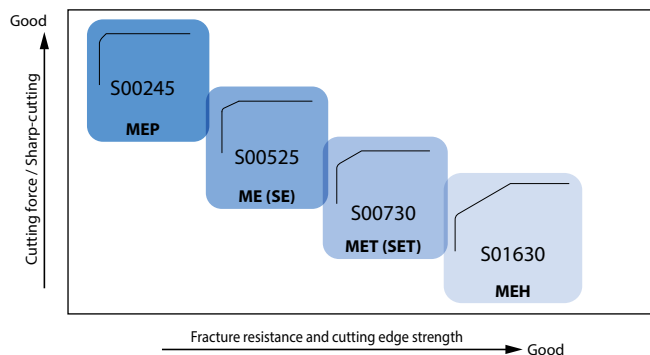
Edge Preparation				
Symbol	Cutting Edge Spec.	Example		Shape
F	Sharp Edge	F	Sharp Edge	
E	Honed Cutting Edge	E003	R0.003" Honed Cutting Edge	
T	Chamfered Cutting Edge	T00515	0.005" x 15° Chamfered Cutting Edge	
S	Chamfered and Honed Cutting Edge	S00525	0.005" x 25° Chamfered and Honed Cutting Edge	

Features of Chamfer Width and Angle

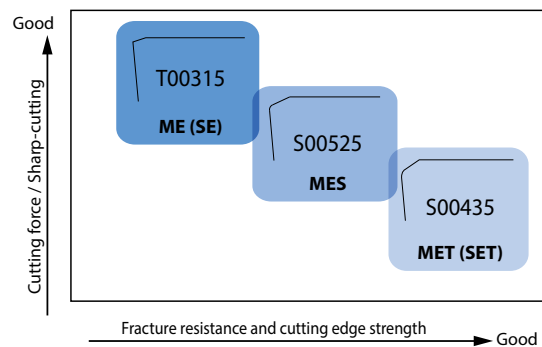


Standard Cutting Edge Preparation

Negative Inserts (Machining of Hard Materials)



Positive Inserts (Machining of Hard Materials)



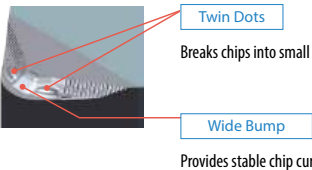
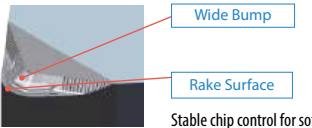
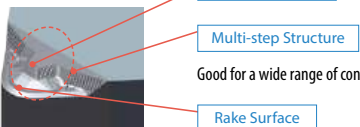
Manufacturer's Option	Edge Preparation		Application and Features
MEP	S00245	0.002" x 45°+ Honed cutting edge	High speed, continuous cut. Excellent crater wear resistance.
ME	S00525	0.005" x 25°+ Honed cutting edge	General purpose.
MET	S00730	0.007" x 30°+ Honed cutting edge	Superior fracture resistance.
MEH	S01630	0.016" x 30°+ Honed cutting edge	Interrupted high feed machining. Prevention of flaking.

Manufacturer's Option	Edge Preparation		Application and Features
ME	T00315	0.003" x 15°	Chamfered type. Sharp-cutting oriented, less burring.
MES	S00525	0.005" x 25°+ Honed cutting edge	General purpose.
MET	S00435	0.004" x 35°+ Honed cutting edge	Interrupted machining. Stable machining oriented.

CBN Inserts for Machining Hardened Material

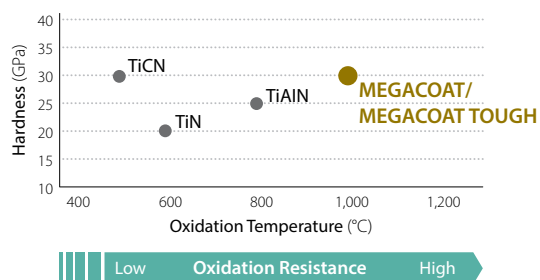
H Chipbreaker Series

Unique molded chipbreaker provides excellent chip control when machining hardened material.
3 Chipbreaker styles for a wide range of machining applications.

Chipbreaker	Application	Recommended Cutting Range
HH  1st Recommendation Twin Dots Breaks chips into small pieces Wide Bump Provides stable chip curls	Hardened Steel Finishing 55HRC or more	Small D.O.C. D.O.C. = 0.004" ~ 0.012"
HL  Wide Bump Rake Surface Stable chip control for softer interior of hard materials	Hardened Steel Finishing 55HRC or less	
HD  Wide Bump Multi-step Structure Good for a wide range of conditions Rake Surface Stable chip control for softer interior of hard materials	Removing Carburized Layer From carburized layer to unhardened layer	Large D.O.C. D.O.C. = 0.012" ~ 0.028"

MEGACOAT CBN

Properties of PVD coating



Advantages of MEGACOAT

Long tool life and stable machining due to superior heat-resistance and hardness.

Stability improvement through prevention of crater wear (oxidation, diffusional wear).

High thermal stability and surface smoothness provide excellent surface finish.

Coated CBN for Machining Hardened Material

KBN010 / KBN015 / KBN020

Long tool life and stable machining results with wear resistance and fracture resistance

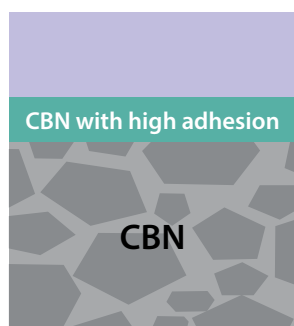
Supports a wide range of applications and reduces the cost of machining hardened materials

1

"MEGACOAT TOUGH" and new CBN provide both wear resistance and fracture resistance



"MEGACOAT TOUGH" coating with newly developed CBN dedicated high adhesion layer
High adhesion suppresses delamination for long tool life and stable machining



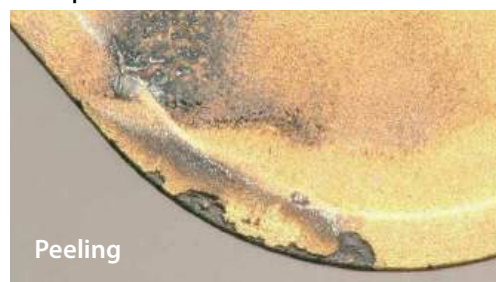
Cross-Section

Cutting Edge Condition after Machining (Internal Evaluation)

KBN015



Competitor G

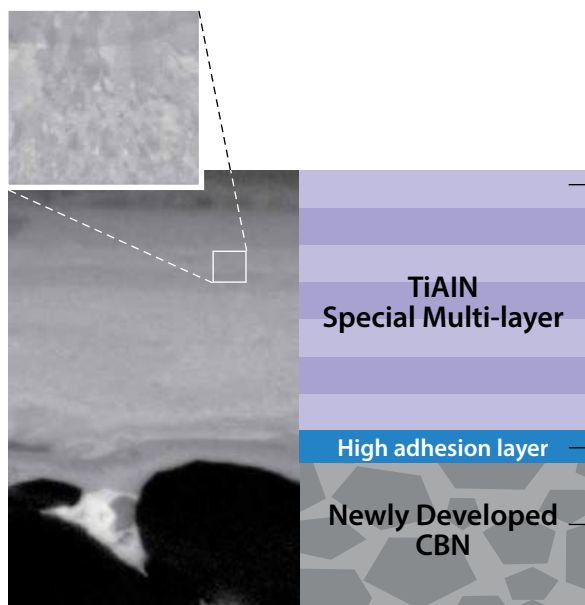
Cutting Conditions : $V_c = 490$ sfm, D.O.C. = 0.008", $f = 0.008$ ipr Dry 4118H 61 HRC

Intermediate layer and high adhesion layer for decreased stress improve adhesion with CBN

Medium - High Speed/General Machining **KBN015**

"MEGACOAT TOUGH" and New CBN substrate for Long Tool Life and Stable Machining

Micronized film structure

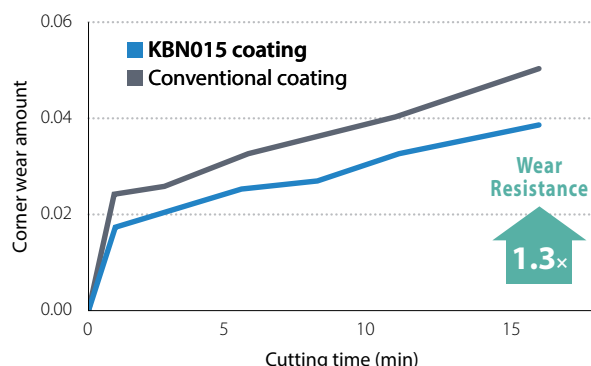


Layer Cross-Section

Wear Resistance Layer

- Improved heat resistance by optimizing film composition
- Improved hardness and toughness with atomization

Wear resistance comparison (Internal evaluation)

Cutting Conditions : $V_c = 490$ sfm, $f = 0.004$ ipr D.O.C. = 0.008" Wet 4118H

"MEGACOAT TOUGH" unique technology
Suppresses delamination with high adhesion

Balanced CBN with heat resistance and fracture resistance

- High purity and tough CBN abrasive grain
- Fine ceramic binder improves heat resistance and fracture resistance

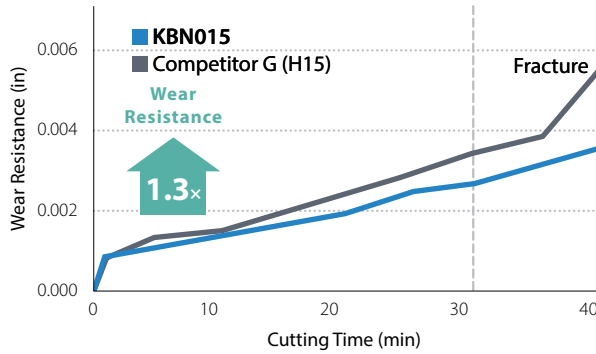
Cutting Performance

Excellent balance of abrasion resistance and fracture resistance, long tool life and stable machining

Medium Speed Machining Evaluation ($V_c = 490$ sfm)

KBN015 has 1.3 times higher wear resistance of competitor G (H15).

Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions : $V_c = 490$ sfm, $f = 0.004$ ipr, D.O.C. = $0.008''$ ipr Wet 4118H

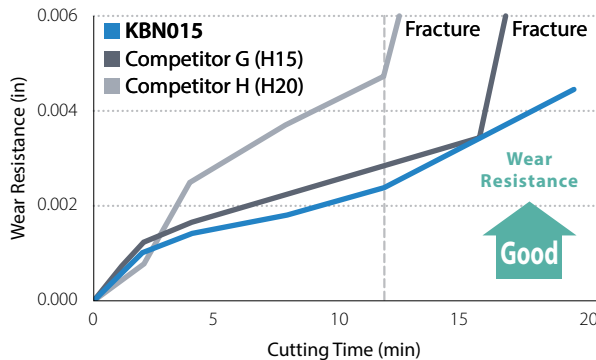
Edge Condition



High Speed Machining Evaluation ($V_c = 660$ sfm)

KBN015 has excellent wear resistance and fracture resistance compared to competitor's H15 and H20 grades.

Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions : $V_c = 660$ sfm, $f = 0.004$ ipr, D.O.C. = $0.008''$ Wet 4118H

Edge condition (after 11.5 min machining)



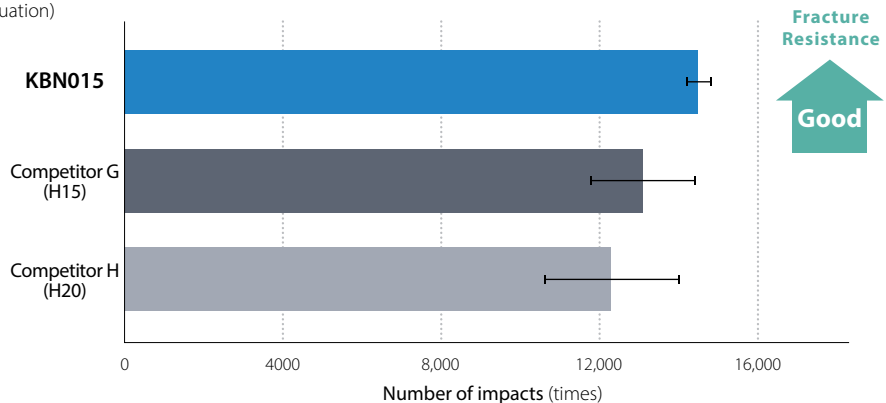
Interrupted Machining Evaluation

KBN015 is resistant to chipping and has high stability compared to competitor's H15 and H20 grades.

Fracture Resistance Comparison (Internal Evaluation)

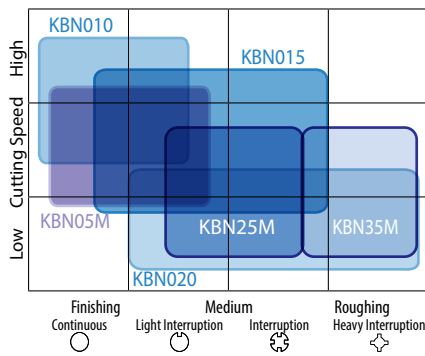


Cutting Conditions : $V_c = 490$ sfm
 $f = 0.008$ ipr, D.O.C. = $0.008''$ Dry 4118H



Application Maps

Hard Materials



KBN010 : For high speed finishing.

KBN015 : 1st recommended grade for a wide range of application from continuous to interrupted machining.

KBN020 : For heavily interrupted machining.

KBN05M : Applicable for continuous (high speed finishing) to interrupted machining. Inserts with chipbreakers are available.

KBN25M : High stability for general machining.

KBN35M : Honeycomb structure CBN (Superior fracture resistance in heavy interrupted machining).

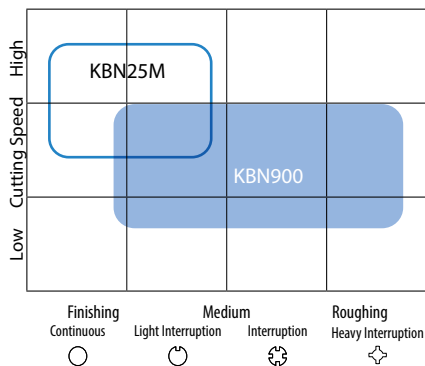
KBN010/KBN015/KBN020 Coolant Recommendation

✓ Recommended ✗ Not Recommended

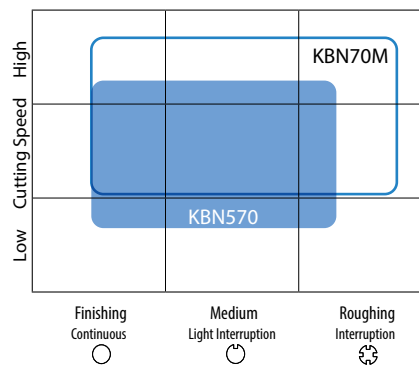
Application	Wet	Dry
Continuous	✓	✗
Interruption	Partially*	✓

*If running coolant in interrupted material, use **KBN05M**

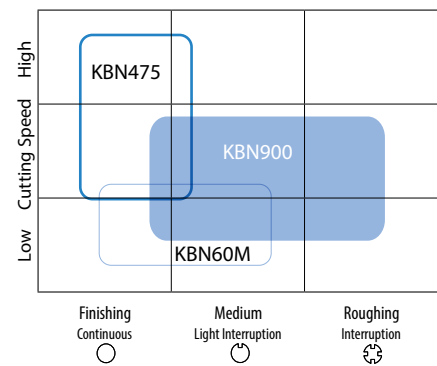
Roll Materials (Chilled Cast Iron)



Sintered Steel



Cast Iron



Recommended Cutting Conditions

Workpiece Material	Hardness	Applications		Recommended Insert Grade	Cutting Conditions		
					Vc : (sfm)	D.O.C. : (in)	f : (ipr)
Hardened Steel	Over 55HRC	High precision, High speed finishing	Continuous	KBN010	260 - 590 - 820	0.002 - 0.008 - 0.014	0.002 - 0.006 - 0.012
		High speed / General machining	Continuous ~ Interruption	KBN015	260 - 590 - 750	0.002 - 0.008 - 0.020	0.002 - 0.008 - 0.018
		Low speed / General machining	Continuous ~ Heavy interruption	KBN020	260 - 390 - 660	0.002 - 0.008 - 0.020	0.002 - 0.008 - 0.018
		HH chipbreaker for hardened steel finishing	Continuous ~ Interruption	KBN05M	330 - 490 - 660	0.004 - 0.008 - 0.012	0.004 - 0.006 - 0.010
		High efficient stable machining	Light interruption ~ Interruption	KBN020	260 - 490 - 660	0.002 - 0.008 - 0.020	0.002 - 0.008 - 0.018
		Interruption (Small ap)	Interruption ~ Heavy interruption	KBN020	260 - 430 - 590	0.002 - 0.008 - 0.020	0.002 - 0.008 - 0.016
	Under 55HRC	Heavy machining	Continuous ~ Interruption	KBN900	230 - 300 - 360	0.020 - 0.039 - 0.079	0.002 - 0.004 - 0.008
		HL chipbreaker for hardened steel finishing	Continuous ~ Interruption	KBN05M	330 - 490 - 660	0.004 - 0.008 - 0.012	0.004 - 0.006 - 0.010
		Finishing	Continuous	*PT600M	200 - 260 - 390	0.008 - 0.020 - 0.028	0.002 - 0.004 - 0.006
		Removing the carburized layer	HD chipbreaker	KBN05M	330 - 490 - 660	0.012 - 0.020 - 0.028	0.004 - 0.006 - 0.010
Gray Cast Iron	Under 250HB	Finishing	Continuous ~ Light interruption	KBN475	1310 - 2620 - 3940	0.002 - 0.008 - 0.020	0.004 - 0.008 - 0.012
		Finishing	Continuous ~ Light interruption	KBN60M	980 - 1640 - 2300	0.002 - 0.008 - 0.020	0.004 - 0.008 - 0.012
		High efficient finishing	Continuous ~ Light interruption	KBN900	1640 - 2950 - 3940	0.004 - 0.020 - 0.039	0.002 - 0.004 - 0.008
		Heavy machining	Continuous ~ interruption	KBN900	1640 - 2300 - 2950	0.020 - 0.059 - 0.118	0.004 - 0.012 - 0.020
Roll Materials (Chilled Cast Iron)	Over 55HRC	Finishing	Continuous ~ interruption	KBN25M	260 - 390 - 520	0.002 - 0.012 - 0.020	0.002 - 0.003 - 0.004
		Heavy machining	Continuous ~ interruption	KBN900	230 - 300 - 360	0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.006
Sintered Steel	-	Finishing	Continuous ~ Light interruption	KBN570	160 - 490 - 820	0.002 - 0.006 - 0.010	0.001 - 0.004 - 0.008
	-	Finishing	Continuous ~ Interruption	KBN70M	330 - 660 - 820	0.002 - 0.008 - 0.012	0.002 - 0.006 - 0.010

*PT600M: MEGACOAT on Al₂O₃+TiC ceramic

Case Studies

5120H (58HRC)	
- Gear - External, facing & chamfering - Vc = 430 sfm - D.O.C. = 0.024" - f = 0.005 ipr - Wet - CNGA432S00525ME (KBN05M)	
KBN05M	300 pcs/edge
Competitor C	200 pcs/edge
- KBN05M achieved 1.5 times longer tool life than competitor C. - Its longer tool life contributes to cost-cutting.	
User Evaluation	

4131 (55HRC)	
- Stator - Boring - Vc = 560 sfm - D.O.C. = 0.016" - f = 0.004 ipr - Wet - CNGA432S00525ME (KBN05M)	
KBN05M	600 pcs/edge
Competitor D	300 pcs/edge
- KBN05M achieved twice longer tool life than competitor D. - Its longer tool life contributes to cost-cutting.	
User Evaluation	

5120 (58HRC)	
- Pulley - Facing (Continuous) - Vc = 390 sfm - D.O.C. = 0.006" ~ 0.008" - f = 0.009 ipr - Wet - DNGA432S00245MEP (KBN05M)	
KBN05M-MEP (Edge preparation: 0.002" × 45°)	150 pcs/edge
KBN05M-ME (Edge preparation: 0.005" × 25°)	100 pcs/edge
Competitor E	100 pcs/edge
- Tool life of KBN05M-ME type (Edge prep.: 0.005" × 25° chamfered + R honed) is same as comp. E's. - KBN05M-MEP (Edge prep.: 0.002" × 45° chamfered + R honed) type achieved 1.5 times longer tool life, preventing crater wear.	
User Evaluation	

5120 (61~65HRC)	
- Gear - External & facing (Interrupted) - Vc = 390 sfm - D.O.C. = 0.006" - f = 0.004 ~ 0.006 ipr (External) - Wet - CNGA432S01630MEH (KBN05M)	
KBN05M-MEH (Edge preparation: 0.016" × 30°)	150 pcs/edge
Competitor F	100 pcs/edge
- Compared to competitor F, KBN05M-MEH type (Edge prep.: 0.016" × 30° chamfered + R honed) achieved 1.5 times longer tool life. - No chipping in interrupted machining, and improved productivity. Competitor F's cutting edge had significant chipping. - Feed rate could be increased from 0.006 to 0.010 ipr when facing. - Achieved cycle time and cost reduction.	
User Evaluation	

4140 Hardened Steel (55 ~ 62HRC)	
- Pinion - Vc = 430 sfm - D.O.C. = 0.002" - f = 0.003 ipr - Dry - CNGM432ME-HH (KBN05M)	
KBN05M HH Chipbreaker	70 pcs/edge
Competitor G	30 pcs/edge
The HH chipbreaker maintained 2.3 times longer tool life than Competitor F. The molded chipbreaker provided stable chip control.	
User Evaluation	

5120H (59HRC)	
- Clutch - Vc = 330 sfm - D.O.C. = 0.006" - f = 0.004 ipr - Wet - WNGA432S00525ME (KBN020)	
KBN020	650 pcs/edge
Competitor H	400 pcs/edge
KBN020 can be stable machining and long tool life.	
User Evaluation	

80° Diamond

How to read this page ➡ See page **B15**

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80° Diamond

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Cutting Edge Preparation				Gray Cast Iron (with Scale)				K					
Symbol	Specification	Example		Gray Cast Iron (without Scale)									
F	Sharp Edge	F	Sharp Edge										
E	R-Honed	E003	R0.003" Honed										
T	Chamfered	T00515	0.005" × 15° Chamfered					H					
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed										
				Powdered Steel				-					
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					CBN	Applicable Toolholder der Page
							IC	S	D1	RE	LE	PVD	
	 Hardened Steel Finishing (55HRC or more)	CNGM 431ME-HH	E	CNGM 120404ME-HH	E	2	1/2	3/16	0.203	1/64	0.102	●	D8~D11 F138 F147 F148
		432ME-HH		120408ME-HH						1/32	0.102	●	
		433ME-HH		120412ME-HH						3/64	0.098	●	
	 Hardened Steel Finishing (55HRC or less)	CNGM 431ME-HL	E	CNGM 120404ME-HL	E	2	1/2	3/16	0.203	1/64	0.102	●	
		432ME-HL		120408ME-HL						1/32	0.102	●	
		433ME-HL		120412ME-HL						3/64	0.098	●	
	 Removing the Carburized Layer Large D.O.C.	CNGM 431ME-HD	S00535	CNGM 120404ME-HD	S01235	2	1/2	3/16	0.203	1/64	0.102	●	
		432ME-HD		120408ME-HD						1/32	0.102	●	
		433ME-HD		120412ME-HD						3/64	0.098	●	

55° Diamond

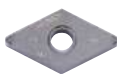
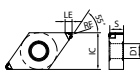
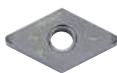
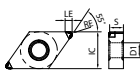
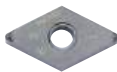
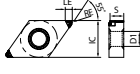
How to read this page ➡ See page **B15**

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55° Diamond

How to read this page ➔ See page B15

Cutting Edge Preparation				Gray Cast Iron (with Scale)				K	
Symbol	Specification	Example		Gray Cast Iron (without Scale)					
		F	Sharp Edge	Nodular Cast Iron (with Scale)					
F	Sharp Edge	F	Sharp Edge	Hard Materials (Roughing)					
E	R-Honed	E003	R0.003" Honed	Hard Materials (Finishing)		●		H	
T	Chamfered	T00515	0.005" × 15° Chamfered	Hard Materials (Chip Control)		●			
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed	Powdered Steel				-	

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					CBN		Applicable Toolholder Page
							IC	S	D1	RE	LE	PVD	KBN05M	
	 Hardened Steel Finishing (55HRC or more)	DNGM 431ME-HH	E	DNGM 150404ME-HH	E	2	1/2	3/16	0.203	1/64	0.102	●	D14~D19 F140, F152 F154~F156	
		432ME-HH		150408ME-HH						1/32	0.087	●		
		433ME-HH		150412ME-HH						3/64	0.075	●		
	 Hardened Steel Finishing (55HRC or less)	DNGM 431ME-HL	E	DNGM 150404ME-HL	E	2	1/2	3/16	0.203	1/64	0.102	●		
		432ME-HL		150408ME-HL						1/32	0.087	●		
		433ME-HL		150412ME-HL						3/64	0.075	●		
	 Removing the Carburized Layer Large D.O.C.	DNGM 431ME-HD	S00535	DNGM 150404ME-HD	S01235	2	1/2	3/16	0.203	1/64	0.102	●		
		432ME-HD		150408ME-HD						1/32	0.087	●		
		433ME-HD		150412ME-HD						3/64	0.075	●		

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

90° Square

How to read this page ➡ See page **B15**

Cutting Edge Preparation <table><tr><th>Symbol</th><th>Specification</th><th colspan="2">Example</th></tr><tr><td>F</td><td>Sharp Edge</td><td>F</td><td>Sharp Edge</td></tr><tr><td>E</td><td>R-Honed</td><td>E003</td><td>R0.003" Honed</td></tr><tr><td>T</td><td>Chamfered</td><td>T00515</td><td>0.005" × 15° Chamfered</td></tr><tr><td>S</td><td>Chamfered and R-Honed</td><td>S00525</td><td>0.005" × 25° Chamfered and R-Honed</td></tr></table>					Symbol	Specification	Example		F	Sharp Edge	F	Sharp Edge	E	R-Honed	E003	R0.003" Honed	T	Chamfered	T00515	0.005" × 15° Chamfered	S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed	Gray Cast Iron (with Scale)																	●	K
					Symbol	Specification	Example																																				
					F	Sharp Edge	F	Sharp Edge																																			
					E	R-Honed	E003	R0.003" Honed																																			
					T	Chamfered	T00515	0.005" × 15° Chamfered																																			
					S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed																																			
Gray Cast Iron (without Scale)																																											
Nodular Cast Iron (with Scale)																																											
Hard Materials (Roughing)																		✱		H																							
Hard Materials (Finishing)										●	●	✱	○	○				⌚																									
Hard Materials (Chip Control)																																											
Powdered Steel																				-																							
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					CBN						Applicable Toolholder Page																									
							IC	S	D1	RE	LE	PVD					-																										
												KBN1010	KBN1015	KBN1020	KBN105M	KBN125M			KBN335M	KBN475	KBN525																						
		SNGA 432S00245MEP 433S00245MEP	S00245	SNGA 120408S00545MEP 120412S00545MEP	S00545	2	1/2	3/16	0.203	1/32	0.071				●					D21~D23 F158																							
		SNGA 432MEF 433MEF	F	SNGA 120408MEF 120412MEF	F	2	1/2	3/16	0.203	1/32	0.071							●																									
		SNGA 432T00515ME 433T00515ME	T00515	SNGA 120408T01215ME 120412T01215ME	T01215	2	1/2	3/16	0.203	1/32	0.071							●																									
		SNGA 431S00525ME 432S00525ME 433S00525ME	S00525	SNGA 120404S01225ME 120408S01225ME 120412S01225ME	S01225	2	1/2	3/16	0.203	1/32	0.071	●	●	●	●			●	●																								
																			●																								
		SNGA 431S00730MET 432S00730MET 433S00730MET	S00730	SNGA 120404S01730MET 120408S01730MET 120412S01730MET	S01730	2	1/2	3/16	0.203	1/64	0.071	●	●	●																													
												●	●	●	●	●																											
													●	●	●	●	●																										
		SNGA 432S01630MEH 433S01630MEH	S01630	SNGA 120408S04030MEH 120412S04030MEH	S04030	2	1/2	3/16	0.203	1/32	0.071				●																												
										3/64	0.087				●																												

60° Triangle

How to read this page ➡ See page B15

Cutting Edge Preparation				Gray Cast Iron (with Scale)												K	
Symbol	Specification	Example		Gray Cast Iron (without Scale)													
F	Sharp Edge	F	Sharp Edge													H	
E	R-Honed	E003	R0.003" Honed														
T	Chamfered	T00515	0.005" × 15° Chamfered														
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed														
				Hard Materials (Roughing)												H	
				Hard Materials (Finishing)													
				Hard Materials (Chip Control)													
				Powdered Steel												-	

Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					CBN										Applicable Toolholder Page		
						IC	S	D1	RE	LE	PVD					-							
											KBN010	KBN015	KBN020	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN475		KBN510	KBN525	KBN570
	TNGA 331S00245MEP 332S00245MEP 333S00245MEP	S00245	TNGA 160404S00545MEP 160408S00545MEP 160412S00545MEP	S00545	3	3/8	3/16	0.150	1/64	0.106				●									
	TNGA 331MEF 332MEF 333MEF	F	TNGA 160404MEF 160408MEF 160412MEF	F	3	3/8	3/16	0.150	1/64	0.106										●		●	
	TNGA 331ME6 332ME6 333ME6	S00525	TNGA 160404ME6 160408ME6 160412ME6	S01225	6	3/8	3/16	0.150	1/64	0.106				●									
	TNGA 331T00515ME 332T00515ME 333T00515ME	T00515	TNGA 160404T01215ME 160408T01215ME 160412T01215ME	T01215	3	3/8	3/16	0.150	1/64	0.106										●	●		
	TNGA 330S00525ME 330S00525ME 331S00525ME 332S00525ME 333S00525ME	S00525	TNGA 160401S01225ME 160402S01225ME 160404S01225ME 160408S01225ME 160412S01225ME	S01225	3	3/8	3/16	0.150	0.004	0.114	●	●	●	●	●	●	●	●	●		●	●	
	TNGA 331S00730MET 332S00730MET 333S00730MET	S00730	TNGA 160404S01730MET 160408S01730MET 160412S01730MET	S01730	3	3/8	3/16	0.150	1/64	0.106	●	●	●	●	●	●	●	●	●			●	
	TNGA 331S01630MEH 332S01630MEH 333S01630MEH	S01630	TNGA 160404S04030MEH 160408S04030MEH 160412S04030MEH	S04030	3	3/8	3/16	0.150	1/64	0.106	●	●	●	●	●	●	●	●	●				
									1/32	0.094	●	●	●	●	●	●	●	●	●				
									3/64	0.083	●	●	●	●	●	●	●	●	●				

35° Diamond

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Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)

Gray Cast Iron (without Scale)

Nodular Cast Iron (with Scale)

Hard Materials (Roughing)

Hard Materials (Finishing)

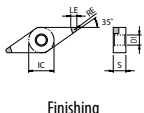
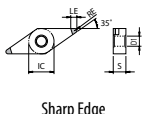
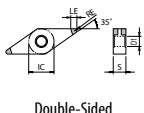
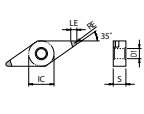
Hard Materials (Chip Control)

Powdered Steel

K

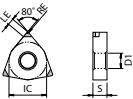
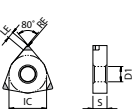
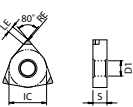
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Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					CBN												Applicable Toolholder Page			
							IC	S	D1	RE	LE	PVD								-							
												KBN010	KBN015	KBN020	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN475	KBN510	KBN525		KBN570		
	 Finishing	VNGA 331S00245MEP 332S00245MEP	S00245	VNGA 160404S00545MEP 160408S00545MEP	S00545	2	3/8	3/16	0.150	1/64 1/32	0.079 0.071																
	 Sharp Edge	VNGA 331MEF 332MEF	F	VNGA 160404MEF 160408MEF	F	2	3/8	3/16	0.150	1/64 1/32	0.079 0.071																
	 Double-Sided	VNGA 331ME4 332ME4	S00525	VNGA 160404ME4 160408ME4	S01225	4	3/8	3/16	0.150	1/64 1/32	0.079 0.071																
	 Grooving	VNGA 331T00515ME 332T00515ME	T00515	VNGA 160404T01215ME 160408T01215ME	T01215	2	3/8	3/16	0.150	1/64 1/32	0.079 0.071															D34~D44	
		VNGA 3302S00525ME 3305S00525ME 331S00525ME 332S00525ME	S00525	VNGA 160401S01225ME 160402S01225ME 160404S01225ME 160408S01225ME	S01225	2	3/8	3/16	0.150	0.004 0.008 1/64 1/32	0.102 0.091 0.079 0.071																
		VNGA 331S00730MET 332S00730MET	S00730	VNGA 160404S01730MET 160408S01730MET	S01730	2	3/8	3/16	0.150	1/64 1/32	0.079 0.071																
		VNGA 331S01630MEH 332S01630MEH	S01630	VNGA 160404S04030MEH 160408S04030MEH	S04030	2	3/8	3/16	0.150	1/64 1/32	0.079 0.071																

80° Trigon

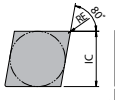
How to read this page ➡ See page B15

Cutting Edge Preparation				Gray Cast Iron (with Scale)												K					
				Gray Cast Iron (without Scale)																	
				Nodular Cast Iron (with Scale)																	
Symbol	Specification	Example		Hard Materials (Roughing)												H					
F	Sharp Edge			F																	
E	R-Honed	E003	R0.003" Honed	E																	
T	Chamfered	T00515	0.005" × 15° Chamfered	T																	
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed	S																	
				Hard Materials (Finishing)												-					
				Hard Materials (Chip Control)																	
				Powdered Steel																	
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					CBN						Applicable Toolholder Page			
							IC	S	D1	RE	LE	PVD					-				
												KBN010	KBN015	KBN020	KBN05M	KBN25M			KBN35M	KBN60M	KBN475	KBN525
		WNGA 431MEF	F	WNGA 080404MEF	F	3	1/2	3/16	0.203	1/64	0.079								●		
	Sharp Edge	432MEF		080408MEF						1/32	0.102								●		
		WNGA 431T00515ME	T00515	WNGA 080404T01215ME	T01215	3	1/2	3/16	0.203	1/64	0.079								●		
		432T00515ME		080408T01215ME						1/32	0.102								●		
		WNGA 431S00525ME		WNGA 080404S01225ME						1/64	0.079	●	●	●	●	●	●	●	●	●	●
		432S00525ME	S00525	080408S01225ME	S01225	3	1/2	3/16	0.203	1/32	0.102	●	●	●	●	●	●	●	●	●	●
		433S00525ME		080412S01225ME						3/64	0.098			●	●						
		WNGA 431S00730MET		WNGA 080404S01730MET						1/64	0.079	●	●	●		●	●				
		432S00730MET	S00730	080408S01730MET	S01730	3	1/2	3/16	0.203	1/32	0.102	●	●	●		●	●				
	Tough	433S00730MET		080412S01730MET						3/64	0.098					●					

80° Diamond / Solid

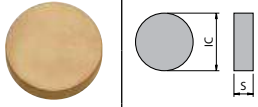
How to read this page ➡ See page B15

Cutting Edge Preparation				Gray Cast Iron (with Scale)		✖		K	
				Gray Cast Iron (without Scale)		✖			
				Nodular Cast Iron (with Scale)					
Symbol	Specification	Example		Hard Materials (Roughing)				H	
F	Sharp Edge	F	Sharp Edge	Hard Materials (Finishing)		●			
E	R-Honed	E003	R0.003" Honed	Hard Materials (Chip Control)					
T	Chamfered	T00515	0.005" × 15° Chamfered	Powdered Steel				-	
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed						

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)			CBN	Applicable Toolholder Page
							IC	S	RE	PVD	
										KB900	
		CNM 322	S00820	CNMN 090308S02020	S02020	4	3/8	1/8	1/32	●	D66
		323		090312S02020					3/64	●	
		CNM 433	S00820	CNMN 120412S02020	S02020	4	1/2	3/16	3/64	●	D53
		434		120416S02020					1/16	●	

Round / Solid

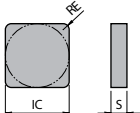
How to read this page ➔ See page B15

Cutting Edge Preparation					Gray Cast Iron (with Scale)		✱	K
					Gray Cast Iron (without Scale)		✱	
					Nodular Cast Iron (with Scale)			
Symbol	Specification	Example			Hard Materials (Roughing)			H
F	Sharp Edge	F	Sharp Edge		Hard Materials (Finishing)		●	
E	R-Honed	E003	R0.003" Honed		Hard Materials (Chip Control)			
T	Chamfered	T00515	0.005" × 15° Chamfered		Powdered Steel			-
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed					
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	Dimensions (in)		Applicable Toolholder Page
						IC	S	
	RNM 22	S00820	RNMN 060300S02020	S02020	1/4	1/8	●	-
	RNM 32	S00820	RNMN 090300S02020	S02020	3/8	1/8	●	D67
	RNM 42	S00820	RNMN 120300S02020	S02020	1/2	1/8	●	
	RNM 43	S00820	RNMN 120400S02020	S02020	1/2	3/16	●	D63~D64 D67

90° Square / Solid

How to read this page ➡ See page B15

Cutting Edge Preparation				Gray Cast Iron (with Scale)		✖		K			
Symbol		Specification		Example		Gray Cast Iron (without Scale)				✖	
F		Sharp Edge		F		Sharp Edge					
E		R-Honed		E003		R0.003" Honed					
T		Chamfered		T00515		0.005" × 15° Chamfered					
S		Chamfered and R-Honed		S00525		0.005" × 25° Chamfered and R-Honed					
				Hard Materials (Roughing)				H			
				Hard Materials (Finishing)		●					
				Hard Materials (Chip Control)							
				Powdered Steel				-			

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)			CBN	Applicable Toolholder Page	
							IC	S	RE			
		SNM 322	S00820	SNMN 090308S02020	S02020	8	3/8	1/8	1/32	●	D69, D70	
		323		090312S02020					3/64	●		
		SNM 422	S00820	SNMN 120308S02020	S02020	8	1/2	1/8	1/32	●		D56~D60 D69, D70
		SNM 423		SNMN 120312S02020					3/64	●		
		SNM 433	S00820	SNMN 120412S02020	S02020	8	1/2	3/16	3/64	●		
		434		120416S02020					1/16	●		
		435		120420S02020				5/64	●			

C
CBN / PCD
INSERTS

CBN

PCD

NEGATIVE

C

D

S

T

V

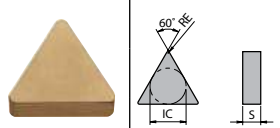
W

SOLID

GROOVING

60° Triangle / Solid

How to read this page ➡ See page B15

Cutting Edge Preparation				Gray Cast Iron (with Scale)		✱		K			
				Gray Cast Iron (without Scale)		✱					
				Nodular Cast Iron (with Scale)				H			
				Hard Materials (Roughing)							
				Hard Materials (Finishing)		●					
				Hard Materials (Chip Control)							
				Powdered Steel				-			
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)			CBN	Applicable Toolholder Page
							IC	S	RE		
	TNM 222	S00820	TNMN 110308S02020	S02020	6	1/4	1/8	1/32	●	D72, F168	
	TNM 332	S00820	TNMN 160408S02020	S02020	6	3/8	3/16	1/32	●	D62	
	333		160412S02020					3/64	●		

How to read this page ➡ See page **B15**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

How to read this page ➡ See page **B15**

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

CBN and PCD Inserts
sold in 1 piece boxes

How to read this page ➡ See page **B15**

[illegible]

60° Triangle

How to read this page ➡ See page B15

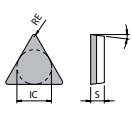
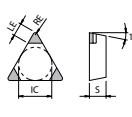
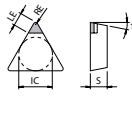
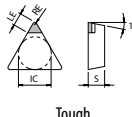
Cutting Edge Preparation				Gray Cast Iron (with Scale)														K																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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E	R-Honed	E003	R0.003" Honed	Hard Materials (Roughing)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
T	Chamfered	T00515	0.005" × 15° Chamfered	Hard Materials (Finishing)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed	Hard Materials (Chip Control)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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How to read this page ➡ See page **B15**

C		CBN / PCD INSERTS
CBN		
PCD		
POSITIVE		
		
		
		
		
		
		
SOLID		
GROOVING		

60° Triangle

How to read this page ➡ See page B15

Cutting Edge Preparation					Gray Cast Iron (with Scale)					K					
					Gray Cast Iron (without Scale)										
					Nodular Cast Iron (with Scale)										
					Hard Materials (Roughing)					H					
					Hard Materials (Finishing)			○	⌚						
					Hard Materials (Chip Control)										
					Powdered Steel					-					
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)				CBN			Applicable Toolholder Page	
							IC	S	RE	LE	PVD	-			
												KBN10M	KBN5T0	KBN5Z5	
	 CBN Surface Type	TBG 12105T00315 1211T00315 1212T00315	T00315	TBGN 060102T00815 060104T00815 060108T00815	T00815	3	5/32	1/16	1/64	-		●	●	●	-
		TPG 221T00315ME	T00315	TPGN 110304T00815ME	T00815	3	1/4	1/8	1/64	0.098		●			
		TPG 221T00315SE	T00315	TPGN 110304T00815SE	T00815	1	1/4	1/8	1/64	0.098		●			F131
		TPG 3205T00315SE	T00315	TPGN 160302T00815SE	T00815	1	3/8	1/8	1/64	0.094	●	●	●		
		321T00315SE		160304T00815SE											
		322T00315SE		160308T00815SE											
		TPG 221S00435SET	S00435	TPGN 110304S01035SET	S01035	1	1/4	1/8	1/64	0.098		●			
		TPG 321S00435SET	S00435	TPGN 160304S01035SET	S01035	1	3/8	1/8	1/64	0.094		●			

35° Diamond

How to read this page ➡ See page B15

Cutting Edge Preparation

Symbol	Specification	Example	
F	Sharp Edge	F	Sharp Edge
E	R-Honed	E003	R0.003" Honed
T	Chamfered	T00515	0.005" × 15° Chamfered
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed

Gray Cast Iron (with Scale)

Gray Cast Iron (without Scale)

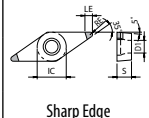
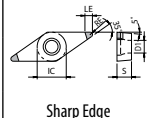
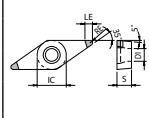
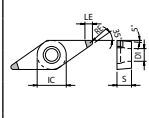
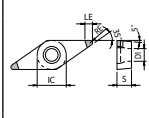
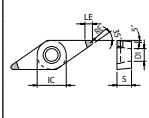
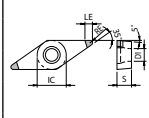
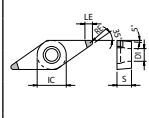
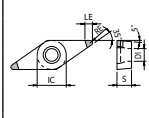
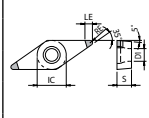
Nodular Cast Iron (with Scale)

Hard Materials (Roughing)

Hard Materials (Finishing)

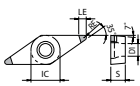
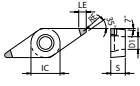
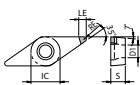
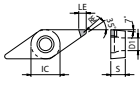
Hard Materials (Chip Control)

Powdered Steel

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					CBN												Applicable Toolholder Page		
							IC	S	D1	RE	LE	PVD								-						
												KBN010	KBN015	KBN020	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN475	KBN510	KBN525		KBN570	
	 Sharp Edge	VBGW 221MEF	F	VBGW 110304MEF	F	2	1/4	1/8	0.110	1/64	0.079														E42~E47, E62 F102, F103 F106~F114 F137	
		222MEF		110308MEF																						
	 Sharp Edge	VBGW 331MEF	F	VBGW 160404MEF	F	2	3/8	3/16	0.173	1/64	0.079														E45~E47 F102~F103 F106~F114 F137	
		332MEF		160408MEF																						
		VBGW 2205T00315ME	T00315	VBGW 110302T00815ME	T00815	2	1/4	1/8	0.110	0.008	0.094	●	●	●	●	●	●	●	●	●	●	●	●	●	E42~E47, E62 F102, F103 F106~F114 F137	
		221T00315ME		110304T00815ME						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
		222T00315ME	110308T00815ME	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	E45~E47 F102~F103 F106~F114 F137	
		VBGW 3305T00315ME	T00315	VBGW 160402T00815ME	T00815	2	3/8	3/16	0.173	0.008	0.094	●	●	●	●	●	●	●	●	●	●	●	●	●		●
331T00315ME	160404T00815ME	●		●						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		332T00315ME	T00315	160408T00815ME	T00815	2	3/8	3/16	0.173	1/64	0.079	●	●	●	●	●	●	●	●	●	●	●	●	●	E45~E47 F102~F103 F106~F114 F137	
		160408T00815ME		1/32						0.067	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
		VBGW 221S00525MES	S00525	VBGW 110304S01225MES	S01225	2	1/4	1/8	0.110	1/64	0.079	●	●	●	●	●	●	●	●	●	●	●	●	●	E42~E47, E62 F102, F103 F106~F114 F137	
		222S00525MES		110308S01225MES																						
		VBGW 331S00525MES	S00525	VBGW 160404S01225MES	S01225	2	3/8	3/16	0.173	1/64	0.079	●	●	●	●	●	●	●	●	●	●	●	●	●	E45~E47 F102~F103 F106~F114 F137	
		332S00525MES		160408S01225MES																						
				VBGW 2205S00435MET	S00435	VBGW 110302S01035MET	S01035	2	1/4	1/8	0.110	0.008	0.094	●	●	●	●	●	●	●	●	●	●	●	●	E42~E47, E62 F102, F103 F106~F114 F137
				221S00435MET		110304S01035MET						●	●	●	●	●	●	●	●	●	●	●	●	●	●	
222S00435MET	110308S01035MET			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	E45~E47 F102~F103 F106~F114 F137	
VBGW 3305S00435MET	S00435			VBGW 160402S01035MET	S01035	2	3/8	3/16	0.173	0.008	0.094	●	●	●	●	●	●	●	●	●	●	●	●	●		E45~E47 F102~F103 F106~F114 F137
331S00435MET		160404S01035MET	●	●						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		332S00435MET	S00435	160408S01035MET	S01035	2	3/8	3/16	0.173	1/32	0.067	●	●	●	●	●	●	●	●	●	●	●	●	●	E45~E47 F102~F103 F106~F114 F137	
		160408S01035MET																								
				VBGW 2205T00315SE	T00315	VBGW 110302T00815SE	T00815	1	1/4	1/8	0.110	0.008	0.110				●	●				●	●	●	●	E42~E47, E62 F102, F103 F106~F114 F137
				221T00315SE		110304T00815SE																				
VBGW 3305T00315SE	T00315			VBGW 160402T00815SE	T00815	1	3/8	3/16	0.173	0.008	0.094				●	●				●	●	●	●	E45~E47 F102~F103 F106~F114 F137		
331T00315SE				160404T00815SE																						
		332T00315SE	T00315	160408T00815SE	T00815	1	3/8	3/16	0.173	1/32	0.067				●	●				●	●	●	●	E45~E47 F102~F103 F106~F114 F137		
		160408T00815SE																								
				VBGW 221S00435SET	S00435	VBGW 110304S01035SET	S01035	1	1/4	1/8	0.110	1/64	0.079											●	●	E42~E47, E62 F102, F103 F106~F114 F137
				222S00435SET		110308S01035SET																				
VBGW 331S00435SET	S00435			VBGW 160404S01035SET	S01035	1	3/8	3/16	0.173	1/64	0.079											●	●	E45~E47 F102~F103 F106~F114 F137		
332S00435SET				160408S01035SET																						

35° Diamond

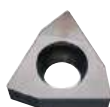
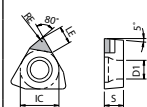
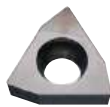
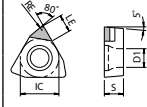
How to read this page ➡ See page B15

Cutting Edge Preparation				Gray Cast Iron (with Scale)										K								
Symbol	Specification	Example		Gray Cast Iron (without Scale)																		
F	Sharp Edge	F	Sharp Edge	Nodular Cast Iron (with Scale)										H								
E	R-Honed	E003	R0.003" Honed	Hard Materials (Roughing)																		
T	Chamfered	T00515	0.005" × 15° Chamfered	Hard Materials (Finishing)										H								
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed	Hard Materials (Chip Control)																		
				Powdered Steel										-								
Insert	Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					CBN								Applicable Toolholder Page			
						IC	S	D1	RE	LE	PVD						-					
											KB010	KB015	KB020	KB05M	KB10M	KB25M		KB60M		KB475	KB510	KB525
		VCGW 151505T00315ME 15151T00315ME 15152T00315ME	T00315	VCGW 080202T00815ME 080204T00815ME 080208T00815ME	T00815	2	3/16	3/32	0.091	1/64	0.079	●	●	●	●	●	●	●	●	E63 F102~F103 F106~F111 F113		
	 Tough	VCGW 151505S00435MET 15151S00435MET 15152S00435MET	S00435	VCGW 080202S01035MET 080204S01035MET 080208S01035MET	S01035	2	3/16	3/32	0.091	1/64	0.079	●	●	●	●	●	●	●	●			
		VCGW 151505T00315SE 15151T00315SE	T00315	VCGW 080202T00815SE 080204T00815SE	T00815	1	3/16	3/32	0.091	1/64	0.094	●	●	●	●	●	●	●	●			
	 Tough	VCGW 15151S00435SET 15152S00435SET	S00435	VCGW 080204S01035SET 080208S01035SET	S01035	1	3/16	3/32	0.091	1/64	0.079	●	●	●	●	●	●	●	●			

80° Trigon

How to read this page ➡ See page B15

Cutting Edge Preparation				Gray Cast Iron (with Scale)								K
Symbol	Specification	Example		Gray Cast Iron (without Scale)								
F	Sharp Edge	F	Sharp Edge	Modular Cast Iron (with Scale)								
E	R-Honed	E003	R0.003" Honed	Hard Materials (Roughing)								H
T	Chamfered	T00515	0.005" × 15° Chamfered	Hard Materials (Finishing)				○●○☺				
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed	Hard Materials (Chip Control)								
				Powdered Steel								-

Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)						CBN				Applicable Toolholder Page
							IC	S	D1	RE	LE	PVD				-	
												KBN10M	KBN25M	KBN510	KBN525		
		WBGW 12105T00315L-SE 1211T00315L-SE	T00315	WBGW 060102T00815L-SE 060104T00815L-SE	T00815	1	5/32	1/16	0.091	0.008 1/64	0.075	●	●	●	●	F38 F116~F118 F120~F121	
		WBGW 151505T00315L-SE 15151T00315L-SE	T00315	WBGW 080202T00815L-SE 080204T00815L-SE	T00815	1	3/16	3/32	0.091	0.008 1/64	0.091	●	●	●	●		
		WBGW 12105S00435L-SET 1211S00435L-SET	S00435	WBGW 060102S01035LSET 060104S01035LSET	S01035	1	5/32	1/16	0.091	0.008 1/64	0.075	●	●	●	●		
	Tough	WBGW 151505S00435L-SET 15151S00435L-SET	S00435	WBGW 080202S01035LSET 080204S01035LSET	S01035	1	3/16	3/32	0.091	0.008 1/64	0.091	●	●	●	●		

C
CBN / PCD
INSERTS

CBN

PCD

POSITIVE

C

D

S

T

V

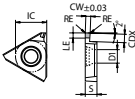
W

SOLID

GROOVING

GBA

How to read this page ➔ See page B15

Cutting Edge Preparation				Gray Cast Iron (with Scale)														K						
				Gray Cast Iron (without Scale)																				
				Nodular Cast Iron (with Scale)																				
Symbol	Specification	Example		Hard Materials (Roughing)														H						
F	Sharp Edge	Sharp Edge		Hard Materials (Finishing)																				
E	R-Honed	E003	R0.003" Honed	Hard Materials (Chip Control)																				
T	Chamfered	T00515	0.005" × 15° Chamfered	Powdered Steel														-						
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed																					
Insert				Part Number				Edge Prep (in)	No. of Edges	Dimensions (mm)								Tolerance (mm)		CBN	Applicable Toolholder Page			
										CW		CDX	IC	S	D1	RE	LE	CW min.	CW max.	KBN510 KBN525				
										in	mm													
		GBA43R 125-020 150-020 200-020 250-020 300-020		E003	1	0.049	1.25	2														G13~G15 G89		
						0.059	1.5	3.5																
						0.079	2	3.5	12.7	4.76	5.5	0.2	1.9	- 0.03	+ 0.03									
						0.098	2.5	4																
						0.118	3	4																
						0.118	3	4																
		GBA43L 125-020 150-020 200-020 250-020 300-020				0.049	1.25	2																
						0.059	1.5	3.5																
						0.079	2	3.5	12.7	4.76	5.5	0.2	1.9	- 0.03	+ 0.03									
						0.098	2.5	4																
						0.118	3	4																
						0.118	3	4																

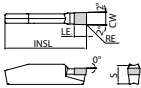
Right-hand shown

CDX shows available grooving depth.

GDGS

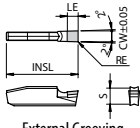
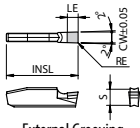
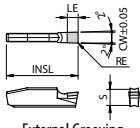
How to read this page ➡ See page B15

Cutting Edge Preparation				Gray Cast Iron (with Scale)												K
				Gray Cast Iron (without Scale)												
				Nodular Cast Iron (with Scale)												
Symbol	Specification	Example		Hard Materials (Roughing)												H
F	Sharp Edge	F	Sharp Edge	Hard Materials (Finishing)										●		
E	R-Honed	E003	R0.003" Honed	Hard Materials (Chip Control)												
T	Chamfered	T00515	0.005" × 15° Chamfered	Powdered Steel										●	-	
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed													

Insert	Part Number	Edge Prep (in)	No. of Edges	Dimensions (mm)						Tolerance (mm)		CBN		Applicable Toolholder Page
				CW		S	RE	INSL	LE	CW min.	CW max.	PVD KBN5M	- KBN570	
				in	mm									
  External Grooving	GDGS 2020N-020NB	E003	1	0.079	2	4.3	0.2	20	2.9	- 0.03	+ 0.03	●		G44~G56
		E0008										●		
	GDGS 3020N-040NB	E003	1	0.118	3	4.3	0.4	20	2.9	- 0.03	+ 0.03	●		
		E0008										●		
	GDGS 4020N-040NB	E003	1	0.157	4	4.3	0.4	20	2.9	- 0.03	+ 0.03	●		G44~G45 G48~G56
	E0008										●			
GDGS 5020N-040NB	E003	1	0.197	5	4.3	0.4	20	2.9	- 0.03	+ 0.03	●			
	E0008											●		
GDGS 6020N-040NB	E008	1	0.236	6	4.3	0.4	20	2.9	- 0.03	+ 0.03	●			

GMN

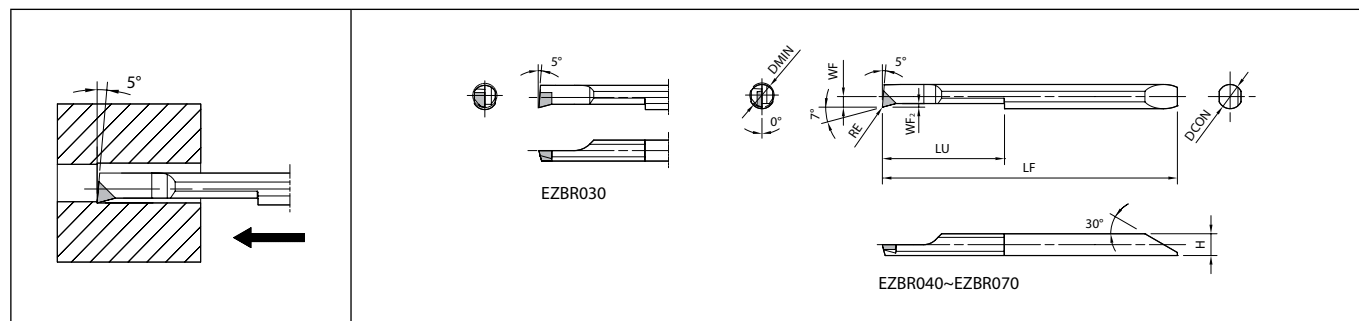
How to read this page ➔ See page B15

Cutting Edge Preparation				Gray Cast Iron (with Scale)												K			
				Gray Cast Iron (without Scale)															
Symbol	Specification	Example		Modular Cast Iron (with Scale)												H			
F	Sharp Edge	F	Sharp Edge	Hard Materials (Roughing)															
E	R-Honed	E003	R0.003" Honed	Hard Materials (Finishing)										○	●				
T	Chamfered	T00515	0.005" × 15° Chamfered	Hard Materials (Chip Control)															
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed	Powdered Steel												-			
Insert				Part Number		Edge Prep (in)	No. of Edges	Dimensions (mm)					Tolerance (mm)		CBN	Applicable Toolholder Page			
								CW		S	RE	INSL	LE	CW min.			CW max.	KBN510	KBN525
								in	mm										
		GMN 2	E003	1	0.079	2	4.3	0.2	20	2.9	-0.05	+0.05	△	△					
		GMN 3	E003	1	0.118	3	4.3	0.4	20	2.9	-0.05	+0.05	△	△	-				
		GMN 4	E003	1	0.157	4	4.3	0.4	20	2.9	-0.05	+0.05	△	△					

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZB-NB (Boring)

How to read this page ➡ See page B15



Right-hand shown

Dimensions

Cutting Edge Preparation				Gray Cast Iron (with Scale)										K	
				Gray Cast Iron (without Scale)											
				Nodular Cast Iron (with Scale)											
				Hard Materials (Roughing)										H	
Symbol	Specification	Example		Hard Materials (Finishing)											-
F	Sharp Edge	F	Sharp Edge	Hard Materials (Chip Control)											
E	R-Honed	E003	R0.003" Honed	Powdered Steel											
T	Chamfered	T00515	0.005" × 15° Chamfered												
S	Chamfered and R-Honed	S00525	0.005" × 25° Chamfered and R-Honed												

Part Number	Edge Prep (in)	No. of Edges	Dimensions (mm)									Tolerance (mm)		CBN	Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LF	LU	WF	WF ₂	RE	RE min.	RE max.			
													KBH05M			PVD
EZBR 030030-003NB	T00315	1	3	3	2.6	38.8	13	1.25	0.3	0.035	-0.015	+0.015	●	EZH030...	
EZBR 040040-003NB	T00315	1	4	4	3.6	48.8	20	1.75	0.5	0.035	-0.015	+0.015	●	EZH040...	
EZBR 050050-003NB	T00315	1	5	5	4.6	58.1	25	2.25	0.5	0.035	-0.015	+0.015	●	EZH050...	
EZBR 060060-003NB	T00315	1	6	6	5.6	66.1	30	2.75	0.5	0.035	-0.015	+0.015	●	EZH060...	
EZBR 070070-003NB	T00315	1	7	7	6.6	74.1	35	3.25	0.5	0.035	-0.015	+0.015	●	EZH070...	

Identification System (PCD Turning Inserts)

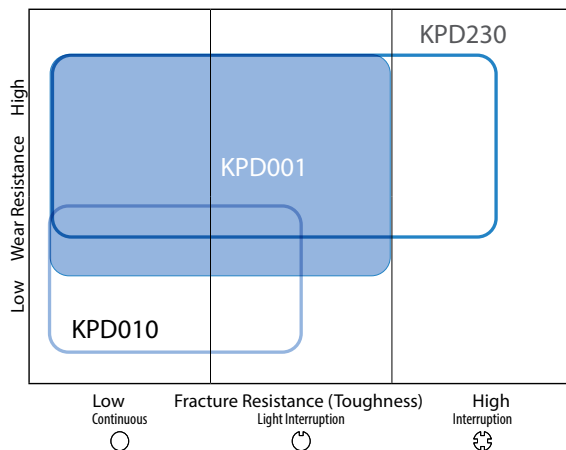
C N M M 4 3 05 M - SE C C G W 14 11 02 SE							
Turning Indexable Inserts Identification System See B2							
Insert Type	Part Number	Manufacturer's Option 1	Manufacturer's Option 2	Series Name	Cutting Edge Length	Number of Edges	Re-Grinding
Negative	CNMM431M-SE	M (Indicates the tool is for negative inserts/toolholders)	SE	Small Edge	Short (Small edge)	1	Not Recommended
	CNMM431M-NE		NE	New Value Edge	Long (85% length compared with no indication's cutting edge)	1	Possible
	CNMM431M		No Indication	-	Long	1	
Positive	CCGW141102SE	-	SE	Small Edge	Short (Small edge)	1	Not Recommended
	CCGW141102NE		NE	New Value Edge	Long (85% length compared with no indication's cutting edge)	1	Possible
	CCGW141102		No Indication	-	Long	1	

- No edge preparation symbols for PCD inserts. Most of the PCD inserts' edge prep. are sharp edge.
- "M" in manufacturer's option 1 indicates the inserts are applicable to negative toolholders.

About re-grinding:

- Re-grinding is possible for inserts with "NE" and no symbol in manufacturer's option 2.
- Re-grinding may not be available depending on the edge condition.
- Re-grinding is not recommended for inserts with "SE" in manufacturer's option 2.

Application Map



Grades	Applications	Features
KPD001 Average grain size under 0.5 µm	• High speed machining of non-ferrous metals and brass • High speed machining of plastics • Machining of carbide	• The world highest level micro-grain diamond • High edge strength, and superior to wear resistance, fracture resistance and edge sharpening performance
KPD010 Average grain size 10 µm	• High speed machining of non-ferrous metals and brass • High speed machining of plastics • Machining of carbide	• Good balance of wear resistance and flexural strength • General purpose
KPD230 Mixture of fine grain with average grain size 2~30 µm and coarse grain	• High speed machining of non-ferrous metals and brass • High speed machining of plastics	• High density PCD with mixture of coarse and fine grains features excellent abrasive wear resistance and fracture resistance
KPD250 Average grain size 25 µm (Made to order)	• High speed machining of high silicon aluminium alloy • Machining of carbide	• Coarse grain PCD • Ave. grain size 25 µm • Superior wear resistance

Recommended Cutting Conditions

Workpiece material	Insert Grades		Cutting Conditions				Notes
	KPD001	KPD010	Vc (sfm)	D.O.C. (in)		f (ipr)	
				Small Edge and Positive Inserts	Negative Inserts		
Aluminum Alloys Zinc alloys	★	☆	980 ~ 4920	~ 0.039	~ 0.079	0.001 ~ 0.020	Both: Dry and Coolant
Copper, Brass, Bronze	★	☆	980 ~ 3280	~ 0.039	~ 0.079	0.001 ~ 0.020	
Magnesium Alloys	★	☆	1310 ~ 3940	~ 0.039	~ 0.079	0.001 ~ 0.020	
Carbide	★	☆	30 ~ 100	~ 0.012	~ 0.012	0.001 ~ 0.004	
Titanium Alloys	★	☆	330 ~ 660	~ 0.039	~ 0.079	0.002 ~ 0.008	Coolant
Glass Fiber Reinforced Plastics Carbon Fiber	★	☆	330 ~ 1970	~ 0.039	~ 0.079	0.002 ~ 0.020	Dry
Silica Filling Plastic Particle Board	★	☆	1310 ~ 2620	~ 0.039	~ 0.079	0.002 ~ 0.020	

★: 1st Recommendation ☆: 2nd Recommendation

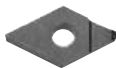
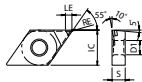
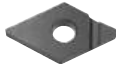
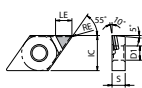
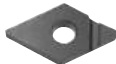
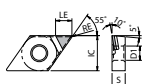
80° Diamond

How to read this page ➡ See page B15

Cutting Edge Preparation																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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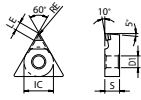
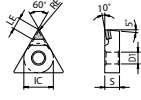
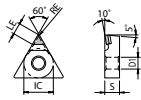
55° Diamond

How to read this page ➡ See page B15

Cutting Edge Preparation				Non-ferrous metals (with interruption)		Non-ferrous metals (without interruption)		Titanium alloys (with interruption)		Titanium alloys (without interruption)		N		
All PCD Items		F	Sharp Edge								S			
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page
							IC	S	D1	RE	LE	-		
												KP001	KP010	
	 Small Edge	DNMM 4305M-SE 431M-SE 432M-SE	F	DNMM 150402M-SE 150404M-SE 150408M-SE	F	1	1/2	3/16	0.203	1/64	0.110 0.102 0.087	● ● ●	D14~D19 F140, F152 F154~F156	
	 New Value Edge	DNMM 4305M-NE 431M-NE 432M-NE	F	DNMM 150402M-NE 150404M-NE 150408M-NE	F	1	1/2	3/16	0.203	1/64	0.205 0.197 0.181	● ● ●		
		DNMM 4305M 431M 432M	F	DNMM 150402M 150404M 150408M	F	1	1/2	3/16	0.203	1/64	0.232 0.228 0.213	● ● ●		

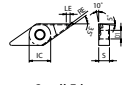
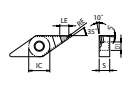
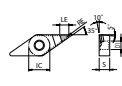
60° Triangle

How to read this page ➡ See page B15

Cutting Edge Preparation					Non-ferrous metals (with interruption)		Non-ferrous metals (without interruption)		Titanium alloys (with interruption)		Titanium alloys (without interruption)		N	
All PCD Items					F		Sharp Edge						S	
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page
							IC	S	D1	RE	LE	-		
												KPD001	KPD010	
	 Small Edge	TNMM 3305M-SE	F	TNMM 160402M-SE	F	1	3/8	3/16	0.150	0.008	0.106	●	●	D14~D19 F140, F152 F154~F156
		331M-SE		160404M-SE						1/64	0.102	●	●	
		332M-SE		160408M-SE						1/32	0.091	●	●	
	 New Value Edge	TNMM 3305M-NE	F	TNMM 160402M-NE	F	1	3/8	3/16	0.150	0.008	0.126	●	●	
		331M-NE		160404M-NE						1/64	0.122	●	●	
		332M-NE		160408M-NE						1/32	0.110	●	●	
		TNMM 3305M	F	TNMM 160402M	F	1	3/8	3/16	0.150	0.008	0.150	●	●	
		331M		160404M						1/64	0.142	●	●	
		332M		160408M						1/32	0.130	●	●	
		333M		160412M						3/64	0.118	●	●	

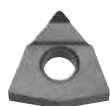
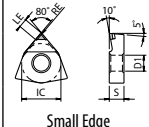
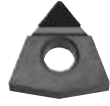
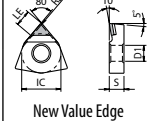
35° Diamond

How to read this page ➡ See page B15

Cutting Edge Preparation						Non-ferrous metals (with interruption)						●		N		
All PCD Items						F						Sharp Edge					S
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page		
							IC	S	D1	RE	LE	-				
												KPD001	KPD010			
	 Small Edge	VNMM 3305M-SE	F	VNMM 160402M-SE	F	1	3/8	3/16	0.150	0.008	0.114	●	●	D34~D44		
		331M-SE		160404M-SE						0.098	●	●				
		332M-SE		160408M-SE						1/32	0.063	●	●			
	 New Value Edge	VNMM 3305M-NE	F	VNMM 160402M-NE	F	1	3/8	3/16	0.150	0.008	0.185	●	●			
		331M-NE		160404M-NE						0.165	●	●				
		332M-NE		160408M-NE						1/32	0.134	●	●			
		VNMM 3305M	F	VNMM 160402M	F	1	3/8	3/16	0.150	0.008	0.209	●	●			
		331M		160404M						0.189	●	●				
		332M		160408M						1/32	0.157	●	●			

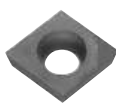
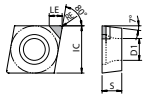
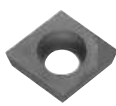
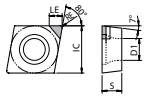
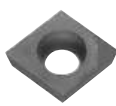
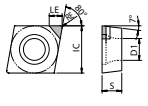
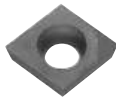
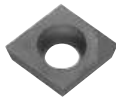
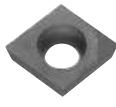
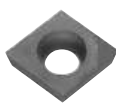
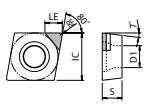
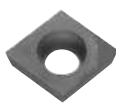
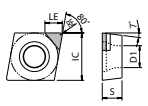
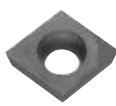
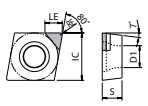
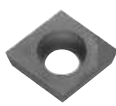
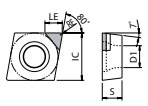
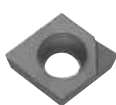
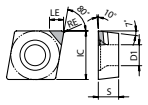
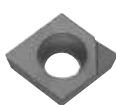
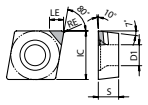
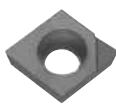
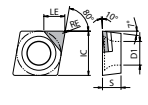
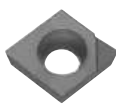
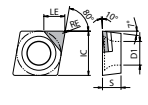
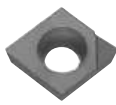
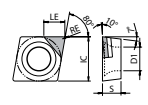
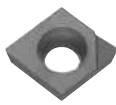
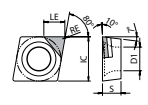
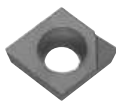
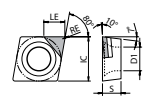
80° Trigon

How to read this page ➡ See page B15

Cutting Edge Preparation				Non-ferrous metals (with interruption)									N	
All PCD Items		F	Sharp Edge		Non-ferrous metals (without interruption)									
				Titanium alloys (with interruption)									S	
				Titanium alloys (without interruption)										
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page
							IC	S	D1	RE	LE	-		
												KPD001	KPD010	
	 Small Edge	WNMM 4305M-SE	F	WNMM 080402M-SE	F	1	1/2	3/16	0.203	1/64	0.110	●	●	D48~D51 F162 F164 F165
		431M-SE		080404M-SE										
		432M-SE		080408M-SE										
	 New Value Edge	WNMM 4305M-NE	F	WNMM 080402M-NE	F	1	1/2	3/16	0.203	1/64	0.197	●	●	
		431M-NE		080404M-NE										

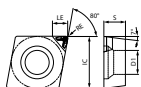
80° Diamond

How to read this page See page B15

Cutting Edge Preparation						Non-ferrous metals (with interruption)								N						
						Non-ferrous metals (without interruption)														
All PCD Items		F		Sharp Edge		Titanium alloys (with interruption)								S						
Insert		Part Number ANSI		Edge Prep (in)		Part Number ISO		Edge Prep (mm)		No. of Edges		Dimensions (in)					PCD		Applicable Toolholder Page	
												IC	S	D1	RE	LE	KP0001	KP0010		
	 Small Edge	CCGW 141102SE	F	CCGW 040101SE	F	1	0.169	0.071	0.091	0.004	0.051	●	●	F33~F34 F62, F64						
		141105SE		040102SE											●	●				
		14111SE		040104SE											●	●				
	 Small Edge	CCGW 21502SE	F	CCGW 060201SE	F	1	1/4	3/32	0.110	0.004	0.091	●	●	E26~E27, E58, E72, F33~F34 F64, F67~F68 F134						
		21505SE		060202SE											●	●				
		2151SE		060204SE											●	●				
	 Small Edge	CCGW 32505SE	F	CCGW 09T302SE	F	1	3/8	5/32	0.173	0.008	0.106	●	●	E26~E29 E58, E72 F62~F64 F134						
		3251SE		09T304SE											●	●				
		3252SE		09T308SE											●	●				
	 New Value Edge	CCGW 141102NE	F	CCGW 040101NE	F	1	0.169	0.071	0.091	0.004	0.067	●	●	F33~F34 F62, F64						
		141105NE		040102NE											●	●				
		CCGW 21502NE		CCGW 060201NE											F	1	1/4	3/32	0.110	0.004	0.122	●	●	E26~E27, E58, E72, F33~F34 F64, F67~F68 F134
21505NE	060202NE	●	●																	
2151NE	060204NE	●	●																	
	 New Value Edge	CCGW 32502NE	F	CCGW 09T301NE	F	1	3/8	5/32	0.173	0.004	0.134	●	●	E26~E29 E58, E72 F62~F64 F134						
		32505NE		09T302NE											●	●				
		3251NE		09T304NE											●	●				
	 New Value Edge	3252NE		09T308NE						1/32	0.130	●	●							
	 Small Edge	CCGW 141102	F	CCGW 040101	F	1	0.169	0.071	0.091	0.004	0.075	●	●	F33~F34 F62, F64						
		141105		040102											●	●				
		14111		040104											●	●				
	 Small Edge	CCGW 21502	F	CCGW 060201	F	1	1/4	3/32	0.110	0.004	0.138	●	●	E26~E27, E58, E72, F33~F34 F64, F67~F68 F134						
		21505		060202											●	●				
		2151		060204											●	●				
	 Small Edge	CCGW 32502	F	CCGW 09T301	F	1	3/8	5/32	0.173	0.004	0.150	●	●	E26~E29 E58, E72 F62~F64 F134						
		32505		09T302											●	●				
		3251		09T304											●	●				
	 Small Edge	3252		09T308						1/32	0.142	●	●							
	 Small Edge	CCMT 21505SE	F	CCMT 060202SE	F	1	1/4	3/32	0.110	0.008	0.087	●	●	E26~E27, E58, E72, F33~F34 F64, F67~F68 F134						
		2151SE		060204SE											●	●				
		CCMT 32502SE		F											CCMT 09T301SE	F	1	3/8	5/32	0.173	0.004	0.106	●	●	E26~E29 E58, E72 F62~F64 F134
32505SE	09T302SE	●	●																	
3251SE	09T304SE	●	●																	
	 Small Edge	3252SE		09T308SE						1/32	0.106	●	●							
	 New Value Edge	CCMT 21502NE	F	CCMT 060201NE	F	1	1/4	3/32	0.110	0.004	0.110	●	●	E26~E27, E58, E72, F33~F34 F64, F67~F68 F134						
		21505NE		060202NE											●	●				
		2151NE		060204NE											●	●				
	 New Value Edge	CCMT 32502NE	F	CCMT 09T301NE	F	1	3/8	5/32	0.173	0.004	0.134	●	●	E26~E29 E58, E72 F62~F64 F134						
		32505NE		09T302NE											●	●				
		3251NE		09T304NE											●	●				
	 Small Edge	CCMT 21502	F	CCMT 060201	F	1	1/4	3/32	0.110	0.004	0.130	●	●	E26~E27, E58, E72, F33~F34 F64, F67~F68 F134						
		21505		060202											●	●				
		2151		060204											●	●				
	 Small Edge	CCMT 32502	F	CCMT 09T301	F	1	3/8	5/32	0.173	0.004	0.154	●	●	E26~E29 E58, E72 F62~F64 F134						
		32505		09T302											●	●				
		3251		09T304											●	●				
	 Small Edge	3252		09T308						1/32	0.150	●	●							

80° Diamond

How to read this page ➔ See page B15

Cutting Edge Preparation				Non-ferrous metals (with interruption)								●	N		
				Non-ferrous metals (without interruption)								●			
				Titanium alloys (with interruption)								●			
				Titanium alloys (without interruption)								●			
All PCD Items		F	Sharp Edge											S	
Insert		Part Number ANSI		Edge Prep (in)	Part Number ISO		Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD	Applicable Toolholder Page
									IC	S	D1	RE	LE	-	
														KPD001 KPD010	
		CCMT 32505APD	F	CCMT 09T302APD	F	1	3/8	5/32	0.173	0.008	0.106	●	E26~E29 E58, E72 F62~F64 F134		
		3251APD		09T304APD						0.106					
		3252APD		09T308APD						0.106					

C
CBN / PCD
INSERTS

CBN

PCD

POSITIVE

C

D

S

T

V

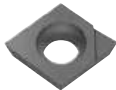
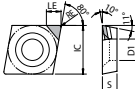
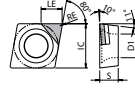
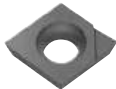
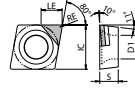
W

SOLID

GROOVING

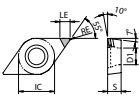
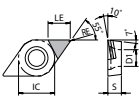
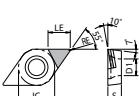
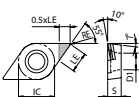
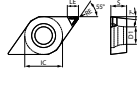
80° Diamond

How to read this page ➡ See page B15

Cutting Edge Preparation				Non-ferrous metals (with interruption)											N
				Non-ferrous metals (without interruption)											
				Titanium alloys (with interruption)											
				Titanium alloys (without interruption)											S
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page	
							IC	S	D1	RE	LE	-			
												KPD001	KPD010		
	 Small Edge	CPMH 3205SE	F	CPMH 090302SE	F	1	3/8	1/8	0.177	0.008	0.106	●	F70~F73		
		321SE		090304SE								●			
	 New Value Edge	CPMH 251505NE	F	CPMH 080202NE	F	1	5/16	3/32	0.138	0.008	0.126	●			
		25151NE		080204NE								●			
		CPMH 3202NE	F	CPMH 090301NE	F	1	3/8	1/8	0.177	0.004	0.134	●			
3205NE		090302NE		●											
321NE	090304NE	●													
		CPMH 251502	F	CPMH 080201	F	1	5/16	3/32	0.138	0.004	0.146	●			
		251505		080202								●			
	25151	080204	●												
	CPMH 3202	F	CPMH 090301	F	1	3/8	1/8	0.177	0.004	0.157	●				
	3205		090302								●				
321	090304		●												
322	090308	●													

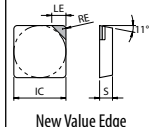
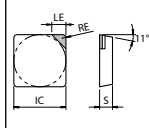
55° Diamond

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Cutting Edge Preparation					Non-ferrous metals (with interruption)							●		N	
					Non-ferrous metals (without interruption)							●			
					Titanium alloys (with interruption)							●		S	
					Titanium alloys (without interruption)							●			
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page	
							IC	S	D1	RE	LE	-			
												KPD001	KPD010		
	 Small Edge	DCMT 21502SE	F	DCMT 070201SE	F	1	1/4	3/32	0.110	0.004	0.106	●	E30~E31, E33 E36~E37 E59~E60, E72 F74~F87, F135		
		21505SE		070202SE						0.008	0.106	●			
		2151SE		070204SE						1/64	0.106	●			
		DCMT 32502SE	F	DCMT 11T301SE	F	1	3/8	5/32	0.173	0.004	0.106	●	E23 E30~E37 E59~E60 E72 F74~F87 F135		
32505SE	11T302SE	0.008		0.106						●					
3251SE	11T304SE	1/64		0.106						●					
3252SE	11T308SE	1/32	0.106	●											
	 New Value Edge	DCMT 21502NE	F	DCMT 070201NE	F	1	1/4	3/32	0.110	0.004	0.134	●	E30~E31, E33 E36~E37 E59~E60, E72 F74~F87, F135		
		21505NE		070202NE						0.008	0.134	●			
		2151NE		070204NE						1/64	0.126	●			
		DCMT 32502NE	F	DCMT 11T301NE	F	1	3/8	5/32	0.173	0.004	0.134	●	E23 E30~E37 E59~E60 E72 F74~F87 F135		
32505NE	11T302NE	0.008		0.130						●					
3251NE	11T304NE	1/64		0.126						●					
3252NE	11T308NE	1/32	0.110	●											
	 Small Edge	DCMT 21502	F	DCMT 070201	F	1	1/4	3/32	0.110	0.004	0.157	●	E30~E31, E33 E36~E37 E59~E60, E72 F74~F87, F135		
		21505		070202						0.008	0.154	●			
		2151		070204						1/64	0.146	●			
		DCMT 32502	F	DCMT 11T301	F	1	3/8	5/32	0.173	0.004	0.157	●	E23 E30~E37 E59~E60 E72 F74~F87 F135		
32505	11T302	0.008		0.154						●					
3251	11T304	1/64		0.146						●					
3252	11T308	1/32	0.130	●											
	 New Value Edge	DCMT 32505R-NE	F	DCMT 11T302R-NE	F	1	3/8	5/32	0.173	0.008	0.130	●	E23 E30~E37 E59~E60 E72 F74~F87 F135		
		3251L-NE		11T304L-NE						1/64	0.126	●			
	 Chip Control	DCMT 32505APD	F	DCMT 11T302APD	F	1	3/8	5/32	0.173	0.008	0.106	●	E23 E30~E37 E59~E60 E72 F74~F87 F135		
		3251APD		11T304APD						1/64	0.106	●			
		3252APD		11T308APD						1/32	0.106	●			

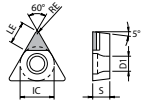
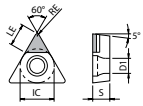
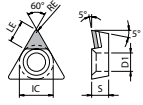
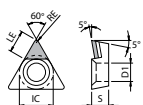
90° Square

How to read this page ➔ See page B15

Cutting Edge Preparation						Non-ferrous metals (with interruption)					●	N	
All PCD Items			F	Sharp Edge		Non-ferrous metals (without interruption)					●		
						Titanium alloys (with interruption)					●	S	
						Titanium alloys (without interruption)					●		
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)				PCD		Applicable Toolholder Page
							IC	S	RE	LE	-		
											KPD001	KPD010	
		SPG 421NE	F	SPGN 120304NE	F	1	1/2	1/8	1/64	0.142	●	F130	
		SPG 421	F	SPGN 120304	F	1	1/2	1/8	1/64	0.165	●		

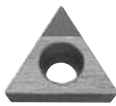
60° Triangle

How to read this page ➡ See page B15

Cutting Edge Preparation					Non-ferrous metals (with interruption)						N			
					Non-ferrous metals (without interruption)						S			
					Titanium alloys (with interruption)									
					Titanium alloys (without interruption)									
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page
							IC	S	D1	RE	LE	-		
												KPD001	KPD010	
	 New Value Edge	TBGW 1210SNE 1211NE	F	TBGW 060102NE 060104NE	F	1	5/32	1/16	0.094	0.008 1/64	0.083 0.075	● ●		F35~F36 F90~F94 F98~F99
		TBGW 1210S 1211	F	TBGW 060102 060104	F	1	5/32	1/16	0.094	0.008 1/64	0.094 0.087	● ●		
	 New Value Edge	TBMT 12102NE 1211NE 1212NE	F	TBMT 060101NE 060104NE 060108NE	F	1	5/32	1/16	0.094	0.004 1/64 1/32	0.087 0.079 0.067	● ● ●		
		TBMT 1210S 1211 1212	F	TBMT 060102 060104 060108	F	1	5/32	1/16	0.094	0.008 1/64 1/32	0.098 0.091 0.079	● ● ●	●	

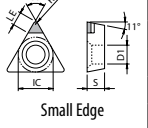
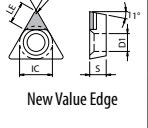
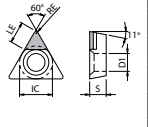
60° Triangle

How to read this page ➡ See page B15

Cutting Edge Preparation					Non-ferrous metals (with interruption)									N		
All PCD Items					F	Sharp Edge	Non-ferrous metals (without interruption)									
					Titanium alloys (with interruption)									S		
					Titanium alloys (without interruption)											
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page		
							IC	S	D1	RE	LE	KPD001	KPD010			
		TCGW 2205SE	F	TCGW 110302SE	F	1	1/4	1/8	0.110	0.008	0.098	●	E40			
Small Edge		221SE		110304SE						1/64	0.094	●				
		TCGW 2205NE	F	TCGW 110302NE	F	1	1/4	1/8	0.110	0.008	0.130	●				
New Value Edge		221NE		110304NE						1/64	0.126	●				
		TCMT 2202SE	F	TCMT 110301SE	F	1	1/4	1/8	0.110	0.004	0.102	●				
Small Edge		2205SE		110302SE						0.008	0.098	●				
		221SE		110304SE						1/64	0.094	●				
		TCMT 151505NE	F	TCMT 080202NE	F	1	3/16	3/32	0.098	0.008	0.083	●				
New Value Edge		TCMT 2205NE	F	TCMT 110302NE	F	1	1/4	1/8	0.110	0.008	0.134	●				
		TCMT 151505	F	TCMT 080202	F	1	3/16	3/32	0.098	0.008	0.094	●				
Small Edge		15151		080204						1/64	0.087	●				

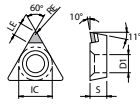
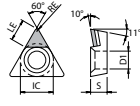
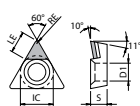
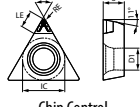
60° Triangle

How to read this page See page B15

Cutting Edge Preparation						Non-ferrous metals (with interruption)						●		N							
						Non-ferrous metals (without interruption)						●									
						All PCD Items		F		Sharp Edge		Titanium alloys (with interruption)						●		S	
						Titanium alloys (without interruption)						●									
Insert		Part Number ANSI		Edge Prep (in)		Part Number ISO		Edge Prep (mm)		No. of Edges		Dimensions (in)					PCD		Applicable Toolholder Page		
												IC	S	D1	RE	LE	-				
																	KPD001	KPD010			
	 Small Edge	TPGB 181505SE 18151SE 18152SE	F	TPGB 090202SE 090204SE 090208SE	F	1	7/32	3/32	0.126	0.008 1/64 1/32	0.083 0.083 0.083	●	●	F35~F36 F90~F94 F98							
		TPGB 2202SE 2205SE 221SE	F	TPGB 110301SE 110302SE 110304SE	F	1	1/4	1/8	0.130	0.004 0.008 1/64	0.106 0.102 0.098	●	●	E41 F90~F97 F136							
		TPGB 3205SE 321SE	F	TPGB 160302SE 160304SE	F	1	3/8	1/8	0.185	0.008 1/64	0.102 0.094	●	●	F90~F92 F96, F136							
	 New Value Edge	TPGB 151505NE 15151NE 15152NE	F	TPGB 080202NE 080204NE 080208NE	F	1	3/16	3/32	0.091	0.008 1/64 1/32	0.087 0.083 0.071	●	●	E41 F90~F94 F98							
		TPGB 181505NE 18151NE	F	TPGB 090202NE 090204NE	F	1	7/32	3/32	0.126	0.008 1/64	0.106 0.102	●	●	F35~F36 F90~F94 F98							
		TPGB 2205NE 221NE 222NE	F	TPGB 110302NE 110304NE 110308NE	F	1	1/4	1/8	0.130	0.008 1/64 1/32	0.134 0.130 0.118	●	●	E41 F90~F97 F136							
		TPGB 321NE 322NE	F	TPGB 160304NE 160308NE	F	1	3/8	1/8	0.185	1/64 1/32	0.126 0.114	●	●	F90~F92 F96, F136							
		TPGB 151505 15151	F	TPGB 080202 080204	F	1	3/16	3/32	0.091	0.008 1/64	0.102 0.094	●	●	E41 F90~F94 F98							
		TPGB 181505 18151	F	TPGB 090202 090204	F	1	7/32	3/32	0.126	0.008 1/64	0.126 0.118	●	●	F35~F36 F90~F94 F98							
		TPGB 2205 221 222	F	TPGB 110302 110304 110308	F	1	1/4	1/8	0.130	0.008 1/64 1/32	0.154 0.146 0.134	●	●	E41 F90~F97 F136							

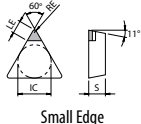
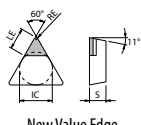
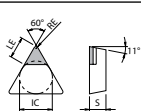
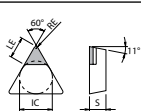
60° Triangle

How to read this page ➡ See page B15

Cutting Edge Preparation						Non-ferrous metals (with interruption)					●		N	
						Non-ferrous metals (without interruption)					●			
						Titanium alloys (with interruption)					●		S	
						Titanium alloys (without interruption)					●			
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page
							IC	S	D1	RE	LE	-		
												KPD001	KPD010	
		TPMH 151505SE 15151SE	F	TPMH 080202SE 080204SE	F	1	3/16	3/32	0.091	0.008 1/64	0.079 0.071	●	●	E41 F90~F94 F98
		TPMH 181505SE 18151SE	F	TPMH 090202SE 090204SE	F	1	7/32	3/32	0.126	0.008 1/64	0.094 0.087	●	●	F35~F36 F90~F94 F98
		TPMH 2202SE 2205SE 221SE	F	TPMH 110301SE 110302SE 110304SE	F	1	1/4	1/8	0.130	0.004 0.008 1/64	0.106 0.102 0.098	●	●	E41 F90~F97 F136
		TPMH 3205SE 321SE	F	TPMH 160302SE 160304SE	F	1	3/8	1/8	0.185	0.008 1/64	0.102 0.094	●	●	F90~F92 F96, F136
		TPMH 151502NE 151505NE 15151NE	F	TPMH 080201NE 080202NE 080204NE	F	1	3/16	3/32	0.091	0.004 0.008 1/64	0.091 0.087 0.083	●	●	E41 F90~F94 F98
		TPMH 181502NE 181505NE 18151NE 18152NE	F	TPMH 090201NE 090202NE 090204NE 090208NE	F	1	7/32	3/32	0.126	0.004 0.008 1/64 1/32	0.106 0.102 0.098 0.087	●	●	F35~F36 F90~F94 F98
		TPMH 2202NE 2205NE 221NE 222NE	F	TPMH 110301NE 110302NE 110304NE 110308NE	F	1	1/4	1/8	0.130	0.004 0.008 1/64 1/32	0.134 0.130 0.126 0.114	●	●	E41 F90~F97 F136
		TPMH 321NE 322NE	F	TPMH 160304NE 160308NE	F	1	3/8	1/8	0.185	1/64 1/32	0.130 0.118	●	●	F90~F92 F96, F136
		TPMH 151505 15151	F	TPMH 080202 080204	F	1	3/16	3/32	0.091	0.008 1/64	0.098 0.091	●	●	E41 F90~F94 F98
		TPMH 181502 181505 18151	F	TPMH 090201 090202 090204	F	1	7/32	3/32	0.126	0.004 0.008 1/64	0.118 0.114 0.110	●	●	F35~F36 F90~F94 F98
		TPMH 2202 2205 221 222	F	TPMH 110301 110302 110304 110308	F	1	1/4	1/8	0.130	0.004 0.008 1/64 1/32	0.154 0.154 0.146 0.134	●	●	E41 F90~F97 F136
		TPMH 3205 321 322	F	TPMH 160302 160304 160308	F	1	3/8	1/8	0.185	0.008 1/64 1/32	0.157 0.150 0.142	●	●	F90~F92 F96, F136
		TPMT 2205APD	F	TPMT 110302APD	F	1	1/4	1/8	0.130	0.008	0.102	●	●	E41 F90~F97 F136
		221APD		110304APD						1/64	0.098	●		
		222APD		110308APD						1/32	0.098	●		

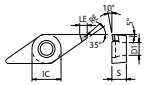
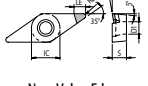
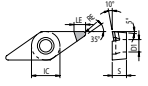
60° Triangle

How to read this page ➡ See page B15

Cutting Edge Preparation					Non-ferrous metals (with interruption)						N		
All PCD Items					F		Sharp Edge						
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)				PCD		Applicable Toolholder Page
							IC	S	RE	LE	-		
											KPD001	KPD010	
	 Small Edge	TPG 2202SE	F	TPGN 110301SE	F	1	1/4	1/8	0.004	0.102	●	F131	
		2205SE		110302SE					0.008	0.098	●		
		221SE		110304SE					1/64	0.094	●		
	 New Value Edge	TPG 3202SE	F	TPGN 160301SE	F	1	3/8	1/8	0.004	0.102	●		
		3205SE		160302SE					0.008	0.102	●		
		321SE		160304SE					1/64	0.094	●		
		TPG 321NE	F	TPGN 160304NE	F	1	3/8	1/8	1/64	0.126	●		
		322NE		160308NE					1/32	0.114	●		
		TPG 2205	F	TPGN 110302	F	1	1/4	1/8	0.008	0.154	●		
		221		110304					1/64	0.146	●		
		TPG 321		F					TPGN 160304	F	1		3/8	1/8	1/64	0.146	●
322	160308	1/32	0.134		●								

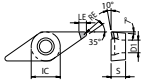
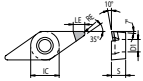
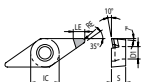
35° Diamond

How to read this page ➡ See page B15

Cutting Edge Preparation						Non-ferrous metals (with interruption)								N	
						Non-ferrous metals (without interruption)									
						Titanium alloys (with interruption)									
						Titanium alloys (without interruption)									
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page	
							IC	S	D1	RE	LE	-			
												KPD001	KPD010		
	 Small Edge	VBMT 2202SE	F	VBMT 110301SE	F	1	1/4	1/8	0.110	0.004	0.098	●	E42~E47, E6 F102, F103 F106~F114 F137		
		2205SE		110302SE						0.008	0.091	●			
		221SE		110304SE						1/64	0.075	●			
		222SE		110308SE						1/32	0.075	●			
	 New Value Edge	VBMT 3302SE	F	VBMT 160401SE	F	1	3/8	3/16	0.173	0.004	0.106	●	E45~E47 F102~F103 F106~F114 F137		
		3305SE		160402SE						0.008	0.098	●			
		331SE		160404SE						1/64	0.083	●			
		332SE		160408SE						1/32	0.079	●			
	 New Value Edge	VBMT 2202NE	F	VBMT 110301NE	F	1	1/4	1/8	0.110	0.004	0.102	●	E42~E47, E6 F102, F103 F106~F114 F137		
		2205NE		110302NE						0.008	0.094	●			
		221NE		110304NE						1/64	0.079	●			
		222NE		110308NE						1/32	0.122	●			
	 New Value Edge	VBMT 3302NE	F	VBMT 160401NE	F	1	3/8	3/16	0.173	0.004	0.110	●	E45~E47 F102~F103 F106~F114 F137		
		3305NE		160402NE						0.008	0.102	●			
		331NE		160404NE						1/64	0.087	●			
		332NE		160408NE						1/32	0.118	●			
	 New Value Edge	VBMT 2202	F	VBMT 110301	F	1	1/4	1/8	0.110	0.004	0.118	●	E42~E47, E6 F102, F103 F106~F114 F137		
		2205		110302						0.008	0.110	●			
		221		110304						1/64	0.094	●			
		222		110308						1/32	0.138	●			
	 New Value Edge	VBMT 3302	F	VBMT 160401	F	1	3/8	3/16	0.173	0.004	0.126	●	E45~E47 F102~F103 F106~F114 F137		
		3305		160402						0.008	0.118	●			
		331		160404						1/64	0.102	●			
		332		160408						1/32	0.138	●			

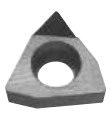
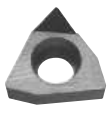
35° Diamond

How to read this page ➔ See page B15

Cutting Edge Preparation						Non-ferrous metals (with interruption)					●		N	
All PCD Items						Non-ferrous metals (without interruption)					●			
F						Titanium alloys (with interruption)					●		S	
Sharp Edge						Titanium alloys (without interruption)					●			
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page
							IC	S	D1	RE	LE	-		
												KP0001	KP0010	
		VCMT 151505SE	F	VCMT 080202SE	F	1	3/16	3/32	0.091	0.008	0.055	●	E63 F102~F103 F106~F111 F113	
		15151SE		080204SE						0.055	●			
		15152SE		080208SE						1/32	0.055	●		
		VCMT 151502NE	F	VCMT 080201NE	F	1	3/16	3/32	0.091	0.004	0.067	●		
		151505NE		080202NE						0.008	0.067	●		
		15151NE		080204NE						1/64	0.071	●		
		15152NE		080208NE						1/32	0.075	●		
		VCMT 151502	F	VCMT 080201	F	1	3/16	3/32	0.091	0.004	0.079	●		
		151505		080202						0.008	0.079	●		
		15151		080204						1/64	0.083	●		
		15152		080208						1/32	0.087	●		

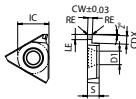
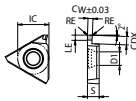
80° Trigon

How to read this page ➡ See page B15

Cutting Edge Preparation					Non-ferrous metals (with interruption)						N			
					Non-ferrous metals (without interruption)						S			
					Titanium alloys (with interruption)									
					Titanium alloys (without interruption)									
Insert		Part Number ANSI	Edge Prep (in)	Part Number ISO	Edge Prep (mm)	No. of Edges	Dimensions (in)					PCD		Applicable Toolholder Page
							IC	S	D1	RE	LE	-	KPD001 KPD010	
 Small Edge	WBMT 12105L-SE	F	WBMT 060102L-SE	F	1	5/32	1/16	0.091	0.008	0.051	●	F38 F116~F118 F120~F121		
	WBMT 151505L-SE	F	WBMT 080202L-SE	F	1	3/16	3/32	0.091	0.008	0.063	●			
 New Value Edge	WBMT 1211L-NE	F	WBMT 060104L-NE	F	1	5/32	1/16	0.091	1/64	0.063	●			
 Small Edge	WBMT 12102L 12105L 1211L	F	WBMT 060101L 060102L 060104L	F	1	5/32	1/16	0.091	0.004 0.008 1/64	0.075 0.075 0.075	● ● ●			
	WBMT 151505L 15151L	F	WBMT 080202L 080204L	F	1	3/16	3/32	0.091	0.008 1/64	0.094 0.091	● ● ●			
 Small Edge	WPMT 21505SE	F	WPMT 110202SE	F	1	1/4	3/32	0.110	0.008	0.083	●	F116~F118		
 New Value Edge	WPMT 21505NE	F	WPMT 110202NE	F	1	1/4	3/32	0.110	0.008	0.106	●			
	WPMT 21505	F	WPMT 110202	F	1	1/4	3/32	0.110	0.008	0.122	●			

GBA

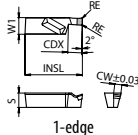
How to read this page ➡ See page B15

Cutting Edge Preparation			Non-ferrous metals (with interruption)														N	
All PCD Items			Non-ferrous metals (without interruption)															
F			Titanium alloys (with interruption)															S
Sharp Edge			Titanium alloys (without interruption)															
Insert		Part Number	Edge Prep	No. of Edges	Dimensions (mm)							Tolerance (mm)		PCD		Applicable Toolholder Page		
					CW		CDX	IC	S	D1	RE	LE	CW min.	CW max.	-			
					in	mm									KPD001		KPD010	
		GBA32R 125-010	F	1	0.049	1.25	2											
		150-010			0.059	1.5	2	9.525	3.18	4.4	0.1	1.7	-0.03	+0.03				
		200-010			0.079	2	2.5											
		GBA43R 125-010	F	1	0.049	1.25	2											
		150-010			0.059	1.5	3.5											
		200-010			0.079	2	3.5	12.7	4.76	5.5	0.1	1.9	-0.03	+0.03				
		250-010			0.098	2.5	4											
		300-010			0.118	3	4											
		GBA43L 125-010			0.049	1.25	2											
		150-010			0.059	1.5	3.5											
		200-010			0.079	2	3.5	12.7	4.76	5.5	0.1	1.9	-0.03	+0.03				
		250-010			0.098	2.5	4											
		300-010			0.118	3	4											

CDX shows available grooving depth.
Right-hand shown

GVF

How to read this page ➡ See page B15

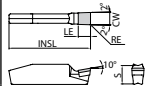
Cutting Edge Preparation			Non-ferrous metals (with interruption)											N		
			Non-ferrous metals (without interruption)													
All PCD Items		F	Sharp Edge		Titanium alloys (with interruption)											S
				Titanium alloys (without interruption)												
Insert		Part Number		Edge Prep	No. of Edges	Dimensions (mm)						Tolerance (mm)		PCD	Applicable Toolholder Page	
						CW		CDX	S	RE	INSL	W1	CW min.	CW max.		-
						in	mm										KPD010
 	GVFR 250-020B		F	1	0.098	2.5	4.8	5	0.2	20	5.8	-0.03	+0.03	●	G137~G142 G145	
	300-020B				0.118	3	4.8							●		
	400-020B				0.157	4	5.3							□		
	GVFL 250-020B		0.098	2.5	4.8	5	0.2	20	5.8	-0.03	+0.03	●				
	300-020B		0.118	3	4.8							●				
	400-020B		0.157	4	5.3							□				
	GVFR 350-040C		F	1	0.138	3.5	6.8	7	0.4	27	7	-0.03	+0.03	□		

CDX shows available grooving depth.
Right-hand shown

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

GDGS

How to read this page ➡ See page B15

Cutting Edge Preparation			Non-ferrous metals (with interruption)										●	N
All PCD Items			Non-ferrous metals (without interruption)										●	
F			Titanium alloys (with interruption)										●	S
Sharp Edge			Titanium alloys (without interruption)										●	
Insert		Part Number	Edge Prep	No. of Edges	Dimensions (mm)						Tolerance (mm)		PCD	Applicable Toolholder Page
					CW		S	RE	INSL	LE	CW min.	CW max.	-	
					in	mm							KPD001	
		GDGS 2020N-020NB	F	1	0.079	2	4.3	0.2	20	2.9	-0.03	+0.03	●	G44~G56
		GDGS 3020N-020NB	F	1	0.118	3	4.3	0.2	20	2.9	-0.03	+0.03	●	
		GDGS 4020N-020NB	F	1	0.157	4	4.3	0.2	20	2.9	-0.03	+0.03	●	
		GDGS 5020N-020NB	F	1	0.197	5	4.3	0.2	20	2.9	-0.03	+0.03	●	G44~G45 G48~G56
		GDGS 6020N-020NB	F	1	0.236	6	4.3	0.2	20	2.9	-0.03	+0.03	●	

C
CBN / PCD
INSERTS

CBN

PCD

POSITIVE

C

D

S

T

V

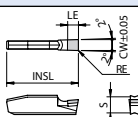
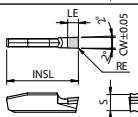
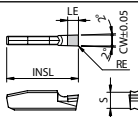
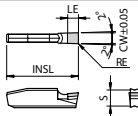
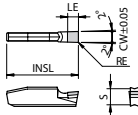
W

SOLID

GROOVING

GMN

How to read this page ➡ See page B15

Cutting Edge Preparation				Non-ferrous metals (with interruption)												N								
All PCD Items				F				Sharp Edge				Non-ferrous metals (without interruption)												
												Titanium alloys (with interruption)												S
												Titanium alloys (without interruption)												
Insert		Part Number		Edge Prep	No. of Edges	Dimensions (mm)						Tolerance (mm)		PCD		Applicable Toolholder Page								
						CW		S	RE	INSL	LE	CW min.	CW max.	-										
														in mm			KPD001 KPD010							
				GMN 2		F	1	0.079	2	4.3	0.2	20	2.9	- 0.05	+ 0.05	△	△	-						
				GMN 3		F	1	0.118	3	4.3	0.2	20	2.9	- 0.05	+ 0.05	△	△							
				GMN 4		F	1	0.157	4	4.3	0.2	20	2.9	- 0.05	+ 0.05	△	△							
				GMN 5		F	1	0.197	5	4.3	0.2	20	2.9	- 0.05	+ 0.05	△	△							
				GMN 6		F	1	0.236	6	4.3	0.2	20	2.9	- 0.05	+ 0.05	△								

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

GMGW

How to read this page ➡ See page B15

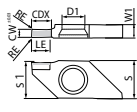
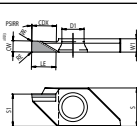
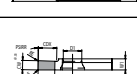
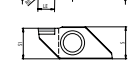
Cutting Edge Preparation			Non-ferrous metals (with interruption)										●	N		
			Non-ferrous metals (without interruption)										●			
			Titanium alloys (with interruption)										●	S		
			Titanium alloys (without interruption)										●			
Insert		Part Number	Edge Prep	No. of Edges	Dimensions (mm)						Tolerance (mm)		PCD	-	Applicable Toolholder Page	
					CW		S	RE	INSL	LE	CW min.	CW max.				KPD001
					in	mm										
	GMGW 6030-30R	F	1	0.236	6	5.5	3	30	4.5	-0.03	+0.03	●	672			
	GMGW 8030-40R	F	1	0.315	8	5.5	4	30	6	-0.03	+0.03	●				
	GMGW 8030-40R-HR	F	1	0.315	8	5.5	4	30	5	-0.03	+0.03	●				

GMGW inserts are exclusively used for KGMW toolholder. They cannot be used for other toolholders because of its different installation angle.

GMGW inserts Edge Preparation : R-honed Cutting Edge.

TKF

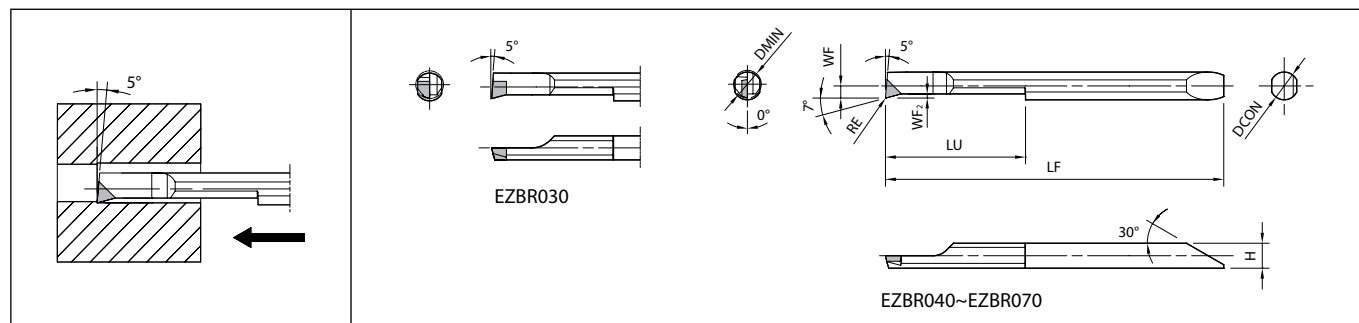
How to read this page ➡ See page B15

Cutting Edge Preparation			Non-ferrous metals (with interruption)															●	N			
			Non-ferrous metals (without interruption)															●				
			Titanium alloys (with interruption)															●				
			Titanium alloys (without interruption)															●				
Insert		Part Number		Edge Prep	No. of Edges	Dimensions (mm)								Angle (°)	Tolerance (mm)				PCD	Applicable Toolholder Page		
						CW		CDX	S	S1	D1	RE	LE		W1	PSIR%	CW min.	CW max.			RE (+/-) min.	RE (+/-) max.
						in	mm															
		TKF12R 200-AGT 250-AGT	F	1	0.079	2	4.8	8.7	8.3	5	0.1	4.2	3	0	-0.03	+0.03	-0.05	0	●	E15 E16		
					0.098	2.5													4.2		●	
		TKF12R 200-AS TKF16R 250-AS	F	1	0.079	2	5	8.7	7.3	5	0.1	5.3	3	0	-0.03	+0.03	-0.05	0	●			
					0.098	2.5													8		9.5	8	5	0.1	6.3	4	0	-0.03	+0.03	-0.05	0	●
		TKF12R 150-NB 200-NB 250-NB	F	1	0.059	1.5	3.5 4 4	8.7	8.3	5	0.1	2 3 3	3	0	-0.03	+0.03	-0.05	0	●			
					0.079	2													●			
					0.098	2.5													3		●	

Right-hand shown

EZB-NB (Boring)

How to read this page ➡ See page B15



Right-hand shown

Dimensions

Cutting Edge Preparation					Non-ferrous metals (with interruption)								●	N			
					Non-ferrous metals (without interruption)								●				
					All PCD Items	F	Sharp Edge	Titanium alloys (with interruption)								●	S
								Titanium alloys (without interruption)								●	
Part Number		No. of Edges	Dimensions (mm)								Tolerance (mm)		PCD	Applicable Sleeve ➡ F41 F43 F45			
			DMIN	DCON	H	LF	LU	WF	WF ₂	RE	RE min.	RE max.	KPD001				
EZBR	040040-003NB	1	4	4	3.6	48.8	20	1.75	0.5	0.035	-0.015	+0.015	●	EZH040...			
EZBR	050050-003NB	1	5	5	4.6	58.1	25	2.25	0.5	0.035	-0.015	+0.015	●	EZH050...			
EZBR	060060-003NB	1	6	6	5.6	66.1	30	2.75	0.5	0.035	-0.015	+0.015	●	EZH060...			
EZBR	070070-003NB	1	7	7	6.6	74.1	35	3.25	0.5	0.035	-0.015	+0.015	●	EZH070...			

C
CBN / PCD
INSERTS

CBN

PCD

POSITIVE

C

D

S

T

V

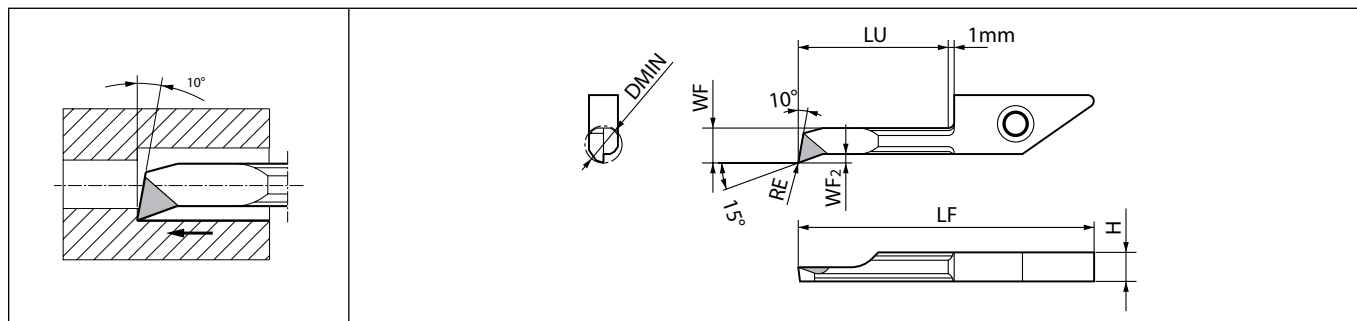
W

SOLID

GROOVING

VNB-NB (Boring)

How to read this page ➔ See page B15

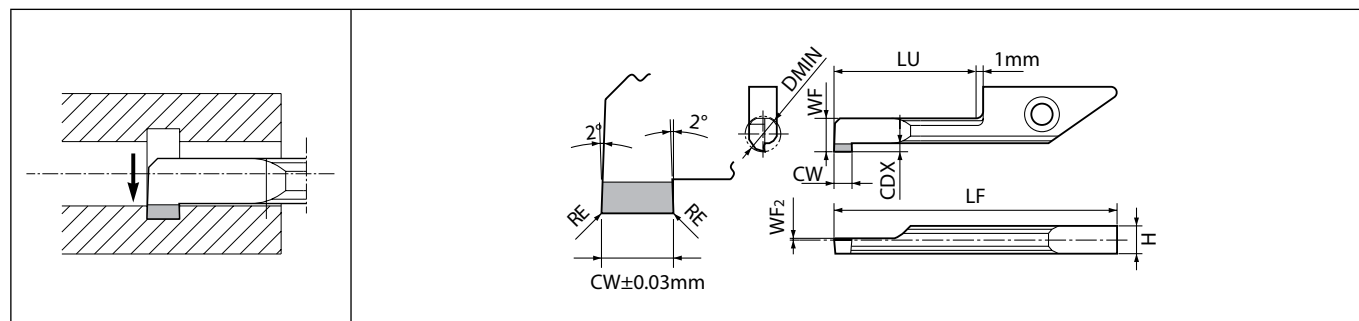


Right-hand shown

Dimensions

Cutting Edge Preparation				Non-ferrous metals (with interruption)					●	N				
				Non-ferrous metals (without interruption)							●			
				All PCD Items	F	Sharp Edge	Titanium alloys (with interruption)					●	S	
							Titanium alloys (without interruption)							●
Part Number		No. of Edges	Dimensions (mm)							PCD	Applicable Toolholder Page			
			DMIN	H	LF	LU	WF	WF ₂	RE	●				
												KPD001		
VNBR 0411-02NB		1	4	3.66	30.8	11	3.5	0.5	0.2	●	F50~F53			
VNBR 0420-02NB					39.8	20				●				
VNBR 0511-02NB		1	5	3.9	30.8	11	4.5	0.7	0.2	●				
VNBR 0520-02NB					39.8	20				●				
VNBR 0620-02NB		1	6	3.9	39.8	20	5.3	1	0.2	●				
VNBR 0630-02NB					49.8	30				●				
VNBR 0720-02NB		1	7	3.9	39.8	20	6.2	1	0.2	●				
VNBR 0730-02NB					49.8	30				●				

VNG (Internal grooving)

How to read this page [See page B15](#)

Right-hand shown

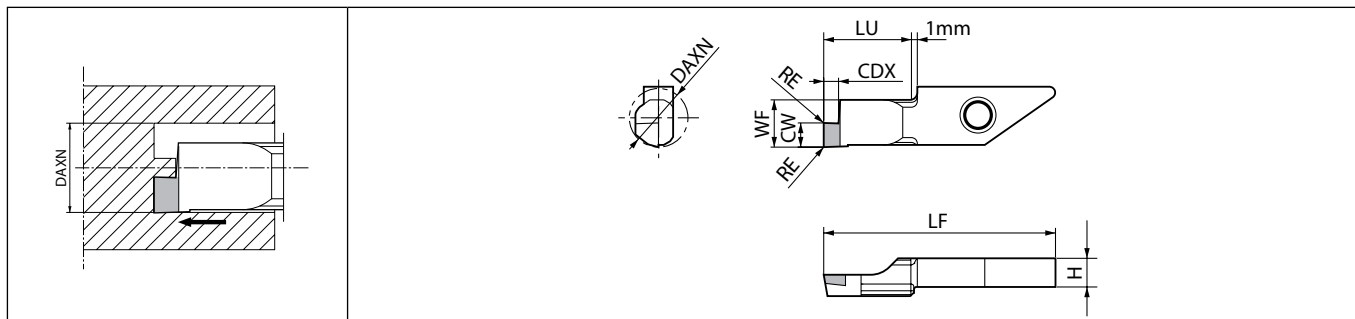
Dimensions

Cutting Edge Preparation				Non-ferrous metals (with interruption)										●	N						
				Non-ferrous metals (without interruption)												●					
All PCD Items	F	Sharp Edge		Titanium alloys (with interruption)										●	S						
										Titanium alloys (without interruption)										●	
Part Number		No. of Edges	Dimensions (in)									Tolerance (mm)		PCD	Applicable Toolholder Page						
			DMIN	CW	CDX	H	LF	LU	WF	WF ₂	RE	CW min.	CW max.	-							
																KPD001					
VNGR 0410-11NB		1	4	1	0.8	3.9	30.8	11	3.5	0.1	0.05	- 0.03	+ 0.03	☐	F50~F53						
VNGR 0420-11NB				2										☐							
VNGR 0510-11NB		1	5	1	1	3.9	30.8	11	4.4	0.1	0.05	- 0.03	+ 0.03	☐							
VNGR 0520-11NB				2										☐							
VNGR 0610-20NB		1	6	1	1.8	3.9	39.8	20	5.2	0.3	0.05	- 0.03	+ 0.03	☐							
VNGR 0620-20NB				2										☐							
VNGR 0710-20NB		1	7	1	2	3.9	39.8	20	6.2	0.3	0.05	- 0.03	+ 0.03	☐							
VNGR 0720-20NB				2										☐							

CDX shows available grooving depth.

VNFG (Face grooving)

How to read this page ➔ See page B15



Right-hand shown

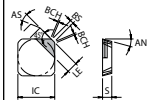
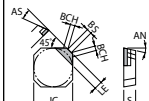
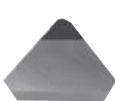
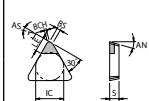
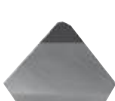
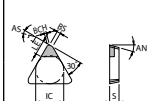
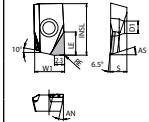
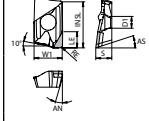
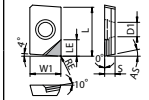
Dimensions

Cutting Edge Preparation				Non-ferrous metals (with interruption)							●		N	
				Non-ferrous metals (without interruption)							●			
All PCD Items		F	Sharp Edge		Titanium alloys (with interruption)							●		S
Titanium alloys (without interruption)							●							
Part Number	No. of Edges	External dia. of the groove (mm)		Dimensions (in)							PCD	Applicable Toolholder Page		
		DAXN (min.)	DAXX (max.)	CW	CDX	H	LF	LU	WF	RE	-			
											KPD001			
VNFGR 0820-10NB	1	8 (0)	∞ (∞)	2	2	3.9	29.6	10	7.3	0.05	☐	F50 F52 F53		
VNFGR 0830-10NB	1			3	3	3.9	29.6	10	7.3	0.05	☐			

CDX shows available grooving depth.

External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.

Milling Inserts

Cutting Edge Preparation				Non-ferrous metals (with interruption)																N			
				Non-ferrous metals (without interruption)																			
All PCD Items				F		Sharp Edge																S	
Part Number		Part Number ANSI	Part Number ISO	No. of Edges	Dimensions (in)										Angle (°)		PCD		Applicable Toolholder Page				
					IC	S	D1	RE	INSL	LE	BCH	BS	W1	AN	AS								
																KPD001	KPD010	KPD230					
		SDKN 42AUFN	SDKN 1203AUFN	1	1/2	1/8	-	-	-	0.142	0.020	0.047	-	15	23	●			-				
		SEEN 42AFFN	SEEN 1203AFFN	1	1/2	1/8	-	-	-	0.138	0.020	0.055	-	20	25	●	●		-				
		TEEN 32PTFR-NE 32PTFR	TEEN 1603PTFR-NE 1603PTFR	1	3/8	1/8	-	-	-	0.161 0.185	0.024	0.055	-	20	22	●	●	●	-				
		TEKN 43PTFR-NE 43PTFR	TEKN 2204PTFR-NE 2204PTFR	1	1/2	3/16	-	-	-	0.165 0.189	0.028	0.071	-	20	22	●	●	●	-				
		Use ISO Part Number	BDGT 11T302FR	1	-	0.150	0.110	1/64	0.453	0.150	-	-	0.264	13	18	●	●	●	M98~M101 M103~M105				
			11T304FR													●	●	●					
			11T308FR														●	●		●			
		Use ISO Part Number	BDMT 11T302FR	1	-	0.150	0.110	1/64	0.433	0.142	-	-	0.264	13	18	●	●	●	M98~M99 M102~M105				
			11T304FR															●		●	●		
			BDMT 170402FR	1	-	0.193	0.173	1/64	0.669	0.173	-	-	0.378	13	18	●	●	●					
		NDCW 3205FRX-NE	NDCW 150302FRX-NE	1	-	1/8	0.173	0.008	0.591	0.201	-	-	3/8	-	15			●	M171				
		NDCW 3205FRX	NDCW 150302FRX	1	-	1/8	0.173	0.008	0.591	0.224	-	-	3/8	-	15	●	●						

Handed insert shows Right-hand

External Turning Toolholders

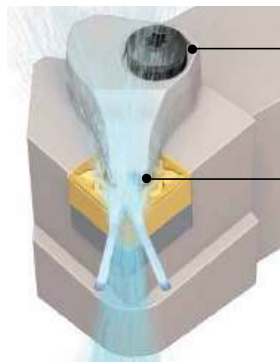
D

Overview		D2~D7
Toolholders for General Purpose		D8~D52
CN Insert	DCLN / DCLN-JCT / MCLN / PCLN	D8
DN Insert	DDJN / DDJN-JCT / DDHN / MDJN	D14
	PDJN / PDHN	D18
SN Insert	DSBN / PSBN	D21
	MSSN / PSDN / PSKN / PSSN	D22
TN Insert	DTGN / DTGN-JCT / MTGN / PTGN / PTFN	D25
	WTJN / WTKN / WTEN	D31
VN Insert	DVJN / DVLN / DVLN-JCT / DVPN / DVPN-JCT	D34
	DVVN / DVVN-JCT	D38
	MVJN / MVLN / MVVN	D40
	PVLN / PVPN / PVVN	D43
RC Insert	PRGC / PRXC	D45
RN Insert	PRGN	D47
WN Insert	DWLN / DWLN-JCT / MWLN / PWLN / WWLN	D48
Toolholders for Ceramic Inserts		D53~D65
CN Insert	CCLN	D53
DN Insert	CDJN	D54
EN Insert	CELN	D55
SN Insert	CSRN / HSRN / CS-N / CSKN / CSYN / CSSN / CSDN / HSDN	D56
TN Insert	CTJN / CTUN	D62
RN Insert	CRSN / HRSN / CRDN / CRDC	D63
Toolholders for Solid CBN Inserts		D66~D72
CNM Insert	CCRN-A / CCLN-A	D66
RNM Insert	CRSN-A / CRDN-A	D67
SNM Insert	CSRN-A / CSKN-A / CSSN-A / CSDN-A	D69
TNM Insert	CTJN-A	D72
Toolholders for Bearing Machining		D73~D74
RCMT Insert	PRGC-BE	D73
SNMF Insert	CBSN	D74
Recommended Cutting Conditions		D75~D76

Jet Coolant-Through Holders for Turning

Double-Clamp-JCT

1 Superior Chip Control Performance



Double-Clamp

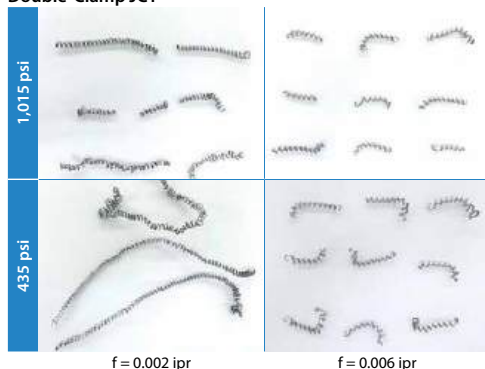
Firm insert clamp and easy to use in single operations
High-density coolant supply close to the cutting edge

Unique Nozzle Shape

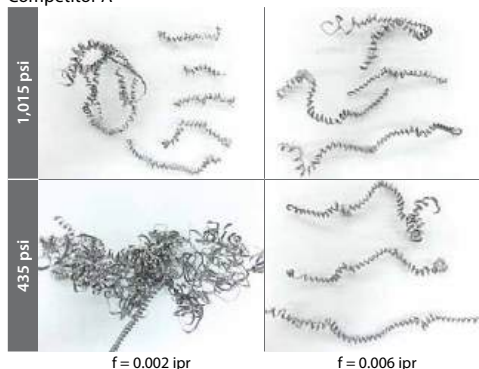
Provides coolant to a wide area of the insert surface

Chip Control Comparison (Internal Evaluation)

Double-Clamp JCT



Competitor A



Cutting Conditions: $V_c = 490$ sfm, D.O.C. = 0.020", Wet, CNMG432 Insert Workpiece: 4131 External Turning

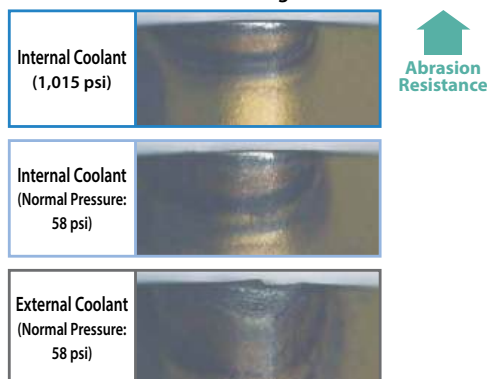
2 Longer Tool Life and High-Speed Machining

Coolant is also directed from two directions towards the flank face of the insert to ensure even cooling action

Longer tool life and high-speed machining with improved wear resistance

Alloy Steel (4137)

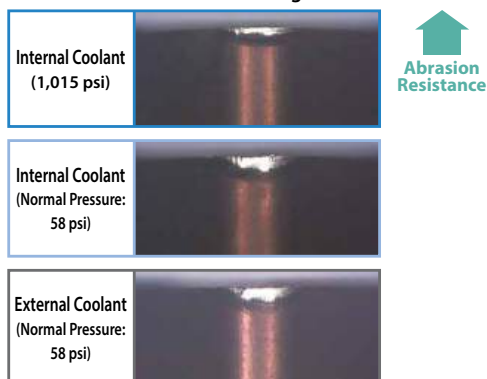
After Machining 42.2 min



Abrasion
Resistance

Heat-resistant Alloys (Inconel®718)

After Machining 3 min



Abrasion
Resistance

Using internal coolant
improves wear resistance
in alloy steel and heat-
resistant alloys

High-pressure coolant is
more effective

Cutting Conditions: $V_c = 820$ sfm, $f = 0.012$ ipr, D.O.C. = 0.079", Wet
CNMG432 Insert External Turning

Cutting Conditions: $V_c = 260$ sfm, $f = 0.006$ ipr, D.O.C. = 0.020", Wet
CNMG432 Insert External Turning

External Turning Toolholder Identification System

① Clamping System	
A	Anchor Pin Style
C	Clamp Only
D	Double Clamp
M	Clamp and Lock Pin
P	Lock Pin Only (or Lever Lock)
S	Screw Only
W	Wedge Only

② Insert Shape	
R	Round
S	Square
T	Triangle
C	80° Diamond
D	55° Diamond
V	35° Diamond
W	80° Trigon
R	Round

⑥ Toolholder Shank Size

This position shall be a significant number which indicates the holder cross section.

For square shanks this number will represent the number of sixteenths of width and height.

For rectangular holders the first digit represents the number of eighths of width and the second digit the number of quarters of height, except the following toolholder: 1-1/4 x 1-1/2 which is given the number 91.

⑧ Qualified Control			
Length and Width		Length and Side	
A	4.000 Back and End	M	4.000 Front and End
B	4.500 Back and End	N	4.500 Front and End
C	5.000 Back and End	P	5.000 Front and End
D	6.000 Back and End	R	6.000 Front and End
E	7.000 Back and End	S	7.000 Front and End
F	8.000 Back and End	T	8.000 Front and End
G	5.500 Back and End	U	5.500 Front and End
* NOTE: All the qualified dimensions are given to a tolerance of 0.003" over a master gauge insert radius based on the standard shown.			
Insert IC		Radius	
1/4" - 5/16"		0.015"	
3/8" - 1/2"		0.031"	
5/8" - 3/4"		0.047"	
1"		0.062"	

⑦ Insert Size IC
Number of 1/8ths on 1/4" IC and over.

ANSI
Inch

D	C	L	N	R	16	-	4	D
①	②	③	④	⑤	⑥		⑦	⑧

ISO
Metric

D	C	L	N	R	20	20	K	-	12	
①	②	③	④	⑤	⑥	⑦	⑧		⑨	⑩

③ Cutting Edge Angle

A	B	C	D
			

E	F	G	H
			

J	K	L	N
			

P	R	S	T
			

U	V	W	Y
			

④ **Insert Relief Angle**



The diagram shows a side view of a cutting tool. A horizontal line represents the top surface of the workpiece. A vertical line represents the cutting edge. A line representing the flank face of the tool is drawn at an angle to the vertical. This angle is labeled 'AN' with a curved arrow indicating the measurement from the vertical to the flank face.

B	5° Positive
C	7° Positive
D	15° Positive
E	20° Positive
N	0° Negative
P	11° Positive

⑤ Hand of Tool	
R	Right-hand
L	Left-hand
N	Neutral

⑥ Shank Height

Shank Height
(mm)

⑦ Shank Width	
Shank Width (mm)	

⑩ Others
Optional Code
Optional Mark or Number

⑧ Toolholder Length (mm)					
					
A	32	J	110	R	200
B	40	JX	120	S	250
C	50	K	125	T	300
D	60	L	140	U	350
E	70	M	150	V	400
F	80	N	160	W	450
G	90	P	170	Y	500
H	100	Q	180	X	Special

- Specifications may change without prior notice.
- Due to the installation size constraints on the machine, the toolholder length of some products may not match with the symbol.

External Turning Toolholders

Applicable Insert Shape	CN..	WN..	TN..	DN..	RC..		RN..	VN..	
Application	External / Facing			External / Facing / Copying				External / Facing / Copying / Undercutting	
Cutting Edge Angle	95°			105°	107.5°	Special			117.5°
Lever Lock	 PCLN	 PWLN		 PDHN	 PRGC	 PRXC	 PRGN	 PVPN (Pin Lock)	
Ref. Page	D11	D50		D19	D45	D46	D47	D43	
Wedge Lock		 WWLN	 WTKN						
Ref. Page		D51	D31						
Double Clamp	 DCLN (-JCT)	 DWLN (-JCT)		 DDHN				 DVPN (-JCT)	
Ref. Page	D8/D9	D48/D49		D16				D36/D37	
Multi-Lock	 MCLN	 MWLN							
Ref. Page	D10	D50							

Applicable Insert Shape	VN..	DN..	SN..	TN..	SN..	SN..	TN..	SN..	TN..	
		 TN.. 								
Application	External / Copying			External / Chamfering		External / Facing / Chamfering	External		Facing	
Cutting Edge Angle	72.5°	95°	93°	45°	60°	45°	75°	91°	15°	-1°
Lever Lock (Pin Lock)	 PVVN (Pin Lock)	 PVLN (Pin Lock)	 PDJN	 PSDN		 PSSN	 PSBN	 PTGN	 PSKN	 PTFN
Ref. Page	D44	D43	D18	D22		D23	D21	D28	D23	D29
Wedge Lock			 WTJN		 WTEN					
Ref. Page			D31		D32					
Double Clamp	 DVVN (-JCT)	 DVJN (-JCT) DVLN (-JCT)	 DDJN (-JCT)				 DSBN	 DTGN (-JCT)		
Ref. Page	D38/D39	D34/D35	D14/D15				D21	D25/D26		
Multi-Lock	 MVVN	 MVJN / MVLN	 MDJN			 MSSN		 MTGN		
Ref. Page	D42	D40/D41	D17			D22		D27		

Toolholders for Ceramic Inserts

Application	External / Facing			External / Copying		External / Chamfering	External / Facing / Chamfering
Cutting Edge Angle	95°	97.5°	Special	93°	Special	45°	45°
Top Clamp							
	CCLN / HCLN	CELN	CRSN / HRSN	CDJN	CRDN / CRDC	CSDN / HSDN	CSSN
Ref. Page	D53	D55	D63	D54	D64	D60	D59

Application	External			Facing		
Cutting Edge Angle	75°	85°	93°	5°	15°	-3°
Top Clamp						
	CSRN / HSRN	CS-N	CTJN	CSYN	CSKN	CTUN
Ref. Page	D56/D57	D58	D61	D59	D58	D62

Toolholders for Solid CBN Inserts

Application	External / Facing	External / Copying	External / Chamfering	External / Facing / Chamfering	External		
Cutting Edge Angle	95°	Special	Special	45°	45°	75°	93°
Top Clamp							
	CCLN-A	CRSN-A	CRDN-A	CSDN-A	CSSN-A	CCRN-A	CTJN-A
Ref. Page	D66	D67	D67	D70	D70	D66	D69

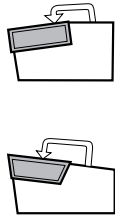
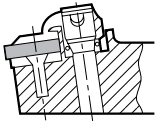
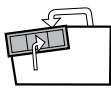
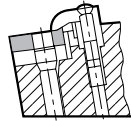
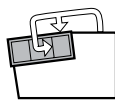
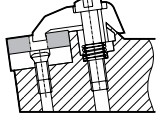
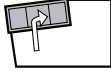
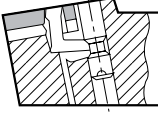
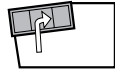
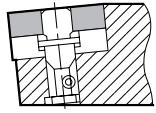
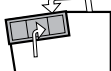
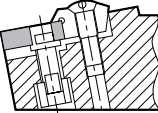
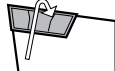
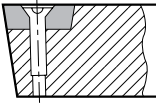
Application	Facing
Cutting Edge Angle	15°
Top Clamp	
	CSKN-A
Ref. Page	D69

Toolholder for Bearing Machining

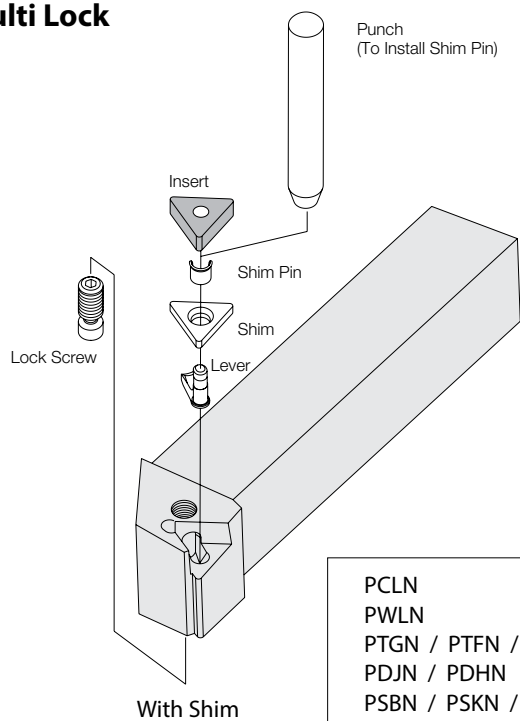
Application	External
Cutting Edge Angle	Special
Lever Lock	
	PRGC-BE
Ref. Page	D73

Application	Round Chamfering
Cutting Edge Angle	Special
Top Clamp	
	CBSN
Ref. Page	D74

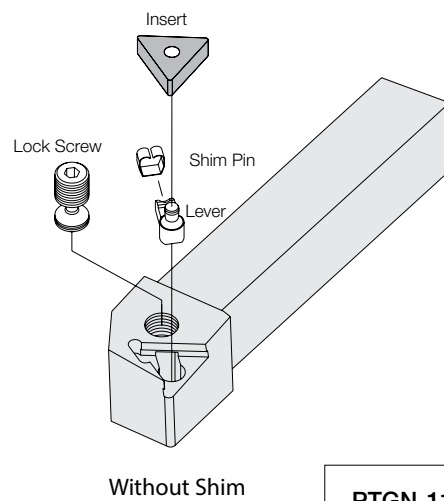
Clamping Systems

Series	Design		Features	Series	Design		Features
Top Clamp (C)			• Rigid Clamping • Negative Insert : Medium to Heavy Machining (Mainly for Ceramic Insert) • Positive Insert : Low Cutting Force	Multi-Lock (M)			• Combination of Top Clamp and Pin Lock • Rigid Clamping • Heavy Machining
Double Clamp (D)			• Firmly clamp the insert in two directions with one action.	Lever Lock (P)			• Easy Insert Replacement • General Use
Pin Lock (P)			• Easy Insert Replacement	Wedge Lock (W)			• Rigid Clamping • Heavy Machining
Screw Clamp (S)			• Simple Mechanism • Fewer Parts • Finishing to Medium Machining				

Multi Lock

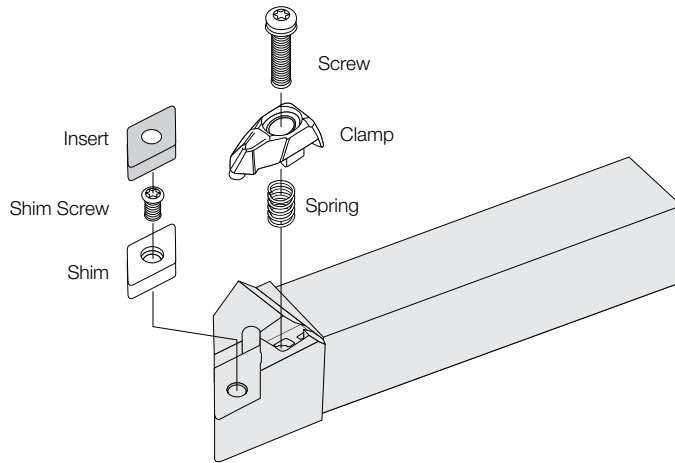


PCLN
PWLN
PTGN / PTFN / PTLN
PDJN / PDHN
PSBN / PSKN / PSSN / PSDN
PRGN
PRGC / PRXC



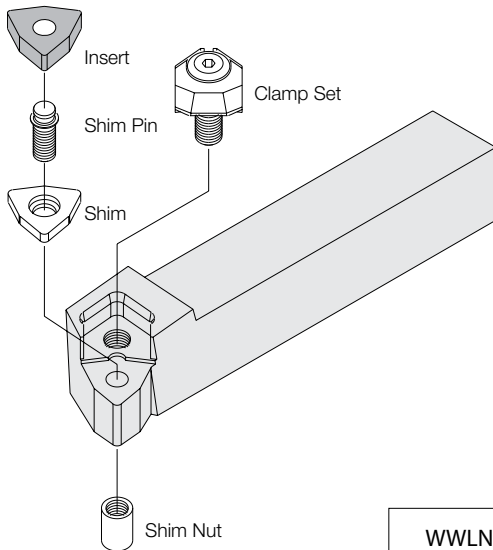
PTGN-11
PTFN-11

Double Clamp

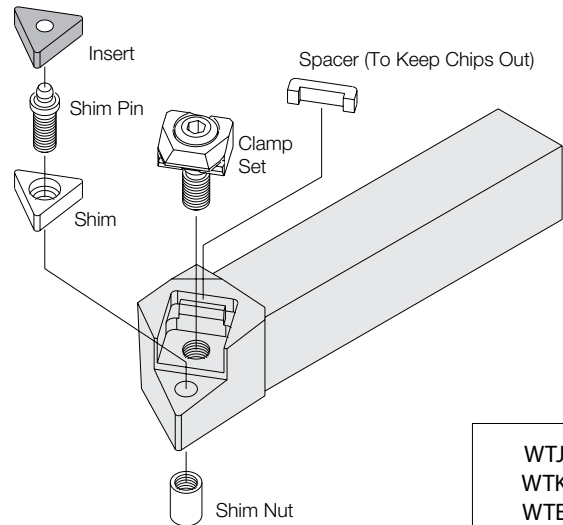


DCLN
DDJN / DDHN
DSBN
DTGN
DVLN / DVJN / DVPN / DVVN
DWLN

Wedge Lock

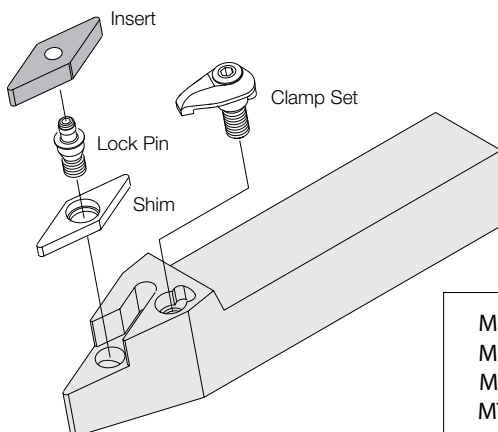


WWLN



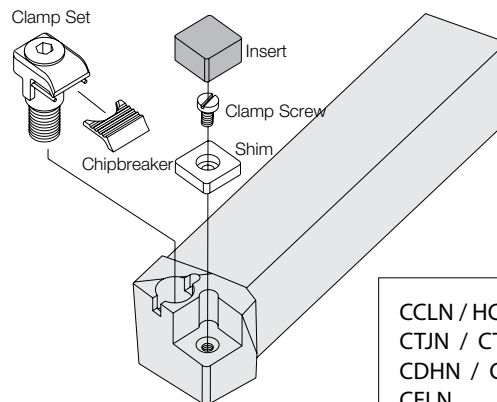
WTJN
WTKN
WTEN

Multi Lock



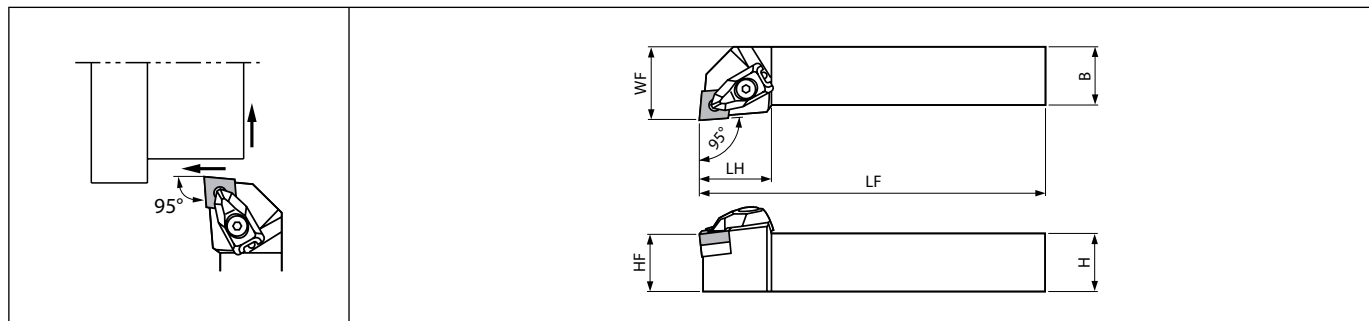
MCLN
MDJN
MSSN
MTGN
MVJN
MVVN
MWLN

Top Clamp



CCLN / HCLN
CTJN / CTUN
CDHN / CDJN
CELN
CSRN / HSRN / CS-N / CSKN
CSYN / CSSN / CSDN / HSDN
*CRSN / HRSN / *CRDN / CRDC

* Chipbreaker is not included with CRSN / CRDN.

DCLN (External Turning / External Facing)

Right-hand shown

Toolholder Dimensions

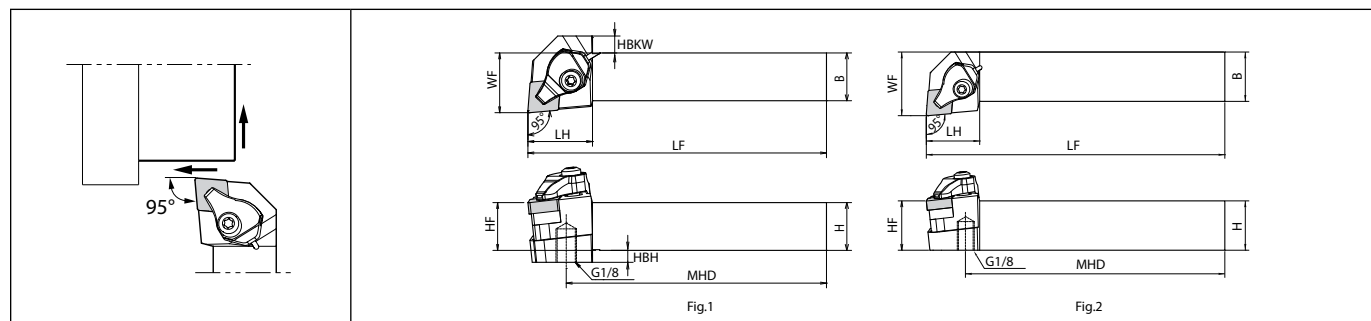
Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Incination Angle (°)	Spare Parts							Applicable Inserts
		R	L	H	B	LH	HF	LF	WF											
Inch	DCLN% 12-4B 16-4D	●	●	0.75	0.75	1.30	0.75	4.50	1.00	1/32	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DC-44 (DC-44-C*)	SB-4085TR	FT-15	CN□A43... CN□G43... CN□M43...
		●	●	1.00	1.00	1.26	1.00	6.00	1.25											
mm	DCLN% 2020K-12 2525M-12	●	●	20	20	33	20	125	25	0.8	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DC-44 (DC-44-C*)	SB-4085TR	FT-15	
		●	●	25	25	32	25	150	32											

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

When using inserts with SX chipbreaker, use shim (-C type) sold separately.

Wrench (FT-15) is sold separately.

Recommended tightening torque : 3.9N·m

DCLN-JCT (External Turning / External Facing, Coolant-Through Holders)

Right-hand shown | Coolant-Through | Applicable Pressure : ~4,350 psi

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions										Standard Corner-R (RE)	Fig.	Coolant Hole	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts	
			R	L	H	B	LH	HBH	HBKW	MHD	HF	LF						WF	Clamp	Pipe Connection (* with O-Ring)	Screw (for clamp)	Spring	Shim	Screw (for shim)		Wrench
Inch	DCLN ¾ 12-4BJCT 16-4DJCT	● ●	● ●	0.75 1.00	0.75 1.00	1.06 1.06	0.23 -	0.26 -	3.87 5.37	0.75 1.00	4.50 6.00	1.00 1.25	1/32	1 2	Yes	-6	-6	CP-3D-¾-L-JCT	FP-12	CS-3D-TR	SP-3D	DC-44 (DC-44-C*)	SB-4085TR	FT-15	CN□A43... CN□G43... CN□M43...	
mm	DCLN ¾ 2020K-12JCT 2525M-12JCT	● ●	● ●	25 25	20 25	27 27	5 -	7 -	109 134	25 25	125 150	25 32	0.8	1 2	Yes	-6	-6	CP-3D-¾-L-JCT	FP-12	CS-3D-TR	SP-3D	DC-44 (DC-44-C*)	SB-4085TR	FT-15		

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

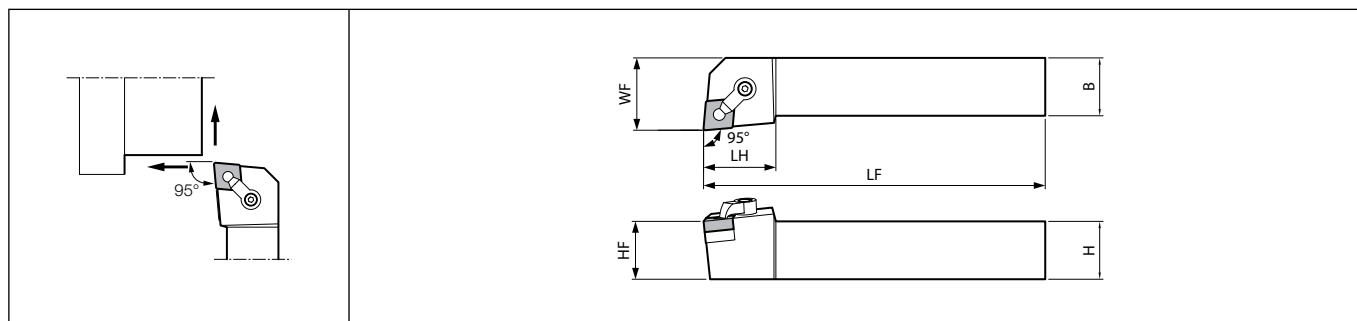
When using inserts with SX chipbreaker, use shim (-C type) sold separately.

Clamp : CP-3D-R-JCT for Right-hand Toolholder, CP-3D-L-JCT for Left-hand Toolholder.

See page **D13** for piping parts of coolant-through holders.

O-ring (SS-035) is available to order separately.

Recommended tightening torque : 3.9N·m

MCLN (External Turning / External Facing)

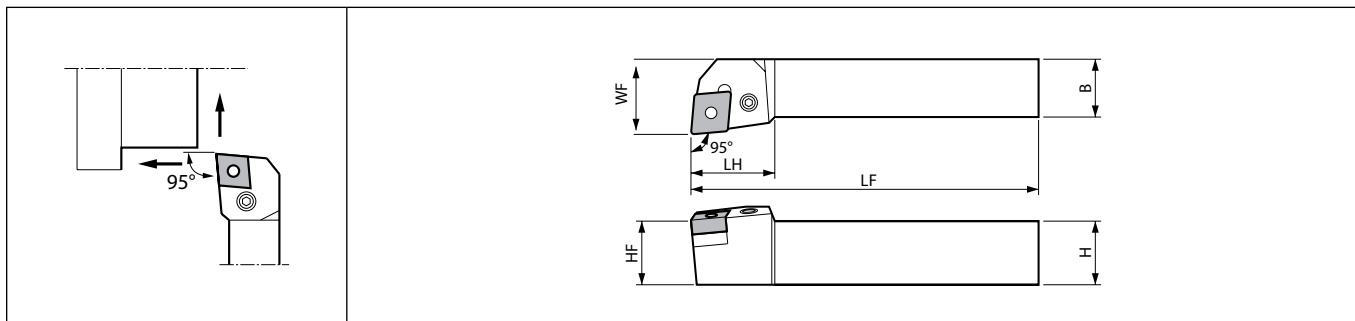
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts	
													Clamp	Screw (for clamp)	Wrench	Shim	Screw (for shim)	Lock Pin		Wrench
		R	L	H	B	LH	HF	LF	WF											
Inch	MCLN% 12-4B	●	●	0.75	0.75	1.190	0.75	4.00	1.00	1/32	-6	-6								CN□A43... CN□G43... CN□M43...
	16-4D	●	●	1.00	1.00	1.260	1.00	6.00	1.25											CN□A54... CN□G54... CN□M54...
	16-5D	●	●	1.00	1.00	1.375	1.00	6.00	1.25	1/32										CN□A64... CN□G64... CN□M64...
	20-5D	●	●	1.25	1.25	1.375	1.25	6.00	1.50											
	20-6D	●	●	1.25	1.25	1.500	1.25	6.00	1.50	1/32										

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

When using inserts with SX chipbreaker, use shim (-C type) sold separately.

PCLN (External Turning / External Facing)

Right-hand shown

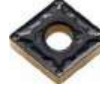
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts		
		R	L	H	B	LH	HF	LF	WF				Lever	Lock screw	Punch	Shim pin	Shim	Wrench		Wrench	
																					
Inch	PCLNR 12-4B 16-4D	● ●		0.75 1.00	0.75 1.00	1.06 1.06	0.75 1.00	4.50 6.00	1.00 1.25	1/32	-6	-6	LL-2N	LS-2N	PC-2	LSP-2	LC-42N (LC-42N-C*) (LC-42N-20*)	LW-3	-	CN□A43... CN□G43... CN□M43...	
mm	PCLN% 1616H-09 2020K-09 2525M-09	●	●	16	16	22		16	100	20	0.8	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	LC-32N	-	FH-2.5	CN□G33...
		●	●	20	20			20	125	25											
		●	●	25	25			25	150	32											
	PCLN% 2020H-12 2020K-12 2525M-12 3225P-12	●		20	20	27		20	100	25	0.8	-6	-6	LL-2N	LS-2N	PC-2	LSP-2	LC-42N (LC-42N-C*) (LC-42N-20*)	LW-3	-	CN□A43... CN□G43... CN□M43...
		●	●						125												
		●	●	25	25			25	150	32											
		●	●	32				32	170												
	PCLN% 2525M-16 3232P-16	●	●	25	25	32		25	150	32	0.8	-6	-6	LL-5N	LS-4N	-	LSP-3	LC-53N (LC-53N-C*)	LW-3	-	CN□A54... CN□G54... CN□M54...
●		●	32	32			32	170	40												

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.

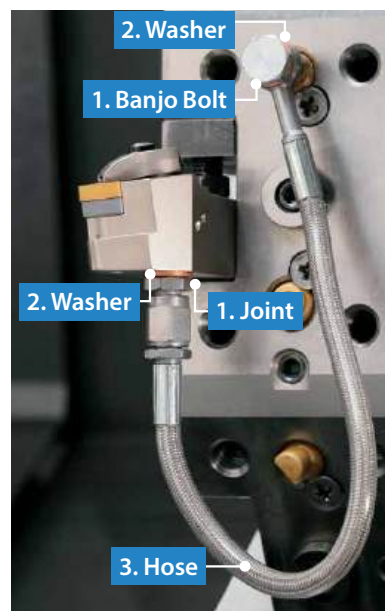
When using inserts with SX chipbreaker, use shim (-C type) sold separately.

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B16	B16	B16	B16	B16	B16	B16	B17
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	CQ	CJ	TN-V	PMG	GS	PG	PS	PT
Page	B17	B17	B17	B17	B17	B17	B18	B18
Applications	Medium - Roughing	Roughing	Roughing	Roughing	Finishing	Medium	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	GT	Standard	PH	PX	R/L-S	R/L	R/L-25R	Z
Page	B18	B18	B18	B19	B23	B23	B23	B23
Applications	Low carbon steel	Low carbon steel	Low carbon steel	Low carbon steel	Finishing - Medium	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker	XF	XP	XQ	XS	SK	FP-TK	TK	MQ
Page	B19	B19	B19	B19	B19	B19	B20	B20
Applications	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	MS	MU	KQ	KG	KH	C	ZS	GC
Page	B20	B20	B21	B21	B21	B22	B22	B22
Applications	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Heat-Resistant Alloys
Insert								
Chipbreaker	No Chipbreaker	Ceramic	R/L-A3	AH	PCD	SQ	SG	R/L-SX
Page	B22	B113	B23	B23	C34	B20	B21	B21
Applications	Hard Materials / Cast Iron	Hard Materials	Hard Materials	Hard Materials				
Insert								
Chipbreaker	CBN	HH	HL	HD				
Page	C8	C9	C9	C9				

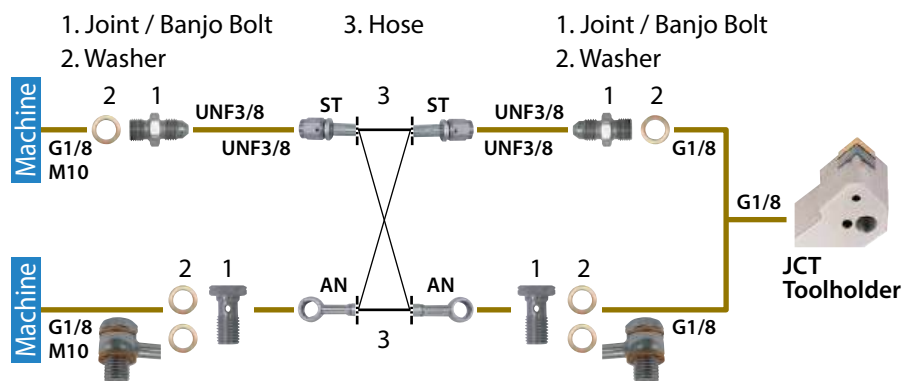
Recommended Cutting Conditions ➡ D75~D76

Easy Connection with High Pressure Hose and Joint



- Even without a high pressure pump, internal coolant can be used at a normal pressure
- Banjo bolt available for angled hose connection and can be used in a variety of machines

Piping Installation Guide



Piping Parts

Optional Piping Parts Available

Choose from parts below to match your machine specifications

1. Joint / Banjo Bolt

Pressure Resistance: up to 4,350 psi

Shape	Part Number	Std. Item	Thread Standard
	J-G1/8-UNF3/8	●	G1/8
	J-M10X1.5-UNF3/8	●	M10X1.5
Banjo Bolt (for Angle Hose)	BB-G1/8	●	G1/8
	BB-M10X1.5	●	M10X1.5

1. Joint / Banjo bolt × 2

2. Washer × 2-4

3. Hose × 1

2. Washer

Pressure Resistance: up to 4,350 psi

Shape	Part Number	Std. Item
	WS-10	●

* Use 2 washers for a banjo bolt

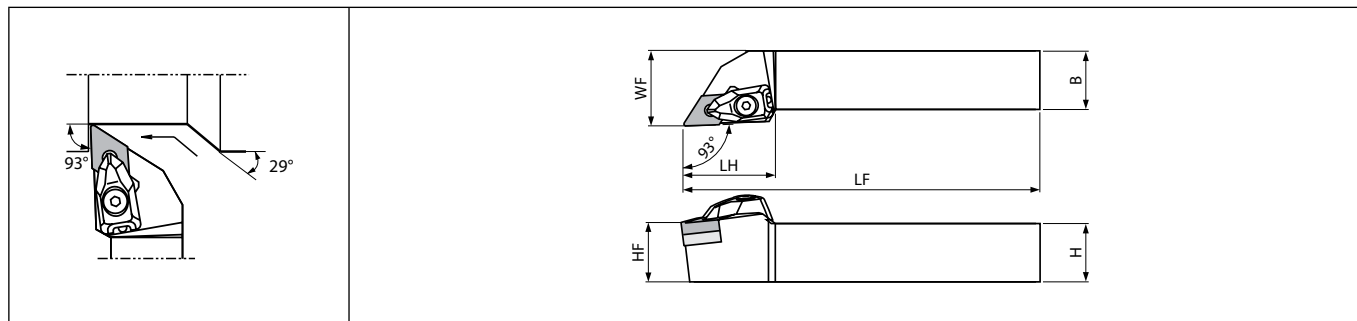
3. Hose

Pressure Resistance: up to 4,350 psi

Shape	Part Number	Std. Item	Thread Standard	Dimensions (mm)
	HS-ST-ST-200	●	UNF3/8	200
	HS-ST-ST-250	●	UNF3/8	250
	HS-ST-AN-200	●	UNF3/8	200
	HS-ST-AN-250	●	(Banjo Bolt)	250
	HS-AN-AN-200	●	-	200
	HS-AN-AN-250	●	(Banjo Bolt)	250

Precautions

1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure. Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are the same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.

DDJN (External Turning / External Copying)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts	
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)		Wrench* (for shim)
		R	L	H	B	LH	HF	LF	WF											
Inch	DDJN% 12-4B	●	●	0.75	0.75	1.54	0.75	4.50	1.00	1/32	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DD-44 (DD-43*)	SB-4085TR	FT-15	DN□A43... DN□G43... DN□M43... DN□X43...
	16-4D	●	●	1.00	1.00	1.54	1.00	6.00	1.25											
mm	DDJN% 2020K-1504	●	●	20	20	39	20	125	25	0.8	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DD-44 (DD-43*)	SB-4085TR	FT-15	DN□A43... DN□G43... DN□M43... DN□X43...
	2525M-1504	●	●	25	25		25	150	32											
	2020K-1506	●	●	20	20	39	20	125	25	0.8	-6	-6					DD-43 (DD-44*)			
	2525M-1506	●	●	25	25		25	150	32											

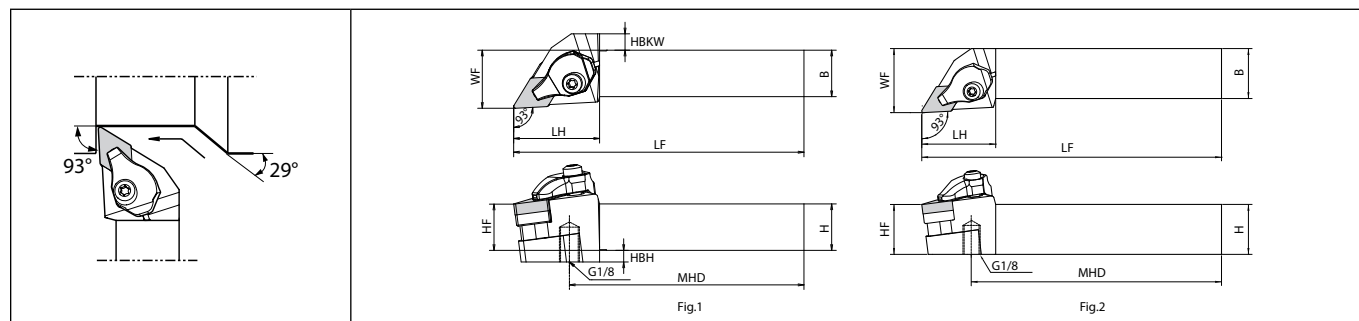
Shims indicated * are not included with the toolholder. To change insert thickness, please purchase it separately.

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.

Wrench (FT-15) is sold separately.

Recommended tightening torque : 3.9N·m

DDJN-JCT (External Turning / External Copying, Coolant-Through Holders)

Right-hand shown | Coolant-Through | Applicable Pressure : ~4,350 psi

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions									Standard Corner-R (RE)	Fig.	Coolant Hole	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
		R	L	H	B	LH	HBH	HBKW	MHD	HF	LF	WF													
Inch	DDJN $\frac{1}{2}$ 12-4BJCT 16-4DJCT	● ●	● ●	0.75 1.00	0.75 1.00	1.46 1.46	0.23 -	0.26 -	3.56 5.06	0.75 1.00	4.50 6.00	1.00 1.25	1/32 2	1 2	Yes	-6	-7	CP-4D- $\frac{1}{2}$ - JCT	FP-12	CS-3D-TR	SP-3D	DD-44 (DD-43*)	SB-4085TR	FT-15	DN□A43... DN□G43... DN□M43... DN□X43...
mm	DDJN $\frac{1}{2}$ 2020K-15JCT 2525M-15JCT	● ●	● ●	20 25	20 25	37	5 -	7 -	101 126	20 25	125 150	25 32	0.8 2	1 2	Yes	-6	-7	CP-4D- $\frac{1}{2}$ - JCT	FP-12	CS-3D-TR	SP-3D	DD-44 (DD-43*)	SB-4085TR	FT-15	

Shims indicated * are not included with the toolholder. To change insert thickness, please purchase it separately.

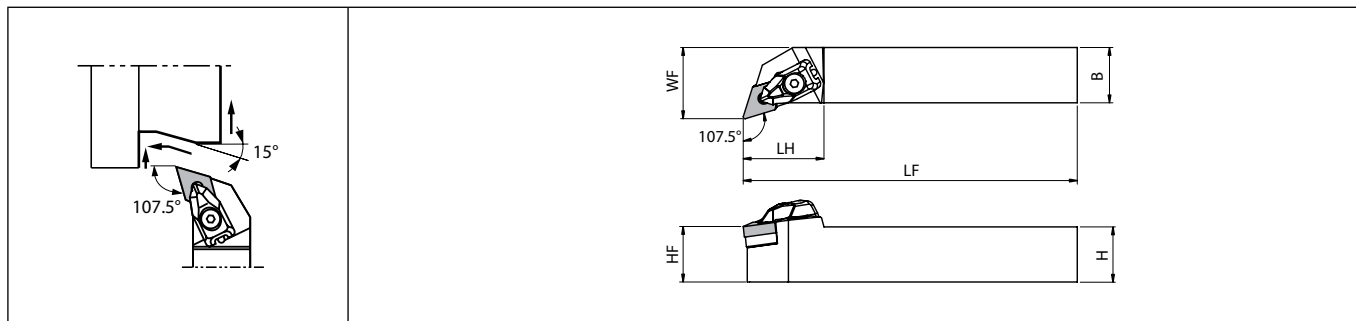
When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.Please see page **D13** for piping parts of coolant-through holders.

Clamp : CP-4D-R-JCT for Right-hand Toolholder, CP-4D-L-JCT for Left-hand Toolholder.

O-ring (SS-035) is available to order separately.

Recommended tightening torque : 3.9N·m

DDHN (External Turning / External Facing / External Copying)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts	
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)		Wrench* (for shim)
		R	L	H	B	LH	HF	LF	WF											
mm	DDHN% 2020K-1504	●	●	20	20	37	20	125	25	0.8	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DD-44 (DD-43*)	SB-408STR	FT-15	DN□A43... DN□G43... DN□M43...
	2525M-1504	●	●	25	25		25	150	32											
	2020K-1506	●	●	20	20	37	20	125	25	0.8	-6	-6					DD-43 (DD-44*)			DN□A44... DN□G44... DN□M44...
	2525M-1506	●	●	25	25		25	150	32											

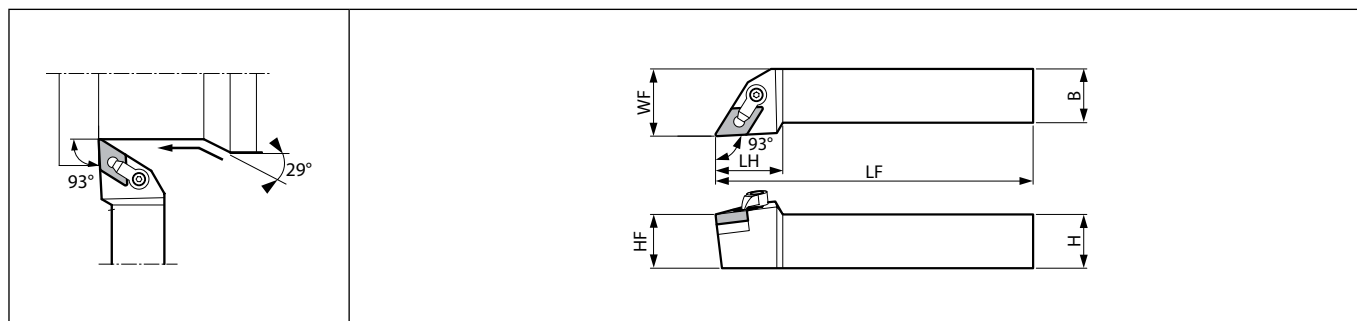
Shims indicated * are not included with the toolholder. To change insert thickness, please purchase it separately.

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

Wrench (FT-15) is sold separately.

The insert with WF chipbreaker is not applicable for DDHN type toolholder.

Recommended tightening torque : 3.9N·m

MDJN (External Turning / External Facing / External Copying)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
													Clamp	Screw (for clamp)	Lock Pin	Shim	Screw (for shim)	Wrench	
		R	L	H	B	LH	HF	LF	WF										
Inch	MDJN 12-4B	●	●	0.75	0.75	1.25	0.75	4.50	1.00	1/32	-6	-6	CL-20	XNS-48	NL46L	IDSN443	S-46	LW-125, LW-094	DN□A43... DN□G43... DN□M43... DN□X43...
	16-4D	●	●	1.00	1.00	1.25	1.00	6.00	1.25										

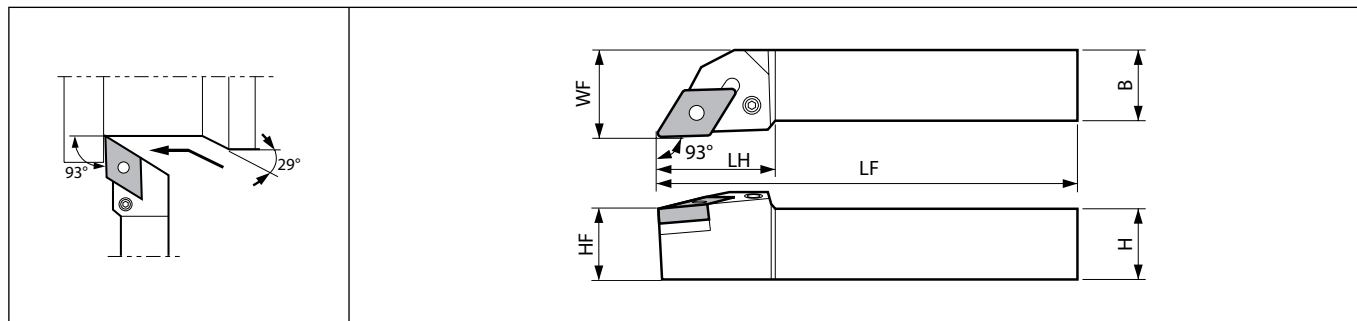
Shims indicated * are not included with the toolholder. To change insert thickness, please purchase it separately.

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.

Recommended tightening torque : 3.9N·m

PDJN (External Turning / External Copying)



Right-hand shown

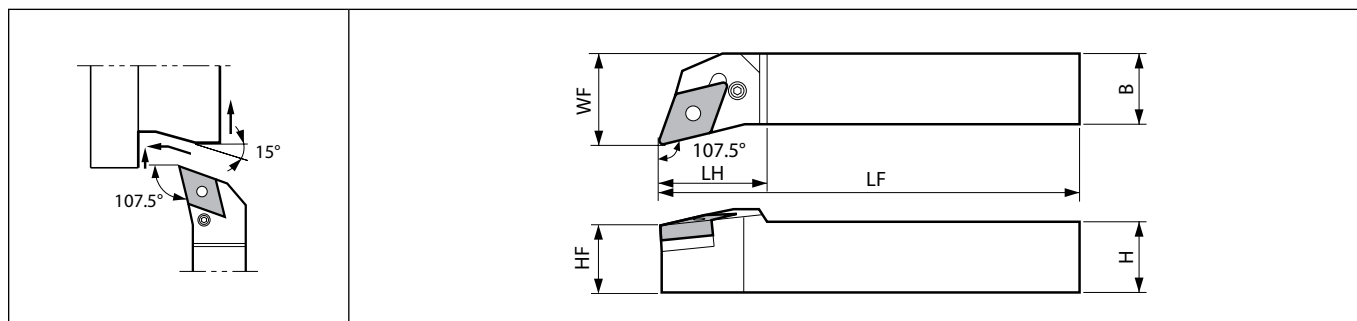
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Lever	Lock screw	Punch	Shim pin	Shim	Wrench	Wrench	
		R	L	H	B	LH	HF	LF	WF											
Inch	PDJNR 12-3B	●		0.75	0.75	0.87	0.75	4.50	1.00	1/64	-6	-7	LL-1N	LS-1N	PC-1	LSP-1	LD-32N	-	FH-2.5	DN□G33...
	16-3D	●		1.00	1.00	0.87	1.00	6.00	1.25											
	PDJN% 16-4D	●	●	1.00	0.75	1.06	1.00	4.50	1.00	1/32							LD-42 (LD-42-20*)	LW-3	-	DN□A43... DN□G43... DN□M43... DNMX43...
mm	PDJN% 1616H-11	●	●	16	16	28	16	100	20	0.4	-6	-7	LL-1DN	LS-1N	PC-1	LSP-1	LD-32N	-	FH-2.5	DN□G33...
	2020K-11	●	●	20	20		20	125	25											
	2525M-11	●	●	25	25		25	150	32											
	PDJN% 2020H-15	●		20	20	36	20	100	25	0.8	-6	-7	LL-3N	LS-2N	PC-2	LSP-2	LD-42 (LD-42-20*)	LW-3	-	DN□A43... DN□G43... DN□M43... DNMX43...
	2020K-15	●	●				25	125												
	2525M-15	●	●	25			25	150	32											
	3225P-15	●	●	32			32	170												
	2525M-15U	●	●	25	25	34	25	150	32				LL-4	LS-3			LD-42 (LD-42-20*) (LD-43**) (LD-43-20**)			DN□A44... DN□G44... DN□M44... DNMX44...
3232P-15U	●	●	32	32	36	32	170	40												

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.

Shim : PDJN% -15U ... LD-42 is attached to PDJN% -15U. When using DN□□43 type insert, please purchase LD-43 (or LD-43-20 when using inserts with corner-R (RE) greater than 1/16") separately.

When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.

PDHN (External Turning / External Facing / External Copying)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
													Lever	Lock screw	Punch	Shim pin	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF										
mm	PDHN% 2020K-15	●	●	20	20	35	20	125	25	0.8	-6	-6	LL-4	LS-3	PC-2	LSP-2	LD-43 (LD-43-20*) (LD-42-20**) (LD-42-20***)	LW-3	DN□A43... DN□G43... DN□M43...
	2525M-15	●	●	25	25	34	25	150	32										

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.

Shim : PDHN ... LD-43 is attached to PDHN. When using DN□□44 type Insert, please purchase LD-42 (or LD-42-20 when using inserts whose corner-R (RE) is greater than 1/16") separately.

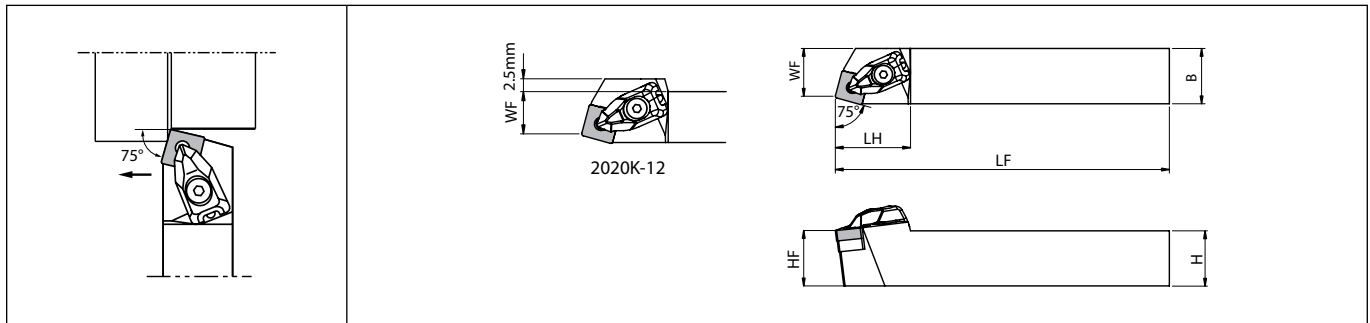
The insert with WF chipbreaker is not applicable for PDHN type toolholder.

Applicable Inserts (DDJN / DDJN-JCT / MDJN / DDHN / PDJN / PDHN)

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium
Insert								
Chipbreaker	WF*	PP	GP	PQ	HQ	CQ	CJ	TN-V
Page	B24	B24	B24	B24	B25	B25	B25	B25
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing
Insert								
Chipbreaker	PMG	GS	PG	PS	PT	GT	Standard	PH
Page	B25	B25	B26	B26	B26	B26	B27	B27
Applications	Roughing	Finishing	Medium	Low carbon steel	Low carbon steel	Low carbon steel	Low carbon steel	Finishing - Medium
Insert								
Chipbreaker	PX	R/L-S	R/L	XF	XP	XQ	XS	SK
Page	B27	B33	B32	B27	B27	B27	B27	B28
Applications	Large D.O.C.	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron
Insert								
Chipbreaker	R-LD	FP-TK	TK	MQ	MS	MU	KQ	KG
Page	B28	B28	B28	B28	B29	B29	B30	B30
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker	KH	C	ZS	GC	No Chipbreaker	Ceramic	R/A3	AH
Page	B30	B30	B30	B30	B31	B114	B31	B31
Applications	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials / Cast Iron	Hard Materials	Hard Materials	Hard Materials	
Insert								
Chipbreaker	PCD	SQ	SG	CBN	HH	HL	HD	
Page	C35	B29	B29	C10	C11	C11	C11	

When using the insert with WF chipbreaker, tool edge offset or program corrections are required on R40 and R41.
The insert with WF chipbreaker is not applicable for DDHN type and PDHN type toolholder.

Recommended Cutting Conditions ➡ D75~D76

DSBN (External Turning)

Right-hand shown

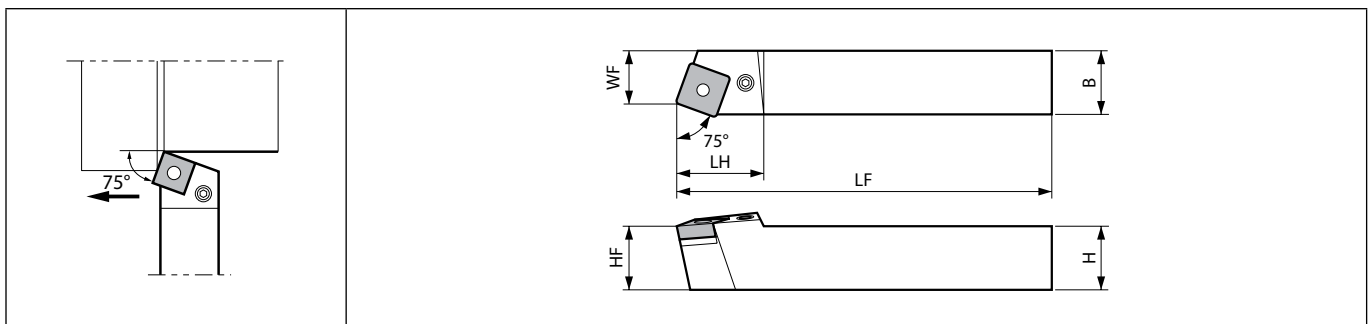
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
														Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	
		R	L	H	B	LH	HF	LF	WF												
mm	DSBN% 2020K-12 2525M-12	● ●	● ●	20 25	20 25	34	20 25	125 150	17 22	0.8	-4	-7	CP-3D	CS-3D	SP-3D	LW-3	DS-44	SB-4085TR	FT-15	SN□A43... SN□G43... SN□M43...	

Wrench (FT-15) is sold separately.

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

Recommended tightening torque : 3.9N·m

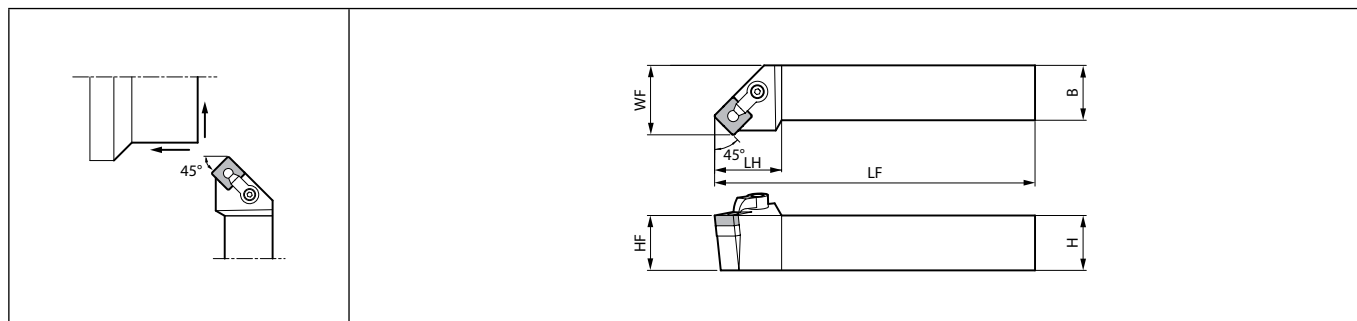
PSBN (External Turning)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
			R	L	H	B	LH	HF	LF				Lever	Lock screw	Punch	Shim pin	Shim	Wrench	
mm	PSBN% 2020K-12	●	●	20	20	27	20	125	17	0.8	-4	-7							SN□A43...
	2525M-12	●	●	25	25	24	25	150	22				LL-2N	LS-2N	PC-2	LSP-2	LS-42	LW-3	SN□G43... SN□M43...

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

MSSN (External Turning / External Facing / External Chamfering)

Right-hand shown

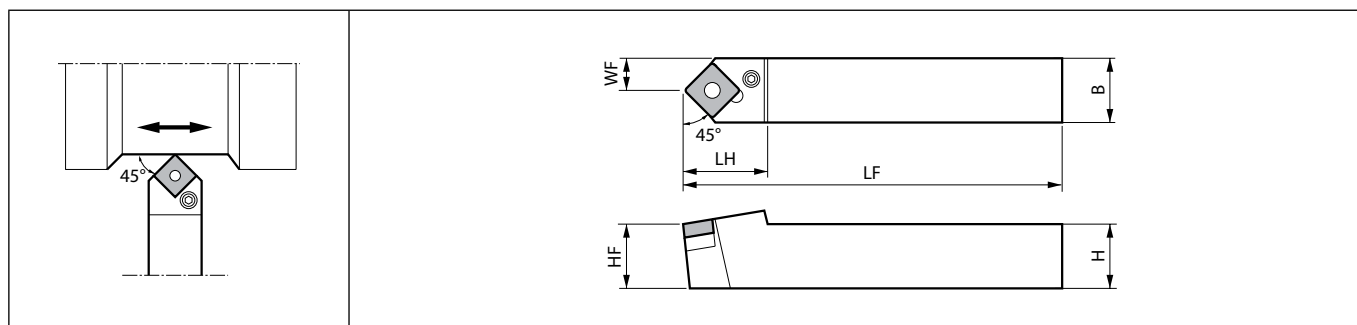
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts	
												Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin		Wrench
		R	H	B	LH	HF	LF	WF											
Inch	MSSNR 16-4D	●	1.00	1.00	1.23	1.00	6.00	0.925	1/32	-8	0	CL-9	XNS59	LW-156	ISSN433	S-46	NL46	LW-094	SN□A43... SN□G43... SN□M43...

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

MSSN%: When using handed inserts, For External Turning, Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

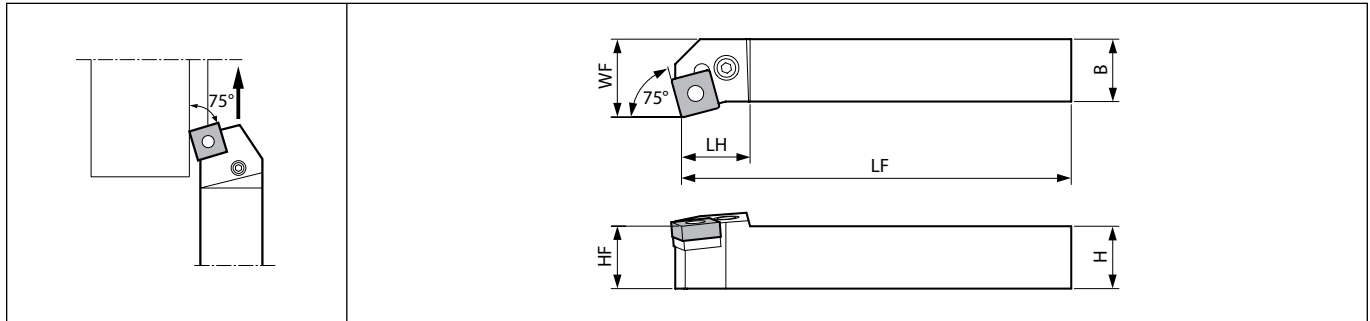
For Facing, Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

PSDN (External Turning / External Chamfering)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Back rake angle (°)	Spare Parts						Applicable Inserts	
											Lever	Lock screw	Punch	Shim pin	Shim	Wrench		Wrench
		N	H	B	LH	HF	LF	WF										
mm	PSDNN 1616H-09	●	16	16	21	16	100	8	0.8	-8.5	LL-1N	LS-1N	PC-1	LSP-1	LS-32	-	FH-2.5	SN□G32...
	PSDNN 2020K-12	●	20	20	30	20	125	10	0.8	-8.5	LL-2N	LS-2N	PC-2	LSP-2	LS-42	LW-3	-	SN□A43... SN□G43... SN□M43...
	2525M-12	●	25	25		25	150	12.5										

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

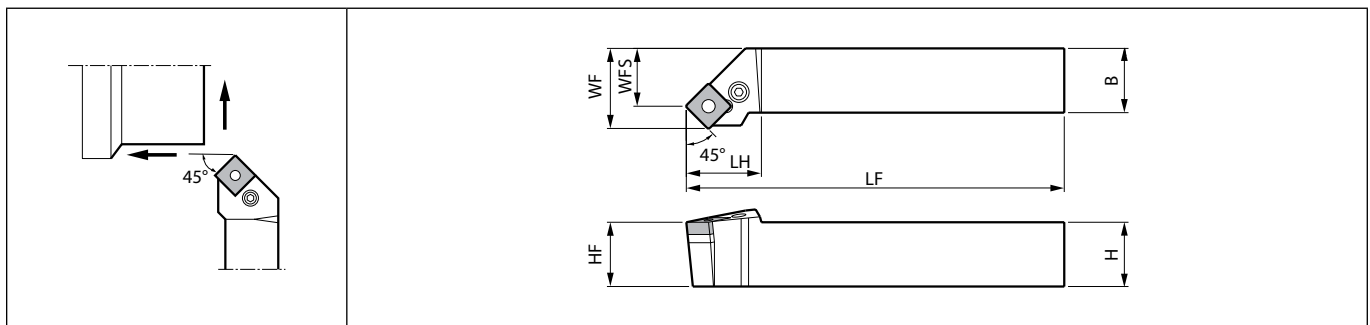
PSKN (External Facing)

Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
													Lever	Lock screw	Punch	Shim pin	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF										
mm	PSKN% 2020K-12 2525M-12	●	●	20	20	22.5	20	125	25	0.8	-4	-7	LL-2N	LS-2N	PC-2	LSP-2	LS-42	LW-3	SN□A43... SN□G43... SN□M43...

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.
 PSKN% : Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

PSSN (External Turning / External Facing / External Chamfering)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts	
														Lever	Lock screw	Punch	Shim pin	Shim	Wrench		Wrench
		R	L	H	B	LH	HF	LF	WF	WFS											
mm	PSSN% 1616H-09	●	●	16	16	22	16	100	20	13.6	0.8	-8	0	LL-1N	LS-1N	PC-1	LSP-1	LS-32	-	FH-2.5	SN□G32...
	PSSN% 2020K-12	●	●	20	20	29	20	125	25	16.4	0.8	-8	0	LL-2N	LS-2N	PC-2	LSP-2	LS-42	LW-3	-	SN□A43...
	2525M-12	●	●	25	25		25	150	32	23.4											SN□G43...
																					SN□M43...

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

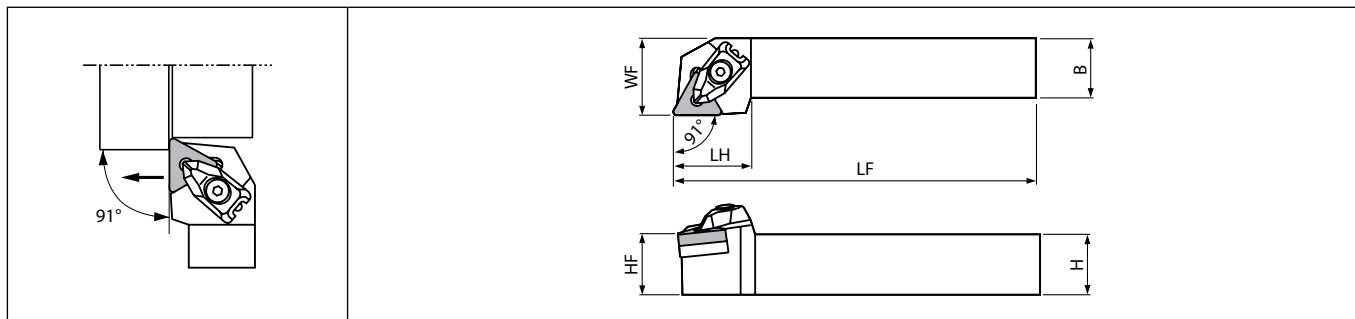
PSSN% : When using handed inserts, For External Turning, Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

For Facing, Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Applicable Inserts (DSBN / PSBN / PSKN / PSSN / MSSN / PSDN)

Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing
Insert								
Chipbreaker type	PQ	HQ	PMG	PG	PS	PT	Standard	PH
Page	B34	B34	B34	B34	B34	B34	B34	B35
Applications	Roughing	Finishing - Medium	Medium - Roughing	Medium - Roughing	Low carbon steel	Low carbon steel	Low carbon steel	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker type	PX	P/B	P/C	P/25R	XP	XQ	XS	MQ
Page	B35	B37	B37	B37	B35	B35	B35	B36
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials
Insert								
Chipbreaker type	MS	KG	KH	C	ZS	GC	No Chipbreaker	Ceramic
Page	B36	B36	B36	B36	B37	B37	B37	B117
Applications	Heat-Resistant Alloys	Hard Materials / Cast Iron						
Insert								
Chipbreaker type	SG	CBN						
Page	B36	C12						

Recommended Cutting Conditions ➡ D75~D76

DTGN (External Turning)

Right-hand shown

Toolholder Dimensions

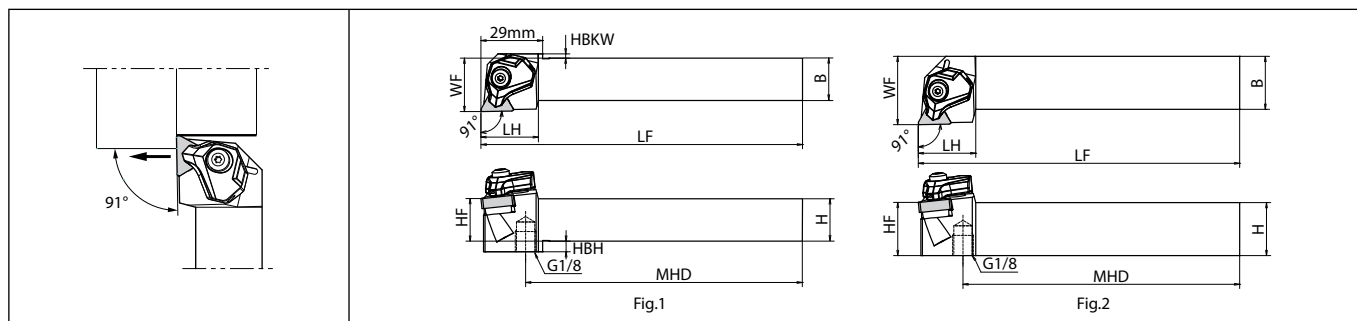
Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
														Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	
		R	L	H	B	LH	HF	LF	WF												
mm	DTGN%L 2020K-16 2525M-16	● ●	● ●	20 25	20 25	25	20 25	125 150	25 32	0.8	-6	-6	CP-2D 	CS-2D 	SP-2D 	LW-2.5 	DT-32 	SB-3080TR 	FT-10 	TN□A33... TN□G33... TN□M33... TN□X33...	

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.

Wrench (FT-10) is sold separately.

Recommended tightening torque : 1.7N·m

DTGN-JCT (External Turning, Coolant-Through Holders)

Right-hand shown | Coolant-Through | Applicable Pressure : ~4,350 psi

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions									Standard Corner-R (RE)	Fig.	Coolant Hole	Side Rake Angle (°)	Inclination Angle (°)	Applicable Inserts
		R	L	H	B	LH	HBH	HBKW	MHD	HF	LF	WF						
mm	DTGN 2020K-16JCT	●	●	20	20	27	5	2	104	20	125	25	0.8	1	Yes	-6	-6	TN□A33... TN□G33... TN□M33... TN□X33...
	2525M-16JCT	●	●	25	25		-	-	129	25	150	32		2				

Unit	Part Number	Spare Parts							
		Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	Pipe Connection (* with O-Ring)
mm	DTGN 2020K-16JCT								
	2525M-16JCT	CP-2D-16-JCT	CS-3D-TR	SP-3D	FT-15	DT-32	SB-3080TR	FT-10	FP-12

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

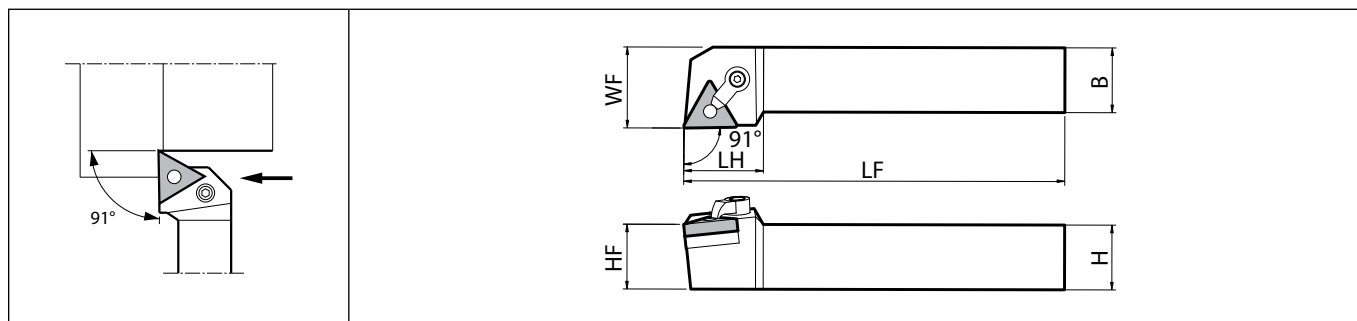
When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.

Wrench (FT-10) is sold separately.

Please see page **D13** for piping parts of coolant-through holders.

O-ring (SS-035) is available to order separately.

Recommended tightening torque : 3.9N·m

MTGN (External Turning)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts	
		R	L	H	B	LH	HF	LF	WF				Clamp	Screw (for clamp)	Wrench	Shim	Screw (for shim)	Lock Pin		Wrench
																				
Inch	MTGN% 12-3B	●	●	0.75	0.75	0.94	0.75	4.50	1.00	1/64	-5	-5		XNS36	LW-094	ITSN333 (ITSN323)	S-34	NL34L	(5/64 Hex)	TN□A33... TN□G33... TN□M33... TN□X33...
	MTGNR 16-4D	●		1.00	1.00	1.19	1.00	6.00	1.25	1/32				XNS48	LW-156	ITSN433	S-46	NL46	LW0	TN□G43... TN□M43...

When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

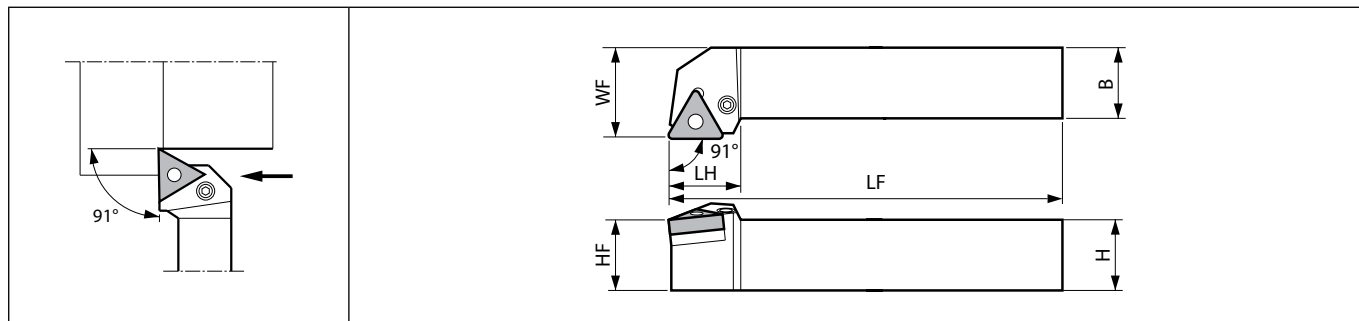
When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.

Shim: ITSN333 is included with MTGN[●] 12-3B. When using TN□□32... insert, please purchase ITSN323 separately.

Wrench (FT-10) is sold separately.

Recommended tightening torque : 3.9N·m

PTGN (External Turning)



Right-hand shown

Toolholder Dimensions

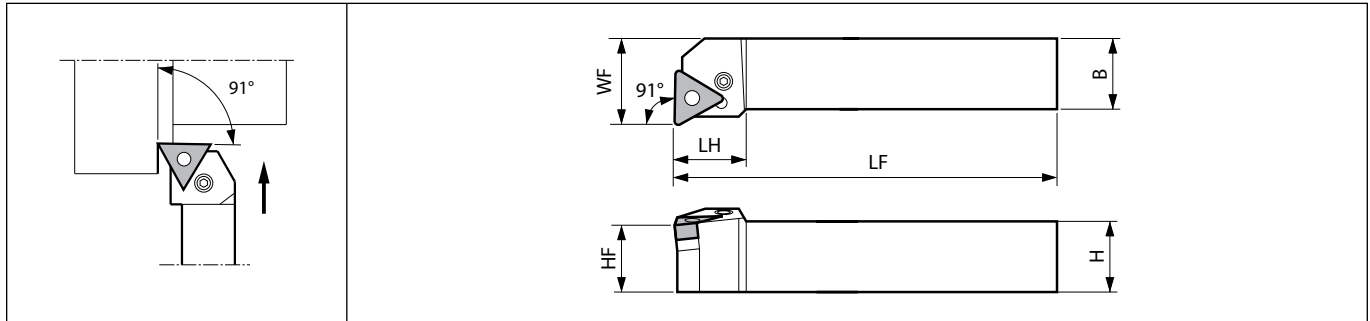
Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts								Applicable Inserts
		R	L	H	B	LH	HF	LF	WF				Lever	Lock screw	Punch	Shim pin	Shim pin	Shim	Wrench	Wrench	
																					
Inch	PTGNR 12-3B	●		0.75	0.75	0.96	0.75	4.50	1.00	1/32	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	-	LT-32N (LT-32N-20*)	LW-2.5	-	TN□A33... TN□G33... TN□M33... TN□X33...
mm	PTGN% 1212F-11	●	●	12	12	18	12	80	16				LL-03N	LS-03N			P-03			FH-2	TNGA22... TNGG22...
	1616H-11	●		16	16		16	100	20	0.8	-6	-6									
	2020K-11	●	●	20	20	22	20	125	25				LL-03TN	LS-03SN	-	-	P-03S	-	-	FH-2.5	TNGG23... TNMG23...
	2525M-11	●	●	25	25		25	150	32												
	PTGN% 1616H-16	●	●	16	16		16	100	20												
	2020H-16	●																			
	2020K-16	●	●	20	20	24	20	125	25	0.8	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	-	LT-32N (LT-32N-20*)	-	FH-2.5	TN□A33... TN□G33... TN□M33... TN□X33...
	2525M-16	●	●	25	25		25	150	32												
	PTGN% 2525M-22	●	●	25	25	29	25	150	32	0.8	-6	-6	LL-2N	LS-2N	PC-2	LSP-2	-	LT-42N (LT-42N-20*)	LW-3	-	TN□G43... TN□M43...

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.

When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.

PTGN% 1212F-11 : TNGA22.. and TNGG22.. type inserts are applicable.

PTFN (External Facing)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts					
													Lever	Lock screw	Punch	Shim pin	Shim pin	Shim	Wrench		Wrench				
		R	L	H	B	LH	HF	LF	WF																
Inch	PTFNL 12-3C	●		0.75	0.75	0.88	0.75	5.00	1.00	1/32	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	-	LT-32N (LT-32N-20*)	-	FH-2.5	TN□A33... TN□G33... TN□M33... TN□X33...				
mm	PTFN% 1212F-11 1616H-11 2020K-11 2525M-11	●	●	12	12	15	12	80	16	0.8	-6	-6	LL-03N	LS-03N	-	-	P-03	-	-	FH-2	TNGA22... TNGG22...				
		●	●	16	16		16	100	20				LL-03TN	LS-03SN						FH-2.5	TNGG23... TNMG23...				
		●		20	20	22.5	20	125	25																
		●	●	25	25		25	150	32																
	PTFN% 2020K-16 2525M-16	●	●	20	20	22	20	125	25	0.8	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	-	LT-32N (LT-32N-20*)	-	FH-2.5	TN□A33... TN□G33... TN□M33... TN□X33...				
		●	●	25	25	23	25	150	32																
PTFN% 2525M-22	●	●	25	25	28	25	150	32	0.8	-6	-6	LL-2N	LS-2N	PC-2	LSP-2	-	LT-42N (LT-42N-20*)	LW-3	-	TN□G43... TN□M43...					

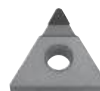
When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.

When using the insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.

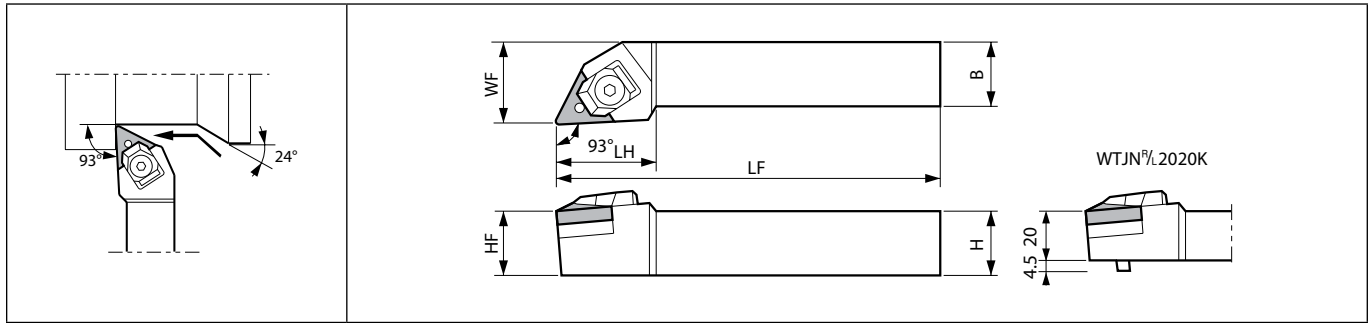
PTFN% 1212F-11 : TNGA22.. and TNGG22.. type inserts are applicable.

PTFN % : Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Applicable Inserts (DTGN / DTGN-JCT / MTGN / PTGN / PTFN)

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker type	WF	PP	GP	PQ	HQ	CQ	PMG	GS
Page	B39	B39	B39	B39	B39	B39	B40	B40
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing	Finishing
Insert								
Chipbreaker type	PG	PS	PT	GT	Standard	PH	PX	P/L-SSF
Page	B40	B40	B40	B40	B40	B41	B41	B45
Applications	Finishing	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Low carbon steel	Low carbon steel	Low carbon steel
Insert								
Chipbreaker type	P/L-S	P/L-B	P/L-C	R/L	P/L-25R	XF	XP	XQ
Page	B45	B45	B46	B46	B46	B41	B41	B41
Applications	Low carbon steel	Finishing - Medium	Large D.O.C.	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker type	XS	SK	R-LD	FP-TK	TK	MQ	MS	MU
Page	B41	B42	B42	B42	B42	B42	B42	B42
Applications	Stainless Steel	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker type	P/L-ST	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B43	B43	B43	B43	B43	B43	B43	B44
Applications	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron		
Insert								
Chipbreaker type	Ceramic	P/L-A3	AH	PCD	SG	CBN		
Page	B118	B44	B44	C36	B43	C13		

Recommended Cutting Conditions  D75~D76

WTJN (External Turning / External Copying)

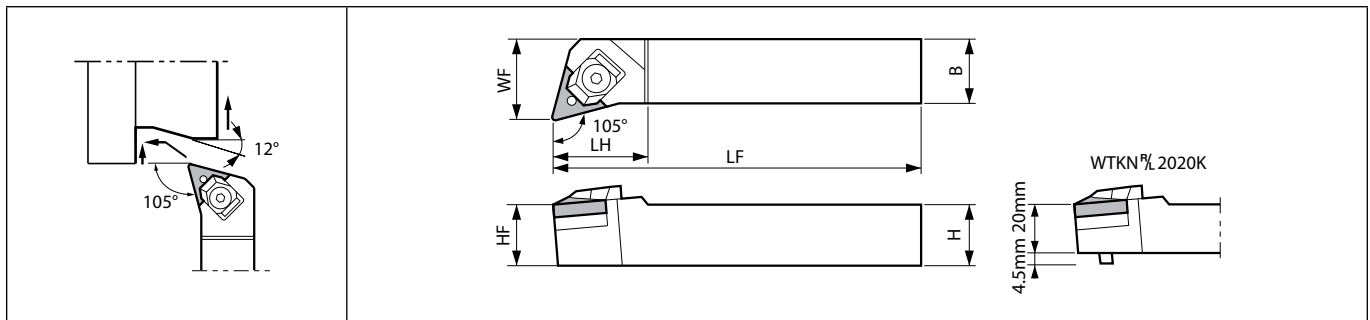
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
			R	L	H	B	LH	HF	LF	WF				Clamp set	Nut	Shim pin	Shim	Spacer	Wrench	
Inch	WTJN%L 12-3C 16-3D	●			0.75	0.75	1.26	0.75	5.00	1.00	1/32	-6	-6	WCS-1N	WN-1	WP-1S	WTN-33 (WTN-33-20*)	WSP-1	LW-3	TN□A33... TN□G33... TN□M33...
mm	WTJN%L 2020K-16N	●	●	●	20	20	32	20	125	25	0.8	-6	-6	WCS-1N	WN-1	WP-1S	WTN-33 (WTN-33-20*)	WSP-1	LW-3	
	2525M-16N	●	●	●	25	25		25	150	32										

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.

For wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restraint force.

WTKN (External Turning / External Facing / External Copying)

Right-hand shown

Toolholder Dimensions

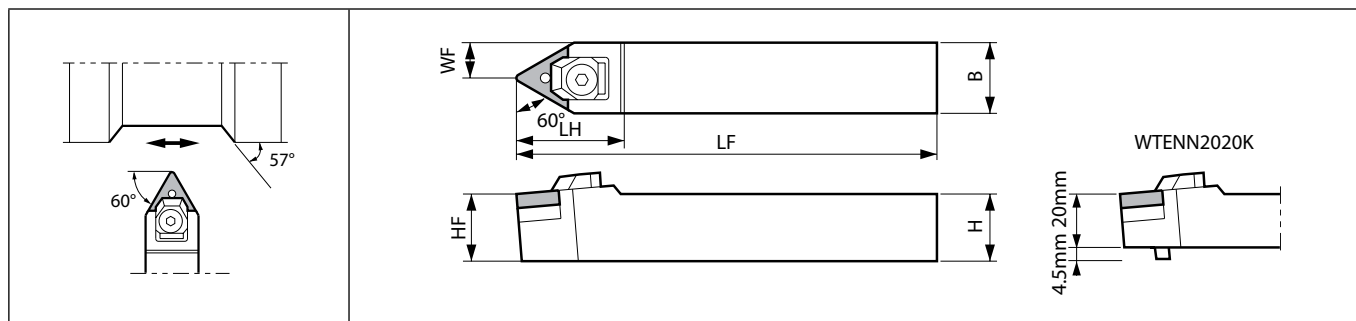
Unit	Part Number	Std. Item	Dimensions								Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
			R	L	H	B	LH	HF	LF	WF				Clamp set	Nut	Shim pin	Shim	Spacer	Wrench	
Inch	WTKNL 12-3C	●			0.75	0.75	1.26	0.75	5.00	1.00		-6	-6	WCS-1N	WN-1	WP-1S	WTN-33 (WTN-33-20*)	WSP-1	LW-3	TN□A33... TN□G33... TN□M33...
mm	WTKN%L 2020K-16N	●	●	●	20	20	32	20	125	25	0.8	-6	-6	WCS-1N	WN-1	WP-1S	WTN-33 (WTN-33-20*)	WSP-1	LW-3	
	2525M-16N	●	●	●	25	25		25	150	32										

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.

For wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restraint force.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

WTEN (External Turning / External Chamfering)

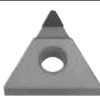
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Back rake angle (°)	Spare Parts						Applicable Inserts
												Clamp set	Nut	Shim pin	Shim	Spacer	Wrench	
		N	H	B	LH	HF	LF	WF										
mm	WTENN 2020K-16N	●	20	20	32	20	125	10	0.8	-8.5	WCS-1N	WN-1	WP-1S	WTN-33 (WTN-33-20*)	WSP-1	LW-3	TN□A33... TN□G33... TN□M33...	
	2525M-16N	●	25	25		25	150	12.5										

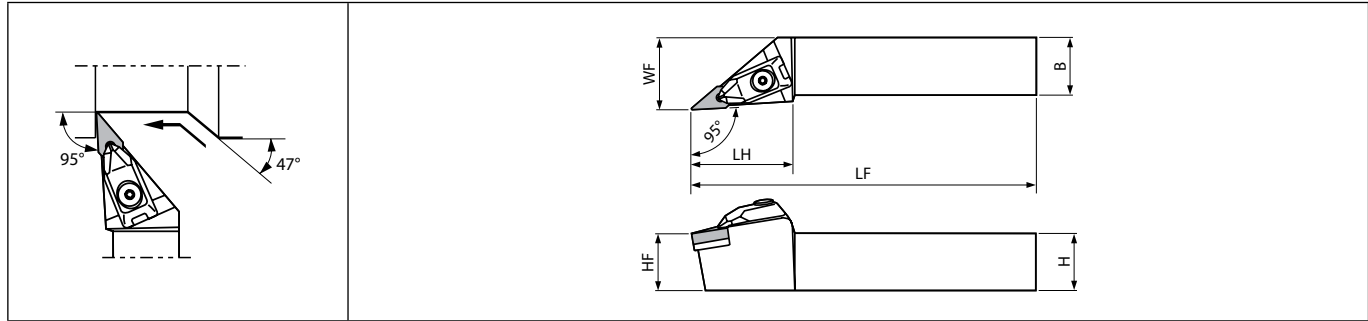
When using inserts with corner-R (RE) greater than 1/16" (1.6mm), please purchase shim* to prevent workpiece and shim from interfering with each other.

For wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restraint force.

Applicable Inserts (WTJN / WTKN / WTEN)

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker type	PP	GP	PQ	HQ	CQ	GS	GS	PG
Page	B39	B39	B39	B39	B39	B40	B40	B40
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing	Finishing	Finishing
Insert								
Chipbreaker type	PS	PT	GT	Standard	PH	PX	%L-SSF	%L-S
Page	B40	B40	B40	B40	B41	B41	B45	B45
Applications	Finishing - Medium	Medium - Roughing	Medium - Roughing	Low carbon steel	Low carbon steel	Low carbon steel	Low carbon steel	Finishing - Medium
Insert								
Chipbreaker type	%L-B	%L-C	%L-25R	XF	XP	XQ	XS	SK
Page	B45	B46	B46	B41	B41	B41	B41	B42
Applications	Large D.O.C.	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel	Cast Iron
Insert								
Chipbreaker type	R-LD	FP-TK	TK	MQ	MS	MU	%L-ST	KQ
Page	B42	B42	B42	B42	B42	B42	B43	B43
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker type	KG	KH	C	ZS	GC	No Chipbreaker	%L-A3	AH
Page	B43	B43	B43	B43	B43	B44	B44	B44
Applications	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron					
Insert								
Chipbreaker type	PCD	SG	CBN					
Page	C36	B43	C13					

Recommended Cutting Conditions ➡ D75~D76

DVJN (External Turning / External Copying)

Right-hand shown

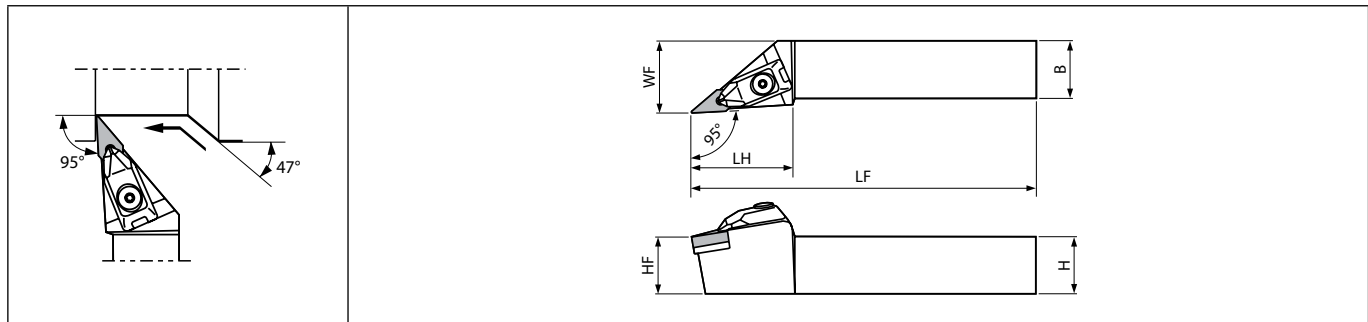
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
		R	L	H	B	LH	HF	LF	WF				Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	
																				
Inch	DVJN% 12-3B 16-3D	● ●	● ●	20 25	20 25	45	20 25	125 150	25 32	0.8	-6	-9	CP-5D	CS-5D	SP-5D	LW-3	DV-33	SB-4085TR	FT-15	VN□A33... VN□G33... VN□M33...

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

Wrench (FT-15) is sold separately.

Recommended tightening torque : 3.0N·m

DVLN (External Turning / External Copying)

Right-hand shown

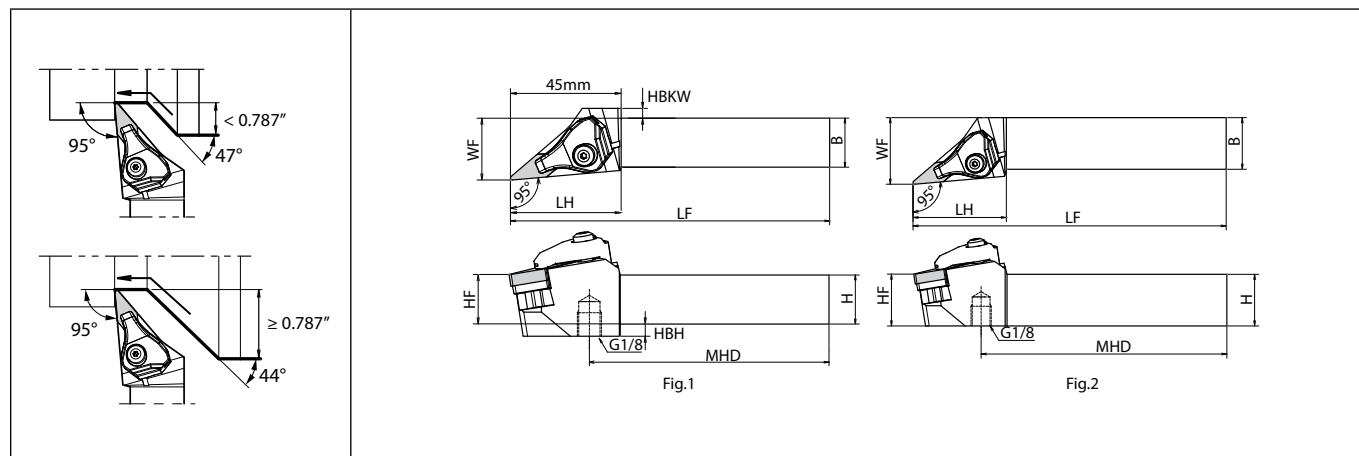
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	
		R	L	H	B	LH	HF	LF	WF											
mm	DVLN% 2020K-16	●	●	20	20	45	20	125	25	0.8	-6	-9	CP-5D	CS-5D	SP-5D	LW-3	DV-33	SB-4085TR	FT-15	VN□A33... VN□G33... VN□M33...
	2525M-16	●	●	25	25		25	150	32											

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

Wrench (FT-15) is sold separately.

Recommended tightening torque : 3.0N·m

DVLN-JCT (External Turning / External Copying, Coolant-Through Holders)

Right-hand shown | Coolant-Through | Applicable Pressure : ~4,350 psi

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions									Standard Corner-R (RE)	Fig.	Coolant Hole	Side Rake Angle (°)	Inclination Angle (°)	Applicable Inserts
		R	L	H	B	LH	HBH	HBKW	MHD	HF	LF	WF						
Inch	DVLNR 12-3BJCT	●		0.75	0.75	1.77	0.234	0.142	3.220	0.75	4.50	1.00	1/32	1	Yes	-6	-9	VN□A33... VN□G33... VN□M33...
	DVLNL 12-3BJCT		●						3.060									
	DVLNR 16-3DJCT	●		1.00	1.00		-	-	4.720	1.00	6.00	1.25		2				
	DVLNL 16-3DJCT		●						4.560									
mm	DVLNR 2020K-16JCT	●		20	20	45	5	4	92.5	20	125	25	0.8	1	Yes	-6	-9	
	DVLNL 2020K-16JCT		●						88.5					2				
	DVLNR 2525M-16JCT	●		25	25		-	-	117.5	25	150	32		2				
	DVLNL 2525M-16JCT		●						113.5									

Unit	Part Number	Spare Parts						
		Clamp	Pipe Connection (* with O-Ring)	Screw (for clamp)	Spring	Shim	Screw (for shim)	Wrench
								
Inch	DVLN% 12-3BJCT 16-3DJCT	CP-5D-JCT	FP-12	CS-3D-TR	SP-3D	DV-33	SB-4085TR	FT-15
mm	DVLN% 2020K-16JCT 2525M-16JCT	CP-5D-JCT	FP-12	CS-3D-TR	SP-3D	DV-33	SB-4085TR	FT-15

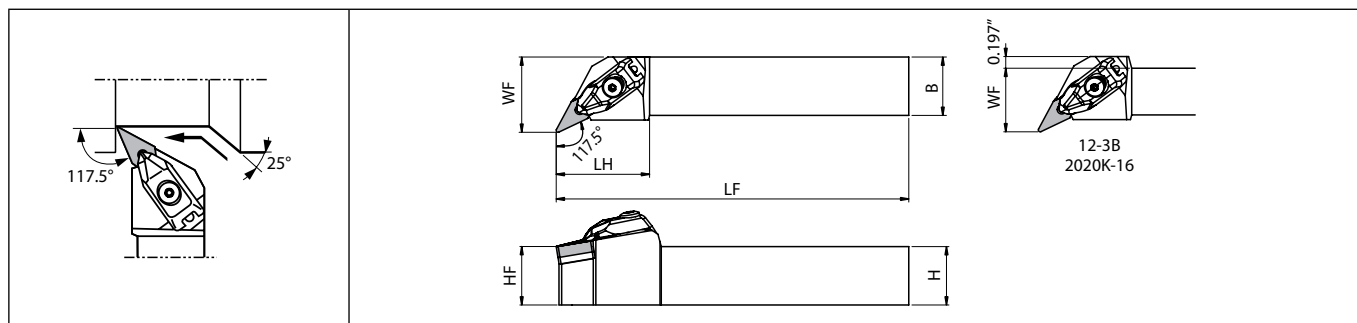
When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

The washer may protrude from the holder. To prevent interference, additional modifications to the washer may be required.

O-ring (SS-035) is available to order separately.

Please see page **D13** for piping parts of coolant-through holders.

Recommended tightening torque : 3.9N-m

DVPN (External Turning / External Facing / External Copying / Undercutting)

Right-hand shown

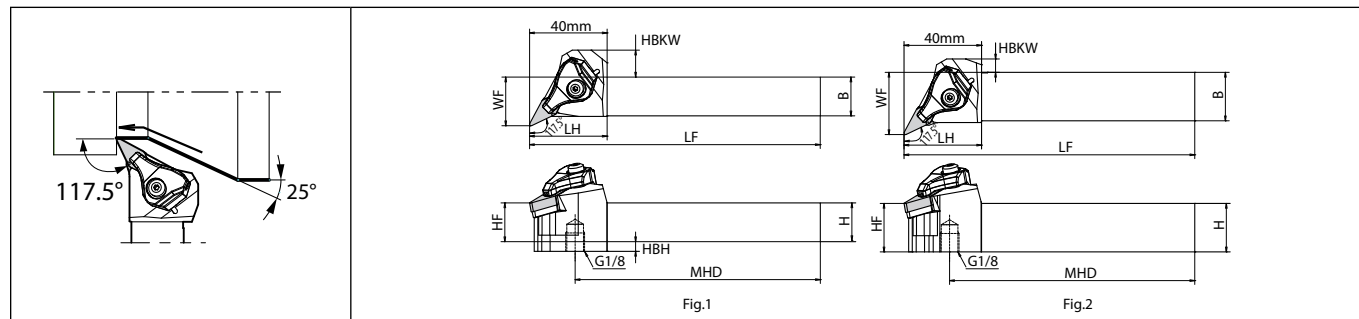
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts	
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)		Wrench* (for shim)
		R	L	H	B	LH	HF	LF	WF											
Inch	DVPN% 12-3B	●	●	0.75	0.75	1.58	0.75	4.50	1.00	1/32	-13	-10	CP-5D	CS-5D	SP-5D	LW-3	DV-33	SB-4085TR	FT-15	VN□A33... VN□G33... VN□M33...
	16-3D	●	●	1.00	1.00	1.58	1.00	6.00	1.25											
mm	DVPN% 2020K-16	●	●	20	20	40	20	125	27	0.8	-13	-10	CP-5D	CS-5D	SP-5D	LW-3	DV-33	SB-4085TR	FT-15	
	2525M-16	●	●	25	25		25	150	32											

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

Wrench (FT-15) is sold separately.

Recommended tightening torque : 3.0N·m

DVPN-JCT (External Turning / External Facing / External Copying / Undercutting, Coolant-Through Holders)

Right-hand shown | Coolant-Through | Applicable Pressure : ~4,350 psi

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions									Standard Corner-R (RE)	Fig.	Coolant Hole	Side Rake Angle (°)	Inclination Angle (°)	Applicable Inserts
		R	L	H	B	LH	HBH	HBKW	MHD	HF	LF	WF						
mm	DVPNR 2020K-16JCT	●		20	20	40	5	14	101.5	20	125	25	0.8	1	Yes	-13	-10	VN□A33... VN□G33... VN□M33...
	DVPNL 2020K-16JCT		●						93.5									
	DVPNR 2525M-16JCT	●		25	25	40	-	7	126.5	25	150	32	0.8	2				
	DVPNL 2525M-16JCT		●						118.5									

Unit	Part Number	Spare Parts						
		Clamp	Pipe Connection (* with O-Ring)	Screw (for clamp)	Spring	Shim	Screw (for shim)	Wrench
mm	DVPN% 2020K-16JCT 2525M-16JCT	CP-5D-JCT	FP-12	CS-3D-TR	SP-3D	DV-33	SB-4085TR	FT-15

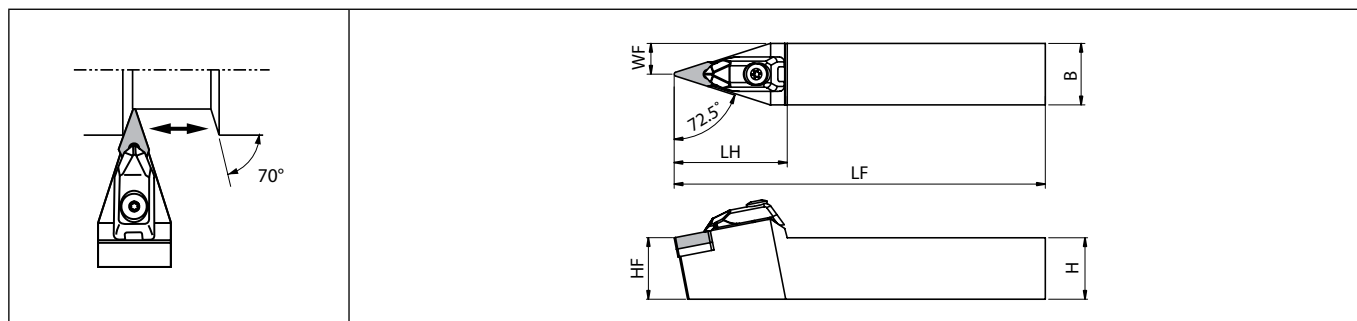
When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

The washer may protrude from the holder. To prevent interference, additional modifications to the washer may be required.

O-ring (SS-035) is available to order separately.

Please see page D13 for piping parts of coolant-through holders.

Recommended tightening torque : 3.9N·m

DVVN (External Turning / External Copying)

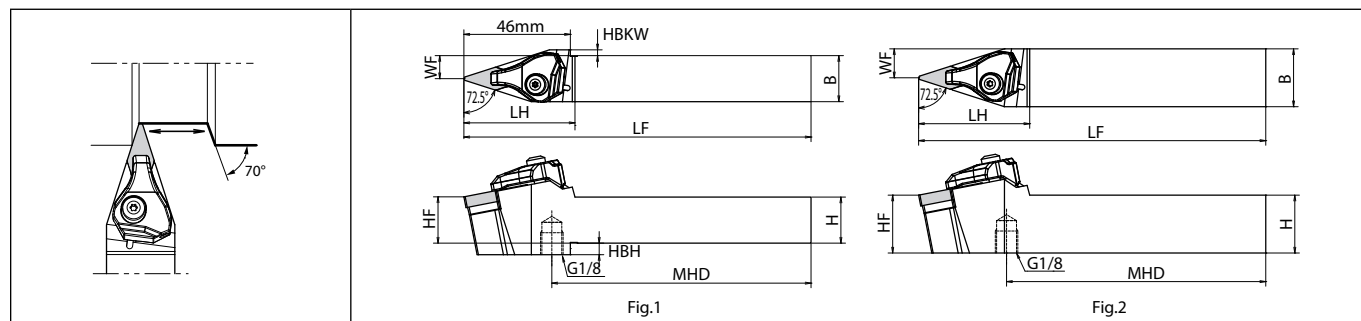
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Back rake angle (°)	Spare Parts						Applicable Inserts	
											Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)		Wrench* (for shim)
			N	H	B	LH	HF	LF			WF							
Inch	DVVNN 12-3B 16-3D	●	0.75	0.75	1.81	0.75	4.50	0.40	1/32	-11	CP-5D	CS-5D	SP-5D	LW-3	DV-33	SB-408STR	FT-15	VN□A33... VN□G33... VN□M33...
		●	1.00	1.00	1.81	1.00	6.00	0.52										
mm	DVVNN 2020K-16 2525M-16	●	20	20	46	20	125	10	0.8	-11	CP-5D	CS-5D	SP-5D	LW-3	DV-33	SB-408STR	FT-15	
		●	25	25		25	150	12.5										

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

Wrench (FT-15) is sold separately.

Recommended tightening torque : 3.0N·m

DVVN-JCT (External Turning / External Copying, Coolant-Through Holders)

Coolant-Through | Applicable Pressure : ~4,350 psi

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Standard Corner-R (RE)	Fig.	Coolant Hole	Back rake angle (°)	Applicable Inserts	
			N	H	B	LH	HBH	HBKW	MHD	HF						LF	WF
mm	DVNN 2020K-16JCT	●	20	20	48	5	2.5	87	20	125	10	0.8	1	Yes	-11	VN□A33... VN□G33... VN□M33...
	2525M-16JCT	●	25	25		-	-	112	25	150	12.5		2			

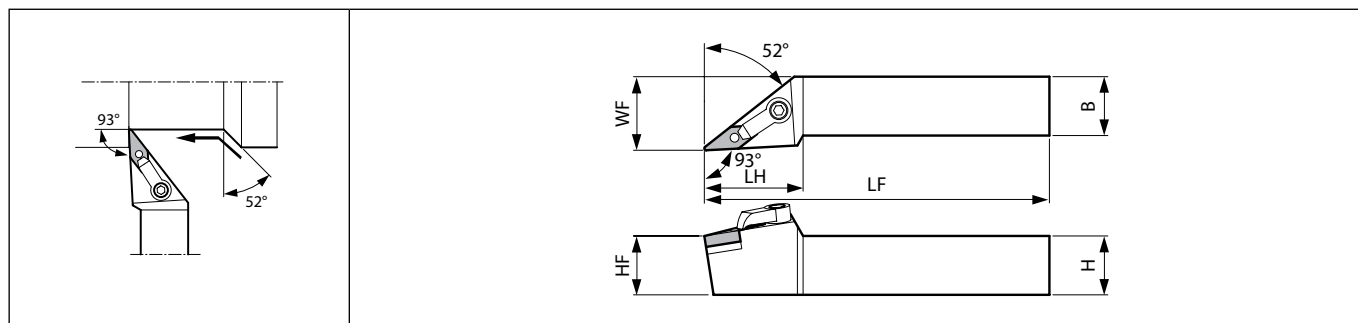
Unit	Part Number	Spare Parts						
		Clamp	Pipe Connection (* with O-Ring)	Screw (for clamp)	Spring	Shim	Screw (for shim)	Wrench
mm	DVVNN 2020K-16JCT	CP-5D-JCT	FP-12	CS-3D-TR	SP-3D	DV-33	SB-4085TR	FT-15
	2525M-16JCT							

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other. The washer may protrude from the holder. To prevent interference, additional modifications to the washer may be required.

O-ring (SS-035) is available to order separately.

Please see page **D13** for piping parts of coolant-through holders.

Recommended tightening torque : 3.9N·m

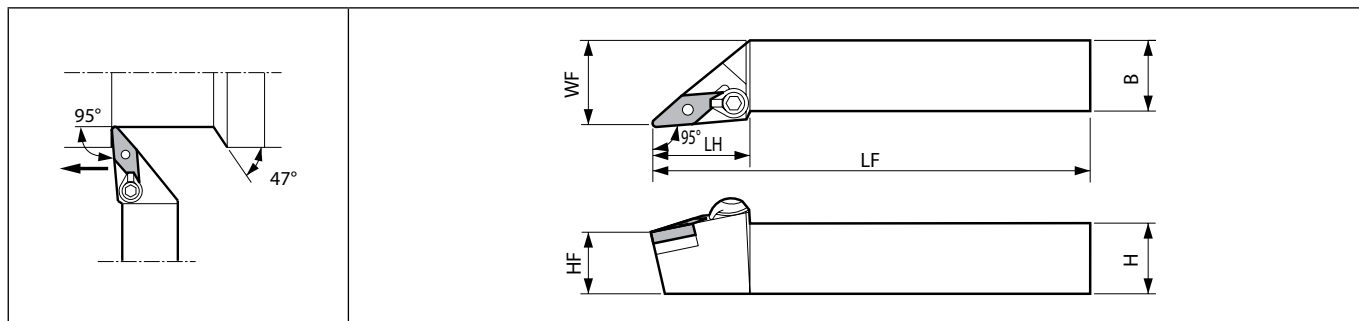
MVJN (External Turning / External Copying)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts							Applicable Inserts
													Clamp	Clamp screw	Wrench	Lock pin	Shim	Shim screw	Wrench	
		R	L	H	B	LH	HF	LF	WF											
Inch	MVJN [®] 12-3B	●	●	0.75	0.75	1.69	0.75	4.50	1.00	1/32	-6	-9								VN□A33... VN□G33... VN□M33...
	16-3C	●	●	1.00	1.00		1.00	5.00	1.25											

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

MVLN (External Turning / External Copying)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts
													Clamp set	Wrench (for clamp set)	Lock pin	Shim	Wrench (for shim)	
		R	L	H	B	LH	HF	LF	WF									
mm	MVLN 2020K-16	●	●	20	20	38	20	125	25	0.8	-6	-9						VN□A33... VN□G33... VN□M33...
	2525M-16	●	●	25	25		25	150	32				CPS-5%L	FH-2.5	TS-3S	MVN-32	FH-2	

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

Clamp Set : CPS-SR for Right-hand Toolholder, CPS-SL for Left-hand Toolholder.

Clamp set : CPS-SR has Right-hand thread.

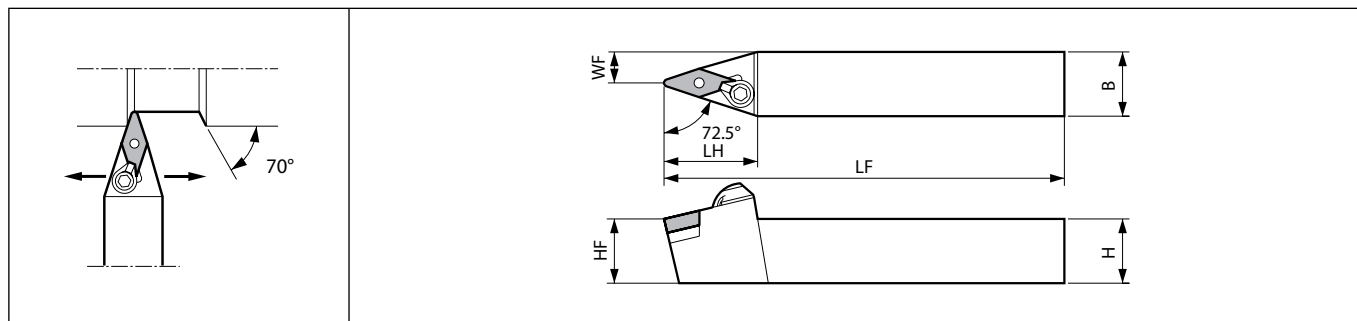
When clamping the insert, turn the screw in the arrow direction (clockwise).

When removing the insert, turn the screw away from the arrow (counterclockwise).

Clamp set : CPS-SL has Left-hand thread.

When clamping the insert, turn the screw in the arrow direction (counterclockwise).

When removing the insert, turn the screw away from the arrow (clockwise).

MVVN (External Turning / External Copying)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Back rake angle (°)	Applicable Inserts
		N	H	B	LH	HF	LF	WF			
Inch	MVVNN 12-3B	●	0.75	0.75	1.67	0.75	4.50	0.375	1/32	-11	VN□A33... VN□G33... VN□M33...
	16-3D	●	1.00	1.00	1.67	1.00	6.00	0.500			
mm	MVVNN 2020K-16	●	20	20	39	20	125	10	0.8	-11	
	2525M-16	●	25	25		25	150	12.5			

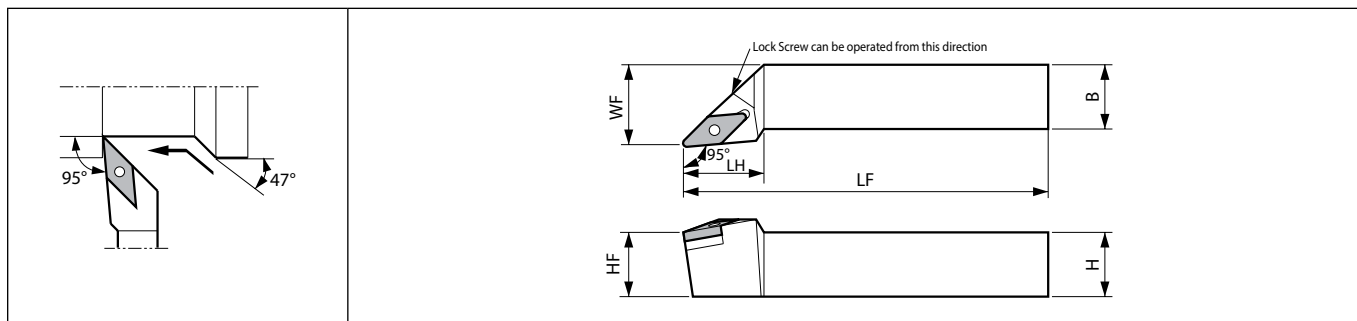
Unit	Part Number	Spare Parts								
		Clamp set	Wrench (for clamp set)	Clamp	Clamp screw	Wrench (for clamp screw)	Lock pin	Shim	Wrench (for shim)	Wrench (for shim)
										
Inch	MVVNN 12-3B 16-3D	-	-	CL-12	XNS510	(5/64 Hex)	NL34L	IVSN322	LW-156	-
mm	MVVNN 2020K-16 2525M-16	CPS-5R	FH-2.5	-	-	-	TS-3S	MVN-32	-	FH-2

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

Clamp set : CPS-5R has Right-hand thread.

When clamping the insert, turn the screw in the arrow direction (clockwise).

When removing the insert, turn the screw away from the arrow (counterclockwise).

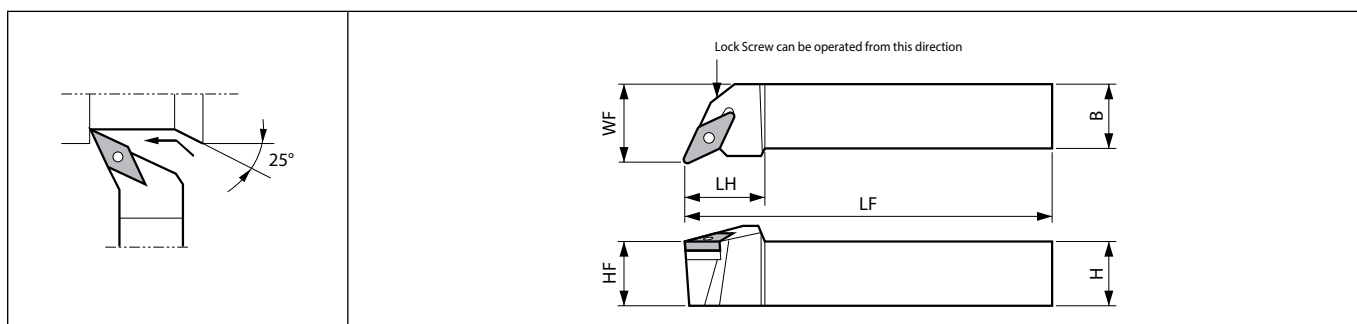
PVLN (External Turning / External Copying)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts				Applicable Inserts
													Lock pin	Lock screw	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF								
mm	PVLN%L 2525M-16Q	●	●	25	25	37	25	150	32	0.8	-6	-9	LP-6S	LS-15	KVN-32	LW-3	VN□A33... VN□G33... VN□M33...

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

PVPN (External Turning / External Facing / External Copying / Undercutting)

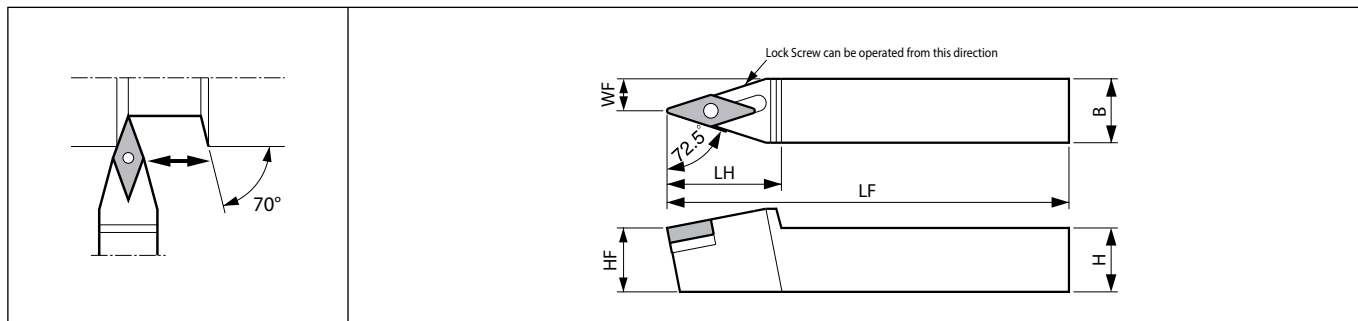
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts				Applicable Inserts
		R	L	H	B	LH	HF	LF	WF				Lock pin	Lock screw	Shim	Wrench	
																	
mm	PVPN%L 2020K-16Q	●	●	20	20	30	20	125	25	0.8	-13	-10	LP-2S	LS-11	KVN-32	LW-3	VN□A33... VN□G33... VN□M33...
	2525M-16Q	●	●	25	25		25	150	32				LP-6S				

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

PVVN (External Turning / External Copying)



Toolholder Dimensions

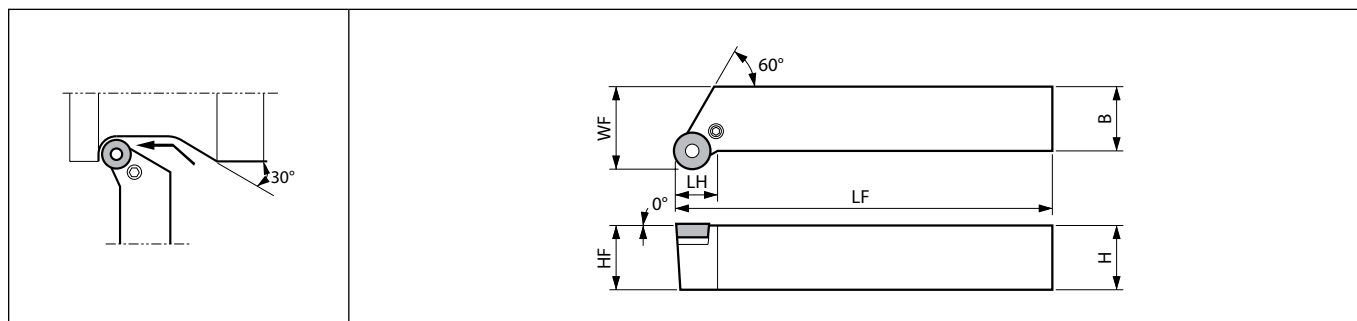
Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Back rake angle (°)	Spare Parts				Applicable Inserts
											Lock pin	Lock screw	Shim	Wrench	
			N	H	B	LH	HF	LF							
mm	PVVNN 2020K-16Q	●	20	20	35	20	125	10	0.8	-11	LP-2S	LS-15	KVN-32	LW-3	VN□A33... VN□G33... VN□M33...
	2525M-16Q	●	25	25	40	25	150	12.5			LP-6S				

When using inserts with a corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium	Roughing
Insert								
Chipbreaker type	PP	GP	¾-VC	VF	PQ	HQ	TN-V	Standard
Page	B47	B47	B47	B47	B47	B47	B47	B47
Applications	Finishing - Medium	Finishing	Medium	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron
Insert								
Chipbreaker type	SK	¾-S	R/L	MQ	MS	MU	KG	KH
Page	B48	B49	B49	B48	B48	B48	B48	B48
Applications	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron			
Insert								
Chipbreaker type	No Chipbreaker	Ceramic	PCD	SG	CBN			
Page	B49	B119	C37	B48	C14			

Recommended Cutting Conditions ➡ D75~D76

PRGC (External Turning / External Facing / External Copying)

Right-hand shown

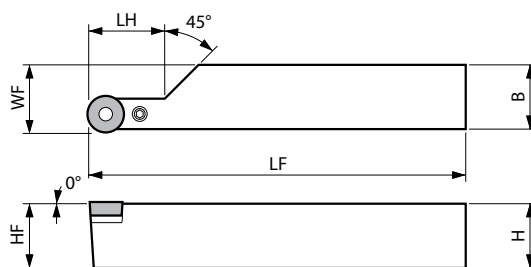
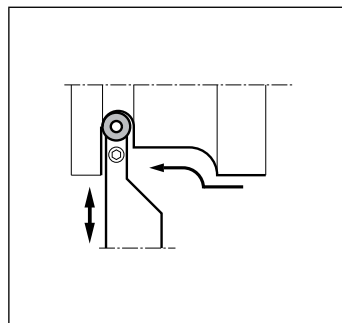
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
												Lever	Lock screw	Punch	Shim pin	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF									
Inch	PRGC% 12-10MC	●	●	0.75	0.75	0.60	0.75	5.00	1.00	0	0	LL-05C	LS-05	PC-1	LSP-1	LR-10C	FH-2	RC□X1003M0..
	16-10MD	●	●	1.00	1.00	0.60	1.00	6.00	1.25	0	0	LL-05C	LS-05	PC-1	LSP-1	LR-10C	FH-2	RC□X1003M0..
	PRGC% 12-12MC	●	●	0.75	0.75	0.60	0.75	5.00	1.00	0	0	LL-1CN	LS-1N	PC-1	LSP-1	LR-12C	FH-2.5	RCMX1204M0
	16-12MD	●	●	1.00	1.00	0.60	1.00	6.00	1.25	0	0	LL-1CN	LS-1N	PC-1	LSP-1	LR-12C	FH-2.5	RCMX1204M0
mm	PRGC% 2020K-10	●	●	20	20	15	20	125	25	0	0	LL-05C	LS-05	PC-1	LSP-1	LR-10C	FH-2	RC□X1003M0..
	2525M-10	●	●	25	25		25	150	32	0	0	LL-05C	LS-05	PC-1	LSP-1	LR-10C	FH-2	RC□X1003M0..
	PRGC% 2020K-12	●	●	20	20	14	20	125	25	0	0	LL-1CN	LS-1N	PC-1	LSP-1	LR-12C	FH-2.5	RCMX1204M0
	2525M-12	●	●	25	25	17	25	150	32	0	0	LL-1CN	LS-1N	PC-1	LSP-1	LR-12C	FH-2.5	RCMX1204M0

Applicable Inserts

Applications	Medium	Non-Ferrous Metals
Insert		
Chipbreaker type	Standard	AQ
Page	B81	B81

Recommended Cutting Conditions ➡ D75~D76

PRXC (External Turning / External Facing / External Copying)

Right-hand shown

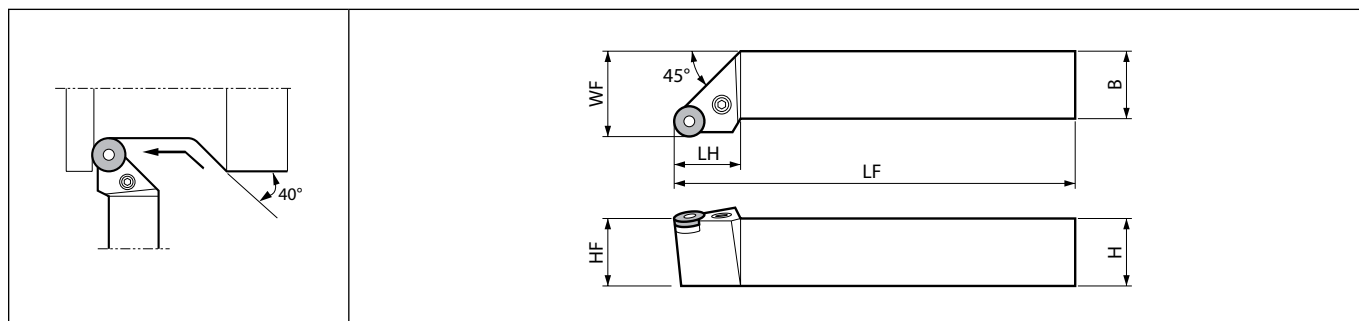
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
												Lever	Lock screw	Punch	Shim pin	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF									
Inch	PRXC% 12-10MC	●	●	0.75	0.75	1.00	0.75	5.00	0.77	0	0	LL-05C	LS-05	PC-1	LSP-1	LR-10C	FH-2	RC□X1003M0..
	16-10MD	●	●	1.00	1.00	1.00	1.00	6.00	1.02	0	0	LL-05C	LS-05	PC-1	LSP-1	LR-10C	FH-2	RC□X1003M0..
	PRXC% 12-12MC	●	●	0.75	0.75	1.00	0.75	5.00	0.77	0	0	LL-1CN	LS-1N	PC-1	LSP-1	LR-12C	FH-2.5	RCMX1204M0
	16-12MD	●	●	1.00	1.00	1.00	1.00	6.00	1.02	0	0	LL-1CN	LS-1N	PC-1	LSP-1	LR-12C	FH-2.5	RCMX1204M0
mm	PRXC% 2020K-10	●	●	20	20	25	20	125	20.5	0	0	LL-05C	LS-05	PC-1	LSP-1	LR-10C	FH-2	RC□X1003M0..
	2525M-10	●	●	25	25	30	25	150	25.5	0	0	LL-05C	LS-05	PC-1	LSP-1	LR-10C	FH-2	RC□X1003M0..
	2525Q-10	●	●	25	25	30	25	180	25.5	0	0	LL-05C	LS-05	PC-1	LSP-1	LR-10C	FH-2	RC□X1003M0..
	PRXC% 2525M-12	●	●	25	25	30	25	150	25.7	0	0	LL-1CN	LS-1N	PC-1	LSP-1	LR-12C	FH-2.5	RCMX1204M0

Applicable Inserts

Applications	Medium	Non-Ferrous Metals
Insert		
Chipbreaker type	Standard	AQ
Page	B81	B81

Recommended Cutting Conditions ● D75~D76

PRGN (External Turning / External Facing / External Copying)

Right-hand shown

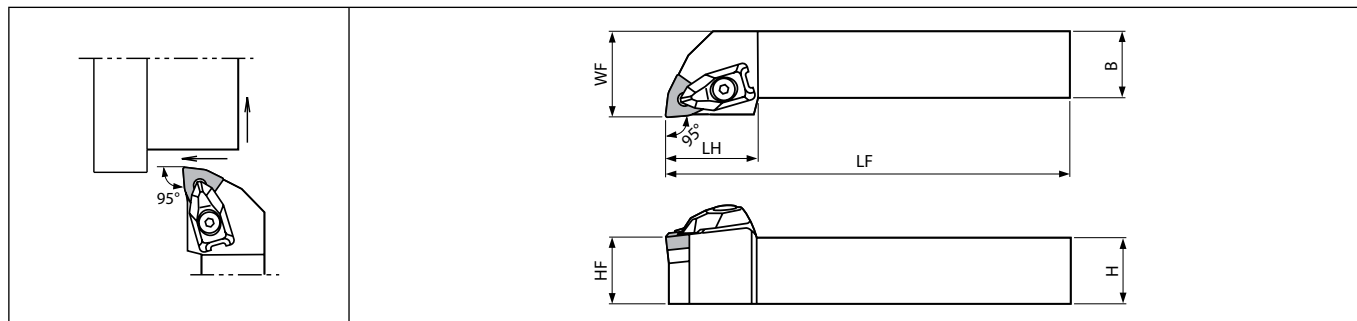
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts	
												Lever	Lock screw	Punch	Shim pin	Shim	Wrench		Wrench
		R	L	H	B	LH	HF	LF	WF										
mm	PRGN% 2020K-09	●	●	20	20	19	20	125	25	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	LR-80	-	FH-2.5	RNMG32
	PRGN% 2525M-12	●	●	25	25	26	25	150	32	-6	-6	LL-2N	LS-2N	PC-2	LSP-2	LR-81	LW-3	-	RNMG43

Applicable Inserts

Applications	Medium - Roughing
Insert	
Chipbreaker type	Standard
Page	B33

Recommended Cutting Conditions ➡ D75~D76

DWLN (External Turning / External Facing)

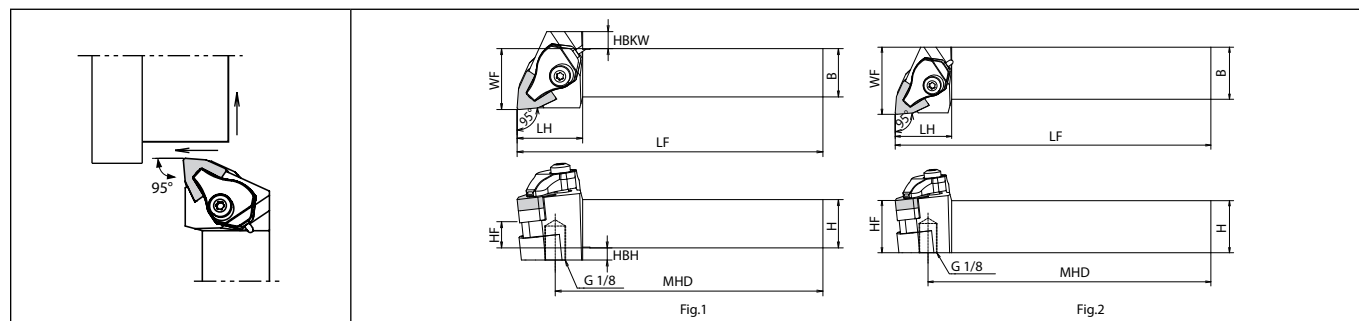
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts	
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)		Wrench* (for shim)
		R	L	H	B	LH	HF	LF	WF											
Inch	DWLN% 12-3B	●	●	0.75	0.75	1.06	0.75	4.50	1.00	1/32	-6	-6	CP-2D	CS-2D	SP-2D	LW-2.5	DW-32	SB-3080TR	FT-10	WN□G33... WN□M33...
	16-3D	●	●	1.00	1.00	1.06	1.00	6.00	1.25											
	DWLN% 12-4B	●	●	0.75	0.75	1.34	0.75	4.50	1.25	1/32	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DW-44	SB-4085TR	FT-15	WN□A43... WN□G43... WN□M43...
	16-4D	●	●	1.00	1.00	1.34	1.00	6.00	1.25											
mm	DWLN% 2020K-08	●	●	20	20	34	20	125	25	0.8	-6	-6	CP-3D	CS-3D	SP-3D	LW-3	DW-44	SB-4085TR	FT-15	
	2525M-08	●	●	25	25		25	150	32											

Wrench (FT-15) is sold separately.

Recommended tightening torque : 3.9N·m

DWLN-JCT (External Turning / External Facing, Coolant-Through Holders)

Right-hand shown | Coolant-Through | Applicable Pressure : ~4,350 psi

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions									Standard Corner-R (RE)	Fig.	Coolant Hole	Side Rake Angle (°)	Inclination Angle (°)	Applicable Inserts
		R	L	H	B	LH	HBH	HBKW	MHD	HF	LF	WF						
Inch	DWLN% 12-4BJCT	●	●	0.75	0.75	1.06	0.23	0.26	3.88	0.75	4.50	1.00	1/32	1	Yes	-6	-6	WN□A43... WN□G43... WN□M43...
	16-4DJCT	●	●	1.00	1.00	1.06	-	-	5.38	1.00	6.00	1.25		2				
mm	DWLN% 2020K-08JCT	●	●	20	20	27	5	7	109	20	125	25	0.8	1	Yes	-6	-6	
		2525M-08JCT	●	●	25		25	-	-	134	25	150		32					2

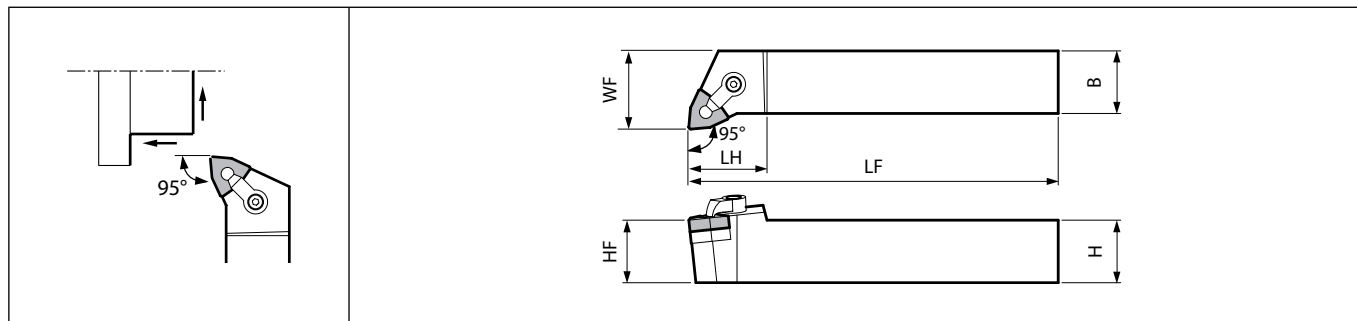
Unit	Part Number	Spare Parts						
		Clamp	Pipe Connection (* with O-Ring)	Screw (for clamp)	Screw	Shim	Spring	Wrench
Inch	DWLN% 12-4BJCT	CP-3D-R-JCT	FP-12	CS-3D-TR	SB-4085TR	DW-44	SP-3D	FT-15
	16-4DJCT	CP-3D-L-JCT	FP-12	CS-3D-TR	SB-4085TR	DW-44	SP-3D	FT-15
mm	DWLN% 2020K-08JCT	CP-3D-R-JCT	FP-12	CS-3D-TR	SB-4085TR	DW-44	SP-3D	FT-15
	2525M-08JCT	CP-3D-L-JCT	FP-12	CS-3D-TR	SB-4085TR	DW-44	SP-3D	FT-15

Clamp : CP-3D-R-JCT for Right-hand Toolholder, CP-3D-L-JCT for Left-hand Toolholder.

Please see page **D13** for piping parts of coolant-through holders.

O-ring (SS-035) is available to order separately.

Recommended tightening torque : 3.9N·m

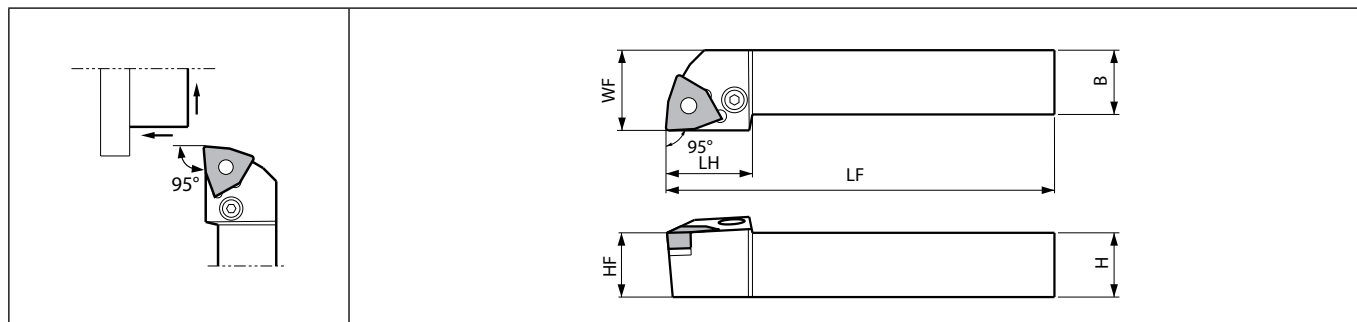
MWLN (External Turning / External Facing)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Incination Angle (°)	Spare Parts						Applicable Inserts	
													Clamp	Screw (for clamp)	Wrench	Shim	Shim Screw	Lock Pin		Wrench
		R	L	H	B	LH	HF	LF	WF											
Inch	MWLN [®] 16-4D	●	●	1.00	1.00	1.19	1.00	6.00	1.25	1/32	-5	-5	CL-9	XNS-510	LW-156	IWSN432	S-46	NL46	LW-094	WN□A43... WN□G43... WN□M43...

When using inserts with a corner-R (RE) greater than 1/16" (1.6mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

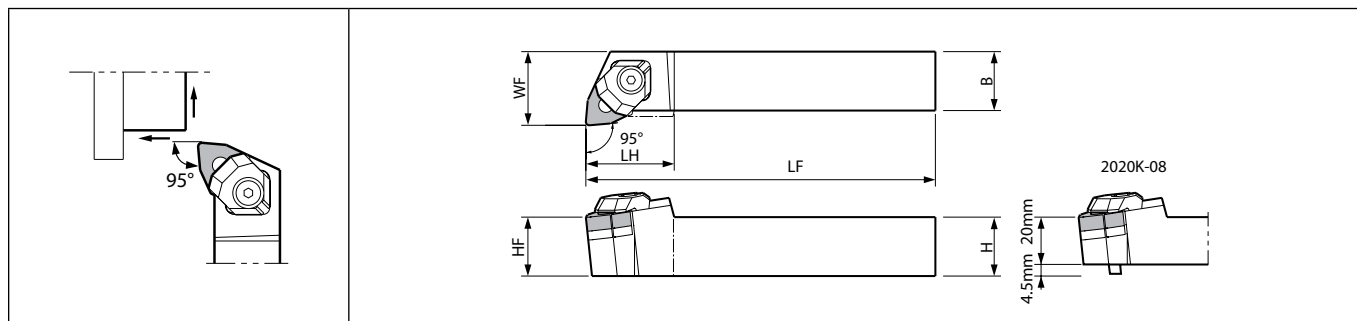
PWLN (External Turning / External Facing)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts	
													Lever	Lock screw	Punch	Shim pin	Shim	Wrench		Wrench
		R	L	H	B	LH	HF	LF	WF											
Inch	PWLN [®] 12-3B	●		0.75	0.75	0.87	0.75	4.50	1.00	1/32	-6	-6		LS-1N	PC-1	LSP-1	LW-32N	-	FH-2.5	WN□G33...
	16-3D	●		1.00	1.00	0.87	1.00	6.00	1.25											
mm	PWLN [®] 1616H-06	●	●	16	16	22	16	100	20	0.8	-6	-6		LS-1N	PC-1	LSP-1	LW-32N	-	FH-2.5	WN□G33...
	2020K-06	●	●	20	20		20	125	25											
	2525M-06	●	●	25	25		25	150	32											
	PWLN [®] 2020K-08	●	●	20	20	26	20	125	25												0.8	-6	-6		LS-2N	PC-2	LSP-2	LW-42N	LW-3	-	WN□A43... WN□G43... WN□M43...
2525M-08	●	●	25	25	25		150	32												

When using inserts with a corner-R (RE) greater than 1/16" (1.6mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

WWLN (External Turning / External Facing)

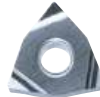
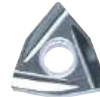
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions				Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts		
											Clamp set	Nut	Shim pin	Shim	Wrench			
		R	L	H	B	LH	HF	LF	WF									
mm	WWLN% 2020K-08	●	●	20	20	30	20	125	25	1.2	-6	-6	WCS-8	WN-1	WP5X15	WWN-42	LW-3	WN□A43... WN□G43... WN□M43...
	2525M-08	●	●	25	25		25	150	32									

In wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restrain force.

Applicable Inserts (DWLN / DWLN-JCT / MWLN / PWLN / WWLN)

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker type	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B50	B50	B50	B50	B50	B50	B50	B51
Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker type	CQ	CJ	PMG	GS	PG	PS	PT	GT
Page	B51	B51	B51	B51	B51	B51	B51	B52
Applications	Roughing	Roughing	Finishing	Medium	Low carbon steel	Low carbon steel	Low carbon steel	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker type	Standard	PH	P/S	R/L	XP	XQ	XS	TK
Page	B52	B52	B54	B54	B52	B52	B52	B52
Applications	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker type	MQ	MS	MU	KQ	KG	KH	C	ZS
Page	B53	B53	B53	B53	B53	B53	B54	B54
Applications	Cast Iron	Cast Iron	Non-Ferrous Metals	Cast Iron / Hard Materials	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron	
Insert								
Chipbreaker type	GC	No Chipbreaker	AH	Ceramic	PCD	SG	CBN	
Page	B54	B54	B54	B119	C38	B53	C15	

In wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restrain force.

Recommended Cutting Conditions ➡ D75~D76

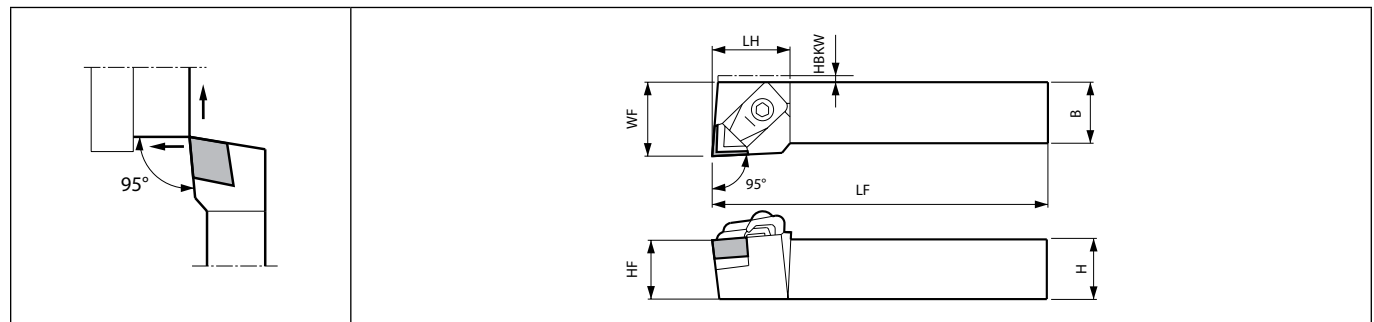
Selection Guide for Ceramic Inserts

Select the suitable ceramic specifications (Corner-R (RE), Feed Rate, Chamfer, etc.) from the table below.

Insert Shape	Corner-R (RE)	f (ipr)										D.O.C. (in)
		0.004	0.006	0.008	0.010	0.012	0.014	0.016	0.018	0.020	0.024	
 RN	-											0.012~0.158
 SN  EN CN	5/64											0.012~0.158
	1/16											
	3/64											
	1/32											
	1/64											
 TN  DN	1/16											0.012~0.079
	3/64											
	1/32											
Chamfer		0.002" x 20°		(0.004"~0.008") x (20°~ 25°)				0.012" x 30°				-
Insert Thickness		5/16"										

CCLN (External Turning / External Facing)

(No.45, Cutting Edge Angle: 0°~15°)



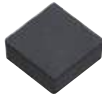
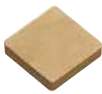
Toolholder Dimensions

Right-hand shown

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts
		R	L	H	B	LH	HF	HBKW	LF	WF				Chipbreaker	Clamp Set	Shim Screw	Shim	Wrench	
Inch	CCLNR 16-4D	●		1.00	1.00	1.26	1.00	-	6.00	1.25	0.8	-6	-6	CB-16	CE-010	M3X8 (M3X12*)	SP-441 (SP-443*)	LW-4	CNG45..., CNM45... (CNG43..., CNM43...)*
mm	CCLN% 2020K-12	●	●	20	20	32	20	5	125	27	0.8	-6	-6	CB-16	CE-010	M3X8 (M3X12*)	SP-441 (SP-443*)	LW-4	CNG45..., CNM45... (CNG43..., CNM43...)*
	2525M-12	●	●	25	25	32	25	-	150	32	0.8	-6	-6	CB-16	CE-010	M3X8 (M3X12*)	SP-441 (SP-443*)	LW-4	CNG45..., CNM45... (CNG43..., CNM43...)*
	CCLN% 3225P-16	●	●	32	25	35	32	-	170	32	0.8	-6	-6	CB-17	CE-220	M4X10	SP-454	LW-4	CNG55...

Shims indicated with * are not included with the toolholder. When using CNG43 or CNM43 type insert, please purchase shim (SP-443) and screw (M3X12) separately.

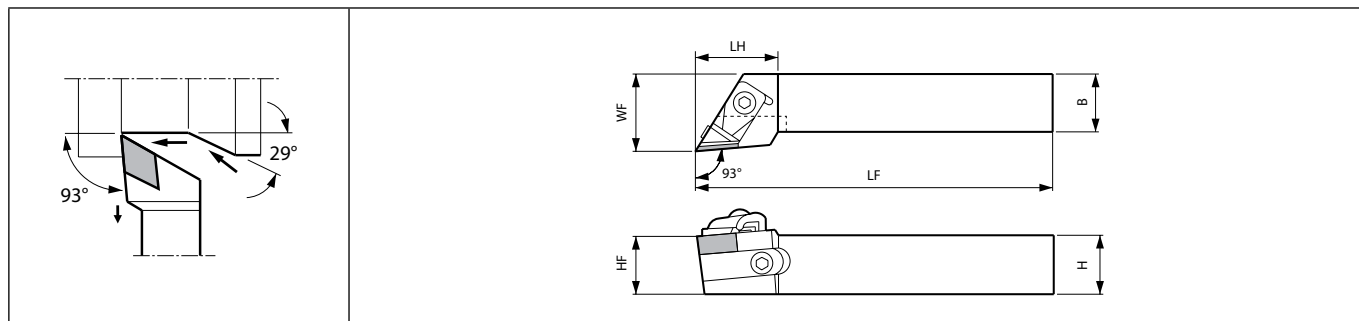
Applicable Inserts

Applications	Cast Iron / Hard Materials	Hard Materials / Cast Iron
Insert		
Type	Ceramic	CBN
Page	B113	C16

Recommended Cutting Conditions ➡ D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

CDJN (External Turning / External Copying / Back Turning)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts
		R	L	H	B	LH	HF	LF	WF				Chipbreaker	Clamp bolt	Clamp set	Shim	Wrench	
																		
mm	CDJN% 2525M-15 3225P-15	●	●	25	25	32	25	150	32	0.8	-5	-8	CB-14/15	HHSX16	CE-010	556C%	LW-4	DNG45...
		●	●	32			32	170										

Chipbreaker : CB-14 for Right-hand Toolholder, CB-15 for Left-hand Toolholder.

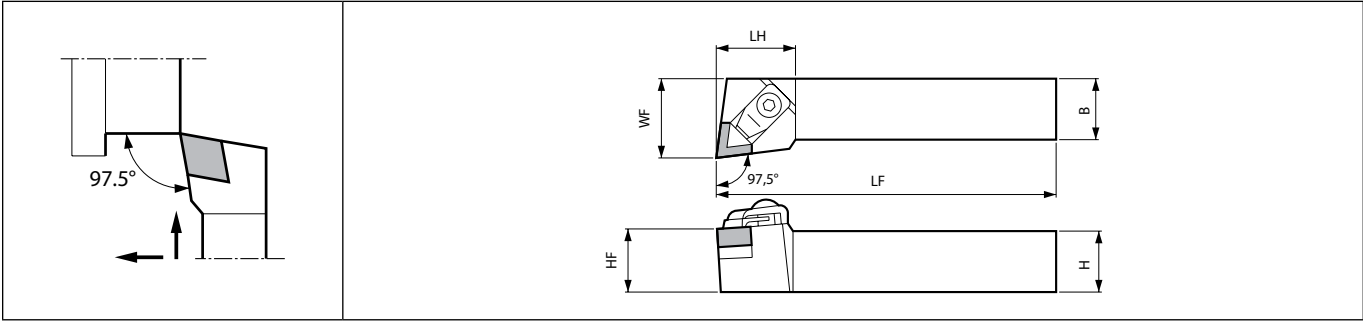
Shim : 556CR for Right-hand Toolholder, 556CL for Left-hand Toolholder.

Applicable Inserts

Applications	Cast Iron / Hard Materials
Insert	
Type	Ceramic
Page	B114

Recommended Cutting Conditions ➡ D75~D76

CELN (External Turning / External Facing)



Right-hand shown

Toolholder Dimensions

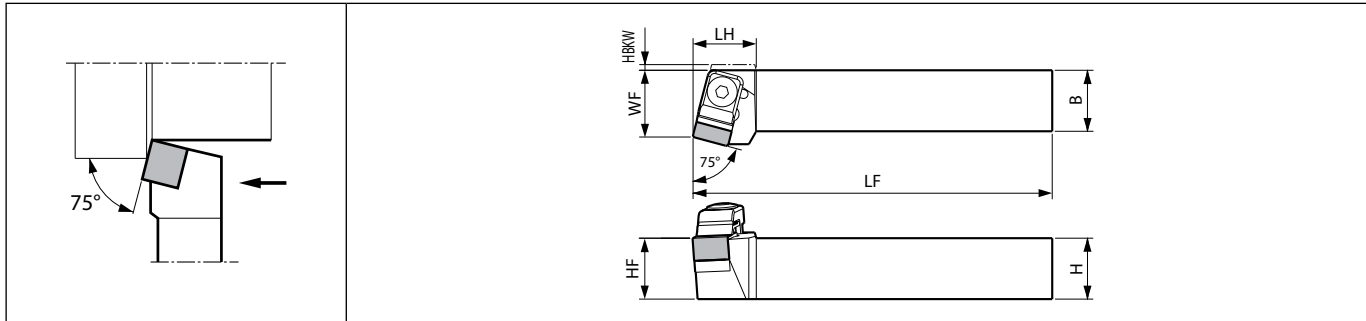
Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts
													Chipbreaker	Clamp set	Shim screw	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF									
mm	CELN% 2525M-13	●	●	25	25	32	25	150	32	0.8	-6	-6	CB-16	CE-010	M3X8	SP-342	LW-4	ENG45...

Applicable Inserts

Applications	Cast Iron / Hard Materials
Insert	
Type	Ceramic
Page	B115

Recommended Cutting Conditions ➡ D75~D76

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CSRN (External Turning)

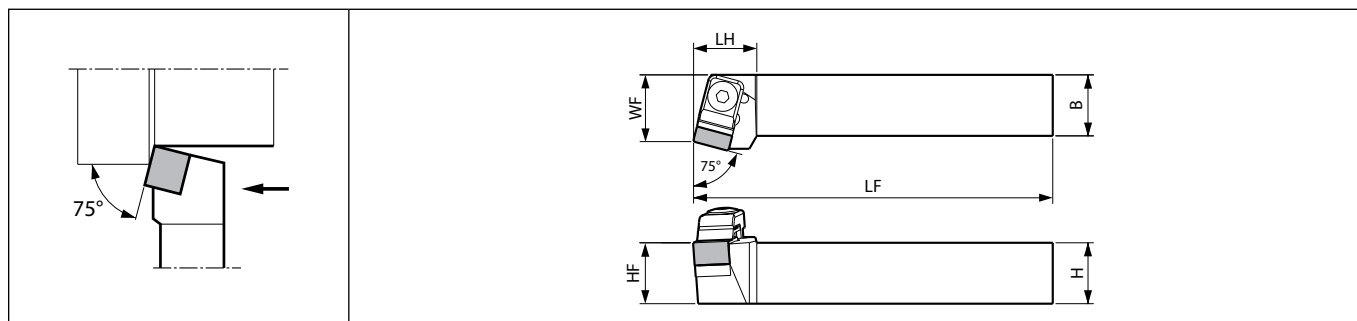
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
														Chipbreaker	Clamp set	Clamp set	Shim screw	Shim	Wrench	
		R	L	H	B	LH	HF	HBKW	LF	WF										
Inch	CSRN% 20-4E	●	●	1.25	1.25	0.88	1.25	-	7.00	1.50	1/32	-6	-4	CB-11	CE-020	-	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)
mm	CSRN% 2020K-12 2525M-12 3225P-12	●	●	20	20	22	20	2	125	22	0.8	-6	-4	CB-11	CE-020	-	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)
		●	●	25	25		-	150	27											
		●	●	32						32											170
	CSRN% 3225P-15 4040R-15	●		32	25	30	32	-	170	32.4	1.2	-6	-4	CB-51	-	CE-220	M4X10	SP-162	LW-4	SNG55...
●		●	40	40	40		200		43											

Shims indicated with * are not included with the toolholder. When using SN□43 type insert, please purchase shim (SP-143) and screw (M3X12) separately.

If installing SNM43... inserts in grade CA410K or CA415K, see clamping caution on **Page D61**

HSRN (External Turning)

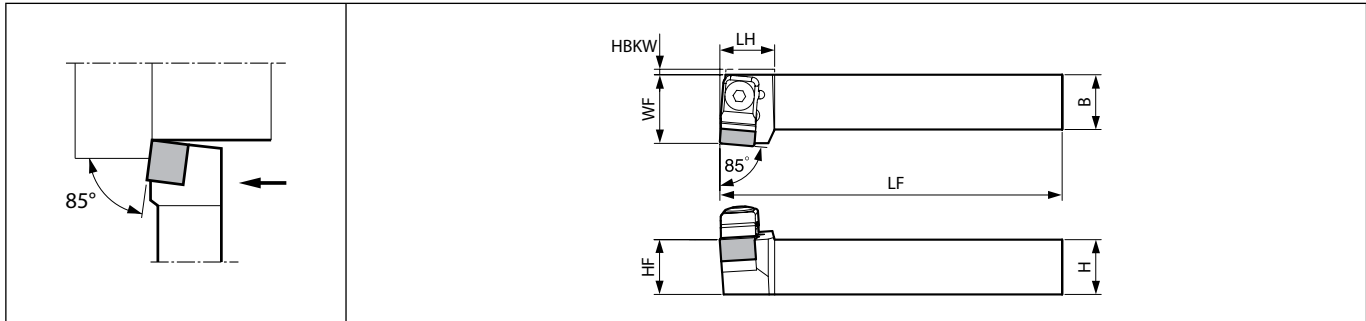
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
													Chipbreaker	Clamp set	Shim screw	Shim	Lock Pin	Wrench	
			R	H	B	LH	HF	LF	WF										
Inch	HSRNR 16-4D	●	1.00	1.00	0.87	1.00	6.00	1.13	1/32	-6	-4		HCB300	HCL-000 (HCL-001*)	S-46	ISSN433 (ISSN453*)	NL46L	LW-094	SN□45... (SN□43..., SN□A43...)*

Shim and Clamp Set indicated with * are not included with the toolholder. When using SN□43 or SN□A43 type insert, please purchase clamp set (HCL-001) and shim (ISSN453) separately.

If installing SNM43... inserts in grade CA410K or CA415K, see clamping caution on **Page D61**

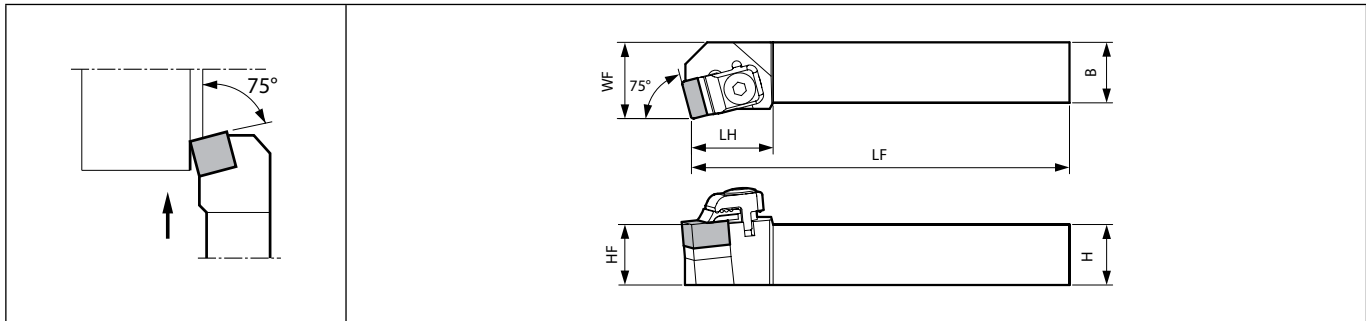
CS-N (External Turning)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts
		R	L	H	B	LH	HF	LF	WF	Chipbreaker				Clamp set	Shim screw	Shim	Wrench		
																			
mm	CS-N% 2525M-12	●	●	25	25	20	25	150	32	0.8	-6	-4	CB-11	CE-020	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)	

Shims indicated with * are not included with the toolholder. When using SN□43 type insert, please purchase shim (SP-143) and screw (M3X12) separately.

If installing SNM43... inserts in grade CA410K or CA415K, see clamping caution on **Page D61****CSKN** (External Facing)

Right-hand shown

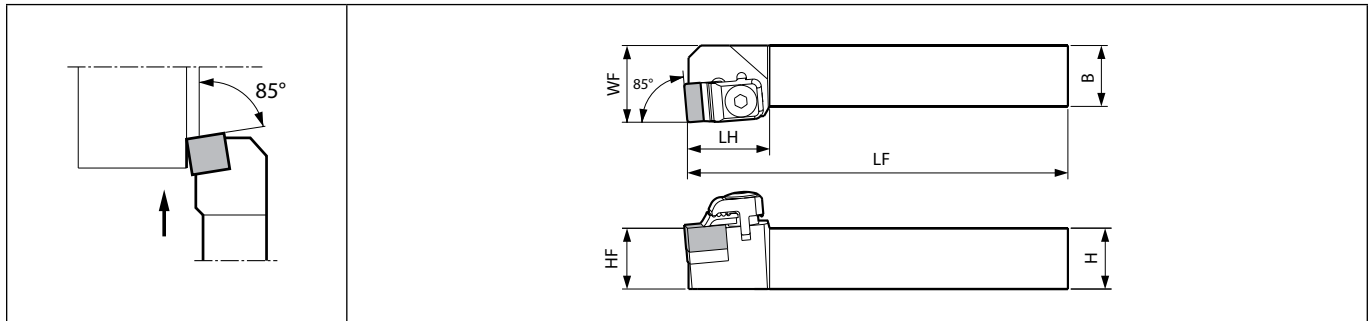
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts		
		R	L	H	B	LH	HF	LF	WF				Chipbreaker	Clamp set	Clamp set	Shim screw	Shim	Wrench			
																					
mm	CSKN% 2020K-12	●		20	20	27	20	125	25	0.8	-6	-4		CB-11		CE-020	-	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)
	2525M-12	●	●	25	25		25	150	32												
	CSKNR 3225P-15	●		32	25	37	32	170	32													1.2	-6	-4	CB-51	-	CE-220	M4X10	SP-162	LW-4	SNG55...

Shims indicated with * are not included with the toolholder. When using SN□43 type insert, please purchase shim (SP-143) and screw (M3X12) separately.

If installing SNM43... inserts in grade CA410K or CA415K, see clamping caution on **Page D61**

CSYN (External Facing)



Right-hand shown

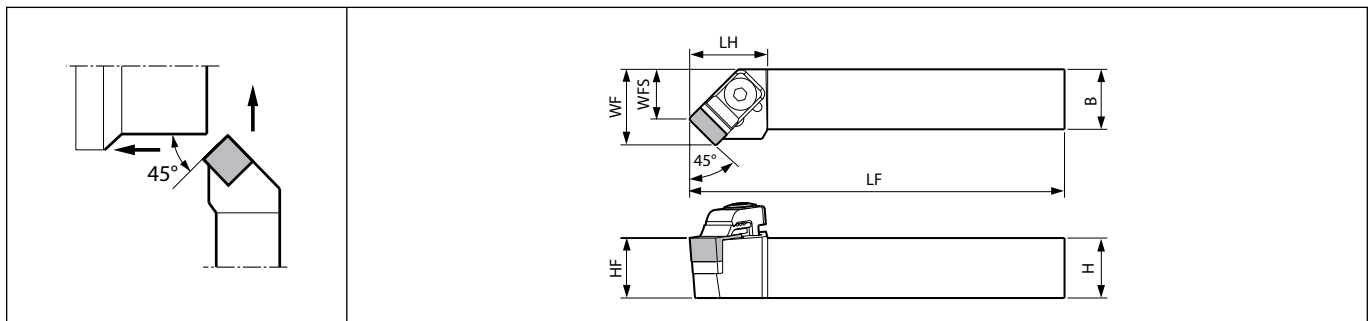
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts
		R	L	H	B	LH	HF	LF	WF	Chipbreaker				Clamp set	Shim screw	Shim	Wrench		
mm	CSYN% 2525M-12	●	●	25	25	27	25	150	32	0.8	-6	-4						SN□45... (SN□43...*)	

Shims indicated with * are not included with the toolholder. When using SN□43 type insert, please purchase shim (SP-143) and screw (M3X12) separately.

If installing SNM43... inserts in grade CA410K or CA415K, see clamping caution on Page D61

CSSN (External Turning / External Facing / Chamfering)



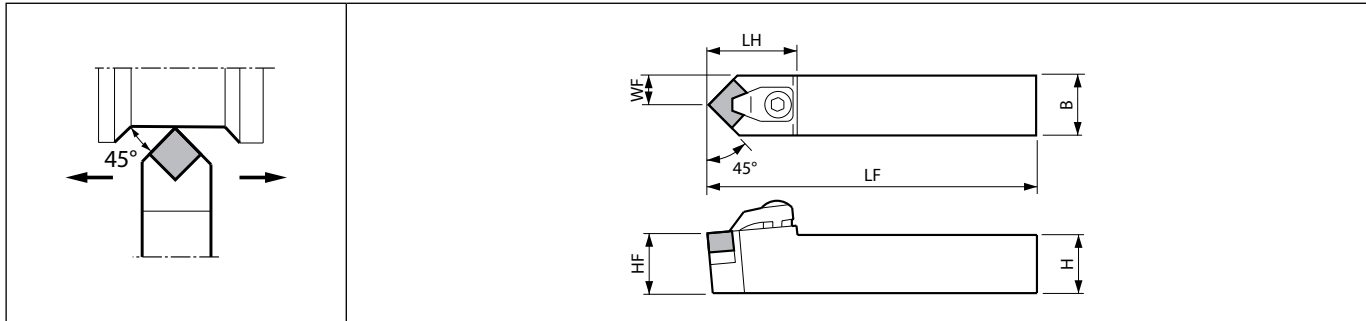
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts
														Chipbreaker	Clamp set	Shim screw	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF	WFS									
Inch	CSSN% 16-4D	●	●	1.00	1.00	1.00	1.00	6.00	1.25	-	1/32	-6	0	CB-11	CE-020	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)
mm	CSSN% 2020K-12 2525M-12	●		20	20	26	20	125	25	16	0.8	-6	0	CB-11	CE-020	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)
		●	●	25	25		25	150	32	23									

Shims indicated with * are not included with the toolholder. When using SN□43 type insert, please purchase shim (SP-143) and screw (M3X12) separately.

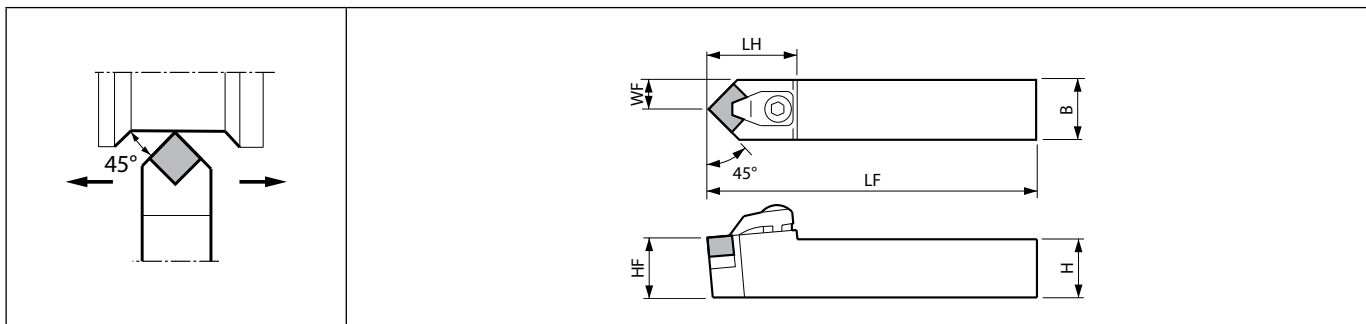
If installing SNM43... inserts in grade CA410K or CA415K, see clamping caution on Page D61

CSDN (External Turning / Chamfering)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard	Corner-R (RE)	Back rake angle (°)	Spare Parts				Applicable Inserts
													Clamp set	Shim screw	Shim	Wrench	
		N	H	B	LH	HF	LF	WF									
mm	CSDNN 2020K-12	●	20	20	32	20	125	10	0.8	-8.5	CE-040	M3X8 (M3X12*)	SP-141 (SP-143*)	LW-4	SN□45... (SN□43...*)		
	2525M-12	●	25	25		25	150	12.5									
	3225P-12	●	32		32	170											

Shims indicated with * are not included with the toolholder. When using SN□43 type insert, please purchase shim (SP-143) and screw (M3X12) separately.

HSDN (External Turning / Chamfering)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Back rake angle (°)	Spare Parts						Applicable Inserts
											Clamp set	Wrench	Shim screw	Shim	Lock Pin	Wrench	
		N	H	B	LH	HF	LF	WF									
Inch	HSDNN 20-4D	●	1.25	1.25	1.30	1.25	6.00	0.625	1/32	-8.5	CE-040	LW-4	S-46	ISSN433 (ISSN453*)	NL46L	LW-094	SN□45... (SN□43..., SN□A43...)*

Shim and Clamp Set indicated with * are not included with the toolholder. When using SN□43 or SN□A43 type insert, please purchase shim (ISSN453) separately.

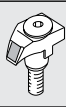
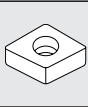
Applicable Inserts

Applications	Cast Iron / Hard Materials	Cast Iron / Hard Materials	Cast Iron
Type	Ceramic	Ceramic	Coated Carbide
Insert			
Toolholder			
CSR ^N % ...-4E CSR ^N % ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)
HSR ^N % ...-4D	SNG45.. (SNG43..) SNM45..	(SNGA43..) (SNMA43..)	(SNM43..)
CSR ^N % ...-15	SNGN55..	-	-
CS-N % ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)
CSKN % ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)
CSKN % ...-15	SNGN55..	-	-
CSYN % ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)
CSSN % ...-4D CSSN % ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)
CSDNN ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)
HSDNN ...-4D	SNG45.. (SNG43..) SNM45..	(SNGA43..) (SNMA43..)	(SNM43..)
Page	B117	B117	B38

Recommended Cutting Conditions ➡ D75~D76

Spare Parts

When using toolholder with CBN inserts (KBN900), please purchase spare parts below separately.

Hard Materials / Cast Iron	Spare Parts			
CBN	Clamp Set	Shim	Shim screw	Shim screw
				
(SNM43..)	CE-030A	SP-143	M3X12	-
(SNM43..)	HCL-001	ISSN453	-	S-46
-	-	-	-	-
(SNM43..)	CE-030A	SP-143	M3X12	-
(SNM43..)	CE-030A	SP-143	M3X12	-
-	-	-	-	-
(SNM43..)	CE-030A	SP-143	M3X12	-
(SNM43..)	CE-030A	SP-143	M3X12	-
(SNM43..)	*-	SP-143	M3X12	-
(SNM43..)	*-	ISSN453	-	S-46

* CSDNN...-12 : Clamp Set CE-040 is used continuously.

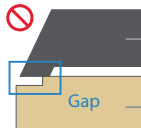
Installation Precautions for SNM43□ in Grade CA410K & CA415K

For the insert part numbers listed below, when using a top-clamp type holder with the CB-11 chipbreaker, it is not recommended to use chipbreaker with the maximum overhang.

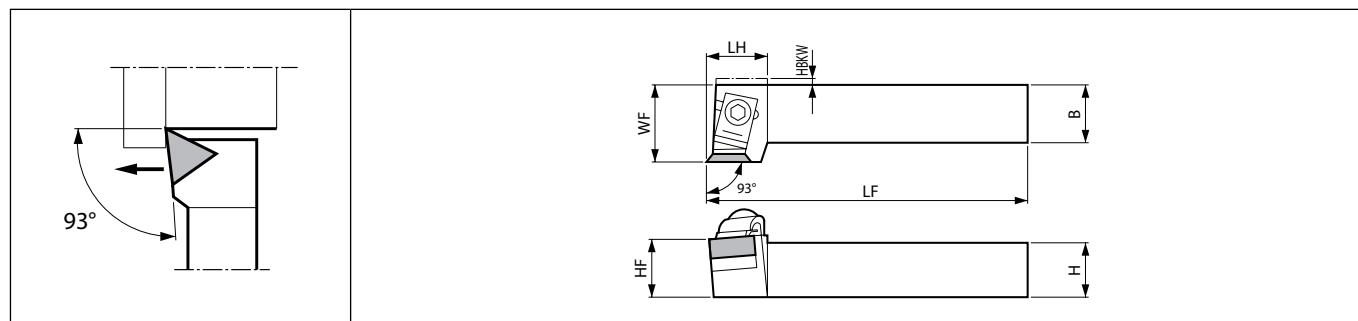
Inserts : SNM43... (CA410K/CA415K)

Holders : CSR^N% ...-4E, HSR^N% ...-4D, CSSN % ...-4DCSR^N% ...-12, CS-N % ...-12, CSKN % ...-12, CSYN % ...-12, CSSN % ...-12

Overhang of the chipbreaker and the clamp

Overhang with Chipbreaker					View A
Clamp Condition (View A)					Not Recommended

SNM43... (CA310/CA315/CA320) can be installed.

CTJN (External Turning)

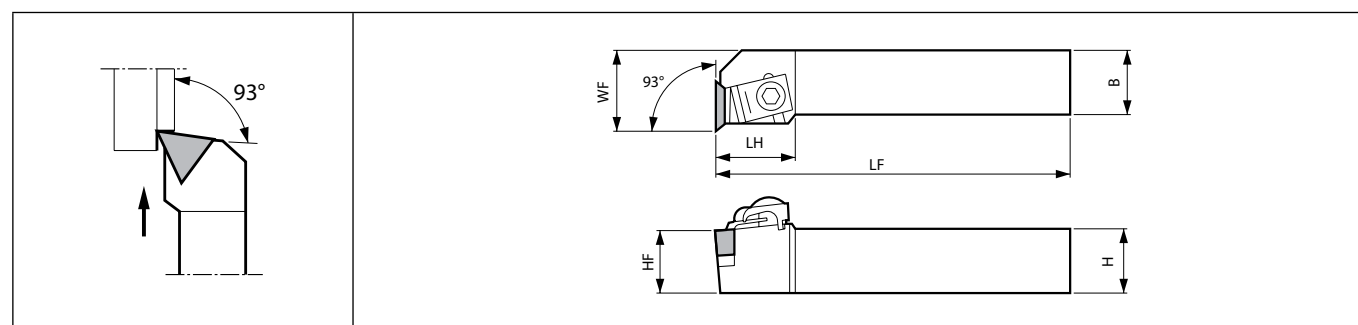
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts
		R	L	H	B	LH	HF	HBKW	LF	WF				Chipbreaker	Clamp set	Shim screw	Shim	Wrench	
Inch	CTJN% 16-3D 16-4D	●	●	1.00	1.00	0.88	1.00	-	6.00	1.25	1/32	-6	-4	CB-12/13	CE-020	M3X8 (M3X12*)	SP-221 (SP-223*)	LW-4	TNG35... (TN□33...*) TNG45... (TN□43...*)
mm	CTJN% 2020K-16 2525M-16	●	●	20	20	21	20	2	125	25	0.8	-6	-4	CB-12/13	CE-020	M3X8 (M3X12*)	SP-221 (SP-223*)	LW-4	TNG35... (TN□33...*)

Chipbreaker : CB-12 for Right-hand Toolholder, CB-13 for Left-hand Toolholder.

Shims indicated with * are not included with the toolholder. When using TN□33 or TN□43 type insert, please purchase shim (SP-223) and screw (M3X12) separately.

CTUN (External Facing)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts					Applicable Inserts
		R	L	H	B	LH	HF	LF	WF				Chipbreaker	Clamp set	Shim screw	Shim	Wrench	
																		
mm	CTUN% 2020K-16 2525M-16	●	●	20	20	27	20	125	25	0.8	-6	-4	CB-13/12	CE-020	M3X8 (M3X12*)	SP-221 (SP-223*)	LW-4	TNG35... (TN□33...*)

Chipbreaker : CB-13 for Right-hand Toolholder, CB-12 for Left-hand Toolholder.

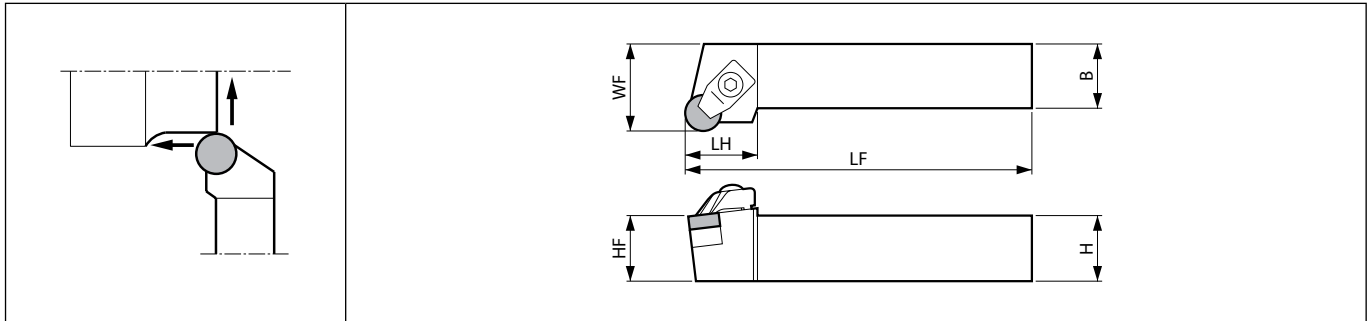
Shims indicated with * are not included with the toolholder. When using TN□33 type insert, please purchase shim (SP-223) and screw (M3X12) separately.

Applicable Inserts (CTJN / CTUN)

Applications	Cast Iron / Hard Materials	Hard Materials / Cast Iron
Insert		
Type	Ceramic	CBN
Page	B118	C19

Recommended Cutting Conditions ● D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

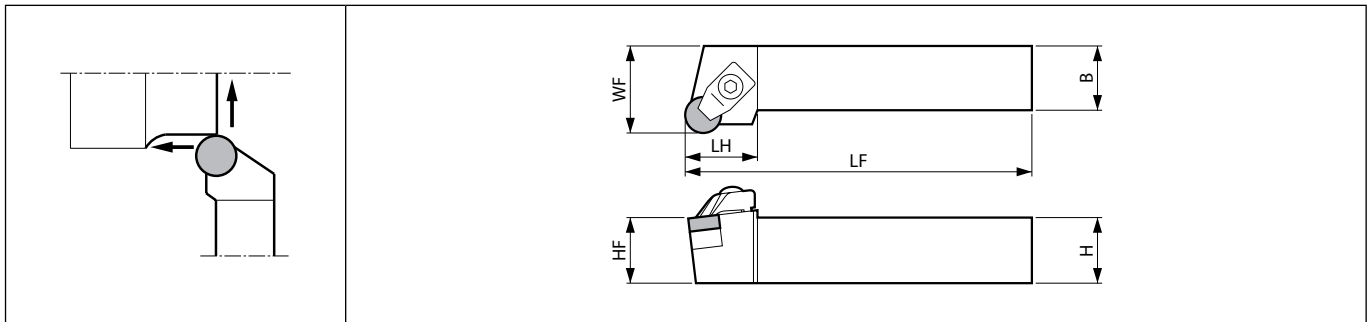
CRSN (External Turning / External Facing)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Side Rake Angle (°)	Inclination Angle (°)	Spare Parts				Applicable Inserts
												Clamp set	Shim screw	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF							
mm	CRSN% 2020K-12	●	●	20	20	26	20	125	25	-6	-6					RNG45... (RN□43...*)
	2525M-12	●	●	25	25		150	32								
	3225P-12	●	●	32	32		170	32								

Shims indicated with * are not included with the toolholder. When using RN□43 type insert, please purchase shim (SP-843) and screw (M3X12) separately.

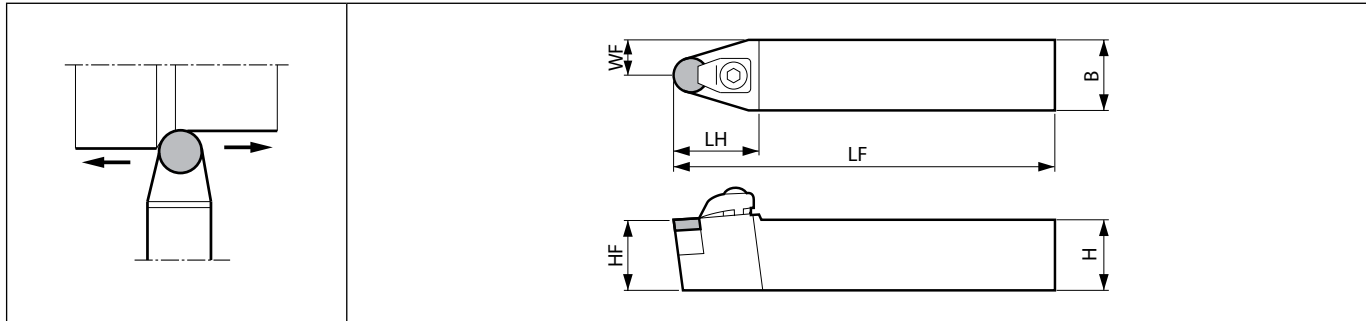
HRSN (External Turning / External Facing)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
												Clamp set	Wrench	Shim screw	Shim	Lock Pin	Wrench	
		R	L	H	B	LH	HF	LF	WF									
Inch	HRSNR 16-4D	● □	1.00	1.00	1.03	1.00	6.00	1.25	-6	-6							RNG45... (RN□43...*)	
	20-4D	● □	1.25	1.25	1.03	1.25	6.00	1.50										

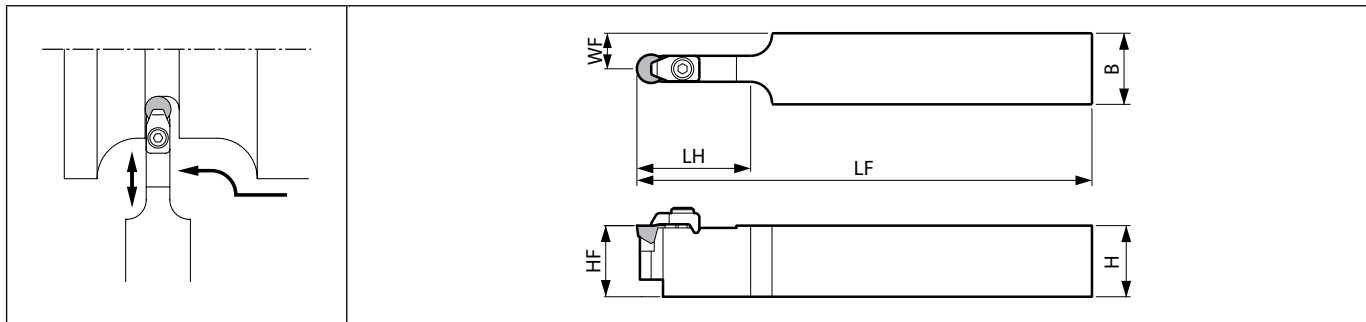
Shims indicated with * are not included with the toolholder. When using RN□43 type insert, please purchase shim (IRSN45) separately.

CRDN (External Turning / External Copying)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Back rake angle (°)	Spare Parts				Applicable Inserts
											Clamp set	Shim screw	Shim	Wrench	
		N	H	B	LH	HF	LF	WF							
Inch	CRDNN 16-4D 20-4E	●	1.00	1.00	1.13	1.00	6.00	0.500	-8.5	CE-030	M3X8	SP-841 (SP-843*)	LW-4	RNG45... (RN□43...*)	
		●	1.25	1.25		1.25	7.00	0.625							
mm	CRDNN 2020K-12 2525M-12 3225P-12	●	20	20	28	20	125	10	-8.5	CE-030	M3X8 (M3X12*)	SP-841 (SP-843*)	LW-4	RNG45... (RN□43...*)	
		●	25	25		25	150	12.5							
		●	32			32	170								
	CRDNN 3232P-15 4040R-15	●	32	32	35	32	170	16	-8.5	CE-040	M4X10	SP-861	LW-4	RNG55...	
●		40	40	40		200	20								

Shims indicated * are not included with the toolholder. When using RNUN1204 type insert, please purchase shim (SP-843) and screw (M3X12) separately.

CRDC (External Turning / External Copying)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Spare Parts			Applicable Inserts
									Clamp set	Wrench	Shim	
			N	H	B	LH	HF	LF	WF			
Inch	CRDCN 16-2	● 1.00	1.00	1.00	1.00	1.00	8.00	0.500	HCL-017C	LW-2	HSH665A	RCGX24..., RCGX102T04015
	16-3	● 1.00	1.00	1.50	1.00	1.00	8.00	0.500	HCL-016	LW-25IP	HSH655	RCGX35..., RCGX103...
	20-3	● 1.25	1.25	1.50	1.25	8.00	0.625					
	20-4	● 1.25	1.25	2.00	1.25	8.00	0.625	HCL-007	LW-4	HSH657	RCGX45..., RCGX104...	
	20-6	● 1.25	1.25	2.00	1.25	8.00	0.625	HCL-013	LW-4	HSH661	RCGX106...	

Applicable Inserts

Applications	Cast Iron / Hard Materials	Hard Materials / Cast Iron
Type	Ceramic	CBN
CRSN $\frac{P}{L}$...-12	RNG45... (RNG43...)	(RNM43...)
HRSN $\frac{P}{L}$...-4D	RNG45... (RNG43...)	(RNM43...)
CRDNN ...-4D / 4E CRDNN ...-12	RNG45... (RNG43...)	(RNM43...)
CRDNN ...-15	RNG55...	-
Page	B116	C17

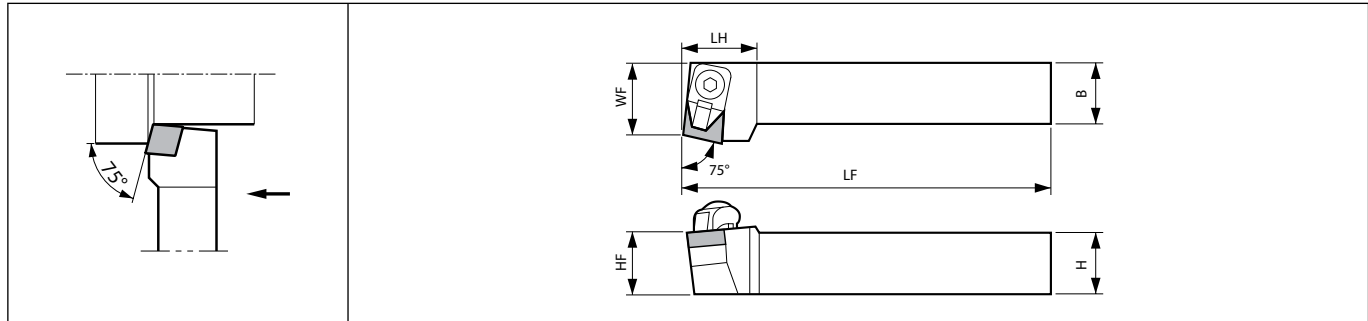
Applications	Cast Iron / Hard Materials
Type	Ceramic
CRDCN ...-2	RCGX24..., RCGX102T04015
CRDCN ...-3	RCGX35..., RCGX103...
CRDCN ...-4	RCGX45..., RCGX104...
CRDCN ...-6	RCGX106...
Page	B116

Recommended Cutting Conditions D75~D76

Spare Parts

When using toolholder with CBN inserts (KBN900), please purchase spare parts below separately.

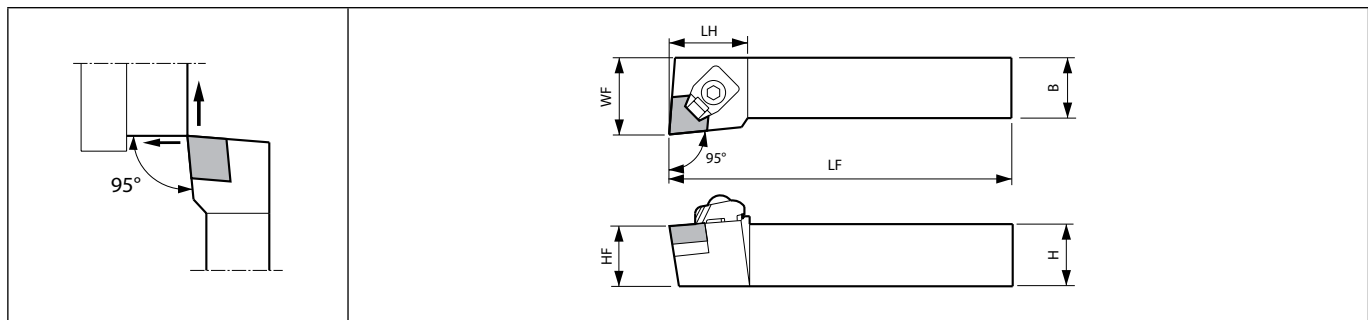
Applications	Hard Materials / Cast Iron	Spare Parts				
Type	CBN	Clamp set	Clamp set	Shim	Shim screw	Shim screw
CRSN $\frac{P}{L}$...-12	(RNM43...)	CE-030A	-	SP-843	M3X12	-
HRSN $\frac{P}{L}$...-4D	(RNM43...)	-	HCL-001	IRS45	-	S-46
CRDNN ...-4D / 4E CRDNN ...-12	(RNM43...)	CE-030A	-	SP-843	M3X12	-
CRDNN ...-15	-	-	-	-	-	-

CCRN-A (External Turning)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts				Applicable Inserts
													Clamp set	Shim screw	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF								
mm	CCRN% 2525M-09A	●	●	25	25	27	25	150	27	0.8	-6	-6	CE-030A	HH3X12	SP-429	LW-4	CNM32...

CCLN-A (External Turning / External Facing)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts				Applicable Inserts
														Clamp set	Shim screw	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF									
mm	CCLN% 2525M-09A	●	●	25	25	28	25	150	32	0.8	-5	-5	CE-030A	HH3X12	SP-429	LW-4	CNM32...	

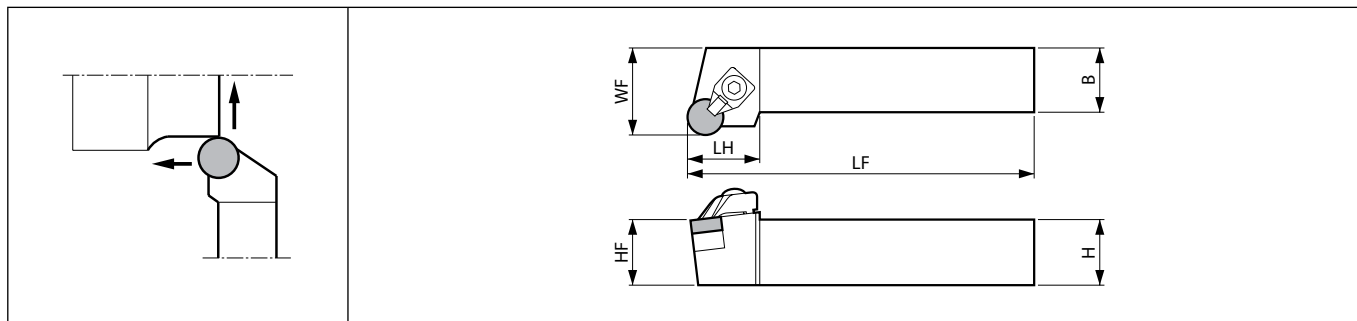
For CNMN1204 Insert toolholder, see page D49

Applicable Inserts

Applications	Hard Materials / Cast Iron
Insert	
Type	CBN
Page	C16

Recommended Cutting Conditions ➡ D75~D76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

CRSN-A (External Turning / External Facing)

Right-hand shown

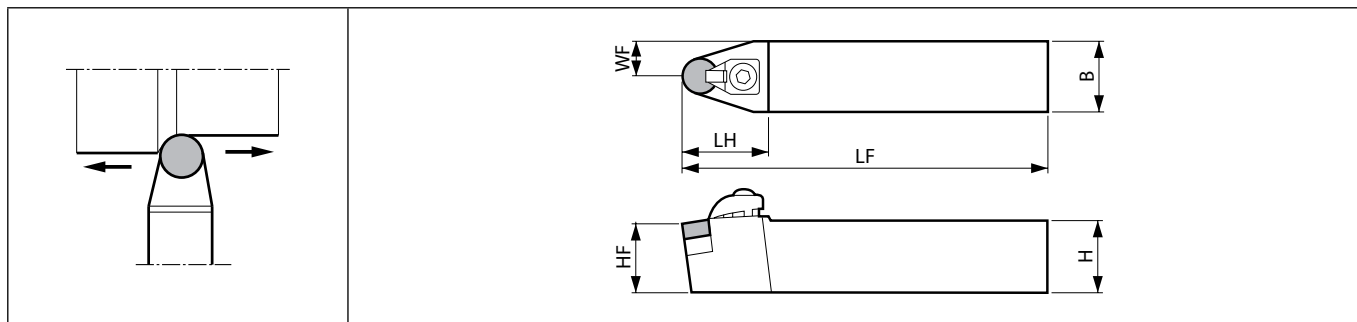
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
												Clamp set	Shim screw	Shim screw	Shim	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF									
mm	CRSN% 2525M-09A	●	●	25	25	26	25	150	32	-6	-6	CE-030A	-	HH3X12	SP-829 (SP-826*)	-	LW-4	RNM33... (RNG33...*)
	3225P-09A	●	●	32			32	170										
	CRSN% 2525M-12A	●	●	25	25	26	25	150	32	-6	-6	CE-030A	BH3X12	-	-	SP-849 (SP-843**) (SP-841***)	LW-4	RNM42... (RN□43...**) (RNG45...***)
	3225P-12A	●	●	32			32	170										

When using RNG33 type insert, please purchase shim (SP-826) separately.

When using RN□43 type insert, please purchase shim (SP-843) separately.

When using RNG45 type insert, please purchase shim (SP-841) separately.

CRDN-A (External Turning / External Copying)

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Back rake angle (°)	Spare Parts						Applicable Inserts
											Clamp set	Shim screw	Shim screw	Shim	Shim	Wrench	
		N	H	B	LH	HF	LF	WF									
mm	CRDNN 2525M-09A	●	25	25	29	25	150	12.5	-8.5	CE-030A	-	HH3X12	SP-829 (SP-826*)	-	LW-4	RNM33... (RNG33...*)	
	●	32	32			170											
	CRDNN 2525M-12A	●	25	25	28	25	150	12.5	-8.5	CE-030A	BH3X12	-	-	SP-849 (SP-843**) (SP-841***)	LW-4	RNM42... (RN□43...**) (RNG45...***)	
	●	32	32			170											

When using RNG33 type insert, please purchase shim (SP-826) separately.

When using RN□43 type insert, please purchase shim (SP-843) separately.

When using RNG45 type insert, please purchase shim (SP-841) separately.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts

Applications	Hard Materials / Cast Iron	Cast Iron / Hard Materials
Type	CBN	Ceramic
Insert		
Toolholder		
CRSN $\frac{P}{L}$...-09A	RNM32	(RNG33)
CRSN $\frac{P}{L}$...-12A	RNM42 (RNM43)	(RNG43) (RNG45)
CRDNN ...-09A	RNM32	(RNG33)
CRDNN ...-12A	RNM42 (RNM43)	(RNG43) (RNG45)
Page	C17	B116

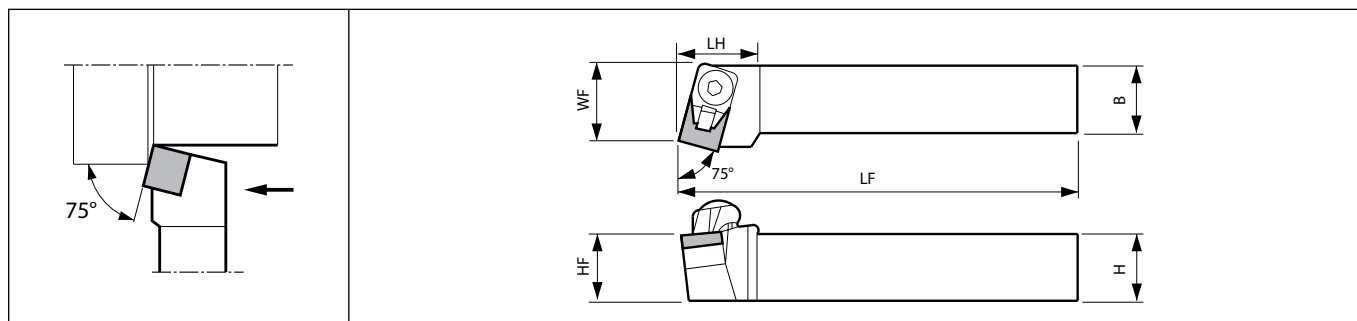
Recommended Cutting Conditions  D75~D76

Spare Parts

When using toolholder with Ceramic inserts, please purchase spare parts below separately.

Applications	Cast Iron / Hard Materials	Spare Parts	
Type	Ceramic	Shim	Shim screw
Insert			
Toolholder			
CRSN $\frac{P}{L}$...-09A	(RNG33)	SP-826	-
CRSN $\frac{P}{L}$...-12A	(RNG43)	SP-843	M3X12
	(RNG45)	SP-841	M3X8
CRDNN ...-09A	(RNG33)	SP-826	-
CRDNN ...-12A	(RNG43)	SP-843	M3X12
	(RNG45)	SP-841	M3X8

CSRN-A (External Turning)



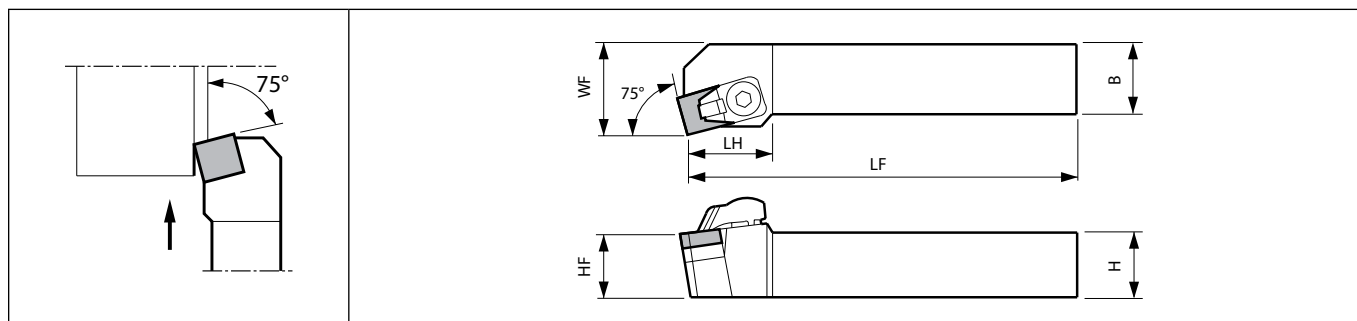
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts				Applicable Inserts
													Clamp set	Shim screw	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF								
mm	CSRN% 2525M-12A	●	●	25	25	22	25	150	27	0.8	-6	-4	CE-030A	BH3X12	SP-148 (SP-143*)	LW-4	SNM42... (SN□43...)

When using SN□43 type insert, please purchase shim (SP-143) separately.

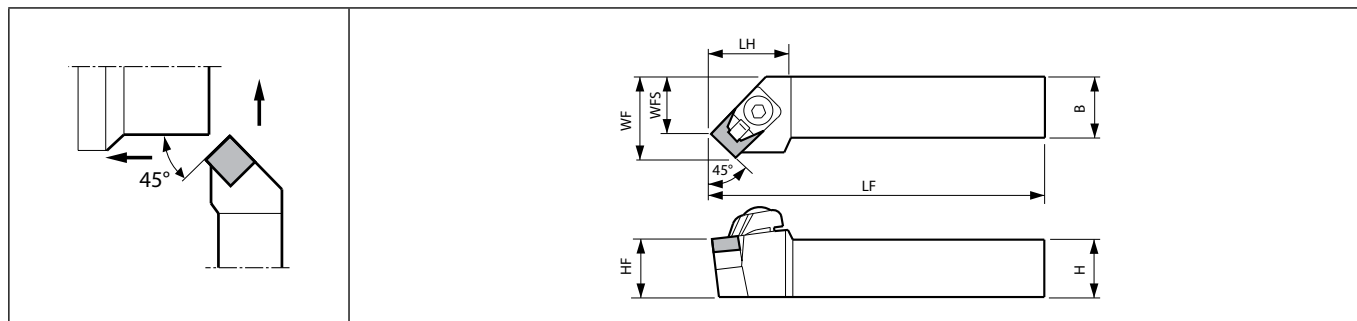
CSKN-A (External Facing)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts				Applicable Inserts
													Clamp set	Shim screw	Shim	Wrench	
		R	H	B	LH	HF	LF	WF									
mm	CSKNR 2525M-09A	●	25	25	27	25	150	32	0.8	-6	-4	CE-030A	HH3X12	SP-129	LW-4	SNM32...	

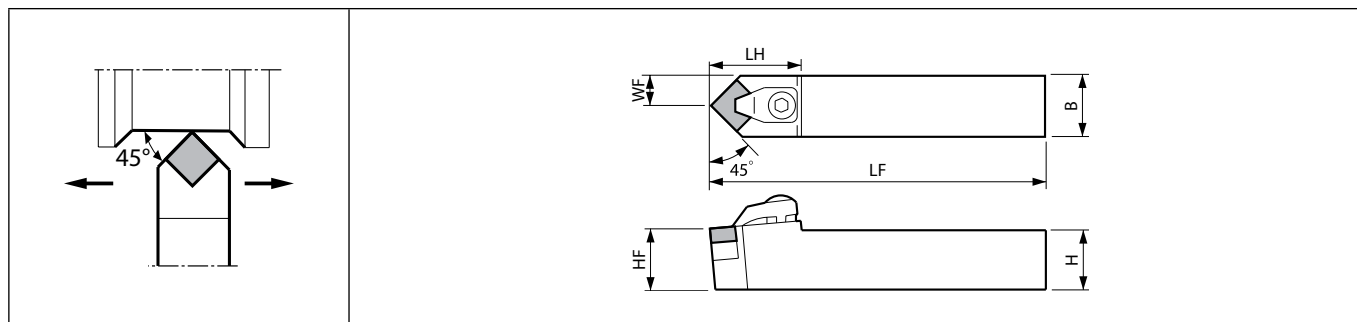
CSSN-A (External Turning / External Facing / Chamfering)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts						Applicable Inserts
														Clamp set	Shim screw	Shim screw	Shim	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF	WFS										
mm	CSSN% 2525M-09A	●	●	25	25	26	25	150	32	25	0.8	-6	0	CE-030A	-	HH3X12	SP-129	-	LW-4	SNM32...
	CSSN% 2525M-12A	●	●	25	25	26	25	150	32	23	0.8	-6	0	CE-030A	BH3X12	-	-	SP-148 (SP-143*) (SP-141*)	LW-4	SNM42... (SN□43...*) (SN□45...*)

When using SN□43 type insert, please purchase shim (SP-143) separately. When using SN□45 type insert, please purchase shim (SP-141) separately.

CSDN-A (External Turning / Chamfering)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Back rake angle (°)	Spare Parts						Applicable Inserts
											Clamp set	Shim screw	Shim screw	Shim	Shim	Wrench	
		N	H	B	LH	HF	LF	WF									
mm	CSDNN 2525M-09A	●	25	25	32	25	150	12.5	0.8	-8.5	CE-040	-	HH3X12	SP-129	-	LW-4	SNM32...
	CSDNN 2525M-12A	●	25	25	32	25	150	12.5	0.8	-8.5	CE-040	BH3X12	-	-	SP-148 (SP-143*) (SN□141*)	LW-4	SNM42... (SN□43...*) (SN□45...*)

When using SN□43 type insert, please purchase shim (SP-143) separately. When using SN□45 type insert, please purchase shim (SP-141) separately.

Applicable Inserts

Applications	Hard Materials / Cast Iron	Cast Iron	Cast Iron / Hard Materials
Type	CBN	Coated carbide	Ceramic
CSRN $\frac{R}{L}$...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..) (SNG45..) (SNM45..)
CSKN $\frac{R}{L}$...-09A	SNM32..	-	-
CSSN $\frac{R}{L}$...-09A	SNM32..	-	-
CSSN $\frac{R}{L}$...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..) (SNG45..) (SNM45..)
CSDNN ...-09A	SNM32..	-	-
CSDNN ...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..) (SNG45..) (SNM45..)
Page	C18	B38	B117

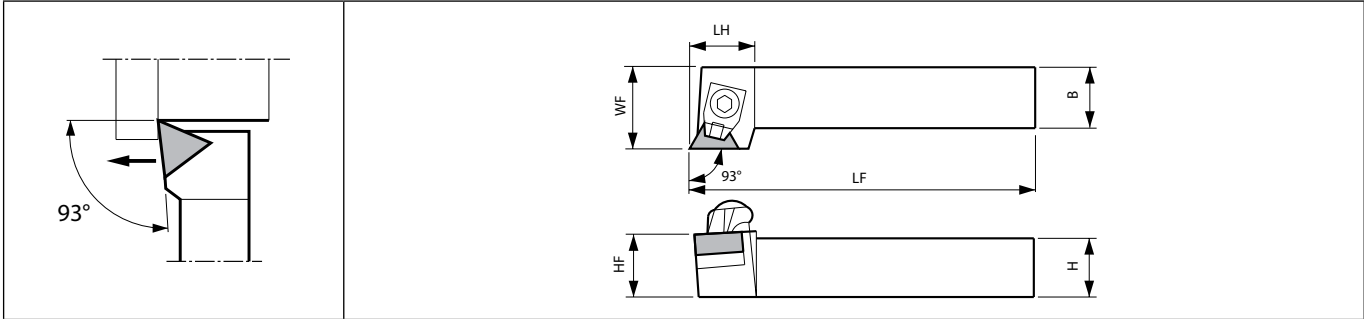
Recommended Cutting Conditions D75~D76

Spare Parts

When using toolholder with Ceramic inserts, please purchase spare parts below separately.

Applications	Cast Iron / Hard Materials	Spare Parts			
Type	Ceramic	Chipbreaker	Clamp set	Shim	Shim screw
CSRN $\frac{R}{L}$...-12A	(SNG43..) (SNM43..)	CB-11	CE-020	SP-143	M3X12
	(SNG45..) (SNM45..)			SP-141	M3X8
CSKN $\frac{R}{L}$...-09A	-	-	-	-	-
CSSN $\frac{R}{L}$...-09A	-	-	-	-	-
CSSN $\frac{R}{L}$...-12A	(SNG43..) (SNM43..)	CB-11	CE-020	SP-143	M3X12
	(SNG45..) (SNM45..)			SP-141	M3X8
CSDNN ...-09A	-	-	-	-	-
CSDNN ...-12A	(SNG43..) (SNM43..)	-	-	SP-143	M3X12
	(SNG45..) (SNM45..)			SP-141	M3X8

CTJN-A (External Turning)



Right-hand shown

Toolholder Dimensions

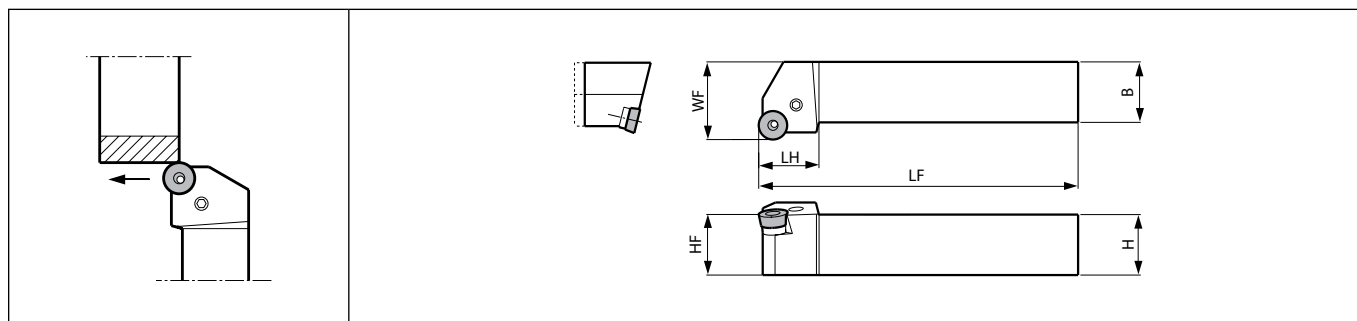
Unit	Part Number	Std. Item		Dimensions								Standard Corner-R (RE)	Side Rake Angle (°)	Inclination Angle (°)	Spare Parts				Applicable Inserts
															Clamp set	Shim screw	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF										
mm	CTJN% 2525M-11A	●	●	25	25	22	25	150	32	0.8	-6	-4	CE-030A	HH3X12	SP-219	LW-4	TN□22...		

For TNMN1604 Insert toolholder, see page D56.

Applicable Inserts

Applications	Hard Materials / Cast Iron	Cast Iron / Hard Materials
Insert		
Type	CBN	Ceramic
Page	C19	B118

Recommended Cutting Conditions ➡ D75~D76

PRGC-BE (External Turning)

Right-hand shown

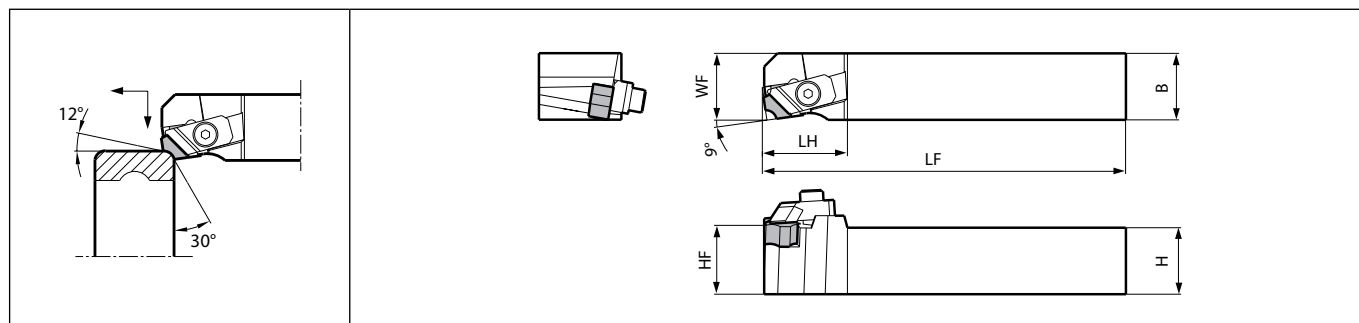
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Spare Parts						Applicable Inserts
										Lever	Lock screw	Punch	Shim pin	Shim	Wrench	
			R	H	B	LH	HF	LF	WF							
mm	PRGCR 2525M-12BE	●	25	25	25	25	150	32		LL-1CN	LS-1N	PC-1	LSP-1	LR-12C	FH-2.5	RCMT1204M0-BB

Applicable Inserts

Applications	Finishing
Insert	
Chipbreaker type	BB
Page	B109

Recommended Cutting Conditions ➡ D75~D76

CBSN (External Corner Filleting)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Spare Parts				Applicable Inserts
											Clamp set	Shim screw	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF						
mm	CBSN% 2020K-12 2525M-12	●	●	20	20	32	20	125	20		CP-RC%	SP3X8	SP-RC	LW-5	SNMF1204...-21
		●	●	25	25		25	150	25						

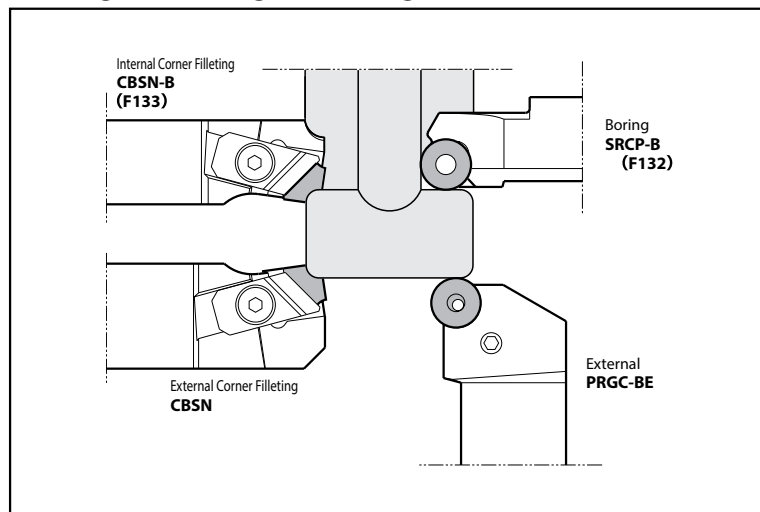
Clamp Set : CP-RCR for Right-hand Toolholder, CP-RCL for Left-hand Toolholder.

Applicable Inserts

Applications	Finishing
Insert	
Chipbreaker type	21
Page	B109

Recommended Cutting Conditions ➡ D75~D76

Tooling for Bearing Machining



Recommended Cutting Conditions

External Turning - Negative Insert

D.O.C. Indicates Radius

ISO Class	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit		
								Vc (sfm)	D.O.C. (in)	f (ipr)
P	Low Carbon Steel Low Carbon Alloy	HB ≤ 300	Finishing (High Speed Machining)	Continuous	XP	CCX	1/32	980 - 1,970 - 2,620	0.008 - 0.020 - 0.028	0.003 - 0.005 - 0.008
			Finishing (Small D.O.C.)	Continuous Interruption	XF	PV710 PV720	1/64 1/32	820 - 1,150 - 1,710 790 - 1,050 - 1,570	0.002 - 0.005 - 0.024 0.002 - 0.006 - 0.024	0.001 - 0.004 - 0.009 0.002 - 0.005 - 0.010
			Finishing (Gloss Oriented)	Continuous Interruption	XP	TN610 TN620	1/64 1/32	820 - 1,050 - 1,310 790 - 1,020 - 1,210	0.008 - 0.020 - 0.028 0.008 - 0.020 - 0.028	0.003 - 0.005 - 0.008 0.003 - 0.005 - 0.008
			Finishing (Tool Life Oriented)	Continuous Interruption	XP	PV710 PV720	1/64 1/32	820 - 980 - 1,210 790 - 950 - 1,120	0.008 - 0.020 - 0.028 0.008 - 0.020 - 0.028	0.003 - 0.005 - 0.008 0.003 - 0.005 - 0.008
			Finishing - Medium (Gloss Oriented)	Continuous Interruption	XQ	TN610 TN620	1/64 1/32	820 - 1,050 - 1,310 790 - 920 - 1,120	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.007 - 0.010 - 0.012 0.007 - 0.010 - 0.012
			Finishing - Medium (Tool Life Oriented)	Continuous Interruption	XQ	PV710 PV720	1/32 1/32	820 - 980 - 1,210 790 - 920 - 1,120	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.007 - 0.010 - 0.012 0.007 - 0.010 - 0.012
			Medium - Roughing	Continuous Interruption	XS	PV720 CA115P	1/32 1/32	720 - 850 - 1,050 520 - 690 - 850	0.031 - 0.059 - 0.079 0.031 - 0.059 - 0.079	0.010 - 0.012 - 0.016 0.010 - 0.012 - 0.016
			Roughing	Continuous Interruption	PMG	CA115P CA125P	1/32 3/64	590 - 720 - 850 490 - 660 - 790	0.039 - 0.098 - 0.138 0.039 - 0.098 - 0.138	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016
			Medium - Roughing (High Feed Rate)	Continuous Interruption	PT	CA115P CA125P	1/32 3/64	490 - 660 - 790 390 - 590 - 720	0.059 - 0.118 - 0.177 0.059 - 0.118 - 0.177	0.010 - 0.014 - 0.018 0.010 - 0.014 - 0.018
			Roughing (High Feed Rate)	Continuous Interruption	PH	CA115P CA125P	3/64 1/16	490 - 660 - 790 390 - 590 - 720	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028
			Roughing (Low Cutting Force)	Continuous Interruption	PX (Single-Sided)	CA115P CA125P	3/64 1/16	490 - 660 - 790 390 - 590 - 720	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028
	Medium Carbon Steel Medium Carbon Alloy	HB ≤ 300	Finishing (Time Oriented)	Continuous Interruption	WF (Wiper)	PV710 CA115P	1/32 1/32	660 - 820 - 1,050 520 - 720 - 920	0.012 - 0.020 - 0.039 0.012 - 0.020 - 0.039	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016
			Finishing - Medium (Time Oriented)	Continuous Interruption	WE (Wiper)	PV710 CA125P	1/32 1/32	590 - 720 - 920 430 - 590 - 790	0.039 - 0.079 - 0.118 0.039 - 0.079 - 0.118	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016
			Finishing (High Speed Machining)	Continuous	PP	CCX	1/32	660 - 980 - 1,480	0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011
			Finishing (Gloss Oriented)	Continuous Interruption	PP	TN610 TN610	1/64 1/32	660 - 820 - 1,050 590 - 750 - 980	0.008 - 0.020 - 0.059 0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011 0.002 - 0.008 - 0.014
			Finishing (Tool Life Oriented)	Continuous Interruption	PP	PV710 PV720	1/64 1/32	660 - 820 - 1,050 660 - 790 - 950	0.008 - 0.020 - 0.059 0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011 0.002 - 0.008 - 0.014
			Finishing - Medium (Gloss Oriented)	Continuous Interruption	PQ	TN610 TN620	1/32 3/64	590 - 750 - 980 520 - 720 - 850	0.020 - 0.059 - 0.098 0.020 - 0.059 - 0.098	0.004 - 0.008 - 0.012 0.004 - 0.007 - 0.010
			Finishing - Medium (Tool Life Oriented)	Continuous Interruption	PQ	PV710 CA125P	1/32 1/32	520 - 690 - 920 460 - 660 - 790	0.020 - 0.059 - 0.098 0.020 - 0.059 - 0.098	0.004 - 0.008 - 0.012 0.004 - 0.007 - 0.010
			Medium - Roughing	Continuous Interruption	PMG	CA115P CA125P	1/32 3/64	490 - 660 - 790 390 - 520 - 660	0.039 - 0.098 - 0.138 0.039 - 0.098 - 0.138	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016
			Medium - Roughing (High Feed Rate)	Continuous Interruption	PT	CA115P CA125P	1/32 3/64	390 - 590 - 750 330 - 490 - 660	0.059 - 0.118 - 0.177 0.059 - 0.118 - 0.177	0.010 - 0.014 - 0.018 0.010 - 0.014 - 0.018
			Roughing (High Feed Rate)	Continuous Interruption	PH	CA115P CA125P	3/64 1/16	390 - 590 - 750 330 - 490 - 660	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028
			Roughing (Low Cutting Force)	Continuous Interruption	PX (Single-Sided)	CA115P CA125P	3/64 1/16	390 - 590 - 750 330 - 490 - 660	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028
	High Carbon Alloy	HB ≤ 280	Finishing (High Speed Machining)	Continuous	PP	CCX	1/32	660 - 980 - 1,310	0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011
			Finishing (Gloss Oriented)	Continuous Interruption	PP	TN610 TN620	1/64 1/32	490 - 660 - 920 460 - 590 - 790	0.008 - 0.020 - 0.059 0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011 0.002 - 0.008 - 0.014
			Finishing (Tool Life Oriented)	Continuous Interruption	PP	PV710 CA115P	1/64 1/32	390 - 590 - 850 330 - 490 - 660	0.008 - 0.020 - 0.059 0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011 0.002 - 0.008 - 0.014
			Finishing - Medium	Continuous Interruption	PQ	CA115P CA125P	1/32 1/32	390 - 520 - 720 330 - 460 - 590	0.020 - 0.059 - 0.098 0.020 - 0.059 - 0.098	0.006 - 0.010 - 0.012 0.006 - 0.008 - 0.010
			Medium - Roughing	Continuous Interruption	PMG	CA115P CA125P	1/32 1/32	390 - 490 - 660 330 - 430 - 590	0.039 - 0.079 - 0.118 0.039 - 0.079 - 0.118	0.008 - 0.012 - 0.020 0.006 - 0.008 - 0.012
			Medium - Roughing (High Feed Rate)	Continuous Interruption	PT	CA115P CA125P	1/32 3/64	330 - 460 - 590 260 - 390 - 520	0.059 - 0.118 - 0.177 0.059 - 0.118 - 0.177	0.010 - 0.014 - 0.018 0.010 - 0.014 - 0.018
			Roughing (High Feed Rate)	Continuous Interruption	PH	CA115P CA125P	3/64 1/16	330 - 460 - 590 260 - 390 - 520	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028
			Roughing (Low Cutting Force)	Continuous Interruption	PX (Single-Sided)	CA115P CA125P	3/64 1/16	330 - 460 - 590 260 - 390 - 520	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Recommended Cutting Conditions

External Turning - Negative Insert

D.O.C. Indicates Radius

ISO Class	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit		
								Vc (sfm)	D.O.C. (in)	f (ipr)
M	Stainless Steel (Austenitic)	HB ≤ 220	Finishing (Gloss Oriented)	Continuous Interruption	PQ	TN620 TN620	1/32 1/32	390 - 520 - 660 330 - 390 - 490	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.003 - 0.006 - 0.008 0.002 - 0.004 - 0.006
			Finishing	Continuous Interruption	MQ	CA6515 CA6525	1/64 1/32	390 - 590 - 790 330 - 520 - 720	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.003 - 0.006 - 0.008 0.002 - 0.004 - 0.006
			Medium-Roughing (Chip Control Oriented)	Continuous Interruption	MS	CA6515 CA6525	1/64 1/32	390 - 520 - 660 260 - 460 - 590	0.039 - 0.079 - 0.118 0.039 - 0.079 - 0.118	0.004 - 0.008 - 0.012 0.008 - 0.012 - 0.016
			Medium-Roughing (Sharpness Oriented)	Continuous Interruption	MU	CA6515 CA6525	1/64 1/32	390 - 520 - 660 260 - 460 - 590	0.039 - 0.079 - 0.118 0.039 - 0.079 - 0.118	0.006 - 0.010 - 0.014 0.006 - 0.010 - 0.012
			Roughing	Continuous Interruption	Standard	CA6515 CA6525	1/32 3/64	330 - 460 - 590 260 - 390 - 490	0.039 - 0.079 - 0.157 0.039 - 0.079 - 0.157	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016
	Stainless Steel (Precipitation Hardened)	HB ≤ 300	Finishing (Gloss Oriented)	Continuous Interruption	PQ	TN620 TN620	1/32 1/32	330 - 390 - 490 260 - 330 - 390	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.002 - 0.004 - 0.006 0.002 - 0.003 - 0.004
			Finishing	Continuous Interruption	MQ	CA6515 CA6525	1/64 1/32	330 - 390 - 490 260 - 330 - 390	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.003 - 0.006 - 0.008 0.002 - 0.004 - 0.006
			Medium-Roughing (Chip Control Oriented)	Continuous Interruption	MS	CA6515 CA6525	1/64 1/32	330 - 390 - 490 260 - 330 - 390	0.039 - 0.059 - 0.079 0.039 - 0.079 - 0.118	0.004 - 0.006 - 0.010 0.004 - 0.006 - 0.008
			Medium-Roughing (Sharpness Oriented)	Continuous Interruption	MU	CA6515 CA6525	1/64 1/32	330 - 390 - 490 260 - 330 - 390	0.039 - 0.059 - 0.079 0.039 - 0.079 - 0.118	0.004 - 0.006 - 0.010 0.004 - 0.006 - 0.008
			Roughing	Continuous Interruption	Standard	CA6515 CA6525	1/32 3/64	260 - 330 - 390 200 - 260 - 330	0.039 - 0.079 - 0.118 0.039 - 0.079 - 0.157	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016
K	Gray Cast Iron	HB ≤ 250	High Speed Machining	Continuous Interruption	No Chipbreaker	KBN475 KBN900 KBN900	1/32 3/64 3/64	1,310 - 2,620 - 3,940 1,640 - 2,950 - 3,940 1,640 - 2,300 - 2,950	0.002 - 0.008 - 0.020 0.004 - 0.020 - 0.039 0.020 - 0.039 - 0.059	0.004 - 0.008 - 0.012 0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008
			Finishing (Gloss Oriented)	Continuous Interruption	Standard	PV7005 PV720	1/32 1/32	980 - 1,150 - 1,310 490 - 660 - 980	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.004 - 0.008 - 0.012 0.003 - 0.006 - 0.008
			Finishing (Ceramic)	Continuous	No Chipbreaker	KA30 PT600M	3/64 1/32	980 - 1,640 - 2,300 980 - 1,480 - 1,970	0.012 - 0.020 - 0.039 0.012 - 0.020 - 0.039	0.004 - 0.008 - 0.012 0.004 - 0.008 - 0.012
			Medium (Ceramic)	Continuous Interruption	No Chipbreaker	CS7050 KS6050	3/64 3/64	980 - 1,480 - 1,800 820 - 1,310 - 1,640	0.039 - 0.079 - 0.118 0.039 - 0.079 - 0.118	0.006 - 0.010 - 0.014 0.006 - 0.008 - 0.012
			Medium	Continuous Interruption	KH	CA410K CA415K	1/32 3/64	660 - 1,310 - 2,300 590 - 980 - 1,480	0.020 - 0.079 - 0.098 0.020 - 0.079 - 0.098	0.004 - 0.008 - 0.012 0.003 - 0.006 - 0.008
			Roughing	Continuous Interruption	KH	CA410K CA415K	1/32 3/64	660 - 1,310 - 2,300 590 - 980 - 1,480	0.039 - 0.079 - 0.157 0.039 - 0.079 - 0.157	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016
	Nodular Cast Iron	HB ≤ 270	High Speed Machining	Continuous	No Chipbreaker	KBN60M PT600M	1/64 1/32	660 - 980 - 1,310 660 - 820 - 1,150	0.004 - 0.012 - 0.020 0.004 - 0.020 - 0.039	0.004 - 0.006 - 0.008 0.004 - 0.008 - 0.016
			Finishing (Gloss Oriented)	Continuous Interruption	Standard	PV7005 PV720	1/32 1/32	490 - 820 - 980 390 - 660 - 820	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.004 - 0.008 - 0.012 0.003 - 0.006 - 0.008
			Medium	Continuous Interruption	KG	CA410K CA415K	1/32 3/64	660 - 1,150 - 1,640 490 - 820 - 1,150	0.020 - 0.079 - 0.098 0.020 - 0.079 - 0.098	0.004 - 0.008 - 0.012 0.003 - 0.006 - 0.008
			Roughing	Continuous Interruption	KG KH	CA410K CA415K	1/32 3/64	660 - 1,150 - 1,640 490 - 820 - 1,150	0.039 - 0.079 - 0.157 0.039 - 0.079 - 0.157	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016
N	Non-ferrous Metals Copper Alloy Aluminum Aluminum Alloys	HB ≤ 100	High Speed Machining (Glossy Surface)	Continuous	No Chipbreaker	KPD001	1/64	980 - 2,620 - 6,560	0.002 - 0.020 - 0.039	0.002 - 0.004 - 0.006
			Finishing (Long Tool Life)	Continuous Interruption	A3	PDL025 PDL025	1/64 1/32	1,310 - 1,640 - 2,300 1,310 - 1,640 - 2,300	0.020 - 0.039 - 0.079 0.020 - 0.039 - 0.079	0.004 - 0.008 - 0.010 0.004 - 0.008 - 0.010
			Finishing	Continuous Interruption	A3	KW10 KW10	1/32 1/32	1,310 - 1,640 - 2,300 1,310 - 1,640 - 2,300	0.020 - 0.039 - 0.079 0.020 - 0.039 - 0.079	0.004 - 0.008 - 0.010 0.004 - 0.008 - 0.010
			Medium	Continuous Interruption	AH	KW10 KW10	1/32 1/32	660 - 980 - 1,640 660 - 980 - 1,640	0.039 - 0.079 - 0.138 0.039 - 0.079 - 0.138	0.004 - 0.012 - 0.016 0.004 - 0.012 - 0.016
			Precision Finishing (Glossy Surface)	Continuous Interruption	No Chipbreaker	KPD001 KPD001	1/64 1/64	330 - 490 - 590 230 - 390 - 490	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006 0.001 - 0.003 - 0.004
S	Titanium Alloys	HB ≤ 400	Finishing	Continuous Interruption	MQ	SW05 SW05	1/64 1/64	130 - 230 - 330 130 - 230 - 330	0.008 - 0.020 - 0.039 0.008 - 0.020 - 0.039	0.002 - 0.008 - 0.012 0.002 - 0.006 - 0.008
			Medium	Continuous Interruption	MU	SW05 SW05	1/32 1/32	130 - 200 - 260 130 - 200 - 260	0.020 - 0.039 - 0.118 0.020 - 0.039 - 0.118	0.004 - 0.010 - 0.014 0.004 - 0.008 - 0.012
			Finishing	Continuous Interruption	MQ	PR0055 PR1155	1/64 1/32	100 - 180 - 300 80 - 150 - 230	0.008 - 0.012 - 0.039 0.008 - 0.020 - 0.039	0.002 - 0.003 - 0.006 0.002 - 0.004 - 0.008
	Heat-Resistant Alloys	HB ≤ 350	Medium	Continuous Interruption	SQ	PR1155 PR1205	1/32 1/32	100 - 180 - 300 80 - 150 - 230	0.012 - 0.020 - 0.059 0.012 - 0.020 - 0.059	0.004 - 0.007 - 0.014 0.004 - 0.007 - 0.014
			Roughing	Continuous Interruption	SX	PR1155 PR1205	- -	100 - 180 - 300 80 - 150 - 230	0.020 - 0.079 - 0.157 0.020 - 0.079 - 0.157	0.006 - 0.012 - 0.018 0.006 - 0.012 - 0.018
			Finishing	Continuous Interruption	PQ Standard	CA115P CA115P	1/32 1/32	200 - 330 - 390 100 - 160 - 230	0.004 - 0.012 - 0.020 0.004 - 0.012 - 0.020	0.002 - 0.003 - 0.004 0.002 - 0.003 - 0.004
			Finishing	Continuous	No Chipbreaker	PT600M PT600M	1/32 3/64	200 - 250 - 325 100 - 125 - 200	0.008 - 0.020 - 0.028 0.008 - 0.020 - 0.028	0.002 - 0.004 - 0.006 0.002 - 0.004 - 0.006
H	Hardened Steel Hard Materials	40~50 HRC	Finishing	Continuous Interruption	PQ Standard	CA115P CA115P	1/32 1/32	200 - 330 - 390 100 - 160 - 230	0.004 - 0.012 - 0.020 0.004 - 0.012 - 0.020	0.002 - 0.003 - 0.004 0.002 - 0.003 - 0.004
		40~50 HRC	Finishing	Continuous	No Chipbreaker	PT600M PT600M	1/32 3/64	200 - 250 - 325 100 - 125 - 200	0.008 - 0.020 - 0.028 0.008 - 0.020 - 0.028	0.002 - 0.004 - 0.006 0.002 - 0.004 - 0.006
		50~65 HRC	Finishing	Continuous Interruption	ME MET	KBN010 KBN015	1/32 3/64	260 - 590 - 820 260 - 590 - 750	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.002 - 0.003 - 0.004 0.002 - 0.003 - 0.004
		50~68 HRC	Medium	Continuous Interruption	No Chipbreaker	KBN900 KBN900	3/64 Radius	250 - 325 - 400 225 - 300 - 350	0.020 - 0.039 - 0.079 0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.006

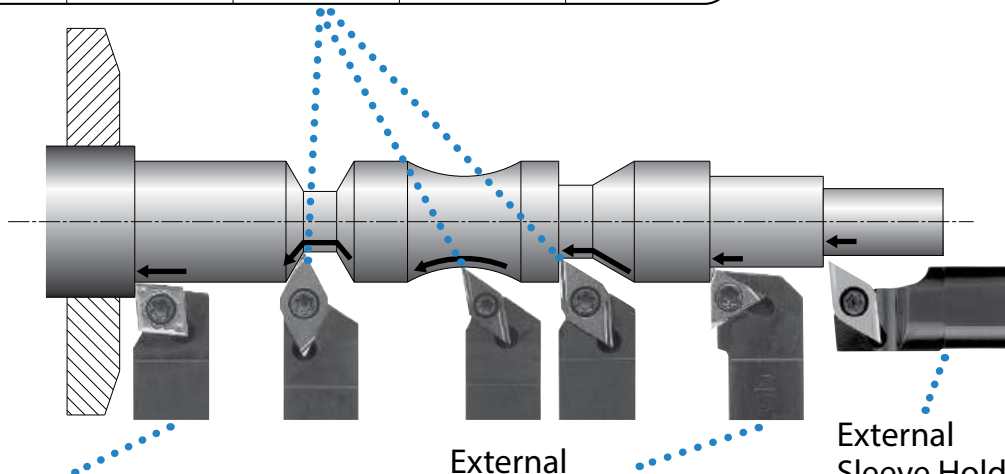
E

Overview		E2~E11
Toolholders for Back Turning		E12~E22
TKF / TKFB Inserts	KTGF	E15
	KTGF Goose-Neck Toolholder / KTGF-Y Y-Axis Toolholder	E16
ABS15 Inserts	AABS / SABS	E20
ABW15 Inserts	AABW / SABW	E21
ABW23 Inserts	AABW / SABW	E22
Goose-Neck Toolholders		E23~E25
DC Inserts	SDJC	E23
VP Inserts	SVLP	E24
External Toolholders		E26~E57
CC Inserts	ACLC-FF / SCLC-FF	E26
	SCLC-JCTM	E28
	SCLC	E29
DC Inserts	ADJC-FF / SDJC-FF	E30
	SDJC-JCTM	E32
	SDJC-F / SDJC	E33
	SDJC-FF-Y	E34
	SDLC-FF / SDXC	E36
	SDNC	E37
DP Inserts	SDLP-FF	E39
TC Inserts	STGC	E40
TP Inserts	STGP	E41
VB Inserts	AVJB-FF / SVJB-FF / SVJB-F / SVJB-FFJCTM / SVJB / SVPB / SVVB	E42
VC Inserts	SVJC-FF / SVLC-FF / SVPC-FF / SVVC	E45
VP Inserts	SVJP-FF / SVJP-FFJCTM / SVLP-FF / SVPP-FF	E51
ZB Inserts	SZLB / SZPB / SZVBN	E56
External Sleeve Toolholders		E58~E63
CC Inserts	S...SCLC	E58
DC Inserts	S...SDUC / S...SDLC	E59
VB Inserts	S...SVUB	E62
VC Inserts	S...SVUC	E63
Small Double-Sided Insert Toolholders (Screw Clamp)		E64~E66
CN Inserts	SCLN-FF	E64
DN Inserts	SDLN-FF	E65
TN Inserts	STLN-FF	E66
Small Double-Sided Insert Toolholders (Lever Lock)		E67~E68
CN Inserts	PCLN-FF	E67
TN Inserts	PTLN-FF	E68
Sub-Spindle Tools (for STAR Machines)		E69~E73
Recommended Cutting Conditions		E74~E77

Summary of External Turning

External / Copying

					
ADJC-FF	SDJC-FF(JCTM) SDJC-FF-Y	SDJC(-F)	SDLC-FF SDLP-FF	SDLN-FF	SDNC
Back Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp	Screw Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp
➡ E30	➡ E31, E32, E34	➡ E33	➡ E36, E39	➡ E65	➡ E37



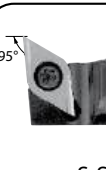
External / Facing

			
ACLC-FF	SCLC-FF(JCTM)	SCLC	SCLN-FF
Back Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp	Screw Clamp Without Offset
➡ E26	➡ E27, E28	➡ E29	➡ E64

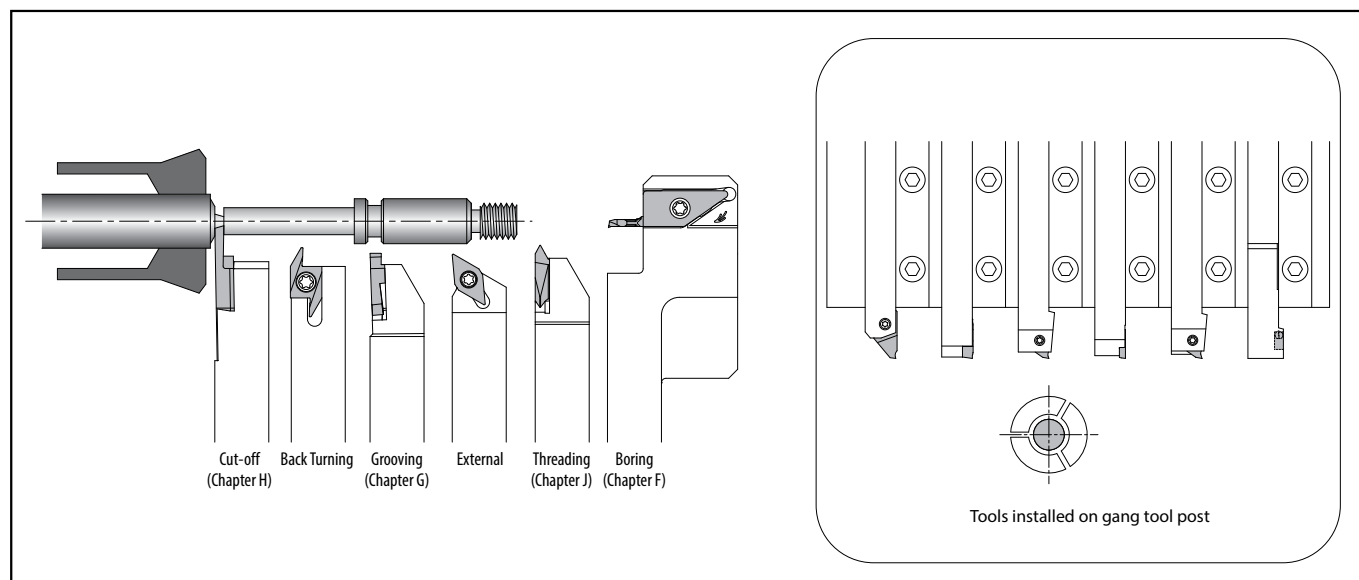
External

	
STGC(P)	STLN-FF
Screw Clamp	Screw Clamp Without Offset
➡ E40, E41	➡ E66

External Sleeve Holder

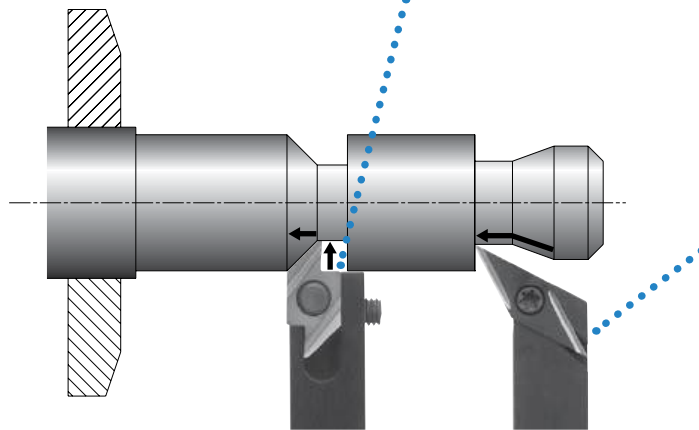

S-SDLC
Screw Clamp Shank Dia. Ø0.625"~Ø1.000" / Ø12.0mm~Ø25.4mm
➡ E60

Tooling Example (1) CNC Automatic lathe (Gang Type)

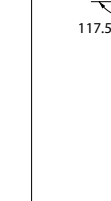


Back Turning

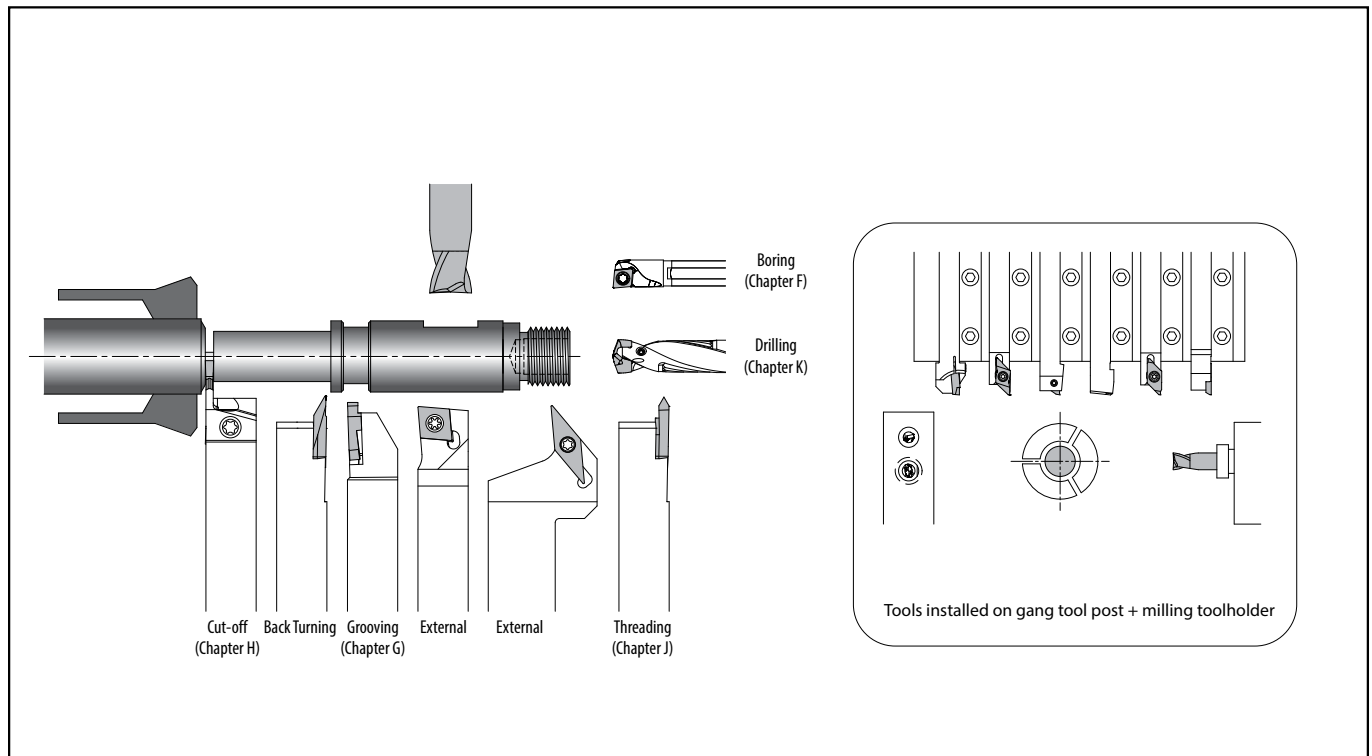
						
AABS-15JXF-40F	SABS-15JXF-40F	AABW-15JXF-40F	SABW-15JXF-40F	AABW-23JXF-50F	SABW-23JXF-50F	KTKF
Back Clamp Edge Width : 0.110" / 2.8mm D.O.C. : ~0.158" / ~4.0mm	Screw Clamp Edge Width : 0.110" / 2.8mm D.O.C. : ~0.158" / ~4.0mm	Back Clamp Edge Width : 0.185" / 4.7mm D.O.C. : ~0.158" / ~4.0mm	Screw Clamp Edge Width : 0.185" / 4.7mm D.O.C. : ~0.158" / ~4.0mm	Back Clamp Edge Width : 0.185" / 4.7mm D.O.C. : ~0.197" / ~5.0mm	Screw Clamp Edge Width : 0.185" / 4.7mm D.O.C. : ~0.197" / ~5.0mm	Screw Clamp Edge Width : 0.059" ~ 0.150" / 1.5mm ~ 3.8mm Max. D.O.C. : 0.071" ~ 0.217" / 1.8mm ~ 5.5mm
➡ E20	➡ E20	➡ E21	➡ E21	➡ E22	➡ E22	➡ E15, E16



External / Facing / Copying / Undercutting

	
SVPB	SVPP-FF
Screw Clamp	Screw Clamp Without Offset
➡ E46	➡ E53

Tooling Example (2) CNC Automatic lathe (Gang Type)



How to use goose-neck holder for swiss tool automatic lathe (gang type tool post)

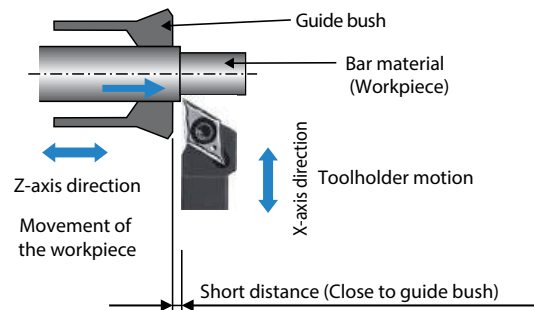


Goose-neck holders are applicable to automatic lathes where toolholder does not move in longitudinal direction (Z-axis direction).

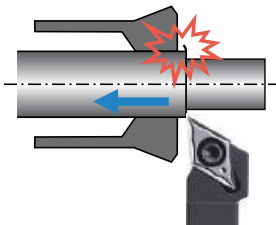
Swiss Tool Automatic Lathe (Guide Bush System)

When using a conventional toolholder

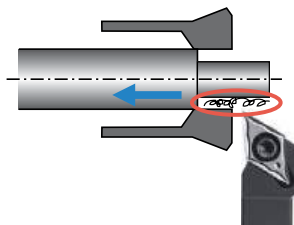
The Goose-neck Holder works with automatic lathes that do not move toolholders in longitudinal direction (Z-axis)



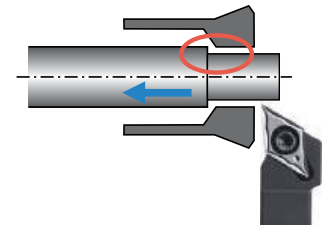
Problems When Machining with a Conventional Toolholder



Case 1
During multiple passes, when bar material returns into guide bush, the burr contacts and breaks guide bush.



Case 3
During multiple passes, when bar material returns into guide bush, the chips contact and break guide bush.

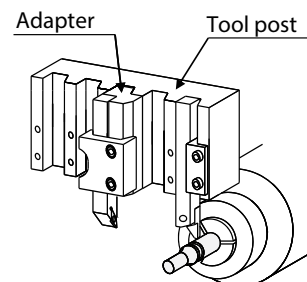


Case 4
Bar material deviation from the guide bush disables machining.

Case 2
The workpiece burr contacts the guide bush and causes dimensional variation.

Toolholder Installation Problems When Using a Conventional Toolholder

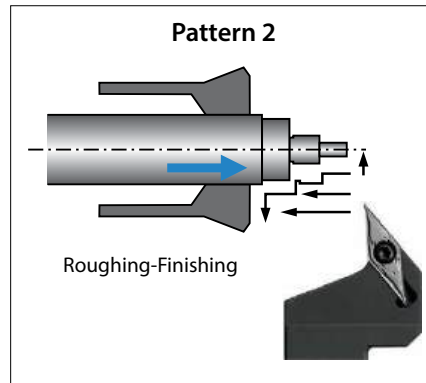
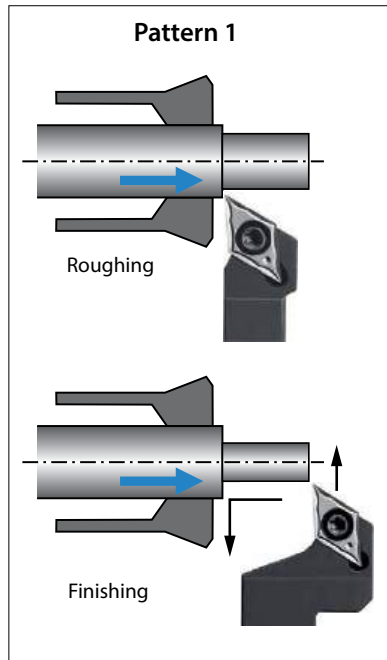
1. Additional space is required for an adapter.
2. Toolholder's handling is difficult due to limited space.
3. It is necessary to buy an adapter.
4. An adapter may interfere with the next tool post.



Advantages of the goose-neck holder

When using goose-neck holder

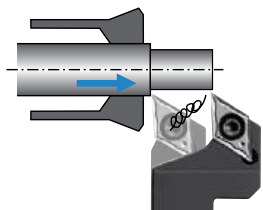
1. Additional finishing process improves machining precision
2. Chips do not enter guide bushing
3. Large chip evacuation space produces better chip control



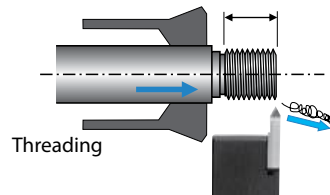
Available for machining from roughing to finishing with a single Goose-neck Holder.

Available for machining after roughing without returning bar material into guide bushing, prevents damages and improves precision.

For better chip control



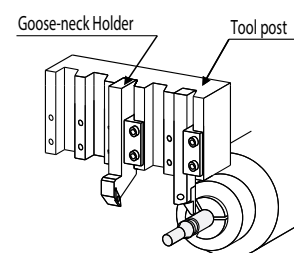
Optimum cutting edge position and large space for efficient chip evacuation.



With conventional threading toolholders, chip biting into guide bush can cause damages on threads.

Advantages of Toolholder installation - When using a goose-neck holder

1. Maximum number of toolholders can be attached
2. No interference with next tool post

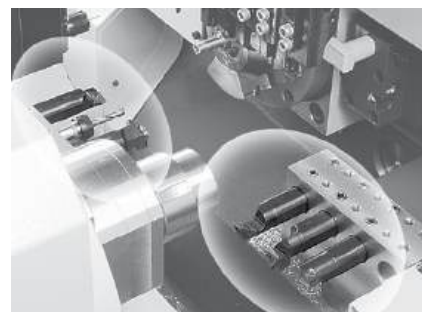


INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Summary of External Turning

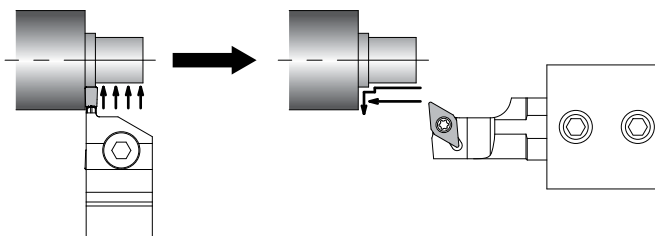
External Sleeve Holder

			
S-SCLC	S-SDUC	S-SDLC	S-SVUB(C)
Screw Clamp Shank Dia. $\phi 0.625'' \sim \phi 1.000''$ / $\phi 12\text{mm} \sim \phi 25.4\text{mm}$	Screw Clamp Shank Dia. $\phi 0.625'' \sim \phi 1.000''$ / $\phi 14\text{mm} \sim \phi 25.4\text{mm}$	Screw Clamp Shank Dia. $\phi 0.625'' \sim \phi 1.000''$ / $\phi 12\text{mm} \sim \phi 25.4\text{mm}$	Screw Clamp Shank Dia. $\phi 0.625'' \sim \phi 1.000''$ / $\phi 12\text{mm} \sim \phi 25.4\text{mm}$
 E58	 E59	 E60	 E62, E63



For Tooling Layout and Automatic Lathe List by Manufacturer, See Page  R58~R66

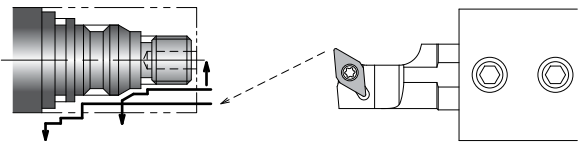
Finishing with Sleeve Holder



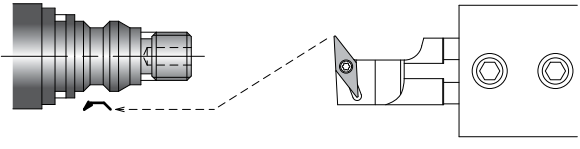
- 1) Roughing by grooving toolholder
- 2) Finishing by Sleeve Holder improves chip control and reduces cutting time

Tooling Example (3) CNC Automatic lathe (Opposed Gang Type)

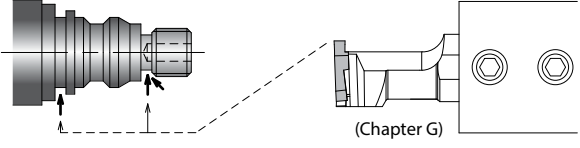
External / Facing



External / Copying

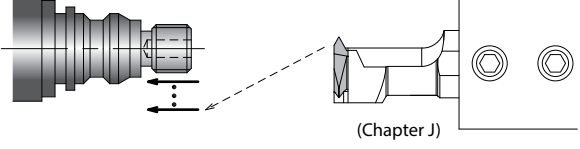


Grooving



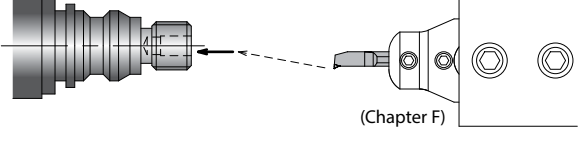
(Chapter G)

Threading

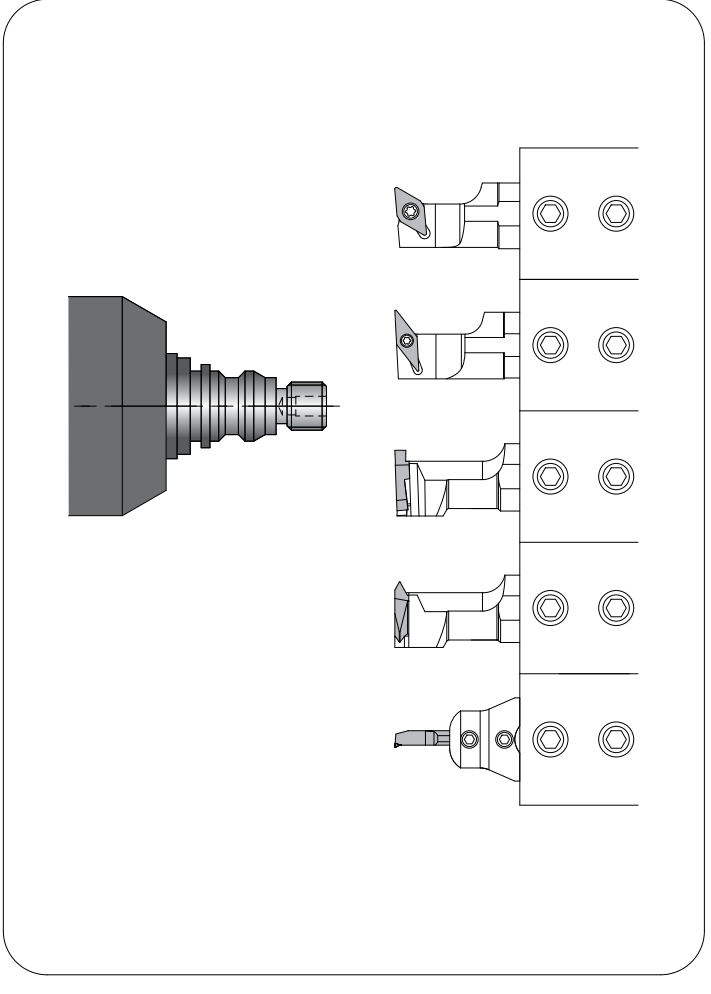


(Chapter J)

Boring



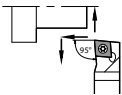
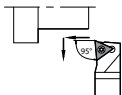
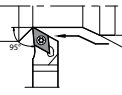
(Chapter F)



For Tooling Layout and Automatic Lathe List by Manufacturer, See Page  R58~R66

Double-Sided Small Tools (Screw Clamp)

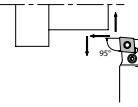
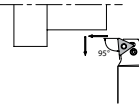


Applications	External / Facing	External / Up Facing	External / Copying
Cutting Edge Angle	95°	95°	95°
Screw Clamp (Without Offset)	 SCLN-FF	 STLN-FF	 SDLN-FF
See Page	E64	E66	E65

The double-sided design offers less cost per insert and more stability.
Sharp cutting performance equivalent to conventional positive inserts.

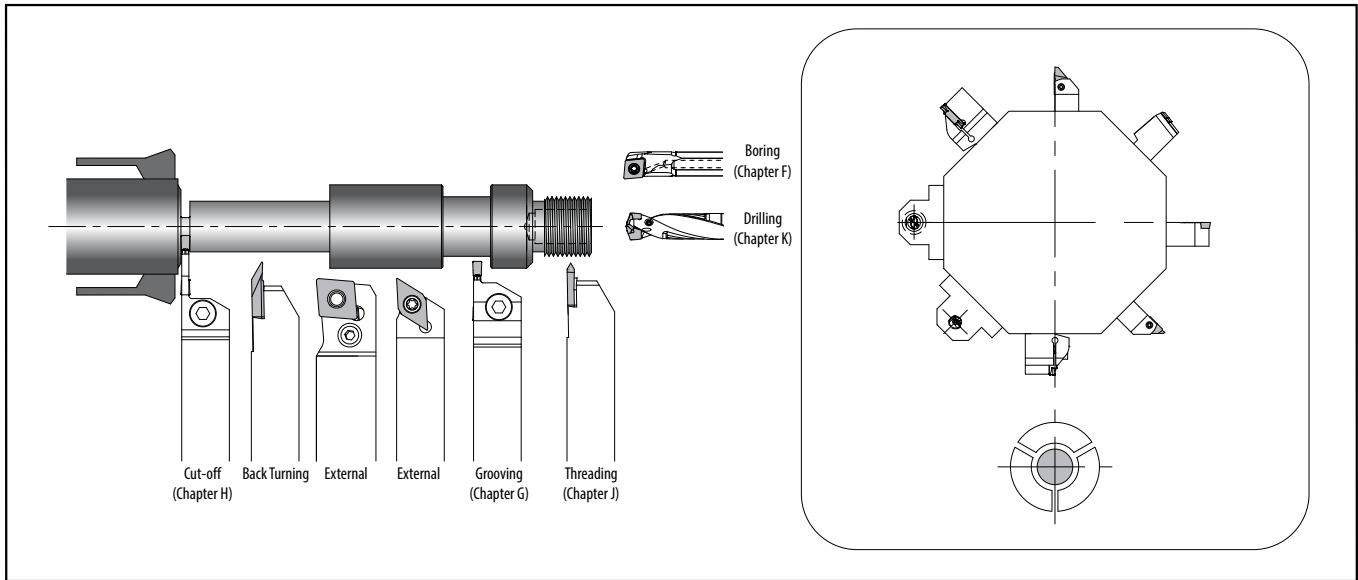
Double Sided Toolholder for Automatic Lathe
(Lever Lock, Without Offset)



Applications	External / Facing	External / Up Facing
Cutting Edge Angle	95°	95°
Lever Lock (Without Offset)	 PCLN-FF	 PTLN-FF
See Page	E67	E68

The Lever Lock type is available for small tools with external turning.

Tooling Example (4)



For Tooling Layout and Automatic Lathe List by Manufacturer, See Page [R58~R66](#)

JCTM Series

Direct Coolant Holders for Small Parts Machining

Supports Internal Coolant with or without Piping Systems

Lineup of Turning, Grooving (KGBF), and Cut-off (KGD/KTKF) Holders

1

Using Internal Coolant to Enhance Tool Performance



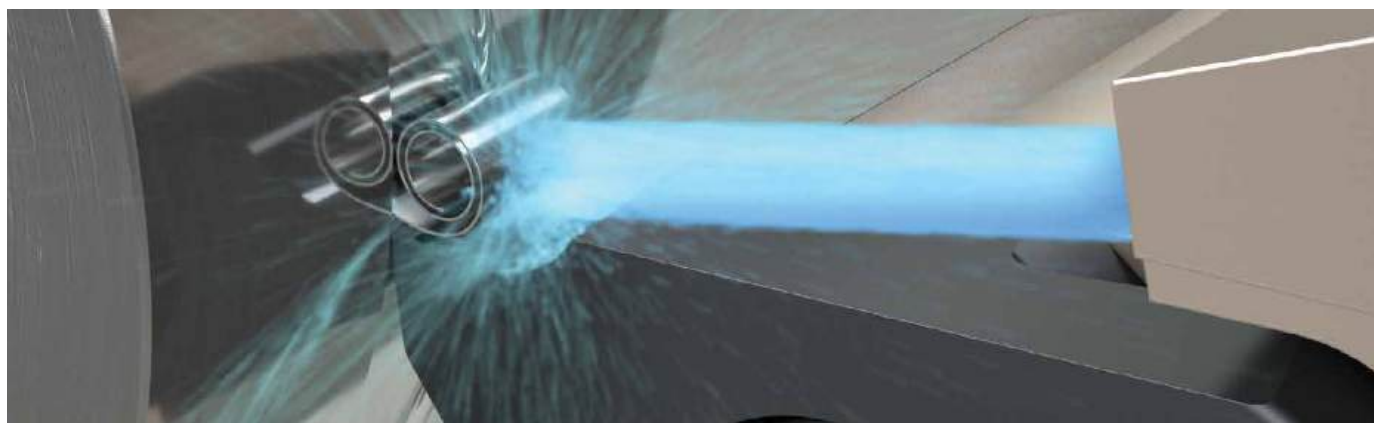
CG Image

Challenges

- Difficulty with automated operations due to sudden chip entanglement issues
- Insert change is not enough to extend tool life

SOLUTIONS

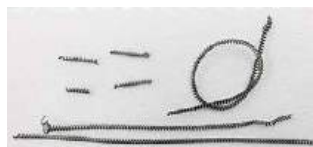
- The JCTM series is compatible with internal coolant in a wide range of machines and also works under normal pressure
- Reduces down time by improving chip control and reduces cost by extending tool life



CG Image

Switching to internal coolant toolholder reduces chip entanglement issues

Internal Coolant (2.5 MPa)



External Coolant



Pin Alloy Tool Steel

$V_c = 590 \text{ sfm}$, D.O.C. = 0.055"

$f = 0.005 \text{ ipr}$, Wet

SDJC Holder / DCMT3251 Insert

(User Evaluation)

2 Supports Internal Coolant with or without Piping Systems

Internal Coolant without Piping

***When the tool plate supports direct coolant**

Coolant is supplied directly from plate into the holder without the need to install piping

Applicable to Wide Range of Machines

The tool plate is optional. Please contact our company sales representative for details.

CITIZEN MACHINERY CO., LTD. (L20, D25, M32)

STAR MICRONICS CO., LTD. (SB-R series, SR series, SV series)

TSUGAMI CORPORATION (S205/206-II □16 type, S205A/206A-II □16 type)

Compatible with various machine including the above. Toolholders can be customized as well.

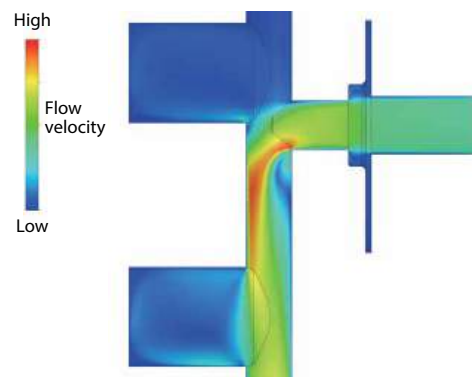
(Random order)
Based on Kyocera Survey in January 2021



Optimized Coolant Supply

Supply hole designed to reduce energy loss based on extensive flow analysis

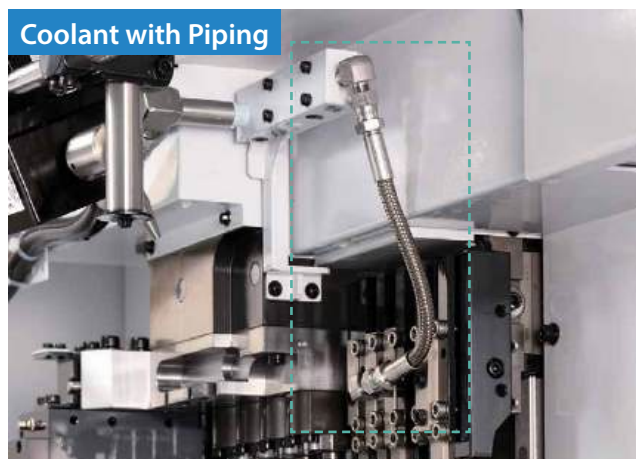
Analysis Image (Internal Evaluation)



Internal Coolant with Piping

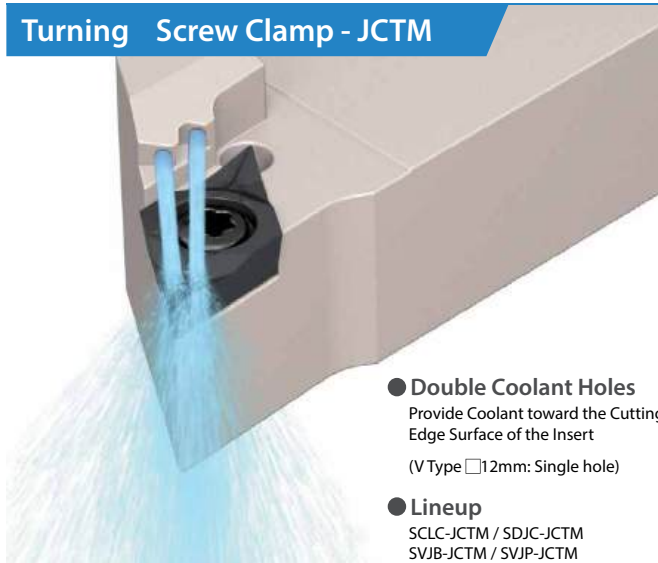
Compatible with internal coolant on any machine with standard piping parts

Commercial piping parts are available when using at normal pressure



3 Large Lineup for Various Tooling Operations

Turning Screw Clamp - JCTM

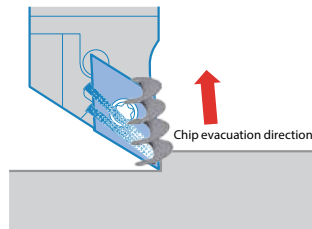


- **Double Coolant Holes**
Provide Coolant toward the Cutting Edge Surface of the Insert
(V Type □12mm: Single hole)
- **Lineup**
SCLC-JCTM / SDJC-JCTM
SVJB-JCTM / SVJP-JCTM

Coolant Supply Structure Comparison (Internal Evaluation)

Screw Clamp- JCTM

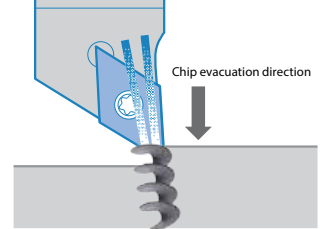
Discharges coolant toward the rake surface of insert



- Chip control performance** ✓ Provides stable chip curls
- Cooling effect** ✓ The cutting edge stays cool

Competitor A

Discharges coolant down onto the chip forcing the chip into the part



- Chip control performance** Chip becomes unstable
- Cooling effect** Chip can cause interference with the workpiece

External Grooving KGBF-JCTM



- Provides Coolant toward the Rake Surface of Insert

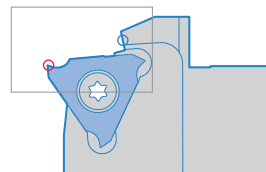
● Specification

Edge Width: 0.010" - 0.118" (0.25mm - 3mm)
Ground Chipbreaker / Molded GL Chipbreaker
Maximum groove depth: 0.118" (3mm)

Coolant Discharge Comparison (Internal Evaluation)

Small chips and better cooling of the insert leads to longer tool life.

- Cutting Edge
- Coolant Hole



(Without Insert)



(Without Insert)



Square / Rectangle Shank Identification System

Note: JCTM-Series holders for small parts machining have rectangle shanks
See below for part number identification examples

Clamping System		Insert Shape		Hand of Tool		Shank Size		Insert Size (IC)		Optional Code	
A	Back Clamp	C	80° Diamond	R	Right-Hand	Square Shank: This number will represent the number of sixteenths of width and height. Ex. 6/16 = 3/8" Square		Number of 1/8ths on 1/4" IC and over		FF	Without Offset
C	Top Clamp	D	55° Diamond	L	Left-Hand	Rectangle Shank: the first digit represents the number of eighths of width and the second digit the number of quarters of height. Ex. Width = 6/8 = 3/4" Height = 2/4 = 1/2"				JCTM	Jet Coolant-Through
P	Lever Lock	S	90° Square	N	Neutral						
S	Screw Clamp	T	60° Triangle								
		V	35° Diamond								

ANSI (Inch) S C L C R 6 2 JX FF (JCTM)

ISO (Metric) S C L C R 12 12 JX - 09 FF (JCTM)

Cutting Edge Angle					Insert Relief Angle		Shank Height		Shank Width		Toolholder Length		Insert Size (mm)	
A	B	D	F	G			Shank Height (mm)		Shank Width (mm)					
90°	75°	45°	90°	90°	B	5° Positive					F	80mm (85mm)		
J	K	L	N	P	C	7° Positive					H	100mm		
93°	75°	95°	63°	117.5°	N	0° Negative					JX	4.750" / 120mm		
					P	11° Positive					K	125mm		
S	T	V									M	150mm		
45°	60°	72.5°												

• Some back turning toolholders have Kyocera's unique descriptions

External Sleeve Holder Identification System

Shank		Toolholder Length		Clamping System		Insert Shape		Hand of Tool	
S	Steel	F	80mm (85mm)	S	Screw Clamp	C	80° Diamond	L	Left-Hand
		G	90mm			D	55° Diamond		
		H	100mm			V	35° Diamond		
		K	125mm (120mm)						

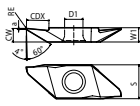
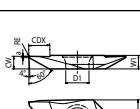
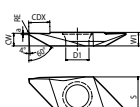
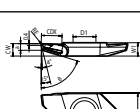
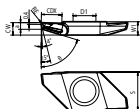
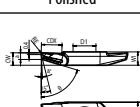
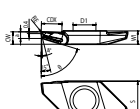
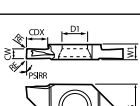
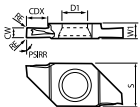
ANSI (Inch) S 19 K - S C L C L 09

ISO (Metric) S 20 K - S C L C L 09

Shank Diameter		Cutting Edge Angle		Insert Relief Angle		Insert Size (mm)	
ANSI: A two-digit number that indicates the shank diameter in 1/16" increments. ISO: Shank diameter in mm.		L					
		U		B		5° Positive	
				C		7° Positive	

- The dimensions and specifications are subject to change for improvement without notice.
- Depending on the machine specifications such as attachment Dimensions, the symbol may not match the actual toolholder length.

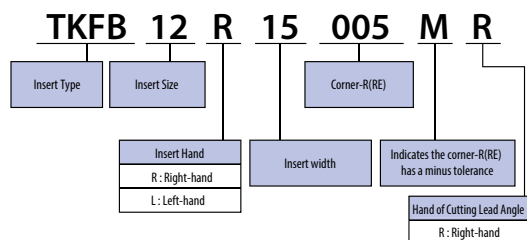
TKF / TKFB

			Carbon Steel / Alloy Steel											P			
			Stainless Steel											M			
			Cast Iron											K			
			Non-ferrous metals											N			
Insert		Part Number	No. of Edges	Dimension (mm)							Angle (°)		Carbide		Applicable Toolholder ➡ E15, E16		
				CW		CDX	S	D1	RE	W1	a	PSIR%	θ	PVD		-	
				in	mm									PR1225			PR1535	PR1725	KN10
		TKFB 12R15005M	2	0.059	1.5	2.6			< 0.05		0.25			●	●	●	KTKFR....-12 KTKFR....-12-Y
		12R28005M		0.110	2.8	4.6	8.7	5.2	< 0.05	3	0.3	-	-	●	●	●	
		12R28010M		0.110	2.8	4.6			< 0.1		0.3			●	●	●	
		TKFB 16R38005M	2	0.150	3.8	6.3	9.5	5.2	< 0.05		0.3	-	-	●	●	●	KTKFR....-16
		16R38010M					< 0.1			●	●	●					
											●	●	●				
		TKFB 12L28005MR	2	0.110	2.8	4.6	8.7	5.2	< 0.05		0.3	-	-	●	●		KTKFL....-12
		12L28010MR					< 0.1			●	●						
											●	●					
		TKFB 16L38005MR	2	0.150	3.8	6.3	9.5	5.2	< 0.05		0.3	-	-	●	●		KTKFL....-16
		16L38010MR					< 0.1			●	●						
											●	●					
		TKFB 12R28005P-GQ	2	0.110	2.8	4.6	8.7	5.2	0.05		1.5	-	74	●	●	●	KTKFR....-12 KTKFR....-12-Y
		12R28015P-GQ						0.15	3				●	●	●		
											0.15	3	1.5	-	74	●	
		TKFB 16R38005P-GQ	2	0.150	3.8	6.3	9.5	5.2	0.05		1.8	-	72	●	●	●	KTKFR....-16
		16R38015P-GQ						0.15	4				72	●	●	●	
											0.15	4	1.8	-	72	●	
		TKFB 12R28005-GQ	2	0.110	2.8	4.6	8.7	5.2	0.05		1.5	-	74	●	●	●	KTKFR....-12 KTKFR....-12-Y
		12R28015-GQ						0.15	3				74	●	●	●	
											0.15	3	1.5	-	74	●	
		TKFB 16R38005-GQ	2	0.150	3.8	6.3	9.5	5.2	0.05		1.8	-	72	●	●	●	KTKFR....-16
		16R38015-GQ						0.15	4				72	●	●	●	
											0.15	4	1.8	-	72	●	
		TKF 12R200-GTP	2	0.079	2	4.3	8.7	5	0.08		3	-	0	-	●	●	KTKFR....-12 KTKFR....-12-Y
		16R300-GTP													●	●	
																●	

Inserts with corner-R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner-R (RE).

Recommended Cutting Conditions E76

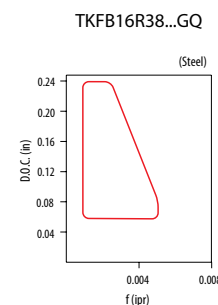
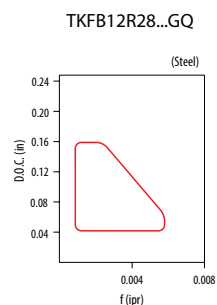
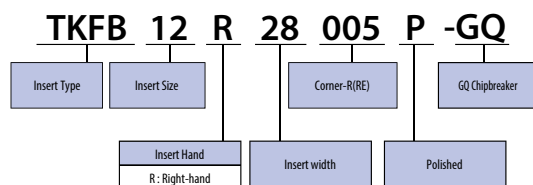
Inserts Identification System (Ref. Tables 1 and 2)



Small machining	General purpose	Large machining
TKFB12R15..	TKFB12R28..	TKFB16R38..

Toolholder	Right-hand	Toolholder	Left-hand
Insert	Right-hand	Insert	Left-hand
Lead angle	Right-hand	Lead angle	Right-hand

Applicable Chipbreaker Range

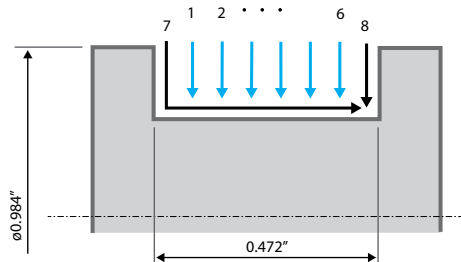


GTP chipbreaker - Grooving and Turning Available

Cutting Time Comparison (Internal evaluation)

Competitor A

Multiple Grooves and a Finishing Pass
Workpiece Material : 1045 (ø0.984")

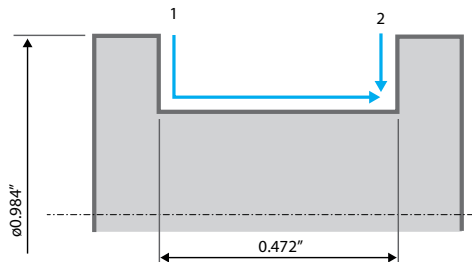


Cutting Conditions: Multiple Grooves
Vc= 330 sfm
D.O.C. = 0.138", f = 0.004 ipr

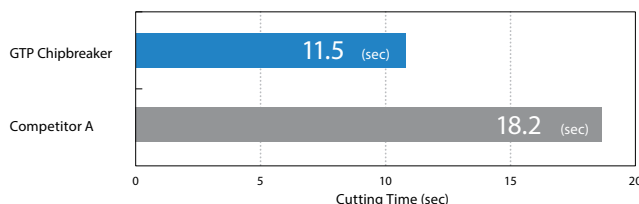
Cutting Conditions: Finishing
Vc= 330 sfm
D.O.C. = 0.020", f = 0.002 ipr

TKF12R200-GTP

Grooving and Turning
Workpiece Material : 1045 (ø0.984")



Cutting Conditions: Grooving and Turning
Vc= 330 sfm
D.O.C. = 0.158", f = 0.002 ipr



GTP chipbreaker required fewer machining paths than competitor



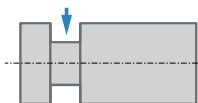
Cutting Time Reduction

Chip Control Comparison (Internal evaluation)

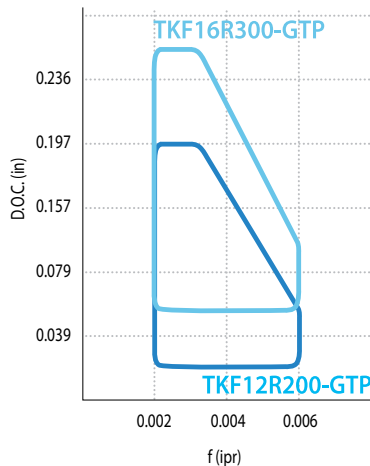
Grooving

f (ipr)	0.002	0.003	0.004
TKF12R 200-GTP			
Competitor B			

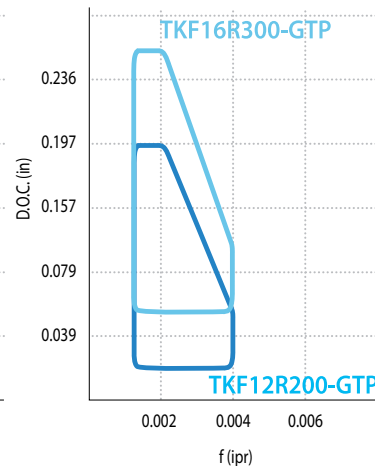
Cutting Conditions : Vc = 330 sfm, D.O.C. = 0.158", Wet
Workpiece Material : 1045 (ø0.984")



Recommended Chipbreaker Range (Steel)

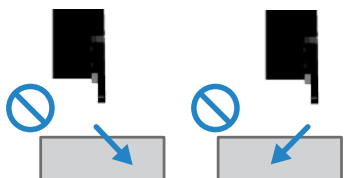


Recommended Chipbreaker Range (Stainless Steel)



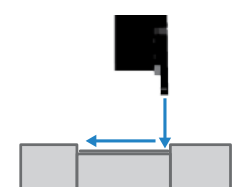
Caution for machining

Ramping

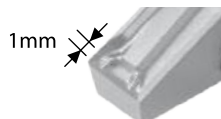


Ramping is not recommended if the workpiece is not pre-machined as shown in the right gures

Back Turning

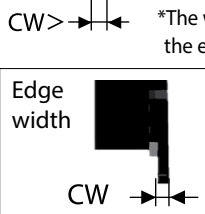


When back turning is used for finishing, make sure that the side cutting edge (back) of the tool is within 1mm



Tips for Ramping

Step grooving is required before ramping. (Refer to the gure below)

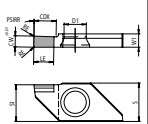
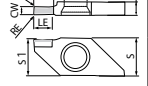
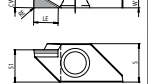


*The width of the groove must be smaller than the edge width to overlap the previous groove

Back turning is not recommended on the tapered surface.



TKF

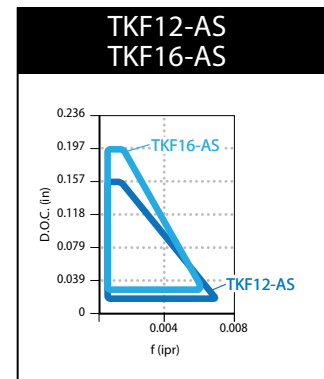
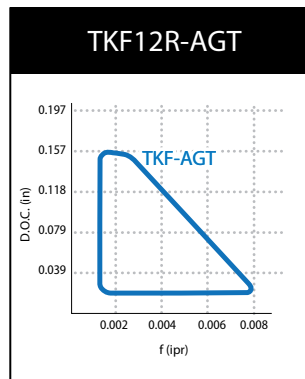
			Carbon Steel / Alloy Steel														●	P		
			Stainless Steel														●	M		
			Cast Iron														●	K		
			Non-ferrous metals														●	N		
Insert		Part Number	No. of Edges	Dimension (in)								Angle (°)	Tolerance (in)				PCD	Applicable Toolholder ➡ E15, E16		
				CW		CDX	S	S1	D1	RE	LE	W1	PSIR %	CW min.	CW max.	RE (+/-) min.	RE (+/-) max.		KPD001	
				in	mm															
		TKF12R 150-NB	1	0.059	1.5	0.138					0.079								●	KTKFR...-12 KTKFR...-12-Y
		200-NB		0.079	2.0	0.157	0.343	0.327	0.197	0.004	0.118	0.118	0	-0.0012	+0.0012	-0.0020	0	●		
		250-NB		0.098	2.5	0.157						0.118							0	
		TKF12R 200-AGT	1	0.079	2.0														●	KTKFR...-12 KTKFR...-12-Y
		250-AGT		0.098	2.5		0.189	0.343	0.327	0.197	0.004	0.165	0.118	0	-0.0012	+0.0012	-0.0020	0	●	
		TKF12R 200-AS	1	0.079	2.0	0.197	0.343	0.287	0.197	0.004	0.209	0.118	0	-0.0012	+0.0012	-0.0020	0	●	KTKF%...-12 KTKFR...-12-Y	
		TKF16R 250-AS	1	0.098	2.5	0.315	0.374	0.315	0.197	0.004	0.248	0.157	0	-0.0012	+0.0012	-0.0020	0	●	KTKF%...-16	

Recommended Cutting Conditions E76

Inserts Identification System

TKF	12	R	200	-	AGT
TKF	12	L	200	-	AS
Insert Type	Insert Size	Width (Edge Width)			
		Insert Hand	Name of Chipbreaker		
		R : Right-hand	AGT : AGT Chipbreaker		
		L : Left-hand	AS : AS Chipbreaker		
			GTP : GTP Chipbreaker		
			NB : Without Chipbreaker		

Applicable Range



* PCD Inserts for turning and grooving

* Not recommended for cut-off

Note 1) The cutting edge of the TKF-AS / -ASR will be 1 mm lower than the center line when attached to the KTKF toolholder (Ref. to Fig. 2).
Adjust the height by making NC lathe parameter settings or inserting a plate.

2) If the 1 mm adjustment is not possible, use the TKF...-AGT/TKF...-NB.
(Ref. to Fig. 3)

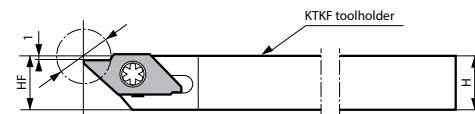


Fig. 2 When a TKF-AS / -ASR insert is attached (The cutting edge is 1mm lower than the center line)

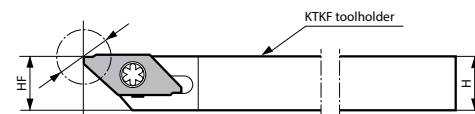
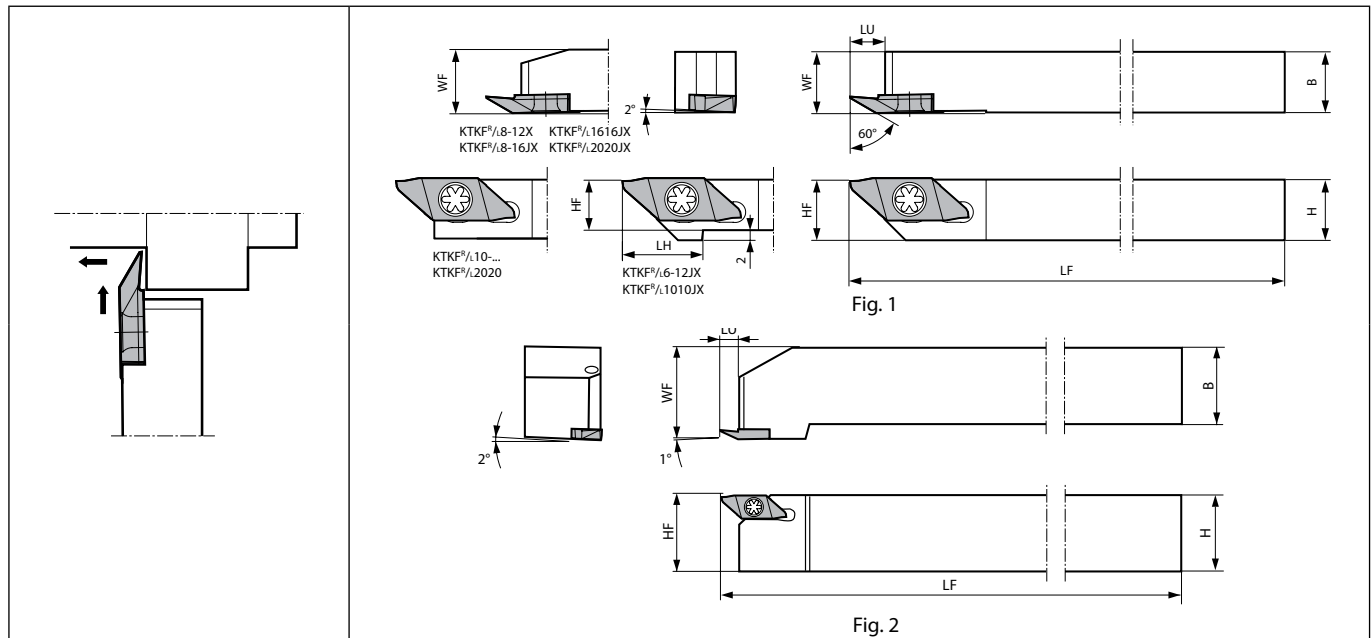


Fig. 3 When a TKF-NB insert is attached

PCD Inserts are
sold in 1 piece boxes

KTKF (Back Turning)

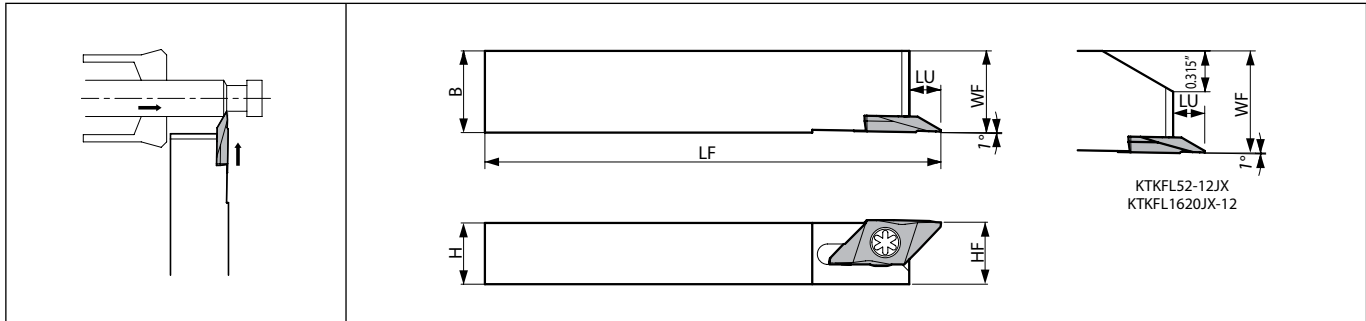


Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Fig.	Spare Parts		Applicable Inserts ➔ E12, E14
												Screw	Wrench	
		R	L	H	B	LH	HF	LF	LU	WF				
Inch	KTKF% 6-12JX	●	●	0.375	0.375	0.590	0.375	4.750	0.236	0.375	1	SB-4590TRWN	FT-10	TKF12% ... TKFB12% ...
	8-12JX	●	●	0.500	0.500	-	0.500	4.750	0.236	0.500				
	10-12JX	●	●	0.625	0.625	-	0.625	4.750	0.236	0.625				
	KTKF% 6-16JX	●	●	0.375	0.375	0.787	0.375	4.750	0.315	0.375	1	SB-4590TRWN	FT-10	TKF16% ... TKFB16% ...
	8-16JX	●	●	0.500	0.500	-	0.500	4.750	0.315	0.500				
	10-16JX	●	●	0.625	0.625	-	0.625	4.750	0.315	0.625				
mm	KTKF% 1010JX-12	●	●	10	10	15	10	120	6	10	1	SB-4590TRWN	FT-10	TKF12% ... TKFB12% ...
	1212F-12	●	●	12	12	-	12	85		12				
	1212JX-12	●	●				120							
	1616JX-12	●	●	16	16		16	120		16				
	2020JX-12	●	●	20	20		20	120		20				
	2525M-12	●		25	25		25	150		30				
	KTKF% 1010JX-16	●	●	10	10	20	10	120	8	10	1	SB-4590TRWN	FT-10	TKF16% ... TKFB16% ...
	1212F-16	●	●	12	12	-	12	85		12				
	1212JX-16	●	●				120							
	1616JX-16	●	●	16	16		16	120		16				
	2020JX-16	●	●	20	20		20	120		20				
	2525M-16	●		25	25		25	150		30				

LU shows the distance from the toolholder to the cutting edge.
See Page H15 for internal coolant type (coolant-through holders)

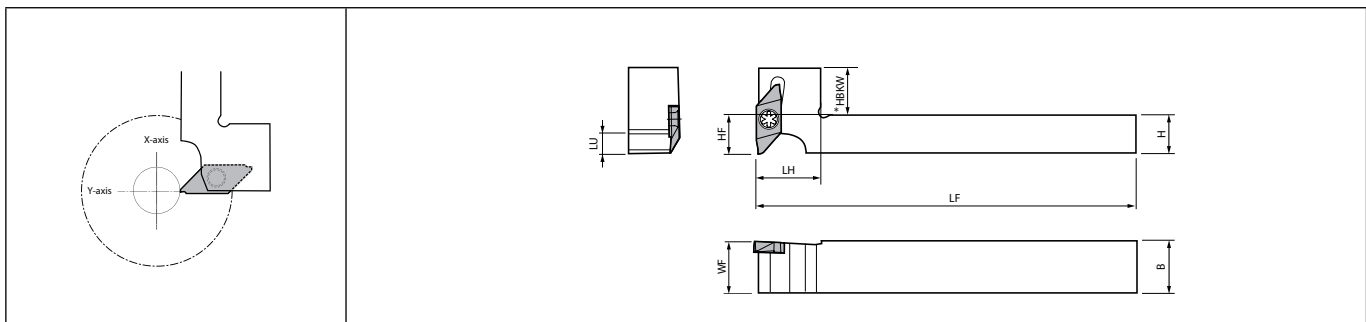
KTKF (Back Turning , Goose-Neck Toolholder)


Left-hand shown | Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Spare Parts		Applicable Inserts ➔ E12, E14
									Screw	Wrench	
Inch	KTKFL 52-12JX 62.5-12JX	●	0.500	0.625	0.500	4.750	0.236	0.625	SB-4590TRWN	FT-10	TKF12L... TKFB12L...
		●	0.625	0.750	0.625			0.750			
mm	KTKFL 1216JX-12 1620JX-12	●	12	16	12	120	6	16	SB-4590TRWN	FT-10	TKF12L... TKFB12L...
		●	16	20	16			20			

LU shows the distance from the toolholder to the cutting edge.

KTKF-Y (Back Turning , Y-Axis Toolholder)


Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

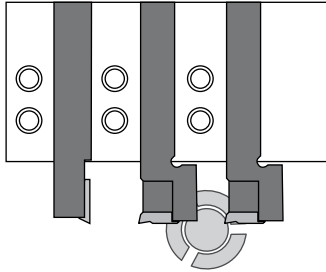
Unit	Part Number	Std. Item	Dimensions							Spare Parts		Applicable Inserts 🔧 E12, E14
										Screw	Wrench	
		R	H	B	LH	HF	HBKW	LF	WF			
mm	KTKFR 1216JX-12-Y 1616JX-12-Y	● ●	12 16	16	20 25	12 16	15 11	120	16	SB-4590TRWN	FT-10	TKF12R... TKFB12R...

LU shows the distance from the toolholder to the cutting edge.

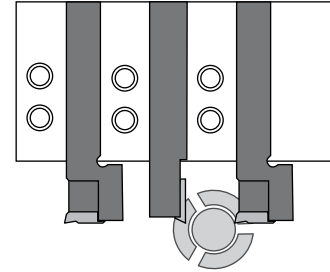
Precautions for using Y-axis toolholder

Do not use Y-axis toolholders side by side to prevent interference. (Only two Y-axis holder can be used at the same time)

With interference

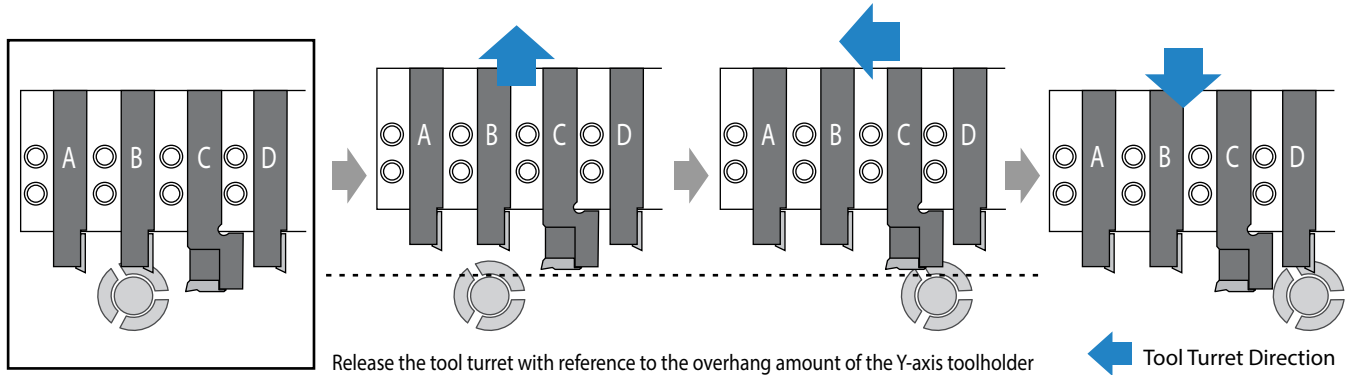


Without interference



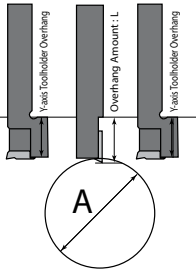
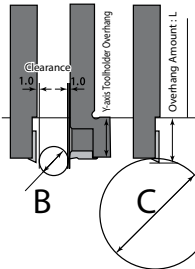
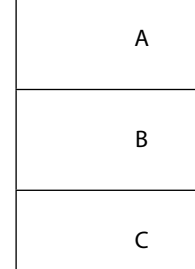
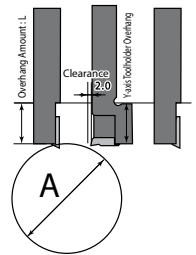
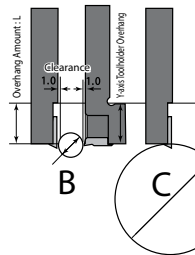
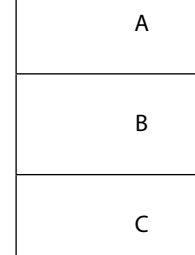
Standard toolholders may be mounted between two Y-axis toolholders

When changing the tool, set the retracted position with reference to the cutting edge of the Y-axis holder. (When exchanging from tool B to D)



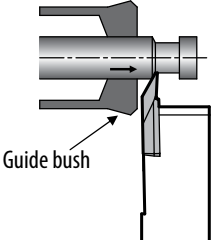
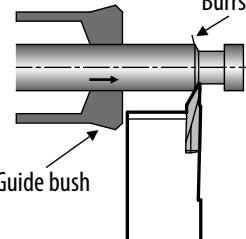
Note that using other toolholders together will result in different outside diameters

(Unit : mm)

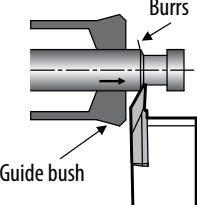
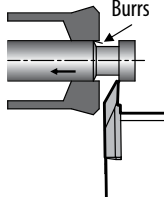
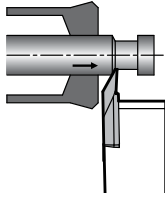
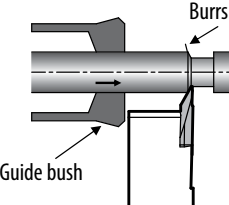
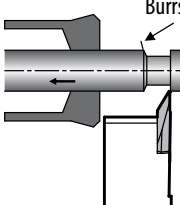
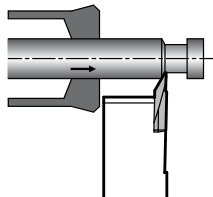
Y-axis Toolholder Overhang	Examples	Overhang Amount	20	22	25
		Available Outside Cutting Diameter (ø) L			
20	  	A	Without Restriction	Without Restriction	Without Restriction
		B	13.0	13.0	13.0
		C	Without Restriction	Without Restriction	Without Restriction
25	  	A	38.0	58.0	Without Restriction
		B	14.9	13.6	13.0
		C	45.0	60.0	Without Restriction

Toolholders for back turning - TKFB insert

How to select back turning toolholder hand

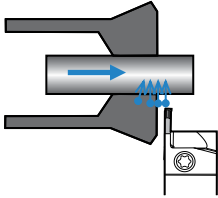
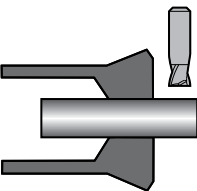
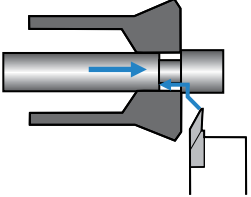
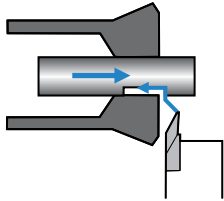
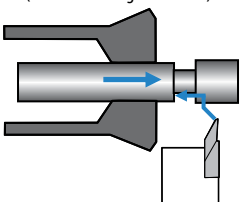
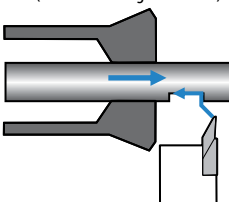
Right-hand		• Machining near the guide bush is possible • Narrow cutting edge width of TKFB12R15005M • Optimum for small parts and high precision machining
Left-hand	The workpiece burr does not contact the guide bush. 	• Machining with a distance from guide bush • Good chip control due to large space between the guide bush and the tool. • Excellent chip control in roughing and finishing (plural passes) • Stable accuracy of external diameter dimension: • When burrs occur, if a left-hand toolholder is used, it is not necessary to return workpiece into guide bush in finishing. • Also, left-hand toolholders prevent guide bush wear caused by chip biting.

Workpiece movement and tool hand selection - when roughing and finishing

	Roughing	Workpiece position after roughing	Finishing
Right-hand			
Left-hand			

* Good dimension accuracy: If a left-hand toolholder is used, burrs on workpiece generated in roughing do not damage the guide bush in finishing.

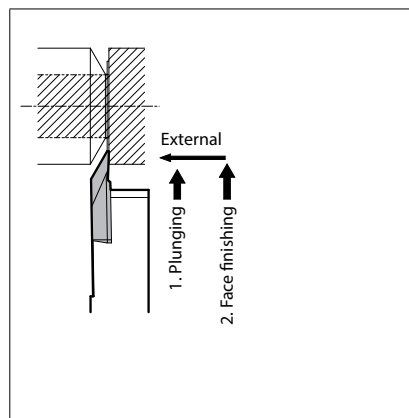
Chip control improvement in back turning

	Chip control improvement by tool pass changes - 1	Chip control improvement by tool pass changes - 2
Roughing	Roughing with grooving tools 1. GMM2420-020MW (Grooving) 	Pre-Stage machining is processed with solid end mill 1. Solid end mill 
Finishing (Countermeasures 1) Use right-hand toolholder	When using TKFB12R28010M (for back turning / right hand)  Advantages: • Good surface finish Disadvantages: • If a machining pass is long, the guide bush can not support the workpiece.	When using TKFB12R28010M (for back turning / right hand)  Advantages: 1. Minimal deflection in long machining passes 2. Chips are broken into small pieces, though the workpiece material is sticky Disadvantages: • The pre-stage machining may cause fractures, because of interrupted machining
Finishing (Countermeasures 2) Use left-hand toolholder	When using TKFB12L28010M (for back turning / left hand)  Advantages: 1. Good surface finish 2. High precision machining if the machined portion does not contact the guide bush. Disadvantages: • If a machining pass is long, the guide bush can not support the workpiece.	When using TKFB12L28010M (for back turning / left hand)  Advantages: 1. Minimal deflection in long machining passes 2. Chips are broken into small pieces, though the workpiece material is sticky. 3. High precision machining if the machined portion does not contact the guide bush. Disadvantages: • The pre-stage machining may cause fractures, because of interrupted machining.

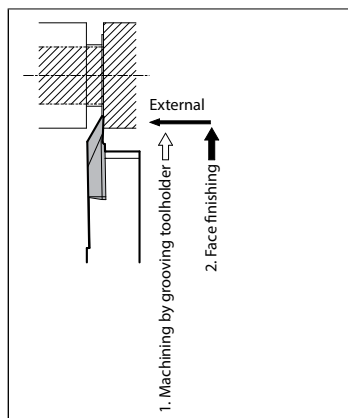
Countermeasure against peeled surface in face back turning

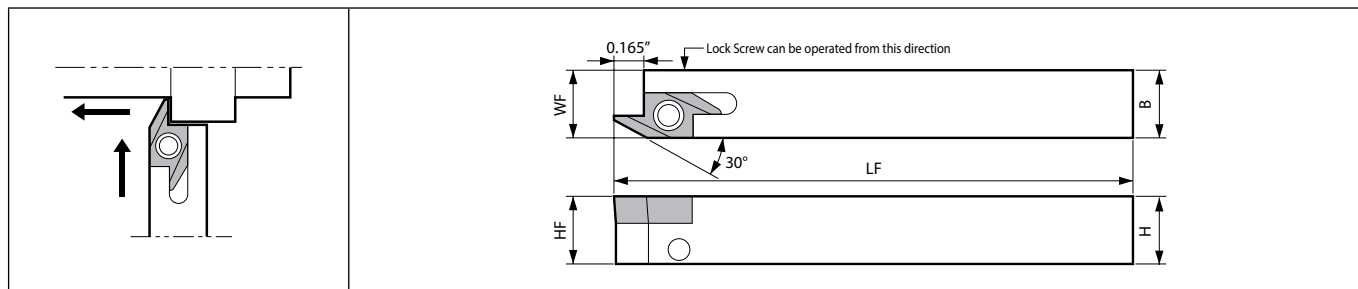
When peeled surface occurs on the workpiece face, please apply the countermeasures below.

Countermeasures 1 Face finishing



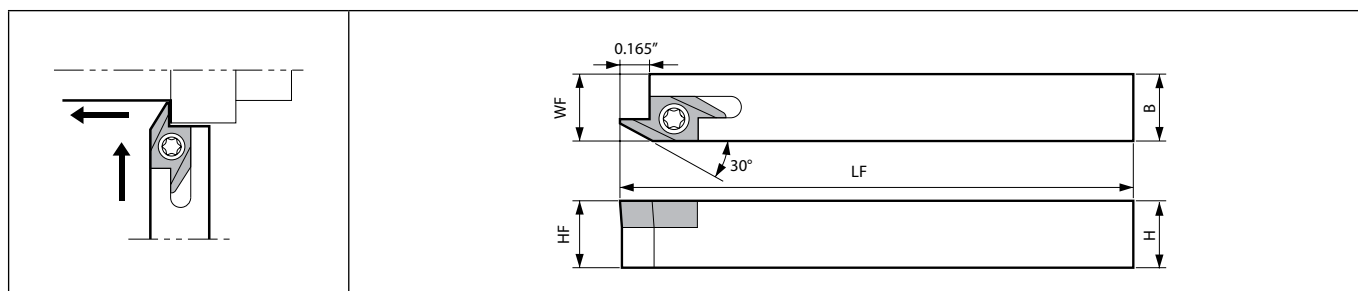
Countermeasures 2 Face finishing after grooving



AABS (Back Turning / Edge Width : 0.110", Max. Depth : 0.158")

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts			Applicable Inserts ➡ B112
		R	H	B	HF	LF	WF		Anchor pin	Lock Screw	Wrench	
Inch	AABSR 6-15JXF	●	0.375	0.375	0.375	4.750	0.383	0.006	LPA-11	HSB4X8R	FH-2	ABS15R40...
	8-15JXF	●	0.500	0.500	0.500		0.508		LPA-13			
	10-15JXF	●	0.625	0.625	0.625		0.633		LPA-17			
mm	AABSR 1010JX-40F	●	10	10	10	120	10.2	0.15	LPA-11	HSB4X8R	FH-2	ABS15R40...
	1212JX-40F	●	12	12	12		12.2		LPA-13			
	1616JX-40F	●	16	16	16		16.2		LPA-17			

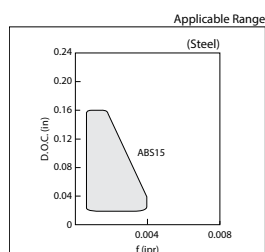
SABS (Back Turning / Edge Width : 0.110", Max. Depth : 0.158")

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts		Applicable Inserts ➡ B112
		R	H	B	HF	LF	WF		Screw	Wrench	
Inch	SABSR 6-15JXF	●	0.375	0.375	0.375	4.750	0.383	0.006	SB-3080TR	FT-10	ABS15R40...
	8-15JXF	●	0.500	0.500	0.500		0.508				
	10-15JXF	●	0.625	0.625	0.625		0.633				
mm	SABSR 1010JX-40F	●	10	10	10	120	10.2	0.15	SB-3080TR	FT-10	ABS15R40...
	1212F-40F	●	12	12	12	85	12.2				
	1616JX-40F	●	16	16	16	120	16.2				
	2020K-40F	●	20	20	20	125	20.2				

Applicable Inserts

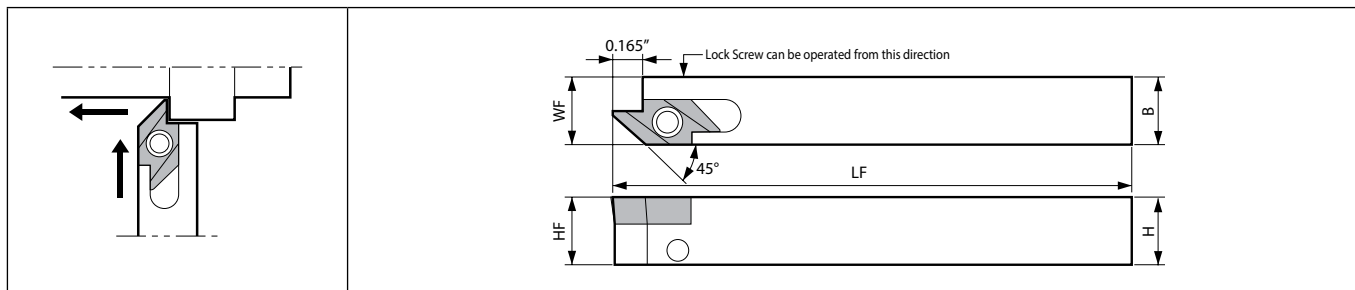
Applications	Back Turning
Insert	
Type	ABS15
Page	B112



Recommended Cutting Conditions ➡ E76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

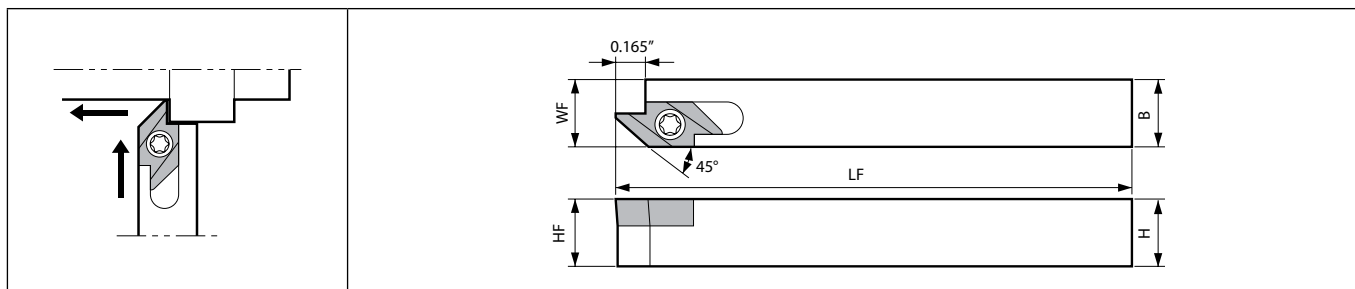
AABW (Back Turning / Edge Width : 0.185", Max. Depth : 0.158")



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts			Applicable Inserts ➔ B112
		R	H	B	HF	LF	WF		Anchor pin	Lock Screw	Wrench	
Inch	AABWR 6-15JXF	●	0.375	0.375	0.375	4.750	0.383	0.006	LPA-11	HSB4X8R	FH-2	ABW15R40...
	8-15JXF	●	0.500	0.500	0.500		0.508		LPA-13			
	10-15JXF	●	0.625	0.625	0.625		0.633		LPA-17			
mm	AABWR 1010JX-40F	●	10	10	10	120	10.2	0.15	LPA-11	HSB4X8R	FH-2	ABW15R40...
	1212JX-40F	●	12	12	12		12.2		LPA-13			
	1616JX-40F	●	16	16	16		16.2		LPA-17			

SABW (Back Turning / Edge Width : 0.185", Max. Depth : 0.158")

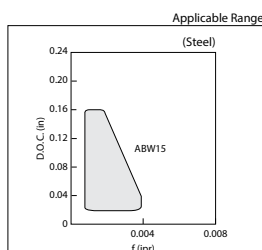


Toolholder Dimensions

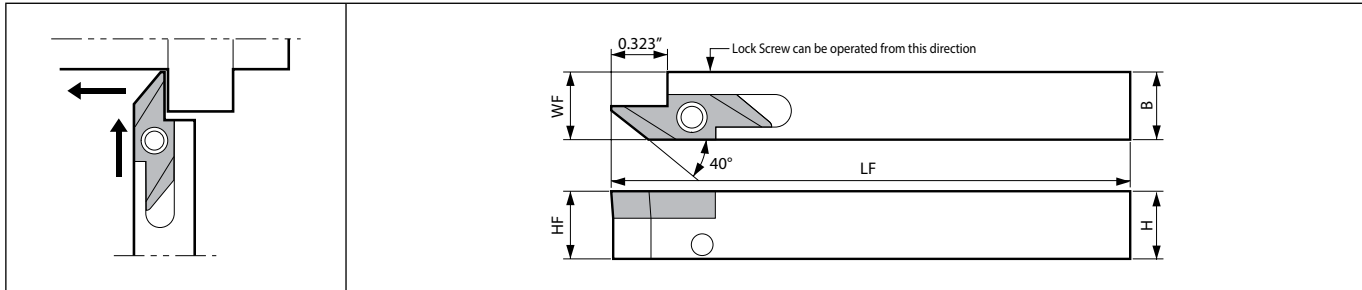
Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts		Applicable Inserts ➔ B112
		R	H	B	HF	LF	WF		Screw	Wrench	
Inch	SABWR 8-15JXF	●	0.500	0.500	0.500	4.750	0.508	0.006	SB-3080TR	FT-10	ABW15R40...
	10-15JXF	●	0.625	0.625	0.625		0.633				
mm	SABWR 1010JX-40F	●	10	10	10	120	10.2	0.15	SB-3080TR	FT-10	ABW15R40...
	1212JX-40F	●	12	12	12		12.2				
	1616JX-40F	●	16	16	16		16.2				
	2020K-40F	●	20	20	20		20.2				

Applicable Inserts

Applications	Back Turning
Insert	
Type	ABW15
Page	B112

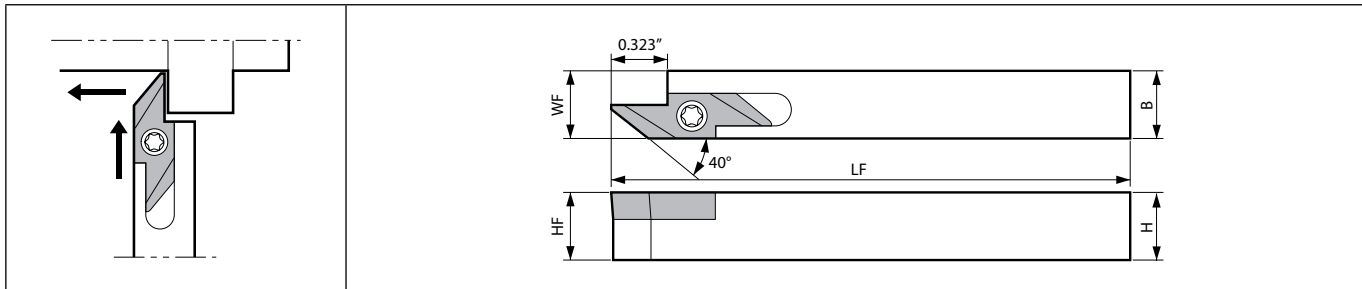


Recommended Cutting Conditions ➔ E76

AABW (Back Turning / Edge Width : 0.185", Max. Depth : 0.197")

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts			Applicable Inserts ➡ B112
		R	H	B	HF	LF	WF		Anchor pin	Lock Screw	Wrench	
Inch	AABWR 6-23JXF	●	0.375	0.375	0.375	4.750	0.383	0.006	LPA-11	HSB4X8R	FH-2	ABW23R50...
	8-23JXF	●	0.500	0.500	0.500		0.508		LPA-13			
	10-23JXF	●	0.625	0.625	0.625		0.633		LPA-17			
mm	AABWR 1010JX-50F	●	10	10	10	120	10.2	0.15	LPA-11	HSB4X8R	FH-2	ABW23R50...
	1212JX-50F	●	12	12	12		12.2		LPA-13			
	1616JX-50F	●	16	16	16		16.2		LPA-17			

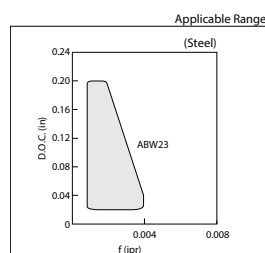
SABW (Back Turning / Edge Width : 0.185", Max. Depth : 0.197")

Toolholder Dimensions

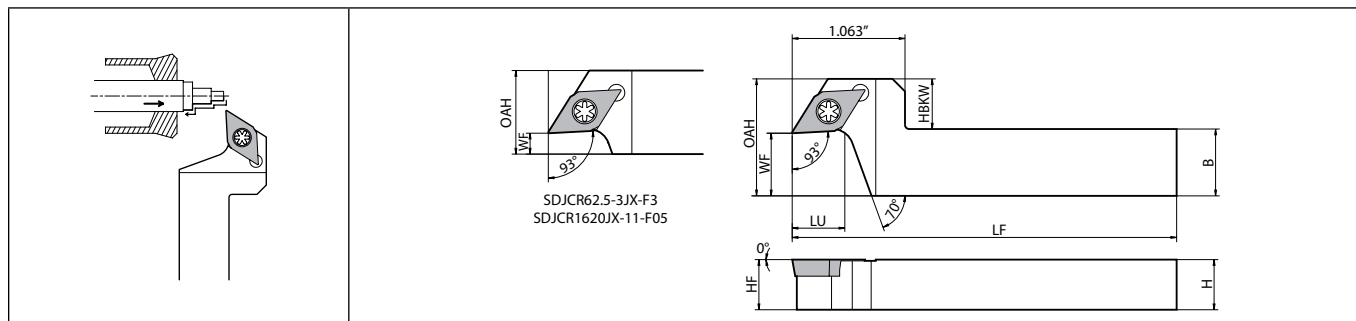
Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts		Applicable Inserts ➡ B112
		R	H	B	HF	LF	WF		Screw	Wrench	
Inch	SABWR 8-23JXF	●	0.500	0.500	0.500	4.750	0.508	0.006	SB-3080TR	FT-10	ABW23R50...
	10-23JXF	●	0.625	0.625	0.625		0.633				
mm	SABWR 1010JX-50F	●	10	10	10	120	10.2	0.15	SB-3080TR	FT-10	ABW23R50...
	1212JX-50F	●	12	12	12		12.2				
	1616JX-50F	●	16	16	16		16.2				
	2020K-50F	●	20	20	20		20.2				

Applicable Inserts

Applications	Back Turning
Insert	
Type	ABW23
Page	B112



Recommended Cutting Conditions ➡ E76

SDJC (External Turning / External Copying)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Standard Corner-R (RE)	Spare Parts		Applicable Inserts
												Screw	Wrench	
			R	H	B	OAH	HF	HBKW	LF	LU		WF		
Inch	SDJCR 52-3JX-F3	●	0.500	0.625	0.687	0.500	0.062	4.750	0.488	0.187	0.008	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...
	●	1.125			0.500		0.562							
	●	0.625	0.750	1.125	0.625	0.375	0.562							
mm	SDJCR 1216JX-11-F05	●	12	16	18	12	2	120	12.6	5	0.2	SB-4085TR	FT-15	
	●	28			12		15							
	●	16	20	20	-	5								
	●			28	8	15								

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

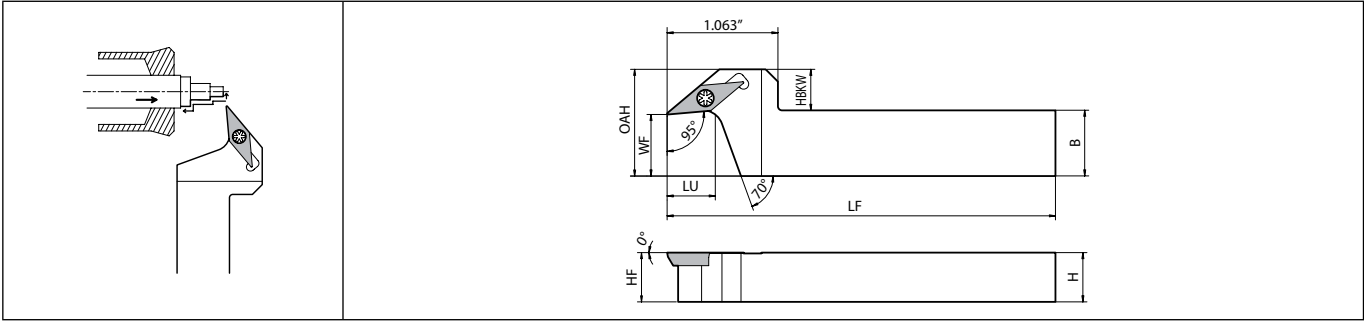
Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker	CF	GF	SKS	SK	CK	GQ	WP	¾-WP
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker	PP	GP	GK	HQ	Standard	MF	¾-F	¾-FSF
Page	B69	B69	B70	B70	B70	B70	B72, B73	B72
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker	¾-U	¾-USF	¾-J	¾-JSF	XP	XQ	MQ	No Chipbreaker
Page	B74~B76	B74	B77	B76	B71	B71	B71	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker	AP	¾-A3	AH	PCD	APD	CBN		
Page	B78	B78	B78	C42	C42	C22		

Recommended Cutting Conditions ● E76

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

SVLP (External Turning / External Copying)



Right-hand shown

Toolholder Dimensions

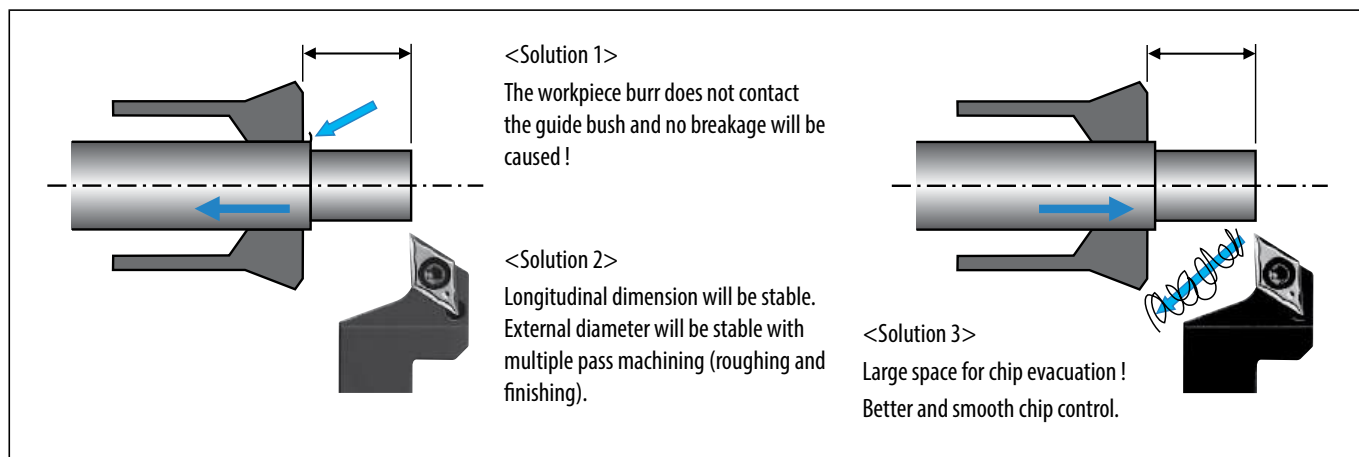
Unit	Part Number	Std. Item	Dimensions								Standard Corner-R (RE)	Spare Parts		Applicable Inserts
												Screw	Wrench	
			R	H	B	OAH	HF	HBKW	LF	LU		WF		
Inch	SVLPR 52-2JX-F9 62.5-2JX-F9	● ●	0.500 0.625	0.625 0.750	1.000	0.500 0.625	0.375 0.250	4.750	0.472	0.562	0.008	SB-2570TR	FT-15	VP□T22...
mm	SVLPR 1216JX-11-F15 1620JX-11-F15	● ●	12 16	16 20		12 16	10 6								120	12	15	0.2	SB-2570TR	FT-8

Applicable Inserts

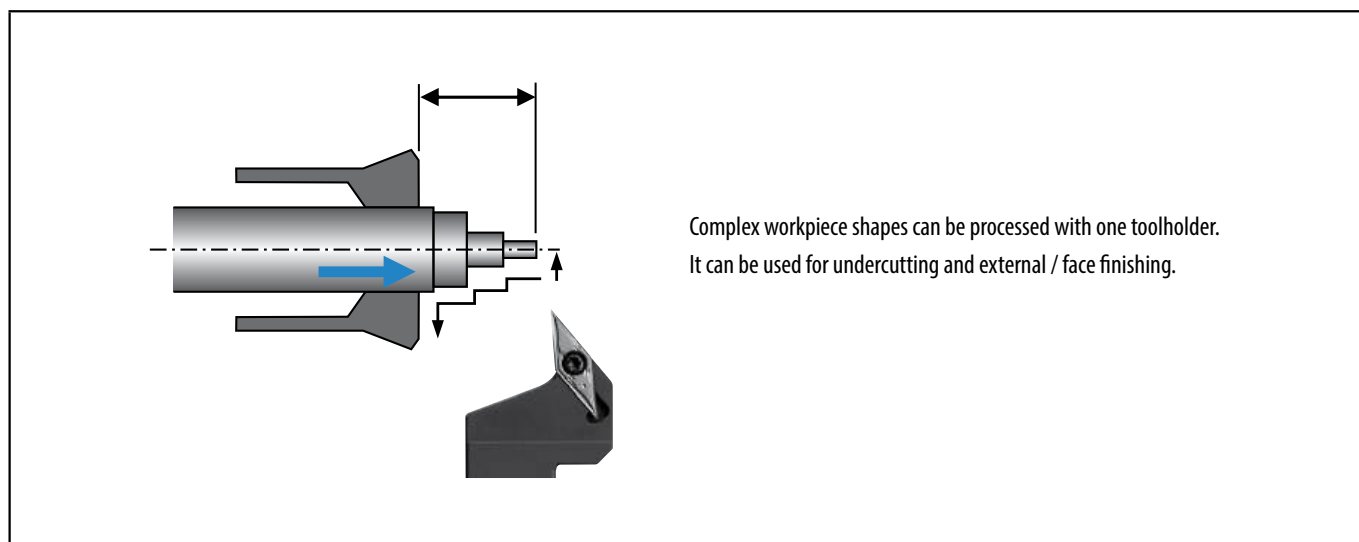
Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Low Feed	Low Feed
Insert								
Chipbreaker	CF	GF	SKS	CK	℞ℒ-F	℞ℒ-FSF	℞ℒ-U	℞ℒ-USF
Page	B102	B102	B102	B102	B103	B103	B104	B104
Applications	Low Feed							
Insert								
Chipbreaker	℞ℒ-J							
Page	B104							

Recommended Cutting Conditions ➡ E74~E75

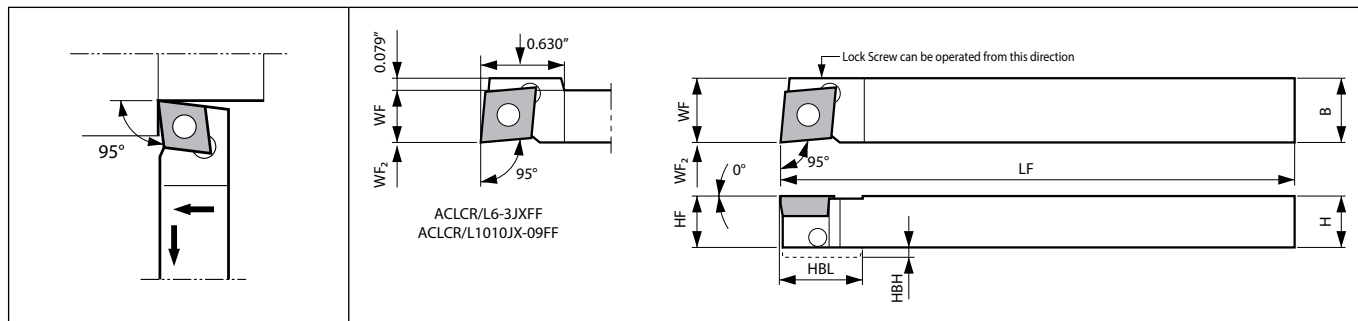
Goose-neck holder is available for multiple pass roughing and finishing



One toolholder for complex workpiece shapes



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

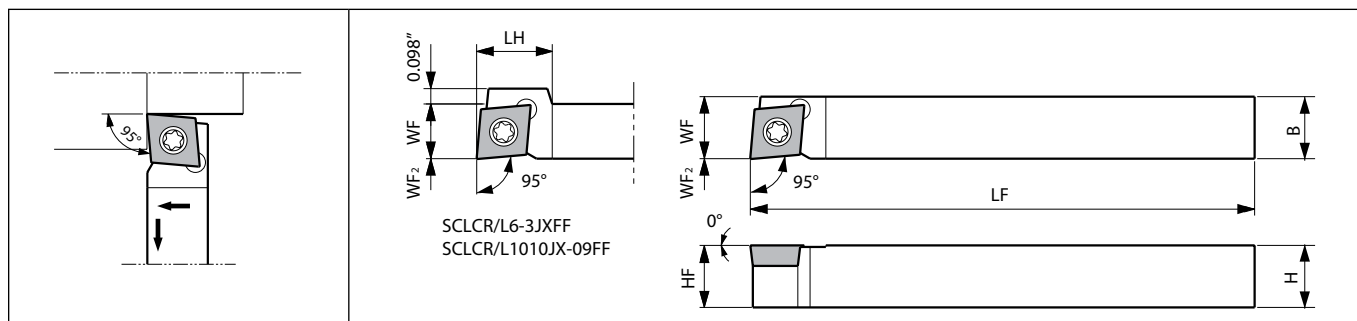
ACLC-FF (External Turning / External Facing , Back Clamp, Without Offset)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Standard Corner-R (RE)	Spare Parts			Applicable Inserts
													Anchor pin	Lock Screw	Wrench	
		R	L	H	B	HF	HBH	HBL	LF	WF	WF2					
Inch	ACLC% 6-2JXFF	●	●	0.375	0.375	0.375	-	-	4.750	0.375	0	0.008	LPF-11	HSB4X8%	FH-2	CC□T215... CC□W215...
	ACLC% 6-3JXFF 8-3JXFF 10-3JXFF	●	●	0.375	0.375	0.375	0.097	0.630	4.750	0.375	0	0.008	LPF-13	HSB4X8%	FH-2	CC□T325... CC□W325...
		●	●	0.500	0.500	0.500	-	-	4.750	0.500						
		●	●	0.625	0.625	0.625	-	-	4.750	0.625			LPF-17			
mm	ACLC% 1010JX-06FF	●	●	10	10	10	-	-	120	10	0	0.2	LPF-11	HSB4X8%	FH-2	CC□T215... CC□W215...
	ACLC% 1010JX-09FF 1212JX-09FF 1616JX-09FF	●	●	10	10	10	2	16	120	10	0	0.2	LPF-13	HSB4X8%	FH-2	CC□T325... CC□W325...
		●	●	12	12	12	-	-		12						
		●	●	16	16	16	-	-		16			LPF-17			

Lock Screw : HSB4X8R for Right-hand Toolholder, HSB4X8L for Left-hand Toolholder.

SCLC-FF (External Turning / External Facing , Screw Clamp, Without Offset)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Spare Parts			Applicable Inserts
												Screw	Wrench	Wrench	
		R	L	H	B	LH	HF	LF	WF	WF2					
Inch	SCLC% 6-2JXFF	●	●	0.375	0.375	-	0.375	4.750	0.375	0	0.008	SB-2570TR	-	FT-8	CC□T215... CC□W215...
	SCLC% 6-3JXFF	●		0.375	0.375	0.590	0.375		0.375						
	8-3JXFF	●	●	0.500	0.500		0.500	4.750	0.500	0	0.008	SB-4085TR	FT-15	-	CC□T325... CC□W325...
	10-3JXFF	●	●	0.625	0.625		0.625		0.625						
mm	SCLC% 0808F-06FF	●	●	8	8	-	8	85	8	0	0.2	SB-2570TR	-	FT-8	CC□T215... CC□W215...
	1010JX-06FF	●	●	10	10		10	120	10	0					
	SCLC% 1010JX-09FF	●	●	10	10	15	10	120	10						
	1212F-09FF	●	●				12	85	12	0	0.2	SB-4085TR	FT-15	-	CC□T325... CC□W325...
	1212JX-09FF	●	●	12	12				12						
	1616JX-09FF	●	●	16	16		16	120	16						
	2020JX-09FF	●	●	20	20		20		20						

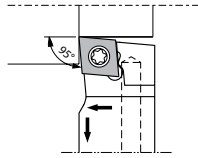
SCLC-FFJCTM (External Turning / External Facing , Screw Clamp, Without Offset, Coolant-Through Toolholder)

Fig. 1

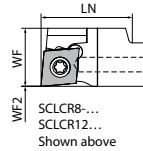
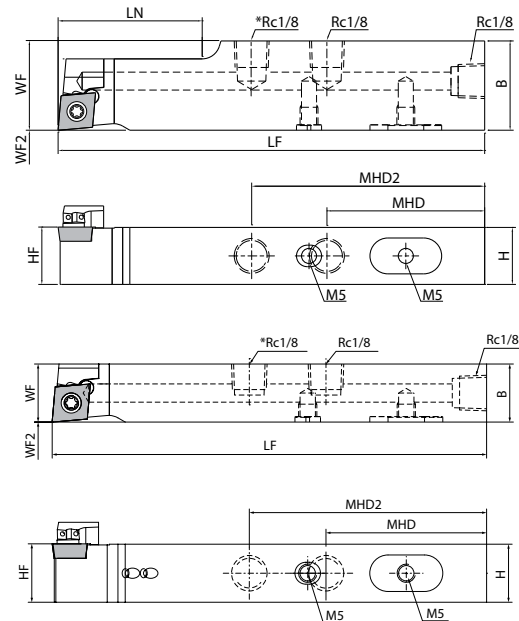


Fig. 2

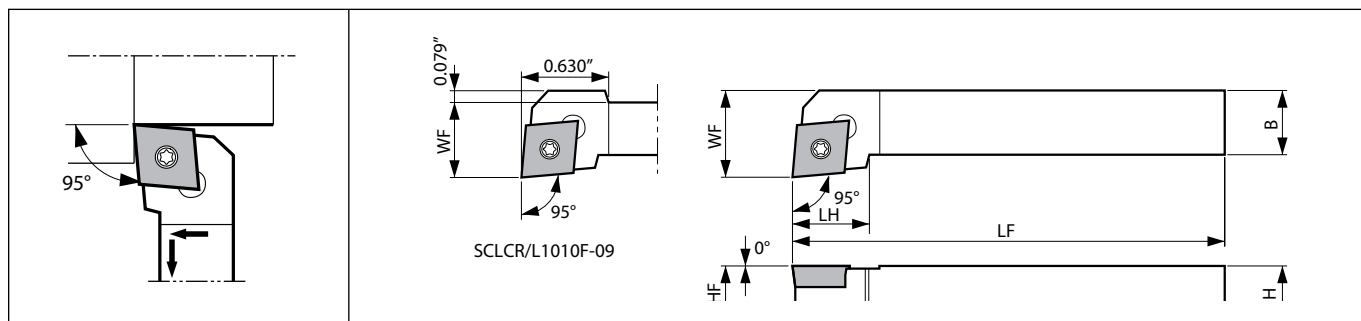


Right-hand shown
SCLCR5.72..., SCLCR8-... : 2-Rc1/8
SCLCR1218..., SCLCR1212... : 2-Rc1/8

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions									Fig.	Standard Corner-R (RE)	Coolant Hole	Spare Parts				Applicable Inserts	
			R	H	B	MHD	MHD2	HF	LF	LN	WF				WF2	Plug	Plug	Screw		Wrench
																				
Inch	SCLCR 5.72-3FFJCTM	●	0.500	0.709	2.126	-	0.500	4.750	1.102	0.630	0	1	0.008	Yes					CC□T325... CC□W325...	
	82.5-3FFJCTM	●	0.625	1.000	1.732	2.559	0.625		1.575	0.787										
	SCLCR 8-3FFJCTM	●	0.500	0.500	2.323	-	0.500	4.750	0.984	0.630	0	2	0.008	Yes	GP-1	HSSX4LP	SB-4085TR	FT-15		
	10-3FFJCTM	●	0.625	0.625	1.732	2.559	0.625		-	0.625										
12-3FFJCTM	●	0.750	0.750	0.750			0.750													
mm	SCLCR 1218JX-09FFJCTM	●	12	18	54	-	12	120	28	18	0	1	0.2	Yes	GP-1	HSSX4LP	SB-4085TR	FT-15	CC□T325... CC□W325...	
	1625JX-09FFJCTM	●	16	25	44	65	16		40	25										
	2025JX-09FFJCTM	●	20				20													
	SCLCR 1212JX-09FFJCTM	●	12	12	59	-	12	120	25	16	0	2	0.2	Yes	GP-1	HSSX4LP	SB-4085TR	FT-15		
	1616JX-09FFJCTM	●	16	16	16	-	20													
	2020JX-09FFJCTM	●	20	20	44		65		20											

Please see page H16 and H17 for piping parts of coolant-through holders.

SCLC (External Turning / External Facing , Screw Clamp)

Right-hand shown

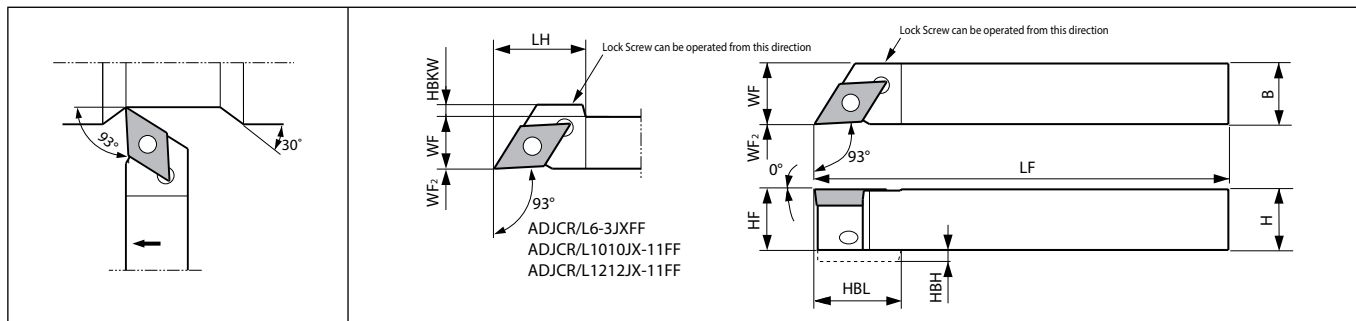
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Spare Parts				Applicable Inserts	
											Screw	Wrench	Wrench	Wrench		
		R	L	H	B	LH	HF	LF	WF							
Inch	SCLCR 6-2X	●		0.375	0.375	0.354	0.375	3.000	0.500	0.004	SB-2570TR	-	FT-8	-	CC□T215... CC□W215...	
	SCLC% 8-3A	●	●	0.500	0.500	0.551	0.500	4.000	0.625	0.004	SB-4085TR	FT-15	-	-	CC□T325... CC□W325...	
		10-3C	●		0.625	0.625	0.572	0.625	5.000							0.750
		12-3C	●	●	0.750	0.750	0.572	0.750	5.000							0.875
		16-3D	●		1.000	1.000	0.790	1.000	6.000	1.250						0.008
mm	SCLC% 1010F-06	●	●	10	10	9	10	80	12	0.2	SB-2570TR	-	FT-8	-	CC□T215... CC□W215...	
	SCLC% 1010F-09	●	●	10	10	14	10	80	14	0.2	SB-4085TR	FT-15	-	-	CC□T325... CC□W325...	
		1212H-09	●	●	12		12	12								16
		1616H-09	●	●	16	16	15	16								100
		2020K-09	●	●	20	20	20	20	125							25
		2525M-09	●	●	25	25	22	25	150							32
	SCLC% 1616H-12	●	●	16	16	22	16	100	20	0.4	SB-5090TR	-	-	LTW-20	CC□T43...	
		2020K-12	●	●	20		20	20	125							25
		2525M-12	●	●	25		25	25	150							32

Applicable Inserts (ACLC-FF / SCLC-FF / SCLC-FFJCTM / SCLC)

Applications	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker	PF	GF	SKS	SK	CK	GQ	WP	PP
Page	B58	B58	B59	B59	B59	B59	B60	B60
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium	Low Feed	Low Feed	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker	GK	HQ	Standard	MF	%-U	%-J	MQ	No Chipbreaker
Page	B60	B60	B60	B61	B63~B65	B65	B61	B66
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker	AP	%-A3	AH	PCD	APD	CBN		
Page	B66	B66	B66	C39	C40	C20		

Recommended Cutting Conditions ➡ E74, E75

ADJC-FF (External Turning / External Copying , Back Clamp, Without Offset)

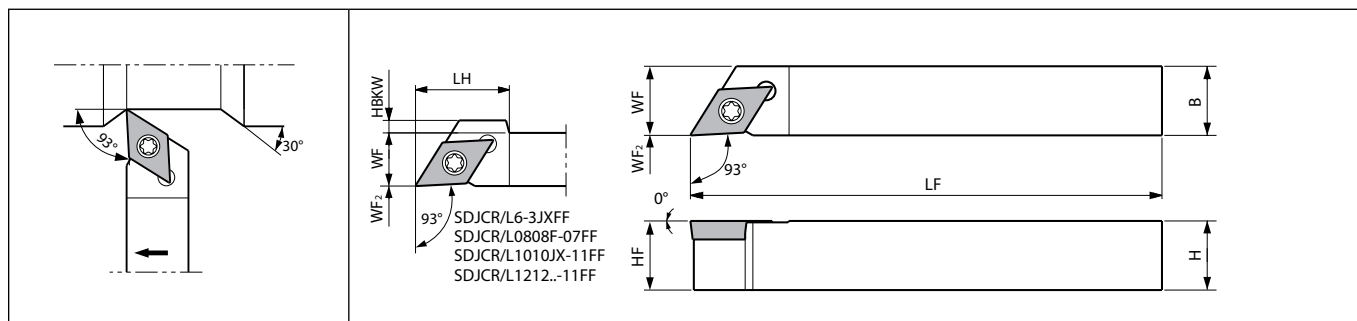
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions										Standard Corner-R (RE)	Spare Parts			Applicable Inserts	
															Anchor pin	Lock Screw	Wrench		
		R	L	H	B	LH	HF	HBH	HBKW	HBL	LF	WF	WF2						
Inch	ADJC% 6-2JXFF	●	●	0.375	0.375	-	0.375	-	-	-	4.750	0.375	0	0.008	LPF-11	HSB4X8%	FH-2	DC□T215... DC□W215... DC□X215...	
	ADJC% 6-3JXFF	●	●	0.375	0.375	0.787	0.375	0.097	0.137	0.787	4.750	0.375	0	0.008	LPF-13	HSB4X8%	FH-2	DC□T325... DC□W325... DC□X325...	
	8-3JXFF	●	●	0.500	0.500	-	0.500	-	-	-	4.750	0.500			LPF-17				
	10-3JXFF	●	●	0.625	0.625	-	0.625	-	-	-	4.750	0.625							
mm	ADJC% 1010JX-07FF	●	●	10	10	-	10	-	-	-	120	10	0	0.2	LPF-11	HSB4X8%	FH-2	DC□T215... DC□W215... DC□X215...	
	ADJC% 1010JX-11FF	●	●	10	10	20	10	2	3	20	120	10	0	0.2	LPF-13	HSB4X8%	FH-2	DC□T325... DC□W325... DC□X325...	
	1212JX-11FF	●	●	12	12		12	-	1	-		12			LPF-17				
	1616JX-11FF	●	●	16	16		-	16	-	-		-			16				

Lock Screw : HSB4X8R for Right-hand Toolholder, HSB4X8L for Left-hand Toolholder.

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

SDJC-FF (External Turning / External Copying, Screw Clamp, Without Offset)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Standard Corner-R (RE)	Spare Parts			Applicable Inserts
													Screw	Wrench	Wrench	
		R	L	H	B	LH	HF	HBKW	LF	WF	WF2					
Inch	SDJCR 6-2JXFF	●		0.375	0.375	-	0.375	-	4.750	0.375			SB-2570TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	SDJC% 6-3JXFF	●		0.375	0.375	0.787	0.375	0.137	4.750	0.375	0	0.008				
	8-3JXFF	●	●	0.500	0.500	-	0.500	-	4.750	0.500			SB-4085TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	10-3JXFF	●		0.625	0.625		0.625		4.750	0.625						
mm	SDJC% 0808F-07FF	●	●	8	8	14	8	0.5	85	8	0	0.2	SB-2570TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	1010JX-07FF	●	●	10	10	-	10	-	120	10						
	SDJC% 1010JX-11FF	●	●	10	10		10	3	120	10						
	1212F-11FF	●	●			20			85							
	1212JX-11FF	●	●	12	12		12	1		12	0	0.2	SB-4085TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	1616JX-11FF	●	●	16	16	-	16	-	120	16						
	2020JX-11FF	●	●	20	20		20	-		20						

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

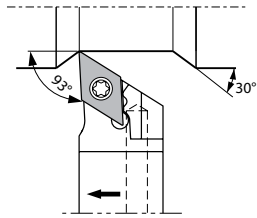
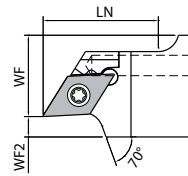
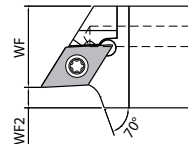
SDJC-JCTM (External Turning / External Copying, Screw Clamp, Without Offset, Coolant-Through Toolholder)

Fig. 1

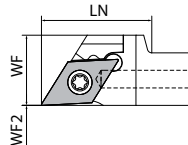


SDJCR82-3-F05JCTM
SDJCR112-3-F15JCTM
SDJCR1235JX11F15JCTM
SDJCR1225JX11F05JCTM



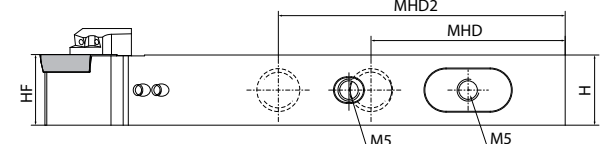
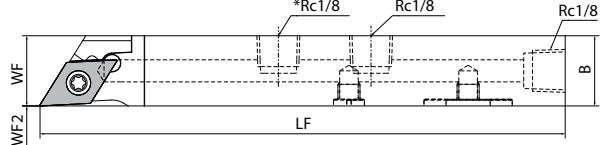
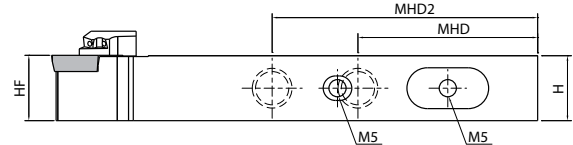
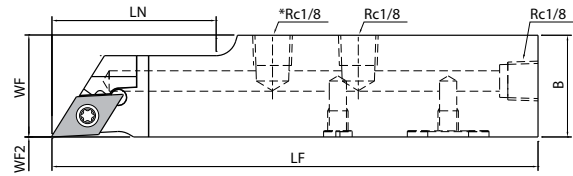
SDJCR82.5-3-F05JCTM
SDJCR112.5-3-F15JCTM
SDJCR1625JX11F05JCTM
SDJCR1635JX11F15JCTM

Fig. 2



SDJCR8-3FFJCTM
SDJCR1212JX-11FFJCTM

*SDJCR5.72-3FFJCTM : 2-Rc1/8
*SDJCR82-3-F05JCTM : 2-Rc1/8
*SDJCR112-3-F15JCTM : 2-Rc1/8
*SDJCR12... : 2-Rc1/8



Right-hand shown

Toolholder Dimensions

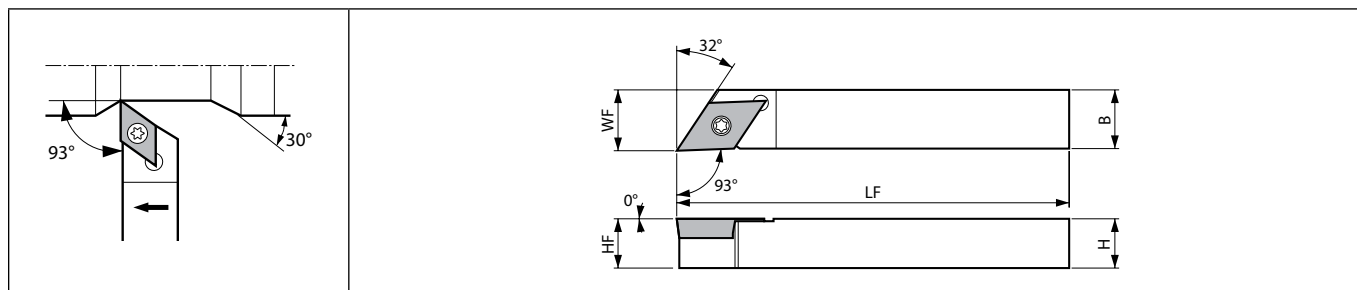
Unit	Part Number	Std. Item	Dimensions									Fig.	Standard Corner-R (RE)	Coolant Hole	Spare Parts				Applicable Inserts	
			R	H	B	MHD	MHD2	HF	LF	LN	WF				WF2	Plug	Plug	Screw		Wrench
																				
Inch	SDJCR 5.72-3FFJCTM	●	0.500	0.709	2.126	-	0.500	4.750	1.102	0.630	0	1	0.008	Yes	GP-1	H55X4LP	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...	
	82.5-3FFJCTM	●	0.625	1.000	1.732	2.559	0.625		1.575	0.787										
	SDJCR 82-3-F05JCTM	●	0.500	1.000	2.126	-	0.500	4.750	1.102	0.630	0.197		0.008	Yes	GP-1	H55X4LP	SB-4085TR	FT-15		DC□T325... DC□W325... DC□X325...
	112-3-F15JCTM	●		1.375							0.591									
	82.5-3-F05JCTM	●	0.625	1.000	1.732	2.559	0.625	4.750	-	0.787	0.197		0.008	Yes	GP-1	H55X4LP	SB-4085TR	FT-15		DC□T325... DC□W325... DC□X325...
	112.5-3-F15JCTM	●		1.375							0.591									
mm	SDJCR 8-3FFJCTM	●	0.500	0.500	2.323	-	0.500	4.750	0.984	0.630	0	2	0.008	Yes	GP-1	H55X4LP	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...	
	10-3FFJCTM	●	0.625	0.625	1.732	2.559	0.625		-	0.625										
	12-3FFJCTM	●	0.750	0.750			0.750	-	0.750											
	SDJCR 1218JX-11FFJCTM	●	12	18	54	-	12	120	28	18	0		0.2	Yes	GP-1	H55X4LP	SB-4085TR	FT-15		DC□T325... DC□W325... DC□X325...
	1625JX-11FFJCTM	●	16	25	44	65	16		40	25										
	2025JX-11FFJCTM	●	20				20													
mm	SDJCR 1225JX11F05JCTM	●	12	25	54	-	12	120	28	20	5	1	0.2	Yes	GP-1	H55X4LP	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...	
	1235JX11F15JCTM	●		35							15									
	1625JX11F05JCTM	●	16	25	44	65	16	-	15	5	2	0.2	Yes	GP-1	H55X4LP	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...		
	1635JX11F15JCTM	●		35						15										
	SDJCR 1212JX-11FFJCTM	●	12	12	59	-	12	120	25	16	0	2	0.2	Yes	GP-1	H55X4LP	SB-4085TR	FT-15		DC□T325... DC□W325... DC□X325...
	1616JX-11FFJCTM	●	16	16	44	65	16		-							20				
2020JX-11FFJCTM	●	20	20	20			20													

Please see page H16 and H17 for piping parts of coolant-through holders.

For WP chipbreaker, cutting edge offsets or program corrections are required on R42 and R43.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

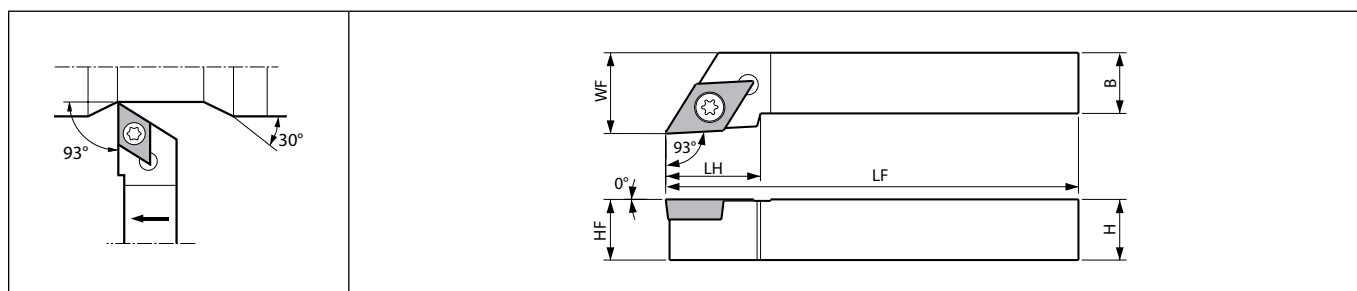
Contact your local Kyocera sales engineer to upgrade old products to new technology

SDJC-F (External Turning / External Copying , Screw Clamp)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts			Applicable Inserts
									Screw	Wrench	Wrench	
		R	H	B	HF	LF	WF					
Inch	SDJCR 6-2CF	●	0.375	0.375	0.375	5.000	0.395	0.004	SB-2570TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	SDJCR 8-3DF	●	0.500	0.500	0.500	6.000	0.520	1/32	SB-4085TR	FT-15	-	DC□T325... DC□W325... DC□X325...

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.**SDJC** (External Turning / External Copying , Screw Clamp)

Right-hand shown

Toolholder Dimensions

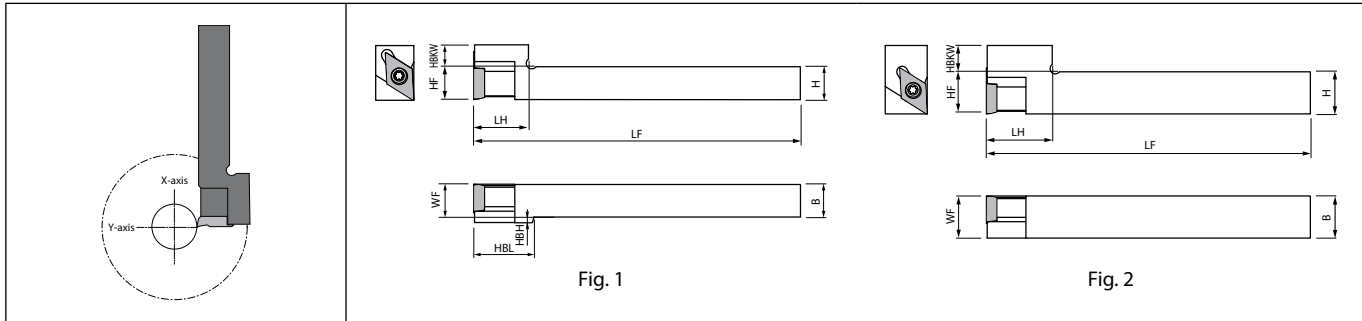
Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Spare Parts			Applicable Inserts
		R	L	H	B	LH	HF	LF	WF		Screw	Wrench	Wrench	
Inch	SDJCR 6-2X	●		0.375	0.375	0.472	0.375	3.000	0.500	0.004	SB-2570TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	SDJC% 8-3A	●	●	0.500	0.500	0.709	0.500	4.000	0.625		SB-4085TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	10-3C	●	●	0.625	0.625	0.709	0.625	5.000	0.750	0.004				
	12-3C	●	●	0.750	0.750		0.750		0.875					
	16-3D	●		1.000	1.000	0.810	1.000	6.000	1.250	0.008				
mm	SDJC% 1010F-07	●	●	10	10	12	10	80	12	0.2	SB-2570TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	SDJC% 1010F-11	●	●	10	10	18	10	80	12	0.2	SB-4085TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	1212H-11	●	●	12	12		12		16					
	1616H-11	●	●	16	16		16		20					
	2020K-11	●	●	20	20		20	125	25					
	2525M-11	●	●	25	25	23	25	150	32					

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SDJC-FF-Y (External Turning / External Copying, Y-Axis Toolholder)

Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions									Fig.	Coolant Hole	Spare Parts		Applicable Inserts
														Screw	Wrench	
		R	H	B	LH	HF	HBH	HBKW	HBL	LF	WF					
mm	SDJCR 1212JX-11FF-Y	●	12	12	20	12	2	8	22	120	12	1	No	SB-4085TR	FT-15	DC□T325... DC□W325... DC□X325...
	1616JX-11FF-Y	●	16	16	25	16	-	10	-		16	2				

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

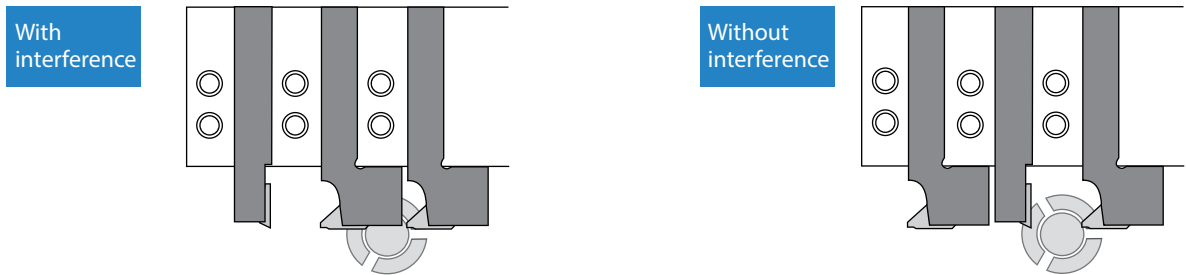
Applicable Inserts (ADJC-FF / SDJC-FF / SDJC-FFJCTM / SDJC-F / SDJC / SDJC-FF-Y)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker	CF	GF	SKS	SK	CK	GQ	WP	℞-WP
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker	PP	GP	GK	HQ	Standard	MF	℞-F	℞-FSF
Page	B69	B69	B70	B70	B70	B70	B72, B73	B72
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker	℞-U	℞-USF	℞-J	℞-JSF	XP	XQ	MQ	No Chipbreaker
Page	B74~B76	B74	B77	B76	B71	B71	B71	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker	AP	℞-A3	AH	PCD	APD	CBN		
Page	B78	B78	B78	C42	C42	C22		

Recommended Cutting Conditions ➡ E74, E75

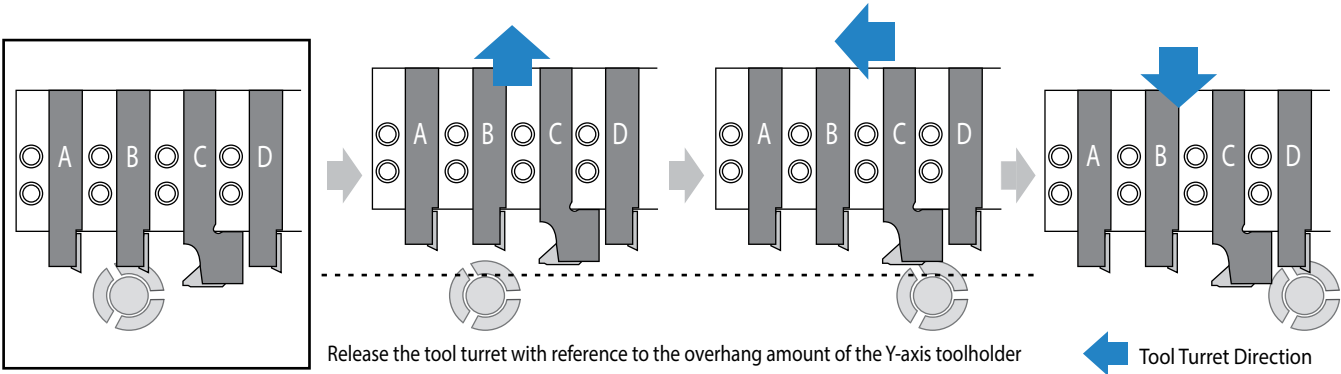
Precautions for using Y-axis toolholder

Do not use Y-axis toolholders side by side to prevent interference. (Only two Y-axis holder can be used at the same time)



Standard toolholders may be mounted between two Y-axis toolholders

When changing the tool, set the retracted position with reference to the cutting edge of the Y-axis holder. (When exchanging from tool B to D)

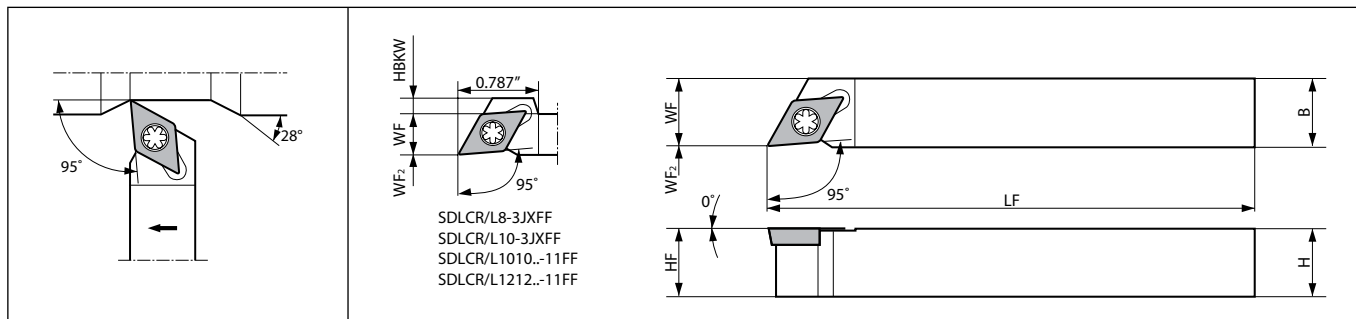


Note that using other toolholders together will result in different outside diameters

(Unit : mm)

Y-axis Toolholder Overhang	Examples	Overhang Amount Available Outside Cutting Diameter (ø)			
		L	20	22	25
20		A	Without Restriction	Without Restriction	Without Restriction
		B	13.0	13.0	13.0
		C	Without Restriction	Without Restriction	Without Restriction
25		A	38.0	58.0	Without Restriction
		B	14.9	13.6	13.0
		C	45.0	60.0	Without Restriction

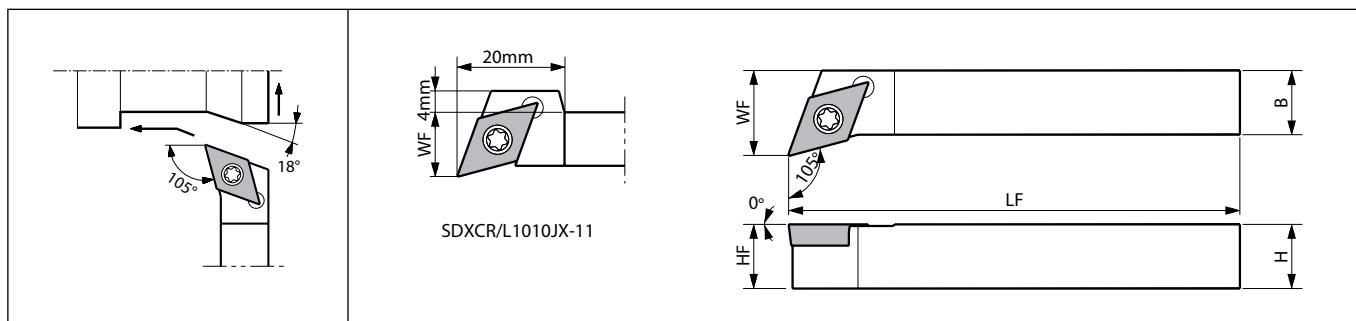
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SDLC-FF (External Turning / External Copying, Screw Clamp, Without Offset)

Right-hand shown

Toolholder Dimensions

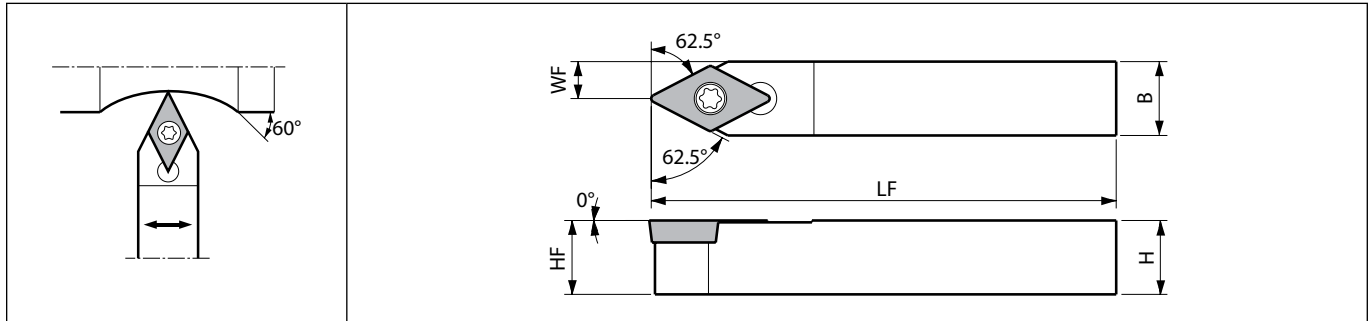
Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Spare Parts			Applicable Inserts
		R	L	H	B	HF	HBKW	LF	WF	WF2		Screw	Wrench	Wrench	
Inch	SDLCR 8-3JXFF 10-3JXFF	●		0.500	0.500	0.500	0.051	4.750	0.500		0.008	SB-4085TR	FT-15	-	DC□T325... DC□W325...
mm	SDLC% 1010JX-07FF 1212F-07FF 1212JX-07FF 1616JX-07FF	●	●	10	10	10	-	120	10	0	0.2	SB-2570TR	-	FT-8	DC□T215... DC□W215...
		●		12	12	12		85	12						
		●		12	12	12		120	16						
		●		16	16	16		120	16						
	SDLC% 1010F-11FF 1010JX-11FF 1212F-11FF 1212JX-11FF 1616H-11FF 1616JX-11FF	●		10	10	10	4	80	10	0	0.2	SB-4085TR	FT-15	-	DC□T325... DC□W325...
		●	●	10	10	10	4	120	10						
		●		12	12	12	2	85	12						
		●		12	12	12	2	120	12						
		●		16	16	16	-	100	16						
		●		16	16	16	-	120	16						

SDXC (External Turning / External Facing / External Copying)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Spare Parts			Applicable Inserts
		R	L	H	B	HF	LF	WF	WF2	WF2		Screw	Wrench	Wrench	
mm	SDXC% 1010JX-07	●	●	10	10	10	120	12	0.2	0.2	0.2	SB-2570TR	-	FT-8	DC□T215... DC□W215...
	SDXC% 1010JX-11	●	●	10	10	10		12	0.2	0.2	0.2	SB-4085TR	FT-15	-	DC□T325... DC□W325...
	1212JX-11	●	●	12	12	12	120	16	0.2	0.2	0.2	SB-4085TR	FT-15	-	DC□T325... DC□W325...
	1616JX-11	●	●	16	16	16		20	0.2	0.2	0.2	SB-4085TR	FT-15	-	DC□T325... DC□W325...

SDNC (External Turning / External Copying)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Spare Parts			Applicable Inserts
										Screw	Wrench	Wrench	
		N	H	B	HF	LF	WF						
Inch	SDNCN 6-2JX	●	0.375	0.375	0.375	4.750	0.187	0.008	SB-2570TR	-	FT-8	DC□T215... DC□W215...	
	8-2JX	●	0.500	0.500	0.500		0.250						
	SDNCN 6-3JX	●	0.375	0.375	0.375	4.750	0.187	0.008	SB-4085TR	FT-15	-	DC□T325... DC□W325...	
	8-3JX	●	0.500	0.500	0.500		0.250						
10-3JX	●	0.625	0.625	0.625	0.312								
mm	SDNCN 1010JX-07	●	10	10	10	120	5	0.2	SB-2570TR	-	FT-8	DC□T215... DC□W215...	
	1212JX-07	●	12	12	12		6						
	SDNCN 1010F-11	●	10	10	10	80	5	0.2	SB-4085TR	FT-15	-	DC□T325... DC□W325...	
	1010JX-11	●				120							
	1212JX-11	●	12	12	12	120	6						
	1616H-11	●	16	16	16	100	8						
	1616JX-11	●				120							

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

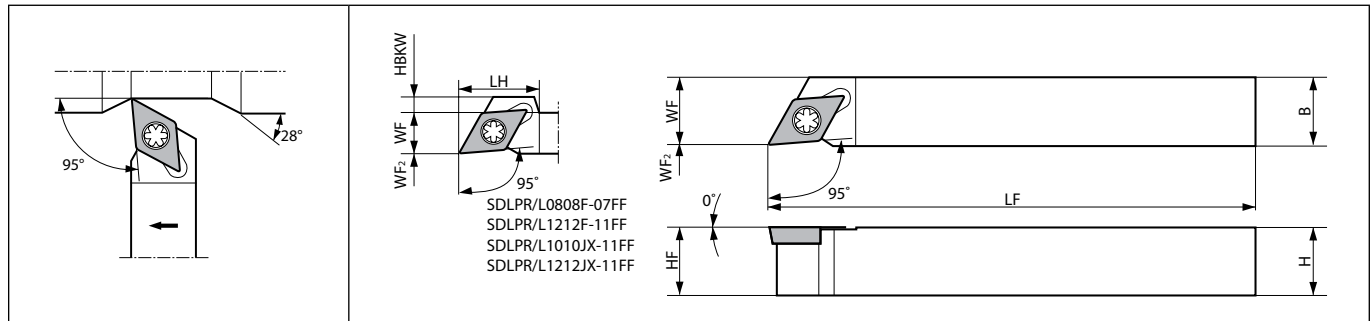
Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Applicable Inserts (SDLC-FF / SDXC / SDNC-F / SDNC)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker	CF	GF	SKS	SK	CK	GQ	PP	GP
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing	Low Feed	Low Feed
Insert								
Chipbreaker	GK	HQ	Standard	MF	$\frac{R}{L}$ -F	$\frac{R}{L}$ -FSF	$\frac{R}{L}$ -U	$\frac{R}{L}$ -USF
Page	B70	B70	B70	B70	B72, B73	B72	B74~B76	B74
Applications	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker	$\frac{R}{L}$ -J	$\frac{R}{L}$ -JSF	XP	XQ	MQ	No Chipbreaker	AP	$\frac{R}{L}$ -A3
Page	B77	B76	B71	B71	B71	B78	B78	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials				
Insert								
Chipbreaker	AH	PCD	APD	CBN				
Page	B78	C42	C42	C22				

Recommended Cutting Conditions ➡ E74, E75

SDLP-FF (External Turning / External Copying, Screw Clamp, Without Offset)

Right-hand shown

Toolholder Dimensions

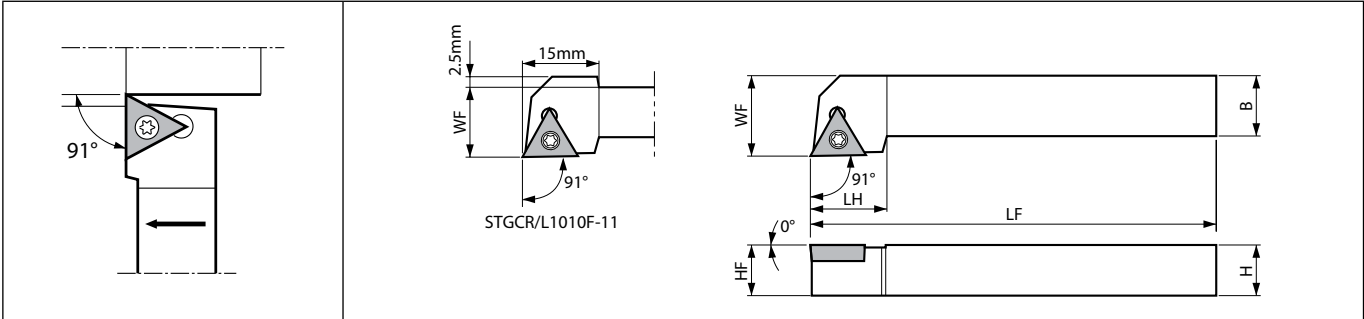
Unit	Part Number	Std. Item		Dimensions								Standard Corner-R (RE)	Spare Parts			Applicable Inserts
													Screw	Wrench	Wrench	
		R	L	H	B	LH	HF	HBKW	LF	WF	WF2					
mm	SDLP% 0808F-07FF	●	●	8	8	14	8	0.5	85	8	0	0.2	SB-2570TR	-	FT-8	DPET215...
	1010JX-07FF	●	●	10	10	-	10	-	120	10	0	0.2	SB-2570TR	-	FT-8	DPET215...
	SDLP% 1010JX-11FF	●	●	10	10	20	10	4		10	0	0.2	SB-4085TR	FT-15	-	DPET325...
	1212JX-11FF	●	●	12	12		12	2	120	12						
	1616JX-11FF	●	●	16	16		-	16	-								16

Applicable Inserts

Applications	Finishing	Low Feed
Insert		
Chipbreaker	%-FSF	%-USF
Page	B79	B79

Recommended Cutting Conditions ➡ E74, E75

STGC (External Turning)



Right-hand shown

Toolholder Dimensions

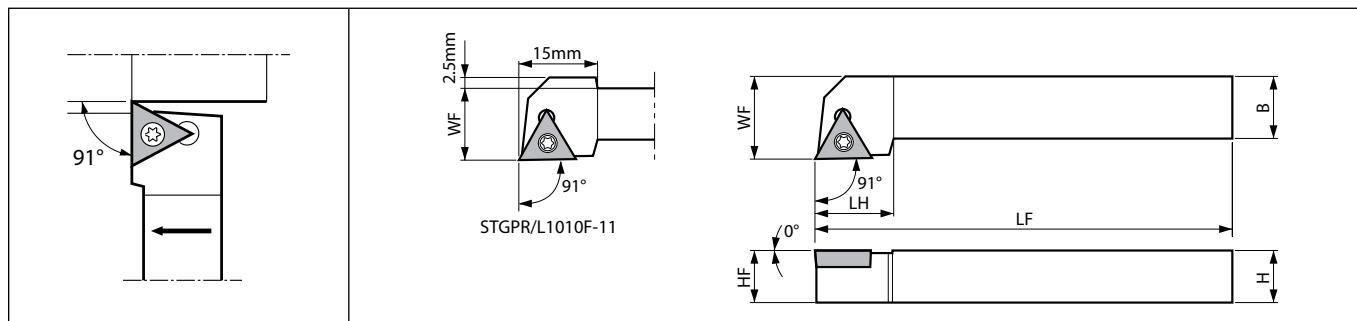
Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Spare Parts		Applicable Inserts
											Screw	Wrench	
		R	L	H	B	LH	HF	LF	WF				
mm	STGC% 0808E-08	●		8	8	12	8	70	10	0.2	SB-2050TR	FT-6	TC□T1515... TC□W1515...
	1010F-08	●	●	10	10		10	80	12				
	STGC% 1010F-11	●	●	10	10	15	10	80	14	0.4	SB-2570TR	FT-8	TC□T22... TC□W22...
	1212H-11	●	●	12	12		12	100	16				
	1616H-11	●	●	16	16		16	20	20				
	2020K-11	●	●	20	20		20	125	25				
	2525M-11	●	●	25	25		20	25	150					32

Applicable Inserts

Applications	Low Feed	Low Feed	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals
Insert					
Chipbreaker	$\frac{R}{L}$ -U	$\frac{R}{L}$ -USF	No Chipbreaker	$\frac{R}{L}$ -A3	PCD
Page	B86	B85	B87	B87	C45

Recommended Cutting Conditions ➡ E74, E75

STGP (External Turning)



Right-hand shown

Toolholder Dimensions

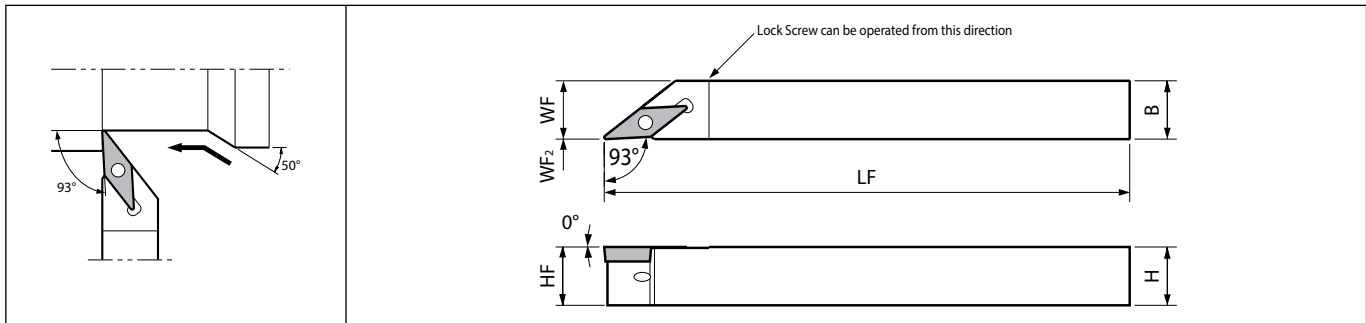
Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Spare Parts		Applicable Inserts
												Screw	Wrench	
		R	L	H	B	LH	HF	LF	WF					
mm	STGPR 0808E-08	●		8	8	12	8	70	10	0.2	SB-2050TR	FT-6	TP□B1515... TP□H1515... TP□T1515...	
	STGP% 1010F-11	●	●	10	10	15	10	80	14	0.2	SB-3080TR	FT-10	TP□B22... TP□H22... TP□T22...	
	1212H-11	●	●	12	12		100	16						
	1616H-11	●	●	16	16			20						

Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Low Feed	Medium
Insert								
Chipbreaker	CF	PP	GP	HQ	R/L	^{R/L} -FSF	^{R/L} -USF	^{R/L} -H
Page	B88	B88	B89	B89	B90, B91	B92	B94	B93
Applications	Low Carbon Steel	Low Carbon Steel	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials	
Insert								
Chipbreaker	XP	XQ	No Chipbreaker	AP	PCD	APD	CBN	
Page	B89	B89	B94	B94	C46, C47	C47	C23	

Recommended Cutting Conditions ➡ E74, E75

AVJB-FF (External Turning / External Copying , Back Clamp, Without Offset)

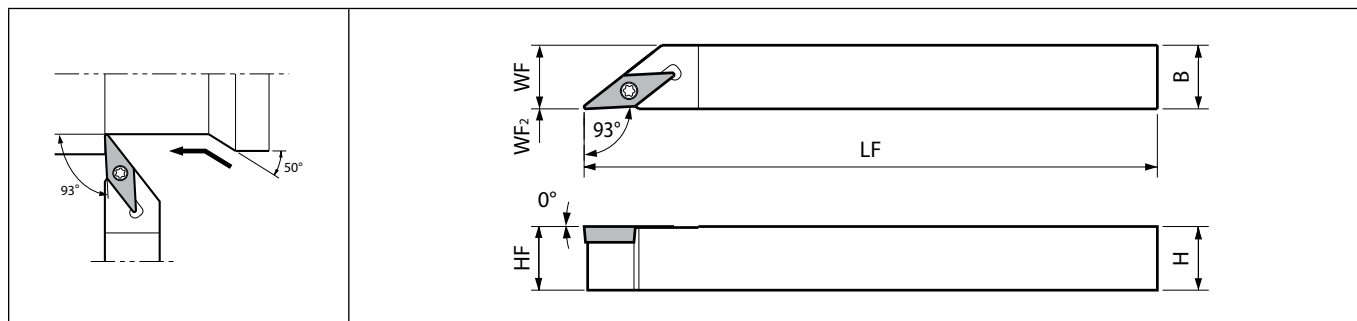


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Spare Parts			Applicable Inserts
												Anchor pin	Lock Screw	Wrench	
		R	L	H	B	HF	LF	WF	WF2						
Inch	AVJB% 6-2JXFF	●	●	0.375	0.375	0.375	4.750	0.375	0	1/64	LPF-11	HSB4X8%	FH-2	VB□T22... VB□W22...	
	8-2JXFF	●	●	0.500	0.500	0.500		LPF-1113							
	10-2JXFF	●	●	0.625	0.625	0.625		LPF-1117							
mm	AVJB% 1010JX-11FF	●	●	10	10	10	120	10	0	0.4	LPF-11	HSB4X8%	FH-2	VB□T22... VB□W22...	
	1212JX-11FF	●	●	12	12	12		12			LPF-1113				
	1616JX-11FF	●	●	16	16	16		16			LPF-1117				

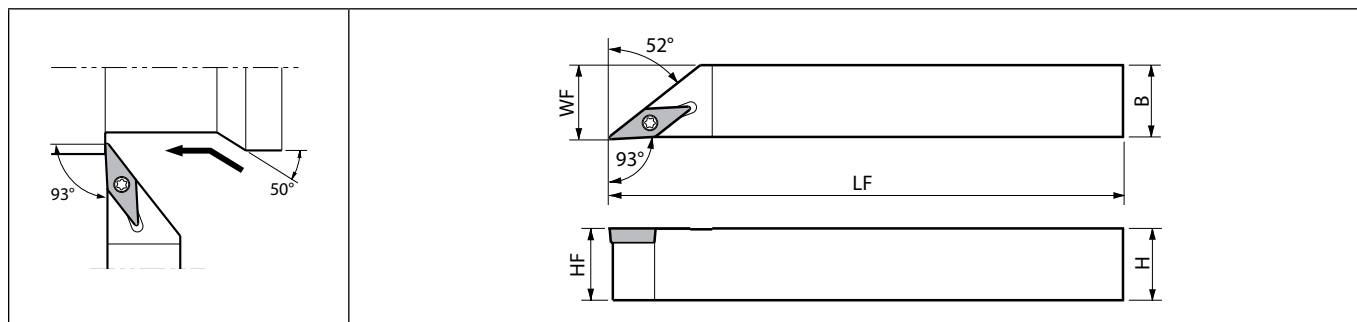
Lock Screw : HSB4X8R for Right-hand Toolholder, HSB4X8L for Left-hand Toolholder.

SVJB-FF (External Turning / External Copying, Screw Clamp, Without Offset)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Spare Parts		Applicable Inserts
											Screw	Wrench	
		R	L	H	B	HF	LF	WF	WF2				
Inch	SVJB% 6-2JXFF 8-2JXFF 10-2JXFF	●	●	0.375	0.375	0.375	4.750	0.375	0	1/64	SB-2570TR	FT-8	VB□T22... VB□W22...
		●	●	0.500	0.500	0.500		0.500					
		●		0.625	0.625	0.625		0.625					
mm	SVJB% 1010JX-11FF 1212JX-11FF 1616JX-11FF 2020JX-11FF	●	●	10	10	10	120	10	0	0.4	SB-2570TR	FT-8	VB□T22... VB□W22...
		●	●	12	12	12		12					
		●	●	16	16	16		16					
		●	●	20	20	20		20					

SVJB-F (External Turning / External Copying, Screw Clamp, Without Offset)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions					Standard Corner-R (RE)	Spare Parts		Applicable Inserts
										Screw	Wrench	
		R	L	H	B	HF	LF	WF				
Inch	SVJB% 6-2CF 8-2DF	●	●	0.375	0.375	0.375	5.000	0.395	1/64	SB-2570TR	FT-8	VB□T22... VB□W22...
		●	●	0.500	0.500	0.500	6.000	0.520				

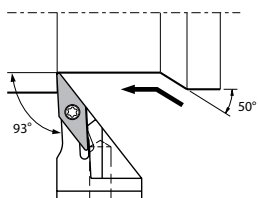
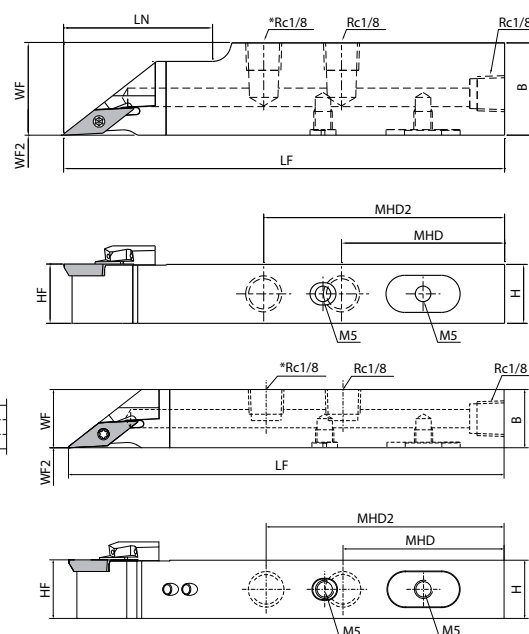
SVJB-FFJCTM (External Turning / External Copying, Screw Clamp, Without Offset, Coolant-Through Toolholder)

Fig. 1

Fig. 2

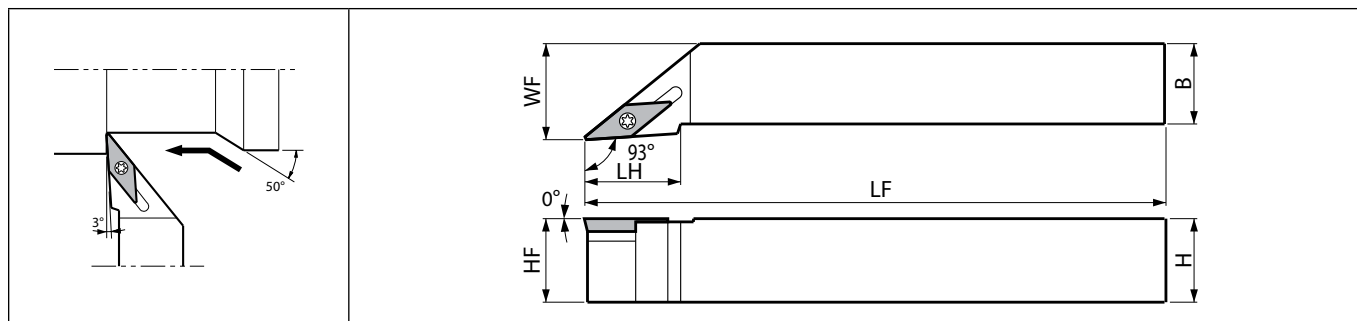
SVJBR8-2FFJCTM
SVJBR1212JX-11FFJCTM
Shown Above

**Toolholder Dimensions**

Right-hand shown
SVJBR5.72..., SVJBR8-... : 2-Rc1/8
SVJBR1218..., SVJBR1212... : 2-Rc1/8

Unit	Part Number	Std. Item	Dimensions										Fig.	Standard Corner-R (RE)	Coolant Hole	Spare Parts				Applicable Inserts
			R	H	B	MHD	MHD2	HF	LF	LN	WF	WF2				Plug	Plug	Screw	Wrench	
Inch	SVJBR 5.72-2FFJCTM	●	0.500	0.709	2.126	-	0.500		4.750	1.102	0.630	0	1	1/64	Yes	GP-1	HS5X4LP	SB-2570TR	FT-8	VB□T22... VB□W22...
	82.5-2FFJCTM	●	0.625	1.000	1.732	2.559	0.625			1.575	0.787									
	SVJBR 8-2FFJCTM	●	0.500	0.500	2.323	-	0.500			0.984	0.630	0	2	1/64	Yes	GP-1	HS5X4LP	SB-2570TR	FT-8	VB□T22... VB□W22...
	10-2FFJCTM	●	0.625	0.625			0.625	4.750		-	0.625									
mm	12-2FFJCTM	●	0.750	0.750	1.732	2.559	0.750			-	0.750									
	SVJBR 1218JX-11FFJCTM	●	12	18	54	-	12			28	18	0	1	0.4	Yes	GP-1	HS5X4LP	SB-2570TR	FT-8	VB□T22... VB□W22...
	1625JX-11FFJCTM	●	16				16	120		40	25									
	2025JX-11FFJCTM	●	20	25	44	65	20													
	SVJBR 1212JX-11FFJCTM	●	12	12	59	-	12			25	16	0	2	0.4	Yes	GP-1	HS5X4LP	SB-2570TR	FT-8	VB□T22... VB□W22...
	1616JX-11FFJCTM	●	16	16			16	120		-										
	2020JX-11FFJCTM	●	20	20	44	65	20				20									

Please see page H16 and H17 for piping parts of coolant-through holders.

SVJB (External Turning / External Copying, Screw Clamp)

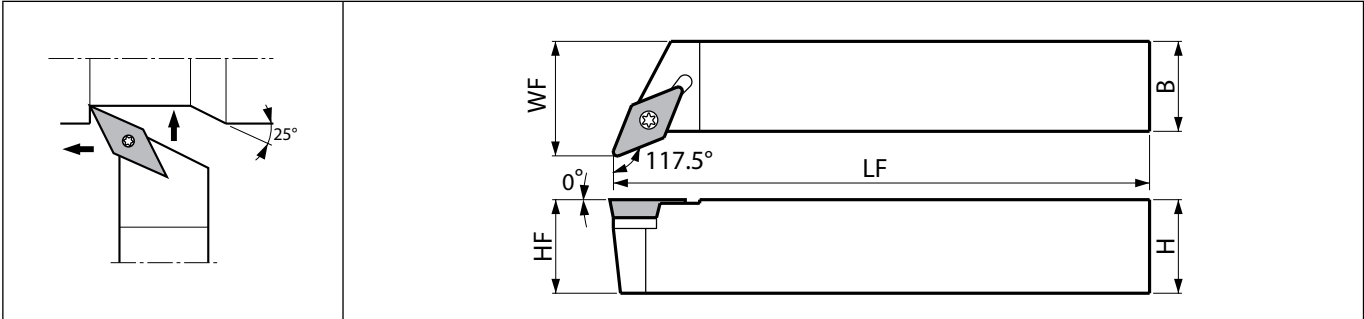
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Spare Parts						Applicable Inserts
											Screw	Wrench	Wrench	Shim screw	Shim	Wrench	
		R	L	H	B	LH	HF	LF	WF								
Inch	SVJB% 8-2A	●	●	0.500	0.500	0.895	0.500	4.000	0.625	1/64	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	SVJBR 12-3C	●		0.750	0.750	1.220	0.750	5.000	0.875	1/32	SB-4085TR	FT-15	-	-	-	-	VB□T33... VB□W33... VC□T33...
	16-3D	●		1.000	1.000	1.250	1.000	6.000	1.250								
mm	SVJB% 2020K-11	●	●	20	20	30	20	125	25	0.4	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	2525M-11	●	●	25	25	35	25	150	32								
	SVJB% 2020K-16N	●	●	20	20	30	20	125	25	0.8	SB-40125TRN	FT-15	-	SS-4N	SVN-32N (SVN-32S*)	LW-4	VB□T33... VB□W33... VC□T33...
	2525M-16N	●	●	25	25		25	150	32								

When using inserts with a corner-R(RE) of 0.008" or 1/64" (0.2mm or 0.4mm), shim (SVN-32S) is recommended (sold separately).

SVPB (External Turning / External Facing / External Copying / Undercutting, Screw Clamp)



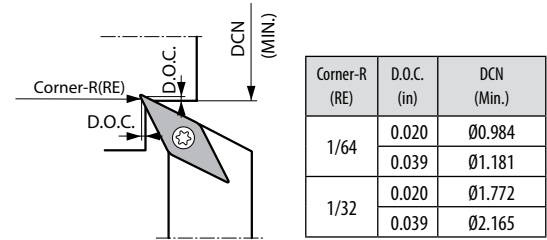
Right-hand shown

Toolholder Dimensions

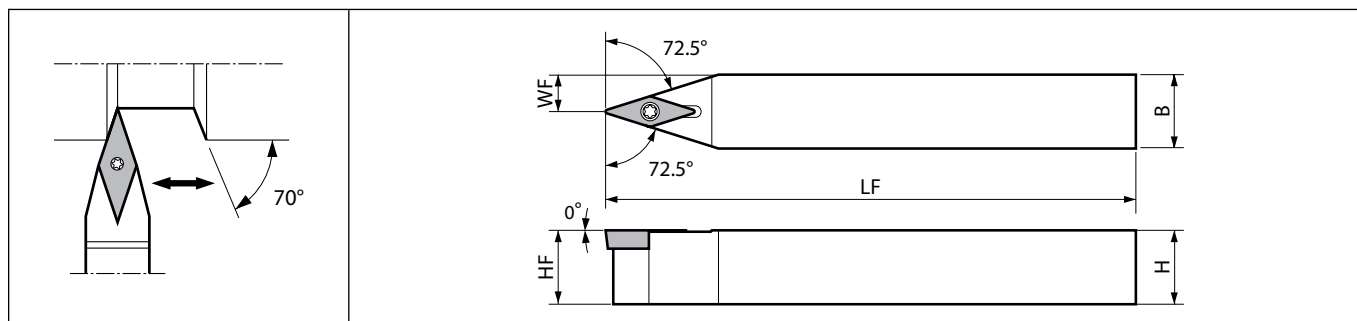
Unit	Part Number	Std. Item		Dimensions				Standard Corner-R (RE)	Spare Parts						Applicable Inserts	
									Screw	Wrench	Wrench	Shim screw	Shim	Wrench		
		R	L	H	B	HF	LF		WF							
mm	SVPB% 1010JX-11	●	●	10	10	10		14.5	0.4	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	1212JX-11	●	●	12	12	12	120	16.5								
	1616JX-11	●	●	16	16	16		20.5								
	2020K-11	●	●	20	20	20	125	25								
	2525M-11	●	●	25	25	25	150	32								
	SVPB% 2020K-16N	●	●	20	20	20	125	25	0.8	SB-40125TRN	FT-15	-	SS-4N	SVN-32N (SVN-32S*)	LW-4	VB□T33... VB□W33... VC□T33...
	2525M-16N	●	●	25	25	25	150	32								

When using inserts with a corner-R(RE) of 0.008" or 1/64" (0.2mm or 0.4mm), shim (SVN-32S) is recommended (sold separately).

Undercutting diameter of SVPB



SVVB (External Turning / External Copying)



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Spare Parts						Applicable Inserts
										Screw	Wrench	Wrench	Shim screw	Shim	Wrench	
			N	H	B	HF	LF	WF								
Inch	SVVBN 6-2JX	●	0.375	0.375	0.375		0.187		1/64	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	8-2JX	●	0.500	0.500	0.500	4.750	0.250									
	10-2JX	●	0.625	0.625	0.625		0.312									
mm	SVVBN 1010F-11	●	10	10	10	80	5		0.4	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	1010JX-11	●				120										
	1212JX-11	●	12	12	12	120	6									
	1616H-11	●	16	16	16	100	8									
	1616JX-11	●				120										
	2020K-11	●	20	20	20	125	10									
	2525M-11	●	25	25	25	150	12.5									
	SVVBN 2020K-16N	●	20	20	20	125	10		0.8	SB-40125TRN	FT-15	-	SS-4N	SVN-32N (SVN-32S*)	LW-4	VB□T33... VB□W33... VC□T33...
	2525M-16N	●	25	25	25	150	12.5									

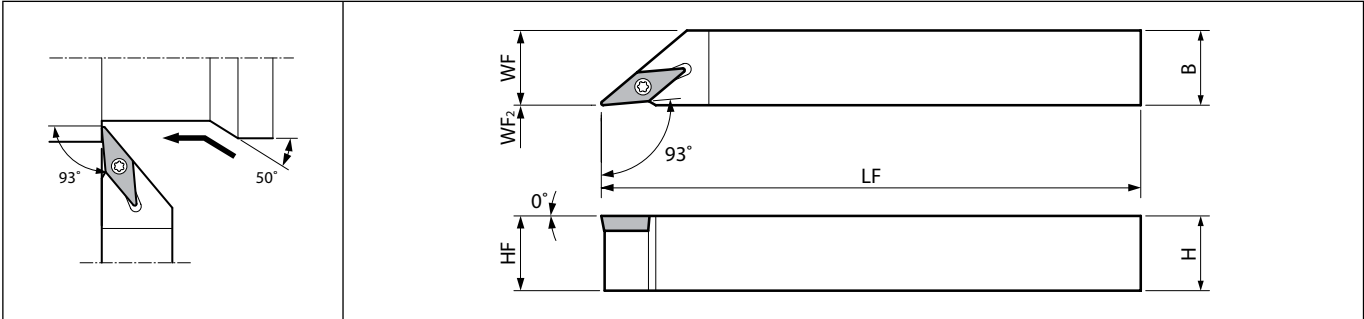
When using inserts with a corner-R(RE) of 0.008" or 1/64" (0.2mm or 0.4mm), shim (SVN-32S) is recommended (sold separately).

Applicable Inserts (AVJB-FF / SVJB-FF / SVJB-FFJCTM / SVJB-F / SVJB / SVPB / SVVB)

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker	PP	GP	VF	HQ	℥ - F	℥ - FSF	℥ - Y	PCD
Page	B97	B97	B97	B97	B98	B98	B99	C49
Applications	Hard Materials							
Insert								
Chipbreaker	CBN							
Page	C26							

Recommended Cutting Conditions ➡ E74, E75

SVJC-FF (External Turning / External Copying, Screw Clamp, Without Offset)

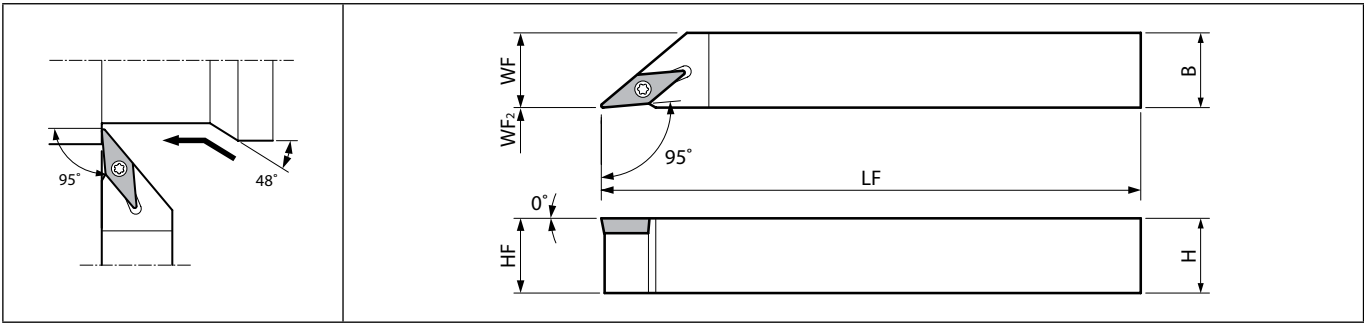


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Spare Parts		Applicable Inserts
												Screw	Wrench	
		R	L	H	B	HF	LF	WF	WF2					
mm	SVJC% 1010JX-11FF	●	●	10	10	10	120	10	0	0.2	SB-2570TR	FT-8	VC□T22...	
	1212F-11FF	●	●	12	12	12	85	12						
	1212JX-11FF	●	●				120	16						
	1616JX-11FF	●	●	16	16	16		16						
	2020JX-11FF	●	●	20	20	20		20						

SVLC-FF (External Turning / External Copying, Screw Clamp, Without Offset)

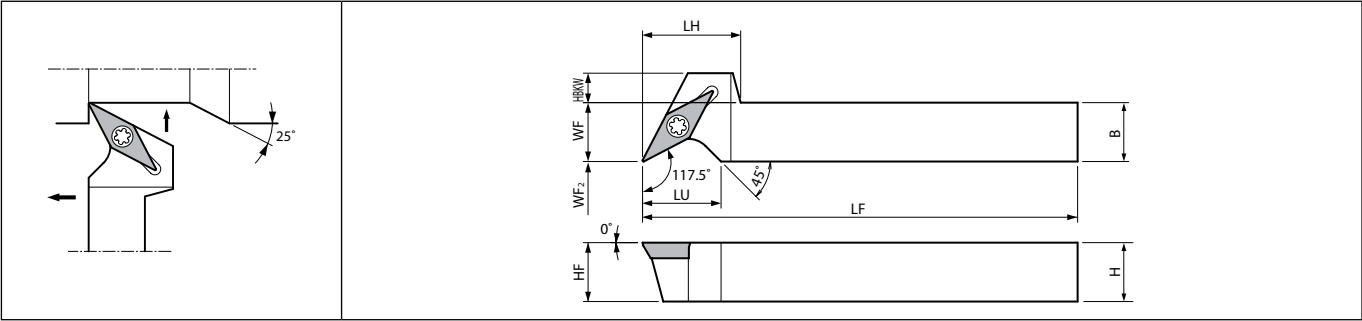


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Spare Parts		Applicable Inserts
												Screw	Wrench	
		R	L	H	B	HF	LF	WF	WF2					
mm	SVLC% 1212F-11FF	●	●	12	12	12	85	12	0	0.2	SB-2570TR	FT-8	VC□T22...	
	1212JX-11FF	●	●				120							16
	1616JX-11FF	●	●	16	16	16		16						

SVPC-FF (External Turning / External Facing / External Copying / Undercutting, Screw Clamp, Without Offset)

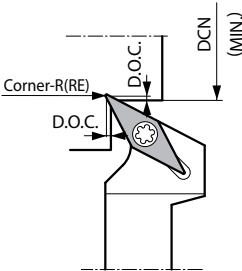


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions										Standard Corner-R (RE)	Spare Parts		Applicable Inserts
														Screw	Wrench	
			R	H	B	LH	HF	HBKW	LF	LU	WF	WF2				
mm	SVPCR 1010JX-11FF	●	10	10	20	10	8	120	16	10	0	0.2	SB-2570TR	FT-8	VC□T22...	
	1212F-11FF	●	12	12		12	6	85		12						
	1212JX-11FF	●						120								
	1616JX-11FF	●						16								16

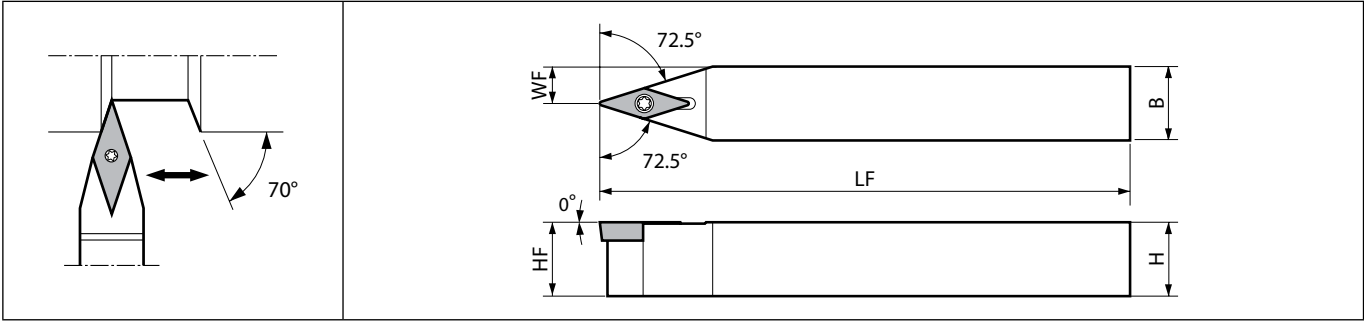
Undercutting Diameter of SVPC-FF



Corner-R (RE)	D.O.C. (in)	DCN (Min.)
0.008	0.020	ø0.787
	0.028	ø0.984

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SVVC (External Turning / External Copying)



Toolholder Dimensions

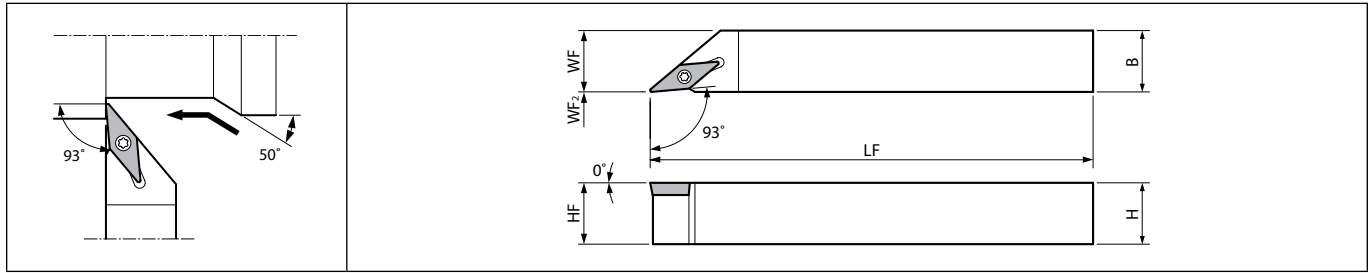
Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Spare Parts		Applicable Inserts
										Screw	Wrench	
			N	H	B	HF	LF	WF				
mm	SVVCN 1010JX-11	●	10	10	10			5	0.2	SB-2570TR	FT-8	VC□T22...
	1212JX-11	●	12	12	12	120		6				
	1616JX-11	●	16	16	16			8				

Applicable Inserts (SVJC-FF / SVLC-FF / SVPC-FF / SVVC)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing - Medium
Insert					
Chipbreaker	CF	GF	SKS	¾-F	¾-Y
Page	B100	B100	B100	B101	B101

Recommended Cutting Conditions ➡ E74, E75

SVJP-FF (External Turning / External Copying, Screw Clamp, Without Offset)

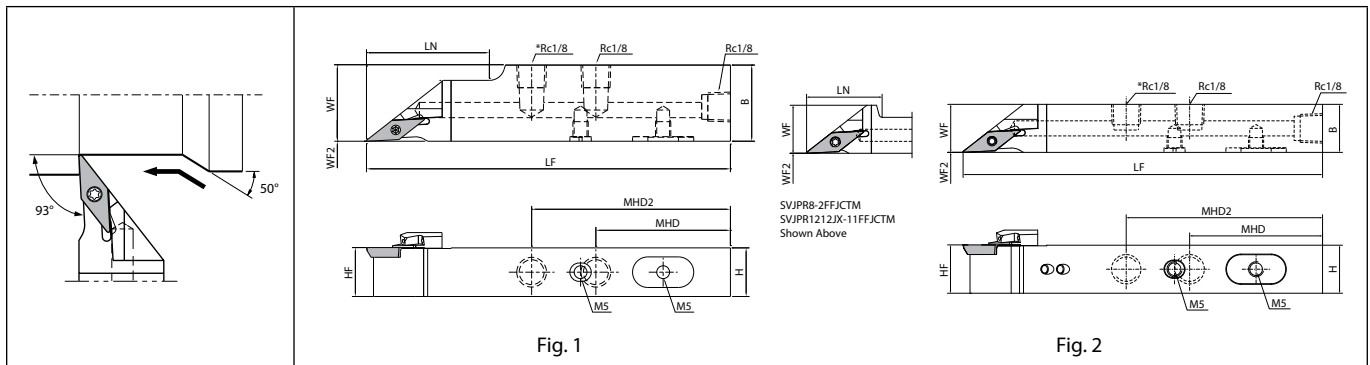


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Spare Parts		Applicable Inserts
		R	L	H	B	HF	LF	WF	WF2		Screw	Wrench	
													
Inch	SVJP% 8-2JXFF 10-2JXFF	● ●	● ●	0.500 0.625	0.500 0.625	0.500 0.625	4.750	0.500 0.625	0	0.008	SB-2570TR	FT-8	VP□T22...
mm	SVJP% 1212F-11FF	●	●	12	12	12	85	12	0	0.2	SB-2570TR	FT-8	
	1212JX-11FF	●	●										
	1616JX-11FF	●	●	16	16	16	120	16					
	2020JX-11FF	●	●	20	20	20		20					

SVJP-FFJCTM (External Turning / External Copying, Screw Clamp, Without Offset, Coolant-Through Toolholder)



Right-hand shown

Toolholder Dimensions

SVJPR5.72..., SVJPR8-... : 2-Rc1/8
SVJPR1218..., SVJPR1212... : 2-Rc1/8

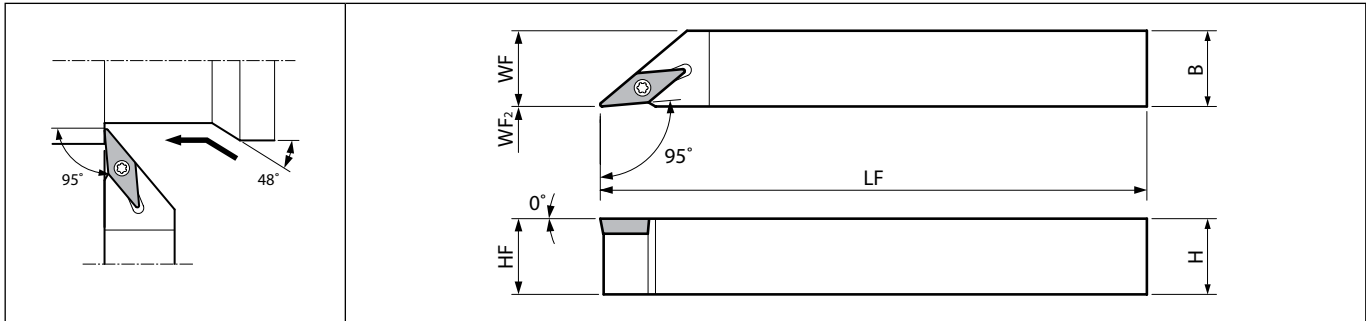
Unit	Part Number	Std. Item	Dimensions									Fig.	Standard Corner-R (RE)	Coolant Hole	Spare Parts				Applicable Inserts
			R	H	B	MHD	MHD2	HF	LF	LN	WF				WF2				
Inch	SVJPR 5.72-2FFJCTM	●	0.500	0.709	2.126	-	0.500	4.750	1.102	0.630	0	1	0.008	Yes	GP-1		SB-2570TR	FT-8	VP□T22...
	82.5-2FFJCTM	●	0.625	1.000	1.732	2.559	0.625		1.575	0.787									
	SVJPR 8-2FFJCTM	●	0.500	0.500	2.323	-	0.500	4.750	0.984	0.630	0	2	0.008	Yes	GP-1	HSSX4LP	SB-2570TR	FT-8	
	10-2FFJCTM	●	0.625	0.625	1.732	2.559	0.625		-	0.625									
12-2FFJCTM	●	0.750	0.750	0.750			0.750	-	0.750										
mm	SVJPR 1218JX-11FFJCTM	●	12	18	54	-	12	120	28	18	0	1	0.2	Yes	GP-1	HSSX4LP	SB-2570TR	FT-8		VP□T22...
	1625JX-11FFJCTM	●	16	25	44	65	16		40	25									
	2025JX-11FFJCTM	●	20				20												
	SVJPR 1212JX-11FFJCTM	●	12	12	59	-	12	120	25	16	0	2	0.2	Yes	GP-1	HSSX4LP	SB-2570TR	FT-8	
	1616JX-11FFJCTM	●	16	16	16	-	20												
	2020JX-11FFJCTM	●	20	20	44		65		20										

Please see page H16 and H17 for piping parts of coolant-through holders.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

SVLP-FF (External Turning / External Copying, Screw Clamp, Without Offset)

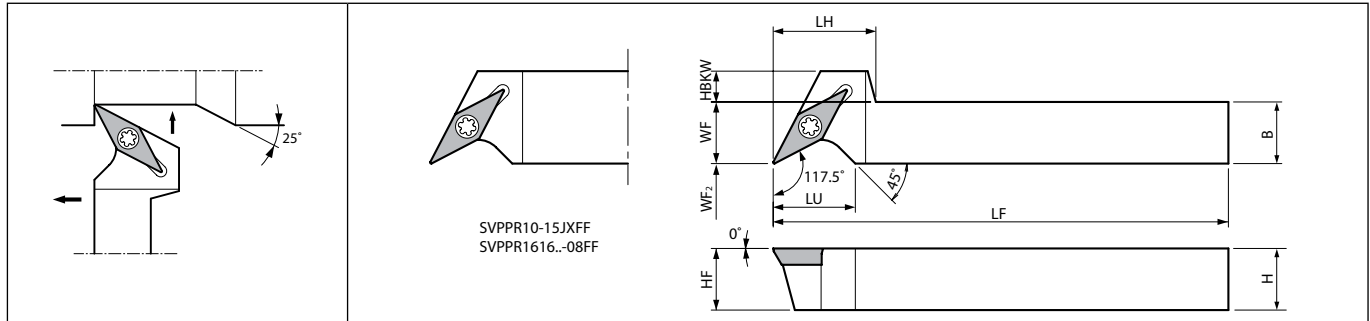


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Standard Corner-R (RE)	Spare Parts		Applicable Inserts
											Screw	Wrench	
		R	L	H	B	HF	LF	WF	WF2				
Inch	SVLPR 8-2JXFF	●		0.500	0.500	0.500	4.750	0.500	0	0.008	SB-2570TR	FT-8	VP□T22...
mm	SVLP% 1010JX-08FF	●	●	10	10	10	120	10	0	0.1	SB-2050TR	FT-6	VP□T1515...
	1212F-08FF	●		12	12	12	85	12					
	1212JX-08FF	●	●				120	16					
	1616JX-08FF	●	●	16	16	16		16					
	SVLP% 1212F-11FF	●		12	12	12	85	12	0	0.2	SB-2570TR	FT-8	VP□T22...
	1212JX-11FF	●	●				120	16					
	1616JX-11FF	●	●	16	16	16		16					

SVPP-FF (External Turning / External Facing / External Copying / Undercutting, Screw Clamp, Without Offset)

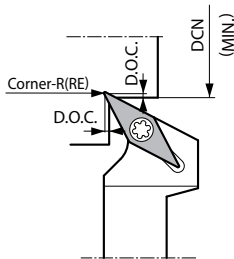


Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions										Standard Corner-R (RE)	Spare Parts		Applicable Inserts
														Screw	Wrench	
		R	H	B	LH	HF	HBKW	LF	LU	WF	WF2					
Inch	SVPPR 8-15JXFF	●	0.500	0.500	0.630	0.500	0.051	4.750	0.551	0.500	0	0.004	SB-2050TR	FT-6	VP□T1515...	
	SVPPR 8-2JXFF	●	0.500	0.500	0.787	0.500	0.209	4.750	0.630	0.500	0	0.004	SB-2570TR	FT-8	VP□T22...	
	10-2JXFF	●	0.625	0.625		0.625	0.084		0.787	0.625						
mm	SVPPR 1010JX-08FF	●	10	10	16	10	4	120	12	10	0	0.1	SB-2050TR	FT-6	VP□T1515...	
	1212F-08FF	●	12	12		12	2	85		12						
	1212JX-08FF	●						120								16
	1616JX-08FF	●	16	16	-	16	-	120	16							
	SVPPR 1010JX-11FF	●	10	10	20	10	8	120	16	10	0	0.2	SB-2570TR	FT-8	VP□T22...	
	1212F-11FF	●	12	12		12	6	85		12						
	1212JX-11FF	●						120								16
	1616JX-11FF	●	16	16		16	2	120		16						

Undercutting Diameter of SVPP-FF



Corner-R (RE)	D.O.C. (in)	DCN (Min.)
0.008	0.020	ø0.787
	0.039	ø0.984

Applicable Inserts (SVJP-FF / SVJP-FFJCTM / SVLP-FF / SVPP-FF)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Low Feed	Low Feed
Insert								
Chipbreaker	CF	SKS	CK	GF	ℓ -F	ℓ -FSF	ℓ -U	ℓ -USF
Page	B102	B102	B102	B102	B103	B103	B104	B104
Applications	Low Feed							
Insert								
Chipbreaker	ℓ -J							
Page	B104							

Recommended Cutting Conditions E74, E75

ZBMT Series

25° Insert Profiling Tools

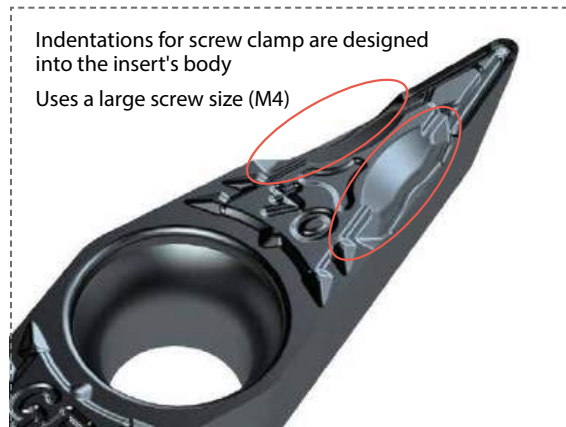
Unique clamping structure and a wide lineup of external toolholders and boring bars

Wide range of applications including copying, undercutting, tapering, V-slotting, spherical machining, and more

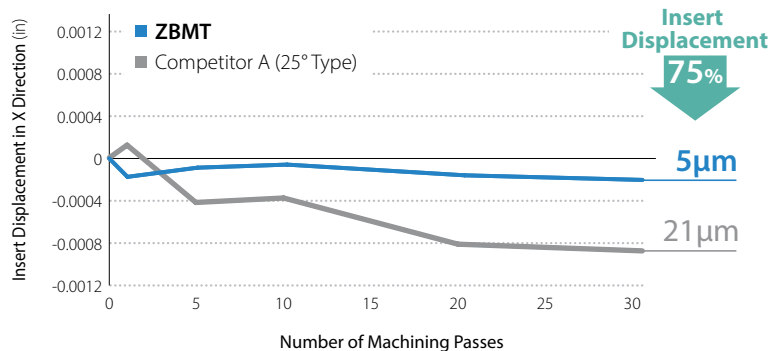
1 Newly Developed Self-Clamping Mechanism Achieves a Higher Rigidity

Side Lock Mechanism

Unique design holds insert at 2 points
Safe even for insert with small tip angle that is difficult to mount



Insert Displacement During Facing Comparison (Internal Evaluation)



Insert Design

By controlling insert displacement,

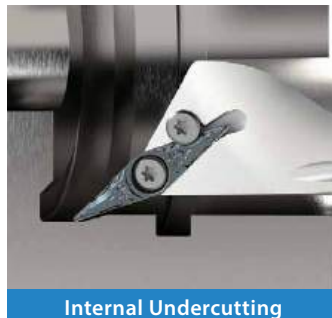
- Machining precision is stabilized and long tool life is enable
- Reduces defect rate due to sudden dimensional deviation

Cutting Conditions : $V_c = 750 \text{ sfm}$, $D.O.C. = 0.012"$, $f = 0.006$, Wet Workpiece 4137

*The above figures are not guaranteed and will depend on cutting conditions.

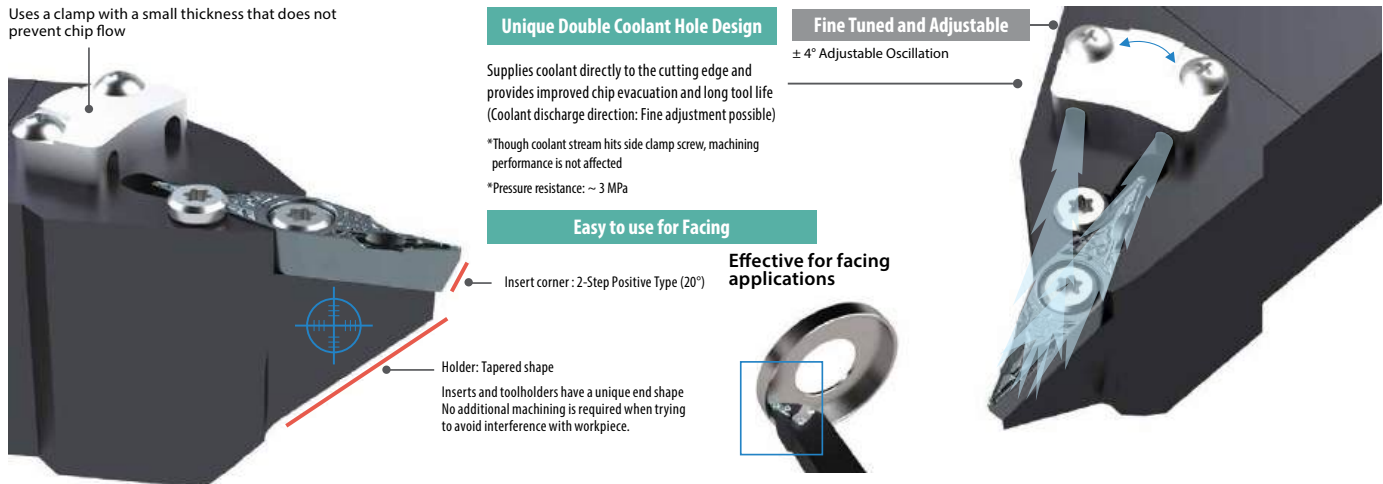
Provides High Quality and Stable Machining in Various Machining Applications

Excellent Performance in Various Machining Applications including Copying, Undercutting, Tapering, V-Slotting, Spherical Machining, etc.



2 Unique Holder Design to Meet Customers' Needs

Both boring bars and external toolholders are compatible with internal coolant.



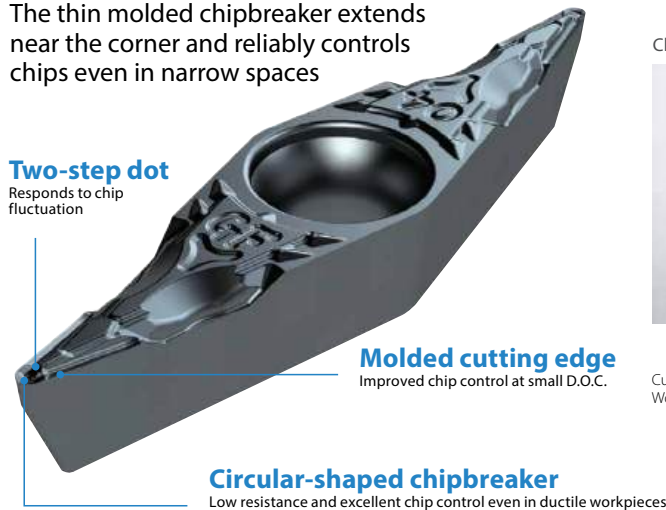
3 New GF Chipbreaker for ZBMT Reduces Chip Control Issues at minute D.O.C.

GF Chipbreaker

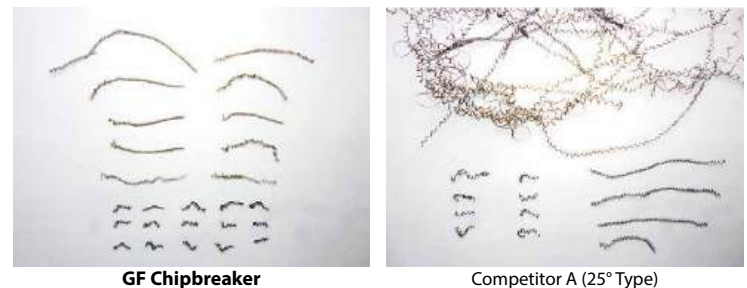
Solving chip control issues leads to high-quality surface finishes

The thin molded chipbreaker extends near the corner and reliably controls chips even in narrow spaces

Two-step dot
Responds to chip fluctuation



Chip control comparison (Internal evaluation)



Cutting Conditions : Vc = 750 sfm, f = 0.006 ipr, D.O.C. = 0.008" - 0.020", Wet
Workpiece 4137 Facing

15° Inserts are also available upon requests

To avoid holder interference, additional modifications is required as shown in the figure on the right (Details: P8). Also, as shown in the figure below, special order for holders may be required depending on machining application.

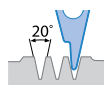
Examples

When using the toolholder in reverse mounting position



When using the toolholder in normal mounting position

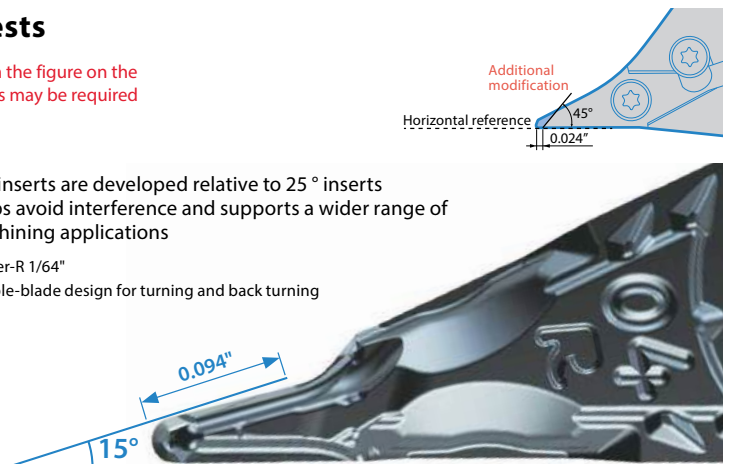
* Holder: Special order specification

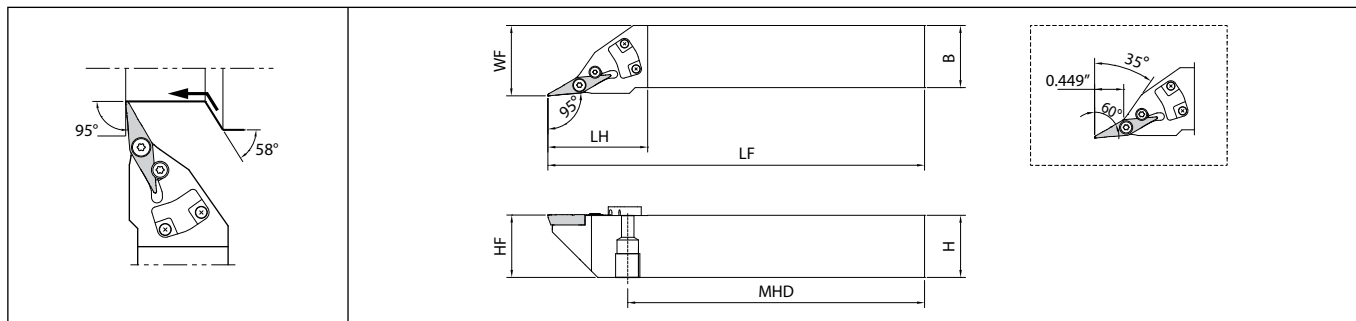


15° inserts are developed relative to 25° inserts
Helps avoid interference and supports a wider range of machining applications

Corner-R 1/64"

Double-blade design for turning and back turning



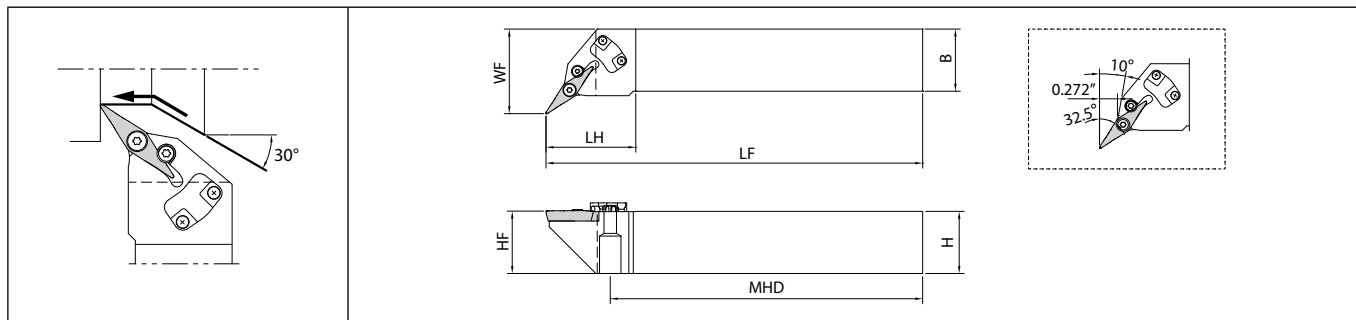
SZLB (External Turning / External Copying, Screw Clamp, Coolant-Through Toolholder)

Right-hand shown | ZBMT13T304R-GF-15D is applicable to Right-hand Toolholder. | Applicable Pressure : ~435 psi

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Coolant Hole	Spare Parts				Applicable Inserts
													Coolant block screw	Coolant block	Insert screw	Wrench	
		R	L	H	B	LH	MHD	HF	LF	WF							
Inch	SZLB% 12-3C-C 16-3D-C	●	●	0.750	0.750	1.378	3.760	0.750	5.039	0.905	1/64	Yes	BH2X6	ZCP-13	SB-3079TR	FT-8	ZBMT13T3...
mm	SZLB% 2020K-13C 2525M-13C	●	●	1.000	1.000	1.575	4.779	1.000	6.039	1.110			0.4	Yes	BH2X6	ZCP-13		SB-3079TR	FT-8

Please see page D13 for piping parts of coolant-through holders.

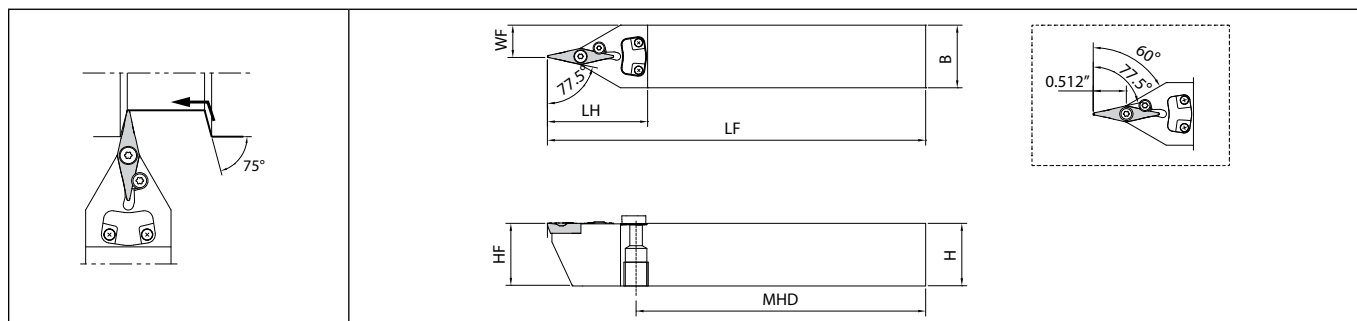
SZPB (External Turning / External Facing / External Copying / Undercutting, Screw Clamp, Coolant-Through Toolholder)

Right-hand shown | Applicable Pressure : ~435 psi

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Standard Corner-R (RE)	Coolant Hole	Spare Parts				Applicable Inserts
													Coolant block screw	Coolant block	Insert screw	Wrench	
		R	L	H	B	LH	MHD	HF	LF	WF							
Inch	SZPB% 12-3C-C 16-3D-C	●	●	0.750	0.750	1.378	3.858	0.750	5.039	1.071	1/64	Yes	BH2X6	ZCP-13	SB-3079TR	FT-8	ZBMT13T3...
mm	SZPB% 2020K-13C 2525M-13C	●	●	20	20	37	95	20	125	27.2			0.4	Yes	BH2X6	ZCP-13		SB-3079TR	FT-8

Please see page D13 for piping parts of coolant-through holders.

SZVB (External Turning / External Copying, Screw Clamp, Coolant-Through Toolholder)

Applicable Pressure : ~435 psi

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Coolant Hole	Spare Parts				Applicable Inserts
			N	H	B	LH	MHD	HF	LF			Coolant block screw	Coolant block	Insert screw	Wrench	
Inch	SZVBN 12-3C-C 16-3D-C	●	0.750	0.750	1.574	3.645	0.750	5.039	0.373	1/64	Yes	BH2X6	ZCP-13	SB-3079TR	FT-8	ZBMT13T3...
		●	1.000	1.000	1.574	4.645	1.000	6.039	0.498							
mm	SZVBN 2020K-13C 2525M-13C	●	20	20	40	89.6	20	125	10	0.4	Yes	BH2X6	ZCP-13	SB-3079TR	FT-8	
		●	25	25		114.6	25	150	12.5							

Please see page D13 for piping parts of coolant-through holders.

Applicable Inserts

Applications	Finishing	Finishing	Finishing
Insert			
Chipbreaker	GF	R-GF-15D	PCD
Page	B108	B108	C50

R-GF-15D inserts are only for the right-hand toolholders of SZLB.

Recommended Cutting Conditions ➡ E77

Instructions

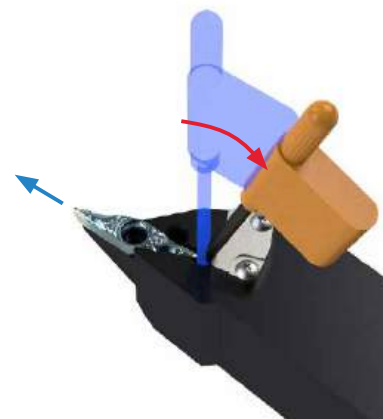
When mounting the insert (Tightening torque: 1.2 N · m)



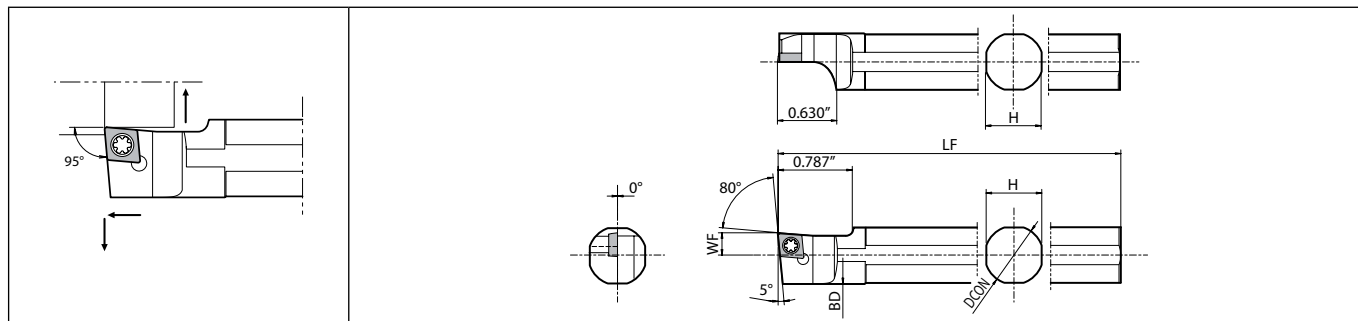
1. Tighten the main screw with the insert pressed against the contact surface with fingertips.

2. Tighten the side screw to complete the installation.

When removing the insert



Remove the two screws and put the wrench into the gap at the back end of the insert. It can be easily removed by pushing out the insert as shown above.

S-SCLC (External Turning / External Facing)

Left-hand shown | Right-hand Insert for Left-hand Toolholder.

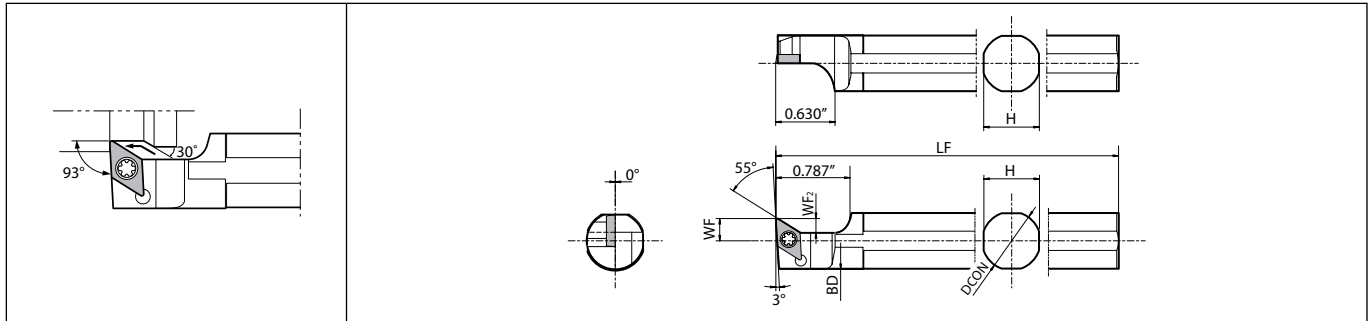
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Standard Corner-R (RE)	Spare Parts			Applicable Inserts
			L	DCON	H	BD	LF		Screw	Wrench	Wrench	
Inch	S15F- SCLCL06	●	0.625	0.590	0.606	3.346	0.236	1/64		-	FT-8	CC□T215... CC□W215...
	S19G- SCLCL06	●	0.750	0.669	0.724	3.543						
	S19K- SCLCL06	●	0.750	0.669	0.724	4.724						
	S19G- SCLCL09	●	0.750	0.669	0.724	3.543	0.393	1/64		FT-15	-	CC□T325... CC□W325...
	S19K- SCLCL09	●	0.750	0.669	0.724	4.724						
	S25K- SCLCL09	●	1.000	0.905	0.976	4.724						
mm	S12F- SCLCL06	●	12	11	13.4	80	6	0.4		-	FT-8	CC□T215... CC□W215...
	S14H- SCLCL06	●	14	13	13.4	100						
	S16F- SCLCL06	●	16	15	15.4	85						
	S20G- SCLCL06	●	20	18	19.4	90	6	0.4		-	FT-8	CC□T215... CC□W215...
	S20K- SCLCL06	●	20	18	19.4	120						
	S20G- SCLCL09	●	20	18	19.4	90						
	S20K- SCLCL09	●	20	18	19.4	120	10	0.4		FT-15	-	CC□T325... CC□W325...
	S25.0H- SCLCL09	●	25	23	24.4	100						

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker	PF	GF	SKS	SK	CK	GQ	WP	PP
Page	B58	B58	B59	B59	B59	B59	B60	B60
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium	Low Feed	Low Feed	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker	GK	HQ	Standard	MF	R-U	R-J	MQ	No Chipbreaker
Page	B60	B60	B60	B61	B63~B65	B65	B61	B66
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker	AP	R-A3	AH	PCD	APD	CBN		
Page	B66	B66	B66	C39	C40	C20		

Recommended Cutting Conditions ➡ E74, E75

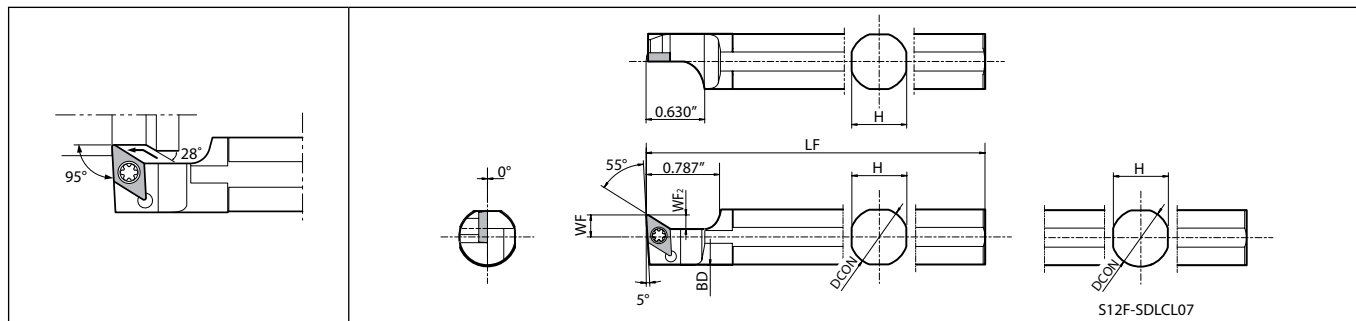
S-SDUC (External Turning / External Copying)

Left-hand shown | Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Spare Parts			Applicable Inserts	
			L	DCON	H	BD	LF	WF		WF2	Screw	Wrench		Wrench
														
Inch	S15F- SDUCL07	●	0.625	0.590	0.606	3.346	0.236	0.150	1/64	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...	
	S19G- SDUCL07	●	0.750	0.669	0.724	3.543	0.236	0.150						
	S19K- SDUCL07	●	0.750	0.669	0.724	4.724	0.236	0.150						
	S19G- SDUCL11	●	0.750	0.669	0.724	3.543	0.393	0.228	1/64	SB-4085TR	FT-15	-	DC□T325... DC□W325... DC□X325...	
	S19K- SDUCL11	●	0.750	0.669	0.724	4.724	0.393	0.228						
	S25K- SDUCL11	●	1.000	0.905	0.976	4.724	0.393	0.228						
mm	S14H- SDUCL07	●	14	13	13.4	100	6	3.8	0.4	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...	
	S20G- SDUCL07	●	20	18	19.4	90	6	3.8						
	S20K- SDUCL07	●	20	18	19.4	120	6	3.8						
	S20G- SDUCL11	●	20	18	19.4	90	10	5.8	0.4	SB-4085TR	FT-15	-	DC□T325... DC□W325... DC□X325...	
	S20K- SDUCL11	●	20	18	19.4	120	10	5.8						
	S22K- SDUCL11	●	22	20	21.4	120	10	5.8						
	S25.0H- SDUCL11	●	25	23	24.4	100	10	5.8						

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

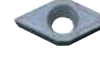
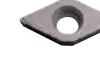
S-SDLC (External Turning / External Copying)

Left-hand shown | Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

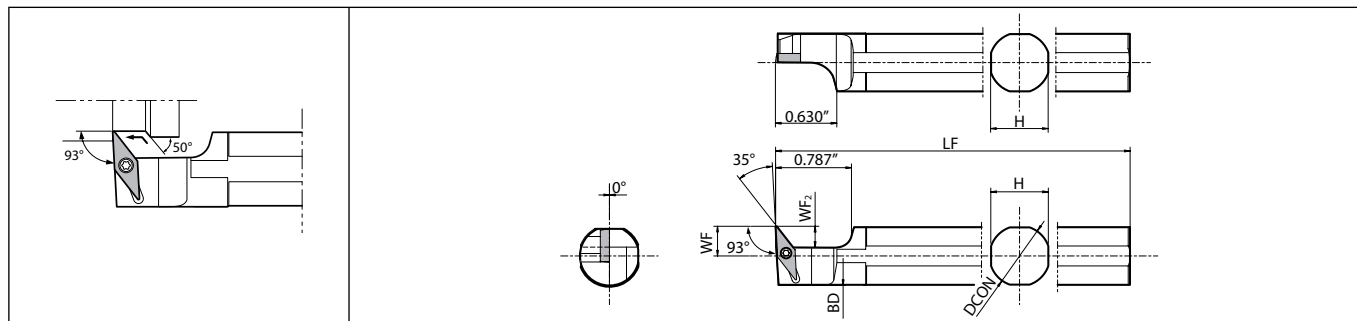
Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Spare Parts			Applicable Inserts
			L	DCON	H	BD	LF	WF		Screw	Wrench	Wrench	
Inch	S15F- SDLCL07	●	0.625	0.590	0.606	3.346	0.236	0.150	1/64		-	FT-8	DC□T215... DC□W215...
	S19G- SDLCL07	●	0.750	0.669	0.724	3.543	0.236	0.150					
	S19K- SDLCL07	●	0.750	0.669	0.724	4.724	0.236	0.150					
	S19G- SDLCL11	●	0.750	0.669	0.724	3.543	0.393	0.228	1/64	SB-4085TR	FT-15	-	DC□T325... DC□W325...
	S19K- SDLCL11	●	0.750	0.669	0.724	4.724	0.393	0.228					
	S25K- SDLCL11	●	1.000	0.905	0.976	4.724	0.393	0.228					
mm	S12F- SDLCL07	●	12	11	13.4	80	6	3.8	0.4	SB-2560TR	-	FT-8	DC□T215... DC□W215...
	S14H- SDLCL07	●	14	13	13.4	100	6	3.8					
	S16F- SDLCL07	●	16	15	15.4	85	6	3.8					
	S20G- SDLCL07	●	20	18	19.4	90	6	3.8					
	S20K- SDLCL07	●	20	18	19.4	120	6	3.8					
	S20G- SDLCL11	●	20	18	19.4	90	10	5.8	0.4	SB-4085TR	FT-15	-	DC□T325... DC□W325...
	S20K- SDLCL11	●	20	18	19.4	120	10	5.8					
	S22K- SDLCL11	●	22	20	21.4	120	10	5.8					
	S25.0H- SDLCL11	●	25	23	24.4	100	10	5.8					

Applicable Inserts (S-SDUC / S-SDLC)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker	CF	GF	SKS	SK	CK	GQ	WP*	R-WP*
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker	PP	GP	GK	HQ	Standard	MF	R-F	R-FSF
Page	B69	B69	B70	B70	B70	B70	B72, B73	B72
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker	R-U	R-USF	R-J	R-JSF	XP	XQ	MQ	No Chipbreaker
Page	B74~B76	B74	B77	B76	B71	B71	B71	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker	AP	R-A3	AH	PCD	APD	CBN		
Page	B78	B78	B78	C42	C42	C22		

For WP chipbreaker, cutting edge offsets or program corrections are required on R42 and R43. (S-SDLC cannot be used)

Recommended Cutting Conditions  E74, E75

S-SVUB (External Turning / External Copying)

Left-hand shown | Right-hand Insert for Left-hand Toolholder.

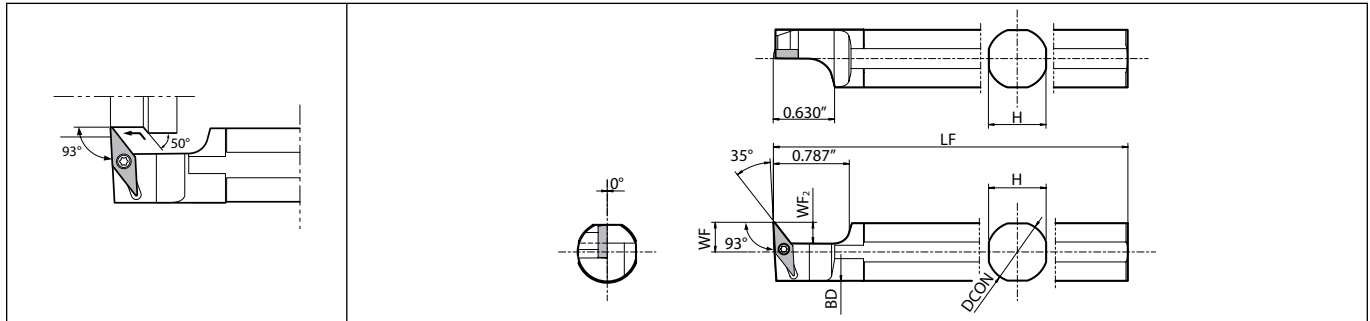
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
											Screw	Wrench	
		L	DCON	H	BD	LF	WF	WF2					
Inch	S19K- SVUBL11	●	0.750	0.669	0.724	4.724	0.413	0.315	1/64	No	SB-2570TR	FT-8	VB□T22... VB□W22...
	S25K- SVUBL11	●	1.000	0.906	0.976	4.724	0.413	0.315					
mm	S20G- SVUBL11	●	20	18	19.4	90	10.5	8	0.4	No	SB-2570TR	FT-8	
	S20K- SVUBL11	●	20	18	19.4	120	10.5	8					
	S25.0H- SVUBL11	●	25	23	24.4	100	10.5	8					

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker	PP	GP	VF	HQ	R-F	R-FSF	R-Y	PCD
Page	B97	B97	B97	B97	B98	B98	B99	C49
Applications	Hard Materials							
Insert								
Chipbreaker	CBN							
Page	C26							

Recommended Cutting Conditions ➡ E74, E75

S-SVUC (External Turning / External Copying)

Left-hand shown | Right-hand Insert for Left-hand Toolholder.

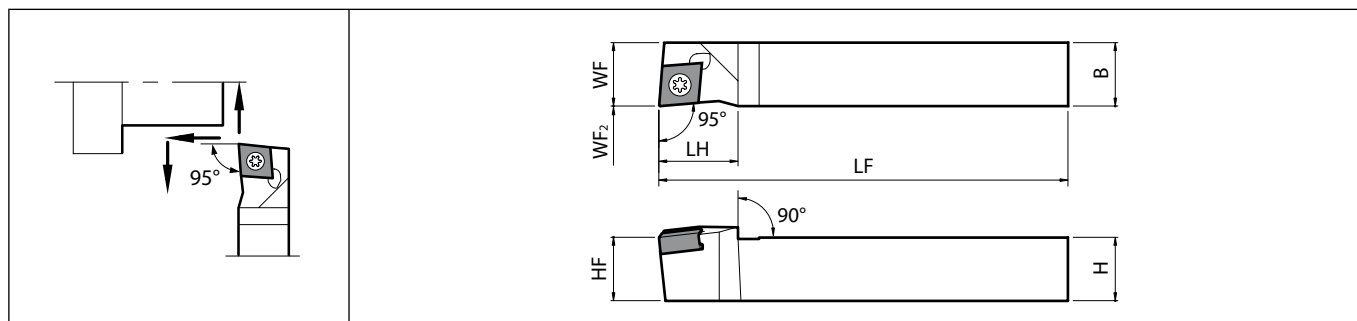
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
			L	DCON	H	BD	LF	WF			Screw	Wrench	
Inch	S15F- SVUCL08	●	0.625	0.591	0.606	3.346	0.315	0.217	1/64	No	SB-2050TR	FT-6	VC□T1515... VC□W1515...
	S19G- SVUCL11	●	0.750	0.669	0.724	3.543	0.413	0.315	0.008	No	SB-2570TR	FT-8	VC□T22...
	S19K- SVUCL11	●	0.750	0.669	0.724	4.724	0.413	0.315					
	S25K- SVUCL11	●	1.000	0.906	0.976	4.724	0.413	0.315					
mm	S12F- SVUCL08	●	12	11	13.4	80	7.5	5.5	0.4	No	SB-2050TR	FT-6	VC□T1515... VC□W1515...
	S14H- SVUCL08	●	14	13	13.4	100	7.5	5.5					
	S16F- SVUCL08	●	16	15	15.4	85	8	5.5					
	S20G- SVUCL11	●	20	18	19.4	90	10.5	8	0.2	No	SB-2570TR	FT-8	VC□T22...
	S20K- SVUCL11	●	20	18	19.4	120	10.5	8					
	S25.0H- SVUCL11	●	25	23	24.4	100	10.5	8					

Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing - Medium
Insert								
Chipbreaker	CF	GF	SKS	PP	VF	HQ	R-F	R-Y
Page	B100	B100	B100	B100	B100	B100	B101	B101
Applications	Non-Ferrous Metals	Hard Materials						
Insert								
Chipbreaker	PCD	CBN						
Page	C50	C27						

Recommended Cutting Conditions ➡ E74, E75

SCLN-FF (External Turning / External Facing, Screw Clamp, Without Offset)

Right-hand shown

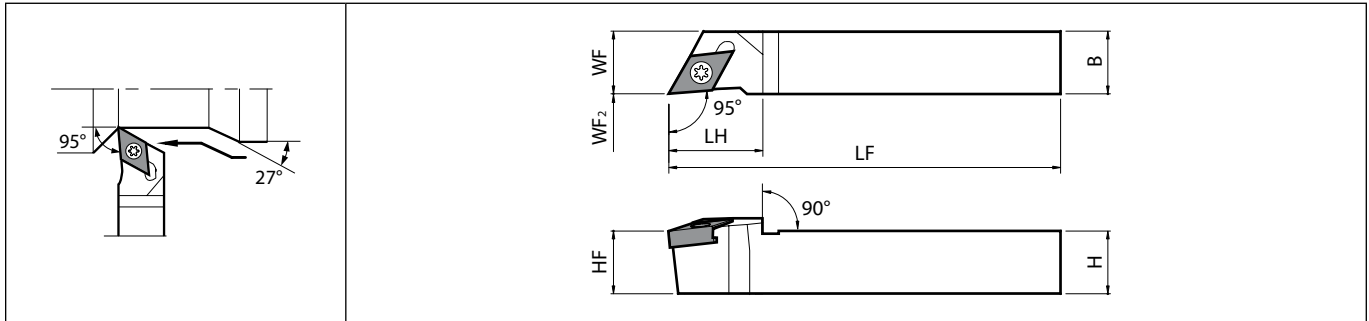
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Side rake angle (°)	Inclination angle (°)	Spare Parts		Applicable Inserts
													Screw	Wrench	
			R	H	B	LH	HF	LF	WF				WF2		
Inch	SCLNR 6-2.4FF 8-2.4DF 10-2.4CF	●	0.375	0.375	0.590	0.375	6.000	0.375	0	0.008	-6	-6	SB-3080TR	LTW-10SS	CN□U242...
		●	0.500	0.500	0.590	0.500	6.000	0.500							
		●	0.625	0.625	0.590	0.625	5.000	0.625							
mm	SCLNR 1010K-07FF 1212F-07FF 1212K-07FF 1616K-07FF	●	10	10	15	10	120	10	0	0.2	-6	-6	SB-3080TR	LTW-10SS	
		●	12	12		12	85	12							
		●					120	16							
		●	16	16		16	16								

Applicable Inserts

Applications	Finishing - Medium	Medium - Roughing	Finishing	Low Feed
Insert				
Chipbreaker	SK	GK	R-F	R-U
Page	B55	B55	B55	B55

Recommended Cutting Conditions E66

SDLN-FF (External Turning / External Copying, Screw Clamp, Without Offset)

Right-hand shown

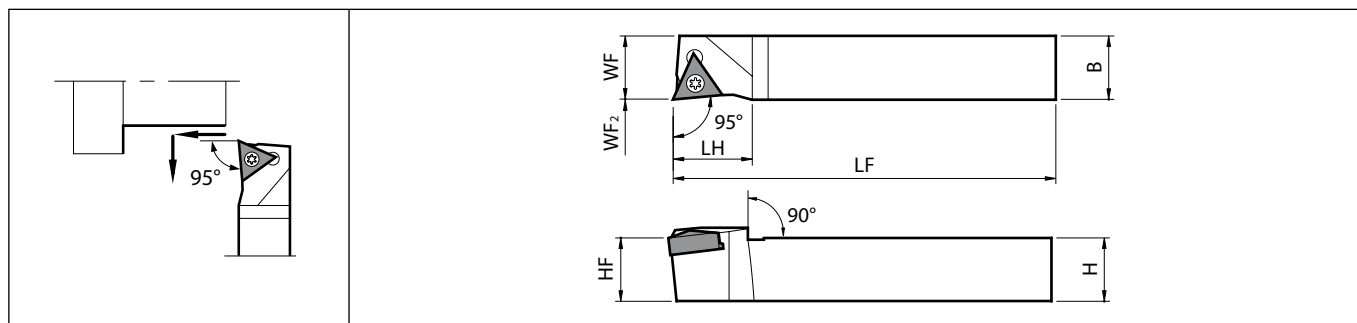
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Side rake angle (°)	Inclination angle (°)	Spare Parts		Applicable Inserts
													Screw	Wrench	
		R	H	B	LH	HF	LF	WF	WF2						
Inch	SDLNR 6-2.2FF	●	0.375	0.375	0.708	0.375	6.000	0.375	0	0.008	-6	-7	SB-3080TR	LTW-10SS	DN□U222...
	8-2.2DF	●	0.500	0.500	0.708	0.500	6.000	0.500							
	10-2.2CF	●	0.625	0.625	0.708	0.625	5.000	0.625							
mm	SDLNR 1010K-08FF	●	10	10	18	10	120	10	0	0.2	-6	-7	SB-3080TR	LTW-10SS	
	1212F-08FF	●	12	12		12	85	12							
	1212K-08FF	●					120	12							
	1616K-08FF	●														16

Applicable Inserts

Applications	Finishing - Medium	Medium - Roughing	Finishing	Low Feed
Insert				
Chipbreaker	SK	GK	R-F	R-U
Page	B56	B56	B56	B56

Recommended Cutting Conditions ➡ E66

STLN-FF (External Turning, Screw Clamp, Without Offset)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Standard Corner-R (RE)	Side rake angle (°)	Inclination angle (°)	Spare Parts		Applicable Inserts
													Screw	Wrench	
			R	H	B	LH	HF	LF	WF				WF2		
Inch	STLNR 6-1.8FF 8-1.8DF	●	0.375	0.375	0.590	0.375	6.000	0.375	0	0.008	-6	-7	SB-2570TR	LTW-8SS	TNGU182...
mm	STLNR 1010K-09FF 1212F-09FF 1212K-09FF 1616K-09FF	●	0.500	0.500	0.590	0.500	6.000	0.500	0	0.2	-6	-7	SB-2570TR	LTW-8SS	
		●	10	10	15	10	120	10							
		●	12	12		12	85	12							
		●	16	16		16	120	16							

Applicable Inserts

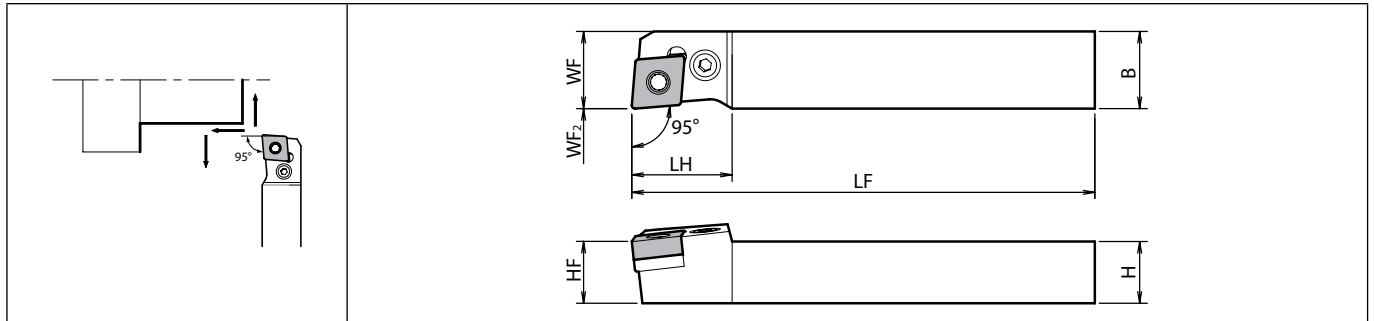
Applications	Finishing	Low Feed
Insert		
Chipbreaker	R-F	R-U
Page	B57	B57

Recommended cutting conditions

Workpiece Material	PR1225	PR1535	PR1705	PR1725
Free-cutting steel	-	-	● Vc = 330 sfm 200 ~ 490	☺ Vc = 330 sfm 200 ~ 490
Carbon Steel / Alloy Steel	☺ Vc = 330 sfm 200 ~ 490	☺ Vc = 330 sfm 200 ~ 490	☺ Vc = 430 sfm 200 ~ 720	● Vc = 430 sfm 200 ~ 660
Stainless Steel	☺ Vc = 260 sfm 160 ~ 490	● Vc = 330 sfm 200 ~ 590	-	☺ Vc = 330 sfm 260 ~ 490

● : Continuous to light interruption: 1st recommendation

☺ : Continuous to light interruption: 2nd recommendation

PCLN-FF (External Turning / External Facing, Without Offset)

Right-hand shown

Toolholder Dimensions

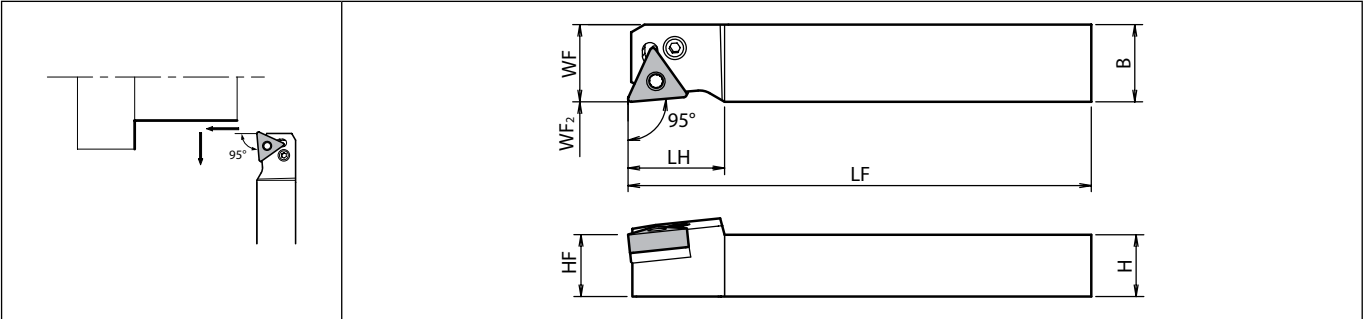
Unit	Part Number	Std. Item	Dimensions								Standard Corner-R (RE)	Side rake angle (°)	Inclination angle (°)	Spare Parts						Applicable Inserts
														Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench	
			R	H	B	LH	HF	LF	WF	WF2										
mm	PCLNR 1620JX-12FF 2020JX-12FF	●	16	20	26	16	20	120	20	0	0.8	-6	-6	LL-2N	LS-2N	PC-2	LSP-2	LC-42N	LW-3	CN□G43...

Applicable Inserts

Applications	Finishing - Medium	Medium - Roughing
Insert		
Chipbreaker	SK	FP-TK
Page	B19	B19

Recommended Cutting Conditions ➡ E66

PTLN-FF (External Turning, Without Offset)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Standard Corner-R (RE)	Side rake angle (°)	Inclination angle (°)	Spare Parts						Applicable Inserts
														Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench	
			R	H	B	LH	HF	LF	WF	WF2										
mm	PTLNR 1620JX-16FF 2020JX-16FF	●	16	20	24	16	120	20	0	0.8	-6	-6	LL-1N	LS-1N	PC-1	LSP-1	LT-32N	*LT-32N-20	FH-2.5	TN□G33...
		●	20			20														

When using inserts with corner-R(RE) greater than 1/16" (1.6mm), please purchase shim LT-32N-20 (sold separately) to prevent workpiece and shim from interfering with each other.

Applicable Inserts

Applications	Finishing - Medium	Medium - Roughing	Large D.O.C.
Insert			
Chipbreaker	SK	FP-TK	R-LD
Page	B42	B42	B42

Recommended Cutting Conditions ➡ E66

Sub-Spindle Holders

Back machining holder for Star Micronics Co., Ltd.'s machines

Highly rigid and supports internal coolant

Holders with center height adjustment mechanism are available

1

Lineup: Holders for 4- and 8-spindle tool post styles

For 4-spindle tool post

4A-HA type

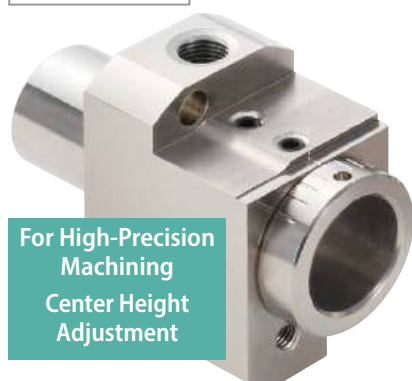


4A type



For 8-spindle tool post

8A type



For High-Precision
Machining
Center Height
Adjustment



2

Features

Feature 1

*Only the 4A-HA type for 4-spindle tool post supports the center height adjustment mechanism.

Adjustable sleeve enables easy adjustment of the center height with superior adjustment accuracy.



Feature 2

Supports internal coolant

Feature 3

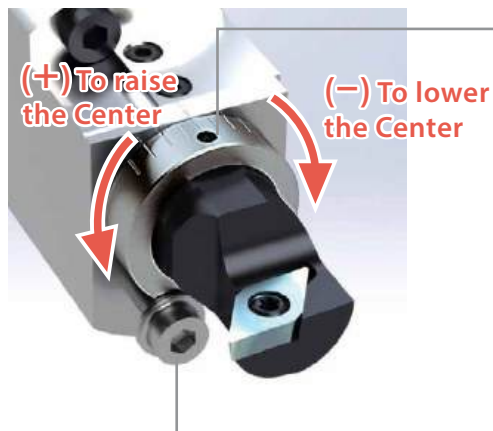
For large shank diameter tools.

High rigidity enhances chattering resistance and provides stable machining.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Easy and Accurate Center Height Adjustment

Adjustable sleeve makes it easy to adjust the center height
Easy to operate with excellent adjustment accuracy



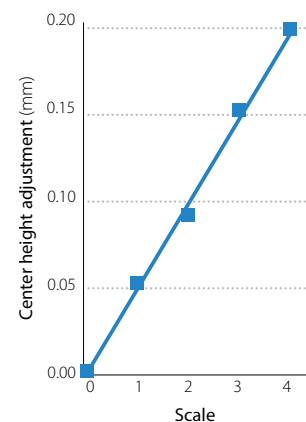
Scale of adjustable sleeve



Adjust the scale of the adjustable sleeve to the reference position of the body (Center height adjustment range : $\pm 0.2\text{mm}$)
Please check the machining diameter after adjusting the center height.

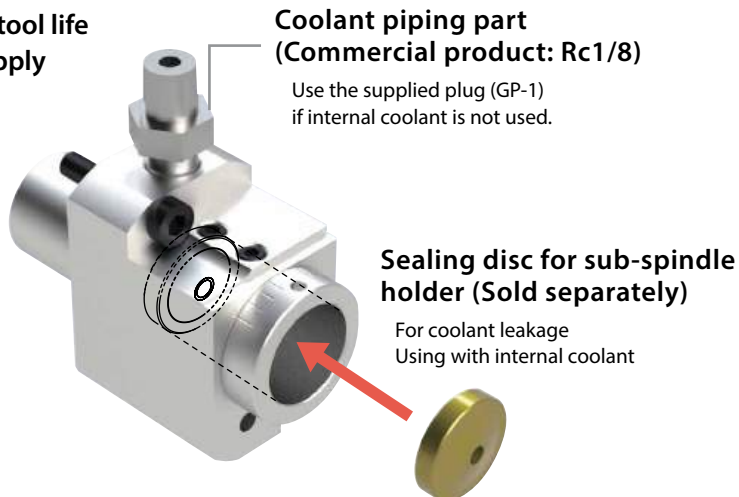
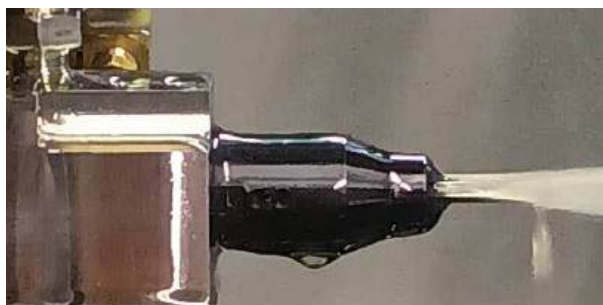
Screw for temporarily fixing adjustable sleeve
• Temporarily fix after adjusting center height
• Remove before machining

Center height adjustment scale
(Internal evaluation)



Supports internal coolant

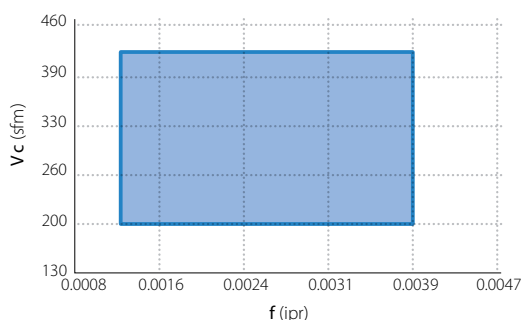
Accelerates chip evacuation and supports extended tool life
Special sealing discs provide more stable coolant supply



High rigidity enhances chatter resistance

Increased rigidity for tools with large shank diameter
Suppresses chattering and provides stable machining under a wide range of cutting conditions

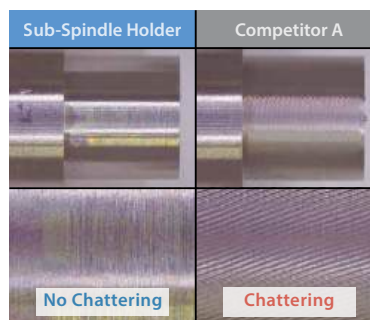
Cutting condition range for stable machining (No chattering)



Cutting conditions: $V_c = 200 \sim 430 \text{ sfm}$, $f = 0.0012 \sim 0.0039 \text{ ipr}$, D.O.C. = 0.079",
Wet, 304 SF22H-SH20-4A-HA S20K-SDUCL11 DCGT32505MFP-SK

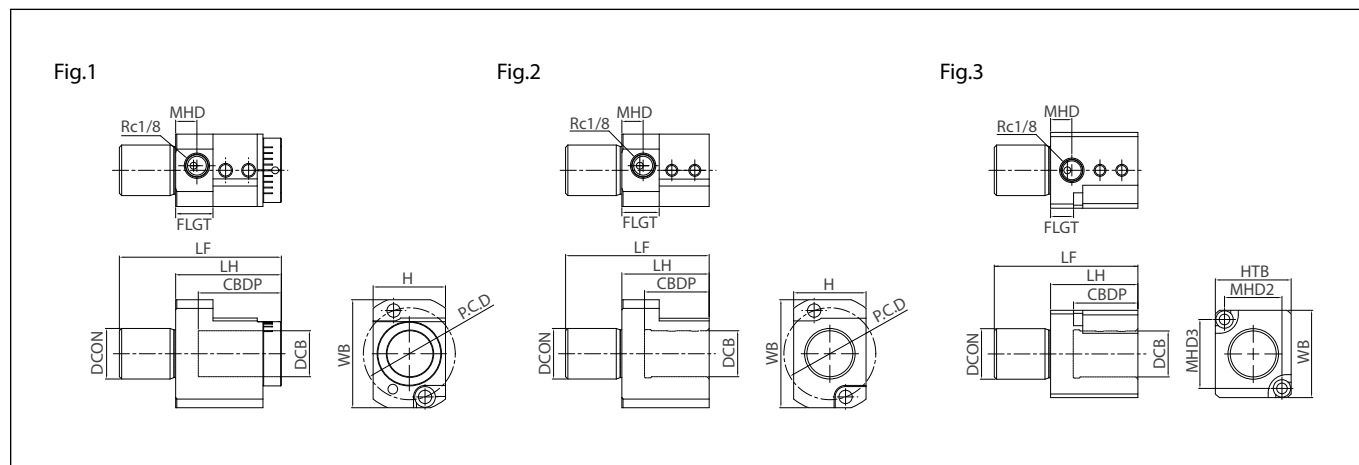
The sub-spindle holders had no chattering and good machining sound in a wide range of cutting conditions.
Work surface after machining was also good.

Chattering Resistance Comparison (Internal Evaluation)



Cutting conditions: $V_c = 330 \text{ sfm}$, $f = 0.002 \text{ ipr}$, D.O.C. = 0.079",
Wet, 304

KSTB-TT (Sub-Spindle Holders for STAR™ Machines)



Holder Dimensions

Unit	Part Number	Std. Item	Tool Post Type	Center Height Adjustment	Dimensions (mm)													Fig.
					CBDP	DCB	DCON	FLGT	H	HTB	LF	LH	WB	MHD	MHD2	MHD3	P.C.D	
mm	SF22F- SH20-4A-HA*	●	4-spindle tool post	Yes	36.2	20	22	16.3	31.5	—	70.5	46	47	9.3	—	—	40	1
	SF22F- SH20-4A	●		—	28.2						62.5	38						2
	SF22F- SH20-8A	●	8-spindle tool post	—	28.2	20	22	10	—	33	62.5	38	38	9.3	25	30	—	3

*SF22F-SH20-4A-HA is a combined unit with holder body (SF22-FH23-4A) + sleeve (SHE2023-27). Holder body and sleeve are also available to purchase separately.

Assembly	=	Holder Body	+	Adjustable Sleeve	+	Screw
SF22F-SH20-4A-HA		SF22-FH23-4A		SHE2023-27		HH5X12-FL

Parts and Assembly

Part Number	Parts								
	Holder Body	Adjustable Sleeve	Screw	Screw	Wrench	Plug	Screw	Wrench	Disc
SF22F- SH20-4A-HA*	SF22-FH23-4A	SHE2023-27	HH5X12-FL	H5X5	LW-2.5	GP-1	HH5X25	LW-4	SD-D20
SF22F- SH20-4A	—	—	—				HH4X16	LW-3	
SF22F- SH20-8A	—	—	—				—	—	

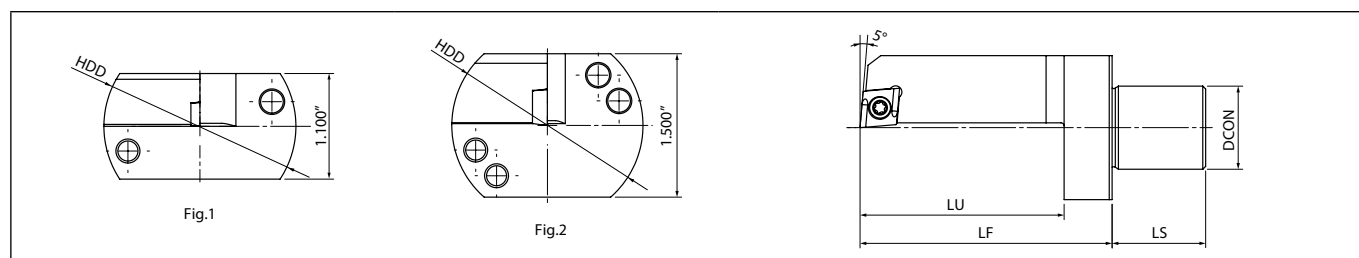
Compatible Machines Referenced the general catalog of Star Micronics Co., Ltd.

(4-spindle tool post) SP-20, SR-20JⅡ(A), SB-16Ⅲ, SB-12/16/20R series, SR-32JⅢ(A)

(8-spindle tool post) SV-20R, SW-20 / 12RⅡ, SD-26(S / C / E / G), SR-38(B) / 20RⅣ(A / B), SR-32JⅢ(B)/20JⅡ(B), SL-10

Precautions)

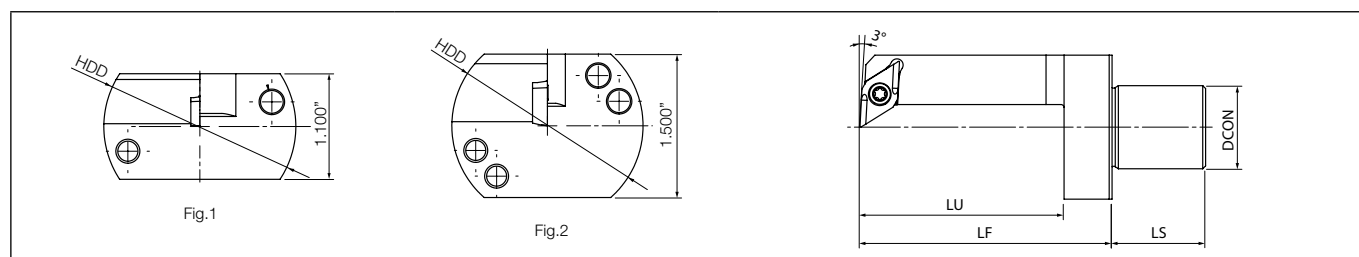
1. Be careful not to interfere with nearby tools.
2. Depending on the shape of the workpiece, special chucks may be required.
3. You may need to change the limits (soft limits) on the machine.
4. A short wrench is required for close proximity.
5. When the sub-spindle holders for 8-spindle tool post are mounted up and down on the tool post, the internal coolant cannot be used at the lower part.
6. When the sub-spindle holders for 4-spindle tool post is attached to the upper part of 8-spindle tool post, other tools cannot be attached to the lower part.

KSTB-CCET (Sub-Spindle Turning for STAR™ Machines)

Toolholder Dimensions

Right-hand shown

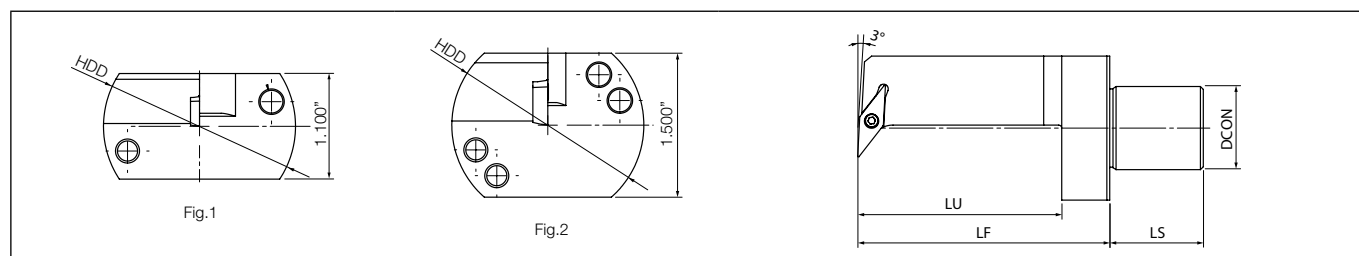
Unit	Part Number	Std. Item	Dimensions					Fig.	Spare Parts			Applicable Inserts B58~B66	Reference Machine
			R	DCON	HDD	LF	LU		Screw	Wrench	Wrench		
Inch	KSTB SR16/20CCET215	●	0.866	2.000	2.250	1.875	1.073	1	SB-2560TR	-	FT-8	CCET215... CCGT215...	SR16, SR20
	KSTB SR16/20CCET325	●	0.866	2.000	2.250	1.875	1.073	1	SB-4085TR	FT-15	-	CCET325... CCGT325...	SR16, SR20
	KSTB SR32JCCET325	●	0.866	2.000	2.625	2.125	0.980	2	SB-4085TR		-		SR32J

KSTB-DCET (Sub-Spindle Turning for STAR™ Machines)

Toolholder Dimensions

Right-hand shown

Unit	Part Number	Std. Item	Dimensions					Fig.	Spare Parts			Applicable Inserts B68~B78	Reference Machine
			R	DCON	HDD	LF	LU		Screw	Wrench	Wrench		
Inch	KSTB SR16/20DCET215	●	0.866	2.000	2.250	1.875	1.073	1	SB-2560TR	-	FT-8	DCET215... DCGT215...	SR16, SR20
	KSTB SR16/20DCET325	●	0.866	2.000	2.250	1.875	1.073	1	SB-4085TR	FT-15	-	DCET325... DCGT325...	SR16, SR20
	KSTB SR32JDCET325	●	0.866	2.000	2.625	2.125	0.980	2	SB-4085TR		-		SR32J

KSTB-VBET (Sub-Spindle Turning for STAR™ Machines)

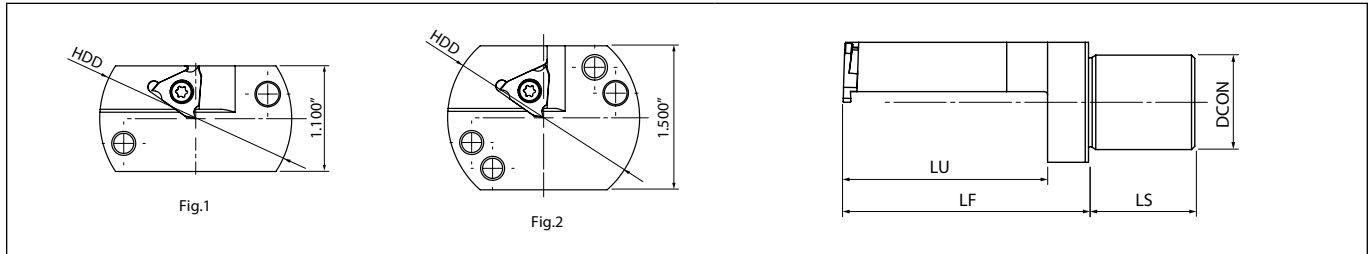
Toolholder Dimensions

Right-hand shown

Unit	Part Number	Std. Item	Dimensions					Fig.	Spare Parts		Applicable Inserts B98~B99	Reference Machine
			R	DCON	HDD	LF	LU		Screw	Wrench		
Inch	KSTB SR16/20VBET22	●	0.866	2.000	2.250	1.875	1.073	1	SB-2570TR	FT-8	VBET22...	SR16, SR20
	KSTB SR32JVBET22	●	0.866	2.000	2.625	2.125	0.980	2	SB-2570TR			SR32J

Note: All KSTB holders are right-hand, which require neutral or left-hand inserts

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KSTB-TT (Sub-spindle Threading for STAR™ Machines)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Fig.	Spare Parts		Applicable Inserts  J40	Reference Machine
			R	DCON	HDD	LF	LU		LS	Screw			Wrench
												
Inch	KSTB SR16/20TT32	●	0.866	2.000	2.250	1.875	1.073	1	SB-4070TRS	FT-10	TT32...	SR16, SR20
	KSTB SR32JT32	●	0.866	2.000	2.625	2.125	0.980	2				SR32J

Note: All KSTB holders are right-hand, which require neutral or left-hand inserts

External Turning (Positive Insert) - Cutting diameter under $\phi 0.630"$ ($\phi 16\text{mm}$)

[D.O.C. Indicates Radius]

ISO Class	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit		
								Vc (sfm)	D.O.C. (in)	f (ipr)
P*	Low Carbon Steel Low Carbon Alloy	HB $\leq$ 300	Precision finishing	Continuous	F	PR1725	0.002	330 - 490 - 660	0.002 - 0.003 - 0.006	0.001 - 0.002 - 0.004
			Interruption			PR1725	0.008	260 - 390 - 520	0.002 - 0.004 - 0.008	0.001 - 0.004 - 0.006
			Precision finishing Molded Chipbreaker	Continuous	CF	PR1725	0.008	330 - 490 - 660	0.001 - 0.002 - 0.004	0.001 - 0.002 - 0.005
			Finishing	Continuous		PR1725	0.008	330 - 460 - 590	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008
			Interruption			PR1725	1/64	260 - 390 - 520	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008
	Medium Carbon Steel Medium Carbon Alloy	HB $\leq$ 330	Finishing-Medium	Continuous	SK	PR1725	0.008	260 - 390 - 520	0.031 - 0.118 - 0.197	0.001 - 0.002 - 0.004
			Interruption			PR1725	1/64	200 - 330 - 460	0.031 - 0.079 - 0.118	0.001 - 0.002 - 0.004
			Low Feed & Large D.O.C.	Continuous	J, U	PR1725	0.008	260 - 330 - 460	0.020 - 0.079 - 0.138	0.001 - 0.002 - 0.004
			Precision finishing	Continuous		PR1725	0.002	330 - 490 - 660	0.002 - 0.003 - 0.006	0.001 - 0.002 - 0.004
			Interruption			PR1725	0.008	260 - 390 - 520	0.002 - 0.004 - 0.008	0.001 - 0.004 - 0.006
	High Carbon Alloy	HB $\leq$ 280	Precision finishing Molded Chipbreaker	Continuous	CF	PR1725	0.008	330 - 490 - 660	0.001 - 0.002 - 0.004	0.001 - 0.002 - 0.005
			Finishing	Continuous		PR1725	0.008	330 - 460 - 590	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008
			Interruption			PR1725	1/64	260 - 390 - 520	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008
			Finishing-Medium	Continuous	SK	PR1725	0.008	260 - 390 - 520	0.031 - 0.118 - 0.197	0.001 - 0.002 - 0.004
			Interruption			PR1725	1/64	200 - 330 - 460	0.031 - 0.079 - 0.118	0.001 - 0.002 - 0.004
M	Stainless Steel (Austenitic Related)	HB $\leq$ 220	Low Feed & Large D.O.C.	Continuous	J, U	PR1725	0.008	260 - 330 - 460	0.020 - 0.079 - 0.138	0.001 - 0.002 - 0.004
			Precision finishing	Continuous		PR1725	0.002	330 - 490 - 660	0.002 - 0.003 - 0.006	0.001 - 0.002 - 0.004
			Interruption			PR1725	0.008	260 - 390 - 520	0.002 - 0.004 - 0.008	0.001 - 0.004 - 0.006
			Precision finishing Molded Chipbreaker	Continuous	CF	PR1725	0.008	330 - 490 - 660	0.001 - 0.002 - 0.004	0.001 - 0.002 - 0.005
	Stainless Steel (Precipitation Hardened)	HB $\leq$ 300	Finishing	Continuous		PR1725	0.008	330 - 460 - 590	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008
			Interruption			PR1725	1/64	260 - 390 - 520	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008
			Finishing-Medium	Continuous	SK	PR1725	0.008	260 - 390 - 520	0.012 - 0.059 - 0.118	0.001 - 0.002 - 0.004
			Interruption			PR1725	1/64	200 - 330 - 460	0.012 - 0.039 - 0.079	0.001 - 0.002 - 0.004
M	Stainless Steel (Austenitic Related)	HB $\leq$ 220	Low Feed & Large D.O.C.	Continuous	J, U	PR1725	0.008	260 - 330 - 460	0.020 - 0.079 - 0.138	0.001 - 0.002 - 0.004
			Precision finishing	Continuous		PR1725	0.002	330 - 490 - 660	0.002 - 0.003 - 0.006	0.001 - 0.002 - 0.004
			Interruption			PR1725	0.008	260 - 390 - 520	0.002 - 0.004 - 0.008	0.001 - 0.004 - 0.006
			Precision finishing Molded Chipbreaker	Continuous	CF	PR1725	0.008	330 - 490 - 660	0.001 - 0.002 - 0.004	0.001 - 0.002 - 0.005
	Stainless Steel (Precipitation Hardened)	HB $\leq$ 300	Finishing	Continuous		PR1725	0.008	330 - 460 - 590	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008
			Interruption			PR1725	1/64	260 - 390 - 520	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008
			Finishing-Medium	Continuous	SK	PR1725	0.008	260 - 390 - 520	0.012 - 0.059 - 0.118	0.001 - 0.002 - 0.004
			Interruption			PR1725	1/64	200 - 330 - 460	0.012 - 0.039 - 0.079	0.001 - 0.002 - 0.004

* For machining free-cutting steels, use PR1705 at Vc = 660 sfm or less.
For D.O.C. and f, refer to specs for low carbon steels.

Recommended Cutting Conditions

External Turning (Positive Insert) - Cutting diameter under $\phi 0.630''$ ($\phi 16\text{mm}$)

[D.O.C. Indicates Radius]

ISO Class	Workpiece Material	Hardness	Cutting Range	Applications	Chipbreaker	Insert grade	Corner-R (RE)	Lower limit - Recommendation - Upper limit		
								Vc (sfm)	D.O.C. (in)	f (ipr)
K	Gray Cast Iron	HB ≤ 250	Finishing	Continuous	Standard	CA410K	1/64	330 - 620 - 1150	0.008 - 0.020 - 0.039	0.004 - 0.006 - 0.008
				Interruption		CA415K	1/64	310 - 490 - 700	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.006
			Medium	Continuous	Standard	CA410K	1/64	330 - 620 - 1150	0.020 - 0.039 - 0.079	0.004 - 0.006 - 0.008
				Interruption		CA415K	1/32	310 - 490 - 700	0.020 - 0.039 - 0.079	0.002 - 0.004 - 0.006
	Nodular Cast Iron	HB ≤ 270	Finishing	Continuous	Standard	CA410K	1/64	350 - 580 - 780	0.008 - 0.020 - 0.039	0.004 - 0.006 - 0.008
				Interruption		CA415K	1/64	250 - 360 - 530	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.006
N	Non-Ferrous Metals Copper Alloy Aluminum Aluminum Alloys (Si 10% or less) etc.	HB ≤ 100	High Speed Machining (Glossy Surface Finish)	Continuous	Without Chipbreaker	KPD001	0.008	490 - 820 - 1150	0.002 - 0.004 - 0.012	0.002 - 0.004 - 0.006
				Continuous		PDL025	0.008	330 - 490 - 660	0.002 - 0.012 - 0.020	0.001 - 0.003 - 0.004
			Finishing (Long Tool Life)	Continuous	F	PDL025	1/64	330 - 490 - 660	0.002 - 0.012 - 0.020	0.001 - 0.003 - 0.004
				Interruption		PDL025	1/64	330 - 490 - 660	0.002 - 0.012 - 0.020	0.001 - 0.003 - 0.004
			Finishing	Continuous	F	KW10	0.008	330 - 490 - 660	0.002 - 0.012 - 0.020	0.001 - 0.003 - 0.004
				Interruption		KW10	1/64	330 - 490 - 660	0.002 - 0.012 - 0.020	0.001 - 0.003 - 0.004
			Medium	Continuous	U	KW10	0.008	330 - 490 - 660	0.008 - 0.020 - 0.059	0.001 - 0.004 - 0.008
				Interruption		KW10	1/64	330 - 490 - 660	0.008 - 0.020 - 0.059	0.001 - 0.004 - 0.008
S	Titanium Alloys	HB ≤ 400	Precision Finishing (Glossy Surface Finish)	Continuous	Without Chipbreaker	KPD001	0.008	330 - 390 - 490	0.002 - 0.004 - 0.012	0.001 - 0.003 - 0.004
				Interruption		KPD001	1/64	230 - 330 - 390	0.002 - 0.004 - 0.012	0.001 - 0.003 - 0.004
			Medium	Continuous	F, U	KW10	1/64	100 - 160 - 230	0.004 - 0.020 - 0.039	0.001 - 0.004 - 0.008
				Interruption		KW10	1/64	100 - 160 - 230	0.004 - 0.020 - 0.039	0.001 - 0.004 - 0.008
	Heat-Resistant Alloys	HB ≤ 350	Finishing	Continuous	F, U Without Chipbreaker	KW10	1/64	30 - 100 - 160	0.004 - 0.012 - 0.020	0.001 - 0.002 - 0.004
				Interruption		KW10	1/32	30 - 100 - 160	0.008 - 0.020 - 0.028	0.001 - 0.002 - 0.004
H	Hardened Steel Hard Materials	40 ~ 50 HRC	Finishing	Continuous	GK	PR1725	0.008	130 - 200 - 260	0.004 - 0.012 - 0.020	0.001 - 0.003 - 0.004
				Interruption		PR1725	1/64	130 - 200 - 260	0.004 - 0.012 - 0.020	0.001 - 0.003 - 0.004
		50 ~ 68 HRC	Finishing	Continuous	ME MET	KBN010	0.008	260 - 390 - 490	0.004 - 0.012 - 0.020	0.001 - 0.003 - 0.004
				Interruption		KBN020	1/64	200 - 330 - 390	0.004 - 0.012 - 0.020	0.001 - 0.003 - 0.004
				Continuous						
				Interruption						

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

External Turning (Positive Insert) - Cutting diameter under $\varnothing 0.630"$ ($\varnothing 16\text{mm}$)

KTKF

Workpiece Material		MEGACOAT NANO PLUS		MEGACOAT NANO		MEGACOAT		Notes
		PR1725		PR1535		PR1225		
		Grooving	Turning	Grooving	Turning	Grooving	Turning	
Carbon Steel / Alloy Steel	Vc (sfm)	★ 200 ~ 660		☆ 200 ~ 490		☆ 200 ~ 490		Coolant
	f (ipr)	0.0004 ~ 0.0012	0.0008 ~ 0.0059	0.0004 ~ 0.0012	0.0008 ~ 0.0059	0.0004 ~ 0.0012	0.0008 ~ 0.0059	
Stainless Steel	Vc (sfm)	☆ 200 ~ 490		★ 200 ~ 430		☆ 200 ~ 430		
	f (ipr)	0.0004 ~ 0.0008	0.0008 ~ 0.0039	0.0004 ~ 0.0008	0.0008 ~ 0.0039	0.0004 ~ 0.0008	0.0008 ~ 0.0039	

Workpiece Material		Carbide		PCD		Notes
		KW10		KPD001		
		Grooving	Turning	Grooving	Turning	
Cast Iron	Vc (sfm)	160 ~ 330		-		Coolant
	f (ipr)	0.0004 ~ 0.0008	0.0008 ~ 0.0059	-		
Aluminum	Vc (sfm)	660 ~ 1,480		660 ~ 1,640		
	f (ipr)	0.0004 ~ 0.0012	0.0008 ~ 0.0059	0.0004 ~ 0.0012	0.0008 ~ 0.0047	
Brass	Vc (sfm)	330 ~ 660		330 ~ 1,150		
	f (ipr)	0.0004 ~ 0.0020	0.0008 ~ 0.0079	0.0004 ~ 0.0020	0.0008 ~ 0.0059	

KTKF (GTP Chipbreaker)

Workpiece Material		MEGACOAT NANO PLUS		MEGACOAT NANO		Notes
		PR1725		PR1535		
		Grooving	Turning	Grooving	Turning	
Carbon Steel / Alloy Steel	Vc (sfm)	★ 200 ~ 660		☆ 200 ~ 490		Coolant
	f (ipr)	0.0012~0.0028	0.0020~0.0059	0.0012~0.0028	0.0020~0.0059	
Stainless Steel	Vc (sfm)	☆ 200 ~ 490		★ 200 ~ 430		
	f (ipr)	0.0008~0.0020	0.0012~0.0039	0.0008~0.0020	0.0012~0.0039	

KTKF (GQ Chipbreaker)

Workpiece Material		MEGACOAT NANO PLUS		MEGACOAT NANO		MEGACOAT		Notes
		PR1725		PR1535		PR1225		
		Grooving	Turning	Grooving	Turning	Grooving	Turning	
Carbon Steel / Alloy Steel	Vc (sfm)	★ 200 ~ 200		☆ 200 ~ 490		☆ 200 ~ 490		Coolant
	f (ipr)	0.0004 ~ 0.0016	0.0008 ~ 0.0059	0.0004 ~ 0.0016	0.0008 ~ 0.0059	0.0004 ~ 0.0016	0.0008 ~ 0.0059	
Stainless Steel	Vc (sfm)	☆ 200 ~ 490		★ 200 ~ 430		☆ 200 ~ 430		
	f (ipr)	0.0004 ~ 0.0012	0.0008 ~ 0.0039	0.0004 ~ 0.0012	0.0008 ~ 0.0039	0.0004 ~ 0.0012	0.0008 ~ 0.0039	

KTKF (AGT Chipbreaker)

Workpiece Material		PCD		Notes
		KPD001		
		Grooving	Turning	
Aluminum	Vc (sfm)	660 ~ 1,640		Coolant
	f (ipr)	0.0012 ~ 0.0059	0.0012 ~ 0.0079	
Brass	Vc (sfm)	330 ~ 1,150		
	f (ipr)	0.0012 ~ 0.0059	0.0012 ~ 0.0079	

ABS15, ABW15, ABW23

Workpiece Material		MEGACOAT NANO PLUS				MEGACOAT		PVD coated carbide		Notes
		PR1725		PR1705		PR1225		PR930		
		Grooving	Turning	Grooving	Turning	Grooving	Turning	Grooving	Turning	
Carbon Steel / Alloy Steel	Vc (sfm)	★ 200 ~ 590		☆ 260 ~ 660		☆ 200 ~ 490		☆ 260 ~ 330		Coolant
	f (ipr)	0.0008	0.0008 ~ 0.0028	0.0008	0.0008 ~ 0.0028	0.0008	0.0008 ~ 0.0028	0.0008	0.0008 ~ 0.0028	
Stainless Steel	Vc (sfm)	☆ 100 ~ 430		☆ 130 ~ 490		★ 130 ~ 390		☆ 100 ~ 160		
	f (ipr)	0.0008	0.0008 ~ 0.0020	0.0008	0.0008 ~ 0.0020	0.0008	0.0008 ~ 0.0020	0.0008	0.0008 ~ 0.0020	

Workpiece Material		Carbide		Notes
		KW10		
		Grooving	Turning	
Aluminum	Vc (sfm)	490 ~ 660		Coolant
	f (ipr)	0.0008	0.0008 ~ 0.0039	
Brass	Vc (sfm)	330 ~ 520		
	f (ipr)	0.0012	0.0008 ~ 0.0059	

★: 1st Recommendation

☆: 2nd Recommendation

Recommended Cutting Conditions

ZBMT

Workpiece	Insert Tip Angle	Corner-R (RE) (in)	Insert Grade	Vc (sfm)	D.O.C. (in)	f (ipr)
Carbon Steel / Alloy Steel	25°	0.008	PR1725	200 - 490 - 660	0.008 - 0.012 - 0.059	0.002 - 0.004 - 0.006
			PR1535	200 - 390 - 590	0.008 - 0.012 - 0.059	0.002 - 0.004 - 0.006
		1/64 | 1/32	PR1725	200 - 490 - 660	0.008 - 0.012 - 0.079	0.002 - 0.006 - 0.010
			PR1535	200 - 390 - 590	0.008 - 0.012 - 0.079	0.002 - 0.006 - 0.010
			PV720	460 - 590 - 790	0.008 - 0.012 - 0.059	0.002 - 0.005 - 0.008
			PV730	460 - 590 - 790	0.008 - 0.012 - 0.059	0.002 - 0.005 - 0.008
	15°	1/64	TN620	460 - 590 - 790	0.008 - 0.012 - 0.059	0.002 - 0.005 - 0.008
			PR1725	200 - 490 - 660	0.008 - 0.012 - 0.039	0.002 - 0.004 - 0.006
Stainless Steel	25°	0.008	PR1725	200 - 490 - 590	0.008 - 0.012 - 0.039	0.002 - 0.004 - 0.006
			PR1535	200 - 390 - 490	0.008 - 0.012 - 0.039	0.002 - 0.004 - 0.006
		1/64 | 1/32	PR1725	200 - 490 - 590	0.008 - 0.012 - 0.039	0.002 - 0.006 - 0.010
			PR1535	200 - 390 - 490	0.008 - 0.012 - 0.039	0.002 - 0.006 - 0.010
	15°	1/64	PR1725	200 - 490 - 590	0.008 - 0.012 - 0.039	0.002 - 0.004 - 0.006
			PR1535	200 - 390 - 490	0.008 - 0.012 - 0.039	0.002 - 0.004 - 0.006
Cast Iron	25°	0.008	PR1725	200 - 490 - 590	0.008 - 0.012 - 0.059	0.002 - 0.004 - 0.006
		1/64 | 1/32	PR1725	200 - 490 - 590	0.008 - 0.012 - 0.079	0.002 - 0.006 - 0.010
	15°	1/64	PR1725	200 - 490 - 590	0.008 - 0.012 - 0.039	0.002 - 0.004 - 0.006
Non-Ferrous Metals (Aluminum Alloys)	25°	0.004 | 0.008 | 1/64	KPD001	660 - 1,640 - 2,620	0.004 - 0.008 - 0.020	0.001 - 0.002 - 0.003

When machining at D.O.C. 0.059" or more, reduce the feed by about 50%.

A PCD insert (KPD001) can not be reground.

When a PCD insert (KPD001) enters a workpiece or contacts a wall, keep the feed rate below 50% of normal use to prevent damage to the insert.

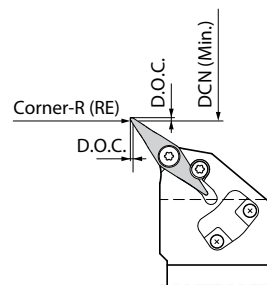
Boring/Facing Available Cutting Dia. and Max. D.O.C.



Standard Corner-R 1/64" (RE)

Cutting Dia.	Depth (in)
Ø1.181	0.020
Ø1.969	0.059
Ø2.559	0.118
Ø3.150	0.236
Ø3.937	0.394
Ø5.906	0.551

SZPB Type Cutting Diameter for Undercutting



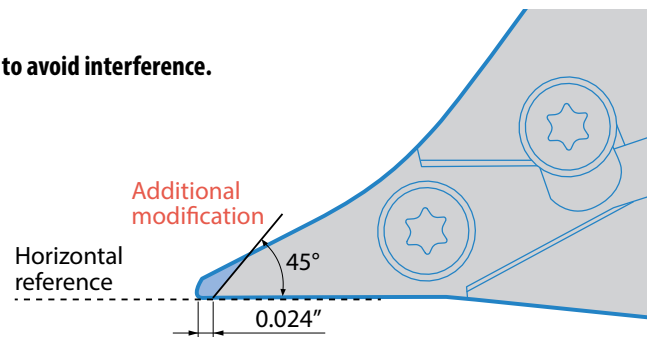
Corner-R (RE)	D.O.C. (in)	DCN (Min)
0.008"	0.020	Ø1.181
	0.039	Ø1.378
1/64"	0.020	Ø1.181
	0.039	Ø1.378
1/32"	0.020	Ø4.331
	0.039	Ø5.906

How to Modify Toolholder when Using 15° Insert

When using 15° insert, additional modification are required for the holder to avoid interference.

Recommended Additional Modification

- Set the edge of insert bearing surface at the end of the holder at horizontal reference shown.
- Modify the holder to 0.024" from the tip at an angle no less than 45° from the horizontal.

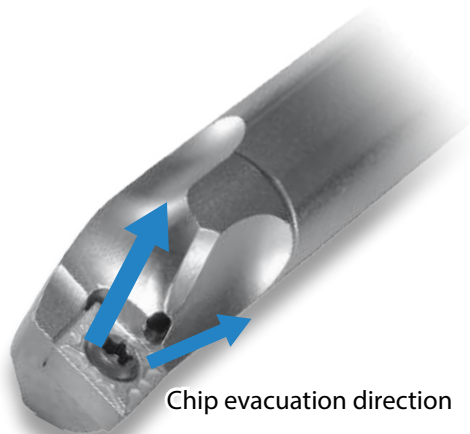


F

Overview	F2~F17
Solid Bars for Micro Boring	F18~F61
EZ Bars	F18
EZ Bar PLUS	F33
Swiss IQ Bars	F46
Twin Bars	F58
Dynamic Bars / General Purpose Boring Bars	F62~F129
CC Inserts	F62
CP Inserts	F70
DC Inserts	F74
JC Inserts	F88
TB / TP Inserts	F90
TC Inserts	F100
VB / VC / VP Inserts	F102
WB / WP Inserts	F116
ZB Inserts	F124
SP Inserts	F129
Boring Bars for Solid Inserts	F130~F131
SP Inserts S-CSKP	F130
TP Inserts S-CTUP	F131
Boring Bars for Bearing Machining	F132~F133
RPMT Inserts SRCP-B	F132
SNMF Inserts CBSN-B	F133
KAV Anti-Vibration Bars	F134~F146
CC Inserts KAVH-SCLC	F134
DC Inserts KAVH-SDUC	F135
TP Inserts KAVH-STLP	F136
VB / VC Inserts KAVH-SVUB	F137
CN Inserts KAVH-PCLN	F138
DN Inserts KAVH-PDUN	F140
TN Inserts KAVH-PTFN	F142
Shank Adapters and Sleeves	F144
Boring Bars for Negative Inserts	F147~F166
CN Inserts	F147
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SN Inserts	F158
TN Inserts	F159
WN Inserts	F162
Boring Bars for Solid Ceramic and CBN Inserts	F167~F168
EN Inserts Ceramic	F167
TN Inserts Ceramic / CBN	F168
Sleeves / Coolant Joints	F169~F173
Recommended Cutting Conditions	F174~F175

Dynamic Bar

The Dynamic Bar achieves superior chip evacuation



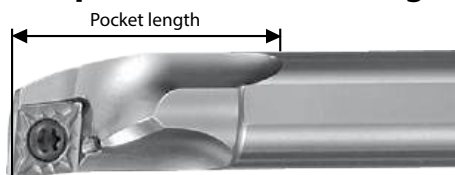
Chip evacuation direction

Superior chip evacuation (External coolant)

	Dynamic Bar	Competitor A	Competitor B
Inside the workpiece			

In the products of competitor A and B chips remain inside the workpiece, but chips from the Dynamic Bar are all evacuated from the workpiece.

Comparison of Pocket Length



Part Number	Pocket length (mm)	
	Dynamic Bar	Competitor A
A16-SCLPR09-18 type	37	29
A20-SCLCR09-22 type	48	32

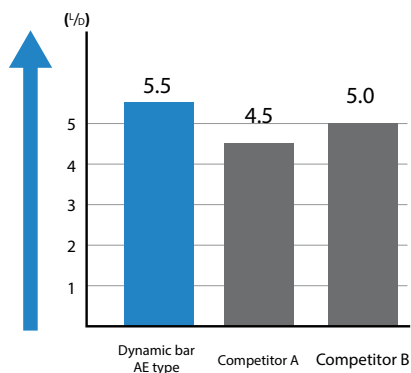
Chip Evacuation Direction

SCLC(P) type	STLB(P) type

Better evacuation with duel, backward chip flow

High rigidity and chatter resistance are achieved by using a special alloy designed with innovative stress analysis technology.

Vibration Comparison



Maximum toolholder overhang length (L/D)

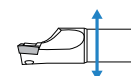
Cutting conditions	
4415	f = 0.004 ipr
Vc = 490 sfm	S16-SCLPR09 type
D.O.C. = 0.020"	CPMH321L-Y

Surface Finish Comparison

Vibration of the Dynamic Bar was minimal even at high cutting speeds, enabling stable machining.

	Dynamic Bar	Competitor A	Competitor B	Cutting conditions 4415 Vc = 690 sfm D.O.C. = 0.020" f = 0.004 ipr A16Q-SCLPR09-18 type CPMT321XP (PV7020) L/D=4 External coolant
Surface Wall				
Surface Roughness	 Ra = 0.4 μm Rz = 2.3 μm	 Ra = 0.6 μm Rz = 3.6 μm	 Ra = 3.4 μm Rz = 14.0 μm	
Oscillatory Waveform				

Direction of vibration measurement



1

KAV Series anti-vibration mechanism provides superior chatter resistance

Unique vibration isolation mechanism that ensures rigidity with high dampening performance

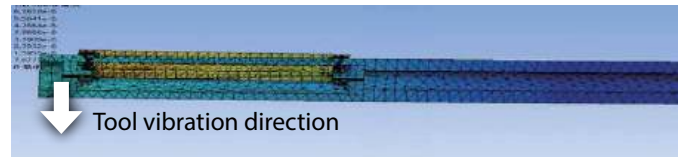
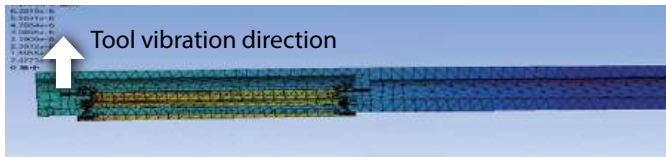
Built-in damper technology

Absorbs vibrational energy with braking effect

High rigidity

Using heavy and short dampers
The cavity diameter is also reduced to ensure rigidity.

Principle of vibration suppression by anti-vibration mechanism (Image)



The damper vibrates late against the shank, effective for vibration damping.

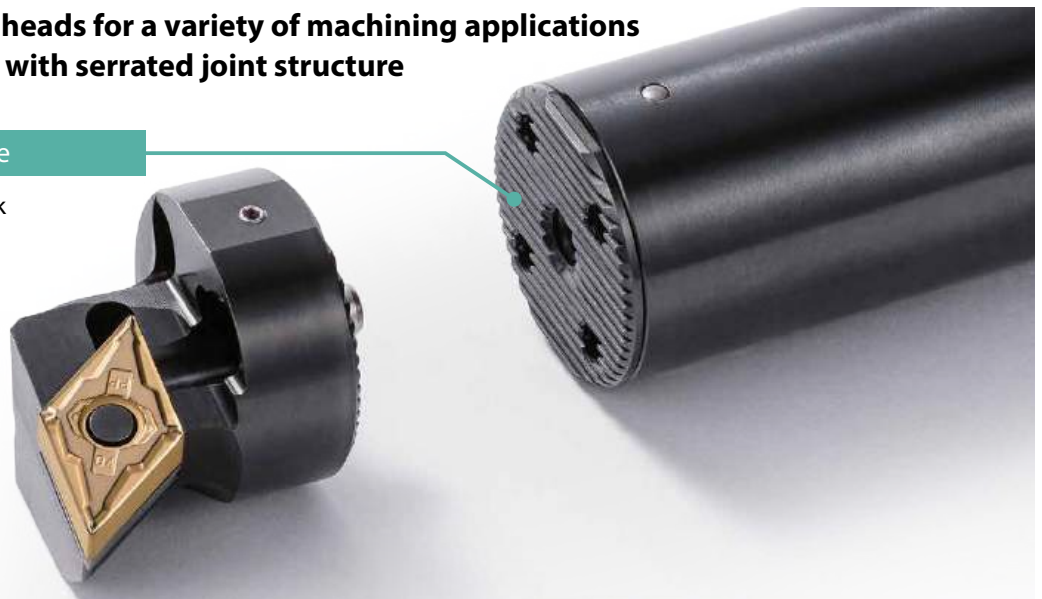
2

Interchangeable heads for a variety of machining applications

Strong fastening with serrated joint structure

Serrated structure

Securely fastens head and shank



3

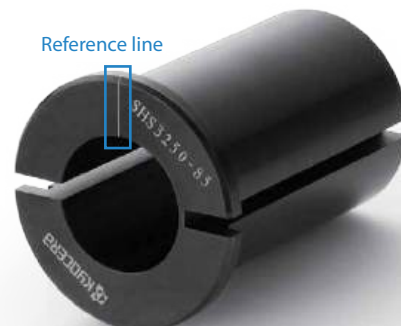
Easy cutting edge adjustment with E-Sleeve

Smooth machining setup

E-Sleeve (Sold separately)

Separated structure with printed reference lines
Easy adjustment reduces setup time

Reference line



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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EZ Bar Series for Small Internal Machining

Large Tooling Lineup for a Wide Application Range

1

Large Tooling Lineup for Various Internal Machining Operations

Internal Turning

Supports a wide range of Internal Machining Applications

Boring

EZB

Chipbreakers

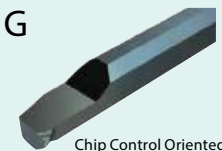
H



1st Recommendation /
General Purpose
Extended reach
type available

PR1725

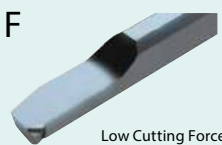
G



Excellent Chip Control
Performance

PR1725

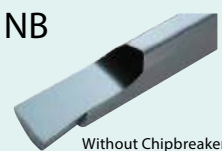
F



Finishing /
Sharpness Oriented

PR1725

NB



GW05 Insert Grade for
Aluminum Machining

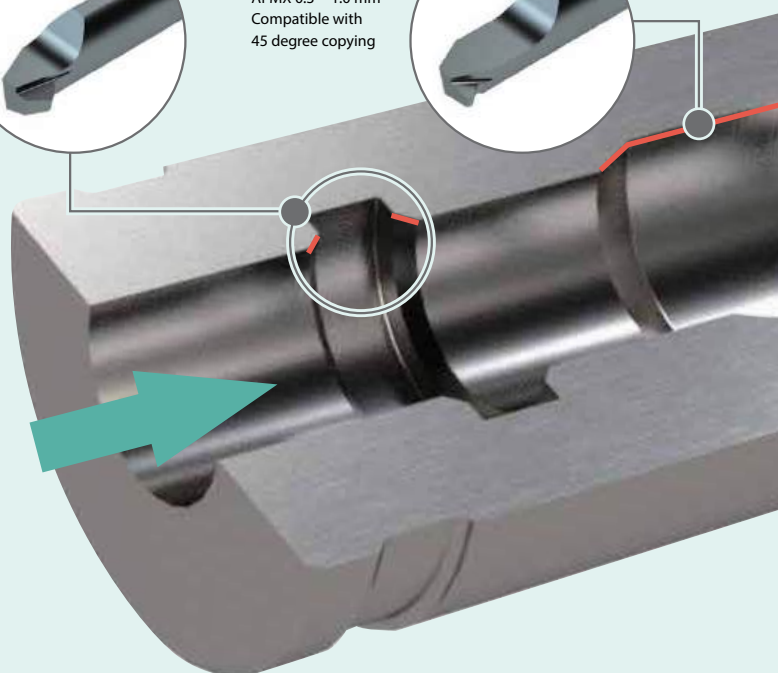
45 Degree Chamfering

EZBC

Copying

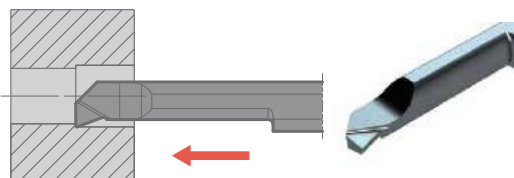
EZBP

APMX 0.3 ~ 1.0 mm
Compatible with
45 degree copying



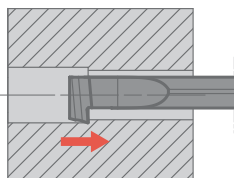
90 Degree Lead Angle

EZBF



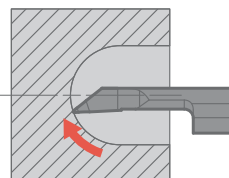
Back Boring

EZBT



Internal Facing • Internal Profiling

EZVB



2 Easy Adjustment and High Precision

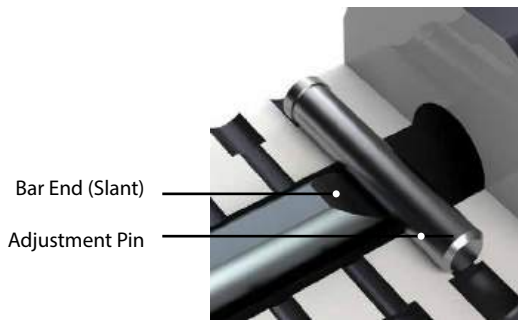
For CT sleeves with coolant holes and HP sleeves with positioning function, the overhang length can be set by moving adjustment pins

Smooth coolant flow due to unique head design

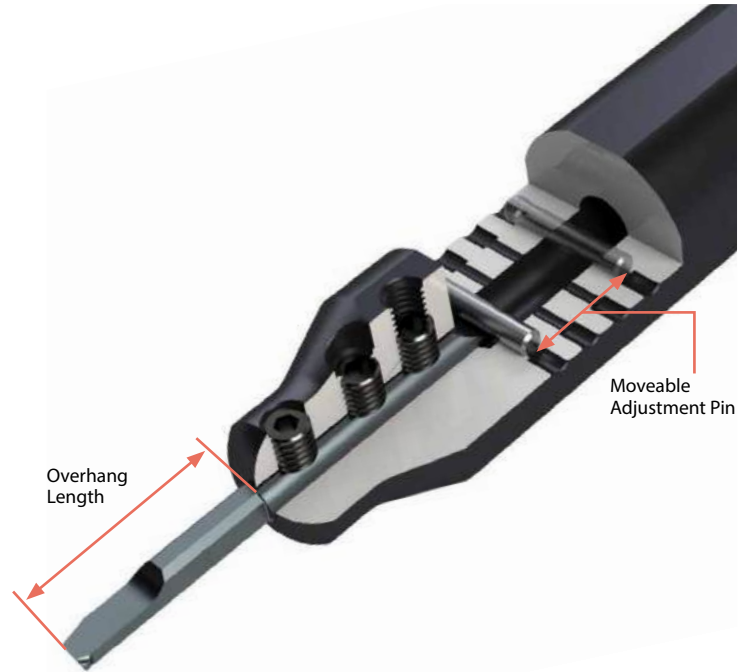


Coolant-Through : EZH-CT

High precision design by contacting the bar end (slant) with the adjustment pin



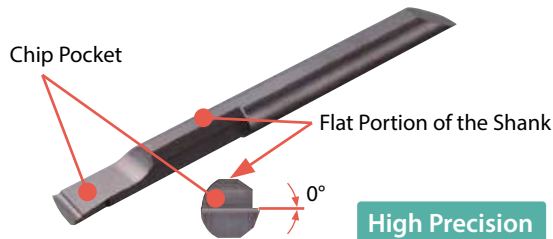
With EZ Adjust Structure : EZH-CT, EZH-HP



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

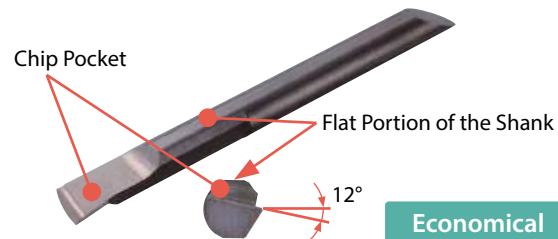
3 HP Bar for High Precision and ST Bar for Cost-Oriented Boring Applications (Tolerances are Different)

HP (EZB-HP)



High Precision

ST (EZB-ST)



Economical

Bar Tolerances

	Bar Style	Offset (WF)	Longitudinal Direction (L)	Cutting Edge Height (Y)	Min. Bore Dia.
	HP	$\pm 0.025 \text{ mm}$	$\pm 0.05 \text{ mm}$	$+ 0.05 \text{ mm} / 0 \text{ mm}$	Same as Shank Dia.
	ST	$\pm 0.06 \text{ mm}$	$\pm 0.1 \text{ mm}$	$+ 0.06 \text{ mm} / 0 \text{ mm}$	Different from Shank Dia.

*For [EZBR010040HP-005G-04 to EZBR015040HP-005G-06], the following tolerances apply:

4

4 Chipbreakers and New PVD Coating PR1725 for a Wide Range of Machining Processes

H Chipbreaker (without Lead Angle)

1st Recommendation / General Purpose



Recommended D.O.C. : More than 0.2mm

PR1725 Available

GW05 Insert Grade for Aluminum

Machining Available

Left-hand Available (HP Type)

F Chipbreaker (with Lead Angle)

Finishing / Sharpness Oriented

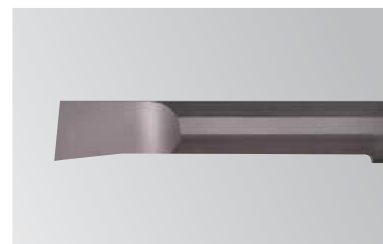


Recommended D.O.C. : Less than 0.2mm

PR1725 Available

NB Chipbreaker (without Chipbreaker)

Non-ferrous Metal Machining



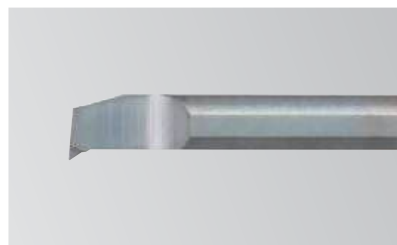
PCD/CBN Inserts Available

GW05 Insert Grade for Aluminum

Machining Available

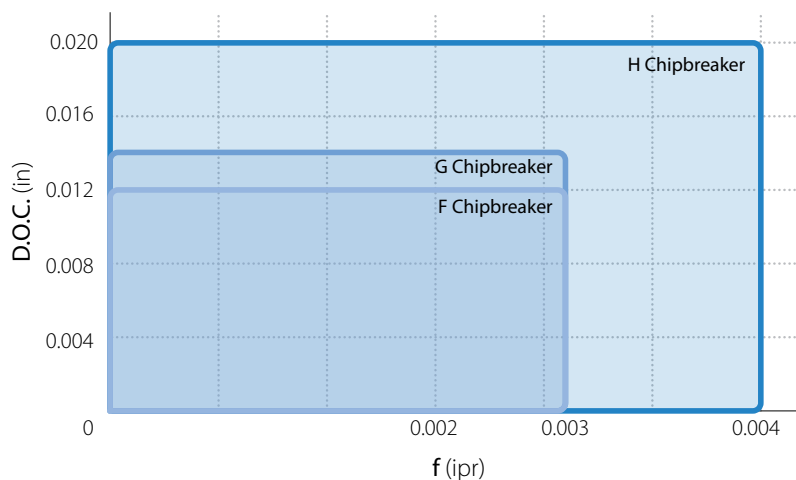
G Chipbreaker (with Lead Angle)

Chip Control Oriented



PR1725 Available

Applicable Chipbreaker Range

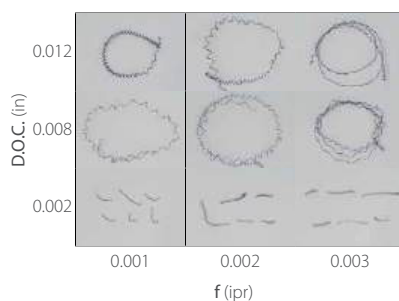


Cutting Performance Comparison

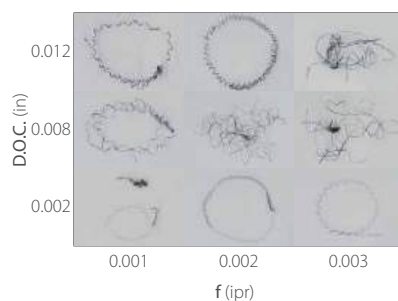
Chip Control Comparison

Stable Chip Curls and Good Chip Breaking

G Chipbreaker



Competitor (With Lead Angle)

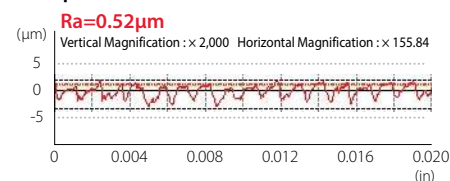


Cutting Conditions: Vc = 260 sfm, Wet Workpiece: 1045 (Internal evaluation)

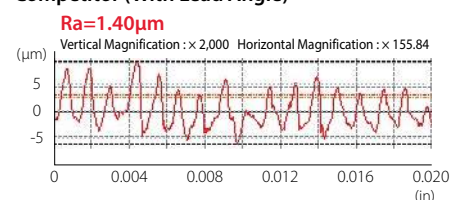
Surface Finish Comparison

Excellent Surface Finish

G Chipbreaker



Competitor (With Lead Angle)



Using Tool : RE = 0.05 mm, Shank Diameter ø4 (Internal evaluation)

Large Tooling Lineup that can be Customized for Your Machining Demands

How to select sleeves

Select between three types of sleeves

EZH-CT

With EZ Adjust Structure
Coolant-Through



EZH-HP

With EZ Adjust Structure



EZH-ST

Without EZ Adjust Structure

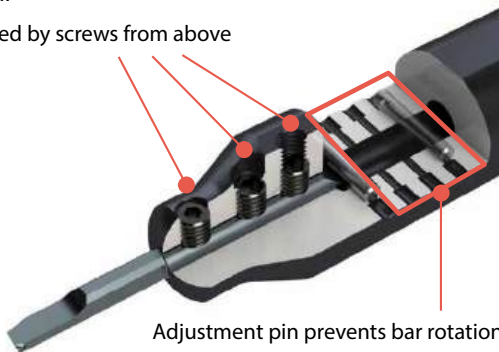


The EZ Bar prevents deviation with high-rigidity clamping

The adjustment pin prevents the bar from rotating during machining

EZ Bar

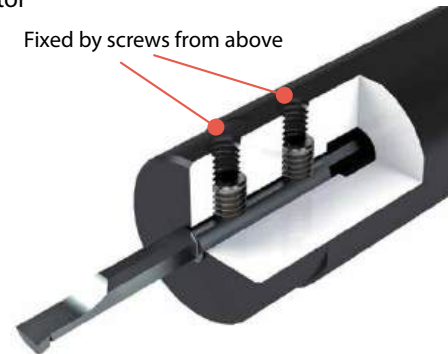
Fixed by screws from above



Adjustment pin prevents bar rotation

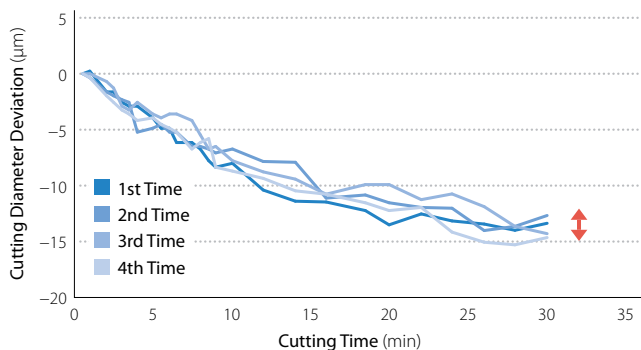
Competitor

Fixed by screws from above

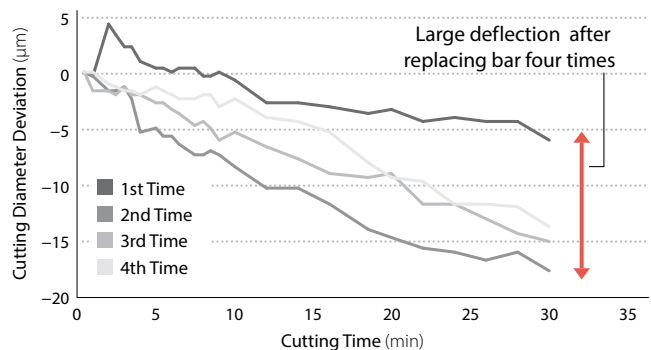


Cutting Diameter Deviation Comparison (Internal Evaluation)

EZ Bar



Competitor A



Cutting Conditions : Vc = 220 sfm, D.O.C. = 0.004", f = 0.0008 ipr, Coolant (Oil-based) Workpiece : W1-9

EZ Bar PLUS

High Precision Solid Bar with the Convenience of Indexable Inserts
Reduce Machining Costs

Minimum Bore Diameter 5mm

Carbide or steel bars are available
depending on the machining scenario



Indexable EZ Bar

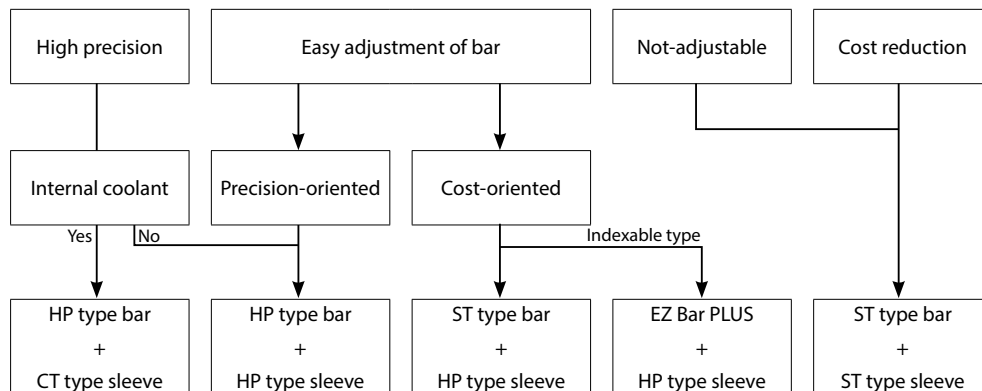
Minimum Bore Diameter 5mm

Reduces Installation Times by 1/3

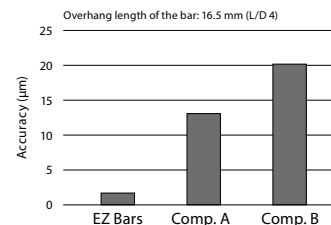
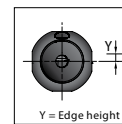
The EZ adjust structure features much lower
mounting times compared to conventional boring bars

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

How to select bars and sleeves for each application



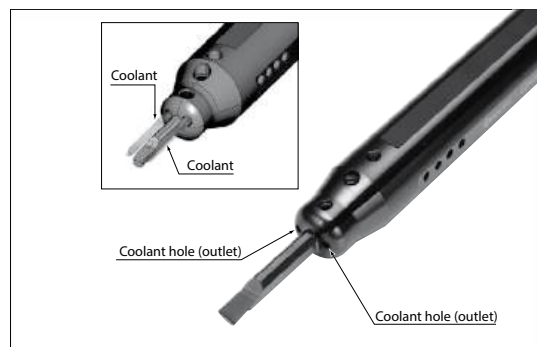
Excellent repeat accuracy by the combination of HP bar + CT / HP sleeve



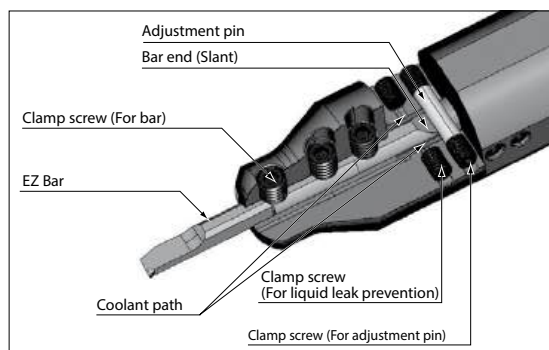
EZH-CT type sleeve (high precision / with coolant hole)

Kyocera's unique EZ adjust structure and internal coolant system improve dimensional accuracy and surface

Coolant discharge system of EZH-CT



Structure of EZH-CT



How to mount EZ Bars (EZH-CT sleeve)

How to use adjustment pin and prevent liquid leak (Fig. 1)

- Put the adjustment pin into the hole according to the overhang length. Push it into the sleeve, using the wrench (LW-1.5).
- Tighten the clamp screw for the adjustment pin "HS3x3P" or "HS3x4P" using the wrench "LW-1.5" from the both sides of the sleeve.
- Put the clamp screws "HS3x3P" or "HS3x4P" into the holes for liquid leak prevention, using the wrench "LW-1.5" and fix them from the both sides of the sleeve.

How to fix bar (Fig. 2)

- With the chip pocket upward, set the bar into the sleeve. Press the slant of the end of the bar with the adjustment pin. Make sure that the bar does not move (Fig. 3)
- Tighten the clamp screw with wrench (LW-2) and fix the bar. Use LW-1.5 if shank dia. is 3 mm or less

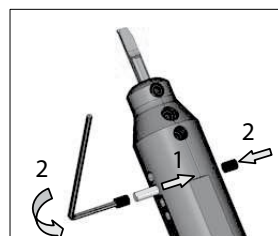


Fig. 1: How to use adjustment pin



Fig. 2: How to fix bar

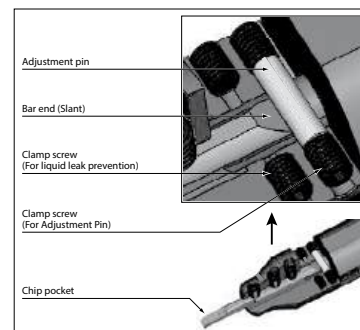
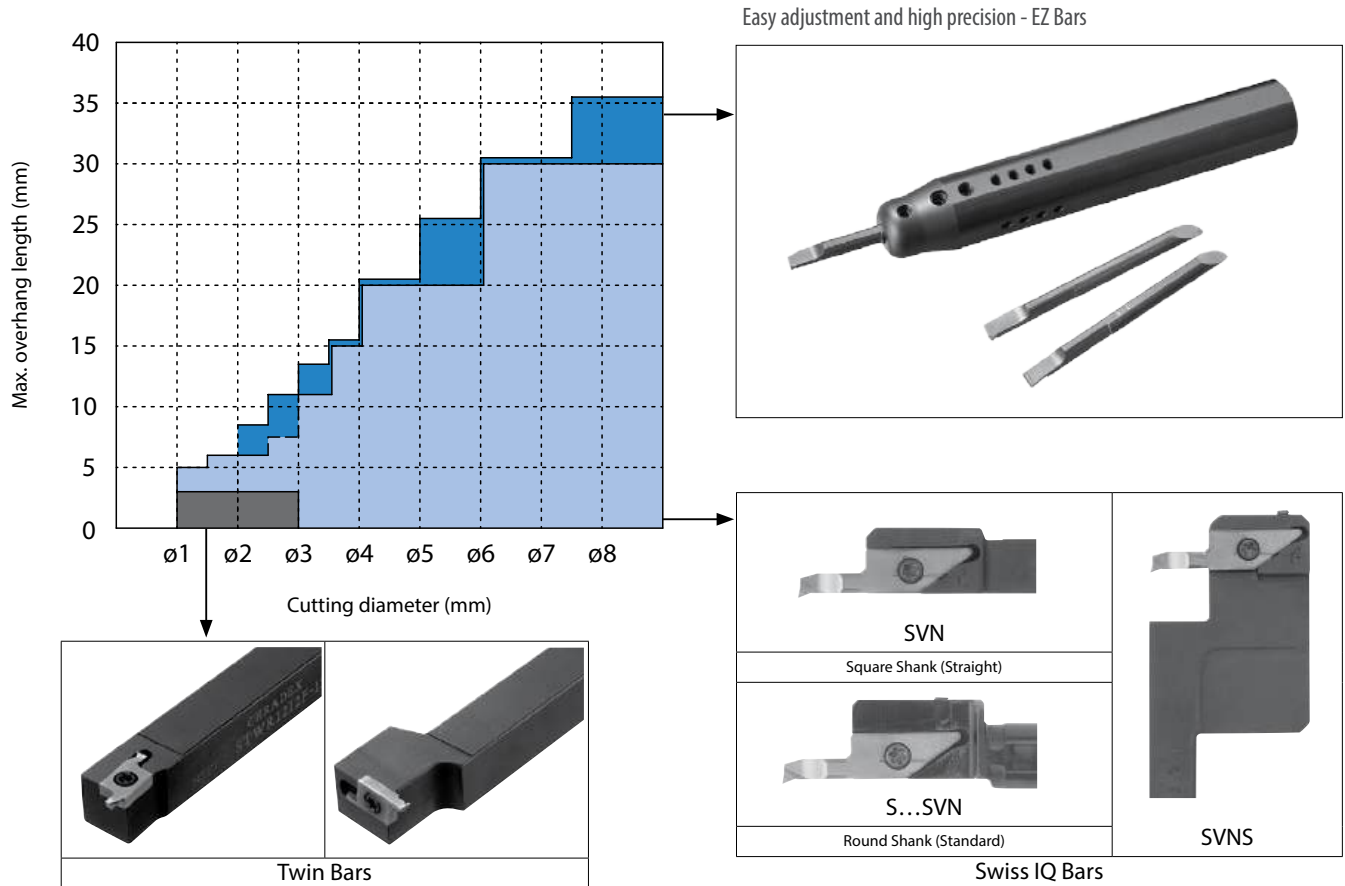


Fig. 3: Fixed bar

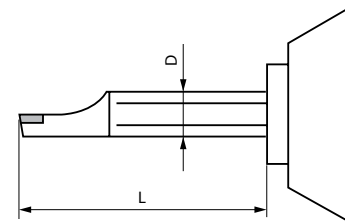
Guide for usage (Adjustable overhang type)

Solid tip-bars type: Min. bore diameter $\phi 1\text{mm}$ ~



Guide line for overhang length of boring bar - Workpiece material: 1045

Overhang Length (L / D)	Shank Material
3	Steel
4	Steel (Dynamic Bar)
5	Excellent
5.5	Excellent (Dynamic Bar)
7	Carbide
10	KAV bars (with anti-vibration dampener system)



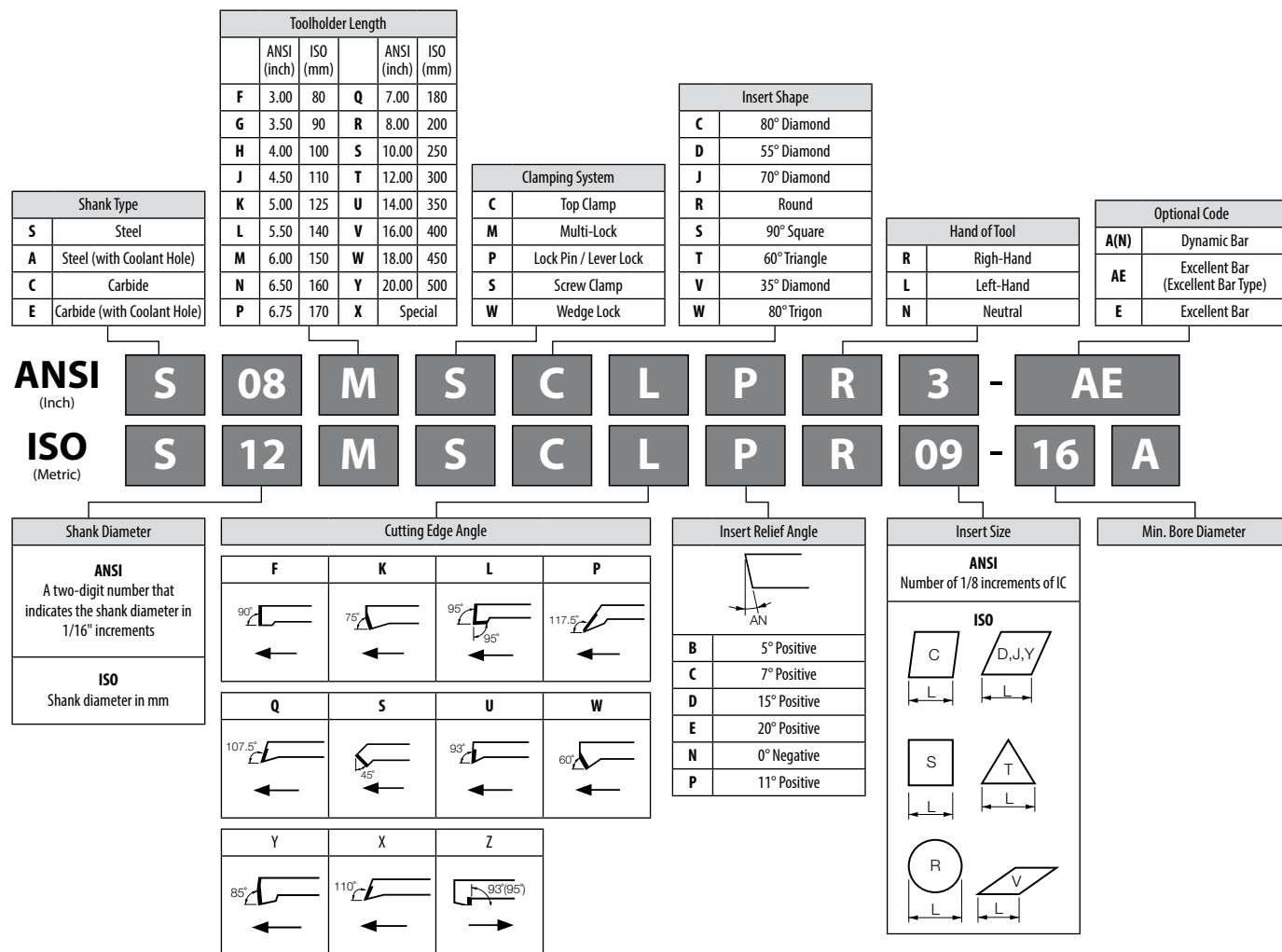
Carbide shank boring bar

Short shank series

Short shank types with length of 1/2 and 2/3 of standard type are available. (-1/2 or -2/3 is shown at the end of the Part Number). When installing on machines, no additional machining (to change toolholder length) is required.

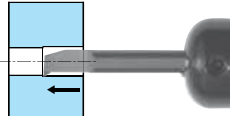
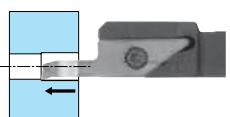
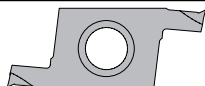
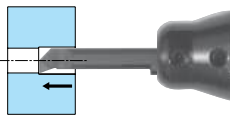
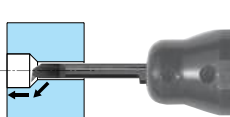
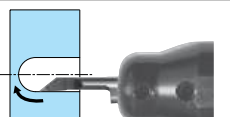
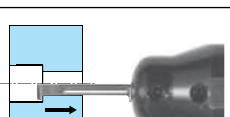
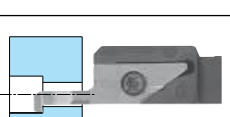


Boring Bar Identification System (Round Shank)



Solid Micro Bars

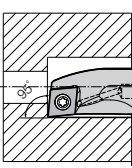
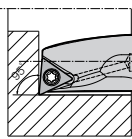
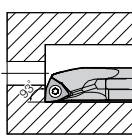
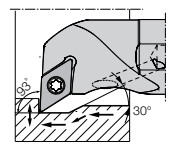
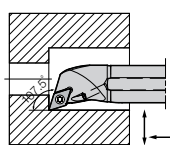
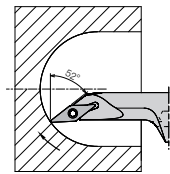
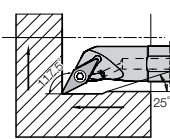
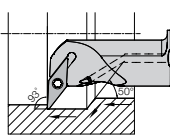
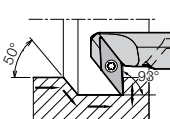
Metric

Application	Solid Micro Bars	Shape	Shank Type Max. Overhang Length L/D	Min. Bore Dia. DMIN (mm)																Toolholder / Sleeve Ref. Page	Application
				1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8			
Boring	EZB-HP EZ Bar Ⓢ F18~F21		Solid L/D = ~5	●	●	●	●	●	●	●	●	●	●	●				●	F40~F45		
	EZB-HP-LT EZ Bar (Long Type) Ⓢ F19		Solid			●	●	●	●	●	●	●	●								
	EZB-ST EZ Bar Ⓢ F22~F23		Solid L/D = ~5			●	●	●	●	●	●	●	●	●	●	●					
	EZB-NB EZ Bar (PR1225 / GW05) Ⓢ F24		Solid L/D = ~5			●	●	●	●	●	●	●	●	●	●	●					
	EZB-NB EZ Bar CBN PCD Ⓢ F24		Solid L/D = ~5					●		●		●		●		●			F58~F59		
	TWB Twin Bars Ⓢ F58		Solid	●	●	●	●	●													
	TWBT Twin Bars Ⓢ F60		Solid	●	●	●	●	●													
	VNB-S Swiss IQ Bars Ⓢ F46		Solid	●	●	●	●	●	●												
	VNB Swiss IQ Bars Ⓢ F47~F48		Solid			●		●		●		●		●		●					
	VNBX-S Swiss IQ Bars Ⓢ F45		Solid	●	●	●		●	●	●											F55~F57
90° Lead Angle	EZBF Ⓢ F26		Solid					●		●		●		●				F40~F45			
Copying	EZBP Ⓢ F28		Solid			●		●		●		●		●				F40~F45			
	EZVB Ⓢ F30		Solid						●		●		●		●			F40~F45			
Back Boring	EZBT EZ Bars Ⓢ F32		Solid							●		●						F41 F43 F45			
	VNBT Swiss IQ Bars Ⓢ F49		Solid							●		●						F50~F53			
45° Chamfering	EZBC Ⓢ F29		Solid									●		●		●		F41 F43 F45			

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Dynamic Bars

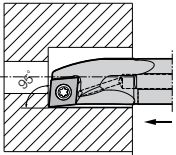
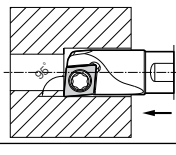
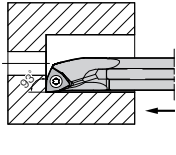
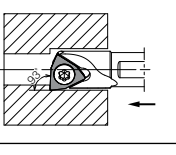
Inch

Application	Shape	Boring Bar Type	Shank Type Max. Overhang Length L/D	Coolant Hole		Min. Bore Dia. DMIN (in)																Toolholder / Sleeve Ref. Page					
				Yes	No	0.240	0.312	0.392	0.413	0.450	0.480	0.512	0.551	0.580 (0.600)	0.630	0.700	0.770	0.787	0.790	0.825	0.930		0.980	1.180	1.200	1.240 (1.280)	1.300	1.340
Boring / Internal Facing		A...SCLC-AE	Excellent L/D = ~5.5	●							●			● (0.600)		●				●			●				F62
		E...SCLC-A	Carbide L/D = ~7.0	●							●			● (0.600)		●											F64
		A...SCLP-AE	Excellent L/D = ~5.5	●					●	●			●		●				●					●			F70
		A...STLB(P)-AE	Excellent L/D = ~5.5	●				●		●			●		●				●					● (1.280)			F90
		S...STLB-AE	Excellent L/D = ~5.5		○		●																				
Boring		A...SWUB(P)-AE	Excellent L/D = ~5.5	●						● (0.472)				●		●				●			●				F116
		S...SWUB-AE	Excellent L/D = ~5.5		○	●	●																				
Copying		A...SDUC-AE	Excellent L/D = ~5.5	●								●	●			●				● (1.063)				●		F74	
		E...SDUC-A	Carbide L/D = ~7.0	●									●	●			●									F76	
		A...SDQC-AE	Excellent L/D = ~5.5	●								●		●			●				●					F78	
		E...SDQC-A	Carbide L/D = ~7.0	●								●		●			●									F80	
		A...SVJB-AE	Excellent L/D = ~5.5	●																● (0.984)	●					F102	
		A...SVPC(B)-AE	Excellent L/D = ~5.5	●											●			●			●	●		●		F106	
		A...SVUC(B)-AE	Excellent L/D = ~5.5	●											●			●			●				●	F108	
Back Boring		A...SVZC(B)-AE	Excellent L/D = ~5.5	●											●			●			●				●	F110	

Min. Bore Dia. DMIN is indicated by the figure under ● depending on the boring bar size.

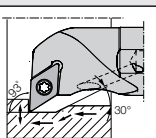
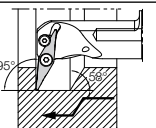
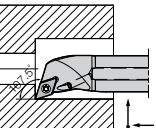
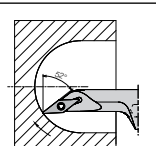
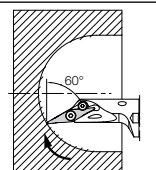
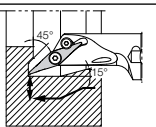
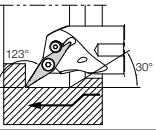
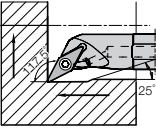
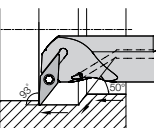
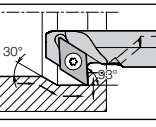
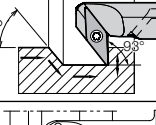
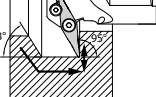
Dynamic Bars / EZ Bar PLUS

Metric

Application	Shape	Boring Bar Type	Shank Type Max. Overhang Length L/D	Coolant Hole		Min. Bore Dia. DMIN (mm)																						Toolholder / Sleeve Ref. Page	
				Yes	No	5	6	7	8	10	12	13	14	16	18	20	22	23	25	26	27	30	31	32	34	40	50		
Boring / Internal Facing		A...SCLC-AE	Excellent L/D = ~5.5	●						●	●		●	●	●	●	●				●							F62 F63 F64	C
		S...SCLC-AE	Excellent L/D = ~5.5		○	●	●	●	●																				
		S...SCLC-A	Steel L/D = ~4.0		○					●	●		●	●	●	●	●				●								
		C...SCLC-AN	Carbide L/D = ~7.0		○	●	●	●	●																			F70 F71	D
		E...SCLC-A(N)	Carbide L/D = ~7.0	●						●	●		●	●	●	●	●				●								
		A...SCLP-AE	Excellent L/D = ~5.5	●						●	●		●	●	●	●	●				●								
		S...SCLP-A	Steel L/D = ~4.0		○					●	●		●	●	●	●	●				●							F33 F34	F
		E...SCLP-A(N)	Carbide L/D = ~7.0	●						●	●		●	●	●	●	●				●								
		S...SCLC-EZP	Steel L/D = ~3.0		○	●	●	●	●	●																			
		C...SCLC-EZP	Carbide L/D = ~5.0		○	●	●	●	●	●																		F90 F91 F92	H
		A...STLP-AE	Excellent L/D = ~5.5	●						●	●		●	●	●	●	●			●									
		S...STLB-AE	Steel L/D = ~4.0		○				●																				
		S...STLB(P)-A	Steel L/D = ~4.0		○				●	●	●		●	●	●	●	●				●							F100 F101	K
		E...STLP-A(N)	Carbide L/D = ~7.0	●						●	●		●	●	●	●	●			●									
		C...STLB-AN	Carbide L/D = ~7.0		○				●																				
		A...STLC-AE	Excellent L/D = ~5.5	●						●	●		●	●	●	●	●											F35 F36	M
		S...STLC-A	Steel L/D = ~4.0		○					●	●		●	●	●	●	●												
		S...STLB(P)-EZP	Steel L/D = ~3.0		○				●	●																			
		C...STLB(P)-EZP	Carbide L/D = ~5.0		○				●	●																		F116 F117 F118	R
Boring		S...SWUB-AE	Excellent L/D = ~5.5		○	●	●	●																					
		A...SWUB(P)-AE	Excellent L/D = ~5.5	●						●	●		●	●	●	●	●												
		S...SWUB(P)-A	Steel L/D = ~4.0		○	●	●	●	●	●	●		●	●	●	●	●												
		C...SWUB-A	Carbide L/D = ~7.0		○	●	●	●																					
		E...SWUB(P)-A	Carbide L/D = ~7.0	●						●	●		●	●	●	●	●												
		S...SWUB-EZP	Steel L/D = ~3.0		○	●	●	●																				F38	T
		C...SWUB-EZP	Carbide L/D = ~5.0		○	●	●	●																					

Dynamic Bars

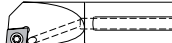
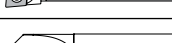
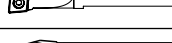
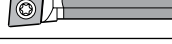
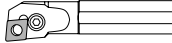
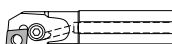
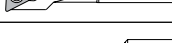
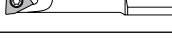
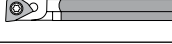
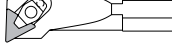
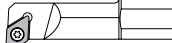
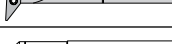
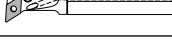
Metric

Application	Shape	Boring Bar Type	Shank Type	Max. Overhang Length L/D	Coolant Hole		Min. Bore Dia. DMIN (mm)																								Toolholder / Sleeve Ref. Page
					Yes	No	5	6	7	8	10	12	13	14	16	18	20	22	23	25	26	27	30	31	32	34	40	50			
Copying		A...SDUC-AE	Excellent	~5.5	●									●	●		●		●			●			●			F74 F75 F76			
		S...SDUC-A	Steel	~4.0	○									●	●		●		●			●			●						
		E...SDUC-A	Carbide	~7.0	●									●	●		●		●			●			●						
		A...SZLB-AE	Excellent	~5.5	●																		●			●	●	F127			
			A...SDQC-AE	Excellent	~5.5	●									●	●		●				●							F78 F79 F80		
			S...SDQC-A	Steel	~4.0	○									●	●		●				●									
	E...SDQC-A		Carbide	~7.0	●									●	●		●				●										
		A...SVJB(C)-AE	Excellent	~5.5	●										●		●				●					●	●	F102 F103			
		A...SVJP-AE		~5.5	●										●											●	●				
		S...SVJB(C)-A	Steel	~4.0	○										●		●						●			●	●				
		S...SVJP-A		~4.0	○										●																
		A...SZJB-AE	Excellent	~5.5	●																		● 28	●			●	F124			
		A...SZXB-AE	Excellent	~5.5	●																										
		A...SZQB-AE	Excellent	~5.5	●																										
		A...SZQB-AE	Excellent	~5.5	●																							F126			
			A...SVPC(B)-AE	Excellent	~5.5	●										●	●		●				●		●		●				
			S...SVPC(B)-A	Steel	~4.0	○										●	●		●				●		●		●				
	E...SVPC(B)-A		Carbide	~7.0	●										●	●		●				●		●							
		A...SVUB(C)-AE	Excellent	~5.5	●										●	●					●					●	●	F108 F109			
		S...SVUB(C)-A	Steel	~4.0	○										●	●					●					●	●				
		E...SVUB(C)-A	Carbide	~7.0	●											●					●			● 29		●					
Back Boring		A...SDZC-AE	Excellent	~5.5	●									●	●		●				●			●			F82 F83 F84				
		S...SDZC-A	Steel	~4.0	○									●	●		●				●			●							
		E...SDZC-A	Carbide	~7.0	●									●	●		●				●										
		A...SVZB(C)-AE	Excellent	~5.5	●										●	●					●					●	●	F110 F111			
		S...SVZB(C)-A	Steel	~4.0	○										●	●					●					●	●				
		A...SZZB-AE	Excellent	~5.5	●																		●			●	●	F128			

Min. Bore Dia. DMIN is indicated by the figure under ● depending on the boring bar size.

General Purpose Boring Bars

Inch

Application	Boring Bar Type	Shape	Shank Type Max. Overhang Length L/D	Coolant Hole		Insert Type	Min. Bore Dia. DMIN (in)																				Toolholder/ Sleeve Ref. Page			
				Yes	No		0.240	0.312	0.394	0.415	0.472	0.480	0.550	0.600	0.630	0.709	0.770	0.787	0.790	0.912	0.984	1.180	1.250	1.260	1.340	1.500		1.570	1.750	2.020
Boring / Internal Facing	S...SCLC-E		Excellent L/D = ~5.0		☐	Positive	● (0.197)																						F66 F67 F68	
	A...SCLC		Steel L/D = ~3.0	●		Positive				●				●																
	S...SCLC		Steel L/D = ~3.0		☐	Positive			●																					
	C...SCLC		Carbide L/D = ~7.0		☐	Positive			●																					
	S...SCLP		Steel L/D = ~3.0		☐	Positive								●			●						● (1.338)						F72 F73	
	C...SCLP		Carbide L/D = ~7.0		☐	Positive								●			● (0.788)			●										
	A...DCLN		Steel L/D = ~3.0	●		Negative															●				●		●		F147 F148	
	S...PCLN		Steel L/D = ~3.0		☐	Negative																			● (1.550)			●		
	A...PCLN		Steel L/D = ~3.0	●		Negative												●		● (1.060)			●							
	A...DWLN		Steel L/D = ~3.0	●		Negative																●			●		●		F164	
Boring	S...STUP(B)		Steel L/D = ~3.0		☐	Positive		●	● (0.392)						●		●												F94	
	S...SWUB		Steel L/D = ~3.0		☐	Negative	●	●																					F120	
	C...SWUB		Carbide L/D = ~7.0		☐	Positive	●	●																					F121	
	S...CTUP		Steel L/D = ~3.0		☐	Positive								● (0.625)					● (1.060)				● (1.350)						F131	
Copying	S...SDUC		Steel L/D = ~3.0		☐	Positive						● (0.564)			● (0.750)														F86	
	S...STWP		Steel L/D = ~3.0		☐	Positive				● (0.476)								● (0.970)											F97	
	S...SVJB		Steel L/D = ~3.0		☐	Positive							● (0.620)		● (0.780)			●											F112	
	S...SVUC(B)-E		Excellent L/D = ~5.0		☐	Positive								●			●												F113	
	A...PDUN		Steel L/D = ~3.0	●		Negative													● (1.060)			●			●				F150	
	A...DDUN		Steel L/D = ~3.0	●		Negative																			●		●		F152	
Back Boring	S...SDZC		Steel L/D = ~3.0		☐	Positive								●		●			●										F87	
	S...SVZB-E		Excellent L/D = ~5.0		☐	Positive													● (0.980)										F114	

Min. Bore Dia. DMIN is indicated by the figure under ● depending on the boring bar size.

General Purpose Boring Bars

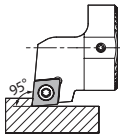
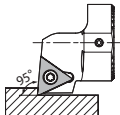
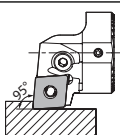
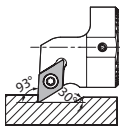
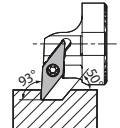
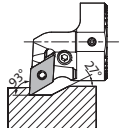
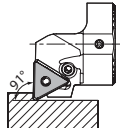
Metric

Application	Boring Bar Type	Overview Shape	Shank Type Max. Overhang Length L/D	Coolant Hole		Insert Type	Min. Bore Dia. DMIN (mm)																Toolholder / Sleeve Ref. Page
				Yes	No		5	6	7	8	10	12	14	16	18	20	25	30	32	40	50	63	
Boring / Internal Facing	A...DCLN12		Steel L/D ≈ 3.0	●		Negative														●	●	●	F147
	S...PCLN00		Steel L/D ≈ 3.0		○	Negative											●	27		●	●	●	F148
	A...PCLN09		Steel L/D ≈ 3.0	●		Negative											●	27		●			
	A...DWLN08		Steel L/D ≈ 3.0	●		Negative														●	●	●	F164
	S...PWLN00		Steel L/D ≈ 3.0		○	Negative											●	27		●	●	●	F162
	A...PWLN06		Steel L/D ≈ 3.0	●		Negative											●	27		●			
	S...WWLN08-E		Excellent L/D ≈ 5.0		○	Negative											●	28		●	●		F165
	C...STXP(B)		Carbide L/D ≈ 7.0		○	Positive			●	●	●												F98
	C...SJLC		Carbide L/D ≈ 7.0		○	Positive	●	5.5															F88
Copying	S...STWP-E		Excellent L/D ≈ 5.0		○	Positive					●		●				●	●		●			F96 F97
	S...STWP		Steel L/D ≈ 3.0		○	Positive					●		●				●	●					
	A...DDUN15		Steel L/D ≈ 3.0	●		Negative															●	●	F152
	S...PDUN11		Steel L/D ≈ 3.0		○	Negative											●	27		●	●		F50
	A...PDUN11		Steel L/D ≈ 3.0	●		Negative											●	27		●	●		
	S...PDUN15		Steel L/D ≈ 3.0		○	Negative														●	44	54	F154
	S...PDQN15		Steel L/D ≈ 3.0		○	Negative														●	44	54	F155
Back Boring	C...STZB		Carbide L/D ≈ 7.0		○	Positive				●	8.5												F99
	C...SJZC		Carbide L/D ≈ 7.0		○	Positive	●	6.5															F89
	S...PDZN15		Steel L/D ≈ 3.0		○	Negative														●	44	54	F156
Boring	S...CTUP		Steel L/D ≈ 3.0		○	Positive								●			●	27		●	34	43	F131
	A...DTFN00		Steel L/D ≈ 3.0	●		Negative														●	●	●	F159
	S...PTUN00		Steel L/D ≈ 3.0		○	Negative											●	●	●	●	●	●	F160
	A...PTUN11		Steel L/D ≈ 3.0	●		Negative											●	●		●			
	A...DSKN12		Steel L/D ≈ 3.0	●		Negative														●	●	●	F158
	S...SSKP		Steel L/D ≈ 3.0		○	Positive											●	●					F129 F130
	S...CSKP		Steel L/D ≈ 3.0		○	Positive											●	27		●	34	43	

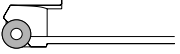
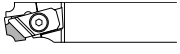
Min. Bore Dia. DMIN is indicated by the figure under ● depending on the boring bar size.

KAV Anti-Vibration Boring Bars with Replaceable Heads

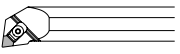
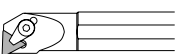
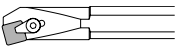
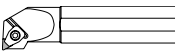
Metric

Application	Boring Bar Type	Shape	Shank Type Max. Overhang Length L/D	Coolant Hole		Insert Type	Min. Bore Dia. DMIN (mm)																Toolholder / Sleeve Ref. Page		
				Yes	No		7	8	10	12	14	16	18	20	25	30	32	40	43	50	63				
Boring / Internal Facing	KAV-SCLC		Anti-Vibration Dampener L/D = ~10	●		Positive										●	●		●	●		●		F134	
	KAV-STLP		Anti-Vibration Dampener L/D = ~10	●		Positive											●	●		●	●		●		F136
	KAV-PCLN		Anti-Vibration Dampener L/D = ~10	●		Negative														●			●		F138
Copying	KAV-SDUC		Anti-Vibration Dampener L/D = ~10	●		Positive											●	●		●	●		●		F135
	KAV-SVUB		Anti-Vibration Dampener L/D = ~10	●		Positive												●		●	●		●		F137
	KAV-PDUN		Anti-Vibration Dampener L/D = ~10	●		Negative														●			●		F140
Boring	KAV-PTFN		Anti-Vibration Dampener L/D = ~10	●		Negative														●			●		F142

Toolholders for Bearing Machining (Square Shank)

Application	Boring Bar Type	Shape	Min. Bore Dia. DMIN (mm)						Toolholder / Sleeve Ref. Page
			20	25	30	32	40	50	
Boring	SRCP-B		●			●			F132
Round-Chamfering	CBSN-B		●						F133

Toolholders for Ceramic / Solid CBN Inserts (L/D = ~3)

Application	Boring Bar Type	Shape	Min. Bore Dia. DMIN (mm)								Toolholder / Sleeve Ref. Page
			16	18	20	25	30	32	40	50	
Boring / Internal Facing	S...CELN									●	F167
Boring	S...CTUP		●		●	●		●	●	●	F131
	S...CSKP				●	●		●	●		F130
Boring	S...CTUN-A						● 30 (mm)				F168
							● 1.18 (in)				

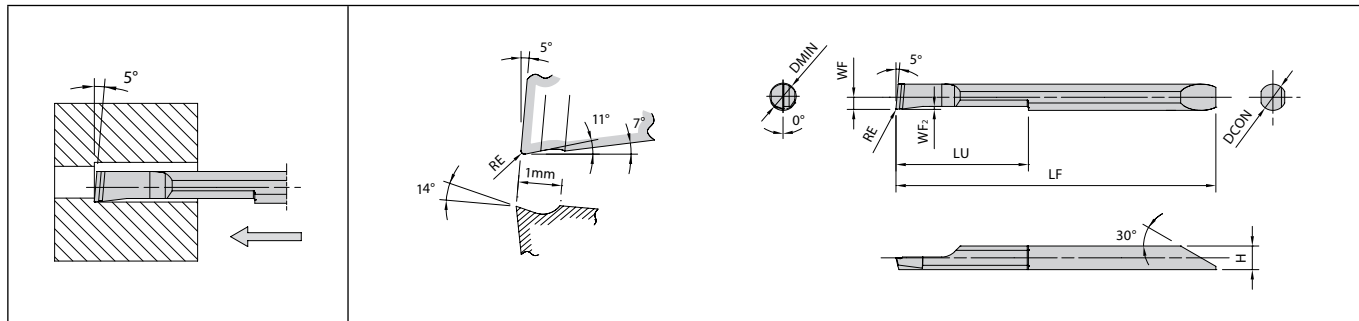
Min. Bore Dia. DMIN is indicated by the figure under ● depending on the boring bar size.

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INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZB-HP (H Chipbreaker) (Boring)



Right-hand shown | Without lead angle | Tough edge (General purpose)

Dimensions

Unit	Part Number	No. of Edges	Dimensions								Tolerance (mm)			Carbide				Applicable Sleeve F40~F45
			DMIN	DCON	H	LF	LU	WF	WF ₂	RE	RE min.	RE max.	PVD		-			
													PR1225	PR1725	GW05			
																R	L		R	R
mm	EZB % 020020HP-008H	1	2	2	1.8	32	8	0.85	0.25	0.08	-0.015	+0.015	●	●	●	●	EZH020...	
	EZB % 025025HP-008H	1	2.5	2.5	2.3	35	10.5	1.1	0.25	0.08	-0.015	+0.015	●	●	●	●	EZH025...	
	025025HP-015H									0.15	-0.02	+0.02	●	●	●	●		
	EZB % 030030HP-008H	1	3	3	2.7	38.9	13	1.35	0.3	0.08	-0.015	+0.015	●	●	●	●	EZH030...	
	030030HP-015H									0.15	-0.02	+0.02	●	●	●	●		
	EZB % 035035HP-008H	1	3.5	3.5	3.2	41.9	15	1.6	0.4	0.08	-0.015	+0.015	●	●	●	●	EZH035...	
	035035HP-015H									0.15	-0.02	+0.02	●	●	●	●		
	EZB % 040040HP-008H	1	4	4	3.6	48.8	20	1.85	0.4	0.08	-0.015	+0.015	●	●	●	●	EZH040...	
	040040HP-015H									0.15	-0.02	+0.02	●	●	●	●		
	EZB % 045045HP-008H	1	4.5	4.5	4.1	51.1	22.5	2.1	0.5	0.08	-0.015	+0.015	●	●	●	●	EZH045...	
	045045HP-015H									0.15	-0.02	+0.02	●	●	●	●		
	EZB % 050050HP-008H	1	5	5	4.6	58.1	25	2.35	0.5	0.08	-0.015	+0.015	●	●	●	●	EZH050...	
	050050HP-015H									0.15	-0.02	+0.02	●	●	●	●		
	EZB % 060060HP-008H	1	6	6	5.6	66.1	30	2.85	0.6	0.08	-0.015	+0.015	●	●	●	●	EZH060...	
	060060HP-015H									0.15	-0.02	+0.02	●	●	●	●		
	EZB % 070070HP-008H	1	7	7	6.3	73.8	35	3.3	0.7	0.08	-0.015	+0.015	●	●	●	●	EZH070...	
	070070HP-015H									0.15	-0.02	+0.02	●	●	●	●		
	EZB % 080080HP-008H	1	8	8	7.2	84.8	40	3.75	0.8	0.08	-0.015	+0.015	●	●	●	●	EZH080...	
080080HP-015H	0.15									-0.02	+0.02	●	●	●	●			

Tolerance : Offset ± 0.025 mm (of the reference pin), overall length ± 0.05 mm, edge height $+0.05/0$ mm

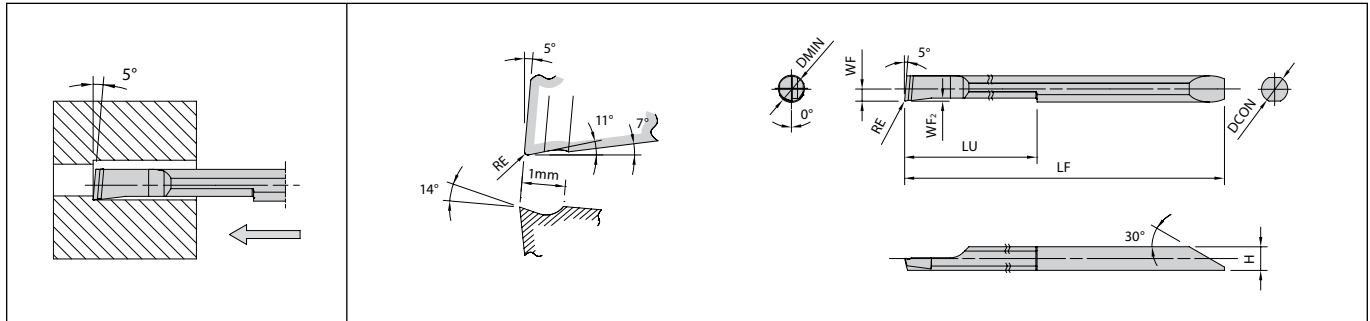
Recommended Cutting Conditions F25

EZ Bars Identification System

EZ	B	R	020	020	HP	-	008	H
Symbol of EZ Bars	Applications	Insert Hand	Min. Bore Dia.	Shank Dia.	Symbol of Precision		Corner-R(RE)	Name of Chipbreaker
	B : Boring Bars	R : Right-hand L : Left-hand	020 : 2mm 025 : 2.5mm ⋮	020 : 2mm 025 : 2.5mm ⋮	HP : High Precision ST : Standard		008 : 0.08mm 015 : 0.15mm ⋮	H : Without lead angle G : With lead angle F : With lead angle NB : Without chipbreaker

EZ Bars are
sold in 1 piece boxes

EZB-HP-LT (H Chipbreaker) (Boring)



Right-hand shown | Without lead angle | Tough edge (General purpose)

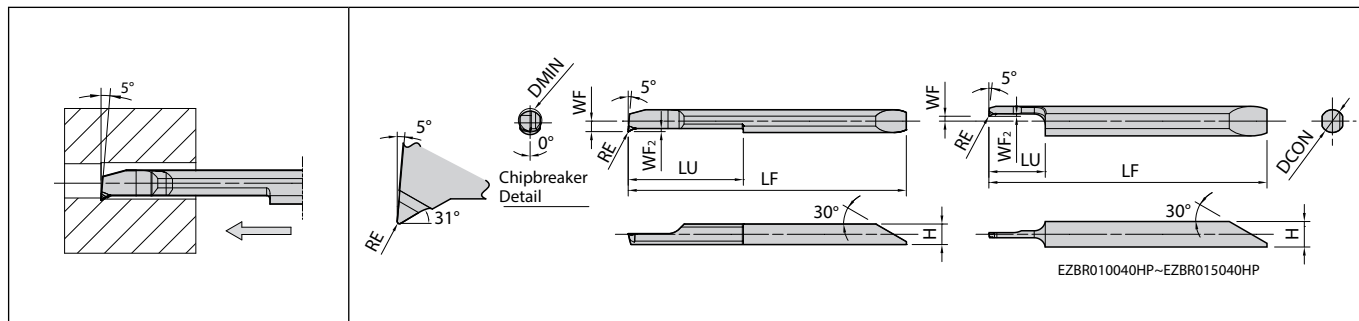
Dimensions

Unit	Part Number	No. of Edges	Dimensions								Overhang length (mm)				Tolerance (mm)		Carbide	Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LF	LU	WF	WF ₂	RE	#1	#2	#3	#4	RE min.	RE max.	PVD	
																	PR1225	
																	R	
mm	EZBR 020020HP-008H-LT	1	2	2	1.8	36	12	0.85	0.25	0.08	12.5	8.5	-	-	-0.015	+0.015	●	EZH020...
	025025HP-008H-LT	1	2.5	2.5	2.3	39.5	15	1.1			15.5	11.5	-	-			●	EZH025...
	030030HP-008H-LT	1	3	3	2.7	47.9	18	1.35	0.3		22.5	18.5	14.5	-			●	EZH030...
	035035HP-008H-LT	1	3.5	3.5	3.2	51.9	21	1.6	0.4		25.5	21.5	17.5	-			●	EZH035...
	040040HP-008H-LT	1	4	4	3.6	60.8	28	1.85			32.5	28.5	24.5	20.5			●	EZH040...
	050050HP-008H-LT	1	5	5	4.6	73.1	35	2.35	0.5		40.5	35.5	30.5	25.5			●	EZH050...
	060060HP-008H-LT	1	6	6	5.6	83.1	42	2.85	0.6		47.5	42.5	37.5	32.5			●	EZH060...

Tolerance : Offset ± 0.025 mm (of the reference pin), overall length ± 0.05 mm, edge height $+0.05/0$ mm
 EZBR..H-LT : Inserts need to be modified for overhang length #1 in italics (DCON = 3 - 6 mm).

Recommended Cutting Conditions ➡ F25

EZB-HP (G Chipbreaker) (Boring)



Right-hand shown | With lead angle | Chip control oriented

Dimensions

Unit	Part Number	No. of Edges	Dimensions								Tolerance (mm)			Carbide	Applicable Sleeve F40~F45
			DMIN	DCON	H	LF	LU	WF	WF ₂	RE	RE min.	RE max.	PVD		
													PR1725		
													R		
mm	EZBR 010040HP-005G-04 010040HP-005G-06	1	1	4	3.45	35.7	4	1.1	0.25	0.05	-0.01	+0.01	●	EZH040...	
						37.7	6	0.65		0.05	-0.01	+0.01	●		
	EZBR 015040HP-005G-04 015040HP-005G-06	1	1.5	4	3.45	37.7	6	0.65	0.25	0.05	-0.01	+0.01	●	EZH040...	
						40.7	9	0.55		0.05	-0.01	+0.01	●		
	EZBR 020020HP-005G	1	2	2	1.65	31.8	8	0.55	0.25	0.05	-0.01	+0.01	●	EZH020...	
	EZBR 025025HP-005G 025025HP-015G	1	2.5	2.5	2.15	34.8	10.5	0.8	0.3	0.05	-0.01	+0.01	●	EZH025...	
										0.15	-0.02	+0.02	●		
	EZBR 030030HP-005G 030030HP-015G	1	3	3	2.5	38.7	13	1.05	0.4	0.05	-0.01	+0.01	●	EZH030...	
										0.15	-0.02	+0.02	●		
	EZBR 035035HP-005G 035035HP-015G	1	3.5	3.5	3	41.7	15	1.3	0.5	0.05	-0.01	+0.01	●	EZH035...	
										0.15	-0.02	+0.02	●		
	EZBR 040040HP-005G 040040HP-015G	1	4	4	3.45	48.7	20	1.55	0.5	0.05	-0.01	+0.01	●	EZH040...	
										0.15	-0.02	+0.02	●		
	EZBR 045045HP-005G 045045HP-015G	1	4.5	4.5	3.95	50.9	22.5	1.8	0.7	0.05	-0.01	+0.01	●	EZH045...	
										0.15	-0.02	+0.02	●		
	EZBR 050050HP-005G 050050HP-015G	1	5	5	4.3	57.8	25	2.05	0.7	0.05	-0.01	+0.01	●	EZH050...	
0.15										-0.02	+0.02	●			
EZBR 060060HP-005G 060060HP-015G	1	6	6	5.15	65.7	30	2.55	0.9	0.05	-0.01	+0.01	●	EZH060...		
									0.15	-0.02	+0.02	●			
EZBR 070070HP-005G 070070HP-015G	1	7	7	6.15	73.7	35	3.05	1	0.05	-0.01	+0.01	●	EZH070...		
									0.15	-0.02	+0.02	●			
EZBR 080080HP-005G 080080HP-015G	1	8	8	7.1	84.8	40	3.55	1	0.05	-0.01	+0.01	●	EZH080...		
									0.15	-0.02	+0.02	●			

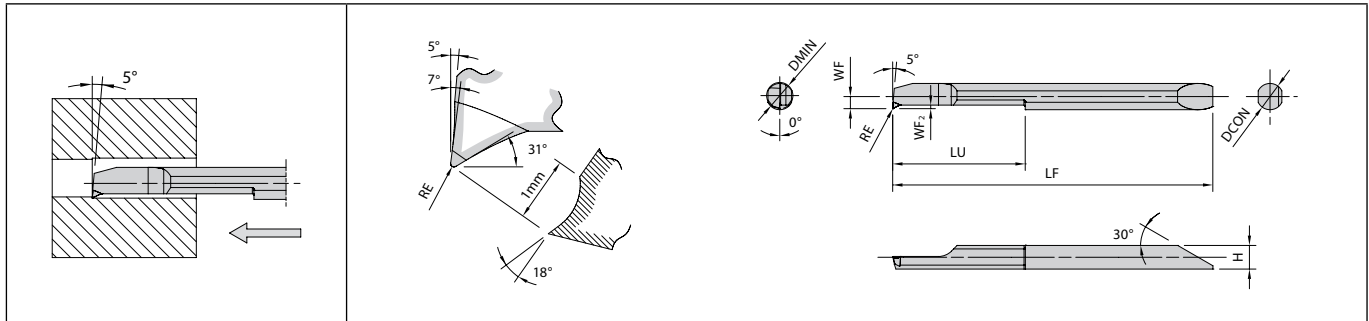
Tolerance (of the reference pin) : [010040HP-005G-04~015040HP-005G-06]
[020020HP-005G~080080HP-015F]

Offset ± 0.020 mm, Overall Length ± 0.04 mm, Edge Height $+0.03/0$ mm
Offset ± 0.025 mm, Overall Length ± 0.05 mm, Edge Height $+0.05/0$ mm

Recommended Cutting Conditions ● F25

EZ Bars are
sold in 1 piece boxes

EZB-HP (F Chipbreaker) (Boring)



Right-hand shown | With lead angle | Sharp cutting (For finishing)

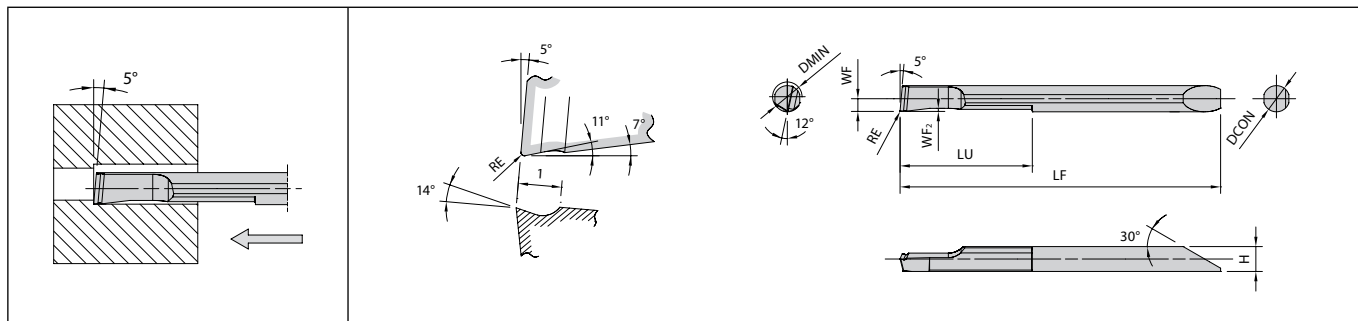
Dimensions

Unit	Part Number		No. of Edges	Dimensions								Tolerance (mm)			Carbide		Applicable Sleeve ➡ F40~F45
				DMIN	DCON	H	LF	LU	WF	WF ₂	RE	RE min.	RE max.	PVD			
														PR1225	PR1725		
														R	R		
mm	EZBR	020020HP-005F	1	2	2	1.8	32	8	0.85	0.25	0.05	-0.01	+0.01	●	●	EZH020...	
	EZBR	025025HP-005F	1	2.5	2.5	2.3	35	10.5	1.1	0.3	0.05	-0.01	+0.01	●	●	EZH025...	
	025025HP-015F	0.15									-0.02	+0.02	●	●			
	EZBR	030030HP-005F	1	3	3	2.7	38.9	13	1.35	0.4	0.05	-0.01	+0.01	●	●	EZH030...	
	030030HP-015F	0.15									-0.02	+0.02	●	●			
	EZBR	035035HP-005F	1	3.5	3.5	3.2	41.9	15	1.6	0.5	0.05	-0.01	+0.01	●	●	EZH035...	
	035035HP-015F	0.15									-0.02	+0.02	●	●			
	EZBR	040040HP-005F	1	4	4	3.6	48.8	20	1.85	0.5	0.05	-0.01	+0.01	●	●	EZH040...	
	040040HP-015F	0.15									-0.02	+0.02	●	●			
	EZBR	045045HP-005F	1	4.5	4.5	4.1	51.1	22.5	2.1	0.7	0.05	-0.01	+0.01	●	●	EZH045...	
	045045HP-015F	0.15									-0.02	+0.02	●	●			
	EZBR	050050HP-005F	1	5	5	4.6	58.1	25	2.35	0.7	0.05	-0.01	+0.01	●	●	EZH050...	
	050050HP-015F	0.15									-0.02	+0.02	●	●			
	EZBR	060060HP-005F	1	6	6	5.6	66.1	30	2.85	0.9	0.05	-0.01	+0.01	●	●	EZH060...	
	060060HP-015F	0.15									-0.02	+0.02	●	●			
	EZBR	070070HP-005F	1	7	7	6.3	73.8	35	3.3	1	0.05	-0.01	+0.01	●	●	EZH070...	
	070070HP-015F	0.15									-0.02	+0.02	●	●			
	EZBR	080080HP-005F	1	8	8	7.2	84.8	40	3.75	1	0.05	-0.01	+0.01	●	●	EZH080...	
080080HP-015F	0.15	-0.02									+0.02	●	●				

Tolerance : Offset ± 0.025 mm (of the reference pin), overall length ± 0.05 mm, edge height $+0.05/0$ mm

Recommended Cutting Conditions F25

EZB-ST (H Chipbreaker) (Boring)



Right-hand shown | Without lead angle | Tough edge (General purpose)

Dimensions

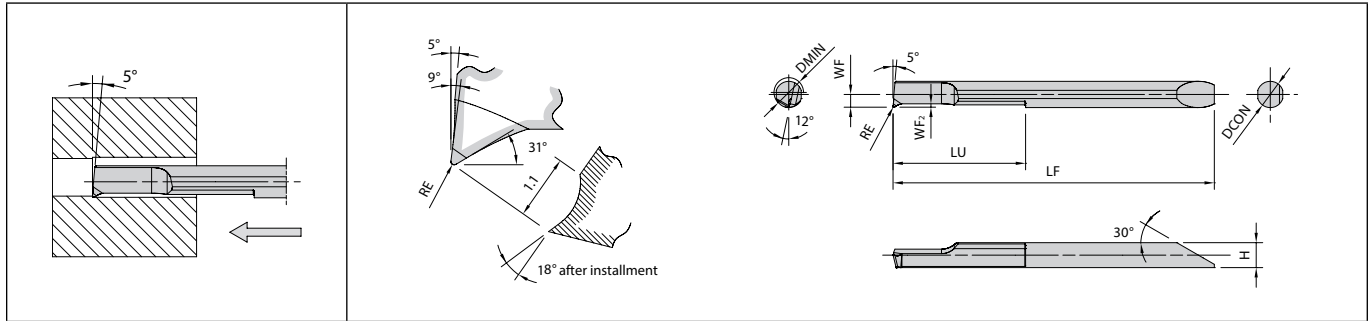
Unit	Part Number	No. of Edges	Dimensions								Tolerance (mm)			Carbide		Applicable Sleeve 🌀 F40~F45
			DMIN	DCON	H	LF	LU	WF	WF ₂	RE	RE min.	RE max.	PVD			
													PR1225	PR1725		
													R	R		
mm	EZBR 020017ST-008H	1	2	1.7	1.5	27.3	7	0.79	0.19	0.08	-0.015	+0.015	●	●	EZH017...	
	EZBR 025020ST-008H 025020ST-015H	1	2.5	2	1.82	32	8	0.94	0.16	0.08	-0.015	+0.015	●	●	EZH020...	
	EZBR 030025ST-008H 030025ST-015H	1	3	2.5	2.3	35	10.5	1.19	0.15	0.08	-0.015	+0.015	●	●	EZH025...	
	EZBR 035030ST-008H 035030ST-015H	1	3.5	3	2.8	39	13	1.44	0.18	0.08	-0.015	+0.015	●	●	EZH030...	
	EZBR 040035ST-008H 040035ST-015H	1	4	3.5	3.3	42	15	1.69	0.24	0.08	-0.015	+0.015	●	●	EZH035...	
	EZBR 045040ST-008H 045040ST-015H	1	4.5	4	3.8	49	20	1.94	0.27	0.08	-0.015	+0.015	●	●	EZH040...	
	EZBR 055050ST-008H 055050ST-015H	1	5.5	5	4.8	58.2	25	2.44	0.33	0.08	-0.015	+0.015	●	●	EZH050...	
	EZBR 065060ST-008H 065060ST-015H	1	6.5	6	5.8	66.2	30	2.94	0.38	0.08	-0.015	+0.015	●	●	EZH060...	
	EZBR 075070ST-008H 075070ST-015H	1	7.5	7	6.8	74.2	35	3.44	0.44	0.08	-0.015	+0.015	●	●	EZH070...	
										0.15	-0.02	+0.02	●	●		

Tolerance : Offset ± 0.06 mm , overall length ± 0.1 mm, edge height $+0.06/0$ mm

Recommended Cutting Conditions F25

EZ Bars are
sold in 1 piece boxes

EZB-ST (F Chipbreaker) (Boring)



Right-hand shown | With lead angle | Sharp cutting (For finishing)

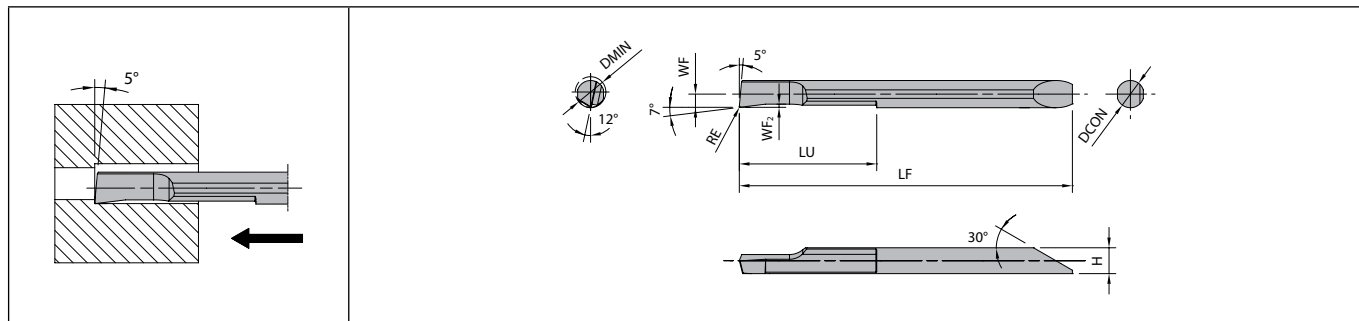
Dimensions

Unit	Part Number	No. of Edges	Dimensions									Tolerance (mm)		Carbide		Applicable Sleeve 🌀 F40~F45
			DMIN	DCON	H	LF	LU	WF	WF ₂	RE	RE min.	RE max.	PVD			
													PR1225	PR1725		
													R	R		
mm	EZBR 020017ST-005F	1	2	1.7	1.5	27.3	7	0.79	0.2	0.05	-0.01	+0.01	●	●	EZH017...	
	EZBR 025020ST-005F 025020ST-015F	1	2.5	2	1.82	32	8	0.94	0.16	0.05 0.15	-0.01 -0.02	+0.01 +0.02	● ●	● ●	EZH020...	
	EZBR 030025ST-005F 030025ST-015F	1	3	2.5	2.3	35	10.5	1.19	0.2	0.05 0.15	-0.01 -0.02	+0.01 +0.02	● ●	● ●	EZH025...	
	EZBR 035030ST-005F 035030ST-015F	1	3.5	3	2.8	39	13	1.44	0.26	0.05 0.15	-0.01 -0.02	+0.01 +0.02	● ●	● ●	EZH030...	
	EZBR 040035ST-005F 040035ST-015F	1	4	3.5	3.3	42	15	1.69	0.33	0.05 0.15	-0.01 -0.02	+0.01 +0.02	● ●	● ●	EZH035...	
	EZBR 045040ST-005F 045040ST-015F	1	4.5	4	3.8	49	20	1.94	0.31	0.05 0.15	-0.01 -0.02	+0.01 +0.02	● ●	● ●	EZH040...	
	EZBR 055050ST-005F 055050ST-015F	1	5.5	5	4.8	58.2	25	2.44	0.45	0.05 0.15	-0.01 -0.02	+0.01 +0.02	● ●	● ●	EZH050...	
	EZBR 065060ST-005F 065060ST-015F	1	6.5	6	5.8	66.2	30	2.94	0.59	0.05 0.15	-0.01 -0.02	+0.01 +0.02	● ●	● ●	EZH060...	
	EZBR 075070ST-005F 075070ST-015F	1	7.5	7	6.8	74.2	35	3.44	0.65	0.05 0.15	-0.01 -0.02	+0.01 +0.02	● ●	● ●	EZH070...	

Tolerance : Offset ± 0.06 mm , overall length ± 0.1 mm, edge height $+0.06/0$ mm

Recommended Cutting Conditions ➡ F25

EZB-NB (Boring)



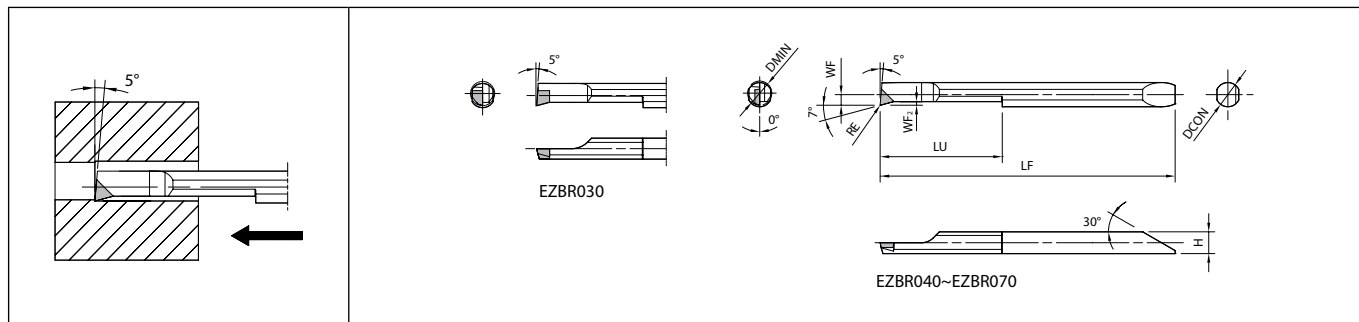
Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions									Tolerance (mm)		Carbide		Applicable Sleeve 🔧 F40~F45
			DMIN	DCON	H	LF	LU	WF	WF ₂	RE	RE min.	RE max.	PVD	-		
													PR1225	GW05		
													R	R		
mm	EZBR 020017-005NB	1	2	1.7	1.5	27.3	7	0.79	0.2	0.05	-0.015	+0.015	●	●	EZH017...	
	EZBR 025020-005NB	1	2.5	2	1.82	32	8	0.94	0.16	0.05	-0.015	+0.015	●	●	EZH020...	
	EZBR 030025-005NB	1	3	2.5	2.3	35	10.5	1.19	0.16	0.05	-0.015	+0.015	●	●	EZH025...	
	EZBR 035030-005NB	1	3.5	3	2.8	39	13	1.44	0.19	0.05	-0.015	+0.015	●	●	EZH030...	
	EZBR 040035-005NB	1	4	3.5	3.3	42	15	1.69	0.25	0.05	-0.015	+0.015	●	●	EZH035...	
	EZBR 045040-005NB	1	4.5	4	3.8	49	20	1.94	0.28	0.05	-0.015	+0.015	●	●	EZH040...	
	EZBR 055050-005NB	1	5.5	5	4.8	58.2	25	2.44	0.33	0.05	-0.015	+0.015	●	●	EZH050...	
	EZBR 065060-005NB	1	6.5	6	5.8	66.2	30	2.94	0.39	0.05	-0.015	+0.015	●	●	EZH060...	
EZBR 075070-005NB	1	7.5	7	6.8	74.2	35	3.44	0.45	0.05	-0.015	+0.015	●	●	EZH070...		

Recommended Cutting Conditions F25

EZB-NB (Boring)



Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions									Tolerance (mm)		CBN	PCD	Applicable Sleeve 🔧 F40~F45
			DMIN	DCON	H	LF	LU	WF	WF ₂	RE	RE min.	RE max.	PVD	-		
													KBN05M	KPD001		
													R	R		
mm	EZBR 030030-003NB	1	3	3	2.6	38.8	13	1.25	0.3	0.035	-0.015	+0.015	●		EZH030...	
	EZBR 040040-003NB	1	4	4	3.6	48.8	20	1.75	0.5	0.035	-0.015	+0.015	●	●	EZH040...	
	EZBR 050050-003NB	1	5	5	4.6	58.1	25	2.25	0.5	0.035	-0.015	+0.015	●	●	EZH050...	
	EZBR 060060-003NB	1	6	6	5.6	66.1	30	2.75	0.5	0.035	-0.015	+0.015	●	●	EZH060...	
	EZBR 070070-003NB	1	7	7	6.6	74.1	35	3.25	0.5	0.035	-0.015	+0.015	●	●	EZH070...	

KBN05M edge preparation : T00815 (0.08mm x 15° Chamfered cutting edge)

KPD001 edge preparation : F (Sharp edge)

Recommended Cutting Conditions F25

EZ Bars are
sold in 1 piece boxes

Recommended Cutting Conditions

H Chipbreaker (EZB-HP...H Type / EZB-ST...H Type)

Workpiece Material	Insert Grade (Vc : sfm)			EZB% 020/025		EZB% 030/035		EZB% 040/045		EZB% 050/055/060/ 065/070/075/080		Notes
	MEGACOAT NANO PLUS	MEGACOAT	Carbide	D.O.C. (inch), f (ipr)								
	PR1725	PR1225	GW05	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	100~330	-	~0.0118	~0.0012	~0.0157	~0.0016	~0.0177	~0.0028	~0.0197	~0.0039	Coolant
Stainless Steel	100~260	100~260	-	~0.0079	~0.0008	~0.0118	~0.0012	~0.0138	~0.0020	~0.0157	~0.0028	
Non-Ferrous Material	-	-	~330	~0.0118	~0.0020	~0.0157	~0.0024	~0.0177	~0.0039	~0.0197	~0.0059	

H Chipbreaker (EZB-HP...H-LT Type (Long Type))

Workpiece Material	Insert Grade (Vc : sfm)	EZBR020/025/030/035		EZBR040/050/060		Notes
	MEGACOAT	D.O.C. (inch), f (ipr)				
	PR1225	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~200	~0.0118	~0.0020	~0.0157	~0.0039	Coolant
Stainless Steel	70~130	~0.0098	~0.0020	~0.0118	~0.0028	

G Chipbreaker

Workpiece Material	Insert Grade (Vc : sfm)	EZBR010/015		EZBR020/025		EZBR030/035		EZBR040/045/050/ 060/070/080		Notes
	MEGACOAT NANO PLUS	D.O.C. (inch), f (ipr)								
	PR1725	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100 ~390	~0.0079	~0.0008	~0.0098	~0.0012	~0.0118	~0.0020	~0.0138	~0.0028	Coolant
Stainless Steel	100 ~330	~0.0059	~0.0006	~0.0079	~0.0008	~0.0098	~0.0012	~0.0118	~0.0020	

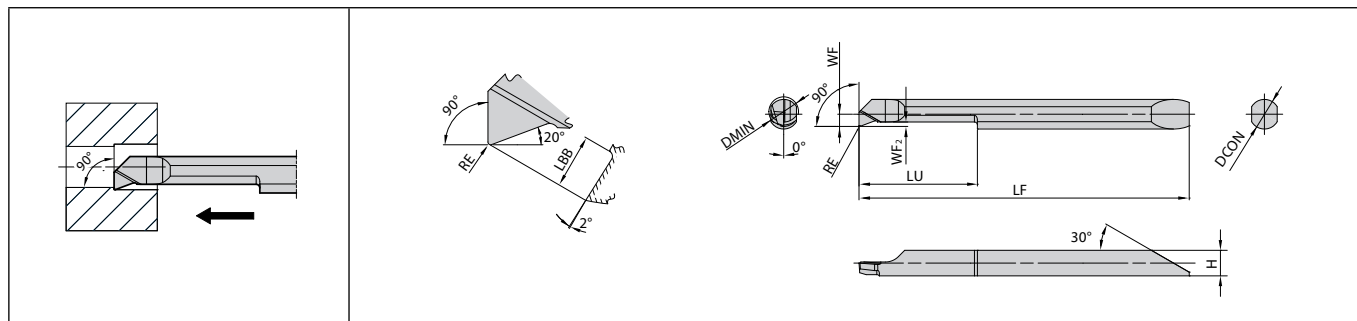
F Chipbreaker (EZB-HP...F Type / EZB-ST...F Type)

Workpiece Material	Insert Grade (Vc : sfm)		EZBR020/025		EZBR030/035		EZBR040/045		EZBR050/055/060/ 065/070/075/080		Notes
	MEGACOAT NANO PLUS	MEGACOAT	D.O.C. (inch), f (ipr)								
	PR1725	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~390	100~330	~0.0079	~0.0012	~0.0079	~0.0020	~0.0118	~0.0028	~0.0118	~0.0028	Coolant
Stainless Steel	100~330	100~260	~0.0079	~0.0008	~0.0079	~0.0012	~0.0098	~0.0020	~0.0098	~0.0020	

NB (Without Chipbreaker)

Workpiece Material	Insert Grade (Vc : sfm)		EZBR020/025		EZBR030/035		EZBR040/045		EZBR050/055/060/065/075		Notes
	MEGACOAT	Carbide	D.O.C. (inch), f (ipr)								
	PR1225	GW05	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	-	~0.0118	~0.0012	~0.0157	~0.0016	~0.0177	~0.0028	~0.0197	~0.0039	Coolant
Stainless Steel	100~260	-	~0.0079	~0.0008	~0.0118	~0.0012	~0.0138	~0.0020	~0.0157	~0.0028	
Non-Ferrous Material	-	~330	~0.0118	~0.0020	~0.0157	~0.0024	~0.0177	~0.0028	~0.0197	~0.0039	

Workpiece Material	Insert Grade (Vc : sfm)		EZBR030		EZBR040/045		EZBR050/060/070		Notes
	MEGACOAT CBN	PCD	D.O.C. (inch), f (ipr)						
	KBN05M	KPD001	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Non-Ferrous Material	-	~980	-	-	~0.0177	~0.0039	~0.0197	~0.0059	Coolant
Hardened Materials (Heat-Treated Steel)	~330	-	~0.0028	~0.0012	~0.0039	~0.0020	~0.0059	~0.0028	

EZBF (Boring, 90° Lead Angle)

Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions										Tolerance (mm)		Carbide	Applicable Sleeve ➡ F40~F45
			DMIN	DCON	H	LBB	LF	LU	WF	WF ₂	RE	RE min.	RE max.			
mm	EZBFR 030030-008	1	3	3	2.5	1.5	37.7	12	1.2	0.45	0.08	-0.015	+0.015	●		EZH030...
	EZBFR 040040-008	1	4	4	3.45	2	44.6	16	1.65	0.55	0.08	-0.015	+0.015	●		EZH040...
	EZBFR 050050-015	1	5	5	4.3	2.4	52.7	20	2.15	0.7	0.15	-0.02	+0.02	●		EZH050...
	EZBFR 060060-015	1	6	6	5.15	2.8	59.6	24	2.55	0.85	0.15	-0.02	+0.02	●		EZH060...

Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc : sfm)	EZBFR030030-008		EZBFR040040-008		EZBFR050050/ 060060-015		Notes
	MEGACOAT	D.O.C. (in), f (ipr)						
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	~0.0079	~0.0020	~0.0118	~0.0020	~0.0197	~0.0020	Coolant
Stainless Steel	100~260	~0.0079	~0.0020	~0.0118	~0.0020	~0.0197	~0.0020	

EZ Bars are
sold in 1 piece boxes

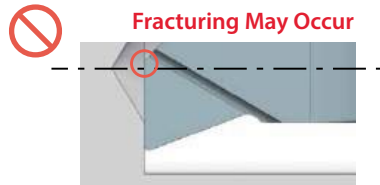
Precautions

✓ Recommended ✗ Not Recommended

1. Machining in blind hole is not recommended



2. If front cutting edge exceeds beyond workpiece center line, fracturing may occur



Min boring diameter of $\phi 4$: 1.9 mm front cutting edge length

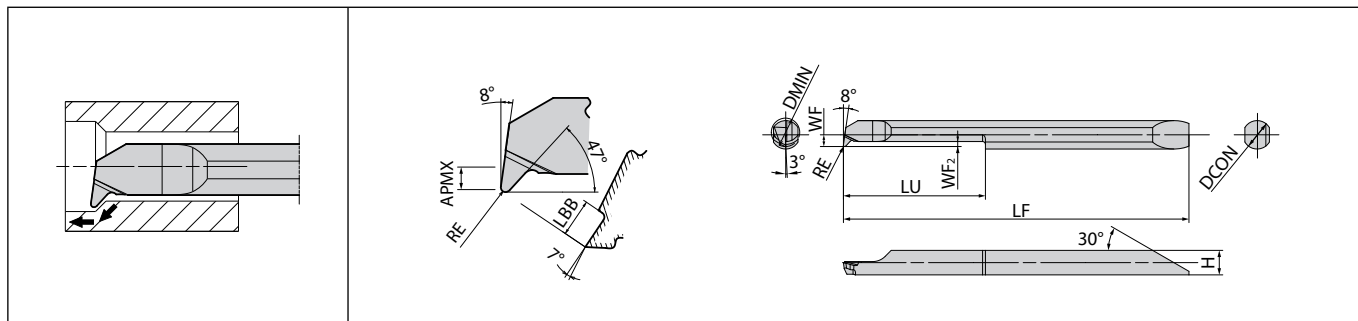
Off-center Boring

3. Up facing is not recommended



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZBP (Internal Copying)



Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions												Tolerance (mm)		Carbide	Applicable Sleeve F40~F45
			DMIN	DCON	H	LBB	LF	LU	WF	WF ₂	APMX	RE	RE min.	RE max.			PVD	
																	PR1225	
																	R	
mm	EZBPR 020020-005-08 020020-005-10 020020-005-12	1	2	2	1.65	1	31.8 33.8 35.8	8 10 12	0.55 0.35	0.35 0.3	0.3	0.05	-0.01	+0.01			●	EZH020...
	EZBPR 030030-005-12 030030-005-15	1	3	3	2.5	1.2	37.7 40.7	12 15	1.05 1.05	0.45 0.4	0.4	0.05	-0.01	+0.01			●	EZH030...
	EZBPR 040040-015	1	4	4	3.45	1.5	48.7	20	1.65	0.65	0.6	0.15	-0.02	+0.02			●	EZH040...
	EZBPR 050050-015	1	5	5	4.3	2.2	57.8	25	2	1.1	0.8	0.15	-0.02	+0.02			●	EZH050...
	EZBPR 060060-015	1	6	6	5.15	2.5	65.7	30	2.45	1.35	1	0.15	-0.02	+0.02			●	EZH060...

Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc : sfm)	EZBPR020		EZBPR030		EZBPR040		EZBPR050		EZBPR060		Notes
	MEGACOAT	D.O.C. (in), f (ipr)										
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100-330	~0.0118	~0.0020	~0.0157	~0.0020	~0.0236	~0.0020	~0.0315	~0.0020	~0.0394	~0.0020	Coolant
Stainless Steel	100-260	~0.0118	~0.0020	~0.0157	~0.0020	~0.0236	~0.0020	~0.0315	~0.0020	~0.0394	~0.0020	

EZ Bars are
sold in 1 piece boxes

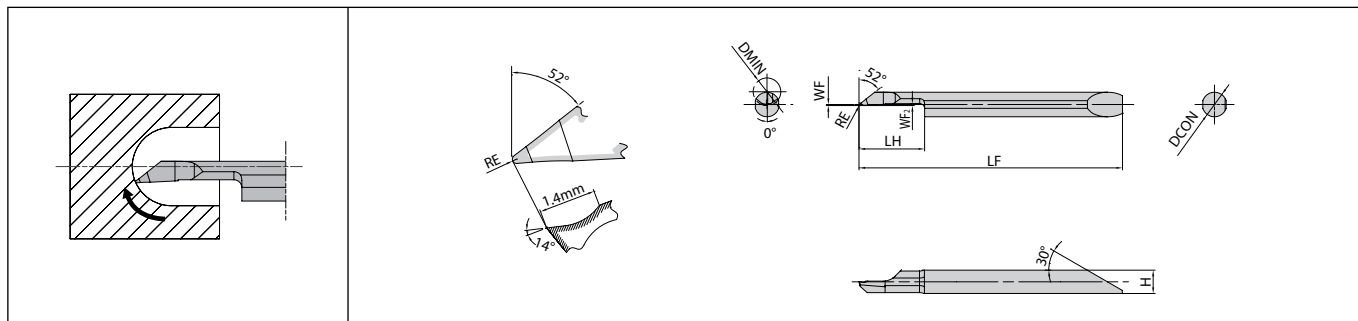
Technical drawings of a 1000mm long, 10mm thick plate. The drawings include:

- Top View:** Shows a rectangular plate with a width of 10mm and a length of 1000mm. A central slot is cut out, with a width of 10mm and a length of 100mm. The slot is centered along the length. The plate has a 45° chamfer on the left end.
- Front View:** Shows the plate with a 45° chamfer on the left end. The width is 10mm. The central slot is 10mm wide and 100mm long. The plate has a 45° chamfer on the right end.
- Side View:** Shows the plate with a 45° chamfer on the left end. The width is 10mm. The central slot is 10mm wide and 100mm long. The plate has a 45° chamfer on the right end.
- End View:** Shows the plate with a 45° chamfer on the left end. The width is 10mm. The central slot is 10mm wide and 100mm long. The plate has a 45° chamfer on the right end.

Unit	Part Number	No. of Edges	Dimensions									Tolerance (mm)		Carbide	Applicable Sleeve  F41 F43 F45
			DMIN	DCON	H	LBB	LF	LU	WF	WF ₂	RE	RE min.	RE max.	PVD	
														PR1225	
														R	
mm	EZBCR 050050-020-15 050050-020-20	1	5	5	4.3	1.8	47.8	15	2.15	1.2	0.2	-0.02	+0.02	●	EZH050...
							52.8	20						●	
	EZBCR 060060-020-18 060060-020-24	1	6	6	5.15	2.5	53.7	18	2.65	1.9	0.2	-0.02	+0.02	●	EZH060...
							59.7	24						●	
	EZBCR 070070-020-21 070070-020-42	1	7	7	6.2	3.1	59.7	21	3	2.5	0.2	-0.02	+0.02	●	EZH070...
							80.7	42						●	

Workpiece Material	Insert Grade (Vc : sfm)	EZBC050		EZBC060		EZBC070		Notes	
	MEGACOAT	D.O.C. (in), f (ipr)							
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f		
Carbon Steel / Alloy Steel	100-330	~0.0276	~0.0024	~0.0276	~0.0024	~0.0276	~0.0024	Coolant	
Stainless Steel	100-260	~0.0276	~0.0024	~0.0276	~0.0024	~0.0276	~0.0024		

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL CHAMFERS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

EZVB (Boring / Internal Facing / Internal Copying)

Right-hand shown

Dimensions

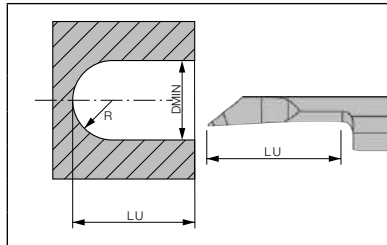
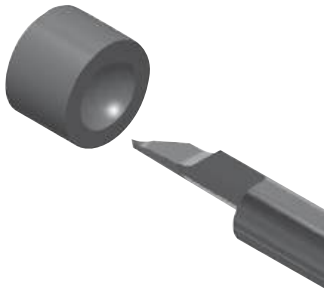
Unit	Part Number	No. of Edges	Dimensions										Tolerance (mm)		Carbide	Applicable Sleeve F40~F45
			DMIN	DCON	H	LH	H	LF	WF	WF ₂	RE	RE min.	RE max.		PVD	
															PR1225	
															R	
mm	EZVBR 035030-010	1	3.5	3	2.8	8	2.8	38	0.17	0.22	0.1	-0.015	+0.015	●		EZH030...
	EZVBR 045040-010	1	4.5	4	3.8	10	3.8	43		0.26				●		EZH040...
	EZVBR 055050-010	1	5.5	5	4.8	12	4.8	50.2		0.29				●		EZH050...
	EZVBR 065060-010	1	6.5	6	5.8	14	5.8	55.2		0.32				●		EZH060...

Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc : sfm)	EZVB035		EZVB045		EZVB055/065		Notes
	MEGACOAT	D.O.C. (in), f (ipr)						
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	~0.0020	~0.0016	~0.0028	~0.0028	~0.0039	~0.0028	Coolant
Stainless Steel	100~260	~0.0012	~0.0012	~0.0020	~0.0020	~0.0028	~0.0020	

EZ Bars are
sold in 1 piece boxes

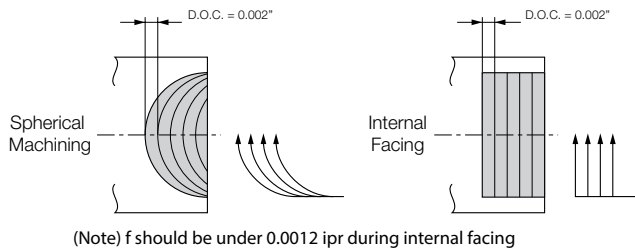
1. Application Range



Part Number	Min. Bore Dia.	R	LU
	DMIN	mm	mm
EZVBR 035030-010	3.5	1.75	8.0
EZVBR 045040-010	4.5	2.25	10.0
EZVBR 055050-010	5.5	2.75	12.0
EZVBR 065060-010	6.5	3.25	14.0

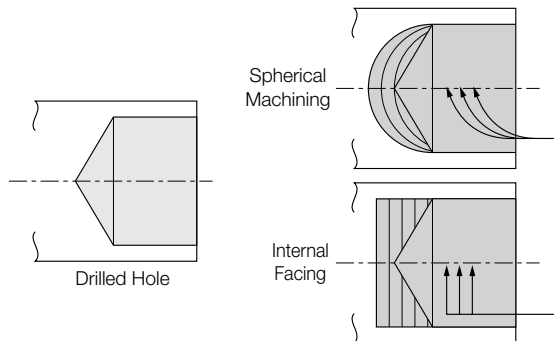
2. Application

Without Existing Hole



(Note) f should be under 0.0012 ipr during internal facing

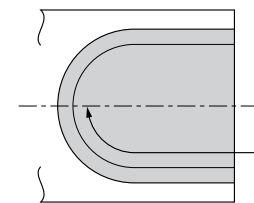
With Pre-Drilled Hole



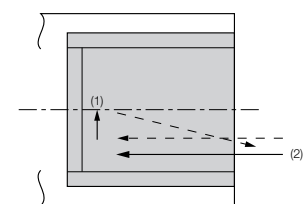
(Note) f should be under 0.0012 ipr during internal facing

Finishing

Spherical Machining

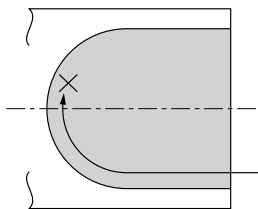


Internal Facing

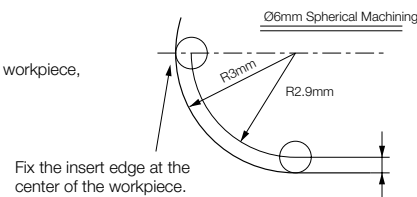


Machining Process
(1) Finish the internal face first.
(2) Next, finish the internal diameter.

3. Caution

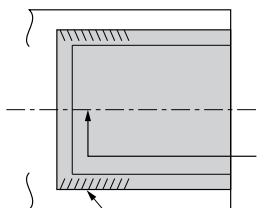


When machining past the center of the workpiece, insert may break.



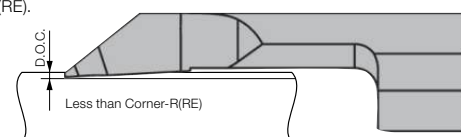
Fix the insert edge at the center of the workpiece.

Adjust the machining program to radius minus the value of Corner-R(RE).



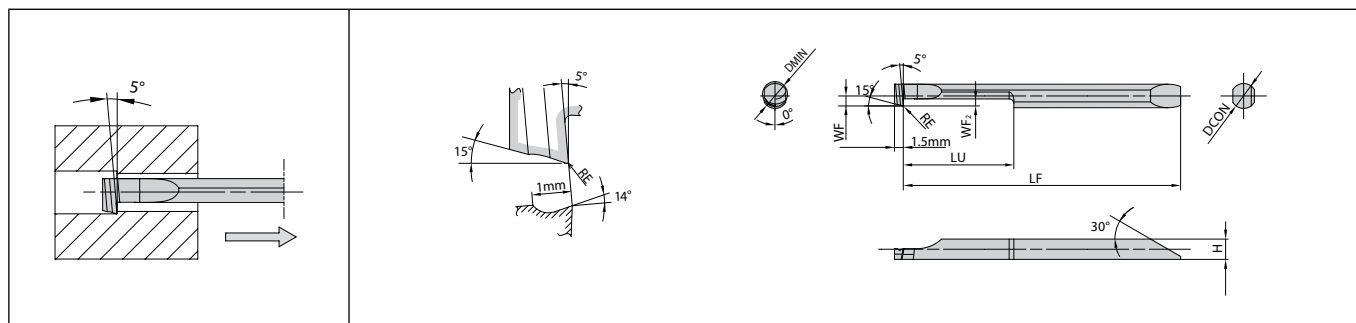
This type of machining is possible, but the chips might scratch the surface.

For internal profiling, a_p should be less than the value of Corner-R(RE).



[Burs may occur, if D.O.C. is bigger than Corner-R(RE)]

EZBT (Back Boring)



Right-hand shown

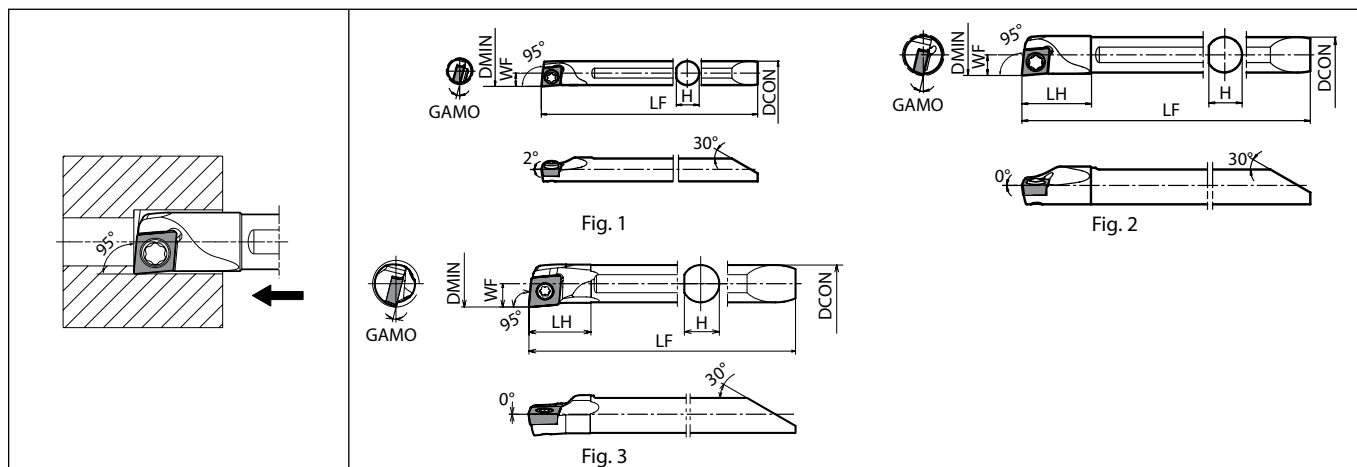
Dimensions

Unit	Part Number	No. of Edges	Dimensions								Tolerance (mm)		Carbide		Applicable Sleeve F41 F43 F45
			DMIN	DCON	H	LF	LU	WF	WF ₂	RE	RE min.	RE max.	PVD	-	
													PR1225	GW05	
													R	R	
mm	EZBTR 040040-005	1	4	4	3.45	47.2	18.5	1.7	1.2	0.05	-0.02	0	●	●	EZH040...
	EZBTR 050050-005	1	5	5	4.3	57.2	23.5	2.15	1.5	0.05	-0.02	0	●	●	EZH050...

Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc : sfm)		EZBTR040040-005		EZBTR050050-005		Notes
	MEGACOAT	Carbide	D.O.C. (in), f (ipr)				
	PR1225	GW05	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	★ 100~330	—	~ 0.018	~ 0.003	~ 0.020	~ 0.004	Coolant
Stainless Steel	★ 100~260	—	~ 0.018	~ 0.002	~ 0.020	~ 0.003	
Non-Ferrous Metals	—	★ 100~330	~ 0.018	~ 0.004	~ 0.020	~ 0.006	

★ : 1st Recommendation

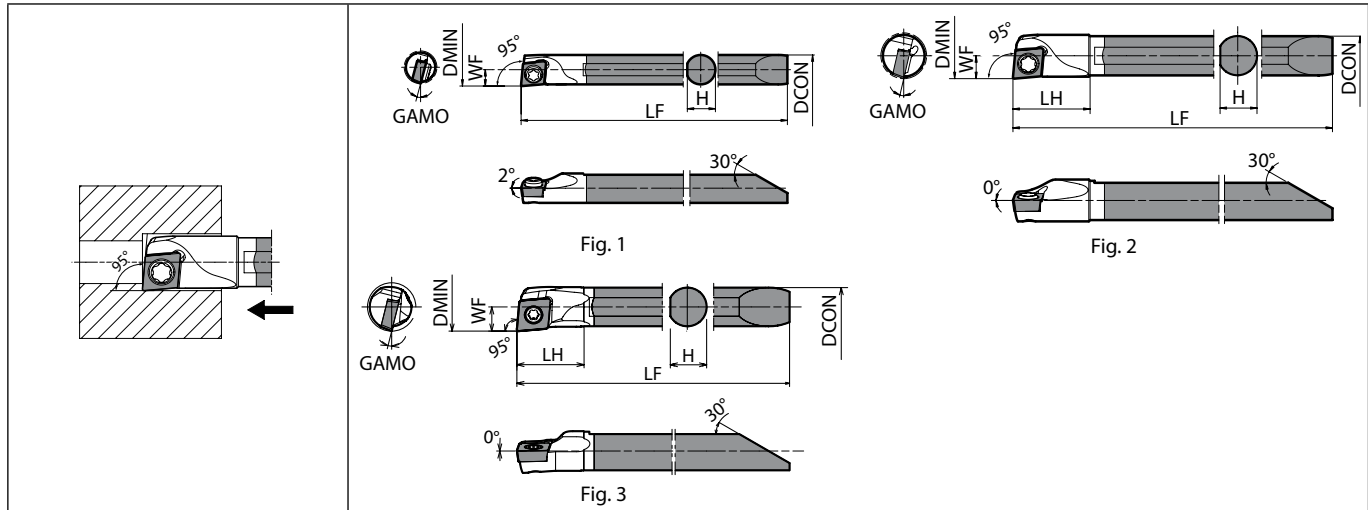
S-SCLC-EZP Steel Shank Bar (Boring)

Right-hand shown | Left-hand Insert for Right-hand Toolholder. | Max. Overhang Length L/D≈~3

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts		Applicable Inserts	Applicable Sleeve ➡ F41 F43 F45
			R	DMIN	DCON	H	LH	LF					WF	Screw			Wrench
																
mm	S045X- SCLCR03-050EZP	●	5	4.5	4.3	-	42.4	2.5	15	0.2	No	1	SB-1635TR	FT-6	CC□T1109... CC□W1109...	EZH045...
	S050X- SCLCR03-060EZP	●	6	5	4.7	9	48.4	3	13	0.2	No	2				EZH050...
	S060X- SCLCR04-070EZP	●	7	6	5.7	10	54.4	3.5	13	0.2	No	2	SB-2035TR	FT-6	CC□T1411... CC□W1411...	EZH060...
	S070X- SCLCR04-080EZP	●	8	7	6.7	10.3	60.4	4	11	0.2	No	3				EZH070...
	S080X- SCLCR06-100EZP	●	10	8	7.5	13.3	69.5	5	14	0.4	No	3	SB-2545TR	FT-8	CC□T215... CC□W215...	EZH080...

C-SCLC-EZP Carbide Shank Bar (Boring)



Right-hand shown | Left-hand Insert for Right-hand Toolholder. | Max. Overhang Length L/D≈5

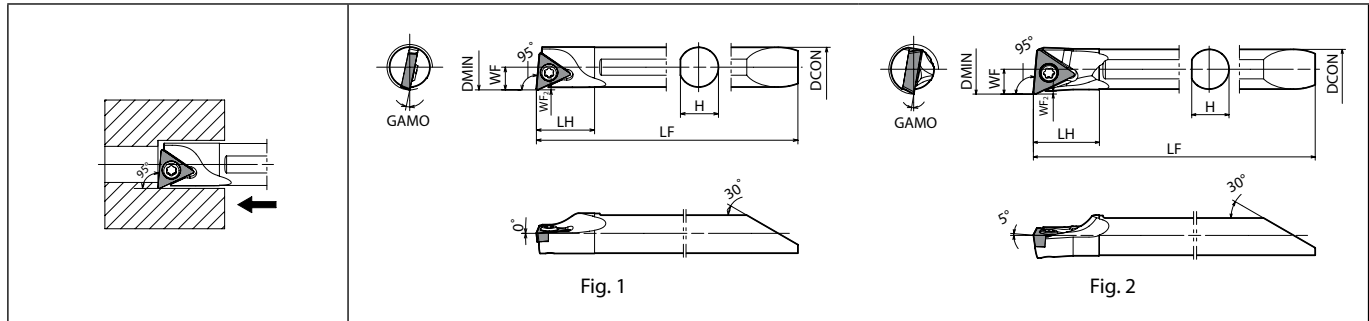
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts		Applicable Inserts	Applicable Sleeve ➡ F41 F43 F45
			R	DMIN	DCON	H	LH	LF	WF								
mm	C045X- SCLCR03-050EZP	●	5	4.5	4.3	-	51.4	2.5	15	0.2	No	1	SB-1635TR	FT-6	CC□T1109... CC□W1109...	EZH045...	
	C050X SCLCR03-060EZP	●	6	5	4.7	9	58.4	3	13							EZH050...	
	C060X- SCLCR04-070EZP	●	7	6	5.7	10	66.4	3.5	13	0.2	No	2	SB-2035TR	FT-6	CC□T1411... CC□W1411...	EZH060...	
	C070X SCLCR04-080EZP	●	8	7	6.7	10.3	74.4	4	11							EZH070...	
	C080X- SCLCR06-100EZP	●	10	8	7.5	13.3	85.5	5	14							0.4	No	3	SB-2545TR	FT-8	CC□T215..., CC□W215...	EZH080...

Applicable Inserts (S-SCLC-EZP / C- SCLC-EZP)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing
Insert								
Chipbreaker Type	CF	PF	GF	SKS	SK	CK	GQ	WP
Page	B58	B58	B58	B59	B59	B59	B59	B60
Applications	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing	Low Feed
Insert								
Chipbreaker Type	PP	GK	HQ	Standard	MF	L-F	L-FSF	L-U
Page	B60	B60	B60	B60	B61	B62	B61	B63~B65
Applications	Low Feed	Low Feed	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker Type	L-USF	L-J	No Chipbreaker	AP	PCD	CBN		
Page	B63	B65	B66	B66	C39	C20		

Recommended Cutting Conditions F174, F175

S-STLB(P)-EZP Steel Shank Bar (Boring)

Right-hand shown | Left-hand Insert for Right-hand Toolholder. | Max. Overhang Length L/D=~3

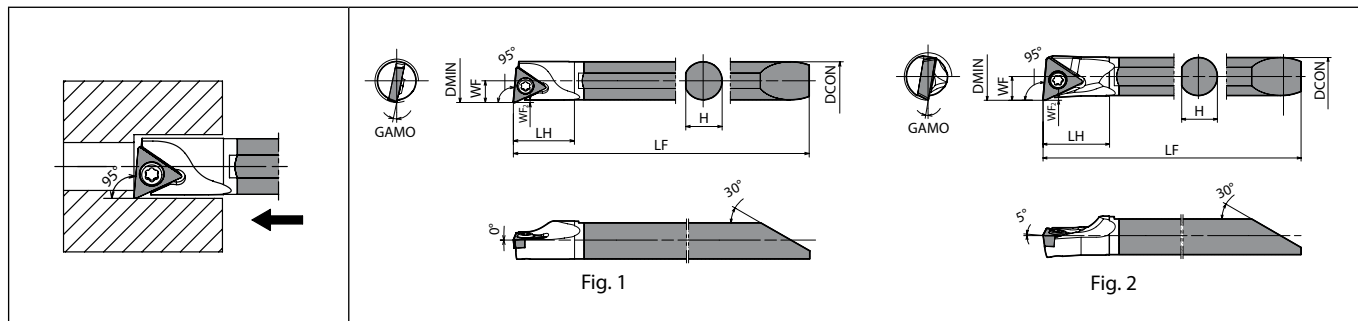
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts		Applicable Inserts	Applicable Sleeve F41 F43 F45
														Screw	Wrench		
			R	DMIN	DCON	H	LH	LF	WF	WF ₂							
mm	S070X- STLBR06-080EZP	●	8	7	6.7	10.3	60.4	4	0.4	12	0.2	No	1	SB-2035TR	FT-6	TB□T121... TB□W121...	EZH070...
	S080X- STLPR09-100EZP	●	10	8	7.5	13.3	69.5	5	0.5	10	0.4	No	2	SB-2545TR	FT-8	TP□B1815..., TP□H1815... TP□T1815..., TP□X1815...	EZH080...

TB□□1212.. type inserts can not be used.

Use Right-handed P Chipbreaker

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

C-STLB(P)-EZP Carbide Shank Bar (Boring)

Right-hand shown | Left-hand Insert for Right-hand Toolholder. | Max. Overhang Length L/D≈5

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts		Applicable Inserts	Applicable Sleeve ➡ F41 F43 F45
			R	DMIN	DCON	H	LH	LF	WF	WF ₂				Screw	Wrench		
																	
mm	C070X- STLBR06-080EZP	●	8	7	6.7	11	74.4	4	0.4	12	0.2	No	1	SB-2035TR	FT-6	TB□T121... TB□W121...	EZH070...
	C080X- STLPR09-100EZP	●	10	8	7.5	14	85.5	5	0.5	10	0.4	No	2	SB-2545TR	FT-8	TP□B1815..., TP□H1815... TP□T1815..., TP□X1815...	EZH080...

TB□□1212.. type inserts can not be used.

Use Right-handed P Chipbreaker

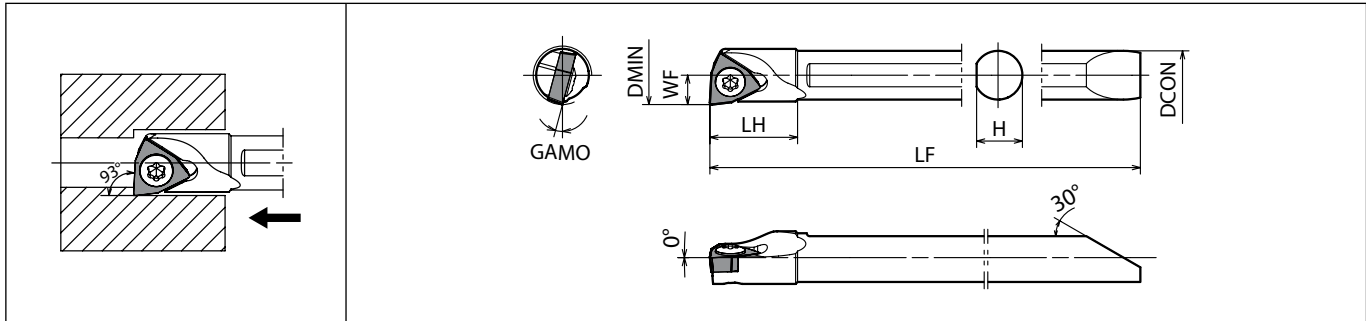
For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

Applicable Inserts (S-STLB(P)-EZP / C-STLB(P)-EZP)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium
Insert								
Chipbreaker Type	CF	PF	WP	PP	R-P	GP	DP	HQ
Page	B84, B88	B84, B88	B88	B88	B92	B89	B84	B89
Applications	Finishing	Medium	Low Carbon Steel	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials	
Insert								
Chipbreaker Type	L	L-H	XP	No Chipbreaker	AP	PCD	CBN	
Page	B84, B90, B91	B93	B89	B84, B94	B94	C44, C46, C47	C23	

Recommended Cutting Conditions ➡ F174, F175

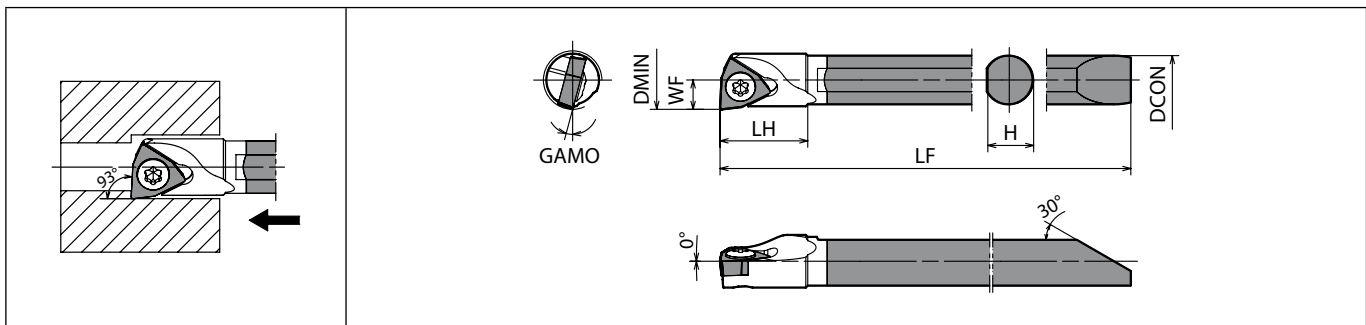
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

S-SWUB-EZP Steel Shank Bar (Boring)

Right-hand shown | Left-hand Insert for Right-hand Toolholder. | Max. Overhang Length L/D≈3

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts	Applicable Sleeve F41 F43 F45
			R	DMIN	DCON	H	LH	LF	WF				Screw	Wrench		
mm	S050X- SWUBR06-060EZP	●	6	5	4.7	9	48.4	3	15	0.2	No	No	SB-2035TR	FT-6	WB□T121... WB□W121...	EZH050...
	S060X- SWUBR06-070EZP	●	7	6	5.7	10	54.4	3.5	13	0.2	No	No	SB-2035TR	FT-6	WB□T121... WB□W121...	EZH060...
	S070X- SWUBR08-080EZP	●	8	7	6.7	10.3	60.4	4	15	0.2	No	No	SB-2035TR	FT-6	WB□T1515..., WB□W1515...	EZH070...

C-SWUB-EZP Carbide Shank Bar (Boring)

Right-hand shown | Left-hand Insert for Right-hand Toolholder. | Max. Overhang Length L/D≈5

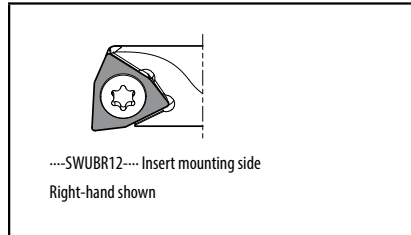
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts	Applicable Sleeve F41 F43 F45
			R	DMIN	DCON	H	LH	LF	WF				Screw	Wrench		
mm	C050X- SWUBR06-060EZP	●	6	5	4.7	9	58.4	3	15	0.2	No	No	SB-2035TR	FT-6	WB□T121... WB□W121...	EZH050...
	C060X- SWUBR06-070EZP	●	7	6	5.7	10	66.4	3.5	13	0.2	No	No	SB-2035TR	FT-6	WB□T121... WB□W121...	EZH060...
	C070X- SWUBR08-080EZP	●	8	7	6.7	11	74.4	4	15	0.2	No	No	SB-2035TR	FT-6	WB□T1515..., WB□W1515...	EZH070...

Applicable Inserts (S-SWUB-EZP / C-SWUB-EZP)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Cast Iron	Non-Ferrous Metals	Hard Materials
Insert								
Chipbreaker Type	L-CF	L-PF	L-DP	L-P	L-F	No Chipbreaker	PCD	CBN
Page	B105	B105	B105	B106	B106	B106	C51	C28

Recommended Cutting Conditions F174, F175



How to mount EZ Bars

How to use adjustment pin (Fig. 1)

1. Put the adjustment pin into the hole.
2. Push it into the sleeve, using the wrench (LW-1.5).
3. Tightening the clamp screw (HS3X4P) with wrench (LW-1.5) to fix the adjustment pin.

How to fix bar (Fig. 2)

1. With the chip pocket upward, set the bar into the sleeve. Press the slant of the end of the bar with the adjustment pin. Make sure that the bar does not move (Fig. 3)
2. Tighten the clamp screw with wrench (LW-2) and fix the bar. Use LW-1.5 if shank dia. is 3 mm or less.

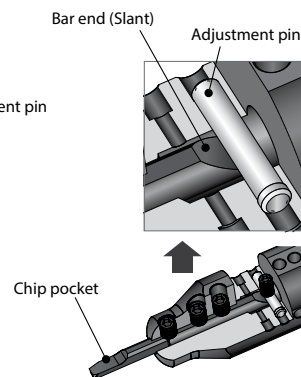
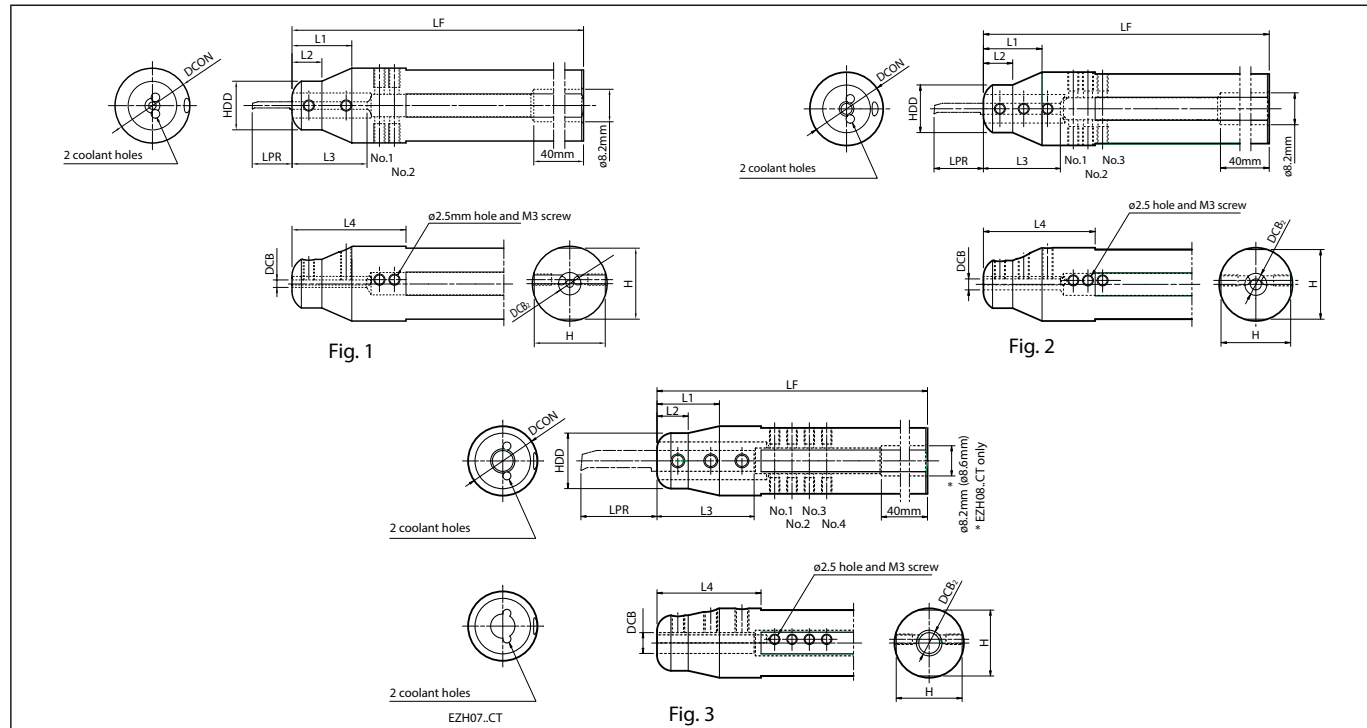
Fig. 1
How to use adjustment pinFig. 2
How to fix bar

Fig. 3: Fixed bar

EZH-CT (Adjustable, Coolant-Through)

Sleeve Dimensions

Unit	Part Number	Std. Item	Dimensions											Fig.	Applicable EZ Bars 🔵 F18~F28, F30 🔵 G75 🔵 J44		
			DCB	DCB2	DCON	H	HDD	LF	L1	L2	L3	L4	LPR				
													No.1			No.2	No.3
mm	EZH 01719CT-120	●	1.7	6	0.75"	18	13	120	16	8	16	30.5	7.5	3.5	-	1	EZBR...017...
	01720CT-120	●			20	19											
	01722CT-135	●			22	21		135				41.5					
	01725.0CT-135	●			25	24						30.5					
	01725.4CT-120	●			1.00"	24.4		120									
	EZH 02019CT-120	●	2	6	0.75"	18	13	120	16	8	20	30.5	8.5	4.5	-	1	EZB% ...020... EZBPR...020...
	02020CT-120	●			20	19											
	02022CT-135	●			22	21		135				41.5					
	02025.0CT-135	●			25	24						30.5					
	02025.4CT-120	●			1.00"	24.4		120									
	EZH 02519CT-120	●	2.5	6	0.75"	18	13	120	16	8	20	30.5	11	7	-	1	EZB%/_...025... EZTR...025...
	02520CT-120	●			20	19											
	02522CT-135	●			22	21		135				41.5					
	02525.0CT-135	●			25	24						30.5					
	02525.4CT-120	●			1.00"	24.4		120									
	EZH 03019CT-120	●	3	6	0.75"	18	13	120	16	8	21	30.5	13.5	9.5	5.5	2	EZB%/_...030... EZBFR...030... EZBPR...030... EZVBR...030... EZGR...030... EZTR...030...
	03020CT-120	●			20	19											
	03022CT-135	●			22	21		135				41.5					
	03025.0CT-135	●			25	24						30.5					
	03025.4CT-120	●			1.00"	24.4		120									
	EZH 03519CT-120	●	3.5	6	0.75"	18	13	120	16	8	21	31.1	15.5	11.5	7.5	2	EZB%/_...035... EZTR...035...
	03520CT-120	●			20	19											
	03522CT-135	●			22	21		135				41.5					
	03525.0CT-135	●			25	24						31.1					
	03525.4CT-120	●			1.00"	24.4		120									

L3 shows DCB length.

LPR shows overhang length of the EZB Bar when attached to sleeve.

Choose sleeves (DCB) to meet with DCON dimension of bar.

A hole on the rear end of sleeve is prepared hole for Rc1/8 threading. Please modify by additional processing if necessary. The body hardness is 42HRC.

For how to mount EZ Bars (EZH-CT sleeve), please refer to F8.

Sleeve Dimensions

Unit	Part Number	Std. Item	Dimensions												Fig.	Applicable EZ Bars ⬆️ F18~F38 ⬆️ G75, G99 ⬆️ J44			
			DCB	DCB2	DCON	H	HDD	LF	L1	L2	L3	L4	LPR						
													No.1	No.2			No.3	No.4	
mm	EZH	04019CT-120	●	4	6	0.75"	18	13	120	16	8	22	32.7	20.5	16.5	12.5	8.5	3	EZBR010040..., EZBR015040... EZB%...040..., EZBFR...040... EZBPR...040..., EZVBR...040... EZBTR...040..., EZG%...040... EZFG%...040..., EZTR...040...
	04020CT-120	●	20			19													
	04022CT-135	●	22			21	135		41.5										
	04025.0CT-135	●	25			24			32.7										
	04025.4CT-120	●	1.00"			24.4	120												
	EZH	04519CT-120	●	4.5	6	0.75"	18	16	120	18	9	23	30	23 (14)	18.5 (9.5)	14 (-)	9.5 (-)	3	EZB%...045... _045X...050EZP
	04520CT-120	●	20			19													
	04522CT-135	●	22			21	135		44										
	04525.0CT-135	●	25			24			30										
	04525.4CT-120	●	1.00"			24.4	120												
	EZH	05019CT-120	●	5	6	0.75"	18	16	120	18	9	26	30	25.5 (15.5)	20.5 (10.5)	15.5 (-)	10.5 (-)	3	EZB%...050..., EZBFR...050... EZBPR...050..., EZBCR...050... EZVBR...050..., EZBTR...050... _050X...060EZP, EZG%...050... EZFG%...050..., EZTR...050...
	05020CT-120	●	20			19													
	05022CT-135	●	22			21	135		44										
	05025.0CT-135	●	25			24			30										
	05025.4CT-120	●	1.00"			24.4	120												
	EZH	06019CT-120	●	6	7.4	0.75"	18	16	120	18	9	28	30	30.5 (18.5)	25.5 (13.5)	20.5 (-)	15.5 (-)	3	EZB%...060..., EZBFR...060... EZBPR...060..., EZBCR...060... EZVBR...060..., _060X...070EZP EZG%...060..., EZTR...060...
	06020CT-120	●	20			19													
	06022CT-135	●	22			21	135		41.5										
	06025.0CT-135	●	25			24			30										
	06025.4CT-120	●	1.00"			24.4	120												
EZH	07019CT-120	●	7	7.4	0.75"	18	16	120	18	9	29	30	35.5 (21.5)	30.5 (16.5)	25.5 (11.5)	20.5 (-)	3	EZB%...070..., EZBCR...070... _070X...080EZP, EZG%...070... EZFG%...070..., EZTR...070...	
07020CT-120	●	20			19														
07022CT-135	●	22			21	135		44											
07025.0CT-135	●	25			24			30											
07025.4CT-120	●	1.00"			24.4	120													
EZH	08019CT-120	●	8	8.6	0.75"	18	16	120	18	9	33	34	40.5 (24.5)	35.5 (19.5)	30.5 (14.5)	25.5 (-)	3	EZB%...080... _080X...100EZP	
08020CT-120	●	20			19														
08022CT-135	●	22			21	135		44											
08025.0CT-135	●	25			24			34											
08025.4CT-120	●	1.00"			24.4	120													

L3 shows DCB length.

LPR shows overhang length of the EZB Bar when attached to sleeve. () value indicates the overhang length when installed the steel boring bar (EZ Bar PLUS).

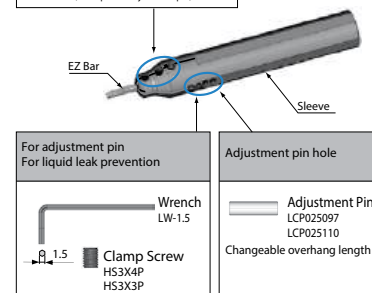
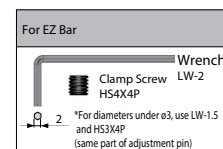
Choose sleeves (DCB) to meet with DCON dimension of bar.

A hole on the rear end of sleeve is prepared hole for Rc1/8 threading. Please modify by additional processing if necessary. The body hardness is 42HRC.

For how to mount EZ Bars (EZH-CT sleeve), please refer to F8.

Spare Parts Part Number (for EZH-CT Sleeves)

Part Number	Spare Parts				
	Adjustment Pin	Clamp Screw (for adjustment pin)	Wrench	Clamp Screw (for bar)	Wrench
EZH 017...CT-...	LCP025097	HS3X4P (for adjustment pin and liquid leak prevention)	LW-1.5 Tightening Torque 1N·m	HS3X4P	LW-1.5 Tightening Torque 1N·m
020...CT-...					
025...CT-...					
030...CT-...					
EZH 035...CT-...	LCP025097	HS3X4P (for adjustment pin and liquid leak prevention)	LW-1.5 Tightening Torque 1N·m	HS4X4P (for bar)	LW-2 Tightening Torque 2N·m
040...CT-...					
045...CT-...					
050...CT-...					
060...CT-...					
070...CT-...	LCP025110	HS3X3P (for adjustment pin and liquid leak prevention)			
080...CT-...					



1) If shank dia. is ø2.5mm or less, use clamp screw (HS3X4P)

For adjustment pin 2 pcs
For liquid leak prevention 2 pcs
For EZ Bar 2 pcs

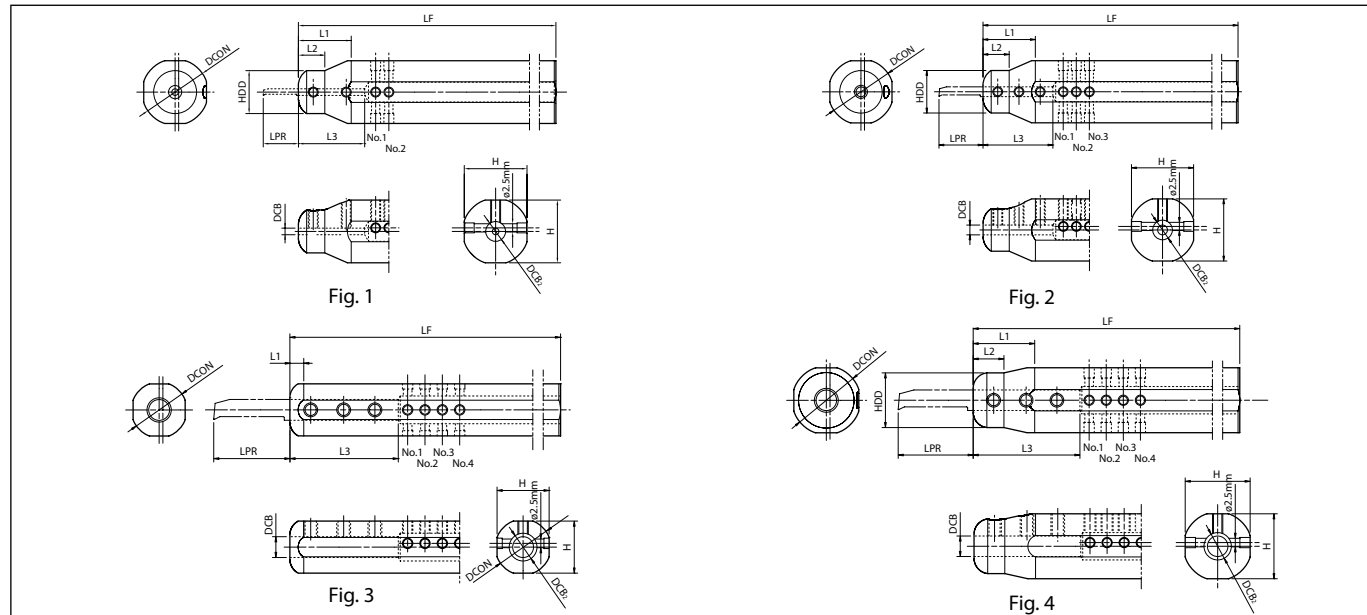
2) If shank dia. is ø3mm, use clamp screw (HS3X4P)

For adjustment pin 2 pcs
For liquid leak prevention 4 pcs
For EZ Bar 3 pcs

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

EZH-HP (Adjustable)



Sleeve Dimensions

Unit	Part Number	Std. Item	Dimensions												Fig.	Applicable EZ Bars ➡ F18~F28, F30 ➡ G75 ➡ J44	
			DCB	DCB2	DCON	H	HDD	LF	L1	L2	L3	LPR					
												No.1	No.2	No.3			No.4
mm	EZH 01716HP-100	●	1.7	6	16	15	13	100	16	8	16	7.5	3.5	-	-	1	EZBR...017...
	01719HP-120	●			0.75"	18		120									
	01720HP-120	●			20	19		135									
	01722HP-135	●			22	21		120									
	01725.0HP-135	●			25	24		120									
	01725.4HP-120	●			1.00"	24.4		120									
	EZH 02016HP-100	●	2	6	16	15	13	100	16	8	20	8.5	4.5	-	-	1	EZB%...020... EZBPR...020...
	02019HP-120	●			0.75"	18		120									
	02020HP-120	●			20	19		135									
	02022HP-135	●			22	21		120									
	02025.0HP-135	●			25	24		120									
	02025.4HP-120	●			1.00"	24.4		120									
	EZH 02516HP-100	●	2.5	6	16	15	13	100	16	8	20	11	7	-	-	1	EZB%...025... EZTR...025...
	02519HP-120	●			0.75"	18		120									
	02520HP-120	●			20	19		135									
	02522HP-135	●			22	21		120									
	02525.0HP-135	●			25	24		120									
	02525.4HP-120	●			1.00"	24.4		120									
	EZH 03016HP-100	●	3	6	16	15	13	100	16	8	21	13.5	9.5	5.5	-	2	EZB%...030... EZBFR...030... EZBPR...030... EZVBR...030... EZGR...030... EZTR...030...
	03019HP-120	●			0.75"	18		120									
	03020HP-120	●			20	19		135									
	03022HP-135	●			22	21		120									
	03025.0HP-135	●			25	24		120									
	03025.4HP-120	●			1.00"	24.4		120									
	EZH 03516HP-100	●	3.5	6	16	15	13	100	16	8	22	15.5	11.5	7.5	-	2	EZB%...035... EZTR...035...
	03519HP-120	●			0.75"	18		120									
	03520HP-120	●			20	19		135									
	03522HP-135	●			22	21		120									
	03525.0HP-135	●			25	24		120									
	03525.4HP-120	●			1.00"	24.4		120									

L3 shows DCB length.

LPR shows overhang length of the EZB Bar when attached to sleeve.

Choose sleeves (DCB) to meet with DCON dimension of bar.

For how to mount EZ Bars (EZH-HP sleeve), please refer to F39.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Sleeve Dimensions

Unit	Part Number	Std. Item	Dimensions											Fig.	Applicable EZ Bars ● F18~F38 ● G75, G99 ● J44											
			DCB	DCB2	DCON	H	HDD	LF	L1	L2	L3	LPR														
												No.1	No.2			No.3	No.4									
mm	EZH 04016HP-100	●	4	6	16	15	13	100	16	8	24	20.5	16.5	12.5	8.5	4	EZBR010040..., EZBR015040... EZB% ...040..., EZBFR...040... EZBPR...040..., EZVBR...040... EZBTR...040..., EZG% ...040... EZFG% ...040..., EZTR...040...									
	04019HP-120	●			0.75"	18		120																		
	04020HP-120	●			20	19		135																		
	04022HP-135	●			22	21																				
	04025.0HP-135	●			25	24																				
	04025.4HP-120	●			1.00"	24.4		120																		
	EZH 04516HP-100	●	4.5	6	16	15	16	100	4	-	25.3	23 (14)	18.5 (9.5)	14 (-)	9.5 (-)	3	EZB% ...045... _045X...-050EZP									
	04519HP-120	●			0.75"	18		120																		
	04520HP-120	●			20	19		135																		
	04522HP-135	●			22	21																				
	04525.0HP-135	●			25	24																				
	04525.4HP-120	●			1.00"	24.4		120																		
	EZH 05016HP-100	●	5	6	16	15	16	100	4	-	29	25.5 (15.5)	20.5 (10.5)	15.5 (-)	10.5 (-)	3	EZB% ...050..., EZBFR...050... EZBPR...050..., EZBCR...050... EZVBR...050..., EZBTR...050... _050X...-060EZP, EZG% ...050... EZFG% ...050..., EZTR...050...									
	05019HP-120	●			0.75"	18		120																		
	05020HP-120	●			20	19		135																		
	05022HP-135	●			22	21																				
	05025.0HP-135	●			25	24																				
	05025.4HP-120	●			1.00"	24.4		120																		
	EZH 06016HP-100	●	6	8	16	15	16	100	4	-	31	30.5 (18.5)	25.5 (13.5)	20.5 (-)	15.5 (-)	3	EZB% ...060..., EZBFR...060... EZBPR...060..., EZBCR...060... EZVBR...060..., _060X...-070EZP EZG% ...060..., EZTR...060...									
	06019HP-120	●			0.75"	18		120																		
	06020HP-120	●			20	19		135																		
	06022HP-135	●			22	21																				
	06025.0HP-135	●			25	24																				
	06025.4HP-120	●			1.00"	24.4		120																		
	EZH 07016HP-100	●	7	8	16	15	16	100	4	-	33	35.5 (21.5)	30.5 (16.5)	25.5 (11.5)	20.5 (-)	3	EZB% ...070..., EZBCR...070... _070X...-080EZP, EZG% ...070... EZFG% ...070..., EZTR...070...									
	07019HP-120	●			0.75"	18		120																		
	07020HP-120	●			20	19		135																		
	07022HP-135	●			22	21																				
	07025.0HP-135	●			25	24																				
	07025.4HP-120	●			1.00"	24.4		120																		
	EZH 08019HP-120	●	8	8.4	0.75"	18	16	120	18	9	37	40.5 (24.5)	35.5 (19.5)	30.5 (14.5)	25.5 (-)	4	EZB% ...080... _080X...-100EZP									
	08020HP-120	●			20	19		135																		
	08022HP-135	●			22	21																				
	08025.0HP-135	●			25	24																				
	08025.4HP-120	●			1.00"	24.4		120																		

L3 shows DCB length.

LPR shows overhang length of the EZB Bar when attached to sleeve. () value indicates the overhang length when installed the steel boring bar (EZ Bar PLUS).

Choose sleeves (DCB) to meet with DCON dimension of bar.

For how to mount EZ Bars (EZH-HP sleeve), please refer to F39.

Spare Parts Part Number (for EZH-HP Sleeves)

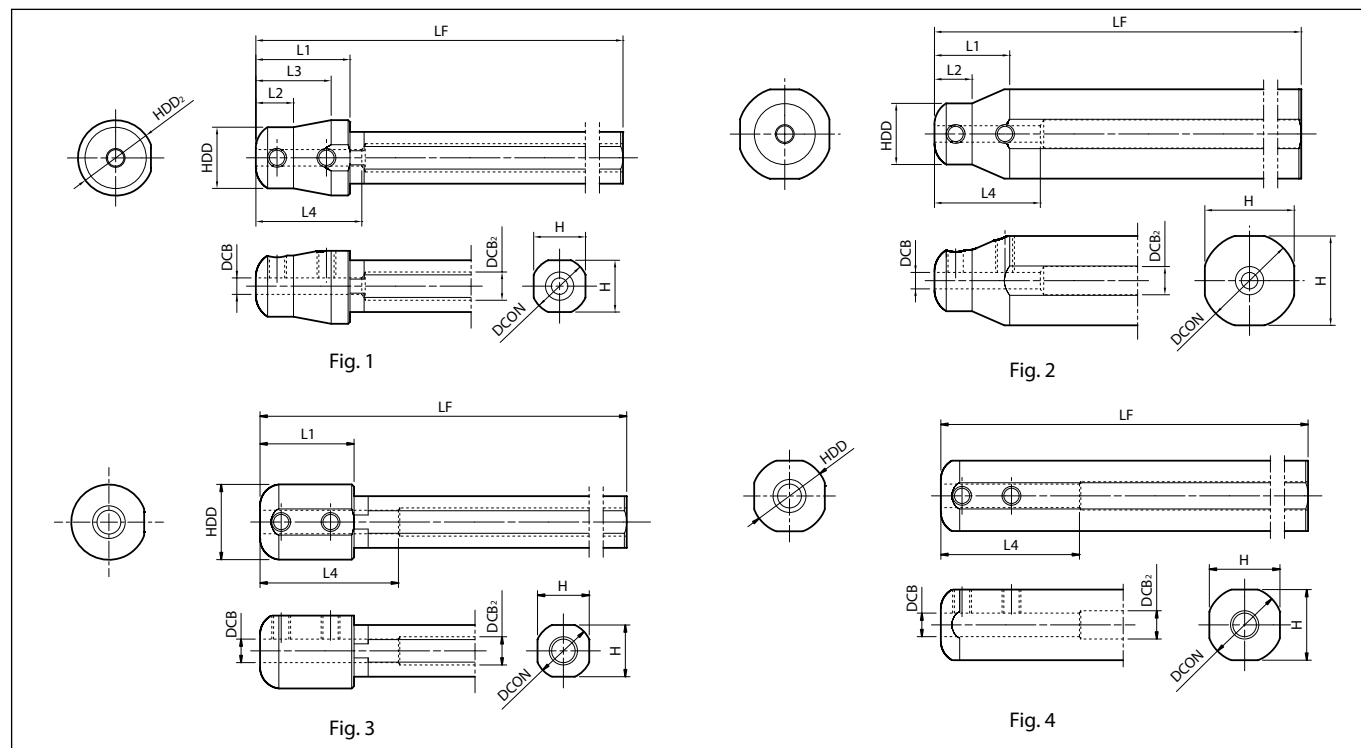
Part Number	Spare Parts					Applicable EZ Bars EZ Bar PLUS
	Adjustment Pin	Clamp Screw (for Adjustment Pin)	Wrench	Clamp Screw (for Bar)	Wrench	
						
EZH 017...HP-... 020...HP-... 025...HP-... 030...HP-...	LCP025140	HS3X4P (for both Adjustment Pin and Bar)	LW-1.5 Tightening Torque 1N·m	HS3X4P	LW-1.5 Tightening Torque 1N·m	EZBR...017...
						EZB%...020... EZ_R...020-...
						EZB%...025... EZ_R...025-...
						EZB%...030... EZ_R...030-...
EZH 035...HP-... 040...HP-... 045...HP-... 050...HP-... 060...HP-... 070...HP-... 080...HP-...	LCP025140	HS3X4P	LW-1.5 Tightening Torque 1N·m	HS4X4P	LW-2 Tightening Torque 2N·m	EZB%...035... EZ_R...035-...
						EZB%...040... EZ_R...040-...
						EZB%...045... _045X...-050EZP
						EZB%...050... EZ_R...050-...
						_050X...-060EZP
						EZB%...060... EZ_R...060-...
						_060X...-070EZP
						EZB%...070... EZ_R...070-...
						_070X...-080EZP
						EZB%...080... _080X...-100EZP

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZH-ST (Not Adjustable)



Sleeve Dimensions

Unit	Part Number	Std. Item	Dimensions											Fig.	Applicable EZ Bars ● F18~F28, F30 ● G75 ● J44
			DCB	DCB2	DCON	H	HDD	HDD2	LF	L1	L2	L3	L4		
mm	EZH 01712ST-80	●	1.7	6	12	11	13	16	80	20		16		1	EZBR...017...
	01716ST-100	●			16	15			100						
	01719ST-120	●			0.75"	18									
	01720ST-120	●			20	19			120		8		16	2	
	01722ST-135	●			22	21			135						
	01725.0ST-135	●			25	24									
	01725.4ST-120	●			1.00"	24.4			120						
	EZH 02012ST-80	●	2	6	12	11	13	16	80	20		16		1	EZB%...020... EZBPR...020...
	02016ST-100	●			16	15			100						
	02019ST-120	●			0.75"	18									
	02020ST-120	●			20	19			120		8		20	2	
	02022ST-135	●			22	21			135						
	02025.0ST-135	●			25	24									
	02025.4ST-120	●			1.00"	24.4			120						
	EZH 02512ST-80	●	2.5	6	12	11	13	16	80	20		16		1	EZB%...025... EZTR...025...
	02516ST-100	●			16	15			100						
	02519ST-120	●			0.75"	18									
	02520ST-120	●			20	19			120		8		20	2	
	02522ST-135	●			22	21			135						
	02525.0ST-135	●			25	24									
	02525.4ST-120	●			1.00"	24.4			120						
	EZH 03012ST-80	●	3	6	12	11	13	16	80	20		16		1	EZB%...030... EZBFR...030... EZBPR...030... EZVBR...030... EZGR...030... EZTR...030...
	03016ST-100	●			16	15			100						
	03019ST-120	●			0.75"	18									
	03020ST-120	●			20	19			120		8		21	2	
	03022ST-135	●			22	21			135						
	03025.0ST-135	●			25	24									
	03025.4ST-120	●			1.00"	24.4			120						

L4 shows DCB length.

Choose sleeves (DCB) to meet with DCON dimension of bar.

Adjustment pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT / HP sleeves.

Sleeve Dimensions

Unit	Part Number	Std. Item	Dimensions										Fig.	Applicable EZ Bars ● F18~F38 ● G75, G99 ● J44
			DCB	DCB2	DCON	H	HDD	HDD2	LF	L1	L2	L3			L4
mm	EZH 03512ST-80	●	3.5	6	12	11	13	-	16	80	20	16	1	EZB% ...035... EZTR...035...
	03516ST-100	●			16	15			100					
	03519ST-120	●			0.75"	18			120					
	03520ST-120	●			20	19			16	8	-	22		
	03522ST-135	●			22	21			135					
	03525.0ST-135	●			25	24			120					
	03525.4ST-120	●			1.00"	24.4			120					
	EZH 04012ST-80	●	4	6	12	11	13	-	16	80	20	16	1	EZBR010040..., EZBR015040... EZB% ...040..., EZBFR...040... EZBPR...040..., EZVBR...040... EZBTR...040..., EZG% ...040... EZFG% ...040..., EZTR...040...
	04016ST-100	●			16	15			100					
	04019ST-120	●			0.75"	18			120					
	04020ST-120	●			20	19			16	8	-	24		
	04022ST-135	●			22	21			135					
	04025.0ST-135	●			25	24			120					
	04025.4ST-120	●			1.00"	24.4			120					
	EZH 05012ST-80	●	5	6	12	11	16	-	80	20	-		3	EZB% ...050..., EZBFR...050... EZBPR...050..., EZBCR...050... EZVBR...050..., EZBTR...050... _050X...-060EZP, EZG% ...050... EZFG% ...050..., EZTR...050...
	05016ST-100	●			16	15			100	-		4		
	05019ST-120	●			0.75"	18			120			2		
	05020ST-120	●			20	19								
	05022ST-135	●			22	21			18	9				
	05025.0ST-135	●			25	24			135					
	05025.4ST-120	●			1.00"	24.4			120					
	EZH 06012ST-80	●	6	8	12	11	16	-	80	20	-		3	EZB% ...060..., EZBFR...060... EZBPR...060..., EZBCR...060... EZVBR...060..., _060X...-070EZP EZG% ...060..., EZTR...060...
	06016ST-100	●			16	15			100	-		4		
	06019ST-120	●			0.75"	18			120			2		
	06020ST-120	●			20	19								
	06022ST-135	●			22	21			18	9				
	06025.0ST-135	●			25	24			135					
	06025.4ST-120	●			1.00"	24.4			120					
	EZH 07012ST-80	●	7	8	12	11	16	-	80	20	-		3	EZB% ...070..., EZBCR...070... _070X...-080EZP, EZG% ...070... EZFG% ...070..., EZTR...070...
	07016ST-100	●			16	15			100	-		4		
	07019ST-120	●			0.75"	18			120			2		
	07020ST-120	●			20	19								
	07022ST-135	●			22	21			18	9				
	07025.0ST-135	●			25	24			135					
	07025.4ST-120	●			1.00"	24.4			120					
	EZH 08016ST-100	●	8	8.4	16	15	16	-	100	-	-		4	EZB% ...080... _080X...-100EZP
08019ST-120	●	0.75"			18	120					2			
08020ST-120	●	20			19									
08022ST-135	●	22			21	18			9					
08025.0ST-135	●	25			24	135								
08025.4ST-120	●	1.00"			24.4	120								

L4 shows DCB length.

Choose sleeves (DCB) to meet with DCON dimension of bar.

Adjustment pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT / HP sleeves.

Spare Parts Part Number (for EZH-ST Sleeves)

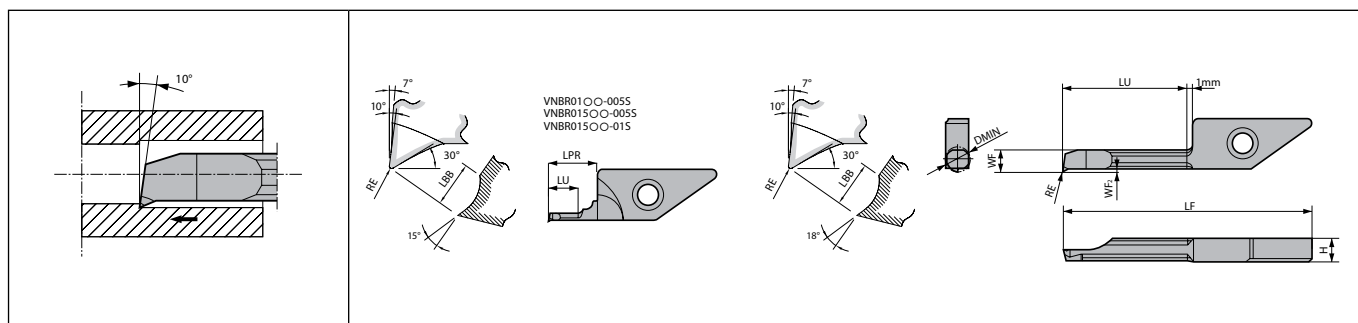
Part Number	Spare Parts		Applicable EZ Bars		EZ Bar PLUS
	Clamp Screw	Wrench	EZB-HP EZB-HP-LT EZB-ST EZB-NB	EZBT / EZBF EZBP / EZBC EZVB / EZG EZFG / EZT	S/C-SCLC S/C-STLB(P) S/C-SWUB
					
EZH 017...ST-... 020...ST-... 025...ST-... 030...ST-...	HS3X4P	LW-1.5 Tightening Torque 1N-m	EZBR...017...	-	-
			EZB [®] /L...020...	EZ_R...020-...	
			EZB [®] /L...025...	EZTR...025-...	-
			EZB [®] /L...030...	EZ_R...030-...	-
EZH 035...ST-... 040...ST-... 050...ST-... 060...ST-... 070...ST-... 080...ST-...	HS4X4P	LW-2 Tightening Torque 2N-m	EZB [®] /L...035...	EZTR...035-...	-
			EZB [®] /L...040...	EZ_R/L...040-...	-
			EZB [®] /L...050...	EZ_R/L...050-...	_050X-...-060EZP
			EZB [®] /L...060...	EZ_R/L...060-...	_060X-...-070EZP
			EZB [®] /L...070...	EZ_R/L...070-...	_070X-...-080EZP
			EZB [®] /L...080...	-	_080X-...-100EZP

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

VNB-S (Boring)



Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions									Tolerance (mm)		Carbide		Applicable Toolholder ➡ F50~F53
			DMIN	H	LPR	LBB	LF	LU	WF	WF ₂	RE	RE min.	RE max.	PVD		
														PR1225	PR930	
mm	VNBR 0103-005S	1	1	3.9	7	0.7	26.5	3	0.85	0.2	0.05	-0.02	0	●	●	SVNR...-12N S...-SVNR12N S...-SVNR12SN
	VNBR 0105-005S	1	1	3.9	7	0.7	26.5	5	0.85	0.2	0.05	-0.02	0	●	●	
	VNBR 01503-005S 01503-01S 01505-005S 01505-01S	1	1.5	3.9	7	0.7	26.5	3 3 5 5	1.3	0.2	0.05 0.1 0.05 0.1	-0.02 -0.03 -0.02 -0.03	0	● ● ● ●	● ● ● ●	
	VNBR 0206-005S 0206-01S	1	2	3.9	-	0.8	26.5	6	1.8	0.25	0.05 0.1	-0.02 -0.03	0	● ●	● ●	SVNR...-12N, SVNSR-12-06N S...-SVNR12N, S...-SVNR12SN
	VNBR 025075-005S 025075-01S	1	2.5	3.9	-	0.8	28.1	7.5	2.1	0.4	0.05 0.1	-0.02 -0.03	0	● ●	● ●	SVNR...-12NS...-SVNR12N S...-SVNR12SN
	VNBR 0311-005S 0311-01S	1	3	3.9	-	0.8	30.8	11	2.6	0.4	0.05 0.1	-0.02 -0.03	0	● ●	● ●	SVNR...-12N, SVNSR-12-11N S...-SVNR12N, S...-SVNR12SN
	VNBR 03515-005S 03515-01S	1	3.5	3.9	-	0.8	34.8	15	3	0.5	0.05 0.1	-0.02 -0.03	0	● ●	● ●	SVNR...-12NS...-SVNR12N S...-SVNR12SN
	VNBR 0411-005S 0411-01S 0411-02S	1	4	3.66	-	0.8	30.8	11	3.5	0.5	0.05 0.1 0.2	-0.02 -0.03 -0.04	0	● ● ●	● ● ●	SVNR...-12N, SVNSR-12-11N S...-SVNR12N, S...-SVNR12SN
	VNBR 0420-005S 0420-01S 0420-02S	1	4	3.66	-	0.8	39.8	20	3.5	0.5	0.05 0.1 0.2	-0.02 -0.03 -0.04	0	● ● ●	● ● ●	SVNR...-12N, SVNSR-12-20N S...-SVNR12N, S...-SVNR12SN

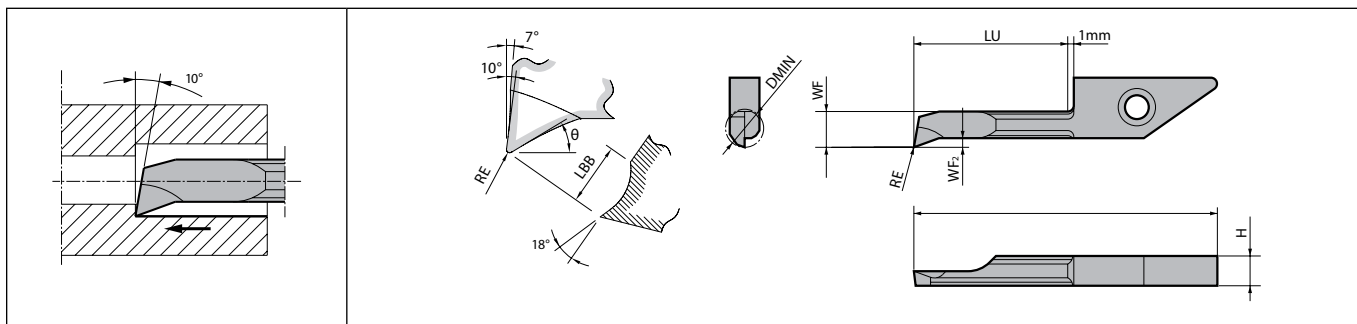
Recommended Cutting Conditions (VNB-S)

Workpiece Material	Insert Grades (Vc: sfm)		VNB01-S VNB015-S		VNB02-S VNB04-S		Notes
	MEGACOAT	PVD coated carbide					
	PR1225	PR930	D.O.C. (in), f (ipr)				
			D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	★ 100~390	☆ 100~330	~0.0039	~0.0004	~0.0079	~0.0012	Coolant
Stainless Steel	★ 100~300	☆ 100~260	~0.0039	~0.0004	~0.0079	~0.0008	

★ 1st recommendation ☆ 2nd recommendation

Swiss IQ Bars are
sold in 5 piece boxes

VNB (Boring)



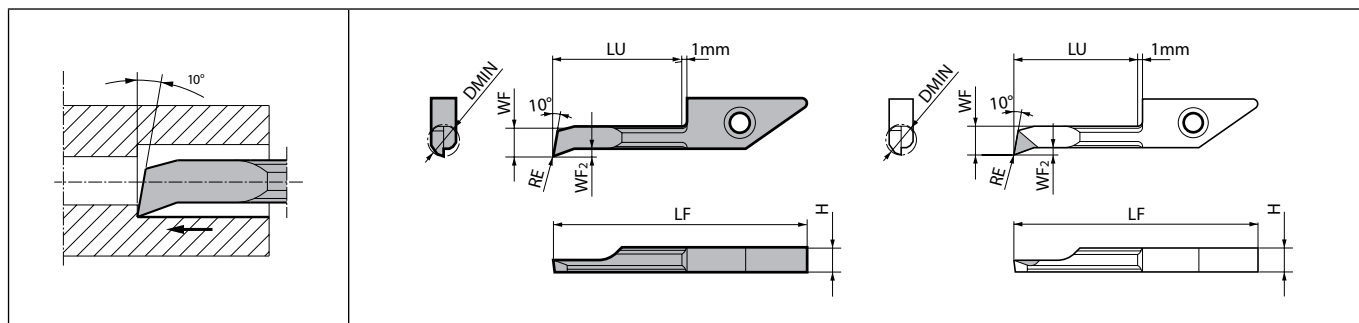
Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions								Angle θ (°)	Carbide			Applicable Toolholder 🔗 F50~F53
			DMIN	H	LBB	LF	LU	WF	WF ₂	RE		PVD		-	
												PR1225	PR930			KW10
mm	VNBR 0206-003 0206-01 0206-02	1	2	3.9	1.2	26.5	6	1.8	0.25	0.03 0.1 0.2	24	● ● ●	● ● ●	● ● ●	SVNR....-12N, SVNSR-12-06N S....-SVNR12N, S....-SVNR12SN
	VNBR 0311-003 0311-01 0311-02	1	3	3.9	1.8	30.8	11	2.6	0.4	0.03 0.1 0.2	24	● ● ●	● ● ●	● ● ●	SVNR....-12N, SVNSR-12-11N S....-SVNR12N, S....-SVNR12SN
	VNBR 0411-003 0411-01 0411-02	1	4	3.66	2.7	30.8	11	3.5	0.5	0.03 0.1 0.2	23	● ● ●	● ● ●	● ● ●	SVNR....-12N, SVNSR-12-11N S....-SVNR12N, S....-SVNR12SN
	VNBR 0420-003 0420-01 0420-02	1	4	3.66	2.7	39.8	20	3.5	0.5	0.03 0.1 0.2	23	● ● ●	● ● ●	● ● ●	SVNR....-12N, SVNSR-12-20N S....-SVNR12N, S....-SVNR12SN
	VNBR 0511-003 0511-01 0511-02	1	5	3.9	3	30.8	11	4.5	0.7	0.03 0.1 0.2	23	● ● ●	● ● ●	● ● ●	SVNR....-12N, SVNSR-12-11N S....-SVNR12N, S....-SVNR12SN
	VNBR 0520-003 0520-01 0520-02	1	5	3.9	3	39.8	20	4.5	0.7	0.03 0.1 0.2	23	● ● ●	● ● ●	● ● ●	SVNR....-12N, SVNSR-12-20N S....-SVNR12N, S....-SVNR12SN
	VNBR 0620-003 0620-01 0620-02	1	6	3.9	3	39.8	20	5.3	1	0.03 0.1 0.2	24	● ● ●	● ● ●	● ● ●	SVNR....-12N, SVNSR-12-20N S....-SVNR12N, S....-SVNR12SN
	VNBR 0630-003 0630-01 0630-02	1	6	3.9	3	49.8	30	5.3	1	0.03 0.1 0.2	24	● ● ●	● ● ●	● ● ●	SVNR....-12N S....-SVNR12N S....-SVNR12SN
	VNBR 0720-003 0720-01 0720-02	1	7	3.9	3	39.8	20	6.2	1	0.03 0.1 0.2	24	●	● ● ●	● ● ●	SVNR....-12N, SVNSR-12-20N S....-SVNR12N, S....-SVNR12SN
	VNBR 0730-003 0730-01 0730-02	1	7	3.9	3	49.8	30	6.2	1	0.03 0.1 0.2	24	●	● ● ●	● ● ●	SVNR....-12N S....-SVNR12N S....-SVNR12SN

Recommended Cutting Conditions F49

VNB-NB (Boring)



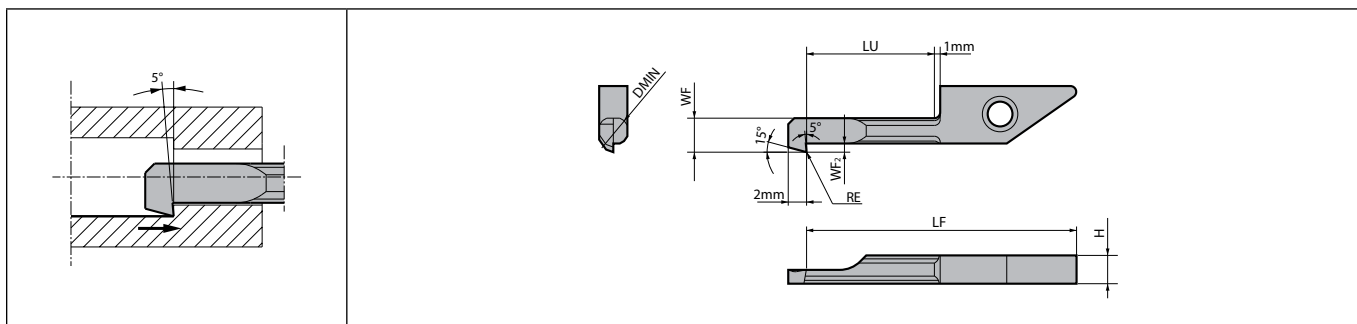
Right-hand shown

Dimensions

Unit	Part Number		No. of Edges	Dimensions							Angle	Carbide		PCD	Applicable Toolholder F50~F53
				DMIN	H	LF	LU	WF	WF ₂	RE	θ (°)	PVD	-	-	
												PR930	KW10	KPD001	
mm	VNBR	0206-003NB 0206-02NB	1	2	3.9	26.5	6	1.8	0.25	0.03 0.2	15	●	●		SVNR...-12N, SVNSR...-12-06N S...-SVNR12(N), S...-SVNR12SN
	VNBR	0311-003NB 0311-02NB	1	3	3.9	30.8	11	2.6	0.4	0.03 0.2	15	●	●		SVNR...-12N, SVNSR...-12-11(N) S...-SVNR12(N), S...-SVNR12SN
	VNBR	0411-003NB 0411-02NB	1	4	3.66	30.8	11	3.5	0.5	0.03 0.2	15	●	●	●	SVNR...-12N, SVNSR...-12-11(N) S...-SVNR12(N), S...-SVNR12SN
	VNBR	0420-003NB 0420-02NB	1	4	3.66	39.8	20	3.5	0.5	0.03 0.2	15	●	●	●	SVNR...-12N, SVNSR...-12-20(N) S...-SVNR12(N), S...-SVNR12SN
	VNBR	0511-003NB 0511-02NB	1	5	3.9	30.8	11	4.5	0.7	0.03 0.2	15	●	●	●	SVNR...-12N, SVNSR...-12-11(N) S...-SVNR12(N), S...-SVNR12SN
	VNBR	0520-003NB 0520-02NB	1	5	3.9	39.8	20	4.5	0.7	0.03 0.2	15	●	●	●	SVNR...-12N, SVNSR...-12-20(N) S...-SVNR12(N), S...-SVNR12SN
	VNBR	0620-003NB 0620-02NB	1	6	3.9	39.8	20	5.3	1	0.03 0.2	15	●	●	●	SVNR...-12N, SVNSR...-12-20(N) S...-SVNR12(N), S...-SVNR12SN
	VNBR	0630-003NB 0630-02NB	1	6	3.9	49.8	30	5.3	1	0.03 0.2	15	●	●	●	SVNR...-12N, S...-SVNR12(N) S...-SVNR12SN
	VNBR	0720-003NB 0720-02NB	1	7	3.9	39.8	20	6.2	1	0.03 0.2	15	●	●	●	SVNR...-12N, SVNSR...-12-20(N) S...-SVNR12(N), S...-SVNR12SN
	VNBR	0730-003NB 0730-02NB	1	7	3.9	49.8	30	6.2	1	0.03 0.2	15	●	●	●	SVNR...-12N, S...-SVNR12(N) S...-SVNR12SN

Recommended Cutting Conditions F49

Swiss IQ Bars are
sold in 5 piece boxesPCD Swiss IQ Bars are
sold in 1 piece boxes

VNB_T (Back Boring)

Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions							Carbide			Applicable Toolholder 🔩 F50~F53
			DMIN	H	LF	LU	WF	WF ₂	RE	PVD		-	
										PR1225	PR930			KW10
mm	VNBTR 0411-003 0411-01	1	4	3.66	28.8	9	3.6	1	0.03 0.1	● ●	● ●	● ●	SVNR....-12N, SVNSR....-12-11(N) S....-SVNR12(N), S....-SVNR12SN
	VNBTR 0420-003 0420-01	1	4	3.66	37.8	18	3.6	1	0.03 0.1	● ●	● ●	● ●	SVNR....-12N, SVNSR....-12-20(N) S....-SVNR12(N), S....-SVNR12SN
	VNBTR 0511-003 0511-01	1	5	3.9	28.8	9	4.6	1.3	0.03 0.1	● ●	● ●	● ●	SVNR....-12N, SVNSR....-12-11(N) S....-SVNR12(N), S....-SVNR12SN
	VNBTR 0520-003 0520-01	1	5	3.9	37.8	18	4.6	1.3	0.03 0.1	● ●	● ●	● ●	SVNR....-12N, SVNSR....-12-20(N) S....-SVNR12(N), S....-SVNR12SN

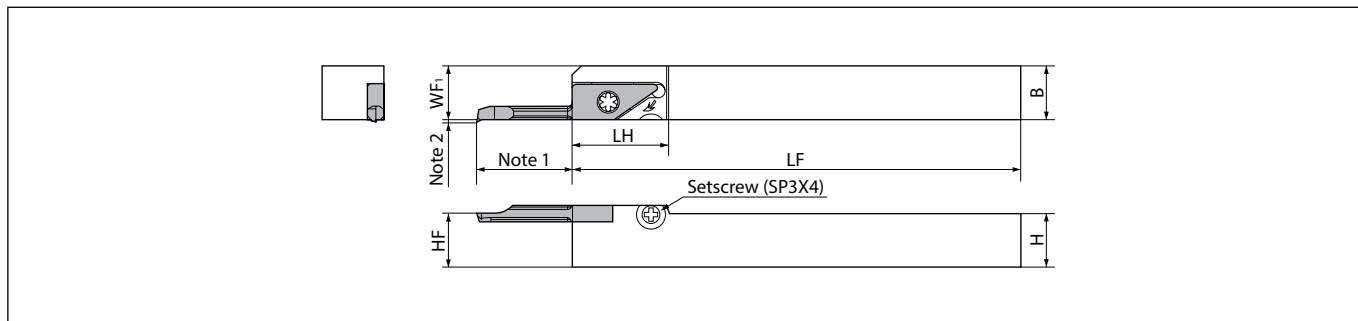
Recommended Cutting Conditions (VNB / VNB-NB / VNB_T)

Workpiece Material	Insert Grades (Vc: sfm)					VNB02		VNB03		VNB04 VNB04		VNB05 VNB06 VNB07 VNB05		Notes
	MEGACOAT	PVD Coated Carbide	Carbide	PCD										
	PR1225	PR930	KW10	KPD001	KPD010									
	ap (mm), f (mm/rev)													
	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f						
Carbon Steel / Alloy Steel	★ 100~390	☆ 100~330				~0.0118	~0.0012	~0.0157	~0.0016	~0.0177	~0.0028	~0.0197	~0.0039	Coolant
Stainless Steel	★ 100~330	☆ 100~260				~0.0118	~0.0008	~0.0157	~0.0012	~0.0177	~0.0020	~0.0197	~0.0028	
Non-Ferrous Metals			☆ ~330	★ ~980	☆ ~980	~0.0118	~0.0020	~0.0157	~0.0024	~0.0177	~0.0039	~0.0197	~0.0059	

★ 1st recommendation ☆ 2nd recommendation

Swiss IQ Bars are
sold in 5 piece boxes

SVN-N (without Side Stopper)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.
Note 1 & Note 2 (WF₂) : For insert dimensions, see page (F46~F49)

Toolholder Dimensions

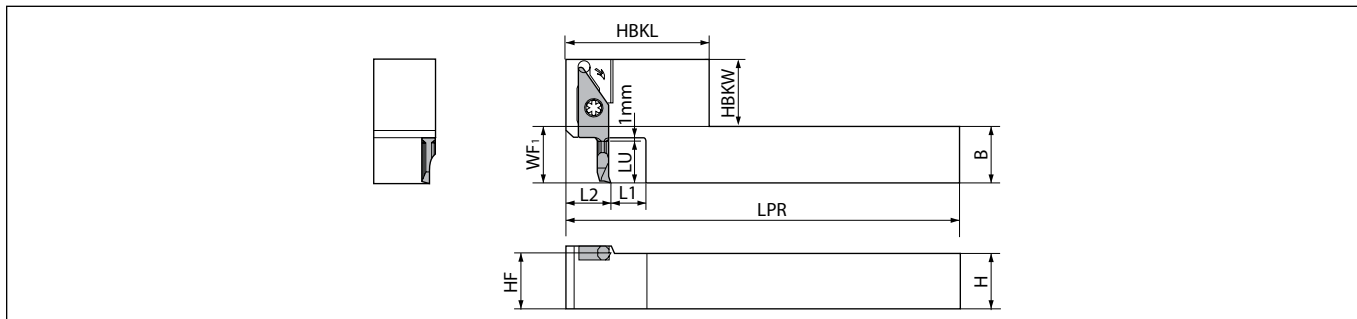
Unit	Part Number	Std. Item	Dimensions							Spare Parts			Applicable Inserts F46~F49
										Screw	Set Screw	Wrench	
			R	H	B	LH	HF	LF	WF ₁				
mm	SVNR 1010H-12N	●	10	10		10	100	10		SB-3080TR	SP3X4	FT-10	VNBR...-...
	1212K-12N	●	12	12		12		12					VNBTR...-...
	1616K-12N	●	16	16	22	16	125	16					VNGR...-...
	2020K-12N	●	20	20		20		20					VNFGR...-...
	2525M-12N	●	25	25		25	150	25					VNTR...-..

SVN-N (without Side Stopper) retains high index accuracy with an easy restraint.

SVN-N (without Side Stopper) has a setscrew SP3X4. Changing the set screw SP3X4 to a H53X4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

Spare Parts (Optional)

Screw (Side Stopper)	Wrench
	
H53X4	LW-1.5

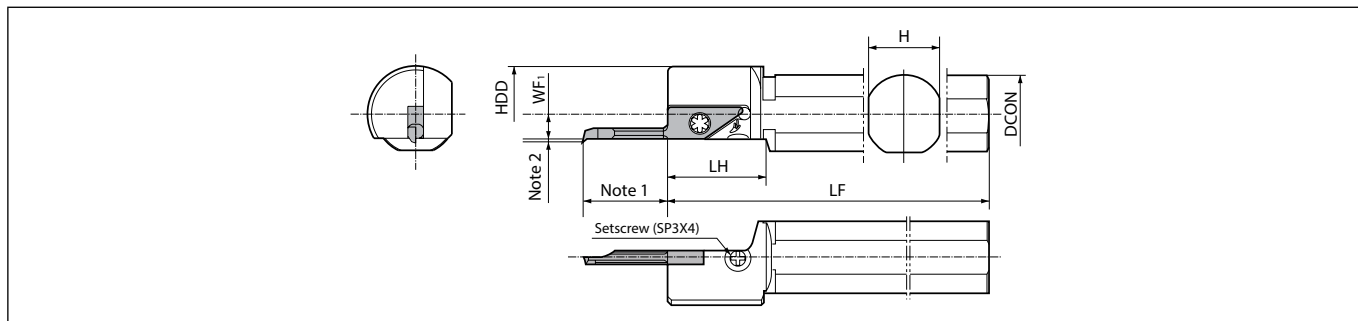
SVNS-N (without Side Stopper / without Set Screw)

Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions											Spare Parts		Applicable Inserts F46~F49
														Screw	Wrench	
			R	H	B	LPR	HF	HBKW	HBKL	LU	WF1	L1	L2			
mm	SVNSR 1010K-12-06N	●	10	10	125	10	19				10			SB-3080TR	LTW-10S	VNBR..06...
	1212M-12-06N	●	12	12		12	17	45	6		12	10	12			
	1616M-12-06N	●	16	16	150		16	13			16	16	16			
	SVNSR 1010K-12-11N	●	10	10	125	10	23				10			SB-3080TR	LTW-10S	VNBR..11-..., VNBTR..11-... VNGR...-11, VNTR...-11
	1212M-12-11N	●	12	12		12	21	45	11		12	10	12			
	1616M-12-11N	●	16	16	150		16	17			16	16	16			
	SVNSR 1212M-12-20N	●	12	12		12	30	45	20		12	10	13	SB-3080TR	LTW-10S	VNBR..20-..., VNBTR20-... VNGR...-20
	1616M-12-20N	●	16	16	150		16	26			16	16	16			

All Swiss IQ Bar Inserts are used with SVNSR-N Toolholders. However, when setting the cutting edge at the face level of the toolholder as shown in the figure, use the applicable inserts described above. In these cases, the LU dimension of the toolholders corresponds to the LU dimension of the insert.

S-SVN-N (Round Shank / Standard / without Side Stopper)

Right-hand shown | Right-hand Insert for Right-hand Toolholder.
Note 1 & Note 2 (WF₂) : For insert dimensions, see page (F46~F49)

Toolholder Dimensions

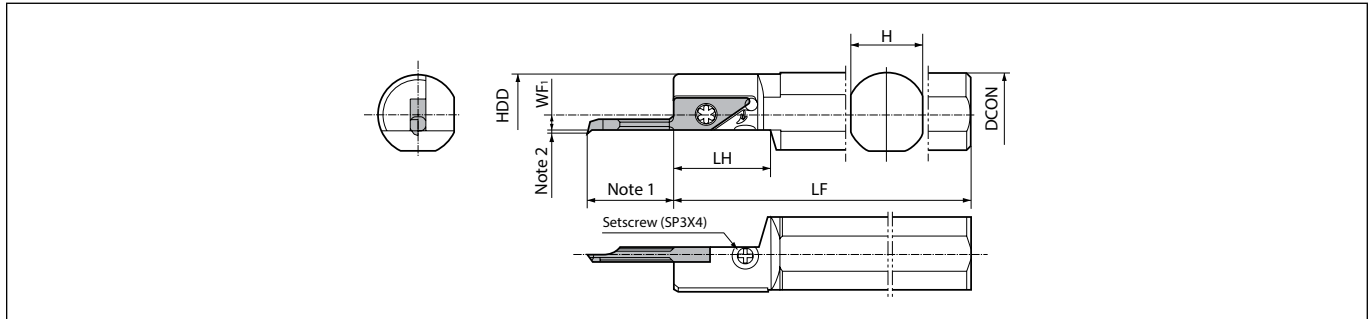
Unit	Part Number	Std. Item	Dimensions						Spare Parts			Applicable Inserts 🔩 F46~F49	
									Screw	Set Screw	Wrench		
		R	DCON	H	LH	HDD	LF	WF ₁					
Inch	S19H- SVN12N	●	0.750	0.669	0.945	0.945	3.937	0.236	SB-3080TR	SP3X4	FT-10	VNBR...-... VNBTR...-... VNGR...-... VNFR...-... VNTR...-..	
	S19N- SVN12N	●					6.299						
	S25H- SVN12N	●	1.000	0.905	0.945	1.181	3.937						
	S25Q- SVN12N	●					7.086						
mm	S12F- SVN12N	●	12	11	23	20.0	80	4	SB-3080TR	SP3X4	FT-10		
	S14G- SVN12N	●	14	13			90						
	S16H- SVN12N	●	16	15	23	24.0	100						6
	S20H- SVN12N	●	20	18	24		100						

Spare Parts (Optional)

Screw (Side Stopper)	Wrench
HS3X4	LW-1.5

S-SVN-N (without Side Stopper) retains high index accuracy with an easy restraint.

S-SVN-N (without Side Stopper) has a setscrew SP3X4. Changing the set screw SP3X4 to a HS3X4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

S-SVN-SN (Round Shank / Straight / without Side Stopper)

Right-hand shown | Right-hand Insert for Right-hand Toolholder.
Note 1 & Note 2 (WF₂) : For insert dimensions, see page (F46~F49)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Spare Parts			Applicable Inserts ● F46~F49	Spare Parts (Optional)
										Screw	Set Screw	Wrench		
			R	DCON	H	LH	HDD	LF	WF ₁					
mm	S20H- SVN R125N	●	20	18	23	19.5	100	4	SB-3080TR	SP3X4	FT-10	VNBR...-..., VNBTR...-... VNGR...-..., VNFGR...-... VNTR...-...	 HS3X4	 LW-1.5
	S22K- SVN R125N	●	22	20		21.5	125							
	S25.0G- SVN R125N	●	25	23		24.5	90							

S-SVN-SN (without Side Stopper) retains high index accuracy with an easy restraint.

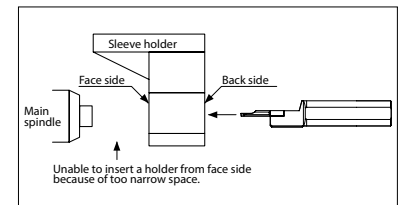
S-SVN-SN (without Side Stopper) has a setscrew SP3X4. Changing the set screw SP3X4 to a HS3X4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

Swiss IQ Bar Selection

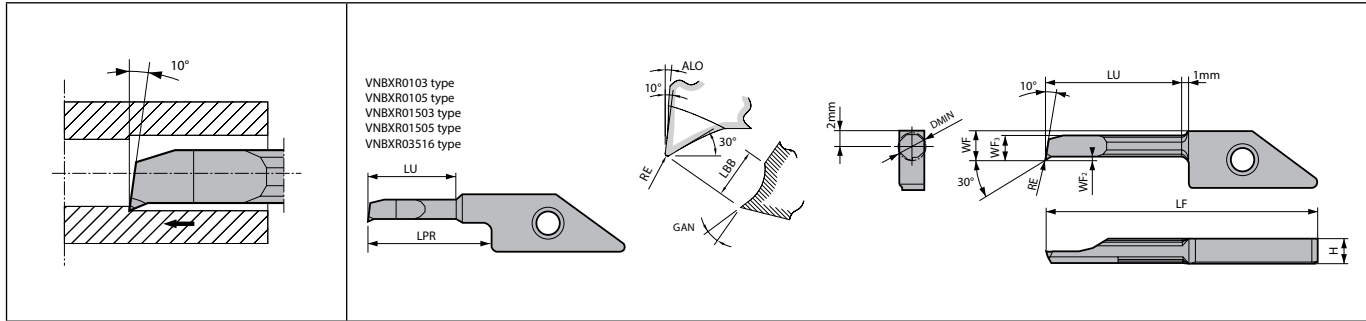
Gang-Type (Horizontal)	Gang-Type	Gang-Type Front loading sleeve type	Gang-Type Back loading sleeve type
Square shank (Straight)	Square shank (L-shape)	Square shank	Square shank
Round Shank (Standard)		Round Shank (Standard)	Round Shank (Standard)
Round Shank (Straight)		Round Shank (Straight)	Round Shank (Straight)
Round Shank (Straight)		Round Shank (Straight)	Round Shank (Straight)

Q: There are standard types (head dia. is larger than shank) and straight types for round shanks.
What is each one used for?

A: The straight type is used when it cannot be inserted from the face side of the sleeve holder and can be inserted only from the back side due to space limitation (Refer to Fig. below).
On the other hand, the standard type should be installed when it can be inserted from the face side. The head end is used for positioning as stopper.



VNBX-S



Right-hand shown

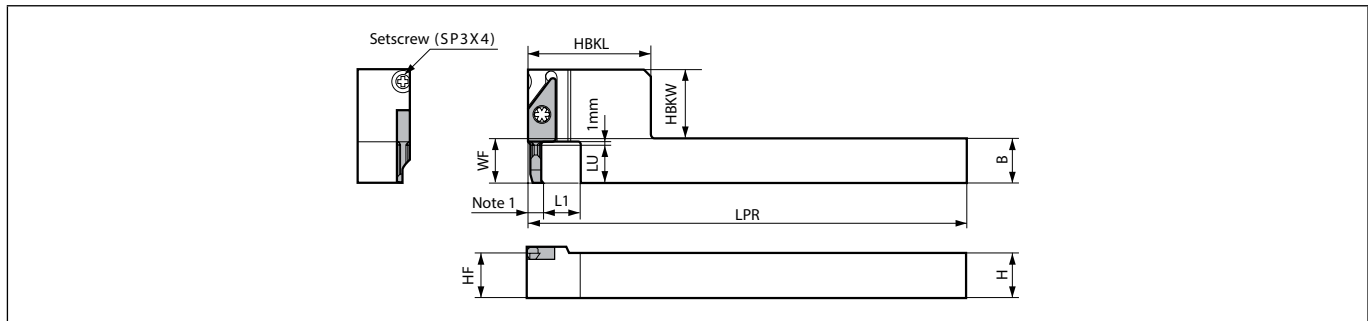
Dimensions

Unit	Part Number	No. of Edges	Dimensions										Angle (°)		Tolerance (mm)		Carbide	Applicable Toolholder F55~F57
			DMIN	H	LPR	LBB	LF	LU	WF	WF ₂	WF ₃	RE	ALO	GAN	RE min.	RE max.	PVD	
																	PR930	
mm	VNBXR 0103-005S	1	1	3.9	7	0.7	26.5	3	2.95	0.2	0.85	0.05	7	15	-0.02	0	●	S...SVNR12XN S...SVNR12SXN
	VNBXR 0105-005S	1	1	3.9	7	0.7	26.5	5	2.95	0.2	0.85	0.05	7	15	-0.02	0	●	S...SVNR12XN S...SVNR12SXN
	VNBXR 01503-005S 01503-01S 01505-005S 01505-01S	1	1.5	3.9	7	0.7	26.5	3 3 5 5	2.95	0.2	1.3	0.05 0.1 0.05 0.1	7	15	-0.02 -0.03 -0.02 -0.03	0	● ● ● ●	S...SVNR12XN S...SVNR12SXN
	VNBXR 0206-005S 0206-01S	1	2	3.9	-	0.8	26.5	6	3	0.25	1.8	0.05 0.1	8	18	-0.02 -0.03	0	● ●	SVNSR...-12-06XN S...SVNR12XN S...SVNR12SXN
	VNBXR 0311-005S 0311-01S	1	3	3.9	-	0.8	30.8	11	3.5	0.4	2.6	0.05 0.1	8	18	-0.02 -0.03	0	● ●	SVNSR...-12-11XN S...SVNR12XN S...SVNR12SXN
	VNBXR 03511-005S 03511-01S 03516-005S 03516-01S	1	3.5	3.9	- - 21 21	0.8	30.8 30.8 39.8 39.8	11 11 16 16	3.75	0.45	3.1	0.05 0.1 0.05 0.1	8	18	-0.02 -0.03 -0.02 -0.03	0	● ● ● ●	SVNSR...-12-11XN, S...SVNR12XN S...SVNR12SXN S...SVNR12XN S...SVNR12SXN
	VNBXR 0411-005S 0411-01S 0411-02S	1	4	3.66	-	0.8	30.8	11	4	0.5	3.5	0.05 0.1 0.2	8	18	-0.02 -0.03 -0.04	0	● ● ●	SVNSR...-12-11XN S...SVNR12XN S...SVNR12SXN
	VNBXR 0420-005S 0420-01S 0420-02S	1	4	3.66	-	0.8	39.8	20	4	0.5	3.5	0.05 0.1 0.2	8	18	-0.02 -0.03 -0.04	0	● ● ●	SVNSR...-12-20XN S...SVNR12XN S...SVNR12SXN

Recommended Cutting Conditions ➡ F57

Swiss IQ Bars are
sold in 5 piece boxes

SVNS-XN (without Side Stopper)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Note 1 : The dimension of Note 1 is same size as the applicable insert (VNBX) WF dimension.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions										Spare Parts			Applicable Inserts ➔ F54
													Screw	Set Screw	Wrench	
			R	H	B	LPR	L1	HF	HBKW	HBKL	LU	WF				
mm	SVNSR 1010K-12-06XN	●	10	10	125	10	10	19	45	6	10	12	SB-3080TR	SP3X4	LTW-10S	VNBXR0206-...
	1212M-12-06XN	●	12	12	150	10	12	17	45	6	12	12				
	1616M-12-06XN	●	16	16	150	16	16	13	45	6	16	16				
	SVNSR 1010K-12-11XN	●	10	10	125	10	10	23	45	11	10	12	SB-3080TR	SP3X4	LTW-10S	VNBXR...11-...
	1212M-12-11XN	●	12	12	150	10	12	21	45	11	12	12				
	1616M-12-11XN	●	16	16	150	16	16	17	45	11	16	16				
	SVNSR 1212M-12-20XN	●	12	12	150	10	12	30	45	20	12	12	SB-3080TR	SP3X4	LTW-10S	VNBXR0420-...
	1616M-12-20XN	●	16	16	150	16	16	26	45	20	16	16				

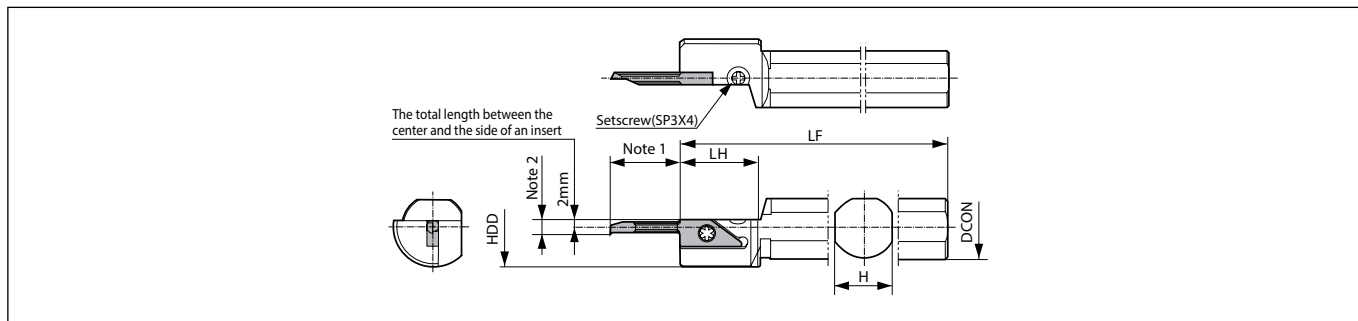
All VNBXR Swiss IQ Bar Inserts are used with a SVNS-XN Toolholder. However, when setting the cutting edge at the face level of the toolholder as shown in figure, use the applicable inserts shown above.

SVNS-XN (without Side Stopper) retains high index accuracy with an easy restraint.

SVNS-XN (without Side Stopper) has a setscrew SP3X4. Changing the set screw SP3X4 to a HS3X4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

Spare Parts (Optional)

Screw (Side Stopper)	Wrench
	
HS3X4	LW-1.5

S-SVN-XN (Round Shank / Standard / without Side Stopper)

Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Note 1 : The dimension of Note 1 shows the applicable insert (VNBX) LU +1 mm.

Note 2 : The dimension of Note 2 is same size as the applicable insert (VNBX) WF dimension.

Toolholder Dimensions

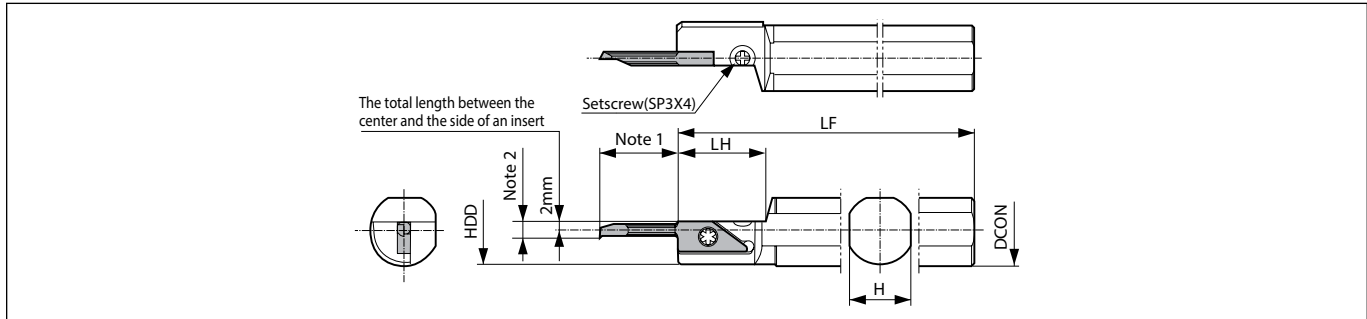
Unit	Part Number	Std. Item	Dimensions					Spare Parts			Applicable Inserts 🔧 F54
								Screw	Set Screw	Wrench	
		R	DCON	H	LH	HDD	LF				
Inch	S19H- SVN12XN	●	0.750	0.669	0.945	3.937	SB-3080TR	SP3X4	FT-10	VNBXR...	
	S19N- SVN12XN	●				6.299					
	S25H- SVN12XN	●	1.000	0.905		1.181					3.937
	S25Q- SVN12XN	●									7.086
	S12F- SVN12XN	●									12	11	23	20	80
S14G- SVN12XN	●	14	13	90							
S16H- SVN12XN	●	16	15	100							
S20H- SVN12XN	●	20	18	24	100						

S-SVN-XN (without Side Stopper) retains high index accuracy with an easy restraint.

S-SVN-XN (without Side Stopper) has a setscrew SP3X4. Changing the set screw SP3X4 to a HS3X4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

Spare Parts (Optional)

Screw (Side Stopper)	Wrench
	
HS3X4	LW-1.5

S-SVN-SXN (Round Shank / Straight / without Side Stopper)

Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Note 1 : The dimension of Note 1 shows the applicable insert (VNBX) LU +1 mm.

Note 2 : The dimension of Note 2 is same size as the applicable insert (VNBX) WF dimension.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Spare Parts			Applicable Inserts ➡ F54
								Screw	Set Screw	Wrench	
		R	DCON	H	LH	HDD	LF				
Inch	S19H- SVN125XN	●	0.750	0.669	0.905	0.728	3.397	SB-3080TR	SP3X4	FT-10	VNBXR...
mm	S20H- SVN125XN	●	20	18	23	19.5	100	SB-3080TR	SP3X4	FT-10	
	S22K- SVN125XN	●	22	20		21.5	125				
	S25.0G- SVN125XN	●	25	23		24.5	90				

S-SVN-SXN (without Side Stopper) retains high index accuracy with an easy restraint.

S-SVN-SXN (without Side Stopper) has a setscrew SP3X4. Changing the set screw SP3X4 to a HS3X4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

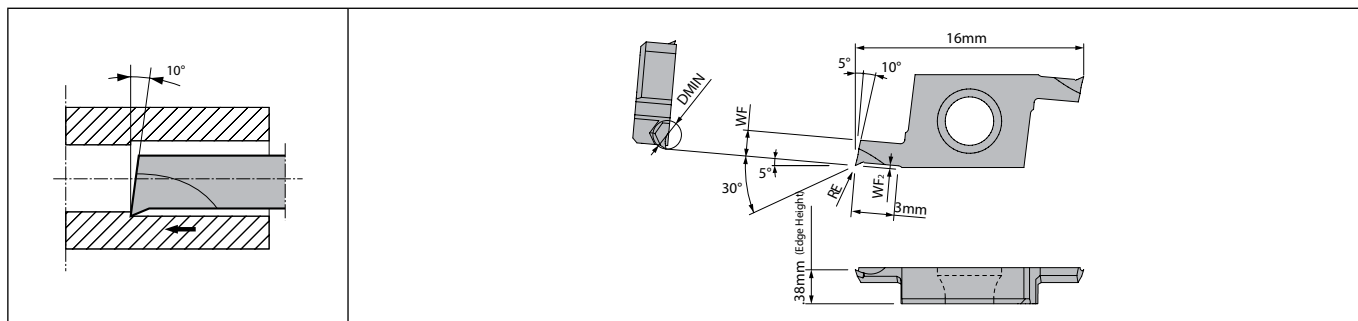
Spare Parts (Optional)

Screw (Side Stopper)	Wrench
	
HS3X4	LW-1.5

Recommended Cutting Conditions (VNBX-S)

Workpiece Material	Insert Grades (Vc: sfm)	VNBX01-S type VNBX015-S type		VNBX02-S type 2		Notes
	PVD Coated Carbide			VNBX04-S type		
	PR930			D.O.C. (in), f (ipr)		
		D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	★ 100~330	~0.0039	~0.0004	~0.0079	~0.0012	Coolant
Stainless Steel	★ 100~260	~0.0039	~0.0004	~0.0079	~0.0008	

★ 1st recommendation

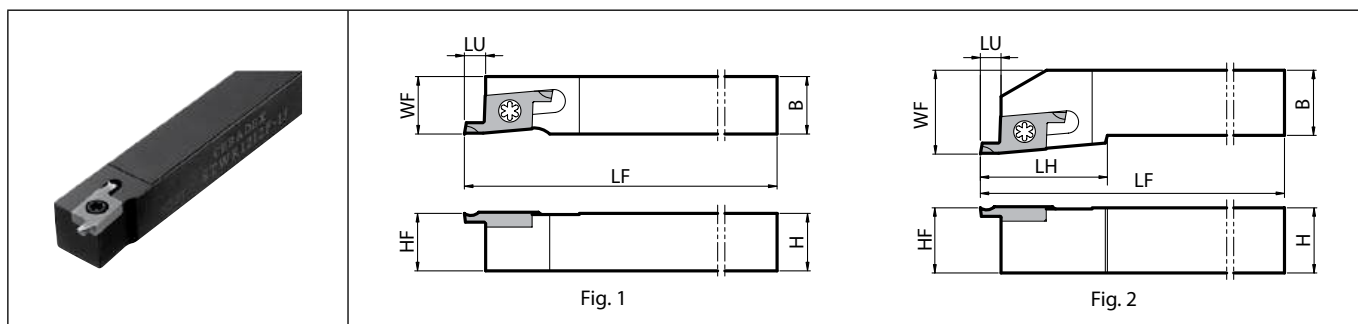
TWB (Micro Boring, Horizontal Type)

Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions				Tolerance (mm)		Carbide	Applicable Toolholder ➔ F58, F59
			DMIN	WF	WF ₂	RE	RE min.	RE max.		
mm	TWBR 01003-005	2	1	0.85	0.2	0.05	-0.02	0	●	STWR...-15 S...STWR15
	TWBR 01503-005	2	1.5	1.3	0.2	0.05	-0.02	0	●	
	TWBR 01503-010	2	1.5	1.3	0.2	0.1	-0.03	0	●	
	TWBR 02003-005	2	2	1.75	0.25	0.05	-0.02	0	●	
	TWBR 02003-010	2	2	1.75	0.25	0.1	-0.03	0	●	
	TWBR 02503-005	2	2.5	2.1	0.3	0.05	-0.02	0	●	
	TWBR 02503-010	2	2.5	2.1	0.3	0.1	-0.03	0	●	
	TWBR 03003-005	2	3	2.4	0.4	0.05	-0.02	0	●	
	TWBR 03003-010	2	3	2.4	0.4	0.1	-0.03	0	●	
									●	

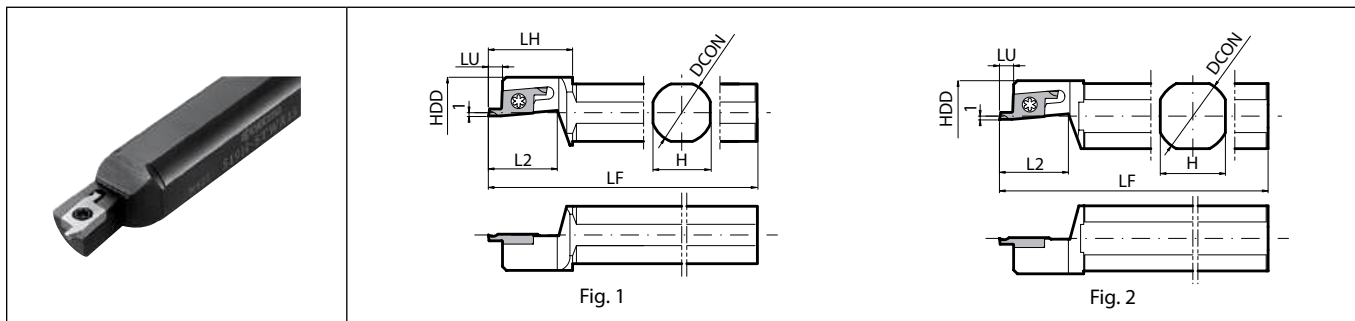
Recommended Cutting Conditions ➔ F61

STW (Micro Boring, Square Shank for Horizontal Type Insert)Right-hand shown | Right-hand Insert for Right-hand Toolholder.
(For Left-hand toolholders for grooving, please see page G102.)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Fig.	Spare Parts		Applicable Inserts ➔ F58
			R	CDX	H	B	LH	HF	LF	LU			Screw	Wrench	
mm	STWR 1212F-15	●	3	12	12	-	12	85	3	12	No	1	SB-3080TR	LTW-10S	TWBR...

Twin Bars are
sold in 5 piece boxes

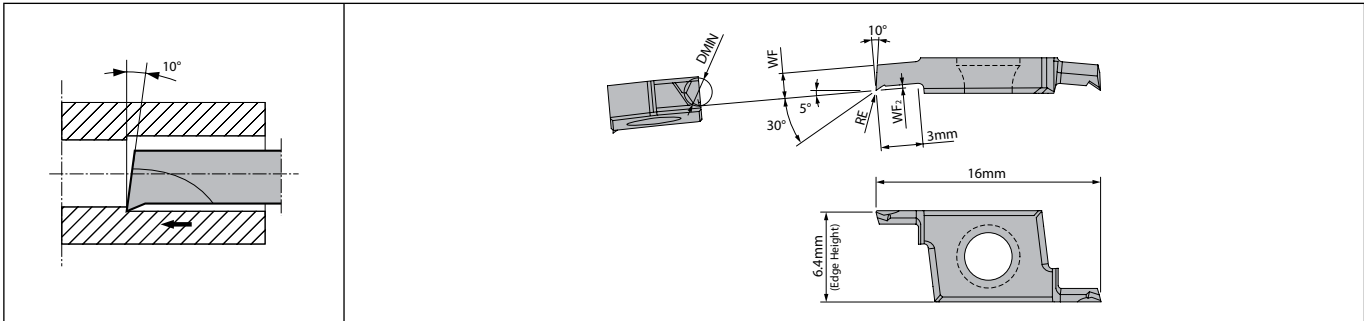
S-STW (Micro Boring, Round Shank for Horizontal Type Insert)

Right-hand shown | Right-hand Insert for Right-hand Toolholder.
(For Left-hand toolholders for grooving, please see page G103.)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Coolant Hole	Fig.	Spare Parts		Applicable Inserts ➡ F58
												Screw	Wrench	
			R	DCON	H	LH	HDD	L2	LF	LU				
mm	S20G- STWR15	●	20	18	-	19.5	18	90	3	No	2	SB-3080TR	LTW-10S	TWBR...
	S25.0J- STWR15	●	25	23	-	24.5	18	110	3	No	2	SB-3080TR	LTW-10S	TWBR...

TWBT (Micro Boring, Vertical Type)



Right-hand shown

Dimensions

Unit	Part Number	No. of Edges	Dimensions				Tolerance (mm)		Carbide	Applicable Toolholder ➡ F61
			DMIN	WF	WF ₂	RE	RE min.	RE max.	PVD	
									PR1535	
mm	TWBTR 01003-005	2	1	0.85	0.2	0.05	-0.02	0	●	STWSR...-15T
	TWBTR 01503-005 01503-010	2	1.5	1.3	0.2	0.05 0.1	-0.02 -0.03	0	●	
									●	
	TWBTR 02003-005 02003-010	2	2	1.75	0.25	0.05 0.1	-0.02 -0.03	0	●	
									●	
	TWBTR 02503-005 02503-010	2	2.5	2.1	0.3	0.05 0.1	-0.02 -0.03	0	●	
●										
TWBTR 03003-005 03003-010	2	3	2.3	0.4	0.05 0.1	-0.02 -0.03	0	●		
								●		

Recommended Cutting Conditions F61

F

BORING

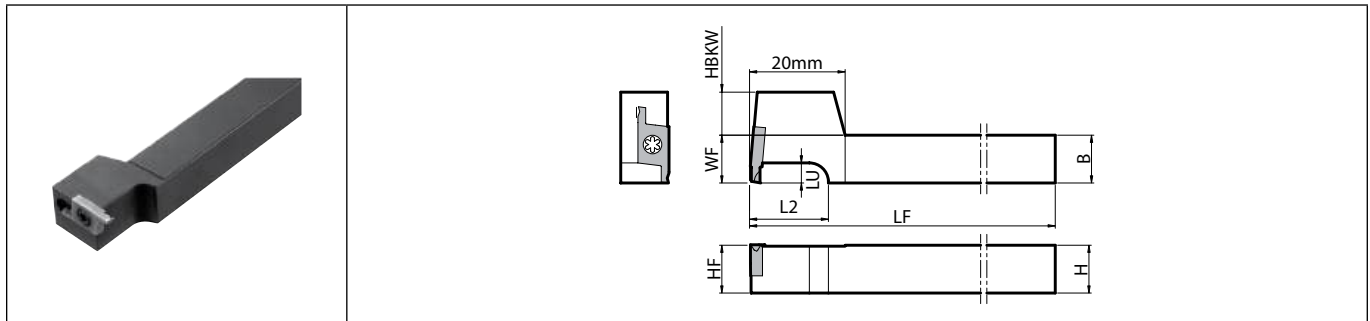
MICRO BORING

POSITIVE INSERTS

ANTI-VIBE BARS

NEGATIVE INSERTS

Twin Bars are sold in 5 piece boxes

STWS (Micro Boring, Square Shank for Vertical Type Insert)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions									Spare Parts		Applicable Inserts ➡ F60
												Screw	Wrench	
			R	H	B	L2	HF	HBKW	LF	LU	WF			
mm	STWSR 1010F-15T	●	10	10	16	10	9	85	3	10	SB-3080TR	LTW-10S	TWBTR...	
	1010JX-15T	●						120						
	1212F-15T	●	12	12		12	7	85		12				
	1212JX-15T	●			120									
	1616JX-15T	●	16	16	20	16	3	16						

Recommended Cutting Conditions (TWB / TWBT)

Workpiece Material	Insert Grades Vc: sfm		TWBR01003 TWBR01503 TWBTR01003 TWBTR01503		TWBR02003 TWBR02503 TWBR03003 TWBTR02003 TWBTR02503 TWBTR03003		Notes
	MEGACOAT NANO	PVD Coated Carbide					
	PR1535	PR1025					
			D.O.C.	f	D.O.C.	f	
	Carbon Steel / Alloy Steel	★ 30~100	☆ 30~100	~0.0039	~0.0004	~0.0079		~0.0012	Coolant
Stainless Steel	★ 30~80	☆ 30~80	~0.0039	~0.0004	~0.0079	~0.0008	

★1st recommendation ☆2nd recommendation

A/S-SCLC-AE Excellent Bar (Boring / Internal Facing)

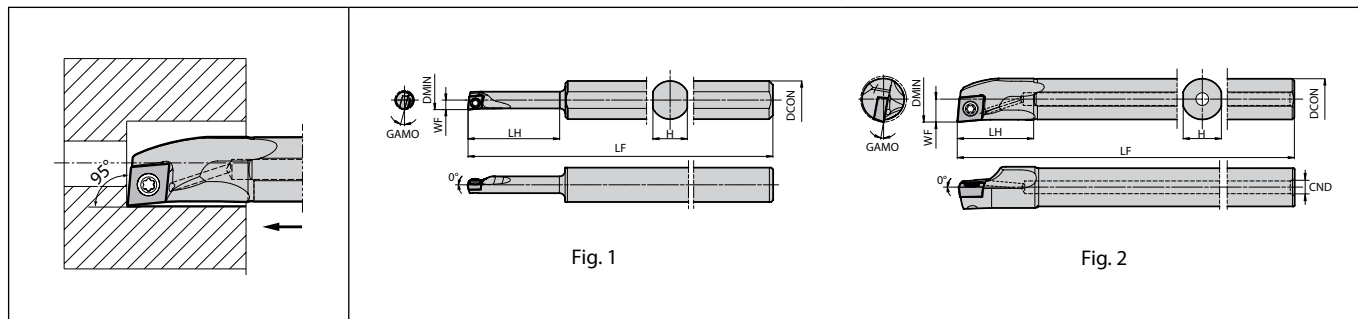


Fig. 1

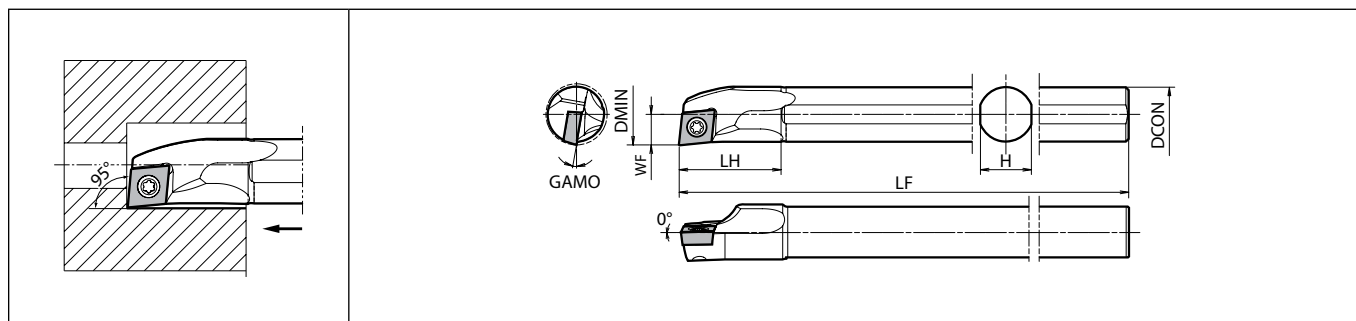
Fig. 2

Max. Overhang Length $L/D \approx 5.5$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts
																Screw	Wrench	Wrench	
		R	L	DMIN	DCON	CND	H	LH	LF	WF									
Inch	A06M- SCLC% 2AE	●	●	0.480	0.375	0.118	0.336	0.787	6.000	0.236	12	1/64	Yes	2	SB-2545TR	-	FT-8	CC□T215... CC□W215...	
	A08M- SCLC% 2AE	●	●	0.600	0.500	0.158	0.461	0.945	6.000	0.276	10	1/64	Yes	2	SB-4065TR	FT-15	-	CC□T325... CC□W325...	
	A10R- SCLC% 3AE	●	●	0.770	0.625	0.197	0.586	1.181	8.000	0.354	10	1/64	Yes	2	SB-1635TR	-	FT-6	CC□T1109... CC□W1109...	
	A12S- SCLC% 3AE	●	●	0.930	0.750	0.197	0.711	1.417	10.000	0.413	8	1/64	Yes	2	SB-2035TR	-	FT-6	CC□T1411... CC□W1411...	
	A16T- SCLC% 3AE	●	●	1.200	1.000	0.197	0.961	1.811	12.000	0.531	6	1/64	Yes	2	SB-2545TR	-	FT-8	CC□T215... CC□W215...	
mm	S10H- SCLC% 03-05AE	●	●	5	10	-	9	24	100	2.5	15	0.2	No	1	SB-1635TR	-	FT-6	CC□T1109... CC□W1109...	
	S10H- SCLC% 03-06AE	●	●	6				28		3	13								
	S10H- SCLC% 04-07AE	●	●	7	10	-	9	32	100	3.5	13	0.2	No	1	SB-2035TR	-	FT-6	CC□T1411... CC□W1411...	
	S10H- SCLC% 04-08AE	●	●	8				37		4	11								
	A08X- SCLC% 06-10AE	●	●	10	8	2.5	7	16	120	5	14	0.4	Yes	2	SB-2545TR	-	FT-8	CC□T215... CC□W215...	
	A10L- SCLC% 06-12AE	●	●	12	10	3	9	20	140	6	12								
	A12M- SCLC% 06-14AE	●	●	14	12	4	11	24	150	7	10	0.4	Yes	2	SB-4065TR	FT-15	-	CC□T325... CC□W325...	
	A16Q- SCLC% 09-18AE	●	●	18	16	5	15	30	180	9	10								
A20R- SCLC% 09-22AE	●	●	22	20	19		36	200	11	8	0.4	Yes	2	SB-4065TR	FT-15	-	CC□T325... CC□W325...		
A25S- SCLC% 09-27AE	●	●	27	25	24		46	250	13.5	6									

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

S-SCLC-A Steel Shank Bar (Boring / Internal Facing)

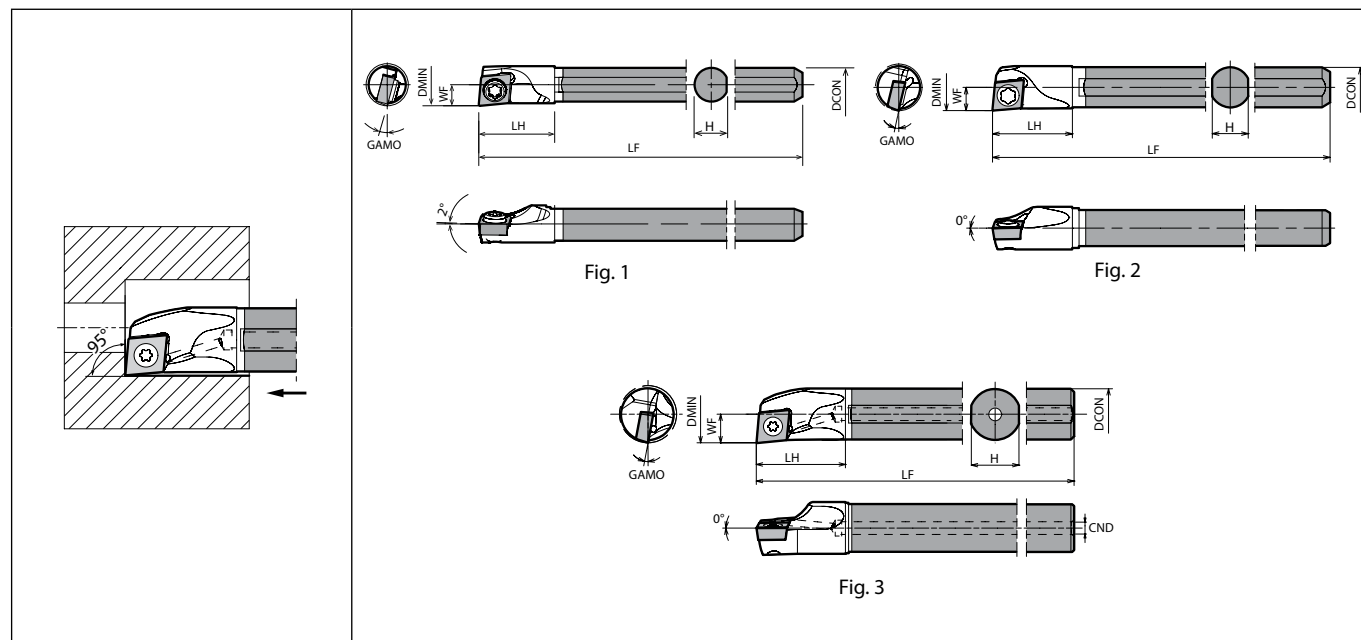
Max. Overhang Length $L/D \approx 4$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF	Screw				Wrench	Wrench		
																	
mm	S08X- SCLC%L 06-10A	●	●	10	8	7	16	120	5	14	0.4	No	SB-2545TR	-	FT-8	CC□T215... CC□W215...	
	S10L- SCLC%L 06-12A	●	●	12	10	9	20	140	6	12							
	S12M- SCLC%L 06-14A	●	●	14	12	11	24	150	7	10							
	S16Q- SCLC%L 09-18A	●	●	18	16	15	30	180	9	10	0.4	No	SB-4065TR	FT-15	-	CC□T325... CC□W325...	
	S20R- SCLC%L 09-22A	●	●	22	20	19	36	200	11	8							
	S25S- SCLC%L 09-27A	●	●	27	25	24	46	250	13.5	6							

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

C/E-SCLC-A(N) Carbide Shank Bar (Boring / Internal Facing)



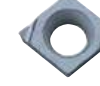
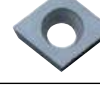
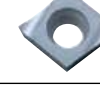
Max. Overhang Length $L/D \sim 7$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

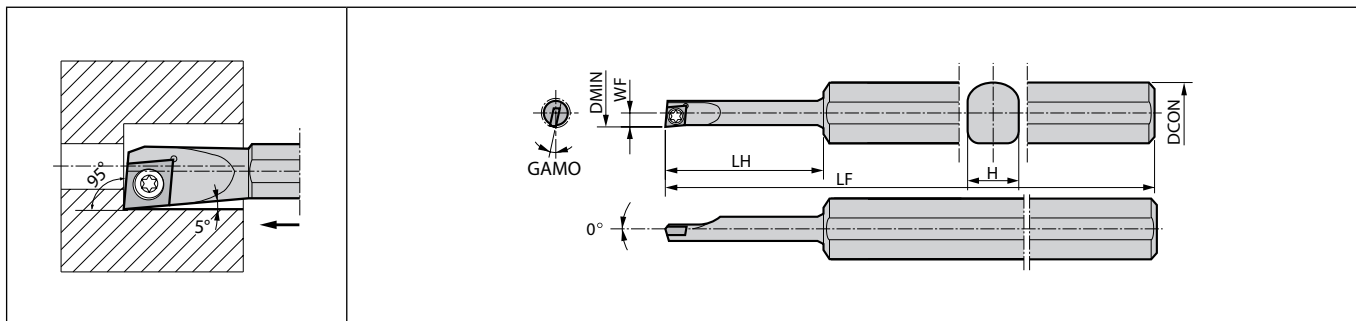
Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts
		R	L	DMIN	DCON	CND	H	LH	LF	WF					Screw	Wrench	Wrench	
Inch	E06N- SCLC% 2A	●	●	0.480	0.375	0.118	0.336	0.787	6.300	0.236	12	1/64	Yes	3	SB-2545TR	-	FT-8	CC□T215... CC□W215...
	E08Q- SCLC% 2A	●	●	0.600	0.500	0.158	0.461	0.906	7.100	0.276	10	1/64	Yes	3	SB-4065TR	FT-15	-	CC□T325... CC□W325...
	E10X- SCLC% 3A	●	●	0.770	0.625	0.197	0.586	1.102	8.700	0.354	10	1/64	Yes	3	SB-4065TR	FT-15	-	CC□T325... CC□W325...
	E10X- SCLCR3A-2/3	●	●	0.770	0.625	0.197	0.586	1.102	8.700	0.354	10	1/64	Yes	3	SB-4065TR	FT-15	-	CC□T325... CC□W325...
mm	C04G- SCLC% 03-05AN	●	●	5	4	-	3.8	7	90	2.5	15	0.2	No	1	SB-1635TR	-	FT-6	CC□T1109..., CC□W1109...
	C05H- SCLC% 03-06AN	●	●	6	5	-	4.4	9	100	3	13	0.2	No	2	SB-1635TR	-	FT-6	CC□T1109..., CC□W1109...
	C06J- SCLC% 04-07AN	●	●	7	6	-	5.4	10	110	3.5	13	0.2	No	2	SB-2035TR	-	FT-6	CC□T1411... CC□W1411...
	C07K- SCLC% 04-08AN	●	●	8	7	-	6.4	11	125	4	11	0.2	No	2	SB-2035TR	-	FT-6	CC□T1411... CC□W1411...
	E08L- SCLC% 06-10AN	●	●	10	8	-	7	14	140	5	14	0.4	Yes	3	SB-2545TR	-	FT-8	CC□T215... CC□W215...
	SCLCR06-10AN2/3	●	●	10	8	-	7	14	140	5	14	0.4	Yes	3	SB-2545TR	-	FT-8	CC□T215... CC□W215...
	E10N- SCLC% 06-12AN	●	●	12	10	-	9	18	160	6	12	0.4	Yes	3	SB-2545TR	-	FT-8	CC□T215... CC□W215...
	SCLCR06-12AN2/3	●	●	12	10	-	9	18	160	6	12	0.4	Yes	3	SB-2545TR	-	FT-8	CC□T215... CC□W215...
	E12Q- SCLC% 06-14A	●	●	14	12	-	11	23	180	7	10	0.4	Yes	3	SB-4065TR	FT-15	-	CC□T325... CC□W325...
	SCLCR06-14A-2/3	●	●	14	12	-	11	23	180	7	10	0.4	Yes	3	SB-4065TR	FT-15	-	CC□T325... CC□W325...
mm	E16X- SCLC% 09-18A	●	●	18	16	-	15	28	220	9	10	0.4	Yes	3	SB-4065TR	FT-15	-	CC□T325... CC□W325...
	SCLCR09-18A-2/3	●	●	18	16	-	15	28	220	9	10	0.4	Yes	3	SB-4065TR	FT-15	-	CC□T325... CC□W325...
	E20S- SCLC% 09-22A	●	●	22	20	-	19	32	250	11	8	0.4	Yes	3	SB-4065TR	FT-15	-	CC□T325... CC□W325...
	SCLCR09-22A-2/3	●	●	22	20	-	19	32	250	11	8	0.4	Yes	3	SB-4065TR	FT-15	-	CC□T325... CC□W325...
mm	E25T- SCLC% 09-27A	●	●	27	25	-	24	38	300	13.5	6	0.4	Yes	3	SB-4065TR	FT-15	-	CC□T325... CC□W325...
	SCLCR09-27A-2/3	●	●	27	25	-	24	38	300	13.5	6	0.4	Yes	3	SB-4065TR	FT-15	-	CC□T325... CC□W325...

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Applicable Inserts (A/S-SCLC-AE / S-SCLC-A / C/E-SCLC-A(N))

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing
Insert								
Chipbreaker Type	CF	PF	GF	SKS	SK	CK	GQ	WP
Page	B58	B58	B58	B59	B59	B59	B59	B60
Applications	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing	Finishing
Insert								
Chipbreaker Type	PP	GK	HQ	Standard	MF	$\frac{R}{L}$ -F	$\frac{R}{L}$ -FSF	$\frac{R}{L}$ -P
Page	B60	B60	B60	B60	B61	B62	B61	B63
Applications	Low Feed	Low Feed	Low Feed	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker Type	$\frac{R}{L}$ -U	$\frac{R}{L}$ -USF	$\frac{R}{L}$ -J	MQ	No Chipbreaker	AP	$\frac{R}{L}$ -A3	AH
Page	B63~B65	B63	B65	B61	B66	B66	B66	B66
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials					
Insert								
Chipbreaker Type	PCD	APD	CBN					
Page	C39	C40	C20					

Recommended Cutting Conditions  F174, F175Applicable Sleeves  F171~F173

S-SCLC-E Excellent Steel Shank Bar (Boring / Internal Facing)

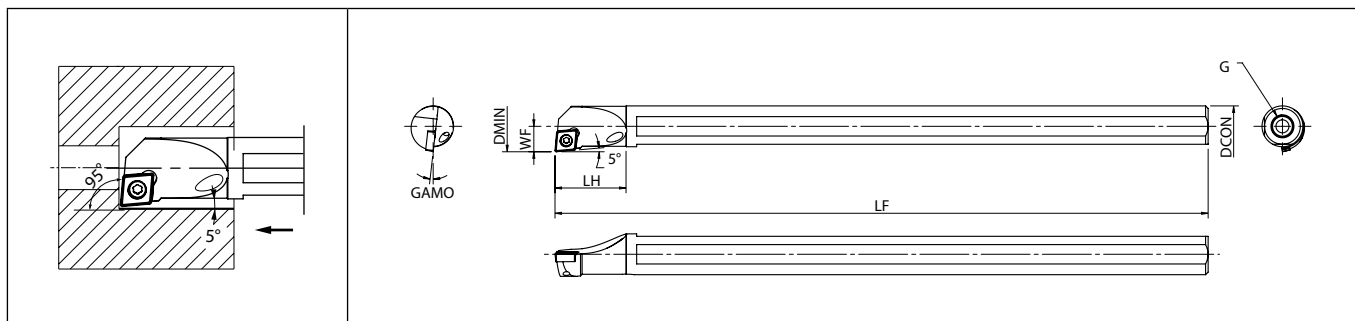
Max. Overhang Length $L/D \sim 5$ | Right-hand shown
 Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
												Screw	Wrench	
		R	DMIN	DCON	H	LH	LF	WF						
Inch	S06H- SCLCR1.1E	●	0.197	0.375	0.335	0.900	4.000	0.098	15	1/64	No	SB-1635TR	FT-6	CC□T1109... CC□W1109...

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder.

Optional sleeve SL2.5-10 (0.625" dia.) is available. (Sleeve screw: SLS-2, sleeve wrench: LW-2)

A-SCLC Steel Bar (Boring / Internal Facing)

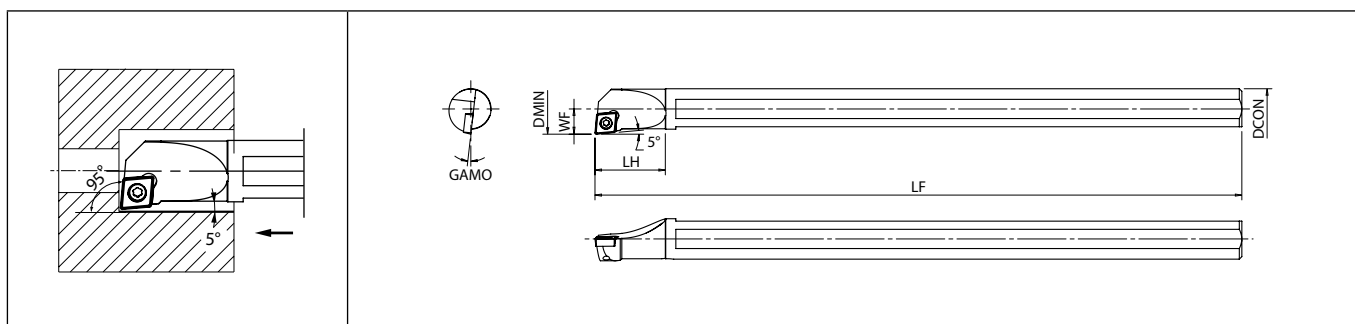
Max. Overhang Length $L/D \sim 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					GAMO (°)	G	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
			R	DMIN	DCON	LH	LF					Screw	Wrench	
Inch	A05K- SCLCR2	●		0.415	0.313	0.870	5.000	0.218	11	-				CC□T215... CC□W215...
	A08R- SCLCR2	●		0.600	0.500	0.870	8.000	0.312	6	-				
	A10S- SCLCR2	●		0.770	0.625	0.870	10.000	0.406	4	1/8 NPT				

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder

Optional sleeve SL2.5-10 (0.625" dia.) is available. (Sleeve screw: SLS-2, sleeve wrench: LW-2)

S-SCLC Steel Bar (Boring / Internal Facing)

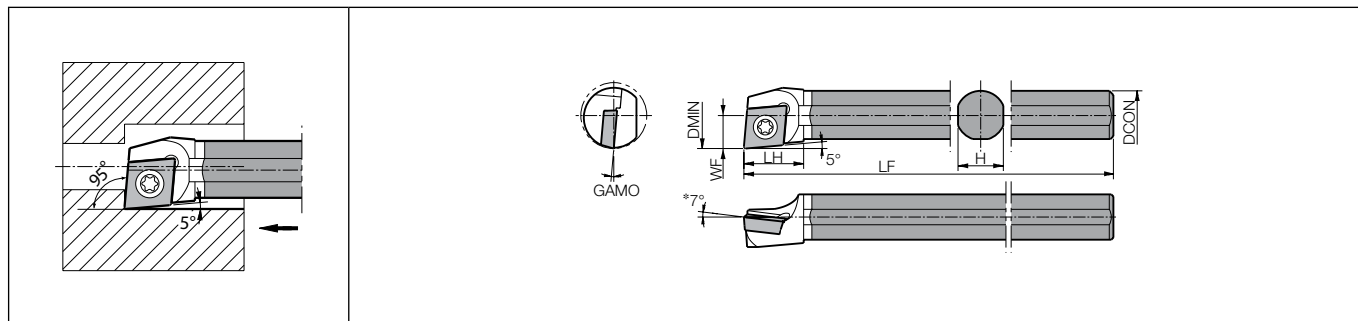
Max. Overhang Length $L/D \sim 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions				GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts	
											Screw	Wrench		
		R	L	DMIN	DCON	LH	LF				WF			
Inch	S05K- SCLC [△] 2	●	●	0.394	0.312	0.625	5.000	0.197	12	0.004	No	SB-2545TR	FT-8	CC□T215... CC□W215...

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Optional sleeve SL2.5-10 (0.625" dia.) is available. (Sleeve screw: SLS-2, sleeve wrench: LW-2)

C-SCLC Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang Length $L/D \approx 7$ | Right-hand shown
 Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

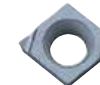
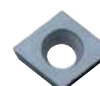
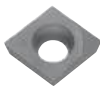
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
												Screw	Wrench	
		R	DMIN	DCON	H	LH	LF	WF						
Inch	C05K- SCLCR2	●	0.394	0.312	0.282	0.625	5.000	0.197	12	0.004	No	SB-2545TR	FT-8	CC□T215... CC□W215...

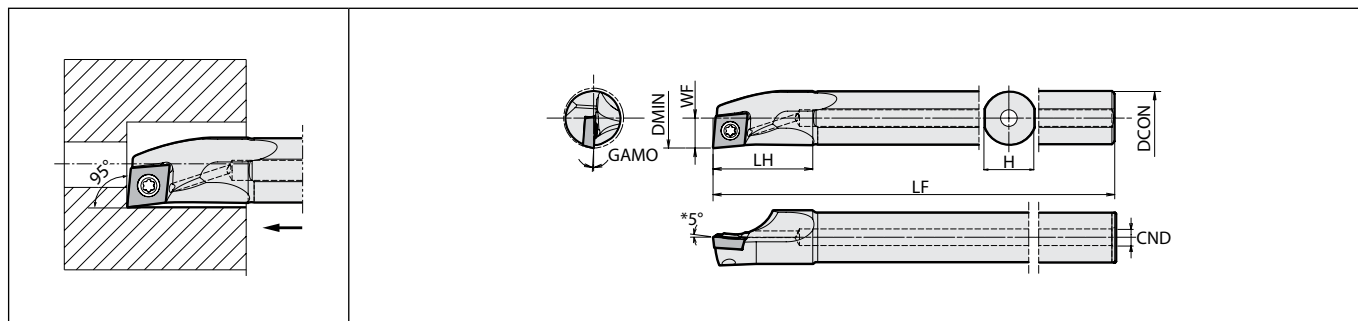
When using P chipbreaker : Right-hand Insert for Right-hand Toolholder.

Optional sleeve SL2.5-10 (0.625" dia.) is available. (Sleeve screw: SLS-2, sleeve wrench: LW-2)

Applicable Inserts (S-SCLC-E / S-SCLC / A-SCLC / C-SCLC)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing
Insert								
Chipbreaker Type	CF	PF	GF	SKS	SK	CK	GQ	WP
Page	B58	B58	B58	B59	B59	B59	B59	B60
Applications	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing	Finishing
Insert								
Chipbreaker Type	PP	GK	HQ	Standard	MF	P/L-F	P/L-FSF	P/L-P
Page	B60	B60	B60	B60	B61	B62	B61	B63
Applications	Low Feed	Low Feed	Low Feed	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker Type	P/L-U	P/L-USF	P/L-J	MQ	No Chipbreaker	AP	P/L-A3	AH
Page	B63~B65	B63	B65	B61	B66	B66	B66	B66
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials					
Insert								
Chipbreaker Type	PCD	APD	CBN					
Page	C39	C40	C20					

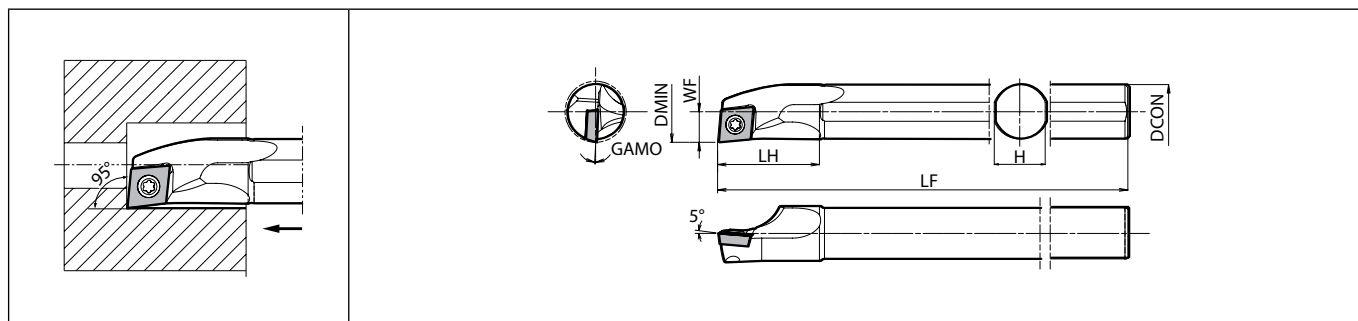
Recommended Cutting Conditions  F174, F175Applicable Sleeves  F171~F173

A-SCLP-AE Excellent Bar (Boring / Internal Facing)

Toolholder Dimensions

Max. Overhang Length L/D≈5.5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

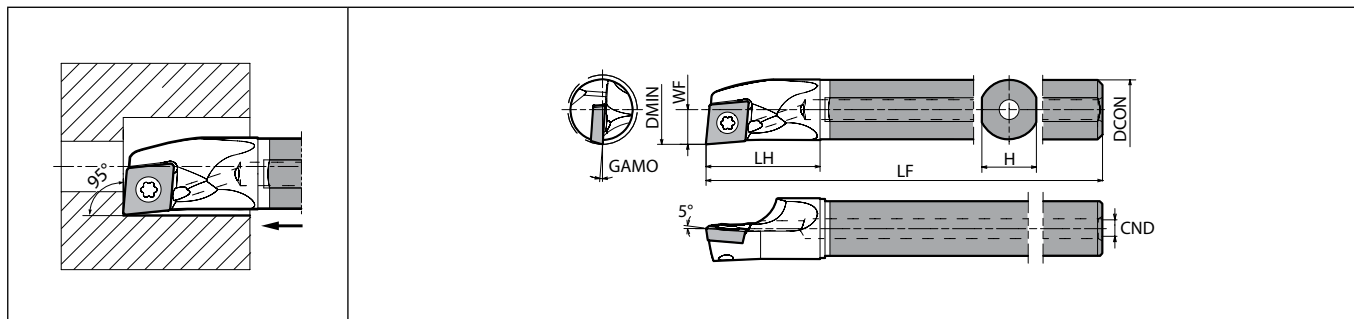
Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
		R	L	DMIN	DCON	CND	H	LH	LF	WF				Screw	Wrench	Wrench	
Inch	A05K- SCLP% 2AE	●	●	0.413	0.312	0.098	0.273	0.630	5	0.197	10	1/64	Yes	SB-2545TR	-	FT-8	CPGT215...
	A06M- SCLP% 2.5AE	●	●	0.480	0.375	0.118	0.336	0.787	6	0.236	5	1/64	Yes	SB-3060TR	-	FT-10	CP□B2515..., CP□H2515... CP□T2515...
	A08M- SCLP% 2.5AE	●	●	0.580	0.500	0.157	0.461	0.945	6	0.276	4	1/64	Yes	SB-3060TR	-	FT-10	CP□B2515..., CP□H2515... CP□T2515...
	A10R- SCLP% 3AE	●	●	0.700	0.625	0.197	0.586	1.181	8	0.354	3.5	1/64	Yes	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...
	A12S- SCLP% 3AE	●	●	0.825	0.750	0.197	0.711	1.417	10	0.413	2	1/64	Yes	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...
mm	A16T- SCLP% 3AE	●	●	1.200	1.000	0.197	0.961	1.811	12	0.531	0	1/64	Yes	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...
	A10L- SCLP% 08-12AE	●	●	12	10	3	9	20	140	6	5	0.4	Yes	SB-3060TR	-	FT-10	CP□B2515..., CP□H2515... CP□T2515...
	A12M- SCLP% 08-14AE	●	●	14	12	4	11	24	150	7	4	0.4	Yes	SB-3060TR	-	FT-10	CP□B2515..., CP□H2515... CP□T2515...
	A12M- SCLP% 09-16AE	●	●	16	12	4	11	24	150	8	4	0.4	Yes	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...
	A16Q- SCLP% 09-18AE	●	●	18	16	5	15	30	180	9	3.5	0.4	Yes	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...
	A20R- SCLP% 09-22AE	●	●	22	20	5	19	36	200	11	2	0.4	Yes	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...
mm	A25S- SCLP% 09-27AE	●	●	27	25	5	24	46	250	13.5	0	0.4	Yes	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...

S-SCLP-A Steel Shank Bar (Boring / Internal Facing)

Toolholder Dimensions

Max. Overhang Length L/D≈4 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF					Screw	Wrench	Wrench	
mm	S10L- SCLP% 08-12A	●	●	12	10	9	20	140	6	5	0.4	No	No	SB-3060TR	-	FT-10	CP□B2515..., CP□H2515... CP□T2515...
	S12M- SCLP% 08-14A	●	●	14	12	11	24	150	7	4	0.4	No	No	SB-3060TR	-	FT-10	CP□B2515..., CP□H2515... CP□T2515...
	S12M- SCLP% 09-16A	●	●	16	12	11	24	150	8	4	0.4	No	No	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...
	S16Q- SCLP% 09-18A	●	●	18	16	15	30	180	9	3.5	0.4	No	No	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...
	S20R- SCLP% 09-22A	●	●	22	20	19	36	200	11	2	0.4	No	No	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...
	S25S- SCLP% 09-27A	●	●	27	25	24	46	250	13.5	0	0.4	No	No	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...

E-SCLP-A(N) Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang Length $L/D \approx 7$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

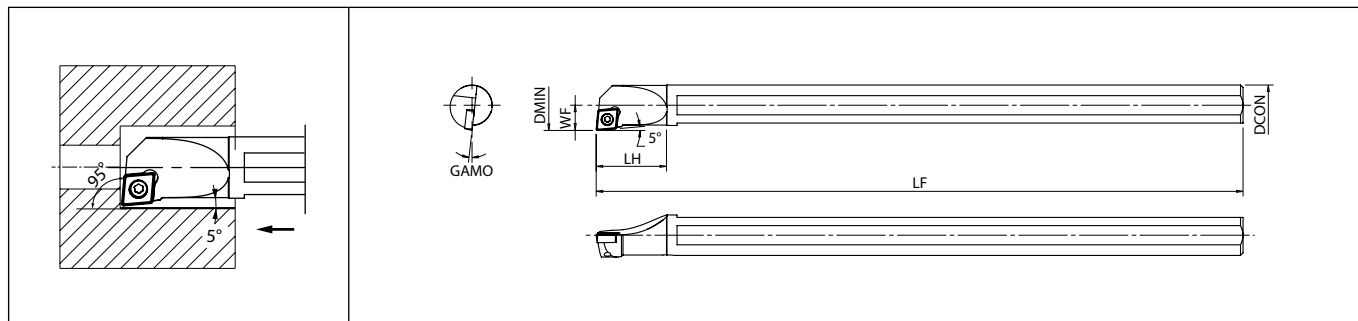
Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
		R	L	DMIN	DCON	CND	H	LH	LF	WF				Screw	Wrench	Wrench	
mm	E10N- SCLP% 08-12AN SCLPR08-12AN2/3 SCLPR08-12AN1/2	●	●	12	10	3	9	18	160	6	5	0.4	Yes	SB-3060TR	-	FT-10	CP□B2515... CP□H2515... CP□T2515...
		●							105								
		●							80								
	E12Q- SCLP% 08-14A SCLPR08-14A-2/3 SCLPR08-14A-1/2	●	●	14	12	4	11	23	180	7	4	0.4	Yes	SB-3060TR	-	FT-10	CP□B2515... CP□H2515... CP□T2515...
		●							120								
		●							90								
	E12Q- SCLP% 09-16A SCLPR09-16A-2/3 SCLPR09-16A-1/2	●	●	16	12	4	11	23	180	8	5	0.4	Yes	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...
		●							120								
		●							90								
	E16X- SCLP% 09-18A SCLPR09-18A-2/3 SCLPR09-18A-1/2	●	●	18	16	15	28	220	9	3.5	0.4	Yes	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...	
		●						145									
		●						110									
E20S- SCLP% 09-22A SCLPR09-22A-2/3 SCLPR09-22A-1/2	●	●	22	20	6	19	32	250	11	2	0.4	Yes	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...	
	●							165									
	●							125									
E25T- SCLP% 09-27A SCLPR09-27A-2/3	●	●	27	25	24	38	300	13.5	0	0.4	Yes	SB-4065TR	FT-15	-	CP□B32... CP□H32... CP□T32...		
	●						200										

Applicable Inserts (A-SCLP-AE / S-SCLP-A / E-SCLP-A(N))

Applications	Finishing	Finishing	Finishing - Medium	Medium	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Cast Iron
Insert								
Chipbreaker Type	PP	GP	HQ	Standard	XP	XQ	%-Y	No Chipbreaker
Page	B67	B67	B67	B67	B67	B67	B67	B67
Applications	Non-Ferrous Metals	Hard Materials						
Insert								
Chipbreaker Type	PCD	CBN						
Page	C41	C21						

Recommended Cutting Conditions ➡ F174, F175

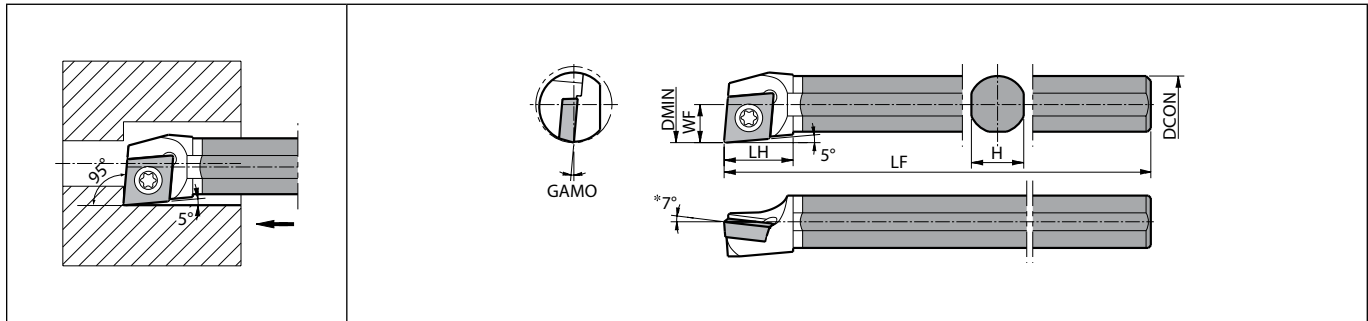
Applicable Sleeves ➡ F171~F173

S-SCLP Steel Bar (Boring / Internal Facing)Max. Overhang Length $L/D \approx 3$ | Right-hand shown

Toolholder Dimensions

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Unit	Part Number	Std. Item		Dimensions					GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
		R	L	DMIN	DCON	LH	LF	WF				Screw	Wrench	Wrench	
Inch	S06M- SCLP $\frac{1}{8}$ 2.5	●	●	0.472	0.375	1.000	6.00	0.236	5	1/64	No	SB-3STR	-	FT-10	CP□B2515..., CP□H2515... CP□T2515...
	S08M- SCLP $\frac{1}{8}$ 3	●	●	0.630	0.500	1.180	6.00	0.315	4	1/64	No	SB-4TR	FT-15	-	CP□B32... CP□H32... CP□T32...
	S10X- SCLP $\frac{1}{8}$ 3	●	●	0.788	0.625	1.380	7.00	0.394	3	1/64	No				
	S12R- SCLP $\frac{1}{8}$ 3	●	●	0.984	0.750	1.560	8.00	0.492	0	1/64	No				
	S16T- SCLP $\frac{1}{8}$ 3	●	●	1.338	1.000	1.750	12.00	0.669	0	1/64	No				

C-SCLP Carbide Shank Bar (Boring / Internal Facing)Max. Overhang Length $L/D \approx 7$ | Right-hand shown

Toolholder Dimensions

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Unit	Part Number	Std. Item	Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
			R	DMIN	DCON	H	LH	LF				WF	Screw	Wrench	
															
Inch	C06M- SCLPR2.5	●	0.472	0.375	0.334	1.000	6.00	0.236	5	1/64	No	SB-3STR	-	FT-10	CP□B2515..., CP□H2515... CP□T2515...
	C08R- SCLPR3	●	0.630	0.500	0.480	1.180	8.00	0.315	4	1/64	No	SB-4TR	FT-15	-	CP□B32... CP□H32... CP□T32...
	C10S- SCLPR3	●	0.788	0.625	0.584	1.380	10.00	0.394	3	1/64	No				
	C12S- SCLPR3	●	0.984	0.750	0.710	1.560	10.00	0.492	0	1/64	No				

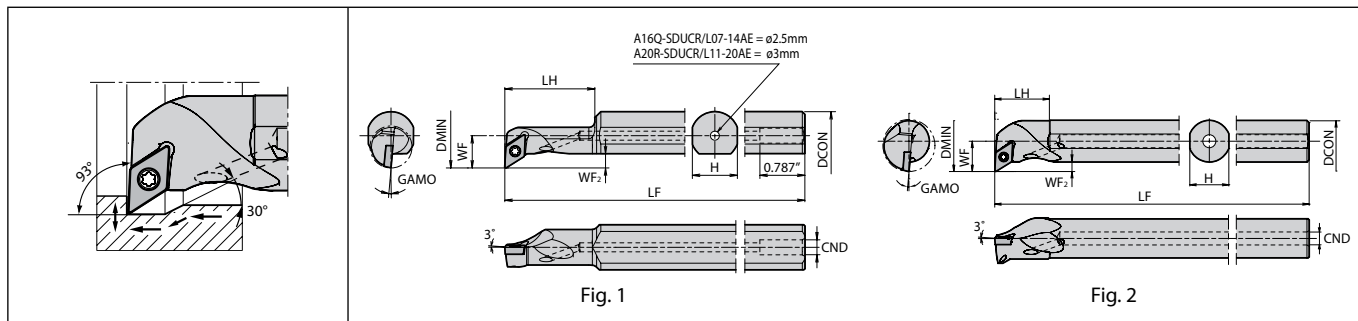
Applicable Inserts (S-SCLP / C-SCLP)

Applications	Finishing	Finishing	Finishing - Medium	Medium	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Cast Iron
Insert								
Chipbreaker Type	PP	GP	HQ	Standard	XP	XQ	%-Y	No Chipbreaker
Page	B67	B67	B67	B67	B67	B67	B67	B67
Applications	Non-Ferrous Metals	Hard Materials						
Insert								
Chipbreaker Type	PCD	CBN						
Page	C41	C21						

Recommended Cutting Conditions ➡ F174, F175

Applicable Sleeves ➡ F171~F173

A-SDUC-AE Excellent Bar (Internal Copying)



Max. Overhang Length $L/D \approx 5.5$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts	
															Screw	Wrench	Wrench		
		R	L	DMIN	DCON	CND	H	LH	LF	WF					WF ₂				
Inch	A06M- SDUC% _L 2AE	●	●	0.551	0.375	0.118	0.336	0.748	6.000	0.341	0.130	5	1/64	Yes	Fig.1	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	A08M- SDUC% _L 2AE	●	●	0.630	0.500	0.157	0.461	0.827	6.000	0.360									
	A10R- SDUC% _L 2AE	●	●	0.787	0.625	0.197	0.586	0.827	8.000	0.459									
	A12S- SDUC% _L 3AE	●	●	1.063	0.750	0.197	0.711	0.866	10.000	0.650									
	A16T- SDUC% _L 3AE	●	●	1.300	1.000	0.197	0.961	0.945	12.000	0.748									
mm	A10L- SDUC% _L 07-14AE	●	●	14	10	3	9	19	140	8.7	3.3	5	0.4	Yes	2	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	A12M- SDUC% _L 07-16AE	●	●	16	12	4	11	21	150	9.7									
	A16Q- SDUC% _L 07-14AE	●	●	14	16	5	15	28	180	10.8									
	SDUC% _L 07-20AE	●	●	20				21	11.7	3.3									
	A16Q- SDUC% _L 11-23AE	●	●	23	16	5	19	21	180	14.5	6.1	5	0.4	Yes	2	SB-4065TR	FT-15	-	DC□T325... DC□W325... DC□X325...
	A20R- SDUC% _L 11-20AE	●	●	20	20			23	200	15.6									
	SDUC% _L 11-27AE	●	●	27					23	200										16.5
	A25S- SDUC% _L 11-32AE	●	●	32	25			24	24	250										19

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

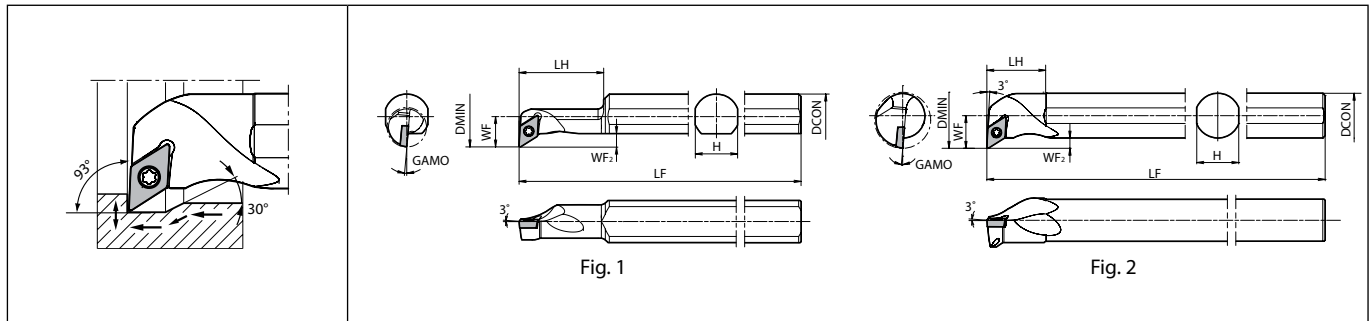
S-SDUC-A Steel Shank Bar (Internal Copying)

Fig. 1

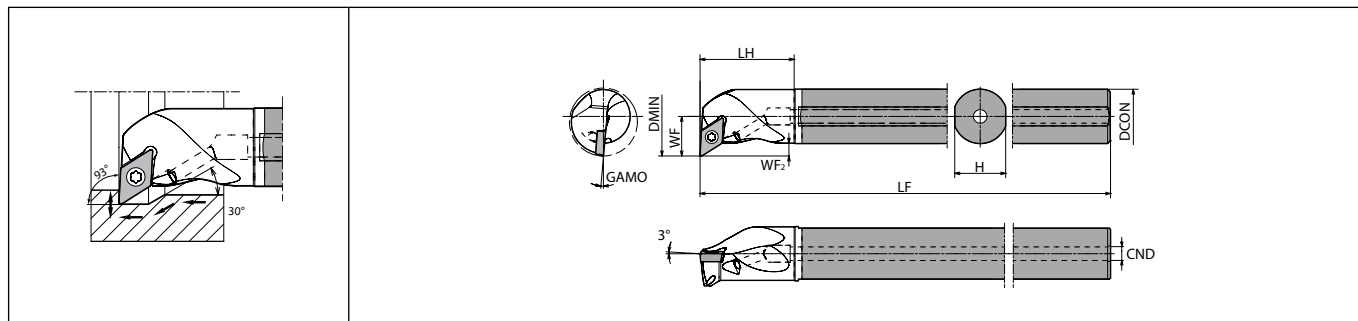
Fig. 2

Max. Overhang Length $L/D \approx 4$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts	
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂									
mm	S10L- SDUC% 07-14A	●	●	14	10	9	19	140	8.7	3.3	5	0.4	No	2	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...	
	S12M- SDUC% 07-16A	●	●	16	12	11	21	150	9.7					2					
	S16Q- SDUC% 07-14A	●	●	14	16	15	28	180	10.8					4.4					1
	SDUC% 07-20A	●	●	20			21	11.7	3.3					2					
	S16Q- SDUC% 11-23A	●	●	23	16	15	21	180	14.5	6.1	5	0.4	No	2	SB-4065TR	FT-15	-	DC□T325... DC□W325... DC□X325...	
	S20R- SDUC% 11-20A	●	●	20	20	19	48	200	15.6					1					
	SDUC% 11-27A	●	●	27			23	16.5	2										
S25S- SDUC% 11-32A	●	●	32	25	24	24	250	19											

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

E-SDUC-A Carbide Shank Bar (Internal Copying)

Max. Overhang Length $L/D \approx 7$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAM0 (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
		R	L	DMIN	DCON	CND	H	LH	LF	WF	WF ₂							
Inch	E06N- SDUCR2A	●		0.551	0.375	0.118	0.336	0.776	6.300	0.341	0.130	5	1/64	Yes	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	E08Q- SDUCR2A	●		0.630	0.500	0.157	0.461	0.894	7.100	0.360	0.098							
	E10X- SDUCR2A	●		0.787	0.625	0.157	0.586	1.091	8.700	0.459	0.130							
mm	E10N- SDUC% 07-14A SDUCR07-14A-2/3	●	●	14	10	3	9	20	160	8.7	3.3	5	0.4	Yes	SB-2560TR	-	FT-8	DC□T215... DC□W215... DC□X215...
	●	105																
	E12Q- SDUC% 07-16A SDUCR07-16A-2/3	●	●	16	12	4	11	23	180	9.7								
	●	120																
	E16X- SDUC% 07-20A SDUCR07-20A-2/3	●	●	20	16		15	28	220	11.7								
	●	145																
	E16X- SDUC% 11-23A SDUCR11-23A-2/3	●	●	23	16	4	15	28	220	14.5								
●	145																	
E20S- SDUC% 11-27A SDUCR11-27A-2/3	●	●	27	20	6	19	32	250	16.5									
●	165																	
E25T- SDUC% 11-32A SDUCR11-32A-2/3	●	●	32	25		24	38	300	19									
●	200																	

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

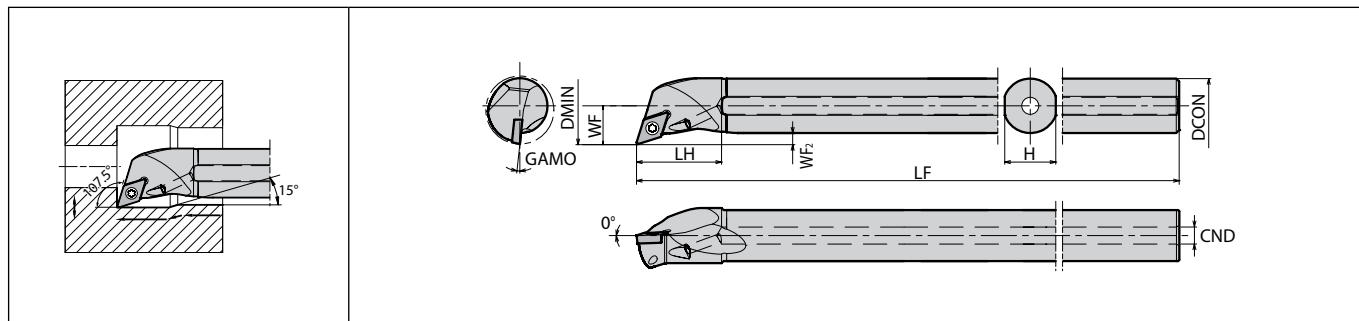
Applicable Inserts (A-SDUC-AE / S-SDUC-A / E-SDUC-A)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	CF	GF	SKS	SK	CK	GQ	WP	¾-WP
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker Type	PP	GP	GK	HQ	Standard	MF	¾-F	¾-FSF
Page	B69	B69	B70	B70	B70	B70	B72, B73	B72
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker Type	¾-U	¾-USF	¾-J	¾-JSF	XP	XQ	MQ	No Chipbreaker
Page	B74~B76	B74	B77	B76	B71	B71	B71	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker Type	AP	¾-A3	AH	PCD	APD	CBN		
Page	B78	B78	B78	C42	C42	C22		

Recommended Cutting Conditions ● F174, F175

Applicable Sleeves ● F171~F173

A-SDQC-AE Excellent Bar (Internal Copying)

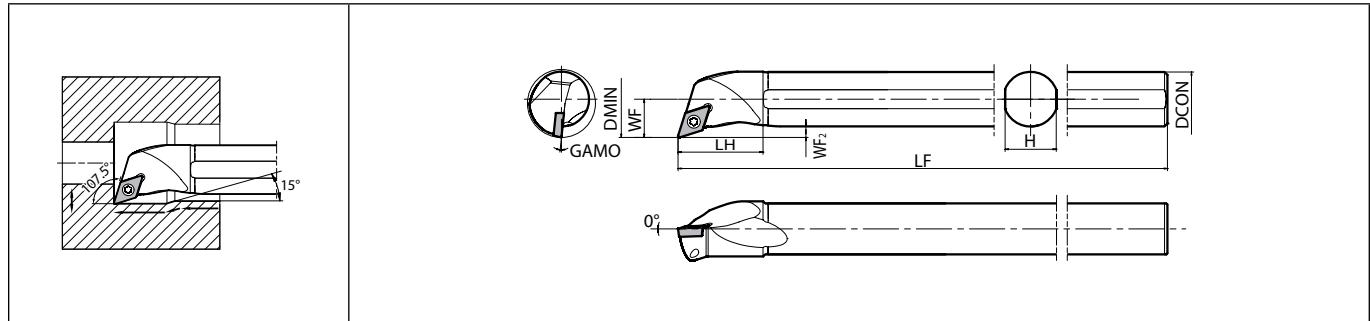


Max. Overhang Length L/D≈5.5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
															Screw	Wrench	Wrench	
		R	L	DMIN	DCON	CND	H	LH	LF	WF	WF2							
Inch	A06M- SDQC%L 2AE	●	●	0.512	0.375	0.118	0.336	0.736	6.0	0.295	0.083	10	1/64	Yes	SB-2560TR	-	FT-8	DC□T215... DC□W215...
	A08M- SDQC%L 2AE	●	●	0.630	0.500	0.157	0.461	0.866	6.0	0.364	0.102	8						
	A10R- SDQC%L 2AE	●	●	0.787	0.625	0.197	0.586	0.984	8.0	0.443	0.102	6						
	A12S- SDQC%L 3AE	●	●	0.980	0.750		0.711	1.220	10.0	0.565	0.146	5						
mm	A10L- SDQC%L 07-13AE	●	●	13	10	3	9	19	140	7.5	2.1	10	0.4	Yes	SB-2560TR	-	FT-8	DC□T215... DC□W215...
	A12M- SDQC%L 07-16AE	●	●	16	12	4	11	22	150	9.25	2.6	8						
	A16Q- SDQC%L 07-20AE	●	●	20	16	5	15	25	180	11.3		6						
	A20R- SDQC%L 11-25AE	●	●	25	20	5	19	31	200	14.4	3.7	5						
	A25S- SDQC%L 11-30AE	●	●	30	25		24	38	250	16.9		4						

WP chipbreaker (DCMX-WP : Wiper insert) is not applicable to A-SDQC-AE Toolholders.

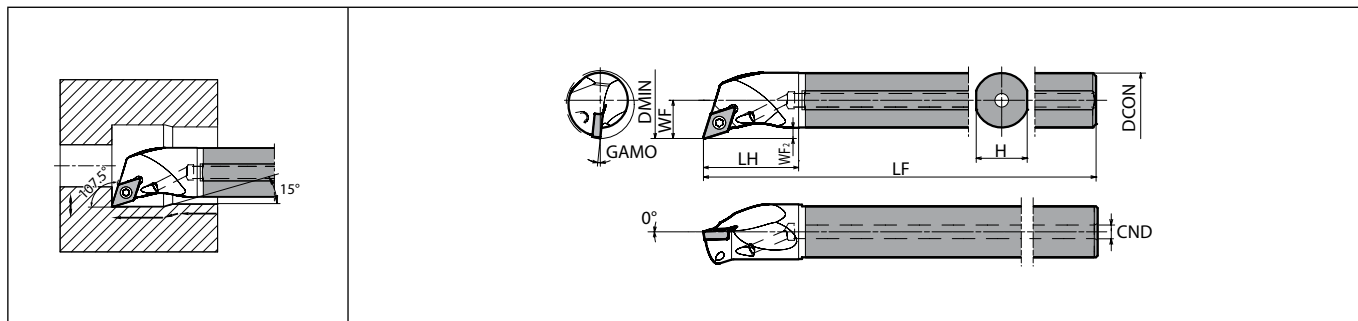
S-SDQC-A Steel Shank Bar (Internal Copying)

Max. Overhang Length $L/D \sim 4$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
															Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂								
mm	S10L- SDQC% 07-13A	●	●	13	10	9	19	140	7.5	2.1	10	0.4	No	SB-2560TR	-	FT-8	DC□T215... DC□W215...	
	S12M- SDQC% 07-16A	●	●	16	12	11	22	150	9.25	2.6	8							
	S16Q- SDQC% 07-20A	●	●	20	16	15	25	180	11.3	6								
	S20R- SDQC% 11-25A	●	●	25	20	19	31	200	14.4	3.7	5	0.4	No	SB-4065TR	FT-15	-	DC□T325... DC□W325...	
	S25S- SDQC% 11-30A	●	●	30	25	24	38	250	16.9	4								

WP chipbreaker (DCMX-WP : Wiper insert) is not applicable to S-SDQC-A Toolholders.

E-SDQC-A Carbide Shank Bar (Internal Copying)

Max. Overhang Length $L/D \approx 7$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)			Coolant Hole	Spare Parts			Applicable Inserts
																	Screw	Wrench	Wrench	
		R	L	DMIN	DCON	CND	H	LH	LF	WF	WF ₂									
Inch	E08Q- SDQCL2A		●	0.630	0.500	0.157	0.461	0.906	7.1	0.364	0.102	8	1/64	Yes	SB-2560TR	-	FT-8	DC□T215... DC□W215...		
mm	E10N- SDQC% 07-13A SDQCR07-13A-2/3	●	●	13	10	3	9	20	160 105	7.5	2.1	10	0.4	Yes	SB-2560TR	-	FT-8	DC□T215... DC□W215...		
	E12Q- SDQC% 07-16A SDQCR07-16A-2/3	●	●	16	12	4	11	23	180 120	9.25	2.6	8								
	E16X- SDQC% 07-20A SDQCR07-20A-2/3	●	●	20	16		15	28	220 145	11.3									6	
	E20S- SDQC% 11-25A SDQCR11-25A-2/3	●	●	25	20	6	19	32	250 165	14.4	3.7	5	0.4	Yes	SB-4065TR	FT-15	-	DC□T325... DC□W325...		
	E25T- SDQC% 11-30A SDQCR11-30A-2/3	●	●	30	25		24	38	300 200	16.9									4	

WP chipbreaker (DCMX-WP : Wiper insert) is not applicable to E-SDQC-A Toolholders.

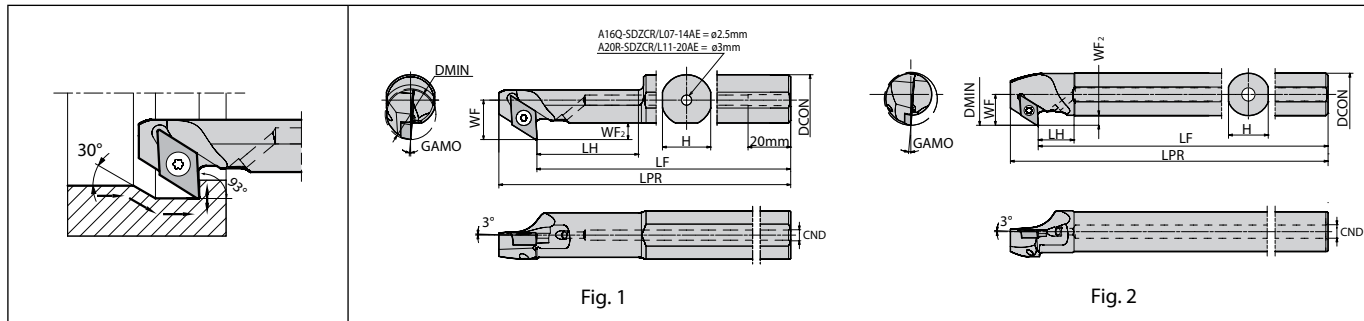
Applicable Inserts (A-SDQC-AE / S-SDQC-A / E-SDQC-A)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	CF	GF	SKS	SK	CK	GQ	PP	GP
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing	Low Feed	Low Feed
Insert								
Chipbreaker Type	GK	HQ	Standard	MF	$\frac{R}{L}$ -F	$\frac{R}{L}$ -FSF	$\frac{R}{L}$ -U	$\frac{R}{L}$ -USF
Page	B70	B70	B70	B70	B72, B73	B72	B74~B76	B74
Applications	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker Type	$\frac{R}{L}$ -J	$\frac{R}{L}$ -JSF	XP	XQ	MQ	No Chipbreaker	AP	$\frac{R}{L}$ -A3
Page	B77	B76	B71	B71	B71	B78	B78	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials				
Insert								
Chipbreaker Type	AH	PCD	APD	CBN				
Page	B78	C42	C42	C22				

Recommended Cutting Conditions ➡ F174, F175

Applicable Sleeves ➡ F171~F173

A-SDZC-AE Excellent Bar (Back Boring)



Max. Overhang Length $L/D \approx 5.5$ | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions										GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts
																		Screw	Wrench	Wrench	
		R	L	DMIN	DCON	CND	H	LH	LPR	LF	WF	WF ₂									
mm	A10L- SDZC% 07-14AE	●	●	14	10	3	9	14	140	130.5	8.7	3.3	5	0.4	Yes	2	SB-2545TR	-	FT-8	DC□T215... DC□W215... DC□X215...	
	A12M- SDZC% 07-16AE	●	●	16	12	4	11		150	139.5	9.7					2	SB-2560TR				
	A16Q- SDZC% 07-14AE	●	●	14	16	5	15	30	180	170	10.8	4.4				1	SB-2545TR				
	SDZC% 07-20AE	●	●	20				14	169.5	11.7	3.3	2				SB-2560TR					
	A16Q- SDZC% 11-23AE	●	●	23	16	5	15	15	180	165	14.5	6.1	5	0.4	Yes	2	SB-4065TR	FT-15	-	DC□T325... DC□W325... DC□X325...	
	A20R- SDZC% 11-20AE	●	●	20	20		19	40	200	185	15.6					1					
	SDZC% 11-27AE	●	●	27				15		15	235					16.5					2
	A25S- SDZC% 11-32AE	●	●	32	25		24	19	2												

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

S-SDZC-A Steel Shank Bar (Back Boring)

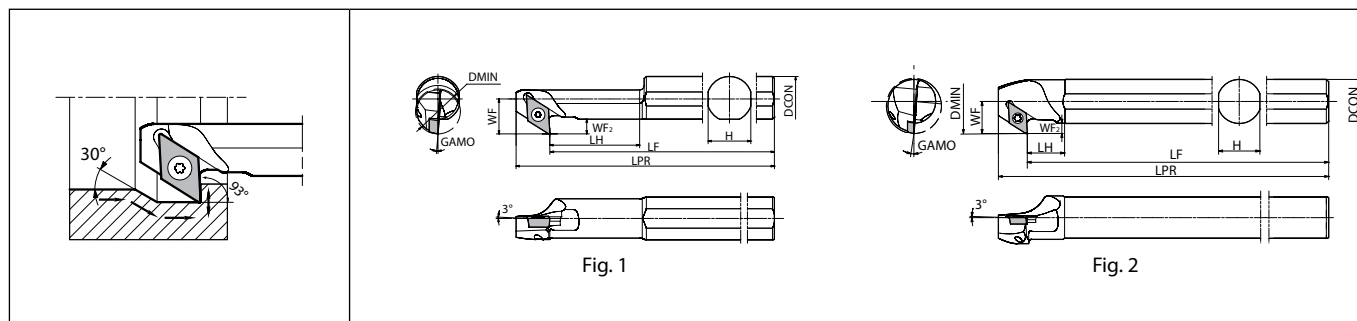


Fig. 1

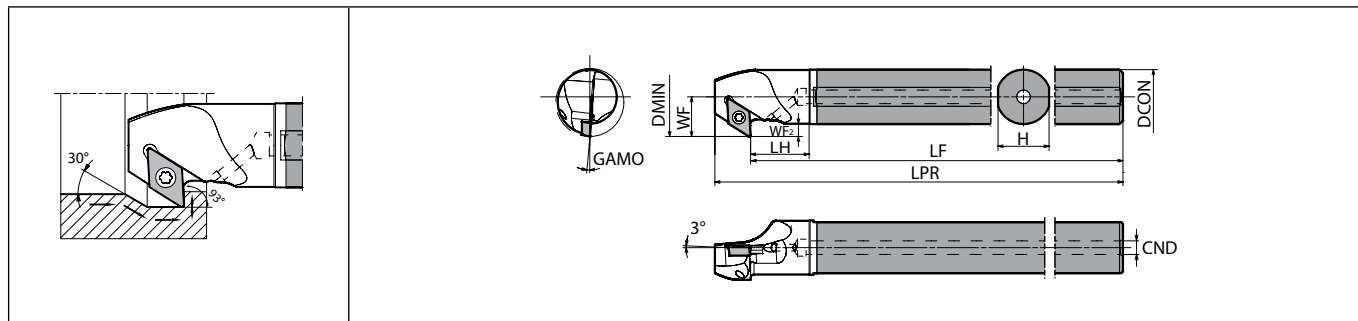
Fig. 2

Max. Overhang Length $L/D \approx 4$ | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts	
																Screw	Wrench	Wrench		
		R	L	DMIN	DCON	H	LH	LPR	LF	WF	WF ₂									
mm	S10L- SDZC% 07-14A	●	●	14	10	9	14	140	130.5	8.7	3.3	5	0.4	No	2	SB-2545TR	-	FT-8	DC□T215... DC□W215... DC□X215...	
	S12M- SDZC% 07-16A	●	●	16	12	11		14	150	139.5					9.7	2				SB-2560TR
	S16Q- SDZC% 07-14A	●	●	14	16	15	30		180	170	10.8				4.4	1				SB-2545TR
	SDZC% 07-20A	●	●	20			14	180	169.5	11.7	3.3				2	SB-2560TR				
	S16Q- SDZC% 11-23A	●	●	23	16	15	15	180	165	14.5	6.1	5	0.4	No	2	SB-4065TR	FT-15	-	DC□T325... DC□W325... DC□X325...	
	S20R- SDZC% 11-20A	●	●	20	20	19	40	200	185	15.6										1
	SDZC% 11-27A	●	●	27				16.5	2											
	S25S- SDZC% 11-32A	●	●	32	25	24	15	250	235	19										2

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

E-SDZC-A Carbide Shank Bar (Back Boring)

Max. Overhang Length $L/D \sim 7$ | Right-hand shown
Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions										GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
			R	DMIN	DCON	CND	H	LH	LPR	LF	WF	WF2				Screw	Wrench	Wrench	
mm	E10N- SDZCR07-14A	●	14	10	3	9	10.5	160	150.5	8.7						SB-2545TR			DC□T215... DC□W215... DC□X215...
	E12Q- SDZCR07-16A	●	16	12		11	12.5	180	169.5	9.7	3.3	5	0.4	Yes		SB-2560TR	-	FT-8	
	E16X- SDZCR07-20A	●	20	16	4	15	17.5	220	209.5	11.7									DC□T325..., DC□W325... DC□X325...
	E16X- SDZCR11-23A	●	23	16	4	15	13	220	205	14.5						SB-4065TR	FT-15	-	
	E20S- SDZCR11-27A	●	27	20	6	19	17	250	235	16.5	6.1	5	0.4	Yes					

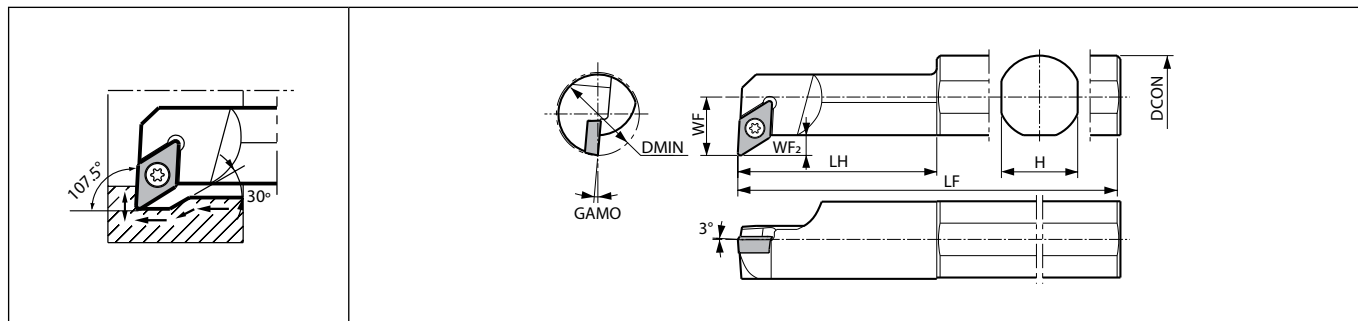
For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

Applicable Inserts (A-SDZC-AE / S-SDZC-A / E-SDZC-A)

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	CF	GF	SKS	SK	CK	GQ	WP	¾-WP
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker Type	PP	GP	GK	HQ	Standard	MF	¾-F	¾-FSF
Page	B69	B69	B70	B70	B70	B70	B72, B73	B72
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker Type	¾-U	¾-USF	¾-J	¾-JSF	XP	XQ	MQ	No Chipbreaker
Page	B74~B76	B74	B77	B76	B71	B71	B71	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker Type	AP	¾-A3	AH	PCD	APD	CBN		
Page	B78	B78	B78	C42	C42	C22		

Recommended Cutting Conditions ➡ F174, F175

Applicable Sleeves ➡ F171~F173

S-SDUC Steel Bar (Internal Copying)

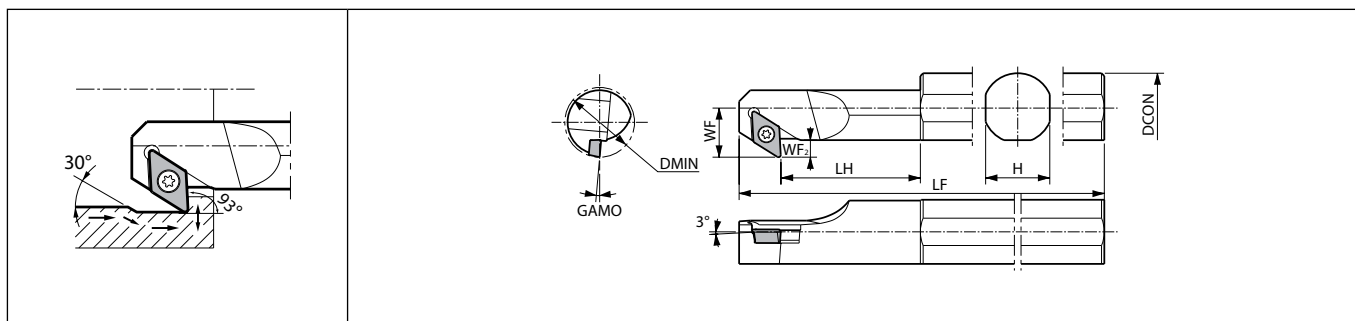
Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂				Screw	Wrench	Wrench	
Inch	S08M- SDUCR2	●		0.564	0.500	0.480	1.125	6.00	0.346	0.145	5	1/64	No				DC□T215..., DC□W215... DC□X215...
	S10X- SDUC ^R L 2	●	●	0.564	0.625	0.584	1.125	7.00	0.346	0.145	5	1/64	No	SB-2560TR	-	FT-8	DC□T215..., DC□W215... DC□X215...
	S12R- SDUC ^R L 3	●	●	0.750	0.750	0.710	1.500	8.00	0.476	0.224	5	1/32	No	SB-4085TR	FT-15	-	DC□T325..., DC□W325... DC□X325...
	S16X- SDUCR3	△		0.980	1.000	0.945	2.360	9.00	0.693	0.240	5	1/32	No	SB-4085TR	FT-15	-	DC□T325..., DC□W325... DC□X325...

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

S-SDZC Steel Bar (Back Boring)



Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
														Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂							
Inch	S10X- SDZC [®] 2	●	●	0.630	0.625	0.596	1.52	7.00	0.449	0.173	5	1/64	No	SB-2560TR	-	FT-8	DC□T215..., DC□W215... DC□X215...
	S12R- SDZCR3	●		0.787	0.750	0.710	1.60	8.00	0.595	0.240	5	1/32	No	SB-4085TR	FT-15	-	DC□T325..., DC□W325... DC□X325...
	S16X- SDZCR3	●		0.984	1.000	0.960	2.09	9.00	0.693	0.240							

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

Applicable Inserts (S-SDUC / S-SDZC)

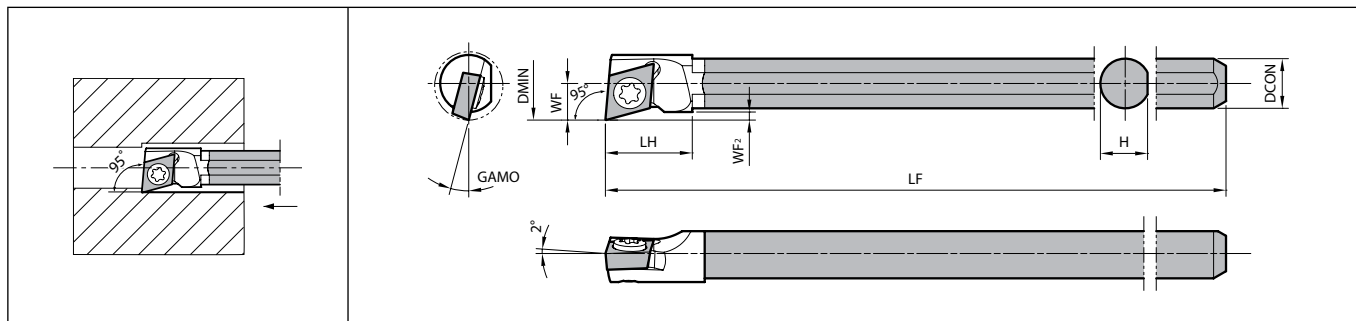
Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	CF	GF	SKS	SK	CK	GQ	WP	$\frac{1}{8}$ -WP
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker Type	PP	GP	GK	HQ	Standard	MF	$\frac{1}{8}$ -F	$\frac{1}{8}$ -FSF
Page	B69	B69	B70	B70	B70	B70	B72, B73	B72
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker Type	$\frac{1}{8}$ -U	$\frac{1}{8}$ -USF	$\frac{1}{8}$ -J	$\frac{1}{8}$ -JSF	XP	XQ	MQ	No Chipbreaker
Page	B74~B76	B74	B77	B76	B71	B71	B71	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker Type	AP	$\frac{1}{8}$ -A3	AH	PCD	APD	CBN		
Page	B78	B78	B78	C42	C42	C22		

Recommended Cutting Conditions F174, F175

Applicable Sleeves F171~F173

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

C-SJLC Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang Length $L/D \approx 7$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
														Screw	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂						
mm	C04X- SJLC% 03-055	●	●	5.5	4	3.8	7	91	2.95	0.65	15	0.03	No	SB-1635TR	FT-6	JC□T1109...

Applicable Inserts

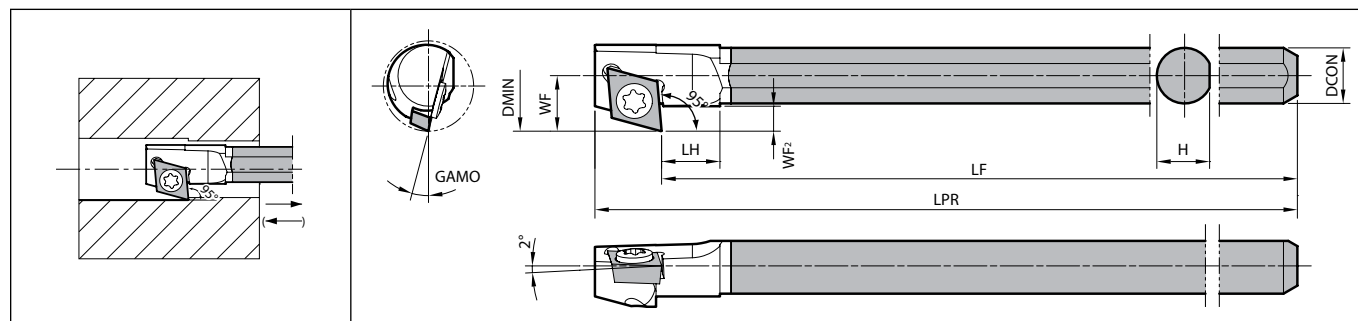
Applications	Finishing	Finishing
Insert		
Chipbreaker Type	1/2 - F	1/2 - FSF
Page	B80	B80

Recommended Cutting Conditions ➡ **F174, F175**

Applicable Sleeves ➡ **F170, F172, F173**

• Features of C-SJLC

1. Specially designed for minimized bore dia.
2. A relief angle of 15° ensures high flexibility of the tool pass during pecking.
3. Retaining front relief angle 5° and good surface finish during Internal Facing.

C-SJZC Carbide Shank Bar (Back Boring)

Max. Overhang Length $L/D \approx 7$ | Right-hand shown
 Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.
 When using Right-hand Toolholder, use Right-hand insert if machining from back to front in this direction (→).
 Use Left-hand insert if machining from front to back in this direction (←).

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
															Screw	Wrench	
		R	L	DMIN	DCON	H	LH	LPR	LF	WF	WF ₂						
mm	C04X- SJZC%L03-065	●	●	6.5	4	3.8	4	93	88.1	4	1.8	15	0.03	No	SB-1635TR	FT-6	JC□T1109...

Applicable Inserts

Applications	Finishing	Finishing
Insert		
Chipbreaker Type	%L -F	%L -FSF
Page	B80	B80

Recommended Cutting Conditions ➡ **F174, F175**

Applicable Sleeves ➡ **F170, F172, F173**

• Features of C-SJZC

1. Back Boring bars for workpiece that require high concentric circle accuracy and when a change of chuck is not possible.
2. Available for back boring and pecking.
3. Despite the small size of minimum boring dia. as $\phi 6.5\text{mm}$, the edge gap is retained as large as 1.8 mm.

A/S-STLB(P)-AE Excellent Bar (Boring / Internal Facing)

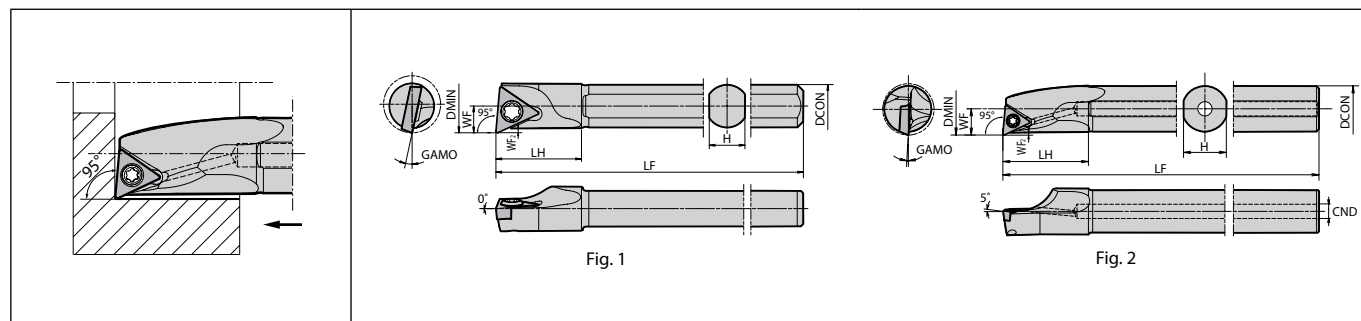


Fig. 1

Fig. 2

Max. Overhang Length L/D≈5.5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts
																Screw	Wrench	Wrench	
		R	L	DMIN	DCON	CND	H	LH	LF	WF	WF ₂								
Inch	S04H- STLB [®] 1.2AE	●	●	0.312	0.250	-	0.211	0.472	4	0.150	0.025	12	0.008	No	1	SB-2035TR	-	FT-6	TB□T121...,TB□W121...
	A05K- STLB [®] 1.2AE	●	●	0.392	0.312	0.098	0.273	0.630	5	0.201	0.031	12	0.008	Yes	2	SB-2035TR	-	FT-6	TB□T121...,TB□W121...
	A05K- STLP [®] 1.8AE	●	●	0.392	0.312		0.273	0.630	5	0.197	0.022	10	1/64	Yes	2	SB-2545TR	-	FT-8	TP□B1815...,TP□H1815... TP□T1815...,TP□X1815...
	A06M- STLP [®] 1.8AE	●	●	0.480	0.375	0.118	0.336	0.787	6	0.244	0.036	8	1/64	Yes	2	SB-2545TR	-	FT-8	TP□B1815...,TP□H1815... TP□T1815...,TP□X1815...
	A06M- STLP [®] 2AE	●	●	0.480	0.375		0.336	0.787	6	0.236	0.030	10	1/64	Yes	2	SB-3060TR	-	FT-10	TP□B22... TP□H22... TP□T22... TP□X22...
	A08M- STLP [®] 2AE	●	●	0.580	0.500	0.157	0.461	0.945	6	0.283	0.032	7	1/64	Yes	2	SB-3060TR	-	FT-10	TP□B22... TP□H22... TP□T22... TP□X22...
	A10R- STLP [®] 2AE	●	●	0.700	0.625	0.197	0.586	1.181	8	0.362	0.036	3.5	1/64	Yes	2	SB-3060TR	-	FT-10	TP□B22... TP□H22... TP□T22... TP□X22...
	A12S- STLP [®] 2AE	●	●	0.825	0.750	0.197	0.711	1.417	10	0.421	0.031	2	1/64	Yes	2	SB-4065TR	FT-15	-	TP□B32...,TP□H32... TP□T32...
	A16T- STLP [®] 3AE	●	●	1.280	1.000	0.197	0.961	1.811	12	0.539	0.031	0	1/64	Yes	2	SB-4065TR	FT-15	-	TP□B32...,TP□H32... TP□T32...
mm	S06H- STLB [®] 06-08AE	●	●	8	6	-	5	12	100	3.8	0.5	12	0.2	No	1	SB-2035TR	-	FT-6	TB□T121...,TB□W121...
	A08X- STLP [®] 08-10AE	●	●	10	8	2.5	7	16	120	5	0.5	10	0.4	Yes	2	SB-1TR	-	FT-6	TP□B1515...,TP□H1515... TP□T1515...
	A08X- STLP [®] 09-10AE	●	●	10	8	2.5	7	16	120	5	0.5	10	0.4	Yes	2	SB-2545TR	-	FT-8	TP□B1815... TP□H1815... TP□T1815... TP□X1815...
	A10L- STLP [®] 09-12AE	●	●	12	10	3	9	20	140	6.2	0.9	8	0.4	Yes	2	SB-2545TR	-	FT-8	TP□B1815... TP□H1815... TP□T1815... TP□X1815...
	A12M- STLP [®] 09-16AE	●	●	16	12	4	11	24	150	8	0.6	5	0.4	Yes	2	SB-3060TR	-	FT-10	TP□B22... TP□H22... TP□T22... TP□X22...
	A10L- STLP [®] 11-12AE	●	●	12	10	3	9	20	140	6	0.7	10	0.4	Yes	2	SB-3060TR	-	FT-10	TP□B22... TP□H22... TP□T22... TP□X22...
	A12M- STLP [®] 11-14AE	●	●	14	12	4	11	24	150	7.2	0.8	7	0.4	Yes	2	SB-3060TR	-	FT-10	TP□B22... TP□H22... TP□T22... TP□X22...
	A16Q- STLP [®] 11-18AE	●	●	18	16	5	15	30	180	9.2	0.7	3.5	0.4	Yes	2	SB-3060TR	-	FT-10	TP□B22... TP□H22... TP□T22... TP□X22...
	A20R- STLP [®] 11-22AE	●	●	22	20		19	36	200	11.2		2	0.4	Yes	2	SB-4065TR	FT-15	-	TP□B32... TP□H32... TP□T32...
	A20R- STLP [®] 16-25AE	●	●	25	20	5	19	36	200	13	0.7	0	0.4	Yes	2	SB-4065TR	FT-15	-	TP□B32... TP□H32... TP□T32...
	A25S- STLP [®] 16-27AE	●	●	27	25		24	46	250	13.7		0	0.4	Yes	2	SB-4065TR	FT-15	-	TP□B32... TP□H32... TP□T32...

For WP chipbreaker, cutting edge offsets or program corrections are required on R42 and R43.

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

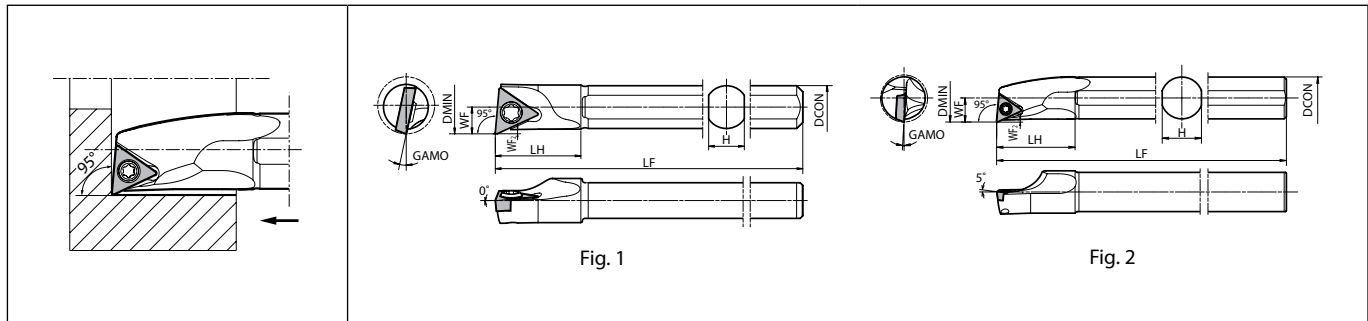
S-STLB(P)-A Steel Shank Bar (Boring / Internal Facing)

Fig. 1

Fig. 2

Max. Overhang Length $L/D \approx 4$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts
															Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂								
mm	S06H- STLB06-08A		●	8	6	5	12	100	3.8	0.5	12	0.2	No	1	SB-2035TR		FT-6	TB□T121..., TB□W121...
	S08X- STLP% 08-10A	●	●	10	8	7	16	120	5	0.5	10	0.4	No	2	SB-1TR	-	FT-6	TP□B1515..., TP□H1515... TP□T1515...
	S08X- STLP% 09-10A	●	●	10	8	7	16	120	5	0.5	10	0.4	No	2	SB-2545TR	-	FT-8	TP□B1815... TP□H1815... TP□T1815... TP□X1815...
	S10L- STLP% 09-12A	●	●	12	10	9	20	140	6.2	0.9	8							
	S12M- STLP% 09-16A	●	●	16	12	11	24	150	8	0.6	5							
	S10L- STLP% 11-12A	●	●	12	10	9	20	140	6	0.7	10	0.4	No	2	SB-3060TR	-	FT-10	TP□B22... TP□H22... TP□T22... TP□X22...
	S12M- STLP% 11-14A	●	●	14	12	11	24	150	7.2	0.8	7							
	S16Q- STLP% 11-18A	●	●	18	16	15	30	180	9.2	0.7	3.5							
	S20R- STLP% 11-22A	●	●	22	20	19	36	200	11.2		2	0.4	No	2	SB-4065TR	FT-15	-	TP□B32..., TP□H32... TP□T32...
	S25S- STLP% 16-27A	●	●	27	25	24	46	250	13.7	0.7	0							

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

C/E-STLB(P)-A(N) Carbide Shank Bar (Boring / Internal Facing)

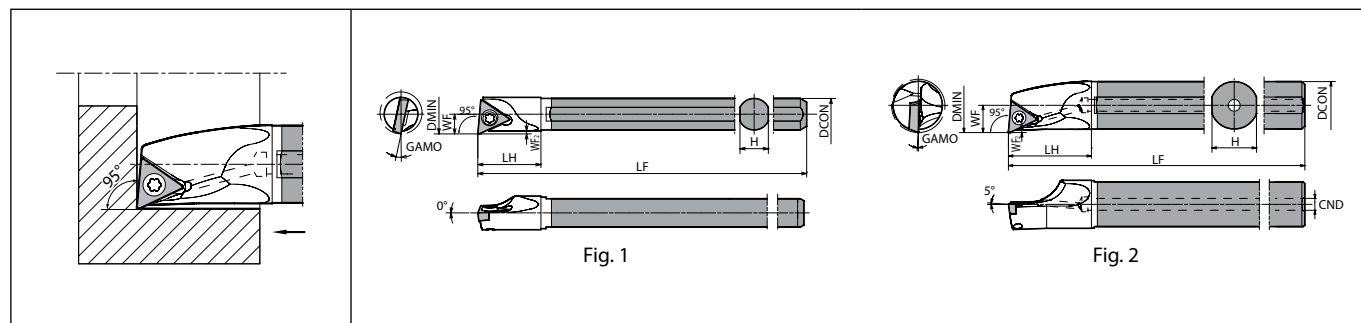


Fig. 1

Fig. 2

Max. Overhang Length $L/D \approx 7$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts
																Screw	Wrench	Wrench	
		R	L	DMIN	DCON	CND	H	LH	LF	WF	WF ₂								
mm	C06J- STLB% 06-08AN	●	●	8	6	-	5.4	10	110	3.8	0.5	12	0.2	No	1	SB-2035TR	-	FT-6	TB□T121...,TB□W121...
	E08L- STLP% 08-10AN	●	●	10	8	3	7	14	140	5	0.5	10	0.4	Yes	2	SB-1TR	-	FT-6	TP□B1515...,TP□H1515... TP□T1515...
	E08L- STLP% 09-10AN	●	●	10	8	3	7	14	140	5	0.5	10	0.4	Yes	2	SB-2545TR	-	FT-8	TP□B1815... TP□H1815... TP□T1815... TP□X1815...
	E10N- STLP% 09-12AN	●	●	12	10		9	18	160	6.2	0.9	8							
	STLPR09-12AN2/3	●	●						105										
	STLPR09-12AN1/2	●	●						80										
	E12Q- STLP% 09-16A	●	●	16	12	4	11	23	180	8	0.6	5	0.4	Yes	2	SB-3060TR	-	FT-10	TP□B22... TP□H22... TP□T22... TP□X22...
	STLPR09-16A-2/3	●	●						120										
	STLPR09-16A-1/2	●	●						90										
	E10N- STLP% 11-12AN	●	●	12	10	3	9	18	160	6	0.7	10	0.4	Yes	2	SB-4065TR	FT-15	-	TP□B32... TP□H32... TP□T32...
	STLPR11-12AN2/3	●	●						105										
	STLPR11-12AN1/2	●	●						80										
	E12Q- STLP% 11-14A	●	●	14	12	4	11	23	180	7.2	0.8	7	0.4	Yes	2	SB-4065TR	FT-15	-	TP□B32... TP□H32... TP□T32...
STLPR11-14A-2/3	●	●	120																
STLPR11-14A-1/2	●	●	90																
E16X- STLP% 11-18A	●	●	18	16	15		28	220	9.2	3.5	0.7	2	0.4	Yes	2	SB-4065TR	FT-15	-	TP□B32... TP□H32... TP□T32...
STLPR11-18A-2/3	●	●				145													
STLPR11-18A-1/2	●	●				110													
E20S- STLP% 11-22A	●	●	22	20	6	19	32	250	11.2	2	0.7	0	0.4	Yes	2	SB-4065TR	FT-15	-	TP□B32... TP□H32... TP□T32...
STLPR11-22A-2/3	●	●						165											
STLPR11-22A-1/2	●	●						125											
E20S- STLP% 16-25A	●	●	25	20	6	19	32	250	13	0.7	0	0.4	Yes	2	SB-4065TR	FT-15	-	TP□B32... TP□H32... TP□T32...	
STLPR16-25A-2/3	●	●						165											
STLPR16-25A-1/2	●	●						125											
E25T- STLP% 16-27A	●	●	27	25	24	38	300	13.7	0.7	0	0.4	Yes	2	SB-4065TR	FT-15	-	TP□B32... TP□H32... TP□T32...		
STLPR16-27A-2/3	●	●					200												

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

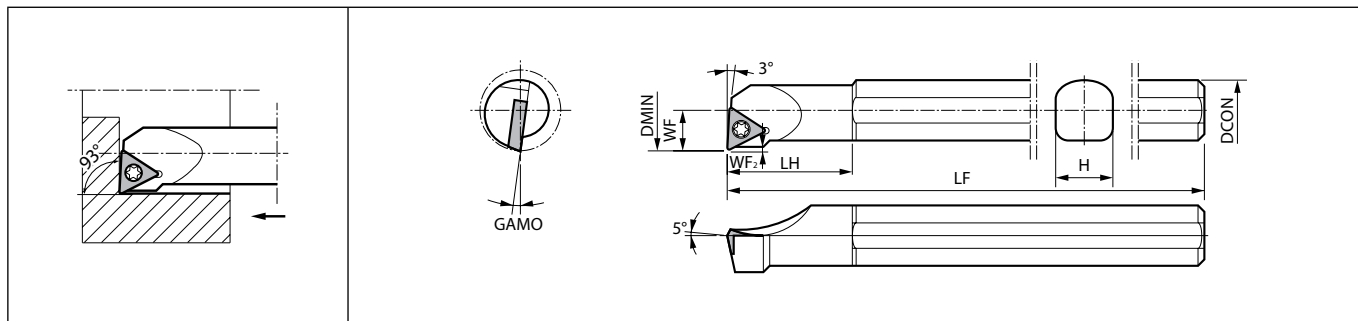
When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Applicable Inserts (A/S-STLB(P)-AE / S-STLB(P)-A / C/E-STLB(P)-A(N))

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium
Insert								
Chipbreaker Type	CF	PF	WP	$\frac{1}{4}$ L-WP	PP	GP	DP	HQ
Page	B84, B88	B84, B88	B88	B88	B88	B89	B84	B89
Applications	Finishing	Finishing	Finishing	Medium	Low Feed	Low Carbon Steel	Low Carbon Steel	Cast Iron
Insert								
Chipbreaker Type	R/L	$\frac{1}{4}$ L-FSF	$\frac{1}{4}$ L-P	$\frac{1}{4}$ L-H	$\frac{1}{4}$ L-USF	XP	XQ	No Chipbreaker
Page	B84, B90, B91	B92	B92	B93	B94	B89	B89	B84, B94
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials				
Insert								
Chipbreaker Type	AP	PCD	APD	CBN				
Page	B94	C44, C46, C47	C47	C23				

Recommended Cutting Conditions ➡ F174, F175

Applicable Sleeves ➡ F170~F173

S-STUB(P) Steel Bar (Boring)

Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
														Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WFz							
Inch	S04H- STUBR1.2	●		0.312	0.250	0.224	0.50	4.00	0.148	0.023	12	1/64	No	SB-1STR	-	FT-6	TB□T121..., TB□W121...
	S05K- STUPR1.5	●		0.392	0.313	0.270	0.75	5.00	0.196	0.020	13	1/64	No	SB-1TR	-	FT-6	TP□B1515..., TP□H1515... TP□T1515...
	S06M- STUP $\frac{1}{8}$ 1.8	●	●	0.472	0.375	0.356	1.01	6.00	0.236	0.015	13	1/64	No	SB-2TR	-	FT-8	TP□B1815..., TP□H1815... TP□T1815..., TP□X1815...
	S08M- STUPR1.8	●		0.630	0.500	0.480	1.18	6.00	0.315	0.090	10			SB-2TR	-	FT-8	TP□B1815..., TP□H1815... TP□T1815..., TP□X1815...
	S10X- STUP $\frac{1}{2}$ 2	●	●	0.787	0.625	0.584	1.38	7.00	0.394	0.100	7	1/64	No	SB-3TR	FT-10	-	TP□B22..., TP□H22... TP□T22..., TP□X22...
	S12R- STUP $\frac{1}{2}$ 2	●	●	0.912	0.750	0.710	1.58	8.00	0.456	0.115	5			SB-3TR	FT-10	-	TP□B22..., TP□H22... TP□T22..., TP□X22...

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

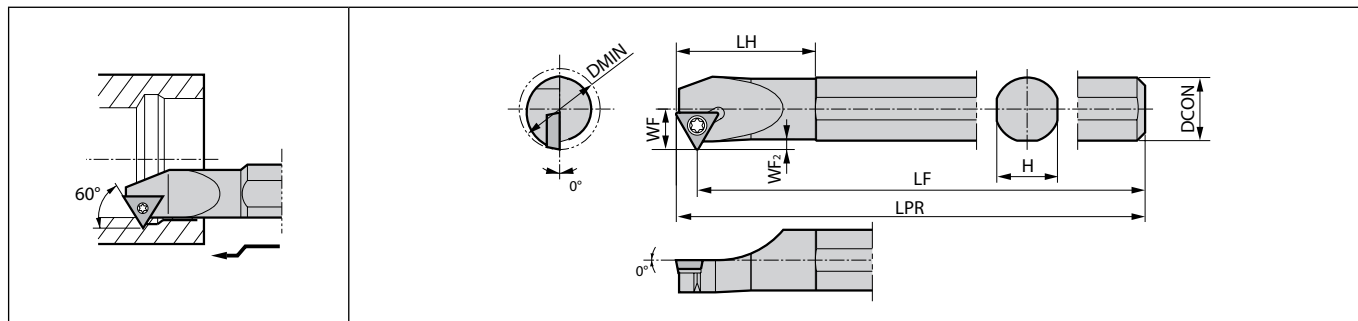
When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Applicable Inserts (S-STUB(P))

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium
Insert								
Chipbreaker Type	CF	PF	WP	1/2-WP	PP	GP	DP	HQ
Page	B84, B88	B84, B88	B88	B88	B88	B89	B84	B89
Applications	Finishing	Finishing	Finishing	Medium	Low Feed	Low Carbon Steel	Low Carbon Steel	Cast Iron
Insert								
Chipbreaker Type	R/L	1/2-FSF	1/2-P	1/2-H	1/2-USF	XP	XQ	No Chipbreaker
Page	B84, B90, B91	B92	B92	B93	B94	B89	B89	B84, B94
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials				
Insert								
Chipbreaker Type	AP	PCD	APD	CBN				
Page	B94	C44, C46, C47	C47	C23				

Recommended Cutting Conditions ➡ F174, F175

Applicable Sleeves ➡ F170~F173

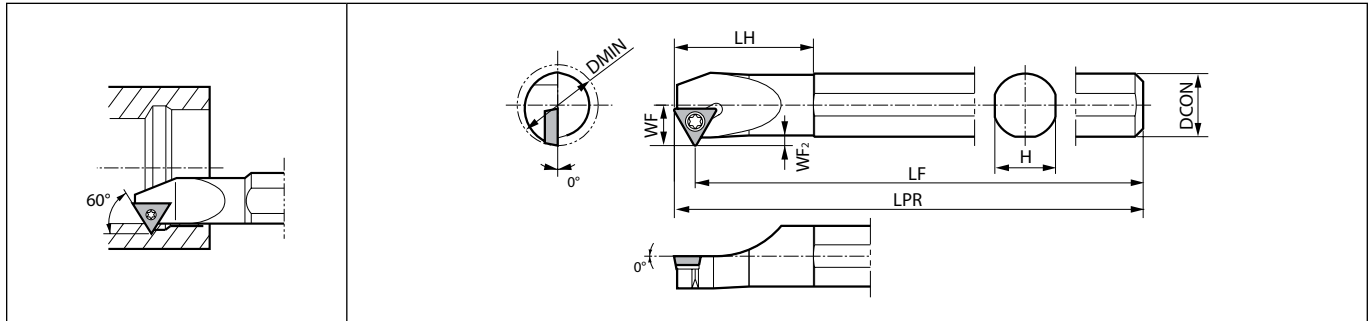
S-STWP-E Excellent Bar (Internal Copying)

Max. Overhang Length $L/D \approx 5$ | This toolholder is also available for threading. | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
															Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LPR	LF	WF	WF2							
mm	S10M- STWP% 11-12E	●	●	12	10	9.2	23	150	144.5	6	1	0	0.1	No	SB-3STR	-	FT-10	TP□B215..., TP□H215...
	S12M- STWP% 11-16E	●	●	16	12	11	30			8	1.5				SB-3TR			TP□B22...
	S16R- STWP% 11-20E	●	●	20	16	15	35			200	194.5							10	2	TP□H22...
	S20X- STWP% 11-25E	●	●	25	20	19	40	220	214.5	12.5	2.5	4	0.8	No	SB-4TR	FT-15	-	TP□T22...
	S20X- STWP% 16-25E	●	●	25	20	19	40	220	212.3	14	TP□B32..., TP□H32...							
	S25X- STWP% 16-32E	●	●	32	25	24	42	270	262.3	16.5								TP□T32...

WP chipbreaker (TPMX-WP : Wiper insert) is not applicable to S-STWP-E Toolholders.

S-STWP Steel Shank Bar (Internal Copying)

Max. Overhang Length $L/D \sim 3$ | This toolholder is also available for threading. | Right-hand shown
Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
														Screw	Wrench	
		R	DMIN	DCON	H	LH	LPR	LF	WF	WF ₂						
Inch	S06M- STWPR2	●	0.476	0.375	0.350	0.91	6.00	5.795	0.238	0.056	0	1/64	No	SB-3STR	FT-10	TP□B215..., TP□H215...
	S12R- STWPR2	●	0.970	0.750	0.726	1.60	8.00	7.795	0.485	0.115						
mm	S10M- STWPR11-12	●	12	10	9.2	23			6	1	0	0.1	No	SB-3STR	FT-10	TP□B215..., TP□H215...
	S12M- STWPR11-16	●	16	12	11	30	150	144.5	8	1.5						
	S16Q- STWPR11-20	●	20	16	15	35	180	174.5	10	2						
	S20R- STWPR11-25	●	25	20	19	40	200	194.5	12.5	2.5						

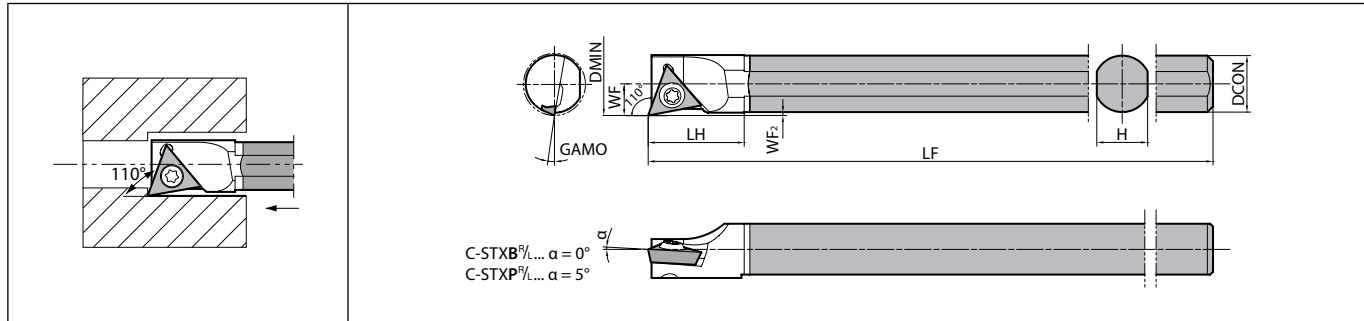
WP chipbreaker (TPMX-WP : Wiper insert) is not applicable to S-STWP Toolholders.

Applicable Inserts (S-STWP-E / S-STWP)

Applications	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Medium	Low Feed	Low Carbon Steel
Insert								
Chipbreaker Type	PP	GP	HQ	R/L	¾ -FSF	¾ -H	¾ -USF	XP
Page	B88	B89	B89	B90, B91	B92	B93	B94	B89
Applications	Low Carbon Steel	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker Type	XQ	No Chipbreaker	AP	PCD	APD	CBN		
Page	B89	B94	B94	C46, C47	C47	C23		

Recommended Cutting Conditions ➡ F174, F175

Applicable Sleeves ➡ F170~F173

C-STXB(P) Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang Length $L/D \sim 7$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
														Screw	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂						
mm	C06J- STXB 9/L 06-075	●	●	7.5	6	5.4	11	110	3.75	0.5	10	0.03	No	SB-1STR	FT-6	TB□T121..., TB□W121...
	C08X- STXP 9/L 08-09	●	●	9	8	7	14	143	4.6	0.5	10	0.03	No	SB-1TR	FT-6	TP□B1515..., TP□H1515..., TP□T1515...
	C10X- STXP 9/L 09-11	●	●	11	10	9	17	164	5.6	0.5	10	0.03	No	SB-2TR	FT-8	TP□B1815..., TP□H1815..., TP□T1815...

WP chipbreaker (TPMX-WP : Wiper insert) is not applicable to C-STXP Toolholders.

Applicable Inserts

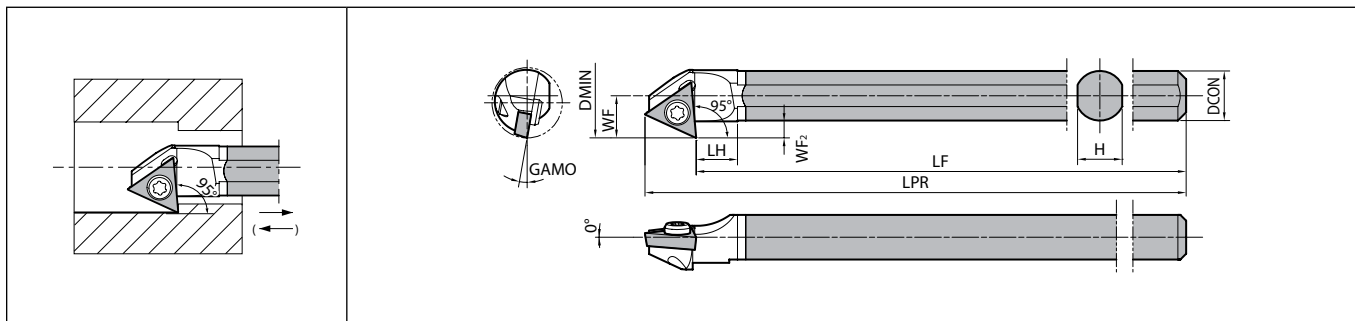
Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	CF	PF	PP	GP	DP	HQ	R/L	9/L-FSF
Page	B84, B88	B84, B88	B88	B89	B84	B89	B84, B90, B91	B92
Applications	Medium	Low Feed	Low Carbon Steel	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials	
Insert								
Chipbreaker Type	9/L-H	9/L-USF	XP	No Chipbreaker	AP	PCD	CBN	
Page	B93	B94	B89	B84, B94	B94	C44, C46, C47	C23	

Recommended Cutting Conditions F174, F175

Applicable Sleeves F170~F173

C-STXP(B) Boring Bar Cutting Conditions (Workpiece Material : Alloy Steel)

Toolholder Part Number	Insert Part Number (Grades)	Vc (sfm)	D.O.C. (in)	f (ipr)	Coolant
C06J-STXB 9/L 06-075	TBGT12101 1/8 (PR930)	100~330	0.0008~0.0039	0.0008~0.0016	Yes
C08X-STXP 9/L 08-09	TPGH151502 1/8 (PR930)	100~330	0.0020~0.0059	0.0012~0.0031	Yes
C10X-STXP 9/L 09-11	TPGH181502 1/8 (PR930)	100~330	0.0020~0.0059	0.0012~0.0031	Yes

C-STZB Carbide Shank Bar (Back Boring)

Max. Overhang Length $L/D \approx 7$ | Right-hand shown
 Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.
 When using Right-hand Toolholder, use Right-hand insert if machining from back to front in this direction (→).
 Use Left-hand insert if machining from front to back in this direction (←).

Toolholder Dimensions

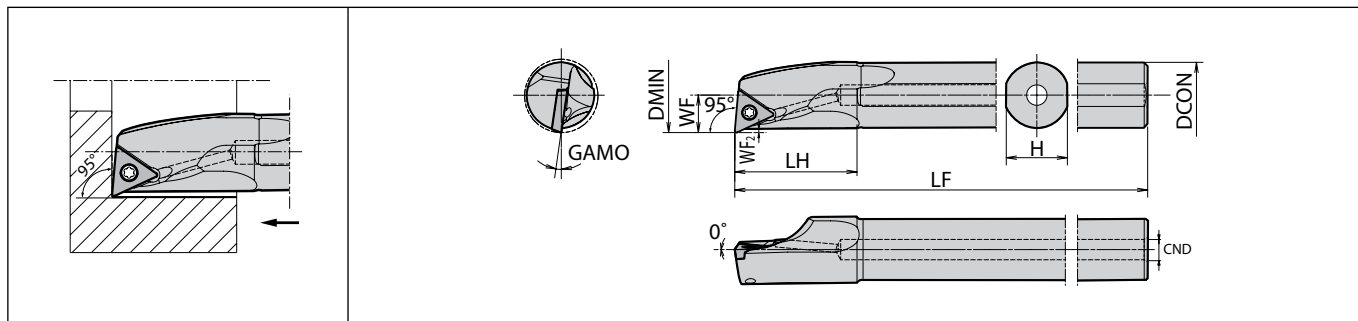
Unit	Part Number	Std. Item	Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
														Screw	Wrench	
		R	DMIN	DCON	H	LH	LPR	LF	WF	WF ₂						
mm	C06J- STZBR06-085	●	8.5	6	5.4	5	110	104.3	5.1	1.8	10	0.03	No	SB-1STR	FT-6	TB□T121...,TB□W121...

Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Cast Iron	Non-Ferrous Metals
Insert						
Chipbreaker Type	CF	PF	DP	R/L	No Chipbreaker	PCD
Page	B84	B84	B84	B84	B84	C44

Recommended Cutting Conditions ➡ F174, F175

Applicable Sleeves ➡ F170~F173

A-STLC-AE Excellent Bar (Boring / Internal Facing)

Max. Overhang Length $L/D \approx 5.5$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
															Screw	Wrench	
		R	L	DMIN	DCON	CND	H	LH	LF	WF	WF ₂						
mm	A08X- STLC% 09-10AE	●	●	10	8	2.5	7	16	120	5	0.5	14	0.4	Yes	SB-2250TR	FT-7	TCMT1815... TCMX1815...
	A10L- STLC% 09-12AE	●	●	12	10	3	9	20	140	6.2	0.9	12	0.4	Yes	SB-2250TR	FT-7	TCMT1815... TCMX1815...
	A10L- STLC% 11-12AE	●	●	12	10	3	9	20	140	6.2	0.9	12	0.4	Yes	SB-2250TR	FT-7	TCMT1815... TCMX1815...
	A12M- STLC% 11-14AE	●	●	14	12	4	11	24	150	7.2		10	0.4	Yes	SB-2560TR	FT-8	TCMT215... TCMX215...
	A16Q- STLC% 11-18AE	●	●	18	16	5	15	30	180	9.2	0.7	8	0.4	Yes	SB-2560TR	FT-8	TCMT215... TCMX215...
	A20R- STLC% 11-22AE	●	●	22	20		19	36	200	11.2		6	0.4	Yes	SB-2560TR	FT-8	TCMT215... TCMX215...

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

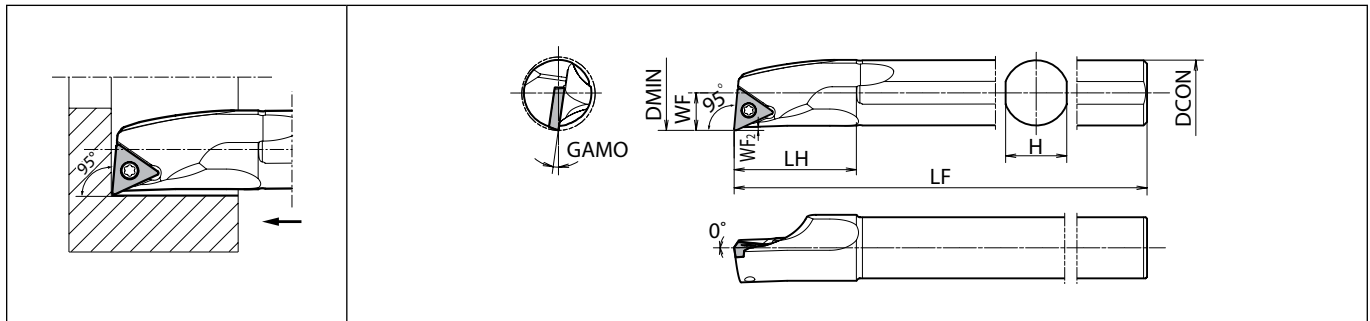
Applicable Inserts

Applications	Finishing	Finishing - Medium
Insert		
Chipbreaker Type	WP	HQ
Page	B85	B85

Recommended Cutting Conditions ➡ **F174, F175**

Applicable Sleeves ➡ **F170~F173**

S-STLC-A Steel Shank Bar (Boring / Internal Facing)



Max. Overhang Length $L/D \approx 4$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
														Screw	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂						
mm	S08X- STLC% 09-10A	●	●	10	8	7	16	120	5	0.5	14	0.4	No	SB-2250TR	FT-7	TCMT1815... TCMX1815...
	S10L- STLC% 09-12A	●	●	12	10	9	20	140	6.2	0.9	12					
	S10L- STLC% 11-12A	●	●	12	10	9	20	140	6.2	0.9	12					
	S12M- STLC% 11-14A	●	●	14	12	11	24	150	7.2	0.7	10	0.4	No	SB-2560TR	FT-8	TCMT215... TCMX215...
	S16Q- STLC% 11-18A	●	●	18	16	15	30	180	9.2	0.7	8					
	S20R- STLC% 11-22A	●	●	22	20	19	36	200	11.2	0.7	6					

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

Applicable Inserts

Applications	Finishing	Finishing - Medium
Insert		
Chipbreaker Type	WP	HQ
Page	B85	B85

Recommended Cutting Conditions **F174, F175**

Applicable Sleeves **F170~F173**

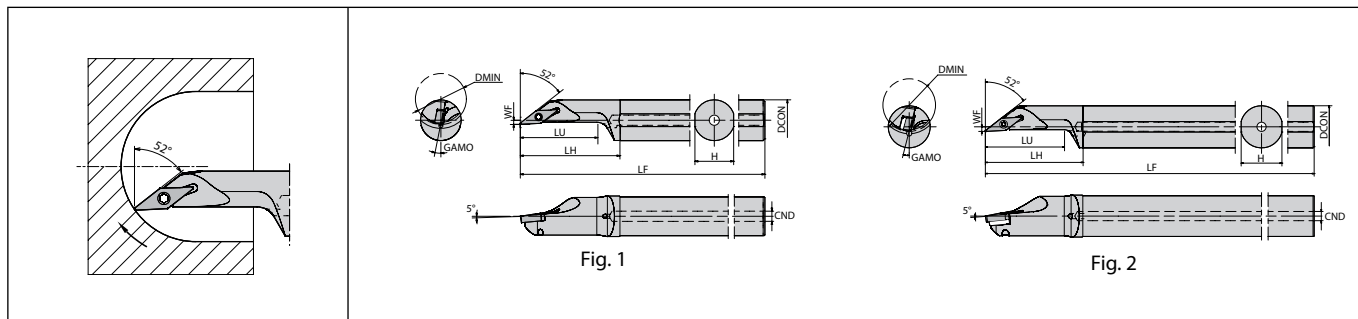
A-SVJP(C)(B)-AE Excellent Bar (Spherical Machining / Internal Facing / Internal Copying)

Fig. 1

Fig. 2

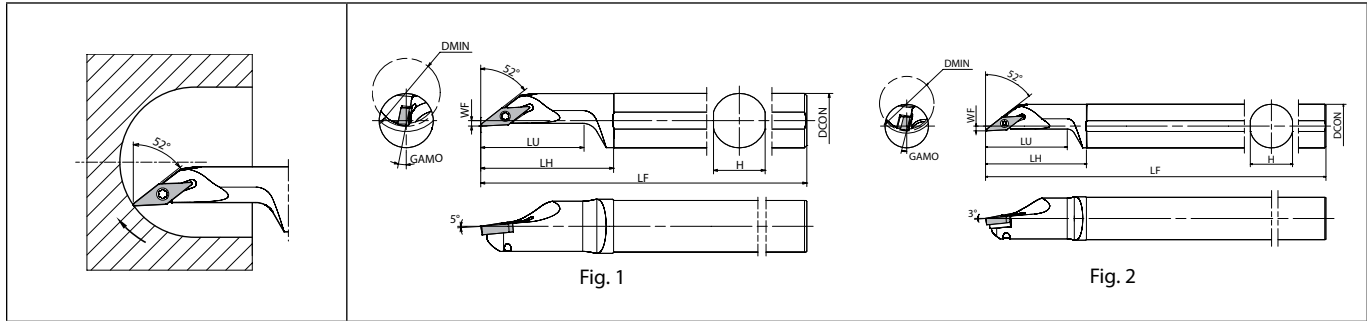
Max. Overhang Length $L/D \approx 5.5$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts						Applicable Inserts				
																Screw	Wrench	Wrench	Shim	Shim Screw	Wrench					
		R	L	DMIN	DCON	CND	H	LH	LF	LU	WF															
Inch	A12S- SVJB 1/2 2AE	●	●	0.984	0.750	0.197	0.711	-	10	1.476	0.079	5	1/64	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...				
	A16T- SVJB 1/2 2AE	●	●	1.180	1.000	0.197	0.961	-	12	1.772	0.138												VB□T33... VB□W33... VC□T33...			
	A16T- SVJBR3AE	●		1.180	1.000	0.197	0.961	2.240	12	1.950	0.236	5				SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4					
mm	A12M- SVJP 1/2 08-16AE	●	●	16	12	4	11	33	150	26	2	5	0.2	Yes	1	SB-2050TR	-	FT-6	-	-	-	VP□T1515...				
	A12M- SVJC 1/2 08-16AE	●	●	16	12	4	11	33	150	26	2	5	0.4	Yes	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...				
	A16Q- SVJC 1/2 08-20AE	●	●	20	16		15	43	180	36																
	A20R- SVJB 1/2 11-25AE	●	●	25	20	5	19	48	200	37.5	2	5	0.4	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...				
	A25S- SVJB 1/2 11-30AE	●	●	30	25	7	24	58	250	45	3.5															
	A32S- SVJB 1/2 16-40AE	●	●	40	32	7	31	74	250	60	3.5					8	0.4	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	A40T- SVJB 1/2 16-50AE	●	●	50	40	9	39	91	300	75	4.5					7										

Use of VB□T22...-Y / VB□T33...-Y inserts with A-SVJB-AE is not recommended.

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

S-SVJP(C)(B)-A Steel Shank Bar (Spherical Machining / Internal Facing / Internal Copying)

Max. Overhang Length $L/D \approx 4$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts						Applicable Inserts
															Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
		R	L	DMIN	DCON	H	LH	LF	LU	WF											
mm	S12M- SVJP% 08-16A	●	●	16	12	11	33	150	26	2	5	0.2	No	1	SB-2050TR	-	FT-6	-	-	-	VP□T1515...
	S12M- SVJC% 08-16A	●	●	16	12	11	33	150	26	2	5	0.4	No	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
	S16Q- SVJC% 08-20A	●	●	20	16	15	43	180	36	2	5	0.4	No	1	SB-2050TR	-	FT-6	-	-	-	VC□W1515...
	S20R- SVJB% 11-25A	●	●	25	20	19	48	200	37.5	2	5	0.4	No	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	S25S- SVJB% 11-30A	●	●	30	25	24	58	250	45	3.5	5	0.4	No	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	S32S- SVJB% 16-40A	●	●	40	32	31	74	250	60	3.5	8	0.4	No	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	S40T- SVJB% 16-50A	●	●	50	40	39	91	300	75	4.5	7	0.4	No	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...

Use of VB□T22...-Y / VB□T33...-Y inserts with S-SVJB-A is not recommended.

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

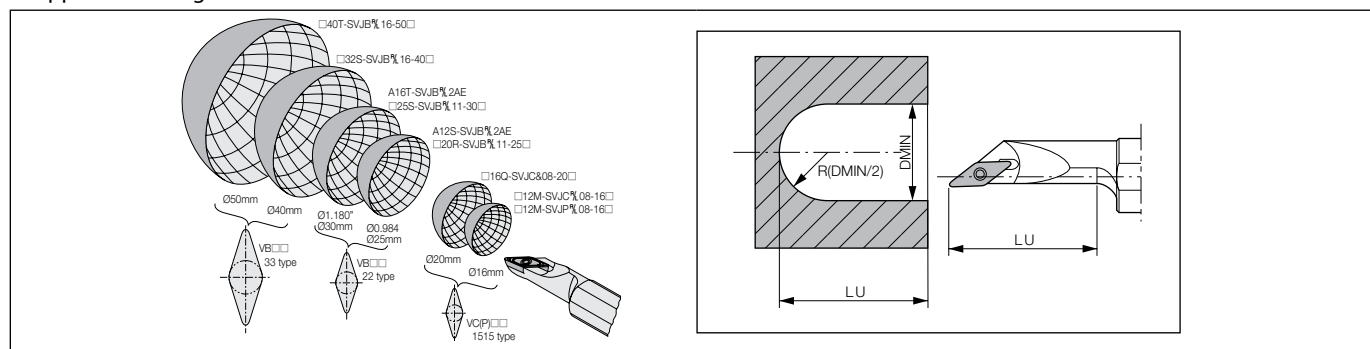
Applicable Inserts (A-SVJP(C)(B)-AE / S-SVJP(C)(B)-A)

Applications	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Low Feed
Insert								
Chipbreaker Type	CK	VF	PP	GP	HQ	%L-F	%L-FSF	%L-U
Page	B102	B97, B100	B97, B100	B97	B97, B100	B98, B103	B98, B103	B104
Applications	Low Feed	Finishing - Medium	Non-Ferrous Metals	Hard Materials				
Insert								
Chipbreaker Type	%L-USF	%L-Y	PCD	CBN				
Page	B104	B99	C49, C50	C26, C27				

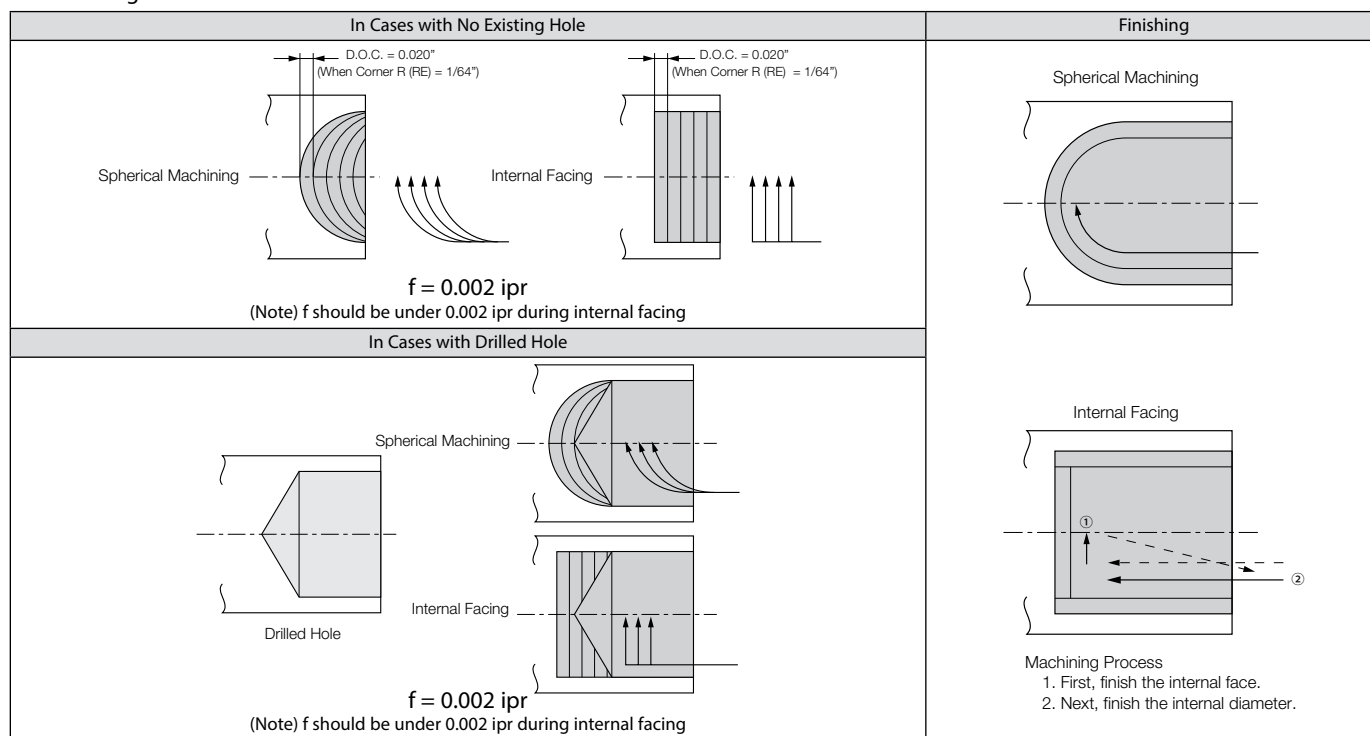
Recommended Cutting Conditions  F174, F175Applicable Sleeves  F170~F173

Application of A...SVJP(C)-□, S...SVJP(C)-□

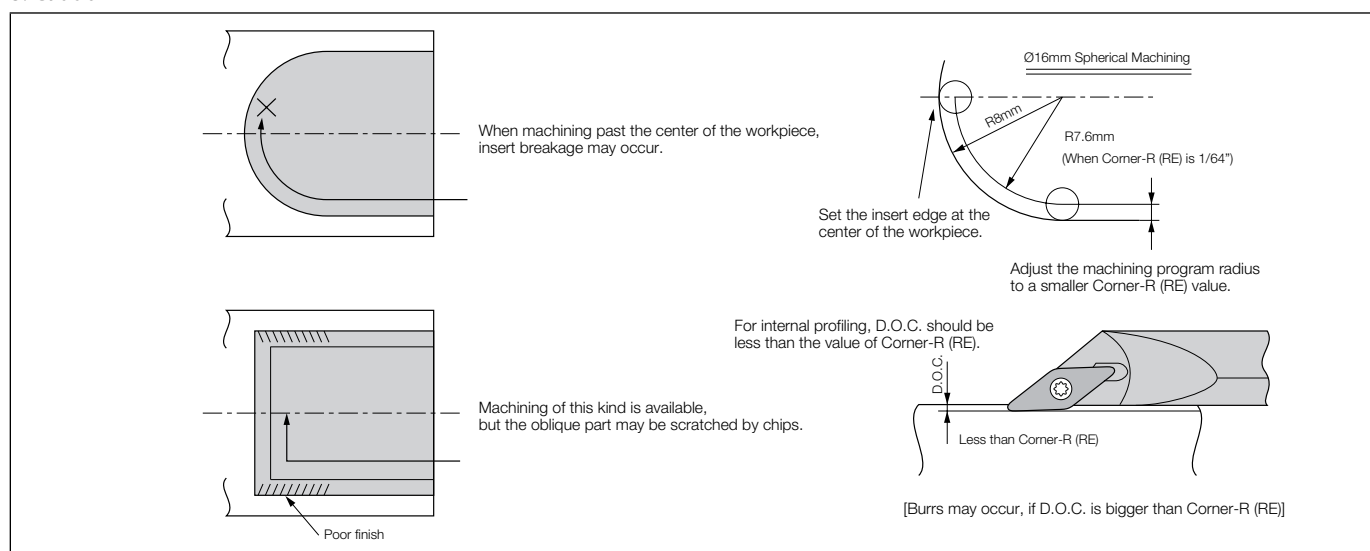
1. Application Range



2. Machining Method



3. Caution



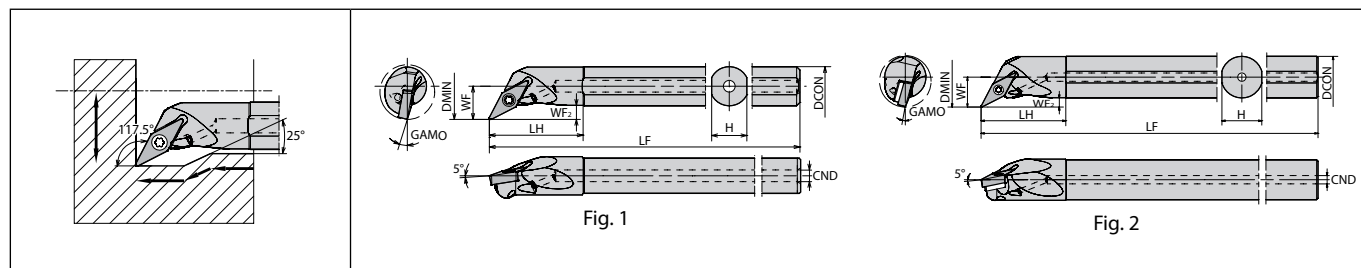
A-SVPC(B)-AE Excellent Bar (Internal Copying / Undercutting)

Fig. 1

Fig. 2

Max. Overhang Length L/D ~ 5.5 | Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts						Applicable Inserts									
																Screw	Wrench	Wrench	Shim	Shim Screw	Wrench										
		R	L	DMIN	DCON	CND	H	LH	LF	WF	WF2																				
Inch	A06M- SVPC% 1.5AE	●	●	0.630	0.375	0.118	0.336	0.945	6	0.335	0.118	8	1/64	Yes	1	SB-2570TR	-	FT-8	-	-	-	VC□T1515... VC□W1515...									
	A08M- SVPB% 2AE	●	●	0.790	0.500	0.157	0.461	1.142	6	0.433	0.177	8	1/64	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...									
	A10R- SVPB% 2AE	●	●	0.980	0.625	0.197	0.586	1.378	8	0.531	0.197	5																			
	A12S- SVPB% 2AE	●	●	1.180	0.750	0.197	0.711	1.575	10	0.610	0.197	5																			
	A16T- SVPB% 3AE	●	●	1.240	1.000	0.197	0.961	2.008	12	0.709	0.197	13°	1/64	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...									
mm	A10L- SVPC% 08-14AE	●	●	14	10	3	9	24	140	8.5	3	8	0.4	Yes	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...									
	A12M- SVPB% 11-18AE	●	●	18	12	4	11	29	150	11	4.5	8	0.4	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...									
	A16Q- SVPB% 11-22AE	●	●	22	16	5	15	35	180	13.5	5	5																			
	A20R- SVPB% 11-26AE	●	●	26	20		19	41	200	15.5																					
	A25S- SVPB% 16-31AE	●	●	31	25	5	24	51	250	18	5	13	0.4	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...									
	A32S- SVPB% 16-40AE	●	●	40	32		31	54		23	6.5	9																			

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

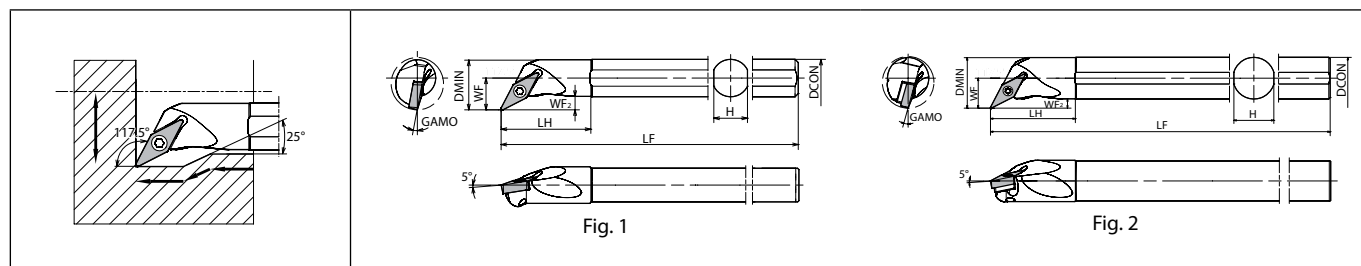
S-SVPC(B)-A Steel Shank Bar (Internal Copying / Undercutting)

Fig. 1

Fig. 2

Max. Overhang Length L/D ~ 4 | Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

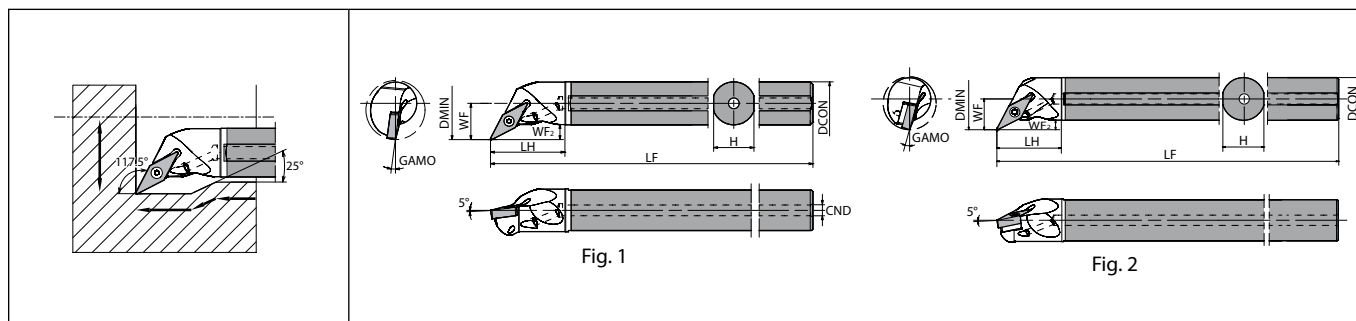
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Inserts	
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂				Screw	Wrench	Wrench	Shim	Shim Screw	Wrench		
																					
mm	S10L- SVPC% 08-14A	●	●	14	10	9	24	140	8.5	3	8	0.4	No	1		-	FT-6	-	-	-	VC□T1515..., VC□W1515...
	S12M- SVPB% 11-18A	●	●	18	12	11	29	150	11	4.5	8	0.4	No	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	S16Q- SVPB% 11-22A	●	●	22	16	15	35	180	13.5	5	5										
	S20R- SVPB% 11-26A	●	●	26	20	19	41	200	15.5												
	S25S- SVPB% 16-31A	●	●	31	25	24	51	250	18	5	13	0.4	No	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33..., VB□W33... VC□T33...
	S32S- SVPB% 16-40A	●	●	40	32	31	54		23	6.5	9										

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

E-SVPC(B)-A Carbide Shank Bar (Internal Copying / Undercutting)

Max. Overhang Length L/D≈7 | Right-hand shown | Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions									GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts						Applicable Inserts
																Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
			R	DMIN	DCON	CND	H	LH	LF	WF	WF ₂											
mm	E10N- SVPBR08-14A	●	14	10	3	9	20	160	8.5	3	8	0.4	Yes	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...	
	E12Q- SVPBR11-18A	●	18	12	4	11	23	180	11	4.5	8	0.4	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...	
	E16X- SVPBR11-22A	●	22	16		15	28	220	13.5	5	5											
	E20S- SVPBR11-26A	●	26	20		6	19	32	250													15.5
	E25T- SVPBR16-31A	●	31	25	6	24	38	300	18	5	13	0.4	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...	

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

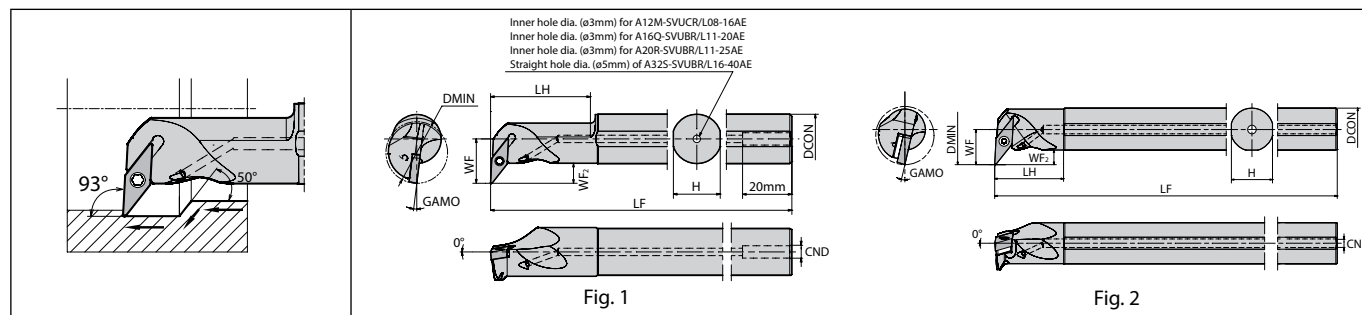
Applicable Inserts (A-SVPC(B)-AE / S-SVPC(B)-A / E-SVPC(B)-A)

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker Type	VF	PP	GP	HQ	F-F	F-FS	F-Y	PCD
Page	B97, B100	B97, B100	B97	B97, B100	B98	B98	B99	C49, C50
Applications	Hard Materials							
Insert								
Chipbreaker Type	CBN							
Page	C26, C27							

Recommended Cutting Conditions ➡ F174, F175

Applicable Sleeves ➡ F170~F173

A-SVUC(B)-AE Excellent Bar (Internal Copying)



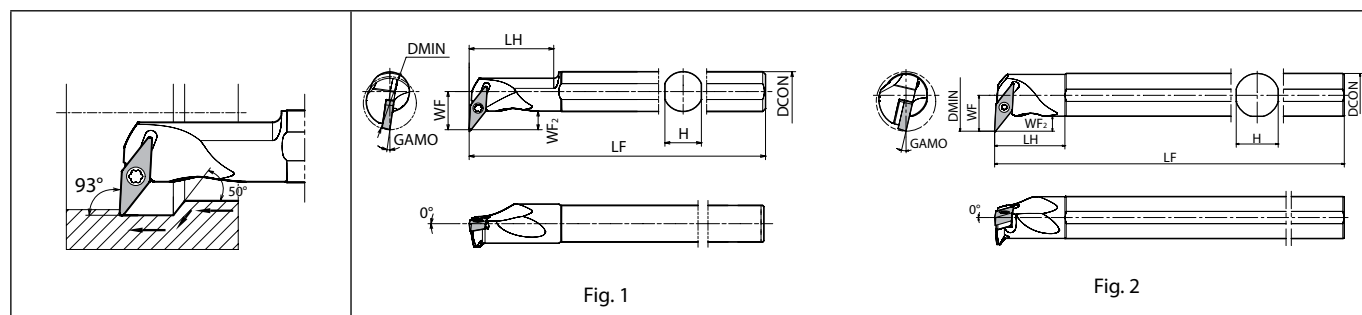
Toolholder Dimensions

Max. Overhang Length $L/D \sim 5.5$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts						Applicable Inserts
		R	L	DMIN	DCON	CND	H	LH	LF	WF	WF ₂					Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
Inch	A08M- SVUC% 1.5AE	●	●	0.630	0.500	0.157	0.461	1.004	6	0.453	0.217	8	1/64	Yes	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
	A10R- SVUB% 2AE	●	●	0.790	0.625	0.197	0.586	1.280	8	0.630	0.315	8	1/64	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	A12S- SVUB% 2AE	●	●	0.980	0.750	0.197	0.711	1.595	10	0.709	0.315	7	1/64	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	A16T- SVUB% 3AE	●	●	1.340	1.000	0.197	0.961	1.583	12	0.807	0.335	13	1/64	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
mm	A12M- SVUC% 08-16AE	●	●	16	12	4	11	25.5	150	11.5	5.5	8	0.4	Yes	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
	A16Q- SVUB% 11-20AE	●	●	20	16	5	15	32.5	180	16	8	8	0.4	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	A20R- SVUB% 11-25AE	●	●	25	20	5	19	40.5	200	18	8	7	0.4	Yes	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	A25S- SVUB% 16-34AE	●	●	34	25	5	24	40	250	20.5	8.5	13	0.4	Yes	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	A32S- SVUB% 16-40AE	●	●	40	32	5	31	84	250	28	12	9	0.4	Yes	1	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

S-SVUC(B)-A Steel Shank Bar (Internal Copying)

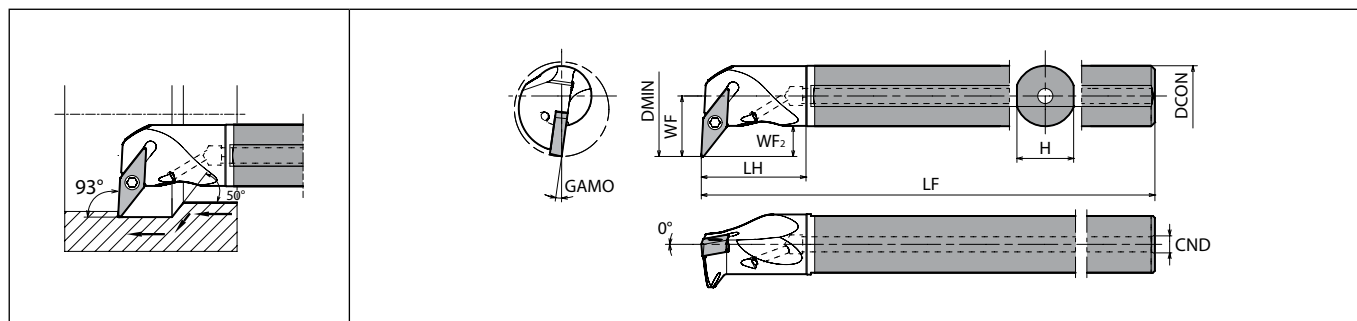


Toolholder Dimensions

Max. Overhang Length $L/D \sim 4$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts						Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF	WF2	Screw					Wrench	Wrench	Shim	Shim Screw	Wrench		
mm	S12M- SVUC% 08-16A	●	●	16	12	11	25.5	150	11.5	5.5	8	0.4	No	1							VC□T1515... VC□W1515...	
	S16Q- SVUB% 11-20A	●	●	20	16	15	32.5	180	16	8	0.4	No	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...		
	S20R- SVUB% 11-25A	●	●	25	20	19	40.5	200	18	7	0.4	No	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...		
	S25S- SVUB% 16-34A	●	●	34	25	24	40	250	20.5	8.5	13	0.4	No	2	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...	
	S32S- SVUB% 16-40A	●	●	40	32	31	84	250	28	12	9	0.4	No	1								

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

E-SVUC(B)-A Carbide Shank Bar (Internal Copying)

Max. Overhang Length $L/D \approx 7$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions									GAMO (°)		Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Inserts
																Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
			R	DMIN	DCON	CND	H	LH	LF	WF	WF ₂											
mm	E12Q- SVUCR08-18A	●	18	12	4	11	23	180	11.5	5.5	8	0.4	Yes	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...		
	E16X- SVUBR11-25A	●	25	16	4	15	28	220	16	8	8	0.4	Yes	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...		
	E20S- SVUBR11-29A	●	29	20	6	19	32	250	18		7	0.4	Yes	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...		
	E25T- SVUBR16-34A	●	34	25	6	24	38	300	21	8.5	13	0.4	Yes	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...		

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

Applicable Inserts (A-SVUC(B)-AE / S-SVUC(B)-A / E-SVUC(B)-A)

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker Type	VF	PP	GP	HQ	F	FSF	Y	PCD
Page	B97, B100	B97, B100	B97	B97, B100	B98	B98	B99	C49, C50
Applications	Hard Materials							
Insert								
Chipbreaker Type	CBN							
Page	C26, C27							

Recommended Cutting Conditions F174, F175

Applicable Sleeves F170~F173

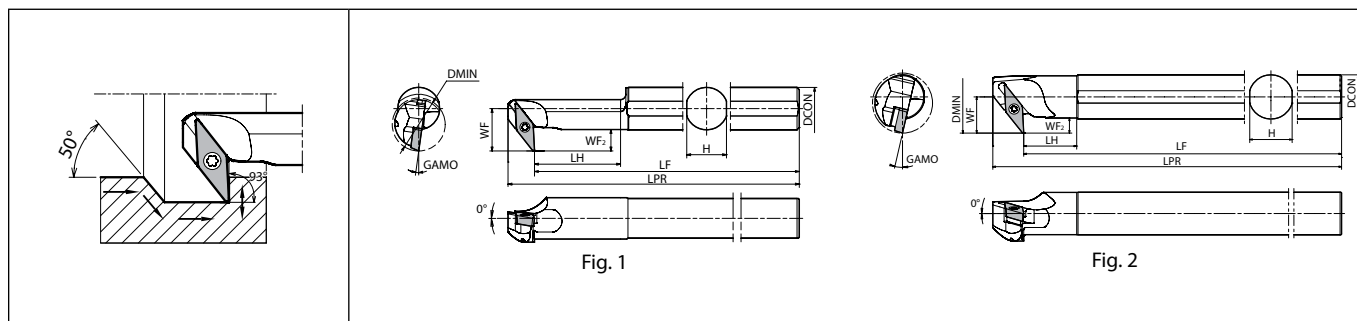
Fig. 1

Fig. 2

Max. Overhang Length $L/D \sim 5.5$ | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Unit	Part Number	Std. Item		Dimensions								GAMO (°)		Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts						Applicable Inserts
																	Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
		R	L	DMIN	DCON	CND	H	LH	LPR	LF	WF	WF ₂											
Inch	A08M- SVZC ⅝ 1.5AE	●	●	0.630	0.500	0.157	0.461	1.004	-	6	0.453	0.217	8	1/64	Yes	6		-	FT-6	-	-	-	VC□T1515... VC□W1515...
	A10R- SVZB ⅝ 2AE	●	●	0.790	0.625	0.197	0.586	1.280	-	8	0.630	0.315	8	1/64	Yes	6		-	FT-8	-	-	-	VB□T22... VB□W22...
	A12S- SVZB ⅝ 2AE	●	●	0.980	0.750	0.197	0.711	1.595	-	10	0.709	0.315	7										
	A16T- SVZB ⅝ 3AE	●	●	1.340	1.000	0.197	0.961	1.181	-	12	0.807	0.335	13	1/64	Yes	7		FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
mm	A12M- SVZC ⅝ 08-16AE	●	●	16	12	4	11	25.5	150	142.5	11.5	5.5	8	0.4	Yes	1		-	FT-6	-	-	-	VC□T1515... VC□W1515...
	A16Q- SVZB ⅝ 11-20AE	●	●	20	16	5	15	32.5	180	170	16	8	8	0.4	Yes	1		-	FT-8	-	-	-	VB□T22... VB□W22...
	A20R- SVZB ⅝ 11-25AE	●	●	25	20		19	40.5	200	190	18		7										
	A25S- SVZB ⅝ 16-34AE	●	●	34	25	5	24	30	250	232.5	20.5	8.5	13	0.4	Yes	2		FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	A32S- SVZB ⅝ 16-40AE	●	●	40	32	5	31	72.5	250	232.5	28	12	9	0.4	Yes	1							

When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

S-SVZC(B)-A Steel Shank Bar (Back Boring)

Max. Overhang Length $L/D \approx 4$ | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts						Applicable Inserts
																Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
		R	L	DMIN	DCON	H	LH	LPR	LF	WF	WF ₂											
mm	S12M- SVZC% 08-16A	●	●	16	12	11	25.5	150	142.5	11.5	5.5	8	0.4	No	1	SB-2050TR	-	FT-6	-	-	-	VC□T1515... VC□W1515...
	S16Q- SVZB% 11-20A	●	●	20	16	15	32.5	180	170	16	8	8	0.4	No	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	S20R- SVZB% 11-25A	●	●	25	20	19	40.5	200	190	18	8	7	0.4	No	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	S25S- SVZB% 16-34A	●	●	34	25	24	30	250	232.5	20.5	8.5	13	0.4	No	2	SB-4012STRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	S32S- SVZB% 16-40A	●	●	40	32	31	72.5	250	232.5	28	12	9	0.4	No	1							

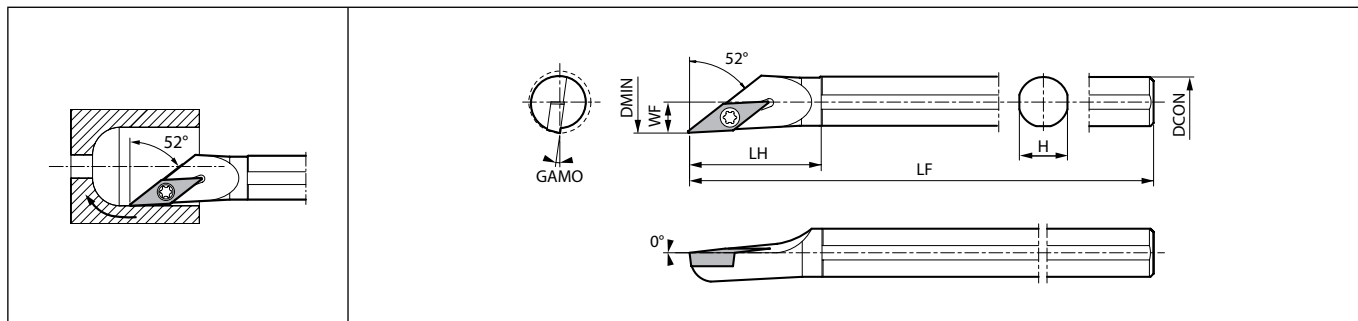
When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

Applicable Inserts (A-SVZC(B)-AE / S-SVZC(B)-A)

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker Type	VF	PP	GP	HQ	% - F	% - FSF	% - Y	PCD
Page	B97, B100	B97, B100	B97	B97, B100	B98	B98	B99	C49, C50
Applications	Hard Materials							
Insert								
Chipbreaker Type	CBN							
Page	C26, C27							

Recommended Cutting Conditions F174, F175

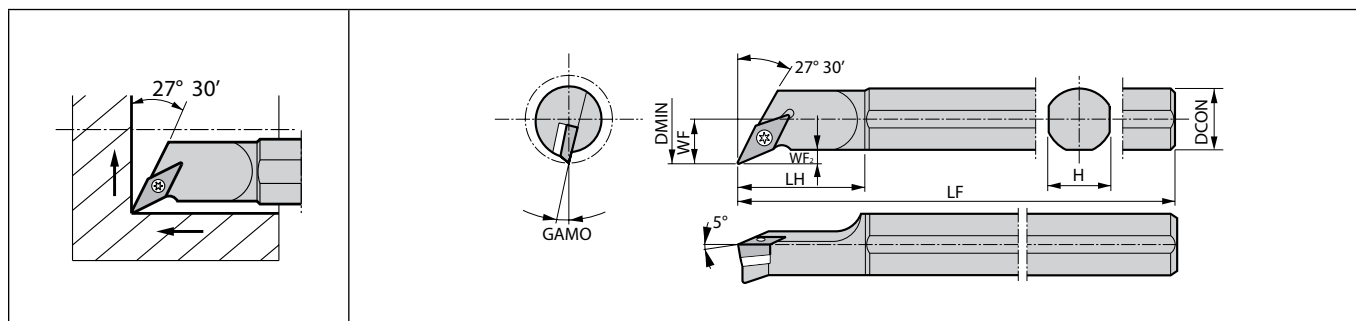
Applicable Sleeves F170~F173

S-SVJB Steel Bar (Spherical Machining / Internal Facing / Internal Copying)Max. Overhang Length $L/D \approx 3$ | Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

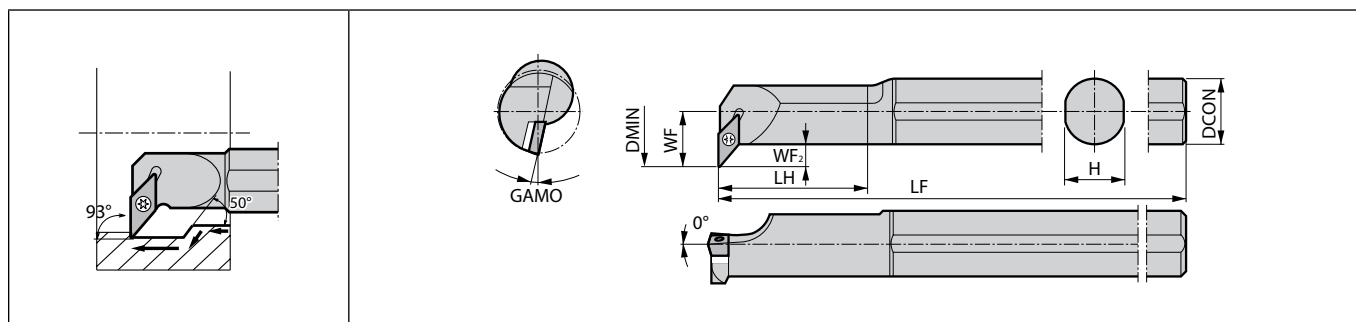
Unit	Part Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF				Screw	Wrench	Wrench	
Inch	S08M- SVJB $\frac{1}{2}$	●	●	0.620	0.500	0.480	1.25	6.00	0.310	8	1/64	No	SB-2570TR	-	FT-8	VB□T22... VB□W22...
	S10X- SVJB $\frac{1}{2}$	●	●	0.780	0.625	0.584	1.44	7.00	0.390	8						
	S12R- SVJB $\frac{3}{4}$	●	●	0.984	0.750	0.710	1.86	8.00	0.492	8	1/32	No	SB-4085TR	FT-15	-	VB□T33... VB□W33... VC□T33...

S-SVPB-E Excellent Bar (Copying / undercutting)

Max. Overhang Length $L/D \sim 5$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

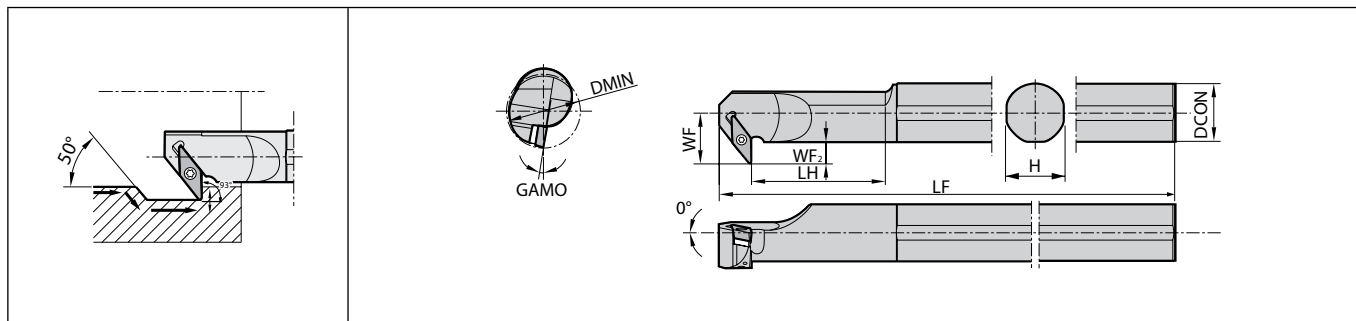
Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Inserts
													Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
		R	DMIN	DCON	H	LH	LF	WF	WF ₂										
Inch	S10Q- SVPBR2E	△	0.98	0.63	0.59	1.10	7.00	0.492	0.194	5	1/64	No	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	S16X- SVPBR3E	●	1.34	1.00	0.97	2.26	9.00	0.807	0.197	13	1/32	No	SB-40115TR	FT-15	-	SVN-32	SB-2050TR	FT-6	VB□T33... VB□W33... VC□T33...
	S20S- SVPBR3E	△	1.57	1.25	1.18	2.17	10.0	0.866	0.256	9									

S-SVUC(B)-E Excellent Bar (Copying)

Max. Overhang Length $L/D \sim 5$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Inserts
														Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂										
Inch	S08M- SVUCR1.5E	●		0.63	0.50	0.46	1.10	6.00	0.433	0.217	8	1/64	No	SB-2050TR	-	FT-8	-	-	-	VC□T1515... VC□W1515...
	S10Q- SVUB $\frac{1}{2}$ 2E	●	△	0.79	0.63	0.59	1.28	7.00	0.610	0.315	8	1/64	No	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	S12R- SVUB $\frac{1}{2}$ 2E	△	△	0.98	0.75	0.71	1.59	8.00	0.689	0.355	7									
	S16X- SVUBR3E	△		1.34	1.00	0.97	1.97	9.00	0.689	0.195	13	1/32	No	SB-40115TR	FT-15	-	SVN-32	SB-2050TR	FT-6	VB□T33... VB□W33... VC□T33...
	S20S- SVUBR3E	△		1.57	1.25	1.18	3.31	10.00	1.080	0.472	9									

S-SVZB-E Excellent Bar (Back Boring)Max. Overhang Length $L/D \approx 5$ | Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Inserts
		R	DMIN	DCON	H	LH	LF	WF	WF ₂				Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
Inch	S12R- SVZBR2E	●	0.98	0.75	0.71	1.73	8.00	0.689	0.355	7	1/64	No	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...

F BORING

MICRO BORING
POSITIVE INSERTS
ANTI-VIBE BARS
NEGATIVE INSERTS

Applicable Inserts (S-SVJB-E / S-SVJB / S-SVPB-E / S-SVUC(B)-E / S-SVZB-E)

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker Type	VF	PP	GP	HQ	R_{λ}/F	R_{λ}/FSF	R_{λ}/Y	PCD
Page	B97, B100	B97, B100	B97	B97, B100	B98	B98	B99	C49, C50
Applications	Hard Materials							
Insert								
Chipbreaker Type	CBN							
Page	C26, C27							

Recommended Cutting Conditions  F174, F175Applicable Sleeves  F170~F173

A/S-SWUB(P)-AE Excellent Bar (Boring)

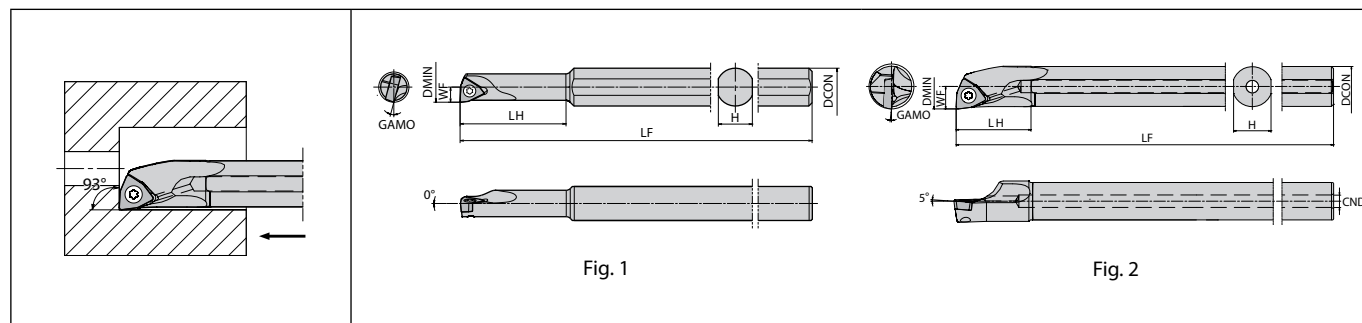


Fig. 1

Fig. 2

Max. Overhang Length $L/D \approx 5.5$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare parts			Applicable Inserts
															Screw	Wrench	Wrench	
		R	L	DMIN	DCON	CND	H	LH	LF	WF								
Inch	S06H- SWUB $\frac{1}{8}$ 1.2AE	●	●	0.240	0.375	0.118	0.336	0.827	4	0.118	15	0.008	No	1	SB-2035TR	-	FT-6	WB□T121... WB□W121...
	S06H- SWUBR1.5AE	●		0.312	0.375	0.118	0.336	1.102	4	0.157	15	0.008	No	1	SB-2035TR	-	FT-6	WB□T1515... WB□W1515...
	A06M- SWUB $\frac{1}{8}$ 1.5AE	●	●	0.472	0.375	0.118	0.336	0.787	6	0.236	10	0.008	Yes	2	SB-2050TR	-	FT-6	
	A08M- SWUP $\frac{1}{8}$ 2AE	●	●	0.630	0.500	0.157	0.461	0.945	6	0.276	4	1/64	Yes	2	SB-2545TR	-	FT-8	WP□T215... WP□W215...
	A10R- SWUP $\frac{1}{8}$ 3AE	●	●	0.770	0.625	0.197	0.586	1.181	8	0.354	3.5	1/32	Yes	2	SB-4065TR	FT-15	-	WP□T32... WP□W32...
	A12S- SWUP $\frac{1}{8}$ 3AE	●	●	0.930	0.750	0.197	0.711	1.417	10	0.413	2							
	A16T- SWUP $\frac{1}{8}$ 3AE	●	●	1.200	1.000	0.197	0.961	1.811	12	0.531	0							
mm	S10H- SWUB $\frac{1}{8}$ 06-06AE	●	●	6	10	-	9	21	100	3	15	0.2	No	1	SB-2035TR	-	FT-6	WB□T121... WB□W121...
	SWUB $\frac{1}{8}$ 06-07AE	●	●	7				3.5		13								
	S10H- SWUB $\frac{1}{8}$ 08-08AE	●	●	8	10	-	9	28	100	4	15	0.2	No	1	SB-2035TR	-	FT-6	WB□T1515... WB□W1515...
	A08X- SWUB $\frac{1}{8}$ 08-10AE	●	●	10	8	2.5	7	16	120	5	13	0.2	Yes	2	SB-2050TR	-	FT-6	
	A10L- SWUB $\frac{1}{8}$ 08-12AE	●	●	12	10	3	9	20	140	6	10							
	A12M- SWUP $\frac{1}{8}$ 11-14AE	●	●	14	12	4	11	24	150	7	4	0.4	Yes	2	SB-2545TR	-	FT-8	WP□T215... WP□W215...
	A16Q- SWUP $\frac{1}{8}$ 11-18AE	●	●	18	16	5	15	30	180	9	1							
	A16Q- SWUP $\frac{1}{8}$ 16-18AE	●	●	18	16	5	15	30	180	9	3.5	0.8	Yes	2	SB-4065TR	FT-15	-	WP□T32... WP□W32...
	A20R- SWUP $\frac{1}{8}$ 16-22AE	●	●	22	20		19	36	200	11	2							

S-SWUB(P)-A Steel Shank Bar (Boring)

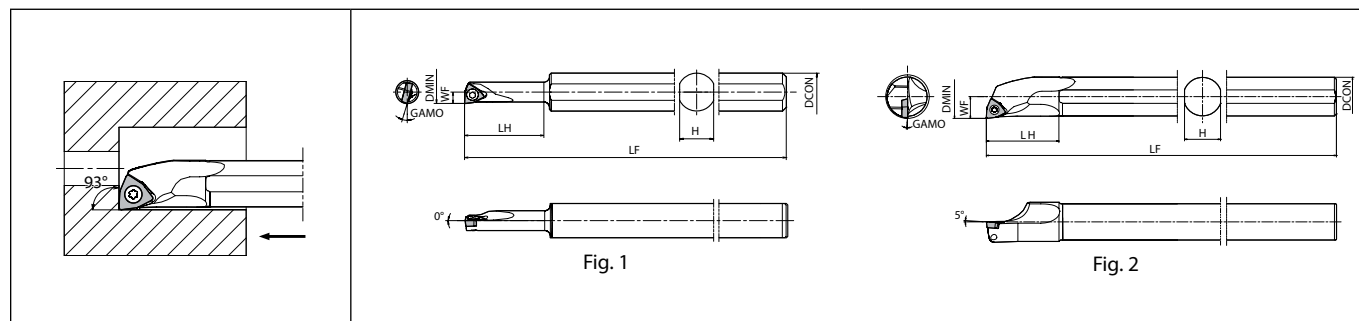


Fig. 1

Fig. 2

Max. Overhang Length $L/D \approx 4$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part 3Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare parts			Applicable Inserts
															Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF									
mm	S10H- SWUB% 06-06A	●	●	6	10	9	21	3	15	0.2	No	1	SB-2035TR	-	FT-6	WB□T121... WB□W121...		
	SWUB% 06-07A	●	●	7			25	3.5	13									
	S10H- SWUB% 08-08A	●	●	8	10	9	28	100	4	15	0.2	No	1	SB-2035TR	-	FT-6	WB□T1515... WB□W1515...	
	S08X- SWUB% 08-10A	●	●	10	8	7	16	120	5	13	0.2	No	2	SB-2050TR				
	S10L- SWUB% 08-12A	●	●	12	10	9	20	140	6	10	0.2	No	2	SB-2050TR				
	S12M- SWUP% 11-14A	●	●	14	12	11	24	150	7	4	0.4	No	2	SB-2545TR	-	FT-8	WP□T215... WP□W215...	
	S16Q- SWUP% 11-18A	●	●	18	16	15	30	180	9	1								
	S16Q- SWUP% 16-18A	●	●	18	16	15	30	180	9	3.5	0.8	No	2	SB-4065TR	FT-15	-	WP□T32... WP□W32...	
S20R- SWUP% 16-22A	●	●	22	20	19	36	200	11	2									

C/E-SWUB(P)-A(N) Carbide Shank Bar (Boring)

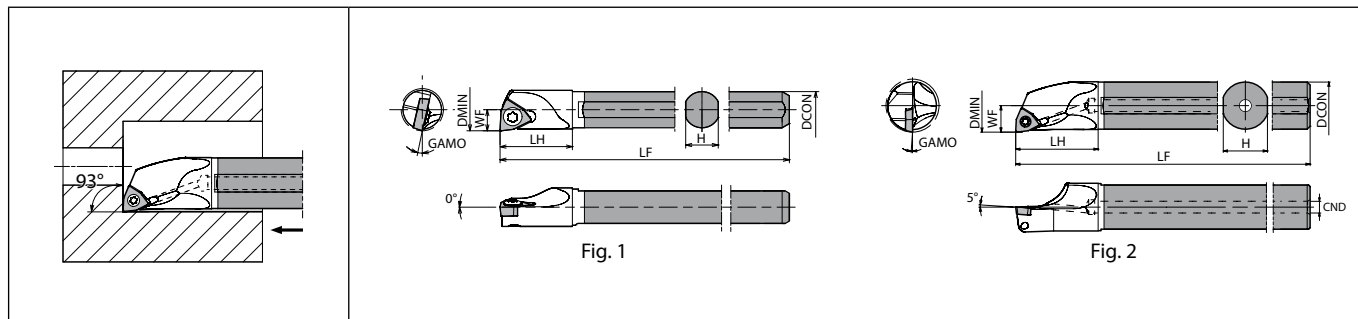


Fig. 1

Fig. 2

Max. Overhang Length $L/D \approx 7$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

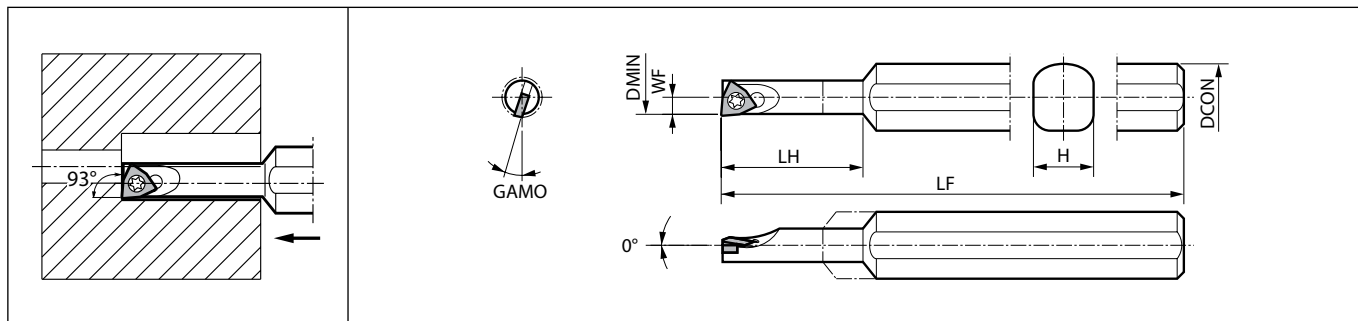
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts
		R	L	DMIN	DCON	CND	H	LH	LF	WF					Screw	Wrench	Wrench	
mm	C05H- SWUB% 06-06AN	●	●	6	5	-	4.4	9	100	3	15	0.2	No	1				WB□T121... WB□W121...
	C06J- SWUB% 06-07AN	●	●	7	6	-	5.4	10	110	3.5	13	0.2	No	1	SB-2035TR	-	FT-6	WB□T121... WB□W121...
	C07K- SWUB% 08-08AN	●	●	8	7	-	6.4	11	125	4	15	0.2	No	1	SB-2035TR			
	E08L- SWUB% 08-10AN	●	●	10	8		7	14	140	5	13							
	E10N- SWUB% 08-12AN	●	●						160			0.2	Yes	2	SB-2050TR	-	FT-6	WB□T1515... WB□W1515...
	SWUBR08-12AN2/3	●		12	10	3	9	18	105	6	10							
	SWUBR08-12AN1/2	●							80									
	E12Q- SWUP% 11-14A	●	●						180									
	SWUPR11-14A-2/3	●		14	12		11	23	120	7	4	0.4	Yes	2	SB-2545TR	-	FT-8	WP□T215... WP□W215...
	SWUPR11-14A-1/2	●				4			90									
E16X- SWUP% 11-18A	●	●						220										
SWUPR11-18A-2/3	●		18	16		15	28	145	9	1								
SWUPR11-18A-1/2	●							110										
E16X- SWUP% 16-18A	●	●						220										
SWUPR16-18A-2/3	●		18	16	4	15	28	145	9	3.5	0.8	Yes	2	SB-4065TR	FT-15	-	WP□T32... WP□W32...	
SWUPR16-18A-1/2	●							110										
E20S- SWUP% 16-22A	●	●						250										
SWUPR16-22A-2/3	●		22	20	6	19	32	165	11	2								
SWUPR16-22A-1/2	●							125										

Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium
Insert								
Chipbreaker Type	$\frac{R}{L}$ - CF	$\frac{R}{L}$ - PF	GP	$\frac{R}{L}$ - DP	HQ	$\frac{R}{L}$ - F	$\frac{R}{L}$ - P	$\frac{R}{L}$ - Y
Page	B105	B105	B107	B105	B107	B105, B106	B106	B107
Applications	Cast Iron	Non-Ferrous Metals	Hard Materials					
Insert								
Chipbreaker Type	No Chipbreaker	PCD	CBN					
Page	B107	C51	C28					

Recommended Cutting Conditions  F174, F175

S-SWUB Steel Bar (Boring / Internal Facing)

Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

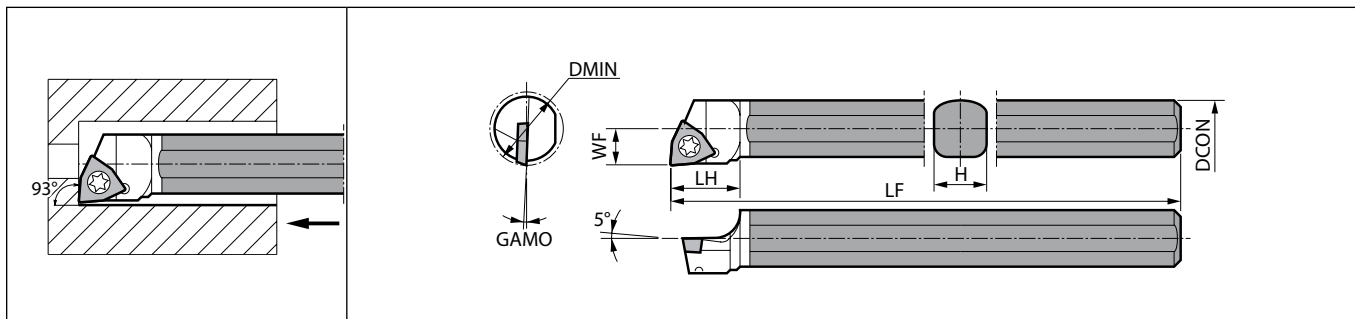
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare parts		Applicable Inserts
													Screw	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF						
Inch	S06H- SWUB ¹ / ₈ 1.2	●	●	0.240	0.375	0.356	0.825	4.00	0.115	15	0.004	No	SB-2040TR	FT-6	WB□T121... WB□W121...
	S06X- SWUBR1.5	●		0.312	0.375	0.356	1.102	4.33	0.156	15	1/64	No	SB-2050TR	FT-6	WB□T1515... WB□W1515...

Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Cast Iron	Non-Ferrous Metals	Hard Materials
Insert								
Chipbreaker Type	$\frac{1}{8}$ -CF	$\frac{1}{8}$ -PF	$\frac{1}{8}$ -DP	$\frac{1}{8}$ -F	$\frac{1}{8}$ -P	No Chipbreaker	PCD	CBN
Page	B105	B105	B105	B105, B106	B106	B107	C51	C28

Recommended Cutting Conditions F174, F175

C-SWUB Carbide Shank Bar (Boring)

Max. Overhang Length $L/D \approx 7$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare parts		Applicable Inserts
													Screw	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF						
Inch	C0325K- SWUB [®] 1.2	●	●	0.240	0.203	0.180	0.50	5.00	0.118	15	1/64	No	SB-2040TR	FT-6	WB□T121... WB□W121...
	C045K- SWUB [®] 1.5	●	●	0.312	0.281	0.252	0.55	5.00	0.157	15	1/64	No	SB-2050TR	FT-6	WB□T1515... WB□W1515...

Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Cast Iron	Non-Ferrous Metals	Hard Materials
Insert								
Chipbreaker Type	[®] / _L -CF	[®] / _L -PF	[®] / _L -DP	[®] / _L -F	[®] / _L -P	No Chipbreaker	PCD	CBN
Page	B105	B105	B105	B105, B106	B106	B107	C51	C28

Recommended Cutting Conditions ➡ F174, F175

ZBMT Series

25° Insert Profiling Tools

Unique clamping structure and a wide lineup of external toolholders and boring bars

Wide range of applications including copying, undercutting, tapering, V-slotting, spherical machining, and more

1 Newly Developed Self-Clamping Mechanism Achieves a Higher Rigidity

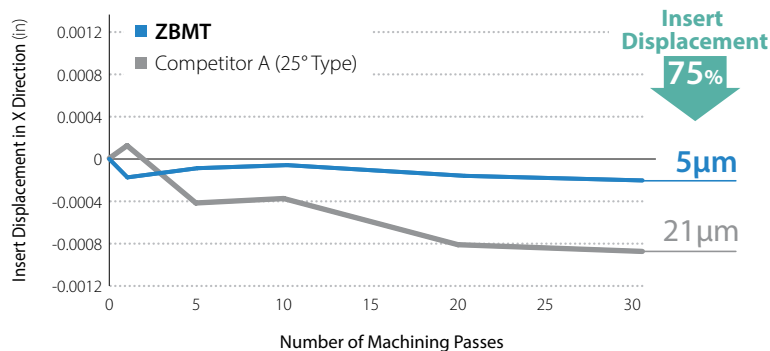
Side Lock Mechanism

Unique design holds insert at 2 points

Safe even for insert with small tip angle that is difficult to mount



Insert Displacement During Facing Comparison (Internal Evaluation)



Insert Design

By controlling insert displacement,

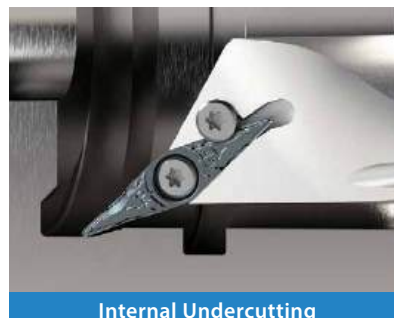
- Machining precision is stabilized and long tool life is enable
- Reduces defect rate due to sudden dimensional deviation

Cutting Conditions : Vc = 750 sfm, D.O.C. = 0.012", f = 0.006, Wet Workpiece 4137

*The above figures are not guaranteed and will depend on cutting conditions.

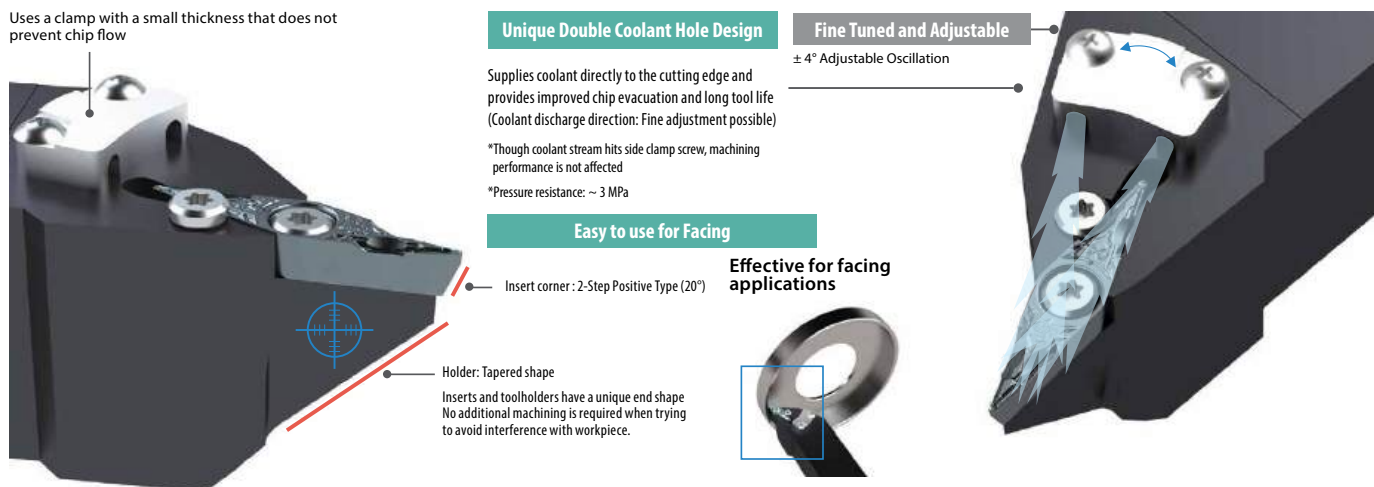
Provides High Quality and Stable Machining in Various Machining Applications

Excellent Performance in Various Machining Applications including Copying, Undercutting, Tapering, V-Slotting, Spherical Machining, etc.



2 Unique Holder Design to Meet Customers' Needs

Both boring bars and external toolholders are compatible with internal coolant.



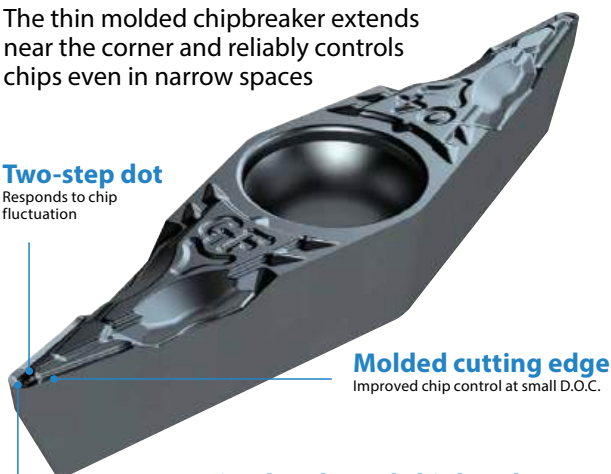
3 New GF Chipbreaker for ZBMT Reduces Chip Control Issues at minute D.O.C.

GF Chipbreaker

Solving chip control issues leads to high-quality surface finishes

The thin molded chipbreaker extends near the corner and reliably controls chips even in narrow spaces

Two-step dot
Responds to chip fluctuation



Chip control comparison (Internal evaluation)



GF Chipbreaker



Competitor A (25° Type)

Cutting Conditions : Vc = 750 sfm, f = 0.006 ipr, D.O.C. = 0.008" - 0.020", Wet
Workpiece 4137 Facing

15° Inserts are also available upon requests

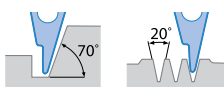
To avoid holder interference, additional modifications is required as shown in the figure on the right (Details: P8). Also, as shown in the figure below, special order for holders may be required depending on machining application.

Examples

When using the toolholder in reverse mounting position



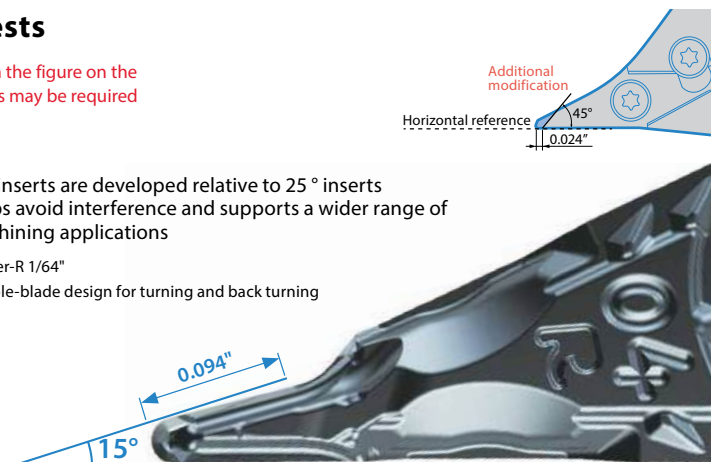
When using the toolholder in normal mounting position
* Holder: Special order specification



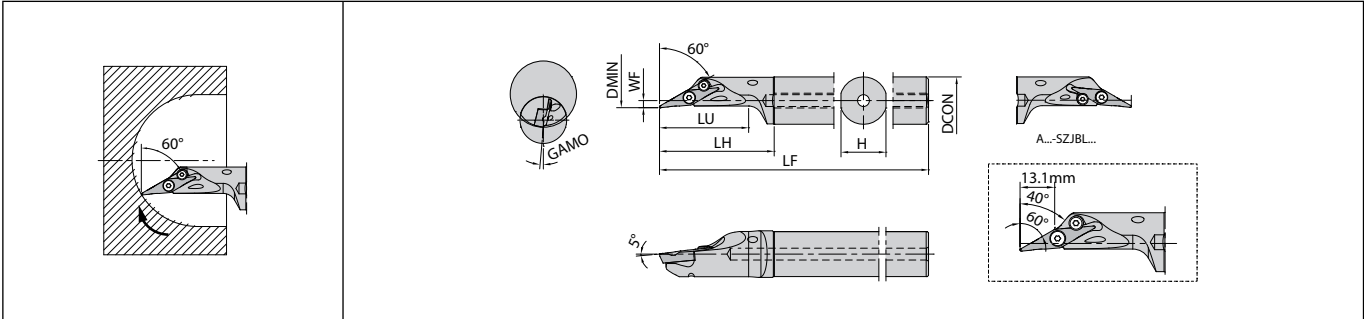
15° inserts are developed relative to 25° inserts
Helps avoid interference and supports a wider range of machining applications

Corner-R 1/64"

Double-blade design for turning and back turning



A-SZJB-AE Excellent Bar (Spherical Machining / Internal Facing / Internal Copying)



Max. Overhang Length L/D≈5.5 | Right-hand shown | ZBMT13T304R-GF-15D is applicable to Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
															Screw	Wrench	
		R	L	DMIN	DCON	CND	H	LH	LF	LU	WF						
mm	A20R- SZJB% 13-28AE	●	●	28	20		19	48	200	37.5	3	5	0.4	Yes	SB-3079TR	FT-8	ZBMT13T3...
	A25S- SZJB% 13-30AE	●	●	30	25	5	24	58		47							
	A32S- SZJB% 13-40AE	●	●	40	32		31	72	250	61.5	3.5						

For application of A-SZJB-AE, please refer to F93.

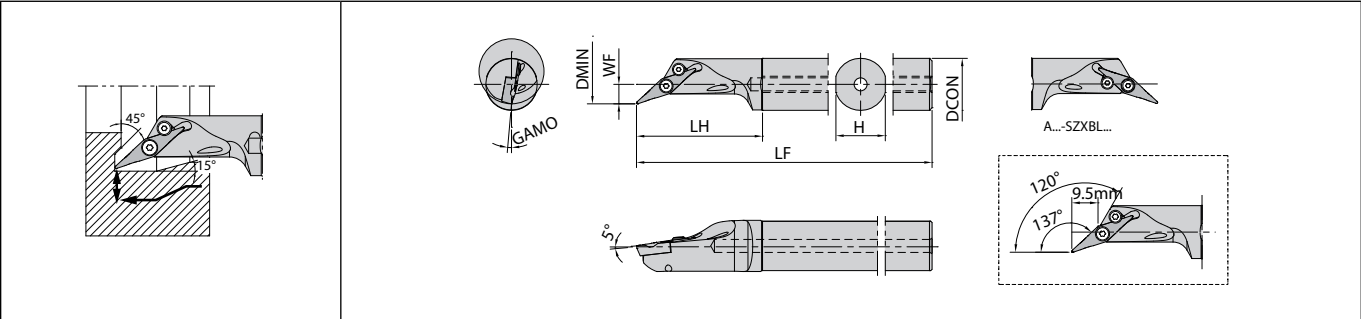
Applicable Inserts

Applications	Finishing	Finishing
Insert		
Chipbreaker Type	GF	R-GF-15D
Page	B108	B108

R-GF-15D inserts are only for the right-hand toolholders of A-SZJB-AE.

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F172

A-SZXB-AE Excellent Bar (Internal Facing / Internal Copying / Undercutting)



Max. Overhang Length L/D≈5.5 | Right-hand shown

Toolholder Dimensions

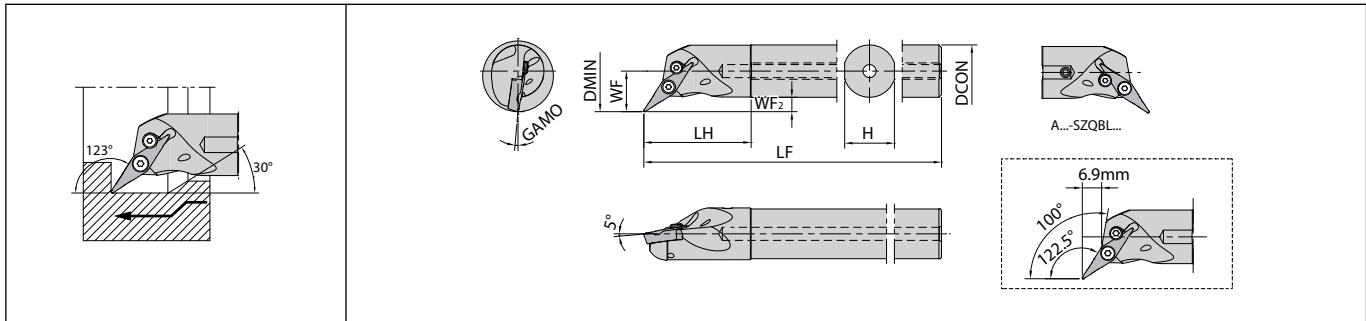
Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
															Screw	Wrench	
		R	L	DMIN	D'CON	CND	H	LH	LF	LU	WF						
mm	A20R- SZXB% 13-25AE	●	●	25	20		19	48	200	37.5	7.5	5	0.4	Yes	SB-3079TR	FT-8	ZBMT13T3...
	A25S- SZXB% 13-30AE	●	●	30	25	5	24	58		45.2	7						
	A32S- SZXB% 13-40AE	●	●	40	32		31	74		60.2							

Applicable Inserts

Applications	Finishing
Insert	
Chipbreaker Type	GF
Page	B108

Recommended Cutting Conditions [F174](#), [F175](#)
Applicable Sleeves [F172](#)

A-SZQB-AE Excellent Bar (Internal Copying / Undercutting)



Max. Overhang Length L/D=~5.5 | Right-hand shown

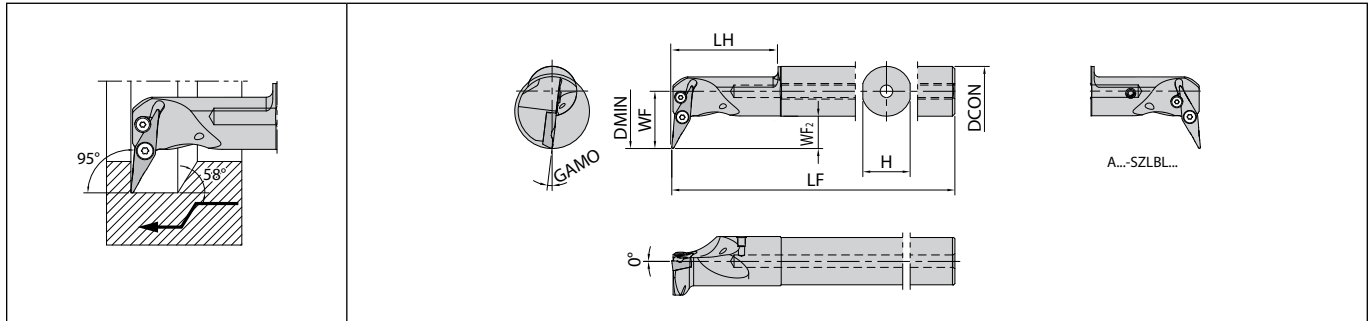
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts	
														Screw	Wrench		
		R	L	DMIN	DCON	CND	H	LH	LF	WF				WF ₂			
mm	A20R- SZQB % 13-27AE	●	●	27	20		19	41	200	15.5	5	0.4	Yes	SB-3079TR	FT-8	ZBMT13T3...	
	A25S- SZQB % 13-32AE	●	●	32	25	5	24	51	250	18							5.5
	A32S- SZQB % 13-40AE	●	●	40	32		31	54		22.5							6.5

Applicable Inserts

Applications	Finishing
Insert	
Chipbreaker Type	GF
Page	B108

Recommended Cutting Conditions ➡ F174, F175
Applicable Sleeves ➡ F172

A-SZLB-AE Excellent Bar (Internal Copying)

Max. Overhang Length $L/D \approx 5.5$ | Right-hand shown | ZBMT13T304R-GF-15D is applicable to Left-hand Toolholder.

Toolholder Dimensions

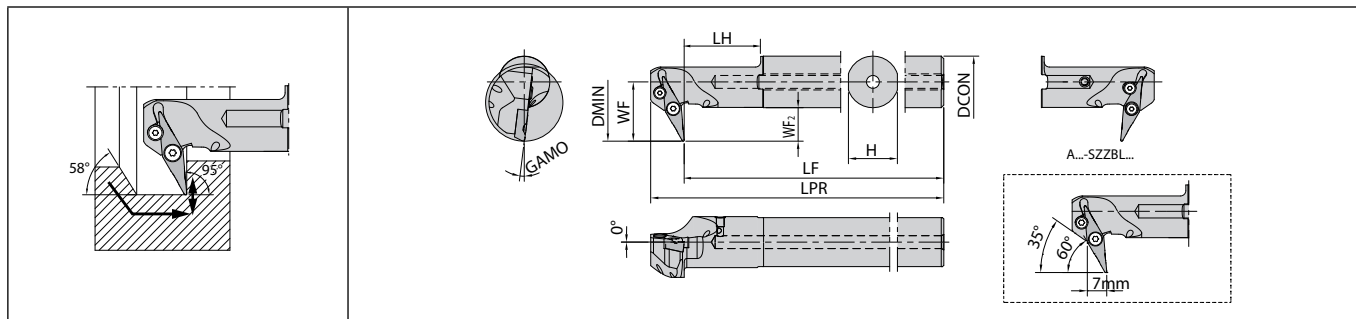
Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts	
														Screw	Wrench		
		R	L	DMIN	DCON	CND	H	LH	LF	WF				WF ₂			
mm	A20R- SZLB% 13-30AE	●	●	30	20	5	19	42	200	23	13	7	0.4	Yes	SB-3079TR	FT-8	ZBMT13T3...
	A25S- SZLB% 13-34AE	●	●	34	25		24	64	250	25.5							
	A32S- SZLB% 13-40AE	●	●	40	32		31	86		29							

Applicable Inserts

Applications	Finishing	Finishing
Insert		
Chipbreaker Type	GF	R-GF-15D
Page	B108	B108

R-GF-15D inserts are only for the left-hand toolholders of A-SZLB-AE.

Recommended Cutting Conditions ➡ **F174, F175**
Applicable Sleeves ➡ **F172**

A-SZZB-AE Excellent Bar (Back Boring)

Max. Overhang Length $L/D \approx 5.5$ | Right-hand shown | ZBMT13T304R-GF-15D is applicable to Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number		Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
																Screw	Wrench	
			R	L	DMIN	DCON	CND	H	LH	LPR	LF	WF				WF ₂		
mm	A20R- SZZB% 13-30AE	●	●	30	20		19	42	200	187	23		7	0.4	Yes	SB-3079TR	FT-8	ZBMT13T3...
	A25S- SZZB% 13-34AE	●	●	34	25	5	24	58	250	237	25.5							
	A32S- SZZB% 13-40AE	●	●	40	32		31	74			29							

Applicable Inserts

Applications	Finishing	Finishing
Insert		
Chipbreaker Type	GF	R-GF-15D
Page	B108	B108

R-GF-15D inserts are only for the right-hand toolholders of A-SZZB-AE.

Recommended Cutting Conditions ➡ **F174, F175**

Applicable Sleeves ➡ **F172**

Instructions

When mounting the insert (Tightening torque: 1.2 N·m)

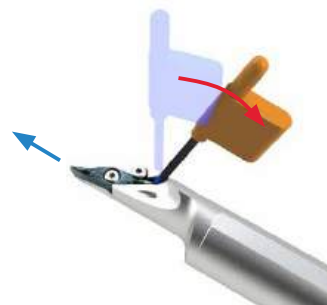


1. Tighten the main screw with the insert pressed against the contact surface with fingertips.

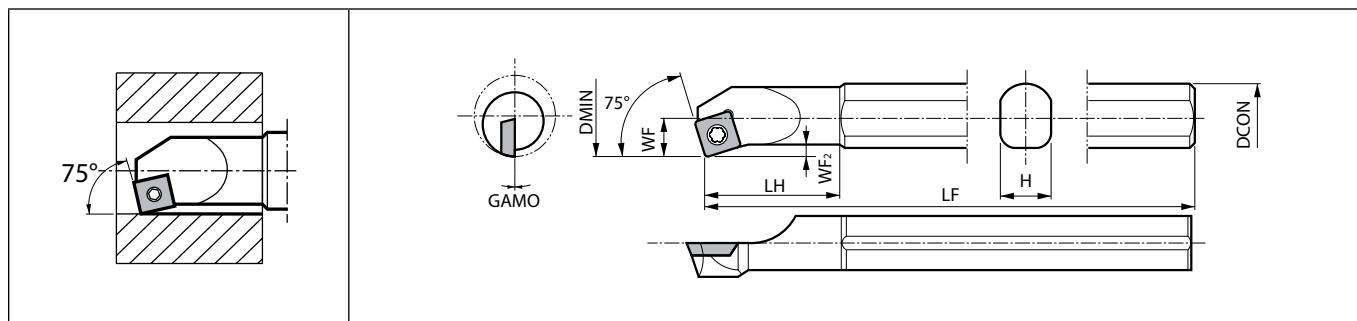


2. Tighten the side screw to complete the installation.

When removing the insert



Remove the two screws and put the wrench into the gap at the back end of the insert. It can be easily removed by pushing out the insert as shown above.

S-SSKP Steel Shank Bar (Boring)Max. Overhang Length $L/D \approx 3$ | Right-hand shown | Left-hand Insert for Right-hand Toolholder.

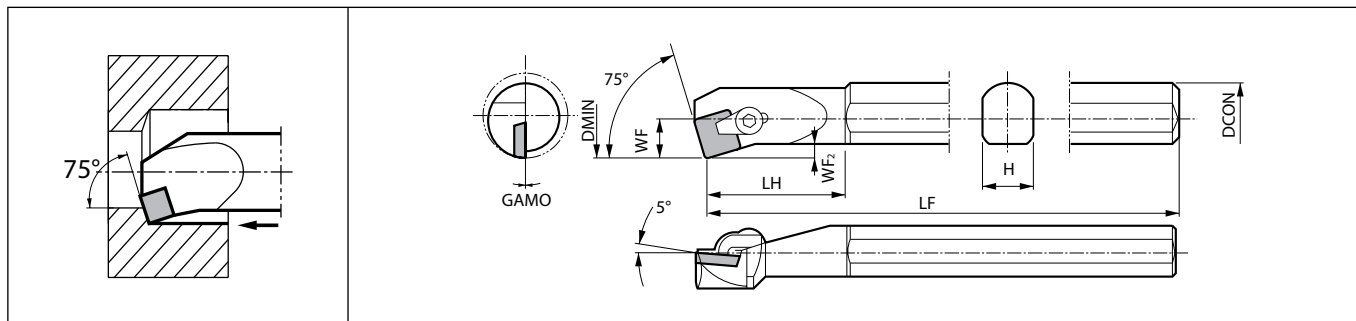
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Inserts
													Screw	Wrench	
			R	DMIN	DCON	H	LH	LF	WF	WF ₂					
mm	S16Q- SSKPR09-20	●	20	16	14	30	180	10	2	-3	0.8	No	SB-4TR	FT-15	SPGH0903...

Applicable Inserts

Applications	Finishing
Insert	
Chipbreaker Type	L
Page	B82

Recommended Cutting Conditions  F174, F175Applicable Sleeves  F172, F173

S-CSKP Steel Shank Bar (Boring)

Max. Overhang Length $L/D \approx 3$ | Right-hand shown | Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts			Applicable Inserts
			R	DMIN	DCON	H	LH	LF	WF	WF ₂			Clamp Set	Wrench	Wrench	
mm	S16N- CSKPR09-20	●	20	16	14	40	160	10	2	0	0.8	No	CPS-2	-	FH-2.5	SP□32...
	S20Q- CSKPR09-27	●	27	20	18	45	180	13.5	3.5	0	0.8	No	CPS-2	-	FH-2.5	SP□R32...
	S25X- CSKPR12-34	●	34	25	23	60	220	17	4.5	0	0.8	No	CPS-3	LW-3	-	SP□42..., SP□R42...

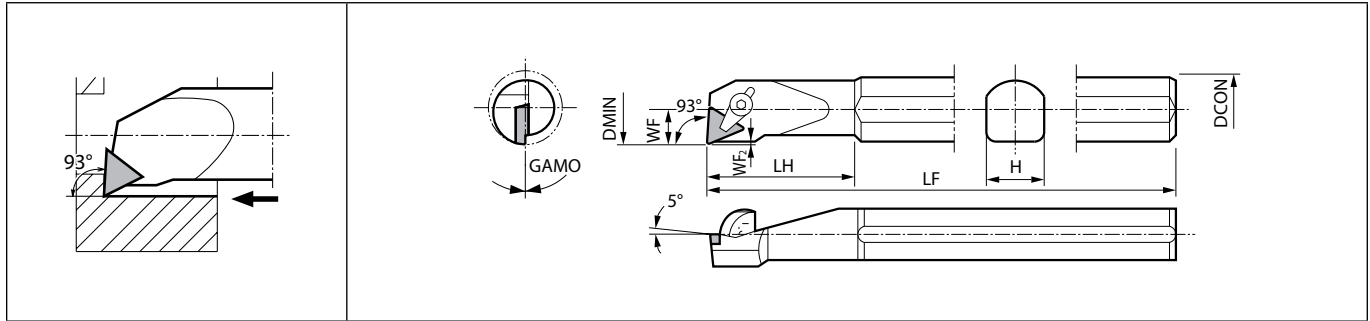
Applicable Inserts

Applications	Medium	Medium	Finishing - Medium	Cast Iron	Cast Iron	Non-Ferrous Metals
Insert						
Chipbreaker Type	G	Standard	L	No Chipbreaker	Ceramic	PCD
Page	B83	B83	B83	B83	B121	C43

Recommended Cutting Conditions ➡ F174, F175

Applicable Sleeves ➡ F172, F173

S-CTUP Steel Shank Bar (Boring)



Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF	WF2				Clamp Set	Clamp Set	Shim Screw	Shim	Wrench	Wrench	
Inch	S10X- CTUPR2	●		0.625	0.625	0.584	1.25	7.00	0.313	0.03	0	1/64	No	-	CPS-25	-	-	-	FT-15	TP□22... TP□R22...
	S12X- CTUPR2	●		1.060	0.750	0.710	1.50	7.00	0.520	0.05	0	1/64	No	-	CPS-2	-	-	LW-2.5	-	TP□32... TP□R32...
	S16R- CTUPR3	●		1.350	1.000	0.910	2.10	8.00	0.669	0.04	0	1/32	No	-	CPS-3	-	-	LW-3	-	TP□32... TP□R32...
mm	S12L- CTUPR09-16	●		16	12	11	32	140	8	0.5	0	0.4	No	CPS-1	-	-	-	-	FH-2	TP□1815... TP□R1815...
	S16N- CTUP% 11-20	●	●	20	16	15	30	160	10	0.5	0	0.4	No	-	CPS-2	-	-	-	FH-2.5	TP□22... TP□R22...
	S20Q- CTUP% 11-27	●	●	27	20	18	40	180	13.5	1.3	0	0.4	No	-	CPS-2	-	-	-	FH-2.5	TP□22... TP□R22...
	S25X- CTUP% 16-34	●	●	34	25	23	60	220	17	1	0	0.8	No	-	CPS-3	SP3X10	KPT-32	LW-3	-	TP□32... TP□R32...
	S32S- CTUP% 16-43	●	●	43	32	30	70	250	21.5											
	S40X- CTUP% 16-50	●	●	50	40	37	80	315	25											

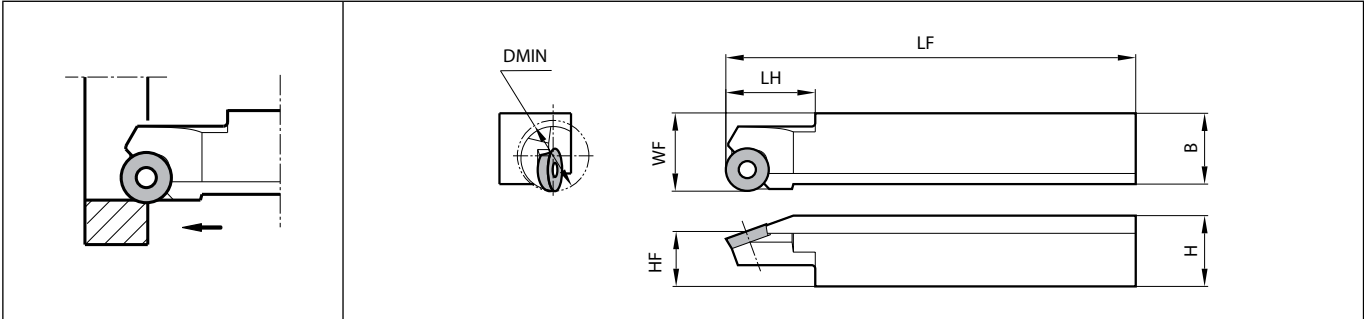
Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Medium	Medium	Finishing	Finishing	Finishing - Medium
Insert								
Chipbreaker Type	DP	GP	HQ	G	Standard	%F	%A	%B
Page	B95	B95	B95	B95	B95	B96	B96	B96
Applications	Medium	Cast Iron	Cast Iron	Non-Ferrous Metals	Hard Materials			
Insert								
Chipbreaker Type	%C	No Chipbreaker	Ceramic	PCD	CBN			
Page	B96	B96	B122	C48	C25			

Recommended Cutting Conditions 🔄 F174~F175

Applicable Sleeves 🔄 F171~F173

SRCP-B (Boring)



Right-hand shown

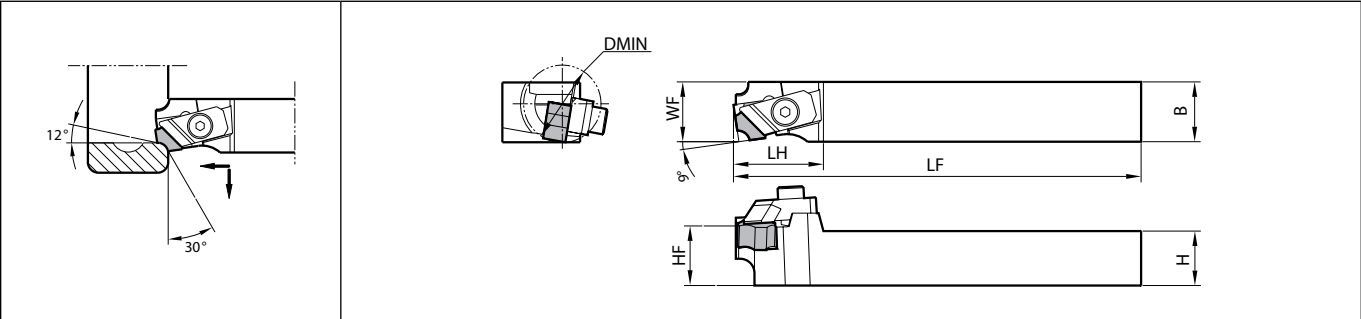
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Spare Parts			Applicable Inserts
												Screw	Wrench	Wrench	
		R	L	DMIN	H	B	LH	HF	LF	WF					
mm	SRCP% 2020B-12-A20	●	●	20	20	20	25	15.5	125	22		SB-4TR	FT-15	-	RPMT42M0-BB
	SRCPR 2525B-16-A32	●		32	25	25	31	20	150	27		SB-5090TR	-	LTW-20	RPMT1604M0-BB

Applicable Inserts

Applications	Bearing Machining
Insert	
Chipbreaker Type	BB
Page	B109

CBSN-B (Internal Corner Filleting)



Toolholder Dimensions

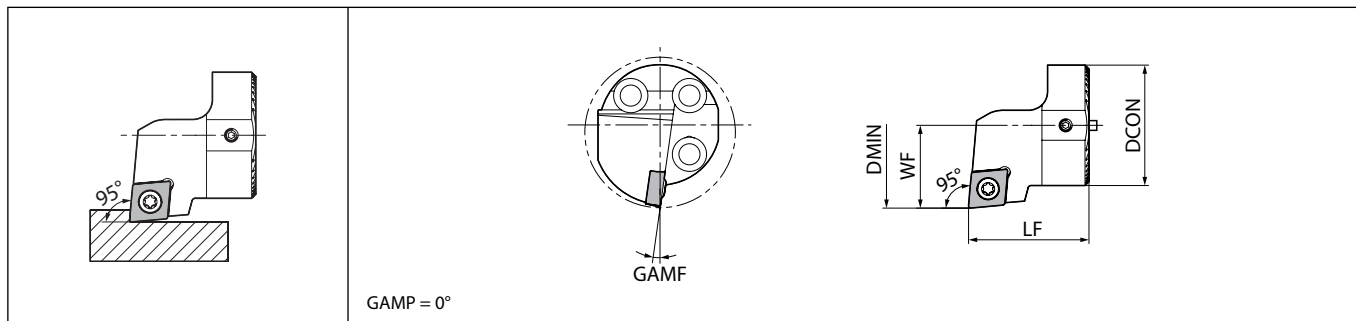
Unit	Part Number	Std. Item	Dimensions							Spare Parts		Applicable Inserts
										Clamp Set (R)	Wrench	
		R	DMIN	H	B	LH	HF	LF	WF			
mm	CBSNR 2020B-12-A20	●	20	20	20	32	21	125	20	CP-RCR	LW-5	SNMF1204..-21
	2525B-12-A20	●	25	25	25	32	26	150	25			

Applicable Inserts

Applications	Bearing Machining
Insert	
Chipbreaker Type	21
Page	B109

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KAVH-SCLC (Boring / Internal Facing)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions				GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Shank Adapter	Applicable Inserts
											Screw	Wrench		
		R	L	DMIN	DCON	LF	WF							
mm	KAVH 16-SCLC [●] 06	●	●	20	16	20	11	-7	0.4	Yes	SB-2545TR	FT-8	KAV-D16/G16...	CC□T215... CC□W215...
	KAVH 20-SCLC [●] 09	●	●	25	20	20	13	-8	0.4	Yes	SB-4065TR	FT-15	KAV-D20/G20...	CC□T325... CC□W325...
	25-SCLC [●] 09	●	●	32	25		17						KAV-D25...	
	32-SCLC [●] 09	●	●	40	32	32	22						KAV-D32...	
	40-SCLC [●] 09	●	●	50	40		27						-7		KAV-D40...

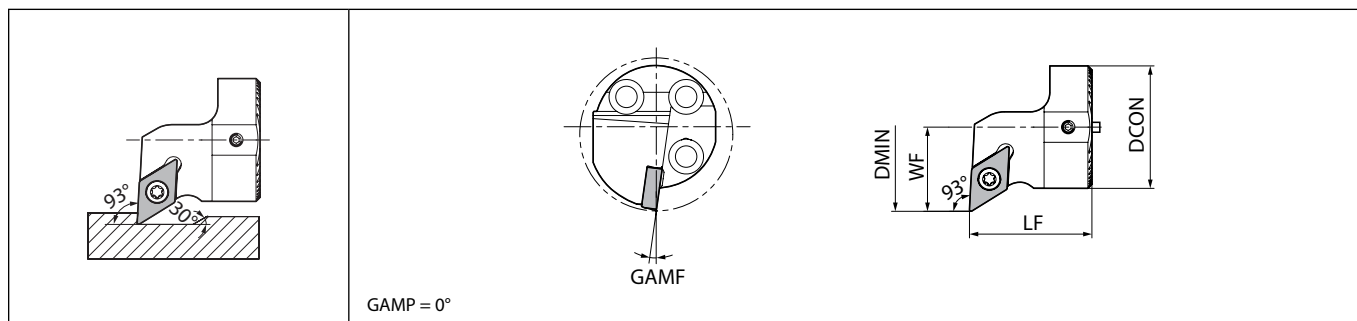
When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium
Insert								
Chipbreaker Type	GF	SKS	SK	CK	GQ	WP	PP	GK
Page	B58	B59	B59	B59	B59	B60	B60	B60
Applications	Finishing - Medium	Medium	Medium	Finishing	Low Feed	Low Feed	Low Feed	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	HQ	Standard	MF	P/L-P	P/L-U	P/L-USF	P/L-J	MQ
Page	B60	B60	B61	B63	B63~B65	B63	B65	B61
Applications	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials	
Insert								
Chipbreaker Type	No Chipbreaker	AP	P/L-A3	AH	PCD	APD	CBN	
Page	B66	B66	B66	B66	C39	C40	C20	

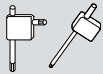
Recommended Cutting Conditions F174, F175

KAVH-SDUC (Internal Copying)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions				GAMP (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Shank Adapter	Applicable Inserts
		R	L	DMIN	DCON	LF	WF							
mm	KAVH 16-SDUC [●] 07	●	●	20	16	20	11	-7	0.4	Yes	SB-2545TR	FT-8	KAV-D16/G16...	DC□T215... DC□W215... DC□X215...
	KAVH 20-SDUC [●] 11	●	●	25	20	20	13	-9	0.4	Yes	SB-4065TR	FT-15	KAV-D20/G20...	DC□T325... DC□W325... DC□X325...
	25-SDUC [●] 11	●	●	32	25		17	-8					KAV-D25...	
	32-SDUC [●] 11	●	●	40	32		22	-8					KAV-D32...	
	40-SDUC [●] 11	●	●	50	40		27	-7					KAV-D40...	

For WP chipbreaker, cutting edge offsets or program corrections are required on R42 and R43.

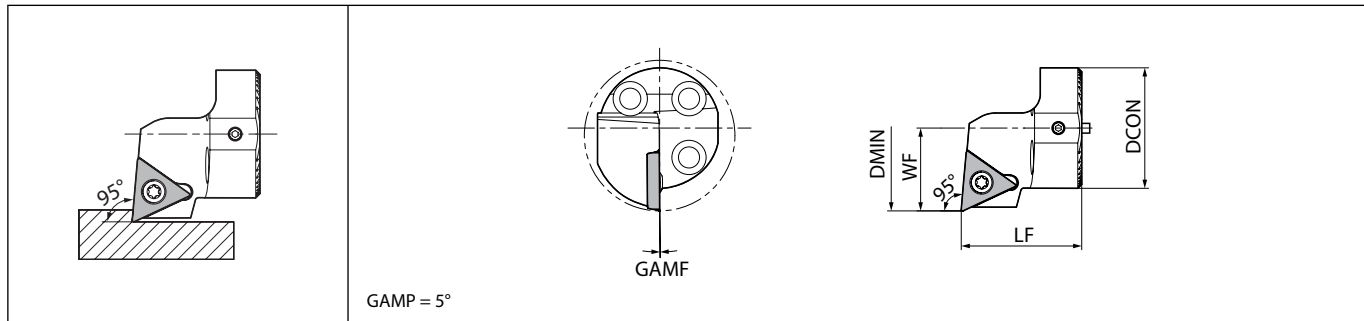
Applicable Inserts

Applications	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	CF	GF	SKS	SK	CK	GQ	WP	1/2-WP
Page	B68	B68	B68	B68	B68	B69	B69	B69
Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Medium	Medium	Finishing	Finishing
Insert								
Chipbreaker Type	PP	GP	GK	HQ	Standard	MF	1/2-F	1/2-FSF
Page	B69	B69	B70	B70	B70	B70	B72, B73	B72
Applications	Low Feed	Low Feed	Low Feed	Low Feed	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Cast Iron
Insert								
Chipbreaker Type	1/2-U	1/2-USF	1/2-J	1/2-JSF	XP	XQ	MQ	No Chipbreaker
Page	B74~B76	B74	B77	B76	B71	B71	B71	B78
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Hard Materials		
Insert								
Chipbreaker Type	AP	1/2-A3	AH	PCD	APD	CBN		
Page	B78	B78	B78	C42	C42	C22		

Recommended Cutting Conditions F174, F175

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KAVH-STLP (Boring / Internal Facing)

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions				GAMP (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts		Applicable Shank Adapter	Applicable Inserts
		R	L	DMIN	DCON	LF	WF				Screw	Wrench		
mm	KAVH 16-STLP $\frac{P}{L}$ 11	●	●	20	16	20	11	-3.5	0.4	Yes	SB-2545TR	FT-8	KAV-D16/G16...	TP□T22... TP□H22... TP□B22... TP□X22...
	20-STLP $\frac{P}{L}$ 11	●	●	25	20	20	13	-2					KAV-D20/G20...	
	25-STLP $\frac{P}{L}$ 11	●	●	32	25	20	17	0					KAV-D25...	
	KAVH 32-STLP $\frac{P}{L}$ 16	●	●	40	32	32	22	0	0.4	Yes	SB-4065TR	FT-15	KAV-D32...	TP□T32... TP□H32... TP□B32...
	40-STLP $\frac{P}{L}$ 16	●	●	50	40	32	27	0					KAV-D40...	

For WP chipbreaker, cutting edge offsets or program corrections are required on **R42** and **R43**.

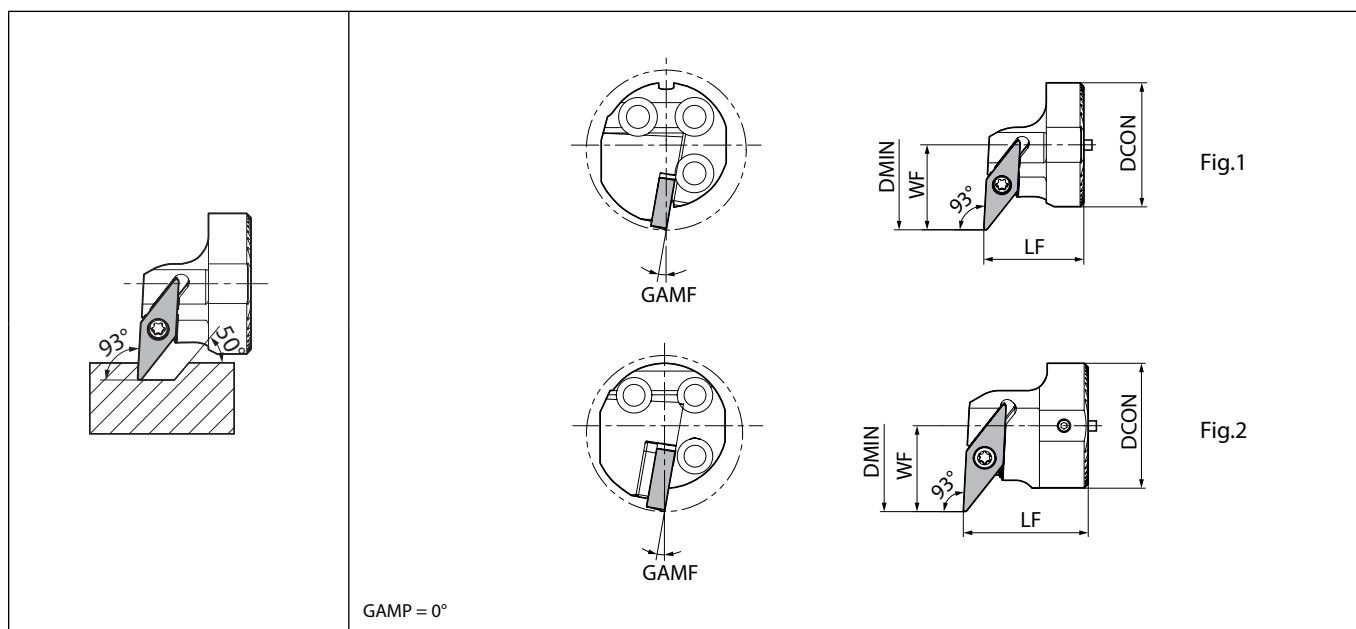
When using P chipbreaker : Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing
Insert								
Chipbreaker Type	WP	P/L-WP	PP	GP	DP	HQ	R/L	P/L-FSF
Page	B88	B88	B88	B89	B84	B89	B84, B90, B91	B92
Applications	Finishing	Medium	Low Feed	Low Carbon Steel	Low Carbon Steel	Cast Iron	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker Type	P-P	P-L-H	P-L-USF	XP	XQ	No Chipbreaker	AP	PCD
Page	B92	B93	B94	B89	B89	B84, B94	B94	C44, C46, C47
Applications	Non-Ferrous Metals	Hard Materials						
Insert								
Chipbreaker Type	APD	CBN						
Page	C47	C23						

Recommended Cutting Conditions **F174, F175**

KAVH-SVUB (Internal Copying)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions				GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Spare Parts					Applicable Shank Adapter	Applicable Inserts
		R	L	DMIN	DCON	LF	WF					Screw	Wrench	Shim	Shim Screw	Wrench		
																		
mm	KAVH 20-SVUB ¹ / ₁₆ 11	●	●	25	20	20	13	-10	0.4	Yes	1	SB-2570TR	FT-8	-	-	-	KAV-D16/G16...	VB□T22...
	25-SVUB ¹ / ₁₆ 11	●	●	32	25		17	-10	0.4	Yes	1	SB-2570TR	FT-8	-	-	-	KAV-D20/G20...	VB□W22...
	KAVH 32-SVUB ¹ / ₁₆ 16	●	●	40	32	32	22	-10	0.4	Yes	2	SB-40125TRN	FT-15	SVN-32N (SVN-32S*)	SS-4N	LW-4	KAV-D32...	VB□T33...
	40-SVUB ¹ / ₁₆ 16	●	●	50	40		27	-9	0.4	Yes	2	SB-40125TRN	FT-15	SVN-32N (SVN-32S*)	SS-4N	LW-4	KAV-D40...	VB□W33...

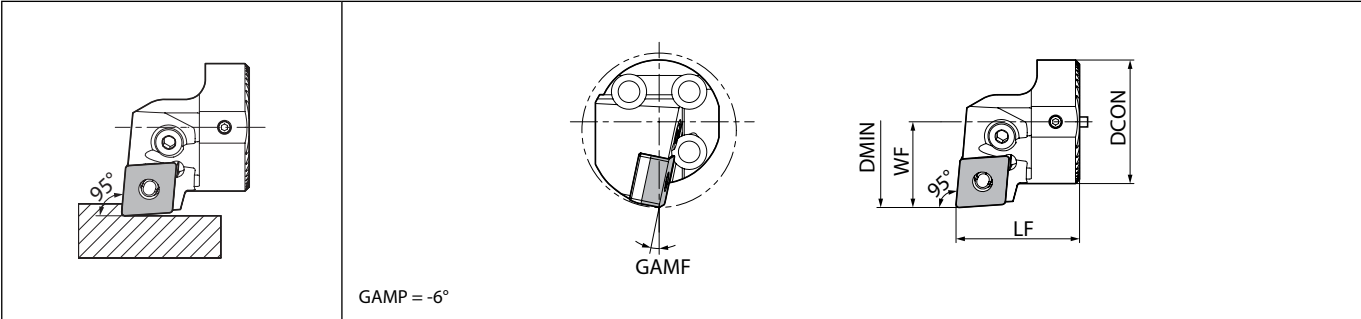
When using inserts with corner-R(RE) of 0.008" (0.2mm) or 1/64" (0.4mm), shim (SVN-32S) is recommended (sold separately).

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker Type	VF	PP	GP	HQ	¹ / ₁₆ -F	¹ / ₁₆ -FSF	¹ / ₁₆ -Y	PCD
Page	B97, B100	B97, B100	B97	B97, B100	B98	B98	B99	C49, C50
Applications	Hard Materials							
Insert								
Chipbreaker Type	CBN							
Page	C26, C27							

Recommended Cutting Conditions F174, F175

KAVH-PCLN (Boring / Internal Facing)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions				GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Shank Adapter	Applicable Inserts
											Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench		
		R	L	DMIN	DCON	LF	WF											
mm	KAVH 32-PCLN 12	●	●	40	32	32	22.2	-11.5	0.8	Yes							KAV-D32...	CN A43...
	40-PCLN 12	●	●	50	40		27	-10			LL-2N	LS-2N	PC-2	LSP-2	LC-42N	LW-3	KAV-D40...	CN G43... CN M43...

Shim: LC-42NR for Right-hand toolholder, LC-42NL for Left-hand toolholder

F

BORING

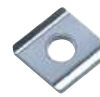
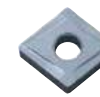
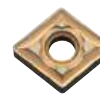
MICRO BORING

POSITIVE INSERTS

ANTI-VIBE BARS

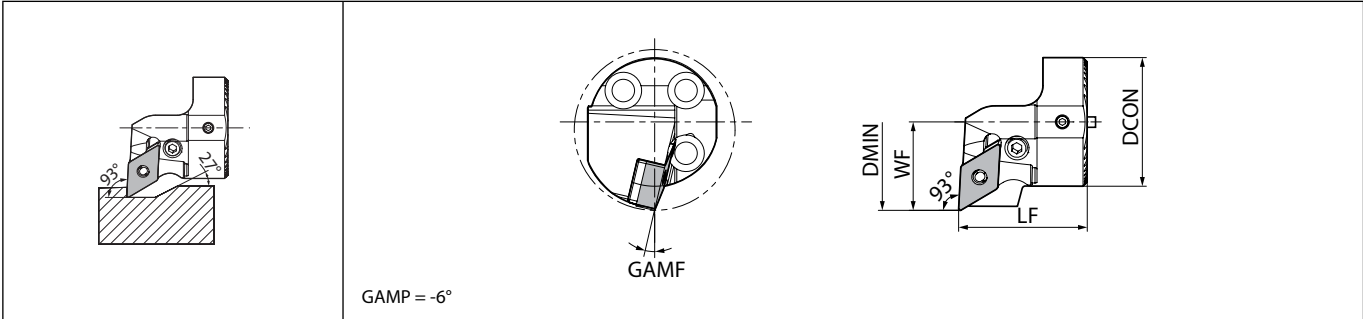
NEGATIVE INSERTS

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker Type	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B16	B16	B16	B16	B16	B16	B16	B17
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	CQ	CJ	TN-V	PMG	GS	PG	PS	PT
Page	B17	B17	B17	B17	B17	B17	B18	B18
Applications	Medium - Roughing	Roughing	Roughing	Roughing	Medium	Medium - Roughing	Medium - Roughing	Low Carbon Steel
Insert								
Chipbreaker Type	GT	Standard	PH	PX	R/L	R/-25R	Z	XF
Page	B18	B18	B18	B19	B23	B23	B23	B19
Applications	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	XP	XQ	XS	SK	FP-TK	TK	MQ	MS
Page	B19	B19	B19	B19	B19	B20	B20	B20
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	MU	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B20	B21	B21	B21	B22	B22	B22	B22
Applications	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials	Hard Materials
Insert								
Chipbreaker Type	Ceramic	A3	AH	PCD	SQ	SG	HH	HL
Page	B113	B23	B23	C34	B20	B21	C9	C9
Applications	Hard Materials	Hard Materials / Cast Iron						
Insert								
Chipbreaker Type	HD	CBN						
Page	C9	C8						

Recommended Cutting Conditions  F174, F175

KAVH-PDUN (Internal Copying)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

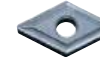
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions				GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Shank Adapter	Applicable Inserts
		R	L	DMIN	DCON	LF	WF				Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench		
																		
mm	KAVH 32-PDUN 11	●	●	40	32	32	22	-13	0.4	Yes	LL-1DN	LS-1SN	PC-1	LSP-1	LD-32N	FH-2.5	KAV-D32...	DN□G33...

Unit	Part Number	Std. Item		Dimensions				GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts					Applicable Shank Adapter	Applicable Inserts
		R	L	DMIN	DCON	LF	WF				Lock Pin	Wrench	Shim	Screw	Wrench		
																	
mm	KAVH 32-PDUN 15	●	●	40	32	32	22	-12.5	0.8	Yes	PP-4	LW-3	PD-42	SB-2050TR	FT-6	KAV-D32...	DN□A43...
	40-PDUN 15	●	●	50	40		27									KAV-D40...	DN□G43...
																	DN□M43...
																	DN□X43...

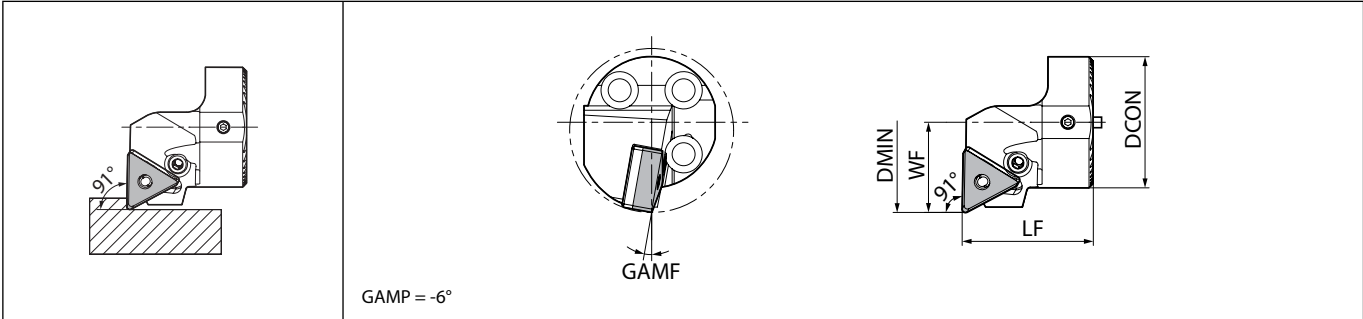
For WF chipbreaker, cutting edge offsets or program corrections are required on **R40** and **R41**.
When using inserts with corner-R (RE) greater than 1/16" (1.6mm), additional modifications to the shim are necessary to prevent workpiece and shim from interfering with each other.

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium
Insert								
Chipbreaker	WF*	PP	GP	PQ	HQ	CQ	CJ	TN-V
Page	B24	B24	B24	B24	B25	B25	B25	B25
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing
Insert								
Chipbreaker	PMG	GS	PG	PS	PT	GT	Standard	PH
Page	B25	B25	B26	B26	B26	B26	B27	B27
Applications	Roughing	Finishing	Medium	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium
Insert								
Chipbreaker	PX	P/L-S	R/L	XF	XP	XQ	XS	SK
Page	B27	B32	B32	B27	B27	B27	B27	B28
Applications	Large D.O.C.	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron
Insert								
Chipbreaker	R-LD	FP-TK	TK	MQ	MS	MU	KQ	KG
Page	B28	B28	B28	B28	B29	B29	B30	B30
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker	KH	C	ZS	GC	No Chipbreaker	Ceramic	P/L-A3	AH
Page	B30	B30	B30	B30	B31	B114	B31	B31
Applications	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials / Cast Iron	Hard Materials	Hard Materials	Hard Materials	
Insert								
Chipbreaker	PCD	SQ	SG	CBN	HH	HL	HD	
Page	C35	B29	B29	C10	C11	C11	C11	

Recommended Cutting Conditions ➔ F174, F175

KAVH-PTFN (Internal Copying)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions				GAMF (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Shank Adapter	Applicable Inserts
		R	L	DMIN	DCON	LF	WF				Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench		
																		
mm	KAVH 32-PTFN [●] 16	●	●	40	32	32	22	-10	0.8	Yes							KAV-D32...	TN□A33... TN□G33... TN□M33... TN□X33...
	40-PTFN [●] 16	●	●	50	40		27	-9									KAV-D40...	

When using inserts with corner-R (RE) greater than 1/16" (1.6mm), shim (LT-32N-20) is recommended (sold separately).

F

BORING

MICRO BORING

POSITIVE INSERTS

ANTI-VIBE BARS

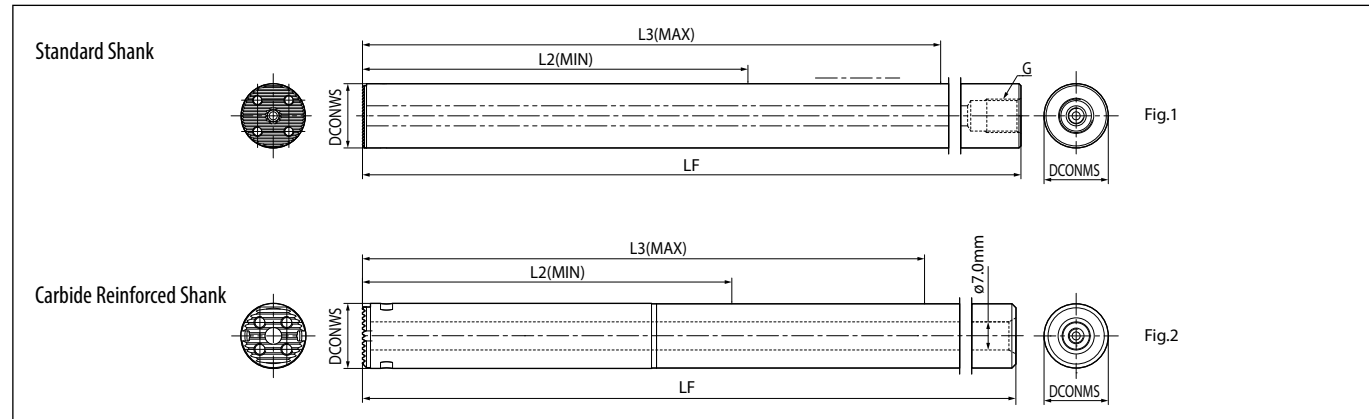
NEGATIVE INSERTS

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	WF	PP	GP	PQ	HQ	CQ	PMG	GS
Page	B39	B39	B39	B39	B39	B39	B40	B40
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing	Finishing
Insert								
Chipbreaker Type	PG	PS	PT	GT	Standard	PH	PX	1/2-SSF
Page	B40	B40	B40	B40	B40	B41	B41	B45
Applications	Finishing - Medium	Medium - Roughing	Medium - Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium
Insert								
Chipbreaker Type	1/2-B	1/2-C	1/2-25R	XF	XP	XQ	XS	SK
Page	B45	B46	B46	B41	B41	B41	B41	B42
Applications	Large D.O.C.	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel	Cast Iron
Insert								
Chipbreaker Type	R-LD	FP-TK	TK	MQ	MS	MU	1/2-ST	KQ
Page	B42	B42	B42	B42	B42	B42	B43	B43
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals
Insert								
Chipbreaker Type	KG	KH	C	ZS	GC	No Chipbreaker	Ceramic	1/2-A3
Page	B43	B43	B43	B43	B43	B44	B118	B44
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron				
Insert								
Chipbreaker Type	AH	PCD	SG	CBN				
Page	B44	C36	B43	C13				

Recommended Cutting Conditions  F174, F175

Boring Bar Shank Adapter



Toolholder Dimensions

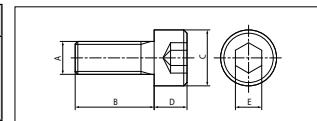
Unit	Part Number		Std. Item	Dimensions							Fig.	Spare Parts		
				DCONWS	DCONMS	G	LF	L2 (Min.)	L3 (Max.)	Head Fastening Bolts (3 pcs)		Wrench	O-Ring	
														
mm	Standard Shank	KAV- D16-7D	●	16	16	G1/8	157.5	44	92	1	HH3X10S	LW-2.5	-	
		D20-7D	●	20	20		201.5	60	120		HH3.5X10S			
		D25-7D	●	25	25	G1/4	256.5	80	155		HH4X12S	LW-3		
		D25-10D	●				331.5	155	230					
		D32-7D	●	32	32	G3/8	321.5	96	192		HH5X12	LW-4		
		D32-10D	●				417.5	192	288					
		D40-7D	●	40	40	G1/2	409.5	128	248		HH6X12	LW-5		
		D40-10D	●				529.5	248	368					
	Carbide Reinforced Shank	KAV- G16-10D	●	16.2	16	-	205.5	92	140	2	HH3X10S	LW-2.5	-	
		G20-10D	●	20.2	20		261.5	120	180		HH3.5X10S			

L2 (Min.) = Minimum Overhang Length

L3 (Max.) = Maximum Overhang Length

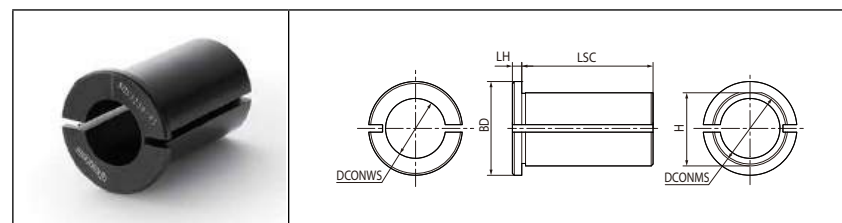
If cutting the back end, consider the length of the shank grip in addition to the amount of overhang length: See page F146.

Head Fastening Bolt



Part Number	Dimensions (mm)					Tightening Torque [N·m]
	A	B	C	D	E	
HH3X10S	M3X0.5	10	5	3	2.5	2.2
HH3.5X10S	M3.5X0.6	10	5.5	3	2.5	2.2
HH4X12S	M4X0.7	12	7	4	3	3.0
HH5X12	M5X0.8	12	8.5	5	4	5.0
HH6X12	M6X1.0	12	10	6	5	8.5

KAV Sleeve (E-Sleeve)



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Applicable Shank
			DCONMS	DCONWS	BD	LSC	LH	H	
Inch	SHS 1615N-75	●	1.500	0.630	1.969	2.756	0.197	1.461	KAV-D16-7D/10D, KAV-G16-10D
	2015N-75	●		0.787					KAV-D20-7D/10D, KAV-G20-10D
	2515N-75	●		0.984					KAV-D25-7D/10D
	3215N-75	●		1.260					KAV-D32-7D/10D
	SHS 2520N-85	●	2.000	0.984	2.362	3.150	0.197	1.941	KAV-D25-7D/10D
mm	3220N-85	●		1.260					KAV-D32-7D/10D
	SHS 1640-75	●	40	16	50	70	5	39	KAV-D16-7D/10D, KAV-G16-10D
	2040-75	●		20					KAV-D20-7D/10D, KAV-G20-10D
	2540-75	●		25					KAV-D25-7D/10D
	3240-75	●		32					KAV-D32-7D/10D
	SHS 2550-85	●	50	25	60	80	5	48.5	KAV-D25-7D/10D
	3250-85	●		32					KAV-D32-7D/10D
	4050-85	●		40					KAV-D40-7D/10D

Choose the sleeve DCONWS together with the shank DCONMS.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Internal coolant: Piping connections

1 Screw standard for shank back end (pipe connection)

- The thread standard depends on the description. Please refer to the dimension chart "G" on page 11 when using commercially available piping parts.
 - When using our piping components, they must be converted to "UNF3/8" or "G1/8."
- Check the table below and select the required joint parts (sold separately).

● Steel shank (Pressure ~ 1,015 psi)

Type	Thread Standards and Conversion Joints
ø16-7D	G1/8
ø20-7D ø25-7D/10D	G1/8 ⇐ G1/4 J-ST-G1/4-G1/8
ø32-7D/10D	G1/8 ⇐ G1/4 ⇐ G3/8 J-ST-G3/8-G1/4 J-ST-G1/4-G1/8
ø40-7D/10D	G1/8 ⇐ G1/4 ⇐ G3/8 ⇐ G1/2 J-ST-G1/2-G3/8 J-ST-G3/8-G1/4 J-ST-G1/4-G1/8

If a leak occurs, use a commercially available washer.
Joint

Shape	Part Number	Std. Item	M1	M2	L1	L2
	J-ST-G1/4-G1/8	●	G1/8	G1/4	27	12
	J-ST-G3/8-G1/4	●	G1/4	G3/8	33	13
	J-ST-G1/2-G3/8	●	G3/8	G1/2	37	17

● Carbide reinforced shank (Pressure ~ 145 psi)

Type	Thread Standards and Conversion Joints
ø16-10D ø20-10D	UNF3/8 ⇐ ø7mm Straight Hole *The shank side is not threaded.

Resin joint (with O-ring)

Shape	Part Number	Std. Item	Thread Standard
	PRO7-ST-UNF3/8	●	UNF3/8

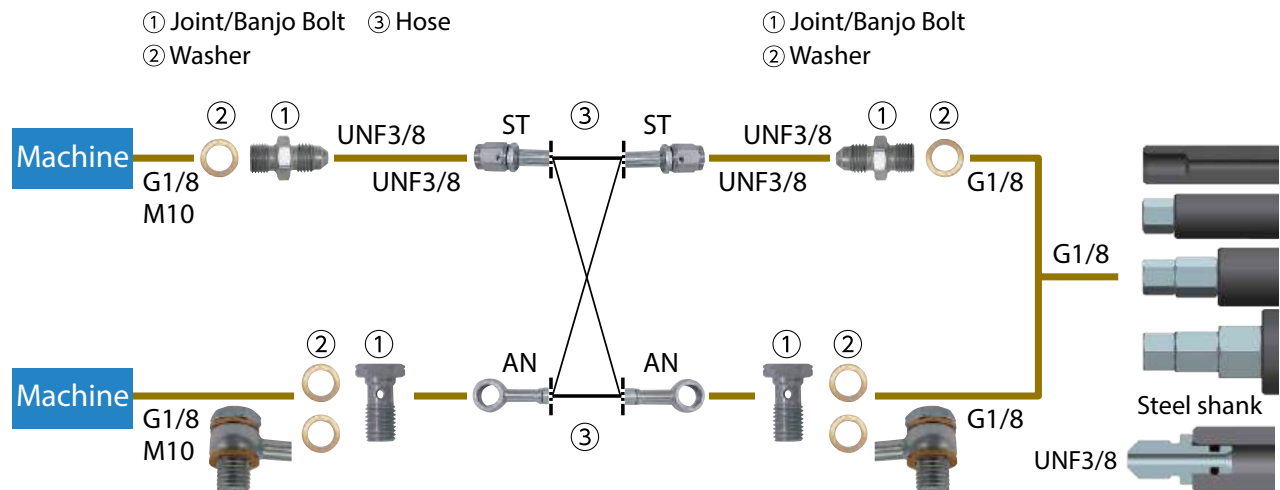
You can order only the included O-ring (GR-004-2).

2 How to connect when using our plumbing parts

Easy to use with high pressure capable hoses and joints

- Can be used as internal coolant at normal pressure without a high-pressure pump unit
- Banjo bolts for angle hoses available. Supports a wide variety of machines.

< Piping Installation Guide >



Carbide reinforced shank
(Direct piping to straight hose (ST))

About the Dedicated E-Sleeve

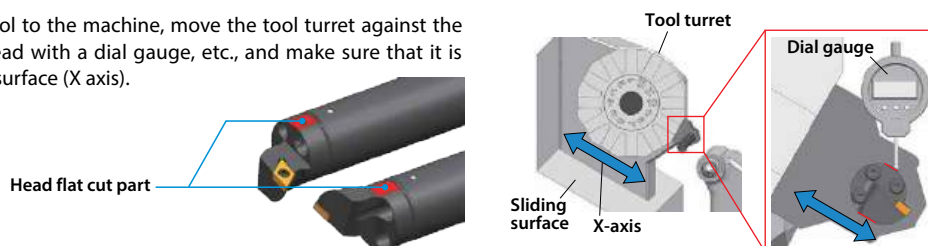
The shank does not have a flat cut.
In order to ensure vibration-proof performance,
we recommend using a special sleeve
(SHS ****_**) that is sold separately.



How to adjust cutting edge position

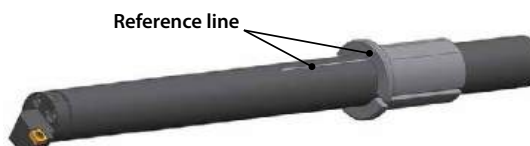
When using a head flat cut part

After attaching the tool to the machine, move the tool turret against the flat cut part of the head with a dial gauge, etc., and make sure that it is parallel to the sliding surface (X axis).



When using the reference lines of the shank/dedicated sleeve (E-Sleeve)

Align the reference lines printed on the shank and the dedicated sleeve (SHS ****_**).
It is easier to adjust the cutting edge position than using the flat on the head to align.



Recommendations for internal coolant

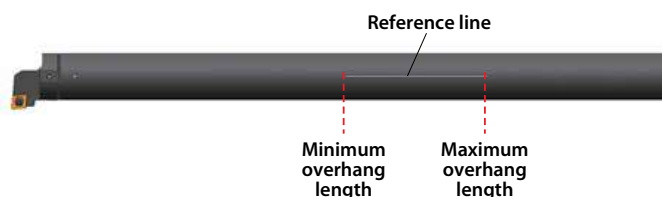
Under high temperatures, the anti-vibration mechanism may deteriorate or become damaged. Please use with **internal coolant**. The coolant pressure resistance of the shank is 1015 PSI. However, when using coolant parts (PR07-ST-UNF 3/8) for internal coolant in the carbide reinforced shank (KAV-G ***), the coolant pressure is 145 PSI. Please be careful.



Available overhang length range

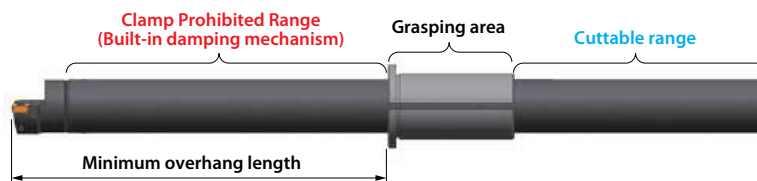
Available overhang length is set for this tool
To adjust the overhang length, please use the reference line printed on the shank.

Available Overhang Length Range		
Part Number	Minimum Overhang Length	Maximum Overhang Length
KAV-***-10D	Shank diameter $\times$ 7	Shank diameter $\times$ 10
KAV-***-7D	Shank diameter $\times$ 4	Shank diameter $\times$ 7



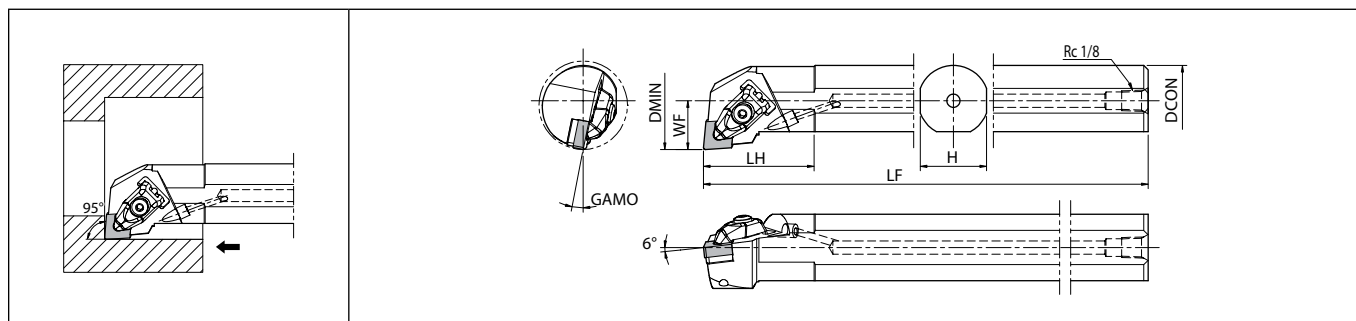
Shank cut

If the shank needs to be cut or modified, do so within the cutting range and do not clamp the built-in damping mechanism.



- Use the appropriate inserts and parts. Use of damaged parts may result in tool breakage and injury.
- Do not touch the cutting edge of the insert directly with your bare hands. There is a risk of injury.
- Make sure that there are no foreign materials such as chips in the insert seating area, serrated area, or shank grip area before mounting.
- Do not use the product under chattering conditions. This can lead to damage of the built-in damping mechanism.
- If tool falls or hits the part while machining, do not use it. The impact can cause tool damage and lead to large chattering.
- Avoid high humidity and store at room temperature (about 20°C).

A-DCLN (Boring / Internal Facing)



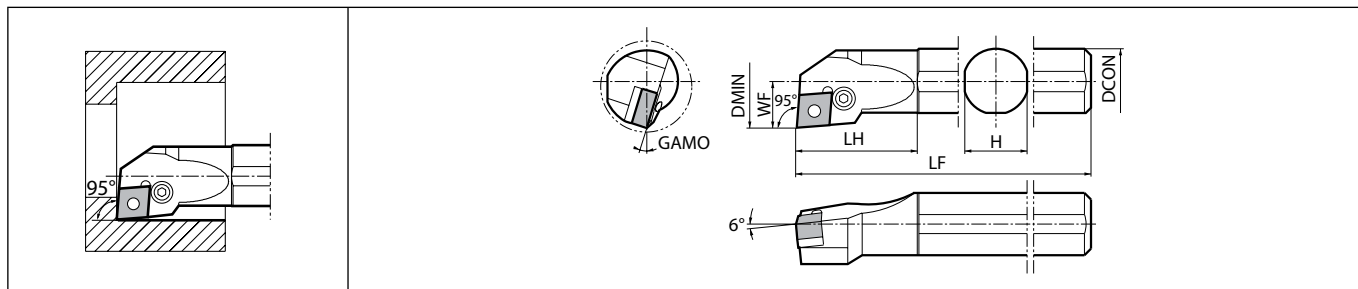
Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts							Applicable Inserts	
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)		Nozzle
		R	L	DMIN	DCON	H	LH	LF	WF												
Inch	A16T- DCLNR4	●		1.25	1.00	0.905	1.575	12.0	0.640	12	1/32	Yes	CP-3D	CS-3D	SP-3D	LW-3	DC-42	SB-4085TR	FT-15	DN10	CN□A43... CN□G43... CN□M43...
	A20T- DCLNR4	●		1.50	1.25	1.181	1.614	12.0	0.765	11											
	A24T- DCLNR4	●		1.75	1.50	1.374	2.362	12.0	0.905	13											
mm	A25R- DCLN % 12-32	●	●	32	25	23	42	200	17	11	0.8	Yes	CP-3D	CS-3D	SP-3D	LW-3	DC-42	SB-4085TR	FT-15	DN10	CN□A43... CN□G43... CN□M43...
	A32S- DCLN % 12-40	●	●	40	32	30	50	250	22												
	A40T- DCLN % 12-50	●	●	50	40	37	60	300	27													14

Not applicable to high-pressure coolant

Wrench (FT-15) is sold separately.

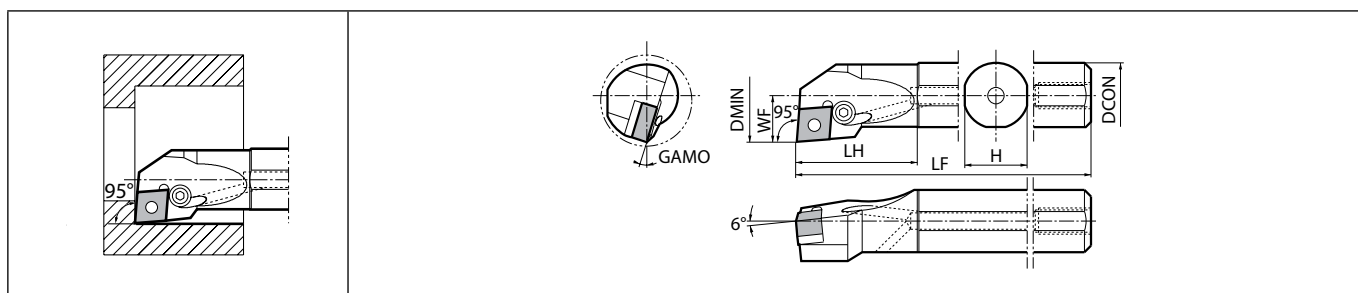
S-PCLN (Boring / Internal Facing)Max. Overhang Length $L/D \approx 3$ | Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts								Applicable Inserts
													Lever	Lock Screw	Punch	Shim Pin	Shim Pin	Shim	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF												
Inch	S20S- PCLNR4	●		1.55	1.25	1.17	2.00	10.00	0.75	10	1/32	No					-	LC-42N%	LW-3	-	CN□A43... CN□G43... CN□M43...
	S24T- PCLNR4	●		2.02	1.50	1.42	2.50	12.00	1.00								-	LC-42N%	LW-3	-	CN□A43... CN□G43... CN□M43...
mm	S16M- PCLN% 09-20	●	●	20	16	15	34	150	11	16	0.8	No	LL-03SN	LS-03SN	-	-	P-03S	-	-	FH-2.5	CN□G33...
	S20Q- PCLN% 09-27	●	●	27	20	19	37	180	14.2	17			LL-1N	LS-1SN	PC-1	LSP-1	-	LC-32N			
	S25R- PCLN% 09-32	●	●	32	25	24	42	200	15.7	15											
	S25R- PCLN% 12-32	●	●	32	25	24	42	200	16.3	16											
	S32S- PCLN% 12-40	●	●	40	32	30	50	250	21	10	0.8	No	LL-2N	LS-2N	PC-2	LSP-2	-	LC-42N%	LW-3	-	CN□A43... CN□G43... CN□M43...
	S40T- PCLN% 12-50	●	●	50	40	37	60	300	25												

LC-42NR for Right-hand Toolholder, LC-42NL for Left-hand Toolholder.

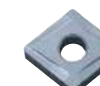
A-PCLN (Boring / Internal Facing)Max. Overhang Length $L/D \approx 3$ | Right-hand shown | Left-hand Insert for Right-hand Toolholder.**Toolholder Dimensions**

Unit	Part Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts							Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF				Lever	Lock Screw	Punch	Shim Pin	Shim Pin	Shim	Wrench	
																				
Inch	A10M- PCLN ^⅞ / ₃	●	●	0.79	0.63	0.59	1.34	6.00	-	16	1/32	Yes	LL-03SN	LS-03SN	-	-	P-03S	-	FH-2.5	CN□G33...
	A12Q- PCLN ^⅞ / ₃	●	●	1.06	0.75	0.71	1.46	7.00		17	1/32		LL-1N	LS-1SN	PC-1	LSP-1	-	LC-32N		
	A16Q- PCLN ^⅞ / ₃	●	●	1.26	1.00	0.97	1.65	7.00		15										
mm	A16M- PCLNR09-20	●		20	16	15	34	150	11	16	0.8	Yes	LL-03SN	LS-03SN	-	-	P-03S	-	FH-2.5	CN□G33...
	A20Q- PCLNR09-27	●		27	20	19	37	180	14.2	17			LL-1N	LS-1SN	PC-1	LSP-1	-	LC-32N		
	A25R- PCLNR09-32	●		32	25	24	42	200	15.7	15										

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts (A-DCLN / S-PCLN / A-PCLN)

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker Type	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B16	B16	B16	B16	B16	B16	B16	B17
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	CQ	CJ	TN-V	PMG	GS	PG	PS	PT
Page	B17	B17	B17	B17	B17	B17	B18	B18
Applications	Medium - Roughing	Roughing	Roughing	Roughing	Finishing	Medium	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	GT	Standard	PH	PX	P%-S	R/L	P%-25R	Z
Page	B18	B18	B18	B19	B23	B23	B23	B23
Applications	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	XF	XP	XQ	XS	SK	FP-TK	TK	MQ
Page	B19	B19	B19	B19	B19	B19	B20	B20
Applications	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	MS	MU	KQ	KG	KH	C	ZS	GC
Page	B20	B20	B21	B21	B21	B22	B22	B22
Applications	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials
Insert								
Chipbreaker Type	No Chipbreaker	Ceramic	P%-A3	AH	PCD	SQ	SG	HH
Page	B22	B113	B23	B23	C34	B20	B21	C9
Applications	Hard Materials	Hard Materials	Hard Materials / Cast Iron					
Insert								
Chipbreaker Type	HL	HD	CBN					
Page	C9	C9	C8					

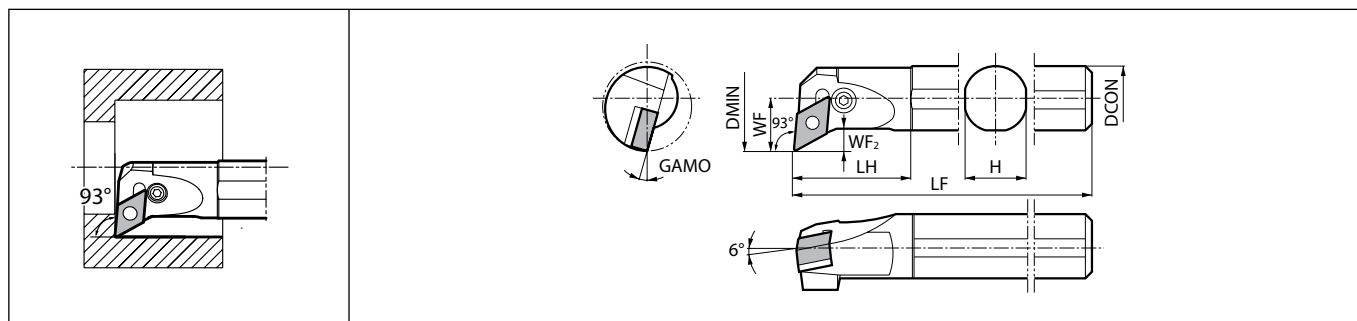
Recommended Cutting Conditions  F174, F17

Recommended Cutting Conditions ● F174, F175

Applicable Coolant Sleeve / Joint

Toolholder Part Number	Applicable Coolant Sleeve	Applicable Coolant Joint
A16M -PCLN P% 09-20	SHC1640-70, SHC1650-95	SJS-8
A20Q -PCLN P% 09-27	SHC2040-70, SHC2050-95	
A25R -PCLN P% 09-32	SHC2540-70, SHC2550-95	

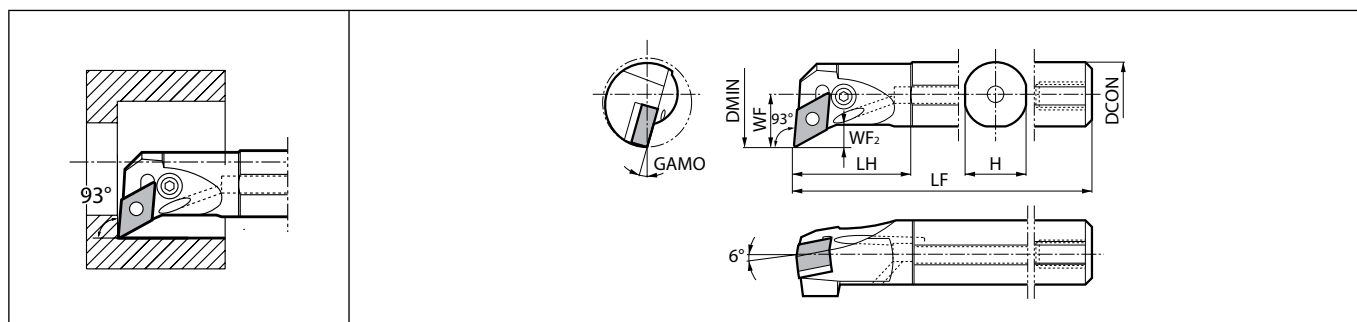
For Coolant Sleeve, Coolant Joint See Page ● F172~F173

S-PDUN11 (Boring / Internal Facing)

Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Inserts
														Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂										
mm	S20Q- PDUN% 11-27	●	●	27	20	19	35	180	16	7.6	17	0.4	No							DN□G33...
	S25R- PDUN% 11-32	●	●	32	25	24	40	200	17		15									
	S32S- PDUN% 11-40	●	●	40	32	31	45	250	22	8.5	12									

A-PDUN3/11 (Boring / Internal Facing)

Max. Overhang Length $L/D \approx 3$ | Right-hand shown | Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts						Applicable Inserts
														Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	WF2										
Inch	A12Q- PDUN $\frac{R}{L}$ 3	●	●	1.06	0.75	0.71	1.37	7.00	-	-	17	1/32	Yes							DN□G33...
	A16R- PDUN $\frac{R}{L}$ 3	●	●	1.26	1.00	0.97	1.37	8.00	-	-	15									
	A20S- PDUN $\frac{R}{L}$ 3	●	●	1.57	1.25	1.18	1.37	10.00	-	-	12									
mm	A20Q- PDUNR11-27	●		27	20	19	35	180	16	7.6	17	0.4	Yes							
	A25R- PDUNR11-32	●		32	25	24	40	200	17		15									
	A32S- PDUNR11-40	●		40	32	31	45	250	22		8.5										12

Applicable Inserts (S-PDUN / A-PDUN)

Applications	Finishing	Finishing - Medium	Medium - Roughing	Finishing	Medium
Insert					
Chipbreaker Type	GP	HQ	GS	R/L-S	R/L
Page	B24	B25	B25	B32	B32

Recommended Cutting Conditions  **F174, F175**

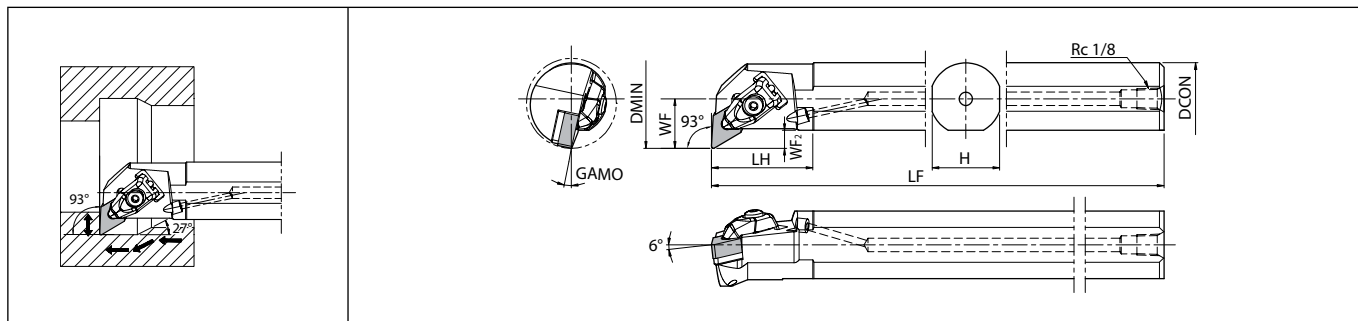
Applicable Coolant Sleeve / Joint

Toolholder Part Number	Applicable Coolant Sleeve	Applicable Coolant Joint
A20Q-PDUNR11-27	SHC2040-70, SHC2050-95	SJS-8
A25R-PDUNR11-32	SHC2540-70, SHC2550-95	
A32S-PDUNR11-40	-	

For Coolant Sleeve, Coolant Joint See Page  **F172~F173**

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

A-DDUN (Boring / Internal Copying)



Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts								Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂				Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	Nozzle	
																						
Inch	A16T- DDUN ^R /L 4	●		1.500	1.000	0.905	1.575	12	0.750	0.297	15	1/32	Yes	CP-3D	CS-3D	SP-3D	LW-3	DD-42 (DD-42-16*)	SB-4085TR	FT-15	DN10	DN□A43... DN□G43... DN□M43... DN□X43...
	A20T- DDUN ^R /L 4	●		1.750	1.250	1.181	1.772	12	0.905	0.299	13											
mm	A32S- DDUN ^R /L 15-40	●	●	40	32	30	45	250	22	8	12	0.8	Yes	CP-3D	CS-3D	SP-3D	LW-3	DD-42 (DD-42-16*)	SB-4085TR	FT-15	DN10	
	A40T- DDUN ^R /L 15-50	●	●	50	40	37	55	300	27	8.5											DN10	
	A50U- DDUN ^R /L 15-63	●	●	63	50	47	65	350	35	10.5											DN20	

When using inserts with corner-R (RE) greater than 1/16" (1.6 mm), please purchase shim DD-42-16* to prevent workpiece interference.

Not applicable to high-pressure coolant

When using insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.

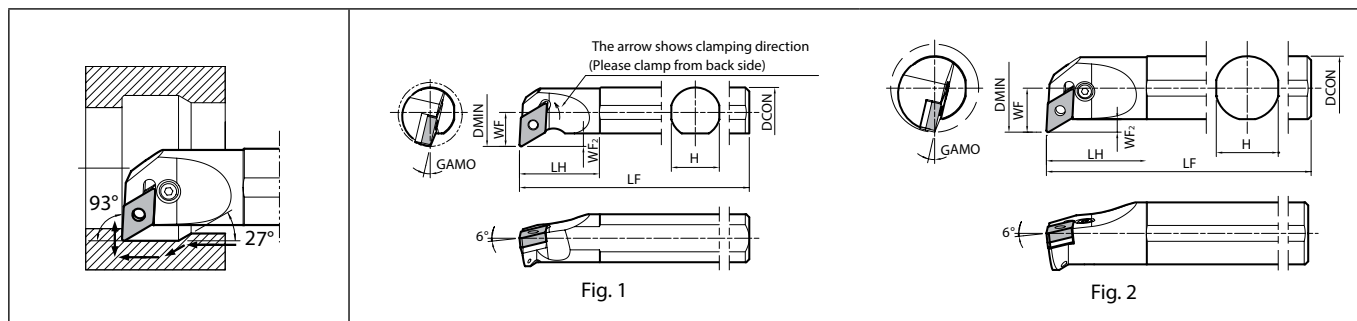
Wrench (FT-15) is sold separately.

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium
Insert								
Chipbreaker Type	WF	PP	GP	PQ	HQ	CQ	CJ	TN-V
Page	B24	B24	B24	B24	B25	B25	B25	B25
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing
Insert								
Chipbreaker Type	PMG	GS	PG	PS	PT	GT	Standard	PH
Page	B25	B25	B26	B26	B26	B26	B27	B27
Applications	Roughing	Medium	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Large D.O.C.
Insert								
Chipbreaker Type	PX	R/L	XF	XP	XQ	XS	SK	R-LD
Page	B27	B32	B27	B27	B27	B27	B28	B28
Applications	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	FP-TK	TK	MQ	MS	MU	KQ	KG	KH
Page	B28	B28	B28	B29	B29	B30	B30	B30
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker Type	C	ZS	GC	No Chipbreaker	Ceramic	XA3	AH	PCD
Page	B30	B30	B30	B31	B114	B31	B31	C35
Applications	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials	Hard Materials	Hard Materials	Hard Materials / Cast Iron		
Insert								
Chipbreaker Type	SQ	SG	HH	HL	HD	CBN		
Page	B29	B29	C11	C11	C11	C10		

Recommended Cutting Conditions  F174, F175

S-PDUN15 (Internal Copying)



Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂					
mm	S25R- PDUN%L 15-32	●	●	32	25	24	40	200	17	6.5	13	0.8	No	1	DN□A43..., DN□G43... DN□M43..., DN□X43...
	S32S- PDUN%L 15-44	●	●	44	32	31	50	250	22					2	
	S40T- PDUN%L 15-54	●	●	54	40	39	65	300	27	7.5	12				

Unit	Part Number	Spare Parts									
		Lever	Lock Pin	Lock Screw	Wrench	Shim	Shim	Screw	Wrench	Shim Pin	Punch
mm	S25R- PDUN%L 15-32	-	PP-4	-	LW-3	-	PD-42	SB-2050TR	FT-6	-	-
	S32S- PDUN%L 15-44	LL-3N	-	LS-2N		LD-42 (LD-42-20*)	-	-	-	LSP-2	PC-2
	S40T- PDUN%L 15-54		-	-		-	-	-	-	-	-

When using insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.

When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm) for S25R-PDUN%L 15-32, modifications to the shim are required to prevent workpiece interference.

When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm) for S32S-PDUN%L 15-44 and S40T-PDUN%L 15-54, please purchase shim LD-42-20* to prevent workpiece interference.

S-PDQN15 (Internal Copying)

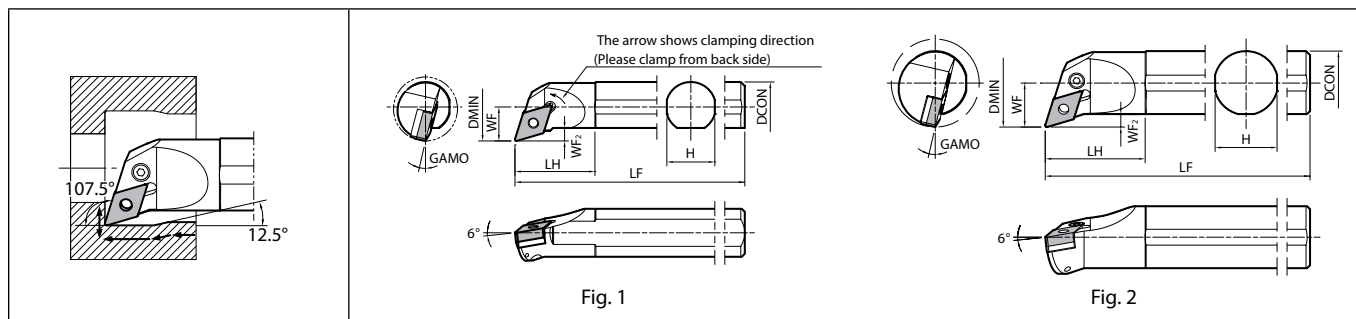


Fig. 1

Fig. 2

Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂					
mm	S25R- PDQN% 15-32	●	●	32	25	24	40	200	17	6.5	13	0.8	No	1	DN□A43...
	S32S- PDQN% 15-44	●	●	44	32	31	50	250	22	6.5	13	0.8	No	2	DN□G43...
	S40T- PDQN% 15-54	●	●	54	40	39	65	300	27	7.5	12	0.8	No	2	DN□M43...

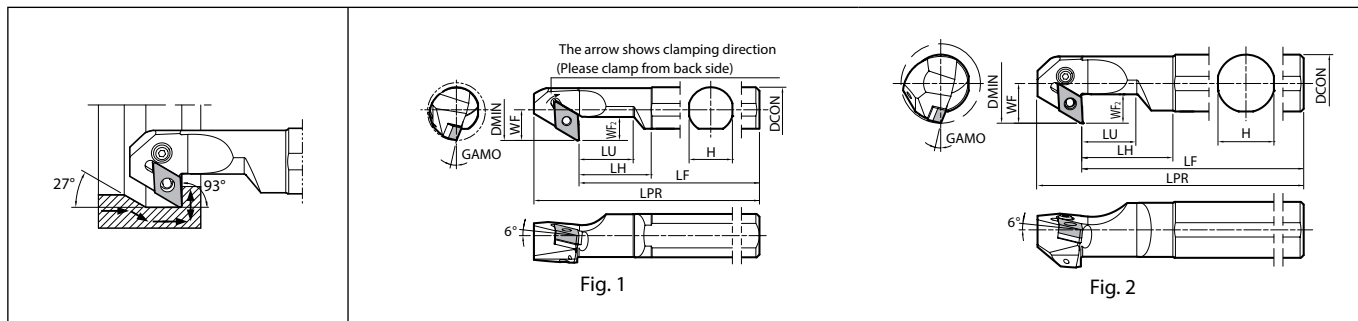
Unit	Part Number	Spare Parts									
		Lever	Lock Pin	Lock Screw	Wrench	Shim	Shim	Screw	Wrench	Shim Pin	Punch
mm	S25R- PDQN% 15-32	-	PP-4	-	LW-3	-	PD-42	SB-2050TR	FT-6	-	-
	S32S- PDQN% 15-44	LL-3N	-	LS-2N		LD-42	-	-	-	LSP-2	PC-2
	S40T- PDQN% 15-54		-	LS-2N		(LD-42-20*)	-	-	-	LSP-2	PC-2

When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm) for S25R-PDQN% 15-32, modifications to the shim are required to prevent workpiece interference.

When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm) for S32S-PDQN% 15-44 and S40T-PDQN% 15-54, please purchase shim LD-42-20* to prevent workpiece interference.

WF chipbreaker can not be used for S-PDQN15 toolholder.

S-PDZN15 (Back Boring)



Max. Overhang Length $L/D \sim 3$ | Right-hand shown
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number		Std. Item		Dimensions								GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Fig.	Applicable Inserts
mm	S25R-	PDZN 15-32	●	●	32	25	24	40	225	30	17	13	13	0.8	No	1	DN□A43..., DN□G43... DN□M43..., DN□X43...
	S32S-	PDZN 15-44	●	●	44	32	31	50	275	30	22	16	16			2	
	S40T-	PDZN 15-54	●	●	54	40	39	65	325	50	27		12				

Unit	Part Number	Spare Parts									
		Lever	Lock Pin	Lock Screw	Wrench	Shim	Shim	Screw	Wrench	Shim Pin	Punch
mm	S25R- PDZN 15-32	-	PP-4	-	LW-3	-	PD-42	SB-2050TR	FT-6	-	-
	S32S- PDZN 15-44	LL-3N	-	LS-2N		LD-42	-	-	-	LSP-2	PC-2
	S40T- PDZN 15-54		-	LS-2N		(LD-42-20*)	-	-	-	LSP-2	PC-2

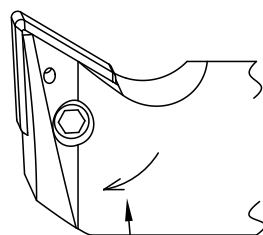
When using insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.

When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm) for S25R-PDZN15-32, modifications to the shim are required to prevent workpiece interference.

When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm) for S32S-PDZN15-44 and S40T-PDZN15-54, please purchase shim LD-42-20* to prevent workpiece interference.

How to change S25R-PD□N 15-32 inserts

- Please replace S25R-PD□N 15-32 insert from the back side

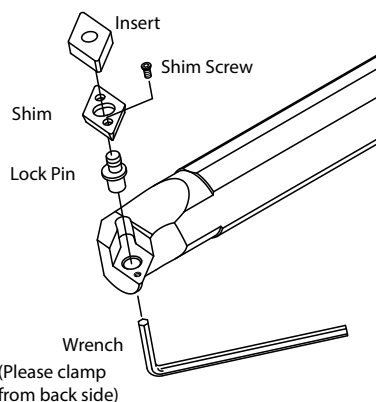


Recommended torque for insert clamp
3.5N·m (for LW-3)

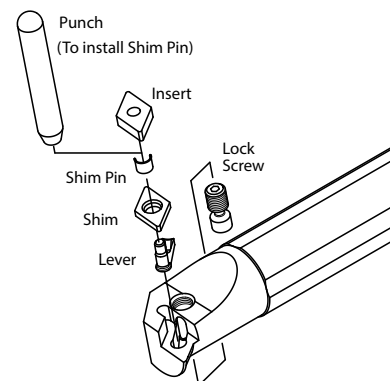
Back side of toolholder

How to assemble spare parts

- S25R-PD□N 15-32 (Pin Lock)



- S32S-PD□N 15-44 (Lever Lock)
- S40T-PD□N 15-54 (Lever Lock)

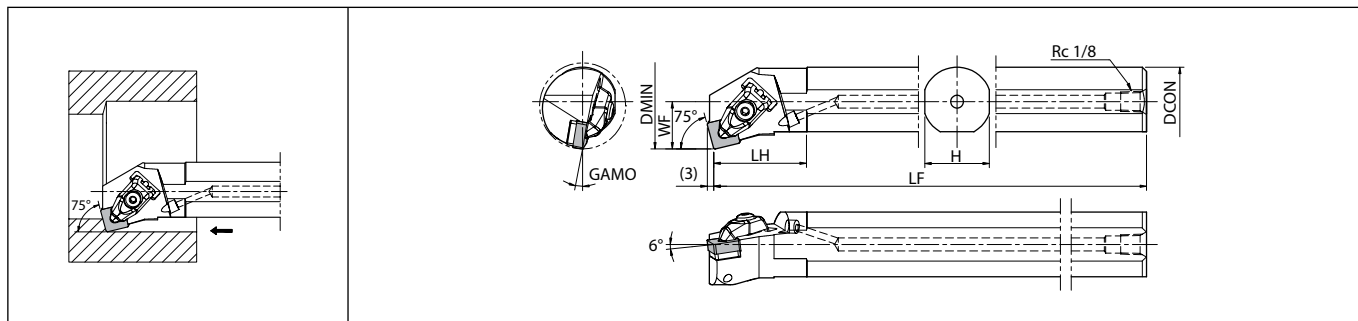


Applicable Inserts (S-PDUN15 / S-PDQN15 / S-PDZN15)

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium
Insert								
Chipbreaker Type	WF	PP	GP	PQ	HQ	CQ	CJ	TN-V
Page	B24	B24	B24	B24	B25	B25	B25	B25
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing
Insert								
Chipbreaker Type	PMG	GS	PG	PS	PT	GT	Standard	PH
Page	B25	B25	B26	B26	B26	B26	B27	B27
Applications	Roughing	Medium	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Large D.O.C.
Insert								
Chipbreaker Type	PX	R/L	XF	XP	XQ	XS	SK	R-LD
Page	B27	B31	B27	B27	B27	B27	B28	B28
Applications	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	FP-TK	TK	MQ	MS	MU	KQ	KG	KH
Page	B28	B28	B28	B29	B29	B30	B30	B30
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals
Insert								
Chipbreaker Type	C	ZS	GC	No Chipbreaker	Ceramic	XA3	AH	PCD
Page	B30	B30	B30	B31	B114	B31	B31	C35
Applications	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials	Hard Materials	Hard Materials	Hard Materials / Cast Iron		
Insert								
Chipbreaker Type	SQ	SG	HH	HL	HD	CBN		
Page	B29	B29	C11	C11	C11	C10		

Recommended Cutting Conditions ➡ F174, F175

A-DSKN (Boring)



Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts							Applicable Inserts				
													Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)		Nozzle			
		R	L	DMIN	DCON	H	LH	LF	WF															
mm	A25R- DSKN% 12-32	●	●	32	25	23	43	200	17	11	0.8	Yes	CP-3D	CS-3D	SP-3D	LW-3	DS-42	SB-4085TR	FT-15	DN10	SN□A43...			
	A32S- DSKN% 12-40	●	●	40	32	30		250	22														DN20	SN□G43...
	A40T- DSKN% 12-50	●	●	50	40	37		53	300				27											

Not applicable to high-pressure coolant

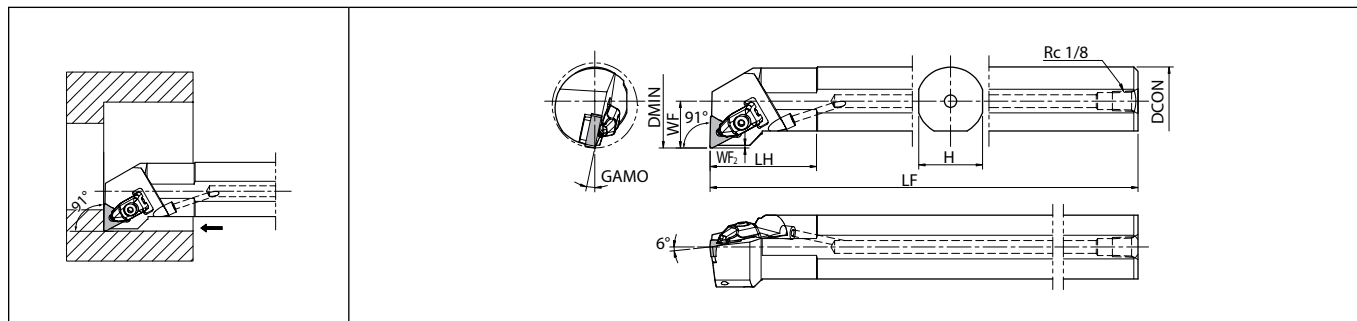
Wrench (FT-15) is sold separately.

Applicable Inserts

Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing
Insert								
Chipbreaker Type	PQ	HQ	PMG	PG	PS	PT	Standard	PH
Page	B34	B34	B34	B34	B34	B34	B34	B35
Applications	Roughing	Medium - Roughing	Medium - Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	PX	P/C	P/-25R	XP	XQ	XS	MQ	MS
Page	B35	B37	B37	B35	B35	B35	B36	B36
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Heat-Resistant Alloys
Insert								
Chipbreaker Type	KG	KH	C	ZS	GC	No Chipbreaker	Ceramic	SG
Page	B36	B36	B36	B37	B37	B37	B117	B36
Applications	Hard Materials / Cast Iron							
Insert								
Chipbreaker Type	CBN							
Page	C12							

Recommended Cutting Conditions F174, F175

A-DTFN (Boring)



Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂				
mm	A25R- DTFN [●] 16-32	●	●	32	25	23	42	200	17	0.8	12	0.8	Yes	TN□A33..., TN□G33...
	A32S- DTFN [●] 16-40	●	●	40	32	30	50	250	22	1.2	12	0.8	Yes	TN□M33..., TN□X33...
	A40T- DTFN [●] 22-50	●	●	50	40	37	60	300	27	1.5	12	0.8	Yes	TN□G43..., TN□M43...

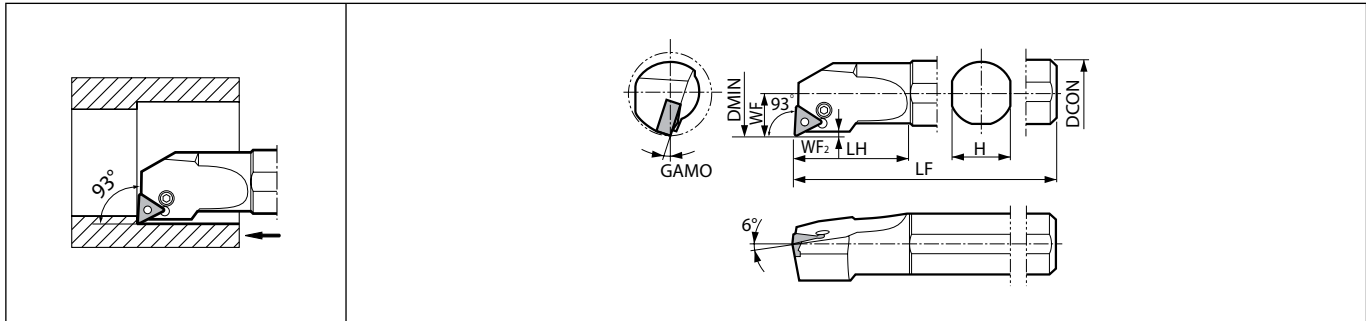
Unit	Part Number	Spare Parts								
		Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)	Wrench* (for shim)	Nozzle
mm	A25R- DTFN [●] 16-32									
	A32S- DTFN [●] 16-40	CP-2D	CS-2D	SP-2D	LW-2.5	DT-32	SB-3080TR	FT-10	-	DN10
	A40T- DTFN [●] 22-50	CP-3D	CS-3D	SP-3D	LW-3	DT-42	SB-4085TR	-	FT-15	DN20

Not applicable to high-pressure coolant

When using insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.

Wrench (FT-10 or FT-15) is sold separately

S-PTUN (Boring)



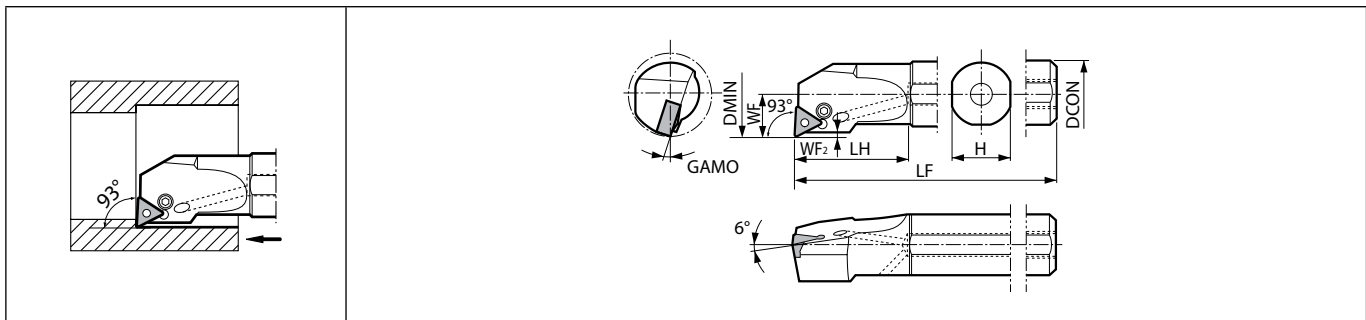
Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts							Applicable inserts	
														Lever	Lock Screw	Punch	Shim	Shim Pin	Shim Pin	Wrench		
		R	L	DMIN	DCON	H	LH	LF	WF	WF ₂												
mm	S16M- PTUN% 11-20	●	●	20	16	15	34	150	11	0.3	18	0.8	No			-	-	-	P-03S	FH-2.5	TN□G23...	
	S20Q- PTUN% 11-25	●	●	25	20	19	37	180	13.2	0.2	17			LL-03TN	LS-03SN	-	-	-	P-03S	FH-2.5	TN□G23...	
	S25R- PTUN% 11-32	●	●	32	25	24	42	200	15.7	0.3	16											
	S16M- PTUN% 16-20	●	●	20	16	15	34	150	11		18	0.8	No			-	-	-	P-03S	FH-2.5	TN□A33...	
	S20Q- PTUN% 16-25	●	●	25	20	19	37	180	13.2	1.3	17			LL-03SN	LS-03SN	-	-	-	P-03S		TN□G33...	
	S25R- PTUN% 16-30	●	●	30	25	24	42	200	15.5													TN□M33...
	S32S- PTUN% 16-40	●	●	40	32	30	50	250	22	0.7	13			LL-1N	LS-1N	PC-1	LT-32N (LT-32N-20*)	LSP-1	-			
S40T- PTUN% 16-50	●	●	50	40	37	60	300	27	0.6	11												

When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm), please purchase shim LT-32N-20* to prevent workpiece interference.

A-PTUN (Boring)



Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts				Applicable Inserts
		R	DMIN	DCON	H	LH	LF	WF	WF ₂	Lever				Lock Screw	Shim Pin	Wrench		
mm	A16M- PTUNR11-20	●	20	16	15	34	150	11	0.3	18	0.8	Yes					TN□G23...	
	A20Q- PTUNR11-25	●	25	20	19	37	180	13.2	0.2	17			LL-03TN	LS-03SN	P-03S	FH-2.5		
	A25R- PTUNR11-32	●	32	25	24	42	200	15.7	0.3	16								

Applicable Inserts (A-DTFN / S-PTUN / A-PTUN)

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	WF*	PP	GP	PQ	HQ	CQ	PMG	GS
Page	B39	B39	B39	B39	B39	B39	B40	B40
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing	Finishing
Insert								
Chipbreaker Type	PG	PS	PT	GT	Standard	PH	PX	1/2-SSF
Page	B40	B40	B40	B40	B40	B41	B41	B45
Applications	Finishing	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel
Insert								
Chipbreaker Type	1/2-S	1/2-B	1/2-C	R/L	1/2-25R	XF	XP	XQ
Page	B45	B45	B46	B46	B46	B41	B41	B41
Applications	Low Carbon Steel	Finishing - Medium	Large D.O.C.	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	XS	SK	R-LD	FP-TK	TK	MQ	MS	MU
Page	B41	B42	B42	B42	B42	B42	B42	B42
Applications	Stainless Steel	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	1/2-ST	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B43	B43	B43	B43	B43	B43	B43	B44
Applications	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron		
Insert								
Chipbreaker Type	Ceramic	1/2-A3	AH	PCD	SG	CBN		
Page	B118	B44	B44	C36	B43	C13		

When using insert with WF chipbreaker, tool edge offset or program corrections are required on **R40** and **R41**.
The insert with WF chipbreaker is not applicable for S-PTUN type and A-PTUN type toolholder.

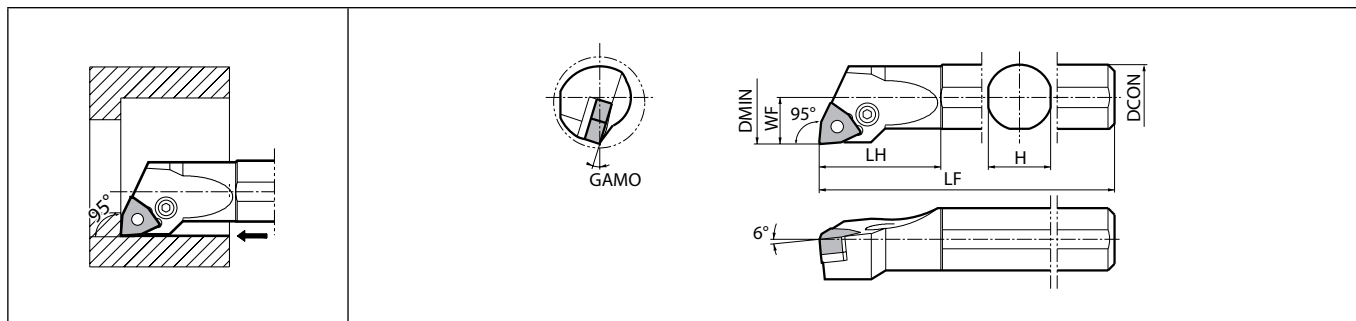
Recommended Cutting Conditions  **F174, F175**

Applicable Coolant Sleeve / Joint

Toolholder Part Number	Applicable Coolant Sleeve	Applicable Coolant Joint
A16M-PTUN 1/2 11-20	SHC1640-70, SHC1650-95	SJS-8
A20Q-PTUN 1/2 11-25	SHC2040-70, SHC2050-95	
A25R-PTUN 1/2 11-32	SHC2540-70, SHC2550-95	

For Coolant Sleeve, Coolant Joint See Page  **F172~F173**

S-PWLN (Boring / Internal Facing)



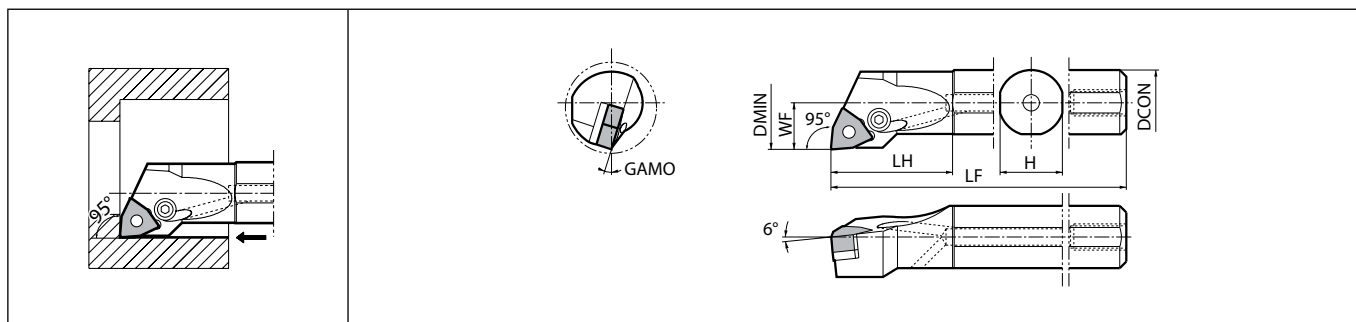
Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts								Applicable Inserts	
		R	L	DMIN	DCON	H	LH	LF	WF	Lever				Lock Screw	Punch	Shim	Shim Pin	Shim Pin	Wrench	Wrench			
																							
mm	S16M- PWN%L 06-20	●	●	20	16	15	34	150	11	16	0.8	No	LL-03SN	LS-03SN	-	-	-	P-03S	-	FH-2.5	WN□G33...		
	S20Q- PWN%L 06-27	●	●	27	20	19	37	180	14.2	17			LL-1N	LS-1SN	PC-1	LW-32N	LSP-1	-					
	S25R- PWN%L 06-32	●	●	32	25	24	42	200	15.7	15			LL-1N	LS-1SN	PC-1	LW-32N	LSP-1	-					
	S32S- PWN%L 08-40	●	●	40	32	30	50	250	22	10			0.8	No	LL-2N	LS-2N	PC-2	LW-42N%	LSP-2	-		LW-3	-
	S40T- PWN%L 08-50	●	●	50	40	37	60	300	27						LL-2N	LS-2N	PC-2	LW-42N%	LSP-2	-		LW-3	-

Shim : LW-42NR for Right-hand Toolholder, LW-42NL for Left-hand Toolholder.

A-PWLN (Boring / Internal Facing)

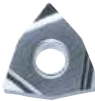
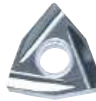
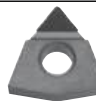


Max. Overhang Length $L/D \approx 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts							Applicable Inserts
		R	DMIN	DCON	H	LH	LF	WF	Lever	Lock Screw				Punch	Shim	Shim Pin	Shim Pin	Wrench			
mm	A16M- PwLNR06-20	●	20	16	15	34	150	11	16	0.8	Yes								WN□G33...		
	A20Q- PwLNR06-27	●	27	20	19	37	180	14.2	17			LL-03SN	LS-03SN	-	-	-	P-03S	FH-2.5			
	A25R- PwLNR06-32	●	32	25	24	42	200	15.7	15			LL-1N	LS-1SN	PC-1	LW-32N	LSP-1	-				

Applicable Inserts (S-PWLN / A-PWLN)

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker Type	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B50	B50	B50	B50	B50	B50	B50	B51
Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	CQ	CJ	PMG	GS	PG	PS	PT	GT
Page	B51	B51	B51	B51	B51	B51	B51	B52
Applications	Roughing	Roughing	Finishing	Medium	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	Standard	PH	R/L-S	R/L	XP	XQ	XS	TK
Page	B52	B52	B54	B54	B52	B52	B52	B52
Applications	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	MQ	MS	MU	KQ	KG	KH	C	ZS
Page	B53	B53	B53	B53	B53	B53	B54	B54
Applications	Cast Iron	Cast Iron	Non-Ferrous Metals	Cast Iron / Hard Materials	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron	
Insert								
Chipbreaker Type	GC	No Chipbreaker	AH	Ceramic	PCD	SG	CBN	
Page	B54	B54	B54	B119	C38	B53	C15	

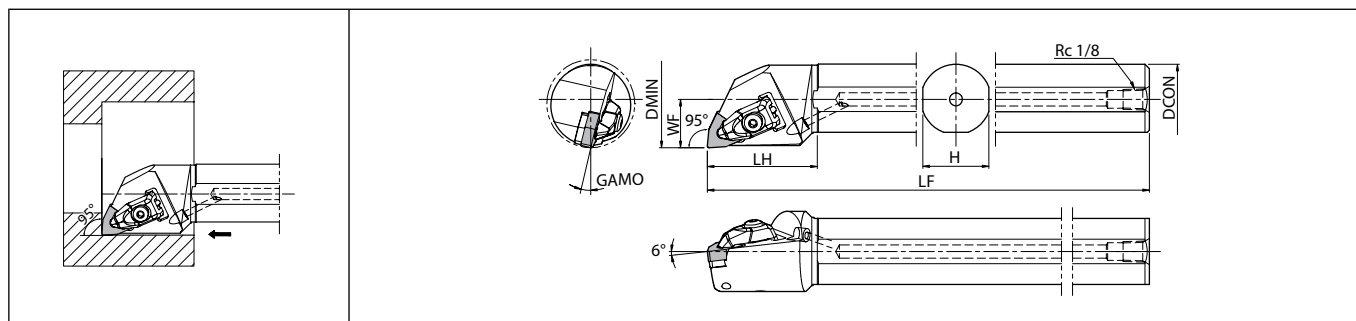
Recommended Cutting Conditions  F174, F175

Applicable Coolant Sleeve / Joint

Toolholder Part Number	Applicable Coolant Sleeve	Applicable Coolant Joint
A16M-PWLN06-20	SHC1640-70, SHC1650-95	SJS-8
A20M-PWLN06-27	SHC2040-70, SHC2050-95	
A25R-PWLN06-32	SHC2540-70, SHC2550-95	

For Coolant Sleeve, Coolant Joint See Page  F172~F173

A-DWLN (Boring / Internal Facing)



Max. Overhang Length $L/D \approx \sim 3$ | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

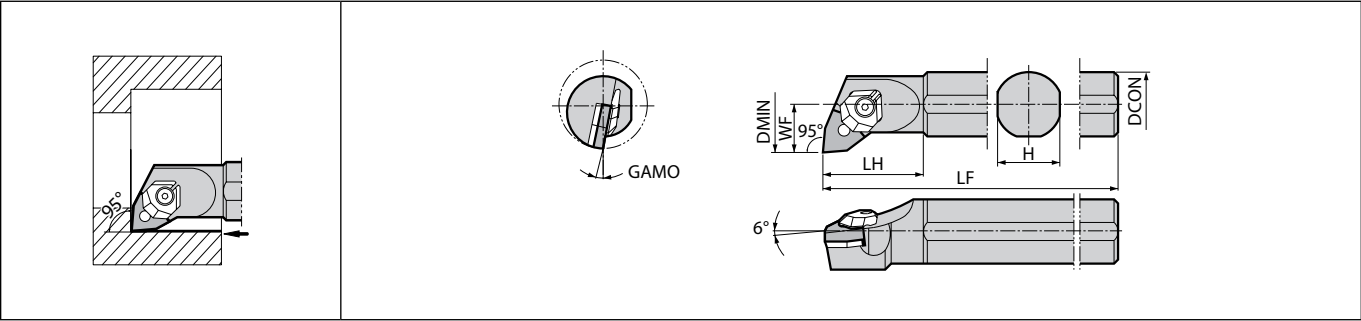
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Applicable Inserts
		R	L	DMIN	DCON	H	LH	LF	WF				
Inch	A16T- DWLNR4	●		1.250	1.000	0.905	1.575	12	0.640	12	1/32	Yes	WN□A43... WN□G43... WN□M43...
	A20T- DWLNR4	●		1.500	1.250	1.181	1.614	12	0.765	11			
	A24T- DWLNR4	●		1.750	1.500	1.374	2.362	12	0.905	13			
mm	A25R- DWLN¼ 08-32	●	●	32	25	23	50	200	17	13	0.8	Yes	
	A32S- DWLN¼ 08-40	●	●	40	32	30		250	22				
	A40T- DWLN¼ 08-50	●	●	50	40	37		60	300					27

Unit	Part Number	Spare Parts						
		Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw (for shim)	Wrench* (for shim)
Inch	A16T- DWLN $\frac{1}{4}$ 4	CP-3D	CS-3D	SP-3D	LW-3	DW-42	SB-4085TR	FT-15
	A20T- DWLN $\frac{1}{4}$ 4							
	A24T- DWLN $\frac{1}{4}$ 4							
mm	A25R- DWLN $\frac{1}{4}$ 08-32	CP-3D	CS-3D	SP-3D	LW-3	DW-42	SB-4085TR	FT-15
	A32S- DWLN $\frac{1}{4}$ 08-40							
	A40T- DWLN $\frac{1}{4}$ 08-50							

Not applicable to high-pressure coolant
Wrench (FT-15) is sold separately.

S-WWLN-E Excellent Bar (Boring / Internal Facing)



Max. Overhang Length L/D≈5 | Right-hand shown
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts					Applicable Inserts
														Clamp Set	Wrench	Shim	Shim Pin	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF										
mm	S25S- WWLN% 08-28E	●	●	28	25	24	36	250	14	13	1.2	No		WCS-8	LW-3	WWP-42 (WWP-42-16*)	WP5X11	LW-2	WN□A43... WN□G43... WN□M43...
	WWLN% 08-34E	●	●	34			40		17	11									
	S32S- WWLN% 08-40E	●	●	40	32	30	50		20	10									

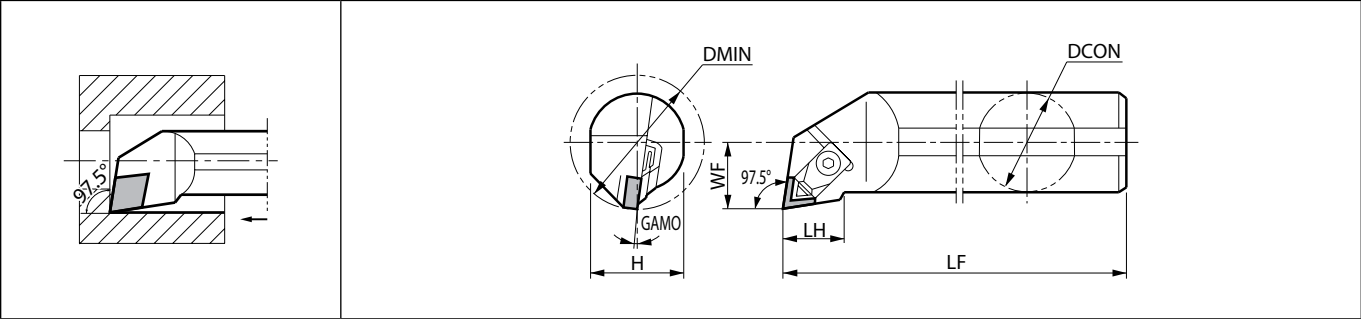
When using inserts with corner-R (RE) is greater than 1/16" (1.6 mm), please purchase shim WWP-42-16* to prevent workpiece interference.
In wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restrain force.

Applicable Inserts (A-DWLN / S-WWLN-E)

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker Type	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B50	B50	B50	B50	B50	B50	B50	B51
Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker Type	CQ	CJ	PMG	GS	PG	PS	PT	GT
Page	B51	B51	B51	B51	B51	B51	B51	B52
Applications	Roughing	Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker Type	Standard	PH	XP	XQ	XS	TK	MQ	MS
Page	B52	B52	B52	B52	B52	B52	B52	B53
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker Type	MU	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B53	B53	B53	B53	B54	B54	B54	B54
Applications	Non-Ferrous Metals	Cast Iron / Hard Materials	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron			
Insert								
Chipbreaker Type	AH	Ceramic	PCD	SG	CBN			
Page	B54	B119	C38	B53	C15			

Recommended Cutting Conditions ● F174, F175

S-CELN (Boring / Internal Facing)



Max. Overhang Length L/D≈3 | Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						GAMO (°)	Standard Corner-R (RE)	Coolant Hole	Spare Parts					Applicable Inserts
												Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw	
			R	DMIN	DCON	H	LH	LF	WF								
mm	S40T- CELNR13-50	●	50	40	37	32	300	27	12	0.8	No	CB-16	CE-010	LW-4	SP-341P	M3X8	ENG45...

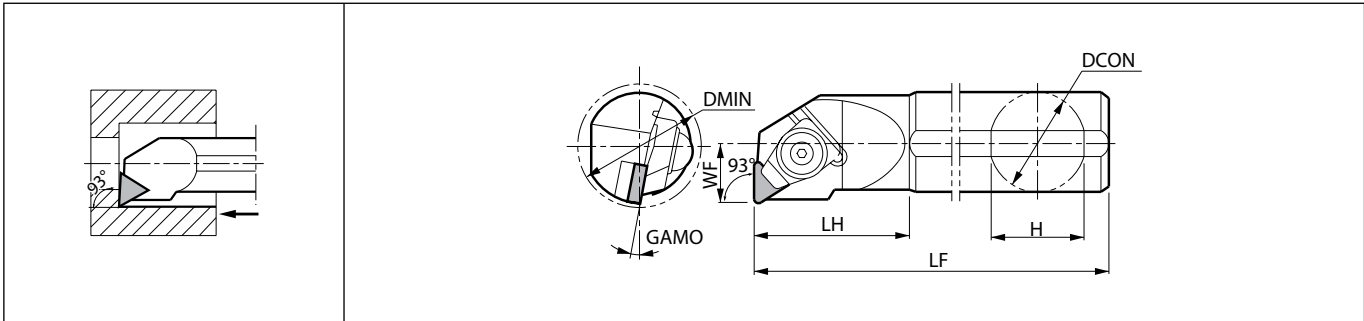
Applicable Inserts

Applications	Cast Iron / Hard Materials
Insert	
Type	Ceramic
Page	B115

Recommended Cutting Conditions F174, F175

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

S-CTUN-A (Boring)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							GAMO (°)	Standard Corner-R (RE)	Spare Parts				Applicable Inserts
												Clamp Set	Shim Screw	Shim	Wrench	
			R	DMIN	DCON	H	LH	LF	WF							
mm	S25X- CTUNR11-30A	●	30	25	24	40	220	15	10	0.8		CE-360S	BH3X6	SP-210A	LW-4	TN□22...

Applicable Inserts

Applications	Hard Materials / Cast Iron	Cast Iron / Hard Materials
Insert		
Type	CBN	Ceramic
Page	C19	B118

Recommended Cutting Conditions ➡ F174, F175

EZH Sleeves

Sleeve Part Number				Applicable EZ Bar				Applicable Machine Manufacturer
EZH-CT Adjustable Overhang Length with Coolant Hole	EZH-HP Adjustable Overhang Length	EZH-ST	Sleeve Shank Dia. DCON (mm)	EZB	EZBT / EZBF EZBP / EZBC / EZVB EZG / EZFG / EZT	EZ Bar PLUS	Shank Dia. DCON (mm)	
		EZH 01712ST-80	12	EZB ...017...	-		1.7	(General Purpose)
		02012ST-80		EZB ...020...	EZ ...020...		2	
		02512ST-80		EZB ...025...	EZ ...025...		2.5	
		03012ST-80		EZB ...030...	EZ ...030...		3	
		03512ST-80		EZB ...035...	EZ ...035...		3.5	
		04012ST-80		EZB ...040...	EZ ...040...		4	
		05012ST-80		EZB ...050...	EZ ...050...		5	
		06012ST-80		EZB ...060...	EZ ...060...		6	
		07012ST-80		EZB ...070...	EZ ...070...		7	
		08012ST-80		EZB ...080...	-		8	
	EZH 01716HP-100	EZH 01716ST-100	16	EZB ...017...	-		1.7	(General Purpose)
	02016HP-100	02016ST-100		EZB ...020...	EZ ...020...		2	
	02516HP-100	02516ST-100		EZB ...025...	EZ ...025...		2.5	
	03016HP-100	03016ST-100		EZB ...030...	EZ ...030...		3	
	03516HP-100	03516ST-100		EZB ...035...	EZ ...035...		3.5	
	04016HP-100	04016ST-100		EZB ...040...	EZ ...040...		4	
	04516HP-100	-		EZB ...045...	-	045X- ...050EZP	4.5	
	05016HP-100	05016ST-100		EZB ...050...	EZ ...050...	050X- ...060EZP	5	
	06016HP-100	06016ST-100		EZB ...060...	EZ ...060...	060X- ...070EZP	6	
	07016HP-100	07016ST-100		EZB ...070...	EZ ...070...	070X- ...080EZP	7	
	EZH 01719CT-120	EZH 01719ST-120	0.750"	EZB ...017...	-		1.7	Citizen Machinery
	02019CT-120	02019ST-120		EZB ...020...	EZ ...020...		2	
	02519CT-120	02519ST-120		EZB ...025...	EZ ...025...		2.5	
	03019CT-120	03019ST-120		EZB ...030...	EZ ...030...		3	
	03519CT-120	03519ST-120		EZB ...035...	EZ ...035...		3.5	
	04019CT-120	04019ST-120		EZB ...040...	EZ ...040...		4	
	04519CT-120	-		EZB ...045...	-	045X- ...050EZP	4.5	
	05019CT-120	05019ST-120		EZB ...050...	EZ ...050...	050X- ...060EZP	5	
	06019CT-120	06019ST-120		EZB ...060...	EZ ...060...	060X- ...070EZP	6	
	07019CT-120	07019ST-120		EZB ...070...	EZ ...070...	070X- ...080EZP	7	
	EZH 01720CT-120	EZH 01720ST-120	20	EZB ...017...	-		1.7	Amada Machine Tools Eguro Tsumami Citizen Machinery (General Purpose)
	02020CT-120	02020ST-120		EZB ...020...	EZ ...020...		2	
	02520CT-120	02520ST-120		EZB ...025...	EZ ...025...		2.5	
	03020CT-120	03020ST-120		EZB ...030...	EZ ...030...		3	
	03520CT-120	03520ST-120		EZB ...035...	EZ ...035...		3.5	
	04020CT-120	04020ST-120		EZB ...040...	EZ ...040...		4	
	04520CT-120	-		EZB ...045...	-	045X- ...050EZP	4.5	
	05020CT-120	05020ST-120		EZB ...050...	EZ ...050...	050X- ...060EZP	5	
	06020CT-120	06020ST-120		EZB ...060...	EZ ...060...	060X- ...070EZP	6	
	07020CT-120	07020ST-120		EZB ...070...	EZ ...070...	070X- ...080EZP	7	
	EZH 01722CT-135	EZH 01722ST-135	22	EZB ...017...	-		1.7	Star Micronics Nomura DS Tsumami
	02022CT-135	02022ST-135		EZB ...020...	EZ ...020...		2	
	02522CT-135	02522ST-135		EZB ...025...	EZ ...025...		2.5	
	03022CT-135	03022ST-135		EZB ...030...	EZ ...030...		3	
	03522CT-135	03522ST-135		EZB ...035...	EZ ...035...		3.5	
	04022CT-135	04022ST-135		EZB ...040...	EZ ...040...		4	
	04522CT-135	-		EZB ...045...	-	045X- ...050EZP	4.5	
	05022CT-135	05022ST-135		EZB ...050...	EZ ...050...	050X- ...060EZP	5	
	06022CT-135	06022ST-135		EZB ...060...	EZ ...060...	060X- ...070EZP	6	
	07022CT-135	07022ST-135		EZB ...070...	EZ ...070...	070X- ...080EZP	7	
	EZH 01725OCT-135	EZH 01725OST-135	25	EZB ...017...	-		1.7	Amada Machine Tools Eguro Tsumami Citizen Machinery (General Purpose)
	02025OCT-135	02025OST-135		EZB ...020...	EZ ...020...		2	
	02525OCT-135	02525OST-135		EZB ...025...	EZ ...025...		2.5	
	03025OCT-135	03025OST-135		EZB ...030...	EZ ...030...		3	
	03525OCT-135	03525OST-135		EZB ...035...	EZ ...035...		3.5	
	04025OCT-135	04025OST-135		EZB ...040...	EZ ...040...		4	
	04525OCT-135	-		EZB ...045...	-	045X- ...050EZP	4.5	
	05025OCT-135	05025OST-135		EZB ...050...	EZ ...050...	050X- ...060EZP	5	
	06025OCT-135	06025OST-135		EZB ...060...	EZ ...060...	060X- ...070EZP	6	
	07025OCT-135	07025OST-135		EZB ...070...	EZ ...070...	070X- ...080EZP	7	
	EZH 01725.4CT-120	EZH 01725.4ST-120	1.000"	EZB ...017...	-		1.7	Citizen Machinery
	02025.4CT-120	02025.4ST-120		EZB ...020...	EZ ...020...		2	
	02525.4CT-120	02525.4ST-120		EZB ...025...	EZ ...025...		2.5	
	03025.4CT-120	03025.4ST-120		EZB ...030...	EZ ...030...		3	
	03525.4CT-120	03525.4ST-120		EZB ...035...	EZ ...035...		3.5	
	04025.4CT-120	04025.4ST-120		EZB ...040...	EZ ...040...		4	
	04525.4CT-120	-		EZB ...045...	-	045X- ...050EZP	4.5	
	05025.4CT-120	05025.4ST-120		EZB ...050...	EZ ...050...	050X- ...060EZP	5	
	06025.4CT-120	06025.4ST-120		EZB ...060...	EZ ...060...	060X- ...070EZP	6	
	07025.4CT-120	07025.4ST-120		EZB ...070...	EZ ...070...	070X- ...080EZP	7	
	EZH 08025.4CT-120	EZH 08025.4ST-120	1.000"	EZB ...080...	-		8	Citizen Machinery

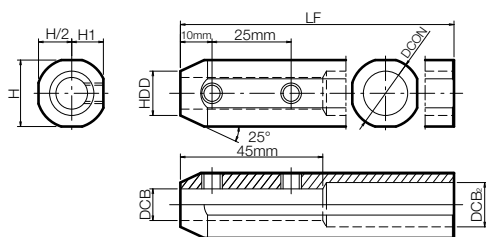
- Choose sleeves (DCB) to meet with DCON dimension of bar.
- Adjustment Pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT/HP sleeves.
- Machine manufacturers in random order.

EZH Sleeves and Applicable Inserts / Toolholders

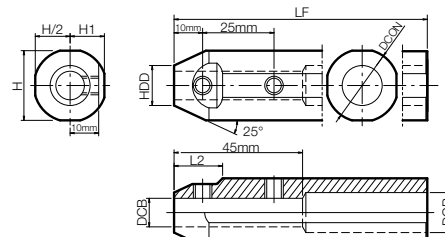
Shank Size (Hole Dia. : mm)		017 (1.7mm)		020 (2.0mm)		025 (2.5mm)		03 (3.0mm)		035 (3.5mm)	
EZH-CT Sleeve Part Number (Internal Coolant) EZH-HP Sleeve Part Number (Adjustable Overhang Length)		EZH	01716HP-100	EZH	02016HP-100	EZH	02516HP-100	EZH	03016HP-100	EZH	03516HP-100
			01719CT/HP-120		02019CT/HP-120		02519CT/HP-120		03019CT/HP-120		03519CT/HP-120
			01720CT/HP-120		02020CT/HP-120		02520CT/HP-120		03020CT/HP-120		03520CT/HP-120
			01722CT/HP-135		02022CT/HP-135		02522CT/HP-135		03022CT/HP-135		03522CT/HP-135
			01725.0CT/HP-135		02025.0CT/HP-135		02525.0CT/HP-135		03025.0CT/HP-135		03525.0CT/HP-135
			01725.4CT/HP-120		02025.4CT/HP-120		02525.4CT/HP-120		03025.4CT/HP-120		03525.4CT/HP-120
EZH-ST Sleeve Part Number		EZH	01712ST-80	EZH	02012ST-80	EZH	02512ST-80	EZH	03012ST-80	EZH	03512ST-80
			01716ST-100		02016ST-100		02516ST-100		03016ST-100		03516ST-100
			01719ST-120		02019ST-120		02519ST-120		03019ST-120		03519ST-120
			01720ST-120		02020ST-120		02520ST-120		03020ST-120		03520ST-120
			01722ST-135		02022ST-135		02522ST-135		03022ST-135		03522ST-135
			01725.0ST-135		02025.0ST-135		02525.0ST-135		03025.0ST-135		03525.0ST-135
			01725.4ST-120		02025.4ST-120		02525.4ST-120		03025.4ST-120		03525.4ST-120
EZ Bar	Boring Bar			EZB % 020020HP-	EZB % 025025HP-	EZB % 030030HP-	EZB % 035035HP-				
		EZBR 020017ST-	EZBR 025020ST-	EZBR 030025ST-	EZBR 035030ST-	EZBR 040035ST-					
		EZBR 020017-...NB	EZBR 025020-...NB	EZBR 030025-...NB	EZBR ...030-...NB	EZBR 040035-...NB					
					EZVBR 035030-						
	Internal Grooving				EZBFR 030030-						
	Face Grooving				EZGR 030030-						
	Internal Threading			EZTR 030025-	EZTR 035030-	EZTR 040035-					
EZ Bar - Plus											

Shank Size (Hole Dia. : mm)		04 (4.0mm)	045 (4.5mm)	05 (5.0mm)	06 (6.0mm)	07 (7.0mm)	08 (8.0mm)
EZH-CT Sleeve Part Number (Internal Coolant) EZH-HP Sleeve Part Number (Adjustable Overhang Length)		EZH 04016HP-100	EZH 04516HP-100	EZH 05016HP-100	EZH 06016HP-100	EZH 07016HP-100	
		04019CT/HP-120	04519CT/HP-120	05019CT/HP-120	06019CT/HP-120	07019CT/HP-120	EZH 08019CT/HP-120
		04020CT/HP-120	04520CT/HP-120	05020CT/HP-120	06020CT/HP-120	07020CT/HP-120	08020CT/HP-120
		04022CT/HP-135	04522CT/HP-135	05022CT/HP-135	06022CT/HP-135	07022CT/HP-135	08022CT/HP-135
		04025.0CT/HP-135	04525.0CT/HP-135	05025.0CT/HP-135	06025.0CT/HP-135	07025.0CT/HP-135	08025.0CT/HP-135
		04025.4CT/HP-120	04525.4CT/HP-120	05025.4CT/HP-120	06025.4CT/HP-120	07025.4CT/HP-120	08025.4CT/HP-120
EZH-ST Sleeve Part Number		EZH 04012ST-80		EZH 05012ST-80	EZH 06012ST-80	EZH 07012ST-80	
		04016ST-100		05016ST-100	06016ST-100	07016ST-100	EZH 08016ST-100
		04019ST-120		05019ST-120	06019ST-120	07019ST-120	08019ST-120
		04020ST-120		05020ST-120	06020ST-120	07020ST-120	08020ST-120
		04022ST-135		05022ST-135	06022ST-135	07022ST-135	08022ST-135
		04025.0ST-135		05025.0ST-135	06025.0ST-135	07025.0ST-135	08025.0ST-135
		04025.4ST-120		05025.4ST-120	06025.4ST-120	07025.4ST-120	08025.4ST-120
EZ Bar	Boring Bar	EZB 040040HP-		EZB 050050HP-	EZB 060060HP-		
		EZBR 045040ST-		EZBR 055050ST-	EZBR 065060ST-	EZBR 075070ST-	
		EZBR ...040-...NB		EZBR ...050-...NB	EZBR ...060-...NB	EZBR ...070-...NB	
		EZVBR 045040-		EZVBR 055050-	EZVBR 065060-		
		EZBTR 040040-		EZBTR 050050-			
	EZBFR 040040-		EZBFR 050050-	EZBFR 060060-			
	Internal Grooving	EZG 040040-		EZG 050050-	EZG 060060-	EZG ...070-...	
	Face Grooving	EZFG 050040-		EZFG 060050-		EZFG 080070-	
	Internal Threading	EZTR 050040-		EZTR 060050-	EZTR 070060-	EZTR 080070-	
EZ Bar - Plus			S/C045X-SCLCR03-050EZP	S/C050X-SWUBR03-060EZP	S/C060X-SCLCR04-070EZP	S/C070X-SCLCR04-080EZP	S/C080X-SCLCR06-100EZP
				S/C050X-SWUBR06-060EZP	S/C060X-SWUBR06-070EZP	S/C070X-STLBR06-080EZP	S/C080X-STLBR09-100EZP
Boring Bar		C04-...		C05-...	C06-...	C07-...	C/E08-...
					S06-...		A/S08-...

Note 1) When attaching Double-sided Micro Bars to EZH-CT/HP Sleeve (Adjustable overhang length), detach Adjustable Pin.
Overhang length of bar is not adjustable.

SHA Sleeves (Applicable Toolholders F172)

(Toolholder Installation Side) Fig.1



(Toolholder Installation Side) Fig.2

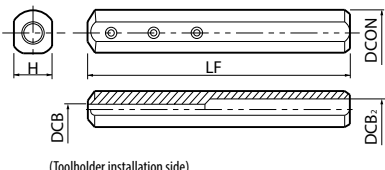
Unit	Part Number	Std. Item	Dimensions									Fig.	Spare Parts		Applicable Inserts
			DCB	DCON	HDD	DCB ₂	H	H1	LF	L2	Screw		Wrench		
															
mm	SHA 0820-120	☐	8	20.00	14	12	19.0	9.25	120	-	1	HS6X4P	LW-3	Eguro Tsugami Citizen Machinery	
	1020-120	☒	10												
	SHA 0825.0-135	☒	8	25.00	14	14	24.0	11.5	135	17	2				
	1025.0-135	☒	10												
	1225.0-135	☒	12	25.00	16										
	SHA 0819-120	☐	8	0.75"	14	12	18.0	8.75	120	-	1	HS6X4P	LW-3	Citizen Machinery	
	1019-120	☐	10												
	SHA 0820-120	☐	8	20.00	14	12	19.0	9.25	120	-	2				
	1020-120	☒	10												
	SHA 0825.4-120	☒	8	1.00"	14	14	24.4	12.0	120	17	2				
	1025.4-120	☒	10												
	1225.4-120	☒	12	1.00"	16										
	SHA 0822-125	☒	8	22.00	14	14	21.0	10.0	125	-	1	HS6X4P	LW-3	Star Micronics Nomura DS	
	1022-125	☒	10												
	1222-125	☐	12	22.00	16										
	SHA 0823-120	☐	8	23.00	14	14	22.0	10.5	120	16	2	HS6X4P	LW-3	Nomura DS	
	1023-120	☐	10												
	1223-120	☐	12	23.00	16										

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

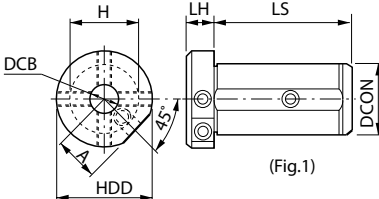
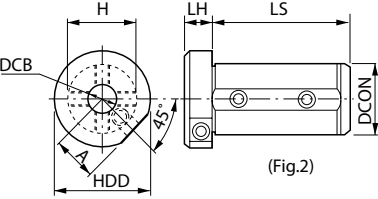
Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Sleeves for Boring Bars

Shape	Unit	Part Number	Std. Item	Dimensions					Spare Parts	
				DCON	DCB	DCB2	H	LF	Screw	Wrench
										
	Inch	SL -1	●	0.625	0.203	0.250	0.292	4.00	SLS-1	LW-2
		-2	●		0.281	0.312			SLS-2	
		-2.5-10	●		0.156	0.197			SLS-1	
	mm	SH 0416-100	●	16	4	5	14	100	HS4X4	LW-2
		0516-100	●		5	6				
		0616-100	●		6	7				
		0716-100	●		7	8				
		SH 0820-120	●	20	8	9	18	120	HS4X4	LW-2
		1020-120	●		10	11				
		1225-150	●	25	12	13	23	150	HS5X5	LW-2.5
		1632-180	●	32	16	18	30	180	HS5X5	LW-2.5
		2032-180	●		20	22				

Coolant Sleeve Dimensions

 										Accessories Back Cover / SHL-4...SHC○○40-70 SHL-5...SHC○○50-95 Back Cover Screw Shank Clamp Screw (Note) To stabilize the Toolholder and to prevent coolant leaks, tighten all 4 screws of coolant sleeve securely.								
Unit	Part Number	Std. Item	Dimensions								Fig.	Spare Parts						
			DCON	HDD	DCB	LS	LH	H	A	Front Screw		Wrench	Back Screw	Wrench	Back Cover	Back Cover Screw	Wrench	
																		
mm	SHC 0840-70	●	40	56	8	70	16	38	27.0	1	HS6X22	LW-3	HS6X14	LW-3	SHL-4	HH3X6	LW-2.5	
		●			10													
		●			12													
		●			16													
		●			20													
		●			25													
	SHC 0850-95	●	50	65	8	95	16	47	30.5	1	HS6X22	LW-3	HS6X14	LW-3	SHL-5	HH3X12	LW-2.5	
		●			10													
		●			12													
		●			16													
		●			20													
		●			25													

Accessories

Back Cover / SHL-4...SHC○○○40-70

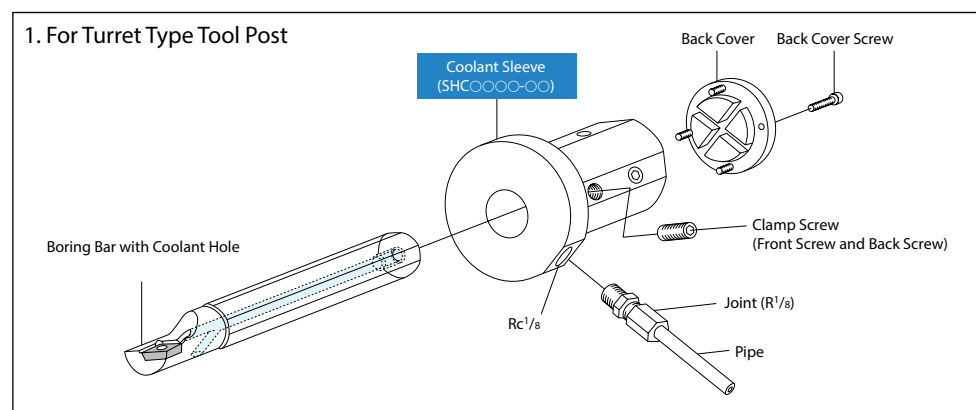
SHL-5...SHC○○○50-95

Back Cover Screw

Shank Clamp Screw

(Note) To stabilize the Toolholder and to prevent coolant leaks, tighten all 4 screws of coolant sleeve securely.

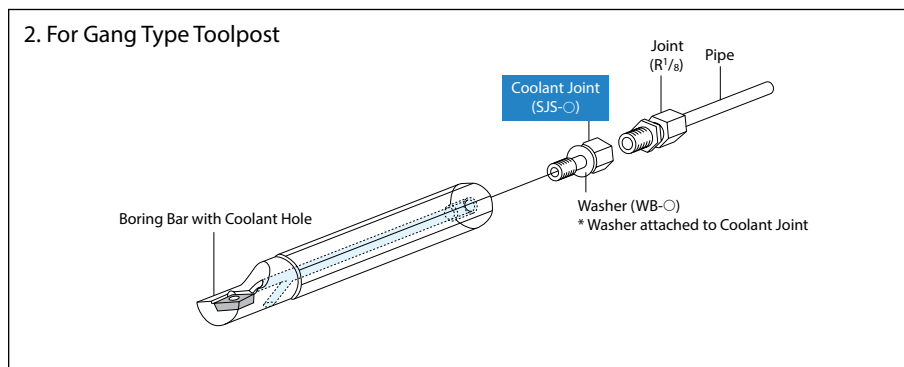
How to Install



Coolant Joint Dimensions *This coolant joint is not applicable for Dynamic Bars

Thread (Toolholder Side)	Washer (Accessory)	Thread (Joint Side)	Unit	Part Number	Std. Item	Dimensions				Thread (Toolholder Side)	Thread (Joint Side)	Spare Parts	
						D	L1	L2	H			Washer	
			mm	SJS-5	●	15	15	7	13	M5XP0.8	Rc1/8 (PT1/8)	WB-5	
				SJS-6	●	15	15	9	13	M6XP1.0		WB-6	
				SJS-8	●	15	15	13	13	M8XP1.25		WB-8	

List of Toolholders and Applicable Joints



Toolholder Part Number	Applicable Coolant Joint
A08-----○○E	SJS-5
A10-----○○E	
A12-----○○E	
A16-----○○E	SJS-6
A20-----○○E	
A25-----○○E	
E08-----○○	SJS-8
E10-----○○	
E12-----○○	
E16-----○○	SJS-5
E20-----○○	
	SJS-6
	SJS-8

* This Coolant Joint is not applicable for Dynamic Bar

SHA / SH / SHC Sleeves and Applicable Toolholders

Shank Size (Hole Dia. : mm)	04 (4mm)	05 (5mm)	06 (6mm)	07 (7mm)	08 (8mm)	10 (10mm)	12 (12mm)	16 (16mm)	20 (20mm)	25 (25mm)
Sleeve Part Number	SH0416-100	SH0516-100	SH0616-100	SH0716-100	SH0820-120	SH1020-120	SH1225-150	SH1632-180	SH2032-180	
					SHA0819-120	SHA1019-120				
					SHA0820-120	SHA1020-120				
					SHA0822-125	SHA1022-125	SHA1222-125			
					SHA0823-120	SHA1023-120	SHA1223-120			
					SHA0825.0-135	SHA1025.0-135	SHA1225.0-135			
					SHA0825.4-120	SHA1025.4-120	SHA1225.4-120			
					SHC0840-70	SHC1040-70	SHC1240-70	SHC1640-70	SHC2040-70	SHC2540-70
Boring Bars Part Number					SHC0850-95	SHC1050-95	SHC1250-95	SHC1650-95	SHC2050-95	SHC2550-95
	C04-----	C05-----	C06-----	C07-----	A08-----	A10-----	A12-----	A16-----	A20-----	A25-----
					E08-----	E10-----	E12-----	E16-----	E20-----	E25-----
			S06-----		S08-----	S10-----	S12-----	S16-----	S20-----	S25-----
Internal Grooving Toolholder Part Number			SIGC% 0806-WH		SIGC% 1008-WH-L85	SIGCR1210-WH-L95	SIGC% 0812-EH	SIGC% 1016-EH		
					SIGCR1008-WH-L100	SIGC% 1210-WH-L110		SIGC% 1216-EH		
					SIGE% 0808A-EH	SIGE% 1010B-EH	SIGE% 1412C-EH	SIGE% 1616C-EH	SIGE% 2020D-EH	SIGE% 2525E-EH
						SIGE% 1210B-EH	SIGE% 1612C-EH			KIGBA% 3525-16
					SIGE% 0808A-WH	SIGE% 1010B-WH	SIGE% 1412C-WH	KGDI% ...16B-	KGDI% 2520B-	KGDI% 3225B-
						SIGE% 1210B-WH	SIGE% 1612C-WH			
					SIGER1008B-WH-90	SIGER1210B-WH-90	SIGER1412C-WH-90			
							GIV% 1412-1SE	GIV% 1216-1SS	GIV% 1420-1S	GIV% 2025-1B
							GIV% 1612-1AE	GIV% 2016-1BE	GIV% 1620-1A	GIV% 2025-2B
								GIV% 2016-2BE	GIV% 2520-1CE	GIV% 3225-1CE
Internal Threading Toolholder Part Number								GIV% 1616-1AW	GIV% 2720-2CE	GIV% 3225-2CE
									GIV% 2020-1BW	GIV% 2525-1CW
									GIV% 2020-2BW	GIV% 2525-2CW
							SINR0612S-06E	SINR0816S-08E	SIN% 2420S-16	CIN% 3025S-16
								SIN% 1216S-11E	SINR2420S-22	CINR3025S-22
								SIN% 1516S-11		
								SIN% 1616S-16		
								SIN% 2016S-16		

For SHA sleeves, see page [F171](#)

For SL / SH / SHC sleeves, see page [F172](#)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Boring: (Positive Insert) - Cutting Diameter under ø0.394" (ø10mm)

[D.O.C. Indicates Radius]

ISO Class	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit		
								Vc (sfm)	D.O.C. (in)	f (ipr)
P*	Low-Carbon Steel Low-Carbon Alloy	HB ≤ 300	Finishing (Solid Bar)	Continuous Interruption	EZB-F EZB-H	PR1725	0.002	100 - 230 - 360	0.002 - 0.004 - 0.008	0.0004 - 0.0016 - 0.0028
							0.006	100 - 200 - 300	0.002 - 0.004 - 0.008	0.0012 - 0.0028 - 0.0039
			Finishing	Continuous Interruption	F	PR1725	0.004	130 - 260 - 390	0.002 - 0.003 - 0.004	0.0012 - 0.0020 - 0.0028
							0.008	130 - 230 - 330	0.002 - 0.004 - 0.006	0.0012 - 0.0028 - 0.0039
			Finishing-Medium	Continuous Interruption	CF	PR1725	0.004	130 - 260 - 390	0.002 - 0.006 - 0.010	0.0012 - 0.0020 - 0.0028
							0.008	130 - 230 - 330	0.002 - 0.006 - 0.010	0.0012 - 0.0028 - 0.0039
	Medium-Carbon Steel Medium-Carbon Alloy	HB ≤ 300	Finishing (Solid Bar)	Continuous Interruption	EZB-F EZB-H	PR1725	0.002	100 - 230 - 360	0.002 - 0.004 - 0.008	0.0004 - 0.0016 - 0.0028
							0.006	100 - 200 - 300	0.002 - 0.004 - 0.008	0.0012 - 0.0028 - 0.0039
			Finishing	Continuous Interruption	F	PR1725	0.004	130 - 260 - 390	0.002 - 0.003 - 0.004	0.0012 - 0.0020 - 0.0028
							0.008	130 - 230 - 390	0.002 - 0.004 - 0.006	0.0012 - 0.0028 - 0.0039
			Finishing-Medium	Continuous Interruption	CF	PR1725	0.004	130 - 260 - 390	0.002 - 0.006 - 0.010	0.0012 - 0.0020 - 0.0028
							0.008	130 - 230 - 330	0.002 - 0.006 - 0.010	0.0012 - 0.0028 - 0.0039
	High-Carbon Alloy	HB ≤ 280	Finishing (Solid Bar)	Continuous Interruption	EZB-F EZB-H	PR1725	0.002	100 - 230 - 360	0.002 - 0.004 - 0.008	0.0004 - 0.0016 - 0.0028
							0.006	100 - 200 - 300	0.002 - 0.004 - 0.008	0.0012 - 0.0028 - 0.0039
			Finishing	Continuous Interruption	F	PR1725	0.004	130 - 260 - 390	0.002 - 0.003 - 0.004	0.0012 - 0.0020 - 0.0028
							0.008	130 - 230 - 330	0.002 - 0.004 - 0.006	0.0012 - 0.0028 - 0.0039
			Finishing-Medium	Continuous Interruption	CF	PR1725	0.004	130 - 260 - 390	0.002 - 0.006 - 0.010	0.0012 - 0.0020 - 0.0028
							0.008	130 - 230 - 330	0.002 - 0.006 - 0.010	0.0012 - 0.0028 - 0.0039
M	Stainless Steel	HB ≤ 220	Finishing (Solid Bar)	Continuous Interruption	EZB-F EZB-H	PR1725	0.002	100 - 200 - 260	0.002 - 0.004 - 0.008	0.0004 - 0.0012 - 0.0020
							0.006	100 - 200 - 260	0.002 - 0.004 - 0.008	0.0008 - 0.0020 - 0.0028
			Finishing	Continuous Interruption	F	PR1225 PR1535	0.004	100 - 200 - 260	0.002 - 0.003 - 0.004	0.0012 - 0.0020 - 0.0028
							0.008	100 - 200 - 260	0.002 - 0.004 - 0.006	0.0012 - 0.0028 - 0.0039
			Finishing-Medium	Continuous Interruption	CF	PR1225 PR1535	0.004	100 - 200 - 260	0.002 - 0.006 - 0.010	0.0012 - 0.0020 - 0.0028
							0.008	100 - 200 - 260	0.002 - 0.006 - 0.010	0.0012 - 0.0028 - 0.0039
	Stainless Steel	HB ≤ 300	Finishing (Solid Bar)	Continuous Interruption	EZB-F EZB-H	PR1725	0.002	100 - 200 - 260	0.002 - 0.004 - 0.008	0.0004 - 0.0012 - 0.0020
							0.006	100 - 200 - 260	0.002 - 0.004 - 0.008	0.0008 - 0.0020 - 0.0028
			Finishing	Continuous Interruption	F	PR1225 PR1535	0.004	100 - 200 - 260	0.002 - 0.003 - 0.004	0.0012 - 0.0020 - 0.0028
							0.008	100 - 200 - 260	0.002 - 0.004 - 0.006	0.0012 - 0.0028 - 0.0039
			Finishing-Medium	Continuous Interruption	CF	PR1225 PR1535	0.004	100 - 200 - 260	0.002 - 0.006 - 0.010	0.0012 - 0.0020 - 0.0028
							0.008	100 - 200 - 260	0.002 - 0.006 - 0.010	0.0012 - 0.0028 - 0.0039
K	Gray Cast Iron	HB ≤ 250	Finishing (Solid Bar)	Continuous Interruption	(VNB) (VNB-NB)	KW10	0.001	100 - 200 - 330	0.002 - 0.003 - 0.004	0.0012 - 0.0020 - 0.0028
							0.008	100 - 200 - 330	0.002 - 0.004 - 0.006	0.0012 - 0.0028 - 0.0039
			Finishing	Continuous Interruption	F	KW10	0.004	100 - 200 - 330	0.002 - 0.003 - 0.004	0.0012 - 0.0020 - 0.0028
							0.008	100 - 200 - 260	0.002 - 0.004 - 0.006	0.0012 - 0.0028 - 0.0039
			Finishing-Medium	Continuous Interruption	Without Chipbreaker	KW10	0.008	100 - 200 - 330	0.004 - 0.008 - 0.012	0.0012 - 0.0020 - 0.0028
							1/64	100 - 200 - 260	0.004 - 0.008 - 0.012	0.0012 - 0.0028 - 0.0039
	Nodular Cast Iron	HB ≤ 270	Finishing (Solid Type)	Continuous Interruption	(VNB) (VNB-NB)	KW10	0.001	100 - 200 - 260	0.002 - 0.003 - 0.004	0.0012 - 0.0020 - 0.0028
							0.008	100 - 200 - 260	0.002 - 0.004 - 0.006	0.0012 - 0.0028 - 0.0039
			Finishing	Continuous Interruption	F, U	KW10	0.004	100 - 200 - 260	0.002 - 0.003 - 0.004	0.0012 - 0.0020 - 0.0028
							0.008	100 - 200 - 260	0.002 - 0.004 - 0.006	0.0012 - 0.0028 - 0.0039
			Finishing-Medium	Continuous Interruption	Without Chipbreaker	KW10	0.008	100 - 200 - 330	0.004 - 0.008 - 0.012	0.0012 - 0.0020 - 0.0028
							1/64	100 - 200 - 260	0.004 - 0.008 - 0.012	0.0012 - 0.0028 - 0.0039
N	Non-Ferrous Metals Copper Alloy Aluminum Aluminum Alloy	HB ≤ 100	High Speed Finishing (Surface Finish Oriented)	Continuous	Without Chipbreaker	KPD001	0.002	490 - 660 - 980	0.002 - 0.004 - 0.012	0.0020 - 0.0039 - 0.0059
			Finishing (Long Tool Life)	Continuous Interruption	F, U	PDL025	0.004	330 - 490 - 660	0.002 - 0.012 - 0.020	0.0012 - 0.0039 - 0.0079
							0.008	330 - 490 - 660	0.002 - 0.012 - 0.020	0.0012 - 0.0039 - 0.0079
			Finishing	Continuous Interruption	F, U	KW10	0.004	330 - 490 - 660	0.002 - 0.012 - 0.020	0.0012 - 0.0039 - 0.0079
							0.008	330 - 490 - 660	0.002 - 0.012 - 0.020	0.0012 - 0.0039 - 0.0079
S	Titanium Alloy	HB ≤ 400	Precision Finishing (Surface Finish Oriented)	Continuous Interruption	Without Chipbreaker	KPD001	0.004	330 - 390 - 490	0.002 - 0.004 - 0.012	0.0012 - 0.0028 - 0.0039
							0.008	230 - 330 - 390	0.002 - 0.004 - 0.012	0.0012 - 0.0028 - 0.0039
			Finishing	Continuous Interruption	F, U	KW10	0.004	70 - 130 - 200	0.002 - 0.008 - 0.020	0.0012 - 0.0039 - 0.0079
							0.008	70 - 130 - 200	0.002 - 0.008 - 0.020	0.0012 - 0.0039 - 0.0079
	Heat-Resistant Alloys	HB ≤ 350	Finishing (Solid Bar)	Continuous Interruption	(VNB)	KW10	0.008	30 - 100 - 160	0.002 - 0.004 - 0.012	0.0012 - 0.0020 - 0.0039
							0.008	30 - 100 - 160	0.002 - 0.004 - 0.012	0.0012 - 0.0020 - 0.0039
H	Hardened Steel Hardened Materials	40 ~ 50 HRC	Finishing	Continuous Interruption	(VNB)	PR930	0.008	100 - 160 - 230	0.002 - 0.004 - 0.016	0.0004 - 0.0008 - 0.0020
							0.008	100 - 160 - 230	0.002 - 0.004 - 0.008	0.0004 - 0.0008 - 0.0012
							0.008	200 - 330 - 460	0.002 - 0.004 - 0.008	0.0008 - 0.0020 - 0.0039
		45 ~ 68 HRC	Finishing	Continuous Interruption	ME MES	KBN010	1/64	200 - 260 - 390	0.002 - 0.004 - 0.008	0.0008 - 0.0020 - 0.0039

* For machining free-cutting steels, use PR1725 at Vc = 490 sfm or less.

For D.O.C. and f, refer to specs for low carbon steels.

Recommended Cutting Conditions

Boring: (Positive Insert) - Cutting Diameter over $\phi 0.394"$ ($\phi 10\text{mm}$)

[D.O.C. Indicates Radius]

ISO Class	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit		
								Vc (sfm)	D.O.C. (in)	f (ipr)
P*	Low-Carbon Steel Low-Carbon Alloy	HB ≤ 300	Precision Finishing	Continuous Interruption	F, U	TN620 PR1725	0.004 0.008	820 - 980 - 1150 390 - 560 - 720	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008	0.0004 - 0.0016 - 0.0028 0.0012 - 0.0028 - 0.0039
			Finishing	Continuous Interruption	XP	PV710 CA125P	0.016 0.016	660 - 820 - 980 490 - 660 - 820	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
			Finishing-Medium	Continuous Interruption	XQ	PV710 CA125P	0.016 0.016	490 - 660 - 820 330 - 490 - 660	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
			Medium	Continuous Interruption	Standard	PV720 CA125P	0.032 0.032	330 - 490 - 660 260 - 390 - 490	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
	Medium-Carbon Steel Medium-Carbon Alloy	HB ≤ 300	Precision Finishing	Continuous Interruption	F, U	TN620 PR1725	0.008 0.016	490 - 660 - 820 390 - 460 - 560	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
			Finishing	Continuous Interruption	PP	PV710 CA125P	0.016 0.016	490 - 660 - 820 390 - 590 - 660	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
			Finishing-Medium	Continuous Interruption	HQ	PV710 CA125P	0.016 0.016	390 - 590 - 720 330 - 490 - 660	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
			Medium	Continuous Interruption	Standard	PV720 CA125P	0.032 0.032	330 - 490 - 660 260 - 390 - 490	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
	High-Carbon Alloy	HB ≤ 280	Precision Finishing	Continuous Interruption	F, U	TN620 PR1725	0.008 0.016	390 - 490 - 590 360 - 430 - 520	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008	0.0004 - 0.0016 - 0.0028 0.0012 - 0.0028 - 0.0039
			Finishing	Continuous Interruption	PP	PV710 CA125P	0.016 0.016	390 - 490 - 590 330 - 390 - 490	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
			Finishing-Medium	Continuous Interruption	HQ	PV710 CA125P	0.016 0.016	390 - 490 - 590 330 - 390 - 490	0.002 - 0.006 - 0.010 0.002 - 0.006 - 0.010	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
			Medium	Continuous Interruption	Standard	CA515 CA125P	0.032 0.032	330 - 390 - 490 260 - 330 - 390	0.002 - 0.006 - 0.010 0.002 - 0.006 - 0.010	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
M	Stainless Steel	HB ≤ 220	Finishing	Continuous Interruption	MQ	CA6525 PR1535	0.016 0.032	390 - 490 - 590 330 - 390 - 490	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008	0.0004 - 0.0012 - 0.0020 0.0008 - 0.0020 - 0.0028
			Medium	Continuous Interruption	Standard	CA6525 PR1535	0.016 0.032	390 - 490 - 590 330 - 390 - 490	0.002 - 0.006 - 0.010 0.002 - 0.006 - 0.010	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
	Stainless Steel	HB ≤ 300	Finishing	Continuous Interruption	MQ	CA6525 PR1535	0.016 0.032	260 - 330 - 390 200 - 260 - 330	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008	0.0004 - 0.0012 - 0.0020 0.0008 - 0.0020 - 0.0028
			Medium	Continuous Interruption	Standard	CA6525 PR1535	0.016 0.032	260 - 330 - 390 200 - 260 - 330	0.002 - 0.006 - 0.010 0.002 - 0.006 - 0.010	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
K	Gray Cast Iron	HB ≤ 250	High Speed Machining	Continuous Interruption	Without Chipbreaker	KBN475 PT600M	0.016 0.032	1310 - 1640 - 1970 660 - 820 - 1150	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
			Finishing (Surface Finish Oriented)	Continuous Interruption	Standard	PV7005 TN620	0.032 0.032	660 - 820 - 980 390 - 590 - 750	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
			Finishing	Continuous Interruption	Standard	CA410K CA415K	0.016 0.032	490 - 940 - 1550 400 - 730 - 1060	0.004 - 0.008 - 0.012 0.004 - 0.008 - 0.012	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
			Medium	Continuous Interruption	Standard	CA410K CA415K	0.032 0.032	330 - 780 - 1550 310 - 580 - 880	0.004 - 0.008 - 0.012 0.004 - 0.008 - 0.012	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
	Nodular Cast Iron	HB ≤ 270	High Speed Machining	Continuous Interruption	Without Chipbreaker	KBN60M PT600M	0.016 0.032	660 - 980 - 1310 490 - 660 - 820	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
			Finishing (Surface Finish Oriented)	Continuous Interruption	Standard	PV7005 TN620	0.032 0.032	490 - 660 - 820 390 - 490 - 660	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
			Finishing	Continuous Interruption	Standard	CA410K CA415K	0.016 0.032	530 - 850 - 1180 410 - 540 - 780	0.004 - 0.008 - 0.012 0.004 - 0.008 - 0.012	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
			Medium	Continuous Interruption	Standard	CA410K CA415K	0.032 0.032	440 - 680 - 980 330 - 460 - 620	0.004 - 0.008 - 0.012 0.004 - 0.008 - 0.012	0.0012 - 0.0020 - 0.0028 0.0012 - 0.0028 - 0.0039
N	Non-Ferrous Metals Copper Alloy Aluminum Aluminum Alloy	HB ≤ 100	High Speed Finishing (Surface Finish Oriented)	Continuous	Without Chipbreaker	KPD001	0.008	660 - 1310 - 3280	0.002 - 0.004 - 0.012	0.0020 - 0.0039 - 0.0059
			Finishing (Long Tool Life)	Continuous Interruption	F, U	PDL025	0.016 0.016	330 - 660 - 1310 330 - 660 - 1310	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.0012 - 0.0039 - 0.0079 0.0012 - 0.0039 - 0.0079
			Finishing	Continuous Interruption	F, U	KW10	0.016 0.016	330 - 660 - 1310 330 - 660 - 1310	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.0012 - 0.0039 - 0.0079 0.0012 - 0.0039 - 0.0079
			Finishing	Continuous Interruption	F, U	KW10	0.016 0.016	330 - 660 - 1310 330 - 660 - 1310	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.0012 - 0.0039 - 0.0079 0.0012 - 0.0039 - 0.0079
S	Titanium Alloy	HB ≤ 400	Precision Finishing (Surface Finish Oriented)	Continuous Interruption	Without Chipbreaker	KPD001	0.008 0.016	330 - 390 - 490 230 - 330 - 390	0.002 - 0.004 - 0.012 0.002 - 0.004 - 0.012	0.0012 - 0.0028 - 0.0039 0.0012 - 0.0028 - 0.0039
			Finishing	Continuous Interruption	F, U	KW10	0.008 0.016	100 - 160 - 230 100 - 160 - 230	0.002 - 0.008 - 0.020 0.002 - 0.008 - 0.020	0.0012 - 0.0039 - 0.0079 0.0012 - 0.0039 - 0.0079
	Heat-Resistant Alloys	HB ≤ 350	Finishing	Continuous Interruption	F, U	KW10	0.016 0.016	30 - 100 - 160 30 - 100 - 160	0.002 - 0.004 - 0.012 0.002 - 0.004 - 0.012	0.0012 - 0.0020 - 0.0039 0.0012 - 0.0020 - 0.0039
			Finishing	Continuous Interruption	MQ	PR1155	0.016 0.032	130 - 200 - 260 130 - 200 - 260	0.002 - 0.008 - 0.016 0.002 - 0.008 - 0.016	0.0012 - 0.0020 - 0.0039 0.0012 - 0.0020 - 0.0039
H	Hardened Steel Hardened Materials	40 ~ 50 HRC	Finishing	Continuous Interruption	HQ Standard	CA515	0.032 0.032	200 - 260 - 330 100 - 160 - 230	0.002 - 0.004 - 0.016 0.002 - 0.004 - 0.008	0.0004 - 0.0008 - 0.0020 0.0004 - 0.0008 - 0.0012
		45 ~ 68 HRC	Finishing	Continuous Interruption	ME MET	KBN010 KBN015	0.016 0.032	330 - 460 - 590 300 - 390 - 520	0.002 - 0.008 - 0.016 0.002 - 0.008 - 0.016	0.0012 - 0.0020 - 0.0039 0.0012 - 0.0020 - 0.0039
			Medium	Continuous	Without Chipbreaker (Negative)	KBN900	0.032	200 - 260 - 330	0.002 - 0.004 - 0.008	0.0008 - 0.0020 - 0.0039

* For machining free-cutting steels:

Use PR1725 when machining Vc = 660 sfm or less

Use PV720 or CA515 when machining Vc = 660 or more

For D.O.C. and f, refer to specs for low carbon steels.

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KGD Grooving (External Grooving and Traversing)

· Integral Type

Type	KGD
Edge Width	0.079" ~ 0.315" (2.00mm ~ 8.00mm)
Max. Grooving Depth	0.236" ~ 1.181" (6.00mm ~ 30.00mm)
Ref. Page	G44

· Integral Type (Coolant-Through Holders)

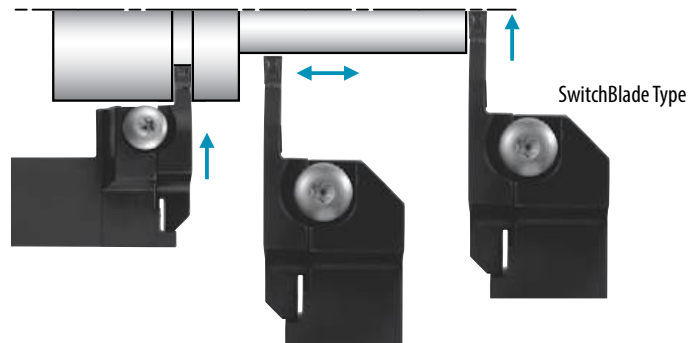
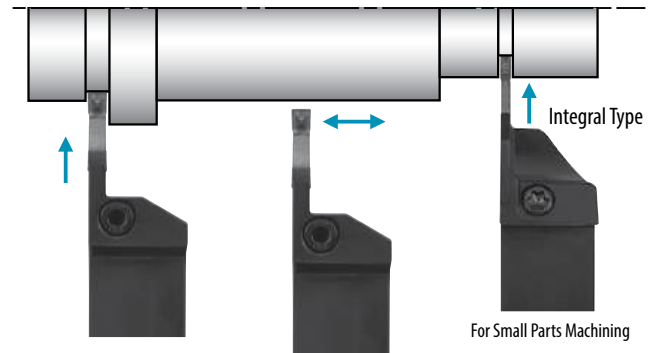
Type	KGD-JCT
Edge Width	0.118" ~ 0.157" (3.00mm ~ 5.00mm)
Max. Grooving Depth	0.787" ~ 1.000" (6.00mm ~ 25.00mm)
Ref. Page	G48

· Integral Type for Small Parts

Type	KGD
Edge Width	0.079" ~ 0.157" (2.00mm ~ 4.00mm)
Max. Grooving Depth	0.394" ~ 0.827" (10.00mm ~ 25.5mm)
Ref. Page	G46

· Integral Type for Small Parts (Coolant-Through Holders)

Type	KGD-JCTM
Edge Width	0.079" ~ 0.157" (2.00mm ~ 4.00mm)
Max. Grooving Depth	0.472" ~ 0.630" (12.00mm ~ 16.00mm)
Ref. Page	G51



· SwitchBlade 90°

Type	*KGD-S
Edge Width	0.079" ~ 0.197" (2.00mm ~ 5.00mm)
Max. Grooving Depth	0.394" ~ 0.984" (10.00mm ~ 25.00mm)
Ref. Page	G54

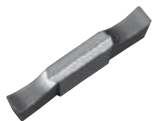
* The SwitchBlade Type toolholders can accept all the blades if their hand is matching.

· SwitchBlade 0°

Type	*KGD-S
Edge Width	0.079" ~ 0.197" (2.00mm ~ 5.00mm)
Max. Grooving Depth	0.394" ~ 0.984" (10.00mm ~ 25.00mm)
Ref. Page	G52

* The SwitchBlade Type toolholders can accept all the blades if their hand is matching.

Low cutting force
GS



Low feed
GL



General purpose
GM



High feed
PH



Copying
CM



Shallow Grooving (Grooving Depth: ~0.197" / 5mm)



Type	KGBAS	KGBA (-JCT)
Edge Width	0.031" ~ 0.189" (0.33mm ~ 4.80mm)	0.031" ~ 0.189" (0.33mm ~ 4.80mm)
Max. Grooving Depth	0.032" ~ 0.197" (0.80mm ~ 5.00mm)	0.032" ~ 0.197" (0.80mm ~ 5.00mm)
Ref. Page	G14	G13, G15

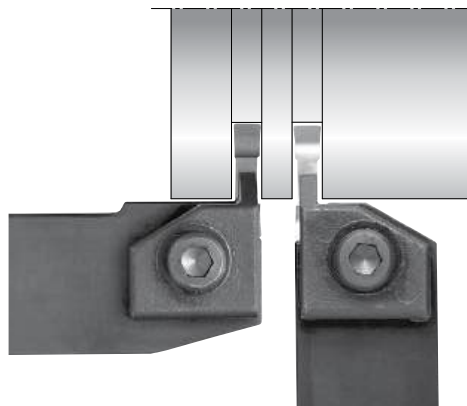


	General (Square)	Full-R (Round)	GM Chipbreaker
Edge Shape			

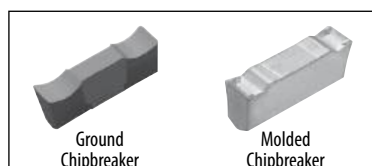
KKC
0.031" ~ 0.250"
0.050" ~ 0.250"
G65



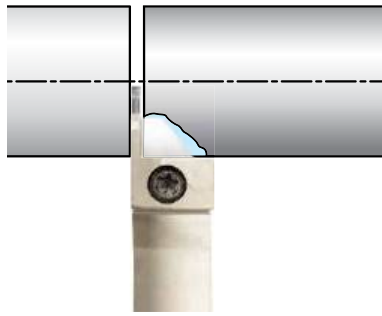
Deep Grooving (Grooving Depth: ~0.984" / 25mm)



Type	KGHS	KGH
Edge Width	0.157" ~ 0.315" (4.00mm ~ 8.00mm)	0.157" ~ 0.472" (4.00mm ~ 12.00mm)
Max. Grooving Depth	0.512" (13.00mm)	0.512" ~ 0.669" (13.00mm ~ 17.00mm)
Ref. Page	G68	G67



External Grooving of Precision Parts (Small Part Machining)



KGZ Grooving Inserts

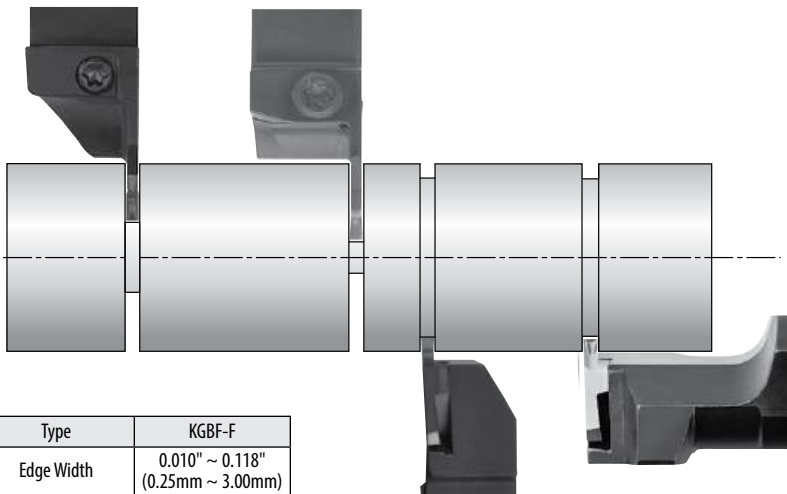


Type	KGZ
Edge Width	0.079" ~ 0.118" (2.00mm ~ 3.00mm)
Max. Grooving Depth	0.394" ~ 0.827" (10.00mm ~ 25.5mm)
Ref. Page	G32

Type	KGZ-JCTM
Edge Width	0.079" ~ 0.118" (2.00mm ~ 3.00mm)
Max. Grooving Depth	0.472" ~ 0.630" (12.00mm ~ 16.00mm)
Ref. Page	G30

Type	KGD
Edge Width	0.079" ~ 0.157" (2.00mm ~ 4.00mm)
Max. Grooving Depth	0.394" ~ 0.827" (10.00mm ~ 21.00mm)
Ref. Page	G46

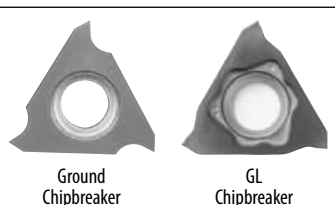
Type	KGD-JCTM
Edge Width	0.079" ~ 0.157" (2.00mm ~ 4.00mm)
Max. Grooving Depth	0.472" ~ 0.630" (12.00mm ~ 16.00mm)
Ref. Page	G51



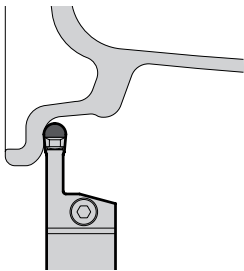
Type	KGBF-F
Edge Width	0.010" ~ 0.118" (0.25mm ~ 3.00mm)
Max. Grooving Depth	0.024" ~ 0.118" (0.60mm ~ 3.00mm)
Ref. Page	G21

Type	KGBFS	KGBF-JCTM
Edge Width	0.010" ~ 0.118" (0.25mm ~ 3.00mm)	0.010" ~ 0.118" (0.25mm ~ 3.00mm)
Max. Grooving Depth	0.024" ~ 0.118" (0.60mm ~ 3.00mm)	0.024" ~ 0.118" (0.60mm ~ 3.00mm)
Ref. Page	G23	G22

Type	S-KGBF
Edge Width	0.010" ~ 0.118" (0.25mm ~ 3.00mm)
Max. Grooving Depth	0.024" ~ 0.118" (0.60mm ~ 3.00mm)
Ref. Page	G24



External Grooving of Aluminum Wheels (External / Facing / Copying)

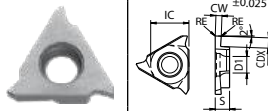


Type	KGMW
Edge Width	0.236" ~ 0.315" (6.00mm ~ 8.00mm)
Max. Grooving Depth	0.984" (25.00mm)
Ref. Page	G72



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

GBA32

Insert Size		IC		S		D1		Carbon Steel / Alloy Steel										P								
		in	mm	in	mm	in	mm	Stainless Steel										M								
GBA32...		3/8	9.525	1/8	3.18	0.173	4.4	Cast Iron										K								
								Non-Ferrous Metals										N								
								Titanium Alloy										S								
								Hard Materials (~ 40HRC)										H								
								Hard Materials (40HRC ~)																		
Insert		Part Number		No. of Edges	Dimensions (mm)							Tolerance (mm)		Carbide				Cermet		Applicable Toolholder G13~G15 G89						
					CW		CDX	IC	S	D1	RE	CW min.	CW max.	PVD			- KW10	PVD PV7040	- TN90							
					in	mm								PR2015	PR2025	PR1215					PR1625					
		GBA32R 033-005		3	0.013	0.33	0.8	9.525	3.18	4.4	0.05	-0.03	+0.02	●	●	○	○	○	●	●	●	●				
		050-005*			0.020	0.50	1 1.2				0.05	0	+0.05	●	●	○	○	○	●	●	●	●				
		075-005			0.030	0.75	2				0.05	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		095-005			0.037	0.95	2				0.05	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		100-005			0.039	1.00	2				0.05	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		110-005			0.043	1.10	2				0.05	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		120-005			0.047	1.20	2				0.05	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		125-020			0.049	1.25	2				0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		130-020			0.051	1.30	2				0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		140-020			0.055	1.40	2.5				0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		145-020*			0.057	1.45	2 2.5				0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		150-020*			0.059	1.50	2 2.5				0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		160-020			0.063	1.60	2.5				0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		170-020			0.067	1.70	2.5				0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		175-020*			0.069	1.75	2 2.5				0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		200-020			0.079	2.00	2.5				0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		225-020			0.089	2.25	2.5				0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		250-020			0.098	2.50	2.5				0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		300-020			0.118	3.00	2.5				0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●				
		GBA32L 033-005			0.013	0.33	0.8				3	9.525	3.18	4.4	0.05	-0.03	+0.02	●	●	○	○	○	●	●	●	●
		050-005*			0.020	0.50	1 1.2								0.05	0	+0.05	●	●	○	○	○	●	●	●	●
		075-005			0.030	0.75	2								0.05	-0.025	+0.025	●	●	○	○	○	●	●	●	●
		095-005			0.037	0.95	2								0.05	-0.025	+0.025	●	●	○	○	○	●	●	●	●
		100-005			0.039	1.00	2								0.05	-0.025	+0.025	●	●	○	○	○	●	●	●	●
		110-005			0.043	1.10	2								0.05	-0.025	+0.025	●	●	○	○	○	●	●	●	●
		120-005			0.047	1.20	2								0.05	-0.025	+0.025	●	●	○	○	○	●	●	●	●
		125-020			0.049	1.25	2								0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●
		130-020			0.051	1.30	2								0.2	-0.025	+0.025	●	●	○	○	○	●	●	●	●
140-020		0.055	1.40	2.5	0.2	-0.025	+0.025	●	●	○					○	○	●	●	●	●						
145-020*		0.057	1.45	2 2.5	0.2	-0.025	+0.025	●	●	○					○	○	●	●	●	●						
150-020*		0.059	1.50	2 2.5	0.2	-0.025	+0.025	●	●	○					○	○	●	●	●	●						
160-020		0.063	1.60	2.5	0.2	-0.025	+0.025	●	●	○					○	○	●	●	●	●						
170-020		0.067	1.70	2.5	0.2	-0.025	+0.025	●	●	○					○	○	●	●	●	●						
175-020*		0.069	1.75	2 2.5	0.2	-0.025	+0.025	●	●	○					○	○	●	●	●	●						
200-020		0.079	2.00	2.5	0.2	-0.025	+0.025	●	●	○					○	○	●	●	●	●						
225-020		0.089	2.25	2.5	0.2	-0.025	+0.025	●	●	○					○	○	●	●	●	●						
250-020		0.098	2.50	2.5	0.2	-0.025	+0.025	●	●	○					○	○	●	●	●	●						
300-020		0.118	3.00	2.5	0.2	-0.025	+0.025	●	●	○					○	○	●	●	●	●						

Right-hand shown

CDX shows available grooving depth.

*CDX dimension is different based on grade.

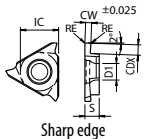
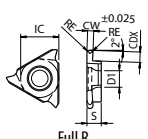
Recommended Cutting Conditions G153

GBA Inserts are
sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

GBA32

Insert Size							Carbon Steel / Alloy Steel										P							
IC							Stainless Steel										M							
S							Cast Iron										K							
D1							Non-Ferrous Metals										N							
in							Titanium Alloy										S							
mm							Hard Materials (~ 40HRC)										H							
GBA32...							Hard Materials (40HRC ~)																	
Insert		Part Number		No. of Edges	Dimensions (mm)								Tolerance (mm)		Carbide		Cermet	PCD	Applicable Toolholder G13~G15 G89					
					CW		CDX	IC	S	D1	RE	LE	CW min.	CW max.	PVD		-	-						
					in	mm									PR2015	PR2025				PR1215	PR1625	TN620	KPD001	KPD010
		GBA32R	050-005F	0.020	0.5	1	9.525	3.18	4.4	0.05	-	0	+ 0.05							KGBAR...3 KGBAR...16 KGBAR...16JCT KGBASL...3 KGBASL...16 KIGBAL...3 KIGBAL...16				
			075-005F	0.030	0.75	2				0.05		- 0.025	+ 0.025											
			095-005F	0.037	0.95	2				0.05		- 0.025	+ 0.025											
			100-005F	0.039	1	2				0.05		- 0.025	+ 0.025											
			125-020F	0.049	1.25	2				0.2		- 0.025	+ 0.025											
			145-020F	0.057	1.45	2				0.2		- 0.025	+ 0.025											
			150-020F	0.059	1.5	2				0.2		- 0.025	+ 0.025											
			175-020F	0.069	1.75	2				0.2		- 0.025	+ 0.025											
			200-020F	0.079	2	2.5				0.2		- 0.025	+ 0.025											
		250-020F	0.098	2.5	2.5	0.2	- 0.025	+ 0.025																
		GBA32L	050-005F	0.020	0.5	1	0.05	0	+ 0.05											KGBAL...3 KGBAL...16 KGBAL...16JCT KGBASL...3 KGBASL...16 KIGBAL...3 KIGBAL...16				
			075-005F	0.030	0.75	2	0.05	- 0.025	+ 0.025															
			095-005F	0.037	0.95	2	0.05	- 0.025	+ 0.025															
			100-005F	0.039	1	2	0.05	- 0.025	+ 0.025															
			125-020F	0.049	1.25	2	0.2	- 0.025	+ 0.025															
			145-020F	0.057	1.45	2	0.2	- 0.025	+ 0.025															
			150-020F	0.059	1.5	2	0.2	- 0.025	+ 0.025															
			175-020F	0.069	1.75	2	0.2	- 0.025	+ 0.025															
			200-020F	0.079	2	2.5	0.2	- 0.025	+ 0.025															
250-020F	0.098		2.5	2.5	0.2	- 0.025	+ 0.025																	
		GBA32R	200-100R	0.079	2	2.5	9.525	3.18	4.4	1	-	- 0.025	+ 0.025						KGBAR...3 KGBAR...16 KGBAR...16JCT KGBASL...3 KGBASL...16 KIGBAL...3 KIGBAL...16					
			300-150R	0.118	3					1.5														
				GBA32R	125-010	0.049	1.25	2	9.525	3.18	4.4	0.1	1.7	- 0.03	+ 0.03						KGBAR...3 KGBAR...16 KGBAR...16JCT KGBASL...3 KGBASL...16 KIGBAL...3 KIGBAL...16			
150-010	0.059				1.5	2																		
200-010	0.079				2	2.5																		

Right-hand shown
CDX shows available grooving depth.

Recommended Cutting Conditions G153

CBN & PCD Inserts are
sold in 1 piece boxes

Insert Size		IC		S		D1		Carbon Steel / Alloy Steel				P															
		in	mm	in	mm	in	mm	Stainless Steel				M															
GBA43...		1/2	12.7	3/16	4.76	0.217	5.5	Cast Iron				K															
GBA43R480...		1/2	12.7	0.197	5.00	0.217	5.5	Non-Ferrous Metals				N															
								Titanium Alloy				S															
								Hard Materials (~ 40HRC)				H															
								Hard Materials (40HRC ~)																			
Insert		Part Number						No. of Edges		Dimensions (mm)						Tolerance (mm)		Carbide			Cermet		Applicable Toolholder G13~G15 G89				
										CW		CDX	IC	S	D1	RE	CW min.	CW max.	PVD			- KW10			PV7040	- TiN90	
										in	mm								PR2015	PR2025	PR1215						PR1625
				GBA43R		125-010	0.049	1.25	2	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●								
						125-020	0.049	1.25	2	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●			●	●				
						140-020	0.055	1.4	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●								
						145-020*	0.057	1.45	2 3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●			●	●				
						150-010	0.059	1.5	3.5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●								
						150-020	0.059	1.5	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●			●	●				
						170-020	0.067	1.7	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●								
						175-020	0.069	1.75	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●			●	●				
						185-020	0.073	1.85	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●					●			
						195-020	0.077	1.95	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●								
						200-010	0.079	2	3.5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●								
						200-020	0.079	2	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●			●	●				
						225-020	0.089	2.25	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●								
						230-020	0.091	2.3	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●			●	●				
						250-010	0.098	2.5	5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●							*1	
						250-030*	0.098	2.5	4 5	12.7	4.76	5.5	0.3	-0.025	+0.025	●	●	●	●			●	●				
						265-030*	0.104	2.65	4 5	12.7	4.76	5.5	0.3	-0.025	+0.025	●	●	●	●							*1	
						280-030*	0.110	2.8	4 5	12.7	4.76	5.5	0.3	-0.025	+0.025	●	●	●	●			●	●				
						300-010	0.118	3	5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●							*1	
						300-030*</																					

Recommended Cutting Conditions ➡ G153

*2: KGBAR...4-25, KGBAR...22-25, KGBAR...22-25T5, KGBAR...22-25JCT | KGBASL...4-25, KGBASL...22-25, KGBASL...22-25T5 | KIGBAL...4, KIGBAL...22

Contact your local Kyocera sales engineer to upgrade old products to new technology

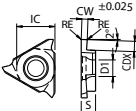
Insert Size		IC		S		D1		Carbon Steel / Alloy Steel										●●○○○●●●	P						
		in	mm	in	mm	in	mm	Stainless Steel										●●○○○●●●	M						
GBA43...		1/2	12.7	3/16	4.76	0.217	5.5	Cast Iron										●●○○○●●●	K						
GBA43L480...		1/2	12.7	0.197	5.00	0.217	5.5	Non-Ferrous Metals										●●○○○●●●	N						
								Titanium Alloy										●●○○○●●●	S						
								Hard Materials (~ 40HRC)										●●○○○●●●	H						
								Hard Materials (40HRC ~)										●●○○○●●●							
Insert		Part Number						No. of Edges	Dimensions (mm)							Tolerance (mm)		Carbide			Cermet		Applicable Toolholder G13~G15 G89		
									CW		CDX	IC	S	D1	RE	CW min.	CW max.	PVD			- KV10	PVD PV7040		- TN90	
									in	mm								PR2015	PR2025	PR1215					PR1625
				GBA43L	125-010	0.049	1.25	2	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●							KGBAL...4-15 KGBAL...22-15 KGBAL...22-15/CT KGBASR...4-15 KGBASR...22-15 KIGBAR...4 KIGBAR...22
					125-020	0.049	1.25	2	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●					●		
140-020	0.055	1.4	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●												
145-020*	0.057	1.45	2 3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●					●	●						
150-010	0.059	1.5	3.5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●												
150-020	0.059	1.5	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●					●	●						
170-020	0.067	1.7	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●												
175-020	0.069	1.75	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●												
185-020	0.073	1.85	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●												
195-020	0.077	1.95	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●												
200-010	0.079	2	3.5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●												
200-020	0.079	2	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●					●	●						
225-020	0.089	2.25	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●												
230-020	0.091	2.3	3.5	12.7	4.76	5.5	0.2	-0.025	+0.025	●	●	●	●						●						
250-010	0.098	2.5	5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●												
250-030*	0.098	2.5	4 5	12.7	4.76	5.5	0.3	-0.025	+0.025	●	●	●	●					●	●						
265-030*	0.104	2.65	4 5	12.7	4.76	5.5	0.3	-0.025	+0.025	●	●	●	●					●	●						
280-030*	0.110	2.8	4 5	12.7	4.76	5.5	0.3	-0.025	+0.025	●	●	●	●					●	●						
300-010	0.118	3	5	12.7	4.76	5.5	0.1	-0.025	+0.025	●	●	●	●												
300-030*	0.118	3	4 5	12.7	4.76	5.5	0.3	-0.025	+0.025	●	●	●	●					●	●						
330-030*	0.130	3.3	4 5	12.7	4.76	5.5	0.3	-0.025	+0.025																

Recommended Cutting Conditions ➡ **G153**

*4: KGBAL...4-25, KGBAL...22-25, KGBAL...22-25T5, KGBAL...22-25JCT | KGBASR...4-25, KGBASR...22-25, KGBASR...22-25T5 | KIGBAR...4, KIGBAR...22

Contact your local Kyocera sales engineer to upgrade old products to new technology

GBA43

Insert Size							Carbon Steel / Alloy Steel							P					
Insert Size							Stainless Steel							M					
Insert Size							Cast Iron							K					
Insert Size							Non-Ferrous Metals							N					
Insert Size							Titanium Alloy							S					
Insert Size							Hard Materials (~ 40HRC)							H					
Insert Size							Hard Materials (40HRC ~)												
Insert		Part Number		No. of Edges	Dimensions (mm)							Tolerance (mm)		Cermat	Applicable Toolholder ➡ G13~G15 G89				
					CW		CDX	IC	S	D1	RE	CW min.	CW max.						
					in	mm													
		GBA43R	125-020F	0.049	1.25	2			4.76		0.2				●	KGBAR...4-15 ● KGBAR...22-15 ● KGBAR...22-15JCT ● KGBASL...4-15 ● KGBASL...22-15 ● KIGBAL...4 ● KIGBAL...22			
			145-020F	0.057	1.45	2			4.76		0.2				●				
			150-020F	0.059	1.5	3.5			4.76		0.2				●				
			175-020F	0.069	1.75	3.5	12.7		4.76	5.5	0.2	- 0.025	+ 0.025	●					
			185-020F	0.073	1.85	3.5			4.76		0.2				●				
			200-020F	0.079	2	3.5			4.76		0.2				●				
			230-020F	0.091	2.3	3.5			4.76		0.2				●				
			250-030F	0.098	2.5	4			4.76		0.3				●				
			265-030F	0.104	2.65	4			4.76		0.3				●				
			280-030F	0.110	2.8	4	12.7		4.76	5.5	0.3	- 0.025	+ 0.025	●	*2				
			300-030F	0.118	3	4			4.76		0.3				●				
			330-030F	0.130	3.3	4			4.76		0.3				●				
			350-030F	0.138	3.5	5			4.76		0.3				●				
			400-040F	0.157	4	5			4.76		0.4				●				
			430-040F	0.169	4.3	5	12.7		4.76	5.5	0.4	- 0.025	+ 0.025	●	*5				
			450-040F	0.177	4.5	5			4.76		0.4				●				
			480-040F	0.189	4.8	5			5		0.4				●				
			3	GBA43L	125-020F	0.049	1.25	2					0.2					●	KGBAL...4-15 ● KGBAL...22-15 ● KGBAL...22-15JCT ● KGBASR...4-15 ● KGBASR...22-15 ● KIGBAR...4 ● KIGBAR...22
					145-020F	0.057	1.45	2					0.2					●	
					150-020F	0.059	1.5	3.5					0.2					●	
					175-020F	0.069	1.75	3.5	12.7		4.76	5.5	0.2	- 0.025	+ 0.025		●		
					185-020F	0.073	1.85	3.5					0.2					●	
					200-020F	0.079	2	3.5					0.2					●	
					230-020F	0.091	2.3	3.5					0.2					●	
					250-030F	0.098	2.5	4					0.3					●	
					265-030F	0.104	2.65	4					0.3					●	
					280-030F	0.110	2.8	4	12.7		4.76	5.5	0.3	- 0.025	+ 0.025		●	*4	
					300-030F	0.118	3	4					0.3					●	
					330-030F	0.130	3.3	4					0.3					●	
					350-030F	0.138	3.5	5	12.7		4.76	5.5	0.3	- 0.025	+ 0.025		●	*6	
					400-040F	0.157	4	5					0.4					●	

Right-hand shown

CDX shows available grooving depth.

Recommended Cutting Conditions G153

*2 : KGBAR...4-25, KGBAR...22-25, KGBAR...22-25T5, KGBAR...22-25JCT | KGBASL...4-25, KGBASL...22-25, KGBASL...22-25T5 | KIGBAL...4, KIGBAL...22

*4 : KGBAL...4-25, KGBAL...22-25, KGBAL...22-25T5, KGBAL...22-25JCT | KGBASR...4-25, KGBASR...22-25, KGBASR...22-25T5 | KIGBAR...4, KIGBAR...22

*5 : KGBAR...4-35, KGBAR...22-35, KGBAR...22-35JCT | KGBASL...4-35, KGBASL...22-35 | KIGBAL...4, KIGBAL...35

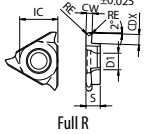
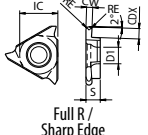
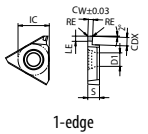
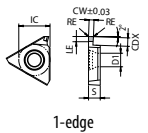
*6 : KGBAL...4-35, KGBAL...22-35, KGBAL...22-35JCT | KGBASR...4-35, KGBASR...22-35 | KIGBAR...4, KIGBAR...35

GBA43

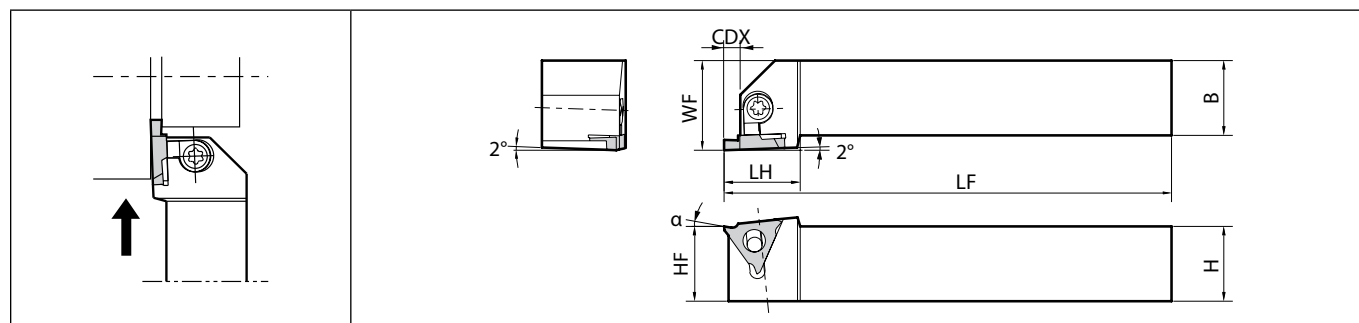
Insert Size							Carbon Steel / Alloy Steel											P		
							Stainless Steel											M		
							Cast Iron											K		
GBA43...							Non-Ferrous Metals											N		
							Titanium Alloy											S		
							Hard Materials (~ 40HRC)											H		
							Hard Materials (40HRC ~)													
Insert		Part Number		No. of Edges	Dimensions (mm)							Tolerance (mm)		Carbide				Cermat	Applicable Toolholder G13~G15 G89	
					CW		CDX	IC	S	D1	RE	CW min.	CW max.	PVD						
					in	mm								PR2015	PR2025	PR1215	PR1625			TiN620
	GBA43R	140-010GM	3	0.055	1.4	3.5	12.7	4.76	5.5	0.1	-0.025	+0.025						KGBAR...4-15		
		150-020GM		0.059	1.5	3.5							0.2						KGBAR...22-15	
		175-020GM		0.069	1.75	3.5							0.2						KGBAR...22-15ICT	
		185-020GM		0.073	1.85	3.5							0.2						KGBASL...4-15	
		200-020GM		0.079	2	3.5							0.2						KGBASL...22-15	
		230-020GM		0.091	2.3	3.5							0.2						KIGBAL...4	
		250-030GM		0.098	2.5	5							0.3						KIGBAL...22	
		265-030GM		0.104	2.65	5							0.3						*2	
		300-030GM		0.118	3	5							0.3							
		330-030GM		0.130	3.3	5							0.3							
		350-030GM		0.138	3.5	5							0.3						*5	
		400-040GM		0.157	4	5							0.4							
	GBA43L	140-010GM	3	0.055	1.4	3.5	12.7	4.76	5.5	0.1	-0.025	+0.025						KGBAL...4-15		
		150-020GM		0.059	1.5	3.5							0.2						KGBAL...22-15	
		175-020GM		0.069	1.75	3.5							0.2						KGBAL...22-15ICT	
		185-020GM		0.073	1.85	3.5							0.2						KGBASR...4-15	
		200-020GM		0.079	2	3.5							0.2						KGBASR...22-15	
		230-020GM		0.091	2.3	3.5							0.2						KIGBAR...4	
		250-030GM		0.098	2.5	5							0.3						*4	
		265-030GM		0.104	2.65	5							0.3							
		300-030GM		0.118	3	5							0.3							
		330-030GM		0.130	3.3	5							0.3						*6	
		350-030GM		0.138	3.5	5							0.3							
		400-040GM		0.157	4	5							0.4							

GBA43

Insert Size							Carbon Steel / Alloy Steel														P			
IC							Stainless Steel														M			
S							Cast Iron														K			
D1							Non-Ferrous Metals														N			
in							Titanium Alloy														S			
mm							Hard Materials (~ 40HRC)														H			
GBA43...							Hard Materials (40HRC ~)																	
1/2																								
12.7																								
3/16																								
4.76																								
0.217																								
5.5																								

Insert	Part Number	No. of Edges	Dimensions (mm)								Tolerance (mm)		Carbide		Cermet		CBN		PCD		Applicable Toolholder G13~G15 G89											
			CW		CDX	IC	S	D1	RE	LE	CW min.	CW max.	PVD		-	PVD	-	-	-													
			in	mm									PR2015	PR2025	PR1215	PR1625	KW10	PV7040	TN620	TN90		KBN510	KBN525	KPD001	KPD010							
		3	GBA43R 100-050R	0.039	1	2				0.5																		*1				
			150-075R	0.059	1.5	3.5				0.75																						
			200-100R	0.079	2	3.5				1																						
			250-125R	0.098	2.5	4				1.25																						
			300-150R	0.118	3	4				1.5																						
			400-200R	0.157	4	5				2																						
		3	GBA43L 100-050R	0.039	1	2				0.5																						
			150-075R	0.059	1.5	3.5				0.75																						
			200-100R	0.079	2	3.5				1																						
			250-125R	0.098	2.5	4				1.25																						
			300-150R	0.118	3	4				1.5																						
			400-200R	0.157	4	5				2																						
		3	GBA43R 100-050RF	0.039	1	2				0.5																						
			150-075RF	0.059	1.5	3.5				0.75																						
			200-100RF	0.079	2	3.5				1																						
			250-125RF	0.098	2.5	4				1.25																						
			300-150RF	0.118	3	4				1.5																						
			400-200RF	0.157	4	5				2																						
		3	GBA43L 100-050RF	0.039	1	2				0.5																						
			150-075RF	0.059	1.5	3.5				0.75																						
			200-100RF	0.079	2	3.5				1																						
			250-125RF	0.098	2.5	4				1.25																						
			300-150RF	0.118	3	4				1.5																						
		1	GBA43R 125-020	0.049	1.25	2																										
			150-020	0.059	1.5	3.5																										
			200-020	0.079	2	3.5																										
			250-020	0.098	2.5	4																										
			300-020	0.118	3	4																										
		1	GBA43L 125-020	0.049	1.25	2																										
			150-020	0.059	1.5	3.5																										
			200-020	0.079	2	3.5																										
			250-020	0.098	2.5	4																										
			300-020	0.118	3	4																										
		1	GBA43R 125-010	0.049	1.25	2																										
			150-010	0.059	1.5	3.5																										
			200-010	0.079	2	3.5																										
			250-010	0.098	2.5	4																										
			300-010	0.118	3	4																										
		1	GBA43L 125-010	0.049	1.25	2																										
			150-010	0.059	1.5	3.5																										
			200-010	0.079	2	3.5																										
			250-010	0.098	2.5	4																										
			300-010	0.118	3	4																										

KGBA (External Grooving / Shallow Grooving)



Toolholder Dimensions

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Unit	Part Number	Std. Item		Dimensions							Spare Parts		Applicable Inserts  G6~G12
											Clamp Set	Wrench	
		R	L	CDX	H	B	LH	HF	LF	WF			
Inch	KGBA% 12-3 16-3	● ●	● ●	0.098	0.750 1.000	0.750 1.000	0.945	0.750 1.000	5.000 6.000	1.000 1.250	LGBA-16% S	FT-15	GBA32%
	KGBA% 12-4-15 12-4-25 12-4-35 16-4-15 16-4-25 16-4-35	● ● ● ● ● ●	● ● ● ● ● ●		0.157 0.177 0.217 0.157 0.177 0.217	0.750 1.000		0.750 1.000	1.004	0.750 1.000	5.000 6.000	1.000 1.250	LGBA-22% S	FT-15	GBA43%
	KGBA% 2020K-16 2525M-16	● ●	● ●	2.5	20 25	20 25	24	20 25		125 150	25 30	LGBA-16% S	FT-15	GBA32%
	KGBA% 2020H22-15 2020H22-25 2020H22-35 2020K22-15 2020K22-25 2020K22-25T5 2020K22-35 2525M22-15 2525M22-25 2525M22-25T5 2525M22-35	● ● ● ● ● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ● ● ● ● ●	4 4.5 5.5 4 4.5 5.5 4 4.5 5.5	20 25	20 25		25.5	20 25	100 125	25 30	LGBA-22RS LGBA-22% S	FT-15	GBA43%

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

Clamp Set : LGBA-00RS for Right-hand Toolholder and LGBA-00LS for Left-hand Toolholder.

Rake Angle (α) after Installment of GBA insert

GBA32% 000-000		GBA43% 000-000		GBA43% 000-000R (Full-R)		
α	Insert Grades	α	Insert Grades	α	Insert Grades	Full-R Part Number
10°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215 KPD001, KPD010	0°	KBN510, KBN525	10°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215	050R~150R
		10°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215 KPD001, KPD010	14°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215	200R
20°	KW10	20°	KW10		KW10	050R~200R

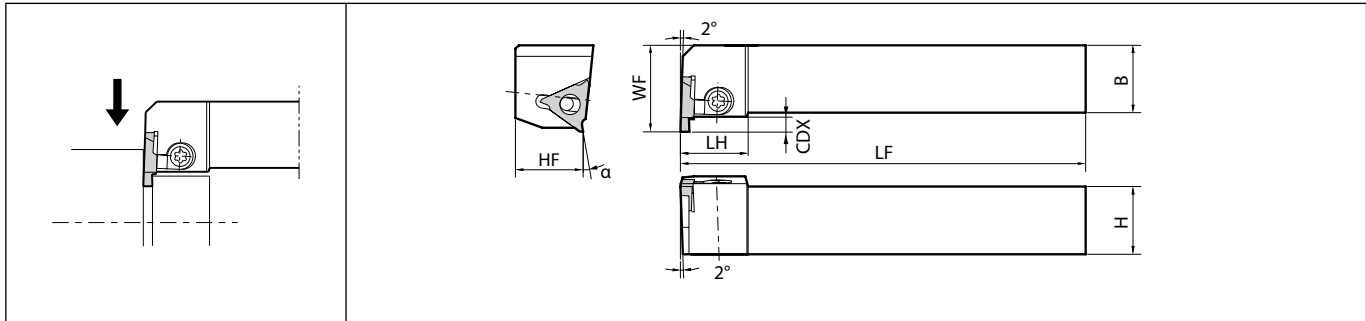
Rake Angle (α) after Installment of GBA-GM insert

α	Insert Part Number
10°	GBA43% 150-020GM
15°	GBA43% 175-020GM
	GBA43% 265-030GM
12°	GBA43% 300-030GM
	GBA43% 400-040GM

α indicates the rake angle at the center of the edge width, after installing insert.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KGBAS (External Grooving / Shallow Grooving)

Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

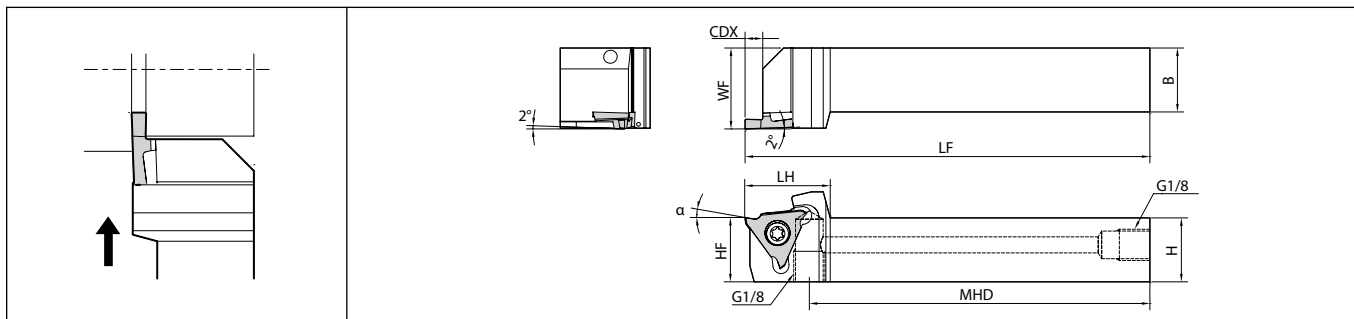
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Spare Parts		Applicable Inserts 🔧 G6~G12	
											Clamp Set	Wrench		
		R	L	CDX	H	B	LH	HF	LF	WF				
Inch	KGBASR 12-3	●		0.098	0.750	0.750	0.984	0.750	5.000	0.984	LGBA-16LS	FT-15	GBA32L	
	16-3	●			1.000	1.000		1.000	6.000	1.181				
	KGBASR 12-4-15	●		0.157	0.750	0.750	0.984	0.750	5.000	1.062	LGBA-22LS	FT-15	GBA43L	
	12-4-25	●		0.177										
	12-4-35	●		0.217										
	16-4-15	●		0.157						1.260				
	16-4-25	●		0.177	1.000	1.000		1.000	6.000					1.250
	16-4-35	●		0.217										1.260
mm	KGBAS% 2020K-16	●	●	2.5	20	20	25	20	125	25	LGBA-16 $\frac{1}{4}$ S	FT-15	GBA32 $\frac{1}{4}$ R	
	2525M-16	●	●		25	25		25	150	30				
	KGBAS% 2020K22-15	●	●	4	20	20	25	20	125	27	LGBA-22 $\frac{1}{4}$ S	FT-15	GBA43 $\frac{1}{4}$ R	
	2020K22-25	●	●	4.5										
	2020K22-25TS	●	●	5.5										
	2020K22-35	●	●											
	2525M22-15	●	●	4	25	25		25	150	32				
	2525M22-25	●	●	4.5										
	2525M22-25TS	●	●	5.5										
	2525M22-35	●	●											

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

See Page G13 for Rake Angle (α) after Installment of Insert.

Clamp Set : LGBA-〇〇LS for Right-hand Toolholder and LGBA-〇〇RS for Left-hand Toolholder.

KGBA-JCT (External Grooving / Shallow Grooving, Coolant-Through Toolholder)

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Coolant Hole	Spare Parts				Applicable Inserts G6~G12
		R	L	CDX	H	B	LH	MHD	HF	LF	WF		Plug	Screw	Wrench	Wrench	
mm	KGBA% 2020K-16JCT	●	●	2.5	20	20	24	107.5	20	125	25	Yes	HSG1/8X8.0	SB-4085TR	FT-15	-	GBA32%
	2525K-16JCT	●	●	2.5	25	25	24	107.5	25	125	30	Yes	HSG1/8X8.0	SB-4085TR	FT-15	-	GBA32%
	KGBA% 2020K22-15JCT	●	●	4	20	20			20	25							GBA43%
	2020K22-25JCT	●	●	5.5	20	20			20	25							
	2020K22-35JCT	●	●	5.5	20	20			20	25							
	2525K22-15JCT	●	●	4	25	25	26.5	105	25	125	30	Yes	HSG1/8X8.0	SB-5085TR	-	LTW-20	
	2525K22-25JCT	●	●	5.5	25	25	26.5	105	25	125	30	Yes	HSG1/8X8.0	SB-5085TR	-	LTW-20	
	2525K22-35JCT	●	●	5.5	25	25	26.5	105	25	125	30	Yes	HSG1/8X8.0	SB-5085TR	-	LTW-20	
	2525K22-35JCT	●	●	5.5	25	25	26.5	105	25	125	30	Yes	HSG1/8X8.0	SB-5085TR	-	LTW-20	
	2525K22-35JCT	●	●	5.5	25	25	26.5	105	25	125	30	Yes	HSG1/8X8.0	SB-5085TR	-	LTW-20	

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

See Page G13 for Rake Angle (α) after Installment of Insert.

KGBA-JCT toolholder is screw clamp type.

Please see page H16 and H17 for piping parts of coolant-through holders.

GBF (for Small Parts)

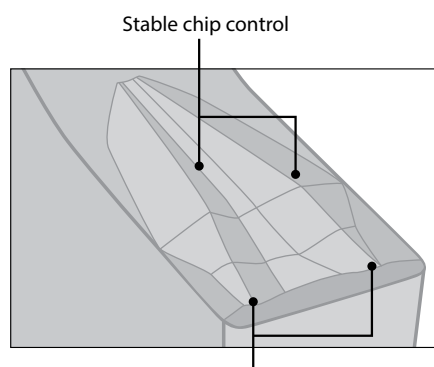
High precision with edge width tolerance of ± 0.02 mm

High efficiency MEGACOAT coating technology for long tool life

1 Stable chip control with GL chipbreaker

GL Chipbreaker controls chips stable at both grooving and turning.

(Turning is not recommended for GBF32R075-005GL)



Chips are short, curled and break evenly in low feed machining.
Prevents chip clogging.

Chip control comparison (internal evaluation)

	GL chipbreaker	Competitor A
Grooving $f = 0.0020$ ipr $d = 0.059''$		
Turning $f = 0.0016$ ipr D.O.C. = $0.008''$		

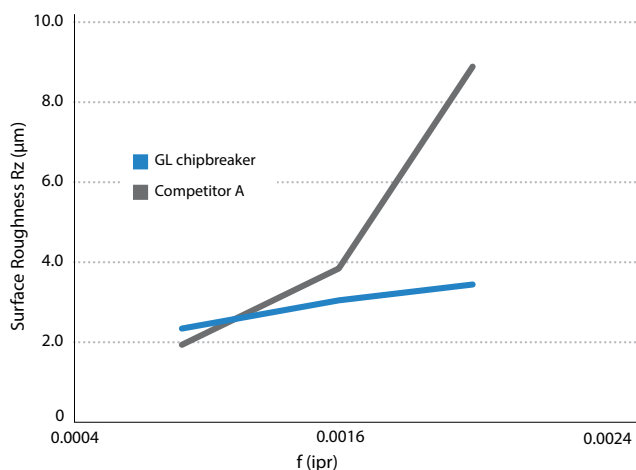
Cutting conditions: $V_c = 260$ sfm, Edge Width $0.039''$ (1mm)
Workpiece material : 304

2 Good surface finish

GL chipbreaker controls chips stable at high feed machining,

Good surface finish of side wall

Surface finish comparison (internal evaluation)



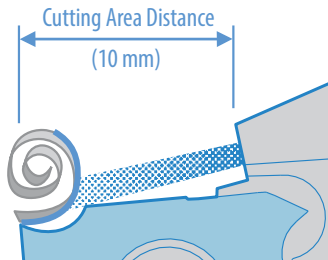
Cutting conditions: $V_c = 260$ sfm, $d = 0.059''$, $f = 0.001 \sim 0.002$ ipr, Edge Width $0.039''$ (1mm)
Workpiece material : Chromium Steel

Chip control comparison (internal evaluation)

GL chipbreaker			
Competitor A (Molded chipbreaker)			
	$f = 0.0012$	$f = 0.0016$	$f = 0.0020$

KGBF-JCTM (for Small Parts)

Discharges coolant from the top of the insert



Coolant Hole

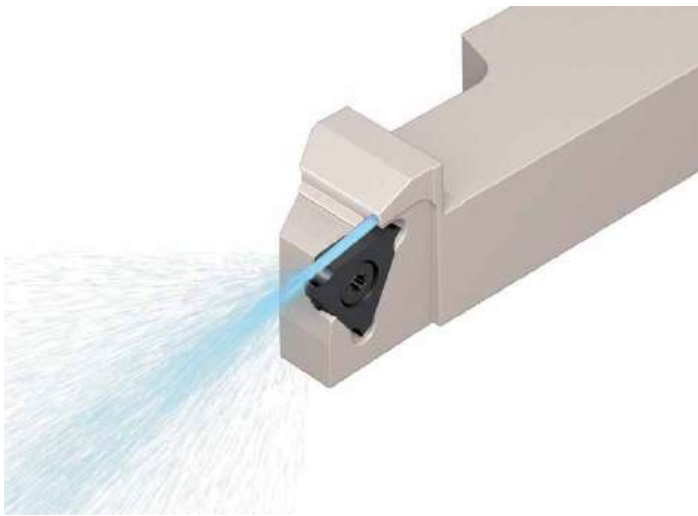
Coolant Hole discharges coolant to the cutting edge and prevents coolant stream spreading which slows the coolant flow

Coolant Direction

Sufficient coolant between the chipbreaker and the chips to provide stable chip curls and sufficient cooling of the insert

- 1 Excellent chip control
- 2 Superior cooling action improves tool life

External Grooving KGBF-JCTM



Discharges coolant from the top of the insert to deliver superior chip control and longer tool life

Edge Width : 0.041"-0.094" / 0.25mm-3.00mm

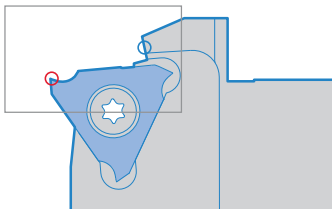
Ground Chipbreaker / Molded GL Chipbreaker

Maximum groove depth : 0.079 / 3mm

Coolant Discharging Comparison (Internal Evaluation)

Small chips and better cooling of the insert leads to longer tool life

- Cutting Edge
- Coolant Hole



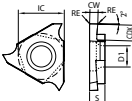
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

G GROOVING	
	EXTERNAL
	INTERNAL
	FACE

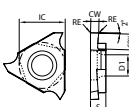
Right-hand shown
Max. Cutting Dia. : See Page G25

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GBF

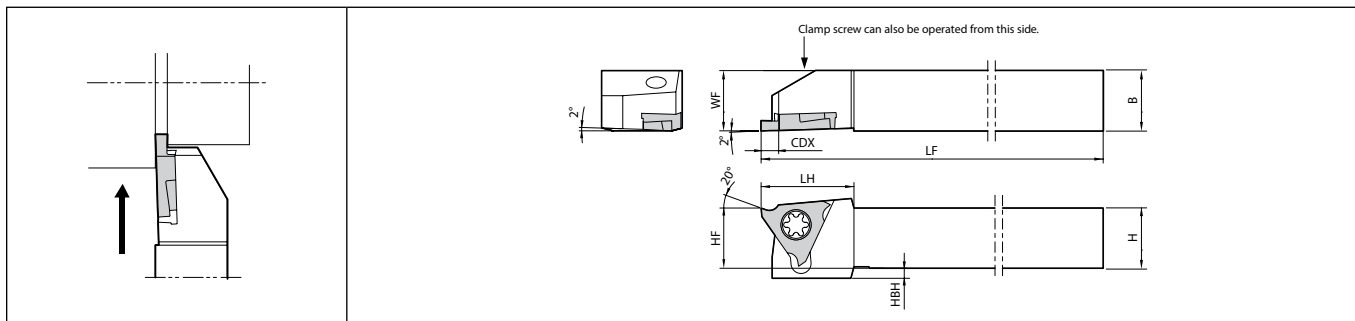
Insert Size		IC		S		D1		Carbon Steel / Alloy Steel						P		
		in	mm	in	mm	in	mm	Stainless Steel						M		
GBF32...		3/8	9.525	1/8	3.18	0.173	4.4	Cast Iron						K		
		Non-Ferrous Metals						N								
		Titanium Alloy						S								
		Hard Materials (~ 40HRC)						H								
		Hard Materials (40HRC ~)														
Insert	Part Number	No. of Edges	Dimensions (mm)						Tolerance (mm)			Carbide			Applicable Toolholder G21~G24	
			CW		CDX	IC	S	D1	RE	CW min.	CW max.	PVD	-			
			in	mm												
			in	mm												
 	GBF32R 025-005	3	0.010	0.25	0.6	9.525	3.18	4.4	0.05	-0.02	+0.02	●	●	●	KGBFR...-16F KGBFR...-3... KGBFR...-16FJCTM KGBFSL...-16 S...KGBFL16	
	030-005	0.012	0.3	0.8	0.05	-0.02	+0.02	●	●	●						
	033-005	0.013	0.33	0.8	0.05	-0.025	+0.015	●	●	●						
	043-005	0.017	0.43	1	0.05	-0.025	+0.015	●	●	●						
	050-005	0.020	0.5	1.2	0.05	-0.02	+0.02	●	●	●						
	053-005	0.021	0.53	1.2	0.05	-0.025	+0.015	●	●	●						
	065-005	0.026	0.65	1.2	0.05	-0.02	+0.02	●	●	●						
	075-005	0.030	0.75	2	0.05	-0.02	+0.02	●	●	●						
	075-010	0.030	0.75	2	0.1	-0.02	+0.02	●	●	●						
	080-005	0.031	0.8	2	0.05	-0.02	+0.02	●	●	●						
	080-010	0.031	0.8	2	0.1	-0.02	+0.02	●	●	●						
	095-005	0.037	0.95	2	0.05	-0.02	+0.02	●	●	●						
	095-010	0.037	0.95	2	0.1	-0.02	+0.02	●	●	●						
	100-005	0.039	1	2	0.05	-0.02	+0.02	●	●	●						
	100-010	0.039	1	2	0.1	-0.02	+0.02	●	●	●						
	041N	0.041	1.05	1	0.05	-0.03	+0.03	●	●	●						
	110-005	0.043	1.1	2	0.05	-0.02	+0.02	●	●	●						
	110-010	0.043	1.1	2	0.1	-0.02	+0.02	●	●	●						
	120-005	0.047	1.2	2	0.05	-0.02	+0.02	●	●	●						
	120-010	0.047	1.2	2	0.1	-0.02	+0.02	●	●	●						
	125-005	0.049	1.25	2	0.05	-0.02	+0.02	●	●	●						
	125-010	0.049	1.25	2	0.1	-0.02	+0.02	●	●	●						
	130-005	0.051	1.3	2	0.05	-0.02	+0.02	●	●	●						
	130-010	0.051	1.3	2	0.1	-0.02	+0.02	●	●	●						
	140-005	0.055	1.4	2.7	0.05	-0.02	+0.02	●	●	●						
	140-010	0.055	1.4	2.7	0.1	-0.02	+0.02	●	●	●						
	145-005	0.057	1.45	2.7	0.05	-0.02	+0.02	●	●	●						
	145-010	0.057	1.45	2.7	0.1	-0.02	+0.02	●	●	●						
	058N	0.058	1.47	1.2	0.1	-0.03	+0.03	●	●	●						
	150-005	0.059	1.5	2.7	0.05	-0.02	+0.02	●	●	●						
	150-010	0.059	1.5	2.7	0.1	-0.02	+0.02	●	●	●						
	062N	0.062	1.57	1.2	0.1	-0.03	+0.03	●	●	●						
	165-005	0.065	1.65	2.7	0.05	-0.02	+0.02	●	●	●						
	165-010	0.065	1.65	2.7	0.1	-0.02	+0.02	●	●	●						
	170-005	0.067	1.7	3	0.05	-0.02	+0.02	●	●	●						
	170-010	0.067	1.7	3	0.1	-0.02	+0.02	●	●	●						
	175-005	0.069	1.75	3	0.05	-0.02	+0.02	●	●	●						
	175-010	0.069	1.75	3	0.1	-0.02	+0.02	●	●	●						
	200-005	0.079	2	3	0.05	-0.02	+0.02	●	●	●						
	200-010	0.079	2	3	0.1	-0.02	+0.02	●	●	●						
	225-005	0.089	2.25	3	0.05	-0.02	+0.02	●	●	●						
	225-010	0.089	2.25	3	0.1	-0.02	+0.02	●	●	●						
	094N	0.094	2.39	2	0.1	-0.03	+0.03	●	●	●						
	250-005	0.098	2.5	3	0.05	-0.02	+0.02	●	●	●						
	250-010	0.098	2.5	3	0.1	-0.02	+0.02	●	●	●						
	300-005	0.118	3	3	0.05	-0.02	+0.02	●	●	●						
	300-010	0.118	3	3	0.1	-0.02	+0.02	●	●	●						

GBF

Insert Size		IC		S		D1		Carbon Steel / Alloy Steel										P		
		in	mm	in	mm	in	mm	Stainless Steel										M		
GBF32...		3/8	9.525	1/8	3.18	0.173	4.4	Cast Iron										K		
		Non-Ferrous Metals										N								
		Titanium Alloy										S								
		Hard Materials (~ 40HRC)										H								
		Hard Materials (40HRC ~)																		
Insert		Part Number		No. of Edges	Dimensions (mm)							Tolerance (mm)			Carbide			Applicable Toolholder G21, G23		
					CW		CDX	IC	S	D1	RE	CW min.	CW max.	PVD						
					in	mm								PR1215	PR1535	GW15				
 	GBF32L	025-005	0.010	0.25	0.6	3	9.525	3.18	4.4	0.05	-0.02	+0.02	●	●	●	KGBFL...-16F KGBFL...-3... KGBFSR...-16				
		030-005	0.012	0.3	0.8					0.05	-0.02	+0.02	●	●	●					
		033-005	0.013	0.33	0.8					0.05	-0.025	+0.015	●	●	●					
		043-005	0.017	0.43	1					0.05	-0.025	+0.015	●	●	●					
		050-005	0.020	0.5	1.2					0.05	-0.02	+0.02	●	●	●					
		053-005	0.021	0.53	1.2					0.05	-0.025	+0.015	●	●	●					
		065-005	0.026	0.65	1.2					0.05	-0.02	+0.02	●	●	●					
		075-005	0.030	0.75	2					0.05	-0.02	+0.02	●	●	●					
		075-010	0.030	0.75	2					0.1	-0.02	+0.02	●	●	●					
		080-005	0.031	0.8	2					0.05	-0.02	+0.02	●	●	●					
		080-010	0.031	0.8	2					0.1	-0.02	+0.02	●	●	●					
		095-005	0.037	0.95	2					0.05	-0.02	+0.02	●	●	●					
		095-010	0.037	0.95	2					0.1	-0.02	+0.02	●	●	●					
		100-005	0.039	1	2					0.05	-0.02	+0.02	●	●	●					
		100-010	0.039	1	2					0.1	-0.02	+0.02	●	●	●					
		041N	0.041	1.05	1					0.05	-0.03	+0.03	●	●	●					
		110-005	0.043	1.1	2					0.05	-0.02	+0.02	●	●	●					
		110-010	0.043	1.1	2					0.1	-0.02	+0.02	●	●	●					
		120-005	0.047	1.2	2					0.05	-0.02	+0.02	●	●	●					
		120-010	0.047	1.2	2					0.1	-0.02	+0.02	●	●	●					
		125-005	0.049	1.25	2					0.05	-0.02	+0.02	●	●	●					
		125-010	0.049	1.25	2					0.1	-0.02	+0.02	●	●	●					
		130-005	0.051	1.3	2					0.05	-0.02	+0.02	●	●	●					
		130-010	0.051	1.3	2					0.1	-0.02	+0.02	●	●	●					
		140-005	0.055	1.4	2.7					0.05	-0.02	+0.02	●	●	●					
		140-010	0.055	1.4	2.7					0.1	-0.02	+0.02	●	●	●					
		145-005	0.057	1.45	2.7					0.05	-0.02	+0.02	●	●	●					
		145-010	0.057	1.45	2.7					0.1	-0.02	+0.02	●	●	●					
		058N	0.058	1.47	1.2					0.1	-0.03	+0.03	●	●	●					
		150-005	0.059	1.5	2.7					0.05	-0.02	+0.02	●	●	●					
		150-010	0.059	1.5	2.7					0.1	-0.02	+0.02	●	●	●					
		062N	0.062	1.57	1.2					0.1	-0.03	+0.03	●	●	●					
		165-005	0.065	1.65	2.7					0.05	-0.02	+0.02	●	●	●					
		165-010	0.065	1.65	2.7					0.1	-0.02	+0.02	●	●	●					
		170-005	0.067	1.7	3					0.05	-0.02	+0.02	●	●	●					
		170-010	0.067	1.7	3					0.1	-0.02	+0.02	●	●	●					
		175-005	0.069	1.75	3					0.05	-0.02	+0.02	●	●	●					
		175-010	0.069	1.75	3					0.1	-0.02	+0.02	●	●	●					
		200-005	0.079	2	3					0.05	-0.02	+0.02	●	●	●					
		200-010	0.079	2	3					0.1	-0.02	+0.02	●	●	●					
		225-005	0.089	2.25	3					0.05	-0.02	+0.02	●	●	●					
		225-010	0.089	2.25	3					0.1	-0.02	+0.02	●	●	●					
		094N	0.094	2.39	2					0.1	-0.03	+0.03	●	●	●					
		250-005	0.098	2.5	3					0.05	-0.02	+0.02	●	●	●					
		250-010	0.098	2.5	3					0.1	-0.02	+0.02	●	●	●					
		300-005	0.118	3	3					0.05	-0.02	+0.02	●	●	●					
		300-010	0.118	3	3					0.1	-0.02	+0.02	●	●	●					

Right-hand shown
Max. Cutting Dia. : See Page G25

Recommended Cutting Conditions G154

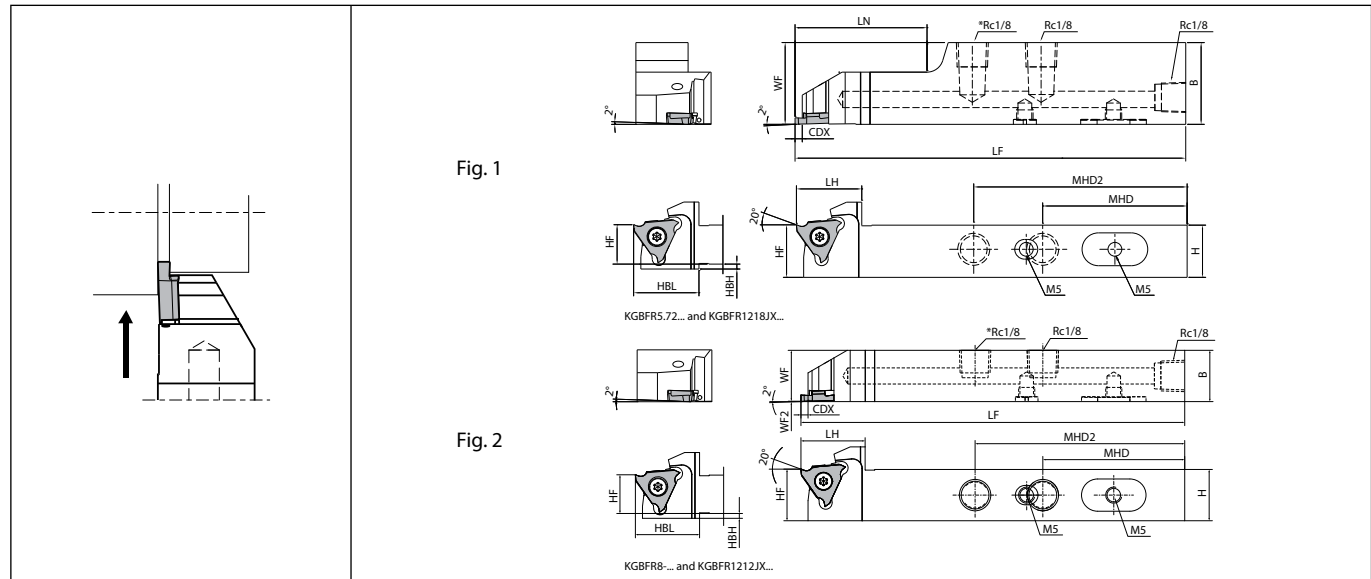
KGBF-F (External Grooving / Shallow Grooving)

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Spare Parts		Applicable Inserts ➡ G18~G20
												Screw	Wrench	
		R	L	CDX	H	B	LH	HF	HBH	LF	WF			
Inch	KGBF% 6-3JXF	●	●	0.118	0.375	0.375	0.728	0.375	0.157	4.750	0.375	SB-4070TRW	FT-8	GBF32%
	8-3JXF	●	●		0.500	0.500		0.500	0.079		0.500			
	10-3JXF	●	●		0.625	0.625		0.625	-		0.625			
mm	KGBF% 1010JX-16F	●	●	3	10	10	18.5	10	4	120	10	SB-4070TRW	FT-8	GBF32%
	1212JX-16F	●	●		12	12		12	2		12			
	1616JX-16F	●	●		16	16		16	-		16			
	2020JX-16F	●	●		20	20		20	-		20			

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

KGBF-JCTM (External Grooving / Shallow Grooving, Coolant-Through Toolholder)

Right-hand shown | Right-hand Insert for Right-hand Toolholder.

KGBFR5.72-..., KGBFR8-... : 2-Rc1/8

KGBFR1218JX..., KGBFR1212JX... : 2-Rc1/8

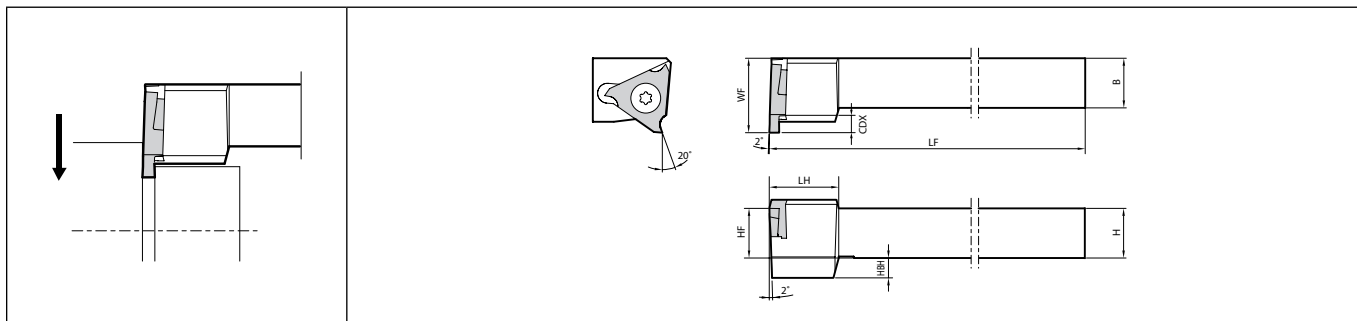
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions													Fig.	Coolant Hole	Spare Parts				Applicable Inserts G18~G19
			R	CDX	H	B	LH	MHD	MHD2	HF	HBH	HBL	LF	LN	WF			Plug	Plug	Screw	Wrench	
Inch	KGBFR 5.72-16FJCTM	●		0.118	0.500	0.709	0.787	2.126	-	0.500	0.059	0.787	4.750	1.110	0.500	1	Yes	GP-1	HS5X4LP	SB-4070TRW	FT-8	GBF32R
	82.5-16FJCTM	●			0.625	1.000		1.732	2.559	0.625	-	-			0.625			-				
	KGBFR 8-16FJCTM	●			0.500	0.500		2.323	-	0.500	0.059	0.787			0.500	2	Yes	GP-1	HS5X4LP	SB-4070TRW	FT-8	GBF32R
	10-16FJCTM	●	0.118		0.625	0.625	0.787			0.625	-	-	4.750	-	0.625							
	12-16FJCTM	●			0.750	0.750		1.732	2.559	0.750	-	-			0.750			-				
mm	KGBFR 1218JX-16FJCTM	●			12	18		54	-	12	1.5	20		28	12	1	Yes	GP-1	HS5X4LP	SB-4070TRW	FT-8	GBF32R
	1625JX-16FJCTM	●	3		16		20	44	65	16	-	-	120	40	16							
	2025JX-16FJCTM	●			20	25				20	-	-			20			-				
	KGBFR 1212JX-16FJCTM	●			12	12		59	-	12	1.5	20		-	12	2	Yes	GP-1	HS5X4LP	SB-4070TRW	FT-8	GBF32R
	1616JX-16FJCTM	●	3		16	16	20	44	65	16	-	-	120	-	16							
	2020JX-16FJCTM	●			20	20				20	-	-			20			-				

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

Please see page H16 and H17 for piping parts of coolant-through holders.

KGBFS (External Grooving / Shallow Grooving)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Spare Parts		Applicable Inserts ➡ G18~G20
												Screw	Wrench	
		R	L	CDX	H	B	LH	HF	HBH	LF	WF			
mm	KGBFS% 1010JX-16	●	●		10	10		10	4		15	SB-4070TRW	FT-8	GBF32 ¹ / _R
	1212JX-16	●	●	3	12	12	14	12	2	120	16			
	1616JX-16	●	●		16	16		16	-		20			

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

Left-hand shown | Right-hand Insert for Left-hand Toolholder. | Note 1) CDX shows available grooving depth.

Unit	Part Number	Std. Item	Dimensions						Spare Parts		Applicable Inserts ➡ G18~G19
									Screw	Wrench	
		L	DCON	H	DN	HDD	LF	WF			
Inch	S15F- KGBFL16	●	0.625	0.591	0.591	1.063	3.346	0.236	SB-4070TRW	FT-8	GBF32R
	S19G- KGBFL16	●	0.750	0.669	0.709		3.543				
	S19K- KGBFL16	●					4.724				
	S25K- KGBFL16	●	1.000	0.906	0.945	1.260	3.937	0.394			
mm	S12F- KGBFL16	●	12	11	11	27	80	6	SB-4070TRW	FT-8	GBF32R
	S14H- KGBFL16	●	14	13	13		100				
	S16F- KGBFL16	●	16	15	15		85				
	S20G- KGBFL16	●	20	18	19		90				
	S20K- KGBFL16	●				120					
	S22K- KGBFL16	●									
	S25.0H- KGBFL16	●	25	23	24	32	100	10			

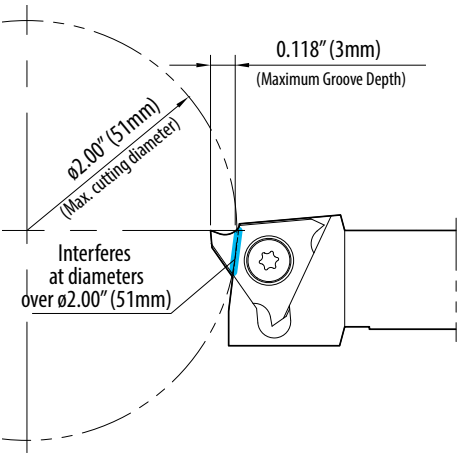
Note 1) Dimension shown is the available grooving depth of the insert (CDX)

Compatibility with GBF and GBA

- 1. GBF will fit KGBA / KGBAS toolholders
 - Caution: The maximum groove depth for KGBA / KGBAS toolholders is 0.098" (2.5mm)
 - 2. GBA inserts will also fit KGBF-F toolholders
 - Caution: The rake angle after installation in the toolholder is 11°
- KGBF-F toolholder with GBF insert maximum machining diameter**
- 0.118" (3mm) groove depth is available on workpiece diameters up to ø2.008" (ø51mm)
 - 0.106" (2.7mm) groove depth is available on workpiece diameters up to ø3.937" (ø100mm)
 - 0.098" (2.5mm) or less groove depth is available on workpiece diameters up to ø7.874" (ø200mm)
- The workpiece will interfere with the holder at maximum diameter or larger

Max. cutting diameter

Max. cutting diameter at 0.118" (3mm) grooving depth



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGZ

Grooving and Cut-Off Solutions for Small Parts Machining

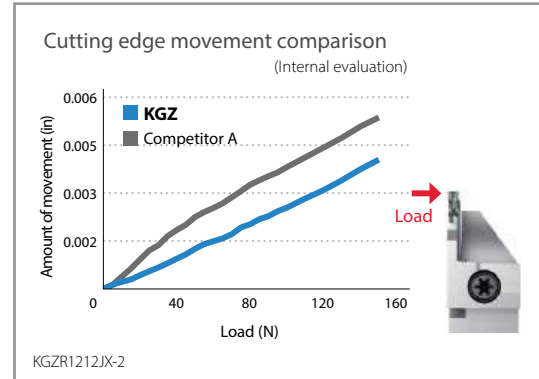
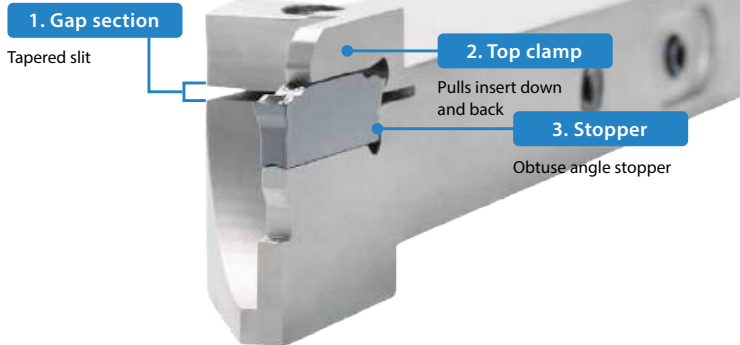
Provides stable machining and is easy to use with unique clamp design

New coating PR20 series provides longer tool life and supports a wide range of applications

1

Achieve stable machining with newly developed clamp structure

Toolholder Sturdy clamp design



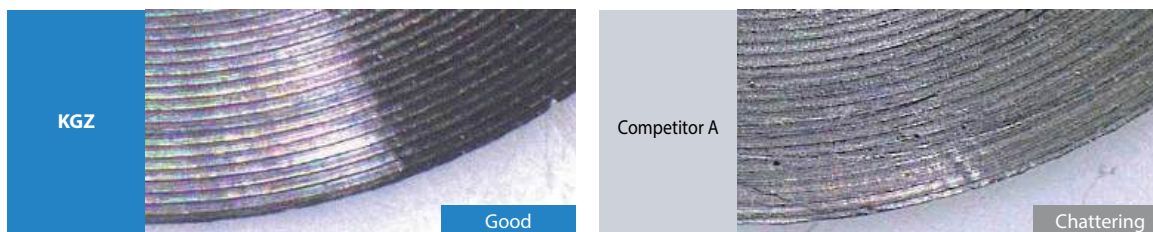
Insert Ease insert installation

Top V Shape Different groove angles at ends and center



Excellent chatter resistance

Machined surface comparison (Internal evaluation)



Cutting conditions: $V_c \approx 200 \text{ sfm}$, $f = 0.005 \text{ ipt}$
 Workpiece: 303 ($\phi 0.551''$) Wet (External coolant) KGZR1212JX-2
 Edge width $0.079''$ (2mm) (PM Chipbreaker)

2

New insert grades PR20 series with MEGACOAT NANO EX coating technology provides longer tool life

PR20 Series

PR2015

1st recommendation for cast iron
Also available for steel and stainless steel

PR2025

1st recommendation for steel
Also available for stainless steel

PR2035

1st recommendation for stainless steel
Also available for steel

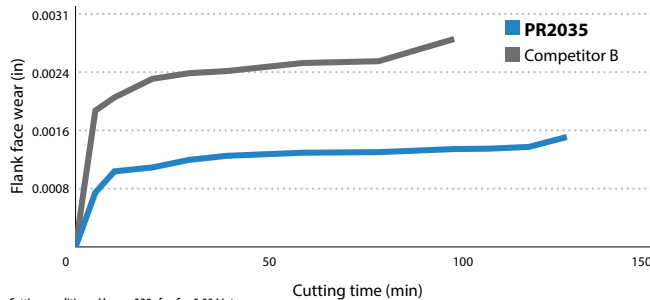
New coating for grooving and cut-off machining



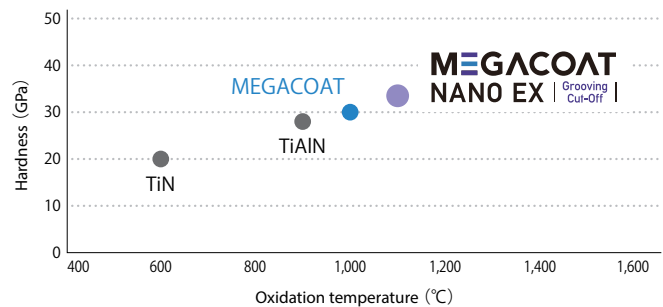
Achieve long tool life and high stability with the combination of high content aluminum nano coating layer

Cutting Performance

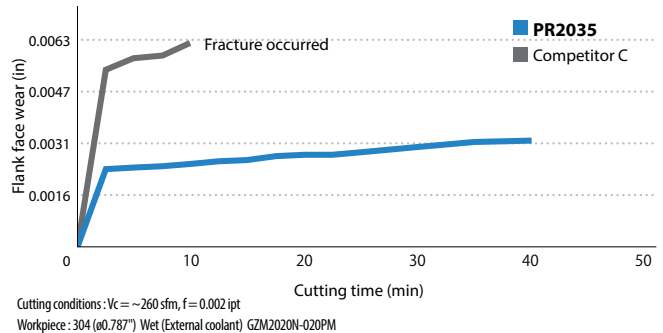
1045 Wear resistance comparison (Internal evaluation)



Coating characteristics (Internal evaluation)



304 Wear resistance comparison (Internal evaluation)



3

Large variety of insert and chipbreaker combinations for a wide range of applications

Insert	Cut-off (H22)	Low feed PF 	Medium feed PM 	High feed PH 	Low cutting force PG 	Grades	PVD coating P M K PR2015 / PR2025 / PR2035
	Grooving (G28)	General purpose GM 	Low feed GL 	High feed PH 	Copying CM 		Low cutting force GS	PCD NB	Cermet P DLC coating N TN620 PDL025
Tool holder	Internal coolant JCTM Series for direct coolant 						External coolant Standard type / for Sub-spindle tooling

INSERT GRADES	A
TURNING INSERTS	B
CBN / PC D INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

GZM/GZMS/GZG

				Carbon Steel / Alloy Steel														P																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Insert		Part Number	Edge Prep	No. of Edges	Dimensions (mm)						Tolerance (mm)		Cement Carbide				PCD	Applicable Toolholder G30~G33																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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	 General Purpose	GZM 2420N-020GM	-	2	0.094	2.4		0.2					-0.03	+0.03																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					</

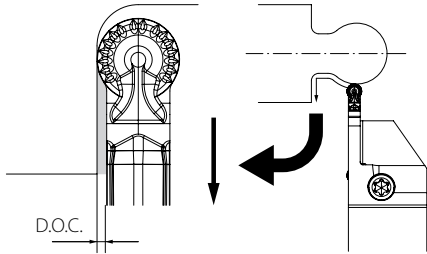
GZM and GZG inserts cannot be used in KGM or KGD holders.

Recommended Cutting Conditions  G35

CM Chipbreaker [Depth of cut (D.O.C.) when back copying]

Maximum D.O.C. when back copying

Insert Part Number	Maximum D.O.C.		
	Toolholder Part Number		
	KGZ...2(...)	KGZ...2.4(...)	KGZ...3(...)
GZM3020N-150R-CM	0.009" (0.24mm)	0.009" (0.24mm)	0.008" (0.2mm)



The diagram illustrates the maximum Depth of Cut (D.O.C.) for the tool. On the left, a cross-sectional view of the tool insert is shown, with a vertical line indicating the D.O.C. On the right, a side view of the tool cutting a groove is shown, with a curved arrow indicating the back-copying motion.

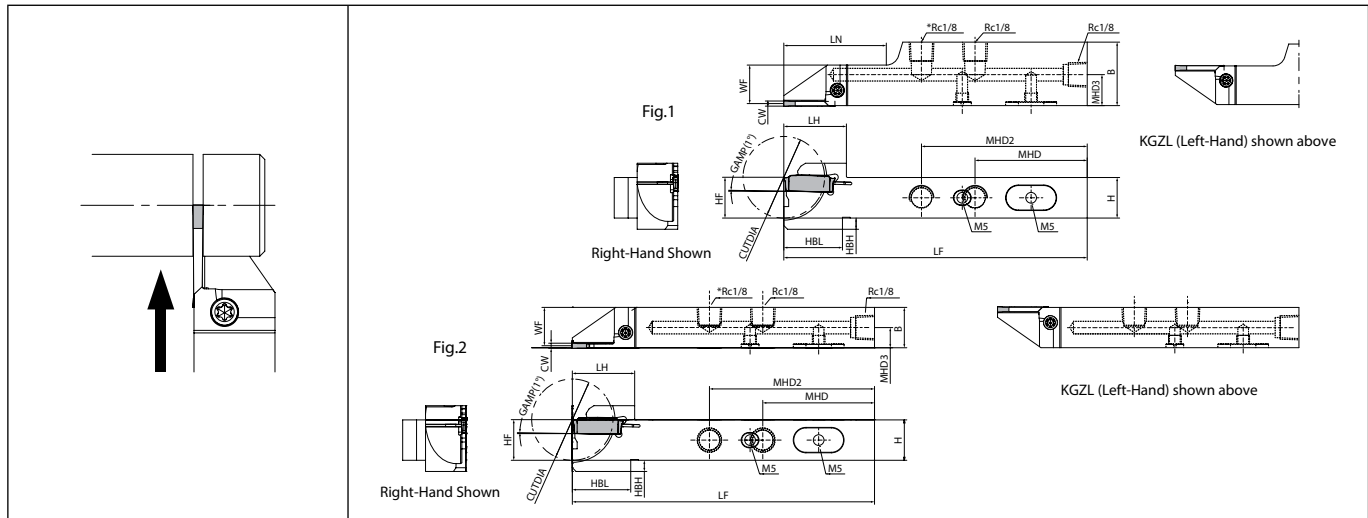
Inserts Identification System

Tolerance symbol		Edge width				Hand of tool		Chipbreaker symbol			
G	Ground insert	13	1.3 mm	25	2.5 mm	R	Right-hand	PF	Low feed	PH	High feed
M	M class	15	1.5 mm	30	3 mm	L	Left-hand	PM	Medium feed	PG	Low cutting force
		20	2 mm			N	Neutral				

GZ	M	S	20	20	N	-	020	PM	-	6D
Series	No. of edge		Insert length		Corner-R (RE)			Lead angle		
Grooving / Cut-off	No indication 2-edge		16 16 mm		003 0.03 mm 020 0.2 mm			No indication 0°		
GZ Series	S 1-edge		20 20 mm		005 0.05 mm 025 0.25 mm			6D 6°		
					015 0.15 mm 030 0.3 mm			15D 15°		

KGZ-JCTM (External Grooving, Coolant-Through Toolholder)

Coolant Piping Parts H16, H17



Toolholder Dimensions

Right-hand shown | KGZ% 5.72...-JCTM, KGZ% 8...-JCTM : 2-Rc1/8

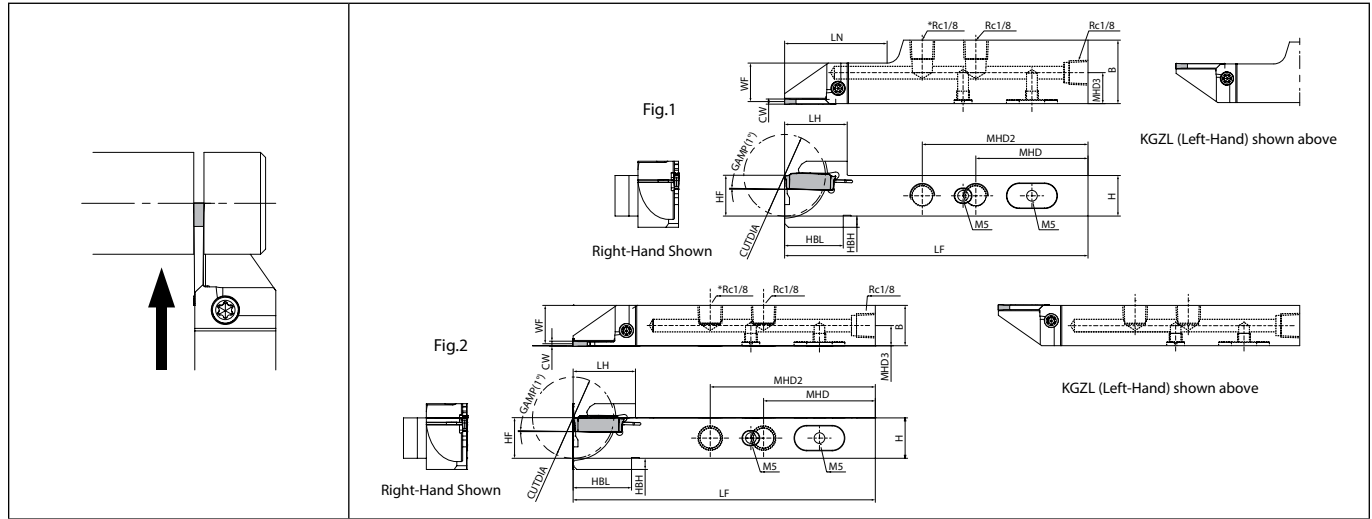
Unit	Part Number	Std. Item		Dimensions														Angle GAMP (°)	Fig.	Coolant Hole	Spare Parts				Applicable Inserts ➡ G28							
		R	L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.				CW max.	Plug	Plug	Screw		Wrench						
																																
Inch	KGZR 5.72-2JCTM	●		0.945	0.500	0.709	0.780	2.126	-	0.331	0.500	0.335	0.778		1.717	0.469																GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	KGZL 5.72-2JCTM		●							0.303				4.750			0.079" (2mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S							
	KGZR 82.5-2JCTM	●		1.260	0.625	1.000	0.976	1.732	2.559	0.480	0.625	0.177	0.913		1.575	0.594																
	KGZL 82.5-2JCTM		●							0.303																						
	KGZR 5.72-2.4JCTM	●		0.945	0.500	0.709	0.780	2.126	-	0.331	0.500	0.335	0.778		1.717	0.461																
	KGZL 5.72-2.4JCTM		●							0.303					4.750			0.095" (2.4mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S						
	KGZR 82.5-2.4JCTM	●		1.260	0.625	1.000	0.976	1.732	2.559	0.480	0.625	0.177	0.913		1.575	0.586																
	KGZL 82.5-2.4JCTM		●							0.303																						
	KGZR 5.72-3JCTM	●		0.945	0.500	0.709	0.780	2.126	-	0.339	0.500	0.335	0.778		1.717	0.453																
	KGZL 5.72-3JCTM		●							0.303					4.750			0.118" (3mm)	0.118" (3mm)	1	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S						
	KGZR 82.5-3JCTM	●		1.260	0.625	1.000	0.976	1.732	2.559	0.480	0.625	0.177	0.913		1.575	0.578																
	KGZL 82.5-3JCTM		●							0.303																						
	KGZ% 8-2JCTM	●	●	0.945	0.500	0.500	0.780	2.323	-	0.236	0.500	0.236	0.780			0.469																
	KGZ% 10-2D26JCTM	●	●	1.024	0.625	0.625	0.976	1.732	2.559	0.315	0.625	0.039	0.913		4.750	0.594			0.079" (2mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S					
	KGZ% 10-2JCTM	●	●	1.260							0.177																					
	KGZ% 8-2.4JCTM	●	●	0.945	0.500	0.500	0.780	2.323	-	0.236	0.500	0.236	0.780			0.461																
	KGZ% 10-2.4D26JCTM	●	●	1.024	0.625	0.625	0.976	1.732	2.559	0.315	0.625	0.039	0.913		4.750	0.586			0.095" (2.4mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S					
	KGZ% 10-2.4JCTM	●	●	1.260							0.177																					
KGZ% 8-3JCTM	●	●	0.945	0.500	0.500	0.780	2.323	-	0.236	0.500	0.236	0.780			0.453																	
KGZ% 10-3D26JCTM	●	●	1.024	0.625	0.625	0.976	1.732	2.559	0.315	0.625	0.039	0.913		4.750	0.578			0.118" (3mm)	0.118" (3mm)	1	2	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S						
KGZ% 10-3JCTM	●	●	1.260							0.177																						

Recommended tightening torque : 2.0N · m(SB-40120TR)

GM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMs).

KGZ-JCTM (External Grooving, Coolant-Through Toolholder)

Coolant Piping Parts H16, H17



Toolholder Dimensions

Right-hand shown | KGZ% 12...-JCTM : 2-Rc1/8

Unit	Part Number	Std. Item		Dimensions														Angle	Fig.	Coolant Hole	Spare Parts				Applicable Inserts  G28		
		R	L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.				CW max.	GAMP (°)	Plug	Plug		Screw	Wrench
mm	KGZR 1218JX-2JCTM	●		24	12	18	19.8	54	-	8.4	12	8.5	19.8	120	43.7	11.2	0.079" (2mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...	
	KGZL 1218JX-2JCTM	●		24	12	18	19.8	54	-	7.7	12	8.5	19.8		43.7	11.2											0.079" (2mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S
	KGZR 1625JX-2JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2	120	40.0	15.2	0.079" (2mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S		
	KGZL 1625JX-2JCTM	●		32	16	25	24.8	44	65	7.7	16	4.5	23.2		40.0	15.2											0.079" (2mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S
	KGZR 1218JX-2.4JCTM	●		24	12	18	19.8	54	-	8.4	12	8.5	19.8	120	43.7	11.0	0.095" (2.4mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...	
	KGZL 1218JX-2.4JCTM	●		24	12	18	19.8	54	-	7.7	12	8.5	19.8		43.7	11.0											0.095" (2.4mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S
	KGZR 1625JX-2.4JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2	120	40.0	15.0	0.095" (2.4mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S		
	KGZL 1625JX-2.4JCTM	●		32	16	25	24.8	44	65	7.7	16	4.5	23.2		40.0	15.0											0.095" (2.4mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S
	KGZR 1218JX-3JCTM	●		24	12	18	19.8	54	-	8.6	12	8.5	19.8	120	43.7	10.8	0.118" (3mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...3020...	
	KGZL 1218JX-3JCTM	●		24	12	18	19.8	54	-	7.7	12	8.5	19.8		43.7	10.8											0.118" (3mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S
	KGZR 1625JX-3JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2	120	40.0	14.8	0.118" (3mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S		
	KGZL 1625JX-3JCTM	●		32	16	25	24.8	44	65	7.7	16	4.5	23.2		40.0	14.8											0.118" (3mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S
	KGZ% 1212JX-2JCTM	●	●	24	12	12	19.8	59	-	6	12	5	19.8	120	11.2	0.079" (2mm)	0.118" (3mm)	1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...		
	KGZ% 1616JX2D26JCTM	●	●	26	16	16	24.8	44	65	8	16	1	23.2													15.2	0.079" (2mm)	0.118" (3mm)	1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S
	KGZ% 1616JX-2JCTM	●	●	32	16	16	24.8	44	65	8	16	4.5	23.2	120	11.0	0.095" (2.4mm)	0.118" (3mm)	1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S			
	KGZ% 1212JX-2.4JCTM	●	●	24	12	12	19.8	59	-	6	12	5	19.8													15.0	0.095" (2.4mm)	0.118" (3mm)	1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S
	KGZ% 1616JX2.4D26JCTM	●	●	26	16	16	24.8	44	65	8	16	1	23.2	120	15.0	0.095" (2.4mm)	0.118" (3mm)	1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...		
	KGZ% 1616JX-2.4JCTM	●	●	32	16	16	24.8	44	65	8	16	4.5	23.2													15.0	0.095" (2.4mm)	0.118" (3mm)	1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S
KGZ% 1212JX-3JCTM	●	●	24	12	12	19.8	59	-	6	12	5	19.8	120	10.8	0.118" (3mm)	0.118" (3mm)	1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...3020...			
KGZ% 1616JX3D26JCTM	●	●	26	16	16	24.8	44	65	8	16	1	23.2														14.8	0.118" (3mm)	0.118" (3mm)	1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S
KGZ% 1616JX-3JCTM	●	●	32	16	16	24.8	44	65	8	16	4.5	23.2	14.8	0.118" (3mm)	0.118" (3mm)	1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S					

Recommended tightening torque : 2.0N · m(SB-40120TR)

GM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGZ (External Grooving, Standard Toolholder)

Coolant Piping Parts H16, H17

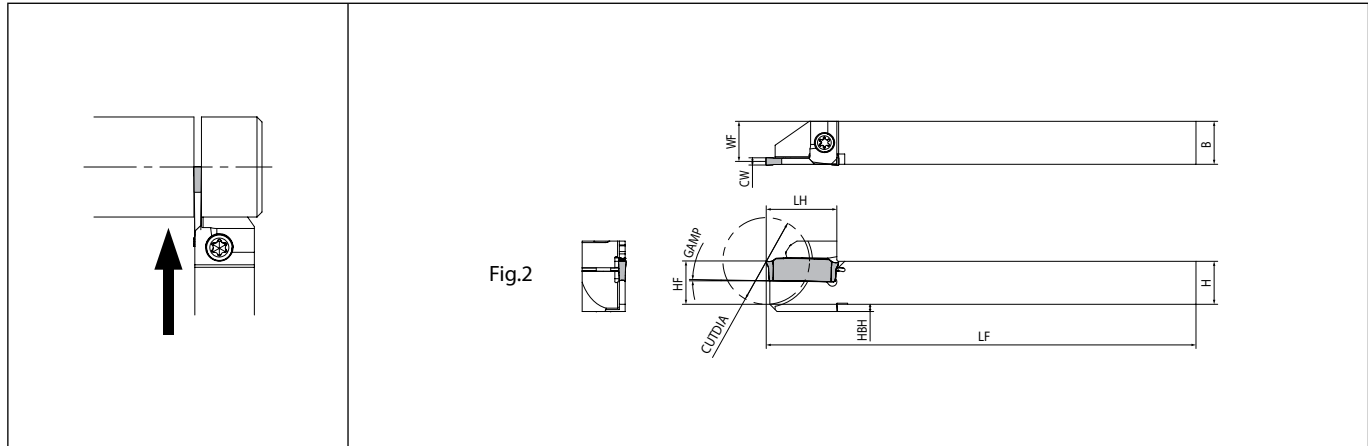


Fig.2

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions										Angle	Spare Parts			Applicable Inserts ➡ G28
		R	L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.		Screw	Screw	Wrench	
																		
Inch	KGZ% 6-2JX	●	●	0.787	0.375	0.375	0.736	0.375	0.101	4.750	0.344	0.079" (2mm)	0.118" (3mm)	2	SB-40120TR	-	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	8-2JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055		0.469							
	10-2JX	●	●	1.260	0.625	0.625	0.976	0.625	-		0.594							
	KGZ% 6-2.4JX	●	●	0.787	0.375	0.375	0.736	0.375	0.101	4.750	0.336	0.095" (2.4mm)	0.118" (3mm)	2	SB-40120TR	-	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	8-2.4JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055		0.461							
	10-2.4JX	●	●	1.260	0.625	0.625	0.976	0.625	-		0.586							
	KGZ% 8-3JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055	4.750	0.453	0.118" (3mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GZ...3020...
	10-3JX	●	●	1.260	0.625	0.625	0.976	0.625	-		0.578							
	10-3D38JX	●	●	1.496	0.625	0.625	1.134	0.625			0.578							
	12-3D42JX	●	●	1.654	0.750	0.750	1.217	0.750			0.703							
43-3D42JX	●	●	1.654	0.750	0.750	1.217	0.750	0.453			-				SE-50125TR	LTW-20		

Recommended tightening torque : 2.0N · m (SB-40120TR), 2.5N · m (SE-50125TR)

When machining large cutting dia. (over 1.417" (36mm)) with KGZ^R/L...-3D38 or KGZ^R/L...-3D42, please follow the instructions below

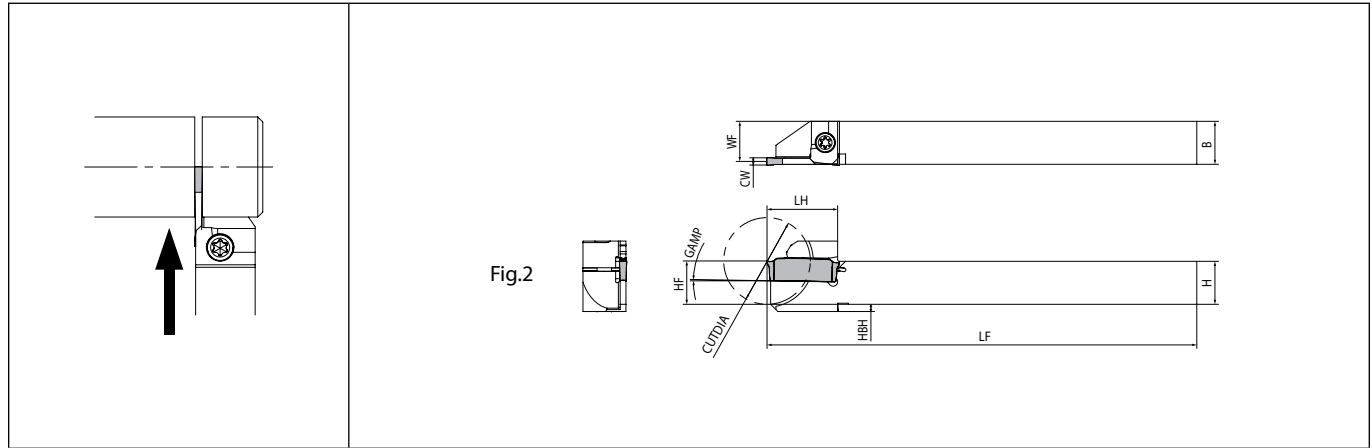
· Use 1-edge inserts

· Maximum workpiece diameter for 2-edge inserts is ø1.417" (36mm)

KGM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

KGZ (External Grooving, Standard Toolholder)

Coolant Piping Parts H16, H17



Right-hand shown

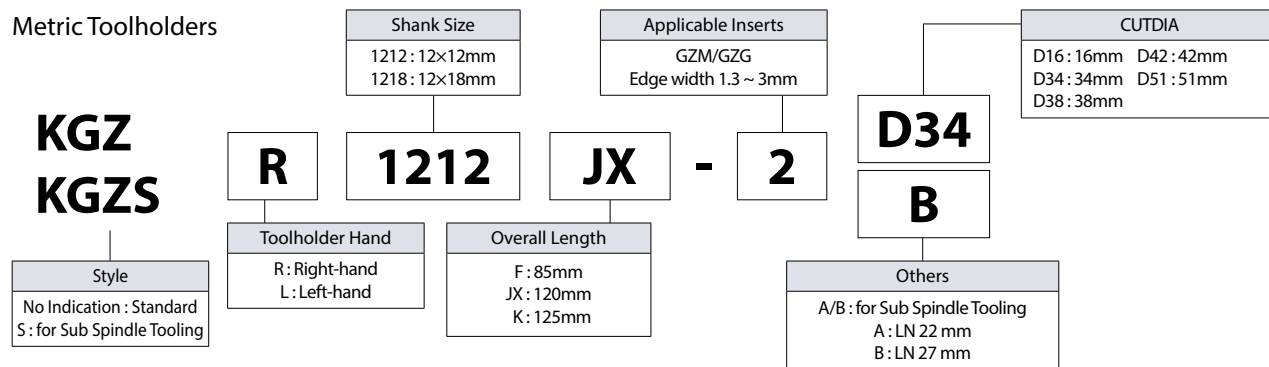
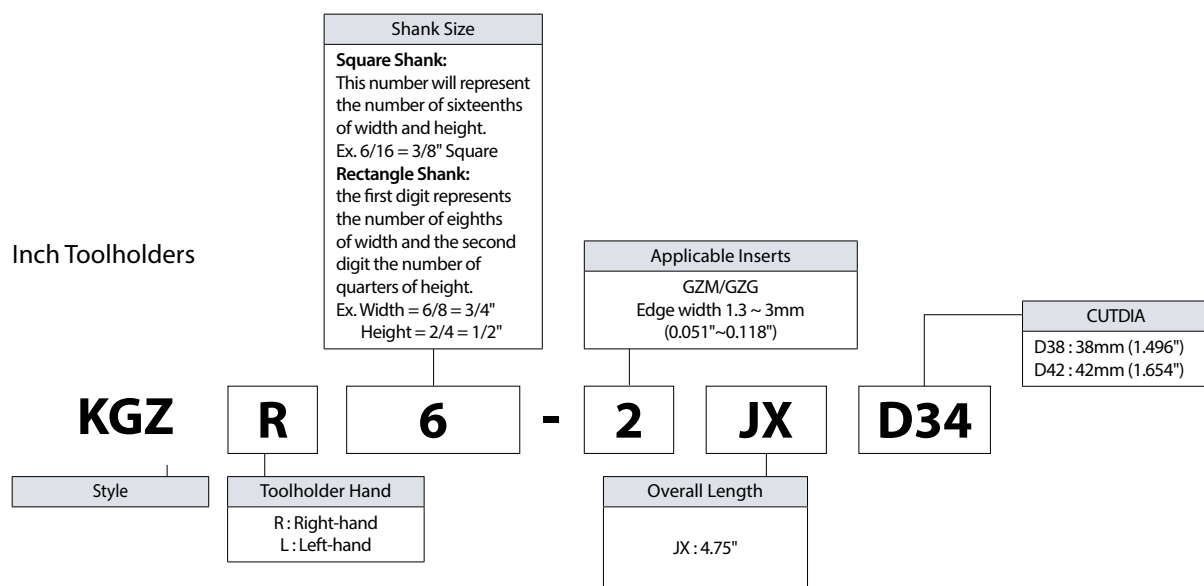
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions										Angle	Spare Parts					Applicable Inserts G28													
		R	L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.		GAMP (°)	Clamp Bolt	Screw	Screw	Wrench		Wrench												
mm	KGZ% 1010JX-2	●	●	20	10	10	18.7	10	2.1	120	9.2	0.079" (2mm)	0.118" (3mm)	2	1						GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...												
	1212F-2	●	●	24	12	12	19.8	12		85	11.2											-	SB-40120TR	-	-	LTW-15S							
	1212JX-2	●	●	32	16	16	24.8	16		120	15.2											-	-	SE-50125TR	-	LTW-20							
	1616JX-2	●	●	34	20	12	26.8	20	-	125	19.2	24.2	0.094" (2.4mm)	0.118" (3mm)	1	-	-	-	-	LTW-20													
	2012K-2D34	●	●													25	25	32.7	25	HH5X16		-	-	LW-4	-								
	2020K-2D34	●	●													34	20	20	26.6	20		-	-	-	-	-							
	2525K-2D34	●	●	25	25	32.7	25	25	25	32.7	25	24	HH5X16	-	-	LW-4	-																
	KGZ% 1010JX-2.4	●	●	20	10	10	18.7	10	2.1	120	9	0.094" (2.4mm)	0.118" (3mm)	2	1						GZ...2420... GZ...2520... GZ...3020...												
	1212F-2.4	●	●	24	12	12	19.8	12		85	11											-	SB-40120TR	-	-	LTW-15S							
	1212JX-2.4	●	●	32	16	16	24.6	16		120	15											-	-	SE-50125TR	-	LTW-20							
	1616JX-2.4	●	●	34	20	12	26.6	20	-	125	19	24	0.094" (2.4mm)	0.118" (3mm)	1	-	-	-	-	LTW-20													
	2012K-2.4D34	●	●													25	25	32.7	25	25		25	32.7	25	24	HH5X16	-	-	LW-4	-			
	2020K-2.4D34	●	●													34	20	20	26.6	20		-	-	-	-	-							
	2525K-2.4D34	●	●	25	25	32.7	25	25	25	32.7	25	24	HH5X16	-	-	LW-4	-																
	KGZ% 1212JX-3	●	●	24	12	12	19.8	12	2.1	120	14.8	0.118" (3mm)	0.118" (3mm)	1	1						GZ...3020...												
	1616JX-3	●	●	32	16	16	24.6	16														-	125	11.8	10.8	-	-	SE-50125TR	-	LTW-20			
	1616JX-3D38	●	●	38																											19	13	28.6
	1913K-3D38	●	●						42	20	20	30.7	20	120	18.8	HH5X16	-	-	LW-4	-													
	2012JX-3D42	●	●	51	20	12	35.2	20	-	120	18.8	0.118" (3mm)	0.118" (3mm)	1	1							GZ...3020...											
	2012JX-3D51	●	●	42																			25	25	41.7	25	125	23.8	HH5X16	-	-	LW-4	-
	2020JX-3D42	●	●	51																			25	25	41.7	25	125	23.8	HH5X16	-	-	LW-4	-
	2020JX-3D51	●	●	42	25	25	41.7	25	125	23.8	HH5X16	-	-	LW-4	-																		
	2525K-3D51	●	●	51	25	25	41.7	25	125	23.8	HH5X16	-	-	LW-4	-																		

Recommended tightening torque : 2.0N · m (SB-40120TR), 2.5N · m (SE-50125TR)
 When machining large cutting dia. (over 1.417" (36mm)) with KGZ R/L...-3D38 or KGZ R/L...-3D42, please follow the instructions below
 · Use 1-edge inserts
 · Maximum workpiece diameter for 2-edge inserts is ø1.417" (36mm)
 KGM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMM, GMR/L, GDM, GDG, GDGS, GDMS).

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Toolholder Identification System



KGZ Recommended Cutting Conditions

GM / GL / PH / CM Chipbreaker

Workpiece Material	Recommended Insert Grade (Vc : sfm)						f (ipr)						Notes
							GM		GL		PH	CM	
	MEGACOAT NANO EX			Cermet	Carbide	PCD	CW						
	PR2015	PR2025	PR2035	TN620	GW15	KPD001	0.087"~0.095" (2.2mm~2.4mm)	0.118" (3.0mm)	0.095" (2.4mm)	0.118" (3.0mm)	0.079"~0.118" (2.0mm~3.0mm)	0.118" (3.0mm)	
Carbon Steel	☆ 230 ~ 590	★ 230 ~ 490	☆ 230 ~ 490	★ 260 ~ 490	-	-	0.0020 ~ 0.0051	0.0028 ~ 0.0067	0.0012 ~ 0.0043	0.0016 ~ 0.0059	0.0039 ~ 0.0079	0.0020 ~ 0.0059	Coolant
Alloy Steel	☆ 230 ~ 590	★ 230 ~ 490	☆ 230 ~ 490	★ 260 ~ 490	-	-							
Stainless Steel	☆ 200 ~ 490	☆ 200 ~ 390	★ 200 ~ 390	-	-	-	0.0012 ~ 0.0047	0.0020 ~ 0.0059	0.0008 ~ 0.0039	0.0012 ~ 0.0047	0.0031 ~ 0.006	0.0016 ~ 0.0047	
Cast Iron	★ 260 ~ 660	-	-	-	☆ 160 ~ 330	-	0.0020 ~ 0.0051	0.0028 ~ 0.0067	0.0012 ~ 0.0043	0.0016 ~ 0.0059	0.0039 ~ 0.0079	0.0020 ~ 0.0059	
Aluminum Alloy	-	-	-	-	☆ 660 ~ 1480	★ 490 ~ 6560	-	-	-	-	-	-	
Brass	-	-	-	-	☆ 330 ~ 660	★ 660 ~ 2620	-	-	-	-	-	-	

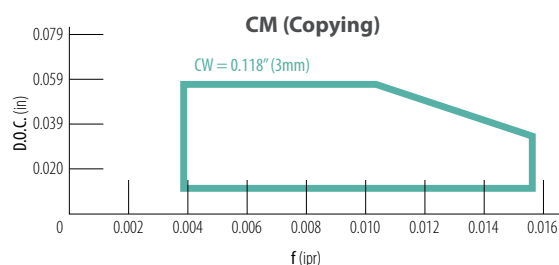
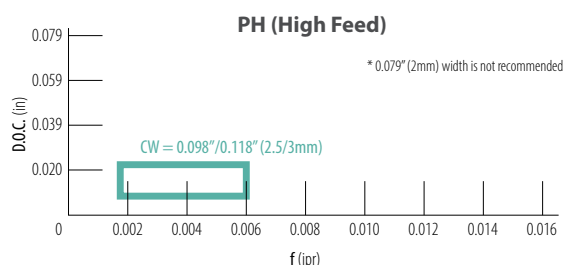
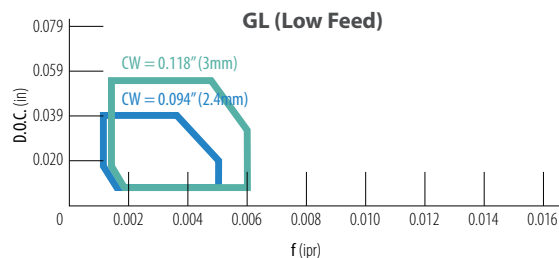
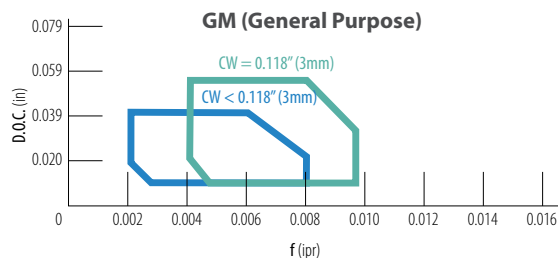
GS / NB (Non-Ferrous)

★:1st Recommendation ☆:2nd Recommendation

Workpiece Material	Recommended Insert Grade (Vc : sfm)						f (ipr)			Notes
							GS	NB		
	MEGACOAT NANO EX			Cermet	Carbide	PCD	CW			
	PR2015	PR2025	PR2035	TN620	GW15	KPD001	0.098"~0.118" (2.5mm~3.0mm)	0.079" (2.0mm)	0.118" (3.0mm)	
Carbon Steel	☆ 230 ~ 590	★ 230 ~ 490	☆ 230 ~ 490	★ 260 ~ 490	-	-	0.0016 ~ 0.0035	-	-	Coolant
Alloy Steel	☆ 230 ~ 590	★ 230 ~ 490	☆ 230 ~ 490	★ 260 ~ 490	-	-				
Stainless Steel	☆ 200 ~ 490	☆ 200 ~ 390	★ 200 ~ 390	-	-	-	0.0012 ~ 0.0031	-	-	
Cast Iron	★ 260 ~ 660	-	-	-	☆ 160 ~ 330	-	0.0016 ~ 0.0035	-	-	
Aluminum Alloy	-	-	-	-	☆ 660 ~ 1480	★ 490 ~ 6560	0.0012 ~ 0.0028	0.0020 ~ 0.0059	0.0020 ~ 0.0059	
Brass	-	-	-	-	☆ 330 ~ 660	★ 660 ~ 2620	-			

★:1st Recommendation ☆:2nd Recommendation

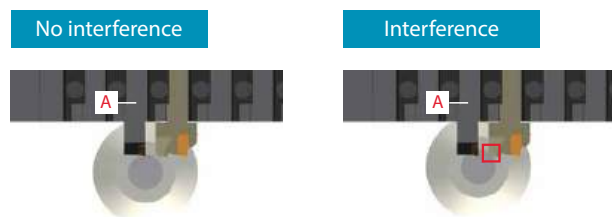
Turning
(Workpiece Material : 1049)



Precautions

Maximum D.O.C. of the next tool (indicated as tool A) and holder interference

When using JCTM holder 1218/1212, note maximum D.O.C. of the next tool to avoid interference.



Estimated maximum D.O.C. of tool A (mm)

Workpiece Dia.	ø12mm	ø16mm	ø20mm
JCTM Part Number			
KGZ R/L 1218JX-*JCTM	2.4	2.0	1.7
KGZ R/L 1212JX-*JCTM	-	-	3.8

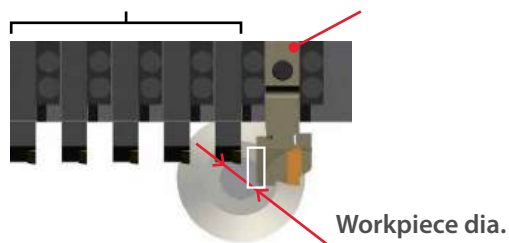
When using the JCTM holder 1218/1625/1616 for T01 on the following models, please check the workpiece diameter in advance to avoid interference.

<Target Models>

T01: Machines where both □16mm (or Spacer plate + □12mm) holders can be mounted

Non-T01: Machines where only □12mm holders can be mounted

Non-T01: □12mm T01: □16mm (or Spacer plate + □12mm)



KGZ Compatibility

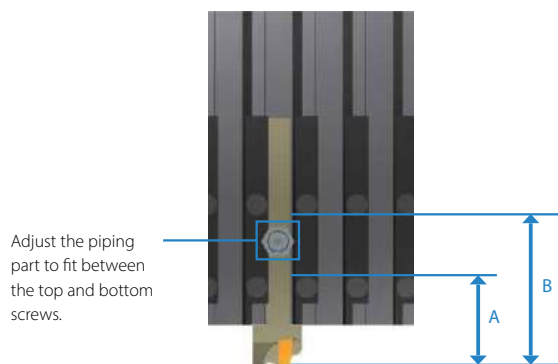
Workpiece Dia.	ø14mm or smaller	ø14mm or larger
JCTM Part Number		
KGZ R/L 1218JX-*JCTM	Compatible	Please use KGZ R/L 1212JX-*JCTM or KGZ R/L 1616JX*D26JCTM
KGZ R/L 1625JX-*JCTM		
KGZ R/L 1616JX-*JCTM		

Piping part interference avoidance

Rectangular shank are recommended for use with piping parts connected to JCTM holders.

When connecting the J-**-R1/8-G1/8-L piping parts to the rectangular shank, please check for any potential interference with the machine in advance.

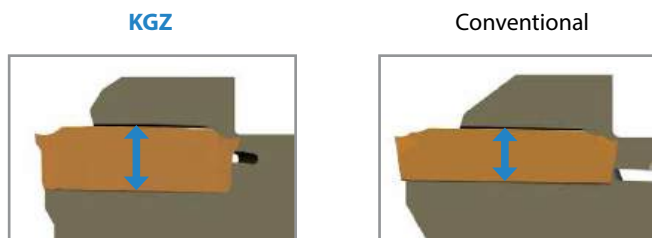
When connecting piping parts to the JCTM square shank, check the lengths of A and B below to avoid interference with the screws of the tool turret.



Shank Size	Square Shank Use
□0.500" □12mm	"A" shorter than 51.5mm and "B" longer than 68.5mm → Available Other than the above conditions → Use J-**-R1/8-G1/8-L or a rectangular shank
□0.625" □16mm	Available

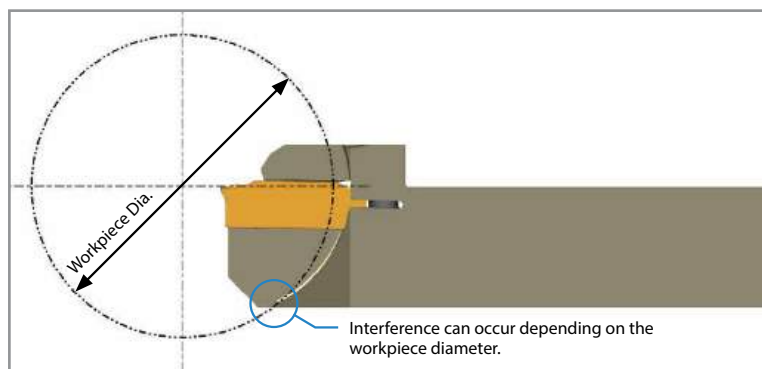
Compatibility with Conventional Tools

KGZ is not compatible with the conventional tools (KGD/KGM)



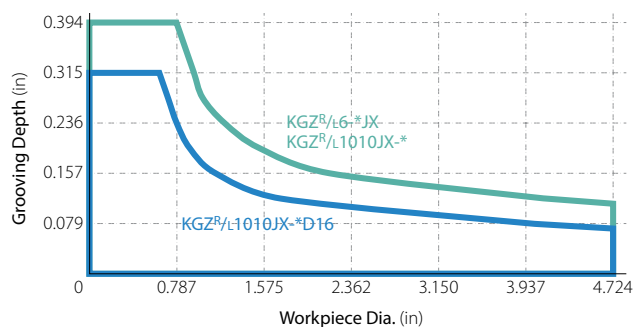
Maximum Grooving Depth Limitations

There is a limit to available grooving depth depending on the workpiece diameter.

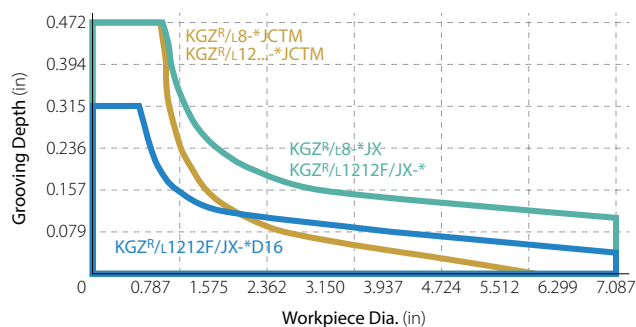


Guideline for Grooving Depth

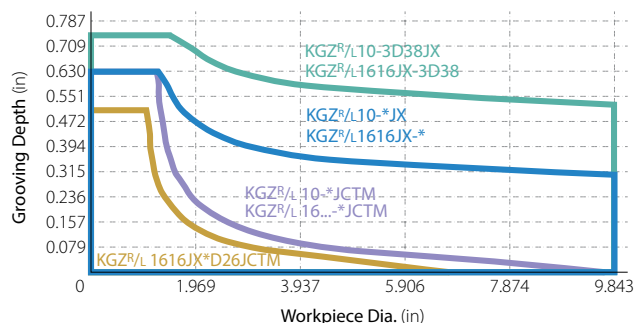
0.375" / 10mm Toolholders



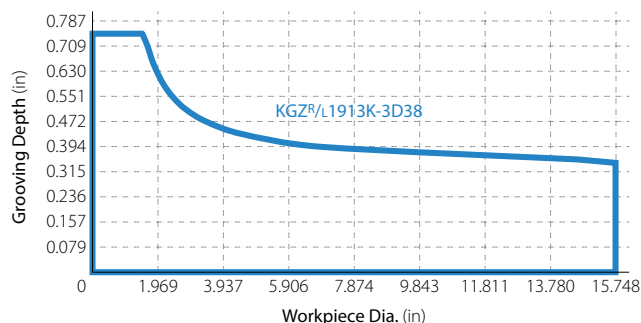
0.500" / 12mm Toolholders



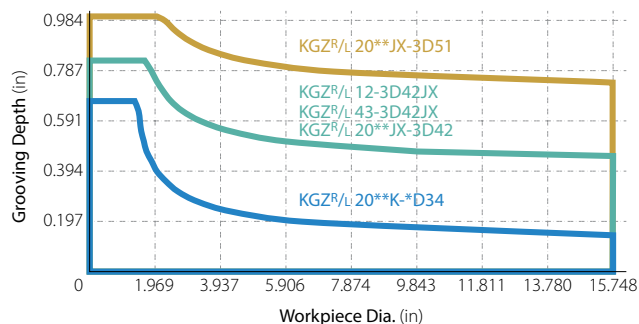
0.625" / 16mm Toolholders



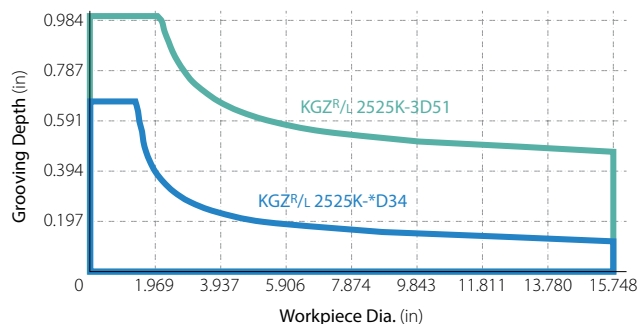
19mm Toolholders



0.750" / 20mm Toolholders



25mm Toolholders



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGD Insert Lineup

Smooth chip control

» Newly-introduced chipbreakers designed to cover a variety of workpiece materials.

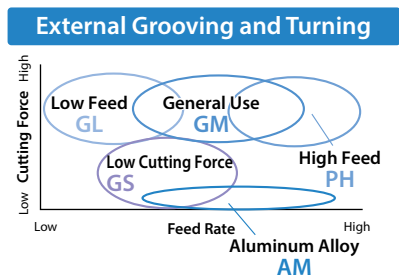
High precision edge preparation

» High precision molding technology with tolerance ± 0.03 mm (Edge width 2, 3, 4 mm types)

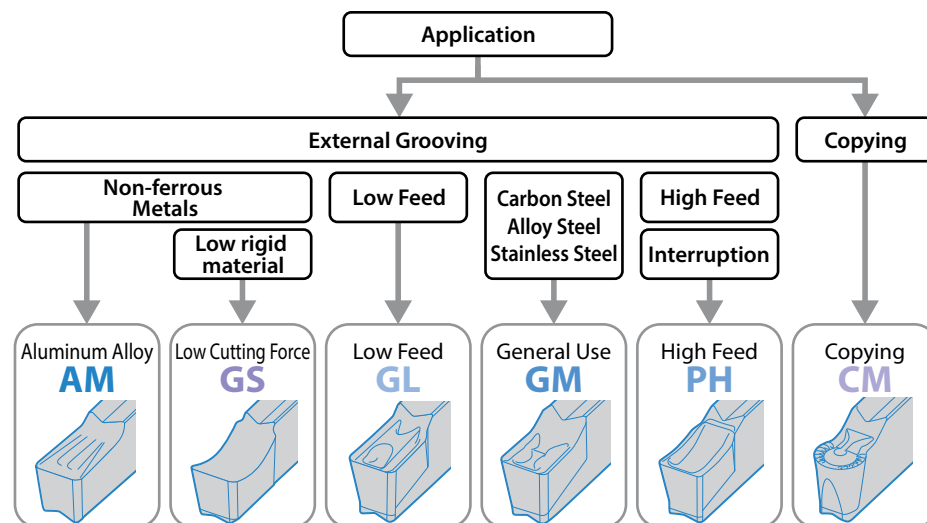
Highly-reputed MEGACOAT technology

» Long tool life and high efficiency machining achieved by superior oxidation resistance and wear resistance.

Application Maps



Chipbreaker Selection (External)



Chip Control Comparison (In-house Evaluation)

Cutting Conditions : $V_c = 490$ sfm, $f = 0.006$ ipr Workpiece : Chromium Molybdenum Steel

Better Chip Control than Competitors

Reduces Damage of Cutting Edge Caused by Crushing Chips

GM Chipbreaker



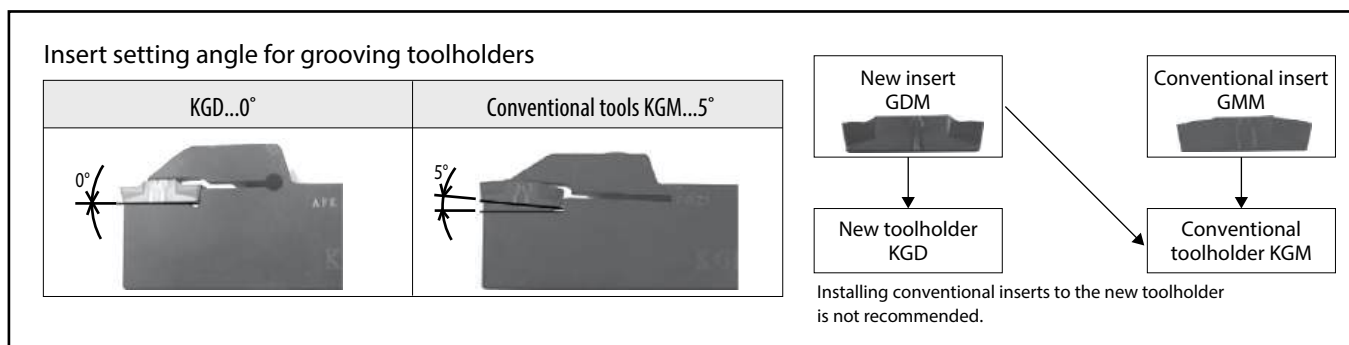
Competitor A



Competitor B



Toolholder and insert combination of KGD type (new) and KGM type (conventional)



KGD Grooving Toolholder

Integral type and SwitchBlade type (toolholder + blade) are available



Integral Type



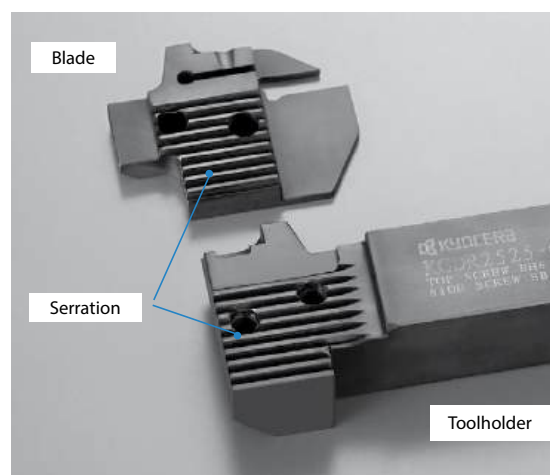
SwitchBlade Type

High Rigidity SwitchBlade Toolholder

- Adaptable to wide applications by changing blades.
- Various edge widths and cutting depths can be achieved by changing the blade and toolholder combination.
- Swap blades out easily to change groove width and depth.

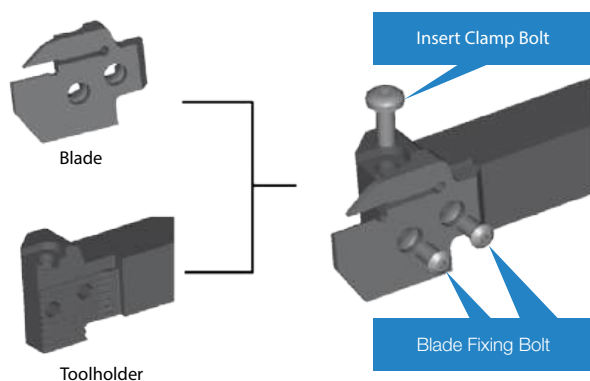
Toolholders for High Pressure Coolant

- Added jet coolant-through holder KGD-JCTM with superior chip control and long tool life



Structure of Toolholder Unit (Toolholder + Blade)

KGDR-S (0° SwitchBlade Type)

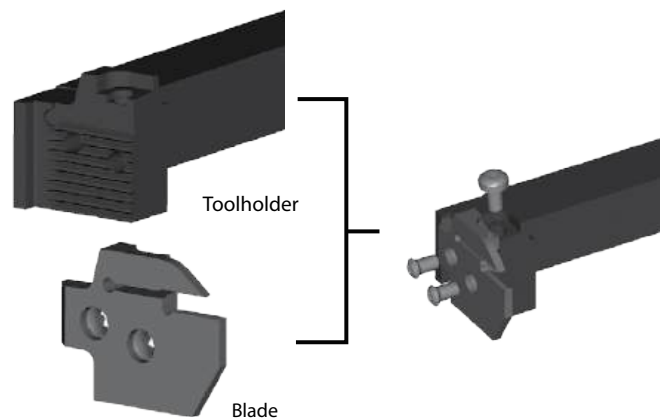


Blade Combination of 0° SwitchBlade Type

Toolholder (KGDR ○○○○-C)
+
Blade (KGDR-○T○○-C)

Right-hand (R) Blade for Right-hand (R) Toolholder,
Left-hand (L) Blade for Left-hand (L) Toolholder.

KGDS-S (90° SwitchBlade Type)



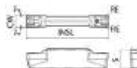
Blade Combination of 90° SwitchBlade Type

Toolholder (KGDSR ○○○○-C)
+
Blade (KGDL-○T○○-C)

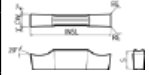
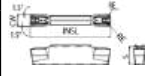
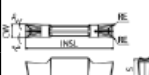
Left-hand (L) Blade for Right-hand (R) Toolholder,
Right-hand (R) Blade for Left-hand (L) Toolholder.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

GDM/GDMS/GDG

			Carbon Steel / Alloy Steel								☺		●	●	○	P
			Stainless Steel								☺		☺	●	●	M
			Cast Iron								●					K
			Non-Ferrous Metals													N
			Titanium Alloy											●		S
			Hard Materials (~ 40HRC)										○			H
			Hard Materials (40HRC ~)													
Insert		Part Number	No. of Edges	Dimensions (mm)					Tolerance (mm)		Carbide		Germet	Applicable Toolholder ➡ G44~G56		
				CW		S	RE	INSL	CW min.	CW max.	PVD		-			
				in	mm						PR1215	PR1225	PR1535		TN620	TN90
	 General Purpose	GDM 2420N-020GM	2	0.094	2.4	4.3	0.2	20	- 0.03	+ 0.03	●	●	●	●	KGD % ...2.4... KGD % ...2...	
		GDM 3020N-020GM 3020N-040GM	2	0.118	3	4.3	0.2 0.4	20	- 0.03	+ 0.03	●	●	●	●	KGD % ...3... KGD % ...2.4...	
		GDM 4020N-020GM 4020N-040GM 4020N-080GM	2	0.157	4	4.3	0.2 0.4 0.8	20	- 0.03	+ 0.03	●	●	●	●	KGD % ...4... KGD % ...3...	
		GDM 5020N-040GM 5020N-080GM	2	0.197	5	4.3	0.4 0.8	20	- 0.04	+ 0.04	●	●	●	●	KGD % ...5... KGD % ...4...	
		GDM 6020N-040GM 6020N-080GM	2	0.236	6	4.3	0.4 0.8	20	- 0.04	+ 0.04	●	●	●	●	KGD % ...6... KGD % ...5...	
		GDM 8030N-080GM	2	0.315	8	5.5	0.8	30	- 0.05	+ 0.05	●	●	●		KGD % ...-8T25	
	 1-edge / General Purpose	GDMS 2220N-020GM	1	0.087	2.2	4.3	0.2	20	- 0.03	+ 0.03	●	●	●	●	KGD % ...2...	
		GDMS 3020N-040GM	1	0.118	3	4.3	0.4	20	- 0.03	+ 0.03	●	●	●	●	KGD % ...3... KGD % ...2.4...	
		GDMS 4020N-040GM	1	0.157	4	4.3	0.4	20	- 0.03	+ 0.03	●	●	●	●	KGD % ...4... KGD % ...3...	
		GDMS 5020N-080GM	1	0.197	5	4.3	0.8	20	- 0.04	+ 0.04	●	●	●	●	KGD % ...5... KGD % ...4...	
		GDMS 6020N-080GM	1	0.236	6	4.3	0.8	20	- 0.04	+ 0.04	●	●	●	●	KGD % ...6... KGD % ...5...	

GDM/GDMS/GDG

			Carbon Steel / Alloy Steel								☺☺☺☺☺☺☺☺		●●●●●●●●		○		P	
			Stainless Steel								☺☺☺☺☺☺☺☺		●●●●●●●●		M			
			Cast Iron								●●●●●●●●		☺☺☺☺☺☺☺☺		K			
			Non-Ferrous Metals								☺☺☺☺☺☺☺☺		●●●●●●●●		N			
			Titanium Alloy								☺☺☺☺☺☺☺☺		●●●●●●●●		S			
			Hard Materials (~ 40HRC)								○		☺☺☺☺☺☺☺☺		H			
			Hard Materials (40HRC ~)															
Insert	Part Number	No. of Edges	Dimensions (mm)					Tolerance (mm)		Carbide					Cermet	Applicable Toolholder ☺ G44~G56		
			CW		S	RE	INSL	CW min.	CW max.	PVD1215 PRI225 PRI535	DLC PDL015	- GW15	- TN620 TN90					
			in	mm														
	 Low Cutting Force	GDG 2520N-020GS	2	0.098	2.5	4.3	0.2	20	-0.02	+0.02	●	●	●	●	●	●	KGD %/...2.4... KGD %/...2...	
		GDG 3020N-020GS	2	0.118	3	4.3	0.2	20	-0.02	+0.02	●	●	●	●	●	●	KGD %/...3... KGD %/...2.4...	
		GDG 3520N-020GS	2	0.138	3.5	4.3	0.2	20	-0.02	+0.02	●	●	●	●	●	●	KGD %/...3...	
		GDG 4020N-040GS	2	0.157	4	4.3	0.4	20	-0.02	+0.02	●	●	●	●	●	●	KGD %/...4... KGD %/...3...	
		GDG 5020N-040GS	2	0.197	5	4.3	0.4	20	-0.02	+0.02	●	●	●	●	●	●	KGD %/...5... KGD %/...4...	
		GDG 6020N-040GS	2	0.236	6	4.3	0.4	20	-0.02	+0.02	●	●	●	●	●	●	KGD %/...6... KGD %/...5...	
		GDG 8030N-040GS	2	0.315	8	5.5	0.4	30	-0.02	+0.02	●	●	●	●	●	●	KGD %/...8T25	
	 Low Feed	GDM 2420N-020GL	2	0.094	2.4	4.3	0.2	20	-0.03	+0.03	●	●	●	●	●	●	KGD %/...2.4... KGD %/...2...	
		GDM 3020N-020GL 3020N-040GL	2	0.118	3	4.3	0.2 0.4	20	-0.03	+0.03	●	●	●	●	●	●	KGD %/...3... KGD %/...2.4...	
		GDM 4020N-020GL 4020N-040GL	2	0.157	4	4.3	0.2 0.4	20	-0.03	+0.03	●	●	●	●	●	●	KGD %/...4... KGD %/...3...	
		GDM 5020N-040GL	2	0.197	5	4.3	0.4	20	-0.04	+0.04	●	●	●	●	●	●	KGD %/...5... KGD %/...4...	
		GDM 6020N-040GL	2	0.236	6	4.3	0.4	20	-0.04	+0.04	●	●	●	●	●	●	KGD %/...6... KGD %/...5...	
	 For Aluminum	GDG 3020N-020AM	2	0.118	3	4.3	0.2	20	-0.02	+0.02	●	●	●	●	●	●	KGD %/...3... KGD %/...2.4...	
		GDG 4020N-040AM	2	0.157	4	4.3	0.4	20	-0.02	+0.02	●	●	●	●	●	●	KGD %/...4... KGD %/...3...	
		GDG 5020N-040AM	2	0.197	5	4.3	0.4	20	-0.02	+0.02	●	●	●	●	●	●	KGD %/...5... KGD %/...4...	
		GDG 6020N-040AM	2	0.236	6	4.3	0.4	20	-0.02	+0.02	●	●	●	●	●	●	KGD %/...6... KGD %/...5...	

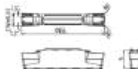
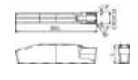
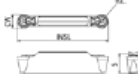
Recommended Cutting Conditions ➡ G58

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

GDM/GDMS/GDG

			Carbon Steel / Alloy Steel										☺	☹	●	○	P
			Stainless Steel										☺	☺	●		M
			Cast Iron										☹				K
			Non-Ferrous Metals														N
			Titanium Alloy											☹			S
			Hard Materials (~ 40HRC)											○			H
			Hard Materials (40HRC ~)														
Insert		Part Number	No. of Edges	Dimensions (mm)					Tolerance (mm)		Carbide		Cermet	Applicable Toolholder ➡ G44~G56			
				CW		S	RE	INSL	CW min.	CW max.	PVD		-				
				in	mm						PR1215	PR1225			PR1535	TiN620	TiN90
 	GDM 2020N-020PH	2	0.079	2	4.3	0.2	20	-0.03	+0.03	●	●	●			KGD % ...2...		
	GDM 3020N-030PH	2	0.118	3	4.3	0.3	20	-0.03	+0.03	●	●	●			KGD % ...3... KGD % ...2.4...		
	GDM 4020N-030PH	2	0.157	4	4.3	0.3	20	-0.03	+0.03	●	●	●			KGD % ...4... KGD % ...3...		
 	GDMS 2020N-020PH	1	0.079	2	4.3	0.2	20	-0.03	+0.03	●	●	●			KGD % ...2...		
	GDMS 3020N-030PH	1	0.118	3	4.3	0.3	20	-0.03	+0.03	●	●	●			KGD % ...3... KGD % ...2.4...		
	GDMS 4020N-030PH	1	0.157	4	4.3	0.3	20	-0.03	+0.03	●	●	●			KGD % ...4... KGD % ...3...		
 	GDM 3020N-150R-CM	2	0.118	3	4.3	1.5	20	-0.03	+0.03	●	●	●	●	●	KGD % ...3... KGD % ...2.4...		
	GDM 4020N-200R-CM	2	0.157	4	4.3	2	20	-0.03	+0.03	●	●	●	●	●	KGD % ...4... KGD % ...3...		
	GDM 5020N-250R-CM	2	0.197	5	4.3	2.5	21	-0.04	+0.04	●	●	●	●	●	KGD % ...5... KGD % ...4...		
	GDM 6020N-300R-CM	2	0.236	6	4.3	3	21	-0.04	+0.04	●	●	●	●	●	KGD % ...6... KGD % ...5...		

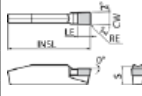
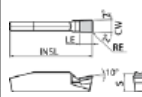
GDM50/60-CM differs from other descriptions in length (INSL) to avoid interference of a toolholder with workpiece.

Recommended Cutting Conditions ☺ G58

GDGS

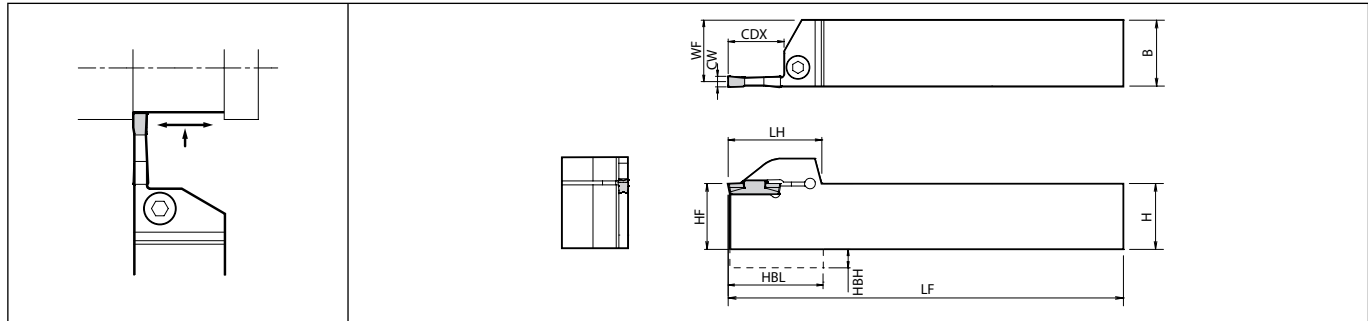
Cutting Edge Preparation <table><tr><td>Symbol</td><td>Specification</td><td colspan="2">Example</td></tr><tr><td>F</td><td>Sharp Edge</td><td>F</td><td>Sharp Edge</td></tr><tr><td>E</td><td>R-Honed</td><td>E003</td><td>R0.003" Honed</td></tr></table>				Symbol	Specification	Example		F	Sharp Edge	F	Sharp Edge	E	R-Honed	E003	R0.003" Honed	Carbon Steel / Alloy Steel													P
				Symbol	Specification	Example																							
				F	Sharp Edge	F	Sharp Edge																						
				E	R-Honed	E003	R0.003" Honed																						
				Stainless Steel													M												
				Cast Iron													K												
				Non-Ferrous Metals												●	N												
Titanium Alloy												●	S																
Hard Materials (~ 40HRC)													H																
Hard Materials (40HRC ~)										●																			
Sintered steel												●																	

Insert	Part Number	Edge preparation type	No. of Edges	Dimensions (mm)						Tolerance (mm)		CBN	PCD	Applicable Toolholder ➡ G44~G56
				CW		S	RE	INSL	LE	CW min.	CW max.			
				in	mm									
				PVD	-									
				KBN05M	KBN570	KPD001								

	 1-edge	GDGS 2020N-020NB	E003 E0008	1	0.079	2	4.3	0.2	20	2.9	-0.03	+0.03	●	●	KGD %L ...2...
		GDGS 3020N-040NB	E003 E0008	1	0.118	3	4.3	0.4	20	2.9	-0.03	+0.03	●	●	KGD %L ...3... KGD %L ...2.4...
		GDGS 4020N-040NB	E003 E0008	1	0.157	4	4.3	0.4	20	2.9	-0.03	+0.03	●	●	KGD %L ...4... KGD %L ...3...
		GDGS 5020N-040NB	E003 E0008	1	0.197	5	4.3	0.4	20	2.9	-0.03	+0.03	●	●	KGD %L ...5... KGD %L ...4...
		GDGS 6020N-040NB	E003	1	0.236	6	4.3	0.4	20	2.9	-0.03	+0.03	●	●	KGD %L ...6... KGD %L ...5...
	 1-edge	GDGS 2020N-020NB	F	1	0.079	2	4.3	0.2	20	2.9	-0.03	+0.03		●	KGD %L ...2...
		GDGS 3020N-020NB	F	1	0.118	3	4.3	0.2	20	2.9	-0.03	+0.03		●	KGD %L ...3... KGD %L ...2.4...
		GDGS 4020N-020NB	F	1	0.157	4	4.3	0.2	20	2.9	-0.03	+0.03		●	KGD %L ...4... KGD %L ...3...
		GDGS 5020N-020NB	F	1	0.197	5	4.3	0.2	20	2.9	-0.03	+0.03		●	KGD %L ...5... KGD %L ...4...
		GDGS 6020N-020NB	F	1	0.236	6	4.3	0.2	20	2.9	-0.03	+0.03		●	KGD %L ...6... KGD %L ...5...

Recommended Cutting Conditions ● G58

KGD (External Grooving)



Right-hand shown

Toolholder Dimensions

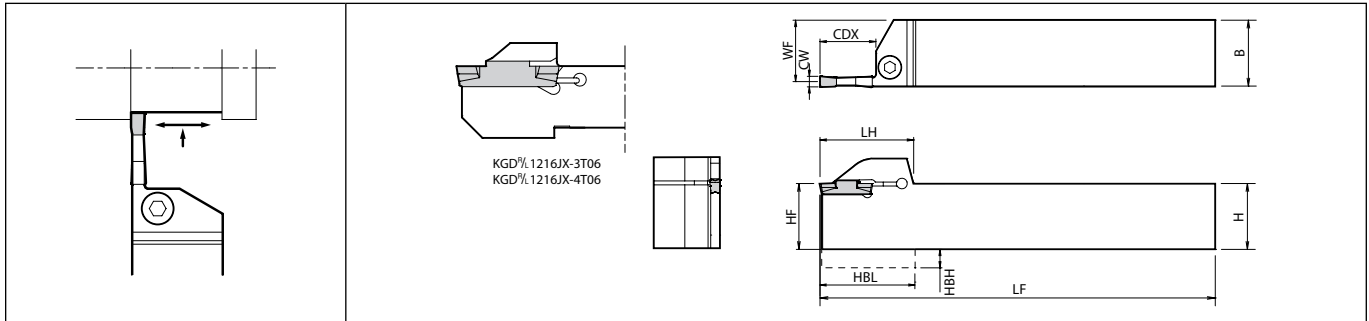
Unit	Part Number	Std. Item		Dimensions												Spare Parts		Applicable Inserts ➡ G40~G43
																Clamp Screw	Wrench	
		R	L	CDX	H	B	LH	HF	HBH	HBL	LF	WF	CW min.	CW max.				
Inch	KGD% 12-2T17	●	●	0.669	0.75	0.75	1.28	0.75	-	-	4.92	0.71	0.079" (2mm)	0.118" (3mm)	HH5X16	LW-4	GD..2020..., GD..2220... GD..2420..., GD..2520... GD..3020...	
	16-2T17	●	●	0.669	1.00	1.00	1.28	1.00			5.90	0.96			HH5X25			
	KGD% 12-3T10	●	●	0.393	0.75	0.75	1.20	0.75	-	-	4.92	0.70	0.118" (3mm)	0.157" (4mm)	HH5X16	LW-4	GD..3020... GD..3520... GD..4020...	
	12-3T20	●	●	0.787			1.35											
	12-3T254	●	●	1.000			1.52											
	16-3T10	●	●	0.393	1.00	1.00	1.20	1.00	-	-	5.90	0.95			HH5X25			
	16-3T20	●	●	0.787			1.39											
	16-3T254	●	●	1.000			1.52											
	KGD% 12-4T10	●	●	0.393	0.75	0.75	1.20	0.75	-	-	4.92	0.68	0.157" (4mm)	0.197" (5mm)	HH5X16	LW-4	GD..4020... GD..5020...	
	12-4T20	●	●	0.787			1.35											
	16-4T10	●	●	0.393	1.00	1.00	1.20	1.00	-	-	5.90	0.93			HH5X25			
	16-4T20	●	●	0.787			1.39											
	16-4T25	●	●	0.984			1.59											
	KGD% 12-5T10	●	●	0.393	0.75	0.75	1.20	0.75	-	-	4.92	0.66	0.197" (5mm)	0.236" (6mm)	HH5X16	LW-4	GD..5020... GD..6020...	
	12-5T17	●	●	0.669			1.47											
	16-5T10	●	●	0.393	1.00	1.00	1.20	1.00	-	-	5.90	0.91			HH5X25			
	16-5T17	●	●	0.669			1.47											
	16-5T25	●	●	0.984			1.59											
	KGD% 16-6T15	●	●	0.591	1.00	1.00	1.28	1.00	-	-	5.90	0.89	0.236" (6mm)	0.236" (6mm)	HH5X25	LW-4	GD..6020...	
	16-6T30	●	●	1.181	1.00	1.00	1.79	1.00										
	KGD% 16-8T25	●	●	0.984	1.00	1.00	1.65	1.00	0.26	1.69	5.90	0.88	0.315" (8mm)	0.315" (8mm)	HH6X25	LW-5	GD..8030...	

CDX : Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm).)

Recommended tightening torque of clamp bolt : 6.5N·m (HH5X○○), 8.0N·m (HH6X25), 2.5N·m (SE-50125TR)

Above toolholders are applicable to Cut-off, too.

KGD (External Grooving)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions														Spare Parts				Applicable Inserts ➡ G40~G43
																		Clamp Screw	Screw	Wrench	Wrench	
		R	L	CDX	H	B	LH	HF	HBH	HBL	LF	WF	CW min.	CW max.								
mm	KGD%	1616H-2T06	●	●	6	16	16	27.7	16	4	28	100	15.2	2	3	HH5X16	-	LW-4	-	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...		
	1616H-2T10	●	●	10	30.2			30.5		125	19.2											
	1616H-2T17	●	●	17	31.2			31.5														
	2012K-2T17	●	●	17	20	12	32.5	20	-	-	11.2											
	2020K-2T06	●	●	6		28																
	2020K-2T10	●	●	10		20	30.5				150	24.2										
	2020K-2T17	●	●	17	32.5																	
	2525M-2T06	●	●	6	25	25	28	25	-	-	HH5X25											
	2525M-2T10	●	●	10			30.5															
	2525M-2T17	●	●	17			32.5															
	KGD%	2012K-2.4T17	●	●	17	20	12	32.5	20	-	-	125	11	19	2.4	3	HH5X16	-	LW-4	-	GD..2420..., GD..2520... GD..3020...	
	2020K-2.4T17	●	●	17	20		32.5	125	19													
	KGD%	1216JX-3T06	●	●	6	12	16	19.5	12	2	19	120	14.8	3	4	HH5X16	-	LW-4	-	GD..3020... GD..3520... GD..4020...		
	1616H-3T06	●	●	6	16	27.7		16	4	28	100											
	1616H-3T10	●	●	10		30.2			30.5													
	1616H-3T20	●	●	20		34.2	34.5		125	18.8												
	2012K-3T20	●	●	20	12	34.5	20	-			-	10.8										
	2020K-3T06	●	●	6	20	28																
	2020K-3T10	●	●	10	20	30.5			150	23.8												
	2020K-3T20	●	●	20	34.5																	
	2525M-3T06	●	●	6	25	25	28	25	-	-	HH5X25											
	2525M-3T10	●	●	10			30.5															
	2525M-3T20	●	●	20			35.5															
	KGD%	1216JX-4T06	●	●	6	12	16	19.5	12	2	19	120	14.3	4	5	-	SE-50125TR	-	LTW-20	GD..4020... GD..5020...		
	2020K-4T10	●	●	10	20	20	30.5	20	-	-	125	18.3										
	2020K-4T20	●	●	20			34.5															
	2525M-4T10	●	●	10			30.5				150	23.3										
	2525M-4T20	●	●	20	25	35.5																
	2525M-4T25	●	●	25	40.5																	
	KGD%	2020K-5T10	●	●	10	20	20	30.5	20	-	-	125	17.8	5	6	HH5X16	-	LW-4	-	GD..5020... GD..6020...		
	2020K-5T17	●	●	17	37.5																	
	2525M-5T10	●	●	10	30.5			150				22.8										
	2525M-5T17	●	●	17	25	37.5																
	2525M-5T25	●	●	25	40.5																	
	KGD%	2525M-6T15	●	●	15	25	25	32.5	25	-	-	150	22.4	6	6	HH5X25	-	LW-4	-	GD..6020...		
	2525M-6T30	●	●	30	45.5																	
	KGD%	2525M-8T25	●	●	25	25	25	43.3	25	7	44.2	150	22	8	8	HH6X25	-	LW-5	-	GD..8030...		
	3232P-8T25	●	●	25	32	32	32	-	-	170	29											

CDX : Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm).)

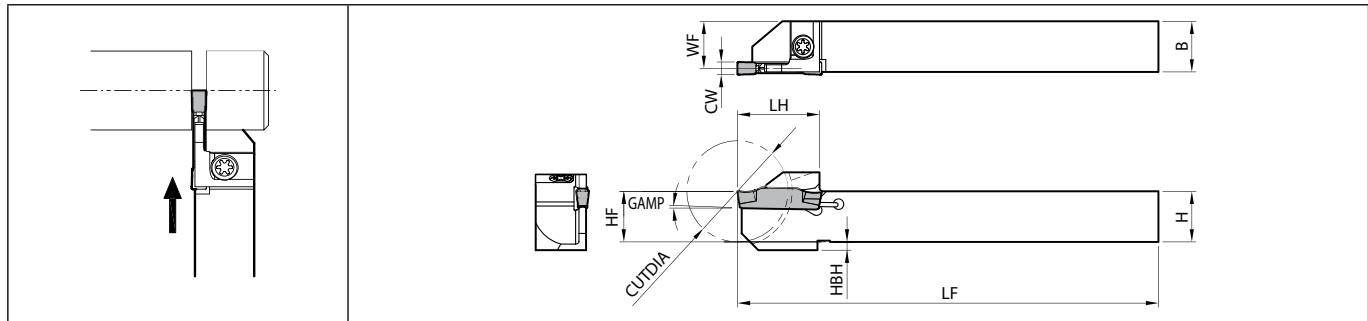
Recommended tightening torque of clamp bolt : 6.5N·m (HH5X16), 8.0N·m (HH6X25), 2.5N·m (SE-50125TR)

Above toolholders are applicable to Cut-off, too.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD (External Grooving, for Small Parts)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions										Angle (°)				Applicable Inserts 🔩 G40~G43
															Screw	Screw	Wrench	
		R	L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	GAMP				
Inch	KGD ⅜ 6-2JX 8-2JX 10-2JX	●	●	0.787	0.375	0.375	0.709	0.375	0.098	4.75	0.342	0.079" (2mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GD..2020..., GD..2220... GD..2420..., GD..2520... GD..3020...
		●	●	0.944	0.500	0.500	0.768	0.500	0.051		0.467							
		●	●	1.259	0.625	0.625	0.965	0.625	-		0.592							
	KGD ⅜ 6-2.4JX 8-2.4JX 10-2.4JX	●	●	0.787	0.375	0.375	0.709	0.375	0.098	4.75	0.336	0.094" (2.4mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GD..2420... GD..2520... GD..3020...
		●	●	0.944	0.500	0.500	0.768	0.500	0.051		0.461							
		●	●	1.259	0.625	0.625	0.965	0.625	-		0.586							
	KGD ⅜ 8-3JX 10-3JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051	4.75	0.453	0.118" (3mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GD..3020...
		●	●	1.259	0.625	0.625	0.965	0.625	-	4.75	0.578	0.118" (3mm)	0.157" (4mm)	1	SB-40120TR	-	LTW-15S	GD..3020..., GD..3520... GD..4020...
	KGD ⅜ 10-3D38JX 12-3D42JX 43-3D42JX	●	●	1.496	0.625	0.625	1.142	0.625	-	4.75	0.578	0.118" (3mm)	0.157" (4mm)	1	-	SE-50125TR	LTW-20	GD..3020..., GD..3520... GD..4020...
●		●	1.653	0.750	0.750	1.220	0.750	-	0.703									
●		●	1.653	0.750	0.500	1.220	0.750	-	0.453									

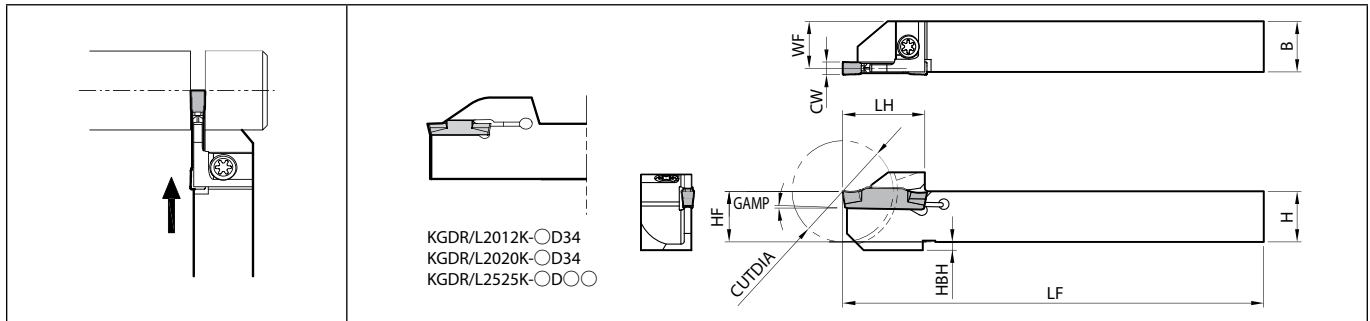
0.157" (4mm) width insert cannot be installed in KGD $\frac{1}{2}$ 1212JX-3

Recommended tightening torque of clamp screw : 2.0N·m (SB-40120TR), 2.5N·m (SE-50125TR)

When machining material greater than Ø1.417" (36mm) with KGD $\frac{1}{2}$...-3D38, KGD $\frac{1}{2}$...-3D42 and KGD $\frac{1}{2}$...-3D51 toolholders, please use 1-edge inserts.

Maximum cutting diameter for 2-edge inserts is Ø1.417" (36mm).

KGD (External Grooving, for Small Parts)



Right-hand shown

Toolholder Dimensions

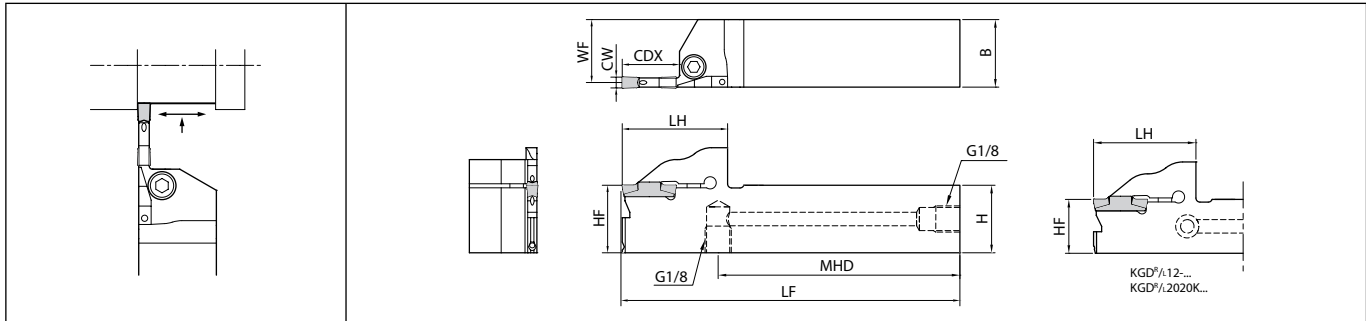
Unit	Part Number	Std. Item		Dimensions										Angle (°)	Spare Parts					Applicable Inserts ➡ G40~G43	
															Clamp Screw	Screw	Screw	Wrench	Wrench		
		R	L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	GAMP							
mm	KGD%	1010JX-2	●	●	20	10	10	18	10	2	120	9.2	2	3	1	-	SB-40120TR	-	-	LTW-15S	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	1212F-2	●	●	24	12	12	19.5	12	85		11.2	-				SB-40120TR	-	LTW-15S			
	1212JX-2	●	●	24	12	12	19.5	12	120	15.2	-	SB-40120TR	-	LTW-15S							
	1616JX-2	●	●	32	16	16	24.5	16	-	11.2	19.2	0	HH5X16	-	LW-4	-					
	2012K-2D34	●	●	34	20	12	32.5	20		125	19.2		HH5X16	-	LW-4	-					
	2020K-2D34	●	●	34	20	12	32.5	20	125	19.2	HH5X16	-	LW-4	-							
	KGD%	1010JX-2.4	●	●	20	10	10	18	10	2	120	9	2.4	3	1	-	SB-40120TR	-	-	LTW-15S	GD..2420... GD..2520... GD..3020...
	1212F-2.4	●	●	24	12	12	19.5	12	85		11	-				SB-40120TR	-	LTW-15S			
	1212JX-2.4	●	●	24	12	12	19.5	12	120	15	-	SB-40120TR			-	LTW-15S					
	1616JX-2.4	●	●	32	16	16	24.5	16	-	11	19	0			HH5X16	-	LW-4	-			
	2012K-2.4D34	●	●	34	20	12	32.5	20		125	19		HH5X16	-	LW-4	-					
	2020K-2.4D34	●	●	34	20	12	32.5	20	125	19	HH5X16	-	LW-4	-							
	KGD%	1212JX-3	●	●	24	12	12	19.5	12	2	120	10.8	3	3	1	-	SB-40120TR	-	-	LTW-15S	GD..3020...
	KGD%	1616JX-3	●	●	32	16	16	24.5	16	-	120	14.8	3	4	1	-	SB-40120TR	-	-	LTW-15S	GD..3020... GD..3520... GD..4020...
	1616JX-3D38	●	●	38	29			19	125		11.8	-				SB-40120TR	-	LTW-15S			
	1913K-3D38	●	●	38	19	13	29	19	-	120	10.8	3	4	1	-	-	SE-50125TR	-	LTW-20		
	2012JX-3D42	●	●	42	20	12	36	20		120	18.8				-	-	SE-50125TR	-	LTW-20		
	2012JX-3D51	●	●	51		20	12	31	20	120	18.8				-	-	SE-50125TR	-	LTW-20		
	2020JX-3D42	●	●	42	20										12	31	20	120	18.8	-	
	2020JX-3D51	●	●	51			120	18.8	-	-	SE-50125TR									-		LTW-20

0.157" (4mm) width insert cannot be installed in KGD% 1212JX-3

Recommended tightening torque of clamp screw : 2.0N·m (SB-40120TR), 2.5N·m (SE-50125TR)

When machining material greater than Ø1.417" (36mm) with KGD% ...-3D38, KGD% ...-3D42 and KGD% ...-3D51 toolholders, please use 1-edge inserts.

Maximum cutting diameter for 2-edge inserts is Ø1.417" (36mm).

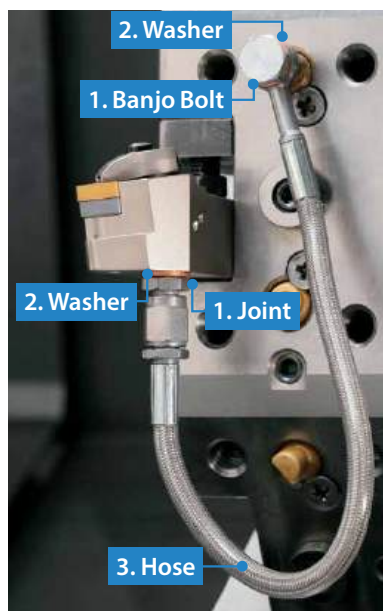
KGD-JCT (External Grooving, Coolant-Through Toolholder)

Right-hand shown | Pressure Resistance : ~2,175 psi

Toolholder Dimensions

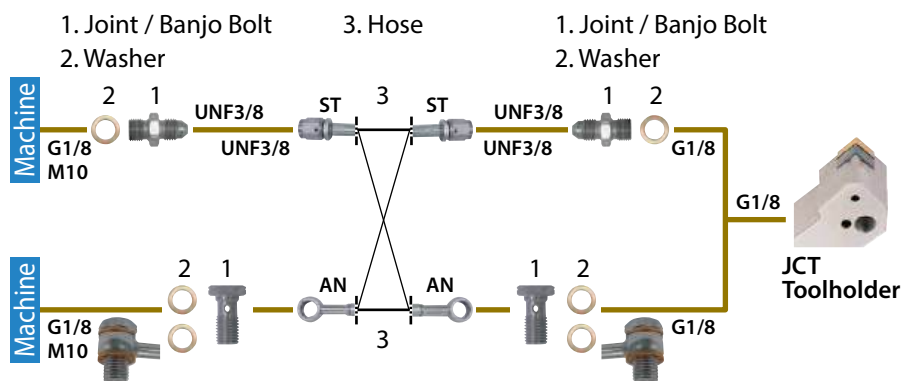
Unit	Part Number	Std. Item		Dimensions										Coolant Hole	Spare Parts			Applicable Inserts 🔩 G40~G43
															Clamp Screw	Plug	Wrench	
		R	L	CDX	H	B	LH	MHD	HF	LF	WF	CW min.	CW max.					
Inch	KGD% 12-3T20JCT	●	●	0.787	0.750	0.750	1.496	3.590	0.750	5.000	0.702	0.118" (3mm)	0.157" (4mm)	Yes	HH5X16	HSG1/8X8.0	LW-4	GD..3020..., GD..3520... GD..4020...
	16-3T20JCT	●	●		1.000	1.000	1.535	3.551	1.000		0.952				HH5X25			
	KGD% 12-4T20JCT	●	●	0.787	0.750	0.750	1.496	3.590	0.750	5.000	0.683	0.157" (4mm)	0.197" (5mm)	Yes	HH5X16	HSG1/8X8.0	LW-4	GD..4020... GD..5020...
	16-4T20JCT	●	●		1.000	1.000	1.535	3.551	1.000		0.933				HH5X25			
mm	KGD% 16-4T25.4JCT	●	●	1.000	1.000	1.000	1.732	3.354	1.000	5.000	0.933	3	4	Yes	HH5X16	HSG1/8X8.0	LW-4	GD..3020... GD..3520... GD..4020...
	KGD% 2020K-3T06JCT	●	●	6	20	20	31.5	96.2	20	125	18.8				HH5X16			
	2525K-3T06JCT	●	●		25	25		96.5	25		23.8	HH5X25						
	KGD% 2020K-3T10JCT	●	●	10	20	20	34	94.2	20	125	18.8	3	4	Yes	HH5X16	HSG1/8X8.0	LW-4	
	2525K-3T10JCT	●	●		25	25		94.5	25		23.8				HH5X25			
	KGD% 2020K-3T20JCT	●	●	20	20	20	38	90.2	20	125	18.8	3	4	Yes	HH5X16	HSG1/8X8.0	LW-4	
	2525K-3T20JCT	●	●		25	25		89.5	25		23.8				HH5X25			
	KGD% 2020K-4T10JCT	●	●	10	20	20	34	94.2	20	125	18.3	4	5	Yes	HH5X16	HSG1/8X8.0	LW-4	GD..4020... GD..5020...
	2525K-4T10JCT	●	●		25	25		94.5	25		23.3				HH5X25			
KGD% 2020K-4T20JCT	●	●	20	20	20	38	90.2	20	125	18.3	4	5	Yes	HH5X16	HSG1/8X8.0	LW-4		
2525K-4T20JCT	●	●		25	25		89.5	25		23.3				HH5X25				
KGD% 2525K-4T25JCT	●	●	25	25	25	44	84.5	25	125	23.3	4	5	Yes	HH5X25	HSG1/8X8.0	LW-4		

Easy Connection with High Pressure Hose and Joint



- Even without a high pressure pump, internal coolant can be used at a normal pressure
- Banjo bolt available for angled hose connection and can be used in a variety of machines

Piping Installation Guide



Piping Parts

Optional Piping Parts Available

Choose from parts below to match your machine specifications

1. Joint / Banjo Bolt

Pressure Resistance: up to 4,350 psi

Shape	Part Number	Std. Item	Thread Standard
	J-G1/8-UNF3/8	●	G1/8
	J-M10X1.5-UNF3/8	●	M10X1.5
	BB-G1/8	●	G1/8
	BB-M10X1.5	●	M10X1.5

1. Joint / Banjo bolt × 2

2. Washer × 2-4

3. Hose × 1

2. Washer

Pressure Resistance: up to 4,350 psi

Shape	Part Number	Std. Item
	WS-10	●

* Use 2 washers for a banjo bolt

3. Hose

Pressure Resistance: up to 4,350 psi

Shape	Part Number	Std. Item	Thread Standard	Dimensions (mm)
	HS-ST-ST-200	●	UNF3/8	L
	HS-ST-ST-250	●	UNF3/8	200
	HS-ST-AN-200	●	UNF3/8	250
	HS-ST-AN-250	●	(Banjo Bolt)	200
	HS-AN-AN-200	●	(Banjo Bolt)	250
	HS-AN-AN-250	●	(Banjo Bolt)	200

Precautions

1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure. Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are the same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

JCTM Series

Direct Coolant Holders for Small Parts Machining

Cut-off holders for high pressure coolant with long tool life

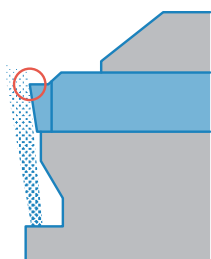
Optimized coolant hole position effectively cools the cutting edge

1 Optimized coolant hole position

2 Discharges coolant towards the flank face of the inserts

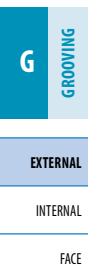
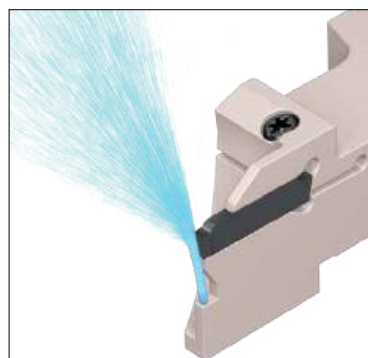
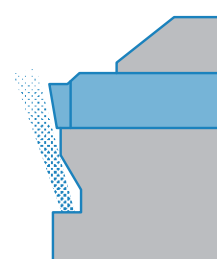
KGD-JCTM

Cooling the cutting edge
leads to longer tool life



Competitor C

Coolant does not flow directly
toward the cutting edge



Supports Internal Coolant with or without Piping Systems

Internal Coolant without Piping

***When the tool plate supports direct coolant**

Coolant is supplied directly from the tool plate into the holder without the need to install piping

Applicable to Wide Range of Machines

CITIZEN MACHINERY CO., LTD. (L20, D25, M32)

STAR MICRONICS CO., LTD. (SB-R series, SR series, SV series)

TSUGAMI CORPORATION (S205/206-II □16 type, S205A/206A-II □16 type)

(Random order)
Based on Kyocera Survey in January 2021

Compatible with various machine including the above. Toolholders can be customized as well.

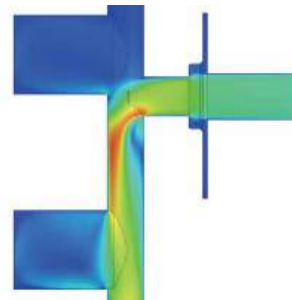


Optimized Coolant Supply

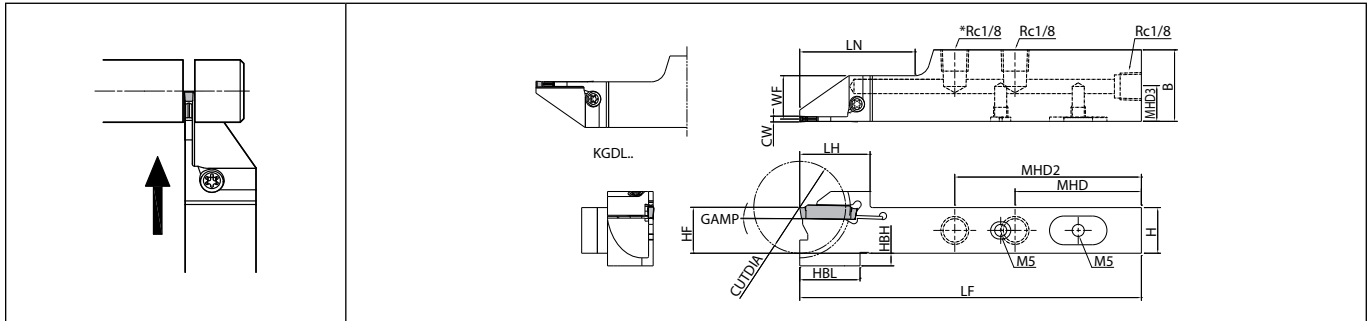
Supply hole designed to reduce energy
loss based on extensive flow analysis

Analysis Image
(Internal Evaluation)

High
Flow
velocity
Low



KGD-JCTM (External Grooving, Coolant-Through Toolholder)

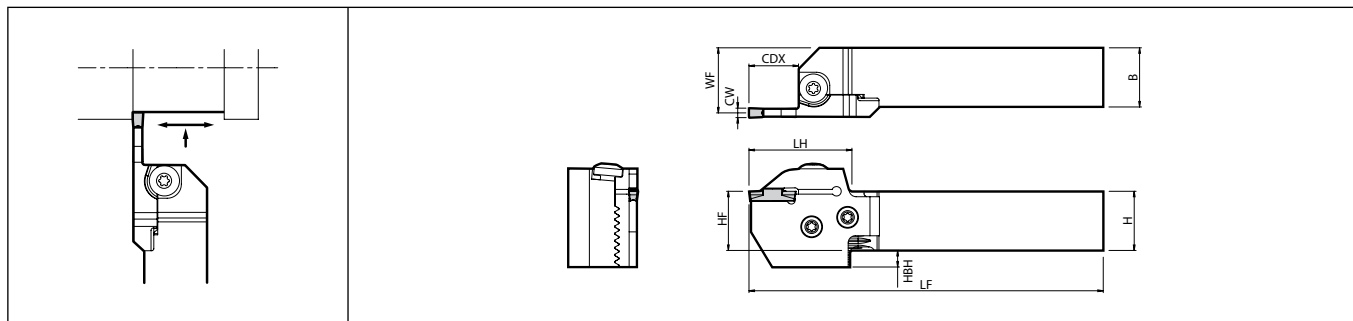


Right-hand shown | KGD $\frac{1}{8}$ 5.72...-JCTM, KGD $\frac{1}{8}$ 12...-JCTM : 2-Rc1/8

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions															Angle (°)	Coolant Hole	Spare Parts				Applicable Inserts ➔ G40~G43	
																					Plug	Plug	Screw	Wrench		
		R	L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.	CW max.			GAMP					
Inch	KGDR 5.72-2JCTM	●		0.945	0.500	0.709	0.770	2.125	-	0.331	0.500	0.330	0.825	4.750	1.725	0.500	0.079" (2mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...	
	KGDL 5.72-2JCTM	●								0.303			0.843													
	KGDR 82.5-2JCTM	●		1.260	0.625	1.000	0.965	1.730	2.560	0.480	0.625	0.175	0.825	4.750	1.585	0.625			1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S		GD..2420... GD..2520... GD..3020...
	KGDL 82.5-2JCTM	●								0.303			0.843													
	KGDR 5.72-2.4JCTM	●		0.945	0.500	0.709	0.770	2.125	-	0.331	0.500	0.330	0.825	4.750	1.725	0.500	0.094" (2.4mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S			GD..2420... GD..2520... GD..3020...
	KGDL 5.72-2.4JCTM	●								0.303			0.843													
	KGDR 82.5-2.4JCTM	●		1.260	0.625	1.000	0.965	1.730	2.560	0.480	0.625	0.175	0.825	4.750	1.585	0.625			1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GD..3020... GD..3520... GD..4020...	
	KGDL 82.5-2.4JCTM	●								0.303			0.843													
	KGDR 5.72-3JCTM	●		0.945	0.500	0.709	0.770	2.125	-	0.331	0.500	0.330	0.825	4.750	1.725	0.500	0.118" (3mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S		GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	KGDL 5.72-3JCTM	●								0.303			0.843													
KGDR 82.5-3JCTM	●		1.260	0.625	1.000	0.965	1.730	2.560	0.480	0.625	0.175	0.825	4.750	1.585	0.625	0.118" (3mm)	0.157" (4mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...		
KGDL 82.5-3JCTM	●								0.303			0.843														
mm	KGDR 1218JX-2JCTM	●		24	12	18	19.5	54	-	8.4	12	8.5	21	120	44	11.2	0.079" (2mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR		LTW-15S		GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	KGDL 1218JX-2JCTM	●								7.7			21.5													
	KGDR 1625JX-2JCTM	●		32	16	25	24.5	44	65	12.2	16	4.5	21	120	40	15.2			1	Yes	GP-1	HS5X4LP	SB-40120TR		LTW-15S	GD..2420... GD..2520... GD..3020...
	KGDL 1625JX-2JCTM	●								7.7			21.5													
	KGDR 1218JX-2.4JCTM	●		24	12	18	19.5	54	-	8.4	12	8.5	21	120	44	11	0.094" (2.4mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GD..3020... GD..3520... GD..4020...	
	KGDL 1218JX-2.4JCTM	●								7.7			21.5													
	KGDR 1625JX-2.4JCTM	●		32	16	25	24.5	44	65	12.2	16	4.5	21	120	40	15			1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S			GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	KGDL 1625JX-2.4JCTM	●								7.7			21.5													
	KGDR 1218JX-3JCTM	●		24	12	18	19.5	54	-	8.6	12	8.5	21	120	44	10.8	0.118" (3mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S		GD..3020... GD..3520... GD..4020...
	KGDL 1218JX-3JCTM	●								7.7			21.5													
	KGDR 1625JX-3JCTM	●		32	16	25	24.5	44	65	12.2	16	4.5	21	120	40	14.8	0.118" (3mm)	0.157" (4mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...	
	KGDL 1625JX-3JCTM	●								7.7			21.5													

KGD-S (External Grooving / 0° SwitchBlade Type)



Right-hand shown (Right-hand blade and right-hand toolholder)

Toolholder Dimensions (Blade and Toolholder)

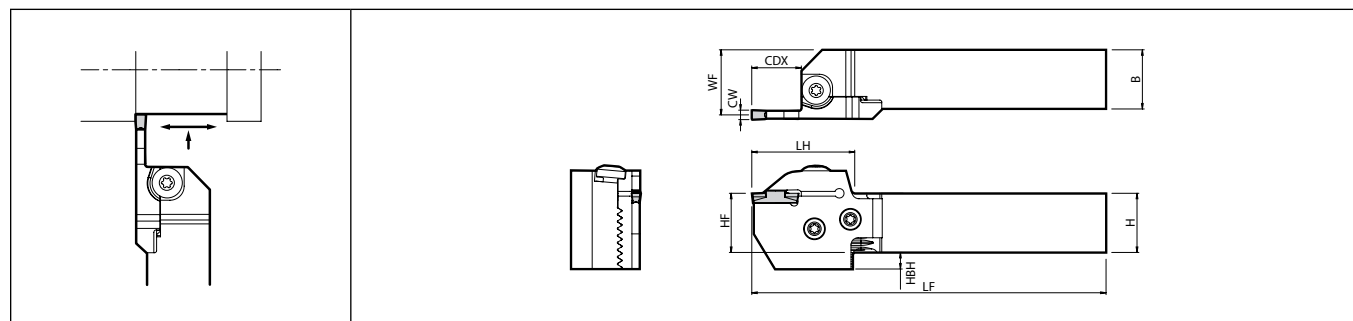
Unit	Shank Angle	Width (in)	Max. Depth of Cut (in)	Shank Size (in)	Unit Part Number	Std. Item		Blade Part Number ➡ G56	Toolholder Part Number ➡ G56	Dimensions										Spare Parts			
						R	L			CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.				
Inch	0°	0.079" (2mm)	0.669" (17mm)	☐ 0.75	KGD % 12X-2T17S	●	●	KGD % -2T17-C	KGD % 12-C	0.669	0.75	0.75	1.57	0.75	0.472	4.80	0.88	0.079" (2mm)	0.118" (3mm)	BH6X10TR	SB-60120TR	LTW-25	
				☐ 1.00	16X-2T17S	●	●		KGD % 16-C		1.00	1.00	1.57	1.00	0.276	5.78	1.13						
				☐ 1.25	No Unit Part Number ⇨		●		●		KGD % 20-C	1.25	1.25	1.57	1.25	-	6.58						1.38
		0.118" (3mm)	0.394" (10mm)	☐ 0.75	KGD % 12X-3T10S	●	●	KGD % -3T10-C	KGD % 12-C	0.394	0.75	0.75	1.29	0.75	0.472	4.52	0.86	0.118" (3mm)	0.157" (4mm)				
				☐ 1.00	16X-3T10S	●	●		KGD % 16-C		1.00	1.00	1.29	1.00	0.276	5.51	1.11						
				☐ 1.25	No Unit Part Number ⇨		●		●		KGD % 20-C	1.25	1.25	1.29	1.25	-	6.30						1.37
			0.787" (20mm)	☐ 0.75	KGD % 12X-3T20S	●	●	KGD % -3T20-C	KGD % 12-C	0.787	0.75	0.75	1.68	0.75	0.472	4.92	0.86						
				☐ 1.00	16X-3T20S	●	●		KGD % 16-C		1.00	1.00	1.68	1.00	0.276	5.90	1.11						
				☐ 1.25	No Unit Part Number ⇨		●		●		KGD % 20-C	1.25	1.25	1.68	1.25	-	6.70						1.37
		0.157" (4mm)	0.394" (10mm)	☐ 0.75	KGD % 12X-4T10S	●	●	KGD % -4T10-C	KGD % 12-C	0.394	0.75	0.75	1.29	0.75	0.472	4.52	0.84	0.157" (4mm)	0.197" (5mm)				
				☐ 1.00	16X-4T10S	●	●		KGD % 16-C		1.00	1.00	1.29	1.00	0.276	5.51	1.09						
				☐ 1.25	No Unit Part Number ⇨		●		●		KGD % 20-C	1.25	1.25	1.29	1.25	-	6.30						1.35
			0.787" (20mm)	☐ 0.75	KGD % 12X-4T20S	●	●	KGD % -4T20-C	KGD % 12-C	0.787	0.75	0.75	1.68	0.75	0.472	4.92	0.84						
				☐ 1.00	16X-4T20S	●	●		KGD % 16-C		1.00	1.00	1.68	1.00	0.276	5.90	1.09						
				☐ 1.25	No Unit Part Number ⇨		●		●		KGD % 20-C	1.25	1.25	1.68	1.25	-	6.70						1.35
				0.984" (25mm)	☐ 0.75	KGD % 12X-4T25S	●	●	KGD % -4T25-C	KGD % 12-C	0.984	0.75	0.75	1.88	0.75	0.472	5.11						0.84
					☐ 1.00	16X-4T25S	●	●		KGD % 16-C		1.00	1.00	1.88	1.00	0.276	6.10						1.09
					☐ 1.25	No Unit Part Number ⇨		●		●		KGD % 20-C	1.25	1.25	1.88	1.25	-						6.89	1.35
		0.197" (5mm)	0.394" (10mm)	☐ 0.75	KGD % 12X-5T10S	●	●	KGD % -5T10-C	KGD % 12-C	0.394	0.75	0.75	1.29	0.75	0.472	4.52	0.82						
				☐ 1.00	16X-5T10S	●	●		KGD % 16-C		1.00	1.00	1.29	1.00	0.276	5.51	1.07						
				☐ 1.25	No Unit Part Number ⇨		●		●		KGD % 20-C	1.25	1.25	1.29	1.25	-	6.30	1.33					
			0.984" (25mm)	☐ 0.75	KGD % 12X-5T25S	●	●	KGD % -5T25-C	KGD % 12-C	0.984	0.75	0.75	1.89	0.75	0.472	5.12	0.83						
				☐ 1.00	16X-5T25S	●	●		KGD % 16-C		1.00	1.00	1.88	1.00	0.276	6.10	1.07						
				☐ 1.25	No Unit Part Number ⇨		●		●		KGD % 20-C	1.25	1.25	1.88	1.25	-	6.89	1.33					

- When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
- The toolholder and blade descriptions are printed on the toolholder body. (Unit Part Number is not printed.)
KGD-S: Right-hand blade for right-hand toolholder, left-hand blade for left-hand toolholder.
The toolholder is applicable for all blade with suitable hand.
- If the unit description is not listed ("No Unit Part Number"), please purchase toolholder and blade separately.
- CDX: Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm).)
Above toolholders are applicable to Cut-off, too.

Choose an insert with a width that falls within the CW min. and CW max. parameters shown in table above.

Applicable Inserts ● G40~G43

KGD-S (External Grooving / 0° SwitchBlade Type)



Right-hand shown (Right-hand blade and right-hand toolholder)

Toolholder Dimensions (Blade and Toolholder)

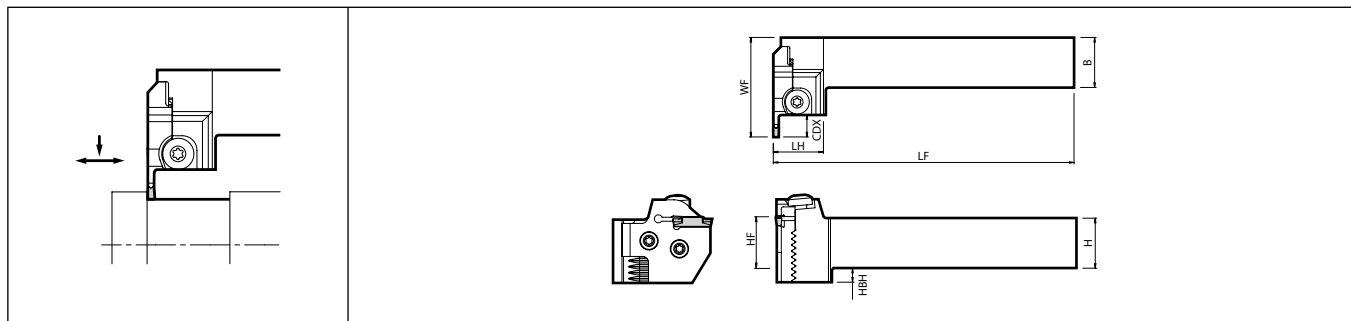
Unit	Shank Angle	Width (mm)	Max. Depth of Cut (mm)	Shank Size (mm)	Unit Part Number	Std. Item		Blade Part Number G56	Toolholder Part Number G56	Dimensions										Spare Parts		
						R	L			CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
mm	0°	2	17	□20	KGD % 2020X-2T17S	●		KGD % -2T17-C	KGD % 2020-C	17	20	20	40	20	12	122	23.4	2	3	BH6X10TR	SB-60120TR	LTW-25
				□25	2525X-2T17S	●	●		KGD % 2525-C													
				□32	No Unit Part Number ⇨				KGD % 3232-C													
		3	10	□20	KGDR 2020X-3T10S	●		KGD % -3T10-C	KGD % 2020-C	10	20	20	33	20	12	115	23	3	4			
				□25	2525X-3T10S	●			KGD % 2525-C													
				□32	No Unit Part Number ⇨				KGD % 3232-C													
			20	□20	KGD % 2020X-3T20S	●	●	KGD % -3T20-C	KGD % 2020-C	20	20	20	43	20	12	125	23	3	4			
				□25	2525X-3T20S	●	●		KGD % 2525-C													
				□32	3232X-3T20S	●			KGD % 3232-C													
		4	10	□20	KGDR 2020X-4T10S	●		KGD % -4T10-C	KGD % 2020-C	10	20	20	33	20	12	115	22.5	4	5			
				□25	2525X-4T10S	●			KGD % 2525-C													
				□32	No Unit Part Number ⇨				KGD % 3232-C													
			20	□20	KGD % 2020X-4T20S	●		KGD % -4T20-C	KGD % 2020-C	20	20	20	43	20	12	125	22.5	4	5			
				□25	2525X-4T20S	●	●		KGD % 2525-C													
				□32	3232X-4T20S	●			KGD % 3232-C													
			25	□20	KGD % 2020X-4T25S	●	●	KGD % -4T25-C	KGD % 2020-C	25	25	25	48	20	12	130	22.5	4	5			
				□25	2525X-4T25S	●	●		KGD % 2525-C													
				□32	3232X-4T25S	●			KGD % 3232-C													
		5	10	□20	KGD % 2020X-5T10S	●	●	KGD % -5T10-C	KGD % 2020-C	10	20	20	33	20	12	115	22	5	6			
				□25	2525X-5T10S	●			KGD % 2525-C													
				□32	No Unit Part Number ⇨				KGD % 3232-C													
			25	□20	No Unit Part Number ⇨				KGD % 2020-C	25	25	25	48	20	12	130	22	5	6			
				□25	KGD % 2525X-5T25S	●	●	KGD % -5T25-C	KGD % 2525-C													
				□32	3232X-5T25S	●			KGD % 3232-C													

- When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
- The toolholder and blade descriptions are printed on the toolholder body. (Unit Part Number is not printed.)
KGD-S: Right-hand blade for right-hand toolholder, left-hand blade for left-hand toolholder.
The toolholder is applicable for all blade with suitable hand.
- If the unit description is not listed ("No Unit Part Number"), please purchase toolholder and blade separately.
- CDX: Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm).)
Above toolholders are applicable to Cut-off, too.

Choose an insert with a width that falls within the CW min. and CW max. parameters shown in table above.

Applicable Inserts ● G40~G43

KGDS-S (External Grooving / 90° SwitchBlade Type)



Right-hand shown (Left-hand blade and right-hand toolholder)

Toolholder Dimensions (Blade and Toolholder)

Unit	Shank Angle	Width (in)	Max. Depth of Cut (in)	Shank Size (in)	Unit Part Number	Std. Item		Blade Part Number ➡ G56	Toolholder Part Number ➡ G56	Dimensions										Spare Parts		
						R	L			CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
Inch	90°	0.079" (2mm)	0.669" (17mm)	☐ 0.75 ☐ 1.00	No Unit Part Number ➡	KGD ^L /R-2T17-C	KGDS ^{R/L} 12-C	0.669	0.75	0.75	1.09	0.75	0.472	4.92	2.19	0.079" (2mm)	0.118" (3mm)	BH6X10TR	SB-60120TR	LTW-25		
			KGDS ^{R/L} 16-C	1.00			1.00		1.09	1.00	0.276	5.91	2.25									
		0.118" (3mm)	0.394" (10mm)	☐ 0.75 ☐ 1.00		KGD ^L /R-3T10-C	KGDS ^{R/L} 12-C	0.394	0.75	0.75	1.09	0.75	0.472	4.92	1.92	0.118" (3mm)	0.157" (4mm)					
			KGDS ^{R/L} 16-C	1.00			1.00		1.09	1.00	0.276	5.91	1.97									
		0.157" (4mm)	0.787" (20mm)	☐ 0.75 ☐ 1.00		KGD ^L /R-3T20-C	KGDS ^{R/L} 12-C	0.787	0.75	0.75	1.09	0.75	0.472	4.92	2.31	0.157" (4mm)	0.197" (5mm)					
			KGDS ^{R/L} 16-C	1.00			1.00		1.09	1.00	0.276	5.91	2.37									
		0.197" (5mm)	0.394" (10mm)	☐ 0.75 ☐ 1.00		KGD ^L /R-4T10-C	KGDS ^{R/L} 12-C	0.394	0.75	0.75	1.09	0.75	0.472	4.92	1.92	0.197" (5mm)	0.236" (6mm)					
			KGDS ^{R/L} 16-C	1.00			1.00		1.09	1.00	0.276	5.91	1.97									
			0.787" (20mm)	☐ 0.75 ☐ 1.00		KGD ^L /R-4T20-C	KGDS ^{R/L} 12-C	0.787	0.75	0.75	1.09	0.75	0.472	4.92	2.31							
			KGDS ^{R/L} 16-C	1.00			1.00		1.09	1.00	0.276	5.91	2.37									
			0.984" (25mm)	☐ 0.75 ☐ 1.00		KGD ^L /R-4T25-C	KGDS ^{R/L} 12-C	0.984	0.75	0.75	1.09	0.75	0.472	4.92	2.51							
			KGDS ^{R/L} 16-C	1.00			1.00		1.09	1.00	0.276	5.91	2.56									
		0.197" (5mm)	0.394" (10mm)	☐ 0.75 ☐ 1.00		KGD ^L /R-5T10-C	KGDS ^{R/L} 12-C	0.394	0.75	0.75	1.09	0.75	0.472	4.92	1.92	0.197" (5mm)	0.236" (6mm)					
			KGDS ^{R/L} 16-C	1.00			1.00		1.09	1.00	0.276	5.91	1.97									
			0.787" (20mm)	☐ 0.75 ☐ 1.00		KGD ^L /R-5T25-C	KGDS ^{R/L} 12-C	0.787	0.75	0.75	1.09	0.75	0.472	4.92	2.51							
			KGDS ^{R/L} 16-C	1.00			1.00		1.09	1.00	0.276	5.91	2.56									

1. When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.

2. The toolholder and blade descriptions are printed on the toolholder body. (Unit Part Number is not printed.)

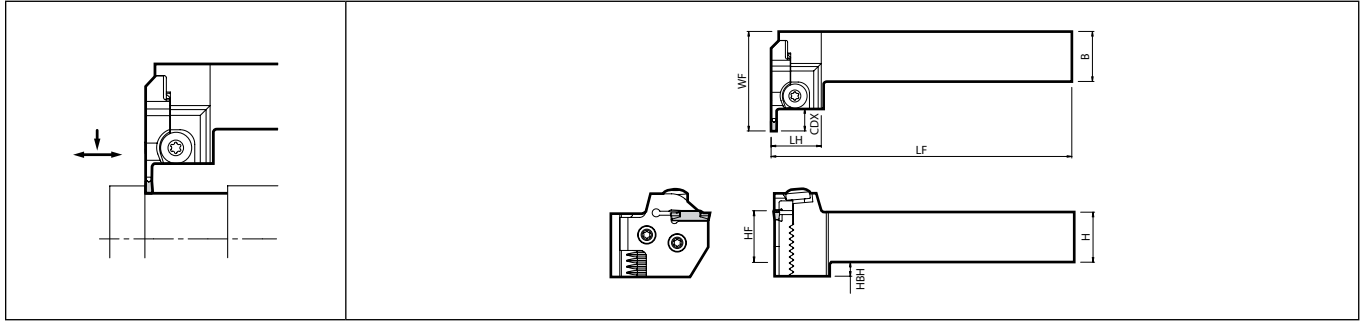
KGDS-S : Left-hand Blade for Right-hand Toolholder, Right-hand Blade for Left-hand Toolholder.

3. If the unit description is not listed ("No Unit Part Number"), please purchase toolholder and blade separately.

4. CDX: Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm).)

Choose an insert with a width that falls within the CW min. and CW max. parameters shown in table above.

Applicable Inserts G40~G43

KGDS-S (External Grooving / 90° SwitchBlade Type)

Right-hand shown (Left-hand blade and right-hand toolholder)

Toolholder Dimensions (Blade and Toolholder)

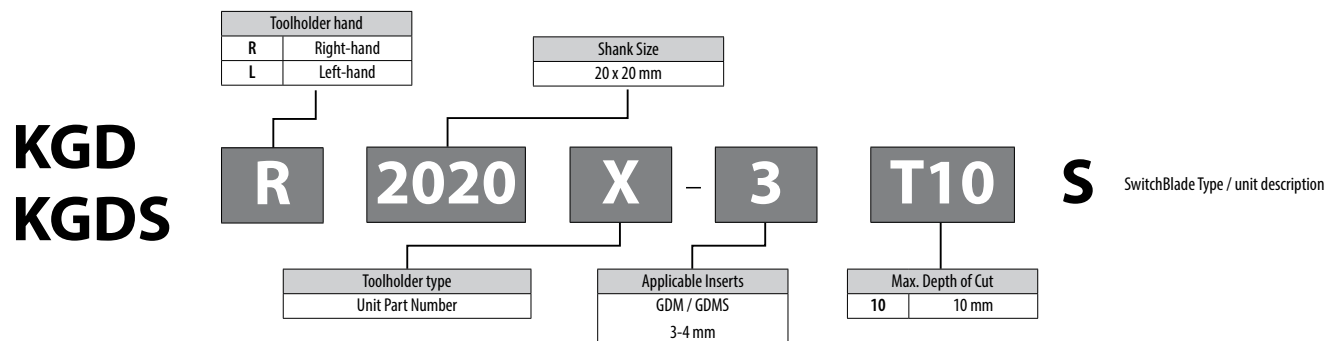
Unit	Shank Angle	Width (mm)	Max. Depth of Cut (mm)	Shank Size (mm)	Unit Part Number	Std. Item		Blade Part Number ➡ G56	Toolholder Part Number ➡ G56	Dimensions										Spare Parts			
						R	L			CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench	
mm	90°	2	17	□20 □25	No Unit Part Number ⇨				KGDS ¹ /h-2T17-C	KGDS ¹ % 2020-C KGDS ¹ % 2525-C	17	20	20	27.7	20	12	125	56.7	2	3	BH6X10TR	SB-60120TR	LTW-25
		3	10	□20 □25	KGDS ¹ % 2020X-3T10S 2525X-3T10S	● ●	● ●	KGDS ¹ /h-3T10-C	KGDS ¹ % 2020-C KGDS ¹ % 2525-C	10	20	20	20		12	125	49.7	3	4				
			20	□20 □25	No Unit Part Number ⇨		KGDS ¹ /h-3T20-C	KGDS ¹ % 2020-C KGDS ¹ % 2525-C	20	20	20	20	12		125	59.7							
		4	10	□20 □25			KGDS ¹ /h-4T10-C	KGDS ¹ % 2020-C KGDS ¹ % 2525-C	10	20	20	20	12		125	49.7	4	5					
			20	□20 □25			KGDS ¹ /h-4T20-C	KGDS ¹ % 2020-C KGDS ¹ % 2525-C	20	20	20	20	12		125	59.7							
		25	□20 □25	KGDS ¹ /h-4T25-C			KGDS ¹ % 2020-C KGDS ¹ % 2525-C	25	20	20	20	12	125		64.7								
			□20 □25	KGDS ¹ /h-4T25-C			KGDS ¹ % 2020-C KGDS ¹ % 2525-C	25	20	20	20	12	125		64.7								
		5	10	□20 □25			KGDS ¹ /h-5T10-C	KGDS ¹ % 2020-C KGDS ¹ % 2525-C	10	20	20	20	12		125	49.7	5	6					
			25	□20 □25			KGDS ¹ /h-5T25-C	KGDS ¹ % 2020-C KGDS ¹ % 2525-C	25	20	20	20	12		125	64.7							

- When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
- The toolholder and blade descriptions are printed on the toolholder body. (Unit Part Number is not printed.)
KGDS-S : Left-hand Blade for Right-hand Toolholder, Right-hand Blade for Left-hand Toolholder.
- If the unit description is not listed ("No Unit Part Number"), please purchase toolholder and blade separately.
- CDX: Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove-depth of groove made by a 2-edge insert will be 0.709" (18mm).)

Choose an insert with a width that falls within the CW min. and CW max. parameters shown in table above.

Applicable Inserts ➡ G40~G43

Toolholder identification system



Toolholder Dimensions (Blade and Toolholder)

KGD-C (0° SwitchBlade Type)

Drawing of 0° type Right-hand shown	Unit	Toolholder Part Number	Std. Item		Dimensions		
			R	L	L	B	H
	Inch	KGD% 12-C	●	●	4.09	0.75	0.75
		16-C	●	●	5.08	1.00	1.00
		20-C	●	●	5.86	1.25	1.25
	mm	KGD% 2020-C	●	●	104	20	20
		2525-C	●	●	129	25	25
		3232-C	●	●	149	32	32

KGDS-C (90° SwitchBlade Type)

Drawing of 90° type Right-hand shown	Unit	Toolholder Part Number	Std. Item		Dimensions		
			R	L	L	B	H
	Inch	KGDS% 12-C	●	●	4.80	0.75	0.75
		16-C	●	●	5.79	1.00	1.00
	mm	KGDS% 2020-C	●	●	122	20	20
		2525-C	●	●	147	25	25

Blade

Drawing of blade Right-hand shown	Unit	Blade Part Number	Std. Item		Dimensions		
			R	L	L	T	A
	mm	KGD% -2T17-C	●	●	51.2	17.2	1.7
		-3T10-C	●	●	44.2	10.2	2.4
		-3T20-C	●	●	53.2	20.2	
		-4T10-C	●	●	44.2	10.2	3.4
		-4T20-C	●	●	54.2	20.2	
		-4T25-C	●	●	59.2	25.2	
		-5T10-C	●	●	44.2	10.2	4.4
		-5T25-C	●	●	59.2	25.2	

Spare Parts

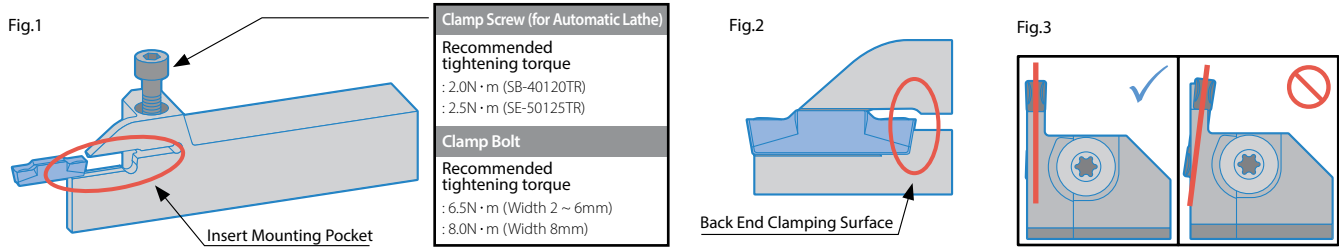
Unit Part Number	Spare Parts		
	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
KGD% ...S	BH6X10TR	SB-60120TR	LTW-25
KGDS% ...S			

* Parts are included with the toolholder and unit.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

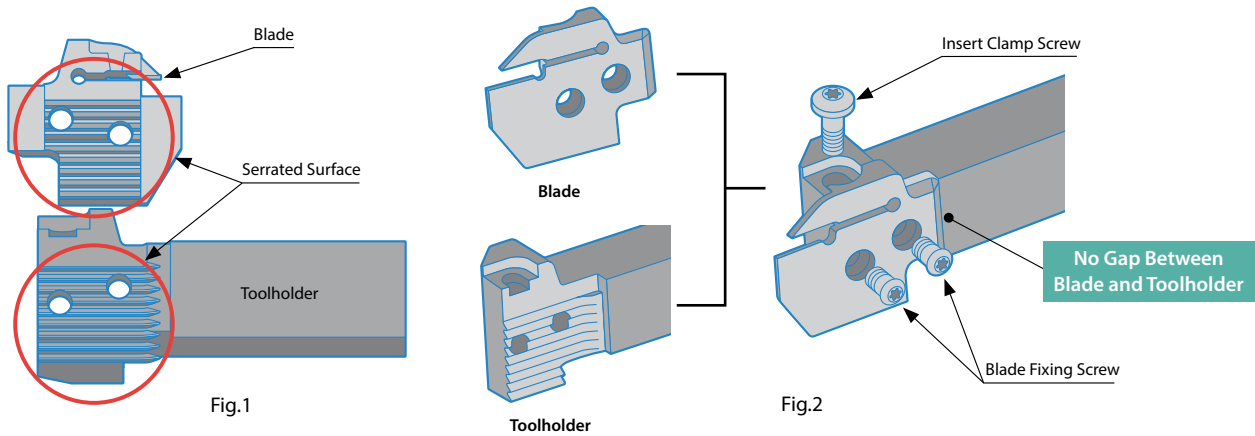
Mounting the Insert

1. Completely eliminate chips from the insert mounting part. (see Fig.1)
2. Put the insert into the toolholder and push until it contacts the holder's surface for fixing the insert's back end. (see Fig.1, Fig.2)
3. Keeping the insert pushed against the toolholder's locating surface, tighten the insert clamp bolt at an appropriate torque.
4. Make sure there is no gap between the insert and the toolholder's locating surface and that the insert is set straight. (see Fig.2, Fig.3)



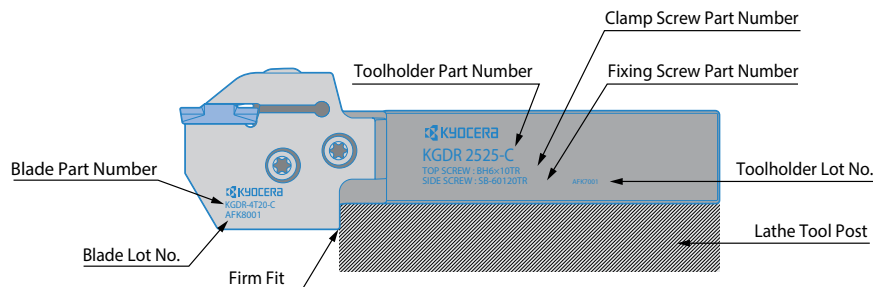
Setting the Blade Into the Toolholder (SwitchBlade Type)

1. Use compressed air or other measures to remove chips and dust from the serrated surface. (See Fig.1)
2. Mate and fit the serrations of the blade and toolholder, and also fit the blade end to the toolholder. (See Fig.2)
3. Tighten the blade fixing screws at an appropriate torque. You can tighten them in any order. (See Fig.2) (Recommended tightening torque : 8Nm)
4. Set the insert after setting the blade.



SwitchBlade Toolholder Identification System and Lathe Setting

Firmly fit the lower jaw to the tool post of the lathe.



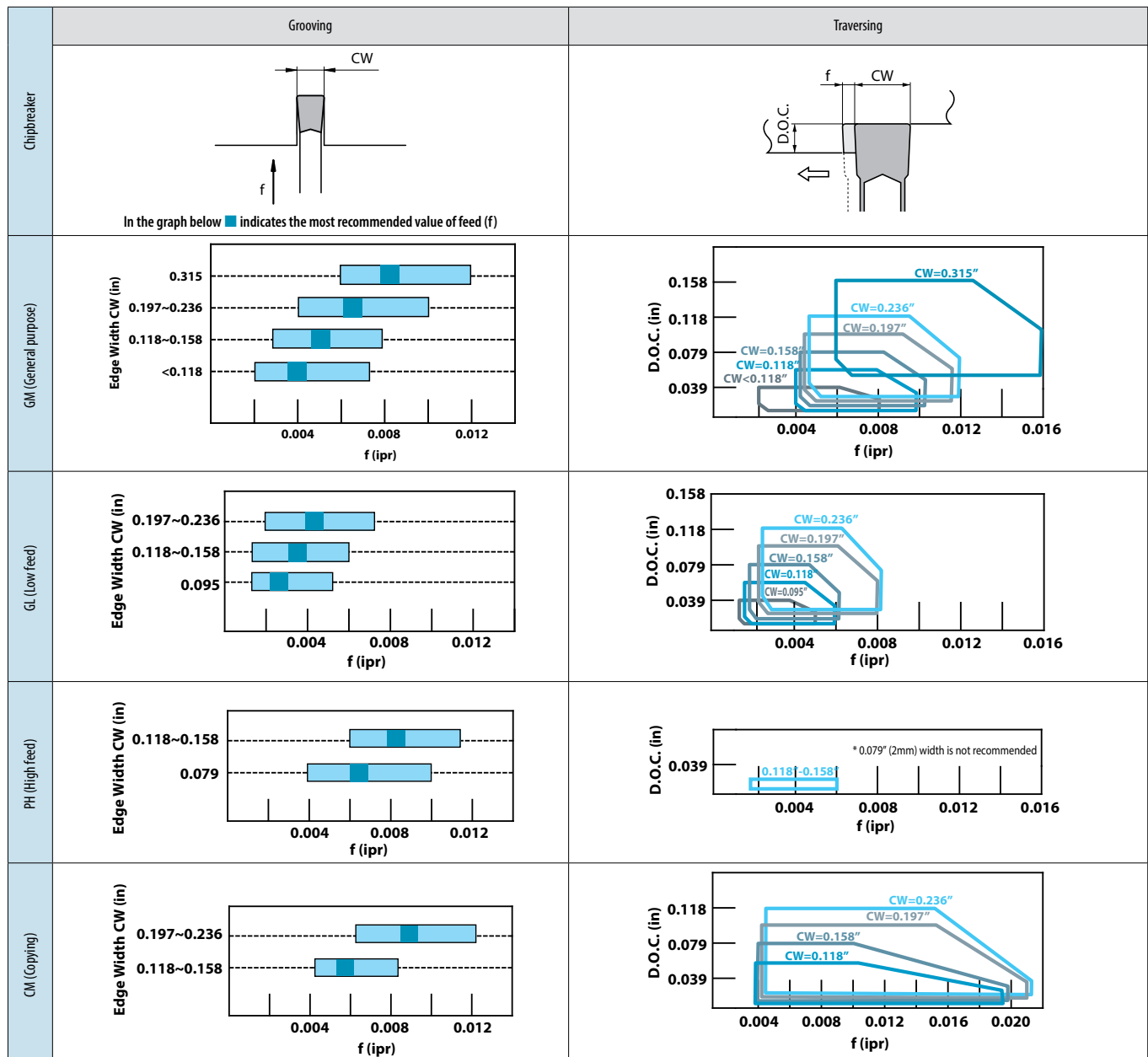
Recommended Cutting Conditions (Cutting Speed Vc)

Workpiece Material	Chipbreaker	Recommended Insert Grades (Vc: sfm)										Notes
		Cermet		MEGACOAT NANO	MEGACOAT		DLC	Carbide	MEGACOAT CBN	CBN	PCD	
		TN620	TN90	PR1535	PR1225	PR1215	PDL025	GW15	KBN05M	KBN570	KPD001	
Carbon Steel	GM GL CM PH GS	☆ 260 - 720	☆ 330 - 720	☆ 260 - 660	★ 260 - 660	☆ 330 - 660	-	-	-	-	-	Coolant
Alloy Steel		☆ 230 - 660	☆ 260 - 660	☆ 230 - 590	★ 230 - 590	☆ 260 - 590	-	-	-	-	-	
Stainless Steel		-	-	★ 200 - 490	☆ 200 - 490	☆ 200 - 490	-	-	-	-	-	
Cast Iron		-	-	-	-	★ 330 - 660	-	-	-	-	-	
Aluminum	GS AM NB	-	-	-	-	-	★ 660 - 1,640	☆ 660 - 1,480	-	-	★ 490 - 6,560	
Brass		-	-	-	-	-	-	☆ 330 - 660	-	-	★ 660 - 2,620	
Hard Materials	NB	-	-	-	-	-	-	-	★ 260 - 490	-	-	
Powdered Steel		-	-	-	-	-	-	-	-	★ 330 - 820	-	

★:1st recommendation ☆:2nd recommendation

Workpiece material: 1049

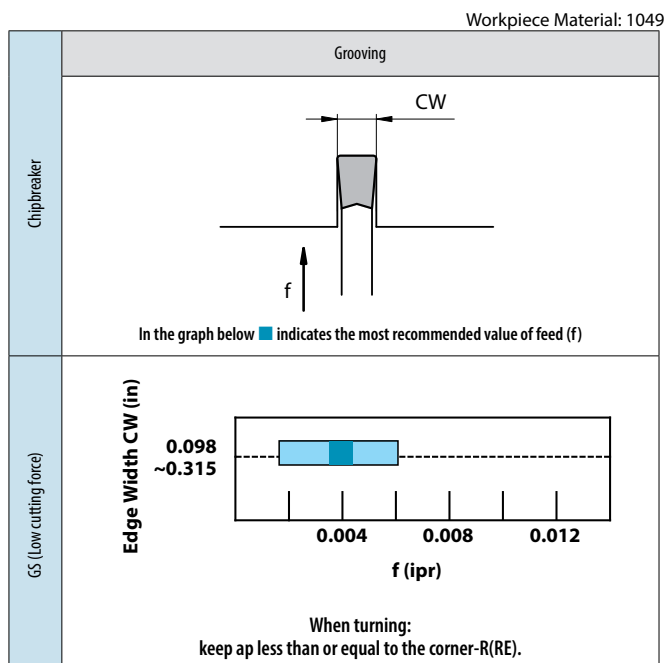
Recommended Cutting Conditions (Feed Rate / D.O.C.)



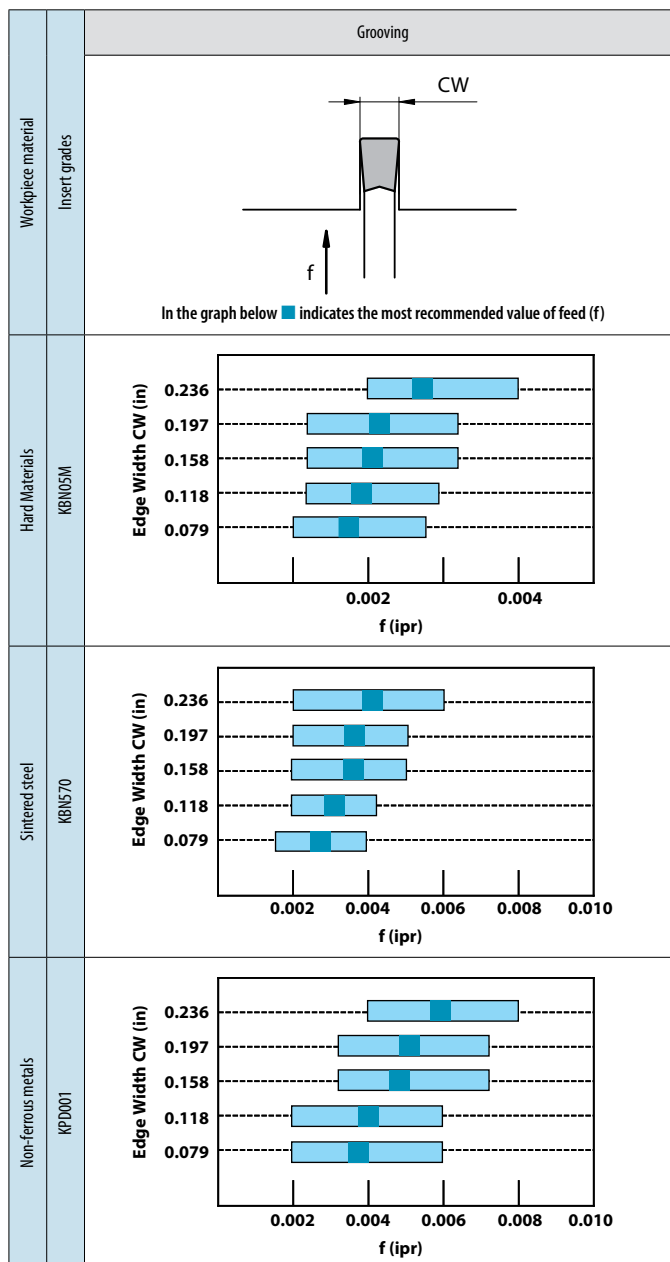
Note 1. The above values reflect a CDX dimension that is 0.669" (17mm) or less.

2. If the toolholder is not for the 0.315" (8mm) width insert and its CDX dimension is over 0.669" (17mm), set the values for traversing to less than 90% of recommended cutting conditions above.

Recommended Cutting Conditions (Feed Rate / D.O.C.)



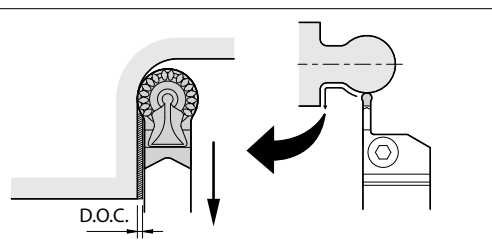
Note 1. The above values reflect a CDX dimension that is 0.669" (17mm) or less.



CM Chipbreaker [Cutting amount (D.O.C.) for back copying]

Maximum D.O.C. for back copying

Part Number	Maximum D.O.C. (in)				
	Toolholder Part Number				
	KGD...-2T...	KGD...-3T...	KGD...-4T...	KGD...-5T...	KGD...-6T...
GDM 3020N-150R-CM	0.009	0.008	-	-	-
4020N-200R-CM	-	0.009	0.008	-	-
5020N-250R-CM	-	-	0.012	0.008	-
6020N-300R-CM	-	-	-	0.012	0.010



Guide for External Grooving

Note 1 - Traversing after Grooving

1. Grooving depths over 0.020" (0.5mm): For roughing - refer to fig. 1

Before traversing, pull the tool back about 0.004" (0.1mm) after grooving, instead of traversing subsequent to grooving.

Failure to pull the tool back before traversing will result in an unbalanced load applied on only one side of the cutting edge.

2. Grooving depths under 0.020" (0.5mm): For finishing - refer to fig. 2

Traversing subsequent to grooving is possible because shallow groove depths apply a small load on the cutting edge.

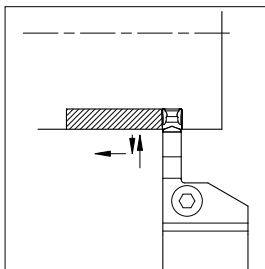
Dwell-motion is not necessary

Note 2

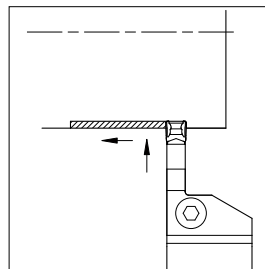
1. When widening the groove width, use "Step Traversing" as shown in Fig.3

2. The widened groove and side walls should be finished last. For better chip control, D.O.C. over 0.020" (0.5mm) is recommended.

Note: If the workpiece is not supported at the center, reduce the feed rate when grooving towards center



Before traversing, pull the tool back about 0.004" (0.1mm) after grooving. Grooving Depth Over 0.020" (0.5mm) : When Roughing



Traversing Subsequent to Grooving. Grooving Depth Under 0.020" (0.5mm) : When Finishing

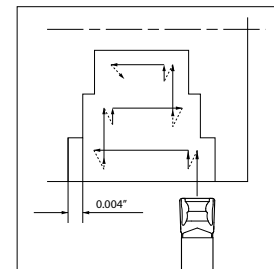
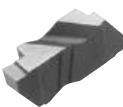
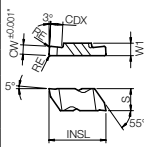


Fig. 3

Case Studies

5120H (Grooving)		Structural Steel (Grooving / Traversing)	
Gear $V_c = 370 \sim 540$ sfm $f = 0.002$ ipr Wet GDM4020N-040GM (PR1225) KGDL2525X-3T10S		Gear $V_c = 560$ sfm $f = 0.006$ ipr (Roughing) 0.004 ipr (Finishing) $D.O.C. = 0.008$ " (Finishing) Wet GDM4020N-040GM (PR1215) KGDR2525X-4T20S	
GM chipbreaker (PR1225)	1,500 pcs/c	GM chipbreaker (PR1215)	250 pcs/c
Competitor K (PVD coated carbide)	250 pcs/c	Competitor L (Roughing: PVD coated carbide; Finishing: cermet)	200 pcs/c
- GM chipbreaker (PR1225) showed 6 times longer tool life than that of Competitor K. - Good chip control without burned chips. GM chipbreaker Competitor K		- GM chipbreaker reduced occurrence rate of tangle of chips (occurrence rate 80% to 10%). The problem was persistent with Competitor L. - Machining productivity is improved. GM Chipbreaker (Finishing) Smooth chip control Competitor L (Finishing) Chips easily tangled	
Evaluation by the user		Evaluation by the user	

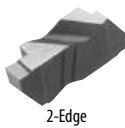
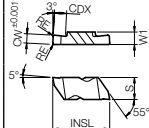
KCGP

		Carbon Steel / Alloy Steel										●	☐				P						
		Stainless Steel										●	☐				M						
		Cast Iron															K						
		Non-Ferrous Metals														●	N						
		Titanium Alloy															S						
		Hard Materials (~ 40HRC)															H						
		Hard Materials (40HRC ~)																					
Insert		Part Number		No. of Edges	Dimensions (in)						Tolerance (in)		Carbide				Applicable Toolholder ➡ G65 G94						
					CW		CDX	W1	S	INSL	RE	CW min.	CW max.	PVD				-					
					in	mm								PR1625	PR1215	PR930			KW10				
 2-Edge		KCGP 2031R	2	0.031	0.79	0.050	0.150	0.219	0.540	0.003	- 0.001	+ 0.001	●	△	△	●	KKCR...-2 A...-KKCL...-2						
		2041R		0.041	1.04								●	●									
		2047R		0.047	1.19								●	△	△	△							
		2058R		0.058	1.47								●	●	△	△							
		2062R		0.062	1.57								●	△	△	△							
		2094R		0.094	2.39								●	△									
		2125R		0.125	3.18	●	●		△														
		KCGP 3031R	2	0.031	0.79	0.050	0.195	0.344	0.810	0.008	- 0.001	+ 0.001	●	△	△	△	KKCR...-3 A...-KKCL...-3						
		3047R		0.047	1.19	0.075							●	△	△	△							
		3062R		0.062	1.57	●							△	△	●								
		3072R		0.072	1.83	0.094							●	●	△	△							
		3078R		0.078	1.98								●	△	△	△							
		3088R		0.088	2.24	●							△	△	△								
		3094R		0.094	2.39	●							△	△	●								
		3097R		0.097	2.46	0.150							0.195	0.344	0.810	0.008		- 0.001	+ 0.001	●	△		
		3105R		0.105	2.67															●	△	△	
		3110R		0.110	2.79															●	△	△	
		3125R		0.125	3.18															●	△	△	
		3142R		0.142	3.61	0.150							0.195	0.344	0.810	0.008		- 0.001	+ 0.001	●	△	△	
		3156R		0.156	3.96															●		△	
		3189R		0.189	4.80															0.150	0.195	0.344	0.810	0.008	- 0.001	+ 0.001	●	●	△
		KCGP 4125R	2	0.125	3.18	0.150	0.255	0.453	1.272	0.018	- 0.001	+ 0.001	●	●			KKCR...-4 A...-KKCL...-4						
		4189R		0.189	4.80	0.250							●	△	△								
		4250R		0.250	6.35	●							●	△									

Right-hand shown
CDX : Maximum grooving depth.

Recommended Cutting Conditions ● G65

KCGP

			Carbon Steel / Alloy Steel										●	☺			P	
			Stainless Steel										●	☺			M	
			Cast Iron														K	
			Non-Ferrous Metals													●	N	
			Titanium Alloy														S	
			Hard Materials (~ 40HRC)														H	
			Hard Materials (40HRC ~)															
Insert		Part Number	No. of Edges	Dimensions (in)					Tolerance (in)		Carbide				Applicable Toolholder ☺ G65 G94			
				CW		CDX	W1	S	INSL	RE	CW min.	CW max.	PVD			-		
				in	mm								PR1625	PR1215			PR930	KW10
 2-Edge		KCGP	2031L	0.031	0.79								●	△		△	KKCL...-2 A...-KKCR...-2	
		2041L	0.041	1.04	0.050	0.150	0.219	0.540	0.003	-0.001	+0.001		●			△		
		2047L	0.047	1.19									●	△	△	△		
		2062L	0.062	1.57									●	△	△			
		2094L	0.094	2.39	0.110	0.150	0.219	0.540	0.008	-0.001	+0.001		●	△	△			
		2125L	0.125	3.18									●	△	△			
		KCGP	3031L	0.031	0.79	0.050	0.195	0.344	0.810	0.008	-0.001	+0.001		●	△			KKCL...-3 A...-KKCR...-3
		3047L	0.047	1.19	0.075									●				
		3062L	0.062	1.57										●	△			
		3072L	0.072	1.83	0.094	0.195	0.344	0.810	0.008	-0.001	+0.001		●	△				
		3078L	0.078	1.98										●	△			
		3094L	0.094	2.39										●	△	△		
		3105L	0.105	2.67	0.150	0.195	0.344	0.810	0.008	-0.001	+0.001		●		△			
		3110L	0.110	2.79										△	△			
		3122L	0.122	3.10											△			
		3125L	0.125	3.18	0.150	0.195	0.344	0.810	0.008	-0.001	+0.001		●	△	△	●		
		3156L	0.156	3.96										●				
		3189L	0.189	4.80	0.150	0.195	0.344	0.810	0.008	-0.001	+0.001		●	△	△			
		KCGP	4125L	0.125	3.18	0.150									●			KKCL...-4 A...-KKCR...-4
		4189L	0.189	4.80										●	△			
		4213L	0.213	5.41	0.250	0.255	0.453	1.272	0.018	-0.001	+0.001		●		△			
		4250L	0.250	6.35										●				

Right-hand shown
CDX : Maximum grooving depth.

Recommended Cutting Conditions ☺ G65

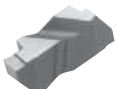
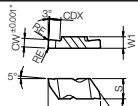
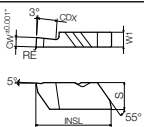
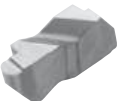
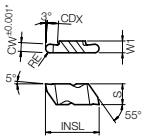
KCG

		Carbon Steel / Alloy Steel											P	
		Stainless Steel											M	
		Cast Iron										●	K	
		Non-Ferrous Metals											N	
		Titanium Alloy											S	
		Hard Materials (~ 40HRC)											H	
		Hard Materials (40HRC ~)										●		
Insert	Part Number	No. of Edges	Dimensions (in)							Tolerance (in)		Ceramic	Applicable Toolholder G65 G94	
			CW		CDX	W1	S	INSL	RE	CW min.	CW max.	A65		
			in	mm										
 2-Edge	KCG 2062R	2	0.062	1.57	0.110	0.150	0.219	0.540	0.008	- 0.001	+ 0.001	●	KKCR...-2 A...-KKCL...-2	
			0.062	1.57	0.094								●	
			0.094	2.39		0.195	0.344	0.810	0.008	- 0.001	+ 0.001	●	KKCR...-3 A...-KKCL...-3	
			0.125	3.18	0.150							●		
			0.156	3.96								●		
	KCG 2062L	2	0.062	1.57	0.110	0.150	0.219	0.540	0.008	- 0.001	+ 0.001	●	KKCL...-2 A...-KKCR...-2	
			0.125	3.18									●	
			0.094	2.39	0.150	0.195	0.344	0.810	0.008	- 0.001	+ 0.001	●	KKCL...-3 A...-KKCR...-3	
												●		
			0.156	3.96								●		

Right-hand shown
CDX : Maximum grooving depth.

Recommended Cutting Conditions ● G65

KCGDP / KCRP

		Carbon Steel / Alloy Steel										●		☺				P
		Stainless Steel										●		☺				M
		Cast Iron																K
		Non-Ferrous Metals														●		N
		Titanium Alloy																S
		Hard Materials (~ 40HRC)																H
		Hard Materials (40HRC ~)																
Insert		Part Number	No. of Edges	Dimensions (in)							Tolerance (in)		Carbide				Applicable Toolholder ☺ G65 G94	
				CW		CDX	W1	S	INSL	RE	CW min.	CW max.	PVD					
				in	mm								PR1625	PR1215	PR930	KW10		
		KCGDP 3062R	2	0.062	1.57	0.125	0.195	0.344	0.886	0.008	-0.001	+0.001		●			KKCR...-3, A...-KKCL...-3	
		KCGDP 3062L	2	0.062	1.57	0.125	0.195	0.344	0.886	0.008	-0.001	+0.001		●			KKCL...-3, A...-KKCR...-3	
		KCGDP 3094R	1	0.094	2.39	0.250	0.195	0.344	0.990	0.008	-0.001	+0.001	●	△			KKCR...-3 A...-KKCL...-3	
		3125R		0.125	3.18								●	△	△			
		KCGDP 3094L	1	0.094	2.39	0.250	0.195	0.344	0.990	0.008	-0.001	+0.001	●	△	△		KKCL...-3 A...-KKCR...-3	
		3125L		0.125	3.18								●	△	△			
		KCRP 2031R	2	0.062	1.57	0.094	0.150	0.219	0.540	0.031	-0.001	+0.001	●	△	△		KKCR...-2 A...-KKCL...-2	
		2047R		0.094	2.39	0.150				0.047			●					
		2062R		0.125	3.18	0.150				0.062			●					
		3031R		0.062	1.57	0.094				0.031			●	△	△			
		3047R		0.094	2.39	0.150	0.195	0.344	0.810	0.047	-0.001	+0.001	●	△	△		KKCR...-3 A...-KKCL...-3	
		3062R		0.125	3.18	0.150				0.062			●	△	△			
		3094R		0.188	4.78	0.150				0.094			●	△	△			
		KCRP 2031L	2	0.062	1.57	0.094	0.150	0.219	0.540	0.031	-0.001	+0.001	●	△			KKCR...-2 A...-KKCL...-2	
		2047L		0.094	2.39	0.150				0.047			●					
		2062L		0.125	3.18	0.150				0.062			●					
		3031L		0.062	1.57	0.094				0.031			●	△	△			
		3047L		0.094	2.39	0.150	0.195	0.344	0.810	0.047	-0.001	+0.001	●	△	△		KKCR...-3 A...-KKCL...-3	
		3062L		0.125	3.18	0.150				0.062			●	△	△			
		3078L		0.156	3.96	0.150				0.078			●	△	△			
		3094L		0.188	4.78	0.150				0.094			●	△	△			

Right-hand shown
CDX : Maximum grooving depth.

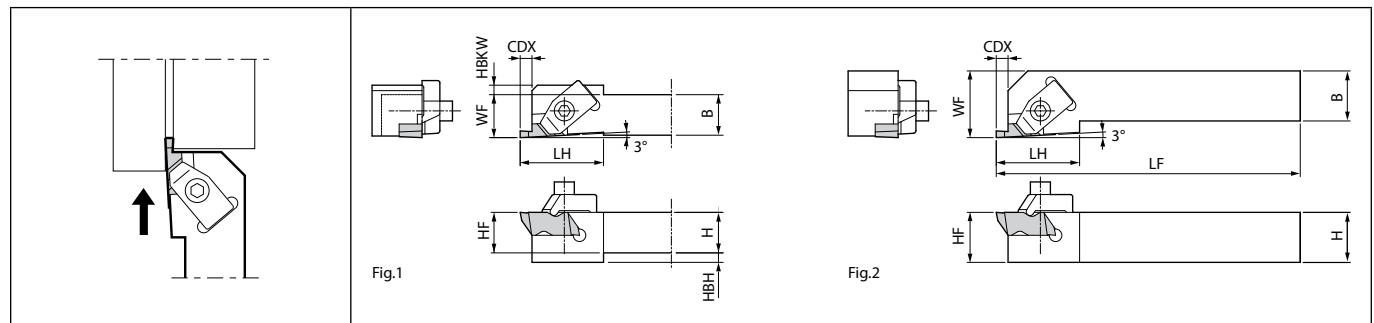
Recommended Cutting Conditions ● G65

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Vc: sfm)					Carbide Feed Rate f (ipr)	Ceramic Feed Rate f (ipr)	Notes
	MEGACOAT NANO	MEGACOAT	Carbide		Ceramic			
	PR1625	PR1215	PR930	KW10	A65			
Carbon Steel	★ 250~650	☆ 300~800	☆ 250~650	-	-	0.002~0.010	0.003~0.008	Coolant
Alloy Steel	★ 150~550	☆ 300~750	☆ 150~550	-	-			
Stainless Steel	★ 100~550	☆ 300~600	☆ 100~550	-	-			
Tool steel	★ 100~550	☆ 300~600	☆ 100~550	-	-			
Hardened Steel (>45Rc)	-	-	-	-	★ 250~500			
Gray Cast Iron	-	★ 300~700	-	-	★ 500~1000			
Nodular Cast Iron	-	★ 300~600	-	-	★ 500~1000			
Aluminum	-	-	-	★ 500~1,600	-			

Recommendations shown are for external grooving. Reduce parameters by 10% for internal grooving.

KKC (External Grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions									Fig.	Spare Parts			Applicable Inserts 🔩 G62~G64		
		R	L	CDX	H	B	LH	HF	HBH	HBL	LF	WF		Clamp	Clamp Screw	Wrench			
																			
Inch	KKC% 6-2CF	●	●	0.138	0.375	0.375	0.750	0.375	0.125	0.125	5.000	0.385	1	CKC-2%	SKC-2	(7/64 hex)	KCGP2... KCG2... KCRP2...		
	8-2X	●			0.500	0.500		0.500	-	-	3.500	0.750	2						
	8-2DF	●									6.000	0.510	1						
	10-2DF	●	●		0.625	0.625		0.625	6.000	0.635									
	12-2B	●	●		0.750	0.750		0.750	-	-	4.500	1.000	2						
	12-2C	●									5.000	1.000							
	16-2C	●	●		1.000	1.000		1.000	-	-	5.000	1.250							
	16-2D	●	●								6.000	1.250							
	KKC% 12-3B	●	●	0.210	0.750	0.750	1.250	0.750	-	-	4.500	1.000	2	CKC-3%	SKC-3	LW-156	KCGP3... KCG3... KCGDP3... KCRP3...		
	12-3C	●	●								1.000	1.000						1.000	-	-	5.000	1.000
	16-3C	●	●		5.000	1.250													
	16-3D	●	●		6.000	1.250													
	20-3D	●	●		6.000	1.500													
	KKC% 16-4D	●	●	0.294	1.000	1.000	1.380	1.000	-	-	6.000	1.250	2	CKC-3%	SKC-3	LW-156	KCGP4... KCRP4...		
	20-4D	●			1.250	1.250		1.380				1.250						1.500	
mm	KKCR 1212M-2-150F	●		0.669	0.75	0.75	1.28	0.75	-	-	4.92	0.71	1	CKC-2%	SKC-2	(7/64 hex)	KCGP2..., KCG2..., KCRP2...		

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

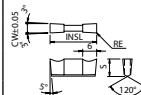
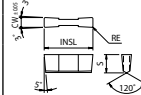
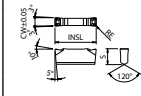
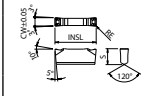
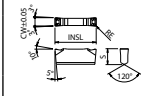
Clamp: CKC-OR for Right-hand Toolholder and CKC-OL for Left-hand Toolholder.

Above toolholders are also available for threading. See Page J35.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

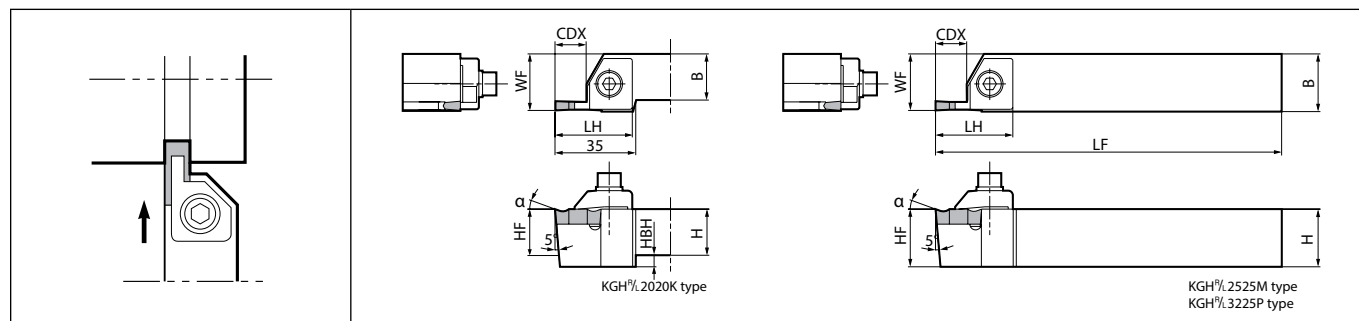
Contact your local Kyocera sales engineer to upgrade old products to new technology

GH/GHU/GA

Cutting edge preparation				Carbon Steel / Alloy Steel										P												
				Stainless Steel										M												
				Cast Iron										K												
				Non-Ferrous Metals										N												
Symbol	Specification	Example		Titanium Alloy										S												
S	Chamfered and R-honed	S01020	0.10mm×20° chamfered and R-honed	Hard Materials (~ 40HRC)										H												
T	Chamfered	T01020	0.10mm×20° chamfered	Hard Materials (40HRC ~)																						
Insert				Part Number				Edge preparation type	No. of Edges	Dimensions					Tolerance (mm)		Carbide		Ceramic		Cermet		Applicable Toolholder ➡ G62~G64			
										CW		S	RE	INSL	CW min.	CW max.	CVD	PVD	-	PVD	-	-				
										in	mm						CR9025	PR930	KW10	A66N	PT600M	A65		TC40	TC60	TN60
		GH 4020-02	-	2	0.157	4	7.5	0.2	20	-0.05	+0.05	●	●								KGH% ...4 KGHS% ...4					
		GH 4020-05	-	2	0.157	4	7.5	0.5	20	-0.05	+0.05	●	●													
		GH 5020-02	-	2	0.197	5	7.5	0.2	20	-0.05	+0.05	●	●								KGH% ...5 KGHS% ...5					
		GH 5020-05	-	2	0.197	5	7.5	0.5	20	-0.05	+0.05	●	●													
		GH 6020-02	-	2	0.236	6	7.5	0.2	20	-0.05	+0.05	●	●				●									
		GH 6020-05	-	2	0.236	6	7.5	0.5	20	-0.05	+0.05	●	●													
		GH 7020-02	-	2	0.276	7	7.5	0.2	20	-0.05	+0.05	●	●													
		GH 7020-05	-	2	0.276	7	7.5	0.5	20	-0.05	+0.05	●	●								KGH% ...7					
		GH 8020-02	-	2	0.315	8	7.5	0.2	20	-0.05	+0.05	●	●						●	●						
		GH 8020-05	-	2	0.315	8	7.5	0.5	20	-0.05	+0.05	●	●						●	●						
		GH 10025-05	-	2	0.394	10	7.5	0.5	25	-0.05	+0.05	●	●													
		GH 12025-05	-	2	0.472	12	7.5	0.5	25	-0.05	+0.05	●	●								KGH% ...10					
		GH 4020-05	S01020 T01020	2	0.157	4	7.5	0.5	20	-0.05	+0.05				●			●	●	KGH% ...4 KGHS% ...4						
		GH 5020-05	S01020 T01020	2	0.197	5	7.5	0.5	20	-0.05	+0.05				●			●	●	KGH% ...5 KGHS% ...5						
		GH 6020-05	T01020	2	0.236	6	7.5	0.5	20	-0.05	+0.05						●									
		GH 7020-05	T01020	2	0.276	7	7.5	0.5	20	-0.05	+0.05						●			KGH% ...7						
		GHU 40-20	-	2	0.157	4	7.5	0.25	20	-0.05	+0.05	●							●	KGH% ...4 KGHS% ...4						
		GHU 50-20	-	2	0.197	5	7.5	0.3	20	-0.05	+0.05	●							●	KGH% ...5 KGHS% ...5						
		GHU 60-20	-	2	0.236	6	7.5	0.3	20	-0.05	+0.05	●							●							

Recommended Cutting Conditions ➡ G69

KGH (External Grooving)



Right-hand shown

Toolholder Dimensions

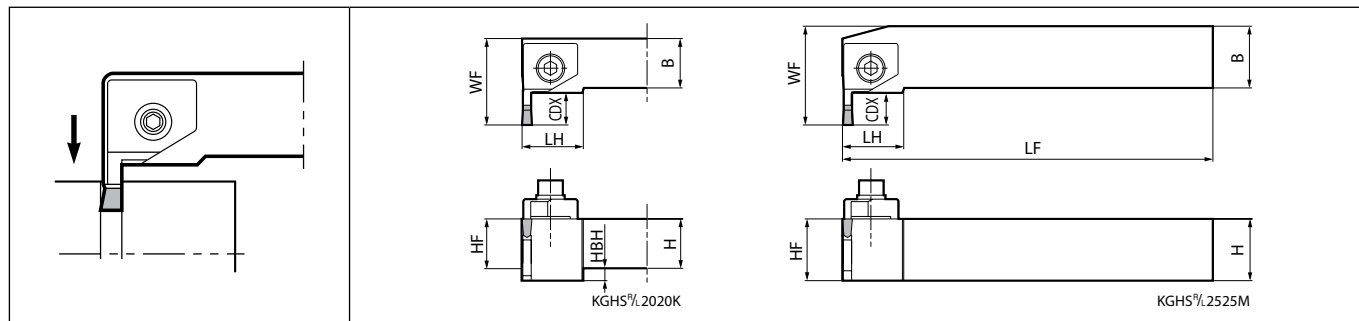
Unit	Part Number	Std. Item		Dimensions										Clamp	Clamp Screw	Spring	Washer	Wrench	Applicable Inserts G66
		R	L	CDX	H	B	LH	HF	HBH	LF	WF (min.)	WF (max.)							
mm	KGH% 2020K-4	●	●	13	20	20	33.5	20	5	125	24.5	24.8	CGH-1%	HH6X25	SP-6	W-6	LW-5		GH4.20-... GHU40-20
	2525M-4	●	●		25	25		25	-	150									
	KGH% 2020K-5	●	●		20	20		20	5	125			CGH-1%	HH6X25	SP-6	W-6	LW-5		GH5.20-... , GHU50-20
	2525M-5	●	●	13	25	25	33.5	25	-	150	25	25.8							GH6.20-... , GHU60-20
	3225P-5	●	●		32			32	-	170									
	KGH% 2020K-7	●	●	13	20	20	33.5	20	7	125	24.5	25	CGH-2%	HH6X25	SP-6	W-6	LW-5		GH7.20-... GH8020-...
	2525M-7	●	●		25	25		25	-	150									
	KGH% 2525M-10	●	●	17	25	25	41	25	-	150	25.5	26.5	CGH-3%	HH6X25	SP-6	W-6	LW-5		GH10025-05 GH12025-05
	3225P-10	●			32			32	-	170									

CDX shows available grooving depth.

WF of KGH% Toolholder depends on the insert's edge width.

Clamp : CGH-○R for Right-hand Toolholder and CGH-○L for Left-hand Toolholder.

KGHS (External Grooving)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Spare Parts					Applicable Inserts G66
												Clamp	Clamp Screw	Spring	Washer	Wrench	
		R	L	CDX	H	B	LH	HF	HBH	LF	WF						
mm	KGHS%L 2020K-4	●	●	13	20	20	25	20	5	125	35	CGH-1 $\frac{1}{2}$ /R	HH6X25	SP-6	W-6	LW-5	GH4.20-... GHU40-20
	2525M-4	●	●	13	25	25	25	25	-	150	40	CGH-1 $\frac{1}{2}$ /R	HH6X25	SP-6	W-6	LW-5	GH5.20-... , GHU50-20 GH6.20-... , GHU60-20
	KGHS%L 2020K-5	●	●	13	20	20	25	20	5	125	35	CGH-1 $\frac{1}{2}$ /R	HH6X25	SP-6	W-6	LW-5	GH5.20-... , GHU50-20 GH6.20-... , GHU60-20
	2525M-5	●	●	13	25	25	25	25	-	150	40	CGH-1 $\frac{1}{2}$ /R	HH6X25	SP-6	W-6	LW-5	GH5.20-... , GHU50-20 GH6.20-... , GHU60-20

CDX shows available grooving depth.

Clamp : CGH-○L for Right-hand Toolholder and CGH-○R for Left-hand Toolholder.

Rake Angle (α) after Installment of GH / GHU insert

When using GH○○-○○		When using GHU○○-○○	
α	Insert Grades	α	Insert Grades
0°	A65, A66N, PT600M	10°	TN60 CR9025
10°	TC40		
20°	TN90, TC60 PR930 KW10		

Recommended Cutting Conditions

GH inserts - Ground Chipbreaker

Workpiece Material	Recommended Insert Grades (Vc: sfm)							(1) f (feed) during Grooving (ipr) (2) f (feed) during Traversing (ipr) (3) D.O.C. during Traversing (in)				Notes
	Cermet		PVD	Carbide	Ceramic			GH 40~50...	GH 55~70...	GH 75~80...	GH 100~120...	
	TC40	TC60	PR930	KW10	A65	A66N	PT600M					
Carbon Steel	☆ 490~720	☆ 330~490	★ 260~590	-	-	-	-	(1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039	(1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039	(1) 0.0039~0.0098 (2) 0.0039~0.0079 (3) MAX 0.059	(1) 0.0059~0.0118 (2) 0.0059~0.0098 (3) MAX 0.079	Coolant
Alloy Steel	☆ 430~660	☆ 260~430	★ 260~520	-	-	-	-	(1) 0.0028~0.0071 (2) 0.0028~0.0051 (3) MAX 0.039	(1) 0.0028~0.0071 (2) 0.0028~0.0051 (3) MAX 0.039	(1) 0.0039~0.0091 (2) 0.0039~0.0071 (3) MAX 0.059	(1) 0.0059~0.0106 (2) 0.0059~0.0087 (3) MAX 0.079	
Stainless Steel	-	☆ 200~330	★ 200~430	-	-	-	-	(1) 0.0028~0.0063 (2) 0.0028~0.0051 (3) MAX 0.039	(1) 0.0028~0.0063 (2) 0.0028~0.0051 (3) MAX 0.039	(1) 0.0039~0.0083 (2) 0.0039~0.0071 (3) MAX 0.059	(1) 0.0059~0.0098 (2) 0.0059~0.0087 (3) MAX 0.079	
Cast Iron	-	-	-	★ 200~330	☆ 490~980	☆ 490~980	☆ 490~980	KW10 (1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039	KW10 (1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039	KW10 (1) 0.0039~0.0098 (2) 0.0039~0.0079 (3) MAX 0.059	KW10 (1) 0.0059~0.0118 (2) 0.0059~0.0098 (3) MAX 0.079	
								A65 / A66N (1) 0.0012~0.0028 (2) Traversing N/A (3) Traversing N/A	A65 / A66N (1) 0.0012~0.0028 (2) Traversing N/A (3) Traversing N/A	A65 / A66N (1) 0.002~0.0035 (2) Traversing N/A (3) Traversing N/A	A65 / A66N (1) 0.002~0.0035 (2) Traversing N/A (3) Traversing N/A	
Aluminum	-	-	-	★ 490~1310	-	-	-	(1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039	(1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039	(1) 0.0039~0.0098 (2) 0.0039~0.0079 (3) MAX 0.059	(1) 0.0059~0.0118 (2) 0.0059~0.0098 (3) MAX 0.079	
Brass	-	-	-	★ 490~980	-	-	-	(1) 0.0028~0.0079 (2) 0.0028~0.0059 ③ MAX 0.039	(1) 0.0028~0.0079 (2) 0.0028~0.0059 (3) MAX 0.039	(1) 0.0039~0.0098 (2) 0.0039~0.0079 (3) MAX 0.059	(1) 0.0059~0.0118 (2) 0.0059~0.0098 (3) MAX 0.079	
Hardened Materials	-	-	-	-	☆ 130~260	☆ 130~260	☆ 130~260	(1) 0.0008~0.0020 (2) 0.0004~0.0012 (3) MAX 0.004	(1) 0.0008~0.0020 (2) 0.0004~0.0012 (3) MAX 0.008	(1) 0.0008~0.002 (2) 0.0004~0.0016 (3) MAX 0.008		

* Above cutting conditions are for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

★:1st recommendation ☆:2nd recommendation

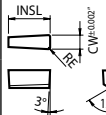
GHU Inserts - Molded Chipbreaker

Workpiece Material	Recommended Insert Grade (Vc sfm)		(1) f (feed) during Grooving (ipr) (2) f (feed) during Traversing (ipr) (3) D.O.C. during Traversing (in)			Notes
	Cermet	CVD	GHU 40~20	GHU 50~20	GHU 60~20	
	TN60	CR9025				
Carbon Steel	☆ 430~660	☆ 260~590	(1) 0.0024~0.0047 (2) 0.0020~0.0039 (3) MAX 0.039	(1) 0.0024~0.0047 (2) 0.0020~0.0039 (3) MAX 0.039	(1) 0.0024~0.0059 (2) 0.0020~0.0047 (3) MAX 0.059	Coolant
Alloy Steel	☆ 330~590	☆ 260~520	(1) 0.0024~0.0047 (2) 0.0020~0.0039 (3) MAX 0.039	(1) 0.0024~0.0047 (2) 0.0020~0.0039 (3) MAX 0.039	(1) 0.0024~0.0059 (2) 0.0020~0.0047 (3) MAX 0.059	
Stainless Steel	-	☆ 200~430	(1) 0.0024~0.0039 (2) 0.0020~0.0031 (3) MAX 0.031	(1) 0.0024~0.0039 (2) 0.0020~0.0031 (3) MAX 0.031	(1) 0.0024~0.0047 (2) 0.0020~0.0039 (3) MAX 0.047	

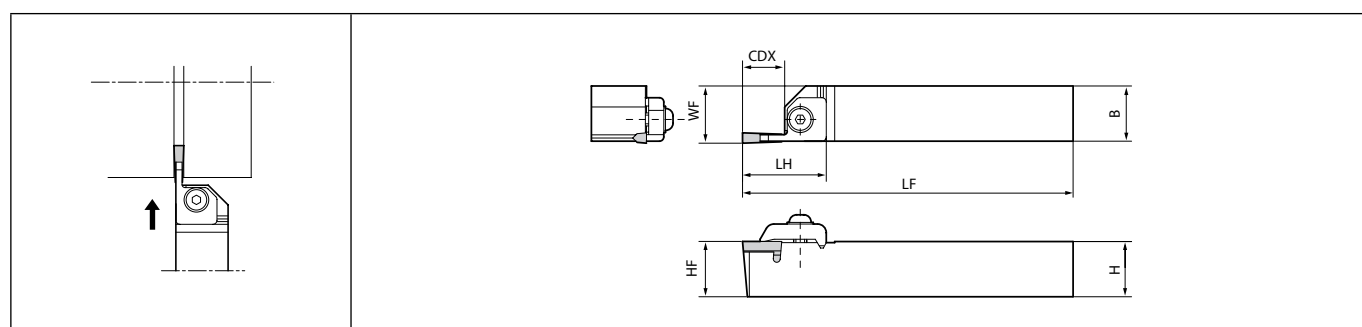
* Above cutting conditions are for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

★:1st recommendation ☆:2nd recommendation

GG

Insert		Part Number	Edge Prep	No. of Edges	Dimensions (in)					Tolerance (in)		Ceramic	Applicable Toolholder
					CW		S	RE	INSL	CW min.	CW max.	-	
					in	mm						A65	
		GG 157-20T00320	T00320	2	0.157	4.0	0.197	0.020	0.591	-0.002	+0.002	●	EGTR16-1
		GG 197-32T00320			0.197	5.0	0.197	0.032	0.591	-0.002	+0.002	●	

EGT (External Grooving)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Spare Parts		Applicable Inserts
											Clamp Set	Wrench	
		R	CDX	H	B	LH	HF	LF	WF (min.)	WF (max.)			
Inch	EGTR 16-1	●	0.63	1.00	1.00	1.34	1.00	6.00	1.0085	1.0285	R: HCL-009 L: HCL-011	LW-156	GG157... GG197...

CDX shows available grooving depth.

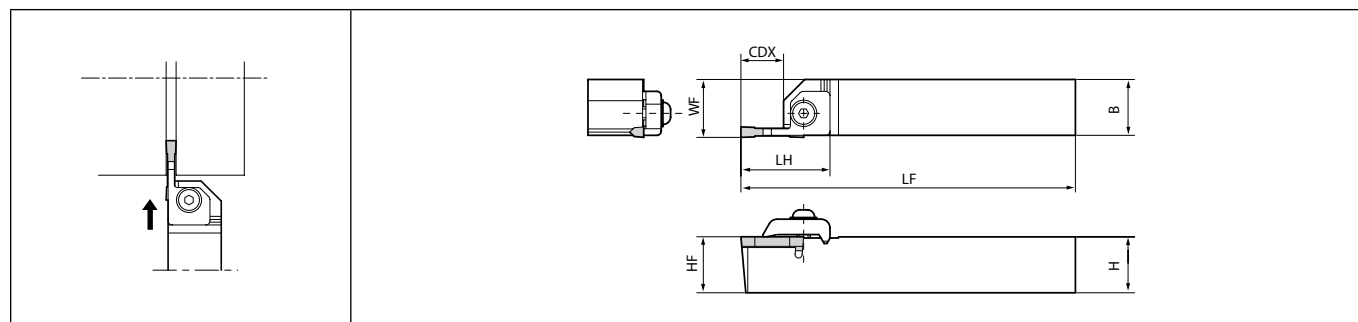
Clamp Set : HCL-009 for Right-hand Toolholder and HCL-011 for Left-hand Toolholder.

WF of EGT% Toolholder depends on the insert's edge width.

DB

Insert	Part Number	No. of Edges	Dimensions (in)					Tolerance (in)		Cermet	Ceramic	Applicable Toolholder
			CW		S	RE	INSL	CW min.	CW max.	-	-	
			in	mm						TN60	A65	
	DB 12SR15	2	0.125	3.18	0.250	0.015	1.125	-0.001	+0.001	●		KDBR16-1
	187R30		0.187	4.75		0.030				●		
	250R15		0.250	6.35		0.015				●		
	375R30		0.375	9.525		0.030				●		
	DB 12SR15T00420	2	0.125	3.18	0.250	0.015	1.125	-0.001	+0.001		●	
	187R30T00420		0.187	4.75		0.030					●	
	DB 12SFNRT00420	2	0.125	3.18	0.250	0.063	1.125	-0.001	+0.001		●	
	187FNRT00420		0.187	4.75		0.094					●	

KDB (External Grooving)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Spare Parts		Applicable Inserts
										Clamp Set	Wrench	
		R	CDX	H	B	HF	LF	WF (min.)	WF (max.)			
Inch	KDBR 16-1	●	0.75	1.00	1.00	1.00	6.00	1.0050	1.0360	R: HCL-009 L: HCL-011	LW-156	DB...

CDX shows available grooving depth.

Clamp Set : HCL-009 for Right-hand Toolholder and HCL-011 for Left-hand Toolholder.

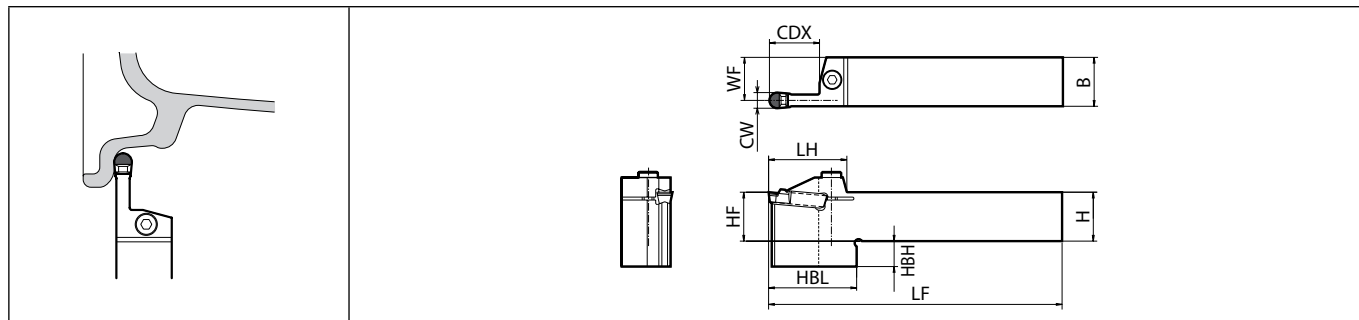
WF of KDB% Toolholder depends on the insert's edge width.

GMGW

			Carbon Steel / Alloy Steel										P
			Stainless Steel										M
			Cast Iron										K
			Non-Ferrous Metals									●	N
			Titanium Alloy									●	S
			Hard Materials (~ 40HRC)										H
			Hard Materials (40HRC ~)										
Insert	Part Number	No. of Edges	Dimensions (mm)						Tolerance (mm)		PCD	Applicable Toolholder	
			CW		S	RE	INSL	LE	CW min.	CW max.	KPD001		
			in	mm									
	GMGW 6030-30R	1	0.236	6	5.5	3	30	4.5	- 0.03	+ 0.03	●	KGMW% 2525M-6	
	GMGW 8030-40R	1	0.315	8	5.5	4	30	6	- 0.03	+ 0.03	●	-	
	GMGW 8030-40R-HR	1	0.315	8	5.5	4	30	5	- 0.03	+ 0.03	●	-	

GMGW inserts are exclusively used for KGMW toolholder. They cannot be used for other toolholder because of different installation angles.
GMGW inserts Edge Preparation : R-honed Cutting Edge.

KGMW (External Grooving / Face Grooving / Copying)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions										Spare Parts		Applicable Inserts
													Clamp Screw	Wrench	
		R	CDX	H	B	LH	HF	HBH	HBL	LF	WF				
mm	KGMWR 2525M-6	●	25	25	25	40	25	13	55	150	22.8		HH6X25	LW-5	GMGW6030-30R

Recommended Cutting Conditions

Workpiece Material	Recommended insert grades (Vc: sfm)	(1) f for grooving (ipr) (2) f for traversing (ipr) (3) D.O.C. for traversing (in)
	PCD	
	KPD001	
Aluminum	★ 490~8,860	(1) 0.0020 ~ 0.0118 (2) 0.0079 ~ 0.0315 (3) Max. 0.1181

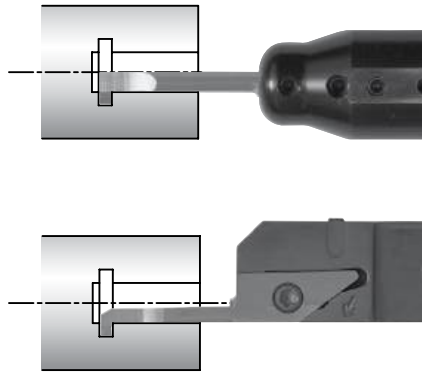
★ : 1st recommendation

PCD inserts are sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Small Diameter Internal Grooving

Ez Bar and Swiss IQ Bars



Type	EZG
Min. Bore Diameter	0.118"~0.315" (3.00mm~8.00mm)
Edge Width	0.020"~0.079" (0.50mm ~ 2.00mm)
Grooving Depth	0.039"~0.079" (1.00mm ~ 2.00mm)
Ref. Page	G75

Type	VNG
Min. Bore Diameter	0.158"~0.276" (4.0mm~7.0mm)
Edge Width	0.039"~0.079" (1.0mm ~ 2.0mm)
Grooving Depth	0.032"~0.079" (0.8mm ~ 2.0mm)
Ref. Page	G77

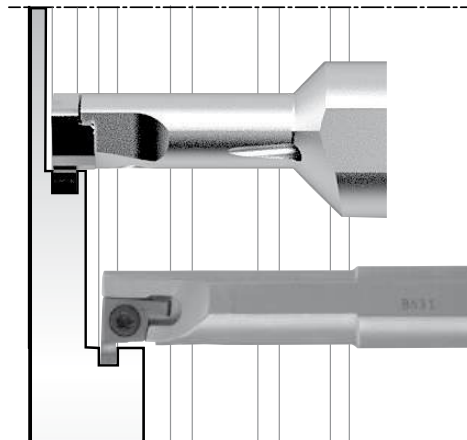


EZ Bars



Swiss IQ Bars

External Shallow Grooving Ø0.315"~ / (Ø8mm)~



Type	SIGC
Min. Bore Diameter	8.0mm~12.00mm
Edge Width	1.0mm ~ 3.0mm
Grooving Depth	1.0mm ~ 3.0mm
Ref. Page	G80

1-Edge



Ground Chipbreaker

Type	SIGE
Min. Bore Diameter	0.315"~0.375" (8.0mm~12.00mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.059"~0.087" (1.5mm ~ 2.2mm)
Ref. Page	G86

2-Edge

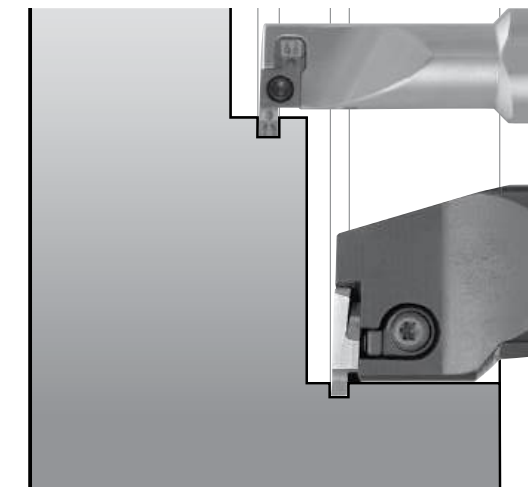


Ground Chipbreaker

2-Edge



Ground Chipbreaker Full-R



Type	SIGE
Min. Bore Diameter	0.551"~1.575" (14.0mm~40.0mm)
Edge Width	0.039"~0.197" (1.0mm~5.0mm)
Grooving Depth	0.098"~0.256" (2.5mm~6.5mm)
Ref. Page	G34

2-Edge



Molded Chipbreaker

2-Edge



Ground Chipbreaker

2-Edge



Ground Chipbreaker Full-R

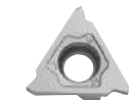
Type	KIGBA
Min. Bore Diameter	1.378"~1.575" (35.0mm~40.0mm)
Edge Width	0.013"~0.189" (0.33mm~4.8mm)
Grooving Depth	0.032"~0.110" (0.8mm~2.8mm)
Ref. Page	G89



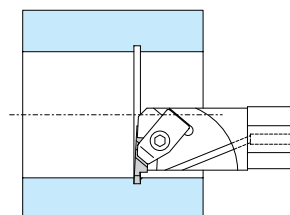
Ground Chipbreaker



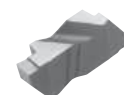
Ground Chipbreaker Full-R



GM Chipbreaker

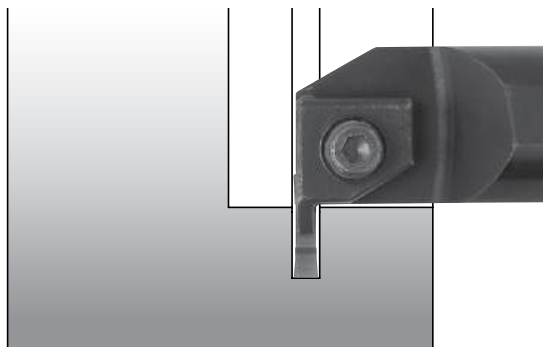


Type	A-KKC
Min. Bore Diameter	1.000"~2.750"
Edge Width	0.031"~0.189"
Grooving Depth	0.040"~0.240"
Ref. Page	G94



Ground Chipbreaker

Internal Deep Grooving



Type	KIGH
Min. Bore Diameter	1.772"~2.559" (45.0mm~65.0mm)
Edge Width	1.575"~0.315" (4.0mm~8.0mm)
Grooving Depth	0.472" (12.0mm)
Ref. Page	G93

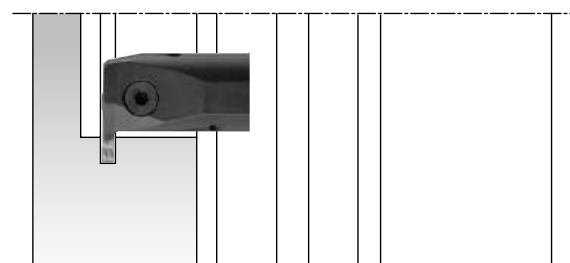


Ground Chipbreaker



Molded Chipbreaker

Internal Grooving & Traversing Ø0.787"~ (Ø20mm~)



Type	KGDI
Min. Bore Diameter	0.709"~1.575" (18.0mm~40.0mm)
Edge Width	0.079"~0.197" (2.0mm~5.0mm)
Grooving Depth	0.177"~0.433" (4.5mm~11.0mm)
Ref. Page	G91

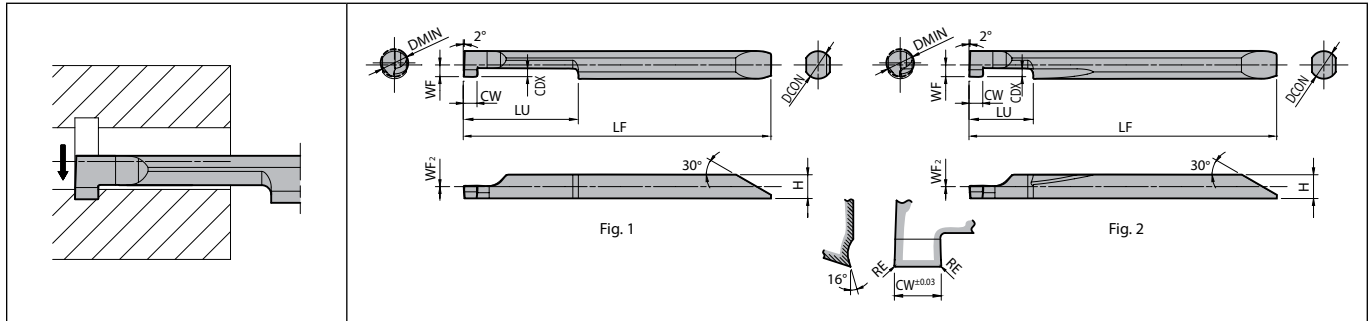


GM Chipbreaker



Molded Chipbreaker
Full-R

EZG (Internal Grooving)



Right-hand shown

Dimensions

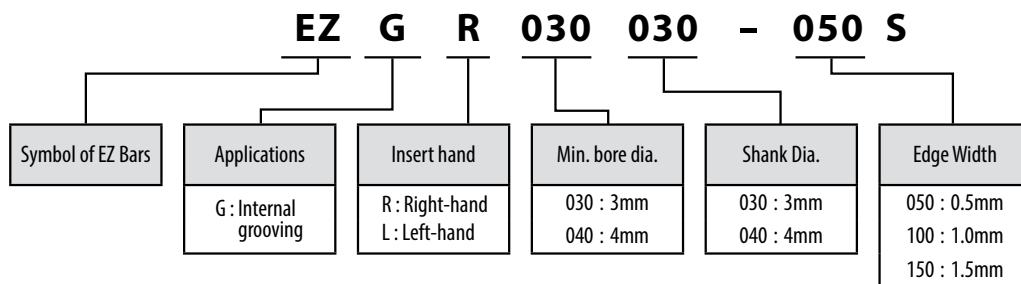
Part Number	No. of Edges	Dimensions (mm)											Fig.	Tolerance (mm)				Carbide			Applicable Sleeve ➡ F40~F45
		DMIN	CW		CDX	RE	DCON	H	LF	LU	WF	WF ₂		CW min.	CW max.	RE min.	RE max.	PVD	-		
																		PR1225	GW05		
			in	mm														R	L	R	
EZG % 040040-050 040040-100 040040-150 040040-200	1	4	0.020 0.039 0.059 0.079	0.5 1 1.5 2	1	0.05	4	3.45	44.7	12	1.7	0	2	-0.03	+0.03	-0.013	+0.013	● ● ● ●	□ □ □ □	● ● ● ●	EZH040...
EZG % 050050-100 050050-150 050050-200	1	5	0.039 0.059 0.079	1 1.5 2	1.5	0.05	5	4.3	52.8	20	2.15	0	1	-0.03	+0.03	-0.013	+0.013	● ● ●	□ □ □	● ● ●	EZH050...
EZG % 060060-100 060060-150 060060-200	1	6	0.039 0.059 0.079	1 1.5 2	2	0.05	6	5.15	60.7	20	2.65	0	1	-0.03	+0.03	-0.013	+0.013	● ● ●	□ □ □	● ● ●	EZH060...
EZG % 070070-100 070070-150 070070-200	1	7	0.039 0.059 0.079	1 1.5 2	2	0.05	7	6.2	63.7	25	3.05	0	1	-0.03	+0.03	-0.013	+0.013	● ● ●	□ □ □	● ● ●	EZH070...
EZG % 080070-100 080070-150 080070-200	1	8	0.039 0.059 0.079	1 1.5 2	2	0.05	7	6.2	63.7	25	3.45	0	1	-0.03	+0.03	-0.013	+0.013	● ● ●	□ □ □	● ● ●	
EZGR 030030-050S 030030-100S	1	3	0.020 0.039	0.5 1	0.8	0.05	3	2.5	38.7	5	1.25	0	2	-0.03	+0.03	-0.013	+0.013	● ●			EZH030...
EZGR 040040-050S 040040-100S 040040-150S 040040-200S	1	4	0.020 0.039 0.059 0.079	0.5 1 1.5 2	1	0.05	4	3.45	44.7	8	1.7	0	2	-0.03	+0.03	-0.013	+0.013	● ● ● ●			EZH040...
EZGR 050050-100S 050050-150S 050050-200S	1	5	0.039 0.059 0.079	1 1.5 2	1.5	0.05	5	4.3	52.8	10	2.15	0	2	-0.03	+0.03	-0.013	+0.013	● ● ●			EZH050...
EZGR 060060-100S 060060-150S 060060-200S	1	6	0.039 0.059 0.079	1 1.5 2	2	0.05	6	5.15	60.7	10	2.65	0	2	-0.03	+0.03	-0.013	+0.013	● ● ●			EZH060...
EZGR 070070-100S 070070-150S 070070-200S	1	7	0.039 0.059 0.079	1 1.5 2	2	0.05	7	6.2	63.7	10	3.05	0	2	-0.03	+0.03	-0.013	+0.013	● ● ●			EZH070...
EZGR 080070-100S 080070-150S 080070-200S	1	8	0.039 0.059 0.079	1 1.5 2	2	0.05	7	6.2	63.7	10	3.45	0	2	-0.03	+0.03	-0.013	+0.013	● ● ●			

CDX shows available grooving depth.

Recommended Cutting Conditions ● G155

EZ bars are
sold in 1 piece boxes

EZ Bars Identification System

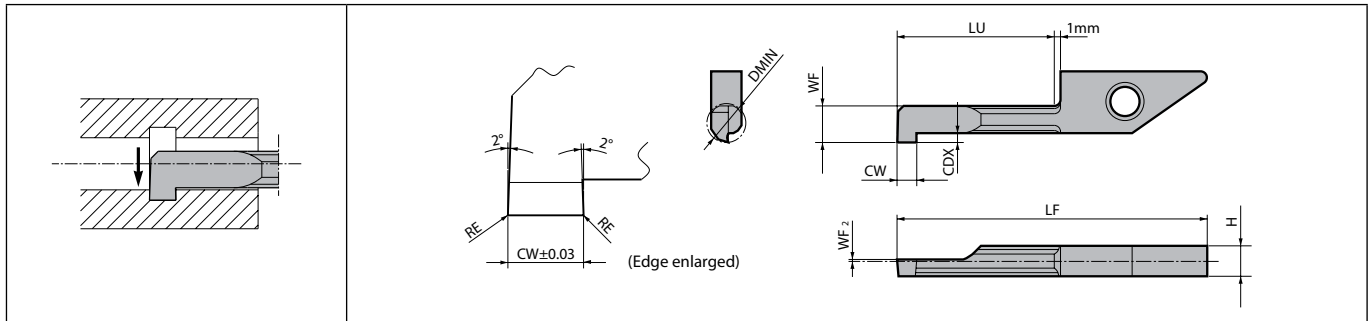


Applicable Sleeves

Sleeve				Applicable Internal Grooving Bar		Applicable Machine Manufacturer
EZH-CT (Adjustable Overhang Length / with Coolant Hole) F40~F41	EZH-HP (Adjustable Overhang Length) F42~F43	EZH-ST F44~F45	Sleeve Shank Dia.	EZG	EZ Bar Shank Dia.	
			DCON (mm)		DCON (mm)	
		EZH 03012ST-80	12	EZG_ 030030-...	3	(General Purpose)
		04012ST-80		EZG_ 040040-...	4	
		05012ST-80		EZG_ 050050-...	5	
		06012ST-80		EZG_ 060060-...	6	
		07012ST-80		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
	EZH 03016HP-100	EZH 03016ST-100	16	EZG_ 030030-...	3	(General Purpose)
	04016HP-100	04016ST-100		EZG_ 040040-...	4	
	05016HP-100	05016ST-100		EZG_ 050050-...	5	
	06016HP-100	06016ST-100		EZG_ 060060-...	6	
	07016HP-100	07016ST-100		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03019CT-120	EZH 03019HP-120	EZH 03019ST-120	0.750"	EZG_ 030030-...	3	Citizen Machinery
04019CT-120	04019HP-120	04019ST-120		EZG_ 040040-...	4	
05019CT-120	05019HP-120	05019ST-120		EZG_ 050050-...	5	
06019CT-120	06019HP-120	06019ST-120		EZG_ 060060-...	6	
07019CT-120	07019HP-120	07019ST-120		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03020CT-120	EZH 03020HP-120	EZH 03020ST-120	20	EZG_ 030030-...	3	Eguro Tsugami Citizen Machinery (General Purpose)
04020CT-120	04020HP-120	04020ST-120		EZG_ 040040-...	4	
05020CT-120	05020HP-120	05020ST-120		EZG_ 050050-...	5	
06020CT-120	06020HP-120	06020ST-120		EZG_ 060060-...	6	
07020CT-120	07020HP-120	07020ST-120		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03022CT-135	EZH 03022HP-135	EZH 03022ST-135	22	EZG_ 030030-...	3	Star Micronics Nomura DS Tsugami
04022CT-135	04022HP-135	04022ST-135		EZG_ 040040-...	4	
05022CT-135	05022HP-135	05022ST-135		EZG_ 050050-...	5	
06022CT-135	06022HP-135	06022ST-135		EZG_ 060060-...	6	
07022CT-135	07022HP-135	07022ST-135		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03025.0CT-135	EZH 03025.0HP-135	EZH 03025.0ST-135	25	EZG_ 030030-...	3	Eguro Tsugami Citizen Machinery (General Purpose)
04025.0CT-135	04025.0HP-135	04025.0ST-135		EZG_ 040040-...	4	
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZG_ 050050-...	5	
06025.0CT-135	06025.0HP-135	06025.0ST-135		EZG_ 060060-...	6	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03025.4CT-120	EZH 03025.4HP-120	EZH 03025.4ST-120	1.000"	EZG_ 030030-...	3	Citizen Machinery
04025.4CT-120	04025.4HP-120	04025.4ST-120		EZG_ 040040-...	4	
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZG_ 050050-...	5	
06025.4CT-120	06025.4HP-120	06025.4ST-120		EZG_ 060060-...	6	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZG_ 070070-...	7	
				EZG_ 080070-...	8	

- Choose sleeves' (DCON) that match with DCON dimension of Internal Grooving Bars.
- Adjustment Pin cannot be installed to EZH-ST Sleeves. To adjust overhang of the bar, please use EZH-CT/HP Sleeves.
- Machine manufacturers in random order.

VNG



Right-hand shown

Dimensions

Part Number	No. of Edges	Dimensions (mm)											Tolerance (mm)		Carbide			Applicable Toolholder F50~F53
		DMIN	CW		CDX	RE	H	LF	LU	WF	WF ₂	CW min.	CW max.	PR1225	PR930	KW10		
VNGR 0410-11 0420-11	1	4	0.039 0.079	1 2	0.8	0.05	3.9	30.8	11	3.5	0.1	-0.03	+0.03	●	●	●	SVNR...-12N SVNSR...-12...(N) S...-SVNR12(N) S...-SVNR12SN	
VNGR 0510-11 0520-11	1	5	0.039 0.079	1 2	1	0.05	3.9	30.8	11	4.4	0.1	-0.03	+0.03	●	●	●		
VNGR 0610-20 0620-20	1	6	0.039 0.079	1 2	1.8	0.05	3.9	39.8	20	5.2	0.3	-0.03	+0.03	●	●	●		
VNGR 0710-20 0720-20	1	7	0.039 0.079	1 2	2	0.05	3.9	39.8	20	6.2	0.3	-0.03	+0.03	●	●	●		

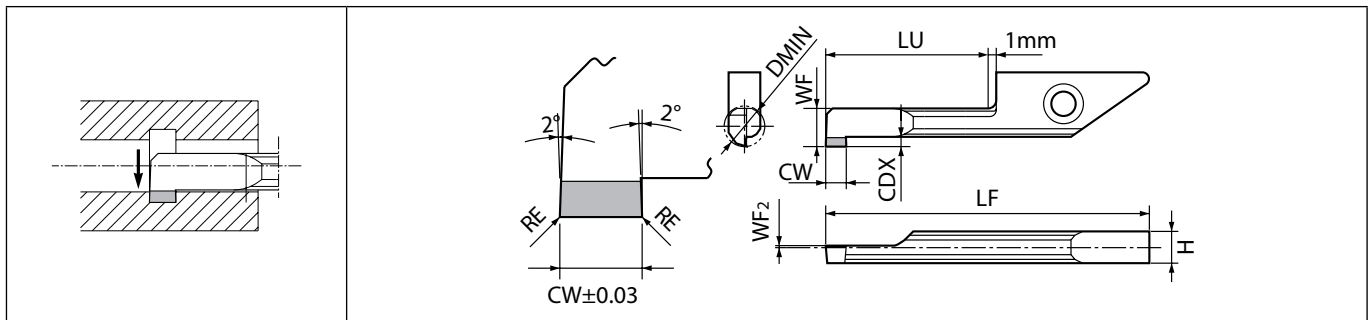
CDX shows available grooving depth.

WF₂ indicates the cutting edge is above the Tool's Center Position.

Recommended Cutting Conditions G155

Swiss IQ Bars are
sold in 5 piece boxes

VNG-NB



Right-hand shown

Dimensions

Part Number	No. of Edges	Dimensions (mm)										Tolerance (mm)		PCD	Applicable Toolholder  F50~F53
		DMIN	CW		CDX	RE	H	LF	LU	WF	WF ₂	CW min.	CW max.	- KPD001	
			in	mm											
VNGR 0410-11NB 0420-11NB	1	4	0.039 0.079	1 2	0.8	0.05	3.9	30.8	11	3.5	0.1	-0.03	+0.03	☐ ☐	SVNR...-12N SVNSR...-12...(N) S...-SVNR12(N) S...-SVNR12SN
VNGR 0510-11NB 0520-11NB	1	5	0.039 0.079	1 2	1	0.05	3.9	30.8	11	4.4	0.1	-0.03	+0.03	☐ ☐	
VNGR 0610-20NB 0620-20NB	1	6	0.039 0.079	1 2	1.8	0.05	3.9	39.8	20	5.2	0.3	-0.03	+0.03	☐ ☐	
VNGR 0710-20NB 0720-20NB	1	7	0.039 0.079	1 2	2	0.05	3.9	39.8	20	6.2	0.3	-0.03	+0.03	☐ ☐	

CDX shows available grooving depth.

WF₂ indicates the cutting edge is above the Tool's Center Position.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

PCD Swiss IQ Bars are
sold in 1 piece boxes

INSERT GRADES **A**

TURNING INSERTS **B**

CBN / PC D INSERTS **C**

TURNING HOLDERS **D**

SMALL TOOLS **E**

BORING **F**

GROOVING **G**

CUT-OFF **H**

THREADING **J**

DRILLING **K**

MILLING **M**

QUICK CHANGE TOOLING **N**

SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

SIGC

New Clamping System Ensures a Firm Insert Hold for High-Precision Machining

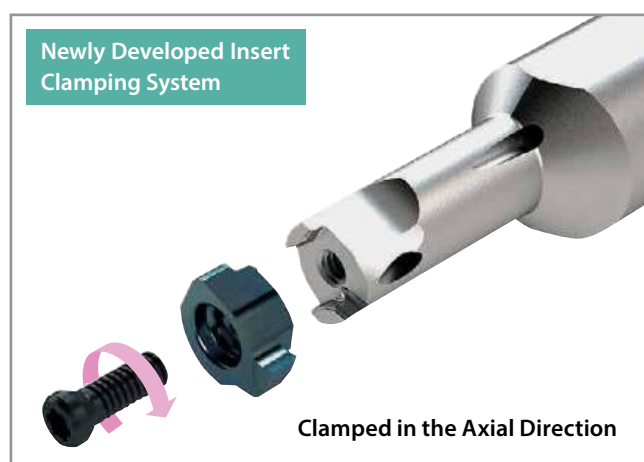
Excellent Chip Evacuation with Double Coolant Holes

Optimized Flute Shape with a $\varnothing 8\text{mm}$ Minimum Bore Diameter

1 Firm Insert Clamping System for High-Precision Machining

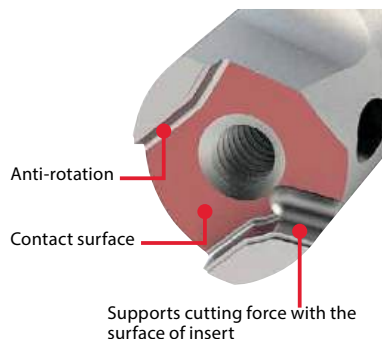
High strength clamping action by pulling the bottom surface of the insert in axial direction

Stable machining is achieved by ensuring a firm clamp on the insert

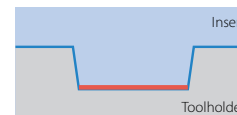


Clamping Part

Large contact surface improves chip stability

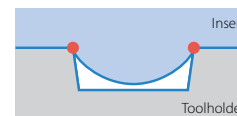


SIGC



Bottom Surface Contact

Competitor A



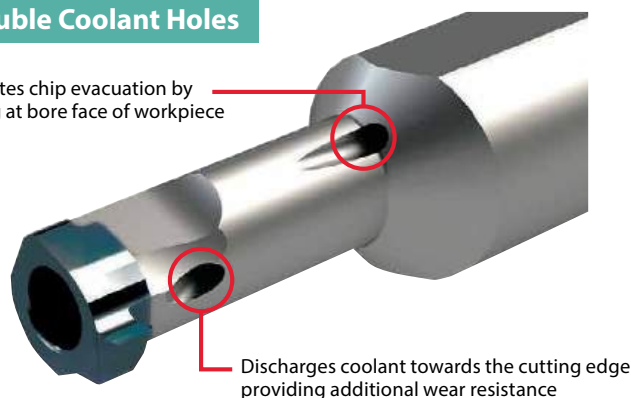
Point Contact

2 Excellent Chip Evacuation

Excellent Chip Evacuation with Double Coolant Holes and Optimized Flute Shape

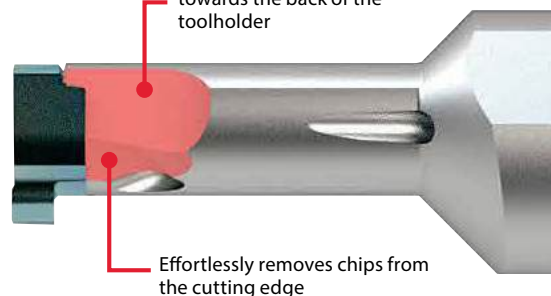
Double Coolant Holes

Promotes chip evacuation by aiming at bore face of workpiece



Flute Shape

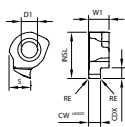
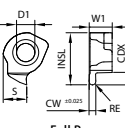
Smoothly evacuates chips towards the back of the toolholder



Provides better solutions for chip evacuation in small internal grooving applications

Prevents chip crunching

GC

			Carbon Steel / Alloy Steel											●		●		P
			Stainless Steel											●		●		M
			Cast Iron															K
			Non-Ferrous Metals															N
			Titanium Alloy															S
			Hard Materials (~ 40HRC)															H
			Hard Materials (40HRC ~)															
Insert		Part Number	No. of Edges	Dimensions (mm)							Tolerance (mm)		Carbide		Applicable Toolholder ➡ G80~G81			
				CW		CDX	S	D1	RE	INSL	W1	CW min.	CW max.	PVD				
				in	mm											PRI535	PRI725	
		GC08R 100-005	1	0.039	1	1.5	3.5	2.7	0.05	7.7	3.4	-0.025	+0.025	●	●	SIGCR08...		
		120-005		0.047	1.2				0.05					●	●			
		125-005		0.049	1.25				0.05					●	●			
		150-010		0.059	1.5				0.1					●	●			
		200-010		0.079	2				0.1					●	●			
		GC08L 100-005	1	0.039	1	1.5	3.5	2.7	0.05	7.7	3.4	-0.025	+0.025	●	●	SIGCLR08...		
		120-005		0.047	1.2				0.05					●	●			
		125-005		0.049	1.25				0.05					●	●			
		150-010		0.059	1.5				0.1					●	●			
		200-010		0.079	2				0.1					●	●			
		GC10R 100-005	1	0.039	1	2.2	4.4	3.5	0.05	9.6	4.7	-0.025	+0.025	●	●	SIGCR10...		
		120-005		0.047	1.2				0.05					●	●			
		125-005		0.049	1.25				0.05					●	●			
		145-010		0.057	1.45				0.1					●	●			
		150-010		0.059	1.5				0.1					●	●			
		200-010		0.079	2				0.1					●	●			
		250-020		0.098	2.5				0.2					●	●			
		300-020		0.118	3				0.2					●	●			
		GC10L 100-005	1	0.039	1	2.2	4.4	3.5	0.05	9.6	4.7	-0.025	+0.025	●	●	SIGCLR10...		
		120-005		0.047	1.2				0.05					●	●			
		125-005		0.049	1.25				0.05					●	●			
		145-010		0.057	1.45				0.1					●	●			
		150-010		0.059	1.5				0.1					●	●			
		200-010		0.079	2				0.1					●	●			
		250-020		0.098	2.5				0.2					●	●			
		300-020		0.118	3				0.2					●	●			
		GC12R 100-005	1	0.039	1	2.2	5.4	3.5	0.05	11.6	4.7	-0.025	+0.025	●	●	SIGCR12...		
		120-005		0.047	1.2				0.05					●	●			
125-005	0.049	1.25		0.05	●				●									
145-010	0.057	1.45		0.1	●				●									
150-010	0.059	1.5		0.1	●				●									
200-010	0.079	2		0.1	●				●									
250-020	0.098	2.5		0.2	●				●									
300-020	0.118	3		0.2	●				●									
GC12L 100-005	1	0.039	1	2.2	5.4	3.5	0.05	11.6	4.7	-0.025	+0.025	●	●	SIGCLR12...				
120-005		0.047	1.2				0.05					●	●					
125-005		0.049	1.25				0.05					●	●					
145-010		0.057	1.45				0.1					●	●					
150-010		0.059	1.5				0.1					●	●					
200-010		0.079	2				0.1					●	●					
250-020		0.098	2.5				0.2					●	●					
300-020		0.118	3				0.2					●	●					
		GC08R 100-050R	1	0.039	1	1.5	3.5	2.7	0.5	7.7	3.4	-0.025	+0.025	●	●	SIGCR08...		
		200-100R		0.079	2				1					●	●			
		GC10R 100-050R	1	0.039	1	2.2	4.4	3.5	0.5	9.6	4.7	-0.025	+0.025	●	●	SIGCR10...		
		200-100R		0.079	2				1					●	●			
		GC12R 100-050R	1	0.039	1	2.2	5.4	3.5	0.5	11.6	4.7	-0.025	+0.025	●	●	SIGCR12...		
		200-100R		0.079	2				1					●	●			

Right-hand shown

CDX shows available grooving depth.

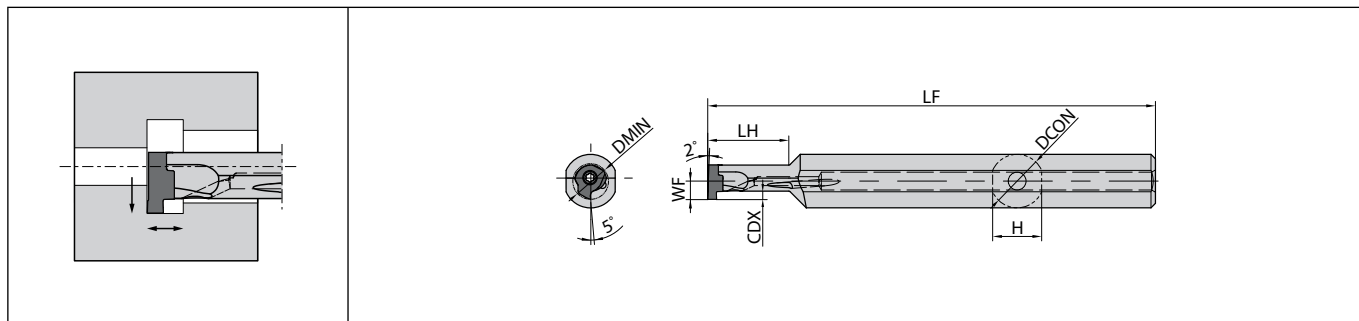
Recommended Cutting Conditions  G156GC type inserts are
sold in 5 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SIGC Excellent Bar (Internal Grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Coolant Hole	Spare Parts		Applicable Inserts  G79
												Screw	Wrench	
		R	L	DMIN	DCON	CDX	H	LH	LF	WF				
mm	SIGC [®] / 0812-EH	●	●	8	12	1.5	11	18	100	4.1	Yes	SB-2270T [®] /L	FT-7	GC08 [®] /L ...
	SIGC [®] / 1016-EH	●	●	10	16	2.2	15	21	100	5	Yes	SB-3070T [®] /L	FT-8	GC10 [®] /L ...
	SIGC [®] / 1216-EH	●	●	12	16	2.2	15	25	110	6	Yes	SB-3070T [®] /L	FT-8	GC12 [®] /L ...

Setting the insert

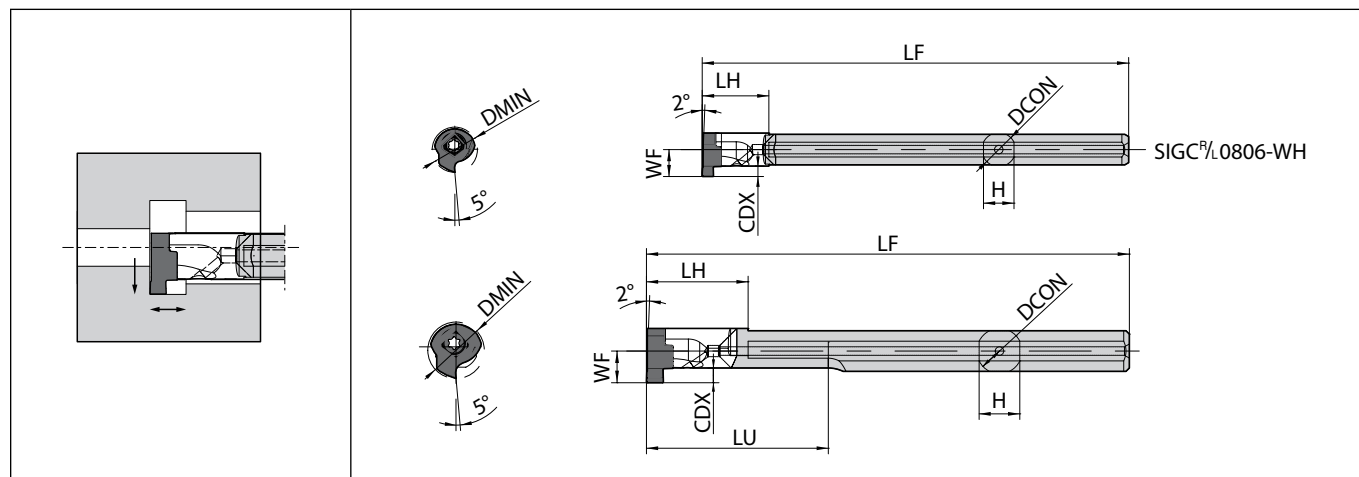
Use compressed air or other measures to remove chips from the insert pocket.
Mount the insert into the toolholder ensure the bottom makes contact with the end of the toolholder's surface.
Keeping the insert seated, tighten the insert clamp screw at an appropriate torque.

Recommended tightening torque : 0.8 N·m (SB-2270T[®]/L), 1.2 N·m (SB-3070T[®]/L)

L-hand clamp screw for L-hand toolholder

GC**R-***	GC**L-***
Right-hand screw	Left-hand screw
Toolholder : SIGCR...-... Clamp Screw : SB-...TR	Toolholder : SIGCL...-... Clamp Screw : SB-...TL

SIGC Carbide Shank Bar (Internal Grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Coolant Hole	Spare Parts		Applicable Inserts ➡ G79
													Screw	Wrench	
		R	L	DMIN	DCON	CDX	H	LH	LF	LU	WF				
mm	SIGC% 0806-WH	●	●	8	6	1.5	5.4	12	75	-	4.8	Yes	SB-2270T% 	FT-7	GC08% ...
	SIGC% 1008-WH-L85	●	●	10	8	2.2	7.2	18	85	32	5.6	Yes	SB-3070T% 	FT-8	GC10% ...
	1008-WH-L100	●							100	45			SB-3070TR		
	SIGC% 1210-WH-L95	●		12	10	2.2	9.2	18	95	32	6.6	Yes	SB-3070T% 	FT-8	GC12% ...
1210-WH-L110	●	●	110						45						

Setting the insert

Use compressed air or other measures to remove chips from the insert pocket.

Mount the insert into the toolholder ensure the bottom makes contact with the end of the toolholder's surface.

Keeping the insert seated, tighten the insert clamp screw at an appropriate torque.

Recommended tightening torque : 0.8 N·m (SB-2270T®), 1.2 N·m (SB-3070T®)

L-hand clamp screw for L-hand toolholder

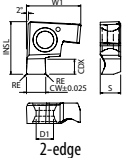
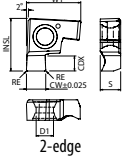
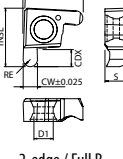
GC®R-***	GC®L-***
Right-hand screw	Left-hand screw
Toolholder : SIGC®... Clamp Screw : SB-...TR	Toolholder : SIGC®... Clamp Screw : SB-...TL

Applicable Sleeves

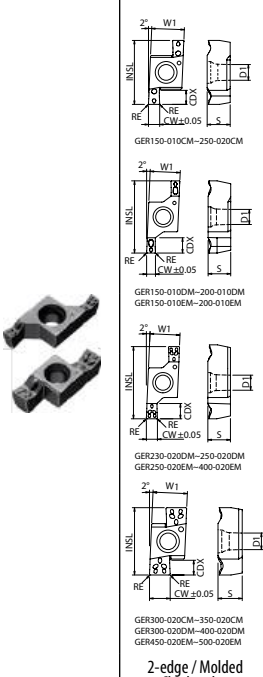
Shank Size (Hole Dia.: mm)	06 (6 mm)	08 (8 mm)	10 (10 mm)	12 (12 mm)	16 (16 mm)
Toolholder Part Number	SIGC® 0806-WH	SIGC® 1008-WH-L85 SIGCR 1008-WH-L100	SIGCR 1210-WH-L95 SIGC® 1210-WH-L110	SIGC® 0812-EH	SIGC® 1016-EH SIGC® 1216-EH
SH Sleeves (For Boring Bars)	SH 06...	SH 08...	SH 10...	SH 12...	SH 16...
SHC Sleeves (Coolant Sleeve)	—	SHC 08...	SHC 10...	SHC 12...	SHC 16...
SHA Sleeves	—	SHA 08...	SHA 10...	SHA 12...	—
EZH Sleeves (For EZ Bars)	EZH 06...ST/CT/HP...	EZH 08...ST/CT/HP...	—	—	—

* Remove the positioning pin when mounting SIGC to the EZH-CT/HP Sleeve
Positioning function is not available

GE

		Carbon Steel / Alloy Steel										●	●	○	P		
		Stainless Steel										●	●	○	M		
		Cast Iron											●	○	K		
		Non-Ferrous Metals											●		N		
		Titanium Alloy											●		S		
		Hard Materials (~ 40HRC)										○	●		H		
Hard Materials (40HRC ~)																	
Insert		Part Number	No. of Edges	Dimensions (mm)							Tolerance (mm)		Carbide			Applicable Toolholder G86~G88	
				CW		CDX	S	D1	RE	INSL	W1	CW min.	CW max.	PVD	-		-
				in	mm									PR2025	PR1225		KW10	TN6020
	 2-edge	GER 100-005A	2	0.039	1	1.5	2.58	2.5	0.05	6.5	6.69	- 0.025	+ 0.025	●	●	●	SIGER05EH SIGER0808A-EH SIGER0808A-WH
		120-005A		0.047	1.2				0.05								
		125-005A		0.049	1.25				0.05								
		150-010A		0.059	1.5				0.1								
		200-010A		0.079	2				0.1								
	 2-edge	GEL 100-005A	2	0.039	1	2.2	3.18	2.7	0.05	8.2	8.46	- 0.025	+ 0.025	●	●	●	SIGER06EH SIGER...B-EH SIGER...B-WH SIGER...B-WH-90
		120-005A		0.047	1.2				0.05								
		125-005A		0.049	1.25				0.05								
		150-010A		0.059	1.5				0.1								
		200-010A		0.079	2				0.1								
	 2-edge / Full R	GER 100-050AR	2	0.039	1	1.5	2.58	2.5	0.5	6.5	6.69	- 0.025	+ 0.025	●	●	●	SIGER05EH SIGER0808A-EH SIGER0808A-WH
		200-100AR		0.079	2				1								
		GER 100-050BR	2	0.039	1	2.2	3.18	2.7	0.5	8.2	8.46	- 0.025	+ 0.025	●	●	●	SIGER06EH SIGER...B-EH SIGER...B-WH SIGER...B-WH-90
				0.079	2				1								

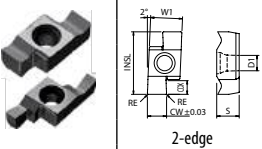
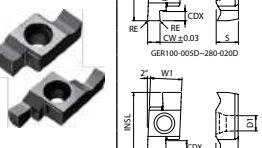
GE

		Carbon Steel / Alloy Steel										●	☉	P
		Stainless Steel										●	☉	M
		Cast Iron												K
		Non-Ferrous Metals												N
		Titanium Alloy												S
		Hard Materials (~ 40HRC)										○	●	H
		Hard Materials (40HRC ~)												
Insert	Part Number	No. of Edges	Dimensions (mm)							Tolerance (mm)		Car-bide		Applicable Toolholder ➡ G86~G88
			CW		CDX	S	D1	RE	INSL	W1	CW min.	CW max.	PVD	
			in	mm									PR2025 PR1225	
	GER 150-010CM	2	0.059	1.5				0.1					● ●	SIGER...C-EH SIGER...C-WH SIGER...C-WH-90
	200-010CM		0.079	2				0.1					● ●	
	250-020CM		0.098	2.5	2.5	4.05	2.8	0.2	11.48	5.8	-0.05	+0.05	● ●	
	300-020CM		0.118	3				0.2					● ●	
	350-020CM		0.138	3.5				0.2					● ●	
	GER 150-010DM	2	0.059	1.5	3			0.1					● ●	SIGER...D-EH
	200-010DM		0.079	2	3.2			0.1					● ●	
	230-020DM		0.091	2.3	3.2			0.2					● ●	
	250-020DM		0.098	2.5	3.2	5.05	3.4	0.2	16.44	6.8	-0.05	+0.05	● ●	
	300-020DM		0.118	3	4.5			0.2					● ●	
	350-020DM		0.138	3.5	4.5			0.2					● ●	
	400-020DM		0.157	4	4.5			0.2					● ●	

Right-hand shown
CDX shows available grooving depth.

Recommended Cutting Conditions ➡ G157

GE

			Carbon Steel / Alloy Steel										●●●○				P
			Stainless Steel										●●●○				M
			Cast Iron										●●●○				K
			Non-Ferrous Metals										●●●○				N
			Titanium Alloy										●●●○				S
			Hard Materials (~ 40HRC)										○●●				H
			Hard Materials (40HRC ~)														
Insert	Part Number	No. of Edges	Dimensions (mm)							Tolerance (mm)		Carbide		Cermat	Applicable Toolholder ● G86~G88		
			CW		CDX	S	D1	RE	INSL	W1	CW min.	CW max.	PVD			- GW15	- TN6020
			in	mm													
 2-edge	GER 100-005C	2	0.039	1	2.5	4.05	3.1	0.05	11.48	5.8	-0.03	+0.03	●	●	●	SIGER....C-EH SIGER....C-WH SIGER....C-WH-90	
	120-005C		0.047	1.2				0.05					●	●	●		
	125-005C		0.049	1.25				0.05					●	●	●		
	140-005C		0.055	1.4				0.05					●	●	●		
	145-010C		0.057	1.45				0.1					●	●	●		
	150-010C		0.059	1.5				0.1					●	●	●		
	170-010C		0.067	1.7				0.1					●	●	●		
	185-010C		0.073	1.85				0.1					●	●	●		
	195-010C		0.077	1.95				0.1					●	●	●		
	200-010C		0.079	2				0.1					●	●	●		
	250-020C		0.098	2.5				0.2					●	●	●		
	300-020C		0.118	3				0.2					●	●	●		
	350-020C		0.138	3.5				0.2					●	●	●		
	GEL 100-005C		0.039	1				0.05					●	●	●		SIGER....C-EH SIGER....C-WH
120-005C	0.047	1.2	0.05	●	●	●											
125-005C	0.049	1.25	0.05	●	●	●											
145-010C	0.057	1.45	0.1	●	●	●											
150-010C	0.059	1.5	0.1	●	●	●											
200-010C	0.079	2	0.1	●	●	●											
250-020C	0.098	2.5	0.2	●	●	●											
300-020C	0.118	3	0.2	●	●	●											
350-020C	0.138	3.5	0.2	●	●	●											
 2-edge	GER 100-005D	2	0.039	1	2.5	5.05	3.6	0.05	16.44	6.8	-0.03	+0.03	●	●	●	SIGER...D-EH	
	140-005D		0.055	1.4	2.5			0.05					●	●	●		
	145-010D		0.057	1.45	2.5			0.1					●	●	●		
	150-010D		0.059	1.5	3			0.1					●	●	●		
	170-010D		0.067	1.7	3			0.1					●	●	●		
	185-010D		0.073	1.85	3			0.1					●	●	●		
	195-010D		0.077	1.95	3			0.1					●	●	●		
	200-010D		0.079	2	3.2			0.1					●	●	●		
	225-010D		0.089	2.25	3.2			0.1					●	●	●		
	230-020D		0.091	2.3	3.2			0.2					●	●	●		
	250-020D		0.098	2.5	3.2			0.2					●	●	●		
	280-020D		0.110	2.8	3.2			0.2					●	●	●		
	300-020D		0.118	3	4.5			0.2					●	●	●		
	330-020D		0.130	3.3	4.5			0.2					●	●	●		
	350-020D		0.138	3.5	4.5			0.2					●	●	●		
	400-020D		0.157	4	4.5			0.2					●	●	●		
	GEL 100-005D		0.039	1	2.5			0.05					●	●	●		SIGER...D-EH
	140-005D		0.055	1.4	2.5			0.05					●	●	●		
	145-010D		0.057	1.45	2.5			0.1					●	●	●		
	150-010D		0.059	1.5	3			0.1					●	●	●		
	170-010D		0.067	1.7	3			0.1					●	●	●		
	200-010D		0.079	2	3.2			0.1					●	●	●		
	225-010D		0.089	2.25	3.2			0.1					●	●	●		
	230-020D		0.091	2.3	3.2			0.2					●	●	●		
250-020D	0.098	2.5	3.2	0.2	●	●	●										
300-020D	0.118	3	4.5	0.2	●	●	●										
400-020D	0.157	4	4.5	0.2	●	●	●										
GER 200-100CR	2	0.079	2	2.5	4.05	3.1	1	11.48	5.8	-0.03	+0.03	●	●	●	SIGER....C-EH SIGER....C-WH(-..)		
		250-125CR	0.098				2.5					1.25	●	●		●	
		300-150CR	0.118				3					1.5	●	●		●	
		GER 200-100DR	2				0.079					2	3.2	5.05		3.6	
300-150DR	0.118	3		4.5	1.5	●	●	●									

Right-hand shown
CDX shows available grooving depth.

Recommended Cutting Conditions **G157**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

GE/GER

			Carbon Steel / Alloy Steel										●	●	○	P
			Stainless Steel										●	●		M
			Cast Iron											●		K
			Non-Ferrous Metals											●		N
			Titanium Alloy											●		S
			Hard Materials (~ 40HRC)										○	●		H
			Hard Materials (40HRC ~)													
Insert	Part Number	No. of Edges	Dimensions (mm)							Tolerance (mm)		Carbide			Applicable Toolholder G86~G88	
			CW		CDX	S	D1	RE	INSL	W1	CW min.	CW max.	PVD	-		Cermet
			in	mm									PR2025 PH1225	GW15		TN6020
	GER 150-010EM	2	0.059	1.5	3			0.1					●	●		SIGER....E-EH
	200-010EM		0.079	2	3.2			0.1					●	●		
	250-020EM		0.098	2.5	4.5			0.2					●	●		
	300-020EM		0.118	3	4.5			0.2					●	●		
	350-020EM		0.138	3.5	5.5	5.55	4.4	0.2	21.66	9.54	- 0.05	+ 0.05	●	●		
	400-020EM		0.157	4	5.5			0.2					●	●		
	450-020EM		0.177	4.5	6.5			0.2					●	●		
500-020EM	0.197	5	6.5			0.2						●	●			
	GER 100-005E	2	0.039	1	2.5			0.05					●	●	●	SIGER....E-EH
	150-010E		0.059	1.5	3			0.1					●	●	●	
	170-010E		0.067	1.7	3			0.1					●	●	●	
	185-010E		0.073	1.85	3			0.1					●	●	●	
	195-010E		0.077	1.95	3			0.1					●	●	●	
	200-010E		0.079	2	3.2			0.1					●	●	●	
	225-010E		0.089	2.25	3.2			0.1					●	●	●	
	230-020E		0.091	2.3	3.2			0.2					●	●	●	
	250-020E		0.098	2.5	4.5			0.2					●	●	●	
	275-020E		0.108	2.75	4.5			0.2					●	●	●	
	280-020E		0.110	2.8	4.5			0.2					●	●	●	
	300-020E		0.118	3	4.5			0.2					●	●	●	
	330-020E		0.130	3.3	4.5			0.2					●	●	●	
	350-020E		0.138	3.5	5.5			0.2					●	●	●	
	400-020E		0.157	4	5.5			0.2					●	●	●	
	430-020E		0.169	4.3	5.5			0.2					●	●	●	
	450-020E		0.177	4.5	6.5	5.55	4.6	0.2	21.66	9.54	- 0.03	+ 0.03	●	●	●	
	460-020E		0.181	4.6	6.5			0.2					●	●	●	
	500-020E		0.197	5	6.5			0.2					●	●	●	
	GEL 100-005E			0.039	1	2.5			0.05					●	●	
	150-010E	0.059		1.5	3			0.1					●	●	●	
	170-010E	0.067		1.7	3			0.1					●	●	●	
	185-010E	0.073		1.85	3			0.1					●	●	●	
	195-010E	0.077		1.95	3			0.1					●	●	●	
	200-010E	0.079		2	3.2			0.1					●	●	●	
	230-020E	0.091		2.3	3.2			0.2					●	●	●	
	250-020E	0.098		2.5	4.5			0.2					●	●	●	
	280-020E	0.110		2.8	4.5			0.2					●	●	●	
	300-020E	0.118		3	4.5			0.2					●	●	●	
	330-020E	0.130		3.3	4.5			0.2					●	●	●	
	350-020E	0.138		3.5	5.5			0.2					●	●	●	
	400-020E	0.157		4	5.5			0.2					●	●	●	
	500-020E	0.197	5	6.5			0.2					●	●	●		

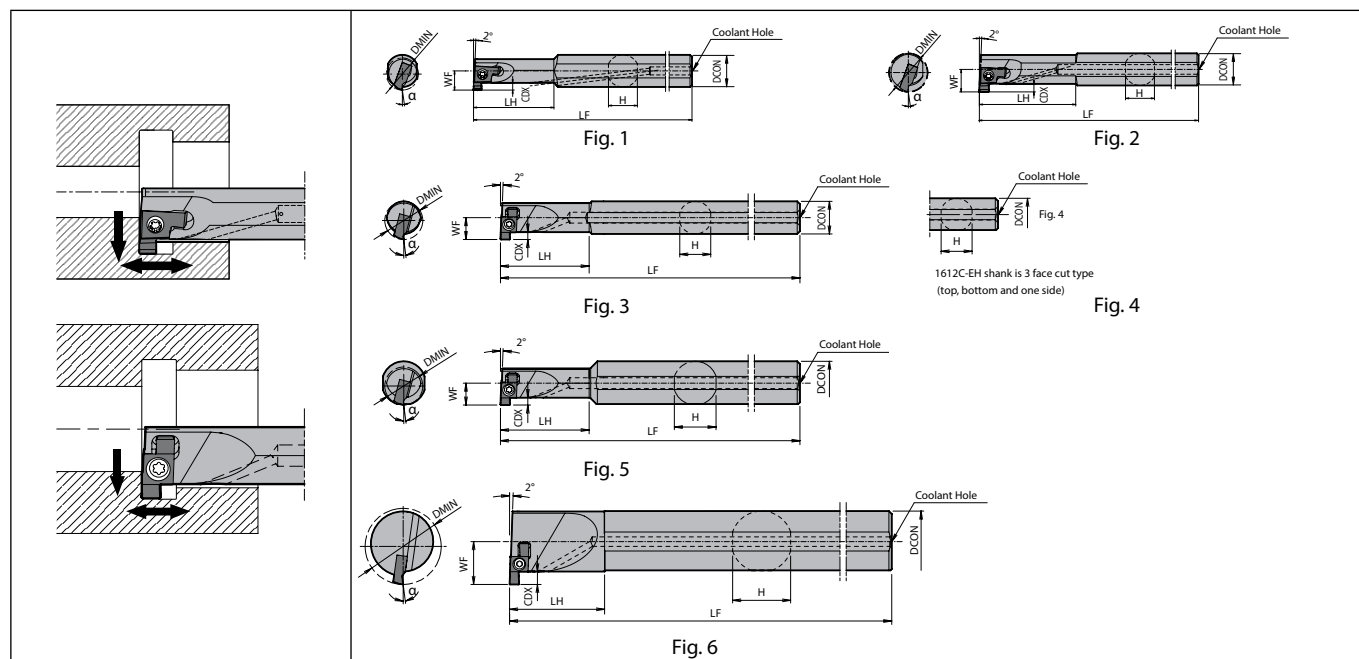
Right-hand shown
CDX shows available grooving depth.

Recommended Cutting Conditions ➡ G157

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SIGE-EH Excellent Bar (Internal Grooving)



Toolholder Dimensions

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Unit	Part Number	Std. Item		Dimensions							Coolant Hole	Fig.	Spare Parts				Applicable Inserts ➡ G82~G85
		R	L	DMIN	DCON	CDX	H	LH	LF	WF			Screw	Wrench	Wrench	Wrench	
																	
Inch	SIGE% 05EH	●	●	0.313	0.313	0.059	0.283	0.787	3.940	0.177	Yes	1	SB-2045TRN	-	-	FT-6	GE%...A / AR
	SIGE% 06EH	●	●	0.394	0.375	0.087	0.354	0.984	4.920	0.232	Yes	1	SB-225STR	-	DTM-7	-	GE%...B, GE%...BR
	SIGE% 0809C-EH	●	●	0.551	0.500	0.098	0.460	1.300	5.900	0.315	Yes	3	SB-2570TR	-	-	FT-8	GE%...C, GE%...CM GE%...CR
	0810C-EH	●	●	0.630				0.788		0.335							
	SIGE% 1213D-EH	●	●	0.790	0.750	0.177	0.710	1.575	7.09	0.477	Yes	5	SB-3080TR	-	-	FT-10	GE%...D / DM / DR
	SIGE% 1616E-EH	●	●	1.000	1.000	0.255	0.960	1.772	7.88	0.614	Yes	5	SB-4085TR	FT-15	-	-	GE%...E GE%...EM
2020E-EH	●	●	1.250	1.250	1.170		2.166	8.66	0.748								
2025E-EH	●	●	1.575		1.772		9.84	0.906									
mm	SIGE% 0808A-EH	●	●	8	8	1.5	7.2	20	100	4.8	Yes	1	SB-2045TRN	-	-	FT-6	GE%...A / AR
	SIGE% 1010B-EH	●	●	10	10	2.2	9	25	125	6.2	Yes	1	SB-2255TR	-	DTM-7	-	GE%...B GE%...BR
	1210B-EH	●	●	12				30		7							
	SIGE% 1412C-EH	●	●	14	12	2.5	11.4	33	150	8	Yes	3	SB-2570TR	-	-	FT-8	GE%...C GE%...CM GE%...CR
	SIGE% 1612C-EH	●	●	16			20	8.5									
	1616C-EH	●	●		15		36	160		9							
	SIGE% 2020D-EH	●	●	20	20	4.5	19	40	180	12.1	Yes	5	SB-3080TR	-	-	FT-10	GE%...D / DM / DR
	SIGE% 2525E-EH	●	●	25	25	6.5	24	45	200	15.6	Yes	5	SB-4085TR	FT-15	-	-	GE%...E GE%...EM
SIGE% 3232E-EH	●	●	32	32	30.4		55	220	19								
4032E-EH	●	●	40		45		250	23									

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

Applicable Sleeve ● F171, F172

Features

Large chip pocket screw clamp toolholder design
enables excellent chip evacuation



Cost effective chip control from a molded chipbreaker

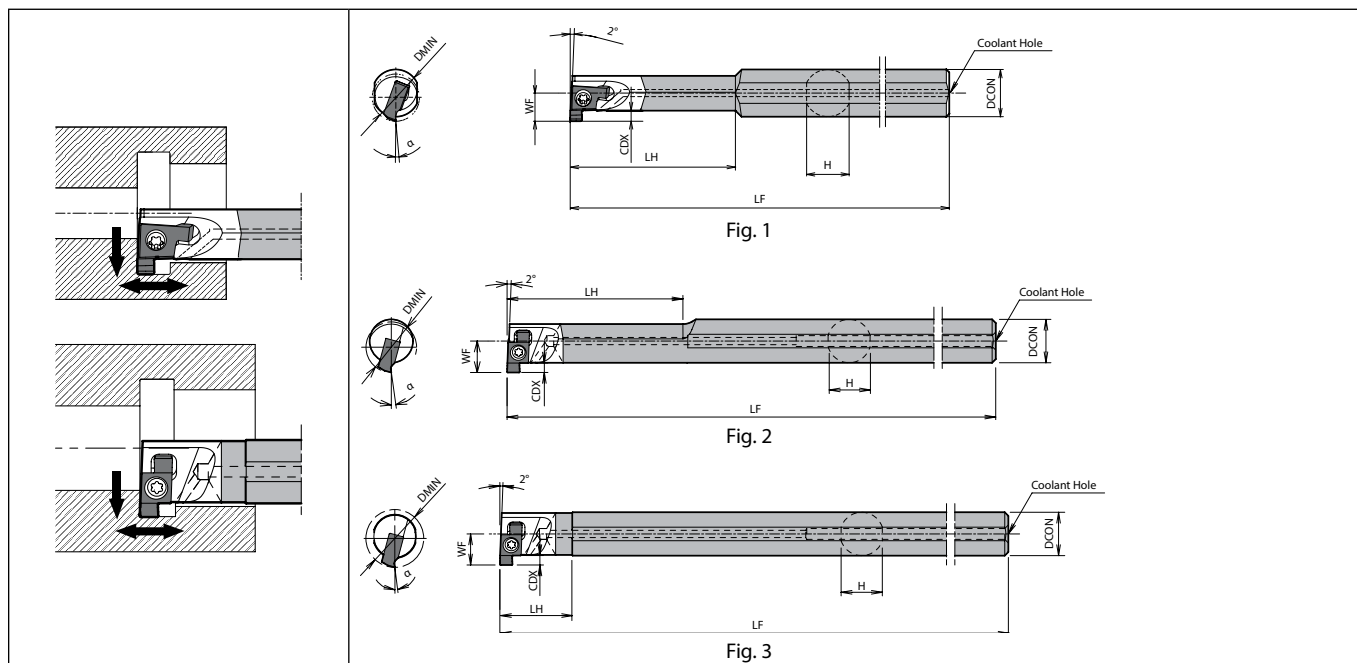


Cutting edge is
protected in the pocket



An 8mm minimum bore diameter with a 2-edge design

SIGE-WH Carbide Shank Bar (Internal Grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

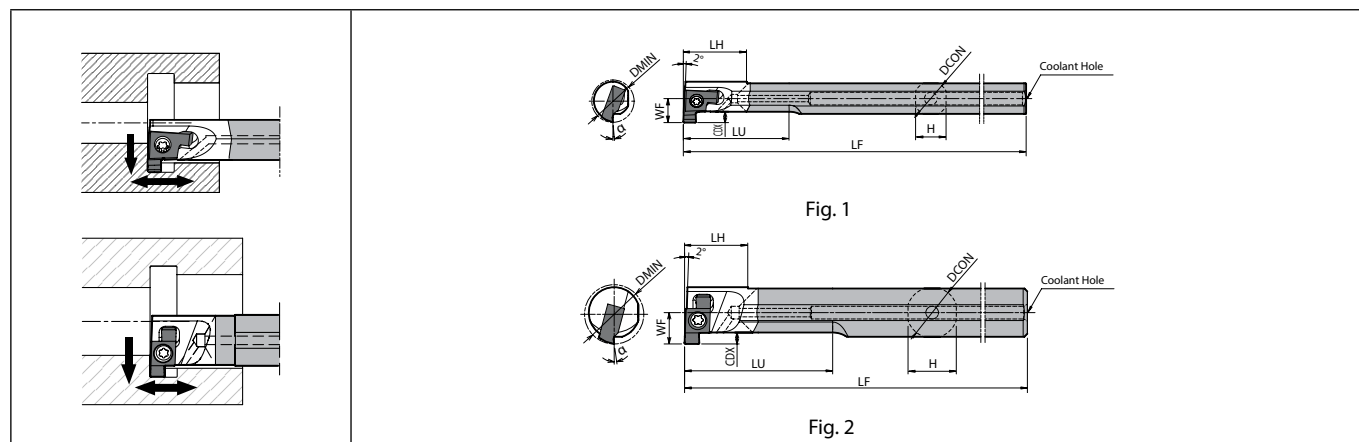
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ G82~G83
		R	L	DMIN	DCON	CDX	H	LH	LF	WF	Screw			Wrench	Wrench		
																	
mm	SIGE% 0808A-WH	●	●	8	8	1.5	7.2	28	125	4.8	Yes	1	SB-2045TRN	-	FT-6	GE%...A / AR	
	SIGE% 1010B-WH	●	●	10	10	2.2	9	35	125	6.2	Yes	1	SB-2255TR	DTM-7	-	GE%...B GE%...BR	
	1210B-WH	●	●	12				45	140	7							
	SIGE% 1412C-WH	●	●	14	12	2.5	11.4	50	150	8.7	Yes	2 3	SB-2570TR	-	FT-8	GE%...C GE%...CM GE%...CR	
1612C-WH	●	●	16	20				180	8.5								

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

Applicable Sleeve F171, F172

SIGE-WH-90 Carbide Shank Bar (Internal Grooving / for Small Parts)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Fig.	Spare Parts		Applicable Inserts ➡ G82~G83
													Screw	Wrench	
		R	DMIN	DCON	CDX	H	LH	LF	LU	WF					
mm	SIGER 1008B-WH-90	●	10	8	2.2	7.2	15	90	25	5.6	Yes	1	SB-2255TR	FT-7	GE%...B GE%...BR
	●	12	10	9.4		30			6.6						
	SIGER 1412C-WH-90	●	14	12	2.5	11.4	15	90	35	7.4	Yes	2	SB-2570TR	FT-8	GE%...C / CM/ CR

CDX shows the distance from the toolholder to the cutting edge.

LH shows minimum overhang length.

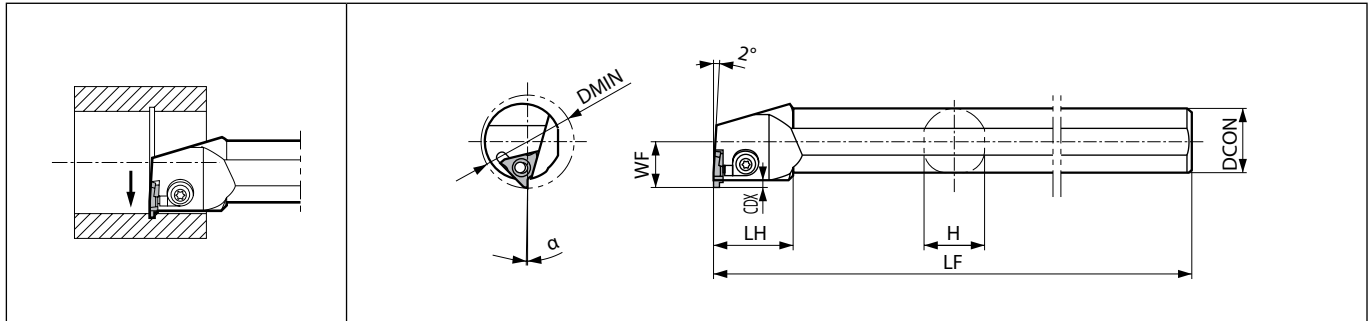
Applicable Sleeve F171, F172

Applicable Insert & Rake Angle (α) after Installment of Insert

Toolholder	Ground Chipbreaker	α	Molded Chipbreaker	α
SIGE% 05EH	GE% 100-005A~GE% 200-010A GER100-050AR~GER200-100AR	5°	-	-
06EH	GE% 100-005B~GE% 300-020B GER100-050BR~GER200-100BR	5°	-	-
SIGE% 0808A-EH	GE% 100-005A~GE% 200-010A GER100-050AR~GER200-100AR	5°	-	-
0809C-EH	GE% 100-005C~GE% 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
0810C-EH	GE% 100-005C~GE% 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
1010B-EH	GE% 100-005B~GE% 300-020B GER100-050BR~GER200-100BR	5°	-	-
1210B-EH	GE% 100-005B~GE% 300-020B GER100-050BR~GER200-100BR	5°	-	-
1213D-EH	GE% 100-005D~GE% 400-020D GER200-100DR~GER300-150DR	9°	GER150-010DM~GER400-020DM	10°
1412C-EH	GE% 100-005C~GE% 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
1612C-EH	GE% 100-005C~GE% 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
1616C-EH	GE% 100-005E~GE% 500-020E	10°	GER150-010EM~GER500-020EM	10°
1616E-EH	GE% 100-005E~GE% 500-020E	10°	GER150-010EM~GER500-020EM	10°
2020D-EH	GE% 100-005D~GE% 400-020D GER200-100DR~GER300-150DR	9°	GER150-010DM~GER400-020DM	10°
2020E-EH	GE% 100-005E~GE% 500-020E	10°	GER150-010EM~GER500-020EM	10°
2025E-EH	GE% 100-005E~GE% 500-020E	10°	GER150-010EM~GER500-020EM	10°
2525E-EH	GE% 100-005E~GE% 500-020E	10°	GER150-010EM~GER500-020EM	10°
3232E-EH	GE% 100-005E~GE% 500-020E	10°	GER150-010EM~GER500-020EM	10°
4032E-EH	GE% 100-005E~GE% 500-020E	10°	GER150-010EM~GER500-020EM	10°
SIGE% 0808A-WH	GE% 100-005A~GE% 200-010A GER100-050A0.3125 R~GER200-100AR	5°	-	-
1010B-WH	GE% 100-005B~GE% 300-020B GER100-050BR~GER200-100BR	5°	-	-
1210B-WH	GE% 100-005B~GE% 300-020B GER100-050BR~GER200-100BR	5°	-	-
1008B-WH-90	GE% 100-005B~GE% 300-020B GER100-050BR~GER200-100BR	5°	-	-
1210B-WH-90	GE% 100-005B~GE% 300-020B GER100-050BR~GER200-100BR	5°	-	-
1412C-WH	GE% 100-005C~GE% 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
1612C-WH	GE% 100-005C~GE% 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
1412C-WH-90	GE% 100-005C~GE% 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°

α indicates the rake angle at the center of the edge width after installing insert.

KIGBA (Internal Grooving / Shallow Grooving)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Spare Parts		Applicable Inserts 🔧 G6~G12
											Clamp Set	Wrench	
		R	L	DMIN	DCON	CDX	H	LH	LF	WF			
Inch	KIGBA% 16-3	●	●	1.38	1.00	0.12	0.92	1.18	9.0	0.69	LGBA-16 ¹ / ₈ S	FT-15	GBA32 ¹ / ₈ type
	KIGBA% 20-4	●	●	1.57	1.25	0.12	1.18	1.18	10.0	0.90	LGBA-22 ¹ / ₈ S	FT-15	GBA43 ¹ / ₈ type
mm	KIGBA% 3525-16	●	●	35	25	2.8	23	30	220	17.5	LGBA-16 ¹ / ₈ S	FT-15	GBA32 ¹ / ₈ type
	KIGBA% 4032-22	●	●	40	32	3	30	30	250	23	LGBA-22 ¹ / ₈ S	FT-15	GBA43 ¹ / ₈ type

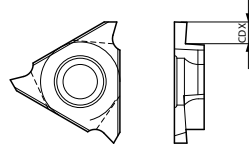
CDX shows the distance from the toolholder to the cutting edge.

Available Grooving Depth depends on the insert.

KIGBA[®] 3525-16 : CDX of the applicable insert (GBA32)

4032-22 : CDX of the applicable insert (GBA43) (1) 2.0 mm (CDX < 3.0 mm) (2) 3.0 mm (CDX ≥ 3.0 mm)

Clamp Set : LGBA-00LS for Right-hand Toolholder, and LGBA-00RS for Left-hand Toolholder.



Rake Angle (α) after Installment of GBA insert

GBA32 [®] 000-000		GBA43 [®] 000-000		GBA43 [®] 000-000R (Full-R)		
α	Insert Grades	α	Insert Grades	α	Insert Grades	Full-R
+1°	TN620, TN90, PV7040 PR2015, PR2025, PR1215, PR1625 KPD001, KPD010	-9°	KBN510, KBN525	+1°	TN620, TN90, PV7040 PR2015, PR2025, PR1215, PR1625	050R~150R
		+1°	TN620, TC40, TN90, PV7040, PR2015, PR2025, PR1215, PR1625 KPD001, KPD010		TN620, TN90, PV7040 PR2015, PR2025, PR1215, PR1625	200R
+11°	KW10	+11°	KW10	+5°	KW10	050R~200R

Rake Angle (α) after Installment of GBA-GM insert

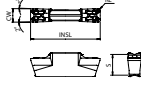
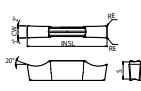
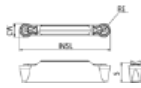
α	Insert Part Number
+1°	GBA43 [®] 150-020GM
	GBA43 [®] 175-020GM
+6°	GBA43 [®] 265-030GM
	GBA43 [®] 300-030GM
+3°	GBA43 [®] 400-040GM

α indicates the rake angle at the center of the edge width, after installing insert.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

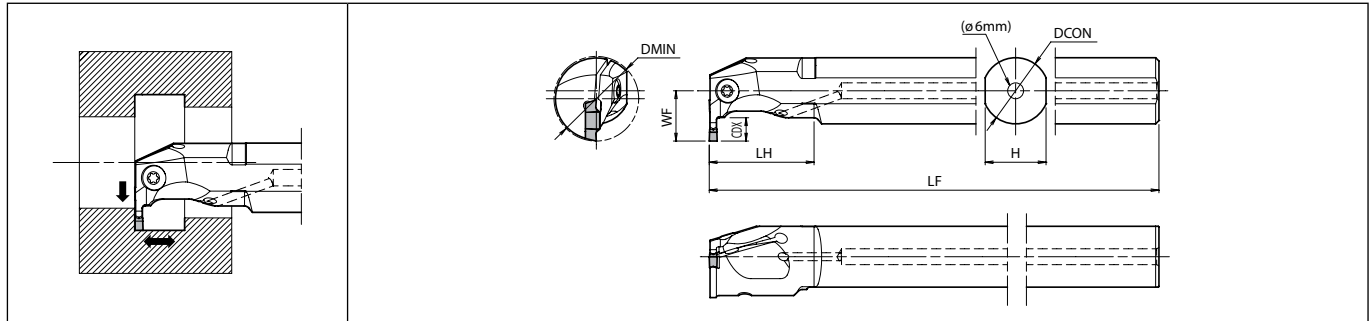
Contact your local Kyocera sales engineer to upgrade old products to new technology

GDM/GDG

			Carbon Steel / Alloy Steel								☺☺☺☺☺☺☺☺		●○		P
			Stainless Steel								☺☺☺☺☺☺☺☺				M
			Cast Iron								☺☺☺☺☺☺☺☺				K
			Non-Ferrous Metals								☺☺☺☺☺☺☺☺				N
			Titanium Alloy								☺☺☺☺☺☺☺☺				S
			Hard Materials (~ 40HRC)								☺☺☺☺☺☺☺☺				H
			Hard Materials (40HRC ~)								☺☺☺☺☺☺☺☺				
Insert		Part Number	No. of Edges	Dimensions (mm)					Tolerance (mm)		Carbide			Cermet	Applicable Toolholder ➡ G91
				CW		S	RE	INSL	CW min.	CW max.	PVD		-	-	
				in	mm						PR1215	PR1225	PR1535	GW15		TiN20	TiN90
	 General purpose	GDM 2013N-020GMI	2	0.079	2	4.3	0.2	13.5	-0.03	+0.03	●	●	●	●	KGDI%...-2
		GDM 3015N-040GMI	2	0.118	3	4.6	0.4	15.5	-0.03	+0.03	●	●	●	●	KGDI%...-3
		GDM 4020N-040GMI	2	0.157	4	4.3	0.4	20	-0.03	+0.03	●	●	●	●	KGDI%...-4
		GDM 5020N-040GMI 5020N-080GMI	2	0.197	5	4.3	0.4 0.8	20	-0.04	+0.04	●	●	●	●	KGDI%...-4 KGDI%...-5
	 Low cutting force	GDG 3015N-020GS	2	0.118	3	4.6	0.2	15.6	-0.02	+0.02			●		KGDI%...-3
		GDG 4020N-040GS	2	0.157	4	4.3	0.4	20	-0.02	+0.02	●	●	●	●	KGDI%...-4
		GDG 5020N-040GS	2	0.197	5	4.3	0.4	20	-0.02	+0.02	●	●	●	●	KGDI%...-4 KGDI%...-5
	 Full R	GDM 3015N-150R-CM	2	0.118	3	4.6	1.5	16.3	-0.03	+0.03	●	●	●	●	KGDI%...-3
		GDM 4020N-200R-CM	2	0.157	4	4.3	2	20	-0.03	+0.03	●	●	●	●	KGDI%...-4
		GDM 5020N-250R-CM	2	0.197	5	4.3	2.5	21	-0.04	+0.04	●	●	●	●	KGDI%...-4 KGDI%...-5

Recommended Cutting Conditions G159

KGDl (Internal Grooving)



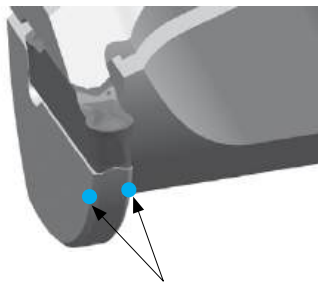
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions												Spare Parts				Applicable Inserts G90
																Clamp screw (Torx)	Screw	Wrench	Wrench	
		R	L	DMIN			DCON	CDX	H	LH	LF	WF	CW min.	CW max.	Coolant Hole					
Inch	KGDIR 10B-2	●		0.709			0.625	0.177	0.591	0.984	6.000	0.374	0.079" (2mm)	0.079" (2mm)	Yes	-	GS-50	LW-3	-	GDM2013N-020GMI
	12B-2	●		0.984	-	-	0.750	0.236	0.709	1.181	7.000	0.571	0.079" (2mm)	0.079" (2mm)	Yes	-	GS-50	LW-3	-	
	16B-2	●		1.260			1.000	0.276	0.906	1.575	8.000	0.748	0.079" (2mm)	0.079" (2mm)	Yes	SB-5TR	-	-	LTW-20	
	KGDIR 10B-3	●		0.787	0.827		0.625	0.217	0.591	0.984	6.000	0.453	0.118" (3mm)	0.118" (3mm)	Yes	-	GS-50	LW-3	-	GDM3015N-...
	12B-3	●		0.984	1.024	-	0.750	0.236	0.709	1.181	7.000	0.571	0.118" (3mm)	0.118" (3mm)	Yes	-	GS-50	LW-3	-	
	16B-3	●		1.260	1.299		1.000	0.315	0.906	1.575	8.000	0.748	0.118" (3mm)	0.118" (3mm)	Yes	SB-5TR	-	-	LTW-20	
	KGDIR 16B-4	●		1.260	1.575	1.299	1.000	0.335	0.906	1.575	8.000	0.748	0.157" (4mm)	0.197" (5mm)	Yes	SB-5TR	-	-	LTW-20	GDM4020N-...
	20B-4	●		1.575	1.890	1.614	1.250	0.433	1.142	1.969	8.500	0.925	0.157" (4mm)	0.197" (5mm)	Yes	SB-5TR	-	-	LTW-20	GDM4020N-...
	KGDIR 16B-5	●		1.260	1.457	1.338	1.000	0.335	0.906	1.575	8.000	0.748	0.197" (5mm)	0.197" (5mm)	Yes	SB-5TR	-	-	LTW-20	GDM5020N-...
	20B-5	●		1.575	1.772	1.653	1.250	0.433	1.142	1.969	8.500	0.925	0.197" (5mm)	0.197" (5mm)	Yes	SB-5TR	-	-	LTW-20	
mm	KGDI% 1816B-2	●	●	18			16	4.5	15	25	150	9.5	0.079" (2mm)	0.079" (2mm)	Yes	-	GS-50	LW-3	-	GDM2013N-020GMI
	2520B-2	●	●	25	-	-	20	6	18	30	180	14.5	0.079" (2mm)	0.079" (2mm)	Yes	-	GS-50	LW-3	-	
	3225B-2	●	●	32			25	7	23	40	200	19	0.079" (2mm)	0.079" (2mm)	Yes	SB-5TR	-	-	LTW-20	
	KGDI% 2016B-3	●	●	20	21		16	5.5	15	25	150	11.5	0.118" (3mm)	0.118" (3mm)	Yes	-	GS-50	LW-3	-	GDM3015N-...
	2520B-3	●	●	25	26	-	20	6	18	30	180	14.5	0.118" (3mm)	0.118" (3mm)	Yes	-	GS-50	LW-3	-	
	3225B-3	●	●	32	33		25	8	23	40	200	19	0.118" (3mm)	0.118" (3mm)	Yes	SB-5TR	-	-	LTW-20	
	KGDI% 3225B-4	●	●	32	40	34	25	8.5	23	40	200	19	0.157" (4mm)	0.197" (5mm)	Yes	SB-5TR	-	-	LTW-20	GDM4020N-...
	4032B-4	●	●	40	48	42	32	11	29	50	220	23.5	0.157" (4mm)	0.197" (5mm)	Yes	SB-5TR	-	-	LTW-20	GDM4020N-...
	KGDI% 3225B-5	●	●	32	37	34	25	8.5	23	40	200	19	0.197" (5mm)	0.197" (5mm)	Yes	SB-5TR	-	-	LTW-20	GDM5020N-...
	4032B-5	●	●	40	45	42	32	11	29	50	220	23.5	0.197" (5mm)	0.197" (5mm)	Yes	SB-5TR	-	-	LTW-20	

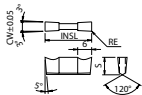
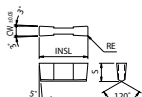
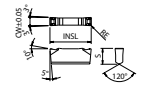
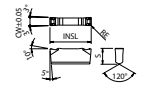
* Possible by slightly chamfering toolholder's tip about 0.002" (0.5 mm)

Additional processing of toolholder tip when CM chipbreaker is installed

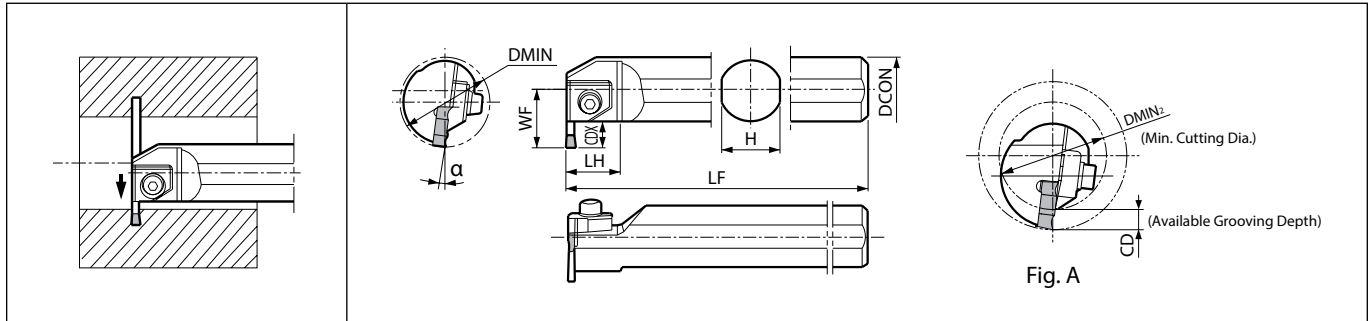


* By slightly chamfering the holder tip of about 0.5 mm, the cutting diameter can be minimized.

GH/GHU

Cutting edge preparation				Carbon Steel / Alloy Steel										✕										P																													
				Stainless Steel										●										M																													
				Cast Iron										● ● ○										K																													
				Non-Ferrous Metals										●										N																													
Symbol				Specification										Example										Titanium Alloy										S																			
S				Chamfered and R-honed										S01020										0.10mm × 20° chamfered and R-honed										Hard Materials (~ 40HRC)										H									
T				Chamfered										T01020										0.10mm × 20° chamfered										Hard Materials (40HRC ~)																			
Insert				Part Number				Edge Prep (mm)		No. of Edges		Dimensions (mm)					Tolerance (mm)		Carbide		Ceramic		Cermets		Applicable Toolholder G93																												
												CW		S	RE	INSL	CW min.	CW max.	CVD	PVD	-	PVD	-	-																													
												in	mm																																								
																			CR9025	PR930	KV10	AG6N	PT600M	AG6					TC40	TC60	TN60																						
								GH 4020-02	-	2	0.157	4	7.5	0.2	20	-0.05	+0.05	●	●								KIGHR4532B-4																										
								4020-05	-	2	0.157	4	7.5	0.5	20	-0.05	+0.05	●	●										KIGHR5540B-4																								
								5020-02	-	2	0.197	5	7.5	0.2	20	-0.05	+0.05	●	●											KIGHR4532B-5																							
								5020-05	-	2	0.197	5	7.5	0.5	20	-0.05	+0.05	●	●											KIGHR5540B-5																							
								6020-02	-	2	0.236	6	7.5	0.2	20	-0.05	+0.05	●	●				●								KIGHR6550B-5																						
								6020-05	-	2	0.236	6	7.5	0.5	20	-0.05	+0.05	●	●									KIGHR5540B-7																									
								7020-02	-	2	0.276	7	7.5	0.2	20	-0.05	+0.05	●	●											KIGHR6550B-7																							
								7020-05	-	2	0.276	7	7.5	0.5	20	-0.05	+0.05	●	●												KIGHR5540B-7																						
								8020-02	-	2	0.315	8	7.5	0.2	20	-0.05	+0.05	●	●												KIGHR6550B-7																						
								8020-05	-	2	0.315	8	7.5	0.5	20	-0.05	+0.05	●	●					●	●							KIGHR5540B-7																					
								GH 4020-05	S01020 T01020	2	0.157	4	7.5	0.5	20	-0.05	+0.05				●							KIGHR4532B-4																									
								5020-05	S01020 T01020	2	0.197	5	7.5	0.5	20	-0.05	+0.05					●				●	●				KIGHR5540B-4																						
								6020-05	T01020	2	0.236	6	7.5	0.5	20	-0.05	+0.05									●						KIGHR6550B-4																					
								7020-05	T01020	2	0.276	7	7.5	0.5	20	-0.05	+0.05									●						KIGHR4532B-5																					
								GHU 40-20	-	2	0.157	4	7.5	0.25	20	-0.05	+0.05	●								●	KIGHR5540B-5																										
								GHU 50-20	-	2	0.197	5	7.5	0.3	20	-0.05	+0.05	●											●	KIGHR6550B-5																							
								GHU 60-20	-	2	0.236	6	7.5	0.3	20	-0.05	+0.05	●												●	KIGHR4532B-5																						

Recommended Cutting Conditions G69

KIGH (Internal Grooving / Deep Grooving)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Spare Parts					Applicable Inserts G92
											Clamp (L)	Clamp Screw	Spring	Washer	Wrench	
			R	DMIN	DCON	CDX	H	LH	LF	WF						
mm	KIGHR 4532B-4	●	45	32		30			200	28.2	CGH-1L	HH6X25	SP-6	W-6	LW-5	GH4020-... / GHU40-... GH4520-...
	5540B-4	●	55	40	12	38	27		250	32.3						
	6550B-4	●	65	50		48			300	37.3						
	KIGHR 4532B-5	●	45	32		30			200	28.2	CGH-1L	HH6X25	SP-6	W-6	LW-5	GH5020-... / GHU50-... / GH5520-... GH6020-... / GHU60-... / GH6520-...
	5540B-5	●	55	40	12	38	27		250	32.3						
	6550B-5	●	65	50		48			300	37.3						
	KIGHR 5540B-7	●	55	40	12	38	27		250	32.3	CGH-2L	HH6X25	SP-6	W-6	LW-5	GH7020-... / GH7520-... / GH8020-...

CDX shows the distance from the toolholder to the cutting edge. For the available grooving depth (CD), ref. to „List of Min. Available Cutting Diameter and Groove Depth“.

LH depends on the insert's edge width.

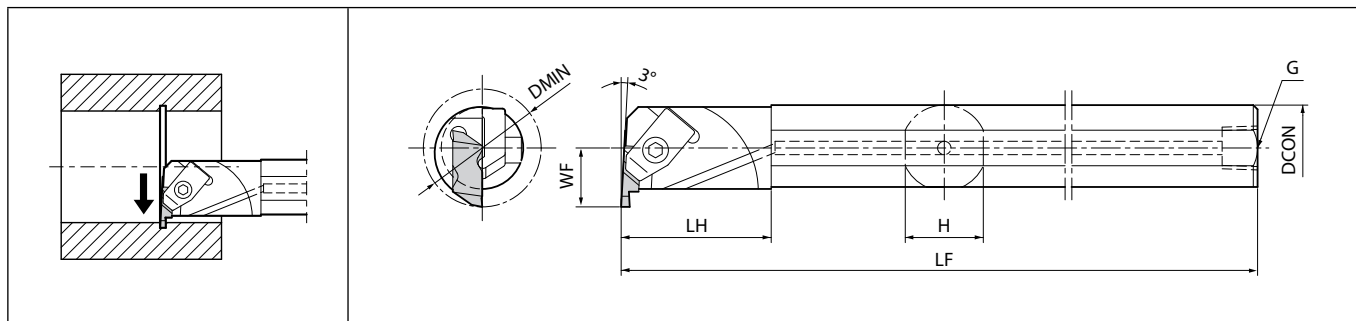
Rake Angle (α) after Installment of GH / GHU insert

GH0000-00		GHU00-00	
α	Insert Grades	α	Insert Grades
-5°	A65, A66N, PT600M	+5°	TN60 CR9025
+5°	TC40		
+15°	TN90, TC60 PR930 KW10		

List of the Min. Cutting Diameter and Grooving Depth (Refer to Fig. A)

Toolholder Part Number		DMIN ₂ (Min. Cutting Dia. mm)					
KIGHR	4532B-○	ø110	ø70	ø65	ø60	ø55	ø45
	5540B-○	ø70	ø60	ø55			
	6550B-○	ø65					
Available Grooving Depth CD (mm)		12	11.5	11	10	9	Under 8

A-KKC (External Grooving)



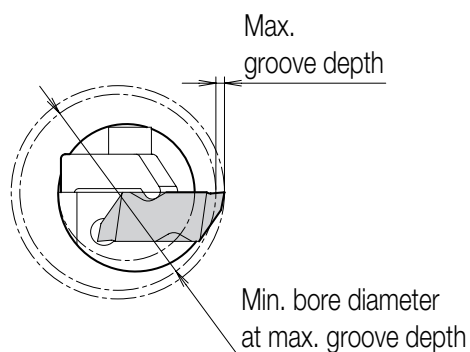
Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Spare Parts			Applicable Inserts G62~G64
		R	L	DMIN	DCON	H	LH	LF	WF	G	Clamp	Clamp Screw	Wrench	
Inch	A10M- KCCR-2	●		1.000	0.625	0.596	1.153	6.00	0.500	1/8-27 NPT	CKC-2L	SKC-2	(7/64 Hex)	KCGP2... KCG2... KCRP2...
	A10S- KCCR-2	●						10.00						
	A12R- KCCR-2	●		1.125	0.750	0.728	1.171	8.00	0.562					
	A12S- KCCR-2	●						10.00						
	A16T- KKC%L-2	●	●	1.375	1.000	0.910	1.100	12.00	0.688		CKC-3%L	SKC-3	(LW-156)	
	A16X- KCCR-3	●		1.375	1.000	0.910	1.750	9.00	0.688	1/8-27 NPT	CKC-3%L	SKC-3	(LW-156)	KCGP3... KCG3... KCRP3...
	A16T- KKC%L-3	●	●					12.00						
	A20U- KCCR-3	●		1.750	1.250	1.138	1.750	0.875		1/4-18 NPT	CKC-3%L	SKC-3	(LW-156)	KCGP4... KCRP4...
	A24U- KKC%L-3	●	●	2.000	1.500	1.366	1.750	1.000						
	A28U- KCCR-4	●		2.500	1.750	1.593	1.750	14.00	1.250	1/4-18 NPT	CKC-3%L	SKC-3	(LW-156)	

Clamp: CKC-OL for Right-hand Toolholder and CKC-OR for Left-hand Toolholder.

Above toolholders are also available for threading. See Page J35.



"CDX" dimension is same as the "CDX dimension" of the available insert.

Insert Size	CDX	Max Groove Depth (in)	Min Bore Dia. (in)
KCG2 KCGP2 KCRP2	0.050	0.040	1.000
	0.110	0.110	2.500
		0.102	1.750
		0.098	1.500
KCG3 KCGP3 KCRP3	0.075	0.050	1.325
	0.094	0.080	1.250
		0.070	1.625
		0.065	1.325
	0.150	0.140	2.375
		0.135	2.125
		0.128	1.875
		0.115	1.625
KCGP4 KCRP4	0.150	0.140	2.750
	0.250	0.240	5.750
		0.235	5.000
		0.230	4.500
		0.208	3.250
		0.190	2.500

External Diameter of the Groove DAXN / DAXX

Face grooving diameter DAXN (min) ~ DAXX (max) is the suitable range for the initial grooving plunge on the unprocessed workpiece (See Fig.1).
Then, you can widen it towards the inside or the outside within the tool's diameter range.

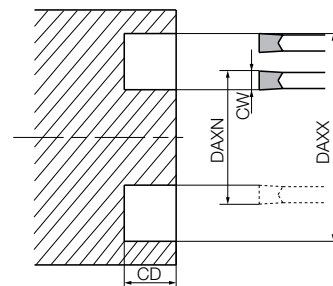
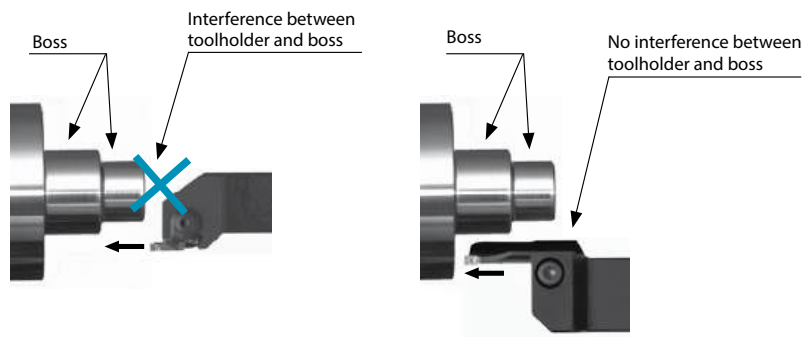


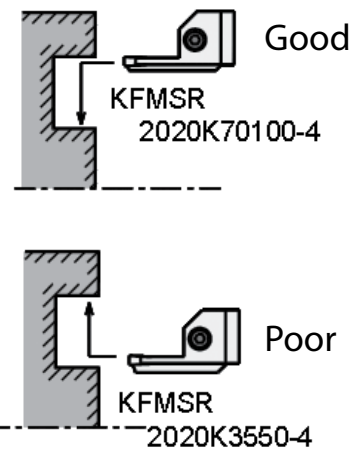
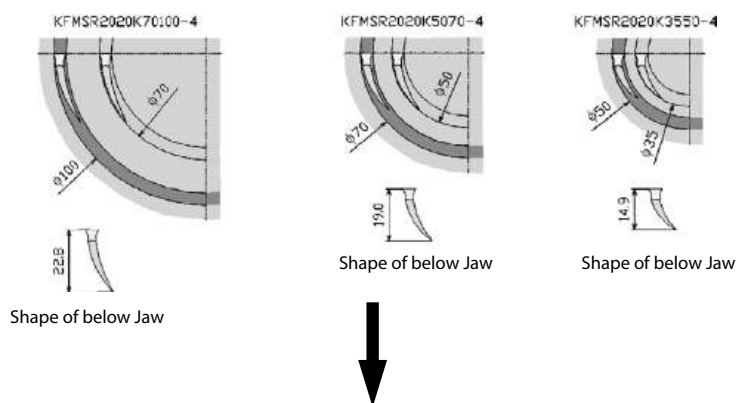
Fig.1

Caution for Face Grooving

1. When face grooving, the suitable toolholder depends on the length of the boss



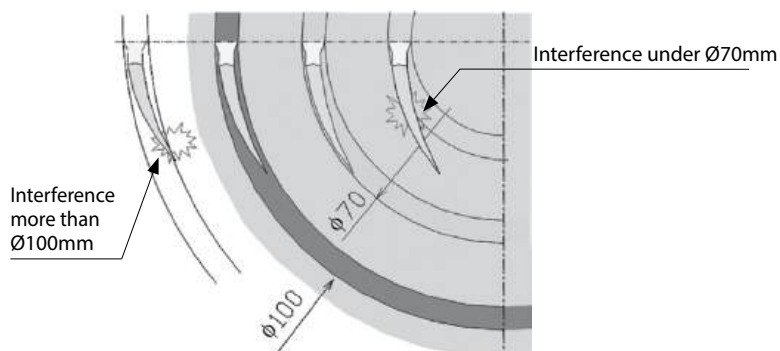
2. Selection of Face Grooving Toolholder



Example of usage for the face grooving toolholder.

3. Interference of Face Grooving Toolholder

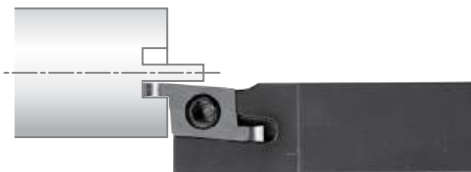
e.g.) KFMSR2525M70100-4



When face grooving, KFMSR2525M70100-4 should be plunged between $\varnothing 70\text{mm}$ ~ $\varnothing 100\text{mm}$ starting at the outer diameter and moving towards center. The jaw of toolholder interferes with the workpiece at diameters above $\varnothing 100\text{mm}$ or below $\varnothing 70\text{mm}$.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

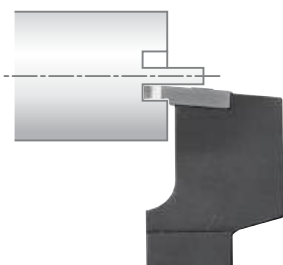
Small Diameter Face Grooving Ø0.236" (Ø6mm)~



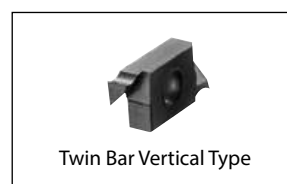
Type	STW
Min. Face Groove Diameter	0.236" (6.0mm)
Edge Width	0.020"~0.079" (0.5mm ~ 2.0mm)
Grooving Depth	0.039"~0.118" (1.0mm ~ 3.0mm)
Ref. Page	G102



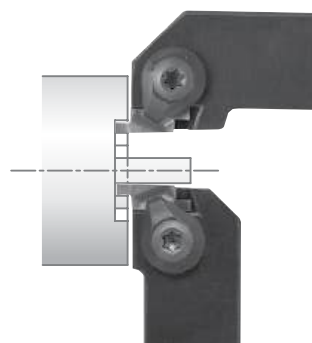
Type	S...-STW
Min. Face Groove Diameter	0.236" (6.0mm)
Edge Width	0.020"~0.079" (0.5mm ~ 2.0mm)
Grooving Depth	0.039"~0.118" (1.0mm ~ 3.0mm)
Ref. Page	G103



Type	STWS
Min. Face Groove Diameter	0.236" (6.0mm)
Edge Width	0.020"~0.079" (0.5mm ~ 2.0mm)
Grooving Depth	0.039"~0.118" (1.0mm ~ 3.0mm)
Ref. Page	G105



Small Diameter Face Grooving Ø0.315" (Ø8mm)~

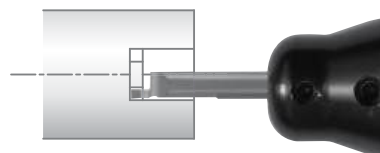


Type	GFVS-AA
Min. Face Groove Diameter	0.315" (8.0mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.0866" (2.2mm)
Ref. Page	G135

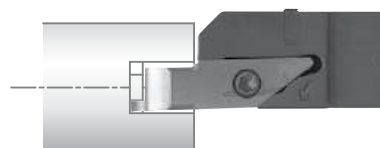
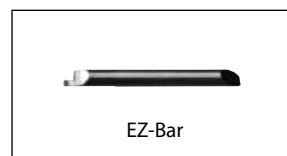
Type	GFVT-AA
Min. Face Groove Diameter	0.315" (8.0mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.0866" (2.2mm)
Ref. Page	G135



Small Diameter Face Grooving Ø0.197"~, Ø0.315"~ (Ø5mm~, Ø8mm~)



Type	EZFG
Min. Face Groove Diameter	0.197", 0.236", 0.315" (5.0mm, 6.0mm, 8.0mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.079"~0.118" (1.5mm ~ 3.0mm)
Ref. Page	G99



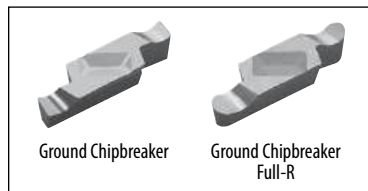
Type	VNFG
Min. Face Groove Diameter	0.315" (8.0mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.079"~0.118" (2.0mm ~ 3.0mm)
Ref. Page	G101



Face Grooving Ø0.787" (Ø20mm)~

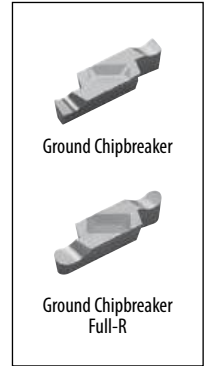


Type	KFTB
External Dia. of the Groove (min.)	2.559"~9.843" (65.0mm ~ 250.0mm)
Edge Width	0.158"~0.197" (4.0mm ~ 5.0mm)
Grooving Depth	0.984"~1.496" (25.0mm ~ 38.0mm)
Ref. Page	G152

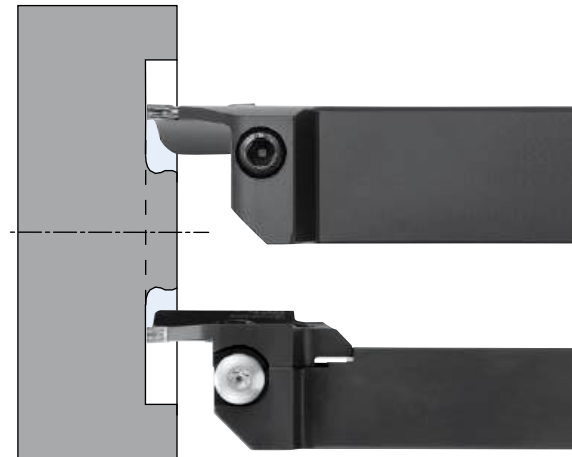


Type	GFV
External Dia. of the Groove (min.)	0.787"~5.906" (20.0mm ~ 150.0mm)
Edge Width	0.079"~0.236" (2.0mm ~ 6.0mm)
Grooving Depth	0.087"~0.319" (2.2mm ~ 8.1mm)
Ref. Page	G137

Type	GFVS
External Dia. of the Groove (min.)	1.378"~5.906" (35.0mm ~ 150.0mm)
Edge Width	0.098"~0.236" (2.5mm ~ 6.0mm)
Grooving Depth	0.181"~0.319" (4.6mm ~ 8.1mm)
Ref. Page	G139



KGDF Face Grooving Ø0.984" (Ø25mm)~



Type	KGDF-Z
External Dia. of the Groove (min.)	1.969"~4.528" (50mm ~ 115mm)
Edge Width	0.118"~0.197" (3.0mm ~ 5.0mm)
Grooving Depth	0.591" (15mm)
Ref. Page	G120

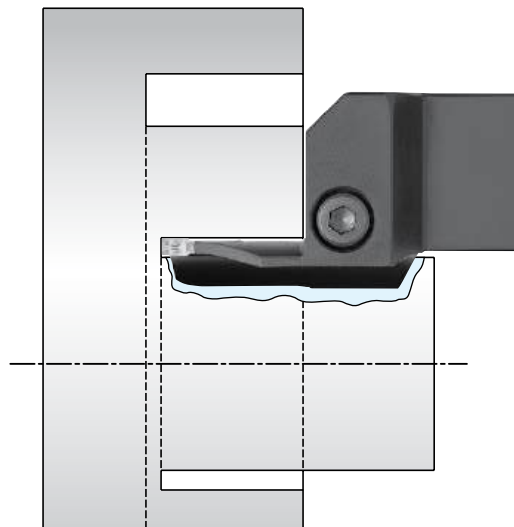
Type	*KGDF
External Dia. of the Groove (min.)	0.984"~9.252" (25mm ~ 235mm)
Edge Width	0.079"~0.236" (2.0mm ~ 6.0mm)
Grooving Depth	0.181"~0.319" (4.6mm ~ 8.1mm)
Ref. Page	G110

Type	GFVT
External Dia. of the Groove (min.)	1.378"~5.906" (35.0mm ~ 150.0mm)
Edge Width	0.098"~0.236" (2.5mm ~ 6.0mm)
Grooving Depth	0.181"~0.319" (4.6mm ~ 8.1mm)
Ref. Page	G141

*The SwitchBlade Type toolholders can accept all blades if their hand is matching.

Grooving and Traversing GM	Deep Grooving and Traversing DM	High Feed Rate GH	Full Radius (R) CM	Non-Ferrous Machining GS

Face Grooving & Traversing Ø0.984" (Ø25mm)~



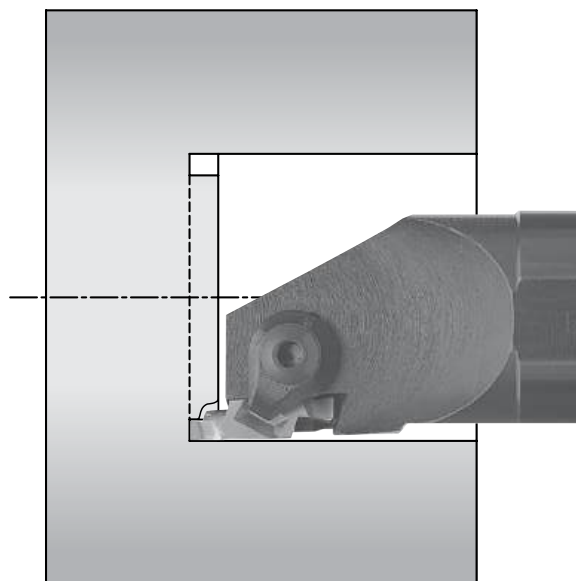
Type	KFMS
External Dia. of the Groove (min.)	0.984"~9.252" (25.0mm~235.0mm)
Edge Width	0.118"~0.236" (3.0mm~6.0mm)
Grooving Depth	0.512"~1.260" (13.0mm~32.0mm)
Ref. Page	G149



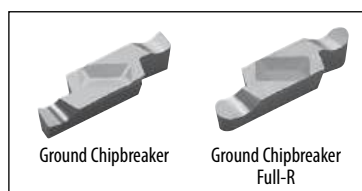
Type	KKCE
External Dia. of the Groove (min.)	0.940"~1.630"
Edge Width	0.125"~0.189" (3.15mm~4.80mm)
Grooving Depth	0.060"~0.150" (1.52mm~3.81mm)
Ref. Page	G147



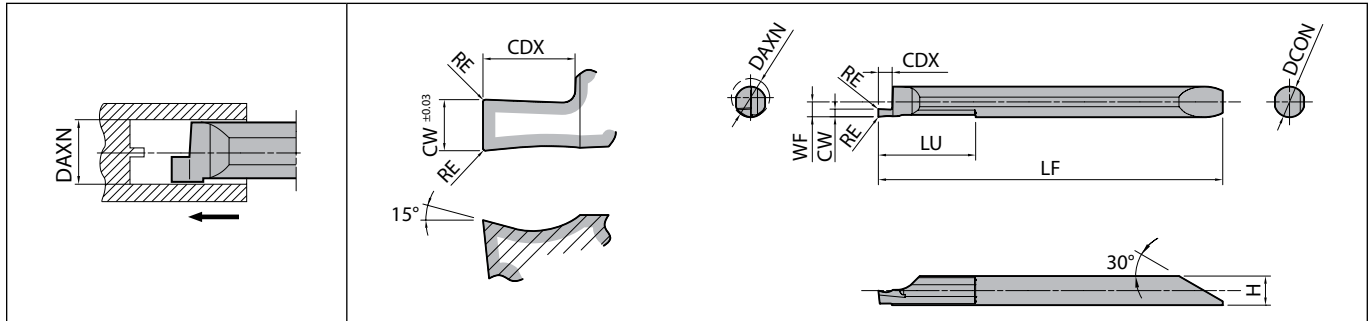
Face Grooving Ø1.378" (Ø35mm)~



Type	GIFV
External Dia. of the Groove (min.)	1.378"~1.969" (35.0mm~50.0mm)
Edge Width	0.079"~0.236" (2.0mm~6.0mm)
Grooving Depth	0.087"~0.319" (2.2mm~8.1mm)
Ref. Page	G145



EZFG (Internal Grooving / Face Grooving)



Right-hand shown

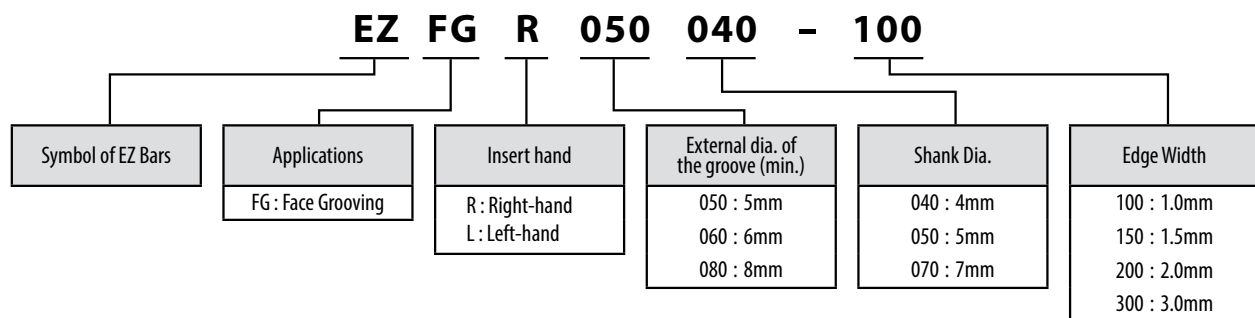
Dimensions

Part Number	No. of Edges	External dia. of the groove (mm)	Dimensions (mm)										Tolerance (mm)				Carbide			Applicable Sleeve 🔩 F38~F45
			DAXN (min.)	CW		CDX	RE	DCON	H	LF	LU	WF	CW min.	CW max.	RE min.	RE max.	PVD		-	
				in	mm												PR1225		GW05	
																	R	L	R	
EZFG% 050040-100 050040-150	1	5	0.039 0.059	1 1.5	1.5 2	0.05	4	3.8	45	12	1.9	-0.03	+0.03	-0.013	+0.013	● ●	● ●	● ●	EZH040...	
EZFG% 060050-100 060050-150 060050-200	1	6	0.039 0.059 0.079	1 1.5 2	1.5 2.5 3	0.05	5	4.8	53.2	15	2.4	-0.03	+0.03	-0.013	+0.013	● ● ●	● ● ●	● ● ●	EZH050...	
EZFG% 080070-100 080070-150 080070-200 080070-300	1	8	0.039 0.059 0.079 0.118	1 1.5 2 3	2 2.5 3 3	0.05	7	6.8	64.2	25	3.4	-0.03	+0.03	-0.013	+0.013	● ● ● ●	● ● ● ●	● ● ● ●	EZH070...	

CDX shows available grooving depth.

Recommended Cutting Conditions ➡ G100

EZ Bars Identification System

EZ Bars are
sold in 1 piece boxes

Applicable Sleeves

Sleeve				Applicable bar for internal face grooving		Applicable machine manufacturer
EZH-CT (Adjustable Overhang Length / with Coolant Hole) F40~F41	EZH-HP (Adjustable Overhang Length) F42~F43	EZH-ST F44~F45	Sleeve shank dia.	EZFG	Shank dia.	
			DCON(mm)		DCON(mm)	
-	-	EZH 04012ST-80 05012ST-80 07012ST-80	12	EZFG % 050040-... EZFG % 060050-... EZFG % 080070-...	4 5 7	(General purpose)
-	EZH 04016HP-100 05016HP-100 07016HP-100	EZH 04016ST-100 05016ST-100 07016ST-100	16	EZFG % 050040-... EZFG % 060050-... EZFG % 080070-...	4 5 7	(General purpose)
EZH 04019CT-120 05019CT-120 07019CT-120	EZH 04019HP-120 05019HP-120 07019HP-120	EZH 04019ST-120 05019ST-120 07019ST-120	0.750"	EZFG % 050040-... EZFG % 060050-... EZFG % 080070-...	4 5 7	Citizen Machinery
EZH 04020CT-120 05020CT-120 07020CT-120	EZH 04020HP-120 05020HP-120 07020HP-120	EZH 04020ST-120 05020ST-120 07020ST-120	20	EZFG % 050040-... EZFG % 060050-... EZFG % 080070-...	4 5 7	Eguro Tsugami Citizen Machinery (General purpose)
EZH 04022CT-135 05022CT-135 07022CT-135	EZH 04022HP-135 05022HP-135 07022HP-135	EZH 04022ST-135 05022ST-135 07022ST-135	22	EZFG % 050040-... EZFG % 060050-... EZFG % 080070-...	4 5 7	Star Micronics Nomura DS Tsugami
EZH 04025.0CT-135 05025.0CT-135 07025.0CT-135	EZH 04025.0HP-135 05025.0HP-135 07025.0HP-135	EZH 04025.0ST-135 05025.0ST-135 07025.0ST-135	25	EZFG % 050040-... EZFG % 060050-... EZFG % 080070-...	4 5 7	Eguro Tsugami Citizen Machinery (General purpose)
EZH 04025.4CT-120 05025.4CT-120 07025.4CT-120	EZH 04025.4HP-120 05025.4HP-120 07025.4HP-120	EZH 04025.4ST-120 05025.4ST-120 07025.4ST-120	1.000"	EZFG % 050040-... EZFG % 060050-... EZFG % 080070-...	4 5 7	Citizen Machinery

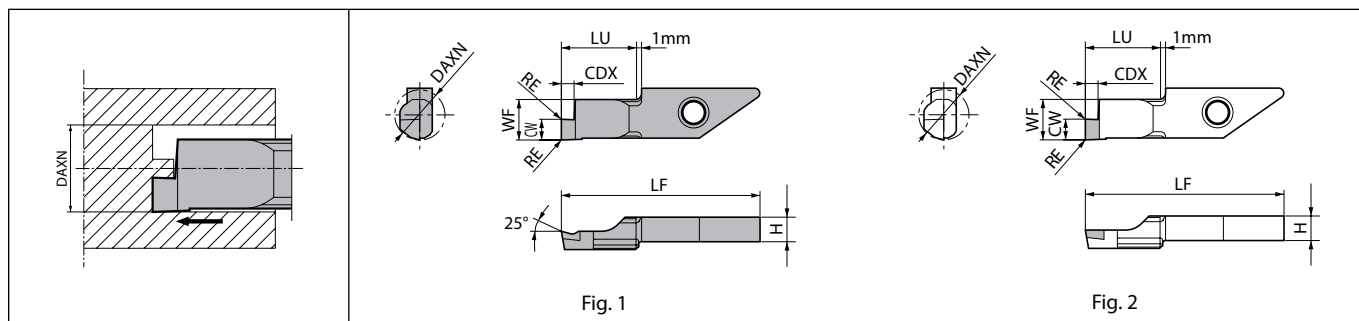
- Choose sleeves with a DCON dimension that matches the DCB dimension of the EZ Bar.
- Adjustment Pin cannot be installed on **EZH-ST** sleeves. To adjust overhang of the bar, please use **EZH-CT / HP** sleeves.
- Machine manufacturers in random order

Recommended Cutting Conditions

Workpiece Material	Insert Grades (Vc: sfm)		EZFG % 050040-100 EZFG % 060050-100 EZFG % 080070-100	EZFG % 050040-150 EZFG % 060050-150 EZFG % 080070-150	EZFG % 060050-200 EZFG % 080070-200	EZFG % 080070-300	Notes
	MEGACOAT	Carbide					
	PR1225	GW05					
Carbon Steel / Alloy Steel	★ 100~330	-	~0.0008	~0.0012	~0.0016	~0.0020	Coolant
Stainless Steel	★ 100~260	-	~0.0004	~0.0008	~0.0008	~0.0012	
Non-Ferrous Metals	-	★ ~980	~0.0012	~0.0020	~0.0024	~0.0031	

★ : 1st recommendation

VNFG (Internal Grooving / Face Grooving)



Right-hand shown

Dimensions

Part Number	No. of Edges	External dia.of the groove (mm)		Dimensions (mm)								Tolerance (mm)		Fig.	Carbide			PCD	Applicable Toolholder ➡ F50~F53
		DAXN (min.)	DAXX (max.)	CW		CDX	RE	H	LF	LU	WF	CW min.	CW max.		PVD	-	-		
				in	mm														
VNFR 0810-10 0820-10 0830-10	1	8 (0)	∞ (∞)	0.039 0.079 0.118	1 2 3	2 2 3	0.05	3.9	29.6	10	7.3	-0.03	+0.03	1	● ● ●	● ● ●	● ● ●		SVNR...-12N S...-SVNR12(N) S...-SVNR12SN
VNFR 0820-10NB 0830-10NB	1			0.079 0.118	2 3	2 3	0.05	3.9	29.6	10	7.3	-0.03	+0.03	2				□ □	

CDX shows available grooving depth.

External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.

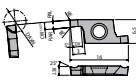
Recommended cutting conditions

Workpiece Material	Recommended insert grades (Vc: sfm)			VNFG0810	VNFG0820	VNFG0830	Notes
	MEGACOAT	PVD Coated Carbide	Carbide				
	PR1225	PR930	KW10				
Carbon Steel / Alloy Steel	★ 100~330	☆ 100~330		~0.0008	~0.0016	~0.0020	Coolant
Stainless Steel	★ 100~260	☆ 100~260		~0.0004	~0.0008	~0.0012	
Non-Ferrous Metals			★ ~980	~0.0016	~0.0024	~0.0031	

★ :1st recommendation ☆ :2nd recommendation

Swiss IQ bars are
sold in 5 piece boxesPCD Inserts are
sold in 1 piece boxes

TWFG (Face Grooving, Horizontal Type)

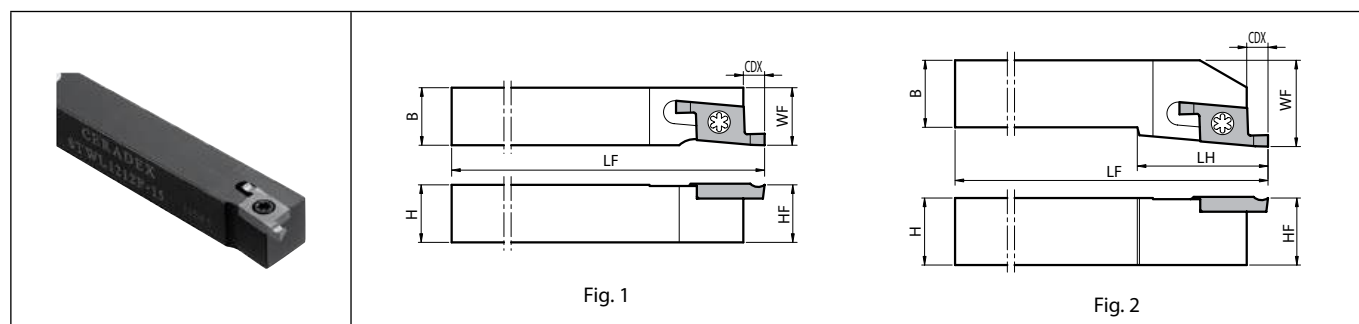
		Carbon Steel / Alloy Steel										●		P
		Stainless Steel										●		M
		Cast Iron												K
		Non-Ferrous Metals										●		N
		Titanium Alloy												S
		Hard Materials (~ 40HRC)												H
		Hard Materials (40HRC ~)												
Insert	Part Number	No. of Edges	External dia. of the groove (mm)		Dimensions (mm)			Tolerance (mm)		Angle (°)	Carbide		Applicable Toolholder ➡ G102 G103	
			DAXN (min.)	DAXX (max.)	CW		CDX	RE	CW min.	CW max.	RA	PVD		-
					in	mm						PR1535			KW10
 	TWFGL 050	2	6 (0)	∞ (∞)	0.020	0.5	1	0.05	-0.03	+0.03	1.5	●	STWL.....15 S...-STWL15	
	080				0.031	0.8	1.5				1.5	●		
	100				0.039	1	2.2				2	●		
	125				0.049	1.25	2.2				2	●		
	150				0.059	1.5	2.2				2	●		
	180				0.071	1.8	3				2	●		
	200				0.079	2	3				2	●		

CDX shows available grooving depth.

External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.

Left-hand shown

Recommended Cutting Conditions ● G101

STW (Face Grooving, Square Shank for Horizontal Type Insert)

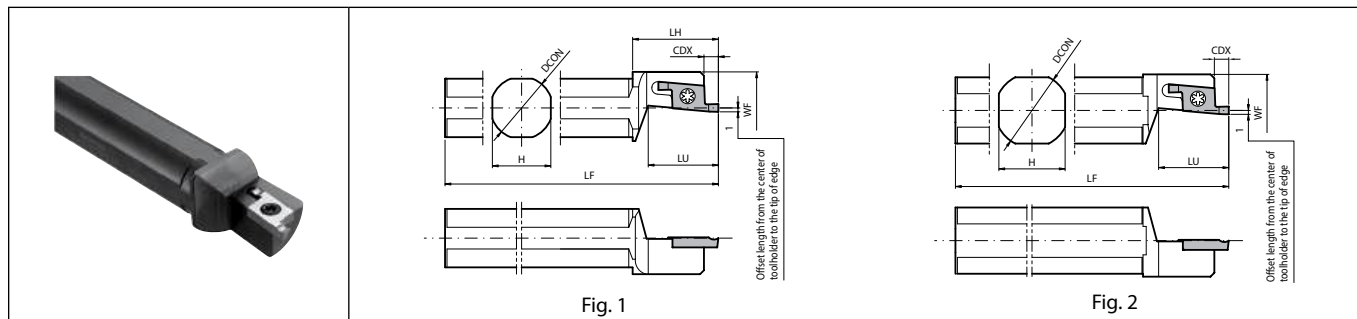
Left-hand shown | Left-hand Insert for Left-hand Toolholder. | (For right-hand toolholder for boring, See page F56.)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Fig.	Spare Parts		Applicable Inserts
											Screw	Wrench	
			L	CDX	H	B	LH	HF	LF	WF			
mm	STWL 1616K-15	●	3	16	16	-	16	125	16	1	SB-3080TR	LTW-10S	TWFG...
	STWL 2020K-15	●	3	20	20		20	125	25	2	SB-3080TR	LTW-10S	TWFG...
	2525M-15	●	3	25	25		25	150	32				

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

Twin Bars are
sold in 5 piece boxes

S-STW (Face Grooving, Round Shank for Horizontal Type Insert)

Left-hand shown | Left-hand Insert for Left-hand Toolholder. | (For right-hand toolholder for boring, See page F57.)

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Coolant Hole	Fig.	Spare Parts		Applicable Inserts  G102	
			L	DCON	CDX	H	LH	LF	LU			WF	Screw		Wrench
															
Inch	S19G- STWL15	●	0.750	0.118	0.669	-	3.543	0.709	0.728	No	2	SB-3080TR	LTW-10S	TWFG...	
	S19K- STWL15	●					4.724								
	S25K- STWL15	●	1.000	0.118	0.906		4.724	0.866	0.984						
mm	S12F- STWL15	●	12	3	11	22	80	18	20	No	1	SB-3080TR	LTW-10S	TWFG...	
	S16F- STWL15	●	16		15		100								
	S20K- STWL15	●	20	18	120	18	19.5	No	2						
	S22K- STWL15	●	22	3	20	125	22			21.5					
	S25.0J- STWL15	●	25		23	110	24.5								

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

TWFGT (Face Grooving, Vertical Type)

		Carbon Steel / Alloy Steel										●	P	
		Stainless Steel										●	M	
		Cast Iron											K	
		Non-Ferrous Metals										●	N	
		Titanium Alloy											S	
		Hard Materials (~ 40HRC)											H	
		Hard Materials (40HRC ~)												
Insert	Part Number	No. of Edges	External dia. of the groove (mm)		Dimensions (mm)			Tolerance (mm)		Angle (°)	Carbide	Applicable Toolholder ➡ G109		
			DAXN (min.)	DAXX (max.)	CW		CDX	RE	CW min.	CW max.	RA %		PVD	-
					in	mm							PRI535	KW10
														

CDX shows available grooving depth.

External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.

Right-hand shown

Recommended Cutting Conditions ➡ **G105**

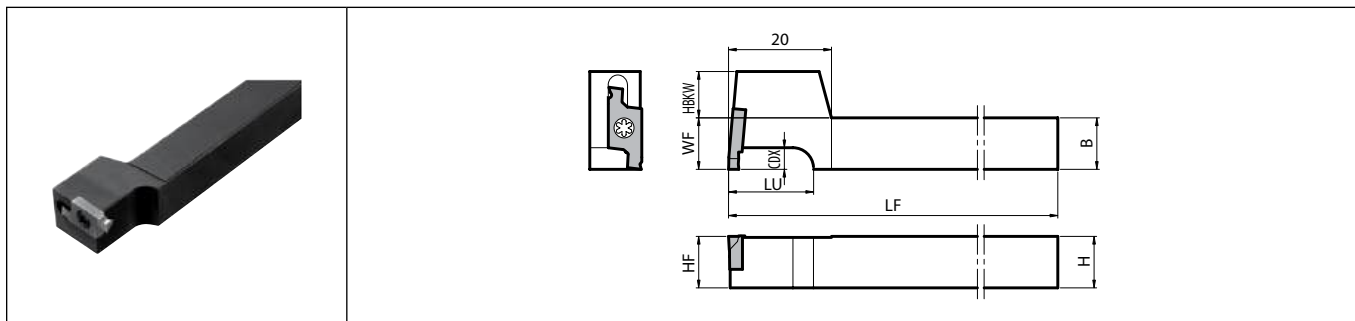
G

GROOVING

EXTERNAL

INTERNAL

FACE

STWS (Face Grooving, Square Shank for Vertical Type , L-Shape)

Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Spare Parts		Applicable Inserts  G104		
											Screw	Wrench			
			R	H	B	LU	HF	HBKW	LF	CDX	WF				
mm	STWSR 1010F-15T	●	10	10	16	10	9	85	120	3	10	SB-3080TR	LTW-10S	TWFGTR...	
	1010JX-15T	●													12
	1212F-15T	●	16	20		16	3				120				
	1212JX-15T	●													
	1616JX-15T	●													

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

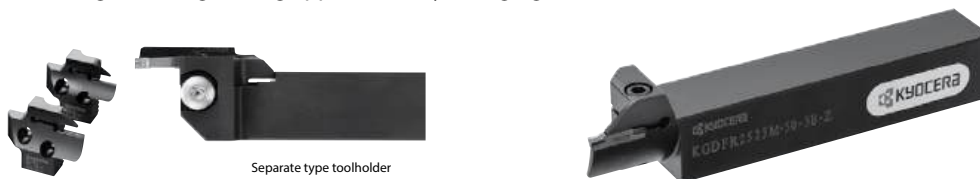
Recommended cutting conditions TWFG / TWFGT

Workpiece Material	Recommended insert grades (Vc:sfm)			TWFGLO50 TWFGLO80 TWFGLO100 TWFGTRO50 TWFGTRO80 TWFGTRO100	TWFGLO125 TWFGLO150 TWFGTRO125 TWFGTRO150	TWFGLO180 TWFGLO200 TWFGTRO180 TWFGTRO200	Notes
	MEGACOAT	PVD coated carbide	Carbide				
	PR1535	PR1025	KW10	f (ipr)			
Carbon Steel / Alloy Steel	★ 100~330	☆ 100~330	-	~0.0008	~0.0012	~0.0016	Coolant
Stainless Steel	★ 100~260	☆ 100~260	-	~0.0004	~0.0008	~0.0008	
Non-Ferrous Metals	-	-	★ ~980	~0.0012	~0.0016	~0.0024	

★:1st recommendation ☆:2nd recommendation

KGDF: Face Grooving

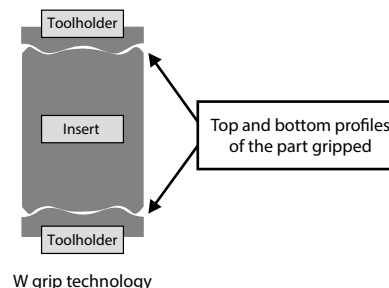
SwitchBlade type toolholder (toolholder + blade) and Integral type toolholder are available.
Adaptable to a wide range of face grooving applications by changing blades



Insert Clamping System "W grip"

Unique "W Grip" (insert anti-slip structure) provides stable machining quality

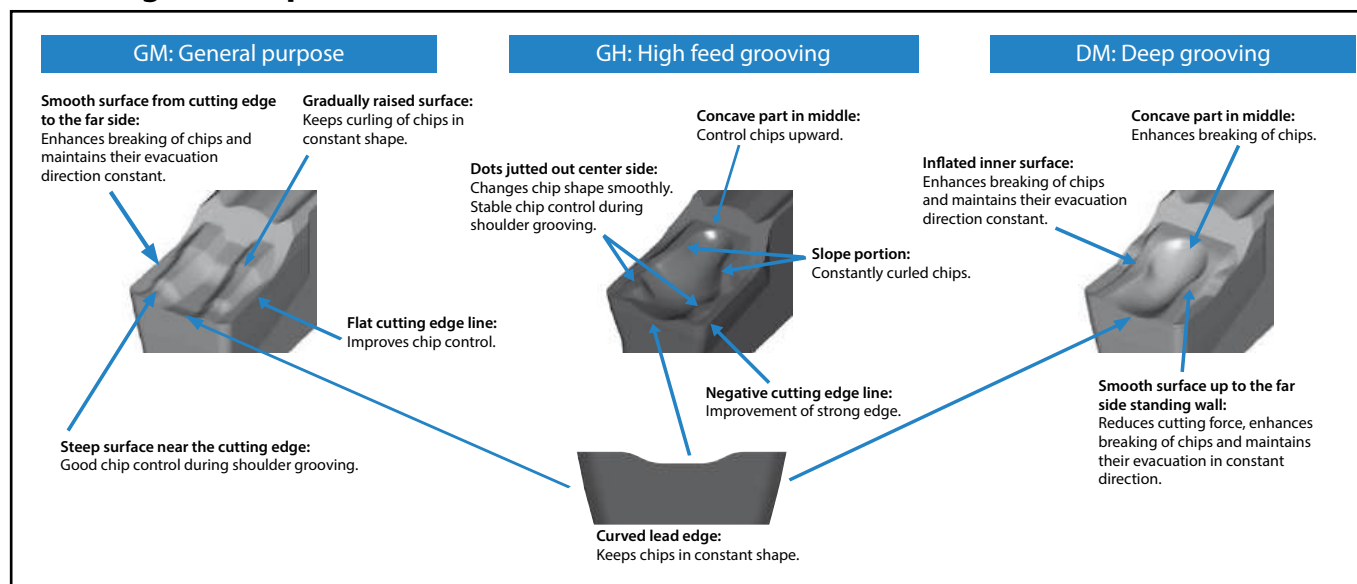
1. Prevents abnormal machining surface and / or insert breakage resulting from slip of insert.
2. Improves repetitive installation accuracy of insert (GDFM and GDFMS inserts are not applicable to KGD external grooving, cut-off and KGDI internal grooving toolholders.)



Smooth Chip Control

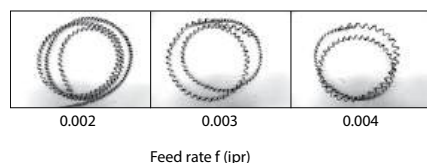
For general purpose GM chipbreaker, for high feed grooving GH chipbreaker, for deep grooving DM chipbreaker

Advantages of chipbreaker



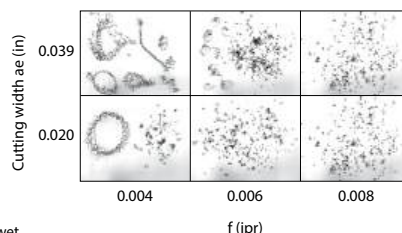
Chip control of GM chipbreaker

Face grooving ($\phi 2.440'' / \phi 62\text{mm}$)

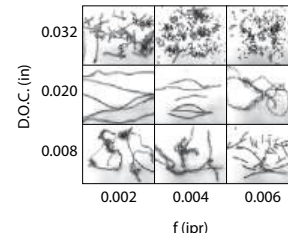


Cutting Conditions: $V_c = 490$ sfm, $f = 0.002 \sim 0.008$ ipr, GDFM5020N-040GM, 4118, wet

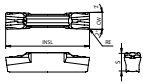
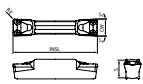
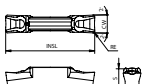
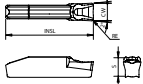
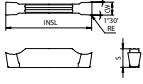
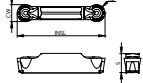
Side grooving



Traversing



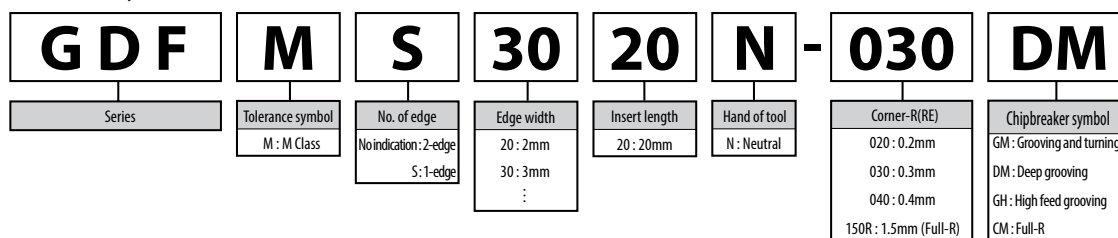
GDFM/GDFMS

			Carbon Steel / Alloy Steel										P	
			Stainless Steel										M	
			Cast Iron										K	
			Non-Ferrous Metals										N	
			Titanium Alloy										S	
			Hard Materials (~ 40HRC)										H	
			Hard Materials (40HRC ~)											
Insert	Part Number	No. of Edges	Dimensions (mm)					Tolerance (mm)		Carbide		Cermet	Applicable Toolholder G110~G131	
			CW		S	RE	INSL	CW min.	CW max.	PVD	-	-		
			in	mm						PR1215	PR1225	GW15		TN620	TN90
	 General purpose	GDFM 2020N-020GM	2	0.079	2	3.9	0.2	21	-0.03	+0.03	●	●	●	KGDF% ...-2...
		GDFM 3020N-030GM	2	0.118	3	4.3	0.3	20	-0.03	+0.03	●	●	●	KGDF% ...-3...
		GDFM 4020N-040GM	2	0.157	4	4.5	0.4	20	-0.03	+0.03	●	●	●	KGDF% ...-4...
		GDFM 5020N-040GM 5020N-080GM	2	0.197	5	4.5	0.4 0.8	20	-0.04	+0.04	●	●	●	KGDF% ...-5...
		GDFM 6020N-040GM 6020N-080GM	2	0.236	6	4.5	0.4 0.8	20	-0.04	+0.04	●	●	●	KGDF% ...-6...
	 High feed	GDFM 4020N-040GH	2	0.157	4	4.5	0.4	20	-0.03	+0.03	●	●	●	KGDF% ...-4...
		GDFM 5020N-040GH 5020N-080GH	2	0.197	5	4.5	0.4 0.8	20	-0.04	+0.04	●	●	●	KGDF% ...-5...
		GDFM 6020N-040GH 6020N-080GH	2	0.236	6	4.5	0.4 0.8	20	-0.04	+0.04	●	●	●	KGDF% ...-6...
	 Deep Grooving	GDFM 3020N-030DM	2	0.118	3	4.3	0.3	20	-0.03	+0.03	●	●	●	KGDF% ...-3...
		GDFM 4020N-040DM	2	0.157	4	4.5	0.4	20	-0.03	+0.03	●	●	●	KGDF% ...-4...
		GDFM 5020N-040DM	2	0.197	5	4.5	0.4	20	-0.04	+0.04	●	●	●	KGDF% ...-5...
		GDFM 6020N-040DM	2	0.236	6	4.5	0.4	20	-0.04	+0.04	●	●	●	KGDF% ...-6...
	 Deep Grooving / 1-edge	GDFMS 3020N-030DM	1	0.118	3	4.3	0.3	20	-0.03	+0.03	●	●	●	KGDF% ...-3...
		GDFMS 4020N-040DM	1	0.157	4	4.5	0.4	20	-0.03	+0.03	●	●	●	KGDF% ...-4...
		GDFMS 5020N-040DM	1	0.197	5	4.5	0.4	20	-0.04	+0.04	●	●	●	KGDF% ...-5...
		GDFMS 6020N-040DM	1	0.236	6	4.5	0.4	20	-0.04	+0.04	●	●	●	KGDF% ...-6...
	 Non-Ferrous Metals	GDFG 3020N-020GS	2	0.118	3	4.3	0.2	20	-0.2	+0.2	●	●	●	KGDF% ...-3...
		GDFG 4020N-040GS	2	0.157	4	4.5	0.4	20	-0.2	+0.2	●	●	●	KGDF% ...-4...
		GDFG 5020N-040GS	2	0.197	5	4.5	0.4	20	-0.2	+0.2	●	●	●	KGDF% ...-5...
		GDFG 6020N-040GS	2	0.236	6	4.5	0.4	20	-0.2	+0.2	●	●	●	KGDF% ...-6...
	 Full R	GDFM 3020N-150R-CM	2	0.118	3	4.3	1.5	20	-0.03	+0.03	●	●	●	KGDF% ...-3...
		GDFM 4020N-200R-CM	2	0.157	4	4.5	2	21	-0.03	+0.03	●	●	●	KGDF% ...-4...
		GDFM 5020N-250R-CM	2	0.197	5	4.5	2.5	21	-0.04	+0.04	●	●	●	KGDF% ...-5...
		GDFM 6020N-300R-CM	2	0.236	6	4.5	3	22	-0.04	+0.04	●	●	●	KGDF% ...-6...

GDFM40/50/60-CM differs from other descriptions in length (INSL) to avoid interference of a toolholder with workpiece.

Recommended Cutting Conditions G132

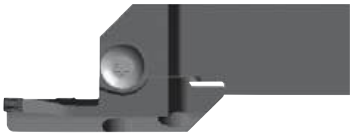
Inserts identification system



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

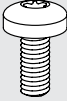
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF: Toolholder Assembly Identification

Unit Part Number (Unit Part Number is not printed.)	Blade (Blade Part Number is printed.)	Toolholder (Toolholder Part Number is printed.)
Left-hand : KGDFL...S	Left-hand : KGDFL...-C	Right-hand : KGDR...-C
		
Left-hand shown	Left-hand shown	Right-hand shown
Right-hand : KGDFR...S	Right-hand : KGDFR...-C	Left-hand : KGDL...-C
		
Right-hand shown	Right-hand shown	Left-hand shown

- Right-hand blade for left-hand toolholder, left-hand blade for right-hand toolholder.
- The unit description is not printed on the product. It is printed on the box label.
- Combination of the toolholder and blade (both separately sold) can make up the corresponding assembly.
- The insert clamping screw (BH6X10TR), blade fixing screw (SB-60120TR) and wrench (LTW-25) which are included in the toolholder can be used.

Spare Parts (Common among SwitchBlade Holders)

Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
		
BH6X10TR	SB-60120TR	LTW-25

External dia. of the groove DAXN / DAXX

External dia. of the groove within DAXN ~ DAXX are the available range for the initial grooving on the unprocessed workpiece (Ref. to Fig. 1). Then, you can widen it up to the center towards the inside (excluding the models listed in the right table) and towards the outside according to machine limits.

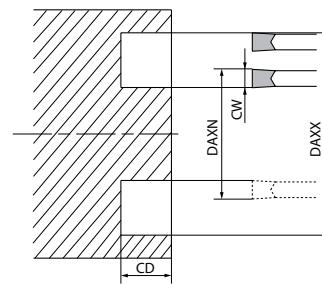
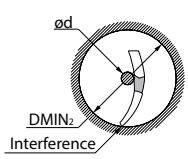


Fig. 1

Limit of Turning toward Center

Turning towards the Center causes the toolholder to interfere with the groove wall depending on the initial cut's diameter.

 ød DMIN₂ Interference Remaining Boss Dia. ød	DMIN ₂		25	26	27	28 and over
	Part Number		ød (mm)			
	KGDF [®] /L-25-3A-C + KGD ¹ /h2020-C		4	2	0	0 (No remaining Boss)
	KGDF [®] /L-25-3A-C + KGD ¹ /h2525-C					
	KGDF [®] /L-25-4A-C + KGD ¹ /h2020-C		6	3	0	
	KGDF [®] /L-25-4A-C + KGD ¹ /h2525-C					
	KGDF [®] /L-25-5B-C + KGD ¹ /h2020-C		7	4	1	
	KGDF [®] /L-25-5B-C + KGD ¹ /h2525-C					
	KGDF [®] /L-25-6B-C + KGD ¹ /h2020-C		9	4	1	
	KGDF [®] /L-25-6B-C + KGD ¹ /h2525-C					

e.g.)

Toolholder assembled from KGDFR-25-3A-C and KGD2020-C with ø25 as first cut towards the center, it will cause a rubbing with the toolholder cartridge if ød is 4.0mm.

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in)		Toolholder Part Number G56	Std. Item	Blade Part Number G131	Std. Item	Dimensions								Spare Parts					
					DAXN (min.)	DAXX (max.)					R	L	R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
																								
Inch	0°	0.079" (2mm)	0.75	0.236" (6mm)	0.984	1.181	KGDL12-C	●	KGDFR -25-2A-C	●	0.750	0.750	1.299	0.750	0.510	4.528	0.927	BH6X10TR	SB-60120TR	LTW-25				
					1.181	1.378			-30-2A-C	●														
					1.378	1.772			-35-2A-C	●														
					1.772	2.362			-45-2A-C	●														
					2.362	3.150			-60-2A-C	●														
					3.150	3.937			-80-2A-C	●														
				0.512" (13mm)	0.984	1.181			KGDFR -25-2B-C	●	0.750	0.750	1.417	0.750	0.510	4.646	0.927							
				0.591 (15mm)	1.181	1.378			-30-2B-C	●	0.750	0.750	1.496	0.750	0.510	4.724	0.927							
					1.378	1.772			-35-2B-C	●														
					1.772	2.362			-45-2B-C	●														
					2.362	3.150			-60-2B-C	●														
					3.150	3.937			-80-2B-C	●														
			3.937		5.118	-100-2B-C	●																	
			0.236" (6mm)	0.984	1.181	KGDL16-C	●	KGDFR -25-2A-C	●	1.000	1.000	1.299	1.000	0.260	5.512	1.177								
				1.181	1.378			-30-2A-C	●															
				1.378	1.772			-35-2A-C	●															
				1.772	2.362			-45-2A-C	●															
				2.362	3.150			-60-2A-C	●															
				3.150	3.937			-80-2A-C	●															
				0.512" (13mm)	0.984			1.181	KGDFR -25-2B-C	●	1.000	1.000	1.417	1.000	0.260	5.630	1.177							
				0.591 (15mm)	1.181			1.378	-30-2B-C	●	1.000	1.000	1.496	1.000	0.260	5.709	1.177							
					1.378			1.772	-35-2B-C	●														
					1.772			2.362	-45-2B-C	●														
					2.362			3.150	-60-2B-C	●														
3.150	3.937	-80-2B-C			●																			
3.937	5.118	-100-2B-C	●																					
0.236" (6mm)	0.984	1.181	KGDL20-C	●	KGDFR -25-2A-C	●	1.250	1.250	1.299	1.250	-	6.299	1.427											
	1.181	1.378			-30-2A-C	●																		
	1.378	1.772			-35-2A-C	●																		
	1.772	2.362			-45-2A-C	●																		
	2.362	3.150			-60-2A-C	●																		
	3.150	3.937			-80-2A-C	●																		
	0.512" (13mm)	0.984			1.181	KGDFR -25-2B-C	●	1.250	1.250	1.417	1.250	-	6.417	1.427										
	0.591 (15mm)	1.181			1.378	-30-2B-C	●	1.250	1.250	1.496	1.250	-	6.496	1.427										
		1.378			1.772	-35-2B-C	●																	
		1.772			2.362	-45-2B-C	●																	
		2.362			3.150	-60-2B-C	●																	
		3.150			3.937	-80-2B-C	●																	
3.937		5.118	-100-2B-C	●																				

Applicable Inserts ➡ G107

G110

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of cut CDX	External dia. of the groove (in)		Toolholder Part Number ➡ G56	Std. Item		Blade Part Number ➡ G131	Std. Item		Dimensions (See diagram on ➡ G110)								Spare Parts				
					DAXN (min.)	DAXX (max.)		R	L		R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench			
																									
Inch	0°	0.118" (3mm)	□0.75	0.512" (13mm)	0.984	1.181	KGD°% 12-C	●	●	KGDF°% -25-3A-C	●	●	0.750	0.750	1.420	0.750	0.510	4.650	0.927	BH6X10TR	SB-60120TR	LTW-25			
					1.181	1.575					●	●													
					1.575	1.969					●	●													
				0.591" (15mm)	1.969	2.559				-30-3A-C	●	●	0.750	0.750	1.500	0.750	0.510	4.720	0.927						
					2.559	3.346				-40-3A-C	●	●													
					3.346	4.331				-50-3B-C	●	●													
				0.866" (22mm)	4.331	5.709				-65-3B-C	●	●	0.750	0.750	1.770	0.750	0.510	5.000	0.927						
					1.969	2.559				-85-3B-C	●	●													
					2.559	3.346				-110-3B-C	●	●													
				0.984" (25mm)	4.331	5.709				KGDF°% -50-3C-C	●	●	0.750	0.750	1.890	0.750	0.510	5.120	0.927						
					1.969	2.559				-65-3C-C	●	●													
					2.559	3.346				-85-3C-C	●	●													
			□1.00	0.512" (13mm)	0.984	1.181	KGD°% 16-C	●	●	KGDF°% -25-3A-C	●	●	1.000	1.000	1.420	1.000	0.260	5.630	1.177						
					1.181	1.575				-30-3A-C	●	●													
					1.575	1.969				-40-3A-C	●	●													
				0.591" (15mm)	1.969	2.559				-50-3B-C	●	●	1.000	1.000	1.500	1.000	0.260	5.710	1.177						
					2.559	3.346				-65-3B-C	●	●													
					3.346	4.331				-85-3B-C	●	●													
				0.866" (22mm)	4.331	5.709				-110-3B-C	●	●	1.000	1.000	1.770	1.000	0.260	5.980	1.177						
					1.969	2.559				KGDF°% -50-3C-C	●	●													
					2.559	3.346				-65-3C-C	●	●	1.000	1.000	1.890	1.000	0.260	6.100	1.177						
				0.984" (25mm)	3.346	4.331				-85-3C-C	●	●													
					4.331	5.709				-110-3C-C	●	●													
			□1.25	0.512" (13mm)	0.984	1.181	KGD°% 20-C	●	●	KGDF°% -25-3A-C	●	●	1.250	1.250	1.417	1.250	-	6.417	1.427						
					1.181	1.575				-30-3A-C	●	●													
					1.575	1.969				-40-3A-C	●	●													
				0.591" (15mm)	1.969	2.559				-50-3B-C	●	●	1.250	1.250	1.496	1.250	-	6.496	1.427						
					2.559	3.346				-65-3B-C	●	●													
					3.346	4.331				-85-3B-C	●	●													
				0.866" (22mm)	4.331	5.709				-110-3B-C	●	●	1.250	1.250	1.772	1.250	-	6.772	1.427						
					1.969	2.559				KGDF°% -50-3C-C	●	●													
					2.559	3.346				-65-3C-C	●	●													
				0.984" (25mm)	3.346	4.331				-85-3C-C	●	●	1.250	1.250	1.890	1.250	-	6.890	1.427						
					4.331	5.709				-110-3C-C	●	●													

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).

3. Insert clamp bolt (BH6X10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in)		Toolholder Part Number G56	Std. Item	Blade Part Number G131	Std. Item	Dimensions (See diagram on  G110)							Spare Parts						
					DAXN (min.)	DAXX (max.)					R	L	R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
																								
Inch	0°	0.157" (4mm)	□0.75	0.512" (13mm)	0.984	1.378	KGD% 12-C	●	●	KGDF% -25-4A-C	●	●	0.750	0.750	1.420	0.750	0.510	4.650	0.927	BH6X10TR	SB-60120TR	LTW-25		
					1.378	1.969				-35-4B-C	●	●	0.750	0.750	1.500	0.750	0.510	4.720	0.927					
					1.969	2.756				-50-4B-C	●	●												
				0.591" (15mm)	2.756	3.937				-70-4B-C	●	●												
					3.937	5.906				-100-4B-C	●	●												
					5.906	8.661				-150-4B-C	●	●												
					8.661	∞				-220-4B-C	●	●												
				0.984" (25mm)	1.378	1.969				KGDF% -35-4C-C	●	●	0.750	0.750	1.890	0.750	0.510	5.120	0.927					
					1.969	2.756				-50-4C-C	●	●												
					2.756	3.937				-70-4C-C	●	●												
					3.937	5.906				-100-4C-C	●	●												
					5.906	8.661				-150-4C-C	●	●												
					8.661	∞				-220-4C-C	●	●												
			□1.00	0.512" (13mm)	0.984	1.378	KGD% 16-C	●	●	KGDF% -25-4A-C	●	●	1.000	1.000	1.420	1.000	0.260	5.630	1.177					
					1.378	1.969				-35-4B-C	●	●	1.000	1.000	1.500	1.000	0.260	5.710	1.177					
					1.969	2.756				-50-4B-C	●	●												
				0.591" (15mm)	2.756	3.937				-70-4B-C	●	●												
					3.937	5.906				-100-4B-C	●	●												
					5.906	8.661				-150-4B-C	●	●												
					8.661	∞				-220-4B-C	●	●												
				0.984" (25mm)	1.378	1.969				KGDF% -35-4C-C	●	●	1.000	1.000	1.890	1.000	0.260	6.100	1.177					
					1.969	2.756				-50-4C-C	●	●												
					2.756	3.937				-70-4C-C	●	●												
					3.937	5.906				-100-4C-C	●	●												
					5.906	8.661				-150-4C-C	●	●												
					8.661	∞				-220-4C-C	●	●												
			□1.25	0.512" (13mm)	0.984	1.378	KGD% 20-C	●	●	KGDF% -25-4A-C	●	●	1.250	1.250	1.417	1.250	-	6.417	1.427					
					1.378	1.969				-35-4B-C	●	●	1.250	1.250	1.496	1.250	-	6.496	1.427					
					1.969	2.756				-50-4B-C	●	●												
				0.591" (15mm)	2.756	3.937				-70-4B-C	●	●												
					3.937	5.906				-100-4B-C	●	●												
					5.906	8.661				-150-4B-C	●	●												
					8.661	∞				-220-4B-C	●	●												
				0.984" (25mm)	1.378	1.969				KGDF% -35-4C-C	●	●	1.250	1.250	1.890	1.250	-	6.890	1.427					
					1.969	2.756				-50-4C-C	●	●												
					2.756	3.937				-70-4C-C	●	●												
					3.937	5.906				-100-4C-C	●	●												
					5.906	8.661				-150-4C-C	●	●												
					8.661	∞				-220-4C-C	●	●												

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).

3. Insert clamp bolt (BH6X10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in)		Toolholder Part Number G56	Std. Item	Blade Part Number G131	Std. Item	Dimensions (See diagram on  G110)							Spare Parts						
					DAXN (min.)	DAXX (max.)					R	L	R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
																								
Inch	0°	0.197" (5mm)	□0.75	0.591" (15mm)	0.984	1.378	KGD % 12-C	● ●	KGDF % -25-SB-C	● ●	0.750	0.750	1.500	0.750	0.510	4.720	0.927	BH6X10TR	SB-60120TR	LTW-25				
					1.378	1.969			-35-SB-C	● ●														
					1.969	2.953			-50-SB-C	● ●														
					2.953	4.528			-75-SB-C	● ●														
					4.528	7.087			-115-SB-C	● ●														
					7.087	9.252			-180-SB-C	● ●														
				0.787" (20mm)	0.984	1.378			KGDF % -25-5C-C	● ●	0.750	0.750	1.690	0.750	0.510	4.920	0.927							
				1.378	1.969	-35-5C-C			● ●															
				1.969	2.953	-50-5C-C			● ●															
				2.953	4.528	-75-5C-C			● ●															
				4.528	7.087	-115-5C-C			● ●															
				7.087	9.252	-180-5C-C			● ●															
				0.984" (25mm)	2.953	4.528			KGDF % -75-5D-C	● ●	0.750	0.750	2.165	0.750	0.510	5.394	0.927							
				4.528	7.087	-115-5D-C			● ●															
				7.087	9.252	-180-5D-C			● ●															
				9.252	∞	-235-5D-C			● ●															
				2.953	4.528	-75-5D-C			● ●															
				4.528	7.087	-115-5D-C			● ●															
				1.260" (32mm)	7.087	9.252			-180-5D-C	● ●														
			9.252	∞	-235-5D-C	● ●																		
			□1.00	0.591" (15mm)	0.984	1.378	KGD % 16-C	● ●	KGDF % -25-SB-C	● ●	1.000	1.000	1.500	1.000	0.260	5.700	1.177							
					1.378	1.969			-35-SB-C	● ●														
					1.969	2.953			-50-SB-C	● ●														
					2.953	4.528			-75-SB-C	● ●														
					4.528	7.087			-115-SB-C	● ●														
					7.087	9.252			-180-SB-C	● ●														
				0.787" (20mm)	0.984	1.378			KGDF % -25-5C-C	● ●	1.000	1.000	1.690	1.000	0.260	5.900	1.177							
				1.378	1.969	-35-5C-C			● ●															
				1.969	2.953	-50-5C-C			● ●															
				2.953	4.528	-75-5C-C			● ●															
				4.528	7.087	-115-5C-C			● ●															
				7.087	9.252	-180-5C-C			● ●															
				0.984" (25mm)	2.953	4.528			KGDF % -75-5D-C	● ●	1.000	1.000	2.165	1.000	0.260	6.100	1.177							
				4.528	7.087	-115-5D-C			● ●															
				7.087	9.252	-180-5D-C			● ●															
				9.252	∞	-235-5D-C			● ●															
				2.953	4.528	-75-5D-C			● ●															
				4.528	7.087	-115-5D-C			● ●															
				1.260" (32mm)	7.087	9.252			-180-5D-C	● ●														
			9.252	∞	-235-5D-C	● ●																		
			□1.25	0.591" (15mm)	0.984	1.378	KGD % 20-C	● ●	KGDF % -25-SB-C	● ●	1.250	1.250	1.496	1.250	-	6.496	1.427							
					1.378	1.969			-35-SB-C	● ●														
					1.969	2.953			-50-SB-C	● ●														
					2.953	4.528			-75-SB-C	● ●														
					4.528	7.087			-115-SB-C	● ●														
					7.087	9.252			-180-SB-C	● ●														
				0.787" (20mm)	0.984	1.378			KGDF % -25-5C-C	● ●	1.250	1.250	1.693	1.250	-	6.693	1.427							
				1.378	1.969	-35-5C-C			● ●															
				1.969	2.953	-50-5C-C			● ●															
2.953	4.528	-75-5C-C		● ●																				
4.528	7.087	-115-5C-C		● ●																				
7.087	9.252	-180-5C-C		● ●																				
0.984" (25mm)	2.953	4.528		KGDF % -75-5D-C	● ●	1.250			1.250	2.165	1.250	-	7.165	1.427										
4.528	7.087	-115-5D-C		● ●																				
7.087	9.252	-180-5D-C		● ●																				
9.252	∞	-235-5D-C		● ●																				
2.953	4.528	-75-5D-C		● ●																				
4.528	7.087	-115-5D-C		● ●																				
1.260" (32mm)	7.087	9.252		-180-5D-C	● ●																			
9.252	∞	-235-5D-C	● ●																					

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

2. Dimension CDX*: Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).

3. Insert clamp bolt (BH6X10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

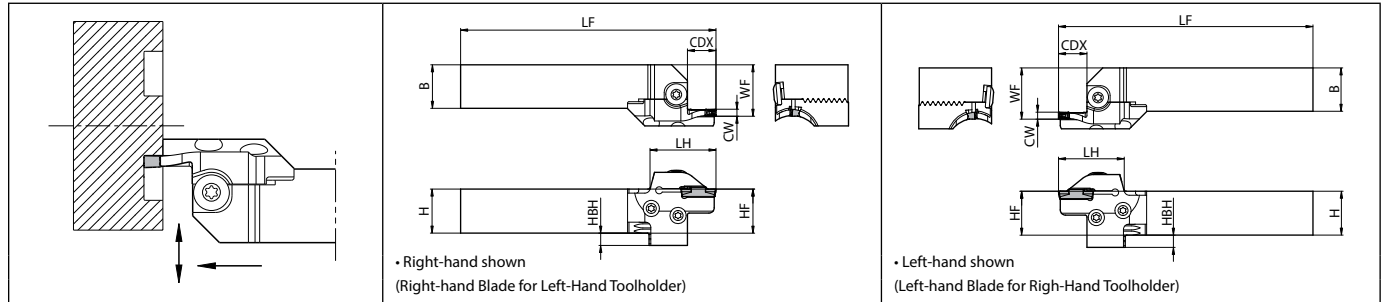
Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in)		Toolholder Part Number G56	Std. Item	Blade Part Number G131	Std. Item	Dimensions (See diagram on G110)								Spare Parts								
					DAXX (min.)	DAXX (max.)					R	L	R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench			
Inch	0°	0.236" (6mm)	□0.75	0.591" (15mm)	0.984	1.378	KGD % 12-C	●	●	KGDF % -25-6B-C	●	●	0.750	0.750	1.500	0.750	0.510	4.720	0.927								
					1.378	1.969					-35-6B-C	●											●				
					1.969	2.953					-50-6B-C	●											●				
					2.953	4.528					-75-6B-C	●											●				
					4.528	7.087					-115-6B-C	●											●				
					7.087	9.252					-180-6B-C	●											●				
				9.252	∞	-235-6B-C				●	●																
				0.787" (20mm)	0.984	1.378				KGDF % -25-6C-C	●	●	0.750	0.750	1.690	0.750	0.510	4.920	0.927								
				0.984" (25mm)	1.378	1.969				-35-6C-C	●	●	0.750	0.750	1.890	0.750	0.510	5.120	0.927								
					1.969	2.953				-50-6C-C	●	●															
					2.953	4.528				-75-6C-C	●	●															
					4.528	7.087				-115-6C-C	●	●															
					7.087	9.252				-180-6C-C	●	●															
					9.252	∞				-235-6C-C	●	●															
				2.953	4.528	KGDF % -75-6D-C				●	●	0.750	0.750	2.165	0.750	0.510	5.394	0.927									
				4.528	7.087	-115-6D-C				●	●																
				7.087	9.252	-180-6D-C				●	●																
				9.252	∞	-235-6D-C				●	●																
				□1.00	0.591" (15mm)	0.984				1.378	KGD % 16-C	●	●	KGDF % -25-6B-C	●	●	1.000	1.000	1.500				1.000	0.260	5.700	1.177	
						1.378				1.969					-35-6B-C	●											●
						1.969				2.953					-50-6B-C	●											●
			2.953			4.528	-75-6B-C	●	●																		
			4.528			7.087	-115-6B-C	●	●																		
			7.087			9.252	-180-6B-C	●	●																		
			9.252		∞	-235-6B-C	●	●																			
			0.787" (20mm)		0.984	1.378	KGDF % -25-6C-C	●	●	1.000				1.000	1.690	1.000	0.260	5.900	1.177								
			0.984" (25mm)		1.378	1.969	-35-6C-C	●	●	1.000				1.000	1.890	1.000	0.260	6.100	1.177								
					1.969	2.953	-50-6C-C	●	●																		
					2.953	4.528	-75-6C-C	●	●																		
					4.528	7.087	-115-6C-C	●	●																		
					7.087	9.252	-180-6C-C	●	●																		
					9.252	∞	-235-6C-C	●	●																		
			2.953		4.528	KGDF % -75-6D-C	●	●	1.000	1.000				2.165	1.000	0.260	6.378	1.177									
			4.528		7.087	-115-6D-C	●	●																			
			7.087		9.252	-180-6D-C	●	●																			
			9.252		∞	-235-6D-C	●	●																			
			□1.25		0.591" (15mm)	0.984	1.378	KGD % 20-C	●	●				KGDF % -25-6B-C	●	●	1.250	1.250	1.496				1.250	-	6.496	1.427	
						1.378	1.969								-35-6B-C	●											●
						1.969	2.953								-50-6B-C	●											●
				2.953		4.528	-75-6B-C				●	●															
				4.528		7.087	-115-6B-C				●	●															
				7.087		9.252	-180-6B-C				●	●															
				9.252	∞	-235-6B-C	●				●																
				0.787" (20mm)	0.984	1.378	KGDF % -25-6C-C				●	●	1.250	1.250	1.693	1.250	-	6.693	1.427								
				0.984" (25mm)	1.378	1.969	-35-6C-C				●	●	1.250	1.250	1.890	1.250	-	6.890	1.427								
					1.969	2.953	-50-6C-C				●	●															
					2.953	4.528	-75-6C-C				●	●															
					4.528	7.087	-115-6C-C				●	●															
					7.087	9.252	-180-6C-C				●	●															
					9.252	∞	-235-6C-C				●	●															
				2.953	4.528	KGDF % -75-6D-C	●				●	1.250	1.250	2.165	1.250	-	7.165	1.427									
				4.528	7.087	-115-6D-C	●				●																
				7.087	9.252	-180-6D-C	●				●																
9.252	∞	-235-6D-C		●	●																						

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of cut CDX	External dia. of the groove (mm)		Toolholder Part Number ➡ G56	Std. Item	Blade Part Number ➡ G131	Std. Item	Dimensions							Spare Parts				
					DAXN (min.)	DAXX (max.)					R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
mm	0°	0.079" (2mm)	□20	0.236" (6mm)	25	30	KGDL2020-C	●	KGDFR -25-2A-C	●	20	20	33	20	12	115	24.5	BH6X10TR	SB-60120TR	LTW-25		
					30	35			-30-2A-C	●												
					35	45			-35-2A-C	●												
					45	60			-45-2A-C	●												
					60	80			-60-2A-C	●												
					80	100			-80-2A-C	●												
					100	130			-100-2A-C	●												
				0.512" (13mm)	25	30			KGDFR -25-2B-C	●	20	20	36	20	12	118	24.5					
					30	35			-30-2B-C	●												
					35	45			-35-2B-C	●												
					45	60			-45-2B-C	●												
					60	80			-60-2B-C	●												
					80	100			-80-2B-C	●												
			□25	0.236" (6mm)	25	30	KGDL2525-C	●	KGDFR -25-2A-C	●	25	25	33	25	7	140	29.5					
					30	35			-30-2A-C	●												
					35	45			-35-2A-C	●												
					45	60			-45-2A-C	●												
					60	80			-60-2A-C	●												
					80	100			-80-2A-C	●												
				0.512" (13mm)	25	30			KGDFR -25-2B-C	●	25	25	36	25	7	143	29.5					
					30	35			-30-2B-C	●												
					35	45			-35-2B-C	●												
					45	60			-45-2B-C	●												
					60	80			-60-2B-C	●												
					80	100			-80-2B-C	●												
			□32	0.236" (6mm)	25	30	KGDL3232-C	●	KGDFR -25-2A-C	●	32	32	33	32	-	160	36.5					
					30	35			-30-2A-C	●												
					35	45			-35-2A-C	●												
					45	60			-45-2A-C	●												
					60	80			-60-2A-C	●												
					80	100			-80-2A-C	●												
				0.512" (13mm)	25	30			KGDFR -25-2B-C	●	32	32	36	32	-	163	36.5					
					30	35			-30-2B-C	●												
					35	45			-35-2B-C	●												
					45	60			-45-2B-C	●												
					60	80			-60-2B-C	●												
					80	100			-80-2B-C	●												

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

2. Dimension CDX*: Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).

3. Insert clamp bolt (BH6X10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts ● G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm)		Toolholder Part Number G56	Std. Item	Blade Part Number G131	Std. Item	Dimensions (See diagram on  G115)								Spare Parts					
					DAXN (min.)	DAXX (max.)					R	L	R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
																								
mm	0°	0.118" (3mm)	□20	0.512" (13mm)	25	30	KGD% 2020-C	●	●	KGDF% -25-3A-C	●	●	20	20	36	20	12	118	24.5	BH6X10TR	SB-60120TR	LTW-25		
					30	40					●	●												
					40	50					●	●												
				0.591" (15mm)	50	65				-30-3A-C	●	●												
					65	85				-40-3A-C	●	●												
					85	110				-50-3B-C	●	●												
					110	145				-65-3B-C	●	●												
					110	145				-85-3B-C	●	●												
				0.866" (22mm)	50	65				-110-3B-C	●	●												
					65	85				KGDF% -50-3C-C	●	●												
					85	110				-65-3C-C	●	●												
					110	145				-85-3C-C	●	●												
					110	145				-110-3C-C	●	●												
				□25	0.512" (13mm)	25				30	KGD% 2525-C	●											●	KGDF% -25-3A-C
			30			40	●	●																
			40			50	●	●																
			0.591" (15mm)		50	65	-30-3A-C	●	●															
					65	85	-40-3A-C	●	●															
					85	110	-50-3B-C	●	●															
					110	145	-65-3B-C	●	●															
					110	145	-85-3B-C	●	●															
			0.866" (22mm)		50	65	-110-3B-C	●	●															
					65	85	KGDF% -50-3C-C	●	●															
					85	110	-65-3C-C	●	●															
					110	145	-85-3C-C	●	●															
				110	145	-110-3C-C	●	●																
			□32	0.512" (13mm)	25	30	KGD% 3232-C	●	●	KGDF% -25-3A-C	●	●	32	32	36	32	-	163	36.5					
					30	40					●	●												
					40	50					●	●												
					50	65					-30-3A-C	●											●	
					65	85					-40-3A-C	●											●	
					85	110					-50-3B-C	●											●	
				0.591" (15mm)	110	145				-65-3B-C	●	●												
					110	145				-85-3B-C	●	●												
					110	145				-110-3B-C	●	●												
					50	65				KGDF% -50-3C-C	●	●												
65	85	-65-3C-C			●	●																		
85	110	-85-3C-C			●	●																		
0.866" (22mm)	110	145		-110-3C-C	●	●																		
	50	65		KGDF% -50-3C-C	●	●																		
	65	85		-65-3C-C	●	●																		
	85	110		-85-3C-C	●	●																		
	110	145		-110-3C-C	●	●																		
	110	145		-110-3C-C	●	●																		

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).

3. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm)		Toolholder Part Number ➡ G56	Std. Item	Blade Part Number ➡ G131	Std. Item	Dimensions (See diagram on ➡ G115)								Spare Parts				
					DAXN (min.)	DAXX (max.)					R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench	
mm	0°	0.157" (4mm)	□20	0.512" (13mm)	25	35	KGD% 2020-C	● ●	KGDF% -25-4A-C	● ●	20	20	36	20	12	118	24.5	BH6X10TR	SB-60120TR	LTW-25			
					35	50			-35-4B-C	● ●	20	20	38	20	12	120	24.5						
					50	70			-50-4B-C	● ●													
				0.591" (15mm)	70	100			-70-4B-C	● ●													
					100	150			-100-4B-C	● ●													
					150	220			-150-4B-C	● ●													
					220	∞			-220-4B-C	● ●													
				0.984" (25mm)	35	50			KGDF% -35-4C-C	● ●	20	20	48	20	12	130	24.5						
					50	70			-50-4C-C	● ●													
					70	100			-70-4C-C	● ●													
					100	150			-100-4C-C	● ●													
					150	220			-150-4C-C	● ●													
					220	∞			-220-4C-C	● ●													
			□25	0.512" (13mm)	25	35	KGD% 2525-C	● ●	KGDF% -25-4A-C	● ●	25	25	36	25	7	143	29.5						
					35	50			-35-4B-C	● ●	25	25	38	25	7	145	29.5						
					50	70			-50-4B-C	● ●													
				0.591" (15mm)	70	100			-70-4B-C	● ●													
					100	150			-100-4B-C	● ●													
					150	220			-150-4B-C	● ●													
					220	∞			-220-4B-C	● ●													
				0.984" (25mm)	35	50			KGDF% -35-4C-C	● ●	25	25	48	25	7	155	29.5						
					50	70			-50-4C-C	● ●													
					70	100			-70-4C-C	● ●													
					100	150			-100-4C-C	● ●													
					150	220			-150-4C-C	● ●													
					220	∞			-220-4C-C	● ●													
			□32	0.512" (13mm)	25	35	KGD% 3232-C	● ●	KGDF% -25-4A-C	● ●	32	32	36	32	-	163	36.5						
					35	50			-35-4B-C	● ●	32	32	38	32	-	165	36.5						
					50	70			-50-4B-C	● ●													
				0.591" (15mm)	70	100			-70-4B-C	● ●													
					100	150			-100-4B-C	● ●													
					150	220			-150-4B-C	● ●													
					220	∞			-220-4B-C	● ●													
				0.984" (25mm)	35	50			KGDF% -35-4C-C	● ●	32	32	48	32	-	175	36.5						
					50	70			-50-4C-C	● ●													
					70	100			-70-4C-C	● ●													
					100	150			-100-4C-C	● ●													
					150	220			-150-4C-C	● ●													
					220	∞			-220-4C-C	● ●													

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

2. Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).

3. Insert clamp bolt (BH6X10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

G		GROOVING
EXTERNAL		
INTERNAL		
		FACE

- Applicable Inserts ➡
- G107**

G118

KGDF (Face Grooving / 0° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of cut CDX	External dia. of the groove (mm)		Toolholder Part Number ➡ G56	Std. Item	Blade Part Number ➡ G131	Std. Item	Dimensions (See diagram on ➡ G115)								Spare Parts											
					DAXN (min.)	DAXX (max.)					H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench										
																					R	L	R	L						
mm	0°	0.236" (6mm)	□20	0.591" (15mm)	25	35	KGD% 2020-C	● ●	KGDF% -25-6B-C	● ●	20	20	38	20	12	120	24.5	BH6X10TR	SB-60120TR	LTW-25										
					35	50			-35-6B-C	● ●																				
					50	75			-50-6B-C	● ●																				
					75	115			-75-6B-C	● ●																				
					115	180			-115-6B-C	● ●																				
					180	235			-180-6B-C	● ●																				
					235	∞			-235-6B-C	● ●																				
				0.787" (20mm)	25	35			KGDF% -25-6C-C	● ●	20	20	43	20	12	125	24.5													
					35	50			-35-6C-C	● ●																				
					50	75			-50-6C-C	● ●																				
					75	115			-75-6C-C	● ●																				
					115	180			-115-6C-C	● ●																				
					180	235			-180-6C-C	● ●																				
			235		∞	-235-6C-C			● ●																					
			0.984" (25mm)	75	115	KGDF% -75-6D-C			● ●	20	20	55	20	12	137	24.5														
				115	180	-115-6D-C			● ●																					
				180	235	-180-6D-C			● ●																					
				235	∞	-235-6D-C			● ●																					
				□25	0.591" (15mm)	25			35								KGD% 2525-C				● ●	KGDF% -25-6B-C	● ●	25	25	38	25	7	145	29.5
						35			50													-35-6B-C	● ●							
						50			75													-50-6B-C	● ●							
			75			115	-75-6B-C	● ●																						
			115			180	-115-6B-C	● ●																						
			180			235	-180-6B-C	● ●																						
			235			∞	-235-6B-C	● ●																						
			0.787" (20mm)		25	35	KGDF% -25-6C-C	● ●	25	25	43	25	7	150	29.5															
					35	50	-35-6C-C	● ●																						
					50	75	-50-6C-C	● ●																						
					75	115	-75-6C-C	● ●																						
					115	180	-115-6C-C	● ●																						
					180	235	-180-6C-C	● ●																						
				235	∞	-235-6C-C	● ●																							
			0.984" (25mm)	75	115	KGDF% -75-6D-C	● ●	25	25	55	25	7	162	29.5																
				115	180	-115-6D-C	● ●																							
				180	235	-180-6D-C	● ●																							
				235	∞	-235-6D-C	● ●																							
				□32	0.591" (15mm)	25	35								KGD% 3232-C	● ●						KGDF% -25-6B-C	● ●	32	32	38	32	-	165	36.5
						35	50															-35-6B-C	● ●							
						50	75															-50-6B-C	● ●							
			75			115	-75-6B-C	● ●																						
			115			180	-115-6B-C	● ●																						
			180			235	-180-6B-C	● ●																						
			235			∞	-235-6B-C	● ●																						
			0.787" (20mm)		25	35	KGDF% -25-6C-C	● ●	32	32	43	32	-	170			36.5													
					35	50	-35-6C-C	● ●																						
					50	75	-50-6C-C	● ●																						
					75	115	-75-6C-C	● ●																						
115	180	-115-6C-C			● ●																									
180	235	-180-6C-C			● ●																									
235	∞	-235-6C-C		● ●																										
0.984" (25mm)	75	115	KGDF% -75-6D-C	● ●	32	32	48	32	-	175	36.5																			
	115	180	-115-6D-C	● ●																										
	180	235	-180-6D-C	● ●																										
	235	∞	-235-6D-C	● ●																										
	1.260" (32mm)	75	115	KGDF% -75-6D-C								● ●	32	32			55	32	-	182	36.5									
		115	180	-115-6D-C								● ●																		
		180	235	-180-6D-C								● ●																		
235		∞	-235-6D-C	● ●																										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

2. Dimension CDX*: Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).

3. Insert clamp bolt (BH6X10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

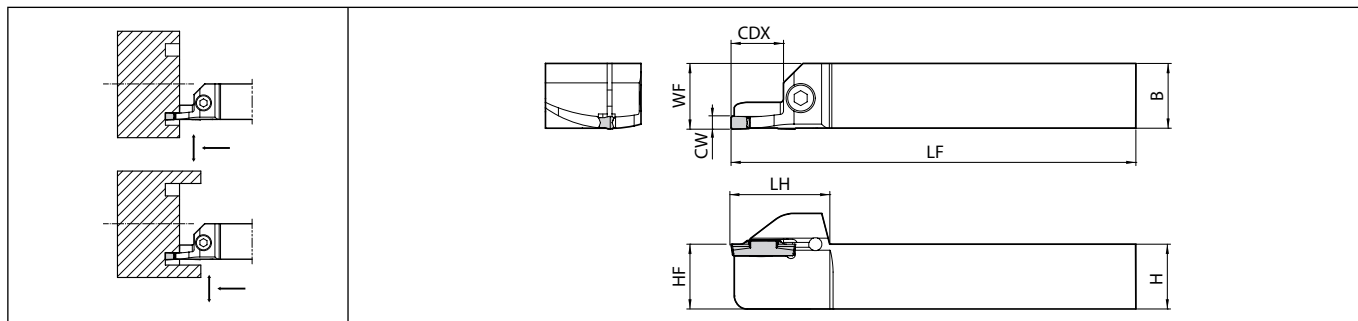
Applicable Inserts G107

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGDF-Z (Face Grooving)

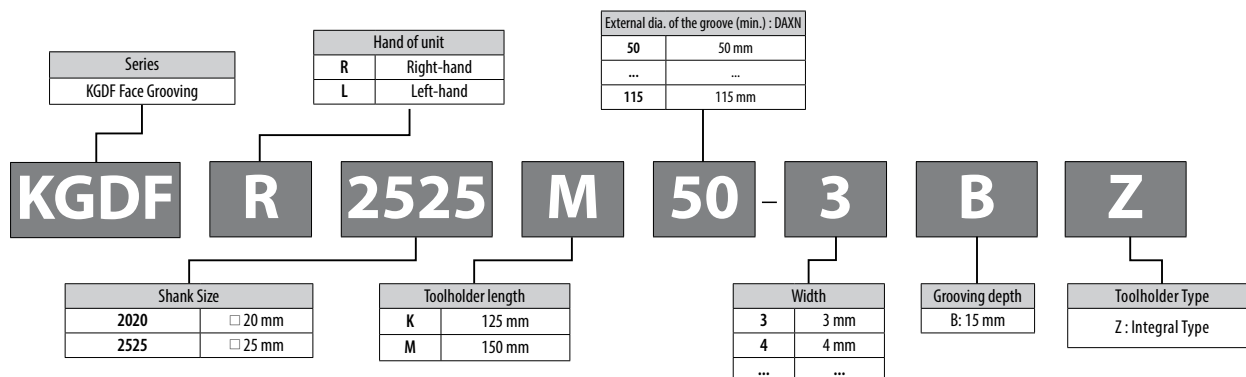


Right-hand shown

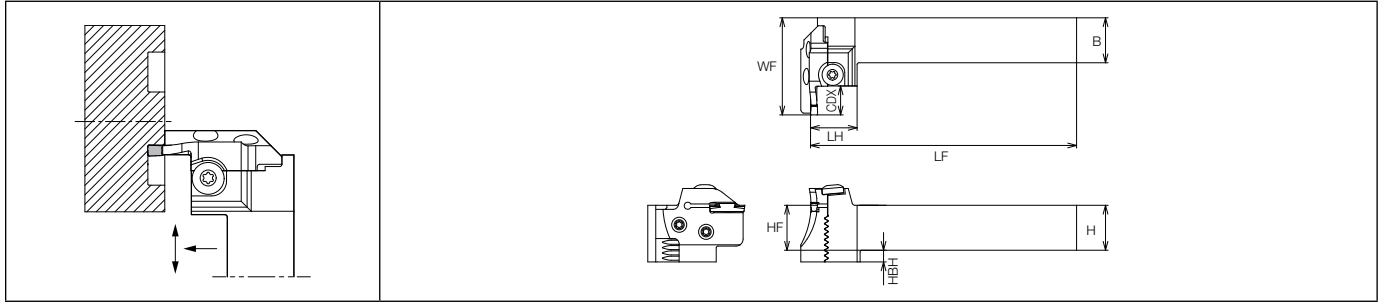
Toolholder Dimensions

Unit	Part Number	Std. Item		External dia.of the groove (mm)	Dimensions								Spare Parts		Applicable Inserts 🔩 G107		
													Clamp Screw	Wrench			
		R	L	DAXN (min.)	DAXX (max.)	CW	CDX	H	B	LH	HF	LF	WF				
mm	KGDF%	2020K50-3B-Z	●	●	50	65	3	15	20	20	30.5	20	125	20.3	HH5X16	LW-4	GDFM 3020... GDFMS 3020... GDFG 3020...
		2020K65-3B-Z	●	●	65	85											
		2020K85-3B-Z	●	●	85	110											
		2020K110-3B-Z	●	●	110	145											
		2525M50-3B-Z	●	●	50	65			25	25	30.5	25	150	25.3			
		2525M65-3B-Z	●	●	65	85											
		2525M85-3B-Z	●	●	85	110											
		2525M110-3B-Z	●	●	110	145											
	KGDF%	2020K50-4B-Z	●	●	50	70	4	15	20	20	30.5	20	125	20.3	HH5X16	LW-4	GDFM 4020... GDFMS 4020... GDFG 4020...
		2020K70-4B-Z	●	●	70	100											
		2020K100-4B-Z	●	●	100	150											
		2525M50-4B-Z	●	●	50	70			25	25	30.5	25	150	25.3			
		2525M70-4B-Z	●	●	70	100											
		2525M100-4B-Z	●	●	100	150											
	KGDF%	2020K50-5B-Z	●	●	50	75	5	15	20	20	30.5	20	125	20.3	HH5X16	LW-4	GDFM 5020... GDFMS 5020... GDFG 5020...
		2020K75-5B-Z	●	●	75	115											
		2020K115-5B-Z	●	●	115	180											
		2525M50-5B-Z	●	●	50	75			25	25	30.5	25	150	25.3			
		2525M75-5B-Z	●	●	75	115											
		2525M115-5B-Z	●	●	115	180											

KGDF-Z toolholder identification system



KGDF (Face Grooving / 90° SwitchBlade Type)

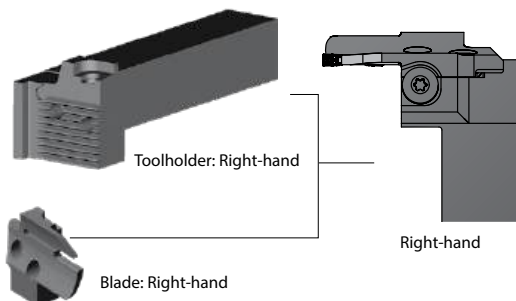
Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in)		Toolholder Part Number G56	Std. Item	Blade Part Number G131	Std. Item	Dimensions								Spare Parts			
					DAXN (min.)	DAXX (max.)					R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
																						
Inch	90°	0.079" (2mm)	□0.75	0.236" (6mm)	0.984	1.181	KGDSR12-C	●	KGDFR -25-2A-C	●	0.750	0.750	0.988	0.750	0.510	4.921	1.957	BH6X10TR	SB-60120TR	LTW-25		
					1.181	1.378			-30-2A-C	●												
					1.378	1.772			-35-2A-C	●												
					1.772	2.362			-45-2A-C	●												
					2.362	3.150			-60-2A-C	●												
					3.150	3.937			-80-2A-C	●												
					3.937	5.118			-100-2A-C	●												
				0.512" (13mm)	0.984	1.181			KGDFR -25-2B-C	●	0.750	0.750	0.988	0.750	0.510	4.921	2.075					
					1.181	1.378			KGDFR -30-2B-C	●												
					1.378	1.772			-35-2B-C	●												
					1.772	2.362			-45-2B-C	●												
					2.362	3.150			-60-2B-C	●												
					3.150	3.937			-80-2B-C	●												
					3.937	5.118			-100-2B-C	●												
			□1.00	0.236" (6mm)	0.984	1.181	KGDSR16-C	●	KGDFR -25-2A-C	●	1.000	1.000	0.988	1.000	0.260	5.910	1.957					
					1.181	1.378			-30-2A-C	●												
					1.378	1.772			-35-2A-C	●												
					1.772	2.362			-45-2A-C	●												
					2.362	3.150			-60-2A-C	●												
					3.150	3.937			-80-2A-C	●												
					3.937	5.118			-100-2A-C	●												
				0.512" (13mm)	0.984	1.181			KGDFR -25-2B-C	●	1.000	1.000	0.988	1.000	0.260	5.910	2.075					
					1.181	1.378			KGDFR -30-2B-C	●												
					1.378	1.772			-35-2B-C	●												
					1.772	2.362			-45-2B-C	●												
					2.362	3.150			-60-2B-C	●												
					3.150	3.937			-80-2B-C	●												
					3.937	5.118			-100-2B-C	●												

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

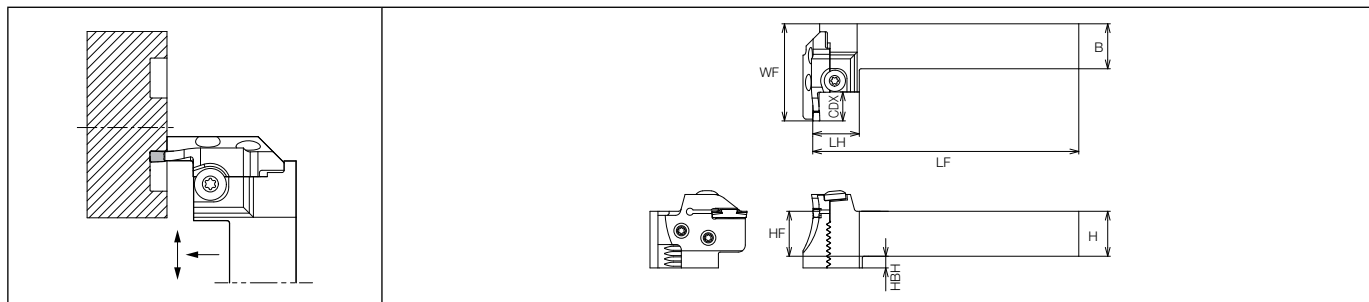
2. Insert clamp bolt (BH6X10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts ● G107



- KGDF 90° SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
- Right-hand** Blade for **Right-hand** Toolholder, **Left-hand** Blade for **Left-hand** Toolholder.
- Insert clamp screw (BH6X10TR), Blade fixing screw (SB-60120TR) and Wrench (LTW-25) come with toolholder.

KGDF (Face Grooving / 90° SwitchBlade Type)

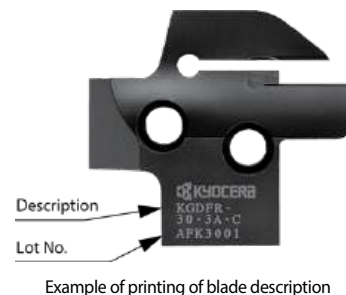
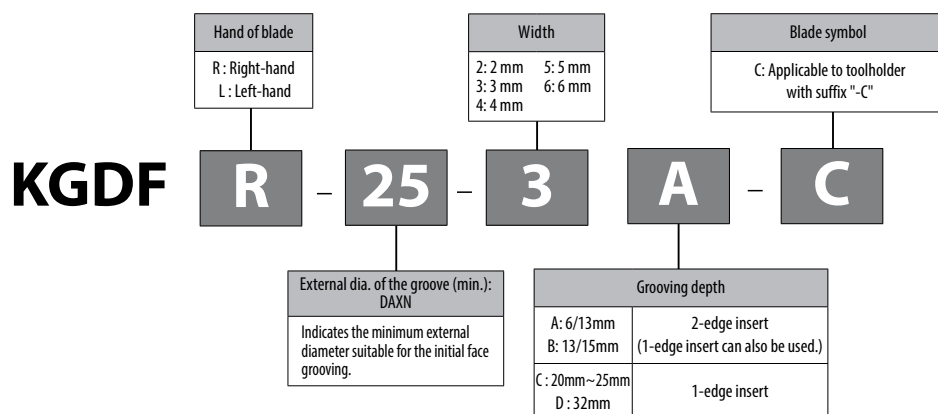
Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in)		Toolholder Part Number ➡ G56	Std. Item		Blade Part Number ➡ G131	Std. Item		Dimensions								Spare Parts		
					DAXN (min.)	DAXX (max.)		R	L		R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench	
																							
Inch	90°	0.118" (3mm)	□0.75	0.512" (13mm)	0.984	1.181	KGDS %L 12-C	●	●	KGDF %L -25-3A-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.075	BH6X10TR	SB-60120TR	LTW-25	
					1.181	1.575				-30-3A-C	●	●											
					1.575	1.969				-40-3A-C	●	●											
				0.591" (15mm)	1.969	2.559				-50-3B-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.154				
					2.559	3.346				-65-3B-C	●	●											
					3.346	4.331				-85-3B-C	●	●											
					4.331	5.709				-110-3B-C	●	●											
				0.866" (22mm)	1.969	2.559				KGDF %L -50-3C-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.350				
					2.559	3.346				-65-3C-C	●	●											
					3.346	4.331				-85-3C-C	●	●											
					4.331	5.709				-110-3C-C	●	●											
			□1.00	0.512" (13mm)	0.984	1.181	KGDS %L 16-C	●	●	KGDF %L -25-3A-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.075				
					1.181	1.575				-30-3A-C	●	●											
					1.575	1.969				-40-3A-C	●	●											
				0.591" (15mm)	1.969	2.559				-50-3B-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.154				
					2.559	3.346				-65-3B-C	●	●											
					3.346	4.331				-85-3B-C	●	●											
					4.331	5.709				-110-3B-C	●	●											
				0.866" (22mm)	1.969	2.559				KGDF %L -50-3C-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.350				
					2.559	3.346				-65-3C-C	●	●											
					3.346	4.331				-85-3C-C	●	●											
					4.331	5.709				-110-3C-C	●	●											

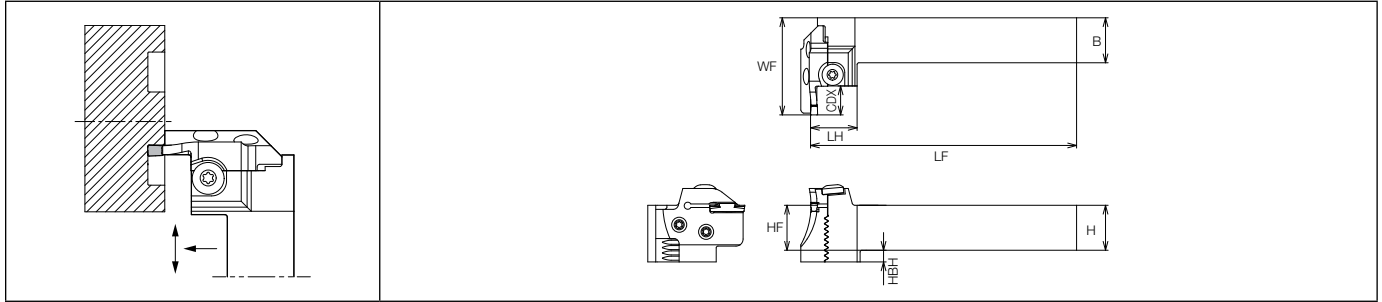
- KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
- Insert clamp bolt (BH6X10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts ● G107

Face Grooving Blade identification system



KGDF (Face Grooving / 90° SwitchBlade Type)



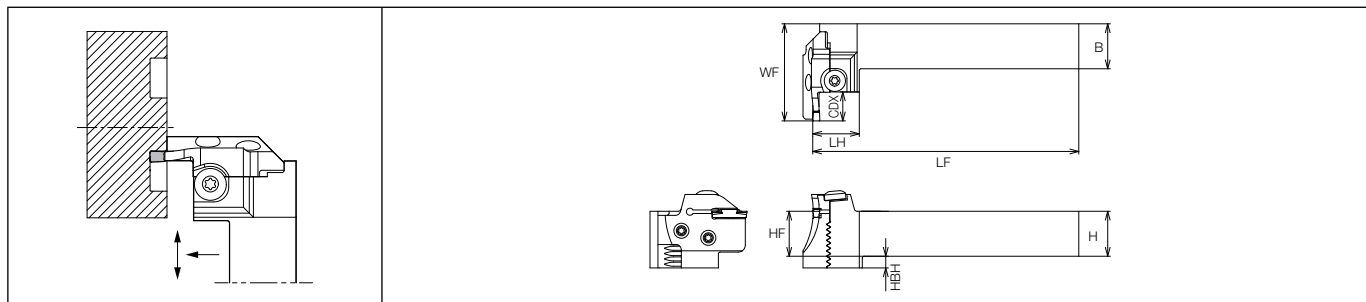
Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of cut CDX	External dia. of the groove (in)		Toolholder Part Number ➡ G56	Std. Item		Blade Part Number ➡ G131	Std. Item		Dimensions								Spare Parts						
					DAXN (min.)	DAXX (max.)		R	L		R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench					
																											
Inch	90°	0.157" (4mm)	□0.75	0.512" (13mm)	0.984	1.378	KGDS% 12-C	● ●	KGDF% -25-4A-C	● ●	0.750	0.750	0.988	0.750	0.510	4.921	2.075	BH6X10TR	SB-60120TR	LTW-25							
					1.378	1.969			KGDF% -35-4B-C	● ●	0.750	0.750	0.988	0.750	0.510	4.921	2.154										
				1.969	2.756	-50-4B-C			● ●																		
				2.756	3.937	-70-4B-C			● ●																		
				3.937	5.906	-100-4B-C			● ●																		
				5.906	8.661	-150-4B-C			● ●																		
				8.661	∞	-220-4B-C			● ●																		
				1.378	1.969	KGDF% -35-4C-C			● ●	0.750											0.750	0.988	0.750	0.510	4.921	2.550	
				1.969	2.756	-50-4C-C			● ●																		
				2.756	3.937	-70-4C-C			● ●																		
				3.937	5.906	-100-4C-C			● ●																		
				5.906	8.661	-150-4C-C			● ●																		
				8.661	∞	-220-4C-C			● ●																		
			□1.00	0.512" (13mm)	0.984	1.378	KGDS% 16-C	● ●	KGDF% -25-4A-C		● ●	1.000	1.000	0.988	1.000	0.260	5.906										2.075
					1.378	1.969			KGDF% -35-4B-C		● ●	1.000	1.000	0.988	1.000	0.260	5.906										2.154
				1.969	2.756	-50-4B-C			● ●																		
				2.756	3.937	-70-4B-C			● ●																		
				3.937	5.906	-100-4B-C			● ●																		
				5.906	8.661	-150-4B-C			● ●																		
				8.661	∞	-220-4B-C			● ●																		
				1.378	1.969	KGDF% -35-4C-C			● ●	1.000	1.000										0.988	1.000	0.260	5.906	2.550		
				1.969	2.756	-50-4C-C			● ●																		
				2.756	3.937	-70-4C-C			● ●																		
				3.937	5.906	-100-4C-C			● ●																		
				5.906	8.661	-150-4C-C			● ●																		
				8.661	∞	-220-4C-C			● ●																		

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
 2. Insert clamp bolt (BH6X10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

KGDF (Face Grooving / 90° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in)		Toolholder Part Number ➡ G56	Std. Item	Blade Part Number ➡ G131	Std. Item	Dimensions								Spare Parts			
					DAXN (min.)	DAXX (max.)					R	L	R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
Inch	90°	0.197" (5mm)	□ 0.75	0.591" (15mm)	0.984	1.378	KGDS % 12-C	●	●	KGDF % -25-SB-C	●	●	0.750	0.750	0.927	0.750	0.510	4.921	2.154	BH6X10TR	SB-60120TR	LTW-25
					1.378	1.969				-35-SB-C	●	●										
					1.969	2.953				-50-SB-C	●	●										
					2.953	4.528				-75-SB-C	●	●										
					4.528	7.087				-115-SB-C	●	●										
					7.087	9.252				-180-SB-C	●	●										
					9.252	∞				-235-SB-C	●	●										
				0.787" (20mm)	0.984	1.378				KGDF % -25-SC-C	●	●	0.750	0.750	0.927	0.750	0.510	4.921	2.35			
				0.984" (25mm)	1.378	1.969				-35-SC-C	●	●	0.750	0.750	0.927	0.750	0.510	4.921	2.547			
					1.969	2.953				-50-SC-C	●	●										
					2.953	4.528				-75-SC-C	●	●										
					4.528	7.087				-115-SC-C	●	●										
					7.087	9.252				-180-SC-C	●	●										
					9.252	∞				-235-SC-C	●	●										
			2.953		4.528	KGDF % -75-SD-C				●	●	0.750										
			4.528	7.087	-115-SD-C	●				●												
			7.087	9.252	-180-SD-C	●				●												
			9.252	∞	-235-SD-C	●				●												
			□ 1.00	0.591" (15mm)	0.984	1.378				KGDF % -25-SB-C	●	●	1.000	1.000	1.177	1.000	0.260	5.906	2.154			
					1.378	1.969				-35-SB-C	●	●										
					1.969	2.953				-50-SB-C	●	●										
					2.953	4.528				-75-SB-C	●	●										
					4.528	7.087				-115-SB-C	●	●										
					7.087	9.252				-180-SB-C	●	●										
					9.252	∞				-235-SB-C	●	●										
				0.787" (20mm)	0.984	1.378				KGDF % -25-SC-C	●	●	1.000	1.000	1.177	1.000	0.260	5.906	2.35			
				0.984" (25mm)	1.378	1.969				-35-SC-C	●	●	1.000	1.000	1.177	1.000	0.260	5.906	2.547			
					1.969	2.953				-50-SC-C	●	●										
					2.953	4.528				-75-SC-C	●	●										
					4.528	7.087				-115-SC-C	●	●										
					7.087	9.252				-180-SC-C	●	●										
					9.252	∞				-235-SC-C	●	●										
			2.953		4.528	KGDF % -75-SD-C				●	●	1.000										
			4.528	7.087	-115-SD-C	●				●												
			7.087	9.252	-180-SD-C	●				●												
			9.252	∞	-235-SD-C	●				●												

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

2. Insert clamp bolt (BH6X10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

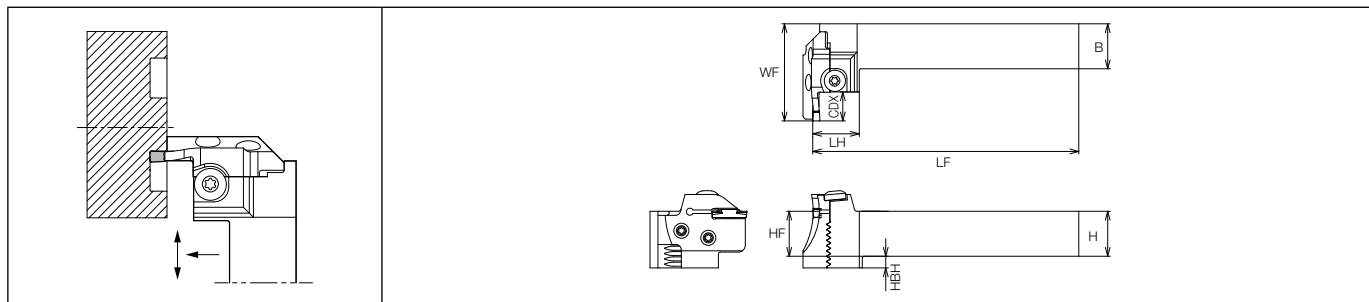
Applicable Inserts ● G107

Unit	Shank Angle	Cutting Width CW	Shank Size (in)	Max. Depth of Cut CDX	External dia. of the groove (in)		Toolholder Part Number ➡ G56	Std. Item		Blade Part Number ➡ G131	Std. Item		Dimensions							Spare Parts														
					DAXN (min.)	DAXX (max.)		R	L		R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench												
																																		
Inch	90°	0.236" (6mm)	□0.75	0.591" (15mm)	0.984	1.378	KGDS % 12-C	●	●	KGDF % -25-6B-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.154	BH6X10TR	SB-60120TR	LTW-25												
					1.378	1.969					-35-6B-C	●											●											
					1.969	2.953					-50-6B-C	●											●											
					2.953	4.528					-75-6B-C	●											●											
					4.528	7.087					-115-6B-C	●											●											
					7.087	9.252					-180-6B-C	●											●											
					9.252	∞					-235-6B-C	●											●											
				0.787" (20mm)	0.984	1.378				KGDF % -25-6C-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.350															
					0.984" (25mm)	1.378				1.969	-35-6C-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921				2.547											
						1.969				2.953	-50-6C-C	●	●																					
				2.953		4.528				-75-6C-C	●	●																						
				4.528		7.087				-115-6C-C	●	●																						
				7.087		9.252				-180-6C-C	●	●																						
				9.252		∞				-235-6C-C	●	●																						
				1.260" (32mm)	2.953	4.528				KGDF % -75-6D-C	●	●	0.750	0.750	0.988	0.750	0.510	4.921	2.823															
					4.528	7.087				-115-6D-C	●	●																						
			7.087		9.252	-180-6D-C				●	●																							
			9.252		∞	-235-6D-C				●	●																							
			□1.00		0.591" (15mm)	0.984				1.378	KGDS % 16-C	●											●	KGDF % -25-6B-C	●	●	1.000	1.000	0.988	1.000	0.260	5.906	2.154	
						1.378				1.969															-35-6B-C	●								●
						1.969				2.953															-50-6B-C	●								●
				2.953		4.528				-75-6B-C			●	●																				
				4.528		7.087				-115-6B-C			●	●																				
				7.087		9.252				-180-6B-C			●	●																				
				9.252		∞				-235-6B-C			●	●																				
				0.787" (20mm)	0.984	1.378				KGDF % -25-6C-C			●	●	1.000	1.000	0.988	1.000	0.260					5.906	2.350									
					0.984" (25mm)	1.378				1.969			-35-6C-C	●	●	1.000	1.000	0.988	1.000					0.260	5.906	2.547								
						1.969				2.953			-50-6C-C	●	●																			
				2.953		4.528				-75-6C-C			●	●																				
				4.528		7.087				-115-6C-C			●	●																				
				7.087		9.252				-180-6C-C			●	●																				
				9.252		∞				-235-6C-C			●	●																				
1.260" (32mm)	2.953	4.528		KGDF % -75-6D-C	●	●	1.000	1.000	0.988	1.000			0.260	5.906	2.823																			
	4.528	7.087		-115-6D-C	●	●																												
	7.087	9.252	-180-6D-C	●	●																													
	9.252	∞	-235-6D-C	●	●																													

- Applicable Inserts ➡
- G107**

A	INSERT GRADES
B	TURNING INSERTS
C	CB/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

KGDF (Face Grooving / 90° SwitchBlade Type)

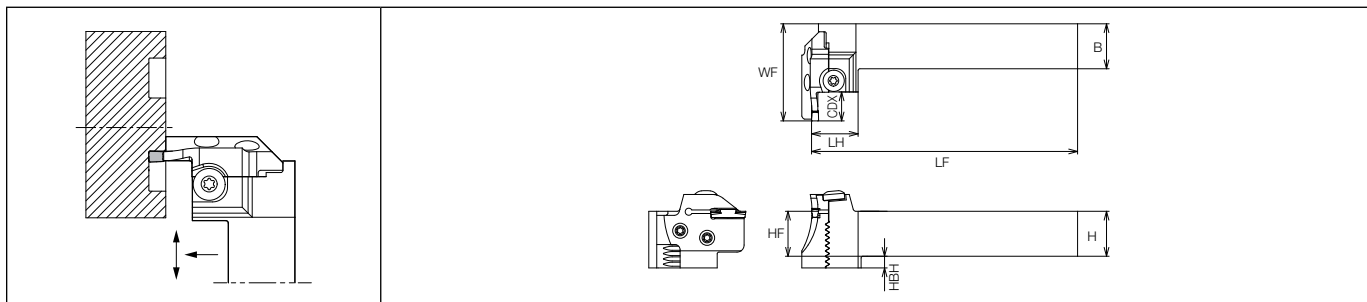
Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm)		Toolholder Part Number ● G56	Std. Item	Blade Part Number ● G131	Std. Item	Dimensions							Spare Parts						
					DAXN (min.)	DAXX (max.)					R	L	R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
																								
mm	90°	0.079" (2mm)	□20	0.236" (6mm)	25	30	KGDSR2020-C	●		KGDFR -25-2A-C	●	20	20	27.7	20	12	125	49.7	BH6X10TR	SB-60120TR	LTW-25			
					30	35				-30-2A-C	●													
					35	45				-35-2A-C	●													
					45	60				-45-2A-C	●													
					60	80				-60-2A-C	●													
					80	100				-80-2A-C	●													
					100	130				-100-2A-C	●													
				0.512" (13mm)	25	30				KGDFR -25-2B-C	●	20	20	27.7	20	12	125	52.7						
					30	35				KGDFR -30-2B-C	●													
					35	45				-35-2B-C	●													
					45	60				-45-2B-C	●													
					60	80				-60-2B-C	●													
					80	100				-80-2B-C	●													
			□25	0.236" (6mm)	25	30	KGDSR2525-C	●		KGDFR -25-2A-C	●	25	25	27.7	25	7	150	49.7						
					30	35				-30-2A-C	●													
					35	45				-35-2A-C	●													
					45	60				-45-2A-C	●													
					60	80				-60-2A-C	●													
					80	100				-80-2A-C	●													
				0.512" (13mm)	25	30				KGDFR -25-2B-C	●	25	25	27.7	25	7	150	52.7						
					30	35				KGDFR -30-2B-C	●													
					35	45				-35-2B-C	●													
					45	60				-45-2B-C	●													
					60	80				-60-2B-C	●													
					80	100				-80-2B-C	●													
0.591" (15mm)	25	30			25	25	27.7	25	7	150	54.7													
	30	35													KGDFR -30-2B-C	●								
	35	45													-35-2B-C	●								
	45	60													-45-2B-C	●								
	60	80													-60-2B-C	●								
	80	100													-80-2B-C	●								
0.591" (15mm)	25	30			25	25	27.7	25	7	150	54.7													
	30	35													KGDFR -30-2B-C	●								
	35	45													-35-2B-C	●								
	45	60													-45-2B-C	●								
	60	80													-60-2B-C	●								
	80	100													-80-2B-C	●								
0.591" (15mm)	25	30			25	25	27.7	25	7	150	54.7													
	30	35													KGDFR -30-2B-C	●								
	35	45													-35-2B-C	●								
	45	60													-45-2B-C	●								
	60	80													-60-2B-C	●								
	80	100													-80-2B-C	●								
0.591" (15mm)	25	30			25	25	27.7	25	7	150	54.7													
	30	35													KGDFR -30-2B-C	●								
	35	45													-35-2B-C	●								
	45	60													-45-2B-C	●								
	60	80													-60-2B-C	●								
	80	100													-80-2B-C	●								
0.591" (15mm)	25	30			25	25	27.7	25	7	150	54.7													
	30	35													KGDFR -30-2B-C	●								
	35	45													-35-2B-C	●								
	45	60													-45-2B-C	●								
	60	80													-60-2B-C	●								
	80	100													-80-2B-C	●								

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
 2. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts ● **G107**

KGDF (Face Grooving / 90° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

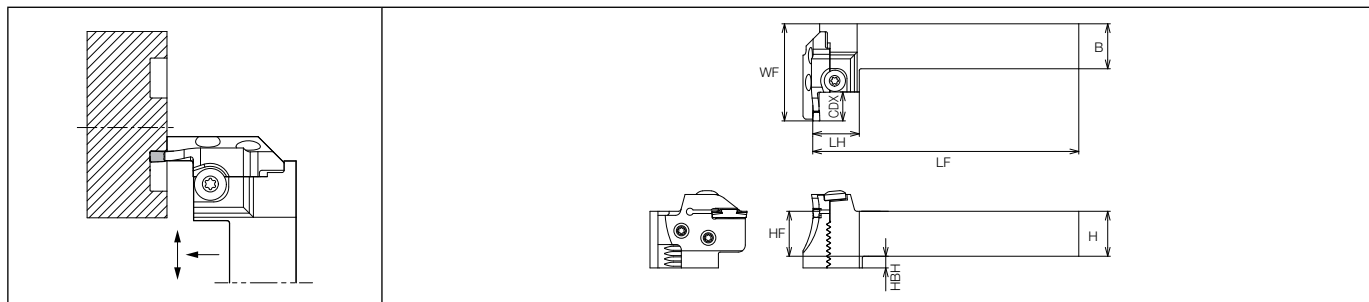
Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm)		Toolholder Part Number ➡ G56	Std. Item		Blade Part Number ➡ G131	Std. Item		Dimensions							Spare Parts		
					DAXN (min.)	DAXX (max.)		R	L		R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench
																						
mm	90°	0.118" (3mm)	□20	0.512" (13mm)	25	30	KGDS% 2020-C	●	●	KGDF% -25-3A-C	●	●	20	20	27.7	20	12	125	52.7	BH6X10TR	SB-60120TR	LTW-25
					30	40				-30-3A-C	●	●										
					40	50				-40-3A-C	●	●										
				0.591" (15mm)	50	65				KGDF% -50-3B-C	●	●	20	20	27.7	20	12	125	54.7			
					65	85				-65-3B-C	●	●										
					85	110				-85-3B-C	●	●										
					110	145				-110-3B-C	●	●										
				0.866" (22mm)	50	65				KGDF% -50-3C-C	●	●	20	20	27.7	20	12	125	59.7			
					65	85				-65-3C-C	●	●										
					85	110				-85-3C-C	●	●										
					110	145				-110-3C-C	●	●										
			□25	0.512" (13mm)	25	30	KGDS% 2525-C	●	●	KGDF% -25-3A-C	●	●	25	25	27.7	25	7	150	52.7			
					30	40				-30-3A-C	●	●										
					40	50				-40-3A-C	●	●										
				0.591" (15mm)	50	65				KGDF% -50-3B-C	●	●	25	25	27.7	25	7	150	54.7			
					65	85				-65-3B-C	●	●										
					85	110				-85-3B-C	●	●										
					110	145				-110-3B-C	●	●										
				0.866" (22mm)	50	65				KGDF% -50-3C-C	●	●	25	25	27.7	25	7	150	59.7			
					65	85				-65-3C-C	●	●										
					85	110				-85-3C-C	●	●										
					110	145				-110-3C-C	●	●										

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

2. Insert clamp bolt (BH6X10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

KGDF (Face Grooving / 90° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

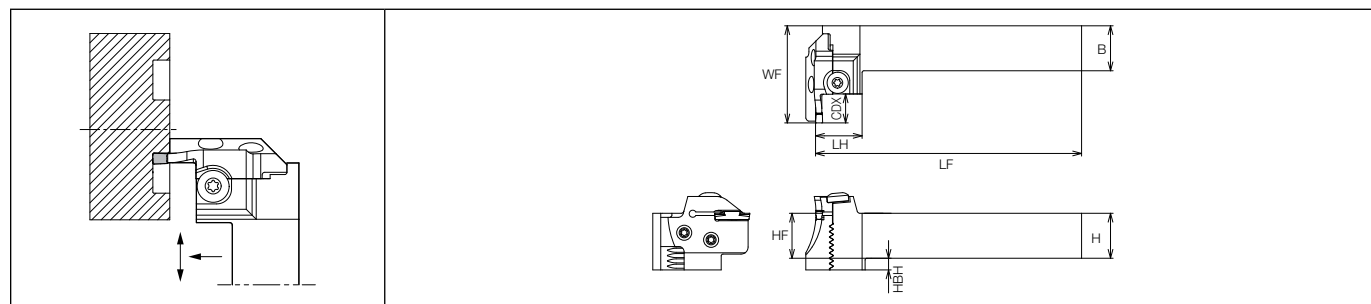
Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm)		Toolholder Part Number ➡ G56	Std. Item		Blade Part Number ➡ G131	Std. Item		Dimensions							Spare Parts			
					DAXN (min.)	DAXX (max.)		R	L		R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench	
																							
mm	90°	0.157" (4mm)	□20	0.512" (13mm)	25	35	KGDS%L 2020-C	●	●	KGDF%L -25-4A-C	●	●	20	20	27.7	20	12	125	52.7	BH6X10TR	SB-60120TR	LTW-25	
					0.591" (15mm)	35				50	KGDF%L -35-4B-C	●	●	20	20	27.7	20	12	125				54.7
						50				70	-50-4B-C	●	●										
				70		100				-70-4B-C	●	●											
				100		150				-100-4B-C	●	●											
				150		220				-150-4B-C	●	●											
				220		∞				-220-4B-C	●	●											
				0.984" (25mm)	35	50				KGDF%L -35-4C-C	●	●	20	20	27.7	20	12	125	64.7				
					50	70				-50-4C-C	●	●											
					70	100				-70-4C-C	●	●											
					100	150				-100-4C-C	●	●											
					150	220				-150-4C-C	●	●											
					220	∞				-220-4C-C	●	●											
			□25	0.512" (13mm)	25	35	KGDS%L 2525-C	●	●	KGDF%L -25-4A-C	●	●	25	25	27.7	25	7	150	52.7				
					0.591" (15mm)	35				50	KGDF%L -35-4B-C	●	●	25	25	27.7	25	7	150				54.7
						50				70	-50-4B-C	●	●										
				70		100				-70-4B-C	●	●											
				100		150				-100-4B-C	●	●											
				150		220				-150-4B-C	●	●											
				220		∞				-220-4B-C	●	●											
				0.984" (25mm)	35	50				KGDF%L -35-4C-C	●	●	25	25	27.7	25	7	150	64.7				
					50	70				-50-4C-C	●	●											
					70	100				-70-4C-C	●	●											
					100	150				-100-4C-C	●	●											
					150	220				-150-4C-C	●	●											
					220	∞				-220-4C-C	●	●											

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

2. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

KGDF (Face Grooving / 90° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

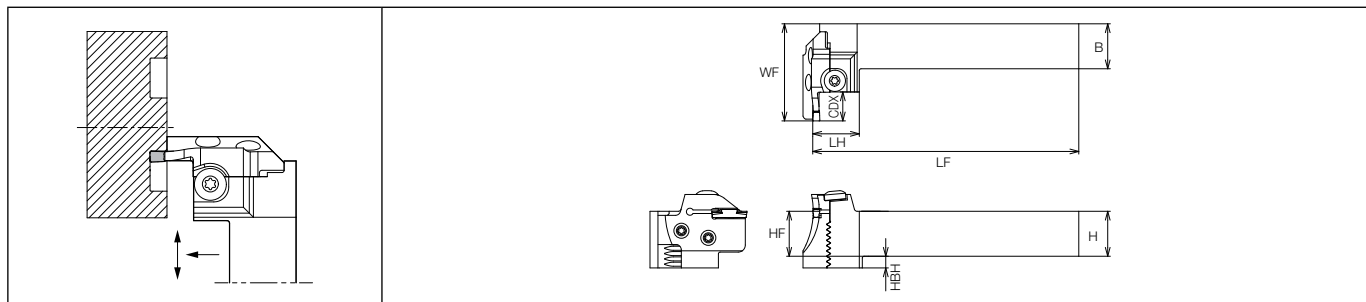
Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm)		Toolholder Part Number ⚙️ G56	Std. Item		Blade Part Number ⚙️ G131	Std. Item		Dimensions							Spare Parts					
					DAXN (min.)	DAXX (max.)		R	L		R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench			
																									
mm	90°	0.197" (5mm)	□20	0.591" (15mm)	25	35	KGDS% 2020-C	●	●	KGDF% -25-SB-C	●	●	20	20	27.7	20	12	125	54.7	BH6X10TR	SB-60120TR	LTW-25			
					35	50				-35-SB-C	●	●													
					50	75				-50-SB-C	●	●													
					75	115				-75-SB-C	●	●													
					115	180				-115-SB-C	●	●													
					180	235				-180-SB-C	●	●													
					235	∞				-235-SB-C	●	●													
				0.787" (20mm)	25	35				KGDF% -25-5C-C	●	●	20	20	27.7	20	12	125	59.7						
				0.984" (25mm)	35	50				-35-5C-C	●	●	20	20	27.7	20	12	125	64.7						
					50	75				-50-5C-C	●	●													
					75	115				-75-5C-C	●	●													
					115	180				-115-5C-C	●	●													
					180	235				-180-5C-C	●	●													
					235	∞				-235-5C-C	●	●													
				1.260" (32mm)	75	115				KGDF% -75-5D-C	●	●	20	20	27.7	20	12	125	71.7						
				115	180	-115-5D-C				●	●														
				180	235	-180-5D-C				●	●														
				235	∞	-235-5D-C				●	●														
			□25	0.591" (15mm)	25	35	KGDS% 2525-C	●	●	KGDF% -25-SB-C	●	●	25	25	27.7	25	7	150	54.7						
					35	50				-35-SB-C	●	●													
					50	75				-50-SB-C	●	●													
					75	115				-75-SB-C	●	●													
					115	180				-115-SB-C	●	●													
					180	235				-180-SB-C	●	●													
					235	∞				-235-SB-C	●	●													
				0.787" (20mm)	25	35				KGDF% -25-5C-C	●	●	25	25	27.7	25	7	150	59.7						
				0.984" (25mm)	35	50				-35-5C-C	●	●	25	25	27.7	25	7	150	64.7						
					50	75				-50-5C-C	●	●													
					75	115				-75-5C-C	●	●													
					115	180				-115-5C-C	●	●													
					180	235				-180-5C-C	●	●													
					235	∞				-235-5C-C	●	●													
				1.260" (32mm)	75	115				KGDF% -75-5D-C	●	●	25	25	27.7	25	7	150	71.7						
				115	180	-115-5D-C				●	●														
				180	235	-180-5D-C				●	●														
				235	∞	-235-5D-C				●	●														

1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

2. Insert clamp bolt (BH6X10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts G107

KGDF (Face Grooving / 90° SwitchBlade Type)

Toolholder Dimensions (Blade and Toolholder) (Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Unit	Shank Angle	Cutting Width CW	Shank Size (mm)	Max. Depth of Cut CDX	External dia. of the groove (mm)		Toolholder Part Number ➡ G56	Std. Item		Blade Part Number ➡ G131	Std. Item		Dimensions							Spare Parts					
					DAXN (min.)	DAXX (max.)		R	L		R	L	H	B	LH	HF	HBH	LF	WF	Clamp Screw (for insert clamp)	Screw (for blade)	Wrench			
																									
mm	90°	0.236" (6mm)	□20	0.591" (15mm)	25	35	KGDS%L 2020-C	●	●	KGDF%L -25-6B-C	●	●	20	20	27.7	20	12	125	54.7	BH6X10TR	SB-60120TR	LTW-25			
					35	50				-35-6B-C	●	●													
					50	75				-50-6B-C	●	●													
					75	115				-75-6B-C	●	●													
					115	180				-115-6B-C	●	●													
					180	235				-180-6B-C	●	●													
					235	∞				-235-6B-C	●	●													
				0.787" (20mm)	25	35				KGDF%L -25-6C-C	●	●	20	20	27.7	20	12	125	59.7						
					35	50				-35-6C-C	●	●													
					50	75				-50-6C-C	●	●													
					75	115				-75-6C-C	●	●													
					115	180				-115-6C-C	●	●													
					180	235				-180-6C-C	●	●													
			□25	1.260" (32mm)	75	115	KGDF%L -75-6D-C	●	●	20	20	27.7	20	12	125	71.7									
					115	180																	-115-6D-C	●	●
					180	235																	-180-6D-C	●	●
					235	∞																	-235-6D-C	●	●
				0.591" (15mm)	25	35	KGDF%L -25-6B-C	●	●	25	25	27.7	25	7	150	54.7									
					35	50																	-35-6B-C	●	●
					50	75																	-50-6B-C	●	●
					75	115																	-75-6B-C	●	●
					115	180																	-115-6B-C	●	●
					180	235																	-180-6B-C	●	●
			□25	0.787" (20mm)	25	35	KGDS%L 2525-C	●	●	-235-6B-C	●	●	25	25	27.7	25	7	150	59.7						
					35	50				KGDF%L -25-6C-C	●	●													
					50	75				-35-6C-C	●	●													
					75	115				-50-6C-C	●	●													
					115	180				-75-6C-C	●	●													
					180	235				-115-6C-C	●	●													
				0.984" (25mm)	235	∞				-180-6C-C	●	●	25	25	27.7	25	7	150	64.7						
					75	115				-235-6C-C	●	●													
					115	180				KGDF%L -75-6D-C	●	●													
					180	235				-115-6D-C	●	●													
					235	∞				-180-6D-C	●	●													
					75	115				-235-6D-C	●	●													

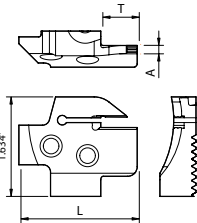
1. KGDF SwitchBlade Type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

2. Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder.

Applicable Inserts ● G107

Blade Dimensions

Shape	Blade Part Number	Std. Item		External dia. of the groove (in)		Dimensions (in)			Cutting Width CW	Applicable Inserts ➡ G107	Applicable Toolholder ➡ G56
		R	L	DAXN (min.)	DAXX (max.)	L	T	A			

	KGDFR	-25-2A-C	●		0.984	1.181	1.746	0.236	0.059	0.079 (2mm)	GDFM 2020N-020GM	KGD ¹ /h.....-C KGDS%.....-C		
		-30-2A-C	●		1.181	1.378								
		-35-2A-C	●		1.378	1.772								
		-45-2A-C	●		1.772	2.362								
		-60-2A-C	●		2.362	3.150								
		-80-2A-C	●		3.150	3.937								
		-100-2A-C	●		3.937	5.118								
	KGDFR	-25-2B-C	●		0.984	1.181	1.864	0.512	1.943	0.591				
		-30-2B-C	●		1.181	1.378								
		-35-2B-C	●		1.378	1.772								
		-45-2B-C	●		1.772	2.362								
		-60-2B-C	●		2.362	3.150								
		-80-2B-C	●		3.150	3.937								
		-100-2B-C	●		3.937	5.118								
	KGDF%	-25-3A-C	●	●	0.984	1.181	1.864	0.512	1.943	0.591	0.079		0.118 (3mm)	GDFM 3020... GDFMS 3020... GDFG 3020...
		-30-3A-C	●	●	1.181	1.575								
		-40-3A-C	●	●	1.575	1.969								
		-50-3B-C	●	●	1.969	2.559								
		-65-3B-C	●	●	2.559	3.346								
		-85-3B-C	●	●	3.346	4.331								
		-110-3B-C	●	●	4.331	5.709								
	KGDF%	-50-3C-C	●	●	1.969	2.559	2.219	0.866	2.337	0.984				
		-65-3C-C	●	●	2.559	3.346								
		-85-3C-C	●	●	3.346	4.331								
		-110-3C-C	●	●	4.331	5.709								
	KGDF%	-25-4A-C	●	●	0.984	1.378	1.864	0.512	1.943	0.591	0.118		0.157 (4mm)	GDFM 4020... GDFMS 4020... GDFG 4020...
		-35-4B-C	●	●	1.378	1.969								
		-50-4B-C	●	●	1.969	2.756								
		-70-4B-C	●	●	2.756	3.937								
		-100-4B-C	●	●	3.937	5.906								
		-150-4B-C	●	●	5.906	8.661								
		-220-4B-C	●	●	8.661	∞								
	KGDF%	-35-4C-C	●	●	1.378	1.969	2.337	0.984						
		-50-4C-C	●	●	1.969	2.756								
		-70-4C-C	●	●	2.756	3.937								
		-100-4C-C	●	●	3.937	5.906								
		-150-4C-C	●	●	5.906	8.661								
		-220-4C-C	●	●	8.661	∞								
		KGDF%	-25-5B-C	●	●	0.984					1.378		1.943	0.591	0.157	0.197 (5mm)	GDFM 5020... GDFMS 5020... GDFG 5020...
	-35-5B-C		●	●	1.378	1.969								
	-50-5B-C		●	●	1.969	2.953								
	-75-5B-C		●	●	2.953	4.528								
	-115-5B-C		●	●	4.528	7.087								
	-180-5B-C		●	●	7.087	9.252								
	-235-5B-C		●	●	9.252	∞								
	-25-5C-C		●	●	0.984	1.378	2.140	0.787	2.337	0.984				
	-35-5C-C		●	●	1.378	1.969								
	-50-5C-C		●	●	1.969	2.953								
	-75-5C-C		●	●	2.953	4.528								
	-115-5C-C		●	●	4.528	7.087								
	-180-5C-C		●	●	7.087	9.252								
	-235-5C-C		●	●	9.252	∞								
	-75-5D-C		●	●	2.953	4.528	2.612	1.260						
	-115-5D-C		●	●	4.528	7.087								
	-180-5D-C		●	●	7.087	9.252								
	-235-5D-C	●	●	9.252	∞									
	KGDF%	-25-6B-C	●	●	0.984	1.378			1.943	0.591	0.197		0.236 (6mm)	GDFM 6020... GDFMS 6020... GDFG 6020...
		-35-6B-C	●	●	1.378	1.969								
		-50-6B-C	●	●	1.969	2.953								
		-75-6B-C	●	●	2.953	4.528								
		-115-6B-C		●	●	4.528	7.087							
		-180-6B-C		●	●	7.087	9.252							
		-235-6B-C		●	●	9.252	∞							
		-25-6C-C	●	●	0.984	1.378	2.140	0.787	2.337	0.984				
		-35-6C-C		●	●	1.378	1.969							
		-50-6C-C		●	●	1.969	2.953							
		-75-6C-C		●	●	2.953	4.528							
		-115-6C-C		●	●	4.528	7.087							
		-180-6C-C		●	●	7.087	9.252							
	-235-6C-C	●	●	9.252	∞	2.612	1.260							
	-75-6D-C	●	●	2.953	4.528									
	-115-6D-C	●	●	4.528	7.087									
	-180-6D-C	●	●	7.087	9.252									
	-235-6D-C	●	●	9.252	∞									

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts G107

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

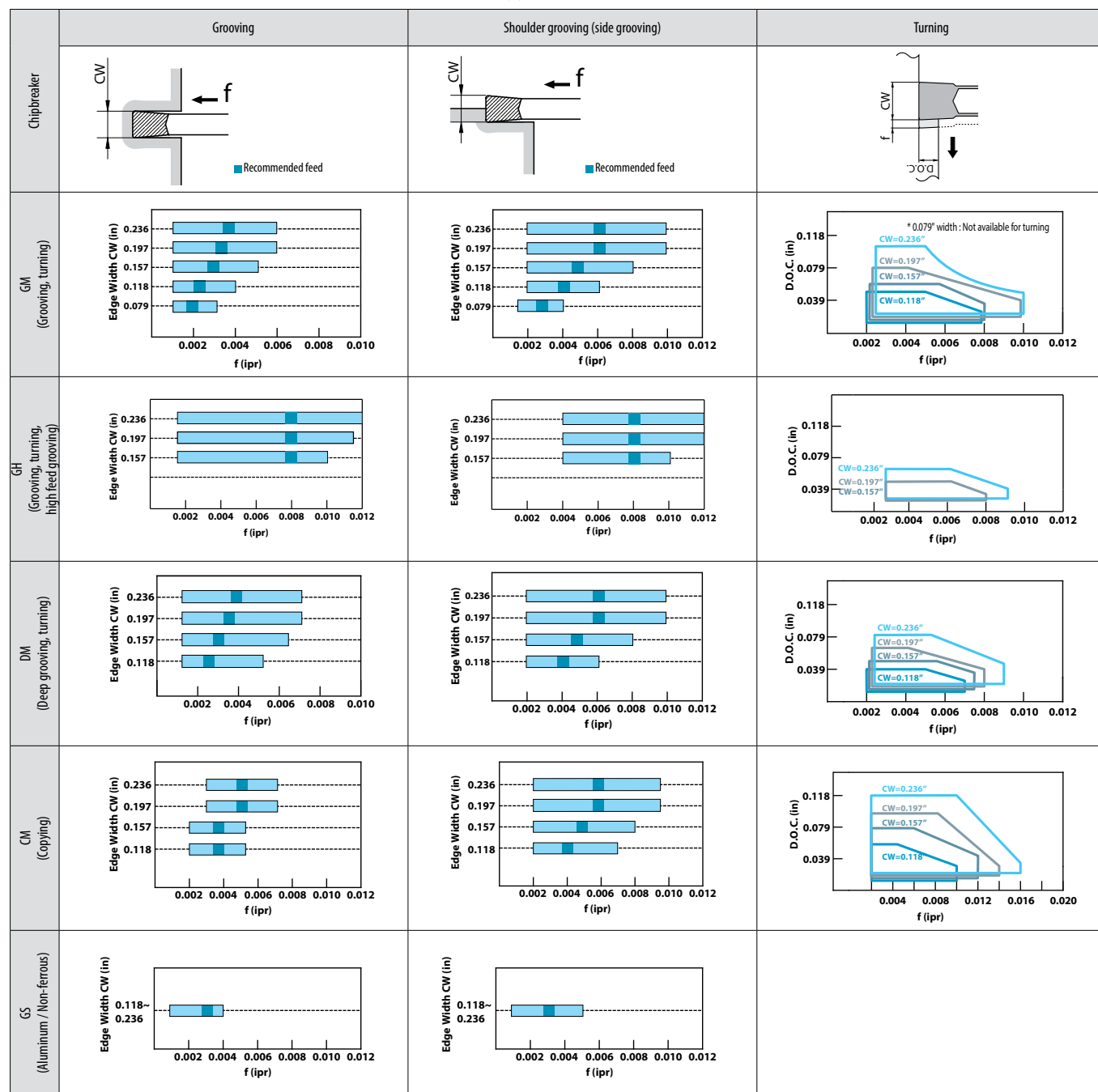
Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Vc: sfm)				Notes
	Cermet		MEGACOAT		
	TN620	TN90	PR1225	PR1215	
Carbon Steel	☆ 200~660	☆ 260~660	★ 200~520	☆ 260~520	Coolant
Alloy Steel	☆ 200~520	☆ 230~520	★ 200~490	☆ 200~490	
Stainless Steel	-	-	★ 160~390	☆ 160~390	
Cast Iron	-	-	-	★ 260~520	

★ : 1st recommendation ☆ : 2nd recommendation

Workpiece Material	Recommended Insert Grades (Vc: sfm)		Notes
	Carbide		
	GW15		
Aluminum alloy	★ 520~1,310		Coolant
Brass	★ 260~520		

★ : 1st recommendation



When shoulder grooving

- If D.O.C. is set smaller, set feed higher.
- If D.O.C. is set larger, set feed lower.

1. The above values are based on the condition that the CDX of toolholder is 0.591" (15mm) or less.
2. If the toolholder's CDX is over 15 mm, set the values for turning to 90% or less of those above.

Workpiece material: 1049

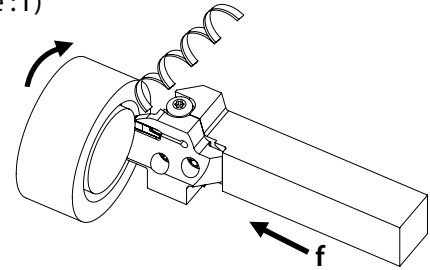
Face Grooving Guide

1 Toolholder Selection

Check the range of applicable face grooving diameter as well as the groove width and depth.

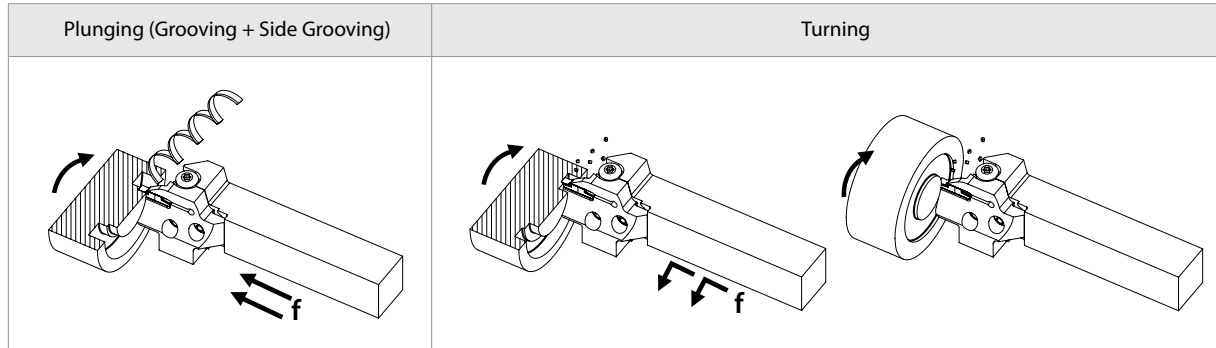
2 Cutting conditions (Feed rate : f)

When machining steel, set the feed rate (f) so that chips are created in a helical form when plunging.



3 Expanding Groove Width (Plunging and Turning)

Start machining from the outside and then proceed to the inside. Chip control will be better in this way.



4 Guide for Turning

A. When the cutting amount (D.O.C.) is over 0.020" (0.5mm)

- (1) Use plunging
- (2) Return the cutting by 0.004" (1mm)
(Failure to pull the tool back before traverse cutting will result in an unbalanced load applied on only one side of the cutting edge.)
- (3) Perform turning (see Fig.1)

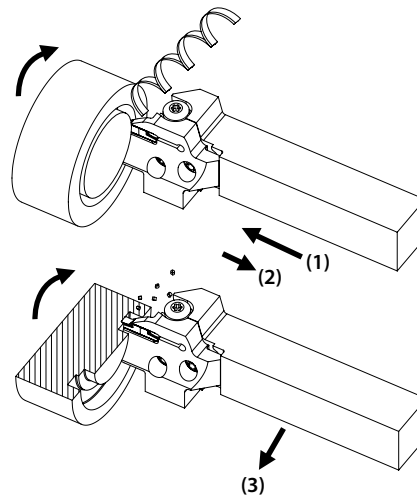
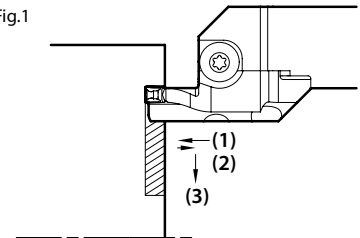
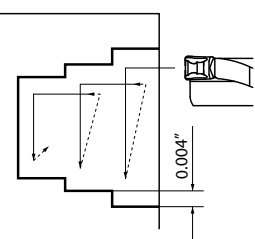


Fig.1



- When widening the face groove width (see Fig.2)
Use "Step Turning".
Then perform finishing.

Fig.2



B. When the cutting amount (D.O.C.) is under 0.5mm

- (1) Use Plunging
- (2) Perform turning
Machining without interruption is possible. (see Fig.3)

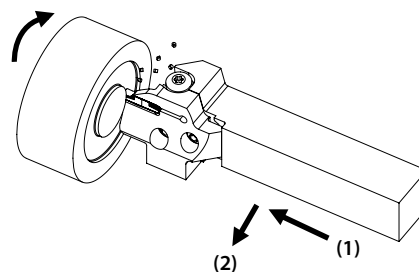
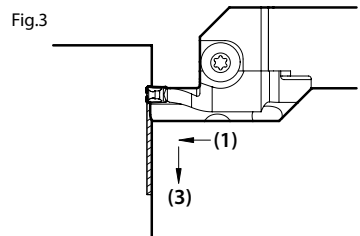
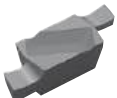
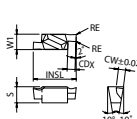


Fig.3



GVF-AA

				Carbon Steel / Alloy Steel										●	○	P		
				Stainless Steel										●	○	M		
				Cast Iron												●	K	
				Non-Ferrous Metals												●	N	
				Titanium Alloy												●	S	
				Hard Materials (~ 40HRC)										●	○	H		
				Hard Materials (40HRC ~)														
Insert		Part Number (Use with grade PR1225)	Previous Part Number (Use with grades PR930 / KW10)	No. of Edges	Dimensions (mm)						Tolerance (mm)		Carbide		Applicable Toolholder G135			
					CW		CDX	S	RE	INSL	W1	CW min.	CW max.	PVD		-		
					in	mm								PR1225		PR930	KW10	
		GVFR 100-005AA 200-005AA 300-005AA	GVFR 100AA 200AA 300AA	2	0.039	1	2.2	4.5	0.05	12	4.3	-0.02	+0.02	●	●	GVFSL.....08AA GVFTL.....08AA		
					0.079	2								●	●			
					0.118	3								●	●			
		GVFL 100-005AA 200-005AA 300-005AA	GVFL 100AA 200AA 300AA		0.039	1								●	●		GVFSR.....08AA GVFTR.....08AA	
					0.079	2								●	●			
					0.118	3								●	●			

CDX shows available grooving depth.

GVF%L...005AA inserts are not compatible with GVF%L...-000AA (See Page G126) inserts because their Side Relief Angle is 10°.

External dia. of the groove of GFVS-AA (also GFVT-AA)

Description	External dia. of the groove (mm)		Applicable inserts
	DAXN (min.)	DAXX (max.)	
GFVS%L 2020K-08AA 2525M-08AA	8 (0)	∞ (∞)	GVF%L/R...-AA

● Maximum diameter of initial groove plunge (no limit).

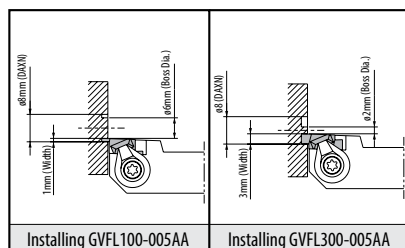
● When machining towards the outer diameter then there is no MAX. limit to the groove diameter.

● Minimum diameter of the initial groove plunge DAXN ø8mm

If the initial groove is made smaller than this, the toolholder interferes with the workpiece.

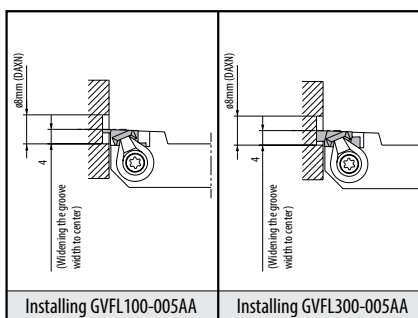
● When widening the groove to center, this is the minimum diameter.

For machining up to the center of the workpiece regardless of insert width.



Installing GVFL100-005AA

Installing GVFL300-005AA



Installing GVFL100-005AA

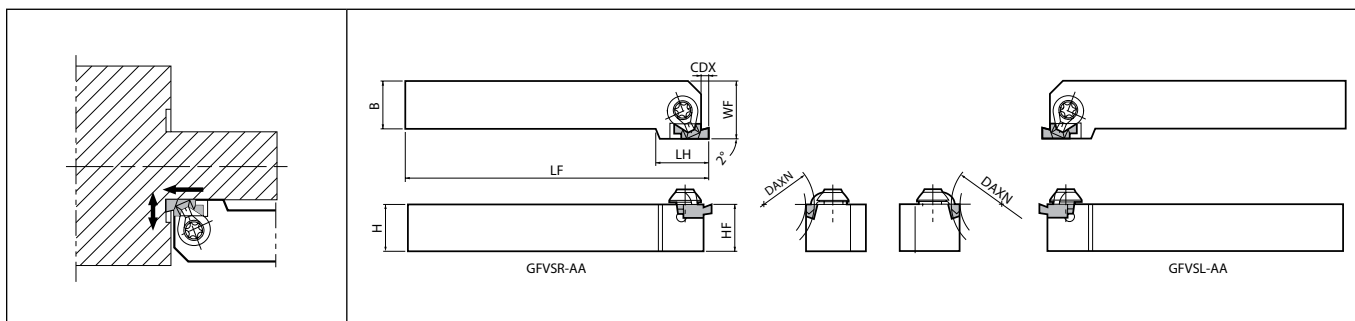
Installing GVFL300-005AA

Recommended Cutting Conditions GFVS-AA / GFVT-AA

Workpiece Material	Recommended insert grades (Vc: sfm)			Grooving f (ipr)	Turning*		Notes
	MEGACOAT	PVD coated carbide	Carbide		D.O.C. (in)	f (ipr)	
	PR1225	PR930	KW10				
Carbon Steel / Alloy Steel	★ 160~330	☆ 160~330		0.0004~0.0020	Max 0.0197	0.0004~0.0020	Coolant
Stainless Steel	★ 160~260	☆ 160~260		0.0004~0.0012	Max 0.0118	0.0004~0.0008	
Non-Ferrous Metals			★ ~660	0.0004~0.0031	Max 0.0197	0.0004~0.0031	

* D.O.C. has to be set for less than corner-R(RE) when turning of edge width 0.039" (1.0mm) (GVF%L 100-005AA).

★ : 1st recommendation ☆ : 2nd recommendation

GFVS-AA (Face Grooving)

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

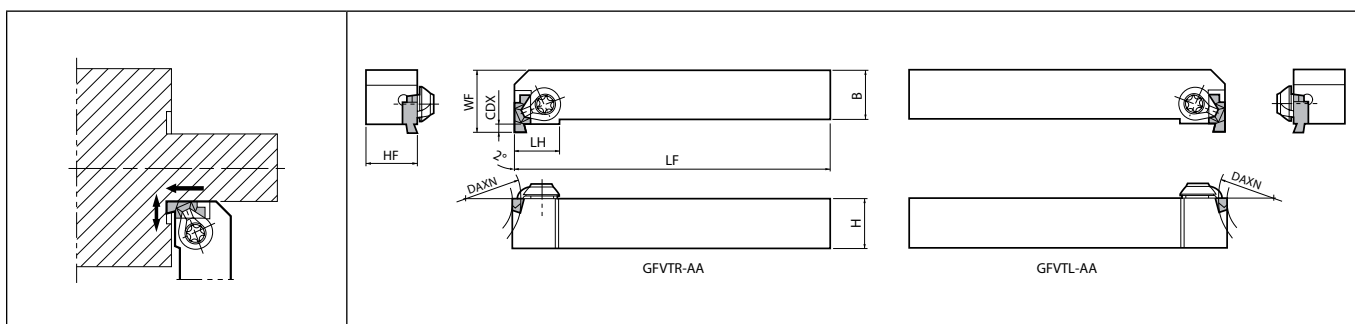
Toolholder Dimensions

Unit	Part Number	Std. Item		External dia. of the groove (mm)	Dimensions								Spare Parts		Applicable Inserts  G134
													Clamp Set	Wrench	
		R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	LF	WF			
mm	GFVS [●] 2020K-08AA 2525M-08AA	 	 	8 (0)	∞ (∞)	2.2	20 25	20 25	18	20 25	125 150	25 32	CPS-5V	FT-15	GVF ^{L/R} ...-...AA

CDX shows available grooving depth.

The value () of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).

The value () of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.

GFVT-AA (Face Grooving)

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

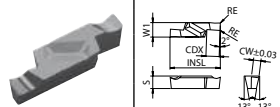
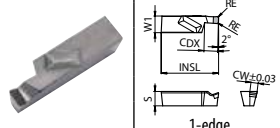
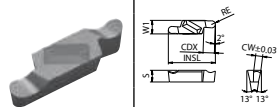
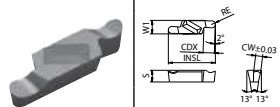
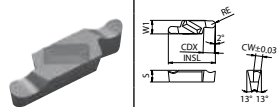
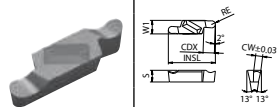
Unit	Part Number	Std. Item		External dia. of the groove (mm)	Dimensions								Spare Parts		Applicable Inserts  G134
													Clamp Set	Wrench	
		R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	LF	WF			
mm	GFVT [●] 2020K-08AA 2525M-08AA			8 (0)	∞ (∞)	2.2	20 25	20 25	14	20 25	125 150	25 32	CPS-5V	FT-15	GVF ^{L/R} ...-...AA

CDX shows available grooving depth.

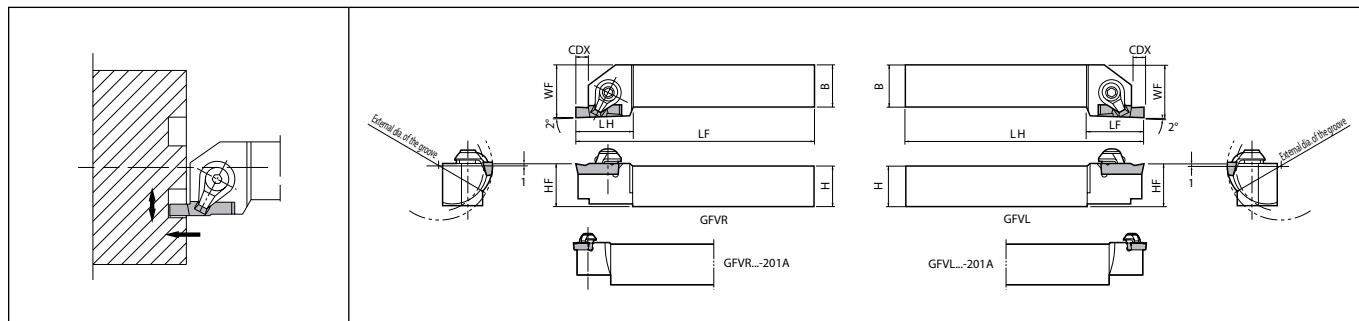
The value () of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).

The value () of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.

GVF

				Carbon Steel / Alloy Steel										P							
				Stainless Steel										M							
				Cast Iron										K							
				Non-Ferrous Metals										N							
				Titanium Alloy										S							
				Hard Materials (~ 40HRC)										H							
				Hard Materials (40HRC ~)																	
Insert		Part Number (Use with grade PR1225)	Previous Part Number (Use with grades PR930, KW10, TC40, TC60, KPD010)	No. of Edges	Dimensions (mm)						Tolerance (mm)		Carbide		Cermet		PCD	Applicable Toolholder ➡ G137 ~ G145			
					CW		CDX	S	RE	INSL	W1	CW min.	CW max.	PR1225	PR930	KW10			TC40	TC60	KPD010
					in	mm															
		GVFR 200-020A	GVFR 200A	2	0.079	2	2.3	4.5	0.2	12	4.3	- 0.03	+ 0.03	●	●	●		GVFR.....201A GIFVR.....201A			
		230-020A	230A		0.091	2.3								●	●	●					
		250-020A	250A		0.098	2.5								●	●	●					
		270-020A	270A		0.106	2.7								●	●	●					
		290-020A	290A		0.114	2.9								●	●	●					
		340-020A	340A		0.134	3.4								●	●	●					
		GVFL 200-020A	GVFL 200A	2	0.079	2	2.3	4.5	0.2	12	4.3	- 0.03	+ 0.03	●	●	●		GVFL.....201A GIFVL.....201A			
		230-020A	230A		0.091	2.3								●	●	●					
		250-020A	250A		0.098	2.5								●	●	●					
		270-020A	270A		0.106	2.7								●	●	●					
		290-020A	290A		0.114	2.9								●	●	●					
		340-020A	340A		0.134	3.4								●	●	●					
	GVFR 250-020B	GVFR 250B	2	0.098	2.5	4.8	5	0.2	20	5.8	- 0.03	+ 0.03	●	●	●		GVFR.....1B *1 GVSL.....1B GVTL.....1B GIFVR.....1B				
	300-020B	300B		0.118	3								●	●	●						
	350-020B	350B		0.138	3.5								●	●	●						
	400-020B	400B		0.157	4								●	●	●						
	430-020B	430B		0.169	4.3								●	●	●						
	460-020B	460B		0.181	4.6								●	●	●						
	GVFL 250-020B	GVFL 250B	2	0.098	2.5	4.8	5	0.2	20	5.8	- 0.03	+ 0.03	●	●	●	△	GVFL.....1B *3 GVFSR.....1B GVFTR.....1B GIFVL.....1B				
	300-020B	300B		0.118	3								●	●	●						
	350-020B	350B		0.138	3.5								●	●	●						
	400-020B	400B		0.157	4								●	●	●						
	430-020B	430B		0.169	4.3								●	●	●						
	460-020B	460B		0.181	4.6								●	●	●						
	GVFR 350-040C	GVFR 350C	2	0.138	3.5	6.8	7	0.4	27	7	- 0.03	+ 0.03	●	●	●		GVFR.....1C *5 GVSL.....1C GVTL.....1C GIFVR.....1C				
	400-040C	400C		0.157	4								●	●	●						
	450-040C	450C		0.177	4.5								●	●	●						
	500-040C	500C		0.197	5								●	●	●						
	550-040C	550C		0.217	5.5								●	●	●						
	600-040C	600C		0.236	6								●	●	●						
	GVFL 350-040C	GVFL 350C	2	0.138	3.5	6.8	7	0.4	27	7	- 0.03	+ 0.03	●	●	●	△	GVFL.....1C GVFSR.....1C GVFTR.....1C GIFVL.....1C				
	400-040C	400C		0.157	4								●	●	●						
	450-040C	450C		0.177	4.5								●	●	●						
	500-040C	500C		0.197	5								●	●	●						
	550-040C	550C		0.217	5.5								●	●	●						
	600-040C	600C		0.236	6								●	●	●						
			GVFR 250-020B	GVFR 250B	1	0.098	2.5	4.8	5	0.2	20	5.8	- 0.03	+ 0.03	●	●	●		See *1 Above See *2 Above See *3 Above See *4 Above See *5 Above		
300-020B			300B	0.118		3	●								●	●					
400-020B			400B	0.157		4	●								●	●					
GVFL 250-020B			GVFL 250B	1	0.098	2.5	4.8	5	0.2	20	5.8	- 0.03	+ 0.03	●	●	●		See *1 Above See *2 Above See *3 Above See *4 Above See *5 Above			
300-020B			300B		0.118	3								●	●	●					
400-020B	400B	0.157	4		●	●								●							
GVFR 350-040C	GVFR 350C	1	0.138	3.5	6.8	7	0.4	27	7	- 0.03	+ 0.03	●	●	●	●	●		See *1 Above See *2 Above See *3 Above See *4 Above See *5 Above			
		GVFR 200-100AR	GVFR 100AR	2	0.079	2	2.3	4.5	1	12	4.3	- 0.03	+ 0.03	●	●	●		GVFR.....201A GIFVR.....201A			
		250-125AR	125AR		0.098	2.5								●	●	●					
		300-150AR	150AR		0.118	3								●	●	●					
		GVFL 200-100AR	GVFL 100AR	2	0.079	2	2.3	4.5	1	12	4.3	- 0.03	+ 0.03	●	●	●		GVFL.....201A GIFVL.....201A			
		250-125AR	125AR		0.098	2.5								●	●	●					
		300-150AR	150AR		0.118	3								●	●	●					
		GVFR 300-150BR	GVFR 150BR	2	0.118	3	4.8	5	2	20	5.8	- 0.03	+ 0.03	●	●	●		See *1 Above See *2 Above See *3 Above See *4 Above			
		400-200BR	200BR		0.157	4								●	●	●					
		400-200BR	200BR		0.157	4								●	●	●					

GVF (Face Grooving)



Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		External dia. of the groove (mm)		Dimensions							Spare Parts				Applicable Inserts G136
		R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	LF	WF	Clamp Set	Clamp Set	Wrench	Wrench	
mm	GVF% 2020K-201A	●	●	20	∞	2.2	20	20	20	21	125	25	CPS-5V	-	-	FT-15	GVF% 200 ~ 340-...A
	2525M-201A	●	●	(12)	(∞)		25	25	23	26	150	32					GVF% 200 ~ 300-...AR
	GVF% 2020K-351B	●	●	35	50	4.6	20	20	28	21	125	25	-	CPS-6V	LW-3	-	GVF% 250 ~ 350-...B
	2525M-351B	●	●				25	25	30	26	150	32					GVF% 300-150BR
	2020K-352B	●	●			5.1	20	20	28	21	125	25					GVF% 400 ~ 490-...B
	2525M-352B	●	●				25	25	30	26	150	32					GVF% 400-200BR
	2020K-501B	●	●	50	70	4.6	20	20	28	21	125	25					GVF% 250 ~ 350-...B
	2525M-501B	●	●				25	25	30	26	150	32					GVF% 300-150BR
	2020K-502B	●	●			5.1	20	20	28	21	125	25					GVF% 400 ~ 490-...B
	2525M-502B	●	●				25	25	30	26	150	32					GVF% 400-200BR
	2020K-701B	●	●	70	100	4.6	20	20	28	21	125	25					GVF% 250 ~ 350-...B
	2525M-701B	●	●				25	25	30	26	150	32					GVF% 300-150BR
	2020K-702B	●	●			5.1	20	20	28	21	125	25					GVF% 400 ~ 490-...B
	2525M-702B	●	●				25	25	30	26	150	32					GVF% 400-200BR
	GVF% 2525M-501C	●	●	50	70	6.6	25	25	35	26	150	32	-	CPS-8V	LW-4	-	GVF% 350 ~ 450-...C
	2525M-502C	●	●	(25)	(∞)	8.1											GVF% 500 ~ 600-...C
	2525M-701C	●	●	70	100	6.6											GVF% 350 ~ 450-...C
	2525M-702C	●	●	(25)	(∞)	8.1											GVF% 500 ~ 600-...C
	2525M-1001C	●	●	100	150	6.6											GVF% 350 ~ 450-...C
	2525M-1002C	●	●	(25)	(∞)	8.1											GVF% 500 ~ 600-...C
	2525M-1501C	●	●	150	250	6.6											GVF% 350 ~ 450-...C
	2525M-1502C	●	●	(25)	(∞)	8.1											GVF% 500 ~ 600-...C

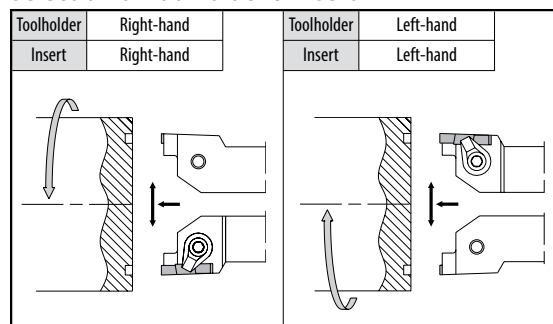
CDX shows available grooving depth.

The value () of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).

The value () of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.

Standard toolholders are designed with the edge position 1.0 mm above the center. When using non-standard toolholders, set the edge position 0.039" (1.0mm) above the center.

Selection of Toolholder & Insert



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

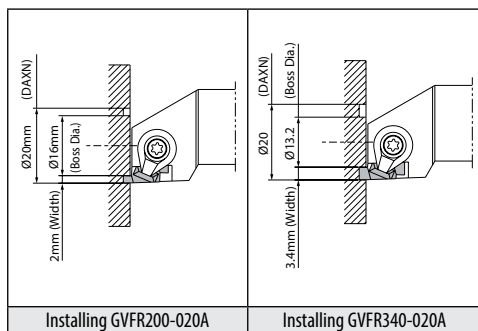
External diameter of the groove for GFV

(1) e.g.) GFV%...-201A

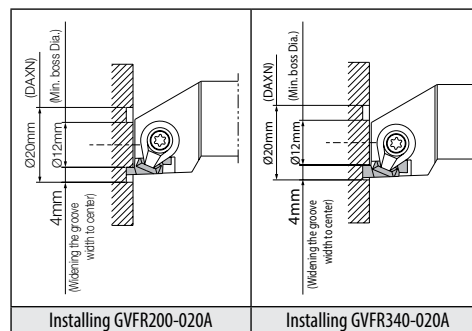
Part Number	External Dia. of the Groove (mm)		Applicable Inserts
	DAXN (min)	DAXX (min)	
GFV% 2020K-201A 2525M-201A	20 (12)	∞ (∞)	GVF% 200~340-020A GVF% 200~...~300~...AR

- Minimum Dia. (DAXN: $\varnothing 20$ mm) of Initial Groove Plunge

If the initial groove is made smaller than this, the toolholder interferes with the workpiece.



- Maximum diameter (DAXX) of initial groove plunge.
- When machining towards the outer diameter, there is no maximum limit to the grooving diameter.
- When widening the groove to center, this is the minimum diameter.

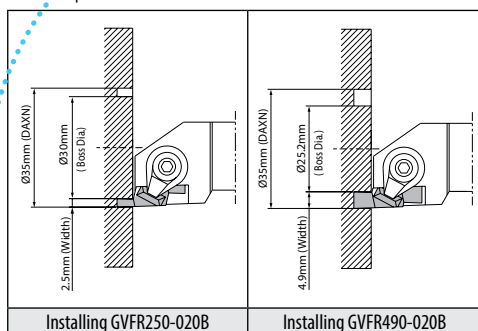


(2) e.g.) GFV%...-351B/352B (same as GFV%...-○○○B or GFV%...-○○○C)

Part Number	External Dia. of the Groove (mm)		Applicable Inserts
	DAXN (min)	DAXX (min)	
GFV% 2020K-351B 2525M-351B 2020K-352B 2525M-352B	35 (25)	50 (∞)	GVF% 200~340-020A GVF% 200~...~300~...AR

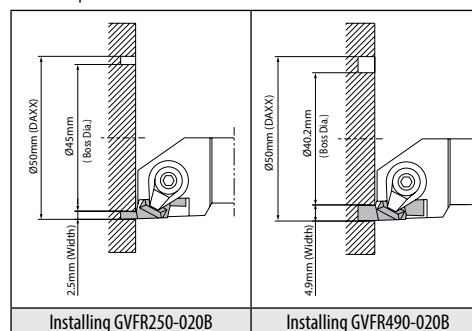
- When machining the initial groove on the face at (DAXN: $\varnothing 35$ mm)

If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
Boss Dia. depends on insert width.



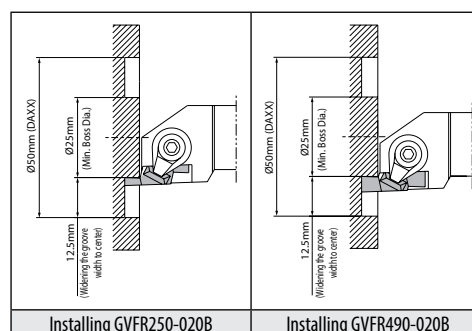
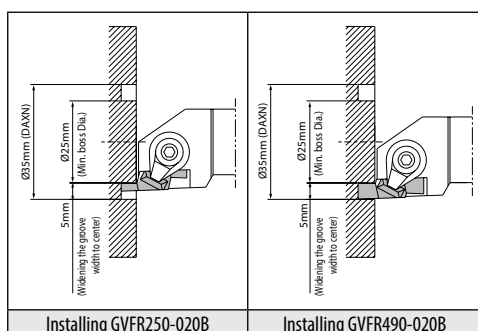
- It is possible to widen the groove to infinity ∞ when machining the initial groove within DAXN ~ DAXX

- When machining the initial groove on the face at (DAXX: $\varnothing 50$ mm).
If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
Boss Dia. depends on insert width.

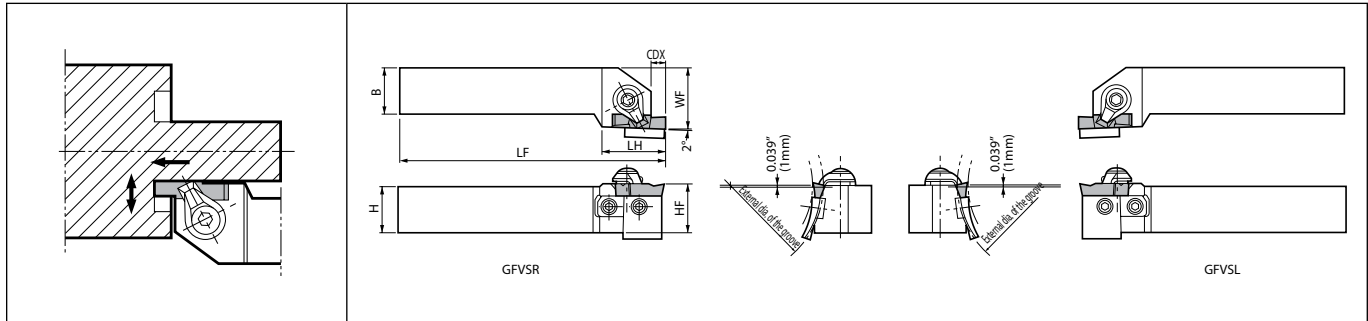


- When widening the groove width to inner diameter.

Face Grooving Dia. ($\varnothing 25$ mm Boss Dia.) is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at (DAXN: $\varnothing 35$ mm) or (DAXX: $\varnothing 50$ mm).
The toolholder interferes with the workpiece when closer to the center.



GFVS (Face Grooving)



Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.
This toolholder can machine various face grooving diameters by switching out the blade.

Toolholder Dimensions

Unit	Part Number	Std. Item		External dia.of the groove (in)		Dimensions						Spare Parts				Applicable Inserts ➔ G136	
												Blade	Bolt	Clamp Set	Wrench		
		R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	LF	WF					
Inch	GFVS% 12-351B	●	●	1.378 (0.984)	1.969 (∞)	5.1 (4.6)	0.75	0.75	1.18	0.79	5.00	1.00	SF% -351B	HH4X12	CPS-6V	LW-3	GVF ¹ / _R 250 ~ 350-...B
	16-351B	●	●				1.00	1.00	1.26	1.04	6.00	1.25	SF% -351B				GVF ¹ / _R 300-150BR
	12-352B	●	●			5.1 (5.1)	0.75	0.75	1.18	0.79	5.00	1.00	SF% -352B				GVF ¹ / _R 400 ~ 490-...B
	16-352B	●	●				1.00	1.00	1.26	1.04	6.00	1.25	SF% -352B				GVF ¹ / _R 400-200BR
	12-501B	●	●	1.969 (0.984)	2.756 (∞)	5.1 (4.6)	0.75	0.75	1.18	0.79	5.00	1.00	SF% -501B				GVF ¹ / _R 250 ~ 350-...B
	16-501B	●	●				1.00	1.00	1.26	1.04	6.00	1.25	SF% -501B				GVF ¹ / _R 300-150BR
	12-502B	●	●			5.1 (5.1)	0.75	0.75	1.18	0.79	5.00	1.00	SF% -502B				GVF ¹ / _R 400 ~ 490-...B
	16-502B	●	●				1.00	1.00	1.26	1.04	6.00	1.25	SF% -502B				GVF ¹ / _R 400-200BR
	12-701B	●	●	2.756 (0.984)	3.937 (∞)	5.1 (4.6)	0.75	0.75	1.18	0.79	5.00	1.00	SF% -701B				GVF ¹ / _R 250 ~ 350-...B
	16-701B	●	●				1.00	1.00	1.26	1.04	6.00	1.25	SF% -701B				GVF ¹ / _R 300-150BR
	12-702B	●	●			5.1 (5.1)	0.75	0.75	1.18	0.79	5.00	1.00	SF% 702B				GVF ¹ / _R 400 ~ 490-...B
	16-702B	●	●				1.00	1.00	1.26	1.04	6.00	1.25	SF% 702B				GVF ¹ / _R 400-200BR
	GFVS% 16-501C	●	●	1.969 (0.984)	2.756 (∞)	0.32 (*0.26) 0.32 (0.32)	1.00	1.00	1.38	1.04	6.00	1.25	SF% -501C	HH4X12	CPS-8V	LW-4	GVF ¹ / _R 350 ~ 450-...C
	16-502C	●	●	0.32 (*0.26) 0.32 (0.32)	SF% -502C	GVF ¹ / _R 500 ~ 600-...C											
	16-701C	●	●	2.756 (0.984)	3.937 (∞)	0.32 (*0.26) 0.32 (0.32)							SF% -701C				GVF ¹ / _R 350 ~ 450-...C
	16-702C	●	●	0.32 (*0.26) 0.32 (0.32)	SF% -702C	GVF ¹ / _R 500 ~ 600-...C											
	16-1001C	●	●	3.937 (0.984)	5.906 (∞)	0.32 (*0.26) 0.32 (0.32)							SF% -1001C				GVF ¹ / _R 350 ~ 450-...C
	16-1002C	●	●	0.32 (*0.26) 0.32 (0.32)	SF% -1002C	GVF ¹ / _R 500 ~ 600-...C											
	16-1501C	●	●	5.906 (0.984)	9.843 (∞)	0.32 (*0.26) 0.32 (0.32)							SF% -1501C				GVF ¹ / _R 350 ~ 450-...C
	16-1502C	●	●	0.32 (*0.26) 0.32 (0.32)	SF% -1502C	GVF ¹ / _R 500 ~ 600-...C											

CDX shows available grooving depth.

The value () of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).

The value () of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.

Standard toolholders are designed with the edge position 0.039" (1.0mm) above the center. When using non-standard toolholders, set the edge position 0.039" (1.0mm) above the center.

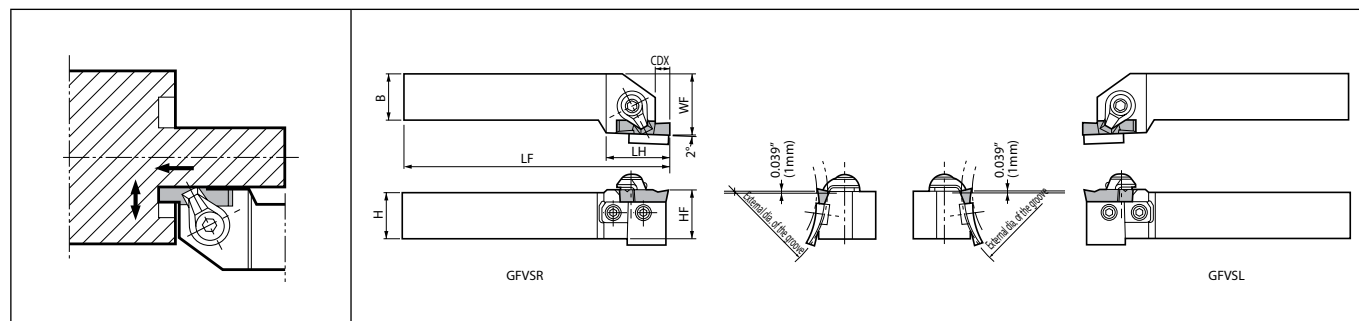
CDX shows the distance from the toolholder to the cutting edge. The grooving depth is mentioned in ().

GFVS is composed of a base-holder and a blade. If the blade should be damaged, replace it with a new blade as listed in the table on G143.

(e.g.) GFVSR12-HB + SFR-351B = GFVSR12-351B

*GVF¹/₈400~450-040C: CDX is 0.260" (6.6mm)

GFVS (Face Grooving)



Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.
This toolholder can machine various face grooving diameters by switching out the blade.

Toolholder Dimensions

Unit	Part Number	Std. Item		External dia. of the groove (mm)	Dimensions								Spare Parts				Applicable Inserts G136
													Blade	Bolt	Clamp Set	Wrench	
		R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	LF	WF					
mm	GFVS% 2020K-351B	●	●	35 (25)	50 (∞)	5.1 (4.6)	20	20	30	21	125	25	SF% -351B	HH4X12	CPS-6V	LW-3	GVF ^L / _R 250 ~ 350-...B
	2525M-351B	●	●			5.1 (5.1)	25	25	32	26	150	32	SF% -352B				GVF ^L / _R 300-150BR
	2020K-352B	●	●			5.1 (4.6)	20	20	30	21	125	25	SF% -501B				GVF ^L / _R 400 ~ 490-...B
	2525M-352B	●	●	50 (25)	70 (∞)	5.1 (5.1)	25	25	32	26	150	32	SF% -502B				GVF ^L / _R 400-200BR
	2020K-501B	●	●			5.1 (4.6)	20	20	30	21	125	25	SF% -701B				GVF ^L / _R 250 ~ 350-...B
	2525M-501B	●	●			5.1 (5.1)	25	25	32	26	150	32	SF% -702B				GVF ^L / _R 300-150BR
	2020K-502B	●	●	70 (25)	100 (∞)	5.1 (4.6)	20	20	30	21	125	25	SF% -701B				GVF ^L / _R 400 ~ 490-...B
	2525M-502B	●	●			5.1 (5.1)	25	25	32	26	150	32	SF% -702B				GVF ^L / _R 400-200BR
	2020K-701B	●	●			5.1 (4.6)	20	20	30	21	125	25	SF% -701B				GVF ^L / _R 250 ~ 350-...B
	2525M-701B	●	●	100 (25)	150 (∞)	5.1 (5.1)	25	25	32	26	150	32	SF% -1502C				GVF ^L / _R 300-150BR
	2020K-702B	●	●			5.1 (4.6)	20	20	30	21	125	25	SF% -702B				GVF ^L / _R 400 ~ 490-...B
	2525M-702B	●	●			5.1 (5.1)	25	25	32	26	150	32	SF% -1502C				GVF ^L / _R 400-200BR
	GFVS% 2525M-501C	●	●	50 (25)	70 (∞)	8.1 (*5.1)	25	25	32	26	150	32	SF% -501C	HH4X12	CPS-8V	LW-4	GVF ^L / _R 350 ~ 450-...C
	2525M-502C	●	●	70 (25)	100 (∞)	8.1 (8.1)							SF% -502C				GVF ^L / _R 500 ~ 600-...C
	2525M-701C	●	●	70 (25)	100 (∞)	8.1 (*5.1)							SF% -701C				GVF ^L / _R 350 ~ 450-...C
	2525M-702C	●	●	100 (25)	150 (∞)	8.1 (8.1)							SF% -702C				GVF ^L / _R 500 ~ 600-...C
	2525M-1001C	●	●	100 (25)	150 (∞)	8.1 (*5.1)							SF% -1001C				GVF ^L / _R 350 ~ 450-...C
	2525M-1002C	●	●	150 (25)	250 (∞)	8.1 (8.1)							SF% -1002C				GVF ^L / _R 500 ~ 600-...C
	2525M-1501C	●	●	150 (25)	250 (∞)	8.1 (*5.1)							SF% -1501C				GVF ^L / _R 350 ~ 450-...C
	2525M-1502C	●	●	250 (25)	350 (∞)	8.1 (8.1)							SF% -1502C				GVF ^L / _R 500 ~ 600-...C

CDX shows available grooving depth.

The value () of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).

The value () of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.

Standard toolholders are designed with the edge position 0.039" (1.0mm) above the center. When using non-standard toolholders, set the edge position 0.039" (1.0mm) above the center.

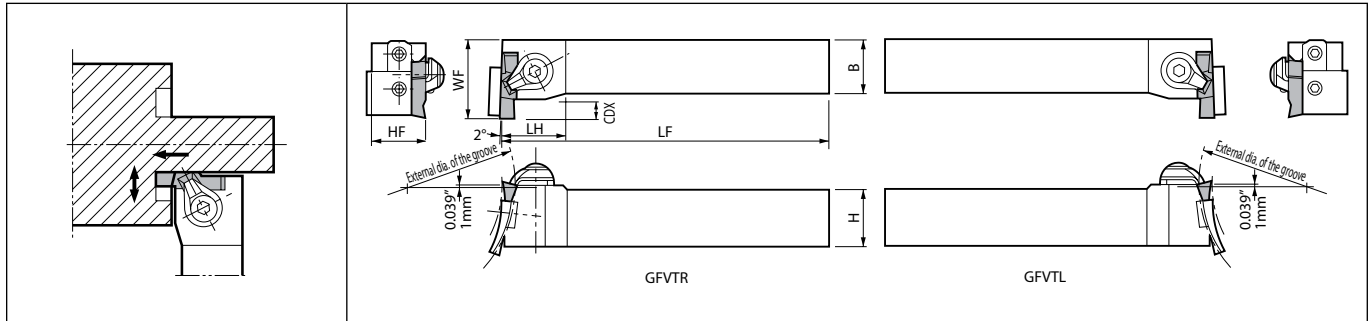
CDX shows the distance from the toolholder to the cutting edge. The grooving depth is mentioned in ().

GFVS is composed of a base-holder and a blade. If the blade should be damaged, replace it with a new blade as listed in the table on G143.

(e.g.) GFVSR2020K-HB + SFR-351B = GFVSR2020K-351B

*GVF^L/_R400~450-040C: CDX is 0.260" (6.6mm)

GFVT (Face Grooving)



Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.
This toolholder can machine various face grooving diameters by replacing the blade.

Toolholder Dimensions

Unit	Part Number	Std. Item		External dia. of the groove (in)		Dimensions							Spare Parts				Applicable Inserts G136
													Blade	Bolt	Clamp Set	Wrench	
		R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	LF	WF					
Inch	GFVT% 12-351B	●	●	1.378 (0.984)	1.969 (∞)	0.20 (0.18)	0.75	0.75	0.87	0.79	5.00	1.18	SF%L-351B	HH4X12	CPS-6V	LW-3	GVF% _R 250 ~ 350-...B
	16-351B	●	●			1.00	1.00	0.98	1.04	6.00	1.38	SF%L-352B	GVF% _R 300-150BR				
	12-352B	●	●			0.20 (0.20)	0.75	0.75	0.87	0.79	5.00	1.18	SF%L-501B				GVF% _R 400 ~ 490-...B
	16-352B	●	●			1.00	1.00	0.98	1.04	6.00	1.38	SF%L-502B	GVF% _R 400-200BR				
	12-501B	●	●	1.969 (0.984)	2.756 (∞)	0.20 (0.18)	0.75	0.75	0.87	0.79	5.00	1.18	SF%L-701B				GVF% _R 250 ~ 350-...B
	16-501B	●	●			1.00	1.00	0.98	1.04	6.00	1.38	SF%L-702B	GVF% _R 300-150BR				
	12-502B	●	●			0.20 (0.20)	0.75	0.75	0.87	0.79	5.00	1.18					GVF% _R 400 ~ 490-...B
	16-502B	●	●			1.00	1.00	0.98	1.04	6.00	1.38		GVF% _R 400-200BR				
	12-701B	●	●	2.756 (0.984)	3.937 (∞)	0.20 (0.18)	0.75	0.75	0.87	0.79	5.00	1.18					GVF% _R 250 ~ 350-...B
	16-701B	●	●			1.00	1.00	0.98	1.04	6.00	1.38		GVF% _R 300-150BR				
	12-702B	●	●			0.20 (0.20)	0.75	0.75	0.87	0.79	5.00	1.18					GVF% _R 400 ~ 490-...B
	16-702B	●	●			1.00	1.00	0.98	1.04	6.00	1.38		GVF% _R 400-200BR				
	GFVT% 16-501C	●	●	1.969 (0.984)	2.756 (∞)	0.32 (*0.26)	1.00	1.00	1.06	1.04	6.00	1.50	SF%L-501C	HH4X12	CPS-8V	LW-4	GVF% _R 350 ~ 450-...C
	16-502C	●	●			0.32 (0.32)							SF%L-502C				GVF% _R 500 ~ 600-...C
	16-701C	●	●	2.756 (0.984)	3.937 (∞)	0.32 (*0.26)							SF%L-701C				GVF% _R 350 ~ 450-...C
	16-702C	●	●			0.32 (0.32)							SF%L-702C				GVF% _R 500 ~ 600-...C
	16-1001C	●	●	3.937 (0.984)	5.906 (∞)	0.32 (*0.26)							SF%L-1001C				GVF% _R 500 ~ 600-...C
	16-1002C	●	●			0.32 (0.32)							SF%L-1002C				GVF% _R 500 ~ 600-...C
	16-1501C	●	●	5.906 (0.984)	9.843 (∞)	0.32 (*0.26)							SF%L-1501C				GVF% _R 500 ~ 600-...C
	16-1502C	●	●			0.32 (0.32)							SF%L-1502C				GVF% _R 500 ~ 600-...C

CDX shows available grooving depth.

The value () of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).

The value () of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.

Standard toolholders are designed with the edge position 0.039" (1.0mm) above the center. When using non-standard toolholders, set the edge position 0.039" (1.0mm) above the center.

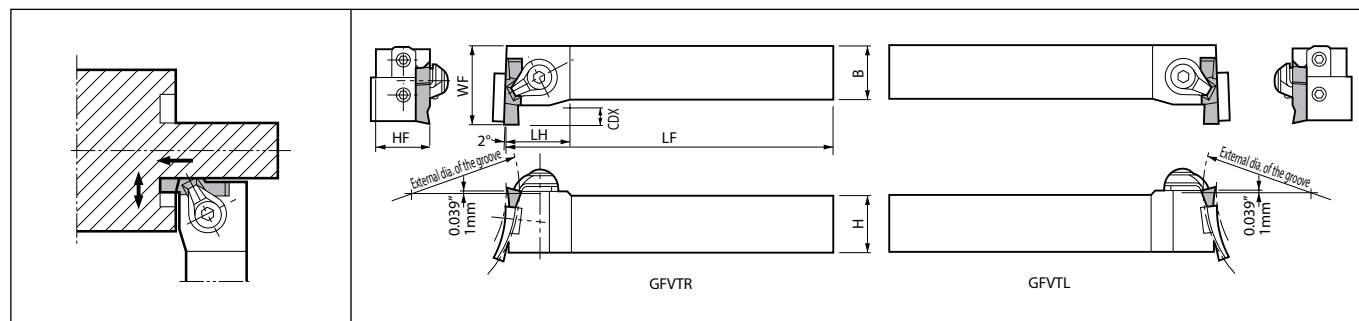
CDX shows the distance from the toolholder to the cutting edge. The grooving depth is mentioned in ().

GFVS is composed of a base-holder and a blade. If the blade should be damaged, replace it with a new blade as listed in the table on G143.

(e.g.) GFVTR12-HB + SFR-351B = GFVTR12-351B

*GVF%₄400~450-040C: CDX is 0.260" (6.6mm)

GFVT (Face Grooving)



Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.
This toolholder can machine various face grooving diameters by replacing the blade.

Toolholder Dimensions

Unit	Part Number	Std. Item		External dia. of the groove (mm)		Dimensions							Spare Parts				Applicable Inserts G136
													Blade	Bolt	Clamp Set	Wrench	
		R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	LF	WF					
mm	GFVT% 2020K-351B	●	●			5.1 (4.6)	20	20	22	21	125	30	SF% -351B	HH4X12	CPS-6V	LW-3	GVF/ _R 250 ~ 350-...B
	2525M-351B	●	●	35	50		25	25	25	26	150	35					GVF/ _R 300-150BR
	2020K-352B	●	●	(25)	(∞)	5.1 (5.1)	20	20	22	21	125	30	SF% -352B				GVF/ _R 400 ~ 490-...B
	2525M-352B	●	●				25	25	25	26	150	35					GVF/ _R 400-200BR
	2020K-501B	●	●			5.1 (4.6)	20	20	22	21	125	30	SF% -501B				GVF/ _R 250 ~ 350-...B
	2525M-501B	●	●	50	70		25	25	25	26	150	35					GVF/ _R 300-150BR
	2020K-502B	●	●	(25)	(∞)	5.1 (5.1)	20	20	22	21	125	30	SF% -502B				GVF/ _R 400 ~ 490-...B
	2525M-502B	●	●				25	25	25	26	150	35					GVF/ _R 400-200BR
	2020K-701B	●	●			5.1 (4.6)	20	20	22	21	125	30	SF% -701B				GVF/ _R 250 ~ 350-...B
	2525M-701B	●	●	70	100		25	25	25	26	150	35					GVF/ _R 300-150BR
	2020K-702B	●	●	(25)	(∞)	5.1 (5.1)	20	20	22	21	125	30	SF% -702B				GVF/ _R 400 ~ 490-...B
	2525M-702B	●	●				25	25	25	26	150	35					GVF/ _R 400-200BR
	GFVT% 2525M-501C	●	●	50	70	8.1 (*5.1)	25	25	27	26	150	38	SF% -501C	HH4X12	CPS-8V	LW-4	GVF/ _R 350 ~ 450-...C
	2525M-502C	●	●	(25)	(∞)	8.1 (8.1)							SF% -502C				GVF/ _R 500 ~ 600-...C
	2525M-701C	●	●	70	100	8.1 (*5.1)							SF% -701C				GVF/ _R 350 ~ 450-...C
	2525M-702C	●	●	(25)	(∞)	8.1 (8.1)							SF% -702C				GVF/ _R 500 ~ 600-...C
	2525M-1001C	●	●	100	150	8.1 (*5.1)							SF% -1001C				GVF/ _R 350 ~ 450-...C
	2525M-1002C	●	●	(25)	(∞)	8.1 (8.1)							SF% -1002C				GVF/ _R 500 ~ 600-...C
	2525M-1501C	●	●	150	250	8.1 (*5.1)							SF% -1501C				GVF/ _R 350 ~ 450-...C
	2525M-1502C	●	●	(25)	(∞)	8.1 (8.1)							SF% -1502C				GVF/ _R 500 ~ 600-...C

CDX shows available grooving depth.

The value () of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).

The value () of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.

Standard toolholders are designed with the edge position 0.039" (1.0mm) above the center. When using non-standard toolholders, set the edge position 0.039" (1.0mm) above the center.

CDX shows the distance from the toolholder to the cutting edge. The grooving depth is mentioned in ().

GFVS is composed of a base-holder and a blade. If the blade should be damaged, replace it with a new blade as listed in the table on G143.

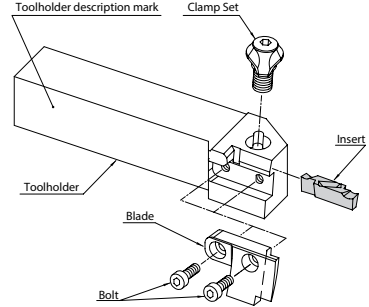
(e.g.) GFVTR2020K-HB + SFR-351B = GFVTR2020K-351B

*GVF/_R400~450-040C: CDX is 0.260" (6.6mm)

Selection of Toolholder & Insert

GFVS				GFVT			
Toolholder	Right-hand		Toolholder	Left-hand		Toolholder	Right-hand
Insert	Left-hand		Insert	Right-hand		Insert	Left-hand

Combination of Base-Holder & Blade

	Toolholder Part Number (Stamped below)	Std. Item		Blade Part Number	Toolholder Part Number (Unit Part Number)	Example of installation (GFVS)	How to refer to the face grooving toolholder and blade
		R	L				
Inch	GFVS $\frac{1}{2}$ 12-HB GFVT $\frac{1}{2}$ 12-HB	●	●	SF $\frac{1}{2}$ -351B	GFVS $\frac{1}{2}$ 12 -351B		Q : Though "GFVSR16-HC" is marked on the face grooving toolholder, the size of cutting dia. is unknown. How could it be found out? A : Take off the blade. Part Number of the blade is listed on the back of the blade. Using the description, check the description of the toolholder in the catalog. If "SFR-1001C" is integrated to "GFVSR16-HC", the description of the toolholder is "GVFSR16-1001C".
				-352B	GFVT $\frac{1}{2}$ 12 -352B		
				-501B	-501B		
				-502B	-502B		
				-701B	-701B		
				-702B	-702B		
	GFVS $\frac{1}{2}$ 16-HB GFVT $\frac{1}{2}$ 16-HB	●	●	SF $\frac{1}{2}$ -351B	GFVS $\frac{1}{2}$ 16 -351B		
				-352B	GFVT $\frac{1}{2}$ 16 -352B		
				-501B	-501B		
				-502B	-502B		
				-701B	-701B		
				-702B	-702B		
	GFVS $\frac{1}{2}$ 16-HC GFVT $\frac{1}{2}$ 16-HC	●	●	SF $\frac{1}{2}$ -501C	GFVS $\frac{1}{2}$ 16 -501C		
				-502C	GFVT $\frac{1}{2}$ 16 -502C		
				-701C	-701C		
				-702C	-702C		
				-1001C	-1001C		
				-1002C	-1002C		
mm	GFVS $\frac{1}{2}$ 2020K-HB GFVT $\frac{1}{2}$ 2020K-HB	●	●	SF $\frac{1}{2}$ -351B	GFVS $\frac{1}{2}$ 2020K -351B		
				-352B	GFVT $\frac{1}{2}$ 2020K -352B		
				-501B	-501B		
				-502B	-502B		
				-701B	-701B		
				-702B	-702B		
	GFVS $\frac{1}{2}$ 2525M-HB GFVT $\frac{1}{2}$ 2525M-HB	●	●	SF $\frac{1}{2}$ -351B	GFVS $\frac{1}{2}$ 2525M -351B		
				-352B	GFVT $\frac{1}{2}$ 2525M -352B		
				-501B	-501B		
				-502B	-502B		
				-701B	-701B		
				-702B	-702B		
	GFVS $\frac{1}{2}$ 2525M-HC GFVT $\frac{1}{2}$ 2525M-HC	●	●	SF $\frac{1}{2}$ -501C	GFVS $\frac{1}{2}$ 2525M -501C		
				-502C	GFVT $\frac{1}{2}$ 2525M -502C		
				-701C	-701C		
				-702C	-702C		
				-1001C	-1001C		
				-1002C	-1002C		

● : Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.

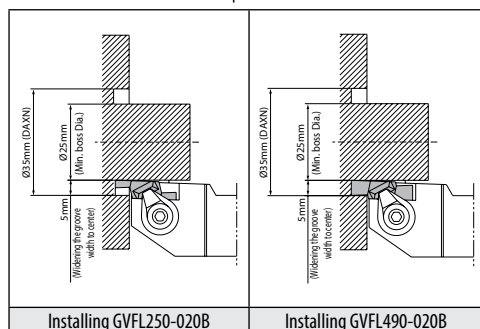
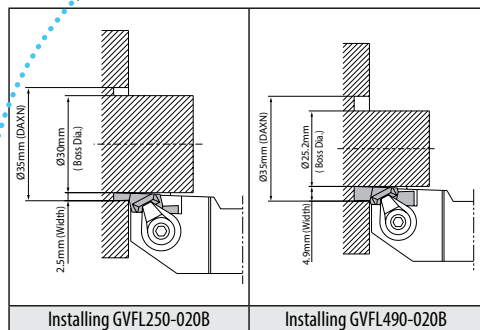
□ : Installation of GFVT is also pursuing example of installation of GFVS.

Unit	Shape	Blade Part Number	Std. Item		Dimensions (mm)				External dia. of the groove (mm)		Applicable Inserts	Applicable Toolholders	
			R	L	L	H	T	W	DAXN (min)	DAXX (max)			
mm	Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.	SF% -351B	●	●	30.5	11	4.7	2.0	35	50	GVF% 250~350-020B GVF% 300-150BR	GFV(S/T)% (Toolholder Stamp (GVF(S/T)% -HB))	
		-352B	●	●				3.4			GVF% 400~490-020B GVF% 400-200BR		
		SF% -501B	●	●				15	2.0	50	70		GVF% 250~350-020B GVF% 300-150BR
		-502B	●	●					3.4				GVF% 400~490-020B GVF% 400-200BR
		SF% -701B	●	●				17	2.0	70	100		GVF% 250~350-020B GVF% 300-150BR
		-702B	●	●					3.4				GVF% 400~490-020B GVF% 400-200BR
		SF% -501C	●	●	35.0	15	7.5	2.8	50	70	GVF% 350~450-040C	GFV(S/T)% (Toolholder Stamp (GVF(S/T)% -HC))	
		-502C	●	●				4.3			GVF% 500~600-040C		
		SF% -701C	●	●				20	2.8	70	100		GVF% 350~450-040C
		-702C	●	●					4.3				GVF% 500~600-040C
		SF% -1001C	●	●				23	2.8	100	150		GVF% 350~450-040C
		-1002C	●	●					4.3				GVF% 500~600-040C
		SF% -1501C	●	●	23	2.8	150	250	GVF% 350~450-040C				
		-1502C	●	●		4.3			GVF% 500~600-040C				

GFVT^{R/L}...-○○○B, ...-○○○C ➡ G141~G142

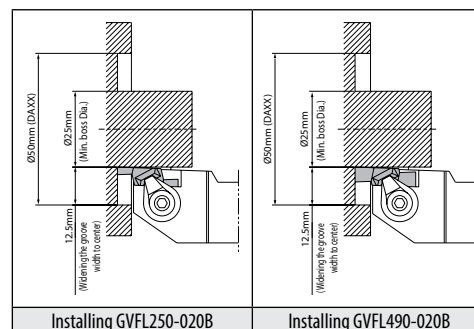
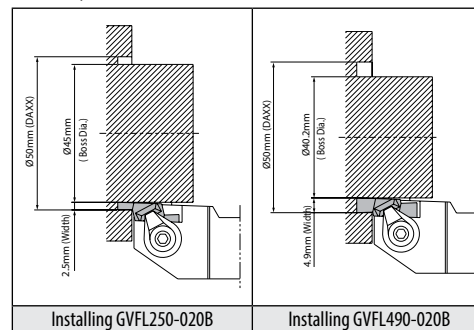
Part Number	External dia. of the groove (mm)		Applicable Inserts
	DAXN (min)	DAXX (min)	
GVF% 2020K-351B 2525M-351B 2020K-352B 2525M-352B	35 (25)	50 (∞)	GVF% 250~350-020B GVF% 300-150BR GVF% 400~490-020B GVF% 400-200BR

- When machining the initial groove on the face at (DAXN: Ø35mm)
 - If the initial groove is made smaller than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.
- The image contains two side-by-side cross-sectional diagrams of a toolholder being installed into a workpiece. Both diagrams show a workpiece with a central hole of diameter Ø35mm (DAXN) and an initial groove of diameter Ø30mm. The toolholder has a boss that fits into this groove. In the left diagram, for the GVFL250-020B toolholder, the insert width is 25mm and the boss diameter is Ø30mm. In the right diagram, for the GVFL490-020B toolholder, the insert width is 49mm and the boss diameter is Ø25.2mm. The diagrams illustrate that the boss diameter must be appropriate for the insert width to avoid interference with the workpiece walls.
- When widening the groove width to inner diameter.
 - Face Grooving Dia. (Ø25mm Boss Dia.) is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at (DAXN: Ø35mm) or (DAXX: Ø50mm).
 - The toolholder interferes with the workpiece when closer to the center.

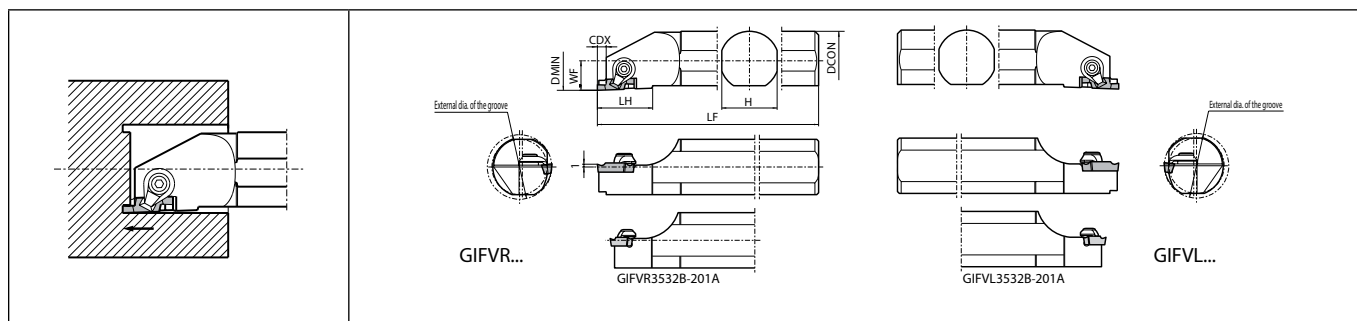


- It is possible to widen the groove to infinity ∞ when machining the initial groove within DAXN $\sim$ DAXX and then widening to outer diameter.

- When machining the initial groove on the face at (DAXX: Ø50mm).
If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
Boss Dia. depends on insert width.



GIFV (Face Grooving)



Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

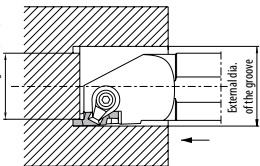
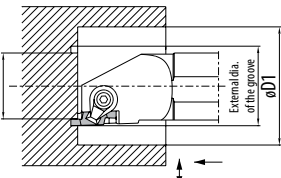
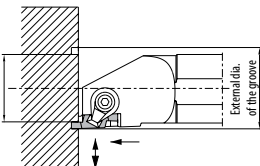
Toolholder Dimensions

Unit	Part Number	Std. Item		External dia. of the groove (mm)		Dimensions								Spare Parts				Applicable Inserts 🔩 G136
														Clamp Set	Clamp Set	Wrench	Wrench	
		R	L	DAXN (min.)	DAXX (max.)	DMIN	DCON	CDX	H	LH	LF	WF						
mm	GIFV% 3532B-201A	●	●	35 (12)	∞ (∞)	35	32	2.2	30	23	250	16	CPS-5V	-	-	FT-15	GVF% ...A(R)	
	GIFV% 3532B-351B	●	●	35	50	35	4.6	30	30	250	16	-	CPS-6V	LW-3	-	GVF% 250 ~ 350...B(R)		
	3532B-352B	●	●	(25)	(∞)											32	5.1	GVF% 400 ~ 490...B(R)
	5032B-501B	●	●	50	70	50	4.6	GVF% 250 ~ 350...B(R)										
	5032B-502B	●		(25)	(∞)			5.1	GVF% 400 ~ 490...B(R)									
	GIFV% 5032B-501C	●	●	50	70	50	6.6		30	35	250	16	-	CPS-8V	LW-4	-	GVF% 350 ~ 450-040C	
	5032B-502C	●		(25)	(∞)			8.1									GVF% 500 ~ 600-040C	

CDX shows available grooving depth.

Standard toolholders are designed with the edge position 0.039" (1.0mm) above the center.

External dia. of the groove depends on the application.

Applications	Part Number	Internal dia. of the groove	External dia. of the groove		Notes
		(min.)	DAXN [min.]	DAXX [max.] (max.)	
	GIFV [®] /L 3532B-201A	-	35	∞	-
	GIFV [®] /L 3532B-351B			50	
	3532B-352B		∞		
	5032B-501B				
	5032B-502B				
	GIFV [®] /L 5032B-501C	50	70		
5032B-502C					
	GIFV [®] /L 3532B-201A	12	35	∞	If øD1 ≥ 58-2CW, the Face Grooving Dia. can be expanded to Internal dia. of the groove (min.) toward the Center. CW = Edge Width
	GIFV [®] /L 3532B-351B	25		50	
	3532B-352B		∞		
	5032B-501B				
	5032B-502B				
	GIFV [®] /L 5032B-501C	50	70		
5032B-502C					
	GIFV [®] /L 3532B-201A	12	35	∞	-
	GIFV [®] /L 3532B-351B	25		50	
	3532B-352B		∞		
	5032B-501B				
	5032B-502B				
	GIFV [®] /L 5032B-501C	50	70		
5032B-502C					

The value () of External dia. of the groove (max.) is the maximum outer diameter value after the initial plunge between DAXN ~ DAXX (It is possible to widen the groove to infinity ∞).

The value () of Internal dia. of the groove (min.) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial plunge between DAXN ~ DAXX.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KCFP

			Carbon Steel / Alloy Steel										☐	☐	P
			Stainless Steel										●	☐	M
			Cast Iron												K
			Non-Ferrous Metals												N
			Titanium Alloy												S
			Hard Materials (~ 40HRC)												H
			Hard Materials (40HRC ~)												
Insert		Part Number		No. of Edges	Dimensions (in)						Tolerance (in)		Carbide	Applicable Toolholder ➔ G146	
					CW		CDX	W1	S	INSL	RE	CW min.	CW max.		PVD
					in	mm									PR1625 PR930
	KCFP 3125R		1	0.125	3.15	0.150	0.195	0.344	0.886	0.008	-0.001	+0.001	●	△	KKCEL...-3..
	KCFP 3125L		1	0.125	3.15	0.150	0.195	0.344	0.886	0.008	-0.001	+0.001	●	△	KKCER...-3..
	3156L			0.156	3.97								△	△	

Right-hand shown

CDX : Maximum grooving depth.

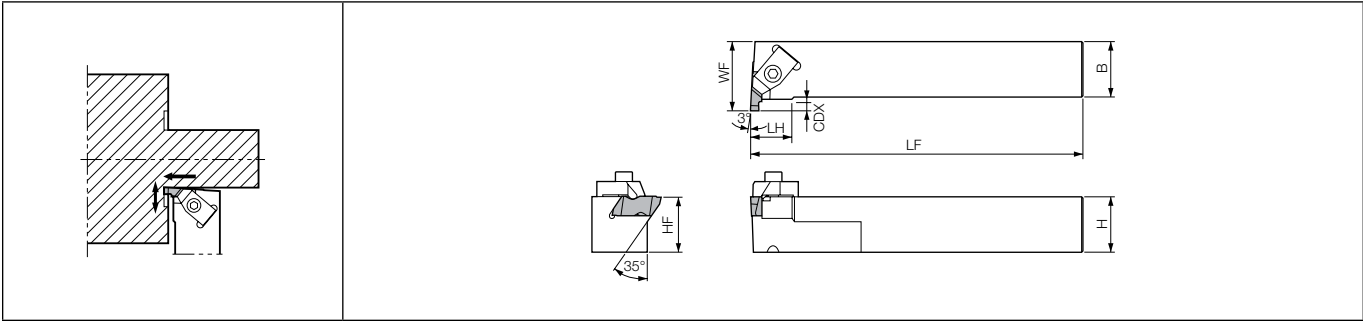
Recommended Cutting Conditions

Workpiece Material	Recommended insert grades (Vc: sfm)		Feed Rate f (ipr)	Notes
	MEGACOAT NANO	Carbide		
	PR1625	PR930		
Carbon Steel	★ 250~650	☆ 250~650	0.002~0.010	Coolant
Alloy Steel	★ 150~550	☆ 150~550		
Stainless Steel	★ 100~550	☆ 100~550		
Tool steel	★ 100~550	☆ 100~550		

Speeds and Feeds listed are for grooving.

★ : 1st recommendation ☆ : 2nd recommendation

KKCE (Face Grooving)



Right-hand Insert for Left-hand Toolholder, Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

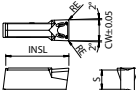
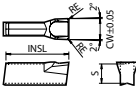
Unit	Part Number	Std. Item		Dimensions							Spare Parts			Applicable Inserts G145
											Clamp	Clamp Screw	Wrench	
		R	L	CDX	H	B	LH	HF	LF	WF				
Inch	KKCE [●] 12-3B	●	●	0.210	0.750	0.750	0.750	0.750	4.500	1.125	CKC-3 [●]	HH5X25	LW-4	KCFP3...
	16-3D	●			1.000	1.000		1.000	6.000	1.250				

CDX shows available grooving depth.
Clamp: CKC-3L for Right-hand Toolholder and CKC-3R for Left-hand Toolholder.

Face Grooving Limits		
Insert Part Number	Maximum Groove Depth	Minimum Groove Diameter
KCFP3...	0.060	0.940
	0.094	1.200
	0.125	1.420
	0.150	1.630

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

FMM/FMN

		Carbon Steel / Alloy Steel											●				P	
		Stainless Steel											●				M	
		Cast Iron										●			○		K	
		Non-Ferrous Metals												●			N	
		Titanium Alloy												●			S	
		Hard Materials (~ 40HRC)											○				H	
		Hard Materials (40HRC ~)																
Insert		Part Number	No. of Edges	Dimensions (mm)					Tolerance (mm)		Carbide					Cermat	Applicable Toolholder ➡ G149~G150	
				CW		S	RE	INSL	CW min.	CW max.	CVD	PVD			-			-
				in	mm							CR025	PR05	PR15					PR30	KW10	TN90
	 Chip control oriented / M class	FMM 30-03	1	0.118	3	3.5	0.3	12	-0.05	+0.05	△	△	△	△	△	△	KFMS%L...-3(...)	
		FMM 40-04	1	0.157	4	3.5	0.4	12	-0.05	+0.05	△	△	△	△	△	△	KFMS%L...-4(...)	
		FMM 50-04	1	0.197	5	3.5	0.4	12	-0.05	+0.05	△	△	△	△	△	△	KFMS%L...-5(...)	
		FMM 60-04	1	0.236	6	3.5	0.4	12	-0.05	+0.05	△	△	△	△	△	△		
	 Sharp cutting oriented / M class	FMN 3	1	0.118	3	3.5	0.25	12	-0.05	+0.05	△			△	△	△	KFMS%L...-3(...)	
		FMN 4	1	0.157	4	3.5	0.25	12	-0.05	+0.05				△	△	△	KFMS%L...-4(...)	
		FMN 5	1	0.197	5	3.5	0.25	12	-0.05	+0.05	△			△	△	△	KFMS%L...-5(...)	
		FMN 6	1	0.236	6	3.5	0.25	12	-0.05	+0.05	△			△	△	△		

FMN inserts are only for Deep Grooving and not applicable for Turning.

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Vc: sfm)						Face Grooving (FMM / FMN)			Turning (FMM)			Notes
	Cermet	CVD coated carbide	PVD coated carbide			Carbide	Edge Width (in)			Edge Width (in)			
	TN90	CP9025	PR915	PR930	PR905	KW10	0.118	0.157	0.197 / 0.236	0.118	0.157	0.197 / 0.236	
							f (ipr)			f (ipr)			
Carbon Steel	☆ 100~220	☆ 80~200	☆ 80~200	★ 80~200	-	-	0.0012~0.0020	0.0012~0.0031	0.0020~0.0039	0.0020~0.0039	0.0020~0.0098	0.0039~0.0118	Coolant
Alloy Steel	☆ 80~200	☆ 70~180	☆ 70~180	★ 70~180	-	-	0.0012~0.0020	0.0012~0.0031	0.0020~0.0039	0.0020~0.0039	0.0020~0.0098	0.0039~0.0118	
Stainless Steel	☆ 70~160	☆ 60~150	★ 60~150	☆ 60~150	-	-	0.0012~0.0020	0.0012~0.0031	0.0020~0.0039	0.0020~0.0039	0.0020~0.0098	0.0039~0.0118	
Cast Iron	-	-	-	-	★ 80~180	☆ 70~150	0.0012~0.0020	0.0012~0.0031	0.0020~0.0039	0.0020~0.0039	0.0020~0.0098	0.0039~0.0118	
Aluminum Alloys	-	-	-	-	-	★ 200~500	0.0012~0.0020	0.0012~0.0031	0.0020~0.0039	0.0020~0.0039	0.0020~0.0098	0.0039~0.0118	
Brass	-	-	-	-	-	★ 100~200	0.0012~0.0020	0.0012~0.0031	0.0020~0.0039	0.0020~0.0039	0.0020~0.0098	0.0039~0.0118	

• Set the feed rate 1/100 of edge width on the first groove and check chip evacuation.

• FMN type Inserts are only for deep grooving, and when used for turning, set to D.O.C. = 0.008" (0.2mm) and under.

★ : 1st recommendation ☆ : 2nd recommendation

Refer to the notes below for turning conditions

D.O.C. and f of FMM

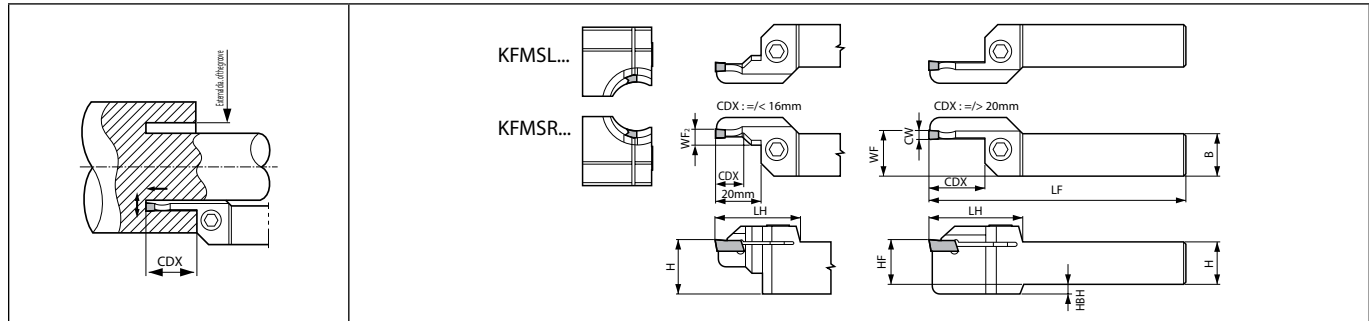
	Recommended cutting conditions	
D.O.C. (MAX.) (in)	under 50% of edge width	D.O.C. ≤ 0.0020"CW
f (MAX.) (ipr)	under 3~5% of edge width	f ≤ [0.0012"(Min.) ~ 0.0020"(Max.)]CW

D.O.C. x f should be as follows.

Load (in ²) \ Edge Width (in)	0.118	0.157	0.197	0.236
D.O.C. x f	~0.004	~0.006	~0.010	~0.014

D.O.C. x f ≤ 0.0004"CW²

KFMS (Face Grooving)



Toolholder Dimensions

Part Number	Unit	Std. Item		External dia.of the groove		Dimensions											Spare Parts		Applicable Inserts ➡ G148			
		R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	HBH	LF	WF	WF ₂	CW							
KFMSR 16-3-4050 16-3-5065	Inch	△		1.575	1.969	0.512	1.000	1.000	1.539	1.000	-	6.000	1.027	0.240	0.118	HH5X25	LW-4	FMM30-03 FMN3				
KFMSR 2020K2530-3 2020K3040-3 2020K4050-3 2020K5065-3 2020K6585-3 2020K85110-3 2020K110145-3	mm	△		25	30	13	20	20	1.618	20	-	125	20.7	6.1	3	HH5X20	LW-4	FMM30-03 FMN3				
		△		30	40				41					-								
		△		40	50				44					-								
		△		50	65	44			-													
		△		65	85	22			25	44				5					-			
		△		85	110																	
		△		110	145																	
		KFMS% 2525M2530-3 2525M3040-3 2525M4050-3 2525M5065-3 2525M6585-3 2525M85110-3 2525M110145-3	mm	△	△	25														30	13	25
△	△			30	40	41	-															
△	△			40	50	44	-															
△	△			50	65	44	-															
△	△			65	85	22	25	44			-											
△	△			85	110																	
△	△			110	145																	
KFMSR 2020K2535-4 2020K3550-4 2020K5070-4 2020K70100-4 2020K100150-4 2020K150220-4 2020K220800-4	mm			△		25			35	12		20	20	39	20	-	125	20.7	7.1	4	HH5X20			LW-4	FMM40-04 FMN4
		△		35	50	20			44	-												
		△		50	70	25			44	5				-								
		△		70	100																	
		△		100	150																	
		△		150	220																	
		△		220	∞																	
		KFMS% 2525M2535-4 2525M3550-4 2525M5070-4 2525M70100-4 2525M100150-4 2525M150220-4 2525M220800-4	mm	△	△	25	35	12			25				25				39			25	-			150	25.7	7.1	4	HH5X25	LW-4	FMM40-04 FMN4
△	△			35	50	20	44	-														
△	△			50	70	25	44	-														
△	△			70	100																	
△	△			100	150																	
△	△			150	220																	
△	△			220	∞																	

CDX shows available grooving depth.

External dia. of the groove : The diameter range of the initial plunge.

KFMS will be switched to KGDF=> G114 ~ G118

Toolholder Dimensions

Part Number	Unit	Std. Item		External dia.of the groove		Dimensions											Spare Parts		Applicable Inserts 🔩 G148
																	Clamp Screw	Wrench	
		R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	HBH	LF	WF	WF ₂	CW				
KFMSR 16-5-75115 16-5-115180	Inch	△		2.953	4.528	1.260	1.000	1.000	2.012	1.000	-	6.000	1.027 (1.047)	-	0.197 (0.236)	HH5X25	LW-4	FMM50-04 FMN5 FMM60-04 FMN6	
△		4.528	7.087																
KFMSR 2020K2535-5 2020K3550-5 2020K5075-5 2020K75115-5 2020K115180-5 2020K180235-5 2020K235800-5	mm	△		25	35	20			39		-						HH5X20	LW-4	FMM50-04 FMN5 FMM60-04 FMN6
△			35	50															
△			50	75	25	20	20	44	20	5	125	20.7 (21.2)							
△			75	115															
△			115	180															
△			180	235															
△			235	∞	20			39											
△ △			25	35															
△ △			35	50															
△ △			50	75															
△ △			75	115															
△ △			115	180															
△ △			180	235															
KFMSR 2525M2535-5 2525M3550-5 2525M5075-5 2525M75115-5 2525M115180-5 2525M180235-5 2525M235800-5		△ △		235	∞	32	25	25	51	25	-	150	25.7 (26.2)						
△ △		25	35																
△ △		35	50																
△ △		50	75																
△ △		75	115																
△ △		115	180																
△ △		180	235																

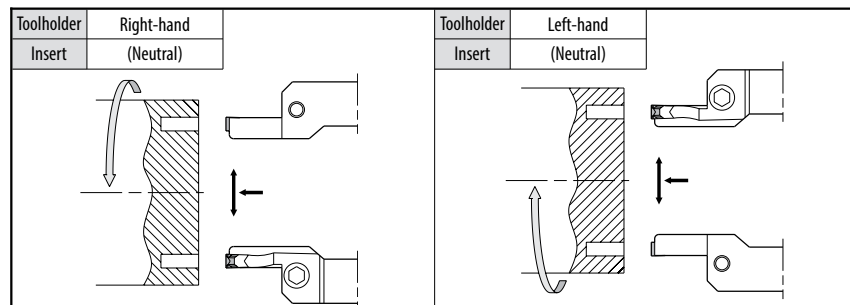
CDX shows available grooving depth.

External dia. of the groove : The diameter range of the initial plunge.

For KFMSR 2525M2535-5 toolholder can hold a 0.236" (6mm) width insert. () value shows the dimension of a 0.236" (6mm) width insert.

KFMS will be phased out. Switch to KGDF => ➔ G110~G131

Selection of Toolholder & Insert



Limit of Turning toward Center

Turning towards the Center causes the toolholder to interfere with the groove wall depending on the initial cut's diameter.

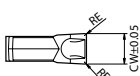
Part Number	DMIN ₂				28 and over
	25	26	27	28	
KFMSR 2020K2530-3	4	2	0	0	(No remaining Boss)
KFMSR 2525M2530-3	4	2	0	0	
KFMSR 2020K2535-4	6	3	0	0	
KFMSR 2525M2535-4	6	3	0	0	
KFMSR 2020K2535-5	7	4	1	1	
KFMSR 2525M2535-5	*(5)	*(2)	*(0)	*(0)	

e.g.)

KFMSR 2525M2530-3 with ø25mm as first cut towards the center, it will cause a rubbing with the toolholder cartridge if ød is 4.0mm.

*() value shows the Dimension using FMM60-04 Insert.

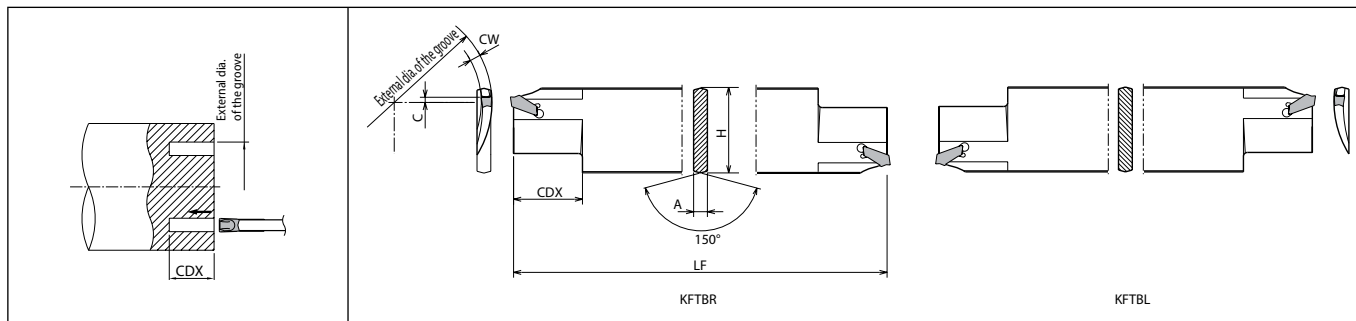
FTK

		Carbon Steel / Alloy Steel						●	●	P			
		Stainless Steel						●	●	M			
		Cast Iron						●	●	K			
		Non-Ferrous Metals						●	●	N			
		Titanium Alloy						●	●	S			
		Hard Materials (~ 40HRC)						○	○	H			
		Hard Materials (40HRC ~)						○	○				
Insert		Part Number		No. of Edges	Dimensions (mm)		Tolerance (mm)		Carbide			Applicable Toolholder ➡ G152	
					CW		RE	CW min.	CW max.	CVD	PVD		-
					in	mm				CR9025	PR930		KW10
		FTK 4	1	0.157	4	0.25	- 0.05	+ 0.05	●	●	●	KFTB%...-4S	
		FTK 5	1	0.197	5	0.25	- 0.05	+ 0.05	●	●	●	KFTB%...-5S	

Recommended Cutting Conditions ➡ G158

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KFTB (Face Grooving Blade)



Toolholder Dimensions

Unit	Part Number	Std. Item		External dia. of the groove (mm)		Dimensions						Applicable Inserts 🌀 G151	Applicable tool block 🌀 G56, H57
		R	L	DAXN (min.)	DAXX (max.)	CDX	H	A	C	LF	CW		
mm	KFTB% 65100-4S	●	●	65	100	25	32	5.2	4	150	4	FTK4	KPKTB...32JCT KTKTB...32 KTKTBF...32
	90150-4S	●	●	90	150	30			0				
	150250-4S	●	●	140	250	30							
	250800-4S	●	●	230	∞								
	KFTB% 90150-5S	●	●	90	150	30	32	5.2	0	150	5	FTK5	
	150250-5S	●	●	150	250	32							
	250800-5S	●	●	250	∞	38								4

CDX shows available grooving depth.

External dia. of the groove : The diameter range of the initial plunge.

The insert has Self-Clamping system and it is not suitable for tight tolerance grooves (tolerance ± 0.05 mm).

Lightly tap an Insert with a Plastic hammer. (End of insert does not touch toolholder.)

KFTB% 65100-4S toolholder is designed with the edge position 4mm above the Center.

Dimension H shows virtual apex distance.

Selection of Blade and Insert

Combination of Blade + KTKTB				Combination of Blade + KTKTBF			
Blade	Right-hand			Blade	Right-hand		
Insert	Neutral			Insert	Neutral		
(Reverse mounting) Blade KFTBR + Block KTKTB (Normal mounting)				(Normal mounting) Blade KFTBL + Block KTKTB (Reverse mounting)			
(Reverse mounting) Blade KFTBR + Block KTKTBF (Normal mounting)				(Normal mounting) Blade KFTBL + Block KTKTBF (Reverse mounting)			

Recommended Cutting Conditions

GBA Inserts - Ground Chipbreaker

Workpiece Material	Recommended Insert Grades (Vc: sfm)										(1) f for grooving (ipr) (2) f for traversing (ipr) (3) D.O.C. for traversing (mm)					Notes	
	MEGACOAT NANO EX		MEGA COAT	MEGA COAT NANO	MEGA COAT Cermet	Cermet			Carbide	CBN	PCD						
	PR2015	PR2025	PR1215	PR1625	PV7040	TN620	TC40	TN90	KW10	KBNS10 KBNS25	KPD001 (KPD010)	GBA○○% 033~120-...	GBA○○% 125~225-...	GBA○○% 230~325-...	GBA○○% 330~350-...		GBA○○% 400~480-...
Carbon Steel	★ 260~660	★ 260~590	☆ 260~660	☆ 260~590	☆ 490~790	★ 260~720	☆ 490~720	☆ 490~720	-	-	-	(1) 0.0012~0.0031 (2) Not Recomm. (3) Not Recomm.	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) Max. 0.0118	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0315	Coolant
Alloy Steel	★ 260~590	☆ 260~520	☆ 260~590	☆ 260~520	☆ 430~720	★ 260~660	☆ 430~660	☆ 430~660	-	-	-	(1) 0.0012~0.0028 (2) Not Recomm. (3) Not Recomm.	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) Max. 0.0118	(1) 0.0020~0.0035 (2) 0.0020~0.0035 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0315	
Stainless Steel	☆ 200~490	★ 200~430	☆ 200~490	☆ 200~430	-	-	-	☆ 230~490	-	-	-	(1) 0.0012~0.0028 (2) Not Recomm. (3) Not Recomm.	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) Max. 0.0118	(1) 0.0020~0.0035 (2) 0.0020~0.0035 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0315	
Cast Iron	★ 260~590	-	-	-	-	-	-	-	☆ 200~390	★ 490~1,310	-	(1) 0.0012~0.0031 (2) Not Recomm. (3) Not Recomm.	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) Max. 0.0118	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0315	
Aluminum Alloys	-	-	-	-	-	-	-	-	★ 490~1,310	-	★ 490~6,560	(1) 0.0020~0.0047 (2) Not Recomm. (3) Not Recomm.	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0197	(1) 0.0031~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	
Brass	-	-	-	-	-	-	-	-	★ 490~980	-	★ 660~2,620	(1) 0.0020~0.0047 (2) Not Recomm. (3) Not Recomm.	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0315	(1) 0.0031~0.15 (2) 0.0031~0.15 (3) Max. 0.0315	(1) 0.0031~0.15 (2) 0.0031~0.15 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	
Hard Materials	-	-	-	-	-	-	-	-	-	★ 260~390	-	-	(1) 0.0008~0.0020 (2) Not Recomm. (3) Not Recomm.	(1) 0.0012~0.0028 (2) 0.0004~0.0016 (3) Max. 0.0039	-	-	

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

★:1st recommendation ☆:2nd recommendation

GBA Inserts - GM Chipbreaker

Workpiece Material	Recommended Insert Grades (Vc: sfm)					(1) f for grooving (ipr) (2) f for traversing (ipr) (3) D.O.C. for traversing (mm)					Notes
	MEGACOAT NANO EX		MEGACOAT	MEGACOAT NANO	Cermet	GBA43 % 140-010GM	GBA43 % 150-020GM	GBA43 % 175-020GM~230-020GM	GBA43 % 250-030GM~350-030GM	GBA43 % 400-040GM	
	PR2015	PR2025	PR1215	PR1625	TN620						
Carbon Steel	★ 260~720	★ 260~720	☆ 260~720	☆ 260~720	★ 260~790	(1) 0.0012 - 0.0039 (2) 0.0012 - 0.0031 (3) Max. 0.0079	(1) 0.0012 - 0.0047 (2) 0.0012 - 0.0031 (3) Max. 0.0118	(1) 0.0012 - 0.0047 (2) 0.0012 - 0.0035 (3) Max. 0.0118	(1) 0.0016 - 0.0059 (2) 0.0020 - 0.0039 (3) Max. 0.0197	(1) 0.0020 - 0.0059 (2) 0.0020 - 0.0039 (3) Max. 0.0315	Coolant
Alloy Steel	★ 260~660	★ 260~660	☆ 260~660	☆ 260~660	★ 260~720	(1) 0.0012 - 0.0039 (2) 0.0012 - 0.0031 (3) Max. 0.0079	(1) 0.0012 - 0.0047 (2) 0.0012 - 0.0031 (3) Max. 0.0118	(1) 0.0012 - 0.0047 (2) 0.0012 - 0.0035 (3) Max. 0.0118	(1) 0.0016 - 0.0059 (2) 0.0020 - 0.0039 (3) Max. 0.0197	(1) 0.0020 - 0.0059 (2) 0.0020 - 0.0039 (3) Max. 0.0315	
Stainless Steel	☆ 200~490	★ 200~490	☆ 200~490	☆ 200~490	-	(1) 0.0012 - 0.0039 (2) 0.0012 - 0.0031 (3) Max. 0.0079	(1) 0.0012 - 0.0039 (2) 0.0012 - 0.0031 (3) Max. 0.0118	(1) 0.0012 - 0.0039 (2) 0.0012 - 0.0035 (3) Max. 0.0118	(1) 0.0016 - 0.0047 (2) 0.0020 - 0.0039 (3) Max. 0.0197	(1) 0.0016 - 0.0047 (2) 0.0020 - 0.0039 (3) Max. 0.0315	
Cast Iron	★ 260~660	-	-	-	-	(1) 0.0012 - 0.0039 (2) 0.0012 - 0.0031 (3) Max. 0.0079	(1) 0.0012 - 0.0047 (2) 0.0012 - 0.0031 (3) Max. 0.0118	(1) 0.0012 - 0.0047 (2) 0.0012 - 0.0035 (3) Max. 0.0118	(1) 0.0016 - 0.0059 (2) 0.0020 - 0.0039 (3) Max. 0.0197	(1) 0.0016 - 0.0047 (2) 0.0020 - 0.0039 (3) Max. 0.0315	

* Above cutting condition is for external grooving. Set both cutting speed and feed 20% lower for internal grooving.

★:1st recommendation ☆:2nd recommendation

Recommended Cutting Conditions

GBF inserts

Workpiece	Recommended Insert Grade (Cutting Speed Vc: sfm)			(1) Grooving Feed Rate (ipr) (2) Traversing Feed Rate (ipr) (3) Max D.O.C. for Traversing (in)				Notes
	MEGACOAT	MEGACOAT NANO	Carbide					
	PR1215	PR1535	GW15	GBF32 $\frac{R}{L}$ 025~053	GBF32 $\frac{R}{L}$ 065~095	GBF32 $\frac{R}{L}$ 100~145	GBF32 $\frac{R}{L}$ 150~300	
Carbon Steel	★ 260 - 590	☆ 230 - 530	-	(1) 0.0004 - 0.0020 (2) Not Recommended (3) Not Recommended	(1) 0.0008 - 0.0028 (2) Not Recommended (3) Not Recommended	(1) 0.0012 - 0.0031 (2) 0.0012 - 0.0024 (3) MAX. 0.0079	(1) 0.0012 - 0.0031 (2) 0.0012 - 0.0024 (3) MAX. 0.0079	Coolant
Alloy Steel	★ 260 - 590	☆ 230 - 530	-	(1) 0.0004 - 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0008 - 0.0024 (2) Not Recommended (3) Not Recommended	(1) 0.0012 - 0.0028 (2) 0.0008 - 0.0020 (3) MAX. 0.0079	(1) 0.0012 - 0.0028 (2) 0.0008 - 0.0020 (3) MAX. 0.0079	
Stainless Steel	☆ 200 - 430	★ 160 - 390	-	(1) 0.0004 - 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0008 - 0.0024 (2) Not Recommended (3) Not Recommended	(1) 0.0012 - 0.0028 (2) 0.0008 - 0.0020 (3) MAX. 0.0079	(1) 0.0012 - 0.0028 (2) 0.0008 - 0.0020 (3) MAX. 0.0079	
Cast Iron	-	-	★ 200 - 330	(1) 0.0004 - 0.0020 (2) Not Recommended (3) Not Recommended	(1) 0.0008 - 0.0028 (2) Not Recommended (3) Not Recommended	(1) 0.0012 - 0.0031 (2) 0.0012 - 0.0024 (3) MAX. 0.0079	(1) 0.0012 - 0.0031 (2) 0.0012 - 0.0024 (3) MAX. 0.0079	
Aluminum Alloy	-	-	★ 490 - 1,310	(1) 0.0004 - 0.0020 (2) Not Recommended (3) Not Recommended	(1) 0.0008 - 0.0028 (2) Not Recommended (3) Not Recommended	(1) 0.0012 - 0.0031 (2) 0.0012 - 0.0024 (3) MAX. 0.0079	(1) 0.0012 - 0.0031 (2) 0.0012 - 0.0024 (3) MAX. 0.0079	
Brass	-	-	★ 490 - 980	(1) 0.0004 - 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0008 - 0.0028 (2) Not Recommended (3) Not Recommended	(1) 0.0012 - 0.0028 (2) 0.0008 - 0.0020 (3) MAX. 0.0079	(1) 0.0012 - 0.0028 (2) 0.0008 - 0.0020 (3) MAX. 0.0079	

★ :1st recommendation ☆ :2nd recommendation

GBF32...-000F inserts (RE = 0.00)

Workpiece	Recommended Insert Grade (Cutting Speed Vc: sfm)			(1) Grooving Feed Rate (ipr) (2) Traversing Feed Rate (ipr) (3) Max D.O.C. for Traversing (in)				Notes
	MEGACOAT	MEGACOAT NANO	Carbide					
	PR1215	PR1535	GW15	GBF32 [®] 025 ~ 053 - 000F	GBF32 [®] 065 ~ 095 - 000F	GBF32 [®] 100 ~ 145 - 000F	GBF32 [®] 150 ~ 200 - 000F	
Carbon Steel	★ 260 - 590	☆ 230 - 530	-	(1) 0.0002 – 0.0012 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	Coolant
Alloy Steel	★ 260 - 590	☆ 230 - 530	-	(1) 0.0002 – 0.0010 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0012 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0016 (2) 0.0004 – 0.0012 (3) MAX. 0.0079	(1) 0.0004 – 0.0016 (2) 0.0004 – 0.0012 (3) MAX. 0.0079	
Stainless Steel	☆ 200 - 430	★ 160 - 390	-	(1) 0.0002 – 0.0008 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0010 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0012 (2) 0.0004 – 0.0010 (3) MAX. 0.0079	(1) 0.0004 – 0.0012 (2) 0.0004 – 0.0010 (3) MAX. 0.0079	
Cast Iron	-	-	★ 200 - 330	(1) 0.0002 – 0.0012 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	
Aluminum Alloy	-	-	★ 490 - 1,310	(1) 0.0002 – 0.0012 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	
Brass	-	-	★ 490 - 980	(1) 0.0004 – 0.0012 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0016 (2) Not Recommended (3) Not Recommended	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	(1) 0.0004 – 0.0020 (2) 0.0004 – 0.0016 (3) MAX. 0.0079	

★ :1st recommendation ☆ :2nd recommendation

GBF-GL inserts

Workpiece	Recommended Insert Grade (Cutting Speed Vc: sfm)		(1) Grooving Feed Rate (ipr) (2) Traversing Feed Rate (ipr) (3) Max D.O.C. for Traversing (in)				Notes
	MEGACOAT	MEGACOAT NANO					
	PR1215	PR1535	GBF32R075~005GL	GBF32R095 ~ 100-005GL	GBF32R 150 – 200 (GL)	GBF32R 300 (GL)	
Carbon Steel	★ 260 - 590	☆ 230 - 530	(1) 0.0008 – 0.0028 (2) Not Recommended (3) Not Recommended	(1) 0.0012 – 0.0031 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0012 – 0.0031 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0016 – 0.0039 (2) 0.0016 – 0.0031 (3) MAX. 0.0197	Coolant
Alloy Steel	★ 260 - 590	☆ 230 - 530	(1) 0.0008 – 0.0024 (2) Not Recommended (3) Not Recommended	(1) 0.0012 – 0.0028 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0012 – 0.0028 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0016 – 0.0035 (2) 0.0016 – 0.0031 (3) MAX. 0.0197	
Stainless Steel	☆ 200 - 430	★ 160 - 390	(1) 0.0008 – 0.0024 (2) Not Recommended (3) Not Recommended	(1) 0.0012 – 0.0028 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0012 – 0.0028 (2) 0.0012 – 0.0024 (3) MAX. 0.0079	(1) 0.0016 – 0.0035 (2) 0.0016 – 0.0031 (3) MAX. 0.0197	

★ :1st recommendation ☆ :2nd recommendation

Recommended Cutting Conditions

EZG

Workpiece Material	Recommended Insert Grade (Vc sfm)		EZGR030030-...S	EZG % 040040-... EZG % 050050-... EZG % 040040-...S EZG % 050050-...S	EZG % 060060-... EZG % 070070-... EZG % 080070-... EZG % 060060-...S EZG % 070070-...S EZG % 080070-...S	Notes
	MEGACOAT	Carbide				
	PR1225	GW05				
Carbon Steel / Alloy Steel	★ 100~330	-	~0.0008	~0.0012	~0.0020	Coolant
Stainless Steel	★ 100~260	-	~0.0004	~0.0008	~0.0012	
Non-Ferrous	-	★ ~980	-	~0.0020	~0.0031	

★ :1st recommendation

VNG

Workpiece Material	Recommended Insert Grade (Vc sfm)			VNG04 VNG05	VNG06 VNG07	Notes
	MEGACOAT	PVD	Carbide			
	PR1225	PR930	KW10	Feed Rate (ipr)		
Carbon Steel / Alloy Steel	★ 100~325	☆ 100~325	-	~0.0012	~0.0020	Coolant
Stainless Steel	★ 100~250	☆ 100~250	-	~0.0008	~0.0012	
Non-Ferrous Metals	-	-	★ ~975	~0.0020	~0.0031	

★ :1st recommendation ☆ :2nd recommendation

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Recommended Cutting Conditions

SIGC

Workpiece Material	Recommended Insert Grade (Vc : sfm)		(1) Feed Rate for Grooving (ipr) (2) Feed Rate for Traversing (ipr) (3) D.O.C. for Traversing (in)			Notes
	MEGACOAT NANO PLUS	MEGACOAT NANO				
	PR1725	PR1535	GC08% ...	GC10% , GC12% 100 ~ 200...	GC10% , GC12% 250 ~ 300...	
Carbon Steel	★ 160 - 260	☆ 160 - 260	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	Coolant
Alloy Steel	★ 160 - 260	☆ 160 - 260	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	
Stainless Steel	☆ 160 - 260	★ 160 - 260	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0039	

★ : 1st recommendation ☆ : 2nd recommendation

Recommended Cutting Conditions

Ground Chipbreaker: GE[®]...A(R), GE[®]...B(R)

Workpiece Material	Recommended insert grades (Vc : sfm)				(1) f for Grooving (ipr) (2) f for Traversing (ipr) (3) D.O.C. for Traversing (in)			Notes
	MEGACOAT NANO EX	MEGACOAT	Cermet	Carbide				
	PR2025	PR1225	TN6020	KW10	GE% 100 ~ 200 - 010A 100 ~ 200 - 100AR	GE% 100 ~ 200 - 010B 100 ~ 200 - 100BR	GE% 250 ~ 300 - 020B	
Carbon Steel	★ 160 ~ 260	☆ 160 ~ 260	☆ 160 ~ 260	-	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	Coolant
Alloy Steel	★ 160 ~ 260	☆ 160 ~ 260	☆ 160 ~ 260	-	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	
Stainless Steel	★ 160 ~ 260	☆ 160 ~ 260	-	-	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0039	
Cast Iron	-	-	-	★ 160 ~ 260	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0020	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	
Aluminum	-	-	-	★ 160 ~ 330	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0039	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0079	
Brass	-	-	-	★ 160 ~ 330	(1) 0.0004 ~ 0.0012 (2) 0.0004 ~ 0.0012 (3) Max. 0.0039	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0039	(1) 0.0008 ~ 0.0016 (2) 0.0008 ~ 0.0016 (3) Max. 0.0079	

*Use PR2025, PR1225, KW10 for traversing with edge width 0.039" (1mm). (GE R/L100-005A/100-005B)

★:1st recommendation ☆:2nd recommendation

Ground Chipbreaker: GE[®]...C(R), GE[®]...D(R), GE[®]...E

Workpiece Material	Recommended Insert Grades (Vc : sfm)				(1) f for Grooving (ipr) (2) f for Traversing (ipr) (3) D.O.C. for Traversing (in)								Notes
	MEGACOAT NANO EX	MEGACOAT	Cermet	Carbide									
	PR2025	PR1225	TN6020	GW15	GE% 100~200-010C 200-100CR	GE% 250~350-020C 250~300-150CR							
					GE% 100~145-010D	GE% 150~195-010D	GE% 200~280-020D 200-100DR		GE% 300~400-020D 300-150DR				
					GE% 100-010E	GE% 150~195-010E	GE% 200~225-010E 230-020E	GE% 250~330-020E		GE% 350~430-020E	GE% 450~500-020E		
Carbon Steel	★ 200 ~ 460	☆ 200 ~ 460	☆ 390 ~ 590	-	(1) 0.0012~0.0031 (2) 0.0012~0.0031 (3) Max. 0.0118	(1) 0.0012~0.0031 (2) 0.0012~0.0031 (3) Max. 0.0118	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) Max. 0.0118	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) Max. 0.0118	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197		
Alloy Steel	★ 200 ~ 390	☆ 200 ~ 390	☆ 330 ~ 520	-	(1) 0.0012~0.0028 (2) 0.0012~0.0039 (3) Max. 0.0118	(1) 0.0012~0.0028 (2) 0.0012~0.0039 (3) Max. 0.0118	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) Max. 0.0118	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) Max. 0.0118	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197		
Stainless Steel	★ 200 ~ 360	☆ 200 ~ 360	☆ 230 ~ 430	-	(1) 0.0012~0.0028 (2) 0.0012~0.0039 (3) Max. 0.0118	(1) 0.0012~0.0028 (2) 0.0012~0.0039 (3) Max. 0.0118	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) Max. 0.0118	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) Max. 0.0118	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) Max. 0.0197		
Cast Iron	-	-	-	★ 200 ~ 330	(1) 0.0012~0.0031 (2) 0.0012~0.0031 (3) Max. 0.0118	(1) 0.0012~0.0031 (2) 0.0012~0.0031 (3) Max. 0.0118	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) Max. 0.0118	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) Max. 0.0118	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) Max. 0.0197		
Aluminum	-	-	-	★ 490 ~ 980	(1) 0.0020~0.0047 (2) 0.0020~0.0047 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0047 (3) Max. 0.0197	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0197	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0197	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315		
Brass	-	-	-	★ 330 ~ 820	(1) 0.0020~0.0047 (2) 0.0020~0.0047 (3) Max. 0.0197	(1) 0.0020~0.0047 (2) 0.0020~0.0047 (3) Max. 0.0197	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0197	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) Max. 0.0197	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) Max. 0.0315		

*Use PR2025, PR1225, KW10 for traversing with edge width 0.039" (1mm). (GE R/L100-005A/100-005B)

★:1st recommendation ☆:2nd recommendation

Molded Chipbreaker: GER...CM, GER...DM, GER...EM

Workpiece Material	Recommended Insert Grades (Vc : sfm)		(1) f for Grooving (ipr) (2) f for Traversing (ipr) (3) D.O.C. for Traversing (in)							Notes
	MEGACOAT NANO EX	MEGACOAT								
	PR2025	PR1225	GER 150 ~ 200 - 010CM	GER 250 ~ 350 - 020CM						
			GER 150 ~ 200 - 010DM		GER 230 ~ 250 - 020DM	GER 300 ~ 400 - 020DM				
GER 150 ~ 200 - 010EM					GER 250 ~ 300 - 020EM	GER 350 ~ 400 - 020EM	GER 450 ~ 500 - 020EM			
Carbon Steel	★ 200 ~ 520	☆ 200 ~ 520	(1) 0.0012 ~ 0.0039 (2) 0.0012 ~ 0.0039 (3) Max. 0.0394	(1) 0.0012 ~ 0.0047 (2) 0.0012 ~ 0.0039 (3) Max. 0.0591	(1) 0.0016 ~ 0.0047 (2) 0.0016 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0047 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0047 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0047 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	Coolant	
Alloy Steel	★ 200 ~ 460	☆ 200 ~ 460	(1) 0.0012 ~ 0.0039 (2) 0.0012 ~ 0.0039 (3) Max. 0.0394	(1) 0.0012 ~ 0.0039 (2) 0.0012 ~ 0.0039 (3) Max. 0.0591	(1) 0.0016 ~ 0.0047 (2) 0.0016 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0047 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0047 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0047 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591		
Stainless Steel	★ 200 ~ 360	☆ 200 ~ 360	(1) 0.0012 ~ 0.0031 (2) 0.0012 ~ 0.0039 (3) Max. 0.0394	(1) 0.0012 ~ 0.0031 (2) 0.0012 ~ 0.0039 (3) Max. 0.0591	(1) 0.0016 ~ 0.0031 (2) 0.0016 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0039 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0039 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591	(1) 0.0020 ~ 0.0039 (2) 0.0020 ~ 0.0039 (3) Max. 0.0591		

★:1st recommendation ☆:2nd recommendation

Recommended Cutting Conditions

GVF (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)						(1) f (feed) during Grooving (ipr), (2) f (feed) during Traversing (ipr) (3) D.O.C. during Traversing (in)					Notes
	Cermet			MEGACOAT	PVD	Carbide						
	TN90	TC40	TC60	PR1225	PR930	KW10	GVF% 200~340...A GVF% 200-100AR ~300-150AR	GVF% 250~350...B 200~350...B 300-150BR	GVF% 400~490...B 400~490...B 400-200BR	GVF% 350~450...C 350~450...C 450-200C	GVF% 500~600...C 500~600...C 600-200C	
Carbon Steel	☆ 490~720	☆ 490~720	☆ 330~490	★ 260~660	☆ 260~590	-	(1) 0.0012~0.0031 (2) 0.0012~0.0031 (3) MAX 0.012	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) MAX 0.012	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) MAX 0.020	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) MAX 0.020	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) MAX 0.031	Coolant
Alloy Steel	☆ 430~660	☆ 430~660	☆ 260~430	★ 260~590	☆ 260~520	-	(1) 0.0012~0.0028 (2) 0.0012~0.0039 (3) MAX 0.012	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) MAX 0.012	(1) 0.0020~0.0035 (2) 0.0020~0.0035 (3) MAX 0.020	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) MAX 0.020	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) MAX 0.031	
Stainless Steel	☆ 230~490	-	☆ 200~330	★ 260~490	☆ 200~430	-	(1) 0.0012~0.0028 (2) 0.0012~0.0039 (3) MAX 0.012	(1) 0.0016~0.0031 (2) 0.0016~0.0031 (3) MAX 0.012	(1) 0.0020~0.0035 (2) 0.0020~0.0035 (3) MAX 0.020	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) MAX 0.020	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) MAX 0.031	
Cast Iron	-	-	-	-	-	★ 200~330	(1) 0.0012~0.0031 (2) 0.0012~0.0031 (3) MAX 0.012	(1) 0.0016~0.0035 (2) 0.0016~0.0035 (3) MAX 0.012	(1) 0.0020~0.0039 (2) 0.0020~0.0039 (3) MAX 0.020	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) MAX 0.020	(1) 0.0020~0.0047 (2) 0.0020~0.0039 (3) MAX 0.031	
Aluminum	-	-	-	-	-	★ 490~1310	(1) 0.0020~0.0047 (2) 0.0020~0.0047 (3) MAX 0.020	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) MAX 0.020	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) MAX 0.031	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) MAX 0.031	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) MAX 0.031	
Brass	-	-	-	-	-	★ 490~980	(1) 0.0020~0.0047 (2) 0.0020~0.0047 (3) MAX 0.020	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) MAX 0.020	(1) 0.0020~0.0059 (2) 0.0020~0.0059 (3) MAX 0.031	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) MAX 0.031	(1) 0.0031~0.0059 (2) 0.0031~0.0059 (3) MAX 0.031	

Apply a sufficient amount of coolant.

The D.O.C. should be under 0.020" (0.5mm) if a good surface finish is required.

★:1st recommendation ☆:2nd recommendation

FTK

Workpiece Material	Recommended Insert Grade (Vc sfm)				Edge Width (in)		Notes
	Cermet	CVD		Carbide	0.1575	0.1969	
	TN90	CR9025	PR930	KW10	Feed Rate (ipr)		
Carbon Steel	☆ 390~660	★ 260~590	☆ 200~430	-	0.0020~0.0059	0.0020~0.0059	Coolant
Alloy Steel	☆ 330~520	★ 230~490	☆ 200~430	-	0.0020~0.0059	0.0020~0.0059	
Stainless Steel	☆ 260~490	☆ 200~460	☆ 160~390	-	0.0020~0.0059	0.0020~0.0059	
Cast Iron	-	-	-	★ 160~330	0.0039~0.0118	0.0039~0.0118	
Aluminum	-	-	-	★ 660~1480	0.0020~0.0098	0.0020~0.0098	
Brass	-	-	-	★ 330~660	0.0020~0.0098	0.0020~0.0098	

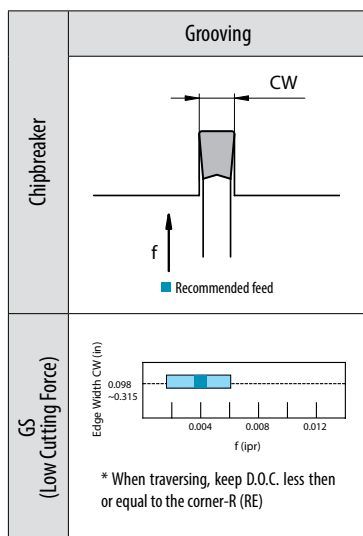
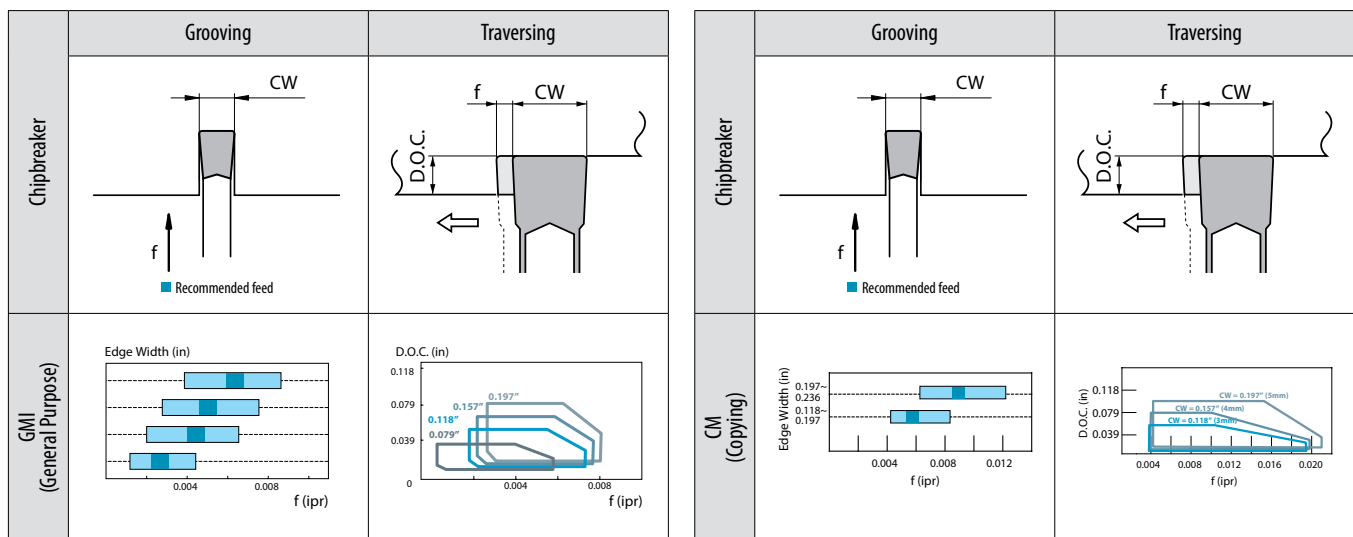
★:1st recommendation ☆:2nd recommendation

KGDI - Recommended Cutting Conditions (Vc)

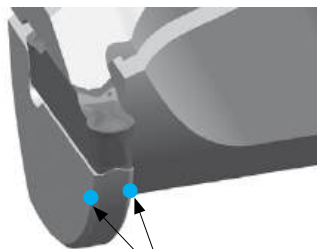
Workpiece Material	Chipbreaker	Recommended Insert Grade (Vc: sfm)						Notes
		Cermet		MEGACOAT NANO	MEGACOAT		Uncoated Carbide	
		TN620	TN90	PR1535	PR1225	PR1215	GW15	
Carbon Steel	GMI CM GS	☆ 330 ~ 720	☆ 330 ~ 720	☆ 260 ~ 490	★ 260 ~ 660	☆ 330 ~ 660	-	Coolant
Alloy Steel		☆ 260 ~ 660	☆ 260 ~ 660	☆ 230 ~ 490	★ 230 ~ 590	☆ 260 ~ 590	-	
Stainless Steel		☆ 230 ~ 590	☆ 230 ~ 590	★ 200 ~ 490	★ 200 ~ 490	☆ 200 ~ 490	-	
Cast Iron		-	-	-	-	★ 330 ~ 660	-	
Aluminum Alloys		-	-	-	-	-	★ 660 ~ 1,640	
Brass		-	-	-	-	-	★ 330 ~ 660	

★:1st recommendation ☆:2nd recommendation

KGDI - Recommended Cutting Conditions (f and D.O.C.)



Additional processing of toolholder tip when CM chipbreaker is installed

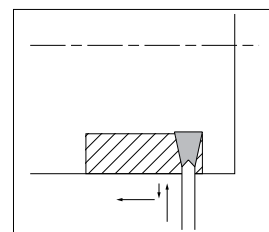


* By slightly chamfering the holder tip of about 0.5 mm, the cutting diameter can be minimized.

Guide for External Grooving

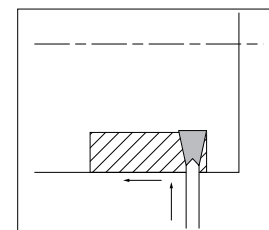
(1) (Traversing after Grooving)

- 1) Grooving Depth Over 0.5mm: At roughing (Refer to Fig.1)
Before Traversing, pull the tool back about 0.1mm after grooving.
(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting edge.)
- 2) Grooving Depth under 0.5mm: At finishing (Refer to Fig.2)
Traversing subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.
(Dwell time is not necessary.)



Before Traversing, pull the tool back about 0.1mm after grooving.
(Grooving Depth Over 0.5mm: At roughing)

Fig.1



Traversing subsequent to grooving is possible because there is only a small force on the cutting edge.
(Grooving Depth under 0.5mm: At finishing)

Fig.2

(2)

- 1) When widening the groove width
(Refer to Fig.3), apply the "Step Traversing" as shown in Fig.3.
 - 2) The side walls should be finished with a plunging pass.
(For better chip control, ap over 0.5mm is recommended.)
- Note) If the workpiece is not supported at the center, reduce the feed rate when grooving towards center.

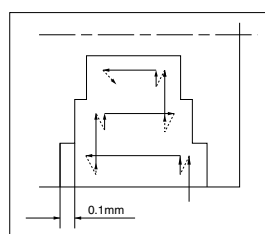


Fig.3

Guide for Face Grooving

<Toolholder Selection>

- (1) Choose the best tool depending on the groove width.
The Cutting Dia. $\varnothing D$ listed in the catalog indicates the depth of the first plunge of face grooving as shown in Fig.1.



- (2) Confirm Grooving Depth (dimension CDX)



- (3) It is recommended to install the toolholder in the reverse position. (Fig. 2)
(This will provide smooth chip flow and chip clearance.)

<Guide for Traversing>

Traversing direction should be from the outer diameter to the inner diameter as shown in Fig.3
This improves chip evacuation.

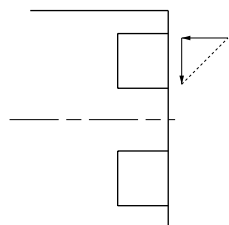


Fig.3

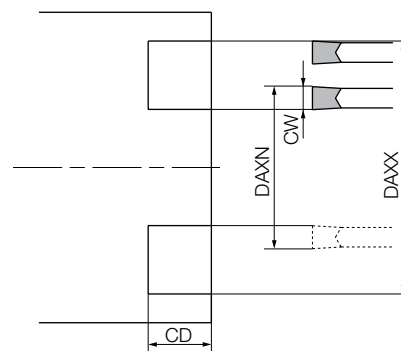


Fig.1

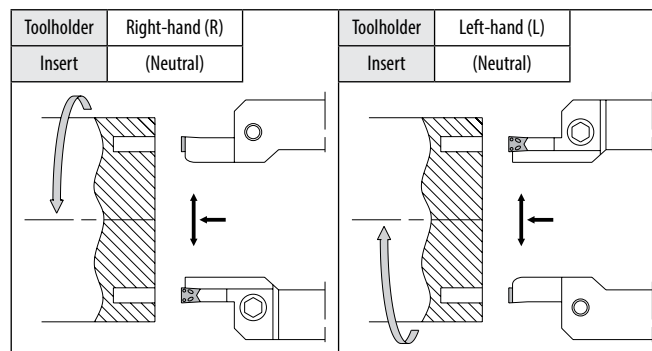


Fig.2 Toolholder's Hand and Rotation

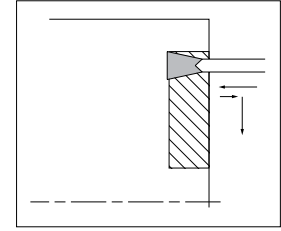
Guide for Face Grooving (Continued)

(1) (Traversing after Grooving)

1) Grooving Depth Over 0.020" (0.5mm): At roughing (Refer to Fig.4)

Before Traversing, pull the tool back about 0.004" (0.1mm) after grooving.

(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting edge.)



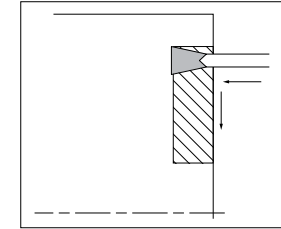
Before Traversing, pull the tool back about 0.1mm after grooving.
(Grooving Depth Over 0.020": At roughing)

Fig.4

2) Grooving Depth under 0.020" (0.5mm): At finishing (Refer to Fig.5)

Traversing subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.

(Dwell time is not necessary.)



Traversing subsequent to grooving is possible because there is only a small force on the cutting edge.
(Grooving Depth under 0.020": At finishing)

Fig.5

(2)

1) When widening the groove width, apply the "Step Traversing" as shown in Fig. 6.

2) The side walls should be finished with a plunging pass.

(For better chip control, D.O.C. over 0.020" (0.5mm) is recommended.)

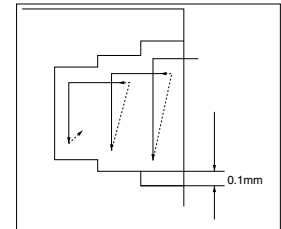


Fig.6

Troubleshooting

Trouble	Countermeasures
Whitish trace remains at the groove bottom.	(1) Increase the cutting speed for finishing process only. (This can handle most of the cases.) If the method is not successful, try (2) as follows. (2) Check the insert edge's parallelness. [Adjustment: Apply the insert edge to the work face and adjust the toolholder within the angle of $\pm 5'$. (Fig.7)]
Chips are entangled.	(1) Install the toolholder in the reverse position. Adjust the coolant flow to the cutting edge. (2) When widening the groove, do not machine one deep groove. Instead, repeat shallow grooving and Traversing.
Insert cracks when Traversing.	Reverse the facing direction.
Groove is not straight.	Check the edge's parallelness. Decrease the feed rate.

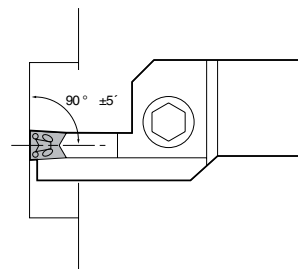
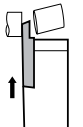
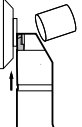
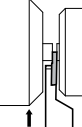
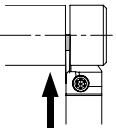
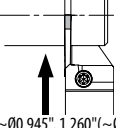
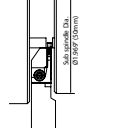
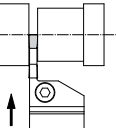
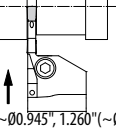
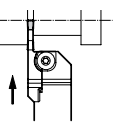
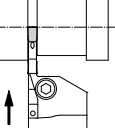
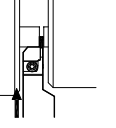
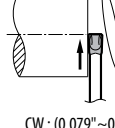
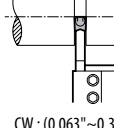
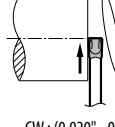
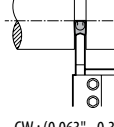


Fig.7



Overview		H2~H5
KTKF (Small Diameter)		H6~H19
Inserts	TKF	H6
Toolholders	KTKF	H9
	KTKF (Goose-Neck)	H10
	KTKF (Y-Axis)	H12
	KTKF-JCTM (Coolant-Through)	H14
	KTKF-S (Sub-Spindle)	H18
KGZ (Small Diameter)		H20~H31
Inserts	GZM / GZG / GZMS	H22
Toolholders	KGZ-JCTM (Coolant-Through)	H24
	KGZ (Standard)	H26
	KGZS (Sub-Spindle)	H28
KGD		H32~H49
Inserts	GDM / GDG / GDMS	H32
Toolholders	KGD (for Small Parts)	H34
	KGDS (Sub-Spindle)	H36
	KGD-JCTM (for Small Parts, Coolant-Through)	H39
	KGD (Integral Type)	H41
	KGD-S (0° Switch Blade Type)	H43
	KGD-JCT (Coolant-Through)	H46
KPK		H50~H62
Inserts	PKM	H52
Blades	KPKB-JCT (Coolant-Through Blades)	H54
	KPKB (Blades)	H55
Tool Blocks	KPKTB-JCT (Coolant-Through Tool Blocks)	H56
	KTKTB / KTKTBF (Tool Blocks)	H57
Shank Type Toolholders	KPKH-JCT (Coolant-Through Toolholders)	H61
	KPKH (Standard Toolholders)	H62
KTK		H63~H69
Inserts	TKN / TK	H64
Blades	KTKB-SS / KTKB-S	H66
Shank Type Toolholders	KTKH (for Small Parts, Long Shank)	H67
	KTKH (Standard Toolholders)	H68

Product Lineup

Small Diameter Cut-Off CUTDIA Ø0.197"~Ø0.630" (Ø5mm~Ø16mm)	KTKF   CW : (0.020"~0.079") CW : (0.5mm~2.0mm)	KTKF-JCTM   CW : (0.020"~0.079") CW : (0.5mm~2.0mm)		Sub Spindle Tooling KTKF-S   CW : (0.039"~0.079") CW : (1.0mm~2.0mm)	
KGZ (Screw Clamp) CUTDIA Ø0.472"~Ø2.008" (Ø12mm~Ø51mm)	KGZ   CW : 0.051"~0.118" (1.3~3mm)	KGZ-JCTM   CUTDIA : ~Ø0.945", 1.260" (~Ø24, Ø32) CW : 0.051"~0.118" (1.3~3mm)		Sub Spindle Tooling KGZS   CW : 0.051"~0.118" (1.3~3mm)	
KGD (Bolt Clamp) CUTDIA Ø0.472"~Ø1.575" (Ø12mm~Ø50mm)	KGD   CW : 0.051"~0.158" (1.3mm~4mm)	KGD-JCTM (Small Diameter)   CUTDIA : ~Ø0.945", 1.260" (~Ø24, Ø32) CW : 0.079"~0.158" (2mm~4mm)	KGD-S   CW : 0.079"~0.158" (2mm~4mm)	KGD-JCT   CW : 0.079"~0.158" (3mm~4mm)	Sub Spindle Tooling KGD-S   CW : 0.051"~0.118" (1.3~3mm)
KPK (1-edge Insert) CUTDIA ~Ø4.724" (~Ø120mm)	Toolholder Type CUTDIA Ø1.378"~Ø2.441" (Ø35mm~Ø79mm)	KPKH (-JCT)   CW : (0.079"~0.197") CW : (2.0mm~5.0mm)		Blade Type CUTDIA Ø1.378"~Ø2.441" (Ø32mm~Ø120mm)	KPKB (-JCT)   CW : (0.063"~0.378") CW : (1.6mm~9.6mm)
KTKB KTKH (1-edge Insert) CUTDIA ~Ø4.724" (~Ø120mm)	Toolholder Type CUTDIA Ø1.181"~Ø2.441" (Ø30mm~Ø79mm)	KTKH-S   CW : (0.020"~0.079") CW : (2.2mm~5.1mm)		Blade Type CUTDIA Ø1.378"~Ø2.441" (Ø32mm~Ø120mm)	KTKB-S(S)   CW : (0.063"~0.378") CW : (1.6mm~9.6mm)

Cut-Off Tools

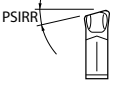
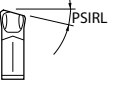
Series Name	Shape	Advantage	Applications
KTKF		1) Insert clamp is side screw type from the side 2) 2-edge insert 3) Max. Cut-Off Dia. : Ø0.630" (Ø16mm)	1) For cut-off and grooving of small workpieces 2) For small parts machining
KGZ		1) Insert is clamped from top side 2) 1-edge and 2-edge inserts available 3) Max. Cut-Off Dia. : Ø1.260" (Ø32mm) 4) JCTM jet coolant-through styles available	1) PF Chipbreaker ... For low feed cut-off / grooving 2) PM Chipbreaker ... For medium feed cut-off / grooving 3) PH Chipbreaker ... For high feed cut-off / grooving 4) PG Chipbreaker ... Sharp edge for low cutting force cut-off / grooving
KGD		1) Insert is clamped from top side 2) 1-edge and 2-edge inserts available 3) Integral Type and separate type are available 4) Max. Cut-Off Dia. : Ø1.969" (Ø50mm) 5) JCT / JCTM jet coolant-through styles available	1) PM Chipbreaker ... For Cut-Off 2) PH Chipbreaker ... For Cut-Off (High Feed Rate) / For Grooving 3) PG Chipbreaker ... For Cut-Off (for Small Parts Machining) / Sharp-Cutting Oriented 4) PF Chipbreaker ... For Cut-Off (for Small Parts Machining) / Low Feed 5) PQ Chipbreaker ... For Cut-Off (for Small Parts Machining) / Medium Feed
KPK		1) Self-clamping system that opens/closes with key wrench 2) 1-edge insert 3) Molded chipbreaker 4) Blade Type, 5) Max. Cut-Off Dia. : Ø4.724" (Ø120mm)	1) For cut-off and deep grooving 2) PM Chipbreaker ... General Purpose Cut-Off (Lead angle styles available) 3) PH Chipbreaker ... Tough Edge / High Feed Rate
KTKB KTKH		1) Self-Clamping System Tap the insert lightly with a plastic hammer to set it in the pocket 2) 1-edge insert 3) Blade type and Integral Shank type 4) Max. Cut-Off Dia. : Ø4.724" (Ø120mm)	1) For cut-off and deep grooving 2) Standard chipbreaker is general cut-off type Feed rate: over 0.004ipr P Chipbreaker is for cut-off at low feed rates Feed rate: 0.001~0.003ipr

Tool Selection

		Small Diameter Cut-Off	KGZ	KGD	KPK	KTGB / KTKH
Insert	1. Insert's Edge Number	-	-	-	✓	✓
	1-edge Insert--- For Larger Dia. Workpiece (Max. 4.724" / Ø120mm)	-	-	-	✓	✓
	2-edge Insert--- For Smaller Dia. Workpiece Cost per corner is reduced	✓	✓	✓	η	-
	2. Use a neutral angle insert if there is no restriction to the size of boss left on part. (See Fig.3 Below)	TKF...S TKF...NB TKFS...S	GZM GZMS	GDM GDMS	PKM	TKN
	3. Use an angled insert to reduce the size of the remaining boss.	TKF...DR	GZM- $\frac{\%}{\circ}$ (Fig. 2)	GDM- $\frac{\%}{\circ}$ (Fig. 2)	PKM $\frac{\%}{\circ}$ (Fig. 1)	TK $\frac{\%}{\circ}$ (Fig. 1)
	4. Use a sharp-cornered lead-angled insert to make the remaining boss much smaller when machining small parts and thin parts.	TKF...DR	-	-	GMM-S (Fig. 2)	-
Toolholder	5. Use the minimum width insert suitable for the machining.	✓	✓	✓	✓	✓
	1. Use a suitable toolholder (blade) for the workpiece dia.	✓	✓	✓	✓	✓
	2. Use a more rigid toolholder (blade).	✓	✓	✓	✓	✓
	3. Use a side screw or self clamp toolholder if there is no space for clamping tools from top side (for small tools).	✓	-	-	-	-

How to select cut-off inserts with / without lead angle

- 1) Use a neutral angle insert, when remaining boss is not a concern
- 2) Use an angled insert to reduce the remaining boss. (See Fig.2)
- 3) Use a sharp-edged insert with lead angle to minimize the remaining boss when cutting small parts and thin parts. (See Fig.3)

Lead Angle Hand	N (Neutral)	R (Right-Hand)	L (Left-Hand)
			
• Angled insert can reduce burr when cutting off. • When using a larger lead angle, cutting resistance becomes smaller. The feed rate should be reduced.			

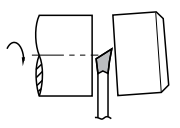
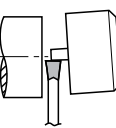
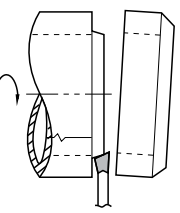
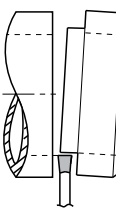
	With Lead Angle (Right-Hand)	Without Lead Angle (Neutral)
Solid Workpiece Example		
Hollow Workpiece Example (Pipe)		

Fig.1

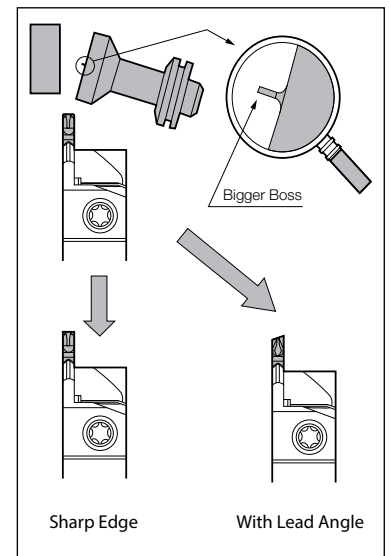


Fig.2

Caution

- 1) For PKM, PKM- $\frac{\%}{\circ}$, TKN, and TN $\frac{\%}{\circ}$, set the cutting edge height 0.004"-0.008" (0.1-0.2mm) above the center height (Fig.3)
- For other toolholders, set the cutting edge to the center height
- 2) Always apply sufficient coolant to the cutting edge
- 3) Constant spindle revolution is recommended to obtain stable tool life
- 4) Cut-off as close to the chuck as possible
- 5) Decrease the feed rate from 1/2 to 1/3 when diameter is same as cut-off width

Overuse of insert and toolholder (blade) may cause insert breakage and toolholder (blade) damage
Do not rework the insert and toolholder (blade) to prevent damage
Clean the insert pocket well with compressed air when replacing insert

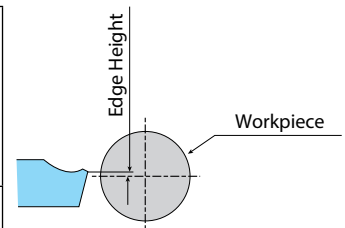
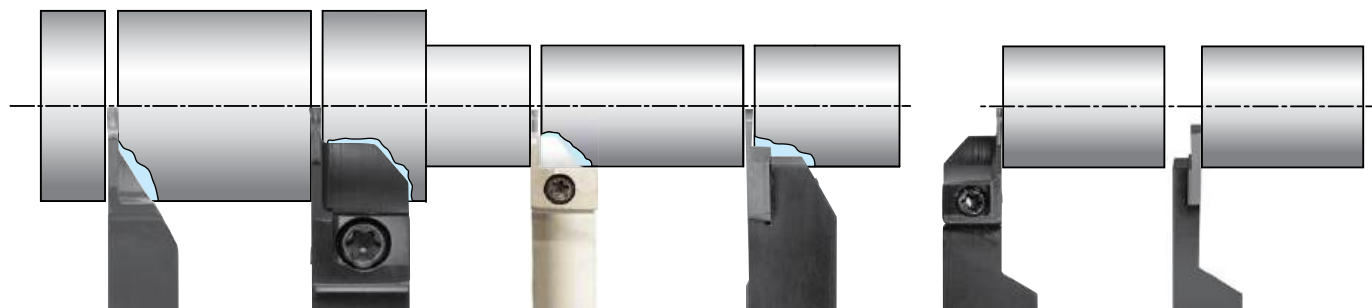


Fig.3 (PKM, PKM- $\frac{\%}{\circ}$, TKN, and TN $\frac{\%}{\circ}$)

Small Diameter Cut-Off ~Ø2.008" / ~51mm

Small Shank



KPKH / KTKH-S	KGD / KGD-JCTM	KGZ / KGZ-JCTM	KTKF / KTKF-JCTM	KGZS / KGDS	KTKF-S
CUTDIA ~Ø1.300" (~Ø45mm) Shank: 0.375"~0.500" (10mm~25mm) CW: 0.063"~0.094" (2.2mm~4.1mm) Self Clamp	CUTDIA ~Ø1.653" / ~Ø42mm Shank: 0.0375"~0.750" 10mm~20mm CW: 0.059"~0.157" 1.3mm~4.0mm Top Clamp	CUTDIA ~Ø2.008" / ~Ø51mm Shank: 0.375"~0.750" 10mm~25mm CW: 0.051"~0.118" 1.3mm~3.0mm Top Clamp	CUTDIA ~Ø0.625" / ~Ø16mm Shank: 0.375"~0.625" 10mm~25mm CW: 0.020"~0.079" 0.5mm~2.0mm Side Screw Clamp	CUTDIA ~Ø24mm Shank: 16mm CW: 1.3mm~3.0mm Top Clamp	CUTDIA ~Ø0.630" / ~Ø16mm Shank: 0.375"~0.500" 10mm~12mm CW: 0.5mm~2.0mm (KTKF-S) 0.059"~0.098" (KTKFS) 1.0mm~2.0mm (KTKFS) Side Screw Clamp

➡ H61
H62
H67

➡ H34~H35
H39~H40

➡ H24~H27

➡ H9, H10, H12, H15

➡ H28
H36

➡ H18

For KGZ



For KTKF / KTKF-S

2-Edge



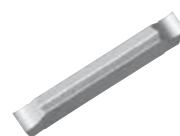
For KPKH



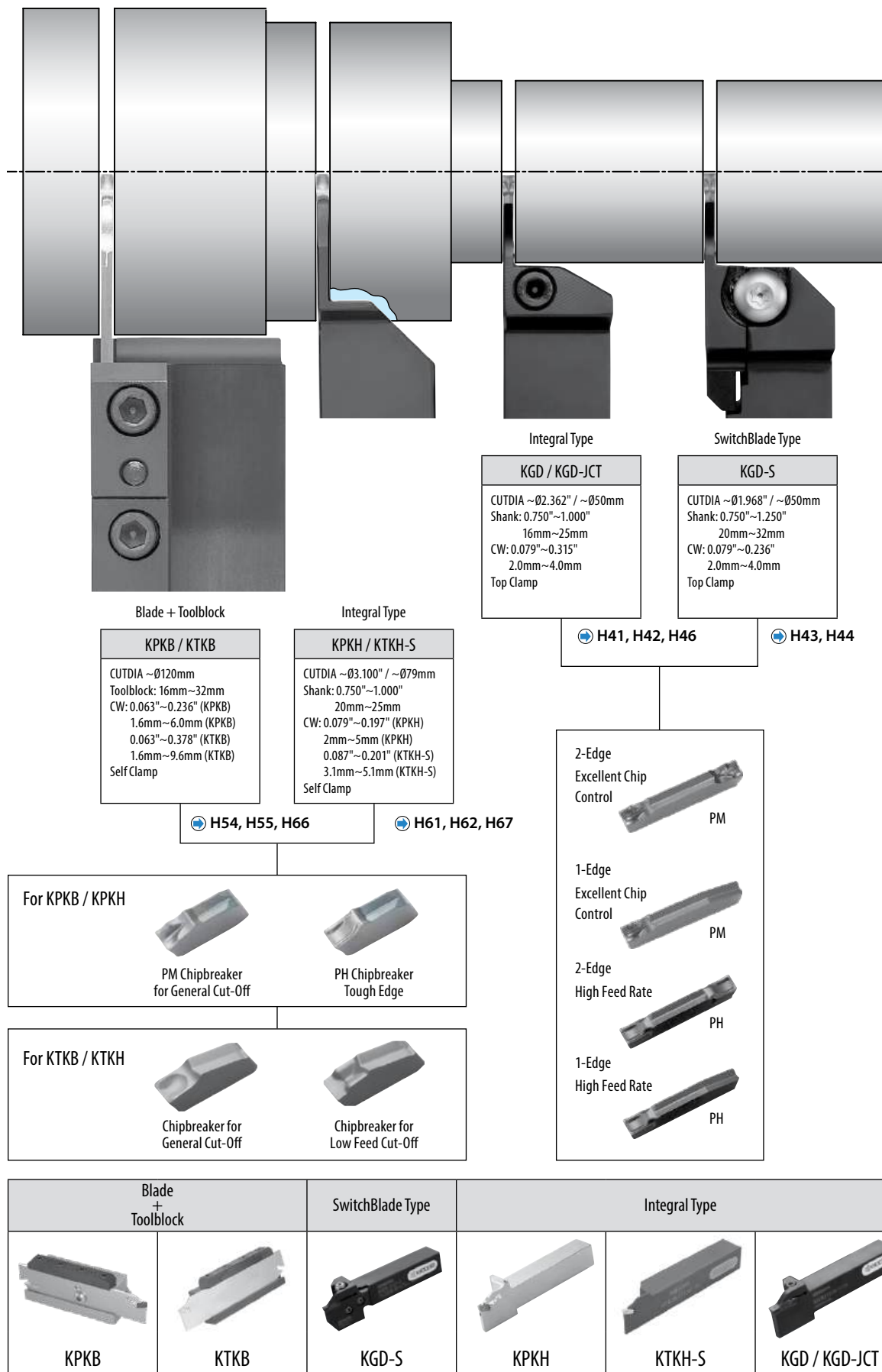
For KTKH-S



For KGD

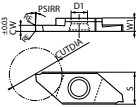
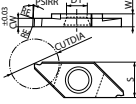
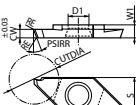
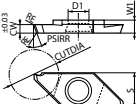
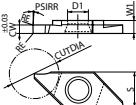


General Cut-Off ~Ø3.100" / ~120mm



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

TKF12

		Carbon Steel / Alloy Steel														P														
		Stainless Steel														M														
		Cast Iron														K														
		Non-Ferrous Metals														N														
Insert		Part Number	No. of Edges	Dimensions (mm)						Angle (°)	Tolerance (mm)		Carbide				Applicable Toolholder H9, H10 H12, H15 H18													
				CW		S	D1	RE	W1	CUTDIA	PSIRR	CW min.	CW max.	DLC		PVD		-												
				in	mm									PD025	PR1225				PR1535	PR1725	KW10									
		TKF12R 050-S	2	0.020	0.5	8.7	5	0.03	3	5	0	-0.03	+0.03	●	●	●	●	KTKFR...-12 KTKFR...-12-Y KTKFR-12JCTM KTKFR...-12SA KTKFR...-12SB												
		070-S		0.028	0.7									8	●	●	●		●											
		100-S		0.039	1									12	●	●	●		●											
		125-S		0.049	1.25									12	●	●	●		●											
		150-S		0.059	1.5									12	●	●	●		●											
		200-S		0.079	2									12	●	●	●		●											
		TKF12L 050-S	0.020	0.5	5					●				●	●	●	KTKFL...-12 KTKFL-12JCTM KTKFL...-12SA KTKFL...-12SB													
		070-S	0.028	0.7	8					●				●	●	●														
		100-S	0.039	1	12					●				●	●	●														
		125-S	0.049	1.25	12					●				●	●	●														
		150-S	0.059	1.5	12					●				●	●	●														
		200-S	0.079	2	12					●				●	●	●														
	 Tough edge	TKF12R 100-T	2	0.039	1	8.7	5	0.08	3	12	0	-0.03	+0.03	●	●	●	●	KTKFR...-12 KTKFR...-12-Y KTKFR-12JCTM KTKFR...-12SA KTKFR...-12SB												
		150-T		0.059	1.5									●	●	●	●													
		200-T		0.079	2									●	●	●	●													
		TKF12L 100-T		0.039	1									●	●	●	●		KTKFL...-12 KTKFL-12JCTM KTKFL...-12SA KTKFL...-12SB											
		150-T		0.059	1.5									●	●	●	●													
		200-T		0.079	2									●	●	●	●													
				TKF12R 050-S-16DR	2					0.020				0.5	8.7	5	0.03			3	5	16	-0.03	+0.03	●	●	●	●	KTKFR...-12 KTKFR...-12-Y KTKFR-12JCTM KTKFR...-12SA KTKFR...-12SB	
				070-S-16DR						0.028				0.7											8	●	●	●		●
				100-S-16DR						0.039				1											12	●	●	●		●
				125-S-16DR						0.049				1.25					12						●	●	●	●		
				150-S-16DR						0.059				1.5					12						●	●	●	●		
				200-S-16DR						0.079				2					12						●	●	●	●		
TKF12L 050-S-16DR	0.020			0.5	5	●	●	●	●	KTKFL...-12 KTKFL-12JCTM KTKFL...-12SA KTKFL...-12SB																				
070-S-16DR	0.028			0.7	8	●	●	●	●																					
100-S-16DR	0.039			1	12	●	●	●	●																					
125-S-16DR	0.049			1.25	12	●	●	●	●																					
150-S-16DR	0.059			1.5	12	●	●	●	●																					
200-S-16DR	0.079			2	12	●	●	●	●																					
	 Tough edge	TKF12R 100-T-16DR	2	0.039	1	8.7	5	0.08	3	12	16	-0.03	+0.03	●	●	●	●	KTKFR...-12 KTKFR...-12-Y KTKFR-12JCTM KTKFR...-12SA KTKFR...-12SB												
		150-T-16DR		0.059	1.5									●	●	●	●													
		200-T-16DR		0.079	2									●	●	●	●													
		TKF12L 100-T-16DR		0.039	1									●	●	●	●		KTKFL...-12 KTKFL-12JCTM KTKFL...-12SA KTKFL...-12SB											
		150-T-16DR		0.059	1.5									●	●	●	●													
		200-T-16DR		0.079	2									●	●	●	●													
			 Without Chipbreaker	TKF12R 050-NB	2					0.020				0.5	8.7	5	0			3	5	0	-0.03	+0.03	●	●	●	●	KTKFR...-12 KTKFR...-12-Y KTKFR-12JCTM KTKFR...-12SA KTKFR...-12SB	
				070-NB						0.028				0.7											8	●	●	●		●
				100-NB						0.039				1											12	●	●	●		●
				150-NB						0.059				1.5					12						●	●	●	●		
				200-NB						0.079				2					12						●	●	●	●		
				TKF12L 050-NB						0.020				0.5					5						●	●	●	●		KTKFL...-12 KTKFL-12JCTM KTKFL...-12SA KTKFL...-12SB
070-NB	0.028			0.7	8	●	●	●	●																					
100-NB	0.039			1	12	●	●	●	●																					
150-NB	0.059			1.5	12	●	●	●	●																					
200-NB	0.079			2	12	●	●	●	●																					

Lead angle (PSIRR) shows the angle when installed in toolholder.

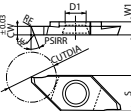
As Fig. 1 of H11 shows, the cut-off diameter of the insert (CUTDIA) is indicated when the top of the cut-off edge progresses 0.039" (1mm) from the center.

Right-hand shown

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

TKF12

		Carbon Steel / Alloy Steel										☺		●		P		
		Stainless Steel										●		☺		M		
		Cast Iron												●		K		
		Non-Ferrous Metals												☺		N		
Insert		Part Number		No. of Edges	Dimensions (mm)						Angle (°)	Tolerance (mm)		Carbide		Applicable Toolholder ➡ H9, H10 H12, H15 H18		
					CW		S	D1	RE	W1		CUTDIA	PSIRR	CW min.	CW max.		PVD	-
					in	mm											PR1535	PR1725
																	KW10	
	 Without Chipbreaker	TKF12R 050-NB-20DR		2	0.020	0.5	8.7	5	0	3	5	20	-0.03	+0.03	●	●	KTKFR...-12 KTKFR...-12-Y KTKFR-12JCTM KTKFR...-12SA KTKFR...-12SB	
		070-NB-20DR			0.028	0.7									8	●		●
		100-NB-20DR			0.039	1									12	●		●
		150-NB-20DR			0.059	1.5									12	●		●
		200-NB-20DR			0.079	2									12	●		●
		TKF12L 050-NB-20DR			0.020	0.5									5	●		●	KTKFL...-12 KTKFL-12JCTM KTKFL...-12SA KTKFL...-12SB
		070-NB-20DR		0.028	0.7	8	●	●										
		100-NB-20DR		0.039	1	12	●	●										
		150-NB-20DR		0.059	1.5	12	●	●										
		200-NB-20DR		0.079	2	12	●	●										

Lead angle (PSIRR) shows the angle when installed in toolholder.

As Fig. 1 of H11 shows, the cut-off diameter of the insert (CUTDIA) is indicated when the top of the cut-off edge progresses 0.039" (1mm) from the center.

Right-hand shown

Inserts Identification System

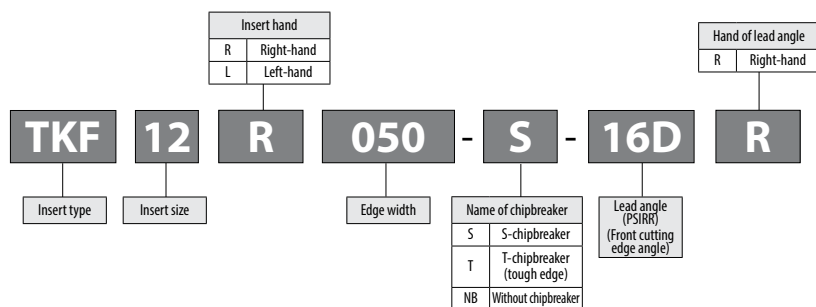
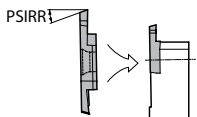
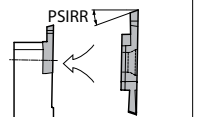
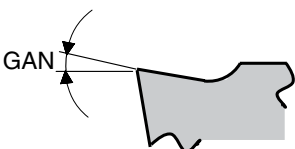


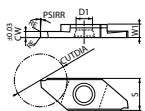
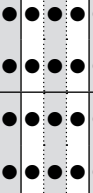
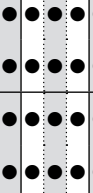
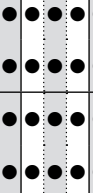
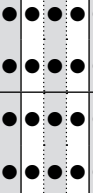
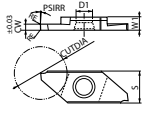
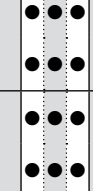
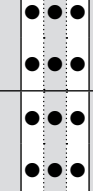
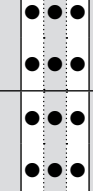
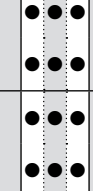
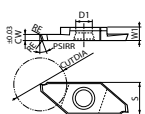
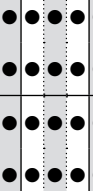
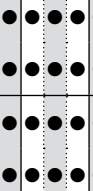
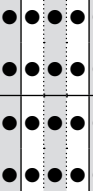
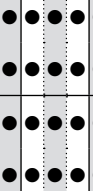
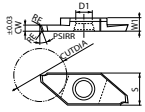
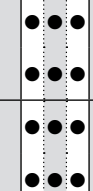
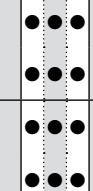
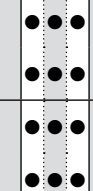
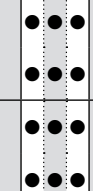
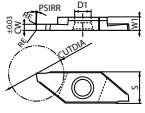
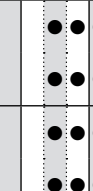
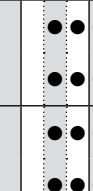
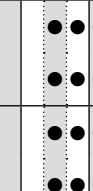
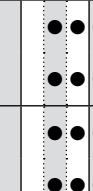
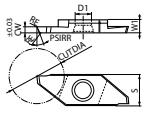
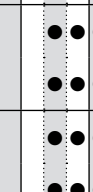
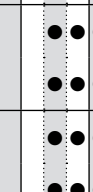
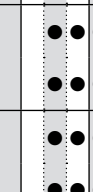
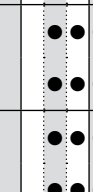
Table 1

Toolholder	Right-hand	Toolholder	Left-hand
Insert	Right-hand	Insert	Left-hand
Lead angle	Right-hand	Lead angle	Right-hand
			

Descriptions of Chipbreaker Edge Shape

Edge Shape	S Chipbreaker		T Chipbreaker (Tough Edge)		NB (Without Chipbreaker)	
	GAN	Part Number	GAN	Part Number	GAN	Part Number
	15°	TKF12...-S	12°	TKF...-T TKF...-T-16DR	0°	TKF...-NB TKF...-NB-20DR
	20°	TKF16...-S TKF16...-S-16DR				
	25°	TKF12...-S-16DR				

TKF16

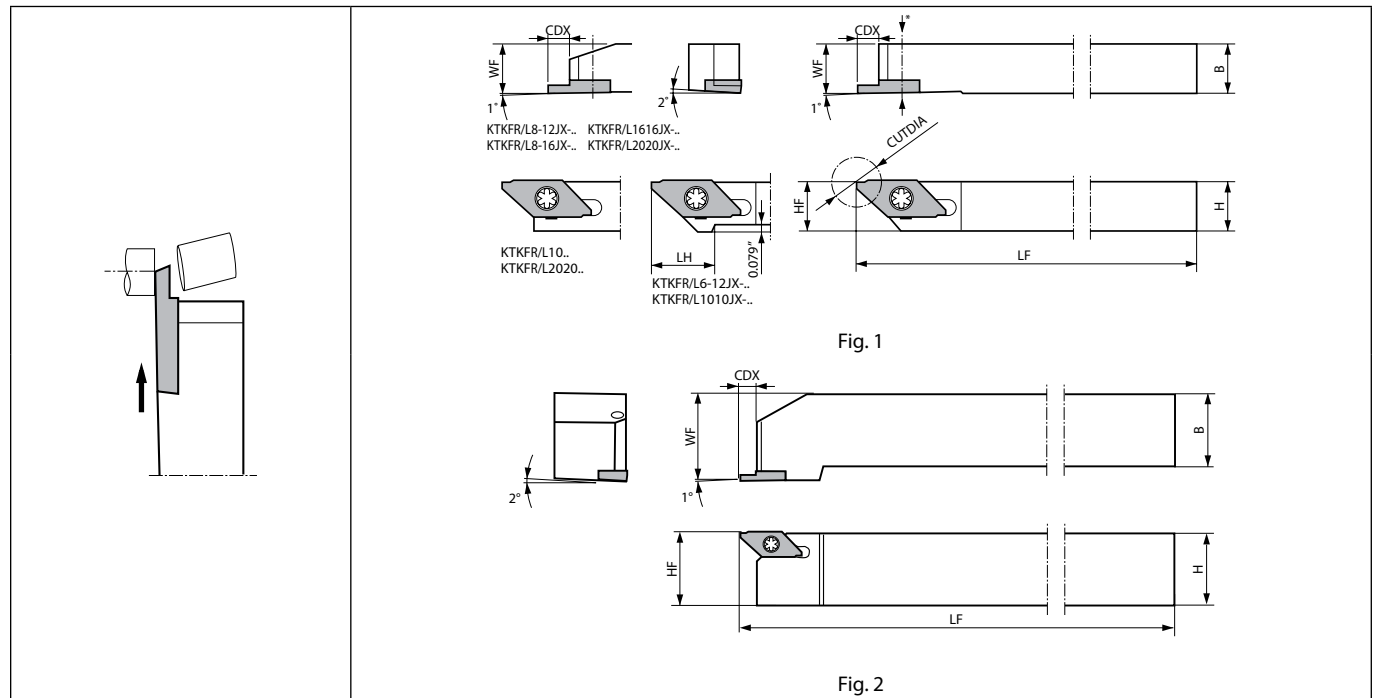
			Carbon Steel / Alloy Steel																	P
			Stainless Steel																	M
			Cast Iron																	K
			Non-Ferrous Metals																	N
Insert		Part Number	No. of Edges	Dimensions (mm)						Angle (°)	Tolerance (mm)		Carbide			Applicable Toolholder H9, H15 H18				
				CW		S	D1	RE	W1		CUTDIA	PSIRR	CW min.	CW max.	DLC		PVD	-		
				in	mm															
		TKF16R 150-S	2	0.059	1.5	9.5	5	0.05	4	16	0	-0.03	+0.03					KTKFR...-16 KTKFR-16JCTM KTKFR...-16SA KTKFR...-16SB		
		200-S		0.079	2															
		TKF16L 150-S		0.059	1.5															
		200-S		0.079	2															
	 Tough edge	TKF16R 150-T	2	0.059	1.5	9.5	5	0.08	4	16	0	-0.03	+0.03					KTKFR...-16 KTKFR-16JCTM KTKFR...-16SA KTKFR...-16SB		
		200-T		0.079	2															
		TKF16L 150-T		0.059	1.5															
		200-T		0.079	2															
		TKF16R 150-S-16DR	2	0.059	1.5	9.5	5	0.05	4	16	16	-0.03	+0.03					KTKFR...-16 KTKFR-16JCTM KTKFR...-16SA KTKFR...-16SB		
		200-S-16DR		0.079	2															
		TKF16L 150-S-16DR		0.059	1.5															
		200-S-16DR		0.079	2															
	 Tough edge	TKF16R 150-T-16DR	2	0.059	1.5	9.5	5	0.08	4	16	16	-0.03	+0.03					KTKFR...-16 KTKFR-16JCTM KTKFR...-16SA KTKFR...-16SB		
		200-T-16DR		0.079	2															
		TKF16L 150-T-16DR		0.059	1.5															
		200-T-16DR		0.079	2															
	 Without Chipbreaker	TKF16R 150-NB	2	0.059	1.5	9.5	5	0	4	16	0	-0.03	+0.03					KTKFR...-16 KTKFR-16JCTM KTKFR...-16SA KTKFR...-16SB		
		200-NB		0.079	2															
		TKF16L 150-NB		0.059	1.5															
		200-NB		0.079	2															
	 Without Chipbreaker	TKF16R 150-NB-20DR	2	0.059	1.5	9.5	5	0	4	16	20	-0.03	+0.03					KTKFR...-16 KTKFR-16JCTM KTKFR...-16SA KTKFR...-16SB		
		200-NB-20DR		0.079	2															
		TKF16L 150-NB-20DR		0.059	1.5															
		200-NB-20DR		0.079	2															

Lead angle (PSIRR) shows the angle when installed in toolholder.

As Fig. 1 of H11 shows, the cut-off diameter of the insert (CUTDIA) is indicated when the top of the cut-off edge progresses 0.039" (1mm) from the center.

Right-hand shown

KTKF



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

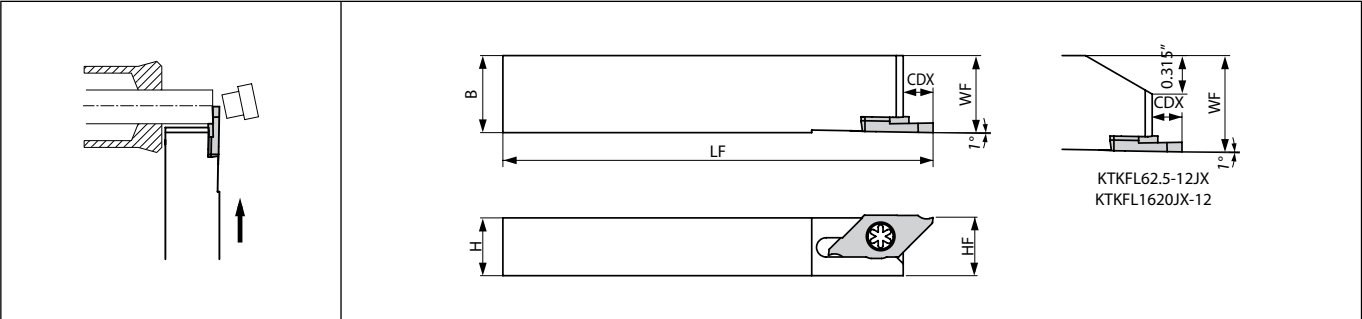
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Fig.	Spare Parts		Applicable Inserts  H6~H8			
												Screw	Wrench				
		R	L	CDX	H	B	LH	HF	LF	WF							
Inch	KTKF% 6-12JX	●	●	0.236	0.375	0.375	0.590	0.375	4.750	0.375	1	SB-4590TRWN	FT-10	TKF12%...			
	8-12JX	●	●		0.500	0.500	-	0.500		0.500				TKF16%...			
	10-12JX	●	●		0.625	0.625	-	0.625		0.625							
	KTKF% 6-16JX	●	●	0.315	0.375	0.375	0.787	0.375	4.750	0.375				1	SB-4590TRWN	FT-10	TKF16%...
	8-16JX	●	●		0.500	0.500	-	0.500		0.500							
	10-16JX	●	●		0.625	0.625	-	0.625		0.625							
mm	KTKF% 1010JX-12	●	●	6	10	10	15	10	120	10	1	SB-4590TRWN	FT-10				TKF12%...
	1212F-12	●	●		12	12	-	12	85	12							
	1212JX-12	●	●		16	16		16	120	16							
	1616JX-12	●	●		20	20		20	120	20							
	2020JX-12	●	●		25	25		25	150	30				2	TKF12R...		
	2525M-12	●	●		25	25	-	25	150	30							
	KTKF% 1010JX-16	●	●	8	10	10	20	10	120	10	1	SB-4590TRWN	FT-10	TKF16%...			
	1212F-16	●	●		12	12	-	12	85	12							
	1212JX-16	●	●		16	16		16	120	16							
	1616JX-16	●	●		20	20		20	120	20							
	2020JX-16	●	●		25	25		25	150	30					2	TKF16R...	
	2525M-16	●	●		25	25	-	25	150	30							

CDX shows the distance from the toolholder to the cutting edge.

Recommended Cutting Conditions H19

KTKF (Goose-Neck Toolholder)



Left-hand shown | Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Spare Parts		Applicable Inserts H6, H7
									Screw	Wrench	
		L	CDX	H	B	HF	LF	WF			
Inch	KTKFL 52-12JX	●	0.236	0.500	0.625	0.500	4.750	0.625	SB-4590TRWN	FT-10	TKF12L...
	62.5-12JX	●		0.625	0.750	0.625		0.750			
mm	KTKFL 1216JX-12	●	6	12	16	12	120	16	SB-4590TRWN	FT-10	TKF12L...
	1620JX-12	●		16	20	16		20			

CDX shows the distance from the toolholder to the cutting edge.

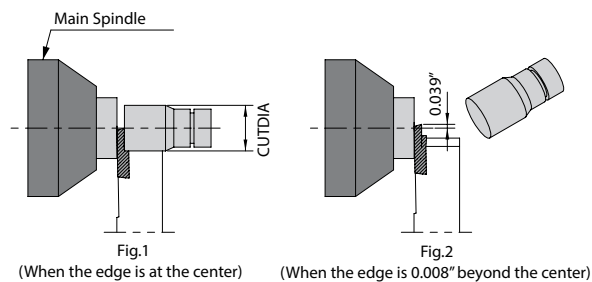
Recommended Cutting Conditions H19

How to Use

1) When using main spindle only

Workpiece maximum CUTDIA (Fig.1) = CUTDIA in toolholder table

Even if the cutting edge runs beyond the center line (Fig.2), the insert does not contact the workpiece, since the workpiece falls off. (The clearance between the insert and the workpiece is 0.008")



2) When using both Main and Sub spindles

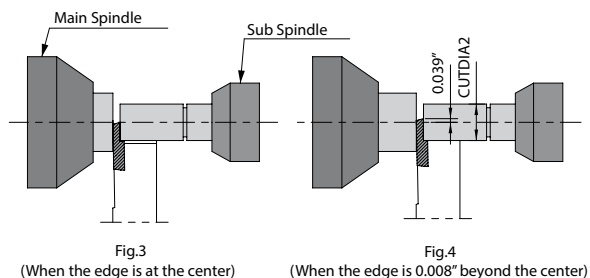
In this case, when the cutting edge runs beyond the center line, the insert will contact the workpiece, since the workpiece does not fall off.

Therefore the programmed distance beyond the center must be considered.

e.g. When the cutting edge is programmed to run 1mm beyond the center.

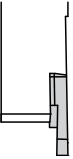
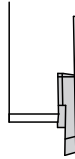
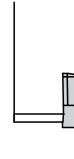
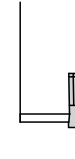
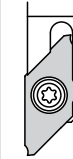
Workpiece maximum, CUTDIA2 (Fig.4) = [CUTDIA - 0.039"×2] (in)

(The clearance between the insert and the workpiece is 0.008")

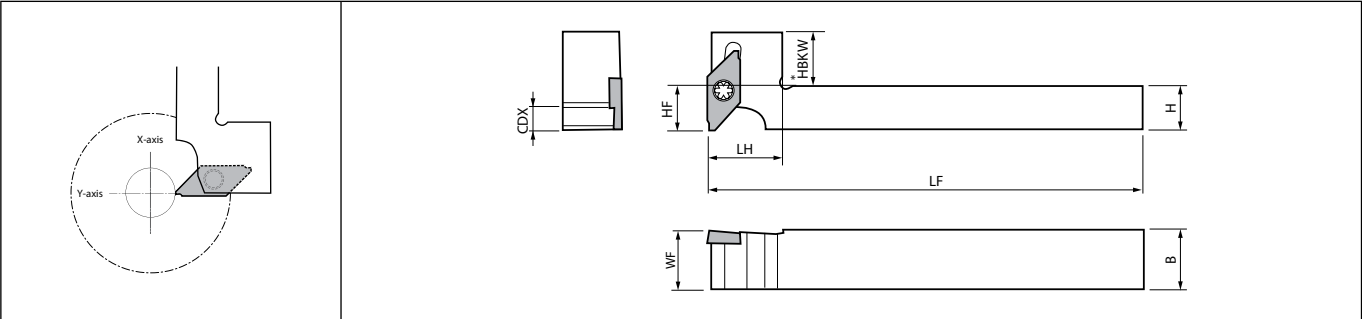


How to Select Edge Preparation

Troubleshooting

Problems	Countermeasures	Countermeasures						
		Lead Angle (PSIRR)		Edge Width		Name of Chipbreaker		
		No (0°)	Yes	Narrower	Wider	S	T	NB
								
Insert Fracture	Insert Fracture Prevention	Effective			Effective		Effective	Effective
Long Cutting Time	Cutting Time Reduction	Effective			Effective		Effective	Effective
Entangled Chips	Chip Entanglement Prevention	Effective		Effective		Effective		
Large Boss Remains	Small Boss Remains		Effective	Effective		Effective		
Ring Remains (Hollow Workpiece)	Prevention of Ring		Effective	Effective		Effective		
Deformation of thin walled workpiece (pipe)	Preventing Deformation		Effective	Effective		Effective		

KTKF (Y-Sxis Toolholder)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

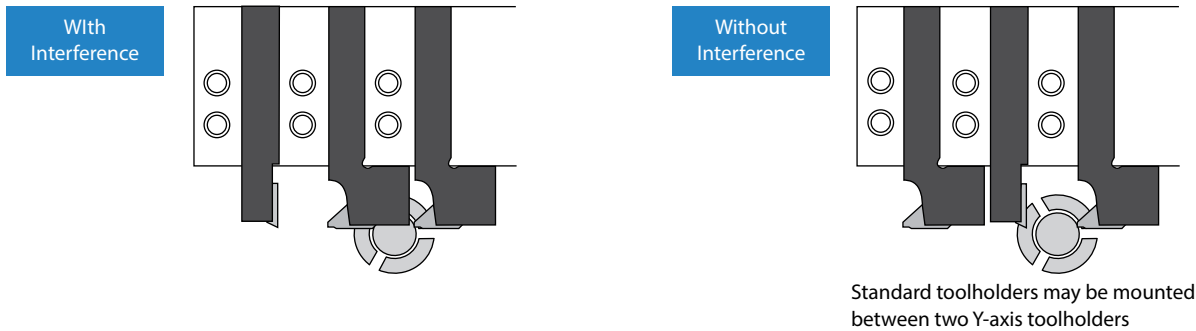
Unit	Part Number	Std. Item	Dimensions								Spare Parts		Applicable Inserts ➡ H6, H7
											Screw	Wrench	
		R	CDX	H	B	LH	HF	HBKW	LF	WF			
mm	KTKFR 1216JX-12-Y	●	6	12	16	20	12	15	120	16	SB-4590TRWN	FT-10	TKF12R...
	1616JX-12-Y	●	16	16	25	16	11						

CDX shows the distance from the toolholder to the cutting edge.

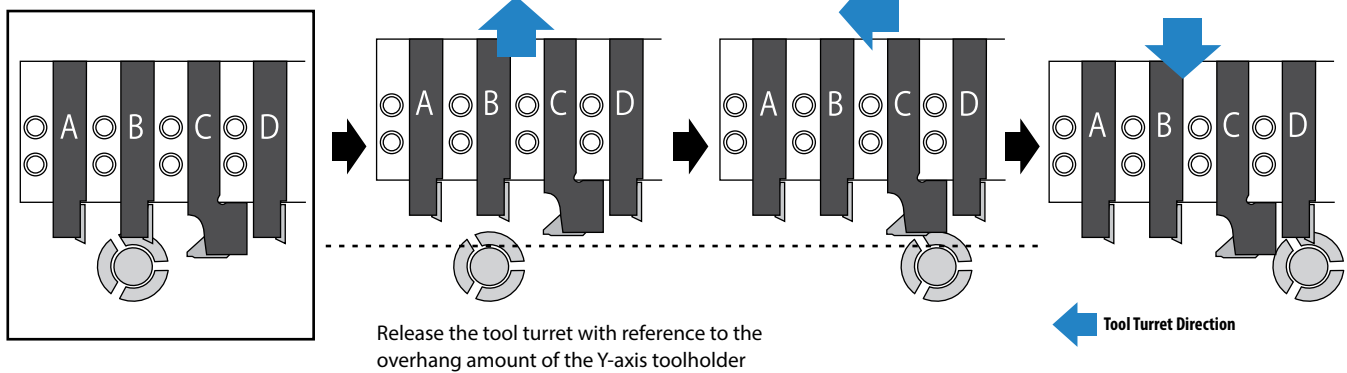
Recommended Cutting Conditions ➡ H19

Precautions for Using Y-Axis Toolholders

Do not use Y-axis toolholders side-by-side to prevent interference (Only two Y-axis holders can be used at the same time)



When changing the tool, set the retracted position with reference to the cutting edge of the Y-axis holder (When exchanging from tool B to D)



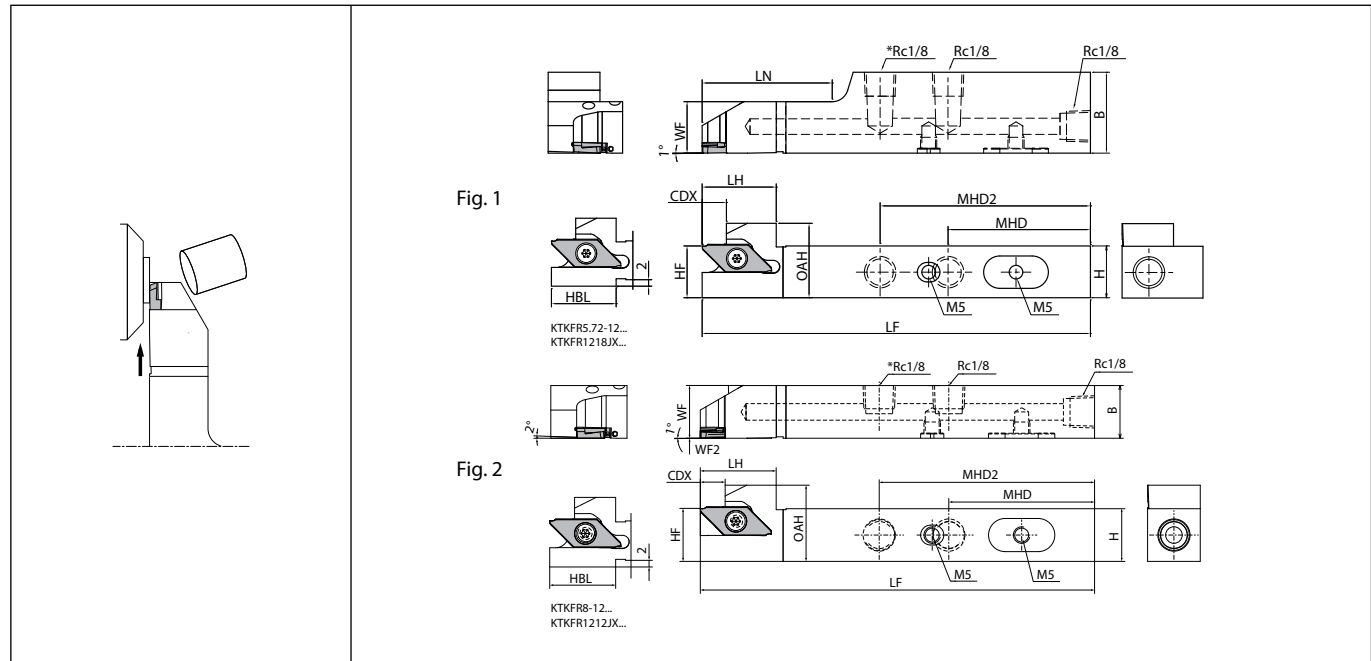
Note that using other toolholder styles together will result in different outside diameters

(Unit: mm)

Y-axis Toolholder Overhang	Examples	Overhang Amount : L			
		Available Outside Cutting Dia. (Ø)	20	22	25
20		A	Without Restriction	Without Restriction	Without Restriction
		B	13.0	13.0	13.0
		C	Without Restriction	Without Restriction	Without Restriction
25		A	38.0	58.0	Without Restriction
		B	14.9	13.6	13.0
		C	45.0	60.0	Without Restriction

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KTKFR-JCTM (Coolant-Through Toolholders / Right-Hand(R))



Right-hand shown | Right-hand Insert for Right-hand Toolholder.

KTKFR5.72-..., KTKFR8-... : 2-Rc1/8

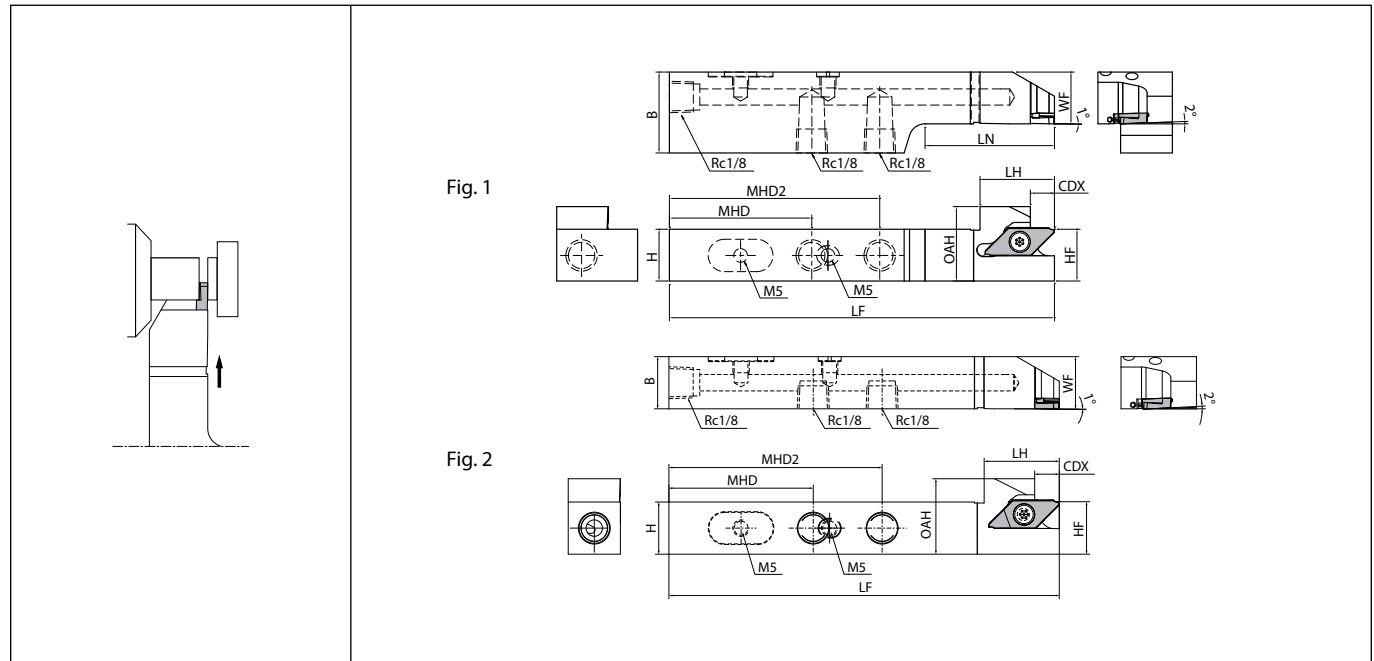
KTKFR1218-..., KTKFR1212-... : 2-Rc1/8

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions												Fig.	Coolant Hole	Spare Parts				Applicable Inserts 🔩 H6~H8
			Plug	Plug	Screw	Wrench															
		R	CDX	H	B	LH	OAH	MHD	MHD2	HF	HBL	LF	LN	WF							
Inch	KTKFR 5.72-12JCTM	●	0.295	0.500	0.709	0.787	0.776	2.126	-	0.500	0.787	4.750	1.110	0.500	1	Yes	GP-1		SB-4590TRWN	FT-10	TKF12R...
	82.5-12JCTM	●		0.625	1.000	0.906	0.901	1.732	2.559	0.625	-	4.750	1.585	0.625								TKF16R...
	KTKFR 82.5-16JCTM	●	0.378	0.625	1.000	0.906	0.901	1.732	2.559	0.625	-	4.750	1.585	0.625	2	Yes	GP-1	HSSX4LP	SB-4590TRWN	FT-10	TKF12R...
	KTKFR 8-12JCTM	●	0.500	0.500	0.787	0.776	2.323	-	0.500	0.787	4.750	-	0.500	-				-				TKF12R...
	10-12JCTM	●	0.625	0.625	0.906	0.901	1.732	2.559	0.625	-					0.625	0.750	0.750		0.625	Yes	GP-1		HSSX4LP	SB-4590TRWN	FT-10	TKF12R...
	12-12JCTM	●	0.750	0.750		1.026			0.750		0.750	0.625	0.750	0.625				0.750				0.625	0.750				0.625	Yes	GP-1	HSSX4LP	SB-4590TRWN	FT-10	TKF16R...
mm	KTKFR 1218JX-12JCTM	●	7.5	12	18	20	19	54	-	12	20	120	28	12	1	Yes	GP-1	HSSX4LP	SB-4590TRWN	FT-10	TKF12R...
	1625JX-12JCTM	●		16	25	23	44	65	16	-	40		16	16				16			
	2025JX-12JCTM	●		20		27		20	-		40		20	20							
	KTKFR 1625JX-16JCTM	●	9.6	16	25	23	44	65	16	-	120	40	16	2	Yes	GP-1	HSSX4LP	SB-4590TRWN	FT-10	TKF16R...	
	2025JX-16JCTM	●		20		27		20	-		41	20	20								
	KTKFR 1212JX-12JCTM	●	7.5	12	12	20	19	59	-	12	20	120	-	12	2	Yes	GP-1	HSSX4LP	SB-4590TRWN	FT-10	TKF12R...
	1616JX-12JCTM	●		16	16	23	44	65	16	-	16			20							
	2020JX-12JCTM	●		20	20	27		20	-		20			20							
	KTKFR 1616JX-16JCTM	●	9.6	16	16	23	23	44	65	16	-	120	-	16	2	Yes	GP-1	HSSX4LP	SB-4590TRWN	FT-10	TKF16R...
	2020JX-16JCTM	●		20	20	27	20	-	20	20											

Recommended Cutting Conditions H19

KTKFL-JCTM (Coolant-Through Toolholders / Left-Hand(L))



Left-hand shown | Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions												Fig.	Coolant Hole	Spare Parts				Applicable Inserts ➡ H6~H8
			L	CDX	H	B	LH	OAH	MHD	MHD2	HF	LF	LN	WF			Plug	Plug	Screw	Wrench	
																					
Inch	KTKFL 82.5-12JCTM	●	0.295	0.625	1.000	0.906	0.901	1.732	2.559	0.625	4.750	1.585	0.625	1	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF12L...	
	KTKFL 82.5-16JCTM	●	0.378	0.625	1.000	0.906	0.901	1.732	2.559	0.625	4.750	1.585	0.625	1	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF16L...	
	KTKFL 10-12JCTM	●	0.295	0.625	0.625	0.906	0.901	1.732	2.559	0.625	4.750	-	0.625	2	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF12L...	
	KTKFL 12-12JCTM	●		0.750	0.750		1.026			0.750			0.750		-	0.750	0.750	0.750			
mm	KTKFL 10-16JCTM	●	0.378	0.625	0.625	0.906	0.901	1.732	2.559	0.625	4.750	-	0.625	2	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF16L...	
	KTKFL 12-16JCTM	●		0.750	0.750		1.026			0.750			0.750		0.750	0.750	0.750				
	KTKFL 1625JX-12JCTM	●	7.5	16	25	23	23	44	65	16	120	40	16	1	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF12L...	
	KTKFL 2025JX-12JCTM	●		20		27	20			20			20		20	20					
	KTKFL 1625JX-16JCTM	●	9.6	16	25	23	23	44	65	16	120	40	16	1	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF16L...	
	KTKFL 2025JX-16JCTM	●		20		27	20			20			20		20	20	41	20			
	KTKFL 1616JX-12JCTM	●	7.5	16	16	23	23	44	65	16	120	-	16	2	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF12L...	
	KTKFL 2020JX-12JCTM	●		20	20		27			20			20		20	20	20				
KTKFL 1616JX-16JCTM	●	9.6	16	16	23	23	44	65	16	120	-	16	2	Yes	GP-1	HS5X4LP	SB-4590TRWN	FT-10	TKF16L...		
KTKFL 2020JX-16JCTM	●		20	20		27			20			20		20	20	20					

Recommended Cutting Conditions H19

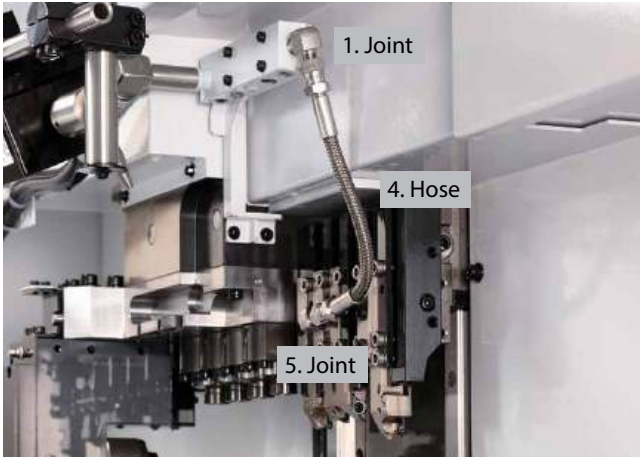
Coolant Piping Parts

Pipe parts will be required separately if internal coolant is used

Pump Pressure: up to 2,900 psi

Pump Pressure: up to 1,090 psi if couplers are used

Without Coupler (Pump Pressure: up to 2,900 psi)

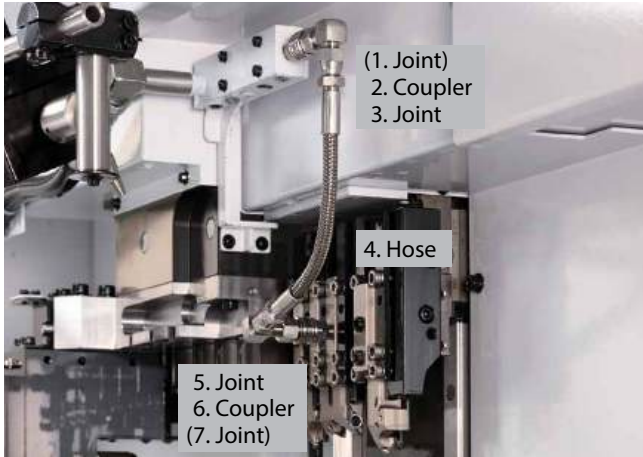


Combination Part Number (Example)

Part	Part Number
1. Joint	J-ST-R1/8-G1/8
4. Hose	HS-G1/8-G1/8-500
5. Joint	J-ST-R1/8-G1/8

Convert the thread standards on the machine's side (Rc1/4, Rc1/8, NPT1/8, etc.) to the thread standard on the hose side (G1/8) for use.
Use sealing agents such as seal tapes when installing piping parts.

With Coupler (Pump Pressure: Up to 1,090 psi)



Combination Part Number (Example)

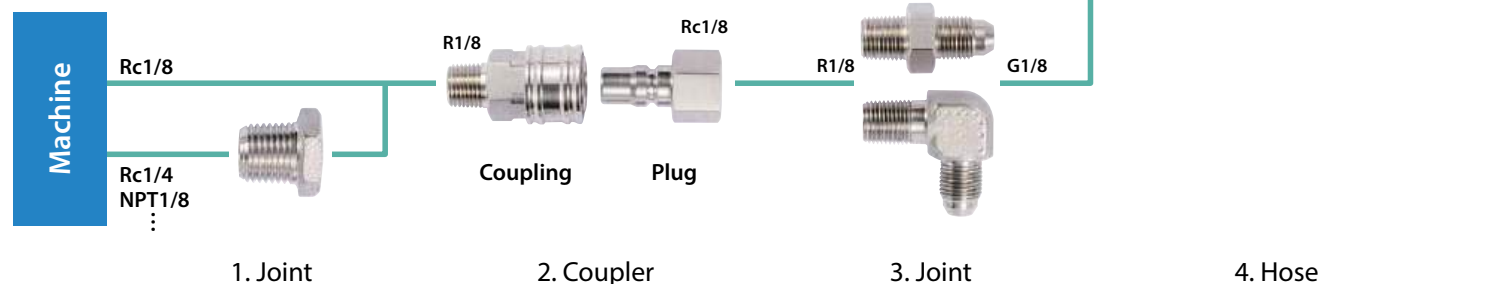
Part	Part Number
(1. Joint)	-
2. Coupler	CP-ST-R1/8, P-ST-RC1/8
3. Joint	J-AN-R1/8-G1/8
4. Hose	HS-G1/8-G1/8-200
5. Joint	J-AN-R1/8-G1/8
6. Coupler	P-ST-RC1/8, CP-ST-R1/8
(7. Joint)	-

Convert the thread standards on the machine's side (Rc1/4, Rc1/8, NPT1/8, etc.) to thread standards of the coupler (Rc1/8, etc.) or hose (G1/8) for use.
Use sealing agents such as seal tapes when installing piping parts.

Without Coupler (Pump Pressure: up to 2,900 psi)



With Coupler (Pump Pressure: up to 1,090 psi)



Piping Installation Parts Part Number

Joint [(1)(3)(5)(7)]

Pressure Resistance: up to 2,900 psi

Shape	Part Number	Thread Standard	Std. Item
	J-ST-R1/4-G1/8	R1/4 ⇔ G1/8	●
	J-ST-NPT1/8-G1/8	NPT1/8 ⇔ G1/8	●
	J-ST-R1/8-G1/8	R1/8 ⇔ G1/8	●
	J-ST-R1/8-G1/8-L		●
	J-AN-R1/8-G1/8		●
	J-AN-R1/8-G1/8-L		●
	J-ST-R1/4-RC1/8	R1/4 ⇔ Rc1/8	●
	J-ST-NPT1/8-RC1/8	NPT1/8 ⇔ Rc1/8	●
	J-ST-R1/8-RC1/8	Rc1/8 ⇔ R1/8 (Extension Joint)	●

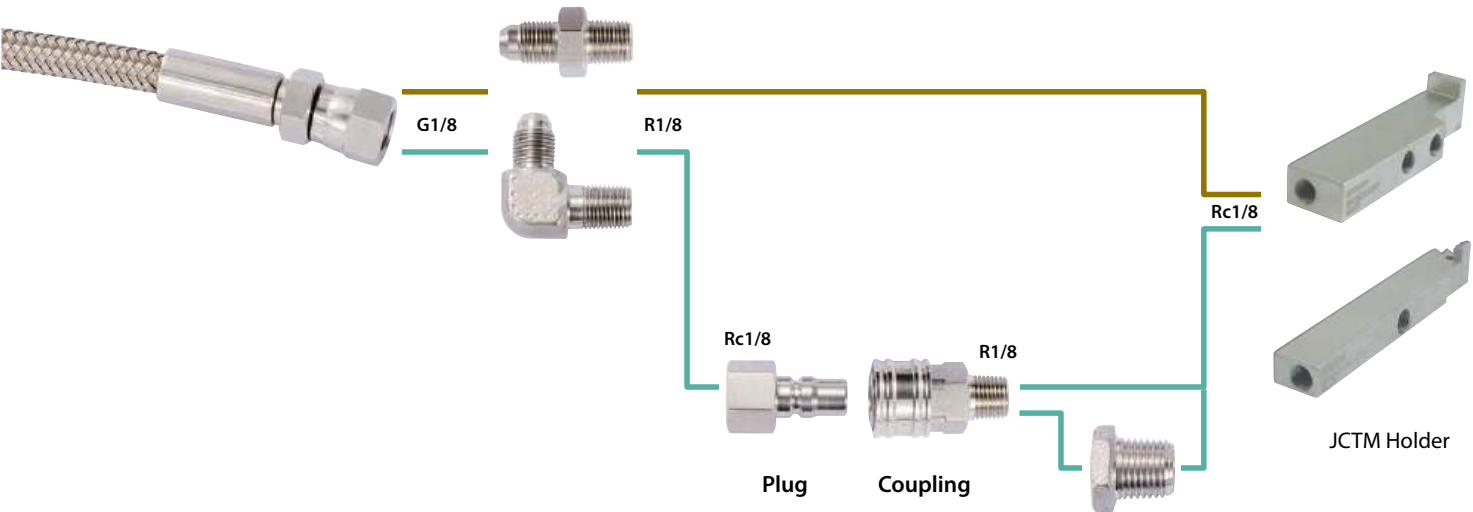
Elbow piping (J-AN-R1/8-G1/8) is recommended.

Hose (4)

Pressure Resistance: up to 2,900 psi

Shape	Part Number	Thread Standard	Total Length (mm)	Std. Item
	HS-G1/8-G1/8-200	G1/8	200	●
	HS-G1/8-G1/8-300		300	●
	HS-G1/8-G1/8-400		400	●
	HS-G1/8-G1/8-500		500	●
	HS-G1/8-G1/8-600		600	●
	HS-G1/8-G1/8-800		800	●

1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure. Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.



4. Hose

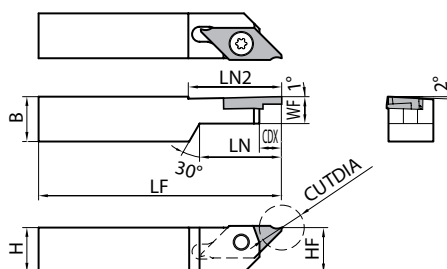
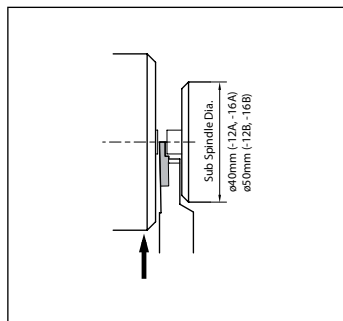
5. Joint

6. Coupler

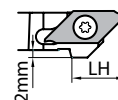
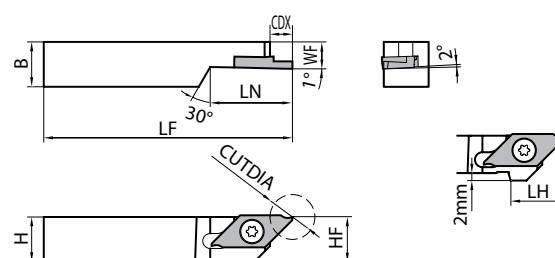
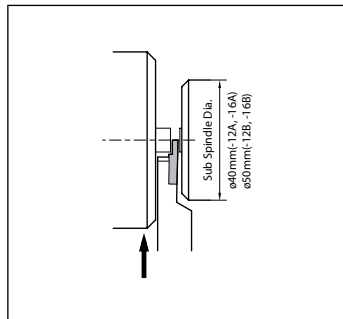
7. Joint (Extension Joint)

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KTKF-S (Cut-Off / for Sub-Spindle Tooling)

Right-hand shown | Right-hand Insert for Right-hand Toolholder.

KTKFR/L1010JX-12SA
KTKFR/L1010JX-16SA
Shown on left

Left-hand shown | Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions										Spare Parts		Applicable Inserts ➡ H6~H8
														Screw	Wrench	
		R	L	CDX	H	B	LH	HF	LF	LN	LN2	WF				
mm	KTKF% 1010JX-12SA	●	●	6	10	10	15	10	120	22	26	7.2	SB-4570TRN	FT-10	TKF12%...	
	1212F-12SA	●	●		12	12	-	12	85	26						
	KTKF% 1212JX-12SB	●	●	8	10	10	20	10	120	22	30	7.2	SB-4570TRN	FT-10	TKF16%...	
	KTKF% 1010JX-16SA	●	●		12	12	-	12	85	26						
	1212F-16SA	●	●		12	12	-	12	120	26						

CDX shows the distance from the toolholder to the cutting edge.

Cut-Off diameter (CUTDIA) depends on the insert edge width.

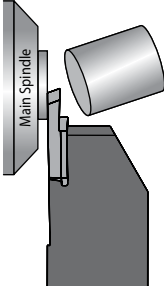
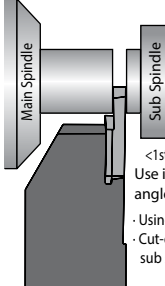
LN2 dimensions only apply to right-hand toolholders.

Recommended Cutting Conditions ➡ **H19**

KTKF / KTKF-S Selection Reference

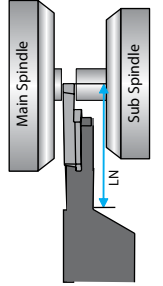
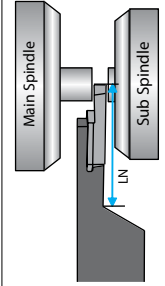
KTKF

- Both Right-hand and Left-hand types are applicable to gang tool post.
- Left-hand type is used for cut-off operation using a sub spindle.

KTKFR (Right-hand toolholder)	KTKFL (Left-hand toolholder)
 <1st. Recommendation> Use insert with lead angle to remove boss. · Not using sub spindle · Cut-off operation near main spindle side	 <1st. Recommendation> Use insert without lead angle. · Using sub spindle · Cut-off operation near sub spindle side

KTKF-S

- When machining workpiece with small diameter, use KTKF-S to reduce overhang distance from the main spindle.

KTKFR-SA/B (Right-hand toolholder)	KTKFL-SA/B (Left-hand toolholder)
 <How to select> Hand of Toolholder · Long workpiece and more rigidity · Cut-Off operation near main spindle side <How to select> LN dimension · Sub Spindle Dia. ø40→22 (SA type) ø50→26 (SB type)	 <How to select> Hand of Toolholder · Short workpiece and less rigidity · Cut-Off operation near sub spindle side <How to select> LN dimension · Sub Spindle Dia. ø40→22 (SA type) ø50→26 (SB type)

Recommended Cutting Conditions

TKF12

Workpiece Material	Recommended Grade (Vc sfm)					TKF12						Notes
						Width (CW)						
	MEGACOAT NANO		MEGACOAT	DLC	Carbide	0.020" (0.50mm)	0.028" (0.70mm)	0.039" (1.00mm)	0.049" (1.25mm)	0.059" (1.50mm)	0.079" (2.00mm)	
	PR1725	PR1535	PR1225	PDL025	KW10	Feed Rate (ipr)						
Carbon Steel	★ 230~560 (160~460)	☆ 230~500 (160~400)	☆ 225~500 (175~400)	-	-	0.0004~0.0008	0.0004~0.0012	0.0004~0.0016 (0.0004~0.0020)	0.0004~0.0016	0.0004~0.0016 (0.0008~0.0039)	0.0004~0.0016 (0.0008~0.0039)	Wet
Alloy Steel	★ 230~560 (160~460)	☆ 230~500 (160~400)	☆ 225~500 (175~400)	-	-	0.0004~0.0008	0.0004~0.0012	0.0004~0.0016 (0.0004~0.0020)	0.0004~0.0016	0.0004~0.0016 (0.0008~0.0039)	0.0004~0.0016 (0.0008~0.0039)	
Stainless Steel	☆ 200~460 (130~390)	★ 200~400 (130~330)	☆ 200~400 (125~325)	-	-	0.0002~0.0006	0.0004~0.0008	0.0004~0.0008 (0.0004~0.0012)	0.0004~0.0008	0.0004~0.0008 (0.0004~0.0020)	0.0004~0.0008 (0.0004~0.0020)	
Cast Iron	-	-	-	-	★ 175~325	0.0004~0.0012	0.0004~0.0016	0.0004~0.0020	0.0004~0.0020	0.0004~0.0020	0.0004~0.0020	
Aluminum	-	-	-	★ 660~1640	☆ 650~1475	0.0004~0.0012	0.0004~0.0016	0.0004~0.0020	0.0004~0.0020	0.0004~0.0020	0.0004~0.0020	
Brass	-	-	-		★ 325~650	0.0004~0.0012	0.0004~0.0016	0.0004~0.0024	0.0004~0.0024	0.0004~0.0024	0.0004~0.0024	

Values in parentheses () are cutting conditions for tough edge inserts style TKF.T..

★ : 1st Recommendation ☆ : 2nd Recommendation

TKF16

Workpiece Material	Recommended Grade (Vc sfm)					TKF16		Notes
						Width (CW)		
	MEGACOAT NANO		MEGACOAT	DLC	Carbide	0.059" (1.50mm)	0.079" (2.00mm)	
	PR1725	PR1535	PR1225	PDL025	KW10	Feed Rate (ipr)		
Carbon Steel	★ 230~560 (160~460)	☆ 230~500 (160~400)	☆ 225~500 (175~400)	-	-	0.0008~0.0028 (0.0008~0.0039)	0.0008~0.0028 (0.0008~0.0039)	Wet
Alloy Steel	★ 230~560 (160~460)	☆ 230~500 (160~400)	☆ 225~500 (175~400)	-	-	0.0008~0.0028 (0.0008~0.0039)	0.0008~0.0028 (0.0008~0.0039)	
Stainless Steel	☆ 200~460 (130~390)	★ 200~400 (130~330)	☆ 200~400 (125~325)	-	-	0.0004~0.0016 (0.0004~0.0020)	0.0004~0.0016 (0.0004~0.0020)	
Cast Iron	-	-	-	-	★ 175~325	0.0008~0.0032	0.0008~0.0032	
Aluminum	-	-	-	★ 660~1640	☆ 650~1475	0.0008~0.0032	0.0008~0.0032	
Brass	-	-	-	-	★ 325~650	0.0008~0.0039	0.0008~0.0039	

Values in parentheses () are cutting conditions for tough edge inserts style TKF.T..

★ : 1st Recommendation ☆ : 2nd Recommendation

KGZ

Grooving and Cut-Off Solutions for Small Parts Machining

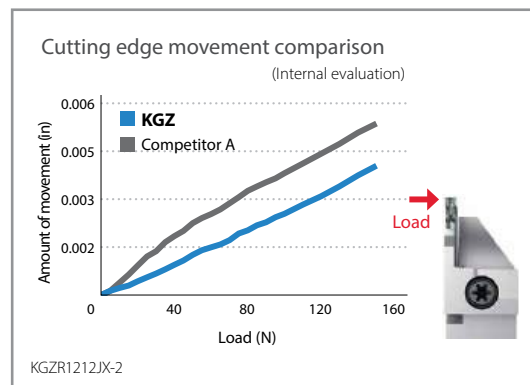
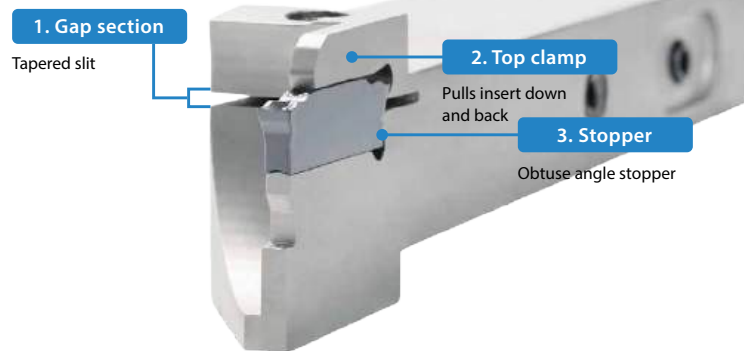
Provides stable machining and is easy to use with unique clamp design

New coating PR20 series provides longer tool life and supports a wide range of applications

1

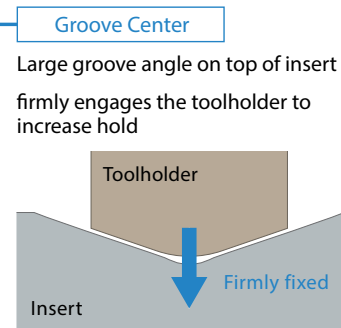
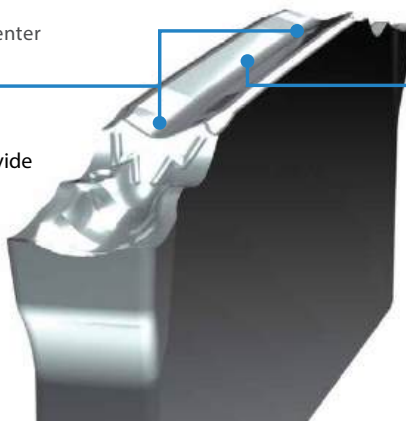
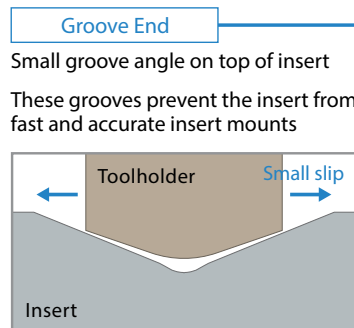
Achieve stable machining with newly developed clamp structure

Toolholder Sturdy clamp design



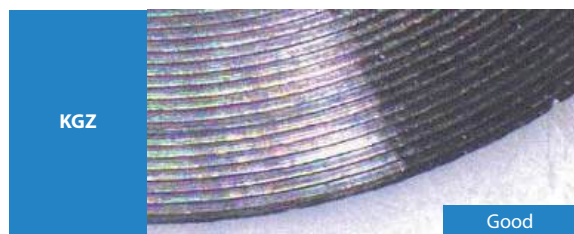
Insert Ease insert installation

Top V Shape Different groove angles at ends and center



Excellent chatter resistance

Machined surface comparison (Internal evaluation)



Cutting conditions : $V_c = \sim 200 \text{ sfm}$, $f = 0.005 \text{ ipt}$
Workpiece : 303 (ø0.551") Wet (External coolant) KGZR1212JX-2
Edge width 0.079" (2mm) (PM Chipbreaker)

2

New insert grades PR20 series with MEGACOAT NANO EX coating technology provides longer tool life

PR20 Series

PR2015

1st recommendation for cast iron
Also available for steel and stainless steel

PR2025

1st recommendation for steel
Also available for stainless steel

PR2035

1st recommendation for stainless steel
Also available for steel

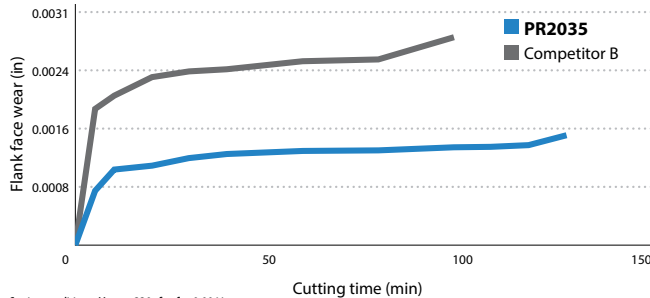
New coating for grooving and cut-off machining



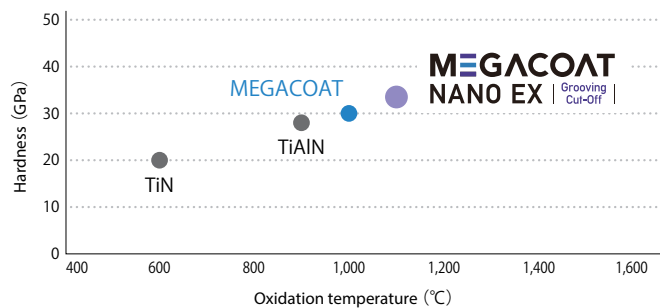
Achieve long tool life and high stability with the combination of high content aluminum nano coating layer

Cutting Performance

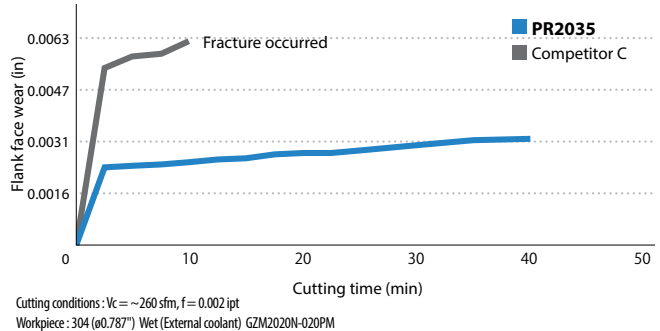
1045 Wear resistance comparison (Internal evaluation)



Coating characteristics (Internal evaluation)



304 Wear resistance comparison (Internal evaluation)

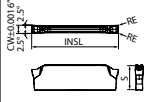
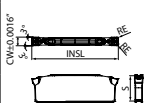
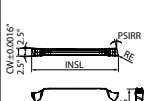
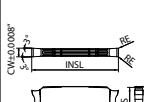
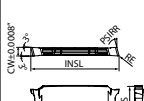


3

Large variety of insert and chipbreaker combinations for a wide range of applications

Insert	Cut-off (H22)	Low feed PF 	Medium feed PM 	High feed PH 	Low cutting force PG 	Grades	PVD coating P M K PR2015 / PR2025 / PR2035
	Grooving (G28)	General purpose GM 	Low feed GL 	High feed PH 	Copying CM 		Low cutting force GS	PCD NB	Cermet P DLC coating N TN620 PDL025
Tool holder	Internal coolant JCTM Series for direct coolant					External coolant Standard type / for Sub-spindle tooling	
							

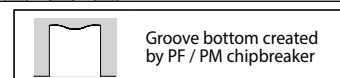
GZM/GZG

		Carbon Steel / Alloy Steel										P				
		Stainless Steel										M				
		Cast Iron										K				
		Non-Ferrous Metals										N				
Insert		Part Number	No. of Edges	Dimensions (mm)					Angle (°)	Tolerance (mm)		Carbide				Applicable Toolholder H24~H28
				CW		S	RE	INSL		PSIR%	CW min.	CW max.	DLC	PVD	-	
				in	mm				PDI025								PR2015	PR2025	PR2035	GW15
	 Low Feed	GZM 1316N-003PF 1316N-015PF	2	0.051	1.3	4.4	0.03 0.15	16	-	-0.04	+0.04	●	●	●	KGZ %L ...1.3(D16) KGZS %L ...1.3A/B	
		GZM 1516N-003PF 1516N-015PF		0.059	1.5							●	●	●	KGZ %L ...1.5(D16) KGZS %L ...1.5A/B	
	 Low Feed	GZM 2020N-003PF 2020N-015PF	0.079	2	5.9	0.03 0.15	20	●				●	●	KGZ %L ...2(...) KGZS %L ...2A/B		
		GZM 2520N-003PF 2520N-015PF	0.098	2.5				●				●	●	KGZ %L ...2(...) KGZ %L ...2.4(...) KGZS %L ...2A/B		
		GZM 3020N-003PF 3020N-015PF	0.118	3				●				●	●	KGZ %L ...2(...), KGZ %L ...2.4(...) KGZ %L ...3(...), KGZS %L ...2A/B		
	 Low Feed	GZM 1316R-003PF-15D 1316L-003PF-15D	2	0.051	1.3	4.4	0.03 0.03	16	15	-0.04	+0.04	●	●	●	KGZ %L ...1.3(D16) KGZS %L ...1.3A/B	
		GZM 1516R-003PF-15D 1516L-003PF-15D 1516R-015PF-15D		0.059	1.5							●	●	●	KGZ %L ...1.5(D16) KGZS %L ...1.5A/B	
	 Low Feed	GZM 2020R-003PF-15D 2020L-003PF-15D 2020R-015PF-15D	0.079	2	5.9	0.03 0.03 0.15	20	●				●	●	KGZ %L ...2(...) KGZS %L ...2A/B		
		GZM 2520R-003PF-15D 2520L-003PF-15D 2520R-015PF-15D	0.098	2.5				●				●	●	KGZ %L ...2(...) KGZ %L ...2.4(...) KGZS %L ...2A/B		
		GZM 3020R-003PF-15D 3020L-003PF-15D 3020R-015PF-15D	0.118	3				●				●	●	KGZ %L ...2(...) KGZ %L ...2.4(...) KGZ %L ...3(...) KGZS %L ...2A/B		
	 Low Cutting Force	GZG 2020N-005PG	2	0.079	2	5.9	0.05	20	-	-0.02	+0.02	●	●	●	KGZ %L ...2(...) KGZS %L ...2A/B	
		GZG 2520N-005PG		0.098	2.5							●	●	●	KGZ %L ...2(...) KGZ %L ...2.4(...) KGZS %L ...2A/B	
		GZG 3020N-005PG		0.118	3							●	●	●	KGZ %L ...2(...), KGZ %L ...2.4(...) KGZ %L ...3(...), KGZS %L ...2A/B	
	 Low Cutting Force	GZG 2020R-005PG-15D	2	0.079	2	5.9	0.05	20	15°	-0.02	+0.02	●	●	●	KGZ %L ...2(...) KGZS %L ...2A/B	
		GZG 2520R-005PG-15D		0.098	2.5							●	●	●	KGZ %L ...2(...) KGZ %L ...2.4(...) KGZS %L ...2A/B	
		GZG 3020R-005PG-15D		0.118	3							●	●	●	KGZ %L ...2(...), KGZ %L ...2.4(...) KGZ %L ...3(...), KGZS %L ...2A/B	

Handed insert shows Right-hand

Using the PF / PM chipbreaker (for cut-off) for grooving cannot create a flat bottom (Ref. to the right figure).

GZM and GZG inserts cannot be used in KGM or KGD holders.

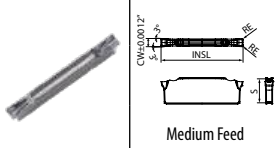
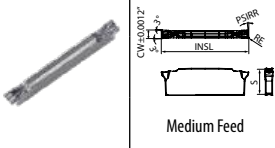
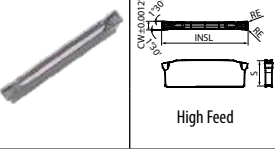


Recommended Cutting Conditions H30

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

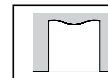
GZM/GZMS

		Part Number	No. of Edges	Dimensions (mm)				Angle (°)	Tolerance (mm)		Carbide			Applicable Toolholder H24~H28		
				CW		S	RE		INSL	PSIR%	CW min.	CW max.	PVD			
				in	mm								PR2015		PR2025	PR2035
Insert																
	GZM 2020N-020PM	2	0.079	2	5.9	0.2	20	-	- 0.03	+ 0.03	●	●	●	KGZ [®] /L ...-2(...) KGZS [®] /L ...-2A/B		
	GZM 2520N-020PM	2	0.098	2.5							●	●	●	KGZ [®] /L ...-2(...) KGZ [®] /L ...-2.4(...) KGZS [®] /L ...-2A/B		
	GZM 3020N-025PM	2	0.118	3							●	●	●	KGZ [®] /L ...-2(...) KGZ [®] /L ...-2.4(...) KGZ [®] /L ...-3(...) GZS [®] /L ...-2A/B		
	GZM 2020R-020PM-6D	2	0.079	2	5.9	0.2	20	6			●	●	●	KGZ [®] /L ...-2(...) KGZS [®] /L ...-2A/B		
	GZM 2520R-020PM-6D	2	0.098	2.5							●	●	●	KGZ [®] /L ...-2(...) KGZ [®] /L ...-2.4(...) KGZS [®] /L ...-2A/B		
	GZM 3020R-025PM-6D	2	0.118	3							●	●	●	KGZ [®] /L ...-2(...) KGZ [®] /L ...-2.4(...) KGZ [®] /L ...-3(...) KGZS [®] /L ...-2A/B		
	GZM 2020N-020PH	2	0.079	2	5.9	0.2	20	-	- 0.03	+ 0.03	●	●	●	KGZ [®] /L ...-2(...) KGZS [®] /L ...-2A/B		
	GZM 2520N-020PH	2	0.098	2.5							●	●	●	KGZ [®] /L ...-2(...) KGZ [®] /L ...-2.4(...) KGZS [®] /L ...-2A/B		
	GZM 3020N-030PH	2	0.118	3							●	●	●	KGZ [®] /L ...-2(...) KGZ [®] /L ...-2.4(...) KGZ [®] /L ...-3(...) KGZS [®] /L ...-2A/B		
	GZMS 2020N-020PH	1	0.079	2	5.9	0.2	20	-	- 0.03	+ 0.03	●	●	●	KGZ [®] /L ...-2(...) KGZS [®] /L ...-2A/B		
	GZMS 3020N-030PH	1	0.118	3							●	●	●	KGZ [®] /L ...-2(...) KGZ [®] /L ...-2.4(...) KGZ [®] /L ...-3(...) KGZS [®] /L ...-2A/B		

Handed insert shows Right-hand

Using the PF / PM chipbreaker (for cut-off) for grooving cannot create a flat bottom (Ref. to the right figure).

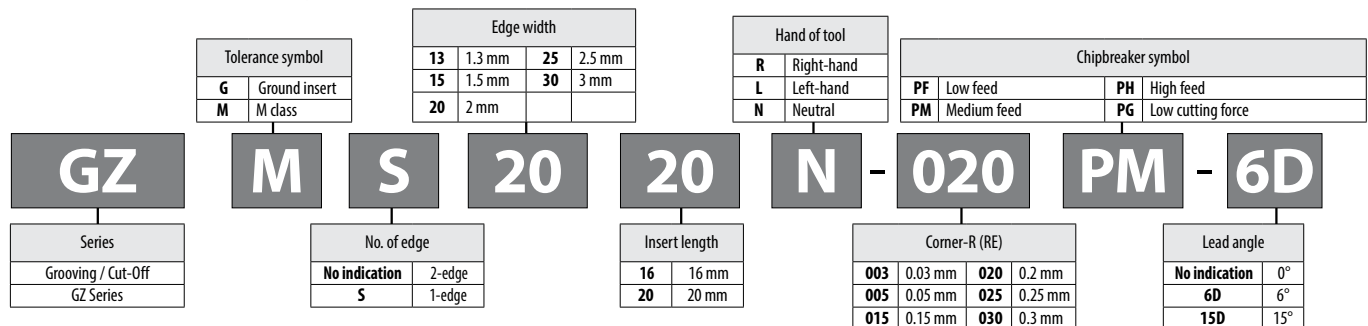
GZM and GZG inserts cannot be used in KGM or KGD holders.



Groove bottom created by PF / PM chipbreaker

Recommended Cutting Conditions H30

Inserts Identification System

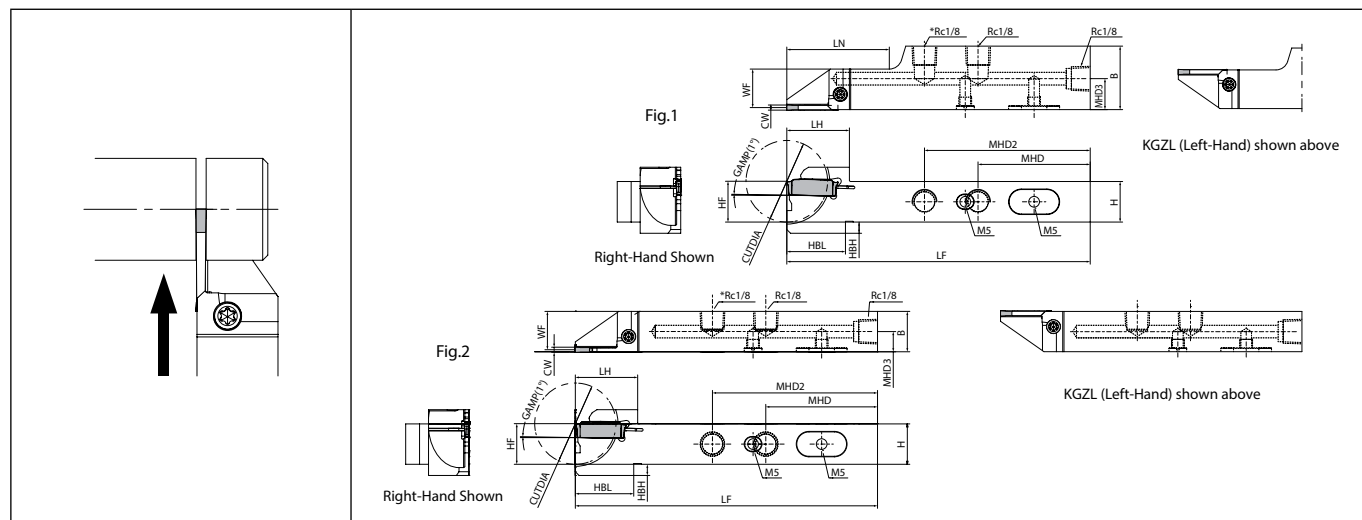


● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KGZ-JCTM (Coolant-Through Toolholders)

Coolant Piping Parts H16~H17



Toolholder Dimensions

Right-hand shown | KGZ% 5.72...-JCTM, KGZ% 8...-JCTM : 2-Rc1/8

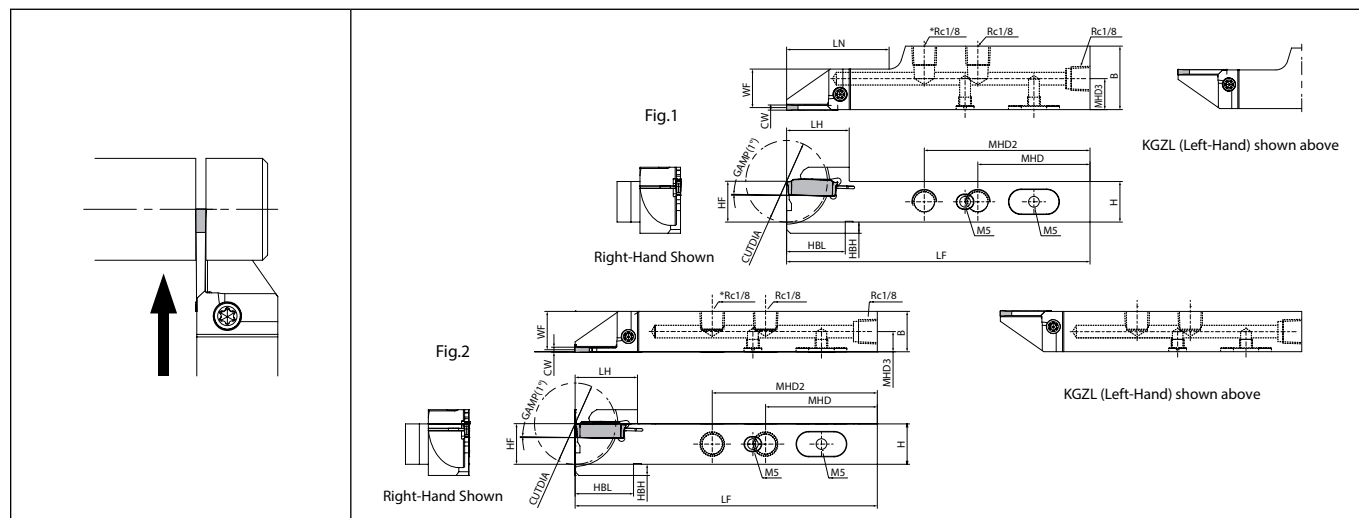
Unit	Part Number	Std. Item	Dimensions																Angle Fig.	Coolant Hole	Spare Parts				Applicable Inserts ➡ H22 H23	
			Plug	Plug	Screw	Wrench																				
		R	L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HL	LF	LN	WF	CW min.	CW max.	GAMP (°)							
Inch	KGZR 5.72-2JCTM	●		0.945	0.500	0.709	0.780	2.126	-	0.331	0.500	0.335	0.778		1.717	0.469			1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	KGZL 5.72-2JCTM		●							0.303				4.750			0.079" (2mm)	0.118" (3mm)								
	KGZR 82.5-2JCTM	●		1.260	0.625	1.000	0.976	1.732	2.559	0.480	0.625	0.177	0.913		1.575	0.594			1							
	KGZL 82.5-2JCTM		●							0.303																
	KGZR 5.72-2.4JCTM	●		0.945	0.500	0.709	0.780	2.126	-	0.331	0.500	0.335	0.778		1.717	0.461			1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	KGZL 5.72-2.4JCTM		●							0.303				4.750			0.095" (2.4mm)	0.118" (3mm)								
	KGZR 82.5-2.4JCTM	●		1.260	0.625	1.000	0.976	1.732	2.559	0.480	0.625	0.177	0.913		1.575	0.586			1							
	KGZL 82.5-2.4JCTM		●							0.303																
	KGZR 5.72-3JCTM	●		0.945	0.500	0.709	0.780	2.126	-	0.339	0.500	0.335	0.778		1.717	0.453			1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...3020...
	KGZL 5.72-3JCTM		●							0.303				4.750			0.118" (3mm)	0.118" (3mm)								
	KGZR 82.5-3JCTM	●		1.260	0.625	1.000	0.976	1.732	2.559	0.480	0.625	0.177	0.913		1.575	0.578			1							
	KGZL 82.5-3JCTM		●							0.303																
	KGZ% 8-2JCTM	●	●	0.945	0.500	0.500	0.780	2.323	-	0.236	0.500	0.236	0.780			0.469			1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	KGZ% 10-2D26JCTM	●	●	1.024	0.625	0.625	0.976	1.732	2.559	0.315	0.625	0.039	0.177	4.750		0.594			1							
	KGZ% 10-2JCTM	●	●	1.260																						
	KGZ% 8-2.4JCTM	●	●	0.945	0.500	0.500	0.780	2.323	-	0.236	0.500	0.236	0.780			0.461			1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
KGZ% 10-2.4D26JCTM	●	●	1.024	0.625	0.625	0.976	1.732	2.559	0.315	0.625	0.039	0.177	4.750	-	0.586			1								
KGZ% 10-2.4JCTM	●	●	1.260																							
KGZ% 8-3JCTM	●	●	0.945	0.500	0.500	0.780	2.323	-	0.236	0.500	0.236	0.780			0.453			1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...3020...	
KGZ% 10-3D26JCTM	●	●	1.024	0.625	0.625	0.976	1.732	2.559	0.315	0.625	0.039	0.177	4.750		0.578			1								
KGZ% 10-3JCTM	●	●	1.260																							

Recommended tightening torque : 2.0N · m(SB-40120TR)

GM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMs).

KGZ-JCTM (Coolant-Through Toolholders)

Coolant Piping Parts H16~H17



Toolholder Dimensions

Right-hand shown | KGZ% 12...-JCTM : 2-Rc1/8

Unit	Part Number	Std. Item		Dimensions														Angle	Fig.	Coolant Hole	Spare Parts				Applicable Inserts H22 H23		
																					Plug	Plug	Screw	Wrench			
		R	L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.	CW max.			GAMP (°)						
mm	KGZR 1218JX-2JCTM	●		24	12	18	19.8	54	-	8.4	12	8.5	19.8	120	43.7	11.2	0.079" (2mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...	
	KGZL 1218JX-2JCTM	●								7.7																	
	KGZR 1625JX-2JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2	120	40.0	15.2										GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...	
	KGZL 1625JX-2JCTM	●								7.7																	
	KGZR 1218JX-2.4JCTM	●		24	12	18	19.8	54	-	8.4	12	8.5	19.8	120	43.7	11.0	0.095" (2.4mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...	
	KGZL 1218JX-2.4JCTM	●								7.7																	
	KGZR 1625JX-2.4JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2	120	40.0	15.0										GZ...2420... GZ...2520... GZ...3020...	
	KGZL 1625JX-2.4JCTM	●								7.7																	
	KGZR 1218JX-3JCTM	●		24	12	18	19.8	54	-	8.6	12	8.5	19.8	120	43.7	10.8	0.118" (3mm)	0.118" (3mm)	1	1	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...3020...	
	KGZL 1218JX-3JCTM	●								7.7																	
	KGZR 1625JX-3JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2	120	40.0	14.8										GZ...3020...	
	KGZL 1625JX-3JCTM	●								7.7																	
	KGZ% 1212JX-2JCTM	● ●		24	12	12	19.8	59	-	6	12	5	19.8	120		11.2	0.079" (2mm)	0.118" (3mm)	1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...	
	KGZ% 1616JX2D26JCTM	● ●		26	16	16	24.8	44	65	8	16	1	23.2			15.2											
	KGZ% 1616JX-2JCTM	● ●		32	16	16	24.8	44	65	8	16	4.5	23.2	120			11.0	0.095" (2.4mm)	0.118" (3mm)	1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	KGZ% 1212JX-2.4JCTM	● ●		24	12	12	19.8	59	-	6	12	5	19.8				15.0										
	KGZ% 1616JX2.4D26JCTM	● ●		26	16	16	24.8	44	65	8	16	1	23.2	120			0.095" (2.4mm)	0.118" (3mm)	1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...2420... GZ...2520... GZ...3020...	
	KGZ% 1616JX-2.4JCTM	● ●		32	16	16	24.8	44	65	8	16	4.5	23.2														15.0
KGZ% 1212JX-3JCTM	● ●		24	12	12	19.8	59	-	6	12	5	19.8	120		10.8	0.118" (3mm)	0.118" (3mm)	1	2	Yes	GP-1	HSSX4LP	SB-40120TR	LTW-15S	GZ...3020...		
KGZ% 1616JX3D26JCTM	● ●		26	16	16	24.8	44	65	8	16	1	23.2			14.8												
KGZ% 1616JX-3JCTM	● ●		32	16	16	24.8	44	65	8	16	4.5	23.2															

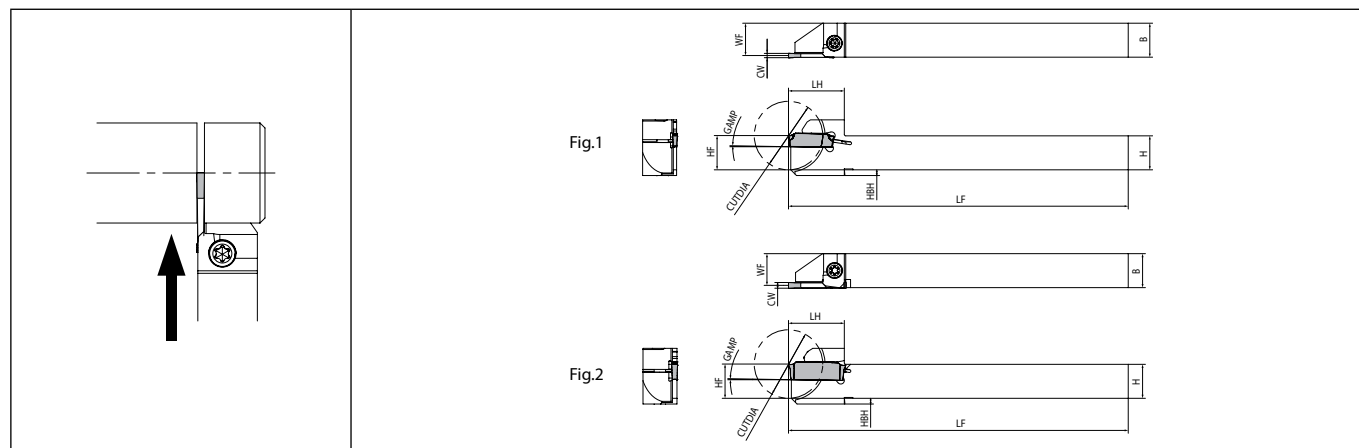
Recommended tightening torque : 2.0N · m(SB-40120TR)

GM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KGZ (Standard Toolholders)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions											Angle Fig.	Spare Parts			Applicable Inserts 
																Screw	Screw	Wrench	
		R	L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	GAMP (°)					
Inch	KGZ% 6-1.3JX	●	●	0.787	0.375	0.375	0.736	0.375	0.101	4.750	0.356	0.051" (1.3mm)	0.051" (1.3mm)	1	1	SB-40120TR	-	LTW-15S	GZ...1316...
	8-1.3JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055		0.481								
	KGZ% 6-1.5JX	●	●	0.787	0.375	0.375	0.736	0.375	0.101	4.750	0.352	0.059" (1.5mm)	0.059" (1.5mm)	1	1	SB-40120TR	-	LTW-15S	GZ...1516...
	8-1.5JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055		0.477								
	KGZ% 6-2JX	●	●	0.787	0.375	0.375	0.736	0.375	0.101	4.750	0.344	0.079" (2mm)	0.118" (3mm)	2	2	SB-40120TR	-	LTW-15S	GZ...2020... GZ...2220... GZ...2420... GZ...2520... GZ...3020...
	8-2JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055		0.469								
	10-2JX	●	●	1.260	0.625	0.625	0.976	0.625	-		0.594								
	KGZ% 6-2.4JX	●	●	0.787	0.375	0.375	0.736	0.375	0.101	4.750	0.336	0.095" (2.4mm)	0.118" (3mm)	2	2	SB-40120TR	-	LTW-15S	GZ...2420... GZ...2520... GZ...3020...
	8-2.4JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055		0.461								
	10-2.4JX	●	●	1.260	0.625	0.625	0.976	0.625	-		0.586								
	KGZ% 8-3JX	●	●	0.945	0.500	0.500	0.780	0.500	0.055	4.750	0.453	0.118" (3mm)	0.118" (3mm)	1	1	SB-40120TR	-	LTW-15S	GZ...3020...
	10-3JX	●	●	1.260	0.625	0.625	0.976	0.625	-		0.578								
	10-3D38JX	●	●	1.496	0.625	0.625	1.134	0.625			0.578								
	12-3D42JX	●	●	1.654	0.750	0.750	1.217	0.750			0.703								
	43-3D42JX	●	●	1.654	0.750	0.750	1.217	0.750			0.453								

Recommended tightening torque : 2.0N · m (SB-40120TR), 2.5N · m (SE-50125TR)

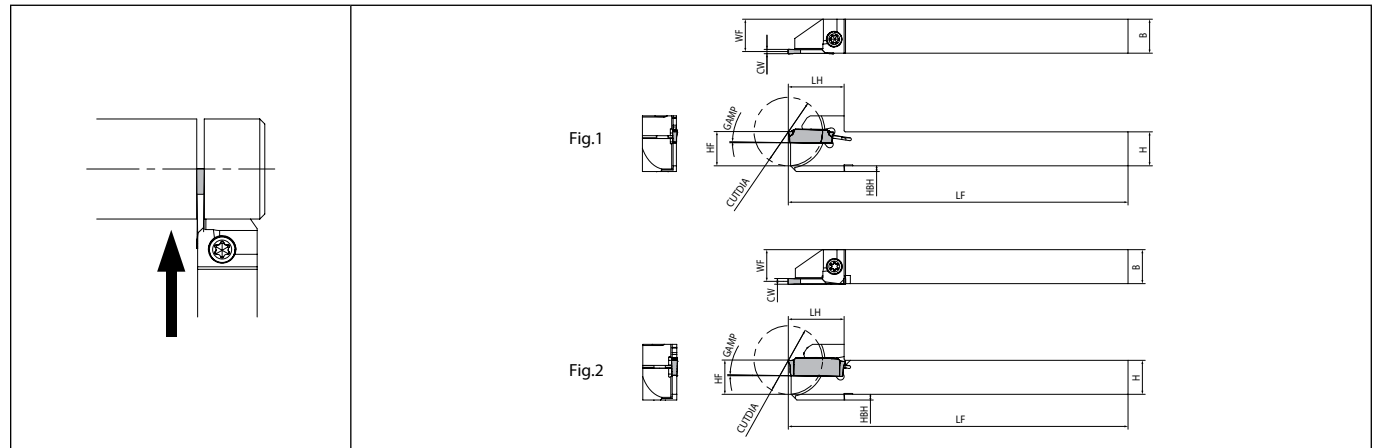
When machining large cutting dia. (over 1.417" (36mm)) with KGZ^{R/L}...-3D38 or KGZ^{R/L}...-3D42, please follow the instructions below

· Use 1-edge inserts

· Maximum workpiece diameter for 2-edge inserts is ø1.417" (36mm)

KGM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

KGZ (Standard Toolholders)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions											Angle Fig.	Spare Parts					Applicable Inserts H22 H23									
		R	L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	GAMP (°)		Clamp Bolt	Screw	Screw	Wrench	Wrench										
mm	KGZ%	1010JX-1.3D16	●	●	16	10	10	17.8	10	2.1	120	9.5	0.051" (1.3mm)	0.051" (1.3mm)	1	1	-	SB-40120TR	-	-	LTW-15S	GZM1316...								
		1010JX-1.3	●	●	20																		12	12	17.8	120	85	11.5	0.059" (1.5mm)	0.059" (1.5mm)
		1212F-1.3D16	●	●	16	24	19.8	120	85		11.4	0.079" (2mm)																			0.118" (3mm)
		1212JX-1.3D16	●	●	12																		12	17.8	120	85	11.4	0.094" (2.4mm)	0.118" (3mm)	
		1212F-1.3	●	●																										12
	1212JX-1.3	●	●	24	12	12	19.8	120	85	11.4	0.094" (2.4mm)	0.118" (3mm)																		
	1010JX-1.5	●	●	20	12	12	17.8	120	85	11.4	0.079" (2mm)	0.118" (3mm)																		
	1212F-1.5D16	●	●	16									24	19.8	120	85	11.4	0.094" (2.4mm)	0.118" (3mm)											
	1212JX-1.5D16	●	●	12	12	17.8	120	85	11.4	0.094" (2.4mm)	0.118" (3mm)																			
	1212F-1.5	●	●									12								12	17.8	120	85	11.4	0.094" (2.4mm)	0.118" (3mm)				
	1212JX-1.5	●	●	24	12	12	19.8	120	85	11.4	0.094" (2.4mm)		0.118" (3mm)																	
	1212F-2	●	●	24	12	12	19.8	12	85	11.2	0.094" (2.4mm)	0.118" (3mm)																		
	1212JX-2	●	●	32									20	16	24.8	16	120	15.2	19.2	24.2	0.094" (2.4mm)	0.118" (3mm)								
	1616JX-2	●	●	34	20	20	26.8	20	125	19.2	24.2	0.094" (2.4mm)											0.118" (3mm)							
	2012K-2D34	●	●																					25	25	32.7	25	125	19.2	24.2
	2020K-2D34	●	●	34	20	20	26.8	20	125	19.2	24.2	0.094" (2.4mm)	0.118" (3mm)																	
	2525K-2D34	●	●	34	25	25	32.7	25	125	19.2	24.2	0.094" (2.4mm)	0.118" (3mm)																	
	1212F-2.4	●	●	24	12	12	19.8	12	85	11	0.094" (2.4mm)	0.118" (3mm)																		
	1212JX-2.4	●	●	32									20	16	16	24.6	16	120	15	11	0.094" (2.4mm)	0.118" (3mm)								
	1616JX-2.4	●	●	34	20	20	26.6	20	125	19	24	0.094" (2.4mm)											0.118" (3mm)							
	2012K-2.4D34	●	●																					25	25	32.7	25	125	19	24
	2020K-2.4D34	●	●	34	20	20	26.6	20	125	19	24	0.094" (2.4mm)	0.118" (3mm)																	
	2525K-2.4D34	●	●	34	25	25	32.7	25	125	19	24	0.094" (2.4mm)	0.118" (3mm)																	
	1616JX-3	●	●	32	16	16	24.6	16	120	14.8	11.8	10.8	18.8	23.8																
	1616JX-3D38	●	●	38											19	13	28.6	19	125	11.8	10.8	18.8	23.8							
1913K-3D38	●	●	42	20	12	30.7	35.2	20	120	10.8	18.8	23.8																		
2012JX-3D42	●	●	51										20	12	30.7	35.2	20	120	10.8	18.8	23.8									
2012JX-3D51	●	●	42																			20	12	30.7	35.2	20	120	10.8	18.8	23.8
2020JX-3D42	●	●	51	25	25	41.7	25	125	23.8																					
2020JX-3D51	●	●	51							25	25	41.7	25	125	23.8															
2525K-3D51	●	●	51	25	25	41.7	25	125	23.8																					
2525K-3D51	●	●	51							25	25	41.7	25	125	23.8															

Recommended tightening torque : 2.0N · m (SB-40120TR), 2.5N · m (SE-50125TR)

When machining large cutting dia. (over 1.417" (36mm)) with KGZ R/L...-3D38 or KGZ R/L...-3D42, please follow the instructions below

· Use 1-edge inserts

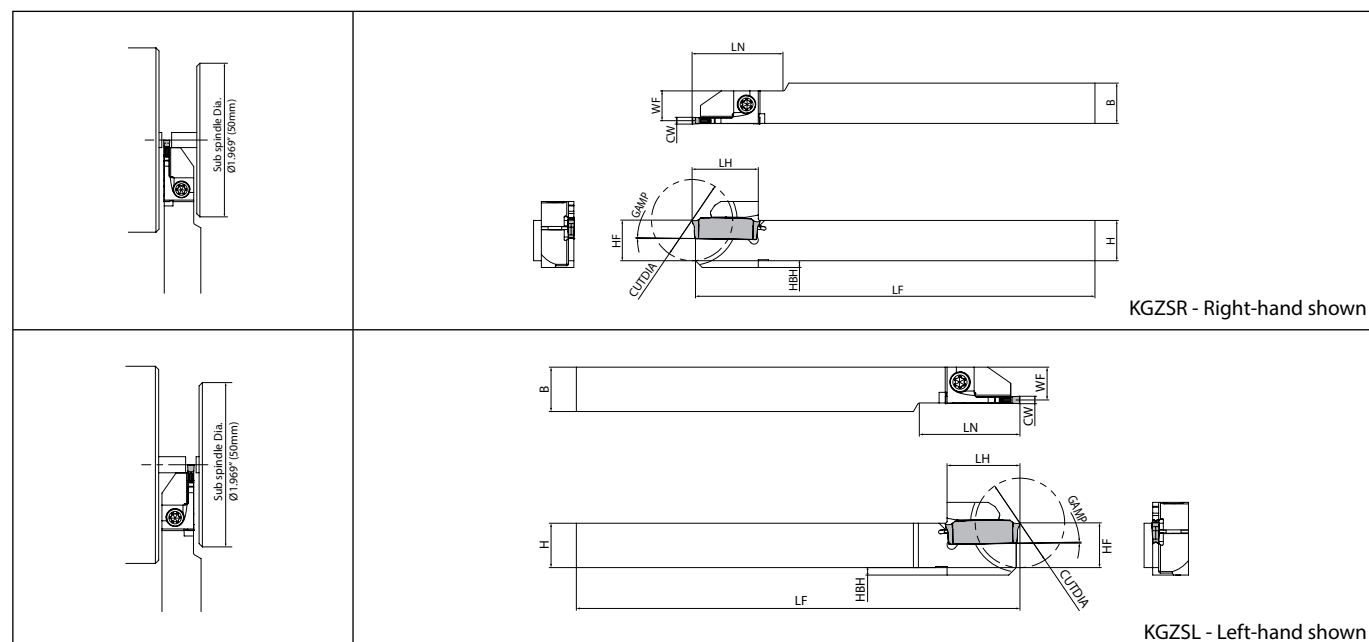
· Maximum workpiece diameter for 2-edge inserts is ø1.417" (36mm)

KGM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMM, GMR/L, GDM, GDG, GDGS, GDMS).

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

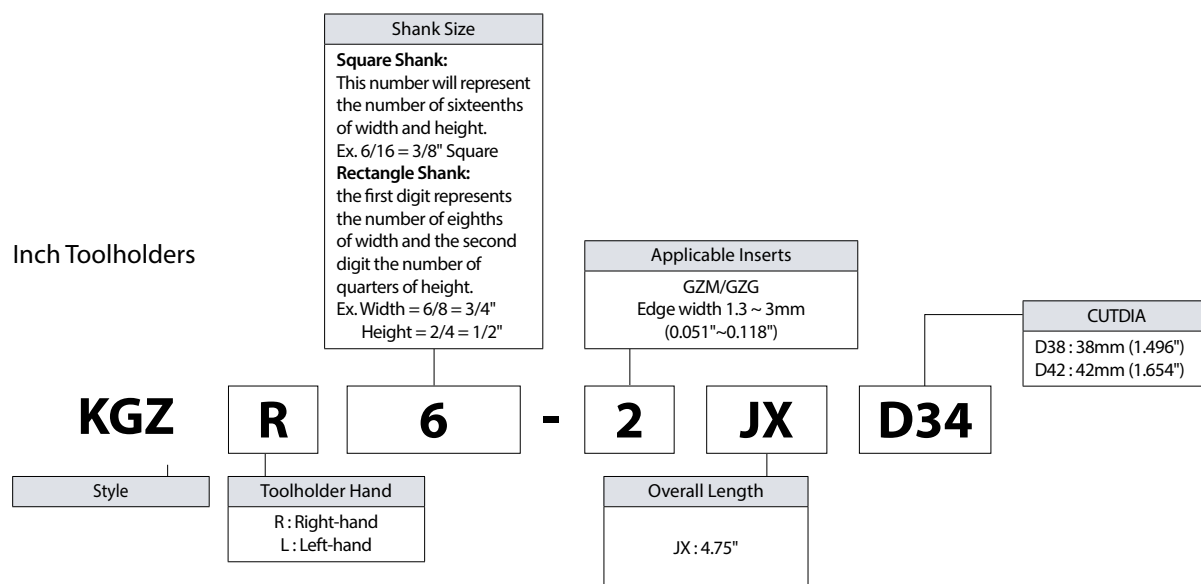
KGZS (Cut-Off / for Sub-Spindle Tooling)

Toolholder Dimensions

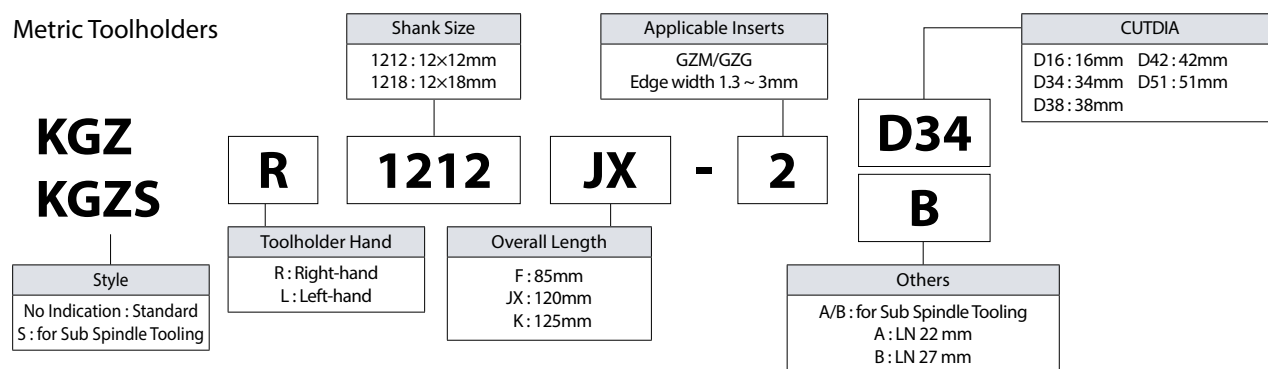
Unit	Part Number	Std. Item		Dimensions											Angle	Spare Parts		Applicable Inserts  H22 H23		
		R	L	CUTDIA	H	B	LH	HF	HBH	LF	LN	WF	CW min.	CW max.		GAMP (°)				
mm	KGZS%	1212F-1.3A	●	●	24	12	12	19.8	12	2.1	85	22	8.4	0.051" (1.3mm)	0.051" (1.3mm)	1	SB-40120TR	LTW-155	GZ...1316...	
	1212JX-1.3B	●	●																	
	1616JX-1.3B	●	●	16		16			16	-										
	1212F-1.5A	●	●	12		12			12	2.1	85	22	8.4	0.059" (1.5mm)	0.059" (1.5mm)					
	1212JX-1.5B	●	●																	
	1616JX-1.5B	●	●	16		16			16	-										
	1212F-2A	●	●	12		12			12	2.1	85	22	8.7	0.079" (2mm)	0.118" (3mm)					
	1212JX-2B	●	●																	
	1616JX-2B	●	●	16		16			16	-										

Toolholder Identification System

Inch Toolholders



Metric Toolholders



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGZ Recommended Cutting Conditions

PF Chipbreaker

Workpiece Material	Recommended Insert Grade (Vc : sfm)					f (ipr)						Notes
						PF (RE = 0.0012")			PF (RE = 0.0059")			
	MEGACOAT NANO EX			DLC	Carbide	CW						
	PR2015	PR2025	PR2035	PDL025	GW15	0.051"~0.059" (1.3mm~1.5mm)	0.079" (2mm)	0.098"~0.118" (2.5mm~3.0mm)	0.051~0.059 (1.3mm~1.5mm)	0.079" (2mm)	0.098"~0.118" (2.5mm~3.0mm)	
Carbon Steel	☆ 230~590	★ 230~590	☆ 230~490	-	-	0.0004~0.0016	0.0008~0.0024	0.0008~0.0031	0.0004~0.002	0.0012~0.0031	0.0016~0.0031	Coolant
Alloy Steel	☆ 230~590	★ 230~590	☆ 230~490	-	-							
Stainless Steel	☆ 200~490	☆ 200~390	★ 200~390	-	-	0.0004~0.0012	0.0004~0.0016	0.0004~0.0020	0.0004~0.0016	0.0012~0.0028	0.0016~0.0031	
Cast Iron	★ 260~660	-	-	-	☆ 160~330	0.0004~0.0020	0.001~0.0028	0.0012~0.0031	0.0004~0.0024	0.0012~0.0035	0.0016~0.0039	
Aluminum Alloy	-	-	-	★ 660~1640	☆ 660~1480	-	-	-	-	-	-	
Brass	-	-	-	-	★ 330~660	-	-	-	-	-	-	

★:1st Recommendation ☆:2nd Recommendation

PM / PH / PG Chipbreaker

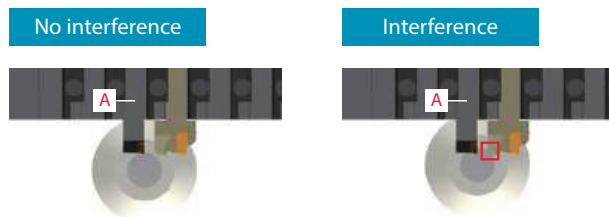
Workpiece Material	Recommended Insert Grade (Vc : sfm)					f (ipr)				Notes
						PM	PH	PG		
	MEGACOAT NANO EX			DLC	Carbide	CW				
	PR2015	PR2025	PR2035	PDL025	GW15	0.079~0.118" (2mm~3mm)	0.079~0.118" (2mm~3mm)	0.079" (2mm)	0.098"~0.118" (2.5mm~3.0mm)	
Carbon Steel	☆ 230~590	★ 230~590	☆ 230~490	-	-	0.0020~0.0059	0.0039~0.0079	0.0004~0.0016	0.0004~0.002	Coolant
Alloy Steel	☆ 230~590	★ 230~590	☆ 230~490	-	-					
Stainless Steel	☆ 200~490	☆ 200~390	★ 200~390	-	-	0.0016~0.0047	0.0031~0.0063	0.0004~0.0012	0.0004~0.0016	
Cast Iron	★ 260~660	-	-	-	☆ 160~330	0.002~0.0059	0.0039~0.0079	0.0004~0.0016	0.0004~0.002	
Aluminum Alloy	-	-	-	★ 660~1640	☆ 660~1480	-	-	0.0004~0.0020	0.0004~0.0024	
Brass	-	-	-	-	★ 330~660	-	-	0.0004~0.0028	0.0004~0.0031	

★:1st Recommendation ☆:2nd Recommendation

Precautions

Maximum D.O.C. of the next tool (indicated as tool A) and holder interference

When using JCTM holder 1218/1212, note maximum D.O.C. of the next tool to avoid interference.



Estimated maximum D.O.C. of tool A (mm)

Workpiece Dia.	ø12mm	ø16mm	ø20mm
JCTM Part Number			
KGZ R/L 1218JX-*JCTM	2.4	2.0	1.7
KGZ R/L 1212JX-*JCTM	-	-	3.8

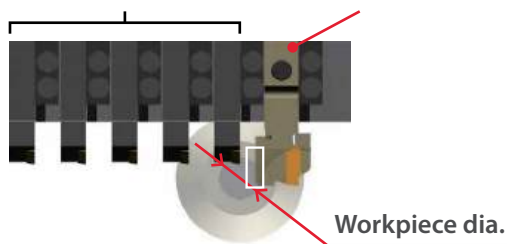
When using the JCTM holder 1218/1625/1616 for T01 on the following models, please check the workpiece diameter in advance to avoid interference.

<Target Models>

T01: Machines where both □16mm (or Spacer plate +□12mm) holders can be mounted

Non-T01: Machines where only □12mm holders can be mounted

Non-T01: □12mm **T01: □16mm (or Spacer plate +□12mm)**



KGZ Compatibility

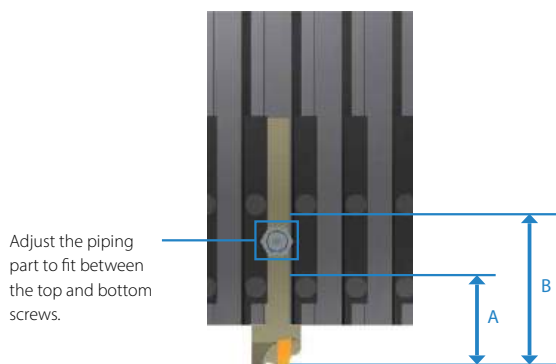
Workpiece Dia.	ø14mm or smaller	ø14mm or larger
JCTM Part Number		
KGZ R/L 1218JX-*JCTM	Compatible	Please use KGZ R/L 1212JX-*JCTM or KGZ R/L 1616JX*D26JCTM
KGZ R/L 1625JX-*JCTM		
KGZ R/L 1616JX-*JCTM		

Piping part interference avoidance

Rectangular shank are recommended for use with piping parts connected to JCTM holders.

When connecting the J-**-R1/8-G1/8-L piping parts to the rectangular shank, please check for any potential interference with the machine in advance.

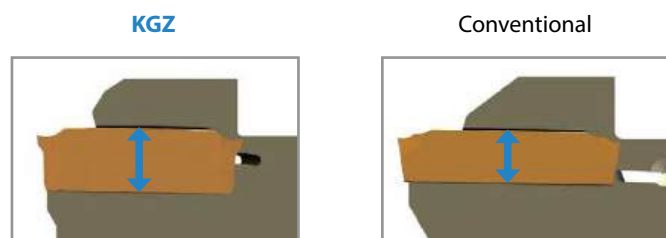
When connecting piping parts to the JCTM square shank, check the lengths of A and B below to avoid interference with the screws of the tool turret.



Shank Size	Square Shank Use
□0.500" □12mm	"A" shorter than 51.5mm and "B" longer than 68.5mm → Available Other than the above conditions → Use J-**-R1/8-G1/8-L or a rectangular shank
□0.625" □16mm	Available

Compatibility with Conventional Tools

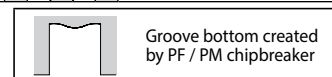
KGZ is not compatible with the conventional tools (KGD/KGM)



GDM/GDMS/GDG

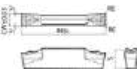
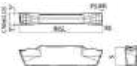
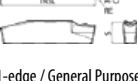
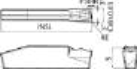
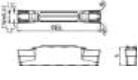
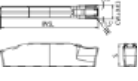
			Carbon Steel / Alloy Steel										P														
			Stainless Steel										M														
			Cast Iron										K														
			Non-Ferrous Metals										N														
Insert		Part Number	No. of Edges	Dimensions (mm)					Angle (°)	Tolerance (mm)		Carbide					Applicable Toolholder H34~H36, H39~H44 H46										
				CW		S	RE	INSL		PSIR%	CW min.	CW max.	DLC	PVD	-												
				in	mm																						
 Low Feed	GDM 1316N-003PF	2	0.051	1.3	3.7	0.03	16	-	-0.04	+0.04					KGD %L ...-1.3(D16)												
	GDM 1316N-015PF														KGDS %L ...-1.3B												
	GDM 1516N-003PF														0.059	1.5	0.03	16									KGD %L ...-1.5(D16)
	GDM 1516N-015PF																										KGDS %L ...-1.5B
	GDM 2020N-003PF														0.079	2	4.3	0.03	20									KGD %L ...-2(...)
GDM 2020N-015PF	KGDS %L ...-2B																										
GDM 2520N-003PF	0.098	2.5	0.03	20									KGD %L ...-2(...), KGD %L ...-2.4(...)														
GDM 2520N-015PF													KGDS %L ...-2B														
GDM 3020N-003PF	0.118	3	0.03	20									KGD %L ...-2(...), KGD %L ...-2.4(...)														
GDM 3020N-015PF													KGDS %L ...-2B														
 Low Feed	GDM 1316R-003PF-15D	2	0.051	1.3	3.7	0.03	16	15	-0.04	+0.04					KGD %L ...-1.3(D16)												
	GDM 1316L-003PF-15D														KGDS %L ...-1.3B												
	GDM 1516R-003PF-15D														0.059	1.5	0.03	16									KGD %L ...-1.5(D16)
	GDM 1516L-003PF-15D																										KGDS %L ...-1.5B
	GDM 1516R-015PF-15D														0.079	2	4.3	0.03	20									KGD %L ...-2(...)
GDM 2020R-003PF-15D	0.03	20									KGDS %L ...-2B																
GDM 2020L-003PF-15D											KGD %L ...-2(...), KGD %L ...-2.4(...)																
GDM 2020R-015PF-15D	0.098	2.5	0.03	20									KGDS %L ...-2B														
GDM 2520R-003PF-15D													0.03	20									KGD %L ...-2(...), KGD %L ...-2.4(...)				
GDM 2520L-003PF-15D	0.118	3	0.03	20									KGD %L ...-2(...), KGD %L ...-2.4(...)														
GDM 2520R-015PF-15D													KGDS %L ...-2B														
 Medium Feed	GDM 2020N-010PQ	2	0.079	2	4.3	0.1	20	-	-0.03	+0.03					KGD %L ...-2(...)												
	GDM 2520N-010PQ		0.098	2.5											KGDS %L ...-2B												
	GDM 3020N-010PQ		0.118	3											KGD %L ...-2(...), KGD %L ...-2.4(...)												
 Medium Feed	GDM 2020R-010PQ-15D	2	0.079	2	4.3	0.1	20	15	-0.03	+0.03					KGD %L ...-2(...)												
	GDM 2520R-010PQ-15D		0.098	2.5											KGDS %L ...-2B												
	GDM 3020R-010PQ-15D		0.118	3											KGD %L ...-2(...), KGD %L ...-2.4(...)												
 Low Cutting Force	GDG 2020N-005PG	2	0.079	2	4.3	0.05	20	-	-0.02	+0.02					KGD %L ...-2(...)												
	GDG 2520N-005PG		0.098	2.5											KGDS %L ...-2B												
	GDG 3020N-005PG		0.118	3											KGD %L ...-2(...), KGD %L ...-2.4(...)												
 Low Cutting Force	GDG 2020R-005PG-15D	2	0.079	2	4.3	0.05	20	15	-0.02	+0.02					KGD %L ...-2(...)												
	GDG 2520R-005PG-15D		0.098	2.5											KGDS %L ...-2B												
	GDG 3020R-005PG-15D		0.118	3											KGD %L ...-2(...), KGD %L ...-2.4(...)												

Handed insert shows Right-hand
Using the PF / PM chipbreaker (for cut-off) for grooving cannot create a flat bottom (Ref. to the right figure).

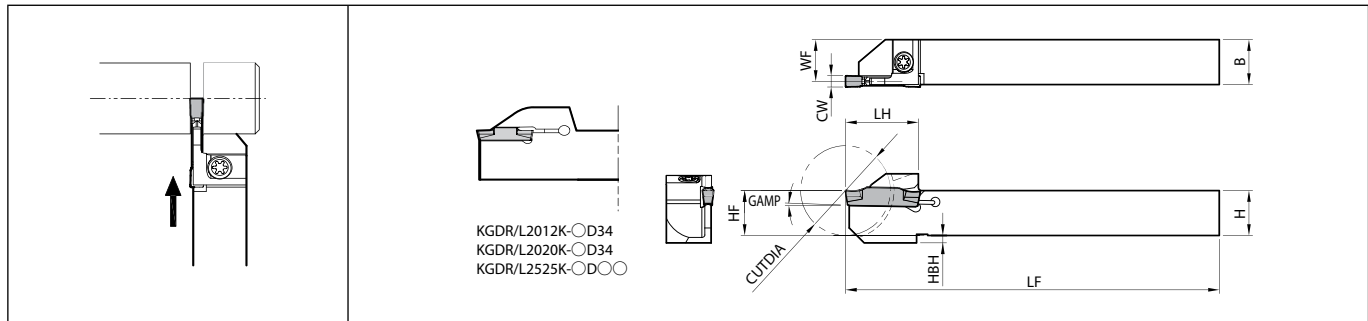


Recommended Cutting Conditions H48~H49

GDM/GDMS/GDG

				Carbon Steel / Alloy Steel								☺☺☺			P		
				Stainless Steel								☺☺☹			M		
				Cast Iron											K		
				Non-Ferrous Metals											N		
Insert		Part Number		No. of Edges	Dimensions (mm)				Angle (°)	Tolerance (mm)		Carbide			Applicable Toolholder ☺ H34~H36, H39~H44 H46		
					CW		S	RE		INSL	PSIR%	CW min.	CW max.	PVD			
					in	mm								PR1215		PR1225	PR1535
	 General Purpose	GDM 2020N-020PM	2	0.079	2	4.3	0.2	20	-	- 0.03	+ 0.03	●●●	KGD %L ...-2(...) KGDS %L ...-2B				
		GDM 2520N-020PM		0.098	2.5							●●●	KGD %L ...-2(...), KGD %L ...-2.4(...) KGDS %L ...-2B				
		GDM 3020N-025PM		0.118	3							●●●	KGD %L ...-2(...), KGD %L ...-2.4(...) KGD %L ...-3(...), KGDS %L ...-2B				
		GDM 4020N-030PM		0.157	4							●●●	KGD %L ...-3(...), KGD %L ...-3... KGD %L ...-4T...				
	 General Purpose	GDM 2020R-020PM-6D	2	0.079	2	4.3	0.2	20	6	- 0.03	+ 0.03	●●●	KGD %L ...-2(...) KGDS %L ...-2B				
		GDM 2520R-020PM-6D		0.098	2.5							●●●	KGD %L ...-2(...), KGD %L ...-2.4(...) KGDS %L ...-2B				
		GDM 3020R-025PM-6D		0.118	3							●●●	KGD %L ...-2(...), KGD %L ...-2.4(...) KGD %L ...-3(...), KGDS %L ...-2B				
	 1-edge / General Purpose	GDMS 2020N-020PM	1	0.079	2	4.3	0.2	20	-	- 0.03	+ 0.03	●●●	KGD %L ...-2(...) KGDS %L ...-2B				
		GDMS 3020N-025PM		0.118	3							●●●	KGD %L ...-2(...), KGD %L ...-2.4(...) KGD %L ...-3(...), KGDS %L ...-2B				
		GDMS 4020N-030PM		0.157	4							●●●	KGD %L ...-3(...), KGD %L ...-3... KGD %L ...-4T...				
	 General Purpose	GDMS 2020R-020PM-6D	1	0.079	2	4.3	0.2	20	6	- 0.03	+ 0.03	●●●	KGD %L ...-2(...) KGDS %L ...-2B				
		GDMS 3020R-025PM-6D		0.118	3							●●●	KGD %L ...-2(...), KGD %L ...-2.4(...) KGD %L ...-3(...), KGDS %L ...-2B				
		GDMS 4020R-030PM-6D		0.157	4							●●●	KGD %L ...-3(...), KGD %L ...-3... KGD %L ...-4T...				
	 High Feed	GDM 2020N-020PH	2	0.079	2	4.3	0.2	20	-	- 0.03	+ 0.03	●●●	KGD %L ...-2(...) KGDS %L ...-2B				
		GDM 3020N-030PH		0.118	3							●●●	KGD %L ...-2(...), KGD %L ...-2.4(...) KGD %L ...-3(...), KGDS %L ...-2B				
		GDM 4020N-030PH		0.157	4							●●●	KGD %L ...-3(...), KGD %L ...-3... KGD %L ...-4T...				
	 1-edge / High Feed	GDMS 2020N-020PH	1	0.079	2	4.3	0.2	20	-	- 0.03	+ 0.03	●●●	KGD %L ...-2(...) KGDS %L ...-2B				
		GDMS 3020N-030PH		0.118	3							●●●	KGD %L ...-2(...), KGD %L ...-2.4(...) KGD %L ...-3(...), KGDS %L ...-2B				
		GDMS 4020N-030PH		0.157	4							●●●	KGD %L ...-3(...), KGD %L ...-3... KGD %L ...-4T...				

KGD (for Small Part Machining)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions										Angle				Applicable Inserts 🔩 H32, H33
															Screw	Screw	Wrench	
		R	L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	GAMP (°)				
Inch	KGDR 6-1.3JX	●	●	0.787	0.375	0.375	0.709	0.375	0.098	4.75	0.356	0.051"	0.051"	1	SB-40120TR	-	LTW-15S	GDM1316...
	8-1.3JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051		0.481	(1.3mm)	(1.3mm)	1	SB-40120TR	-	LTW-15S	GDM1516...
	KGDR 6-1.5JX	●	●	0.787	0.375	0.375	0.709	0.375	0.098	4.75	0.351	0.059"	0.059"	1	SB-40120TR	-	LTW-15S	GDM1516...
	8-1.5JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051		0.476	(1.5mm)	(1.5mm)	1	SB-40120TR	-	LTW-15S	GDM1516...
	KGDR 6-2JX	●	●	0.787	0.375	0.375	0.709	0.375	0.098	4.75	0.342	0.079" (2mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GDG2020..., GDM2020... GDMS2020..., GDG2520... GDM2520..., GDG3020... GDM3020..., GDMS3020...
	8-2JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051		0.467							
	10-2JX	●	●	1.259	0.625	0.625	0.965	0.625	-		0.592							
	KGDR 6-2.4JX	●	●	0.787	0.375	0.375	0.709	0.375	0.098	4.75	0.336	0.094" (2.4mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GDG2520..., GDM2520... GDG3020..., GDM3020... GDMS3020...
	8-2.4JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051		0.461							
	10-2.4JX	●	●	1.259	0.625	0.625	0.965	0.625	-		0.586							
	KGDR 8-3JX	●	●	0.944	0.500	0.500	0.768	0.500	0.051	4.75	0.453	0.118" (3mm)	0.118" (3mm)	1	SB-40120TR	-	LTW-15S	GDG3020... GDM3020... GDMS3020...
	KGDR 10-3JX	●	●	1.259	0.625	0.625	0.965	0.625	-	4.75	0.578	0.118" (3mm)	0.157" (4mm)	1	SB-40120TR	-	LTW-15S	GDG3020... GDM3020... GDMS3020... GDM4020... GDMS4020...
10-3D38JX	●	●	1.496	1.142			0.703											
12-3D42JX	●	●	1.653	0.750			0.750				1.220				0.750	0.453		
43-3D42JX	●	●					0.500											

0.157" (4mm) width insert cannot be installed in KGD/L 8-3JX or KGD/L 1212JX-3

Recommended tightening torque of clamp screw : 2.0N·m (SB-40120TR), 2.5N·m (SE-50125TR), 6.5N·m (HH5X16)

When machining the material greater than ø1.417" (ø36mm) with KGD/L ...-3D38, KGD/L ...-3D42 and KGD/L ...-3D51 toolholders, please use 1-edge inserts.

Maximum cutting diameter for 2-edge inserts is ø36mm.

Toolholder Identification System

Inch Size KGD / KGDS
(for small parts)

KGD

R

Toolholder hand	
R	Right-hand
L	Left-hand

6

Shank size
Square Shank: This number will represent the number of sixteenths of width and height. Ex. 6/16 = 3/8" Square
Rectangle Shank: the first digit represents the number of eighths of width and the second digit the number of quarters of height. Ex. Width = 6/8 = 3/4" Height = 2/4 = 1/2"

Applicable Inserts
GDM/GDMS Edge width: 3~4 mm

3
1.3

Applicable Inserts
GDM/GDMS Edge width: 1.3 mm

JX

Overall Length
4.75"

Others
D38 CUTDIA 38 mm

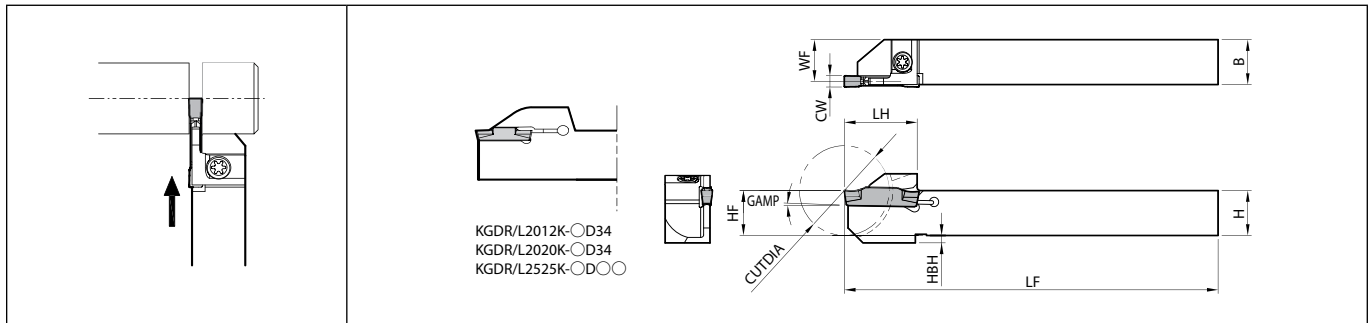
D38
B

Others
B For Sub-Spindle Tooling

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD (for Small Part Machining)



Right-hand shown

Toolholder Dimensions

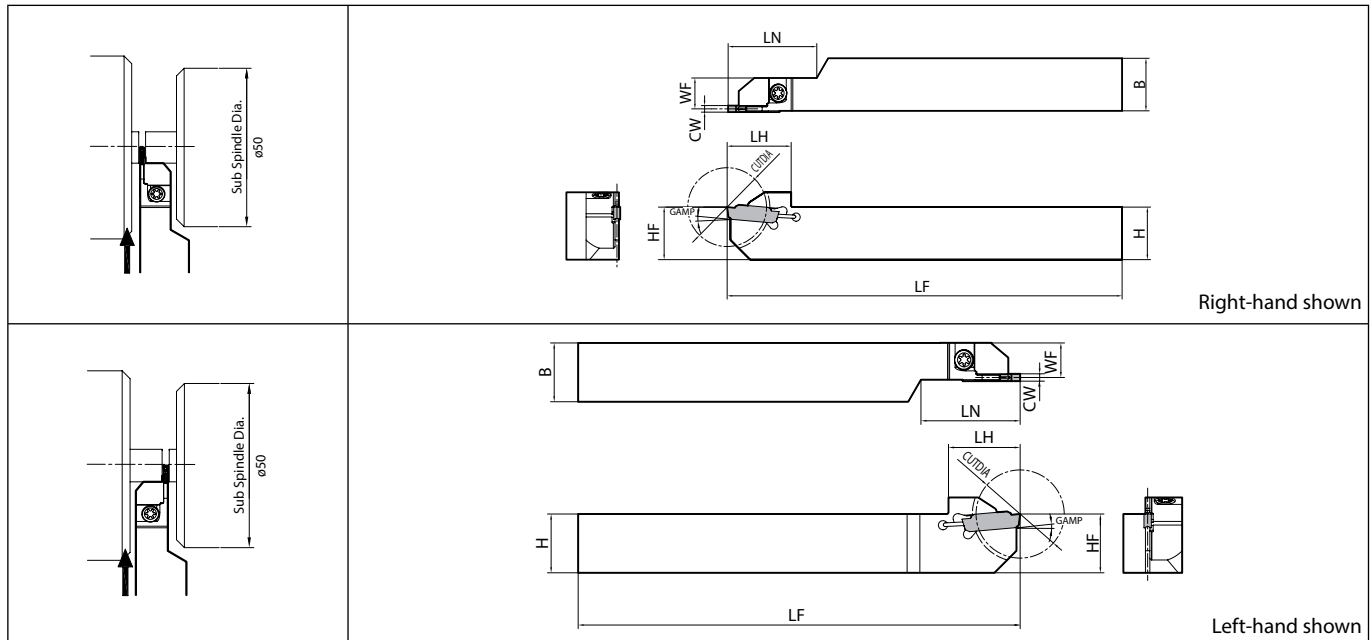
Unit	Part Number	Std. Item		Dimensions											Angle	Spare Parts					Applicable Inserts ➔ H32, H33		
																Clamp Bolt	Screw	Screw	Wrench	Wrench			
		R	L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	GAMP (°)									
mm	KGD%	1010JX-1.3D16	●	●	16	10	10	18	10	2	120	9.9	0.051" (1.3mm)	0.051" (1.3mm)	5	-	SB-40120TR	-	-	LTW-15S	GDM1316...		
		1010JX-1.3	●	●	20	12	12	19.5	12		120	9.5											
		1212F-1.3D16	●	●	16						85	11.9											
		1212JX-1.3D16	●	●	120						85	11.5											
		1212F-1.3	●	●	24						120												
	1212JX-1.3	●	●	24	12	12	19.5	12	2	120	9.7	0.059" (1.5mm)	0.059" (1.5mm)	5	-	SB-40120TR	-	-	LTW-15S	GDM1516...			
	1010JX-1.5	●	●	20						120	9.4												
	1212F-1.5D16	●	●	16						85	11.7												
	1212JX-1.5D16	●	●	120						85	11.4												
	1212F-1.5	●	●	24						120													
	KGD%	1010JX-2	●	●	20	10	10	18	10	2	120	9.2	0.079" (2mm)	0.118" (3mm)	1	-	SB-40120TR	-	-	LTW-15S	GDG2020... GDM2020... GDMS2020... GDG2520... GDM2520... GDG3020... GDM3020... GDMS3020...		
		1212F-2	●	●	24	12	12	19.5	12		85	11.2											
		1212JX-2	●	●	32	16	16	24.5	16		120	15.2											
		1616JX-2	●	●	34	20	12	32.5	20		-	125										11.2	
		2012K-2D34	●	●	34	20	12	32.5	20		-	125										19.2	
		2020K-2D34	●	●	34	20	12	32.5	20		-	125										19.2	
	KGD%	1010JX-2.4	●	●	20	10	10	18	10	2	120	9	0.094" (2.4mm)	0.118" (3mm)	1	-	SB-40120TR	-	-	LTW-15S	GDG2520... GDM2520... GDG3020... GDM3020... GDMS3020...		
		1212F-2.4	●	●	24	12	12	19.5	12		85	11											
		1212JX-2.4	●	●	24	12	12	19.5	12		120	15											
		1616JX-2.4	●	●	32	16	16	24.5	16		-	125										11	
		2012K-2.4D34	●	●	34	20	12	32.5	20		-	125										19	
		2020K-2.4D34	●	●	34	20	12	32.5	20		-	125										19	
	KGD%	1212JX-3	●	●	24	12	12	19.5	12	2	120	10.8	0.118" (3mm)	0.118" (3mm)	1	-	SB-40120TR	-	-	LTW-15S	GDG3020... GDM3020... GDMS3020...		
	KGD%	1616JX-3	1616JX-3	●	●	32	16	16	24.5	16	120	14.8	0.118" (3mm)	0.157" (4mm)	1	-	SB-40120TR	-	-	LTW-20	GDG3020... GDM3020... GDMS3020... GDM4020... GDMS4020...		
1616JX-3D38			●	●	38	29			125			11.8											
1913K-3D38			●	●	19	13			19			20					31	36				31	36
2012JX-3D42			●	●	42	12																	
2012JX-3D51			●	●	51																		
2020JX-3D42			●	●	42																		
2020JX-3D51			●	●	51																		

0.157" (4mm) width insert cannot be installed in KGD/L 8-3JX or KGD/L 1212JX-3

Recommended tightening torque of clamp screw : 2.0N·m (SB-40120TR), 2.5N·m (SE-50125TR), 6.5N·m (HH5X16)

When machining the material greater than ø1.417" (ø36mm) with KGD/L ...-3D38, KGD/L ...-3D42 and KGD/L ...-3D51 toolholders, please use 1-edge inserts.

Maximum cutting diameter for 2-edge inserts is ø36mm.

KGDS (Cut-Off / for Sub-Spindle Tooling)

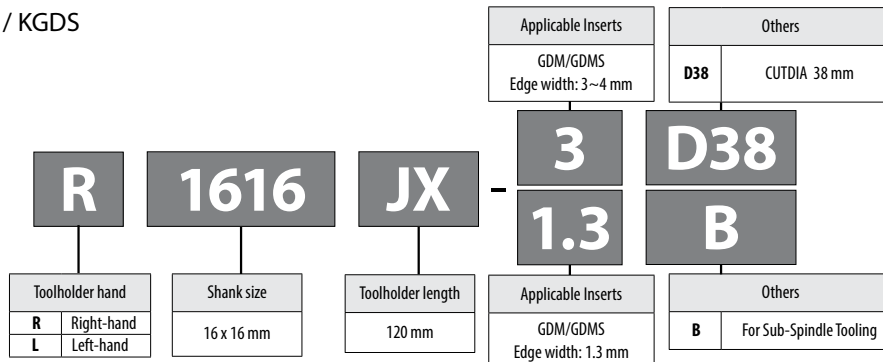
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions											Angle	Spare Parts		Applicable Inserts ➡ H32, H33
																Screw	Wrench	
		R	L	CUTDIA	H	B	LH	HF	LF	LN	WF	CW min.	CW max.	GAMP (°)				
mm	KGDS% 1616JX-1.3B	●	●	24	16	16	19.5	16	120	27	9.5	1.3	1.3	5	SB-40120TR	LTW-15S	GDM1316...	
	1616JX-1.5B	●	●								9.4	1.5	1.5				GDM1516...	
	1616JX-2B	●	●								9.2	2	3				1	GDG2020..., GDM2020..., GDMS2020..., GDG2520..., GDM2520..., GDG3020..., GDM3020..., GDMS3020...

Toolholder Identification System

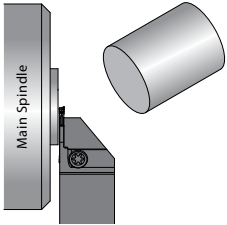
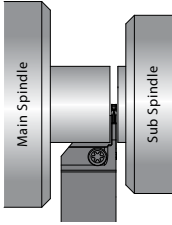
Metric Size KGD / KGDS
(for Small Parts)

KGD
KGDS

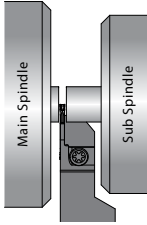
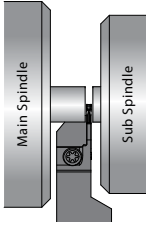


KGD / KGDS Selection Reference

KGD

Standard type	
· Both Right-hand and Left-hand types are applicable to gang tool post. · Basically Left-hand type is used for cut-off operation using a sub spindle.	
KGDR (Right-hand toolholder)	KGDL (Left-hand toolholder)
	
<1st. Recommendation> Use insert with lead angle to remove boss. · Not using sub spindle · Cut-Off operation near main spindle side	<1st. Recommendation> Use insert without lead angle. · Using sub spindle · Cut-Off operation near sub spindle side

KGDS

Sub spindle type	
· When machining workpiece with small diameter, use KGDS to reduce overhang distance from the main spindle.	
KGDSR (Right-hand toolholder)	KGDSL (Left-hand toolholder)
	
· Long workpiece and more rigidity · Cut-Off operation near main spindle side	· Short workpiece and less rigidity · Cut-Off operation near sub spindle side

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGD-JCTM

Direct Coolant-Through Cut-Off Toolholders for Small Parts Machining

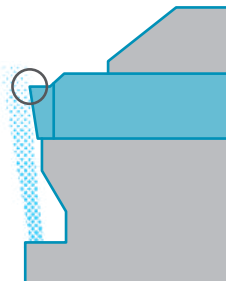
1 Optimized coolant hole position

2 Discharges coolant towards the flank face of the insert

Coolant Discharge

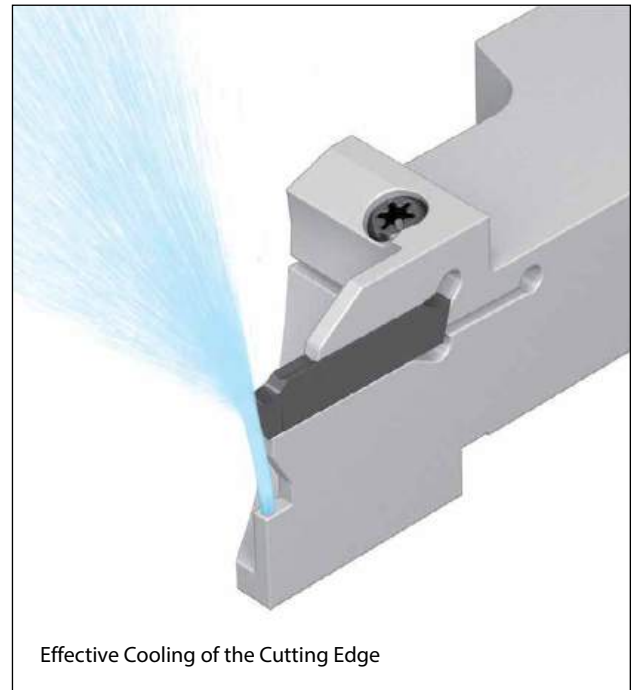
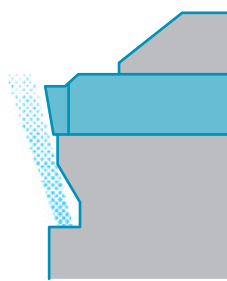
KGD-JCTM

Sufficient cooling towards the cutting edge

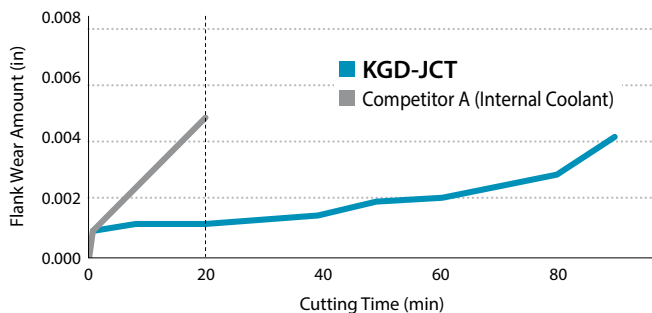


Competitor A

Coolant does not flow directly towards the cutting edge

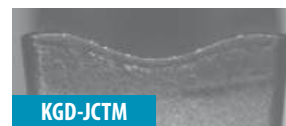


Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions : $V_c = 260$ sfm, $f = 0.0024$ ipr (at $\sim \varnothing 0.079$ " : $f = 0.0007$ (ipr)
 KGD R1625H-2JCT, GDM2020N-015PF PR1535 (Insert Width : 0.079") Workpiece : 304 ($\varnothing 0.984$ ")
 Internal Coolant (218 psi) Cut-off

Cutting Edge (After Machining 20 min)

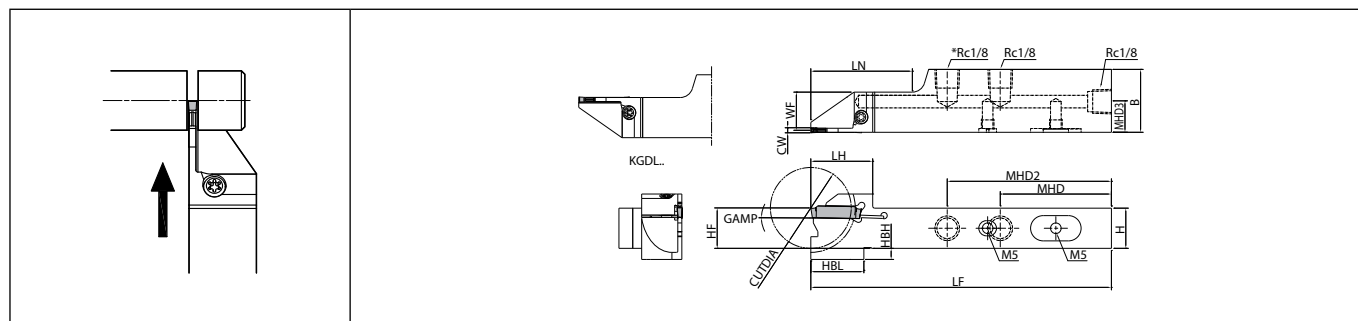


High density and high speeds coolant provides effective cooling of the cutting edge

Superior cooling action improves tool life

KGD-JCTM (Coolant-Through Toolholders)

Coolant Piping Parts H16~H17



Right-hand shown | KGD% 5.72...-JCTM : 2-Rc1/8

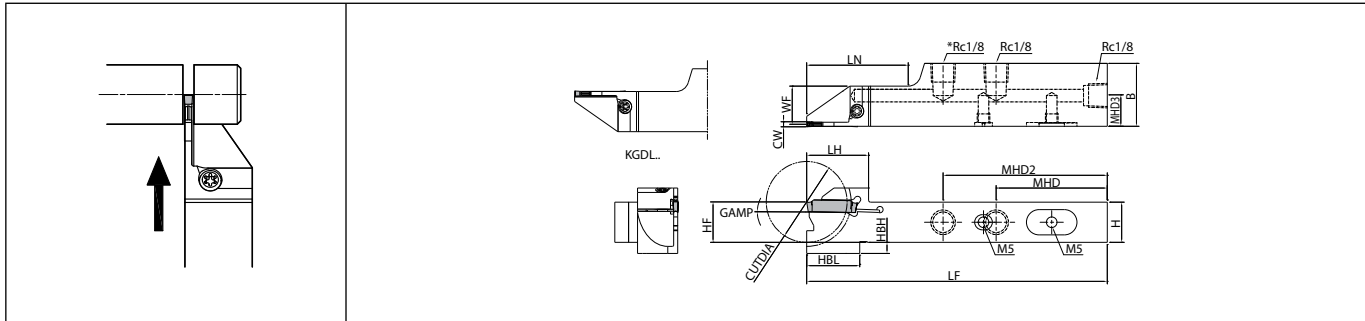
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions																Angle Coolant Hole	Spare Parts				Applicable Inserts H32, H33								
			R	L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.		CW max.	GAMP (°)											
Inch	KGDR 5.72-2JCTM	●			0.945	0.500	0.709	0.770	2.125	-	0.331	0.500	0.330	0.825	4.750	1.725	0.500	0.079" (2mm)	0.118" (3mm)	1	Yes	GP-1	HS5X4LP	SB-40120TR	LTW-15S	GDG2020... GDM2020... GDMS2020... GDG2520... GDM2520... GDG3020... GDM3020... GDMS3020...						
	KGDL 5.72-2JCTM	●									0.303			0.843																		
	KGDR 82.5-2JCTM	●			1.260	0.625	1.000	0.965	1.730	2.560	0.480	0.625	0.175	0.825	1.585	0.625																
	KGDL 82.5-2JCTM	●									0.303																					
	KGDR 5.72-2.4JCTM	●			0.945	0.500	0.709	0.770	2.125	-	0.331	0.500	0.330	0.825	4.750	1.725	0.500	0.094" (2.4mm)	0.118" (3mm)	1	Yes											
	KGDL 5.72-2.4JCTM	●									0.303			0.843																		
	KGDR 82.5-2.4JCTM	●			1.260	0.625	1.000	0.965	1.730	2.560	0.480	0.625	0.175	0.825	1.585	0.625																
	KGDL 82.5-2.4JCTM	●									0.303																					
	KGDR 5.72-3JCTM	●			0.945	0.500	0.709	0.770	2.125	-	0.331	0.500	0.330	0.825	4.750	1.725	0.500	0.118" (3mm)		1	Yes											GDG3020... GDM3020... GDMS3020...
	KGDL 5.72-3JCTM	●									0.303			0.843																		
	KGDR 82.5-3JCTM	●			1.260	0.625	1.000	0.965	1.730	2.560	0.480	0.625	0.175	0.825	1.585	0.625		0.118" (3mm)	0.157" (4mm)													GDG3020... GDM3020... GDMS3020... GDM4020... GDMS4020...
	KGDL 82.5-3JCTM	●									0.303																					

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD-JCTM (Coolant-Through Toolholders)

Right-hand shown | KGD[®] 12...-JCTM : 2-Rc1/8

Toolholder Dimensions

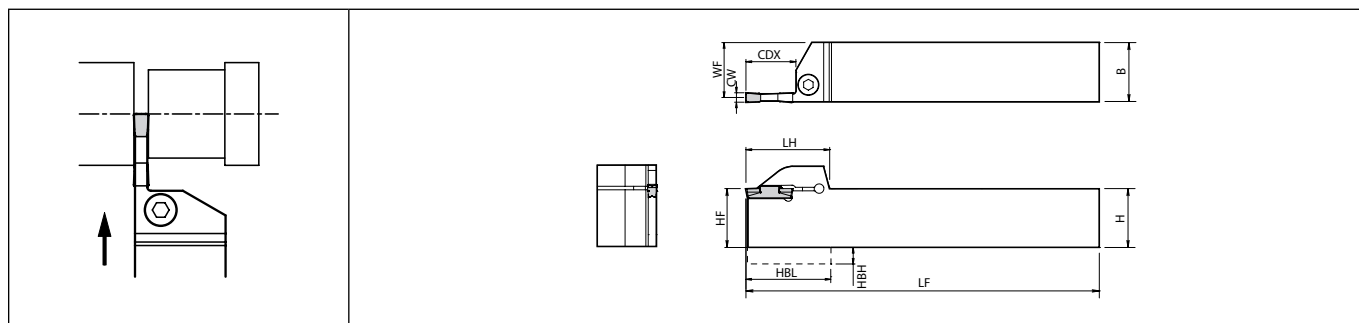
Unit	Part Number	Std. Item		Dimensions															Angle	Coolant Hole	Spare Parts				Applicable Inserts 🔩 H32, H33																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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		R	L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.	CW max.			GAMP (°)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
mm	KGDR 1218JX-2JCTM	●							8.4		21																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										

Toolholder Identification System

Metric Size KGD-JCTM (Coolant-Through Toolholders)

KGD	R	1218	JX	-	2	JCTM
	Toolholder hand	Shank size	Toolholder length		Applicable Inserts	Others
	R Right-hand L Left-hand	12 x 18 mm	120 mm		GDM/GDMS 2~3 mm	Coolant-Through Toolholders

KGD (Integral Type)



Right-hand shown

Toolholder Dimensions

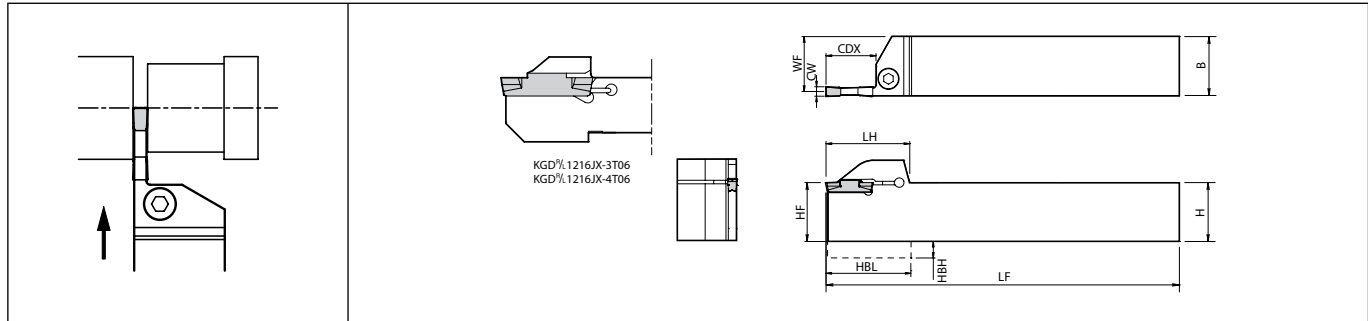
Unit	Part Number	Std. Item		Dimensions												Spare Parts				Applicable Inserts H32, H33
																Clamp Bolt	Screw	Wrench	Wrench	
		R	L	CDX	H	B	LH	HF	HBH	HBL	LF	WF	CW min.	CW max.						
Inch	KGD% 12-2T17	●	●		0.75	0.75	1.28	0.75	-	-	4.92	0.71	0.079" (2mm)	0.118" (3mm)	HH5X16	-	LW-4	-		GDG2020..., GDM2020... GDMS2020..., GDG2520... GDM2520..., GDG3020... GDM3020..., GDMS3020...
	16-2T17	●	●	0.669	1.00	1.00		1.00	-	-	5.90	0.96			HH5X25					
	KGD% 12-3T10	●	●	0.393			1.20								HH5X16					GDG3020... GDM3020... GDMS3020... GDM4020... GDMS4020...
	12-3T20	●	●	0.787	0.75	0.75	1.35	0.75	-	-	4.92	0.70			HH5X16					
	12-3T254	●	●	1.000			1.52						0.118" (3mm)	0.157" (4mm)						
	16-3T10	●	●	0.393			1.20								HH5X25					
	16-3T20	●	●	0.787	1.00	1.00	1.39	1.00	-	-	5.90	0.95			HH5X25					
	16-3T254	●	●	1.000			1.52													
	KGD% 12-4T10	●	●	0.393	0.75	0.75	1.20	0.75	-	-	4.92	0.68			HH5X16					GDM4020... GDMS4020...
	12-4T20	●	●	0.787			1.35						0.157" (4mm)	0.197" (5mm)						
	16-4T10	●	●	0.393			1.20								HH5X25					
	16-4T20	●	●	0.787	1.00	1.00	1.39	1.00	-	-	5.90	0.93								
	16-4T25	●	●	0.984			1.59													

CDX : Maximum grooving depth. (If the CDX is 0.0787" (20mm) or more, the maximum groove depth made by a 2-edge insert will be 0.709" (18 mm).

Recommended tightening torque of clamp bolt : 6.5N·m (HH5X00), 8.0N·m (HH6X25), 2.5N·m (SE-50125TR)

Above toolholders are applicable to external grooving, too.

KGD (Integral Type)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions														Spare Parts				Applicable Inserts 🔧 H32, H33
																		Clamp Bolt	Screw	Wrench	Wrench	
		R	L	CDX	H	B	LH	HF	HBH	HBL	LF	WF	CW min.	CW max.								
mm	KGD % 1616H-2T06 1616H-2T10 1616H-2T17 2012K-2T17 2020K-2T06 2020K-2T10 2020K-2T17 2525M-2T06 2525M-2T10 2525M-2T17	● ●	6	16	16	27.7	16	4	28	100	15.2	0.079" (2mm)	0.118" (3mm)	HH5X16	-	LW-4	-	GDG2020... GDM2020... GDMS2020... GDG2520... GDM2520... GDG3020... GDM3020... GDMS3020...				
		● ●	10			30.2			30.5													
		● ●	17			31.2			31.5													
		● ●	17	12	32.5	20	125	11.2														
		● ●							6	28												
		● ●	10	20	30.5	25	150	24.2														
		● ●	17	20	32.5																	
		● ●	6	25	25	30.5	25	150	24.2													
		● ●	10							30.5												
		● ●	17							32.5												
	KGD % 2012K-2.4T17 2020K-2.4T17	● ●	17	20	12	32.5	20	-	-	125	11	0.094" (2.4mm)	0.118" (3mm)	HH5X16	-	LW-4	-	GDG2520..., GDM2520..., GDG3020... GDM3020..., GDMS3020...				
		● ●		20						19												
		KGD % 1216JX-3T06 1616H-3T06 1616H-3T10 1616H-3T20 2012K-3T20 2020K-3T06 2020K-3T10 2020K-3T20 2525M-3T06 2525M-3T10 2525M-3T20	● ●	6	16	16	19.5	12	2	19	120	0.118" (3mm)	0.157" (4mm)	HH5X16	-	LW-4	-	GDG3020... GDM3020... GDMS3020... GDM4020... GDMS4020...				
			● ●				27.7												28			
			● ●	10			30.2												30.5			
			● ●	20	12	34.5	20	125	10.8													
			● ●							6	28											
			● ●	10	20	30.5	25	150	23.8													
			● ●	20	20	34.5				-	-			150					23.8			
			● ●	6	25	25	30.5	25	150											23.8		
	● ●		10	30.5																		
	● ●		20	35.5																		
	KGD % 1216JX-4T06 2020K-4T10 2020K-4T20 2525M-4T10 2525M-4T20 2525M-4T25	● ●	6	12	16	19.5	12	2	19	120	14.3	0.157" (4mm)	0.197" (5mm)	-	SE-50125TR	-	LTW-20	GDM4020... GDMS4020...				
		● ●	10	20	20	30.5	20	-	-	125	18.3			HH5X16	-	LW-4	-					
		● ●	20																34.5			
		● ●	10	25	25	35.5	25	150	23.3													
		● ●	20							30.5												
		● ●	25	40.5																		

CDX : Maximum grooving depth. (If the CDX is 0.0787" (20mm) or more, the maximum groove depth made by a 2-edge insert will be 0.709" (18 mm).)

Recommended tightening torque of clamp bolt : 6.5N·m (HH5X00), 8.0N·m (HH6X25), 2.5N·m (SE-50125TR)

Above toolholders are applicable to external grooving, too.

Toolholder Identification System

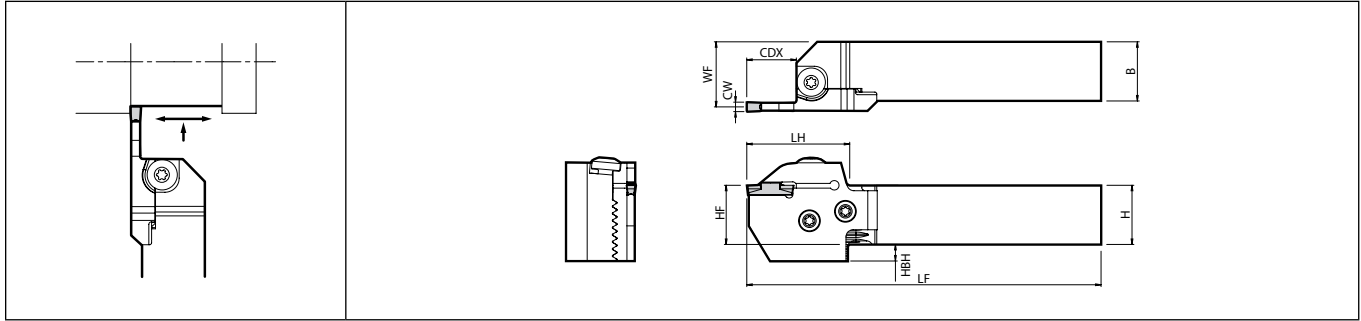
Metric KGD (Integral Type)

KGD	R	1616	H	-	2	T	06
Toolholder hand	Shank size	Toolholder length	Applicable Inserts	Max. depth of cut			
R Right-hand L Left-hand	16 × 16 mm	100mm	GDM/GDMS 2~3 mm	06: 6 mm			

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KGD-S (0° Switch Blade Type)



Right-hand shown (Right-hand blade and right-hand toolholder)

Toolholder Dimensions (Blade and Toolholder)

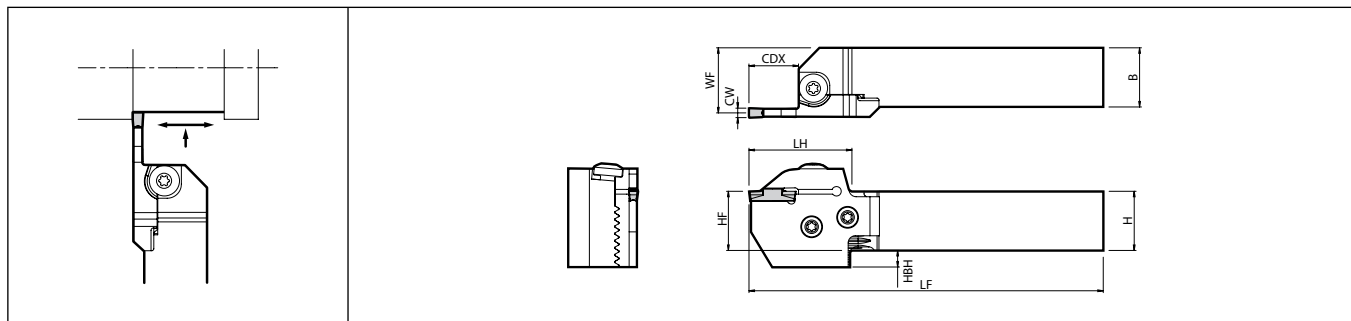
Unit	Shank angle	Width (in)	Max. depth of cut (in)	Shank size (in)	Unit Part Number	Std. Item		Blade Part Number ➡ G56	Toolholder Part Number ➡ G56	Dimensions										Spare Parts		
						R	L			CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.			
Inch	0°	0.079" (2mm)	0.669" (17mm)	☐ 0.75	KGD% 12X-2T17S	●	●	KGD% -2T17-C	KGD% 12-C	0.669	0.75	0.75	1.57	0.75	0.472	4.80	0.88	0.079" (2mm)	0.118" (3mm)	BH6X10TR	SB-60120TR	LTW-25
				☐ 1.00	16X-2T17S	●	●		KGD% 16-C													
				☐ 1.25	No unit description ➡																		KGD% 20-C
		0.118" (3mm)	0.394" (10mm)	☐ 0.75	KGD% 12X-3T10S	●	●	KGD% -3T10-C	KGD% 12-C	0.394	0.75	0.75	1.29	0.75	0.472	4.52	0.86	0.118" (3mm)	0.157" (4mm)			
				☐ 1.00	16X-3T10S	●	●		KGD% 16-C													
				☐ 1.25	No unit description ➡																		KGD% 20-C
			0.787" (20mm)	☐ 0.75	KGD% 12X-3T20S	●	●	KGD% -3T20-C	KGD% 12-C	0.787	0.75	0.75	1.68	0.75	0.472	4.92	0.86					
				☐ 1.00	16X-3T20S	●	●		KGD% 16-C													
				☐ 1.25	No unit description ➡																		KGD% 20-C
		0.157" (4mm)	0.394" (10mm)	☐ 0.75	KGD% 12X-4T10S	●	●	KGD% -4T10-C	KGD% 12-C	0.394	0.75	0.75	1.29	0.75	0.472	4.52	0.84	0.157" (4mm)	0.197" (5mm)			
				☐ 1.00	16X-4T10S	●	●		KGD% 16-C													
				☐ 1.25	No unit description ➡																		KGD% 20-C
			0.787" (20mm)	☐ 0.75	KGD% 12X-4T20S	●	●	KGD% -4T20-C	KGD% 12-C	0.787	0.75	0.75	1.68	0.75	0.472	4.92	0.84					
				☐ 1.00	16X-4T20S	●	●		KGD% 16-C													
				☐ 1.25	No unit description ➡																		KGD% 20-C
			0.984" (25mm)	☐ 0.75	KGD% 12X-4T25S	●	●	KGD% -4T25-C	KGD% 12-C	0.984	0.75	0.75	1.88	0.75	0.472	5.11	0.84					
				☐ 1.00	16X-4T25S	●	●		KGD% 16-C													
				☐ 1.25	No unit description ➡																		KGD% 20-C

- When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
- The toolholder and blade descriptions are printed on the toolholder body. (Unit Part Number is not printed.)
KGD-S: Right-hand blade for right-hand toolholder, left-hand blade for left-hand toolholder.
The toolholder is applicable for all blade with suitable hand.
- If the unit description is not listed ("No unit description"), please purchase toolholder and blade separately.
- CDX: Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove depth of groove made by a 2-edge insert will be 0.709" (18mm).)
- Recommended tightening torque for insert clamp screw : 6.5 Nm (Groove width 0.079" ~ 0.157" (2 ~ 4mm))
- Above toolholders are applicable to external grooving, too.

Choose an insert with a width that falls within the CW min. and CW max. parameters shown in table above.

Applicable Inserts H32~H33

KGD-S (0° SwitchBlade Type)



Right-hand shown (Right-hand blade and right-hand toolholder)

Toolholder Dimensions (Blade and Toolholder)

Unit	Shank angle	Width (mm)	Max. depth of cut (mm)	Shank size (mm)	Unit Part Number	Std. Item		Blade Part Number G56	Toolholder Part Number G56	Dimensions										Spare Parts		
						R	L			CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.			
mm	0°	2	17	□20	KGD% 2020X-2T17S	●		KGD% -2T17-C	KGD% 2020-C	17	20	20	40	20	12	122	23.4	0.079" (2mm)	0.118" (3mm)	BH6X10TR	SB-60120TR	LTW-25
				□25	2525X-2T17S	●	●		KGD% 2525-C		25	25		25	7	147	28.4					
				□32	No unit description ⇨		KGD% 3232-C		32		32	32		-	167	35.4						
		3	10	□20	KGDR 2020X-3T10S	●		KGD% -3T10-C	KGD% 2020-C	10	20	20	33	20	12	115	23	0.118" (3mm)	0.157" (4mm)			
				□25	2525X-3T10S	●	●		KGD% 2525-C		25	25		25	7	140	28					
				□32	No unit description ⇨		KGD% 3232-C		32		32	32		-	160	35						
		20	□20	KGD% 2020X-3T20S	●	●	KGD% -3T20-C	KGD% 2020-C	20	20	20	43	20	12	125	23	0.118" (3mm)	0.157" (4mm)				
			□25	2525X-3T20S	●	●		KGD% 2525-C		25	25		25	7	150	28						
			□32	3232X-3T20S	●			KGD% 3232-C		32	32		32	-	170	35						
		10	□20	KGDR 2020X-4T10S	●		KGD% -4T10-C	KGD% 2020-C	10	20	20	33	20	12	115	22.5	0.157" (4mm)	0.197" (5mm)				
			□25	2525X-4T10S	●	●		KGD% 2525-C		25	25		25	7	140	27.5						
			□32	No unit description ⇨		KGD% 3232-C		32		32	32		-	160	34.5							
		20	□20	KGD% 2020X-4T20S	●		KGD% -4T20-C	KGD% 2020-C	20	20	20	43	20	12	125	22.5	0.157" (4mm)	0.197" (5mm)				
			□25	2525X-4T20S	●	●		KGD% 2525-C		25	25		25	7	150	27.5						
			□32	3232X-4T20S	●			KGD% 3232-C		32	32		32	-	170	34.5						
		25	□20	KGD% 2020X-4T25S	●	●	KGD% -4T25-C	KGD% 2020-C	25	20	20	48	20	12	130	22.5	0.157" (4mm)	0.197" (5mm)				
			□25	2525X-4T25S	●	●		KGD% 2525-C		25	25		25	7	155	27.5						
			□32	3232X-4T25S	●			KGD% 3232-C		32	32		32	-	175	34.5						

- When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
- The toolholder and blade descriptions are printed on the toolholder body. (Unit Part Number is not printed.)
KGD-S: Right-hand blade for right-hand toolholder, left-hand blade for left-hand toolholder.
The toolholder is applicable for all blade with suitable hand.
- If the unit description is not listed ("No unit description"), please purchase toolholder and blade separately.
- CDX: Maximum grooving depth. (If the CDX is 0.787" (20mm) or more, the maximum groove depth of groove made by a 2-edge insert will be 0.709" (18mm).)
- Recommended tightening torque for insert clamp screw : 6.5 Nm (Groove width 0.079" ~ 0.157" (2 ~ 4mm))
- Above toolholders are applicable to external grooving, too.

Choose an insert with a width that falls within the CW min. and CW max. parameters shown in table above.

Applicable Inserts ● H32~H33

KGD-JCT

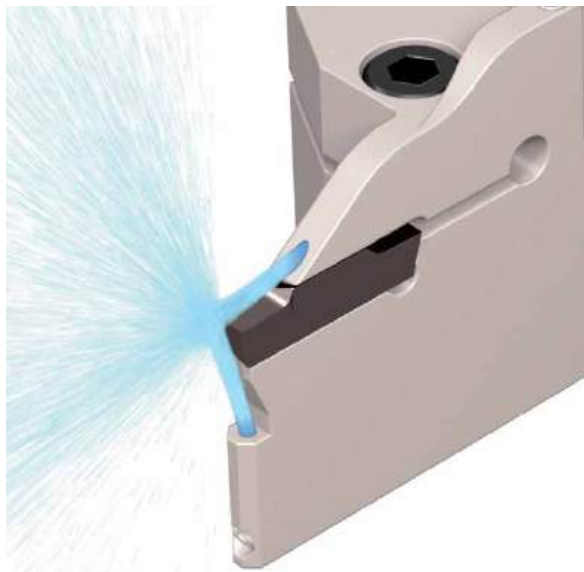
Coolant-Through Holders for External Grooving and Cut-Off

Coolant is directed from the rake surface and the flank face of the insert
Improved chip control and longer tool life for external grooving and cut-off

1 Excellent Chip Control

Coolant towards the rake face

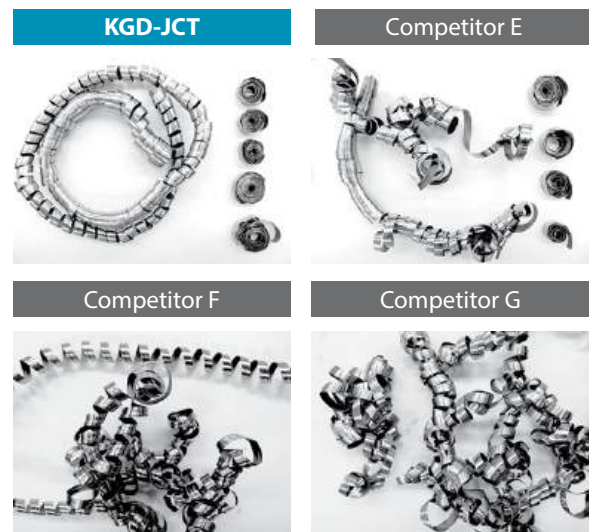
Coolant Hole position and angle improve chip control



Chip Control Comparison (Internal Evaluation)

KGD-JCT showed better chip control performance even at lower feed rates

$f = 0.002$ ipr (218 psi)



Cutting Conditions: $V_c = 490$ sfm, $f = 0.002$ ipr, $d = 0.315$ ", Wet
Edge Width 4 mm (0.157") Workpiece: 4131 Grooving

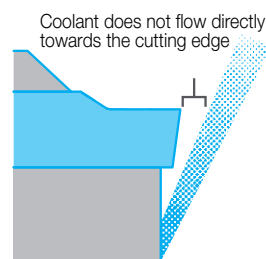
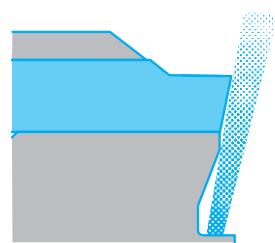
2 Keeps the Cutting Edge Cool for Longer Tool Life

Coolant towards the rake surface and the flank face of the insert

Directing coolant towards the cutting edge lengthens tool life

KGD-JCT

Competitor E

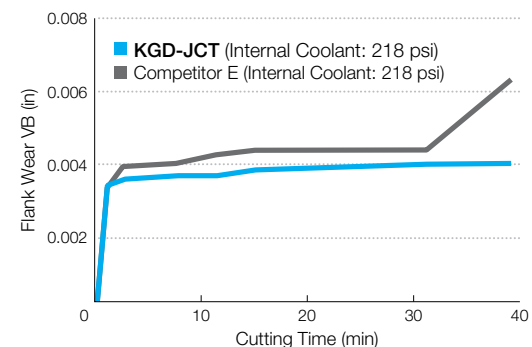


After Machining 39 min

Defect



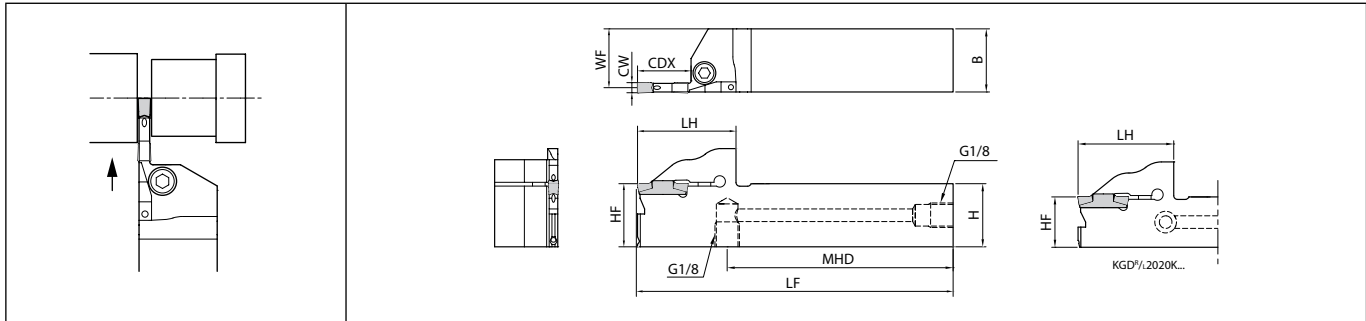
Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions: $V_c = 590$ sfm, $f = 0.006$ ipr, $d = 0.354$ ", Wet
Edge Width 0.158" Workpiece: 4131 Grooving

KGD-JCT Minimizes Wear and Provides Longer Tool Life without Insert Fracturing

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGD-JCT (Coolant-Through Toolholders)

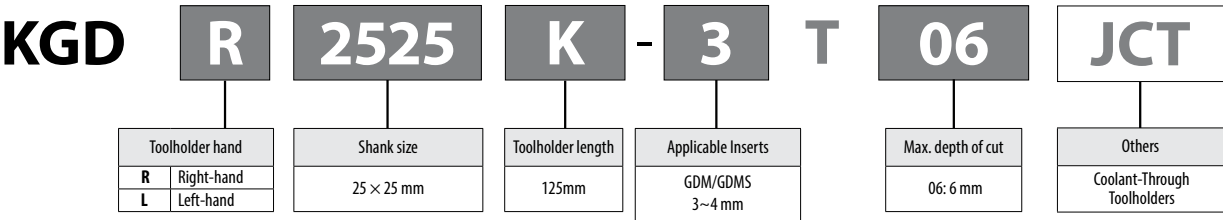
Right-hand shown | Pressure Resistance : ~2,175 psi

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions										Coolant Hole	Spare Parts			Applicable Inserts 🔩 H32, H33
															Clamp Screw	Plug	Wrench	
		R	L	CDX	H	B	LH	MHD	HF	LF	WF	CW min.	CW max.					
Inch	KGD% 12-3T20JCT	●	●	0.787	0.750	0.750	1.496	3.590	0.750	5.000	0.702	0.118" (3mm)	0.157" (4mm)	Yes	HH5X16	HSG1/8X8.0	LW-4	GDG3020..., GDM3020... GDMS3020..., GDM4020... GDMS4020...
	16-3T20JCT	●	●		1.000	1.000	1.535	3.551	1.000		0.952				HH5X25			
	KGD% 12-4T20JCT	●	●	0.787	0.750	0.750	1.496	3.590	0.750	5.000	0.683	0.157" (4mm)	0.197" (5mm)	Yes	HH5X16	HSG1/8X8.0	LW-4	GDM4020... GDMS4020...
	16-4T20JCT	●	●		1.000	1.000	1.535	3.551	1.000		0.933				HH5X25			
mm	KGD% 2020K-3T06JCT	●	●	6	20	20	31.5	96.2	20	125	18.8	0.118" (3mm)	0.157" (4mm)	Yes	HH5X16	HSG1/8X8.0	LW-4	GDG3020... GDM3020... GDMS3020... GDM4020... GDMS4020...
	2020K-3T10JCT	●	●	10			34	94.2										
	2020K-3T20JCT	●	●	20			38	90.2										
	2525K-3T06JCT	●	●	6	25	25	31.5	96.5	25	125	23.8	0.157" (4mm)	0.197" (5mm)	Yes	HH5X25	HSG1/8X8.0	LW-4	
	2525K-3T10JCT	●	●	10			34	94.5										
	2525K-3T20JCT	●	●	20			39	89.5										
	KGD% 2020K-4T10JCT	●	●	10	20	20	34	94.2	20	125	18.3	0.157" (4mm)	0.197" (5mm)	Yes	HH5X16	HSG1/8X8.0	LW-4	GDM4020... GDMS4020...
	2020K-4T20JCT	●	●	20			38	90.2										
	2525K-4T10JCT	●	●	10			34	94.5										
	2525K-4T20JCT	●	●	20	25	25	39	89.5	25	125	23.3	0.157" (4mm)	0.197" (5mm)	Yes	HH5X25	HSG1/8X8.0	LW-4	
	2525K-4T25JCT	●	●	25			44	84.5										

Toolholder Identification System

Metric KGD (Integral Type)



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGD Recommended Cutting Conditions (Cut-Off)

PF Chipbreaker

Workpiece Material	Recommended Insert Grade (Vc : sfm)				Feed Rate (f : ipr)						Notes
					PF Corner-R (RE) = 0.001			PF Corner-R (RE) = 0.006			
	MEGACOAT NANO	MEGACOAT		Carbide	Insert Width CW			Insert Width CW			
	PR1535	PR1225	PR1215	GW15	0.051" - 0.059" 1.3mm - 1.5mm	0.079" 2.0mm	0.098" - 0.118" 2.5mm - 3.0mm	0.051" - 0.059" 1.3mm - 1.5mm	0.079" 2.0mm	0.098" - 0.118" 2.5mm - 3.0mm	
Carbon Steel	☆ 230 - 490	★ 230 - 490	☆ 230 - 590	-	0.0004 - 0.0016	0.0008 - 0.0024	0.0008 - 0.0031	0.0004 - 0.0020	0.0012 - 0.0031	0.0016 - 0.0039	Coolant
Alloy Steel	☆ 230 - 490	★ 230 - 490	☆ 230 - 590	-							
Stainless Steel	★ 200 - 390	☆ 200 - 390	☆ 200 - 490	-	0.0004 - 0.0012	0.0004 - 0.0016	0.0004 - 0.0020	0.0004 - 0.0016	0.0012 - 0.0028	0.0016 - 0.0031	
Cast Iron	-	-	★ 260 - 660	☆ 160 - 330	0.0004 - 0.0020	0.0008 - 0.0028	0.0012 - 0.0031	0.0004 - 0.0024	0.0012 - 0.0035	0.0016 - 0.0039	

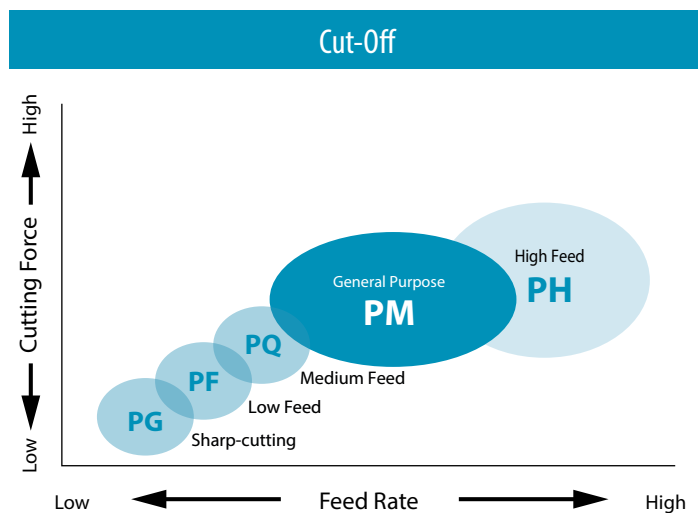
★:1st Recommendation ☆:2nd Recommendation

PQ / PG Chipbreaker

Workpiece Material	Recommended Insert Grade (Vc : sfm)					Feed Rate (f : ipr)				Notes
						PQ		PG		
	MEGACOAT NANO	MEGACOAT		DLC Coated Carbide	Carbide	Insert Width CW		Insert Width CW		
	PR1535	PR1225	PR1215	PDL025	GW15	0.079" 2.0mm	0.098" - 0.118" 2.5mm - 3.0mm	0.079" 2.0mm	0.098" - 0.118" 2.5mm - 3.0mm	
Carbon Steel	☆ 230 - 490	★ 230 - 490	☆ 230 - 590	-	-	0.0012 - 0.0039	0.0016 - 0.0047	0.0004 - 0.0016	0.0004 - 0.0020	Coolant
Alloy Steel	☆ 230 - 490	★ 230 - 490	☆ 230 - 590	-	-					
Stainless Steel	★ 200 - 390	☆ 200 - 390	☆ 200 - 490	-	-	0.0008 - 0.0028	0.0008 - 0.0031	0.0004 - 0.0012	0.0004 - 0.0016	
Cast Iron	-	-	☆ 260 - 660	-	☆ 160 - 330	0.0016 - 0.0039	0.0016 - 0.0047	0.0004 - 0.0016	0.0004 - 0.0020	
Aluminum Alloy	-	-	-	★ 660 - 1,640	☆ 660 - 1,480	-	-	0.0004 - 0.0020	0.0004 - 0.0024	
Brass	-	-	-	-	★ 330 - 660	-	-	0.0004 - 0.0028	0.0004 - 0.0031	

★:1st Recommendation ☆:2nd Recommendation

Application Map



KGD Recommended Cutting Conditions (Cut-Off)

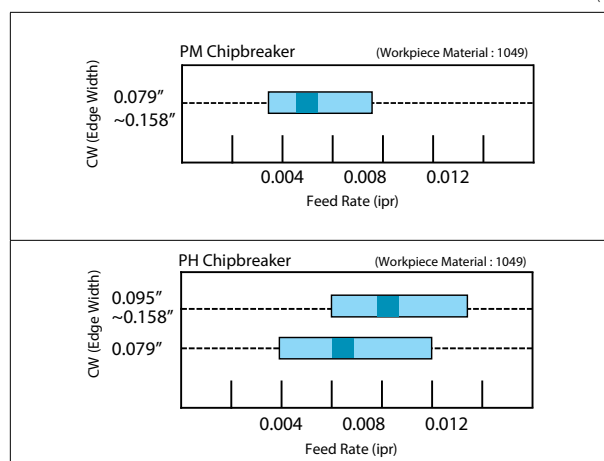
PM / PH Chipbreaker

Workpiece Material	Cutting Conditions (Vc : sfm)			Feed Rate (f : ipr)			Notes
	Recommended Insert Grade			PM	PH		
	MEGACOAT NANO	MEGACOAT		Insert Width CW	Insert Width CW		
	PR1535	PR1225	PR1215	0.079" - 0.158" 2.0mm - 4.0mm	0.079" 2.0mm	0.095" - 0.158" 3.0mm - 4.0mm	
Carbon Steel	☆ 260 - 660	★ 260 - 660	☆ 330 - 660	0.0031 - 0.0071	0.0039 - 0.0098	0.0059 - 0.0110	Coolant
Alloy Steel	☆ 230 - 590	★ 230 - 590	☆ 260 - 590				
Stainless Steel	★ 200 - 490	☆ 200 - 490	☆ 200 - 490	0.0024 - 0.0047	0.0020 - 0.0047	0.0031 - 0.0059	
Cast Iron	-	-	★ 330 - 660	0.0031 - 0.0071	0.0039 - 0.0098	0.0059 - 0.0110	

★:1st Recommendation ☆:2nd Recommendation

Feed Examples

■ : Recommended Feed (f)



Caution During Cut-Off

1. Flood coolant is recommended. Apply enough coolant to the cutting edge
2. Keep spindle revolution constant during processing to achieve longer tool life
3. Cut off as close to the chuck as possible
4. Reduce feed rate by 30-50% when diameter is same as cut-off insert width to prevent impact

KPK Series

High Performance Cut-Off Solutions

Easy Insert Replacement Reduces Downtime

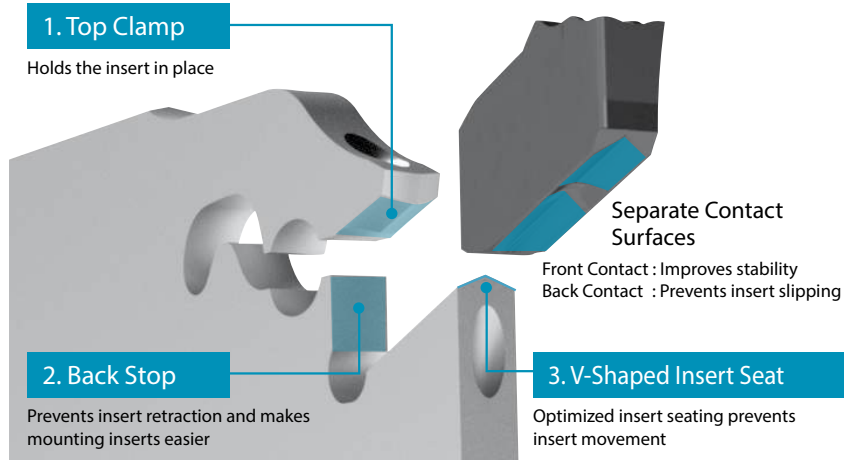
High-Performance, Long Tool Life and Stable Machining with Strong Clamping Mechanism

1 Easy Insert Replacement

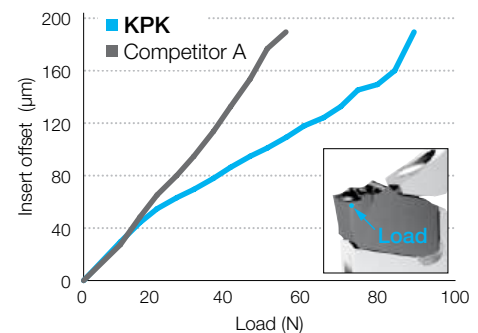


2 Firm Insert Clamp Ensures Added Safety and Security

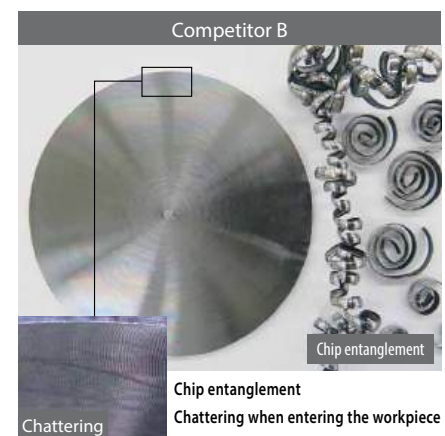
The firmly secured insert uses three contact surfaces to eliminate sliding or chattering



Insert Deviation Comparison (Internal Evaluation)



Cutting Performance Comparison (Internal Evaluation)



Cutting Conditions : $n = 320$ RPM (constant) , $V_c = \sim 330$ sfm, $f = 0.005$ ipr, Wet (External coolant) Workpiece : 4137 ($\phi 3.937''$) Cutting Edge Width : 0.118" (3mm), PM Chipbreaker

3

Unique Chipbreaker Designs for Long Tool Life and Stable Machining

Advanced chipbreaker technology inherited from KGD lineup provides excellent chip control



PM Chipbreaker

General Purpose

Insert Grades

Steel : PR1625
Stainless Steel : PR1535
Cast Iron and Aluminum : GW15



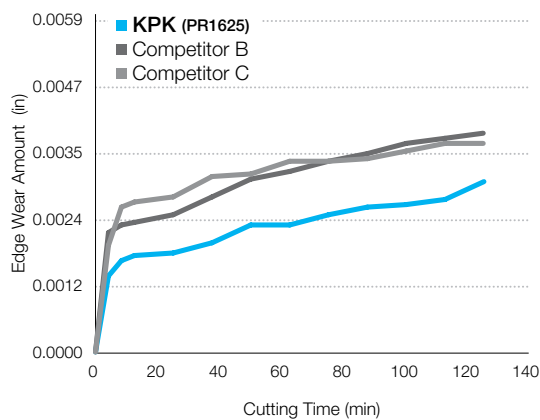
PH Chipbreaker

Tough Edge
High-Feed

Insert Grades

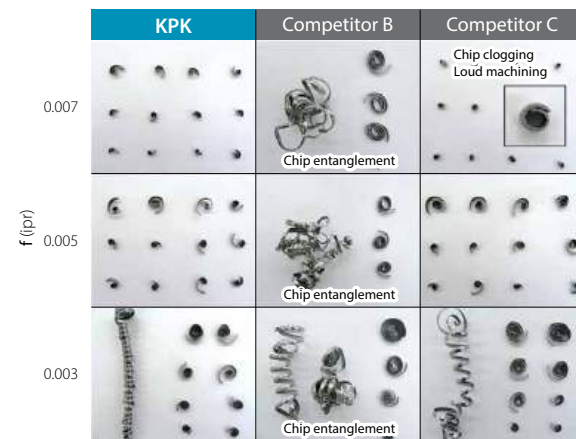
Steel : PR1625
Stainless Steel : PR1535

Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions : n = 955 RPM (constant), Vc = ~ 490 sfm
f = 0.005 ipr (~ 0.394" : f = 0.002 ipr) Wet (External Coolant)
Workpiece : 4131 (ø1.969") Cutting Width : 0.118" (3mm), PM Chipbreaker

Chip Control Comparison (Internal Evaluation)

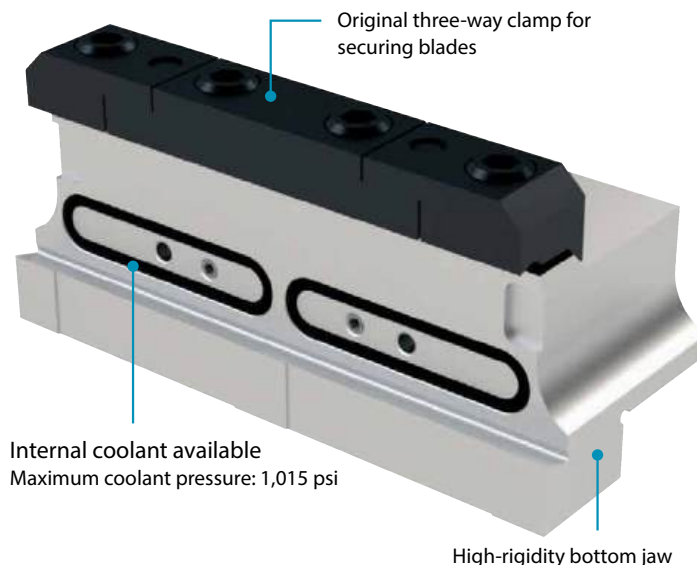


Cutting Conditions : n = RPM (constant), Vc = ~ 390 sfm, Wet (External Coolant)
Workpiece : 4131 (ø1.969") Cutting Width : 0.118" (3mm), PM Chipbreaker

4

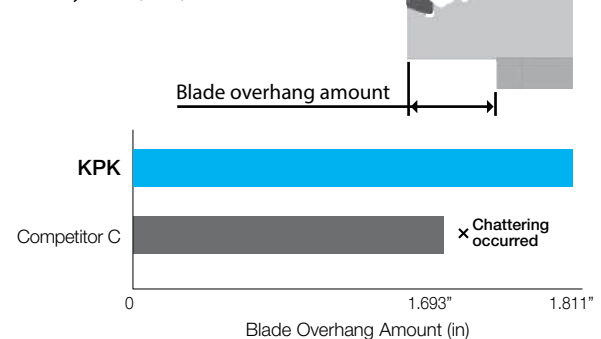
Rigid Tool Holder Block Prevents Chattering and Provides Internal Coolant

KPKTB-JCT



Chatter Resistance Comparison (Internal evaluation)

Comparison of areas where stable machining is possible by changing the overhang amount of blade by 0.039" (1mm)



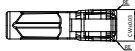
Cutting Conditions : n = 650 RPM (Constant), Vc = ~ 330 sfm, f = 0.005 ipr
Wet (Internal Coolant : Normal Pressure), Workpiece : 4137 (ø1.969")
Cutting Width : 0.118" (3mm), PM Chipbreaker

KTKTB block is compatible with internal coolant with an optional internal connector. (~145 psi)

See Coolant Supply Method (Type C) page H59

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

PKM

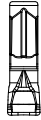
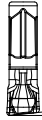
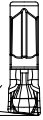
												Carbon Steel / Alloy Steel			Stainless Steel			Cast Iron			Non-Ferrous Metals			P			M			K			N					
Insert		Part Number		No. of Edges		Dimensions (mm)		Angle (°)		Tolerance (mm)		Carbide		Applicable Toolholder ➡ H54~H55, H61~H62																								
						CW		RE	PSIR %	CW min.	CW max.	PVD	-																									
						in	mm					PR1335	PR1625											GW15														
	 General purpose	PKM 16N-015PM	1	0.063	1.6	0.15	-	-0.03	+0.03	●	●	●	KPKB19-1, KPKB26-1(JCT) KPKB32-1(JCT)																									
		PKM 20N-020PM	1	0.079	2	0.2	-	-0.03	+0.03	●	●	●	KPKB19-2, KPKB26-2(JCT) KPKB32-2(JCT), KPKH % 2020K-2(JCT)																									
		PKM 24N-020PM	1	0.094	2.4	0.2	-	-0.03	+0.03	●	●	●	KPKB19-2, KPKB26-2(JCT) KPKB32-2(JCT), KPKH % 2020K-2(JCT)																									
		PKM 30N-025PM	1	0.118	3	0.25	-	-0.03	+0.03	●	●	●	KPKB26-3(JCT), KPKB32-3(JCT) KPKH % ...-3(JCT), KPKH % ...-3D45																									
		PKM 40N-030PM	1	0.157	4	0.3	-	-0.03	+0.03	●	●	●	KPKB26-4(JCT), KPKB32-4(JCT) KPKH % ...-4(JCT), KPKH % ...-4D45																									
		PKM 48N-030PM	1	0.189	4.8	0.3	-	-0.03	+0.03	●	●	●	KPKB26-5(JCT), KPKB32-5(JCT) KPKH % 2525M-5																									
		PKM 50N-030PM	1	0.197	5	0.3	-	-0.03	+0.03	●	●	●	KPKB26-5(JCT), KPKB32-5(JCT) KPKH % 2525M-5																									
		PKM 60N-035PM	1	0.236	6	0.35	-	-0.03	+0.03	●	●	●	KPKB32-6(JCT)																									
	 High feed	PKM 20N-020PH	1	0.079	2	0.2	-	-0.03	+0.03	●	●	●	KPKB19-2, KPKB26-2(JCT) KPKB32-2(JCT), KPKH % 2020K-2(JCT)																									
		PKM 30N-030PH	1	0.118	3	0.3	-	-0.03	+0.03	●	●	●	KPKB26-3(JCT), KPKB32-3(JCT) KPKH % ...-3(JCT), KPKH % ...-3D45																									
		PKM 40N-030PH	1	0.157	4	0.3	-	-0.03	+0.03	●	●	●	KPKB26-4(JCT), KPKB32-4(JCT) KPKH % ...-4(JCT), KPKH % ...-4D45																									
		PKM 50N-030PH	1	0.197	5	0.3	-	-0.03	+0.03	●	●	●	KPKB26-5(JCT), KPKB32-5(JCT) KPKH % 2525M-5																									
		PKM 60N-040PH	1	0.236	6	0.4	-	-0.03	+0.03	●	●	●	KPKB32-6(JCT)																									
	 General purpose with lead angle	PKM 16R-015PM-6D 16L-015PM-6D	1	0.063	1.6	0.15	6	-0.03	+0.03	●	●	●	KB19-1, KPKB26-1(JCT) KPKB32-1(JCT)																									
		PKM 20R-020PM-6D 20L-020PM-6D	1	0.079	2	0.2	6	-0.03	+0.03	●	●	●	KPKB19-2, KPKB26-2(JCT) KPKB32-2(JCT), KPKH % 2020K-2(JCT)																									
		PKM 24R-020PM-6D 24L-020PM-6D	1	0.094	2.4	0.2	6	-0.03	+0.03	●	●	●	KPKB19-2, KPKB26-2(JCT) KPKB32-2(JCT), KPKH % 2020K-2(JCT)																									
		PKM 30R-025PM-6D 30L-025PM-6D	1	0.118	3	0.25	6	-0.03	+0.03	●	●	●	KPKB26-3(JCT), KPKB32-3(JCT) KPKH % ...-3(JCT), KPKH % ...-3D45																									
		PKM 40R-030PM-6D 40L-030PM-6D	1	0.157	4	0.3	6	-0.03	+0.03	●	●	●	KPKB26-4(JCT), KPKB32-4(JCT) KPKH % ...-4(JCT), KPKH % ...-4D45																									
		PKM 50R-030PM-6D 50L-030PM-6D	1	0.197	5	0.3	6	-0.03	+0.03	●	●	●	KPKB26-5(JCT), KPKB32-5(JCT) KPKH % 2525M-5																									

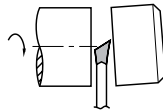
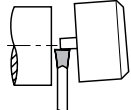
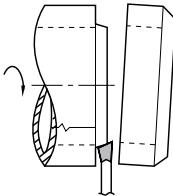
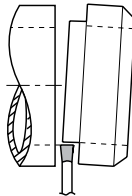
Handed insert shows Right-hand

Recommended Cutting Conditions H63

Lead Angle Direction and Usage

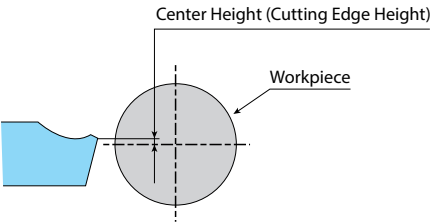
- 1. If there is no restriction on the finished shape, use an insert without lead angle.
- 2. Insert with lead angle is recommended to prevent remaining boss.
- 3. If you want to make the remaining boss smaller when machining small or thin parts, use insert with lead angle.

Handed insert with lead angle	N (Neutral)	R (Right hand)	L (Left hand)
			
· Inserts with lead angle (PSIR ^R/L) reduce burrs at cut-off machining. · The larger the lead angle (PSIR ^R/L), the smaller the cutting force. The feed also needs to be smaller.			

	Right hand (R) Lead Neutral	Neutral		Right hand (R) Lead Neutral	Neutral
Solid Workpiece			Hollow Workpiece (Pipe)		

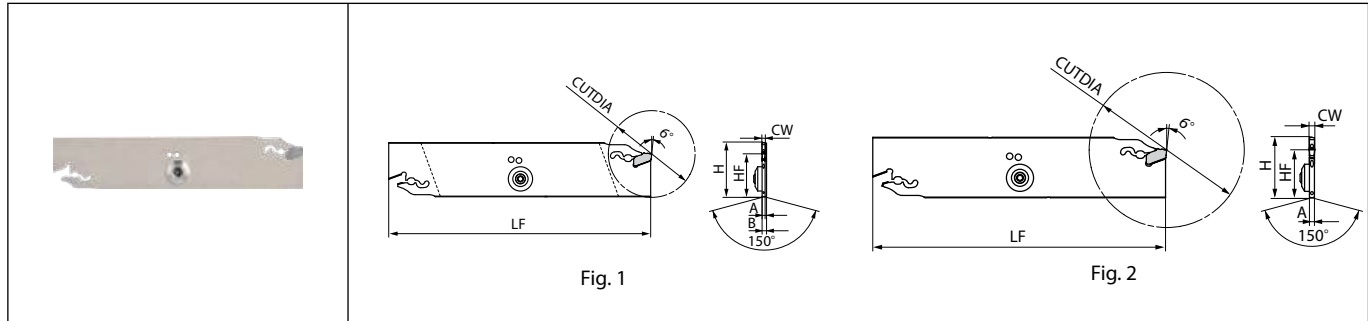
Machining Precautions

- 1. Set cutting edge height 0.004" (0.1mm) above core height.
 - 2. Machining with ample supply of coolant is recommended
 - 3. Machine at constant speeds to gain stable tool life
 - 4. Make the cut-off as close as possible to the chuck
 - 5. To prevent impacts, reduce feed rate by 1/2 ~ 1/3 when nearing the center of the workpiece
- Excessive use of the insert may cause chipping or damage to the holder



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KPKB-JCT (Coolant-Through Blades)



with coolant supply | Applicable Pressure : ~7MPa

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Coolant Hole	Fig.	Spare Parts				Applicable Inserts H52	Applicable Tool Block H56, H57	
			CUTDIA	A	B	H	HF	LF	CW			Coolant Cap	Insert Wrench	Screw	Wrench			
mm	KPKB	26-1JCT	●	35	1.4	2.6	26	21.4	110	1.6	Yes	1	CCP-4	LPW-5	SB-4065TR	FT-15	PKM16...	KPKTB...-26JCT KTKTB...-26
		26-2JCT	●	50	1.8					2							PKM20...	
		26-3JCT	●	75	2.6	2.4				PKM24...								
		26-4JCT	●	3.4	4	PKM30...												
		26-5JCT	●	80	4.2	4.8 5				PKM40...								
	KPKB	32-1JCT	●	35	1.4	2.6	32	25	150	1.6	Yes	1	CCP-4	LPW-5	SB-4065TR	FT-15	PKM16...	KPKTB...-32JCT KTKTB...-32 KTKTBF...-32
		32-2JCT	●	50	1.8					2							PKM20...	
		32-3JCT	●	100	2.6	2.4				PKM24...								
		32-4JCT	●	3.4	3	PKM30...												
		32-5JCT	●	4.2	4.8 5	PKM40...												
		32-6JCT	●	5.4	6	PKM48...												
													Coolant cap screw Tightening torque 3.0 N·m		PKM50...			
													Coolant cap screw Tightening torque 3.0 N·m		PKM60...			

See page H58 for insert mounting and removal instructions

When using internal coolant with KTKTB, KTKTBF type toolblocks, coolant supply piping (CCN -5) sold separately.

H: Length between virtual vertices

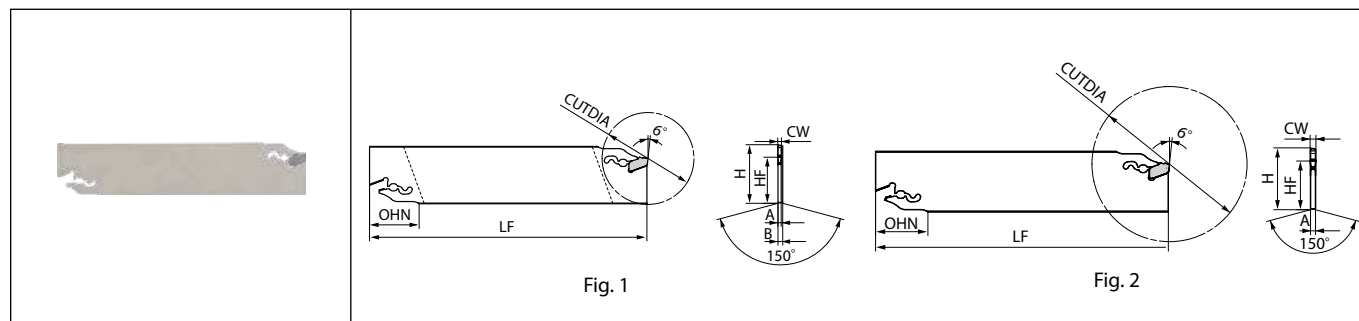
Recommended Cutting Conditions ➡ H63

Minimum / Maximum Overhang Length while using Internal Coolant

Overhang Length

Part Number		Overhang Length (mm)		
Blade	Toolblocks	min.	max.	
KPKB26-1JCT	KPKTB20-26JCT	15	34.5	
KPKB26-2/3/4JCT		20	40	
KPKB26-5JCT		23	43	
KPKB32-1JCT	KPKTB20-32JCT	18	49	
	KPKTB25-32JCT	13		
	KPKTB32-32JCT			
KPKB32-2/3/4JCT	KPKTB20-32JCT	27.5	59	
	KPKTB25-32JCT	22.5		
	KPKTB32-32JCT			
KPKB32-5/6JCT	KPKTB20-32JCT	31.5	63	
	KPKTB25-32JCT	26.5		
	KPKTB32-32JCT			

KPKB



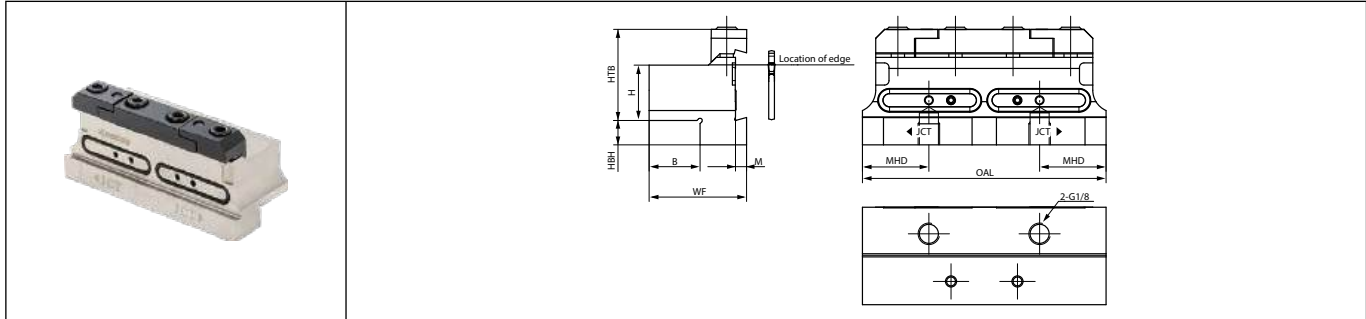
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Coolant Hole	Fig.	Spare Parts	Applicable Inserts ➡ H52	Applicable Tool Block ➡ H56, H57	
			CUT/DIA	A	B	H	HF	LF	CW			Insert Wrench			
															
mm	KPKB 19-1	●	32	1.4	2.6	19	15.7	86	1.6	No	1	LPW-5	PKM16...	KTKTB..-19	
	19-2	●	40	1.8	-				2				2.4		2	PKM20... PKM24...
	KPKB 26-1	●	35	1.4	2.6	26	21.4	110	1.6	No	2	LPW-5	PKM16...	KPKTB..-26JCT KTKTB..-26	
	26-2	●	50	1.8	-				2				2.4		PKM20... PKM24...
	26-3	●	75	2.6	-				3				4		PKM30...
	26-4	●	3.4	4	PKM40...										
	26-5	●	80	4.2	4.8 5				PKM48... PKM50...						
	KPKB 32-1	●	35	1.4	2.6	32	25	150	1.6	No	1	LPW-5	PKM16...	KPKTB..-32JCT KTKTB..-32 KTKTBF..-32	
	32-2	●	50	1.8					-				2		2.4	PKM20... PKM24...
	32-3	●	100	2.6	-	3	4	4.8 5	6	2	PKM30...				
	32-4	●		3.4							PKM40...				
	32-5	●	120	4.2	PKM48... PKM50...										
	32-6	●	5.4	PKM60...											

See page H58 for insert mounting and removal instructions
H: Length between virtual vertices

Recommended Cutting Conditions ➡ H63

KPKTB-JCT (Coolant-Through Type)



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts						Applicable Blade ➡ H54 H55 H66 G152
												Clamp Bolt	Clamp Set (separate type)	O-ring	Plug	Screw	Wrench	
			H	B	HBH	HTB	M	MHD	OAL	WF								
Inch	KPKTB 19-26JCT	●	0.75	0.720	0.525	1.260	0.157	0.925	3.386	1.508	Yes	HH6x16	BCS-2	GR-020	HSG1/8X8.0	HS3x4	LW-5	KPKB26-__JCT, KTKB26-__
	19-32JCT	●			0.667	1.299	0.197	0.984	3.937	1.547			BCS-3	GR-026		KPKB32-__JCT KTKB32-__		
	25.4-32JCT	●	1.00	0.906	0.417	1.614	0.197	1.181	4.331	1.732			BCS-4	GR-029		HS4x4		KFTB%/...-4S KFTB%/...-5S
	31.8-32JCT	●	1.25	1.142	0.207	1.850				1.969								
mm	KPKTB 20-26JCT	●	20	19	12.4	33	4	23.5	86	39	Yes	HH6X16	BCS-2	GR-020	HSG1/8X8.0	HS3X4	LW-5	KPKB26-__JCT, KTKB26-__
	20-32JCT	●			16	41	5	25	100	40			BCS-3	GR-026		KPKB32-__JCT KTKB32-__		
	25-32JCT	●	25	23	11			30	110	44			BCS-4	GR-029		HS4X4		KFTB%/...-4S KFTB%/...-5S
	32-32JCT	●	32	29	5				50									

Includes only one HSG1/8X8.0 plug.

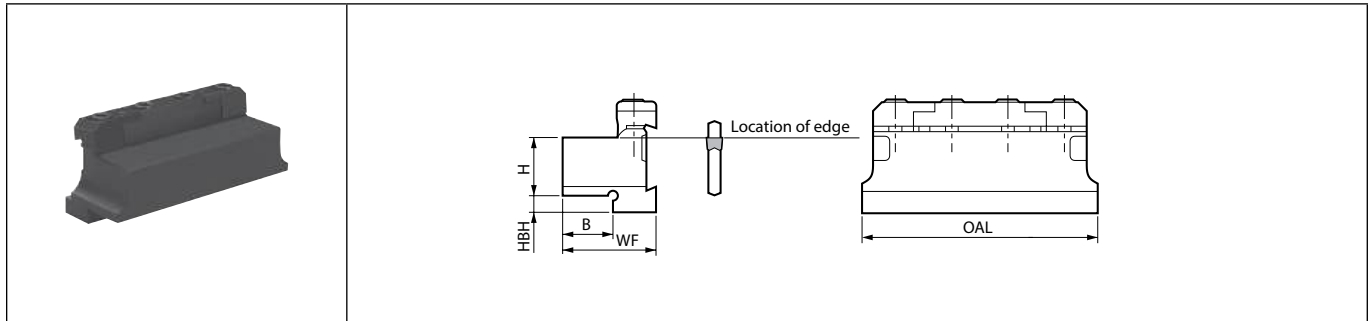
KPKTB-JCT type block is also compatible with conventional KTKB type blades.

See page H60 for coolant piping parts.

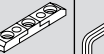
When using internal coolant, the coolant may appear to leak slightly, but this should not affect machining performance.

(If the O-ring is damaged, order separately.)

KTKTB

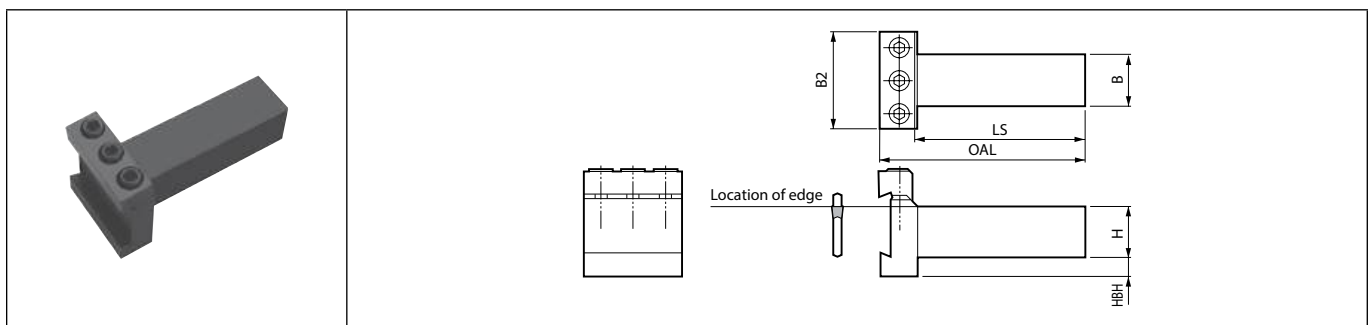


Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Spare Parts				Applicable Blade ➡ H54 H55 H66 G152	
								Clamp Bolt	Clamp Set (integral type)	Clamp Set (separate type)	Wrench		
			H	B	HBH	OAL	WF					Cut-Off	Face Grooving
Inch	KTKTB 19-26	●	0.75	0.720	0.39	3.39	1.39	HH6x30	-	BCS-2	LW-5	KPKB26-_(JCT) KTKB26-1SS, KTKB26-_S	-
	25.4-32	●	1.00	0.905	0.30	4.33	1.65			BCS-4		KPKB32-_(JCT) KTKB32-1SS, KTKB32-_ KTKB% 32-_S	KFTB% ...-4S KFTB% ...-5S
mm	KTKTB 16-19	●	16	15.5	4	76	29.5	HH5X25	BCS-1	-	LW-4	KPKB19-_ KTKB19-1SS, KTKB19-2S	-
	20-19	●	20	19			34						
	KTKTB 16-26	●	16	15.5	13	86	31.5	HH6X30	-	BCS-2	LW-5	KPKB26-_(JCT) KTKB26-1SS, KTKB26-_S	-
	20-26	●	20	19	9		36						
	KTKTB 20-32	●	20	19	13	100	38	HH6X30	-	BCS-3	LW-5	KPKB32-_(JCT) KTKB32-1SS, KTKB32-_ KTKB% 32-_S	KFTB% ...-4S KFTB% ...-5S
	25-32	●	25	23	8		42			BCS-4			
	32-32	●	32	29	5		110							48

Can be used with internal coolant by utilizing compatible coolant piping (CCN-5).

KTKTBF



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Spare Parts			Applicable Blade	
									Clamp Bolt	Clamp Set (integral type)	Wrench	Cut-Off	Face Grooving
			H	B	B2	HBH	LS	OAL					
mm	KTKTBF 25-32	●	25	25	48	9.5	84.5	102	HH6X30	BCS-5	LW-5	KPKB32-_(JCT) KTKB32-1SS, KTKB32-__S KTKB% 32-__S	KFTB%...-4S KFTB%...-5S
	32-32	●	32	32		2.5	99.5	117					

Can be used with internal coolant by utilizing compatible coolant piping (CCN-5).

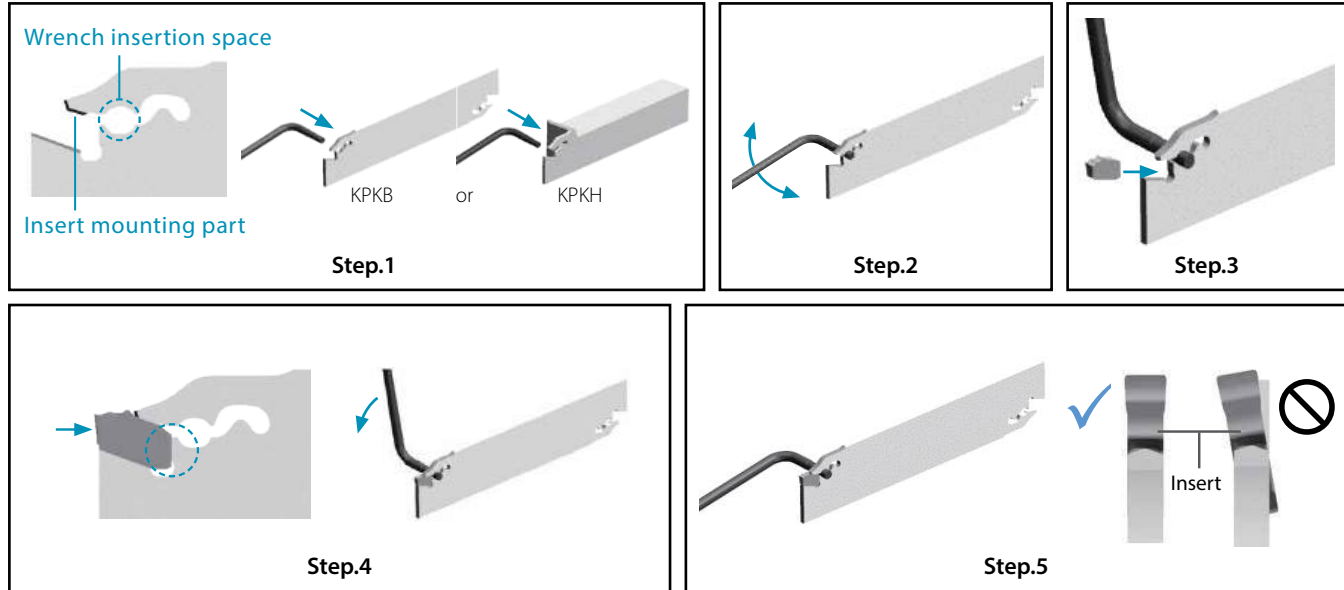
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

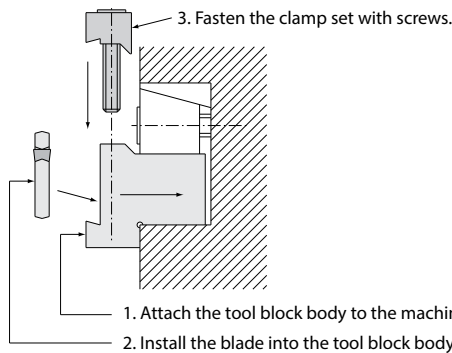
INSERT GRADES
ATURNING INSERTS
BCBN / PCD INSERTS
CTURNING HOLDERS
DSMALL TOOLS
EBORING
FGROOVING
GCUT-OFF
HTHREADING
JDRILLING
KMILLING
MQUICK CHANGE TOOLING
NSPARE PARTS
PTECHNICAL
RINDEX
T

How to Mount and Remove Inserts from Holder or Blade

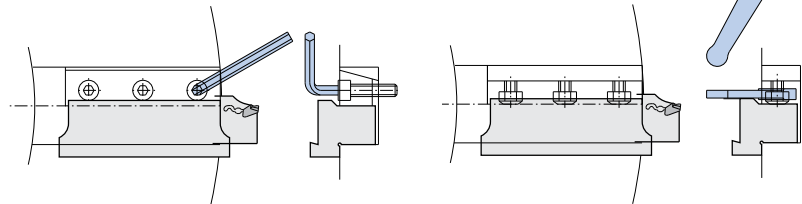
1. Use compressed air or other measures to remove chips from the insert mounting area and slide wrench into hole shown.
2. Turn the wrench.
3. Slide the insert into the insert pocket. (When removing the insert, follow the same procedure and remove it at step 3.)
4. Push insert in until the back of the insert contacts the blade's back stop surface.
5. Make sure that the insert is set straight.



Tool Block and Blade Installation Guide

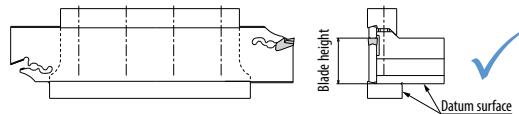


When mounting the tool block, use a wrench or spanner as shown below for a small lathe. Please note that the space for fastening may be small.

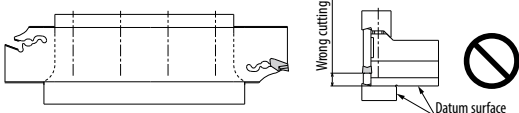


How to Install the Tool Block and Blade

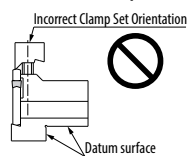
Correct blade installation



Incorrect blade installation



Incorrect Clamp Set Orientation



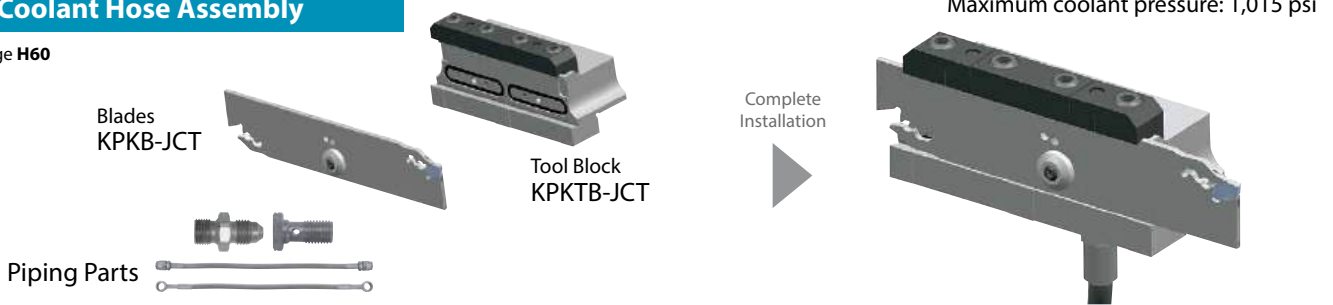
If the clamp set is mounted in the reverse direction, a large gap is created between the tool block main body and the clamp set as shown in the left figure. If you continue to use the product, the blade may break off. Reinstall in the correct orientation.

Internal Coolant Connection Methods (Method will be determined by machine specifications and requirements)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

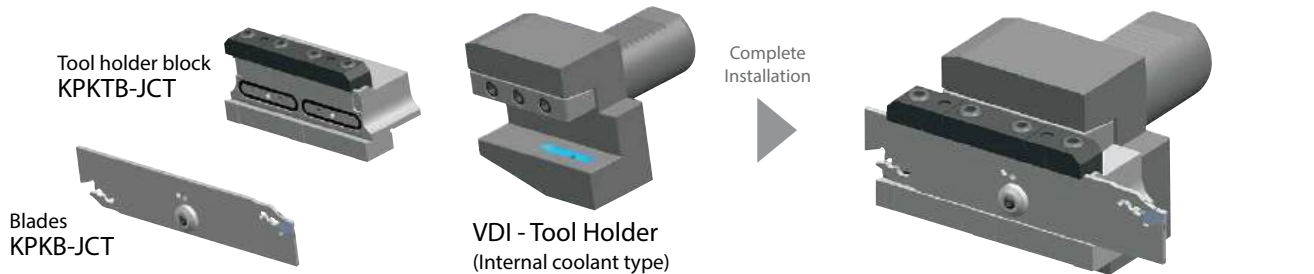
A : Coolant Hose Assembly

See Page H60



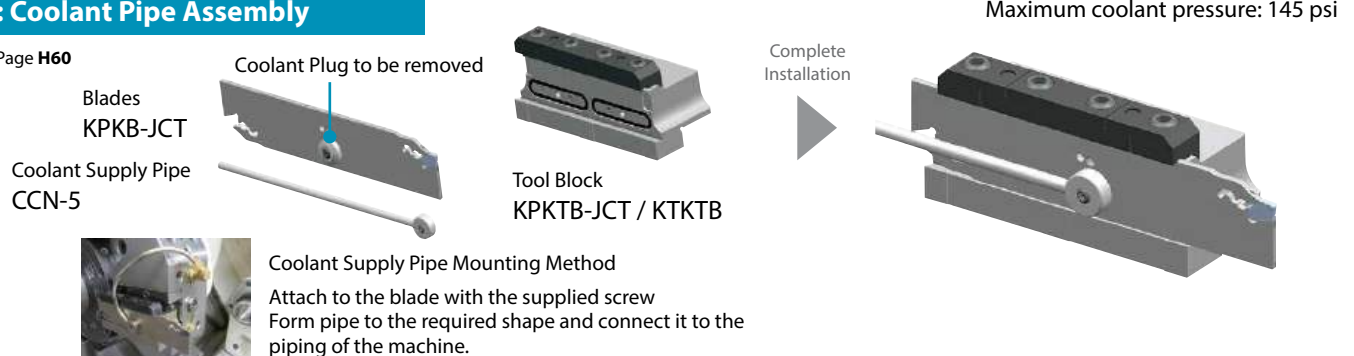
B : VDI Holder Assembly

(Internal coolant type)



C : Coolant Pipe Assembly

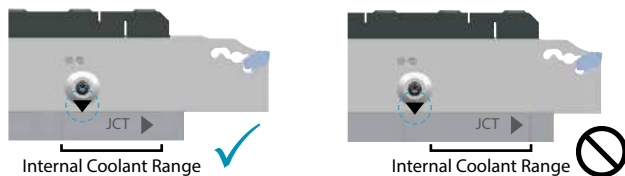
See Page H60



Precautions

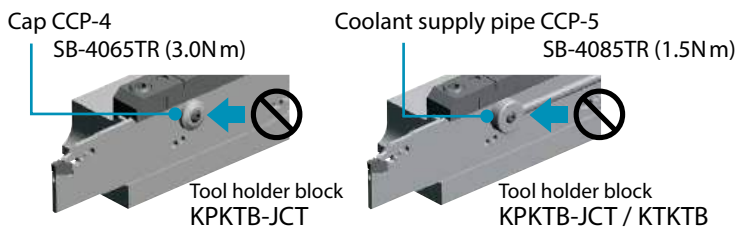
When mounting KPKB-JCT blade

When using internal coolant, keep the arrow (▼) on the blade within the range marked on the tool holder block.



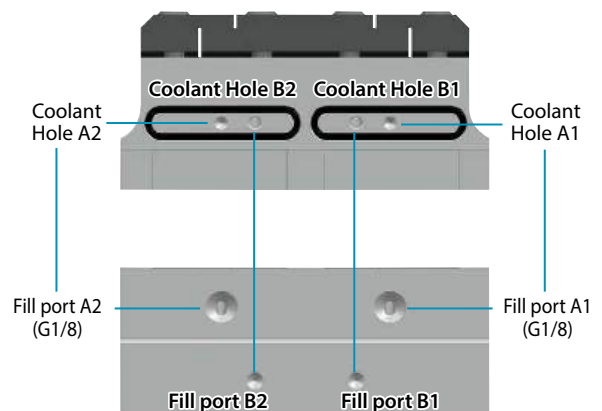
When the cap and coolant supply pipe are mounted

Coolant cannot be supplied correctly if it is mounted in the wrong position.



When using a tool block

When using the discharge port B1 (B2), use a sealant for the filler cap (HSG 1/8 X 8.0) of the accessory part of the coolant supply port A1 (A2).



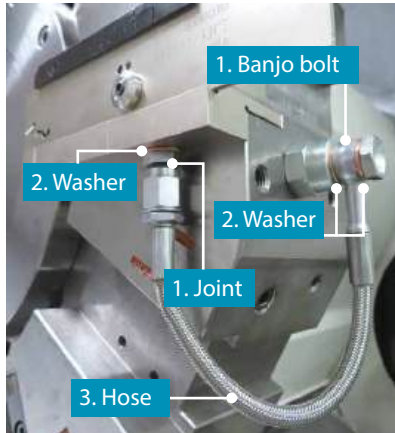
A : Coolant Hose Assembly

Connection Method and Piping Parts

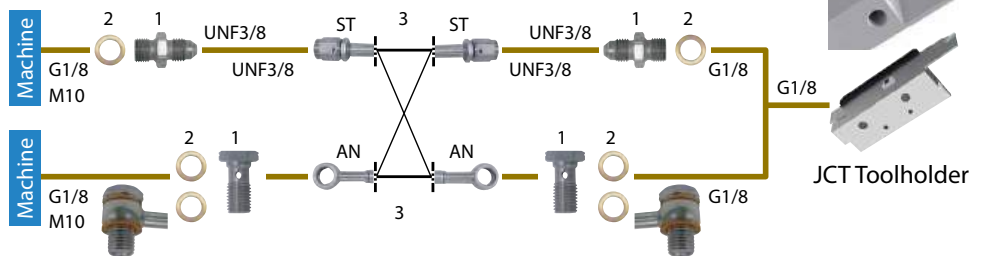
Easy to use with high-pressure hose and joint

Can be used for internal coolant at normal pressure without a high pressure pump unit

Banjo bolts (for angled hoses) are also available.



<Piping Installation Guide>



Depending on machine specifications and piping methods, 1.Joint/Banjo bolt x2 2.Washer x2-4 3.Hose x1

1. Joint / Banjo Bolt (Sold Separately)

Pressure Resistance: ~ 4,350 psi

Shape	Part Number	Std. Item	Thread Standard Toolholder Machine Connection Side
	J-G1/8-UNF3/8	●	G1/8
	J-M10X1.5-UNF3/8	●	M10X1.5
Banjo Bolt (for Angled Hoses)	BB-G1/8	●	G1/8
	BB-M10X1.5	●	M10X1.5

2. Washer (Sold Separately)

Pressure Resistance: ~ 4,350 psi

Shape	Part Number	Std. Item
	WS-10	●

*If you are using a banjo bolt, two washers are needed.

3. Hose (Sold Separately)

Pressure Resistance: ~ 4,350 psi

Shape	Part Number	Std. Item	Thread Standard	Dimensions (mm) L
Straight/Straight	HS-ST-ST-200	●	UNF3/8	200
	HS-ST-ST-250	●	UNF3/8	250
Straight/Angled	HS-ST-AN-200	●	UNF3/8	200
	HS-ST-AN-250	●	UNF3/8	250
Angled/Angled	HS-AN-AN-200	●	—	200
	HS-AN-AN-250	●	—	250

Precautions

1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure. Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.

C: Coolant Pipe Assembly

Piping Parts

Coolant Supply Pipe (Sold Separately)

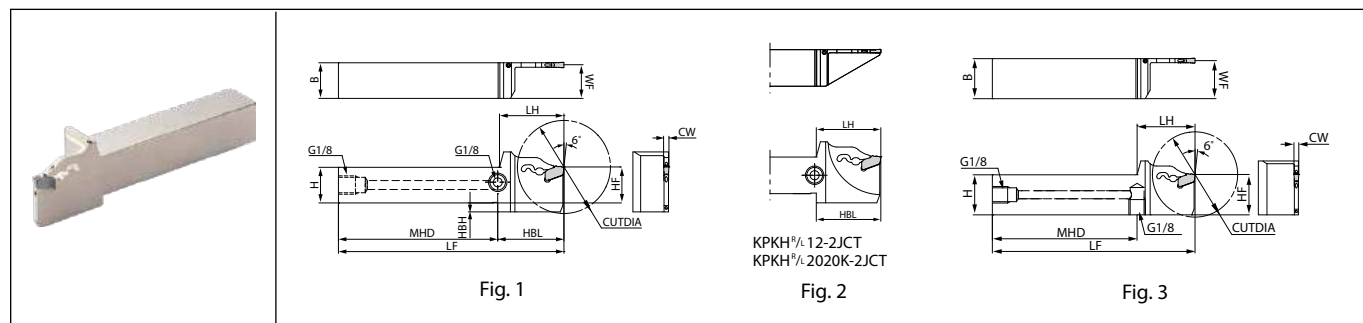
Pressure Resistance: 145 psi

Shape	Part Number	Std. Item	Dimensions (mm) A B C D	Spare Parts (Screw)
	CCN-5	●	190 16 5 6	SB-4085TR

Use wrench (FT-15) supplied with the blade when connecting.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

KPKH-JCT (Coolant-Through Toolholders)



Right-hand shown

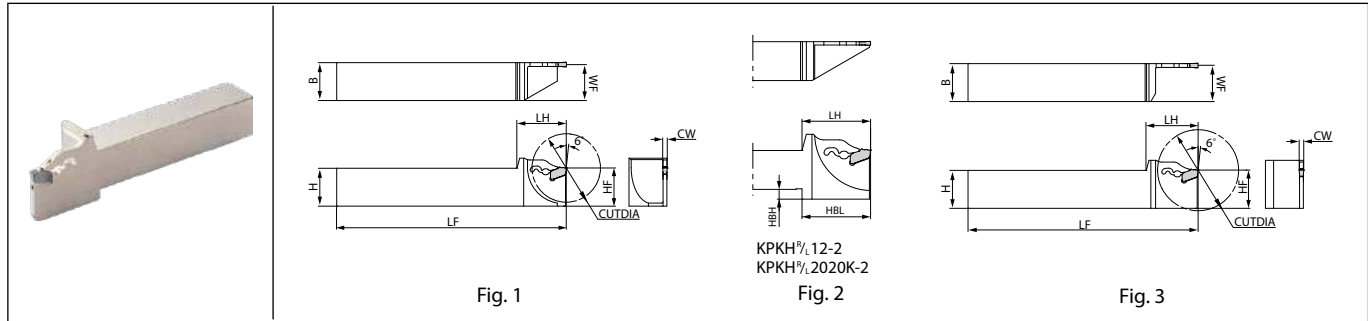
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions												Coolant Hole	Fig.	Spare Parts		Applicable Inserts H52
																		Plug	Insert Wrench	
		R	L	CUTDIA	H	B	LH	MHD	HF	HBH	HBL	LF	WF	CW						
Inch	KPKH% 12-2JCT	●	●	1.500	0.750	0.750	1.382	3.583	0.750	0.234	1.358	5.000	0.717	0.079 0.094	Yes	2	HSG1/8X8.0	LPW-5	PKM20... PKM24...	
	KPKH% 12-3JCT 16-3JCT	●	●	2.000	0.750	0.750	1.417	3.543	0.750	0.234	1.433	5.000	0.701	0.118	Yes	1 3	HSG1/8X8.0	LPW-5	PKM30...	
		●	●	2.100	1.000	1.000		3.583	1.000	-	-		0.951							
	KPKH% 12-4JCT 16-4JCT	●	●	2.400	0.750	0.750	1.673	3.346	0.750	0.234	1.630	5.000	0.685	0.157	Yes	1 3	HSG1/8X8.0	LPW-5	PKM40...	
●		●	2.600	1.000	1.000	3.346		1.000	-	-	0.935									
mm	KPKH% 2020K-2JCT	●	●	38	20	20	35.1	89	20	5	35.1	125	19.15	2 2.4	Yes	2	HSG1/8X8.0	LPW-5	PKM20... PKM24...	
	KPKH% 2020K-3JCT 2525K-3JCT	●	●	52	20	20	36	88	20	5	37	125	18.75	3	Yes	1 3	HSG1/8X8.0	LPW-5	PKM30...	
		●	●	53	25	25		89	25	-	-		23.75							
	KPKH% 2020K-4JCT 2525K-4JCT	●	●	62	20	20	42.5	83	20	5	42	125	18.35	4	Yes	1 3	HSG1/8X8.0	LPW-5	PKM40...	
●		●	68	25	25	82		25	-	-	23.35									

See page H58 for insert mounting and removal instructions
See page H60 for coolant piping parts.

Recommended Cutting Conditions ➡ H63

KPKH



Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions										Coolant Hole	Fig.	Spare Parts	Applicable Inserts ➡ H52	
																Insert Wrench		
		R	L	CUTDIA	H	B	LH	HF	HBH	HBL	LF	WF	CW					
Inch	KPKH% 12-2	●	●	1.500	0.750	0.750	1.303	0.750	0.234	1.303	5.000	0.717	0.079 0.094	No	2	LPW-5	PKM20... PKM24...	
	KPKH% 12-3 16-3	●	●	2.000	0.750	0.750	1.339	0.750	-	-	5.000	0.701	0.118	No	3		PKM30...	
		●	●	2.100	1.000	1.000		6.000			0.951	No		PKM40...				
	KPKH% 12-4 16-4	●	●	2.400	0.750	0.750	1.594	0.750			5.000	0.685	0.157	No			PKM48... PKM50...	
		●	●	2.600	1.000	1.000		6.000			0.935	No						
KPKH% 16-5	●	●	3.100	1.000	1.000	1.807	1.000	6.000			0.919	0.189 0.197	No					
mm	KPKH% 2020K-2	●	●	38	20	20	33.1	20	5	33.1	125	19.15	2 2.4	No	2	LPW-5		PKM20... PKM24...
	KPKH% 2020K-3 2525M-3	●	●	52	20	20	34	20	-	-	125	18.75	3	No	3			PKM30...
		●	●	53	25	25		25			150	23.75		No			PKM40...	
	KPKH% 2020K-4 2525M-4	●	●	62	20	20	40.5	20			125	18.35	4	No			PKM48... PKM50...	
		●	●	68	25	25		25			150	23.35		No				
	KPKH% 2525M-5	●	●	79	25	25	45.9	25			150	22.95	4.8 5	No		PKM30...		
	KPKH% 2020K-3D35 2525M-3D45	●	●	35	20	20	32.5	20			125	18.75	3	No	1	LPW-5		PKM40...
		●	●	45	25	25		25			150	23.75		No				
KPKH% 2020K-4D45 2525M-4D45	●	●	45	20	20	35	20	125			18.35	4	No					
	●	●	45	25	25		25	150	23.35	No								

See page H58 for insert mounting and removal instructions

Recommended Cutting Conditions ➔ H63

Recommended Cutting Conditions

PM Chipbreaker

Workpiece Material	Recommended Insert Grades Vc (sfm)			Feed f (ipr)			Notes
	MEGACOAT NANO		Carbide	Edge Width CW (mm)			
	PR1625	PR1535	GW15	1.6	2 ~ 4	4.8 ~ 6	
Carbon Steel	★ 260 - 720	☆ 260 - 720	—	0.001 - 0.005	0.003 - 0.007	0.004 - 0.009	Coolant
Alloy Steel	★ 230 - 660	☆ 230 - 660	—				
Stainless Steel	☆ 200 - 490	★ 200 - 490	—	0.001 - 0.003	0.002 - 0.005	0.003 - 0.006	
Cast Iron	—	—	★ 160 - 330	0.001 - 0.003	0.003 - 0.007	0.004 - 0.009	
Aluminum Alloy	—	—	★ 660 - 1480	0.001 - 0.003	0.003 - 0.007	0.004 - 0.009	
Brass	—	—	★ 330 - 660				

Reduce feed to 1/2 ~ 1/3 at the center of the workpiece.

★: 1st Recommendation ☆: 2nd Recommendation

PH Chipbreaker

Workpiece Material	Recommended Insert Grades Vc (sfm)			Feed f (ipr)			Notes
	MEGACOAT NANO		Carbide	Edge Width CW (mm)			
	PR1625	PR1535	GW15	2	3 ~ 4	5 ~ 6	
Carbon Steel	★ 260 - 720	☆ 260 - 720	—	0.004 - 0.009	0.006 - 0.011	0.006 - 0.014	Coolant
Alloy Steel	★ 230 - 660	☆ 230 - 660	—				
Stainless Steel	☆ 200 - 490	★ 200 - 490	—	0.002 - 0.005	0.003 - 0.006	0.003 - 0.007	
Cast Iron	—	—	—	—	—	—	
Aluminum Alloy	—	—	—	—	—	—	
Brass	—	—	—				

Reduce feed to 1/2 ~ 1/3 at the center of the workpiece.

★: 1st Recommendation ☆: 2nd Recommendation

			Carbon Steel / Alloy Steel											P	
			Stainless Steel											M	
			Cast Iron											K	
			Non-Ferrous Metals											N	
Insert		Part Number	No. of Edges	Dimensions (mm)		Angle (°)	Tolerance (mm)		Carbide				Cermet	Applicable Toolholder H66~H68	
				CW			RE	PSIR %	CW min.	CW max.	CVD	PVD	-		-
				in	mm	CB9025					PR1535	PR930	KW10		TN620
	 CW±0.05	TKN 1.6	1	0.063	1.6	0.15	-	-0.05	+0.05						KTKB...1SS KTKB19-2S, KTKB26-2S, KTKB32-2S, KTKH% ...-2S KTKB26-3S, KTKB32-3S,KTKH% ...-3S, KTKH% ...-3T..S KTKB26-4S, KTKB32-4S,KTKH% ...-4S, KTKH% ...-4T22S KTKB26-5S, KTKB32-5S, KTKH% 2525M-5S KTKB32-6S KTKB% 32-8S KTKB% 32-9S
		TKN 2	1	0.087	2.2	0.2									
		TKN 2.4	1	0.094	2.4	0.2									
		TKN 3	1	0.122	3.1	0.25									
		TKN 4	1	0.161	4.1	0.3									
		TKN 4.8	1	0.189	4.8	0.3									
		TKN 5	1	0.201	5.1	0.3									
		TKN 6	1	0.252	6.4	0.35									
		TKN 8	1	0.315	8	0.4									
TKN 9	1	0.378	9.6	0.45											
	 CW±0.05 Low feed	TKN 1.6-P	1	0.063	1.6	0.2	-	-0.05	+0.05					KTKB...1SS KTKB19-2S, KTKB26-2S, KTKB32-2S, KTKH% ...-2S KTKB26-3S, KTKB32-3S,KTKH% ...-3S, KTKH% ...-3T..S	
		TKN 2-P	1	0.087	2.2	0.2									
		TKN 3-P	1	0.122	3.1	0.25									
	 CW±0.05	TKR 1.6 TKL 1.6	1	0.063	1.6	0.15	8	-0.05	+0.05					KTKB...1SS KTKB19-2S, KTKB26-2S, KTKB32-2S, KTKH% ...-2S KTKB26-3S, KTKB32-3S,KTKH% ...-3S, KTKH% ...-3T..S KTKB26-4S, KTKB32-4S,KTKH% ...-4S, KTKH% ...-4T22S KTKB26-5S, KTKB32-5S, KTKH% 2525M-5S	
		TKR 2 TKL 2	1	0.087	2.2	0.2	8	-0.05	+0.05						
		TKR 2.4 TKL 2.4	1	0.094	2.4	0.2	8	-0.05	+0.05						
		TKR 3 TKL 3	1	0.122	3.1	0.25	8	-0.05	+0.05						
		TKR 4 TKL 4	1	0.161	4.1	0.3	8	-0.05	+0.05						
		TKR 5 TKL 5	1	0.201	5.1	0.3	8	-0.05	+0.05						
		TKR 5 TKL 5	1	0.201	5.1	0.3	8	-0.05	+0.05						
	 CW±0.05 Low feed	TKR 1.6-P	1	0.063	1.6	0.2	8	-0.05	+0.05					KTKB...1SS KTKB19-2S, KTKB26-2S, KTKB32-2S, KTKH% ...-2S KTKB26-3S, KTKB32-3S,KTKH% ...-3S, KTKH% ...-3T..S	
		TKR 2-P TKL 2-P	1	0.087	2.2	0.2	8	-0.05	+0.05						
		TKR 3-P TKL 3-P	1	0.122	3.1	0.25	8	-0.05	+0.05						
		TKR 3-P TKL 3-P	1	0.122	3.1	0.25	8	-0.05	+0.05						

Cut-Off Tools

Name	Chipbreaker		Advantages
General Cut-Off	Standard (No Indication)		General cut-off type for feed rates over 0.004ipr Superior chip evacuation
Low Feed Cut-Off	P		Chipbreaker specially designed for low feed machining on automatic lathes, etc. Chips are controlled at feed rates between 0.0012~0.0032ipr

Edge Preparation	Chamfered + Honed	Sharp Edge	Honed Cutting Edge
Standard Chipbreaker	TN90 / PR1535 / CR9025 / PR660	PR930 / KW10	-
P-Chipbreaker	-	-	TN620 / TN90 / CR9025 / PR1535 PR660 / PR930 / KW10

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

How to select cut-off inserts with / without lead angle (Including sharp corner)

1. Use a neutral angle insert if there is no limit to the finished shape.
2. Use an angled insert to reduce the size of the remaining boss.
3. Use a sharp-cornered lead-angled insert to make the remaining boss much smaller when machining small parts and thin parts.

Hand of lead angle	N (Neutral)	R (Right-hand)	L (Left-hand)
Angled insert can reduce the burr size when cutting off. When using a larger lead angle, cutting force becomes smaller, but the feed rate should be reduced.			

	Right-hand (R) Lead angle	Neutral
Example: Solid workpiece		
Example: Hollow workpiece (Pipe)		

Fig.1

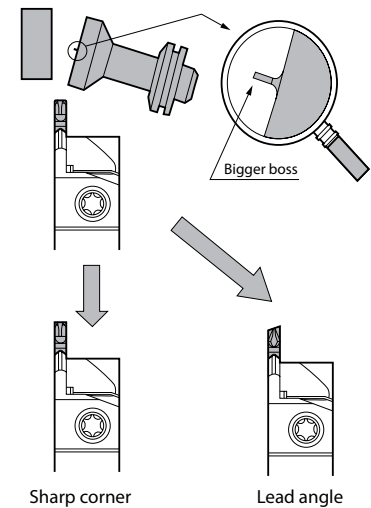
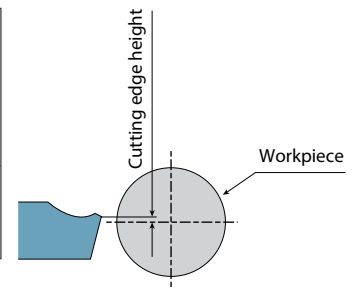


Fig.2

Caution

1. For TKN and TK^{R/L}, set the cutting edge height 0.1~0.2 mm above the center height (Fig. 3)
- For other toolholders, set the cutting edge to the center height.
2. Be sure to perform wet processing. Apply enough coolant to the cutting edge.
3. Keep a constant rate during processing so that optimum product life will be achieved.
4. Cut off as close to the chuck as possible.
5. Lower the feed rate to 1/2 to 1/3 at the near center to prevent impact caused by machining.

Overuse of insert and toolholder (blade) may cause insert breakage and toolholder (blade) damage.
Do not rework the insert and toolholder (blade) to prevent damage.
Clean the insert pocket well with compressed air when replacing insert.

Fig. 3 (TKN, TK^{R/L})

Set up (TKN / TK^{R/L})

1. Tap the insert lightly with a plastic hammer to push it into the extent that it cannot be removed by hand. (Fig.1)
(Pull it to the point where it does not fall out when picked up lightly with fingers)
2. Remove the insert with the supplied wrench. (Fig.2)

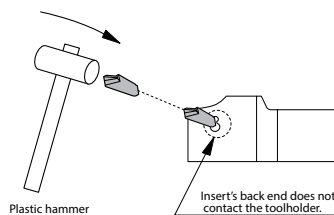


Fig.1: How to attach inserts

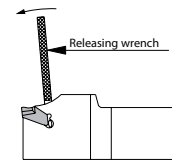
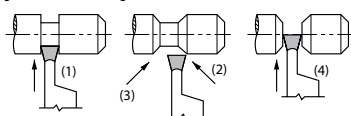


Fig.2: How to detach inserts

Application example of cut-off

1. Cut-off after chamfering

- (1) Grooving (2)(3) Chamfering (4) Cut-off

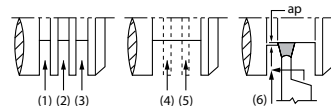


2. Wide grooving

- (1)~(5) Groove widening

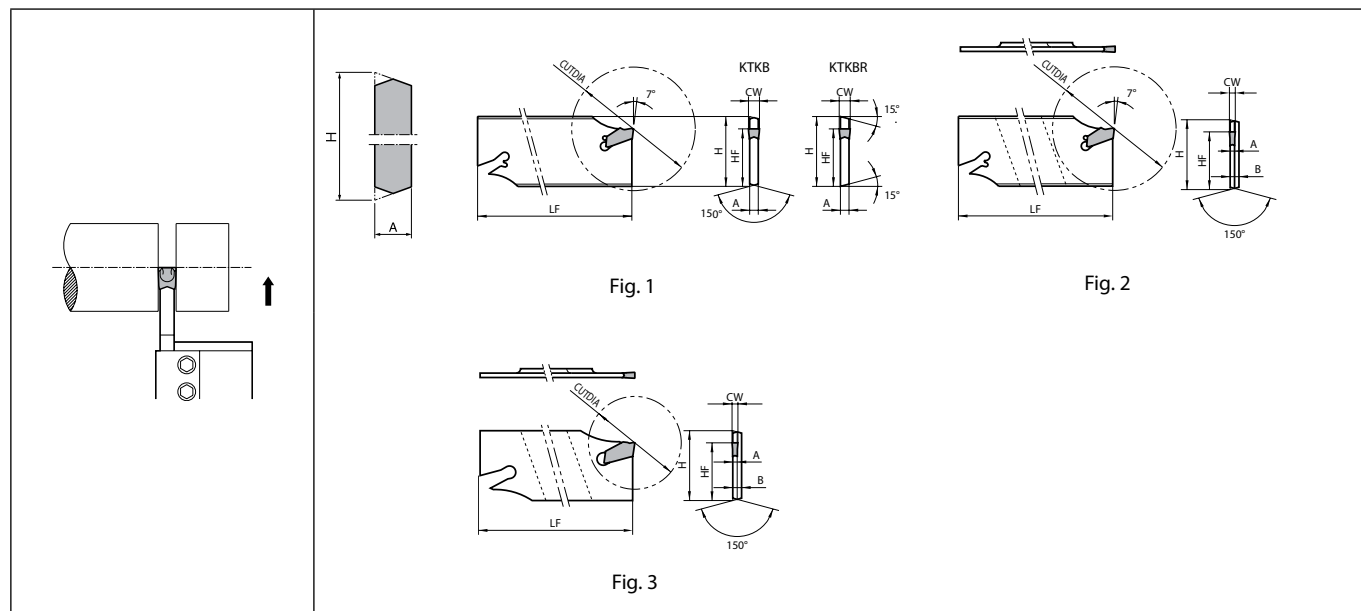
(6) Finishing

(Value of "ap" shall be under the value of Corner-R)



(In order to prevent both corners' unequal wear)

KTKB



Toolholder Dimensions

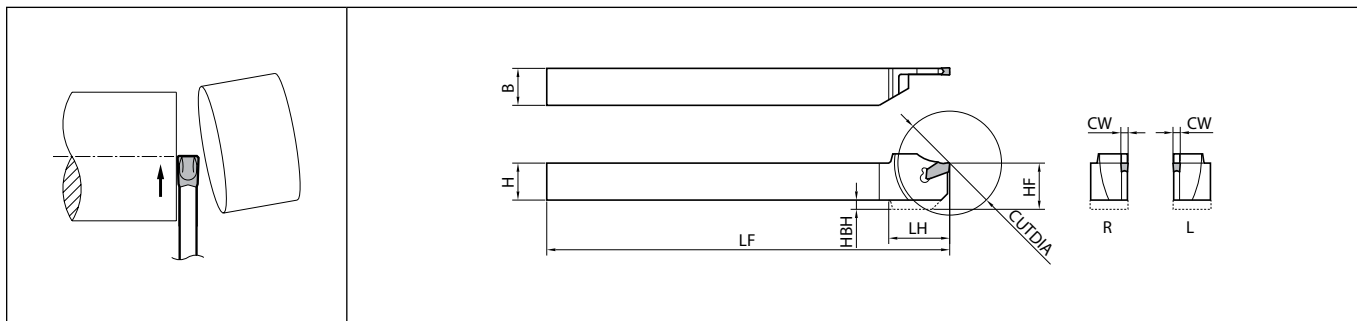
Unit	Part Number	Std. Item	Dimensions							Fig.	Spare Parts Insert Wrench	Applicable Inserts H64	Applicable Tool Block H56, H57
			CUTD/A	A	B	H	HF	LF	CW				
mm	KTKB 19-1SS	●	32			19	15.7	86		3	LTK-5	TKN1.6, TKN1.6-P TK% 1.6, TKR1.6-P	KTKTB16-19, KTKTB20-19 KTKTB16-26, KTKTB20-26, KPCTB20-26JCT KTKTB20-32, KTKTB25-32, KTKTB32-32 KTKTBF25-32, KTKTBF32-32, KPCTB20-32JCT KPCTB25-32JCT, KPCTB32-32JCT
	26-1SS	●		1.2	2.4	26	21.4	110	1.6				
	32-1SS	●	35			32	25	150					
	KTKB 19-2S	●	40	1.8	-	19	15.7	86	2.2 2.4			TKN2, TKN2-P TK% 2, TK% 2-P TKN2.4, TK% 2.4	KTKTB16-19, KTKTB20-19
	KTKB 26-2S	●	50	1.8					2.2 2.4				
		●	75	2.6		26	21.4	110	3.1 4.1			TKN3, TKN3-P, TK% 3, TK% 3-P TKN4, TK% 4	KTKTB16-26 KTKTB20-26 KPCTB20-26JCT
		●		3.4					4.8 5.1				
		●	80	4.2								TKN5, TK% 5	
	KTKB 32-2S	●	50	1.8	2.6				2.2 2.4	2	LTK-5	TKN2, TKN2-P, TK% 2, TK% 2-P TKN2.4, TK% 2.4	KTKTB20-32 KTKTB25-32 KTKTBF25-32 KTKTBF32-32 KPCTB20-32JCT KPCTB25-32JCT KPCTB32-32JCT
		●		2.6					3.1				
		●	100	3.4		32	25	150	4.1				
		●							4.8 5.1				
		●	120	4.2					6.4				
	32-5S	●											
	32-6S	●		5.4									
	KTKBR 32-8S	●	120	6.8	-	32	25	150	8	1	LTK-5	TKN6	
	KTKBL 32-8S	●										TKN8	
	KTKBR 32-9S	●	120	8	-	32	25	150	9.6			TKN9	

Suffix "-SS" means hard coating.

Insert wrench is "LTK-5".

How to mount inserts, See Page H65.

Dimension H shows virtual apex distance.

KTKH (for Small Parts - Long Shank)

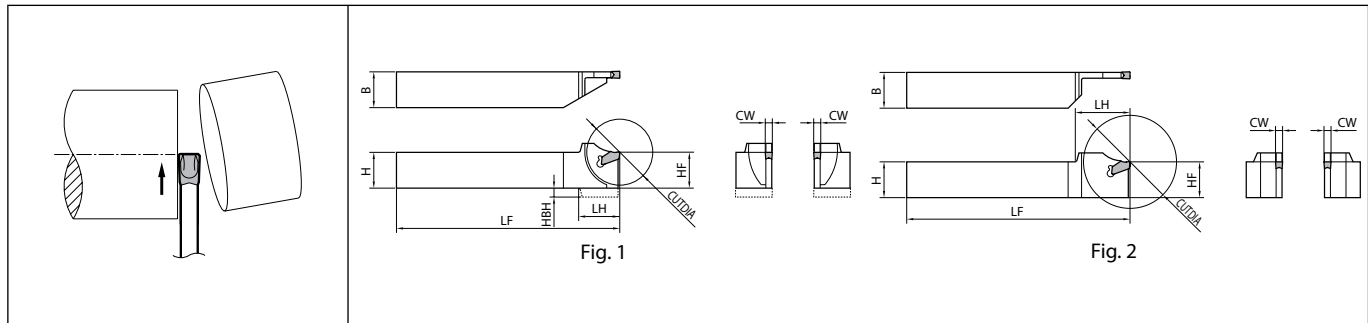
Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Spare Parts	Applicable Inserts ➡ H64
												Insert Wrench	
		R	L	CUTDIA	H	B	LH	HF	HBH	LF	CW		
Inch	KTKHR 12-2S	●		1.100	0.500	0.500	0.670	0.500	0.000	6.000	0.063	LTK-5	TKN1.6, TKN1.6-P, TK% 1.6, TK% 1.6-P
	KTKH% 12-3S 16-3S	●	●	1.100	0.375	0.375	0.690	0.375	0.200	5.000	0.087		TKN2, TKN2-P, TK% 2, TK% 2-P, TKN2.4, TK% 2.4
		●		1.100	0.500	0.500	0.700	0.500	0.160	6.000	0.094		

How to mount inserts, See Page H65.

KTKH (General cut-off)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								Fig.	Spare Parts	Applicable Inserts ➡ H64		
		Insert Wrench														
		R	L	CUTDIA	H	B	LH	HF	HBH	LF	CW					
Inch	KTKHR 12-2S	●		1.400	0.750	0.750	0.870	0.750	0.000	5.000	0.087 0.094	1	LTK-5	TKN2, TKN2-P, TK% 2, TK% 2-P, TKN2.4, TK% 2.4		
	KTKH% 12-3S	●	●	2.000	0.750	0.750	1.190	0.750	-	5.000	0.122	2		TKN3, TKN3-P, TK% 3, TK% 3-P		
	16-3S	●		2.000	1.000	1.000	1.210	1.000		6.000	0.122					
	KTKHR 12-4S	●		2.300	0.750	0.750	1.350	0.750		5.000	0.161					
	16-4S	●		2.600	1.000	1.000	1.360	1.000		6.000	0.161					
KTKHR 16-5S	●		3.000	1.000	1.000	1.560	1.000		6.000	0.189 0.201			TKN4 TK% 4			
mm	KTKH% 1010F-2S	●	●	28	10	10	18.6	10	5	80	2.2 2.4	1	LTK-5	TKN2 TKN2-P TK% 2 TK% 2-P TKN2.4 TK% 2.4		
	1212H-2S	●	●	31	12	12	19.8	12	4	100						
	1612H-2S	●	●		16	16	-	125								
	1616H-2S	●	●		16	20										
	2012K-2S	●	●	36	20	20	22.8	20								
	2020K-2S	●	●		20											
	KTKH% 1612H-3S	●	●	35	16	12	21.7	16	4	100	3.1	1	LTK-5	TKN3 TKN3-P TK% 3 TK% 3-P		
	1616H-3S	●	●		16	16	20	25.3	20	-					125	
	2012K-3S	●	●		40	20	12	31	150							
	2020K-3S	●	●	51	20	20	35	4.1								
	2525M-3S	●	●	52	25	25	31.5		25		150	2				
	KTKH% 2012K-4S	●	●	43	20	12	26.3	20	-	125	4.1	1	LTK-5	TKN4 TK% 4		
	2020K-4S	●	●	59		20	35			150						
	2525M-4S	●	●	66		25	25								38	25
	KTKH% 2525M-5S	●	●	77	25	25	43.5	25	-	150	4.8 5.1	2				TKN5 TK% 5
	KTKH% 2020K-3T17S	●	●	33	20	20	21.8	20	-	125	3.1	1			LTK-5	TKN3, TKN3-P TK% 3, TK% 3-P
	2525M-3T22S	●	●	43	25	25	26.8	25		150						
KTKH% 2020K-4T22S	●	●	44	20	20	26.8	20	-	125	4.1		TKN4 TK% 4				
2525M-4T22S	●	●		25	25		25		150							

How to mount inserts, See Page H65.

Recommended Cutting Conditions (TKN, TK^{RL})

Workpiece Material	Recommended Insert Grades (Vc: sfm)						Edge Width CW (mm)					Notes
	Cermet		CVD coated carbide	MEGACOAT NANO	PVD coated carbide	Carbide	1.6	2.2 / 2.4	3.1	4.1	4.8 ~ 9.6	
	TN620	TN90	CR9025	PR1535	PR930	KW10	f (ipr)					
Carbon Steel	☆ 200~660	☆ 400~650	★ 250~600	☆ 200~490	☆ 200~425	-	0.0008~0.0032	0.0016~0.0071	0.0020~0.0098	0.0032~0.0118	0.0059~0.0157	Coolant
Alloy Steel	☆ 200~530	☆ 325~525	★ 225~500	☆ 200~490	☆ 200~425	-	0.0008~0.0032	0.0016~0.0071	0.0020~0.0098	0.0032~0.0118	0.0059~0.0157	
Stainless Steel	☆ 200~490	☆ 250~500	☆ 200~450	★ 160~390	☆ 200~450	-	0.0008~0.0012	0.0016~0.0047	0.0020~0.0071	0.0032~0.0098	0.0039~0.0118	
Cast Iron			-		-	★ 175~325	0.0008~0.0032	0.0020~0.0047	0.0039~0.0098	0.0039~0.0118	0.0059~0.0138	
Aluminum alloys			-		-	★ 325~1475	0.0008~0.0039	0.0020~0.0039	0.0020~0.0079	0.0020~0.0098	0.0039~0.0787	
Brass			-		-	★ 325~650	0.0008~0.0039	0.0020~0.0039	0.0020~0.0059	0.0020~0.0079	0.0039~0.0787	

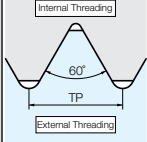
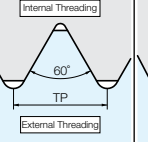
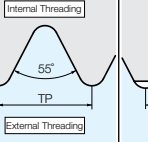
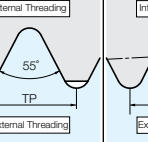
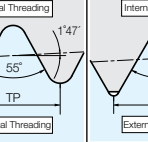
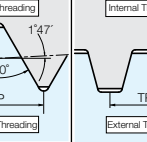
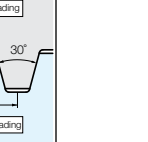
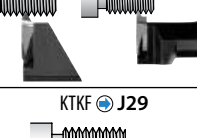
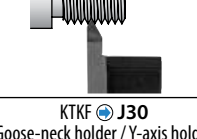
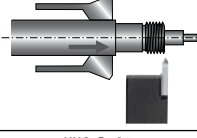
★: 1st Recommendation ☆: 2nd Recommendation

INSERT GRADES	A
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CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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Tooling Application (External Thread)

Thread Types		Metric	Unified	Parallel Pipe	Whitworth	Tapered Pipe	American National Tapered Pipe	30° Trapezoidal
		M	UN, UNC UNF, UNEF	G (PF)	W	R (PT) (BSPT)	NPT	Tr
Thread Shape								
Toolholder Shape		Pitch	mm	TPI	TPI	TPI	TPI	mm
 KTN ⚙ J22 (KTN-JCT) ⚙ J23	Full Profile	0.5~5.0 (0.5~3.0) ⚙ J6	24~8 (24~8) ⚙ J8	19~11 (19~11) ⚙ J10	16~11 (16~11) ⚙ J10	28~11 (28~11) ⚙ J12	18.0~11.5 (18.0~11.5) ⚙ J14	-
	Partial Profile	0.5~5.0 (0.5~3.0) ⚙ J16	48~5 (48~8) ⚙ J16	28~11 (28~11) ⚙ J18	40~5 (40~8) ⚙ J18	28~11 (28~11) ⚙ J18	-	2.0~5.0 (2.0~3.0) ⚙ J20
 KTNS ⚙ J24 S-KTN Sleeve Holder ⚙ J25	Full Profile	0.5~3.0 ⚙ J6	24~8 ⚙ J8	19~11 ⚙ J10	16~11 ⚙ J10	28~11 ⚙ J12	18.0~11.5 ⚙ J14	-
	Partial Profile	0.5~3.0 ⚙ J16	48~8 ⚙ J16	28~11 ⚙ J18	40~8 ⚙ J18	28~11 ⚙ J18	-	2.0~3.0 ⚙ J20
 KTT ⚙ J41	Full Profile	1.0~2.0 ⚙ J40	-	-	-	-	-	-
	Partial Profile	0.5~3.5 ⚙ J40	56~8 ⚙ J40	28~11 ⚙ J40	24~7 ⚙ J40	28~11 ⚙ J40	-	-
 KTTX ⚙ J39 S-KTTX ⚙ J39	Partial Profile	0.5~2.0 ⚙ J38	56~14 ⚙ J38	28~11 ⚙ J38	24~11 ⚙ J38	28~11 ⚙ J38	-	-
 KTKF ⚙ J29	Partial Profile	0.2~1.5 ⚙ J28	64~18 ⚙ J28	28~19 ⚙ J28	40~16 ⚙ J28	28~19 ⚙ J28	-	-
 KTKF ⚙ J30 (Goose-neck holder / Y-axis holder)								
 KKC ⚙ J35	Partial Profile	0.7~4.0 ⚙ J34	44~5 ⚙ J34	-	-	-	-	-

Tooling Application (Internal Thread)

Thread Types	Metric	Unified	Parallel Pipe	Whitworth	Tapered Pipe	American National Tapered Pipe	30° Trapezoidal
	M	UN, UNC UNF, UNEF	G (PF) Rp (PS)	W	Rc (PT) (BSPT)	NPT	Tr
Thread Shape							
Toolholder Shape	Pitch	mm	TPI	TPI	TPI	TPI	mm
 EZT J44	Partial Profile	0.5~1.75 J44	36~16 J44	28~19 J44	24~18 J44	28~19 J44	18~14 J44
	Full Profile	-	-	-	-	-	-
 VNT J48	Partial Profile	0.75~1.5 J48	28~18 J48	-	-	-	-
	Full Profile	-	-	-	-	-	-
 SIN J26	Full Profile	0.5~5.0 J7	24~8 J9	19~11 J11	16~11 J11	28~11 J13	18~11.5 J15
	Partial Profile	0.5~5.0 J17	48~5 J17	28~11 J19	40~5 J19	28~11 J19	2.0~5.0 J21
 CIN J27	Full Profile	1.0~5.0 J7	24~8 J9	19~11 J11	16~11 J11	28~11 J13	18~11.5 J15
	Partial Profile	0.5~5.0 J17	48~5 J17	28~11 J19	40~5 J19	28~11 J19	2.0~5.0 J21
 KITG J43	Partial Profile	0.5~3.0 J42	48~8 J42	28~11 J42	24~8 J42	28~11 J42	-
 STWP J51	Partial Profile	0.75~3.5 J50	28~8 J50	-	-	-	-
 A-KKC J36	Partial Profile	2.50~3.5 J34	44~5 J34	-	-	-	-

Threading insert with molded chipbreaker

TQ Chipbreaker

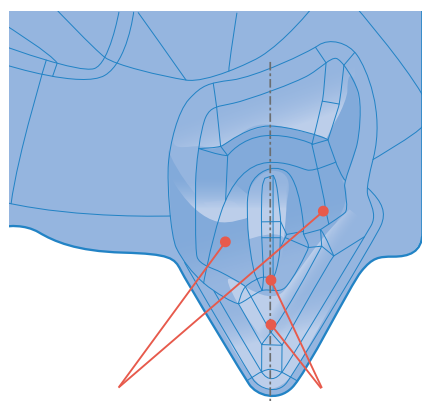
Advanced Productivity with Chip Control Improvements
Prolonged Tool Life with Newly Added Grades

1 Stable Chip Control

Stable Chip Control with Asymmetrical Chipbreaker Design

Chipbreaker Geometry

Stable chip control regardless of cutting direction

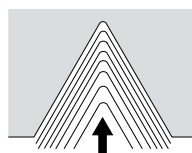


For radial infeed
Asymmetric dot design
controls chip-flow
direction

For flank infeed /
Modified flank infeed
Breaks chips easily with
shallow breaker depth

Chip Control Comparison (Internal Evaluation)

Radial Infeed

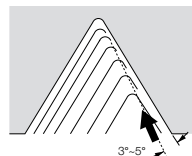


TQ Chipbreaker



Competitor A

Flank Compound Infeed



TQ Chipbreaker



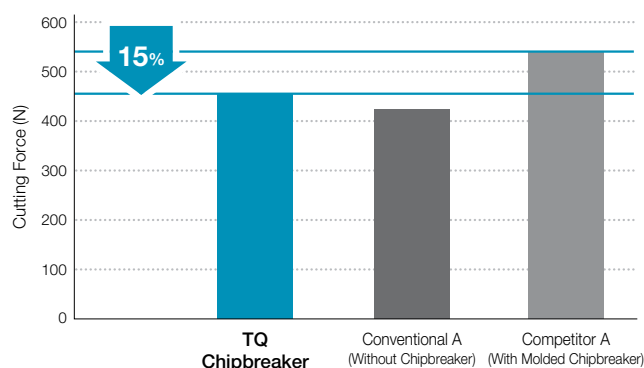
Competitor A

Cutting Conditions: $V_c = 490$ sfm, D.O.C. = 0.005" (4th pass), $L = 0.984$ " Wet, 16ER150ISO type, M45 x TP1.5 Workpiece Material: 4115

2 Low Cutting Force and Resists Vibration

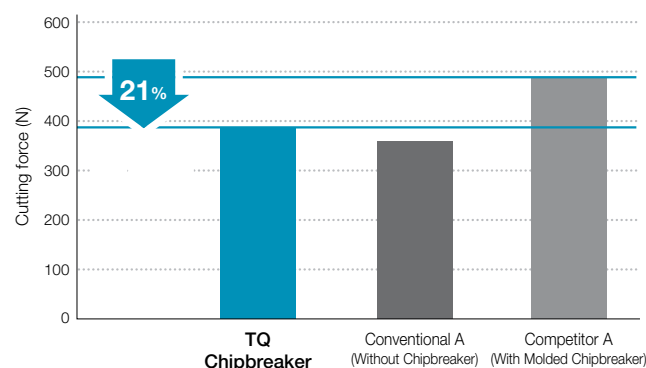
Strong Edge and Low Cutting Forces

Cutting Force Comparison with Radial Infeed (Internal Evaluation)



Cutting Conditions: $V_c = 490$ sfm, Wet, 16ER150ISO type
Cutting force is average of total passes (6 passes), M35 x TP1.5 Workpiece Material: 4115

Cutting Force Comparison with Flank Compound Infeed (Internal Evaluation)



Cutting Conditions: $V_c = 490$ sfm, Adjusted Angle 5°, Wet, 16ER150ISO type
Cutting force is average of total passes (6 passes), M35 x TP1.5 Workpiece Material: 4115

3

Improved tool life with new insert grades

For steel machining

PR1215

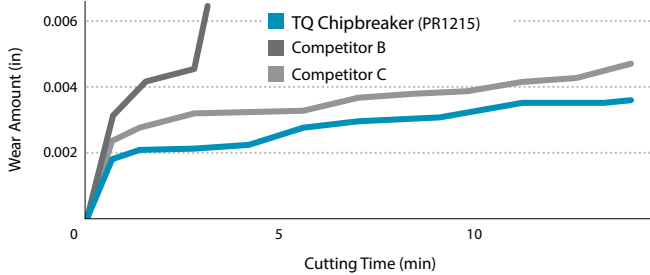
For stainless steel machining

PR1515 (First recommendation)

PR1535 (Stability focused)

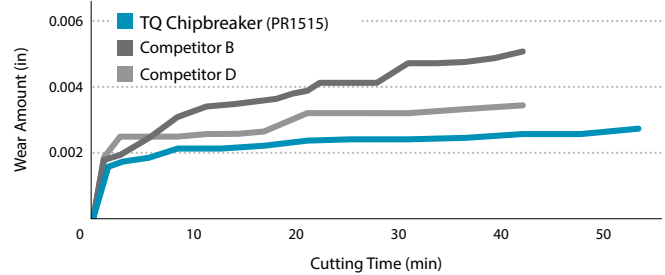
Wear Resistance Comparison (Internal evaluation)

Workpiece material : 4137



Cutting Conditions: Vc = 490 sfm, TP = 1.5 mm, No. of Passes = 6, Wet, 16ER150ISO type Radial Infeed

Workpiece material : 304



Cutting Conditions: Vc = 330 sfm, TP = 1.5 mm, No. of Passes = 8, Wet, 16ER150ISO type Radial Infeed

KTKF

“Threading” is added to small parts machining special tool series

For threading

TKFT



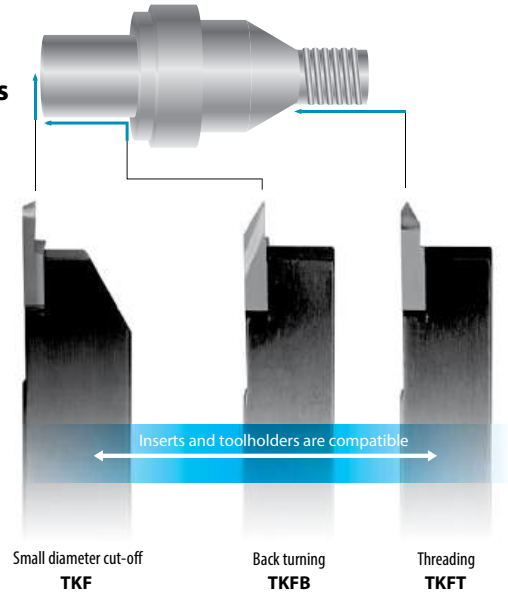
Applicable for various type of threading

Metric (M)

Parallel Pipe [G(PF)]

Unified (UN)

Tapered Pipe [R(PT) (BSPT)]



Threading Insert Features

Full Profile and Partial Profile

	Shape	Function	Advantages
Full Profile		 Wiper Edge	(1) Burr-free thread surface; high quality (smooth feeling) (2) Leave the workpiece diameter slightly oversized for full topping (3) Every pitch size requires a specific insert
Partial Profile			(1) Threads crest tends to be sharp edged (2) Thread's O.D. or I.D. needs to be finished to the size before threading (3) One insert can machine various pitch sizes

Thread Precision

Thread Type		Thread Precision		
		Tight	Loose	
Metric	External Threading	4h (1st Class)	6g (2nd Class)	8g (3rd Class)
	Internal Threading	5h (1st Class)	6h (2nd Class)	7h (3rd Class)
Unified	External Threading	3A	2A	1A
	Internal Threading	3B	2B	1B
Applicable Accuracy with Wiper Edge		*X	✓	✓

* Not recommended if tight thread precision is required

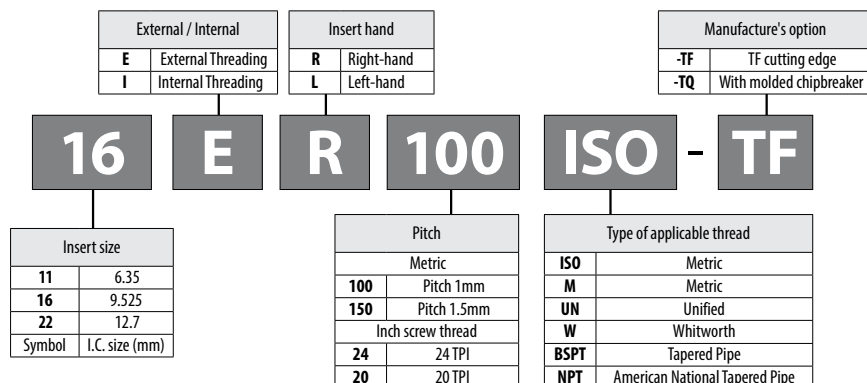
External Threading (Metric)

			Carbon Steel / Alloy Steel										○		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●	
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Right-hand shown

Recommended Cutting Conditions J52
Depth of Cut & Number of Passes J53

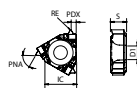
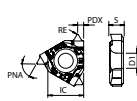
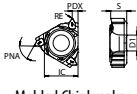
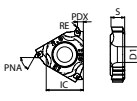
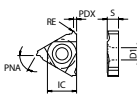
Threading Inserts Identification System (Full Profile)



Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

Internal Threading (Metric)

			Carbon Steel / Alloy Steel										○	●				P													
			Stainless Steel													●			M												
			Cast Iron														●		K												
			Non-Ferrous Metals														●		N												
Unit	Insert		Part Number		Thread Type	Symbol Thread Type	Pitch (mm)	Profile	Thread Angle PNA (°)	Dimensions (mm)					Carbide					Cermat	Applicable Toolholder ➡ J26, J27										
										IC	S	D1	RE	PDX	PVD				-			-									
															PR1115	PR1215	PR1515	PR1535													
																							GW15	TC60							
mm			11IR 100ISO-TF 125ISO-TF 150ISO-TF 175ISO-TF	Metric	M	1 1.25 1.5 1.75	Full Profile	60	6.35	3.18	3	0.07 0.08 0.11 0.12	0.8 1.1 1.1 1.1	● ● ● ●	● ● ● ●			SINR...11E SINR...11													
			16IR 100ISO-TF 125ISO-TF 150ISO-TF 175ISO-TF 200ISO-TF 250ISO-TF 300ISO-TF	Metric	M	1 1.25 1.5 1.75 2 2.5 3	Full Profile	60	9.525	3.68	4	0.07 0.08 0.11 0.12 0.14 0.17 0.19	0.8 1.1 1.1 1.1 1.5 1.5 1.6	○ ● ● ● ● ● ●	● ● ● ● ● ● ●		SINR...16 CINR...16														
		 Molded Chipbreaker	11IR 100ISO-TQ 125ISO-TQ 150ISO-TQ 175ISO-TQ	Metric	M	1 1.25 1.5 1.75	Full Profile	60	6.35	3.18	3	0.07 0.08 0.11 0.12	0.8 1.1 1.1 1.1		● ● ● ●			SINR...11E SINR...11													
		 Molded Chipbreaker	16IR 100ISO-TQ 125ISO-TQ 150ISO-TQ 175ISO-TQ 200ISO-TQ 250ISO-TQ 300ISO-TQ	Metric	M	1 1.25 1.5 1.75 2 2.5 3	Full Profile	60	9.525	3.68	4	0.07 0.08 0.11 0.12 0.14 0.17 0.19	0.8 1.1 1.1 1.1 1.5 1.5 1.6	● ● ● ● ● ● ●	● ● ● ● ● ● ●		SINR...16 CINR...16														
			11IR 050ISO 075ISO 100ISO 125ISO 150ISO 200ISO	Metric	M	0.5 0.75 1 1.25 1.5 2	Full Profile	60	6.35	3.18	3	0.03 0.05 0.07 0.08 0.11 0.14	0.55 0.68 0.8 1.1 1.1 0.9	● ● ● ● ● ●		● ● ● ● ● ●	△	SINR...11E SINR...11													
			11IL 100ISO 150ISO			1 1.5						0.07 0.11	0.8 1.1	● ●		SINL...11E SINL...11															
			16IR 100ISO 150ISO 200ISO 250ISO 300ISO			Metric						M	1 1.5 2 2.5 3	Full Profile	60	9.525	3.68	4	0.07 0.11 0.14 0.16 0.19	0.8 1.1 1.5 1.5 1.6		● ● ● ● ●		SINR...16 CINR...16							
													16IL 100ISO 150ISO 200ISO						1 1.5 2	0.07 0.11 0.14	0.8 1.1 1.5	● ● ●		SINL...16 CINL...16							
													22IR 350ISO 400ISO 450ISO 500ISO						Metric	M	3.5 4 4.5 5	Full Profile	60	12.7	4.9	4.85	0.23 0.26 0.3 0.34	2.1 2.8 2.8 2.8	● ● ● ●		SINR...22 CINR...22

Right-hand shown

Recommended Cutting Conditions ● J52
Depth of Cut & Number of Passes ● J53

External Threading (Unified)

			Carbon Steel / Alloy Steel										○	●			P
			Stainless Steel												●		M
			Cast Iron														K
			Non-Ferrous Metals														N
Unit	Insert	Part Number	Thread Type	Symbol Thread Type	Pitch (TPI)	Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide			Cermet	Applicable Toolholder J22~J25
								IC	S	D1	RE	PDX	PVD				
													PR1115	PR1215	PR1515			PR1535	Ti60
Inch		16ER 08UN-TF 10UN-TF 12UN-TF 13UN-TF 14UN-TF 16UN-TF 18UN-TF 20UN-TF 24UN-TF	Unified	UN UNF UNEF	8	Full Profile	60	3/8	0.145	0.157	0.0169	0.0689	●	●	●		
					10						0.0134	0.0591	●	●	●		
					12						0.0106	0.0591	●	●	●		
					13						0.0098	0.0591	●	●	●		
					14						0.0091	0.0591	●	●	●		
					16						0.0079	0.0433	●	●	●		
					18						0.0071	0.0394	●	●	●		
					20						0.0059	0.0394	●	●	●		
					24						0.0047	0.0315	●	●	●		
		16ER 08UN-TQ 10UN-TQ 12UN-TQ 13UN-TQ 14UN-TQ 16UN-TQ 18UN-TQ 20UN-TQ 24UN-TQ	Unified	UN UNF UNEF	8	Full Profile	60	3/8	0.145	0.157	0.0169	0.0689	●	●	●	KTNR...-16 KTNR...-16F KTNR...-16JCT KTNSR...-16 S...-KTNL16	
					10						0.0134	0.0591	●	●	●		
					12						0.0106	0.0591	●	●	●		
					13						0.0098	0.0591	●	●	●		
					14						0.0091	0.0591	●	●	●		
					16						0.0079	0.0433	●	●	●		
					18						0.0071	0.0394	●	●	●		
					20						0.0059	0.0394	●	●	●		
					24						0.0047	0.0315	●	●	●		
		16ER 12UN 16UN 18UN 20UN	Unified	UN UNF UNEF	12	Full Profile	60	3/8	0.145	0.157	0.0106	0.0591	●	●	●		
					16						0.0079	0.0433	●	●	●		
					18						0.0071	0.0394	●	●	●		
					20						0.0063	0.0394	●	●	●		
		22ER 08UN				8			1/2	0.193	0.191	0.0169	0.0827	●	●	●	KTNR...-22

Right-hand shown

Recommended Cutting Conditions J52
Depth of Cut & Number of Passes J53Threading inserts are
sold in 5 piece boxesTC60 (Threading inserts) are
sold in 10 piece boxes

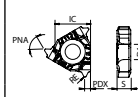
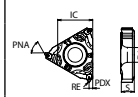
Internal Threading (Unified)

			Carbon Steel / Alloy Steel												P	
			Stainless Steel												M	
			Cast Iron												K	
			Non-Ferrous Metals												N	
Unit	Insert	Part Number	Thread Type	Symbol Thread Type	Pitch (TPI)	Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide			Applicable Toolholder J26, J27
								IC	S	D1	RE	PDX	PVD			
													PR1115	PR1715	PR1515	
Inch		16IR 08UN-TF	Unified	UN UNF UNEF	8	Full Profile	60	3/8	0.145	0.157	0.0083	0.0709				SINR...-16 CINR...-16
		10UN-TF			10						0.0067	0.0591				
		12UN-TF			12						0.0055	0.0591				
		13UN-TF			13						0.0051	0.0591				
		14UN-TF			14						0.0047	0.0591				
		16UN-TF			16						0.0039	0.0433				
		18UN-TF			18						0.0035	0.0394				
		20UN-TF			20						0.0031	0.0394				
		24UN-TF			24						0.0024	0.0315				
		16IR 08UN-TQ	Unified	UN UNF UNEF	8	Full Profile	60	3/8	0.145	0.157	0.0083	0.0709				SINR...-22 CINR...-22
		10UN-TQ			10						0.0067	0.0591				
		12UN-TQ			12						0.0055	0.0591				
		13UN-TQ			13						0.0051	0.0591				
		14UN-TQ			14						0.0047	0.0591				
		16UN-TQ			16						0.0039	0.0433				
		18UN-TQ			18						0.0035	0.0394				
		20UN-TQ			20						0.0031	0.0394				
		24UN-TQ			24						0.0024	0.0315				
		22IR 08UN	Unified	UN UNF UNEF	8	Full Profile	60	1/2	0.193	0.191	0.0079	0.0709				

Right-hand shown

Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J53

External Threading (Parallel Pipe G(PF), Whitworth W)

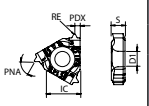
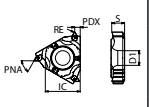
					Carbon Steel / Alloy Steel										☐	☒	☐	☐	P		
					Stainless Steel													☒	M		
					Cast Iron														K		
					Non-Ferrous Metals														N		
Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (TPI)		Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide			Applicable Toolholder J22~J25			
						G(PF)	W			IC	S	D1	RE	PDX	PVD						
															PR1115	PR1215	PR1515		PR1535		
Inch			16ER 11W-TF	Parallel Pipe Whitworth	G(PF) W	11	11	Full Profile	55	3/8	0.145	0.157	0.0118	0.0591	☐	☒	☒	KTNR...-16 KTNR...-16F KTNR...-16JCT KTSR...-16 S...-KTNL16			
			14W-TF			14	14						0.0091	0.0591					☒	☒	☒
			16W-TF			-	16						0.0075	0.0433					☒	☒	☒
			19W-TF			19	-						0.0063	0.0394					☒	☒	☒
Inch			16ER 11W-TQ	Parallel Pipe Whitworth	G(PF) W	11	11	Full Profile	55	3/8	0.145	0.157	0.0118	0.0591	☐	☒	☒	KTNR...-16 KTNR...-16F KTNR...-16JCT KTSR...-16 S...-KTNL16			
			14W-TQ			14	14						0.0091	0.0591					☒	☒	☒
			16W-TQ			-	16						0.0075	0.0433					☒	☒	☒
			19W-TQ			19	-						0.0063	0.0394					☒	☒	☒

Right-hand shown

Recommended Cutting Conditions ➡ J52

Depth of Cut & Number of Passes ➡ J54

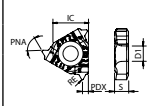
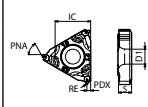
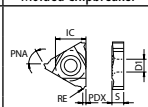
Internal Threading (Parallel Pipe G(PF), Whitworth W)

			Carbon Steel / Alloy Steel											○	●		P	
			Stainless Steel														●	M
			Cast Iron															K
			Non-Ferrous Metals															N
Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (TPI)		Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide			Applicable Toolholder ➡ J26, J27
						G(PF)	W			IC	S	D1	RE	PDX	PVD			
															PR1115	PR1215	PR1515		PR1535
Inch			16IR 11W-TF	G(PF) W	11	11	Full Profile	55	3/8	0.145	0.157	0.0118	0.0591	●	●	●	●	
			14W-TF		14	14						0.0091	0.0591					
			16W-TF		-	16						0.0075	0.0433					
			19W-TF		19	-						0.0063	0.0394					
			16IR 11W-TQ	G(PF) W	11	11	Full Profile	55	3/8	0.145	0.157	0.0118	0.0591	●	●	●	●	
			14W-TQ		14	14						0.0091	0.0591					
			16W-TQ		-	16						0.0075	0.0433					
			19W-TQ		19	-						0.0063	0.0394					

No wiper effect is expected when threading the internal whitworth screw using 16IROOW insert.
Right-hand shown

Recommended Cutting Conditions J52
Depth of Cut & Number of Passes J54

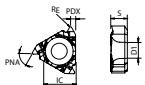
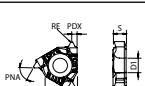
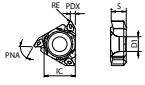
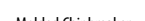
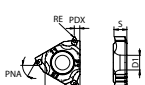
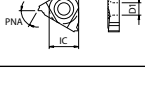
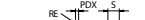
External Threading (Tapered Pipe R(PT)(BSPT))

			Carbon Steel / Alloy Steel										P				
			Stainless Steel										M				
			Cast Iron										K				
			Non-Ferrous Metals										N				
Unit	Insert	Part Number	Thread Type	Symbol Thread Type	Pitch (TPI)	Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide				
								IC	S	D1	RE	PDX	PVD				
													PR1115	PR1215	PR1515	PR1535	GW15
Inch			Tapered Pipe	R _e (PT) (BSPT)	11	Full Profile	55	3/8	0.145	0.157	0.0114	0.0630					
					14						0.0087	0.0630					
					19						0.0063	0.0394					
					28						0.0039	0.0315					
			Tapered Pipe	R _e (PT) (BSPT)	11	Full Profile	55	3/8	0.145	0.157	0.0114	0.0630					
					14						0.0087	0.0630					
					19						0.0063	0.0394					
					28						0.0039	0.0315					
			Tapered Pipe	R _e (PT) (BSPT)	11	Full Profile	55	3/8	0.145	0.157	0.0114	0.0630					
					14						0.0087	0.0630					
					19						0.0063	0.0394					
					28						0.0039	0.0315					

Right-hand shown

Recommended Cutting Conditions J52
Depth of Cut & Number of Passes J54Threading inserts are
sold in 5 piece boxesTC60 (Threading inserts) are
sold in 10 piece boxes

Internal Threading (Tapered Pipe Rc(PT)(BSPT))

			Carbon Steel / Alloy Steel								○	●			P				
			Stainless Steel											●	M				
			Cast Iron											●	K				
			Non-Ferrous Metals											●	N				
Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (TPI)	Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide				Applicable Toolholder ➡ J26, J27	
									IC	S	D1	RE	PDX	PVD					-
														PR1115	PR1215	PR1515	PR1535		
Inch			11IR 14BSPT-TF	Tapered Pipe	Rc(PT) (BSPT)	14	Full Profile	55	1/4	0.125	0.118	0.0087	0.0382		●	●	SINR...-11E SINR...-11		
			19BSPT-TF			19						0.0063	0.0307		●	●			
			28BSPT-TF			28						0.0039	0.0236	●	●	●			
			16IR 11BSPT-TF	Tapered Pipe	Rc(PT) (BSPT)	11	Full Profile	55	3/8	0.145	0.157	0.0114	0.0591		●	●	SINR...-16 CINR...-16		
			14BSPT-TF			14						0.0087	0.0382		●	●			
			11IR 14BSPT-TQ	Tapered Pipe	Rc(PT) (BSPT)	14	Full Profile	55	1/4	0.125	0.118	0.0087	0.0382		●	●	SINR...-11E SINR...-11		
			19BSPT-TQ			19						0.0063	0.0307		●	●			
		Molded Chipbreaker	28BSPT-TQ			28						0.0039	0.0236		●	●			
			16IR 11BSPT-TQ	Tapered Pipe	Rc(PT) (BSPT)	11	Full Profile	55	3/8	0.145	0.157	0.0114	0.0591		●	●	SINR...-16 CINR...-16		
		Molded Chipbreaker	14BSPT-TQ			14						0.0087	0.0382		●	●			
		11IR 14BSPT	Tapered Pipe	Rc(PT) (BSPT)	14	Full Profile	55	1/4	0.125	0.118	0.0087	0.0382			●	SINR...-11E SINR...-11			
		19BSPT			19						0.0063	0.0307		●	●				
		28BSPT			28						0.0039	0.0236		●	●				
			16IR 11BSPT	Tapered Pipe	Rc(PT) (BSPT)	11	Full Profile	55	3/8	0.145	0.157	0.0114	0.0591		●	●	SINR...-16 CINR...-16		
		14BSPT			14						0.0087	0.0382			●				

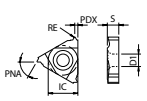
Right-hand shown

Recommended Cutting Conditions J52
Depth of Cut & Number of Passes J54

[illegible]

Recommended Cutting Conditions ➡ **J52**
Depth of Cut & Number of Passes ➡ **J54**

Internal Threading (American National Tapered Pipe NPT)

				Carbon Steel / Alloy Steel										●		P					
				Stainless Steel										●		M					
				Cast Iron											●	K					
				Non-Ferrous Metals											●	N					
Unit	Insert		Part Number		Thread Type	Symbol Thread Type	Pitch (TPI)	Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide		Applicable Toolholder ➡ J26, J27				
										IC	S	D1	RE	PDX	PVD	-					
															PR1115	GW15					
Inch			16IR	11.5NPT	American National Tapered Pipe	NPT	11.5	Full Profile	60	3/8	0.145	0.157	0.0024	0.0591	●	●	SINR...-16 CINR...-16				
																				●	●
																					●

Right-hand shown

Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J54

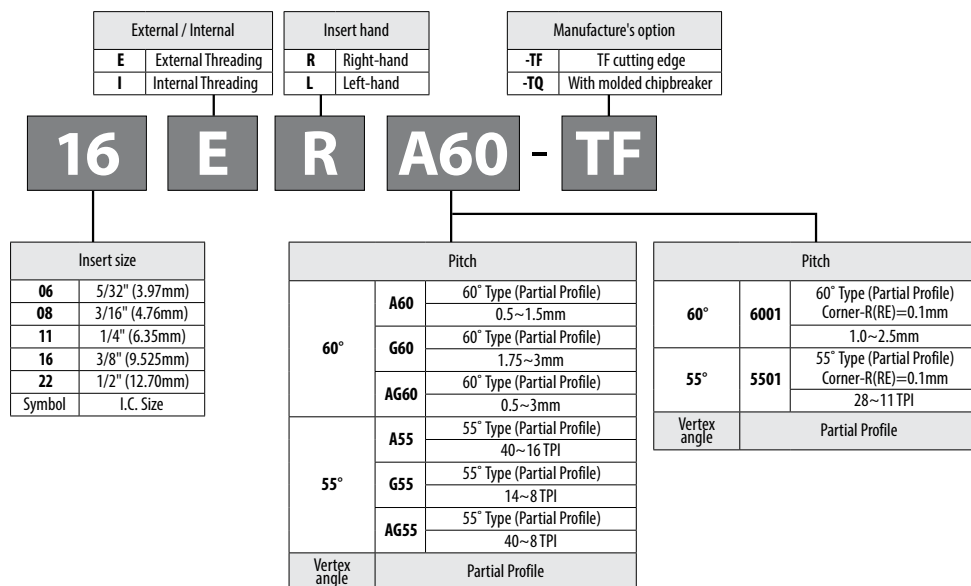
External Threading (60° Partial Profile / Metric, Unified)

		Carbon Steel / Alloy Steel										○		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●		●	
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Right-hand shown

Recommended Cutting Conditions J52
Depth of Cut & Number of Passes J54, J55, J58

Threading Inserts Identification System (Partial Profile)



Note) Pitch and threads per inch of an insert without wiper depend on the size of insert.

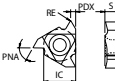
Example of shape of A, G and AG

Part Number	Dimensions (in)		
	RE	PDX	HC
16ER A60-TF	0.0024	0.0394	0.0591
16ER G60-TF	0.0087	0.0630	0.1024
16ER AG60-TF	0.0024	0.0630	0.1063

Threading inserts are sold in 5 piece boxes

TC60 (Threading inserts) are sold in 10 piece boxes

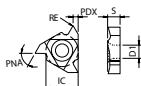
Internal Threading (60° Partial Profile / Metric, Unified)

																				Carbon Steel / Alloy Steel		P	
																				Stainless Steel		M	
																				Cast Iron		K	
																				Non-Ferrous Metals		N	
Insert	Part Number	Thread Type	Symbol Thread Type	Pitch				Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide	Cement	Applicable Toolholder ➡ J26, J27						
				Metric (mm)		Unified (TPI)				IC	S	D1	RE	PDX	PVD	-		-					
				Unit		Unit									PR115	GW15		TC60					
				min.	max.	min.	max.																
		06IR 60005	Metric	M	mm	0.75	1.25	Inch	28	20	Partial Profile	60	5/32	0.075	0.091	0.0020	0.0236	●		SINR...-06E			
		08IR 60007				1	1.75		20	16			3/16	0.094	0.091	0.0028	0.0315	●		SINR...-08E			
		11IR 60005 A60				0.75 0.5	1.5 1.5		32 48	16 16			1/4	0.125	0.118	0.0020 0.0008	0.0394 0.0394	● ●	●		SINR...-11E SINR...-11		
		16IR 6001 A60 AG60 G60				1.5 0.5 0.5 1.75	2.5 1.5 3 3		16 48 48 14	10 16 8 8			3/8	0.145	0.157	0.0039 0.0008 0.0008 0.0043	0.0591 0.0394 0.0669 0.0669	● ● ● ●	● ● ● ●	△	SINR...-16 CINR...-16		
		22IR N60				3.5	5		7	5			1/2	0.193	0.191	0.0087	0.0984	● ● ●	● ● ●		SINR...-22 CINR...-22		

			Carbon Steel / Alloy Steel										○	●	P								
			Stainless Steel												●	M							
			Cast Iron													●	K						
			Non-Ferrous Metals													●	N						
Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch				Profile	Thread Angle PNA (°)	Dimensions (in)					Carbide					Applicable Toolholder ➔ J22~J25	
						G(PF), R(PT) (TPI)		W (TPI)				IC	S	D1	RE	PDX	PVD				-		
						min.	max.	min.	max.								PR1115	PR1215	PR1515	PR1535			GW15
Inch			16ER A55-TF	Parallel / Tapered Pipe	G(PF) R(PT)	28	19	40	16	Partial Profile	55	3/8	0.145	0.157	0.0024	0.0394	●	●	●	KTNR...-16 KTNR...-16F KTNR...-16JCT KTNSR...-16 S...-KTNL16			
			AG55-TF			28	11	40	8						0.0024	0.0630	●	●	●				
			G55-TF			Whitworth	W	14	11						14	8	0.0087	0.0630	●		●	●	
			16ER A55-TQ	Parallel / Tapered Pipe	G(PF) R(PT)	28	19	40	16	Partial Profile	55	3/8	0.145	0.157	0.0024	0.0394		●	●		KTNR...-16 KTNR...-16F KTNR...-16JCT KTNSR...-16 S...-KTNL16		
			AG55-TQ			28	11	40	8						0.0024	0.0630		●	●				
			G55-TQ			Whitworth	W	14	11						14	8	0.0087	0.0630				●	●
			16ER A55	Parallel / Tapered Pipe	G(PF) R(PT)	28	19	40	16	Partial Profile	55	3/8	0.145	0.157	0.0024	0.0394		●	●		KTNR...-22		
			AG55			28	11	40	8						0.0024	0.0669		●	●				
			G55			14	11	14	8						0.0087	0.0669		●	●				
			22ER N55	Whitworth	W	-	-	7	5		55	1/2	0.193	0.191	0.0189	0.0984	●	●					

Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J56~J58

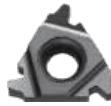
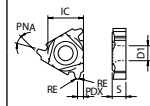
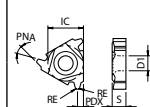
Internal Threading (55° Partial Profile / G, Rc, W)

			Carbon Steel / Alloy Steel										●	P				
			Stainless Steel										●	M				
			Cast Iron										●	K				
			Non-Ferrous Metals										●	N				
Unit	Insert	Part Number	Thread Type	Symbol Thread Type	Pitch				Profile	Thread Angle PNA (°)	Dimensions (in)					Carbi-de	Applicable Toolholder ➡ J26, J27	
					G(PF), Rc(PT) (TPI)		W (TPI)				IC	S	D1	RE	PDX	PVD		-
					min.	max.	min.	max.								PR1115		GWT5
Inch			06IR 5501	Parallel / Tapered Pipe Whitworth	G(PF) Rc(PT) W	28		24		Partial Profile	55	5/32	0.075	0.091	0.0039	0.0236	●	SINR...-06E
			08IR 5501			28	19	24	20		55	3/16	0.094	0.091	0.0039	0.0315	●	SINR...-08E
			11IR A55			28	19	40	16		55	1/4	0.125	0.118	0.0024	0.0433	●●	SINR...-11E SINR...-11
			16IR A55 AG55 G55			28	19	40	16		55	3/8	0.145	0.157	0.0024	0.0394	●●●	SINR...-16 CINR...-16
						28	11	40	8						0.0024	0.0669	●●●	
						14	11	14	8						0.0087	0.0669	●●●	
		22IR N55			-	-	7	5	55	1/2	0.193	0.191	0.0185	0.0984	●●	SINR...-22 CINR...-22		

Right-hand shown

Recommended Cutting Conditions J52
Depth of Cut & Number of Passes J56~J58

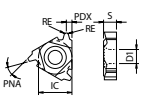
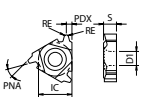
External Threading (30° Trapezoidal Tr)

				Carbon Steel / Alloy Steel										●	P
				Stainless Steel										●	M
				Cast Iron											K
				Non-Ferrous Metals											N
Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (mm)	Profile	Thread Angle PNA (°)	Dimensions (mm)					Carbide	Applicable Toolholder ● J22~J25
									IC	S	D1	RE	PDX	PVD PR1115	
mm			16ER 200TR	30° type (Trapezoidal)	Tr	2	Partial Profile	30	9.525	3.68	4	0.2	1.6	●	KTNR...-16 KTNR...-16F KTNR...-16/JCT KTNSR...-16 S...-KTNL16
			300TR			3								●	
			22ER 400TR	30° type (Trapezoidal)	Tr	4	Partial Profile	30	12.7	4.9	4.85	0.2	2.5	●	
			500TR			5								●	

Right-hand shown

Recommended Cutting Conditions J52
Depth of Cut & Number of Passes J57Threading inserts are
sold in 5 piece boxesTC60 (Threading inserts) are
sold in 10 piece boxes

Internal Threading (30° Trapezoidal Tr)

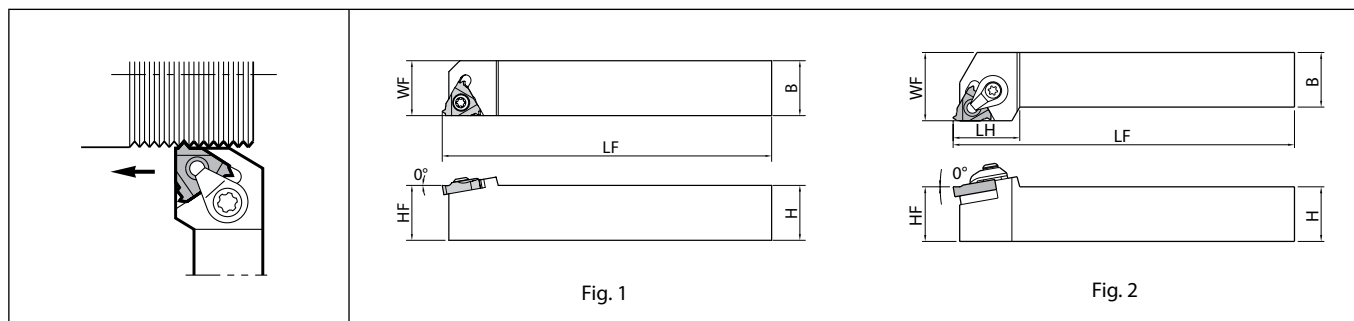
				Carbon Steel / Alloy Steel										●	P
				Stainless Steel										●	M
				Cast Iron											K
				Non-Ferrous Metals											N
Unit	Insert		Part Number	Thread Type	Symbol Thread Type	Pitch (mm)	Profile	Thread Angle PNA (°)	Dimensions (mm)					Carbide	Applicable Toolholder ➡ J26, J27
									IC	S	D1	RE	PDX		
mm			16IR 200TR	30° type (Trapezoidal)	Tr	2	Partial Profile	30	9.525	3.68	4	0.2	1.6	●	SINR...-16 CINR...-16
			300TR			3								●	
mm			22IR 400TR	30° type (Trapezoidal)	Tr	4	Partial Profile	30	12.7	4.9	4.85	0.2	2.5	●	SINR...-22 CINR...-22
			500TR			5								●	

Right-hand shown

Recommended Cutting Conditions ➡ J52

Depth of Cut & Number of Passes ➡ J57

KTN (External Threading)

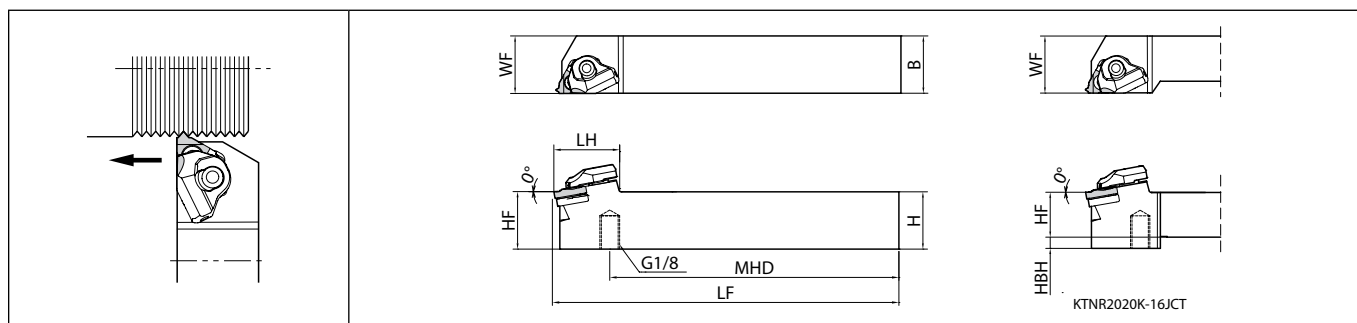


Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number		Std. Item		Dimensions						Fig.	Applicable Inserts ➡ J6, J8, J10 J12, J14, J16 J18, J20
			R	L	H	B	LH	HF	LF	WF		
Inch	KTNR	12-3 16-3	●		0.750 1.000	0.750 1.000	0.870	0.750 1.000	5.00 6.00	0.875 1.250	2	16E% ...
mm	KTN%	1216JX-16F	●	●	12	16		-	12	120		
		1616H-16	●	●	16		25	16	100	20	2	
		1616JX-16F	●	●			-		120	16	1	
		2020H-16	●		20	20	25	20	100	25	2	
		2020JX-16F	●	●			-		120	20	1	
		2020K-16	●	●			25		125	25	2	
		2525M-16	●	●				25	150	30		
		KTNR	2525M-22	●		25	25	29	25	150	32	2	22ER...
	3225P-22		●		32	34		32	170			

Unit	Part Number	Spare Parts						
		Clamp Set	Clamp Set	Screw	Shim Screw	Shim	Wrench	Wrench
Inch	KTNR% 12-3 16-3		-	-	SP3X8	TN-32	-	FT-15
mm	KTNR% 1216JX-16F	-	-	SB-3.5TR	-	-	-	LTW-15S
	1616H-16	CPS-5S		-	SP3X8	TN-32		FT-15
	1616JX-16F	-		SB-3.5TR	-	-		LTW-15S
	2020H-16	CPS-5S		-	SP3X8	TN-32		FT-15
	2020JX-16F	-		SB-3.5TR	-	-		LTW-15S
	2020K-16	CPS-5S		-	SP3X8	TN-32		FT-15
mm	KTNR 2525M-22 3225P-22	-	CPS-6S	-	SP3X8	TN-43	LW-3	-

KTN-JCT (External Threading, Coolant-Through Toolholders)

Right-hand shown | Right-hand Insert for Right-hand Toolholder. | Pressure Resistance : ~15MPa

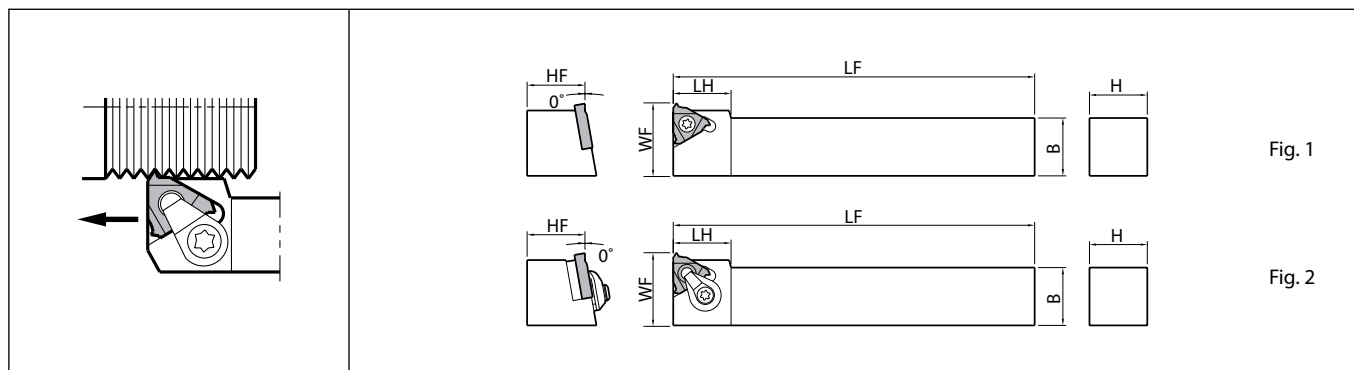
Toolholder Dimensions

Unit	Part Number		Std. Item	Dimensions							Coolant Hole	Spare Parts					Applicable Inserts ➡ J6, J8, J10 J12, J14, J16 J18, J20
												Clamp Set	Pipe Connection (w/*O-Ring)	Shim Screw	Shim	Wrench	
				R	H	B	LH	MHD	HF	HBH		LF	WF				
Inch	KTNR 12-16JCT 16-16JCT	●	0.75	0.75	1.122	4.042	0.750	0.234	5.000	0.875	Yes	CPS-SS-R-JCT	FP-12	SP3X8	TN-32	FT-15	16ER...
		●	1	1	1.122	5.042	1.000	-	6.000	1.000							
mm	KTNR 2020K-16JCT	●	20	20	33.3	100.7	20	5	125	25	Yes	CPS-SS-R-JCT	FP-12	SP3X8	TN-32	FT-15	16ER...
	2525M-16JCT	●	25	25	-	125.7	25	-	150								

Please see page D13 for piping parts of coolant-through holders.

*O-ring (SS-035) is available to order separately.

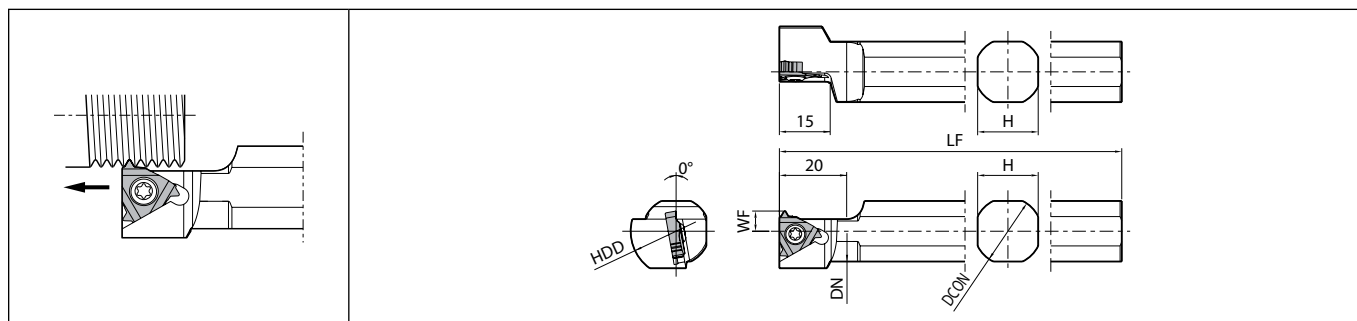
KTNS (External Threading)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Fig.	Spare Parts					Applicable Inserts ● J6, J8, J10 J12, J14, J16 J18, J20
											Clamp Set	Screw	Shim Screw	Shim	Wrench	
			R	H	B	LH	HF	LF	WF							
mm	KTNSR 1010H-16	●	10	10	16	10	100	16		1	-	SB-3.5TR	-	-	FT-15	16ER...
	1212K-16	●	12	12		12		18								
	1616K-16	●	16	16		16	125	22		2	CPS-5S	-	SP3X8	TN-32		
	2020K-16	●	20	20	20	20		27.4								

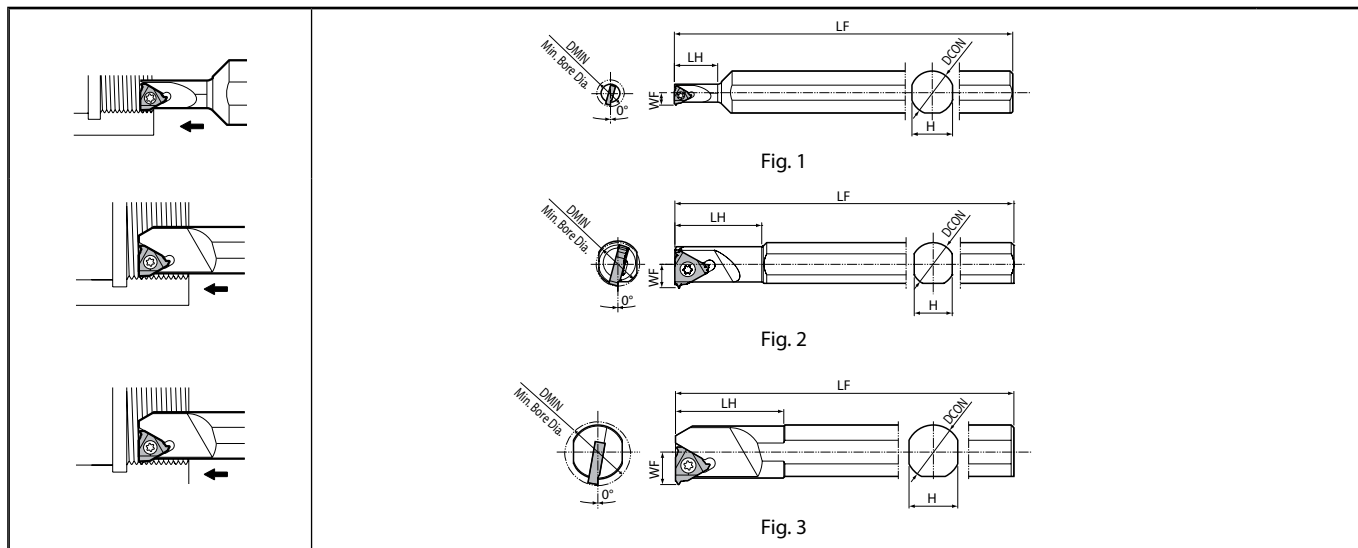
S-KTN (External Threading)

Left-hand shown | Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Spare Parts		Applicable Inserts ➡ J6, J8, J10 J12, J14, J16 J18, J20
									Screw	Wrench	
		L	DCON	H	DN	HDD	LF	WF			
Inch	S19K- KTNL16	●	0.750	0.669	0.709	1.063	4.724	0.236	SB-3.5TR	LTW-15S	16ER...
	S25K- KTNL16	●	1.000	0.906	0.945	1.260		0.394			
mm	S16F- KTNL16	●	16	15	15	27	85	6	SB-3.5TR	LTW-15S	16ER...
	S20K- KTNL16	●	20	18	19		120				
	S22K- KTNL16	●	22	20	21						
	S25.0H- KTNL16	●	25	23	24		100	10			

S...SIN / SIN (Internal Threading)

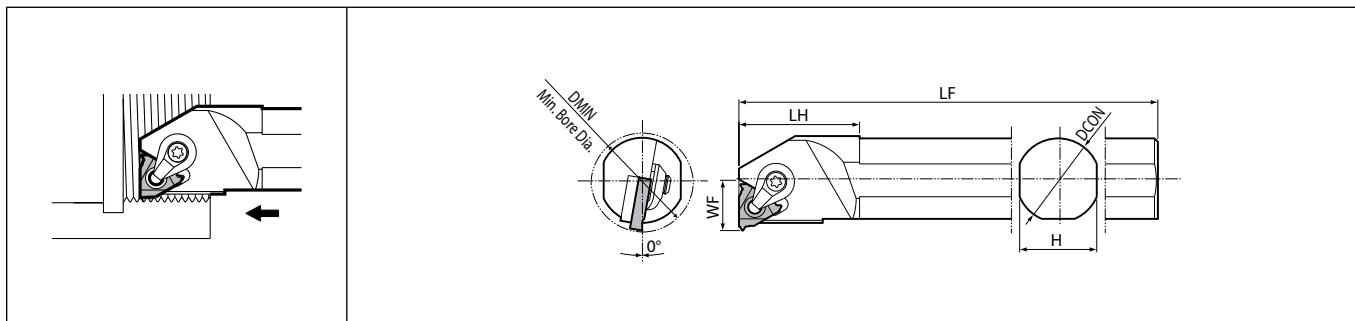


Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Fig.	Spare Parts			Applicable Inserts ➡ J7, J9, J11 J13, J15, J17 J19, J21
											Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF					
Inch	S10M- SINR-2	●		0.590	0.625	0.560	1.180	5.910	0.295	1	SB-2TR	-	FT-6	111% ...
	S10M- SINR-3	●		0.790		0.584	1.460		0.369	3	SB-3.5TR	FT-15	-	161% ...
	S12X- SINR-3	●		0.940	0.750	0.710	1.570	7.09	0.456					
mm	SINR 0612S-06E	●		6.4	12	11	10	100	3.8	1	SB-2040TR	-	FT-6	06IR...
	SINR 0816S-08E	●		7.8	16	15	16	125	4	1	SB-2050TR	-	FT-6	08IR...
	SIN% 1216S-11E	●	●	12	16	14	25	150	6.3	1	SB-2TR	-	FT-8	111% ...
	1516S-11	●	●	15			30		7.5					
	SIN% 1616S-16	●	●	16	16	14	32	150	8.6	2	SB-3.5TR	FT-15	-	161% ...
	2016S-16	●	●	20			37		10					
	2420S-16	●	●	24			40		180						12	3
SINR 2420S-22	●		24	20	18	40	180	13.5	3	SB-4085TR	FT-15	-	22IR...	

CIN (Internal Threading)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Spare Parts						Applicable Inserts ➡ J7, J9, J11 J13, J15, J17 J19, J21	
										Clamp Set	Clamp Set	Shim Screw	Shim	Wrench	Wrench		
		R	L	DMIN	DCON	H	LH	LF	WF								
mm	CIN%	3025S-16	●	●	30	25	23	36	200	15	CPS-5S	-	SP3X8	TN-32	-	FT-15	16I% ...
	3732S-16	●		37	32	30	45	250	18.5								
	CINR	3025S-22	●		30	25	23	40	200	16.5	-	CPS-6S	SP3X8	TN-43	LW-3	-	22IR...
	3732S-22	●		37	32	30	45	250	20								

Guide for internal threading

For internal threading, pay extra attention to "stabilizing bore dia." and "chip evacuation".

1. "Stabilizing bore dia."

Because small pitch Internal Threading has small corner-R (RE), there is variation in the bore dia. which may greatly influence the tool life of an insert.

In order to eliminate the variation in the bore dia., "0" Cutting (zero cutting) should be performed as the zero pass, before the first pass in threading.

The bore dia. is cut with the specified dimension, and the first pass of threading becomes stable.

2. "Chip evacuation"

If machining process is continued when chips are tangled with a toolholder and other parts of the machine, it may cause damages to the insert.

Therefore, please ensure that there are no tangled chips in the machine by the following method.

<When processing the first workpiece>

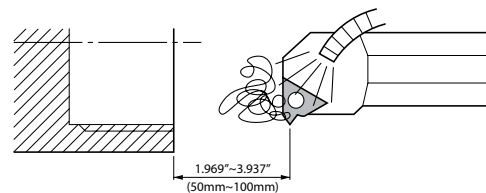
Set the program with the "single block"

Keep the threading starting point 1.969"~3.937" (50mm~100mm) away from the side of workpiece,

and confirm that coolant is flushing down the chips for each pass.

<When processing the second workpiece and later>

Ensure that chips are not tangled; then, start the continuous run.



TKFT (External Threading)

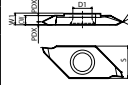
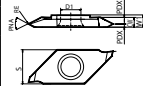
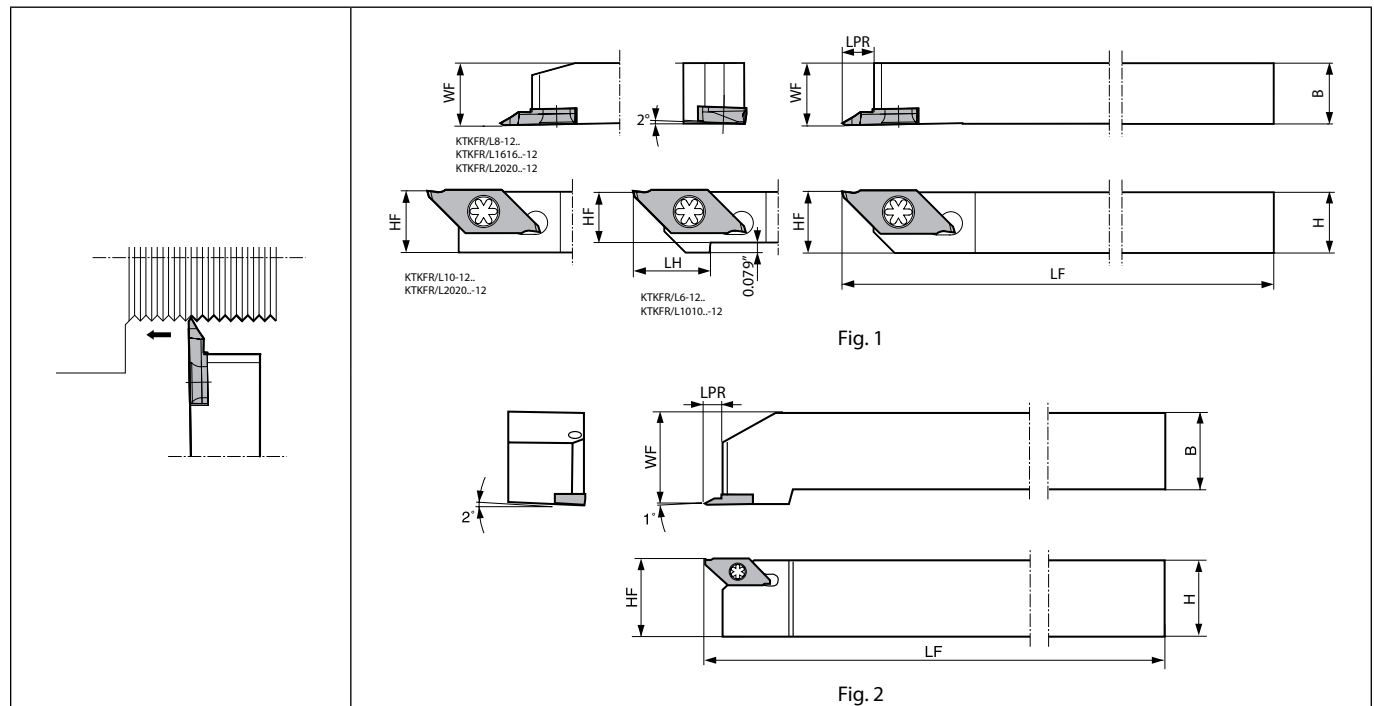
		Carbon Steel / Alloy Steel										○	○	●		P									
		Stainless Steel										○	●	○		M									
		Cast Iron													●	K									
		Non-Ferrous Metals													●	N									
Insert		Part Number	Thread Type	Symbol Thread Type	Pitch				Profile	Thread Angle PNA (°)	Dimensions (in)						Carbide		Applicable Toolholder J29~J31						
					M (mm)		UN, G, R, W (TPI)				CW	S	D1	RE	W1	PDX	PDX1	PVD		-					
					Unit	min.	max.	Unit										min.			max.	PR1225	PR1535	PR1725	KW10
	 Right-hand shown	TKFT12 RA6000	Metric Unified	M UN	mm	0.2	0.6	Inch	64	48	60	0.098	0.343	0.205	Max. 0.002 or Flat	0.118	0.016	0.083	●	●	●	KTKFR...12(-Y)			
		TKFT12 RB6000				0.5	1.25		48	24							0.083	0.016	●	●	●				
		TKFT12 RA6000S				0.5	1.25		48	24							0.031	0.067	●	●	●				
		TKFT12 RB6000S				0.5	1.25		48	24							0.067	0.031	●	●	●				
		TKFT12 RN6001	1	1.5		24	18		0.098	0.343	0.205	0.004	0.118	0.049	0.049	●	●	●							
		TKFT12 RA5500S	Parallel/ Tapered Pipe Whitworth	G, R, W		-	-		40	16	55	0.098	0.343	0.205	0.002	0.118	0.031	0.067	●	●	●				
	TKFT12 RB5500S	0.067				0.031	●		●	●															
	 Left-hand shown	TKFT12 LA6000	Metric Unified	M UN		0.2	0.6		64	48	60	0.098	0.343	0.205	Max. 0.002 or Flat	0.118	0.083	0.016	●	●	●		KTKFL...12		
		TKFT12 LB6000				0.5	1.25		48	24							0.016	0.083	●	●	●				
		TKFT12 LA6000S				0.5	1.25		48	24							0.067	0.031	●	●	●				
		TKFT12 LB6000S				0.5	1.25		48	24							0.031	0.067	●	●	●				
		TKFT12 LN6001	1	1.5		24	18		0.098	0.343	0.205	0.004	0.118	0.049	0.049	●	●	●							
		TKFT12 LA5500S	Parallel/ Tapered Pipe Whitworth	G, R, W		-	-		40	16	55	0.098	0.343	0.205	0.002	0.118	0.067	0.031	●	●	●				
		TKFT12 LB5500S				0.031	0.067		●	●	●														

Photo shows Right-hand

Recommended Cutting Conditions ➡ J33

Depth of Cut & Number of Passes ➡ J33

KTKF (External Threading)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Fig.	Spare Parts		Applicable Inserts ➡ J28	
												Screw	Wrench		
		R	L	H	B	LH	LPR	HF	LF	WF					
Inch	KTKF% 6-12JX	●	●	0.375	0.375	0.590	0.236	0.375	4.750	0.375	1	SB-4590TRWN	FT-10	TKFT12%...	
	8-12JX	●	●	0.500	0.500	-		0.500		0.500					
	10-12JX	●	●	0.625	0.625	-		0.625		0.625					
mm	KTKF% 1010JX-12	●	●	10	10	15	6	10	120	10	1	SB-4590TRWN	FT-10	TKFT12%...	
	1212F-12	●	●	12	12	-		12	85	12					
	1212JX-12	●	●						16	120					16
	1616JX-12	●	●	20	20										
	2020JX-12	●	●	20	20										
	2525M-12	●		25	25						25			150		30	2	TKFT12R...

LPR shows the distance from the toolholder to the cutting edge.

See Page H16 for internal coolant type (coolant-through holders)

Threading Inserts Identification System (Ref. to Table 1)

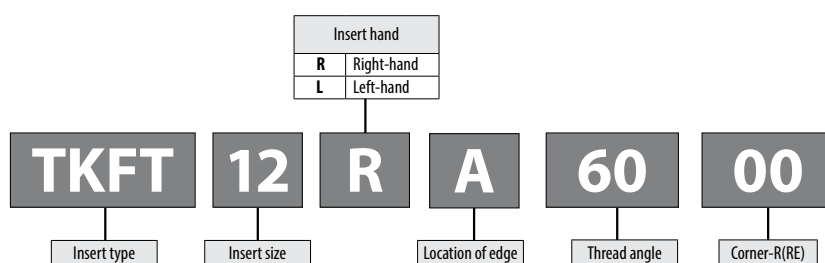
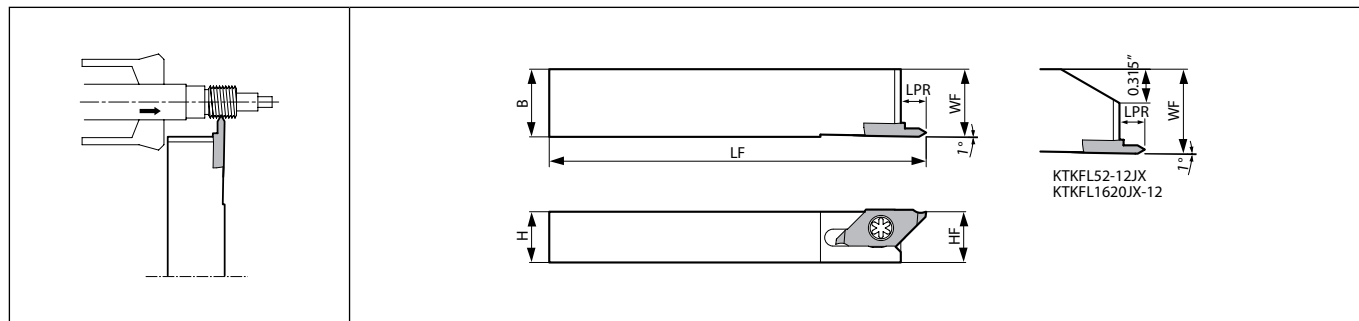


Table 1

Right-hand insert		
A type TKFT12RA..	B type TKFT12RB..	N type TKFT12RN..
Left-hand insert		
A type TKFT12LA..	B type TKFT12LB..	N type TKFT12LN..

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KTKF (External Threading, Goose-Neck Toolholder)

Left-hand shown | Left-hand Insert for Left-hand Toolholder.

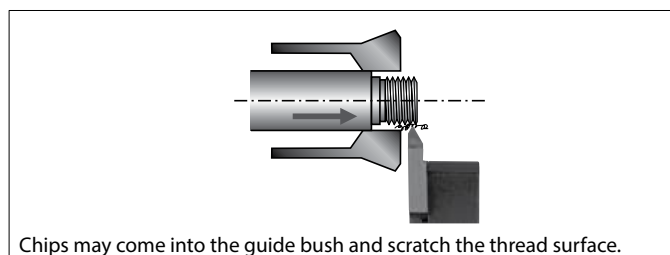
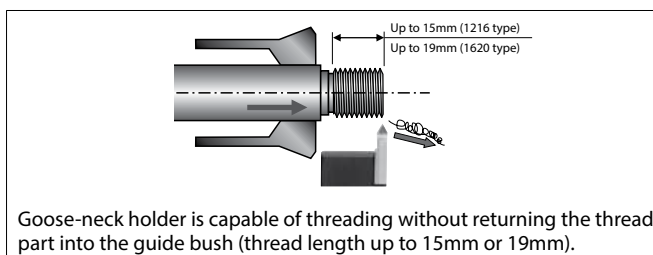
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Spare Parts		Applicable Inserts ➡ J28
									Screw	Wrench	
		L	H	B	LPR	HF	LF	WF			
Inch	KTKFL 52-12JX 62.5-12JX	● 0.500 ● 0.625	0.625 0.750	0.236	0.500 0.625	4.750	0.625 0.750	SB-4590TRWN	FT-10	TKFT12L...	
mm	KTKFL 1216JX-12 1620JX-12	● 12 ● 16	16 20								6	12 16	120	16 20	SB-4590TRWN	FT-10	TKFT12L...

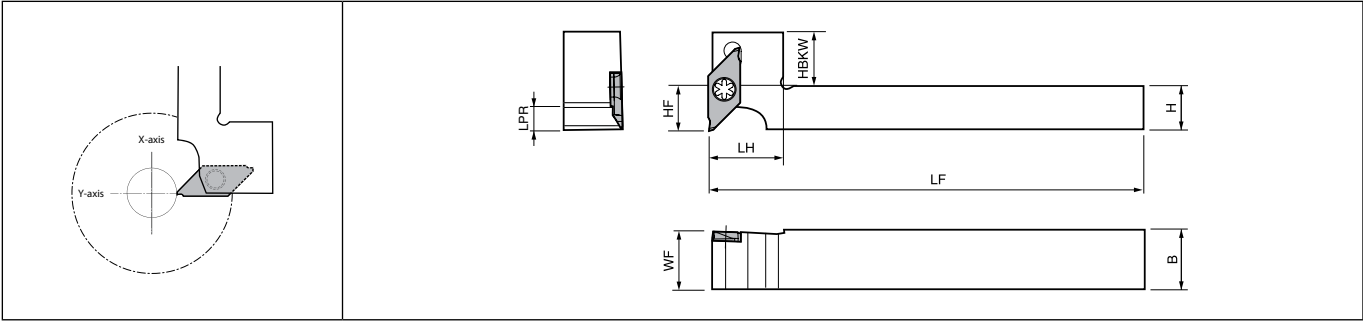
LPR shows the distance from the toolholder to the cutting edge.

Swiss Tool Small Parts Machining (Guide Bush System)

Goose-neck holder is applicable to automatic lathes where toolholder does not move in the longitudinal direction (Z-axis direction).

Conventional tool**Goose-neck holder**

KTKF-Y (External Threading, Y-Axis Toolholder)



Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

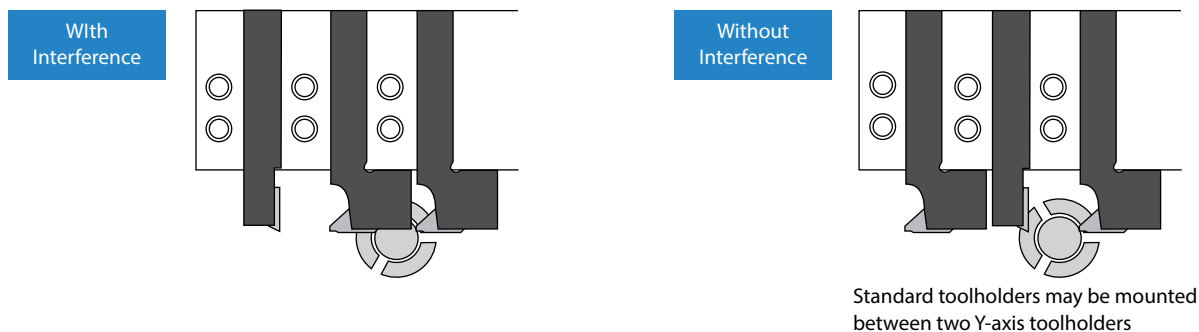
Unit	Part Number	Std. Item	Dimensions								Spare Parts		Applicable Inserts ➡ J28
											Screw	Wrench	
			R	H	B	LH	HF	LPR	HBKW	LF	WF		
mm	KTKFR 1216JX-12-Y	●	12	16	20	12	6	15	120	16	SB-4590TRWN	FT-10	TKFT12R...
	1616JX-12-Y	●	16	25	16	11	11	11	11	11	11	11	

LPR shows the distance from the toolholder to the cutting edge.

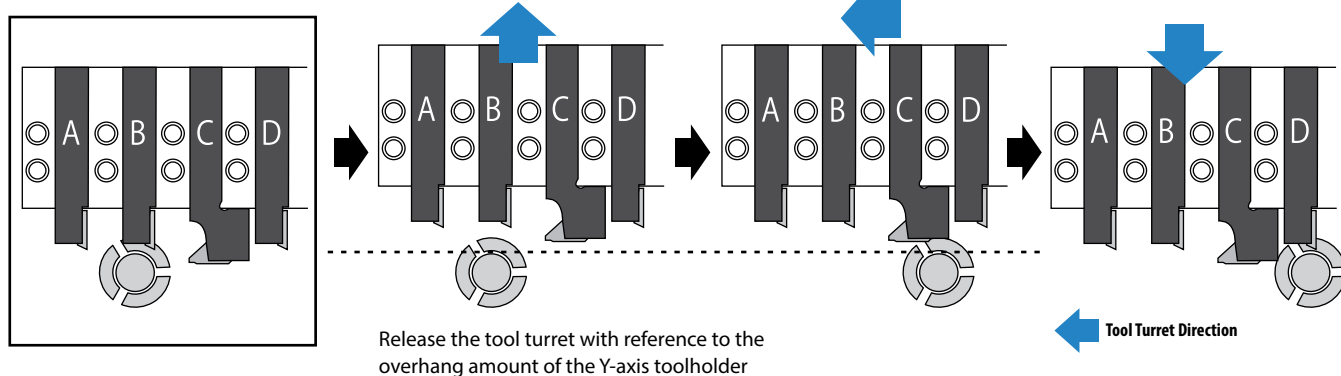
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Precautions for Using Y-Axis Toolholders

Do not use Y-axis toolholders side-by-side to prevent interference (Only two Y-axis holders can be used at the same time)



When changing the tool, set the retracted position with reference to the cutting edge of the Y-axis holder (When exchanging from tool B to D)



Note that using other toolholder styles together will result in different outside diameters

(Unit: mm)

Y-axis Toolholder Overhang	Examples	Overhang Amount : L			
		Available Outside Cutting Dia. (Ø)	20	22	25
20		A	Without Restriction	Without Restriction	Without Restriction
		B	13.0	13.0	13.0
		C	Without Restriction	Without Restriction	Without Restriction
25		A	38.0	58.0	Without Restriction
		B	14.9	13.6	13.0
		C	45.0	60.0	Without Restriction

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades			
	MEGACOAT NANO PLUS	MEGACOAT NANO	MEGACOAT	Carbide
	PR1725	PR1535	PR1225	KW10
Carbon Steel	Vc = 230~560 sfm			-
	First D.O.C. (Radial): under 0.0079" (0.2mm)			
Alloy Steel	Vc = 230~560 sfm			-
	First D.O.C. (Radial): under 0.0079" (0.2mm)			
Stainless Steel	Vc = 200~330 sfm			-
	First D.O.C. (Radial): under 0.0079" (0.2mm)			
Cast Iron	-			Vc = 330 sfm
				First D.O.C. (Radial): under 0.0079" (0.2mm)
Aluminum	-			Vc = 490~1310 sfm
				First D.O.C. (Radial): under 0.0079" (0.2mm)
Brass	-			Vc = 490~980 sfm
				First D.O.C. (Radial): under 0.0079" (0.2mm)

Coolant is recommended.

When threading stainless steel, please set two to three passes more than <D.O.C. - passes> listed above.

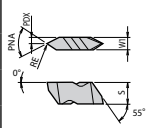
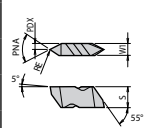
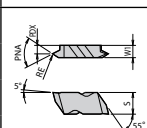
Depth of Cut & Number of Passes

TKFT 60° / 55° Partial Profile

(D.O.C. shows the value of radial ap.)

Thread Type		Pitch (mm/TPI)	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass
Metric	External Threading	0.20mm	TKFT 12R/L A/B6000	Max 0.05 Flat	0.15	4	0.06	0.04	0.03	0.02								
		0.25mm			0.19	4	0.07	0.06	0.04	0.02								
		0.30mm			0.23	4	0.08	0.07	0.06	0.02								
		0.35mm			0.27	5	0.08	0.07	0.06	0.04	0.02							
		0.40mm			0.30	5	0.10	0.08	0.06	0.04	0.02							
		0.45mm			0.34	6	0.10	0.08	0.06	0.04	0.04	0.02						
		0.50mm	TKFT 12R/L A/B6000	Max 0.05 Flat	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02						
			12R/L A/B60005	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02							
		0.60mm	TKFT 12R/L A/B6000	Max 0.05 Flat	0.45	7	0.10	0.10	0.08	0.06	0.05	0.04	0.02					
			12R/L A/B60005	0.05	0.40	6	0.10	0.10	0.08	0.06	0.04	0.02						
		0.70mm	TKFT 12R/L A/B60005	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02						
		0.75mm		0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02					
		0.80mm		0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02					
		1.00mm	TKFT 12R/L A/B60005 12R/L N6001	0.05	0.71	8	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02				
				0.10	0.66	7	0.18	0.15	0.12	0.10	0.06	0.03	0.02					
		1.25mm		0.05	0.90	9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02			
				0.10	0.85	8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02				
		1.50mm	TKFT 12R/L N6001	0.10	1.04	10	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02		
Parallel Pipe	External Threading	28 TPI	TKFT 12R/L A/B55005	0.0020	0.0264	7	0.007	0.006	0.005	0.004	0.002	0.002	0.001					
		19 TPI		0.0020	0.0398	9	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002	0.001			
Whitworth	External Threading	24 TPI	TKFT 12R/L A/B55005	0.0020	0.0311	8	0.007	0.007	0.005	0.004	0.003	0.003	0.002	0.001				
		20 TPI		0.0020	0.0378	9	0.008	0.008	0.006	0.004	0.004	0.003	0.002	0.002	0.001			
		18 TPI		0.0020	0.0421	10	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.001		
		16 TPI		0.0020	0.0476	11	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.001	

KCT / KCTP / KCTK (External/Internal Threading)

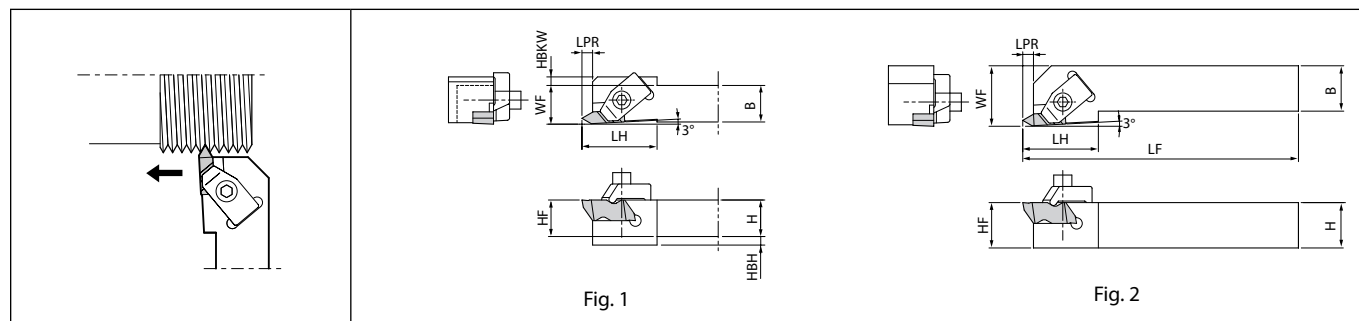
		Carbon Steel / Alloy Steel																●		P				
		Stainless Steel																●		M				
		Cast Iron																●		K				
		Non-Ferrous Metals																		N				
Insert		Part Number	Thread Type	Symbol Thread Type	Pitch								Profile	Thread Angle PNA (°)	Dimensions (in)				Carbide	Applicable Toolholder 🔧 J35~J36				
					Unit	Metric (mm)				Unit	Unified (TPI)				S	W1	RE	PDX						
						External		Internal			External										Internal			
						min.	max.	min.	max.		min.	max.									min.	max.		
		KCT 2R	Metric Unified	M UN	mm	0.75	3	1.25	3.5	Inch	36	8	20	7	Partial Profile	60	0.219	0.150	0.004	0.075	△	KKCR...-2, A...KKCL2		
		3R				1.25	4.25	2	5		20	6	12	5			0.344	0.195	0.007	0.098	●	KKCR...-3, A...KKCL3		
		4R				1.25	6.35	2	6.35		20	4	12	4			0.453	0.255	0.008	0.128	●	KKCR...-4, A...KKCL4		
		KCT 2L	Metric Unified	M UN		0.75	3	1.25	3.5		36	8	20	7	Partial Profile	60	0.219	0.150	0.004	0.075	●	KKCL...-2, A...KKCR2		
		3L				1.25	4.25	2	5		20	6	12	5			0.344	0.195	0.007	0.098	●	KKCL...-3, A...KKCR3		
		4L				1.25	6.35	2	6.35		20	4	12	4			0.453	0.255	0.008	0.128	●	KKCL...-4, A...KKCR4		
				KCTP 2R		Metric Unified	M UN	0.75	3		1.25	3.5	36	8	20	7	Partial Profile	60	0.219	0.150	0.004	0.075	●	KKCR...-2, A...KKCL2
				3R				1.25	4.25		2	5	20	6	12	5			0.344	0.195	0.007	0.098	●	KKCR...-3, A...KKCL3
				4R				1.25	6.35		2	6.35	20	4	12	4			0.459	0.255	0.008	0.128	△	KKCR...-4, A...KKCL4
KCTP 2L	Metric Unified			M UN		0.75	3	1.25	3.5		36	8	20	7	Partial Profile	60	0.219	0.150	0.004	0.075	●	KKCL...-2, A...KKCR2		
3L						1.25	4.25	2	5		20	6	12	5			0.344	0.195	0.007	0.098	●	KKCL...-3, A...KKCR3		
4L						1.25	6.35	2	6.35		20	4	12	4			0.459	0.255	0.008	0.128	△	KKCL...-4, A...KKCR4		
				KCTK 2R		Metric Unified	M UN	0.5	1.75		1	2	44	14	24	12	Partial Profile	60	0.219	0.150	0.003	0.110	●	KKCR...-2, A...KKCL2
				3R				0.5	2.5		1	2.8	44	10	24	9			0.344	0.195	0.003	0.141	●	KKCR...-3, A...KKCL3
				KCTK 2L		Metric Unified	M UN	0.5	1.75		1	2	44	14	24	12	Partial Profile	60	0.219	0.150	0.003	0.110	●	KKCL...-2, A...KKCR2
		3L	0.5	2.5				1	2.8		44	10	24	9	0.344	0.195			0.003	0.141	●	KKCL...-3, A...KKCR3		

Right-hand shown

Recommended Cutting Conditions ● J37

Cera-Notch Conversion Table ● R35

KC.. Threading inserts are
sold in 10 piece boxes

KKC (External Threading)

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

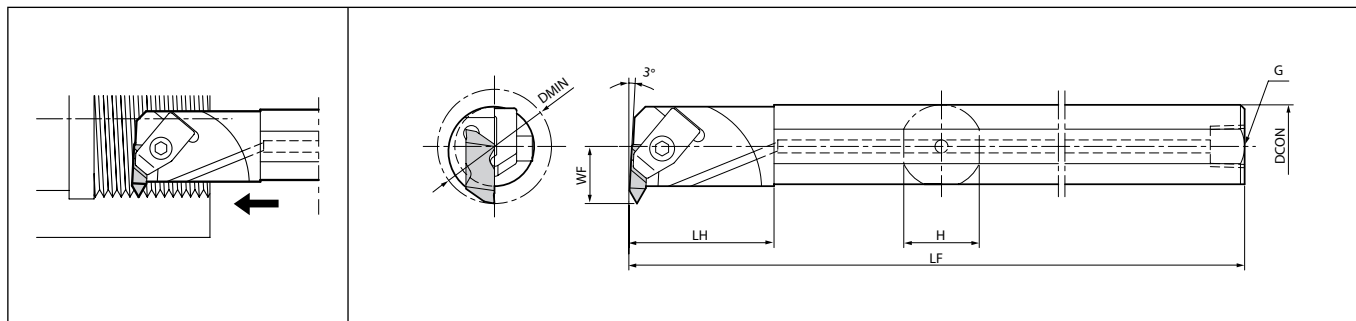
Unit	Part Number	Std. Item		Dimensions									Fig.	Spare Parts			Applicable Inserts ➡ J34
														Clamp	Clamp Bolt	Wrench	
		R	L	H	B	LH	LPR	HBH	HBKW	HF	LF	WF					
Inch	KKC% 6-2CF 8-2X 8-2DF 10-2DF 12-2B 12-2C 16-2C 16-2D	●	●	0.375	0.375	0.750	0.138	0.125	0.125	0.375	5.00	0.385	1	CKC-2%	SKC-2	(7/64 hex)	KCT2% KCTP2% KCTK2%
		●		0.500	0.500			-	-	0.500	3.50	0.750	2				
		●									6.00	0.510	1				
		●	●	0.625	0.625					0.625	6.00	0.635	1				
		●	●	0.750	0.750					0.750	4.50	1.000	2				
		●									5.00						
		●	●	1.000	1.000					1.000	5.00	1.250					
		●	●								6.00						
	KKC% 12-3B 12-3C 16-3C 16-3D 20-3D	●	●	0.750	0.750	1.250	0.210	-	-	0.750	4.50	1.000	2	CKC-3%	SKC-3	(LW-156)	KCT3% KCTP3% KCTK3%
		●	●							5.00							
		●	●	1.000	1.000					1.000	5.00	1.250					
		●	●							6.00							
		●	●	1.250	1.250					1.250	6.00	1.500					
	KKC% 16-4D 20-4D	●	●	1.000	1.000	1.380	0.294	-	-	1.000	6.00	1.250	2	CKC-3%	SKC-3	(LW-156)	KCT4% KCTP4%
		●		1.250	1.250					1.250		1.500					
mm	KKCR 1212M-2-150F	●		12	12	19.05	3.5	-	-	12	150	12.25	1	CKC-2R	SKC-2	(7/64 hex)	KCT2%, KCTP2% KCTK2%

LPR shows the distance from the toolholder to the cutting edge.

CKC-○R for Right-hand toolholder and CKC-○L for Left-hand toolholder

Spare Parts in parentheses () are not included with toolholder. Please order separately.

Toolholders also available for Grooving ➔ G65

A-KKC (Internal Threading)

Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Spare Parts			Applicable Inserts ➡ J34
											Clamp	Clamp Bolt	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF	G				
Inch	A10M- KPCR-2	●		1.000	0.625	0.596	1.153	6.00	0.500	1/8-27 NPT	CKC-2L	SKC-2	(7/64Hex)	KCT2 3/4 KCTP2 3/4 KCTK2 3/4
	A10S- KPCR-2	●						10.00						
	A12R- KPCR-2	●		1.125	0.750	0.728	1.171	8.00	0.562					
	A12S- KPCR-2	●						10.00						
	A16T- KKC 3/4 -2	●	●	1.375	1.000	0.910	1.100	12.00	0.688	CKC-2 3/4				
	A16X- KPCR-3	●		1.375	1.000	0.910	1.750	9.00	0.688	1/8-27 NPT	CKC-3 3/4	SKC-3	(LW-156)	KCT3 3/4 KCTP3 3/4 KCTK3 3/4
	A16T- KKC 3/4 -3	●	●					12.00						
	A20U- KPCR-3	●		1.750	1.250	1.138	1.750	14.00	0.875	1/4-18 NPT				
	A24U- KKC 3/4 -3	●	●	2.000	1.500	1.366		1.000						
A28U- KPCR-4	●		2.500	1.750	1.593	1.750	14.00	1.250	1/4-18 NPT	CKC-3 3/4	SKC-3	(LW-156)	KCT4 3/4 KCTP4 3/4	

CKC-○L for Right-hand toolholder and CKC-○R for Left-hand toolholder

Spare Parts in parentheses () are not included with toolholder. Please order separately.

Toolholders also available for Grooving ➡ G94

Recommended Cutting Conditions

Workpiece Material	Insert Grade Vc (sfm)	Initial D.O.C. (Radial)
	MEGACOAT	
	PR1215	
Carbon Steel	★ 300~550	0.012" Max
Alloy Steel	★ 300~500	0.012" Max
Stainless Steel	★ 200~300	0.010" Max
Cast Iron	★ 150~350	0.012" Max
Heat-Resistant Alloy	★ 25~150	0.010" Max

★ : 1st Recommendation

- Coolant is recommended.
- For stainless steel threading, please set smaller initial D.O.C. and two or three more passes than threading for carbon steel.

INSERT
GRADES
ATURNING
INSERTS
BCBN / PC
INSERTS
CTURNING
HOLDERS
DSMALL
TOOLS
EBORING
FGROOVING
GCUT-OFF
HTHREADING
JDRILLING
KMILLING
MQUICK CHANGE
TOOLING
NSPARE PARTS
PTECHNICAL
RINDEX
T

		Carbon Steel / Alloy Steel											P								
		Stainless Steel											M								
		Cast Iron											K								
		Non-Ferrous Metals											N								
Insert	Part Number	Thread Type	Symbol Thread Type	Pitch				Profile	Thread Angle PNA (°)	Dimensions (in)						Carbide			Applicable Toolholder ➔ J39		
				Unit		Unit				IC	S	D1	RE	PDX	PDX1	PVD	-	Cermat			
				min.	max.	min.	max.									PR115 PR930 RW10 TC60	-	-			
	TTX32R 6000	Metric Unified	M UN	mm	0.5	1	Inch	56	32	Partial Profile	60	3/8	1/8	0.173	0	0.024	0.044				●
	TTX32R 6000S				0.5	1		48	32		60	3/8	1/8	0.173	0.002	0.024	0.044	●	●	●	
	TTX32R 6001				1	2		28	14		60	3/8	1/8	0.173	0.004	0.043	0.064	●	●	●	●
	TTX32R 6000S				0.5	56		48	60		3/8	1/8	0.173	0	0.012	0.044	●	●	●		
	TTX32R 6000SS				0.5	48		60	3/8		1/8	0.173	0.002	0.012	0.044	●	●	●			
	TTX32R 5501	Parallel/ Tapered Pipe	G R W	Inch	28	19	24	20	55		3/8	1/8	0.173	0.004	0.030	0.040	●	●	●		
	TTX32R 5501S	Whitworth			19	11	20	11	55		3/8	1/8	0.173	0.006	0.047	0.057	●	●			

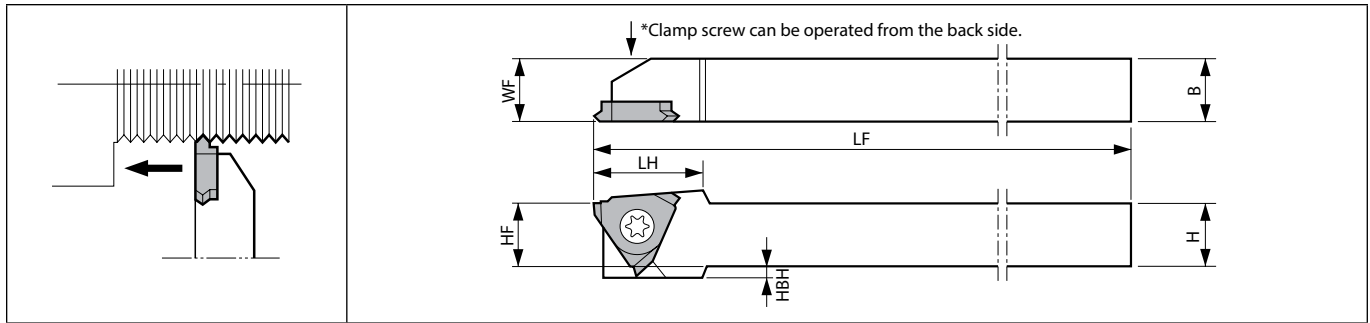
Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J60

Type	Insert	Advantages		
		Rake Angle after Installation	Condition	Dead Space
TT			One insert can machine various pitch sizes	
TTX			- The Least Cutting Resistance - Thread to shoulder (Less dead space) 3-edge	

KW10 / TC60 (Threading inserts) are sold in 10 piece boxes

J38

KTTX (External Threading)

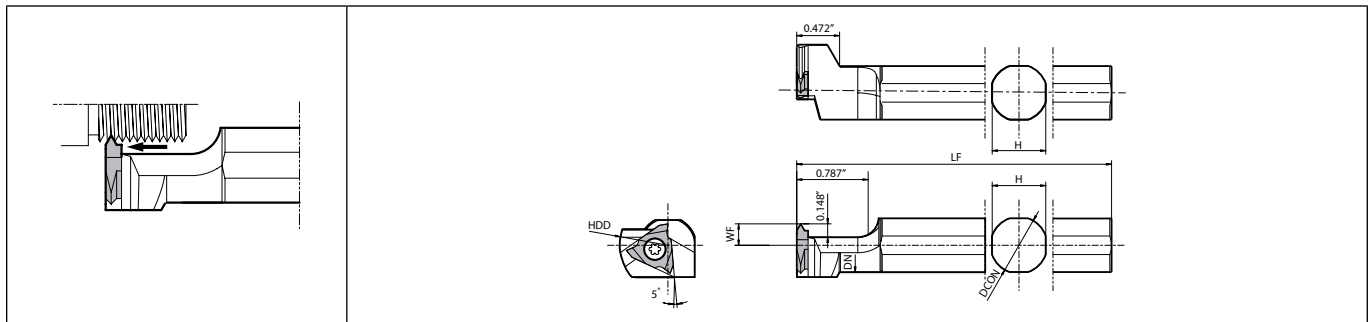


Toolholder Dimensions

Thread to shoulder | Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Unit	Part Number	Std. Item	Dimensions							Spare Parts		Applicable Inserts ➡ J38
										Screw	Wrench	
			R	H	B	LH	HF	HBH	LF	WF		
Inch	KTTXR 6-3JXF	●	0.375	0.375	0.693	0.375	0.079	4.750	0.383	SB-4070TRW	FT-8	TTX32R...
	8-3JXF	●	0.500	0.500		0.500	-		0.508			
	10-3JXF	●	0.625	0.625		0.625			0.633			
mm	KTTXR 1010JX-16F	●	10	10	17.6	10	2	120	10	SB-4070TRW	FT-8	TTX32R...
	1212F-16F	●	12	12		12	-	85	12			
	1212JX-16F	●						16	16			
	1616JX-16F	●	120	16								
	2020K-16F	●	20	20		20							125	20

S-KTTX (External Threading)



Toolholder Dimensions

Thread to shoulder | Left-hand shown | Right-hand Insert for Left-hand Toolholder.

Unit	Part Number	Std. Item	Dimensions							Spare Parts		Applicable Inserts ➔ J38
										Screw	Wrench	
			L	DCON	H	DN	HDD	LF	WF			
Inch	S15F- KTTXL16	●	0.625	0.591	0.575	1.063	3.346	0.236		SB-4070TRW	FT-8	TTX32R...
	S19G- KTTXL16	●	0.750	0.669	0.693	1.063	3.543	0.236				
	S19K- KTTXL16	●					4.724					
	S25K- KTTXL16	●	1.000	0.906	0.929	1.260	4.724	0.394				
mm	S12F- KTTXL16	●	12	11	11		80			SB-4070TRW	FT-8	TTX32R...
	S14H- KTTXL16	●	14	13	13		100					
	S16F- KTTXL16	●	16	15	14.6	27	85	6				
	S20G- KTTXL16	●					90					
	S20K- KTTXL16	●	20	18	18.6		120					
	S25.0H- KTTXL16	●	25	23	23.6	32	100	10				
		●										

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

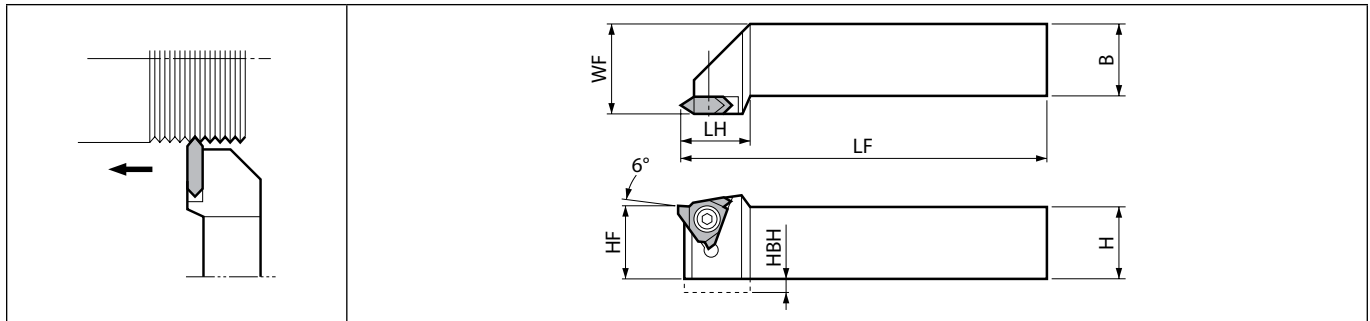
TT (External Threading)

Recommended Cutting Conditions ➡ J52
Depth of Cut & Number of Passes ➡ J59, J60

KW10 / TC60 (Threading inserts) are sold in 10 piece boxes

J40

KTT (External Threading)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

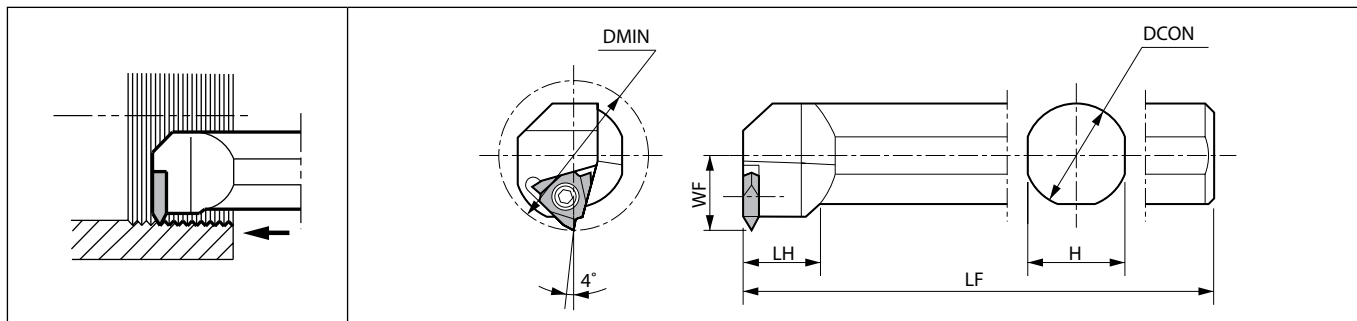
Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions							Spare Parts					Applicable Inserts ➡ J40
											Screw	Screw	Wrench	Wrench	Wrench	
		R	L	H	B	LH	HF	HBH	LF	WF						
mm	KTT% 1010F-16 1212H-16 1616H-16 2020K-16 2525M-16	●	●	10	10	18	10	4	80	12	SB-4070TRS	-	-	-	FT-10	TT32% ...
		●	●	12	12		12	2	100	16				20		
		●	●	16	16		16	-	125	25	SB-4TR			FT-15	-	
		●	●	20	20	20	150		30							
		●	●	25	25	25	150		30							
	KTT% 2020K-22 2525M-22	●	●	20	20	25	20	-	125	25	-	GS-50	LW-3	-	-	TT43% ... TT43ER...M
		●	●	25	25		25		150	30						

TT (Internal Threading)

|--|

KITG (Internal Threading)



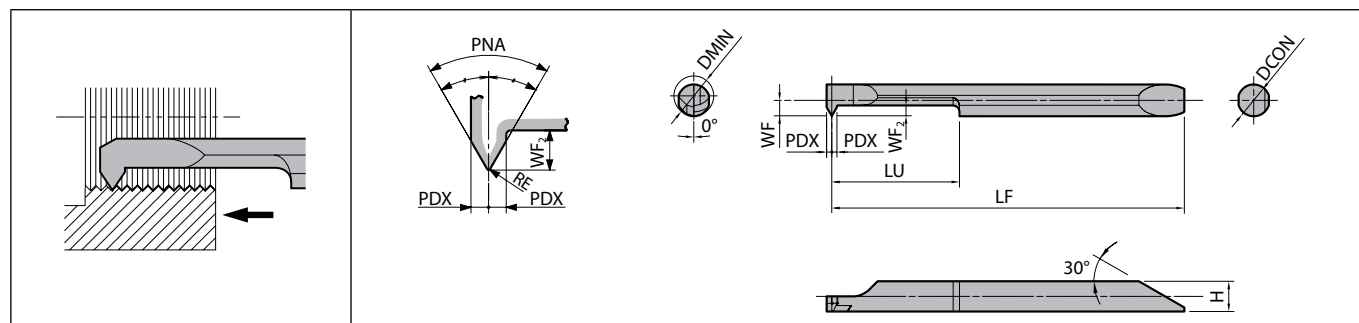
Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						Spare Parts				Applicable Inserts ➡ J42
										Screw	Screw	Wrench	Wrench	
		R	L	DMIN	DCON	H	LH	LF	WF					
mm	KITG% 3525T-16	●	●	35	25	23	18	220	17.5	SB-4TR	-	-	FT-15	TT32 ¹ /R...
	KITG% 4532T-22	●	●	45	32	30	20	250	22.5	-	GS-50	LW-3	-	TT43 ¹ /R...

Max. available Pitch : KITG% 3525T-16...TP 2.5mm or 10TPI, KITG% 4532T-22...TP 3.0mm or 8TPI.

EZT (Internal Threading)



Right-hand shown

Dimensions

Part Number	No. of edges	Dimensions (mm)									Thread Angle PNA (°)	Tolerance (mm)		Carbide		Applicable Thread					
		DMIN	DCON	H	LF	LU	WF	WF ₂	PDX	RE		RE min.	RE max.	PVD PR1225	- GW05	Metric		Unified		American National Tapered Pipe	
																Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)	Nominal Thread	Pitch (TPI)
EZTR 030025-60-002 035030-60-002 040035-60-004 050040-60-004 060050-60-004 070060-60-004	1	3	2.5	2.3	34.5	6	1.19	1	0.5	0.02	60°	0.01	0.01	●	●	M4 and over (Fine Thread : M3.5 and over)	0.35~0.8	No.8-32UNC No.8-36UNF and over	36~32	-	-
		3.5	3	2.8	38.4	8.4	1.44							●	●	M4.5 and over (Fine Thread : M4.5 and over)	0.5~1.0	No.10-24UNC No.8-36UNF and over	36~24	-	-
		4	3.5	3.3	41.4	10.4	1.69	1.2	0.6					●	●	M5 and over (Fine Thread : M6 and over)	0.75~1.25	No.12-24UNC No.12-28UNF and over	28~20	-	-
		5	4	3.8	44.35	15.35	1.94	1.3	0.65					●	●	M7 and over (Fine Thread : M6 and over)	0.75~1.5	1/4-20UNC 1/4-28UNF and over	28~18	-	-
		6	5	4.8	52.4	19.2	2.44	1.6	0.8					●	●	M8 and over (Fine Thread : M7 and over)	0.75~1.5	5/16-18UNC 5/16-24UNF and over	24~16	1/4NPT 3/8NPT	18
		7	6	5.8	60.2	24	2.94	2	1					●	●	M9 and over (Fine Thread : M8 and over)	0.75~1.75	3/8-16UNC 3/8-24UNF and over	24~16	1/4NPT and over	18,14
																Whitworth		Parallel Pipe / Tapered Pipe			
EZTR 060050-55-008 080070-55-008	1	6	5	4.8	52.4	19.2	2.44	1.6	0.8	0.085	55°	0.015	0.015	●	●	W10 TPI24 and over	24~20	G1/16 and over R1/16 and over	28	-	-
		8	7	6.8	63.2	24	3.44	2	1					●	●	W11 TPI20 and over	20~18	G1/8 and over R1/8 and over	28,19	-	-

For American National Tapered Pipe (NPT), use EZTR...-60-004. ➡ J47

Applicable sleeves ➡ J45

Recommended Cutting Conditions ➡ J46

Depth of Cut & Number of Passes ➡ J46~J47

EZ bars are
sold in 1 piece boxes

Applicable Sleeves

Sleeve Part Number				EZ Bar Part Number		Applicable Machine Manufacturer
EZH-CT (Adjustable Overhang Length / with Coolant Hole) ➡ F40~F41	EZH-HP (Adjustable Overhang Length) ➡ F42~F43	EZH-ST ➡ F44~F45	Sleeve Shank Dia	EZT	EZ Bar Shank Dia	
			DCON (mm)		DCON (mm)	
-	-	EZH 02512ST-80	12.00	EZTR 030025-...	2.5	General Machines
		03012ST-80		EZTR 035030-...	3.0	
		03512ST-80		EZTR 040035-...	3.5	
		04012ST-80		EZTR 050040-...	4.0	
		05012ST-80		EZTR 060050-...	5.0	
		06012ST-80		EZTR 070060-...	6.0	
		07012ST-80		EZTR 080070-...	7.0	
-	EZH 02516HP-100	EZH 02516ST-100	16.00	EZTR 030025-...	2.5	General Machines
	03016HP-100	03016ST-100		EZTR 035030-...	3.0	
	03516HP-100	03516ST-100		EZTR 040035-...	3.5	
	04016HP-100	04016ST-100		EZTR 050040-...	4.0	
	05016HP-100	05016ST-100		EZTR 060050-...	5.0	
	06016HP-100	06016ST-100		EZTR 070060-...	6.0	
	07016HP-100	07016ST-100		EZTR 080070-...	7.0	
EZH 02519CT-120	EZH 02519HP-120	EZH 02519ST-120	0.750"	EZTR 030025-...	2.5	Citizen Machinery
03019CT-120	03019HP-120	03019ST-120		EZTR 035030-...	3.0	
03519CT-120	03519HP-120	03519ST-120		EZTR 040035-...	3.5	
04019CT-120	04019HP-120	04019ST-120		EZTR 050040-...	4.0	
05019CT-120	05019HP-120	05019ST-120		EZTR 060050-...	5.0	
06019CT-120	06019HP-120	06019ST-120		EZTR 070060-...	6.0	
07019CT-120	07019HP-120	07019ST-120		EZTR 080070-...	7.0	
EZH 02520CT-120	EZH 02520HP-120	EZH 02520ST-120	20.00	EZTR 030025-...	2.5	Amada Machine Tools Eguro Tsugami Citizen Machinery General Machines
03020CT-120	03020HP-120	03020ST-120		EZTR 035030-...	3.0	
03520CT-120	03520HP-120	03520ST-120		EZTR 040035-...	3.5	
04020CT-120	04020HP-120	04020ST-120		EZTR 050040-...	4.0	
05020CT-120	05020HP-120	05020ST-120		EZTR 060050-...	5.0	
06020CT-120	06020HP-120	06020ST-120		EZTR 070060-...	6.0	
07020CT-120	07020HP-120	07020ST-120		EZTR 080070-...	7.0	
EZH 02522CT-135	EZH 02522HP-135	EZH 02522ST-135	22.00	EZTR 030025-...	2.5	Star Micronics Nomura DS Tsugami
03022CT-135	03022HP-135	03022ST-135		EZTR 035030-...	3.0	
03522CT-135	03522HP-135	03522ST-135		EZTR 040035-...	3.5	
04022CT-135	04022HP-135	04022ST-135		EZTR 050040-...	4.0	
05022CT-135	05022HP-135	05022ST-135		EZTR 060050-...	5.0	
06022CT-135	06022HP-135	06022ST-135		EZTR 070060-...	6.0	
07022CT-135	07022HP-135	07022ST-135		EZTR 080070-...	7.0	
EZH 02525.0CT-135	EZH 02525.0HP-135	EZH 02525.0ST-135	25.00	EZTR 030025-...	2.5	Amada Machine Tools Eguro Tsugami Citizen Machinery General Machines
03025.0CT-135	03025.0HP-135	03025.0ST-135		EZTR 035030-...	3.0	
03525.0CT-135	03525.0HP-135	03525.0ST-135		EZTR 040035-...	3.5	
04025.0CT-135	04025.0HP-135	04025.0ST-135		EZTR 050040-...	4.0	
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZTR 060050-...	5.0	
06025.0CT-135	06025.0HP-135	06025.0ST-135		EZTR 070060-...	6.0	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZTR 080070-...	7.0	
EZH 02525.4CT-120	EZH 02525.4HP-120	EZH 02525.4ST-120	1.000"	EZTR 030025-...	2.5	Citizen Machinery
03025.4CT-120	03025.4HP-120	03025.4ST-120		EZTR 035030-...	3.0	
03525.4CT-120	03525.4HP-120	03525.4ST-120		EZTR 040035-...	3.5	
04025.4CT-120	04025.4HP-120	04025.4ST-120		EZTR 050040-...	4.0	
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZTR 060050-...	5.0	
06025.4CT-120	06025.4HP-120	06025.4ST-120		EZTR 070060-...	6.0	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZTR 080070-...	7.0	

Choose sleeves (DCB) to meet with DCON dimension of bar.

Adjustment Pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT/HP sleeves.

Machine manufacturers in random order.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc sfm)	
	MEGACOAT	Carbide
	PR1225	GW05
Carbon Steel/Alloy Steel	★ 100-160	-
Stainless Steel	★ 100-160	-
Non-ferrous Metals	-	★ 100-160

★ : 1st Recommendation

Note:

1) The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds. Variable RPMs due to constant surface speed can result in inaccurate threads. Constant RPM programming is recommended.

2) Coolant is recommended.

Depth of Cut & Number of Passes (Metric)

Pitch (mm)	Total D.O.C. (mm)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass	20 Pass
0.50	0.30	9	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02											
0.70	0.42	10	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02										
0.75	0.45	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03										
0.80	0.48	11	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03									
1.00	0.61	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03								
1.25	0.77	14	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03						
1.50	0.93	17	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03			
1.75	1.10	20	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03

Depth of Cut & Number of Passes (Whitworth)

TPI	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass
24	0.0256	13	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001				
20	0.0319	15	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001		
18	0.0358	17	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001

Depth of Cut & Number of Passes (Unified: UN, UNC, UNF, UNEF)

TPI	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass
36	0.0173	8	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001								
32	0.0197	10	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001							
28	0.0217	12	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001						
24	0.0256	12	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001						
20	0.0307	14	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001				
18	0.0346	17	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	
16	0.0390	18	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001

Application of Parallel Pipe and Tapered Pipe Thread

Parallel Pipe: G (PF), Rp (PS)

Applicable Thread	TPI	Internal Threading (G, Rp)		Min. Bore Dia. (mm)	Same Root Radius
Symbol		Insert			
G 1/16 (-)	28	EZTR	06005-55-008	6.56	0.12
G 1/8 (PF 1/8)	28		08007-55-008	8.57	
G 1/4 (PF 1/4)	19	EZTR	08007-55-008	11.45	0.18
G 3/8 (PF 3/8)	19		08007-55-008	14.95	

Tapered Pipe: R, Rc (PT) (BSPT)

Applicable Thread	TPI	Internal Threading (Rc)		Min. Bore Dia. (mm)	Same Root Radius
Symbol		Insert			
R 1/16, Rc 1/16 (-)	28	EZTR	06005-55-008	-	0.12
R 1/8, Rc 1/8 (PT 1/8)			08007-55-008	-	
R 1/4, Rc 1/4 (PT 1/4)	19	EZTR	08007-55-008	-	0.18
R 3/8, Rc 3/8 (PT 3/8)			08007-55-008	-	

When using "EZT type" for Parallel Pipe / Tapered Pipe threading, the thread's corners become sharp edged due to its partial profile, and the shape will not be the same as the standard shape for Parallel Pipe / Tapered Pipe.

Depth of Cut & Number of Passes (Parallel Pipe / G(PF), Tapered Pipe / BSPT (PT) (Rc))

TPI	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass
28	0.0240	12	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001						
19	0.0374	18	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001

Application of American National Tapered Pipe Thread (NPT)

Applicable Thread	TPI	Internal Threading		
		Toolholder	Insert	
			Partial Profile	Full Profile
1/16 NPT	27	No Tools Available		
1/8 NPT				
1/4 NPT	18	EZH Sleeve	EZTR060050-60-004	-
3/8 NPT			EZTR070060-60-004	
1/2 NPT	14	EZH Sleeve	EZTR070060-60-004	-
3/4 NPT				
1/2 NPT	14	SINR1616S-16	-	16IR14NPT
3/4 NPT		SINR2016S-16		16IR14NPT

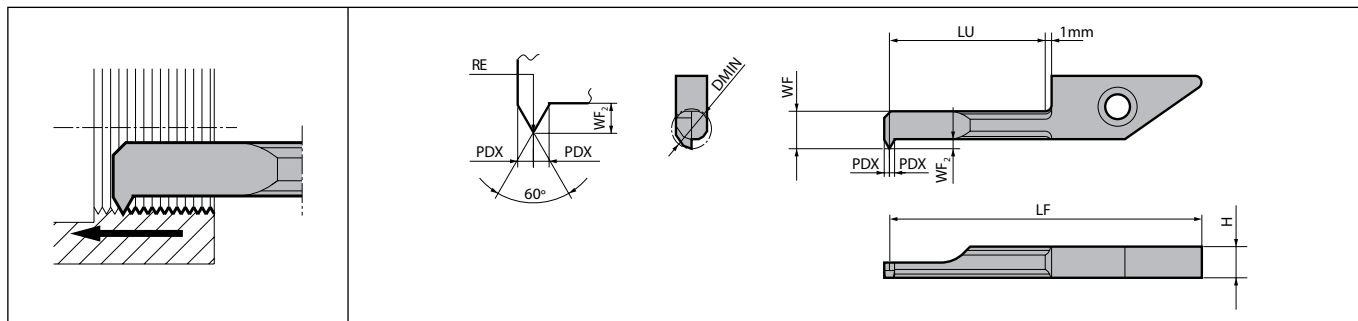
Application of NPTF Thread

NPTF is the thread for sealing pipes without using any sealing material.

Thread symbol is similar to NPT but the Tolerance is different from that of NPT and the above inserts are not applicable to NPTF.

Depth of Cut & Number of Passes (American National Tapered Pipe (NPT))

TPI	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass
18	0.0484	16	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001			
14	0.0614	19	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001

VNT (Internal Threading)

Right-hand shown

Dimensions

Part Number	No. of edges	Dimensions (mm)								Tolerance (mm)		Carbide			Applicable Thread				Applicable Toolholder 🔄 F50~F53
		DMIN	H	LF	LU	WF	WF ₂	PDX	RE	RE min.	RE max.	PVD		-	Metric		Unified		
												PR1225	PR930		KW10	Nominal Thread	Pitch (mm)	Nominal Thread		Pitch (TPI)
VNTR 045-11 060-11	1	4.5	3.9	30.2	10.4	3.6	1.3	0.6	0.05	0.02	0	●	●	●	M6 and over	0.75~1.25	1/4-20UNC, 1/4-28UNF and over	28~20	SVNR...-12N SVNSR-12-11(N) S...-SVNR12(N) S...-SVNR12SN
	6	30		10.2	4.6	1.6	0.8	●				●	●	M8 and over	0.75~1.50	5/16-18UNC, 5/16-24UNF and over	24~18		

Recommended Cutting Conditions ➡ **J49**Depth of Cut & Number of Passes ➡ **J49**

Recommended Cutting Conditions

Workpiece material	Recommended insert grades (Vc: sfm)		
	MEGACOAT	PVD coated carbide	Carbide
	PR1225	PR930	KW10
Carbon Steel	★ 100~160	☆ 100~160	-
Stainless Steel	★ 100~160	☆ 100~160	-
Non-Ferrous Metals	-	-	★ 100~160

<Note>

1) The standard cutting speed is Vc=100~160 sfm. The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds.

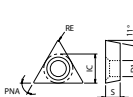
2) Coolant is recommended.

Depth of Cut & Number of Passes (Metric: M)

Pitch (mm)	Total D.O.C. (mm)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass
0.75	0.44	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03							
1.00	0.60	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.03					
1.25	0.76	14	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03			
1.50	0.92	17	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03

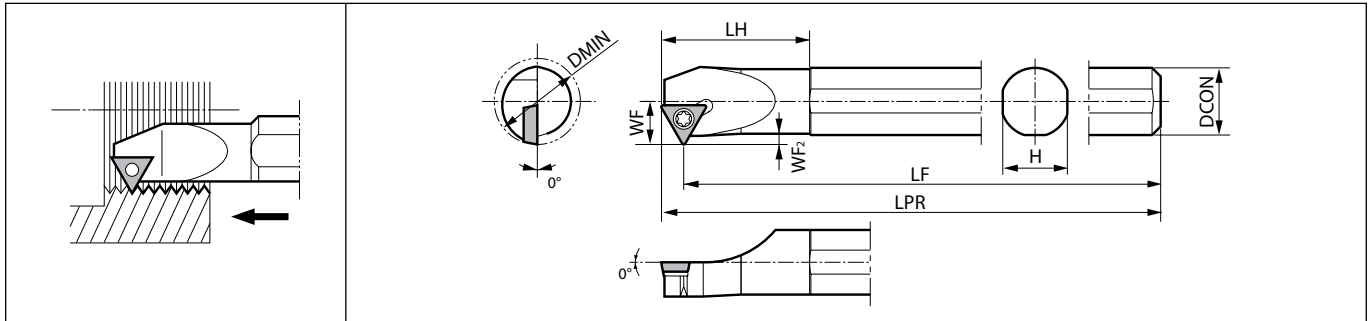
INSERT GRADES
ATURNING INSERTS
BCBN / PCD INSERTS
CTURNING HOLDERS
DSMALL TOOLS
EBORING
FGROOVING
GCUT-OFF
HTHREADING
JDRILLING
KMILLING
MQUICK CHANGE TOOLING
NSPARE PARTS
PTECHNICAL
RINDEX
T

TPGB (Internal Threading)

		Carbon Steel / Alloy Steel															●		○		P		
		Stainless Steel																			M		
		Cast Iron														●					K		
		Non-Ferrous Metals														●					N		
Insert		Part Number		No. of edges	Dimensions (in)				Angle (°)		Pitch				Profile	Thread Type	Symbol Thread Type	Carbide	Cermet		Applicable Toolholder ➡ J51		
					IC	S	D1	RE	AN	PNA	Unit	M (mm)		UN (TPI)				- KW10	PVD PV720 PV730	- TN60 TN620			
												min.	max.	Unit								min.	max.
	 Without Chipbreaker	TPGB 21502	3	1/4	3/32	0.138	0.002	11	60	mm	0.75	1.5	Inch	28	16	Partial Profile	Metric Unified	M UN	●		●	...STWP%L -2 ...STWP%L 11-12(E)	
		TPGB 22013	3				0.002				0.75			28	11				●		●	...STWP%L 11-16(E)	
		2202	3	1/4	1/8	0.130	0.004	11	60		1.5	3.5		16	8				●		●	...STWP%L 11-20(E)	
		2205				0.008			3			8		8	●				●	●	●	...STWP%L 11-25(E)	

Recommended Cutting Conditions ➡ J52

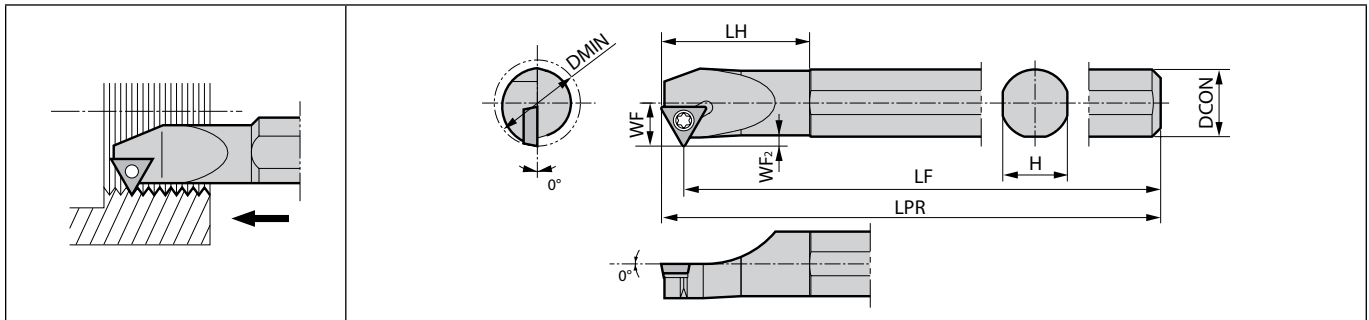
Depth of Cut & Number of Passes ➡ J61

S-STWP (Internal Threading)

This toolholder is also available for boring. | Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								GAMO (°)	Coolant Hole	Available Pitch Pitch (TPI / mm)	Spare Parts		Applicable Inserts ➡ J50
														Screw	Wrench	
			R	DMIN	DCON	H	LH	LPR	LF	WF				WF ₂		
Inch	S06M- STWPR-2	●	0.476	0.375	0.340	0.910	6.00	5.783	0.238	0.050	0	No	14-32 TPI	SB-3STR	FT-10	TPGB215..
	S12R- STWPR-2	●	0.970	0.750	0.720	1.600	8.00	7.783	0.485	0.110			8-32 TPI			
mm	S10M- STWPR11-12	●	12	10	9.2	23	150	144.5	6	1	0	No	≤ 1.5	SB-3STR	FT-10	TPGB215..
	S12M- STWPR11-16	●	16	12	11	30			8	1.5			≤ 2	SB-3STR		TPGB22..
	S16Q- STWPR11-20	●	20	16	15	35	180	174.5	10	2			≤ 3	SB-3TR		
	S20R- STWPR11-25	●	25	20	19	40	200	194.5	12.5	2.5			≤ 3.5			

WF₂ : shows the Max. available D.O.C.**S-STWP-E** (Internal Threading, Excellent Bar)

This toolholder is also available for boring. | Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions								GAMO (°)	Coolant Hole	Pitch max (mm)	Spare Parts		Applicable Inserts  J50
															Screw	Wrench	
		R	L	DMIN	DCON	H	LH	LPR	LF	WF	WF ₂						
mm	S10M- STWP% 11-12E	●	●	12	10	9.2	23	150	144.5	6	1	0	No	1.5	SB-3STR	FT-10	TPGB215..
	S12M- STWP% 11-16E	●	●	16	12	11	30			8	1.5			2			TPGB22..
	S16R- STWP% 11-20E	●	●	20	16	15	35	200	194.5	10	2			3			
	S20X- STWP% 11-25E	●	●	25	20	19	40	220	214.5	12.5	2.5			3.5			

WF₂ : shows the Max. available D.O.C.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

KTN / KTNS / SIN / CIN

Workpiece Material	Recommended Insert Grade (Vc sfm)					
	Cermet	MEGACOAT	MEGACOAT NANO		PVD Coated Carbide	Carbide
	TC60	PR1215	PR1515	PR1535	PR1115	GW15
Carbon Steel	☆ 330-490	★ 330-490	-	-	☆ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	-	-	0.0118" or less	-
Alloy Steel	☆ 330-490	★ 330-490	-	-	☆ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	-	-	0.0118" or less	-
Stainless Steel	☆ 200-260	-	★ 200-330	☆ 130-260	☆ 200-260	-
Initial D.O.C. (Radial)	0.0098" or less	-	0.0098" or less	0.0098" or less	0.0098" or less	-
Cast Iron	-	-	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	-	-	0.0118" or less
Aluminum	-	-	-	-	-	★ 490~1310
Initial D.O.C. (Radial)	-	-	-	-	-	0.0118" or less
Brass	-	-	-	-	-	★ 490~980
Initial D.O.C. (Radial)	-	-	-	-	-	0.0118" or less

For 061R / 081R inserts, we recommend 40% lower sfm.

KTT

Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TC60	PR930	PR1115	KW10
Carbon Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Alloy Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Stainless Steel	☆ 200-260	☆ 200-260	★ 200-260	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Cast Iron	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Aluminum	-	-	-	★ 490~1310
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Brass	-	-	-	★ 490~980
Initial D.O.C. (Radial)	-	-	-	0.0118" or less

S-STWP (-E)

Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TN6020	TN60	PV7020	KW10
Carbon Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Alloy Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Stainless Steel	-	-	-	-
Initial D.O.C. (Radial)	-	-	-	-
Cast Iron	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	0.0098" or less
Aluminum	-	-	-	★ 490~1310
Initial D.O.C. (Radial)	-	-	-	0.0098" or less
Brass	-	-	-	★ 490~980
Initial D.O.C. (Radial)	-	-	-	0.0098" or less

KTTX / S-KTTX

Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TC60	PR930	PR1115	GW15
Carbon Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Alloy Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Stainless Steel	☆ 200-260	☆ 200-260	★ 200-260	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Cast Iron	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Aluminum	-	-	-	★ 490~1310
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Brass	-	-	-	★ 490~980
Initial D.O.C. (Radial)	-	-	-	0.0118" or less

KITG

Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TC60	PR930	PR1115	GW15
Carbon Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Alloy Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Stainless Steel	☆ 200-260	☆ 200-260	★ 200-260	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Cast Iron	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Aluminum	-	-	-	★ 490~1310
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Brass	-	-	-	★ 490~980
Initial D.O.C. (Radial)	-	-	-	0.0118" or less

KKC / A-KKC (Cera-Notch)

Workpiece Material	Recommended Insert Grade (Vc sfm)		Initial D.O.C. (Radial)
	MEGACOAT		
	PR1215		
Carbon Steel	★ 300-550		0.012" Max
Alloy Steel	★ 300-500		0.012" Max
Stainless Steel	★ 200-300		0.010" Max
Cast Iron	★ 150-350		0.012" Max
Heat-Resistant Alloy	★ 25-150		0.010" Max

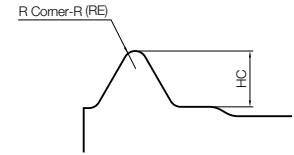
★ : 1st Recommendation ☆ : 2nd Recommendation

- Coolant is recommended.
- When using cermet inserts if edge chipping occurs lightly hone cutting edge with diamond file.
- For stainless steel threading, please set smaller initial D.O.C. and two or three more passes than threading for carbon steel.

Depth of Cut and Number of Passes

Usage caution for Full Profile insert.

- 1) Max. D.O.C. is based on the value of $(HC+0.0020")-(HC+0.0031")$.
- 2) Final D.O.C. for Finishing should be 0.0008"-0.0020".
- 3) To improve insert life, pre chamfer to thread minor diameter.
- 4) Coolant is recommended.



(D.O.C. shows the value of radial D.O.C.)

11 / 16 / 22 (Full Profile)

Thread Type		Pitch / TPI mm / TPI	Part Number	HC (mm)	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass		
Metric	External Thread	1.00mm	16ER 100ISO-TF/TQ	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05																
		1.25mm	125ISO-TF/TQ	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05															
		1.50mm	150ISO-TF/TQ	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05															
		1.75mm	175ISO-TF/TQ	1.11	1.19	8	0.26	0.22	0.19	0.16	0.13	0.10		0.08	0.05												
		2.00mm	200ISO-TF/TQ	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12		0.10	0.08	0.05	0.05										
		2.50mm	250ISO-TF/TQ	1.57	1.65	12	0.26	0.23	0.21	0.18	0.14	0.12		0.12	0.10	0.10	0.08	0.06	0.05								
		3.00mm	300ISO-TF/TQ	1.87	1.95	14	0.26	0.24	0.22	0.20	0.18	0.16		0.14	0.12	0.10	0.08	0.08	0.05	0.02							
		0.50mm	16ES 050ISO	0.33	0.38	4	0.14	0.12	0.08	0.04																	
		0.75mm	075ISO	0.48	0.53	5	0.17	0.14	0.10	0.08	0.04																
		1.00mm	100ISO	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05																
		1.25mm	125ISO	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05															
		1.50mm	150ISO	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05															
		2.00mm	200ISO	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12		0.10	0.08	0.05	0.05										
		2.50mm	250ISO	1.57	1.65	12	0.26	0.23	0.21	0.18	0.14	0.12		0.12	0.10	0.10	0.08	0.06	0.05								
		3.00mm	22ER 300ISO	1.87	1.95	14	0.26	0.24	0.22	0.20	0.18	0.16		0.14	0.12	0.10	0.10	0.08	0.08	0.05	0.02						
		3.50mm	350ISO	2.18	2.26	15	0.28	0.25	0.22	0.20	0.20	0.18		0.16	0.15	0.15	0.12	0.10	0.10	0.08	0.05	0.02					
		4.00mm	400ISO	2.48	2.56	17	0.28	0.25	0.24	0.22	0.20	0.18		0.16	0.15	0.15	0.14	0.12	0.10	0.10	0.08	0.05	0.02				
		4.50mm	450ISO	2.79	2.87	18	0.30	0.28	0.26	0.24	0.22	0.20		0.18	0.16	0.16	0.14	0.14	0.13	0.12	0.10	0.10	0.07	0.05	0.02		
		5.00mm	500ISO	3.10	3.18	19	0.30	0.28	0.27	0.26	0.23	0.20		0.18	0.18	0.17	0.16	0.16	0.15	0.15	0.13	0.12	0.10	0.07	0.05	0.02	
		Internal Thread	1.00mm	11IR 100ISO-TF/TQ	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04															
	1.25mm		125ISO-TF/TQ	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06		0.04													
	1.50mm		150ISO-TF/TQ	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08		0.07	0.05												
	1.75mm		175ISO-TF/TQ	1.02	1.10	9	0.24	0.18	0.16	0.14	0.10	0.10		0.08	0.05	0.05											
	0.50mm		11IS 050ISO	0.31	0.36	4	0.14	0.10	0.08	0.04																	
	0.75mm		075ISO	0.45	0.50	5	0.15	0.14	0.10	0.07	0.04																
	1.00mm		100ISO	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04																
	1.25mm		125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06		0.04													
	1.50mm		150ISO	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08		0.07	0.05												
	1.75mm		175ISO	1.02	1.10	9	0.24	0.18	0.16	0.14	0.10	0.10		0.08	0.05	0.05											
	2.00mm		200ISO	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10		0.10	0.08	0.05	0.05										
	1.00mm		16IR 100ISO-TF/TQ	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04																
	1.25mm		125ISO-TF/TQ	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06		0.04													
	1.50mm		150ISO-TF/TQ	0.88	0.96	8	0.22	0.18	0.14	0.12	0.10	0.08		0.07	0.05												
	1.75mm		175ISO-TF/TQ	1.02	1.10	9	0.22	0.18	0.16	0.14	0.12	0.10		0.08	0.05	0.05											
	2.00mm		200ISO-TF/TQ	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10		0.10	0.08	0.05	0.05										
	2.50mm		250ISO-TF/TQ	1.46	1.54	12	0.26	0.22	0.18	0.16	0.14	0.12		0.10	0.10	0.08	0.08	0.05	0.05								
	3.00mm		300ISO-TF/TQ	1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15		0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.02						
	1.00mm		16IS 100ISO	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04																
	1.25mm		125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06		0.04													
	1.50mm		150ISO	0.88	0.96	8	0.22	0.18	0.14	0.12	0.10	0.08		0.07	0.05												
	2.00mm		200ISO	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10		0.10	0.08	0.05	0.05										
	2.50mm		250ISO	1.46	1.54	12	0.26	0.22	0.18	0.16	0.14	0.12		0.10	0.10	0.08	0.08	0.05	0.05								
	3.00mm		300ISO	1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15		0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.02						
	3.00mm		22IR 300ISO	1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15		0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.02						
	3.50mm		350ISO	2.05	2.13	15	0.26	0.24	0.22	0.20	0.17	0.17		0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.02					
	4.00mm		400ISO	2.34	2.42	17	0.26	0.24	0.22	0.20	0.18	0.18		0.16	0.15	0.14	0.13	0.12	0.12	0.10	0.10	0.05	0.05	0.02			
	4.50mm		450ISO	2.63	2.71	18	0.26	0.25	0.24	0.22	0.22	0.20		0.18	0.17	0.15	0.13	0.13	0.12	0.12	0.10	0.10	0.05	0.05	0.02		
	5.00mm	500ISO	2.92	3.00	19	0.28	0.26	0.24	0.22	0.20	0.20		0.18	0.18	0.16	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.05	0.02		
Unified	External Thread	24 TPI	16ER 24UN-TF/TQ	0.0264	0.0295	5	0.009	0.008	0.006	0.004	0.002																
		20 TPI	20UN-TF/TQ	0.0315	0.0346	6	0.009	0.008	0.006	0.005	0.004	0.002															
		18 TPI	18UN-TF/TQ	0.0350	0.0382	6	0.010	0.009	0.007	0.006	0.004	0.002															
		16 TPI	16UN-TF/TQ	0.0398	0.0429	7	0.010	0.009	0.007	0.006	0.005	0.004	0.002														
		14 TPI	14UN-TF/TQ	0.0453	0.0484	8	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.002													
		13 TPI	13UN-TF/TQ	0.0488	0.0520	9	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.003	0.002												
		12 TPI	12UN-TF/TQ	0.0528	0.0559	11	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002										
		10 TPI	10UN-TF/TQ	0.0626	0.0657	12	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.005	0.004	0.003	0.002	0.002	0.002							
		8 TPI	08UN-TF/TQ	0.0780	0.0811	14	0.010	0.009	0.009	0.008	0.007	0.006	0.006	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.002						
		24 TPI	16ER 24UN	0.0264	0.0295	5	0.009	0.008	0.006	0.004	0.002																
		20 TPI	20UN	0.0315	0.0346	6	0.009	0.008	0.006	0.005	0.004	0.002															
		18 TPI	18UN	0.0350	0.0382	6	0.010	0.009	0.007	0.006	0.004	0.002															
		16 TPI	16UN	0.0398	0.0429	7	0.010	0.009	0.007	0.006	0.005	0.004	0.002														
		14 TPI	14UN	0.0453	0.0484	8	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.002													
		12 TPI	12UN	0.0528	0.0559	11	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002										
		8 TPI	22ER 08UN	0.0780	0.0811	15	0.012	0.010	0.009	0.008	0.006	0.006		0.006	0.005	0.004	0.004	0.004	0.003	0.002	0.002	0.001					
	Internal Thread	24 TPI	16IR 24UN-TF/TQ	0.0244	0.0276	5	0.009	0.008	0.006	0.004	0.002			</													

(D.O.C. shows the value of radial D.O.C.)

(D.O.C. shows the value of radial D.O.C.)

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60° / 55° (Partial Profile)

[illegible]

Depth of Cut and Number of Passes

60° / 55° (Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type	Pitch TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass		
Unified (inch)	Internal Thread	18 TPI	08IR 60007	0.0028	0.0335	17	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001				
		16 TPI	08IR 60007	0.0028	0.0378	18	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001			
		48 TPI			0.0126	5	0.003	0.003	0.003	0.002	0.002															
		24 TPI			0.0264	7	0.006	0.005	0.005	0.004	0.003	0.002	0.002													
		20 TPI	11IR A60	0.0008	0.0315	8	0.006	0.005	0.005	0.005	0.004	0.003	0.002	0.002												
		18 TPI			0.0354	9	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002											
		16 TPI			0.0398	10	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002										
		48 TPI	16IR A60 AG60	0.0008 0.0008	0.0126 0.0126	5 5	0.003 0.003	0.003 0.003	0.003 0.003	0.002 0.002	0.002 0.002															
		24 TPI	16IR A60 AG60	0.0008 0.0008	0.0264 0.0264	7 7	0.006 0.006	0.005 0.005	0.005 0.005	0.004 0.004	0.003 0.003	0.002 0.002	0.002 0.002													
		20 TPI	16IR A60 AG60	0.0008 0.0008	0.0315 0.0315	8 8	0.006 0.006	0.005 0.005	0.005 0.005	0.005 0.005	0.004 0.004	0.003 0.003	0.002 0.002	0.002 0.002												
		18 TPI	16IR A60 AG60	0.0008 0.0008	0.0354 0.0354	9 9	0.006 0.006	0.006 0.006	0.005 0.005	0.005 0.005	0.004 0.004	0.003 0.003	0.003 0.002	0.002 0.002	0.002 0.002											
		16 TPI	16IR A60 AG60	0.0008 0.0008	0.0398 0.0398	10 10	0.006 0.006	0.006 0.006	0.005 0.005	0.005 0.005	0.005 0.005	0.004 0.004	0.003 0.003	0.003 0.003	0.002 0.002	0.002 0.002	0.002									
		14 TPI	16IR G60 AG60	0.0043 0.0008	0.0421 0.0457	9 11	0.008 0.006	0.007 0.006	0.006 0.006	0.006 0.005	0.005 0.005	0.004 0.004	0.003 0.004	0.002 0.004	0.002 0.003	0.002 0.003	0.002	0.002								
		13 TPI	16IR G60 AG60	0.0043 0.0008	0.0457 0.0492	10 12	0.008 0.007	0.007 0.006	0.006 0.006	0.006 0.005	0.005 0.005	0.004 0.004	0.003 0.004	0.003 0.004	0.002 0.003	0.002 0.003	0.002	0.002	0.002							
		12 TPI	16IR G60 AG60	0.0043 0.0008	0.0496 0.0531	11 13	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.006	0.005 0.005	0.004 0.004	0.004 0.004	0.003 0.003	0.003 0.003	0.002 0.002	0.002	0.002	0.002	0.002						
		10 TPI	16IR G60 AG60	0.0043 0.0008	0.0606 0.0642	14 16	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.006	0.006 0.006	0.005 0.005	0.005 0.005	0.004 0.004	0.004 0.004	0.003 0.003	0.002	0.002	0.002	0.002	0.001	0.002	0.001			
		9 TPI	16IR G60 AG60	0.0043 0.0008	0.0677 0.0713	16 17	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.006	0.006 0.006	0.005 0.005	0.005 0.005	0.004 0.004	0.004 0.004	0.003 0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001		
		8 TPI	16IR G60 AG60	0.0043 0.0008	0.0768 0.0803	17 19	0.009 0.008	0.008 0.008	0.007 0.007	0.007 0.007	0.006 0.006	0.006 0.006	0.006 0.006	0.005 0.005	0.005 0.005	0.004 0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001		
		7 TPI			0.0843	14	0.010	0.009	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.002	0.002					
		6 TPI	22IR N60	0.0087	0.0996	17	0.011	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002			
		5 TPI			0.1213	18	0.012	0.011	0.010	0.010	0.009	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002
		Parallel Pipe / Tapered Pipe	External Thread	28 TPI	16ER ASS-TF/TQ AG55-TF/TQ	0.0024 0.0024	0.0264 0.0264	7 7	0.006 0.006	0.006 0.006	0.004 0.004	0.004 0.004	0.003 0.003	0.002 0.002	0.002 0.002											
				19 TPI	16ER ASS-TF/TQ AG55-TF/TQ	0.0024 0.0024	0.0402 0.0402	8 8	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.006	0.005 0.005	0.004 0.004	0.003 0.003	0.002 0.002										
				14 TPI	16ER G55-TF/TQ AG55-TF/TQ	0.0087 0.0024	0.0472 0.0551	9 11	0.009 0.009	0.008 0.009	0.007 0.008	0.006 0.006	0.005 0.006	0.005 0.005	0.004 0.004	0.003 0.003	0.002 0.002	0.002	0.002							
				11 TPI	16ER G55-TF/TQ AG55-TF/TQ	0.0087 0.0024	0.0630 0.0705	12 13	0.009 0.010	0.009 0.009	0.008 0.008	0.007 0.008	0.006 0.007	0.006 0.006	0.005 0.006	0.004 0.005	0.003 0.004	0.003	0.002	0.002	0.002	0.001				
				28 TPI	16ER ASS AG55	0.0024 0.0024	0.0264 0.0264	7 7	0.006 0.006	0.006 0.006	0.004 0.004	0.004 0.004	0.003 0.003	0.002 0.002	0.002 0.002											
				19 TPI	16ER ASS AG55	0.0024 0.0024	0.0402 0.0402	8 8	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.006	0.005 0.005	0.004 0.004	0.003 0.003	0.002 0.002										
				14 TPI	16ER G55 AG55	0.0087 0.0024	0.0472 0.0551	9 11	0.009 0.009	0.008 0.009	0.007 0.008	0.006 0.006	0.005 0.006	0.005 0.005	0.004 0.004	0.003 0.003	0.002 0.002	0.002	0.002	0.002						
				11 TPI	16ER G55 AG55	0.0087 0.0024	0.0630 0.0705	12 13	0.009 0.010	0.009 0.009	0.008 0.008	0.007 0.008	0.006 0.007	0.006 0.006	0.005 0.006	0.004 0.005	0.003 0.004	0.003	0.002	0.002	0.002	0.001				
				28 TPI	06IR 5501 08IR 5501	0.0039 0.0039	0.0240 0.0240	12 12	0.003 0.003	0.003 0.003	0.002 0.002	0.002 0.002	0.002 0.002	0.002 0.002	0.002 0.002	0.002 0.002	0.002 0.002	0.002	0.002	0.001	0.001					
				19 TPI	08IR 5501	0.0039	0.0374	18	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001
				28 TPI	11IR A55	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002											
				19 TPI	11IR A55	0.0024	0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002										
				28 TPI	16IR A55 AG55	0.0024 0.0024	0.0264 0.0264	7 7	0.006 0.006	0.006 0.006	0.004 0.004	0.004 0.004	0.003 0.003	0.002 0.002	0.002 0.002											
				19 TPI	16IR A55 AG55	0.0024 0.0024	0.0402 0.0402	8 8	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.006	0.005 0.005	0.004 0.004	0.003 0.003	0.002 0.002										
				14 TPI	16IR G55 AG55	0.0087 0.0024	0.0472 0.0551	9 11	0.009 0.009	0.008 0.009	0.007 0.008	0.006 0.006	0.005 0.006	0.005 0.005	0.004 0.004	0.003 0.003	0.002 0.002	0.002	0.002	0.002						
11 TPI	16IR G55 AG55			0.0087 0.0024	0.0630 0.0705	12 13	0.009 0.010	0.009 0.009	0.008 0.008	0.007 0.008	0.006 0.007	0.006 0.006	0.005 0.006	0.004 0.005	0.003 0.004	0.003	0.002	0.002	0.002	0.001						
Whitworth	External Thread			48 TPI	16ER ASS-TF/TQ AG55-TF/TQ	0.0024 0.0024	0.0146 0.0146	5 5	0.005 0.005	0.004 0.004	0.003 0.003	0.002 0.002	0.002													
				24 TPI	16ER ASS-TF/TQ AG55-TF/TQ	0.0024 0.0024	0.0311 0.0311	7 7	0.007 0.007	0.006 0.006	0.006 0.006	0.004 0.004	0.003 0.003	0.003 0.003	0.002 0.002											
				20 TPI	16ER ASS-TF/TQ AG55-TF/TQ	0.0024 0.0024	0.0378 0.0378	8 8	0.008 0.008	0.007 0.007	0.006 0.006	0.005 0.005	0.004 0.004	0.003 0.003	0.003 0.002	0.002										
				18 TPI	16ER ASS-TF/TQ AG55-TF/TQ	0.0024 0.0024	0.0421 0.0421	9 9	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.006	0.004 0.004	0.004 0.003	0.003 0.003	0.003 0.002	0.002									
				16 TPI	16ER ASS-TF/TQ AG55-TF/TQ	0.0024 0.0024	0.0480 0.0480	11 11	0.008 0.008	0.007 0.007	0.006 0.006	0.005 0.005	0.004 0.004	0.004 0.004	0.003 0.003	0.003 0.003	0.002 0.002	0.002	0.002					</		

Depth of Cut and Number of Passes

60° / 55° (Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type	Pitch mm / TPI	Part Number		RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass	
Whitworth	External Thread	24 TPI	16ER A55 AG55	0.0024 0.0024	0.0311 0.0311	7 7	0.007 0.007	0.006 0.006	0.006 0.006	0.004 0.004	0.003 0.003	0.003 0.003	0.002 0.002													
		20 TPI	16ER A55 AG55	0.0024 0.0024	0.0378 0.0378	8 8	0.008 0.008	0.007 0.007	0.006 0.006	0.005 0.005	0.004 0.004	0.003 0.003	0.003 0.003	0.002 0.002												
		18 TPI	16ER A55 AG55	0.0024 0.0024	0.0421 0.0421	9 9	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.006	0.004 0.004	0.004 0.004	0.003 0.003	0.003 0.003	0.002 0.002											
		16 TPI	16ER A55 AG55	0.0024 0.0024	0.0480 0.0480	11 11	0.008 0.008	0.007 0.007	0.006 0.006	0.005 0.005	0.004 0.004	0.004 0.004	0.004 0.003	0.003 0.003	0.003 0.003	0.002 0.002	0.002 0.002									
		14 TPI	16ER G55 AG55	0.0087 0.0024	0.0472 0.0551	9 11	0.009 0.009	0.008 0.009	0.007 0.008	0.006 0.006	0.005 0.006	0.005 0.005	0.004 0.004	0.003 0.003	0.002 0.002		0.002 0.002	0.002 0.002								
		12 TPI	16ER G55 AG55	0.0087 0.0024	0.0567 0.0646	10 12	0.009 0.009	0.009 0.009	0.008 0.008	0.007 0.007	0.006 0.006	0.005 0.006	0.005 0.006	0.004 0.004	0.003 0.003	0.002 0.004	0.002 0.003	0.002 0.002								
		11 TPI	16ER G55 AG55	0.0087 0.0024	0.0630 0.0705	12 13	0.009 0.010	0.009 0.009	0.008 0.008	0.007 0.008	0.006 0.007	0.006 0.006	0.005 0.006	0.004 0.005	0.003 0.004	0.002 0.003	0.002 0.002	0.002 0.002	0.002 0.001							
		10 TPI	16ER G55 AG55	0.0087 0.0024	0.0701 0.0780	12 14	0.009 0.010	0.009 0.009	0.008 0.008	0.007 0.007	0.007 0.006	0.006 0.006	0.006 0.006	0.005 0.005	0.005 0.005	0.004 0.004	0.003 0.004	0.002 0.004	0.003 0.003	0.002 0.003	0.002 0.002					
		9 TPI	16ER G55 AG55	0.0087 0.0024	0.0791 0.0866	14 15	0.009 0.011	0.009 0.010	0.008 0.009	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.006	0.005 0.005	0.005 0.005	0.004 0.004	0.004 0.004	0.003 0.004	0.003 0.004	0.002 0.004	0.002 0.003	0.002 0.002				
		8 TPI	16ER G55 AG55	0.0087 0.0024	0.0902 0.0980	15 16	0.011 0.012	0.010 0.011	0.009 0.010	0.009 0.009	0.008 0.008	0.006 0.007	0.006 0.006	0.005 0.005	0.005 0.005	0.005 0.005	0.004 0.004	0.004 0.004	0.004 0.004	0.003 0.003	0.002 0.002	0.002 0.002	0.002 0.002			
		7 TPI	22ER N55	0.0185	0.0957	16	0.012	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.004	0.004	0.003	0.002					
		6 TPI			0.1150	18	0.012	0.011	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002			
		5 TPI			0.1417	21	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.003	
			28 TPI	06IR 5501 08IR 5501	0.0039	0.0256	13	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001					
			19 TPI	08IR 5501		0.0319	15	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001				
		24 TPI	11IR A55	0.0024	0.0283	7	0.006	0.006	0.005	0.004	0.003	0.003	0.002													
		20 TPI			0.0343	8	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.002												
		18 TPI			0.0382	8	0.008	0.007	0.006	0.006	0.004	0.003	0.002	0.002												
		16 TPI			0.0433	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002											
		24 TPI	16IR A55 AG55	0.0024	0.0283	7	0.006	0.006	0.005	0.004	0.003	0.003	0.002													
		20 TPI	16IR A55 AG55		0.0343	8	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.002												
		18 TPI	16IR A55 AG55	0.0024	0.0382	8	0.008	0.007	0.006	0.006	0.004	0.003	0.002	0.002												
		16 TPI	16IR A55 AG55		0.0382	8	0.008	0.007	0.006	0.006	0.004	0.003	0.002	0.002												
		16 TPI	16IR A55 AG55	0.0024	0.0433	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002											
		14 TPI	16IR G55 AG55		0.0417	8	0.008	0.008	0.007	0.006	0.005	0.004	0.003	0.002												
		12 TPI	16IR G55 AG55	0.0087	0.0504	9	0.009	0.008	0.008	0.007	0.006	0.005	0.004	0.003	0.002											
		11 TPI	16IR G55 AG55		0.0559	10	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002										
		10 TPI	16IR G55 AG55	0.0087	0.0626	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002								
		9 TPI	16IR G55 AG55		0.0705	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.001							
		8 TPI	16IR G55 AG55	0.0087	0.0783	14	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002						
		7 TPI	16IR G55 AG55		0.0807	14	0.009	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.002				
		6 TPI	22IR N55	0.0185	0.0886	15	0.011	0.01	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.002	0.002				
		5 TPI			0.0996	16	0.012	0.011	0.010	0.009	0.008	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.004	0.003	0.002	0.002	0.002	0.002		
					0.1236	19	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002	
	30° Trapezoidal	Internal Thread	External Thread	2.00mm	16ER 200TR	-	1.25	10	0.22	0.20	0.17	0.16	0.13	0.12	0.10	0.07	0.05	0.03								
			3.00mm	16ER 300TR	-	1.75	14	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.10	0.10	0.07	0.05	0.03					
			4.00mm	22ER 400TR	-	2.24	15	0.26	0.23	0.22	0.20	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03				
			5.00mm	22ER 500TR	-	2.73	17	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03		
			2.00mm	16IR 200TR	-	1.25	10	0.22	0.20	0.17	0.16	0.13	0.12	0.10	0.07	0.05	0.03									
			3.00mm	16IR 300TR	-	1.75	14	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.10	0.10	0.07	0.05	0.03					
			4.00mm	22IR 400TR	-	2.24	15	0.26	0.23	0.22	0.20	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03				
			5.00mm	22IR 500TR	-	2.73	17	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03		

Depth of Cut and Number of Passes

11 / 16 (60° / 55° Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type	Pitch mm S TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass
Metric (60°)	External Thread	1.00mm 16ER 6001	0.10	0.66	5	0.20	0.18	0.12	0.09	0.05									
		1.25mm 16ER 6001	0.10	0.85	6	0.23	0.20	0.14	0.12	0.07	0.05								
		1.50mm 16ER 6001 6002	0.10 0.20	1.04 0.94	8 7	0.23 0.23	0.21 0.20	0.19 0.18	0.15 0.14	0.11 0.10	0.06 0.05	0.05 0.04							
		1.75mm 16ER 6001 6002	0.10 0.20	1.23 1.13	9 8	0.25 0.25	0.22 0.22	0.20 0.20	0.17 0.16	0.14 0.14	0.09 0.07	0.07 0.05	0.04 0.04						
		2.00mm 16ER 6001 6002	0.10 0.20	1.42 1.32	11 10	0.25 0.25	0.22 0.22	0.20 0.20	0.16 0.16	0.14 0.14	0.12 0.12	0.10 0.08	0.08 0.07	0.06 0.04	0.05 0.04	0.04			
		2.50mm 16ER 6001 6002	0.10 0.20	1.79 1.69	13 12	0.25 0.25	0.22 0.22	0.20 0.20	0.18 0.18	0.16 0.16	0.16 0.16	0.14 0.12	0.12 0.10	0.10 0.08	0.09 0.08	0.08 0.06	0.05 0.04	0.04	
	Internal Thread	0.75mm 11IR 60005	0.05	0.44	5	0.14	0.12	0.10	0.06	0.02									
		1.00mm 11IR 60005	0.05	0.60	6	0.18	0.15	0.10	0.08	0.05	0.04								
		1.25mm 11IR 60005	0.05	0.76	7	0.18	0.15	0.12	0.10	0.10	0.07	0.04							
		1.50mm 11IR 60005 16IR 6001	0.05 0.10	0.92 0.87	9 8	0.18 0.18	0.16 0.16	0.12 0.12	0.10 0.10	0.10 0.08	0.08 0.08	0.06 0.05	0.04						
		1.75mm 16IR 6001	0.10	1.04	9	0.20	0.18	0.15	0.12	0.10	0.10	0.08	0.05	0.04					
		2.00mm 16IR 6001	0.10	1.20	11	0.20	0.18	0.15	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.04			
		2.50mm 16IR 6001 60015	0.10 0.15	1.52 1.47	14 13	0.20 0.20	0.18 0.18	0.16 0.16	0.14 0.15	0.14 0.14	0.12 0.12	0.12 0.10	0.10 0.10	0.08 0.08	0.06 0.06	0.06 0.04	0.04 0.02		
Parallel Pipe / Tapered Pipe (55°)	External Thread	28 TPI 16ER 5501	0.0039	0.0240	5	0.008	0.006	0.005	0.003	0.002									
		19 TPI 16ER 5501	0.0039	0.0374	7	0.009	0.008	0.006	0.006	0.004	0.003	0.002							
		14 TPI 16ER 5501 5502	0.0039 0.0079	0.0528 0.0480	10 9	0.009 0.009	0.008 0.007	0.007 0.006	0.006 0.004	0.005 0.004	0.004 0.004	0.004 0.003	0.003 0.002						
		11 TPI 16ER 5501 5502	0.0039 0.0079	0.0681 0.0638	13 12	0.010 0.010	0.009 0.009	0.009 0.008	0.008 0.007	0.007 0.006	0.006 0.005	0.005 0.004	0.004 0.003	0.003 0.002	0.003 0.002	0.002 0.001	0.001		
	Internal Thread	28 TPI 11IR 55005 16IR 5501	0.0020 0.0039	0.0264 0.0240	7 6	0.007 0.007	0.006 0.006	0.005 0.005	0.003 0.003	0.002 0.002	0.001								
		19 TPI 11IR 55005 16IR 5501	0.0020 0.0039	0.0398 0.0374	8 7	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.005	0.005 0.004	0.003 0.002	0.002							
		14 TPI 11IR 55005 16IR 5501 5502	0.0020 0.0039 0.0079	0.0547 0.0528 0.0480	11 10 9	0.008 0.008 0.007	0.007 0.007 0.007	0.006 0.006 0.006	0.006 0.006 0.005	0.005 0.004 0.004	0.005 0.004 0.003	0.004 0.004 0.002	0.003 0.003 0.002						
		11 TPI 16IR 5501 5502	0.0039 0.0079	0.0681 0.0638	12 11	0.010 0.010	0.008 0.008	0.007 0.007	0.007 0.006	0.006 0.006	0.006 0.005	0.005 0.005	0.004 0.003	0.003 0.002	0.003 0.002				
	External Thread	24 TPI 16ER 5501	0.0039	0.0287	6	0.009	0.007	0.005	0.004	0.003	0.002								
		20 TPI 16ER 5501	0.0039	0.0354	6	0.009	0.007	0.007	0.006	0.005	0.002								
		18 TPI 16ER 5501	0.0039	0.0398	7	0.009	0.008	0.007	0.006	0.004	0.003	0.002							
		16 TPI 16ER 5501 5502	0.0039 0.0079	0.0453 0.0409	9 8	0.009 0.009	0.008 0.008	0.006 0.006	0.006 0.004	0.005 0.004	0.004 0.003	0.003 0.003	0.002 0.002	0.002					
		14 TPI 16ER 5501 5502	0.0039 0.0079	0.0528 0.0480	10 9	0.009 0.009	0.008 0.007	0.007 0.006	0.006 0.004	0.005 0.004	0.004 0.004	0.004 0.003	0.003 0.002	0.003	0.002				
		12 TPI 16ER 5501 5502	0.0039 0.0079	0.0622 0.0575	12 11	0.010 0.010	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.006	0.005 0.004	0.004 0.003	0.003 0.003	0.003 0.002	0.003	0.002			
		11 TPI 16ER 5501 5502	0.0039 0.0079	0.0681 0.0638	12 11	0.010 0.010	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.006	0.005 0.005	0.004 0.003	0.003 0.002	0.003 0.002	0.003	0.002			
		10 TPI 16ER 5501 5502	0.0039 0.0079	0.0756 0.0709	14 13	0.010 0.010	0.009 0.009	0.009 0.008	0.008 0.007	0.007 0.006	0.005 0.005	0.004 0.004	0.004 0.003	0.003 0.003	0.003 0.002	0.003 0.001	0.002	0.001	
		9 TPI 16ER 5502	0.0079	0.0799	14	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.001	
	Internal Thread	24 TPI 11IR 55005 16IR 5501	0.0020 0.0039	0.0280 0.0256	7 6	0.007 0.007	0.006 0.006	0.005 0.005	0.004 0.004	0.003 0.003	0.002 0.001	0.001							
		20 TPI 11IR 55005 16IR 5501	0.0020 0.0039	0.0343 0.0319	8 7	0.007 0.007	0.006 0.006	0.006 0.005	0.005 0.004	0.004 0.003	0.002 0.002	0.002							
		18 TPI 11IR 55005 16IR 5501	0.0020 0.0039	0.0382 0.0358	8 7	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.004	0.004 0.003	0.003 0.002	0.002							
		16 TPI 11IR 55005 16IR 5501 5502	0.0020 0.0039 0.0079	0.0429 0.0409 0.0362	9 8 7	0.008 0.008 0.008	0.007 0.007 0.007	0.006 0.006 0.006	0.006 0.006 0.004	0.004 0.003 0.003	0.004 0.003 0.002	0.003 0.002	0.002						
		14 TPI 11IR 55005 16IR 5501 5502	0.0020 0.0039 0.0079	0.0496 0.0472 0.0425	10 9 8	0.008 0.008 0.008	0.007 0.007 0.007	0.006 0.006 0.006	0.006 0.005 0.005	0.005 0.004 0.003	0.005 0.004 0.003	0.004 0.003 0.002	0.003 0.002	0.002					
		12 TPI 16IR 5501 5502	0.0039 0.0079	0.0559 0.0512	10 9	0.010 0.010	0.008 0.009	0.007 0.007	0.006 0.006	0.006 0.005	0.005 0.004	0.004 0.003	0.003 0.002	0.002					
		11 TPI 16IR 5501 5502	0.0039 0.0079	0.0614 0.0567	11 10	0.010 0.010	0.008 0.008	0.007 0.007	0.006 0.006	0.006 0.005	0.005 0.004	0.004 0.003	0.003 0.002	0.002	0.002				

<How to use>

- 1) Select the insert with suitable corner-R (RE) determined by the pitch.
- 2) Do not exceed 0.0118" for the 1st D.O.C.
- 3) Final D.O.C. for Finishing should be 0.0008" - 0.0020".
- 4) To improve insert life, pre chamfer to thread minor diameter.
- 5) Coolant is recommended.

Depth of Cut and Number of Passes

TT (60° / 55° Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type	Pitch mm / TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	
Metric (60°)	External Thread	0.50mm TT32% 6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02											
		0.70mm TT32% 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02										
		0.75mm TT32% 6000	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02									
		0.80mm TT32% 6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02									
		1.00mm TT32% 6000	0.00	0.76	8	0.15	0.12	0.12	0.11	0.10	0.08	0.06	0.02									
		1.00mm TT32/43% 6001	0.10	0.66	6	0.20	0.15	0.12	0.10	0.07	0.02											
		1.25mm TT32% 6000	0.00	0.95	9	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.05	0.02								
		1.25mm TT32/43% 6001	0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02										
		1.50mm TT32% 6000	0.00	1.14	10	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.07	0.05	0.02							
		1.50mm TT32/43% 6001	0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02								
		1.50mm 6002	0.20	0.94	8	0.25	0.18	0.14	0.12	0.10	0.08	0.05	0.02									
		1.75mm TT32% 6000	0.00	1.33	11	0.25	0.23	0.20	0.13	0.10	0.10	0.10	0.08	0.07	0.05	0.02	0.02					
		1.75mm TT32/43% 6001	0.10	1.23	10	0.25	0.23	0.20	0.13	0.10	0.10	0.08	0.07	0.05	0.02	0.02						
		1.75mm 6002	0.20	1.13	9	0.25	0.23	0.20	0.13	0.10	0.08	0.07	0.05	0.02								
		2.00mm TT32% 6000	0.00	1.52	12	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.10	0.08	0.05	0.02	0.05	0.02			
		2.00mm TT32/43% 6001	0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.10	0.08	0.05	0.02	0.02				
		2.00mm 6002	0.20	1.32	10	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.08	0.05	0.02							
		2.50mm TT32% 6000	0.00	1.89	13	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.14	0.13	0.10	0.08	0.06	0.02	0.02			
		2.50mm TT32/43% 6001	0.10	1.79	12	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.10	0.06	0.02					
		2.50mm 6002	0.20	1.69	11	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.13	0.10	0.08	0.02						
		2.50mm 6003	0.30	1.59	11	0.27	0.25	0.20	0.18	0.17	0.15	0.12	0.10	0.08	0.05	0.02						
		3.00mm TT43% 6001	0.10	2.17	14	0.30	0.25	0.23	0.20	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.05	0.02	0.02		
		3.00mm 6002	0.20	2.07	13	0.30	0.25	0.23	0.20	0.20	0.18	0.15	0.14	0.13	0.12	0.10	0.05	0.02				
		3.00mm 6003	0.30	1.97	12	0.30	0.25	0.23	0.20	0.20	0.18	0.15	0.14	0.12	0.10	0.08	0.02					
		3.00mm 6004	0.40	1.87	12	0.30	0.25	0.23	0.20	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.02					
		3.50mm TT43% 6001	0.10	2.55	16	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.08	0.05	0.02	0.02
		3.50mm 6002	0.20	2.45	15	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.10	0.10	0.05	0.02		
		3.50mm 6003	0.30	2.35	14	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.02			
		3.50mm 6004	0.40	2.25	14	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.02			
	Internal Thread	0.50mm TT32% 6000	0.00	0.32	5	0.12	0.08	0.06	0.04	0.02												
		0.70mm TT32% 6000	0.00	0.45	6	0.15	0.10	0.08	0.06	0.04	0.02											
		0.75mm TT32% 6000	0.00	0.49	6	0.15	0.12	0.08	0.07	0.05	0.02											
		0.80mm TT32% 6000	0.00	0.52	6	0.15	0.12	0.10	0.08	0.05	0.02											
		1.00mm TT32% 6000	0.00	0.65	7	0.15	0.14	0.12	0.10	0.08	0.04	0.02										
		1.25mm TT32% 6000	0.00	0.81	8	0.18	0.16	0.14	0.12	0.10	0.05	0.04	0.02									
		1.50mm TT32% 6000	0.00	0.97	9	0.20	0.18	0.16	0.14	0.10	0.08	0.05	0.04	0.02								
		1.50mm TT32/43% 6001	0.10	0.87	8	0.20	0.18	0.16	0.14	0.08	0.05	0.04	0.02									
		1.75mm TT32% 6000	0.00	1.14	10	0.20	0.18	0.16	0.13	0.12	0.10	0.10	0.08	0.05	0.02							
		1.75mm TT32/43% 6001	0.10	1.04	9	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.05	0.02								
		2.00mm TT32% 6000	0.00	1.30	12	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.10	0.08	0.05	0.03	0.02					
		2.00mm TT32/43% 6001	0.10	1.20	11	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02						
		2.50mm TT32% 6000	0.00	1.62	14	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.03	0.02			
		2.50mm TT32/43% 6001	0.10	1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02				
		3.00mm TT43% 6001	0.10	1.85	15	0.25	0.22	0.20	0.18	0.14	0.14	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.05	0.02	
		3.00mm 6002	0.20	1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.05	0.02			
Parallel Pipe / Tapered Pipe (55°)	External Thread	28 TPI TT32% 5501	0.0039	0.0240	5	0.008	0.007	0.006	0.002	0.001												
		19 TPI TT32/43% 5501	0.0039	0.0374	8	0.008	0.007	0.006	0.005	0.005	0.004	0.002	0.001									
		14 TPI TT32/43% 5501	0.0039	0.0528	10	0.010	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.001							
		14 TPI 5502	0.0079	0.0480	9	0.010	0.009	0.008	0.007	0.005	0.004	0.003	0.002	0.001								
		11 TPI TT32/43% 5501	0.0039	0.0681	13	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.001				
		11 TPI 5502	0.0079	0.0638	12	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.001					
		11 TPI 5503	0.0118	0.0591	11	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.001						
		28 TPI TT32/43% 5501	0.0039	0.0240	6	0.007	0.006	0.005	0.003	0.002	0.001											
	Internal Thread	19 TPI TT32/43% 5501	0.0039	0.0374	7	0.008	0.007	0.006	0.006	0.005	0.004	0.002										
		14 TPI TT32/43% 5501	0.0039	0.0528	10	0.008	0.007	0.007	0.006	0.006	0.006	0.004	0.004	0.003	0.002							
		14 TPI 5502	0.0079	0.0480	9	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.002								
		11 TPI TT32/43% 5501	0.0039	0.0681	13	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.001				
		11 TPI 5502	0.0079	0.0638	12	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.001					
		11 TPI 5503	0.0118	0.0591	11	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.001						
		24 TPI TT32/43% 5501	0.0039	0.0287	6	0.008	0.007	0.006	0.005	0.002	0.001											
		20 TPI TT32/43% 5501	0.0039	0.0354	7	0.008	0.007	0.006	0.006	0.005	0.003	0.001										
Whitworth (55°)	External Thread	18 TPI TT32/43% 5501	0.0039	0.0398	8	0.008	0.007	0.007	0.006	0.005	0.004	0.002	0.001									
		16 TPI TT32/43% 5501	0.0039	0.0453	9	0.010	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.001								
		16 TPI 5502	0.0079	0.0409	8	0.010	0.008	0.007	0													

Depth of Cut and Number of Passes

TT (60° / 55° Partial Profile) Continued...

(D.O.C. shows the value of radial ap.)

Thread Type		Pitch mm / TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass
Whitworth (55°)	Internal Thread	24 TPI	TT32/43 % S501	0.0039	0.026	0.236	0.008	0.006	0.005	0.004	0.002	0.001									
		20 TPI	TT32/43 % S501	0.0039	0.032	0.276	0.008	0.007	0.006	0.005	0.003	0.002	0.001								
		18 TPI	TT32/43 % S501	0.0039	0.036	0.315	0.008	0.007	0.006	0.006	0.004	0.002	0.002	0.001							
		16 TPI	TT32/43 % S501	0.0039	0.041	0.354	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.001						
			S502	0.0079	0.036	0.315	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.001							
		14 TPI	TT32/43 % S501	0.0039	0.047	0.394	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.001					
			S502	0.0079	0.043	0.354	0.008	0.007	0.006	0.006	0.006	0.004	0.003	0.002	0.001						
		12 TPI	TT32/43 % S501	0.0039	0.056	0.394	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001					
			S502	0.0079	0.051	0.354	0.010	0.009	0.008	0.007	0.006	0.005	0.004	0.002	0.001						
		11 TPI	TT32/43 % S501	0.0039	0.061	0.433	0.010	0.009	0.009	0.007	0.006	0.006	0.005	0.004	0.004	0.002	0.001				
			S502	0.0079	0.057	0.394	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001					
		10 TPI	TT43 % S503	0.0118	0.052	0.354	0.010	0.009	0.008	0.007	0.006	0.006	0.004	0.002	0.001						
			TT32/43 % S501	0.0039	0.068	0.472	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.002	0.001				
		9 TPI	S502	0.0079	0.063	0.433	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001					
			TT43 % S503	0.0118	0.059	0.394	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.002	0.001					
		8 TPI	TT43 % S501	0.0039	0.076	0.512	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.001		
			S502	0.0079	0.072	0.472	0.010	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001				
		8 TPI	S503	0.0118	0.067	0.433	0.010	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.004	0.002	0.001				
			S504	0.0157	0.072	0.472	0.012	0.010	0.009	0.008	0.008	0.007	0.006	0.005	0.003	0.002	0.002	0.001			

TT (60° / 55° Full Profile)

(D.O.C. shows the value of radial ap.)

Thread Type		Pitch mm / TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass
Metric	External Thread	1.00mm	TT43E % 100M	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05							
		1.25mm	125M	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05						
		1.50mm	150M	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05						
		2.00mm	200M	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05		

TTX (60° / 55° Partial Profile)

(D.O.C. shows the value of radial ap.)

Thread Type		Pitch	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	
		mm § TPI																	
Metric (60°)	External Thread	0.50mm	TTX32R 6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02							
			6000S																
			6000S 6000S5	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02								
		0.70mm	TTX32R 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02						
			6000S	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02							
		0.75mm	TTX32R 6000	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02					
			6000S	0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02						
		0.80mm	TTX32R 6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02					
			6000S	0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02						
		1.00mm	TTX32R 6000	0.00	0.76	8	0.15	0.13	0.12	0.12	0.10	0.08	0.04	0.02					
			6000S	0.05	0.71	7	0.18	0.15	0.12	0.10	0.08	0.06	0.02						
			6001	0.10	0.66	6	0.20	0.15	0.12	0.10	0.07	0.02							
	1.25mm	TTX32R 6001		0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02						
	1.50mm			0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02				
	1.75mm			0.10	1.23	10	0.25	0.23	0.20	0.13	0.10	0.10	0.08	0.07	0.05	0.02			
	2.00mm			0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.02	0.02	
Parallel Pipe (55°)	External Thread	28 TPI	TTX32R 5501	0.0039	0.0240	5	0.008	0.007	0.006	0.002	0.001								
		19 TPI	TTX32R 5501	0.0039	0.0374	8	0.008	0.007	0.006	0.005	0.005	0.004	0.002	0.001					
			5501S	0.0059	0.0354	7	0.008	0.007	0.006	0.006	0.005	0.003	0.001						
		14 TPI	TTX32R 5501S	0.0059	0.0504	10	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002	0.001			
		11 TPI	5501S	0.0059	0.0657	12	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.001	
		24 TPI	TTX32R 5501	0.0039	0.0287	6	0.008	0.007	0.006	0.005	0.002	0.001							
Whitworth (55°)	External Thread	20 TPI	TTX32R 5501	0.0039	0.0354	7	0.008	0.007	0.006	0.006	0.005	0.003	0.001						
			TTX32R 5501S	0.0059	0.0331	7	0.008	0.007	0.006	0.005	0.004	0.002	0.001						
		18 TPI		0.0059	0.0374	8	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001					
			16 TPI		0.0059	0.0433	9	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.002	0.001			
		14 TPI	TTX32R 5501S		0.0059	0.0504	10	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002	0.001		
		12 TPI			0.0059	0.0598	11	0.010	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.002	0.001		
		11 TPI			0.0059	0.0657	12	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.001

<How to use>

- 1) Select the insert with suitable corner-R (RE) determined by the pitch.
- 2) Do not exceed 0.0118" for the 1st D.O.C.
- 3) Final D.O.C. for Finishing should be 0.0008" - 0.0020".
- 4) To improve insert life, pre chamfer to thread minor diameter.
- 5) Coolant is recommended.

TTX Type

Suitable for threading to the shoulder.

Insert Part Number	Thread Type	Metric (mm)	Unified (TPI)	Parallel Pipe (TPI)	Whitworth (TPI)
TTX32R 6000		0.5~1.0	56~32	-	-
6000S		0.5~1.0	48~32	-	-
6001		1.0~2.0	28~14	-	-
TTX32R 6000S		0.5	56~48	-	-
6000S S		0.5	48	-	-
TTX32R S501		-	-	28~19	24~20
S501S		-	-	19~11	20~14

TPGB Type (60° Partial Profile)

(D.O.C. shows the value of radial ap.)

Thread Type	Pitch mm / TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass
Metric (60°)	Internal Thread	0.75mm	TPGB 21501 2201	0.05	0.44	5	0.15	0.12	0.10	0.05	0.02											
		0.80mm	TPGB 21501 2201	0.05	0.47	5	0.15	0.14	0.10	0.06	0.02											
		1.00mm	TPGB 21501 2201	0.05	0.60	6	0.18	0.14	0.12	0.10	0.04	0.02										
		1.25mm	TPGB 21501 2201	0.05	0.76	7	0.18	0.16	0.14	0.12	0.10	0.04	0.02									
		1.50mm	TPGB 21501 2201	0.05	0.92	8	0.20	0.18	0.16	0.14	0.10	0.08	0.04	0.02								
			21502 2202	0.10	0.87	8	0.20	0.18	0.16	0.14	0.08	0.05	0.04	0.02								
		1.75mm	TPGB 21501 2201	0.05	1.09	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.04	0.02							
			2202	0.10	1.04	9	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.05	0.02							
		2.00mm	TPGB 21501 2201	0.05	1.25	11	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.10	0.06	0.04	0.02					
			2202	0.10	1.20	11	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02					
		2.50mm	TPGB 21501 2201	0.05	1.57	13	0.23	0.20	0.18	0.18	0.14	0.13	0.12	0.10	0.08	0.07	0.07	0.05	0.02			
			2202	0.10	1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02			
		3.00mm	TPGB 21501 2201	0.05	1.90	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.12	0.10	0.08	0.08	0.07	0.05	0.02	
			2202	0.10	1.85	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.05	0.02	
			2205	0.20	1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.05	0.02		
		3.50mm	TPGB 21501 2201	0.05	2.22	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.02
			2202	0.10	2.17	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.10	0.08	0.07	0.05	0.02
			2205	0.20	2.07	15	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.08	0.07	0.05	0.02	

Guide for Internal Threading

For internal threading, ensure consistent diameter and pay attention to chip evacuation.

1. Stabilizing diameters of pre-drilled holes

Because small pitch internal threads have a small corner radius any variation in the diameter of pre drilled holes will greatly affect the tool life of the insert. Please minimize any variation of pre drilled holes and add an air pass to the first thread pass for safety.

2. Chip evacuation

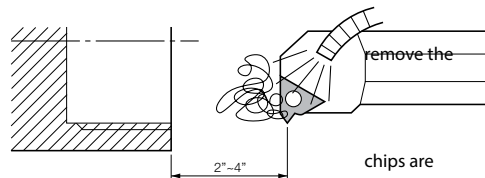
If the threading cycle continues with chips tangled on the holder or in the part it may damage the insert. We suggest starting each thread pass at least 2" from the part to allow room for the coolant to remove chips from the tool on each pass.

< 1 When running the first part of a setup>

Run the program in single block to make sure coolant can chips from the tool after each threading pass.

< 2 When running the second part of a setup>

Run through the full threading cycle and again check that removed from the tool before going into production.



The standard specification of the inch size thread is based on the dimension of 1/8".

In Applicable Toolholders and Inserts Lists on **J34~J37**, Right-hand Insert / Right-hand Toolholder descriptions are listed based on the previous TNN type inserts. For other applicable inserts / toolholders or stock availability of Left-hand, see each relevant page and **J40**.

Parallel Pipe : G (PF), Rp (PS)

Nominal Thread		TPI	External Thread (G)			Internal Thread (G,Rp)				Root Radius Ext./Int. (mm)
Inch	Symbol (Previous Symbol)		Toolholder	Insert		Toolholder	Insert		Min. Bore Dia. (mm)	
				Partial Profile	Full Profile		Partial Profile	Full Profile		
-	G 1/16 (-)	28	KTNR□□□□□-16 KTNSR□□□□□-16 S□□□-KTNL16	16ERA55-TF/TQ	-	SINR0612S-06E (EZT ⚡ J44)	06IR5501	-	6.56	0.12
1/8	G 1/8 (PF 1/8)			16ERAG55-TF/TQ 16ERA55 16ERAG55				-	8.57	
2/8	G 1/4 (PF 1/4)	19	KTNR□□□□□-16 KTNSR□□□□□-16 S□□□-KTNL16	16ERA55-TF/TQ	16ER19W-TF/TQ 16ER19W	SINR0816S-08E (EZT ⚡ J44)	08IR5501	-	11.45	0.18
3/8	G 3/8 (PF 3/8)			16ERAG55-TF/TQ 16ERA55 16ERAG55		SINR1216S-11E (EZT ⚡ J44)		11IRA55 11IR55005	-		14.95
4/8	G 1/2 (PF 1/2)	14	KTNR□□□□□-16 KTNSR□□□□□-16 S□□□-KTNL16	16ERAG55-TF/TQ 16ERG55-TF/TQ 16ERAG55 16ERG55	16ER14W-TF/TQ 16ER14W	SINR1516S-11	11IR55005	-	18.63	0.25
5/8	G 5/8 (PF 5/8)					SINR2016S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR14W-TF/TQ 16IR14W	20.59	
6/8	G 3/4 (PF 3/4)								24.12	
7/8	G 7/8 (PF 7/8)					SINR2420S-16			27.88	
8/8	G 1 (PF 1)					11	KTNR□□□□□-16 KTNSR□□□□□-16 S□□□-KTNL16	16ERAG55-TF/TQ 16ERG55-TF/TQ 16ERAG55 16ERG55	16ER11W-TF/TQ 16ER11W		SINR2420S-16	16IRAG55	16IR11W-TF/TQ 16IR11W	30.29	0.32
9/8	G 1 1/8 (PF 1 1/8)	CINR3025S-16	16IRG55 16IR5501 16IR5502	34.94						
10/8	G 1 1/4 (PF 1 1/4)	CINR3732S-16		38.95						
Hereafter, all the threads are 11 TPI and the root radius 0.32. The same tool for G 1 1/4 is recommended.										

Tapered Pipe : R, Rc(PT), (BSPT)

Nominal Thread		TPI	External Thread (G)			Internal Thread (Rc)			Root Radius Ext./Int. (mm)	
Inch	Symbol (Previous Symbol)		Toolholder	Insert		Toolholder	Insert			
				Partial Profile	Full Profile		Partial Profile	Full Profile		
-	R 1/16, Rc 1/16 (-)	28	KTNR□□□□□-16 KTNSR□□□□□-16 S□□□-KTNL16	(16ERA55-TF/TQ) (16ERAG55-TF/TQ) (16ERA55) (16ERAG55)	16ER28BSPT-TF/TQ 16ER28BSPT	SINR0612S-06E (EZT  J44)	06IR5501	-	0.12	
1/8	R 1/8, Rc 1/8 (PT 1/8)	28								
2/8	R 1/4, Rc 1/4 (PT 1/4)	19	KTNR□□□□□-16 KTNSR□□□□□-16 S□□□-KTNL16	(16ERA55-TF/TQ) (16ERAG55-TF/TQ) (16ERA55) (16ERAG55)	16ER19BSPT-TF/TQ 16ER19BSPT	SINR0816S-08E (EZT  J44)	08IR5501	-	0.18	
3/8	R 3/8, Rc 3/8 (PT 3/8)	19				SINR1216S-11E (EZT  J44)	(11IRA55) (11IR55005)	11IR19BSPT-TF/TQ 11IR19BSPT		
4/8	R 1/2, Rc 1/2 (PT 1/2)	14	KTNR□□□□□-16 KTNSR□□□□□-16 S□□□-KTNL16	(16ERAG55-TF/TQ) (16ERG55-TF/TQ) (16ERAG55) (16ERG55)	16ER14BSPT-TF/TQ 16ER14BSPT	SINR1516S-11 SINR1616S-16	(11IR55005)	11IR14BSPT-TF/TQ 11IR14BSPT	0.25	
6/8	R 3/4, Rc 3/4 (PT 3/4)	14				SINR2016S-16		16IR14BSPT-TF/TQ 16IR14BSPT		
8/8	R 1, Rc 1 (PT 1)	11	KTNR□□□□□-16 KTNSR□□□□□-16 S□□□-KTNL16	(16ERAG55-TF/TQ) (16ERG55-TF/TQ) (16ERAG55) (16ERG55)	16ER11BSPT-TF/TQ 16ER11BSPT	SINR2420S-16		(16IRAG55) (16IRG55) (16IR5501) (16IR5502)	16IR11BSPT-TF/TQ 16IR11BSPT	0.32
10/8	R 1 1/4, Rc 1 1/4 (PT 1 1/4)					CINR3025S-16				
12/8	R 1 1/2, Rc 1/2 (PT 1/2)					CINR3732S-16				
			Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for G 1 1/2 is recommended.			Hereafter, all the threads are 11 TPI and the root radius 0.32. The same tool for G 1 1/4 is recommended.				

1) The largest toolholder available for the minimum bore dia. is recommended for the female threading in these tables.

Then, the toolholder whose min. bore dia. is smaller than the recommended toolholder can be used for threading

2) When using "Partial Profile" for Tapered Pipe threading, thread's corners become sharp edged, and the shape will not be the same as the standard shape for Tapered Pipe.

American National Pipe (NPT)

Nominal Thread	TPI	External Thread			Internal Thread		
		Toolholder	Insert		Toolholder	Insert	
			Partial Profile	Full Profile		Partial Profile	Full Profile
1/16 NPT 1/8 NPT	27	KTTR○○○○□-16 KTTXR○○○○□-16F	TT32R6000 TTX32R6000	-	No Tools Available		
1/4 NPT 3/8 NPT	18	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	-	16ER18NPT	EZH Sleeve (EZH  J44)	EZTR060050-60-004 EZTR070060-60-004	-
1/2 NPT 3/4 NPT	14	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	-	16ER14NPT	EZH Sleeve (EZH  J44)	EZTR070060-60-004	-
1/2 NPT 3/4 NPT	14	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	-	16ER14NPT	SINR1616S-16 SINR2016S-16	-	16IR14NPT
1 NPT 1 1/4 NPT 1 1/2 NPT 2 NPT	11.5	KTNR○○○○□-16 KTNSR○○○○□-16 S○○□-KTNL16	-	16ER11.5NPT	SINR2420S-16 CINR3025S-16 CINR3732S-16	-	16IR11.5NPT

Application of NPTF Thread

NPTF is the thread for sealing pipes without using any sealing material.

Thread symbol is similar to NPT but the Tolerance is different from that of NPT and the above Inserts are not available to NPTF.

30° Trapezoidal (Tr)

The JIS Standard Trapezoidal Size to be machined by TNN Insert are shown.

Nominal Thread	Pitch (mm)	External Thread			Internal Thread			Min. Bore Dia.(mm)
		Toolholder	Insert		Toolholder	Insert		
			Partial Profile	Full Profile		Partial Profile	Full Profile	
Tr 16X2 Tr 18X2 Tr 20X2	2	No Tools Available			No Tools Available	-	-	14.00
		KTNR□□□□□-16 KTNSR□□□□□-16 S□□□-KTNL16	16ER200TR	-	SINR1616S-16	16IR200TR	-	16.00 18.00
Tr 22X3	3	KTNR□□□□□-16 KTNSR□□□□□-16 S□□□-KTNL16	16ER300TR	-	SINR1616S-16	16IR300TR	-	19.00
Tr 24X3 Tr 26X3	3				SINR2016S-16		-	21.00 23.00
Tr 28X3 Tr 30X3 Tr 32X3 Tr 34X3 Tr 36X3 Tr 38X3 Tr 40X3	3				SINR2420S-16	16IR300TR	-	25.00 27.00 29.00
					SINR3025S-16	16IR300TR	-	31.00 33.00 35.00 37.00
Tr 42X3 Tr 44X3 Tr 46X3 Tr 48X3 Tr 50X3 Tr 52X3 Tr 55X3 Tr 60X3 Tr 65X3	3				CINR3732S-16	16IR300TR	-	39.00 41.00 43.00 45.00 47.00 49.00 52.00 57.00 62.00
Tr 70X3 Tr 75X3 Tr 80X3 Tr 90X3 Tr 95X3 Tr 100X3 Tr 105X3 Tr 110X3	4	KTNR□□□□□-22	22ER400TR	-	CINR3732S-22	22IR400TR	-	66.00 71.00 76.00 86.00 91.00 96.00 101.00 106.00

TM Thread: TM Thread of old JIS 30° Trapezoidal Thread has been discontinued. But if the Nominal Dia. X Pitch is the same, the above Tr Thread can be used.

TW Thread: TW Thread is 29° Trapezoidal Thread and the above Inserts are not available.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Metric Coarse Thread : M

Nominal Thread	Pitch (mm)	Internal Threading			Min. Bore Dia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
M1 • • • M3	0.25 0.50	No Tools Available	-	-	0.73 • • • 2.46
M4	0.70		EZTR030025-60-002		3.24
M5	0.80		EZTR040035-60-004		4.13
M6	1.00		VNTR045-11	-	4.92
M7	1.00	-	EZTR050040-60-004	-	5.92
			VNTR045-11	-	
			EZTR060050-60-004	-	
M8	1.25	-	VNTR060-11	-	6.65
			SINR0612S-06E	-	
			06IR60005	-	
M9	1.25	-	EZTR070060-60-004	-	7.65
			SINR0612S-06E	-	
			06IR60005	-	
M10	1.50	SINR0816S-08E	08IR60007	-	8.38
M11	1.50				9.38
M12	1.75	SINR0816S-08E	08IR60007	-	10.11
M16	2.00	SINR1216S-11E	-	11IR200ISO	13.84
M18	2.50	No Tools Available			15.29
M20	2.50	SINR1616S-16	Table 5	16IR250ISO ⁰⁰	17.29
M22	2.50				19.29
M24	3.00	SINR2016S-16	Table 4	16IR300ISO ⁰⁰	20.75
M27	3.00				23.75
M30	3.5	SINR2420S-22	22IRN60	22IR350ISO	26.21
M33	3.5			22IR400ISO	29.21
M36	4.0	CINR3025S-22		22IR450ISO	31.67
M39	4.0			34.67	
M42	4.5	CINR3732S-22	22IRN60	22IR450ISO	37.13
M45	4.5			40.13	
M48	5.0	CINR3732S-22		22IR500ISO	42.59
M52	5.0			46.59	
M56 • • •	5.5	* Threading of M56 and over is not available due to too large pitch size.			50.05 • • •

Metric Fine Thread : M

Part 1

Nominal Thread	Pitch (mm)	Internal Threading			Min. BoreDia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
M1.0×0.20 • • • M3.0×0.35	0.20 0.35	No Tools Available	-	-	0.78 • • • 4.96
M3.5×0.35	0.35		EZTR030025-60-002	-	5.19
M4.5×0.50	0.50		EZTR035030-60-002	-	5.19
M5.0×0.50	0.50			-	
M6.0×0.75	0.75	-	VNTR045-11	-	5.19
M7.0×0.75	0.75	-	EZTR050040-60-004	-	6.20
			VNTR045-11	-	
M8.0×1.00	1.00	-	EZTR060050-60-004	-	6.92
			VNTR060-11	-	
			06IR60005	-	
M8.0×0.75	0.75	-	EZTR060050-60-004	-	7.19
			VNTR060-11	-	
			06IR60005	-	
M9.0×1.00	1.00	-	EZTR070060-60-004	-	7.92
			VNTR060-11	-	
			06IR60005	-	
			08IR60007	-	
M9.0×0.75	0.75	-	EZTR070060-60-004	-	8.19
			VNTR060-11	-	
			06IR60005	-	
M10.0×1.25	1.25	-	VNTR060-11	-	8.65
			08IR60007	-	
M10.0×1.00	1.00	-	VNTR060-11	-	8.92
			08IR60007	-	
M10.0×0.75	0.75	-	VNTR060-11	-	9.19
			06IR600005	-	
M11.0×1.00	1.00	-	VNTR060-11	-	9.92
			08IR60007	-	
M11.0×0.75	0.75	-	VNTR060-11	-	10.19
			SINR0612S-06E	-	

• Above shows the usage example of applicable Toolholders / Inserts.

Metric Fine Thread : M

Part 2

Nominal Thread	Pitch (mm)	Toolholder	Internal Threading		Min. Bore Dia. (mm)
			Insert		
			Partial Profile	Full Profile	
M12.0×1.50 M12.0×1.25 M12.0×1.00	1.50 1.25 1.00	SINR0816S-08E	08IR60007	-	10.38 10.65 10.92
M14.0×1.50 M14.0×1.25 M14.0×1.00	1.50 1.25 1.00	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□ 11IR125ISO-□□ 11IR100ISO-□□	12.38 12.65 12.92
M15.0×1.50 M15.0×1.00	1.50 1.00	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□ 11IR100ISO-□□	13.38 13.92
M16.0×1.50 M16.0×1.00	1.50 1.00	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO-□□ 11IR100ISO-□□	14.38 14.92
M17.0×1.50 M17.0×1.00	1.50 1.00	SINR1516S-11E	11IRA60 11IR60005	11IR150ISO-□□ 11IR100ISO-□□	15.38 15.92
M18.0×2.00 M18.0×1.50 M18.0×1.00	2.00 1.50 1.00	SINR1516S-11E	-	11IR200ISO	15.84 16.38 16.92
M20.0×2.00 M20.0×1.50 M20.0×1.00	2.00 1.50 1.00	SINR1616S-16	Table 2 Table 3	16IR150ISO-□□ 16IR100ISO-□□	17.84 18.38 18.92
M22.0×2.00 M22.0×1.50 M22.0×1.00	2.00 1.50 1.00	SINR1616S-16	Table 1 Table 2 Table 3	16IR200ISO-□□ 16IR150ISO-□□ 16IR100ISO-□□	19.84 20.38 20.92
M24.0×2.00 M24.0×1.50 M24.0×1.00	2.00 1.50 1.00	SINR2016S-16	Table 1 Table 2 Table 3	16IR200ISO-□□ 16IR150ISO-□□ 16IR100ISO-□□	21.84 22.38 22.92
M25.0×2.00 M25.0×1.50 M25.0×1.00	2.00 1.50 1.00	SINR2016S-16	Table 1 Table 2 Table 3	16IR200ISO-□□ 16IR150ISO-□□ 16IR100ISO-□□	22.84 23.38 23.92
M26.0×1.50 M27.0×2.00 M27.0×1.50 M27.0×1.00	1.50 2.00 1.50 1.00	SINR2420S-16	Table 2 Table 1 Table 2 Table 3	16IR150ISO-□□ 16IR200ISO-□□ 16IR150ISO-□□ 16IR100ISO-□□	24.38 24.84 25.38 25.92
M28.0×2.00 M28.0×1.50 M28.0×1.00	2.00 1.50 1.00	SINR2420S-16	Table 1 Table 2 Table 3	16IR200ISO-□□ 16IR150ISO-□□ 16IR100ISO-□□	25.84 26.38 26.92
M30.0×3.00 M30.0×2.00 M30.0×1.50 M30.0×1.00	3.00 2.00 1.50 1.00	SINR2420S-16	- Table 4 Table 1 Table 2 Table 3	22IR300ISO 16IR300ISO-□□ 16IR200ISO-□□ 16IR150ISO-□□ 16IR100ISO-□□	26.75 27.84 28.38 28.92
M32.0×2.00 M32.0×1.50	2.00 1.50	SINR2420S-16	Table 1 Table 2	16IR200ISO-□□ 16IR150ISO-□□	29.84 30.38
M33×3.0 M33×2.0 M33×1.5	3.0 2.0 1.5	SINR2420S-16	- Table 4 Table 1 Table 2	22IR300ISO 16IR300ISO-□□ 16IR200ISO-□□ 16IR150ISO-□□	29.75 30.84 31.38
M35×1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	33.38
M36×3.0 M36×2.0 M36×1.5	3.0 2.0 1.5	CINR3025S-16	- Table 4 Table 1 Table 2	22IR300ISO 16IR300ISO-□□ 16IR200ISO-□□ 16IR150ISO-□□	32.75 33.84 34.38
M38×1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	36.38
M39×3.0 M39×2.0 M39×1.5	3.0 2.0 1.5	CINR3025S-16	- Table 4 Table 1 Table 2	22IR300ISO 16IR300ISO-□□ 16IR200ISO-□□ 16IR150ISO-□□	35.75 36.84 37.38
M40×3.0 M40×2.0 M40×1.5	3.0 2.0 1.5	CINR3025S-16	- Table 4 Table 1 Table 2	22IR300ISO 16IR300ISO-□□ 16IR200ISO-□□ 16IR150ISO-□□	36.75 37.84 38.38
M42×4.0 M42×3.0 M42×2.0 M42×1.5	4.0 3.0 2.0 1.5	CINR3732S-22	22IRN60 - Table 4 Table 1 Table 2	22IR400ISO 22IR300ISO 16IR300ISO-□□ 16IR200ISO-□□ 16IR150ISO-□□	37.67 38.75 39.84 40.38
M45×4.0 • • •	4.0	* Threading of M45 and over can be machined by the same tool for M42. (P=4.0, 3.0, 2.0, 1.5)			40.67 • • •

Table 1 (P=2.0mm)

16IRG60
16IRAG60
16IR6001

Table 2 (P=1.5mm)

16IRA60
16IRAG60
16IR6001

Table 3 (P=1.0mm)

16IRA60
16IRAG60

Table 4 (P=3.0mm)

16IRG60
16IRAG60

Table 5 (P=2.5mm)

16IRG60
16IRAG60
16IR6001
16IR60015

Unified Coarse Thread : UNC

Nominal Thread	TPI	Internal Threading			Min. Bore Dia. (mm)			
		Toolholder	Insert					
			Partial Profile	Full Profile				
2-56 UNC • • • 6-32 UNC	56 32	No Tools Available	-	-	1.69 • • • 2.65			
8-32 UNC	32				-	EZTR030025-60-002	-	3.31
10-24 UNC	24				-	EZTR035030-60-002	-	3.68
1/4-20 UNC	20				-	EZTR050040-60-004	-	4.98
		-	VNTR045-11	-				
5/16-18 UNC	18	-	EZTR060050-60-004	-	6.41			
		-	VNTR060-11	-				
		-	EZTR070060-60-004	-				
3/8-16 UNC	16	-	HPTR07507-60-005	-	7.81			
		-						
7/16-14 UNC	14	No Tools Available			9.15			
1/2-13 UNC	13				10.58			
9/16-12 UNC	12				12.00			
5/8-11 UNC	11				13.38			
3/4-10 UNC	10				16.30			
7/8- 9 UNC	9	SINR1616S-16	16IRG60 16IRAG60	16IR10UN-□□	19.17			
1-8 UNC	8			16IRO8UN-□□	21.96			
1 1/8- 7 UNC	7	SINR2420S-22	22IRN60	-	24.65			
1 1/4- 7 UNC				27.82				
1 3/8- 6 UNC	6	CINR3025S-22		-	30.34			
1 1/2- 6 UNC				33.52				
1 3/4- 5 UNC				38.95				
2-4 1/2 UNC • • •	4 1/2	* 2-4 1/2 UNC and over cannot be machined, because no inserts are available for the TPI.			44.69 • • •			

Unified Fine Thread : UNF

Nominal Thread	TPI	Internal Threading			Min. Bore Dia. (mm)		
		Toolholder	Insert				
			Partial Profile	Full Profile			
0-80 UNF • • • 6-40 UNF	80 40	No Tools Available	-	-	1.18 • • • 2.82		
8-36 UNF	36				-	-	3.4
10-32 UNF	32				-	-	3.97
1/4-28 UNF	28				-	-	5.37
5/16-24 UNF	24	-	EZTR050040-60-004	-	6.79		
		-	VNTR045-11	-			
		-	VNTR060-11	-			
3/8-24 UNF	24	SINR0612S-06E	06IR60005	-	8.38		
		-	EZTR070060-60-004	-			
		SINR0612S-06E	06IR60005	-			
7/16-20 UNF	20	SINR0816S-08E	08IR60007	-	9.74		
1/2-20 UNF	20		-	-	11.33		
9/16-18 UNF	18		SINR1216S-11E	11IRA60	-	12.76	
5/8-18 UNF	18		11IR60005	-	14.35		
3/4-16 UNF	16	SINR1516S-11	11IRA60	-	17.33		
		SINR1616S-16	11IR60005	-			
		SINR2016S-16	16IR16UN(-□□)	-			
7/8-14 UNF	14	SINR2016S-16	16IRAG60 16IRG60 16IR6001	16IR14UN(-□□)	20.26		
1-12 UNF	12	SINR2016S-16		-	23.10		
1 1/8-12 UNF	12	SINR2420S-16		-	16IR12UN(-□□)	26.28	
1 1/4-12 UNF				-	-	29.46	
1 3/8-12 UNF				-	-	32.63	
1 1/2-12 UNF	12	CINR3025S-16	-	-	36.81		

Unified Extra Fine Thread : UNEF

Nominal Thread	TPI	Internal Threading			Min. Bore Dia (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
12-32UNEF 1/4-32UNEF 5/16-32UNEF 3/8-32UNEF	32	-	EZTR035030-60-002	-	4.63 5.49 7.08 8.67
7/16-28UNEF 1/2-28UNEF	28	SINR0612S-06E	06IR60005		10.13 11.72
9/16-24UNEF 5/8-24UNEF	24	SINR1216S-11E	11IRA60 11IR60005		13.14 14.73
11/16-24UNEF		SINR1516S-11			16.32
3/4-20UNEF	20	SINR1616S-16	16IRA60 16IRAG60	16IR24UN(-□□)	17.68
13/16-20UNEF				16IR20UN(-□□)	19.26
7/8-20UNEF		SINR2016S-16			20.85
15/16-20UNEF					22.44
1-20UNEF					24.03
1 1/16-18UNEF 1 1/8-18UNEF 1 3/16-18UNEF 1 1/4-18UNEF 1 5/16-18UNEF 1 3/8-18UNEF 1 7/16-18UNEF	18	SINR2416S-16		16IR18UN(-□□)	25.46 27.05 28.63 30.22 31.81 33.40 34.98
1 1/2-18UNEF		CINR3025S-16			36.57
1 9/16-18UNEF	18	CINR3732S-16			38.16
1 5/8-18UNEF					39.75
1 11/16-18UNEF					41.33

Whitworth Coarse Thread : W

Nominal Thread	TPI	Internal Threading			Min. Bore Dia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
W 1/4	20	No Tools Available	-	-	4.91
W 5/16	18		-	-	6.34
W 3/8	16		No Tools Available			7.73
W 7/16	14	9.06			
W 1/2	12	10.30			
W 9/16		11.89			
W 5/8		13.26			
W 3/4	10	SINR1616S-16	16IRAG55	-	16.17
W 7/8	9				19.03
W 1	8	SINR2016S-16	16IRG55	-	21.08
W 1 1/8	7	SINR2420S-22	22IRN55	-	24.47
W 1 1/4					27.64
W 1 3/8	6	CINR3025S-22	22IRN55	-	30.13
W 1 1/2					33.30
W 1 5/8	5	CINR3732S-22	22IRN55	-	35.52
W 1 3/4	5				38.69
W 1 7/8	4 1/2				No Tools Available			41.23
W 2		44.41			
W 2 1/4	4				49.96

• Above shows the usage example of applicable Toolholders / Inserts.

Whitworth Fine Thread : W

Nominal Thread	TPI	Internal Threading			Min. Bore Dia. (mm)		
		Toolholder	Insert				
			Partial Profile	Full Profile			
W9.5 TPI 24	24	SINR0816S-08E	08IR5501	-	8.30		
W10 TPI 24		-	EZTRO60050-55-008		8.80		
W10.5 TPI 24					9.30		
W9.5 TPI 20	20	SINR0816S-08E	08IR5501	-	8.06		
W10 TPI 20					8.56		
W10.5 TPI 20					9.06		
W11 TPI 20					9.56		
W11.5 TPI 20		-	EZTRO60050-55-008		10.06		
W12 TPI 20			EZTRO80070-55-008		10.56		
W12.5 TPI 20					11.06		
W13 TPI 20					11.56		
W13.5 TPI 20	20	SINR1216S-11E	11IRA55 11IR5500S	-	12.06		
W11 TPI 18	18	No Tools Available			9.40		
W11.5 TPI 18					9.90		
W12 TPI 18					10.40		
W12.5 TPI 18	18	SINR1216S-11E	11IRA55 11IR5500S	-	10.90		
W14 TPI 18					12.40		
W14.5 TPI 18					12.90		
W15 TPI 18					13.40		
W16 TPI 18					14.40		
W13 TPI 16	16	No Tools Available			11.20		
W13.5 TPI 16					11.70		
W14 TPI 16	16	SINR1216S-11E	11IRA55 11IR5500S	-	12.20		
W14.5 TPI 16					12.70		
W15 TPI 16					13.20		
W17 TPI 16		SINR1516S-11E			15.20		
W18 TPI 16	16	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	(16IR16W- ⁰⁹)	16.20		
W19 TPI 16					17.20		
W20 TPI 16					18.20		
W16 TPI 14	14	SINR1216S-11E	11IRA55 11IR5500S	-	13.94		
W17 TPI 14					14.94		
W18 TPI 14	14	SINR1516S-11			15.94		
W21 TPI 14	14	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	(16IR14W- ⁰⁹) (16IR14W)	18.94		
W22 TPI 14					19.94		
W23 TPI 14	14	SINR2016S-16			20.94		
W24 TPI 14					21.94		
W25 TPI 14					22.94		
W26 TPI 14					23.94		
W19 TPI 12	12	SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	-	16.60		
W20 TPI 12					17.60		
W21 TPI 12					18.60		
W22 TPI 12					19.60		
W28 TPI 12	12	SINR2420S-16	16IRAG55 16IRG55 16IR5501 16IR5502	-	25.60		
W30 TPI 12					27.60		
W32 TPI 12					29.60		
W34 TPI 12					31.60		
W35 TPI 12	12	CINR3025S-16	16IRAG55 16IRG55 16IR5501 16IR5502	-	32.60		
W36 TPI 12					33.60		
W38 TPI 12					35.60		
W40 TPI 12					37.60		
W42 TPI 12	12	CINR3732S-16		-	39.60		
W44 TPI 12					41.60		
W45 TPI 12					42.60		
W46 TPI 12					43.60		
W48 TPI 12		Hereafter, 12 TPI Whitworth Fine Thread can be machined by the same tool as above.			45.60		
W50 TPI 12					47.60		
•					•		
•					•		
W23 TPI 10	10	SINR2016S-16	16IRAG55 16IRG55	-	20.12		
W24 TPI 10					21.12		
W25 TPI 10					22.12		
W26 TPI 10					23.12		
W28 TPI 9	9	SINR2420S-16		16IRAG55 16IRG55	-	24.80	
W30 TPI 9						26.80	
W32 TPI 9						28.80	
W34 TPI 8	8	CINR3025S-16			-	30.40	
W35 TPI 8			31.40				
W36 TPI 8			32.40				
W38 TPI 8			34.40				
W40 TPI 8			36.40				
W42 TPI 8	7	CINR3732S-22	22IRN55	-	38.40		
W44 TPI 7					39.89		
W45 TPI 7					40.89		
W46 TPI 7					41.89		
W48 TPI 7					43.89		
W50 TPI 7	6	CINR3732S-22	22IRN55	-	45.89		
W52 TPI 7					47.89		
W55 TPI 6	6	CINR3732S-22	22IRN55	-	50.20		
W58 TPI 6					53.20		
W60 TPI 6					55.20		
W62 TPI 6					57.20		
•	5	CINR3732S-22	22IRN55	-	•		
W72 TPI 6					67.20		
W75 TPI 5					69.24		
•	4				•		
W105 TPI 5					99.24		
W110 TPI 4					102.8		
•					•		
•					•		

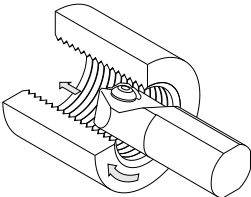
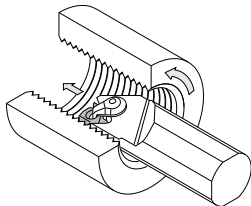
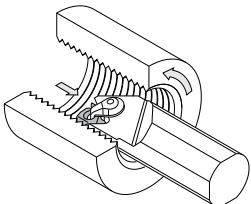
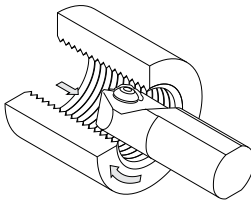
External Threading (R-hand Thread / L-hand Thread)

Left-hand Thread	Toolholder		Left-Hand		
	Insert		Left-Hand		
	The direction of spindle revolution		M04		
	Toolholder		Right-Hand		
	Insert		Right-Hand		
	The direction of spindle revolution		M04		
	Toolholder		Left-Hand		
	Insert		Left-Hand		
The direction of spindle revolution		M03			
Toolholder		Right-Hand			
Insert		Right-Hand			
The direction of spindle revolution		M03			

External Threading					
Right-hand Thread	Toolholder		Right-Hand		
	Insert		Right-Hand		
	The direction of spindle revolution		M03		
	Toolholder		Left-Hand		
	Insert		Left-Hand		
	The direction of spindle revolution		M03		
	Toolholder		Right-Hand		
	Insert		Right-Hand		
The direction of spindle revolution		M04			
Toolholder		Left-Hand			
Insert		Left-Hand			
The direction of spindle revolution		M04			

These tables are based on KTN / KTNS / KTT / KTTX Toolholder.

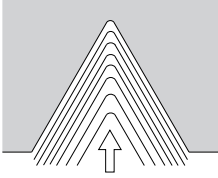
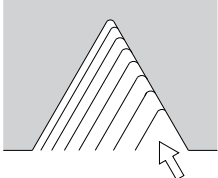
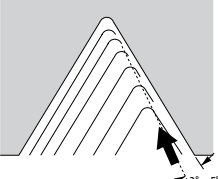
Internal Threading (R-hand Thread / L-hand Thread)

Internal Threading							
Left-hand Thread		Toolholder	Left-Hand	Right-hand Thread		Toolholder	Right-Hand
		Insert	Left-Hand			Insert	Right-Hand
		The direction of spindle revolution	M04			The direction of spindle revolution	M03
		Toolholder	Right-Hand		Toolholder	Left-Hand	
Insert		Right-Hand	Insert	Left-Hand			
The direction of spindle revolution		M03	The direction of spindle revolution	M04			
							

These tables are based on SIN / CIN type Toolholder.

For KITG type (for large internal threading), Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Infeed Methods

Infeed Methods	Features
 Radial Infeed	- The cutting edge moves toward the center of the workpiece every pass. - Suitable for relatively small pitch size threading. - V-shape chips are generated and chip control may be difficult depending on workpiece material. - Chips prevent coolant from reaching tool tip causing poor tool life.
 Flank Infeed	- Used for large pitch size threading. - No DOC on right side of the figure causes insert wear and on materials that work harden will cause hardening of this surface. - Chips flow to one side.
 Flank Compound Infeed	- Recommended method to reduce work hardening and improve insert life. 3-5 degrees for steel and up to 12 degrees for stainless materials. - Chips flow to one side allowing coolant to reach insert tip. - This method is recommended to threading by 2-thread insert.

Lead angle of thread

Thread's lead angle β as shown in Fig. 1 decides from the workpiece diameter "D" (Pitch dia.) And the lead "L" (In case of single-start thread, it is the same as pitch "TP"). By rolling a right-angled triangle around a cylinder and the angle ACB in Fig. 2 becomes the lead angle β . The calculation formula is shown as follows.

$$\tan \beta = \frac{L}{\pi D} = \frac{nTP}{\pi D}$$

β : Lead angle D: Pitch dia. n: Number of thread TP: Pitch
L: Lead (In case of single-start thread, it is equal to TP. In case of n-start thread, it is equal to n x TP)

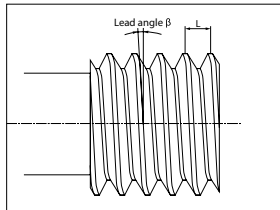


Fig. 1

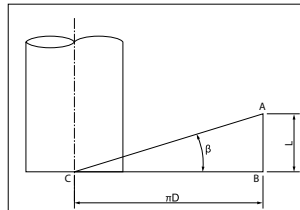


Fig. 2

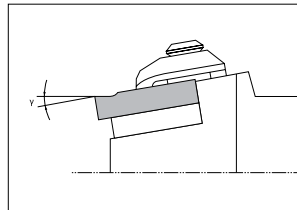


Fig. 3

Relief angle of thread

Against this lead angle, the threading insert requires side relief angle α . Negative type threading insert has no relief angle. When installing the negative type insert in the toolholder, the edge inclination angle γ (Fig. 3) is set, and at the same time front relief angle as well as side relief angle are generated to the insert. Side relief angle is described by the following formula. (Fig. 4)

$$\tan \alpha = \tan \gamma \times \tan \left(\frac{\theta}{2} \right)$$

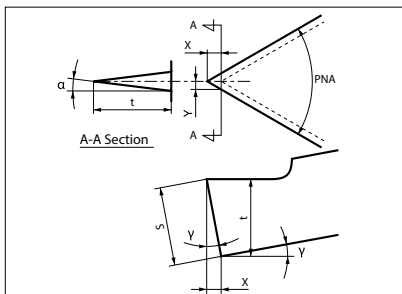


Fig. 4

Symbol	e.g.)
α : Side relief angle	
γ : Inclination angle after installing insert	External insert: 10° Internal insert: 15°
PNA: Insert's thread angle	Metric: 60° Tapered pipe: 55° 30° trapezoidal: 30°
S: Insert thickness	

$$\begin{cases} X = S \cdot \sin \gamma \\ Y = X \cdot \tan(\theta/2) = t \cdot \tan \alpha \\ t = S \cdot \cos \gamma \end{cases}$$

Table 1

Inserts	Side relief angle α	
	External	Internal
60° thread (M, UN, NPT)	5° 49'	8° 47'
55° thread (W, G, PT)	5° 14'	7° 56'
30° trapezoidal (Tr)	2° 43'	5° 7'

Ref. to Table 1 for the side relief angle depending on the insert type.

However, the side relief angle is set for 1° in the traveling direction by the toolholder itself, so that the actual side relief angle becomes $\alpha + 1^\circ$.

	Basic profile	Symbol (Previous symbol)	Type	Applicable inserts	Applicable toolholders
Metric					

* For the case when the thread root's corner-R(RE) can be smaller than the standard.



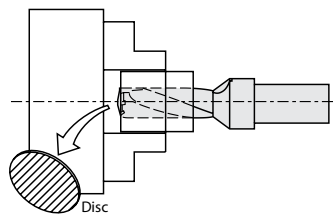
K

Overview		K2~K3
DRA Magic Drill		K4~K43
Inserts	GM - General Purpose	K6
	FTP - Flat Bottom / Counterboring	K8
	FTP-H - Steel Beam Drilling	K11
	HQP - Precision / for Carbon Steel	K13
	HQS - For Difficult-to-Cut Materials / Stainless Steel	K16
Inch Toolholders	SF-DRA (Flange Shank) 1.5D / 3D / 5D / 8D	K18
	SS-DRA (Straight Shank) 1.5D / 3D / 5D / 8D	K22
Metric Toolholders	SF-DRA (Flange Shank) 1.5D / 3D / 5D / 8D / 12D	K26
	SS-DRA (Straight Shank) 1.5D / 3D / 5D / 8D	K31
Chamfering Attachment for SS-DRA	S-CH-DRA	K36
DRV Magic Drill		K44~K73
Inserts	LCMT / SCMT (Outer Edge)	K46
	LCMT / SCMT (Inner Edge)	K48
Inch Toolholders	DRV 2D / 3D / 4D / 5D / 6D	K50
Metric Toolholders	DRV 2D / 3D / 4D / 5D / 6D	K56
Chamfering Attachment for DRV	DRV-CH	K68
Adjustable Sleeve (DRV / DRZ)		K74~K75
DRZ Magic Drill		K78~K97
Inserts	ZCMT	K78
Inch Toolholders	DRZ 2D / 3D / 4D / 5D	K80
Metric Dia. / Inch Shank Toolholders	DRZ 3D	K84
Metric Toolholders	DRZ 2D / 3D / 4D / 5D / 6D	K86
HOLESHOT Drill		K98~K105
Inserts	WCMT / WCMX	K99
Toolholders	DR	K100
Coremaster Coredrill		K106~K109
Inserts	WCMT / WCMX	K106
Toolholders	CD / CD-C / CD-XL / CD-LC	K107
Counterbores		K110~K111
Inserts	TCMT	K110
Toolholders	SHCS-CB	K111
Countersinks		K112~K113
Inserts	TCMT	K112
Toolholders	CS	K113

Product Lineup

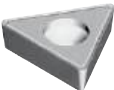
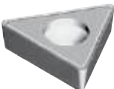
Series Name	Image	Drill Dia. (Drilling Depth)	Cutting Edge	Notes
DRA Magic Drill  K4	 Screw Clamp	Ø0.313" ~ Ø1.004" Ø7.94mm ~ Ø25.5mm (1.5D) Ø0.313" ~ Ø1.004" Ø7.94mm ~ Ø33.0mm (3D / 5D / 8D) Ø12mm ~ Ø25.5mm (12D)	Replaceable Insert Tip with Double Margins 	Lineup  SS-DRA SF-DRA Chamfering Attachment
DRV Magic Drill  K44	 Silver Coating	Ø0.500" ~ Ø2.000" Ø12mm ~ Ø60mm (2D / 3D / 4D / 5D / 6D)	Individually Designed Inner & Outer Edges  Outer Edge Inside Edge	Chip Shape (Workpiece: 1049) Drill Dia. Ø20mm Chip from Outer Edge  Chip from Inside Edge 
DRZ Magic Drill  K78		Ø0.562" ~ Ø2.000" Ø13mm ~ Ø59mm (2D / 3D) Ø0.562" ~ Ø2.000" Ø13mm ~ Ø50mm (4D) Ø0.1062" ~ Ø2.000" Ø27mm ~ Ø50mm (5D)	Inside and Outside Edge on One Insert 	Chip Shape (Workpiece: 1049) Drill Dia. Ø23mm Chip from Outer Edge  Chip from Inside Edge 

Caution



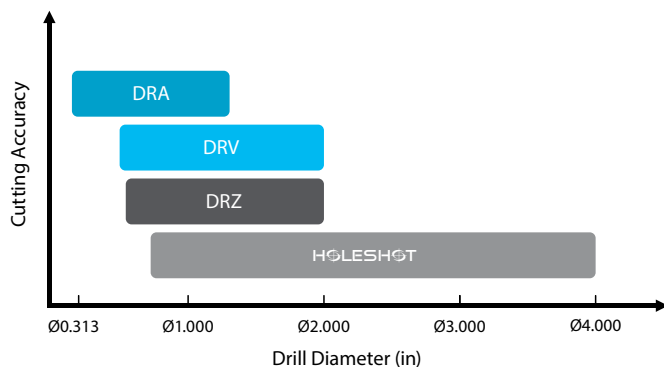
When drilling through the workpiece, a disk may be ejected. Proper machine guarding is necessary to prevent injury. The safety cover is necessary for the conventional lathe machines to prevent any accidents.

Product Lineup

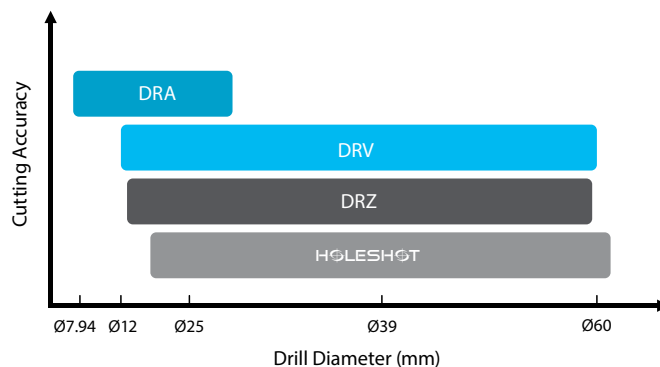
Series Name	Image	Drill Dia. (Drilling Depth)	Cutting Edge	Notes
DR HOLESHOT K98		Ø0.688"~Ø4.000"	 WCMX	- Flute design optimized for maximum rigidity and good chip evacuation - Swept back design enables drilling of stacked plates and welded assemblies
CD Coremaster Coredrill K106		Ø0.825"~Ø3.150"	 WCMX	- Available in both fixed pocket and adjustable cartridge providing 0.150" adjustment capability on diameter. - Fast, effective way to expand pre-existing holes. - Two effective flutes allow high feed-rates for improved productivity.
Counterbore K110			Three cutting edges per insert  TCMT	Counterbores For socket head cap screws 1/4" to 3/4" and 6mm to 16mm
Countersink K112			Three cutting edges per insert  TCMT	Countersinks For flat head cap screw sizes #10 to 3/4"

Drill Series Application Map

Inch Size Lineup



Metric Size Lineup

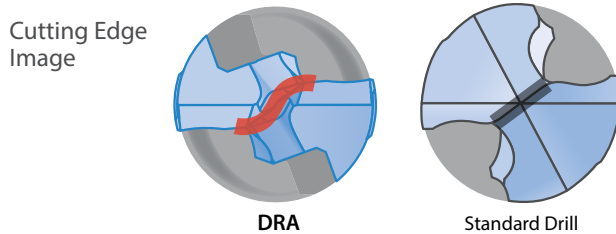


DRA Magic Drill

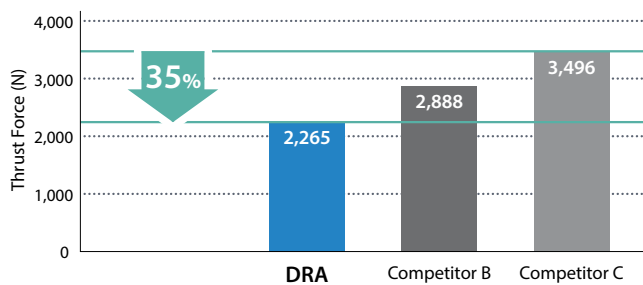
Excellent Hole Accuracy with a Low Cutting Force Design
5 Advantages to Efficiently Solve Common Drilling Difficulties

1 Low Cutting Force Design Improves Hole Accuracy

The special chisel edge with S-curve reduces thrust force and controls vibration



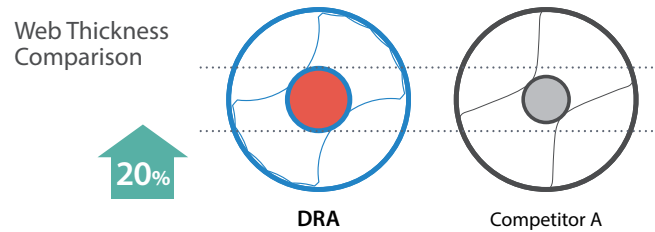
Cutting Force Comparison
(Internal Evaluation)



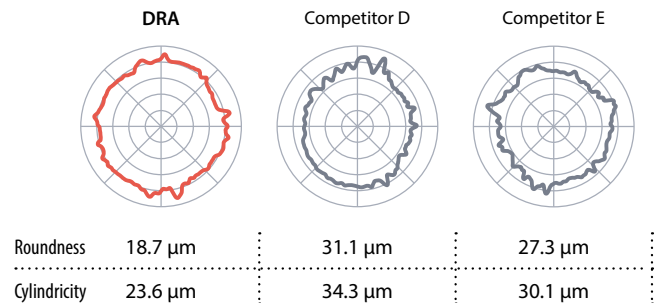
Cutting Conditions : $V_c = 390$ sfm, $f = 0.010$ ipr,
 Drilling Diameter $\varnothing 0.551$ ", Drilling Depth 1.772", Wet, Workpiece : 1049 Steel

2 Optimal Web Thickness Limits Deflection

The hole accuracy is improved by controlling drill deflection with a 20% thicker web compared with Competitor A



Roundness · Cylindricity Comparison
(Internal Evaluation)



Cutting Conditions : $V_c = 390$ sfm, $f = 0.012$ ipr
 Drilling Diameter $\varnothing 0.551$ ", Measurement Position 2.165", Wet Workpiece : 1049 Steel

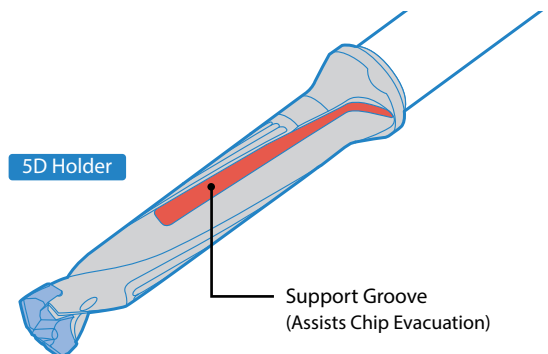
3 Fine Chip Breaking Even in Deep Hole Drilling Applications

Optimized chip thinning for stable chip evacuation
Support groove with wider flute (5D, 8D, and 12D) enables smooth chip evacuation

Chip Comparison
(Internal Evaluation)

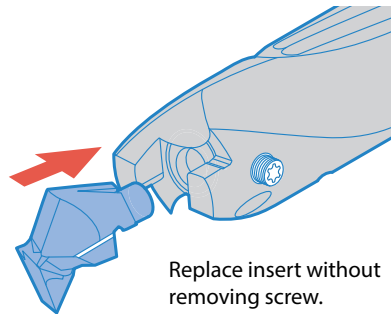


Cutting Conditions : $V_c = 200$ sfm, $f = 0.008$ ipr, Drilling Diameter $\varnothing 0.551$ "
 Drilling Depth 2.756", Wet Workpiece : 304 Stainless Steel

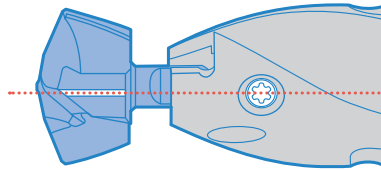


4 Easy Insert Replacement

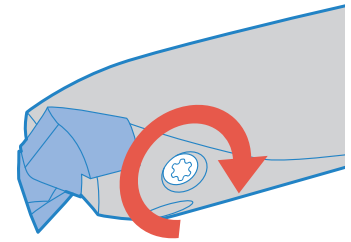
Replace insert without removing screw



Replace insert without removing screw.



Install the insert onto toolholder.
(Align insert guide line with screw position)



Fix the insert by tightening the screw.

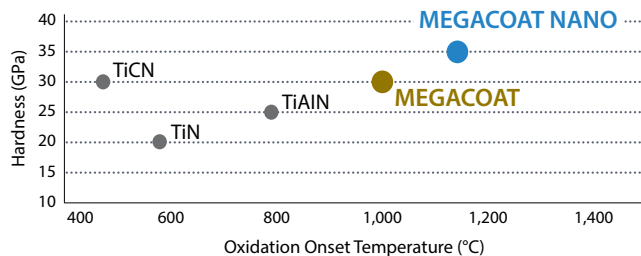
5 Long Tool Life and Stable Machining of Various Workpieces

MEGACOAT NANO grade PR1535 is used to machine various materials from steel to stainless steel, with the combination of a tough substrate and a special nano layer coating

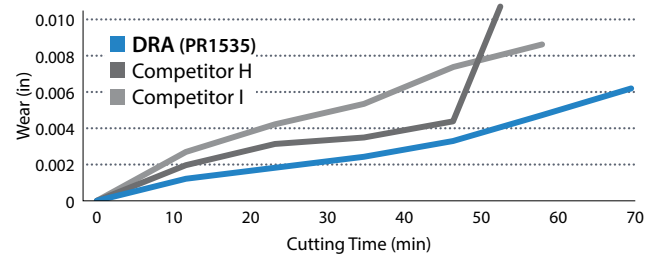
1st Recommendation

Steel PR1535	Cast Iron PR1525
-----------------	---------------------

Coating Properties



Wear Resistance Comparison
(Internal Evaluation)

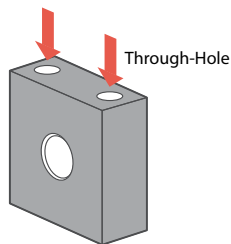


Cutting Conditions : $V_c = 330$ sfm, $f = 0.010$ ipr,
Cutting Diameter $\varnothing 0.551"$, Cutting Depth 1.772", Wet
Workpiece : 4140H

Case Studies

Attachment - Structural Steel

$V_c = 230$ sfm ($n = 1,240$ rpm)
 $f = 0.009$ ipr ($V_f = 11.221$ in/min)
Cutting Depth 3.937"
Wet (Internal Coolant)
With Center Hole Drilling
SF0750-DRA180M-8
DA1800M-GM PR1535



Cutting Time

DRA $\varnothing 0.709"-8D$

45 sec

30%
Cutting Time

Competitor J
 $\varnothing 0.709"-7D$

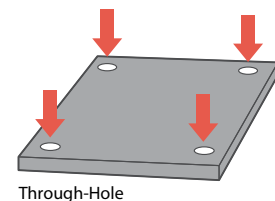
65 sec

Competitor J applied a peck cycle to avoid chip clogging.
DRA controlled chip evacuation without pecking.

(User Evaluation)

Plate - Stainless Steel

$V_c = 195$ sfm ($n = 2,120$ rpm)
 $f = 0.005$ ipr ($V_f = 10$ in/min)
Cutting Depth 0.591"
Wet (Internal Coolant)
SS0375-DRA090M-3
DA0900M-GM PR1535



No. of Holes

DRA $\varnothing 0.354"-3D$

500

Tool Life
X5

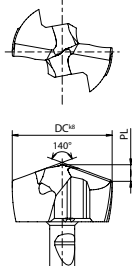
Competitor K
 $\varnothing 0.354"-3D$

100

DRA extended the tool life by 5 times compared to Competitor K.
DRA maintained stable machining and excellent surface finish with less cutting noise.

(User Evaluation)

DRA Insert (GM - General Purpose)

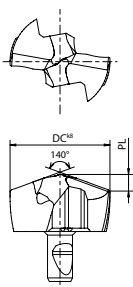
				Carbon Steel / Alloy Steel			○	●	P					
				Mold and Die Steel										
				Stainless Steel			○	●			M			
				Cast Iron			●	○					K	
				Non-Ferrous Metals										
Insert		Part Number		Dimensions		Tolerance (mm)		Carbide	Applicable Toolholder ● K18~K34					
				DC		PL (mm)	k8 (min.)	k8 (max.)			PVD			
				in	mm						PR1525	PR1535		
	 General Purpose	DA 0794M-GM	0.313	7.94	1.34	0	+0.022	●	●	SF...-DRA080M-○ SS...-DRA080M-○				
		0800M-GM	0.315	8.00	1.35			●	●					
		0810M-GM	0.319	8.10	1.37			●	●					
		0818M-GM	0.322	8.18	1.38			○	○					
		0820M-GM	0.323	8.20	1.38			●	●					
		0830M-GM	0.327	8.30	1.40			●	●					
		0840M-GM	0.331	8.40	1.42	○	○	SF...-DRA085M-○ SS...-DRA085M-○						
		DA 0850M-GM	0.335	8.50	1.44	●	●							
		0860M-GM	0.339	8.60	1.46	●	●							
		0870M-GM	0.343	8.70	1.48	0	+0.022		●	●				
		0880M-GM	0.346	8.80	1.49	●	●							
		0890M-GM	0.350	8.90	1.51	●	●	SF...-DRA090M-○ SS...-DRA090M-○						
		DA 0900M-GM	0.354	9.00	1.52	●	●							
		0910M-GM	0.358	9.10	1.54	●	●							
		0920M-GM	0.362	9.20	1.56	0	+0.022		●	●				
		0930M-GM	0.366	9.30	1.58	●	●							
		0940M-GM	0.370	9.40	1.59	●	●	SF...-DRA095M-○ SS...-DRA095M-○						
		DA 0950M-GM	0.374	9.50	1.61	●	●							
		0953M-GM	0.375	9.53	1.62	○	○							
		0960M-GM	0.378	9.60	1.63	0	+0.022		●	●				
		0970M-GM	0.382	9.70	1.65	●	●							
		0980M-GM	0.386	9.80	1.67	●	●	SF...-DRA100M-○ SS...-DRA100M-○						
		0990M-GM	0.390	9.90	1.68	●	●							
		DA 1000M-GM	0.394	10.00	1.70	●	+0.022							
		1010M-GM	0.398	10.10	1.72	0	+0.027		●	●				
		1020M-GM	0.402	10.20	1.74	●	+0.027							
		1030M-GM	0.406	10.30	1.75	●	+0.027							
		1040M-GM	0.409	10.40	1.77	●	+0.027	●	●	SF...-DRA105M-○ SS...-DRA105M-○				
		DA 1050M-GM	0.413	10.50	1.79	●	●							
		1060M-GM	0.417	10.60	1.81	●	●							
		1070M-GM	0.421	10.70	1.83	0	+0.027	○	○					
		1072M-GM	0.422	10.72	1.84	●	●							
		1080M-GM	0.425	10.80	1.85	●	●	SF...-DRA110M-○ SS...-DRA110M-○						
		1090M-GM	0.429	10.90	1.86	●	●							
		DA 1100M-GM	0.433	11.00	1.87	●	●							
		1110M-GM	0.437	11.10	1.89	0	+0.027		●	●				
		1120M-GM	0.441	11.20	1.91	●	●							
		1130M-GM	0.445	11.30	1.92	●	●	SF...-DRA115M-○ SS...-DRA115M-○						
		1140M-GM	0.449	11.40	1.94	●	●							
		DA 1150M-GM	0.453	11.50	1.96	●	●							
		1160M-GM	0.457	11.60	1.98	0	+0.027		●	●				
		1170M-GM	0.461	11.70	2.00	●	●							
		1180M-GM	0.465	11.80	2.01	●	●	SF...-DRA120M-○ SS...-DRA120M-○						
		1190M-GM	0.469	11.90	2.03	●	●							
		DA 1200M-GM	0.472	12.00	2.03	●	●							
		1210M-GM	0.476	12.10	2.05	0	+0.027		●	●				
		1220M-GM	0.480	12.20	2.07	●	●							
		1230M-GM	0.484	12.30	2.08	●	●	SF...-DRA120M-○ SS...-DRA120M-○						
		1240M-GM	0.488	12.40	2.10	●	●							

k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

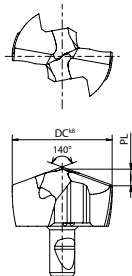
Recommended Cutting Conditions ● K38

DA inserts are
sold in 1 piece boxes

DRA Insert (GM - General Purpose)

						Carbon Steel / Alloy Steel				P	
						Mold and Die Steel					
						Stainless Steel					M
						Cast Iron					K
						Non-Ferrous Metals					N
Insert		Part Number		Dimensions		Tolerance (mm)		Carbide		Applicable Toolholder  K18~K34	
				DC		PL (mm)	k8 (min.)	k8 (max.)	PVD PR1525 PR1535		
				in	mm						
	 General Purpose	DA 1250M-GM	0.492	12.50	2.12	0	+0.027			SF...-DRA125M-  SS...-DRA125M- 	
		1260M-GM	0.496	12.60	2.14						
		1270M-GM	0.500	12.70	2.16						
		1280M-GM	0.504	12.80	2.17						
		1290M-GM	0.508	12.90	2.19						
		DA 1300M-GM	0.512	13.00	2.20	0	+0.027			SF...-DRA130M-  SS...-DRA130M- 	
		1310M-GM	0.516	13.10	2.22						
		1320M-GM	0.520	13.20	2.24						
		1330M-GM	0.524	13.30	2.25						
		1340M-GM	0.528	13.40	2.27						
		DA 1350M-GM	0.531	13.50	2.29	0	+0.027			SF...-DRA135M-  SS...-DRA135M- 	
		1360M-GM	0.535	13.60	2.31						
		1370M-GM	0.539	13.70	2.33						
		1380M-GM	0.543	13.80	2.35						
		1390M-GM	0.547	13.90	2.36						
		DA 1400M-GM	0.551	14.00	2.33	0	+0.027			SF...-DRA140M-  SS...-DRA140M- 	
		1410M-GM	0.555	14.10	2.34						
		1420M-GM	0.559	14.20	2.36						
		1430M-GM	0.563	14.30	2.38						
		1440M-GM	0.567	14.40	2.40						
		DA 1450M-GM	0.571	14.50	2.42	0	+0.027			SF...-DRA145M-  SS...-DRA145M- 	
		1460M-GM	0.575	14.60	2.43						
		1468M-GM	0.578	14.68	2.44						
		1470M-GM	0.579	14.70	2.45						
		1480M-GM	0.583	14.80	2.47						
		DA 1490M-GM	0.587	14.90	2.49	0	+0.027			SF...-DRA150M-  SS...-DRA150M- 	
		DA 1500M-GM	0.591	15.00	2.52						
		1510M-GM	0.594	15.10	2.54						
		1520M-GM	0.598	15.20	2.55						
		1530M-GM	0.602	15.30	2.57						
		1540M-GM	0.606	15.40	2.59						
		1550M-GM	0.610	15.50	2.61						
		1560M-GM	0.614	15.60	2.63						
		1570M-GM	0.618	15.70	2.65						
		1580M-GM	0.622	15.80	2.66						
		1588M-GM	0.625	15.88	2.69						
		DA 1590M-GM	0.626	15.90	2.68	0	+0.027			SF...-DRA160M-  SS...-DRA160M- 	
		DA 1600M-GM	0.630	16.00	2.69						
		1610M-GM	0.634	16.10	2.71						
		1620M-GM	0.638	16.20	2.73						
		1630M-GM	0.642	16.30	2.75						
		1640M-GM	0.646	16.40	2.76						
		1650M-GM	0.650	16.50	2.78						
		1660M-GM	0.654	16.60	2.80						
		1667M-GM	0.656	16.67	2.81						
		1670M-GM	0.657	16.70	2.82						
		1680M-GM	0.661	16.80	2.84						
		1690M-GM	0.665	16.90	2.86						

DRA Insert (GM - General Purpose)

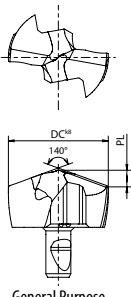
		Carbon Steel / Alloy Steel			○	●	P				
		Mold and Die Steel									
		Stainless Steel			○	●	M				
		Cast Iron			●	○			K		
		Non-Ferrous Metals					N				
Insert		Part Number		Dimensions		Tolerance (mm)			Carbide	Applicable Toolholder ➡ K18~K34	
				DC		PL (mm)	k8 (min.)	k8 (max.)	PVD		
				in	mm				PR1525			PR1535
  General Purpose	DA	1700M-GM	0.669	17.00	2.86	0	+0.027	●	●	SF...-DRA170M-○ SS...-DRA170M-○	
		1710M-GM	0.673	17.10	2.88			●	●		
		1720M-GM	0.677	17.20	2.90			●	●		
		1730M-GM	0.681	17.30	2.92			●	●		
		1740M-GM	0.685	17.40	2.93			●	●		
		1746M-GM	0.687	17.46	2.94			□	●		
		1750M-GM	0.689	17.50	2.95			●	●		
		1760M-GM	0.693	17.60	2.97			●	●		
		1770M-GM	0.697	17.70	2.99			●	●		
		1780M-GM	0.701	17.80	3.01			●	●		
		1790M-GM	0.705	17.90	3.03			●	●		
	DA	1800M-GM	0.709	18.00	3.04	0	+0.027	●	●	SF...-DRA180M-○ SS...-DRA180M-○	
		1810M-GM	0.713	18.10	3.06	0	+0.033	●	●		
		1820M-GM	0.717	18.20	3.07	0	+0.033	●	●		
		1830M-GM	0.720	18.30	3.09	0	+0.033	●	●		
		1840M-GM	0.724	18.40	3.11	0	+0.033	●	●		
		1850M-GM	0.728	18.50	3.13	0	+0.033	●	●		
		1860M-GM	0.732	18.60	3.15	0	+0.033	●	●		
		1870M-GM	0.736	18.70	3.17	0	+0.033	●	●		
		1880M-GM	0.740	18.80	3.18	0	+0.033	●	●		
		1890M-GM	0.744	18.90	3.20	0	+0.033	●	●		
	DA	1900M-GM	0.748	19.00	3.21	0	+0.033	□	●	SF...-DRA190M-○ SS...-DRA190M-○	
		1905M-GM	0.750	19.05	0.13			●	●		
		1910M-GM	0.752	19.10	3.23			●	●		
		1920M-GM	0.756	19.20	3.25			●	●		
		1930M-GM	0.760	19.30	3.27			●	●		
		1940M-GM	0.764	19.40	3.29			●	●		
		1950M-GM	0.768	19.50	3.30			●	●		
		1960M-GM	0.772	19.60	3.32			●	●		
		1970M-GM	0.776	19.70	3.34			●	●		
		1980M-GM	0.780	19.80	3.36			●	●		
		1990M-GM	0.783	19.90	3.38			●	●		
	DA	2000M-GM	0.787	20.00	3.37	0	+0.033	●	●	SF...-DRA200M-○ SS...-DRA200M-○	
		2010M-GM	0.791	20.10	3.39			●	●		
		2020M-GM	0.795	20.20	3.41			●	●		
		2030M-GM	0.799	20.30	3.43			●	●		
		2040M-GM	0.803	20.40	3.45			●	●		
		2050M-GM	0.807	20.50	3.46			●	●		
		2060M-GM	0.811	20.60	3.48			●	●		
		2064M-GM	0.813	20.64	3.48			□	●		
		2070M-GM	0.815	20.70	3.50			●	●		
		2080M-GM	0.819	20.80	3.52			●	●		
		2090M-GM	0.823	20.90	3.54			●	●		

k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

Recommended Cutting Conditions ● K38

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sold in 1 piece boxes

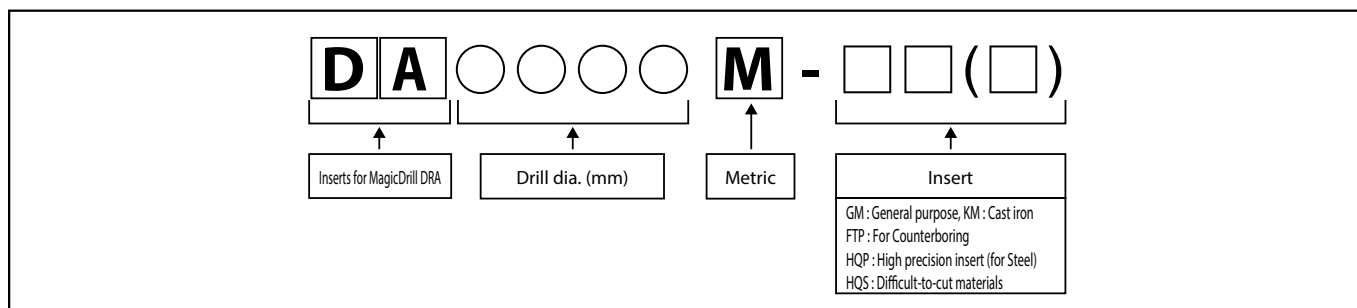
DRA Insert (GM - General Purpose)

		Carbon Steel / Alloy Steel								○	●	P	
		Mold and Die Steel											
		Stainless Steel								○	●		M
		Cast Iron								●	○		K
		Non-Ferrous Metals											N
Insert		Part Number		Dimensions			Tolerance (mm)		Carbide		Applicable Toolholder ● K18~K34		
				DC		PL (mm)	k8 (min.)	k8 (max.)	PVD PR1525 PR1535				
				in	mm								
	 General Purpose	DA 2100M-GM	0.827	21.00	3.54	0	+0.033	●●	SF...-DRA210M-○				
		2150M-GM	0.846	21.50	3.63	0	+0.033	●●	SS...-DRA210M-○				
		DA 2200M-GM	0.866	22.00	3.71	0	+0.033	●●	SF...-DRA220M-○				
		2223M-GM	0.875	22.23	3.76	0	+0.033	●●	SS...-DRA220M-○				
		2250M-GM	0.886	22.50	3.80			●●					
		DA 2300M-GM	0.906	23.00	3.87	0	+0.033	●●	SF...-DRA230M-○				
		2350M-GM	0.925	23.50	3.96	0	+0.033	●●	SS...-DRA230M-○				
		2381M-GM	0.937	23.81	4.01			●●					
		DA 2400M-GM	0.945	24.00	4.04	0	+0.033	●●	SF...-DRA240M-○				
		2450M-GM	0.965	24.50	4.13	0	+0.033	●●	SS...-DRA240M-○				
		DA 2500M-GM	0.984	25.00	4.20	0	+0.033	●●	SF...-DRA250M-○				
		2540M-GM	1.000	25.40	4.27	0	+0.033	□●	SS...-DRA250M-○				
		2550M-GM	1.004	25.50	4.29			●●					
		DA 2600M-GM	1.024	26.00	4.80	0	+0.033	●●	SF...-DRA260M-○				
		2650M-GM	1.043	26.50	4.90			●●					
		DA 2700M-GM	1.063	27.00	4.99	0	+0.033	●●	SF...-DRA270M-○				
		2750M-GM	1.083	27.50	5.09			●●					
		DA 2800M-GM	1.102	28.00	4.73	0	+0.033	●●	SF...-DRA280M-○				
		2850M-GM	1.122	28.50	4.83			●●					
		DA 2900M-GM	1.142	29.00	4.90	0	+0.033	●●	SF...-DRA290M-○				
		2950M-GM	1.161	29.50	5.01			●●					
		DA 3000M-GM	1.181	30.00	5.07	0	+0.033	●●	SF...-DRA300M-○				
		3050M-GM	1.201	30.50	5.17	0	+0.039	●●					
		DA 3100M-GM	1.220	31.00	5.26	0	+0.039	●●	SF...-DRA310M-○				
		3150M-GM	1.240	31.50	5.37			●●					
		DA 3200M-GM	1.260	32.00	5.41	0	+0.039	●●	SF...-DRA320M-○				
		3250M-GM	1.280	32.50	5.51			●●					
		3300M-GM	1.299	33.00	5.62			●●					

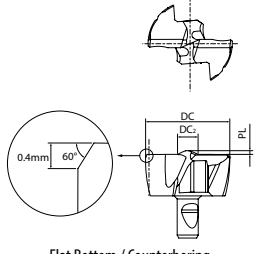
k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

Recommended Cutting Conditions  K34

Part Number Identification System (Insert)



DRA Insert (FTP - Flat Bottom / Counterboring)

		Carbon Steel / Alloy Steel								○	●	P	
		Mold and Die Steel											
		Stainless Steel								○	●		M
		Cast Iron								●	○		K
		Non-Ferrous Metals											N
Insert		Part Number	Dimensions					Tolerance (mm)		Carbide	Applicable Toolholder ➡ K18~K34		
			DC		DC2		PL (mm)	k8 (min.)	k8 (max.)			PVD PRI525 PRI535	
			in	mm	in	mm							
  Flat Bottom / Counterboring	DA 0800M-FTP 0830M-FTP	0.315 0.327	8.00 8.30	0.114	2.90	0.40	0	+0.022	●●	SF...DRA080M-○ SS...DRA080M-○			
	DA 0850M-FTP 0880M-FTP	0.335 0.346	8.50 8.80	0.114	2.90	0.40	0	+0.022	●●	SF...DRA085M-○ SS...DRA085M-○			
	DA 0900M-FTP 0930M-FTP	0.354 0.366	9.00 9.30	0.118	3.00	0.43	0	+0.022	●●	SF...DRA090M-○ SS...DRA090M-○			
	DA 0950M-FTP	0.374	9.50	0.118	3.00	0.43	0	+0.022	●○	SF...DRA095M-○ SS...DRA095M-○			
	DA 1000M-FTP 1030M-FTP	0.394 0.406	10.00 10.30	0.130	3.30	0.46	0	+0.022 +0.027	●●	SF...DRA100M-○ SS...DRA100M-○			
	DA 1050M-FTP 1080M-FTP	0.413 0.425	10.50 10.80	0.130	3.30	0.46	0	+0.027	●●	SF...DRA105M-○ SS...DRA105M-○			
	DA 1100M-FTP	0.433	11.00	0.134	3.40	0.50	0	+0.027	●○	SF...DRA110M-○ SS...DRA110M-○			
	DA 1150M-FTP	0.453	11.50	0.134	3.40	0.50	0	+0.027	●○	SF...DRA115M-○ SS...DRA115M-○			
	DA 1200M-FTP	0.472	12.00	0.146	3.70	0.53	0	+0.027	●○	SF...DRA120M-○ SS...DRA120M-○			
	DA 1250M-FTP 1270M-FTP	0.492 0.500	12.50 12.70	0.146	3.70	0.53	0	+0.027	●●	SF...DRA125M-○ SS...DRA125M-○			
	DA 1300M-FTP	0.512	13.00	0.154	3.90	0.56	0	+0.027	●○	SF...DRA130M-○ SS...DRA130M-○			
	DA 1350M-FTP	0.531	13.50	0.154	3.90	0.56	0	+0.027	●○	SF...DRA135M-○ SS...DRA135M-○			
	DA 1400M-FTP	0.551	14.00	0.165	4.20	0.60	0	+0.027	●○	SF...DRA140M-○ SS...DRA140M-○			
	DA 1450M-FTP	0.571	14.50	0.165	4.20	0.60	0	+0.027	●○	SF...DRA145M-○ SS...DRA145M-○			
	DA 1500M-FTP 1550M-FTP	0.591 0.610	15.00 15.50	0.173	4.40	0.65	0	+0.027	●●	SF...DRA150M-○ SS...DRA150M-○			
	DA 1600M-FTP 1650M-FTP	0.630 0.650	16.00 16.50	0.181	4.60	0.70	0	+0.027	●●	SF...DRA160M-○ SS...DRA160M-○			
	DA 1700M-FTP 1750M-FTP	0.669 0.689	17.00 17.50	0.197	5.00	0.75	0	+0.027	●●	SF...DRA170M-○ SS...DRA170M-○			
	DA 1800M-FTP 1850M-FTP	0.709 0.728	18.00 18.50	0.197	5.00	0.80	0	+0.027 +0.033	●●	SF...DRA180M-○ SS...DRA180M-○			
	DA 1900M-FTP 1950M-FTP	0.748 0.768	19.00 19.50	0.209	5.30	0.85	0	+0.033	●●	SF...DRA190M-○ SS...DRA190M-○			
	DA 2000M-FTP 2050M-FTP	0.787 0.807	20.00 20.50	0.224	5.70	0.90	0	+0.033	●●	SF...DRA200M-○ SS...DRA200M-○			
	DA 2100M-FTP 2150M-FTP	0.827 0.846	21.00 21.50	0.236	6.00	0.95	0	+0.033	●●	SF...DRA210M-○ SS...DRA210M-○			
	DA 2200M-FTP 2250M-FTP	0.866 0.886	22.00 22.50	0.252	6.40	1.00	0	+0.033	●●	SF...DRA220M-○ SS...DRA220M-○			
	DA 2300M-FTP 2350M-FTP	0.906 0.925	23.00 23.50	0.260	6.60	1.05	0	+0.033	●●	SF...DRA230M-○ SS...DRA230M-○			
	DA 2400M-FTP 2450M-FTP	0.945 0.965	24.00 24.50	0.268	6.80	1.10	0	+0.033	●●	SF...DRA240M-○ SS...DRA240M-○			
	DA 2500M-FTP 2540M-FTP	0.984 1.000	25.00 25.40	0.276	7.00	1.20	0	+0.033	●●	SF...DRA250M-○ SS...DRA250M-○			

k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

Applicable to 1.5D,3D,5D,8D and 12D holders, Prepared hole (0.5xDC) is needed when using 8D/12D holder.

Recommended Cutting Conditions ➡ K39

DA inserts are
sold in 1 piece boxes

FTP-H Insert

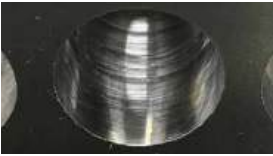
Specialized high-performance in steel beam drilling

1 Optimized chip control

2 Excellent surface finish

Controlled chips reduce scratches on the hole wall

Hole quality comparison (Internal evaluation)

	DRA (FTP-H)	Competitor K
Hole Entrance		
	Good	Rifling
Hole Exit		
	Good	Burrs and chattering marks

Cutting Conditions:
 $V_c = 260 \text{ sfm}$, $f = 0.008 \text{ ipr}$
 Drilling diameter $\phi 26\text{mm}$ (1.024") (3D)
 Drilling depth 40mm (1.575")
 Through spindle coolant
 Workpiece: structural steel St52
 BT50 M/C



Reinforced chamfer
Higher rigidity of insert



Case Study

Structure Part S355

$V_c = 260 \text{ sfm}$ ($n = 979 \text{ rpm}$),
 $f = 0.008 \text{ ipr}$ ($V_f = 7.717 \text{ ipm}$),

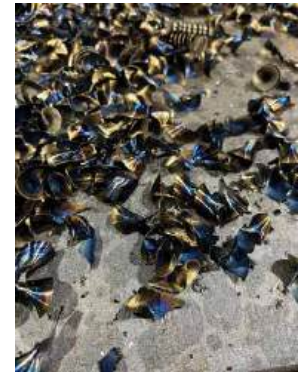
Drilling depth 0.591" through-hole
 Coolant = Oil mist lubrication

SF25-DRA250M-3
 DA2600M-XFTP PR1535

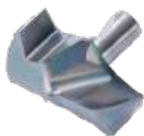
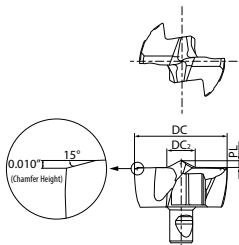
Competitor K: $\phi 26\text{mm}$ -3D

FTP-H achieved tool life of 45 m
 with no issues.

Shortened process time.
 Good chip control.



DRA Insert (FTP-H - Steel Beam Drilling)

		Carbon Steel / Alloy Steel										●	P
		Mold and Die Steel											
		Stainless Steel											
		Cast Iron											
		Non-Ferrous Metals											
Insert		Part Number	Dimensions					Tolerance (mm)		Carbide	Applicable Toolholder ➡ K18~K34		
			DC		DC2		PL (mm)	k8 (min.)	k8 (max.)				
			in	mm	in	mm							
  Flat Bottom / Counterboring	DA 1400M-FTP-H	0.551	14.00	0.165	4.20	0.60	0	+0.022	●	SF...-DRA140M-○ SS...-DRA140M-○			
	DA 1600M-FTP-H	0.630	16.00	0.181	4.60	0.70	0	+0.027	●	SF...-DRA160M-○ SS...-DRA160M-○			
	DA 1800M-FTP-H	0.709	18.00	0.197	5.00	0.80	0	+0.027	●	SF...-DRA180M-○ SS...-DRA180M-○			
	DA 2000M-FTP-H	0.787	20.00	0.224	5.70	0.90	0	+0.027	●	SF...-DRA200M-○ SS...-DRA200M-○			
	DA 2100M-FTP-H	0.827	21.00	0.236	6.00	0.95	0	+0.027	●	SF...-DRA210M-○ SS...-DRA210M-○			
	DA 2200M-FTP-H	0.866	22.00	0.252	6.40	1.00	0	+0.027	●	SF...-DRA220M-○ SS...-DRA220M-○			
	DA 2400M-FTP-H	0.945	24.00	0.268	6.80	1.10	0	+0.027	●	SF...-DRA240M-○ SS...-DRA240M-○			
	DA 2600M-FTP-H	1.024	26.00	0.276	7.00	1.20	0	+0.027	●	SF...-DRA260M-○			

k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.
 Applicable to 1.5D,3D,5D,8D and 12D holders, Prepared hole (0.5xDC) is needed when using 8D/12D holder.

Recommended Cutting Conditions ➡ K39

DA inserts are
sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Double Margin Design

High-precision insert for
steel machining

HQP

Special two-step bottom and double margin
Reduces shock for higher-precision machining of steel

PR1525

Drilling Diameter
ø0.313" ~ ø0.783"
ø7.94 ~ ø19.90mm

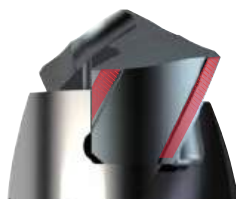


Special Two-step Tip Edge



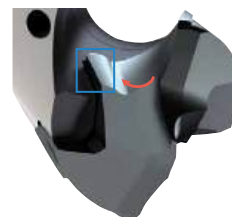
- Suppresses sudden fractures from occurring when entering the workpiece
- Improvement of cutting edge strength

Double Margin



- Optimized for difficult-to-cut materials
- Improvement of heat resistance

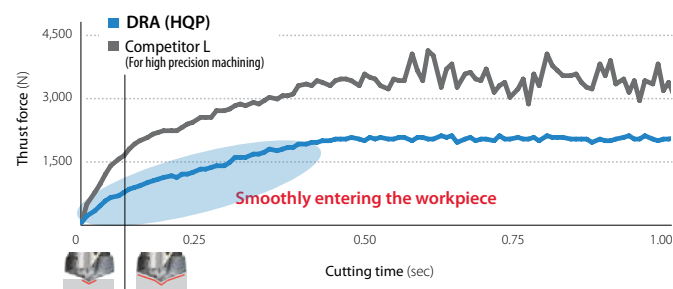
Unique Flute Shape



- Superior chip control
- Prevents damage to hole walls
- Excellent finished surface

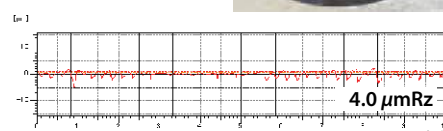
HQP High-precision insert for
steel machining

Cutting Force Comparison when Entering Workpiece
(Internal Evaluation)



Cutting Conditions: $V_c = 330$ sfm, $f = 0.010$ ipr, $H = 1.181"$, Wet Workpiece: 1049 Ø0.630" (3D)

Hole Wall Surface
Finish Comparison
(Internal Evaluation)



Cutting Conditions: $V_c = 330$ sfm, $f = 0.010$ ipr, $H = 3.150"$, Wet Workpiece: 1049 Ø0.630" (5D)

For difficult-to-cut materials /
stainless steel machining

HQS

Special two-step bottom and double margin
Improving stability of difficult-to-cut materials and
stainless steel during machining operations

PR1535

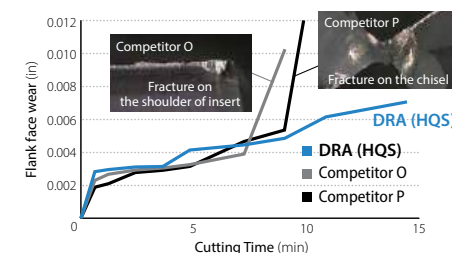
Drilling Diameter
ø0.315" ~ ø0.768"
ø8.00 ~ ø19.50mm



HQS For difficult-to-cut materials /
stainless steel machining

Inconel

Wear Resistance Comparison (Internal evaluation)

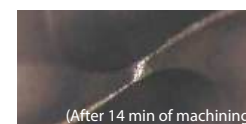


Shoulder part



Normal wear condition

Chisel part



Good without fracture

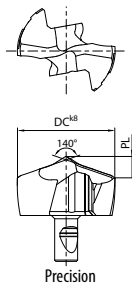
DRA (HQS)

Competitor Q

Cutting Conditions: $V_c = 70$ sfm, $f = 0.006$ ipr, Drilling Diameter Ø14.5mm (0.571") (3xD)
Drilling Depth 1.575", Wet (internal/external), Workpiece: Inconel 718, B750 M/C

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRA Insert (HQP - Precision / for Carbon Steel)

						Carbon Steel / Alloy Steel		●		P		
						Mold and Die Steel						
						Stainless Steel				M		
						Cast Iron				K		
						Non-Ferrous Metals				N		
Insert		Part Number		Dimensions			Tolerance (mm)		Carbide		Applicable Toolholder ● K18~K34	
				DC		PL (mm)	k8 (min.)	k8 (max.)	PVD			
				in	mm							
 		DA 0794M-HQP	0.313	7.94	1.90	0	+0.022	●	SF...-DRA080M-○			
		0800M-HQP	0.315	8.00	1.91			●	SS...-DRA080M-○			
		0810M-HQP	0.319	8.10	1.93			●				
		0820M-HQP	0.323	8.20	1.94			●				
		0830M-HQP	0.327	8.30	1.96			●				
		0840M-HQP	0.331	8.40	1.98			●				
		DA 0850M-HQP	0.335	8.50	1.99	0	+0.022	●	SF...-DRA085M-○			
		0860M-HQP	0.339	8.60	2.01			●	SS...-DRA085M-○			
		0870M-HQP	0.343	8.70	2.03			●				
		0880M-HQP	0.346	8.80	2.05			●				
		0890M-HQP	0.350	8.90	2.06			●				
		DA 0900M-HQP	0.354	9.00	2.19	0	+0.022	●	SF...-DRA090M-○			
		0910M-HQP	0.358	9.10	2.21			●	SS...-DRA090M-○			
		0920M-HQP	0.362	9.20	2.22			●				
		0930M-HQP	0.366	9.30	2.24			●				
		0940M-HQP	0.370	9.40	2.26			●				
		DA 0950M-HQP	0.374	9.50	2.27	0	+0.022	●	SF...-DRA095M-○			
		0960M-HQP	0.378	9.60	2.29			●	SS...-DRA095M-○			
		0970M-HQP	0.382	9.70	2.31			●				
		0980M-HQP	0.386	9.80	2.32			●				
		0990M-HQP	0.390	9.90	2.34			●				
		DA 1000M-HQP	0.394	10.00	2.35	0	+0.022	●	SF...-DRA100M-○			
		1010M-HQP	0.398	10.10	2.36			●	SS...-DRA100M-○			
		1020M-HQP	0.402	10.20	2.38			●				
		1030M-HQP	0.406	10.30	2.40			●				
		1040M-HQP	0.409	10.40	2.41			●				
		DA 1050M-HQP	0.413	10.50	2.43	0	+0.027	●	SF...-DRA105M-○			
		1060M-HQP	0.417	10.60	2.44			●	SS...-DRA105M-○			
		1070M-HQP	0.421	10.70	2.46			●				
		1080M-HQP	0.425	10.80	2.47			●				
		1090M-HQP	0.429	10.90	2.49			●				
		DA 1100M-HQP	0.433	11.00	2.65	0	+0.027	●	SF...-DRA110M-○			
		1110M-HQP	0.437	11.10	2.67			●	SS...-DRA110M-○			
		1120M-HQP	0.441	11.20	2.68			●				
		1130M-HQP	0.445	11.30	2.70			●				
		1140M-HQP	0.449	11.40	2.72			●				
		DA 1150M-HQP	0.453	11.50	2.73	0	+0.027	●	SF...-DRA115M-○			
		1160M-HQP	0.457	11.60	2.75			●	SS...-DRA115M-○			
		1170M-HQP	0.461	11.70	2.76			●				
		1180M-HQP	0.465	11.80	2.78			●				
		1190M-HQP	0.469	11.90	2.80			●				
		DA 1200M-HQP	0.472	12.00	2.79	0	+0.027	●	SF...-DRA120M-○			
		1210M-HQP	0.476	12.10	2.81			●	SS...-DRA120M-○			
		1220M-HQP	0.480	12.20	2.82			●				
		1230M-HQP	0.484	12.30	2.84			●				
		1240M-HQP	0.488	12.40	2.86			●				
		DA 1250M-HQP	0.492	12.50	2.87	0	+0.027	●	SF...-DRA125M-○			
		1260M-HQP	0.496	12.60	2.89			●	SS...-DRA125M-○			
		1270M-HQP	0.500	12.70	2.91			●				
		1280M-HQP	0.504	12.80	2.92			●				
		1290M-HQP	0.508	12.90	2.94			●				

k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

Recommended Cutting Conditions ● K40

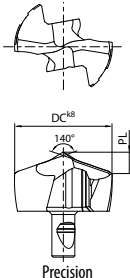
DA inserts are
sold in 1 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRA Insert (HQP - Precision / for Carbon Steel)

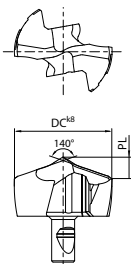
			Carbon Steel / Alloy Steel					●		P				
			Mold and Die Steel											
			Stainless Steel								M			
			Cast Iron											
			Non-Ferrous Metals									K		
Insert			Part Number			Dimensions		Tolerance (mm)		Carbide			Applicable Toolholder ➡ K18~K34	
						DC		PL (mm)	k8 (min.)					k8 (max.)	PVD
						in	mm							
 	DA	1300M-HQP	0.512	13.00	2.98	0	+0.027	●	SF...-DRA130M-○ SS...-DRA130M-○					
		1310M-HQP	0.516	13.10	2.99			●						
		1320M-HQP	0.520	13.20	3.01			●						
		1330M-HQP	0.524	13.30	3.02			●						
		1340M-HQP	0.528	13.40	3.04			●						
	DA	1350M-HQP	0.531	13.50	3.06	0	+0.027	●	SF...-DRA135M-○ SS...-DRA135M-○					
		1360M-HQP	0.535	13.60	3.07			●						
		1370M-HQP	0.539	13.70	3.09			●						
		1380M-HQP	0.543	13.80	3.10			●						
		1390M-HQP	0.547	13.90	3.12			●						
	DA	1400M-HQP	0.551	14.00	3.11	0	+0.027	●	SF...-DRA140M-○ SS...-DRA140M-○					
		1410M-HQP	0.555	14.10	3.12			●						
		1420M-HQP	0.559	14.20	3.14			●						
		1430M-HQP	0.563	14.30	3.16			●						
		1440M-HQP	0.567	14.40	3.17			●						
	DA	1450M-HQP	0.571	14.50	3.19	0	+0.027	●	SF...-DRA145M-○ SS...-DRA145M-○					
		1460M-HQP	0.575	14.60	3.21			●						
		1470M-HQP	0.579	14.70	3.22			●						
		1480M-HQP	0.583	14.80	3.24			●						
		1490M-HQP	0.587	14.90	3.25			●						
	DA	1500M-HQP	0.591	15.00	3.33	0	+0.027	●	SF...-DRA150M-○ SS...-DRA150M-○					
		1510M-HQP	0.594	15.10	3.35			●						
		1520M-HQP	0.598	15.20	3.36			●						
		1530M-HQP	0.602	15.30	3.38			●						
		1540M-HQP	0.606	15.40	3.39			●						
		1550M-HQP	0.610	15.50	3.41			●						
		1560M-HQP	0.614	15.60	3.42			●						
		1570M-HQP	0.618	15.70	3.44			●						
		1580M-HQP	0.622	15.80	3.46			●						
		1590M-HQP	0.626	15.90	3.47			●						
	DA	1600M-HQP	0.630	16.00	3.55	0	+0.027	●	SF...-DRA160M-○ SS...-DRA160M-○					
		1610M-HQP	0.634	16.10	3.57			●						
		1620M-HQP	0.638	16.20	3.58			●						
		1630M-HQP	0.642	16.30	3.60			●						
		1640M-HQP	0.646	16.40	3.62			●						
		1650M-HQP	0.650	16.50	3.63			●						
		1660M-HQP	0.654	16.60	3.65			●						
		1670M-HQP	0.657	16.70	3.66			●						
		1680M-HQP	0.661	16.80	3.68			●						
		1690M-HQP	0.665	16.90	3.69			●						
	DA	1700M-HQP	0.669	17.00	3.73	0	+0.027	●	SF...-DRA170M-○ SS...-DRA170M-○					
		1710M-HQP	0.673	17.10	3.75			●						
		1720M-HQP	0.677	17.20	3.77			●						
		1730M-HQP	0.681	17.30	3.78			●						
		1740M-HQP	0.685	17.40	3.80			●						
		1750M-HQP	0.689	17.50	3.81			●						
		1760M-HQP	0.693	17.60	3.83			●						
		1770M-HQP	0.697	17.70	3.84			●						
1780M-HQP		0.701	17.80	3.86	●									
1790M-HQP		0.705	17.90	3.88	●									

k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

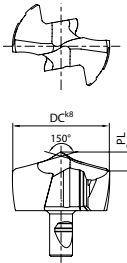
Recommended Cutting Conditions ➡ K40

DA inserts are
sold in 1 piece boxes

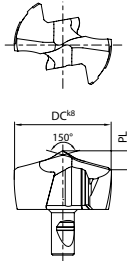
DRA Insert (HQP - Precision / for Carbon Steel)

				Carbon Steel / Alloy Steel					P	
				Mold and Die Steel						
				Stainless Steel					M	
				Cast Iron					K	
				Non-Ferrous Metals					N	
Insert		Part Number		Dimensions			Tolerance (mm)		Carbide	
				DC		PL (mm)	k8 (min.)	k8 (max.)	PVD PR1525	Applicable Toolholder ● K18~K34
				in	mm					
	 Precision	DA 1800M-HQP	0.709	18.00	3.97	0	+0.027	●	SF...-DRA180M-○ SS...-DRA180M-○	
		1810M-HQP	0.713	18.10	3.98		+0.033	●		
		1820M-HQP	0.717	18.20	4.00		+0.033	●		
		1830M-HQP	0.720	18.30	4.02		+0.033	●		
		1840M-HQP	0.724	18.40	4.03		+0.033	●		
		1850M-HQP	0.728	18.50	4.05		+0.033	●		
		1860M-HQP	0.732	18.60	4.06		+0.033	●		
		1870M-HQP	0.736	18.70	4.08		+0.033	●		
		1880M-HQP	0.740	18.80	4.09		+0.033	●		
		1890M-HQP	0.744	18.90	4.11		+0.033	●		
	DA 1900M-HQP	0.748	19.00	4.20	0	+0.033	●	SF...-DRA190M-○ SS...-DRA190M-○		
	1910M-HQP	0.752	19.10	4.22			●			
	1920M-HQP	0.756	19.20	4.23			●			
	1930M-HQP	0.760	19.30	4.25			●			
	1940M-HQP	0.764	19.40	4.26			●			
	1950M-HQP	0.768	19.50	4.28			●			
	1960M-HQP	0.772	19.60	4.29			●			
	1970M-HQP	0.776	19.70	4.31			●			
	1980M-HQP	0.780	19.80	4.33			●			
	1990M-HQP	0.783	19.90	4.34			●			

DRA Insert (HQS - For Difficult-to-Cut Materials / Stainless Steel)

						Carbon Steel / Alloy Steel				P		
						Mold and Die Steel				M		
						Stainless Steel		●		K		
						Cast Iron				N		
						Non-Ferrous Metals						
Insert		Part Number		Dimensions			Tolerance (mm)		Carbide		Applicable Toolholder ● K18~K34	
				DC		PL (mm)	k8 (min.)	k8 (max.)	PVD			
				in	mm							
		DA 0800M-HQS	0.315	8.00	1.76	0	+0.022	●	SF...-DRA080M-○			
		0820M-HQS	0.323	8.20	1.78			●	SS...-DRA080M-○			
		DA 0850M-HQS	0.335	8.50	1.82	0	+0.022	●	SF...-DRA085M-○			
		0870M-HQS	0.343	8.70	1.85			●	SS...-DRA085M-○			
		0880M-HQS	0.346	8.80	1.86			●				
		DA 0900M-HQS	0.354	9.00	1.97	0	+0.022	●	SF...-DRA090M-○			
		0930M-HQS	0.366	9.30	2.01			●	SS...-DRA090M-○			
		0940M-HQS	0.370	9.40	2.02			●				
		DA 0950M-HQS	0.374	9.50	2.03	0	+0.022	●	SF...-DRA095M-○			
		0970M-HQS	0.382	9.70	2.05			●	SS...-DRA095M-○			
		0980M-HQS	0.386	9.80	2.06			●				
		DA 1000M-HQS	0.394	10.00	2.17	0	+0.022	●	SF...-DRA100M-○			
		1030M-HQS	0.406	10.30	2.21		+0.027	●	SS...-DRA100M-○			
		1040M-HQS	0.409	10.40	2.22		+0.027	●				
		DA 1050M-HQS	0.413	10.50	2.23	0	+0.027	●	SF...-DRA105M-○			
		1080M-HQS	0.425	10.80	2.27			●	SS...-DRA105M-○			
		DA 1100M-HQS	0.433	11.00	2.38	0	+0.027	●	SF...-DRA110M-○			
								●	SS...-DRA110M-○			
		DA 1150M-HQS	0.453	11.50	2.44	0	+0.027	●	SF...-DRA115M-○			
								●	SS...-DRA115M-○			
DA 1200M-HQS	0.472	12.00	2.50	0	+0.027	●	SF...-DRA120M-○					
						●	SS...-DRA120M-○					
DA 1250M-HQS	0.492	12.50	2.57	0	+0.027	●	SF...-DRA125M-○					
1260M-HQS	0.496	12.60	2.58			●	SS...-DRA125M-○					
DA 1300M-HQS	0.512	13.00	2.68	0	+0.027	●	SF...-DRA130M-○					
						●	SS...-DRA130M-○					
DA 1350M-HQS	0.531	13.50	2.74	0	+0.027	●	SF...-DRA135M-○					
1390M-HQS	0.547	13.90	2.78			●	SS...-DRA135M-○					
DA 1400M-HQS	0.551	14.00	2.79	0	+0.027	●	SF...-DRA140M-○					
1420M-HQS	0.559	14.20	2.81			●	SS...-DRA140M-○					
DA 1450M-HQS	0.571	14.50	2.85	0	+0.027	●	SF...-DRA145M-○					
						●	SS...-DRA145M-○					

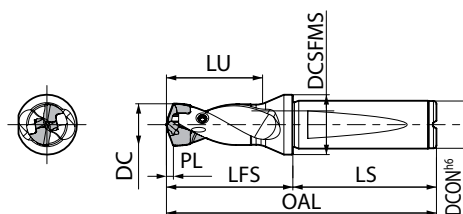
DRA Insert (HQS - For Difficult-to-Cut Materials / Stainless Steel)

		Carbon Steel / Alloy Steel							P	
		Mold and Die Steel								
		Stainless Steel					●		M	
		Cast Iron							K	
		Non-Ferrous Metals							N	
Insert		Part Number		Dimensions			Tolerance (mm)		Carbide	Applicable Toolholder 🔧 K18~K34
				DC		PL (mm)	k8 (min.)	k8 (max.)	PVD	
				in	mm					
		DA 1500M-HQS	0.591	15.00	2.96	0	+0.027	●	SF...-DRA150M-○ SS...-DRA150M-○	
		1520M-HQS	0.598	15.20	2.99			●		
		1530M-HQS	0.602	15.30	3.00			●		
		1550M-HQS	0.610	15.50	3.02			●		
		1570M-HQS	0.618	15.70	3.04			●		
		DA 1600M-HQS	0.630	16.00	3.18	0	+0.027	●	SF...-DRA160M-○ SS...-DRA160M-○	
		1610M-HQS	0.634	16.10	3.20			●		
		1620M-HQS	0.638	16.20	3.21			●		
		1630M-HQS	0.642	16.30	3.22			●		
		1650M-HQS	0.650	16.50	3.25			●		
		DA 1700M-HQS	0.669	17.00	3.38	0	+0.027	●	SF...-DRA170M-○ SS...-DRA170M-○	
		1750M-HQS	0.689	17.50	3.44			●		
		1770M-HQS	0.697	17.70	3.46			●		
		DA 1800M-HQS	0.709	18.00	3.59	0	+0.027	●	SF...-DRA180M-○ SS...-DRA180M-○	
		1810M-HQS	0.713	18.10	3.60		+0.033	●		
		1850M-HQS	0.728	18.50	3.65		+0.033	●		
		DA 1900M-HQS	0.748	19.00	3.79	0	+0.033	●	SF...-DRA190M-○ SS...-DRA190M-○	
		1930M-HQS	0.760	19.30	3.82			●		
		1950M-HQS	0.768	19.50	3.84			●		

k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the hole diameter.

Recommended Cutting Conditions ● K40

SF-DRA (Drilling Depth : 1.5 x DC)

**1.5D**

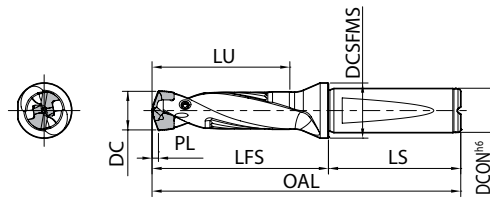
For PL indicates distance from drill point to corner edge K6~K17

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17	
												Screw	Wrench	Wrench		
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS						
Inch	SF0500-	DRA080M-1.5	●	0.313	0.334	0.500	2.805	1.033	0.504	1.772	0.630	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
		DRA085M-1.5	●	0.335	0.353		2.854	1.083	0.531							DA0850M-... ~ DA0890M-...
		DRA090M-1.5	●	0.354	0.373		2.904	1.132	0.563							DA0900M-... ~ DA0940M-...
		DRA095M-1.5	●	0.374	0.393		2.953	1.181	0.591							DA0950M-... ~ DA0990M-...
	SF0625-	DRA100M-1.5	●	0.394	0.412	0.625	3.120	1.230	0.622	1.890	0.787	Yes	HS-2534TRP	-	FTP-5	DA1000M-... ~ DA1040M-...
		DRA105M-1.5	●	0.413	0.432		3.169	1.280	0.650							DA1050M-... ~ DA1090M-...
		DRA110M-1.5	●	0.433	0.452		3.258	1.368	0.681							DA1100M-... ~ DA1140M-...
		DRA115M-1.5	●	0.453	0.471		3.307	1.417	0.709							DA1150M-... ~ DA1190M-...
		DRA120M-1.5	●	0.472	0.491		3.356	1.467	0.740							DA1200M-... ~ DA1240M-...
		DRA125M-1.5	●	0.492	0.511		3.406	1.516	0.768							DA1250M-... ~ DA1290M-...
		DRA130M-1.5	●	0.512	0.530		3.455	1.565	0.799							DA1300M-... ~ DA1340M-...
		DRA135M-1.5	●	0.531	0.550		3.504	1.614	0.827							DA1350M-... ~ DA1390M-...
		DRA140M-1.5	●	0.551	0.570		3.553	1.663	0.858				HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...
		DRA145M-1.5	●	0.571	0.590		3.602	1.713	0.886							DA1450M-... ~ DA1490M-...
	SF0750-	DRA150M-1.5	●	0.591	0.629	0.750	3.819	1.850	0.917	1.969	0.984	Yes	HS-3048TRP	DTP-6	-	DA1500M-... ~ DA1590M-...
		DRA160M-1.5	●	0.630	0.668		3.957	1.988	0.976							DA1600M-... ~ DA1690M-...
		DRA170M-1.5	●	0.669	0.708		4.055	2.087	1.035							DA1700M-... ~ DA1790M-...
		DRA180M-1.5	●	0.709	0.747		4.193	2.224	1.094				HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
		DRA190M-1.5	●	0.748	0.786		4.291	2.323	1.154							DA1900M-... ~ DA1990M-...
	SF1000-	DRA200M-1.5	●	0.787	0.826	1.000	4.626	2.421	1.213	2.205	1.260	Yes	HS-4067TRP	DTP-7	-	DA2000M-... ~ DA2090M-...
		DRA210M-1.5	●	0.827	0.865		4.724	2.520	1.272							DA2100M-... ~ DA2150M-...
		DRA220M-1.5	●	0.866	0.905		4.862	2.657	1.331							DA2200M-... ~ DA2250M-...
		DRA230M-1.5	●	0.906	0.944		4.961	2.756	1.390							DA2300M-... ~ DA2381M-...
		DRA240M-1.5	●	0.945	0.983		5.059	2.854	1.449							DA2400M-... ~ DA2450M-...
		DRA250M-1.5	●	0.984	1.004		5.157	2.953	1.508							DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ K6~K17 for actual cutting diameters (DC).

SF-DRA (Drilling Depth : 3 x DC)



3D

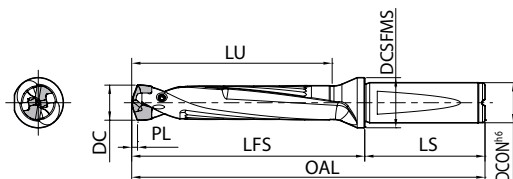
For PL indicates distance from drill point to corner edge K6~K17

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts			Applicable Inserts K6~K17
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCFSMS		Screw	Wrench	Wrench	
															
Inch	SF0500- DRA080M-3 DRA085M-3 DRA090M-3 DRA095M-3	●	0.313	0.334	0.500	3.307	1.535	1.004	1.772	0.630	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
		●	0.335	0.353		3.386	1.614	1.063							DA0850M-... ~ DA0890M-...
		●	0.354	0.373		3.465	1.693	1.122							DA0900M-... ~ DA0940M-...
		●	0.374	0.393		3.543	1.772	1.181							DA0950M-... ~ DA0990M-...
	SF0625- DRA100M-3 DRA105M-3 DRA110M-3 DRA115M-3 DRA120M-3 DRA125M-3 DRA130M-3 DRA135M-3 DRA140M-3 DRA145M-3	●	0.394	0.412	0.625	3.740	1.850	1.240	1.890	0.787	Yes	HS-2534TRP	-	FTP-5	DA1000M-... ~ DA1040M-...
		●	0.413	0.432		3.819	1.929	1.299							DA1050M-... ~ DA1090M-...
		●	0.433	0.452		3.937	2.047	1.358							DA1100M-... ~ DA1140M-...
		●	0.453	0.471		4.016	2.126	1.417							DA1150M-... ~ DA1190M-...
		●	0.472	0.491		4.094	2.205	1.476							DA1200M-... ~ DA1240M-...
		●	0.492	0.511		4.173	2.283	1.535							DA1250M-... ~ DA1290M-...
		●	0.512	0.530		4.252	2.362	1.594							DA1300M-... ~ DA1340M-...
		●	0.531	0.550		4.331	2.441	1.654							DA1350M-... ~ DA1390M-...
		●	0.551	0.570		4.409	2.520	1.713				HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...
		●	0.571	0.590		4.488	2.598	1.772							DA1450M-... ~ DA1490M-...
	SF0750- DRA150M-3 DRA160M-3 DRA170M-3 DRA180M-3 DRA190M-3	●	0.591	0.629	0.750	4.764	2.795	1.890	1.969	0.984	Yes	HS-3048TRP	DTP-6	-	DA1500M-... ~ DA1590M-...
		●	0.630	0.668		4.961	2.992	2.008							DA1600M-... ~ DA1690M-...
		●	0.669	0.708		5.118	3.150	2.126							DA1700M-... ~ DA1790M-...
		●	0.709	0.747		5.315	3.346	2.244				HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
		●	0.748	0.786		5.472	3.504	2.362							DA1900M-... ~ DA1990M-...
	SF1000- DRA200M-3 DRA210M-3 DRA220M-3 DRA230M-3 DRA240M-3 DRA250M-3	●	0.787	0.826	1.000	5.866	3.661	2.480	2.205	1.260	Yes	HS-4067TRP	DTP-7	-	DA2000M-... ~ DA2090M-...
		●	0.827	0.865		6.024	3.819	2.598							DA2100M-... ~ DA2150M-...
		●	0.866	0.905		6.220	4.016	2.717							DA2200M-... ~ DA2250M-...
		●	0.906	0.944		6.378	4.173	2.835							DA2300M-... ~ DA2381M-...
		●	0.945	0.983		6.535	4.331	2.953							DA2400M-... ~ DA2450M-...
		●	0.984	1.004		6.693	4.488	3.071							DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page K6~K17 for actual cutting diameters (DC).

SF-DRA (Drilling Depth : 5 x DC)

**5D**

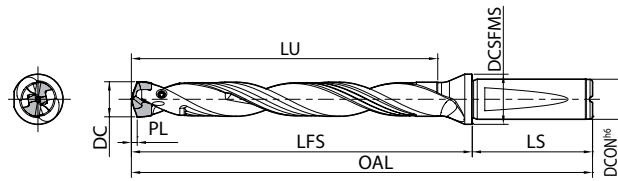
For PL indicates distance from drill point to corner edge K6~K17

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS		Screw	Wrench	Wrench	
															
Inch	SF0500- DRA080M-5 DRA085M-5 DRA090M-5 DRA095M-5	●	0.313	0.334	0.500	3.976	2.205	1.673	1.772	0.630	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
		●	0.335	0.353		4.094	2.323	1.772							DA0850M-... ~ DA0890M-...
		●	0.354	0.373		4.213	2.441	1.870							DA0900M-... ~ DA0940M-...
		●	0.374	0.393		4.331	2.559	1.969							DA0950M-... ~ DA0990M-...
	SF0625- DRA100M-5 DRA105M-5 DRA110M-5 DRA115M-5 DRA120M-5 DRA125M-5 DRA130M-5 DRA135M-5 DRA140M-5 DRA145M-5	●	0.394	0.412	0.625	4.567	2.677	2.067	1.890	0.787	Yes	HS-2534TRP	-	FTP-5	DA1000M-... ~ DA1040M-...
		●	0.413	0.432		4.685	2.795	2.165							DA1050M-... ~ DA1090M-...
		●	0.433	0.452		4.843	2.953	2.264							DA1100M-... ~ DA1140M-...
		●	0.453	0.471		4.961	3.071	2.362							DA1150M-... ~ DA1190M-...
		●	0.472	0.491		5.079	3.189	2.461							DA1200M-... ~ DA1240M-...
		●	0.492	0.511		5.197	3.307	2.559							DA1250M-... ~ DA1290M-...
		●	0.512	0.530		5.315	3.425	2.657							DA1300M-... ~ DA1340M-...
		●	0.531	0.550		5.433	3.543	2.756							DA1350M-... ~ DA1390M-...
		●	0.551	0.570		5.551	3.661	2.854				HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...
		●	0.571	0.590		5.669	3.780	2.953							DA1450M-... ~ DA1490M-...
	SF0750- DRA150M-5 DRA160M-5 DRA170M-5 DRA180M-5 DRA190M-5	●	0.591	0.629	0.750	6.024	4.055	3.150	1.969	0.984	Yes	HS-3048TRP	DTP-6	-	DA1500M-... ~ DA1590M-...
		●	0.630	0.668		6.299	4.331	3.346							DA1600M-... ~ DA1690M-...
		●	0.669	0.708		6.535	4.567	3.543							DA1700M-... ~ DA1790M-...
		●	0.709	0.747		6.811	4.843	3.740				HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
		●	0.748	0.786		7.047	5.079	3.937							DA1900M-... ~ DA1990M-...
	SF1000- DRA200M-5 DRA210M-5 DRA220M-5 DRA230M-5 DRA240M-5 DRA250M-5	●	0.787	0.826	1.000	7.520	5.315	4.134	2.205	1.260	Yes	HS-4067TRP	DTP-7	-	DA2000M-... ~ DA2090M-...
		●	0.827	0.865		7.756	5.551	4.331							DA2100M-... ~ DA2150M-...
		●	0.866	0.905		8.031	5.827	4.528							DA2200M-... ~ DA2250M-...
		●	0.906	0.944		8.268	6.063	4.724							DA2300M-... ~ DA2381M-...
		●	0.945	0.983		8.504	6.299	4.921							DA2400M-... ~ DA2450M-...
		●	0.984	1.004		8.740	6.535	5.116							DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page ➡ K6~K17 for actual cutting diameters (DC).

SF-DRA (Drilling Depth : 8 x DC)

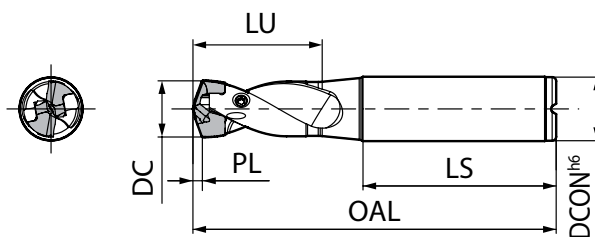
**8D**

For PL indicates distance from drill point to corner edge K6~K17

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17	
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSfMS		Screw	Wrench	Wrench		
																
Inch	SF0500-	DRA080M-8	●	0.313	0.334	0.500	4.961	3.189	2.677	1.772	0.630	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
	DRA085M-8	●	0.335	0.353	5.157		3.386	2.835	DA0850M-... ~ DA0890M-...							
	DRA090M-8	●	0.354	0.373	5.315		3.543	2.992	DA0900M-... ~ DA0940M-...							
	DRA095M-8	●	0.374	0.393	5.512		3.740	3.150	DA0950M-... ~ DA0990M-...							
	SF0625-	DRA100M-8	●	0.394	0.412	0.625	5.787	3.898	3.307	1.890	0.787	Yes	HS-2534TRP	-	FTP-5	DA1000M-... ~ DA1040M-...
	DRA105M-8	●	0.413	0.432	5.984		4.094	3.465	DA1050M-... ~ DA1090M-...							
	DRA110M-8	●	0.433	0.452	6.181		4.291	3.622	DA1100M-... ~ DA1140M-...							
	DRA115M-8	●	0.453	0.471	6.378		4.488	3.780	DA1150M-... ~ DA1190M-...							
	DRA120M-8	●	0.472	0.491	6.535		4.646	3.937	DA1200M-... ~ DA1240M-...							
	DRA125M-8	●	0.492	0.511	6.732		4.843	4.094	DA1250M-... ~ DA1290M-...							
	DRA130M-8	●	0.512	0.530	6.890		5.000	4.252	DA1300M-... ~ DA1340M-...							
	DRA135M-8	●	0.531	0.550	7.087		5.197	4.409	DA1350M-... ~ DA1390M-...							
	DRA140M-8	●	0.551	0.570	7.244		5.354	4.567	HS-3048TRP				DTP-6	-	DA1400M-... ~ DA1440M-...	
	DRA145M-8	●	0.571	0.590	7.441		5.551	4.724							DA1450M-... ~ DA1490M-...	
	SF0750-	DRA150M-8	●	0.591	0.629	0.750	7.913	5.945	5.039	1.969	0.984	Yes	HS-3048TRP	DTP-6	-	DA1500M-... ~ DA1590M-...
	DRA160M-8	●	0.630	0.668	8.307		6.339	5.354	DA1600M-... ~ DA1690M-...							
	DRA170M-8	●	0.669	0.708	8.661		6.693	5.669	DA1700M-... ~ DA1790M-...							
	DRA180M-8	●	0.709	0.747	9.055		7.087	5.984	HS-4067TRP				DTP-7	-	DA1800M-... ~ DA1890M-...	
	DRA190M-8	●	0.748	0.786	9.409		7.441	6.299							DA1900M-... ~ DA1990M-...	
	SF1000-	DRA200M-8	●	0.787	0.826	1.000	10.000	7.795	6.614	2.205	1.260	Yes	HS-4067TRP	DTP-7	-	DA2000M-... ~ DA2090M-...
	DRA210M-8	●	0.827	0.865	10.354		8.150	6.929	DA2100M-... ~ DA2150M-...							
	DRA220M-8	●	0.866	0.905	10.748		8.543	7.244	DA2200M-... ~ DA2250M-...							
	DRA230M-8	●	0.906	0.944	11.102		8.898	7.559	DA2300M-... ~ DA2381M-...							
	DRA240M-8	●	0.945	0.983	11.457		9.252	7.874	DA2400M-... ~ DA2450M-...							
	DRA250M-8	●	0.984	1.004	11.811		9.606	8.189	DA2500M-... ~ DA2550M-...							

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page K6~K17 for actual cutting diameters (DC).

SS-DRA (Drilling Depth : 1.5 x DC)**1.5D**

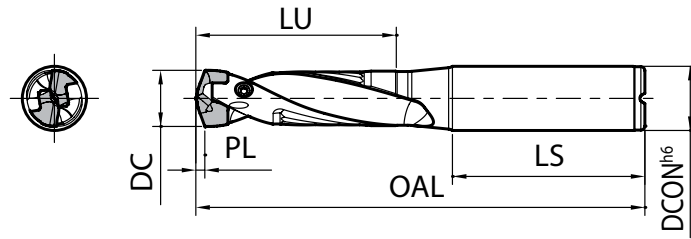
For PL indicates distance from drill point to corner edge K6~K17

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench	
													
Inch	SS0375- DRA080M-1.5 DRA085M-1.5 DRA090M-1.5	● 0.313 0.334	0.375	2.608	0.504	1.575	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...		
		● 0.335 0.353		2.657	0.531						DA0850M-... ~ DA0890M-...		
		● 0.354 0.373		2.707	0.563						DA0900M-... ~ DA0940M-...		
	SS0500- DRA095M-1.5 DRA100M-1.5 DRA105M-1.5 DRA110M-1.5 DRA115M-1.5	● 0.374 0.393	0.500	2.953	0.591	1.772	Yes	HS-2534TRP	-	FTP-5	DA0950M-... ~ DA0990M-...		
		● 0.394 0.412		3.002	0.622						DA1000M-... ~ DA1040M-...		
		● 0.413 0.432		3.051	0.650						DA1050M-... ~ DA1090M-...		
		● 0.433 0.452		3.140	0.681						DA1100M-... ~ DA1140M-...		
		● 0.453 0.471		3.189	0.709						DA1150M-... ~ DA1190M-...		
	SS0625- DRA120M-1.5 DRA125M-1.5 DRA130M-1.5 DRA135M-1.5 DRA140M-1.5 DRA145M-1.5 DRA150M-1.5	● 0.472 0.491	0.625	3.356	0.740	1.890	Yes	HS-2534TRP	-	FTP-5	DA1200M-... ~ DA1240M-...		
		● 0.492 0.511		3.406	0.768						DA1250M-... ~ DA1290M-...		
		● 0.512 0.530		3.455	0.799						DA1300M-... ~ DA1340M-...		
		● 0.531 0.550		3.504	0.827						DA1350M-... ~ DA1390M-...		
		● 0.551 0.570		3.553	0.858			HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...		
		● 0.571 0.590		3.602	0.886						DA1450M-... ~ DA1490M-...		
		● 0.591 0.629		3.740	0.917						DA1500M-... ~ DA1590M-...		
	SS0750- DRA160M-1.5 DRA170M-1.5 DRA180M-1.5	● 0.630 0.668	0.750	3.957	0.976	1.969	Yes	HS-3048TRP	DTP-6	-	DA1600M-... ~ DA1690M-...		
		● 0.669 0.708		4.055	1.035			HS-4067TRP	DTP-7	-	DA1700M-... ~ DA1790M-...		
		● 0.709 0.747		4.193	1.094						DA1800M-... ~ DA1890M-...		
	SS1000- DRA190M-1.5 DRA200M-1.5 DRA210M-1.5 DRA220M-1.5 DRA230M-1.5 DRA240M-1.5 DRA250M-1.5	● 0.748 0.786	1.000	4.528	1.154	2.205	Yes	HS-4067TRP	DTP-7	-	DA1900M-... ~ DA1990M-...		
		● 0.787 0.826		4.626	1.213						DA2000M-... ~ DA2090M-...		
		● 0.827 0.865		4.724	1.272						DA2100M-... ~ DA2150M-...		
		● 0.866 0.905		4.862	1.331						DA2200M-... ~ DA2250M-...		
		● 0.906 0.944		4.961	1.390						DA2300M-... ~ DA2381M-...		
		● 0.945 0.983		5.059	1.449						DA2400M-... ~ DA2450M-...		
		● 0.984 1.004		5.157	1.508						DA2500M-... ~ DA2550M-...		

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page K6~K17 for actual cutting diameters (DC).

SS-DRA (Drilling Depth : 3 x DC)

**3D**

For PL indicates distance from drill point to corner edge K6~K17

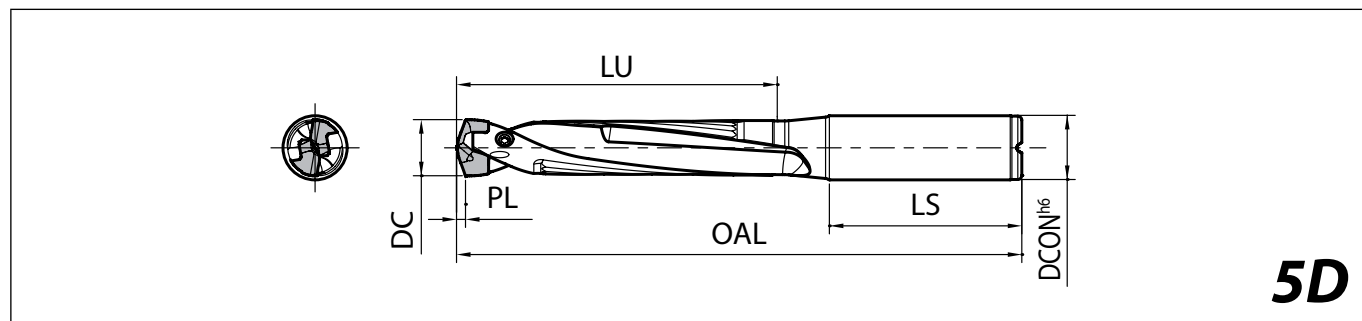
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench	
Inch	SS0375- DRA080M-3 DRA085M-3 DRA090M-3	●	0.313	0.334	0.375	3.110	1.004	1.575	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
		●	0.335	0.353		3.189	1.063						DA0850M-... ~ DA0890M-...
		●	0.354	0.373		3.268	1.122						DA0900M-... ~ DA0940M-...
	SS0500- DRA095M-3 DRA100M-3 DRA105M-3 DRA110M-3 DRA115M-3	●	0.374	0.393	0.500	3.543	1.181	1.772	Yes	HS-2534TRP	-	FTP-5	DA0950M-... ~ DA0990M-...
		●	0.394	0.412		3.622	1.240						DA1000M-... ~ DA1040M-...
		●	0.413	0.432		3.701	1.299						DA1050M-... ~ DA1090M-...
		●	0.433	0.452		3.819	1.358						DA1100M-... ~ DA1140M-...
		●	0.453	0.471		3.898	1.417						DA1150M-... ~ DA1190M-...
	SS0625- DRA120M-3 DRA125M-3 DRA130M-3 DRA135M-3 DRA140M-3 DRA145M-3 DRA150M-3	●	0.472	0.491	0.625	4.094	1.476	1.890	Yes	HS-2534TRP	-	FTP-5	DA1200M-... ~ DA1240M-...
		●	0.492	0.511		4.173	1.535						DA1250M-... ~ DA1290M-...
		●	0.512	0.530		4.252	1.594						DA1300M-... ~ DA1340M-...
		●	0.531	0.550		4.331	1.654						DA1350M-... ~ DA1390M-...
		●	0.551	0.570		4.409	1.713		HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...	
		●	0.571	0.590		4.488	1.772					DA1450M-... ~ DA1490M-...	
		●	0.591	0.629		4.685	1.890					DA1500M-... ~ DA1590M-...	
	SS0750- DRA160M-3 DRA170M-3 DRA180M-3	●	0.630	0.668	0.750	4.961	2.008	1.969	Yes	HS-3048TRP	DTP-6	-	DA1600M-... ~ DA1690M-...
		●	0.669	0.708		5.118	2.126						DA1700M-... ~ DA1790M-...
		●	0.709	0.747		5.315	2.244			HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
	SS1000- DRA190M-3 DRA200M-3 DRA210M-3 DRA220M-3 DRA230M-3 DRA240M-3 DRA250M-3	●	0.748	0.786	1.000	5.472	2.362	2.205	Yes	HS-4067TRP	DTP-7	-	DA1900M-... ~ DA1990M-...
		●	0.787	0.826		5.866	2.480						DA2000M-... ~ DA2090M-...
		●	0.827	0.865		6.024	2.598						DA2100M-... ~ DA2150M-...
		●	0.866	0.905		6.220	2.717						DA2200M-... ~ DA2250M-...
		●	0.906	0.944		6.378	2.835						DA2300M-... ~ DA2381M-...
		●	0.945	0.983		6.535	2.953						DA2400M-... ~ DA2450M-...
		●	0.984	1.004		6.693	3.070						DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.

See applicable insert tables on Page ➡ K6~K17 for actual cutting diameters (DC).

SS-DRA (Drilling Depth : 5 x DC)



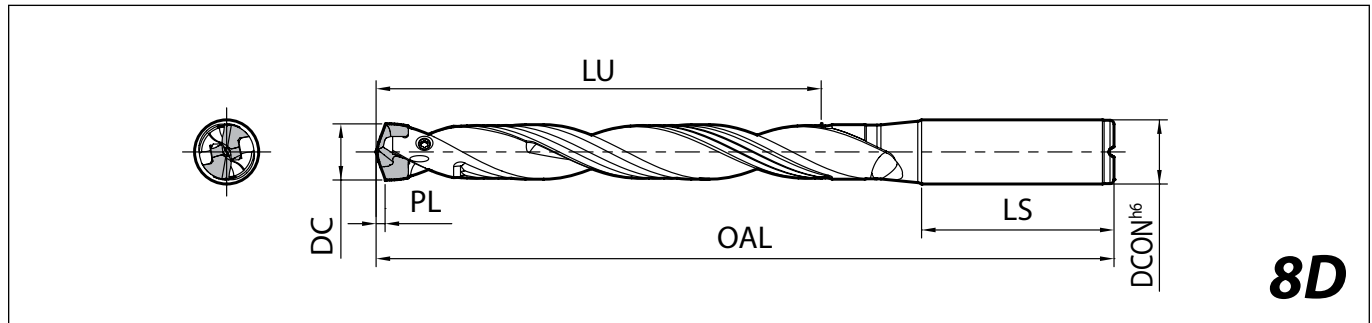
For PL indicates distance from drill point to corner edge K6~K17

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17	
			DC min.	DC max.	DCON	OAL	LU		LS	Screw	Wrench		Wrench
													
Inch	SS0375- DRA080M-5	●	0.313	0.334	0.375	3.780	1.673	1.575	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
	DRA085M-5	●	0.335	0.353		3.898	1.772						DA0850M-... ~ DA0890M-...
	DRA090M-5	●	0.354	0.373		4.016	1.870						DA0900M-... ~ DA0940M-...
	SS0500- DRA095M-5	●	0.374	0.393	0.500	4.331	1.969	1.772	Yes	HS-2524TRP	-	FTP-5	DA0950M-... ~ DA0990M-...
	DRA100M-5	●	0.394	0.412		4.449	2.067						DA1000M-... ~ DA1040M-...
	DRA105M-5	●	0.413	0.432		4.567	2.165						DA1050M-... ~ DA1090M-...
	DRA110M-5	●	0.433	0.452		4.724	2.264						DA1100M-... ~ DA1140M-...
	DRA115M-5	●	0.453	0.471		4.843	2.362						DA1150M-... ~ DA1190M-...
	SS0625- DRA120M-5	●	0.472	0.491	0.625	5.079	2.461	1.890	Yes	HS-2534TRP	-	FTP-5	DA1200M-... ~ DA1240M-...
	DRA125M-5	●	0.492	0.511		5.197	2.559						DA1250M-... ~ DA1290M-...
	DRA130M-5	●	0.512	0.530		5.315	2.657						DA1300M-... ~ DA1340M-...
	DRA135M-5	●	0.531	0.550		5.433	2.756						DA1350M-... ~ DA1390M-...
	DRA140M-5	●	0.551	0.570		5.551	2.854			HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...
	DRA145M-5	●	0.571	0.590		5.669	2.953						DA1450M-... ~ DA1490M-...
	DRA150M-5	●	0.591	0.629		5.945	3.150						DA1500M-... ~ DA1590M-...
	SS0750- DRA160M-5	●	0.630	0.668	0.750	6.299	3.346	1.969	Yes	HS-3048TRP	DTP-6	-	DA1600M-... ~ DA1690M-...
	DRA170M-5	●	0.669	0.708		6.535	3.543						DA1700M-... ~ DA1790M-...
	DRA180M-5	●	0.709	0.747		6.811	3.740			HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
	SS1000- DRA190M-5	●	0.748	0.786	1.000	7.047	3.937	2.205	Yes	HS-4067TRP	DTP-7	-	DA1900M-... ~ DA1990M-...
	DRA200M-5	●	0.787	0.826		7.520	4.134						DA2000M-... ~ DA2090M-...
	DRA210M-5	●	0.827	0.865		7.756	4.331						DA2100M-... ~ DA2150M-...
	DRA220M-5	●	0.866	0.905		8.031	4.528						DA2200M-... ~ DA2250M-...
	DRA230M-5	●	0.906	0.944		8.268	4.724						DA2300M-... ~ DA2381M-...
	DRA240M-5	●	0.945	0.983		8.504	4.921						DA2400M-... ~ DA2450M-...
	DRA250M-5	●	0.984	1.004		8.740	5.116						DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page K6~K17 for actual cutting diameters (DC).

SS-DRA (Drilling Depth : 8 x DC)



For PL indicates distance from drill point to corner edge K6~K17

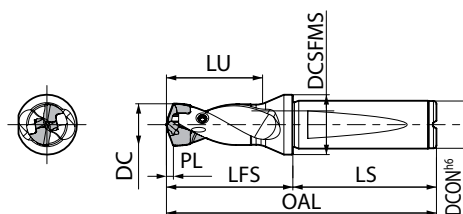
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions					Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17	
			DC min.	DC max.	DCON	OAL	LU		LS	Screw	Wrench		Wrench
													
Inch	SS0375- DRA080M-8 DRA085M-8 DRA090M-8	●	0.313	0.334	0.375	4.764	2.677	1.575	Yes	HS-2524TRP	-	FTP-5	DA0794M-... ~ DA0840M-...
		●	0.335	0.353		4.961	2.835						DA0850M-... ~ DA0890M-...
		●	0.354	0.373		5.118	2.992						DA0900M-... ~ DA0940M-...
	SS0500- DRA095M-8 DRA100M-8 DRA105M-8 DRA110M-8 DRA115M-8	●	0.374	0.393	0.500	5.512	3.150	1.772	Yes	HS-2524TRP	-	FTP-5	DA0950M-... ~ DA0990M-...
		●	0.394	0.412		5.669	3.307						DA1000M-... ~ DA1040M-...
		●	0.413	0.432		5.866	3.465						DA1050M-... ~ DA1090M-...
		●	0.433	0.452		6.063	3.622						DA1100M-... ~ DA1140M-...
		●	0.453	0.471		6.260	3.780						DA1150M-... ~ DA1190M-...
	SS0625- DRA120M-8 DRA125M-8 DRA130M-8 DRA135M-8 DRA140M-8 DRA145M-8 DRA150M-8	●	0.472	0.491	0.625	6.535	3.937	1.890	Yes	HS-2534TRP	-	FTP-5	DA1200M-... ~ DA1240M-...
		●	0.492	0.511		6.732	4.094						DA1250M-... ~ DA1290M-...
		●	0.512	0.530		6.890	4.252						DA1300M-... ~ DA1340M-...
		●	0.531	0.550		7.087	4.409						DA1350M-... ~ DA1390M-...
		●	0.551	0.570		7.244	4.567			HS-3048TRP	DTP-6	-	DA1400M-... ~ DA1440M-...
		●	0.571	0.590		7.441	4.724						DA1450M-... ~ DA1490M-...
		●	0.591	0.629		7.835	5.039						DA1500M-... ~ DA1590M-...
	SS0750- DRA160M-8 DRA170M-8 DRA180M-8	●	0.630	0.668	0.750	8.307	5.354	1.969	Yes	HS-3048TRP	DTP-6	-	DA1600M-... ~ DA1690M-...
		●	0.669	0.708		8.661	5.669			DA1700M-... ~ DA1790M-...			
		●	0.709	0.747		9.055	5.984			HS-4067TRP	DTP-7	-	DA1800M-... ~ DA1890M-...
	SS1000- DRA190M-8 DRA200M-8 DRA210M-8 DRA220M-8 DRA230M-8 DRA240M-8 DRA250M-8	●	0.748	0.786	1.000	9.409	6.299	2.205	Yes	HS-4067TRP	DTP-7	-	DA1900M-... ~ DA1990M-...
		●	0.787	0.826		10.000	6.614						DA2000M-... ~ DA2090M-...
		●	0.827	0.865		10.354	6.929						DA2100M-... ~ DA2150M-...
		●	0.866	0.905		10.748	7.244						DA2200M-... ~ DA2250M-...
		●	0.906	0.944		11.102	7.559						DA2300M-... ~ DA2381M-...
		●	0.945	0.983		11.457	7.874						DA2400M-... ~ DA2450M-...
		●	0.984	1.004		11.969	8.189						DA2500M-... ~ DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.

See applicable insert tables on Page ➡ K6~K17 for actual cutting diameters (DC).

SF-DRA (Drilling Depth : 1.5 x DC)

**1.5D**

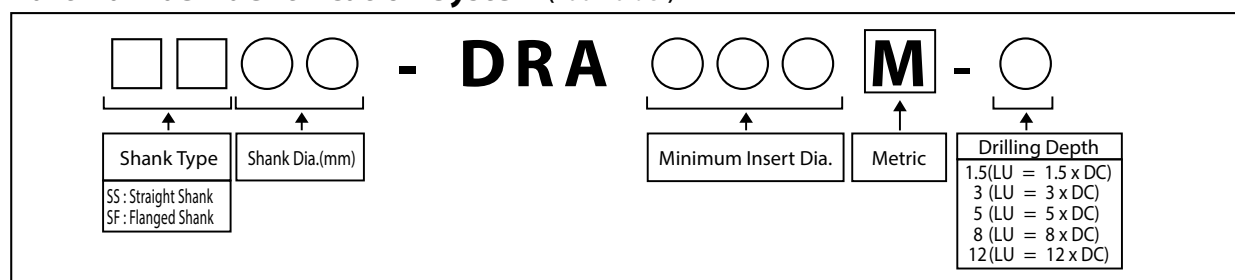
For PL indicates distance from drill point to corner edge K6~K17

Toolholder Dimensions

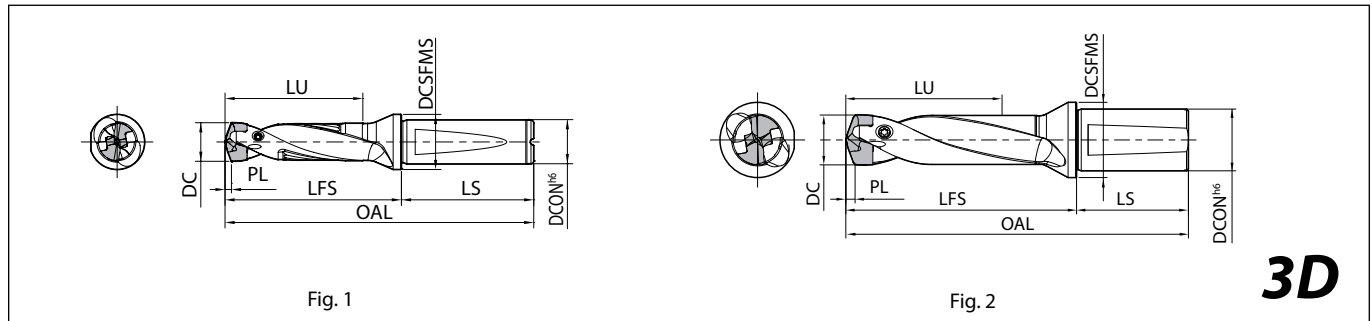
Unit	Part Number	Std. Item	Dimensions							Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17		
			DC min.	DC max.	DCON	OAL	LFS	LU	LS		DCSFMS	Screw	Wrench		Wrench	
																
mm	SF12-	DRA080M-1.5	●	7.94	8.49	12	71.2	26.2	12.8	45	16	Yes	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...
	DRA085M-1.5	●	8.5	8.99	72.5		27.5	13.5	DA0850M-...~DA0890M-...							
	DRA090M-1.5	●	9	9.49	73.7		28.7	14.3	DA0900M-...~DA0940M-...							
	DRA095M-1.5	●	9.5	9.99	75		30	15	DA0950M-...~DA0990M-...							
	SF16-	DRA100M-1.5	●	10	10.49	16	79.2	31.2	15.8	48	20	Yes	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...
	DRA105M-1.5	●	10.5	10.99	80.5		32.5	16.5	DA1050M-...~DA1090M-...							
	DRA110M-1.5	●	11	11.49	82.7		34.7	17.3	DA1100M-...~DA1140M-...							
	DRA115M-1.5	●	11.5	11.99	84		36	18	DA1150M-...~DA1190M-...							
	DRA120M-1.5	●	12	12.49	85.2		37.2	18.8	DA1200M-...~DA1240M-...							
	DRA125M-1.5	●	12.5	12.99	86.5		38.5	19.5	DA1250M-...~DA1290M-...							
	DRA130M-1.5	●	13	13.49	87.7		39.7	20.3	DA1300M-...~DA1340M-...							
	DRA135M-1.5	●	13.5	13.99	89		41	21	DA1350M-...~DA1390M-...							
	DRA140M-1.5	●	14	14.49	90.2		42.2	21.8	HS-3048TRP				DTP-6	-	DA1400M-...~DA1440M-...	
	DRA145M-1.5	●	14.5	14.99	91.5		43.5	22.5							DA1450M-...~DA1490M-...	
	SF20-	DRA150M-1.5	●	15	15.99	20	97	47	24	50	25	Yes	HS-3048TRP	DTP-6	-	DA1500M-...~DA1590M-...
	DRA160M-1.5	●	16	16.99	100.5		50.5	25.5	DA1600M-...~DA1690M-...							
	DRA170M-1.5	●	17	17.99	103		53	27	DA1700M-...~DA1790M-...							
	SF25-	DRA180M-1.5	●	18	18.99	25	112.5	56.5	28.5	56	32	Yes	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...
	DRA190M-1.5	●	19	19.99	115		59	30	DA1900M-...~DA1990M-...							
	DRA200M-1.5	●	20	20.99	117.5		61.5	31.5	DA2000M-...~DA2090M-...							
	DRA210M-1.5	●	21	21.99	120		64	33	DA2100M-...~DA2150M-...							
	DRA220M-1.5	●	22	22.99	123.5		67.5	34.5	DA2200M-...~DA2250M-...							
	DRA230M-1.5	●	23	23.99	126		70	36	DA2300M-...~DA2350M-...							
	DRA240M-1.5	●	24	24.99	128.5		72.5	37.5	DA2400M-...~DA2450M-...							
	DRA250M-1.5	●	25	25.5	131		75	39	DA2500M-...~DA2550M-...							

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page K6~K17 for actual cutting diameters (DC).

Part Number Identification System (Toolholder)



SF-DRA (Drilling Depth : 3 x DC)



For PL indicates distance from drill point to corner edge K6~K17

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Coolant Hole	Fig.	Spare Parts			Applicable Inserts K6~K17
			DC min.	DC max.	DCON	OAL	LFS	LU	LS			Screw	Wrench	Wrench	
mm	SF12- DRA080M-3	●	7.94	8.49	12	84	39	25.5	45	16	Yes	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...
	DRA085M-3	●	8.5	8.99		86	41	27							DA0850M-...~DA0890M-...
	DRA090M-3	●	9	9.49		88	43	28.5							DA0900M-...~DA0940M-...
	DRA095M-3	●	9.5	9.99		90	45	30							DA0950M-...~DA0990M-...
	SF16- DRA100M-3	●	10	10.49	16	95	47	31.5	48	20	Yes	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...
	DRA105M-3	●	10.5	10.99		97	49	33							DA1050M-...~DA1090M-...
	DRA110M-3	●	11	11.49		100	52	34.5							DA1100M-...~DA1140M-...
	DRA115M-3	●	11.5	11.99		102	54	36							DA1150M-...~DA1190M-...
	DRA120M-3	●	12	12.49		104	56	37.5							DA1200M-...~DA1240M-...
	DRA125M-3	●	12.5	12.99		106	58	39							DA1250M-...~DA1290M-...
	DRA130M-3	●	13	13.49		108	60	40.5							DA1300M-...~DA1340M-...
	DRA135M-3	●	13.5	13.99		110	62	42							DA1350M-...~DA1390M-...
	DRA140M-3	●	14	14.49		112	64	43.5				HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...
	DRA145M-3	●	14.5	14.99		114	66	45							DA1450M-...~DA1490M-...
	SF20- DRA150M-3	●	15	15.99	20	121	71	48	50	25	Yes	HS-3048TRP	DTP-6	-	DA1500M-...~DA1590M-...
	DRA160M-3	●	16	16.99		126	76	51							DA1600M-...~DA1690M-...
	DRA170M-3	●	17	17.99		130	80	54							DA1700M-...~DA1790M-...
	SF25- DRA180M-3	●	18	18.99	25	141	85	57	56	32	Yes	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...
	DRA190M-3	●	19	19.99		145	89	60							DA1900M-...~DA1990M-...
	DRA200M-3	●	20	20.99		149	93	63							DA2000M-...~DA2090M-...
	DRA210M-3	●	21	21.99		153	97	66							DA2100M-...~DA2150M-...
	DRA220M-3	●	22	22.99		158	102	69							DA2200M-...~DA2250M-...
	DRA230M-3	●	23	23.99		162	106	72							DA2300M-...~DA2350M-...
	DRA240M-3	●	24	24.99		166	110	75							DA2400M-...~DA2450M-...
	DRA250M-3	●	25	25.99		170	114	78							DA2500M-...~DA2550M-...
	SF32- DRA260M-3	●	26	26.99	32	178	120	81	58	39	Yes	HS-50100TRP	DTPM-15	-	DA2600M-...~DA2650M-...
	DRA270M-3	●	27	27.99		181	123	84							DA2700M-...~DA2750M-...
	DRA280M-3	●	28	28.99		185	127	87							DA2800M-...~DA2850M-...
	DRA290M-3	●	29	29.99		189	131	90							DA2900M-...~DA2950M-...
	DRA300M-3	●	30	30.99		193	135	93							DA3000M-...~DA3050M-...
	DRA310M-3	●	31	31.99		196	138	96							DA3100M-...~DA3150M-...
	DRA320M-3	●	32	33		200	142	99							DA3200M-...~DA3300M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page K6~K17 for actual cutting diameters (DC).

SF-DRA (Drilling Depth : 5 x DC)

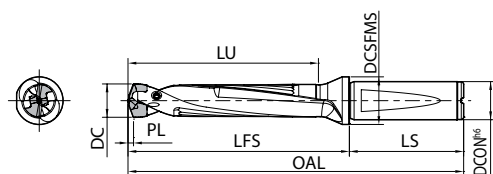


Fig. 1

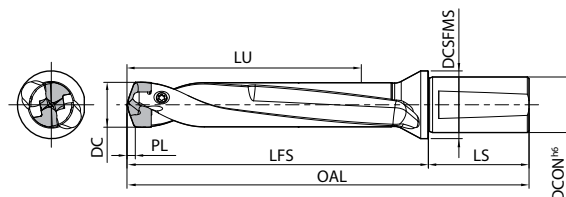


Fig. 2

5D

For PL indicates distance from drill point to corner edge K6~K17

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ K6~K17			
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS			Screw	Wrench	Wrench				
mm	SF12-	DRA080M-5	●	7.94	8.49	12	101	56	42.5	45	16	Yes	1	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...		
	DRA085M-5	●	8.5	8.99	104		59	45	1				DA0850M-...~DA0890M-...						
	DRA090M-5	●	9	9.49	107		62	47.5	1				DA0900M-...~DA0940M-...						
	DRA095M-5	●	9.5	9.99	110		65	50	1				DA0950M-...~DA0990M-...						
	SF16-	DRA100M-5	●	10	10.49	16	116	68	52.5	48	20	Yes	1	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...		
	DRA105M-5	●	10.5	10.99	119		71	55	1				DA1050M-...~DA1090M-...						
	DRA110M-5	●	11	11.49	123		75	57.5	1				DA1100M-...~DA1140M-...						
	DRA115M-5	●	11.5	11.99	126		78	60	1				DA1150M-...~DA1190M-...						
	DRA120M-5	●	12	12.49	129		81	62.5	1				DA1200M-...~DA1240M-...						
	DRA125M-5	●	12.5	12.99	132		84	65	1				DA1250M-...~DA1290M-...						
	DRA130M-5	●	13	13.49	135		87	67.5	1				DA1300M-...~DA1340M-...						
	DRA135M-5	●	13.5	13.99	138		90	70	1				DA1350M-...~DA1390M-...						
	DRA140M-5	●	14	14.49	141		93	72.5	1				HS-3048TRP				DTP-6	-	DA1400M-...~DA1440M-...
	DRA145M-5	●	14.5	14.99	144		96	75	1										DA1450M-...~DA1490M-...
	SF20-	DRA150M-5	●	15	15.99	20	153	103	80	50	25	Yes	1	HS-3048TRP	DTP-6	-	DA1500M-...~DA1590M-...		
	DRA160M-5	●	16	16.99	160		110	85	1				DA1600M-...~DA1690M-...						
	DRA170M-5	●	17	17.99	166		116	90	1				DA1700M-...~DA1790M-...						
	SF25-	DRA180M-5	●	18	18.99	25	179	123	95	56	32	Yes	1	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...		
	DRA190M-5	●	19	19.99	185		129	100	1				DA1900M-...~DA1990M-...						
	DRA200M-5	●	20	20.99	191		135	105	1				DA2000M-...~DA2090M-...						
	DRA210M-5	●	21	21.99	197		141	110	1				DA2100M-...~DA2150M-...						
	DRA220M-5	●	22	22.99	204		148	115	1				DA2200M-...~DA2250M-...						
	DRA230M-5	●	23	23.99	210		154	120	1				DA2300M-...~DA2350M-...						
	DRA240M-5	●	24	24.99	216		160	125	1				DA2400M-...~DA2450M-...						
	DRA250M-5	●	25	25.99	222		166	130	1				DA2500M-...~DA2550M-...						
	SF32-	DRA260M-5	●	26	26.99	32	232	174	135	58	39	Yes	2	HS-50100TRP	DTPM-15	-	DA2600M-...~DA2650M-...		
	DRA270M-5	●	27	27.99	237		179	140	2				DA2700M-...~DA2750M-...						
	DRA280M-5	●	28	28.99	243		185	145	2				DA2800M-...~DA2850M-...						
	DRA290M-5	●	29	29.99	249		191	150	2				DA2900M-...~DA2950M-...						
	DRA300M-5	●	30	30.99	255		197	155	2				DA3000M-...~DA3050M-...						
	DRA310M-5	●	31	31.99	260		202	160	2				DA3100M-...~DA3150M-...						
	DRA320M-5	●	32	33	266		208	165	2				DA3200M-...~DA3300M-...						

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page K6~K17 for actual cutting diameters (DC).

SF-DRA (Drilling Depth : 8 x DC)

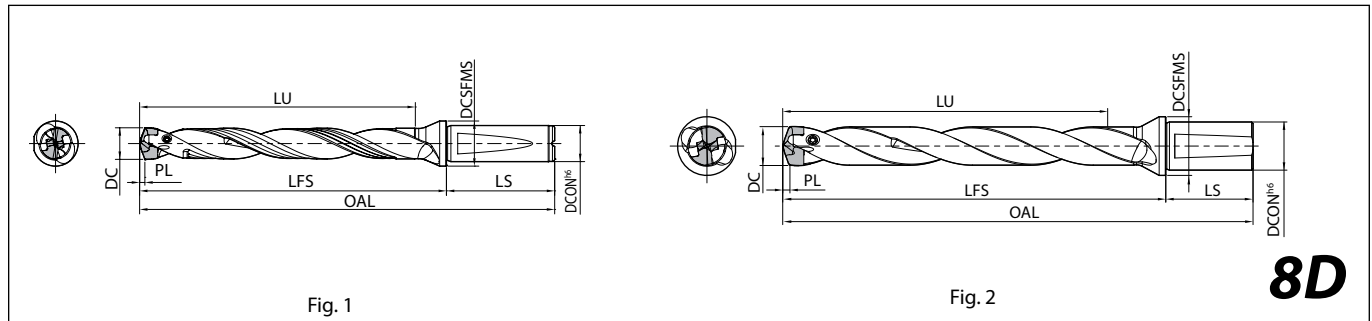


Fig. 1

Fig. 2

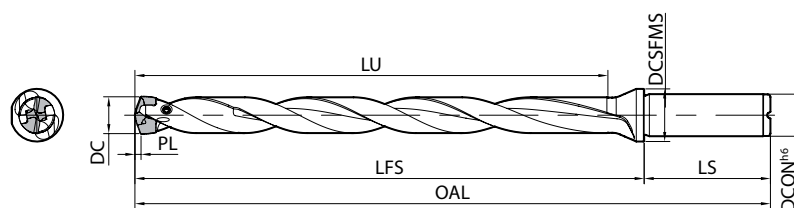
For PL indicates distance from drill point to corner edge K6~K17

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ K6~K17	
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS			Screw	Wrench	Wrench		
																	
mm	SF12-	DRA080M-8	●	7.94	8.49	12	126	81	68	45	16	Yes	1	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...
	DRA085M-8	●	8.5	8.99	131		86	72	DA0850M-...~DA0890M-...								
	DRA090M-8	●	9	9.49	135		90	76	DA0900M-...~DA0940M-...								
	DRA095M-8	●	9.5	9.99	140		95	80	DA0950M-...~DA0990M-...								
	SF16-	DRA100M-8	●	10	10.49	16	147	99	84	48	20	Yes	1	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...
	DRA105M-8	●	10.5	10.99	152		104	88	DA1050M-...~DA1090M-...								
	DRA110M-8	●	11	11.49	157		109	92	DA1100M-...~DA1140M-...								
	DRA115M-8	●	11.5	11.99	162		114	96	DA1150M-...~DA1190M-...								
	DRA120M-8	●	12	12.49	166		118	100	DA1200M-...~DA1240M-...								
	DRA125M-8	●	12.5	12.99	171		123	104	DA1250M-...~DA1290M-...								
	DRA130M-8	●	13	13.49	175		127	108	DA1300M-...~DA1340M-...								
	DRA135M-8	●	13.5	13.99	180		132	112	DA1350M-...~DA1390M-...								
	DRA140M-8	●	14	14.49	184		136	116	DA1400M-...~DA1440M-...								
	DRA145M-8	●	14.5	14.99	189		141	120	DA1450M-...~DA1490M-...								
	SF20-	DRA150M-8	●	15	15.99	20	201	151	128	50	25	Yes	1	HS-3048TRP	DTP-6	-	DA1500M-...~DA1590M-...
	DRA160M-8	●	16	16.99	211		161	136	DA1600M-...~DA1690M-...								
	DRA170M-8	●	17	17.99	220		170	144	DA1700M-...~DA1790M-...								
	SF25-	DRA180M-8	●	18	18.99	25	236	180	152	56	32	Yes	1	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...
	DRA190M-8	●	19	19.99	245		189	160	DA1900M-...~DA1990M-...								
	DRA200M-8	●	20	20.99	254		198	168	DA2000M-...~DA2090M-...								
	DRA210M-8	●	21	21.99	263		207	176	DA2100M-...~DA2150M-...								
	DRA220M-8	●	22	22.99	273		217	184	DA2200M-...~DA2250M-...								
	DRA230M-8	●	23	23.99	282		226	192	DA2300M-...~DA2350M-...								
	DRA240M-8	●	24	24.99	291		235	200	DA2400M-...~DA2450M-...								
	DRA250M-8	●	25	25.99	300		244	208	DA2500M-...~DA2550M-...								
	SF32-	DRA260M-8	●	26	26.99	32	313	255	216	58	39	Yes	2	HS-50100TRP	DTPM-15	-	DA2600M-...~DA2650M-...
	DRA270M-8	●	27	27.99	321		263	224	DA2700M-...~DA2750M-...								
	DRA280M-8	●	28	28.99	330		272	232	DA2800M-...~DA2850M-...								
	DRA290M-8	●	29	29.99	339		281	240	DA2900M-...~DA2950M-...								
	DRA300M-8	●	30	30.99	348		290	248	DA3000M-...~DA3050M-...								
	DRA310M-8	●	31	31.99	356		298	256	DA3100M-...~DA3150M-...								
	DRA320M-8	●	32	33	365		307	264	DA3200M-...~DA3300M-...								

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page K6~K17 for actual cutting diameters (DC).

SF-DRA (Drilling Depth : 12 x DC)

**12D**

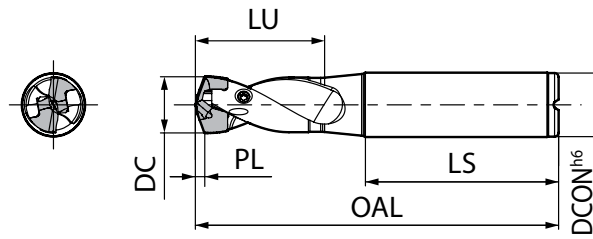
For PL indicates distance from drill point to corner edge K6~K17

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions								Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17
			DC min.	DC max.	DCON	OAL	LFS	LU	LS	DCSFMS		Screw	Wrench	Wrench	
															
mm	SF16- DRA120M-12 DRA125M-12 DRA130M-12 DRA135M-12 DRA140M-12 DRA145M-12	●	12	12.49	16	216	168	150	48	20	Yes	HS-2534TRP	-	FTP-5	DA1200M-...~DA1240M-...
		●	12.5	12.99		223	175	156							DA1250M-...~DA1290M-...
		●	13	13.49		229	181	162							DA1300M-...~DA1340M-...
		●	13.5	13.99		236	188	168							DA1350M-...~DA1390M-...
		●	14	14.49		242	194	174				HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...
		●	14.5	14.99		249	201	180							DA1450M-...~DA1490M-...
	SF20- DRA150M-12 DRA160M-12 DRA170M-12	●	15	15.99	20	265	215	192	50	25	Yes	HS-3048TRP	DTP-6	-	DA1500M-...~DA1590M-...
		●	16	16.99		279	229	204							DA1600M-...~DA1690M-...
		●	17	17.99		292	242	216							DA1700M-...~DA1790M-...
	SF25- DRA180M-12 DRA190M-12 DRA200M-12 DRA210M-12 DRA220M-12 DRA230M-12 DRA240M-12 DRA250M-12	●	18	18.99	25	312	256	228	56	32	Yes	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...
		●	19	19.99		325	269	240							DA1900M-...~DA1990M-...
		●	20	20.99		338	282	252							DA2000M-...~DA2090M-...
		●	21	21.99		351	295	264							DA2100M-...~DA2150M-...
		●	22	22.99		365	309	276							DA2200M-...~DA2250M-...
		●	23	23.99		378	322	288							DA2300M-...~DA2350M-...
		●	24	24.99		391	335	300							DA2400M-...~DA2450M-...
		●	25	25.5		404	348	312							DA2500M-...~DA2550M-...

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page K6~K17 for actual cutting diameters (DC).

SS-DRA (Drilling Depth : 1.5 x DC)

**1.5D**

For PL indicates distance from drill point to corner edge K6~K17

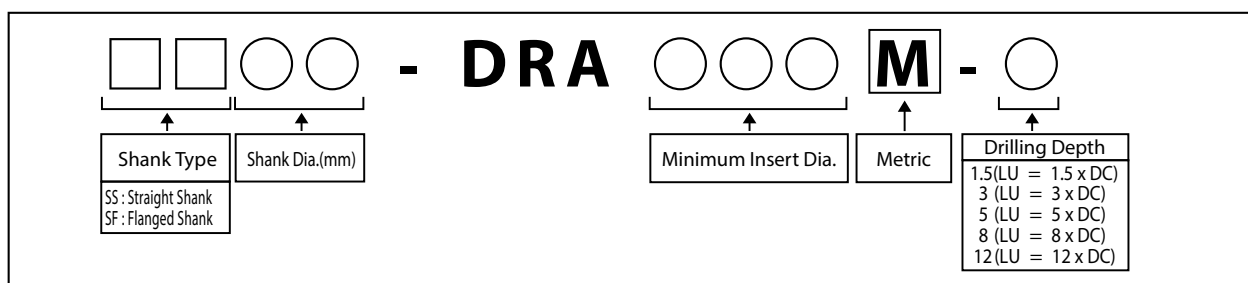
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17	Applicable Chamfering Attachment ➡ K36
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench		
mm	SS10- DRA080M-1.5 DRA085M-1.5 DRA090M-1.5 DRA095M-1.5	●	7.94	8.49	10	66.2	12.8	40	Yes	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...	S20-CH10-DRA
		●	8.5	8.99		67.5	13.5						DA0850M-...~DA0890M-...	
		●	9	9.49		68.7	14.3						DA0900M-...~DA0940M-...	
		●	9.5	9.99		70	15						DA0950M-...~DA0990M-...	
	SS12- DRA100M-1.5 DRA105M-1.5 DRA110M-1.5 DRA115M-1.5	●	10	10.49	12	76.2	15.8	45	Yes	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...	S32-CH12-DRA
		●	10.5	10.99		77.5	16.5						DA1050M-...~DA1090M-...	
		●	11	11.49		79.7	17.3						DA1100M-...~DA1140M-...	
		●	11.5	11.99		81	18						DA1150M-...~DA1190M-...	
	SS14- DRA120M-1.5 DRA125M-1.5 DRA130M-1.5 DRA135M-1.5	●	12	12.49	14	82.2	18.8	45	Yes	HS-2534TRP	-	FTP-5	DA1200M-...~DA1240M-...	S32-CH14-DRA
		●	12.5	12.99		83.5	19.5						DA1250M-...~DA1290M-...	
		●	13	13.49		84.7	20.3						DA1300M-...~DA1340M-...	
		●	13.5	13.99		86	21						DA1350M-...~DA1390M-...	
	SS16- DRA140M-1.5 DRA145M-1.5 DRA150M-1.5	●	14	14.49	16	90.2	21.8	48	Yes	HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...	S32-CH16-DRA
		●	14.5	14.99		91.5	22.5						DA1450M-...~DA1490M-...	
		●	15	15.99		95	24						DA1500M-...~DA1590M-...	
	SS18- DRA160M-1.5 DRA170M-1.5	●	16	16.99	18	98.5	25.5	48	Yes	HS-3048TRP	DTP-6	-	DA1600M-...~DA1690M-...	S32-CH18-DRA
		●	17	17.99		101	27						DA1700M-...~DA1790M-...	
	SS20- DRA180M-1.5 DRA190M-1.5	●	18	18.99	20	106.5	28.5	50	Yes	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...	S32-CH20-DRA
		●	19	19.99		109	30						DA1900M-...~DA1990M-...	
	SS25- DRA200M-1.5 DRA210M-1.5 DRA220M-1.5 DRA230M-1.5 DRA240M-1.5	●	20	20.99	25	117.5	31.5	56	Yes	HS-4067TRP	DTP-7	-	DA2000M-...~DA2090M-...	-
		●	21	21.99		120	33						DA2100M-...~DA2150M-...	
		●	22	22.99		123.5	34.5						DA2200M-...~DA2250M-...	
		●	23	23.99		126	36						DA2300M-...~DA2350M-...	
		●	24	24.99		128.5	37.5						DA2400M-...~DA2450M-...	
	SS32- DRA250M-1.5	●	25	25.5	32	135	39	60	Yes	HS-4067TRP	DTP-7	-	DA2500M-...~DA2550M-...	-

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.

See applicable insert tables on Page K6~K17 for actual cutting diameters (DC).

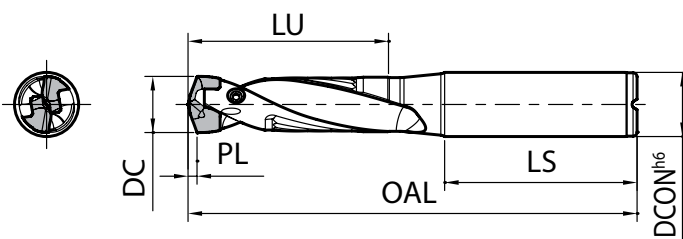
Part Number Identification System (Toolholder)



● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

SS-DRA (Drilling Depth : 3 x DC)



3D

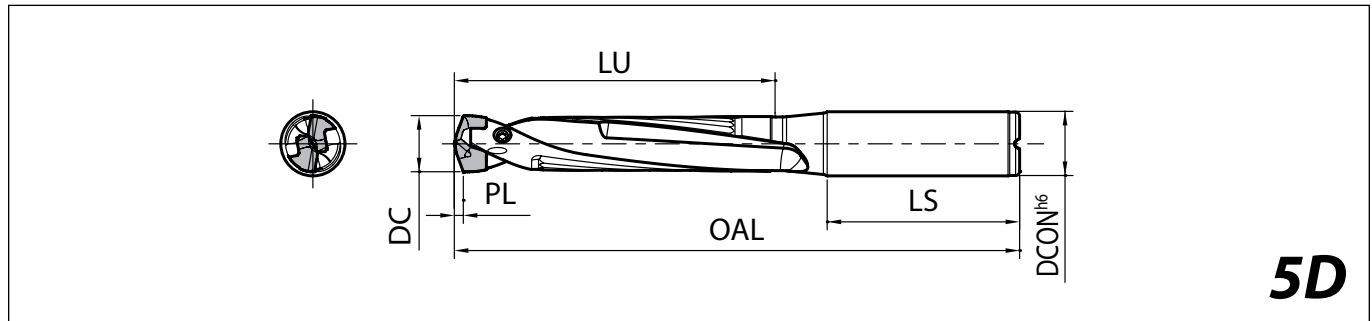
For PL indicates distance from drill point to corner edge K6~K17

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts 🔩 K6~K17	Applicable Chamfering Attachment 🔩 K36
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench		
mm	SS10- DRA080M-3 DRA085M-3 DRA090M-3 DRA095M-3	●	7.94	8.49	10	79	25.5	40	Yes	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...	S20-CH10-DRA
		●	8.5	8.99		81	27						DA0850M-...~DA0890M-...	
		●	9	9.49		83	28.5						DA0900M-...~DA0940M-...	
		●	9.5	9.99		85	30						DA0950M-...~DA0990M-...	
	SS12- DRA100M-3 DRA105M-3 DRA110M-3 DRA115M-3	●	10	10.49	12	92	31.5	45	Yes	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...	S32-CH12-DRA
		●	10.5	10.99		94	33						DA1050M-...~DA1090M-...	
		●	11	11.49		97	34.5						DA1100M-...~DA1140M-...	
		●	11.5	11.99		99	36						DA1150M-...~DA1190M-...	
	SS14- DRA120M-3 DRA125M-3 DRA130M-3 DRA135M-3	●	12	12.49	14	101	37.5	45	Yes	HS-2534TRP	-	FTP-5	DA1200M-...~DA1240M-...	S32-CH14-DRA
		●	12.5	12.99		103	39						DA1250M-...~DA1290M-...	
		●	13	13.49		105	40.5						DA1300M-...~DA1340M-...	
		●	13.5	13.99		107	42						DA1350M-...~DA1390M-...	
	SS16- DRA140M-3 DRA145M-3 DRA150M-3	●	14	14.49	16	112	43.5	48	Yes	HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...	S32-CH16-DRA
		●	14.5	14.99		114	45						DA1450M-...~DA1490M-...	
		●	15	15.99		119	48						DA1500M-...~DA1590M-...	
	SS18- DRA160M-3 DRA170M-3	●	16	16.99	18	124	51	48	Yes	HS-3048TRP	DTP-6	-	DA1600M-...~DA1690M-...	S32-CH18-DRA
		●	17	17.99		128	54						DA1700M-...~DA1790M-...	
	SS20- DRA180M-3 DRA190M-3	●	18	18.99	20	135	57	50	Yes	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...	S32-CH20-DRA
		●	19	19.99		139	60						DA1900M-...~DA1990M-...	
	SS25- DRA200M-3 DRA210M-3 DRA220M-3 DRA230M-3 DRA240M-3	●	20	20.99	25	149	63	56	Yes	HS-4067TRP	DTP-7	-	DA2000M-...~DA2090M-...	-
		●	21	21.99		153	66						DA2100M-...~DA2150M-...	
		●	22	22.99		158	69						DA2200M-...~DA2250M-...	
		●	23	23.99		162	72						DA2300M-...~DA2350M-...	
		●	24	24.99		166	75						DA2400M-...~DA2450M-...	
	SS32- DRA250M-3	●	25	25.5	32	174	78	60	Yes	HS-4067TRP	DTP-7	-	DA2500M-...~DA2550M-...	-

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page K6~K17 for actual cutting diameters (DC).

SS-DRA (Drilling Depth : 5 x DC)



For PL indicates distance from drill point to corner edge K6~K17

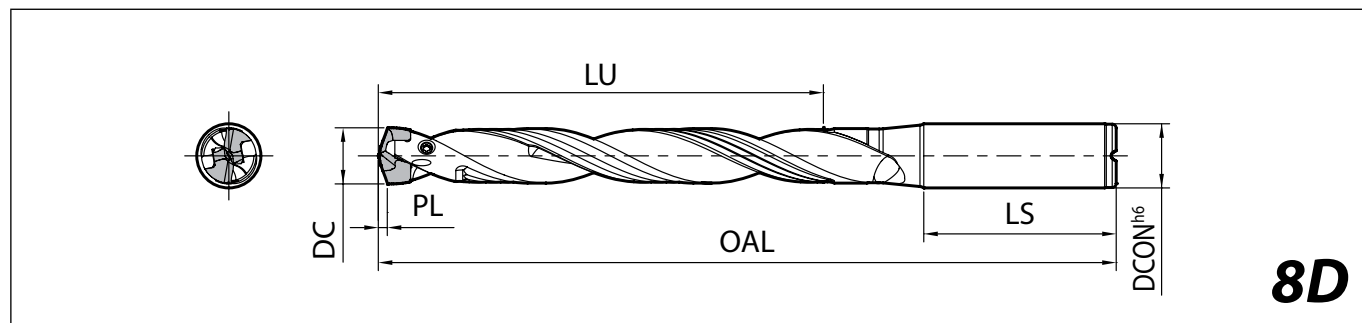
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17	Applicable Chamfering Attachment ➡ K36
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench		
mm	SS10- DRA080M-5 DRA085M-5 DRA090M-5 DRA095M-5	●	7.94	8.49	10	96	42.5	40	Yes	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...	S20-CH10-DRA
		●	8.5	8.99		99	45						DA0850M-...~DA0890M-...	
		●	9	9.49		102	47.5						DA0900M-...~DA0940M-...	
		●	9.5	9.99		105	50						DA0950M-...~DA0990M-...	
	SS12- DRA100M-5 DRA105M-5 DRA110M-5 DRA115M-5	●	10	10.49	12	113	52.5	45	Yes	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...	S32-CH12-DRA
		●	10.5	10.99		116	55						DA1050M-...~DA1090M-...	
		●	11	11.49		120	57.5						DA1100M-...~DA1140M-...	
		●	11.5	11.99		123	60						DA1150M-...~DA1190M-...	
	SS14- DRA120M-5 DRA125M-5 DRA130M-5 DRA135M-5	●	12	12.49	14	126	62.5	45	Yes	HS-2534TRP	-	FTP-5	DA1200M-...~DA1240M-...	S32-CH14-DRA
		●	12.5	12.99		129	65						DA1250M-...~DA1290M-...	
		●	13	13.49		132	67.5						DA1300M-...~DA1340M-...	
		●	13.5	13.99		135	70						DA1350M-...~DA1390M-...	
	SS16- DRA140M-5 DRA145M-5 DRA150M-5	●	14	14.49	16	141	72.5	48	Yes	HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...	S32-CH16-DRA
		●	14.5	14.99		144	75						DA1450M-...~DA1490M-...	
		●	15	15.99		151	80						DA1500M-...~DA1590M-...	
	SS18- DRA160M-5 DRA170M-5	●	16	16.99	18	158	85	48	Yes	HS-3048TRP	DTP-6	-	DA1600M-...~DA1690M-...	S32-CH18-DRA
		●	17	17.99		164	90						DA1700M-...~DA1790M-...	
	SS20- DRA180M-5 DRA190M-5	●	18	18.99	20	173	95	50	Yes	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...	S32-CH20-DRA
		●	19	19.99		179	100						DA1900M-...~DA1990M-...	
	SS25- DRA200M-5 DRA210M-5 DRA220M-5 DRA230M-5 DRA240M-5	●	20	20.99	25	191	105	56	Yes	HS-4067TRP	DTP-7	-	DA2000M-...~DA2090M-...	-
		●	21	21.99		197	110						DA2100M-...~DA2150M-...	
		●	22	22.99		204	115						DA2200M-...~DA2250M-...	
		●	23	23.99		210	120						DA2300M-...~DA2350M-...	
		●	24	24.99		216	125						DA2400M-...~DA2450M-...	
	SS32- DRA250M-5	●	25	25.5	32	226	130	60	Yes	HS-4067TRP	DTP-7	-	DA2500M-...~DA2550M-...	-

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.

See applicable insert tables on Page K6~K17 for actual cutting diameters (DC).

SS-DRA (Drilling Depth : 8 x DC)



For PL indicates distance from drill point to corner edge K6~K17

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions						Coolant Hole	Spare Parts			Applicable Inserts ➡ K6~K17	Applicable Chamfering Attachment ➡ K36
			DC min.	DC max.	DCON	OAL	LU	LS		Screw	Wrench	Wrench		
mm	SS10- DRA080M-8 DRA085M-8 DRA090M-8 DRA095M-8	●	7.94	8.49	10	121	68	40	Yes	HS-2524TRP	-	FTP-5	DA0794M-...~DA0840M-...	S20-CH10-DRA
		●	8.5	8.99		126	72						DA0850M-...~DA0890M-...	
		●	9	9.49		130	76						DA0900M-...~DA0940M-...	
		●	9.5	9.99		135	80						DA0950M-...~DA0990M-...	
	SS12- DRA100M-8 DRA105M-8 DRA110M-8 DRA115M-8	●	10	10.49	12	144	84	45	Yes	HS-2534TRP	-	FTP-5	DA1000M-...~DA1040M-...	S32-CH12-DRA
		●	10.5	10.99		149	88						DA1050M-...~DA1090M-...	
		●	11	11.49		154	92						DA1100M-...~DA1140M-...	
		●	11.5	11.99		159	96						DA1150M-...~DA1190M-...	
	SS14- DRA120M-8 DRA125M-8 DRA130M-8 DRA135M-8	●	12	12.49	14	163	100	45	Yes	HS-2534TRP	-	FTP-5	DA1200M-...~DA1240M-...	S32-CH14-DRA
		●	12.5	12.99		168	104						DA1250M-...~DA1290M-...	
		●	13	13.49		172	108						DA1300M-...~DA1340M-...	
		●	13.5	13.99		177	112						DA1350M-...~DA1390M-...	
	SS16- DRA140M-8 DRA145M-8 DRA150M-8	●	14	14.49	16	184	116	48	Yes	HS-3048TRP	DTP-6	-	DA1400M-...~DA1440M-...	S32-CH16-DRA
		●	14.5	14.99		189	120						DA1450M-...~DA1490M-...	
		●	15	15.99		199	128						DA1500M-...~DA1590M-...	
	SS18- DRA160M-8 DRA170M-8	●	16	16.99	18	209	136	48	Yes	HS-3048TRP	DTP-6	-	DA1600M-...~DA1690M-...	S32-CH18-DRA
		●	17	17.99		218	144						DA1700M-...~DA1790M-...	
	SS20- DRA180M-8 DRA190M-8	●	18	18.99	20	230	152	50	Yes	HS-4067TRP	DTP-7	-	DA1800M-...~DA1890M-...	S32-CH20-DRA
		●	19	19.99		239	160						DA1900M-...~DA1990M-...	
	SS25- DRA200M-8 DRA210M-8 DRA220M-8 DRA230M-8 DRA240M-8	●	20	20.99	25	254	168	56	Yes	HS-4067TRP	DTP-7	-	DA2000M-...~DA2090M-...	-
		●	21	21.99		263	176						DA2100M-...~DA2150M-...	
		●	22	22.99		273	184						DA2200M-...~DA2250M-...	
		●	23	23.99		282	192						DA2300M-...~DA2350M-...	
		●	24	24.99		291	200						DA2400M-...~DA2450M-...	
	SS32- DRA250M-8	●	25	25.5	32	304	208	60	Yes	HS-4067TRP	DTP-7	-	DA2500M-...~DA2550M-...	-

DC min. and max. show the cutting diameter range of inserts that will fit into the toolholder.
See applicable insert tables on Page K6~K17 for actual cutting diameters (DC).

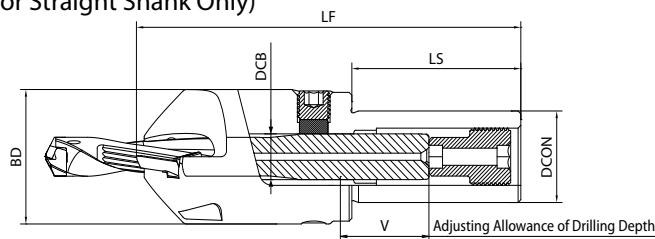
Spare Parts

Clamp Screw	Part Number
HS-2524TRP	HS-2524TRP
HS-2534TRP	HS-2534TRP
HS-3048TRP	HS-3048TRP
HS-4067TRP	HS-4067TRP
	HS-50100TRP

Wrench	Part Number	Torque
DTP-6	FTP-5	0.5 Nm (4.4 in/lb)
DTP-7	DTP-6	0.8 Nm (7.1 in/lb)
DTPM-15	DTP-7	1.2 Nm (10.6 in/lb)
	DTPM-15	3.5 Nm (31.0 in/lb)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

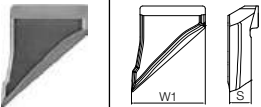
Chamfering Attachment (for Straight Shank Only)



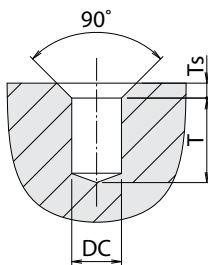
Dimensions

Part Number	Std. Item	Applicable Drill Shank Dia. DCB	Dimensions (mm)					Applicable Chamfer Insert
			DCON	BD	LF	LS	V (Max)	
S20-CH10-DRA	●	10	20	39	110	52	18	CT12T3-45DA
S32-CH12-DRA	●	12	32	43	130	62	24	
S32-CH14-DRA	●	14	32	45	130	62	24	
S32-CH16-DRA	●	16	32	47	141	62	24	
S32-CH18-DRA	●	18	32	49	145	62	24	
S32-CH20-DRA	●	20	32	53	150	62	24.5	

Applicable Insert

Shape	Part Number	MEGACOAT NANO	Dimensions (mm)	
		PR1535	W1	S
	CT12T3-45DA	●	13.54	3.97

Drilling and Chamfering Depths



Cutting Dia. (mm) DC		Drilling Depth (mm)						Chamfering Dimensions (mm)		Applicable Chamfering Attachment
		T (3XD)		T (5XD)		T (8XD)		Ts	Tsmax.	
min.	max.	min.	max.	min.	max.	min.	max.	2.5	8	S20-CH10-DRA
7.94	8.49	12.5	20	18	36	43	60			
8.50	8.99	12.5	21.5	21.5	38.5	48	64			
9.00	9.49	12.5	23	24	41	52	68			
9.50	9.99	12.5	24.5	27.5	43.5	57.5	72.5	4	8	S32-CH12-DRA
10.00	10.49	15.5	26	22	46	52	76			
10.50	10.99	16	27.5	24.5	48.5	56	80			
11.00	11.49	16.5	29	27	51	60	84			
11.50	11.99	17.5	30.5	29.5	53.5	64	88	4	8	S32-CH14-DRA
12.00	12.49	18	32	32	56	68	92			
12.50	12.99	19	34	35	59	72.5	96.5			
13.00	13.49	19.5	35.5	37.5	61.5	76	100			
13.50	13.99	20	36.5	39.5	63.5	80	104	4	8	S32-CH16-DRA
14.00	14.49	21	38.5	42.5	66.5	84.5	108.5			
14.50	14.99	21.5	40	45	69	88.5	112.5			
15.00	15.99	22.5	41.5	47.5	71.5	92.5	116.5			
16.00	16.99	24	44.5	52.5	76.5	100.5	124.5	4	8	S32-CH18-DRA
17.00	17.99	25.5	47.5	57.5	81.5	108.5	132.5			
18.00	18.99	27.5	51	64	87	121	141			
19.00	19.99	29.5	54	69	92	129	149			

Ts: Max. chamfering dimension at the full feed.

Tsmax.: Max. chamfering dimension at a 50% feed reduction.

Chamfer Attachment Spare Parts

Chamfering Attachment	Adjusting Screw		For Fixing Drills					For Mounting Inserts		
			Clamp	Clamp Screw			Plug Screw	Clamp	Clamp Screw	Wrench
Part Number		Width Across Flat (mm)			Width Across Flat (mm)	Torque [N·m]				
S20-CH10-DRA	AJ-12X22	6	CP-CH10	HS8X8	4	12	BNP6	C09N	W6X18N	DTM-15
S32-CH12-DRA	AJ-16X30		CP-CH12			15				
S32-CH14-DRA	AJ-20X30	8	CP-CH14	HS10X10	5	20				
S32-CH16-DRA			CP-CH16			30				
S32-CH18-DRA	AJ-22x35	10	CP-CH18	HS12X10	6	30				
S32-CH20-DRA			CP-CH20			45				

DRA Chamfering Attachment Method

1. Mount DRA drill into the chamfering attachment (Fig.1)



Fig.1 Install the DRA

2. Install an insert and tighten temporarily with clearance between the cutting edge and DRA body (Fig.2)



Fig.2 Install Inserts

3. Adjust drilling depth by turning adjustment screw with hexagon wrench (Fig.3)

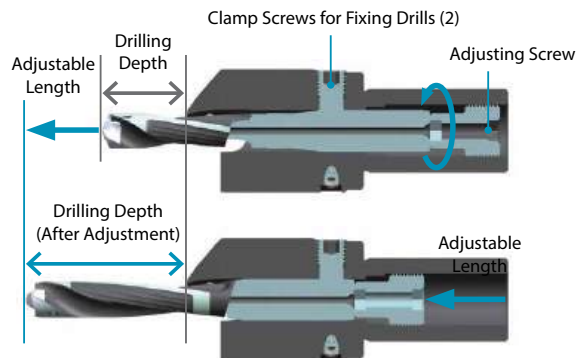


Fig.3 Adjustment of Drilling Depth

4. Align the flute edge and black relief part of the drill to the position shown by rotating the DRA drill (Fig.4)

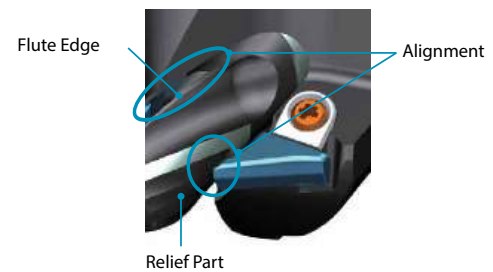


Fig.4 DRA Alignment

5. Fasten the two clamp screws for DRA (See table 1. for recommended torque)

Table 1. Recommended Torque

Chamfering Attachment Part Number	Clamp Screw	
	Recommended Torque (N·m)	Width Across Flat (mm)
S20-CH10-DRA	12	4
S32-CH12-DRA	15	
S32-CH14-DRA	20	5
S32-CH16-DRA	30	6
S32-CH18-DRA	30	
S32-CH20-DRA	45	8

6. Tighten the inserts while lightly pressing the edge of insert against the relief part (Fig.5)
(Recommended torque is 3.5Nm)

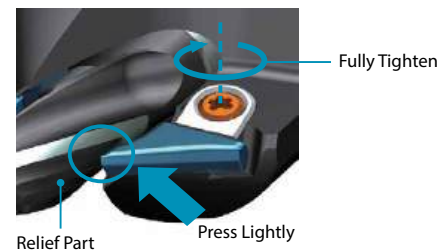


Fig.5 Fully Tighten

Cautions

- Chamfering attachment is compatible with straight shank SS-DRA. It cannot be used for flanged shank SF-DRA.
- Chamfering requires two chamfering inserts. Using one insert is not recommended.
- Only fully remove clamp screws when replacing them.

- Clamps and clamp screws for mounting inserts need to be replaced regularly.
- Screw locking adhesive is applied to adjustment screw. The effect will eventually wear off if the screws are used for a long time. Regular replacement is recommended.
- Please do not operate the plug screws.

Recommended Cutting Conditions

GM - General Purpose

★ : 1st Recommendation ☆ : 2nd Recommendation

Workpiece Material	Recommended Grade / Cutting Speed (sfm)		Cutting Dia. DC (in)	Cutting Dia. DC (mm)	Holder Type (Cutting Depth) Feed Rate (ipr)			Notes
	PR1535	PR1525			1.5D & 3D	5D & 8D	12D	
Low Carbon Steel	★ 330~590	☆ 330~590	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	Coolant See ➔ K42
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	~	
			1.299	33.00	0.0079 ~ 0.0177	0.0063 ~ 0.0142	~	
Carbon Steel	★ 330~490	☆ 330~490	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	~	
			1.299	33.00	0.0079 ~ 0.0177	0.0063 ~ 0.0142	~	
Alloy Steel	★ 230~390	☆ 230~390	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	~	
			1.299	33.00	0.0079 ~ 0.0177	0.0063 ~ 0.0142	~	
Tool Steel	★ 160~300	☆ 160~300	0.313 ~ 0.429	7.94 ~ 10.90	0.0031 ~ 0.0067	0.0025 ~ 0.0054	0.0022 ~ 0.0047	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0031 ~ 0.0087	0.0025 ~ 0.0069	0.0022 ~ 0.0061	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0043 ~ 0.0098	0.0035 ~ 0.0079	0.0030 ~ 0.0069	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0043 ~ 0.0110	0.0035 ~ 0.0088	0.0030 ~ 0.0077	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0055 ~ 0.0126	0.0044 ~ 0.0101	0.0039 ~ 0.0088	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0055 ~ 0.0126	0.0044 ~ 0.0101	0.0039 ~ 0.0088	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0055 ~ 0.0126	0.0044 ~ 0.0101	~	
			1.299	33.00	0.0055 ~ 0.0126	0.0044 ~ 0.0101	~	
Stainless Steel※	★ 130~230	☆ 130~230	0.313 ~ 0.429	7.94 ~ 10.90	0.0039 ~ 0.0094	0.0031 ~ 0.0076	0.0028 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0039 ~ 0.0094	0.0031 ~ 0.0076	0.0028 ~ 0.0066	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0047 ~ 0.0118	0.0038 ~ 0.0094	0.0033 ~ 0.0083	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0059 ~ 0.0118	0.0047 ~ 0.0094	0.0041 ~ 0.0083	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0059 ~ 0.0118	0.0047 ~ 0.0094	0.0041 ~ 0.0083	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0059 ~ 0.0138	0.0047 ~ 0.0110	0.0041 ~ 0.0096	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0059 ~ 0.0138	0.0047 ~ 0.0110	~	
			1.299	33.00	0.0059 ~ 0.0138	0.0047 ~ 0.0110	~	
Gray Cast Iron	☆ 300~560	★ 300~560	0.313 ~ 0.429	7.94 ~ 10.90	0.0055 ~ 0.0114	0.0044 ~ 0.0091	0.0039 ~ 0.0080	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0055 ~ 0.0146	0.0044 ~ 0.0117	0.0039 ~ 0.0102	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0075 ~ 0.0169	0.0060 ~ 0.0135	0.0052 ~ 0.0119	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0075 ~ 0.0177	0.0060 ~ 0.0142	0.0052 ~ 0.0124	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0094 ~ 0.0177	0.0076 ~ 0.0142	0.0066 ~ 0.0124	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0094 ~ 0.0177	0.0076 ~ 0.0142	0.0066 ~ 0.0124	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0094 ~ 0.0177	0.0076 ~ 0.0142	~	
			1.299	33.00	0.0094 ~ 0.0177	0.0076 ~ 0.0142	~	
Nodular Cast Iron	☆ 130~390	★ 130~390	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.122	25.00 ~ 28.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			1.142 ~ 1.280	29.00 ~ 32.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	~	
			1.299	33.00	0.0079 ~ 0.0177	0.0063 ~ 0.0142	~	

※ Feed Rate 0.006 ipr or less is recommended for stainless steel until drilling depth reaches 0.5D.

As drilling depth increases (1.5D → 3D → 5D → 8D → 12D), feed rates should be reduced.

Internal and External coolant recommended for Stainless, Heat-resistant Alloys, and Titanium

Recommended Feed Rate Shows: 1.5D/3D = 100%, 5D/8D ≤ 80%, 12D ≤ 70%

Recommended Cutting Speed: 8D ≤ 80%, 12D ≤ 70%

Recommended Cutting Conditions

FTP - Flat Bottom, Counterboring / FTP-H Steel Beam Drilling

★ : 1st Recommendation ☆ : 2nd Recommendation

Workpiece Material	Recommended Grade / Cutting Speed (sfm)		Cutting Dia. DC (in)	Cutting Dia. DC (mm)	Holder Type (Cutting Depth) Feed Rate (ipr)			Notes
	PR1535	PR1525			1.5D & 3D	5D & 8D	12D	
Low Carbon Steel	★ 330~590	☆ 330~590	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	Coolant See K42
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
Carbon Steel	★ 330~490	☆ 330~490	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
Alloy Steel	★ 230~390	☆ 230~390	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0157	0.0063 ~ 0.0126	0.0055 ~ 0.0110	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
Tool Steel	★ 160~300	☆ 160~300	0.313 ~ 0.429	7.94 ~ 10.90	0.0031 ~ 0.0067	0.0025 ~ 0.0054	0.0022 ~ 0.0047	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0031 ~ 0.0087	0.0025 ~ 0.0069	0.0022 ~ 0.0061	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0043 ~ 0.0098	0.0035 ~ 0.0079	0.0030 ~ 0.0069	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0043 ~ 0.0110	0.0035 ~ 0.0088	0.0030 ~ 0.0077	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0055 ~ 0.0118	0.0044 ~ 0.0094	0.0039 ~ 0.0083	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0055 ~ 0.0126	0.0044 ~ 0.0101	0.0039 ~ 0.0088	
Stainless Steel※	★ 130~230	☆ 130~230	0.313 ~ 0.429	7.94 ~ 10.90	0.0039 ~ 0.0079	0.0031 ~ 0.0063	0.0028 ~ 0.0055	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0039 ~ 0.0079	0.0031 ~ 0.0063	0.0028 ~ 0.0055	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0039 ~ 0.0094	0.0031 ~ 0.0076	0.0028 ~ 0.0066	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0059 ~ 0.0094	0.0047 ~ 0.0076	0.0041 ~ 0.0066	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0059 ~ 0.0094	0.0047 ~ 0.0076	0.0041 ~ 0.0066	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0059 ~ 0.0110	0.0047 ~ 0.0088	0.0041 ~ 0.0077	
Gray Cast Iron	☆ 300~560	★ 300~560	0.313 ~ 0.429	7.94 ~ 10.90	0.0055 ~ 0.0114	0.0044 ~ 0.0091	0.0039 ~ 0.0080	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0055 ~ 0.0146	0.0044 ~ 0.0117	0.0039 ~ 0.0102	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0075 ~ 0.0169	0.0060 ~ 0.0135	0.0052 ~ 0.0119	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0075 ~ 0.0177	0.0060 ~ 0.0142	0.0052 ~ 0.0124	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0094 ~ 0.0177	0.0076 ~ 0.0142	0.0066 ~ 0.0124	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0094 ~ 0.0177	0.0076 ~ 0.0142	0.0066 ~ 0.0124	
Nodular Cast Iron	☆ 130~390	★ 130~390	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
			0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0122	0.0038 ~ 0.0098	0.0033 ~ 0.0085	
			0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
			0.709 ~ 0.846	18.00 ~ 21.50	0.0063 ~ 0.0157	0.0050 ~ 0.0126	0.0044 ~ 0.0110	
			0.866 ~ 0.965	22.00 ~ 24.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	
			0.984 ~ 1.004	25.00 ~ 25.50	0.0079 ~ 0.0177	0.0063 ~ 0.0142	0.0055 ~ 0.0124	

※ Feed Rate 0.006 ipr or less is recommended for stainless steel until drilling depth reaches 0.5D.

Internal and External coolant recommended for Stainless, Heat-resistant Alloys, and Titanium

Notes: The recommended cutting conditions are for drilling on plain surfaces.

The conditions for drilling on slant hole shows the depth from the top of workpiece.

Set the feed rate under 50% when inclination angle is under 30°.

Set the feed rate under 30% when inclination angle is over 30°.

Traversing is not recommended.

Applicable to 1.5D, 3D, 5D, 8D, and 12D holders. Prepared hole (0.5 x DC) is needed when using 8D/12D holder.

As drilling depth increases (1.5D → 3D → 5D → 8D), feed rates should be reduced.

Recommended Feed Rate Shows: 1.5D/3D = 100%, 5D/8D ≤ 80%, 12D ≤ 70%

Recommended Cutting Speed: 8D ≤ 80%, 12D ≤ 70%

Recommended Cutting Conditions

HQP - High Precision Insert for Steel

★ : 1st Recommendation ☆ : 2nd Recommendation

Workpiece Material	Recommended Grade / Cutting Speed (sfm)	Cutting Dia. DC (in)	Cutting Dia. DC (mm)	Holder Type (Cutting Depth) Feed Rate (ipr)			Notes
	PR1525			1.5D & 3D	5D	8D & 12D	
Low Carbon Steel	★ 260~590	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	Coolant See K42
		0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0110	0.0038 ~ 0.0088	0.0033 ~ 0.0077	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0126	0.0050 ~ 0.0101	0.0044 ~ 0.0088	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
Carbon Steel	★ 260~490	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
		0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0110	0.0038 ~ 0.0088	0.0033 ~ 0.0077	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0126	0.0050 ~ 0.0101	0.0044 ~ 0.0088	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
Alloy Steel	★ 230~390	0.313 ~ 0.429	7.94 ~ 10.90	0.0047 ~ 0.0094	0.0038 ~ 0.0076	0.0033 ~ 0.0066	
		0.433 ~ 0.547	11.00 ~ 13.90	0.0047 ~ 0.0110	0.0038 ~ 0.0088	0.0033 ~ 0.0077	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0063 ~ 0.0126	0.0050 ~ 0.0101	0.0044 ~ 0.0088	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0063 ~ 0.0142	0.0050 ~ 0.0113	0.0044 ~ 0.0099	
Tool Steel	★ 160~300	0.313 ~ 0.429	7.94 ~ 10.90	0.0031 ~ 0.0067	0.0025 ~ 0.0054	0.0022 ~ 0.0047	
		0.433 ~ 0.547	11.00 ~ 13.90	0.0031 ~ 0.0079	0.0025 ~ 0.0063	0.0022 ~ 0.0055	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0043 ~ 0.0091	0.0035 ~ 0.0072	0.0030 ~ 0.0063	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0043 ~ 0.0102	0.0035 ~ 0.0082	0.0030 ~ 0.0072	

As drilling depth increases (1.5D → 3D → 5D → 8D → 12D), feed rates should be reduced.

Recommended Feed Rate Shows: 1.5D/3D = 100%, 5D ≤ 80%, 8D/12D ≤ 70%

HQS - for Difficult-to-Cut Materials / Stainless Steel

★ : 1st Recommendation ☆ : 2nd Recommendation

Workpiece Material	Recommended Grade / Cutting Speed (sfm)	Cutting Dia. DC (in)	Cutting Dia. DC (mm)	Holder Type (Cutting Depth) Feed Rate (ipr)			Notes
	PR1535			1.5D & 3D	5D	8D & 12D	
Stainless Steel※	★ 130~160	0.313 ~ 0.429	7.94 ~ 10.90	0.0031 ~ 0.0047	0.0025 ~ 0.0038	0.0022 ~ 0.0033	Coolant See K42
		0.433 ~ 0.547	11.00 ~ 13.90	0.0039 ~ 0.0059	0.0031 ~ 0.0047	0.0028 ~ 0.0041	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0039 ~ 0.0059	0.0031 ~ 0.0047	0.0028 ~ 0.0041	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0047 ~ 0.0071	0.0038 ~ 0.0057	0.0033 ~ 0.0050	
Heat-Resistant Alloy	★ 50~70	0.313 ~ 0.429	7.94 ~ 10.90	0.0031 ~ 0.0047	0.0025 ~ 0.0038	0.0022 ~ 0.0033	
		0.433 ~ 0.547	11.00 ~ 13.90	0.0031 ~ 0.0059	0.0025 ~ 0.0047	0.0022 ~ 0.0041	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0039 ~ 0.0059	0.0031 ~ 0.0047	0.0028 ~ 0.0041	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0047 ~ 0.0071	0.0038 ~ 0.0057	0.0033 ~ 0.0050	
Titanium Alloy	★ 100~130	0.313 ~ 0.429	7.94 ~ 10.90	0.0031 ~ 0.0047	0.0025 ~ 0.0038	0.0022 ~ 0.0033	
		0.433 ~ 0.547	11.00 ~ 13.90	0.0031 ~ 0.0059	0.0025 ~ 0.0047	0.0022 ~ 0.0041	
		0.551 ~ 0.705	14.00 ~ 17.90	0.0039 ~ 0.0059	0.0031 ~ 0.0047	0.0028 ~ 0.0041	
		0.709 ~ 0.784	18.00 ~ 19.90	0.0047 ~ 0.0071	0.0038 ~ 0.0057	0.0033 ~ 0.0050	

※ Feed Rate 0.006 ipr or less is recommended for stainless steel until drilling depth reaches 0.5D.
Internal and External coolant recommended for Stainless, Heat-resistant Alloys, and TitaniumAs drilling depth increases (1.5D → 3D → 5D → 8D → 12D), feed rates should be reduced.
Recommended Feed Rate Shows: 1.5D/3D = 100%, 5D ≤ 80%, 8D/12D ≤ 70%K
DRILLING

DRA

DRV

DRZ

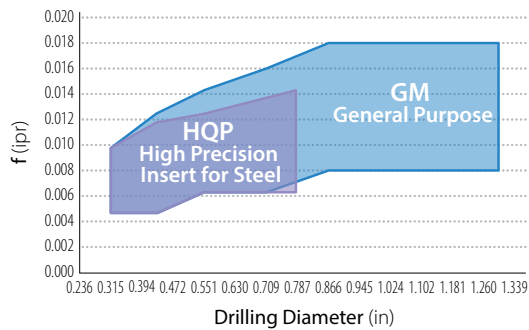
HOLESLOT

COREMASTER
COREDRILL

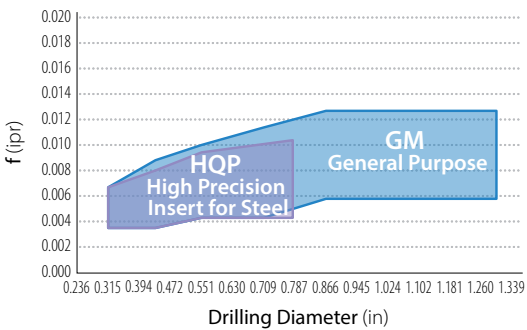
COUNTERBORE

COUNTERSINK

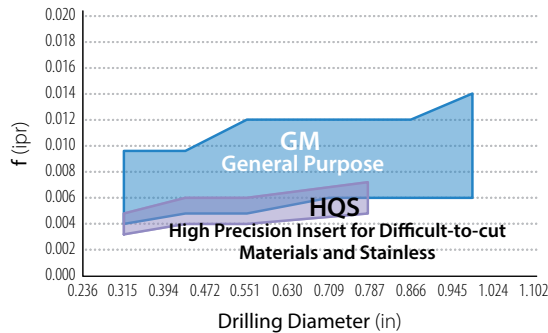
Low Carbon Steel/Carbon Steel/Alloy Steel



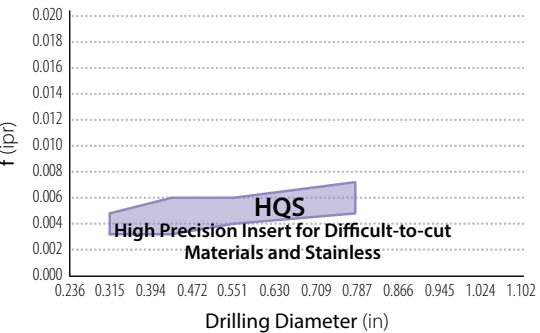
Mold Steel



Stainless Steel



Heat-resistant Alloy / Titanium Alloy



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Coolant *Dry cutting is not recommended

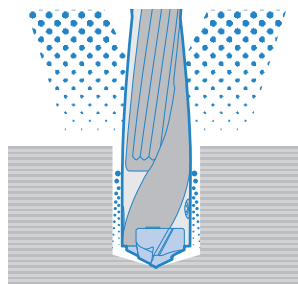
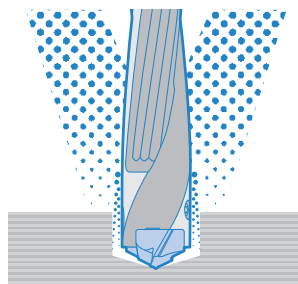
1st Recommendation

Internal coolant

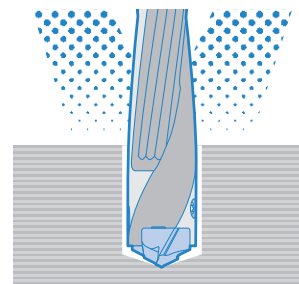
Internal + External Coolant

Drilling Depth is Less than 1D

Stainless Steel or High-feed Machining



External Coolant

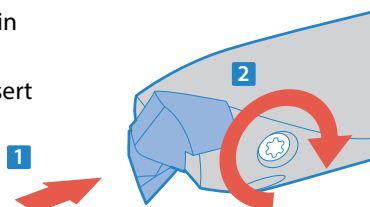


Lathe:
Max. Drill Depth 3D

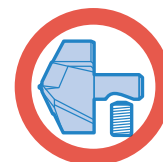
Vertical M/C:
Max. Drill Depth 1.5D

How to Attach Inserts

- 1 Install insert onto the toolholder in the right direction
- 2 Tighten clamp screw to fix the insert
(Torque: see page 31)



Be careful of the
insert direction

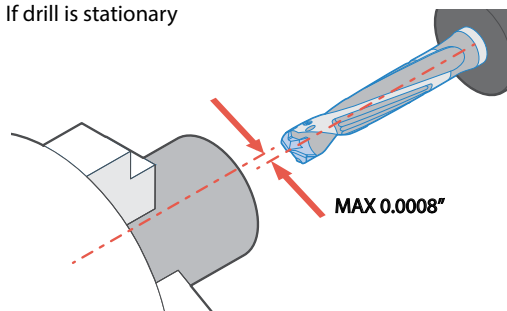


*1 Remove dust on insert pocket using air blow for every replacement.

*2 Make sure that the locating surfaces of the insert closely contacts the toolholder.

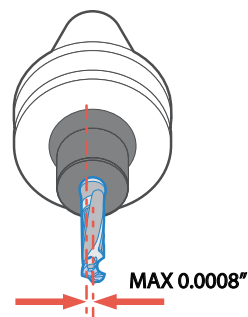
Core Deviation / Alignment Cautions

If drill is stationary



DRA works with both boring sleeve and collet-chuck. Center line deviation should be less than 0.0008" between workpiece and drill.

If drill is rotating

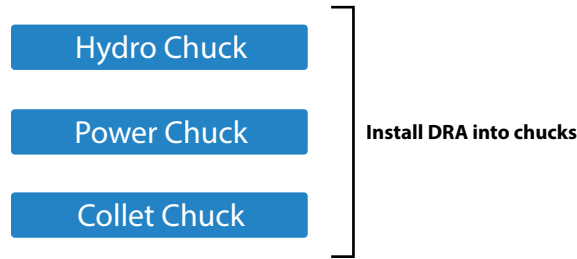


Do not use any arbor whose attachment surface is deformed. Center deviation must be less than 0.0008".

Toolholder Connection Cautions

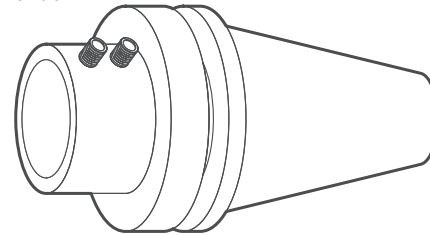
1st Choice

Hydro chuck, power chuck, collet chuck, etc.



2nd Choice

Side lock arbor

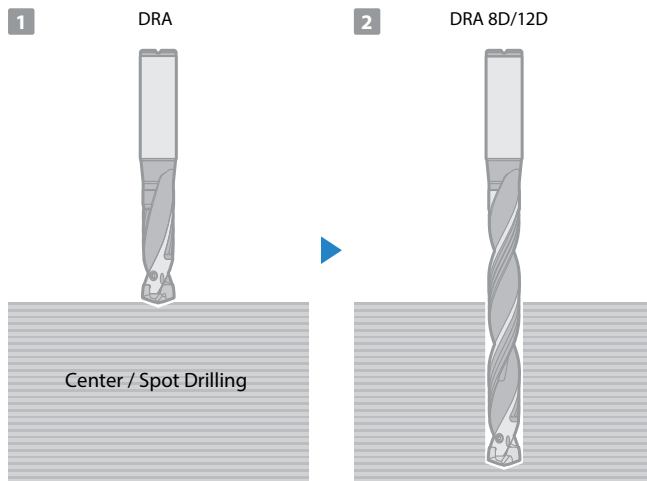


Example of side lock arbor

Cautions for Machining with 8D/12D Holder

Recommendations

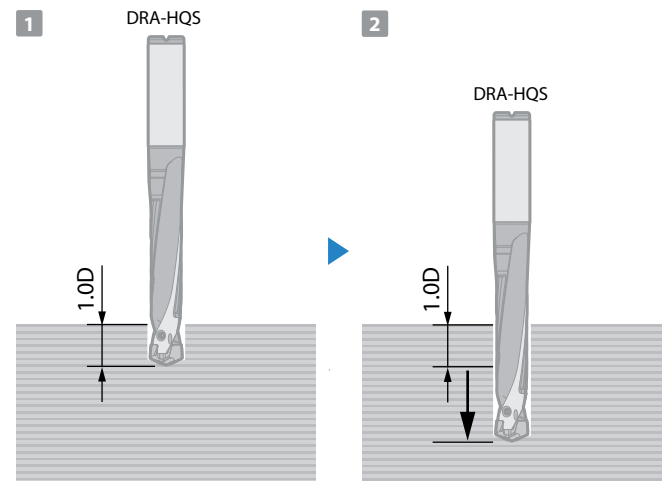
- 1 Make a center spot using DRA 1.5D/3D/5D
(Depth of center spot should be at least half the cutting diameter)
- 2 Then drill the hole using DRA (8D/12D)



Cautions for Machining with HQS Inserts

If chips are clogged at the entrance of drill hole machining in stainless steel machining, etc., the following machining method is recommended.

- 1 Up to 1.0D, the feed rate should be 0.003 ipr or less
- 2 After 1.0D, machine within the normal recommended range



Applicable Workpiece Applications

Application	Workpiece Shape	Machining Caution
Plain Surface		1. When machining stainless steel, for hole depths of up to 0.5D, keep feed rate at less than 0.006 ipr. 2. Thru coolant is recommended for smooth chip removal. For stainless steel, the combination of thru and external coolant is recommended.
Stacked Plates		1. Fix stacked plates securely to ensure they do not slip while machining.
Concave Surface		1. When machining concave holes, set the feed rate at less than half of recommended feed for continuous hole machining. 2. Utilize a pecking cycle if chips are not broken short at the inlet.
Tubing		1. Hole machining on the centerline of the tubing is possible. 2. Do not machine on curved surface areas.

*Machining possible with FTP Inserts and 1.5D holders

Not Recommended Applications

Application	Workpiece Shape	Application	Workpiece Shape
*Hole Expansion		*Angled Surface	
Half Cylindrical		*Existing Hole	

*Machining possible with FTP Inserts and 1.5D holders

DRV Magic Drill

Economical Inserts with 4 Cutting Edges

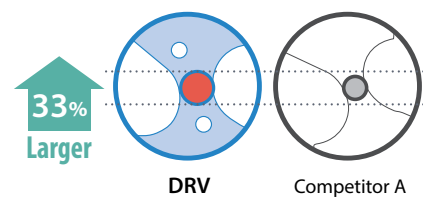
Excellent Chip Evacuation with 6D Maximum Deep-Hole Drilling

1

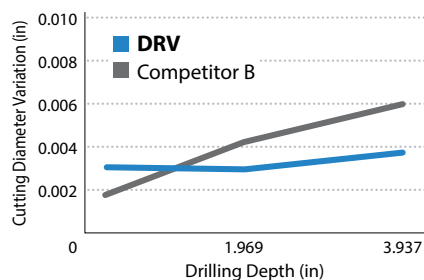
Excellent Drilling Precision with Less Variation in Cutting Diameter

Optimal Web Thickness and Low Cutting Force Design Reduces Chattering

Web Thickness Comparison
(Internal Evaluation)

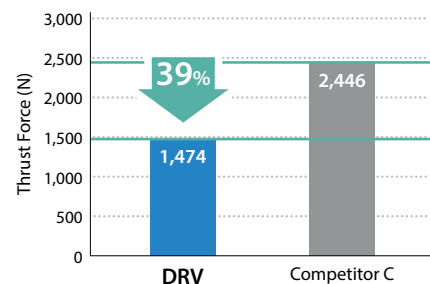


Cutting Diameter Variation Comparison
(Internal Evaluation)



Cutting Conditions : $V_c = 490$ sfm, $f = 0.0024$ ipr
Cutting Dia. $\varnothing 0.812$ " (5D), Wet, Workpiece : 1049

Cutting Force Comparison
(Internal Evaluation)



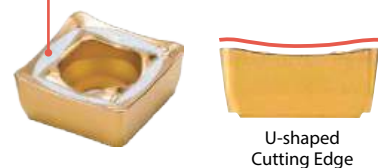
Cutting Conditions : $V_c = 660$ sfm, $f = 0.0047$ ipr
Cutting Dia. $\varnothing 0.812$ " (3D), Wet, Workpiece : 1049

2

Unique Insert Design to Control Chip Flow

Outer Edge Insert

Unique Insert Pattern to Differentiate between Outside and Inside Inserts



Smooth Chip Evacuation with Compact Chips

Chip Shape Comparison of Outer Insert Cutting Edge
(Internal Evaluation)



Cutting Conditions : $V_c = 490$ sfm, $f = 0.0024$ ipr, Cutting Dia. $\varnothing 0.812$ (3D), Wet, Workpiece : 1049

Inner Edge Insert



Excellent Chip Evacuation with 6xD Maximum Deep-Hole Drilling

Weight per Unit of Length for Chips Generated by the Inner Insert
(Internal Evaluation)



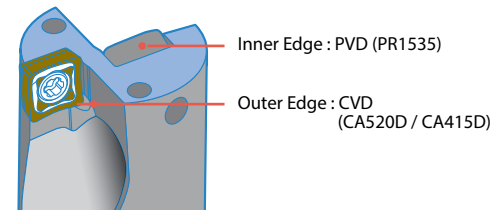
Cutting Conditions : $V_c = 820$ sfm, $f = 0.0031$ ipr, Cutting Dia. $\varnothing 0.812$ (5D), Wet, Workpiece : 304

47% Lighter Chips

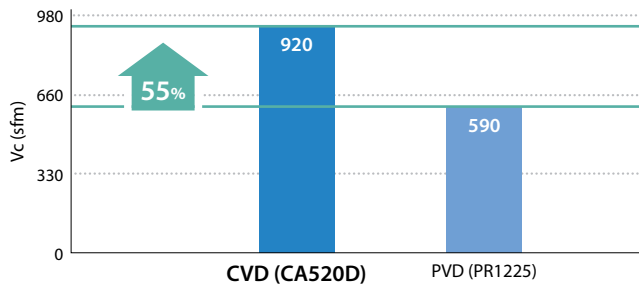
3

CVD Insert on the Outside Edge for Highly Efficient Drilling

High Speed and Highly Efficient Machining with the Combination of CVD (Outer Edge) and PVD (Inner Edge) Inserts

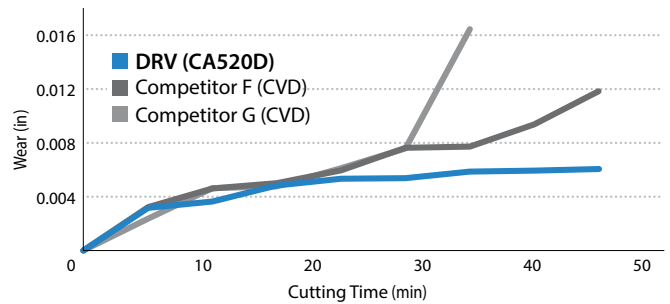


Recommended Cutting Conditions (Maximum Values)



Cutting Dia. 0.0812" (3D) Workpiece : 1049

Wear Resistance Comparison (Internal Evaluation)

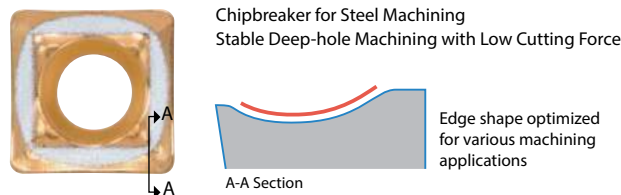


Cutting Conditions : Vc = 660 sfm, f = 0.0047 ipr, Cutting Dia. 0.0812" (3D) , Wet Workpiece : 4140H

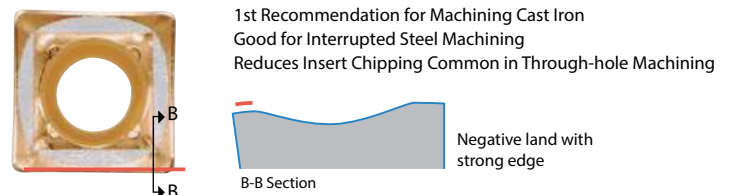
4

Economical 4-Edge Inserts 4 Types of Chipbreakers for Various Machining Applications

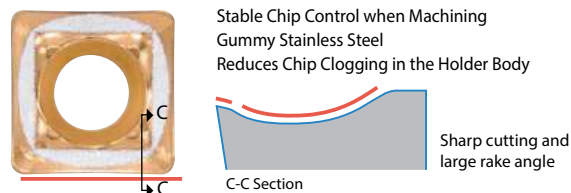
GM Chipbreaker - General Purpose



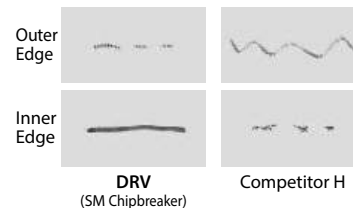
GH Chipbreaker - Tough Edge



SM Chipbreaker - For Stainless Steel Machining

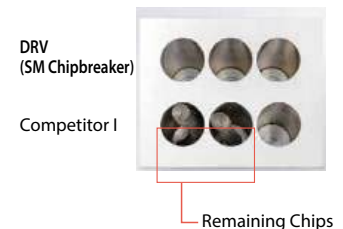


Chip Control Comparison (Internal Evaluation)



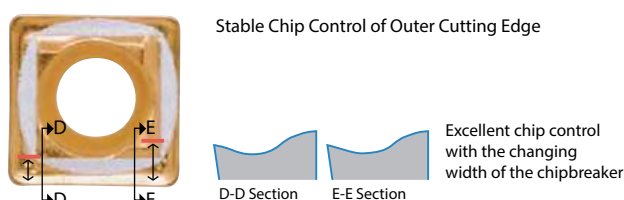
Cutting Conditions : Vc = 330 sfm, f = 0.0039 ipr
Cutting Dia. 0.0812" (3D), Drilling Depth 2.436"
Wet, Workpiece : 304

Comparison of Remaining Chips (Internal Evaluation)

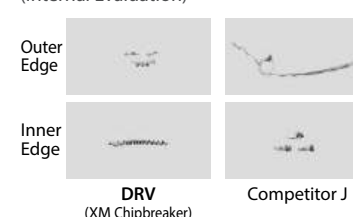


Cutting Conditions : Vc = 490 sfm, f = 0.0031 ipr
Cutting Dia. 0.0984" (5D), Drilling Depth 3.858"
Wet, Workpiece : 304

XM Chipbreaker - For Machining Soft Steel and Structural Steel



Chip Control Comparison (Internal Evaluation)



Cutting Conditions : Vc = 660 sfm, f = 0.0047 ipr
Cutting Dia. 0.0625" (3D), Drilling Depth 1.875"
Wet, Workpiece : A36

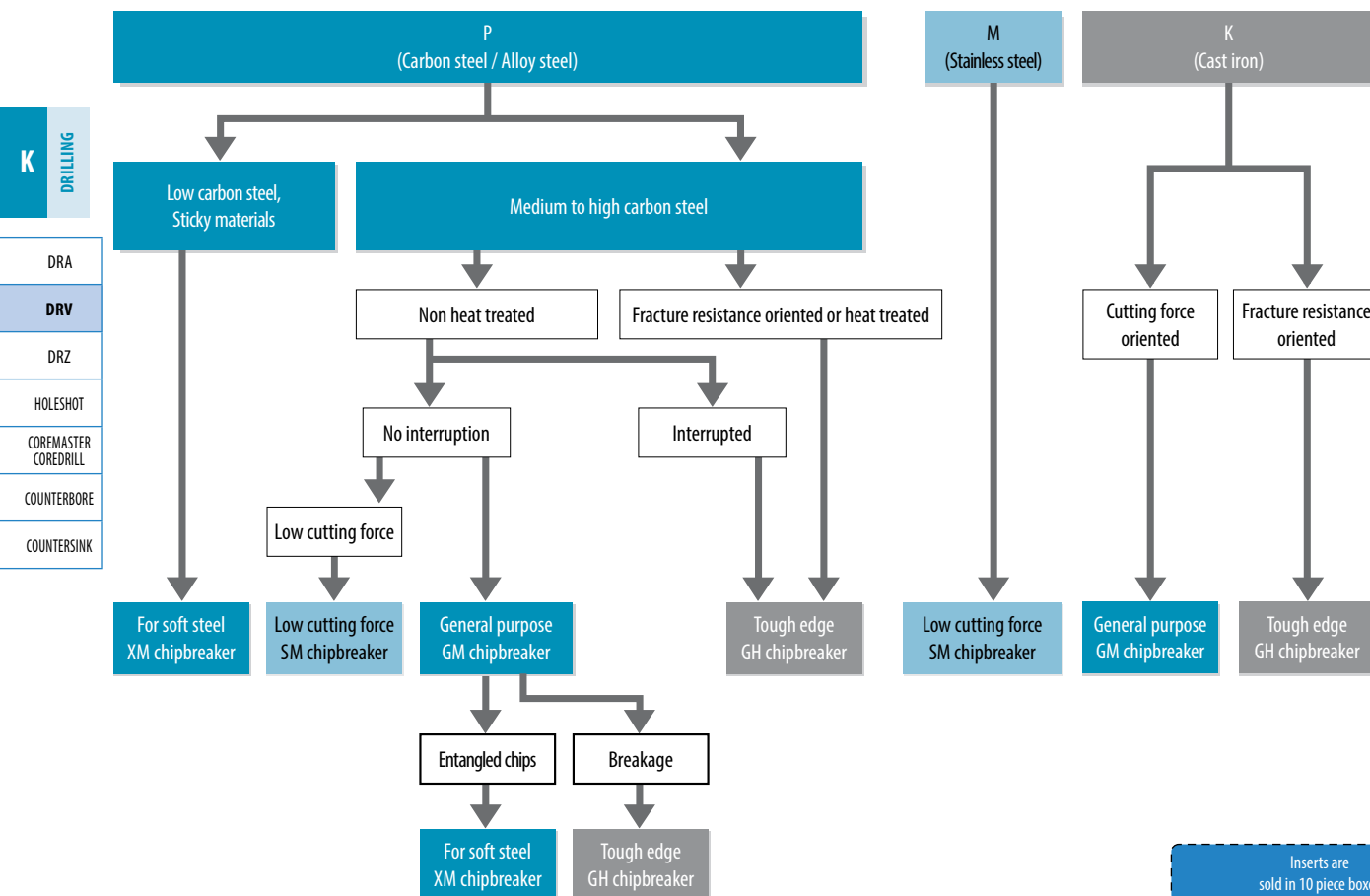
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

LCMT (Outer Edge)

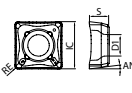
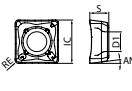
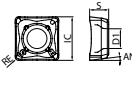
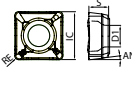
Usage Classification ★ : High speed and highly efficient drilling ☆ : Stable machining oriented		Carbon Steel / Alloy Steel							★	☆	P		
		Mold and Die Steel							★	☆			
		Stainless Steel							★	☆			
		Cast Iron							★	☆			
		Non-Ferrous Metals											
Insert	Part Number	No. of Edges	Dimensions (mm)					Angle (°)	Carbide			Applicable Toolholder 🔧 K50~K64	
			S	D1	RE	L	W1		AN	CVD			
										CA415D	CA520D		PR1225
 Tough Edge	LCMT 030203-GH-E	2	2	2.3	0.3	5.54	4.4	7	●	●	●	S075-DRV...-□-03 S20-DRV...-□-03	
 General Purpose	LCMT 030203-GM-E	2	2	2.3	0.3	5.54	4.4	7	●	●	●		
 Stainless Steel	LCMT 030203-SM-E	2	2	2.3	0.3	5.54	4.4	7	●	●			

Recommended Cutting Conditions ➡ K70~K73

Chipbreaker selection chart

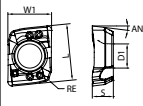
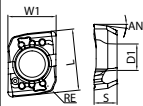
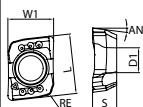


SCMT (Outer Edge)

Usage Classification ★ : High speed and highly efficient drilling ☆ : Stable machining oriented			Carbon Steel / Alloy Steel							★	☆	P	
			Mold and Die Steel							★	☆		
			Stainless Steel							★	☆		M
			Cast Iron							★	☆		K
			Non-Ferrous Metals										N
Insert		Part Number	No. of Edges	Dimensions (mm)				Angle (°)	Carbide			Applicable Toolholder K50~K64	
				IC	S	D1	RE		AN	CVD			
										CA4150	CA5200		PR1225
	 Tough Edge	SCMT 040205-GH-E	4	4.8	2.2	2.4	0.5	7	●	●	●	S..DRV...□-04	
		SCMT 050205-GH-E	4	5.25	2.6	2.4	0.5	7	●	●	●	S..DRV...□-05	
		SCMT 060205-GH-E	4	6.4	2.8	2.9	0.5	7	●	●	●	S..DRV...□-06	
		SCMT 070305-GH-E	4	7.65	3.2	3.5	0.5	7	●	●	●	S..DRV...□-07	
		SCMT 090405-GH-E	4	9.1	4.1	4	0.5	7	●	●	●	S..DRV...□-09	
		SCMT 110406-GH-E	4	11	4.5	4.6	0.6	7	●	●	●	S..DRV...□-11	
		SCMT 140508-GH-E	4	13.8	5	5.7	0.8	7	●	●	●	S..DRV...□-14	
		SCMT 170608-GH-E	4	16.8	6.58	6.9	0.8	7	●	●	●	S..DRV...□-17	
	 General Purpose	SCMT 040205-GM-E	4	4.8	2.2	2.4	0.5	7	●	●	●	S..DRV...□-04	
		SCMT 050205-GM-E	4	5.25	2.6	2.4	0.5	7	●	●	●	S..DRV...□-05	
		SCMT 060205-GM-E	4	6.4	2.8	2.9	0.5	7	●	●	●	S..DRV...□-06	
		SCMT 070305-GM-E	4	7.65	3.2	3.5	0.5	7	●	●	●	S..DRV...□-07	
		SCMT 090405-GM-E	4	9.1	4.1	4	0.5	7	●	●	●	S..DRV...□-09	
		SCMT 110406-GM-E	4	11	4.5	4.6	0.6	7	●	●	●	S..DRV...□-11	
		SCMT 140508-GM-E	4	13.8	5	5.7	0.8	7	●	●	●	S..DRV...□-14	
		SCMT 170608-GM-E	4	16.8	6.58	6.9	0.8	7	●	●	●	S..DRV...□-17	
	 Stainless Steel	SCMT 040205-SM-E	4	4.8	2.2	2.4	0.5	7	●	●	●	S..DRV...□-04	
		SCMT 050205-SM-E	4	5.25	2.6	2.4	0.5	7	●	●	●	S..DRV...□-05	
		SCMT 060205-SM-E	4	6.4	2.8	2.9	0.5	7	●	●	●	S..DRV...□-06	
		SCMT 070305-SM-E	4	7.65	3.2	3.5	0.5	7	●	●	●	S..DRV...□-07	
		SCMT 090405-SM-E	4	9.1	4.1	4	0.5	7	●	●	●	S..DRV...□-09	
		SCMT 110406-SM-E	4	11	4.5	4.6	0.6	7	●	●	●	S..DRV...□-11	
		SCMT 140508-SM-E	4	13.8	5	5.7	0.8	7	●	●	●	S..DRV...□-14	
		SCMT 170608-SM-E	4	16.8	6.58	6.9	0.8	7	●	●	●	S..DRV...□-17	
	 Low Carbon Steel	SCMT 040205-XM-E	4	4.8	2.2	2.4	0.5	7	●	●	●	S..DRV...□-04	
		SCMT 050205-XM-E	4	5.25	2.6	2.4	0.5	7	●	●	●	S..DRV...□-05	
		SCMT 060205-XM-E	4	6.4	2.8	2.9	0.5	7	●	●	●	S..DRV...□-06	
		SCMT 070305-XM-E	4	7.65	3.2	3.5	0.5	7	●	●	●	S..DRV...□-07	
		SCMT 090405-XM-E	4	9.1	4.1	4	0.5	7	●	●	●	S..DRV...□-09	
		SCMT 110406-XM-E	4	11	4.5	4.6	0.6	7	●	●	●	S..DRV...□-11	
		SCMT 140508-XM-E	4	13.8	5	5.7	0.8	7	●	●	●	S..DRV...□-14	
		SCMT 170608-XM-E	4	16.8	6.58	6.9	0.8	7	●	●	●	S..DRV...□-17	

Recommended Cutting Conditions ● K70~K73

LCMT (Inner Edge)

Usage Classification ★ : High speed and highly efficient drilling		Carbon Steel / Alloy Steel							★	P
		Mold and Die Steel							★	
		Stainless Steel							★	
		Cast Iron							★	
		Non-Ferrous Metals							★	
Insert	Part Number	No. of Edges	Dimensions (mm)					Angle (°)	Carbide	Applicable Toolholder ➡ K50~K64
			S	D1	RE	L	W1			
  Tough Edge	LCMT 030205-GH-I	2	2	2.3	0.5	5.37	4.16	7	●	S075-DRV...-□-03 S20-DRV...-□-03
  General Purpose	LCMT 030205-GM-I	2	2	2.3	0.5	5.37	4.16	7	●	
  Stainless Steel	LCMT 030205-SM-I	2	2	2.3	0.5	5.37	4.16	7	●	

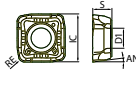
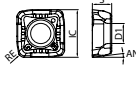
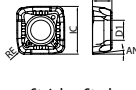
Recommended Cutting Conditions ➡ K70~K73

K DRILLING

DRA
DRV
DRZ
HOLESHOT
COREMASTER COREDRILL
COUNTERBORE
COUNTERSINK

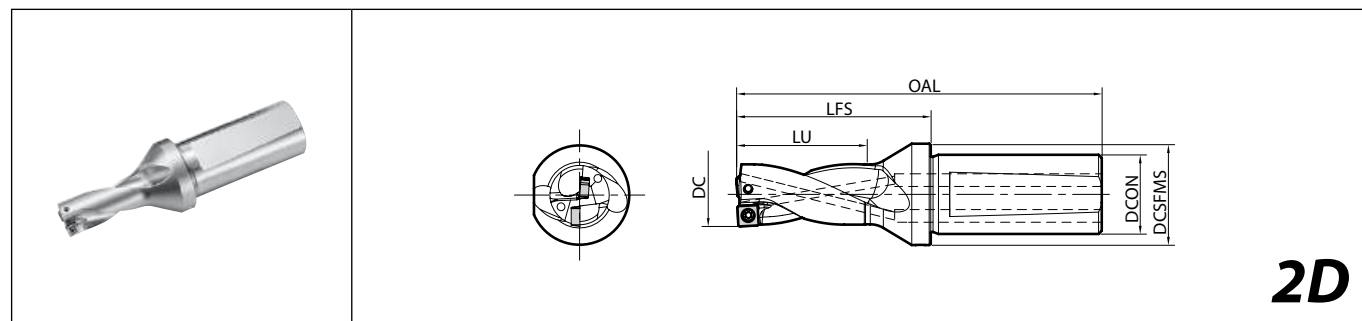
Inserts are
sold in 10 piece boxes

SCMT (Inner Edge)

Usage Classification ★ : High speed and highly efficient drilling		Carbon Steel / Alloy Steel							★	P	
		Mold and Die Steel							★	P	
		Stainless Steel							★	M	
		Cast Iron							★	K	
		Non-Ferrous Metals								N	
Insert	Part Number	No. of Edges	Dimensions (mm)				Angle (°)	AN	Carbide	Applicable Toolholder K50~K64	
			IC	S	D1	RE					
	 Tough Edge	SCMT 040209-GH-I	4	5	2.2	2.4	0.9	7	●	S...DRV...-□-04	
		SCMT 050210-GH-I	4	5.7	2.6	2.4	1	7	●	S...DRV...-□-05	
		SCMT 060210-GH-I	4	6.9	2.8	2.9	1	7	●	S...DRV...-□-06	
		SCMT 070310-GH-I	4	8.2	3.2	3.5	1	7	●	S...DRV...-□-07	
		SCMT 090410-GH-I	4	9.8	4.1	4	1	7	●	S...DRV...-□-09	
		SCMT 110410-GH-I	4	11.9	4.5	4.6	1	7	●	S...DRV...-□-11	
		SCMT 140510-GH-I	4	14.9	5	5.7	1	7	●	S...DRV...-□-14	
		SCMT 170610-GH-I	4	17.9	6.58	6.9	1	7	●	S...DRV...-□-17	
	 General Purpose	SCMT 040209-GM-I	4	5	2.2	2.4	0.9	7	●	S...DRV...-□-04	
		SCMT 050210-GM-I	4	5.7	2.6	2.4	1	7	●	S...DRV...-□-05	
		SCMT 060210-GM-I	4	6.9	2.8	2.9	1	7	●	S...DRV...-□-06	
		SCMT 070310-GM-I	4	8.2	3.2	3.5	1	7	●	S...DRV...-□-07	
		SCMT 090410-GM-I	4	9.8	4.1	4	1	7	●	S...DRV...-□-09	
		SCMT 110410-GM-I	4	11.9	4.5	4.6	1	7	●	S...DRV...-□-11	
		SCMT 140510-GM-I	4	14.9	5	5.7	1	7	●	S...DRV...-□-14	
		SCMT 170610-GM-I	4	17.9	6.58	6.9	1	7	●	S...DRV...-□-17	
	 Stainless Steel	SCMT 040209-SM-I	4	5	2.2	2.4	0.9	7	●	S...DRV...-□-04	
		SCMT 050210-SM-I	4	5.7	2.6	2.4	1	7	●	S...DRV...-□-05	
		SCMT 060210-SM-I	4	6.9	2.8	2.9	1	7	●	S...DRV...-□-06	
		SCMT 070310-SM-I	4	8.2	3.2	3.5	1	7	●	S...DRV...-□-07	
		SCMT 090410-SM-I	4	9.8	4.1	4	1	7	●	S...DRV...-□-09	
		SCMT 110410-SM-I	4	11.9	4.5	4.6	1	7	●	S...DRV...-□-11	
		SCMT 140510-SM-I	4	14.9	5	5.7	1	7	●	S...DRV...-□-14	
		SCMT 170610-SM-I	4	17.9	6.58	6.9	1	7	●	S...DRV...-□-17	
	 Low Carbon Steel	SCMT 040209-XM-I	4	5	2.2	2.4	0.9	7	●	S...DRV...-□-04	
		SCMT 050210-XM-I	4	5.7	2.6	2.4	1	7	●	S...DRV...-□-05	
		SCMT 060210-XM-I	4	6.9	2.8	2.9	1	7	●	S...DRV...-□-06	
		SCMT 070310-XM-I	4	8.2	3.2	3.5	1	7	●	S...DRV...-□-07	
		SCMT 090410-XM-I	4	9.8	4.1	4	1	7	●	S...DRV...-□-09	
		SCMT 110410-XM-I	4	11.9	4.5	4.6	1	7	●	S...DRV...-□-11	
		SCMT 140510-XM-I	4	14.9	5	5.7	1	7	●	S...DRV...-□-14	
		SCMT 170610-XM-I	4	17.9	6.58	6.9	1	7	●	S...DRV...-□-17	

Recommended Cutting Conditions ● K70~K73

DRV (Drilling Depth : 2 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49				
				DC	DCON	OAL	LFS	LU	DCSFS			Screw	Wrench	Wrench	Wrench					
																				
Inch	S075- DRV0484-2-03	●	2	0.484	0.750	3.268	1.575	0.969	1.063	Yes	+0.008	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)				
	DRV0500-2-03	●		0.500		3.299	1.606	1.000			+0.006									
	DRV0516-2-03	●		0.516		3.331	1.638	1.031			+0.006									
	DRV0531-2-03	●		0.531		3.362	1.669	1.063			+0.004									
	S075- DRV0562-2-04	●	2	0.563	0.750	3.661	1.969	1.125	1.063	Yes	+0.014	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)				
	DRV0578-2-04	●		0.578		3.693	2.000	1.156			+0.014									
	S075- DRV0625-2-05	●	2	0.625	0.750	3.866	2.173	1.250	1.063	Yes	+0.016	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)				
	DRV0656-2-05	●		0.656		3.929	2.236	1.313			+0.012									
	S100- DRV0688-2-05	●	2	0.688	1.000	4.425	2.299	1.375	1.260	Yes	+0.010	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)				
	DRV0750-2-06	●		0.750		4.469	2.343	1.500	+0.024											
	DRV0812-2-06	●		0.813	1.000	4.594	2.469	1.625	1.260		Yes						+0.018	-	-	-
	DRV0875-2-06	●		0.875		4.720	2.594	1.750	+0.010											
	S100- DRV0938-2-07	●	2	0.938	1.000	4.827	2.701	1.875	1.260	Yes	+0.028	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)				
	DRV0984-2-07	●		0.984			4.917	2.791			1.969						+0.024			
	DRV1000-2-07	●		1.000			4.949	2.823			2.000						+0.020			
	S125- DRV1062-2-09	●	2	1.063	1.250	5.341	3.018	2.125	1.614	Yes	+0.041	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)				
	DRV1125-2-09	●		1.125			5.467	3.144			2.250						+0.033			
	DRV1188-2-09	●		1.188			5.593	3.270			2.375						+0.026			
	S150- DRV1250-2-09	●	2	1.250	1.500	6.256	3.539	2.500	1.929	Yes	+0.020	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)				
	DRV1312-2-11	●		1.313	1.500	6.380	3.663	2.625	1.929		Yes						+0.045			
	DRV1375-2-11	●		1.375		6.506	3.789	2.750									+0.039			
DRV1438-2-11	●	1.438		6.632		3.915	2.875	+0.031												
DRV1500-2-11	●	1.500	6.756	4.039		3.000	+0.022													
S150- DRV1562-2-14	●	2	1.562	1.500	7.116	4.400	3.124	1.929	Yes	+0.070	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)					
DRV1625-2-14	●		1.625		7.242	4.526	3.250			+0.063										
DRV1688-2-14	●		1.688		7.368	4.652	3.376			+0.056										
DRV1750-2-14	●		1.750		7.492	4.776	3.500			+0.049										
DRV1812-2-14	●		1.812		1.500	7.616	4.900	3.624		2.126						+0.041				
DRV1875-2-14	●		1.875			7.742	5.026	3.750								+0.034				
DRV1938-2-14	●		1.938			7.868	5.152	3.876								+0.027				
S150- DRV2000-2-17	●		2			2.000		7.854								5.138	4.000	2.323	Yes	+0.079	SB-60130TRP	-	-	TTP-20

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

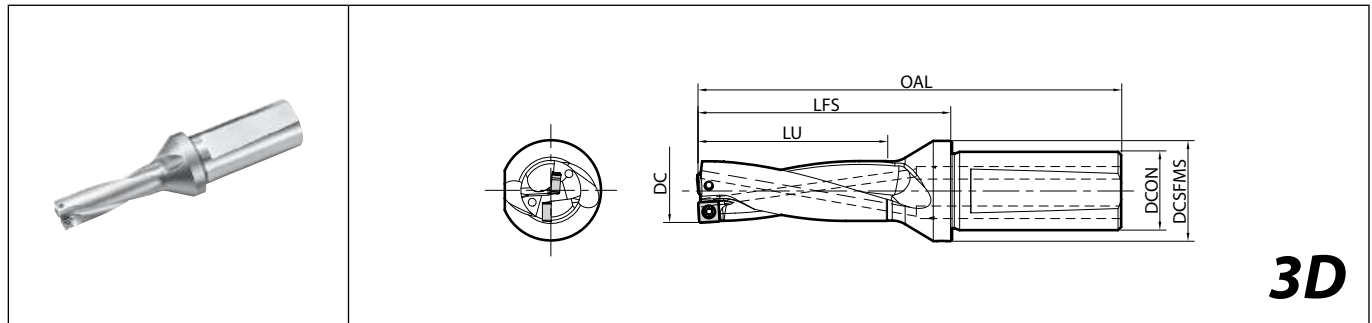
Recommended Cutting Conditions K70~K73
Troubleshooting K67

Hole Dia. Tolerance (2D type)

DC	Hole Dia. Tolerance (in)
ø0.484" - ø2.000"	+0.012 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRV (Drilling Depth : 3 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
Inch	S075- DRV0484-3-03	●	2	0.484	0.750	3.752	2.059	1.453	1.063	Yes	+0.008	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV0500-3-03	●		0.500		3.799	2.106	1.500			+0.006					
	DRV0516-3-03	●		0.516		3.847	2.154	1.547			+0.006					
	DRV0531-3-03	●		0.531		3.894	2.201	1.594			+0.004					
	S075- DRV0562-3-04	●	2	0.563	0.750	4.224	2.531	1.688	1.063	Yes	+0.014	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV0578-3-04	●		0.578		4.268	2.575	1.734			+0.014					
	S075- DRV0625-3-05	●	2	0.625	0.750	4.492	2.799	1.875	1.063	Yes	+0.016	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV0656-3-05	●		0.656		4.587	2.894	1.969			+0.012					
	S100- DRV0688-3-05	●		0.688	1.000	5.114	2.988	2.063	1.260	Yes	+0.010	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	S100- DRV0750-3-06	●	2	0.750	1.000	5.220	3.094	2.250	1.260	Yes	+0.024					
	DRV0812-3-06	●		0.813		5.406	3.280	2.438			+0.018					
	DRV0875-3-06	●		0.875		5.594	3.469	2.625			+0.010					
	S100- DRV0938-3-07	●	2	0.938	1.000	5.764	3.638	2.813	1.260	Yes	+0.028	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV0984-3-07	●		0.984		5.902	3.776	2.953			+0.024					
	DRV1000-3-07	●		1.000		5.949	3.823	3.000			+0.020					
	S125- DRV1062-3-09	●	2	1.063	1.250	6.402	4.080	3.188	1.614	Yes	+0.041	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV1125-3-09	●		1.125		6.592	4.269	3.375			+0.033					
	DRV1188-3-09	●		1.188		6.781	4.458	3.563			+0.026					
	S150- DRV1250-3-09	●		1.250	1.500	7.508	4.791	3.750	1.929	Yes	+0.020	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	S150- DRV1312-3-11	●	2	1.313	1.500	7.692	4.976	3.938	1.929	Yes	+0.045					
	DRV1375-3-11	●		1.375		7.881	5.165	4.125			+0.039					
DRV1438-3-11	●	1.438		8.070		5.354	4.313	+0.031								
DRV1500-3-11	●	1.500		8.256		5.539	4.500	+0.022								
S150- DRV1562-3-14	●	2	1.562	1.500	8.678	5.962	4.686	1.929	Yes	+0.070	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)	
DRV1625-3-14	●		1.625		8.867	6.151	4.875			+0.063						
DRV1688-3-14	●		1.688		9.056	6.340	5.064			+0.056						
DRV1750-3-14	●		1.750		9.242	6.526	5.250			+0.049						
DRV1812-3-14	●		1.812		9.428	6.712	5.436	2.126		+0.041						
DRV1875-3-14	●		1.875		9.617	6.901	5.625			+0.034						
DRV1938-3-14	●		1.938		9.806	7.090	5.814			+0.027						
S150- DRV2000-3-17	●	2	2.000		9.854	7.138	6.000	2.323	Yes	+0.079	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)	

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions K70~K73
Troubleshooting K67

Hole Dia. Tolerance (3D type)

DC	Hole Dia. Tolerance (in)
ø0.484" - ø2.000"	+0.012 0

* Above is numeric guideline.

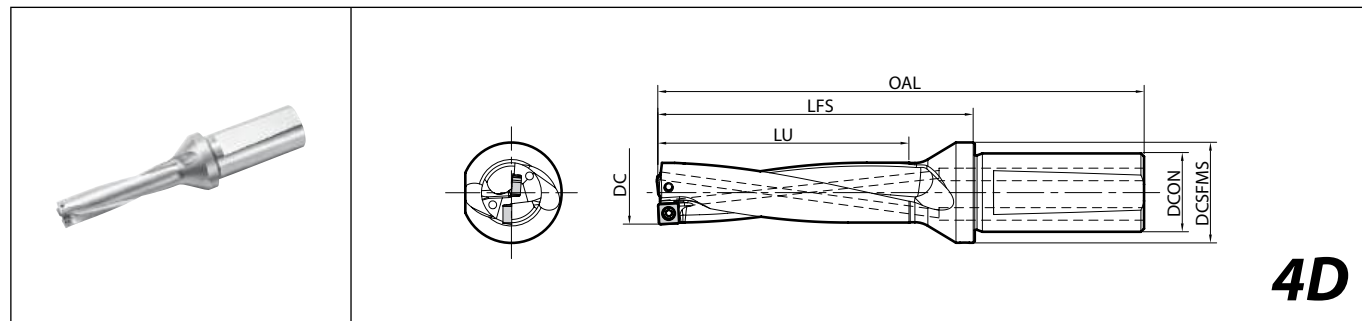
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRV (Drilling Depth : 4 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSfMS							
Inch	S075- DRV0484-4-03	●	2	0.484	0.750	4.236	2.543	1.938	1.063	Yes	+0.008	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV0500-4-03	●		0.500		4.299	2.606	2.000			+0.006					
	DRV0516-4-03	●		0.516		4.362	2.669	2.062			+0.006					
	DRV0531-4-03	●		0.531		4.425	2.732	2.125			+0.004					
	S075- DRV0562-4-04	●	2	0.563	0.750	4.787	3.094	2.250	1.063	Yes	+0.014	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV0578-4-04	●		0.578		4.847	3.154	2.312			+0.014					
	S075- DRV0625-4-05	●	2	0.625	0.750	5.118	3.425	2.500	1.063	Yes	+0.016	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV0656-4-05	●		0.656		5.240	3.551	2.625			+0.012					
	S100- DRV0688-4-05	●		0.688	1.000	5.803	3.677	2.750	1.260	Yes	+0.010	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV0750-4-06	●	2	0.750	1.000	5.969	3.843	3.000	1.260	Yes	+0.024					
	DRV0812-4-06	●		0.813		6.217	4.091	3.250			+0.018					
	DRV0875-4-06	●		0.875		6.469	4.343	3.500			+0.010					
	S100- DRV0938-4-07	●	2	0.938	1.000	6.701	4.575	3.750	1.260	Yes	+0.028	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV0984-4-07	●		0.984		6.886	4.760	3.938			+0.024					
	DRV1000-4-07	●		1.000		6.949	4.823	4.000			+0.020					
	S125- DRV1062-4-09	●	2	1.063	1.250	7.465	5.142	4.250	1.614	Yes	+0.041	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV1125-4-09	●		1.125		7.717	5.394	4.500			+0.033					
	DRV1188-4-09	●		1.188		7.969	5.646	4.750			+0.026					
	S150- DRV1250-4-09	●		1.250	1.500	8.756	6.039	5.000	1.929	Yes	+0.020	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV1312-4-11	●	2	1.313	1.500	9.004	6.287	5.250	1.929	Yes	+0.045					
	DRV1375-4-11	●		1.375		9.256	6.539	5.500			+0.039					
DRV1438-4-11	●	1.438		9.508		6.791	5.750	+0.031								
DRV1500-4-11	●	1.500		9.756		7.039	6.000	+0.022								
S150- DRV1562-4-14	●	2	1.562	1.500	10.240	7.524	6.248	1.929	Yes	+0.070	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)	
DRV1625-4-14	●		1.625		10.492	7.776	6.500			+0.063						
DRV1688-4-14	●		1.688		10.744	8.028	6.752			+0.056						
DRV1750-4-14	●		1.750		10.992	8.276	7.000			+0.049						
DRV1812-4-14	●		1.812		11.240	8.524	7.248			2.126						+0.041
S200- DRV1875-4-14	●		1.875	2.000	11.492	8.776	7.500	2.520	Yes	+0.034						
DRV1938-4-14	●	1.938	11.744		9.028	7.752	+0.027									
S200- DRV2000-4-17	●	2	2.000	2.000	11.854	9.138	8.000	2.520	Yes	+0.079	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)	

When offset drilling, reduce feed rate to 0.0024 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

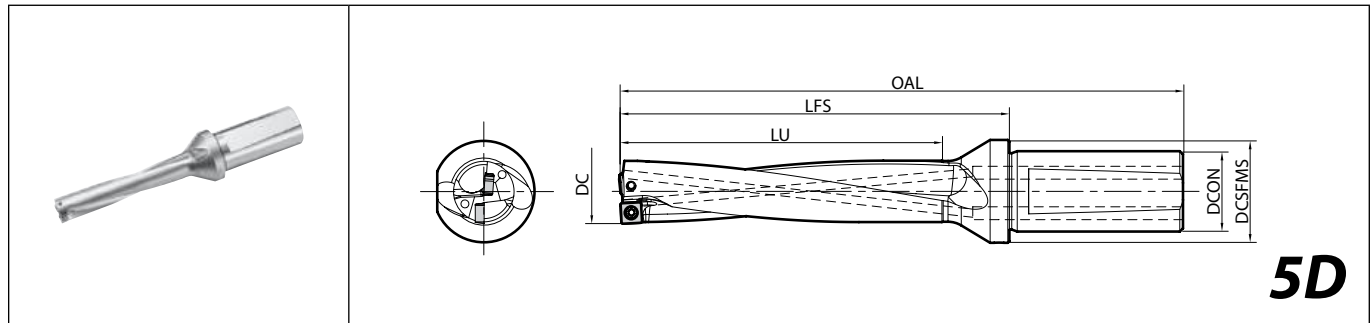
Recommended Cutting Conditions K70~K73
Troubleshooting K67

Hole Dia. Tolerance (4D type)

DC	Hole Dia. Tolerance (in)	DC	Hole Dia. Tolerance (in)
ø0.484" - ø1.500"	+0.014 0	ø1.562" - ø2.000"	+0.016 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRV (Drilling Depth : 5 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
Inch	S075- DRV0484-5-03	●	2	0.484	0.750	4.721	3.028	2.422	1.063	Yes	+0.008	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV0500-5-03	●		0.500		4.799	3.106	2.500			+0.006					
	DRV0516-5-03	●		0.516		4.878	3.185	2.578			+0.006					
	DRV0531-5-03	●		0.531		4.957	3.264	2.657			+0.004					
	S075- DRV0562-5-04	●	2	0.563	0.750	5.346	3.654	2.813	1.063	Yes	+0.014	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV0578-5-04	●		0.578		5.425	3.732	2.891			+0.014					
	S075- DRV0625-5-05	●	2	0.625	0.750	5.744	4.051	3.125	1.063	Yes	+0.016	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV0656-5-05	●		0.656		5.898	4.205	3.281			+0.012					
	S100- DRV0688-5-05	●		0.688	1.000	6.492	4.366	3.438	1.260	Yes	+0.010	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	S100- DRV0750-5-06	●	2	0.750	1.000	6.720	4.594	3.750	1.260	Yes	+0.024					
	DRV0812-5-06	●		0.813		7.028	4.902	4.063			+0.018					
	DRV0875-5-06	●		0.875		7.343	5.217	4.375			+0.010					
	S100- DRV0938-5-07	●	2	0.938	1.000	7.638	5.512	4.688	1.260	Yes	+0.028	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV0984-5-07	●		0.984		7.870	5.744	4.922			+0.024					
	DRV1000-5-07	●		1.000		7.949	5.823	5.000			+0.020					
	S125- DRV1062-5-09	●	2	1.063	1.250	8.526	6.204	5.313	1.614	Yes	+0.041	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV1125-5-09	●		1.125		8.842	6.519	5.625			+0.033					
DRV1188-5-09	●	1.188		9.157		6.834	5.938	+0.026								
S150- DRV1250-5-09	●		1.250	1.500	10.008	7.291	6.250	1.929	Yes	+0.020	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)	
S150- DRV1312-5-11	●	2	1.313	1.500	10.316	7.600	6.563	1.929	Yes	+0.045						
DRV1375-5-11	●		1.375		10.631	7.915	6.875			+0.039						
DRV1438-5-11	●		1.438		10.946	8.230	7.188			+0.031						
DRV1500-5-11	●		1.500		11.256	8.539	7.500			+0.022						
S150- DRV1562-5-14	●	2	1.562	1.500	11.802	9.086	7.810	1.929	Yes	+0.070	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)	
DRV1625-5-14	●		1.625		12.117	9.401	8.125			+0.063						
DRV1688-5-14	●		1.688		12.432	9.716	8.440			+0.056						
DRV1750-5-14	●		1.750		12.742	10.026	8.750			+0.049						
DRV1812-5-14	●		1.812		13.052	10.336	9.060			2.126						+0.041
S200- DRV1875-5-14	●	2	1.875	2.000	13.367	10.651	9.375	2.520	Yes	+0.034	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)	
DRV1938-5-14	●		1.938		13.682	10.966	9.690			+0.027						
S200- DRV2000-5-17	●	2	2.000	2.000	13.854	11.138	10.000	2.520	Yes	+0.079	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)	

When offset drilling, reduce feed rate to 0.0020 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions K70~K73
Troubleshooting K67

Hole Dia. Tolerance (5D type)

DC	Hole Dia. Tolerance (in)	DC	Hole Dia. Tolerance (in)
ø0.484" - ø1.500"	+0.014 0	ø1.562" - ø2.000"	+0.016 0

* Above is numeric guideline.

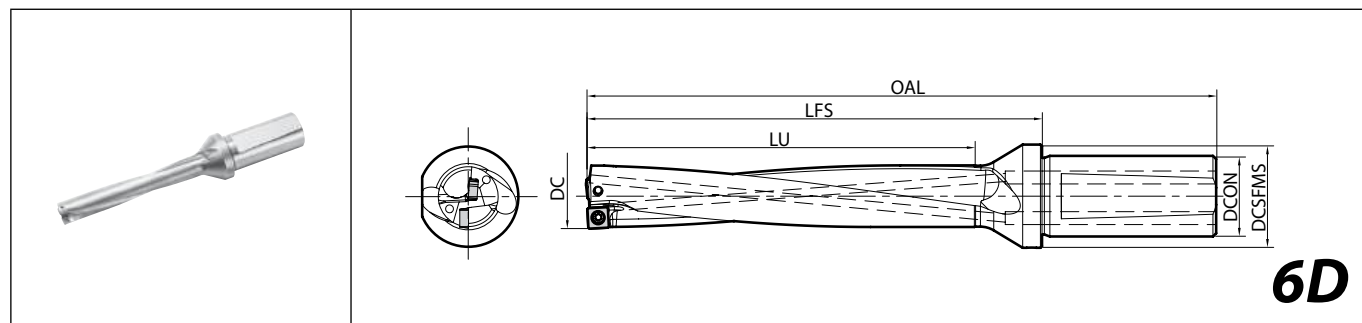
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRV (Drilling Depth : 6 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSfMS							
Inch	S075- DRV0484-6-03	●	2	0.484	0.750	5.205	3.512	2.906	1.063	Yes	+0.008	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV0500-6-03	●		0.500		5.299	3.606	3.000			+0.006					
	DRV0516-6-03	●		0.516		5.394	3.701	3.094			+0.006					
	DRV0531-6-03	●		0.531		5.488	3.795	3.188			+0.004					
	S075- DRV0562-6-04	●	2	0.563	0.750	5.909	4.217	3.375	1.063	Yes	+0.014	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV0578-6-04	●		0.578		6.004	4.311	3.469			+0.014					
	S075- DRV0625-6-05	●	2	0.625	0.750	6.370	4.677	3.750	1.063	Yes	+0.016	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV0656-6-05	●		0.656		6.555	4.862	3.938			+0.012					
	S100- DRV0688-6-05	●		0.688	1.000	7.181	5.055	4.125	1.260	Yes	+0.010	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV0750-6-06	●	2	0.750	1.000	7.469	5.343	4.500	1.260	Yes	+0.024					
	DRV0812-6-06	●		0.813		7.843	5.717	4.875			+0.018					
	DRV0875-6-06	●		0.875		8.220	6.094	5.250			+0.010					
	S100- DRV0938-6-07	●	2	0.938	1.000	8.579	6.453	5.625	1.260	Yes	+0.028	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV0984-6-07	●		0.984		8.854	6.728	5.906			+0.024					
	DRV1000-6-07	●		1.000		8.949	6.823	6.000			+0.020					
	S125- DRV1062-6-09	●	2	1.063	1.250	9.589	7.266	6.375	1.614	Yes	+0.041	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV1125-6-09	●		1.125		9.967	7.644	6.750			+0.033					
	DRV1188-6-09	●		1.188		10.344	8.022	7.125			+0.026					
	S150- DRV1250-6-09	●		1.250	1.500	11.256	8.539	7.500	1.929	Yes	+0.020	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV1312-6-11	●	2	1.313	1.500	11.628	8.911	7.875	1.929	Yes	+0.045					
DRV1375-6-11	●	1.375		12.006		9.289	8.250	+0.039								
DRV1438-6-11	●	1.438		12.384		9.667	8.625	+0.031								
DRV1500-6-11	●	1.500		12.756		10.039	9.000	+0.022								
S150- DRV1562-6-14	●	2	1.562	1.500	13.364	10.648	9.372	1.929	Yes	+0.070	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)	
DRV1625-6-14	●		1.625		13.742	11.026	9.750			+0.063						
DRV1688-6-14	●		1.688		14.120	11.404	10.128			+0.056						
DRV1750-6-14	●		1.750		14.492	11.776	10.500			+0.049						
DRV1812-6-14	●		1.812		14.864	12.148	10.872	2.126		+0.041						
S200- DRV1875-6-14	●	2	1.875	2.000	15.242	12.526	11.250	2.520	Yes	+0.034	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)	
DRV1938-6-14	●		1.938		15.620	12.904	11.628			+0.027						
S200- DRV2000-6-17	●	2	2.000	2.000	15.854	13.138	12.000	2.520	Yes	+0.079	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)	

When offset drilling, reduce feed rate to 0.0024 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions K70~K73
Troubleshooting K67

Hole Dia. Tolerance (6D type)

DC	Hole Dia. Tolerance (in)
ø0.484" - ø1.500"	+0.018 0
ø1.562" - ø2.000"	+0.020 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

INSERT
GRADES
A

TURNING
INSERTS
B

CBN / PCD
INSERTS
C

TURNING
HOLDERS
D

SMALL
TOOLS
E

BORING
F

GROOVING
G

CUT-OFF
H

THREADING
J

DRILLING
K

MILLING
M

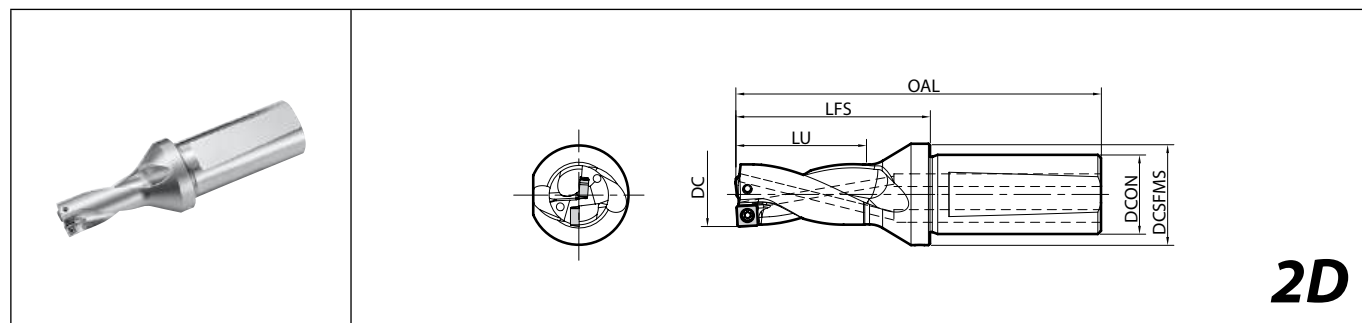
QUICK CHANGE
TOOLING
N

SPARE PARTS
P

TECHNICAL
R

INDEX
T

DRV (Drilling Depth : 2 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49	
				DC	DCON	OAL	LFS	LU			DCSFMS	Screw	Wrench	Wrench		Wrench
																
mm	S20- DRV120M-2-03 DRV125M-2-03 DRV130M-2-03 DRV135M-2-03	●	2	12	20	82	39	24	27	Yes	+0.25 +0.20 +0.15 +0.10	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
		●		12.5		83	40	25								
		●		13		84	41	26								
		●		13.5		85	42	27								
	S20- DRV140M-2-04 DRV145M-2-04 DRV150M-2-04 DRV155M-2-04	●	2	14	20	92	49	28	27	Yes	+0.40 +0.35 +0.30 +0.25	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
		●		14.5		93	50	29								
		●		15		94	51	30								
		●		15.5		95	52	31								
	S25- DRV160M-2-05 DRV165M-2-05 DRV170M-2-05 DRV175M-2-05 DRV180M-2-05 DRV185M-2-05	●	2	16	25	110	56	32	32	Yes	+0.40 +0.35 +0.30 +0.25 +0.20 +0.15	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
		●		16.5		111	57	33								
		●		17		112	58	34								
		●		17.5		113	59	35								
		●		18		114	60	36								
		●		18.5		115	61	37								
	S25- DRV190M-2-06 DRV195M-2-06 DRV200M-2-06 DRV205M-2-06 DRV210M-2-06 DRV215M-2-06 DRV220M-2-06	●	2	19	25	113	59	38	32	Yes	+0.65 +0.60 +0.55 +0.50 +0.45 +0.35 +0.30	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
		●		19.5		114	60	39								
		●		20		115	61	40								
		●		20.5		116	62	41								
		●		21		117	63	42								
		●		21.5		118	64	43								
		●		22		119	65	44								
	S25- DRV225M-2-07 DRV230M-2-07 DRV235M-2-07 DRV240M-2-07 DRV245M-2-07 DRV250M-2-07 DRV255M-2-07 DRV260M-2-07	●	2	22.5	25	120	66	45	32	Yes	+0.90 +0.80 +0.75 +0.70 +0.65 +0.60 +0.50 +0.45	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
		●		23		121	67	46								
		●		23.5		122	68	47								
		●		24		123	69	48								
		●		24.5		124	70	49								
		●		25		125	71	50								
		●		25.5		126	72	51								
		●		26		127	73	52								
	S32- DRV270M-2-09 DRV280M-2-09 DRV290M-2-09 DRV300M-2-09 DRV310M-2-09 DRV320M-2-09	●	2	27	32	136	77	54	41	Yes	+1.05 +0.95 +0.85 +0.75 +0.60 +0.50	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
		●		28		138	79	56								
		●		29		140	81	58								
		●		30		142	83	60								
		●		31		144	85	62								
		●		32		146	87	64								

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions K70~K73
Troubleshooting K67

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts 🔧 K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
																
mm	S40- DRV330M-2-11 DRV340M-2-11 DRV350M-2-11 DRV360M-2-11 DRV370M-2-11 DRV380M-2-11 DRV390M-2-11	●	2	33	40	161	92	66	49	Yes	+1.25	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
		●		34		163	94	68			+1.15					
		●		35		165	96	70			+1.00					
		●		36		167	98	72			+0.90					
		●		37		169	100	74			+0.80					
		●		38		171	102	76			+0.65					
		●		39		173	104	78			+0.55					
	S40- DRV400M-2-14 DRV410M-2-14 DRV420M-2-14 DRV430M-2-14 DRV440M-2-14 DRV450M-2-14 DRV460M-2-14 DRV470M-2-14 DRV480M-2-14 DRV490M-2-14	●	2	40	40	181	112	80	49	Yes	+1.75	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□□-E (Outer) SCMT140510-□□□-I (Inner)
		●		41		183	114	82			+1.60					
		●		42		185	116	84			+1.50					
		●		43		187	118	86			+1.40					
		●		44		189	120	88			+1.30					
		●		45		191	122	90			+1.15					
		●		46		193	124	92	54		+1.05					
		●		47		195	126	94			+0.95					
		●		48		197	128	96			+0.80					
		●		49		199	130	98			+0.70					
	S40- DRV500M-2-17 DRV510M-2-17 DRV520M-2-17 DRV530M-2-17 DRV540M-2-17 DRV550M-2-17 DRV560M-2-17 DRV570M-2-17 DRV580M-2-17 DRV590M-2-17 DRV600M-2-17	●	2	50	40	198	129	100	59	Yes	+2.10	SB-60130TRP	-	-	TTP-20	SCMT170608-□□□-E (Outer) SCMT170610-□□□-I (Inner)
		●		51		200	131	102			+1.95					
		●		52		202	133	104			+1.85					
		●		53		204	135	106			+1.75					
		●		54		206	137	108			+1.65					
		●		55		208	139	110	64		+1.50					
		●		56		210	141	112			+1.40					
		●		57		212	143	114			+1.30					
		●		58		214	145	116			+1.15					
		●		59		216	147	118			+1.05					
		●		60		218	149	120			+0.95					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

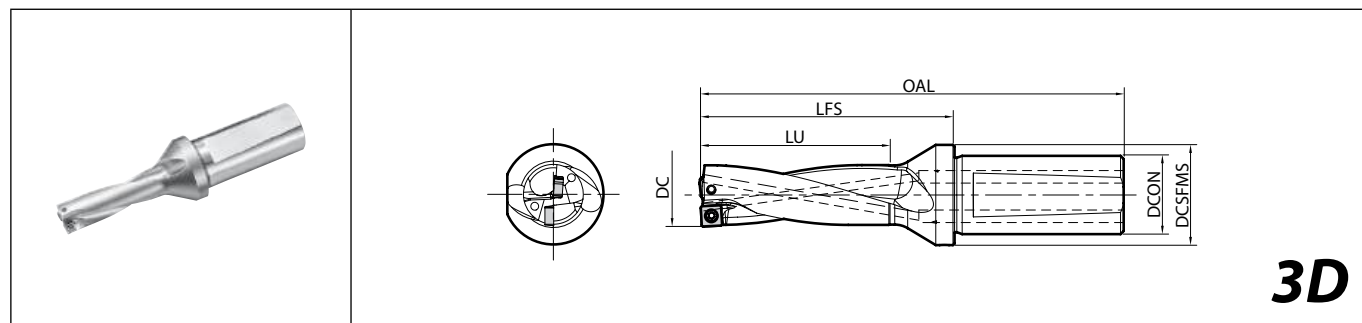
Recommended Cutting Conditions ➡ K70~K73
Troubleshooting ➡ K67

Hole Dia. Tolerance (2D type)

DC	Hole Dia. Tolerance (mm)
ø12 - ø60mm	+0.30 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRV (Drilling Depth : 3 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
mm	S20- DRV120M-3-03	●	2	12	20	94	51	36	27	Yes	+0.25	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV125M-3-03	●		12.5		96	53	37.5								
	DRV130M-3-03	●		13		97	54	39								
	DRV135M-3-03	●		13.5		99	56	40.5								
	S20- DRV140M-3-04	●	2	14	20	106	63	42	27	Yes	+0.40	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV145M-3-04	●		14.5		108	65	43.5								
	DRV150M-3-04	●		15		109	66	45								
	DRV155M-3-04	●		15.5		111	68	46.5								
	S25- DRV160M-3-05	●	2	16	25	126	72	48	32	Yes	+0.40	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV165M-3-05	●		16.5		127	73	49.5								
	DRV170M-3-05	●		17		129	75	51								
	DRV175M-3-05	●		17.5		130	76	52.5								
	DRV180M-3-05	●		18		132	78	54								
	DRV185M-3-05	●		18.5		133	79	55.5								
	S25- DRV190M-3-06	●	2	19	25	132	78	57	32	Yes	+0.65	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV195M-3-06	●		19.5		134	80	58.5								
	DRV200M-3-06	●		20		135	81	60								
	DRV205M-3-06	●		20.5		137	83	61.5								
	DRV210M-3-06	●		21		138	84	63								
	DRV215M-3-06	●		21.5		140	86	64.5								
	DRV220M-3-06	●		22		141	87	66								
	S25- DRV225M-3-07	●	2	22.5	25	142	88	67.5	32	Yes	+0.90	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV230M-3-07	●		23		144	90	69								
	DRV235M-3-07	●		23.5		145	91	70.5								
	DRV240M-3-07	●		24		147	93	72								
	DRV245M-3-07	●		24.5		148	94	73.5								
	DRV250M-3-07	●		25		150	96	75								
	DRV255M-3-07	●		25.5		151	97	76.5								
	DRV260M-3-07	●		26		153	99	78								

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions K70~K73
Troubleshooting K67

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49
				DC	DCON	OAL	LFS	LU	DCSHMS			Screw	Wrench	Wrench	Wrench	
																
mm	S32-	DRV265M-3-09	●	26.5	32	161	102	79.5	41	Yes	+1.15	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
		DRV270M-3-09	●	27		163	104	81			+1.05					
		DRV275M-3-09	●	27.5		164	105	82.5			+1.00					
		DRV280M-3-09	●	28		166	107	84			+0.95					
		DRV285M-3-09	●	28.5		167	108	85.5			+0.90					
		DRV290M-3-09	●	29		169	110	87			+0.85					
		DRV295M-3-09	●	29.5		170	111	88.5			+0.80					
		DRV300M-3-09	●	30		172	113	90			+0.75					
		DRV305M-3-09	●	30.5		173	114	91.5			+0.65					
		DRV310M-3-09	●	31		175	116	93			+0.60					
		DRV315M-3-09	●	31.5		176	117	94.5			+0.55					
		DRV320M-3-09	●	32		178	119	96			+0.50					
	S40-	DRV330M-3-11	●	33	40	194	125	99	49	Yes	+1.25	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
		DRV340M-3-11	●	34		197	128	102			+1.15					
		DRV350M-3-11	●	35		200	131	105			+1.00					
		DRV360M-3-11	●	36		203	134	108			+0.90					
		DRV370M-3-11	●	37		206	137	111			+0.80					
		DRV380M-3-11	●	38		209	140	114			+0.65					
		DRV390M-3-11	●	39		212	143	117			+0.55					
	S40-	DRV400M-3-14	●	40	40	221	152	120	49	Yes	+1.75	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)
		DRV410M-3-14	●	41		224	155	123			+1.60					
		DRV420M-3-14	●	42		227	158	126			+1.50					
		DRV430M-3-14	●	43		230	161	129			+1.40					
		DRV440M-3-14	●	44		233	164	132			+1.30					
		DRV450M-3-14	●	45		236	167	135			+1.15					
		DRV460M-3-14	●	46		239	170	138	+1.05							
		DRV470M-3-14	●	47		242	173	141	+0.95							
		DRV480M-3-14	●	48		245	176	144	+0.80							
		DRV490M-3-14	●	49		248	179	147	+0.70							
	S40-	DRV500M-3-17	●	50	40	248	179	150	59	Yes	+2.10	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)
		DRV510M-3-17	●	51		251	182	153			+1.95					
		DRV520M-3-17	●	52		254	185	156			+1.85					
		DRV530M-3-17	●	53		257	188	159			+1.75					
		DRV540M-3-17	●	54		260	191	162			+1.65					
		DRV550M-3-17	●	55		263	194	165			+1.50					
		DRV560M-3-17	●	56		266	197	168	+1.40							
		DRV570M-3-17	●	57		269	200	171	+1.30							
		DRV580M-3-17	●	58		272	203	174	+1.15							
		DRV590M-3-17	●	59		275	206	177	+1.05							
		DRV600M-3-17	●	60		278	209	180	+0.95							

When offset drilling, reduce feed rate to 0.0031 ipr or less.

See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ K70~K73

Troubleshooting ➡ K67

Hole Dia. Tolerance (3D type)

DC	Hole Dia. Tolerance (mm)
ø12 - ø60mm	+0.30 0

* Above is numeric guideline.

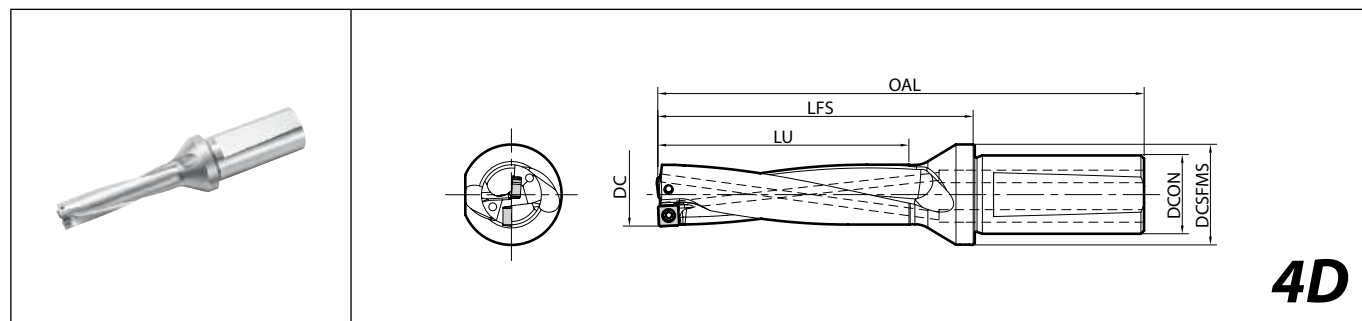
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRV (Drilling Depth : 4 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49	
				DC	DCON	OAL	LFS	LU			DCSFMS	Screw	Wrench	Wrench		Wrench
																
mm	S20- DRV120M-4-03	●	2	12	20	106	63	48	27	Yes	+0.25	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV125M-4-03	●		12.5		108	65	50			+0.20					
	DRV130M-4-03	●		13		110	67	52			+0.15					
	DRV135M-4-03	●		13.5		112	69	54			+0.10					
	S20- DRV140M-4-04	●	2	14	20	120	77	56	27	Yes	+0.40	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV145M-4-04	●		14.5		122	79	58			+0.35					
	DRV150M-4-04	●		15		124	81	60			+0.30					
	DRV155M-4-04	●		15.5		126	83	62			+0.25					
	S25- DRV160M-4-05	●	2	16	25	142	88	64	32	Yes	+0.40	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV165M-4-05	●		16.5		144	90	66			+0.35					
	DRV170M-4-05	●		17		146	92	68			+0.30					
	DRV175M-4-05	●		17.5		148	94	70			+0.25					
	DRV180M-4-05	●		18		150	96	72			+0.20					
	DRV185M-4-05	●		18.5		152	98	74			+0.15					
	S25- DRV190M-4-06	●	2	19	25	151	97	76	32	Yes	+0.65	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV195M-4-06	●		19.5		153	99	78			+0.60					
	DRV200M-4-06	●		20		155	101	80			+0.55					
	DRV205M-4-06	●		20.5		157	103	82			+0.50					
	DRV210M-4-06	●		21		159	105	84			+0.45					
	DRV215M-4-06	●		21.5		161	107	86			+0.35					
	DRV220M-4-06	●		22		163	109	88			+0.30					
	S25- DRV225M-4-07	●	2	22.5	25	165	111	90	32	Yes	+0.90	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV230M-4-07	●		23		167	113	92			+0.80					
	DRV235M-4-07	●		23.5		169	115	94			+0.75					
	DRV240M-4-07	●		24		171	117	96			+0.70					
	DRV245M-4-07	●		24.5		173	119	98			+0.65					
	DRV250M-4-07	●		25		175	121	100			+0.60					
	DRV255M-4-07	●		25.5		177	123	102			+0.50					
	DRV260M-4-07	●		26		179	125	104			+0.45					
	S32- DRV270M-4-09	●	2	27	32	190	131	108	41	Yes	+1.05	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV280M-4-09	●		28		194	135	112			+0.95					
	DRV290M-4-09	●		29		198	139	116			+0.85					
	DRV300M-4-09	●		30		202	143	120			+0.75					
	DRV310M-4-09	●		31		206	147	124			+0.60					
	DRV320M-4-09	●		32		210	151	128			+0.50					

When offset drilling, reduce feed rate to 0.0024 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions K70~K73
Troubleshooting K67

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49		
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench			
mm	S40-	DRV330M-4-11	●	2	33	40	227	158	132	49	Yes	+1.25	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)	
		DRV340M-4-11	●		34		231	162	136			+1.15						
		DRV350M-4-11	●		35		235	166	140			+1.00						
		DRV360M-4-11	●		36		239	170	144			+0.90						
		DRV370M-4-11	●		37		243	174	148			+0.80						
		DRV380M-4-11	●		38		247	178	152			+0.65						
		DRV390M-4-11	●		39		251	182	156			+0.55						
	S40-	DRV400M-4-14	●	2	40	40	261	192	160	49	Yes	+1.75	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)	
		DRV410M-4-14	●		41		265	196	164			+1.60						
		DRV420M-4-14	●		42		269	200	168			+1.50						
		DRV430M-4-14	●		43		273	204	172			+1.40						
		DRV440M-4-14	●		44		277	208	176			+1.30						
		DRV450M-4-14	●		45		281	212	180			+1.15						
		DRV460M-4-14	●		46		285	216	184			54						+1.05
		DRV470M-4-14	●		47		289	220	188									+0.95
	S50-	DRV480M-4-14	●		48	50	293	224	192	59		+0.80						
		DRV490M-4-14	●		49		297	228	196			+0.70						
	S50-	DRV500M-4-17	●	2	50	50	298	229	200	59	Yes	+2.10	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)	
		DRV510M-4-17	●		51		302	233	204			+1.95						
		DRV520M-4-17	●		52		306	237	208			+1.85						
		DRV530M-4-17	●		53		310	241	212			+1.75						
		DRV540M-4-17	●		54		314	245	216			+1.65						
		DRV550M-4-17	●		55		318	249	220	64		+1.50						
		DRV560M-4-17	●		56		322	253	224			+1.40						
		DRV570M-4-17	●		57		326	257	228			+1.30						
		DRV580M-4-17	●		58		330	261	232			+1.15						
		DRV590M-4-17	●		59		334	265	236			+1.05						
		DRV600M-4-17	●		60		338	269	240			+0.95						

When offset drilling, reduce feed rate to 0.0024 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

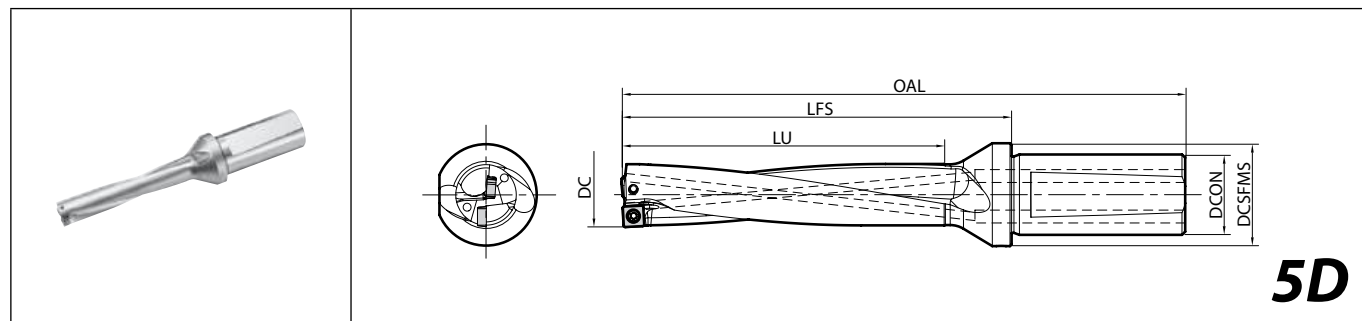
Recommended Cutting Conditions ➡ K70~K73
Troubleshooting ➡ K67

Hole Dia. Tolerance (4D type)

DC	Hole Dia. Tolerance (mm)
ø12 - ø39mm	+0.35 0
ø40 - ø60mm	+0.40 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRV (Drilling Depth : 5 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
mm	S20- DRV120M-5-03	●	2	12	20	118	75	60	27	Yes	+0.25	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV130M-5-03	●		13		123	80	65								
	S20- DRV140M-5-04	●	2	14	20	134	91	70	27	Yes	+0.40	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV150M-5-04	●		15		139	96	75								
	S25- DRV160M-5-05	●	2	16	25	158	104	80	32	Yes	+0.40	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV170M-5-05	●		17		163	109	85								
	DRV180M-5-05	●		18		168	114	90								
	S25- DRV190M-5-06	●	2	19	25	170	116	95	32	Yes	+0.65	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV200M-5-06	●		20		175	121	100								
	DRV210M-5-06	●		21		180	126	105								
	DRV220M-5-06	●		22		185	131	110								
	S25- DRV230M-5-07	●	2	23	25	190	136	115	32	Yes	+0.80	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV240M-5-07	●		24		195	141	120								
	DRV250M-5-07	●		25		200	146	125								
	DRV260M-5-07	●		26		205	151	130								
	S32- DRV270M-5-09	●	2	27	32	217	158	135	41	Yes	+1.05	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV280M-5-09	●		28		222	163	140								
	DRV290M-5-09	●		29		227	168	145								
	DRV300M-5-09	●		30		232	173	150								
	DRV310M-5-09	●		31		237	178	155								
	DRV320M-5-09	●		32		242	183	160								
	S40- DRV330M-5-11	●	2	33	40	260	191	165	49	Yes	+1.25	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV340M-5-11	●		34		265	196	170								
	DRV350M-5-11	●		35		270	201	175								
	DRV360M-5-11	●		36		275	206	180								
	DRV370M-5-11	●		37		280	211	185								
	DRV380M-5-11	●		38		285	216	190								
	DRV390M-5-11	●		39		290	221	195								

When offset drilling, reduce feed rate to 0.0020 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions K70~K73
Troubleshooting K67

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K46~K49		
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench			
																		
mm	S40- DRV400M-5-14 DRV410M-5-14 DRV420M-5-14 DRV430M-5-14 DRV440M-5-14 DRV450M-5-14 DRV460M-5-14 DRV470M-5-14	●	2	40	40	301	232	200	49	Yes	+1.75	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)		
		●		41		306	237	205			+1.60							
		●		42		311	242	210			+1.50							
		●		43		316	247	215			+1.40							
		●		44		321	252	220			+1.30							
		●		45		326	257	225			+1.15							
		●		46		331	262	230			54						+1.05	
		●		47		336	267	235									+0.95	
	S50- DRV480M-5-14 DRV490M-5-14	●	50	48	341	272	240	59	+0.80									
		●		49	346	277	245		+0.70									
	S50- DRV500M-5-17 DRV510M-5-17 DRV520M-5-17 DRV530M-5-17 DRV540M-5-17 DRV550M-5-17 DRV560M-5-17 DRV570M-5-17 DRV580M-5-17 DRV590M-5-17 DRV600M-5-17	●	2	50	50	348	279	250	59	Yes	+2.10	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)		
		●		51		353	284	255			+1.95							
		●		52		358	289	260			+1.85							
		●		53		363	294	265			+1.75							
		●		54		368	299	270			+1.65							
		●		55		373	304	275			+1.50							
		●		56		378	309	280	64		+1.40							
		●		57		383	314	285			+1.30							
		●		58		388	319	290			+1.15							
		●		59		393	324	295			+1.05							
		●		60		398	329	300			+0.95							

When offset drilling, reduce feed rate to 0.0020 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

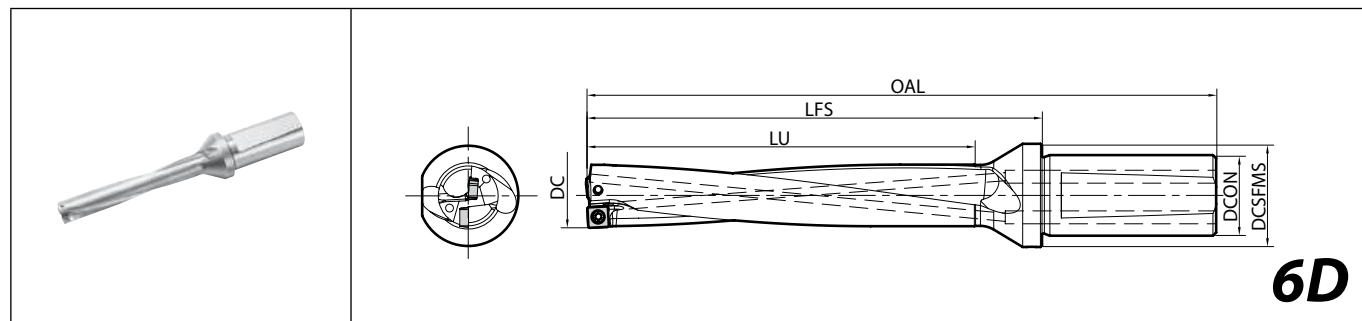
Recommended Cutting Conditions ➡ K70~K73
Troubleshooting ➡ K67

Hole Dia. Tolerance (5D type)

DC	Hole Dia. Tolerance (mm)
ø12 - ø39mm	+0.35 0
ø40 - ø60mm	+0.40 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRV (Drilling Depth : 6 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts K46~K49
				DC	DCON	OAL	LFS	LU	DCSFMS			Screw	Wrench	Wrench	Wrench	
mm	S20- DRV120M-6-03	●	2	12	20	130	87	72	27	Yes	+0.25	SB-2037TRP	-	FTP-6	-	LCMT030203-□□-E (Outer) LCMT030205-□□-I (Inner)
	DRV130M-6-03	●		13		136	93	78			+0.15					
	S20- DRV140M-6-04	●	2	14	20	148	105	84	27	Yes	+0.40	SB-2037TRP	-	FTP-6	-	SCMT040205-□□-E (Outer) SCMT040209-□□-I (Inner)
	DRV150M-6-04	●		15		154	111	90			+0.30					
	S25- DRV160M-6-05	●	2	16	25	174	120	96	32	Yes	+0.40	SB-2041TRP	-	FTP-6	-	SCMT050205-□□-E (Outer) SCMT050210-□□-I (Inner)
	DRV170M-6-05	●		17		180	126	102			+0.30					
	DRV180M-6-05	●		18		186	132	108			+0.20					
	S25- DRV190M-6-06	●	2	19	25	189	135	114	32	Yes	+0.65	SB-2555TRP	DTPM-8	-	-	SCMT060205-□□-E (Outer) SCMT060210-□□-I (Inner)
	DRV200M-6-06	●		20		195	141	120			+0.55					
	DRV210M-6-06	●		21		201	147	126			+0.45					
	DRV220M-6-06	●		22		207	153	132			+0.30					
	S25- DRV230M-6-07	●	2	23	25	213	159	138	32	Yes	+0.80	SB-3060TRP	DTPM-10	-	-	SCMT070305-□□-E (Outer) SCMT070310-□□-I (Inner)
	DRV240M-6-07	●		24		219	165	144			+0.70					
	DRV250M-6-07	●		25		225	171	150			+0.60					
	DRV260M-6-07	●		26		231	177	156			+0.45					
	S32- DRV270M-6-09	●	2	27	32	244	185	162	41	Yes	+1.05	SB-3573TRP	DTPM-10	-	-	SCMT090405-□□-E (Outer) SCMT090410-□□-I (Inner)
	DRV280M-6-09	●		28		250	191	168			+0.95					
	DRV290M-6-09	●		29		256	197	174			+0.85					
	DRV300M-6-09	●		30		262	203	180			+0.75					
	DRV310M-6-09	●		31		268	209	186			+0.60					
	DRV320M-6-09	●		32		274	215	192			+0.50					
	S40- DRV330M-6-11	●	2	33	40	293	224	198	49	Yes	+1.25	SB-4086TRP	DTPM-15	-	-	SCMT110406-□□-E (Outer) SCMT110410-□□-I (Inner)
	DRV340M-6-11	●		34		299	230	204			+1.15					
	DRV350M-6-11	●		35		305	236	210			+1.00					
	DRV360M-6-11	●		36		311	242	216			+0.90					
	DRV370M-6-11	●		37		317	248	222			+0.80					
	DRV380M-6-11	●		38		323	254	228			+0.65					
	DRV390M-6-11	●		39		329	260	234			+0.55					
	S40- DRV400M-6-14	●	2	40	40	341	272	240	49	Yes	+1.75	SB-50120TRPH	-	-	TTP-20	SCMT140508-□□-E (Outer) SCMT140510-□□-I (Inner)
	DRV410M-6-14	●		41		347	278	246			+1.60					
	DRV420M-6-14	●		42		353	284	252			+1.50					
	DRV430M-6-14	●		43		359	290	258			+1.40					
	DRV440M-6-14	●		44		365	296	264			+1.30					
	DRV450M-6-14	●		45		371	302	270			+1.15					
	S50- DRV500M-6-17	●	2	50	50	398	329	300	59	Yes	+2.10	SB-60130TRP	-	-	TTP-20	SCMT170608-□□-E (Outer) SCMT170610-□□-I (Inner)
	DRV550M-6-17	●		55		428	359	330			+1.50					
	DRV600M-6-17	●		60		458	389	360			+0.95					

When offset drilling, reduce feed rate to 0.0016 ipr or less.

See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions K70~K73

Troubleshooting K67

Hole Dia. Tolerance (6D type)

DC	Hole Dia. Tolerance (mm)
ø12 - ø39mm	+0.45 0
ø40 - ø60mm	+0.50 0

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

INSERT
GRADES

A

TURNING
INSERTS

B

CBN / PC
INSERTS

C

TURNING
HOLDERS

D

SMALL
TOOLS

E

BORING

F

GROOVING

G

CUT-OFF

H

THREADING

J

DRILLING

K

MILLING

M

QUICK CHANGE
TOOLING

N

SPARE PARTS

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T

Insert Grade Selection Guide

Select CVD for the outer edge when performing high speed and high efficiency drilling and for abrasion resistance and long tool life.

Select PVD MEGACOAT for the outer edge for stable drilling and a better surface finish.

PVD MEGACOAT is recommended for the outer edge if chattering occurs, machining with lathe, or if cutting conditions cannot be increased to the recommended speed for CVD.

1st Recommendation
(High Speed and High Efficiency Drilling)

Outer Edge : CVD (CA520D / CA415D)

Inner Edge : PVD (PR1535)



Stable Machining Oriented
(1st Recommendation for Lathe Machining)

Outer Edge : PVD (PR1225)

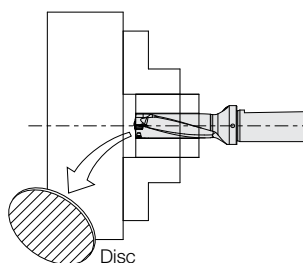
Inner Edge : PVD (PR1535)



Machining Caution

In case of through-hole machining, a disc may be generated and ejected outward when exiting the hole.

Be sure to install guards to protect against dangers if using a machine without the covers (including general-purpose lathes, etc.).



DRV Hole Bottom Shape

DRV Inch Diameters (in)			DRV Metric Diameters (mm)														
Insert Size	DC	A	Insert Size	DC	A	Insert Size	DC	A	Insert Size	DC	A	Insert Size	DC	A			
03	0.500	0.028	03	12.0	0.7	06	19.0	1.2	09	26.5	1.2	14	40.0	1.9			
04	0.562	0.039		12.5			19.5			27.0			41.0				
05	0.625	0.043		13.0			20.0			27.5	1.3		42.0	2.0			
	0.656	04	13.5	1.0			20.5	1.3		28.0			43.0				
	0.688		14.0				21.0			28.5			44.0				
06	0.750		0.047				14.5			21.5	29.0	1.4	17	45.0	2.1		
	0.812		0.051		15.0	07	22.0	1.2		29.5	46.0						
	0.875				15.5		22.5			30.0	47.0						
07	0.938	0.047	05	16.0	1.1		23.0	1.2		30.5	1.5			48.0	2.2		
	0.984	0.051		16.5			23.5			31.0				49.0			
	1.000			17.0			24.0	1.3		31.5	11	50.0	2.0				
09	1.062	0.047		17.5	1.2		24.5			32.0		1.5		51.0	2.1		
	1.125	0.051		18.0			25.0			33.0				52.0			
	1.188	0.055		18.5			25.5			34.0				53.0			
	1.250	0.059					26.0			35.0				54.0			
11	1.312	0.059							11	36.0		1.6		55.0	2.2		
	1.375									37.0				56.0			
	1.438	0.063								38.0		1.7		57.0	2.3		
	1.500									39.0				58.0			
14	1.562	0.075												59.0	2.4		
	1.625													60.0			
	1.688	0.079															
	1.750																
	1.812	0.083															
	1.875	0.087															
	1.938																
17	2.000	0.083															

Common for 2D, 3D, 4D, 5D, 6D Drills

*Above is estimated values. (varies within $\pm 0.1\text{mm}$ ($\pm 0.004''$) depending on workpiece material and cutting conditions)

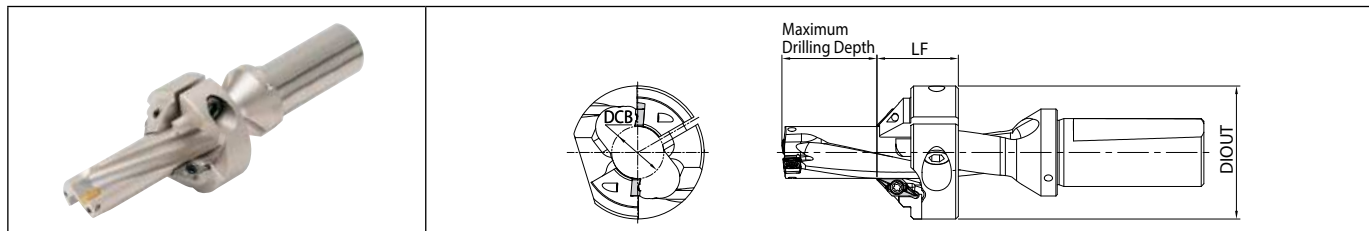
Troubleshooting (DRV / DRZ)

Problems	Conditions	Cause	Countermeasures
Hole Diameter is Smaller at the Bottom of the Hole	There is no problem for inlet, however gradually hole diameter is getting smaller at the bottom. $A > B$	Chip jam (External or Internal edge chip stuck)	Change the cutting conditions · Increase the cutting speed · Lower the feed rate See K70~K73 , K94 for "Recommended Cutting Conditions".
Hole Diameter is Larger at the Bottom of the Hole	There is no problem for inlet, however gradually hole diameter is getting larger at the bottom. $A < B$	Internal edge chip jam.	Change the cutting conditions · Increase the cutting speed · Lower the feed rate See K70~K73 , K94 for "Recommended Cutting Conditions". · Check the core height K76~K77 (DRV) K96~K97 (DRZ)
Hole Diameter is Small at the Hole Inlet		Incorrect adjustment of hole diameter.	In case of using lathe machine, use X-axis and adjustment hole diameter. K76 (DRV) K96 (DRZ)
		No core at internal edge. (No core remains)	Adjust the center height. K76~K77 (DRV) K96~K97 (DRZ)

Identifying Tool Life of Magic Drill (DRV / DRZ)

How to Judge Tool Life	Tool Life Indications
Tool Condition and Insert Wear	· When an insert is new, the holder is slightly bent to the side during cutting. (Therefore, the cutting diameter is slightly bigger during cutting). Once cutting is finished, the holder will return back to normal size. No tool marks will appear on the finished surface. (this depends on workpiece and cutting condition: during external machining slight tool mark might appear.) · When an insert is at the end of its tool life, Gradually the external corner part gets worn out, the holder does not bend slightly outwards - it starts to bend inwards. After the cutting is finished, the holder returns to the normal position. When taking off a holder under this condition the cutting edge of the insert creates external tool marks on the finished surface of the workpiece.
Checking Hole Diameter	When cutting diameter is measured, suddenly it shows small diameter. In this case, a worn out insert can be the cause.
Checking the Surface on the Exit Side	If insert wear progresses, the burrs of penetrated hole entrance become bigger. This is a clear indication that the tool must be exchanged.
Variation of Cutting Noise	Light drilling noise at the beginning turns to dull noise with vibration
Variation of Vibration	As the end of tool life is getting closer, there is more vibration and the cutting noise changes. However, when machining smaller diameters these factors are difficult to detect.

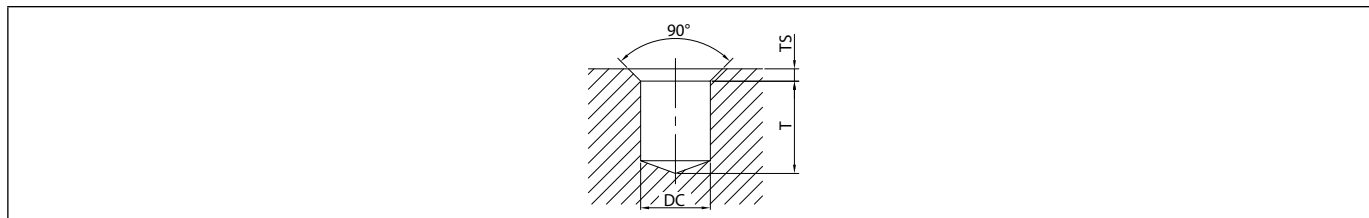
Chamfering Attachment



Chamfer Attachment Dimensions

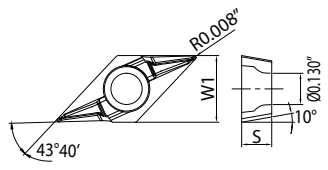
Part Number	Std. Item	Applicable Drill Bodies		Dimensions (mm)			Applicable Inserts	Spare Parts			
		Inch Size Bodies	Metric Size Bodies	DIOUT	DCB	LF		Insert Screw	Wrench	Clamp Screw	Wrench
DRV-CH17	●	S075-DRV0656-...-05	S25-DRV165M-...-05 S25-DRV170M-...-05	47	16.2	30	CH0503-45	SB-3080TR	FT-10	HH6X18	LW-5
DRV-CH18	●	S100-DRV0688-...-05	S25-DRV175M-...-05 S25-DRV180M-...-05	47	17.2	30					
DRV-CH19	●	-	S25-DRV185M-...-05 S25-DRV190M-...-06	49	18.2	30					
DRV-CH20	●	S100-DRV0766-...-06	S25-DRV195M-...-06 S25-DRV200M-...-06	49	19.2	30					
DRV-CH21	●	S100-DRV0812-...-06	S25-DRV205M-...-06 S25-DRV210M-...-06	49	20.2	30					
DRV-CH22	●	-	S25-DRV215M-...-06 S25-DRV220M-...-06	49	21.2	30					
DRV-CH23	●	-	S25-DRV225M-...-07 S25-DRV230M-...-07	51	22.2	30					
DRV-CH24	●	S100-DRV0938-...-07	S25-DRV235M-...-07 S25-DRV240M-...-07	51	23.2	30					
DRV-CH25	●	S100-DRV0984-...-07	S25-DRV245M-...-07 S25-DRV250M-...-07	53	24.2	30					
DRV-CH26	●	-	S25-DRV255M-...-07 S25-DRV260M-...-07	53	25.2	30					
DRV-CH27	●	S125-DRV1062-...-09	S25-DRV265M-...-09 S32-DRV270M-...-09	64	26	35				HH8X20	LW-6

Maximum Drilling Depth / Chamfering Depths

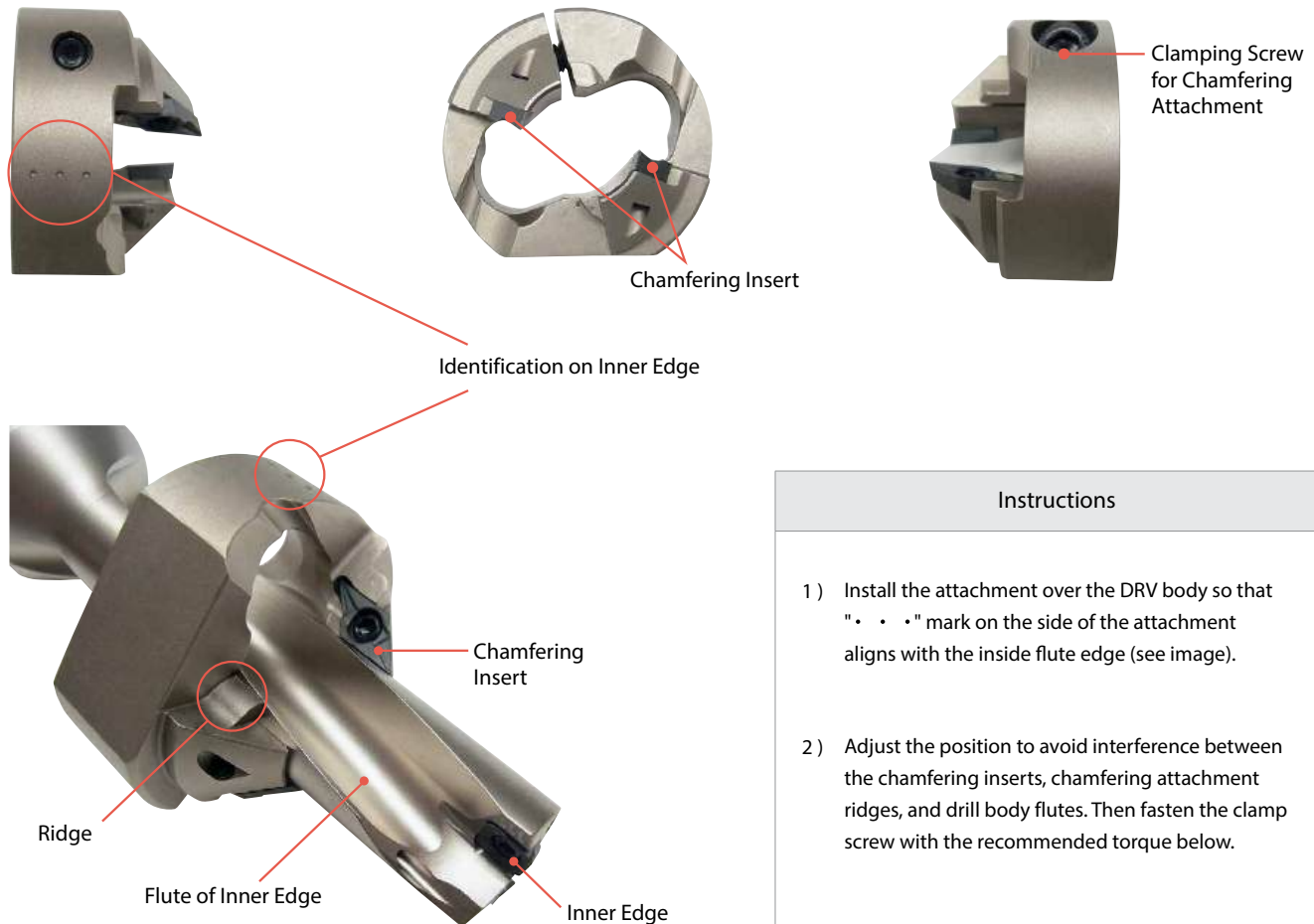


Drilling Diameter (mm)	Maximum Drilling Depth T (mm)						Max Chamfering Depth	Applicable Chamfering Attachment
	2D Drill	3D Drill	4D Drill	5D Drill	6D Drill		Ts (mm)	
DC								
Ø16.5	0.5	17	33.5	—	—		2.5	DRV-CH17
Ø17.0	1.5	18.5	35.5	52.5	69.5			DRV-CH18
Ø17.5	2.5	20	37.5	—	—			DRV-CH19
Ø18.0	3.5	21.5	39.5	57.5	75.5			DRV-CH20
Ø18.5	4.5	23	41.5	—	—			DRV-CH21
Ø19.0	5.5	24.5	43.5	62.5	81.5			DRV-CH22
Ø19.5	6.5	26	45.5	—	—			DRV-CH23
Ø20.0	7.5	27.5	47.5	67.5	87.5			DRV-CH24
Ø20.5	8.5	29	49.5	—	—			DRV-CH25
Ø21.0	9.5	30.5	51.5	72.5	93.5			DRV-CH26
Ø21.5	10.5	32	53.5	—	—			DRV-CH27
Ø22.0	11.5	33.5	55.5	77.5	99.5			
Ø22.5	12.5	35	57.5	—	—			
Ø23.0	13.5	36.5	59.5	82.5	105.5			
Ø23.5	14.5	38	61.5	—	—			
Ø24.0	15.5	39.5	63.5	87.5	111.5			
Ø24.5	16.5	41	65.5	—	—			
Ø25.0	17.5	42.5	67.5	92.5	117.5			
Ø25.5	18.5	44	69.5	—	—			
Ø26.0	19.5	45.5	71.5	97.5	123.5			
Ø26.5	—	47	—	—	—			
Ø27.0	16.5	43.5	75.5	97.5	124.5			

How to Install Chamfering Attachment

Insert	Part Number	Dimensions (mm)		MEGACOAT NANO PR1535	Applicable Chamfering Attachment
		W1	S		
 	CH0503-45	7.05	3.18	●	DRV-CH○○

How to Install Chamfering Attachment



Recommended Torque

Chamfering Attachment Part Number	Torque (Nm)	Clamping Screw	Wrench
DRV-CH17 ~ DRV-CH26	10	HH6X18	LW-5
DRV-CH27	14	HH8X20	LW-6

DRV 2D/3D - Recommended Cutting Conditions (with Coolant)

Drilling Depth: 2D / 3D

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. DC (in)	Metric Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)				
	PVD Coated Carbide				CVD Coated Carbide								2D~3D				
	PR1225				CA520D				CA415D								
	GM	GH	XM	SM	GM	GH	XM	SM	GM	GH			GM	GH	XM	SM	
Low Carbon Steel	-	-	★ 390-660	☆ 390-660	-	-	★ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	—	—	—	0.0016 ~ 0.0024	
											0.562 - 0.578	14.0 - 15.5	—	—	0.0016 ~ 0.0035	0.0016 ~ 0.0028	
											0.625 - 0.688	16.0 - 18.5	—	—	0.0016 ~ 0.0039	0.0016 ~ 0.0031	
											0.750 - 0.875	19.0 - 22.0	—	—	0.0016 ~ 0.0047	0.0016 ~ 0.0031	
											0.922 - 1.000	22.5 - 26.0	—	—	0.0016 ~ 0.0055	0.0024 ~ 0.0039	
											1.062 - 1.250	26.5 - 32.0	—	—	0.0024 ~ 0.0055	0.0024 ~ 0.0039	
											1.312 - 1.500	33.0 - 39.0	—	—	0.0024 ~ 0.0055	0.0024 ~ 0.0039	
											1.562 - 2.000	40.0 - 60.0	—	—	0.0024 ~ 0.0063	0.0031 ~ 0.0047	
Carbon Steel	★ 330-590	☆ 330-590	☆ 330-590	☆ 330-590	★ 490-920	☆ 490-920	☆ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0055	0.0016 ~ 0.0055	—	0.0016 ~ 0.0039	
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0055	0.0016 ~ 0.0055	0.0016 ~ 0.0039	0.0016 ~ 0.0039	
											0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0063	0.0024 ~ 0.0063	0.0024 ~ 0.0047	0.0024 ~ 0.0047	
											0.750 - 1.000	19.0 - 26.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	0.0024 ~ 0.0055	0.0024 ~ 0.0055	
											1.062 - 1.250	26.5 - 32.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	0.0024 ~ 0.0055	0.0024 ~ 0.0055	
											1.312 - 1.500	33.0 - 39.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	0.0028 ~ 0.0063	0.0024 ~ 0.0055	
Alloy Steel	★ 330-525	☆ 330-525	☆ 330-525	-	★ 460-720	☆ 460-720	☆ 460-720	-	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0047	0.0016 ~ 0.0047	—	—	
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0055	0.0016 ~ 0.0055	—	—	
											0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0063	0.0024 ~ 0.0063	—	—	
											0.750 - 1.500	19.0 - 39.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	—	—	
											1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	—	—	
Tool Steel	☆ 260-490	★ 260-490	-	-	☆ 425-690	★ 425-690	-	-	-	-	0.500 - 0.578	12.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	—	—	
											0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0047	0.0024 ~ 0.0047	—	—	
											0.750 - 1.250	19.0 - 32.0	0.0031 ~ 0.0059	0.0031 ~ 0.0059	—	—	
											1.312 - 1.500	33.0 - 39.0	0.0031 ~ 0.0059	0.0031 ~ 0.0059	—	—	
											1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0059	0.0031 ~ 0.0059	—	—	
Stainless Steel (Austenitic)	-	-	-	★ 230-460	-	-	-	★ 460-660	-	-	0.500 - 0.578	12.0 - 15.5	—	—	—	0.0016 ~ 0.0039	
											0.625 - 0.688	16.0 - 18.5	—	—	—	0.0024 ~ 0.0047	
											0.750 - 2.000	19.0 - 60.0	—	—	—	0.0024 ~ 0.0055	
Gray Cast Iron	☆ 330-490	★ 330-490	-	-	-	-	-	-	-	☆ 490-720	★ 490-720	0.500	12.0 - 13.5	0.0031 ~ 0.0055	0.0031 ~ 0.0055	—	—
												0.562 - 0.578	14.0 - 15.5	0.0031 ~ 0.0055	0.0031 ~ 0.0055	—	—
												0.625 - 0.688	16.0 - 18.5	0.0031 ~ 0.0071	0.0031 ~ 0.0071	—	—
												0.750 - 1.500	19.0 - 39.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	—	—
												1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	—	—
Nodular Cast Iron	☆ 260-390	★ 260-390	-	-	-	-	-	-	-	☆ 390-590	★ 390-590	0.500 - 0.578	12.0 - 15.5	0.0031 ~ 0.0047	0.0031 ~ 0.0047	—	—
												0.625 - 0.688	16.0 - 18.5	0.0031 ~ 0.0063	0.0031 ~ 0.0063	—	—
												0.750 - 1.500	19.0 - 39.0	0.0031 ~ 0.0071	0.0031 ~ 0.0071	—	—
												1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0071	0.0031 ~ 0.0071	—	—

Internal Coolant is Recommended

★ : 1st Recommendation ☆ : 2nd Recommendation

Cutting Conditions by Application

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)					Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.	Not Available
Internal Coolant	Yes						Not Recommended

Drilling Depth: 4D

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

★ : 1st Recommendation ☆ : 2nd Recommendation

[illegible]

DRV 5D - Recommended Cutting Conditions (with Coolant)

Drilling Depth: 5D

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. DC (in)	Metric Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)			
	PVD Coated Carbide				CVD Coated Carbide								5D			
	PR1225				CA520D				CA415D							
	GM	GH	XM	SM	GM	GH	XM	SM	GM	GH			GM	GH	XM	SM
Low Carbon Steel	-	-	★ 390-660	☆ 390-660	-	-	★ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	—	—	—	0.0012 ~ 0.0020
											0.562 - 0.578	14.0 - 15.5	—	—	0.0016 ~ 0.0028	0.0016 ~ 0.0024
											0.625 - 0.688	16.0 - 18.5	—	—	0.0016 ~ 0.0031	0.0016 ~ 0.0024
											0.750 - 0.875	19.0 - 22.0	—	—	0.0016 ~ 0.0039	0.0016 ~ 0.0028
											0.922 - 1.000	22.5 - 26.0	—	—	0.0016 ~ 0.0047	0.0016 ~ 0.0031
											1.062 - 1.250	26.5 - 32.0	—	—	0.0016 ~ 0.0047	0.0016 ~ 0.0031
											1.312 - 1.500	33.0 - 39.0	—	—	0.0020 ~ 0.0047	0.0016 ~ 0.0039
											1.562 - 2.000	40.0 - 60.0	—	—	0.0020 ~ 0.0055	0.0016 ~ 0.0039
Carbon Steel	★ 330-590	☆ 330-590	☆ 330-590	☆ 330-590	★ 490-920	☆ 490-920	☆ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	—	0.0016 ~ 0.0028
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	0.0016 ~ 0.0028	0.0016 ~ 0.0028
											0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0039	0.0020 ~ 0.0039	0.0020 ~ 0.0031	0.0020 ~ 0.0031
											0.750 - 1.000	19.0 - 26.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0020 ~ 0.0039	0.0020 ~ 0.0039
											1.062 - 1.250	26.5 - 32.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0020 ~ 0.0047	0.0020 ~ 0.0039
											1.312 - 1.500	33.0 - 39.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0020 ~ 0.0047	0.0020 ~ 0.0039
											1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0020 ~ 0.0039
											Alloy Steel	★ 330-525	☆ 330-525	☆ 330-525	-	★ 460-720
0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	—	—											
0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0039	0.0020 ~ 0.0039	—	—											
0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	—	—											
1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	—	—											
Tool Steel	☆ 260-490	★ 260-490	-	-	☆ 425-690	★ 425-690	-	-	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	—	—
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	—	—
											0.625 - 0.688	16.0 - 18.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	—	—
											0.750 - 1.500	19.0 - 39.0	0.0020 ~ 0.0039	0.0020 ~ 0.0039	—	—
											1.562 - 2.000	40.0 - 60.0	0.0020 ~ 0.0039	0.0020 ~ 0.0039	—	—
Stainless Steel (Austenitic)	-	-	-	★ 230-460	-	-	-	-	-	-	0.500	12.0 - 13.5	—	—	—	0.0016 ~ 0.0031
											0.562 - 0.578	14.0 - 15.5	—	—	—	0.0016 ~ 0.0031
											0.625 - 0.688	16.0 - 18.5	—	—	—	0.0016 ~ 0.0039
											0.750 - 2.000	19.0 - 60.0	—	—	—	0.0024 ~ 0.0047
Gray Cast Iron	☆ 330-490	★ 330-490	-	-	-	-	-	-	-	☆ 490-720	0.500 - 0.578	12.0 - 15.5	0.0016 ~ 0.0039	0.0016 ~ 0.0039	—	—
											0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0047	0.0024 ~ 0.0047	—	—
											0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0055	0.0024 ~ 0.0055	—	—
											1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0055	0.0024 ~ 0.0055	—	—
Nodular Cast Iron	☆ 260-390	★ 260-390	-	-	-	-	-	-	-	☆ 390-590	0.500	12.0 - 13.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	—	—
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	—	—
											0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	—	—
											0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	—	—
											1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	—	—

Internal Coolant is Recommended

★ : 1st Recommendation ☆ : 2nd Recommendation

Cutting Conditions by Application

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)					Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.	Not Available
Internal Coolant	Yes						Not Recommended

DRV 6D - Recommended Cutting Conditions (with Coolant)

Drilling Depth: 6D

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. DC (in)	Metric Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)				
	PVD Coated Carbide				CVD Coated Carbide								6D				
	PR1225				CA520D				CA415D								
	GM	GH	XM	SM	GM	GH	XM	SM	GM	GH			GM	GH	XM	SM	
Low Carbon Steel	-	-	★ 390-660	☆ 390-660	-	-	★ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	—	—	—	0.0012 ~ 0.0020	
											0.562 - 0.578	14.0 - 15.5	—	—	0.0016 ~ 0.0024	0.0016 ~ 0.0024	
											0.625 - 0.688	16.0 - 18.5	—	—	0.0016 ~ 0.0024	0.0016 ~ 0.0024	
											0.750 - 0.875	19.0 - 22.0	—	—	0.0016 ~ 0.0028	0.0016 ~ 0.0028	
											0.922 - 1.000	22.5 - 26.0	—	—	0.0016 ~ 0.0031	0.0016 ~ 0.0028	
											1.062 - 1.250	26.5 - 32.0	—	—	0.0016 ~ 0.0031	0.0016 ~ 0.0028	
											1.312 - 1.500	33.0 - 39.0	—	—	0.0016 ~ 0.0035	0.0016 ~ 0.0031	
											1.562 - 2.000	40.0 - 60.0	—	—	0.0024 ~ 0.0047	0.0016 ~ 0.0031	
Carbon Steel	★ 330-590	☆ 330-590	☆ 330-590	☆ 330-590	★ 490-920	☆ 490-920	☆ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	0.0012 ~ 0.0020	0.0012 ~ 0.0020	—	0.0012 ~ 0.0020	
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	0.0016 ~ 0.0024	0.0016 ~ 0.0024	
											0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0031	0.0020 ~ 0.0031	0.0020 ~ 0.0028	0.0020 ~ 0.0028	
											0.750 - 1.000	19.0 - 26.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0020 ~ 0.0031	0.0020 ~ 0.0031	
											1.062 - 1.250	26.5 - 32.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0020 ~ 0.0031	0.0020 ~ 0.0031	
											1.312 - 1.500	33.0 - 39.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0020 ~ 0.0031	0.0020 ~ 0.0031	
											1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0020 ~ 0.0031	
											Alloy Steel	★ 330-525	☆ 330-525	☆ 330-525	-	★ 460-720	☆ 460-720
0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	—	—												
0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0031	0.0020 ~ 0.0031	—	—												
0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	—	—												
1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	—	—												
Tool Steel	☆ 260-490	★ 260-490	-	-	☆ 425-690	★ 425-690	-	-	-	-	0.500	12.0 - 13.5	0.0012 ~ 0.0020	0.0012 ~ 0.0020	—	—	
											0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0020	0.0016 ~ 0.0020	—	—	
											0.625 - 0.688	16.0 - 18.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	—	—	
											0.750 - 1.500	19.0 - 39.0	0.0020 ~ 0.0031	0.0020 ~ 0.0031	—	—	
											1.562 - 2.000	40.0 - 60.0	0.0020 ~ 0.0031	0.0020 ~ 0.0031	—	—	
Stainless Steel (Austenitic)	-	-	-	★ 230-460	-	-	-	-	-	-	0.500	12.0 - 13.5	—	—	—	0.0012 ~ 0.0020	
											0.562 - 0.578	14.0 - 15.5	—	—	—	0.0016 ~ 0.0024	
											0.625 - 0.688	16.0 - 18.5	—	—	—	0.0016 ~ 0.0035	
											0.750 - 2.000	19.0 - 60.0	—	—	—	0.0024 ~ 0.0039	
Gray Cast Iron	☆ 330-490	★ 330-490	-	-	-	-	-	-	-	☆ 490-720	★ 490-720	0.500 - 0.578	12.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	—	—
												0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	—	—
												0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	—	—
												1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	—	—
Nodular Cast Iron	☆ 260-390	★ 260-390	-	-	-	-	-	-	-	☆ 390-590	★ 390-590	0.500	12.0 - 13.5	0.0012 ~ 0.0020	0.0012 ~ 0.0020	—	—
												0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	—	—
												0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0031	0.0024 ~ 0.0031	—	—
												0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	—	—
												1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	—	—

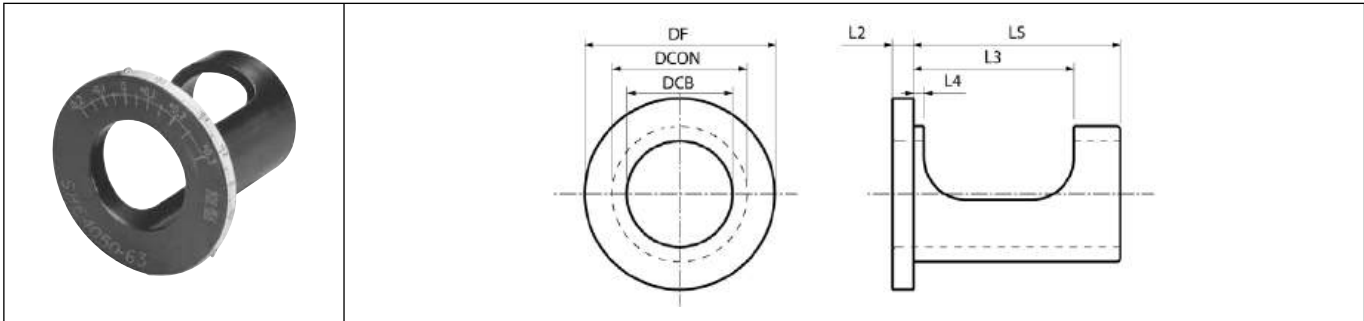
Internal Coolant is Recommended

★ : 1st Recommendation ☆ : 2nd Recommendation

Cutting Conditions by Application

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)					Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.	Not Available
Internal Coolant	Yes						Not Recommended

SHE

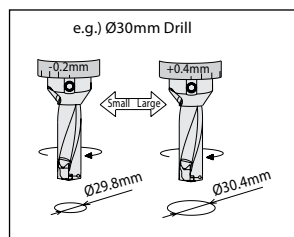


Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							* Drill Dia. Adjustable Range	Center Height Adjustable Range
			DCB	DCON	DF	L2	L3	L4	L5		
Inch	ASL 75100-175	●	0.750	1.000	1.614	0.157	1.417	0.118	1.750	+0.016 ~ -0.008	+0.008 ~ -0.006
	100125-212	●	1.000	1.250	1.929	0.236	1.496	0.098	2.125	+0.016 ~ -0.008	+0.008 ~ -0.006
	125150-238	●	1.250	1.500	2.283	0.236	1.693	0.098	2.375	+0.016 ~ -0.008	+0.008 ~ -0.006
mm	SHE 2025-43	●	20	25	41	6	36	3	43	+0.4 ~ -0.2	+0.2 ~ -0.15
	2532-48	●	25	32	49		38	2.5	48	+0.4 ~ -0.2	+0.2 ~ -0.15
	3240-53	●	32	40	58		43		53	+0.4 ~ -0.2	+0.2 ~ -0.15
	4050-63	●	40	50	74		49	3	63	+0.6 ~ -0.2	+0.3 ~ -0.2

Diameter Adjustment Range adjusts the drill diameter.

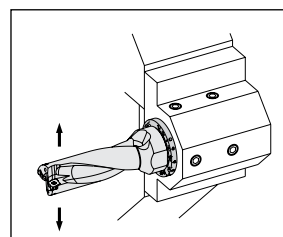
1. Diameter Adjustment (for Machining Center)



3 Diameter Adjustment

ASL (in)		SHE (mm)	
Shank Dia.	Adjustment Range	Shank Dia.	Adjustment Range
Ø0.750"	+0.016 ~ -0.008	Ø20	+0.4 ~ -0.2
Ø1.000"		Ø25	
Ø1.250"		Ø32	
-	-	Ø40	+0.6 ~ -0.2

2. Center Height Adjustment (for Lathe Operations)



3 Center Height Adjustment

ASL (in)		SHE (mm)	
Shank Dia.	Adjustment Range	Shank Dia.	Adjustment Range
Ø0.750"	+0.008 ~ -0.006	Ø20	+0.2 ~ -0.15
Ø1.000"		Ø25	
Ø1.250"		Ø32	
-	-	Ø40	+0.3 ~ -0.2

How to Use the Adjustable Sleeve

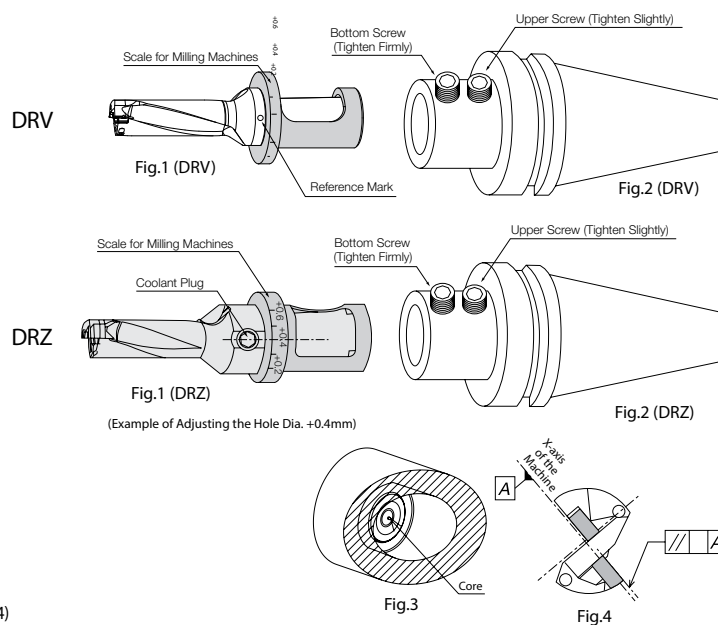
1. Hole Diameter Adjustment when Drilling

- (1) Adjust the scale at the flange periphery of the sleeve to the center of the drill coolant plug. (Fig.1)
- (2) When making the hole diameter larger, rotate the sleeve in (+) direction and to make it smaller, rotate the sleeve in (-) direction.
- (3) When rotating the sleeve, insert the wrench supplied with the drill into the hole on the flange periphery to rotate the sleeve.
- (4) Using the bottom screw of the side-lock arbor, firmly tighten on the drill directly through the sleeve's window.

The upper screw should be tightened slightly so that the sleeve will not be damaged.

Caution:

- Not applicable with Collet Chuck type Arbor.
- Scale on the sleeve is the reference value.
- Check the actual hole diameter after adjusting.



2. Center-Height Adjustment for Lathes

Most Lathe problems occur due to Center Height Deviation.

The Center Height is appropriate if a core approximately 0.5mm diameter remains at the center of the end face. (Fig.3)

Center-height adjustment is necessary if:

- ◆ No core remains or ◆ Core diameter is more than 1mm

- (1) Align the drill with the outer insert face parallel to the X-axis of the tool turret. (Fig.4)
- (2) Align the scale (for the lathe) on the flange face of the sleeve to the center of the drill coolant plug.
- (3) When no core remains, rotate the sleeve to (+) direction to make the core larger, and when the core diameter is more than 1mm, rotate the sleeve to (-) direction to make the core smaller.
- (4) When rotating the sleeve, insert the wrench supplied with the drill into the hole on the flange periphery to rotate the sleeve.
- (5) After Completing the adjustment, firmly tighten on the drill directly through the sleeve's window.

Note: Depending on amount of the center height adjustment, the hole diameter may change. It is recommended that the hole diameter is checked after the center height adjustment.

Magic Drill Setup for Lathes

Installation

1. The top face of the outer insert should be parallel to the X-axis to allow for offset cutting.
(Cutting diameter can be changed by moving in the X-axis.)
2. It is recommended to set the outer insert as shown in Fig.1 with the outer insert facing the operator. (Fig.1)
(It is also possible to use it by setting it in 180° reverse position)
If the lathe has two turrets, when installing the drill into the lower turret, the outer insert should be set to face the operator.
(It is also possible to use it by setting at 180° reverse position)

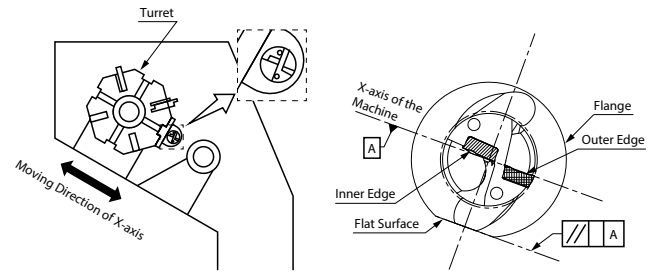


Fig.1 Installed into the Lathe

Cutting Diameter Adjustment

1 Cutting Diameter Adjustment

1. Cutting diameter is adjusted by moving X-axis.
The moving direction of the X-axis depends on the position of the toolholder.
2. For making the hole diameter larger, slide the tool along the X-axis toward the outer insert side. (Fig.2, Fig.3)
For making the hole diameter smaller, slide the tool along the X-axis in the opposite direction.
(This movement of the axis is called an "Offset")
Be sure not to make the hole diameter smaller than the drill diameter by more than 0.2mm (0.008"). Otherwise, the toolholder will interfere with the drilled hole. (Fig.4)
Ex.) When using Ø20mm drill, the hole diameter must not be smaller than 19.8mm (0.780")

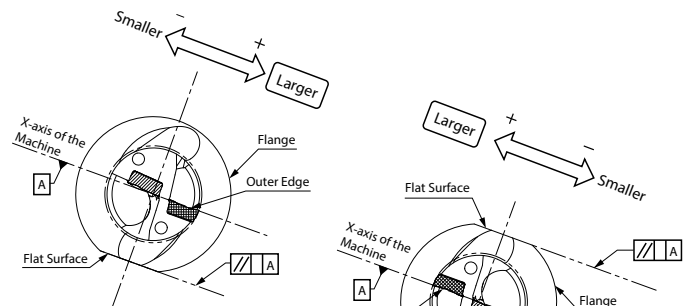


Fig.2 Outer Insert Facing Up

Fig.3 Outer Insert Facing Down

2 Offset Limit of the Cutting Diameter

For the maximum limit of the cutting diameter, refer to "Max. Offset (Radial)" in the Toolholder Dimensions table.
(The figure in the Toolholder Dimensions table shows how much it is possible to offset the drill in the radial direction.)
Ex.) When using Ø20mm (Ø0.787") drill, for example, it is possible to make a hole up to Ø21.1mm (0.831") since "Max. Offset (Radial)" is +0.55mm (+0.022").

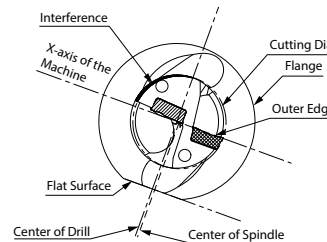


Fig.4 Excessive Offset (For Smaller Hole Diameter)

Center Height Adjustment

1 Center Height of the Inner Insert

When installing inner insert as shown in Fig.1, it will be set around 0.05mm (0.002") below the Center of Spindle. (Fig.5)
This is the normal position of the center height.
However, in case that the turret of the lathe is out of alignment with the Center of Spindle, sometimes the inner insert may be above or below center.
For stable machining, it is essential to check the Center Height of the inner insert carefully

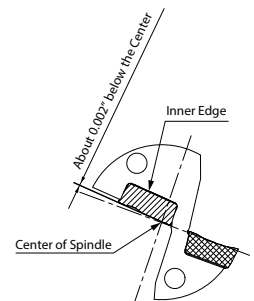


Fig.5 Front View of the Drill

2 How to Check the Center Height

For checking the center height of the inner insert, see the core which remains at the center of the bottom of the drilled hole.
If the center height is in the normal position, a core of about 0.5mm (0.020") in diameter, will remain after machining. (Fig.6)
Adjustment of center height is required if no core is present or a large core diameter of 1mm (0.039") or more remains.
* The drilled hole for verification purposes needs to be machined at approximately 10mm (0.375") in depth feed rate of 0.004 ipr or lower.

and at a

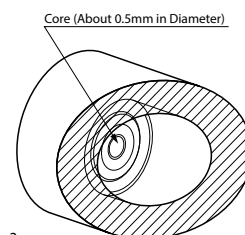


Fig.6 Center Core

3 Center Height Adjustment

1. When there is no remaining core and the inner insert is chipping

This occurs when the inner insert is set above center. (Fig.7)

How to Adjust
A. Install the drill rotated by 180° Most problems will be solved by this method (Fig.8) B. If the core diameter becomes too large after the above adjustment, install the drill by rotating 90° counter-clockwise as shown in Fig.9 (outer edge is positioned lower) and adjust the center height by moving the tool in the X-axis direction. (However, this will make it impossible to adjust the cutting diameter) Caution: When installing the drill in the opposite direction (outer insert is positioned above), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole. The best solution is to readjust the center position of the turret itself.

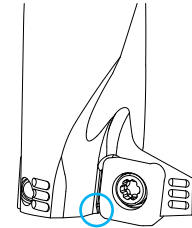


Fig.7 Insert breakage near the center of the drill

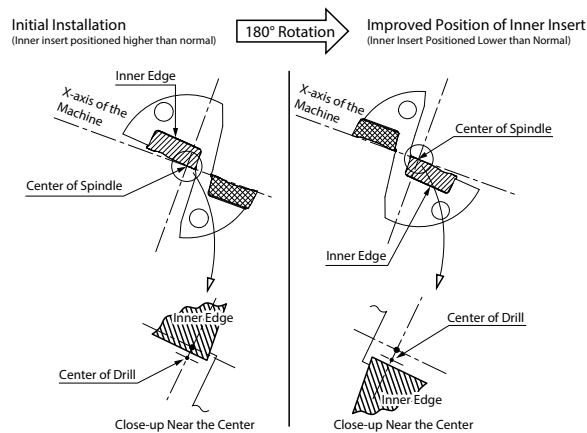


Fig.8

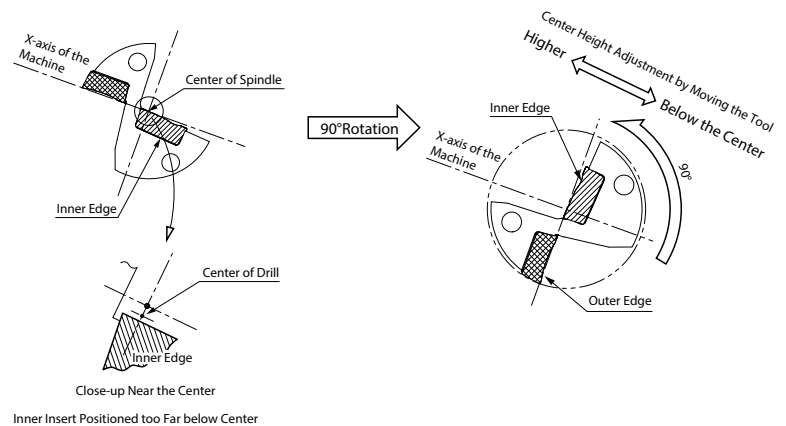


Fig.9

2. Core with Excessively Large Diameter More than 1mm (0.039")

This occurs when the inner insert is below center

This condition causes poor chip evacuation and an adjustment is required.

How to Adjust
Install the drill rotated 90° as shown in Fig.10. (outer insert is positioned on the upper side) and adjust the center height by moving tool in the X-axis direction. (However, this will make it impossible to adjust the cutting diameter) Caution: When installing the drill in the opposite direction (outer insert is positioned lower), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole. The best solution is to readjust the center position of the turret itself.

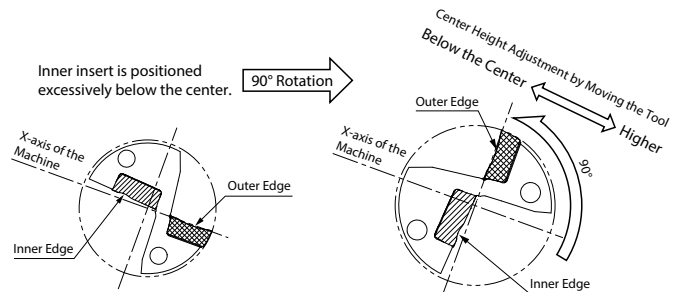
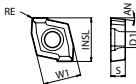
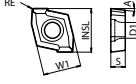
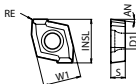


Fig.10

ZCMT

		Carbon Steel / Alloy Steel							○	●	P		
		Mold and Die Steel								●			
		Stainless Steel								● ○		M	
		Cast Iron							●			K	
		Non-Ferrous Metals										●	N
Insert		Part Number	Dimensions (mm)					Angle (°)	Carbide			Applicable Toolholder  K80~K92	
			S	D1	RE	INSL	W1		AN	PVD			-
										PR1210	PR1225		
  General Purpose	ZCMT 050203	2.38	2.3	0.3	5.9	5	7	●	●	●	S..-DRZ....-05		
	ZCMT 06T204	2.8	2.5	0.4	7	6	7	●	●	●	S..-DRZ....-06		
	ZCMT 080304	3.18	2.9	0.4	9.7	8.2	7	●	●	●	S..-DRZ....-08		
	ZCMT 10T304	3.97	4.4	0.4	12	10.4	7	●	●	●	S..-DRZ....-10		
	ZCMT 12T306	3.97	5.6	0.6	14.3	12.8	7	●	●	●	S..-DRZ....-12		
	ZCMT 150408	4.76	5.6	0.8	17.8	15.8	7	●	●	●	S..-DRZ....-15		
	ZCMT 200608	6.35	6.5	0.8	22.8	20.3	7		●	●	S..-DRZ....-20		
  Deep Drilling / Low Cutting Force	ZCMT 050203SP	2.38	2.3	0.3	5.9	5	7		●	●	S..-DRZ....-05		
	ZCMT 06T204SP	2.8	2.5	0.4	7	6	7		●	●	S..-DRZ....-06		
	ZCMT 080304SP	3.18	2.9	0.4	9.7	8.2	7		●	●	S..-DRZ....-08		
	ZCMT 10T304SP	3.97	4.4	0.4	12	10.4	7		●	●	S..-DRZ....-10		
	ZCMT 12T304SP	3.97	5.6	0.4	14.3	12.8	7		●	●	S..-DRZ....-12		
	ZCMT 150406SP	4.76	5.6	0.6	17.8	15.8	7		●	●	S..-DRZ....-15		
  Stainless Steel	ZCMT 050203SU	2.38	2.3	0.3	5.9	5	7		●	●	S..-DRZ....-05		
	ZCMT 06T204SU	2.8	2.5	0.4	7	6	7		●	●	S..-DRZ....-06		

Features of SP Chipbreaker

Recommended Cutting Conditions ➡ K94

1. Less cutting force with large rake angle
2. Suitable for chip control of sticky materials such as stainless steel or soft steel.
3. Larger size inserts have smaller corner-R(RE) than standard chipbreaker type and can reduce burrs.

DRA

DRV

DRZ

HOLESLOT

COREMASTER
COREDRILL

COUNTERBORE

COUNTERSINK

 Inserts are
sold in 10 piece boxes

Chipbreaker Selection Guide (ZCMT)

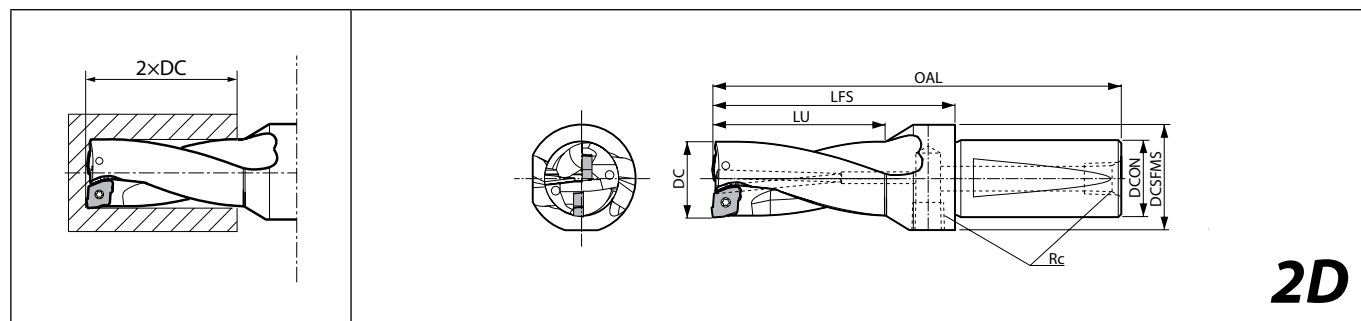
★ : 1st Recommendation ☆ : 2nd Recommendation

Workpiece Material	Insert Size	ZCMT05									ZCMT06									ZCMT08					
	Chipbreaker	Standard			SP			SU			Standard			SP			SU			Standard			SP		
	Cutting Depth	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D
Low Carbon Steel		☆	☆	-	★	★	★	-	-	-	☆	☆	-	★	★	★	☆	☆	☆	☆	☆	-	★	★	★
Carbon Steel		★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★
Alloy Steel		★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★
Tool Steel		★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★
Stainless Steel		☆	☆	-	★	★	★	☆	☆	-	-	-	☆	☆	☆	★	★	★	☆	☆	-	★	★	★	
Cast Iron		★	★	★	☆	☆	☆	-	-	-	★	★	★	☆	☆	☆	-	-	-	★	★	★	☆	☆	☆
Aluminum Alloy		☆	☆	☆	★	★	★	-	-	-	☆	☆	☆	★	★	★	-	-	-	☆	☆	☆	★	★	★
Brass		★	★	★	☆	☆	☆	-	-	-	★	★	★	☆	☆	☆	-	-	-	★	★	★	☆	☆	☆
Titanium Alloy		☆	☆	☆	★	★	★	-	-	-	☆	☆	☆	★	★	★	-	-	-	☆	☆	☆	★	★	★

Workpiece Material	Insert Size	ZCMT10								ZCMT12								ZCMT15								ZCMT20					
	Chipbreaker	Standard				SP				Standard				SP				Standard				SP				Standard					
	Cutting Depth	2D	3D	4D	5D	2D	3D	4D	5D	2D	3D	4D	5D	2D	3D	4D	5D	2D	3D	4D	5D	2D	3D	4D	5D	2D	3D	4D	5D		
Low Carbon Steel		☆	☆	-	-	★	★	★	★	☆	☆	-	-	★	★	★	★	☆	☆	-	-	★	★	★	★	★	★	★	★	★	★
Carbon Steel		★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	★	★	
Alloy Steel		★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	★	★	
Tool Steel		★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	★	★	
Stainless Steel		☆	☆	-	-	★	★	★	★	☆	☆	-	-	★	★	★	★	☆	☆	-	-	★	★	★	★	★	★	★	★	★	
Cast Iron		★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	
Aluminum Alloy		☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	★	★	★	★	
Brass		★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	
Titanium Alloy		☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	★	★	★	★	

Standard chipbreakers (without symbol) may function better with interrupted cutting.

When machining aluminum, chips become long and difficult to discharge at depths over 2D.

DRZ (Drilling Depth : 2 x DC)

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K78
				DC	DCON	OAL	LFS	LU	DCSFMS	Rc	Plug			Screw	Wrench	Wrench		
Inch	S75- DRZ5621125-05G	●	2	0.562	0.75	3.87	2.18	1.125	1.06	1/8 NPT	Yes	+0.020					ZCMT050203 ZCMT050203SP ZCMT050203SU	
	S100- DRZ6251250-06G	●	2	0.625	1.00	4.52	2.39	1.250	1.26	1/8 NPT	Yes	+0.043	GP-1N	SB-2045TR	-	FT-6	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU	
	DRZ6561312-06G	●		0.656		4.52	2.39	1.312				+0.034						
	DRZ6881375-06G	●		0.688		4.56	2.43	1.375				+0.027						
	DRZ7501500-06G	●		0.750		4.73	2.61	1.500				+0.020						
	DRZ8121625-06G	●		0.812		4.93	2.81	1.625				+0.014						
	S100- DRZ8751750-08G	●	2	0.875	1.00	5.02	2.90	1.750	1.30	1/8 NPT	Yes	+0.055	GP-1N	SB-2570TR	DT-8	-	ZCMT080304 ZCMT080304SP	
	DRZ9381875-08G	●		0.938		5.17	3.05	1.875	1.30			+0.043						
	DRZ10002000-08G	●		1.000		5.24	3.11	2.000	1.38			+0.028						
	S100- DRZ10622125-10G	●	2	1.062	1.25	5.67	3.54	2.125	1.65	1/4 NPT	Yes	+0.098	GP-2N	SB-4085TR	DT-15	-	ZCMT10T304 ZCMT10T304SP	
	DRZ11252250-10G	●		1.125		5.74	3.62	2.250	1.65			+0.073						
	DRZ11882375-10G	●		1.188		5.86	3.74	2.375	1.77			+0.067						
	DRZ12502500-10G	●		1.250		5.92	3.79	2.500	1.77			+0.047						
	S125- DRZ13122625-12G	●	2	1.312	1.25	6.82	4.10	2.625	2.17	1/4 NPT	Yes	+0.110	GP-2N	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306	
	DRZ13752750-12G	●		1.375		6.98	4.27	2.750				+0.094						
	DRZ14382875-12G	●		1.438		7.07	4.35	2.875				+0.078						
	DRZ15003000-12G	●		1.500		7.19	4.47	3.000				+0.067						
	DRZ15623125-12G	●		1.562		7.29	4.57	3.125				+0.047						
	S125- DRZ16253250-15G	●	2	1.625	1.25	7.34	4.62	3.250	2.36	1/4 NPT	Yes	+0.150	GP-2N	SB-5085TR	DT-20	-	ZCMT150406SP ZCMT150408	
	DRZ16883375-15G	●		1.688		7.49	4.78	3.375				+0.138						
	DRZ17503500-15G	●		1.750		7.57	4.85	3.500				+0.122						
	DRZ18123625-15G	●		1.812		7.78	5.06	3.625				+0.106						
	DRZ18753750-15G	●		1.875		7.97	5.26	3.750				+0.087						
	DRZ19383875-15G	●		1.938		8.05	5.34	3.875				+0.070						
	DRZ20004000-15G	●		2.000		8.05	5.34	4.000				+0.055						

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions K94
Troubleshooting K67

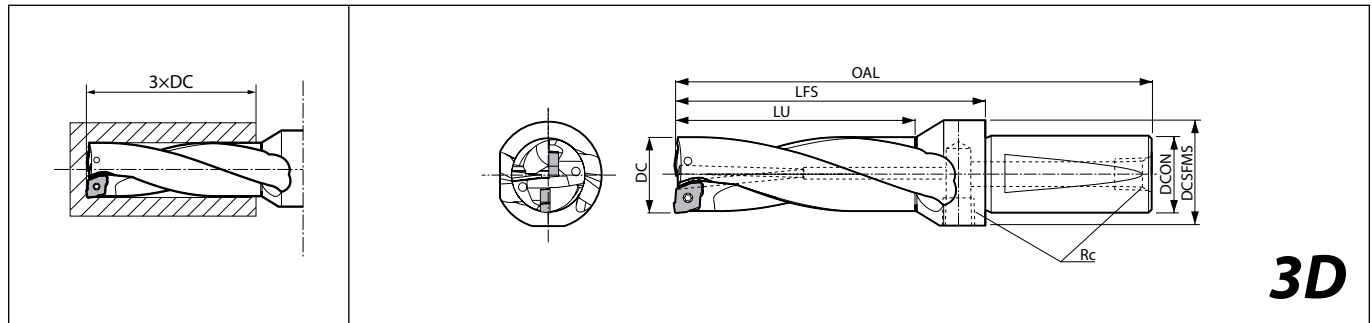
Hole Dia. Tolerance (2D type)

DC	Hole Dia. Tolerance (in)
ø0.562"~ø1.000"	+0.008 -0.004
ø1.062"~ø1.562"	+0.010 -0.006
ø1.625"~ø2.000"	+0.012 -0.008

* Above is numeric guideline.

It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRZ (Drilling Depth : 3 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➔ K78
				DC	DCON	OAL	LFS	LU	DCSfMS	Rc			Plug	Screw	Wrench	Wrench	
Inch	S75- DRZ5621687-05G	●	2	0.562	0.75	4.42	2.72	1.687	1.06	1/8 NPT	Yes	+0.020			-	FT-6	ZCMT050203 ZCMT050203SP ZCMT050203SU
	S100- DRZ6251875-06G	●	2	0.625	1.00	5.15	3.02	1.875	1.26	1/8 NPT	Yes	+0.043	GP-1N	SB-2260TR	DTM-7	-	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU
	DRZ6561969-06G	●		0.656		5.15	3.02	1.969				+0.034					
	DRZ6882062-06G	●		0.688		5.23	3.10	2.062				+0.027					
	DRZ7502250-06G	●		0.750		5.48	3.35	2.250				+0.020					
	DRZ8122438-06G	●		0.812		5.76	3.64	2.438				+0.014					
	S100- DRZ8752625-08G	●	2	0.875	1.00	5.77	3.65	2.625	1.30	1/8 NPT	Yes	+0.055	GP-1N	SB-2570TR	DT-8	-	ZCMT080304 ZCMT080304SP
	DRZ9382814-08G	●		0.938		5.89	3.76	2.814	1.30			+0.043					
	DRZ10003000-08G	●		1.000		6.11	3.98	3.000	1.38			+0.028					
	S100- DRZ10623187-10G	●	2	1.062	1.25	6.81	4.49	3.187	1.65	1/4 NPT	Yes	+0.098	GP-2N	SB-4085TR	DT-15	-	ZCMT10T304 ZCMT10T304SP
	DRZ11253375-10G	●		1.125		6.92	4.60	3.375	1.65			+0.073					
	DRZ11883562-10G	●		1.188		7.12	4.80	3.562	1.77			+0.067					
	DRZ12503750-10G	●		1.250		7.22	4.89	3.750	1.77			+0.047					
	S125- DRZ13123938-12G	●	2	1.312	1.25	8.00	5.28	3.938	2.17	1/4 NPT	Yes	+0.110	GP-2N	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306
	DRZ13754125-12G	●		1.375		8.24	5.53	4.125				+0.094					
	DRZ14384312-12G	●		1.438		8.37	5.65	4.312				+0.078					
	DRZ15004500-12G	●		1.500		8.57	5.85	4.500				+0.067					
	DRZ15624688-12G	●		1.562		8.69	5.97	4.688				+0.047					
	S125- DRZ16254875-15G	●	2	1.625	1.25	8.83	6.11	4.875	2.36	1/4 NPT	Yes	+0.150	GP-2N	SB-5085TR	DT-20	-	ZCMT150406SP ZCMT150408
	DRZ16885062-15G	●		1.688		8.93	6.21	5.062				+0.138					
	DRZ17505250-15G	●		1.750		9.18	6.47	5.250				+0.122					
	DRZ18125438-15G	●		1.812		9.47	6.75	5.438				+0.106					
	DRZ18755625-15G	●		1.875		9.65	6.93	5.625				+0.087					
	DRZ19385812-15G	●		1.938		9.86	7.15	5.812				+0.070					
	DRZ20006000-15G	●		2.000		9.88	7.17	6.000				+0.055					

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ K94
Troubleshooting ➡ K67

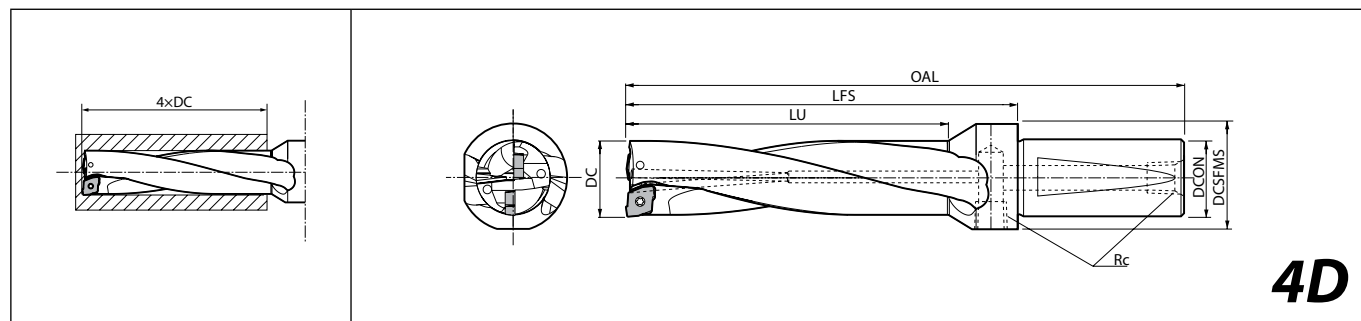
Hole Dia. Tolerance (3D type)

DC	Hole Dia. Tolerance (in)
ø0.562"~ø1.000"	+0.008 -0.004
ø1.062"~ø1.562"	+0.010 -0.006
ø1.625"~ø2.000"	+0.012 -0.008

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRZ (Drilling Depth : 4 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K78												
				DC	DCON	OAL	LFS	LU	DCSfMS	Rc	Plug			Screw	Wrench	Wrench														
Inch	S75- DRZ5622250-05G	●	2	0.562	0.75	5.77	3.27	2.25	1.06	1/8 NPT	Yes	+0.020					ZCMT050203 ZCMT050203SP ZCMT050203SU													
	S100- DRZ6252500-06G DRZ6882750-06G DRZ7503000-06G DRZ8123250-06G	● ● ● ●	2	0.625 0.688 0.750 0.812	1.00	6.65 6.74 7.07 7.39	3.65 3.74 4.07 4.39	2.50 2.75 3.00 3.25	1.26	1/8 NPT	Yes	+0.043 +0.027 +0.020 +0.014	GP-1N	SB-2260TR	DTM-7	-	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU													
	S100- DRZ8753500-08G DRZ9383750-08G DRZ10004000-08G	● ● ●	2	0.875 0.938 1.000		7.56 7.77 8.06	4.56 4.77 5.06	3.50 3.75 4.00				1.30 1.38 1.38					1/8 NPT	+0.055 +0.043 +0.028	GP-1N	SB-2570TR	DT-8	-	ZCMT080304 ZCMT080304SP							
	S125- DRZ10624250-10G DRZ11254500-10G DRZ11884750-10G DRZ12505000-10G	● ● ● ●	2	1.062 1.125 1.188 1.250		1.25	8.55 8.84 8.98 9.30	5.55 5.84 5.98 6.30				4.25 4.50 4.75 5.00						1.65 1.65 1.77 1.77					1/4 NPT	+0.098 +0.073 +0.067 +0.047	GP-2N	SB-4085TR	DT-15	-	ZCMT10T304 ZCMT10T304SP	
	S125- DRZ13125250-12G DRZ13755500-12G DRZ14385750-12G DRZ15006000-12G DRZ15626250-12G	● ● ● ● ●	2	1.312 1.375 1.438 1.500 1.562			9.58 9.91 10.07 10.35 10.50	6.58 6.91 7.07 7.35 7.50				5.25 5.50 5.75 6.00 6.25						2.17						1/4 NPT					Yes	+0.110 +0.094 +0.078 +0.067 +0.047	GP-2N	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306
	S125- DRZ16256500-15G	●	2	1.625	1.25		10.73	7.73	6.50	2.17	1/4 NPT	Yes	+0.150	GP-2N	SB-5085TR	DT-20	-		ZCMT150406SP ZCMT150408											
	S150- DRZ16886750-15G DRZ17507000-15G DRZ18127250-15G DRZ18757500-15G DRZ19387750-15G DRZ20008000-15G	● ● ● ● ● ●	2	1.688 1.750 1.812 1.875 1.938 2.000	1.50		11.37 11.70 12.06 12.28 12.58 12.63	7.87 8.20 8.56 8.78 9.08 9.13	6.75 7.00 7.25 7.50 7.75 8.00	2.17 2.17 2.36 2.36 2.36 2.36	1/4 NPT	Yes	+0.138 +0.122 +0.106 +0.087 +0.070 +0.055	GP-2N	SB-5085TR	DT-20	-													

When offset drilling, reduce feed rate to 0.0024 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

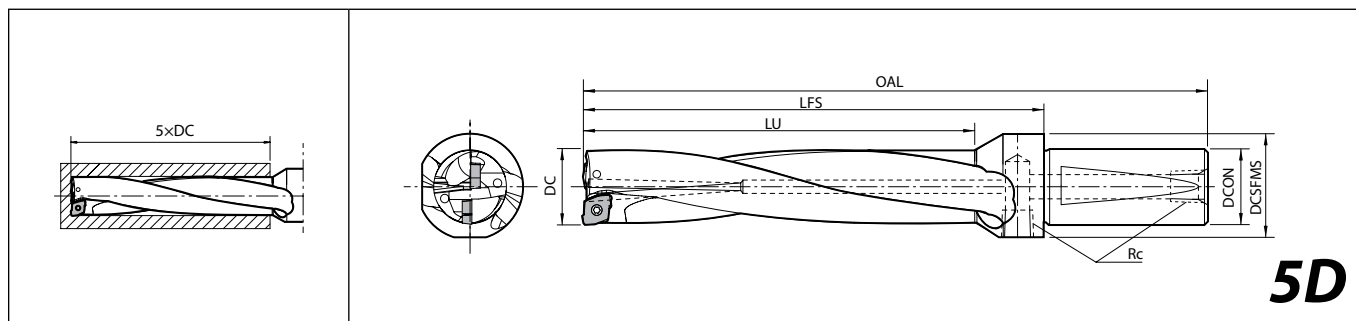
Recommended Cutting Conditions K94
Troubleshooting K67

Hole Dia. Tolerance (2D type)

DC	Hole Dia. Tolerance (in)
ø0.562"~ø1.000"	+0.008 -0.004
ø1.062"~ø1.562"	+0.010 -0.006
ø1.625"~ø2.000"	+0.012 -0.008

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRZ (Drilling Depth : 5 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K78
				DC	DCON	OAL	LFS	LU	DCSFMS	Rc	Plug			Screw	Wrench	Wrench		
Inch	S125- DRZ10625310-10G DRZ11255625-10G DRZ11885940-10G DRZ12506250-10G	●	2	1.062	1.25	9.61	6.61	5.31	1.65	1/4 NPT	Yes	+0.098	GP-2N	SB-4085TR	DT-15	-	ZCMT10T304 ZCMT10T304SP	
		●		1.125		9.97	6.97	5.63				+0.073						
		●		1.188		10.17	7.17	5.94				+0.067						
		●		1.250		10.55	7.55	6.25				+0.047						
	S125- DRZ13126560-12G DRZ13756875-12G DRZ14387190-12G DRZ15007500-12G DRZ15627810-12G	●	2	1.312	1.25	10.89	7.89	6.56	2.17	1/4 NPT	Yes	+0.110	GP-2N	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306	
		●		1.375		11.28	8.28	6.88				+0.094						
		●		1.438		11.51	8.51	7.19				+0.078						
		●		1.500		11.85	8.85	7.50				+0.067						
		●		1.562		12.07	9.07	7.81				+0.047						
	S125- DRZ16258125-15G	●	2	1.625	1.25	12.35	9.35	8.13	2.17	1/4 NPT	Yes	+0.150	GP-2N	SB-5085TR	DT-20	-	ZCMT150406SP ZCMT150408	
	S150- DRZ16888440-15G DRZ17508750-15G DRZ18129060-15G DRZ18759375-15G DRZ19389690-15G DRZ200010000-15G	●	2	1.688	1.50	13.05	9.55	8.44	2.17	1/4 NPT		+0.138						
		●		1.750		13.45	9.95	8.75				+0.122						
		●		1.812		13.87	10.37	9.06				+0.106						
		●		1.875		14.15	10.65	9.38				+0.087						
		●		1.938		14.51	11.01	9.69				+0.070						
		●		2.000		14.63	11.13	10.00				+0.055						

When offset drilling, reduce feed rate to 0.0020 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ K94
Troubleshooting ➡ K67

Hole Dia. Tolerance (3D type)

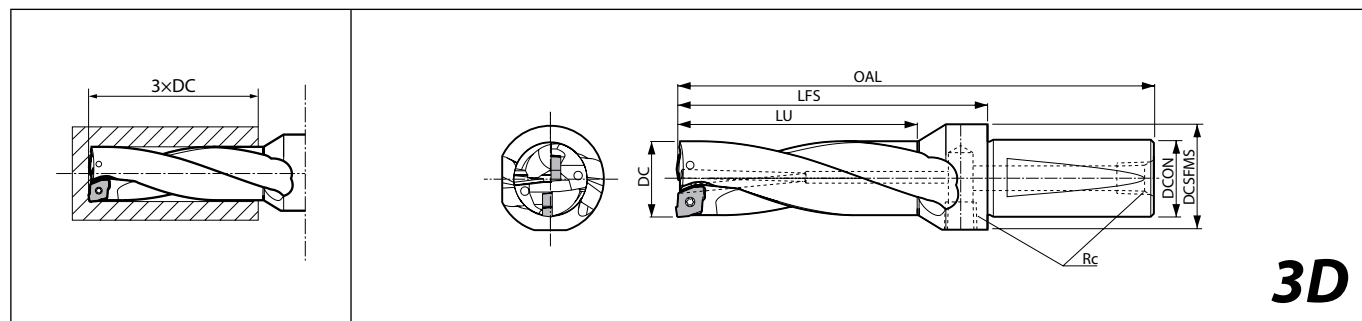
DC	Hole Dia. Tolerance (in)
ø1.062" ~ ø1.562"	+0.014 -0.006
ø1.625" ~ ø2.000"	+0.016 -0.008

* Above is numeric guideline.

It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRZ (Drilling Depth : 3 x DC)

Metric Dia. / Inch Shank



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions (in)								Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K78	
				DC		DCON	OAL	LFS	LU	DCSFMS	Rc			Plug	Screw	Wrench	Wrench		
				mm	in														
Metric Dia. / Inch Shank	S75	-DRZ1339-05G	●	2	13.0	0.512	0.75	4.27	2.58	1.54	1.06	1/8NPT	Yes	+0.020	GP-1N	SB-2045TR	FT-6	-	ZCMT050203 ZCMT050203SP ZCMT050203SU
	-DRZ135405-05G	●	13.5		0.531	4.27		2.58	1.59	+0.020									
	-DRZ1442-05G	●	14.0		0.551	4.42		2.72	1.65	+0.020									
	-DRZ145435-05G	●	14.5		0.571	4.42		2.72	1.71	+0.020									
	-DRZ1545-05G	●	15.0		0.591	4.52		2.83	1.77	+0.020									
	-DRZ155465-05G	●	15.5		0.610	4.52		2.83	1.83	+0.020									
	S100	-DRZ1648-06G	●	2	16.0	0.630	1.00	5.15	3.02	1.89	1.26	1/8NPT	Yes	+0.043	GP-1N	SB-2260TR	-	DTM-7	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU
	-DRZ165495-06G	●	16.5		0.650	5.15		3.02	1.95	+0.035									
	-DRZ1751-06G	●	17.0		0.669	5.23		3.10	2.01	+0.031									
	-DRZ1854-06G	●	18.0		0.709	5.36		3.23	2.13	+0.024									
	-DRZ185555-06G	●	18.5		0.728	5.36		3.23	2.19	+0.024									
	-DRZ1957-06G	●	19.0		0.748	5.48		3.35	2.24	+0.020									
	-DRZ195585-06G	●	19.5		0.768	5.48		3.35	2.30	+0.020									
	-DRZ2060-06G	●	20.0		0.787	5.61		3.49	2.36	+0.020									
	-DRZ2163-06G	●	21.0		0.827	5.76		3.64	2.48	+0.008									
	S100	-DRZ215645-08G	●	2	21.5	0.846	1.30	5.77	3.65	2.54	1.38	1/8NPT	Yes	+0.071	GP-1N	SB-2570TR	-	DT-8	ZCMT080304 ZCMT080304SP
	-DRZ2266-08G	●	22.0		0.866	5.77		3.65	2.60	+0.063									
	-DRZ225675-08G	●	22.5		0.886	5.77		3.65	2.66	+0.055									
	-DRZ2369-08G	●	23.0		0.906	5.89		3.76	2.72	+0.051									
	-DRZ2472-08G	●	24.0		0.945	6.00		3.87	2.84	+0.043									
	-DRZ2575-08G	●	25.0		0.984	6.11		3.98	2.95	+0.031									
	-DRZ2678-08G	●	26.0		1.024	6.23		4.10	3.07	+0.024									

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions K94
Troubleshooting K67

Toolholder Dimensions

Metric Dia. / Inch Shank

Unit	Part Number	Std. Item	No. of Inserts	Dimensions (in)								Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K78
				DC		DCON	OAL	LFS	LU	DCSFMS	Rc			Plug	Screw	Wrench	Wrench	
				mm	in													
Metric Dia. / Inch Shank	S100 -DRZ2781-10G -DRZ2884-10G -DRZ2987-10G -DRZ3090-10G -DRZ3193-10G -DRZ3296-10G	●	2	27.0	1.063	1.00	6.81	4.49	3.19	1.65	1/4 NPT	Yes	+0.098			-	DT-15	ZCMT10T304 ZCMT10T304SP
		●		28.0	1.102		6.92	4.60	3.31				+0.087					
		●		29.0	1.142		7.04	4.72	3.43				+0.079					
		●		30.0	1.181		7.12	4.80	3.54				+0.067					
		●		31.0	1.220		7.22	4.89	3.66	1.77			+0.059					
		●		32.0	1.260		7.36	5.04	3.78				+0.047					
	S125 -DRZ3399-12G -DRZ34102-12G -DRZ36108-12G -DRZ37111-12G -DRZ38114-12G -DRZ39117-12G -DRZ40120-12G	●	2	33.0	1.299	1.25	8.00	5.28	3.90	2.17	1/4 NPT	Yes	+0.114			-	DT-20	ZCMT12T304SP ZCMT12T306
		●		34.0	1.338		8.15	5.44	4.02				+0.106					
		●		36.0	1.418		8.37	5.65	4.25				+0.087					
		●		37.0	1.457		8.46	5.74	4.37				+0.075					
		●		38.0	1.496		8.57	5.85	4.49				+0.067					
		●		39.0	1.535		8.69	5.97	4.61				+0.055					
	S125 -DRZ41123-15G -DRZ42126-15G -DRZ43129-15G -DRZ44132-15G -DRZ46138-15G -DRZ48144-15G	●	2	41.0	1.614	1.25	8.83	6.11	4.84	2.17	1/4 NPT	Yes	+0.157			-	DT-20	ZCMT150406SP ZCMT150408
		●		42.0	1.654		8.93	6.21	4.96				+0.146					
		●		43.0	1.693		9.07	6.35	5.08				+0.138					
		●		44.0	1.732		9.18	6.47	5.20				+0.126					
		●		46.0	1.811		9.47	6.75	5.43	2.36			+0.106					
		●		48.0	1.890		9.74	7.03	5.67				+0.087					

When offset drilling, reduce feed rate to 0.0031 ipr or less.

See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ K94

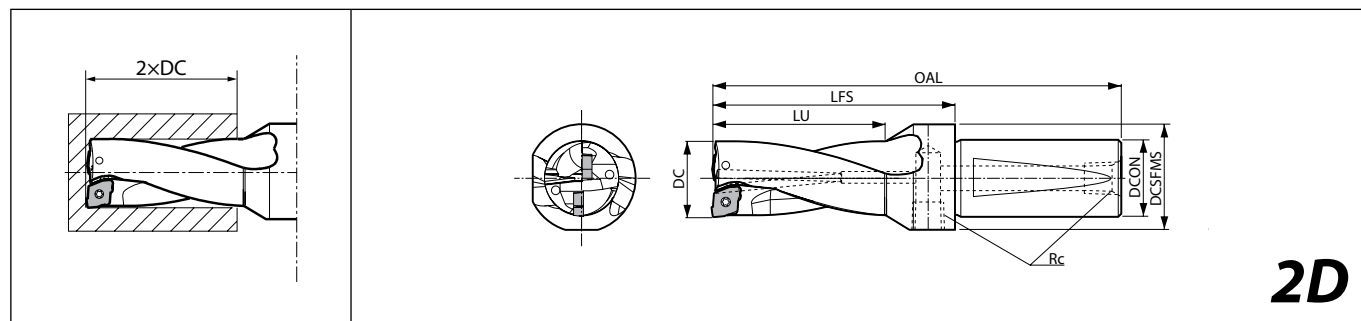
Troubleshooting ➡ K67

Hole Dia. Tolerance (3D type)

DC	Hole Dia. Tolerance (mm)
ø13~ø26.5mm	+0.20 -0.10
ø27~ø40mm	+0.25 -0.15
ø41~ø59mm	+0.30 -0.20

* Above is numeric guideline.

It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRZ (Drilling Depth : 2 x DC)

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts  K78	
				DC	OAL	LFS	LFS	LU	DCSFMS	Rc			Plug 	Screw 	Wrench 	Wrench 		
mm	S20-	DRZ1326-05	●	2	13	20	95	52	26	27	Rc1/8	Yes	+0.5	GP-1	SB-2045TR	-	FT-6	ZCMT050203 ZCMT050203SP ZCMT050203SU
	DRZ135270-05	●	13.5		28			27										
	DRZ1428-05	●	14				98	55	29									
	DRZ145290-05	●	14.5		100			57	30									
	DRZ1530-05	●	15				31											
	DRZ155310-05	●	15.5															
	S25-	DRZ1632-06	●	2	16	25	115	61	32	32	Rc1/8	Yes	+1.1	GP-1	SB-2260TR	DTM-7	-	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU
	DRZ165330-06	●	16.5		116			62	33				+0.9					
	DRZ1734-06	●	17				118	64	34				+0.8					
	DRZ175350-06	●	17.5		120			66	35				+0.7					
	DRZ1836-06	●	18				123	69	36				+0.6					
	DRZ185370-06	●	18.5		125			71	37				+0.5					
	DRZ1938-06	●	19				120	66	38									
	DRZ195390-06	●	19.5		123			69	39										+0.3
	DRZ2040-06	●	20				125	71	40									
	DRZ205410-06	●	20.5		125			71	41				+0.2					
	DRZ2142-06	●	21				125	71	42									
	S25-	DRZ215430-08	●	2	21.5	25		128	74	43	33	Rc1/8	Yes	+1.8	GP-1	SB-2570TR	DT-8	-	ZCMT080304 ZCMT080304SP
	DRZ2244-08	●	22		130		76		44	+1.6								
	DRZ225450-08	●	22.5				131		77	45				+1.4				
	DRZ2346-08	●	23		133			79	46	+1.3								
	DRZ235470-08	●	23.5				135	81	47	+1.2								
	DRZ2448-08	●	24		135			81	48	+1.1								
	DRZ245490-08	●	24.5				135	81	49	+0.9								
	DRZ2550-08	●	25		135			81	50	+0.8								
	DRZ255510-08	●	25.5				135	81	51	+0.7								
	DRZ2652-08	●	26		135			81	52	+0.6								
	DRZ265530-08	●	26.5				135	81	53	+0.5								

When offset drilling, reduce feed rate to 0.0031 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ K94
Troubleshooting ➡ K67

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K78
				DC	DCON	OAL	LFS	LU	DCS/MS	Rc			Plug	Screw	Wrench	Wrench	
																	
mm	S32- DRZ2754-10	●		27		149	90	54				+2.5					ZCMT10T304 ZCMT10T304SP
	DRZ275550-10	●		27.5				55				+2.3					
	DRZ2856-10	●		28		151	92	56				+2.2					
	DRZ285570-10	●		28.5				57				+2.1					
	DRZ2958-10	●		29		153	94	58				+2					
	DRZ295590-10	●		29.5				59				+1.8					
	DRZ3060-10	●	2	30	32			60		Rc1/4	Yes	+1.7	GP-2	SB-4085TR	DT-15	-	
	DRZ305610-10	●		30.5		154	95	61				+1.5					
	DRZ3162-10	●		31				62				+1.5					
	DRZ315630-10	●		31.5		155	96	63				+1.3					
	DRZ3264-10	●		32				64				+1.2					
	DRZ325650-10	●		32.5		158	99	65				+1					
	S40- DRZ3366-12	●		33		173	104	66				+2.9					ZCMT12T304SP ZCMT12T306
	DRZ3468-12	●		34		176	107	68				+2.7					
	DRZ3570-12	●		35		177	108	70				+2.4					
	DRZ3672-12	●	2	36	40	180	111	72		Rc1/4	Yes	+2.2	GP-2	SB-5085TR	DT-20	-	
	DRZ3774-12	●		37		181	112	74				+1.9					
	DRZ3876-12	●		38		183	114	76				+1.7					
	DRZ3978-12	●		39				78				+1.4					
	DRZ4080-12	●		40		185	116	80				+1.2					
	S40- DRZ4182-15	●		41		186	117	82				+4					ZCMT150406SP ZCMT150408
	DRZ4284-15	●		42		188	119	84				+3.7					
	DRZ4386-15	●		43		190	121	86				+3.5					
	DRZ4488-15	●		44				88				+3.2					
	DRZ4590-15	●		45		192	123	90				+3					
	DRZ4692-15	●		46		198	129	92				+2.7					
	DRZ4794-15	●	2	47	40	201	132	94		Rc1/4	Yes	+2.5	GP-2	SB-5085TR	DT-20	-	
	DRZ4896-15	●		48		203	134	96				+2.2					
	DRZ4998-15	●		49				98				+2					
	DRZ50100-15	●		50		204	135	100				+1.7					
	DRZ51102-15	●		51				102				+1.2					
	DRZ52104-15	●		52		205	136	104				+1					
	DRZ53106-15	●		53		208	139	106				+0.7					
	S40- DRZ54108-20	●		54		214	145	108				+5					ZCMT200608
	DRZ55110-20	●		55		215	146	110				+4.7					
	DRZ56112-20	●	2	56	40	217	148	112		Rc1/4	Yes	+4.4	GP-2	SB-60120TR	DT-25	-	
	DRZ57114-20	●		57		219	150	114				+4.1					
	DRZ58116-20	●		58		221	152	116				+3.8					
	DRZ59118-20	●		59		223	154	118				+3.5					

When offset drilling, reduce feed rate to 0.0031 ipr or less.

See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ K94

Troubleshooting ➡ K67

Hole Dia. Tolerance (2D type)

DC	Hole Dia. Tolerance (mm)
ø13~ø26.5mm	+0.20 -0.10
ø27~ø40mm	+0.25 -0.15
ø41~ø59mm	+0.30 -0.20

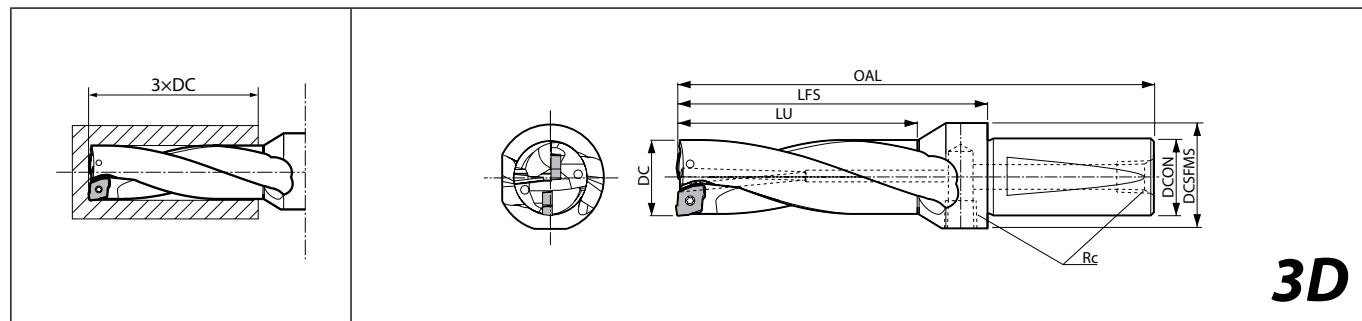
* Above is numeric guideline.

It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRZ (Drilling Depth : 3 x DC)

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts  K78	
				DC	DCON	OAL	LFS	LU	DCSFMS			Rc	Plug 	Screw 	Wrench 		Wrench 
mm	S20-	DRZ1339-05	●	13	20	108	65	39	27	Rc1/8	Yes	+0.5	GP-1	SB-2045TR	-	FT-6	ZCMT050203 ZCMT050203SP ZCMT050203SU
	DRZ135405-05	●	13.5	40.5													
	DRZ1442-05	●	14	42													
	DRZ145435-05	●	14.5	43.5													
	DRZ1545-05	●	15	45													
	DRZ155465-05	●	15.5	46.5													
	S25-	DRZ1648-06	●	16	25	131	77	48	32	Rc1/8	Yes	+1.1	GP-1	SB-2260TR	DTM-7	-	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU
	DRZ165495-06	●	16.5	49.5			+0.9										
	DRZ1751-06	●	17	133		79	51	+0.8									
	DRZ175525-06	●	17.5			52.5	+0.7										
	DRZ1854-06	●	18	136		82	54	+0.6									
	DRZ185555-06	●	18.5			55.5	+0.5										
	DRZ1957-06	●	19	139		85		57									
	DRZ195585-06	●	19.5			58.5		+0.5									
	DRZ2060-06	●	20	143		89		60				+0.5					
	DRZ205615-06	●	20.5			146		92				61.5						+0.3
	DRZ2163-06	●	21	146		92		63				+0.2					
	S25-	DRZ215645-08	●	21.5	25	147	93	64.5	33	Rc1/8	Yes	+1.8	GP-1	SB-2570TR	DT-8	-	ZCMT080304 ZCMT080304SP
	DRZ2266-08	●	22	66				+1.6									
	DRZ225675-08	●	22.5	67.5				+1.4									
	DRZ2369-08	●	23	150		96	69	+1.3									
	DRZ235705-08	●	23.5				70.5	+1.2									
	DRZ2472-08	●	24	152		98	72	+1.1									
	DRZ245735-08	●	24.5				73.5	+0.9									
	DRZ2575-08	●	25	155		101	75	+0.8									
	DRZ255765-08	●	25.5				76.5	+0.7									
	DRZ2678-08	●	26	158		104	78	+0.6									
	DRZ265795-08	●	26.5				79.5	+0.5									

When offset drilling, reduce feed rate to 0.0031 ipr or less.

See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➔ K94

Troubleshooting ➔ K67

Hole Dia. Tolerance (3D type)

DC	Hole Dia. Tolerance (mm)
ø13~ø26.5mm	+0.20 -0.10
ø27~ø40mm	+0.25 -0.15
ø41~ø59mm	+0.30 -0.20

* Above is numeric guideline.

It may vary depending on machines / workpieces / clamping status / cutting conditions.

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K78									
				DC	DCON	OAL	LFS	LU	DCSfMS	Rc			Plug	Screw	Wrench	Wrench										
mm	S32- DRZ2781-10	●	2	27	32	173	114	81	42	Rc1/4	Yes	+2.5	GP-2	SB-4085TR	DT-15	-	ZCMT10T304 ZCMT10T304SP									
	DRZ275825-10	●		27.5								82.5						+2.3								
	DRZ2884-10	●		28		176	117	84				+2.2														
	DRZ285855-10	●		28.5				85.5				+2.1														
	DRZ2987-10	●		29		179	120	87				+2														
	DRZ295885-10	●		29.5				88.5				+1.8														
	DRZ3090-10	●		30	45	181	122	90	+1.7																	
	DRZ305915-10	●		30.5				91.5	+1.5																	
	DRZ3193-10	●		31		183	124	93	+1.5																	
	DRZ315945-10	●		31.5				94.5	+1.3																	
	DRZ3296-10	●		32		187	128	96	+1.2																	
	DRZ325975-10	●		32.5				97.5	+1																	
	S32- DRZ3399-12	●		2	33	32	193	134	99			55						Rc1/4	Yes	+2.9	GP-2	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306	
	DRZ34102-12	●			34															197						138	102	+2.7
	DRZ35105-12	●	35		199		140	105	+2.4																	
	DRZ36108-12	●	36		203		144	108	+2.2																	
	DRZ37111-12	●	37		205		146	111	+1.9																	
	DRZ38114-12	●	38		208		149	114	+1.7																	
	DRZ39117-12	●	39		211		152	117	+1.4																	
	DRZ40120-12	●	40		212		153	120	+1.2																	
	S40- DRZ3399-12	●	40		33	40	203	134	99	55	Rc1/4		Yes	+2.9	GP-2	SB-5085TR	DT-20			-						ZCMT12T304SP ZCMT12T306
	DRZ34102-12	●			34									207													138	102	+2.7
	DRZ35105-12	●			35		209	140	105					+2.4												
	DRZ36108-12	●			36		213	144	108					+2.2												
	DRZ37111-12	●			37		215	146	111					+1.9												
	DRZ38114-12	●			38		218	149	114					+1.7												
	DRZ39117-12	●		39	221		152	117	+1.4																	
	DRZ40120-12	●		40	222		153	120	+1.2																	
	S40- DRZ41123-15	●	2	41	40	224	155	123	55			Rc1/4		Yes				+4	GP-2		SB-5085TR	DT-20	-	ZCMT150406SP ZCMT150408		
	DRZ42126-15	●		42														227							158		126	+3.7
	DRZ43129-15	●		43		230	161	129										+3.5								
	DRZ44132-15	●		44		233	164	132										+3.2								
	DRZ45135-15	●		45		234	165	135										+3								
	DRZ46138-15	●		46		241	172	138										+2.7								
	DRZ47141-15	●		47		245	176	141		+2.5																
	DRZ48144-15	●		48		248	179	144		+2.2																
	DRZ49147-15	●		49	250	181	147	+2																		
	DRZ50150-15	●		50	251	182	150	+1.7																		
	DRZ51153-15	●		51	254	185	153	+1.2																		
	DRZ52156-15	●		52	257	188	156	+1																		
	DRZ53159-15	●		53	260	191	159	+0.7																		
	S40- DRZ54162-20	●		2	54	40	266	197		162	65		Rc1/4		Yes	+5	GP-2	SB-60120TR		DT-25					-	ZCMT200608
	DRZ55165-20	●	55		269				200			165		+4.7												
	DRZ56168-20	●	56		272		203	168	+4.4																	
	DRZ57171-20	●	57		275		206	171	+4.1																	
	DRZ58174-20	●	58		278		209	174	+3.8																	
	DRZ59177-20	●	59		281		212	177	+3.5																	

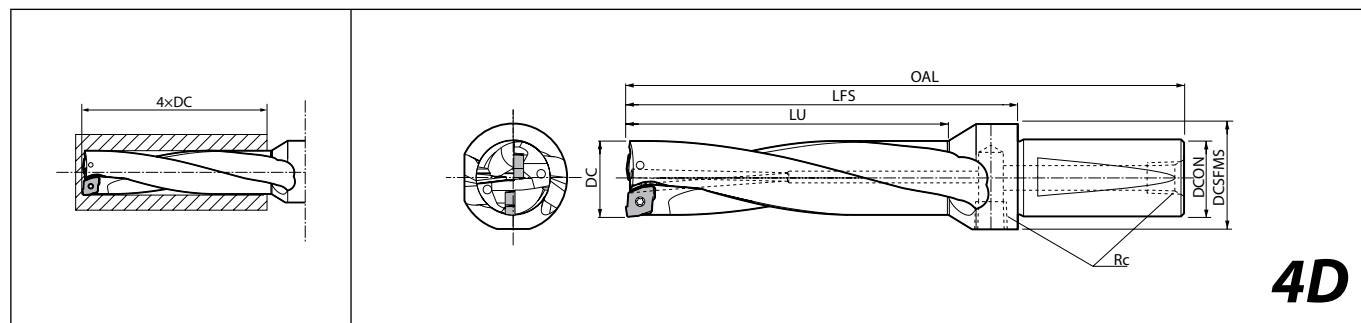
When offset drilling, reduce feed rate to 0.0031 ipr or less.

See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➔ K94

Troubleshooting ➔ K67

DRZ (Drilling Depth : 4 x DC)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts  K78											
				DC	DCON	OAL	LFS	LU	DCSFMS			Rc	Plug 	Screw 	Wrench 		Wrench 										
mm	S20-	DRZ1352-05	●	13	20	121	78	52	27	Rc1/8	Yes	+0.5	GP-1	SB-2045TR	-	FT-6	ZCMT050203 ZCMT050203SP ZCMT050203SU										
	DRZ135540-05	●	13.5	14.5														126	83	56	58	60	62				
	DRZ1456-05	●	14																								
	DRZ145580-05	●	14.5																								
	DRZ1560-05	●	15																								
	DRZ155620-05	●	15.5																								
	S25-	DRZ1664-06	●	16	25	147	93	64	32	Rc1/8	Yes	+1.1 +0.9 +0.8 +0.7 +0.6 +0.5 +0.5 +0.3 +0.2	GP-1	SB-2260TR	DTM-7	-	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU										
	DRZ165660-06	●	16.5	149														95	68	70	72	74	76	78	80	82	84
	DRZ1768-06	●	17																								
	DRZ175700-06	●	17.5																								
	DRZ1872-06	●	18																								
	DRZ185740-06	●	18.5																								
	DRZ1976-06	●	19	157														103	76	78	80	82	84				
	DRZ195780-06	●	19.5																								
	DRZ2080-06	●	20																								
	DRZ205820-06	●	20.5																								
	DRZ2184-06	●	21																								
	S25-	DRZ215860-08	●	21.5	25	169	115	86	33	Rc1/8	Yes	+1.8 +1.6 +1.4 +1.3 +1.2 +1.1 +0.9 +0.8 +0.7 +0.6 +0.5	GP-1	SB-2570TR	DT-8	-	ZCMT080304 ZCMT080304SP										
	DRZ2288-08	●	22	173														119	92	94	96	98	100	102	104	106	
	DRZ225900-08	●	22.5																								
	DRZ2392-08	●	23																								
	DRZ235940-08	●	23.5																								
	DRZ2496-08	●	24																								
	DRZ245980-08	●	24.5	180														126	100	102	104	106					
	DRZ25100-08	●	25																								
	DRZ2551020-08	●	25.5																								
	DRZ26104-08	●	26																								
	DRZ2651060-08	●	26.5																								

When offset drilling, reduce feed rate to 0.0024 ipor less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➔ K94
Troubleshooting ➔ K67

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Coolant Hole	Radial Offset Max.	Spare Parts				Applicable Inserts ➡ K78			
				DC	DCON	OAL	LFS	LU	DCSFMS	Rc			Plug	Screw	Wrench	Wrench				
mm	S32-	DRZ27108-10	●	27	32	200	141	108	42	Rc1/4	Yes	+2.5	GP-2	SB-4085TR	DT-15	-	ZCMT10T304 ZCMT10T304SP			
		DRZ2751100-10	●	27.5				110				+2.3								
		DRZ28112-10	●	28				112				+2.2								
		DRZ2851140-10	●	28.5				114				+2.1								
		DRZ29116-10	●	29		208	116	+2												
		DRZ2951180-10	●	29.5			118	+1.8												
		DRZ30120-10	●	30			211	120				+1.7								
		DRZ3051220-10	●	30.5				122				+1.5								
		DRZ31124-10	●	31		214		124				+1.3								
		DRZ3151260-10	●	31.5				126				+1.2								
		DRZ32128-10	●	32			219	128				+1								
		DRZ3251300-10	●	32.5				130												
	S32-	DRZ33132-12	●	33	32	226		167	132	55	Rc1/4	Yes	+2.9	GP-2	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306		
		DRZ34136-12	●	34									231						172	136	+2.7
		DRZ35140-12	●	35			234						175						140	+2.4
		DRZ36144-12	●	36			239						180						144	+2.2
		DRZ37148-12	●	37			242						183						148	+1.9
		DRZ38152-12	●	38			246						187						152	+1.7
		DRZ39156-12	●	39			250						191						156	+1.4
		DRZ40160-12	●	40			252						193						160	+1.2
	S40-	DRZ33132-12	●	33	40	236	167	132	55	Rc1/4	Yes	+2.9	GP-2	SB-5085TR	DT-20	-	ZCMT12T304SP ZCMT12T306			
		DRZ34136-12	●	34								241						172	136	+2.7
		DRZ35140-12	●	35								244						175	140	+2.4
		DRZ36144-12	●	36								249						180	144	+2.2
		DRZ37148-12	●	37								252						183	148	+1.9
		DRZ38152-12	●	38								256						187	152	+1.7
		DRZ39156-12	●	39								260						191	156	+1.4
		DRZ40160-12	●	40								262						193	160	+1.2
	S40-	DRZ41164-15	●	41	40	265	196	164	55	Rc1/4	Yes	+4	GP-2	SB-5085TR	DT-20	-	ZCMT150406SP ZCMT150408			
		DRZ42168-15	●	42								269						200	168	+3.7
		DRZ43172-15	●	43								273						204	172	+3.5
		DRZ44176-15	●	44								277						208	176	+3.2
		DRZ45180-15	●	45								279						210	180	+3
		DRZ46184-15	●	46								287						218	184	+2.7
		DRZ47188-15	●	47		292	223	188	60			+2.5								
		DRZ48192-15	●	48								296						227	192	+2.2
DRZ49196-15		●	49	300								231						196	+2	
DRZ50200-15		●	50	301								232						200	+1.7	

When offset drilling, reduce feed rate to 0.0024 ipr or less.

See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions ➡ K94

Troubleshooting ➡ K67

Hole Dia. Tolerance (4D type)

DC	Hole Dia. Tolerance (mm)
ø13~ø26.5mm	+0.25 -0.10
ø27~ø40mm	+0.30 -0.15
ø41~ø50mm	+0.35 -0.20

* Above is numeric guideline.

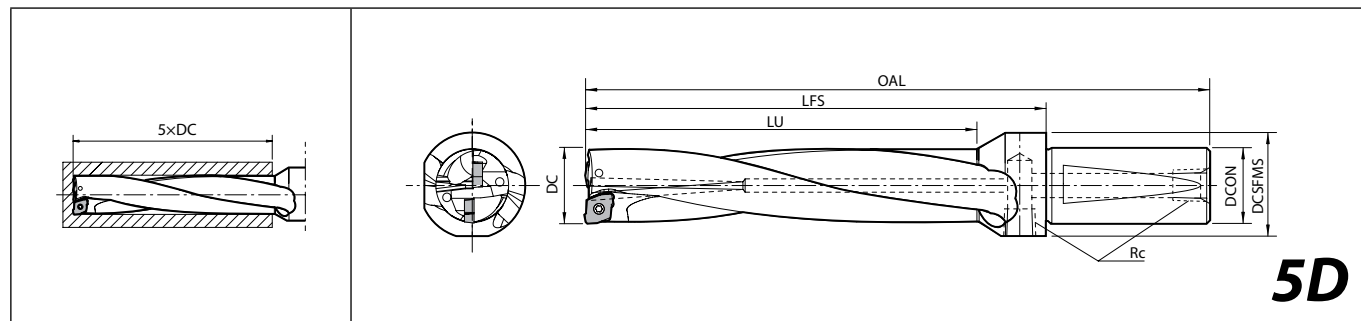
It may vary depending on machines / workpieces / clamping status / cutting conditions.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRZ (Drilling Depth : 5 x DC)

**5D**

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Coolant Hole	Radial Offset Max.	Spare Parts			Applicable Inserts ➡ K78	
				DC	DCON	OAL	LFS	LU	DCSFMS			Rc	Plug	Screw		Wrench
mm	S32- DRZ27135-10 DRZ28140-10 DRZ29145-10 DRZ30150-10 DRZ31155-10 DRZ32160-10	●	2	27	32	277	168	135	42	Rc1/4	Yes	+2.5	GP-2	SB-4085TR	DT-15	ZCMT10T304 ZCMT10T304SP
		●		28		232	173	140				+2.2				
		●		29		237	178	145				+2				
		●		30		241	182	150				+1.7				
		●		31		245	186	155				+1.5				
		●		32		251	192	160				+1.2				
	S40- DRZ33165-12 DRZ34170-12 DRZ35175-12 DRZ36180-12 DRZ37185-12 DRZ38190-12 DRZ39195-12 DRZ40200-12	●	2	33	40	269	200	165	55	Rc1/4	Yes	+2.9	GP-2	SB-5085TR	DT-20	ZCMT12T304SP ZCMT12T306
		●		34		275	206	170				+2.7				
		●		35		279	210	175				+2.4				
		●		36		285	216	180				+2.2				
		●		37		289	220	185				+1.9				
		●		38		294	225	190				+1.7				
		●		39		299	230	195				+1.4				
		●		40		302	233	200				+1.2				
	S40- DRZ41205-15 DRZ42210-15 DRZ43215-15 DRZ45225-15 DRZ46230-15 DRZ47235-15 DRZ48240-15 DRZ49245-15 DRZ50250-15	●	2	41	40	306	237	205	55	Rc1/4	Yes	+4	GP-2	SB-5085TR	DT-20	ZCMT150406SP ZCMT150408
		●		42		311	242	210				+3.7				
		●		43		316	247	215				+3.5				
		●		45		324	255	225				+3				
		●		46		333	264	230	+2.7							
		●		47		339	270	235	+2.5							
		●		48		344	275	240	+2.2							
		●		49		349	280	245	+2							
		●		50		351	282	250	+1.7							

When offset drilling, reduce feed rate to 0.0020 ipr or less.
See page K74 for Adjustable Sleeve (ASL / SHE).

Recommended Cutting Conditions K94
Troubleshooting K67

Hole Dia. Tolerance (5D type)

DC	Hole Dia. Tolerance (mm)
ø27~ø40mm	+0.35 -0.15
ø41~ø50mm	+0.40 -0.20

* Above is numeric guideline.
It may vary depending on machines / workpieces / clamping status / cutting conditions.

DRZ Hole Bottom Shape (Common for 2D, 3D, 4D, and 5D Lengths)

DRZ Inch Diameters (in)				DRZ Metric Diameters (mm)							
DC	A	B	C	DC	A	B	C	DC	A	B	C
0.562	0.083	0.198	0.016	13.0	2.1	4.4	0.4	27.0	4.0	9.5	0.7
0.625	0.106	0.207	0.024	13.5		4.7		27.5		9.8	
0.656		0.222		14.0		4.9		28.0		10.0	
0.688		0.238		14.5		5.2	0.5	28.5		10.3	
0.750		0.269	0.028	15.0		5.4		29.0		10.5	
0.812		0.300		15.5		5.7		29.5		10.8	
0.875	0.122	0.316	0.024	16.0	2.7	5.3	0.6	30.0		11.0	0.8
0.938		0.347	0.028	16.5		5.6		30.5		11.3	
1.000		0.378		17.0		5.8		31.0		11.5	
1.062	0.157	0.374		17.5		6.1	0.7	31.5		11.8	
1.125		0.406	0.031	18.0		6.3		32.0		12.0	
1.188		0.437		18.5		6.6	0.8	32.5		12.3	
1.250		0.468	0.035	19.0	3.1	6.8		33.0	5.7	12.8	0.9
1.312		0.432		19.5		7.1		34.0		13.3	
1.375	0.224	0.464		20.0		7.3	0.6	35.0		13.8	
1.438		0.495	0.039	20.5		7.6		36.0		14.3	
1.500		0.526		21.0		7.8	0.7	37.0		14.8	
1.562		0.557		21.5		7.7		38.0		15.3	
1.625	0.256	0.557	0.043	22.0		7.9	0.8	39.0	6.5	15.8	1.0
1.688		0.588		22.5		8.2		40.0		16.3	
1.750		0.619		23.0		8.4	0.9	41.0		16.8	
1.812		0.650	0.039	23.5		8.7		42.0		17.3	
1.875		0.682		24.0		8.9	1.0	43.0		17.8	
1.938	0.256	0.713	0.043	24.5		9.2		44.0		18.3	1.1
2.000		0.744		25.0		9.4		45.0		18.8	
				25.5		9.7	1.1	46.0		19.3	
				26.0		9.9		47.0		19.8	
				26.5		10.2		48.0		20.3	
								49.0	8.5	20.8	1.2
								50.0		21.3	
								51.0		21.8	
								52.0		22.3	
								53.0		22.8	
								54.0	8.5	23.3	1.3
								55.0		23.8	
								56.0		24.3	
								57.0		24.8	
								58.0		25.3	
								59.0		25.8	

The diagram illustrates the cross-section of a hole with a DRZ (Double Flute) bottom shape. The dimensions are labeled as follows: DC is the total depth of the hole; A is the distance from the hole's edge to the start of the bottom chamfer; B is the distance between the two bottom chamfers; and C is the distance from the end of the second bottom chamfer to the hole's edge. The hole is shown in a light blue fluid, and the bottom shape is a series of alternating flat and chamfered sections.

- Figures in chart are nominal sizes.
- (Varies from -0.004" (-0.1mm) to +0.004" (+0.1mm) depending on work material and cutting conditions)

Recommended Cutting Conditions (with Coolant)

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)				Drill Dia. DC (in)	Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)			
	MEGACOAT			Carbide						
	PR1230	PR1225	PR1210	KW10			2D	3D	4D	5D
	Standard SP SU	Standard SP SU	Standard	Standard SP						
Low Carbon Steel	★ 390 ~ 720	☆ 390 ~ 720	-	-	0.512~0.610	13~15.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
					0.630~1.043	16~26.5	0.0031 ~ 0.0059	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
					1.063~1.969	27~50	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0020 ~ 0.0035
					1.969~	50~	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
Carbon Steel	★ 330 ~ 520	☆ 330 ~ 520	-	-	0.512~0.610	13~15.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
					0.630~1.043	16~26.5	0.0031 ~ 0.0059	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
					1.063~1.969	27~50	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0020 ~ 0.0035
					1.969~	50~	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
Alloy Steel	★ 260 ~ 460	☆ 260 ~ 460	-	-	0.512~0.610	13~15.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
					0.630~1.043	16~26.5	0.0031 ~ 0.0059	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
					1.063~1.969	27~50	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0020 ~ 0.0035
					1.969~	50~	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
Tool Steel	★ 230 ~ 430	☆ 230 ~ 430	-	-	0.512~0.610	13~15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	0.0012 ~ 0.0028	-
					0.630~1.043	16~26.5	0.0031 ~ 0.0047	0.0024 ~ 0.0039	0.0024 ~ 0.0031	-
					1.063~1.969	27~50	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0024 ~ 0.0039	0.0016 ~ 0.0028
					1.969~	50~	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0024 ~ 0.0039	-
Stainless Steel (Austenitic)	☆ 200 ~ 390	★ 200 ~ 390	-	-	0.512~0.610	13~15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	0.0012 ~ 0.0024	-
					0.630~1.043	16~26.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
					1.063~1.969	27~50	0.0024 ~ 0.0047	0.0024 ~ 0.0039	0.0016 ~ 0.0039	0.0016 ~ 0.0028
					1.969~	50~	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0016 ~ 0.0039	-
Gray Cast Iron	-	-	★ 330 ~ 490	☆ 330 ~ 390	0.512~0.610	13~15.5	0.0031 ~ 0.0047	0.0031 ~ 0.0039	0.0024 ~ 0.0031	-
					0.630~1.043	16~26.5	0.0039 ~ 0.0071	0.0039 ~ 0.0059	0.0031 ~ 0.0047	-
					1.063~1.969	27~50	0.0039 ~ 0.0079	0.0039 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0039
					1.969~	50~	0.0039 ~ 0.0079	0.0039 ~ 0.0071	0.0031 ~ 0.0059	-
Nodular Cast Iron	-	-	★ 260 ~ 390	☆ 260 ~ 330	0.512~0.610	13~15.5	0.0031 ~ 0.0047	0.0031 ~ 0.0039	0.0024 ~ 0.0031	-
					0.630~1.043	16~26.5	0.0039 ~ 0.0071	0.0039 ~ 0.0059	0.0031 ~ 0.0047	-
					1.063~1.969	27~50	0.0039 ~ 0.0079	0.0039 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0039
					1.969~	50~	0.0039 ~ 0.0079	0.0039 ~ 0.0071	0.0031 ~ 0.0059	-
Non-ferrous Metals	-	-	-	★ 660 ~ 1970	0.512~0.610	13~15.5	0.0024 ~ 0.0047	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
					0.630~1.043	16~26.5	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0059	-
					1.063~1.969	27~50	0.0031 ~ 0.0079	0.0031 ~ 0.0071	0.0024 ~ 0.0059	0.0020 ~ 0.0039
					1.969~	50~	0.0031 ~ 0.0079	0.0031 ~ 0.0071	0.0024 ~ 0.0059	-
Titanium Alloys	-	-	-	★ 130 ~ 230	0.512~0.610	13~15.5	0.0020 ~ 0.0024	0.0020 ~ 0.0024	0.0020 ~ 0.0024	-
					0.630~1.043	16~26.5	0.0020 ~ 0.0028	0.0020 ~ 0.0028	0.0020 ~ 0.0028	-
					1.063~1.969	27~50	0.0024 ~ 0.0031	0.0024 ~ 0.0031	0.0024 ~ 0.0031	0.0016 ~ 0.0020
					1.969~	50~	0.0024 ~ 0.0031	0.0024 ~ 0.0031	0.0024 ~ 0.0031	-

Apply a sufficient amount of coolant

★ : 1st Recommendation ☆ : 2nd Recommendation

K
DRILLING

DRA

DRV

DRZ

HOLESLOT

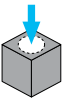
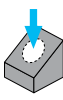
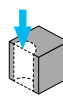
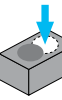
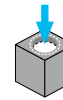
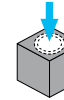
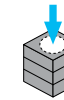
COREMASTER
COREDRILL

COUNTERBORE

COUNTERSINK

Cutting Conditions by Application

(Workpiece Material: 1049)

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Concave Surface	Existing Hole	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	390	390	390	390	390	390	Not Available
f (ipr)	0.004	0.002	0.002	0.002	Concave Surface: 0.002 Once drill is fully engaged: 0.004	*0.002	Not Available
Internal Coolant	Yes	Yes	Yes	Yes	Yes	Yes	Not Available

Max. Depth for Drilling with External Coolant

In case of using external coolant system, chip evacuation will be bad.

Therefore D.O.C. should be measured within 1.5 times (1.5 x DC) of drill diameter (DC).

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Magic Drill Setup for Lathes

Installation

- ① The top face of the outer insert should be parallel to the X-axis to allow for offset cutting.
(Cutting diameter can be changed by moving in the X-axis.)
- ② It is recommended to set the outer insert as shown in Fig.1 with the outer insert facing the operator.
(It is also possible to use it by setting 180° reverse position.)
In case of the lathe with two turrets, when installing the drill to the lower turret, the outer insert should be set so as to face the operator.
(It is also possible to use it by setting at 180° reverse position.)

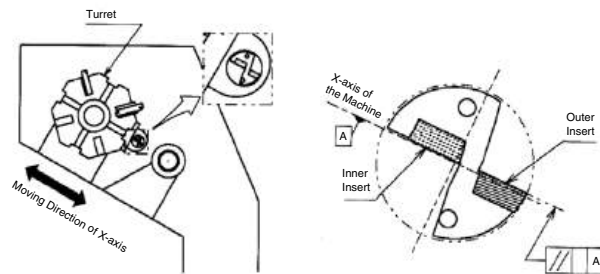


Fig.1 Installation to the Turning Lathe

Cutting Diameter Adjustment

1. Cutting Diameter Adjustment

- ① Cutting diameter is adjusted by moving the tool in the X-axis direction.
The moving direction of the X-axis movement depends on the position of the toolholder.
- ② For making the hole diameter larger, slide the tool along the X-axis toward the outer insert side. (Fig. 2, Fig. 3)
For making the hole diameter smaller, slide the tool along the X-axis in the opposite direction.
(This movement of the axis is called an "Offset")
However, be sure not to make the hole diameter smaller than the drill diameter by more than 0.2mm (.008").
Otherwise, the toolholder will interfere with the drilled hole. (Fig. 4)
e.g.) when using $\varnothing 20$ ($\varnothing 787$ ") drill, the hole diameter must not be smaller than 19.8mm (.780").

2. Offset Limit of the Cutting Diameter

For the maximum limit of the cutting diameter, refer to "Max. Offset (Radial)" in the Toolholder Dimension table.
(The figure in the table shows how much it is possible the offset the drill in the radial direction.)
e.g.) In case of using $\varnothing 20$ ($\varnothing 787$ ") drill, it is possible to make a hole up to $\varnothing 22$ ($\varnothing 827$ ") since "Max. Offset (Radial)" is +0.5mm (.02").

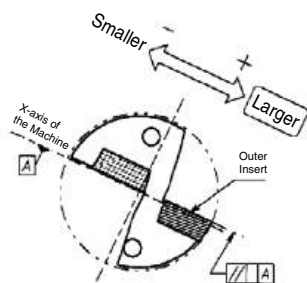


Fig. 2 Outer Insert Facing Up

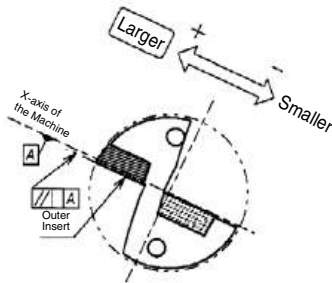


Fig. 3 Outer Insert Facing Down

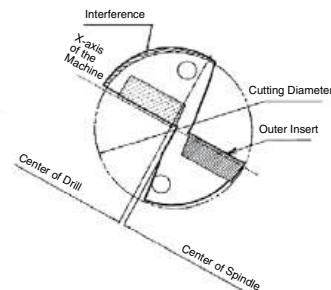


Fig. 4 Excessive Offset (For Smaller Hole Diameter)

Center Height Adjustment

1. Center Height of the Inner Insert

When installing inner insert as shown in Fig. 1, it will be set around 0.2mm (.008") below the Center line of the Spindle. (Fig. 5)

This is the normal position of the center height and the inner insert is designed to be set at this position. However, in case that the turret of the lathe is out of alignment with the center of spindle, sometimes the inner insert may be above or below center.

For stable machining, it is essential to check the center height of the inner insert carefully.

2. How to Check the Center Height of Inner Insert

For checking the center height of the inner insert, see the core which remains at the center of the drilled hole. (Fig. 6)

If the center height is in the normal condition, a core of about 0.5mm (.020") in diameter will remain after machining.

In the following case, it is necessary to adjust the center height.

- No core remains
- Core diameter is more than 1mm (.039")

The drilled hole for verification purposes needs to be machined at approximately 10mm (0.375") in depth and at a feed rate of 0.004 ipr or lower.

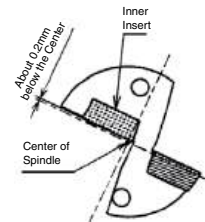


Fig. 5 Front View of the Drill

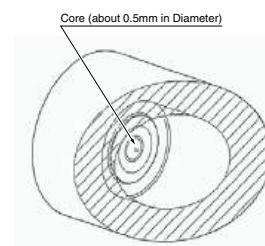


Fig. 6 Center Core

3. Center Height Adjustment

- a) No Core or Cores with Small Diameter

This occurs when the inner insert is set above center.

In this case, adjustment is necessary since insert breakage is likely at the center of the drill. (Fig. 7)

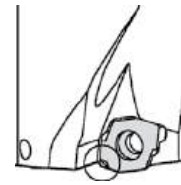


Fig. 7 Insert Breakage near the Center of Drill

Adjustments

- ① Install the drill rotated at the 180°. Most problems will be solved by this method.
- ② If the core diameter becomes too large after the above adjustment, install the drill rotated 90° counter-clockwise as shown in Fig.9 (outer insert is positioned lower) and adjust the center height by moving the tool in the X-axis direction. (However, this makes it impossible to adjust the cutting diameter.)

Caution: In case of installing the drill in the opposite direction (outer insert is positioned upper), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole. The fundamental solution is to readjust the center position of the turret itself.

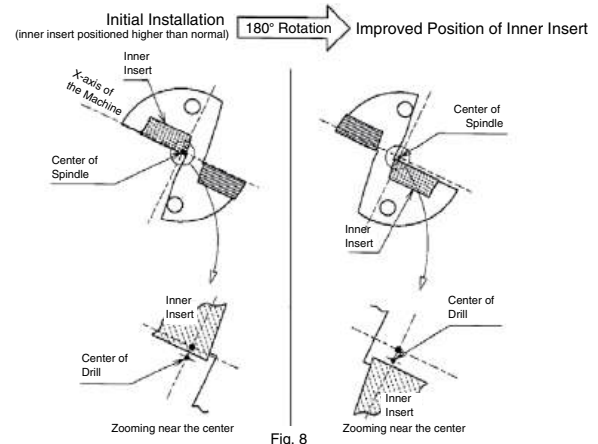


Fig. 8

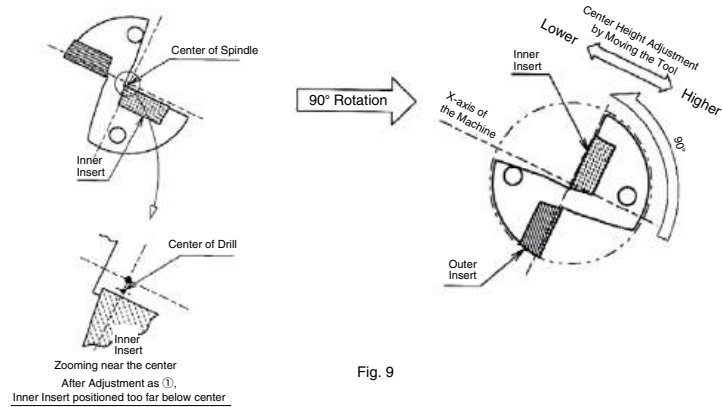


Fig. 9

- b) Core with Excessively Large Diameter (More than 1mm/.04")

This occurs when the inner insert is below center.

This condition causes poor chip evacuation and on adjustment is required.

Adjustments

Install the drill rotated 90° counter-clockwise as shown in Fig.10 (outer insert is positioned upper), and adjust the center height by moving the tool in the X-axis direction.

(However, this makes it impossible to adjust the cutting diameter.)

Caution: When installing the drill in the opposite direction (outer insert is positioned lower), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole.

The fundamental solution is to readjust the center position of the turret itself.

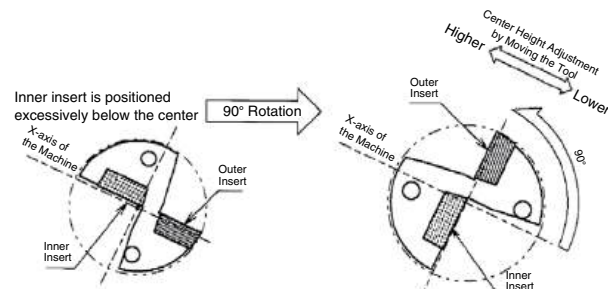


Fig. 10

HOLESHOT Drill

Sharp Cutting with Enhanced Chip Evacuation

Superior Fracture Resistance and Long Tool Life with MEGACOAT NANO Coating Technology



- 1 Drill Diameters from 0.688" to 4.000"
- 2 Flute Designs Optimized for Maximum Rigidity and Good Chip Evacuation
- 3 Featuring Grades PR1535 and CA6535 Available for Difficult-to-Cut Materials

Patented Swept Back Design

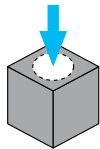
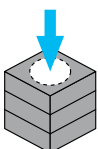
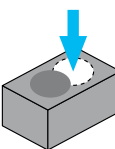
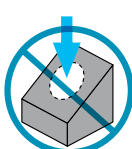


Enables Drilling of Stacked Plates and Welded Assemblies

Reduces Slug Formation

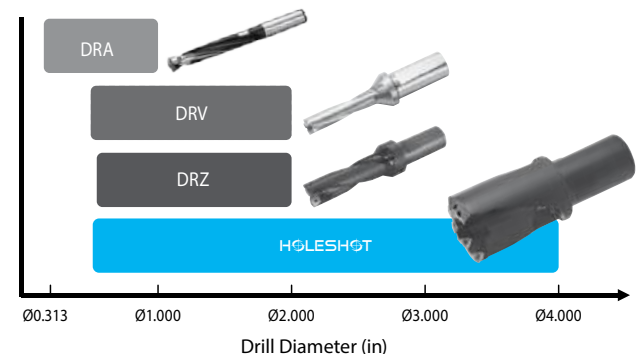
Provides Excellent Chip Control

Applicable Workpieces

	Plain Surface	Stacked Plates	Hole Expansion	Angled Surface
HOLESHOT				

Hole Expansion: Overlap amount of through hole must be 1/5DC (0.2 x DC) or less.
Expansion of blind holes is not possible because chips are built up in the next hole and will cause chip recutting issues

HOLESHOT Drill Diameter Range

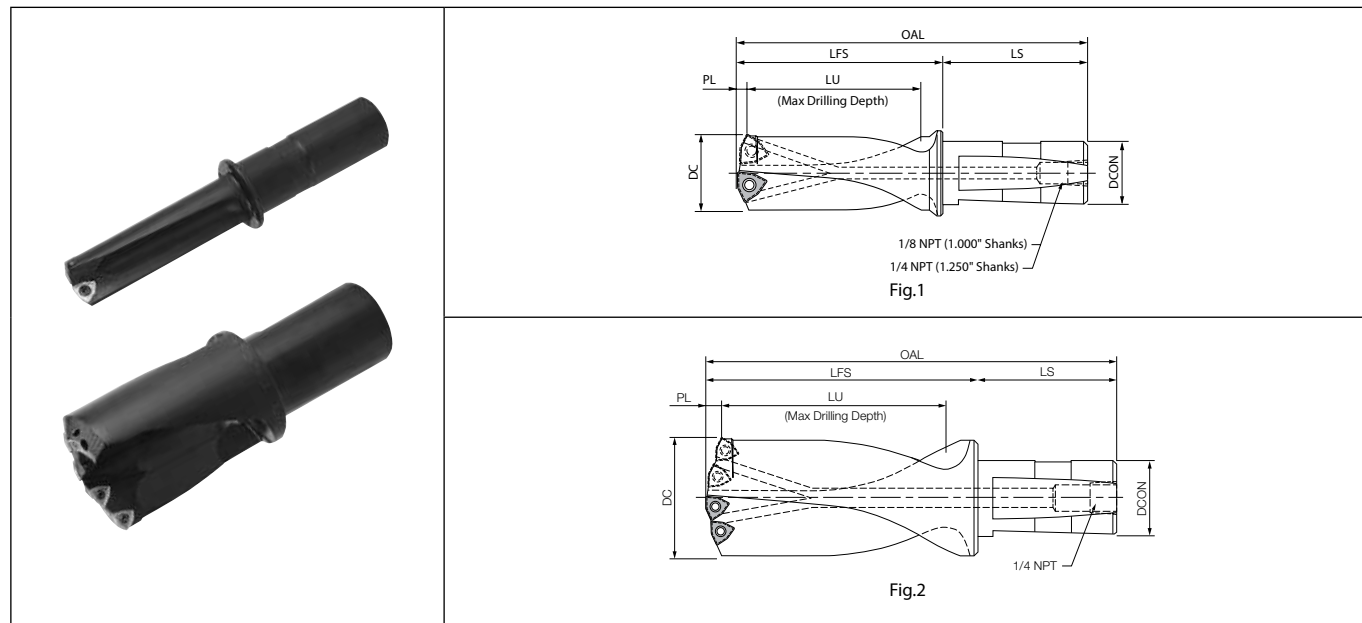


				Carbon Steel / Alloy Steel			○	●	P			
				Mold and Die Steel				●				
				Stainless Steel		●	●	●		M		
				Cast Iron				●		○	K	
				Non-Ferrous Metals						●	N	
				Heat-resistant alloy		●	●	●	S			
Insert	Part Number	No. of Edges	Dimensions (in)				Carbide					Applicable Toolholder ➡ K100~K103
			IC	S	D1	RE	CVD	PVD			-	
							CA635	PR1535	PR1510	PR1230		
	WCMX 040204-M1A	3	1/4	0.094	0.084	1/64	●	●	●	●	DR-0688... ~ DR-0844...	
	050308-M1	3	5/16	1/8	0.125	1/32	●	●	●	●	DR-0866... ~ DR-1156... DR-1575... ~ DR-2031...	
	050308-M1A	3					●		●	●		
	06T308-M1	3	●	●	●		●	●	DR-1181... ~ DR-1562... DR-2062... ~ DR-3250...			
	06T308-M1A	3	●	●	●		●					
			3/8	5/32	0.146			●	●	●	●	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

HOLESHOT (DR)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Coolant Hole	Fig.	Spare Parts		Applicable Inserts ➡ K99	
				DC		DCON	OAL	LFS	LS	LU			PL	Screw		Wrench
				in	mm											
Inch	DR- 0688-X3N	●	2	0.688	-	0.750	4.87	2.84	2.03	2.06	0.090	Yes	1	SCR-01	T7	WCMX 040204-M1A
	0719-X3N	●		0.719		0.750	5.00	2.97	2.03	2.15	0.093					
	0750-X3N	●		0.750		0.750	5.13	3.10	2.03	2.25	0.102					
	0781-X3N	●		0.781		0.750	5.26	3.23	2.03	2.34	0.106					
	0813-X3N	●		0.813		0.750	5.39	3.36	2.03	2.44	0.110					
	0844-X3N	●		0.844		0.750	5.52	3.49	2.03	2.53	0.114					
	DR- 0866	△	2	0.866	22	1.000	4.78	2.50	2.28	1.75	0.130	Yes	1	SCR-03	T9	WCMT 050308 WCMX 050308-M1 WCMX 050308-M1A
	0866-X3N	△						5.80		3.52							2.60
	0875	△		0.875	-	1.000	4.78	2.50	2.28	1.75	0.131					
	0875-X3N	●						5.79		3.51							2.63
	0906	●		0.906	23	1.000	4.78	2.50	2.28	1.75	0.135					
	0906-X3N	●						5.88		3.60							2.71
	0937	●		0.937	-	1.000	4.78	2.50	2.28	1.75	0.139					
	0937-X3N	●						5.98		3.70							2.81
	0945	△		0.945	24	1.000	4.78	2.50	2.28	1.75	0.140					
	0945-X3N	△						6.04		3.76							2.83
	0969-X3N	●		0.969	-	1.000	6.08	3.80	2.28	2.91	0.143					
	0984	●		0.984	25	1.000	4.78	2.50	2.28	1.75	0.145					
	0984-X3N	△						6.17		3.89							2.95

Recommended Cutting Conditions K104

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								Coolant Hole	Fig.	Spare Parts		Applicable Inserts ➡ K99
				DC		DCON	OAL	LFS	LS	LU	PL			Screw	Wrench	
				in	mm											
Inch	DR- 1000	●	2	1.000	-	1.000	4.78	2.50	2.28	1.75	0.147	Yes	1	SCR-03	T9	WCMX 050308-M1 WCMX 050308-M1A
	1000-X3N	●				6.18	3.90	3.00								
	1024-X3N	△		1.024	26	1.000	6.29	4.01	2.28	3.07	0.150					
	1031	●		1.031	-	1.000	5.16	2.88	2.28	2.13	0.151					
	1031-X3N	●					6.27	3.99		3.09						
	1062	●		1.062	27	1.000	5.16	2.88	2.28	2.13	0.155					
	1062-X3N	●					6.37	4.09		3.18						
	1094	△		1.094	-	1.000	5.16	2.88	2.28	2.13	0.159					
	1102	●		1.102	28	1.000	5.16	2.88	2.28	2.13	0.160					
	1125	●		1.125	-	1.000	5.16	2.88	2.28	2.13	0.163					
	1125-X3N	●					6.56	4.28		3.37						
	1142	●		1.142	29	1.000	5.16	2.88	2.28	2.13	0.165					
	1142-X3N	△					6.66	4.38		3.43						
	1156	●		1.156	-	1.000	5.16	2.88	2.28	2.13	0.167					
	1156-X3N	●					6.67	4.39		3.47						
	DR- 1187	●	2	1.187	-	1.000	5.16	2.88	2.28	2.13	0.169	Yes	1	SCR-30	T10	WCMX 06T308-M1 WCMX 06T308-M1A
	1187-X3N	●				1.250	6.76	4.48		3.56						
	1250	●				1.250	1.000	5.53		3.25							2.28	2.50	0.177
	1250-X3N	●		1.250	6.96		4.68	3.75								
	1299	△		1.299	33	1.000	5.53	3.25	2.28	2.50	0.184					
	1312	●		1.312	-	1.000	5.53	3.25	2.28	2.50	0.185					
	1375	●		1.375	-	1.000	5.53	3.25	2.28	2.50	0.193					
	1375-X3N	●				1.250	7.34	5.06		4.12						
	1406	△		1.406	-	1.000	5.78	3.50	2.28	2.75	0.197					
	1417	●		1.417	36	1.000	5.78	3.50	2.28	2.75	0.199					
	1437	●		1.437	-	1.000	5.78	3.50	2.28	2.75	0.196					
	1437-X3N	△				1.250	7.54	5.26		4.31						
	1457	△		1.457	37	1.000	5.78	3.50	2.28	2.75	0.199					
	1469	△		1.469	-	1.000	5.78	3.50	2.28	2.75	0.200					
	1469-X3N	●				1.250	7.63	5.35		4.40						
	1500	●		1.500	-	1.000	5.78	3.50	2.28	2.75	0.204					
	1500-X3N	●				1.250	7.73	5.45	2.28	4.50						
	1562-X3N	●				1.562	1.250	8.17	5.89	2.28							4.68	0.212
	DR- 1575	●	3	1.575	40	1.250	6.16	3.88	2.28	2.88	0.208	Yes	2	SCR-03	T9	WCMX 050308-M1 WCMX 050308-M1A
	1575-X3N	△				1.500	8.61	5.92	2.69	4.72						
	1614	△		1.614	41	1.250	6.16	3.88	2.28	2.88	0.212					
	1614-X3N	●				1.500	8.73	6.04	2.69	4.84						
	1625	●		1.625	-	1.250	6.16	3.88	2.28	2.88	0.214					
	1625-X3N	●				1.500	8.77	6.08	2.69	4.87						
	1656	●		1.656	-	1.250	6.16	3.88	2.28	2.88	0.218					
	1719	●		1.719	-	1.250	6.41	4.13	2.28	3.00	0.225					

Recommended Cutting Conditions ➡ K104

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Coolant Hole	Fig.	Spare Parts		Applicable Inserts ➔ K99								
				DC		DCON	OAL	LFS	LS	LU			PL	Screw		Wrench							
				in	mm																		
Inch	DR- 1750	●	4	1.750	-	1.250	6.41	4.13	2.28	3.00	0.225	Yes	2	SCR-03	T9	WCMX 050308-M1 WCMX 050308-M1A							
	1750-X3N	●				1.500	9.30	6.61	2.69	5.25													
	1772	●		1.772	45	1.250	6.41	4.13	2.28	3.00	0.231												
	1772-X3N	△				1.500	9.42	6.73	2.69	5.31													
	1781	●		1.781	-	1.250	6.41	4.13	2.28	3.00	0.223												
	1812	●				1.250	6.41	4.13	2.28	3.00							0.230						
	1812-X3N	△				1.500	9.48	6.79	2.69	5.43													
	1844	●		1.844	1.250	6.78	4.50	2.28	3.38	0.233													
	1850-X3N	△		1.850	47	1.500	9.66	6.97	2.69	5.55	0.233												
	1875-X3N	●		1.875	-	1.500	9.68	6.99	2.69	5.62	0.240												
	1890-X3N	△		1.890	48	1.500	9.79	7.10	2.69	5.67	0.246												
	1929	△		1.929	49	1.250	6.78	4.50	2.28	3.38	0.259												
	1929-X3N	△				1.500	9.92	7.23	2.69	5.79													
	1937	●		1.937	-	1.250	6.78	4.50	2.28	3.38	0.259												
	1937-X3N	●				1.500	9.89	7.20	2.69	5.81													
	1969	●		1.969	50	1.250	6.78	4.50	2.28	3.38	0.260												
	1969-X3N	●				1.500	9.99	7.30	2.69	5.91													
	2000	●		2.000	-	1.250	6.78	4.50	2.28	3.38	0.267												
	2000-X1	●				1.250	6.06	3.38	2.28	2.13													
	2000-X3N	●				1.500	10.09	7.40	2.69	6.00													
	2008-X3N	△		2.008	51	1.500	10.16	7.47	2.69	6.02	0.267												
	2031-X3N	●		2.031	-	1.500	10.30	7.61	2.69	6.09	0.268												
	Inch	DR- 2062		●	4	2.062	-	1.500	7.44	4.75	2.69						3.50	0.260	Yes	2	SCR-30	T10	WCMX 06T308-M1 WCMX 06T308-M1A
		2062-X1		△				1.500	6.06	3.38	2.69						2.13						
2062-X3N		●	2.000	10.94				7.69	3.25	6.18													
2094		△	2.094	-		1.500	7.44	4.75	2.69	3.50	0.267												
2094-X1		△				1.500	6.06	3.38	2.69	2.13													
2125		●	2.125	54		1.500	7.44	4.75	2.69	3.50	0.266												
2187-X1		△	2.187	-		1.500	6.25	3.56	2.69	2.31	0.273												
2187-X3N		●				2.000	11.33	8.08	3.25	6.56													
2219		●	2.219	-		1.500	7.81	5.13	2.69	3.88	0.277												
2219-X1		●				1.500	6.25	3.56	2.69	2.31													
2219-X3N		●				2.000	11.44	8.19	3.25	6.66													
2250		●	2.250	-		1.500	7.81	5.13	2.69	3.88	0.281												
2250-X1		●				1.500	6.25	3.56	2.69	2.31													
2250-X3N		●				2.000	11.53	8.28	3.25	6.75													
2281		●	2.281	1.500		7.81	5.13	2.69	3.88	0.283													
2312		●	2.312	-		1.500	7.81	5.13	2.69	3.88	0.287												
2312-X3N		●				2.000	11.72	8.47	3.25	6.93													

Recommended Cutting Conditions ➡ K104

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								Coolant Hole	Fig.	Spare Parts		Applicable Inserts ➡ K99							
				DC		DCON	OAL	LFS	LS	LU	PL			Screw	Wrench								
				in	mm																		
Inch	DR- 2362	△	4	2.362	60	1.500	8.19	5.50	2.69	4.13	0.301	Yes	2	SCR-30	T10	WCMX 06T308-M1 WCMX 06T308-M1A							
	2375	●		2.375	-	1.500	8.19	5.50	2.69	4.13	0.298												
	2375-X1	●				1.500	6.56	3.88	2.69	2.50													
	2375-X3N	●		2.437		2.000	12.05	8.80	3.25	7.12							0.309						
	2437-X1	△				1.500	6.56	3.88	2.69	2.50													
	2437-X3N	●		2.000		12.25	9.00	3.25	7.31														
	2469	●		2.469		1.500	8.19	5.50	2.69	4.13	0.319												
	2500	●		2.500		1.500	8.19	5.50	2.69	4.13	0.329												
	2500-X1	●				1.500	6.56	3.88	2.69	2.50													
	2500-X3N	●				2.000	12.46	9.21	3.25	7.50													
	2625	●		2.625		2.000	11.25	8.00	3.25	6.50	0.326												
	2625-X1	●				2.000	7.50	4.25	3.25	2.75													
	2750	●		2.750		2.000	11.25	8.00	3.25	6.50	0.340												
	2750-X1	●				2.000	7.50	4.25	3.25	2.75													
	2875	●		2.875		2.000	11.25	8.00	3.25	6.50	0.357												
	2875-X1	●				2.000	7.75	4.50	3.25	3.00													
	Inch	DR- 3000-X1	●	6		3.000	-	2.000	7.75	4.50	3.25						3.00	0.369					
		3000	●					2.000	11.25	8.00	3.25						6.50						
		3125	●			3.125		2.000	12.50	9.25	3.25						7.63	0.393					
		3125-X1	△					2.000	8.13	4.88	3.25						3.25						
		3250	●			3.250		2.000	12.50	9.25	3.25						7.63	0.387					
		3250-X1	△					2.000	8.13	4.88	3.25						3.25						
		3500	●			3.500		2.000	12.50	9.25	3.25						7.63	0.440					
		3500-X1	●					2.000	8.38	5.13	3.25						3.50						
		3625	●			3.625		2.000	12.67	9.42	3.25						7.94	0.441					
		3750	●			3.750		2.000	13.00	9.75	3.25						8.00	0.459					
		3750-X1	△					2.000	8.75	5.50	3.25						3.75						
		3875	△			3.875		2.000	13.44	10.19	3.25						8.44	0.470					
		4000	●			4.000		2.000	13.88	10.63	3.25						8.56	0.482					
		4000-X1	●					2.000	9.38	6.13	3.25						4.00						

Recommended Cutting Conditions ➡ K104

Recommended Cutting Conditions

Workpiece Material	Feed Rate (ipr)	Recommended Insert Grade / Cutting Speed (sfm)					Notes
		MEGACOAT NANO		MEGACOAT	CVD Carbide	Carbide	
		PR1535	PR1510	PR1230	CA6535	KW10	
Low Carbon Steel	0.0015~0.0035	☆ 250~650	-	★ 800~900	-	-	Coolant
Carbon Steel	0.005~0.009	☆ 250~550	-	★ 400~800	-	-	
Alloy Steel	0.004~0.010	☆ 225~500	-	★ 250~750	-	-	
Tool Steel	0.004~0.010	-	-	★ 250~750	-	-	
Stainless Steel (Austenitic)	0.0025~0.006	★ 200~600	-	★ 200~600	☆ 250~650	-	
Gray Cast Iron	0.005~0.011	-	★ 400~800	-	-	☆ 400~800	
Nodular Cast Iron	0.004~0.010	-	★ 300~500	-	-	☆ 300~500	
Non-ferrous Metals	0.008~0.010	-	-	-	-	★ 1,800~2,000	
Heat-resistant Alloy	0.0010~0.0015	☆ 75~150	-	★ 75~150	★ 75~200	-	
Titanium Alloys	0.0025~0.0030	★ 100~200	-	-	-	☆ 150~250	

Apply a sufficient amount of coolant

★ : 1st Recommendation ☆ : 2nd Recommendation

HOLESHOT Applications

DRILL APPLICATION HOLESHOT INDEXABLE DRILL	
Stationary For stationary (lathe) applications the drill should be mounted in a toolholder that is concentric within 0.003 TIR and parallel to the machine centerline. Flats on the shank should be precisely aligned so that the cutting edges are parallel to the x-axis, which will help chip flow. A disc is normally produced as the drill breaks through the hole. Although the disc is usually minimal with holeshot, adequate guarding should be provided for and in place. holeshot drills can be used to back bore an existing hole to a desired size. The drill can be offset by up to 0.015" for back boring.	Rotating Make certain the spindle is rigid with minimal runout. Since both machine and fixture rigidity are key factors, make sure the workpiece is fixed rigidly and secured. Mount drill for the least possible overhang and make sure the drill flange is flush against the face of the adapter. Coolant - Chip removal and tool life are enhanced by feeding coolant through the drill. 30 P.S.I. minimum coolant pressure is recommended for horizontal applications. Vertical position requires a higher coolant pressure (40 to 60 P.S.I.) to flush chips properly. Through the tool coolant is preferred for holeshot drilling, but due to the unique flute design, coolant deficiencies can be overcome. Especially in smaller, lower horsepower machine tools, strong flood coolant can be utilized with excellent results. When flooding the cut, direct coolant directly into the drilling area.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Coremaster Coredrill

Fast and Effective way to Expand Pre-Existing Holes

Superior Fracture Resistance and Long Tool Life with
MEGACOAT NANO Coating Technology



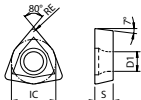
1 Two Effective Flutes Allow High Feed Rates for Improved Productivity

2 Deeper Drilling Depths Available in XL Series

3 Fixed Pocket and Adjustable Cartridge Styles Available

Adjustable cartridges can be adjusted 0.075" per side,
providing 0.150" adjustment capability on diameter

WCMX

		Carbon Steel / Alloy Steel								P						
		Mold and Die Steel														
		Stainless Steel														
		Cast Iron														
		Non-Ferrous Metals														
		Heat-resistant alloy														
Insert		Part Number		No. of Edges	Dimensions (in)				Carbide		Cermet		Applicable Toolholder ➡ K107~K108			
					IC	S	D1	RE	CVD	PVD	-	PVD		-		
									CA6535	PR1535	PR1510	PR1230	KW10	PV90	Ti60	
		WCMX 050308-M1	3	5/16	1/8	0.125	1/32	●	●	●	●	●	●	●	CD-825 ~ CD-1052 CD-825-XL ~ CD-1052-XL	
		050308-M1A	3					●	●	●	●	●	●			
		06T308-M1	3	3/8	5/32	0.146		●	●	●	●	●	●	●	CD-1115 ~ CD-1303 CD-1360-C ~ CD-2960-C CD-1115-XL ~ CD-1303-XL CD-1350-LC ~ CD-3000-LC	
		06T308-M1A	3					●	●	●	●	●	●			

WCMX...M1:

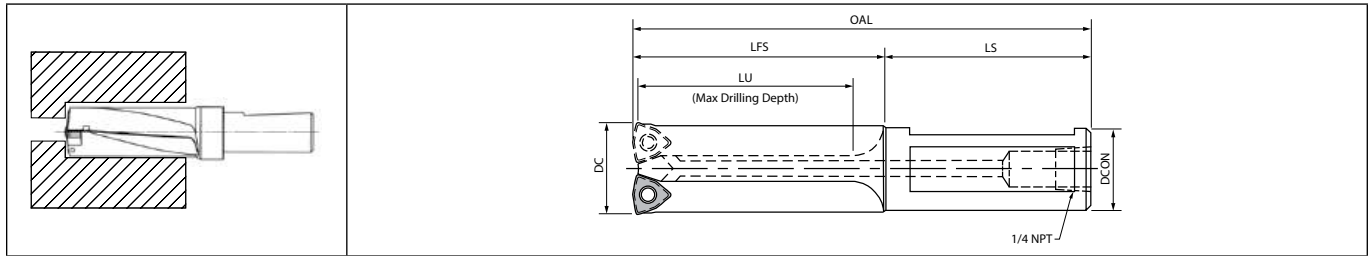
General purpose drilling insert; First choice for Med-High Carbon Steel, Tool Steels, and Cast Iron; also available for general purpose drilling in Stainless Steel. Tougher edge than M1A chipbreaker.

WCMX...M1A:

First choice for Low-carbon Steel, Aluminum, and other "sticky" materials. Freer cutting than M1 chipbreaker.

Inserts are
sold in 10 piece boxes

Coremaster Coredrill (CD) (Fixed Pocket)



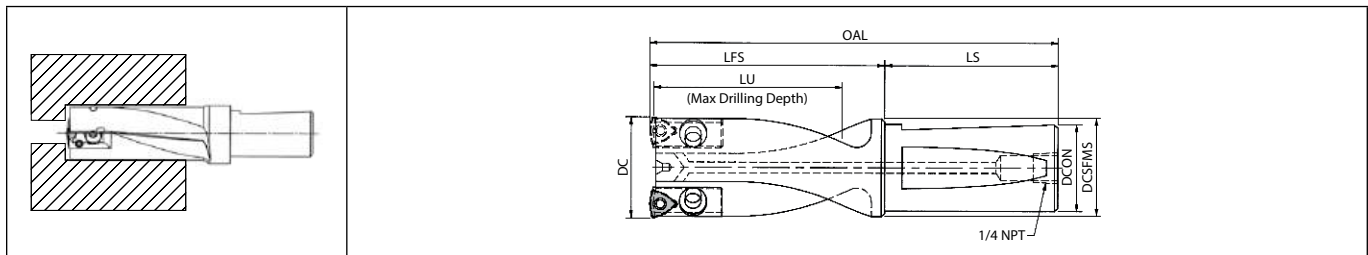
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Spare Parts		Applicable Inserts ➡ K106
				DC	DCON	OAL	LFS	LS	LU			
Inch	CD- 0825	●	2	0.825	1.000	4.750	2.250	2.500	1.750	SCR03	T9	WCMT 050308 WCMX 050308-M1 WCMX 050308-M1A
	0865	●		0.865								
	0938	●		0.938								
	0990	●		0.990								
	1052	●		1.052								
	1115	●	2	1.115	1.000	5.500	3.000	2.500	2.500	SCR30	T10	WCMT 06T308 WCMX 06T308-M1 WCMX 06T308-M1A
	1178	●		1.178								
	1240	●		1.240								
	1303	●		1.303								

Maximum material removal: WCMX 050308 – 5/16" per side, WCMX 06T308 – 3/8" per side.

Recommended Cutting Conditions ➡ K109

Coremaster Coredrill (CD-C) (Adjustable Pocket)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Spare Parts				Applicable Inserts ➡ K106
				DC	DCON	OAL	LFS	LS	LU	DCSfMS	Insert Screw	Wrench	Cartridge	Screw	
															
Inch	CD- 1360-C	●	2	1.36 - 1.46	1.250	6.250	3.500	2.750	2.750	1.27	SCR30	T10	02-03	01-01	WCMT 06T308 WCMX 06T308-M1 WCMX 06T308-M1A
	1460-C	●		1.46 - 1.56						1.37					
	1560-C	●		1.56 - 1.66						1.47					
	1660-C	●		1.66 - 1.76						1.57					
	1760-C	●		1.76 - 1.86	1.500	7.000	4.000	3.000	3.125	1.67				01-02	
	1860-C	●		1.86 - 1.96						1.77					
	1960-C	●		1.96 - 2.06						1.87					
	2060-C	●		2.06 - 2.16						1.97					
	2160-C	●		2.16 - 2.26						2.07					
	2260-C	●		2.26 - 2.36						2.17					
	2360-C	●		2.36 - 2.46						2.27					
	2460-C	●		2.46 - 2.56						2.37					
	2560-C	●		2.56 - 2.66						-					
	2660-C	●		2.66 - 2.76											
	2760-C	●		2.76 - 2.86											
	2860-C	●		2.86 - 2.96											
	2960-C	●		2.96 - 3.06											

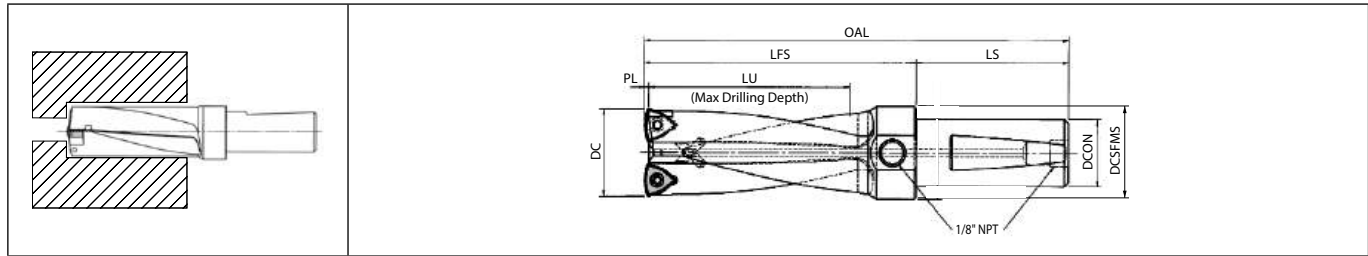
Maximum material removal: WCMX 050308 – 5/16" per side, WCMX 06T308 – 3/8" per side.

Recommended Cutting Conditions ➡ K109

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Coremaster Coredrill (CD-XL) (Extended Length - Fixed Pocket)



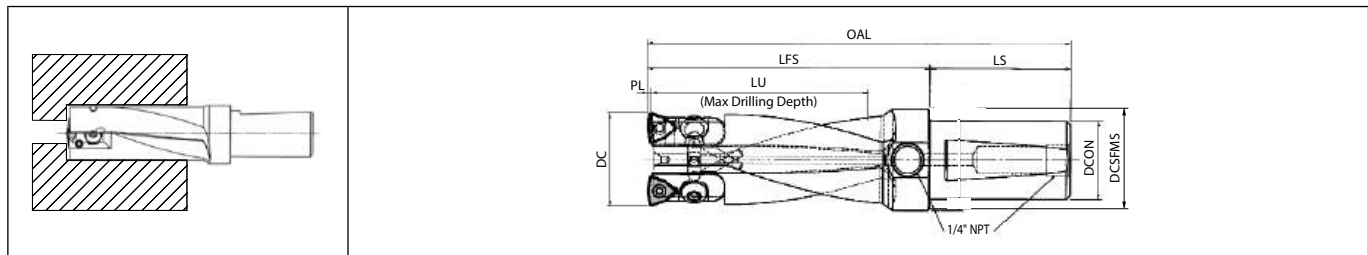
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Spare Parts		Applicable Inserts  K106
				DC	DCON	OAL	LFS	LS	LU	DCSfMS			
Inch	CD- 0825-XL 0865-XL 0938-XL 0990-XL 1052-XL		2	0.825	1.000	5.530	3.250	2.280	2.250	1.375			WCMT 050308 WCMX 050308-M1 WCMX 050308-M1A
				0.865									
				0.938									
				0.990									
				1.052									
	1115-XL 1178-XL 1240-XL 1303-XL		1.000	1.115	6.280	4.000	2.280	3.000	1.375			WCMT 06T308 WCMX 06T308-M1 WCMX 06T308-M1A	
				1.178									
				1.240									
				1.303									

Maximum material removal: WCMX 050308 – 5/16" per side, WCMX 06T308 – 3/8" per side.

Recommended Cutting Conditions ➔ K109

Coremaster Coredrill (CD-LC) (Extended Length - Adjustable Pocket)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							Spare Parts				Applicable Inserts  K106		
											Insert Screw	Wrench	Cartridge	Screw			
				DC	DCON	OAL	LFS	LS	LU	DCSFMS							
Inch	CD- 1350-LC		2	1.35 - 1.50	1.250	6.780	4.500	2.280	3.500	1.63	SCR30		02-03	01-01	WCMT 06T308 WCMX 06T308-M1 WCMX 06T308-M1A		
	1500-LC			1.50 - 1.65													
	1650-LC			1.65 - 1.80													
	1800-LC			1.500	8.190	5.500	2.690	4.500	1.88	01-02							
	1950-LC													1.80 - 1.95			
	2100-LC													1.95 - 2.10			
	2250-LC			2.10 - 2.25	1.500	8.190	5.500	2.690	4.500					-		01-02	
	2400-LC			2.25 - 2.40													
	2550-LC			2.000													9.750	6.500	3.250	5.500	2.38
	2700-LC			2.40 - 2.55	2.000	9.750	6.500	3.250	5.500					-			01-02
	2850-LC			2.55 - 2.70													
	3000-LC			2.70 - 2.85													
			2.85 - 3.00	2.000	10.250	7.000	3.250	6.000	-		01-02						
			3.00 - 3.15														

Maximum material removal: WCMX 050308 – 5/16" per side, WCMX 06T308 – 3/8" per side.

Recommended Cutting Conditions ➔ K109

Recommended Cutting Conditions

Workpiece Material	Feed Rate (ipr)	Recommended Insert Grade / Cutting Speed (sfm)								Notes
		MEGACOAT NANO		MEGACOAT	CVD Carbide	Cermet	PVD Cermet	PVD Coated Carbide	Carbide	
		PR1535	PR1510	PR1230	CA6535	TN60	PV90	PR905	KW10	
Low Carbon Steel	0.003~0.007	☆ 250~650	-	★ 800~900	-	-	☆ 300~1,000	-	-	Coolant
Carbon Steel	0.010~0.018	☆ 250~550	-	★ 400~800	-	-	☆ 300~900	-	-	
Alloy Steel	0.008~0.020	☆ 225~500	-	★ 250~750	-	-	☆ 250~800	-	-	
Tool Steel	0.008~0.020	-	-	★ 250~750	-	-	☆ 200~750	-	-	
Stainless Steel (Austenitic)	0.005~0.012	★ 200~600	-	★ 200~600	☆ 250~650	-	-	-	-	
Gray Cast Iron	0.010~0.022	-	★ 400~800	-	-	-	-	☆ 400~800	☆ 400~800	
Nodular Cast Iron	0.008~0.020	-	★ 300~500	-	-	-	-	☆ 300~500	☆ 300~500	
Non-ferrous Metals	0.016~0.020	-	-	-	-	★ 1,800~2,000	-	-	★ 1,800~2,000	
Heat-resistant Alloy	0.002~0.005	☆ 75~150	-	★ 75~150	★ 75~200	-	-	-	-	
Titanium Alloys	0.005~0.006	★ 100~200	-	-	-	-	-	☆ 100~210	☆ 150~250	

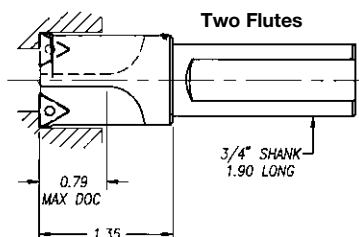
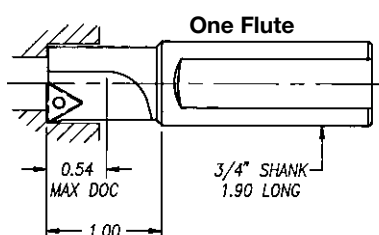
Apply a sufficient amount of coolant

★ : 1st Recommendation ☆ : 2nd Recommendation

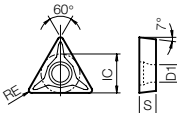
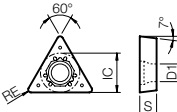
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Counterbores

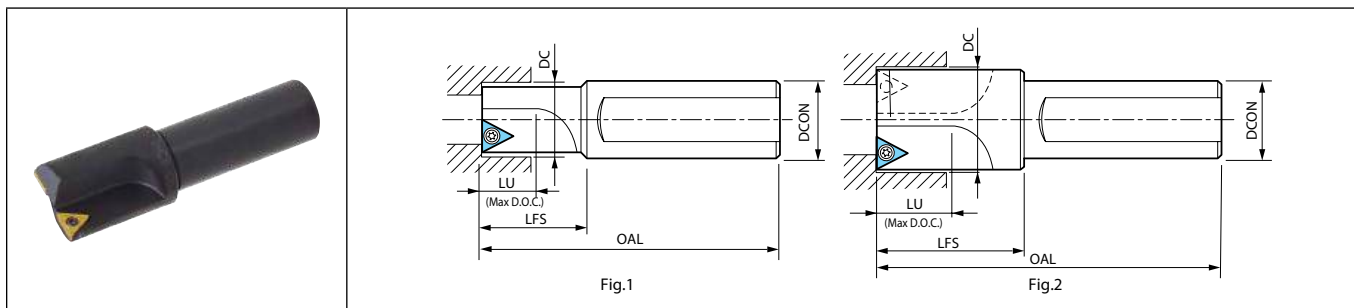
For Socket Head Cap Screw Sizes 1/4"~3/4" and 6mm~16mm



TCMT

		Carbon Steel / Alloy Steel		●	P					
		Mold and Die Steel		●						
		Stainless Steel		●	M					
		Cast Iron			K					
		Non-Ferrous Metals			N					
		Heat-resistant alloy		●	S					
Insert		Part Number	No. of Edges	Dimensions (in)				Carbide		Applicable Toolholder ➡ K111
				IC	S	D1	RE	CVD		
								CA6535	CA125P	
		TCMT 18151HP	3	7/32	3/32	0.094	1/64	●	...-SHCS-CB	
		TCMT 18151HQ	3	7/32	3/32	0.098	1/64	●		

Counterbores (SHCS-CB)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						Fig.	Spare Parts		Applicable Inserts  K110	
				SHCS		DC	DCON	OAL	LFS		LU	Screw		Wrench
				in	mm									
Inch	1/4-SHCS-CB	●	1	1/4	-	0.422	0.750	2.90	1.00	0.54	1	SCR-05	FT-7	TCMT18151HP TCMT18151HQ
	5/16-SHCS-CB	●		5/16		0.515								
	3/8-SHCS-CB	●		3/8		0.609								
	7/16-SHCS-CB	●		7/16		0.703								
	1/2-SHCS-CB	●	2	1/2	0.797	0.750	3.25	1.35	0.79	2	SCR-05	FT-7		
	5/8-SHCS-CB	●		5/8	1.000									
	3/4-SHCS-CB	●		3/4	1.187									
	M6-SHCS-CB	●	1	-	M6	0.440	0.750	2.90	1.00	0.54	1	SCR-05	FT-7	
	M8-SHCS-CB	●			M8	0.558								
	M10-SHCS-CB	●			M10	0.676								
	M12-SHCS-CB	●			2	M12									0.755	3.25	1.35	0.79	1

Maximum material removal per side is 1/4"

Recommended Cutting Conditions

Workpiece Material	Chipbreaker / Feed Rate (ipr)		Recommended Insert Grade / Cutting Speed (sfm)		Notes
			CVD Carbide		
	HP	HQ	CA6535	CA125P	
Low Carbon Steel	-	0.004~0.010	-	★ 390~850	Coolant
Carbon Steel	-	0.004~0.010	-	★ 390~850	
Alloy Steel	-	0.004~0.010	-	★ 360~750	
Stainless Steel (Austenitic)	0.004~0.010	-	★ 250~650	-	
Heat-resistant Alloy	0.004~0.010	-	★ 75~200	-	

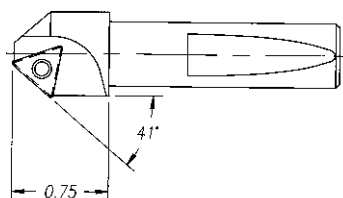
Apply a sufficient amount of coolant

★ : 1st Recommendation ☆ : 2nd Recommendation

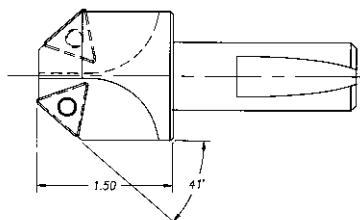
Countersinks

For Flat Head Cap Screw Sizes #10 ~ 3/4"

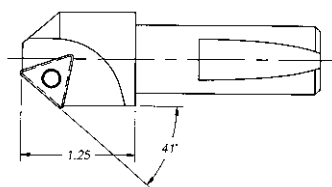
CS-82-177



CS-82-612



CS-82-362

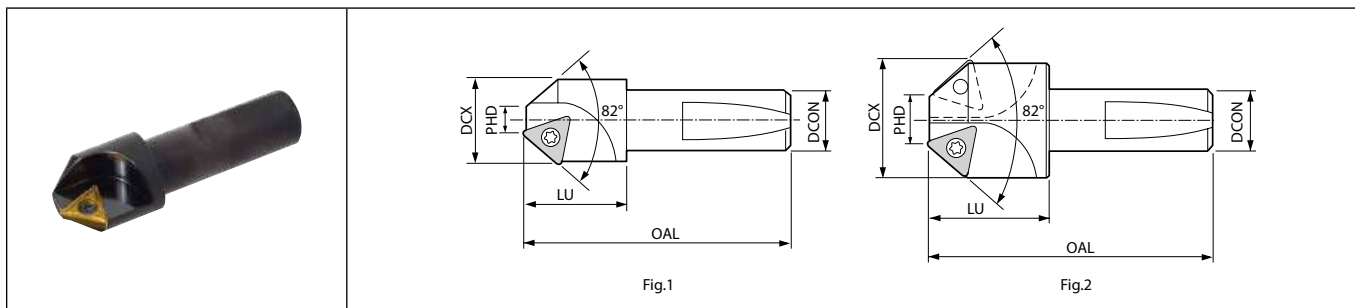


TCMT

		Carbon Steel / Alloy Steel			●	P			
		Mold and Die Steel			●				
		Stainless Steel		●			M		
		Cast Iron					K		
		Non-Ferrous Metals					N		
Heat-resistant alloy		●			S				
Insert	Part Number	No. of Edges	Dimensions (in)				Carbide		Applicable Toolholder ➡ K113
			IC	S	D1	RE	CVD		
							CA635	CA125P	
	TCMT 2151HQ	3	1/4	3/32	0.110	1/64	●	CS82-177	
	TCMT 3252HQ	3	3/8	5/32	0.173	1/32	● ●	CS82-362 CS82-612	

Inserts are
sold in 10 piece boxes

Countersinks (CS)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					Rake Angle (°)		FHCS	Fig.	Spare Parts		Applicable Inserts K112
				DCX	DCON	PHD	OAL	LU	A.R.	R.R.			Screw	Wrench	
Inch	CS 82-177	●	1	0.673	0.500	0.177	2.530	0.750	0	0	#10, 1/4", 5/16"	1	SCR-01	FT-7	TCMT2151HQ
	82-362	●	1	1.073	0.750	0.362	3.280	1.250			3/8", 7/16", 1/2"	1	SCR-01	FT-7	TCMT2151HQ
	82-612	●	2	1.464	0.750	0.612	3.530	1.500			5/8", 3/4"	2	SCR-02	FT-15	TCMT3252HQ

CS82-612 is one flute effective with staggered inserts.

Recommended Cutting Conditions

Workpiece Material	Chipbreaker / Feed Rate (ipr)		Recommended Insert Grade / Cutting Speed (sfm)		Notes
			CVD Carbide		
	HP	HQ	CA6535	CA125P	
Low Carbon Steel	-	0.004~0.010	-	★ 390~850	Coolant
Carbon Steel	-	0.004~0.010	-	★ 390~850	
Alloy Steel	-	0.004~0.010	-	★ 360~750	
Stainless Steel (Austenitic)	0.004~0.010	-	★ 250~650	-	
Heat-resistant Alloy	0.004~0.010	-	★ 75~200	-	

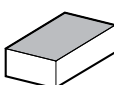
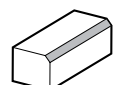
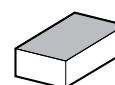
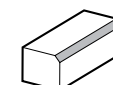
Apply a sufficient amount of coolant

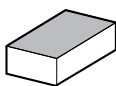
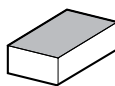
★ : 1st Recommendation ☆ : 2nd Recommendation

M

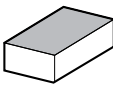
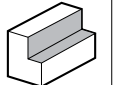
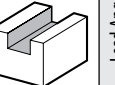
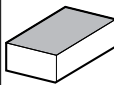
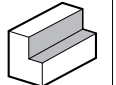
Overview		M2~M11
45° / 66° / 70° Lead Angle		M12~M61
MB45		M12
MFPN45 / MFPN66		M22
MFSE45		M38
MFLN45 / 70		M44
MFK	High efficiency milling cutters for cast iron	M50
75° Lead Angle		M62~M67
MSRS15		M62
88° / 90° Lead Angle		M68~M217
MA90		M68
MEW	M-FOUR	M82
MEC / MECX		M96
MEV	M-THREE	M118
MEWH / MECH / MECHT	Helical End Mills / Shell Mills	M126
MFWN / MFWN-Mini	M-SIX	M142
MFSN88		M158
MFLN90		M164
MSRS90		M170
MSR		M177
MTP90		M184
DMC-SX / DMC-H		M186
EM / EM-LE		M190
FM90		M192
MD90	High efficiency fine pitch milling cutters for aluminum alloys	M194
MFAH	High efficiency milling cutters for aluminum alloys	M200
MEAS	Multi-functional milling cutters of aluminum alloys	M210
EM-AL / FM-AL	General purpose milling cutters for aluminum alloys	M216
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MFF		M218
High Feed Milling Cutters		M224~M259
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MFH-MAX		M238
MFH-Mini		M247
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MCSE	Chamfering End Mill	M299
MEF	Bolt Countersink End Mill	M302
METS	T-Slot End Mill	M305
MGI	Grooving End Mill with GVR Inserts	M308
MVG	Ring Grooving End Mill	M310
API	Ring Groover	M312
DC	Dovetail End Mill	M316
ISO Milling Inserts		M318~M323
BT Arbors & Overhang Lengths (for Modular Head End Mills)		M324~M325

45°/66°/70°/75° Lead Angle

Lead Angle	Applications Shape	Facing	Chamfering	Lead Angle	Applications Shape	Facing	Chamfering
							
45°	MB45  ➡ M14~M17	• Delivers the low cutting force benefits of positive inserts and the fracture resistance benefits of negative inserts • Provides excellent surface finish • Available for steel, stainless steel, cast iron, aluminum alloys, and heat-resistant alloys		45°	MFSE45  With Wiper Insert ➡ M40	• 10-edge pentagonal inserts (double-sided) • Low cutting force with helical cutting-edge design • Dual cutting edge design (High toughness) • End mills have ø32mm cylindrical shank	
	MFPN45  ➡ M22~M27	• 10-edge pentagonal inserts (double-sided) • Low cutting force with helical cutting-edge design • Dual cutting edge design (High toughness) • Weldon and cylindrical shanks available			MFLN45  ➡ M46	• For heavy milling • Tough 4-edge vertical inserts • For large depths of cut and high feed rates • Max. D.O.C. 12 mm	

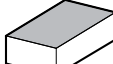
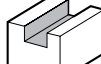
Lead Angle	Applications Shape	Facing	Lead Angle	Applications Shape	Facing	
						
66°	MFPN66  ➡ M33~M35	• Double-sided 10-edge insert • Cutting edge angle 66° • Reduces chattering with low cutting force design • End mills have ø32mm, ø40mm cylindrical shank		70°	MFLN70  ➡ M47	• For heavy milling • Tough 4-edge vertical inserts • For large depths of cut and high feed rates • Max. D.O.C. 17 mm
	MSRS15  ➡ M63~M64	• For heavy milling • Max. D.O.C. 12 mm • High chip evacuation rate per unit			MFK  ➡ M52~M54	• High efficiency multi-edge cutter for cast iron • 10-edge pentagonal inserts (double-sided) • Low cutting force with helical cutting-edge design • Improved surface finish, minimizing chattering and prevented burr formation • Dual cutting edge design (High toughness)
				MFK-SF  ➡ M56	• For cast iron • Adjustable cutting edge height • High speed and high precision machining of cast iron by combining ceramic insert and CBN wiper insert	

88°/90° Lead Angle (Double-sided insert)

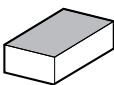
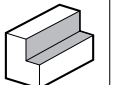
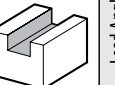
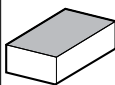
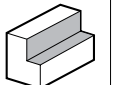
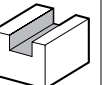
Lead Angle	Applications			Lead Angle	Applications		
	Facing	Shouldering	Slotting		Facing	Shouldering	Slotting
Shape				Shape			
90°	MA90  ➡ M72~M75			MFWN  ➡ M144~M148			
	MA90 Modular Head  ➡ M76			MFWN Mini  ➡ M153~M154			
	MEW  ➡ M84~M89			MFSN88  ➡ M159~M161			
MEW Modular Head  ➡ M90							

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

90° Lead

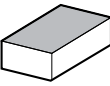
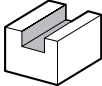
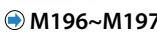
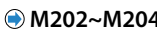
Lead Angle	Applications	Facing	Shouldering	Slotting	Lead Angle	Applications	Facing	Shouldering	Slotting
									
Shape					Shape				
90°	MEC  ➡ M96~M102	• Good squareness • Low cutting force • The silver coating prevents chip wear on the tool body • With coolant hole (Over shank size $\phi 16$) • The twisted cutting edge improves cutting performance • Smooth surface of shoulder wall			MEV  ➡ M120~M122	• Newly developed vertical triangle inserts • Economical 3-edge insert • The MEV can perform a wide variety of machining processes			
	MEC Modular Head  ➡ M103				MEV Modular Head  ➡ M122				
	MECX  ➡ M112~M113				DMC-H  ➡ M187					• High Rake • For small milling machine and M/C
	MTP90  ➡ M184	DMC-SX  ➡ M186	• For small milling machine and M/C						
	EM  ➡ M190	• Extended length end mills							
	EM-LE  ➡ M191	• Long edge end mill							
	FM-90  ➡ M192	• Fixed pocket face mills							

90° Lead (Heavy Milling)

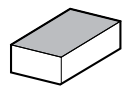
Lead Angle	Applications	Facing	Shouldering	Slotting	Lead Angle	Applications	Facing	Shouldering	Slotting
									
Shape					Shape				
90°(Long cutting edge)	MEWH  ➡ M126	• Low cutting force and sharp cutting performance • Excellent surface finish quality • Economical double-sided 4-edge insert • High quality and stable machining with heavy milling			90°(Long cutting edge)	MECH  ➡ M130	• Notched insert improves higher productivity		
	MEWH Shell Mill  ➡ M127	• MEWH shell mill				MECH Shell Mill  ➡ M131	• MECH shell mill		
	MSRS90  ➡ M172~M173	• High efficiency, low cutting force and stable machining without chatter • Various expansive possibilities with combining neutral insert and custom-ordered cutter				MECHT  ➡ M139	• Excellent chattering resistance and good chip control with special design for titanium alloys • End mills have ø32mm, cylindrical shank		
	MSR  ➡ M178~M179	• Low cutting force and restrain chattering with notched insert • Chipbreaker design with specialized notches improves chip evacuation • Chipbreaker achieves stabilized machining for heavy milling							
	MFLN90  ➡ M166	• For heavy milling • Tough 4-edge vertical inserts • For large depths of cut and high feed rates • Max. ap 20 mm • Chamfered corner type available • Prevents chattering and insert fracturing							

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
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SMALL TOOLS	E
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GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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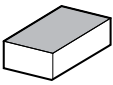
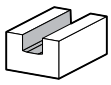
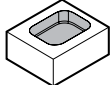
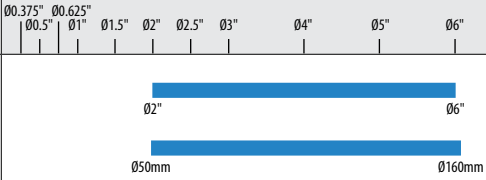
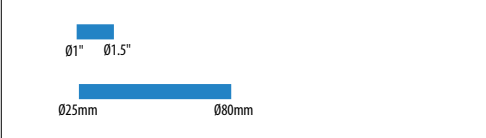
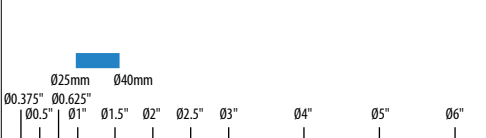
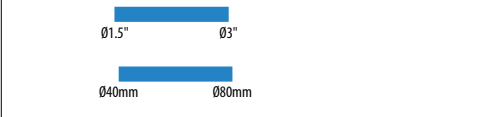
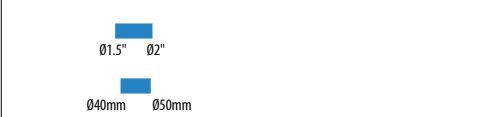
90° Lead (for Aluminum Alloys)

Lead Angle	Applications	Facing	Shouldering	Slotting
	Shape			
90°	MFAH  	• High efficiency super-fine pitch milling cutter for finishing aluminum alloys • Light-weight aluminum body with internal coolant available or choose a Steel body • Adjustable cutting edge height • 3 different cutting edge design		
	MFAH  	• High efficiency milling cutter for finishing aluminum alloys • Light-weight hybrid body with internal coolant available/Steel body • Adjustable cutting edge height • 3 different cutting edge design		
	MEAS  	• High efficiency milling cutter for finishing aluminum alloys • Excellent scatter prevention to ensure stable		
	FM-AL  	• Aluminum cutting face mills • Fixed pocket		
	EM-AL  	• Aluminum cutting end mills • Fixed pocket		

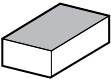
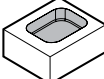
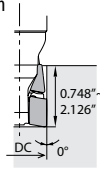
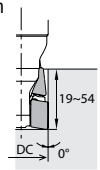
For Finishing Operations

Applications	Facing
	Shape
MFF  	 • High-Quality surface finish • Molded wiper insert • Cutter body design provides excellent reliability • Easy-to-adjust cutting edge

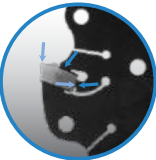
High Feed Cutters

Applications Shape	Facing	Shouldering	Slotting	Pocketing	Cutting Diameter DCX
					
MFH-RAPTOR (Face Mill)  M225~M227	Various applications with 4 types of inserts				
MFH-RAPTOR (End Mill)  M229~M231	 GM Type (General purpose)  GH Type (Tough edge)  LD Type (Large D.O.C.) MAX. D.O.C. = 5mm  FL Type (With wiper edge) Roughing and finishing				
MFH-RAPTOR (Modular Head)  M232	3D convex cutting edge reduces shock of biting workpiece - Multi-functional cutter for ramping, helical milling vertical milling (plunging) etc. (GM/GH type)				
MFH-MAX (Face Mill)  M242	- Economical double-sided 4-edge insert - High feed milling with large depth of cut capabilities				
MFH-MAX (End Mill)  M241	 GM Type (General Purpose)				
MFH-MAX (Modular Head)  M243	Achieves high efficiency machining in various shouldering, slotting, helical milling, and ramping applications				
MFH-Mini (Face Mill)  M249	Economical double-sided 4-edge insert				
MFH-Mir (End Mill)  M248	 GM type (General purpose)  GH type (Tough edge)				
MFH-Mini (Modular Head)  M250	High efficiency and high feed machining at small dia. machining and small machining center				
MFH-Micro (End Mill)  M255	- Micro diameter cutter for high feed machining - High efficiency machining with low cutting force and reduced chattering				
MFH-Micro (Modular Head)  M256					

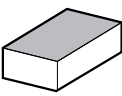
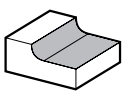
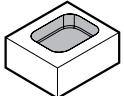
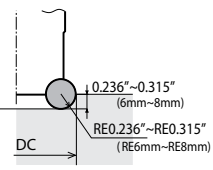
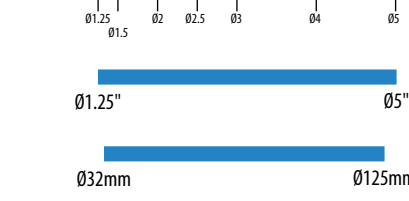
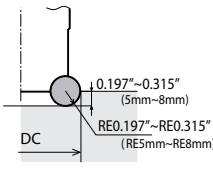
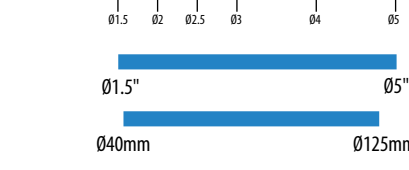
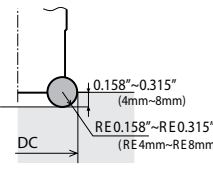
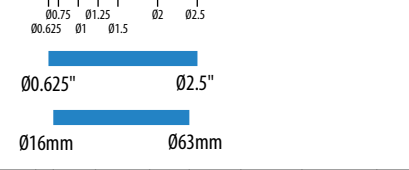
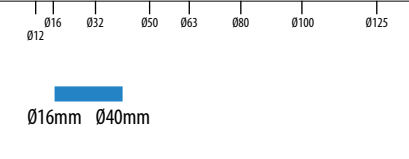
Multi-Functional End Mills

Applications Shape	Facing	Shouldering	Slotting	Deep slotting	Pocketing	Drilling	Lead Angle and Max. D.O.C.	Cutting Diameter DC		
								ø0.5	ø1	ø2
MEY   M260~M261	- Multi-function machining (Drilling/Ramping/Shouldering/Grooving) - High efficiency mold machining - Low cutting force, Good chip evacuation			- Full 2-insert structure and high stability - Good chip control when Ramping		- Cutting diameters that are larger than the shank diameters enables wall shouldering - The silver coating prevents chip wear on the tool body	Inch  DC 0°	Inch  ø0.630" ø1.984" ø16 ø25 ø50		
							mm  DC 0°	mm  ø16mm ø50mm		

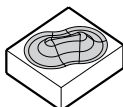
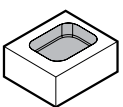
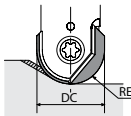
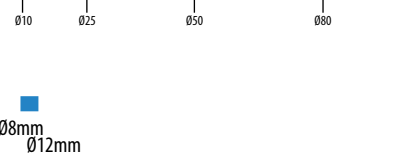
Slot Mill MSTA

 M266, M267	
	
- Self-clamping type - Remove insert with appropriate wrench	

Radius

Applications Shape	Facing	Shouldering	Pocketing	Lead Angle and Max. D.O.C.	Cutting Diameter DC
					
MRW Face Mill/End Mill  M276~M280	- High efficiency radius cutter with double-sided insert - Combine sharpness and cutting edge strength (A.R. Max. +12°) - Prevent insert rotation during machining with flat lock structure - Wide application range from steel to heat-resistant alloys			 0.236"~0.315" (6mm~8mm) RE0.236"~RE0.315" (RE6mm~RE8mm)	 01.25 01.5 02 02.5 03 04 05 01.25" 05" Ø32mm Ø125mm
MRX Face Mill  M285~M286	- Low cutting force and high performance radius cutter - Low cutting force with helical cutting-edge design (A.R. Max. +10°) - Prevent insert rotation during machining with flat lock structure - Wide application from facing, grooving, pocketing to plunging			 0.197"~0.315" (5mm~8mm) RE0.197"~RE0.315" (RE5mm~RE8mm)	 01.5 02 02.5 03 04 05 01.5" 05" Ø40mm Ø125mm
MRX End Mill  M288~M297	Wide application range from steel to heat-resistant alloys			 0.158"~0.315" (4mm~8mm) RE0.158"~RE0.315" (RE4mm~RE8mm)	 00.75 01 01.25 02 02.5 00.625 01 01.5 00.625" 02.5" Ø16mm Ø63mm
MRX head (Modular Head)  M290					 016 032 050 063 080 0100 0125 012 Ø16mm Ø40mm

Ball-nose end mill

Applications Shape	Contouring/Profiling	Pocketing	Lead Angle and Max. D.O.C.	Cutting Diameter DC
				
MRF  M270	- For high quality mold finishing - High R-accuracy (Insert's R-accuracy: ±0.01mm or under) - The bushing ensures insert installation accuracy		 DC RE	 010 025 050 080 Ø8mm Ø25mm
MRFW  M271	- Carbide shank - For high quality mold finishing - High R-accuracy (Insert's R-accuracy: ±0.01mm or under) - The bushing ensures insert installation accuracy - Superior to anti vibration, and stable machining is possible with long overhang length without chattering			 010 025 050 080 Ø8mm Ø12mm

Chamfering

Applications Shape	Chamfering	Back Chamfering	V Shape Slotting	Countersinking	Lead Angle and Max. D.O.C.
CM / CM-AL M298	- Chamfering angles 3°-75° - CM-AL for aluminum cutting				
MCSE M299	- For 30°, 45°, 60° chamfering - Economical 4-edge insert - Available back chamfering				

Bolt Countersinking

Applications Shape	Bolt Countersinking	Facing	Shouldering	Lead Angle and Max. D.O.C.
MEF M302	- Countersink for hexagon socket bolt (M6 ~ M30) - Economical 4-edge insert			

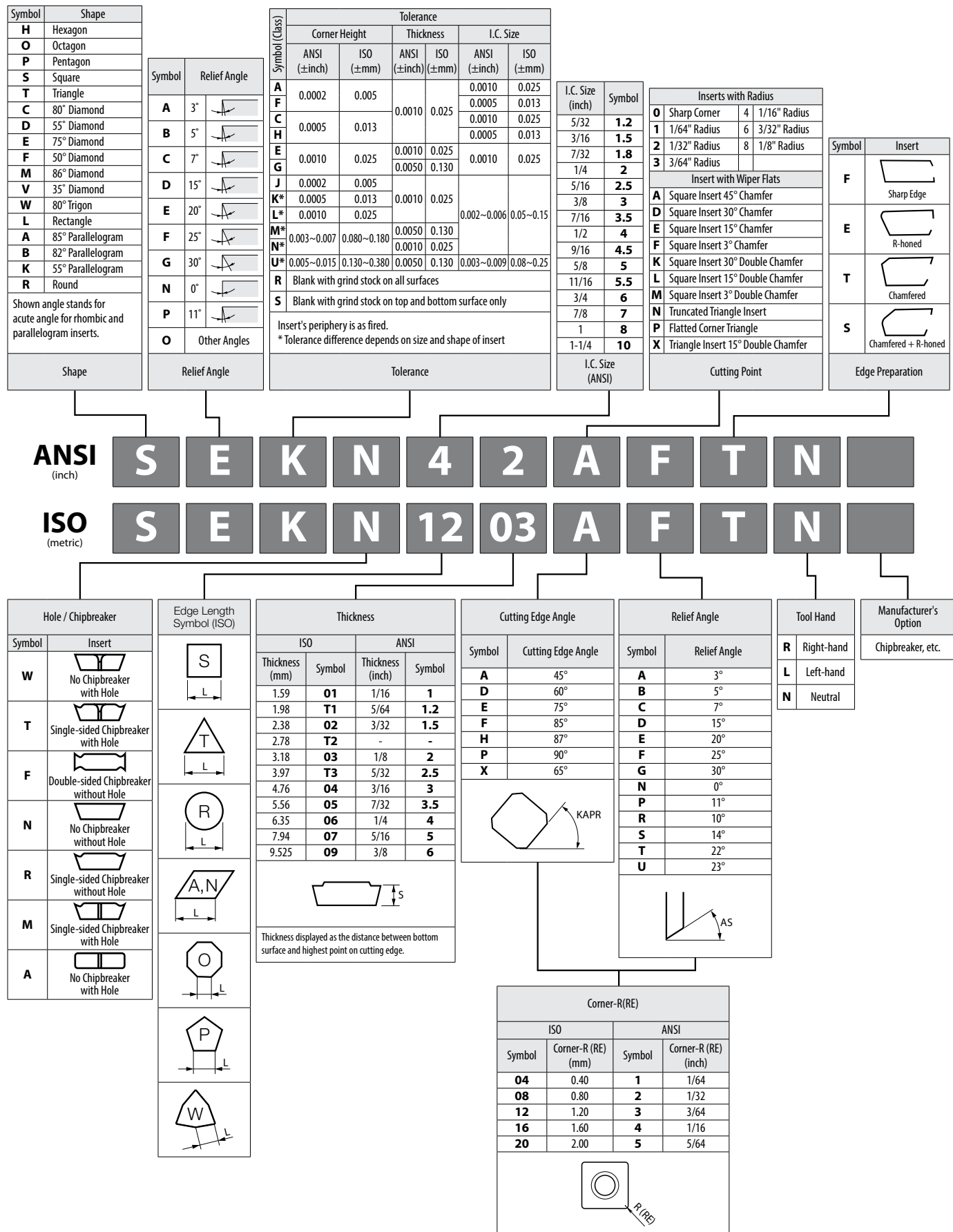
T-Slotting

Applications Shape	T-Slotting	Back Side Milling	Lead Angle and Max. D.O.C.
METS M305	- T-Slotting - Recommended for high feed machining with 2 flute design - Economical 4-edge insert		

Grooving

Applications Shape	Internal Grooving	Ring Grooving	API Ring Grooving	Lead Angle and Max. D.O.C.
API M312			The most economical and reliable tool to produce API ring grooves for the oil, gas, and petrochemical industries	
MGI M308	- Edge Width 1.0 ~ 4.0mm - Grooving for M/C			
MVG M310		- Cutting dia. $\phi 30 \sim \phi 75\text{mm}$ - Edge width 4.0 ~ 4.9mm - O-Ring grooving (G Series)		

Milling Insert Identification System



45° General Purpose Milling Series

MB45

Delivers the low cutting force benefits of positive inserts and the fracture resistance benefits of negative inserts, and provides excellent surface finish



1

Large insert lineup for a wide variety of machining applications

Five insert designs for various machining applications

Economical inserts with 8 cutting edges

General purpose GM insert with E-Class and M-Class options based on required machining accuracy

SM

(E Class) - Low Cutting Force

Sharpness oriented with a low cutting force design
-10% cutting resistance compared to general purpose GM insert
Recommended for small machines (BT30)

GM

(E/M Class) - General Purpose

1st recommendation for steel machining
Low cutting force and fracture resistance
E-Class or M-Class options

GH

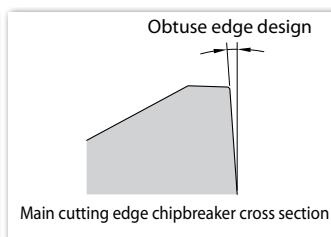
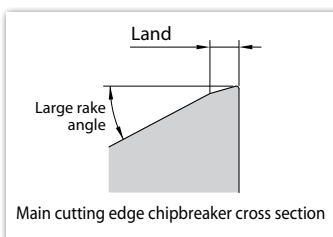
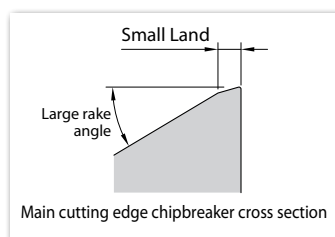
(M Class) - Tough Edge

Tough cutting edge and excellent fracture resistance
Obtuse edge design is resistant to chipping
Recommended for intermittent machining

W

(E-Class) Wiper Insert

Ultra-long wiper edge (Wiper edge length approx. 8 mm)



When to use GM (Class E/M)

Selection by Machining Application

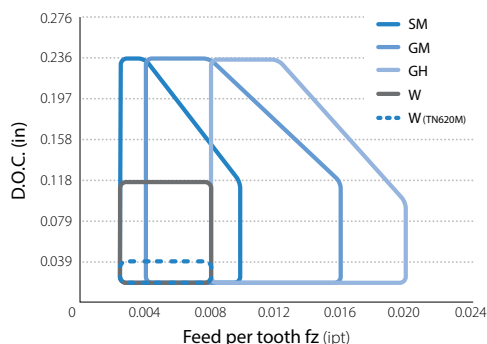
Surface roughness oriented: **GM (E-Class)**
Cost-effective and surface finish oriented: **GM (M-Class)**
Efficiency and surface roughness oriented: **W (E-Class)**

Criteria	GM (E-Class)	GM (M-Class)	W (E-Class) * Wiper
Tolerance	Inscribed Circle Tolerance $\pm 0.0005"$	Inscribed Circle Tolerance $\pm 0.0020"$	Inscribed Circle Tolerance $\pm 0.0005"$
Surface Finish	○ Approx. $1.6\mu\text{mRa}$	△ Approx. $3.2\mu\text{mRa}$	◎ Approx. $0.8\mu\text{mRa}$ or less
(Gloss)	(○)	(◎)	(◎)
Machining Efficiency	○	○	◎
Economy	○	◎	△

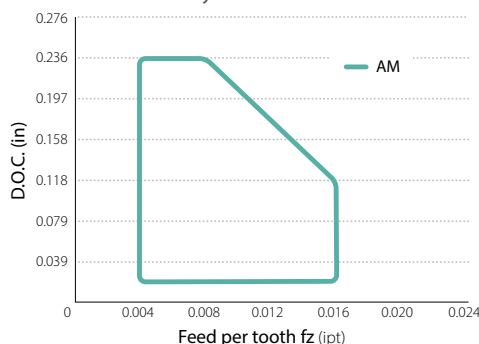
* Surface finish is based on internal assessment and varies depending on the machining environment

Applicable Insert Range

Steel

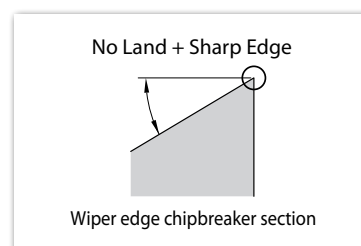


Aluminum alloy

**AM**

for Aluminum Alloys

No Land + Sharp Edge Specifications
Excellent sharpness



2

7 insert grades available for steel, stainless steel, cast iron, heat-resistant alloys, and aluminum

For steel, stainless steel and cast iron

PR1825/PR1835/PR1810 New development MEGACOAT NANO EX

For hardened material

PR015S MEGACOAT HARD PVD coating

For stainless steel and heat-resistant alloys

CA6535 CVD coating

For steel Surface finish oriented

TN620M Cermet

For aluminum machining

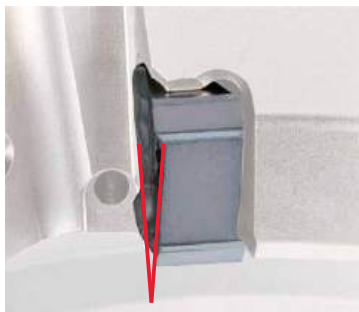
PDL025 DLC coating
GW25 Non-coated Carbide

3

Low cutting force design with excellent fracture resistance and superior surface finish

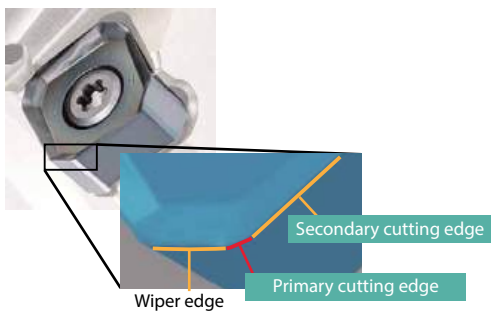
Low cutting force and excellent fracture resistance

A unique helical cutting edge



A.R. Ensures a maximum of 13° and suppresses chatter with low cutting force.

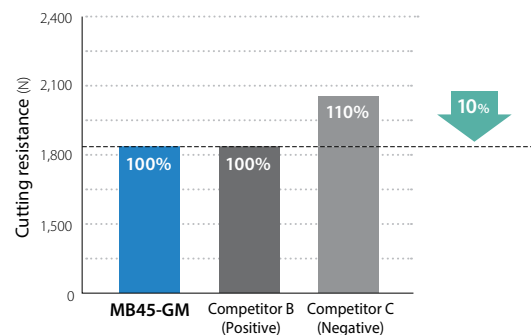
Double edge structure



Primary cutting edge generates thin chips
Reduces impact load and greatly reduces vibration when exiting the part

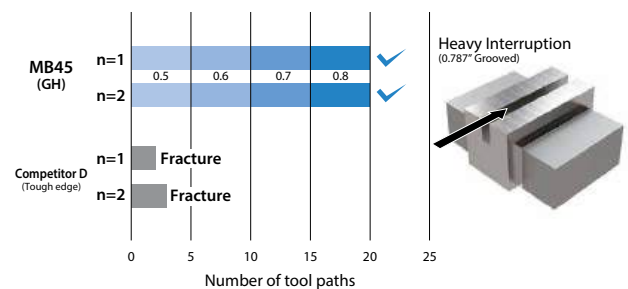
Unique helical cutting edge and double-edge structure

Cutting resistance comparison (Internal evaluation)



Cutting Conditions: $V_c = 590$ sfm, D.O.C. = 0.118", ae/DC = 80 % Center Cut, fz = 0.012 ipt, Workpiece: 1049

Fracture resistance comparison (Internal evaluation) fz = 0.020 ipt~0.032 ipt



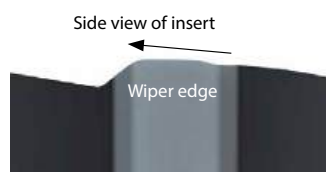
Cutting Conditions: $V_c = 330$ sfm, D.O.C. $\times$ ae = 0.079" $\times$ 3.937" mm Center Cut, BT50 Workpiece: 4140HT ϕ 5.000" (10 flute)

High Quality

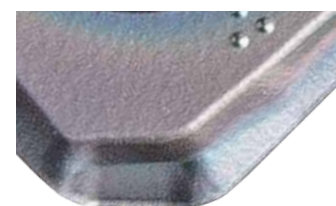
Long arc wiper edge utilizing unique technology

Unique long arc wiper edge

Reduces variation in mounting accuracy and provides superior finished surface quality



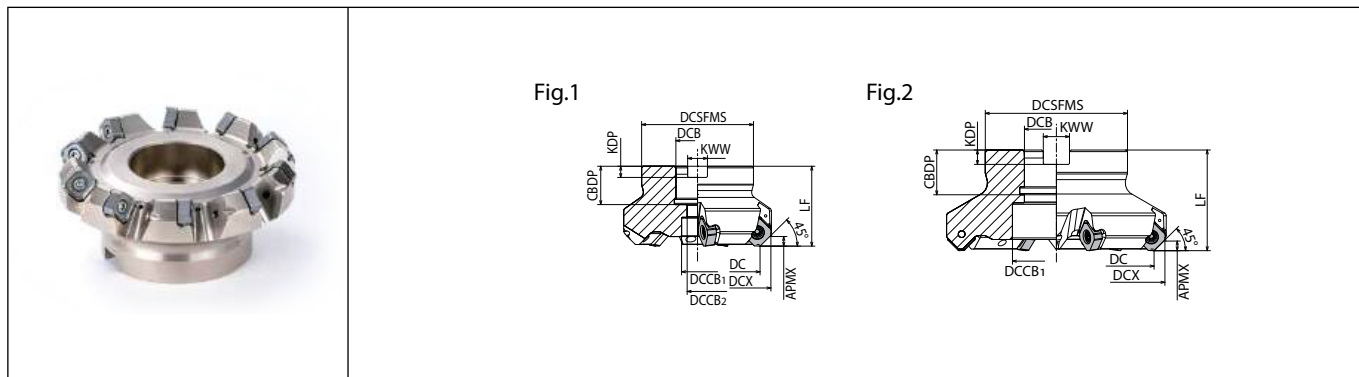
Convex curved shape with wiper edge protruding upward
*GM/SM/AM (E-Class)



Complex arc shape

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
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GROOVING	G
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THREADING	J
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INDEX	T

MB45 (Face Mill)



Toolholder Dimensions

Unit		Part Number			Std. Item	No. of Inserts	Dimensions										A.R. max.(°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Applicable Inserts ➡ M18
							DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW							APMX
Inch	Inch Bore Dia.	Coarse Pitch	MB45- 2000R-14T3C 2500R-14T4C 3000R-14T5C 4000R-14T5C 5000R-14T6C	● 3	2.000	2.492									0.236	+13	-12	Yes	11,300	1	SN□U1406...	
				● 4	2.500	2.992	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313					10,100			
				● 5	3.000	3.492	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382					9,200			
				● 5	4.000	4.492					1.969	1.417	0.394	0.626					8,000			
				● 6	5.000	5.492	3.750	1.500	2.047	-	2.480	1.417	0.394	0.626					7,100			
		Fine Pitch	MB45- 2000R-14T4C 2500R-14T5C 3000R-14T6C 4000R-14T8C 5000R-14T10C	● 4	2.000	2.492	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313	0.236	+13	-12	Yes	11,300	1	SN□U1406...	
				● 5	2.500	2.992													10,100			
				● 6	3.000	3.492	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382					9,200			
				● 8	4.000	4.492					1.969	1.417	0.394	0.626					8,000			
				● 10	5.000	5.492	3.750	1.500	2.047	-	2.480	1.417	0.394	0.626					7,100			
		Extra Fine Pitch	MB45- 2000R-14T5C 2500R-14T6C 3000R-14T8C 4000R-14T10C 5000R-14T13C	● 5	2.000	2.492	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313	0.236	+13	-12	Yes	11,300	1	SN□U1406...	
				● 6	2.500	2.992													10,100			
				● 8	3.000	3.492	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382					9,200			
				● 10	4.000	4.492					1.969	1.417	0.394	0.626					8,000			
				● 13	5.000	5.492	3.750	1.500	2.047	-	2.480	1.417	0.394	0.626					7,100			

Maximum number of revolutions

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on page M19.

Do not use the face mill or end mill at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.



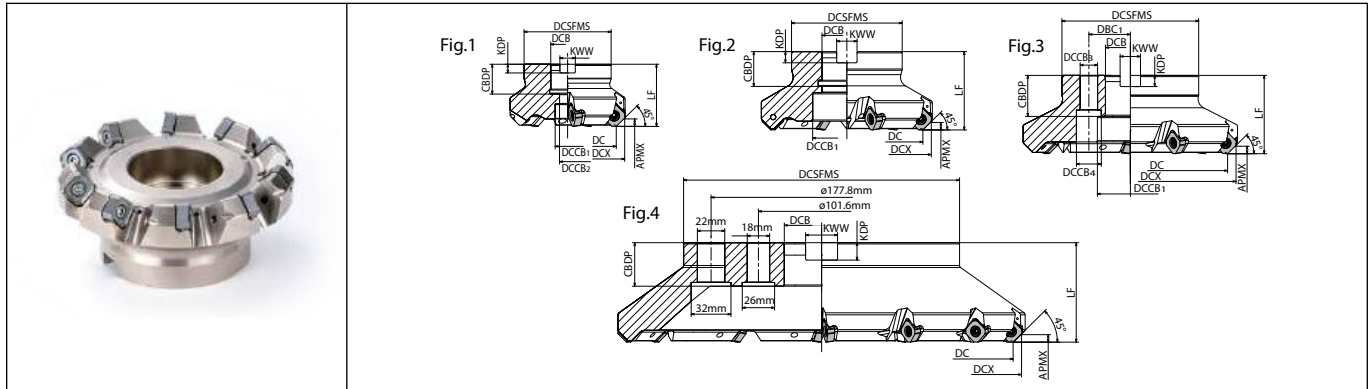
Inch Size Face Mill and End Mill Spare Parts

Part Number		Insert Screw	Wrench	Anti-Seize Compound	Arbor Bolt
Face Mills	MB45- 2000R-14T...	SB-50110TRP	TTP-20	P-37	HH3/8-1.25(H)
	2500R-14T...				HH3/8-1.25(H)
	3000R-14T...				HH1/2-1.25(H)
	4000R-14T...				-
	5000R-14T...				-
End Mills	MB45- 1500S125-14T2C	SB-50110TRP	TTP-20	P-37	-
	1500S125-14T3C				-
	2000S125-14T3C				-
	2500S125-14T4C				-

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

(H) Optional coolant-through bolt available

MB45 (Face Mill)



Toolholder Dimensions

Unit	Part Number			Std. Item	No. of Inserts	Dimensions											A.R. max.(°)	R.R. (°)	Coolant Hole	Weight (kg)	Max RPM	Fig.	Applicable Inserts M18			
						DC	DCX	DCSfMS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	DBC ₁	LF	CBDP								KDP	KWW	APMX
mm	Inch Bore Dia.	Coarse Pitch	MB45- 080R-14T5C	● 5	80	93	70	1.000"	20	13					50	1.063"	0.236"	0.375"	6	+13	-12	Yes	1.4	9,000	1	SN□U1406...
			100R-14T5C	● 5	100	113	78	1.250"	45							1.339"	0.315"	0.500"					2.0	8,000	2	
			125R-14T6C	● 6	125	138	89	1.500"	55							0.394"	0.625"	3.3					7,200			
			160R-14T7	● 7	160	173	110	2.000"	70						0.433"	0.750"	5.1	6,300								
			200R-14T8	● 8	200	213							63	1.496"			7.6	5,700				3				
			250R-14T10	● 10	250	263	140	1.875"	110		18	26	4.000"		0.551"	1.000"	10.8	5,100								
			315R-14T14	● 14	315	328	222		-		-	-	-	80			20.4	4,500					4			
		Fine Pitch	MB45- 080R-14T6C	● 6	80	93	70	1.000"	20	13					50	1.063"	0.236"	0.375"	6	+13	-12	Yes	1.4	9,000	1	SN□U1406...
			100R-14T8C	● 8	100	113	78	1.250"	45							1.339"	0.315"	0.500"					1.8	8,000	2	
			125R-14T10C	● 10	125	138	89	1.500"	55							0.394"	0.625"	3.1					7,200			
			160R-14T12	● 12	160	173	110	2.000"	70						0.433"	0.750"	4.9	6,300				3				
			200R-14T14	● 14	200	213							63	1.496"			7.4	5,700								
			250R-14T16	● 16	250	263	140	1.875"	110		18	26	4.000"		0.551"	1.000"	10.5	5,100					4			
			315R-14T18	● 18	315	328	222		-		-	-	-	80			20.2	4,500								
	Extra Fine Pitch	MB45- 080R-14T8C	● 8	80	93	70	1.000"	20	13					50	1.063"	0.236"	0.375"	6	+13	-12	Yes	1.3	9,000	1	SN□U1406...	
		100R-14T10C	● 10	100	113	78	1.250"	45							1.339"	0.315"	0.500"					1.8	8,000	2		
		125R-14T13C	● 13	125	138	89	1.500"	55							0.394"	0.625"	3.0					7,200				
		160R-14T16	● 16	160	173	110	2.000"	70						0.433"	0.750"	4.8	6,300			3						
		200R-14T18	● 18	200	213							63	1.496"			7.2	5,700									
		250R-14T20	● 20	250	263	140	1.875"	110		18	26	4.000"		0.551"	1.000"	10.4	5,100									

Maximum number of revolutions

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on page M19.

Do not use the face mill or end mill at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

Metric Size Face Mill and End Mill Spare Parts

Part Number			Insert Screw	Wrench	Anti-Seize Compound	Arbor Bolt	Differential Screw	
								
Face Mills	Inch Bore Dia.	MB45- 080R-14T...	SB-50110TRP	TTP-20	P-37	HH1/2-1.25(H)	-	
		100R-14T...				-	-	
		~ 315R-14T...				-	-	
	Metric Bore Dia.	MB45- 040R/050R-14T...-M				Recommended Torque for Insert Screw 4.5 Nm	HH8X25(H)	-
		040R/050R-14T...-22M					-	W10X31*
		063R-14T...-M					HH10X30(H)	-
		080R-14T...-M					HH12X35(H)	-
		100R-14T...-M					-	-
		~ 315R-14T...-M					-	-
		End Mills					MB45- 40S32-14T2C	SB-50110TRP	TTP-20	P-37	-	-
~ 80S32-14T5C	Recommended Torque for Insert Screw 4.5 Nm		-	-				

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

*How to install differential screw on page M16

(H) Optional coolant-through bolt available

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

A

B

C

D

E

F

G

H

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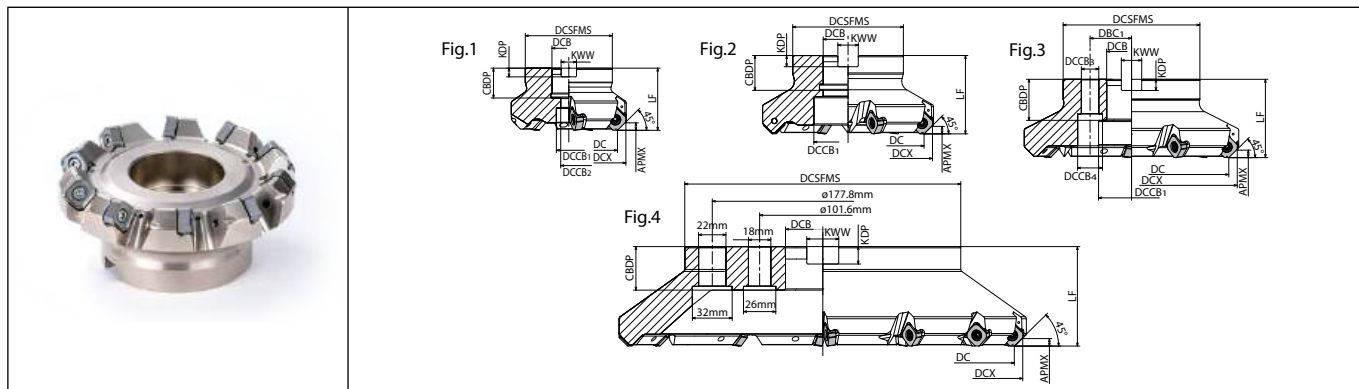
N

P

R

T

MB45 (Face Mill)



Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions													A.R. max.(°)	R.R. (°)	Coolant Hole	Weight (kg)	Max RPM	Fig.	Applicable Inserts ➡ M18							
DC					DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	DBC ₁	LF	CBDP	KDP	KWW	APMX														
mm	Coarse Pitch	MB45-040R-14T2C-M 050R-14T3C-M 063R-14T4C-M 080R-14T5C-M 100R-14T5C-M 125R-14T6C-M 160R-14T7-M 200R-14T8-M 250R-14T10-M 315R-14T14-M	● 2	40	54	38	16	13.5	9	-	-	-	40	19	6.3	10.4	6	+13	-12	Yes	0.4	12,700	1	SN□U1406...							
			● 3	50	63	48		22	18					11							50	24			7	12.4	0.5	11,400			
			● 4	63	76	50								63								33			9	16.4	0.7	10,100			
			● 5	80	93	70	27	20	13													30			8	14.4	1.4	9,000			
			● 5	100	113	78	32	45	18																26	101.6	35	14	25.7	1.9	8,000
			● 6	125	138	89		40					55	-	14	20				66.7		19.4	3.2		7,200	2					
			● 7	160	173	110							60								110		-		-		-	80	5.1	6,300	3
			● 8	200	213		142		60					110	-	-				-		-				-			-	7.3		5,700	4
			● 10	250	263									-							-		-		-		-	-		10.5	5,100
			● 14	315	328	222																									19.4	4,500
	Fine Pitch	MB45-040R-14T3C-M 040R-14T3C-22M* 050R-14T4C-M 063R-14T5C-M 080R-14T6C-M 100R-14T8C-M 125R-14T10C-M 160R-14T12-M 200R-14T14-M 250R-14T16-M 315R-14T18-M	● 3	40	54	38	16	13.5	9	-	-	-	40	19	5.6	8.4	6	+13	-12	Yes	0.3	12,700	1	SN□U1406...							
			● 4	50	63	48	22	18	11					50	24	7					12.4	0.5			12,700						
			● 5	63	76	50									63	33					9	16.4			0.4	11,400					
			● 6	80	93	70	27	20	13							30					8	14.4			1.4	9,000					
			● 8	100	113	78	32	45	14												20	66.7			35	14	25.7	1.8	8,000		
			● 10	125	138	89		40					55		-	14				20	66.7	19.2	3.0		7,200	2					
			● 12	160	173	110							60	110									-		-		-	-	4.9	6,300	3
			● 14	200	213		142		60						110	-				18	26	101.6				80			35	14		25.7	7.0	5,700
			● 16	250	263									-	-								-		-		-	-			10.2		5,100
			● 18	315	328	222																									19.2	4,500
	Extra Fine Pitch	MB45-040R-14T4C-M 040R-14T4C-22M* 050R-14T5C-M 063R-14T6C-M 080R-14T8C-M 100R-14T10C-M 125R-14T13C-M 160R-14T16-M 200R-14T18-M 250R-14T20-M	● 4	40	54	38	16	13.5	9	-	-	-	40	19	5.6	8.4	6	+13	-12	Yes	0.3	12,700	1	SN□U1406...							
			● 5	50	63	48	22	18	11					50	24	7					12.4	0.4			11,400						
			● 6	63	76	50									63	33					9	16.4			0.6	10,100					
			● 8	80	93	70	27	20	13							30					8	14.4			1.3	9,000					
			● 10	100	113	78	32	45	14												20	66.7			35	14	25.7	1.7	8,000		
			● 13	125	138	89		40					55		-	14			20	66.7	19.2	2.9	7,200		2						
			● 16	160	173	110							60	110								-	18			26	101.6	35	14	25.7	4.8	6,300
			● 18	200	213	142																									
			● 20	250	263																				10.1	5,100					

Maximum number of revolutions

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on page M19.

Do not use the face mill or end mill at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

How to Install Differential Screw (MB45-040R-14T3C-22M, MB45-040R-14T4C-22M)

1. Insert the fine pitch side of the double screw into the toolholder and carefully rotate it until the screw stops.



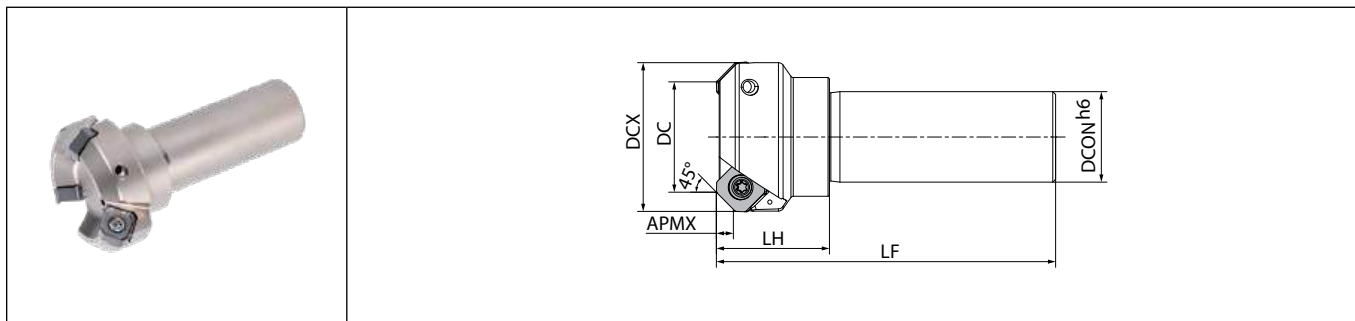
2. To ensure that the holder and arbor are securely connected, provide a clearance of approx. 4mm between the holder and arbor before tightening the screws.



3. Rotate the screw until there is no clearance, and check the holder is attached to the arbor.



MB45 (End Mill)



Toolholder Dimensions

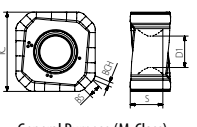
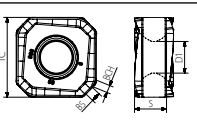
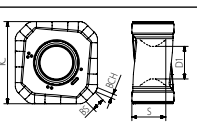
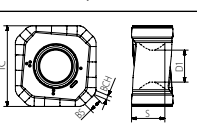
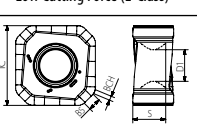
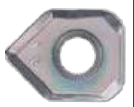
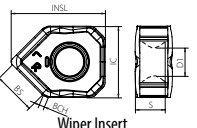
Unit	Part Number		Std. Item	No. of Inserts	Dimensions						A.R. max.(°)	R.R. (°)	Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➡ M18	
					R	DC	DCX	DCON	LH	LF					APMX				
Inch	Cylindrical Shank	MB45- 1500S125-14T2C	● 2	1.500	1.992	1.250	1.575	4.724	0.236	+13	-12	Yes	12,700	P-37	SB-50110TRP	TTP-20	SN□U1406...		
		1500S125-14T3C	● 3	1.500	1.992								11,400		Tightening torque 4.5N·m				
		2000S125-14T3C	● 3	2.000	2.492								10,100						
		2500S125-14T4C	● 4	2.500	2.992								9,000						
mm	Cylindrical Shank	MB45- 40S32-14T2C	● 2	40	53	32	40	120	6	+13	-12	Yes	12,700	P-37	SB-50110TRP	TTP-20	SN□U1406...		
		50S32-14T3C	● 3	50	63								11,400		Tightening torque 4.5N·m				
		63S32-14T4C	● 4	63	76								10,100						
		80S32-14T5C	● 5	80	93								9,000						

Maximum number of revolutions

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on page M19.

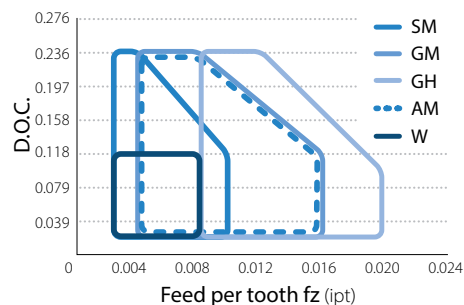
Do not use the face mill or end mill at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

SNMU/SNEU

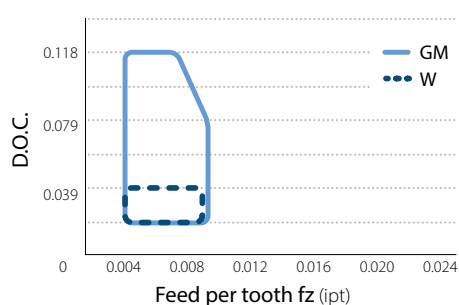
Usage Classification			Carbon steel / Alloy steel														★ ☆ ■		P	
			Mold and die steel														★ ☆ ■			
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)			Austenitic stainless steel														☆ ★		M	
			Martensitic stainless steel														☆			
			Precipitation hardened stainless steel														★			
			Gray cast iron														★		K	
			Nodular cast iron														★			
			Non-ferrous metals														★ ☆		N	
			Heat-resistant alloy														★ ☆			
			Titanium alloy														★		S	
			Hard materials (≤ 60 HRC)														★			
Insert		Part Number	No. of Edges	Dimensions (mm)						Carbide						Cermat	Applicable Toolholder M14~M17			
				IC	S	D1	INSL	BCH	BS	CVD	DLC	PVD						-	-	
												CA6535	PD1025	PR1155	PR1810	PR1825	PR1835	GW25	TN620M	
		SNMU 1406ANER-GM	8	14.7	6.07	5.8	-	0.8	2.3	●				●	●	●		●		MB45-...
		SNMU 1406ANER-GH	8	14.7	5.89	5.8	-	1.4	1.7	●				●	●	●	●			MB45-...
		SNEU 1406ANER-GM	8	14.7	6.07	5.8	-	0.8	2.3	●					●	●	●		●	MB45-...
		SNEU 1406ANER-SM	8	14.7	6.07	5.8	-	0.8	2.3	●					●	●				MB45-...
		SNEU 1406ANFR-AM	8	14.7	6.07	5.8	-	0.8	2.3		●							●		MB45-...
		SNEU 1406ANEN-W	2	14.7	6.15	5.8	19.4	1.1	8.8	●				●	●	●		●		MB45-...

Applicable Chipbreaker Range

Coated Carbide



Cermat



SNMU and SNEU inserts are sold in 10 piece boxes

SNEU1406ANEN-W inserts are sold in 5 piece boxes

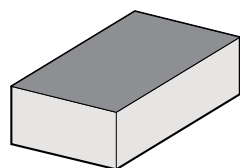
Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed fz (ipt)	Recommended Insert Grade (Vc: sfm)							
			MEGACOAT NANO EX (PVD coating)			MEGACOAT HARD (PVD coating)	CVD coating	Cermet	DLC coating	Carbide
			PR1835	PR1825	PR1810	PR015S	CA6535	TN620M	PDL025	GW25
General GM	Carbon Steel	0.004 - 0.008 - 0.016 (0.002 - 0.005 - 0.008)	☆ 390 - 590 - 820	★ 390 - 590 - 820	-	-	-	★ 660 - 820 - 980	-	-
	Alloy Steel	0.004 - 0.008 - 0.016 (0.002 - 0.005 - 0.008)	☆ 330 - 520 - 720	★ 330 - 520 - 720	-	-	-	★ 590 - 720 - 820	-	-
	Mold steel	0.004 - 0.008 - 0.016 (0.002 - 0.003 - 0.006)	☆ 260 - 460 - 590	★ 260 - 460 - 590	-	-	-	★ 490 - 590 - 720	-	-
	Austenitic stainless steel	0.004 - 0.008 - 0.016	☆ 330 - 520 - 660	☆ 330 - 520 - 660	-	-	-	-	-	-
	Martensitic stainless steel	0.004 - 0.008 - 0.016	☆ 490 - 660 - 820	-	-	-	☆ 590 - 790 - 980	-	-	-
	Precipitation hardened stainless steel	0.004 - 0.008 - 0.012	★ 300 - 390 - 490	-	-	-	-	-	-	-
	Gray cast iron	0.004 - 0.008 - 0.016	-	-	★ 390 - 590 - 820	-	-	-	-	-
	Ductile cast iron	0.004 - 0.008 - 0.014	-	-	★ 330 - 490 - 660	-	-	-	-	-
	Ni-based heat resistant alloys	0.004 - 0.005 - 0.008	☆ 70 - 100 - 160	-	-	-	★ 70 - 100 - 160	-	-	-
Low Cutting Force SM	Carbon Steel	0.002 - 0.005 - 0.010	☆ 390 - 590 - 820	☆ 390 - 590 - 820	-	-	-	-	-	-
	Alloy Steel	0.002 - 0.005 - 0.010	☆ 330 - 520 - 720	☆ 330 - 520 - 720	-	-	-	-	-	-
	Mold steel	0.002 - 0.004 - 0.008	☆ 260 - 460 - 590	☆ 260 - 460 - 590	-	-	-	-	-	-
	Austenitic stainless steel	0.002 - 0.005 - 0.010	★ 330 - 520 - 660	☆ 330 - 520 - 660	-	-	-	-	-	-
	Martensitic stainless steel	0.002 - 0.005 - 0.010	☆ 490 - 660 - 820	-	-	-	★ 590 - 790 - 980	-	-	-
	Precipitation hardened stainless steel	0.002 - 0.005 - 0.010	☆ 300 - 390 - 490	-	-	-	-	-	-	-
	Gray cast iron	0.002 - 0.005 - 0.010	-	-	☆ 390 - 590 - 820	-	-	-	-	-
	Ductile cast iron	0.002 - 0.004 - 0.008	-	-	☆ 330 - 490 - 660	-	-	-	-	-
	Ni-based heat resistant alloys	0.002 - 0.004 - 0.006	☆ 70 - 100 - 160	-	-	-	☆ 70 - 100 - 160	-	-	-
	Titanium alloy	0.002 - 0.003 - 0.006	★ 130 - 200 - 260	-	-	-	-	-	-	-
Tough Edge GH	Carbon Steel	0.008 - 0.012 - 0.020	☆ 390 - 590 - 820	☆ 390 - 590 - 820	-	-	-	-	-	-
	Alloy Steel	0.008 - 0.012 - 0.020	☆ 330 - 520 - 720	☆ 390 - 520 - 720	-	-	-	-	-	-
	Mold steel	0.008 - 0.012 - 0.018	☆ 260 - 460 - 590	☆ 260 - 460 - 590	-	-	-	-	-	-
	Austenitic stainless steel	0.008 - 0.012 - 0.016	☆ 330 - 520 - 660	☆ 330 - 520 - 660	-	-	-	-	-	-
	Martensitic stainless steel	0.008 - 0.012 - 0.016	☆ 490 - 660 - 820	-	-	-	☆ 590 - 790 - 980	-	-	-
	Precipitation hardened stainless steel	0.008 - 0.012 - 0.016	☆ 300 - 390 - 490	-	-	-	-	-	-	-
	Gray cast iron	0.008 - 0.012 - 0.020	-	-	☆ 390 - 590 - 820	-	-	-	-	-
	Ductile cast iron	0.008 - 0.012 - 0.018	-	-	☆ 330 - 490 - 660	-	-	-	-	-
	Ni-based heat resistant alloys	0.004 - 0.008 - 0.012	☆ 70 - 100 - 160	-	-	-	☆ 70 - 100 - 160	-	-	-
	Hardened material ≤ 60 HRC	0.002 - 0.004 - 0.008	-	-	-	★ 160 - 260 - 330	-	-	-	-
AM	Aluminum alloy	0.004 - 0.008 - 0.016	-	-	-	-	-	-	★ 660 - 1970 - 2950	☆ 660 - 1640 - 2620

The numbers in bold font are recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation. ★: 1st Recommendation ☆: 2nd Recommendation
Machining with coolant is recommended for Ni-based heat resistant alloy and titanium alloy. When choosing wet machining for other workpieces, reduce the cutting speed to 70% or less.
When machining aluminum, be sure to use within recommended conditions. Do not rotate more than the maximum speed listed on the main unit.
Dry machining is recommended for cermet.

Precautions

Applications



Facing

How to mount inserts

1. Completely eliminate chips and dust from the insert mounting side.
2. Coat anti-seize compound thinly on portion of taper and thread of clamp screw prior to installation.
3. After mounting a clamp screw on the top edge of wrench, tighten the screw while keeping the insert pushed against the shim seat surface and holder surface (Fig.1).
4. Tighten the wrench in a direction parallel to the clamp screw. Recommended tightening torque ... 4.5 N·m
5. After tightening, check that there is no gap between the contact surface of the insert and the surface of the shim, or between the side surface of insert and the holder surface.

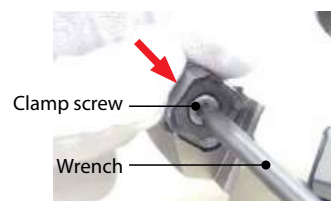


Fig.1

Defining the machining diameter (DC)

With respect to the machining diameter (DC) specified in ISO*, the numerical value of the machining diameter (Fig. 2) where the plane surface is finished depends on the insert. Please be careful.

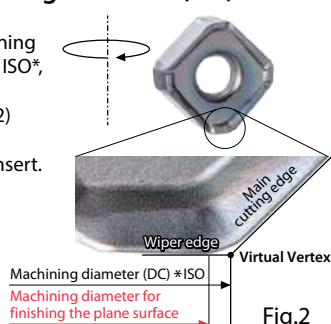


Fig.2

Machining diameter at which the plane surface is finished (for $\phi 125\text{mm}$)

	GM	GH	SM	AM
Difference to machining diameter (DC)	-1.1	-2.0	-1.1	-1.1
Machining diameter (mm) at which the plane surface is finished	123.9	123.0	123.9	123.9
*Dimensional tolerance	$0_{-0.2\text{mm}}$			

* GH has a larger double-edge size, so the machining diameter at which the plane surface is finished is smaller than other inserts.

Precautions when machining

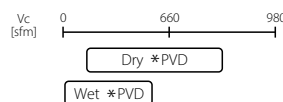
Precautions when machining aluminum

- Be sure to use within recommended conditions.
- Do not rotate more than the maximum speed listed on the main unit.
- * The number of revolutions listed on the holder is the maximum number of revolutions without load.

Vc [sfm]	0	1640	3280
		☆ GW25	
		★ PDL025	
	Recommended cutting speed [sfm]		
PDL025	660 ~ 1970 ~ 2950		
GW25	660 ~ 1640 ~ 2620		

Precautions for wet machining of steel

For wet machining, select PR1835 and use a cutting speed of 70% or less of the recommended condition as a guide.



MB45-125R-14T10C

SCREW:SB-50110TRP WRENCH:

MAX 7,200 RPM

Rotating at maximum speed is prohibited.



How to use a wiper insert

1. Use when the feed amount per revolution [ipr] becomes large. The table below shows the standard feed amount per revolution and the number of wipers installed.

Feed per rotation	Number of wiper inserts	Pocket for wiper insert
$0.079 < f [\text{ipr}] \leq 0.157$	1 pc	Pocket with "Single dot" (Fig. 3)
$0.157 < f [\text{ipr}]$	2 pcs	"Single dot" and "Double dots" pockets (Figs. 3, 4) * Only holders with 12 or more inserts have "Double dots"

2. Chipbreaker recommended for use with wiper insert

	GM chipbreaker	GH chipbreaker	SM chipbreaker	AM chipbreaker
Wiper Insert	✓	Not recommended	✓	Not recommended

3. Install the wiper insert correctly as shown in Fig. 5.

* Fig. 6 shows the insert incorrectly attached to the holder.



Fig. 5



Fig. 6

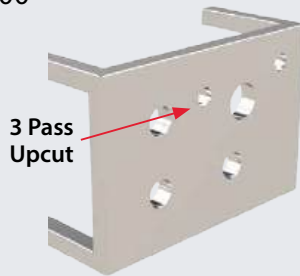


"Double dots" are placed in the diagonal pocket of "Single dot"
* For only holders with 12 or more inserts

Case studies

Excellent performance even under unstable machining conditions

Cradle SS400



$V_c = 520 \text{ sfm}$
D.O.C. x ae = 0.003"x5.12", Wet

Machining efficiency

MB45 $\phi 160\text{mm}$ 12 flute
GM(PR1825)

$V_f = 760 \text{ sfm}$

$f_z = 0.008 \text{ ipt}$

Machining efficiency

1.2x

Competitor G $\phi 160\text{mm}$ 8 flute

$V_f = 620 \text{ sfm}$

$f_z = 0.010 \text{ ipt}$

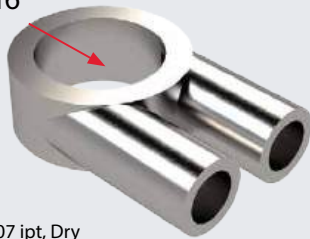
MB45 shows stable machining in an environment prone to deflection and chatter. Increasing the number of inserts improves efficiency. Improved joints between machining passes.

(User evaluation)

Case studies

Achieves 1.6x longer tool life under the same machining conditions

Housing 316



$V_c = 300 \text{ sfm}$
D.O.C. = 0.079", $f_z = 0.007 \text{ ipt}$, Dry

Number of parts

MB45 $\phi 63\text{mm}$ 5 flute
GM(PR1825)

30 pcs per corner

Tool life

1.6x

Competitor H $\phi 63\text{mm}$ 5 flute

18 pcs per corner

MB45 shows stable machining without chattering. Wear on the cutting edge proceeds normally and shows 1.6x tool life than competitor.

(User evaluation)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFPN45 (Face Mill)

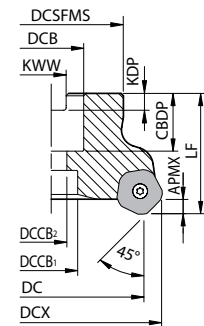


Fig. 1

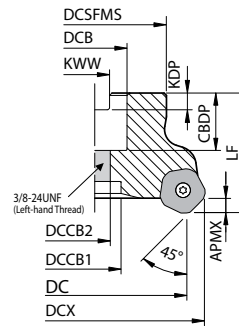


Fig. 2

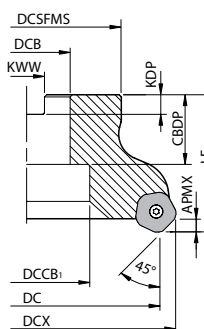


Fig. 3

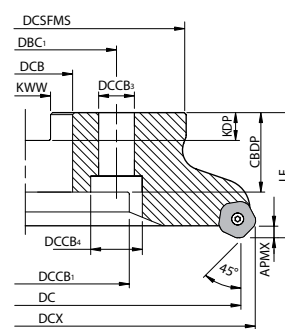


Fig. 4

Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions															A.R. max. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts M28
R					DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	D8C ₁	LF	CBDP	KDP	KWW	APMX							
Inch	Inch Bore Dia.	Coarse Pitch	MFPN 452500R-4T	● 4	2.500	2.815	1.890	0.750	0.669	0.433				1.575	0.750	0.187	0.313	0.236* (6mm)	+10	-10	No	0.5	1	PN□U1205...R-..	
			453000R-5T	● 5	3.000	3.315	2.283	1.000	0.866	0.551				1.969	1.063	0.236	0.375					1.1	1		
			454000R-6T	● 6	4.000	4.315	2.756	1.500	2.047	-	-	-	1.969	1.142	0.394	0.625	1.4					3			
			455000R-7T	● 7	5.000	5.315	3.425		2.283				2.480	1.417	0.394	0.625	2.6					3			
			456000R-8T	● 8	6.000	6.315	4.016	2.000	2.835	-	2.480	1.496	0.433	0.750	3.8	3									
			458000R-10T	● 10	8.000	8.315	5.591	2.500	3.937		0.709	1.024	4.000	2.480	1.575	0.551	1.000					6.6	4		
			4510000R-12T	● 12	10.000	10.315	5.591		3.937	0.709	1.024	4.000	2.480	1.575	0.551	1.000	9.3					4			
		Fine Pitch	MFPN 452000R-4T	● 4	2.000	2.315	1.750	0.750	-	3/8-24UNF				1.969	0.830	0.187	0.313	0.236* (6mm)	+10	-10	No	0.3	2	PN□U1205...R-..	
			452500R-5T	● 5	2.500	2.815	1.890		0.669	0.433	1.575	0.750	0.187	0.313	0.5	1									
			453000R-6T	● 6	3.000	3.315	2.283	1.000	0.866	0.551	-	-	-	1.969	1.063	0.236	0.375					1.1	1		
			454000R-8T	● 8	4.000	4.315	2.756	1.500	2.047	1.969				1.142	0.394	0.625	1.3					3			
			455000R-10T	● 10	5.000	5.315	3.425		2.283	2.480	1.417	0.394	0.625	2.6	3										
			456000R-12T	● 12	6.000	6.315	4.016	2.000	2.835	-	2.480	1.496	0.433	0.750	3.9	3									
			458000R-14T	● 14	8.000	8.315	5.591	2.500	3.937		0.709	1.024	4.000	2.480	1.575	0.551	1.000					6.6	4		
	4510000R-16T	● 16	10.000	10.315	5.591	3.937	0.709		1.024	4.000	2.480	1.575	0.551	1.000	9.3	4									
	Extra Fine Pitch	MFPN 452500R-6T	● 6	2.500	2.815	1.890	0.750	0.669	0.433				1.575	0.750	0.187	0.313	0.236* (6mm)	+10	-10	No	0.5	1	PN□U1205...R-..		
		453000R-8T	● 8	3.000	3.315	2.283	1.000	0.866	0.551	1.969	1.063	0.236	0.375	1.1	1										
		454000R-10T	● 10	4.000	4.315	2.756	1.500	2.047	1.969	1.142	0.394	0.625	1.3	3											
		455000R-13T	● 13	5.000	5.315	3.425		2.283	-	2.480	1.417	0.394	0.625	2.6	3										
		456000R-16T	● 16	6.000	6.315	4.016	2.000	2.835	2.480	1.496	0.433	0.750	3.9	3											

APMX : 0.236"/6mm (GM, SM, GH Chipbreakers), 0.197"/5mm (GL Chipbreaker), 0.118/3mm (W Chipbreaker)

Inch Size Face Mill Spare Parts

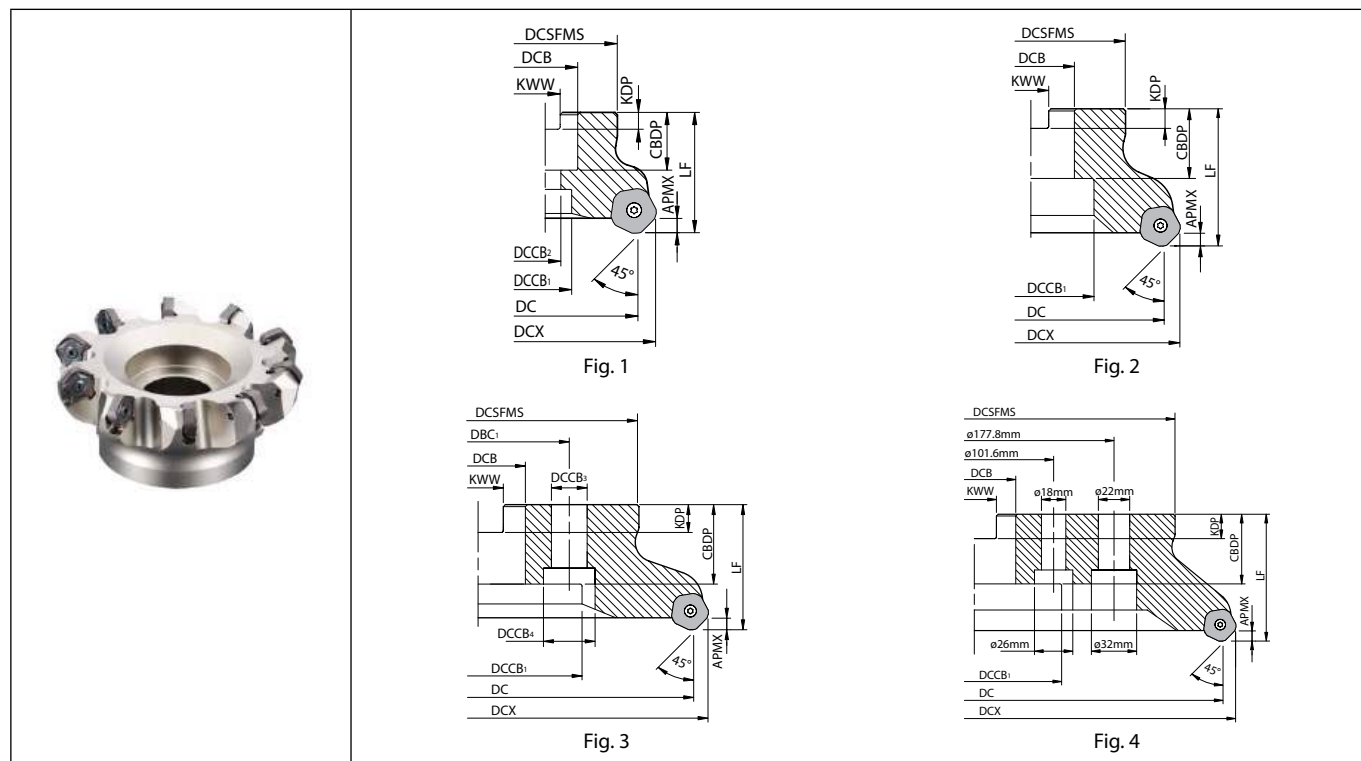
Part Number		Insert Screw	Wrench		Shim	Shim Screw	Wrench	Anti-Seize Compound	Arbor Bolt	Mounting Screw
			TTW* ¹	DTM						
Coarse Pitch	MFPN 452500R-4T	SB-50140TR	TTW-15	-	MFPN-45	SPW-7050	LW-5	P-37	HH3/8-1.25	-
	453000R-5T								HH1/2-1.25	
	454000R-6T								-	
	~ 451000R-12T								-	
Fine Pitch	MFPN 452000R-4T	SB-50140TR	TTW-15	-	-	-	-	P-37	-	XNS610* ²
	452500R-5T								HH3/8-1.25	
	453000R-6T								HH1/2-1.25	
	454000R-8T								-	
Extra-Fine Pitch	MFPN 452500R-6T	SB-40140TRN	-	DTM-15	-	-	-	P-37	HH3/8-1.25	-
	453000R-8T								HH1/2-1.25	
	454000R-10T								-	
	~ 456000R-16T								-	

 Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

*² Differential screw (3/8-24UNF)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFPN45 (Face Mill)



Toolholder Dimensions

Unit		Part Number		Std. Item		No. of Inserts	Dimensions														A.R. max.(°)	R.R.(°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ➡ M28	
mm	Inch Bore Dia.			R	L		DC	DCX	DCSFS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	DBC ₁	LF	CBDP	KDP	KWW	APMX							
mm	Coarse Pitch	MFPN	45080%L-5T	●	●	5	80	93	60	1.000"	22	13				50	1.063"	0.236"	0.375"	6*	+10	-8	No	1.1	1	PN□U1205...%L-...	
			45100%L-6T	●	●	6	100	113	70	1.250"	48						1.260"	0.315"	0.500"					1.4	2		
			45125%L-7T	●	●	7	125	138	87	1.500"	58			-	-	-	63	1.417"	0.394"					0.625"	2.6		2
			45160%L-8T	●	●	8	160	173	102	2.000"	72	-				1.496"		0.433"	0.750"					4	2		
			45200R-10T	●		10	200	213	142	1.875"	110					63	1.575"	0.551"	1.000"					6.7	3		
			45250R-12T	●		12	250	263	142	1.875"	110		18	26	4.000"		1.575"	0.551"	1.000"					9.4	3		
	Fine Pitch	MFPN	45080R-6T	●		6	80	93	60	1.000"	22	13				50	1.063"	0.236"	0.375"	6*	+10	-8	No	1.1	1	PN□U1205...R-...	
			45100R-8T	●		8	100	113	70	1.250"	48						1.260"	0.315"	0.500"					1.4	2		
			45125R-10T	●		10	125	138	87	1.500"	58			-	-	-	63	1.417"	0.394"					0.625"	2.7		2
			45160R-12T	●		12	160	173	102	2.000"	72	-				1.496"		0.433"	0.750"					4	2		
			45200R-14T	●		14	200	213	142	1.875"	110					63	1.575"	0.551"	1.000"					6.9	3		
			45250R-16T	●		16	250	263	142	1.875"	110		18	26	4.000"		1.575"	0.551"	1.000"					9.6	3		
	Extra Fine Pitch	MFPN	45080R-8T	●		8	80	93	60	1.000"	22	13				50	1.063"	0.236"	0.375"	6*	+10	-8	No	1.1	1	PN□U1205...R-...	
			45100R-10T	●		10	100	113	70	1.250"	48						1.260"	0.315"	0.500"					1.3	2		
			45125R-13T	●		13	125	138	87	1.500"	58			-	-	-	63	1.417"	0.394"					0.625"	2.7		2
			45160R-16T	●		16	160	173	102	2.000"	72	-				1.496"		0.433"	0.750"					4	2		
			45200R-18T	●		18	200	213	142	1.875"	110					63	1.575"	0.551"	1.000"					6.9	3		
			45250R-20T	●		20	250	263	142	1.875"	110		18	26	4.000"		1.575"	0.551"	1.000"					9.6	3		

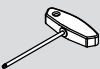
APMX : 0.236"/6mm (GM, SM, GH Chipbreakers), 0.197"/5mm (GL Chipbreaker), 0.118/3mm (W Chipbreaker)

Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions															A.R. max. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ➡ M28
					R	L	DC	DCX	DCSFS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	DBC ₁	LF	CBDP	KDP	KWW	APMX					
mm	Metric Bore Dia.	Coarse Pitch	MFPN 45063R-4T-M	●		4	63	76	47	22	19	11				40	21	6.3	10.4	6*	+10	-10	0.5	1	PN□U1205...R-..
			45080R-5T-M	●		5	80	93	60	27	22	13				50	24	7	12.4			-8	1.1	1	
			45100R-6T-M	●		6	100	113	70	32	48					30	8	14.4					1.4	2	
			45125R-7T-M	●		7	125	138	87		58												2.6	2	
			45160R-8T-M	●		8	160	173	102	40	68			14	20	66.7	32	9	16.4			No	3.8	3	
			45200R-10T-M	●		10	200	213								63						-6	6.4	3	
			45250R-12T-M	●		12	250	263	142	60	110			18	26	101.6	40	14	25.7				9.1	3	
			45315R-14T-M	□		14	315	328	220					-	-	-	80						21.3	4	
		Fine Pitch	MFPN 45063R-5T-M	●		5	63	76	47	22	19	11				40	21	6.3	10.4	6*	+10	-10	0.5	1	PN□U1205...R-..
			45080R-6T-M	●		6	80	93	60	27	22	13				50	24	7	12.4			-8	1	1	
			45100R-8T-M	●		8	100	113	70	32	48					30	8	14.4					1.4	2	
			45125R-10T-M	●		10	125	138	87	40	58											No	2.5	2	
			45160R-12T-M	●		12	160	173	102		68			14	20	66.7	32	9	16.4			-6	3.8	3	
			45200R-14T-M	●		14	200	213								63							6.5	3	
			45250R-16T-M	●		16	250	263	142	60	110			18	26	101.6	40	14	25.7				9.1	3	
			45315R-18T-M	●		18	315	328	220					-	-	-	80								
		Extra Fine Pitch	MFPN 45063R-6T-M	●		6	63	76	47	22	19	11				40	21	6.3	10.4	6*	+10	-10	0.5	1	PN□U1205...R-..
			45080R-8T-M	●		8	80	93	60	27	22	13				50	24	7	12.4			-8	1.1	1	
			45100R-10T-M	●		10	100	113	70	32	48					30	8	14.4				-6	1.3	2	
			45125R-13T-M	●		13	125	138	87	40	58					63	32	9	16.4				2.6	2	
			45160R-15T-M	●		15	160	173	102		68														
			45200R-17T-M	●		17	200	213																	

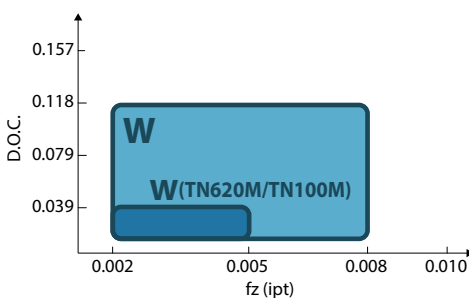
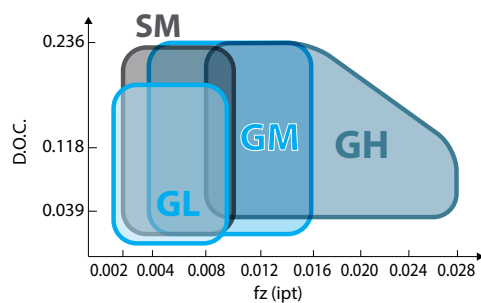
APMX : 0.236"/6mm (GM, SM, GH Chipbreakers), 0.197"/5mm (GL Chipbreaker), 0.118/3mm (W Chipbreaker)

Metric Size Face Mill Spare Parts

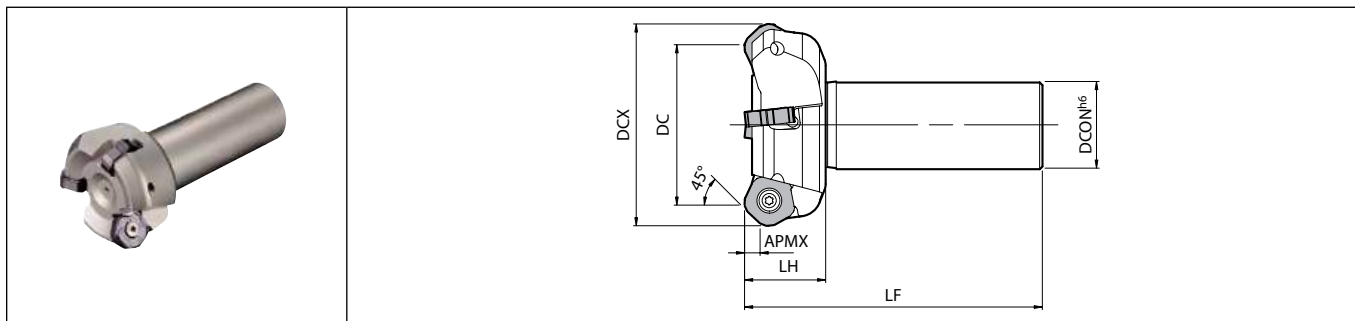
Part Number		Insert Screw	Wrench		Shim	Shim Screw	Wrench	Anti-Seize Compound	Arbor Bolt
			TTW	DTM					
									
Coarse Pitch	MFPN 45063R-4T-M	SB-50140TR	TTW-15	-	MFPN-45	SPW-7050	LW-5	P-37	HH10 × 30
	45080%L-5T-(M)								HH12 × 35
	45100%L-6T-(M)								-
	~ 45315R-14T-(M)								-
Fine Pitch	MFPN 45063R-5T-M	SB-50140TR	TTW-15	-	-	-	-	P-37	HH10 × 30
	45080R-6T-(M)								HH12 × 35
	45100R-8T-(M)								-
	~ 45315R-18T-(M)								-
Extra-Fine Pitch	MFPN 45063R-6T-M	SB-40140TRN	-	DTM-15	-	-	-	P-37	HH10 × 30
	45080R-8T-(M)								HH12 × 35
	45100R-10T-(M)								-
	~ 45125R-13T-(M)								-

 Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Applicable Chipbreaker Range



MFPN45 (End Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						A.R. max. (°)	R.R. (°)	Coolant Hole	Spare Parts			Applicable Inserts M28
				DC	DCX	DCON	LF	LH	APMX				Anti-Seize Compound	Screw	Wrench	
Inch	Weldon	MFPN 452000R-W125-3T	● 3	2.00	2.31	1.25	3.60	1.18	0.236* (6mm)	+10	-12	No	P-37	SB-50140TR	TTW-15	PN□U1205...R...
		452500R-W125-4T	● 4	2.50	2.81											
		453000R-W125-5T	● 5	3.00	3.31											
mm	Cylindrical	MFPN 45050R-S32-3T	● 3	50	63	32	110	30	0.236* (6mm)	+10	-12	No	P-37	SB-50140TR	TTW-15	PN□U1205...R...
		45063R-S32-4T	● 4	63	76											
		45080R-S32-5T	● 5	80	93											

APMX : 0.236"/6mm (GM, SM, GH Chipbreakers), 0.197"/5mm (GL Chipbreaker), 0.118/3mm (W Chipbreaker)

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

PNMU/PNEU

[illegible]

Recommended Cutting Conditions ➡ M29

PNMU and PNEU inserts are sold in 10 piece boxes

PNEU1205ANER-W inserts are sold in 5 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed fz (ipt) () : TN620M	Recommended Insert Grade (Vc: sfm)					
			Cermet	MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD	CVD
			TN620M	PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	PR015S	CA635S
GM	Carbon Steel	0.004 - 0.008 - 0.016 (0.002 - 0.005 - 0.008)	★ 660 - 820 - 980	☆ 390 - 590 - 820	★ 390 - 590 - 820	-	-	-
	Alloy Steel	0.004 - 0.008 - 0.016 (0.002 - 0.005 - 0.008)	★ 590 - 720 - 820	☆ 330 - 520 - 720	★ 330 - 520 - 720	-	-	-
	Mold Steel	0.004 - 0.008 - 0.014 (0.002 - 0.003 - 0.006)	★ 490 - 590 - 720	☆ 260 - 460 - 590	★ 260 - 460 - 590	-	-	-
	Austenitic Stainless Steel	0.004 - 0.008 - 0.016	-	☆ 330 - 520 - 660	☆ 330 - 520 - 660	-	-	-
	Martensitic Stainless Steel	0.004 - 0.008 - 0.016	-	☆ 490 - 660 - 820	-	-	-	☆ 590 - 790 - 980
	Precipitation Hardened Stainless Steel	0.004 - 0.008 - 0.012	-	★ 300 - 390 - 490	-	-	-	-
	Gray Cast Iron	0.004 - 0.008 - 0.016	-	-	-	★ 390 - 590 - 820	-	-
	Nodular Cast Iron	0.004 - 0.008 - 0.014	-	-	-	★ 330 - 490 - 660	-	-
	Ni-base Heat-Resistant Alloy	0.004 - 0.005 - 0.008	-	☆ 70 - 100 - 160	-	-	-	★ 70 - 100 - 160
SM *(GL)	Carbon Steel	0.002 - 0.005 - 0.010 (0.002 - 0.004 - 0.006)	★ 660 - 820 - 980	☆ 390 - 590 - 820	☆ 390 - 590 - 820	-	-	-
	Alloy Steel	0.002 - 0.005 - 0.010 (0.002 - 0.004 - 0.006)	★ 590 - 720 - 820	☆ 330 - 520 - 720	☆ 330 - 520 - 720	-	-	-
	Mold Steel	0.002 - 0.004 - 0.008 (0.002 - 0.003 - 0.005)	★ 490 - 590 - 720	☆ 260 - 460 - 590	☆ 260 - 460 - 590	-	-	-
	Austenitic Stainless Steel	0.002 - 0.005 - 0.010	-	★ 330 - 520 - 660	☆ 330 - 520 - 660	-	-	-
	Martensitic Stainless Steel	0.002 - 0.005 - 0.010	-	☆ 490 - 660 - 820	-	-	-	★ 590 - 790 - 980
	Precipitation Hardened Stainless Steel	0.002 - 0.005 - 0.010	-	☆ 300 - 390 - 490	-	-	-	-
	Gray Cast Iron	0.002 - 0.005 - 0.010	-	-	-	☆ 390 - 590 - 820	-	-
	Nodular Cast Iron	0.002 - 0.004 - 0.008	-	-	-	☆ 330 - 490 - 660	-	-
	Ni-base Heat-Resistant Alloy	0.002 - 0.004 - 0.006	-	☆ 70 - 100 - 160	-	-	-	☆ 70 - 100 - 160
	Titanium Alloy	0.002 - 0.003 - 0.006	-	★ 130 - 200 - 260	-	-	-	-
GH	Carbon Steel	0.008 - 0.016 - 0.028	-	☆ 390 - 590 - 820	☆ 390 - 590 - 820	-	-	-
	Alloy Steel	0.008 - 0.016 - 0.024	-	☆ 330 - 520 - 720	☆ 330 - 520 - 720	-	-	-
	Mold Steel	0.008 - 0.014 - 0.020	-	☆ 260 - 460 - 590	☆ 260 - 460 - 590	-	-	-
	Austenitic Stainless Steel	0.008 - 0.012 - 0.016	-	☆ 330 - 520 - 660	☆ 330 - 520 - 660	-	-	-
	Martensitic Stainless Steel	0.008 - 0.012 - 0.016	-	☆ 490 - 660 - 820	-	-	-	☆ 590 - 790 - 980
	Precipitation Hardened Stainless Steel	0.008 - 0.012 - 0.016	-	☆ 300 - 390 - 490	-	-	-	-
	Gray Cast Iron	0.008 - 0.016 - 0.028	-	-	-	☆ 390 - 590 - 820	-	-
	Nodular Cast Iron	0.008 - 0.014 - 0.020	-	-	-	☆ 330 - 490 - 660	-	-
	Ni-base Heat-Resistant Alloy	0.008 - 0.012 - 0.016	-	☆ 70 - 100 - 160	-	-	-	☆ 70 - 100 - 160
	Hardened Materials (≤ 60 HRC)	0.002 - 0.004 - 0.008	-	-	-	-	★ 160 - 260 - 330	-

★: 1st Recommendation ☆: 2nd Recommendation

The numbers in bold font represent the center value of the recommended cutting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

*1. GL chipbreaker: Recommended when finish is a priority

*2. GH chipbreaker: For Fine Pitch cutter, recommended feed is fz ≤ 0.016 ipt

GH chipbreaker is not recommended for extra fine pitch cutters

Cutter Type and Chipbreaker Selection

Milling Purpose	Cutter Type			Chipbreaker				
	Coarse Pitch	Fine Pitch	Extra Fine Pitch	GM	SM	GH	GL	W
General milling for steel and alloy steel		●		●				
Steel and alloy steel (to prevent chattering due to low rigidity machine or poor clamping power)	●				●			
Productivity oriented (high metal removal rate) (D.O.C. 10.1575", fz 1 0.0138 ipt)	●					●		
Focusing on finishing quality	●	●					●	
General milling of stainless steel		●			●			
Stainless steel (to prevent chattering due to low rigidity machine or poor clamping power)	●				●			
Cast iron (for high feed rates and high efficiency)			●	●				
Cast iron (D.O.C. 10.1575", fz 1 0.0138 ipt)	●					●		
Improved surface finish in high-efficiency milling		●	●					●

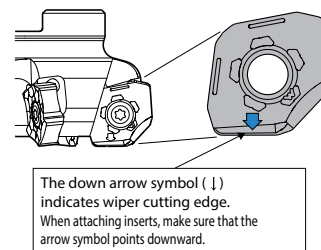
How to Use Wiper Insert

- 1) Please use one wiper insert per cutter.
(If you use more than 2 inserts on one cutter, the workpiece surface may have galling.)
- 2) Combination of Wiper Insert with other Chipbreakers

Combination \ Chipbreaker	GM	SM	W
Recommended Combination	●		●
Recommended Combination		●	●

GH+W and GL+W insert chipbreaker combinations are not recommended.

How to Attach Wiper Inserts on MFPN Cutter



- 3) For checking the protrusion amount of the wiper insert, use tool presetter. (Appropriate protrusion: 0.0039")

Applicable Chipbreaker

Cutter Type	Chipbreaker		
	GM	SM (GL)	GH
Coarse Pitch (with shim)	✓	✓	✓
Fine Pitch (without shim)	✓	✓	✓ (Feed rate is recommended under fz = 0.0157 ipt)
Extra Fine Pitch (without shim)	✓	✓	Not recommended

Usage Precautions (How to mount an insert)

- 1. Be sure to remove dust and chips from the insert mounting pocket.
- 2. After applying anti-seize compound on portion of taper and thread, while pressing the insert against the constraint surfaces, put the screw into the hole of the insert and tighten the screw with appropriate torque. Ref. to Fig. 1 and Fig.2.
Recommended tightening torque: The torque for coarse pitch (using M5 screw) is 4.2 N·m
The torque for extra fine pitch (using M4 screw) is 3.5 N·m.
- 3. After tightening the screw, make sure that there is no clearance between the insert seat surface and the bearing surface of the toolholder and between the insert side surfaces and the pocket wall of the toolholder.
- 4. To change the cutting edge of the insert, turn the insert counterclockwise (ref. to Fig. 3).
Insert corner identification number is stamped on the top surface of insert (Fig. 4). To protect the wiper edge, use the corners of insert in the sequence of corner numbers.

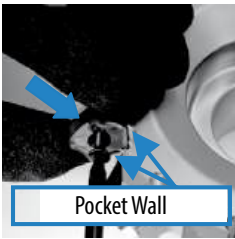


Fig.1



Fig.2



Fig.3

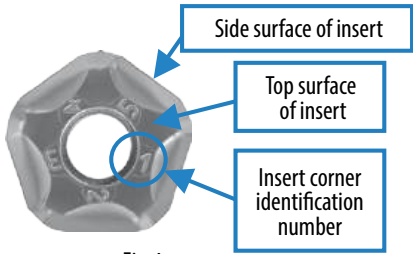


Fig.4

How to Replace the Shim (Coarse Pitch)

- 1. Be sure to remove dust and chips from the insert mounting pocket.
- 2. The shim must be mounted in the proper direction. While aligning the surface of the shim with the mark on it to the corresponding pocket wall (ref. to Fig. 5) and lightly pressing the shim toward the constraint surface, insert the screw into the hole of the shim and tighten it (ref. to Fig. 6).
When tightening the screw, make sure that the screw is vertical to the bearing surface. Recommended tightening torque is 6.0N·m.
- 3. After tightening the screw, make sure that there is no clearance between the shim seat surface and the bearing surface. If there is any clearance, remove the insert and mount it again according to the above steps.

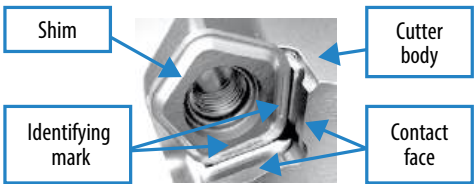


Fig.5

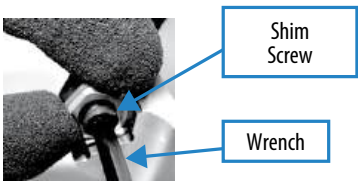


Fig.6

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

66° High Efficiency Milling

MFPN66

Economical Inserts with 10 Cutting Edges

Reduces Chattering with Low Cutting Force Design

Reduces Cutting Costs when Machining Auto Parts and Other General Purpose Machining Applications

1

Economical inserts with 10 cutting edges

Applicable to various machining applications with wide size range from $\phi 32\text{mm}$

Cost reduction in various applications from general parts to automotive parts machining

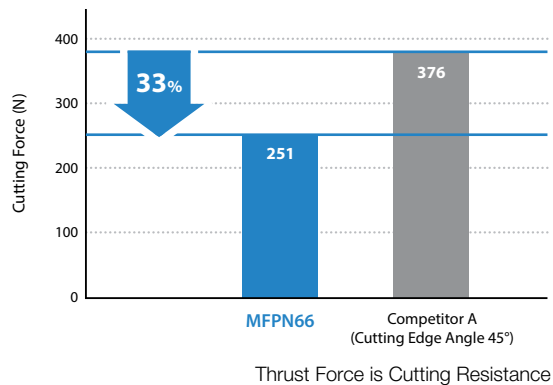
2

Reduces Chattering with Low Cutting Force Design

Available for Small to Medium ap Applications

Suppresses Vibration for Excellent Surface Finish with 66° Cutting Edge Angle

Low Cutting Force Comparison (Internal Evaluation)



Cutting Conditions : $V_c = 660 \text{ sfm}$, $f = 0.006 \text{ ipt}$, D.O.C. = $0.118''$
 Cutter Diameter $\phi 63\text{mm}$, Workpiece : 1049 Steel

Surface Finish (Machining with Workpiece Overhang Length of 80mm)



Excellent Surface Finish with Low Workpiece Clamping Rigidity

Cutting Conditions : $V_c = 660 \text{ sfm}$, $f = 0.008 \text{ ipt}$, D.O.C. = $0.020''$
 Cutter Diameter $\phi 63\text{mm}$, Workpiece : 1049 Steel

3

Long Tool Life with MEGACOAT NANO Coating Technology

Insert Lineup Also Contains Cermet Grade for Better Surface Finish



1st Recommendation
(General Purpose)
GM Chipbreaker



Tough Edge
GH Chipbreaker



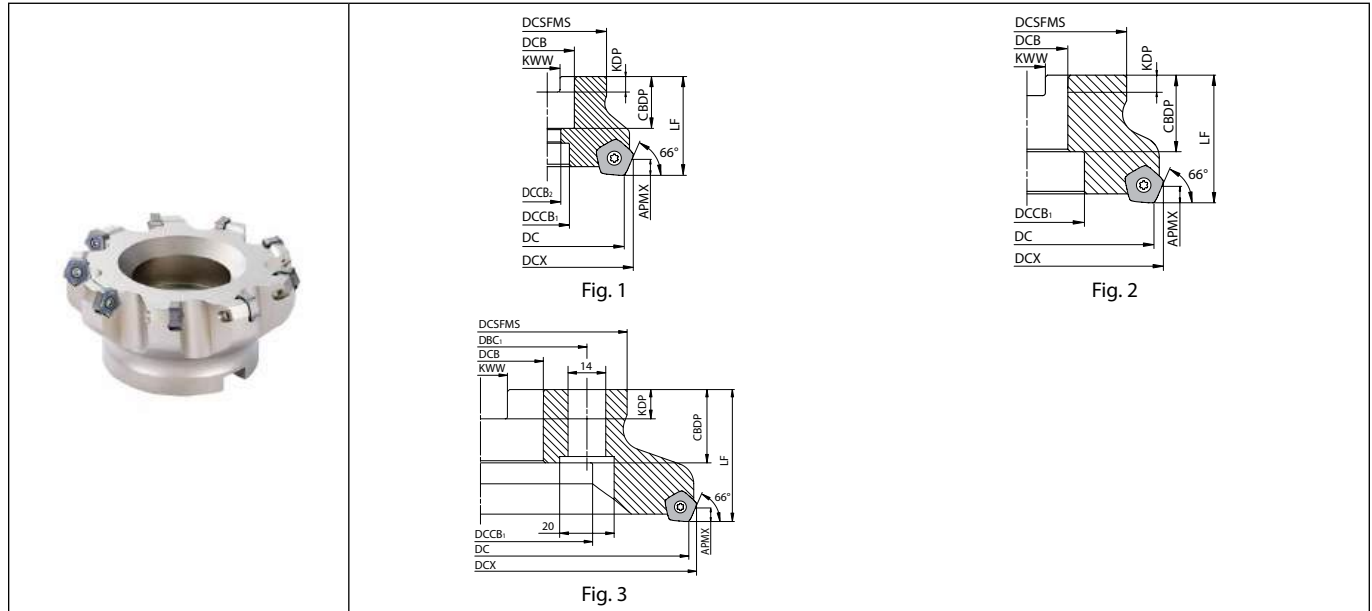
For Stainless Steel Machining
SM Chipbreaker

Cermet for Milling TN620M



Excellent Wear Resistance and Adhesion Resistance
High Quality Surface Finish

MFPN66 (Face Mill)



Toolholder Dimensions

Unit	Part Number			Std. Item	No. of Inserts	Dimensions										A.R. max.(°)	R.R.(°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ➡ M36					
						R	DC	DCX	DCSfMS	DCB	DCCB ₁	DCCB ₂	DBC ₁	LF	CDBP							KDP	KWW			
mm	Inch Bore Dia.	Fine Pitch	MFPN	66080R-6T-G	● 6	80	88	70	1.000"	20	13	-	-	50	1.063"	0.236"	0.375"	+12	-7	No	1.2	1	PNMU0905...			
				66100R-7T-G	● 7	100	107	78	1.250"	45	-				63	1.339"	0.315"				0.500"	1.7		2		
				66125R-9T-G	● 9	125	132	89	1.500"	55				1.496"		0.394"	0.625"				2.9	2				
				66160R-11T-G	● 11	160	167	110	2.000"	72	0.433"			0.750"	4.5	2										
		Extra Fine Pitch	MFPN	66080R-9T-G	● 9	80	88	70	1.000"	20	13	-	-	50	1.063"	0.236"	0.375"	+12	-7	No	1.2	1	PNMU0905...			
				66100R-11T-G	● 11	100	107	78	1.250"	45	-				63	1.339"	0.315"				0.500"	1.7		2		
				66125R-13T-G	● 13	125	132	89	1.500"	55				1.496"		0.394"	0.625"				3	2				
				66160R-15T-G	● 15	160	167	110	2.000"	72	0.433"			0.750"	4.8	2										
	Metric Bore Dia.	Fine Pitch	MFPN	66050R-4T-M-G	● 4	50	58	48	22	18	11	-	40	21	6.3	10.4	+12	-9	No	0.3	1	PNMU0905...				
				66063R-5T-M-G	● 5	63	71													0.5						
				66080R-6T-M-G	● 6	80	88	70	27	20	13			-	50	24				7			12.4	-7	1.2	2
				66100R-7T-M-G	● 7	100	107	78	32	45	-					63				30			8	14.4	-6	
				66125R-9T-M-G	● 9	125	132	89	40	55				-	66.7					9			16.4	2.8	3	
				66160R-11T-M-G	● 11	160	167				3.8															
		Extra Fine Pitch	MFPN	66050R-5T-M-G	● 5	50	58	48	22	18	11	-	40	21	6.3	10.4	+12	-9	No	0.4	1	PNMU0905...				
				66063R-7T-M-G	● 7	63	71													0.5						
				66080R-9T-M-G	● 9	80	88	70	27	20	13			-	50	24				7			12.4	-7	1.2	2
				66100R-11T-M-G	● 11	100	107	78	32	45	-					63				30			8	14.4	-6	
				66125R-13T-M-G	● 13	125	132	89	40	55				-	66.7					33			9	16.4	3	3
				66160R-15T-M-G	● 15	160	167				4															

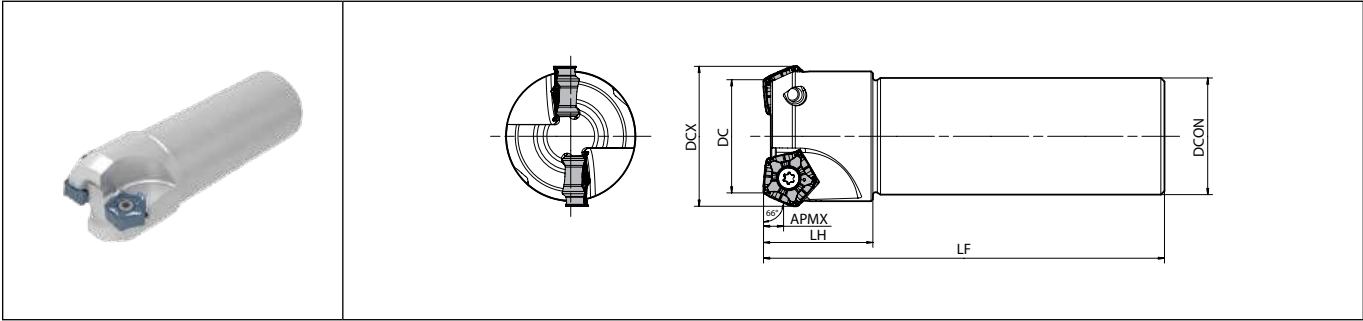
APMX : 5mm (GM, SM, GH Chipbreakers, Coated cabide), 3mm (GM Chipbreaker, Cermet)

Spare Parts (Both Metric and Inch Size Bore Dia.)

Part Number		Spare Parts			
		Insert Screw	Wrench	Anti-seize Compound	Arbor Bolt
					
Fine Pitch	MFPN 66050R-4T-M-G	SB-4090TRP	DTPM-15	P-37	HH10X30
	66063R-5T-M-G				HH10X30
	66080R-6T(-M)-G				HH12X35
	66100R-7T(-M)-G				-
	66125R-9T(-M)-G				
	66160R-11T(-M)-G				
Extra Fine Pitch	MFPN 66050R-5T-M-G	SB-4090TRP	DTPM-15	P-37	HH10X30
	66063R-7T-M-G				HH10X30
	66080R-9T(-M)-G				HH12X35
	66100R-11T(-M)-G				-
	66125R-13T(-M)-G				
	66160R-15T(-M)-G				

 Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

MFPN66 (End Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions						A.R. max.(°)	R.R. (°)	Coolant Hole	Spare Parts			Applicable Inserts ➡ M36
		R	No. of Inserts	DC	DCX	DCON	LF	LH	Anti-Seize Compound				Screw	Wrench		
mm	MFPN 66032R-S32-2T-G 66040R-S32-3T-G	● 2 ● 3	2 3	32 40	39.5 47.5	32	110	30	+12 -12	-14 -12	No				PNMU0905...	

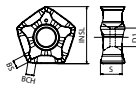
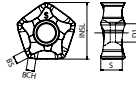
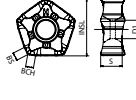
APMX : 5 mm (GM, SM, GH Chipbreakers, Coated cabide), 3 mm (GM Chipbreaker, Cermet)

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

Recommended tightening torque for insert clamp : 3.5N·m

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

PNMU

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel						☆	☆	★	☆	■	P				
		Mold and die steel						☆		★	☆	■					
		Austenitic stainless steel								☆	☆	★	M				
		Martensitic stainless steel										☆					
		Precipitation hardened stainless steel								☆		★					
		Gray cast iron						☆			★		K				
		Nodular cast iron						☆			★						
		Non-ferrous metals											N				
		Heat-resistant alloy										☆	S				
		Titanium alloy								☆		★					
Hard materials (≤ 60 HRC)						★						H					
Insert		Part Number		No. of Edges	Dimensions (mm)					Carbide						Cermat	Applicable Toolholder ➡ M33 M35
					S	D1	INSL	BCH	BS	PVD							
										PR0155	PR1510	PR1525	PR1535	PR1810	PR1825			PR1835	TN620M
	 General purpose	PNMU 0905XNER-GM	10	5.56	4.7	14.6	2	2	△	●	●	●	●	●	MFPN66...		
	 Low cutting force	PNMU 0905XNER-SM	10	5.56	4.7	14.6	2	2	△	●	●	●	●	●	MFPN66...		
	 Tough edge	PNMU 0905XNER-GH	10	5.56	4.7	14.6	2	2	●	△	●	●	●	●	MFPN66...		

Recommended Cutting Conditions  M37M
MILLING

45°-70° Lead Angle
75° Lead Angle
88°-90° Lead Angle
Finish Milling
High Feed Milling
Multi- Functional
Slot Mills
Ball-Nose Radius
Other Applications

PNMU inserts are
sold in 10 piece boxes

Recommended Cutting Conditions

Coated Carbide

Chipbreaker	Workpiece Material	Feed (fz: ipt)	Recommended Insert Grade (Cutting Conditions Vc: sfm)			
			MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD
			PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	PR015S
GM	Carbon Steel	0.004~ 0.008 ~0.012	☆ 390~ 590 ~820	★ 390~ 590 ~820	-	-
	Alloy Steel	0.004~ 0.008 ~0.012	☆ 330~ 520 ~720	★ 330~ 520 ~720	-	-
	Mold Steel	0.004~ 0.007 ~0.010	★ 260~ 460 ~590	★ 260~ 460 ~590	-	-
	Austenitic Stainless Steel	0.004~ 0.007 ~0.010	☆ 330~ 490 ~660	☆ 330~ 490 ~660	-	-
	Martensitic Stainless Steel	0.004~ 0.007 ~0.010	☆ 330~ 490 ~660	-	-	-
	Precipitation Hardened Stainless Steel	0.004~ 0.007 ~0.010	★ 300~ 390 ~490	-	-	-
	Gray Cast Iron	0.004~ 0.008 ~0.012	-	-	★ 390~ 590 ~820	-
	Nodular Cast Iron	0.004~ 0.007 ~0.010	-	-	★ 330~ 490 ~660	-
	Ni-base Heat-Resistant Alloy	0.004~ 0.005 ~0.008	☆ 70~ 100 ~160	-	-	-
SM	Carbon Steel	0.002~ 0.005 ~0.008	-	☆ 390~ 590 ~820	-	-
	Alloy Steel	0.002~ 0.005 ~0.008	-	☆ 330~ 520 ~720	-	-
	Mold Steel	0.002~ 0.004 ~0.006	-	☆ 260~ 460 ~590	-	-
	Austenitic Stainless Steel	0.002~ 0.005 ~0.008	★ 330~ 490 ~660	☆ 330~ 490 ~660	-	-
	Martensitic Stainless Steel	0.002~ 0.005 ~0.008	★ 330~ 490 ~660	-	-	-
	Precipitation Hardened Stainless Steel	0.002~ 0.005 ~0.008	☆ 300~ 390 ~490	-	-	-
	Gray Cast Iron	0.002~ 0.005 ~0.008	-	-	☆ 390~ 590 ~820	-
	Nodular Cast Iron	0.002~ 0.004 ~0.006	-	-	☆ 330~ 490 ~660	-
	Ni-base Heat-Resistant Alloy	0.002~ 0.003 ~0.006	★ 70~ 100 ~160	-	-	-
	Titanium Alloy	0.002~ 0.003 ~0.006	★ 130~ 200 ~260	-	-	-
GH*	Carbon Steel	0.006~ 0.010 ~0.014	-	☆ 390~ 590 ~820	-	-
	Alloy Steel	0.006~ 0.010 ~0.014	-	☆ 330~ 520 ~720	-	-
	Mold Steel	0.004~ 0.008 ~0.012	-	☆ 260~ 460 ~590	-	-
	Gray Cast Iron	0.006~ 0.010 ~0.014	-	-	☆ 390~ 590 ~820	-
	Nodular Cast Iron	0.004~ 0.008 ~0.012	-	-	☆ 330~ 490 ~660	-
	Hardened Materials (≤ 60HRC)	0.002~ 0.003 ~0.006	-	-	-	★ 160~ 260 ~330

*When using GH chipbreaker for fine pitch cutters, recommended feed is fz 0.008 ipt

★: 1st Recommendation ☆: 2nd Recommendation

Cermet

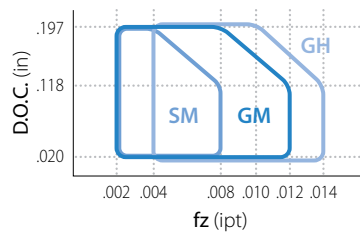
Chipbreaker	Workpiece Material	Feed (fz: ipt)	Recommended Insert Grade (Cutting Conditions Vc: sfm)
			Cermet
			TN620M
GM	Carbon Steel	0.002~0.005~0.006	★ 660~ 820 ~980
	Alloy Steel	0.002~0.005~0.006	★ 590~ 720 ~820
	Mold Steel	0.002~0.004~0.005	★ 490~ 590 ~720

★: 1st Recommendation

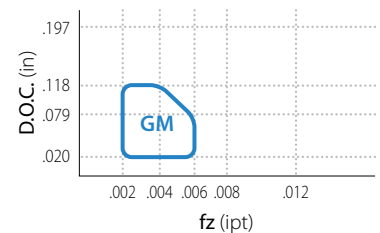
The number in bold font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation

Cutting with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy

Coated Carbide



Cermet



Applicable Chipbreaker Range

Cutter	Insert		
	GM	SM	GH
Fine Pitch	✓	✓	✓
Extra Fine Pitch	✓	✓	fz = 0.008 ipt is Recommended

High Precision High Rake Milling

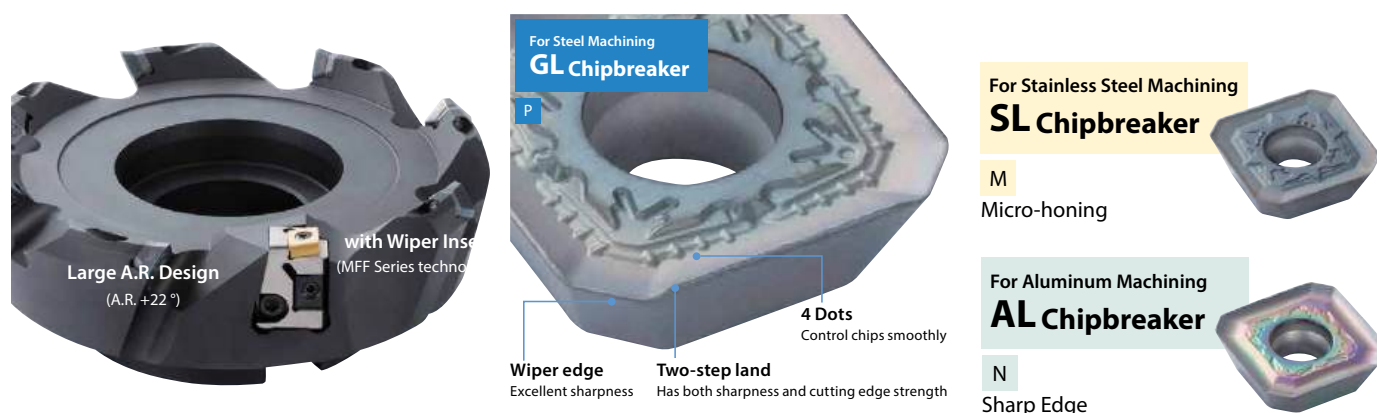
MFSE45

Rough and Finish in a Single Pass with Excellent Surface Finish

Roughing Condition ($fz = 0.010\text{ipt}$) Provides Excellent Surface Finish ($0.8\text{ }\mu\text{mRa}$ or Less)

1 The MFSE45 Milling Solution

Delivers high-quality surfaces by roughing and finishing simultaneously



Machining Comparison Simulation (Example)

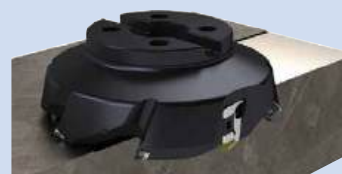
MFSE45 1 Pass and cutting time was cut by 1/3, with a good surface finish ($0.8\text{ }\mu\text{mRa}$ or less)
 $fz = 0.010\text{ ipt}$ (D.O.C. = $0.039''$)Cutting Conditions: $V_c = 980\text{ sfm}$, Dry 1049 (Internal evaluation) $0.24\text{ }\mu\text{mRa}$

SOLUTION

1 Pass

Time = 1/3

Surface Finish ✓

Cutting Time **Roughing + Finishing**

Conventional Machining

Two separate passes for roughing and finishing
Cutting time is longer due to low feed rates during finishing $fz = 0.006\text{ ipt}$ (D.O.C. = $0.032''$) $fz = 0.005\text{ ipt}$ (D.O.C. = $0.008''$)

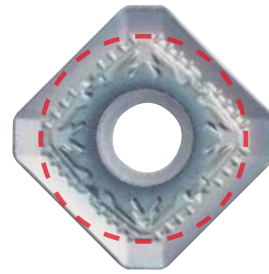
Cutting Time

Roughing**Finishing**

2 Excellent Surface Finish and Long Tool Life

Tight IC tolerance of insert

Improved surface finish quality and longer tool life with reducing front edge runout



Inscribed Circle Tolerance
 $\pm 0.0008''$ or Less

(Class E Standard $\pm 0.0012''$ or less)

Excellent Front Edge Runout Accuracy

Advantage 1 Theoretical reduction of roughness on finished surface, excellent surface finish

Front Edge Runout: Small $\Rightarrow$
Surface Roughness: Good

Advantage 2 Insert wear progresses evenly and tool life can be improved

Effect on wear (User Evaluation)

Average corner examples

Heavily damaged corner examples

MFSE45	 Wear: 0.0059"	 Wear: 0.0067"
Competitor A	 Wear: 0.0043"	 Wear: 0.0358"

Variation : Small

Variation : Large

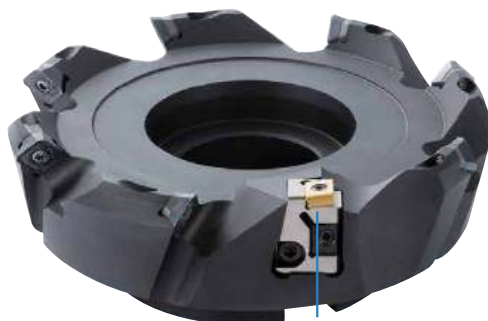
Cutting Conditions : Vc = 890 sfm, D.O.C. = $\sim 0.059''$, fz = 0.008 ipt, Wet SS 400 $\varnothing 250\text{mm}$ (15 flutes) SL Chipbreaker (PR1535)

Due to the high wear rate of the insert, all inserts need to be replaced, which may result in shorter tool life.

3 Various Holders Available for Multiple Applications

In addition to styles with a wiper insert, the standard type with only the standard inserts are also available

Type	With Wiper Insert	Standard
Surface roughness	Approx. $0.8\mu\text{mRa}$	Approx. $1.6\mu\text{mRa}$
Recommended feed	fz = 0.010 ipt	fz = 0.005 ipt (Finish machining time)
Application	High efficiency finishing	General purpose (Uses 1 insert style)



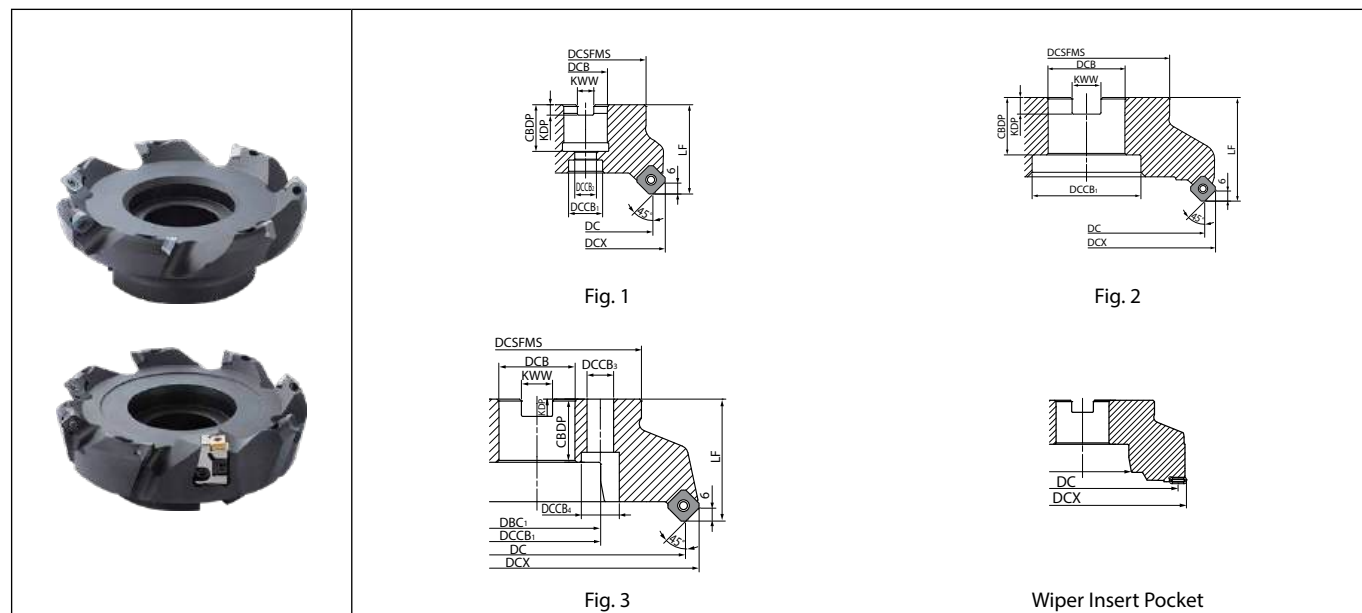
Using wiper insert for MFF
(Cutting edge adjustment mechanism)

Note) See page 7 for details on how to adjust the cutting edge.



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFSE45 (Face Mill)



Toolholder Dimensions

Unit	Part Number			Std. Item		No. of Inserts	Dimensions														Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M42				
				R	L		DC	DCX	DCB	DCSfMS	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	DBC ₁	LF	CBDP	KDP	KWW										
mm	Standard	Inch Bore Dia.	MFSE 45080R-ST 45100R-ST 45125R-6T 45160% -7T 45200% -8T 45250% -10T	●	5	80	88.7	1.000"	70	20	13	-	-	-	50	1.063"	0.236"	0.375"	No	12,800	1.4	1	SEET13T3...						
				●		100	108.7	1.250"	78	48	63					1.260"	0.315"	0.500"		11,500	1.9	2							
				●		6	125	133.7	1.500"	89						55	1.496"	0.394"		0.625"	10,200	3.3		2					
				●		●	7	160	168.7	2.000"						110	72	1.496"		0.433"	0.750"	9,000		5.3	2				
				●		●	8	200	208.7	1.875"						142	100	1.575"		0.551"	1.000"	8,100		7.3	3				
				●		●	10	250	258.7							222	110	1.575"		0.551"	1.000"	7,200		15.8	3				
		Metric Bore Dia.	MFSE 45063R-ST-M 45080R-ST-M 45100R-ST-M 45125R-6T-M 45160R-7T-M 45200R-8T-M 45250R-10T-M	●	5	63	71.7	22	48	-	5	-	-	-	50	21	6.3	10.4	No	14,400	0.6	1	SEET13T3...						
				●		80	88.7	27	70							63	24	7		12.4	12,800	1.4		1					
				●		100	108.7	32	78								30	8		14.4	11,500	1.8		2					
				●		6	125	133.7	40								89	6		14	20	66.7		33	9	16.4	10,200	3.2	2
				●		7	160	168.7									110	32						9,000		5.4	3		
				●		8	200	208.7	60								142	8		18	26	101.6		40	14	25.7	8,100	7	3
				●		10	250	258.7									222	10						7,200	15.5	3			
	Wiper Insert	Inch Bore Dia.	MFSE 45160R-8T-W 45200R-9T-W 45250R-11T-W	●	8	160	168.7	2.000"	102	72	-	18	26	101.6	63	1.496"	0.433"	0.750"	No	1,000	5.5	3	SEET13T3... LNGX1209...						
				●	9	200	208.7	1.875"	142	133						1.575"	0.551"	1.000"		800	7.6	3							
				●	11	250	258.7		222							1.496"	0.551"	1.000"			12.3	3							
		Metric Bore Dia.	MFSE 45160R-8T-W-M 45200R-9T-W-M 45250-11T-W-M	●	8	160	168.7	40	110	1	8	-	-	-	63	33	9	16.4	No	1,000	5.5	2	SEET13T3... LNGX1209...						
				●	9	200	212.8	60	142		9					18	26	101.6		40	14	25.7		800	7.3	3			
				□	11	250	262.7		222		11									38				12	3				

Spare Parts

Common for Standard and Wiper Insert Styles

Clamp Screw	Wrench	Shim	Shim screw	Wrench	Anti-Seize Compound
					
SB-35120TRP	DTPM-15	MFSE-105	SPW-5035	LW-3.5	P-37
Recommended tightening torque for insert clamp 4N·m		Recommended tightening torque for shim clamp 5N·m			

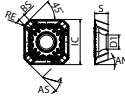
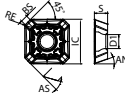
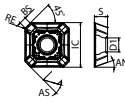
For Wiper Insert

Clamp screw	Wrench	Wedge	Cartridge	Cartridge clamp screw	Wrench	Adjustment Screw
						
SB-3592TR	DTM-10	AD-MFF	CR-MFF	HH5X15L	TTW-15	W6X18N
Recommended tightening torque for wiper insert clamp 1.2N·m						

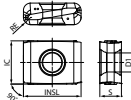
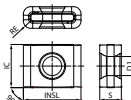
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SEET

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel										☆				☆	☆	★	P
		Mold and die steel										☆				☆		★	
		Austenitic stainless steel										☆					☆	★	M
		Martensitic stainless steel										★					☆	☆	
		Precipitation hardened stainless steel																	
		Gray cast iron										★					☆	☆	K
		Nodular cast iron										★					☆	☆	
		Non-ferrous metals											★						N
		Heat-resistant alloy										★						☆	
		Titanium alloy															☆	★	S
Hard materials																			
																	H		

Insert		Part Number	No. of Edges	Dimensions (mm)					Angle (°)		Carbide					Applicable Toolholder ➡ M40		
				IC	S	D1	RE	BS	AN	AS	CVD	DLC	PVD					
													PR1525	PR1535	PR1825		PR1835	
	 General Purpose	SEET 13T3AGSN-GL	4	13.4	3.97	4.2	1.5	2.1	20	29	●			●	●	●	●	MFSE45...
	 Stainless Steel	SEET 13T3AGSN-SL	4	13.4	3.97	4.2	1.5	2.1	20	29	●			●	●	●	●	MFSE45...
	 Non-Ferrous Metals	SEET 13T3AGFN-AL	4	13.4	3.97	4.2	1.5	2.1	20	29		●						MFSE45...

LNGX

Insert		Part Number	No. of Edges	Dimensions (mm)					Carbide		Cermet	Applicable Toolholder  M40 M221
				IC	S	D1	RE	INSL	PVD		PVD	
									PR1525	PR1825			PV60M
	 Low Cutting Force	LNGX 120916R-TT	4	9.525	4.76	4.2	1.6	12.7	●	●	●	MFSE45...-W MFSE45...-W-M MFF...-SF
		LNGX 120916	4	9.525	4.76	4.2	1.6	12.7	●	●	●	MFSE45...-W MFSE45...-W-M MFF...-SF

Recommended Cutting Conditions M43

SEET and LNGX inserts are sold in 10 piece boxes

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	fz (ipt)	Recommended Insert Grade (Cutting Speed Vc: sfm)			
			MEGACOAT NANO EX (MEGACOAT NANO)		CVD Coated Carbide	DLC (Coated Carbide)
			PR1835 (PR1535)	PR1825 (PR1525)	CA6535	PDL025
GL	Carbon Steel	0.004 ~ 0.006 ~ 0.012	★ 490 ~ 660 ~ 980	☆ 490 ~ 660 ~ 980	☆ 490 ~ 660 ~ 980	-
	Alloy Steel	0.004 ~ 0.006 ~ 0.012	★ 490 ~ 660 ~ 980	☆ 490 ~ 660 ~ 980	☆ 490 ~ 660 ~ 980	-
	Mold Steel	0.004 ~ 0.006 ~ 0.010	☆ 330 ~ 490 ~ 820	★ 330 ~ 490 ~ 820	☆ 330 ~ 490 ~ 820	-
	Austenitic Stainless Steel*	0.004 ~ 0.006 ~ 0.010	★ 330 ~ 660 ~ 820	☆ 330 ~ 660 ~ 820	☆ 330 ~ 660 ~ 820	-
	Martensitic Stainless Steel*	0.004 ~ 0.006 ~ 0.010	★ 330 ~ 660 ~ 820	☆ 330 ~ 660 ~ 820	☆ 330 ~ 660 ~ 820	-
	Gray Cast Iron	0.004 ~ 0.006 ~ 0.010	☆ 330 ~ 660 ~ 820	☆ 330 ~ 660 ~ 820	☆ 330 ~ 660 ~ 820	-
	Nodular Cast Iron	0.004 ~ 0.006 ~ 0.010	☆ 330 ~ 660 ~ 820	☆ 330 ~ 660 ~ 820	★ 330 ~ 660 ~ 820	-
SL	Carbon Steel	0.004 ~ 0.005 ~ 0.006	☆ 490 ~ 660 ~ 980	☆ 490 ~ 660 ~ 980	☆ 490 ~ 660 ~ 980	-
	Alloy Steel	0.004 ~ 0.005 ~ 0.006	☆ 490 ~ 660 ~ 980	☆ 490 ~ 660 ~ 980	☆ 490 ~ 660 ~ 980	-
	Mold Steel	-	-	-	-	-
	Austenitic Stainless Steel*	0.004 ~ 0.006 ~ 0.008	★ 330 ~ 660 ~ 820	☆ 330 ~ 660 ~ 820	☆ 330 ~ 660 ~ 820	-
	Martensitic Stainless Steel*	0.004 ~ 0.006 ~ 0.008	★ 330 ~ 660 ~ 820	☆ 330 ~ 660 ~ 820	☆ 330 ~ 660 ~ 820	-
AL	Aluminum Alloy (Si 13% or less)	0.004 ~ 0.006 ~ 0.012	-	-	-	★ 660 ~ 1,310 ~ 1,640

*Machining with coolant is recommended for stainless steel.

Bold text in the table indicates recommended values. Adjust the cutting speed and feed within the above conditions according to the actual machining situation.

★: 1st Recommendation ☆: 2nd Recommendation

Face Mills for Heavy Milling

MFLN

Tough 4-edge tangential inserts for reliable heavy milling at large D.O.C. and high feed rates
Three lead angle options for optimized machining in various applications

1 Tough and Reliable Inserts for Stable Heavy Milling

Inserts up to 20mm long offer increased rigidity

Tangentially mounted inserts provide 2 cutting edges on each side

Corner Chamfer

(only available on MFLN90)

Both general corner-R type and chamfered corner type available

Prevents chattering and insert fracturing



Convex cutting edge ridge

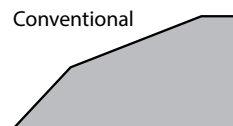
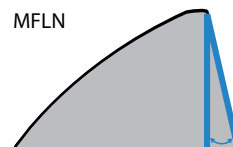
Reduced impact forces when entering the workpiece



Obtuse Edge Design

Increases the cutting edge angle only at the tip to maintain both strength and sharpness

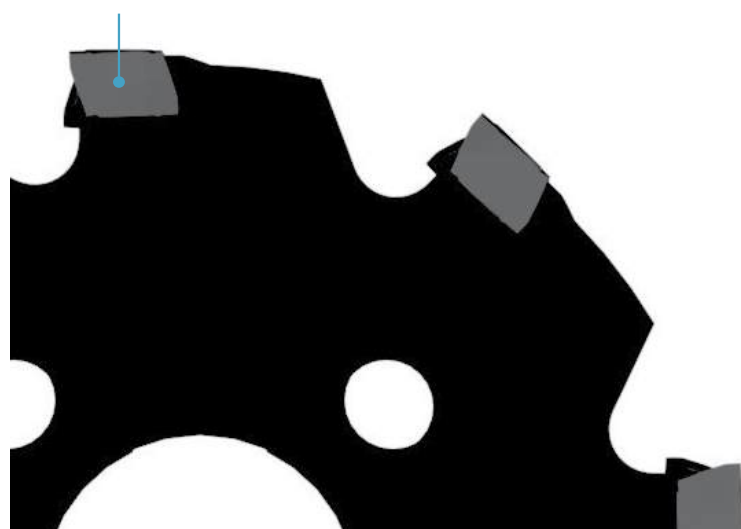
Cross-section view of cutting edge



Wide Flat Mounting Surface

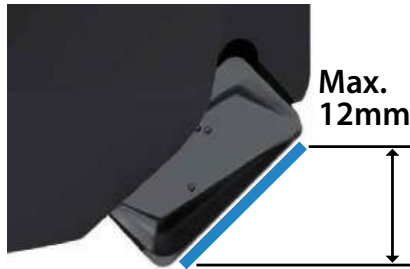
Holds insert firmly in heavy milling applications

Tangentially mounted inserts increase rigidity



2 Large D.O.C. and High Feed Rates

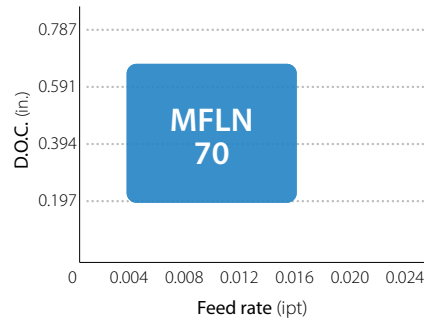
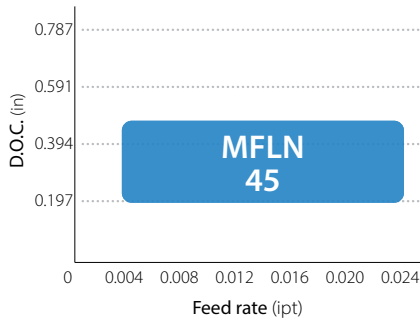
MFLN45
(Cutting edge angle 45°)



MFLN70
(Cutting edge angle 70°)



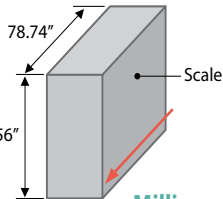
Applicable Range



Case Study

Forging Die for Automotive Parts

Vc = 295 sfm
D.O.C. $\times$ ae = $\sim 0.039"$ $\times$ $\sim 3.15"$
fz = 0.014 ipt Dry
MFLN45080R-4T-M ($\phi 80$ mm-4 Inserts) LOGU221616ER-GM PR1535



Chip Removal Volume

MFLN45
($\phi 80$ mm-4 Inserts) **Q=416 cc/min**

Milling Efficiency
x1.2

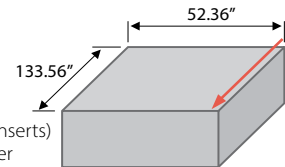
Competitor H
($\phi 100$ mm-5 Inserts) **Q=336 cc/min**

MFLN achieved 1.2 times machining efficiency.
Quieter machining and good chip shapes

(User evaluation)

Machining base FCD600

Vc = 395 sfm
D.O.C. = $0.433"$ $\times$ $6.49"$
fz = 0.025 ipt Dry
XMFLN70250R-13T-OH-M ($\phi 250$ mm-13 Inserts)
Fine pitch, internal coolant, custom holder
LOGU221616ER-GM PR1525



Chip Removal Volume

MFLN70
Roughing **Q=2,340 cc/min** Finishing **Q=2,340 cc/min**

Milling Efficiency
x1.1

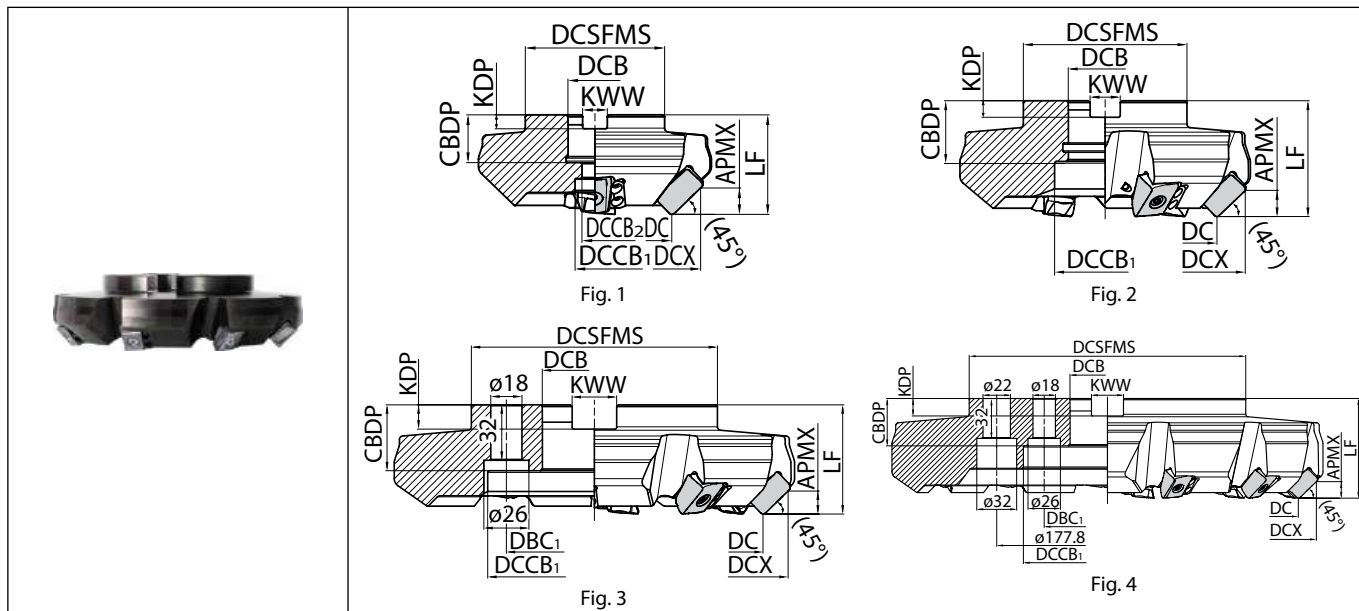
Competitor
Roughing (Competitor F) **Q=2,100 cc/min** Finishing (Competitor G) **Q=1,970 cc/min**

MFLN improved machining efficiency with lower cutting force.
It can be used for both roughing and finishing applications

(User evaluation)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFLN45 (Face Mill)

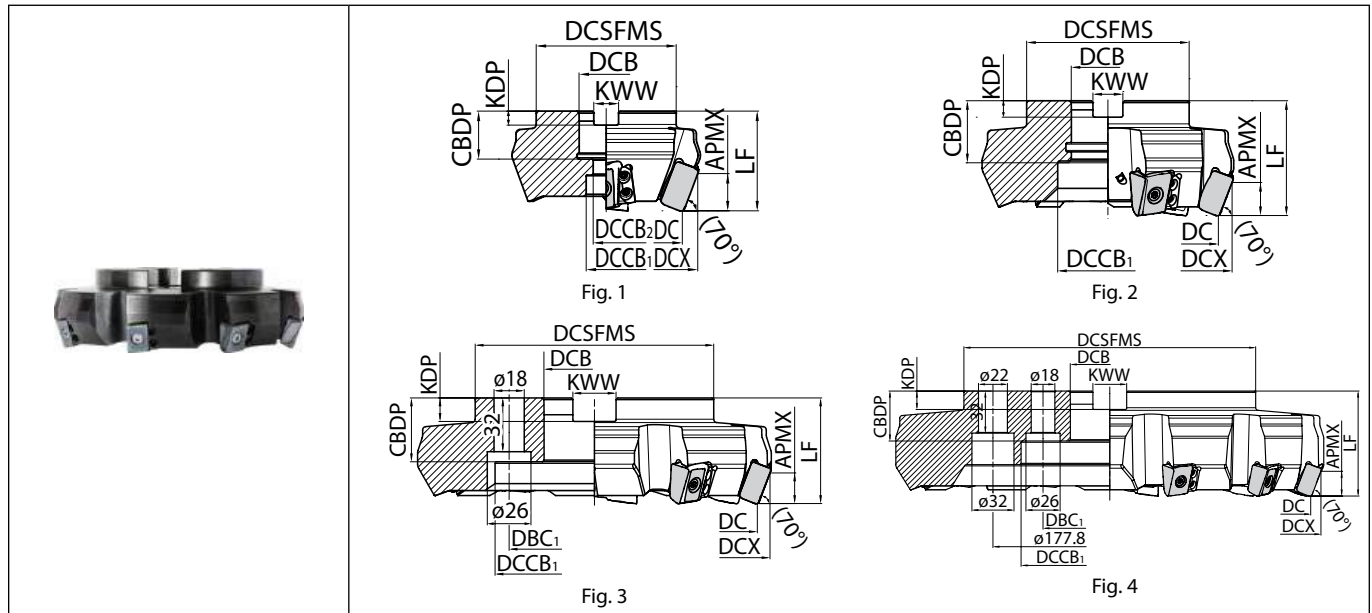


Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions (mm)												A.R. max (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M48
				DC	DCX	DCSFMS	DCB	DCCB1	DCCB2	DBC1	LF	CBDP	KDP	KWW	APMX							
mm	Inch Bore Dia.	MFLN 45080R-4T	● 4	80	104	70	1.000"	20	13	-	50	1.063"	0.236"	0.375"	12	+2	-15.5	Yes	5,970	2	1	LOGU221616ER-GM
		45100R-4T	● 4	100	124	78	1.250"	45	-	-	50	1.339"	0.315"	0.500"			-14.5		4,780	2.7	2	
		45125R-6T	● 6	125	149	89	1.500"	55	-	-	63	-	0.394"	0.625"			-13.5		3,820	4.6	2	
		45160R-7T	● 7	160	184	110	2.000"	90	-	-	63	1.496"	0.433"	0.750"			-13.5		2,990	6.8	2	
		45200R-8T	● 8	200	224	142	-	124	-	4.000"	63	-	-	-			-13.5		2,390	10	3	
		45250R-10T	● 10	250	274	-	1.875"	160	-	-	80	-	0.551"	1.000"			-13.5		1,910	17.1	3	
	Metric Bore Dia.	45315R-12T	□ 12	315	339	222	-	215	-	-	80	-	-	-	12	+2	-15.5	No	1,520	25.3	4	LOGU221616ER-GM
		45080R-4T-M	● 4	80	104	70	27	20	13	-	50	24	7	12.4			-15.5		5,970	2	1	
		45100R-4T-M	● 4	100	124	78	32	45	-	-	50	30	8	14.4			-14.5		4,780	2.7	2	
		45125R-6T-M	● 6	125	149	89	-	55	-	-	63	33	9	16.4			-13.5		3,820	4.6	2	
		45160R-7T-M	● 7	160	184	110	40	90	-	66.7	63	-	-	-			-13.5		2,990	6.7	3	
		45200R-8T-M	● 8	200	224	142	-	124	-	101.6	63	38	14	25.7			-13.5		2,390	9.7	3	
		45250R-10T-M	● 10	250	274	-	60	160	-	-	80	-	-	-			-13.5		1,910	16.9	3	
		45315R-12T-M	□ 12	315	339	222	-	215	-	-	80	-	-	-			-13.5		1,520	25.1	4	

M
MILLING45°-70°
Lead Angle
75°
Lead Angle
88°-90°
Lead AngleFinish
Milling
High Feed
Milling
Multi-
Functional
Slot
Mills
Ball-Nose
Radius
Other
Applications

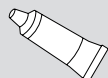
MFLN70 (Face Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions (mm)												A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M48
				DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	DBC ₁	LF	CBDP	KDP	KWW	APMX							
mm	Inch Bore Dia.	MFLN 70080R-4T	● 4	80	93	70	1.000"	20	13	-	50	1.063"	0.239"	0.375"	17	+1	-16.5	Yes	5,970	1.4	1	LOGU221616ER-GM
		70100R-4T	● 4	100	113	78	1.250"	45	-	-	50	1.339"	0.315"	0.500"	17	+1	-14.5	Yes	4,780	2	2	
		70125R-6T	● 6	125	138	89	1.500"	55	-	-	63	1.496"	0.394"	0.625"	17	+1	-13.5	No	3,820	3.5	2	
		70160R-7T	● 7	160	173	110	2.000"	70	-	-	63	1.496"	0.433"	0.750"	17	+1	-13.5	No	2,990	5.8	2	
		70200R-8T	● 8	200	213	142	1.875"	120	-	4.000"	80	1.496"	0.551"	1.000"	17	+1	-13.5	No	2,390	8.5	3	
		70250R-10T	● 10	250	263	222	1.875"	160	-	4.000"	80	1.496"	0.551"	1.000"	17	+1	-13.5	No	1,910	15.1	3	
		70315R-12T	□ 12	315	328	222	2.125"	215	-	4.000"	80	1.496"	0.551"	1.000"	17	+1	-13.5	No	1,520	22.2	4	
	Metric Bore Dia.	MFLN 70080R-4T-M	● 4	80	93	70	27	20	13	-	50	24	7	12.4	17	+1	-16.5	Yes	5,970	1.4	1	LOGU221616ER-GM
		70100R-4T-M	● 4	100	113	78	32	45	-	-	50	30	8	14.4	17	+1	-14.5	Yes	4,780	1.9	2	
		70125R-6T-M	● 6	125	138	89	40	55	-	-	63	33	9	16.4	17	+1	-13.5	No	3,820	3.4	2	
		70160R-7T-M	● 7	160	173	110	40	90	-	66.7	63	33	9	16.4	17	+1	-13.5	No	2,990	5.3	3	
		70200R-8T-M	● 8	200	213	142	60	120	-	101.6	63	38	14	25.7	17	+1	-13.5	No	2,390	8.2	3	
		70250R-10T-M	● 10	250	263	222	60	160	-	101.6	63	38	14	25.7	17	+1	-13.5	No	1,910	14.8	3	
		70315R-12T-M	□ 12	315	328	222	60	215	-	101.6	80	38	14	25.7	17	+1	-13.5	No	1,520	21.9	4	

Spare Parts

Part Number		Parts						
		Insert Screw	Wrench	Shim	Clamp screw	Wrench	Anti-Seize Compound	Arbor bolt
								
MFLN	○○080R-4T(-M)	SB-60200TRP	TTP-20	MAP-2216	SB-40140TR	DTM-15	P-37	HH12X35
	○○100R-4T(-M)							—
	~							
	○○315R-12T(-M)							
		Tightening torque for clamping insert 6.0 N·m		Tightening torque for clamping shim 3.5 N·m				

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

LOGU

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel							☆	★	☆	P			
		Mold and die steel							☆	★	☆				
		Austenitic stainless steel										M			
		Martensitic stainless steel													
		Precipitation hardened stainless steel													
		Gray cast iron							☆	★	☆	K			
		Nodular cast iron							☆	★	☆				
		Non-ferrous metals										N			
		Heat-resistant alloy													
		Titanium alloy										S			
		Hard materials													
Insert	Part Number	No. of Edges	Dimensions (mm)						Carbide				Applicable Toolholder ➡ M46 M47 M166		
			S	D1	RE	W1	INSL	BS	PVD						
									PR1525	PR1535	PR1825	PR1835			
	 Corner-R		LOGU 221616ER-GM	4	16.6	6.8	1.6	12.5	22.8	6.3	●	●	●	●	MFLN45... MFLN70... MFLN90...

Recommended Cutting Conditions ➡ M49

Applicable Insert Selection

	LOGU221616ER-GM (Corner-R)	LOGU2216PWER-GM (Corner Chamfer)
MFLN 45	✓	Not applicable
MFLN 70	✓	Not applicable

45°-70° Lead Angle
75° Lead Angle
88°-90° Lead Angle
Finish Milling
High Feed Milling
Multi- Functional
Slot Mills
Ball-Nose Radius
Other Applications

LOGU inserts are
sold in 10 piece boxes

Recommended Cutting Conditions (MFLN45 / MFLN70)

	Workpiece Material	D.O.C. (in.)		Feed (fz : ipt)	Recommended Insert Grades (Cutting Speed Vc : sfm)	
		Width of Cut ≤0.5×DC	Width of Cut >0.5×DC		MEGACOAT NANO EX (MEGACOAT NANO)	
					PR1825 (PR1825)	PR1835 (PR1835)
MFLN 45	Carbon Steel	~0.394	~0.315	0.004~ 0.012 ~0.024	★ 330~ 490 ~590	☆ 260~ 390 ~490
	Alloy Steel				★ 330~ 490 ~590	☆ 260~ 390 ~490
	Die Steel				★ 260~ 390 ~490	☆ 230~ 330 ~390
	Gray Cast Iron	~0.474	~0.394	0.004~ 0.012 ~0.024	★ 330~ 490 ~590	☆ 260~ 390 ~490
	Nodular Cast Iron				★ 330~ 490 ~590	☆ 260~ 390 ~490
MFLN 70	Carbon Steel	~0.591	~0.472	0.004~ 0.008 ~0.016	★ 330~ 490 ~590	☆ 260~ 390 ~490
	Alloy Steel				★ 330~ 490 ~590	☆ 260~ 390 ~490
	Die Steel				★ 260~ 390 ~490	☆ 230~ 330 ~390
	Gray Cast Iron	~0.669	~0.591	0.004~ 0.008 ~0.016	★ 330~ 490 ~590	☆ 260~ 390 ~490
	Nodular Cast Iron				★ 330~ 490 ~590	☆ 260~ 390 ~490

The number in **bold** font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
Dry machining is recommended.

★: 1st Recommendation ☆: 2nd Recommendation

How to Mount Inserts

1. Completely eliminate chips and dust from the insert mounting side.
2. After mounting a clamp screw on the top edge of wrench, tighten the screw while keeping the insert pushed against the shim seat surface and holder surface (Fig.1,2)
3. Make sure that the identification on the top of the insert is the same in each pocket. (Fig.3)
4. Tighten the wrench (20IP) in while holding parallel to the clamp screw.
5. Tighten the insert clamp screw at an appropriate torque. (Recommended torque: 6.0 Nm)
6. After tightening, check that there is no gap between the insert and the surface of the shim, or between the side surface of insert and the holder surface. If there is a gap, remount the insert using the directions above.

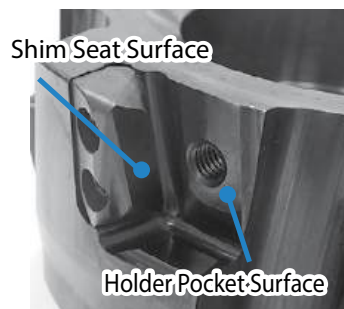


Fig.1

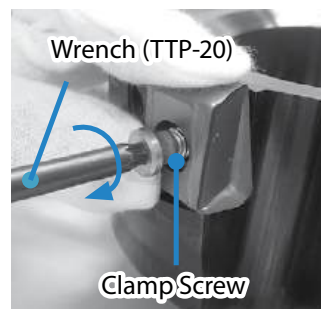


Fig.2



Fig.3

How to Replace the Insert Shim Seat

1. Completely eliminate chips and dust from the shim mounting side.
2. Coat medium strength screw locking adhesive on the screws.
3. Tighten the screw keeping the shim pushed against the pocket surface of toolholder.
4. After tightening both screws temporarily, tighten them with appropriate torque. (Recommended torque: 3.5 N·m)
5. Please check that there is no gap between the shim and the pocket surfaces of toolholder.

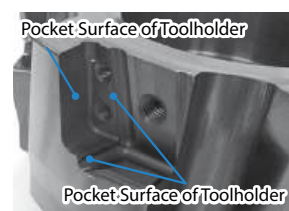


Fig.1

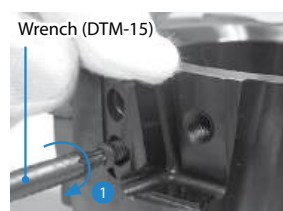


Fig.2

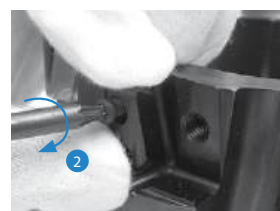


Fig.3



Fig.4

High Efficiency Cast Iron Machining

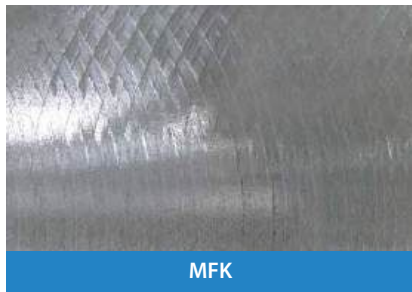
MFK

Tough edge with low cutting forces enable stable machining
Uses 10-edge inserts for economical machining

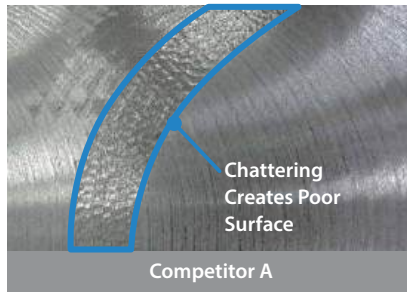


MFK Reduces cutting forces with a well balanced design
Excellent surface finish is achieved by minimizing chattering

Surface Finish Comparison (Internal Evaluation)



MFK

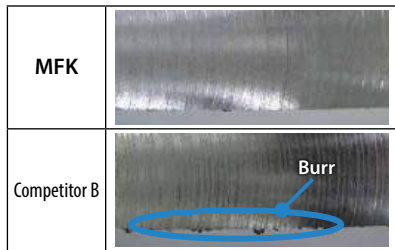


Chattering
Creates Poor
Surface

Competitor A

Cutting Conditions: $V_c = 590$ sfm, $f_z = 0.012$ ipt, $ap \times ae = 0.118'' \times 3.071''$, Dry Workpiece: Nodular Cast Iron (80-60-03)

Burr Comparison (Internal Evaluation)

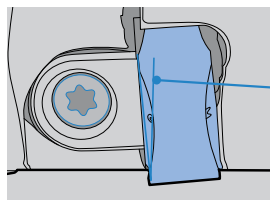


← Cutting Direction

Sharp Cutting Prevents Burr Formation

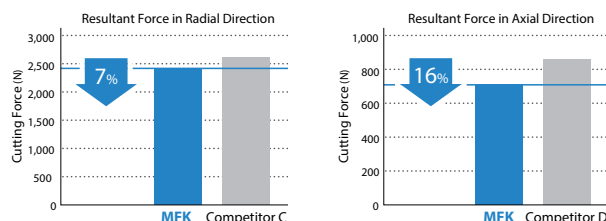
1

Low Cutting Forces with Helical Cutting Edge Design



A.R. Max. +15°

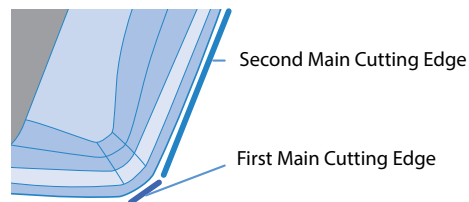
Cutting Force Comparison (Internal Evaluation)



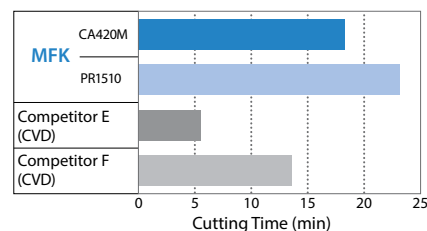
Cutting Conditions: $V_c = 590$ sfm, $f_z = 0.012$ ipt, D.O.C. $\times$ $ae = 0.118'' \times 2.441''$, Dry Workpiece: Nodular Cast Iron (80-60-03), Ø5.000"

2

Tough and Reliable Dual Angle Edge Design



Fracture Resistance Comparison (Internal Evaluation)



Cutting Conditions:
 $V_c = 980$ sfm, $f_z = 0.020$ ipt, D.O.C. = 0.079", Wet Workpiece: Nodular Cast Iron (65-45-12) with 4 Bores

Reduces impact load when entering the workpiece

Large Cutter Lineup for Various Applications

Fine and Extra Fine Pitch Types Available.



Fine Pitch

(Example: 5000R-11-12T = 12 Inserts)

- Recommended for Unstable Setups
- General Purpose for Wide Application Ranges



Extra Fine Pitch

(Example: 5000R-11-18T = 18 Inserts)

- Recommended for Rigid Setups
- Finer Pitch for Higher Efficiency

Wide Range of Chipbreakers for Various Machining Applications



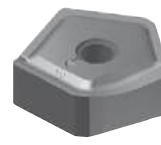
General Purpose:
GM Chipbreaker



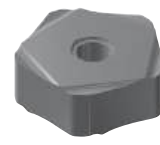
Heavy Duty:
GH Chipbreaker



Finishing:
GL Ground Chipbreaker



Wiper Edge:
W Ground Wiper Edge



High Speed Machining:
Ceramic with Chipbreaker

Insert Grade Lineup



CA420M
Long Tool Life
(CVD)

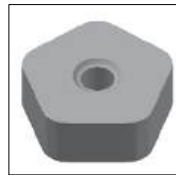
(1st Recommendation)



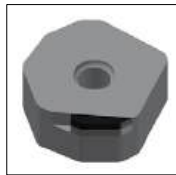
PR1510
Stable Machining
(PVD)



PR1525
Fracture Resistance
(PVD)



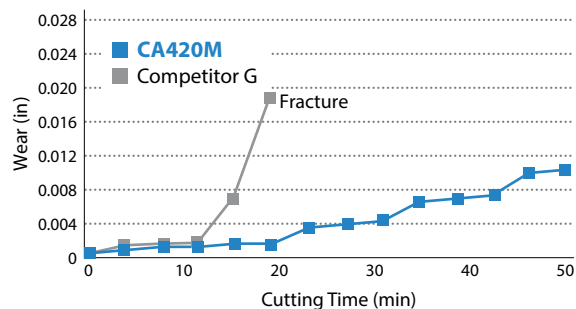
KS6050 / CS7050
High Speed Machining
(Ceramic)



KBN475
High Speed &
Precision Machining
(CBN Wiper Insert)

Use CBN wiper
inserts together
with ceramic
KS6050/CS7050
inserts

Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions: $V_c = 670$ sfm, $f_z = 0.012$ ipt, D.O.C. $\times$ ae = $0.079'' \times 3.150''$; Dry
Workpiece: Nodular Cast Iron (65-45-12)

MFK (Face Mill)

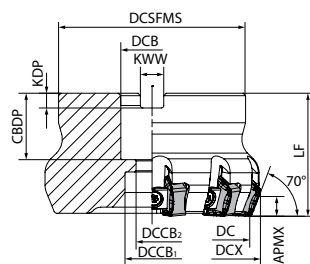


Fig. 1

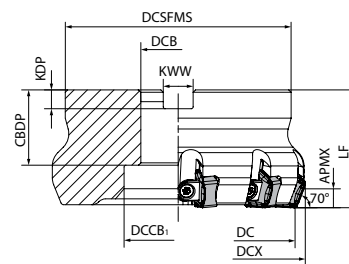


Fig. 2

Toolholder Dimensions

Unit			Part Number				Std. Item	No. of Inserts	Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fin
									R	DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP							KWW	APMX
Inch	Inch Bore Dia.	Fine Pitch	MFK 3000R-11-8T	● 8	3.000	3.340	2.750	1.000	0.866	0.551	2.480	1.063	0.240	0.375	0.236	+15	-7	8,000	1.61	1				
			4000R-11-10T	● 10	4.000	4.340	3.750	1.500	1.299	0.866		1.181	0.390	0.625			-6	7,000	2.86	1				
			5000R-11-12T	● 12	5.000	5.340		2.047	-	1.496		0.430					0.750	-5	6,100	3.67	2			
			6000R-11-16T	● 16	6.000	6.340	4.880	2.000					2.835	-				-	-	5,300	4.94	2		
	Extra Fine Pitch		MFK 3000R-11-10T	● 10	3.000	3.340	2.750	1.000	0.866	0.551	2.480	1.063	0.240	0.375	0.236	+15	-7	8,000	1.55	1				
			4000R-11-14T	● 14	4.000	4.340	3.750	1.500	1.299	0.866		1.181	0.390	0.625			-6	7,000	2.74	1				
			5000R-11-18T	● 18	5.000	5.340		2.047	-	1.496		0.430					0.750	-5	6,100	3.48	2			
			6000R-11-22T	● 22	6.000	6.340	4.880	2.000					2.835	-				-	-	5,300	4.76	2		

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

Spare Parts and Applicable Inserts (Inch MFK)

Part Number	Spare Parts				Applicable Inserts ➡ M58
	Wedge 	Wedge screw 	Wrench 	Mounting bolt 	
MFK 3000R-11-8T	C09N	W6X18N	TT-15	HH1/2-1.25	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
4000R-11-10T				HH3/4-2.3H	
5000R-11-12T				-	
6000R-11-16T				-	
MFK 3000R-11-10T	C09N	W6X18N	TT-15	HH1/2-1.25	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
4000R-11-14T				HH3/4-2.3H	
5000R-11-18T				-	
6000R-11-22T				-	

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFK (Face Mill)

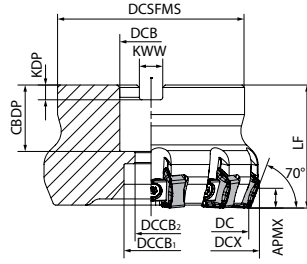


Fig. 1

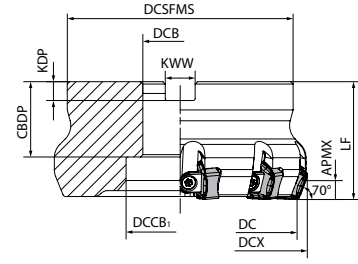


Fig. 2

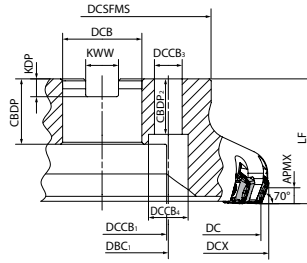


Fig. 3

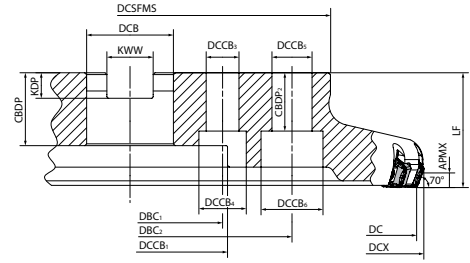


Fig. 4

Toolholder Dimensions

Unit	Part Number							Std. Item	No. of Inserts	Dimensions																	A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.
										R	DC	DCX	DCSFMS	DCB	DCBh	DCB2	DCB3	DCB4	DCB5	DCB6	DBC1	DBC2	LF	CBDP	KDP	KWW							APMX	CBDP2
mm	Inch Bore Dia.	Fine Pitch	MFK	080R-11-8T	●	8	80	89	76	1.250"	26	17							1.260"	0.315"	0.500"			-7		8,000	1.76	1				
				100R-11-10T	●	10	100	109	96	1.250"	26	17								1.260"	0.315"	0.500"			-6		7,000	2.98	1			
				125R-11-12T	●	12	125	134	100	1.500"	55									1.496"	0.394"	0.625"					6,100	3.65	2			
				160R-11-16T	●	16	160	169	100	2.000"	70									1.496"	0.433"	0.750"	6	+15	No		5,300	4.62	2			
				200R-11-20T	●	20	200	209	142											1.575"	0.551"	1.000"			-5		4,700	7.65	3			
				250R-11-24T	●	24	250	259	142	1.875"	110		18	26			4.000"			1.575"	0.551"	1.000"		32			4,200	10.73	3			
				315R-11-28T	□	28	315	324	220						22	32	7.000"										3,700	19.71	4			
		Extra Fine Pitch	MFK	080R-11-10T	●	10	80	89	76	1.250"	26	17								1.260"	0.315"	0.500"			-7		8,000	1.7	1			
				100R-11-14T	●	14	100	109	96	1.250"	26	17								1.260"	0.315"	0.500"			-6		7,000	2.85	1			
				125R-11-18T	●	18	125	134	100	1.500"	55									1.496"	0.394"	0.625"					6,100	3.44	2			
				160R-11-22T	●	22	160	169	100	2.000"	70									1.496"	0.433"	0.750"	6	+15	No		5,300	4.44	2			
				200R-11-28T	●	28	200	209	142											1.575"	0.551"	1.000"			-5		4,700	7.4	3			
				250R-11-36T	●	36	250	259	142	1.875"	110		18	26			4.000"			1.575"	0.551"	1.000"		32			4,200	10.36	3			
				315R-11-44T	□	44	315	324	220						22	32	7.000"										3,700	19.21	4			
	Metric Bore Dia.	Fine Pitch	MFK	080R-11-8T-M	●	8	80	89	76	27	20	13							24	7	12.4			-7		8,000	1.87	1				
				100R-11-10T-M	●	10	100	109	96	32	26	17								28	8	14.4			-6		7,000	2.99	1			
				125R-11-12T-M	●	12	125	134	100	55										33	9	16.4					6,100	3.56	2			
				160R-11-16T-M	●	16	160	169	100	40	70			14	20			66.7			33	9	16.4	6	28	+15	No	5,300	4.51	3		
				200R-11-20T-M	●	20	200	209	142											40	14	25.7		32	-5		4,700	7.35	3			
				250R-11-24T-M	●	24	250	259	142	60	110		18	26			101.6			40	14	25.7		32			4,200	10.43	3			
				315R-11-28T-M	□	28	315	324	220						22	32	177.8										3,700	19.41	4			
		Extra Fine Pitch	MFK	080R-11-10T-M	●	10	80	89	76	27	20	13								24	7	12.4			-7		8,000	1.81	1			
				100R-11-14T-M	●	14	100	109	96	32	26	17								28	8	14.4			-6		7,000	2.86	1			
				125R-11-18T-M	●	18	125	134	100	55										33	9	16.4					6,100	3.38	2			
				160R-11-22T-M	●	22	160	169	100	40	70			14	20			66.7			33	9	16.4	6	28	+15	No	5,300	4.32	3		
				200R-11-28T-M	●	28	200	209	142											40	14	25.7		32	-5		4,700	7.1	3			
				250R-11-36T-M	●	36	250	259	142	60	110		18	26			101.6			40	14	25.7		32			4,200	10.07	3			
				315R-11-44T-M	□	44	315	324	220						22	32	177.8										3,700	18.92	4			

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts and Applicable Inserts (Metric MFK)

Part Number	Spare Parts (Inch Bore Dia.)				Applicable Inserts M58
	Wedge 	Wedge screw 	Wrench 	Mounting bolt 	
MFK 080R-11-8T	C09N	W6X18N	TT-15	HH16X40	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
100R-11-10T					
125R-11-12T					
160R-11-16T					
200R-11-20T					
250R-11-24T					
315R-11-28T					
MFK 080R-11-10T	C09N	W6X18N	TT-15	HH16X40	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
100R-11-14T					
125R-11-18T					
160R-11-22T					
200R-11-28T					
250R-11-36T					
315R-11-44T					

Part Number	Spare Parts (Metric Bore Dia.)				Applicable Inserts M58
	Wedge 	Wedge screw 	Wrench 	Mounting bolt 	
MFK 080R-11-8T-M	C09N	W6X18N	TT-15	HH12X35	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
100R-11-10T-M				HH16X40	
125R-11-12T-M					
160R-11-16T-M					
200R-11-20T-M					
250R-11-24T-M					
315R-11-28T-M					
MFK 080R-11-10T-M	C09N	W6X18N	TT-15	HH12X35	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
100R-11-14T-M				HH16X40	
125R-11-18T-M					
160R-11-22T-M					
200R-11-28T-M					
250R-11-36T-M					
315R-11-44T-M					

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFK-SF (Face Mill)

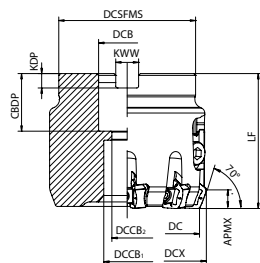


Fig. 1

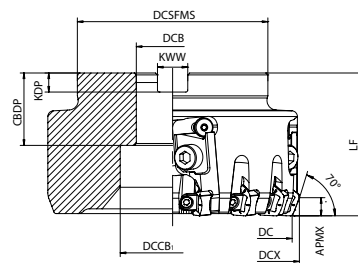


Fig. 2

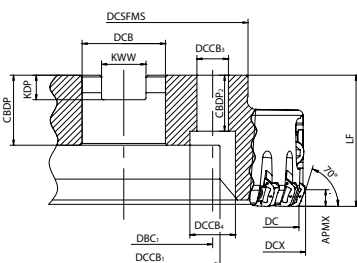


Fig. 3

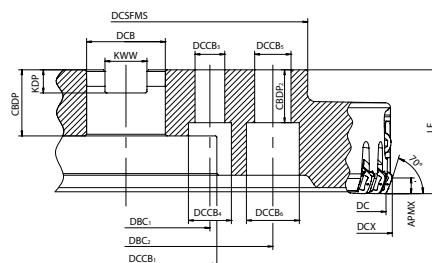


Fig. 4

Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions																A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.				
					R	DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	DCCB ₅	DCCB ₆	DBC ₁	DBC ₂	LF	CBDP	KDP							KWW	APMX	CBDP ₂	
mm	Inch Bore Dia.	MFK	080R-11-9T-SF	● 9 (3)	80	89	76	1.250"	26	17								1.260"	0.315"	0.500"				-7		8,000	2.08	1		
			100R-11-12T-SF	● 12 (4)	100	109	96																	-6		7,000	3.49	1		
			125R-11-15T-SF	● 15 (5)	125	134		1.500"	55										1.496"	0.394"	0.625"						6,100	4.54	2	
			160R-11-18T-SF	● 18 (6)	160	169		2.000"	70											0.433"	0.750"						5,300	6.82	2	
			200R-11-24T-SF	● 24 (8)	200	209																					4,700	10.39	3	
			250R-11-30T-SF	□ 30 (10)	250	259		1.875"	110		18	26				4.000"				1.575"	0.551"	1.000"		32				4,200	16.85	3
			315R-11-39T-SF	□ 39 (13)	315	324	220						22	32		7.000"												3,700	28.65	4
	Metric Bore Dia.	MFK	080R-11-9T-M-SF	● 9 (3)	80	89	76	27	20	13								24	7	12.4				-7		8,000	2.21	1		
			100R-11-12T-M-SF	● 12 (4)	100	109	96	32	26	17									28	8	14.4				-6		7,000	3.49	1	
			125R-11-15T-M-SF	● 15 (5)	125	134																					6,100	4.47	2	
			160R-11-18T-M-SF	● 18 (6)	160	169					14	20							33	9	16.4						5,300	6.99	3	
			200R-11-24T-M-SF	● 24 (8)	200	209																					4,700	9.89	3	
			250R-11-30T-M-SF	□ 30 (10)	250	259		60	110		18	26				101.6			35	14	25.7		32					4,200	16.35	3
			315R-11-39T-M-SF	□ 39 (13)	315	324	220							22	32		177.8											3,700	28.14	4

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Numbers in parentheses () are the number of adjustable cutting edge pockets.

Please install wiper inserts in the adjustable cutting edge pockets.

M
MILLING

45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

Multi-
Functional

Slot
Mills

Ball-Nose
Radius

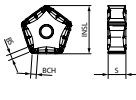
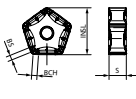
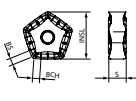
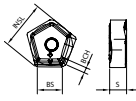
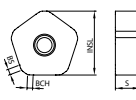
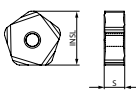
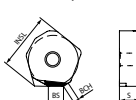
Other
Applications

Spare Parts and Applicable Inserts (MFK-SF)

Part Number	Spare Parts								Applicable Inserts ➡ M58
	Wedge 	Wedge screw 	Wrench 	Cartridge 	Cartridge clamp screw 	Wrench 	Adjustment screw 	Mounting bolt 	
MFK 080R-11-9T-SF	C09N	W6X18N	TT-15	CR-MFK70R	HH8X25	LW-6	AJ-519TR	HH16X40	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
100R-11-12T-SF									
125R-11-15T-SF									
160R-11-18T-SF									
200R-11-24T-SF								-	
250R-11-30T-SF									
315R-11-39T-SF									
MFK 080R-11-9T-M-SF	C09N	W6X18N	TT-15	CR-MFK70R	HH8X25	LW-6	AJ-519TR	HH12X35	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
100R-11-12T-M-SF								HH16X40	
125R-11-15T-M-SF									
160R-11-18T-M-SF									
200R-11-24T-M-SF								-	
250R-11-30T-M-SF									
315R-11-39T-M-SF									

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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PNMG/PNEG/PNEA

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel												P				
		Mold and die steel																
		Austenitic stainless steel												M				
		Martensitic stainless steel																
		Precipitation hardened stainless steel																
		Gray cast iron												★	☆	☆	★	K
		Nodular cast iron												★	☆	★	☆	
		Non-ferrous metals																N
		Heat-resistant alloy																S
		Titanium alloy																
		Hard materials																H
		Insert		Part Number	No. of Edges	Dimensions (mm)				Carbide				Ceramic	CBN	Applicable Toolholder ➡ M52~M56		
S	INSL					BCH	BS	CVD	PVD			CVD	-	-				
									CA420M	PR1510	PR1525				PR1810		PR1825	
	 General Purpose	PNMG 1106XNEN-GM	10	6.35	17.23	2	2	●	△	●	●	●				MFK... MFK...-M MFK...-SF		
	 Tough Edge	PNMG 1106XNEN-GH	10	6.35	17.23	2	2	●	△	●	●	●				MFK... MFK...-M MFK...-SF		
	 Surface Finish Oriented	PNEG 1106XNEN-GL	10	6.35	17.18	2.6	2.6	●	△	●	●	●				MFK... MFK...-M MFK...-SF		
	 2-edge / with Wiper Edge	PNEG 1106XNER-W	2	6.35	18.02	2	10	●	△	●	●	●				MFK... MFK...-M MFK...-SF		
	 High Speed Machining	PNEA 1106XNTN-T01020	10	6.5	16.94	1.5	1.5						●	●		MFK... MFK...-M MFK...-SF		
	 High Speed Machining (With Chipbreaker)	PNEG 1106XNTR-T00515	10	6.35	17.07	-	-							●	●	MFK... MFK...-M MFK...-SF		
	 2-edge / Wiper Insert	PNEG 1106XNTR-T01015W	2	6.5	18.06	1.7	4.8								●	MFK... MFK...-M MFK...-SF		

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M59, M60

Standard PNEG inserts
sold in 10 piece boxesPNEG1106XNER-W inserts are
sold in 5 piece boxesPNEG1106XNTR-T01015W inserts are
sold in 1 piece boxes

Recommended Cutting Conditions (Ceramic/CBN)

Without Chipbreaker

Workpiece Material	Insert Grades	Cutting Speed Vc (sfm)	Edge Prep.	Feed Rate fz (ipt)				
				0.0020	0.0039	0.0079	0.0118	0.0157
Cast Iron	★ KS6050	1,970~ 2,950 ~3,940	0.004 × 20°					
	☆ CS7050							
Nodular Cast Iron	☆ KS6050	1,310~ 1,970 ~2,950						
	★ CS7050							

With Chipbreaker

Workpiece Material	Insert Grades	Cutting Speed Vc (sfm)	Edge Prep.	Feed Rate fz (ipt)				
				0.0020	0.0039	0.0079	0.0118	0.0157
Cast Iron	★ KS6050	1,970~ 2,950 ~3,940	0.002 × 15°					
	☆ CS7050							
Nodular Cast Iron	☆ KS6050	1,310~ 1,970 ~2,950			● 0.0039			
	★ CS7050							

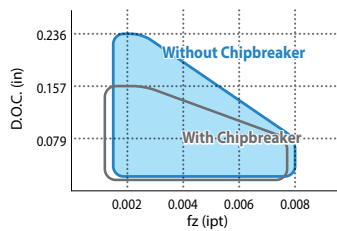
CBN Wiper Insert

Workpiece Material	Insert Grades	Cutting Speed Vc (sfm)	Edge Prep.	Feed Rate fz (ipt)				
				0.0020	0.0039	0.0079	0.0118	0.0157
Cast Iron	KBN475	1,970~ 2,950 ~3,940	0.004 × 15°					
Nodular Cast Iron		1,310~ 1,970 ~2,950			● 0.0039			

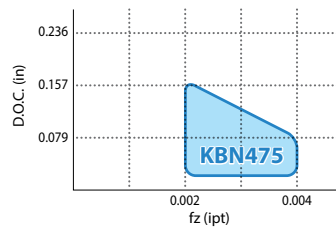
★: 1st Recommendation ☆: 2nd Recommendation

Recommended Application Range (Ceramic/CBN)

Gray/Nodular Cast Iron
(Ceramic)



Gray/Nodular Cast Iron
(CBN)



When using CBN wiper inserts

1. Please use CBN wiper inserts together with ceramic inserts.
Feed rate should be $fz=0.004\text{ipt}$ or under.
2. The main cutting edge of CBN wiper insert is slightly higher than that of ceramic inserts.
Therefore, the feed rate for the inserts next to CBN wiper inserts is double that of other inserts.

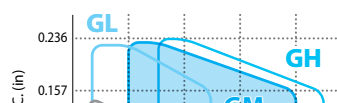
Recommended Cutting Conditions (Coated Carbide)

Workpiece Material	Insert Grades	Cutting Speed Vc (sfm)	Chipbreaker	Feed Rate fz (ipt)				
				0.0024	0.0039	0.0079	0.0118	0.0157
Cast Iron	CA420M	560~750~980	GM ★				0.0098	
	PR1810	390~590~820	GH ☆				0.0118	
	PR1825		GL		0.0047			
	PR1510	390~590~820	GH				0.0118	
	PR1525		GL		0.0047			
Nodular Cast Iron	CA420M	490~660~820	GM			0.0079		
	PR1810	330~490~660	GH ☆				0.0098	
	PR1825		GL		0.0039			
	PR1510	330~490~660	GH				0.0098	
	PR1525		GL		0.0039			

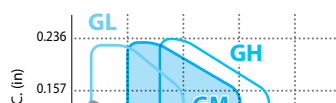
★: 1st Recommendation ☆: 2nd Recommendation

Recommended Application Range

Gray Cast Iron



Nodular Cast Iron



Notes:

1. When using W, please use together with GM or GH.
2. If machining $fz=0.008$ ipt or over, insert corner will be damaged.
The main cutting edge of W insert is receding from that of GM and GH.
Therefore, the feed rate for the insert next to W type is double of the other inserts.

How to Adjust Cutting Edge Height

1. Assemble all related parts into the cutter.
2. Make sure the back end of cartridge makes contact with adjustment screw (Fig 1), and pull them lightly inwards (Fig 2). Tighten the cartridge clamp screw temporary.
3. Install the insert (Fig 3), and tighten the wedge screw temporarily. Temporarily tighten the screw with a 40 to 45 degree rotation after the wedge contacts the insert.
4. Loosen the cartridge clamp screw (Fig 4).
5. Adjust the extruding amount with adjustment screw (Fig 5).
6. Tighten the wedge screw and firmly fix the insert.
(Recommended tightening torque : 6Nm)
7. Tighten the cartridge clamp screw firmly.
(Recommended tightening torque : 10Nm)

Notes :

1. Follow steps 1-7 above for adjustment.
2. To adjust the edge height adjust the wedge screw and loosen the cartridge clamp screw.
Tightening the adjustment screw with the clamp screw fixed firmly may damage the adjustment screw.
3. The adjusted edge height difference must be within 5µm.

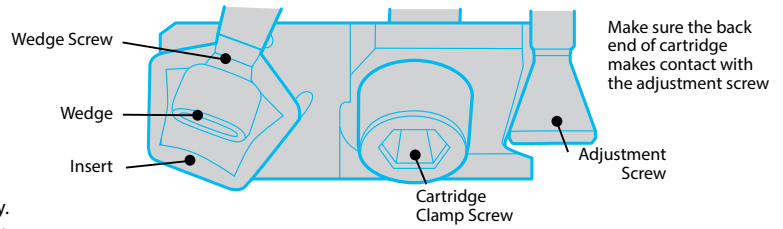


Fig.1

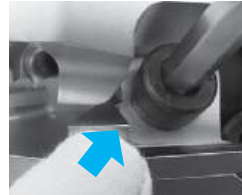


Fig.2



Fig.3

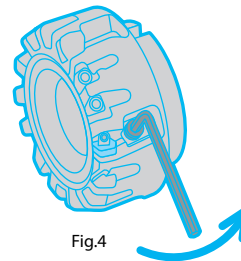


Fig.4

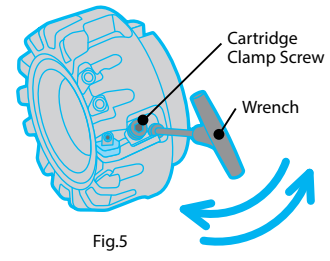


Fig.5

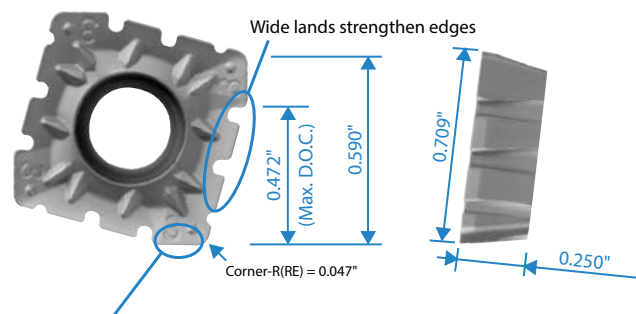
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
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DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Face Mill for Heavy Machining

MSRS15

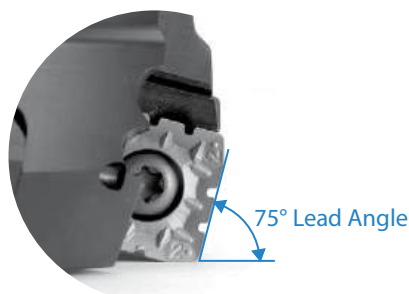
Large depths of cut and high feed rates improve metal removal efficiency

Recommended D.O.C. : 5mm~10mm (0.200"~0.400")



Large wiper edges enable increased feed rates.

Strong inserts due to 6.35mm (0.250") thickness.



A.R. +9°
R.R. -9° (Ø80mm)
-5° (> Ø100mm)

Chipbreaker Selection

	Low Cutting Force Oriented	General Purpose	Edge Strength Oriented
Insert Type	 NB2P (4-Notched) + NB3P (5-Notched)	 NB2 (2-Notched) + NB3 (3-Notched)	 NB2T (2-Notched) + NB3T (3-Notched)
Applications	Ideal when using extended arbors or for cutting thin plate workpieces	General purpose with good balance of strength and low cutting resistance	Ideal for interrupted cutting Ideal when feed rate is increased or workpiece material is Cast Iron
Edge Preparation	As many as four (or five) Notches help to alleviate the shock when biting into the workpiece	Strength, cutting resistance, and chip control are all well balanced	Strength is increased by the edge shape and moderate rake angle of the chamfer edge

A supplemental chipbreaker may be used when it is necessary to increase strength and bite while focusing on low cutting resistance, as when machining welded areas.



Insert Number - NB2P (4-Notched) and NB3P (5-Notched)

In order to match each insert with the corresponding insert pocket of the milling cutter, "2" is marked for NB2P insert (4-Notched) and "3" is marked on NB3P insert (5-Notched).

Features of Toolholder

Coarse Pitch

Designed with Large Chip Pockets
Good Chip Evacuation



Designed with Cartridges
Prevents Damage to Base Body

Applicable Insert Number
(Notch Number)

Fine Pitch

Higher Productivity Due to Close Pitch Design



Insert Replacement Identification

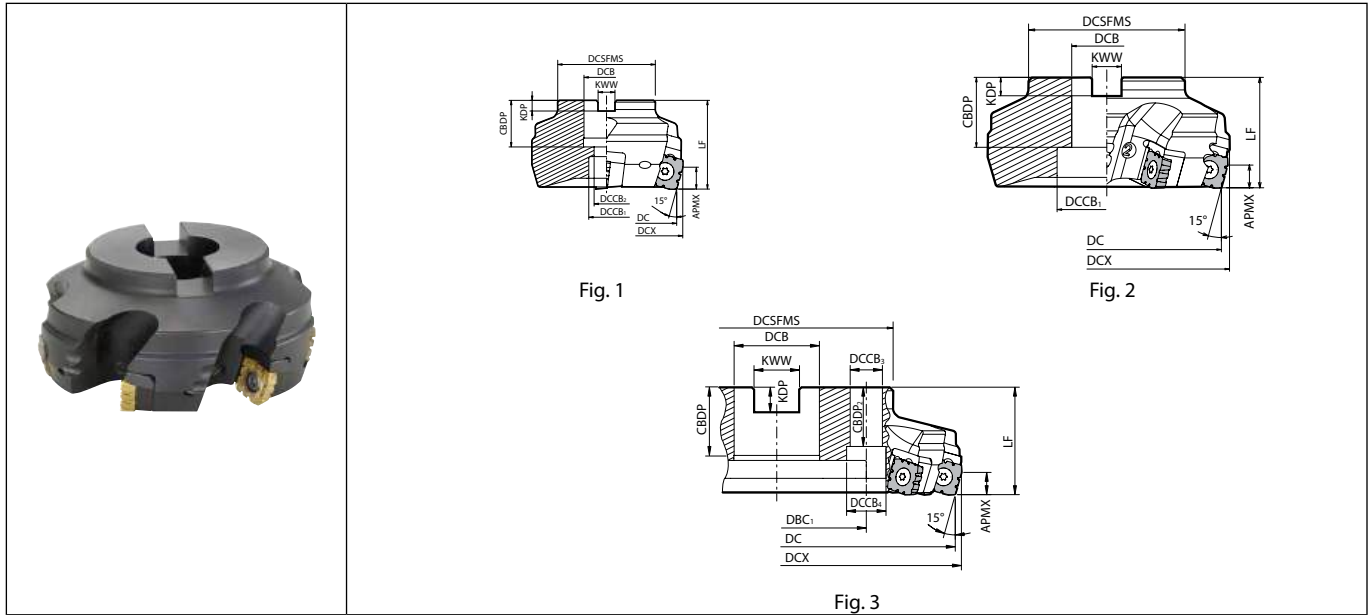


Insert number is transcribed as a result of the cutting tool load.



* Depending on the cutting conditions, marks may not be transcribed.

MSRS15 (Face Mill)



Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions														A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts M66
					R	DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	DBC ₁	LF	CBDP	KDP	KWW	APMX	CBDP ₂				
Inch	Inch Bore Dia.	Coarse Pitch	MSRS 155000R-6T	●	6	5.00	5.27	3.75	1.500	2.13	-	-	-	-	2.48	1.00	0.40	0.625	0.47	-	-5	3.6	2	SPMT1806EDER... SPMT1806EDSR...
			158000R-10T	●	10	8.00	8.27	5.12	2.500	-	-	0.675	1.045	4	-	1.25	0.53	1.000	-	1.25	-5	7.7	3	
	Fine Pitch		MSRS 153000R-6T	●	6	3.00	3.27	2.25	1.000	0.87	0.551	-	-	-	1.97	0.75	0.31	0.375	0.47	-	-9	1.3	1	SPMT1806EDER... SPMT1806EDSR...
			154000R-6T	●	6	4.00	4.27	3.75	1.250	1.38	-	-	-	-	-	1	0.40	0.500	-	-	-5	1.9	2	

Mounting bolt (HH1/2-1.25) is included for MSRS153000R-6T.

Cartridge is included in the coarse pitch type, but no cartridge in the fine pitch type.

Spare Parts (Inch)

Part Number		Spare Parts						
		Insert Screw	Wrench	Cartridge	Clamp Screw	Wrench	Anti-seize Compound	Mounting Bolt
								
Coarse Pitch	MSRS 155000R-6T	SB-60120TR	TT-25L	MAP-1806	SB-40140TR	DT-15	P-37	-
	158000R-10T	Recommended Torque for Insert Screw 7.5N · m		Recommended Torque for Cartridge Clamp 3.5N · m				
Fine Pitch	MSRS 153000R-6T	SB-60120TR	TT-25L	-	-	-	P-37	HH1/2-1.25
	154000R-6T	Recommended Torque for Insert Screw 7.5N · m						HH3/4-2.3H

🔧 Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

MSRS15 (Face Mill)

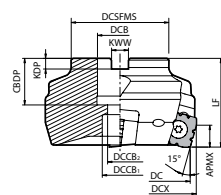


Fig. 1

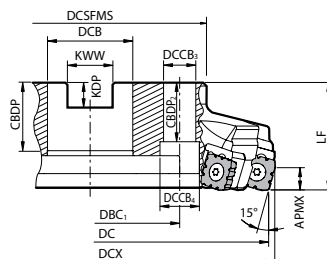


Fig. 3

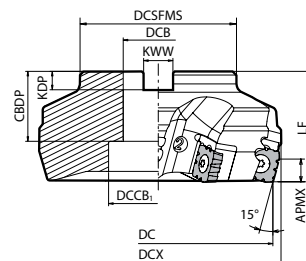


Fig. 2

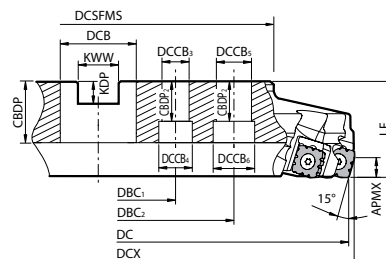


Fig. 4

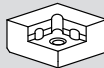
Toolholder Dimensions

Unit	Part Number			Std. Item	Inserts	Dimensions																			A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ➡ M66
						R	DC	DCX	DCSfMS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	DCCB ₅	DCCB ₆	DBC ₁	DBC ₂	LF	CBDP	KDP	KWW	APMX	CBDP ₂						
mm	Inch Bore Dia.	Coarse Pitch	MSRS 15080R-4T	●	4	80	87	55	1.000"	20	13							50	1.024"	0.236"	0.375"			-9	1.3	1	SPMT1806EDER... SPMT1806EDSR...			
			15100R-4T	●		100	107	70	1.250"	42									1.260"	0.315"	0.500"				2	2				
			15125R-6T	●	6	125	132	85	1.500"	54										0.394"	0.625"			-5	3.6	2				
			15160R-8T	●	8	160	167	100	2.000"	68										0.433"	0.750"				5	2				
			15200R-10T	●	10	200	207	130	1.875"	-	18	26			4.00"	60	1.496"	0.551"		12	32	+9	No	7.7	3					
			15250R-12T	●	12	250	257																							
			15315R-14T	●	14	315	322	220					22	32		7.00"				25				17	4					
		Fine Pitch	MSRS 15080R-6T	●	6	80	87	55	1.000"	20	13								50	1.024"	0.236"	0.375"			-9	1.3	1	SPMT1806EDER... SPMT1806EDSR...		
			15100R-6T	●		100	107	70	1.250"	42										1.260"	0.315"	0.500"				1.9	2			
			15125R-8T	●	8	125	132	85	1.500"	54										0.394"	0.625"			-5	3.5	2				
			15160R-10T	●	10	160	167	100	2.000"	68										0.433"	0.750"				4.9	2				
			15200R-12T	●	12	200	207	130	1.875"	-	18	26			4.00"	60	1.496"	0.551"	1.000"	12	32	+9	No	7.6	3					
			15250R-14T	●	14	250	257																							
			15315R-16T	□	16	315	322	220					22	32		7.00"					25				11.9	3				
	Metric Bore Dia.	Coarse Pitch	MSRS 15080R-4T-M	●	4	80	87	70	27	20	13							50	24	7	12.4			-9	1.3	1	SPMT1806EDER... SPMT1806EDSR...			
			15100R-4T-M	●		100	107		32	45									29	8	14.4				2	2				
			15125R-6T-M	●	6	125	132		55															-5	3.6	2				
			15160R-8T-M	●	8	160	167	110	40	68		14	20		66.7					33	9	16.4			5	3				
			15200R-10T-M	●	10	200	207	140	60	-	18	26			101.6	60	38	15	25.7	12	28	+9	No	7.7	3					
			15250R-12T-M	●	12	250	257																							
			15315R-14T-M	●	14	315	322	230					22	32		177.8								17	4					
		Fine Pitch	MSRS 15080R-6T-M	●	6	80	87	70	27	20	13								50	24	7	12.4			-9	1.3	1	SPMT1806EDER... SPMT1806EDSR...		
			15100R-6T-M	●		100	107		32	45										29	8	14.4				1.9	2			
			15125R-8T-M	●	8	125	132		55															-5	3.5	2				
			15160R-10T-M	●	10	160	167	110	40	68		14	20		66.7					33	9	16.4			4.9	3				
			15200R-12T-M	●	12	200	207	140	60	-	18	26			101.6	60	38	15	25.7	12	28	+9	No	7.6	3					
			15250R-14T-M	●	14	250	257																							
			15315R-16T-M	□	16	315	322	230					22	32		177.8									11.9	3				

Mounting bolt (HH12X35) is included for MSRS15080R-OT(-M).

Cartridge is included in the coarse pitch type, but no cartridge in the fine pitch type.

Spare Parts (Metric)

Part Number		Spare Parts						
		Insert Screw	Wrench	Cartridge	Shim Screw	Wrench	Anti-seize Compound	Mounting Bolt
								
Coarse Pitch	MSRS 15080R-4T(-M)	SB-60120TR	TT-25L	MAP-1806	SB-40140TR	DT-15	P-37	HH12X35
	MSRS 15100R-4T(-M) 2 15315R-14T(-M)	Recommended Torque for Insert Screw 7.5N · m		Recommended Torque for Cartridge Clamp 3.5N · m				-
Fine Pitch	MSRS 15080R-6T(-M)	SB-60120TR	TT-25L				P-37	HH12X35
	MSRS 15100R-6T(-M) 2 15315R-16T(-M)	Recommended Torque for Insert Screw 7.5N · m		-	-	-		-

 Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

INSERT GRADES

A

TURNING INSERTS

B

CBN / PCD INSERTS

C

TURNING HOLDERS

D

SMALL TOOLS

E

BORING

F

GROOVING

G

CUT-OFF

H

THREADING

J

DRILLING

K

MILLING

M

QUICK CHANGE TOOLING

N

SPARE PARTS

P

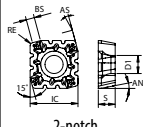
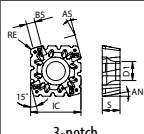
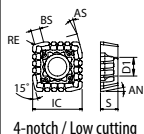
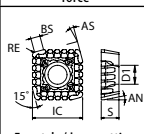
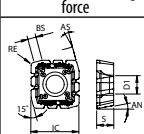
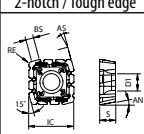
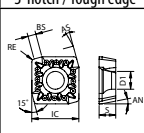
TECHNICAL

R

INDEX

T

SPMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)			Carbon steel / Alloy steel							★	☆	P		
			Mold and die steel							★	☆			
			Austenitic stainless steel									M		
			Martensitic stainless steel											
			Precipitation hardened stainless steel											
			Gray cast iron							★		K		
			Nodular cast iron							★				
			Non-ferrous metals									N		
			Heat-resistant alloy								★	S		
			Titanium alloy								★			
			Hard materials									H		
Insert	Part Number	No. of Edges	Dimensions (mm)					Angle (°)		Carbide			Applicable Toolholder ➡ M63~M64	
			IC	S	D1	RE	BS	AN	AS	PVD				
										PR1810	PR1825	PR1835		
	 2-notch	SPMT 1806EDER-NB2	4	18	6.35	6.8	1.2	3.1	11	15	●	●	●	MSRS15...
	 3-notch	SPMT 1806EDER-NB3	4	18	6.35	6.8	1.2	3.1	11	15	●	●	●	MSRS15...
	 4-notch / Low cutting force	SPMT 1806EDER-NB2P	4	18	6.35	6.8	1.2	3.1	11	15	●	●	●	MSRS15...
	 5-notch / Low cutting force	SPMT 1806EDER-NB3P	4	18	6.35	6.8	1.2	3.1	11	15	●	●	●	MSRS15...
	 2-notch / Tough edge	SPMT 1806EDSR-NB2T	4	18	6.35	6.8	1.2	3.1	11	15	●		●	MSRS15...
	 3-notch / Tough edge	SPMT 1806EDSR-NB3T	4	18	6.35	6.8	1.2	3.1	11	15	●		●	MSRS15...
	 Without notch	SPMT 1806EDER-V	4	18	6.35	6.8	1.2	3.1	11	15	●	●	●	MSRS15...

Right-hand Insert Shown

Recommended Cutting Conditions  M67SPMT inserts are
sold in 10 piece boxes

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)			Recommended Insert Grades (Cutting Speed Vc: sfm)		
	NB2P + NB3P	NB2 + NB3	NB2T + NB3T	MEGACOAT NANO EX		
				PR1810	PR1825	PR1835
Carbon Steel	0.006	0.008	0.012	-	★ 390 ~ 590 ~ 820	☆ 390 ~ 590 ~ 720
Alloy Steel	0.006	0.008	0.012	-	★ 390 ~ 590 ~ 820	☆ 390 ~ 590 ~ 720
Mold Steel	0.004	0.006	0.008	-	★ 330 ~ 520 ~ 720	☆ 330 ~ 520 ~ 660
Gray Cast Iron	0.008	0.010	0.014	★ 390 ~ 590 ~ 820	-	-
Nodular Cast Iron	0.006	0.008	0.012	★ 390 ~ 520 ~ 720	-	-
Stainless Steel	Not Recommended					
Aluminum / Copper	Not Recommended					

★ : 1st Recommendation ☆ : 2nd Recommendation

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Tangential 90° Milling with 4-Edge Inserts

MA90

Original tangential 90° end mill with economical 4-edge inserts

New grade PR18 Series and unique insert cutting edge design creates high-quality machining with longer tool life

1 The MA90 tangential end mills provide a large variety of machining operations

Large web thickness
High rigidity

Peripheral grinding
Excellent wall accuracy

Special wiper edge
Large relief angle suppresses wear
High-quality surface finish



Multi-functional (G-class insert)
Supports three-dimensional machining

Unique cutting edge design
Excellent fracture resistance and low cutting force design

Newly developed insert grade
MEGACOAT NANO EX
PR18 Series delivers longer tool life

2 New insert grades PR18 Series provides significantly longer tool life



Next-generation insert grade

PR18 Series

Longer Tool Life with
Next-generation Coating for Milling

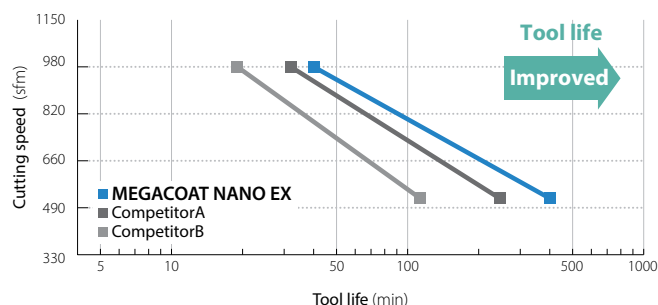
Extensive lineup of insert grades

Workpiece material	P Steel					M Stainless steel					K Cast iron				
	01	10	20	30	40	01	10	20	30	40	01	10	20	30	40
Lineup	1st recommendation					1st recommendation					1st recommendation				
	PR1825					PR1835					PR1810				
	Wet					High-speed machining									
	PR1835					CA6535									
H Hardened material	PR015S (GH)					S Heat-resistant alloy					Titanium alloy				
						CA6535 (PR1835)					PR1835				

PR1825 Wear resistance comparison (Internal evaluation)
V-T graph

Life criteria:
Flank face wear = 0.004"

Cutting conditions:
V_c = 520 / 980 sfm
D.O.C. = 0.079" × 4.331", fz = 0.005 ipt
4140 Dry
PNMU1205ANER-GM (MFPM)



3

Achieve reliable results with an insert designed for high quality machining and long tool life

Unique cutting edge design delivers high fracture resistance and low cutting forces

Special wiper edge and peripheral grinding specs provide high quality finish and long tool life

Peripheral grinding specifications

Unique, sloped, edge shape

Grounded peripheral provides higher precision

Advantage

The large A.R. and relief angle of wiper edge create lower resistance and excellent surface finish.



Unique cutting edge design
Superior fracture resistance and low cutting force

Arc line

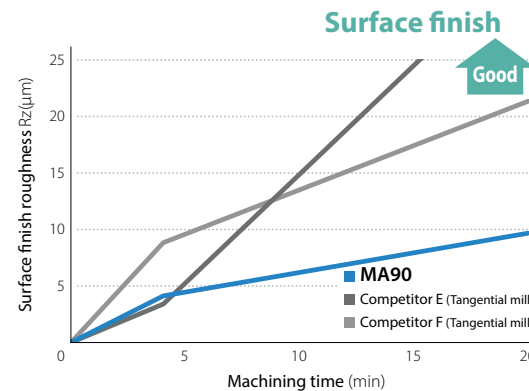
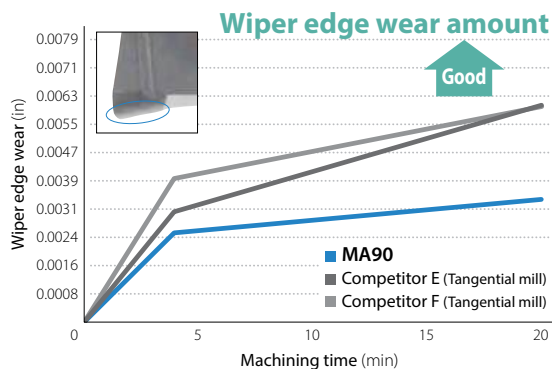
Straight line

Arc line

Straight line

Special wiper edge

Large relief angle: Excellent surface finish and wear suppression
Stepped corners: Designed to prevent pocket damage



Cutting conditions: $V_c = 660$ sfm, D.O.C. x a.e. = $0.039^\circ \times 37.50^\circ$, $f_z = 0.004/0.005$ ipt, Dry 1049 $\Phi 50$ mm (6/7 flute) BT50

Long tool life and high-speed efficiency

Test 1

Even if the main cutting edge is in good condition, the tool reached the end of life due to deterioration of the finished surface.

MA90



Test 2

Machined with reduced cutting speed because the surface finish deteriorated early.

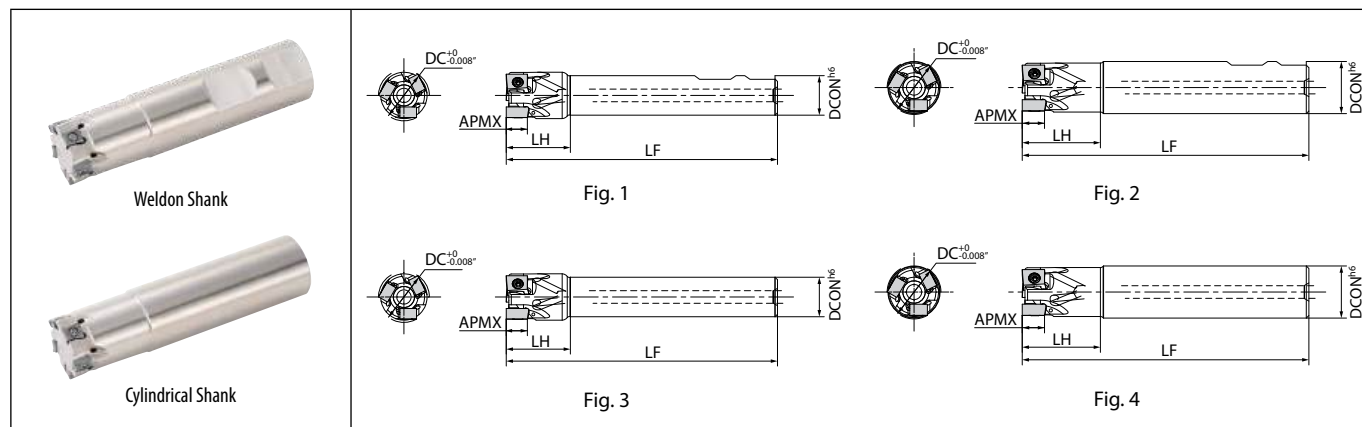
MA90



Edge condition and finished surface

		MA90	Competitor E Tangential	Competitor F Tangential
Wiper Edge	After 3.8 min			
	After 6.5 min			
Main Cutting Edge		Abrasion progress: Small	Wear progress: Large	Wear progress: Large
		Good	Good	Good
Finished Surface		Good	Cloudy finish	Surface finish deteriorating
	After 13.1 min	8.0μmRz (1.3μmRa)	20.6μmRz (2.2μmRa)	14.9μmRz (3.0μmRa)
Results		Main cutting edge: Good Wiper edge wear: Small wear Good finished surface and further machining is possible	Main cutting edge: Good Wiper edge wear: Progressive Worse finished surface	Main cutting edge: Good Wiper edge wear: Progressive Worse finished surface

MA90 (End Mill)



Toolholder Dimensions (LOGU09... Inserts)

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts ➔ M78
				DC	DCON	LF	LH	APMX				Anti-Seize Compound	Insert Screw	Wrench	
Inch	Weldon Standard Shank	MA90- 0625W625-09T2C	● 2	0.625	0.625	3.000	1.024		0.315	Yes	2	P-37	SB-44865UTRP	DTPM-8	LOGU0904...
		0750W750-09T3C	● 3	0.750	0.750	3.250	1.160								
		1000W100-09T4C	● 4	1.000		3.750	1.400								
		1250W100-09T4C	● 4		1.000		1.700								
		1250W100-09T5C	● 5	1.250		4.000	1.700								
		1250W125-09T5C	● 5				1.650								
		1500W125-09T5C	● 5												
		1500W125-09T6C	● 6	1.500		4.350	2.050								
	Cylindrical Standard Shank	MA90- 0625S625-09T2C	● 2	0.625	0.625	3.000	1.024		0.315	Yes	4	P-37	SB-44865UTRP	DTPM-8	LOGU0904...
		0750S750-09T3C	● 3	0.750	0.750	3.250	1.160								
		1000S100-09T4C	● 4	1.000		3.750	1.400								
		1250S100-09T5C	● 5	1.250		4.000	1.700								
		1500S125-09T5C	● 5	1.500	1.250	4.350	2.050								
	Long Shank	MA90- 0750S750-09T3CL	● 3	0.750	0.750		1.590		0.315	Yes	4	P-37	SB-44865UTRP	DTPM-8	LOGU0904...
		1000S100-09T3CL	● 3	1.000	1.000		2.100								
		1500S125-09T3CL	● 3	1.500	1.250		2.661								
			● 3	1.500	1.250	9.500	2.661								

Maximum number of revolutions:

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page M79.

Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

LOGU0904... Insert screw tightening torque = 1.2 Nm

45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

Toolholder Dimensions (LOGU12... Inserts)

Unit		Part Number			Std. Item	No. of Inserts	Dimensions					Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts  M78	
															Anti-Seize Compound	Insert Screw	Wrench		
																			
Inch	Weldon	Standard Shank	MA90- 1000W100-12T2C 1250W100-12T2C 1250W100-12T3C 1250W125-12T3C 1500W125-12T3C 1500W125-12T4C	● 2	2	1.000	1.000	3.750	1.400	0.472	Yes	29,700	2	P-37	SB-40104TRP	DTPM-15	LOGU1206...		
				● 2	2	4.000		1.700	27,300			2							
				● 3	3			1.250	1.650			27,300	2						
				● 3	3	1.250	4.350	2.050	21,300			1							
				● 3	3				19,400			1							
				● 4	4				1.500			19,400	1						
	Cylindrical	Standard Shank	MA90- 1000S100-12T2C 1250S100-12T3C 1500S125-12T4C	● 2	2	1.000	1.000	3.750	1.400			0.472	Yes	29,700	4	P-37	SB-40104TRP	DTPM-15	LOGU1206...
				● 3	3	1.250		4.000	1.700					27,300	4				
				● 4	4	1.500		1.250	4.350					2.050	19,400					3
		Long Shank	MA90- 1000S100-12T2CL 1500S125-12T3CL	● 2	2	1.000	1.000	7.000	2.100	0.472	Yes	27,300	4	P-37	SB-40104TRP	DTPM-15	LOGU1206...		
				● 3	3	1.500	1.250	9.500	2.661			19,400	3						

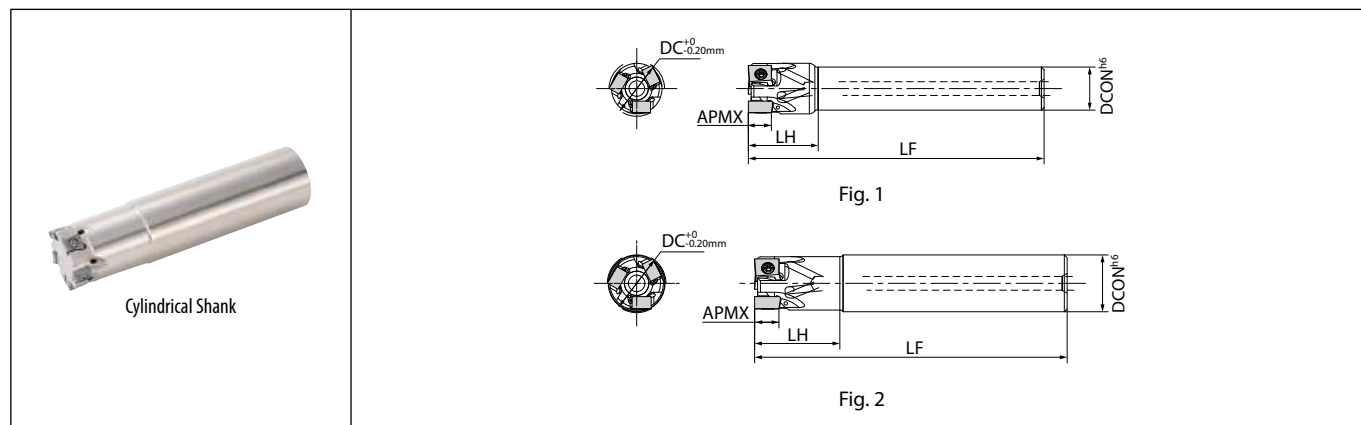
Maximum number of revolutions:

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page M79.

Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

LOGU1206... Insert screw tightening torque = 3.5 Nm

MA90 (End Mill)



Toolholder Dimensions (LOGU09... Inserts)

Unit	Part Number			Std. Item	No. of Inserts	Dimensions					Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts  M78																																																																																																																																																																																																																																																																																																																																																																																																					
						DC	DCON	LF	LH	APMX							Wrench 																																																																																																																																																																																																																																																																																																																																																																																																						
mm	Cylindrical	Standard Shank	MA90- 16S12-09T2C 16S16-09T2C 18S16-09T2C 20S16-09T2C 20S16-09T3C 20S20-09T2C 20S20-09T3C 22S20-09T3C 25S20-09T3C 25S20-09T4C 25S25-09T3C 25S25-09T4C 28S25-09T3C 30S25-09T4C 32S25-09T4C 32S25-09T5C 32S32-09T4C 32S32-09T5C 35S32-09T4C 35S32-09T5C 40S32-09T4C 40S32-09T6C 50S32-09T5C 50S32-09T7C	                         	2	16	12	100	16	26	110	30	26	20	25	28	30	32	32	40	35	40	50	120	40	8	Yes	29,500	0.1	1	2	1	2	1	1	2	2	1	1	2	2	1	1	2	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1

Maximum number of revolutions:

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page M79.

Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

LOGU0904... Insert screw tightening torque = 1.2 Nm

Toolholder Dimensions (LOGU12... Inserts)

Unit	Part Number			Std. Item	No. of Inserts	Dimensions					Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts  M78
															Anti-Seize Compound	Insert Screw	Wrench	
																		
mm	Cylindrical	Standard Shank	MA90- 25S20-12T2C 25S25-12T2C 28S25-12T2C 30S25-12T2C 30S25-12T3C 32S25-12T2C 32S25-12T3C 32S32-12T2C 32S32-12T3C 35S32-12T3C 40S32-12T3C 40S32-12T4C 50S32-12T4C 50S32-12T6C		2	25	20	120	29	12	Yes	18,300	0.3	1	P-37	SB-40104TRP	DTPM-15	LOGT1206... LOGU1206...
									32					0.4				
					28	25		29	17,300			0.4	1					
							30	130				32	16,800	0.5					1
					3	25			130					32					16,300	0.5	1
							32	32				130	40							16,300	0.7	2
					3	35			150					50				
							40	32				150	50					
					4	50			32					120				
							6	50				32	120							40		13,100	0.8	1
					2	25			25					170				
							32	32				200	65					
					2	25			25					170				
							32	32				200	65					
					2	25			25					170				
							32	32				200	65					
					2	25			25					170				
							32	32				200	65					
		2	25	25	170	50			18,300	0.6	2							
							32	32		200	65	16,300	1.1	2				
	2	25	25	170	50	18,300			0.6				2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300						0.6	2					
							32	32	200	65	16,300	1.1	2					
	2	25	25	170	50	18,300												

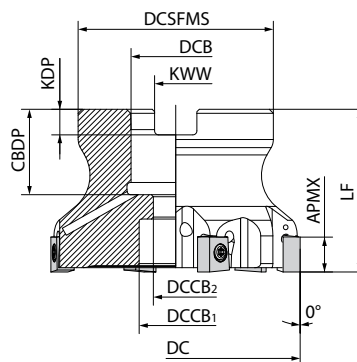
Maximum number of revolutions:

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page M79.

Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

LOGU1206... Insert screw tightening torque = 3.5 Nm

MA90 (Face Mill)



Toolholder Dimensions (LOGU09/12... Inserts)

Unit	Bore Dia.	Part Number	Std. Item	No. of Inserts	Dimensions										Coolant Hole	Max RPM	Spare Parts				Applicable Inserts ➔ M78	
					R	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW			APMX					
Inch	Inch Bore Dia.	MA90- 1500R-09T5C 1500R-09T6C 2000R-09T6C 2000R-09T7C 2500R-09T7C 2500R-09T9C	● 5	5	1.500	1.400	0.750	0.669	0.433	1.575	0.750	0.187	0.313	0.315	Yes	19,400	P-37		DTPM-8	Insert Tightening Torque 1.2 Nm	HH1/4-0.75(H)	LOGU0904...
			● 6	6																		
			● 6	6	2.000																	
			● 7	7																		
			● 7	7	2.500																	
			● 9	9																		
	Inch Bore Dia.	MA90- 1500R-12T3C 1500R-12T4C 2000R-12T4C 2000R-12T6C 2500R-12T6C 2500R-12T8C 3000R-12T8C 3000R-12T10C	● 3	3	1.500	1.400	0.500	0.433	0.276	1.575	0.709	0.156	0.250	0.472	Yes	15,000	P-37		DTPM-15	Insert Tightening Torque 3.5 Nm	HH1/4-0.75(H)	LOGT1206... LOGU1206...
			● 4	4																		
			● 4	4	2.000																	
			● 6	6																		
			● 6	6	2.500																	
			● 8	8																		
			● 8	8	3.000	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382									
			● 10	10																		

Maximum number of revolutions:

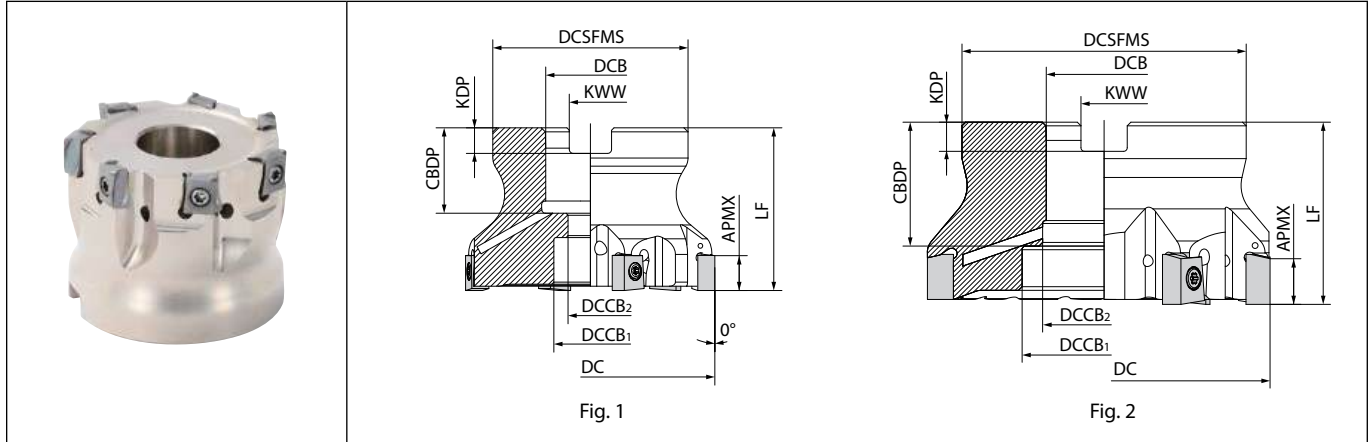
Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page M79.

Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

(H) Optional coolant-thru bolt available.

45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

MA90 (Face Mill)



Toolholder Dimensions (LOGU09/12... Inserts)

Unit	Bore Dia.	Part Number	Std. Item	No. of Inserts	Dimensions										Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts				Applicable Inserts ➡ M78				
					R	DC	DCS _{MS}	DCB	DCC _{B1}	DCC _{B2}	LF	CBDP	KDP	KWW					APMX								
mm	Metric Bore Dia.	MA90- 040R-09T4C-M	●	4	40	38	16	15	9	40	19	5.6	8.4	8	Yes	26,600	0.2	1	P-37		DTPM-8	HH8×25(H)	LOGU0904...				
		040R-09T6C-M	●	6												50	48					22		18	11	21	6.3	10.4	23,900	0.4	Insert Tightening Torque 1.2 Nm	HH10×30(H)
		050R-09T5C-M	●	5																							
		050R-09T7C-M	●	7																							
		063R-09T6C-M	●	6																							
		063R-09T9C-M	●	9																							
	Inch Bore Dia.	MA90- 080R-12T7C	●	7	80	70	1.00"	20	13	50	1.063"	0.236"	0.375"	12	Yes	10,400	1.2	1	P-37		DTPM-15	HH1/2-1.25(H)	LOGT1206... LOGU1206...				
		080R-12T10C	●	10												100	78					1.25"		45	-	1.339"	0.315"	0.500"	9,300	1.5	Insert Tightening Torque 3.5 Nm	-
		100R-12T9C	●	9																							
		100R-12T13C	●	13																							
		125R-12T12C	●	12																							
		125R-12T16C	●	16																							
	Metric Bore Dia.	MA90- 040R-12T3C-M	●	3	40	38	16	14	9	40	19	5.6	8.4	12	Yes	14,600	0.2	1	P-37		DTPM-15	HH8×25(H)	LOGT1206... LOGU1206...				
		040R-12T4C-M	●	4												50	48					22		18	11	21	6.3	10.4	13,100	0.3	HH10×30(H)
		050R-12T4C-M	●	4																							
		050R-12T6C-M	●	6																							
		063R-12T6C-M	●	6																							
		063R-12T8C-M	●	8																							
		080R-12T7C-M	●	7	80	70	27	20	13	50	24	7	12.4	10,400	1.2	Insert Tightening Torque 3.5 Nm	HH12×35(H)										
		080R-12T10C-M	●	10														100	78	32	45	-	30	8	14.4	9,300	1.5
		100R-12T9C-M	●	9																							
		100R-12T13C-M	●	13																							
		125R-12T12C-M	●	12																							
		125R-12T16C-M	●	16																							

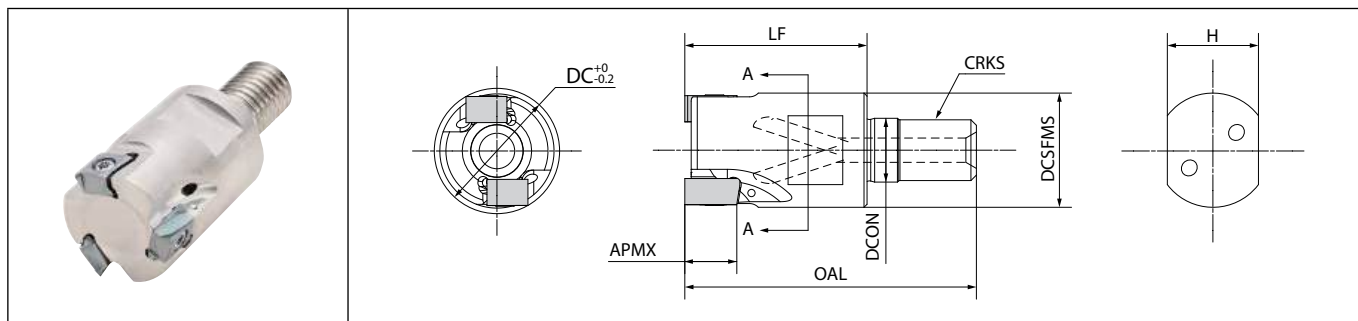
Maximum number of revolutions:

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page M79.

Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

(H) Optional coolant-thru bolt available.

MA90 (Modular Type)



Toolholder Dimensions (LOGU09/12... Inserts)

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➡ M78
				DC	DCSFMS	DCON	OAL	LF	CRKS	H	APMX			Anti-Seize Compound	Insert Screw	Wrench	
Inch	MA90- 0750M10-09T3C	●	3	0.750	0.711	0.413	1.890	1.181	M10xP1.50	0.591							
	1000M12-09T4C	●	4	1.000	0.906	0.492	2.205	1.378	M12xP1.75	0.748	0.315	Yes	27,300	P-37	SB-44865UTRP	DTPM-8	LOGU0904...
	1250M16-09T5C	●	5	1.250	1.181	0.669	2.441	1.575	M16xP2.00	0.945			18,300		SB-44880UTRP		
													16,300				
	MA90- 1000M12-12T2C	●	2	1.000	0.906	0.492	2.205	1.378	M12xP1.75	0.748			18,300	P-37	SB-40104TRP	DTPM-15	LOGT1206... LOGU1206...
	1250M16-12T3C	●	3	1.250	1.181	0.669	2.441	1.575	M16xP2.00	0.945	0.472	Yes	16,300				

Maximum number of revolutions:

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page M79.

Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

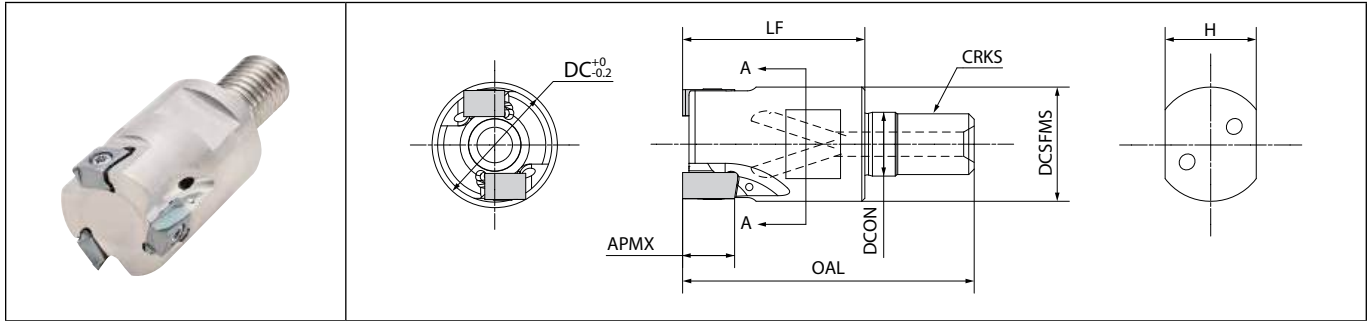
LOGU0904... Insert screw tightening torque = 1.2 Nm

LOGU1206... Insert screw tightening torque = 3.5 Nm

See page M324 for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

MA90 (Modular Type)



Toolholder Dimensions (LOGU09/12... Inserts)

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➡ M78
				DC	DCSfMS	DCON	OAL	LF	CRKS	H	APMX			Anti-Seize Compound	Insert Screw	Wrench	
																	
mm	MA90- 20M10-09T2C 20M10-09T3C 25M12-09T3C 25M12-09T4C 32M16-09T4C 32M16-09T5C	● 2	20	18.8	10.5	48	30	M10×P1.5	15	8	Yes	19,000	P-37	SB-44880UTRP	DTPM-8	LOGU0904...	
		● 3															
		● 3	25	23	12.5	56	35	M12×P1.75	19								17,000
		● 4															
		● 4	32	30	17	62	40	M16×P2.0	24			15,100					
		● 5															
	MA90- 25M12-12T2C 32M16-12T2C 32M16-12T3C	● 2	25	23	12.5	56	35	M12×P1.75	19	12	Yes		18,300	P-37	SB-40104TRP	DTPM-15	LOGT1206... LOGU1206...
		● 2	32	30	17	62	40	M16×P2.0	24			16,300					
		● 3															

Maximum number of revolutions:

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on Page M79.

Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

LOGU0904... Insert screw tightening torque = 1.2 Nm

LOGU1206... Insert screw tightening torque = 3.5 Nm

See page M324 for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

LOGU

Usage Classification		Material										P	
★ : Roughing / 1st Choice		Carbon steel / Alloy steel										★ ☆	
☆ : Roughing / 2nd Choice		Mold and die steel										★ ☆	
■ : Finishing / 1st Choice		Austenitic stainless steel										☆ ★	
□ : Finishing / 2nd Choice		Martensitic stainless steel										★ ☆	
(Hardness 45HRC or less)		Precipitation hardened stainless steel										★	
		Gray cast iron										★	
		Nodular cast iron										★	
		Non-ferrous metals											
		Heat-resistant alloy										★ ☆	
		Titanium alloy										★	
		Hard materials (≤ 60 HRC)										★	
												★ ☆	
												★ ☆	
												★ ☆	
												★ ☆	
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Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Cutter Diameter and Feed Rate (fz: ipt)				Recommended Insert Grade (Cutting Speed Vc: sfm)				
		09 Size Insert (LOGU09...)		12 Size Insert (LOGU12...)		CVD Coating	MEGACOAT HARD	MEGACOAT NANO EX		
		ø0.625" ø16mm ~ ø18mm	ø0.750" ~ ø2.500" ø20mm ~ ø63mm	ø1.000" ø25mm ~ ø30mm	ø1.250" ~ ø3.000" ø32mm ~ ø125mm	CA6535	PR015S	PR1810	PR1825	PR1835
General GM	Carbon Steel	0.002~ 0.004 ~0.006	0.002~ 0.004 ~0.006	0.002~ 0.004 ~0.007	0.002~ 0.006 ~0.009	-	-	-	★ 390~ 590 ~820	☆ 390~ 590 ~820
	Alloy Steel	0.002~ 0.003 ~0.005	0.002~ 0.004 ~0.006	0.002~ 0.004 ~0.006	0.002~ 0.005 ~0.008	-	-	-	★ 330~ 520 ~720	☆ 330~ 520 ~720
	Mold Steel	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.006	0.002~ 0.005 ~0.007	-	-	-	★ 260~ 460 ~590	☆ 260~ 460 ~590
	Austenitic Stainless Steel	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.006	0.002~ 0.005 ~0.007	-	-	-	☆ 330~ 520 ~660	★ 330~ 520 ~660
	Martensitic Stainless Steel	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.006	0.002~ 0.005 ~0.007	★ 590~ 790 ~980	-	-	-	☆ 490~ 660 ~820
	Precipitation Hardened Stainless Steel	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.006	0.002~ 0.005 ~0.007	-	-	-	-	★ 300~ 390 ~490
	Gray Cast Iron	0.002~ 0.004 ~0.006	0.002~ 0.004 ~0.006	0.002~ 0.004 ~0.007	0.002~ 0.006 ~0.009	-	-	☆ 390~ 590 ~820	-	-
	Nodular Cast Iron	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.006	0.002~ 0.005 ~0.007	-	-	☆ 330~ 490 ~660	-	-
	Ni-based Heat-Resistant Alloy	0.002~ 0.002 ~0.003	0.002~ 0.003 ~0.004	0.002~ 0.003 ~0.005	0.002~ 0.004 ~0.006	★ 70~ 100 ~160	-	-	-	☆ 70~ 100 ~160
	Titanium Alloy	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.006	-	-	-	-	☆ 100~ 160 ~230
Low Cutting Force SM	Carbon Steel	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.006	0.002~ 0.004 ~0.006	0.002~ 0.004 ~0.007	-	-	-	★ 390~ 590 ~820	☆ 390~ 590 ~820
	Alloy Steel	0.002~ 0.003 ~0.004	0.002~ 0.003 ~0.005	0.002~ 0.003 ~0.005	0.002~ 0.004 ~0.006	-	-	-	★ 330~ 520 ~720	☆ 330~ 520 ~720
	Mold Steel	0.002~ 0.003 ~0.004	0.002~ 0.003 ~0.004	0.002~ 0.003 ~0.005	0.002~ 0.004 ~0.006	-	-	-	★ 260~ 460 ~590	☆ 260~ 460 ~590
	Austenitic Stainless Steel	0.002~ 0.003 ~0.004	0.002~ 0.003 ~0.005	0.002~ 0.003 ~0.005	0.002~ 0.004 ~0.006	-	-	-	☆ 330~ 520 ~660	★ 330~ 520 ~660
	Martensitic Stainless Steel	0.002~ 0.003 ~0.004	0.002~ 0.003 ~0.005	0.002~ 0.003 ~0.005	0.002~ 0.004 ~0.006	★ 590~ 790 ~980	-	-	-	☆ 490~ 660 ~820
	Precipitation Hardened Stainless Steel	0.002~ 0.003 ~0.004	0.002~ 0.003 ~0.005	0.002~ 0.003 ~0.005	0.002~ 0.004 ~0.006	-	-	-	-	★ 300~ 390 ~490
	Ni-based Heat-Resistant Alloy	0.002~ 0.002 ~0.003	0.002~ 0.003 ~0.004	0.002~ 0.003 ~0.005	0.002~ 0.003 ~0.005	★ 70~ 100 ~160	-	-	-	☆ 70~ 100 ~160
	Titanium Alloy	0.002~ 0.003 ~0.004	0.002~ 0.003 ~0.005	0.002~ 0.003 ~0.005	0.002~ 0.004 ~0.005	-	-	-	-	★ 100~ 160 ~230
Tough Edge GH	Carbon Steel	0.002~ 0.004 ~0.006	0.002~ 0.004 ~0.006	0.002~ 0.004 ~0.007	0.002~ 0.006 ~0.009	-	-	-	★ 390~ 590 ~820	☆ 390~ 590 ~820
	Alloy Steel	0.002~ 0.003 ~0.005	0.002~ 0.004 ~0.006	0.002~ 0.004 ~0.006	0.002~ 0.005 ~0.008	-	-	-	★ 330~ 520 ~720	☆ 330~ 520 ~720
	Mold Steel	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.006	0.002~ 0.005 ~0.007	-	-	-	★ 260~ 460 ~590	☆ 260~ 460 ~590
	Austenitic Stainless Steel	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.006	0.002~ 0.005 ~0.007	-	-	-	☆ 330~ 520 ~660	☆ 330~ 520 ~660
	Martensitic Stainless Steel	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.006	0.002~ 0.005 ~0.007	-	-	-	-	☆ 490~ 660 ~820
	Precipitation Hardened Stainless Steel	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.006	0.002~ 0.005 ~0.007	-	-	-	-	☆ 300~ 390 ~490
	Gray Cast Iron	0.002~ 0.004 ~0.006	0.002~ 0.004 ~0.006	0.002~ 0.004 ~0.007	0.002~ 0.006 ~0.009	-	-	★ 390~ 590 ~820	-	-
	Nodular Cast Iron	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.006	0.002~ 0.005 ~0.007	-	-	★ 330~ 490 ~660	-	-
	Ni-based Heat-Resistant Alloy	0.002~ 0.002 ~0.003	0.002~ 0.003 ~0.004	0.002~ 0.003 ~0.005	0.002~ 0.004 ~0.006	-	-	-	-	☆ 70~ 100 ~160
	Titanium Alloy	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.006	-	-	-	-	☆ 100~ 160 ~230
	Hardened Materials (≤ 60 HRC)	0.002~ 0.003 ~0.004	0.002~ 0.004 ~0.005	0.002~ 0.004 ~0.006	0.002~ 0.005 ~0.007	-	★ 200~ 260 ~330	-	-	-

The values in **bold** are the recommended starting condition. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation. ★: 1st Recommendation ☆: 2nd Recommendation
Machining with coolant is recommended for Ni-base heat-resistant alloys and titanium alloys. When choosing wet machining for other workpieces, reduce the cutting speed to 70% or less.

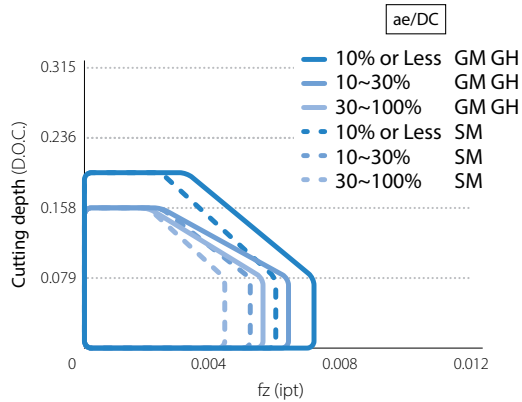
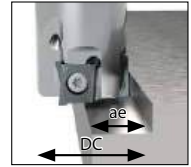
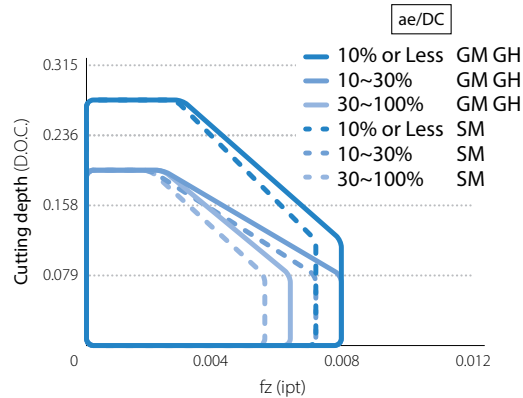
Face milling are not recommended for slotting or pocketing. Recommended ae is 75% of the cutting diameter or less. We recommend coarse pitch cutters when ae is 30% of the cutting diameter or more.

Working above recommended conditions or long-term use can damage the screws. It is recommended to replace the screws regularly.

Ramping and Helical milling are not recommended for large corner radius inserts R4.0mm / R5.0mm / R6.0mm.

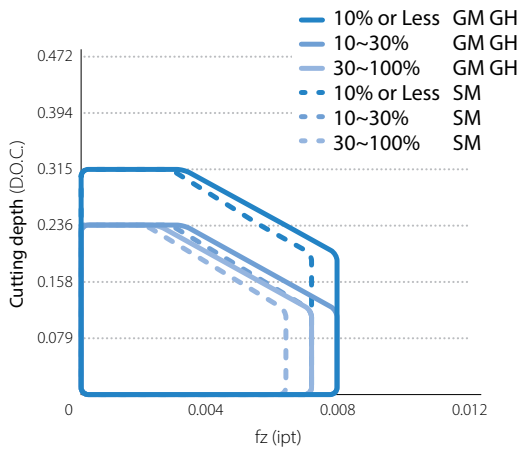
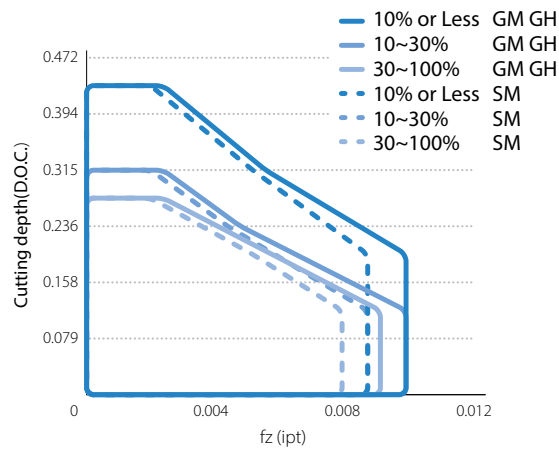
Cutting Performance

09 Size (LOGU09...) Machining for Steel (Dry)

Cutting Dia. DC : $\phi 0.625"$, $\phi 16\text{mm} \sim \phi 18\text{mm}$ Cutting Dia. DC : $\phi 0.750" \sim \phi 2.500"$, $\phi 20\text{mm} \sim \phi 63\text{mm}$ 

For other workpiece material, set D.O.C. and fz appropriately for each ae.

12 Size (LOGU12...) Machining for Steel (Dry)

Cutting Dia. DC : $\phi 1.000"$, $\phi 25\text{mm} \sim \phi 30\text{mm}$ Cutting Dia. DC : $\phi 1.250" \sim \phi 3.000"$, $\phi 32\text{mm} \sim \phi 125\text{mm}$ 

For other workpiece material, set D.O.C. and fz appropriately for each ae.

Case Studies

Brake parts 70-50-05

Vc = 440 sfm
 n = 535 RPM
 D.O.C. x ae = 0.134" x 0.984"
 fz = 0.006 ipt
 Vf = 22.04 ipm
 Wet
 MA90-080R-12T7C-M
 LOGU120616ER-GM (PR1810)



Number of Workpieces

MA90
 (7 flute) **1,000 pcs**

Competitor G
 (7 flute) **600 pcs**

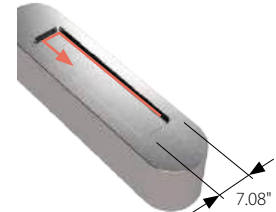
Tool life
x1.6

MA90 showed good cutting edge condition and stable machining.
 Achieved 1.6 times longer tool life.

(User evaluation)

Mold parts Stainless steel

Vc = 410 sfm
 n = 1,600 RPM
 D.O.C. x ae = 0.039" x 0.984"
 fz = 0.005 ipt
 Vf = 22.44 ipm
 Dry
 MA90-25S20-09T3C
 LOGU090408ER-GM (PR1835)



Machining efficiency

MA90
 (3 flute) **Q = 14.5 cc/min**

Competitor H
 (3 flute) **Q = 9.5 cc/min**

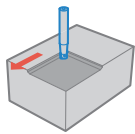
Machining efficiency
x1.5

MA90 showed 1.5 times higher machining efficiency than its competitors.
 Improved tool life (3 to 4 pcs)

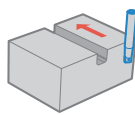
(User evaluation)

Notes

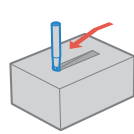
Applications



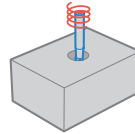
Face Milling & Shouldering



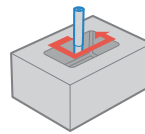
Slotting



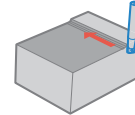
Ramping



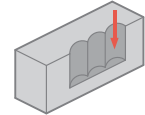
Helical Milling



Pocketing



Contouring



Plunging

Ramping Reference Table

Description	Cutter Diameter DC	0.625" / 16mm	0.750" / 20mm	1.000" / 25mm	1.250" / 32mm	1.500" / 40mm	2.000" / 50mm
MA...-09-...	Max. Ramping Angle RMPX	1.16°	0.97°	0.64°	0.4°	0.23°	0.11°
	tan RMPX	0.020	0.017	0.011	0.007	0.004	0.002
Description	Cutter Diameter DC	1.000" / 25mm	28	30	1.250" / 32mm	35	40
MA...-12-...	Max. Ramping Angle RMPX	2°	1.7°	1.6°	1.5°	1.2°	1°
	tan RMPX	0.034	0.030	0.027	0.026	0.021	0.017

Ramping is not recommended for large corner radius inserts R4.0mm / R5.0mm / R6.0mm
Decrease ramping angle if chips become excessively long

Ramping Tips

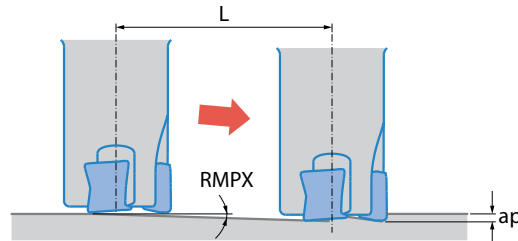
Ramping angle should be under RMPX.

Reduce recommended feed rate by 70%

Formula for Min. Cutting Length (L) at Max. Ramping Angle

$$L = \frac{\text{D.O.C.}}{\tan \text{RMPX}}$$

Ramping is not recommended for large corner radius inserts R4.0mm / R5.0mm / R6.0mm.

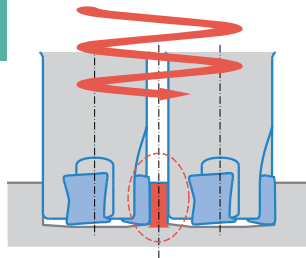


Helical Milling Tips

For Helical milling, use between min. cutting dia. and max. cutting dia.

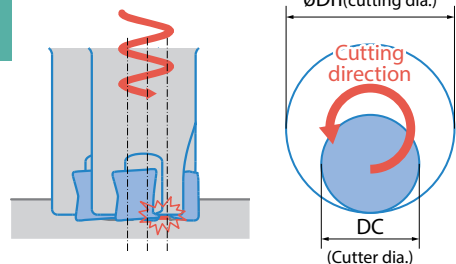
⊘ Exceeding max. cutting dia.

Center core remains after machining



⊘ Less than min. cutting dia.

Center core hits holder body

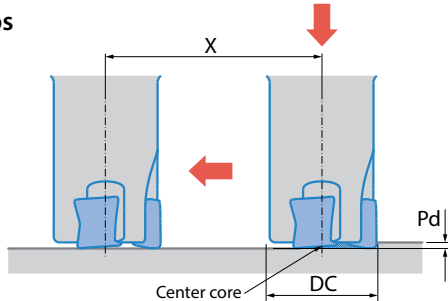


Units: inch

Description	Minimum cutting diameter øDh1	Maximum cutting diameter øDh2
MA...-09-...	2XDC-0.157"	2XDC-0.079"
MA...-12-...	2XDC-0.236"	2XDC-0.079"

Helical milling is not recommended for large corner radius inserts R4.0mm / R5.0mm / R6.0mm.

Drilling Tips

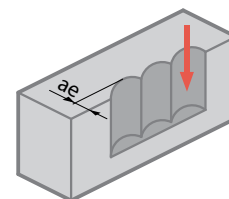


Units: inch

Description	Maximum drilling depth (Pd)	Min. cutting length (X) for flat bottom surface
MA...-09-...	0.010"	DC-0.118"
MA...-12-...	0.020"	DC-0.197"

It is recommended to reduce feed by 25% of recommendation until the center core is removed when traversing after drilling.
Axial feed rate recommendation per revolution is $f = 0.004$ ipt or less when drilling.

Plunging Tips



Available for vertical milling (plunging)
Feed should be set within $fz = 0.004$ (ipt) when plunging.

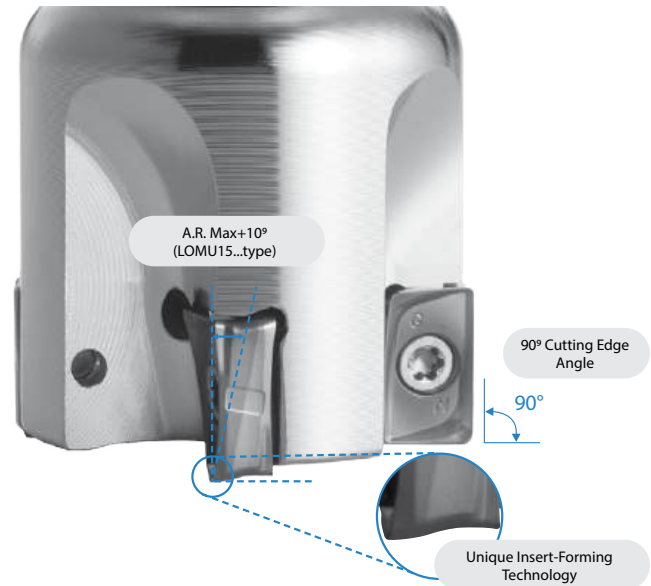
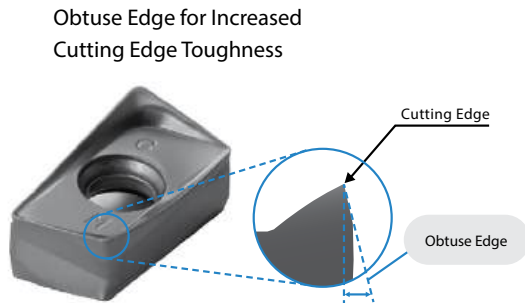
Units: inch

Description	Maximum width of cut (ae)
09 Size (LOGU09...)	0.079
12 Size (LOGU12...)	0.118

Double-Sided 4-Edge Insert

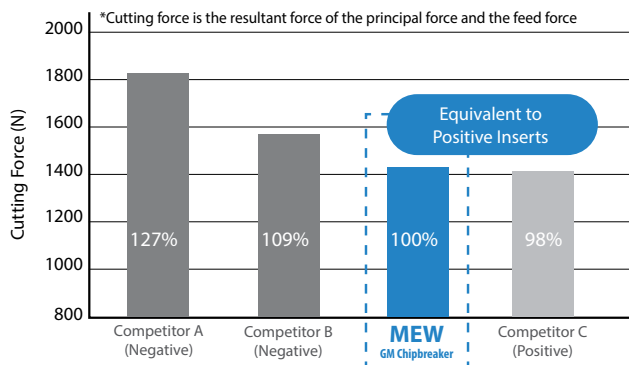
M-FOUR (MEW)

Unique mold technology reduces cutting forces equivalent to positive inserts



Low Cutting Forces Equivalent to Positive Inserts

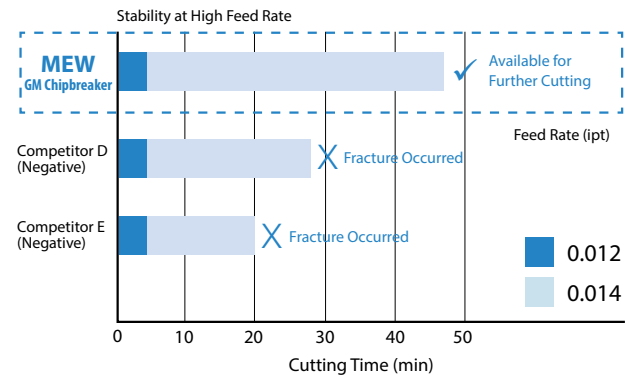
Cutting Force Comparison



Cutting Conditions:
1049 Ø20mm Cutter
 $V_c = 500 \text{ sfm D.O.C.} \times a_e = 0.118'' \times 0.591'' \text{ fz} = 0.006 \text{ ipt}$

Fracture Resistance Comparison

(Internal Evaluation)



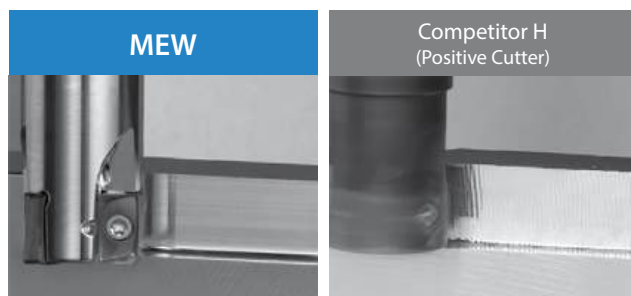
Cutting Conditions:
4140 (37~39Hz) Ø20mm Cutter
 $V_c = 400 \text{ sfm D.O.C.} \times a_e = 0.118'' \times 0.394'' \text{ fz} = 0.012 \sim 0.014 \text{ ipt}$

Improved surface finish, minimizing chatter

Sharp cutting and superior resistance to vibration and burrs due to helical cutting edge and optimum axial rake design

Surface of Shoulder Wall

(Internal Evaluation)



Smooth surface of MEW without chattering

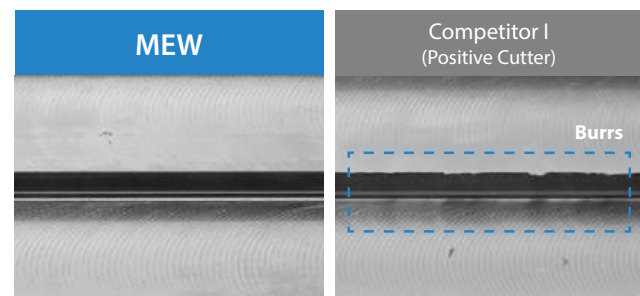
Cutting Conditions : $V_c = 790 \text{ sfm}$, $f_z = 0.005 \text{ ipt}$, $D.O.C. \times a_e = 0.158'' \times 0.197''$
Cutter Dia. Ø0.750", Dry Workpiece : A65

MEW GM Chipbreaker	Cometitor F (Negative)	Cometitor G (Positive)
+20°	+17°	+17°

Large Rake Angle Reduces Cutting Forces

Burr Comparison with Positive Cutters

(Internal Evaluation)



Fewer burrs than positive cutters due to sharp cutting

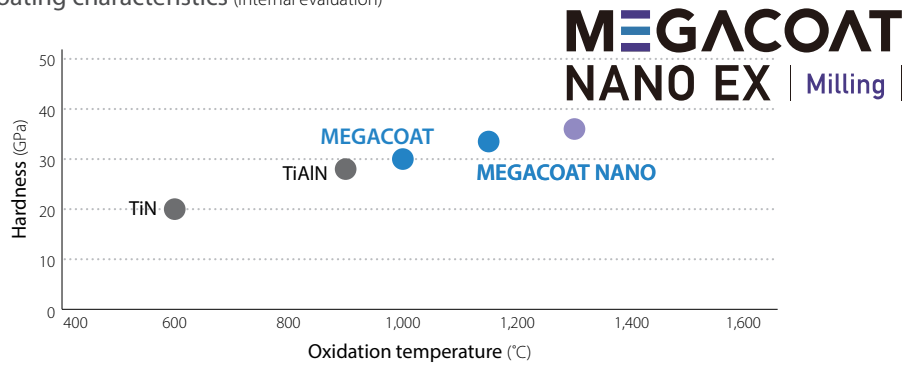
Cutting Conditions : $V_c = 820 \text{ sfm}$, $f_z = 0.004 \text{ ipt}$, $D.O.C. \times a_e = 0.158'' \times 0.197''$
Cutter Dia. Ø0.750", Dry Workpiece : 1049

Long Tool Life with MEGACOAT NANO EX Coating Technology

For steel, stainless steel and cast iron ■ ■ ■

PR1825 / PR1835 / PR1810 New development MEGACOAT NANO EX

Coating characteristics (Internal evaluation)



For hardened material ■

PR015S MEGACOAT HARD PVD coating

For stainless steel and heat-resistant alloys ■ ■

CA6535 CVD coating

For aluminum machining ■

PDL025 DLC coating

GW25 Non-coated Carbide

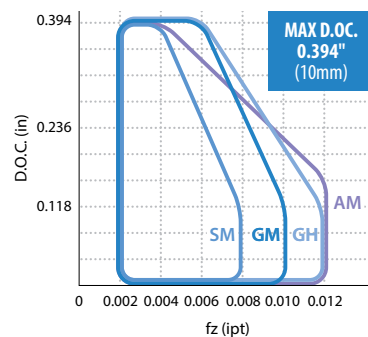
Various Chipbreakers for a Wide Range of Applications

4 types of chipbreakers for a wide range of applications along with a large lineup of corner R(RE) for the GM chipbreaker

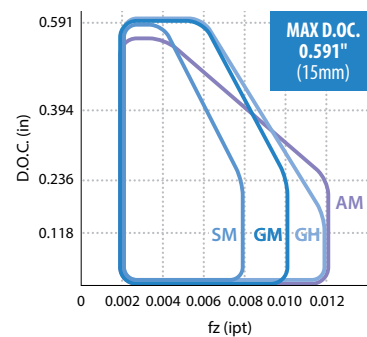
Chipbreaker	Application	Shape
GM	General Purpose	
SM	Low Cutting Force	
GH	Heavy Milling	
AM	Non-ferrous Metals / Aluminum	

Chipbreaker Recommended Applications (Shouldering)

LOMU10 Type



LOMU15 Type



Chips (GM Chipbreaker)



Grooving



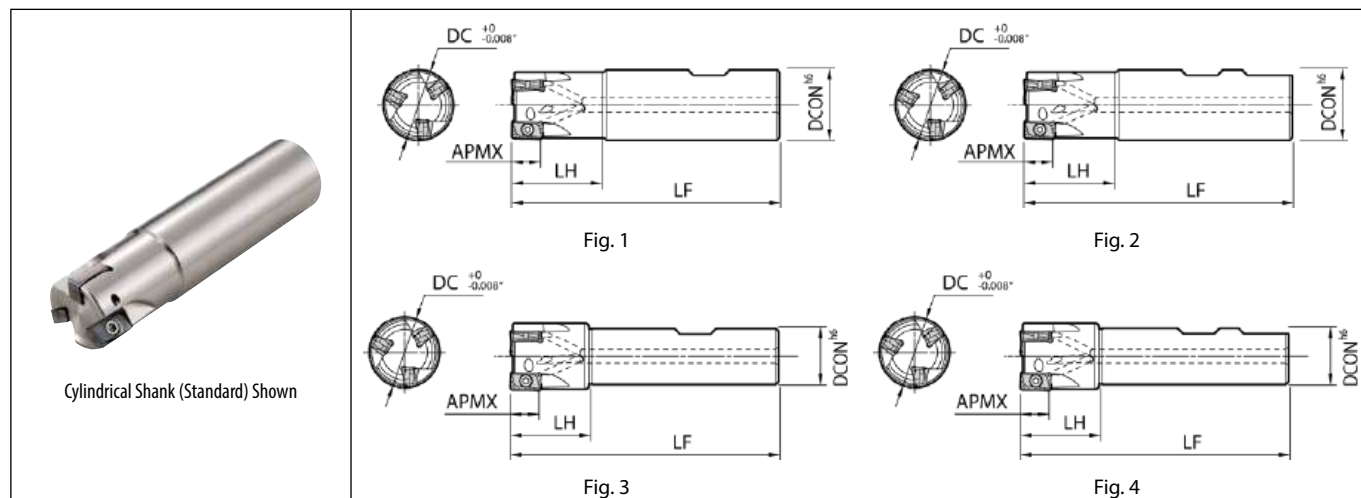
Shouldering

Corner Radius Lineup

Corner-R (RE) 0.4, 1.0, 1.2, 1.6 and 2.0mm added to GM chipbreaker lineup

LOMU100404ER-GM LOMU150504ER-GM	LOMU100408ER-GM LOMU150508ER-GM	LOMU150510ER-GM	LOMU100412ER-GM LOMU150512ER-GM	LOMU100416ER-GM LOMU150516ER-GM	LOMU100420ER-GM LOMU150520ER-GM

MEW (End Mill)

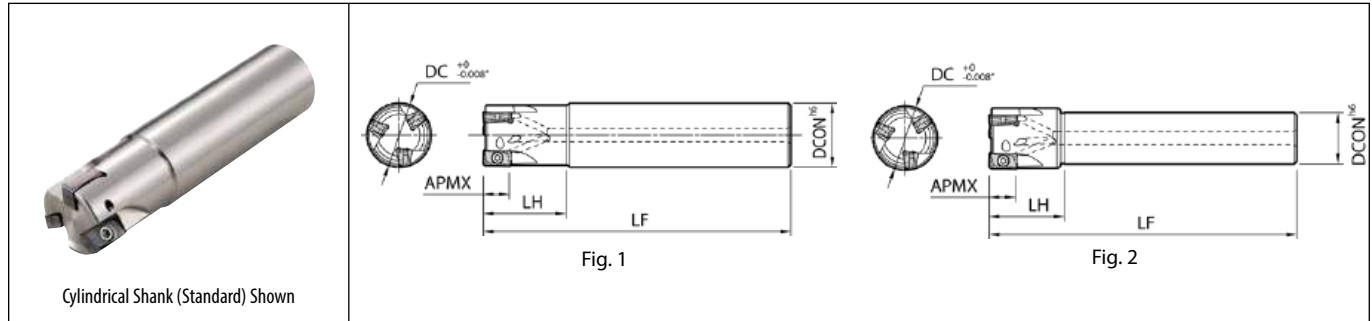


Toolholder Dimensions

Unit	Part Number			Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts ➡ M93
																Anti-Seize Compound	Insert Screw	Wrench	
						DC	DCON	LF	LH	APMX									
Inch	Weldon	Standard Shank	MEW 0625-W500-10-2T	● 2	0.625	0.500	2.75	0.969	0.393	+7	-22	No	43,900	3	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...	
			0625-W625-10-2T	● 2		0.625	3.00	1.046					1						
			0750-W625-10-2T	● 2		0.750	3.25	1.145				42,000	4						
			0750-W750-10-2T	● 2	1														
			0750-W750-10-3T	● 3	1														
			0750-W750-4-10-3T	● 3	1														
			1000-W750-10-3T	● 3	1														
			1000-W100-10-2T	● 2	1.000	3.25	1.219	37,200				4							
			1000-W100-10-3T	● 3			2												
			1000-W100-10-3T	● 3			2												
			1000-W100-475-10-3T	● 3	1.000	4.75	1.413	34,000				2							
			1250-W100-10-4T	● 4			2												
			1250-W100-10-4T	● 4			2												
			1250-W125-10-3T	● 3	1.250	4.00	1.469	30,700			4								
			1250-W125-10-4T	● 4			2												
	1500-W125-10-5T	● 5	1.500	4.125	2.070		-19	30,700	4										
	Standard Shank	Long Overhang	MEW 1000-W100-45-10-3T	● 3	1.000	1.000	4.50	2.163	0.393	+7	-20	Yes	37,200	2	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...	
			MEW 1000-W750-15-2T	● 2	1.000	0.750	3.25	1.219	0.590	+10	-22	Yes	34,700	4	P-37	SB-4090TRP	DTPM-15	LOGT1505... LOMU1505...	
				1000-W100-15-2T		● 2	1.000	3.75						1.413					2
				1000-W100-475-15-2T		● 2		4.75						1.469					2
				1250-W100-15-2T	● 2	1.250	3.75	1.663					30,100	4					
				1250-W125-15-2T	● 2			2											
				1250-W125-15-3T	● 3			2											
				1500-W125-15-3T	● 3	1.500	4.125	2.069			25,600		4						
1500-W125-15-4T				● 4	4														

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

MEW (End Mill)

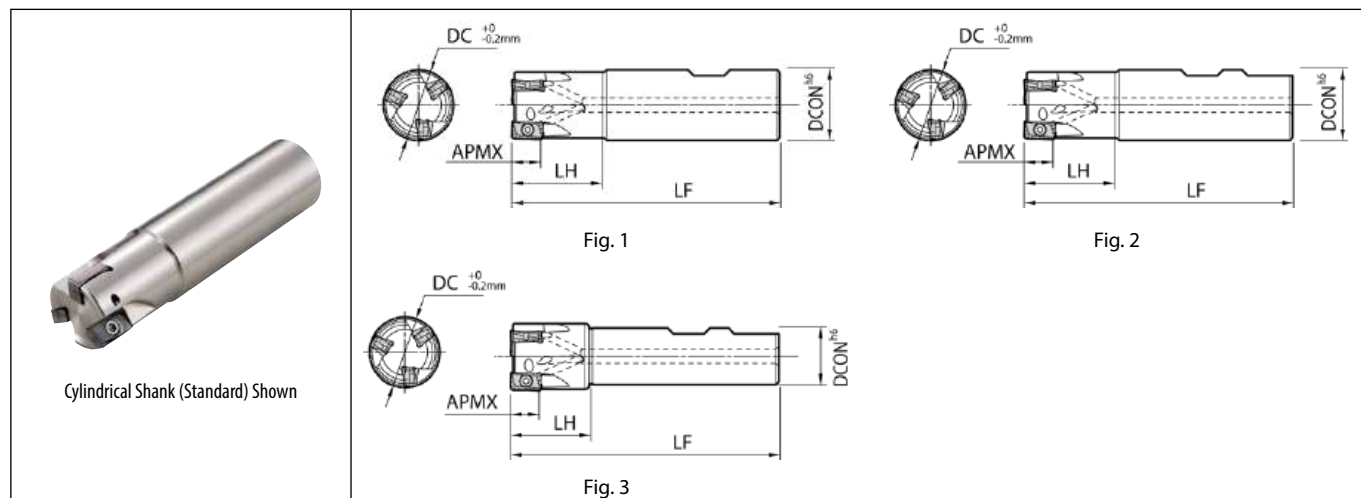


Toolholder Dimensions

Unit		Part Number			Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts ➡ M93
																	Anti-Seize Compound	Insert Screw	Wrench	
																				
Inch	Cylindrical	Long Shank	MEW 0625-S625-6-10-2T	●	2	0.625	0.625	6.00	1.500	0.393	+7	-22	Yes	43,900	1	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...	
			0750-S750-7-10-2T	●	2	0.750	0.750	7.00	1.586					42,000	1					
			1000-S100-7-10-3T	●	3	1.000	1.000	8.00	1.980					37,200	1					
			1000-S100-8-10-2T	●	2									37,200	1					
			1000-S100-8-10-3T	●	3									37,200	1					
		MEW 1250-S125-8-15-3T	●	3	1.250	1.250	8.00	1.980	0.590	+10	-22	Yes	30,100	1	P-37	SB-4090TRP	DTPM-15	LOGT1505... LOMU1505...		
			1500-S125-8-15-4T	●	4			1.500					2.069	25,600					2	

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

MEW (End Mill)



Toolholder Dimensions

Unit	Part Number			Std. Item	No. of Inserts	Dimensions					A.R. Max (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts ➡ M93				
						DC	DCON	LF	LH	APMX						Anti-Seize Compound	Insert Screw	Wrench					
mm	Weldon	Standard Shank	MEW 16-W16-10-2T 20-W20-10-2T 20-W20-10-3T 25-W25-10-3T 32-W32-10-4T 40-W32-10-5T	☐	2	16	16	75	25	10	+7	-22	Yes	43,750	1	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...				
				☐		20	20	77						41,000	1								
				☒	3	25	25	90	32			-20		37,500	2								
				☒		32	32	102	40					33,900	2								
				☐	4	40	32	111	50			-19		30,000	3								
				☒	5	40	32	111	50					10	+7					Yes	30,000	3	
			MEW 25-W25-15-2T 32-W32-15-3T 40-W32-15-4T	☐	2	25	25	90	32	15	+10	-22	Yes	35,000	2	P-37	SB-4090TRP	DTPM-15	LOGT1505... LOMU1505...				
				☐	3	32	32	102	40					30,000	2								
				☐	4	40	32	111	50					15	+10					-21	Yes	25,000	3

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

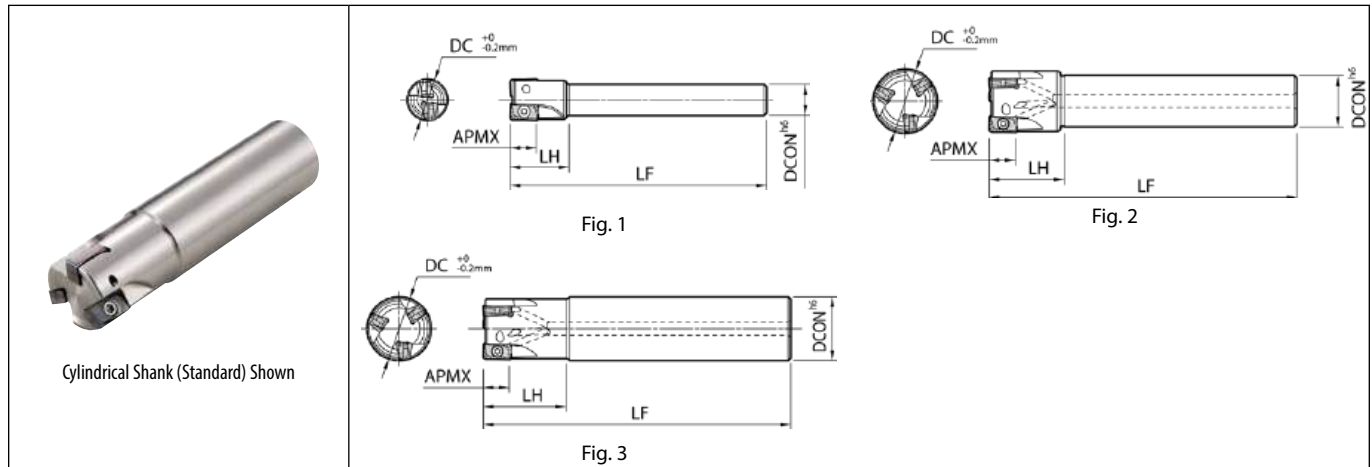
Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

MEW (End Mill)

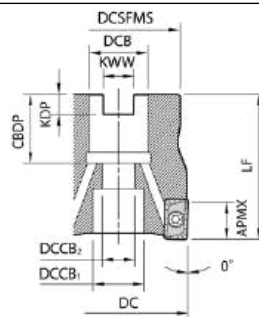


Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts M93	
					DC	DCON	LF	LH	APMX						Anti-Seize Compound	Insert Screw	Wrench		
mm	Cylindrical	Standard Shank	MEW	16-S12-10-2T	●	2	16	12	23	10	+7	-22	No	43,750	1	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...
				16-S16-10-2T	●			100	26		+7	-22	43,750	3					
				18-S16-10-2T	●		18	16	25		+7	-21	43,000	2					
				20-S16-10-2T	●		20	110	26		+7	-20	41,000	2					
				20-S20-10-2T	●				30		+7	-20	41,000	3					
				20-S20-10-3T	●		3	20	26		+7	-20	41,000	3					
				22-S20-10-3T	●	22				+7	-20	39,600	2						
				25-S20-10-3T	●	25	29	+7	-20	37,500	2								
				25-S25-10-2T	●	2	25	120	32	Yes	+7	-20	37,500	3					
				25-S25-10-3T	●						+7	-20	37,500	3					
				28-S25-10-3T	●	3	28	25	29		+7	-20	35,800	2					
				30-S25-10-4T	●						30	+7	-20	34,800	2				
				32-S25-10-4T	●	4	32	130	32		+7	-20	33,900	2					
				32-S32-10-3T	●						3	32	+7	-20	33,900				
				32-S32-10-4T	●	4	32	130	40	+7	-20	33,900	3						
				40-S32-10-5T	●					40	+7	-19	30,000	2					
				50-S32-10-5T	●	5	50	120	40	+7	-19	22,500	2						
	Long Shank	MEW	2	20-S20-10-150-2T	●	20	20	150	40	10	+7	-20	Yes	41,000	3	P-37	SB-3065TRP	DTPM-8	LOGT1004... LOMU1004...
				25-S25-10-170-2T	●	25	25	170	50	37,500	3								
		MEW	2	25-S20-15-2T	●	25	20	120	29	15	+10	-22	Yes	35,000	2	P-37	SB-4090TRP	DTPM-15	LOGT1505... LOMU1505...
				25-S25-15-2T	●		25	32	+10		-22	35,000		3					
				32-S25-15-2T	●	32	130	40	+10		-22	30,000		2					
				32-S32-15-2T	●				+10		-22	30,000		3					
			32-S32-15-3T	●	3	32	150	50	+10	-21	25,000	2							
			40-S32-15-3T	●					+10	-21	25,000	2							
			40-S32-15-4T	●	4	40	120	40	+10	-21	17,000	2							
50-S32-15-4T			●	50					+10	-21	17,000	2							

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

MEW (Face Mill)



Toolholder Dimensions

Unit	Part Number			Std. Item	No. of Inserts	Dimensions									A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Applicable Inserts ➡ M93
						R	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP							KWW	APMX
Inch	MEW	1500R-10-5T	●	5	1.50	1.457	0.750	0.669	0.433	1.575	0.826	0.188	0.312	0.393	+7°	-19°	Yes	30,700	0.2	LOGT1004... LOMU1004...
		2000R-10-5T	●	5	2.00	1.811												22,300	0.4	
		2500R-10-6T	●	6	2.50	1.969												20,400	0.6	
	MEW	2000R-15-4T	●	4	2.00	1.811	0.750	0.669	0.433	1.575	0.826	0.188	0.312	0.590	+10°	-21°	Yes	16,800	0.4	LOGT1505... LOMU1505...
		2000R-15-5T	●	5														16,800	0.4	
		2500R-15-5T	●	5	2.50	1.969												14,400	0.5	
		3000R-15-6T	●	6	3.00	2.362	1.000	0.866	0.551	1.063	0.236	0.381	12,250					1.0		
		4000R-15-8T	●	8	4.00	3.504	1.500	2.047	-	1.969	1.181	0.393	0.625					10,400	1.8	

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare Parts and Applicable Inserts (Inch End Mill/Face Mill)

Part Number	Spare Parts				Applicable Inserts ➡ M93			
	Insert Screw	Wrench	Anti-Seize Compound	Arbor Bolt				
MEW ...-10-_T	SB-306STRP	DTPM-8		-				
MEW 1500R-10-5T	Recommended tightening torque for insert clamp 1.2N·m		P-37	HH3/8-1.25 (HH3/8-1.25H)	LOMU10...-GM	LOMU10...-SM	LOMU10...-GH	LOGT10...-AM
2000R-10-5T								
2500R-10-6T								
MEW ...-15-_T	SB-4090TRP	DTPM-15		-				
MEW 2000R-15-4T	Recommended tightening torque for insert clamp 3.5N·m		P-37	HH3/8-1.25 (HH3/8-1.25H)	LOMU15...-GM	LOMU15...-SM	LOMU15...-GH	LOGT15...-AM
2500R-15-5T								
3000R-15-6T								
4000R-15-8T								

Coat anti-seize compound thinly on portion of taper and thread prior to installation.
Optional Through-Coolant Bolt available in ()

Wrench Specifications

Wrenches and clamp screws are "Torx Plus".

1. Ref. to Fig. 1 for "Torx Plus" Wrench. (Purple grip)
2. Ref. to Fig. 2 for "Torx" Wrench. (Black grip)

A "Torx Plus" Wrench and a "Torx" Wrench have different top shapes.
Please use a "Torx Plus" Wrench.

* If a "Torx" Wrench is used to tighten, the screw head might become damaged and then the screw cannot be removed.

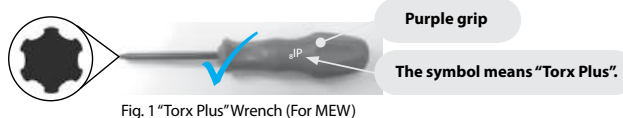


Fig. 1 "Torx Plus" Wrench (For MEW)

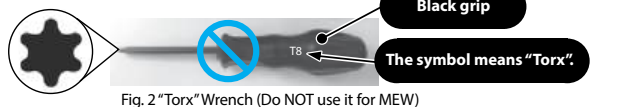
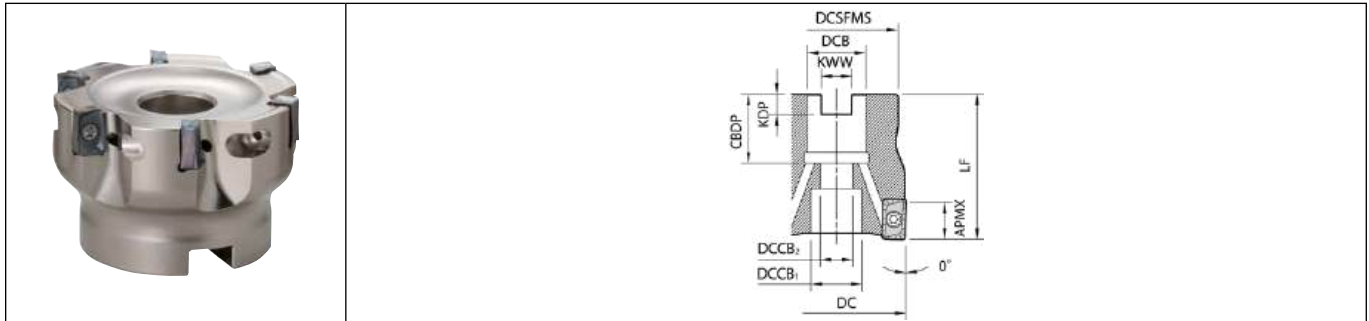


Fig. 2 "Torx" Wrench (Do NOT use it for MEW)

MEW (Face Mill)

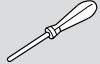


Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Applicable Inserts ➡ M93						
				R	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW							APMX					
mm	MEW 032R-10-4T-M 040R-10-5T-M 050R-10-5T-M 063R-10-6T-M	●	4	32	30	16	14	9	35	19	5.6	8.4	10	+7	-20	Yes	33,900	0.1	LOGT1004... LOMU1004...						
		●	5	40	34				40								21	6.3		10.4	30,000	0.2			
		●		50	45	22	18	11		20,500	0.4														
		●	6	63	47				20,500		0.5														
	MEW 040R-15-4T-M 050R-15-4T-M 063R-15-5T-M 080R-15-6T-M 080R-15-6T	●	4	40	34	16	14	9		40	19	5.6	8.4	15	+10	-21	Yes	25,000	0.2	LOGT1505... LOMU1505...					
		●		50	45				22									18	11		21	6.3	10.4	17,000	0.3
		●		5	63																			47	14,500	0.5
		●	6	80	60	27	20	13	50	25	7	12.4	-20					12,000	1						
		●				25.4				27	6	9.5													

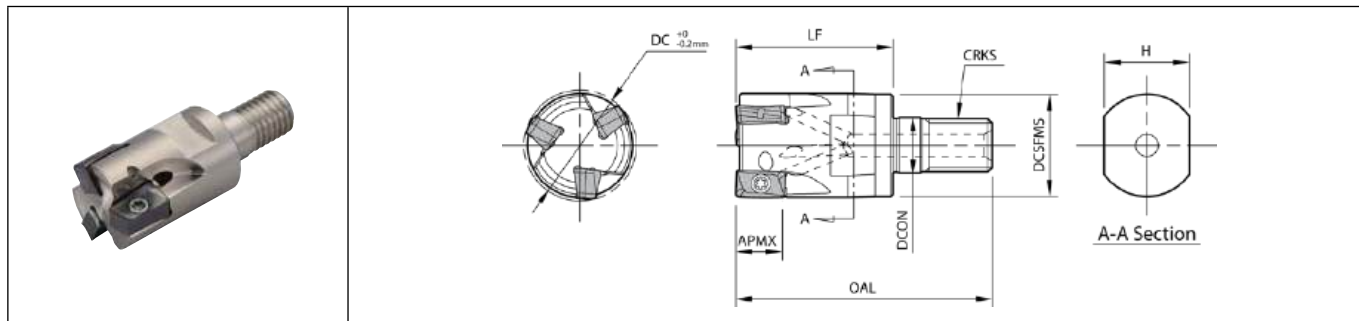
Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare Parts and Applicable Inserts (Metric End Mill/Face Mill)

Part Number	Spare Parts				Applicable Inserts ➡ M93			
	Insert Screw	Wrench	Anti-Seize Compound	Arbor Bolt				
					General Purpose	Low Cutting Force	Tough Edge (For Heavy Milling)	Non-ferrous Metals
MEW ...-10-_T	SB-306STRP	DTPM-8	P-37	-	LOMU10...-GM	LOMU10...-SM	LOMU10...-GH	LOGT10...-AM
MEW 032R-10-_M				HH8×25 (HH8X25H)				
MEW 040R-10-_M				HH10×30 (HH10X30H)				
MEW 050R-10-_M				HH10×30 (HH10X30H)				
MEW 063R-10-_M				HH10×30 (HH10X30H)				
MEW ...-15-_T	SB-4090TRP	DTPM-15	P-37	-	LOMU15...-GM	LOMU15...-SM	LOMU15...-GH	LOGT15...-AM
MEW 040R-15-_M				HH8×25 (HH8X25H)				
MEW 050R-15-_M				HH10×30 (HH10X30H)				
MEW 063R-15-_M				HH10×30 (HH10X30H)				
MEW 080R-15_(-M)				HH12×35 (HH12X35H)				

Coat anti-seize compound thinly on portion of taper and thread prior to installation.
Optional Through-Coolant Bolt available in ()

MEW (Modular Type)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Applicable Inserts M93
				DC	DCON	DCSFMS	OAL	LF	APMX	CRKS	H					
mm	MEW 16-M08-10-2T 20-M10-10-2T 20-M10-10-3T 25-M12-10-3T 32-M16-10-4T	●	2	16	8.5	14.7	42	25	10	M8x1.25	12	+7	-22	Yes	43,750	LOGT1004... LOMU1004...
		●		20	10.5	18.7	48	30		M10x1.5	15				41,000	
		●	3	25	12.5	23	56	35		M12x1.75	19				37,500	
		●		32	17	30	62	40		M16x2.0	24				33,900	
		●	4	32	17	30	62	40		M16x2.0	24				33,900	
	MEW 25-M12-15-2T 32-M16-15-3T	●	2	25	12.5	23	56	35	15	M12x1.75	19	+10	-22	Yes	35,000	LOGT1505... LOMU1505...
		●	3	32	17	30	62	40		M16x2.0	24				30,000	

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

See page M324 for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

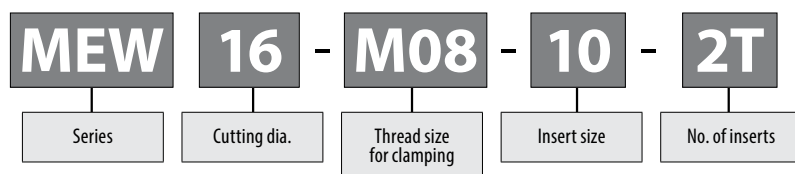
45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

Spare Parts and Applicable Inserts (MEW Modular Type)

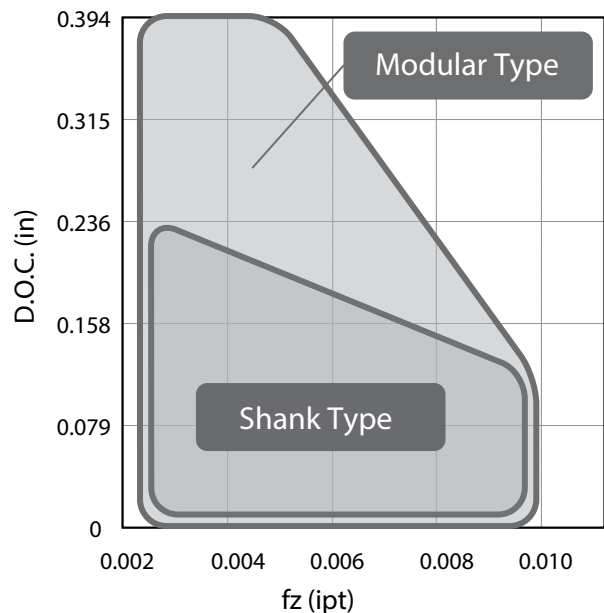
Part Number	Spare Parts			Applicable Inserts  M93				
	Insert Screw	Wrench	Anti-Seize Compound					
				General Purpose	Low Cutting Force	Tough Edge (For Heavy Milling)	Non-ferrous Metals	
MEW	16-M08-10-2T	SB-3065TRP	DTPM-8	P-37	LOMU10...-GM	LOMU10...-SM	LOMU10...-GH	LOGT10...-AM
	20-M10-10-2T							
	20-M10-10-3T	Recommended tightening torque for insert clamp 1.2N·m						
	25-M12-10-3T							
	32-M16-10-4T							
MEW	25-M12-15-2T	SB-4090TRP	DTPM-15	P-37	LOMU15...-GM	LOMU15...-SM	LOMU15...-GH	LOGT15...-AM
	32-M16-15-3T							

 Coat anti-seize compound thinly on portion of taper and thread prior to installation.

Modular End Mill Head Identification System



Modular End Mill Features



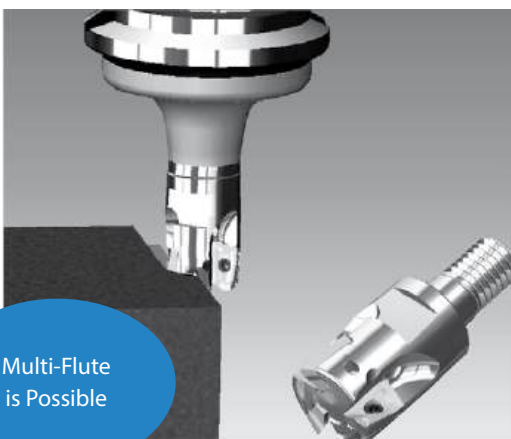
<Cutting Conditions>

- Cutting Speed : $V_c = 490 \text{ sfm}$ ($n = 2,390 \text{ min}^{-1}$)
- Width of Cut : $a_e = 0.394''$ (Shouldering)
- Workpiece Material : 1055 Dry
- Machine : BT30 M/C

<Cutting Tool>

- Modular type
 - Head : MEW20-M10-10-3T
 - Arbor : BT30K-M10-45
 - Insert : LOMU100408ER-GM (PR1525)
- Shank type
 - Toolholder : MEW20-S20-10-3T
 - Arbor : BT30 Milling Chuck (Two-face clamping)
 - Insert : LOMU100408ER-GM (PR1525)

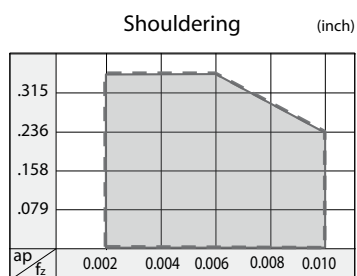
Flute Recommendation for Shouldering and Slotting

Shouldering ($a_e = 0.394''$)

Slotting

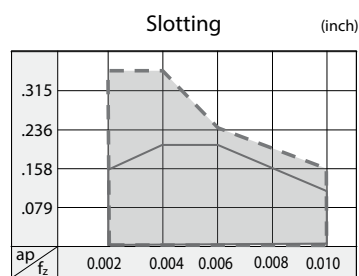


Modular End Mill Cutting Conditions by Application



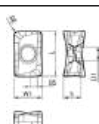
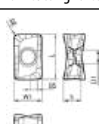
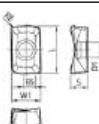
Available Cutting Condition for 2 Flutes

Available Cutting Condition for 3 Flutes



For high efficiency shouldering with higher feed rates, 3 or more flutes is possible.
For slotting applications, use 2 flutes maximum to lower cutting forces.

LOMU/LOGT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)			Carbon steel / Alloy steel														★ ☆		P					
			Mold and die steel														☆				★ ☆			
			Austenitic stainless steel														☆		☆ ★		M			
			Martensitic stainless steel										★						☆					
			Precipitation hardened stainless steel														☆		★					
			Gray cast iron														☆		★		K			
			Nodular cast iron												☆		★							
			Non-ferrous metals										★								☆		N	
			Heat-resistant alloy										★								☆		S	
			Titanium alloy														☆		★					
			Hard materials (≤ 60 HRC)												★								H	
			Insert		Part Number		No. of Edges	Dimensions (mm)							Carbide										Applicable Toolholder ● M84~M90
S	D1	RE						L	W1	BS	CVD	DLC	PVD									-		
													CA635	PDI025	PRO15S	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835		GW25	
	 General purpose	LOMU	100404ER-GM	4	4	3.4	0.4	10.9	6.6	2.1	●		△	●	●	●	●	●	●	●	●	MEW...-10-... MEWH...-10-...		
			100408ER-GM				0.8			1.7	●		△	●	●	●	●	●	●	●	●			
			100412ER-GM				1.2			1.3	●		△	●	●	●	●	●	●	●	●			
			100416ER-GM				1.6			1	●		△	●	●	●	●	●	●	●	●			
			100420ER-GM				2			1	●		△	●	●	●	●	●	●	●	●			
	 Low cutting force	LOMU	150504ER-GM	4	5.6	4.8	0.4	15.7	9.2	2.2	●		△	●	●	●	●	●	●	●	MEW...-15-... MEWH...-15-...			
			150508ER-GM				0.8			1.8	●		△	●	●	●	●	●	●	●		●		
			150510ER-GM				1			1.6	●		△	●	●	●	●	●	●	●		●		
			150512ER-GM				1.2			1.4	●		△	●	●	●	●	●	●	●		●		
			150516ER-GM				1.6			1	●		△	●	●	●	●	●	●	●		●		
	 Tough edge	LOMU	100408ER-SM	4	4	3.4	0.8	10.9	6.6	1.7	●		△	●	●	●	●	●	●	●	MEW...-10-... MEWH...-10-...			
			150508ER-SM				0.8			1.8	●		△	●	●	●	●	●	●	●		●		
			100408ER-GH				0.8			1.7	●	●	△	●	●	●	●	●	●	●		●		
			150508ER-GH				0.8			1.8	●	●	△	●	●	●	●	●	●	●		●		
			150508ER-GH				0.8			1.8	●	●	△	●	●	●	●	●	●	●		●		
	 2-edge / Non-Ferrous Metals	LOGT	100408FR-AM	2	4	3.6	0.8	11.2	6.8	2.8	●										●	MEW...-10-...		
		LOGT	150508FR-AM	2	5.6	4.9	0.8	15.9	8.9	2.9	●											●	MEW...-15-...	

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M94

How to Mount Insert

1. Be sure to remove dust and chips from the insert mounting pocket.
2. Clamp screw
 1. Apply anti-seize compound on portion of taper and thread of clamp screw.
 2. Attach the screw (magnetic head) to the front end of the wrench. While lightly pressing the insert against the constraint surfaces, put the screw into the hole of the insert and tighten. (Ref. to Fig. 1)
3. Tighten M3 screws (SB-3065TRP) slightly inclined from the insert surface. (Ref. to Fig. 2)
4. When tightening the screw, make sure that the wrench is parallel to the screw.
5. After tightening the screw, make sure that there is no clearance between the insert seat surface and the bearing surface of the toolholder or between the insert side surfaces and the constraint surface of the toolholder. If there is any clearance, remove the insert and mount it again according to the above steps.

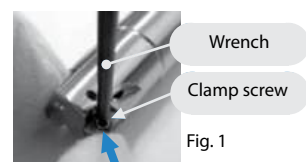


Fig. 1

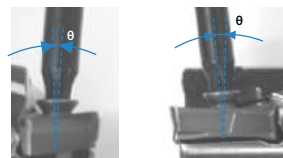


Fig. 2

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz : ipt		Recommended Insert Grade / Cutting Speed (Vc: sfm)							
		Toolholder Part Numbers		MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD	CVD	DLC	Uncoated Carbide	
		MEW0625~MEW0750 MEW16~MEW18	MEW1000~MEW1500 MEW1500R~MEW3000R MEW20~MEW40 MEW040R~MEW080R	PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	PR0155	CA6535	PDL025	GW25	
GM	Carbon Steel	0.002 - 0.004 - 0.008	0.003 - 0.006 - 0.010	☆ 390- 590 -820	★ 390- 590 -820	-	-	-	-	-	
	Alloy Steel	0.002 - 0.004 - 0.006	0.003 - 0.006 - 0.008	☆ 330- 520 -720	★ 330- 520 -720	-	-	-	-	-	
	Mold Steel	0.002 - 0.003 - 0.005	0.003 - 0.005 - 0.008	☆ 260- 460 -590	★ 260- 460 -590	-	-	-	-	-	
	Austenitic Stainless Steel	0.002 - 0.003 - 0.005	0.003 - 0.005 - 0.006	☆ 330- 520 -660	☆ 330- 520 -660	-	-	-	-	-	
	Martensitic Stainless Steel	0.002 - 0.003 - 0.005	0.003 - 0.005 - 0.008	☆ 490- 660 -820	-	-	-	★ 590- 790 -980	-	-	
	Precipitation Hardened Stainless Steel	0.002 - 0.003 - 0.005	0.003 - 0.005 - 0.008	★ 300- 390 -490	-	-	-	-	-	-	
	Gray Cast Iron	0.002 - 0.004 - 0.007	0.003 - 0.007 - 0.010	-	-	★ 390- 590 -820	-	-	-	-	
	Nodular Cast Iron	0.002 - 0.003 - 0.005	0.003 - 0.006 - 0.008	-	-	★ 330- 490 -660	-	-	-	-	
	Ni-base Heat-Resistant Alloy	0.002 - 0.003 - 0.005	0.003 - 0.005 - 0.006	☆ 70- 100 -160	-	-	-	★ 70- 100 -160	-	-	
	Titanium Alloy	0.002 - 0.003 - 0.005	0.003 - 0.006 - 0.008	☆ 130- 200 -260	-	☆ 100- 160 -230	-	-	-	-	
SM	Carbon Steel	0.002 - 0.004 - 0.007	0.003 - 0.006 - 0.008	☆ 390- 590 -820	★ 390- 590 -820	-	-	-	-	-	
	Alloy Steel	0.002 - 0.003 - 0.005	0.003 - 0.005 - 0.007	☆ 330- 520 -720	★ 330- 520 -720	-	-	-	-	-	
	Mold Steel	0.002 - 0.003 - 0.005	0.003 - 0.004 - 0.006	☆ 260- 460 -590	★ 260- 460 -590	-	-	-	-	-	
	Austenitic Stainless Steel	0.002 - 0.003 - 0.005	0.003 - 0.004 - 0.006	★ 330- 520 -660	☆ 330- 520 -660	-	-	-	-	-	
	Martensitic Stainless Steel	0.002 - 0.003 - 0.005	0.003 - 0.004 - 0.006	☆ 490- 660 -820	-	-	-	★ 590- 790 -980	-	-	
	Precipitation Hardened Stainless Steel	0.002 - 0.003 - 0.005	0.003 - 0.004 - 0.006	☆ 300- 390 -490	-	-	-	-	-	-	
	Ni-base Heat-Resistant Alloy	0.002 - 0.003 - 0.004	0.003 - 0.004 - 0.005	☆ 70- 100 -160	-	-	-	★ 70- 100 -160	-	-	
	Titanium Alloy	0.002 - 0.003 - 0.005	0.003 - 0.005 - 0.006	★ 130- 200 -260	-	☆ 100- 160 -230	-	-	-	-	
	Carbon Steel	0.002 - 0.004 - 0.008	0.003 - 0.008 - 0.012	☆ 390- 590 -820	★ 390- 590 -820	-	-	-	-	-	
GH	Alloy Steel	0.002 - 0.004 - 0.006	0.003 - 0.008 - 0.010	☆ 330- 520 -720	★ 330- 520 -720	-	-	-	-	-	
	Mold Steel	0.002 - 0.003 - 0.005	0.003 - 0.006 - 0.009	☆ 260- 460 -590	★ 260- 460 -590	-	-	-	-	-	
	Austenitic Stainless Steel	0.002 - 0.003 - 0.005	0.003 - 0.005 - 0.006	☆ 330- 520 -660	☆ 330- 520 -660	-	-	-	-	-	
	Martensitic Stainless Steel	0.002 - 0.003 - 0.005	0.003 - 0.005 - 0.008	☆ 490- 660 -820	-	-	-	☆ 590- 790 -980	-	-	
	Precipitation Hardened Stainless Steel	0.002 - 0.003 - 0.005	0.003 - 0.005 - 0.008	☆ 300- 390 -490	-	-	-	-	-	-	
	Gray Cast Iron	0.002 - 0.004 - 0.008	0.003 - 0.009 - 0.012	-	-	☆ 390- 590 -820	-	-	-	-	
	Nodular Cast Iron	0.002 - 0.003 - 0.006	0.003 - 0.007 - 0.010	-	-	☆ 330- 490 -660	-	-	-	-	
	Ni-base Heat-Resistant Alloy	0.002 - 0.003 - 0.005	0.003 - 0.005 - 0.006	☆ 70- 100 -160	-	-	-	☆ 70- 100 -160	-	-	
	Titanium Alloy	0.002 - 0.003 - 0.005	0.003 - 0.006 - 0.008	☆ 130- 200 -260	-	☆ 100- 160 -230	-	-	-	-	
	Hardened Materials (≤ 60 HRC)	0.002 - 0.003 - 0.005	0.003 - 0.006 - 0.009	-	-	-	★ 200- 260 -330	-	-	-	
	AM	Aluminum (Si < 13%)	0.002 - 0.005 - 0.008	0.005 - 0.007 - 0.012	-	-	-	-	-	★ 660-2,950	☆ 660-980
		Aluminum (Si > 13%)	0.002 - 0.003 - 0.005	0.002 - 0.005 - 0.008	-	-	-	-	-		

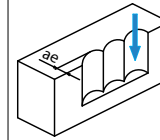
Bold numbers in the table indicate the most recommended value of feed (f). Adjust cutting speed and feed rate according to the actual machining conditions.
Coolant is recommended for Ni-base heat-resistant alloy and titanium alloy with MEW.

★ : 1st Recommendation ☆ : 2nd Recommendation

Ramping, helical milling and vertical milling (Plunging)

1. Available for vertical milling (plunging).
2. NOT available for ramping and helical milling, because interference between workpiece and insert may occur.

Vertical Milling (Plunging)



Insert description	Max. width of cut
LOMU10 type	5mm
LOMU15 type	7mm

Cutting Performance

Description	Shouldering (Cutting Width $ae=DC/2$)	Slotting
MEW0625...-10 MEW0750...-10 MEW16...-10 MEW18...-10		
MEW1000...-10 MEW1500...-10 MEW20...-10 MEW50...-10		
MEW0750...-2T MEW1000...-2T (Long shank) MEW20...-2T MEW25...-2T (Long shank)		
MEW1500R...-10 MEW2500R...-10 MEW032R...-10 MEW063R...-10		

Description	Shouldering (Cutting Width $ae=DC/2$)	Slotting
MEW1000...-15 MEW1500...-15 MEW25...-15 MEW50...-15		
MEW2000R...-15 MEW3000R...-15 MEW040R...-15 MEW080R...-15		

<Cutting Conditions>

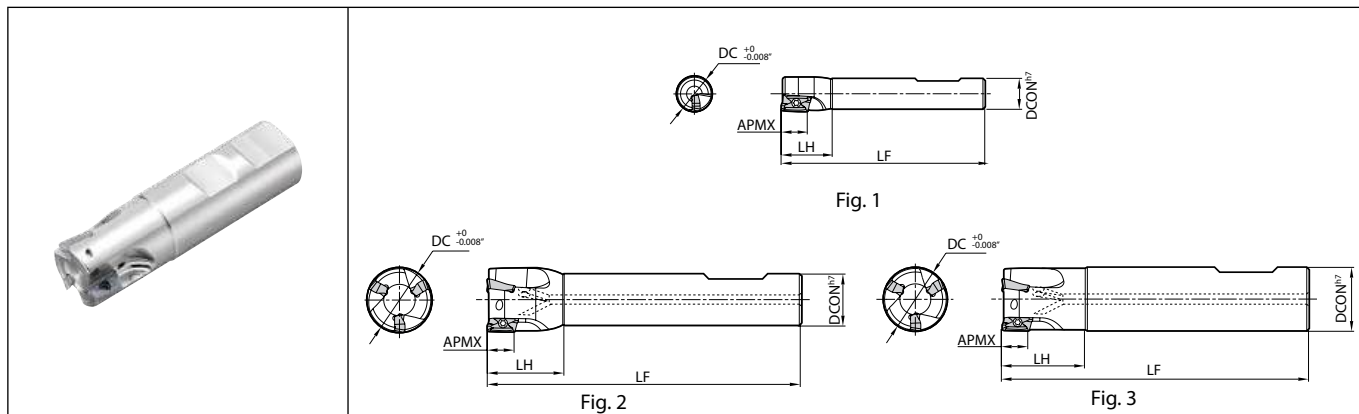
- $V_c = 600$ sfm
- GM Chipbreaker
- Workpiece Material: 1049
- Overhang Length
 1. End Mill: Same length as LH of the dimension
 2. Face Mill: LF of the dimension + minimum overhang length of the arbor

Case Studies

1018	
· Construction Equipment Part · $V_c = 820$ sfm · D.O.C. x $ae = 0.158'' \times 0.787''$ · $fz = 0.006$ ipt ($V_f = 53$ ipm) · Wet · MEW32-532-10-4T(4 flutes) · LOMU100408ER-GM (PR1525)	
PR1525	Chip evacuation rate = 108cc/min
Competitor A (Positive cutter)	Chip evacuation rate = 72cc/min
MEW showed stable milling without chattering at higher feed, improving the machining efficiency by 150%. Burrs are prevented and excellent surface finish is achieved.	
(User Evaluation)	

15-5PH (42HRC)	
· Aircraft Part · $V_c = 590$ sfm · D.O.C. x $ae = 0.079'' \times 0.984''$ · $fz = 0.004$ ipt ($V_f = 28$ ipm) · Wet · MEW32-532-10-4T(4 flutes) · LOMU100408ER-GM (PR1525)	
PR1525	Chip evacuation rate = 35.8cc/min (Further machining possible)
Competitor B (Positive cutter)	Chip evacuation rate = 26.8cc/min (Unable to continue machining)
No chattering and more stable milling is possible with MEW. Despite the milling difficulty because of the properties of the material (42HRC), PR1525 kept good cutting edge form, minimizing wear and adhesion.	
(User evaluation)	

MEC (End Mill)



Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts ➡ M104~M105		
					DC	DCON	LF	LH	APMX						Anti-Seize Compound	Insert Screw	Wrench			
Inch	Weldon	Standard Shank	MEC 0500-S500-11	●	1	0.500	0.500	2.650	0.787	0.400	+12	-21	No	50,800	1	P-37	SB-2545TR	DTM-8	BDMT1103...	
			MEC 0625-S500-11T 0625-S625-11T 0750-S625-11T 0750-S750-11T 1000-S750-11T 1000-S100-11T 1250-S100-11T 1250-S125-11T 1500-S125-11T	●	2	0.625	0.500	2.750	0.906	0.400	+18	-14	No	43,750	1	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...	
				●			0.625	3.000	1.024					43,750	3					
				●	3	0.750	0.625	3.050	1.142		+20	-10	Yes	41,000	2					
				●			0.750	3.250						41,000	3					
				●			1.000	0.750						1.260	37,500					2
				●				1.000							37,500					3
				●	4	1.250	1.000	1.575	33,900		2									
				●			1.250		4.000		33,900	3								
				●			1.500		1.250		4.350	1.969	+24	-8	30,000					2
				MEC 1000-S750-17 1000-S100-17 1250-S100-17 1250-S125-17 1500-S125-17	●	2	1.000	0.750	3.500		0.618	+16	-11	Yes	35,000					2	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...
			●		1.000		1.000	3.750	35,000	3										
			●		3	1.250	1.000	4.000	1.575	+17		-7	30,000		2					
			●				1.250						30,000		3					
			●		4	1.500	1.250	4.350	1.969	+19			25,000		2					
●																				

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

For more details, see "Warning" on page M107.

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

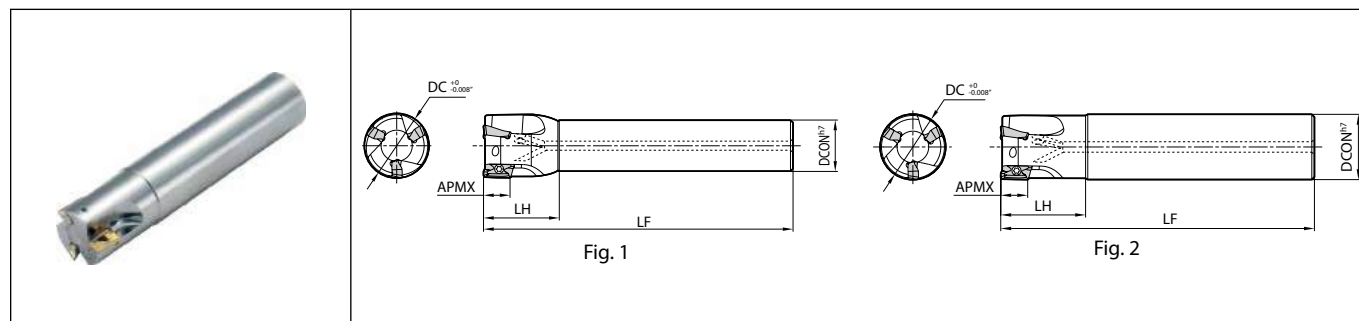
Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

MEC (End Mill)



Toolholder Dimensions

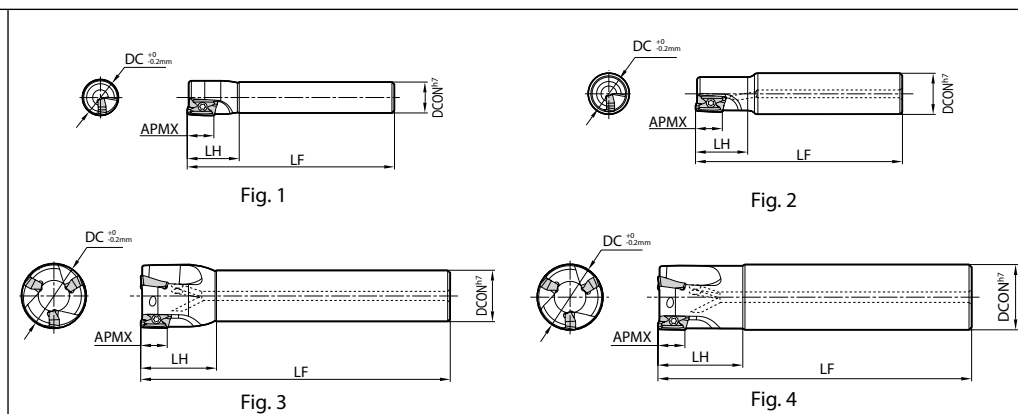
Unit			Part Number	Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts ➡ M104~M105	
																Anti-Seize Compound	Insert Screw	Wrench		
																				
Inch	Cylindrical	Long Shank	MEC 0750-S750-5.2-11T 1000-S100-6.3-11T 1250-S125-7.9-11T 1500-S125-9.5-11T	●	2	0.750	0.750	5.200	2.362	0.400	+20	-10	Yes	41,000	2	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...	
				●		1.000	1.000	6.300			+21			37,500						2
				●		1.250	1.250	7.870			+23			33,900						2
				●		1.500	1.250	9.450						30,000						1
			MEC 1000-S100-6.3-17 1250-S125-7.9-17 1500-S125-9.5-17	●	2	1.000	1.000	6.300	2.362	0.618	+16	-11	Yes	35,000	2	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...	
				●		1.250	1.250	7.870			+17			30,000						2
				●		1.500	1.250	9.450												25,000	1

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

For more details, see "Warning" on page **M107**.

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

MEC (End Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts ➡ M104~M105
				DC	DCON	LF	LH	APMX						Anti-Seize Compound	Insert Screw	Wrench	
mm	Cylindrical Standard Shank	MEC 10-S10-11	●	10	10	17			+10	-24	No	54,800	1	P-37	SB-2545TR	DTM-8	BDMT1103...
		10-S16-11	●	10	16						Yes	54,800	2				
		12-S10-11	●		10						No	50,800	1				
		12-S12-11	●	12	12	80			-21		No	50,800	1				
		12-S16-11	●	12	16						Yes	50,800	2				
		13-S12-11	●	13	12			20	+12		No	49,200	1				
		14-S12-11	●	14	12				-19		No	47,700	1				
		14-S16-11	●	14	16						Yes	47,700	2				
		MEC 16-S12-11T	●	16	12	23			+18	-14	No	43,750	1	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...
		16-S16-11T	●	16		30						43,750	4				
		17-S16-11T	●	17		100			-13			43,500	3				
		18-S16-11T	●	18	16			23	+19			43,000	3				
		19-S16-11T	●	19								42,000	3				
		20-S16-11T	●	20		26			-10			41,000	3				
		20-S20-11T	●	20		110		30	+20			41,000	4				
		21-S20-11T	●	21					-9			40,300	3				
		22-S20-11T	●	22		26						39,600	3				
		24-S20-11T	●	24	20							38,200	3				
		25-S20-11T	●					29	+21	-10		37,500	3				
		25-S20-11T-4	●	4							Yes	37,500	3				
		25-S25-11T	●	3	25	120						37,500	4				
		25-S25-11T-4	●	4				32				37,500	4				
		28-S25-11T	●	3	28	25		29	+22			35,800	3				
		30-S25-11T	●	4	30							34,800	3				
		32-S25-11T	●					32				33,900	3				
		32-S25-11T-5	●	5	32	130			-9			33,900	3				
		32-S32-11T	●	4				40	+23			33,900	4				
		32-S32-11T-5	●									33,900	4				
		40-S32-11T	●	5	40	150		50	-8			30,000	3				
		50-S32-11T	●		50				-7			22,500	3				

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

For more details, see "Warning" on page M107.

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Toolholder Dimensions

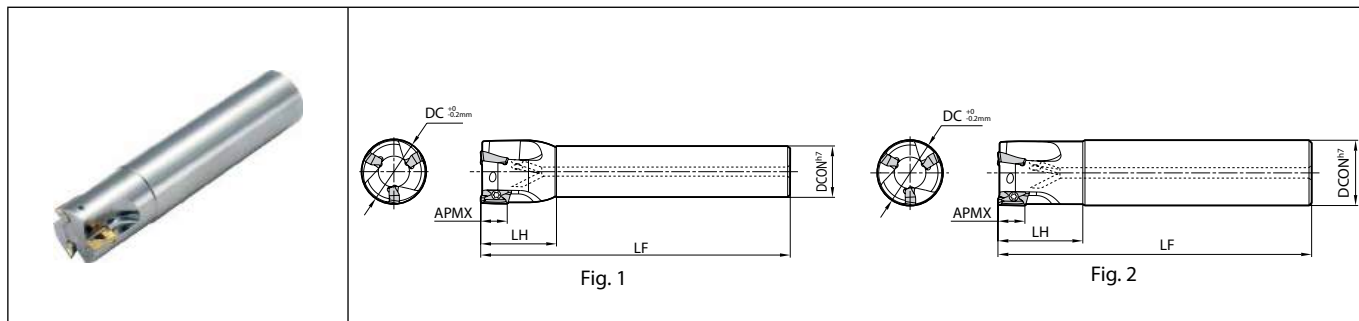
Unit	Part Number		Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts ➡ M104~M105												
					DC	DCON	LF	LH	APMX						Anti-Seize Compound	Insert Screw	Wrench													
mm	Cylindrical	Long Shank	MEC	20-S18-170-11T	●	2	20	18	170	30	+20	-10	Yes	41,000	3	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...											
					●			140	60						4															
					●										4															
					●		22	170	30						39,600					3										
					●										23					210	32						3			
					●																						4			
					●		25	160	60	+21					37,500					4										
					●															25	210	32	10					4		
					●																							4		
					●		28	210	32											35,800	3									
					●					32	200			65											4					
					●		32	250	40						+23										33,900	4				
			●	35	250	40														32,600	3									
			●				40	240	65											30,000	3									
			●																											
			MEC	20-S20-150-11T-3	●	3	20	20	150	60	+20	-10	Yes	41,000	4	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...											
					●										4															
					●		25	170			+21			37,500	4															
					●									4																
					●		30	180	32	10	+23			34,800	3															
●	32	200			65										-9					33,900	4									
●																				4										
●	5																													

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

For more details, see "Warning" on page M107.

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

MEC (End Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts ➡ M104~M105
				DC	DCON	LF	LH	APMX						Anti-Seize Compound	Insert Screw	Wrench	
mm	Standard Shank	MEC 25-S20-17	●	2	25	20	120	36	+16	-11		35,000	1	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...
		MEC 25-S25-17	●		25								2				
		32-S25-17	●	3	32		130	40	+17		Yes	30,000	1				
		32-S32-17	●										2				
		40-S32-17	●	4	40							25,000	1				
		50-S32-17	●		50		150	50	+19			17,000	1				
	Cylindrical	MEC 25-S25-160-17	●		25	160	60		+16	-11		35,000	2	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...
		MEC 25-S25-210-17	●		25	210	36						2				
		28-S25-210-17	●		28							32,500	1				
		32-S32-200-17	●	2	32	200	65	15.7	+17		Yes	30,000	2				
		32-S32-250-17	●										2				
		35-S32-250-17	●		35	250	40		-7			27,700	1				
		40-S32-240-17	●		40	240	65		+19			25,000	1				
		MEC 32-S32-250-17-3	●	3	32				+17			30,000	2				
		40-S32-250-17-3	●														
		40-S32-250-17-4	●		40	250	65	15.7	-7	Yes		25,000	1				
		50-S42-250-17-4	●	4	50	42	64		+19	-6		17,000	1				

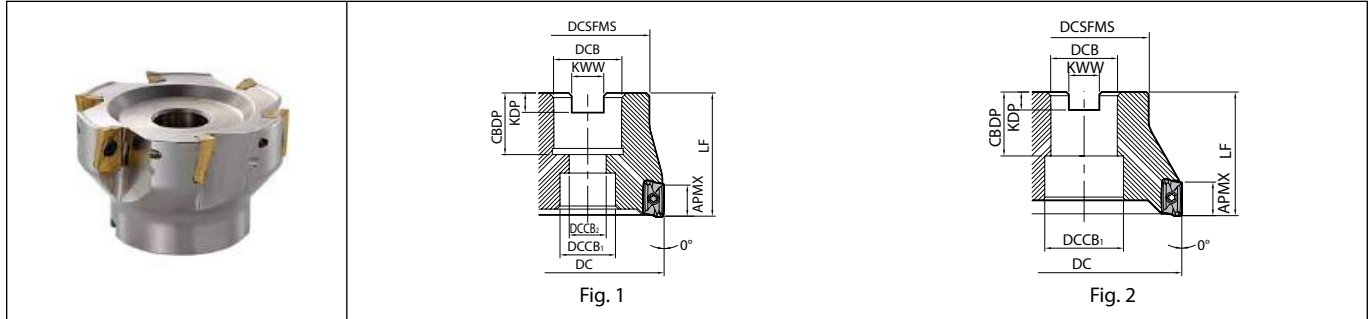
Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

For more details, see "Warning" on page M107.

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

45°~70°
Lead Angle75°
Lead Angle88°~90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

MEC (Face Mill)



Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts 🔧 M104~ M105	
					R	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW							APMX				
Inch	Inch Bore Dia.	MEC 1500R-11T-5T	● 5	1.500	1.263		0.63			0.807				0.400	+23	-7	Yes	30,700	0.2	1	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...	
		2000R-11T-5T	● 5	2.000	1.606	0.750	0.646	0.417	1.575	0.819	0.188	0.312						22,300	0.3	1					
		2500R-11T-6T	● 6	2.500	1.594		0.63			0.819								20,400	0.7	1					
		3000R-11T-7T	● 7	3.000	1.917	1.000	0.827	0.555	1.969	0.878	0.223	0.375						18,500	1.0	1					
		4000R-11T-9TN	● 9	4.000	2.622	1.500	1.969	-	2.48	1.654	0.375	0.625						16,800	1.6	1					
		MEC 2000R-17-4T	● 4	2.000	1.606	0.750	0.646	0.417	1.575	0.819	0.188	0.312	0.618	+19	-7	Yes	16,800	0.4	1	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...		
		2000R-17-5T	● 5																						
		2500R-17-5T	● 5	2.500	1.634		0.646			0.819								14,400	0.8					1	
		3000R-17-6T	● 6	3.000	1.969	1.000	0.827	0.555	1.969	0.878	0.223	0.375						12,250	1.0					1	
		4000R-17-7TN	● 7	4.000	2.622	1.500	1.969	-	2.48	1.654	0.375	0.625						10,400	1.8					2	

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

For more details, see "Warning" on page M107.

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

When using center-through Air/Coolant/Mist

If center through Air (Coolant, Mist) is used, please use appropriate arbor and clamp with arbor bolt (Table 1)

For good shoulder finishes by MEC multistage ap.

In order to obtain a smooth finished shoulder wall with multiple passes of MEC milling cutter, please keep D.O.C. 0.217" (5.5mm) or less for 11T3 type insert and also keep D.O.C. 0.354" (9mm) or less for 1704 type insert.

Table 1

Part Number	Arbor Bolt (Attachment)	Wrench
MEC1500R-...	HH3/8-1.25H	5/16" Hex
MEC2000R-...		
MEC2500R-...		
MEC3000R-...	HH1/2-1.25H	3/8" Hex
MEC4000R-...	HH3/4-2.3H	5/8" Hex

Wrench sold separately.

MEC (Face Mill)

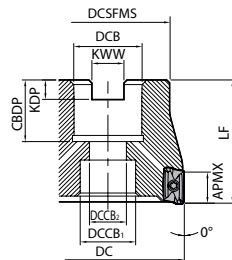


Fig. 1

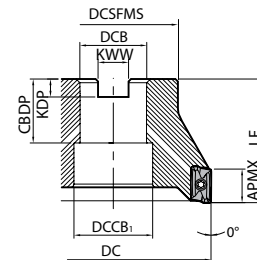


Fig. 2

Toolholder Dimensions

Unit	Part Number			Std. Item	No. of Inserts	Dimensions											A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts ➡ M104~M105		
						R	DC	DCSfMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX												
mm	Inch Bore Dia.	Coarse Pitch	MEC 063R-11-6T 080R-11-7T 100R-11-9TN	●	6	63	50	1.000"	20	14	50	1.024"	0.236"	0.375"	10	+23	-7	Yes	20,500	0.8	1	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...			
				●	7	80	52.5										18,500	1	1									
				●	9	100	65	1.250"	26	17.6	63	1.260"	0.315"	0.500"			17,000	1.8	1									
		Fine Pitch	MEC 063R-11-8T 080R-11-10T	●	8	63	50	1.000"	20	14	50	1.024"	0.236"	0.375"	10	+23	-7	Yes	20,500	0.8	1	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...			
				●	10	80	52.5									18,500	1	1										
			Coarse Pitch	MEC 063R-17-5T 080R-17-6T 100R-17-7TN 125R-17-9T	●	5	63	50	1.000"	20	14	50	1.024"	0.236"	0.375"	15.7	+19	-7	Yes	14,500	0.8	1	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...		
					●	6	80	52.5												12,000	1	1						
		●			7	100	65	1.250"	26	17.6	63	1.260"	0.315"	0.500"	10,500					1.8	1							
		Fine Pitch	MEC 063R-17-6T 080R-17-8T 100R-17-9TN	●	6	63	50	1.000"	20	14	50	1.024"	0.236"	0.375"	15.7	+19	-7	Yes	14,500	0.8	1	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...			
				●	8	80	52.5												12,000	1	1							
				●	9	100	65	1.250"	26	17.6	63	1.260"	0.315"	0.500"					10,500	1.8	1							
		Metric Bore Dia.	Coarse Pitch	MEC 040R-11-5T-M 050R-11-5T-M 063R-11-6T-M 080R-11-7T-M 100R-11-9T-MN 125R-11-11T-M	●	5	40	34	16	14	8.5	40	20	5.6	8.5	10	+23	-7	Yes	30,000	0.2	1	P-37	SB-2555TRG	DTM-8	BDGT11T3... BDMT11T3...		
	●				6	50	40	22	18	12	22		6.3	10.4	22,500					0.3	1							
	●				7	80	52.5	27	20	14	50	26	7	12.4	18,500					1	1							
	●				9	100	65	32	26	17.6	55		8	14.4	17,000					1.6	1							
	●				11	125	85	40	45	32	63	33	9.5	16.4	15,000					3.1	1							
	●				5	32	30	16	11.5	35	20	5.6	8.4	33,900	0.1					1	P-37	SB-2555TRG					DTM-8	BDGT11T3... BDMT11T3...
	●				6	40	34		14	8.5	40	26.5	7	12.4	30,000					0.2								
	●		10	80	52.5	27	20	14	50	26	8	14.4	18,500	0.9	1													
	●		11	100	65	32	26	17.6	55	26	8	14.4	17,000	1.7	1													
	Coarse Pitch		MEC 040R-17-4T-M 050R-17-4T-M 063R-17-5T-M 080R-17-6T-M 100R-17-7T-MN 125R-17-9T-M 160R-17-12T-M	●	4	40	34	16	14	8.5	40	20	5.6	8.5	15.7	+19	-7	Yes	25,000	0.3	1	P-37	SB-4070TRN	DTM-15	BDGT1704... BDMT1704...			
				●		50	40	22	18	12		22	6.3	10.4					17,000	0.4	1							
				●	5	63								14,500					0.6	1								
				●	6	80	52.5	27	20	14	50	26	7	12.4					12,000	1	1							
				●	7	100	65	32	26	17.6	55		8						10,500	1.8	1							
				●	9	125	85	40	45	32	63	33	9.5	16.4					8,900	3.1	1							
				●	12	160	110		68	-									7,400	4.5	2							

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

For more details, see "Warning" on page M107.

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

When using center-through Air/Coolant/Mist

If center through Air (Coolant, Mist) is used, please use appropriate arbor and clamp with arbor bolt (Table1)

For good shoulder finishes with MEC multistage D.O.C.

In order to obtain a smooth finished shoulder wall with multiple passes of MEC milling cutter, please keep D.O.C. 0.217" (5.5mm) or less for 11T3 type insert and also keep D.O.C. 0.354" (9mm) or less for 1704 type insert.

Table 1

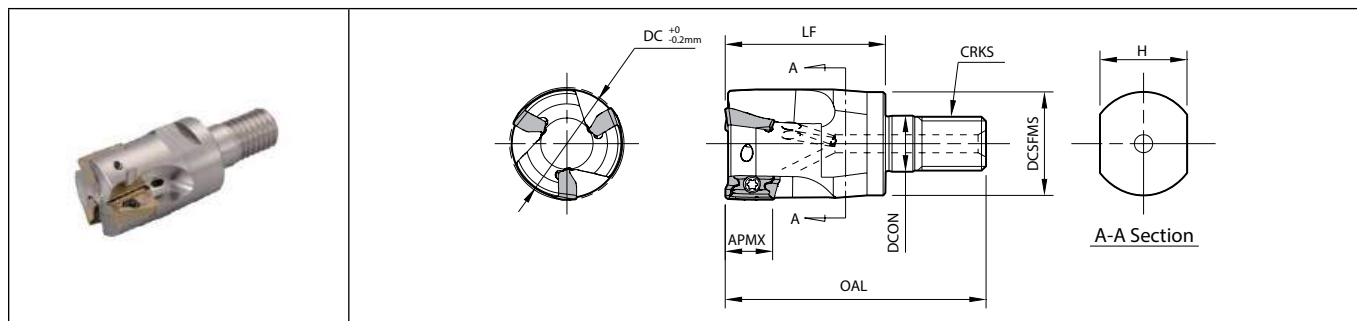
Part Number	Arbor Bolt (Attachment)	Wrench
MEC032R-----M	SP8X35	LW-5 (Double width 5 mm)
MEC040R-----M	HH8X25H	LW-5 (Double width 5 mm)
MEC050R-----M	HH10X30H	LW-6 (Double width 6 mm)
MEC063R-----M		
MEC063R-----M	HH12X35H	LW-8 (Double width 8 mm)
MEC080R-----(-M)		
MEC100R-----N/M	HH16X52H	LW-12 (Double width 12 mm)
MEC125R-----	HF20X53H	LW-14 (Double width 14 mm)
MEC160R-----	HF24X60H	LW-17 (Double width 17 mm)

Wrench sold separately.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

MEC (Modular Head)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Applicable Inserts M104~M105
				DC	DCON	DCSFMS	OAL	LF	APMX	CRKS	H				
mm	MEC 16-M08-11T-2T	●	2	16	8.5	14.7	42	25	10	M8x1.25	12	+18	-14	43,750	BDGT11T3... BDMT11T3...
	20-M10-11T-2T	●	2	20	10.5	18.7	48	30		M10x1.5	15	+20	-10	41,000	
	20-M10-11T-3T	●	3	25	12.5	23	56	35		M12x1.75	19	+21	-9	37,500	
	25-M12-11T-3T	●	4	32	17	30	62	40		M16x2.0	24	+23	-7	33,900	
	32-M16-11T-4T	●	4	32	17	30	62	40	15.7	M12x1.75	19	+16	-11	35,000	BDGT1704... BDMT1704...
	MEC 25-M12-17-2T	●	2	25	12.5	23	56	35		M16x2.0	24	+17	-7	30,000	
	32-M16-17-3T	●	3	32	17	30	62	40							

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

For more details, see "Warning" on page M107.

See page M324 for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

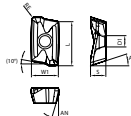
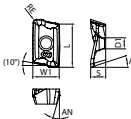
Spare Parts for MEC Modular Head

Part Number		Spare Parts		
		Insert Screw	Wrench	Anti-Seize Compound
				
MEC	16-M08-11T-2T	SB-2555TRG	DTM-8	P-37
	20-M10-11T-2T			
	20-M10-11T-3T			
	25-M12-11T-3T			
	32-M16-11T-4T			
MEC	25-M12-17-2T	SB-4070TRN	DTM-15	P-37
	32-M16-17-3T	Recommended tightening torque for insert clamp 3.5N-m		



Coat anti-seize compound thinly on portion of taper and thread prior to installation.

BDGT/BDMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel											★	☆	P						
		Mold and die steel											★	☆							
		Austenitic stainless steel											☆	☆	M						
		Martensitic stainless steel											★	☆							
		Precipitation hardened stainless steel											☆	★							
		Gray cast iron											★		K						
		Nodular cast iron											★								
		Non-ferrous metals													N						
		Heat-resistant alloy											★	☆	S						
		Titanium alloy											☆	★							
Hard materials													H								
Insert		Part Number		No. of Edges	Dimensions (mm)							Angle (°)		Carbide					Cermat	Applicable Toolholder ➡ M96~ M103	
					S	D1	RE	L	INSL	LE	W1	AN	AS	CVD		PVD					-
														CA6355	PR1535	PR1810	PR1825	PR1835				TN100M
		BDMT 110302ER-JT	2	3	2.8	0.2	11	-	6.3	15	18	●	●	●	●	●	MEC...-11				
		110304ER-JT				0.4						●	●	●	●	●					
		110308ER-JT				0.8						●	●	●	●	●					
		BDMT 11T302ER-JT	2	3.8	2.8	0.2	11	-	6.7	13	18	●	●	●	●	●	MEC...-11T(...) MEC...-11-...				
		11T304ER-JT				0.4						●	●	●	●	●					
		11T308ER-JT				0.8						●	●	●	●	●					
		11T312ER-JT				1.2						●	●	●	●	●					
		11T316ER-JT				1.6						●	●	●	●	●					
		11T320ER-JT				2						●	●	●	●	●					
		11T324ER-JT				2.4						●	●	●	●	●					
		11T331ER-JT				3.1						●	●	●	●	●					
		BDMT 170404ER-JT	2	4.9	4.4	0.4	17	-	9.6	13	18	●	●	●	●	●	MEC...-17(...) MEC...-17-...				
170408ER-JT	0.8	●				●						●	●	●							
170412ER-JT	1.2	●				●						●	●	●							
170416ER-JT	1.6	●				●						●	●	●							
170420ER-JT	2	●				●						●	●	●							
170424ER-JT	2.4	●				●						●	●	●							
170431ER-JT	3.1	●				●						●	●	●							
170440ER-JT	4	●				●						●	●	●							
	 Low cutting force / Stainless steel	BDMT 110302ER-JS	2	3	2.8	0.2	11	-	6.3	15	18	●	●	●	●	●	MEC...-11				
		110304ER-JS				0.4						●	●	●	●	●					
		110308ER-JS				0.8						●	●	●	●	●					
		BDMT 11T302ER-JS	2	3.8	2.8	0.2	11	-	6.7	13	18	●	●	●	●	●	MEC...-11T(...) MEC...-11-...				
		11T304ER-JS				0.4						●	●	●	●	●					
		11T308ER-JS				0.8						●	●	●	●	●					
		BDMT 170404ER-JS	2	4.9	4.4	0.4	17	-	9.6	13	18	●	●	●	●	●	MEC...-17(...) MEC...-17-...				
		170408ER-JS				0.8						●	●	●	●	●					
												●	●	●	●	●					

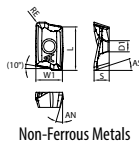
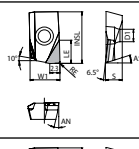
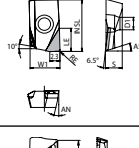
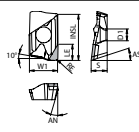
Right-hand Insert Shown

Recommended Cutting Conditions ➡ M106~M107

MILLING

45°~70°
Lead Angle75°
Lead Angle88°~90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
ApplicationsStandard BDMT / BDGT Inserts are
sold in 10 piece boxes

BDGT/BDMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)			Carbon steel / Alloy steel														P		
			Mold and die steel																
			Austenitic stainless steel														M		
			Martensitic stainless steel																
			Precipitation hardened stainless steel																
			Gray cast iron														K		
			Nodular cast iron																
			Non-ferrous metals										★	☆	□	■	N		
			Heat-resistant alloy														S		
			Titanium alloy										☆	□	■				
Hard materials														H					
Insert		Part Number		No. of Edges	Dimensions (mm)							Angle (°)		Carbide	PCD		Applicable Toolholder ● M96~ M103		
					S	D1	RE	L	INSL	LE	W1	AN	AS		DLC	GW25		KPD001	KPD230
	 Non-Ferrous Metals	BDGT 11T302FR-JA	11T304FR-JA	2	3.8	2.8	0.2	11	-	-	6.7	13	18	●	●			MEC...-11T(...)	
		11T308FR-JA					0.4							●	●			MEC...-11-...	
		BDGT 170404FR-JA	170408FR-JA	2	4.9	4.4	0.4	17	-	-	9.6	13	18	●	●			MEC...-17(...)	
170420FR-JA	170431FR-JA				0.8								●	●			MEC...-17-...		
	 Non-Ferrous Metals	BDGT 11T302FR	11T304FR	1	3.8	2.8	0.2	-	11.5	3.8	6.7	13	18		●	●		MEC...-11T(...)	
		11T308FR					0.4								●	●		MEC...-11-...	
							0.8									●	●		
	 Non-Ferrous Metals	BDGT 11T302FR-LE	11T304FR-LE	1	3.8	2.8	0.2	-	11.5	5.2	6.7	13	18		●	●		MEC...-11T(...)	
		11T308FR-LE					0.4								●	●		MEC...-11-...	
							0.8									●	●		
	 Non-Ferrous Metals	BDMT 11T302FR	11T304FR	1	3.8	2.8	0.2	-	11	3.6	6.7	13	18		●	●		MEC...-11T(...)	
		11T304FR					0.4								●	●		MEC...-11-...	
		BDMT 170402FR	170404FR	1	4.9	4.4	0.2	-	17	4.4	9.6	13	18		●	●		MEC...-17(...)	
					0.4									●	●		MEC...-17-...		

Right-hand Insert Shown

Recommended Cutting Conditions ● M107

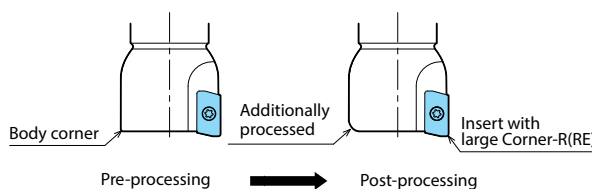
Standard BDMT / BDGT Inserts are
sold in 10 piece boxes

PCD Inserts are
sold in 1 piece boxes

When using inserts with corner-R (RE) 1.6mm or larger, additional modifications of the cutter body will be necessary. Ref. to the chart below for the recommended modifications.

Insert Corner-R (RE)	Additional Modifications of the Cutter Body Corner (mm)
1.6	R1.0
2.0	
2.4	R1.2
3.1	R1.6
4.0	R2.5

* R shape is recommended for additional processing to the body corner.
When applying chamfer shaped additional processing, do not cut away too much.



Recommended Cutting Conditions

JT Chipbreaker

Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)				
	Toolholder Description		Cermet	MEGACOAT NANO EX (MEGACOAT NANO)			CVD Coated Carbide
	MEC0500~MEC0750 MEC10~MEC19	MEC1000~MEC1500 MEC20~MEC40 MEC1500R~MEC4000R MEC040R~MEC160R	TN100M	PR1835 (PR1535)	PR1825	PR1810	CA6535
Carbon Steel	0.002~ 0.004 ~0.006	0.003~ 0.006 ~0.010	☆ 390~ 520 ~660	☆ 390~ 590 ~820	★ 390~ 590 ~820	-	-
Alloy Steel	0.002~ 0.004 ~0.005	0.003~ 0.006 ~0.008	☆ 330~ 460 ~590	☆ 330~ 520 ~720	★ 330~ 520 ~720	-	-
Mold Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.008	☆ 260~ 390 ~490	☆ 260~ 460 ~590	★ 260~ 460 ~590	-	-
Austenitic Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.006	-	☆ 330~ 520 ~660	☆ 330~ 520 ~660	-	-
Martensitic Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.008	-	☆ 490~ 660 ~820	-	-	★ 590~ 790 ~980
Precipitation Hardened Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.008	-	★ 300~ 390 ~490	-	-	-
Gray Cast Iron	0.002~ 0.004 ~0.006	0.003~ 0.007 ~0.010	-	-	-	★ 390~ 590 ~820	-
Nodular Cast Iron	0.002~ 0.003 ~0.004	0.003~ 0.006 ~0.008	-	-	-	★ 330~ 490 ~660	-
Ni-base Heat Resistant Alloy	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.006	-	☆ 70~ 100 ~160	-	-	★ 70~ 100 ~160
Titanium Alloys	0.002~ 0.003 ~0.004	0.003~ 0.006 ~0.008	-	☆ 130~ 200 ~260	-	-	-

Bold numbers in the table indicate the most recommended values. Adjust cutting speed and feed rate according to the actual machining conditions.
Coolant is recommended for Ni-base heat-resistant alloys and titanium alloys.

★ : 1st Recommendation ☆ : 2nd Recommendation

JS Chipbreaker

Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)		
	Toolholder Description		MEGACOAT NANO EX (MEGACOAT NANO)		CVD Coated Carbide
	MEC0500~MEC0750 MEC10~MEC19	MEC1000~MEC1500 MEC20~MEC40 MEC1500R~MEC4000R MEC040R~MEC160R	PR1835 (PR1535)	PR1825	CA6535
Carbon Steel	0.002~ 0.004 ~0.005	0.003~ 0.006 ~0.007	☆ 390~ 590 ~820	★ 390~ 590 ~820	-
Alloy Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.006	☆ 330~ 520 ~720	★ 330~ 520 ~720	-
Mold Steel	0.002~ 0.003 ~0.004	0.003~ 0.004 ~0.005	☆ 260~ 460 ~590	★ 260~ 460 ~590	-
Austenitic Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.004 ~0.005	★ 330~ 520 ~660	☆ 330~ 520 ~660	-
Martensitic Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.004 ~0.005	☆ 490~ 660 ~820	-	★ 590~ 790 ~980
Precipitation Hardened Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.004 ~0.005	☆ 300~ 390 ~490	-	-
Ni-base Heat Resistant Alloy	0.002~ 0.003 ~0.004	0.003~ 0.004 ~0.005	☆ 70~ 100 ~160	-	★ 70~ 100 ~160
Titanium Alloys	0.002~ 0.003 ~0.004	0.003~ 0.004 ~0.005	★ 130~ 200 ~260	-	-

Bold numbers in the table indicate the most recommended values. Adjust cutting speed and feed rate according to the actual machining conditions.
Coolant is recommended for Ni-base heat-resistant alloys and titanium alloys.

★ : 1st Recommendation ☆ : 2nd Recommendation

JA Chipbreaker

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)	
		DLC Coated Carbide	Carbide
		PDL025	GW25
Aluminum Alloy (Si 13% or Less)	0.002~0.012	660~3,280	660~2,620
Aluminum Alloy (Si 13% and Over)	0.002~0.008	660~980	660~980

PCD

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)	
		PCD	
		KPD230 (KPD001)	
Aluminum Alloy (Si 13% or Less)	0.002~0.008	1640~4,920	
Aluminum Alloy (Si 13% and Over)	0.002~0.006	980~3,280	

Warning

Please observe below precautions fully.
Failure to observe the precautions may cause serious damage to human body.

Warning about Max. Revolution indicated on main body

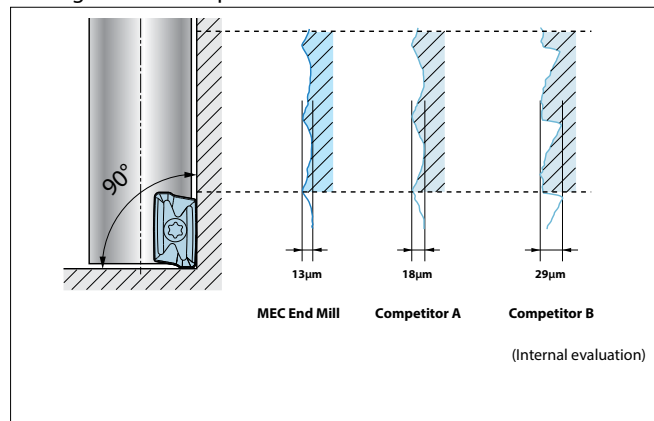
- When running the end mill and the face mill at revolutions exceeding the maximum revolution limit, the inserts or toolholder may be damaged due to the centrifugal force.
- For actual practical revolution, please set within recommended cutting condition.
- When using at a higher revolution (over 10,000 RPM), refer to the table to adjust the balance of MEC and suitable arbor.

Max RPM	Balance quality grade G ISO 1940-1 / 8821 (JIS B0905)
~20,000	G16
~30,000	G6.3
30,000~	G2.5

Features of MEC

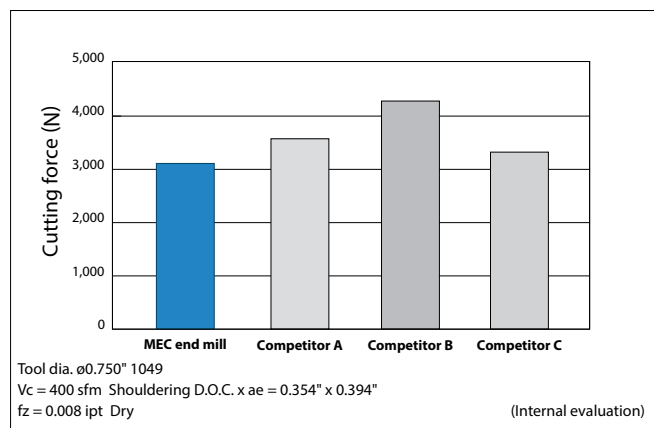
Great 90° Shoulders

Cutting Surface Comparison

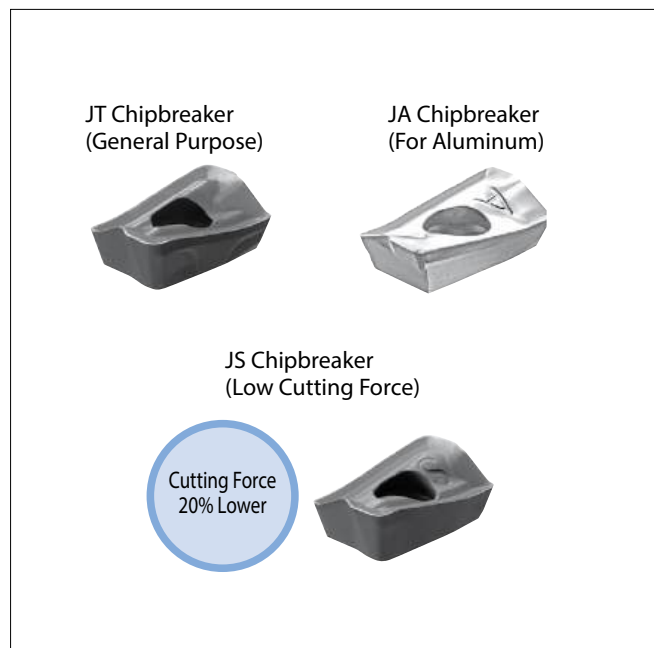


Low Cutting Force

Cutting Force Comparison

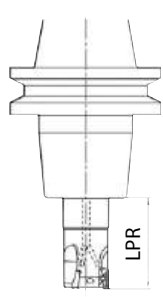


Chipbreaker

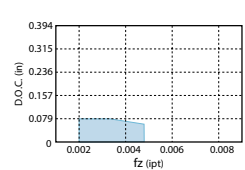
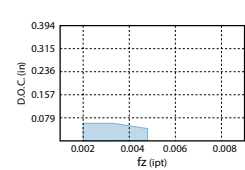
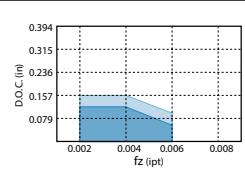
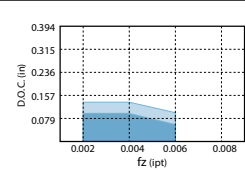
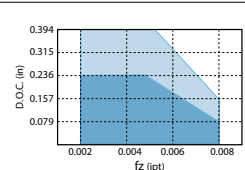
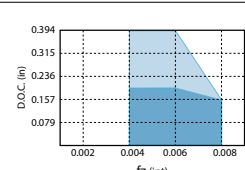
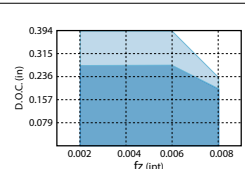
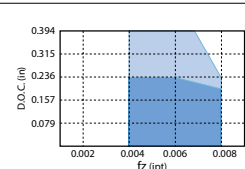
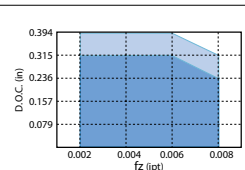
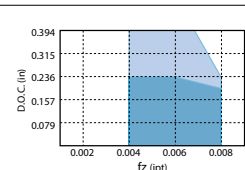
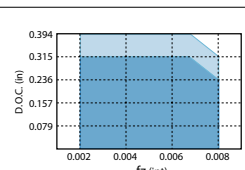
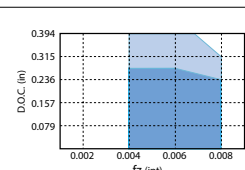


Cutting performance of mec end mill

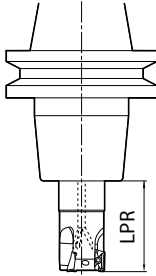
1. Overhang Length 10mm insert (Standard shank with JT chipbreaker)

Cutting Dia.	Description	Overhang Length LPR (in)		Shape
$\phi 10\text{mm}$	MEC10-S10-11	0.670	-	
$\phi 0.005"$ $\phi 12\text{mm}$	MEC0500... MEC12-S16-11	0.787	1.180	
$\phi 0.625"$ $\phi 16\text{mm}$	MEC0625-S625-11T MEC16-S16-11T	1.180	1.790	
$\phi 0.0750"$ $\phi 20\text{mm}$	MEC0750-S750-11T MEC20-S20-11T	1.180	1.790	
$\phi 1.000"$ $\phi 25\text{mm}$	MEC1000-S100-11T MEC25-S25-11T	1.260	1.890	
$\phi 32\text{mm}$	MEC1250-S125-11T MEC32-S32-11T	1.580	2.360	

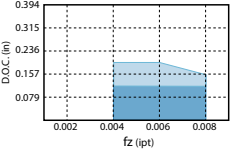
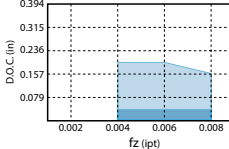
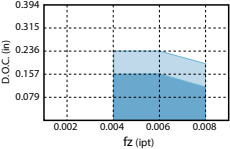
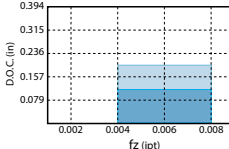
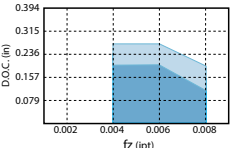
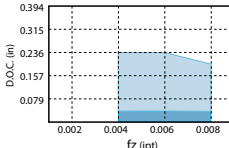
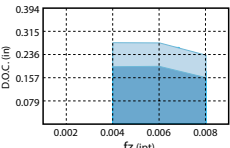
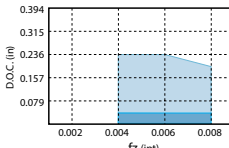
(Vc = 400 sfm Workpiece material: 1049)

Description	Shouldering (Cutting Width ae=DC/2)	Slotting Ramping and helical milling
MEC10-S10-11		
MEC0500... MEC12-S16-11		
MEC0625-S625-11T MEC16-S16-11T		
MEC0750-S750-11T MEC20-S20-11T		
MEC1000-S100-11T MEC25-S25-11T		
MEC1250-S125-11T MEC32-S32-11T		

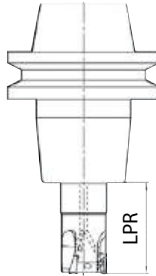
2. Overhang Length 10mm Insert (Long shank with JT chipbreaker)

Cutting Dia.	Description	Overhang Length LPR (in)		Shape
ø0.750" ø20mm Long Shank	MEC0750-S750-5.2-11T MEC20-S20-140-11T	2.362	3.543	
ø1.000" ø25mm Long Shank	MEC1000-S100-6.3-11T MEC25-S25-160-11T	2.362	3.957	
ø1.250" ø32mm Long Shank	MEC1250-S125-7.9-11T MEC32-S32-200-11T	3.957	5.118	
ø1.500" ø40mm Long Shank	MEC1500-S125-9.5-11T MEC40-S32-240-11T	3.957	5.119	

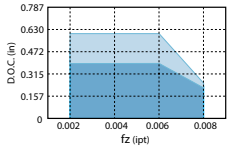
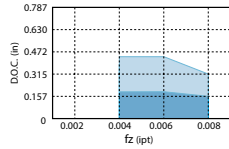
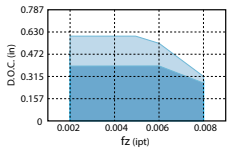
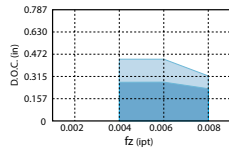
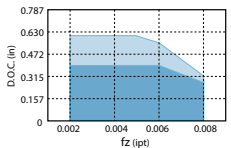
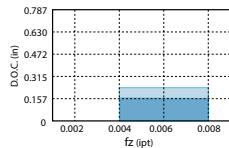
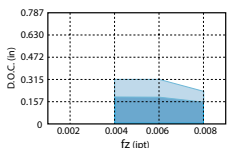
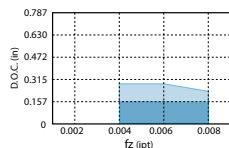
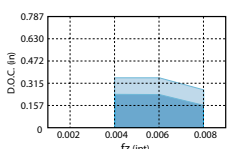
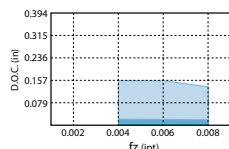
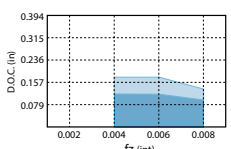
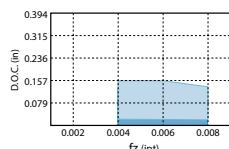
(Vc = 400 sfm Workpiece Material: 1049)

Description	Shouldering (Cutting Width ae=DC/2)	Slotting Ramping and helical milling
MEC0750-S750-5.2-11T MEC20-S20-140-11T Long shank		
MEC1000-S100-6.3-11T MEC25-S25-160-11T Long shank		
MEC1250-S125-7.9-11T MEC32-S32-200-11T Long shank		
MEC1500-S125-9.5-11T MEC40-S32-240-11T Long shank		

3. Overhang Length 15.7mm Insert (JT chipbreaker)

Cutting Dia.	Description	Overhang Length LPR (in)		Shape
ø1.000" ø25mm	MEC1000-S100-17 MEC25-S25-17	1.417	2.126	
ø1.250" ø32mm	MEC1250-S125-17 MEC32-S32-17	1.575	2.362	
ø1.500" ø40mm	MEC1500-S125-17 MEC40-S32-17	1.969	2.953	
ø1.000" ø25mm Long Shank	MEC1000-S100-6.3-17 MEC25-S25-160-17	2.362	3.937	
ø1.250" ø32mm Long Shank	MEC1250-S125-7.9-17 MEC32-S32-200-17	3.937	5.118	
ø1.500" ø40mm Long Shank	MEC1500-S125-9.5-17 MEC40-S32-240-17	3.937	5.118	

(Vc = 400 sfm Workpiece Material: 1049)

Description	Shouldering (Cutting Width ae=DC/2)	Slotting Ramping and helical milling
MEC1000-S100-17 MEC25-S25-17		
MEC1250-S125-17 MEC32-S32-17		
MEC1500-S125-17 MEC40-S32-17		
MEC1000-S100-6.3-17 MEC25-S25-160-17 Long shank		
MEC1250-S125-7.9-17 MEC32-S32-200-17 Long shank		
MEC1500-S125-9.5-17 MEC40-S32-240-17 Long shank		

Cutting Performance of MEC Face Mill

Overhand Length 10mm Insert (JT chipbreaker)

(Vc = 400 sfm Workpiece Material: 1049)

Cutting Dia.	Description	Overhang Length LPR (in)
ø32mm	MEC032R-11-5T-M	4.331
ø1.5000" ø40mm	MEC1500R-11T-5T MEC040R-11-T-OM	4.528
ø2.000" ø50mm	MEC2000R-11T-5T MEC050R-11-OT-M	3.937
ø2.500" ø63mm	MEC2500R-11T-6T MEC063R-11-OT MEC063R-11-OT-M	3.740
ø3.000" ø80mm	MEC3000R-11T-7T MEC080R-11-OT MEC080R-11-OT-M	3.740
ø4.000" ø100mm	MEC4000R-11T-9TN MEC100R-11-9TN MEC100R-11-9TN-MN	4.252
ø125mm	MEC125R-11-11T MEC125R-11-11T-M	4.252

Shape

Description	Shouldering (Cutting Width ae=DC/2)	Slotting
MEC1500R-11T-5T MEC040R-11-OT-M		
MEC2000R-11T-5T MEC4000R-11T-9TN		
MEC050R-11-OT-M MEC100R-11-9TN(-MN)		
MEC125R-11-11T(-M)		

Overhand Length 15.7mm Insert (JT chipbreaker)

(Vc = 400 sfm Workpiece Material: 1049)

Cutting Dia.	Description	Overhang Length LPR (in)
ø40mm	MEC040R-17-4T-M	4.528
ø2.000" ø50mm	MEC2000R-17-OT MEC050R-17-OT-M	3.937
ø2.500" ø63mm	MEC2500R-17-4T MEC063R-17-OT MEC063R-17-OT-M	3.740
ø3.000" ø80mm	MEC3000R-17-6T MEC080R-17-OT MEC080R-17-OT-M	3.740
ø4.000" ø100mm	MEC4000R-17-7T MEC100R-17-OT MEC100R-17-OT-MN	4.252
ø125mm	MEC125R-17-9T MEC125R-17-9T-M	4.252
ø160mm	MEC160R-17-12T MEC160R-17-12T-M	4.252

Shape

Description	Shouldering (Cutting Width ae=DC/2)	Slotting
MEC040R-17-4T-M		
MEC2000R-17-OT MEC050R-17-OT-M		
MEC2500R-17-4T MEC4000R-17-7T MEC063R-17-OT(-M) MEC100R-17-OT(-MN)		
MEC125R-17-9T(-M) MEC160R-17-12T(-M)		

M
MILLING

45°-70°
Lead Angle
75°
Lead Angle
88°-90°
Lead Angle

Finish
Milling
High Feed
Milling
Multi-
Functional
Slot
Mills
Ball-Nose
Radius
Other
Applications

Ramping, Helical Milling and Vertical Milling (Plunging)

Ramping/Helical Milling

Ramping angle is recommended under RMPX.

Refer to each tool's cutting performance list for sinking depth per revolution when helical milling.

Use compressed air when during machining.

Cutting Dia.	Applicable Inserts	Max. Ramping Angle (RMPX)
ø0.625", ø16~ø18mm	BDMT11T3.. BDGT11T3..	3°
ø0.750", ø19~ø21mm		5°
ø1.000", ø22~ø25mm		2.5°
ø1.250", ø28~ø32mm		1.5°
ø1.500", ø40mm		0.7°
ø50mm~		Not recommended
ø1.000", ø25mm	BDMT1704.. BDGT1704..	8°
ø1.250", ø32mm		5°
ø1.500", ø40mm		2.5°
ø50mm~		Not recommended

BDMT1103 type is not recommended for ramping and helical milling.

Vertical Milling (Plunging)

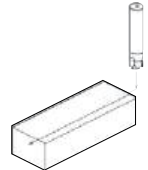
Cutting Dia.	Applicable Inserts	Max. Width of Cut (ae)
$\phi 0.625"$ $\phi 16 \sim \phi 19 \text{ mm}$	BDMT11T3.. BDGT11T3..	$0.060"$ 1.5 mm
$\phi 0.750" \sim \phi 4.000"$ $\phi 20 \sim \phi 160 \text{ mm}$	BDMT11T3.. BDGT11T3..	$0.197"$ 5 mm
$\phi 1.000" \sim \phi 4.000"$ $\phi 25 \sim \phi 160 \text{ mm}$	BDMT1704.. BDGT1704..	$0.315"$ 8 mm

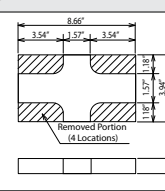
BDMT1103 type is not recommended for vertical milling (plunging).

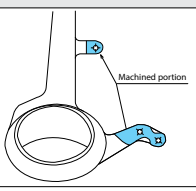
Minimum Cutting Dia. for Helical Milling

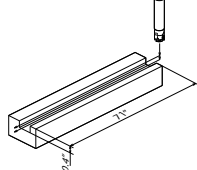
MEC Insert	Cutting Dia.	ø0.625"	ø0.750"	ø1.000"	ø1.250"	ø1.500"	ø16mm	ø18mm	ø20mm	ø22mm	ø25mm	ø28mm	ø30mm	ø32mm	ø40mm	ø50mm	
BD_T11T3..	Min. Cutting Dia.	ø0.827"	ø1.102"	ø1.575"	ø2.087"	ø2.598"	ø21mm	ø25mm	ø29mm	ø33mm	ø39mm	ø45mm	ø49mm	ø53mm	ø69mm	Not recommended for helical milling	
	Min. Cutting Dia. for Flat Bottom	ø1.102"	ø1.339"	ø1.850"	ø2.362"	ø2.835"	ø28mm	ø32mm	ø36mm	ø40mm	ø46mm	ø52mm	ø56mm	ø60mm	ø76mm		
MEC Insert	Cutting Dia.	ø1.000"	ø1.250"	ø1.500"	ø25mm	ø32mm	ø40mm	ø50mm									
BD_T1704..	Min. Cutting Dia.	ø1.339"	ø1.850"	ø2.362"	ø34mm	ø48mm	ø64mm	Helical milling is not recommended.									
	Min. Cutting Dia. for Flat Bottom	ø1.850"	ø2.323"	ø2.835"	ø46mm	ø60mm	ø76mm										

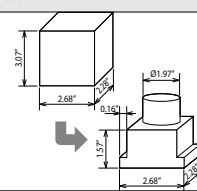
Case Studies

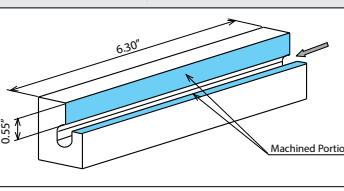
Pre-Hardened Tool Steel	
• Test Piece (54~56HRC) • Vc = 160 sfm (n = 800min⁻¹) • D.O.C. × ae = 0.079" × 0.551" • fz = 0.005 ipt (Vf = 2.28 ipm) • Dry • MEC20-S20-11T (3 Flute) • BDMT11T308ER-JT (PR830)	
MEC	Chip removal amount = 28.1in ³ (Further machining possible)
Competitor's end mill A	Chip removal amount = 1.1in ³ (Chipping occurred)
Competitor's end mill A (a25 (2 flutes) Vc = 40 m/min fz = 0.075 mm/t ap x ae = 2 x 3 mm) had chipping occurred in 10 minutes and had loud machining sound. MEC could increase the feed rate, and the cutting edge remained in extremely good condition and is still sustainable for further machining. (User evaluation)	

304	
• Plate • Vc = 410 sfm (n = 1,600min⁻¹) • D.O.C. = 0.354" • fz = 0.004 ipt (Vf = 12.6 ipm) • Dry • MEC25-S25-17 (2 Flute) • BDMT170408ER-JT (PR830)	
MEC	4pcs/edge or more
Competitor's end mill C	1pc/edge or less
Competitor's end mill C (indexable end mill) had high cutting force and had insert breakage, but MEC had no insert breakage and was still usable for further machining after machining 4 pieces (16 points). (User evaluation)	

4118	
• Knuckle Steering • Vc = 490 sfm (n = 1,200min⁻¹) • D.O.C. = 0.020"~0.197" (Shouldering) • fz = 0.004 ipt (Vf = 18.8 ipm) • Dry • MEC40-S32-17 (4 Flute) • BDMT170408ER-JT (PR830)	
MEC	150 pcs/edge
Competitor's end mill E	40pcs/edge
MEC had a better finished surface comparing to competitor's end mill E and also improved the tool life by more than 3 times. (User evaluation)	

Structural Steel	
• Plate • Vc = 290 sfm (n = 1,400min⁻¹) • D.O.C. = 0.197" x 2 Passes • fz = 0.005 ipt (Vf = 19.7 ipm) • Dry • MEC20-S20-11T (3 Flute) • BDMT11T308ER-JT (PR830)	
MEC	23 pcs/edge
Competitor's end mill B	10~11pcs/edge
MEC extended the tool life for more than twice. (User evaluation)	

Die Steel	
• Mold • Vc = 430 sfm (n = 1,040min⁻¹) • D.O.C. × ae = ~0.118" × ~0.197" • fz = 0.007 ipt (Vf = 36.8 ipm) • Dry (Air Blow) • MEC40-S32-11T (5 Flute) • BDMT11T308ER-JT (PR830)	
MEC	2 hours (Small wear: extendible)
Competitor's end mill D	2 hours (Halted due to insert breakage)
MEC had better cutting performance/insert life comparing to competitor's end mill D, and the insert had only small wear and was usable for further machining after used for machining of the same duration as competitor's end mill D. Competitor's end mill D (6 flutes type) was used with Vf = 936 mm/min (fz = 0.15 mm/t). (User evaluation)	

Ni-Base Heat-Resistant Alloy	
• Turbine Parts • Vc = 50 sfm (n = 120min⁻¹) • D.O.C. = 0.020" • fz = 0.003 ipt (Vf = 1.5 ipm) • Wet • MEC40R-17-4T-M (4 Flute) • BDMT170408ER-JS (PR1025)	
MEC	9pcs/edge
Competitor's end mill F	1pc/edge or less
Competitor's end mill F (Coated carbide Insert) could not finish machining of 1 workpiece, but MEC could cut 9pcs/edge and the finished surface was good. (User evaluation)	

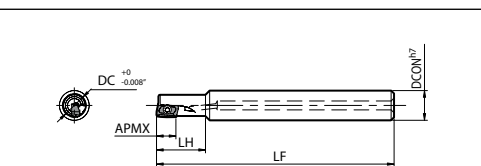


Fig. 1

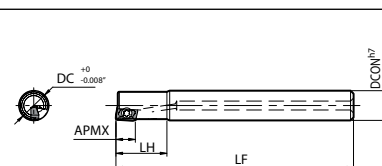


Fig. 2

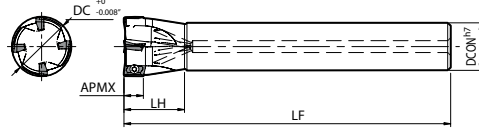


Fig. 3

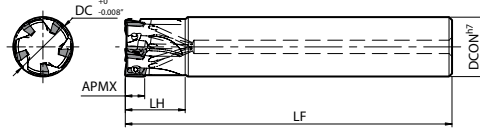


Fig. 4

Toolholder Dimensions

Unit	Part Number				Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts  M114															
							DC	DCON	LF	LH	APMX																								
Inch	Standard Shank	Standard Pitch	MECX	0375-S375-07-1T	● 1	0.375	0.375	3.00	0.669	0.236	+12.8	-19.7	Yes	47,150	1	P-37	SB-2035TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS																
				0500-S500-07-2T	● 2	0.500	0.500	3.27	0.709		+14.3	-12.9		45,800	1																				
				0625-S625-07-3T	● 3	0.625	0.625	3.50	0.787			-11.3		43,300	2																				
				0750-S625-07-4T	● 4	0.750		4.00						40,900	3																				
				0750-S750-07-4T	● 4		0.750	4.00			40,900	2																							
				0750-S750-07-5T	● 5	1.000		1.000			4.50	0.984		40,900	2																				
				1000-S100-07-5T	● 5		0.750	36,900	2																										
				1000-S100-07-7T	● 7			0.750	36,900		3																								
				1000-S750-07-5T	● 5		0.750		36,900		3																								
				1000-S750-07-7T	● 7	0.750		36,900	3																										
				1250-S125-07-6T	● 6		1.250	1.250	5.00		1.181			33,700	2																				
				1250-S125-07-8T	● 8	1.250	1.250	5.00	1.181		33,700			4																					
Long Shank	Standard Pitch	MECXL	0625-S625-07-3T	● 3	0.625	0.625	5.10	2.175	0.236	+16.3	-11.3	Yes	43,300	4	P-37	SB-2042TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS																	
			0750-S750-07-4T	● 4	0.750	0.750	5.50	2.362					-10.9	40,900					4																
			1000-S100-07-5T	● 5	1.000	1.000	6.30	36,900					4																						
			1250-S125-07-6T	● 6	1.250	1.250	7.90	2.559					-8.9	33,700					4																
mm	Standard Shank	Standard Pitch	MECX	08-S10-07-1T	● 1	8	10	16	80	6	+11.7	-24	Yes	48,100	1	P-37	SB-2035TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS																
				10-S10-07-1T	● 1	10					+12.8	-18.7		47,100	2																				
				12-S12-07-2T	● 2	12	12	18			+14.3	-13.7		46,200	4																				
				14-S12-07-2T	● 2	14					+16.3	-12.1		44,800	3																				
				16-S16-07-3T	● 3	16	16	100	20		+16.3	-11.3		43,200	4																				
				17-S16-07-3T	● 3	17					+16.3	-11		42,400	3																				
				18-S16-07-3T	● 3	18	16	110	20		+16.3	-10.9		41,600	3																				
				20-S16-07-4T	● 4	20					+16.3	-10.4		40,200	3																				
				20-S20-07-4T	● 4	21	20	120	25		+16.3	-10.4		40,200	4																				
				21-S20-07-4T	● 4	21					+16.3	-10.1		39,500	3																				
				25-S20-07-5T	● 5	25	20	120	25		+16.3	-9.7		37,000	3																				
				25-S25-07-5T	● 5	25					+16.3	-9.7		37,000	4																				
				26-S25-07-5T	● 5	26	25	120	25		+16.3	-9.5		36,500	3																				
				33-S32-07-6T	● 6	33					32	130		30	+16.3	-8.8	33,100			3															
				Long Shank	Standard Pitch	MECX	16-S16-07-4T	● 4	16		16	100		20	6	+16.3	-11.3			Yes	43,200	4	P-37	SB-2042TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS									
							20-S16-07-5T	● 5	20							+16.3	-10.4				40,200	3													
							20-S20-07-5T	● 5	20		20	110		25		+16.3	-10.4				40,200	4													
							25-S20-07-7T	● 7	25							+16.3	-9.7				37,000	3													
							25-S25-07-7T	● 7	25		25	120		25		+16.3	-9.7				37,000	4													
							32-S32-07-8T	● 8	32							32	130				30	+16.3					-8.9	33,600	4						
							Long Shank	Standard Pitch	MECX		17-S16-130-07-3T	● 3		17		16	130				20	6					+16.3	-11	Yes	42,400	3	P-37	SB-2042TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS
											21-S20-140-07-4T	● 4		21		20	140				25						+16.3	-10.1		39,500	3				
				26-S25-160-07-5T	● 5	26					25	160		25	+16.3	-9.5	36,500			3															

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

For more details, see "Warning" on page M115.

MECX (Face Mill)

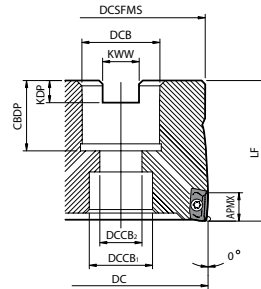


Fig. 1

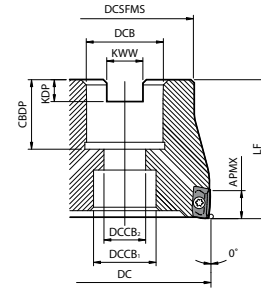


Fig. 2

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										A.R. MAX. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.
				DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CDBP	KDP	KWW	APMX						
Inch	MECX 1250R-07-8T	●	8	1.250	1.181	0.75	0.630	0.417	1.575	0.807	0.187	0.313	0.236	+7	-8.9	Yes	33,600	0.15	1
	1500R-07-10T	●	10	1.500	1.496												30,500	0.25	
	2000R-07-12T	●	12	2.000	1.575												27,700	0.125	2
	2500R-07-14T	●	14	2.500	1.575												24,900	0.50	
mm	MECX 032R-07-8T-M	●	8	32	30	16	14	8.5	40	20	5.5	8.5	6	+7	-8.9	Yes	33,600	0.15	1
	040R-07-10T-M	●	10	40	38	22	18	12		22	6.3	10.4					30,500	0.25	

Spare Parts and Applicable Inserts

Unit	Part Number	Spare Parts				Applicable Inserts ➡ M114
		Anti-Seize Compound	Insert Screw	Wrench	Arbor Bolt	
Inch	MECX 1250R-07-8T	P-37	SB-2042TRG	DTM-6	HH3/8-1.25H	BDMT0703...-JT BDMT0703...-JS
	1500R-07-10T					
	2000R-07-12T					
	2500R-07-14T					
mm	MECX 032R-07-8T-M	P-37	SB-2042TRG	DTM-6	HH8x25H	BDMT0703...-JT BDMT0703...-JS
	040R-07-10T-M				HH10x30H	

Coat Anti-seize Compound(P-37) thinly on portion of taper and thread prior to installation.

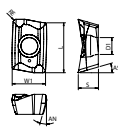
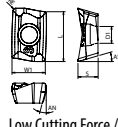
Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

MECX032R comes with mounting bolt (HH8X25H) and MECX040R comes with mounting bolt (HH10X30H).

Max. revolution : When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

For more details, see "Warning" on page M115.

BDMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel									★	☆	P				
		Mold and die steel									★	☆					
		Austenitic stainless steel							☆		☆	★	M				
		Martensitic stainless steel						★				☆					
		Precipitation hardened stainless steel							☆			★					
		Gray cast iron									★		K				
		Nodular cast iron									★						
		Non-ferrous metals											N				
		Heat-resistant alloy						★				☆	S				
		Titanium alloy							☆			★					
		Hard materials											H				
Insert		Part Number		No. of Edges	Dimensions (mm)					Angle (°)		Carbide				Applicable Toolholder M112 M113	
					S	D1	RE	L	W1	AN	AS	CVD	PVD				
													CA6535	PR1535	PR1810		PR1825	PR1835
		BDMT 070302ER-JT				0.2						●	●	●	●	MECX...-07-...	
		070304ER-JT	2	2.6	2.3	0.4	6.7	4.6	15	16		●	●	●	●		
		070308ER-JT				0.8						●	●	●	●		
		BDMT 070302ER-JS				0.2						●	●	●	●	MECX...-07-...	
		070304ER-JS	2	2.6	2.3	0.4	6.7	4.6	15	16		●	●	●	●		
		070308ER-JS				0.8						●	●	●	●		

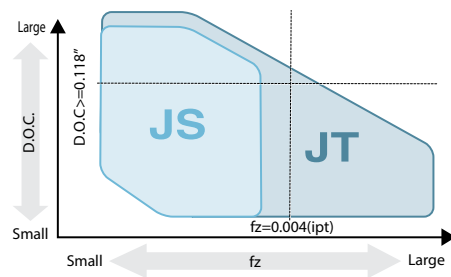
Right-hand Insert Shown

Recommended Cutting Conditions M115

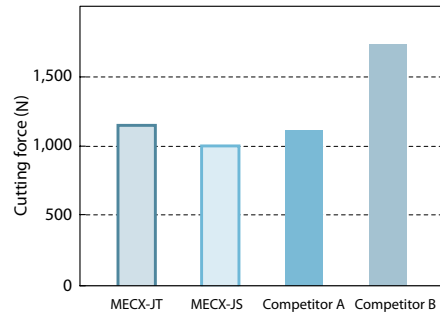
MILLING

45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
ApplicationsBDMT inserts are
sold in 10 piece boxes

Chipbreaker Selection



Cutting Force Comparison (Internal Evaluation)



1045
 $V_c = 490 \text{ sfm}$
 $D.O.C. \times a_e = 0.197'' \times 0.197''$
 $f_z = 0.003 \text{ ipt}$

Warning

Please observe below precautions fully. Failure to observe the precautions may cause serious damage to human body.

Warning about max. revolution indicated on main body

1. Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter or the body may be damaged even under no load.
2. For actual practical revolution, please set within recommended cutting condition.
3. When using at a higher revolution (over 10,000 RPM), refer to the table to adjust the balance of MECX and suitable arbor.

RPM	Balance quality grade G ISO 1940-1/8821 (JIS B0905)
~20,000	G16
~30,000	G6.3
30,000~	G2.5

Recommended Cutting Conditions

Workpiece Material	fz (ipt)		Recommended Insert Grade Vc (sfm)			
	JS Chipbreaker	JT Chipbreaker	MEGACOAT NANO EX (MEGACOAT NANO)			CVD Coated Carbide
			PR1835 (PR1535)	PR1825	PR1810	
Carbon Steel	0.0016~ 0.0031 ~0.0039	0.0024~ 0.0039 ~0.0047	☆ 390~ 590 ~820	★ 390~ 590 ~820	-	-
Alloy Steel	0.0016~ 0.0024 ~0.0031	0.0024~ 0.0031 ~0.0039	☆ 330~ 520 ~720	★ 330~ 520 ~720	-	-
Mold Steel	0.0016~ 0.0024 ~0.0031	0.0024~ 0.0031 ~0.0039	☆ 260~ 460 ~590	★ 260~ 460 ~590	-	-
Austenitic Stainless Steel	0.0012~ 0.0016 ~0.0020	0.0020~ 0.0024 ~0.0028	★ 330~ 520 ~660	☆ 330~ 520 ~660	-	-
Martensitic Stainless Steel	0.0012~ 0.0016 ~0.0020	0.0020~ 0.0024 ~0.0039	☆ 490~ 660 ~820	-	-	★ 590~ 790 ~980
Precipitation Hardened Stainless Steel	0.0012~ 0.0016 ~0.0020	0.0020~ 0.0024 ~0.0039	★ 300~ 390 ~490	-	-	-
Gray Cast Iron	0.0016~ 0.0031 ~0.0039	0.0031~ 0.0039 ~0.0059	-	-	★ 390~ 590 ~820	-
Nodular Cast Iron	0.0016~ 0.0024 ~0.0031	0.0031~ 0.0039 ~0.0047	-	-	★ 330~ 490 ~660	-
Ni-base Heat Resistant Alloy	0.0012~ 0.0016 ~0.0020	0.0020~ 0.0024 ~0.0028	☆ 70~ 100 ~160	-	-	★ 70~ 100 ~160
Titanium Alloys	0.0016~ 0.0024 ~0.0031	0.0031~ 0.0039 ~0.0047	★ 130~ 200 ~260	-	-	-

Bold numbers in the table indicate the most recommended values. Adjust cutting speed and feed rate according to the actual machining conditions.
 Coolant is recommended for Ni-base heat-resistant alloys and titanium alloys.

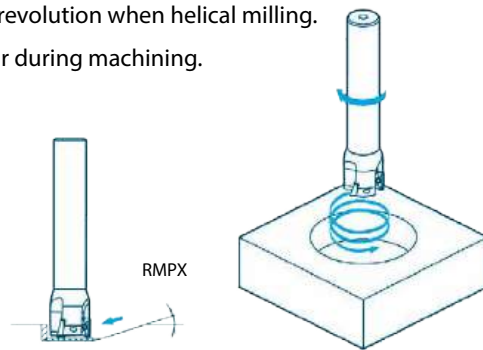
★ : 1st Recommendation ☆ : 2nd Recommendation

Ramping/Helical milling

Ramping angle is recommended under RMPX.

Refer to each tool's cutting performance list for sinking depth per revolution when helical milling.

Use compressed air during machining.



Cutting Dia.	Applicable Inserts	Max. Ramping ngle (RMPX)
ø0.375", ø8mm	BDMT0703 type	Not recommended
ø10mm		1.5°
ø0.500" ø12mm, ø14mm		2°
ø0.625", ø16mm		3°
ø17mm, ø18mm		1.5°
ø0.750", ø20mm		2°
ø21mm		1.8°
ø1.000", ø25mm		1.3°
ø26mm		1.2°
ø1.250", ø32mm		0.8°
ø33mm		0.5°

Guidance of minimum cutting dia. by helical milling

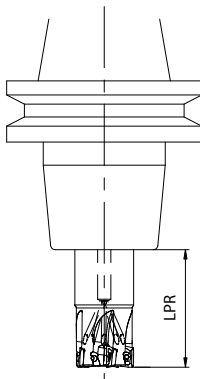
MECX	Cutting Dia.	ø0.375"	ø0.500"	ø0.625"	ø0.750"	ø8mm	ø10mm	ø12mm	ø14mm	ø16mm	ø17mm	ø18mm	ø20mm
BDMT0703..	Min. Cutting Dia.	ø0.512"	ø0.748"	ø0.984"	ø1.260"	Not recommended for helical milling	ø14mm	ø18mm	ø22mm	ø26mm	ø28mm	ø30mm	ø34mm
	Min. Cutting Dia. for Flat Bottom	ø0.630"	ø0.866"	ø1.142"	ø1.378"		ø17mm	ø21mm	ø25mm	ø29mm	ø31mm	ø33mm	ø37mm
MECX	Cutting Dia.	ø21mm	ø25mm	ø26mm	ø32mm	ø33mm							
BDMT0703..	Min. Cutting Dia.	ø36mm	ø44mm	ø46mm	ø58mm	ø60mm							
	Min. Cutting Dia. for Flat Bottom	ø39mm	ø47mm	ø49mm	ø61mm	ø63mm							

MECX End Mill Cutting Performance

(Vc = 400 sfm Workpiece Material: 1049)

Cutting Dia.	Description	Overhang Length LPR (in)	
ø8mm	MECX08-S10-07-1T	0.630	-
ø0.375" ø10mm	MECX0375-S375-07-1T MECX10-S10-07-1T	0.670	-
ø0.500" ø12mm	MECX0500-S500-07-2T MECX12-S12-07-2T	0.709	1.180
ø0.625" ø16mm	MECX0625-S625-07-3T MECX16-S16-07-3T	0.787	1.570
ø0.750" ø20mm	MECX0750-S750-07-4T MECX20-S20-07-4T	0.787	1.570
ø1.000" ø25mm	MECX1000-S100-07-5T MECX25-S25-07-5T	1.000	1.970
ø1.250" ø32mm	MECX1250-S125-07-6T MECX32-S32-07-6T	1.180	1.970

Shape



* Machining with extended Overhang length is not recommended for ø8mm ø0.375", or ø10mm.

* The cutting performance list shows applicable range of JT chipbreaker with Standard flute-number type.

For multi-edge type, use with 70% or less of D.O.C.

* Cutting conditions of JS chipbreaker

- For MECX08~MECX12
Decrease the feed rate by 25% according to cutting capability list.
- For MECX16 and over
Decrease the feed rate and D.O.C. by 30% according to cutting capability list.

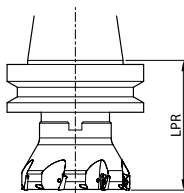
Description	Shouldering (Cutting Width ae=DC/2)	Slotting Ramping and Helical Milling
MECX08-S10-07-1T		
MECX0375-S375-07-1T MECX10-S10-07-1T		
MECX0500-S500-07-2T MECX12-S12-07-2T		
MECX0625-S625-07-3T MECX16-S16-07-3T		
MECX0750-S750-07-4T MECX20-S20-07-4T		
MECX1000-S100-07-5T MECX25-S25-07-5T		
MECX1250-S125-07-6T MECX32-S32-07-6T		

MECX Face Mill Cutting Performance

(Vc = 400 sfm Workpiece Material: 1049)

Cutting Dia.	Description	Overhang Length LPR (in)
ø1.250" ø32mm	MECX1250R-07-8T MECX032R-07-8T-M	3.937
ø1.500" ø40mm	MECX1500R-07-10T MECX040R-07-10T-M	
ø2.000"	MECX2000R-07-12T	
ø2.500"	MECX2500R-07-14T	

Shape



Description	Shouldering (Cutting Width ae=DC/2)
MECX1250R-07-8T MECX1500R-07-10T MECX2000R-07-12T MECX2500R-07-14T MECX032R-07-8T-M MECX040R-07-10T-M	

* Use JT chipbreaker.

* Slotting is not recommended.

High Performance Milling

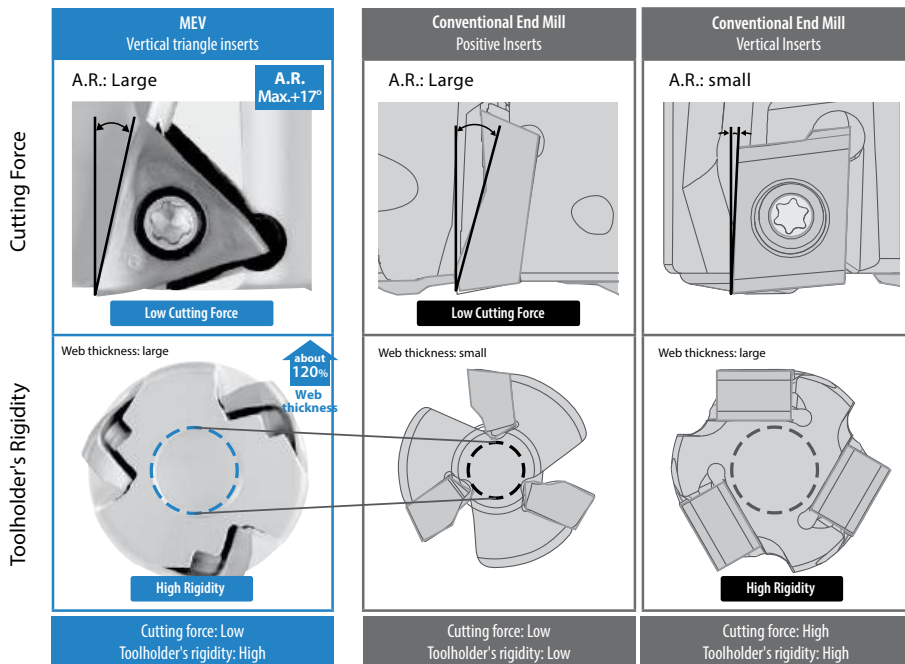
M-THREE (MEV)

Newly Developed Triangular Inserts Provide Low Cutting Forces and Increased Rigidity
High Performance, Economical, and Multi-functional Milling Solutions

1 High performance: low cutting force and high rigidity

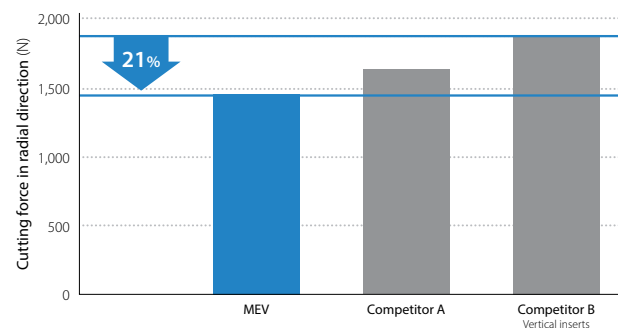
Newly developed vertical triangle inserts with 3 cutting edges for stable machining and reduced chattering

MEV vs Competitor



Keeping the max rake angle at 17°, provides lower cutting forces than the positive insert types of competitors

Cutting Force Comparison (internal Evaluation)

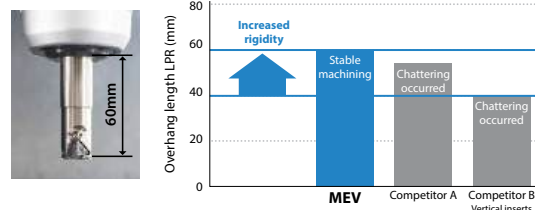


Cutting Conditions: $V_c = 655$ sfm, D.O.C. $\times a_e = 0.118'' \times 0.709''$, $f_z = 0.004$ ipt, $\varnothing 0.750''$ (3 flutes), Dry Workpiece : 4140H

Low cutting force and large optimal web thickness provides excellent chattering resistance

Chattering Resistance Comparison (internal Evaluation)

Shouldering



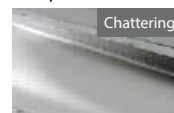
Cutting Conditions: $V_c = 655$ sfm, D.O.C. $\times a_e = 0.118'' \times 0.71''$, $f_z = 0.004$ ipt, $\varnothing 0.750''$ (3 flutes), Dry Workpiece : 4140H

Slotting

MEV



Competitor A



Competitor B (Vertical triangle inserts)



Cutting Conditions: $V_c = 655$ SFM, D.O.C. = 0.118" (Slotting), $f_z = 0.004$ ipt, $\varnothing 0.750''$ (3 flutes), Dry Workpiece : 4140H

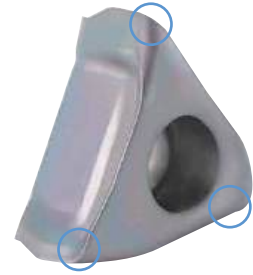
1

The economical choice: 3 cutting edge insert with long tool life

Insert

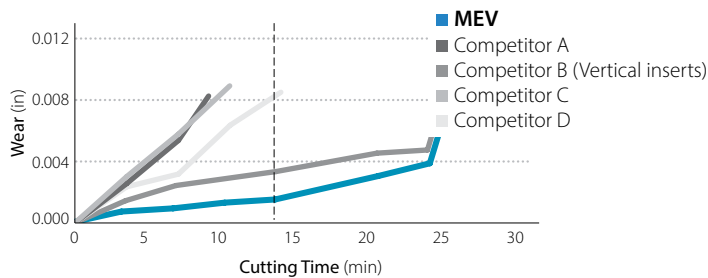
Unique triangle inserts with 3 cutting edges

PR15-series utilizes excellent MEGACOAT NANO coating technology with wear and adhesion resistance



Long Tool Life with Excellent Wear Resistance

Wear resistance comparison (internal evaluation)



Cutting conditions : Vc = 590 sfm, D.O.C. x ae = 0.118" x 0.394", fz = 0.004 ipt, Ø0.750", Dry
Workpiece : D2 (30~35HS)

Cutting Edge (after machining 14 min)

MEV



Competitor A



Competitor B
(Vertical inserts)



Competitor C



Competitor D



Improved Stability with Superior Fracture Resistance



Cutting edge cross-section

MEV

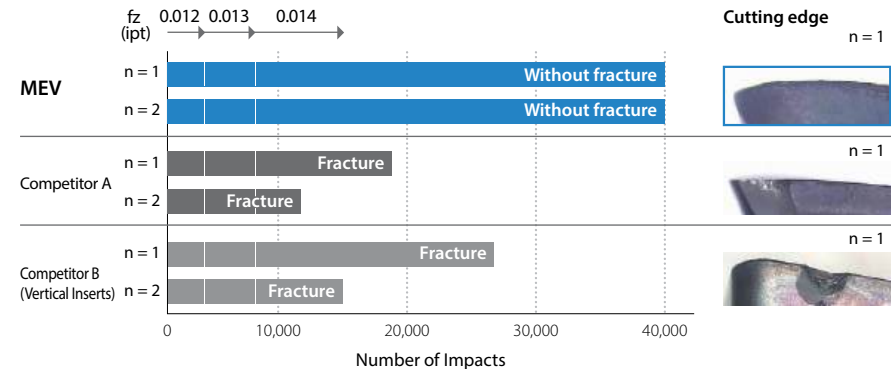


Conventional



The MEV features a larger cutting edge to increase strength

Wear resistance comparison (internal evaluation)



Cutting conditions : Vc = 390 sfm, D.O.C. x ae = 0.079" x 0.393", fz = 0.012" - 0.014" ipt, Ø0.750" (1 Flute), Dry
Workpiece : 4140H

1

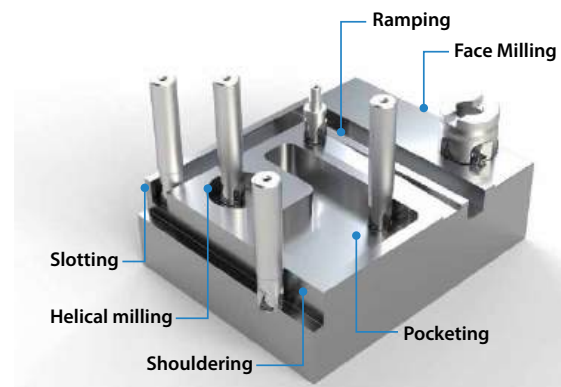
Multi-functional: The MEV can perform a wide variety of machining processes

Great performance in shouldering, slotting, and ramping applications (D.O.C. 6mm or less)

Chip Example (Slotting)



Cutting Conditions : Vc = 490 sfm,
D.O.C. = 0.236" (Slotting)
fz = 0.008 ipt, Ø0.750" (3 insert), Dry
Workpiece : SS400



A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

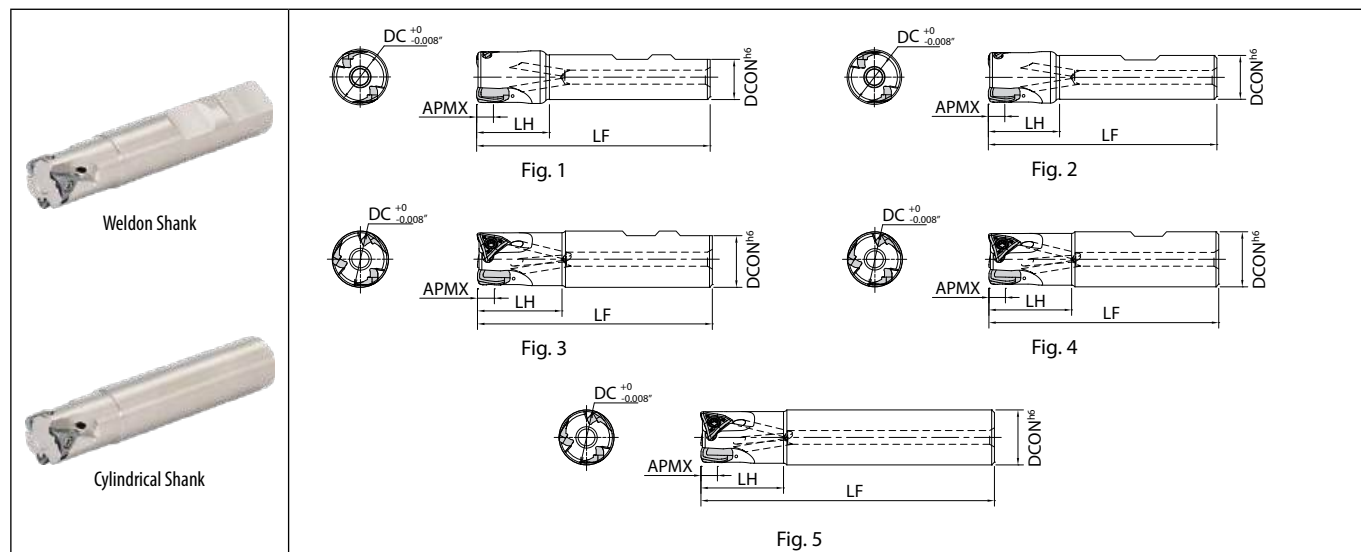
P

Q

R

T

MEV (End Mill)



Toolholder Dimensions

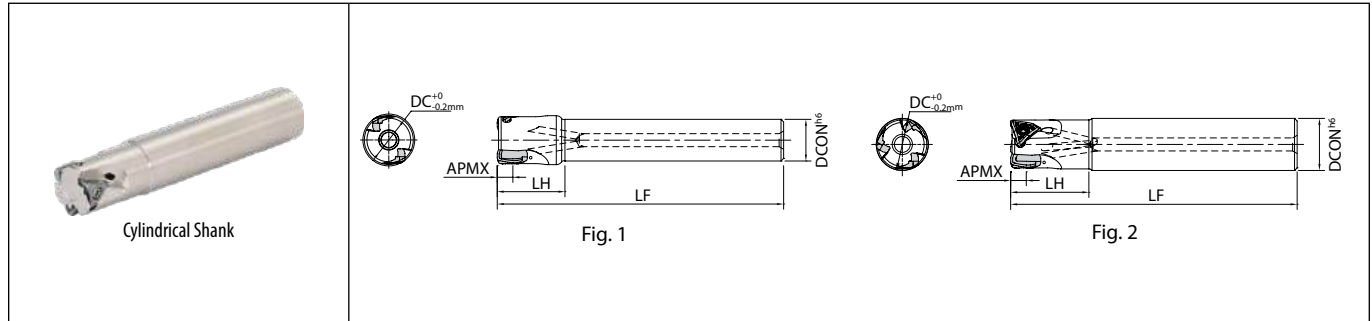
Unit			Part Number				Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts ➡ M123
																				Anti-Seize Compound	Insert Screw	Wrench	
																							
Inch	Weldon	Standard Shank	MEV	0750-W625-06-2T	● 2	0.750	0.625	3.056	1.150	0.236	+17	-38	Yes	32,000	0.1	2	P-37	SB-3076TRP	DTPM-10	Recommended tightening torque for insert screw 2.0N·m	TOMT0605...-GM TOMT0605...-SM		
				0750-W750-06-2T	● 2		3.229								0.2	4							
				1000-W750-06-3T	● 3	1.000	0.750	3.231	1.200		-37	Yes	25,000	0.2	2								
				1000-W100-06-3T	● 3		1.000	3.737	1.400					0.3	3								
				1250-W100-06-4T	● 4	1.250	3.731	1.450	-35		Yes	20,000	0.4	1									
				1250-W125-06-4T	● 4		3.987	1.650					0.5	3									
				1500-W125-06-5T	● 5	1.500	1.250	4.331					2.050	16,000	0.7	1							
	Cylindrical	Long Shank	MEV	0750-S750-6-06-2T	● 2	0.750	0.750	6.000	1.600	0.236	+17	-38	Yes	32,000	0.3	5	P-37	SB-3076TRP	DTPM-10	Recommended tightening torque for insert screw 2.0N·m	TOMT0605...-GM TOMT0605...-SM		
				1000-S100-7-06-2T	● 2	1.000	1.000	7.000	2.000						0.6	5							
				1000-S100-7-06-3T	● 3						0.6	5											
				1250-S125-8-06-4T	● 4	1.250	1.250	8.000	2.600		20,000	1.1	5										

Max. revolution : When running end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

MEV (End Mill)



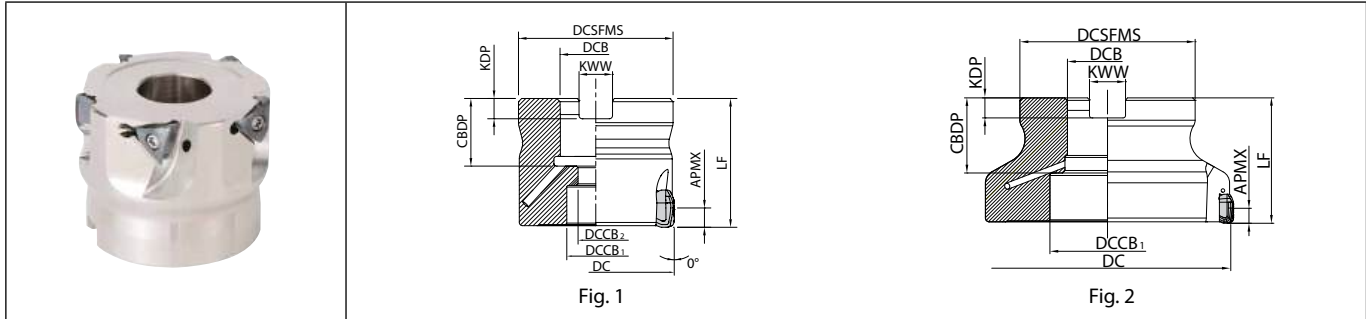
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts ➡ M123
				DC	DCON	LF	LH	APMX							Anti-Seize Compound	Insert Screw	Wrench	
mm	Cylindrical	Standard Shank	MEV 20-S16-06-2T	● 2	16	26			6	+17	Yes	32,000	0.2	1	P-37	SB-3076TRP	DTPM-10	TOMT0605...-GM TOMT0605...-SM
			20-S20-06-2T	● 2	20	110	30											
			20-S20-06-3T	● 3														
			22-S20-06-3T	● 3	22		26											
			25-S20-06-3T	● 3			29											
			25-S25-06-2T	● 2	25		32											
			25-S25-06-3T	● 3														
			28-S25-06-3T	● 3	28		29											
			30-S25-06-4T	● 4	30													
			32-S25-06-4T	● 4			32											
			32-S32-06-3T	● 3	32													
			32-S32-06-4T	● 4			40											
			40-S32-06-5T	● 5	40		150	50										
			50-S32-06-5T	● 5	50		120	40										
	Long Shank	MEV 20-S18-06-150-2T	● 2	18	30				6	+17	Yes	32,000	0.3	2	P-37	SB-3076TRP	DTPM-10	TOMT0605...-GM TOMT0605...-SM
			20-S18-06-150-3T	● 3														
			20-S20-06-150-2T	● 2	20	150	40											
			20-S20-06-150-3T	● 3														
			25-S25-06-170-2T	● 2	25	170	50											
			25-S25-06-170-3T	● 3														
			32-S32-06-200-2T	● 2	32	200	65											
			32-S32-06-200-3T	● 3														
									6	+17	Yes	25,000	0.6	2	P-37	SB-3076TRP	DTPM-10	TOMT0605...-GM TOMT0605...-SM

Max. revolution : When running end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

MEV (Face Mill)



Toolholder Dimensions

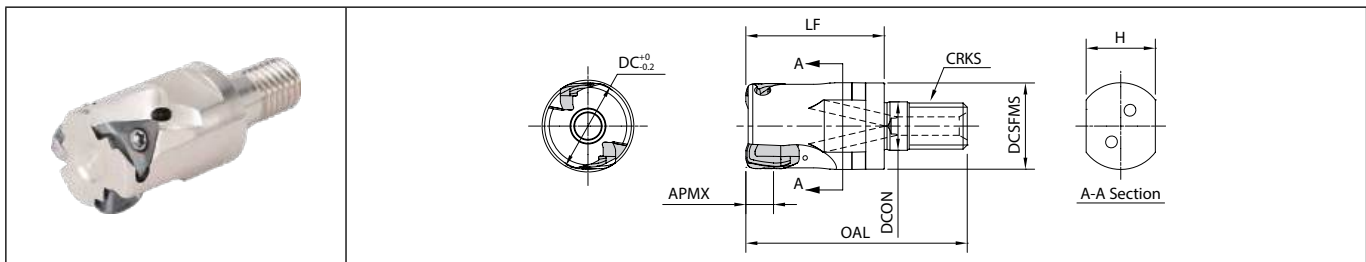
Unit	Part Number		Std. Item	No. of Inserts	Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts				Applicable Inserts ➡ M123			
					DC	DCSfMS	DCB	DCB _h	DCB ₂	LF	CBDP	KDP	KWW	APMX														
Inch	Inch Bore Dia.	MEV 1500R-06-5T 2000R-06-6T 2500R-06-6T	● ● ●	5 6 6	1.500 2.000 2.500	1.457 1.811 1.969		0.750 0.669 0.433	0.669 0.433 1.575	0.750 0.187 0.312	0.312 0.236 0.236	+17 +16	-35	Yes	16,000 12,500 10,000	0.2 0.4 0.6	1 1 1	P-37		SB-3076TRP	DTPM-10	TOMT0605...-GM TOMT0605...-SM						
mm	Inch Bore Dia.	MEV 080R-06-7T 100R-06-9T	● ●	7 9	80 100	60 70	1.000" 1.250"	20 46	13 -	50 63	1.063" 1.339"	0.236" 0.315"	0.375" 0.500"	+15 +15	-35 -35	7,900 6,300	1.1 1.4						1 2	P-37	HH12X35 - HH8X25 HH8X25 HH10X30 HH10X30 HH12X35 -	SB-3076TRP	DTPM-10	TOMT0605...-GM TOMT0605...-SM
		Metric Bore Dia.	MEV 032R-06-4T-M 040R-06-5T-M 050R-06-5T-M 063R-06-6T-M 080R-06-7T-M 100R-06-9T-M	● ● ● ● ● ●	4 5 6 7 9	32 40 48 63 80 100	30 38 48 48 60 70	16 16 22 22 27 32	13.5 15 18 18 20 46	9 9 11 11 13 -	35 40 40 40 50 50	19 19 21 21 24 30	5.6 5.6 6.3 6.3 7 8	8.4 8.4 10.4 10.4 12.4 14.4	+15 +17 +16 +16 +15 +15	-35 -36 -36 -35 -35 -35	7,900 6,300 16,000 13,000 10,000 7,900 6,300						1.1 1.4 0.1 0.2 0.4 1.1 1.4						1 2 1 1 1 1 2

Max. revolution : When running end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

Recommended tightening torque for insert screw 2.0N-m

MEV (Modular Head)



Toolholder Dimensions

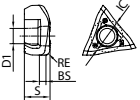
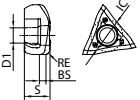
Unit	Part Number	Std. Item	No. of Inserts	Dimensions								A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➔ M123
				DC	DCON	DCSFMS	OAL	LF	APMX	CRKS	H					Anti-Seize Compound	Insert Screw	Wrench	
mm	MEV 20-M10-06-2T	●	2	20	10.5	18.7	48	30		M10x1.5	15	+17	-38	Yes	32,000	P-37	SB-3076TRP	DTPM-10	TOMT0605...-GM TOMT0605...-SM
	20-M10-06-3T	●	3							M12x1.75	19	+17	-37		25,000				
	25-M12-06-3T	●	3	25	12.5	23	56	35		M12x1.75	19	+17	-37		25,000				
	32-M16-06-4T	●	4	32	17	30	62	40		M16x2.0	24	+17	-36		20,000				

Max. revolution : When running end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

See page M324 for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

TOMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel				★	☆	P				
		Mold and die steel				★	☆					
		Austenitic stainless steel				☆	★	M				
		Martensitic stainless steel		★			☆					
		Precipitation hardened stainless steel					★					
		Gray cast iron			★			K				
		Nodular cast iron			★							
		Non-ferrous metals						N				
		Heat-resistant alloy		★			☆	S				
		Titanium alloy					★					
		Hard materials						H				
Insert	Part Number	No. of Edges	Dimensions (mm)					Carbide				Applicable Toolholder ➡ M120~ M122
			IC	S	D1	RE	BS	CVD		PVD		
								CA635	PR1510	PR1525	PR1535	
	 General purpose	TOMT 060504ER-GM	3	7.2	5.7	3.4	0.4	1.9	●	●	●	MEV...-06-...
		060508ER-GM					0.8	1.5	●	●	●	
	 Low cutting force	TOMT 060508ER-SM	3	7.2	5.7	3.4	0.8	1.5	●	●	●	MEV...-06-...

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M124

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed (fz: ipt)	Recommended Insert Grade (Vc: sfm)			
			MEGACOAT NANO			CVD Coated Carbide
			PR1535	PR1525	PR1510	CA6535
GM	Carbon steel	0.003~ 0.006 ~0.010	☆ 390~ 590 ~820	★ 390~ 590 ~820	-	-
	Alloy steel	0.003~ 0.006 ~0.008	☆ 330~ 520 ~720	★ 330~ 520 ~720	-	-
	Mold steel	0.003~ 0.005 ~0.008	☆ 260~ 460 ~590	★ 260~ 460 ~590	-	-
	Austenitic stainless steel	0.003~ 0.005 ~0.006	☆ 330~ 520 ~660	☆ 330~ 520 ~660	-	-
	Martensitic stainless steel	0.003~ 0.005 ~0.008	☆ 490~ 660 ~820	-	-	★ 590~ 790 ~980
	Precipitation hardened stainless steel	0.003~ 0.005 ~0.008	★ 300~ 390 ~490	-	-	-
	Gray cast iron	0.003~ 0.007 ~0.010	-	☆ 390~ 590 ~820	★ 390~ 590 ~820	-
	Nodular cast iron	0.003~ 0.006 ~0.008	-	☆ 330~ 490 ~660	★ 330~ 490 ~660	-
	Ni-base heat-resistant alloy	0.003~ 0.005 ~0.006	☆ 70~ 100 ~160	-	-	★ 70~ 100 ~160
	Titanium alloy	0.003~ 0.006 ~0.008	☆ 130~ 200 ~260	-	☆ 100~ 160 ~230	-
SM	Carbon steel	0.003~ 0.006 ~0.008	☆ 390~ 590 ~820	★ 390~ 590 ~820	-	-
	Alloy steel	0.003~ 0.005 ~0.007	☆ 330~ 520 ~720	★ 330~ 520 ~720	-	-
	Mold steel	0.003~ 0.004 ~0.006	☆ 260~ 460 ~590	★ 260~ 460 ~590	-	-
	Austenitic stainless steel	0.003~ 0.004 ~0.006	★ 330~ 520 ~660	☆ 330~ 520 ~660	-	-
	Martensitic stainless steel	0.003~ 0.004 ~0.006	☆ 490~ 660 ~820	-	-	★ 590~ 790 ~980
	Precipitation hardened stainless steel	0.003~ 0.004 ~0.006	☆ 300~ 390 ~490	-	-	-
	Ni-base heat-resistant alloy	0.003~ 0.004 ~0.005	☆ 70~ 100 ~160	-	-	★ 70~ 100 ~160
	Titanium alloy	0.003~ 0.005 ~0.006	★ 130~ 200 ~260	-	-	-

The number in **bold font** is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

Cutting with coolant is recommended for ni-base heat resistant alloy and titanium alloy.

Cutting with coolant is recommended to get good finishing.

★ : 1st Recommendation ☆ : 2nd Recommendation

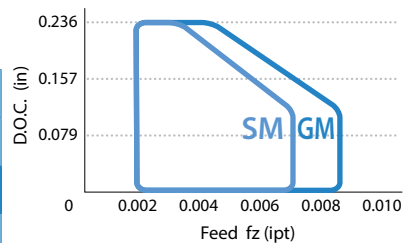
Recommended Chipbreaker Range

GM type for General purpose: Edge shape optimized for various machining applications

SM type with low cutting force design: Sharp cutting and large rake angle

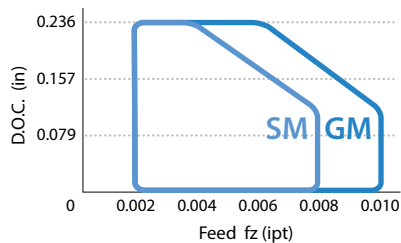
Cutter Dia. : Ø0.750"~Ø2.000" (Ø20mm~Ø50mm)

Shouldering



Cutting conditions : Vc = 490 sfm, ae = DC/2, Workpiece : 1049

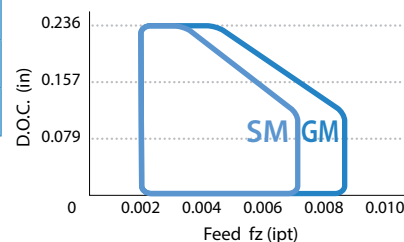
Slotting



Cutting conditions : Vc = 490 sfm, ae = DC, Workpiece : 1049

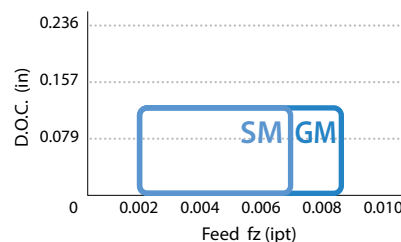
Cutter Dia. : Ø2.500"~Ø4.000" (Ø63mm~Ø100mm)

Shouldering (Width of cut ae ≤ DC/4)



Cutting Conditions : Vc = 490 sfm, ae = DC/4, Workpiece : 1049

Shouldering (Width of cut ae ≥ DC/4), Slotting



Cutting conditions : Vc = 490 sfm, ae = DC, Workpiece : 1049

M
MILLING

45°~70°
Lead Angle

75°
Lead Angle

88°~90°
Lead Angle

Finish
Milling

High Feed
Milling

Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

Ramping Reference Data

	Cutter Dia. DC (in)	0.750"	-	1.000"	-	-	1.250"	1.500"	2.000"
Description	Cutter Dia. DC (mm)	20mm	22mm	25mm	28mm	30mm	32mm	40mm	50mm
MEV...-06-...	Max. Ramping Angle RMPX	1.00°	0.80°	0.65°	0.60°	0.55°	0.50°	0.40°	0.30°
	tan RMPX	0.017	0.014	0.011	0.010	0.010	0.009	0.007	0.005

Decrease ramping angle if chips become excessively long.

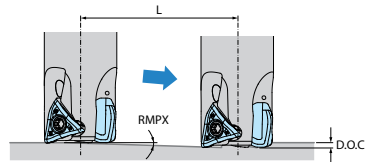
Guide for Ramping

Ramping angle should be RMPX (Maximum ramping angle) or under in the above cutting conditions.

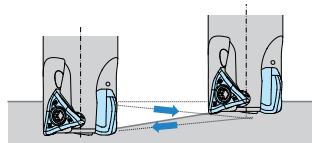
Feed rate should be 70% or under of the above cutting conditions.

Formula of the cutting length (L) at Max. ramping angle

$$L = \frac{ap}{\tan RMPX}$$



For two-way ramping, the ramping angle should be half of RMPX.

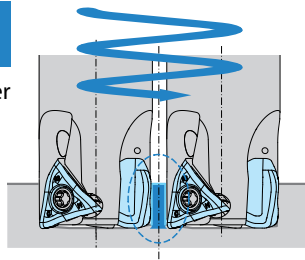


Guide for Helical milling

For helical milling, use between Min. cutting dia. and Max. cutting dia.

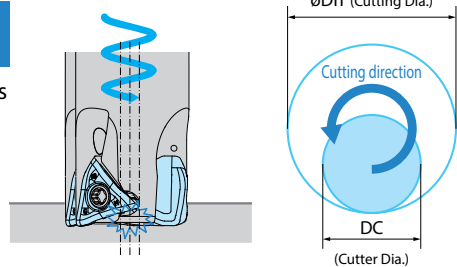
⊘Exceeding Max. Cutting Dia.

Center core part remains after machining



⊘Under Min. Cutting Dia.

Center core part interferes with toolholder



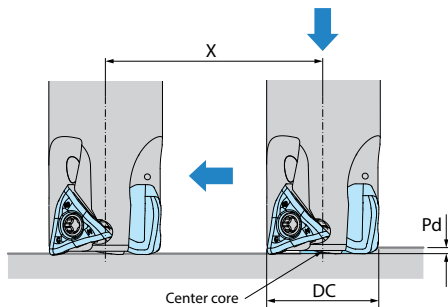
Unit : inch

Description	Min. Cutting Dia.	Max. Cutting Dia.
MEV...-06-...	$2 \times DC - 0.197"$	$2 \times DC - 0.079"$

For helical milling, stay within Min. cutting dia. and Max. cutting dia. Keep machine depth (h) per rotation less than max. D.O.C. (S) in the cutter dimensions chart.

Use caution to eliminate incidences caused by producing long chips.

Guide for Drilling

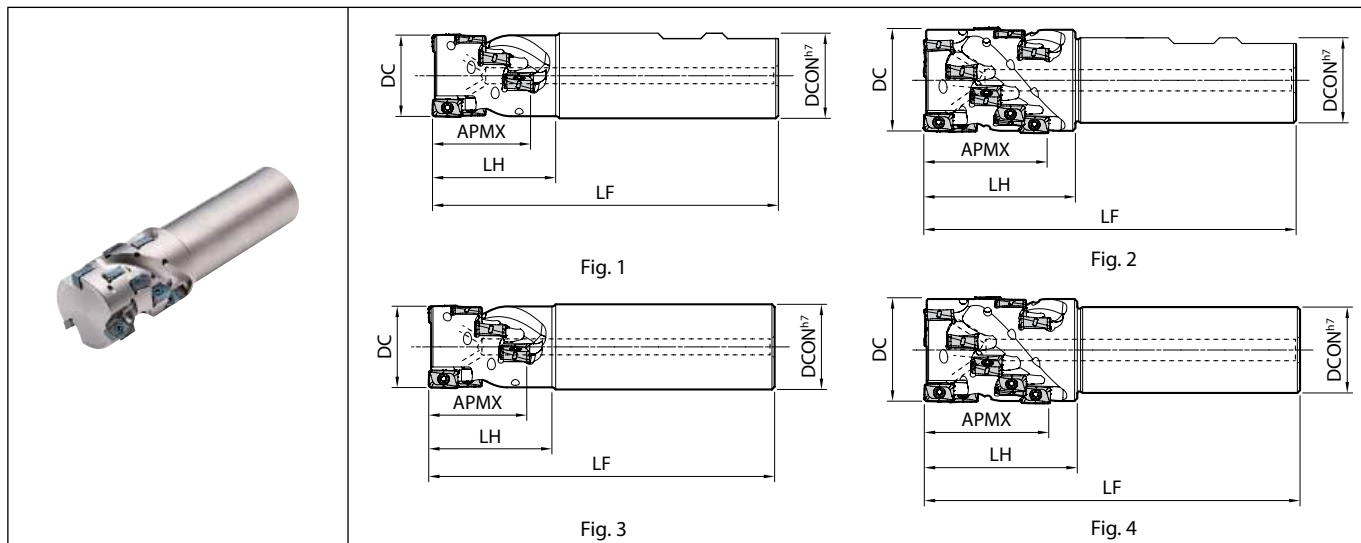


Unit : in

Description	Max. Cutting Depth Pd	Min. Cutting Length X for Flat Bottom Surface
MEV...-06-...	0.010"	DC-0.118"

It is recommended to reduce feed by 25% of recommendation until the center core is removed when traversing after drilling. Axial feed rate recommendation per revolution is $f < 0.004$ ipr.

MEWH (End Mill)



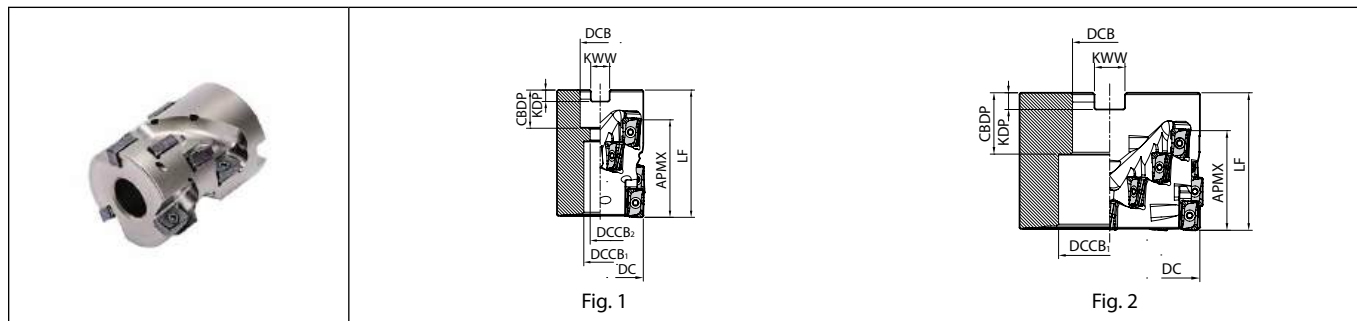
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions					A. R. Max. (°)	R. R. (°)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ M128 M93
						DC	DCON	LF	LH	APMX					Anti-Seize Compound	Insert Screw	Wrench	
Inch	MEWH 1000-W100-10-3-2T 1250-W125-10-4-2T 1500-W125-10-5-3T 1500-W150-10-5-3T	● 6	2	3	1.000	1.000	3.806	1.523	1.102	+13	-20	Yes	1	P-37	SB-306STRP	DTPM-8	LOMU1004...	
		● 8		4	1.250	4.161	1.878	1.456										
		● 15	3	5	1.500	1.250	4.610	2.244	1.811									
					1.500	4.957	2.267											
	MEWH 1500-W125-15-4-2T 2000-W150-15-4-3T	● 2	4	8	1.500	1.250	4.846	2.480	2.086	+13	-20	Yes	2	P-37	SB-4090TRP	DTPM-15	LOMU1505...	
		● 3		12	2.000	1.500	5.252											
mm	MEWH 025-S25-10-3-2T 032-S32-10-4-2T 040-S32-10-5-2T 040-S32-10-5-3T	● 6	2	3	25	25	120	37	28	+13	-20	Yes	3	P-37	SB-306STRP	DTPM-8	LOMU1004...	
		● 8		4	32	130	46	37										
		● 10	5	40	32	140	57	46										
		● 15			3													
	MEWH 040-S32-15-4-2T 050-S42-15-4-2T 050-S42-15-4-3T	● 8	2	4	40	32	160	63	53	+13	-20	Yes	4	P-37	SB-4090TRP	DTPM-15	LOMU1505...	
		● 12			50	42												

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
Aluminum machining is not recommended (AM chipbreaker is not available for MEWH)

45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

MEWH (Shell Mill)



Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts				Applicable Insert  M128 M93
							DC	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	Anti-Seize Compound					Arbor Bolt	Insert Screw	Wrench		
			R																						
Inch	MEWH	2000R-15-4-3T	●	12	3	4	2.00	0.75	0.669	0.433	2.756	0.750	0.187	0.312	2.086	+13	-20	No	1	P-37	HH3/8-1.25	SB-4090TRP	DTPM-15	LOMU1505..	
		3000R-15-4-4T	●	16	4	4	3.00	1.00	0.866	0.551			1.063	0.236							0.381		HH1/2-1.25		Recommended tightening torque for insert clamp 3.5N·m
mm	MEWH	040R-10-4-3T-M	●	12	3	4	40	16	15	9	53	19	5.6	8.4	37	+13	-20	No	1	P-37	HH8X25	SB-3065TRP	DTPM-8	LOMU1004...	
		050R-10-5-3T-M	●	15		5	50	22	18	11	64	21	6.3	10.4	46							HH10X30	Recommended tightening torque for insert clamp 1.2N·m		
	MEWH	050R-15-4-3T-M	●	12	3	4	50	22	18	11	70	21	6.3	10.4	53	+13	-20	No	1	P-37	HH10X30	SB-4090TRP	DTPM-15	LOMU1505...	
		063R-15-3-3T-M	●	9		3	63	27	20	13	58	24	7	12.4	41						1				HH12X35
		080R-15-4-4T-M	●	16	4	4	80	32	26	18	70	28	8	14.4	53						1	HH16X45			Recommended tightening torque for insert clamp 3.5N·m
		100R-15-4-5T-M	●	20		5	100	40	55	-	74	33	9	16.4							2	-			

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

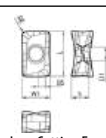
Aluminum machining is not recommended (AM chipbreaker is not available for MEWH)

Guidance of applicable inserts for MEWH

Insert Location	Toolholder Part Number										
	MEWH...10...					MEWH...15...					
	Corner-R(RE) (mm)					Corner-R(RE) (mm)					
Bottom inserts	0.4	0.8	1.2	1.6	2.0	0.4	0.8	1.0	1.2	1.6	2.0
*Middle inserts	0.4 / 0.8	0.4 / 0.8	0.4 / 0.8	0.4	0.4	0.4~1.6	0.4~1.6	0.4~1.6	0.4~1.6	0.4~1.6	0.4~1.6

* For middle inserts, it is not recommended to use the insert with larger corner-R(RE) than shown in the table, because it will make finished surface uneven.

LOMU

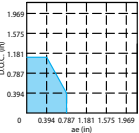
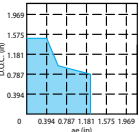
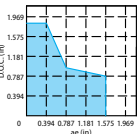
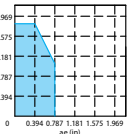
Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel							■	■	☆	■	★	☆	P		
		Mold and die steel							■	■	☆	■	★	☆			
		Austenitic stainless steel							■	■	■	☆	■	★	M		
		Martensitic stainless steel							★	■	■	■	■	☆			
		Precipitation hardened stainless steel							■	■	■	☆	■	★			
		Gray cast iron							■	■	☆	■	★	■	K		
		Nodular cast iron							■	■	☆	■	★	■			
		Non-ferrous metals							■	■	■	■	■	■	N		
		Heat-resistant alloy							★	■	■	■	■	☆	S		
		Titanium alloy							■	■	■	☆	■	★			
Hard materials (≤ 60 HRC)							■	★	■	■	■	■	H				
Insert		Part Number		Dimensions (mm)						Carbide						Applicable Toolholder ➡ M126 M127 M84~M90	
				S	D1	RE	L	W1	BS	CVD	PVD						
											CA635	PR0155	PR1510	PR1525	PR1535		PR1810	PR1825	PR1835
	 General Purpose	LOMU	100404ER-GM	4	3.4	0.4	10.9	6.6	2.1	●	△	●	●	●	●	MEWH...-10-... MEW...-10-...	
			100408ER-GM			0.8			1.7	●	△	●	●	●	●		
			100412ER-GM			1.2			1.3	●	△	●	●	●	●		
			100416ER-GM			1.6			1	●	△	●	●	●	●		
			100420ER-GM			2			1	●	△	●	●	●	●		
	 Low Cutting Force	LOMU	150504ER-GM	5.6	4.8	0.4	15.7	9.2	2.2	●	△	●	●	●	MEWH...-15-... MEW...-15-...		
			150508ER-GM			0.8			1.8	●	△	●	●	●		●	
			150510ER-GM			1			1.6	●	△	●	●	●		●	
			150512ER-GM			1.2			1.4	●	△	●	●	●		●	
			150516ER-GM			1.6			1	●	△	●	●	●		●	
150520ER-GM	2	0.6	●	△	●	●	●	●									
	 Tough Edge	LOMU	100408ER-SM	4	3.4	0.8	10.9	6.6	1.7	●	△	●	●	●	●	MEWH...-10-... MEW...-10-...	
			150508ER-SM			5.6			4.8	0.8	15.7	9.2	1.8	●	△		●
	 Tough Edge	LOMU	100408ER-GH	4	3.4	0.8	10.9	6.6	1.7	●	●	△	●	●	●	●	MEWH...-10-... MEW...-10-...
			150508ER-GH			5.6			4.8	0.8	15.7	9.2	1.8	●	●	△	

Right-hand Insert Shown

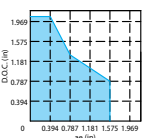
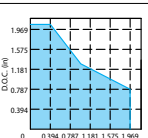
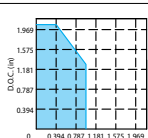
Recommended Cutting Conditions M129

Cutting Performance

LOMU1004 Inserts

Cutting Dia.	Description	2 Flute		Description	3 Flute	
		D.O.C. x ae			D.O.C. x ae	
ø1.000"	MEWH1000 -W100-10-3-2T			-	-	
ø25mm	MEWH025 -S25-10-3-2T					
ø1.250"	MEWH1250 -W125-10-4-2T			-	-	
ø32mm	MEWH032 -S32-10-4-2T					
ø1.500"	MEWH1500 -W125-10-5-2T			MEWH1500 -W150-10-5-3T		
ø40mm	MEWH040 -S32-10-5-2T			MEWH040 -S32-10-5-3T		

LOMU1505 Inserts

Cutting Dia.	Description	2 Flute		Description	3 Flute	
		D.O.C. x ae			D.O.C. x ae	
ø1.500"	MEWH1500 -W125-15-4-2T			-	-	
ø40mm	MEWH040 -S32-15-4-2T					
ø2.000"	MEWH2000 -W150-15-4-2T			MEWH2000 -W150-15-4-3T		
ø50mm	MEWH050 -S42-15-4-2T			MEWH050 -S42-15-4-3T		

Cutting Conditions>

Vc = 400 sfm

fz = 0.003~0.005 ipt

GM Chipbreaker

Workpiece: 4137

Overhang Length: End mill overhang length is "LH" of the dimension list

LOMU Inserts are
sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

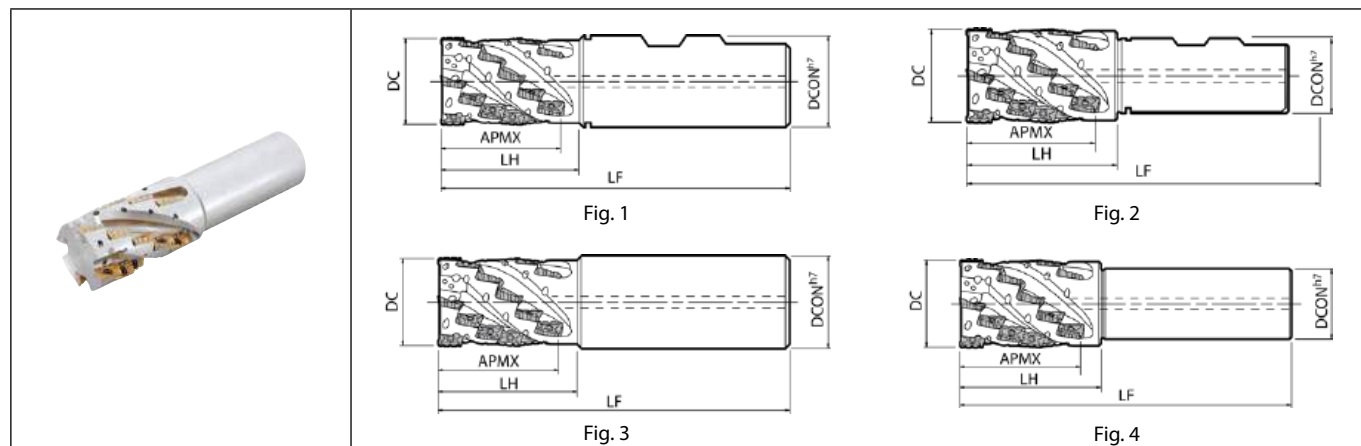
Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)			
		Toolholder Part Number	MEGACOAT NANO EX (MEGACOAT NANO)			CVD Carbide
		End Mill / Shell Mill	PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	CA6535
		MEWH1000...~MEWH4000.. MEWH025...~MEWH050..				
GM	Carbon Steel	0.002~ 0.004 ~0.008	☆ 390~ 590 ~820	★ 390~ 590 ~820	-	-
	Alloy Steel	0.002~ 0.004 ~0.006	☆ 330~ 520 ~720	★ 330~ 520 ~720	-	-
	Mold Steel	0.002~ 0.003 ~0.005	☆ 260~ 460 ~590	★ 260~ 460 ~590	-	-
	Austenitic Stainless Steel	0.002~ 0.003 ~0.005	☆ 330~ 520 ~660	☆ 330~ 520 ~660	-	-
	Martensitic Stainless Steel	0.002~ 0.003 ~0.004	☆ 490~ 660 ~820	-	-	★ 590~ 790 ~980
	Precipitation Hardened Stainless Steel	0.002~ 0.003 ~0.004	★ 300~ 390 ~490	-	-	-
	Gray Cast Iron	0.002~ 0.004 ~0.007	-	-	★ 390~ 590 ~820	-
	Nodular Cast Iron	0.002~ 0.003 ~0.005	-	-	★ 330~ 490 ~660	-
	Ni-base Heat Resistant Alloy	0.002~ 0.003 ~0.004	☆ 70~ 100 ~160	-	-	★ 70~ 100 ~160
	Titanium Alloys	0.002~ 0.003 ~0.005	☆ 130~ 200 ~260	-	☆ 100~ 160 ~230	-
SM	Carbon Steel	0.002~ 0.004 ~0.007	☆ 390~ 590 ~820	★ 390~ 590 ~820	-	-
	Alloy Steel	0.002~ 0.003 ~0.005	☆ 330~ 520 ~720	★ 330~ 520 ~720	-	-
	Mold Steel	0.002~ 0.003 ~0.005	☆ 260~ 460 ~590	★ 260~ 460 ~590	-	-
	Austenitic Stainless Steel	0.002~ 0.003 ~0.005	★ 330~ 520 ~660	☆ 330~ 520 ~660	-	-
	Martensitic Stainless Steel	0.002~ 0.003 ~0.004	☆ 490~ 660 ~820	-	-	★ 590~ 790 ~980
	Precipitation Hardened Stainless Steel	0.002~ 0.003 ~0.004	☆ 300~ 390 ~490	-	-	-
	Ni-base Heat Resistant Alloy	0.002~ 0.003 ~0.004	☆ 70~ 100 ~160	-	-	★ 70~ 100 ~160
	Titanium Alloys	0.002~ 0.003 ~0.005	★ 130~ 200 ~260	-	☆ 100~ 160 ~230	-
GH	Carbon Steel	0.002~ 0.004 ~0.008	☆ 390~ 590 ~820	★ 390~ 590 ~820	-	-
	Alloy Steel	0.002~ 0.004 ~0.006	☆ 330~ 520 ~720	★ 330~ 520 ~720	-	-
	Mold Steel	0.002~ 0.003 ~0.005	☆ 260~ 460 ~590	★ 260~ 460 ~590	-	-
	Austenitic Stainless Steel	0.002~ 0.003 ~0.005	☆ 330~ 520 ~660	☆ 330~ 520 ~660	-	-
	Martensitic Stainless Steel	0.002~ 0.003 ~0.004	☆ 490~ 660 ~820	-	-	☆ 590~ 790 ~980
	Precipitation Hardened Stainless Steel	0.002~ 0.003 ~0.004	☆ 300~ 390 ~490	-	-	-
	Gray Cast Iron	0.002~ 0.004 ~0.008	-	-	☆ 390~ 590 ~820	-
	Nodular Cast Iron	0.002~ 0.003 ~0.006	-	-	☆ 330~ 490 ~660	-
	Ni-base Heat Resistant Alloy	0.002~ 0.003 ~0.004	☆ 70~ 100 ~160	-	-	☆ 70~ 100 ~160
	Titanium Alloys	0.002~ 0.003 ~0.005	☆ 130~ 200 ~260	-	☆ 100~ 160 ~230	-

The number in **bold font** is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

★ : 1st Recommendation ☆ : 2nd Recommendation

Coolant is recommended for ni-base heat resistant alloy and titanium alloy.

MECH (Helical End Mill, with coolant hole for bottom insert)

Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ M132								
							DC	DCON	LF	LH	APMX					Anti-Seize Compound	Insert Screw	Wrench									
Inch	Weldon Shank	MECH	1000-W100-11-4-2T	● 8	2	4	1.00	1.00	4.17	1.81	1.46	+21	-10	No	2	P-37	SB-2555TRG	DTM-8	BDMT11T3...-N2 + BDMT11T3...-N3								
			1250-W125-11-5-2T	● 10		5	1.25	1.25	4.52	2.17	1.81	-9	2														
			1250-W125-11-5-4T	● 20	6								1.50		4.90					2.52	2.16	+23	-8	2			
			1500-W125-11-6-4T	● 24		7	2.00	5.73	2.95	2.52	-7	1															
			1500-W150-11-6-4T	● 28	2																						
			2000-W150-11-7-4T	● 28		2																					
			2000-W1500-11-7-6T	● 42	2																						
		MECH	1500-W125-17-4-2T	● 8	2	4	1.50	1.25	5.26	2.87	2.32	+19	-7	No	2	P-37	SB-4070TRN	DTM-15		BDMT1704...-N3 + BDMT1704...-N4							
			1500-W150-17-4-2T	● 8	4	5	2.00	1.50	5.64		3.46				2.91						1						
			2000-W1500-17-5-4T	● 20				2																			
mm			Cylindrical Shank	MECH	025-S25-11-4-2T	● 8	2	4	25	25	120	46	37		+21						-10	Yes	3	P-37	SB-2555TRG	DTM-8	BDMT11T3...-N2 + BDMT11T3...-N3
					032-S32-11-5-2T	● 10		5	32	32	140	55	46		-9						3						
					032-S32-11-5-4T	● 20	6														40		150					64	55	+23	-8	3
					040-S32-11-6-4T	● 24		7	50	160	75	64	-7		4												
	040-S42-11-6-4T	● 28			4																						
	050-S42-11-7-4T	● 28				4																					
	050-S42-11-7-6T	● 42			4																						
	MECH	040-S32-17-4-2T		● 8	2	4	40	32	160	73	59	+19	-7	Yes	4	P-37	SB-4070TRN	DTM-15	BDMT1704...-N3 + BDMT1704...-N4								
		040-S42-17-4-2T		● 8	4	5	50	42	170	88	74				-6					3							
		050-S42-17-5-4T		● 20				4																			

For installation of notched insert, see page **M134**.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

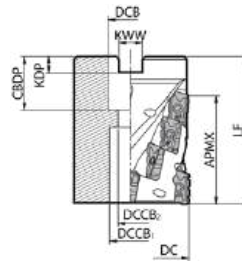
MECH (Shell Mill, without coolant hole)

Fig. 1

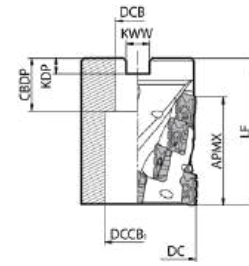


Fig. 2

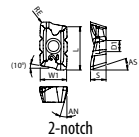
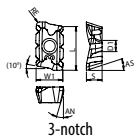
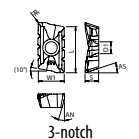
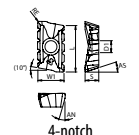
Toolholder Dimensions

Unit		Part Number	Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts				Applicable Inserts ➡ M132			
							R	DC	DCB	DCB ₁	DCB ₂	LF	CBDP	KDP	KWW	APMX					Anti-Seize Compound	Arbor Bolt	Insert Screw	Wrench				
Inch	Inch Bore	MECH 2000R-11-5-6T	●	30	6	5	2.00	0.75	0.63	0.417	2.480	0.750	0.197	0.313	1.811	+23	-8	No	1	P-37		SB-2555TRG	DTM-8	BDMT11T3...-N2 + BDMT11T3...-N3				
		2000R-17-2-4T	●	8	4	2					2.047				1.181	+19	-7								HH3/8-1.25	SB-4070TRN	DTM-15	BDMT1704...-N3 + BDMT1704...-N4
		2000R-17-4-4T	●	16	4	4					3.070				2.322													
mm	Inch Bore	MECH 063R-17-3-4T	●	12	4	3	63	1.00"	20	14	70	1.024"	0.236"	0.375"	45	+19	-7	No	1	P-37	HH12X35	SB-4070TRN	DTM-15	BDMT1704...-N3 + BDMT1704...-N4				
		080R-17-4-6T	●	24	6	4	80	1.25"	26	18	85	1.260"	0.315"	0.500"	59						HH16X45							
		100R-17-4-6T	●				100	1.50"	56	-		1.496"	0.394"	0.625"	-													
	Metric Bore Dia.	MECH 040R-11-4-4T-M	●	16	4	4	40	16	15	9	50	19	5.6	8.4	37	+23	-8	No	1	P-37	HH8X25	SB-2555TRG	DTM-8	BDMT11T3...-N2 + BDMT11T3...-N3				
		050R-11-5-6T-M	●	30	6	5	50	22	18	11	63	21	6.3	10.4	46						HH10X30							
		MECH 050R-17-2-4T-M	●	8		2	50	22	18	11	78	21	6.3	10.4	30						HH10X40							
		050R-17-4-4T-M	●	16	4	4									59	+19	-7	No	1	P-37	HH12X35	SB-4070TRN	DTM-15	BDMT1704...-N3 + BDMT1704...-N4				
		063R-17-3-4T-M	●	12		3	63	27	20	14	70	24	7	12.4	45						HH16X45							
		080R-17-4-6T-M	●	24	6	4	80	32	26	18	85	28	8	14.4	59						-							
		100R-17-4-6T-M	●				100	40	56	-		30	9	16.4														

For installation of notched insert, see page **M134**.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

BDMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)			Carbon steel / Alloy steel								★	☆	P			
			Mold and die steel								★	☆				
			Austenitic stainless steel										M			
			Martensitic stainless steel													
			Precipitation hardened stainless steel													
			Gray cast iron								★		K			
			Nodular cast iron								★					
			Non-ferrous metals										N			
			Heat-resistant alloy										S			
			Titanium alloy						☆			★				
			Hard materials										H			
Insert		Part Number		No. of Edges	Dimensions (mm)					Angle (°)		Carbide				Applicable Toolholder ➡ M130~ M131
					S	D1	RE	L	W1	AN	AS	PVD				
												PR1535	PR1810	PR1825	PR1835	
	 2-notch	BDMT 11T308ER-N2	2	3.8	2.8	0.8	11	6.7	13	18	●	●	●	●	MECH...11...	
	 3-notch	BDMT 11T308ER-N3	2	3.8	2.8	0.8	11	6.7	13	18	●	●	●	●	MECH...11...	
	 3-notch	BDMT 170408ER-N3	2	4.9	4.4	0.8	17	9.6	13	18	●	●	●	●	MECH...17...	
	 4-notch	BDMT 170408ER-N4	2	4.9	4.4	0.8	17	9.6	13	18	●	●	●	●	MECH...17...	

Right-hand Insert Shown

Recommended Cutting Conditions ● M135

M
MILLING

45°~70°

Lead Angle

75°

Lead Angle

88°~90°

Lead Angle

Finish

Milling

High Feed

Milling

Multi-

Functional

Slot

Mills

Ball-Nose

Radius

Other

Applications

BDMT Inserts are
sold in 10 piece boxes

Applicable Inserts

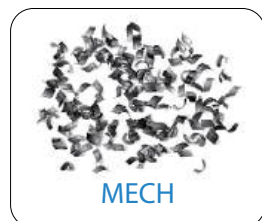
Part Number	Applicable Inserts			
	 2-Notched	+	 3-Notched	
MECH...-11-	BDMT 11T308ER-N2	+	BDMT 11T308ER-N3	-
MECH...-17-		-		BDMT 170408ER-N3 + BDMT 170408ER-N4

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Enhanced Chip Evacuation

Smooth chip evacuation

Notched insert breaks chips into small pieces

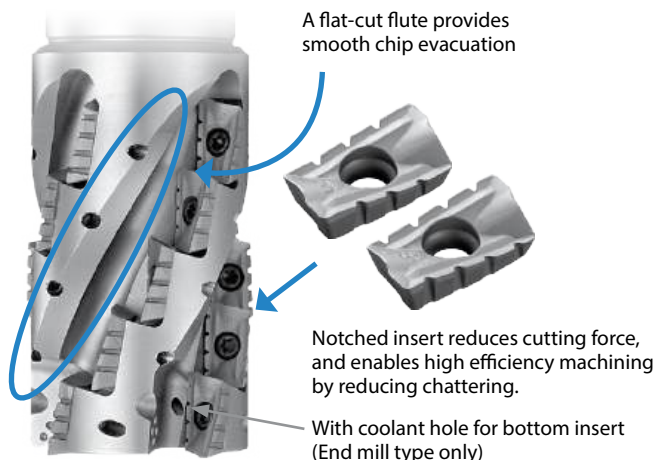


MECH



Competitor A

Workpiece Material: SS400
Vc = 400 sfm
D.O.C. $\times$ ae = 1.575" $\times$ 0.394"
fz = 0.005 ipt
MECH032-S32-11-5-4T



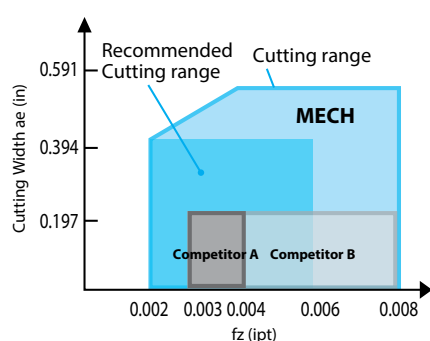
A flat-cut flute provides smooth chip evacuation

Notched insert reduces cutting force, and enables high efficiency machining by reducing chattering.

With coolant hole for bottom insert (End mill type only)

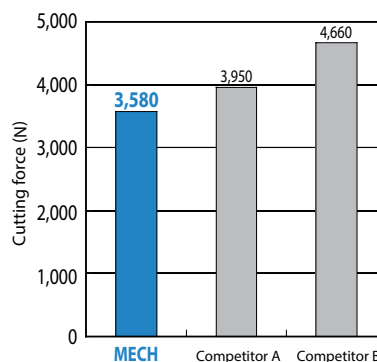
Low Cutting Force

Low cutting force due to notched inserts



Workpiece Material : 1049
Vc = 390 sfm
D.O.C. $\times$ ae = 1.575" $\times$ 0.197~0.512"
fz = 0.002~0.008 ipt
MECH032-S32-11-5-4T

Cutting force comparison (Principal force)



Workpiece Material : 1049
Vc = 390 sfm
D.O.C. $\times$ ae = 1.575" $\times$ 0.394"
fz = 0.004 ipt
MECH032-S32-11-5-4T

(Internal evaluation)

Number of Inserts to Install

Description	No. of Flutes	No. of Inserts	No. of Inserts			
			BDMT11T308ER-		BDMT170408ER-	
			N2	N3	N3	N4
MECH 1000-W1000-11-4-2T 025-S25-11-4-2T	2	8	4	4		
1250-W1250-11-5-2T 032-S32-11-5-2T		10	5	5		
1250-W1250-11-5-4T 032-S32-11-5-4T		20	10	10		
1500-W1250-11-6-2T 040-S32-11-6-4T	4	24	12	12	-	-
1500-W1500-11-6-4T 040-S42-11-6-4T						
2000-W1500-11-7-4T 050-S42-11-7-4T		28	14	14		
2000-W1500-11-7-6T 050-S42-11-7-6T	6	42	21	21		
MECH 1500-W125-17-4-2T 040-S32-17-4-2T	2	8	-	-	4	4
1500-W150-17-4-2T 040-S42-17-4-2T						
2000-W1500-17-5-4T 050-S42-17-5-4T		20			10	10

Description	No. of Flutes	No. of Inserts	No. of Inserts			
			BDMT11T308ER-		BDMT170408ER-	
			N2	N3	N3	N4
MECH 040R-11-4-4T-M 2000R-11-5-6T 050R-11-5-6T-M	4	16	8	8	-	-
2000R-17-2-4T 050R-17-2-4T-M	4	8			4	4
2000R-17-4-4T 050R-17-4-4T-M		16			8	8
063R-17-3-4T-M 080R-17-4-6T-M 100R-17-4-6T-M		12			6	6
063R-17-3-4T 080R-17-4-6T 100R-17-4-6T	6	24			12	12
MECH 050R11-8-4T-BT50 050R17-7-4T-BT50 063R17-7-4T-BT50 080R17-7-4T-BT50 100R17-7-6T-BT50	4	32	16	16	-	-
	28				14	14
	42				21	21

M
MILLING

45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

Caution when Installing Notched Insert

1. Install notched inserts by cutting the insert with the number of marks on the toolholder body.

<Insert number and toolholder marks>

Insert Size	11 type		17 type	
Insert Number	2	3	3	4
Marks				

* Using the cutter with the inserts installed incorrectly will damage the toolholder.

2. When installing notched inserts in flute line, ensure that the number on the insert is the same as the insert in first stage. (Ref. to Fig. 1, 2 and 3)

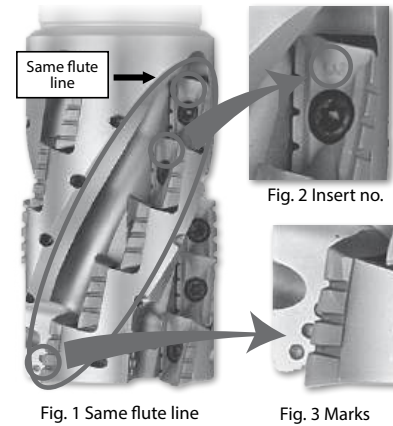


Fig. 1 Same flute line

Fig. 3 Marks

Recommended Cutting Conditions (When using a notched insert)

Workpiece Material	fz (ipt)	Recommended Insert Grades (Vc: sfm)			
		MEGACOAT NANO EX			MEGACOAT NANO
		PR1810	PR1825	PR1835	PR1535
Carbon steel	0.003~0.004~0.006	-	★ 390~590~820	☆ 390~590~820	☆ 390~590~820
Alloy steel	0.003~0.004~0.006	-	★ 330~520~720	☆ 330~520~720	☆ 330~520~720
Mold steel	0.003~0.004~0.006	-	★ 260~460~590	☆ 260~460~590	☆ 260~460~590
Gray cast iron	0.003~0.006~0.007	★ 390~590~820	-	-	-
Nodular cast iron	0.003~0.006~0.007	★ 330~490~720	-	-	-
*Titanium alloys	0.003~0.004~0.006	-	-	★ 130~200~260	☆ 130~200~260

* Machining with coolant is recommended for titanium alloys.

★ : 1st Recommendation ☆ : 2nd Recommendation

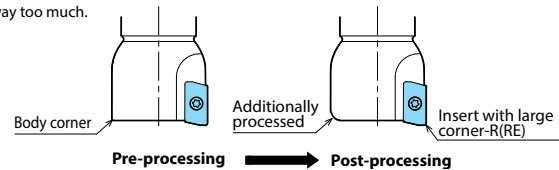
- The recommended cutting conditions above are for notched inserts.
- If using an insert without notch, the cutting depth (D.O.C.) and width (ae) should be 60% or less of those of a notched insert.

When using inserts with corner-R(RE) 1.6mm or larger, additional modifications of the cutter body will be necessary.

Ref. to the chart below for the recommended modifications. (Additional grind off is not necessary when corner-R(RE) is 1.2mm or less.)

Insert Corner-R(RE) (mm)	Additional processing dimension to body corner (mm)
1.6	R1.0
2.0	
2.4	R1.2
3.1	R1.6
4.0	R2.5

* Round-shaped additional processing is recommended. When applying chamfer shaped additional processing, do not cut away too much.



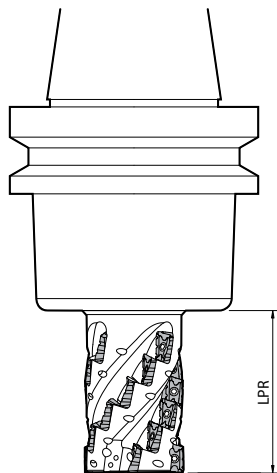
Cutting Performance

(Machining center equivalent to AC15/18.5kW)

MECH End Mill

Cutting Dia.	Description	Overhang Length LPR (in)
ø1.000" ø25mm	MECH1000-W1000-11-4-2T MECH025-S25-11-4-2T	1.89
ø1.250" ø32mm	MECH1250-W1250-11-5-2T MECH032-S32-11-5-2T	2.24
	MECH1250-W1250-11-5-4T MECH032-S32-11-5-4T	
ø1.500" ø40mm	MECH1500-W1500-11-6-4T MECH040-S42-11-6-4T	2.56
	MECH1500-W1500-11-6-4T MECH040-S42-11-6-4T	
ø2.000" ø50mm	MECH2000-W1500-11-7-4T MECH050-S42-11-7-4T	2.99
	MECH2000-W1500-11-7-6T MECH050-S42-11-7-6T	
ø1.500" ø40mm	MECH1500-W1250-17-4-2T MECH040-S32-17-4-2T	2.91
	MECH1500-W1500-17-4-2T MECH040-S42-17-4-2T	
ø2.000" ø50mm	MECH2000-W1500-17-5-4T MECH050-S42-17-5-4T	3.50

Shape



2 flute type

(Workpiece Material: 1049)

Description	Shouldering	Slotting
	Cutting Speed: Vc = 330~590 sfm Feed: fz = 0.003~0.006 ipt	Cutting Speed: Vc = 330~390 sfm Feed: fz = 0.003~0.005 ipt
MECH1000-W1000-11-4-2T MECH025-S25-11-4-2T		
MECH1250-W1250-11-5-2T MECH032-S32-11-5-2T		
MECH1500-W1250-17-4-2T MECH1500-W1500-17-4-2T MECH040-S32-17-4-2T MECH040-S42-17-4-2T		

4 flute / 6 flute

MECH1250-W1250-11-5-4T MECH032-S32-11-5-4T	
MECH1500-W1250-11-6-4T MECH1500-W1500-11-6-4T MECH040-S32-11-6-4T MECH040-S42-11-6-4T	
MECH2000-W1500-11-7-4T MECH050-S42-11-7-4T	
MECH2000-W1500-11-7-6T MECH050-S42-11-7-6T	
MECH2000-W1500-17-5-4T MECH050-S42-17-5-4T	

4 flute/6 flute type are not recommended for slotting.

45°-70°

Lead Angle

75°

Lead Angle

88°-90°

Lead Angle

Finish

Milling

High Feed

Milling

Multi-

Functional

Slot

Mills

Ball-Nose

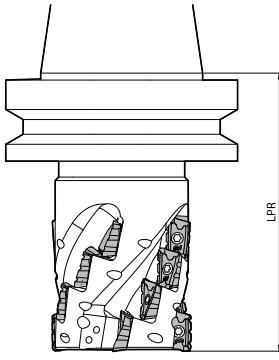
Radius

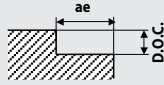
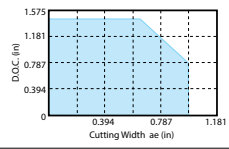
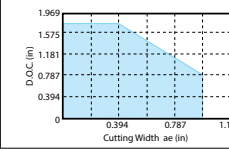
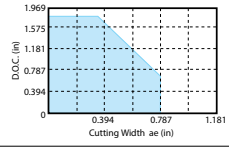
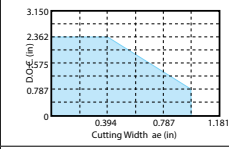
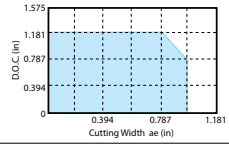
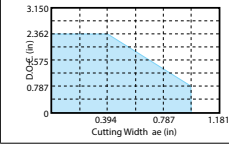
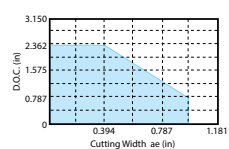
Other

Applications

MECH Shell Mill

(Workpiece Material: 1049)

Cutting Dia.	Description	Overhang Length LPR (in)
ø40mm	MECH040R-11-4-4T-M	4.92
ø2.000" ø50mm	MECH2000R-11-5-6T MECH050R-11-5-6T-M	4.84
	MECH2000R-17-2-4T MECH050R-17-2-4T-M	4.41
	MECH2000R-17-4-4T MECH050R-17-4-4T-M	5.43
ø63mm	MECH063R-17-3-4T-□	4.53
ø80mm	MECH080R-17-4-6T-□	5.12
ø100mm	MECH100R-17-4-6T-□	5.12
Shape 		

Shouldering			
			
Cutting Speed: $V_c = 330 \sim 590$ sfm Feed: $f_z = 0.003 \sim 0.006$ ipt			
MECH040R-11-4-4T-M		MECH063R-17-3-4T-□	
MECH2000R-11-5-6T MECH050R-11-5-6T-M		MECH080R-17-4-6T-□	
MECH2000R-17-2-4T MECH050R-17-2-4T-M		MECH100R-17-4-6T-□	
MECH2000R-17-4-4T MECH050R-17-4-4T-M		Slotting is not recommended.	

Helical End Mill for Titanium Alloy Machining

MECHT

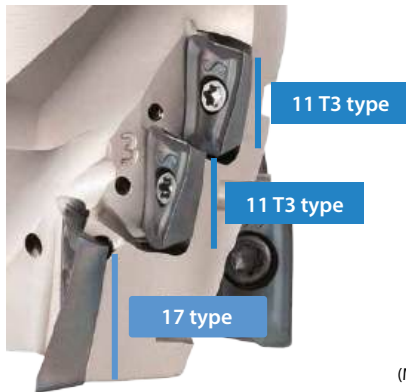
Insert Size Combination Improves Roughing Capabilities
Maintains Stable Machining and Long Tool Life

1 Developed to reduce chattering and chip recutting issues

Unique Insert Combination

The larger bottom inserts are positioned to handle larger cutting forces (excluding $\phi 32\text{mm}$)

Stable machining with improved fracture resistance



(MECHT50R-1711 type)

New Design for High Reliability

Bottom inserts are held in place by double-faced contacts

Holding surface 1
Wide holding surface



Holding surface 2

Additional hold in the axial direction

Bore dia.

Larger bore diameter improves fastening power and reduces chattering

$\phi 50\text{mm}$ cutter with a $\phi 27\text{mm}$ bore (conventional bore: $\phi 22\text{mm}$)

Toolholder hardness Hardened 15% more than conventional holders

Toolholder spec Custom ordering available

Excellent Chip Evacuation

New flute design

Large, smooth flutes prevent chip clogging

MECHT ($\phi 50\text{mm}$ -4T 3 stages)

Conventional ($\phi 50\text{mm}$ -4T 4 stages)

Large flute



Smooth design

All inserts have coolant holes

Optimized hole diameter controls flow amount and pressure

Smooth chip evacuation as well as superior cooling of the cutting edge



2 Longer tool life with low-resistance js chipbreaker and tough pvd coating

Low cutting force

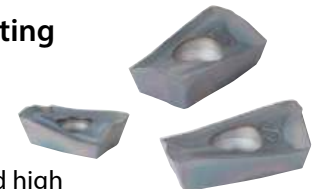
JS chipbreaker

Greater toughness

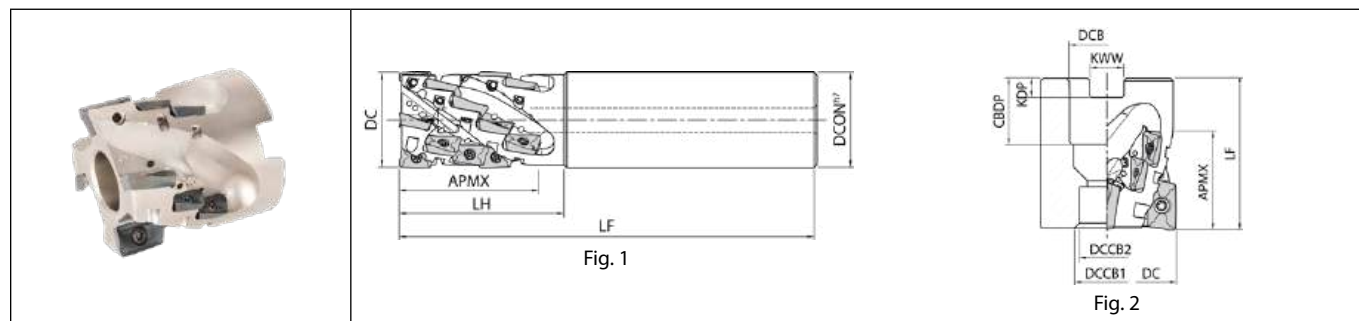
PR1835

Heat at the cutting edge is suppressed due to sharp cutting performance. Long tool life.

Fracture resistant with a tough substrate and high heat-resistant MEGACOAT NANO EX coating technology



MECHT



Toolholder Dimensions

mm	Helical End Mill	MECHT 32-S32-11-5-4T	●	20	4	5	Dimensions					A.R. Max. (°)	R.R. max. (°)	Coolant Hole	Fig.	Spare Parts		Applicable Inserts ➡ M140	
							DC	DCON	LF	LH	APMX					Insert Screw	Wrench		
																		1st	2nd or higher

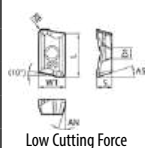
mm	Helical Shell Mill	MECHT 50R-1711-3-4T-M 50R-1711-4-5T-M 63R-17-4-5T-M 80R-17-4-6T-M	●	12	4	3	Dimensions									A.R. Max. (°)	R.R. max. (°)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ M140																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
							DC	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX					Arbor Bolt	Insert Screw	Wrench																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Use inserts with Corner-R of 0.8mm or less for the 2nd or higher stages

Machining with coolant is recommended (Internal coolant pressure 218 psi or more)

Coat Anti-seize Compound(P-37) thinly on portion of taper and thread prior to installation.

BDMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel				P								
		Mold and die steel												
		Austenitic stainless steel				M								
		Martensitic stainless steel												
		Precipitation hardened stainless steel												
		Gray cast iron				K								
		Nodular cast iron												
		Non-ferrous metals				N								
		Heat-resistant alloy				S								
		Titanium alloy		☆	★									
Hard materials				H										
Insert		Part Number		No. of Edges	Dimensions (mm)					Angle (°)		Carbide	Applicable Toolholder ➡ M139	
					S	D1	RE	L	W1	AN	AS	PVD		
												PR1535		PR1835
	 Low Cutting Force	BDMT 11T302ER-JS	2	3.8	2.8	0.2	11	6.7	13	18	●	●	MECHT...11...	
		11T304ER-JS				0.4					●	●		
		11T308ER-JS				0.8					●	●		
		BDMT 170404ER-JS	2	4.9	4.4	0.4	17	9.6	13	18	●	●	MECHT...17...	
		170408ER-JS				0.8					●	●		

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M141

MILLING

45°-70°

Lead Angle

75°

Lead Angle

88°-90°

Lead Angle

Finish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
ApplicationsBDMT inserts are
sold in 10 piece boxes

Recommended Cutting Conditions

Workpiece Material	Applications	Depth and Width of Cut (in)		Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)
					MEGACOAT NANO EX (MEGACOAT NANO)
		D.O.C.	W.O.C.		PR1835 (PR1535)
Titanium Alloy	Shouldering	~Length of Cut (APMX)	~0.5DC	0.004~ 0.005 ~0.006	100~ 130 ~200
	Slotting	~0.5DC	1DC	0.002~ 0.003 ~0.004	100~ 130 ~160

INSERT
GRADES

A

TURNING
INSERTS

B

CBN / PCD
INSERTS

C

TURNING
HOLDERS

D

SMALL
TOOLS

E

BORING

F

GROOVING

G

CUT-OFF

H

THREADING

J

DRILLING

K

MILLING

M

QUICK CHANGE
TOOLING

N

SPARE PARTS

P

TECHNICAL

R

INDEX

T

Double-Sided, 6-Edge Insert, 90° Milling

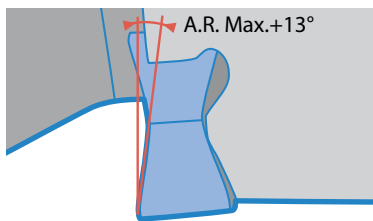
M-SIX (MFWN)

Low Cutting Forces for Reduced Chattering
Superior Fracture Resistance

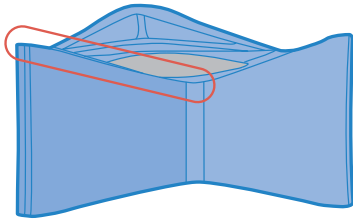
1 Sharp Cutting due to Lower Cutting Forces

Low Cutting Force due to Steep Rake Angle

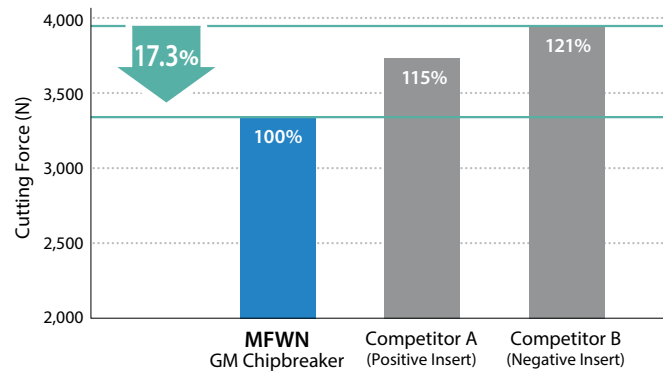
Dynamic Slant Design Reduces Initial Impact when Cutting Edge Enters the Workpiece



Dynamic Slant Design



Cutting Force Comparison (In-house Evaluation)

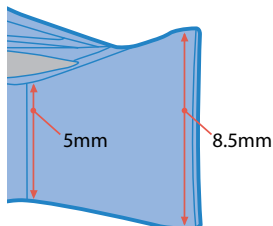


Cutting Force is the Resultant Force of the Principal Force and the Feed Force

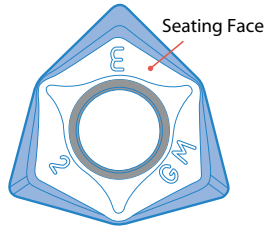
Cutting Conditions: $V_c = 590$ sfm, D.O.C. $\times$ ae = $0.275'' \times 0.400''$, fz = 0.008 ipt
Workpiece: 1049 Cutter Dia. $\varnothing 5.000''$

2 Superior Fracture Resistance with Thick Edge Design

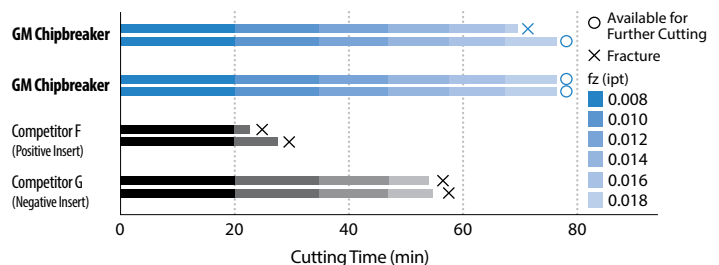
Cutting Edge Thickness:
5 - 8.5mm



Stable Clamping with the
Unique Insert Face Design



Fracture Resistance Comparison (In-house Evaluation)



Cutting Conditions: $V_c = 330$ sfm, D.O.C. $\times$ ae = $0.080'' \times 4.000''$, fz = 0.004 ~ 0.018 ipt, Dry
Workpiece: 4140H (38 ~ 42H5) Interrupted with a Slot in the Workpiece

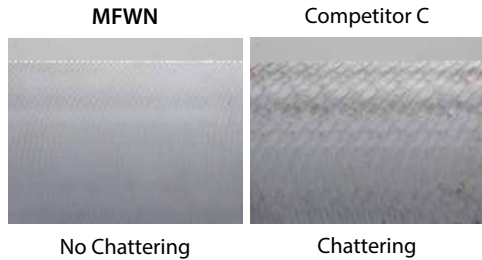
M
MILLING

45°-70° Lead Angle
75° Lead Angle
88°-90° Lead Angle
Finish Milling
High Feed Milling
Multi- Functional
Slot Mills
Ball-Nose Radius
Other Applications

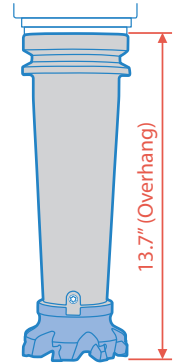
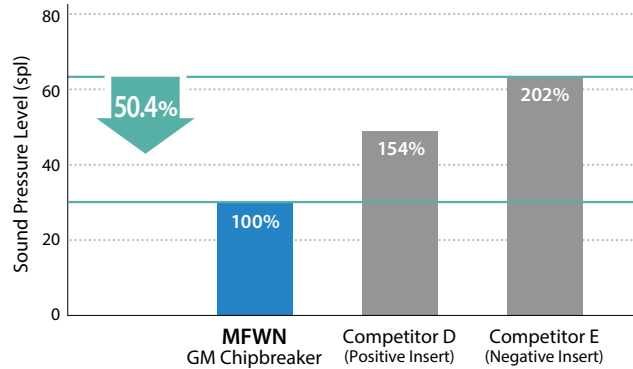
3 Reduced Chattering Even with Extended Milling Adapters

Resistant to Chattering due to Low Cutting Force Design and applicable to long overhang

Surface Roughness Comparison (In-house Evaluation)



Cutting Noise Comparison (In-house Evaluation)

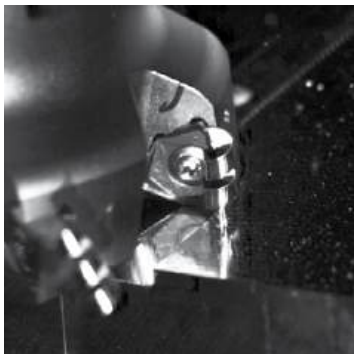
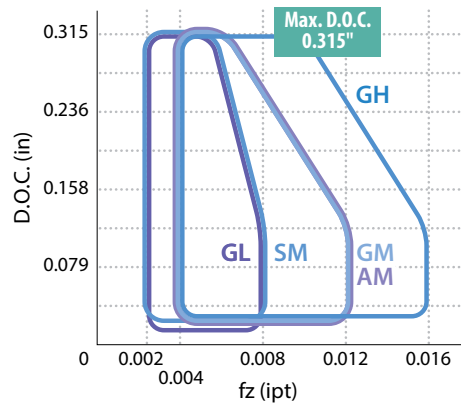


Cutting Conditions: $V_c = 660 \text{ sfm}$, $D.O.C. \times a_e = 0.118" \times 0.590"$, $f_z = 0.004 \text{ ipt}$
Workpiece: 1049 Cutter Dia. $\varnothing 3.000"$ (7 Inserts)

4 Extensive Insert Lineup Covering Various Applications

Chipbreaker	Applications	Shape
GM	General Purpose	
SM	Low Cutting Force	
GH	Heavy Milling	
GL	Surface-Finish Oriented	
AM	Aluminum / Non-ferrous Metals	

Application Range



Smooth Chip Evacuation

Properly Curled Chips
(The Photo was Taken by a High Speed Camera)

MFWN (Face Mill)

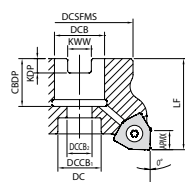


Fig. 1

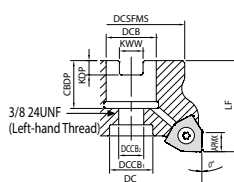


Fig. 2

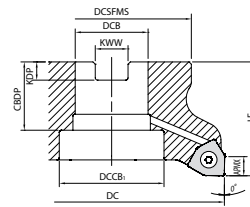


Fig. 3

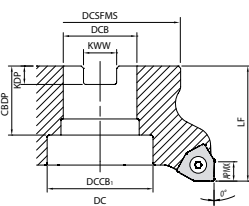


Fig. 4

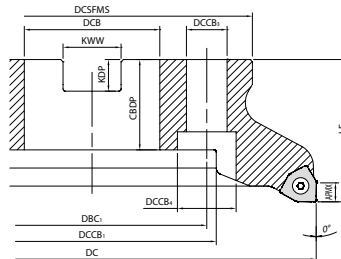


Fig. 5

Toolholder Dimensions

Unit		Part Number		Std. Item	No. of Inserts	Dimensions													A.R. Max (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➡ M149										
						R	DC	DCFMS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	DBC ₁	LF	CBDP	KDP	KWW								APMX									
Inch	Inch Bore Dia.	Coarse Pitch	MFWN 902500R-3T	● 3	2.500	1.890	0.750	0.669	0.433				1.575	0.750	0.187	0.312	0.315	+13	-10	Yes	14,000	0.4	1	WNEU0806... WNGT0806... WNMU0806...											
			903000R-4T	● 4	3.000	2.283	1.000	0.875	0.551				1.968	1.063	0.236	0.381			-9		12,000	0.8	1												
			904000R-5T	● 5	4.000	2.756	1.500	2.047		-	-	-		1.142	0.393	0.625			-8		10,500	1.1	3												
			905000R-6T	● 6	5.000	3.425		2.175											1.496	0.393	0.625	-7.5	9,500		2.5	3									
			906000R-8T	● 8	6.000	4.016	2.000	2.835	-				2.480	1.496	0.433	0.752				8,000	3.4	4													
			908000R-10T	● 10	8.000	5.591	2.500	3.937															0.709		1.024	4.000	2.480	1.575	0.551	1.008	-7	No	7,500	6.0	5
			9010000R-12T	● 12	10.000				6,500	8.2	5																								
		Fine Pitch	MFWN 902000R-4T	● 4	2.000	1.752	0.750	0.500	3/8 24UNF					1.968	0.830	0.187	0.312	0.315	+13	-12	Yes	14,000	0.4	2	WNEU0806... WNGT0806... WNMU0806...										
			902500R-4T	● 4	2.500	1.890		0.669	0.433					1.575	0.750	0.187	0.312			-10		14,000	0.5	1											
			903000R-5T	● 5	3.000	2.283	1.000	0.875	0.551	-	-	-		1.968	1.063	0.236	0.381			-9		12,000	0.8	1											
			904000R-7T	● 7	4.000	2.756	1.500	2.047	-																			2.480	1.496	0.393	0.625	-8	10,500	1.0	3
			905000R-8T	● 8	5.000	3.425		2.175																												-7.5	9,500	2.5	3
			Extra Fine Pitch	MFWN 902500R-5T	● 5	2.500	1.890	0.750	0.669	0.433					1.575	0.750	0.187			0.312	0.315	+13	-10	Yes		14,000	0.4	1	WNEU0806... WNGT0806... WNMU0806...						
		903000R-7T		● 7	3.000	2.283	1.000	0.875	0.551	-	-	-		1.968	1.063	0.236	0.381	-9	12,000	0.8			1												
	904000R-9T	● 9		4.000	2.756	1.500	2.047	-																			2.480	1.496		0.393	0.625	-8	10,500	1.0	3
	905000R-12T	● 12		5.000	3.425		2.175																	-7.5											
	906000R-14T	● 14		6.000	4.016	2.000	2.835	-					2.480	1.496	0.433	0.752		-7	No	8,000			3.4	4											

Max. revolution : When running the end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare Parts (Inch Cutters)

Part Number			Spare Parts								
			Insert Screw	Wrench		Shim	Shim Screw	Wrench	Anti-Seize Compound	Arbor Bolt	Mounting Screw
				TTW	DTM						
											
Coarse Pitch	MFWN 902500R-3T	SB-50140TR	TTW-15	-	MFWN-90	SPW-7050	LW-5	P-37	HH3/8-1.25 (HH3/8-1.25H)	-	
	MFWN 903000R-4T								HH1/2-1.25 (HH1/2-1.25H)	-	
	MFWN 904000R-5T										
	9010000R-12T								-	-	
Fine Pitch	MFWN 902000R-4T	SB-50140TR	TTW-15	-	-	-	-	P-37	-	XNS610*	
	MFWN 902500R-4T								HH3/8-1.25 (HH3/8-1.25H)	-	
	MFWN 903000R-5T								HH1/2-1.25 (HH1/2-1.25H)	-	
	MFWN 904000R-7T										
	9010000R-14T								-	-	
Extra Fine Pitch	MFWN 902500R-5T	SB-50140TR	TTW-15	-	-	-	-	P-37	HH3/8-1.25 (HH3/8-1.25H)	-	
	MFWN 903000R-7T	SB-40140TRN	-	DTM-15					HH1/2-1.25 (HH1/2-1.25H)	-	
	MFWN 904000R-9T	Recommended tightening torque for insert screw 3.5N·m									
	9010000R-18T								-	-	

Coat anti-seize compound thinly on portion of taper and thread prior to installation.

If through spindle coolant is required, please order arbor bolt in () separately.

*Differential screw (3/8-24UNF)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFWN (Face Mill)

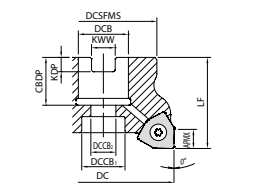


Fig. 1

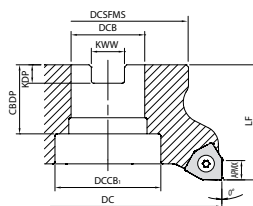


Fig. 3

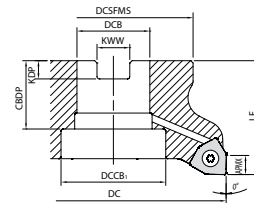


Fig. 2

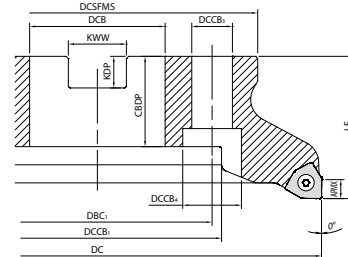


Fig. 4

Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions												A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➡ M149			
					R	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	DBC ₁	LF	CBDP	KDP								KWW	APMX	
mm	Inch Bore Dia.	Coarse Pitch	MFWN 90080R-4T	● 4	80	60	1.000"	20	13					50	1.063"	0.236"	0.375"	8	+13	-9		12,000	1	1	WNEU0806... WNGT0806... WNNMU0806...	
			90100R-5T	● 5	100	70	1.250"	46					50	1.339"	0.315"	0.500"	-8			Yes	10,500	1.3	2			
			90125R-6T	● 6	125	87	1.500"	55						63	1.496"	0.394"	0.625"			-7.5		9,500	2.6	2		
			90160R-8T	● 8	160	102	2.000"	72	-					63	1.496"	0.433"	0.750"					8,000	3.9	3		
			90200R-10T	● 10	200																7,500	6.3	4			
			90250R-12T	● 12	250	142	1.875"	110		18	26	4.000"		1.575"	0.551"	1.000"				No	6,500	8.7	4			
		Fine Pitch	MFWN 90080R-5T	● 5	80	60	1.000"	20	13					50	1.063"	0.236"	0.375"	8	+13	-9		13,500	1	1	WNEU0806... WNGT0806... WNNMU0806...	
			90100R-7T	● 7	100	70	1.250"	46						50	1.339"	0.315"	0.500"			-8	Yes	12,000	1.4	2		
			90125R-8T	● 8	125	87	1.500"	55							63	1.496"	0.394"			0.625"	-7.5		10,500	2.7		2
			90160R-10T	● 10	160	102	2.000"	72	-						63	1.496"	0.433"			0.750"			9,000	4		3
			90200R-12T	● 12	200																	8,000	6.6	4		
			90250R-14T	● 14	250	142	1.875"	110		18	26	4.000"		1.575"	0.551"	1.000"				No	7,000	8.9	4			
	Extra Fine Pitch	MFWN 90080R-7T	● 7	80	60	1.000"	20	13					50	1.063"	0.236"	0.375"	8	+13	-9		10,500	1.1	1	WNEU0806... WNGT0806... WNNMU0806...		
		90100R-9T	● 9	100	70	1.250"	46							50	1.339"	0.315"			0.500"	-8	Yes	9,500	1.3		2	
		90125R-12T	● 12	125	87	1.500"	55								63	1.496"			0.394"	0.625"	-7.5		8,000		2.7	2
		90160R-14T	● 14	160	102	2.000"	72	-							63	1.496"			0.433"	0.750"			7,000		4.1	3
		90200R-16T	● 16	200																	6,500	6.7	4			
		90250R-18T	● 18	250	142	1.875"	110		18	26	4.000"		1.575"	0.551"	1.000"				No	5,500	9.1	4				

Max. revolution : When running the end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

M
MILLING

45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

Toolholder Dimensions

Unit		Part Number		Std. Item	No. of Inserts	Dimensions														A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M149			
						R	DC	DCSfMS	DCB	DCCb ₁	DCCb ₂	DCCb ₃	DCCb ₄	DBC ₁	LF	CBDP	KDP	KWW	APMX										
mm	Metric Bore Dia.	Coarse Pitch	MFWN	90063R-3T-M	●	3	63	47	22	19	11	-	-	-	40	21	6.3	10.4	8	+13	-10	Yes	14,000	0.5	1	WNEU0806... WNGT0806... WNMU0806...			
				90080R-4T-M	●	4	80	60	27	20	13				50	24	7	12.4			-9		12,000	1	1				
				90100R-5T-M	●	5	100	70	32	46	68				-14	20	66.7	30			8		14.4	-8	10,500		1.3	2	
				90125R-6T-M	●	6	125	87	55	33								9			16.4		-7.5	9,500	2.5		2		
				90160R-8T-M	●	8	160	102	40	32																			
				90200R-10T-M	●	10	200	142	60	110	18				26	101.6	63	40			14		25.7	-7	No		7,500	6	4
				90250R-12T-M	●	12	250																						
		Fine Pitch	MFWN	90063R-4T-M	●	4	63	47	22	19	11	-	-	-	40	21	6.3	10.4	8	+13	-10	Yes	16,000	0.5	1	WNEU0806... WNGT0806... WNMU0806...			
				90080R-5T-M	●	5	80	60	27	20	13				50	24	7	12.4			-9		13,500	1	1				
				90100R-7T-M	●	7	100	70	32	46	68				-14	20	66.7	30			8		14.4	-8	12,000		1.3	2	
				90125R-8T-M	●	8	125	87	55	33								9			16.4		-7.5	10,500	2.6		2		
				90160R-10T-M	●	10	160	102	40	32																			
				90200R-12T-M	●	12	200	142	60	110	18				26	101.6	63	40			14		25.7	-7	No		9,000	3.9	4
				90250R-14T-M	●	14	250																						
	Extra Fine Pitch	MFWN	90063R-5T-M	●	5	63	47	22	19	11	-	-	-	40	21	6.3	10.4	8	+13	-10	Yes	16,000	0.5	1	WNEU0806... WNGT0806... WNMU0806...				
			90080R-7T-M	●	7	80	60	27	20	13				50	24	7	12.4			-9		10,500	1.1	1					
			90100R-9T-M	●	9	100	70	32	46	68				14	20	66.7	30			8		14.4	-8	9,500		1.3	2		
			90125R-12T-M	●	12	125	87	55	33								9			16.4		-7.5	8,000	2.6		2			
			90160R-14T-M	●	14	160	102	40	32																				

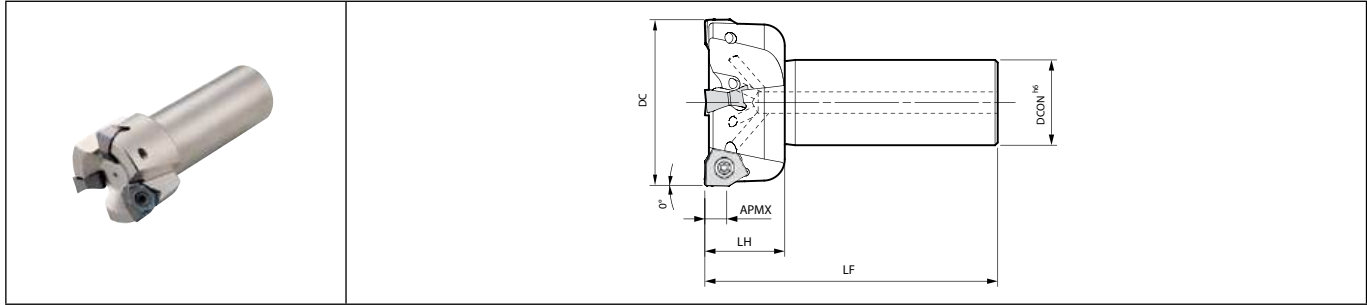
Max. revolution : When running the end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare Parts (Metric Cutters)

Part Number		Spare Parts							
		Insert Screw	Wrench		Shim	Shim Screw	Wrench	Anti-Seize Compound	Arbor Bolt
			TTW	DTM					
Coarse Pitch	MFWN 90063R-3T-M	SB-50140TR	TTW-15	-	MFWN-90	SPW-7050	LW-5	P-37	HH10X30 (HH10X1.25H)
	MFWN 90080R-4T(-M)								HH12X35 (HH12X35H)
	MFWN 90100R-5T(-M)								-
	90250R-12T(-M)								-
Fine Pitch	MFWN 90063R-4T-M	SB-50140TR	TTW-15	-	-	-	-	P-37	HH10X30 (HH10X1.25H)
	MFWN 90080R-5T(-M)								HH12X35 (HH12X35H)
	MFWN 90100R-7T(-M)								-
	90250R-14T(-M)								-
Extra Fine Pitch	MFWN 90063R-5T-M	SB-40140TRN	TTW-15	DTM-15	-	-	-	P-37	HH10X30 (HH10X1.25H)
	MFWN 90080R-7T(-M)								HH12X35 (HH12X35H)
	MFWN 90100R-9T(-M)								-
	90250R-18T								-

Coat anti-seize compound thinly on portion of taper and thread prior to installation.
If through spindle coolant is required, please order arbor bolt in () separately.

MFWN (End Mill)



Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➡ M149									
					DC	DCON	LF	LH	APMX					Insert Screw	Wrench	Anti-Seize Compound										
																										
Inch	Weldon Shank	MFWN 902000R-W125-3T 902500R-W125-4T 903000R-W125-5T	● 3 ● 4 ● 5	3 4 5	2.000 2.500 3.000	1.250	3.600	1.180	0.315	+13	-12 -10 -8	Yes	18,500 16,000 13,500	SB-50140TR Recommended tightening torque for insert clamp 4.2N-m	TTW-15	P-37	WNEU0806... WNGT0806... WNMU0806...									
mm	Cylindrical Shank	MFWN 90050R-S32-3T 90063R-S32-4T 90080R-S32-5T	● 3 ● 4 ● 5	3 4 5	50 63 80								32	110	30			8	+13	-12 -10 -9	Yes	18,500 16,000 13,500	SB-50140TR Recommended tightening torque for insert clamp 4.2N-m	TTW-15	P-37	WNEU0806... WNGT0806... WNMU0806...

Max. revolution : When running the end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

How to Mount Inserts

1. Be sure to remove dust and chips from the insert mounting pocket.
2. After applying anti-seize compound on portion of taper and thread, attach the screw to the front end of the wrench. While lightly pressing the insert against the constraint surfaces, put the screw into the hole of the insert and tighten. (Ref. to Fig. 1)
3. When tightening the screw, make sure that the wrench is parallel to the screw.
Remember that the screw hole of the toolholder for Extra Fine Pitch is angled to the pocket floor. (Ref. to Fig. 2 and Fig. 3)
4. Be careful not to tighten the screw with excessive torque.
Recommended tightening torque is 4.2N-m for M5 screw (SB-50140TR) and 3.5N-m for M4 screw (SB-40140TRN).
5. After tightening the screw, make sure that there is no clearance between the insert seat surface and the pocket floor of the holder or between the insert side surfaces and the constraint surface of the holder. If there is any clearance, remove the insert and mount it again according to the above steps.
6. To index the cutting edge of the insert, turn the insert counterclockwise (Ref. to Fig. 4). The insert corner identification number is stamped on the top surface of the insert.



Fig. 1

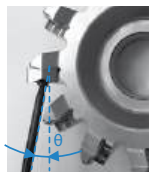


Fig. 2

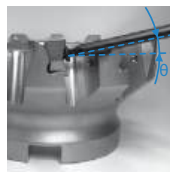


Fig. 3



Fig. 4

How to Replace Shim (For Coarse Pitch)

1. Be sure to remove dust and chips from the insert mounting pocket.
2. The shim must be mounted in the proper direction. While aligning the surface of the shim with the mark on it to the corresponding constraint surface (Ref. to Fig. 1) and lightly pressing the shim toward the constraint surface (Ref. to Fig. 2), insert the screw into the hole of the shim and tighten (Ref. to Fig. 3). When tightening the screw, make sure that the screw is vertical to the pocket floor (Recommended tightening torque is 6.0N-m).
3. After tightening the screw, make sure that there is no clearance between the shim seat surface and the pocket floor. If there is any clearance, remove the insert and mount it again according to the above steps.



Fig. 1

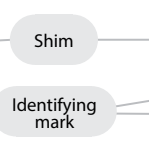
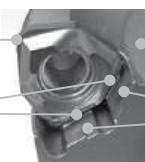


Fig. 2



Shim
Identifying mark
Cutter body
Constraint surface

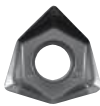


Fig. 3

Shim screw
Wrench

WNEU/WNMU/WNGT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel										☆	☆	■	P
		Mold and die steel										☆	■	■	
		Austenitic stainless steel										☆	☆	★	M
		Martensitic stainless steel										★	☆		
		Precipitation hardened stainless steel											☆	★	
		Gray cast iron										☆	★		K
		Nodular cast iron										☆	★		
		Non-ferrous metals										★		☆	N
		Heat-resistant alloy										★		☆	
		Titanium alloy											☆	★	
Hard materials (≤ 60 HRC)										★			H		

Insert	Part Number	No. of Edges	Dimensions (mm)					Carbide										Cermat	Applicable Toolholder ➡ M144 M146 M147 M148
			IC	S	D1	RE	BS	CVD	DLC	PVD									
										CA6335	PD025	PR0155	PR1510	PR1525	PR1535	PR1810	PR1825			PR1835	GW25	TiN620M
 Surface Finish Oriented	WNEU 080608EN-GL	6	14.02	6.65	6.2	0.8	1.5	●			△	●	●	●	●	●	●	MFWN90...	
 3-Edge / Non-Ferrous Metals	WNGT 080608FN-AM	3	14.02	6.65	6.2	0.8	1.5	●								●		MFWN90...	
 Tough Edge	WNMU 080608EN-GH	6	14.02	6.65	6.2	0.8	1.3	●	●	△	●	●	●	●	●			MFWN90...	
 General Purpose	WNMU 080604EN-GM	6	14.02	6.65	6.2	0.4	1.7	●			△	●	●	●	●	●	●	MFWN90...	
	080608EN-GM					0.8	1.3	●			△	●	●	●	●	●	●		
 Low Cutting Force	WNMU 080608EN-SM	6	14.02	6.65	6.2	0.8	1.3	●			△	●	●	●	●			MFWN90...	

Recommended Cutting Conditions ➔ M150

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz (ipt) () : TN620M	Recommended Insert Grade (Vc sfm)							
			Cermet	MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD	CVD Coated Carbide	DLC Coated Carbide	Carbide
			TN620M	PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	PR0155	CA6535	PDL025	GW25
GM	Carbon Steel	0.004~ 0.008 ~0.012 (0.002~ 0.004 ~0.006)	★ 660~ 820 ~980	☆ 390~ 590 ~820	★ 390~ 590 ~820	-	-	-	-	-
	Alloy Steel	0.004~ 0.008 ~0.012 (0.002~ 0.004 ~0.006)	★ 590~ 720 ~820	☆ 330~ 520 ~720	★ 330~ 520 ~720	-	-	-	-	-
	Mold Steel	0.004~ 0.006 ~0.010 (0.002~ 0.004 ~0.005)	★ 490~ 590 ~720	☆ 260~ 460 ~590	☆ 260~ 460 ~590	-	-	-	-	-
	Austenitic Stainless Steel	0.004~ 0.006 ~0.010	-	☆ 330~ 520 ~660	☆ 330~ 520 ~660	-	-	-	-	-
	Martensitic Stainless Steel	0.004~ 0.006 ~0.010	-	☆ 490~ 660 ~820	-	-	-	☆ 590~ 790 ~980	-	-
	Precipitation Hardened Stainless Steel	0.004~ 0.006 ~0.010	-	★ 300~ 390 ~490	-	-	-	-	-	-
	Gray Cast Iron	0.004~ 0.008 ~0.012	-	-	-	★ 390~ 590 ~820	-	-	-	-
	Nodular Cast Iron	0.004~ 0.006 ~0.010	-	-	-	★ 330~ 490 ~660	-	-	-	-
	Ni-base Heat Resistant Alloy	0.004~ 0.005 ~0.008	-	☆ 70~ 100 ~160	-	-	-	★ 70~ 130 ~160	-	-
SM *(GL)	Carbon Steel	0.002~ 0.005 ~0.008 (0.002~ 0.003 ~0.005)	★ 660~ 820 ~980	☆ 390~ 590 ~820	☆ 390~ 590 ~820	-	-	-	-	-
	Alloy Steel	0.002~ 0.005 ~0.008 (0.002~ 0.003 ~0.005)	★ 590~ 720 ~820	☆ 330~ 520 ~720	☆ 330~ 520 ~720	-	-	-	-	-
	Mold Steel	0.002~ 0.003 ~0.006 (0.002~ 0.003 ~0.004)	★ 490~ 590 ~720	☆ 260~ 460 ~590	☆ 260~ 460 ~590	-	-	-	-	-
	Austenitic Stainless Steel	0.002~ 0.005 ~0.008	-	★ 330~ 520 ~660	☆ 330~ 520 ~660	-	-	-	-	-
	Martensitic Stainless Steel	0.002~ 0.005 ~0.008	-	☆ 490~ 660 ~820	-	-	-	☆ 590~ 790 ~980	-	-
	Precipitation Hardened Stainless Steel	0.002~ 0.005 ~0.008	-	☆ 300~ 390 ~490	-	-	-	-	-	-
	Gray Cast Iron	0.002~ 0.005 ~0.008	-	-	-	☆ 390~ 590 ~820	-	-	-	-
	Nodular Cast Iron	0.002~ 0.003 ~0.006	-	-	-	☆ 330~ 490 ~660	-	-	-	-
	Ni-base Heat Resistant Alloy	0.002~ 0.004 ~0.006	-	☆ 70~ 100 ~160	-	-	-	☆ 70~ 130 ~160	-	-
	Titanium Alloy	0.002~ 0.003 ~0.006	-	★ 130~ 200 ~260	-	-	-	-	-	-
GH	Carbon Steel	0.008~ 0.012 ~0.016	-	☆ 390~ 590 ~820	☆ 390~ 590 ~820	-	-	-	-	-
	Alloy Steel	0.008~ 0.012 ~0.016	-	☆ 330~ 520 ~720	☆ 330~ 520 ~720	-	-	-	-	-
	Mold Steel	0.006~ 0.008 ~0.012	-	☆ 260~ 460 ~590	☆ 260~ 460 ~590	-	-	-	-	-
	Austenitic Stainless Steel	0.008~ 0.010 ~0.012	-	☆ 330~ 520 ~660	☆ 330~ 520 ~660	-	-	-	-	-
	Martensitic Stainless Steel	0.008~ 0.010 ~0.012	-	☆ 490~ 660 ~820	-	-	-	☆ 590~ 790 ~980	-	-
	Precipitation Hardened Stainless Steel	0.008~ 0.010 ~0.012	-	☆ 300~ 390 ~490	-	-	-	-	-	-
	Gray Cast Iron	0.008~ 0.012 ~0.016	-	-	-	☆ 390~ 590 ~820	-	-	-	-
	Nodular Cast Iron	0.006~ 0.008 ~0.012	-	-	-	☆ 330~ 490 ~660	-	-	-	-
	Ni-base Heat Resistant Alloy	0.006~ 0.008 ~0.010	-	☆ 70~ 100 ~160	-	-	-	☆ 70~ 130 ~160	-	-
	Hardened Material (≤ 60 HRC)	0.006~ 0.008 ~0.010	-	-	-	-	★ 260~ 330 ~390	-	-	-
AM	Non-ferrous Material	0.004~ 0.008 ~0.012	-	-	-	-	-	-	★ 660~ 1970 ~2950	☆ 660~ 1640 ~2620

The figures in bold font represent the center value of the recommended cutting conditions.

★ : 1st Recommendation ☆ : 2nd Recommendation

Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation

Machining with coolant is recommended for Ni-base Heat-resistant alloy and Titanium Alloy * GL chipbreaker is recommended for surface finish oriented milling

When using GH chipbreaker for fine pitch cutters, recommended feed is fz ≤ 0.012 ipt

GH chipbreaker is not recommended for extra fine pitch cutter



45°~70°
Lead Angle

75°
Lead Angle

88°~90°
Lead Angle

Finish
Milling

High Feed
Milling

Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

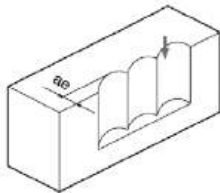
Applicable Chipbreaker

Cutter	Chipbreaker			
	GM	SM (GL)	GH	AM
Coarse Pitch (with Shim)	✓	✓	✓	✓
Fine Pitch (without Shim)	✓	✓	✓ (fz 0.012 ipt Recommended)	✓
Extra Fine Pitch (without Shim)	✓	✓	Not Recommended	Not Recommended

Cutter Type and Insert Selection Guide

Purpose	Cutter			Chipbreaker				
	Coarse Pitch	Fine Pitch	Extra-Fine Pitch	GM	SM	GH	GL	AM
General Milling for Steel and Alloy Steel		✓		✓				
Steel and Alloy Steel (to prevent chattering due to low rigidity machine or poor clamping power)	✓				✓			
Productivity Oriented (D.O.C. 0.157" and over, fz 0.010 ipt and over)	✓					✓		
Surface Roughness Oriented	✓	✓					✓	
General Milling for Stainless Steel		✓			✓			
Stainless Steel (to prevent chattering due to low rigidity machine or poor clamping power)	✓				✓			
Cast Iron Milling (Improved Efficiency)			✓	✓				
Cast Iron (D.O.C. 0.157" and over, fz 0.010 ipt and over)	✓					✓		
General Milling for Aluminum Alloys		✓						✓
Aluminum Alloys (to prevent chattering due to low rigidity)	✓							✓

Plunging



Cutting Dia.	MAX. Width of Cut (ae)
All Items	0.315"



NOT available for ramping or helical milling, due to interference between workpiece and insert.

Case Study

No.50	
Machine Part Vc = 560 sfm D.O.C. x ae = 0.098" x 5.118" fz = 0.007 ipt (Vf = 19.685 ipm) Wet MFWN90160R-8T (8 flutes) WNMU080608EN-GM (PR1510)	
PR1510	Chip evacuation rate = 163cc/min
Competitor A (Positive cutter)	Chip evacuation rate = 68cc/min
Competitor A proceeded machining under low cutting conditions, as the workpiece was slipping because of the unstable chucking. With MFWN, stable machining was possible at higher cutting conditions. (User evaluation)	

Manganese Steel	
Construction Machine Part Vc = 490 sfm D.O.C. x ae = 0.039 x 3.937" fz = 0.008 ipt (Vf = 26.299 ipm) Dry MFWN90100R-7T (7 flutes) WNMU080608EN-GM (PR1525)	
PR1525	Machining efficiency: 2 pcs/edge
Competitor B (Negative cutter) (Vertical inserts)	1 pc/edge
Despite instability with the long overhang of the workpiece, MFWN doubled tool life, improving the efficiency by 150%. (User evaluation)	

Low Cutting Force 90° Milling

MFWN Mini

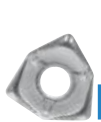
Economical small diameter MFWN series milling cutters
Additional fine pitch, small diameter toolholders available

1 Cost-Efficient 6-Edge Inserts

Smaller insert design technology maintains original MFWN cutting performance
Can be used up to 0.197" (5mm) depth of cut.

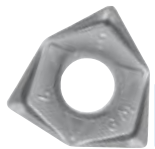
Smaller Insert Size

MFWN Mini
05 size



D.O.C. ~0.197" (~5mm)

MFWN
08 size



D.O.C. ~0.315" (~8mm)

Increased Versatility

Large small-diameter lineup

High-efficiency machining
with fine pitch styles

1 ~ 3 additional flutes



Expanded lineup of
smaller diameters

Face Mill ø50
End Mill ø25 - ø40



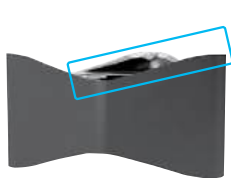
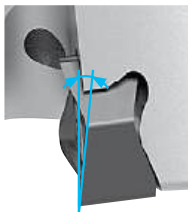
2 Fracture-Resistant Inserts and Low Cutting Forces

Low cutting force and
high chattering-resistance

Sharp cutting by large rake angle
"Large slant edge" design reduces shock when
cutting edge enters the workpiece

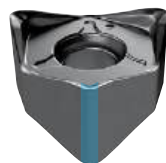
A.R. Max +11°

"Large slant edge" design

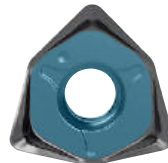


Superior fracture resistance
with thick edge design

Stable clamping strength with unique
insert face Design



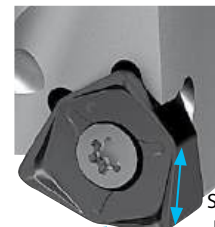
Cutting edge thickness: 5.2mm
(3.1mm at the thinnest point)



Optimized seating
surface

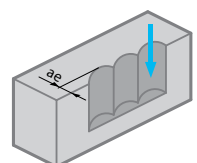
Neutral inserts for various uses

Symmetrical side and bottom cutting edges
provide a wide range of machining applications



Bottom edge

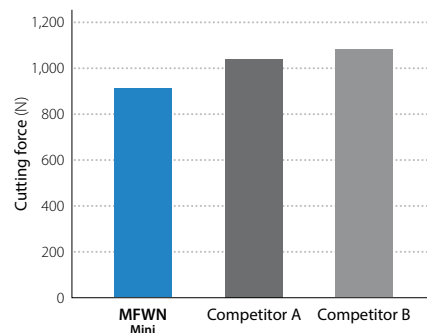
Plunging possible



Side edge

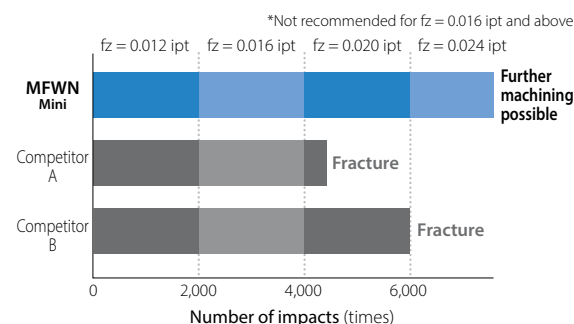
Left-handed toolholders
are also available
(Custom order)

Cutting Force comparison (Internal Evaluation)



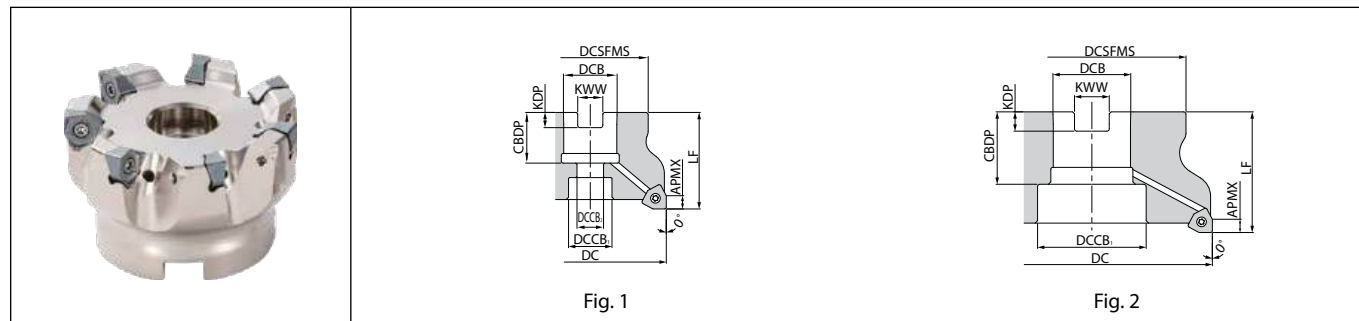
Cutting conditions : Vc = 490 sfm, fz = 0.006 ipt, D.O.C. x ae = 0.059" x 1.378", Dry
Cutting Dia. ø63mm Workpiece : 4140

Fracture Resistance Comparison (Internal Evaluation)



Cutting conditions : Vc = 390 sfm, D.O.C. x ae = 0.059" x 1.181", Dry
Cutting Dia. ø63mm Workpiece : Mold Steel 37 ~ 43 HRC

MFWN Mini (Face Mill)



Toolholder Dimensions

Unit		Part Number				Std. Item	No. of Inserts		Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➡ M155
									R	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW								APMX
mm	Inch Bore Dia.	Fine Pitch	MFWN	90080R-05-7T	● 7	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	5	+11	-7	Yes	10,900	1.3	1	WNMU0504...			
				90100R-05-8T	● 8	100	78	1.250"	45	-		1.339"	0.315"	0.500"					9,700	1.6	2				
				90125R-05-11T	● 11	125	89	1.500"	55	-		1.496"	0.394"	0.625"					8,700	2.9	2				
		Extra Fine Pitch	MFWN	90080R-05-9T	● 9	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	5	+11	-7	Yes	10,900	1.2	1	WNMU0504...			
				90100R-05-11T	● 11	100	78	1.250"	45	-		1.339"	0.315"	0.500"					9,700	1.6	2				
				90125R-05-14T	● 14	125	89	1.500"	55	-		1.496"	0.394"	0.625"					8,700	2.8	2				
	Metric Bore Dia.	Fine Pitch	MFWN	90050R-05-5T-M	● 5	50	48	22	17.5	11	40	21	6.3	10.4	5	+11	-9 -8 -7	Yes	13,800	0.4	1	WNMU0504...			
				90063R-05-6T-M	● 6	63		18												12,300	0.5		1		
				90080R-05-7T-M	● 7	80	70	27	20	13	50	24	7	12.4					10,900	1.2	1				
				90100R-05-8T-M	● 8	100	78	32	45	-		30	8	14.4					9,700	1.6	2				
				90125R-05-11T-M	● 11	125	89	40	55	-	63	33	9	16.4					8,700	2.8	2				
				Extra Fine Pitch	MFWN	90050R-05-6T-M	● 6	50	48	22	17.5	11	40	21					6.3	10.4	5		+11	-9 -8 -7	Yes	13,800	0.4	1	WNMU0504...
		90063R-05-7T-M	● 7			63	18				12,300				0.5	1									
		90080R-05-9T-M	● 9			80	70	27	20	13	50	24	7	12.4	10,900	1.2	1								
		90100R-05-11T-M	● 11			100	78	32	45	-		30	8	14.4	9,700	1.5	2								
		90125R-05-14T-M	● 14	125	89	40	55	-	63	33	9	16.4	8,700	2.7	2										

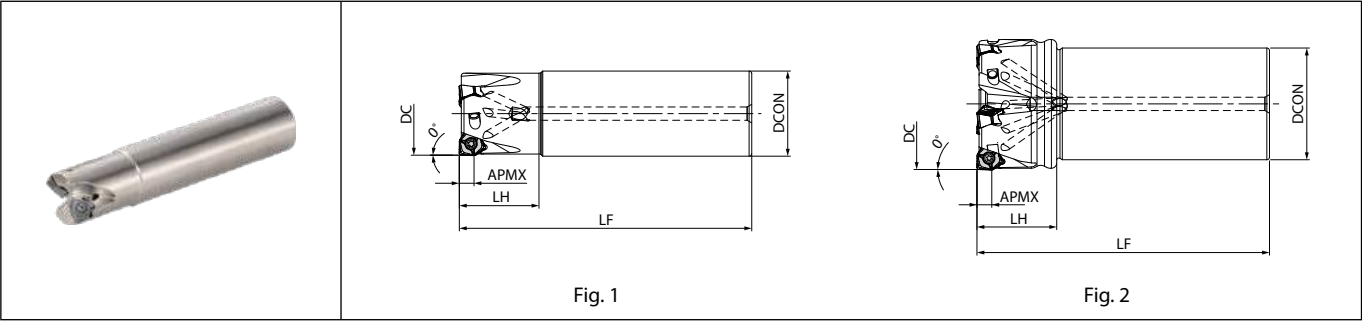
Max. revolution : When running the end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare Parts

Part Number		Insert Screw	Wrench	Anti-seize Compound	Arbor Bolt
Fine Pitch	MFWN 90050R-05-5T-M	SB-3065TRP	DTPM-8	P-37	HH10×30
	90063R-05-6T-M				HH10×30
	90080R-05-7T(-M)				HH12×35
	90100R-05-8T(-M)				-
	90125R-05-11T(-M)				-
Extra Fine Pitch	MFWN 90050R-05-6T-M	SB-3065TRP	DTPM-8	P-37	HH10×30
	90063R-05-7T-M				HH10×30
	90080R-05-9T(-M)				HH12×35
	90100R-05-11T(-M)				-
	90125R-05-14T(-M)				-

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

MFWN Mini (End Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Spare Parts			Applicable Inserts  M155	
				R	DC	DCON	LF	LH						APMX	Insert Screw 	Wrench 		Anti-Seize Compound 
mm	Cylindrical Shank	MFWN 90025R-S25-05-2T	● 2	25	25	120	32	5	+11	-14.5	Yes	19,500	1	SB-3065TRP	DTPM-8	P-37	WNMU0504...	
		90032R-S32-05-3T	● 3	32		130	40			-12		17,200	1					
		90040R-S32-05-4T	● 4	40		150	50			-10		15,400	2					
		90050R-S32-05-5T	● 5	50	32					-9		13,800	2					
		90063R-S32-05-6T	● 6	63		110	30			-8		12,300	2					
		90080R-S32-05-7T	● 7	80						-7		10,900	2					
		Recommended tightening torque for insert screw 1.2N·m																

Max. revolution : When running the end mill or face mill at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

Recommended Cutting Conditions ➡ M156

M155

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm)			
			MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD
			PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	PR015S
GM	Carbon Steel	0.004~ 0.008 ~0.010	☆ 390~ 590 ~820	★ 390~ 590 ~820	-	-
	Alloy Steel	0.004~ 0.008 ~0.010	☆ 330~ 520 ~720	★ 330~ 520 ~720	-	-
	Mold Steel	0.004~ 0.006 ~0.008	☆ 260~ 460 ~590	★ 260~ 460 ~590	-	-
	Austenitic Stainless Steel	0.004~ 0.006 ~0.008	☆ 330~ 520 ~660	☆ 330~ 520 ~660	-	-
	Martensitic Stainless Steel	0.004~ 0.006 ~0.008	☆ 490~ 660 ~820	-	-	-
	Precipitation Hardened Stainless Steel	0.004~ 0.006 ~0.008	★ 300~ 390 ~490	-	-	-
	Gray Cast Iron	0.004~ 0.008 ~0.010	-	-	★ 390~ 590 ~820	-
	Nodular Cast Iron	0.004~ 0.006 ~0.008	-	-	★ 330~ 490 ~660	-
	Ni-base Heat Resistant Alloy	0.004~ 0.005 ~0.006	☆ 70~ 100 ~160	-	-	-
SM	Carbon Steel	0.002~ 0.005 ~0.008	☆ 390~ 590 ~820	☆ 390~ 590 ~820	-	-
	Alloy Steel	0.002~ 0.005 ~0.008	☆ 330~ 520 ~720	☆ 330~ 520 ~720	-	-
	Mold Steel	0.002~ 0.003 ~0.006	☆ 260~ 460 ~590	☆ 260~ 460 ~590	-	-
	Austenitic Stainless Steel	0.002~ 0.005 ~0.008	★ 330~ 520 ~660	☆ 330~ 520 ~660	-	-
	Martensitic Stainless Steel	0.002~ 0.005 ~0.008	☆ 490~ 660 ~820	-	-	-
	Precipitation Hardened Stainless Steel	0.002~ 0.005 ~0.008	☆ 300~ 390 ~490	-	-	-
	Gray Cast Iron	0.002~ 0.005 ~0.008	-	-	☆ 390~ 590 ~820	-
	Nodular Cast Iron	0.002~ 0.003 ~0.006	-	-	☆ 330~ 490 ~660	-
	Ni-base Heat Resistant Alloy	0.002~ 0.003 ~0.006	★ 70~ 100 ~160	-	-	-
	Titanium Alloy	0.002~ 0.003 ~0.006	★ 130~ 200 ~260	-	☆ 130~ 200 ~260	-
GH	Carbon Steel	0.006~ 0.008 ~0.012	☆ 390~ 590 ~820	☆ 390~ 590 ~820	-	-
	Alloy Steel	0.006~ 0.008 ~0.012	☆ 330~ 520 ~720	☆ 390~ 520 ~720	-	-
	Mold Steel	0.006~ 0.008 ~0.010	☆ 260~ 460 ~590	☆ 260~ 460 ~590	-	-
	Austenitic Stainless Steel	0.006~ 0.008 ~0.010	☆ 330~ 520 ~660	☆ 330~ 520 ~660	-	-
	Martensitic Stainless Steel	0.006~ 0.008 ~0.010	☆ 490~ 660 ~820	-	-	-
	Precipitation Hardened Stainless Steel	0.006~ 0.008 ~0.010	☆ 300~ 390 ~490	-	-	-
	Gray Cast Iron	0.006~ 0.008 ~0.012	-	☆ 390~ 590 ~820	☆ 390~ 590 ~820	-
	Nodular Cast Iron	0.006~ 0.008 ~0.010	-	☆ 330~ 490 ~660	☆ 330~ 490 ~660	-
	Ni-base Heat Resistant Alloy	0.004~ 0.006 ~0.008	☆ 70~ 100 ~160	-	-	-
	Hardened Material (≤ 60 HRC)	0.002~ 0.003 ~0.006	-	-	-	★ 160~ 260 ~330

The figures in bold font represent the center value of the recommended cutting conditions.

Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation

Machining with coolant is recommended for Ni-base Heat-resistant alloy and Titanium Alloy

When using GH chipbreaker for fine pitch cutters, recommended feed is fz ≤ 0.008 ipt

★ : 1st Recommendation ☆ : 2nd Recommendation

M
MILLING

45°~70°
Lead Angle

75°
Lead Angle

88°~90°
Lead Angle

Finish
Milling

High Feed
Milling

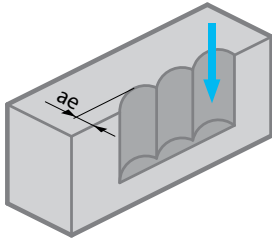
Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

Plunging



Available for Plunging

Cutting Dia.	Maximum Width of Cut (ae)
All Cutters	5mm

Ramping and helical milling are not recommended due to interference between workpiece and flank face

Applicable Chipbreaker

Cutter type	Chipbreaker		
	GM	SM	GH
Fine Pitch	✓	✓	✓
Extra Fine Pitch	✓	✓	(Feed rate is recommended fz=0.008 ipt or under)

How to Mount Inserts

1. Completely eliminate chips and dust from the insert mounting side.
2. Insert Screw
 - Apply anti-seize compound on portion of taper and thread of clamp screw.
 - After mounting a insert screw on the top edge of wrench, tighten the screw while keeping the insert pushed against the shim seat surface and holder surface (Fig.1)
3. When tightening the screw, make sure that the wrench is parallel to the screw.
Recommended tightening torque . . . 1.2N·m
4. After tightening, check that there is no gap between the insert and the surface of the shim, or between the side surface of insert and the holder surface.
If there is a gap, remount the insert using the directions above.

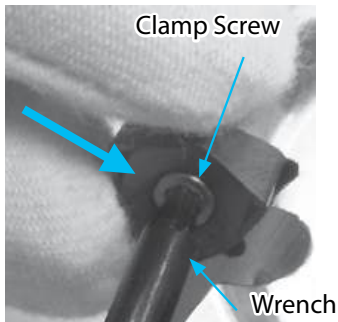


Fig. 1

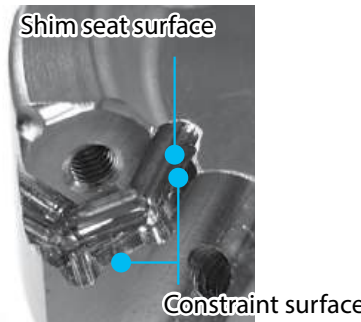


Fig. 2

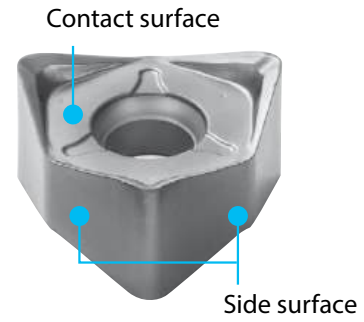


Fig. 3

88° Lead, High Efficiency Cutter

MFSN88

Economical double-sided 8-edge insert suitable for shoulder roughing
Reduces chattering with a low cutting force design

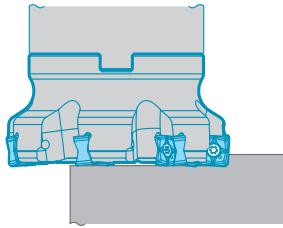
1

Economical double-sided 8-edge insert suitable for shoulder roughing

Cost reduction with nearly 90° corners

Shoulder roughing

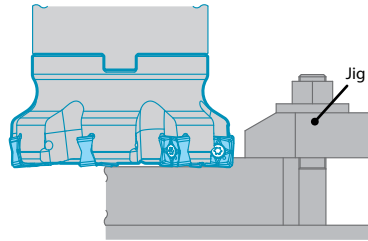
Cost reduction by switching from 90° cutter with positive inserts



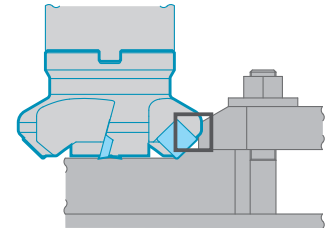
See page M127 for unmachined corner portion

Facing without interfering with fixtures

MFSN88



Conventional 45° cutter

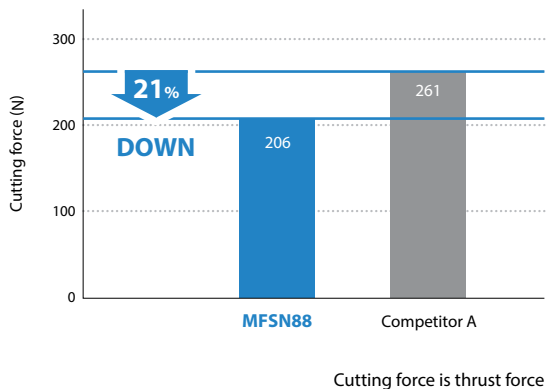


2

Reduces chattering with a low cutting force design

Chatter resistant medium to roughing machining range

Cutting force comparison (Internal evaluation)



Cutting Conditions : $V_c = 660$ sfm, $f = 0.006$ ipt, D.O.C. = 0.118°
Cutter Diameter $\varnothing 63$ mm, Workpiece : 1049 Steel

3

Extended tool life with MEGACOAT NANO technology

Insert grade and chipbreaker lineup for various machining application



1st Recommendation
(General purpose)
GM chipbreaker

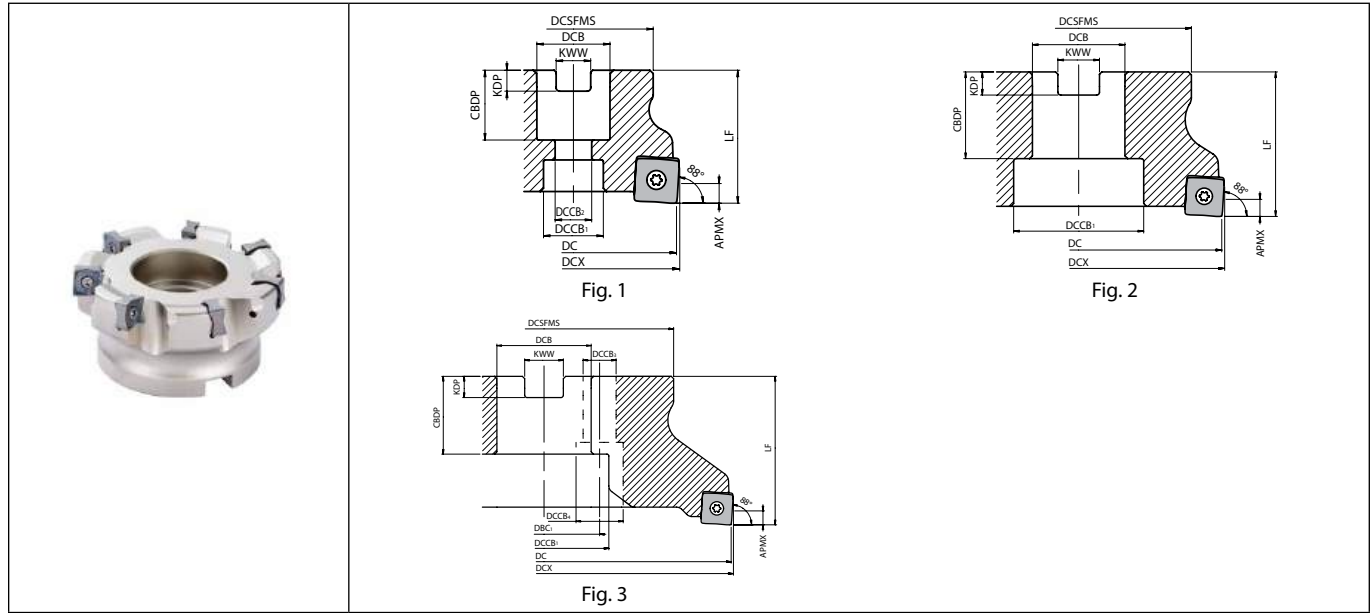


Tough edge
GH chipbreaker



For stainless steel
SM chipbreaker

MFSN88 (Face Mill)



Toolholder Dimensions

Unit	Part Number			Std. Item	No. of Inserts	Dimensions														A.R. Max. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts M162				
						R	DC	DCX	DCSfMS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	DBC ₁	LF	CBDP	KDP	KWW										
mm	Inch Bore Dia.	Fine Pitch	MFSN 88080R-6T-G 88100R-7T-G 88125R-9T-G 88160R-11T-G	● 6	80	82	70	1.000"	20	13					50	1.063"	0.236"	0.375"	+10	-9	No	1.1	1	SNMU1305...					
				● 7	100	102	78	1.250"	45									-8		1.5		2							
				● 9	125	127	89	1.500"	55	-	-	-	-					-7.5		2.5		2							
				● 11	160	162	110	2.000"	70					63	1.496"	0.394"	0.625"	-7		4.1		2							
		Extra Fine Pitch	MFSN 88080R-9T-G 88100R-11T-G 88125R-13T-G 88160R-15T-G	● 9	80	82	70	1.000"	20	13						50	1.063"	0.236"	0.375"	+10	-9	No	1.1	1	SNMU1305...				
				● 11	100	102	78	1.250"	45									-8	1.5		2								
				● 13	125	127	89	1.500"	55	-	-	-	-					-7.5	2.6		2								
				● 15	160	162	110	2.000"	70					63	1.496"	0.394"	0.625"	-7	4.3		2								
	Metric Bore Dia.	Fine Pitch	MFSN 88050R-4T-M-G 88063R-5T-M-G 88080R-6T-M-G 88100R-7T-M-G 88125R-9T-M-G 88160R-11T-M-G	● 4	50	52	48	22	17.5	11					40	21	6.3	10.4	+10	-12	No	0.3	1	SNMU1305...					
				● 5	63	65			18											-10		0.4	1						
				● 6	80	82	70	27	20	13	-	-	-							-9		1.1	1						
				● 7	100	102	78	32	45					50	24	7	12.4	-8		1.4		2							
				● 9	125	127	89	40	55	-										-7.5		2.4	2						
				● 11	160	162	110				14	20	66.7	63	33	9	16.4	-7		4.2		3							
				Extra Fine Pitch	MFSN 88050R-5T-M-G 88063R-7T-M-G 88080R-9T-M-G 88100R-11T-M-G 88125R-13T-M-G 88160R-15T-M-G	● 5	50	52	48	22	17.5	11					40	21		6.3		10.4	+10		-12	No	0.3	1	SNMU1305...
						● 7	63	65			18														-10		0.4	1	
		● 9	80			82	70	27	20	13	-	-	-						-9	1.1	1								
		● 11	100			102	78	32	45					50	24	7	12.4	-8	1.4	2									
		● 13	125			127	89	40	55	-									-7.5	2.5	2								
		● 15	160			162	110				14	20	66.7	63	33	9	16.4	-7	4.3	3									

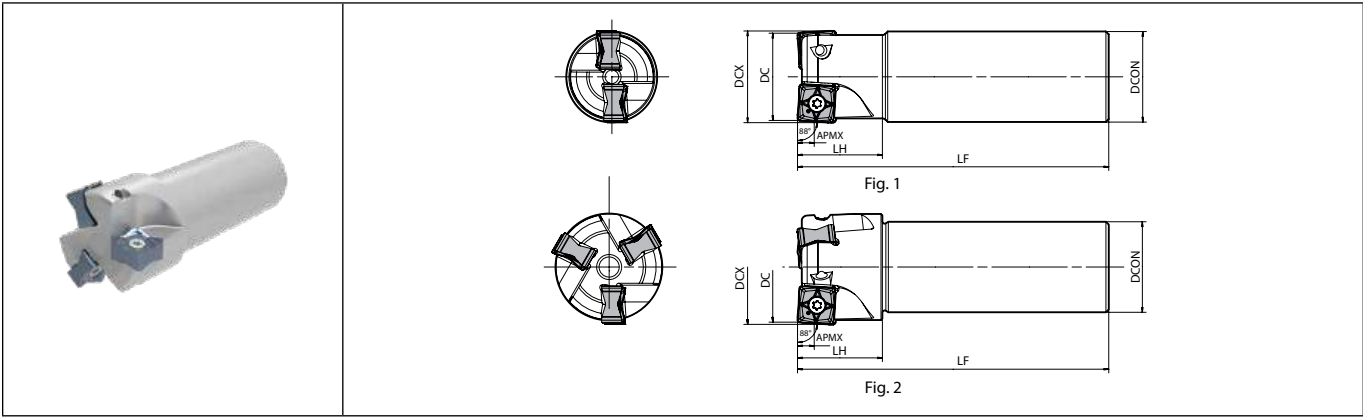
APMX : 5mm (GM, SM, GH Chipbreakers, Coated Carbide), 3mm (GM Chipbreaker, Cermet)

Spare Parts (for Both Metric and Inch Bore Dia.)

Part Number		Insert Screw	Wrench	Anti-Seize Compound	Arbor Bolt
					
Fine Pitch	MFSN 88050R-4T-M-G	SB-4090TRP	DTPM-15	P-37	HH10X30
	88063R-5T-M-G				HH10X30
	88080R-6T(-M)-G				HH12X35
	88100R-7T(-M)-G				-
	88125R-9T(-M)-G				
	88160R-11T(-M)-G				
		Recommended tightening torque for insert screw 3.5N·m			
Extra Fine Pitch	MFSN 88050R-5T-M-G	SB-4090TRP	DTPM-15	P-37	HH10X30
	88063R-7T-M-G				HH10X30
	88080R-9T(-M)-G				HH12X35
	88100R-11T(-M)-G				-
	88125R-13T(-M)-G				
	88160R-15T(-M)-G				
		Recommended tightening torque for insert screw 3.5N·m			

 Coat anti-seize compound thinly on portion of taper and thread prior to installation.

MFSN88 (End Mill)



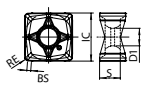
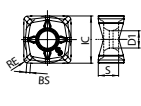
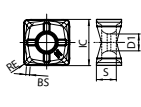
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts  M162	
				R	DC	DCX	DCON	LF					LH				
mm	MFSN 88032R-S32-2T-G 88040R-S32-3T-G	●	2	32	34	32	110	30	+10	-15.5 -13	No	1 2	SB-4090TRP	DTPM-15	P-37	SNMU1305...	

APMX : 5mm (GM, SM, GH Chipbreakers, Coated Carbide), 3mm (GM Chipbreaker, Cermet)
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.
Recommended tightening torque for insert clamp : 3.5N·m

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SNMU

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel				☆				★	☆	■	P		
		Mold and die steel				☆				★	☆	■			
		Austenitic stainless steel						☆			☆	★		M	
		Martensitic stainless steel										☆			
		Precipitation hardened stainless steel						☆				★			
		Gray cast iron					☆				★			K	
		Nodular cast iron					☆				★				
		Non-ferrous metals												N	
		Heat-resistant alloy											☆	S	
		Titanium alloy									☆		★		
Hard materials (≤ 60 HRC)		★											H		
Insert	Part Number	Dimensions (mm)					Carbide							Cermat - Applicable Toolholder ➡ M159 M161	
		IC	S	D1	RE	BS	PVD								
							PR015S	PR1510	PR1525	PR1535	PR1810	PR1825	PR1835		TiN620M
	 General Purpose	SNMU 130508EN-GM	13	5.51	4.7	0.8	1	△	●	●	●	●	●	●	MFSN88...
	 Low Cutting Force	SNMU 130508EN-SM	13	5.51	4.7	0.8	1	△	●	●	●	●	●	●	MFSN88...
	 Tough Edge	SNMU 130508EN-GH	13	5.51	4.7	0.8	1	●	△	●	●	●	●	●	MFSN88...

Recommended Cutting Conditions M163

M
MILLING45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
ApplicationsSNMU Inserts are
sold in 10 piece boxes

Recommended Cutting Conditions

Coated Carbide

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc : sfm)			
			MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD
			PR1835 (PR1535)	PR1825 (PR1525)	PR1810 (PR1510)	PR0155
GM	Carbon Steel	0.0039~ 0.0079 ~0.0118	390~ 590 ~820	390~ 590 ~820	-	-
	Alloy Steel	0.0039~ 0.0079 ~0.0118	330~ 520 ~720	330~ 520 ~720	-	-
	Mold Steel	0.0039~ 0.0059 ~0.0098	260~ 460 ~590	260~ 460 ~590	-	-
	Austenitic Stainless Steel	0.0039~ 0.0059 ~0.0098	330~ 490 ~660	330~ 490 ~660	-	-
	Martensitic Stainless Steel	0.0039~ 0.0059 ~0.0098	330~ 490 ~660	-	-	-
	Precipitation Hardened Stainless Steel	0.0039~ 0.0059 ~0.0098	300~ 390 ~490	-	-	-
	Gray Cast Iron	0.0039~ 0.0079 ~0.0118	-	-	390~ 590 ~820	-
	Nodular Cast Iron	0.0039~ 0.0059 ~0.0098	-	-	330~ 490 ~660	-
	Ni-base Heat Resistant Alloys	0.0039~ 0.0047 ~0.0079	70~ 100 ~160	-	-	-
SM	Carbon Steel	0.0024~ 0.0047 ~0.0079	-	390~ 590 ~820	-	-
	Alloy Steel	0.0024~ 0.0047 ~0.0079	-	330~ 520 ~720	-	-
	Mold Steel	0.0024~ 0.0031 ~0.0059	-	260~ 460 ~590	-	-
	Austenitic Stainless Steel	0.0024~ 0.0047 ~0.0079	330~ 490 ~660	330~ 490 ~660	-	-
	Martensitic Stainless Steel	0.0024~ 0.0047 ~0.0079	330~ 490 ~660	-	-	-
	Precipitation Hardened Stainless Steel	0.0024~ 0.0047 ~0.0079	300~ 390 ~490	-	-	-
	Gray Cast Iron	0.0024~ 0.0047 ~0.0079	-	-	390~ 590 ~820	-
	Nodular Cast Iron	0.0024~ 0.0039 ~0.0059	-	-	330~ 490 ~660	-
	Ni-base Heat Resistant Alloys	0.0024~ 0.0031 ~0.0059	70~ 100 ~160	-	-	-
GH	Titanium Alloys	0.0024~ 0.0031 ~0.0059	130~ 200 ~260	-	-	-
	Carbon Steel	0.0059~ 0.0098 ~0.0138	-	390~ 590 ~820	-	-
	Alloy Steel	0.0059~ 0.0098 ~0.0138	-	330~ 520 ~720	-	-
	Mold Steel	0.0039~ 0.0079 ~0.0118	-	260~ 460 ~590	-	-
	Gray Cast Iron	0.0059~ 0.0098 ~0.0138	-	-	390~ 590 ~820	-
	Nodular Cast Iron	0.0039~ 0.0079 ~0.0118	-	-	330~ 490 ~660	-
	Hardened Materials (≤ 60 HRC)	0.0039~ 0.0079 ~0.0118	-	-	-	260~ 330 ~390

The figures in bold font represent the center value of the recommended cutting conditions.

Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation

Machining with coolant is recommended for Ni-base Heat-resistant alloy and Titanium Alloy

★ : 1st Recommendation ☆ : 2nd Recommendation

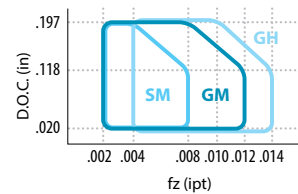
Cermet

Chipbreaker	Workpiece Material	Feed (fz: ipt)	Recommended insert grades (Vc: sfm)
			Cermet
			TN620M
GM	Carbon steel	0.002~ 0.005 ~0.006	660~ 820 ~980
	Alloy steel	0.002~ 0.005 ~0.006	590~ 720 ~820
	Mold steel	0.002~ 0.004 ~0.005	490~ 590 ~720

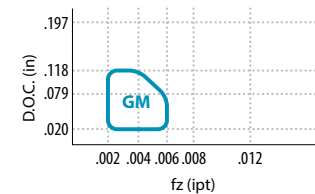
★ : 1st Recommendation

Applicable Chipbreaker Range

Coated Carbide



Cermet



Applicable Chipbreaker

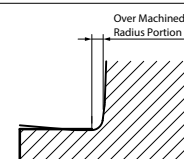
Cutter Type	Chipbreaker		
	GM	SM	GH
Fine Pitch	✓	✓	✓
Extra Fine Pitch	✓	✓	△ (Feed rate is recommended fz=0.008 ipt or under)

Not recommended for plunging.

Reference Data for Unmachined Corner Portion

D.O.C.	1 mm	2 mm	3 mm	4 mm	5 mm
Over Machined Radius Portion	0.12 mm	0.24 mm	0.27 mm	0.31 mm	0.34 mm

Over machined radius portion to 90°cutter



Face Mills for Heavy Milling

MFLN

Tough 4-edge tangential inserts for reliable heavy milling at large D.O.C. and high feed rates
Three lead angle options (including MFLN45 and MFLN70) for optimized machining in various applications

1 Tough and Reliable Inserts for Stable Heavy Milling

Inserts up to 20mm long offer increased rigidity

Tangentially mounted inserts provide 2 cutting edges on each side

Corner Chamfer

(only available on MFLN90)

Both general corner-R type and chamfered corner type available

Prevents chattering and insert fracturing



Convex cutting edge ridge

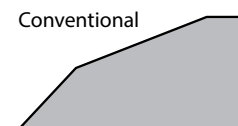
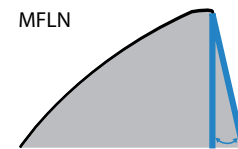
Reduced impact forces when entering the workpiece



Obtuse Edge Design

Increases the cutting edge angle only at the tip to maintain both strength and sharpness

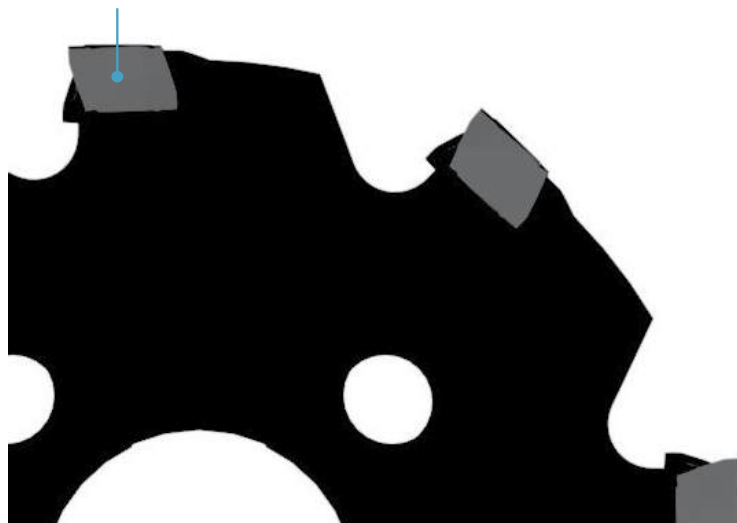
Cross-section view of cutting edge



Wide Flat Mounting Surface

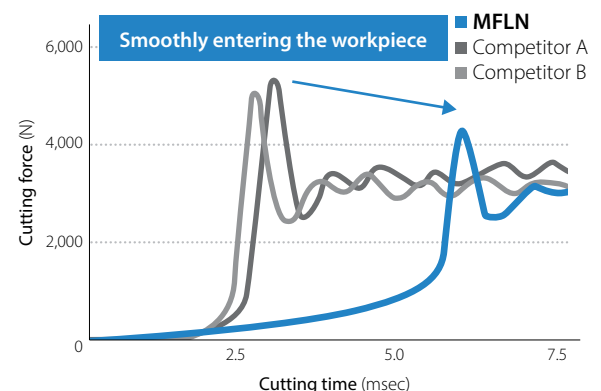
Holds insert firmly in heavy milling applications

Tangentially mounted inserts increase rigidity



Cutting forces when entering the workpiece (internal evaluation)

MFLN90: Insert - chamfered corner type



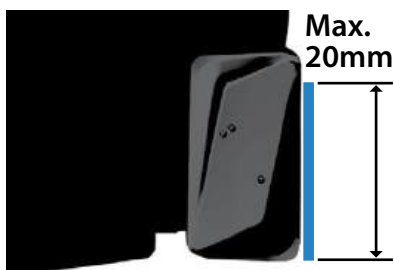
Cutting Conditions : $V_c = 490$ sfm, D.O.C. $\times$ ae = $0.197'' \times 2.95''$, $f_z = 0.012$ ipt
 $\phi 125$ mm (1 insert), Dry Workpiece : 1049

2

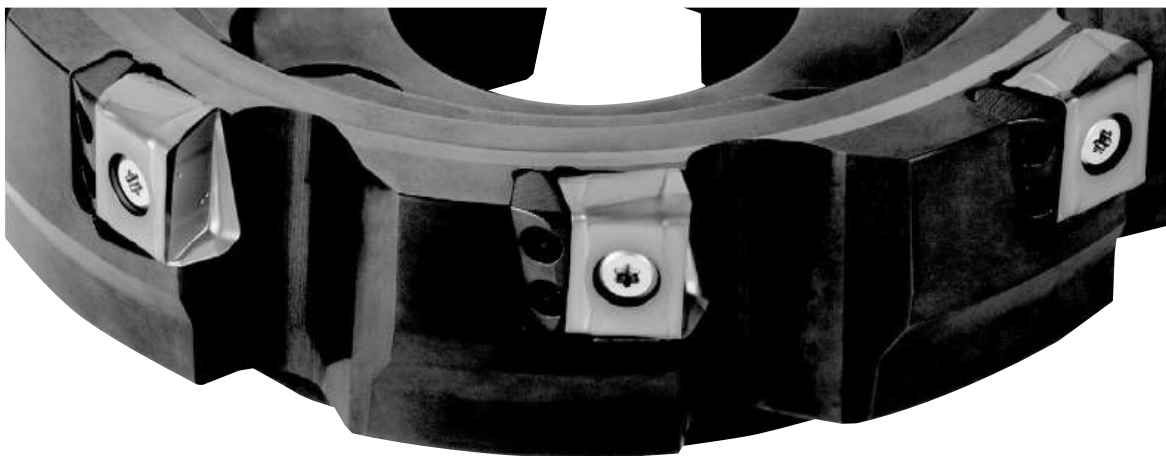
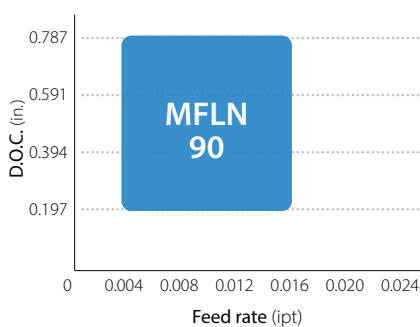
Large D.O.C. and High Feed Rates

MFLN90

Lead Angle 90°



Applicable range



Chip Comparison (Internal Evaluation)

Helix-shaped chips prevent chip recutting and provide stable machining at high feed rates.**MFLN90** Stable

fz = 0.012 ipt



fz = 0.016 ipt

Competitor A Unstable



fz = 0.012 ipt



fz = 0.016 ipt

Competitor B Unstable



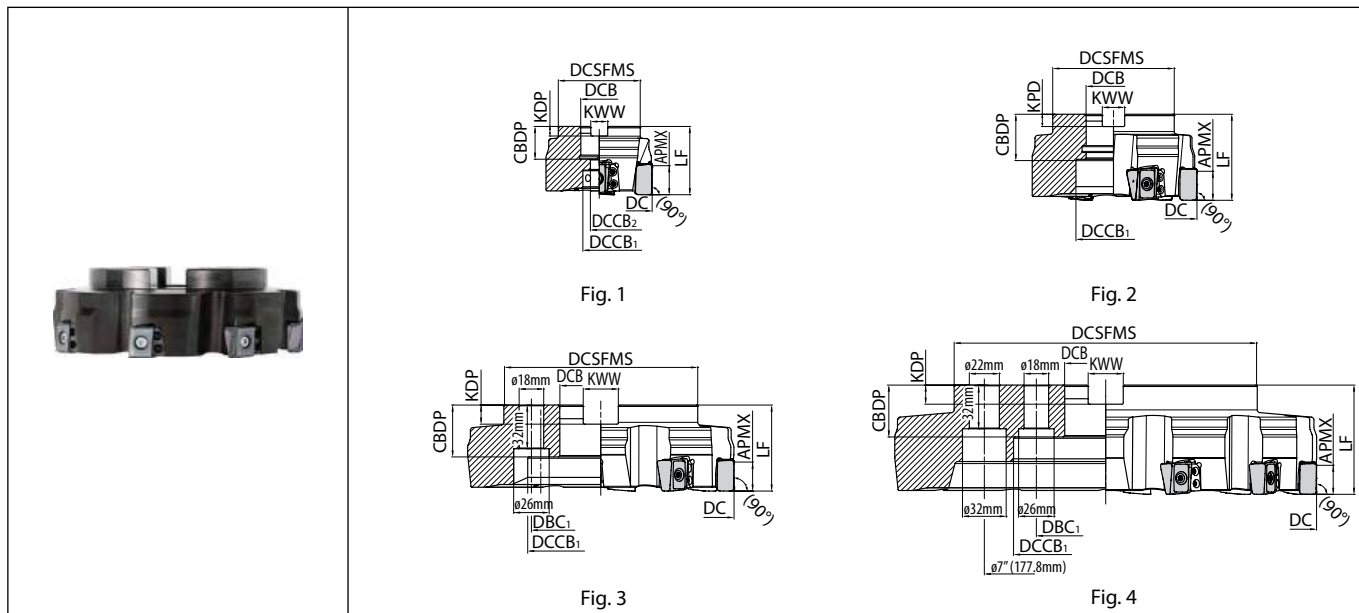
fz = 0.012 ipt



fz = 0.016 ipt

Cutting Conditions : Vc = 490 sfm, ap x ae = 0.394" x 3.937", fz = 0.012, 0.016 ipt, ø125mm (1 insert), Dry Workpiece : 1049

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

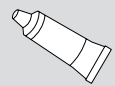


Toolholder Dimensions

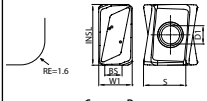
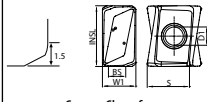
Unit	Part Number	Std. Item	No. of Inserts	Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M167
				DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	DBC ₁	LF	CBDP	KDP	KWW	APMX						
mm	Ind. Bore Dia.	MFLN 90080R-4T	● 4	80	60	1.000"	24	13	-	50	1.063"	0.236"	0.375"	20	+4.5	-16.5	5,970	1	1	LOGU221616ER-GM LOGU2216PAER-GM
		MFLN 90100R-4T	● 4	100	70	1.250"	45	-	-	50	1.339"	0.315"	0.500"	20	+4.5	-14.5	4,780	1.6	2	
		MFLN 90125R-6T	● 6	125	89	1.500"	55	-	-	63	1.399"	0.315"	0.500"	20	+4.5	-13.5	3,820	3	2	
		MFLN 90160R-7T	● 7	160	110	2.000"	90	-	-	63	1.496"	0.433"	0.750"	20	+4.5	-13.5	2,990	4.6	2	
		MFLN 90200R-8T	● 8	200	142	-	132	-	-	63	1.496"	0.551"	1.000"	20	+4.5	-13.5	2,390	7.2	3	
		MFLN 90250R-10T	● 10	250	187.5"	172	101.6	-	-	80	1.496"	0.551"	1.000"	20	+4.5	-13	1,910	10.5	3	
	Metric Bore Dia.	MFLN 90315R-12T	□ 12	315	222	205	101.6	-	-	80	1.496"	0.551"	1.000"	20	+4.5	-13	1,520	21.8	4	LOGU221616ER-GM LOGU2216PAER-GM
		MFLN 90080R-4T-M	● 4	80	60	27	24	13	-	50	24	7	12.4	20	+4.5	-16.5	5,970	1	1	
		MFLN 90100R-4T-M	● 4	100	70	32	45	-	-	50	30	8	14.4	20	+4.5	-14.5	4,780	1.5	2	
		MFLN 90125R-6T-M	● 6	125	89	40	55	-	-	63	33	9	16.4	20	+4.5	-13.5	3,820	2.9	2	
		MFLN 90160R-7T-M	● 7	160	110	90	90	-	-	63	33	9	16.4	20	+4.5	-13.5	2,990	4.5	3	
		MFLN 90200R-8T-M	● 8	200	142	132	101.6	-	-	63	38	14	25.7	20	+4.5	-13	2,390	6.9	3	
		MFLN 90250R-10T-M	● 10	250	187.5"	172	101.6	-	-	80	38	14	25.7	20	+4.5	-13	1,910	10.3	3	
		MFLN 90315R-12T-M	□ 12	315	222	205	101.6	-	-	80	38	14	25.7	20	+4.5	-13	1,520	20.9	4	

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

Spare Parts

Part Number	Spare Parts						
	Insert Screw	Wrench	Shim	Shim Screw	Wrench	Anti-Seize Compound	Arbor Bolt
MFLN ○○○080R-4T(-M)							
MFLN ○○○100R-4T(-M)	SB-60200TRP	TTP-20	MAP-2216	SB-40140TR	DTM-15	P-37	HH12X35
MFLN ○○○315R-12T(-M)	Recommended tightening torque for insert screw 6.0N·m		Recommended tightening torque for shim screw 3.5N·m				

LOGU

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel	☆	★	☆	P						
		Mold and die steel	☆	★	☆							
		Austenitic stainless steel				M						
		Martensitic stainless steel										
		Precipitation hardened stainless steel										
		Gray cast iron	☆	★	☆	K						
		Nodular cast iron	☆	★	☆							
		Non-ferrous metals				N						
		Heat-resistant alloy				S						
		Titanium alloy										
		Hard materials				H						
Insert	Part Number	Dimensions (mm)						Carbide				Applicable Toolholder ➡ M166 M46 M47
		S	D1	RE	W1	INSL	BS	PVD				
								PR1525	PR1535	PR1825	PR1835	
	 Corner-R	LOGU 221616ER-GM	16.6	6.8	1.6	12.5	22.8	6.3	●	●	●	MFLN90... MFLN45... MFLN70...
	 Corner Chamfer	LOGU 2216PAER-GM	16.9	6.8	-	12.5	22.8	4.8	●	●	●	MFLN90...

Recommended Cutting Conditions ➡ **M168**

Recommended Cutting Conditions

	Workpiece Material	D.O.C. (in)		fz: ipt	Recommended Insert Grades (Cutting Speed Vc : sfm)	
		Width of Cut ≤0.5×DC	Width of Cut >0.5×DC		MEGACOAT NANO EX (MEGACOAT NANO)	
					PR1825 (PR1525)	PR1835 (PR1535)
MFLN 90	Carbon steel	~0.709	~0.591	0.004~ 0.008 ~0.016	★ 330~ 490 ~590	☆ 260~ 390 ~490
	Alloy steel				★ 330~ 490 ~590	☆ 260~ 390 ~490
	Mold steel				★ 260~ 390 ~490	☆ 230~ 330 ~390
	Gray cast iron	~0.787	~0.709	0.004~ 0.008 ~0.016	★ 330~ 490 ~590	☆ 260~ 390 ~490
	Nodular cast iron				★ 330~ 490 ~590	☆ 260~ 390 ~490

The table above provides recommendations based on product specifications.
Before using the product, check the machine's specifications such as power.

★ : 1st Recommendation ☆: 2nd Recommendation

The number in **bold** font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
Dry machining is recommended.

How to Mount Inserts

1. Completely eliminate chips and dust from the insert mounting side.
2. After mounting a clamp screw on the top edge of wrench, tighten the screw while keeping the insert pushed against the shim seat surface and holder surface (Fig.1,2)
3. **Make sure that the identification on the top of the insert is the same in each pocket.(Fig.3)**
4. Tighten the wrench (TTP-20) in while holding parallel to the clamp screw.
5. Tighten the insert clamp screw at an appropriate torque. (Recommended torque: 6.0 N·m)
6. After tightening, check that there is no gap between the insert and the surface of the shim, or between the side surface of insert and the holder surface. If there is a gap, remount the insert using the directions above.

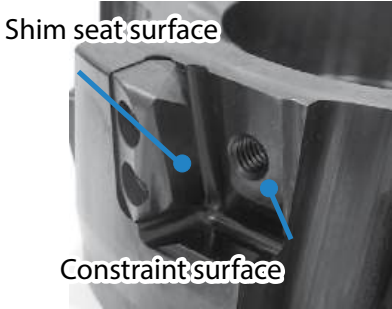


Fig.1

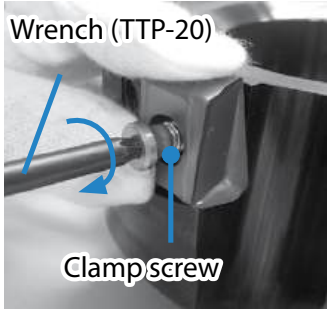


Fig.2

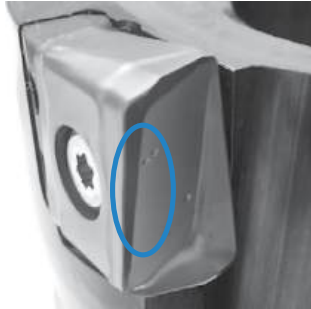


Fig.3

How to Replace Shim

1. Completely eliminate chips and dust from the shim mounting side.
2. Coat medium strength screw locking adhesive on the screws.
3. Tighten the screw keeping the shim pushed against the pocket surface of toolholder.
4. After tightening both screws temporarily, tighten them with appropriate torque. (Recommended torque:3.5 N·m)
5. Please check that there is no gap between the shim and the pocket surfaces of toolholder.

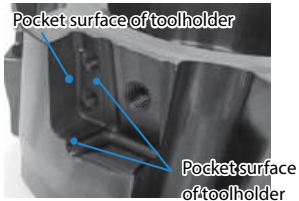


Fig.1

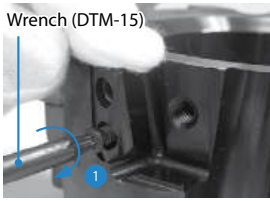


Fig.2

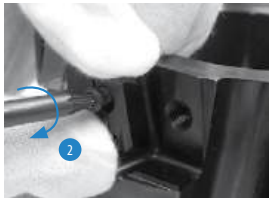


Fig.3



Fig.4

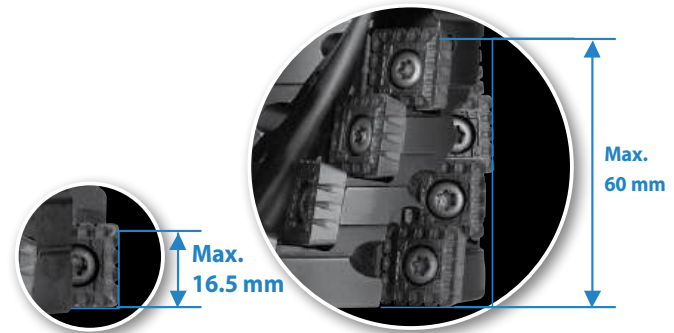
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MSRS90 Face Mill for Heavy Milling



Wide selection of cutting edge lengths available

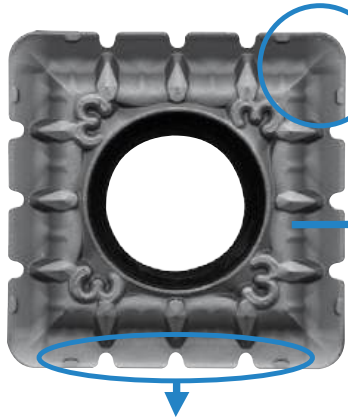
1, 2, and 4-Stage (ø3.00in, ø80mm, ø100mm)



High Efficiency, Low Cutting Force and Low Vibration Milling Cutter Neutral and Corner-R insert

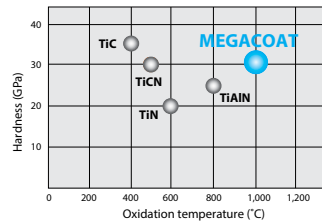
Applicable to shouldering (Cutting edge angle: 90°), high feed milling (Cutting edge angle: 30°), plunging, and side cutter.

Custom-ordered milling cutter with high performance notched neutral inserts provides various applications



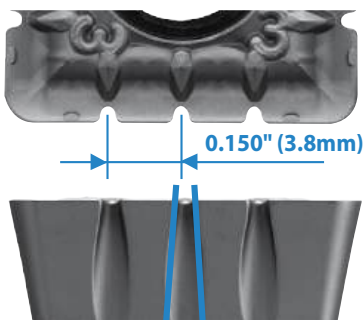
Neutral insert with corner-R is available to various applications

Long Tool Life: MEGACOAT



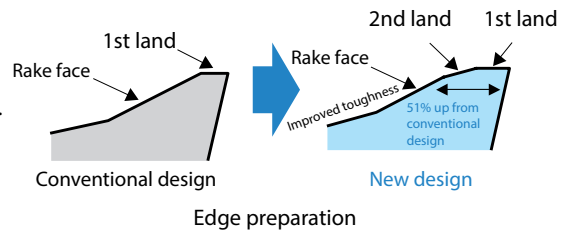
High hardness and high oxidation resistance long tool life: MEGACOAT

Notched Insert SPMT180616EN



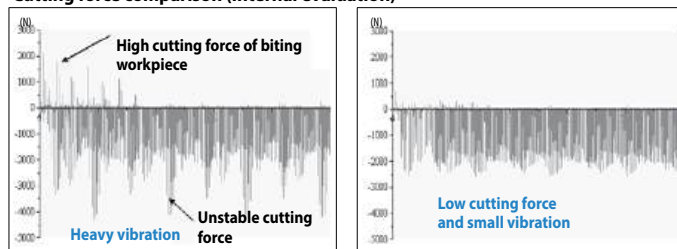
The notched insert breaks chips into small pieces and reduces cutting force. The second land near the cutting edge improves edge strength.

For neutral (Right/Left) hand
Applicable for various cutting edge angle.
Cutting edge length: 18mm



Low cutting force (Notched insert benefit)

Cutting force comparison (Internal evaluation)



Competitor A

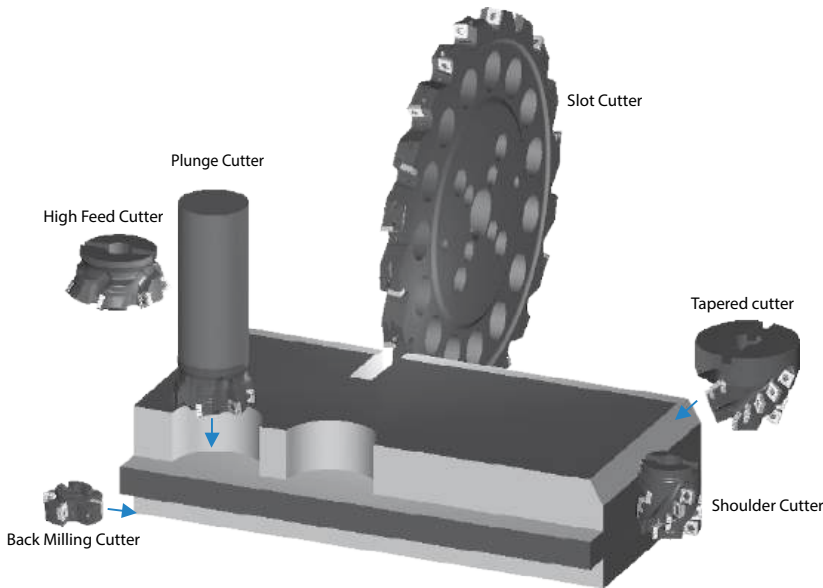
MSRS90

Notched insert realizes lower cutting force and smaller vibration

Applicable Inserts: Available for a Variety of Applications

Applications	Chipbreaker Selection	3-Notched	4-Notched	Without Notch
General Purpose	Standard	 + 		
Low Cutting Force	Low Cutting Force	 + 		
Edge Strength Oriented	Without Notch (Usable with Notched Inserts)	( or ) + 		

Various Cutting Possibilities with Custom-Designed and Standard Cutters



The custom-designed milling cutters can be customized for your requirements such as diameter, cutting edge angle, number of insert stages, etc.

Shaft length determination



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

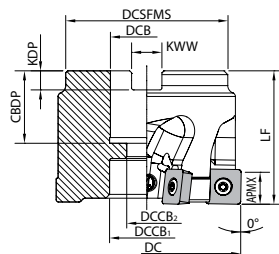


Fig. 1

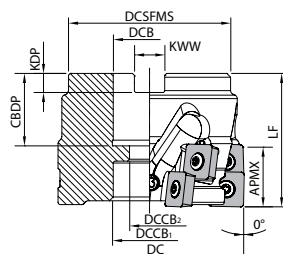


Fig. 2

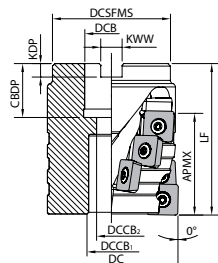


Fig. 3

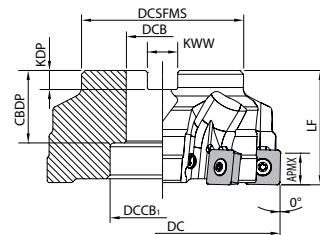


Fig. 4

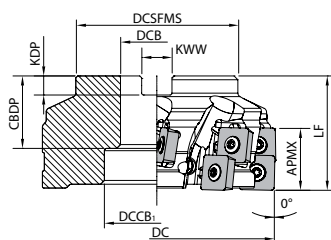


Fig. 5

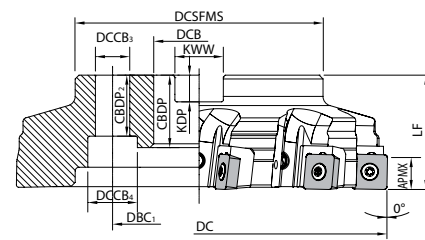


Fig. 6

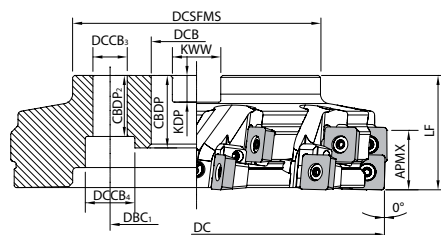


Fig. 7

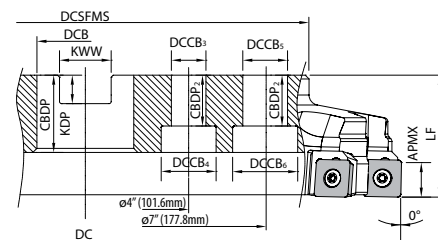


Fig. 8

Toolholder Dimensions

Unit		Part Number		Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions								A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts  M174	
Inch								R	DC	DCSFM	DCB	DCCB ₁	DCCB ₂	LF	CBDP							KDP	KWW	APMX
Inch Bore Dia.	MSRS	903000R-1-4T	●	4	4	1	3.00	2.75	1.00	0.87	0.55	2.36	1.06	0.24	0.38	0.65	+7	-10	No	2.4	1	SPMT180616EN-...
		903000R-2-4T	●	8	4	2										1.22				2.2	2	
		904000R-1-6T	●	6	6	1	4.00	3.35	1.50	2.05	-	2.76	1.14	0.39	0.63	0.65				4.4	4	

Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions																A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts ➡ M174									
			R				DC	DCFMS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	DCCB ₅	DCCB ₆	DBC ₁	LF	CBDP	CBDP ₂	KDP	KWW	APMX															
mm	Inch Bore Dia.	MSRS	90080R-1-4T	●	4	1												60	1.260"		0.315"	0.500"	16.5	+7	-10	No	1.4	1	SPMT180616EN-...								
			90080R-2-4T	●	8	2	80	70	1.250"	27	18											31	1.2				2										
			90080R-4-4T	●	16	4													85				60				1.5	3									
			90100R-1-6T	●	6	1													70				16.5				2.3	1									
			90100R-2-6T	●	12	2	100			39	21												31				2.1	2									
			90100R-4-6T	□	24	4		85	1.500"			-	-					-	90			0.394"	0.625"				60	3.2		3							
			90125R-1-8T	□	8	1																	16.5				2.6	4									
			90125R-2-8T	□	16	2	125			55				-	-								31				2.4	5									
			90160R-1-8T	●	8	1	160	100	2.000"	70												0.433"	0.750"				16.5	4.3		4							
			90160R-2-8T	□	16	2													1.496"				31				4.1	5									
			90200R-1-10T	●	10	1	200				-								60				16.5				6.7	6									
			90200R-2-10T	□	20	2		130				18	26					4.000"			1.260"		31				6.6	7									
			90250R-1-12T	●	12	1	250		1.875"	-												0.551"	1.000"				16.5	12.6		6							
			90250R-2-12T	□	24	2																	31				12.5	7									
			90315R-1-14T	●	14	1						17	27	22	32	-					0.984"		16.5				16.1	8									
			90315R-2-14T	□	28	2	315	220															31				16										
			mm	Metric Bore Dia.	MSRS	90080R-1-4T-M	●	4	1											60								16.5		+7	-10	No	1.3	1	SPMT180616EN-...		
						90080R-2-4T-M	●	8	2	80	70	27	20	13								24						7					12.4	31		1.1	2
						90080R-4-4T-M	●	16	4													85											60	1.4		3	
						90100R-1-6T-M	●	6	1						-	-						70	30					-					16.5	2.2		1	
90100R-2-6T-M	●	12				2	100		32	45												8	14.4	31	2	2											
90100R-4-6T-M	□	24				4		85											90				60	3.1	3												
90125R-1-8T-M	●	8				1																	16.5	2.6	4												
90125R-2-8T-M	□	16				2	125							-	-								31	2.4	5												
90160R-1-8T-M	●	8				1	160	110	40	55										33		9	16.4	16.5	4.2	6											
90160R-2-8T-M	□	16				2					-	14	20			66.7				28			31	4	7												
90200R-1-10T-M	●	10				1	200																16.5	6.7	6												
90200R-2-10T-M	□	20				2		140				18	26			101.6	60				32		31	6.6	7												
90250R-1-12T-M	●	12				1	250		60	-									40		14	25.7	16.5	12.6	6												
90250R-2-12T-M	□	24				2																	31	12.5	7												
90315R-1-14T-M	●	14				1	315	220				17	27	22	32	-				25			16.5	16.1	8												
90315R-2-14T-M	□	28				2																	31	16													

45°-70° Lead Angle
75° Lead Angle
88°-90° Lead Angle
Finish Milling
High Feed Milling
Multi- Functional
Slot Mills
Ball-Nose Radius
Other Applications

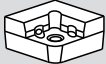
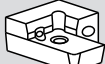
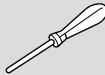
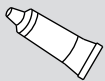
SPMT Inserts are
sold in 10 piece boxes

Caution when Installing Notched Insert

It is important to install the appropriate notched insert into the correct position. If it is installed in incorrect position, the tool cannot cut the workpiece and it may damage the toolholder body. For MSRS90, notched insert location indicator is marked at insert installed pocket of the cutter body.

Description	No. of Inserts	No. of Flutes	No. of Stages	No. of Inserts	
				Notched	
				NB3(P)	NB4(P)
MSRS 90100R-1-6T	6	6	1	3	3
90100R-2-6T	12		2	6	6
90100R-4-6T	24		4	12	12

Spare Parts

Part Number		Spare Parts										
		Insert Screw	Wrench	Cartridge		Clamp screw	Wrench	Anti-seize Compound	Arbor Bolt			
				MAP-1806M 	MAP-1806S (Bottom Edge Only) 							
Without Cartridge	MSRS	903000R-1-4T	SB-60120TR	TT-25L	-	-	-	-	P-37	HH1/2-1.25		
		903000R-2-4T			-	-	-	-		-	-	
		904000R-1-6T			-	-	-	-		-	-	
Without Cartridge	MSRS	90080R-○-4T-M			-	-	-	-		-	-	HH12X35
		90100R-○-6T-M			-	-	-	-		-	-	-
		90125R-○-8T-M			-	-	-	-		-	-	
With Cartridge	MSRS	90160R-○-8T-M			MAP-1806M*1	MAP-1806S*2	SB-40140TR	DT-15		Recommended tightening torque for cartridge screw 3.5N·m	-	
		90315R-○-14T-M										
Without Cartridge	MSRS	90080R-○-4T			-	-	-	-		-	HH16X45	
		90100R-○-6T			-	-	-	-		-	HH20X55	
		90125R-○-8T			-	-	-	-		-	-	
With Cartridge	MSRS	90160R-○-8T			MAP-1806M*1	MAP-1806S*2	SB-40140TR	DT-15		Recommended tightening torque for cartridge screw 3.5N·m		-
		90315R-○-14T										

Notes: *1: MAP-1806M is only for the bottom edge (1st stage) of MSRS90..R-1.

*2: MAP-1806S is only for the bottom edge (1st stage) of MSRS90..R-2... Use it only for the bottom edge (1st stage).

How to attach the cartridge: You need to tighten 2 clamp screws to fix the cartridge. Tighten the slant screw first and then tighten the other screw.

 Coat anti-seize compound thinly on portion of taper and thread prior to installation.

Recommended Cutting Conditions

Workpiece material	fz (ipt)		Vc (sfm)	
	Standard NB3+NB4	Low Cutting Force NB3P+NB4P	MEGACOAT NANO EX	
			PR1810	PR1835
Soft steel	0.004~ 0.008 ~0.010	0.004~ 0.008 ~0.010	-	★ 400~ 500 ~725
Carbon steel	0.004~ 0.008 ~0.010	0.004~ 0.008 ~0.010	-	★ 325~ 500 ~650
Alloy steel	0.004~ 0.006 ~0.008	0.004~ 0.006 ~0.008	-	★ 325~ 500 ~650
Mold steel	0.004~ 0.006 ~0.008	0.004~ 0.005 ~0.006	-	★ 325~ 500 ~600
Gray cast iron	0.004~ 0.008 ~0.012	0.004~ 0.008 ~0.010	★ 325~ 600 ~825	-
Nodular cast iron	0.004~ 0.008 ~0.010	0.004~ 0.007 ~0.008	★ 325~ 600 ~725	-
Stainless steel	Not Recommended			
Aluminum/Copper	Not Recommended			

★ : 1st Recommendation ☆: 2nd Recommendation

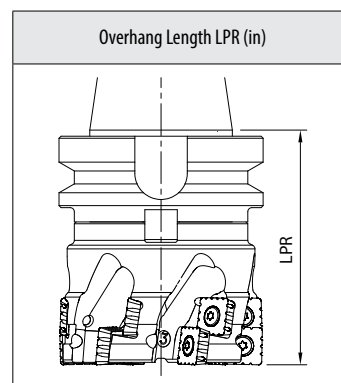
Cutting Conditions (Shouldering)

Using MSRS90100R-1-6T

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		(D.O.C. × ae)	Chip Evacuation Rate (in ³ /min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Cast iron	≤ 4.72	590	0.008	0.59 × 3.15	50.41
	4.72~7.87	590	0.008	0.59 × 1.57	25.20
	≥ 7.91	425	0.004	0.59 × 1.57	16.05
Carbon steel	≤ 4.72	490	0.008	0.59 × 3.15	42.05
	4.72~7.87	490	0.008	0.59 × 1.57	20.99
	≥ 7.91	325	0.004	0.59 × 1.57	13.97

Using MSRS90100R-2-6T

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		(D.O.C. × ae)	Chip Evacuation Rate (in ³ /min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Cast iron	≤ 4.72	590	0.008	1.18 × 1.97	62.97
	4.72~7.87	590	0.008	1.18 × 1.18	37.77
	≥ 7.91	425	0.004	1.18 × 0.98	20.08
Carbon steel	≤ 4.72	490	0.008	1.18 × 1.97	52.54
	4.72~7.87	490	0.008	1.18 × 1.18	31.55
	≥ 7.91	325	0.004	1.18 × 0.98	17.51



Using MSRS90100R-4-6T

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		(D.O.C. × ae)	Chip Evacuation Rate (in ³ /min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Cast iron	≤ 5.51	590	0.008	2.36 × 0.79	50.41
	5.51~7.87	590	0.008	2.36 × 0.39	25.20
	≥ 7.91	425	0.004	2.36 × 0.39	16.05
Carbon steel	≤ 5.51	490	0.008	2.36 × 0.79	42.05
	5.51~7.87	490	0.008	2.36 × 0.39	20.99
	≥ 7.91	325	0.004	2.36 × 0.39	13.97

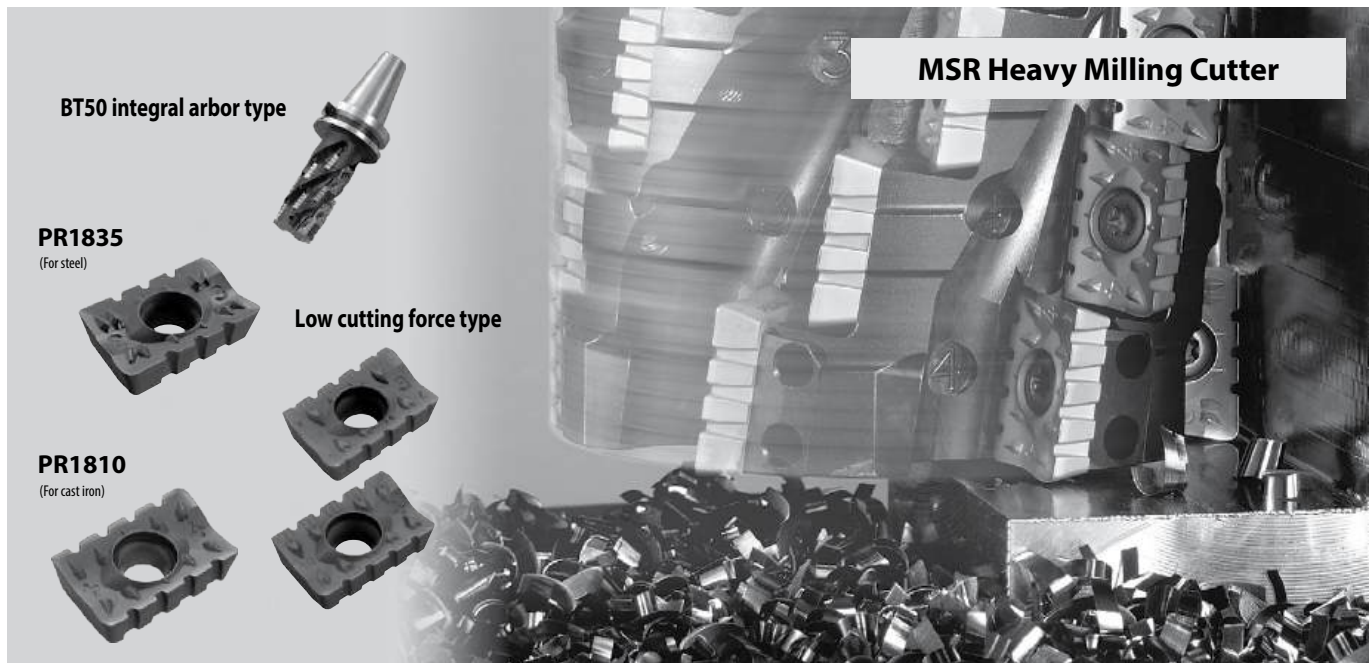
Case Studies

Ductile Iron, 60-40-8	
Industrial Parts • Vc = 490 sfm • D.O.C. × ae = 0.236" × 2.559" • fz = 0.006 ipt (Vf = 16.93 ipm) MSRS90100R-1-6T(ø100mm -6 flutes) SPMT180616EN-NB3/NB4 (PR1210)	
MSRS90 (PR1210)	Chip Removal = 15.7 in³/min
Competitor B	9.3 in³/min
• MSRS90 more than doubled the machining efficiency compared with competitor B. • Competitor B machined with 2 passes (D.O.C. × ae = 0.118 × 2.56"). MSRS90 machined with only 1 pass. • Cutting time was reduced. (User evaluation)	

Chrome-Moly Steel	
Construction Machine Part • Vc = 660 sfm • D.O.C. × ae = 0.394" × 1.968" • fz = 0.004 ipt (Vf = 15.748 ipm) MSRS90125R-1-8T(ø125 -8 flutes) SPMT180616EN-NB3/NB4 (PR1230)	
MSRS90 (PR1230)	Chip Removal = 12.2 in³/min
Competitor C	9.3 in³/min
• MSRS90 improved the machining efficiency to 1.3 times that of competitor C. • Competitor C machined with D.O.C. × ae = 0.20 × 1.97" • Tool cost is reduced to 1/3 although competitor C is expensive using 2-corner insert. MSRS90 reduced machining cost as well as improved machining efficiency. (User evaluation)	

Tool Steel	
Shipbuilding Parts • Vc = 490 sfm • D.O.C. × ae = 0.394" × 0.394" ~ 1.968" • fz = 0.004 ipt (Vf = 9.449 ipm) MSRS90160R-1-8T(ø160 -8 flutes) SPMT180616EN-NB3/NB4 (PR1230)	
MSRS90 (PR1230)	Chip Removal = 7.32 in³/min
Competitor D	3.66 in³/min
• MSRS90 more than doubled the machining efficiency compared with competitor D. • Competitor D machined with D.O.C. × ae = 0.197 × 0.394 ~ 1.968" • Low cutting force of MSRS90 enabled twice as large D.O.C. as that of competitor. • It can double the D.O.C. as well as increase the cutting speed (Vc = 325 increases to 490 sfm). • Machining efficiency was improved by MSRS90 (by achieving reduction in cutting time). (User evaluation)	

Structural Steel	
Power Generation Parts • Vc = 530 sfm • D.O.C. × ae = 0.394" × 0~0.787" • fz = 0.006 ipt (Vf = 19.69 ipm) MSRS90125R-1-8T(ø125 -8 flutes) SPMT180616EN-NB3/NB4 (PR1230)	
MSRS90 (PR1230)	12 Faces/Edge
Competitor E	8 Faces/Edge
• MSRS90 showed 1.5 times longer tool life than that of competitor E. • Competitor E machined with 2 passes on a side (D.O.C. × ae = 0.472 × 0~0.394"). • Competitor E was poor in feed rate (Vf = 15.748ipm). Machining efficiency was improved with MSRS90 (by achieving reduction in cutting time). • Although competitor E is load due to high cutting force. MSRS90 operates fairly quietly. (User evaluation)	

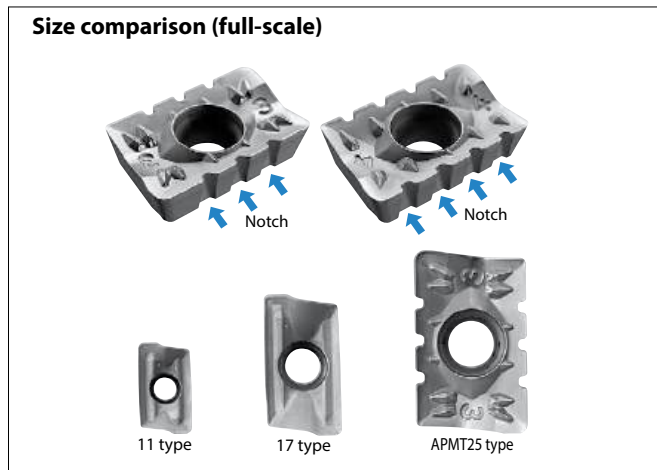


Notched insert reduces cutting force, and enables high feed rates by reducing chattering.

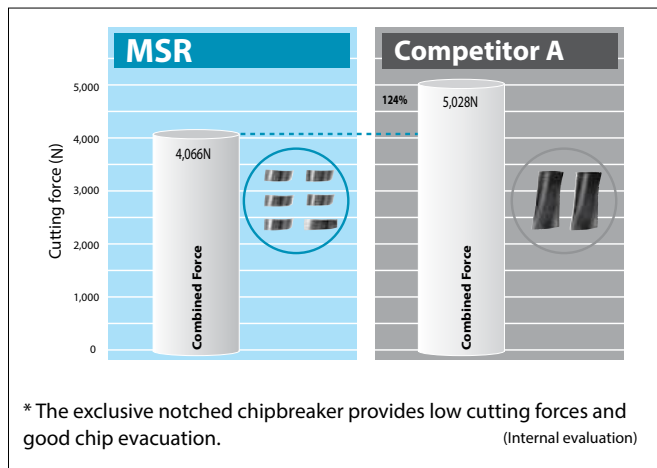
Improved chip evacuation and low cutting force with the special chipbreaker.

Enables heavy milling and deep cutting, and also drastically improves machining efficiency. (Reduction of cutting time)

Notched Insert



Cutting Force Comparison



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

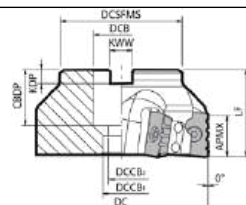


Fig. 1

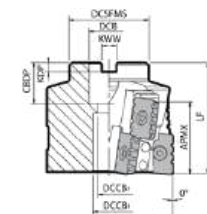


Fig. 3

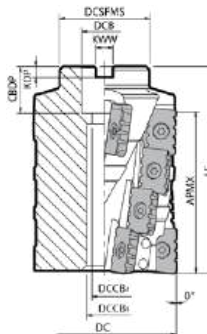


Fig. 5

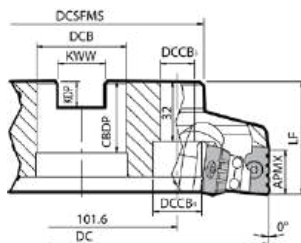


Fig. 7

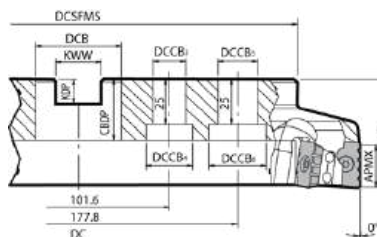


Fig. 9

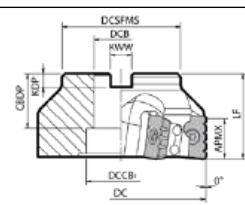


Fig. 2

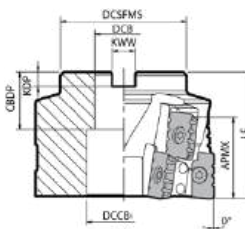


Fig. 4

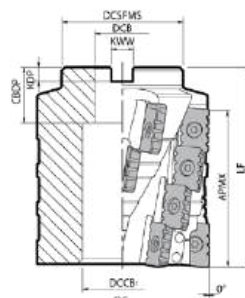


Fig. 6

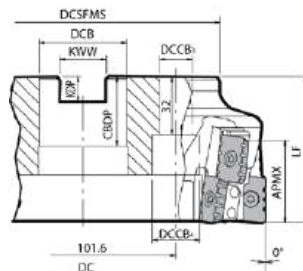


Fig. 8

Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions								A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts 🔵 M181	
			R				DC	DCSFMS	DCB	DCCB ₁	LF	CBDP	KDP	KWW							APMX
Inch	Inch Bore Dia.	MSR 3000R-1	●	4	4	1	3.00	2.25	1.00	0.790	1.970	1.020	0.240	0.375	0.925	+9	-5	No	0.8	2	APMT2506...
		4000R-1-1.5ID	●	6	6	1	4.00	2.75	1.50	1.610	1.970	1.260	0.310	0.500	0.925				14.7	2	
		4000R-2-1.5ID	●	12	6	2					2.760				1.770				16	4	

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions														A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Applicable Inserts M181
		R				DC	DCSMS	DCB	DCB ₁	DCB ₂	DCB ₃	DCB ₄	DCB ₅	DCB ₆	LF	CBDP	KOP	KWW	APMX						
mm	Inch Bore Dia.	MSR 063R-1	● 4	1	63	50		1.000"	20	14					65				23.5		-8		0.8	1	APMT2506...
		063R-2	● 8	2											85	1.024"	0.236"	0.375"	45				1	3	
		080R-1	● 4	1											50				23.5				1.1	1	
		080R-2	● 8	4	2	80	55	1.250"	27	18					70	1.260"	0.315"	0.500"	45				1.6	3	
		080R-2-31.75	● 8																				1.7	3	
		080R-4	● 16	4				1.000"	20	14					115	1.024"	0.236"	0.375"	90				2.6	5	
		080R-4-31.75	● 16						27	18													2.7	5	
		100R-1	● 6	1		70	1.250"				-	-			50	1.260"	0.315"	0.500"	23.5		+9	No	1.6	2	
		100R-2	● 12	2	100				42						70				45				2.2	4	
		100R-4	● 24	4											115				90				3.6	6	
		125R-1	● 6	1											60				23.5				3.5	2	
		125R-2	● 12	2	125	85	1.500"	54							70		0.394"	0.625"	45				3.8	4	
		125R-4	● 24	4											115				90				6.1	6	
		160R-1	● 8	1											60				23.5				5.8	2	
		160R-2	● 16	8	2	160	100	2.000"	68						70	1.496"	0.433"	0.750"	45		-5		6.4	4	
		160R-4	● 32	4											115				90				10.7	6	
		200R-1	● 10	1	200										60				23.5				7.5	7	
		200R-2	● 20	2		130	1.875"				18	26			80				45				10.4	8	
		250R-1	● 12	1	250										60		0.551"	1.000"	23.5				10.9	7	
		250R-2	● 24	2											80				45				14.7	8	
		315R-1	□ 14	1	315	220					17	27	22	32	60	1.378			23.5				16	9	
	Metric Bore Dia.	MSR 063R-1M	● 4	1	63	50									65				23.5		-8		0.7	1	APMT2506...
		063R-2M	● 8	2											85				45				0.9	3	
		080R-1M	● 4	1				27	20	14					50	22	7.2	12.4	23.5				1	1	
		080R-2M	● 8	2	80	55									70				45				1.5	3	
		080R-4M	● 16	4											115				90				2.5	5	
		100R-1M	● 6	1											50				23.5				1.5	2	
		100R-2M	● 12	2	100	70	32	42			-	-			70	28	8	14.4	45				2	4	
		100R-4M	● 24	4											115				90				3.2	6	
		125R-1M	● 6	1											60				23.5				3.4	2	
		125R-2M	● 12	2	125	85		58							70		9		45				3.7	4	
		125R-4M	● 24	4			40								115	30		16.4	90				6	6	
		160R-1M	● 8	1											60				23.5				6.1	2	
		160R-2M	● 16	8	2	160	100		68						70		10		45				6.8	4	
		200R-1M	● 10	1	200										60				23.5				7	7	
		200R-2M	● 20	2		130	60				18	26			80	38		25.4	45				9.9	8	
		250R-1M	● 12	1	250										60				23.5				10.3	7	
		250R-2M	● 24	2											80				45				14.2	8	
		315R-1M	□ 14	1	315	230					17	27	22	32	60	35			23.5				15.5	9	

Spare Parts (Inch and Metric Face Mills)

Part Number	Spare Parts					
	Insert Screw	Wrench	Shim	Shim Screw	Wrench	Anti-seize Compound
						
MSR 063R- 	SB-60120TR	TT-25L	-	-	-	P-37
MSR 3000R... 4000R...			MAP-2506	SB-40140TR	DT-15	
MSR 080R-  ? 315R- 			for Insert Screw		for Shim Screw	

Shim is not available for MSR063R (DC = 63mm).

Arbor bolt (HH12X35) is included for MSR063R / MSR080R (Metric).

Arbor bolt (HH12X40) is included for MSR063R / MSR080R (Inch Bore Dia.).

Arbor bolt (HH16X45) is included for MSR080R-○-31.75.

It is not recommended using only top edge part (under D.O.C. = 1.181" / 30mm) for 4 stages type.

If D.O.C. is small, use 1 stage or 2 stages type.

Deep slotting is not recommended for these cutters.

 Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

MSR (Integral Arbor)

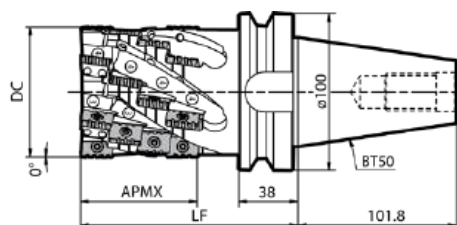


Fig. 1

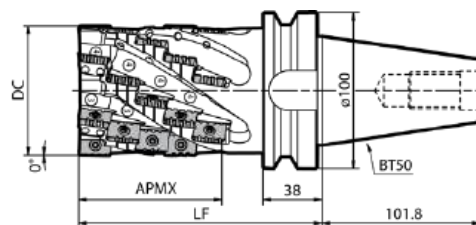


Fig. 2

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	No. of Flutes	No. of Stages	Dimensions			A.R. (°)	R.R. (°)	Coolant Hole	Weight (kg)	Fig.	Spare Parts						Applicable Inserts ➡ M181
						DC	LF	APMX						Anti-Seize Compound	Cartridge	Cartridge Screw	Wrench	Insert Screw	Wrench	
		R																		
mm	MSR 063R-BT50-4	● 16	4	4	63	160	90	+9	-8	No	5.7	1	P-37	-	-	-	SB-60120TR	TT-25L	APMT2506...	
	063R-BT50-5	● 20				180	111				6.2	2								
	080R-BT50-4	● 16				160	90				6.9	1								
	080R-BT50-5	● 20	180	111	7.4	2														
	100R-BT50-4	● 24	160	90	9.6	1														
	100R-BT50-5	● 30	180	111	10.5	2														

Shim is not available for MSR063R (DC = 63mm).

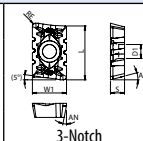
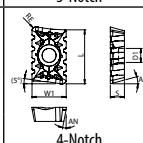
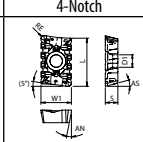
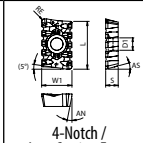
It is not recommended using only top edge part (under D.O.C. = 1.181" / 30mm) for 4 stages / 5 stages type. If D.O.C. is small, use previous page's 1 stage type or 2 stages type.

Deep slotting is not recommended for this cutter.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

APMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel						★	P			
		Mold and die steel						★				
		Austenitic stainless steel							M			
		Martensitic stainless steel										
		Precipitation hardened stainless steel										
		Gray cast iron						★	K			
		Nodular cast iron						★				
		Non-ferrous metals							N			
		Heat-resistant alloy							S			
		Titanium alloy										
		Hard materials							H			
Insert	Part Number	No. of Edges	Dimensions (mm)					Angle (°)		Carbide		Applicable Toolholder ➡ M178 M179 M180
			S	D1	RE	L	W1	AN	AS	PVD		
										PR1810	PR1835	
  3-Notch	APMT 250608ER-NB3	2	6.35	6.5	0.8	25	15.875	11	15	●	●	MSR...
	250616ER-NB3				1.6					●	●	
	250640ER-NB3				4						●	
  4-Notch	APMT 250616EL-NB3	2	6.35	6.5	1.6	25	15.875	11	15		●	MSR...
	APMT 250608ER-NB4	2	6.35	6.5	0.8	25	15.875	11	15	●	●	
	250616ER-NB4				1.6					●	●	
  4-Notch	250640ER-NB4	2	6.35	6.5	4	25	15.875	11	15		●	MSR...
	APMT 250616EL-NB4				1.6						●	
	APMT 250616ER-NB3P				2					6.35	6.5	
  3-Notch / Low Cutting Force	APMT 250616ER-NB3P	2	6.35	6.5	1.6	25	15.875	11	15	●	●	MSR...
	APMT 250616ER-NB4P				1.6						●	

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M182

Caution when Installing Notched Inserts (MSR)

It is important to install the appropriate notched insert into the correct position. Failure to do so may result in damage to the toolholder body. The appropriate insert is marked on the pocket of the cutter body.

- (3) is for APMT250608ER-NB3
- (4) is for APMT250608ER-NB4

(No. of Inserts – Example)

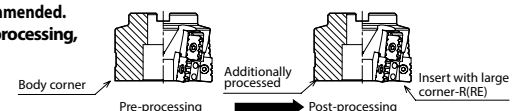
Description	No. of Inserts	No. of Flutes	No. of Inserts	
			Notched	
			NB3	NB4
MSR 100R-1	6	6	3	3
	12		6	6
	24		12	12

Caution when Installing Insert with Corner-R(RE) 4.0mm

When using inserts with corner-R(RE) 4.0mm, additional modifications of the cutter body will be necessary. Ref. to the table below for the recommended modifications.

Insert Corner-R(RE) (mm)	Additional Processing Dimension to Body Corner (mm)
4.0	R2.0

* Round-shaped additional processing is recommended. When applying chamfer shaped additional processing, do not cut away too much.



Recommended Cutting Conditions

Workpiece Material	fz (ipt)		Recommended Insert Grades (Cutting Speed Vc: sfm)	
	Low Cutting Force	General Purpose	MEGACOAT	
	NB3P+NB4P	NB3+NB4	PR1810	PR1835
Carbon steel	0.008	0.006	-	★ 330~490~660
Cast iron	0.008	0.006	★ 330~490~660	-
Stainless steel	Not Recommended			
Aluminum / Copper	Not Recommended			

* For MSR, cutting speed should be carefully adjusted depending on the length of toolholder protruding from the end of machine spindle.

★ : 1st Recommendation

- When the overhang length of toolholder is small, set the cutting speed to slightly higher than the recommended cutting conditions.
- When the overhang length of toolholder is long, set the cutting speed to slightly lower than the recommended cutting conditions.

Cutting Conditions

1. Shouldering

Using MSR100R-1

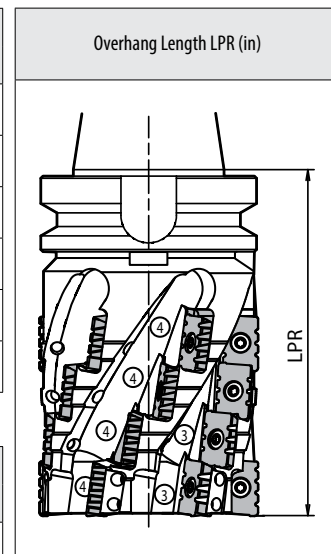
Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 3.94	590	0.008	0.79 × 3.15	67.13
	3.94~7.87	590	0.008	0.79 × 1.57	33.56
	≥ 7.91	400	0.008	0.79 × 1.18	16.84
Cast iron	≤ 3.94	500	0.008	0.79 × 3.15	56.14
	3.94~7.87	500	0.008	0.79 × 1.57	28.07
	≥ 7.91	325	0.008	0.79 × 1.18	13.91

Using MSR100R-2

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 5.12	590	0.008	1.57 × 1.57	67.13
	5.12~9.06	590	0.008	1.57 × 0.79	33.56
	≥ 9.09	400	0.008	1.57 × 0.79	22.46
Cast iron	≤ 5.12	500	0.008	1.57 × 1.57	56.14
	5.12~9.06	500	0.008	1.57 × 0.79	28.07
	≥ 9.09	325	0.008	1.57 × 0.79	18.55

Using MSR100R-4

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 7.09	590	0.008	2.95 × 0.79	63.16
	7.09~11.02	590	0.008	2.95 × 0.39	31.61
	≥ 1.06	400	0.008	2.95 × 0.39	21.05
Cast iron	≤ 7.09	500	0.008	2.95 × 0.79	52.66
	7.09~11.02	500	0.008	2.95 × 0.39	26.30
	≥ 11.06	325	0.008	2.95 × 0.39	17.39



2. Slotting Using MSR100R-1

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 3.94	590	0.008	0.55 × 3.94	58.95
	3.94~7.87	500	0.008	0.28 × 3.94	24.59
	≥ 7.91	400	0.008	0.16 × 3.94	11.23
Cast iron	≤ 3.94	500	0.008	0.28 × 3.94	24.59
	3.94~7.87	400	0.008	0.16 × 3.94	11.23
	≥ 7.91	325	0.008	0.12 × 3.94	6.96

Using MSR100R-2

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 5.12	590	0.008	0.55 × 3.94	58.95
	5.12~9.06	500	0.008	0.28 × 3.94	24.59
	≥ 9.09	400	0.008	0.16 × 3.94	11.23
Cast iron	≤ 5.12	500	0.008	0.28 × 3.94	24.59
	5.12~9.06	400	0.008	0.16 × 3.94	11.23
	≥ 9.09	325	0.008	0.12 × 3.94	6.96

Using MSR160R-1

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 3.94	600	0.008	0.39 × 6.30	56.63
	3.94~7.87	500	0.008	0.20 × 6.30	28.32
	≥ 7.91	400	0.008	0.16 × 6.30	14.83
Cast iron	≤ 3.94	500	0.008	0.20 × 6.30	23.43
	3.94~7.87	400	0.008	0.12 × 6.30	14.04
	≥ 7.91	325	0.008	0.08 × 6.30	6.22

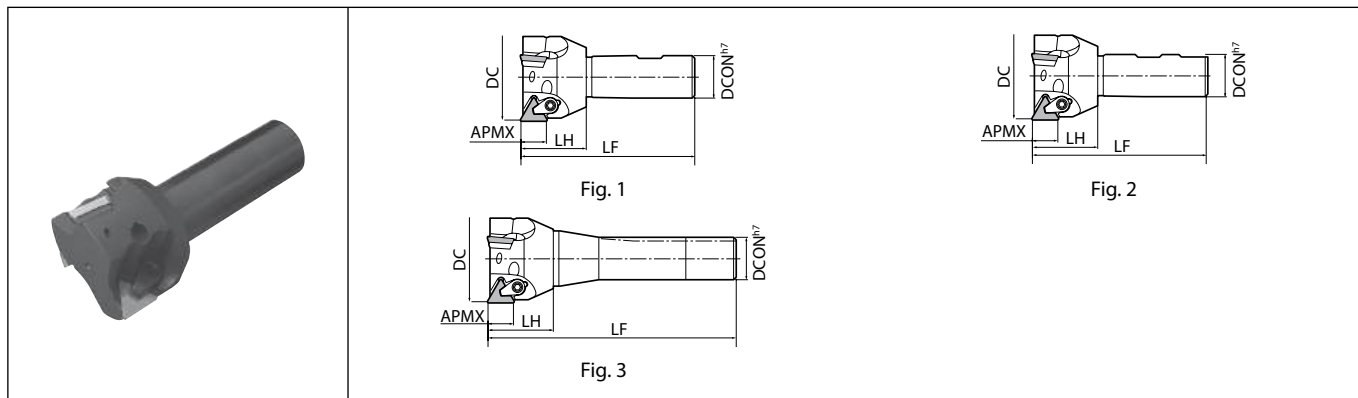
Using MSR160R-2

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. x ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed Vc (sfm)	Feed fz (ipt)		
Carbon steel	≤ 5.12	600	0.008	0.39 × 6.30	56.63
	5.12~9.06	500	0.008	0.20 × 6.30	23.43
	≥ 9.09	400	0.008	0.16 × 6.30	14.83
Cast iron	≤ 5.12	500	0.008	0.20 × 6.30	23.43
	5.12~9.06	400	0.008	0.12 × 6.30	11.11
	≥ 9.09	325	0.008	0.08 × 6.30	6.22

Notes: MSR...-4 (No. of stage)
Slotting is not recommended.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MTP90 (End Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts								Applicable Inserts ➡ M185
				DC	DCON	LF	LH	APMX													
Inch	MTP 90-075-75W	●	2	0.75	0.75	3.28	1.25	0.34	+3	-3	No	2	CPS-2S	-	-	FT-15	-	-	-	-	TPG22... TPM22...
	90-100-75W	●	3	1.00																	
	MTP 90-125-75W	●	2	1.25	0.75	3.28	1.25	0.53	+5	0	No	2	CPS-3	-	-	-	LW-3	KPT-32	SH3X6	LW-2	TPK32..., TPMR32..., TPG32..., TPM32...
	90-150-75W	●	3	1.50																	
	90-200-75W	●	3	2.00																		0.75	3.53	1.50	0.53
	MTP 90-200-125W	●	3	2.00	1.25	3.90	1.69	0.71	+8	0	No	3	-	CP-8W	W8X18	-	LW-4	KPT-42	SH3X6	LW-2	TPK43... TPKR43... TPMR43...
	90-250-125W	●	3	2.50																	
MTP 90-200-R8	●	3	2.00	0.949	6.00	2.003	0.53	+5		No	4	CPS-3	-	-	-	LW-3	KPT-32	SH3X6	LW-2	TPK32..., TPMR32..., TPG32..., TPM32...	

M
MILLING

45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

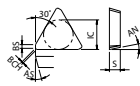
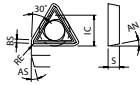
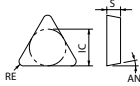
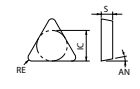
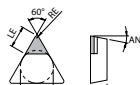
Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

TP Inserts

Usage Classification				Carbon steel / Alloy steel										★ ☆ ☆ ■ □										P	
				Mold and die steel										★ ☆ ☆ ■ □											
				Stainless steel										☆ ★ ☆										M	
				Gray cast iron										★ ☆										K	
				Nodular cast iron										★											
				Non-ferrous metals										★										N	
				Heat-resistant alloy										★										S	
				Titanium alloy										★ ★ ☆										S	
				Hard materials										□										H	
Insert		Part Number ANSI	Part Number ISO	No. of Edges	Dimension (in)						Angle (°)		Carbide				Cermet		PCD		Applicable Toolholder M184				
					IC	S	BCH	RE	BS	LE	AN	AS	PVD				-	-	-						
													PR1825	PR1535	PR1210	PR1225	KW10	TN100M	TN610	TN60		KPD001	KPD010		
		TPK 32PDTR	TPKN 1603PDR	3	3/8	1/8	0.028	-	0.047	-	11	15		●	●	●						MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8			
		TPK 32PDR	TPKN 1603PDR	3	3/8	1/8	0.028	-	0.047	-	11	15				●						MTP90-200-75W MTP90-200-R8			
		TPK 43PDTR	TPKN 2204PDR	3	1/2	3/16	0.028	-	0.063	-	11	15		●	●	●						MTP90-200-125W MTP90-250-125W			
		TPK 43PDR	TPKN 2204PDR	3	1/2	3/16	0.028	-	0.063	-	11	15				●						MTP90-200-125W MTP90-250-125W			
		TPKR 43PDR-S	TPKR 2204PDR-S	3	1/2	3/16	-	0.039	0.055	-	11	15			●							MTP90-200-125W MTP90-250-125W			
		TPMR 32PDR-H	TPMR 1603PDR-H	3	3/8	1/8	-	0.031	0.047	-	11	15	●									MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8			
		TPMR 43PDR-H	TPMR 2204PDR-H	3	1/2	3/16	-	0.039	0.055	-	11	15	●									MTP90-200-125W MTP90-250-125W			
		TPG 2205	TPGN 110302	3	1/4	1/8	-	0.008	-	-	11	-				●			●			MTP90-075-75W MTP90-100-75W			
		221	110304													●			●						
		222	110308													●			●						
		Without Chipbreaker		TPG 321	TPGN 160304	3	3/8	1/8	-	0.016	-	-	11	-	●			●			●			MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8	
	322	160308													0.031					●			●		
		TPM 221	TPMN 110304	3	1/4	1/8	-	0.016	-	-	11	-				●						MTP90-075-75W MTP90-100-75W			
		222	110308													●									
		Without Chipbreaker		TPM 321	TPMN 160304	3	3/8	1/8	-	0.016	-	-	11	-				●			●			MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8	
	322	160308													0.031					●			●		
		323	160312					0.047								●						MTP90-200-R8			
		TPG 2205	TPGN 110302	1	1/4	1/8	-	0.008	-	0.154	11	-							●	●		MTP90-075-75W MTP90-100-75W			
		221	110304																●	●					
				TPG 321	TPGN 160304	3	3/8	1/8	-	0.016	-	-	11	-						●	●		MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8		
	322	160308																							

Right-hand Insert Shown

TP Inserts are
sold in 10 piece boxesPCD Inserts are
sold in 1 piece boxes

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm)								
		MEGACOAT NANO EX	MEGACOAT NANO	MEGACOAT		Carbide	Cermet			PCD
		PR1825	PR1535	PR1225	PR1210	KW10	TN100M	TN610	TN60	KPD001 (KPD010)
Carbon Steel	~0.010	390~820	390~820	390~820	-	-	390~660	390~660	390~660	-
Alloy Steel	~0.010	330~720	330~720	330~720	-	-	330~590	330~590	330~590	-
Mold Steel	~0.008	260~590	260~590	260~590	-	-	330~590	330~590	330~590	-
Stainless Steel	~0.008	390~720	390~720	390~720	-	-	390~660	-	-	-
Cast Iron	~0.010	-	-	-	330~720	260~490	-	-	-	-
Non-ferrous Metals	~0.008	-	-	-	-	330~980	-	-	-	980~2620
Heat-resistant Alloy	~0.006	-	70~160	-	-	-	-	-	-	-
Titanium Alloy	~0.006	-	130~260	-	-	-	-	-	-	-
Hard Materials (~45HRC)	~0.006	160~330	-	160~330	-	-	-	-	-	-

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

★ : 1st Recommendation ☆ : 2nd Recommendation

INSERT GRADES

TURNING INSERTS

CBN / PCD INSERTS

TURNING HOLDERS

SMALL TOOLS

BORING

GROOVING

CUT-OFF

THREADING

DRILLING

MILLING

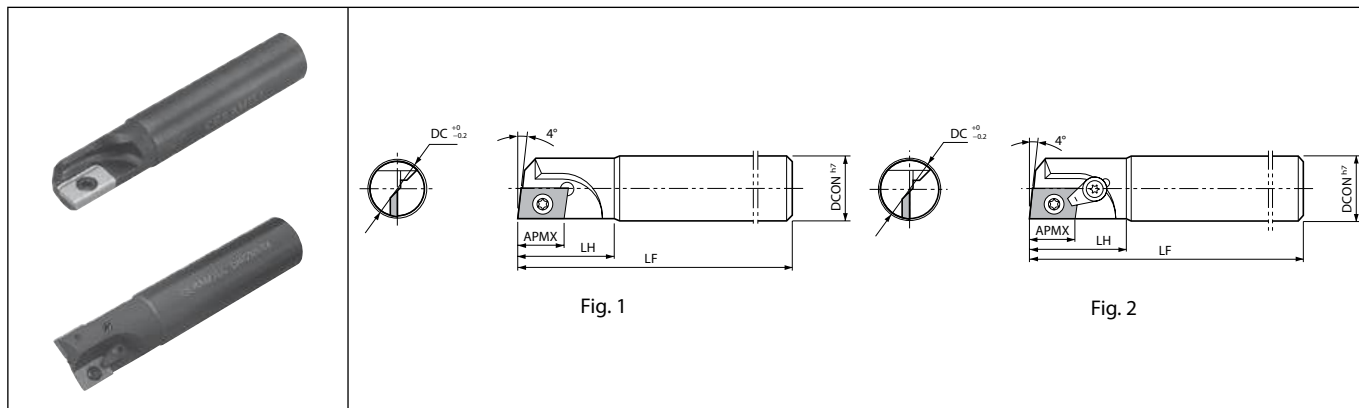
QUICK CHANGE TOOLING

SPARE PARTS

TECHNICAL

INDEX

DMC-SX



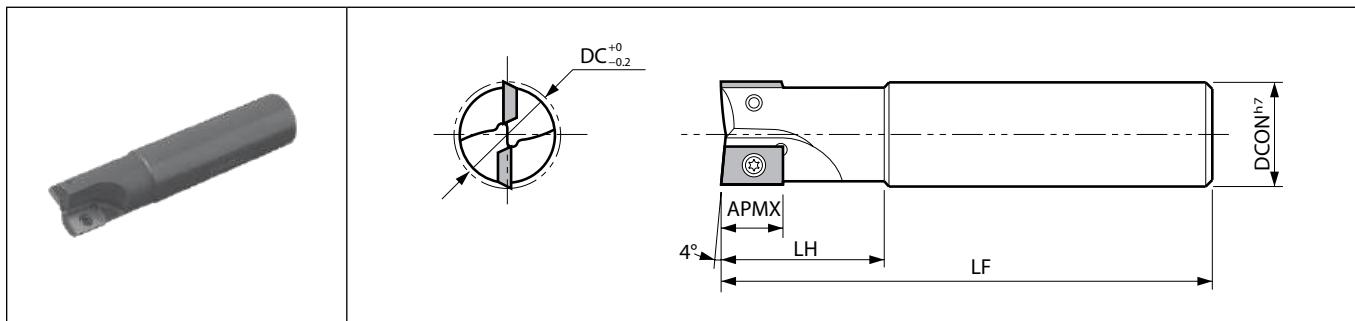
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ M188	
				DC	DCON	LF	LH	APWX					Clamp Set	Screw	Wrench		
mm	DMC 316SXT 320SX 325SX 332SX 340SX	●	1	16	16	90	30	14	+3	-3	No	1	-	SB-4060TR	FT-15	NDCT32... NDCW32...	
		●		20	20	110						2					
		●		25	25	120						2	CPS-2TR	SB-4065TR			
		●	2	32		130	40					2					
		●		40	32	150						2					
	DMC 320SX-200 325SX-220 332SX-250	●	1	20	20	200	50	14	+3	-3	No	1	-	SB-4065TR	FT-15	NDCT32... NDCW32...	
		●		25	25	220	60					1					
		●	2	32	32	250	80					1					

MILLING

45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

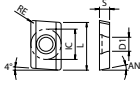
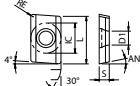
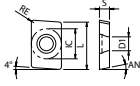
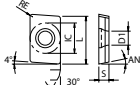
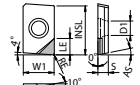
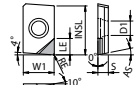
DMC-H



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. (°)	R.R. (°)	Coolant Hole	Spare Parts		Applicable Inserts ➡ M188
				DC	DCON	LF	LH	APMX				Insert Screw	Wrench	
														
mm	DMC 316H	●	1	16	16	90	30		+5	-3.5		SB-4060TR		NDCT32...X NDCW32...X..
	320H	●		20	20	110			+6					
	325H	●		25	25	120		14	-2		No		FT-15	
	332H	●	2	32		130	40		+8	0		SB-4065TR		
	340H	●		40	32	150								

NDCT/NDCW

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)				Carbon steel / Alloy steel										■	■	■	P					
				Mold and die steel										■	■	■						
				Austenitic stainless steel										■	■	■	M					
				Martensitic stainless steel										■	■	■						
				Precipitation hardened stainless steel										■	■	■						
				Gray cast iron										☆	■	■	K					
				Nodular cast iron										■	■	■						
				Non-ferrous metals										★	□	■	N					
				Heat-resistant alloy										■	■	■	S					
				Titanium alloy										☆	□	■						
				Hard materials										■	■	■	H					
Insert		Part Number ANSI	Part Number ISO	No. of Edges	Dimensions (in)								Angle (°)		Carbide	Cermet	PCD	Applicable Toolholder ➡ M186 M187				
					IC	S	D1	RE	L	INSL	LE	W1	AN	AS	-	-	-					
															KV10	TN100M	KPD001		KPD010	KPD230		
		NDCT 322FR	NDCT 150308FR	2	3/8	1/8	0.177	0.031	0.591	-	-	-	15	-	●						DMC...SX(...)	
		NDCT 322TRX	NDCT 150308TRX	2	3/8	1/8	0.173	0.031	0.591	-	-	-	15	-	●						DMC...SX(...) DMC...H	
		NDCW 3205TR 321TR 322TR 325TR 3275TR 3210TR	NDCW 150302TR 150304TR 150308TR 150320TR 150330TR 150340TR	2	3/8	1/8	0.177	0.008 0.016 0.031 0.079 0.118 0.157	0.591	-	-	-	15	-	●	●	●	●	●	●	●	DMC...SX(...)
		NDCW 322TRX	NDCW 150308TRX	2	3/8	1/8	0.173	0.031	0.591	-	-	-	15	-	●						DMC...SX(...) DMC...H	
		NDCW 322FRX	NDCW 150308FRX	2	3/8	1/8	0.173	0.031	0.591	-	-	-	15	-	●						DMC...SX(...) DMC...H	
		NDCW 3205FRX 3205FRX-NE	NDCW 150302FRX 150302FRX-NE	1	-	1/8	0.173	0.008	-	0.591	0.224 0.201	3/8	-	15	●	●	●	●	●	●	DMC...SX(...) DMC...H	

Right-hand Insert Shown

Recommended Cutting Conditions ● M189

45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

Recommended Cutting Conditions (DMC-SX)

Workpiece Material	fz (ipt)	Recommended Insert Grades (Vc: sfm)		Max. D.O.C. (in)		
		Cermet	Carbide	Cutting Dia. (DC)	Slotting (D.O.C.)	Shouldering (D.O.C. x ae)
		TN100M	KW10			
Carbon steel	~0.008	★ 390~660	-	ø16mm~	0.118	0.354 x 0.118
Alloy steel	~0.008	★ 330~590	-	ø16mm~	0.118	0.354 x 0.118
Mold steel	~0.006	★ 330~590	-	ø16mm~	0.118	0.354 x 0.118
Stainless steel	~0.006	☆ 390~660	-	ø16mm~	0.118	0.354 x 0.118
Cast iron	~0.008	-	★ 260~490	ø16mm~	0.118	0.354 x 0.118
Non-ferrous metals	~0.008	-	★ 330~980	ø16mm~	0.118	0.354 x 0.118

When installing inserts with corner-R(RE) over 2.0mm, grind off the corner part of the tool's insert pocket to avoid contact with the workpiece.

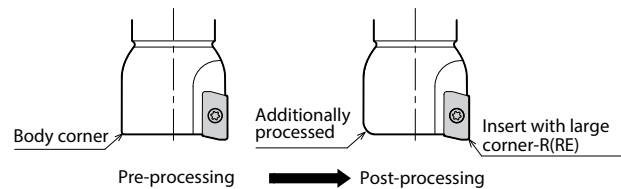
Additional modifications for the body will be necessary. Ref. table below for the recommended modifications.

(Additional grind off is not necessary when corner-R(RE) is 0.8mm or less.)

Insert Corner-R(RE) (mm)	Additional Processing Dimension to Body Corner (mm)
2.0	R1.0
3.0	R1.6
4.0	R2.0

* Round- shaped additional processing is recommended.

When applying chamfer shaped additional processing, do not cut away too much.



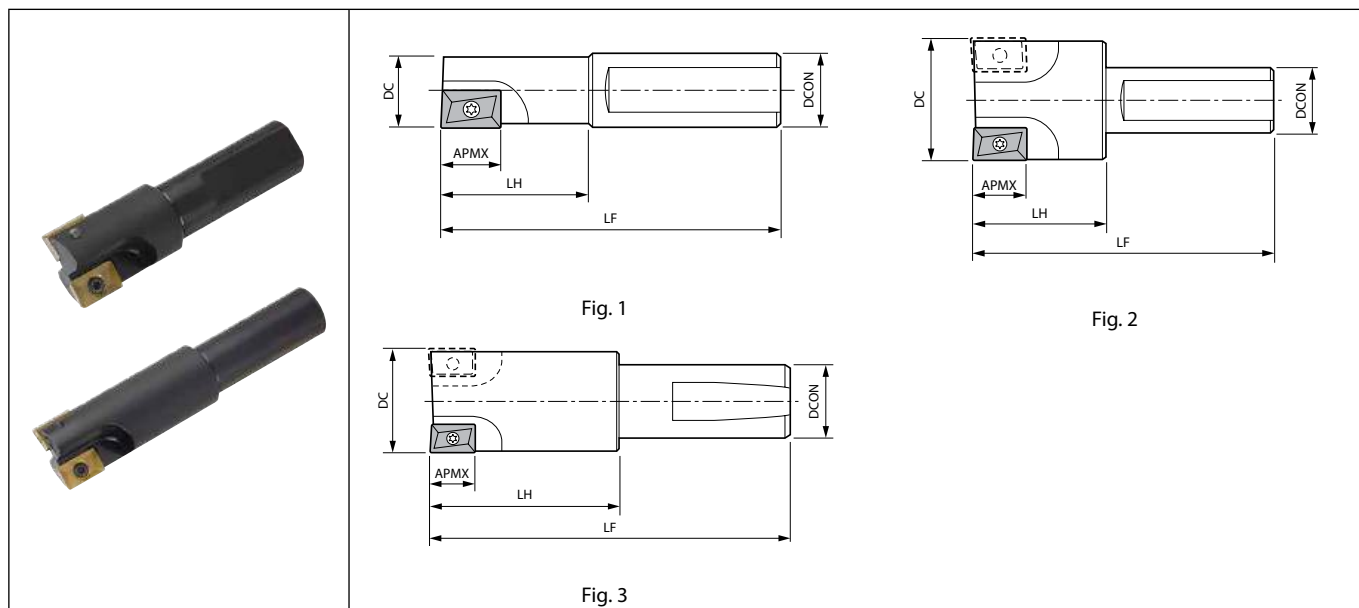
Recommended Cutting Conditions (DMC-H)

Workpiece Material	fz (ipt)	Recommended Insert Grades (Vc: sfm)				Max. D.O.C. (in)		
		Cermet	Carbide	PCD				
		TN100M	KW10	KPD230 (KPD001)	KPD010	Cutting Dia. (DC)	Slotting (D.O.C.)	Shouldering (D.O.C. x ae)
Carbon steel	~0.008	★ 390~660	-	-	-	~Ø20mm	0.157	0.315 x 0.157
						Ø25mm~	0.315	0.551 x 0.236
Alloy steel	~0.008	★ 330~590	-	-	-	~Ø20mm	0.157	0.315 x 0.157
						Ø25mm~	0.315	0.512 x 0.236
Mold steel	~0.006	★ 330~590	-	-	-	~Ø20mm	0.118	0.197 x 0.079
						Ø25mm~	0.236	0.394 x 0.118
Stainless steel	~0.006	☆ 390~660	-	-	-	~Ø20mm	0.118	0.236 x 0.079
						Ø25mm~	0.236	0.512 x 0.118
Cast iron	~0.008	-	★ 260~490	-	-	~Ø20mm	0.157	0.315 x 0.157
						Ø25mm~	0.236	0.551 x 0.236
Non-ferrous metals	~0.008	-	★ 330~980	★ 980~1640	☆ 980~1640	~Ø20mm	0.157	0.315 x 0.157
						Ø25mm~	0.236	0.551 x 0.236

Above inserts are also applicable to DMC○○○SX, but the conventional NDCW32○TR insert is not applicable for this end mill.

Toolholder	Insert		Toolholder description	Insert description	
	NDCT...TRX NDCW...(T/F)RX	NDCW...TR NDCW...(T/F)R		NDCT...TRX NDCW...(T/F)RX	NDCW...TR NDCW...(T/F)R
DMC-H	No interference of relief surface	Less relief D.O.C. must be under 0.197" (5mm).	DMC-SX	No interference of relief surface	No interference of relief surface
	Relief surface side A direction	Less relief A direction		No interference B direction	No interference B direction

EM (End Mill / Extended Length End Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Max. Ramping Angle (°)	Insert Screw	Wrench	Applicable Inserts ➡ M193													
				DC	DCON	LF	LH	APMX																					
Inch	EM 0437-09 0500-09 0562-09 0625-09 0750-09 1000-09-3F	●	1	7/16	1/2	2.78	1.00	0.37	+3	-11	No	1	3	SCR-04	T7	XPMT0902...													
		●		1/2								1					8												
		●		9/16								1																	
		●	2	5/8	5/8	2.90						+5	-6				2												
		●		3/4	+5	-2						2																	
		●	3	1	3/4	3.03						+3	-2				2	SCR-01											
	EM 0625 0688 0750 0875 0938 1000 1000-100S 1125 1250 1250-3F 1375 1500 1500-3F	●	1	5/8	3/4	2.90	1.00	0.60	+5	-5	No	1	3	SCR-16	T10	XPMT15T3...													
		●		11/16		3.40						1.50					-12	1											
		●		3/4													-10	1											
		●	7/8	-7	1																								
		●	2	15/16	-5	2	8					SCR-30																	
		●		1	-5	2																							
		●		1	3.78	-4							2																
		●	3	1-1/8	3/4	3.40	-3						2																
		●		1-1/4	1	3.78	-3						2																
		●		1-3/8	3/4	3.40	-2						2																
		●	3	1-1/2	1	3.78	-2					2																	
		●		1000-2.5	●	2	1					1	1-1/4	1	4.78		2.50	0.60	+5	-5	No	3	8	SCR-16	T10				
		●	1000-3.5	●	1		5.78																			3.50	-3	3	SCR-30
		●	1250-2.5	●	1-1/4		4.78																			2.50	-3	3	SCR-30

M
MILLING

45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

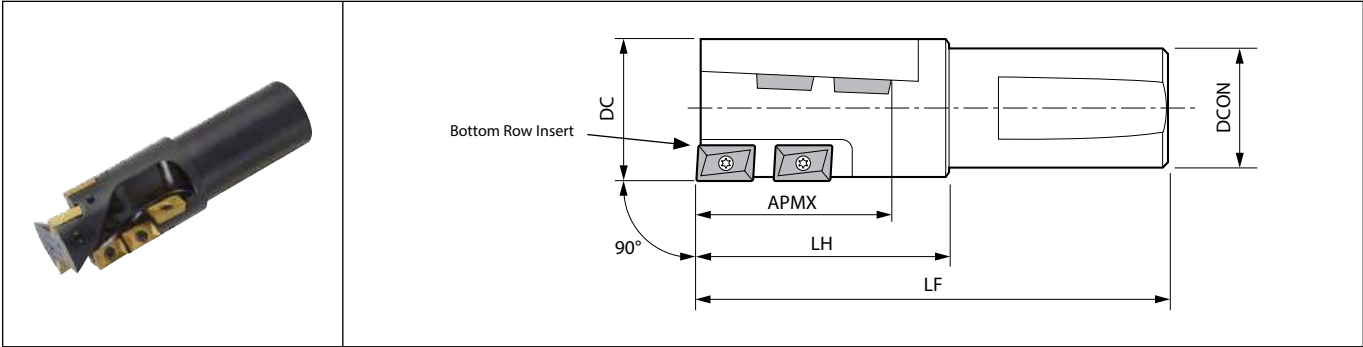
Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

EM-LE (Long Edge End Mill)



Toolholder Dimensions

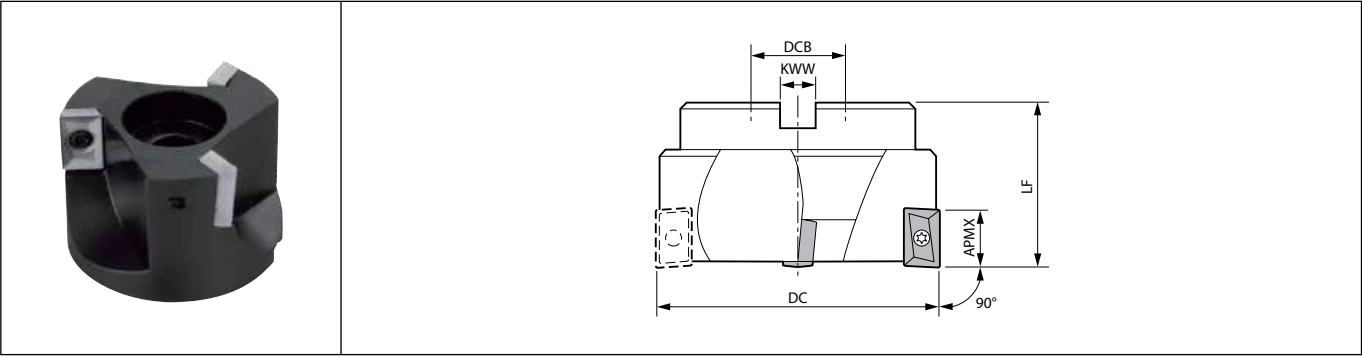
Unit	Part Number	Std. Item	No. of Inserts	No. of Flutes	Dimensions					A.R. (°)	R.R. (°)	Coolant Hole	Insert Screw	Wrench	Applicable Inserts ➡ M193
					DC	DCON	LF	LH	APMX						
Inch	EM 1500-2000-LE	●	8	2	1-1/2	1-1/4	4.91	2.63	2.00	+5	-2	No	SCR-30	T10	XPMT15T3...

Insert Compatibility

Part Number	Bottom Row	Side Row
EM ...-LE	XPMT 15T3..	XPMT 15T308

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

FM90 (Fixed Pocket Face Mill)



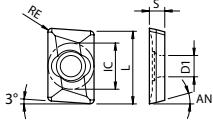
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. (°)	R.R. (°)	Coolant Hole	Insert Screw	Wrench	Applicable Inserts ➡ M193
				DC	DCB	LF	KWW	APMX						
Inch	FM 2000-90RH	●	3	2.0	3/4	1-13/32	5/16	0.6	+5	+3	No			XPMT15T3...
	3000-90RH	●	4	3.0	1	1-25/32	3/8							

M
MILLING

45°-70° Lead Angle
75° Lead Angle
88°-90° Lead Angle
Finish Milling
High Feed Milling
Multi- Functional
Slot Mills
Ball-Nose Radius
Other Applications

XPMT

Usage Classification		Carbon steel / Alloy steel										P			
		★										☆			
Mold and die steel		★										☆			
Stainless steel												★			
Gray cast iron												★			
Nodular cast iron												★			
Non-ferrous metals															
Heat-resistant alloy		★										☆			
Titanium alloy												☆			
Hard materials															
Insert	Part Number	No. of Edges	Dimensions (in)					Angle (°)		Carbide				Cermets	
			IC	S	D1	RE	INSL	AN	AS	CVD	PVD	-	-	Cermets	
 	XPMT 090208	2	1/4	0.094	0.110	0.031	0.375	11	-	●	●	●	●	CM...-09 EM...-09(-3F)	
	XPMT 15T304	2	3/8	0.156	0.157	0.016	0.607	11	-	●	●	●	●	Applicable Toolholder M190 M191 M192 M296	
	15T308					0.031				●	●	●	●		
	15T316					0.063				●	●	●	●		
	15T324					0.094				●	●	●	●		
	15T331					0.122				●	●	●	●		
	15T364					0.250				●	●	●	●		



*Toolholder modifications are necessary if using larger corner radius XPMT15T324, XPMT15T331, and XPMT15T364 inserts due to interference between the holder and workpiece.

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm)				
		MEGACOAT NANO			CVD Coated Carbide	Cermet
		PR1535	PR1525	PR1510	CA6535	TN100M
Carbon Steel	0.003~0.006	★ 400~800	★ 400~800	-	-	★ 800~1400
Alloy Steel	0.003~0.006	★ 300~700	★ 300~700	-	-	★ 600~1200
Mold Steel	0.003~0.006	★ 250~600	★ 250~600	-	-	★ 400~700
Stainless Steel	0.002~0.006	★ 300~600	☆ 300~600	-	★ 550~950	☆ 300~800
Cast Iron	0.003~0.008	-	-	★ 400~800	-	☆ 400~1200
Non-ferrous Metals	0.005~0.007	-	-	-	-	☆ 1500~1800
Heat-resistant Alloy	0.002~0.005	☆ 70~160	-	-	★ 70~160	-
Titanium Alloy	0.002~0.005	☆ 130~260	-	☆ 100~230	-	-

★ : 1st Recommendation ☆ : 2nd Recommendation

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

XPMT Inserts are
sold in 10 piece boxes

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Super Fine Pitch Cutter for Aluminum Machining

MD90

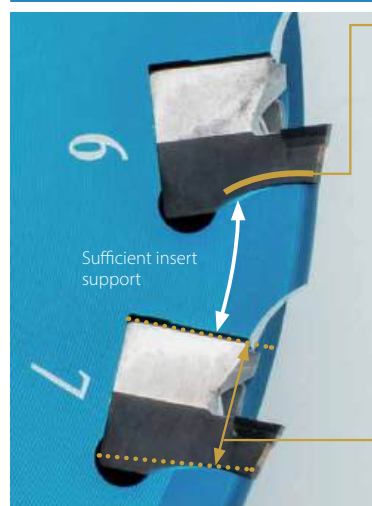
Improved efficiency in aluminum with super fine pitch specifications

High quality and high precision design with long tool life



1 Unique design provides efficiency and high quality machining results

High Efficiency Cutter design engineered with ultra-fine pitch specifications



Curved Contact Surface

Maximized pitch maintains multiple inserts and rigidity

Reduces chattering by dispersing stress

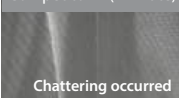
Chatter Resistance Comparison

(Internal Evaluation)

MD90 (16 Flute)



Competitor A (14 Flute)



$V_c = 9,840 \text{ sfm}$, D.O.C. $\times a_e = 0.008" \times 2.756"$
 $f_z = 0.003 \text{ ipt}$ Wet ADC12 $\phi 80\text{mm}$ (Prototype)

Scatter Prevention

Firm insert hold

Ultra-Fine Pitch with Lightweight Design

Largest cutter diameter of $\phi 125\text{mm}$ weighs less than 1.5 kg

Compatible with BT30

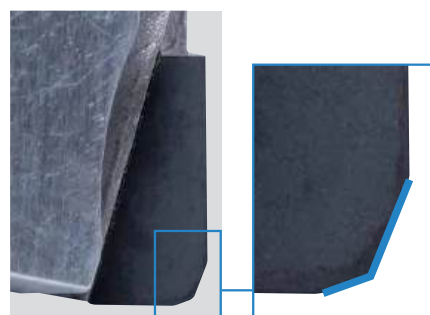
Cutting Dia.	No. of Inserts	Weight (kg)	Body
$\phi 2.000"$	10	0.37	Steel
$\phi 2.500"$	14	0.62	
$\phi 40\text{mm}$	6	0.26	
$\phi 50\text{mm}$	10	0.37	
$\phi 63\text{mm}$	14	0.62	Aluminum
$\phi 80\text{mm}$	16	0.6	
$\phi 100\text{mm}$	20	0.97	
$\phi 125\text{mm}$	24	1.49	

High Quality High machined surface quality, high precision and long tool life

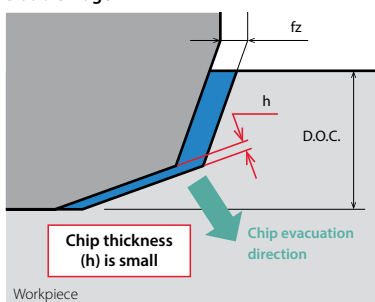
Suppresses Burr Formation

Double-Edge (Standard Type)

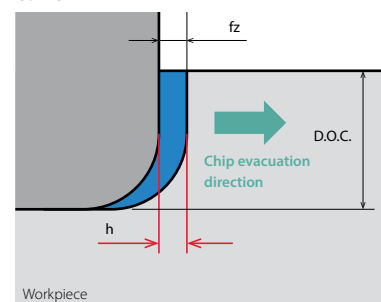
Controls the chip evacuation direction and suppresses distortion caused by chip separation



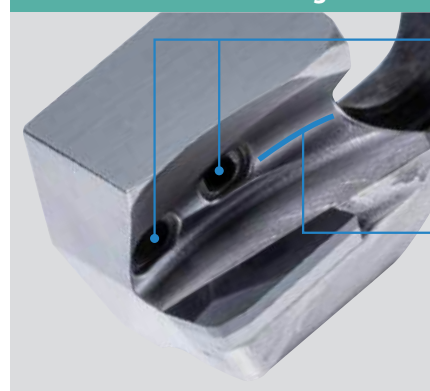
Double-Edge



Corner R



Stable Machining



Double Coolant Holes

Effective cooling of cutting edge and workpiece to achieve superior surface finishes

Suppresses chip biting and surface defects

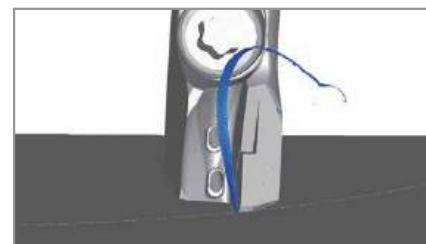
Streamlined Chip Pocket

Good chip control protects cutter body

Stable cutter balance delivers high-precision machining and longer tool life

Chip Evacuation Simulation

Evacuates chips along the pocket



Performance

High-efficiency and high-quality machining performance with ultra-fine pitch specifications



BT30

ø80mm - 16 Flute

Vf = 375 ipm

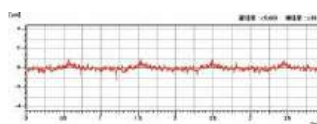
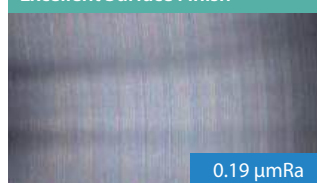
n = 9,900 rpm (Vc = 8,200 sfm)
Vf = 375 ipm (fz = 0.0024 ipt)
D.O.C. x ae = 0.012" x 1.969"
ADC12 Wet ø50mm
MD90-080RA-T16CSF
LNGX1807PDRF-G (KPD01A)
(Internal Evaluation)

Surface Finish Evaluation

Suppresses Burr Formation and Edge Chipping



Excellent Surface Finish



Machining Efficiency Comparison (Internal Evaluation)

MD90

(16 Flute)

Vf = 375 ipm

Efficiency



Competitor A

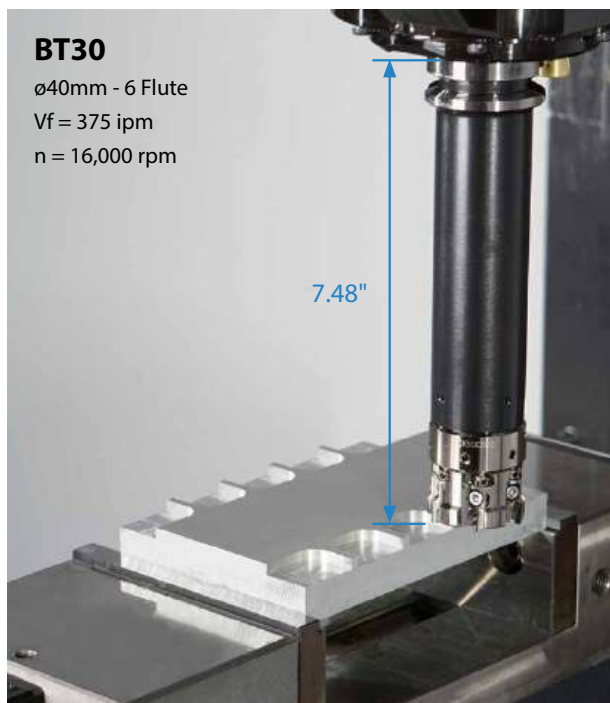
(14 Flute)

Vf = 325 ipm

Since the MD90 has a high number of cutting edges, table feed (Vf) can be improved.
Efficiency can be improved while maintaining the same machining quality as competitor.

Stability

Stable machining even with a long overhang setup



BT30

ø40mm - 6 Flute

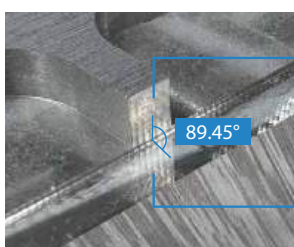
Vf = 375 ipm

n = 16,000 rpm

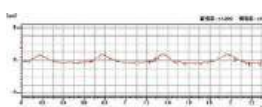
n = 16,000 rpm (Vc = 6,560 sfm)
Vf = 375 ipm (fz = 0.004 ipt)
D.O.C. x ae = 0.197" x 0.197" ADC12 Wet ø1.575" (6 Flutes)
MD90-040RS-T6CMSF
LNGX180704PDRF-RR (KPD01A)
(Internal Evaluation)



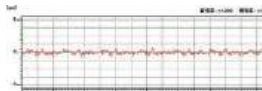
Surface finish evaluation



Wall Surface : 0.32µmRa



Bottom : 0.18µmRa



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MD90 (for Aluminum)

MD90 (Steel Body)

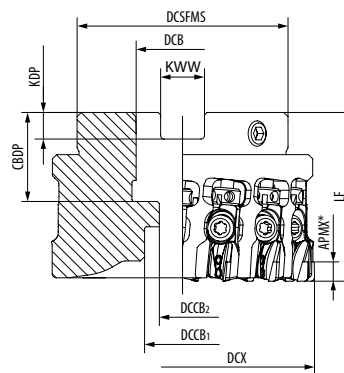


Fig. 1

*Please refer to Page M198 for APMX.

Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions								Rake Angle	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts	Applicable Inserts  M198			
					R	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP						KDP		KWW	A.R.	Arbor Bolt Attached
Inch	Inch Bore Dia.	MD90- 2000RS-T10CSF	●	10	2.000	1.910	0.750	0.669	0.433	1.575	0.750	0.187	0.313	+5°	Yes	25,000	0.37	1	HH3/8-1.25H	LNGX1807PDFR-G LNGX1807PDFR-L LNGX180704PDFR-RR LNGX180708PDFR-RR		
		2500RS-T14CSF	●	14	2.500	1.750		0.750									0.62					
mm	Metric Bore Dia.	MD90- 040RS-T6CMSF	●	6	40	38.5	16	13.5	9	40	19	5.6	8.4	+5°	Yes	25,000	0.26	1	HH8X25H			
		050RS-T10CMSF	●	10	50	48.5	22	18	11		21	6.3	10.4				0.37		HH10X30H			
		063RS-T14CMSF	●	14	63	50											0.62					

Maximum number of revolutions

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece.

Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

See applicable insert table for APMX

Spare Parts

Clamp Screw	Wrench	Adjustment Screw	Adjustment Wrench
BH4X8TR	TTW-15	AJ-3110	LW-2
Torque for insert clamp: 3.5 N.m		-	-

45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

Multi-
Functional

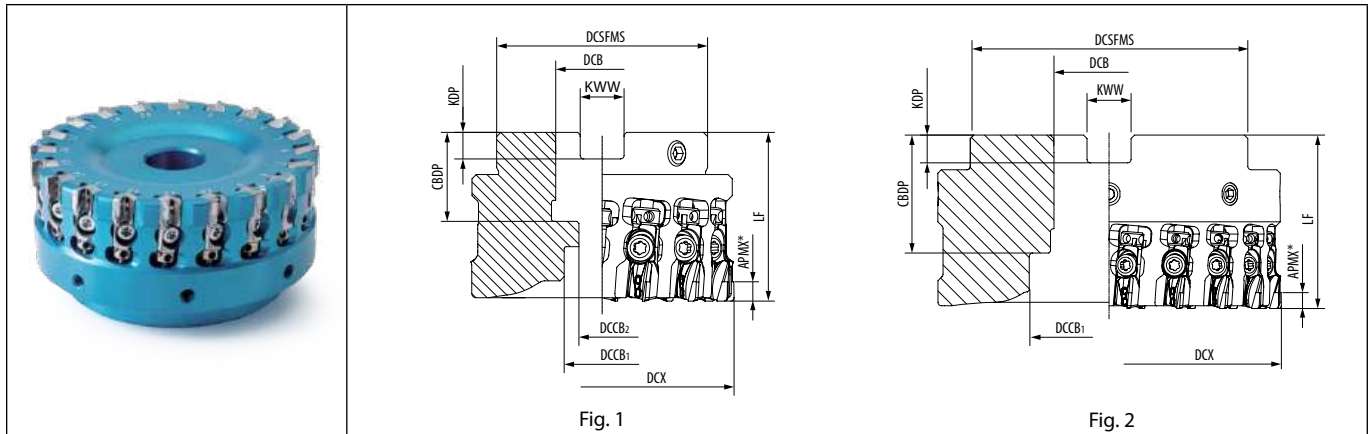
Slot
Mills

Ball-Nose
Radius

Other
Applications

MD90 (for Aluminum)

MD90 (Aluminum Body)



*Please refer to Page M198 for APMX.

Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions								Rake Angle	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts	Applicable Inserts ➡ M198	
					R	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP						KDP		KWW	A.R.	Arbor Bolt Attached Metric (Inch)
mm	Inch Bore Dia.	MD90- 080RA-T16CSF	●	16	80	60	1.000"	20	13	50	1.063"	0.236"	0.375"	+5°	Yes	20,000	0.6	1	HH12X35H (HH1/2-1.25H)	LNGX1807PDFR-G LNGX1807PDFR-L LNGX180704PDFR-RR LNGX180708PDFR-RR
		100RA-T20C254SF	●	20	100											18,000	0.97			
		100RA-T20CSF	●		1.250"	45	-	1.339"	0.315"		0.500"	16,000	0.89				2	HF16X40HA		
		125RA-T24C254SF	●	24	125	1.000"	20	13	1.063"	0.236"	0.375"		1.49			1	HH12X35H (HH1/2-1.25H)			
		125RA-T24CSF	●								1.500"	55						-	1.496"		0.394"	0.625"	1.34	2	HF20X53HA (HH3/4-2.3H)
		Metric Bore Dia.	MD90- 080RA-T16CMSF	●	16	80	60	27	20	13	50	24	7			12.4	+5°	Yes	20,000		0.6	1	HH12X35H
	100RA-T20C27MSF		●	20	100		18,000							0.96						
	100RA-T20CMSF		●		32	45		-	30	8		14.4	16,000	0.88	2	HF16X40HA				
	125RA-T24C27MSF		●	24	125	27	20	13	24	7	12.4		1.48	1	HH12X35H					
	125RA-T24CMSF		●								40	55				-			33		9	16.4	1.31	2	HF20X53HA

Inch thread coolant-through arbor bolts () can be substituted but are sold separately

HH1/2-1.25H → HH12X35H

HH3/4-2.3H → HF20X53HA

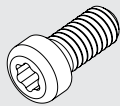
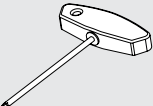
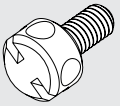
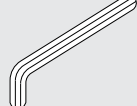
Maximum number of revolutions

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece.

Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

See applicable insert table for APMX

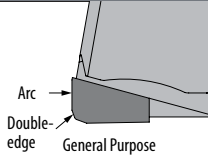
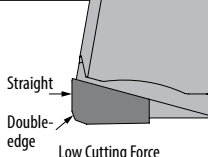
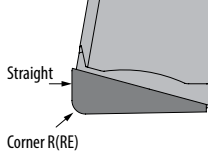
Spare Parts

Clamp Screw	Wrench	Adjustment Screw	Adjustment Wrench
			
BH4X8TR	TTW-15	AJ-3110	LW-2
Torque for insert clamp: 3.5 N.m		-	-

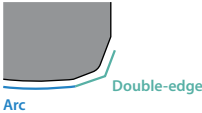
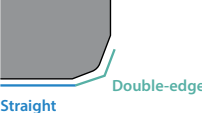
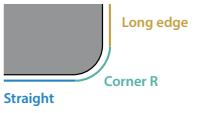
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

LNGX

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)			Carbon steel / Alloy steel		P		
			Mold and die steel				
			Austenitic stainless steel		M		
			Martensitic stainless steel				
			Precipitation hardened stainless steel				
			Gray cast iron		K		
			Nodular cast iron				
			Non-ferrous metals		N		
			Heat-resistant alloy		S		
			Titanium alloy				
			Hard materials		H		
Insert		Part Number	Dimensions (mm)			PCD	Applicable Toolholder ➡ M196 M197
			L	RE	LE (APMX)		
 Standard	 Arc Double-edge General Purpose	LNGX 1807PDR-G	18.1		4	●	MD90...RS...SF MD90...RA...SF
	 Straight Double-edge Low Cutting Force	LNGX 1807PDR-L					
 Long Edge	 Straight Corner R(RE)	LNGX 180704PDR-RR		0.4	8	●	
		LNGX 180708PDR-RR		0.8		●	

The dimension indicated for LE (APMX) is for a new insert. Please note that it may change after regrounding.

Type	Shape	Features and Applications
G	 Arc Double-edge	1st recommendation Suppresses burrs and ensures high-quality surface finish Achieves longer tool life and stable machining
L	 Straight Double-edge	Low cutting force with straight wiper edge Provides suitable results even with lower rigidity workpieces or clamping power
RR	 Long edge Straight Corner R	Corner Radius (R) Suitable for machining with larger D.O.C and heavy loads

Polycrystalline Diamond

Average Particle Size : 1 μm

KPD01A

Achieves both wear resistance and chipping resistance required for machining with ultra-fine pitch tools
Stable, high-efficiency machining is possible

Recommended Cutting Conditions

Workpiece	Property	Cutting Speed Vc (sfm)	Feed fz (ipt)	Recommended Grade
Aluminum Alloy	Si Ratio ≤ 12.5%	3280 - 6,560 - 9,840	0.002 - 0.004 - 0.008	KPD01A
	Si Ratio ≥ 12.5%	1,310 - 1,970 - 2,620	0.002 - 0.004 - 0.008	

Numbers in **Bold** are recommended starting values.
Please adjust cutting speed and feed rate according to actual machining conditions taking into account machine and workpiece rigidity

Do not use the cutter at speeds exceeding the maximum cutting speed limit

How to Install Inserts

1

Mount an Insert



2

Partially tighten



Torque : 1.0 N·m

3

Adjust insert runout



Insert Runout 5 μm or less

4

Fully tighten



Torque : 3.5 N·m

- 1
- Mount inserts into all pockets
- 2
- Partially tighten the clamp screw (Recommended torque 1.0 N.m)
- 3
- Turn the screw with the wrench to adjust and make sure that all screw heights are within 5 μm of each other (Recommended)
- 4
- Fully tighten the clamp screw with tightening torque 3.5 N.m

Precautions

While in use



Please use within recommended cutting conditions

Do not run the cutter at revolutions exceeding the printed maximum revolution limit of the cutter body

Inserts or parts may scatter due to the centrifugal force and cutting load

Confirm the total weight of the cutter and the arbor is within the machine's acceptable range

- Please do not use under the following conditions:
- When cutter is not fully loaded with inserts
 - If the body and/or clamp is damaged
 - If a clamp or clamp screw is removed
 - If inserts that have different regrind amounts are mounted

Please wear protective equipment such as protective glove when changing inserts or adjusting edge fluctuation

Injury can occur when touching the cutting edge

Dynamic balance

Balance adjustment on the cutter is completed before shipping

Balance adjustment has been made with special high precision inserts to be ISO balance grade (ISO1940/1) G2.5

Recommended cutting conditions at Max. revolution

Do not operate the balance adjustment screw at the outer periphery of cutter

This could lead to improper dynamic balance



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Milling Cutters for Aluminum Finishing

MFAH

Low cutting force minimizes burrs and chipping for high quality machining

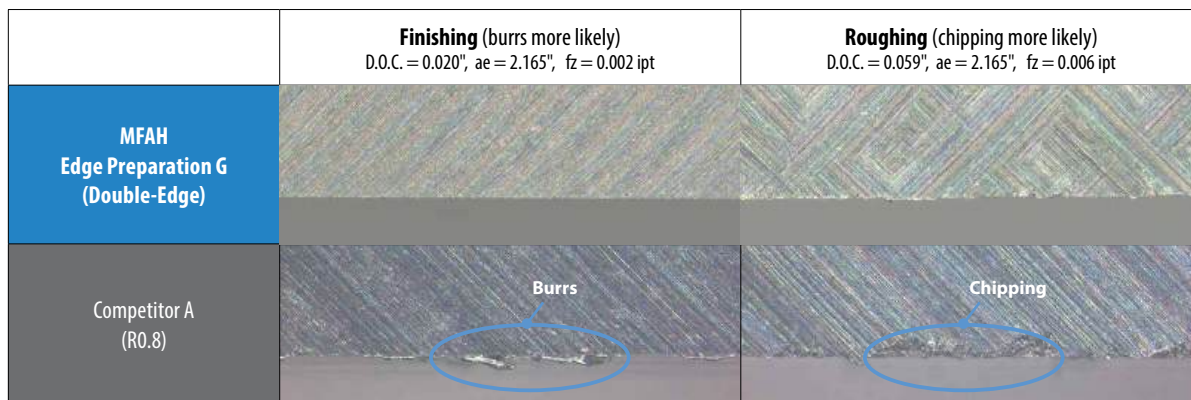
Easily adjust blade runout

2 body types and 3 inserts for a variety of milling applications

1 Minimizes Burrs for High Quality Machining Results

Large true rake angle and dual cutting edge insert designs

Burr and chipping comparison (Internal evaluation)

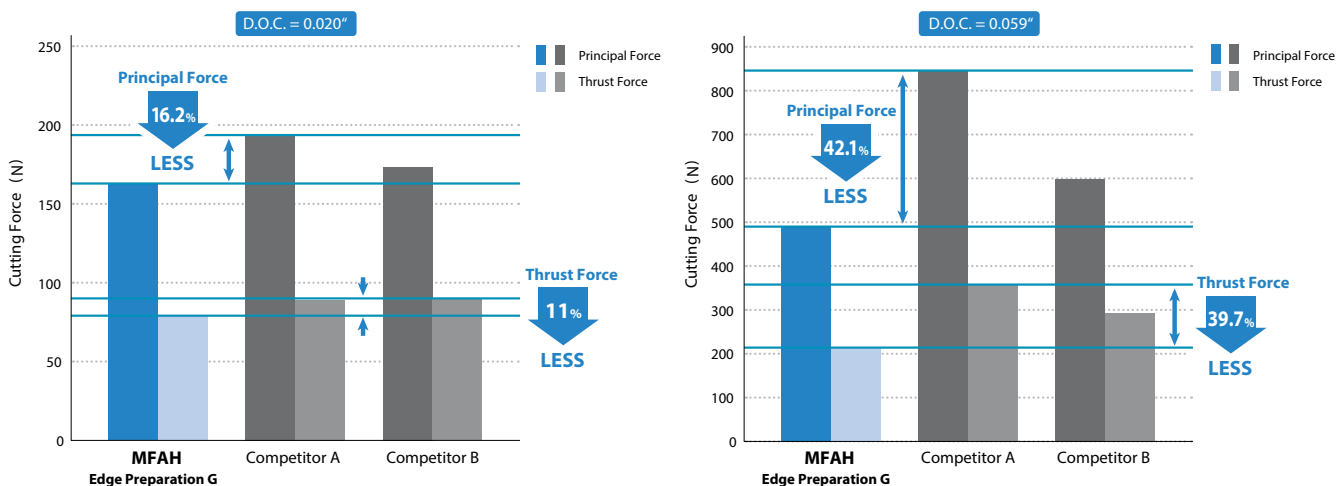


Cutting Conditions: Vc = 8,200 sfm, Wet, Cutting Dia. Ø80mm
MFAH080RS-10T-SF, ENET0905PAER-G KPD001
Workpiece: 383.0 Aluminum

2 Low Cutting Force Design

Low cutting force, reduced chattering and high efficiency machining

Cutting Force Comparison (Internal Evaluation)



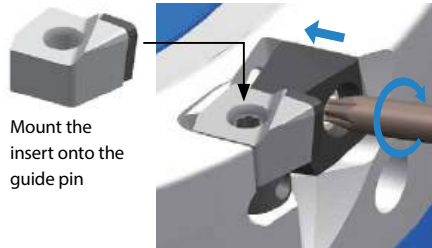
Cutting Conditions: Vc = 8,200 sfm, ae = 2.165", fz = 0.004 ipt Wet, Cutting Dia. Ø80mm
MFAH080RS-10T-SF, ENET0905PAER-G KPD001
Workpiece: 383.0 Aluminum

3 Adjustable Blade Runout

Easily install inserts and adjust blade runout

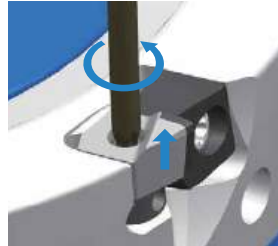
Easy Insert Installment

Guide pin allows for easier positioning



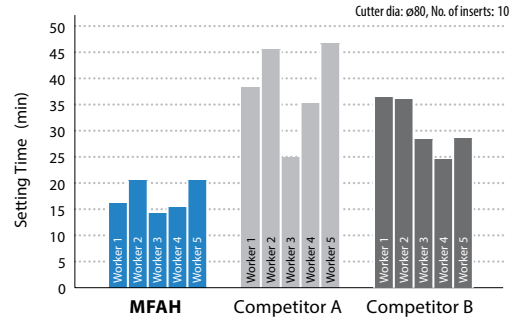
Easily Adjust Blade Runout

Adjustable from both the front and outer periphery



Blade Runout Setting Time Comparison (Internal Evaluation)

* Operation Time of 5 Workers Comparison



The MFAH can drastically shorten the setting time

4 Large Tooling Lineup

Steel body and light-weight hybrid body with internal coolant available

3 different edge designs offer a variety of machining applications

Cutter Body



Steel Body

ø50mm~ø125mm



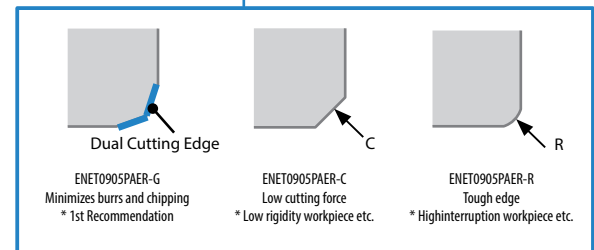
Light-weight Hybrid Body

ø80mm~ø315mm

Insert (Edge design)



3 Different edge designs offer a variety of machining applications

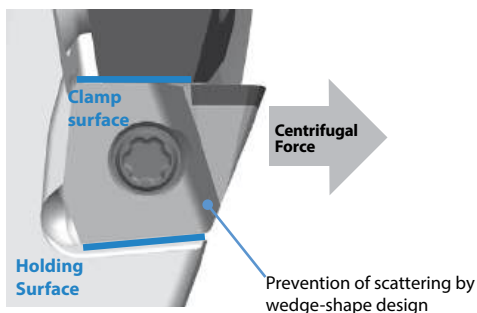


5 Safety Enhancements During High-Speed Revolution

Scattering Prevention Mechanism

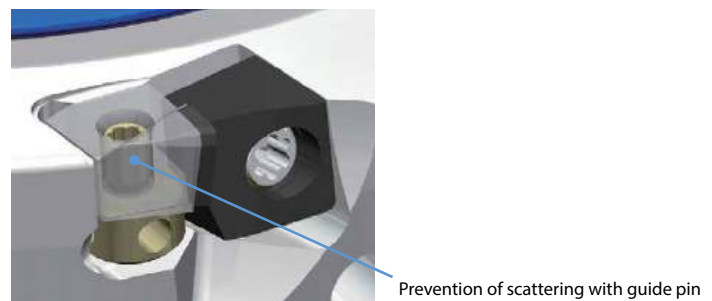
1 Prevention of scattering by wedge-shape design

New wedge-shape feature holds insert firmly in place and reduces chattering



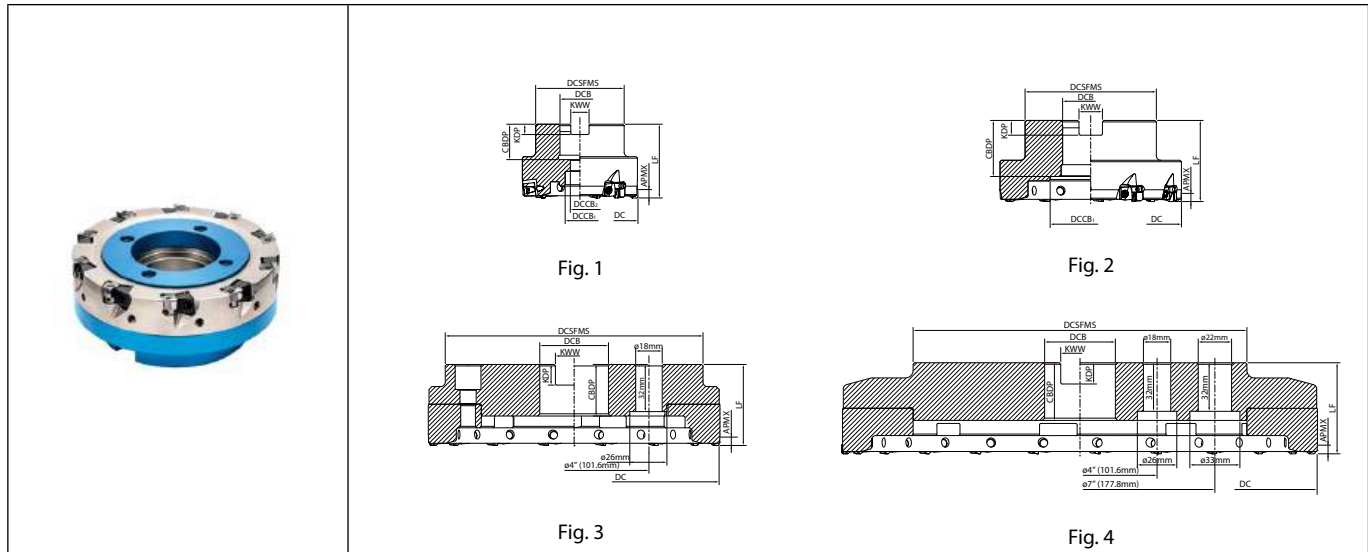
2 Prevention of scattering with guide pin

Guide pins improve safety during high-speed rotation



MFAH (for Aluminum)

MFAH (Light-Weight Hybrid Body)



Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions										Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts ➡ M205	
			R		DC	DCSfMS	DCB	DCCb1	DCCb2	LF	CBDP	KDP	KWW	APMX					Arbor Bolt Attached Metric (Inch)	Coolant Cover (Included if Listed)	Coolant Cover (Optional / Sold Separately)		
mm Inch Bore Dia.	MFAH	080RA-6T-SF	●	6	80	62	1.000"	20	13		1.063"	0.236"	0.374"	4.6	Yes	14,600	0.83	1	HH12X35HC (HF0500X35HC)	-	-	ENET0905PAER-G ENET0905PAER-C ENET0905PAER-R	
	080RA-10T-SF	●	10	0.78													1						
	100RA-8T-254-SF	●	8	13,000											1.21	1	HH12X35HC (HF0500X35HC)						
	100RA-8T-SF	●	8		1.33	2	HF16X44HC (HF0625X44HC)																
	100RA-12T-254-SF	●	12		1.16	1	HH12X35HC (HF0500X35HC)																
	100RA-12T-SF	●	12		1.29	2	HF16X44HC (HF0625X44HC)																
	125RA-10T-254-SF	●	10	60	1.000"	20	13	50	0.945"	0.236"	0.374"	11,400	1.8		1	HH12X35HC (HF0500X35HC)	CC-125-MFAH						
	125RA-10T-SF	●		89	1.500"	55	-		55	1.496"	0.394"		0.626"		2	2		HF20X53HA					
	125RA-16T-254-SF	●		16	60	1.000"	20		13	50	0.945"	0.236"	0.374"		1.74	1		HH12X35HC (HF0500X35HC)					
	125RA-16T-SF	●	89		1.500"	55				0.394"	0.626"	1.95	2		HF20X53HA								
	160RA-12T-SF	●	12	160	130	2.000"	70			1.496"	0.433"	0.752"	8,000		3.4	2	HF24X60HA	CC-160-MFAH					
	160RA-20T-SF	●													20	3.3			2				
	200RA-16T-SF	□	16	200	175		126		55		1.378"		0.551"		1.000"	5,600	4.9	3					CC-200-MFAH
	200RA-24T-SF	□	24														4.8	3					
	250RA-20T-SF	□	20	250	140	1.875"	165									4,500	7	3	-				CC-250-MFAH
	250RA-32T-SF	□	32														6.9	3					
	315RA-24T-SF	□	24	315	220		220		60	1.496"						3,500	11.7	4					CC-315-MFAH
	315RA-40T-SF	□	40														11.5	4					

Confirm the total weight of the cutter and the arbor is within the machine's acceptable range.

Inch thread coolant-through arbor bolts () can be substituted but are sold separately

HF0500X35HC → HH12X35HC

HF0625X44HC → HH16X44HC

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts									
		R		DC	DCS _{FMS}	DCB	DCC _{B1}	DCC _{B2}	LF	CBDP	KDP	KWW	APMX					Arbor Bolt (Attachment)	Coolant Cover (Attachment)	Coolant Cover (Sold Separately)	 M205									
mm	Metric Bore Dia.	●	6	80	62	27	20	13		27	7	12.4	4.6	Yes	14,600	0.82	1	HH12X35HC	-		ENET0905PAER-G ENET0905PAER-C ENET0905PAER-R									
		●	10													0.78	1													
		●	8													1.2	1					HH12X35HC								
		●	8													1.32	2													
		●	12	100	62	27	20	13	50	24	7	12.4						13,000					1.15	1	HH12X35HC					
		●	12																				1.27	2						
		●	10																1.8	1		HH12X35H	CC-125-MFAH	-						
		●	10		125	94	40	55	55	33	9	16.4							2.1	2										
		●	16																1.73	1										
		●	16																2.1	2										
		●	16																3.5	2		HF20X53HA	CC-160-MFAH							
		●	20	160	125	40	57			33	9	16.4							3.4	2										
		□	16		200	175		126	55										4.7	3				CC-200-MFAH						
		□	24																4.6	3										
		□	20		250	140	60	165			14	25.7							6.9	3								CC-250-MFAH		
		□	32																6.8	3										
		□	24	315	220			220	60	38									11.7	4				CC-315-MFAH						
		□	40																11.5	4										

Confirm the total weight of the cutter and the arbor is within the machine's acceptable range.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFAH (Steel Body)

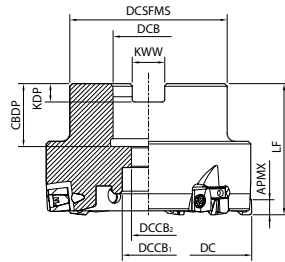


Fig. 1

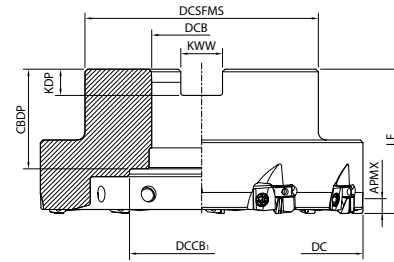


Fig. 2

Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts Arbor Bolt (Included if Listed)	Applicable Inserts M205
				DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CDDP	KDP	KWW	APMX						
mm	Inch Bore Dia.	MFAH 080RS-6T-SF	● 6	80	50	1.000"	20	13	50	1.063"	0.236"	0.375"	4.6	No	14,600	1.02	1	HH12X35	ENET0905PAER-G ENET0905PAER-C ENET0905PAER-R
		MFAH 080RS-10T-SF	● 10	80	50	1.000"	20	13	50	1.063"	0.236"	0.375"	4.6	No	14,600	0.98	1	HH12X35	
		MFAH 100RS-8T-SF	● 8	100	70	1.250"	45	-	50	1.339"	0.315"	0.500"	4.6	No	13,000	1.59	2	-	
		MFAH 100RS-12T-SF	● 12	100	70	1.250"	45	-	50	1.339"	0.315"	0.500"	4.6	No	13,000	1.55	2	-	
		MFAH 125RS-10T-SF	● 10	125	89	1.500"	55	-	55	1.496"	0.394"	0.625"	4.6	No	11,400	2.63	2	-	
		MFAH 125RS-16T-SF	● 16	125	89	1.500"	55	-	55	1.496"	0.394"	0.625"	4.6	No	11,400	2.56	2	-	
	Metric	MFAH 050RS-4T-M-SF	● 4	50	48	16	13.6	9	40	19	5.6	8.4	4.6	No	19,200	0.44	1	HH8X25	
		MFAH 050RS-5T-M-SF	● 5	50	48	16	13.6	9	40	19	5.6	8.4	4.6	No	19,200	0.43	1	HH8X25	
		MFAH 063RS-5T-M-SF	● 6	63	61	22	23	11	40	21	6.3	10.4	4.6	No	16,800	0.69	1	HH10X30	
		MFAH 063RS-6T-M-SF	● 6	63	61	22	23	11	40	21	6.3	10.4	4.6	No	16,800	0.68	1	HH10X30	
		MFAH 080RS-6T-M-SF	● 6	80	60	27	20	13	50	24	7	12.4	4.6	No	14,600	1.16	1	HH12X35	
		MFAH 080RS-10T-M-SF	● 10	80	60	27	20	13	50	24	7	12.4	4.6	No	14,600	1.11	1	HH12X35	
		MFAH 100RS-8T-M-SF	● 8	100	70	32	45	-	50	30	8	14.4	4.6	No	13,000	1.56	2	-	
		MFAH 100RS-12T-M-SF	● 12	100	70	32	45	-	50	30	8	14.4	4.6	No	13,000	1.51	2	-	
		MFAH 125RS-10T-M-SF	● 10	125	89	40	55	-	55	33	9	16.4	4.6	No	11,400	2.6	2	-	
		MFAH 125RS-16T-M-SF	● 16	125	89	40	55	-	55	33	9	16.4	4.6	No	11,400	2.5	2	-	

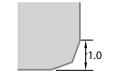
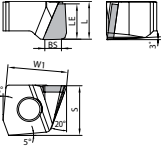
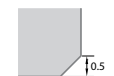


Spare Parts

Part Number		Wedge	Wedge Screw	Wrench	Adjustment Screw	Wrench	Anti-Seize Compound	Applicable Inserts
Light-Weight Hybrid Body	MFAH080RA- ... MFAH315RA- ...	C08R	W5X13L	TTW-15	AJ-4170	DTPM-8	P-37	ENET0905...
	MFAH050RS- ... MFAH125RS- ...							

45°-70° Lead Angle
75° Lead Angle
88°-90° Lead Angle
Finish Milling
High Feed Milling
Multi- Functional
Slot Mills
Ball-Nose Radius
Other Applications

ENET

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)			Carbon steel / Alloy steel					P					
			Mold and die steel										
			Austenitic stainless steel					M					
			Martensitic stainless steel										
			Precipitation hardened stainless steel										
			Gray cast iron					K					
			Nodular cast iron										
			Non-ferrous metals					■	N				
			Heat-resistant alloy					S					
			Titanium alloy										
			Hard materials						H				
Insert			Part Number					Dimensions (mm)				PCD	Applicable Toolholder ● M202~M204
								S	L	LE	W1			BS	KPD001
			ENET 0905PAER-G		7.9	6.02	5.6	9.61	2.6	●	MFAH...RA...-SF MFAH...RS...-SF		
			ENET 0905PAER-C		7.9	6.02	5.6	9.61	3	●	MFAH...RA...-SF MFAH...RS...-SF		
			ENET 0905PAER-R		7.9	6.02	5.6	9.61	3.1	●	MFAH...RA...-SF MFAH...RS...-SF		

Recommended Cutting Conditions ➡ M206

Recommended Cutting Conditions

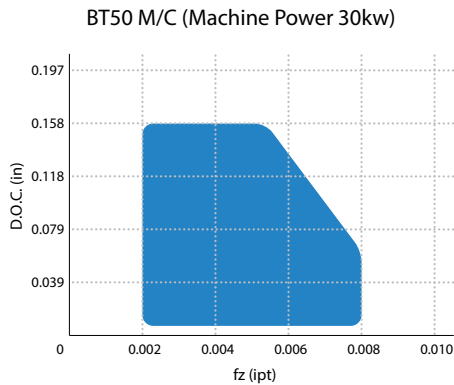
Workpiece material	Property	Vc (sfm)	fz (ipt)	Recommended Insert Grades
Aluminum Alloys	Si Ratio ≤ 12.5%	3,280~ 8,200 ~9,840	0.002~ 0.004 ~0.008	KPD001
	Si Ratio ≥ 12.5%	1,310~ 1,970 ~2,630	0.002~ 0.004 ~0.008	

Recommended Cutting Conditions are reference values.

Please adjust cutting speed and feed rate according to actual machining conditions taking into account machine and workpiece rigidity.

Do not use the cutter at speeds exceeding the maximum cutting speed limit.

Cutting Performance



Cutting Conditions: Vc = 8,200 sfm, ae = 2.165", Wet, Cutting Dia. Ø80mm
MFAH080RS-10T-SF, ENET0905PAER-G KPD001, Workpiece: 383.0 Aluminum

Cautions

While in use

! Caution

Please use within recommended cutting conditions

Do not run the cutter at revolutions exceeding the printed maximum revolution limit of the cutter body
Inserts or cutter body may be damaged due to the centrifugal force and cutting load

Please do not use under the following conditions:

- When cutter is not fully loaded with inserts
- If the body and/or clamp is damaged
- If a clamp or clamp screw is removed
- If inserts that have different regrind amounts are mounted

Please wear protective equipment such as protective glove when changing inserts or adjusting edge fluctuation
Injury can occur when touching the cutting edge

Dynamic balance

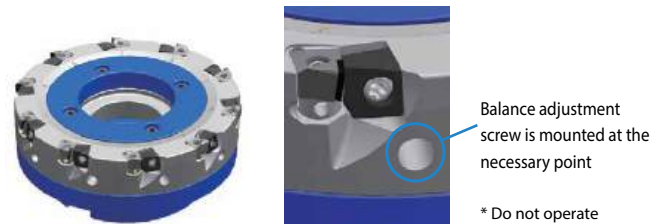
Balance adjustment on the cutter is completed before shipping
Balance adjustment has been made with special high precision inserts to be ISO balance quality grade (ISO 1940-1) G2.5

Do not adjust the balance screw

➡ This could lead to improper dynamic balance

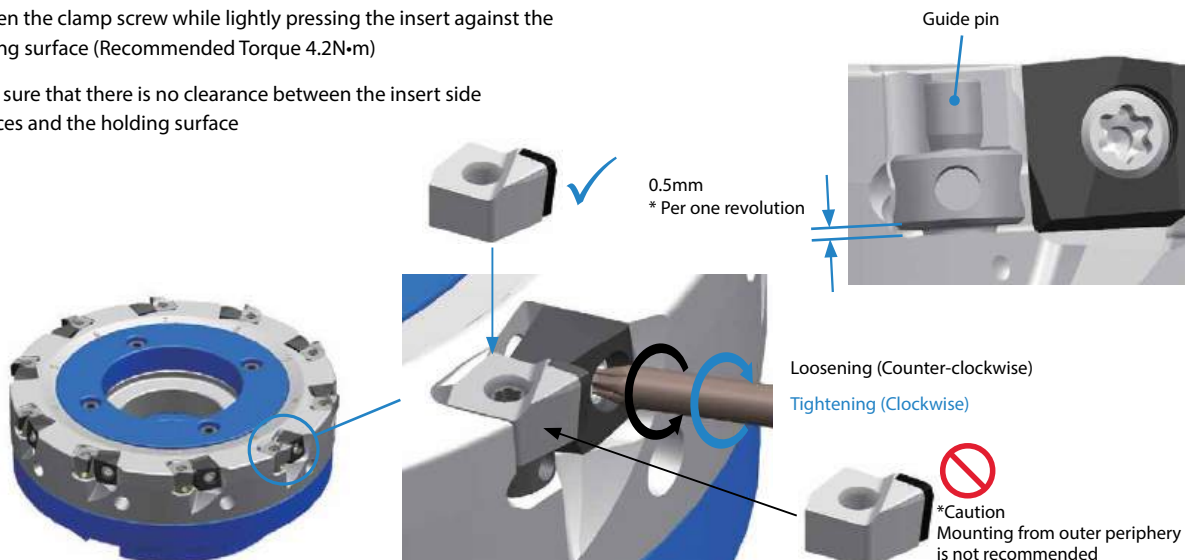
Do not completely remove clamp and clamp screw from cutter

➡ This requires additional balance adjustment



How to Mount Inserts

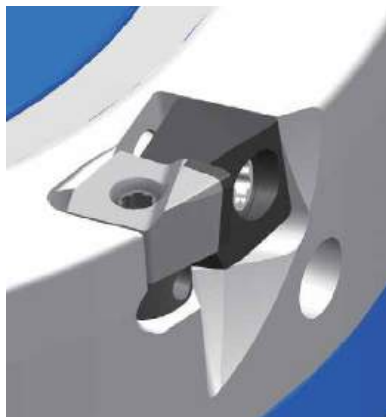
- 1 Adjust the clearance between adjustment screw for cutting edge and the surface of insert to be 0.5mm
- 2 Mount insert on guide pin
(Be sure to install from the head. Mounting from outer periphery is not recommended)
- 3 Tighten the clamp screw while lightly pressing the insert against the holding surface (Recommended Torque 4.2N·m)
- 4 Make sure that there is no clearance between the insert side surfaces and the holding surface



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

How to Adjust Blade Runout

1 Install an insert



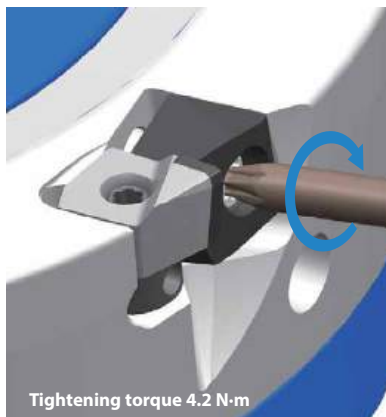
2 Partially tighten



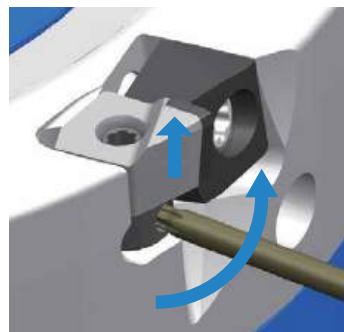
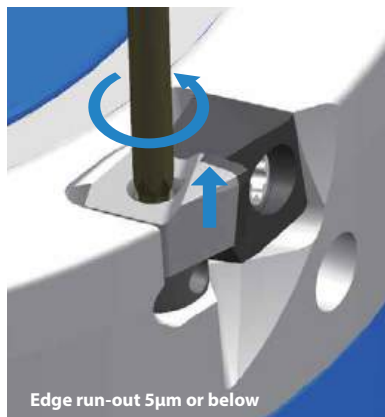
3 Adjustable blade runout



4 Fully tighten

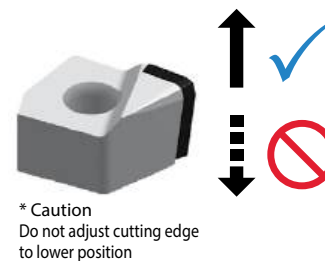


5 Adjustable blade runout



- 1 Install inserts into all pockets
- 2 Partially tighten the clamp screw (Recommended Torque 2.0N·m)
- 3 Turn the screw with the wrench to adjust and make sure that all screw heights are within 20µm of each other (Recommended)
- 4 Fully tighten the clamp screw with tightening torque 4.2 N·m
- 5 Slightly adjust position of cutting edge (Recommended position difference: 5µm or below)

* All inserts should be fine-tuned



M
MILLING

45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

Replacing the Insert Clamp

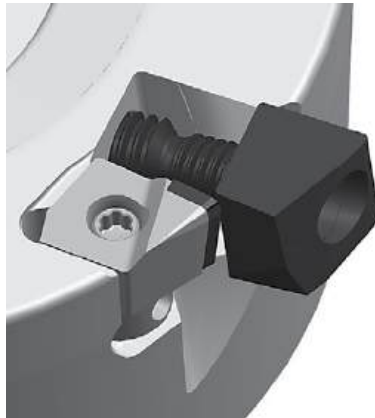
Correct Mounting Procedure for Clamp and Clamp Screw

1 Attach clamp screw into clamp first



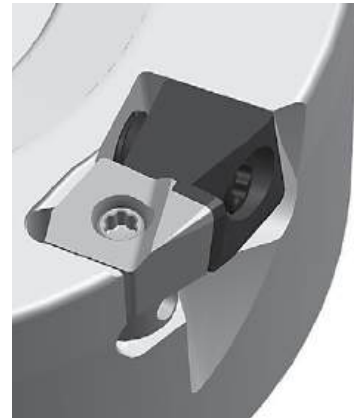
Attaching clamp screw into clamp
(about 1 revolution)

2 Mounting



Mount it to the holder

3 Fastening



Fasten with recommended torque
(Completed)

Mount position of clamp screw



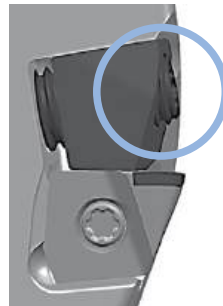
Right position

(Screw head does not come out)



Wrong position

(Screw head comes out)



After tightening the clamp screw with the recommended torque, please check the protrusion of the clamp screw.
If it is protruding outside the clamp, please reinstall

When clamp screws need to be replaced and completely removed, a balance adjustment is necessary after installation

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

High Efficiency Milling Cutters for Aluminum Machining

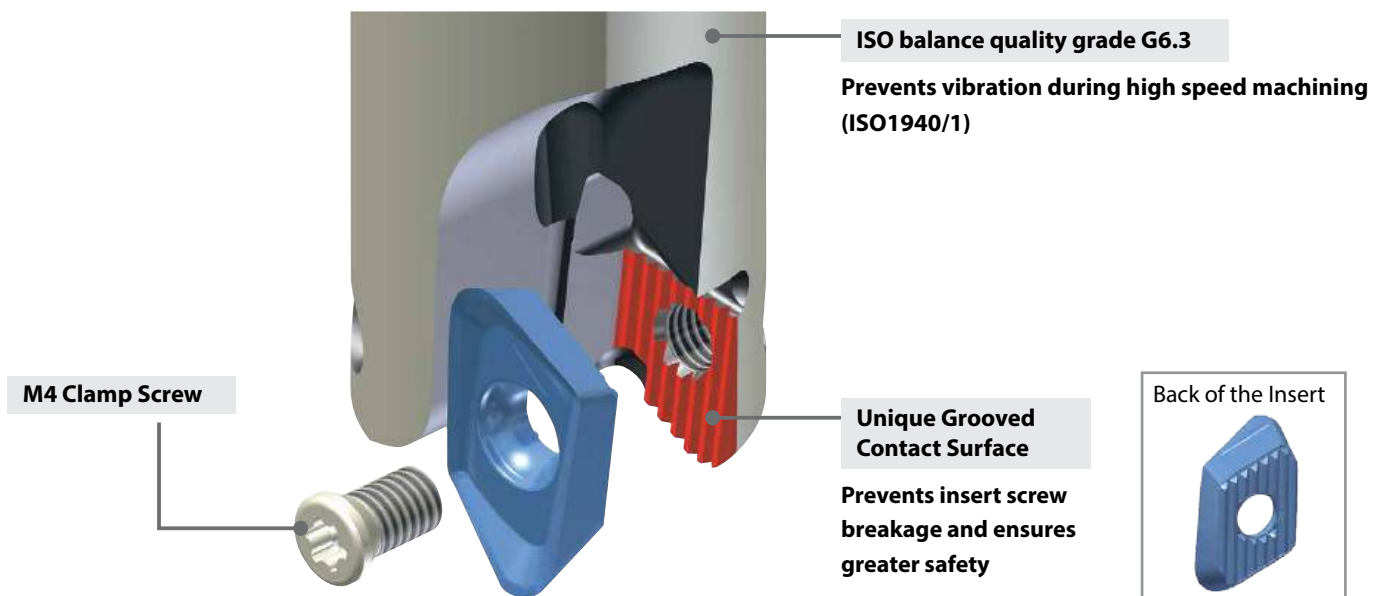
MEAS

Excellent scatter prevention to ensure stable, high speed aluminum machining
Large ramping angle delivers a wide range of machining applications

1 Reliable High Efficiency Machining

Grooved connection between the insert and holder

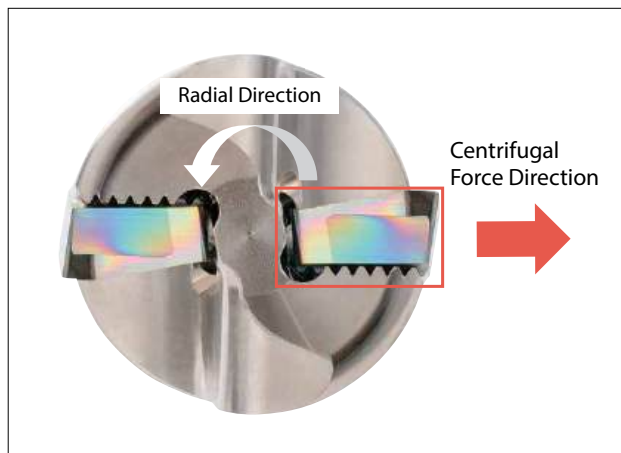
Provides high speed aluminum machining ($\phi 1.25'' / \phi 32\text{mm}$: Recommended max. cutting speed $V_c = 9,840 \text{ sfm}$)



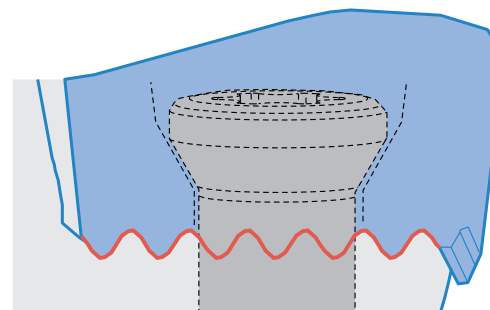
MILLING

Grooved Insert Pocket

Centrifugal force is applied across the grooved surface to reduce pressure on the insert screw
Prevents insert screw breakage and safely secures the insert during high-speed revolutions



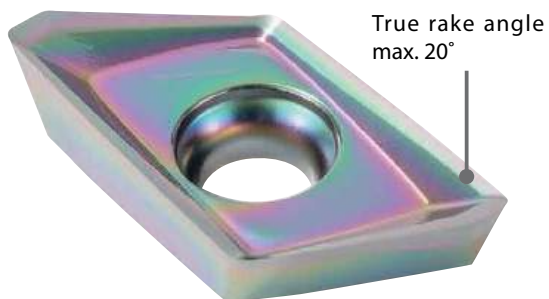
Grooved Contact Surface



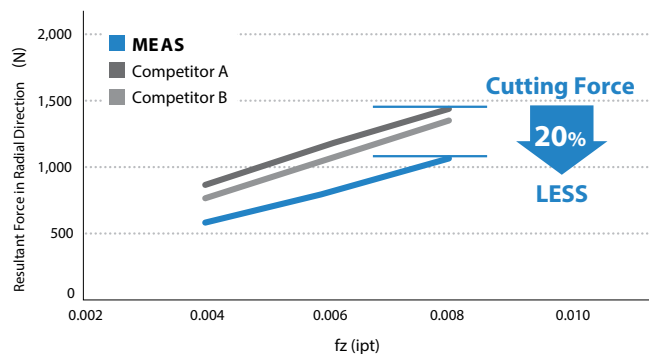
2 Low Cutting Force with Sharp Cutting Edge

True rake angle max. 20°

Low cutting force and excellent chattering resistance



Cutting Force Comparison (Internal Evaluation)

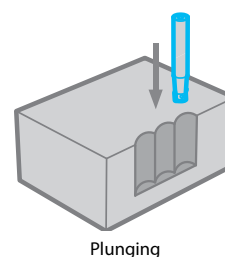
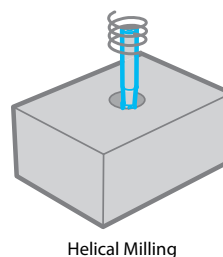
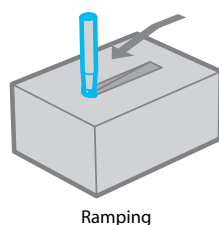
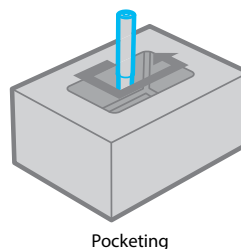
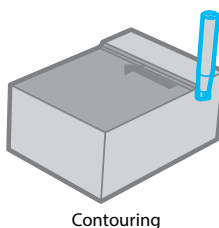
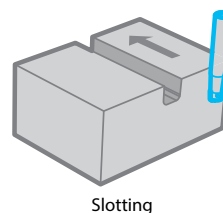
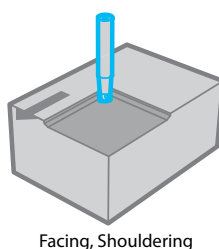


Cutting conditions: Vc = 390 m/min, ap x ae = 8 x 5mm, Dry
Cutter dia. ø25mm (2 Flutes) Workpiece material: A7075

3 Machining for a Wide Variety of Applications

Max. ramping angle 20° (ø1.00" / ø25mm)

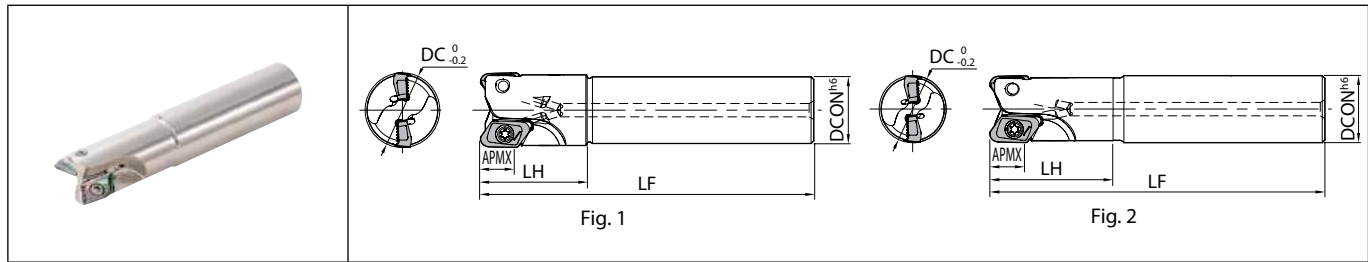
The MEAS can be used for shouldering, slotting, ramping, and helical milling applications



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MEAS (for Aluminum)

MEAS (End Mill for Aluminum)



Toolholder Dimensions

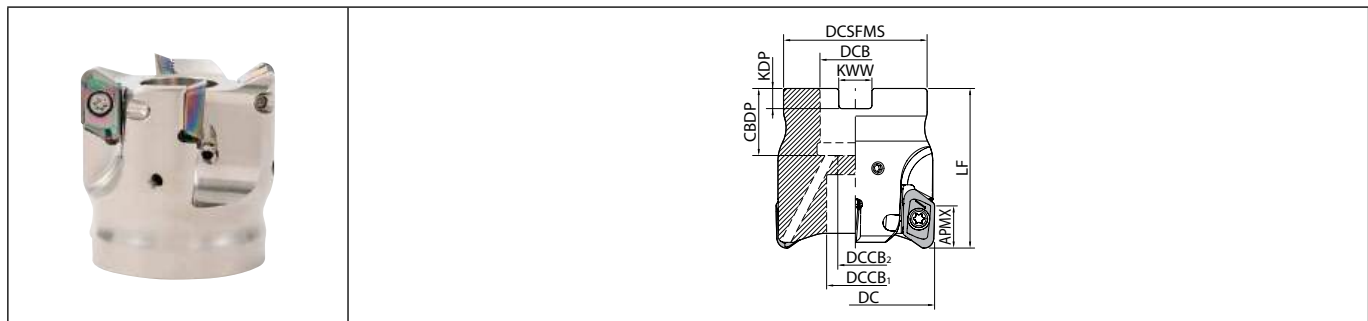
Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts ➔ M213
				DC	DCON	LF	LH	APMX							Anti-Seize Compound	Insert Screw	Wrench	
Inch	Cylindrical Standard Shank	MEAS 1000-S1000-13-2T	● 2	1.000	1.000	5.000	2.000	0.472	+10	14	Yes	59,000	0.4	2	P-37	SB-4075TRP SB-4090TRP	DTPM-15	KCGT1305... KCGT1305...
		1250-S1250-13-2T	● 2	1.250	1.250	6.000	2.750											
		1500-S1250-13-3T	● 3	1.500			2.000											
	Cylindrical Long Shank	MEAS 1000S1000132T675	● 2	1.000	1.000	6.750	3.550	0.472	+10	14	Yes	49,000	0.6	2	P-37	SB-4075TRP SB-4090TRP	DTPM-15	KCGT1305... KCGT1305...
		1250S1250132T800	● 2	1.250	1.250	8.000	4.800											
			● 2	1.250	1.250	8.000	4.800											
mm	Cylindrical Standard Shank	MEAS 25-S25-13-2T	● 2	25	25	125	49	12	+10	-14	Yes	59,000	0.4	2	P-37	SB-4075TRP SB-4090TRP	DTPM-15	KCGT1305... KCGT1305...
		28-S25-13-2T	● 2	28			40											
		32-S32-13-2T	● 2	32	32	150	69											
		35-S32-13-2T	● 2	35			50											
		40-S32-13-3T	● 3	40	32	150	50											
			● 2	40	32	150	50											
	Cylindrical Long Shank	MEAS 25-S25-13-2T-170	● 2	25	25	170	89	12	+10	-14	Yes	49,000	0.5	2	P-37	SB-4075TRP SB-4090TRP	DTPM-15	KCGT1305...
		32-S32-13-2T-200	● 2	32	32	200	119											
			● 2	32	32	200	119											
			● 2	32	32	200	119											

When using inserts with a corner-R(RE) of 1/8" (3.2mm) or larger, additional modifications (R0.138" (3.5mm) or larger) on the corner of cutter body is necessary.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

Recommended tightening torque for insert clamp : 3.5N·m

MEAS (Face Mill for Aluminum)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Spare Parts				Applicable Inserts ➔ M213
				DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX						Anti-Seize Compound	Arbor Bolt	Insert Screw	Wrench	
Inch	MEAS 2000R-13-4T	●	4	2.000	1.750	0.750	0.669	0.433	1.969	0.750	0.187	0.313	0.472	+10	-10	Yes	36,000	0.4	P-37	HH10X30H	SB-4090TRP	DTPM-15	KCGT1305...
mm	MEAS 050R-13-4T-M	●	4	50	45	22	18	11	50	21	6.3	10.4	12	+10	-11	Yes	36,000	0.4	P-37	HH10X30H	SB-4090TRP	DTPM-15	KCGT1305...

When using inserts with a corner-R(RE) of 1/8" (3.2mm) or larger, additional modifications (R0.138" (3.5mm) or larger) on the corner of cutter body is necessary.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

Recommended tightening torque for insert clamp : 3.5N·m

KCGT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)			Carbon steel / Alloy steel		P						
			Mold and die steel								
			Austenitic stainless steel		M						
			Martensitic stainless steel								
			Precipitation hardened stainless steel								
			Gray cast iron		K						
			Nodular cast iron								
			Non-ferrous metals		★ N						
			Heat-resistant alloy		S						
			Titanium alloy								
Hard materials		H									
Insert		Part Number		No. of Edges	Dimensions (mm)					Carbide	Applicable Toolholder M212
					S	D1	RE	L	W1			PD.L025	DLC
 Non-Ferrous Metals	KCGT	130504FR-AL	2	5.1	4.4	0.4	14.1	9.9	●	MEAS...	
		130508FR-AL				0.8	13.9		●		
		130512FR-AL				1.2	13.8		●		
		130516FR-AL				1.6	13.3		●		
		130520FR-AL				2	13.3		●		
		130524FR-AL				2.4	13.3		●		
		130530FR-AL				3	13.3		●		
		130532FR-AL				3.2	12.8		●		
		130540FR-AL				4	12.8		●		
		130550FR-AL				5	12.8		●		
 Tough Edge	KCGT	130504ER-AM	2	5.1	4.4	0.4	13.7	9.9	●	MEAS...	
		130508ER-AM				0.8	13.7		●		
		130516ER-AM				1.6	13.3		●		
		130525ER-AM				2.5	13.3		●		
		130530ER-AM				3	13.3		●		
		130540ER-AM				4	12.8		●		

Right-hand Insert Shown

KCGT Inserts are sold in 10 piece boxes

Recommended Cutting Conditions

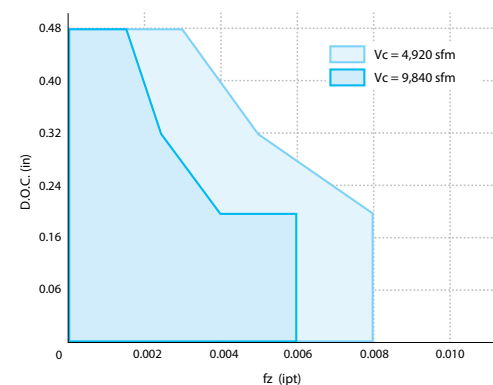
Workpiece Material		Chipbreaker	Vc (sfm)	ae	fz (ipt)	
					D.O.C. = 0.197" (Reference Value)	
				DC	Cutting Dia. ≤ ø1.000" / ø28mm	Cutting Dia. ≥ ø1.250" / ø32mm
Aluminum Alloys	Si Ratio ≤ 12.5%	AL	660~3,280~9,840	≤ 0.5DC	0.002~0.006~0.010	
				0.5DC <		
		AM	660~3,280~16,400	≤ 0.5DC	0.002~0.006~0.012	0.002~0.008~0.014
				0.5DC <	0.002~0.006~0.010	0.002~0.006~0.012
	Si Ratio ≥ 12.5%	AL	660~980~1,310	≤ 0.5DC	0.002~0.004~0.008	
				0.5DC <		
		AM	660~980~2,620	≤ 0.5DC	0.002~0.006~0.012	0.002~0.008~0.014
				0.5DC <	0.002~0.006~0.010	0.002~0.006~0.012

- Recommended Cutting Conditions are reference values.
Please adjust cutting speed and feed rate according to actual machining conditions taking into account machine and workpiece rigidity
- Do not use the cutter at speeds exceeding the maximum cutting speed limit (See page M167)
- Regularly changing the insert clamp screw is recommended
- Use appropriate safety covers to protect from tool breakage and chip scattering
- When using at a higher revolution (10,000min⁻¹ or over), refer to the table below to adjust the balance of the MEAS and arbor

RPM	ISO balance quality grade ISO 1940-1/8821 (JIS B0905)
~20,000	G16
~30,000	G6.3
30,000~	G2.5

MEAS Cutting Performance

ø50mm (4 flutes) Shouldering ae = 0.984" Workpiece Material: 7175



Ramping Reference Data

Cutter Dia. DC	1.000"	1.250"	1.500"	2.000"	25mm	28mm	32mm	35mm	40mm	50mm
Max. ramping angle RMPX	20°	12.5°	8.5°	6°	20°	16°	12.5°	11°	8.5°	6°
tan RMPX	0.363	0.221	0.149	0.105	0.363	0.287	0.221	0.194	0.149	0.105

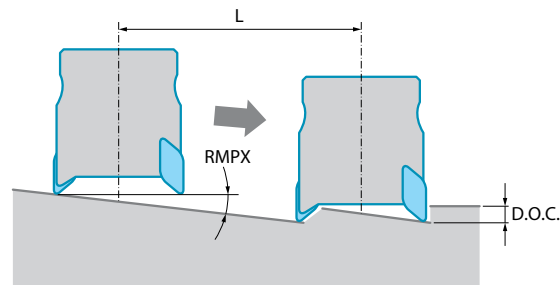
Ramping Guide

Ramping angle should be RMPX (Maximum ramping angle) or under in the above cutting conditions.

Reduce recommended feed rate by 50%

Formula for max. cutting length
"L" at Max. ramping angle

$$L = \frac{\text{D.O.C.}}{\tan \text{RMPX}}$$



Plunging Guide

* When plunging, reduce feed rate to $fz \leq 0.004$ ipt.

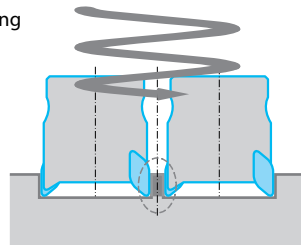
Insert Description	Max. Width of Cut (ae)
KCGT13 type	0.315"

Helical Milling Guide

For helical milling, use between min. cutting dia. and max. cutting dia.

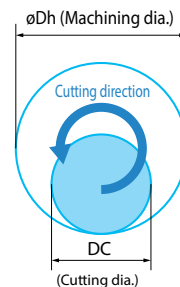
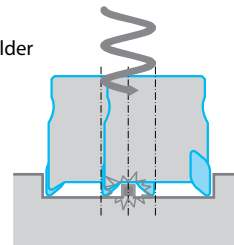
Over max. Cutting Dia.

Center core part remains after machining



Under min. Cutting Dia.

Center core part interferes with toolholder

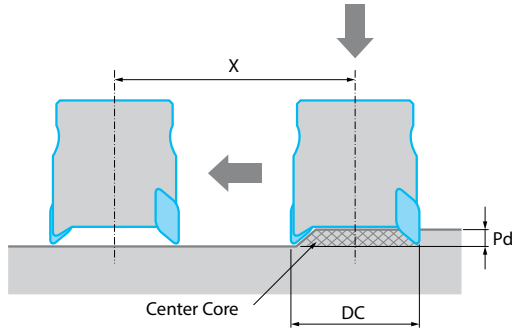


Cutter	Min. Cutting Dia.	Max. Cutting Dia.	Maximum Ramping Depth per Cycle
MEAS...13...	$2 \times DC - 0.630"$	$2 \times DC - 0.118"$	0.138"

Unit: inch

- Climb milling is recommended (refer to the figure above)
- Feed rate should be under 50% of the recommended cutting conditions
- Use caution to eliminate incidences caused by producing long chips

Drilling Guide



Drilling Depth

Please refer to Pd (Max. drilling depth) in the chart.

Traversing after Drilling

1. It is recommended to reduce feed by $fz = 0.006$ ipt or less until the center core is removed.
2. When drilling, reduce feed rate per revolution to $f = 0.004$ ipr or under.

Description	Max. Cutting Depth Pd	Min. Cutting Length X for Flat Bottom Surface
MEAS...-13-...	0.138	DC - 0.630"

Unit: inch

How to Mount Inserts

1. Be sure to remove dust and chips from the insert mounting pocket.
2. Insert screw
 - Coat anti-seize compound thinly on portion of taper and thread.
 - Attach screw to the magnetized wrench tip and tighten while gently pressing the outside edge of the insert toward the insert pocket surface (grooved surface)

See the picture on the right. Recommended Torque 3.5N·m

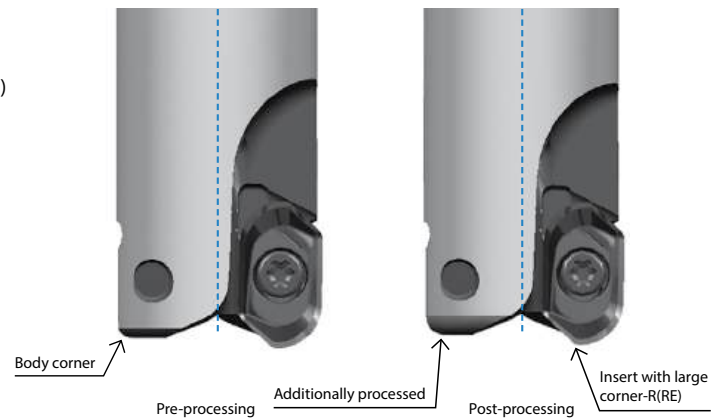


When Using Inserts with a Corner-R(RE) of 3.2mm or larger

When using inserts with corner-R(RE) 3.2mm or larger, additional modifications of the cutter body will be necessary. Additional modifications for the body will be necessary. Ref. to the chart below for the recommended modifications.
(If corner-R is 3.0mm or smaller, additional modifications are not needed)

Insert Corner-R(RE)	Additional Processing Dimension to Body Corner
1/8" (3.2mm)	R0.079" (2.0mm)
0.157" (4mm)	R0.098" (2.5mm)
0.197" (5mm)	R0.118" (3.0mm)

* Round-shaped additional processing is recommended.
When applying chamfer shaped additional processing, do not cut away too much.



Cautions

While in Use



Please use within recommended cutting conditions

Do not run the cutter at revolutions exceeding the printed maximum revolution limit of the cutter body

Do not use the end mill at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Please do not use under the following conditions :

- When cutter is not fully loaded with inserts
- If the body is damaged

Please wear protective equipment such as protective glove when changing inserts

Injury can occur when touching the cutting edge

Dynamic Balance

Balance adjustment on the cutter is completed before shipping

Balance adjustment to be ISO balance quality grade (ISO 1940-1) G6.3

When using at a higher revolution (10,000rpm or over), refer to the table below to adjust the balance of MEAS and arbor

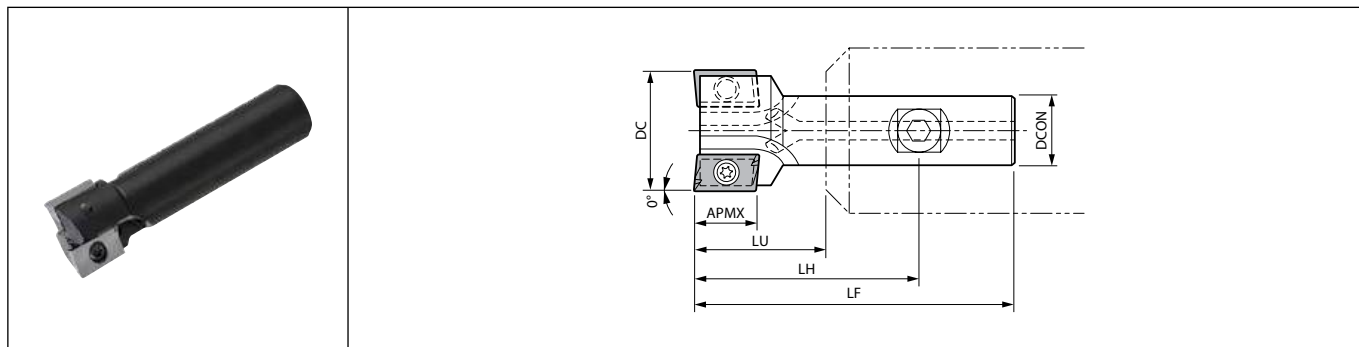
Do not operate the balance adjustment screw on the outer periphery of the cutter. This could lead to improper dynamic balance

RPM	ISO balance quality grade ISO 1940-1/8821 (JIS B0905)
~20,000	G16
~30,000	G6.3
30,000~	G2.5

EM-AL / FM-AL (for Aluminum)

EM-AL (Fixed Pocket End Mill for Aluminum)

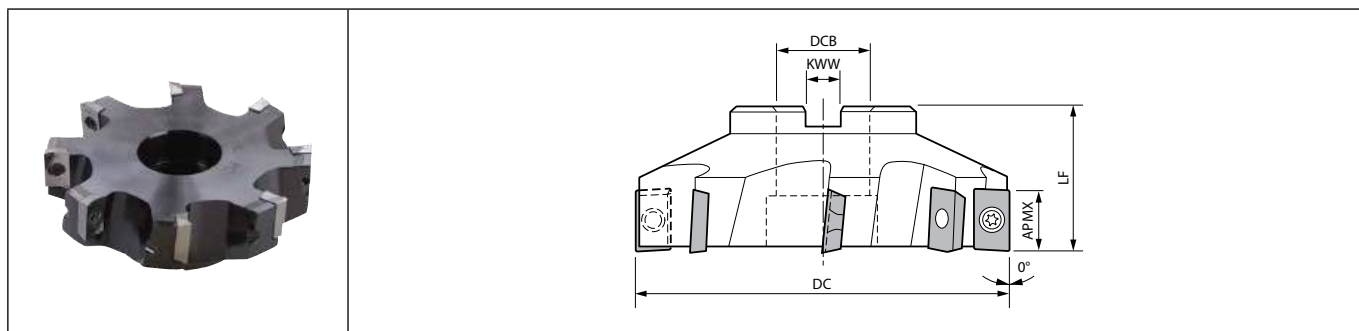
For CM-AL chamfering end mills for aluminum ➔ **M298**



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						A.R. (°)	R.R. (°)	Coolant Hole	Max. Ramping Angle (°)	Insert Screw	Wrench	Applicable Inserts ➔ M217
				DC	DCON	LF	LH	LU	APMX							
Inch	EM 1000-AL	●	1	1	3/4	3.380	2.365	1.360	0.64	+5	-10	Yes	8	SCR-02	T15	APET1604...
	1250-AL	●	2	1-1/4												
	1500-AL	●	1-1/2		1	4.000	2.864	1.740								
	2000-AL	●	3	2		4.250	3.110	1.990	0.64	+5	-2	Yes	8	SCR-02	T15	APET1604...
	EM 1000-2.75-AL	●	1	3/4		4.780	3.780	2.750			-10	Yes	8	SCR-02	T15	APET1604...
	1000-3.75-AL	●	2		1	6.015	4.875	3.750								
	1250-2.125-AL	●	1-1/4			4.433	3.293	2.125								

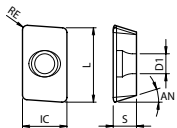
FM-AL (Fixed Pocket Face Mill for Aluminum)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					A.R. (°)	R.R. (°)	Coolant Hole	Max. Ramping Angle (°)			Applicable Inserts ➡ M217
				DC	DCB	LF	KWW	APMX					Insert Screw	Wrench	
															
Inch	FM AL-2500-90-3	●	3	2-1/2	3/4	1.570	5/16	0.64	+5	-3	No	8	SCR-02	T15	APET1604...
	3000-90-AL	●	6	3			3/8		+5	+0					
	4000-90-AL	●	8		1										
	4000-90-AL-125	●		1-1/4	1/2										
	AL-4000-90-5	●		5			1									3/8

APET

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel							P					
		Mold and die steel												
		Stainless steel							M					
		Gray cast iron							K					
		Nodular cast iron												
		Non-ferrous metals					★		N					
		Heat-resistant alloy							S					
		Titanium alloy												
Hard materials							H							
Insert		Part Number		No. of Edges	Dimensions (in)					Angle (°)		Carbide	Applicable Toolholder ● M216 ● M298	
					IC	S	D1	RE	INSL	AN	AS			KW10
 		APET 1604PDFR							0.039			●			EM...-AL
		160416		2	3/8	0.188	0.157	0.062	0.630	11	-	●		FMAL-...
		160431						0.125				●		FM...-90-AL CM...-AL

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm)
		Uncoated Carbide
		KW10
Non-ferrous Metals	0.005~0.007	2,000~4,000

High-Precision Cutter for Finishing Applications

MFF

Cutter body design provides excellent reliability
Molded wiper inserts increase machining efficiency

1 Innovative Solutions for Finish Machining

Designed with a unique insert combination of semi-finishing and finishing, the MFF drastically improves productivity by reducing finish quality issues.



Semi-finishing insert

To flatten rugged surfaces

SOLUTION

Increase feed to $f = 0.197$ ipt
Achieved $0.8 \mu\text{m}$ Ra surface finish
No grinding required
Achieved $5 \mu\text{m}$ flatness

The above is the result of a field test. Actual results will depend on machining environment, workpiece rigidity, machine, etc.

Finishing Insert

Provides excellent surface finish
Adjustable cutting edge and a single insert eliminates runout

MFF Machining solutions

Can be used on a wide variety of parts and workpieces

Parts

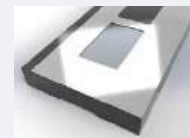
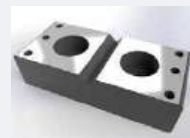
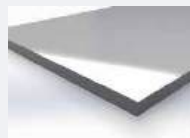
Plate / Frame / Case
Cylinder pump / Rail
Turbine housing
Casing / Mold base

Workpiece Material

Rolled Steel for general structure /
Gray cast iron / Spheroidal graphite cast iron
Ni-resist cast iron
Mold steel
Carburized and hardened steel (60 HRC)

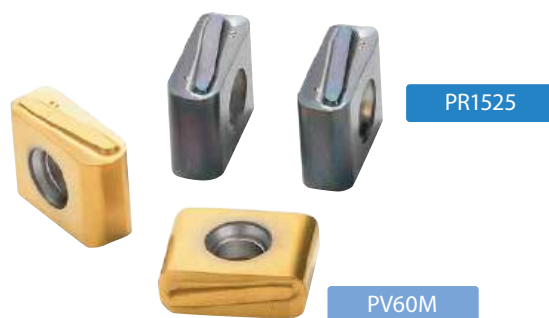
Industry

Industrial machining / Machine tools
Shipbuilding / Automotive
Construction machinery / Molds



2 Molded Wiper Insert for High-Quality Surface Finish

Kyocera's unique molded insert technology for high feed rates and excellent surface finish



Low cutting force with special edge preparation
Micro-honing
Good sharpness

Wiper Edge
Large S-curve shape developed for higher feed rates

Edge Temperature Simulation Comparison (Internal Evaluation)
MFF Conventional Tool After 2 sec machining

MEGACOAT NANO Cermet PV60M

For high-speed machining
Recommended Vc = ~ 1,150 sfm

High-quality surface finish

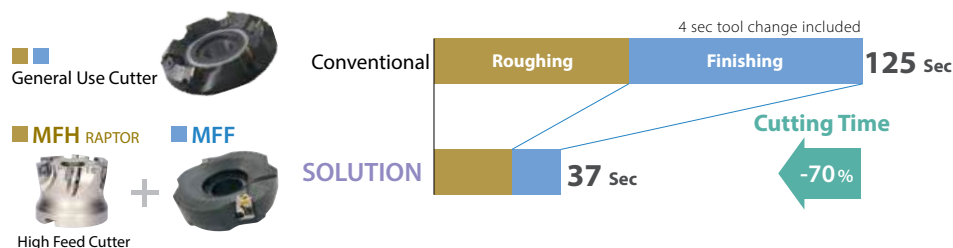
Molded TT Chipbreaker

Reduces chip clogging
High feed machining

Comprehensive Machining Solutions

From roughing to finish machining improvements (Internal Evaluation)

Combine with Kyocera's MFH high feed cutter to improve quality and efficiency



Cutting Conditions
Conventional Ø200mm (6 flute)
Vc = 660 sfm
Roughing : Vf = 11.26 ipm (fz = 0.006 ipt), D.O.C. = 0.047"
Finishing : Vf = 9.06 ipm (fz = 0.005 ipt), D.O.C. = 0.012"

SOLUTION
Roughing: MFH-RAPTOR Ø63mm (6 flute)
Vc = 660 sfm
Vf = 287.40 ipm (fz = 0.047 ipt), D.O.C. = 0.028"
Finishing: MFF Ø200mm (2 flute)
Vc = 980 sfm
Vf = 94.49 ipm (f = 0.197 ipt), D.O.C. = 0.004"

Surface finish quality after machining

The MFF SOLUTION



Conventional Machining



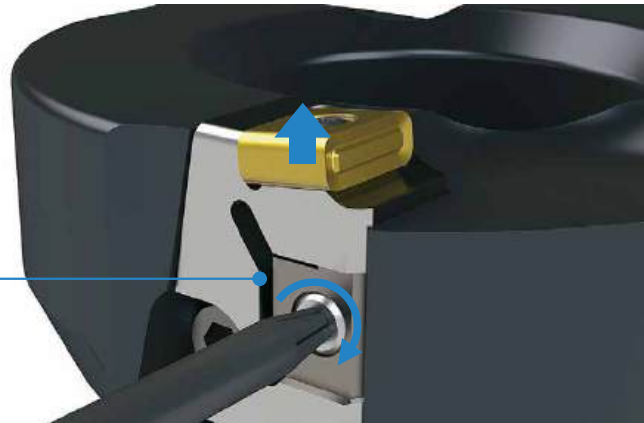
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

3 Adjustable Cutting Edge Height for Increased Usability

Cartridge height comes pre-adjusted and should not be necessary.
Adjustment is not required after replacing insert.

Easy-to-Adjust Cutting Edge

Cutting edge height can be adjusted easily with one screw

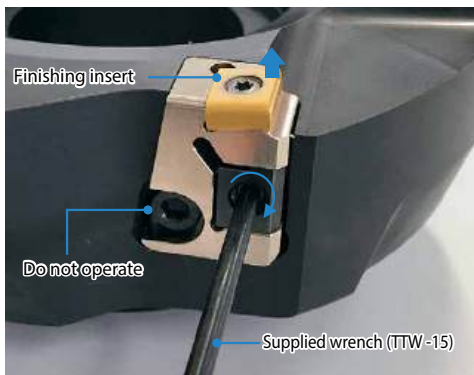


Included adjustment wrench

Edge Adjustment

If D.O.C. is 0.004"~0.008" (0.1mm ~ 0.2mm), no adjustment is necessary (Pre-adjusted before holder is shipped).
Cutting edge adjustment is NOT required when replacing inserts.

If D.O.C. is less than 0.1 mm or if you prefer a different edge height, use the following method:



Adjusting the cutting edge

Use the supplied TTW-15 wrench to rotate the screw and easily adjust the cutting edge position.

Procedure

To adjust, start with the screw turned counterclockwise about two rotations (lowering the cutting edge).
Tighten the screw clockwise (raising the cutting edge) to adjust the amount of protrusion.
*Use a dial gauge to measure protrusion amount.

Precautions

Make sure to lower the cutting edge below the desired height first (turning screw counterclockwise) and then raise the edge up to the final height (turning screw clockwise).
If cutting edge is simply lowered to the final edge height, chattering or loosening of the screw may occur due to backlash.
Make sure the measurement position of the cutting edge is the same machining diameter.

Standard Cutting Edge Height

D.O.C. = 0.0020" → protrusion against rough edge : 0.0012"

D.O.C. = 0.0039" ~ → protrusion against rough edge : 0.0024" *Pre-adjusted before shipment

45°~70°
Lead Angle

75°
Lead Angle

88°~90°
Lead Angle

Finish
Milling

High Feed
Milling

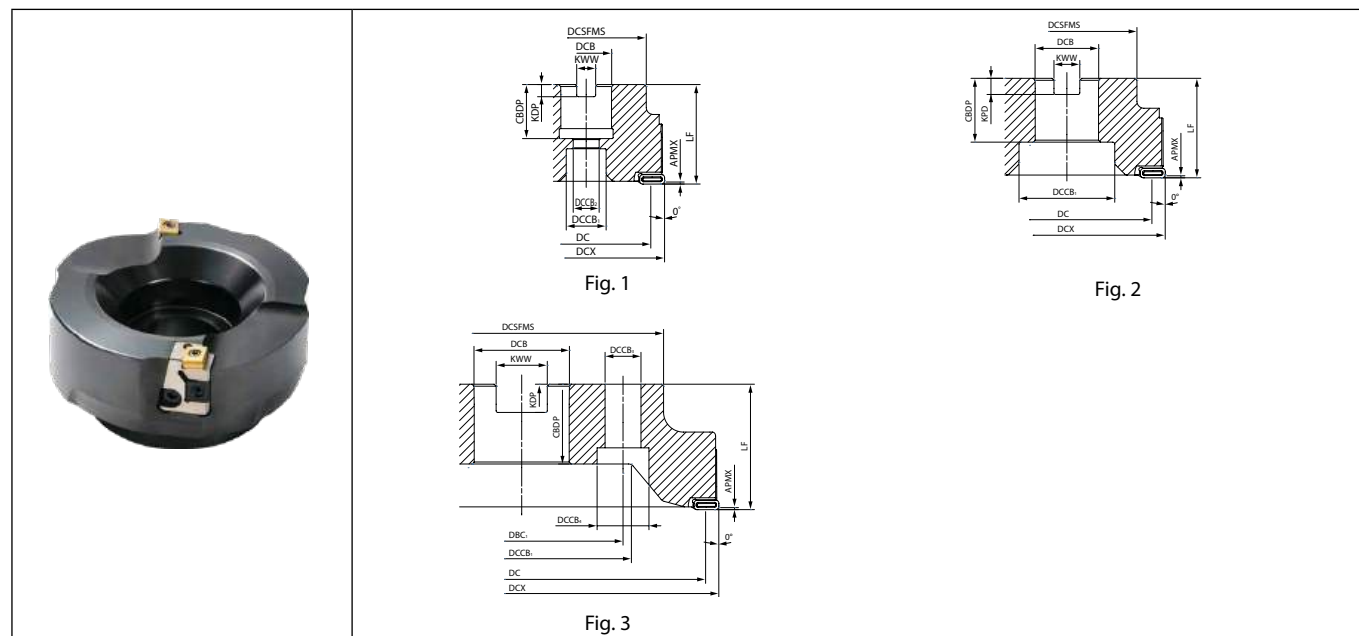
Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

MFF



Toolholder Dimensions

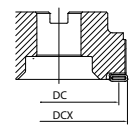
Unit	Part Number		Std. Item	No. of Inserts	Dimensions												A.R. (°)	R.R. (°) (Medium-Finishing Insert)	R.R. (°) (Finishing Insert)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➔ M222 M42		
					DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	DBC ₁	LF	CBDP	KDP									KWW	APMX
mm	Inch Bore Dia.	MFF 080R-SF	●	2	67.3	80	60	1.000"	20	13	-	-	-	50	1.063"	0.236"	0.375"	0.3	-8	-9	-20	No	2,000	1.3	1	LNGX120916R-TT LNGX120916
		100R-SF	●		87.3	100	70	1.250"	48	-					-	-	1.260"						0.315"	0.500"		
		125R-SF	●		112.3	125	87	1.500"	58					63			1.496"						0.394"	0.625"		
		160R-SF	●		147.3	160	102	2.000"	72	-					1.496"	0.433"	0.750"									
		200R-SF	●		187.3	200	142	1.875"	110	18				26	4.000"	1.575"	0.551"						1.000"			
		250R-SF	●		237.3	250		10.8	3																	
	Metric Bore Dia.	MFF 080R-M-SF	●	2	67.3	80	60	27	20	13	-	-	-	50	24	7	12.4	0.3	-8	-9	-20	No	2,000	1.3	1	LNGX120916R-TT LNGX120916
		100R-M-SF	●		87.3	100	70	32	48	-					-	-	32						8	14.4		
		125R-M-SF	●		112.3	125	87	40	55					63			33						9	16.4		
		160R-M-SF	●		147.3	160	102		72	-					33	9	16.4									
		200R-M-SF	●		187.3	200	142	60	110	18				26	101.6	40	14						25.7			
		250R-M-SF	●		237.3	250		10.5	3																	

*ø250mm sizes have holes for lighter weight.

Max. Revolution

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on page M225. Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Surface Finish
The surface will be finished flat within the range of DC shown on the right.



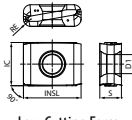
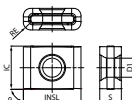
Spare Parts

Spare Parts							
Insert Screw	Wrench	Wedge	Cartridge	Cartridge Clamp Screw	Wrench	Adjustment Screw	Anti-seize Compound
							
SB-3592TR	DTM-10	AD-MFF	CR-MFF	HH5X15L	TTW-15	W6X18N	P-37
Recommended tightening torque for insert screw 1.2N·m							

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

LNGX

Insert		Part Number	No. of Edges	Dimensions (mm)					Cermet	Carbide		Applicable Toolholder  M221 M40
				IC	S	D1	RE	INSL	PVD	PVD		
									PV60M	PR1525	PR1825	
		LNGX 120916R-TT	4	9.525	4.76	4.2	1.6	12.7	●	●	●	MFF...-SF MFSE45...-W MFSE45...-W-M
		LNGX 120916	4	9.525	4.76	4.2	1.6	12.7	●	●	●	MFF...-SF MFSE45...-W MFSE45...-W-M

Recommended Cutting Conditions M223

M
MILLING45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
ApplicationsLNGX Inserts are
sold in 10 piece boxes

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	f (ipr)	D.O.C. (in)	Recommended Insert Grades (Vc : sfm)	
				PV60M	PR1825 (PR1525)
TT	Structural steel	0.059~ 0.158 ~0.197	0.001~ 0.004 ~0.012	★ 750~ 920 ~1,150	☆ 750~ 920 ~1,150
	Carbon steel	0.039~ 0.158 ~0.197		★ 660~ 820 ~1,150	☆ 660~ 820 ~1,150
	Alloy steel	0.039~ 0.158 ~0.197		★ 660~ 820 ~1,150	☆ 660~ 820 ~1,150
	Mold steel	0.039~ 0.079 ~0.158	0.001~ 0.004 ~0.008	☆ 390~ 660 ~820	★ 390~ 660 ~820
	Mold steel (50HRC ~)	0.024~ 0.039 ~0.047	0.001~ 0.002 ~0.004	-	★ 160~ 230 ~260
	Austenitic stainless steel*	0.039~ 0.079 ~0.158	0.001~ 0.004 ~0.008	☆ 390~ 660 ~820	★ 390~ 660 ~820
	Martensitic stainless steel *	0.039~ 0.118 ~0.158		☆ 490~ 660 ~980	★ 490~ 660 ~980
Standard	Gray cast iron	0.039~ 0.079 ~0.158	0.001~ 0.004 ~0.012	☆ 660~ 820 ~1,150	★ 660~ 820 ~1,150
	Nodular cast iron	0.059~ 0.079 ~0.158		☆ 490~ 820 ~980	★ 490~ 820 ~980

*These cutters are 1-flute effective (recommended feed rates are in inches per rev)

★: 1st Recommendation ☆: 2nd Recommendation

*Machining with coolant is recommended for stainless steel

The number in bold is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PC D INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

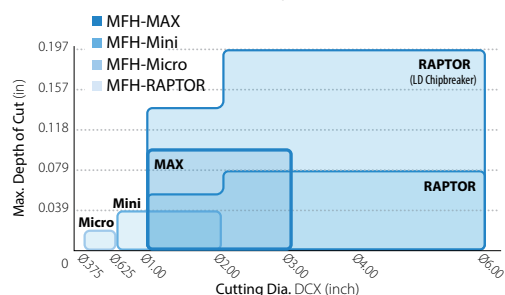
High-Feed Milling Series

MFH-RAPTOR

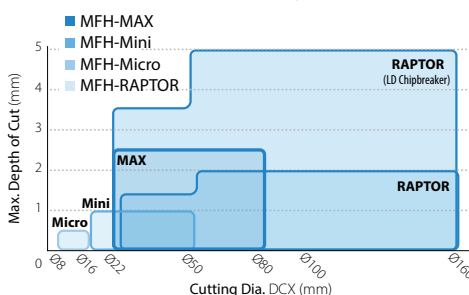
Anti-vibration Design for Increased Chip Evacuation
and Shortened Cutting Times

(Cutter Dia. Ø1.000" ~ Ø6.000")
(Cutter Dia. Ø25mm ~ Ø160mm)

MFH-Series Inch Diameter Range



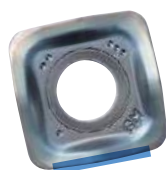
MFH-Series Metric Diameter Range



1

4 Different Insert Designs Offer a Variety of Machining Options

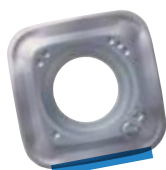
GM (General Milling)



1st Choice for General Purpose

Multiple Metalworking Processes

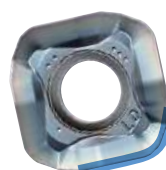
GH (Tough Edge)



Tough Edge

Excellent Fracture Resistance

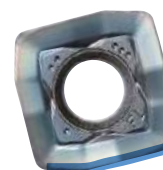
LD (Large D.O.C.)



1st Choice for Large D.O.C.

Available for Scale Removal
Max. D.O.C. = 0.197" (5mm)

FL (Wiper Edge)



Wiper Edge

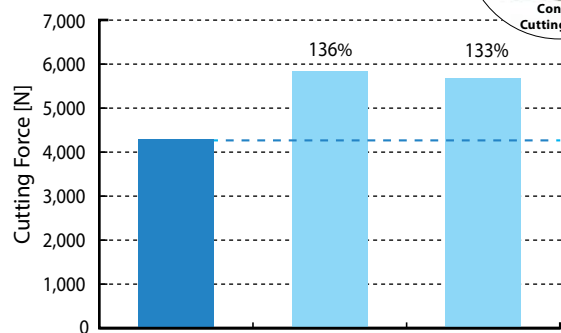
Roughing and Finishing Even in
Low Horsepower Machining Centers

2

Molded Convex Cutting Edge Reduces Initial Shock when Entering Workpiece

Cutting Force (Shock) Comparison when Entering Workpiece (Internal Evaluation)

Width of cut a_e is half of cutter diameter when
cutting forces at initial contact are greatest

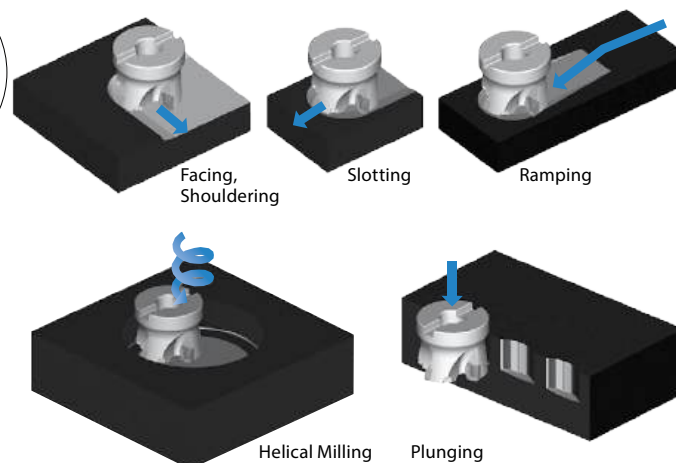


$V_c = 490 \text{ sfm}$, $f_z = 0.059 \text{ ipt}$, D.O.C. $x a_e = 0.059" \times 1.240"$
1049, Dry, Cutter Dia. Ø2.5"

Resultant Force Shown

3

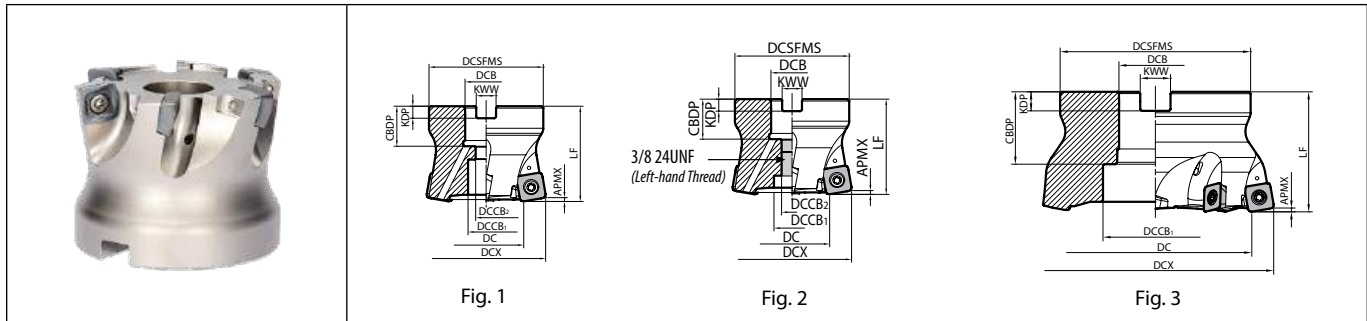
Multi-Functional Applications



* GM insert is applicable to all the above applications

* LD insert and FL insert are not applicable for helical milling, plunging, and contouring of rising wall (Please refer to M184)

MFH-RAPTOR (Face Mill)



Toolholder Dimensions (SOMT10 Inserts)

Unit	Part Number	Std. Item R	No. of Inserts	Dimensions												A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M233
				DCX	DC (GM/GH)	DC (LD)	DC (FL)	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	APMX ₂					
Inch	MFH 2000R-10-4T	●	4	2.000	1.331	1.510	1.469	1.750					0.947					-5	10,000	0.4	1	SOMT1004...
	2000R-10-5T	●	5						0.750	0.669	0.433	1.969		0.187	0.313	0.059 (0.138)	0.047					
	2500R-10-5T	●	5	2.500	1.831	2.010	1.969	2.250					0.75					Yes	8,800	0.7		
	2500R-10-6T	●	6																			
	3000R-10-7T	●	7	3.000	2.331	2.510	2.469	2.750	1.000	0.866	0.551	2.48	1.063	0.236	0.382			-4	7,600	1.3		

Toolholder Dimensions (SOMT14 Inserts)

Unit	Part Number	Std. Item	No. of Inserts	Dimensions														A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M233
		R		DCX	DC (GM/GH)	DC (LD)	DC (FL)	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	APMX ₂							
Inch	MFH 2000R-14-4T	●	4	2.000	1.094	1.330	1.291	1.750	0.750	0.500	3/8 24UNF	1.969	0.827	0.187	0.313	0.079 (0.197)	0.079	+10	-10	Yes	8,800	0.4	2	SOMT1405...
	2000R-14-5T	●	5																				2	
	2500R-14-4T	●	4	2.500	1.594	1.830	1.791	2.250	0.750	0.669	0.433	1.969	0.750	0.187	0.313						7,400	0.6	1	
	2500R-14-5T	●	5																				1	
	2500R-14-5T-1000	●	5	3.000	2.094	2.330	2.291	2.750	1.000	0.866	0.551	2.480	1.063	0.236	0.382						7,400	0.7	1	
	3000R-14-5T	●	5																				1	
	3000R-14-6T	●	6	3.000	2.094	2.330	2.291	2.750	1.000	0.866	0.551	2.480	1.063	0.236	0.382				6,400	1.2	1			
	3000R-14-6T-1250	●	6																		1			
	4000R-14-6T	●	6	4.000	3.094	3.330	3.291	3.750	1.500	1.299	0.866	2.480	1.181	0.394	0.626				5,600	2.3	1			
	4000R-14-7T	●	7																		1			
	5000R-14-7T	●	7	5.000	4.094	4.330	4.291		1.500	2.047	-	2.480	1.496	0.394	0.626				4,800	2.9	3			
	6000R-14-8T	●	8																		3			

For APMX₂, refer to the figure on M226For SOMT10...-LD inserts (APMX = 0.138") and (APMX₂ = 0.047").For SOMT14...-LD inserts (APMX = 0.197") and (APMX₂ = 0.079").

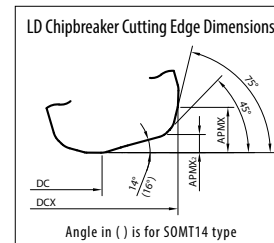
Max. Revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

Spare Parts (MFH-RAPTOR - Inch Face Mills)

Part Number	Spare Parts						Applicable Inserts ➡ M233	
	Insert Screw	Wrench		Anti-Seize Compound	Arbor Bolt	Mounting Screw		
		DTPM 	TTP 					
MFH 2000R-10-4T	SB-4090TRPN	DTPM-15 Recommended tightening torque for insert screw 3.5N·m	P-37		HH3/8-1.25(H)	-	SOMT100420ER-GM SOMT100420ER-LD SOMT100420ER-FL SOMT100420ER-GH	
2000R-10-5T								
2500R-10-5T								
2500R-10-6T								
3000R-10-7T					HH1/2-1.25(H)	-		
MFH 2000R-14-4T	SB-50120TRP	TTP-20 Recommended tightening torque for insert screw 4.5N·m	P-37		-	XNS610*	SOMT140520ER-GM SOMT140520ER-LD SOMT140514ER-FL SOMT140520ER-GH	
2000R-14-5T	SB-5090TRP							
2500R-14-4T	SB-50120TRP					HH3/8-1.25(H)		-
2500R-14-5T								
2500R-14-5T-1000								
3000R-14-5T					HH1/2-1.25(H)	-		
3000R-14-6T								
3000R-14-6T-1250					HH5/8-1.50(H)	-		
4000R-14-6T								
4000R-14-7T					HH3/4-2.3H	-		
5000R-14-7T								
6000R-14-8T						-		-

(H) Optional coolant-through bolt available.

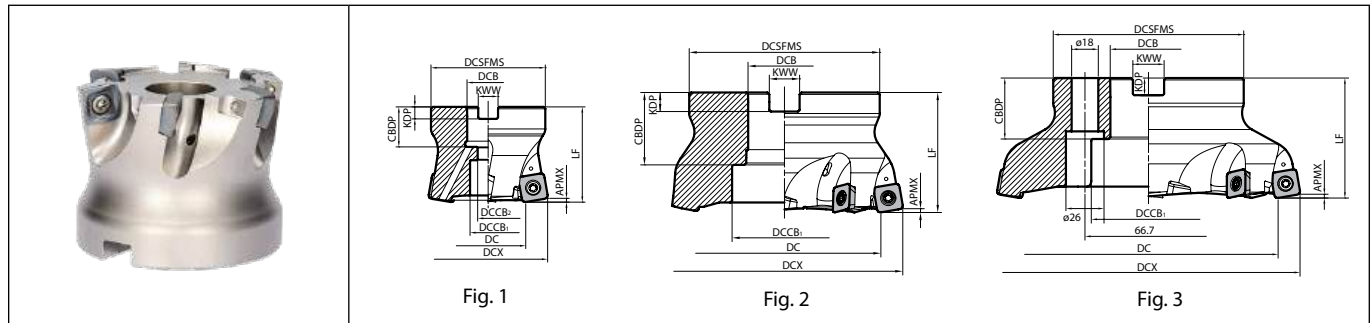


Caution with Max. Revolution
When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

 **Coat Anti-Seize Compound** thinly on portion of taper and thread prior to installation.

*Differential Screw (3/8-24UNF)

MFH-RAPTOR (Face Mill)



Toolholder Dimensions (SOMT10 Inserts)

Unit	Part Number		Std. Item	R	No. of Inserts	Dimensions												A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M233	
						DCX	DC (GM/GH)	DC (LD)	DC (FL)	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW								APMX	APMX_{2}
mm	Inch Bore Dia.	MFH 050R-10-4T	●	4	50	33	37.5	36.5	47	0.875"	19	11	50	0.748"	0.197"	0.331"	1.5 (3.5)	1.2	+10	-5	Yes	10,000	0.4	1	SOMT1004...
		●	5	8,800																		0.7			
		063R-10-5T	●	5	63	46	50.5	49.5	60	1.250"	26	17	63	1.260"	0.315"	0.500"	1.5 (3.5)	1.2	+10	-4	Yes	8,800	0.7		
		063R-10-6T	●	6																		7,600	1.3		
		080R-10-7T	●	7	80	63	67.5	66.5	76	27	20	13	63	24	7	12.4	1.5 (3.5)	1.2	+10	-4	Yes	7,600	1.6		
	Metric Bore Dia.	MFH 050R-10-4T-M	●	4	50	33	37.5	36.5	47	22	19	11	50	21	6.3	10.4	1.5 (3.5)	1.2	+10	-5	Yes	10,000	0.4	1	SOMT1004...
		MFH 050R-10-5T-M	●	5																		8,800	0.7		
		063R-10-5T-22M	●	5	63	46	50.5	49.5	60	27	20	13	50	24	7	12.4	1.5 (3.5)	1.2	+10	-4	Yes	8,800	0.7		
		063R-10-5T-27M	●	5																		7,600	1.6		
		063R-10-6T-22M	●	6	63	46	50.5	49.5	60	27	20	13	63	24	7	12.4	1.5 (3.5)	1.2	+10	-4	Yes	7,600	1.6		
		063R-10-6T-27M	●	6	80	63	67.5	66.5	76	27	20	13	63	24	7	12.4	1.5 (3.5)	1.2	+10	-4	Yes	7,600	1.6		
		080R-10-7T-M	●	7	80	63	67.5	66.5	76	27	20	13	63	24	7	12.4	1.5 (3.5)	1.2	+10	-4	Yes	7,600	1.6		

Toolholder Dimensions (SOMT14 Inserts)

Unit	Part Number	Std. Item R	No. of Inserts	Dimensions												A.R. (°)		Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M233					
				DCX	DC (GM/GH)	DC (LD)	DC (FL)	DCSFMS	DCB	DCB ₁	DCB ₂	LF	CBDP	KDP	KWW								APMX	APMX ₂			
mm	Inch Bore Dia.	MFH 050R-14-4T	●	4	50	27	33	32	47		12	-														SOMT1405...	
		063R-14-4T	●	4						0.875"				50	0.748"	0.197"	0.331"										
		063R-14-5T	●	5	63	40	46	45	60		19	11															
		080R-14-5T	●	5																							
		080R-14-6T	●	6	80	57	63	62	76																		
		100R-14-6T	●	6						1.250"	26	17			1.260"	0.315"	0.500"										
		100R-14-7T	●	7	100	77	83	82	96																		
		125R-14-7T	●	7	125	102	108	107		1.500"	55					0.394"	0.625"										
	160R-14-8T	●	8	160	137	143	142	100	2.000"	72	-			1.496"	0.433"	0.750"											
	Metric Bore Dia.	MFH 050R-14-4T-M	●	4	50	27	33	32	47		12	-															SOMT1405...
		063R-14-4T-22M	●	4						22	19	11			21	6.3	10.4										
		063R-14-4T-27M	●	4						27	20	13			24	7	12.4										
		063R-14-5T-22M	●	5	63	40	46	45	60		22	19	11			21	6.3	10.4									
		063R-14-5T-27M	●	5						27	20	13			24	7	12.4										
		080R-14-5T-M	●	5																							
		080R-14-6T-M	●	6	80	57	63	62	76	27	20	13			24	7	12.4										
		100R-14-6T-M	●	6																							
		100R-14-7T-M	●	7	100	77	83	82	96	32	26	17	63		28	8	14.4										
		125R-14-7T-M	●	7	125	102	108	107			55				33	9	16.4										
		160R-14-8T-M	●	8	160	137	143	142	100	40	68	-			32												

For APMX2, refer to the figure on M228

For SOMT10...-LD (APMX = 3.5mm) and (APMX2 = 1.2mm).

For SOMT14...-LD (APMX = 5mm) and (APMX2 = 2mm).

Max. Revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

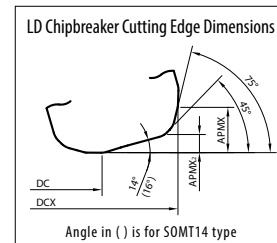
Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Spare Parts (MFH-RAPTOR - Metric Face Mills)

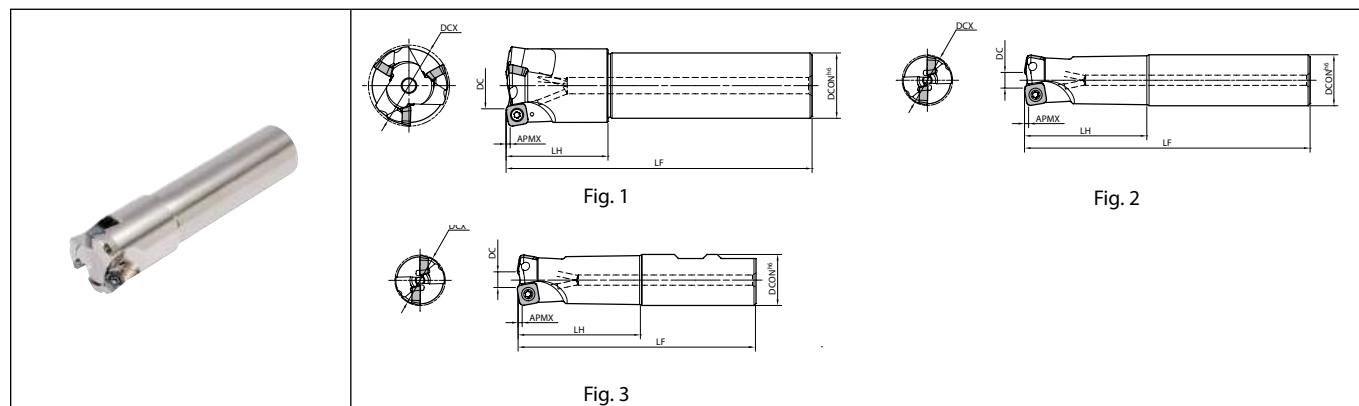
Part Number	Spare Parts						Applicable Inserts M233
	Insert Screw	Wrench		Anti-Seize Compound	Arbor Bolt	Mounting Screw	
		DTPM 	TTP 				
MFH 050R-10-...	SB-4090TRPN	DTPM-15	P-37	-	HH10X30	-	SOMT100420ER-GM SOMT100420ER-LD SOMT100420ER-FL SOMT100420ER-GH
050R-10-...-M					HH12X35	-	
063R-10-...					HH16X40	-	
063R-10-...-22M					HH12X35	-	
063R-10-...-27M					-	-	
080R-10-...					-	-	
080R-10-...-M					-	-	
MFH 050R-14-...	SB-50120TRP	TTP-20	P-37	-	-	W10X31	SOMT140520ER-GM SOMT140520ER-LD SOMT140514ER-FL SOMT140520ER-GH
050R-14-...-M					HH10X30	-	
063R-14-...					HH12X35	-	
063R-14-...-22M					HH16X40	-	
063R-14-...-27M					HH12X35	-	
080R-14-...					HH16X40	-	
080R-14-...-M					-	-	
100R-14-...					-	-	
100R-14-...-M					-	-	
125R-14-...					-	-	
125R-14-...-M					-	-	
160R-14-...					-	-	
160R-14-...-M					-	-	



Caution with Max. Revolution
When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

 **Coat Anti-Seize Compound**
thinly on portion of taper and thread prior to installation.

MFH-RAPTOR (End Mill)



Toolholder Dimensions (SOMT10 Inserts)

Unit			Part Number			Std. Item	No. of Inserts	Dimensions								A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts ➡ M233		
																						Anti-Seize Compound	Insert Screw	Wrench			
											DCX	DCON	DC (GW/GH)	DC (LD)	DC (FL)							LF	LH	APMX		APMX ₂	
Inch	Standard Shank	Weldon	MFH 1000-W100-10-2T	● 2	2	1.000	1.000	0.331	0.508	0.469	5.500	3.173	0.059 (0.138)	0.047	+10	-5	Yes	17,000	0.4	3	P-37	SB-4075TRP	DTPM-15	SOMT1004...			
			1250-W125-10-2T	● 2	2	1.250	1.250	0.581	0.758	0.719	6.000	2.750						2.000	14,000	0.8					3	Recommended tightening torque for insert screw 3.5N·m	
			1250-W125-10-3T	● 3	3	1.500	1.500	0.831	1.008	0.969		3							11,500						3		
			1500-W150-10-3T	● 3	3																						
			1500-W150-10-4T	● 4	4							3															
	Long Shank	Cylindrical	MFH 1000-S100-10-2T-8	● 2	2	1.000	1.000	0.331	0.508	0.469	8.000	4.750	0.059 (0.138)	0.047	+10	-5	Yes	17,000	0.8	2	P-37	SB-4075TRP	DTPM-15	SOMT1004...			
			1250-S125-10-2T-8	● 2	2	1.250	1.250	0.581	0.758	0.719		2						14,000		Recommended tightening torque for insert screw 3.5N·m							
			1500-S125-10-4T10	● 4	4	1.500	1.250	0.831	1.008	0.969		10.000						2.000							11,500	1	

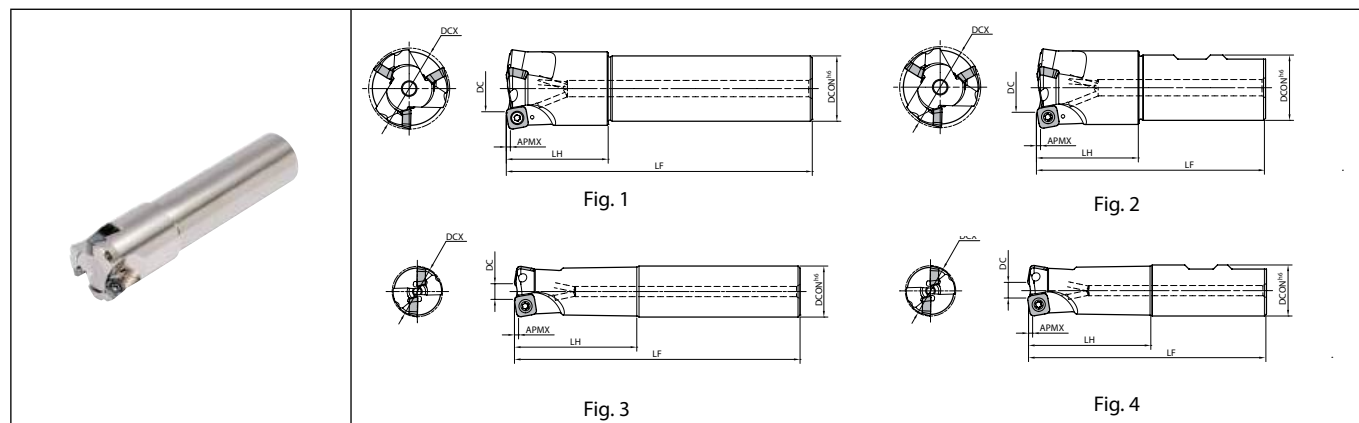
For APMX₂, refer to the figure on **M226**

For SOMT10...-LD inserts (APMX = 0.138") and (APMX₂ = 0.047").

Max. Revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

MFH-RAPTOR (End Mill)



Toolholder Dimensions (SOMT10 Inserts)

Unit	Part Number		Std. Item	No. of Inserts	Dimensions								A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts ➡ M233											
					DCX	DCON	DC (GM/GH)		DC (LD)	DC (FL)	LF	LH							APMX	APMX ₂	Anti-Seize Compound		Insert Screw	Wrench									
																																	
mm	Standard Shank	Cylindrical	MFH 25-S25-10-2T	● 2	25	25	8	12.5	11.5	140	60	1.5 (3.5)	1.2	+10	-5	Yes	17,000	0.4	3	P-37	SB-4075TRP	DTPM-15	SOMT1004...										
			28-S25-10-2T	● 2	28		11	15.5	14.5		40						15,500	0.5	1														
			32-S32-10-2T	● 2	32	15	19.5	18.5	70	14,000	0.8						3																
			32-S32-10-3T	● 3																													
			35-S32-10-2T	● 2	35	32	18	22.5	21.5	150	13,000						1																
			35-S32-10-3T	● 3																													
			40-S32-10-3T	● 3	40	23	27.5	26.5	50	11,500	0.9																						
			40-S32-10-4T	● 4																													
		Weldon	MFH 25-W25-10-2T	● 2	25	25	8	12.5	11.5	117	60	1.5 (3.5)	1.2	+10	-5	Yes	17,000	0.4	4	P-37	SB-4075TRP	DTPM-15	SOMT1004...										
			32-W32-10-3T	● 3	32	15	19.5	18.5	131	70	14,000						0.7	4															
			40-W32-10-3T	● 3	40	23	27.5	26.5	112	50	11,500						2																
			40-W32-10-4T	● 4																													
			Long Shank	Cylindrical	MFH 25-S25-10-2T-200	● 2	25	25	8	12.5	11.5						120	1.5 (3.5)	1.2					+10	-5	Yes	17,000	0.6	3	P-37	SB-4075TRP	DTPM-15	SOMT1004...
					28-S25-10-2T-200	● 2	28		11	15.5	14.5																40	15,500	0.7					1
	32-S32-10-2T-200	● 2			32	15	19.5	18.5	200	120	14,000	1	3																				
	35-S32-10-2T-200	● 2			35	32	18	22.5	21.5	50	13,000	1.4	1																				
	40-S32-10-4T-250	● 4			40	23	27.5	26.5	250		11,500	1.5	1																				
	Extra Long Shank	Cylindrical			MFH 25-S25-10-2T-300	● 2	25	25	8	12.5	11.5	180	1.5 (3.5)	1.2	+10	-5	Yes			17,000	1	3	P-37				SB-4075TRP	DTPM-15	SOMT1004...				
			28-S25-10-2T-300	● 2	28	11	15.5		14.5	40	15,500							1.1	1														
			32-S32-10-2T-300	● 2	32	15	19.5	18.5	300	180	14,000	1.6						3															
			35-S32-10-2T-300	● 2	35	32	18	22.5	21.5	50	13,000	1.7						1															
			40-S32-10-4T-300	● 4	40	23	27.5	26.5	11,500		1.8	1																					

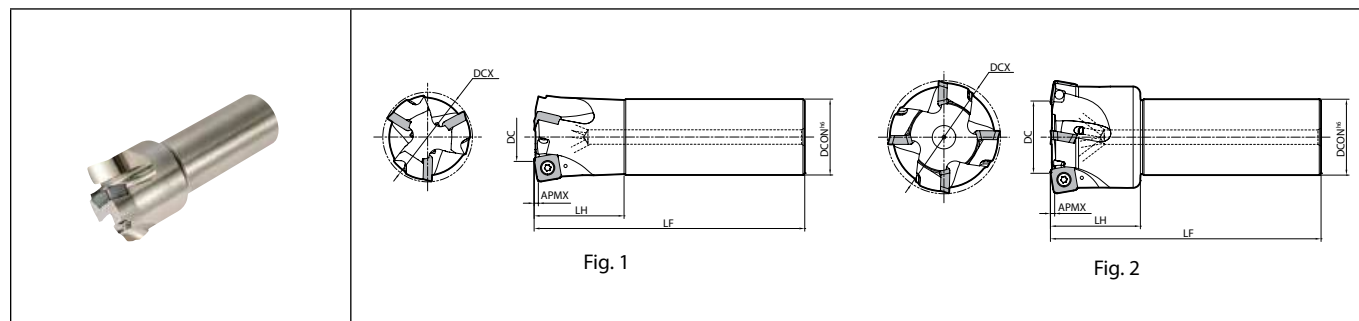
For APMX₂, refer to the figure on M228For SOMT10...-LD (APMX = 3.5mm) and (APMX₂ = 1.2mm).

Max. Revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

M
MILLING45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

MFH-RAPTOR (End Mill)



Toolholder Dimensions (SOMT14 Inserts)

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts ➡ M233
				DCX	DCON	DC (GM/GH)	DC (LD)	DC (FL)	LF	LH	APMX	APMX ₂						Anti-Seize Compound	Insert Screw	Wrench	
mm	Cylindrical	●	3	50		27	33	32					-10		8,800	1.4	1	P-37	SB-50120TRP	TTP-20	SOMT1405...
		●	4	63	42	40	46	45	150	50	2 (5)	2	-10	Yes	7,400	1.7	2				
		●	5	80		57	63	62					-8		6,400	2.3	2				

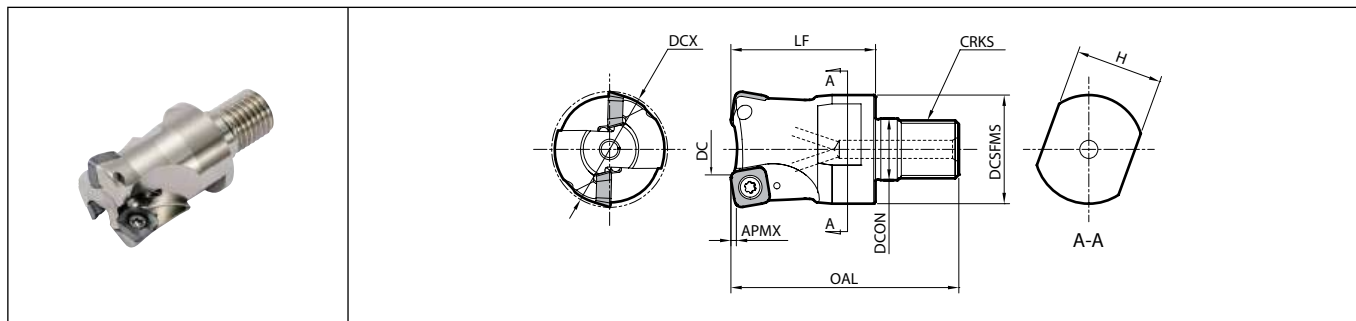
For APMX₂, refer to the figure on **M228**

For SOMT14...-LD (APMX = 5mm) and (APMX₂ = 2mm).

Max. Revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

MFH-RAPTOR (Modular Head)



Toolholder Dimensions (SOMT10 Inserts)

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➡ M233					
				DCX	DCON	DC (GM/GH)			DCSFMS	OAL	LF	APMX	APMX ₂					CRKS	H							
						DC (LD)	DC (FL)	DC (LD)																		
mm	MFH 25-M12-10-2T	●	2	25	12.5	8	12.5	11.5	23	57	35			M12×P1.75	19	+10	-5	Yes	17,000	P-37	SB-4075TRP	DTPM-15	SOMT1004...			
	28-M12-10-2T	●	2	28		11	15.5	14.5																		
	32-M16-10-2T	●	2	32		15	19.5	18.5																	14,000	
	32-M16-10-3T	●	3																							
	35-M16-10-2T	●	2	35	17	18	22.5	21.5	30	62	40														13,000	
	35-M16-10-3T	●	3																							
	40-M16-10-3T	●	3	40		23	27.5	26.5																		Recommended tightening torque for insert clamp 3.5N·m
	40-M16-10-4T	●	4																							

For APMX₂, refer to the figure in **M228**

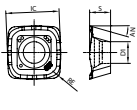
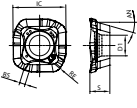
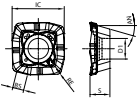
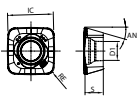
For SOMT10...-LD (APMX = 3.5mm) and (APMX₂ = 1.2mm).

Max. Revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

See page **M324** for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

SOMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or under)			Carbon steel / Alloy steel										☆		☆			P
			Mold and die steel										☆		☆		★	
			Austenitic stainless steel											☆		☆	★	M
			Martensitic stainless steel							★						☆		
			Precipitation hardened stainless steel											☆		★		
			Gray cast iron									☆			★			K
			Nodular cast iron									☆			★			
			Non-ferrous metals															N
			Heat-resistant alloy							★						☆		
			Titanium alloy											☆		★	S	
Hard materials (≤ 60 HRC)								★										
Insert		Part Number	No. of Edges	Dimensions (mm)					Angle (°)	Carbide							Applicable Toolholder ➡ M225~M232	
				IC	S	D1	RE	BS		AN	CVD							
											PVD							
	 General Purpose	SOMT 100420ER-GM	4	10.3	4.58	4.6	2	-	16	●	△	●	●	●	●	●	MFH...-10-..	
		SOMT 140520ER-GM	4	14.14	5.56	5.8	2	-	16	●	△	●	●	●	●	●	MFH...-14-..	
	 Large D.O.C.	SOMT 100420ER-LD	4	10.45	4.58	4.6	2	0.9	16	●	△	●	●	●	●	●	MFH...-10-..	
		SOMT 140520ER-LD	4	14.76	5.56	5.8	2	1.6	16	●	△	●	●	●	●	●	MFH...-14-..	
	 With Wiper Edge	SOMT 100420ER-FL	4	10.44	4.58	4.6	2	1.4	16	●	△	●	●	●	●	●	MFH...-10-..	
		SOMT 140514ER-FL	4	14.57	5.56	5.8	1.4	3.1	16	●	△	●	●	●	●	●	MFH...-14-..	
	 Tough Edge	SOMT 100420ER-GH	4	10.43	4.57	4.55	2	-	16	●	△	●	●	●	●	●	MFH...-10-..	
		SOMT 140520ER-GH	4	14.17	5.56	5.8	2	-	16	●	△	●	●	●	●	●	MFH...-14-..	

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M234~M235

Recommended Cutting Conditions

Chipbreaker	Workpiece	Holder Part Number and Feed Rate (fz: ipt)					Recommended Insert Grade (Vc: sfm)				
		End Mill Feed Rates			Face Mill Feed Rates		MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD	CVD
		MFH1000 MFH25-	MFH1250 MFH32-	MFH1500 MFH40-	MFH...R-10	MFH...-14	PR1810 (PR1510)	PR1825 (PR1525)	PR1835 (PR1535)	PR015S	CA6535
GM GH	Carbon Steel	① 0.020~ 0.032 ~0.039 ② 0.008~ 0.016 ~0.020	① 0.020~ 0.039 ~0.059 ② 0.012~ 0.028 ~0.039	① 0.020~ 0.047 ~0.071 ② 0.016~ 0.039 ~0.059	0.020~ 0.059 ~0.079		-	★ 390~590~820	☆ 390~590~820	-	-
	Alloy Steel	① 0.020~ 0.032 ~0.039 ② 0.008~ 0.016 ~0.020	① 0.020~ 0.039 ~0.059 ② 0.012~ 0.028 ~0.039	① 0.020~ 0.047 ~0.071 ② 0.016~ 0.039 ~0.059	0.020~ 0.059 ~0.079		-	★ 330~520~720	☆ 330~520~720	-	-
	Mold Steel (~40 HRC)	① 0.020~ 0.028 ~0.032 ② 0.008~ 0.012 ~0.016	① 0.020~ 0.032 ~0.047 ② 0.012~ 0.024 ~0.032	① 0.020~ 0.039 ~0.063 ② 0.016~ 0.032 ~0.047	0.020~ 0.047 ~0.071		-	☆ 260~460~590	☆ 260~460~590	GH ★ 260~460~590	-
	Mold Steel (40~50 HRC)	① 0.006~ 0.012 ~0.020 ② 0.006~ 0.008 ~0.010	① 0.008~ 0.020 ~0.032 ② 0.008~ 0.012 ~0.018	① 0.008~ 0.024 ~0.035 ② 0.008~ 0.020 ~0.028	0.008~ 0.028 ~0.039		-	☆ 200~330~430	-	GH ★ 200~330~430	-
	Mold Steel (50~55 HRC)	① 0.006~ 0.010 ~0.016	① 0.006~ 0.014 ~0.024	① 0.006~ 0.010 ~0.028	0.008~ 0.020 ~0.031		-	☆ 160~230~330	-	GH ★ 160~230~330	-
	Mold Steel (55~60 HRC)	① 0.0004~ 0.0024 ~0.0039 (Recommended only with GH chipbreaker)					-	-	-	GH ☆ 160~200~230	-
	Austenitic Stainless Steel	① 0.020~ 0.028 ~0.032 ② 0.008~ 0.012 ~0.016	① 0.020~ 0.032 ~0.047 ② 0.012~ 0.024 ~0.032	① 0.020~ 0.039 ~0.063 ② 0.016~ 0.032 ~0.047	0.020~ 0.047 ~0.071		-	GM ☆ 330~520~660	GM ☆ 330~520~660	-	-
	Martensitic Stainless Steel	① 0.020~ 0.028 ~0.032 ② 0.008~ 0.012 ~0.016	① 0.020~ 0.032 ~0.047 ② 0.012~ 0.024 ~0.032	① 0.020~ 0.039 ~0.063 ② 0.016~ 0.032 ~0.047	0.020~ 0.047 ~0.071		-	-	☆ 490~660~820	-	★ 590~790~980
	Precipitation Hardened Stainless Steel	① 0.020~ 0.028 ~0.032 ② 0.008~ 0.012 ~0.016	① 0.020~ 0.032 ~0.047 ② 0.012~ 0.024 ~0.032	① 0.020~ 0.039 ~0.063 ② 0.016~ 0.032 ~0.047	0.020~ 0.047 ~0.071		-	-	★ 300~390~490	-	-
	Gray Cast Iron	① 0.020~ 0.032 ~0.039 ② 0.008~ 0.016 ~0.020	① 0.020~ 0.039 ~0.059 ② 0.012~ 0.028 ~0.039	① 0.020~ 0.047 ~0.071 ② 0.016~ 0.039 ~0.059	0.020~ 0.059 ~0.079		★ 390~590~820	-	-	-	-
	Nodular Cast Iron	① 0.020~ 0.028 ~0.032 ② 0.008~ 0.012 ~0.016	① 0.020~ 0.032 ~0.047 ② 0.012~ 0.024 ~0.032	① 0.020~ 0.039 ~0.063 ② 0.016~ 0.032 ~0.047	0.020~ 0.047 ~0.071		★ 330~490~660	-	-	-	-
	Ni-base Heat Resistant Alloy	① 0.008~ 0.016 ~0.024 ② 0.006~ 0.008 ~0.012	① 0.008~ 0.020 ~0.035 ② 0.008~ 0.016 ~0.024	① 0.008~ 0.024 ~0.039 ② 0.008~ 0.020 ~0.032	0.008~ 0.032 ~0.047		-	-	☆ 70~100~160	-	★ 70~100~160
	Titanium Alloy	① 0.008~ 0.016 ~0.024 ② 0.006~ 0.008 ~0.012	① 0.008~ 0.020 ~0.035 ② 0.008~ 0.016 ~0.024	① 0.008~ 0.024 ~0.039 ② 0.008~ 0.020 ~0.032	0.008~ 0.032 ~0.047		GM ☆ 100~160~230	-	GM ★ 130~200~260	-	-
LD	Carbon Steel	① 0.020~ 0.032 ~0.039 ③ 0.002~ 0.004 ~0.008	① 0.020~ 0.039 ~0.059 ③ 0.002~ 0.006 ~0.012	① 0.020~ 0.047 ~0.071 ③ 0.002~ 0.008 ~0.012	① 0.020~ 0.059 ~0.079 ④ 0.020~ 0.059 ~0.079 ⑤ 0.002~ 0.008 ~0.016	③ 0.002~ 0.008 ~0.012	-	★ 390~590~820	☆ 390~590~820	-	-
	Alloy Steel	① 0.020~ 0.032 ~0.039 ③ 0.002~ 0.004 ~0.008	① 0.020~ 0.039 ~0.059 ③ 0.002~ 0.006 ~0.012	① 0.020~ 0.047 ~0.071 ③ 0.002~ 0.008 ~0.012	① 0.020~ 0.059 ~0.079 ④ 0.020~ 0.059 ~0.079 ⑤ 0.002~ 0.008 ~0.016	③ 0.002~ 0.008 ~0.012	-	★ 330~520~720	☆ 330~520~720	-	-
	Mold Steel (~40 HRC)	① 0.020~ 0.028 ~0.032 ③ 0.002~ 0.003 ~0.006	① 0.020~ 0.032 ~0.047 ③ 0.002~ 0.004 ~0.008	① 0.020~ 0.039 ~0.063 ③ 0.002~ 0.006 ~0.008	① 0.020~ 0.047 ~0.071 ④ 0.020~ 0.047 ~0.071 ⑤ 0.002~ 0.006 ~0.012	③ 0.002~ 0.006 ~0.008	-	★ 260~460~590	☆ 260~460~590	-	-
	Mold Steel (40~50 HRC)	① 0.008~ 0.012 ~0.020 ③ 0.001~ 0.002 ~0.004	① 0.008~ 0.020 ~0.032 ③ 0.001~ 0.003 ~0.006	① 0.008~ 0.024 ~0.035 ③ 0.001~ 0.004 ~0.006	① 0.008~ 0.028 ~0.039 ④ 0.008~ 0.028 ~0.039 ⑤ 0.001~ 0.004 ~0.008	③ 0.001~ 0.004 ~0.006	-	★ 200~330~430	☆ 200~330~430	-	-
	Austenitic Stainless Steel	① 0.020~ 0.028 ~0.032 ③ 0.002~ 0.003 ~0.006	① 0.020~ 0.032 ~0.047 ③ 0.002~ 0.004 ~0.008	① 0.020~ 0.039 ~0.063 ③ 0.002~ 0.006 ~0.008	① 0.020~ 0.047 ~0.071 ④ 0.020~ 0.047 ~0.071 ⑤ 0.002~ 0.006 ~0.012	③ 0.002~ 0.006 ~0.008	-	☆ 330~520~660	★ 330~520~660	-	-
	Martensitic Stainless Steel	① 0.020~ 0.028 ~0.032 ③ 0.002~ 0.003 ~0.006	① 0.020~ 0.032 ~0.047 ③ 0.002~ 0.004 ~0.008	① 0.020~ 0.039 ~0.063 ③ 0.002~ 0.006 ~0.008	① 0.020~ 0.047 ~0.071 ④ 0.020~ 0.047 ~0.071 ⑤ 0.002~ 0.006 ~0.012	③ 0.002~ 0.006 ~0.008	-	-	☆ 490~660~820	-	★ 590~790~980
	Precipitation Hardened Stainless Steel	① 0.020~ 0.028 ~0.032 ③ 0.002~ 0.003 ~0.006	① 0.020~ 0.032 ~0.047 ③ 0.002~ 0.004 ~0.008	① 0.020~ 0.039 ~0.063 ③ 0.002~ 0.006 ~0.008	① 0.020~ 0.047 ~0.071 ④ 0.020~ 0.047 ~0.071 ⑤ 0.002~ 0.006 ~0.012	③ 0.002~ 0.006 ~0.008	-	-	★ 300~390~490	-	-
	Gray Cast Iron	① 0.020~ 0.032 ~0.039 ③ 0.002~ 0.004 ~0.008	① 0.020~ 0.039 ~0.059 ③ 0.002~ 0.006 ~0.012	① 0.020~ 0.047 ~0.071 ③ 0.002~ 0.008 ~0.012	① 0.020~ 0.059 ~0.079 ④ 0.020~ 0.059 ~0.079 ⑤ 0.002~ 0.008 ~0.016	③ 0.002~ 0.008 ~0.012	★ 390~590~820	-	-	-	-
	Nodular Cast Iron	① 0.020~ 0.028 ~0.032 ③ 0.002~ 0.003 ~0.006	① 0.020~ 0.032 ~0.047 ③ 0.002~ 0.004 ~0.008	① 0.020~ 0.039 ~0.063 ③ 0.002~ 0.006 ~0.008	① 0.020~ 0.047 ~0.071 ④ 0.020~ 0.047 ~0.071 ⑤ 0.002~ 0.006 ~0.012	③ 0.002~ 0.006 ~0.008	★ 330~490~660	-	-	-	-
	Ni-base Heat Resistant Alloy	① 0.008~ 0.016 ~0.024 ③ 0.001~ 0.002 ~0.004	① 0.008~ 0.020 ~0.035 ③ 0.001~ 0.003 ~0.006	① 0.008~ 0.024 ~0.039 ③ 0.001~ 0.004 ~0.006	① 0.008~ 0.032 ~0.047 ④ 0.008~ 0.032 ~0.047 ⑤ 0.001~ 0.004 ~0.008	③ 0.001~ 0.004 ~0.006	-	-	☆ 70~100~160	-	★ 70~100~160
	Titanium Alloy	① 0.008~ 0.016 ~0.024 ③ 0.001~ 0.002 ~0.004	① 0.008~ 0.020 ~0.035 ③ 0.001~ 0.003 ~0.006	① 0.008~ 0.024 ~0.039 ③ 0.001~ 0.004 ~0.006	① 0.008~ 0.032 ~0.047 ④ 0.008~ 0.032 ~0.047 ⑤ 0.001~ 0.004 ~0.008	③ 0.001~ 0.004 ~0.006	☆ 100~160~230	-	★ 130~200~260	-	-

★: 1st Recommendation ☆: 2nd Recommendation

- ① For D.O.C. ≤ 0.039"
 ② For D.O.C. 0.040 - 0.059"
 ③ For D.O.C. 0.040 - 0.138"
 ④ For D.O.C. ≤ 0.079"
 ⑤ For D.O.C. 0.080 - 0.197"

- Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy
- The figure in bold font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
- Machining with CAT30 or equivalent, feed rate should be reduced to 25% of recommended cutting conditions
- Internal coolant is recommended for slotting applications
- For finishing, maximum recommended feed is f = 0.059 ipt for **SOMT14-LD** type, f = 0.035 ipt for **SOMT10-LD** type, f = 0.118 ipt for **SOMT14-FL** type, f = 0.055 ipt for **SOMT10-FL** type

Recommended Cutting Conditions

Chipbreaker	Workpiece	Holder Part Number and Feed Rate (fz: ipt)					Recommended Insert Grade (Vc: sfm)				
		End Mill Feed Rates			Face Mill Feed Rates		MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD	CVD
		MFH1000 MFH25-	MFH1250 MFH32-	MFH1500 MFH40-	MFH...R-10	MFH...R-14	PR1810 (PR1510)	PR1825 (PR1525)	PR1835 (PR1535)	PR015S	CA6535
FL	Carbon Steel	① 0.020~ 0.032 ~0.039 ② 0.008~ 0.016 ~0.020	① 0.020~ 0.039 ~0.059 ② 0.012~ 0.028 ~0.039	① 0.020~ 0.047 ~0.071 ② 0.016~ 0.039 ~0.059	0.020~ 0.059 ~0.079		-	★ 390~590~820	☆ 390~590~820	-	-
	Alloy Steel	① 0.020~ 0.032 ~0.039 ② 0.008~ 0.016 ~0.020	① 0.020~ 0.039 ~0.059 ② 0.012~ 0.028 ~0.039	① 0.020~ 0.047 ~0.071 ② 0.016~ 0.039 ~0.059	0.020~ 0.059 ~0.079		-	★ 330~520~720	☆ 330~520~720	-	-
	Mold Steel (~40 HRC)	① 0.020~ 0.028 ~0.032 ② 0.008~ 0.012 ~0.016	① 0.020~ 0.032 ~0.047 ② 0.012~ 0.024 ~0.032	① 0.020~ 0.039 ~0.063 ② 0.016~ 0.032 ~0.047	0.020~ 0.047 ~0.071		-	★ 260~460~590	☆ 260~460~590	-	-
	Mold Steel (40~50 HRC)	① 0.006~ 0.012 ~0.020 ② 0.006~ 0.008 ~0.010	① 0.008~ 0.020 ~0.032 ② 0.008~ 0.012 ~0.018	① 0.008~ 0.024 ~0.035 ② 0.008~ 0.020 ~0.028	0.008~ 0.028 ~0.039		-	★ 200~330~430	☆ 200~330~430	-	-
	Austenitic Stainless Steel	① 0.020~ 0.028 ~0.032 ② 0.008~ 0.012 ~0.016	① 0.020~ 0.032 ~0.047 ② 0.012~ 0.024 ~0.032	① 0.020~ 0.039 ~0.063 ② 0.016~ 0.032 ~0.047	0.020~ 0.047 ~0.071		-	☆ 330~520~660	★ 330~520~660	-	-
	Martensitic Stainless Steel	① 0.020~ 0.028 ~0.032 ② 0.008~ 0.012 ~0.016	① 0.020~ 0.032 ~0.047 ② 0.012~ 0.024 ~0.032	① 0.020~ 0.039 ~0.063 ② 0.016~ 0.032 ~0.047	0.020~ 0.047 ~0.071		-	-	☆ 490~660~820	-	★ 590~790~980
	Precipitation Hardened Stainless Steel	① 0.020~ 0.028 ~0.032 ② 0.008~ 0.012 ~0.016	① 0.020~ 0.032 ~0.047 ② 0.012~ 0.024 ~0.032	① 0.020~ 0.039 ~0.063 ② 0.016~ 0.032 ~0.047	0.020~ 0.047 ~0.071		-	-	★ 300~390~490	-	-
	Gray Cast Iron	① 0.020~ 0.032 ~0.039 ② 0.008~ 0.016 ~0.020	① 0.020~ 0.039 ~0.059 ② 0.012~ 0.028 ~0.039	① 0.020~ 0.047 ~0.071 ② 0.016~ 0.039 ~0.059	0.020~ 0.059 ~0.079		★ 390~590~820	-	-	-	-
	Nodular Cast Iron	① 0.020~ 0.028 ~0.032 ② 0.008~ 0.012 ~0.016	① 0.020~ 0.032 ~0.047 ② 0.012~ 0.024 ~0.032	① 0.020~ 0.039 ~0.063 ② 0.016~ 0.032 ~0.047	0.020~ 0.047 ~0.071		★ 330~490~660	-	-	-	-
	Ni-base Heat Resistant Alloy	① 0.008~ 0.016 ~0.024 ② 0.006~ 0.008 ~0.012	① 0.008~ 0.020 ~0.035 ② 0.008~ 0.016 ~0.024	① 0.008~ 0.024 ~0.039 ② 0.008~ 0.020 ~0.032	0.008~ 0.032 ~0.047		-	-	☆ 70~100~160	-	★ 70~100~160
	Titanium Alloy	① 0.008~ 0.016 ~0.024 ② 0.006~ 0.008 ~0.012	① 0.008~ 0.020 ~0.035 ② 0.008~ 0.016 ~0.024	① 0.008~ 0.024 ~0.039 ② 0.008~ 0.020 ~0.032	0.008~ 0.032 ~0.047		☆ 100~160~230	-	★ 130~200~260	-	-

① For D.O.C. ≤ 0.039"

② For D.O.C. 0.040 - 0.059"

③ For D.O.C. 0.040 - 0.138"

④ For D.O.C. ≤ 0.079"

⑤ For D.O.C. 0.080 - 0.197"

- Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy

- The figure in bold font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

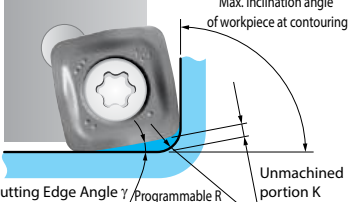
- Machining with CAT30 or equivalent, feed rate should be reduced to 25% of recommended cutting conditions

- Internal coolant is recommended for slotting applications

- For finishing, maximum recommended feed is f = 0.059 ipt for **SOMT14-LD** type, f = 0.035 ipt for **SOMT10-LD** type, f = 0.118 ipt for **SOMT14-FL** type, f = 0.055 ipt for **SOMT10-FL** type

★: 1st Recommendation ☆: 2nd Recommendation

Approximate Programming Radius Adjustment

Shape	Holder	Chipbreaker	Cutting Edge Angle γ	Programmable R (in) Recommended	Max. Non-machined Portion K (in)	Side Wall Max. Inclination Angle (°)
	MFH...-10-...	GM / GH	10°	0.118	0.034	90°
		LD	14°	0.148	0.027	65°
		FL	14°	0.118	0.035	80°
	MFH...-14-...	GM / GH	10°	0.148	0.054	90°
		LD	16°	0.197	0.042	65°
		FL	13°	0.118	0.054	80°

Ramping Reference Data

MFH...-10-...

Cutter Dia. DCX (in)	1.00"	-	1.25"	-	1.50"	2.00"	2.50"	3.00"
Cutter Dia. DCX (mm)	25mm	28mm	32mm	35mm	40mm	50mm	63mm	80mm
Max. Ramping Angle RMPX (°)	5°	4.5°	4°	3.5°	3°	2.5°	2°	1°
tan RMPX	0.087	0.078	0.070	0.061	0.052	0.043	0.035	0.017

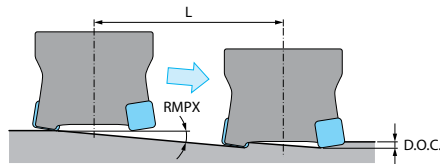
MFH...-14-...

Cutter Dia. DCX (in)	2.00"	2.50"	3.00"	4.00"	5.00"	6.00"
Cutter Dia. DCX (mm)	50mm	63mm	80mm	100mm	125mm	160mm
Max. Ramping Angle RMPX (°)	2°	1.8°	1°	0.5°	0.4°	0.2°
tan RMPX	0.035	0.031	0.017	0.009	0.007	0.003

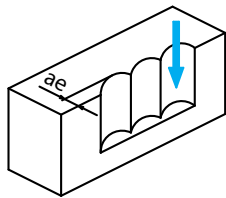
Ramping Guide

- Ramping angle RMPX (maximum ramping angle) should be under above cutting conditions
- Reduce recommended feed rate in cutting conditions above by 70%

Formula for Max. Cutting Length (L) at Max. Ramping Angle

$$L = \frac{\text{D.O.C.}}{\tan \text{RMPX}}$$


Plunging

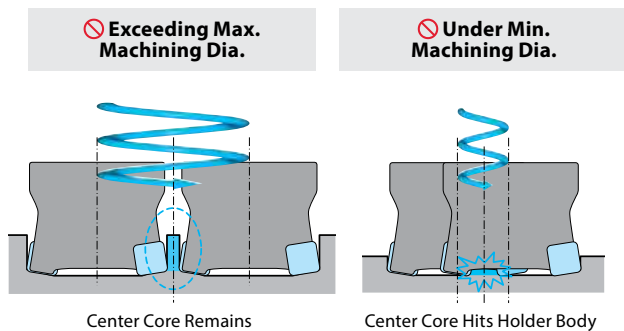


Insert Description	Maximum Width of Cut (ae)
SOMT10 Type	0.315"
SOMT14 Type	0.453"

- LD and FL chipbreakers are not available for plunging
- Reduce feed rate to fz = 0.008ipt when plunging

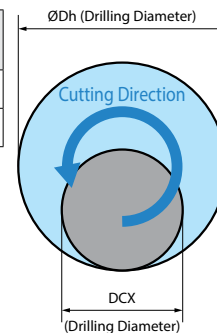
Helical Milling

For Helical milling, use between Min. Drilling Dia. and Max. Drilling Dia.

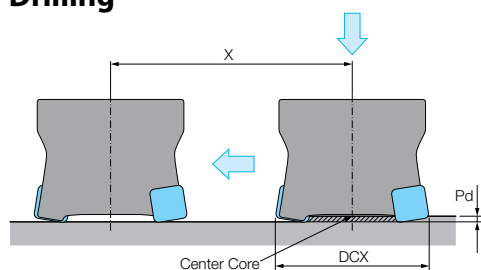


Holder	Min. Drilling Dia. ØDh1	Max. Drilling Dia. ØDh2	Max. Ramping Depth per Cycle
MFH...-10-...	$2 \times DCX - 0.709''$	$2 \times DCX - 0.079''$	$GM = 0.059''$
MFH...-14-...	$2 \times DCX - 0.984''$	$2 \times DCX - 0.079''$	$GM = 0.079''$

- Keep machine depth per rotation less than max D.O.C. (APMX) in the cutter dimensions chart
- Use climb milling. (Refer to detail on right)
- Feed rates should be reduced to 50% of recommended cutting conditions
- Use caution to eliminate incidences caused by producing long chips



Drilling



3D Machining

Chipbreaker	Ramping	Contouring (Rising Wall Angle)	Plunging	Helical Milling	Pocketing
GM / GH	✓	✓ (90°)	✓	✓	✓
LD	✓	Limit (65°)	X	X	X
FL	✓	Limit (80°)	X	X	X

- Some applications are not available depending on chipbreaker.
- For FL and LD type, there is a limit of rising wall angle during contouring.

Holder	GM / GH		LD		FL	
	Max. Drilling Depth (Pd)	Min. Cutting Length (X) for Flat Bottom Surface	Max. Drilling Depth (Pd)	Min. Cutting Length (X) for Flat Bottom Surface	Max. Drilling Depth (Pd)	Min. Cutting Length (X) for Flat Bottom Surface
MFH...-10-...	0.059"	$DCX - 0.709''$	0.059"	$DCX - 0.551''$	0.059"	$DCX - 0.591''$
MFH...-14-...	0.079"	$DCX - 0.945''$	0.079"	$DCX - 0.709''$	0.079"	$DCX - 0.748''$

[Drilling Depth]

See Max. Drilling Depth (Pd) in the above cutting conditions

Traversing after Drilling

1. It is recommended to reduce feed by 25% of recommended cutting conditions until Center Core is removed
2. Axial feed rate recommendation per revolution is 0.008 ipr while drilling

High-Feed Small Diameter / Large D.O.C. Milling

(Cutter Dia. Ø1.000" ~ Ø3.000")

(Cutter Dia. Ø22mm ~ Ø80mm)

MFH-MAX

Excellent Performance in Various Applications, including
Automotive Parts, Difficult-to-cut Materials, and Mold Machining

1

Small Diameter High Feed Milling with Large Depth of Cut Capabilities

A small 4-edge, double-sided insert supports depths of cut up to 0.098" (2.5mm) with cutting diameters available from Ø1.000" and Ø22mm.

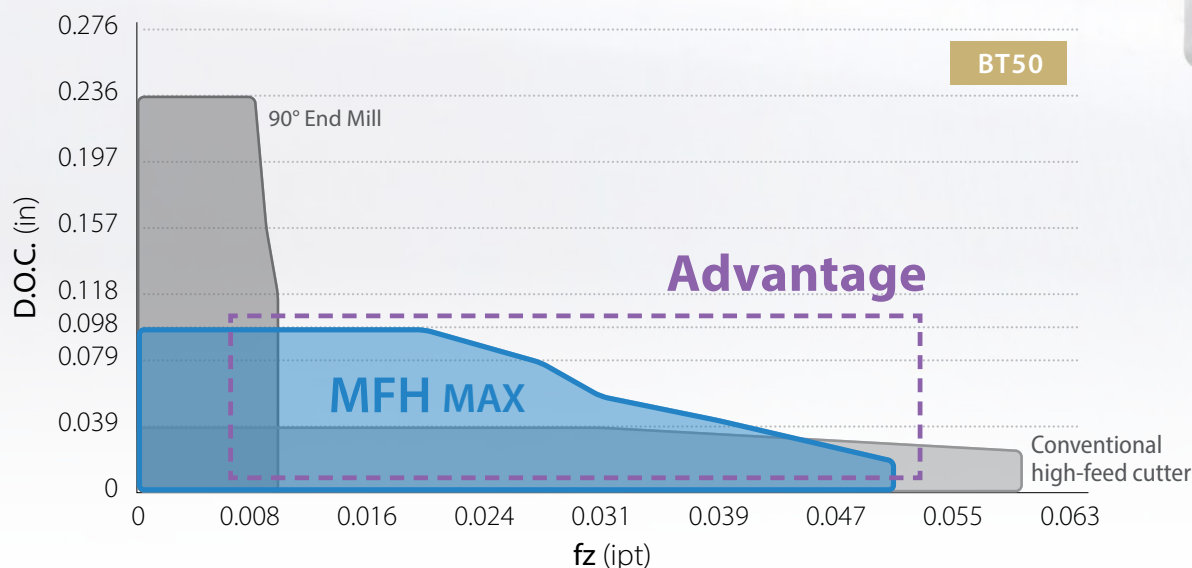
Achieves high efficiency machining in various shouldering, slotting, helical milling, and ramping applications.



4-edge, Double-sided Insert

Max. Depth of Cut
0.098"

The MFH-MAX Advantage



Vc = 490 sfm, ae = 0.492" (ae/DCX = 50%), 1049 Dry Ø1.000" Overhang length 2.362" BT50

2 The MFH-MAX can cover a Large Variety of Machining Applications and Environments

1 A Better Alternative to 90° End Mills (Rough to Medium-Finish Machining)

High Feed Rates Dramatically Improve Machining Efficiency

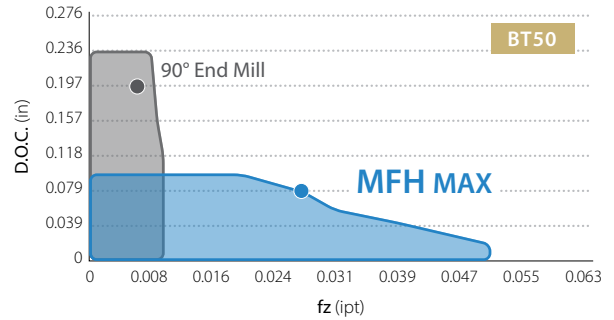
Machining Efficiency Simulation Example

Pocketing: $V_c = 490$ sfm, $a_e = 0.492$ "

MFH MAX
Ø1.000" (3 Flute) **100 cc/min**
D.O.C. = **0.079"**, $f_z = 0.028$ ipt

Machining Efficiency
x 1.8

Conventional
90° End Mill
Ø1.000" (3 Flute) **54 cc/min**
D.O.C. = **0.197"**, $f_z = 0.006$ ipt



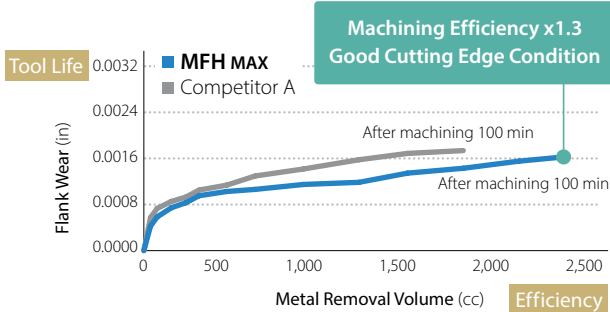
High Efficiency and Good Tool Life

Machining Efficiency and Cutting Edge Condition Comparison (Internal Evaluation)

Cutting edge condition after machining 100 min

MFH-MAX
D.O.C. = 0.063", $f_z = 0.024$ ipt

Competitor A 90° End Mill
D.O.C. = 0.197", $f_z = 0.006$ ipt



$V_c = 490$ sfm, $a_e = 0.492$ ", Dry 4140 (H) Ø1.000" BT50

Higher Stability in Unstable Machining Environment

Chatter Resistance Comparison (Internal evaluation)

Slotting
Ø1.000" (3 Flute)
External air
1049
BT50



Video



Machining Efficiency

MFH MAX **103 cc/min**
 $V_c = 390$ sfm, D.O.C. = 0.059", $f_z = 0.024$ ipt

Machining Efficiency
x 4.5

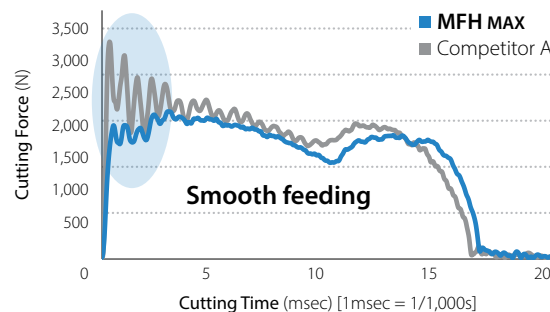
31 cc/min Chattering (Machining was impossible)
Competitor A $V_c = 260$ sfm, D.O.C. = 0.079", $f_z = 0.008$ ipt
23 cc/min
Competitor A $V_c = 260$ sfm, D.O.C. = 0.079", $f_z = 0.006$ ipt

Innovative Insert Design

Convex cutting edge design reduces impact when entering workpiece



Cutting Force when Entering Workpiece (Internal Evaluation)



$V_c = 490$ sfm, D.O.C. = 0.079",
 $a_e = 1.000$ ", $f_z = 0.028$ ipt,
Dry 1049 Ø2.000" BT50

2 When Compared to Conventional High Feed Cutters

A Larger D.O.C. Dramatically Improves Machining Efficiency

Machining Efficiency Simulation Example

Multistage Machining (Depth 1.181"): $V_c = 490$ sfm, $a_e = 0.492"$

MFH MAX
Ø1.000" (3 Flute)

100 cc/min

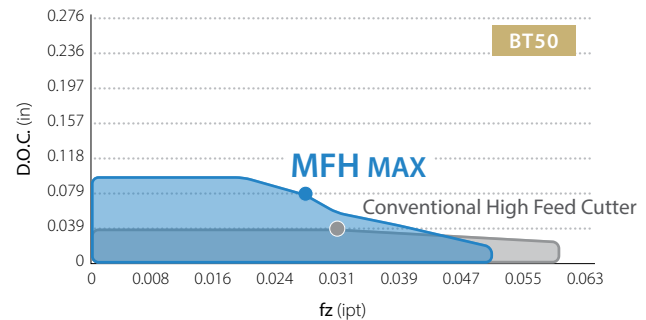
D.O.C. = **0.079"**, $f_z = 0.028$ ipt

Machining
Efficiency
x 1.3

Conventional
High Feed Cutter
Ø1.000" (3 Flute)

76 cc/min

D.O.C. = **0.039"**, $f_z = 0.031$ ipt



High Efficiency and Good Tool Life

Machining Efficiency and Cutting Edge Condition Comparison (Internal Evaluation)

Cutting Edge Condition after 100 min machining

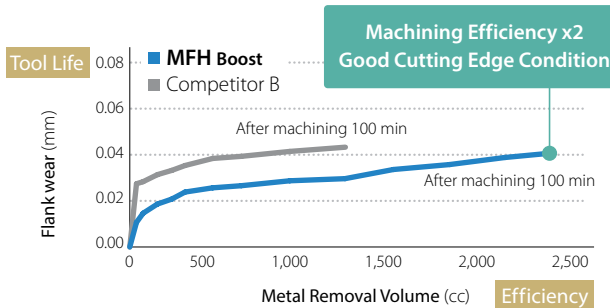
MFH-MAX

D.O.C. = **0.063"**, $f_z = 0.024$ ipt



Competitor B High Feed Type

D.O.C. = **0.031"**, $f_z = 0.024$ ipt



$V_c = 490$ sfm, $a_e = 0.492"$, Dry 4140 Ø1.000" BT50

Excellent Wall Accuracy

Machining Efficiency and Wall Comparisons (Internal Evaluation)

Pocketing (Depth 0.472")

MFH-MAX

Ø1.000" (3 Flute)



D.O.C. = **0.059"** × 8 Passes
 $Q = 115$ cc/min

Competitor B High Feed Type
Ø1.000" (4 Flute)



D.O.C. = **0.031"** × 15 Passes
 $Q = 81$ cc/min

Cutting Conditions: $V_c = 660$ sfm, $a_e = 0.492"$, $f_z = 0.031$ ipt, Dry 1049 BT50

Superior Wall Accuracy



Wiper on outer
periphery

Reduction of wall level variation
in multi-pass machining

3 A Powerful Tool for Difficult-to-cut Materials

The MFH-MAX gained dramatic improvements in efficiency when machining titanium alloy, stainless steel, etc.

Machining Efficiency Comparison (Internal Evaluation)

Titanium Alloy Pocketing (Depth 0.236")

MFH MAX

Approx. 1' 30"

D.O.C. = **0.059"** × 4 Passes ($f_z = \sim 0.014$ ipt)

Machining
Efficiency
x 1.8

Competitor C
High Feed Type

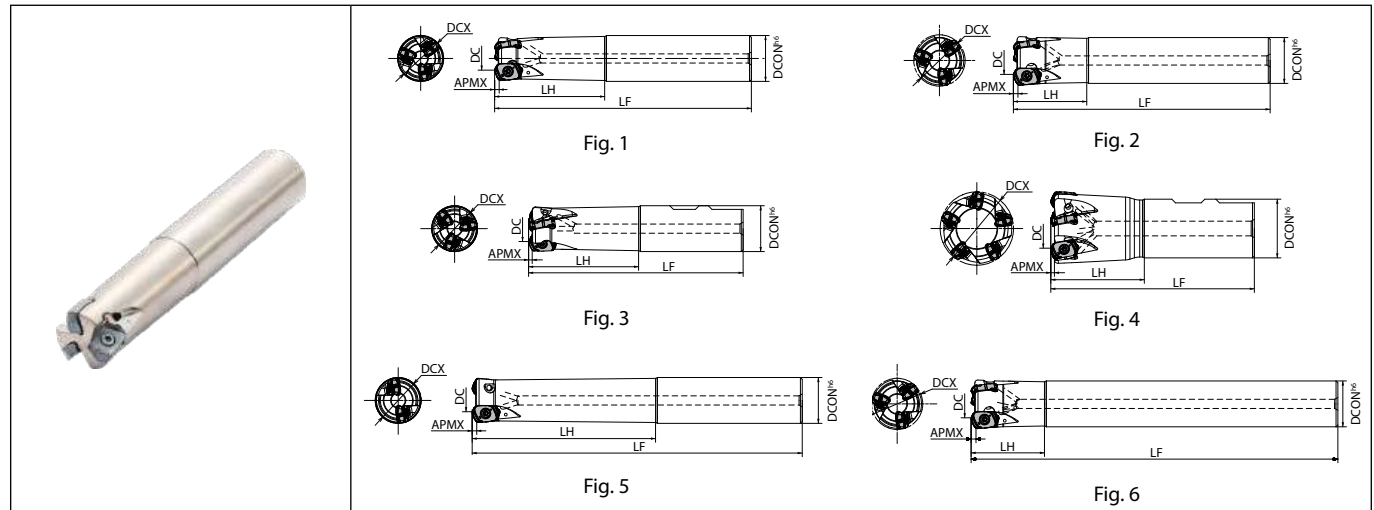
Approx. 2' 50"

D.O.C. = **0.024"** × 10 Passes ($f_z = \sim 0.016$ ipt)

$V_c = 160$ sfm, $a_e = 0.492"$ ($a_e/DCX = 50\%$), Ramping Angle 3° Ti-6Al-4V Wet Ø1.000" (3 Flute) BT50



MFH-MAX (End Mill)



Toolholder Dimensions

Unit	Part Number			Std. Item	No. of Inserts	Dimensions						A.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts M244
						DCX	DC	DCON	LF	LH	APMX						Anti-Seize Compound	Insert Screw	Wrench	
Inch	Cylindrical	Standard Shank	MFH 1000-S100-04-3T	●	3	1.000	0.567	1.000	2.500	5.500	0.098	-10	Yes	12,500	0.4	1	P-37	SB-3575TRP	DTPM-10	LOMU040410ER-GM
			1250-S125-04-5T	●	5	1.250	0.817	1.250	2.750	6.000	0.098	-10	Yes	11,000	0.7	1				
		Long Shank	MFH 1000-S100-04-3T-7	●	3	1.000	0.567	1.000	4.000	7.000	0.098	-10	Yes	12,500	0.7	5				
			1250-S125-04-4T-8	●	4	1.250	0.817	1.250	4.750	8.000	0.098	-10	Yes	11,000	1.1	5				
	Weldon	Standard Shank	MFH 1000-W100-04-3T	●	3	1.000	0.567	1.000	2.000	4.600	0.098	-10	Yes	12,500	0.4	3				
			1250-W125-04-5T	●	5	1.250	0.817	1.250	2.750	5.150	0.098	-10	Yes	11,000	0.7	3				
mm	Cylindrical	Standard Shank	MFH 22-S20-04-2T	●	2	22	11	20	130	30	2.5	-10	Yes	13,600	0.3	2	P-37	SB-3575TRP	DTPM-10	LOMU040410ER-GM
			25-S25-04-2T	●	2	25	14	25	140	60				12,700	0.5	1				
			25-S25-04-3T	●	3	25	14	25	140	60				12,700	0.5	1				
			28-S25-04-3T	●	3	28	17	25	140	40				12,000	0.5	2				
			28-S25-04-4T	●	4	28	17	25	140	40				12,000	0.5	2				
			32-S32-04-4T	●	4	32	21	32	150	70				11,200	0.8	1				
			32-S32-04-5T	●	5	32	21	32	150	70				11,200	0.8	1				
			35-S32-04-4T	●	4	35	24	32	150	50				10,700	0.8	2				
			35-S32-04-5T	●	5	35	24	32	150	50				10,700	0.8	2				
			40-S32-04-5T	●	5	40	29	32	150	50				10,000	0.9	2				
			40-S32-04-6T	●	6	40	29	32	150	50				10,000	0.9	2				
	Long Shank		MFH 25-S25-04-2T-180	●	2	25	14	25	180	100	2.5	-10	Yes	12,700	0.6	5	P-37	SB-3575TRP	DTPM-10	LOMU040410ER-GM
			25-S25-04-3T-180	●	3	25	14	25	180	100				12,700	0.6	5				
			28-S25-04-3T-200	●	3	28	17	25	180	40				12,000	0.7	6				
			32-S32-04-4T-200	●	4	32	21	32	200	120				11,200	1.1	5				
			35-S32-04-4T-200	●	4	35	24	32	200	50				10,700	1.1	6				
			40-S32-04-5T-250	●	5	40	29	32	250	50				10,000	1.5	6				
	Weldon	Standard Shank	MFH 25-W25-04-2T	●	2	25	14	25	117	60	2.5	-10	Yes	12,700	0.4	3	P-37	SB-3575TRP	DTPM-10	LOMU040410ER-GM
			25-W25-04-3T	●	3	25	14	25	117	60				12,700	0.4	3				
			32-W32-04-4T	●	4	32	21	32	131	70				11,200	0.7	3				
			32-W32-04-5T	●	5	32	21	32	131	70				11,200	0.7	3				
			40-W32-04-5T	●	5	40	29	32	111	50				10,000	0.7	4				
			40-W32-04-6T	●	6	40	29	32	111	50				10,000	0.7	4				

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES
TURNING INSERTS
CBN / PCD INSERTS
TURNING HOLDERS
SMALL TOOLS
BORING
GROOVING
CUT-OFF
THREADING
DRILLING
MILLING
QUICK CHANGE TOOLING
SPARE PARTS
TECHNICAL
INDEX

A
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C
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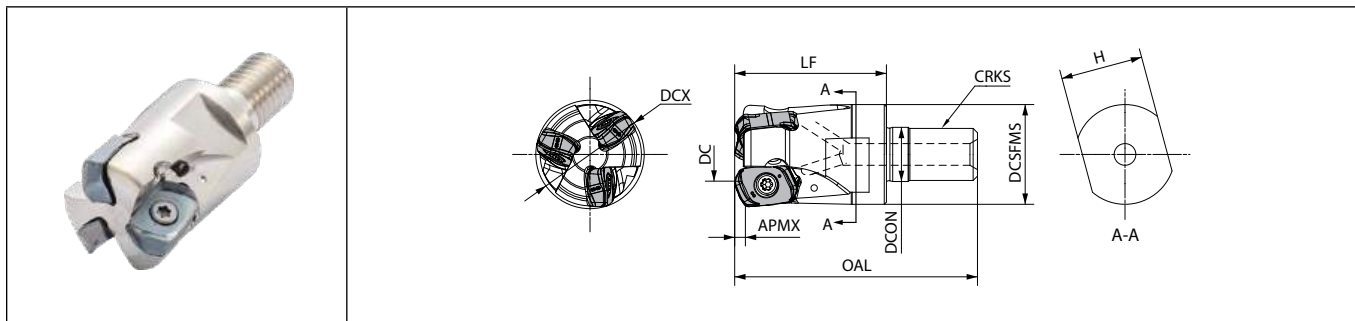
The technical drawing illustrates a shaft-hub connection. On the left, a 3D perspective view shows a shaft with a central hole and a hub with a central hole and a keyway. On the right, a cross-sectional view shows the shaft and hub assembly with various dimensions labeled:

- DCSFMS**: Total length of the shaft-hub assembly.
- DCB**: Length of the shaft-hub assembly.
- KWW**: Key width.
- CBDP**: Hub bore diameter.
- KDP**: Key depth.
- LF**: Shaft length.
- APMX**: Shaft outer diameter.
- DCCB₂**: Hub bore diameter.
- DCCB₁**: Shaft outer diameter.
- DC**: Shaft outer diameter.
- DCX**: Shaft outer diameter.

Unit	Part Number		Std. Item	No. of Inserts	Dimensions												A.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Spare Parts				Applicable Inserts ➡ M244
					DCX	DC	DCS _{FMS}	DCB	DCB ₁	DCB ₂	LF	CBDP	KDP	KWW	APMX	Anti-Seize Compound					Insert Screw	Wrench	Arbor Bolt		
			R																						
Inch	Inch Bore Dia.	MFH 1500R-04-6T	●	6	1.500	1.067	1.400	0.500	0.433	0.276	1.575	0.709	0.156	0.250	0.098	-10	Yes	10,200	0.2	P-37 Recommended tightening torque for insert screw 2.0N·m	SB-3575TRP	DTPM-10	HH1/4-0.75(H)	LOMU 040410ER-GM	
		2000R-04-7T	●	7	2.000	1.567	1.750	0.750	0.669	0.433	1.969	0.947	0.188	0.313				8,600	0.5				HH3/8-1.25(H)		
		2500R-04-9T	●	9	2.500	2.067	2.250					0.750						8,000	0.7				HH1/2-1.25(H)		
		3000R-04-10T	●	10	3.000	2.567	2.750					1.000						0.866	0.551				2.480		1.063
mm	Inch Bore Dia.	MFH 080R-04-8T	●	8	80	69	76	1.250"	26	17	63	1.260"	0.315"	0.500"	2.5	-10	Yes	7,100	1.6	P-37 Recommended tightening torque for insert screw 2.0N·m	SB-3575TRP	DTPM-10	HH16X40(H)	LOMU 040410ER-GM	
		080R-04-10T	●	10																			HH16X40(H)		
	Metric Bore Dia.	MFH 040R-04-5T-M	●	5	40	29	38	16	15	9	40	19	5.6	8.4	2.5	-10	Yes	10,000	0.2	P-37 Recommended tightening torque for insert screw 2.0N·m	SB-3575TRP	DTPM-10	HH8X25(H)	LOMU 040410ER-GM	
		040R-04-6T-M	●	6																			50		39
		050R-04-6T-M	●	6	52	41	22	18	11	21	6.3	10.4	8,800	0.5	HH10X30(H)										
		050R-04-7T-M	●	7											27	20	13	24	7	12.4	21	6.3	10.4		8,000
		052R-04-6T-M	●	6	22	18	11	24	7	12.4	21	6.3	10.4	8,800											
		052R-04-7T-M	●	7											27	20	13	24	7	12.4	21	6.3	10.4		8,000
		063R-04-7T-M	●	7	27	20	13	24	7	12.4	21	6.3	10.4	8,800											
		063R-04-7T-27M	●	7											27	20	13	24	7	12.4	21	6.3	10.4		8,000
		063R-04-9T-M	●	9	27	20	13	24	7	12.4	21	6.3	10.4	8,800										0.7	
		063R-04-9T-27M	●	9											27	20	13	24	7	12.4	21	6.3	10.4		8,000
		080R-04-8T-M	●	8	27	20	13	24	7	12.4	21	6.3	10.4	8,800										0.7	
		080R-04-10T-M	●	10											27	20	13	24	7	12.4	21	6.3	10.4		8,000
					27	20	13	24	7	12.4	21	6.3	10.4	8,800										0.7	
															27	20	13	24	7	12.4	21	6.3	10.4		8,000
			27	20	13	24	7	12.4	21	6.3	10.4	8,800	0.7	HH12X35(H)</											

Contact your local Kyocera sales engineer to upgrade old products to new technology

MFH-MAX (Modular Head)



Toolholder Dimensions

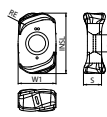
Unit	Part Number		Std. Item	No. of Inserts	Dimensions								A.R. (°)	Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➡ M244					
					DCX	DC	DCON	DCSEMS	OAL	LF	APMX	CRKS				H	Anti-Seize Compound	Insert Screw		Wrench				
																								
Inch	MFH	1000-M12-04-3T 1250-M16-04-5T	●	3	1.000	0.567	0.492	0.900	2.205	1.380	0.098	M12×P1.75	0.748	-10	Yes	12,500	P-37	SB-3575TRP	DTPM-10	LOMU040410ER-GM				
			●	5	1.250	0.817	0.669	1.180	2.441	1.580		M16×P2.0	0.945					11,000	Recommended tightening torque for insert screw 2.0N·m					
mm	MFH	22-M10-04-2T	●	2	22	11	10.5	18.7	48	30	2.5	M10×P1.5	15	-10	Yes	13,600	P-37	SB-3575TRP	DTPM-10	LOMU040410ER-GM				
		25-M12-04-2T	●	2	25	14	12.5	23	56	35		M12×P1.75	19			12,700								
		25-M12-04-3T	●	3												12,000								
		28-M12-04-3T	●	3	28	17						M16×P2.0	24			10,000								
		28-M12-04-4T	●	4																	17	30	62	40
		32-M16-04-4T	●	4	32	21	10,700																	
		32-M16-04-5T	●	5				35	24	10,000														
		35-M16-04-4T	●	4	35	24											9,800							
		35-M16-04-5T	●	5				40	29									9,800						
		40-M16-04-5T	●	5	40	29													9,800					
		40-M16-04-6T	●	6				42	31																9,800
		42-M16-04-5T	●	5	42	31																				9,800
		42-M16-04-6T	●	6				42	31																		9,800

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

See page M324 for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

LOMU

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or under)		Carbon steel / Alloy steel					☆		★	☆	P					
		Mold and die steel					☆		★	☆						
		Austenitic stainless steel						☆		☆	★	M				
		Martensitic stainless steel		★						☆						
		Precipitation hardened stainless steel						☆		★						
		Gray cast iron						☆		★		K				
		Nodular cast iron						☆		★						
		Non-ferrous metals										N				
		Heat-resistant alloy		★							☆	S				
		Titanium alloy							☆		★					
		Hard materials										H				
Insert		Part Number		No. of Edges	Dimensions (mm)					Carbide						Applicable Toolholder ➡ M241~M243
					S	D1	RE	W1	INSL	CVD	PVD					
										CA6335	PR1510	PR1525	PR1535	PR1810	PR1825		PR1835
	 General Purpose	LOMU 040410ER-GM	4	4.4	4.1	1	9.1	14.5	●	△	●	●	●	●	●	MFH...-04-..

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M245

M
MILLING

45°~70°

Lead Angle

75°

Lead Angle

88°~90°

Lead Angle

Finish

Milling

High Feed
MillingMulti-
Functional

Slot

Mills

Ball-Nose
RadiusOther
ApplicationsLOMU Inserts are
sold in 10 piece boxes

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Holder Part Number and Feed Rate (fz: ipm)		Recommended Insert Grade (Vc: sfm)			
		D.O.C. (in)	MFH...04...	MEGACOAT NANO EX (MEGACOAT NANO)			CVD Coating
				PR1810 (PR1510)	PR1825 (PR1525)	PR1835 (PR1535)	
GM	Carbon Steel (~ 280HB)	≤ 0.020	0.008~ 0.032 ~0.051	-	★ 390~ 520 ~720	☆ 390~ 520 ~720	-
		≤ 0.039	0.008~ 0.028 ~0.043				
		≤ 0.059	0.008~ 0.024 ~0.032				
		≤ 0.079	0.008~ 0.016 ~0.028				
		≤ 0.098	0.008~ 0.012 ~0.020				
	Alloy Steel (~ 350HB)	≤ 0.020	0.008~ 0.030 ~0.047	-	★ 330~ 490 ~660 (Dry Machining Recommended)	☆ 330~ 490 ~660 (Dry Machining Recommended)	-
		≤ 0.039	0.008~ 0.026 ~0.039				
		≤ 0.059	0.008~ 0.022 ~0.028				
		≤ 0.079	0.008~ 0.016 ~0.022				
		≤ 0.098	0.008~ 0.010 ~0.014				
	(~ 40HRC)	≤ 0.020	0.008~ 0.024 ~0.043	-	★ 260~ 390 ~520 (Dry Machining Recommended)	☆ 260~ 390 ~520 (Dry Machining Recommended)	-
		≤ 0.039	0.008~ 0.020 ~0.035				
		≤ 0.059	0.008~ 0.016 ~0.026				
		≤ 0.079	0.008~ 0.012 ~0.022				
		≤ 0.098	0.008~ 0.010 ~0.014				
	Mold Steel (40 ~ 50HRC)	≤ 0.020	0.004~ 0.012 ~0.020	-	★ 200~ 330 ~430 (Dry Machining Recommended)	-	-
		≤ 0.039	0.004~ 0.010 ~0.016				
		≤ 0.059	0.004~ 0.008 ~0.012				
		≤ 0.079	-				
		≤ 0.098	-				
	(50 ~ 55HRC)	≤ 0.020	0.004~ 0.008 ~0.016	-	★ 160~ 230 ~330 (Dry Machining Recommended)	-	-
		≤ 0.039	0.004~ 0.006 ~0.010				
		≤ 0.059	-				
		≤ 0.079	-				
		≤ 0.098	-				
	Austenitic Stainless Steel	≤ 0.020	0.008~ 0.024 ~0.039	-	☆ 330~ 460 ~590	★ 330~ 460 ~590	-
		≤ 0.039	0.008~ 0.020 ~0.035				
		≤ 0.059	0.008~ 0.018 ~0.024				
		≤ 0.079	0.008~ 0.012 ~0.020				
		≤ 0.098	0.008~ 0.010 ~0.016				
	Martensitic Stainless Steel	≤ 0.020	0.008~ 0.024 ~0.039	-	-	☆ 330~ 490 ~660	★ 490~ 660 ~980
		≤ 0.039	0.008~ 0.020 ~0.035				
		≤ 0.059	0.008~ 0.018 ~0.024				
		≤ 0.079	0.008~ 0.012 ~0.020				
		≤ 0.098	0.008~ 0.010 ~0.016				
	Precipitation Hardened Stainless Steel	≤ 0.020	0.004~ 0.012 ~0.020	-	-	★ 300~ 390 ~490	-
		≤ 0.039	0.004~ 0.010 ~0.018				
		≤ 0.059	0.004~ 0.006 ~0.010				
		≤ 0.079	-				
		≤ 0.098	-				
	Gray Cast Iron	≤ 0.020	0.008~ 0.032 ~0.051	★ 390~ 520 ~720	-	-	-
		≤ 0.039	0.008~ 0.028 ~0.043				
		≤ 0.059	0.008~ 0.024 ~0.032				
		≤ 0.079	0.008~ 0.016 ~0.028				
		≤ 0.098	0.008~ 0.012 ~0.020				
	Nodular Cast Iron	≤ 0.020	0.008~ 0.024 ~0.039	★ 330~ 490 ~660	-	-	-
		≤ 0.039	0.008~ 0.020 ~0.035				
		≤ 0.059	0.008~ 0.016 ~0.028				
		≤ 0.079	0.008~ 0.012 ~0.024				
		≤ 0.098	0.008~ 0.010 ~0.016				
	Ni-base Heat-Resistant Alloy	≤ 0.020	0.004~ 0.012 ~0.018	-	-	☆ 70~ 100 ~160	★ 70~ 100 ~160
		≤ 0.039	0.004~ 0.010 ~0.016				
		≤ 0.059	0.004~ 0.006 ~0.008				
		≤ 0.079	-				
		≤ 0.098	-				
	Titanium Alloy	≤ 0.020	0.004~ 0.012 ~0.020	-	-	★ 130~ 200 ~260	-
		≤ 0.039	0.004~ 0.010 ~0.018				
		≤ 0.059	0.004~ 0.006 ~0.010				
		≤ 0.079	-				
		≤ 0.098	-				

• The number in **bold font** is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation. ★: 1st Recommendation ☆: 2nd Recommendation

• Machining with coolant is recommended for Precipitation Hardened Stainless Steel, Ni-base Heat-Resistant Alloy, and Titanium Alloy.

• Machining with coolant may have a lower tool life than dry machining. Set the cutting speed, feed rate and D.O.C. lower than recommended conditions.

• Machining with CAT30 or equivalent, feed rate should be reduced to 25% of recommended cutting conditions. Slotting is not recommended in this situation.

• Center through air is recommended for slotting.

• Slotting or pocketing are not recommended for face mill types.

• For face milling, it is recommended that width of cut should be set to 75% or less of the cutting diameter.

• For long shank end mills, 75% or less of the recommended conditions is recommended for both D.O.C. and feed rate.

Approximate Programming Radius Adjustment

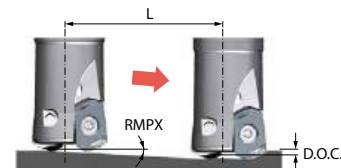
Shape	Programmable R (in)	Maximum Over Machining of Radius (in)	Maximum Non-machined Portion (in)
	R0.059	0	0.0559
	R0.079	0	0.0488
	R0.118 (Recommended)	0	0.0343
	0.138	0.0024	0.0272

Ramping Guide

- Ramping angle should be under RMPX (maximum ramping angle) in table below
- Reduce recommended feed rate in recommended cutting conditions by 70%

Formula for max. cutting Length (L) at max. ramping angle

$$L = \frac{D.O.C.}{\tan RMPX}$$



- When ramping from both the front and outer periphery, set the maximum ramping angle RMPX to 50%.



Ramping Reference Data

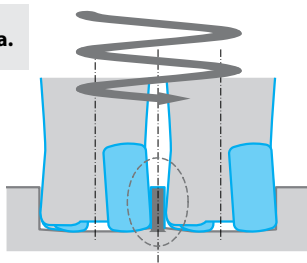
	Cutter Dia. DCX (in)	-	1.000"	-	1.250"	-	1.500"	-	2.000"	-	2.500"	3.000"
Description	Cutter Dia. DCX (mm)	22	25	28	32	35	40	42	50	52	63	80
MFH...-04-...	Max. Ramping Angle RMPX	3.9°	3.0°	2.4°	2.0°	1.7°	1.4°	1.3°	1.0°	1.0°	0.8°	0.6°
	tan RMPX	0.068	0.052	0.042	0.035	0.029	0.024	0.022	0.018	0.017	0.013	0.010

Helical Milling

For Helical milling, use between Min. Drilling Dia. and Max. Drilling Dia.

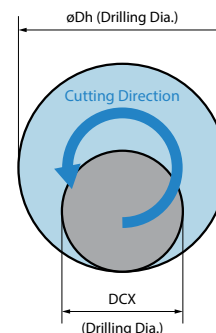
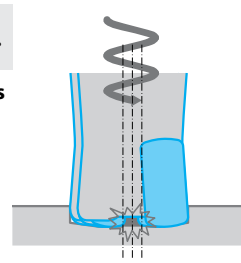
⊘ Exceeding max. cutting dia.

Center core part remains after machining



⊘ Under min. cutting dia.

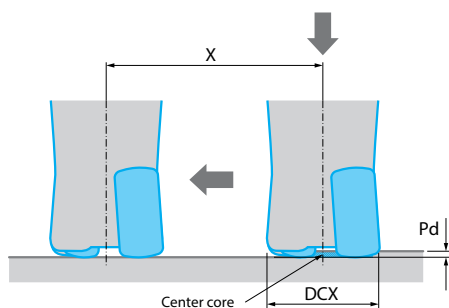
Center core part interferes with toolholder



Description	Min. Drilling dia. (in)	Max. Drilling dia. (in)
MFH...-04-...	2 × DCX - 0.433"	2 × DCX - 0.079"

• Maximum ramping depth per cycle to be under maximum D.O.C. Max D.O.C. (0.098")
 • Use climb milling. (Refer to the above figure)
 • Feed rates should be reduced to 50% of recommended cutting conditions
 • Use caution to eliminate incidences caused by producing long chips

Drilling

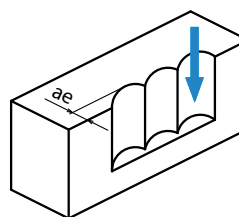


Description	GM type	
	Max. Drilling Depth Pd (in)	Min. Cutting Length X for Flat Bottom Surface (in)
MFH...-04-...	0.024"	DCX - 0.472"

It is recommended to reduce feed by 25% of recommendation until the center core is removed
 Axial feed rate recommendation per revolution is $f \leq 0.008$ ipr while drilling

Plunging

Plunging



Insert Description	Maximum Width of Cut (ae)
LOMU04 Type	0.197"

Reduce feed rate to $f_z \leq 0.008$ ipt when plunging

High-Feed Small Diameter Milling

MFH-Mini

Excellent Performance in Various Applications, including
Automotive Parts, Difficult-to-cut Materials, and Mold Machining

(Cutter Dia. $\emptyset 0.625'' \sim \emptyset 2.000''$)
(Cutter Dia. $\emptyset 16\text{mm} \sim \emptyset 50\text{mm}$)

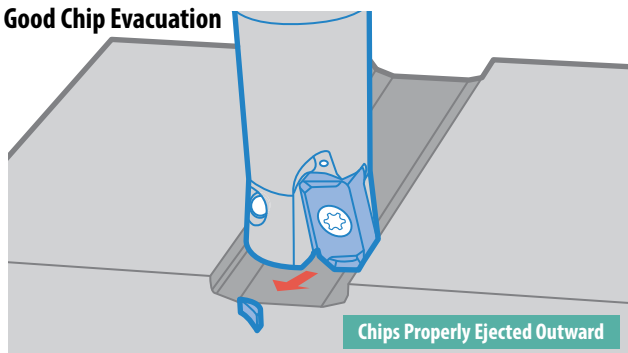


1

Excellent Chip Evacuation

MFH-Mini

Good Chip Evacuation

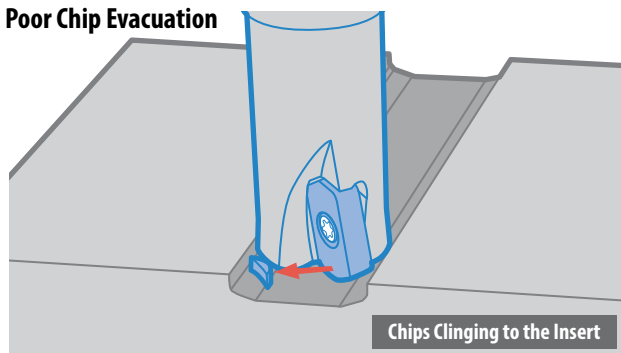


High Quality
Surface Finish



Competitor High Feed Cutter

Poor Chip Evacuation



Chip Biting in
the Workpiece



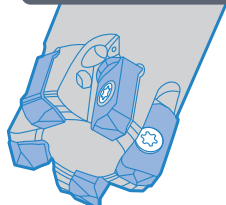
Cutting Conditions: Cutter Dia. $DCX = \emptyset 0.625''$, $V_c = 490$ sfm, $f_z = 0.024$ ipt, D.O.C. = $0.020''$ (20 Passes): Total $0.394'' \times 0.630''$, Dry Workpiece: Stainless Steel

2

Fine Pitch for Efficient Machining

Cutter Dia. 1.000" Type

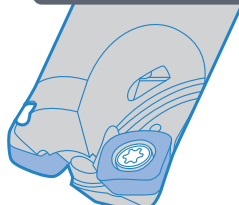
MFH-Mini



5 Inserts

MFH1000-W100-03-5T47

MFH



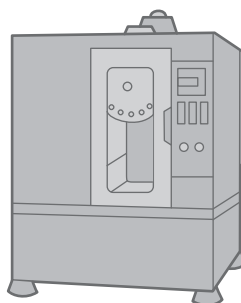
2 Inserts

MFH1000-W100-10-2T

3

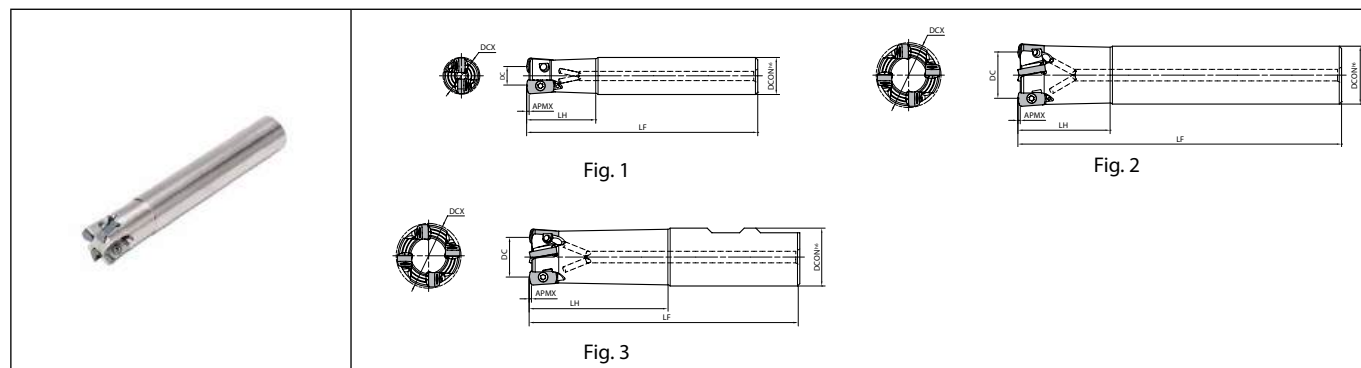
Suitable for Roughing of Molds

High Feed Machining in Small Machining Centers



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFH-Mini (End Mill)



Toolholder Dimensions

Unit	Part Number			Std. Item	No. of Inserts	Dimensions							A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts  M251
						DCX	DC	DCON	LF	LH	APMX											
Inch	Weldon	Standard Shank	MFH 0625-W625-03-2T-3	● 2	0.625	0.310	0.625	3.196	1.250	0.039	-10	-15	Yes	18,800	0.1	3				LOGU030310ER-GM LOGU030310ER-GH		
			0750-W750-03-3T-4	● 3	0.750	0.435	0.750	4.070	2.000					15,700	0.2	3						
			1000-W100-03-4T47	● 4	1.000	0.685	1.000	4.820	2.500					13,400	0.4	3						
			1000-W100-03-5T47	● 5												3						
			1250-W125-03-5T-5	● 5	1.250	0.935	1.250	5.070	2.750					11,400	0.7	3						
			1250-W125-03-6T-5	● 6												3						
	Cylindrical	Long Shank	MFH 0625-S625-03-2T-6	● 2	0.625	0.310	0.625	6.000	2.000	0.039	-10	-15	Yes	18,800	0.2	1				LOGU030310ER-GM LOGU030310ER-GH		
			0750-S750-03-3T55	● 3	0.750	0.435		5.500	2.000					15,700	0.3	1						
			0750-S750-03-3T65	● 3			0.750	6.500	3.000							1						
			0875-S750-03-3T55	● 3	0.875	0.560		5.500	2.000					14,700	0.3	1						
			1000-S100-03-4T55	● 4	1.000	0.685	1.000	5.500	2.500					13,400	0.5	1						
			1000-S100-03-4T-7	● 4				7.000	4.000						0.6	1						
			1250-S125-03-5T62	● 5	1.250	0.935	1.250	6.250	3.000					11,400	0.8	1						
			1250-S125-03-5T-8	● 5				8.000	4.750						1.1	1						
mm	Cylindrical	Standard Shank	MFH 16-S16-03-2T	● 2	16	8	16	100	30	1	-10	-15	Yes	18,800		1				LOGU030310ER-GM LOGU030310ER-GH		
			17-S16-03-2T	● 2	17	9			20					17,900	0.1	2						
			18-S16-03-2T	● 2	18	10			17,000						2							
			20-S20-03-3T	● 3	20	12	130	50	0.3					15,700		1						
			20-S20-03-4T	● 4											1							
			22-S20-03-3T	● 3	22	14	30	14,700	2													
			22-S20-03-4T	● 4										2								
			25-S25-03-4T	● 4	25	17	60	13,400						1								
			25-S25-03-5T	● 5										1								
			28-S25-03-4T	● 4	28	20	40	0.5	12,400						2							
			28-S25-03-5T	● 5											2							
			32-S32-03-5T	● 5	32	24	32	150	70					0.8	11,400						1	
			32-S32-03-6T	● 6																	1	
			Cylindrical	Long Shank	MFH 16-S16-03-2T-150	● 2	16	8	16					150	50	1					-10	-15
	20-S20-03-3T-160	● 3			20	12	20	160	80	15,700	0.3	1										
	25-S25-03-4T-180	● 4			25	17	25	180	100	13,400	0.6	1										
	32-S32-03-5T-200	● 5			32	24	32	200	120	11,400	1.1	1										
	Weldon	Standard Shank	MFH 16-W16-03-2T	● 2	16	8	16	79	30	1	-10	-15	Yes	18,800	0.1	3				LOGU030310ER-GM LOGU030310ER-GH		
			20-W20-03-3T	● 3	20	12	20	101	50					15,700	0.2	3						
			20-W20-03-4T	● 4												3						
			25-W25-03-4T	● 4	25	17	25	117	60					13,400	0.4	3						
			25-W25-03-5T	● 5												3						
			32-W32-03-5T	● 5	32	24	32	131	70					0.7	11,400						3	
			32-W32-03-6T	● 6																	3	

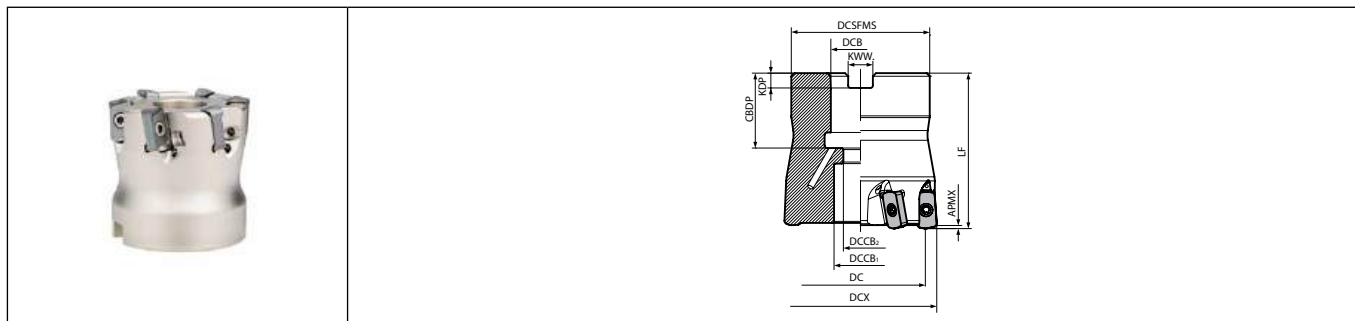
Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

MFH-Mini (Face Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions										A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Spare Parts				Applicable Inserts ➡ M251					
				DCX	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW						APMX									
Inch	MFH 1500R-03-5T	●	5	1.500	1.185	1.400	0.500	0.433	0.276	1.575	0.709	0.156	0.250	0.039	-10	-15	Yes	10,200	0.2		SB-3065TRP	DTPM-8	HH1/4-0.75(H)	LOGU030310ER-GF				
	1500R-03-6T	●	6																								LOGU030310ER-GF	
	2000R-03-8T	●	8	2.000	1.685	1.750	0.750	0.669	0.433	1.968	0.947	0.188	0.312	0.039				8,600	0.5			Recommended tightening torque for insert screw 1.2N·m				HH3/8-1.25(H)		
	2000R-03-9T	●	9																									
mm	MFH 040R-03-5T-M	●	5	40	32	38	16	15	9	40	19	5.6	8.4	1	-10	-15	Yes	9,900	0.2		SB-3065TRP	DTPM-8	HH8X25(H)	LOGU030310ER-GF				
	040R-03-6T-M	●	6																									LOGU030310ER-GF
	050R-03-8T-M	●	8	50	42	47	22	19	11	50	21	6.3	10.4					8,600	0.5			Recommended tightening torque for insert screw 1.2N·m				HH10X30(H)		

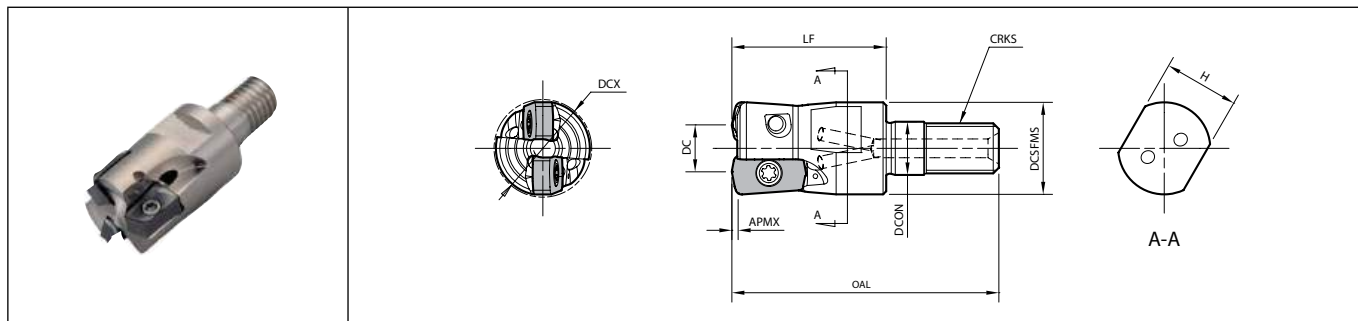
Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Multiple step slot milling is NOT recommended for MFH-Mini face mill diameters above Ø1.300" due to a danger of re-cutting chips.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

(H) Optional coolant-through arbor bolt available.

MFH-Mini (Modular Head)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions									A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➡ M251			
				DCX	DC	DCON	DCSFMS	OAL	LF	APMX	CRKS	H											
																					Anti-Seize Compound	Insert Screw	Wrench
Inch	MFH 0625-M08-03-2T	●	2	0.625	0.310	0.335	0.579	1.693	0.984	0.039	M8×P1.25	0.472	-10	-15	Yes	18,800				LOGU030310ER-GM LOGU030310ER-GH			
	MFH 0750-M10-03-3T	●	3	0.750	0.435	0.413	0.728	1.929	1.181	0.039	M10×P1.5	0.591	-10	-15	Yes	15,700							
	MFH 1000-M12-03-4T	●	4	1.000	0.685	0.492	0.906	2.244	1.378	0.039	M12×P1.75	0.748	-10	-15	Yes	13,400							
	MFH 1250-M16-03-5T	●	5	1.250	0.935	0.669	1.181	2.480	1.575	0.039	M16×P2	0.945	-10	-15	Yes	11,400							
	MFH 1250-M16-03-6T	●	6	1.250	0.935											11,400							
	MFH 1500-M16-03-6T	●	6	1.500	1.185											10,200							
mm	MFH 16-M08-03-2T	●	2	16	8	8.5	14.7	42	25	1	M8×P1.25	12	-10	Yes	18,880				LOGU030310ER-GM LOGU030310ER-GH				
	MFH 17-M08-03-2T	●	2	17	9										17,900								
	MFH 18-M08-03-2T	●	2	18	10										17,000								
	MFH 20-M10-03-3T	●	3	20	12	10.5	18.7	48	30	1	M10×P1.5	15	-10	Yes	15,700								
	MFH 20-M10-03-4T	●	4	20	12										15,700								
	MFH 22-M10-03-3T	●	3	22	14										14,700								
	MFH 22-M10-03-4T	●	4	22	14	12.5	23	56	35	1	M12×P1.75	19	-10	Yes	13,400								
	MFH 25-M12-03-4T	●	4	25	17										13,400								
	MFH 25-M12-03-5T	●	5	25	17										13,400								
	MFH 28-M12-03-4T	●	4	28	20										12,400								
	MFH 28-M12-03-5T	●	5	28	20										12,400								
	MFH 32-M16-03-5T	●	5	32	24	17	30	62	40	1	M16×P2	24	-10	Yes	11,400								
	MFH 32-M16-03-6T	●	6	32	24	17	30	62	40	1	M16×P2	24	-10	Yes	11,400								

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

See page M324 for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

M
MILLING

45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

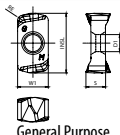
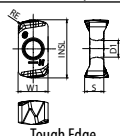
Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

LOGU

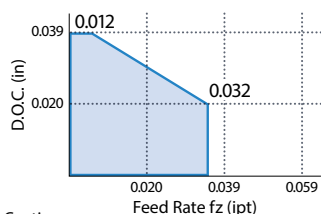
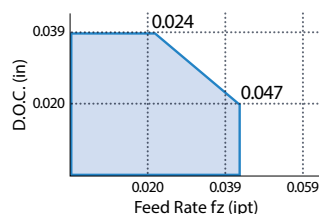
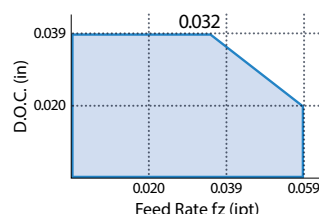
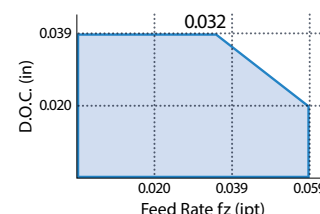
Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or under)		Carbon steel / Alloy steel									☆			★	★	P	
		Mold and die steel									☆			★	★		
		Austenitic stainless steel										☆		☆	★	M	
		Martensitic stainless steel						★						☆			
		Precipitation hardened stainless steel										☆		★			
		Gray cast iron								☆			★			K	
		Nodular cast iron								☆			★				
		Non-ferrous metals														N	
		Heat-resistant alloy						★						☆		S	
		Titanium alloy										☆		★			
Hard materials (≤ 60 HRC)							★							H			
Insert		Part Number		No. of Edges	Dimensions (mm)					Carbide							Applicable Toolholder 🔧 M248~M250
					S	D1	RE	INSL	W1	CVD	PVD						
											CA6535	PR0155	PR1510	PR1525	PR1535	PR1810		PR1825	PR1835
	 General Purpose	LOGU 030310ER-GM	4	3.96	3.45	1	11.9	6.2	●	△	●	●	●	●	●	MFH...-03-..	
	 Tough Edge	LOGU 030310ER-GH	4	3.96	3.45	1	11.9	6.2	●	△	●	●	●	●	●	MFH...-03-..	

Right-hand Insert Shown

Recommended Cutting Conditions M252

Cutting Performance

Fine Pitch End Mill

Standard Pitch End Mill
Cutting Dia. Ø0.625" - Ø0.750"
Cutting Dia. Ø16mm - Ø22mmStandard Pitch End Mill
Cutting Dia. 1.000" - 1.250"
Cutting Dia. Ø25mm - Ø32mmMFH Mini Face Mill
Cutting Dia. 1.500" - 2.000"
Cutting Dia. Ø40mm - Ø50mm

Caution:
When using fine pitch, reduce the cutting conditions compared with standard type

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Holder Part Number and Feed Rate (fz: ipt) *Recommended D.O.C. = 0.020" Reference Value								Recommended Insert Grade (Vc: sfm)				
		MFH0625...2T (MFH16...2T)	MFH0750...3T (MFH20...3T)	(MFH20...4T)	MFH1000...4T (MFH25...4T)	MFH1000...5T (MFH25...5T)	MFH1250...5T (MFH32...5T)	MFH1250...6T (MFH32...6T)	MFH1500...ST/6T MFH2000...8T	MEGACOAT NANO EX (MEGACOAT NANO)			MEGACOAT HARD	CVD
										PR1810 (PR1510)	PR1825 (PR1525)	PR1835 (PR1835)	PR0155	CA6535
GM GH	Carbon Steel	0.008- 0.028 -0.047	0.008- 0.020 -0.031	0.008- 0.031 -0.059	0.008- 0.020 -0.031	0.008- 0.031 -0.059	0.008- 0.020 -0.031	0.008- 0.031 -0.059	-	★ 390-590-820	☆ 390-590-820	-	-	-
	Alloy Steel								-	★ 330-520-720	☆ 330-520-720	-	-	-
	~40 HRC	0.008- 0.020 -0.035	0.008- 0.016 -0.024	0.008- 0.024 -0.047	0.008- 0.016 -0.024	0.008- 0.024 -0.047	0.008- 0.016 -0.024	0.008- 0.024 -0.047	-	☆ 260-460-590	☆ 260-460-590	GH ★ 260-460-590	-	-
	40~50 HRC	0.008- 0.012 -0.020	0.008- 0.010 -0.012	0.008- 0.012 -0.024	0.008- 0.010 -0.012	0.009- 0.012 -0.024	0.008- 0.010 -0.012	0.008- 0.012 -0.024	-	☆ 200-330-430	-	GH ★ 200-330-430	-	-
	50~55 HRC	0.004- 0.012 -0.020	0.004- 0.008 -0.012	0.004- 0.012 -0.020	0.004- 0.008 -0.012	0.004- 0.012 -0.020	0.004- 0.008 -0.012	0.004- 0.008 -0.012	-	☆ 160-230-330	-	GH ★ 160-230-330	-	-
	55~60 HRC	0.0004- 0.0024 -0.0039 (Recommended only with GH chipbreaker)								-	-	-	GH ☆ 160-200-230	-
	Austenitic Stainless Steel	0.008- 0.020 -0.035	0.008- 0.016 -0.024	0.008- 0.024 -0.047	0.008- 0.016 -0.024	0.008- 0.024 -0.047	0.008- 0.016 -0.024	0.008- 0.024 -0.047	-	GM ☆ 330-520-660	GM ★ 330-520-660	-	-	-
	Martensitic Stainless Steel								-	-	☆ 490-660-820	-	★ 590-790-980	-
	Precipitation Hardened Stainless Steel								-	-	★ 300-390-490	-	-	-
	Gray Cast Iron	0.008- 0.028 -0.047	0.008- 0.020 -0.031	0.008- 0.031 -0.059	0.008- 0.020 -0.031	0.008- 0.031 -0.059	0.008- 0.020 -0.031	0.008- 0.031 -0.059	★ 390-590-820	-	-	-	-	-
	Nodular Cast Iron	0.008- 0.020 -0.035	0.008- 0.016 -0.024	0.008- 0.024 -0.047	0.008- 0.016 -0.024	0.008- 0.024 -0.047	0.008- 0.016 -0.024	0.008- 0.024 -0.047	★ 330-490-660	-	-	-	-	-
	Ni-base Heat-Resistant Alloy	0.008- 0.012 -0.024	0.008- 0.010 -0.016	0.008- 0.016 -0.031	0.008- 0.010 -0.016	0.008- 0.016 -0.031	0.008- 0.010 -0.016	0.008- 0.016 -0.031	-	-	☆ 70-100-160	-	★ 70-100-160	-
	Titanium Alloy								GM ☆ 100-160-230	-	GM ★ 130-200-260	-	-	-

Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy

The number in bold font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

Machining with CAT30 or equivalent, feed rate should be reduced to 25% of recommended cutting conditions

Internal coolant is recommended for slotting applications

Slotting and pocketing are not recommended for face mill types

Approximate Programming Radius Adjustment

Shape	Programmable R (in)	Maximum Over Machining of Radius (in)	Maximum Non-machined Portion (in)
	R0.063 (Recommended)	0	0.0154
	R0.079	0.0035	0.0138
	R0.098	0.0102	0.0102
	R0.118	0.0181	0.0067

Cutting edge angle: 12°

Ramping Reference Data

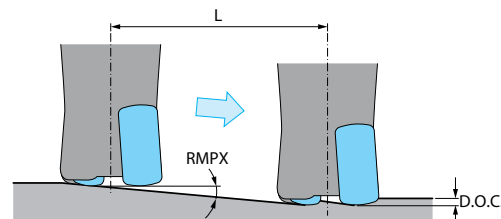
Description	Cutter Dia. DCX (in)	0.625"	-	-	0.750"	-	0.875"	1.000"	-	1.250"	1.500"	2.000"
	Cutter Dia. DCX (mm)	16mm	17mm	18mm	20mm	22mm	-	25mm	28mm	32mm	40mm	50mm
MFH ...-03-...	Max. Ramping Angle RMPX (°)	2.8°	2.5°	2.1°	1.7°	1.4°	1.3°	1.2°	1°	0.8°	0.5°	0.4°
	tan RMPX	0.049	0.042	0.037	0.030	0.024	0.023	0.021	0.017	0.014	0.009	0.007

Ramping Guide

Ramping angle should be RMPX (Maximum ramping angle) or under in the above cutting conditions.
Feed rate should be 70% or under of the above cutting conditions.

Multiple step slot milling is NOT recommended for MFH-Mini face mill diameters above Ø1.3" due to a danger of re-cutting chips

Formula of the cutting length "L" at max. ramping angle

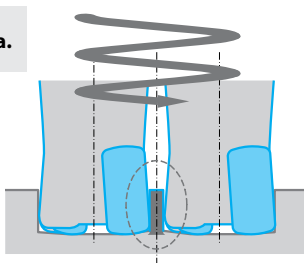
$$L = \frac{\text{D.O.C.}}{\tan \text{RMPX}}$$


Helical Milling

For Helical milling, use between Min. Drilling Dia. and Max. Drilling Dia.

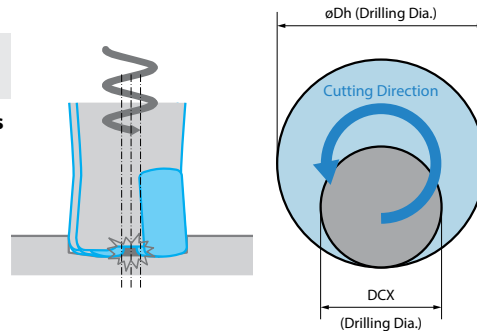
⊘ Exceeding max. cutting dia.

Center core part remains after machining



⊘ Under min. cutting dia.

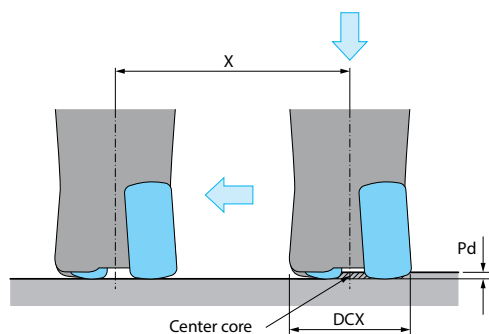
Center core part interferes with toolholder



Description	Min. Drilling dia. (in)	Max. Drilling dia. (in)
MFH...-03-...	$2 \times \text{DCX} - 0.315"$	$2 \times \text{DCX} - 0.079"$

- Maximum ramping depth per cycle to be under maximum D.O.C. Max D.O.C. (0.039")
- Use climb milling. (Refer to the above figure)
- Feed rates should be reduced to 50% of recommended cutting conditions
- Use caution to eliminate incidences caused by producing long chips

Drilling Guide



Description	GM type / GH type	
	Max. Drilling Depth Pd (in)	Min. Cutting Length X for Flat Bottom Surface (in)
MFH...-03-...	0.039"	DCX-0.354"

Unit: in

It is recommended to reduce feed by 25% of recommendation until the center core is removed
Axial feed rate recommendation per revolution is $f \leq 0.008$ ipr while drilling

Plunging Guide

Plunging	
	Insert Description
	LOGU03 type
Max. Width of Cut	
0.138"	
Reduce feed rate to $f_z \leq 0.008$ ipt when plunging	

High-Feed Small Diameter Milling

MFH-Micro

Low Resistance and Durable Design Aids in Chatter Resistant Machining
Maximum D.O.C. 0.020" and Stable High Feed Machining on a Wide Range of Applications

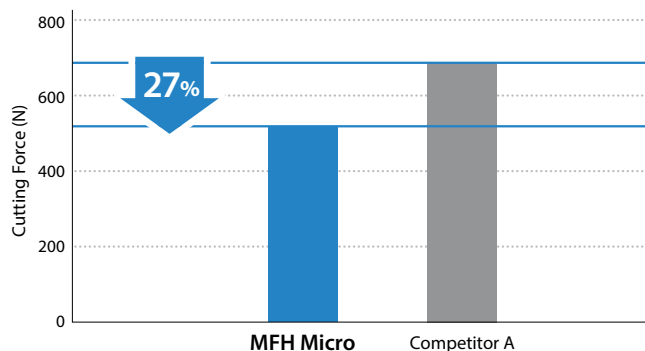
(Cutter Dia. $\varnothing 0.375"$ ~ $\varnothing 0.625"$)
(Cutter Dia. $\varnothing 8\text{mm}$ ~ $\varnothing 16\text{mm}$)



1 Stable Machining with Chattering Resistance

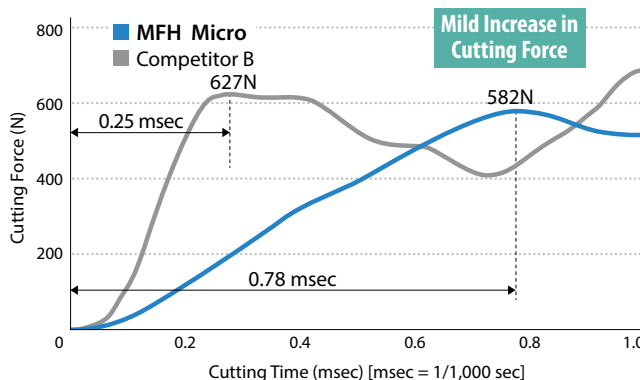
Molded Convex Cutting Edge Controls Initial Impact when Entering the Workpiece

Cutting Force Comparison (In-house Evaluation)



Cutting Conditions: $V_c = 390\text{ sfm}$, $f_z = 0.024\text{ ipt}$, D.O.C. = $0.016"$
Cutter Dia. $\varnothing 0.375"$, Slotting, Dry Workpiece: 1049

Increase in Cutting Force when Entering Work Piece (In-house Evaluation)

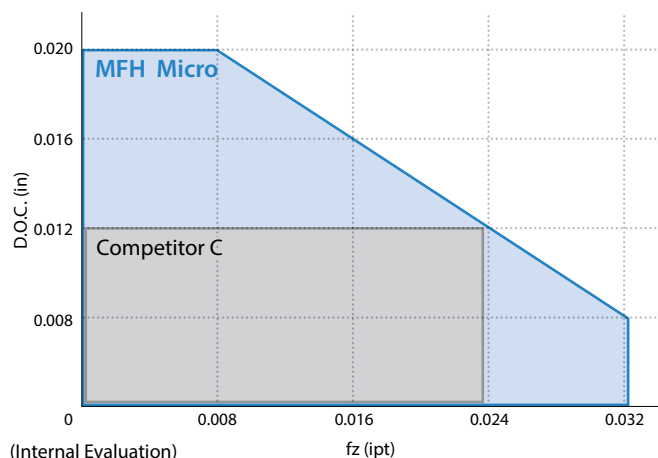


Cutting Conditions: $V_c = 390\text{ sfm}$, $f_z = 0.024\text{ ipt}$, D.O.C. $\times a_e = 0.016" \times 0.197"$
Cutter Dia. $\varnothing 0.375"$, Dry Workpiece: 1049

2 Wide Range of Machining Applications

Wide Range of Machining Applications at a Maximum Depth of Cut of 0.020"

Stable Machining Even with Small Machining Centers

Cutting Performance Map (Cutter Dia. $\varnothing 0.375"$)

3 Can Replace Solid End Mills to Reduce Machining Costs

Suppresses Chattering and Increases Milling Efficiency

MFH-Micro Compared to Solid End Mills (Mechanical Parts Slotting 1049)

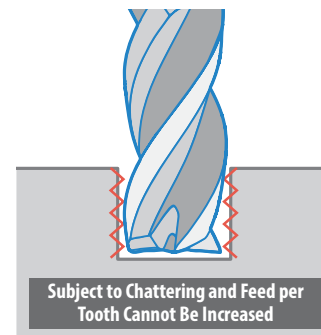
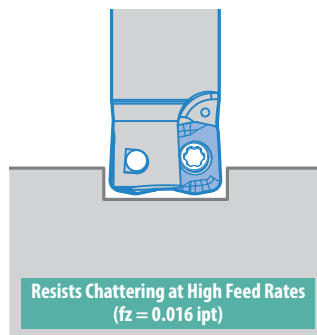
MFH-Micro Q = 15.3 cc/min

$V_c = 490\text{ sfm}$, $f_z = 0.016\text{ ipt}$
D.O.C. $\times a_e = 0.016" \times 0.394"$, Dry
MFH10-S10-01-2T (2 Flutes)
LPGT010210ER-GM (PR1525)

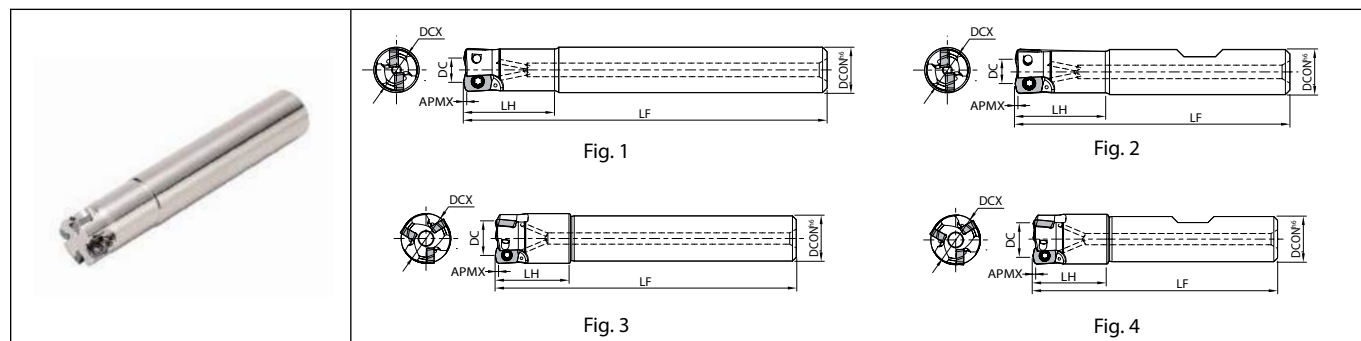
1.2x
Machining Efficiency

Solid End Mill Q = 12.2 cc/min

$V_c = 260\text{ sfm}$, $f_z = 0.002\text{ ipt}$
D.O.C. $\times a_e = 0.012" \times 0.394"$, Dry
 $\varnothing 10\text{mm}$ (4 Flute)



MFH-Micro (End Mill)



Toolholder Dimensions

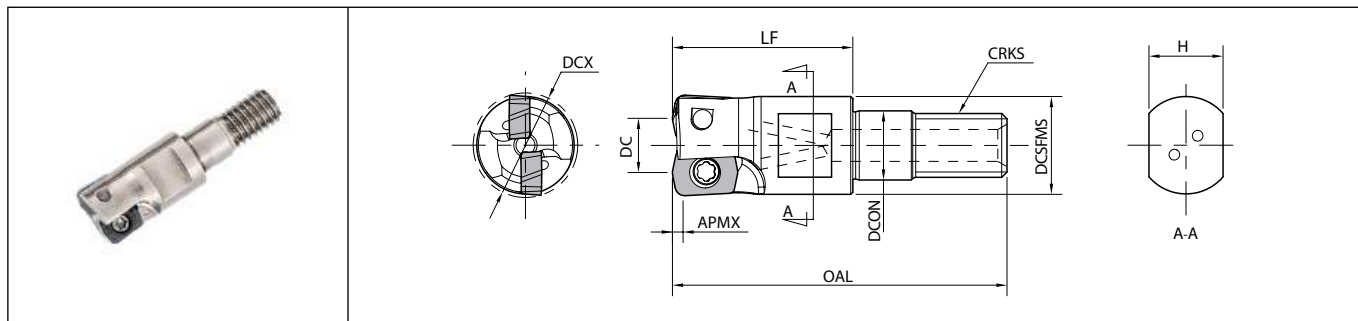
Unit		Part Number		Std. Item	No. of Inserts	Dimensions							A.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Spare Parts			Applicable Inserts ➡ M257
																		Anti-Seize Compound	Insert Screw	Wrench	
																					
Inch	Cylindrical	MFH	0375-S375-01-1T-3	● 1	0.375	0.225	0.375	3.000	0.750	0.020	+5	Yes	16,200	0.04	1	P-37	SB-1840TRP	FTP-6	LPGT010210ER-GM		
			0394-S375-01-2T-3	● 2	10mm	0.244															
			0500-S500-01-3T-3	● 3	0.500	0.350	0.500	5.000													
			0500-S500-01-3T-5	● 3																	
			0625-S625-01-4T35	● 4	0.625	0.475	0.625	3.500	1.000												
mm	Cylindrical	MFH	08-S10-01-1T	● 1	8	4.2	10	75	16	0.5	+5	Yes	20,000	0.04	1	P-37	SB-1840TRP	FTP-6	LPGT010210ER-GM		
			10-S10-01-2T	● 2	10	6.2															
			12-S12-01-3T	● 3	12	8.2	12	80	20				14,000	0.06	1						
			14-S12-01-3T	● 3	14	10.2							12,500	0.07	3						
			16-S16-01-4T	● 4	16	12.2	16	90	25				11,400	0.12	1						
	Weldon	MFH	08-W10-01-1T	● 1	8	4.2	10	58	16	0.5	+5	Yes	20,000	0.03	2	P-37	SB-1840TRP	FTP-6	LPGT010210ER-GM		
			10-W10-01-2T	● 2	10	6.2		60					16,200	0.03	2						
			12-W12-01-3T	● 3	12	8.2	12	65	20				14,000	0.05	2						
			14-W12-01-3T	● 3	14	10.2							12,500	0.05	4						
			16-W16-01-4T	● 4	16	12.2	16	73	25				11,400	0.1	2						

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

Recommended tightening torque for insert screw : 0.5N·m

MFH-Micro (Modular Head)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions									A.R. (°)	Coolant Hole	Max RPM	Spare Parts			Applicable Inserts ➔ M257
																Anti-Seize Compound	Insert Screw	Wrench	
				DCX	DC	DCON	DCSFMS	OAL	LF	APMX	CRKS	H							
Inch	MFH 0500-M06-01-3T 0625-M08-01-4T	● ●	3 4	0.500 0.625	0.350 0.475	0.256 0.335	0.441 0.579	1.240 1.575	0.669 0.866	 0.020	M6xP1.0 M8xP1.25	0.276 0.472	+5	Yes	14,000 11,400	P-37	SB-1840TRP	FTP-6	LPGT010210ER-GM
mm	MFH 08-M06-01-1T 10-M06-01-2T 12-M06-01-3T 14-M06-01-3T 16-M08-01-4T	● ● ● ● ●	1 2 3 3 4	8 10 12 14 16	4.2 6.2 8.2 10.2 12.2	6.5	9.2 11.2	30.5	17	0.5	M6xP1.0	7	+5	Yes	20,000 16,200 14,000 12,500	P-37	SB-1840TRP	FTP-6	LPGT010210ER-GM

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-Seize Compound thinly on portion of taper and thread prior to installation.

Industry standard threads for adapting to common toolholders (For Ø8mm - Ø14mm screw size: M6 x P1.0).

Check screw specifications for the shank in use.

Recommended tightening torque for insert screw : 0.5N·m

Actual End Mill Depth (MFH16-M08-01-4T)

	BT Arbor Part Number	Applicable End Mill (Head)			Actual End Mill Depth (mm)
		Part Number	Cutting Dia. (mm)	Dimensions (mm)	
			DC	LF	LUX
	BT30K-M08-45	MFH16-M08-01...	16	22	28.8
	BT40K-M08-55	MFH16-M08-01...	16	22	28.7

See page M324 for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)



45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

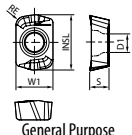
Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

LPGT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or under)		Carbon steel / Alloy steel					☆	★	☆	P		
		Mold and die steel					☆	★	☆			
		Austenitic stainless steel						☆	★	M		
		Martensitic stainless steel					★		☆			
		Precipitation hardened stainless steel						☆	★			
		Gray cast iron								K		
		Nodular cast iron										
		Non-ferrous metals								N		
		Heat-resistant alloy					★		☆	S		
		Titanium alloy						☆	★			
Hard materials (≤ 60 HRC)								H				
Insert	Part Number	No. of Edges	Dimensions (mm)					Carbide				Applicable Toolholder 🔊 M255 M256
			S	D1	RE	W1	INSL	CVD	PVD			
								CA6535	PR1525	PR1535	PR1825		PR1835
  General Purpose	LPGT 010210ER-GM	2	2.19	2.1	1	4.19	6.26	●	●	●	●	MFH...-01-..

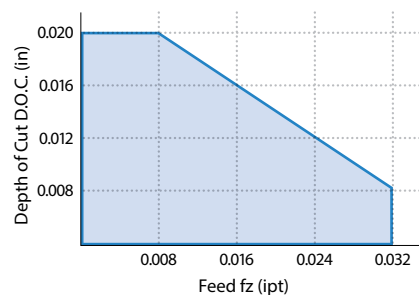
Right-hand Insert Shown

Recommended Cutting Conditions ➡ M258

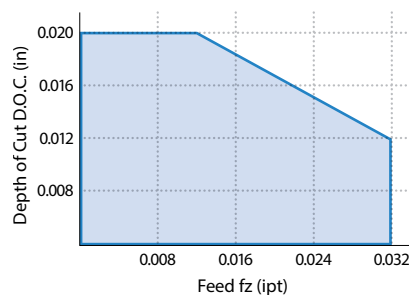
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Cutting Performance

Cutter Dia: Ø0.375" ~ Ø0.500"
Cutter Dia: Ø8mm ~ Ø12mm



Cutter Dia: Ø0.625"
Cutter Dia: Ø14mm ~ Ø16mm



Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Cutter Part Number and Feed Rate (fz: ipt) *Recommended D.O.C. = 0.012" Reference Value					Recommended Insert Grade (Vc: sfm)		
		MFH08-...-1T	MFH0375-...-1T-3 MFH0394-...-2T-3 MFH10-...-2T	MFH0500-...-3T-... MFH12-...-3T	MFH14-...-3T	MFH0625-...-4T(3S) MFH16-...-4T	MEGACOAT NANO EX (MEGACOAT NANO)		CVD
							PR1825 (PR1525)	PR1835 (PR1535)	CA6535
GM	Carbon Steel	0.008~ 0.016 ~0.024			0.008~ 0.020 ~0.031		★ 390~ 590 ~820	☆ 390~ 590 ~820	-
	Alloy Steel						★ 330~ 520 ~720	☆ 330~ 520 ~720	-
	Mold Steel (~40 HRC)	0.008~ 0.012 ~0.020			0.008~ 0.016 ~0.024		★ 260~ 460 ~590	☆ 260~ 460 ~590	-
	Mold Steel (40~50 HRC)	0.008~ 0.010 ~0.012			0.008~ 0.010 ~0.016		★ 200~ 330 ~430	☆ 200~ 330 ~430	-
	Austenitic Stainless Steel	0.008~ 0.012 ~0.020			0.008~ 0.016 ~0.024		☆ 330~ 520 ~660	★ 330~ 520 ~660	-
	Martensitic Stainless Steel						-	☆ 490~ 660 ~820	★ 590~ 790 ~980
	Precipitation Hardened Stainless Steel						-	★ 300~ 390 ~490	-
	Gray Cast Iron	0.008~ 0.016 ~0.024			0.008~ 0.020 ~0.031		★ 390~ 590 ~820	-	-
	Nodular Cast Iron	0.008~ 0.012 ~0.020			0.008~ 0.016 ~0.024		★ 330~ 490 ~660	-	-
	Ni-base Heat-Resistant Alloy	0.008~ 0.010 ~0.012			0.008~ 0.010 ~0.016		-	☆ 70~ 100 ~160	★ 70~ 100 ~160
	Titanium Alloy						-	★ 130~ 200 ~260	-

Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy

The number in **bold** font is recommended starting conditions.

Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

Internal coolant is recommended for slotting applications

★: 1st Recommendation ☆: 2nd Recommendation

Approximate Programming Radius Adjustment

Shape	Programmable R (in)	Maximum Over Machining of Radius (in)	Maximum Non-machined Portion (in)
	R0.039	0	0.0083
	R0.047 (Recommended)	0	0.0067
	R0.059	0.0032	0.0039
	R0.079	0.0110	0.0004

Cutting edge angle: 12°

Ramping Reference Data

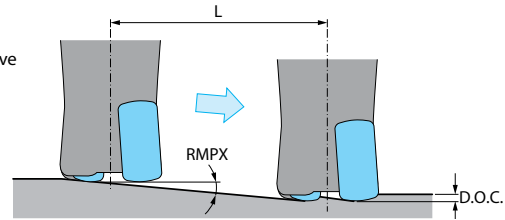
Description	Cutter Dia. DCX (in)	-	0.375"	0.500"	-	0.625"
	Cutter Dia. DCX (mm)	8mm	10mm	12mm	14mm	16mm
MFH ...-01-...	Max. Ramping Angle RMPX (°)	4.0°	3.0°	2.0°	1.5°	1.2°
	tan RMPX	0.070	0.052	0.035	0.026	0.021

Ramping Guide

Decrease Ramping Angle if Chips Become Excessively Long
 Ramping angle should be under RMPX (maximum ramping angle) in the cutting conditions above
 Reduce recommended feed rate in recommended cutting conditions by 70%

Formula of the cutting length "L" at max. ramping angle

$$L = \frac{\text{D.O.C.}}{\tan \text{RMPX}}$$

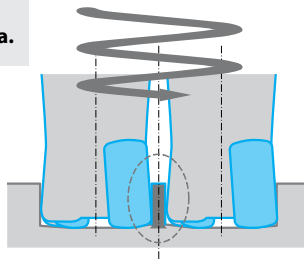


Helical Milling

For Helical milling, use between Min. Drilling Dia. and Max. Drilling Dia.

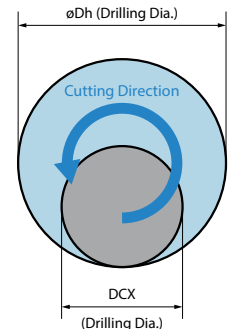
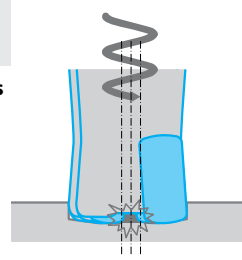
⊘ Exceeding max. cutting dia.

Center core part remains after machining



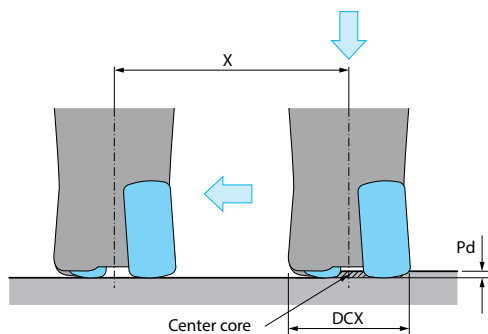
⊘ Under min. cutting dia.

Center core part interferes with toolholder



Description	Min. Drilling dia. (in)	Max. Drilling dia. (in)	• Maximum ramping depth per cycle to be under maximum D.O.C. Max D.O.C. (0.020") • Use climb milling. (Refer to the above figure) • Feed rates should be reduced to 50% of recommended cutting conditions • Use caution to eliminate incidences caused by producing long chips
MFH...-01-...	$2 \times \text{DCX} - 0.138"$	$2 \times \text{DCX} - 0.079"$	

Drilling Guide



Description	GM type / GH type	
	Max. Drilling Depth Pd (in)	Min. Cutting Length X for Flat Bottom Surface (in)
MFH...-01-...	0.020"	$\text{DCX} - 0.138"$

Unit: in

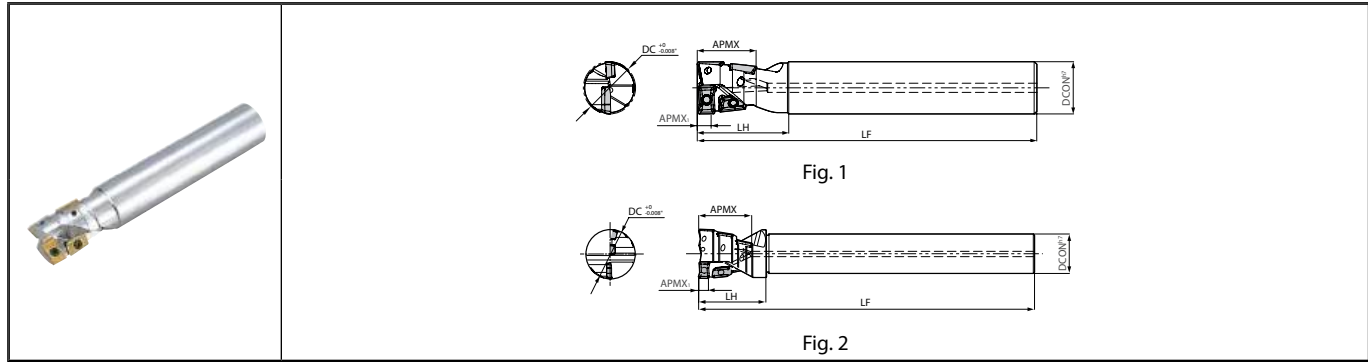
It is recommended to reduce feed by 25% of recommendation until the center core is removed
 Axial feed rate recommendation per revolution is $f \leq 0.008$ ipr while drilling

Plunging Guide

Plunging	
	Insert Description
	Max. Width of Cut
	LPGT01 type
	0.067"

Reduce feed rate to $f_z \leq 0.008$ ipt when plunging

MEY



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	No. of Flutes	Dimensions						A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts ⚙️ M262
					DC	DCON	LF	LH	APMX	APMX ₁					Anti-seize Compound 	Insert Screw 	Wrench 	
Inch	Standard Shank	MEY 0625-S625-HG	●	4	0.630	0.625	4.699	1.195	0.748	0.177	+11	-11	Yes	P-37	SB-2040TRG	DTM-6	Center Edge : GOMT08T208ER-D Side Edge : JOMT08T208ER-D	
		0750-S750-HG	●		0.787	0.750	5.091	1.350	0.866	0.236		-9			SB-2555TRG	DT-8	Center Edge : GOMT100308ER-D Side Edge : JOMT100308ER-D	
		1000-S100-HG	●		1.000	1.000	5.486	1.549	1.102	0.295		-11			SB-3070TRG	DT-10	Center Edge : GOMT13T308ER-D Side Edge : JOMT13T308ER-D	
		1250-S125-HG	●		1.250	1.250	5.858	1.921	1.417	0.374	+13	-9			SB-4070TRG	DT-15	Center Edge : GOMT160408ER-D Side Edge : JOMT160408ER-D	
		1500-S125-HG	●	7	1.500	1.250	6.260	2.126	1.654	0.295		-11	SB-3070TRG		DT-10	Center Edge : GOMT13T308ER-D Side Edge : JOMT13T308ER-D		
		2000-S150-HG	●		1.984	1.500	6.649	2.712	2.126	0.374		-9	SB-4070TRG		DT-15	Center Edge : GOMT160408ER-D Side Edge : JOMT160408ER-D		

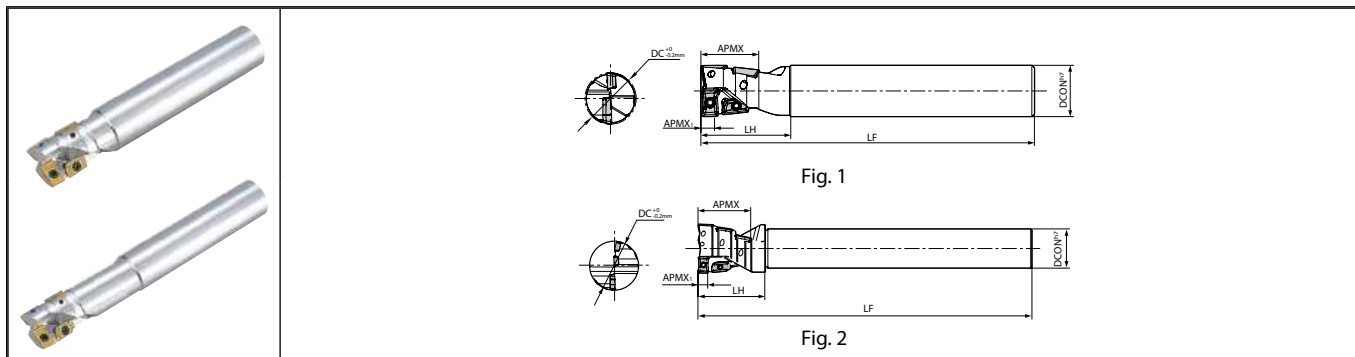
APMX₁ shows the edge length of the complete 2-insert part.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

Applicable Inserts

Part Number		Applicable Inserts ➡ M262			
					
		Side Edge	No. of Inserts	Center Edge	No. of Inserts
MEY	0625-S625-HG	JOMT08T208ER-D	3	GOMT08T208ER-D	1
	0750-S750-HG	JOMT100308ER-D		GOMT100308ER-D	
	1000-S100-HG	JOMT13T308ER-D		GOMT13T308ER-D	
	1250-S125-HG	JOMT160408ER-D		GOMT160408ER-D	
	1500-S125-HG	JOMT13T308ER-D	GOMT13T308ER-D		
	2000-S150-HG	JOMT160408ER-D	GOMT160408ER-D		
MEY	16-S16(-...)	JOMT08T208ER-D	3	GOMT08T208ER-D	1
	17-S16(-...)				
	20-S20(-...)	JOMT100308ER-D		GOMT100308ER-D	
	21-S20(-...)				
	25-S25(-...)	JOMT13T308ER-D		GOMT13T308ER-D	
	26-S25(-...)				
	32-S32(-...)	JOMT160408ER-D	6	GOMT160408ER-D	
	33-S32(-...)				
	40-S32(-...)	JOMT13T308ER-D		GOMT13T308ER-D	
	50-S42(-...)	JOMT160408ER-D		GOMT160408ER-D	

MEY



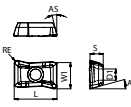
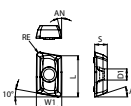
Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	No. of Flutes	Dimensions						A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ M262
						DC	DCON	LF	LH	APMX	APMX ₁					Anti-seize Compound	Insert Screw	Wrench	
mm	Standard Shank	MEY 16-S16 17-S16 20-S20 21-S20 25-S25 26-S25 32-S32 33-S32 40-S32 50-S42	●	4	2	16	16	120	31	19	4.5	+11	-11	No	P-37	SB-2040TRG	DTM-6	Center Edge : GOMT08T208ER-D Side Edge : JOMT08T208ER-D	
			●			17	16	120	31	19	4.5	+11	-11						1
			●			20	20	130	35	22	6		-9						1
			●			21	20	130	35	22	6		-9						1
			●	25		25	140	40	28	7.5		-11	1						
			●	26		25	140	40	28	7.5		-11	1						
			●	32		32	150	50	36	9.5	+13	-9	1						
			●	33									150			50	36	9.5	-9	1
			●	40	160	55	42	7.5		-11	2								
			●	50	170	70	54	9.5		-9	2								
	Long Head	MEY 16-S16-140H 20-S20-150H 25-S25-170H 32-S32-180H	●	4	2	16	16	140	51	19	4.5	+11	-11	No	P-37	SB-2040TRG	DTM-6	Center Edge : GOMT08T208ER-D Side Edge : JOMT08T208ER-D	
			●			20	20	150	53	22	6		-9						1
			●			25	25	170	70	28	7.5	+13	-11			1			
			●			32	32	180	80	36	9.5		-9			1			
	Long Shank	MEY 16-S16-190 17-S16-190 20-S20-200 21-S20-200 25-S25-220 26-S25-220 32-S32-230 33-S32-230 40-S32-240 50-S42-250	●	4	2	16	16	190	61	19	4.5	+11	-11	No	P-37	SB-2040TRG	DTM-6	Center Edge : GOMT08T208ER-D Side Edge : JOMT08T208ER-D	
			●			17	16	190	61	19	4.5	+11	-11						1
			●			20	20	200	63	22	6		-9			1			
			●			21	20	200	63	22	6		-9			1			
			●	25		25	220	80	28	7.5		-11	1						
			●	26		25	220	80	28	7.5		-11	1						
			●	32		32	230	90	36	9.5	+13	-9	1						
			●	33									230			90	36	9.5	-9	1
			●	40	240	55	42	7.5		-11	2								
			●	50	250	70	54	9.5		-9	2								

APMX₁ shows the edge length of the complete 2-insert part.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

GOMT/JOMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or under)		Carbon steel / Alloy steel							★	P		
		Mold and die steel							★			
		Austenitic stainless steel							☆	M		
		Martensitic stainless steel										
		Precipitation hardened stainless steel										
		Gray cast iron							★	K		
		Nodular cast iron							★			
		Non-ferrous metals								N		
		Heat-resistant alloy								S		
		Titanium alloy										
Hard materials								H				
Insert		Part Number	No. of Edges	Dimensions (mm)					Angle (°)		Carbide	Applicable Toolholder ➡ M260 M261
				S	D1	RE	L	W1	AN	AS	PVD	
											PR1810		PR1825
 	GOMT 08T208ER-D	2	2.78	2.3	0.8	8.7	5.21	17	13	●	●	MEY0625-S625-HG MEY16-S16(-...) MEY17-S16(-...)
	GOMT 100308ER-D	2	3.3	2.8	0.8	10.7	6.56	17	13	●	●	MEY0750-S750-HG MEY20-S20(-...) MEY21-S20(-...)
	GOMT 13T308ER-D	2	3.85	3.4	0.8	13.2	8.36	17	13	●	●	MEY1000-S100-HG MEY1500-S125-HG MEY25-S25(-...) MEY26-S25(-...) MEY40-S32(-...)
	GOMT 160408ER-D	2	4.76	4.4	0.8	16.7	10.03	17	13	●	●	MEY1250-S125-HG MEY2000-S150-HG MEY32-S32(-...) MEY33-S32(-...) MEY50-S42(-...)
 	JOMT 08T208ER-D	2	2.78	2.3	0.8	8.5	5.14	13	17	●	●	MEY0625-S625-HG MEY16-S16(-...) MEY17-S16(-...)
	JOMT 100308ER-D	2	3.18	2.8	0.8	10.2	6.41	13	17	●	●	MEY0750-S750-HG MEY20-S20(-...) MEY21-S20(-...)
	JOMT 13T308ER-D	2	3.7	3.4	0.8	13.2	8.07	13	17	●	●	MEY1000-S100-HG MEY1500-S125-HG MEY25-S25(-...) MEY26-S25(-...) MEY40-S32(-...)
	JOMT 160408ER-D	2	4.5	4.4	0.8	16.7	9.72	13	17	●	●	MEY1250-S125-HG MEY2000-S150-HG MEY32-S32(-...) MEY33-S32(-...) MEY50-S42(-...)

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M263

M
MILLING45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
ApplicationsGOMT / JOMT Inserts are
sold in 10 piece boxes

Recommended Cutting Conditions

Workpiece Material	fz (ipt)		Recommended Insert Grades (Vc: sfm)	
			MEGACOAT NANO EX	
	Drilling	Shouldering, Slotting	PR1810	PR1825
Carbon Steel	0.003~0.006	0.002~0.010	-	★ 390~820
Alloy Steel	0.003~0.006	0.002~0.010	-	★ 330~720
Mold Steel	0.003~0.005	0.002~0.006	-	★ 260~590
Stainless Steel	0.003~0.005	0.002~0.006	-	★ 390~720
Cast Iron	0.002~0.008	0.002~0.010	★ 330~720	-

★: 1st Recommendation ☆: 2nd Recommendation

Drilling Precautions

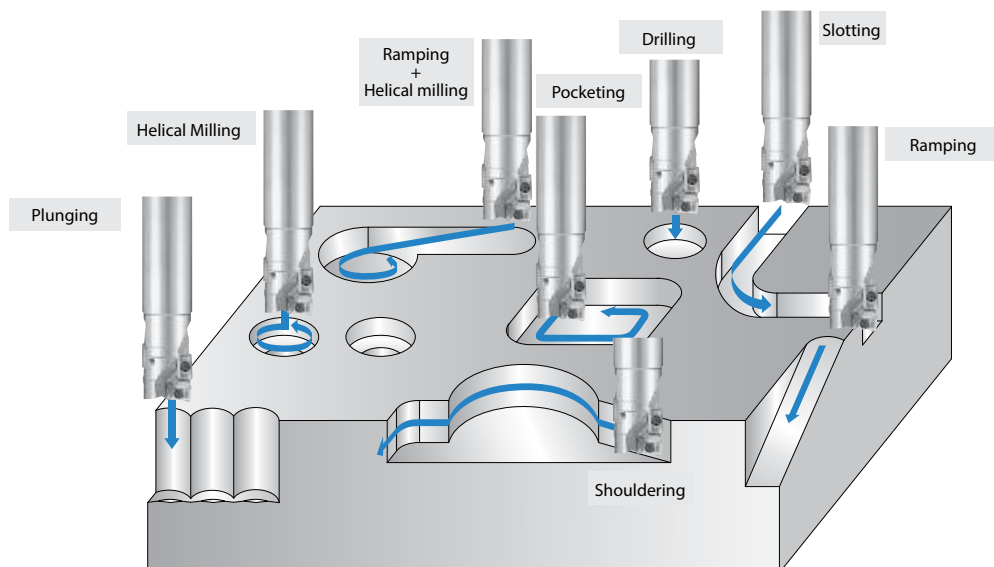
1. Drilling conditions should be calculated as one flute effective.
2. Use compressed air during drilling.
3. Carbon steel other than low carbon steel can be drilled to a depth of 0.5D without step feeding.
For soft steel or sticky material such as stainless steel, Step feed drilling (0.020" ~ 0.039") is recommended.
4. For stainless steel drilling, coolant is recommended.
5. Please refer to right list for maximum hole depth.

Cutting Dia. (DC)	Max. Hole Depth
ø0.630" / ø16mm	0.512" / 13mm
ø17mm	0.512" / 13mm
ø0.787" / ø20mm	0.669" / 17mm
ø21mm	0.669" / 17mm
ø1.000" / ø25mm	0.866" / 22mm
ø26mm	0.866" / 22mm
ø1.250" / ø32mm	1.142" / 29mm
ø33mm	1.142" / 29mm
ø1.500" / ø40mm	1.417" / 36mm
ø2.000" / ø50mm	1.575" / 40mm

Drilled Hole Bottom Shape

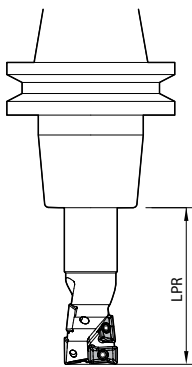
Cutting Dia.	a	Shape of the Bottom
ø0.630" / ø16mm, ø17mm	0.020" / 0.50mm	
ø0.787" / ø20mm, ø21mm	0.025" / 0.64mm	
ø1.000" / ø25mm, ø26mm	0.033" / 0.85mm	
ø1.250" / ø32mm, ø33mm	0.044" / 1.12mm	
ø1.500" / ø40mm	0.061" / 1.54mm	
ø2.000" / ø50mm	0.065" / 1.65mm	

Examples of MEY multi-function machining

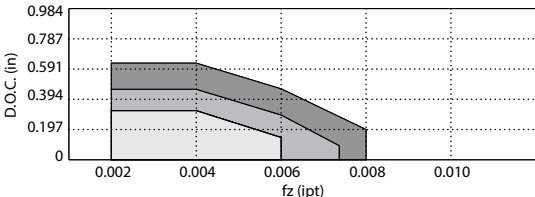
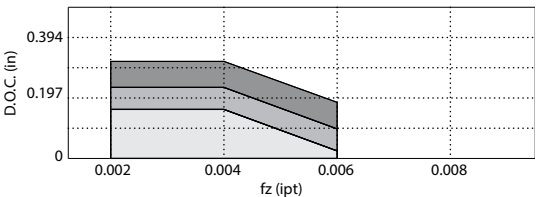
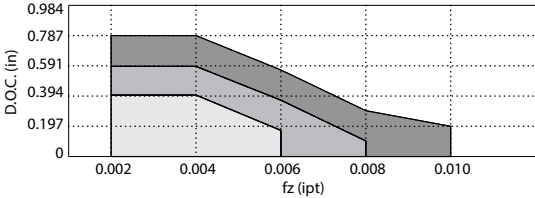
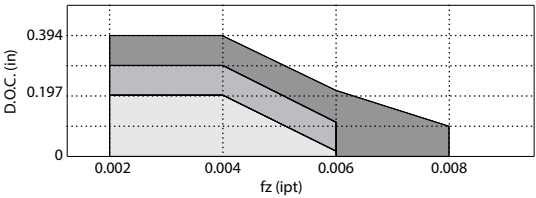
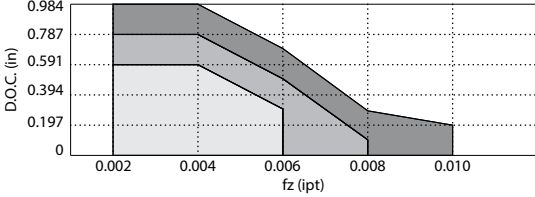
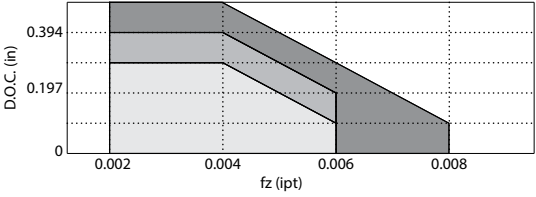
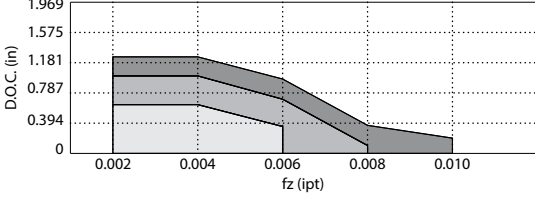
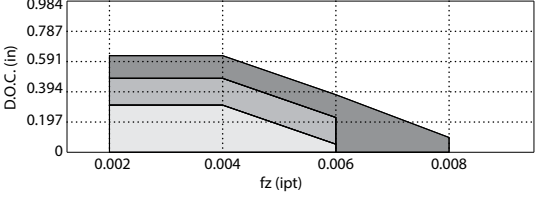
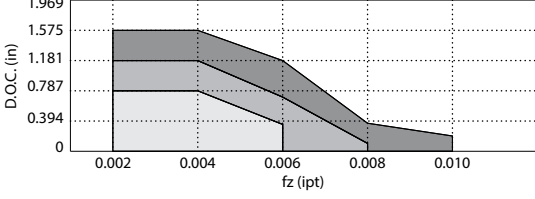
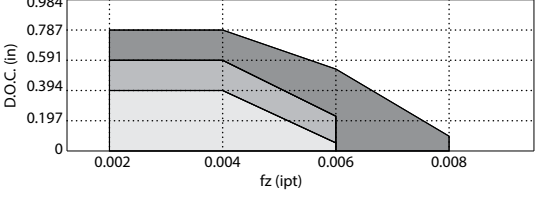
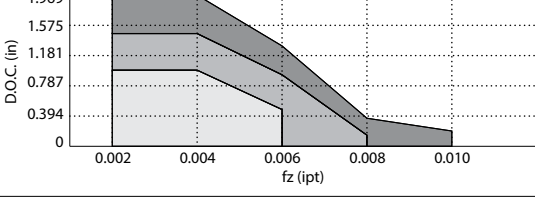
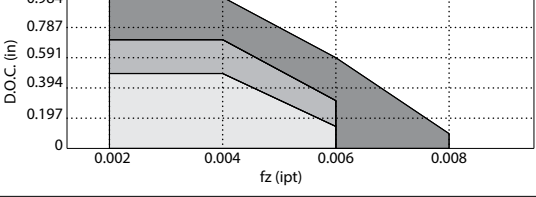


MEY Cutting Performance

Workpiece Material: 1049

Cutting Dia.	Description	Overhang Length LPR (in)			Cutting Dia.	Description	Overhang length LPR (in)			Shape
ø0.630" ø16mm	MEY16-S16	1.220"	[~2.402"]	(Not Recommended)	ø1.000" ø25mm	MEY25-S25	1.575"	[~2.756"]	(Not Recommended)	
	MEY16-S16-140H	-	~2.402"	[~3.583"]		MEY25-S25-170H	-	2.756"	[~3.937"]	
	MEY16-S16-190	-	2.402"	~3.583"		MEY25-S25-220	-	~3.150"	~3.937"	
ø17mm	MEY17-S16	1.220"	[~2.402"]	(Not Recommended)	ø26mm	MEY26-S25	1.575"	[~2.756"]	(Not Recommended)	
	MEY17-S16-190	1.220"	~2.402"	~3.583"		MEY26-S25-220	1.575"	~2.756"	~3.937"	
ø0.750" ø20mm	MEY20-S20	1.378"	[~2.559"]	(Not Recommended)	ø1.250" ø32mm	MEY32-S32	1.969"	[~3.150"]	(Not Recommended)	
	MEY20-S20-150H	-	~2.559"	[~3.740"]		MEY32-S32-180H	-	~3.150"	[~4.331"]	
	MEY20-S20-200	-	2.559"	~3.740"		MEY32-S32-230	-	3.543"	~4.331"	
ø21mm	MEY21-S20	1.378"	[~2.559"]	(Not Recommended)	ø33mm	MEY33-S32	1.969"	[~3.150"]	(Not Recommended)	
	MEY21-S20-200	1.378"	~2.559"	~3.740"		MEY33-S32-230	1.969"	~3.150"	~4.331"	
ø1.500" ø40mm					ø2.000" ø50mm	MEY40-S32	2.165"	[~3.346"]	[~4.528"]	
						MEY40-S32-240	2.165"	~3.346"	~4.528"	
						MEY50-S42	2.756"	[~3.937"]	[~5.118"]	
						MEY50-S42-250	2.756"	~3.937"	~5.118"	

When using in [] dimension, be careful the chucking length to the shank does not get too short.

Description	• Shouldering (Cutting Width $ae = DC/2$) Note:  Part $ae = DC/4$	• Slotting, Ramping, and Helical Milling
MEY0625-S625 MEY16-S16 MEY17-S16		
MEY0750-S750 MEY20-S20 MEY21-S20		
MEY1000-S100 MEY25-S25 MEY26-S25		
MEY1250-S125 MEY32-S32 MEY33-S32		
MEY1500-S125 MEY40-S32		
MEY2000-S125 MEY50-S42		

M
MILLING

45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

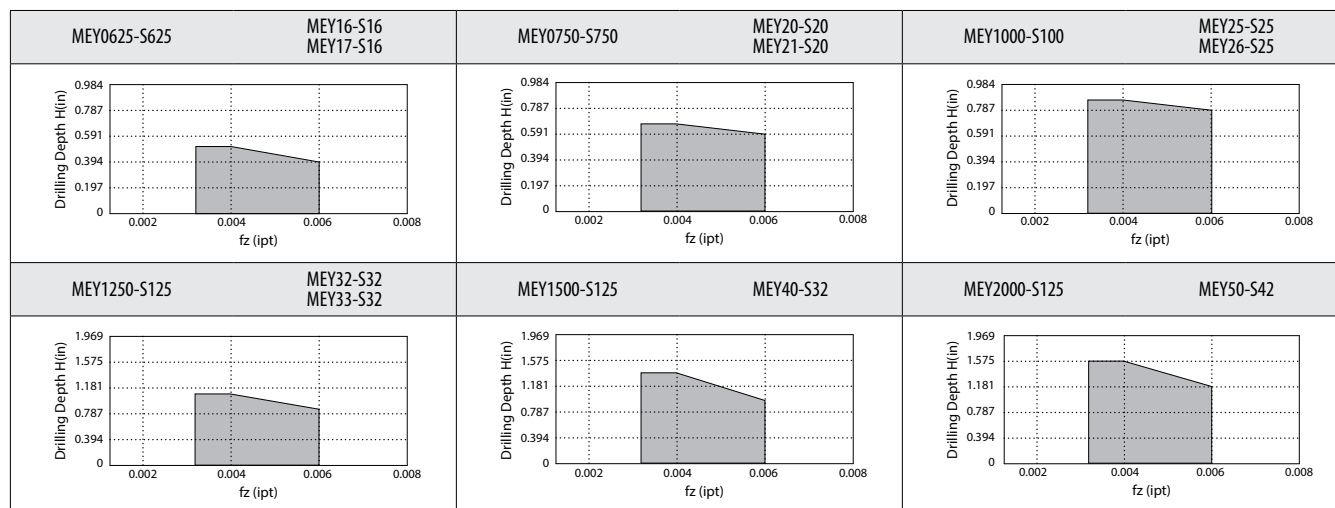
Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

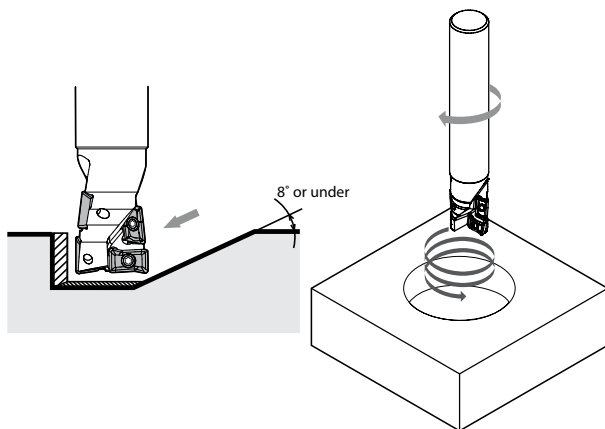
Drilling (Standard/Long Head/Long Shank: 1049)



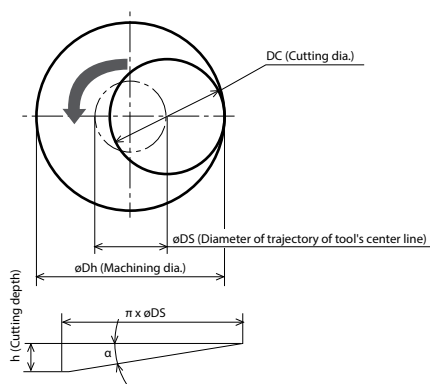
How to use MEY effectively

Ramping/Helical milling

- Ramping angle is recommended to be 8° or under. Sinking depth per revolution when helical milling should be 1/2DC or under.
- Use compressed air during machining.



Helical milling factors



øDS (How to find diameter of trajectory of tool's center line)

$$\text{øDS} = \text{øDh} - \text{DC}$$

h How to find "h"

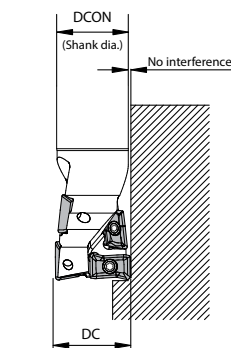
$$h = \pi \times \text{øDS} \times \tan \alpha$$

(α should be 8° or under)

Shouldering

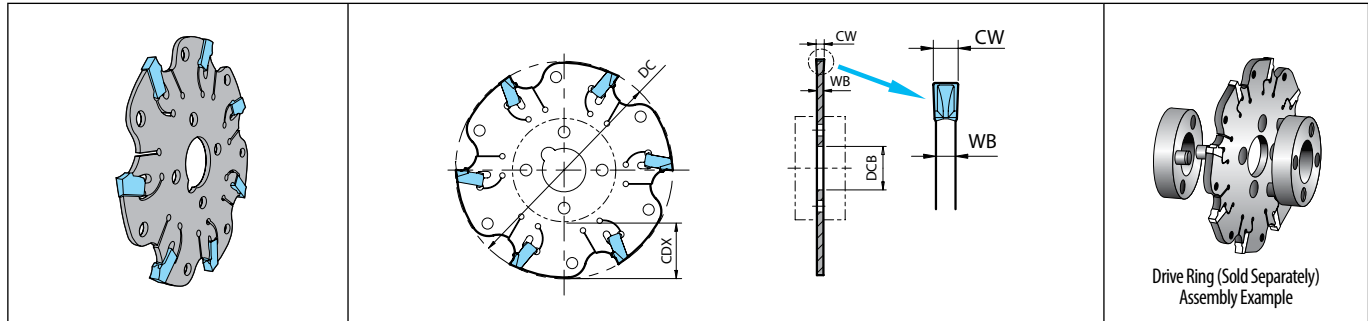
- Tools with 1mm larger cutting diameter than shank diameter are available. High wall shouldering is possible.
- Lineup

Description	DC	DCON
MEY17-S16	17	16
MEY21-S20	21	20
MEY26-S25	26	25
MEY33-S32	33	32
MEY17-S16-190	17	16
MEY21-S20-200	21	20
MEY26-S25-220	26	25
MEY33-S32-230	33	32



(DCON + 0.039" (1mm): Cutting Dia.)

MSTA



Toolholder Dimensions (Inch)

Unit	Part Number	Std. Item		Dimensions					Coolant Hole	RPM	Weight (kg)	Applicable Inserts ➔ M268
		N	No. of Inserts	DC	DCB	CDX	CW	WB				
Inch	MSTA 02N063-5T	●	5	2.500	0.625	0.625	0.063 (1.6mm)	0.051	No	5,100	0.03	SLT...SKB SLT...SKD
	03N063-7T	●	7	3.000		0.875				4,000	0.04	
	04N063-9T	●	9	4.000		1.063				3,200	0.07	
	05N063-11T	●	11	5.000	1.250	1.375				2,600	0.1	
	MSTA 03N089-7T	●	7	3.000	0.625	0.875	0.089 (2.2mm) (2.5mm)	0.071	No	4,000	0.05	SLT...SKB SLT...SKD
	04N089-9T	●	9	4.000	1.000	1.063				3,200	0.08	
	06N089-14T	●	14	6.000	1.250	1.438				2,000	0.3	
	MSTA 02N126-4T	●	4	2.500	0.625	0.625	0.120 (3.05mm)	0.095	No	5,100	0.05	SLT...SKB SLT...SKD
	03N126-6T	●	6	3.000		0.875				4,000	0.08	
	04N126-9T	●	9	4.000		1.063				3,200	0.13	
	05N126-11T	●	11	5.000	1.250	1.375				2,600	0.2	
	06N126-14T	●	14	6.000		1.438				2,000	0.35	
	MSTA 03N164-6T	●	6	3.000	0.625	0.875	0.160 (4.05mm)	0.134	No	4,000	0.1	SLT...SKB SLT...SKD
	04N164-9T	●	9	4.000	1.000	1.063				3,200	0.15	
	05N164-11T	●	11	5.000	1.250	1.375				2,600	0.25	

Attach the drive ring (sold separately) to MSTA slot mill to use. Drive ring is sold in 1 piece packs.

Please purchase two drive rings per one MSTA slot mill.

Do not exceed the max. revolution.

Do not operate cutting on reverse revolution.

Wrench (MS-FRW1) is not included. Please purchase it separately.

M
MILLING

45°-70°

Lead Angle

75°

Lead Angle

88°-90°

Lead Angle

Finish

Milling

High Feed

Milling

Multi-

Functional

Slot

Mills

Ball-Nose

Radius

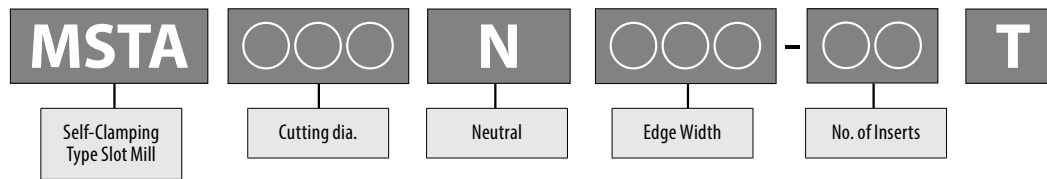
Other

Applications

Drive Ring (for Inch Holders)

Shape	Part Number	Std. Item	Dimensions (in)					Drawing	Applicable Toolholders
			DCB	DIOU	WB	KWW	DCON		
Fig. 1	DR1000-1875	●	1.000	1.875	0.394	0.256	0.200	Fig. 2	MSTA 04N○○○-○T
	DR1250-2250	●	1.250	2.250		0.319	0.240		MSTA 05N○○○-○T
	DR1250-3125	●	1.250	3.125	0.472	0.319	0.472		MSTA 06N○○○-○T
Fig. 2									

MSTA Toolholder Identification System



Toolholder Dimensions (Metric)

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					Coolant Hole	RPM	Weight (kg)	Applicable Inserts ➡ M268
				DC	DCB	CDX	WB	CW				
mm	MSTA 63N16-5T	●	5	63	16	15	1.3	1.6	No	5,100	0.03	SLT...SKB SLT...SKD
	80N16-7T	●	7	80	16	21				4,000	0.04	
	100N16-9T	●	9	100	22	27				3,200	0.07	
	125N16-11T	●	11	125	32	35				2,600	0.1	
	MSTA 63N22-5T	●	5	63	16	15	1.8	2.2 (2.25)	No	5,100	0.03	SLT...SKB SLT...SKD
	80N22-7T	●	7	80	16	21				4,000	0.05	
	100N22-9T	●	9	100	22	27				3,200	0.08	
	125N22-11T	●	11	125	32	35				2,600	0.12	
	160N22-14T	●	14	160	40	40				2,000	0.3	
	MSTA 63N30-4T	●	4	63	16	15	2.4	3.05	No	5,100	0.05	SLT...SKB SLT...SKD
	80N30-6T	●	6	80	16	21				4,000	0.08	
	100N30-9T	●	9	100	22	27				3,200	0.13	
	125N30-11T	●	11	125	32	35				2,600	0.2	
	160N30-14T	●	14	160	40	40				2,000	0.35	
	MSTA 63N40-4T	●	4	63	16	15	3.4	4.05	No	5,100	0.06	SLT...SKB SLT...SKD
	80N40-6T	●	6	80	16	21				4,000	0.1	
	100N40-9T	●	9	100	22	27				3,200	0.15	
	125N40-11T	●	11	125	32	35				2,600	0.25	
	160N40-14T	●	14	160	40	40				2,000	0.4	

Attach the drive ring (sold separately) to MST A slot mill to use. Drive ring is sold in 1 piece packs.

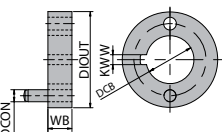
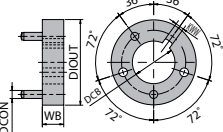
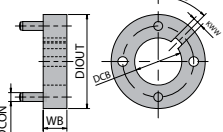
Please purchase two drive rings per one MST A slot mill.

Do not exceed the max. revolution.

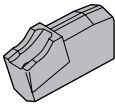
Do not operate cutting on reverse revolution.

Wrench (MS-FRW1) is not included. Please purchase it separately.

Drive Ring (for Metric Holders)

Shape			Part Number	Std. Item	Dimensions (mm)					Drawing	Applicable Toolholders
					DCB	DIOUT	WB	KWW	DCON		
			DR16-32A	●	16	32	8	4.1	3	Fig. 2	MSTA 63N16-5T
			DR16-32B	●					4		Fig. 1	MSTA 63N22-5T
			DR16-38	●						38		MSTA 63N30-4T
			DR22-46	●	22	46	10	6.1	5	Fig. 3	MSTA 63N40-4T
			DR32-55	●	32	55		8.1	6		MSTA 80N○○-OT
			DR40-80	●	40	80		12	10.1		12
											MSTA 125N○○-OOT
											MSTA 160N○○-OOT

SLT Inserts

Usage Classification ● : 1st Choice ○ : 2nd Choice		Carbon steel / Alloy steel							●	○	P			
		Mold and die steel												
		Stainless steel							○	●	M			
		Gray cast iron							○		K			
		Nodular cast iron							○					
		Non-ferrous metals									N			
		Heat-resistant alloy								●	S			
		Titanium alloy												
		Hard materials									H			
Insert		Part Number			Dimensions (mm)		Angle (°)	Tolerance (mm)		Carbide		Applicable Toolholder ➡ M266 M267		
					CW			RE	GAN	CW min.	CW max.		CVD	PVD
					Inch	mm							CA0835	PR0735
		SLT 16-15SKB	0.063	1.60	0.15	5	- 0.1	0	●	●	MSTA...			
		SLT 22-20SKB	0.087	2.20	0.2	5	- 0.05	+ 0.08	●	●				
		SLT 30-20SKB	0.120	3.05	0.2	5	0	+ 0.15	●	●				
		SLT 40-20SKB	0.159	4.05	0.2	5	0	+ 0.15	●	●				
 Low Cutting Force		SLT 16-15SKD	0.063	1.60	0.15	15	- 0.1	0	●	●				
		SLT 22-20SKD	0.089	2.25	0.2	15	0	+ 0.15	●	●				
		SLT 30-20SKD	0.120	3.05	0.2	15	0	+ 0.15	●	●				
		SLT 40-20SKD	0.159	4.05	0.2	15	0	+ 0.15	●	●				

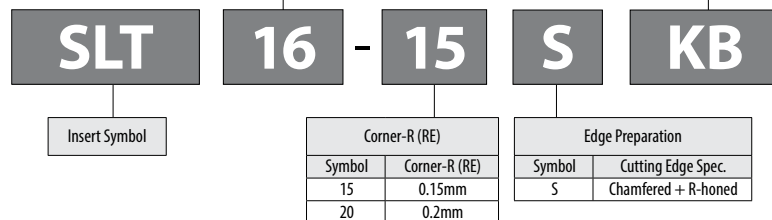
Recommended Cutting Conditions ➡ M269

Inserts Identification System

M
MILLING

Edge width	
Symbol	Edge Width
16	1.6mm
22	2.2(2.25)mm
30	3.05mm
40	4.05mm

Chipbreaker Symbol	
Symbol	Rake Angle
KB	5°
KD	15°



Selection of chipbreaker

KB chipbreaker ... general purpose chipbreaker for steel and cast iron

KD chipbreaker ... low cutting force chipbreaker for stainless steel

Insert Grades Features

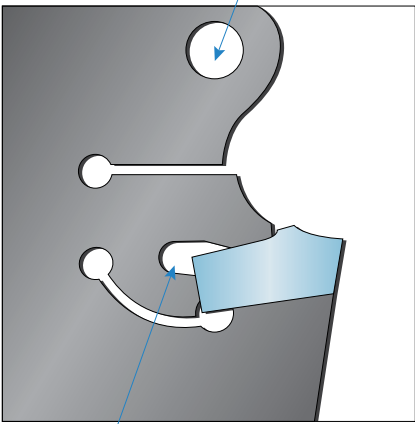
CA0835

- TiN+TiCN+Al₂O₃ based CVD Coated carbide
- For carbon steel, alloy steel, stainless steel and cast iron
- For middle to high speed machining

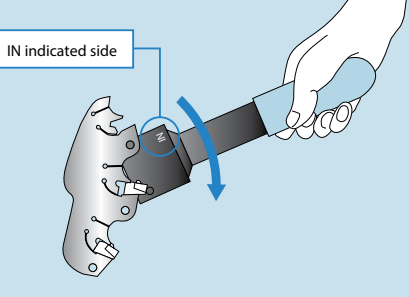
PR0735

- TiN base PVD Coated carbide
- For stainless steel, heat-resistant alloys, etc.
- For low to middle speed machining

Setup

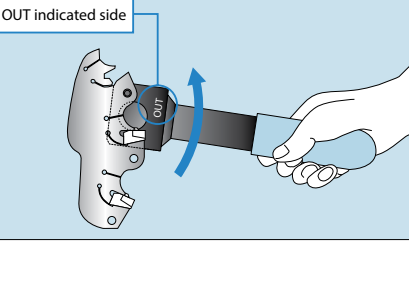


How to attach inserts



1. Put insert inside the slot mill.
2. Insert one of the pins on the wrench (on IN indicated side) into the wrench support hole.
3. Using the other pin, push the front relief surface of the insert.
4. Rotate the wrench until insert's back end makes contact with slot mill.

How to detach inserts



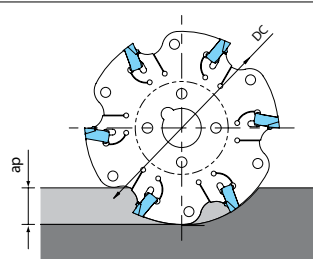
1. Insert one of the pins on the wrench (on OUT indicated side) into the wrench support hole, and insert other pin into the insert releasing hole.
2. Insert can be uninstalled by rotating the wrench counterclockwise. (A magnet is installed on OUT indicated side.)

Note: Use appropriate wrench for set up.

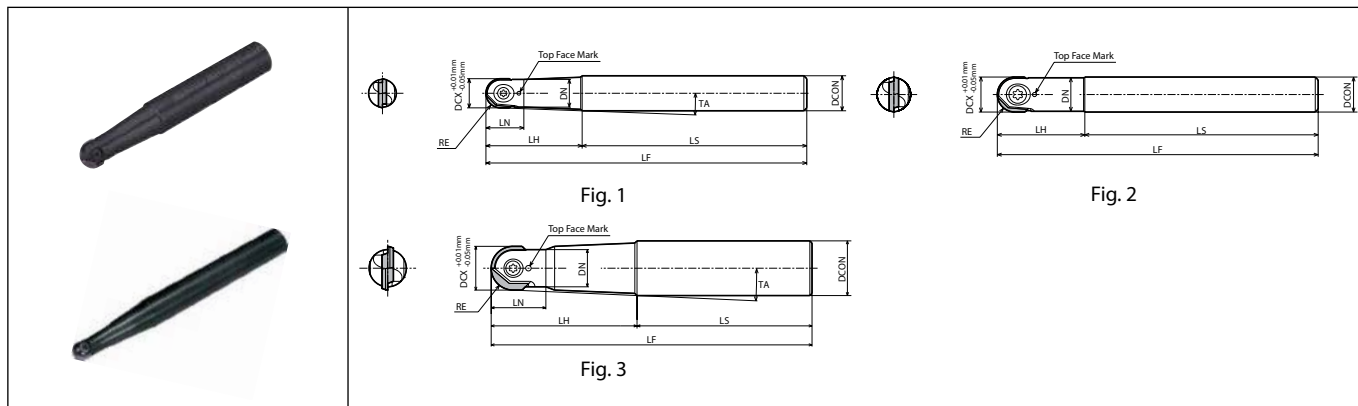
Recommended Cutting Conditions

Workpiece Material		Hardness (HRC)	Recommended Insert Grades (Vc: sfm)		fz (ipt)				Notes
			CVD Coated Carbide	PVD Coated Carbide	Edge Width				
					CA0835	PR0735	0.063" 1.60mm	0.087" (0.089") 2.20mm (2.25mm)		0.118" 3.00mm	0.157" 4.00mm
Low Carbon Steel	1010~1025	20	820~1020	660~820	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	Coolant
Carbon Steel	1030~1059, 1060 Annealed	29	520~620	430~520	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	
	1030~1059, 1060 Heat Treated	37	460~590	360~490	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	
Alloy Steel	Annealed	28	460~590	360~490	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	
	Heat Treated	41	390~520	330~430	0.001~0.004	0.002~0.005	0.002~0.006	0.003~0.007	
High Carbon Alloy	D2, H13, etc.	42	330~460	260~390	0.001~0.004	0.002~0.005	0.002~0.006	0.003~0.007	
Stainless Steel	304, 316, etc. Austenitic	33	490~620	260~390	0.001~0.004	0.002~0.005	0.002~0.006	0.003~0.007	
	403, 410, etc. Martensitic	45	460~590	200~260	0.001~0.004	0.002~0.005	0.002~0.006	0.003~0.007	
Gray Cast Iron	NO.45~NO.60	38	520~660	-	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	Dry
Nodular Cast Iron	60-40-18~70-50-05	25	430~520	-	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	
	80-60-03~120-90-02	37	360~460	-	0.001~0.005	0.002~0.006	0.002~0.007	0.003~0.008	

Note: 1. Use down-cut machining.
2. If ap is 1/10 or under of cutter dia.(DC), it is possible to increase feed per tooth (fz) by 40%.



MRF



Top Face Shown

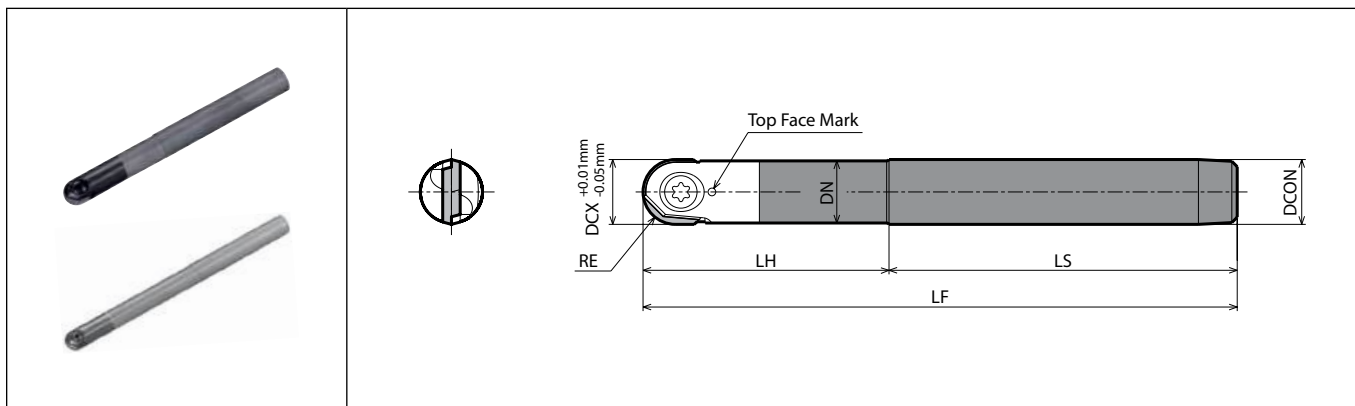
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions							TA	Coolant Hole	Fig.	Spare Parts				Applicable Inserts M272
				RE	DCX	DCON	LF	LH	DN	LN	LS			Anti-seize Compound	Insert Screw	Wrench	Wrench	
mm	Standard Neck	MRF 08-S12	●	4	8		100	22	7.5	10	78	6°20'	1	P-37	SC-30067	DT-8	-	RDFG08FR
		10-S12	●	5	10	12	100	25	9.5	13	75	3°00'	1		SC-35085	DT-10		RDFG10FR
		12-S12	●	6	12		110	30	11.5	-	-	-	2		SC-40100	DT-15		RDFG12FR
		16-S20	●	8	16	20	130	50	14	20	80	2°50'	1		SC-50130	DT-20		RDFG16FR
		20-S25	●	10	20	25	140	60	17	25		3°00'	3		SC-60160		TT-25	RDFG20FR
		25-S32	●	12.5	25	32	150	70	22	31		3°30'	3		SC-60210		TT-30	RDFG25FR
	Long Neck	MRF 08-S12-130	●	4	8	12	130	50	7.5	10	80	2°30'	1	P-37	SC-30067	DT-8	-	RDFG08FR
		10-S16-150	●	5	10	16	150	9.5	15	100		3°50'	1		SC-35085	DT-10		RDFG10FR
		12-S16-160	●	6	12		160	60	11.5	16		2°10'	1		SC-40100	DT-15		RDFG12FR
		16-S20-160	●	8	16	20	160	65	14	20	95	2°00'	1		SC-50130	DT-20		RDFG16FR
		20-S25-180	●	10	20	25	180	80	17	25	100	2°10'	3		SC-60160		TT-25	RDFG20FR
		25-S32-200	●	12.5	25	32	200	90	22	31	110	2°40'	3		SC-60210		TT-30	RDFG25FR

TA (Toolholder's interference angle) is the angle formed by the tangential line from insert dia. to toolholder's shank dia.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

M
MILLING45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

MRFW (Carbide Shank)

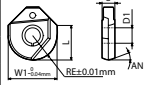
Top Face Shown

Toolholder Dimensions

Unit		Part Number		Std. Item	No. of Inserts	Dimensions								Coolant Hole	Spare Parts			Applicable Inserts ➡ M272	
															Anti-seize Compound	Insert Screw	Wrench		
																			
mm	Carbide Standard	MRFW	08-S08	●	1	4	8	8	100	30	7.4	70	No	P-37	SC-30067	DT-8	RDFG08FR		
			10-S10	●		5	10	10		35	9.5	65			SC-35085	DT-10	RDFG10FR		
			12-S12	●		6	12	12		110	45				11.5	SC-40100	DT-15	RDFG12FR	
	Carbide Long Neck	MRFW	08-S08-130	●	1	4	8	8	130	65	7.4	65	No	P-37	SC-30067	DT-8	RDFG08FR		
			10-S10-140	●		5	10	10	140	75	9.5				SC-35085	DT-10	RDFG10FR		
			12-S12-150	●		6	12	12	150	85	11.5				SC-40100	DT-15	RDFG12FR		

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

RDFG

Usage Classification ● : 1st Choice ○ : 2nd Choice		Carbon steel / Alloy steel						●	P
		Mold and die steel						●	
		Stainless steel						○	M
		Gray cast iron						○	K
		Nodular cast iron						○	
		Non-ferrous metals							N
		Heat-resistant alloy							S
		Titanium alloy							
		Hard materials							H
Insert	Part Number	Dimensions (mm)					Angle (°)	Carbide	Applicable Toolholder ➡ M270 M271
		S	D1	RE	L	W1	AN		
 	RDFG 08FR	2.1	3.1	4	6.6	8	15	●	MRF(W)08...
	10FR	2.7	3.6	5	8	10	15	●	MRF(W)10...
	12FR	3.2	4.1	6	9.4	12	15	●	MRF(W)12...
	16FR	4.2	5.1	8	11.3	16	10	●	MRF16...
	20FR	5.2	6.1	10	14.1	20	10	●	MRF20...
	25FR	6.2	6.1	12.5	15.5	25	10	●	MRF25...

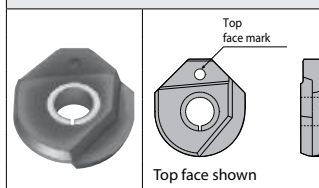
Right-hand Insert Shown

Recommended Cutting Conditions ➡ M273

MILLING

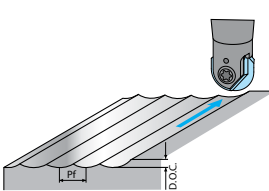
45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
ApplicationsRDFG Inserts are
sold in 2 piece boxes

Applicable Inserts

Insert	Description
	RDFG 08FR 10FR 12FR 16FR 20FR 25FR

Align the Top Face Mark of both insert and toolholder.

Recommended Depth of Cut

Description		Depth of cut (mm)		Applications
		ap	Pf	
Standard Neck	MRF08-S12	0.008 (Max 0.012)	0.031	
	MRF10-S12	0.008	0.039	
	MRF12-S12	0.020	0.047	
	MRF16-S20	0.020	0.063	
	MRF20-S25	0.039	0.079	
	MRF25-S32	0.039	0.098	
Long Neck	MRF08-S12-130	0.008 (Max 0.012)	0.031	
	MRF10-S12-150	0.008	0.039	
	MRF12-S12-160	0.020	0.047	
	MRF16-S20-160	0.020	0.063	
	MRF20-S25-180	0.039	0.079	
	MRF25-S32-200	0.039	0.098	
Carbide Standard Neck	MRFW08-S08	0.008 (Max 0.012)	0.031	
	MRFW10-S10	0.008	0.039	
	MRFW12-S12	0.020	0.047	
Carbide Long Neck	MRFW08-S08-130	0.008 (Max 0.012)	0.031	
	MRFW10-S10-140	0.008	0.039	
	MRFW12-S12-150	0.020	0.047	

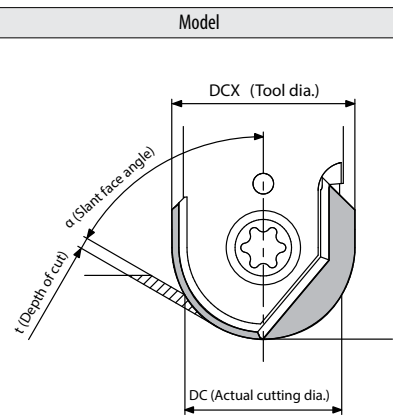
Recommended Cutting Conditions (At Cutting Dia. DCX)

For Ø8mm, Holder may be broken because of overload if D.O.C. exceeds 0.012".

Workpiece Material	Insert Grade	Vc (sfm)	fz (ipt)	ø8mm		ø10mm		ø12mm	
				Vc (sfm) (RPM)	fz (ipt) Vf (ipm)	Vc (sfm) (RPM)	fz (ipt) Vf (ipm)	Vc (sfm) (RPM)	fz (ipt) Vf (ipm)
Carbon steel	PR915	330~660	0.004~0.012	490 (5,970)	0.008 (94.095)	490 (4,770)	0.008 (75.197)	490 (3,980)	0.008 (62.598)
Alloy steel	PR915	260~590	0.004~0.012	430 (5,170)	0.008 (81.496)	430 (4,140)	0.008 (65.354)	430 (3,450)	0.008 (54.331)
Mold steel	PR915	160~490	0.004~0.008	330 (3,980)	0.006 (46.850)	330 (3,180)	0.006 (37.402)	330 (2,650)	0.006 (31.496)
Stainless steel	PR915	160~490	0.004~0.008	330 (3,980)	0.006 (46.850)	330 (3,180)	0.006 (37.402)	330 (2,650)	0.006 (31.496)
Cast iron	PR915	330~660	0.008~0.016	490 (5,970)	0.012 (140.945)	490 (4,770)	0.012 (112.598)	490 (3,980)	0.012 (94.095)
Workpiece Material	Insert Grade	Vc (sfm)	fz (ipt)	ø16mm		ø20mm		ø25mm	
				Vc (sfm) (RPM)	fz (ipt) Vf (ipm)	Vc (sfm) (RPM)	fz (ipt) Vf (ipm)	Vc (sfm) (RPM)	fz (ipt) Vf (ipm)
Carbon steel	PR915	330~660	0.004~0.012	490 (2,980)	0.008 (46.850)	490 (2,390)	0.008 (37.402)	490 (1,910)	0.008 (29.921)
Alloy steel	PR915	260~590	0.004~0.012	430 (2,590)	0.008 (40.551)	430 (2,070)	0.008 (32.677)	430 (1,660)	0.008 (25.984)
Mold steel	PR915	160~490	0.004~0.008	330 (1,990)	0.006 (23.622)	330 (1,590)	0.006 (18.898)	330 (1,270)	0.006 (14.961)
Stainless steel	PR915	160~490	0.004~0.008	330 (1,990)	0.006 (23.622)	330 (1,590)	0.006 (18.898)	330 (1,270)	0.006 (14.961)
Cast iron	PR915	330~660	0.008~0.016	490 (2,980)	0.012 (70.472)	490 (2,390)	0.012 (56.299)	490 (1,910)	0.012 (45.276)

Actual Cutting Speed (Vd) Conversion Coefficient Table

- Vd varies depending on D.O.C. and slant face angle.
- Vd can be obtained by dividing the conversion coefficient into the recommended cutting speed.

Model	Tool Dia. (DCX)		ø8mm		ø10mm		ø12mm	
	Depth of Cut (t:in)		0.004	0.008	0.004	0.008	0.008	0.020
	Slant face angle (α)	15°	1.00	1.00	1.00	1.00	1.00	1.00
		30°	1.05	1.02	1.05	1.03	1.04	1.01
		45°	1.18	1.12	1.20	1.14	1.16	1.07
		60°	1.47	1.34	1.51	1.38	1.42	1.24
		75°	2.15	1.82	2.24	1.92	2.02	1.60
		90°(Horizontal plane)	4.48	3.22	5.06	3.57	3.92	2.50
	Tool Dia. (DCX)		ø16mm		ø20mm		ø25mm	
Depth of Cut (t:in)		0.008	0.020	0.020	0.039	0.020	0.039	
Slant face angle (α)	15°	1.00	1.00	1.00	1.02	1.00	1.01	
	30°	1.05	1.01	1.02	1.00	1.03	1.00	
	45°	1.18	1.10	1.12	1.06	1.14	1.08	
	60°	1.47	1.30	1.34	1.21	1.38	1.25	
	75°	2.14	1.73	1.83	1.53	1.93	1.62	
	90°(Horizontal plane)	4.48	2.87	3.20	2.29	3.57	2.55	

e.g.) Suppose tool dia. 8mm, D.O.C. = 0.039", slant face angle 90°: The actual cutting speed Vd for carbon steel machining, when Vc is 490sfm at the full cutter diameter, Vd can be obtained by calculating: Vd = 490 ÷ 4.48 = 109.4sfm



High Efficiency Radius Cutter

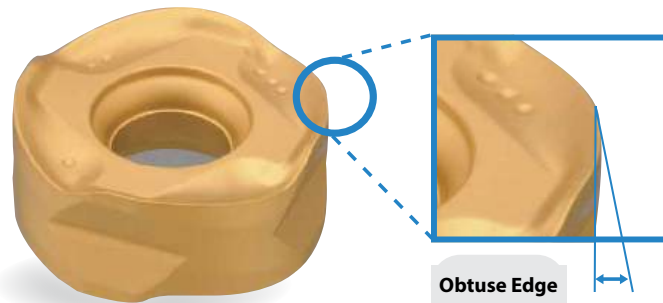
RAD-8 (MRW)

Economical and high efficiency radius cutter
with double-sided insert for various types of workpieces

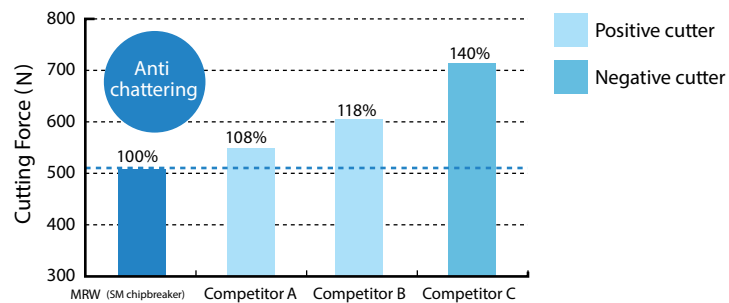
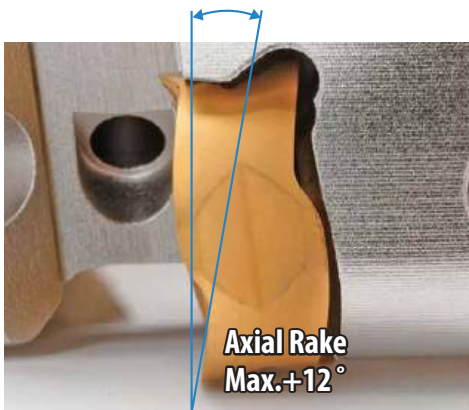
Economical double-sided 8-edge insert
Combine sharpness and cutting edge strength

Obtuse edge increases cutting edge toughness

Helical cutting edge design with maximum axial rake 12° reduces cutting force, equivalent to positive inserts.



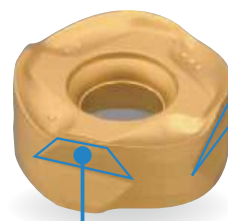
Low Cutting Force Chipbreaker



< Cutting Condition >
 $V_c = 390 \text{ sfm}$, D.O.C. $\times a_e = 0.039'' \times 1.575''$, $f_z = 0.008 \text{ ipt}$
 304 Stainless Steel, Cutter $\varnothing 2.000''$

1 Flat Lock Structure Creates a Firm Hold on the Inserts

Prevents insert rotation for stable machining

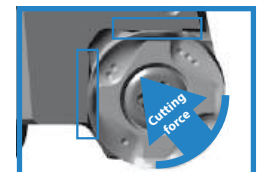


Wide and flat constraint surface

Flat lock structure

Wide flat constraint surface

- Receives even cutting forces
- Controls insert rotation



M
MILLING

45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

Longer tool life with a variety of grades and 3 chipbreakers available for various applications

Available for Steel, Stainless Steels, Cast Iron, and Heat-Resistant Alloys

Workpiece Material		Applicable Insert Grades	Applicable Chipbreaker
P Carbon Steel / Alloy Steel/Mold Steel		PR1825 PR1525	GM/SM/GH chipbreaker
K Cast Iron		PR1810 PR1510	GH/GM chipbreaker
S Ni-base Heat-Resistant Alloys	M Martensitic Stainless Steel	PR1835 CA6535	SM/GM chipbreaker
S Ni-base Heat-Resistant Alloys S Titanium alloys	M Austenitic Stainless Steel M Precipitation Hardened Stainless Steel	PR1835 PR1535	SM/GM chipbreaker

2

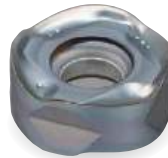
Insert Grades for Difficult-to-cut Material

Controls sudden fracture for stable machining
Suitable for high efficiency machining



CA6535

For martensitic stainless steel and Ni-base heat-resistant alloys
High heat resistance and wear resistance with CVD coating
Improved stability with thin layer coating technology



PR1835

For Ni-base heat-resistant alloys, titanium alloys and precipitation hardened stainless steel
Stable and longer tool life by special nano coating layer
MEGACOAT NANO EX

MEGACOAT-based
Laminated structure

- High hardness
- Excellent oxidation resistance

Special Nano Layer x Multi-layer Lamination

Nano-Layer
High toughness
suppresses crack growth

AlCr-based coating
with excellent abrasion resistance

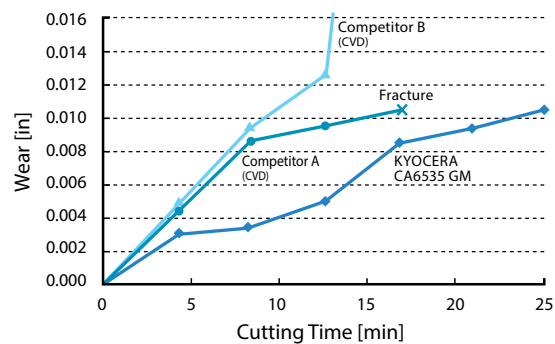
Nano-Layer
High toughness
suppresses crack growth

AlTi-based coating
with excellent heat resistance

Multi-layering of high-performance nano layers

Tool Life Comparison

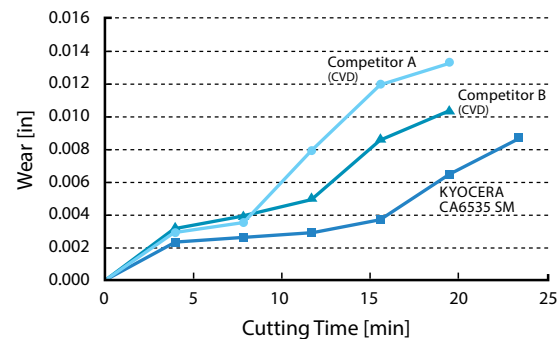
Ni-base Heat Resistant Alloy



<Cutting Conditions> Vc = 160 sfm, D.O.C. = 0.039", fz = 0.006 ipt, WET

1st recommendation GM Chipbreaker

Martensitic Stainless Steel



<Cutting Conditions> Vc = 980 sfm, D.O.C. = 0.079", fz = 0.008 ipt, WET

1st recommendation SM Chipbreaker

MRW (Face Mill)

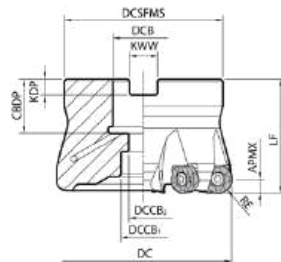


Fig. 1

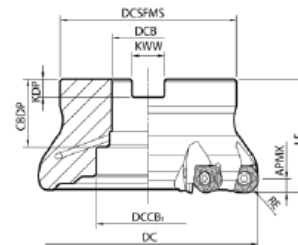


Fig. 2

Toolholder Dimensions

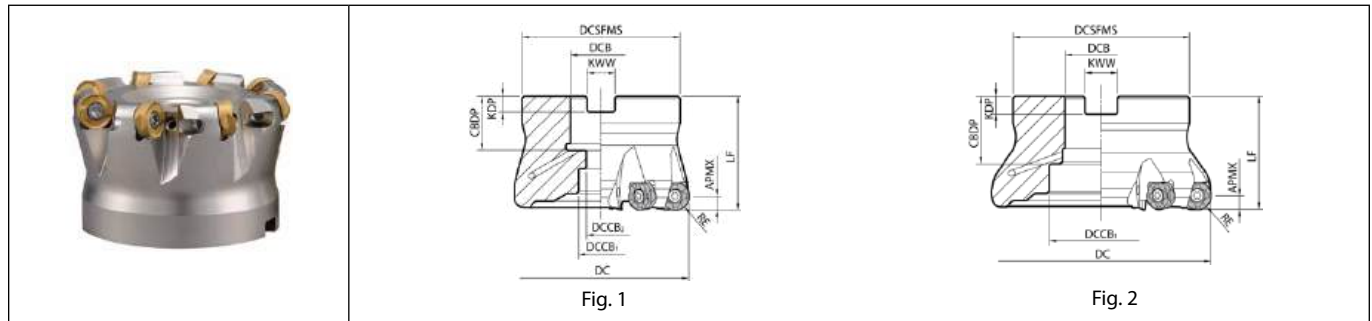
Unit	Part Number	Std. Item	No. of Inserts	Dimensions											A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M281
				RE	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CDDP	KDP	KWW	APMX							
Inch	Inch Bore Dia.	MRW 2000R-12-5T	● 5	0.236 (6mm)	2.00	1.75	0.75	0.748	0.433	1.575	0.750	0.187	0.312	0.236 (6mm)	+12	-15.5	Yes	16,000	0.3	1	ROMU1204M0ER-..
		MRW 2000R-12-6T	● 6		2.00	1.75	0.75	0.748	0.433	1.575	0.750	0.187	0.312					14,000	0.6	1	
		MRW 2500R-12-6T	● 6		2.50	1.75	0.75	0.748	0.433	1.575	0.750	0.187	0.312					12,000	1.1	1	
		MRW 2500R-12-7T	● 7		2.50	1.75	0.75	0.748	0.433	1.575	0.750	0.187	0.312					10,600	1.5	2	
		MRW 3000R-12-6T	● 6		3.00	2.25	1.00	0.866	0.551	1.969	1.063	0.236	0.381					12,000	1.1	1	
		MRW 3000R-12-8T	● 8		3.00	2.25	1.00	0.866	0.551	1.969	1.063	0.236	0.381					12,000	1.1	1	
		MRW 4000R-12-7T	● 7		4.00	3.54	1.50	2.047	-	1.969	1.142	0.393	0.625					10,600	1.5	2	
		MRW 4000R-12-9T	● 9		4.00	3.54	1.50	2.047	-	1.969	1.142	0.393	0.625					10,600	1.4	2	
	Inch Bore Dia.	MRW 2500R-16-5T	● 5	0.315 (8mm)	2.50	1.75	0.75	0.748	0.433	1.575	0.750	0.187	0.312	0.315 (8mm)	+11	-16.5	Yes	12,800	0.5	1	ROMU1605M0ER-..
		MRW 2500R-16-6T	● 6		2.50	1.75	0.75	0.748	0.433	1.575	0.750	0.187	0.312					11,000	1.0	1	
		MRW 3000R-16-7T	● 7		3.00	2.25	1.00	0.866	0.551	1.969	1.063	0.236	0.381					9,600	1.3	2	
		MRW 4000R-16-8T	● 8		4.00	3.54	1.50	2.047	-	1.969	1.142	0.393	0.625					8,560	2.6	2	
		MRW 5000R-16-8T	● 8		5.00	3.54	1.50	2.047	-	2.480	1.496	0.393	0.625					8,560	2.6	2	
		MRW 5000R-16-10T	● 10		5.00	3.54	1.50	2.047	-	2.480	1.496	0.393	0.625					8,560	2.5	2	

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

APMX is Maximum D.O.C. For more details, see page M282.

MRW (Face Mill)



Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions											A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➡ M281	
					R	RE	DC	DCSfMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW								APMX
mm	Inch Bore Dia.	MRW 080R-12-6T 080R-12-8T 100R-12-7T 100R-12-9T	● 6	6	6	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	6	+12	-15.5	Yes	12,000	1.2	1	ROMU1204M0ER-..	
			● 8	8																1.1	1		
			● 7	7		100	78	1.250"	46	-		1.339"	0.315"	0.500"					10,600	1.5	2		
			● 9	9																1.4	2		
		MRW 080R-16-6T 080R-16-7T 100R-16-6T 100R-16-8T 125R-16-8T 125R-16-10T	● 6	6	8	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	8	+11	-16.5	Yes	11,000	1.1	1	ROMU1605M0ER-..	
			● 7	7																1.1	1		
			● 6	6		100	78	1.250"	46	-		1.339"	0.315"	0.500"					9,600	1.4	2		
			● 8	8																2	2		
			● 8	8		125	89	1.500"	55	63	1.496"	0.394"	0.625"	8,560					2.6	2			
			● 10	10															2	2			
		Metric Bore Dia.	MRW 050R-12-5T-M 050R-12-6T-M 063R-12-6T-M 063R-12-7T-M 080R-12-6T-M 080R-12-8T-M 100R-12-7T-M 100R-12-9T-M	● 5	5	6	50	48	22	18	11	40	21	6.3	10.4	6	+12	-15.5	Yes	16,000	0.3	1	ROMU1204M0ER-..
				● 6	6																1	1	
	● 6			6	63		60	19	24	7			12.4	14,000	0.6					1			
	● 7			7											1					1			
	● 6			6	80		70	27	20	50	24	7	12.4	12,000	1.1					1			
	● 8			8											1					1			
	● 7			7	100		78	32	46		-	30	8	14.4	10,600					1.5	2		
	● 9			9																1.4	2		
	MRW 063R-16-5T-M 063R-16-6T-M 080R-16-6T-M 080R-16-7T-M 100R-16-6T-M 100R-16-8T-M 125R-16-8T-M 125R-16-10T-M		● 5	5	8	63	60	22	19	11	40	21	6.3	10.4	8	+11	-16.5	Yes	12,800	0.5	1	ROMU1605M0ER-..	
			● 6	6																1	1		
			● 6	6		80	70	27	20			50	24	7					12.4	11,000	1.1		1
			● 7	7																	1		1
			● 6	6		100	78	32	46	-	30		8	14.4					9,600	1.4	2		
			● 8	8																1.3	2		
	● 8	8	125	89	40	55	63	33	9	16.4	8,500	2.6	2										
	● 10	10										2.5	2										

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

APMX is Maximum D.O.C. For more details, see page M282.

Spare Parts and Applicable Inserts (Inch Face Mills)

Part Number	Spare Parts					Applicable Inserts  M281		
	Insert Screw	Wrench		Anti-seize Compound	Arbor Bolt			
		DTPM-15 	TTP-20 			General Purpose	Low Cutting Force	Tough Edge (For Heavy Milling)
MRW 2000R-12...	SB-4085TRP	DTPM-15		P-37	HH3/8-1.25 (HH3/8-1.25H)	ROMU1204M0ER-GM	ROMU1204M0ER-SM	ROMU1204M0ER-GH
2500R-12...	Recommended tightening torque for insert screw 3.5N·m		HH1/2-1.25 (HH1/2-1.25H)					
3000R-12...			-					
4000R-12...			-					
MRW 2500R-16...	SB-50140TRP	TTP-20		P-37	HH3/8-1.25 (HH3/8-1.25H)	ROMU1605M0ER-GM	ROMU1605M0ER-SM	ROMU1605M0ER-GH
3000R-16...	Recommended tightening torque for insert screw 4.5N·m		HH1/2-1.25 (HH1/2-1.25H)					
4000R-16...			-					
5000R-16...			-					

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

() Optional coolant-through bolt available

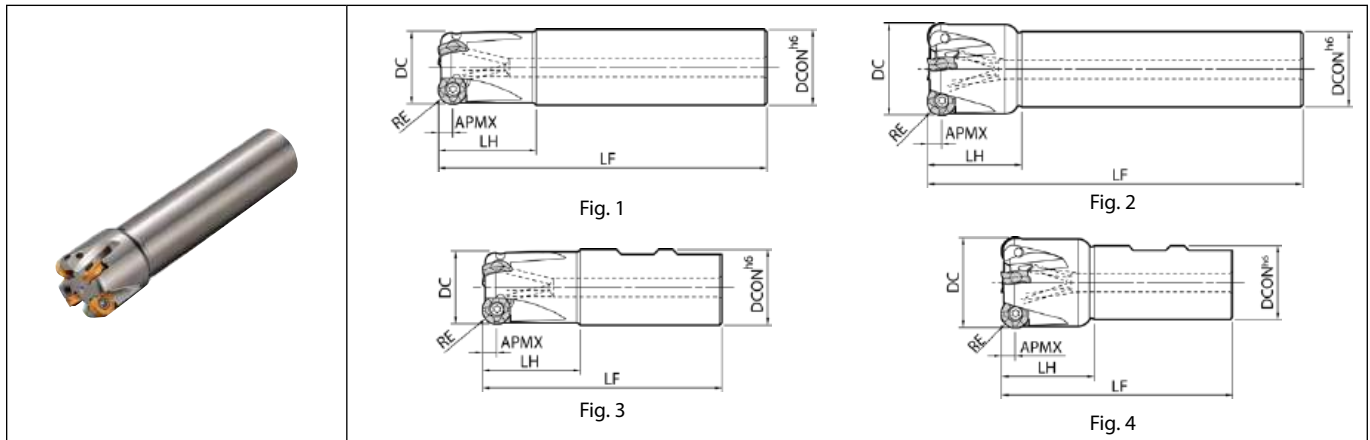
Spare Parts and Applicable Inserts (Metric Face Mills)

Part Number	Spare Parts					Applicable Inserts  M281		
	Insert Screw	Wrench		Anti-seize Compound	Arbor Bolt			
		DTPM-15 	TTP-20 			General Purpose	Low Cutting Force	Tough Edge (For Heavy Milling)
MRW 050R-12...	SB-4085TRP	DTPM-15		P-37	HH10X30	ROMU1204M0ER-GM	ROMU1204M0ER-SM	ROMU1204M0ER-GH
063R-12...	Recommended tightening torque for insert screw 3.5N·m				HH12X35			
080R-12...					-			
100R-12...					-			
MRW 063R-16...	SB-50140TRP	TTP-20		P-37	HH10X30	ROMU1605M0ER-GM	ROMU1605M0ER-SM	ROMU1605M0ER-GH
080R-16...	Recommended tightening torque for insert screw 4.5N·m				HH12X35			
100R-16...					-			
125R-16...					-			

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

M
MILLING45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

MRW (End Mill)



Toolholder Dimensions

Unit		Part Number			Std. Item	No. of Inserts	Dimensions						A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Applicable Inserts ➡ M281	
							RE	DC	DCON	LF	LH	APMX							
Inch	Weldon	Standard Shank	MRW	1250-W125-12-3T	●	3	0.236 (6mm)	1.25	1.25	3.921	1.575	0.236 (6mm)	+12	-20	Yes	22,000	3	ROMU1204M0ER-..	
				1500-W125-12-4T	●	4		1.50	3.856	-16.5				18,800		4			
				2000-W150-12-5T	●	5		2.00	4.266	-15.5				16,000		4			
		Long Shank	MRW	1500-W125-16-2T	●	2	0.315 (8mm)	1.50	1.25	3.856	1.575	0.315 (8mm)	+11	-18	Yes	17,200	4		ROMU1605M0ER-..
				2000-W150-16-4T	●	4		2.00	4.262	-16.5				14,800		4			
				2500-W150-16-5T	●	5		2.50	12,800	4									
	Cylindrical	Long Shank	MRW	2000-S150-12-4T-12	●	4	0.236 (6mm)	2.00	1.50	12.000	1.969	0.236 (6mm)	+12	-15.5	Yes	16,000	2	ROMU1204M0ER-..	
				2000-S150-16-3T-8	●	3	0.315 (8mm)	2.00	1.50	8.000	1.575	0.315 (8mm)	+11	-16.5	Yes	14,800	2	ROMU1605M0ER-..	
					2500-S150-16-4T-12	●				4	12.000					1.969	12,800		2

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

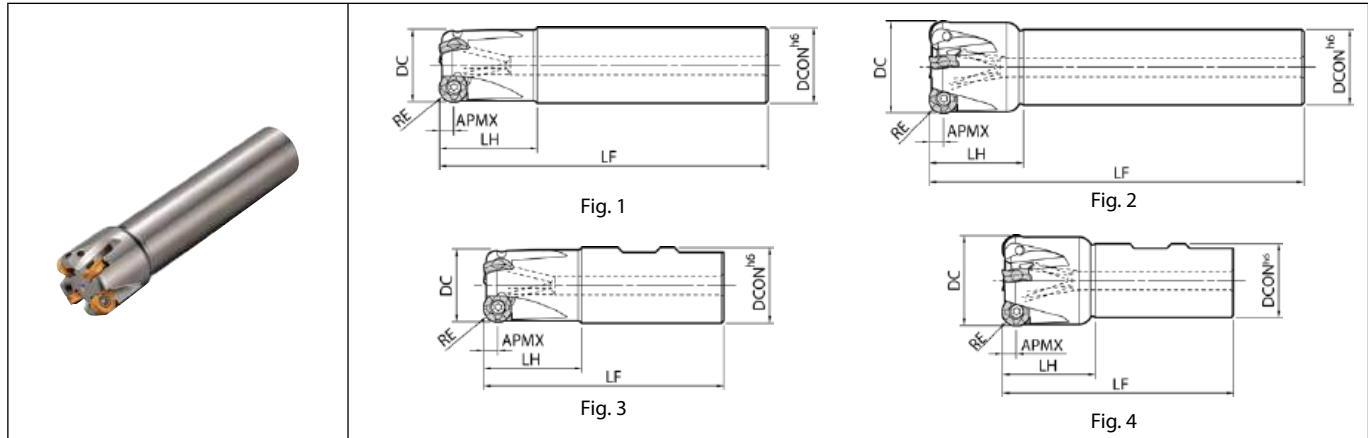
APMX is Maximum D.O.C. For more details, see page M282.

Spare Parts and Applicable Inserts (Inch End Mills)

Part Number	Spare Parts				Applicable Inserts M281		
	Insert Screw	Wrench		Anti-seize Compound			
		DTPM-15 	TTP-20 				
MRW ...-12-...	SB-4085TRP	DTPM-15 Recommended tightening torque for insert screw 3.5N·m		P-37	ROMU1204M0ER-GM	ROMU1204M0ER-SM	ROMU1204M0ER-GH
MRW ...-16-...	SB-50140TRP	TTP-20 Recommended tightening torque for insert screw 4.5N·m		P-37	ROMU1605M0ER-GM	ROMU1605M0ER-SM	ROMU1605M0ER-GH

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

MRW (End Mill)



Toolholder Dimensions

Unit	Part Number			Std. Item	No. of Inserts	Dimensions						A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Applicable Inserts 🌀 M281
mm	Cylindrical	Standard Shank	MRW 32-S32-12-3T	● 3	6	32	32	140	40	6	+12	-20	Yes	22,000	1	ROMU1204M0ER-..	
			40-S32-12-4T	● 4		40	32	160				-16.5		18,800	2		
			50-S42-12-5T	● 5		50	42	170				-15.5		16,000	2		
		Long Shank	MRW 40-S32-16-3T	● 3	8	40	32	160	40	8	+11	-18	Yes	17,200	2	ROMU1605M0ER-..	
			50-S42-16-4T	● 4		50	42	170				-16.5		14,800	2		
			63-S42-16-5T	● 5		63	42	170				50		12,800	2		
	Weldon	Standard Shank	MRW 32-S32-12-2T-200	● 2	6	32	32	200	40	6	+12	-20	Yes	22,000	1	ROMU1204M0ER-..	
			40-S32-12-3T-200	● 3		40	32	200				-16.5		18,800	2		
			50-S42-12-4T-300	● 4		50	42	300				-15.5		16,000	2		
		Long Shank	MRW 40-S32-16-2T-200	● 2	8	40	32	200	40	8	+11	-18	Yes	17,200	2	ROMU1605M0ER-..	
			50-S42-16-3T-300	● 3		50	42	300				-16.5		14,800	2		
			63-S42-16-4T-300	● 4		63	42	300				50		12,800	2		
Weldon	Standard Shank	MRW 32-W32-12-3T	● 3	6	32	32	102	40	6	+12	-20	Yes	22,000	3	ROMU1204M0ER-..		
		40-W32-12-4T	● 4		40	100	-16.5				18,800		4				
		50-W40-12-5T	● 5		50	40	110				-15.5		16,000	4			
	Long Shank	MRW 40-W32-16-3T	● 3	8	40	32	100	40	8	+11	-18	Yes	17,200	4	ROMU1605M0ER-..		
		50-W40-16-4T	● 4		50	40	110				-16.5		14,800	4			
		63-W40-16-5T	● 5		63	40	120				50		12,800	4			

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

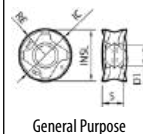
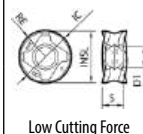
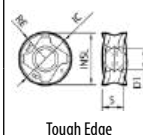
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

APMX is Maximum D.O.C. For more details, see page M282.

Spare Parts and Applicable Inserts (Metric End Mills)

Part Number	Spare Parts				Applicable Inserts M281		
	Insert Screw	Wrench		Anti-seize Compound			
		DTPM-15 	TTP-20 				
MRW ...-12-...	SB-4085TRP	DTPM-15 Recommended tightening torque for insert screw 3.5N·m		P-37	ROMU1204M0ER-GM	ROMU1204M0ER-SM	ROMU1204M0ER-GH
MRW ...-16-...	SB-50140TRP	TTP-20 Recommended tightening torque for insert screw 4.5N·m		P-37	ROMU1605M0ER-GM	ROMU1605M0ER-SM	ROMU1605M0ER-GH

ROMU

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or under)		Carbon steel / Alloy steel				☆			★	☆	P			
		Mold and die steel				☆			★	☆				
		Austenitic stainless steel					☆		☆	★	M			
		Martensitic stainless steel	★							☆				
		Precipitation hardened stainless steel					☆			★	K			
		Gray cast iron				☆			★					
		Nodular cast iron				☆			★					
		Non-ferrous metals									N			
		Heat-resistant alloy	★							☆	S			
		Titanium alloy						☆		★				
		Hard materials										H		
Insert		Part Number		Dimensions (mm)					Carbide					Applicable Toolholder ➡ M280~M280
				IC	S	D1	RE	INSL	CVD	PVD				
									Ca6335	PR1510	PR1525	PR1535	PR1810		PR1825	PR1835
	 General Purpose	ROMU 1204M0ER-GM	12	4.75	4.6	6	11.8	●	△	●	●	●	●	MRW...-12-..
		ROMU 1605M0ER-GM	16	5.48	6.2	8	15.8	●	△	●	●	●	●	MRW...-16-..
	 Low Cutting Force	ROMU 1204M0ER-SM	12	4.75	4.6	6	11.8	●		●	●		●	MRW...-12-..
		ROMU 1605M0ER-SM	16	5.48	6.2	8	15.8	●		●	●		●	MRW...-16-..
	 Tough Edge	ROMU 1204M0ER-GH	12	4.75	4.6	6	11.8	●	△	●	●	●	●	MRW...-12-..
		ROMU 1605M0ER-GH	16	5.48	6.2	8	15.8	●	△	●	●	●	●	MRW...-16-..

Right-hand Insert Shown

Recommended Cutting Conditions ➡ M282

Recommended Cutting Conditions

Workpiece Material	Recommended Chipbreaker fz (ipt) Recommended Feed Rate (Standard Value) ROMU12 : D.O.C. = 0.118" ROMU16 : D.O.C. = 0.158"			Recommended Insert Grades (Cutting Speed Vc: sfm)			
				MEGACOAT NANO EX (MEGACOAT NANO)			CVD Coated Carbide
	GM	SM	GH	PR1810 (PR1510)	PR1825 (PR1525)	PR1835 (PR1535)	CA6535
Carbon Steel	★ 0.004~ 0.008 ~0.012	☆ 0.002~ 0.006 ~0.008	☆ 0.006~ 0.012 ~0.014	-	★ 390~ 590 ~820	☆ 390~ 590 ~820	-
Alloy Steel	★ 0.004~ 0.008 ~0.012	☆ 0.002~ 0.006 ~0.008	☆ 0.006~ 0.012 ~0.014	-	★ 330~ 520 ~720	☆ 330~ 520 ~720	-
Mold Steel	★ 0.004~ 0.006 ~0.010	☆ 0.002~ 0.005 ~0.008	☆ 0.006~ 0.008 ~0.012	-	★ 260~ 460 ~590	☆ 260~ 460 ~590	-
Austenitic Stainless Steel	☆ 0.004~ 0.006 ~0.008	★ 0.002~ 0.005 ~0.008	☆ 0.006~ 0.008 ~0.010	-	☆ 330~ 520 ~660	★ 330~ 520 ~660	-
Martensitic Stainless Steel	☆ 0.004~ 0.006 ~0.008	★ 0.002~ 0.005 ~0.008	☆ 0.006~ 0.008 ~0.010	-	-	☆ 490~ 660 ~820	★ 590~790~980
Precipitation Hardened Stainless Steel	★ 0.004~ 0.006 ~0.008	☆ 0.002~ 0.005 ~0.008	☆ 0.006~ 0.008 ~0.010	-	-	★ 300~ 390 ~490	-
Gray Cast Iron	★ 0.004~ 0.008 ~0.012	-	☆ 0.006~ 0.012 ~0.014	★ 390~ 590 ~820	-	-	-
Nodular Cast Iron	★ 0.004~ 0.006 ~0.010	-	☆ 0.006~ 0.008 ~0.012	★ 330~ 490 ~660	-	-	-
Ni-base Heat Resistant Alloy	★ 0.004~ 0.005 ~0.006	☆ 0.002~ 0.004 ~0.006	☆ 0.005~ 0.006 ~0.008	-	-	☆ 70~ 100 ~160	★ 70~ 100 ~160
Titanium Alloy	☆ 0.004~ 0.005 ~0.006	★ 0.002~ 0.004 ~0.006	-	☆ 100~ 160 ~230	-	★ 130~ 200 ~260	-

★ Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy

★ : 1st Recommendation ☆ : 2nd Recommendation

The figure in bold font is center value of the recommended cutting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

Recommended feed rate is the reference value when D.O.C. is RE/2 (0.118" for ROMU12, 0.158" for ROMU16).

For lower feed rates than the above conditions, the conversion factor in the following table is recommended.

Conversion Factor for Feed Per Tooth by Depth of Cut (D.O.C.)

Insert	D.O.C. (Recommended)	Max. D.O.C.	Conversion Factor for Feed Per Tooth				
			D.O.C. = 0.020"	D.O.C. = 0.039"	D.O.C. = 0.079"	D.O.C. = 0.118"	D.O.C. = 0.158"
ROMU12 type	0.118" or less	0.236"	2.1	1.5	1.1	1.0 (Standard)	-
ROMU16 type	0.158" or less	0.315"	2.4	1.7	1.3	1.1	1.0 (Standard)

Calculation Example (ROMU12, Carbon Steel, GM Chipbreaker, D.O.C. = 0.039")

$$\begin{matrix} \text{fz} = \mathbf{0.008 \text{ ipt}} \\ \text{(Standard value for carbon steel and GM chipbreaker)} \end{matrix} \times \begin{matrix} \mathbf{1.5} \\ \text{(Conversion factor for ROMU12 type, D.O.C. = 0.039")} \end{matrix} = \begin{matrix} \text{fz} = \mathbf{0.012 \text{ ipt}} \\ \text{(Recommended feed rate)} \end{matrix}$$

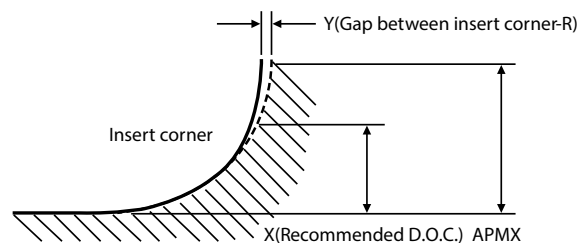
* Recommended D.O.C.: 0.118" (3mm) or less for ROMU12, 0.158" (4mm) or less for ROMU16

Except the case that D.O.C. temporarily surpasses the recommended D.O.C., machining under the recommended D.O.C. is recommended.

Corner-R Shape During Processing

Corner-R shape during processing with MRW (Ref. to the right figure)

Insert	APMX	X	Y
ROMU12 type	6 mm	3 mm	0.1 mm
ROMU16 type	8 mm	4 mm	0.1 mm



* When machining with larger D.O.C. than recommended D.O.C. (X), there is a gap (Y) between the workpiece corner and Insert corner-R(RE).

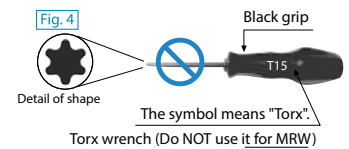
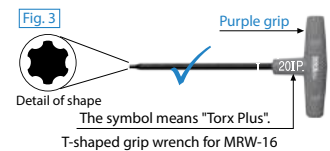
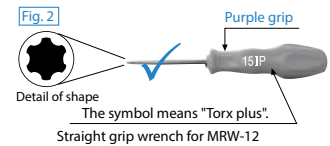
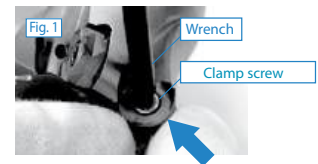
* The above figure is estimation. There would be ± 0.008 " variation depending on the cutting conditions.

How to Mount Inserts

- Be sure to remove dust and chips from the insert mounting pocket.
- Clamp screw
 - Apply anti-seize compound on portion of taper and thread of clamp screw.
 - Attach the screw to the front end of the wrench. While lightly pressing the insert against the pocket surfaces, put the screw into the hole of the insert and tighten. (Ref. to Fig. 1)
- Wrenches and clamp screws are "Torx Plus".
 - Fig. 2 wrench is for MRW-12. (Straight grip)
 - Fig. 3 wrench is for MRW-16. (T-shaped grip)

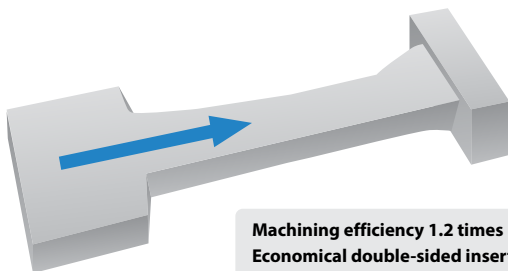
Please use a "Torx Plus" Wrench for tightening clamp screw.

* If a "Torx" wrench (Fig. 4) is used to tighten, the screw head might become damaged and then the screw cannot be removed.
- When tightening the screw, make sure that the wrench is parallel to the screw.
- After tightening the screw, make sure that there is no clearance between the insert seat surface and the pocket surface of the toolholder or between the insert side surfaces and the constraint surface of the toolholder. If there is any clearance, remove the insert and mount it again according to the above steps.



Case Studies

410 Stainless Steel



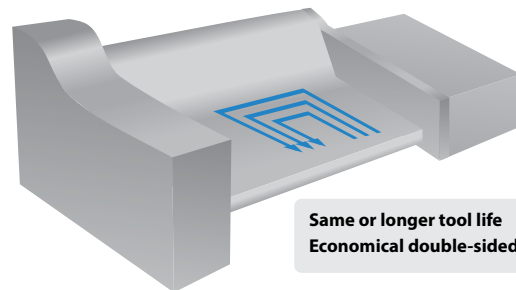
- Turbine blade • $V_c = 890 \text{ sfm}$ • $f_z = 0.011 \text{ ipt}$
- D.O.C. = $0.020 \sim 0.039''$ • $ae = \text{Max. } 1.378''$ • Dry
- MRW050R-12-6T-M (6 flutes) • ROMU1204M0ER-SM (CA6535)

CA6535	Stable machining
Competitor A (Positive cutter)	Unstable machining with large noise

- MRW improved machining efficiency by 1.2 times with same tool life compared with competitor A.
- MRW has cost advantage due to double-sided inserts.

(User evaluation)

410 Stainless Steel



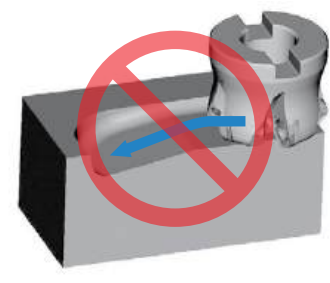
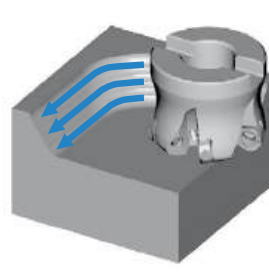
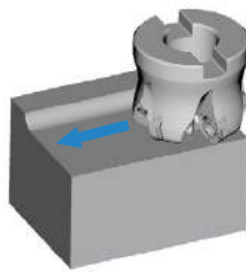
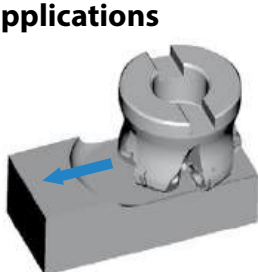
- Turbine Blade • $V_c = 820 \text{ sfm}$ • $f_z = 0.006 \text{ ipt}$
- D.O.C. = $0.079''$ • $ae = 0.197 \sim 1.181''$ • Wet
- MRW050R-12-5T-M (5 flutes) • ROMU1204M0ER-SM (CA6535)

CA6535	Stable, available for further machining
Competitor B (Positive cutter)	Unstable machining with large noise

- MRW showed less damage on the cutting edge and reduced machining noise.
- MRW has equal or longer tool life and cost advantage due to double sided inserts.

(User evaluation)

Applications



* MRW type is not available for 3D machining such as plunging and profiling.

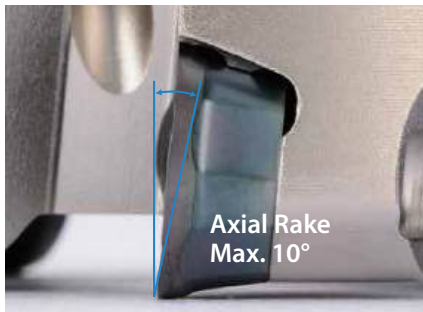
High Efficiency Radius Cutter

RAD-6 (MRX)

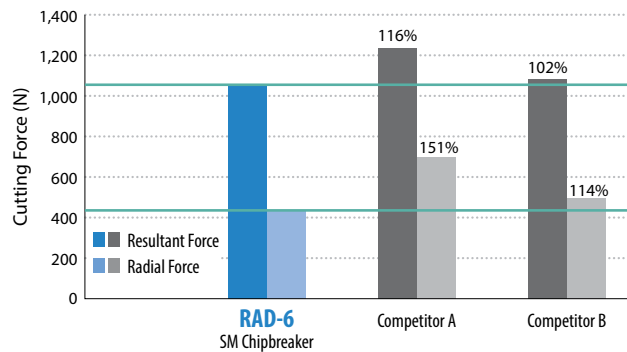
Low Cutting Forces for Longer Tool Life
Available for a Wide Range of Applications

1 Low Cutting Force Helical Cutting Edge Design

Maximum Axial Rake Angle



Cutting Force Comparison (Internal Evaluation)



Cutting Conditions: $V_c = 400$ sfm, D.O.C. $\times a_e = 0.079'' \times 0.984''$ $f_z = 0.008$ ipt,
Workpiece: 304 Steel Cutter: $\varnothing 2.000''$

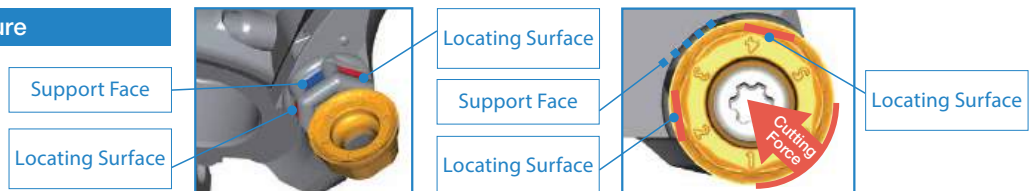
2 Flat Lock Structure Creates a Firm Hold on the Inserts

Prevents insert rotation during machining to provide stable cutting

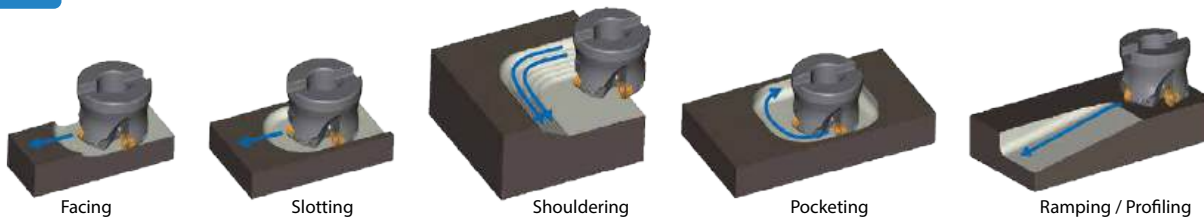
Flat Lock Structure

Wide Flat Binding Face

- Receives even cutting forces
- Prevents insert rotation



3 Available for Various Applications



4 Numerous Applications for a Large Variety of Materials

Insert grades **CA6535/PR1835** for difficult-to-cut material are available.

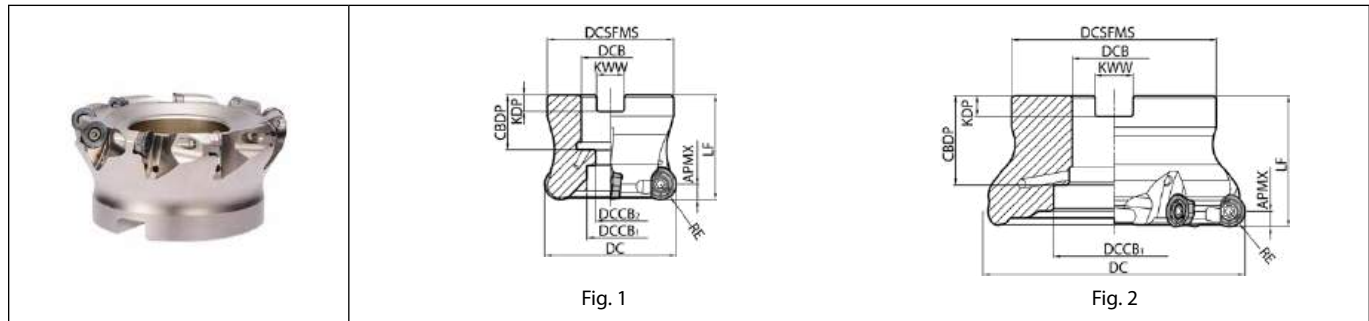
Long tool life with wide lineup of grades and 3 chipbreakers, available for steel, stainless steel and heat-resistant alloys.

Cost-effective M class inserts are available

M
MILLING

45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

MRX (Face Mill)



Toolholder Dimensions

Unit		Part Number		Std. Item	No. of Inserts	Dimensions										A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts ➡ M291	
						R	RE	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP								KWW	APMX
Inch	Inch Bore Dia.	MRX	1500R-10-5T	●	5	0.197 (5mm)	1.500	1.400	0.500	0.433	0.276	1.575	0.709	0.156	0.250	0.197 (5mm)	+10	-5.5	Yes	13,500	1.2	1	RPGT10T3... RPMT10T3...
			2000R-10-6T	●	6		2.000	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313						1.1	1	
		MRX	2000R-12-5T	●	5	0.236 (6mm)	2.000	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313	0.236 (6mm)	+10	-5.5	Yes	10,000	1.4	2	RPGT1204... RPMT1204... RPMW1204...
			3000R-12-6T	●	6		3.000	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382					9,000	2.7	2	
		MRX	2500R-16-5T	●	5	0.315 (8mm)	2.500	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313	0.315 (8mm)	+10	-5.5	Yes	18,000	0.3	1	RPGT1605... RPMT1605... RPMW1605...
			3000R-16-6T	●	6		3.000	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382					15,500	0.6	1	
			4000R-16-7T	●	7		4.000	3.540	1.500	2.047	-	1.969	1.142	0.394	0.626					13,500	1.1	1	

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

Spare Parts and Applicable Inserts (Inch Face Mills)

Part Number	Spare Parts					Applicable Inserts ➡ M291	
	Insert Screw	Wrench		Anti-seize Compound	Arbor Bolt		
		DTPM 	TTP 				
MRX 1500R-10...	SB-3070TRP	DTPM-10		P-37	HH1/4-0.75(H)	RPMT10T3M0ER-GM RPGT10T3M0ER-GM RPGT10T3M0ER-SM RPMT10T3M0EN-GH	
2000R-10...		Recommended tightening torque for insert screw 2.0N·m			HH3/8-1.25(H)	*	
MRX 2000R-12...	SB-4090TRPN	DTPM-15		P-37	HH3/8-1.25(H)	RPMT1204M0ER-GM RPGT1204M0ER-GM RPGT1204M0ER-SM RPMT1204M0EN-GH RPMW1204M0TN	
3000R-12...		Recommended tightening torque for insert screw 3.5N·m			HH1/2-1.25(H)	*	
MRX 2500R-16...	SB-50120TRP	TTP-20		P-37	HH3/8-1.25(H)	RPMT1605M0ER-GM RPGT1605M0ER-GM RPGT1605M0ER-SM RPMT1605M0EN-GH RPMW1605M0TN	
3000R-16...		Recommended tightening torque for insert screw 4.5N·m			HH1/2-1.25(H)	*	
4000R-16...					-		

Max. Revolution

Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat anti-seize compound thinly on portion of taper and thread prior to installation.

*1... Not compatible with conventional RPMT10T3M0 inserts (without ER-.. or EN-..).

*2... Not compatible with conventional RPMT1204M0 and RPMT1204M0-H inserts (without ER-.. or EN-..).

*3... Not compatible with the conventional RPMT1606M0-H inserts.

(H) Optional coolant-through bolt available

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

MRX (Face Mill)

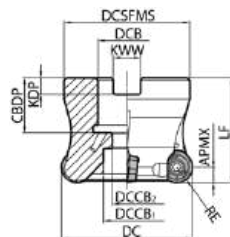


Fig. 1

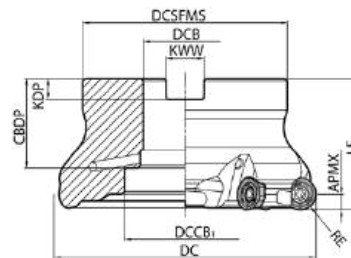


Fig. 2

Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions										A.R. (°)	R.R. (°)	Coolant Hole	Max RPM	Weight (kg)	Fig.	Applicable Inserts M291																												
					R	RE	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP								KWW	APMX																										
mm	Inch Bore Dia.	MRX 080R-12-6T 080R-12-8T 100R-12-7T 100R-12-9T	6	6	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	6	+10	-5.5	Yes	13,500	1.2	1	RPGT1204... RPMT1204... RPMW1204...																												
			8																100	78		1.250"	46	-	1.339"	0.315"	0.500"	12,000	1.1	1																			
			7																										2																				
			9																											2																			
		MRX 080R-16-5T 080R-16-6T 100R-16-6T 100R-16-7T 125R-16-6T 125R-16-8T	5	8	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	8	+10	-5.5	Yes	11,500	1.1	1	RPGT1605... RPMT1605... RPMW1605...																												
			6																100	78		1.250"	46	-	1.339"	0.315"	0.500"	10,000	1.4	2																			
			7																										2																				
			6																											2																			
			8																												2																		
			8																												2.7	2																	
		Metric Bore Dia.	MRX 040R-10-5T-M 050R-10-6T-M 063R-10-7T-M	5	5	40	38	16	15	9	40	19	5.6	8.4	5	+10	-5.5	Yes	20,000	0.2	1	RPGT10T3... RPMT10T3...																											
				6																50	48		22	18	11	21	6.3	10.4	17,500	0.3	1																		
				7																										60	0.6	1																	
			MRX 040R-12-4T-M 050R-12-4T-M 050R-12-5T-M 063R-12-5T-M 063R-12-6T-M 080R-12-6T-M 080R-12-8T-M 100R-12-7T-M 100R-12-9T-M	4	6	40	38	16	13.5	9	40	19	5.6	8.4	6	+10	-5.5	Yes	21,000	0.2	1	RPGT1204... RPMT1204... RPMW1204...																											
	5			50																48	22		18	11	21	6.3	10.4	18,000	0.3	1																			
	6																												63	60	0.6	1																	
	5			63																60	0.6		1																										
	6																							80	70	27	20	13	50	24	7	12.4	13,500	1.2	1														
	8			100																78	32		46											-	30	8	14.4	12,000	1.1	1									
	7																							2																									
	9			2																																													
	MRX 063R-16-4T-M 063R-16-5T-M 080R-16-5T-M 080R-16-6T-M 100R-16-6T-M 100R-16-7T-M 125R-16-6T-M 125R-16-8T-M			4																8	63		60	22	18	11	40	21	6.3	10.4	8	+10	-5.5	Yes	13,500	0.5	1	RPGT1605... RPMT1605... RPMW1605...											
				5																																80	70		27	20	13	50	24	7	12.4	11,500	1.1	1	
			5	100	78	32	46	-	30	8	14.4	10,000	1.4	2																																			
			6										125	89	40	55	63	33	9			16.4																									9,000	2.6	2
			7																																													2	
		8	2																																														
		6	2																																														
		8																																															2

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

Spare Parts and Applicable Inserts (Metric Face Mills)

Part Number		Spare Parts				Applicable Inserts ➡ M291	
		Insert Screw	Wrench		Anti-seize Compound		Arbor Bolt
			DTPM 	TTP 			
MRX	040R-10...	SB-3070TRP	DTPM-10		P-37	HH8X25	RPMT10T3M0ER-GM RPGT10T3M0ER-GM RPGT10T3M0ER-SM RPMT10T3M0EN-GH
	050R-10...		Recommended tightening torque for insert screw 2.0N·m			HH10X30	
	063R-10...						
MRX	040R-12...	SB-4090TRPN	DTPM-15		P-37	HH8X25	RPMT1204M0ER-GM RPGT1204M0ER-GM RPGT1204M0ER-SM RPMT1204M0EN-GH RPMW1204M0TN
	050R-12...		Recommended tightening torque for insert screw 3.5N·m			HH10X30	
	063R-12...					HH12X35	
	080R-12...					-	
	100R-12...						
MRX	063R-16...	SB-50120TRP	TTP-20		P-37	HH10X30	RPMT1605M0ER-GM RPGT1605M0ER-GM RPGT1605M0ER-SM RPMT1605M0EN-GH RPMW1605M0TN
	080R-16...		Recommended tightening torque for insert screw 4.5N·m			HH12X35	
	100R-16...					-	
	125R-16...						

Max. Revolution

Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

 Coat anti-seize compound thinly on portion of taper and thread prior to installation.

*1--- Not compatible with conventional RPMT10T3M0 inserts (without ER-.. or EN-..)

*2--- Not compatible with conventional RPMT1204M0 and RPMT1204M0-H inserts (without ER-.. or EN-..).

*3--- Not compatible with the conventional RPMT1606M0-H inserts.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MRX (End Mill)

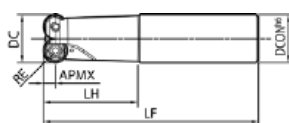


Fig. 1

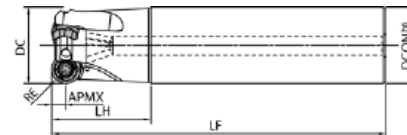


Fig. 2

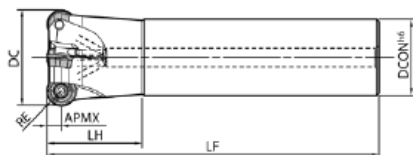


Fig. 3

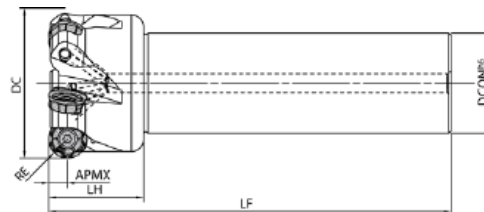


Fig. 4

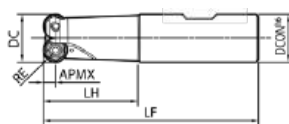


Fig. 5

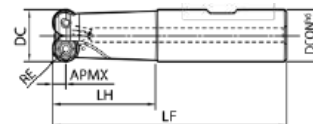


Fig. 6

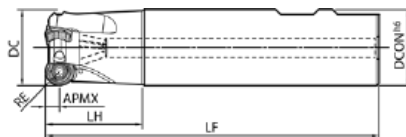


Fig. 7

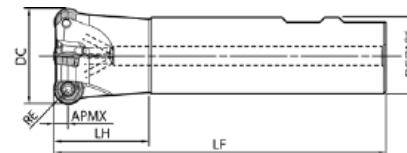


Fig. 8

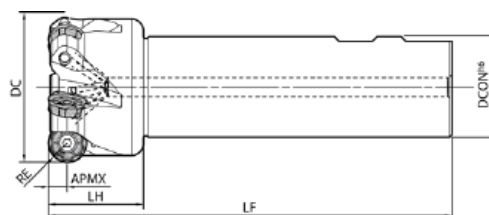


Fig. 9

Toolholder Dimensions

Unit		Part Number		Std. Item	No. of Inserts	Dimensions						A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Applicable Inserts ➡ M291
						RE	DC	DCON	LF	LH	APMX						
Inch	Weldon	Standard Shank	MRX 0625-W625-08-2T	●	2		0.625	0.625	4.331	2.386		+3	-6.5	No	38,000	5	RDGT0803... RDMT0803...
			0750-W750-08-2T	●	2	0.157 (4mm)	0.750	0.750	4.724	2.654	0.157 (4mm)	+10	-5.5	Yes	32,000	6	
			1000-W100-08-4T	●	4		1.000	1.000	4.724	2.406					28,000	7	
			MRX 1000-W100-10-3T	●	3	0.197 (5mm)	1.000	1.000	4.724	2.409	0.197 (5mm)	+10	-5.5	Yes	28,000	7	RPGT10T3... RPMT10T3...
			1250-W125-10-4T	●	4		1.250	1.250	5.512	3.197					22,500	7	
			MRX 1250-W125-12-3T	●	3	0.236 (6mm)	1.250	1.250	5.512	3.189	0.236 (6mm)	+10	-5.5	Yes	24,500	7	RPGT1204... RPMT1204... RPMW1204...
			1500-W125-12-4T	●	4		1.500	1.250	5.512	1.575					21,000	8	
			MRX 2000-W150-16-4T	●	4	0.315 (8mm)	2.000	1.500	6.693	1.575	0.315 (8mm)	+10	-5.5	Yes	15,500	8	RPGT1605... RPMT1605... RPMW1605...

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

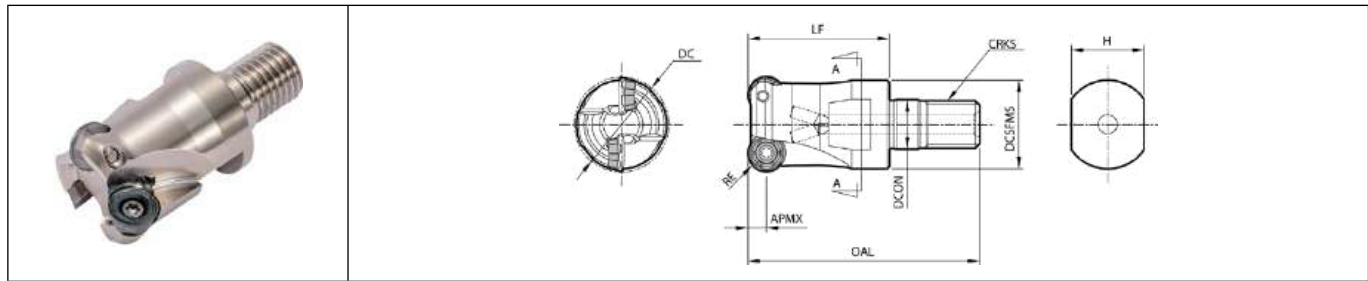
Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	Dimensions						A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Fig.	Applicable Inserts M291
					RE	DC	DON	LF	LH	APMX						
mm	Cylindrical	Standard Shank	MRX 16-S16-08-2T	● 2	4	16	16	110	40	4	+3	-5.5	No	38,000	1	RDGT0803... RDMT0803...
			20-S20-08-2T	● 4		20	20	120			+10		Yes	32,000	2	
			25-S25-08-4T	● 4		25	25							28,000	2	
			MRX 20-S20-10-2T	● 2	5	20	20	120	40	5	+5	-8	No	30,000	1	RPGT10T3... RPMT10T3...
			25-S25-10-3T	● 3		25	25				+10		Yes	28,000	2	
			32-S32-10-4T	● 4		32	32	140						22,500	2	
			MRX 32-S32-12-3T	● 3	6	32	32	140	40	6	+10	-5.5	Yes	24,500	2	RPGT1204... RPMT1204... RPMW1204...
			40-S32-12-4T	● 4		40								21,000	3	
			50-S42-12-5T	● 5		50	42	170						18,000	3	
			MRX 40-S32-16-2T	● 2	8	40	32	140	40	8	+10	-5.5	Yes	18,000	3	RPGT1605... RPMT1605... RPMW1605...
			50-S42-16-4T	● 4		50	42	170						15,500	3	
			63-S42-16-5T	● 5		63								13,500	4	
	Weldon	Standard Shank	MRX 16-W16-08-2T	● 2	4	16	16	89	40	4	+3	-5.5	No	38,000	5	RDGT0803... RDMT0803...
			20-W20-08-2T	● 4		20	20	91			+10		Yes	32,000	6	
			25-W25-08-4T	● 4		25	25	97						28,000	7	
			MRX 20-W20-10-2T	● 2	5	20	20	91	40	5	+5	-8	No	30,000	5	RPGT10T3... RPMT10T3...
			25-W25-10-3T	● 3		25	25	97			+10		Yes	28,000	7	
			32-W32-10-4T	● 4		32	32	101						22,500	7	
			MRX 32-W32-12-3T	● 3	6	32	32	101	40	6	+10	-5.5	Yes	24,500	7	RPGT1204... RPMT1204... RPMW1204...
			40-W32-12-4T	● 4		40								21,000	8	
			50-W40-12-5T	● 5		50	40	111						18,000	8	
			MRX 40-W32-16-2T	● 2	8	40	32	101	40	8	+10	-5.5	Yes	18,000	8	RPGT1605... RPMT1605... RPMW1605...
			50-W40-16-4T	● 4		50		111						15,500	8	
			63-W40-16-5T	● 5		63		112						13,500	9	
	Cylindrical	Long Shank	MRX 16-S16-08-2T-160	● 2	4	16	16	160	70	4	+3	-5.5	No	38,000	1	RDGT0803... RDMT0803...
			20-S20-08-2T-180	● 4		20	20	180			+10		Yes	32,000	2	
			25-S25-08-4T-180	● 4		25	25							28,000	2	
			MRX 20-S20-10-2T-180	● 2	5	20	20	180	80	5	+5	-8	No	30,000	1	RPGT10T3... RPMT10T3...
			25-S25-10-2T-180	● 4		25	25				+10		Yes	28,000	2	
			32-S32-10-4T-200	● 4		32	32	200						22,500	2	
			MRX 32-S32-12-2T-200	● 2	6	32	32	200	40	6	+10	-5.5	Yes	24,500	2	RPGT1204... RPMT1204... RPMW1204...
			40-S32-12-4T-200	● 4		40								21,000	3	
			50-S42-12-4T-300	● 4		50	42	300						18,000	3	
			MRX 40-S32-16-2T-200	● 2	8	40	32	200	40	8	+10	-5.5	Yes	18,000	3	RPGT1605... RPMT1605... RPMW1605...
			50-S42-16-4T-300	● 4		50	42	300						15,500	3	
			63-S42-16-4T-300	● 4		63								13,500	4	

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MRX (Modular Head)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions									A.R. Max. (°)	R.R. (°)	Coolant Hole	Max RPM	Applicable Inserts ➡ M291
				RE	DC	DCON	DCFMS	OAL	LF	APMX	CRKS	H					
mm	MRX 16-M08-08-2T 20-M10-08-2T 25-M12-08-4T	●	2	4	16	8.5	14.7	42	25	4	M8x1.25	12	+3	No	38,000	RDGT0803... RDMT0803...	
		●			20	10.5	18.7	48	30		M10x1.5	15	-5.5	Yes	32,000		
		●	4		25	12.5	23	56	35		M12x1.75	19	+10	Yes	28,000		
	MRX 20-M10-10-2T 25-M12-10-3T 32-M16-10-4T	●	2	5	20	10.5	18.7	48	30	5	M10x1.5	15	+5	-8	No	30,000	RPGT10T3... RPMT10T3...
		●	3		25	12.5	23	56	35		M12x1.75	19	-5.5	Yes	28,000		
		●	4		32	17	30	62	40		M16x2.0	24	+10	Yes	22,500		
	MRX 32-M16-12-3T 40-M16-12-4T	●	3	6	32	17	30	62	40	6	M16x2.0	24	+10	-5.5	Yes	24,500	RPGT1204... RPMT1204... RPMW1204...
		●	4		40											21,000	
	MRX 40-M16-16-2T	●	2	8	40	17	30	62	40	8	M16x2.0	24	+10	-5.5	Yes	18,000	RPGT1605... RPMT1605... RPMW1605...

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

See page M324 for applicable arbor (BT arbor for exchangeable head / double-face clamping spindle)

Spare Parts and Applicable Inserts (Inch and Metric End Mills)

Part Number	Insert Screw	Wrench		Anti-seize Compound	Applicable Inserts ➡ M291
		DTPM 	TTP 		
MRX ...-08...	SB-2555TRP	DTPM-8		P-37	RDMT0803M0ER-GM RDGT0803M0ER-GM RDGT0803M0ER-SM RDMT0803M0EN-GH * 1
	Recommended tightening torque for insert screw 1.2N·m				
MRX ...-10...	SB-3070TRP	DTPM-10		P-37	RPMT10T3M0ER-GM RPGT10T3M0ER-GM RPGT10T3M0ER-SM RPMT10T3M0EN-GH * 2
	Recommended tightening torque for insert screw 2.0N·m				
MRX ...-12...	SB-4090TRPN	DTPM-15		P-37	RPMT1204M0ER-GM RPGT1204M0ER-GM RPGT1204M0ER-SM RPMT1204M0EN-GH RPMW1204M0TNN * 3
	Recommended tightening torque for insert screw 3.5N·m				
MRX ...-16...	SB-50120TRP	TTP-20		P-37	RPMT1605M0ER-GM RPGT1605M0ER-GM RPGT1605M0ER-SM RPMT1605M0EN-GH RPMW1605M0TNN * 4
	Recommended tightening torque for insert screw 4.5N·m				

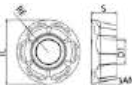
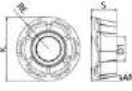
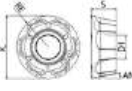
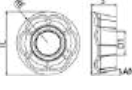
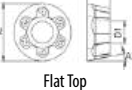
Max. Revolution

Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.

Coat anti-seize compound thinly on portion of taper and thread prior to installation.

- *1... Not compatible with the conventional RDMT08T2M0-H inserts.
- *2... Not compatible with conventional RPMT10T3M0 inserts (without ER-.. or EN-..)
- *3... Not compatible with conventional RPMT1204M0 and RPMT1204M0-H inserts (without ER-.. or EN-..)
- *4... Not compatible with the conventional RPMT1606M0-H inserts.

RDMT/RDGT/RPMT/RPGT/RPMW

Usage Classification		Material Groups										Applicable Toolholder		
		Carbon steel / Alloy steel		Mold and die steel		Austenitic stainless steel		Martensitic stainless steel		Precipitation hardened stainless steel		P		
★ : Roughing / 1st Choice												M		
☆ : Roughing / 2nd Choice												K		
■ : Finishing / 1st Choice												N		
□ : Finishing / 2nd Choice												S		
(Hardness 45HRC or under)												H		
Insert		Part Number		Dimensions (mm)				Angle (°)	Carbide					Applicable Toolholder ● M285~M290
				IC	S	D1	RE	AN	CVD	PVD				
										CA6535	PR1510	PR1525	PR1535		PR1810	PR1825	PR1835
	 General Purpose	RDGT 0803M0ER-GM	8	3.18	3	4	15	●	△	●	●	●	●	MRX...-08-..
		RPGT 10T3M0ER-GM	10	3.97	3.5	5	11	●	△	●	●	●	●	MRX...-10-..
		RPGT 1204M0ER-GM	12	4.76	4.6	6	11	●	△	●	●	●	●	MRX...-12-..
		RPGT 1605M0ER-GM	16	5.56	5.8	8	11	●	△	●	●	●	●	MRX...-16-..
	 General Purpose	RDMT 0803M0ER-GM	8	3.18	3	4	15	●	△	●	●	●	●	MRX...-08-..
		RPMT 10T3M0ER-GM	10	3.97	3.5	5	11	●	△	●	●	●	●	MRX...-10-..
		RPMT 1204M0ER-GM	12	4.76	4.6	6	11	●	△	●	●	●	●	MRX...-12-..
		RPMT 1605M0ER-GM	16	5.56	5.8	8	11	●	△	●	●	●	●	MRX...-16-..
	 Low Cutting Force	RDGT 0803M0ER-SM	8	3.18	3	4	15	●		●		●	●	MRX...-08-..
		RPGT 10T3M0ER-SM	10	3.97	3.5	5	11	●		●		●	●	MRX...-10-..
		RPGT 1204M0ER-SM	12	4.76	4.6	6	11	●		●		●	●	MRX...-12-..
		RPGT 1605M0ER-SM	16	5.56	5.8	8	11	●		●		●	●	MRX...-16-..
	 Tough Edge	RDMT 0803M0EN-GH	8	3.18	3	4	15	●	△	●	●	●	●	MRX...-08-..
		RPMT 10T3M0EN-GH	10	3.97	3.5	5	11	●	△	●	●	●	●	MRX...-10-..
		RPMT 1204M0EN-GH	12	4.76	4.6	6	11	●	△	●	●	●	●	MRX...-12-..
		RPMT 1605M0EN-GH	16	5.56	5.8	8	11	●	△	●	●	●	●	MRX...-16-..
	 Flat Top (Heavy Milling)	RPMW 1204M0TN	12	4.76	4.6	6	11			●	●			MRX...-12-..
		RPMW 1605M0TN	16	5.56	5.8	8	11			●	●			MRX...-16-..

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Chipbreaker / Feed Rate (fz: ipt)					Recommended Insert Grade (Vc: sfm)			
	RD.08... : D.O.C. = 0.079" RP.10... : D.O.C. = 0.098"		RP.12... : D.O.C. = 0.118" RP.16... : D.O.C. = 0.158"			MEGACOAT NANO EX (MEGACOAT NANO)			CVD Coated Carbide
	RDMT-GM RPMT-GM	RDGT-GM RPGT-GM	RDGT-SM RPGT-SM	RDMT-GH RPMT-GH	RPMW	PR1810 (PR1510)	PR1825 (PR1525)	PR1835 (PR1535)	CA6535
Carbon Steel	★ 0.004~0.008~0.012	☆ 0.004~0.008~0.012	☆ 0.002~0.006~0.008	☆ 0.006~0.012~0.014	☆ 0.006~0.012~0.016	-	★ 390~590~820	☆ 390~590~820	-
Alloy Steel	★ 0.004~0.008~0.012	☆ 0.004~0.008~0.012	☆ 0.002~0.006~0.008	☆ 0.006~0.012~0.014	☆ 0.006~0.012~0.016	-	★ 330~520~720	☆ 330~520~720	-
Mold Steel	★ 0.004~0.006~0.010	☆ 0.004~0.006~0.010	☆ 0.002~0.005~0.008	☆ 0.006~0.008~0.012	☆ 0.006~0.008~0.012	-	★ 260~460~590	☆ 260~460~590	-
Austenitic Stainless Steel	☆ 0.004~0.006~0.008	☆ 0.004~0.006~0.008	★ 0.002~0.005~0.008	☆ 0.006~0.008~0.010	☆ 0.006~0.008~0.010	-	☆ 330~520~660	★ 330~520~660	-
Martensitic Stainless Steel	☆ 0.004~0.006~0.008	☆ 0.004~0.006~0.008	★ 0.002~0.005~0.008	☆ 0.006~0.008~0.010	☆ 0.006~0.008~0.010	-	-	☆ 490~660~820	★ 590~790~980
Precipitation Hardened Stainless Steel	☆ 0.004~0.006~0.008	★ 0.004~0.006~0.008	☆ 0.002~0.005~0.008	☆ 0.006~0.008~0.010	☆ 0.006~0.008~0.010	-	-	★ 300~390~490	-
Gray Cast Iron	★ 0.004~0.008~0.012	☆ 0.004~0.008~0.012	-	☆ 0.006~0.012~0.014	☆ 0.006~0.012~0.016	★ 390~590~820	-	-	-
Nodular Cast Iron	★ 0.004~0.006~0.010	☆ 0.004~0.006~0.010	-	☆ 0.006~0.008~0.012	☆ 0.006~0.010~0.014	★ 330~490~660	-	-	-
Ni-base Heat-Resistant Alloy	☆ 0.004~0.005~0.006	★ 0.004~0.005~0.006	☆ 0.002~0.004~0.006	☆ 0.005~0.006~0.008	☆ 0.005~0.006~0.008	-	-	☆ 70~100~160	★ 70~100~160
Titanium Alloy	☆ 0.004~0.005~0.006	☆ 0.004~0.005~0.006	★ 0.002~0.004~0.006	-	-	☆ 100~160~230	-	★ 130~200~260	-

• Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy.

• RDGT / RPGT are recommended for Stainless Steel, Ni-base Heat Resistant Alloy, and Titanium Alloy.

• The figure in bold font is the starting value of the recommended cutting conditions.

Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

• Recommended feed rate is the reference value when D.O.C. is $r_e/2$ (0.079" for RD.08 / 0.098" for RP.10 / 0.118" for RP.12 / 0.158" for RP.16).

For other D.O.C., calculate the recommended feed rate based on the conversion factor below.

• For MRX16-S16-08-2T(-160), MRX16-W-08-2T, MRX20-S20-10-2T(-180), MRX20-W20-10-2T, MRX0625-W625-08-2T, MRX0625-S625-08-2T-6 set the feed rate no higher than 50% of the recommended cutting conditions.

★ : 1st Recommendation ☆ : 2nd Recommendation

Conversion Factor for Feed Per Tooth by Depth of Cut (D.O.C.)

Insert	D.O.C. (Max.)	Conversion Factor for Feed Per Tooth									
		D.O.C. = 0.020" (0.5mm)	D.O.C. = 0.039" (1.0mm)	D.O.C. = 0.059" (1.5mm)	D.O.C. = 0.079" (2.0mm)	D.O.C. = 0.098" (2.5mm)	D.O.C. = 0.118" (3.0mm)	D.O.C. = 0.158" (4.0mm)	D.O.C. = 0.197" (5.0mm)	D.O.C. = 0.236" (6.0mm)	D.O.C. = 0.315" (8.0mm)
RD.08... (GM/SM/GH Chipbreaker)	0.158" (4mm)	1.7	1.3	1.1	1.0 (Standard)	0.9	0.8	0.8	-	-	-
RP.10... (GM/SM/GH Chipbreaker)	0.197" (5mm)	1.9	1.4	1.2	1.0	1.0 (Standard)	0.9	0.8	0.8	-	-
RP.12... (GM/SM/GH Chipbreaker)	0.236" (6mm)	2.1	1.5	1.3	1.1	1.0	1.0 (Standard)	0.9	0.8	0.8	-
RP.16... (GM/SM/GH Chipbreaker)	0.315" (8mm)	2.4	1.7	1.4	1.3	1.1	1.1	1.0 (Standard)	0.9	0.8	0.8

Calculation Example (RPMT12..., Carbon Steel, GM Chipbreaker, D.O.C. = 0.039")

fz = 0.008 ipt (Standard value for carbon steel and GM chipbreaker)	×	1.5 (Conversion factor for ROMU12 type, D.O.C. = 0.039")	=	fz = 0.012 ipt (Recommended feed rate)
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Maximum Depth of Cut and Usable Edges

Usable Edges	Insert Radius			
	R4	R5	R6	R8
3 Edges	D.O.C. = 0.079"~0.158"	D.O.C. = 0.098"~0.197"	D.O.C. = 0.118"~0.236"	D.O.C. = 0.158"~0.315"
6 Edges	Less than D.O.C. = 0.079"	Less than D.O.C. = 0.098"	Less than D.O.C. = 0.118"	Less than D.O.C. = 0.158"

Drilling Conditions

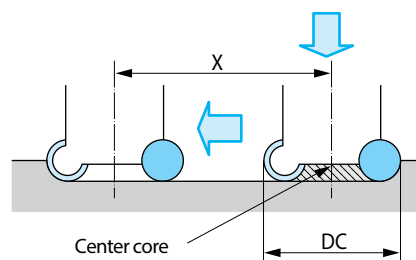
[Drilling Depth]

See Max. Cutting Depth (Pd) in the table below.

[Traversing After Drilling]

Caution when Traversing right after Drilling

- 1 . Reduce the table feed by 50% of the recommended conditions until the center core part is completely cut off. The internal cutting edge's radial rake angle is large in the negative direction.
- 2 . Min cutting length for flat bottom face (X) is in the table to the right.



Inch					mm				
Inch Tool Spec.		Max D.O.C.	Max. Cutting Depth (Pd)	Min. Cutting Length for Flat Bottom Face (X)	Metric Tool Spec.		Max D.O.C.	Max. Cutting Depth (Pd)	Min. Cutting Length for Flat Bottom Face (X)
Insert	Tool Dia.				Insert	Tool Dia. Metric			
RD..08	0.625	0.157	0.028	0.349	RD..08	16	4	0.7	9
	0.750	0.157	0.055	0.474		20	4	1.4	13
	1.000	0.157	0.055	0.724		25	4	1.4	18
RP..10	0.750	0.197	0.024	0.396	RP..10	20	5	0.6	11
	1.000	0.197	0.075	0.646		25	5	1.9	16
	1.250	0.197	0.075	0.896		32	5	1.9	23
	1.500	0.197	0.075	1.146		40	5	1.9	31
	2.000	0.197	0.075	1.646		50	5	1.9	41
	2.500	0.197	0.075	2.146		63	5	1.9	54
RP..12	1.250	0.236	0.094	0.817	RP..12	32	6	2.4	21
	1.500	0.236	0.094	1.067		40	6	2.4	29
	2.000	0.236	0.094	1.567		50	6	2.4	39
	2.500	0.236	0.094	2.067		63	6	2.4	52
	3.000	0.236	0.094	2.567		80	6	2.4	69
	4.000	0.236	0.094	3.567		100	6	2.4	89
RP..16	1.500	0.315	0.134	0.909	RP..16	40	8	3.4	25
	2.000	0.315	0.134	1.409		50	8	3.4	35
	2.500	0.315	0.134	1.909		63	8	3.4	48
	3.000	0.315	0.134	2.409		80	8	3.4	65
	4.000	0.315	0.134	3.409		100	8	3.4	85
	5.000	0.315	0.134	4.346		125	8	3.4	110

• Above value is based on the clearance of 0.039" between the tool and the workpiece.

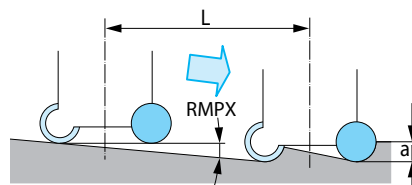
Ramping Conditions

Ramping angle should be under RMPX (maximum ramping angle) in the table below.

Feed rate should be under 70% of the cutting conditions on page **M284**

Formula of the cutting length "L" at max. ramping angle

$$L = \frac{\text{D.O.C.}}{\tan \text{RMPX}}$$



Inch						mm					
Inch Tool Spec.		Max D.O.C.	Max Ramping Angle RMPX	tan RMPX	Max. Cutting Length at Max. Ramping Angle (L)	Metric Tool Spec.		Max D.O.C.	Max Ramping Angle RMPX	tan RMPX	Max. Cutting Length at Max. Ramping Angle (L)
Insert	Tool Dia.					Insert	Tool Dia. Metric				
RD..08	0.625	0.157	7°	0.123	1.282	RD..08	16	4	8°	0.141	28
	0.750	0.157	9°	0.158	0.994		20	4	9°	0.158	25
	1.000	0.157	5°	0.087	1.800		25	4	5°	0.087	45
RP..10	0.750	0.197	4°	0.070	2.816	RP..10	20	5	5°	0.087	57
	1.000	0.197	9°	0.158	1.243		25	5	10°	0.176	28
	1.250	0.197	6°	0.105	1.873		32	5	6°	0.105	47
	1.500	0.197	4°	0.070	2.816		40	5	4°	0.070	71
	2.000	0.197	3°	0.052	3.757		50	5	3°	0.052	95
	2.500	0.197	2°	0.035	5.640		63	5	2°	0.035	143
RP..12	1.250	0.236	9°	0.158	1.491	RP..12	32	6	9°	0.158	37
	1.500	0.236	6°	0.105	2.248		40	6	5°	0.087	68
	2.000	0.236	4°	0.070	3.379		50	6	4°	0.070	85
	2.500	0.236	2°	0.035	6.768		63	6	2°	0.035	171
	3.000	0.236	2°	0.035	6.768		80	6	2°	0.035	171
	4.000	0.236	1°	0.017	13.498		100	6	1°	0.017	343
RP..16	1.500	0.315	12°	0.213	1.481	RP..16	40	8	11°	0.194	41
	2.000	0.315	6°	0.105	2.997		50	8	7°	0.123	65
	2.500	0.315	4°	0.070	4.506		63	8	4°	0.070	114
	3.000	0.315	3°	0.052	6.011		80	8	3°	0.052	152
	4.000	0.315	2°	0.035	9.025		100	8	2°	0.035	229
	5.000	0.315	1°	0.017	17.998		125	8	1°	0.017	458

• Above value is based on the clearance of 0.039° between the tool and the workpiece.

M
MILLING

45°-70°
Lead Angle

75°
Lead Angle

88°-90°
Lead Angle

Finish
Milling

High Feed
Milling

Multi-
Functional

Slot
Mills

Ball-Nose
Radius

Other
Applications

Helical Milling Conditions

- Sinking depth (h) when helical milling should be under Max D.O.C. in table below. Sinking angle α (with trajectory of the center line of tool) should be under RMPX (maximum ramping angle) in cutting conditions on page M286.
- Feed rate should be under 70% of recommended cutting conditions on page M284.
- Climb milling is recommended.

Formula for sinking depth (h)

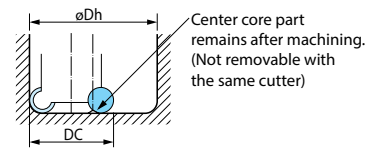
$$h = \pi \times \phi D_s \times \tan \alpha$$

(h should be D.O.C. or under)
(α should be RMPX or under)

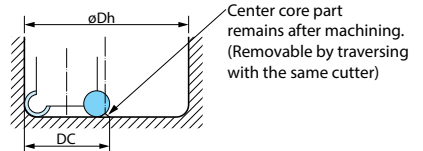
ϕD_s (Trajectory diameter of cutter's center line)
 $\phi D_s = \phi D_h - DC$

Requirements for Removing Core

[When cutting dia. $\phi D_h1 \leq \phi D_h < \phi D_h2$]



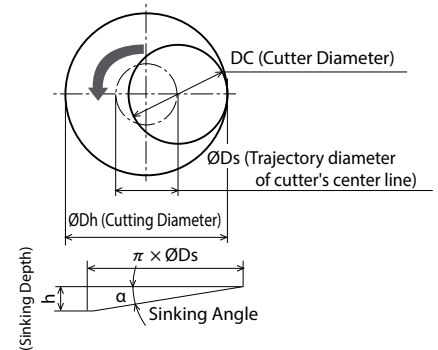
[When cutting dia. $\phi D_h2 \leq \phi D_h \leq \phi D_h3$]



Inch						mm					
Inch Tool Spec.		Max D.O.C.	Min. Cutting Dia. (ϕD_h1)	Min. Cutting Dia. for Flat Bottom Facing (ϕD_h2)	Max. Cutting Dia. (ϕD_h3)	Metric Tool Spec.		Max D.O.C.	Min. Cutting Dia. (ϕD_h1)	Min. Cutting Dia. for Flat Bottom Facing (ϕD_h2)	Max. Cutting Dia. (ϕD_h3)
Insert	Tool Dia.					Insert	Tool Dia. Metric				
RD..08	0.625	0.157	7°	0.123	1.282	RD..08	16	4	8°	0.141	28
	0.750	0.157	9°	0.158	0.994		20	4	9°	0.158	25
	1.000	0.157	5°	0.087	1.800		25	4	5°	0.087	45
RP..10	0.750	0.197	4°	0.070	2.816	RP..10	20	5	5°	0.087	57
	1.000	0.197	9°	0.158	1.243		25	5	10°	0.176	28
	1.250	0.197	6°	0.105	1.873		32	5	6°	0.105	47
	1.500	0.197	4°	0.070	2.816		40	5	4°	0.070	71
	2.000	0.197	3°	0.052	3.757		50	5	3°	0.052	95
	2.500	0.197	2°	0.035	5.640		63	5	2°	0.035	143
RP..12	1.250	0.236	9°	0.158	1.491	RP..12	32	6	9°	0.158	37
	1.500	0.236	6°	0.105	2.248		40	6	5°	0.087	68
	2.000	0.236	4°	0.070	3.379		50	6	4°	0.070	85
	2.500	0.236	2°	0.035	6.768		63	6	2°	0.035	171
	3.000	0.236	2°	0.035	6.768		80	6	2°	0.035	171
	4.000	0.236	1°	0.017	13.498		100	6	1°	0.017	343
RP..16	1.500	0.315	12°	0.213	1.481	RP..16	40	8	11°	0.194	41
	2.000	0.315	6°	0.105	2.997		50	8	7°	0.123	65
	2.500	0.315	4°	0.070	4.506		63	8	4°	0.070	114
	3.000	0.315	3°	0.052	6.011		80	8	3°	0.052	152
	4.000	0.315	2°	0.035	9.025		100	8	2°	0.035	229
	5.000	0.315	1°	0.017	17.998		125	8	1°	0.017	458

• Above value is based on the clearance of 0.039" between the tool and the workpiece.

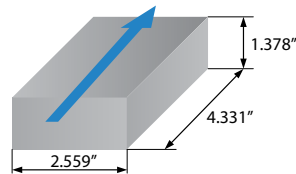
Helical Milling Factors



Case Studies

304 Stainless Steel

Vc = 375 sfm
fz = 0.006 ipt
D.O.C. $\times$ ae = 0.039" $\times$ 2.559"
Dry
MRX100R-12-9T-M
(9 Flutes)
RPGT1204M0ER-SM
(PR1535)



4.5 times longer tool life

PR1535

450 pcs/edge

Conventional

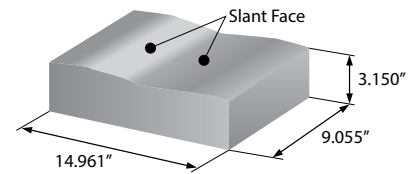
100 pcs/edge

- High cost efficiency with 4.5 times longer tool life and 1.5 times more insert edges.
- MRX prevented burr formation and improved surface finish.

(User evaluation)

H13 (45HRC) Alloy Tool Steel

Vc = 330 sfm
fz = 0.004 ipt
D.O.C. $\times$ ae = 0.039~0.079" $\times$ 0.394"
Dry
MRX20-S20-08-2T
(2 Flutes)
RDGT0803M0ER-GM
(PR1525)



More than double tool life

PR1525

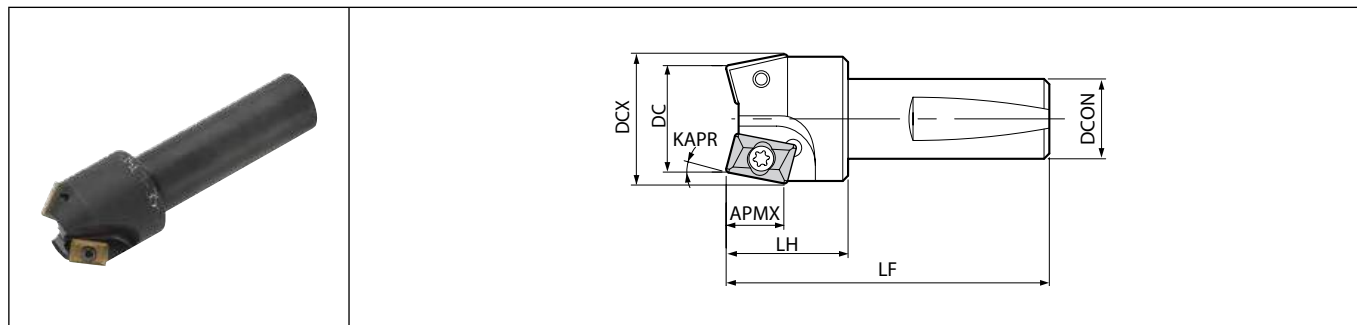
2 pcs and more Stable tool life

Conventional

1 pc unstable tool life

- Conventional tool machined only 1 pc of workpiece due to unstable tool life, but MRX doubled the tool life with stable machining.

(User evaluation)

CM (Chamfer End Mill)

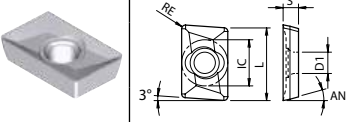
Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						KAPR (°)	Coolant Hole	Spare Parts		Applicable Inserts ➡ M297
				DCX	DC	DCON	LF	LH	APMX			Insert Screw	Wrench	
														
Inch	CM 0563-15-09	●	2	0.741	0.563	0.500	2.780	1.000	0.340	15	No	SCR-04	T7	XPMT090208
	0563-20-09	●		0.795					0.330	20				
	0563-25-09	●		0.849					0.310	25				
	0563-30-09	●		0.901					0.300	30				
	0563-35-09	●		0.951	0.563	0.625	2.910	1.000	0.280	35		SCR-04		
	0563-45-09	●		1.041					0.240	45				
	0563-60-09	●		1.165					0.160	60		SCR-01		
	0563-75-09	●		1.217					0.080	75				
	CM 1000-03	●	2	1.062	1.000	0.750	3.150	1.250	0.589	3	No	SCR-16	T10	XPMT15T3...
	1000-05	●		1.104					0.586	5				
	1000-10	●		1.206					0.577	10				
	1000-15	●		1.308					0.564	15				
	1000-20	●		1.408					0.547	20				
	1000-25	●		1.504					0.526	25				
	1000-30	●		1.596					0.501	30		SCR-30		
	1000-35	●		1.686					0.472	35				
	1000-37.5	●		1.744					0.456	37.5		SCR-30		
	1000-41	●		1.786					0.433	41				
	1000-45	●		1.800					0.400	45				
	1000-50	●		1.908					0.376	50				
	1000-55	●		2.014					0.327	55				
	1000-60	●		2.042					0.284	60				
	1000-70	●		2.094					0.193	70				
	1000-75	●		2.168					0.146	75				

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

M
MILLING
45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

XPMT

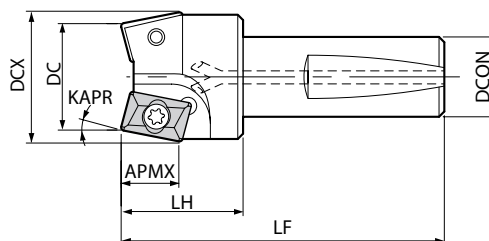
Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel										★	■	P	
		Mold and die steel										★	■		
		Stainless steel											★	M	
		Gray cast iron											★	K	
		Nodular cast iron											★		
		Non-ferrous metals												N	
		Heat-resistant alloy										★	☆	S	
		Titanium alloy											☆		
		Hard materials												H	
Insert	Part Number	No. of Edges	Dimensions (in)					Angle (°)		Carbide		Cermat		Applicable Toolholder M296 M190~M192	
			IC	S	D1	RE	INSL	AN	AS	CVD	PVD	-	-		
	XPMT 090208	2	1/4	0.094	0.110	0.031	0.375	11	-	●	●	●	●	CM...-09 EM...-09(-3F)	
	XPMT 15T304	2	3/8	0.156	0.157	0.016	0.607	11	-	●	●	●	●	CM1000-... EM0625 EM0688 EM0750 EM0875 EM0938 EM1000(-100S) EM1125 EM1250(-3F) EM1375 EM1500(-3F) EM...-2.5 EM...-3.5 EM...-LE FM...-90RH	
	15T308					0.031				●	●	●	●		
	15T316					0.063				●	●	●	●		
	15T324					0.094				●	●	●	●		
	15T331					0.122				●	●	●	●		
	15T364					0.250				●	●	●	●		

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm)				
		MEGACOAT NANO			CVD Coated Carbide	Cermat
		PR1535	PR1525	PR1510	CA6535	TN100M
Carbon Steel	0.003~0.006	★ 400~800	★ 400~800	-	-	★ 800~1400
Alloy Steel	0.003~0.006	★ 300~700	★ 300~700	-	-	★ 600~1200
Mold Steel	0.003~0.006	★ 250~600	★ 250~600	-	-	★ 400~700
Stainless Steel	0.002~0.006	★ 300~600	☆ 300~600	-	★ 550~950	☆ 300~800
Cast Iron	0.003~0.008	-	-	★ 400~800	-	☆ 400~1200
Non-ferrous Metals	0.005~0.007	-	-	-	-	☆ 1500~1800
Heat-resistant Alloy	0.002~0.005	☆ 70~160	-	-	★ 70~160	-
Titanium Alloy	0.002~0.005	☆ 130~260	-	☆ 100~230	-	-

★ : 1st Recommendation ☆ : 2nd Recommendation

CM-AL (Chamfer End Mill, for Aluminum)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions						KAPR (°)	Coolant Hole	Spare Parts		Applicable Inserts ➡ M302 M217	
				DCX	DC	DCON	LF	LH	APMX			Insert Screw	Wrench		
															
Inch	CM 1000-15-AL	●	2	1.316	1.000	0.750	3.250	1.350	0.613	15.0	Yes	SCR-02	T15	APET1604...	
	1000-20-AL	●		1.416					0.595	20.0					
	1000-30-AL	●		1.608					0.544	30.0					
	0800-45-AL	●		1.66	0.800				0.440	45.0					
	0800-60-AL	●		1.856					0.308	60.0					
	0690-75-AL	●		1.872	0.690				0.158	75.0					

Coat Anti-seize Compound thinly on portion of taper and thread prior to installation.

APET

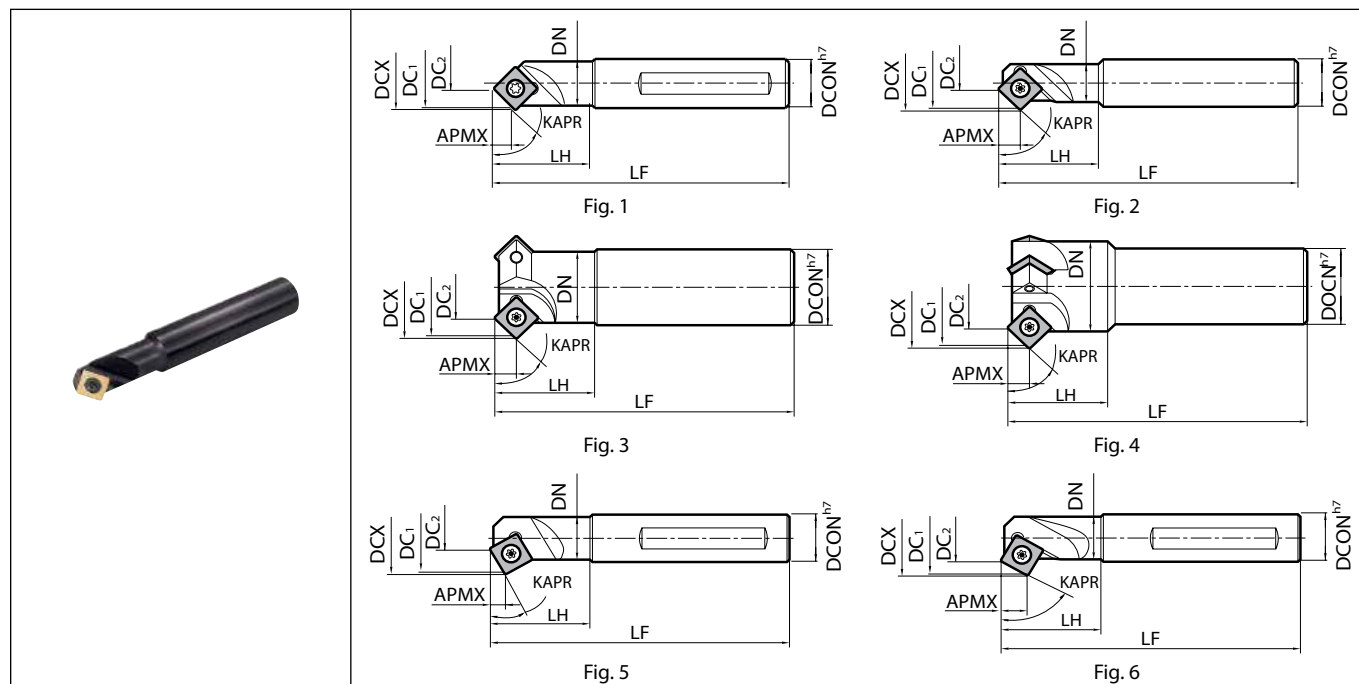
Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)		Carbon steel / Alloy steel								P				
		Mold and die steel												
		Stainless steel								M				
		Gray cast iron								K				
		Nodular cast iron												
		Non-ferrous metals						★		N				
		Heat-resistant alloy								S				
		Titanium alloy												
Hard materials								H						
Insert		Part Number		No. of Edges	Dimensions (in)					Angle (°)		Carbide	Applicable Toolholder ➡ M298 M216	
					IC	S	D1	RE	INSL	AN	AS			
		APET 1604PDR 160416 160431		2	3/8	0.188	0.157	0.039	0.630	11	-	●		CM...-AL EM...-AL FMAL... FM...-90-AL
								0.062						
								0.125						

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm)	
		Uncoated Carbide	
		KW10	
Non-ferrous Metals	0.005~0.007	2,000~4,000	

APET Inserts are sold in 10 piece boxes

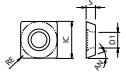
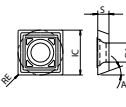
MCSE



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions								Standard corner-R(RE)	KAPR (°)	A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts			Applicable Inserts ➡ M300
				DCX	DC1	DC2	DCON	LF	LH	APMX	DN							Insert Screw	Wrench	Wrench	
mm	MCSE 104	●	1	16	15	4	16	85	31	6.5	15	0.4	45	0	-4.5	No	1	SB-3060TR	DT-10	-	SDKW09T2... SDMT31.81C
	106	●		22	21	6	20	121	41	8.6	16	2					SB-5090TR	-	LTW-20	SEKW42... SEMT421C	
	115	●		31	30	15					18	2									
	227	●		2	43	42					27	30									3
	336	●	3	52	51	36	32				38	4									
	MCSE 104-30D	●	1	19	18	4	16	85	31	4.7	15	0.4	30	0	-4	No	5	SB-3060TR	DT-10	-	SDKW09T2... SDMT31.81C
	108-30D	●		28	27	8	20	110	41	6.3	19	5					SB-5090TR	-	LTW-20	SEKW42... SEMT421C	
	110-30D	●		30	28	10		120	40		18	5									
	MCSE 108-60D	●	1	19.5	19	8	20	110	41	10	19	0.8	60	0	-3.5	No	6	SB-5070TR	-	LTW-20	SEKW42... SEMT421C
	120-60D	●		31	30	20		120	40		18						6	SB-5090TR			

SDKW/SDMT/SEKW/SEMT

Usage Classification				Carbon steel / Alloy steel		★	☆	■	P			
				Mold and die steel		★	☆	■				
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)				Stainless steel		★	☆	■	M			
				Gray cast iron			☆					
				Nodular cast iron					K			
				Non-ferrous metals			★					
				Heat-resistant alloy					S			
				Titanium alloy			☆					
				Hard materials					H			
Insert		Part Number ANSI	Part Number ISO	Dimensions (in)				Angle (°)	Carbide	Cermet	Applicable Toolholder ➡ M299	
				IC	S	D1	RE	AN	PVD PR1825	- KW10		- TN100M
		(Use ISO Part Number)	SDKW 09T204FN	3/8	0.109	0.134	1/64	15		●	MCSE104-30D MCSE104	
			SDKW 09T204TN	3/8	0.109	0.134	1/16	15	●		●	MCSE104-30D MCSE104
		SEKW 421FN 422FN	SEKW 120304FN 120308FN	1/2	1/8	0.217	1/16 1/32	20		●	●	MCSE106, MCSE108...D MCSE110-30D, MCSE115 MCSE120-60D, MCSE227 MCSE336
		SEKW 421TN 422TN	SEKW 120304TN 120308TN	1/2	1/8	0.217	1/64 1/32	20	●		●	
		SDMT 31.81C	SDMT 09T204C	3/8	0.109	0.134	1/64	15	●	●	●	MCSE104-30D MCSE104
		SEMT 421C	SEMT 120304C	1/2	1/8	0.217	1/64	20	●		●	MCSE106, MCSE108...D MCSE110-30D, MCSE115 MCSE120-60D, MCSE227 MCSE336

Recommended Cutting Conditions ➡ M301

M
MILLING45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
ApplicationsSDKW / SDMT / SEKW / SEMT Inserts are
sold in 10 piece boxes

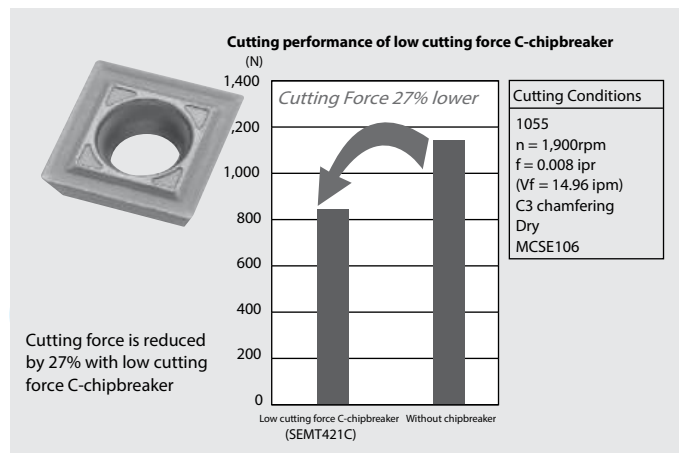
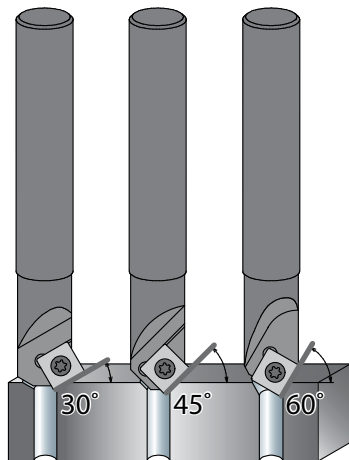
Applicable Inserts

Part Number		Applicable Inserts  M300		
				
MCSE	104 104-30D	SDKW 09T204TN	SDKW 09T204FN	SDMT 31.81C
MCSE	106 115 227 336	SEKW 421TN 422TN	SEKW 421FN 422FN	SEMT 421C
MCSE	108-30D 110-30D			
MCSE	108-60D 120-60D			

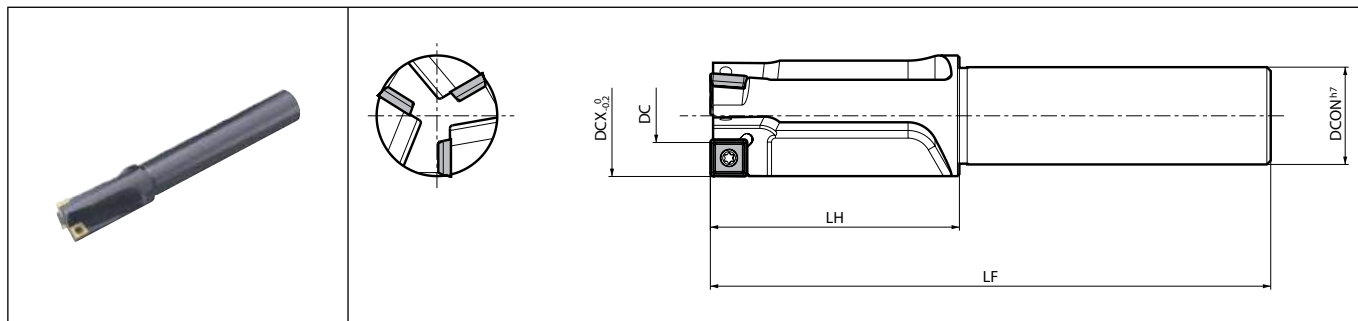
Recommended Cutting Conditions

Workpiece Material	fz (ipt)		Recommended Insert Grades (Vc: sfm)		
			Cermet	MEGACOAT NANO EX	Carbide
	DC ₂ (Ø4mm~Ø20mm)	DC ₂ (Ø27mm~Ø36mm)	TN100M	PR1825	KW10
Carbon Steel	0.002~0.010	0.008~0.016	★ 330~590	★ 390~820	-
Alloy Steel	0.002~0.010	0.008~0.016	★ 330~590	★ 330~720	-
Mold Steel	0.002~0.010	0.008~0.016	★ 330~490	★ 260~590	-
Stainless Steel	0.002~0.008	0.004~0.012	☆ 330~590	★ 390~720	-
Cast Iron	0.004~0.012	0.012~0.020	-	-	☆ 260~490
Non-ferrous Metals	0.004~0.012	0.012~0.020	-	-	★ 330~980

★ : 1st Recommendation ☆ : 2nd Recommendation



MEF (Bolt Countersink End Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	No. of Inserts	Dimensions					Standard corner-R(RE)	A.R. (°)	R.R. (°)	Objective bolt size	Coolant Hole	Spare Parts		Applicable Inserts ➡ M303	
				DC	DCX	DCON	LF	LH						Insert Screw	Wrench		
mm	MEF	11-S10	●	1	3	11	10	103	0.4	+5	-13	M6	No	SB-2250TR	DTM-7	SPMT060204EN-GM SPMT060208EN-GM SPMT060204E-Z SPMT060208E-Z	
		14-S12	●		4.5	14	12	108				28					M8
		17-S16	●	2	7.3	17.5	16	115				35					M10
		18-S16	●		7.7	18		117				38					-
		20-S16	●	3	9.5	20	20	120				40					M12
		22-S20	●		11.4	22		124				44					-
		23-S20	●		12.4	23		126				46					M14
		24-S20	●		13.4	24		128				48					-
		25-S20	●		14.4	25		130				50					-
	MEF	26-S25	●	3	9.8	26	25	132	52	0.8	+5	-13	M16	No	SB-3080TR	DT-10	SPMT090304EN-GM SPMT090308EN-GM SPMT090304E-Z SPMT090308E-Z
		27-S25	●		10.6	27		134	54				-				
		28-S25	●		11.5	28		136	56				-				
		29-S25	●		12.6	29		138	58				M18				
		30-S25	●		13.5	30		140	60				-				
		32-S25	●		15.5	32		144	64				M20				
		35-S32	●		18.4	35		150	70				M22				
		39-S32	●	4	22.5	39	32	158	78			M24					
		43-S32	●		26.2	43		166	86			M27					
		48-S32	●		31.3	48		176	96			M30					

Although Corner-R(RE) pertains to MEF11-S10, DC = 0.118" (3.0mm).

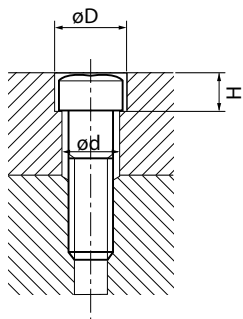
45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

SPMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or under)		Carbon steel / Alloy steel	★	☆	P						
		Mold and die steel	★	☆							
		Austenitic stainless steel	☆	★	M						
		Martensitic stainless steel		☆							
		Precipitation hardened stainless steel		★							
		Gray cast iron	★		☆	K					
		Nodular cast iron	★								
		Non-ferrous metals			★	N					
		Heat-resistant alloy			☆	S					
		Titanium alloy		★	☆						
		Hard materials				H					
Insert	Part Number	Dimensions (in)				Angle (°)	Carbide			Applicable Toolholder M302	
		IC	S	D1	RE	AN	PVD	-			
							PR1810	PR1825	PR1835		KW10
	General Purpose	SPMT 060204EN-GM	1/4	0.094	2.5	1/64	11	●	●	MEF(11~25)-S..	
		SPMT 060208EN-GM	3/8	1/8	3.4	1/64	11	●	●	MEF(26~48)-S..	
	Tough Edge	SPMT 060204E-Z	1/4	0.094	2.5	1/64	11	●	●	MEF(11~25)-S..	
		SPMT 060208E-Z	3/8	1/8	3.4	1/64	11	●	●	MEF(26~48)-S..	

SPMT Inserts are sold in 10 piece boxes

Bolt Countersink (Hexagon Socket Head Cap Screw)



Nominal Screw Size	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
øD (mm)	11	14	17.5	20	23	26	29	32	35	39	43	48
H (mm)	6.5	8.6	10.8	13	15.2	17.5	19.5	21.5	23.5	25.5	29	32
ød (mm)	6.6	9	11	14	16	18	20	22	24	26	30	33
Applicable End Mill	MEF11	MEF14	MEF17	MEF20	MEF23	MEF26	MEF29	MEF32	MEF35	MEF39	MEF43	MEF48

Recommended Cutting Conditions

Workpiece Material	fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)			
		MEGACOAT NANO EX			Carbide
		PR1810	PR1825	PR1835	KW10
Carbon Steel	0.004~0.006	-	★ 390~590~720	☆ 390~590~720	-
Alloy Steel	0.004~0.006	-	★ 390~590~720	☆ 390~590~720	-
Mold Steel	0.002~0.004	-	★ 330~490~590	☆ 330~490~590	-
Stainless Steel	0.002~0.004	-	-	★ 260~390~590	-
Cast Iron	0.004~0.008	★ 330~590~720	-	-	☆ 260~330~390
Non-ferrous Metals	0.004~0.008	-	-	-	★ 330~660~980

★ : 1st Recommendation ☆ : 2nd Recommendation

Bolt Countersinking Recommendations

1. Carbon steel

Increase the feed rate to **$fz = 0.004 \sim 0.006$ ipt** for preventing long chips at low feed rates.

Chip control is good when setting (**$Vc = 260$ sfm**) for **MEF11~MEF25**, and (**$Vc = 390$ sfm**) for **MEF26~MEF48**.

Toolholder Description	Vc (sfm)	fz (ipt)
MEF11~MEF25	260	0.1~0.15
MEF26~MEF48	390	0.1~0.15

2. Sticky materials

Step feed is recommended for good chip control

Increase the feed rate to **$fz = 0.004 \sim 0.006$ ipt** for preventing long chips at low feed rate (**$fz = 0.002$ ipt**).

Use cover to prevent accidents or injury by thick chips at higher feed rates.

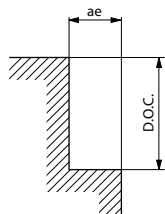
Toolholder Description	Vc (sfm)	fz (ipt)	Step Feed (in)
MEF11~MEF48	260~490	0.004~0.006	0.020~0.059

3. Stainless steel

Use a lower cutting speed. High cutting speeds cause chattering.

Cutting Performance when Shouldering

MEF bolt countersink end mill is also recommended of shouldering.



$Vc = 260 \sim 390$ sfm

1055

Dry

Overhang length:

Same as LH in the dimension table

- When shouldering, both side edge and bottom edges function.
- Both edges wear at the same time depending on D.O.C.. The insert uses 2 edges instead of 4. (Fig. 1)
- MEF type's side edge is designed to have a slight clearance for the countersinking. Therefore, worked side wall is approx. 1° inclined against the vertical face. (Fig. 2)

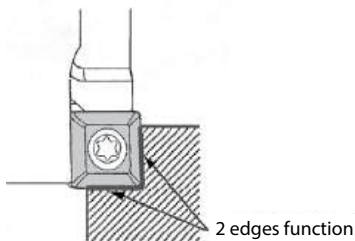


Fig. 1

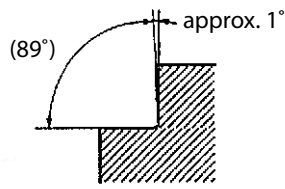
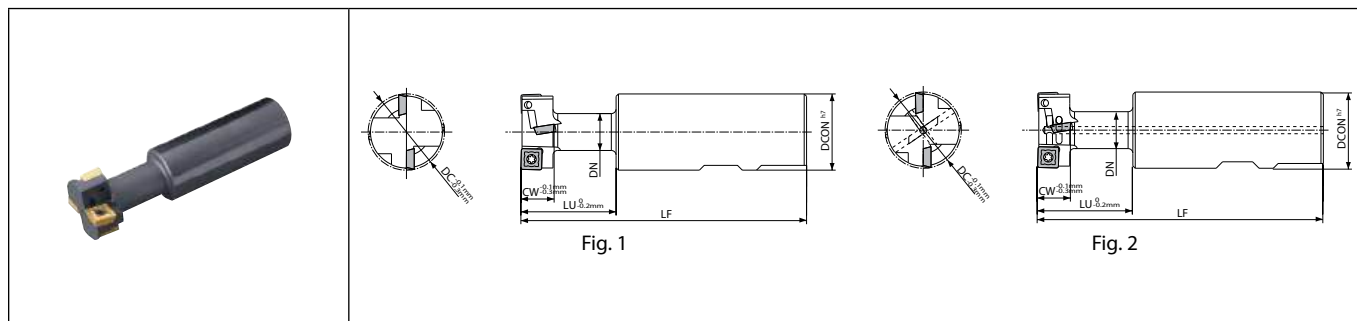


Fig. 2

Description	Cutting Range
MEF11-S12 MEF14-S12 MEF17-S16 MEF18-S16	
MEF20-S16 MEF22-S20 MEF25-S20	
MEF26-S25 MEF32-S25 MEF35-S32	
MEF39-S32 MEF43-S32 MEF48-S32	

METS (T-Slot End Mill)



Toolholder Dimensions

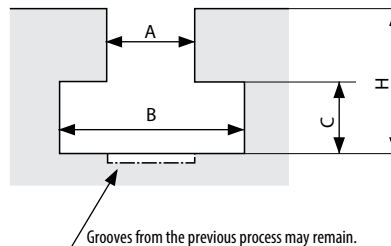
Unit	Part Number	Std. Item	No. of Inserts	No. of Flutes	Dimensions						A.R. (°)	R.R. (°)	Coolant Hole	Fig.	Spare Parts		Applicable Inserts M306
															Insert Screw	Wrench	
					DC	DCON	LF	LU	CW	DN							
mm	METS 21-S25	●	2	1	21	25	109	29	9	10.5	+9	-10	No	1	SB-2560TR	DT-8	SDMT221E-K
	25-S25	●			25		112	32	11	12.5				1	SB-2560TR	DT-8	SDMT221E-K
	32-S32	●	4	2	32		120	38	14	15.5				1	SB-3060TR	DT-10	SDMT080308E-K
	40-S32	●			40	32	130	50	18	20.5				1	SB-4085TR	DT-15	SDMT432E-K
	50-S32	●			50		140	60	22	26.5				1	SB-4085TR	DT-15	SDMT432E-K
	METS 21-S25-H	●	2	1	21	25	109	29	9	10.5	+9	-10	Yes	2	SB-2560TR	DT-8	SDMT221E-K
	25-S25-H	●			25		112	32	11	12.5				2	SB-2560TR	DT-8	SDMT221E-K
	32-S32-H	●	4	2	32		120	38	14	15.5				2	SB-3060TR	DT-10	SDMT080308E-K
	40-S32-H	●			40	32	130	50	18	20.5				2	SB-4085TR	DT-15	SDMT432E-K
	50-S32-H	●			50		140	60	22	26.5				2	SB-4085TR	DT-15	SDMT432E-K

METS...-H has air holes

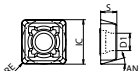
JIS standard of T-slot (Extracted from B0952)

(Unit: mm)

A (Nominal Size)	B	C	H	
			Max.	Min.
12	19 ⁺² / ₀	8 ⁺¹ / ₀	25	20
14	23 ⁺² / ₀	9 ⁺² / ₀	28	23
18	30 ⁺² / ₀	12 ⁺² / ₀	36	30
22	37 ⁺³ / ₀	16 ⁺² / ₀	45	38
28	46 ⁺⁴ / ₀	20 ⁺² / ₀	56	48



SDMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)				Carbon steel / Alloy steel				★	P		
				Mold and die steel				★			
				Austenitic stainless steel						M	
				Martensitic stainless steel M							
				Precipitation hardened stainless steel							
				Gray cast iron				★	☆	K	
				Nodular cast iron				★			
				Non-ferrous metals					★	N	
				Heat-resistant alloy						S	
				Titanium alloy							
Hard materials						H					
Insert		Part Number ANSI	Part Number ISO	Dimensions (in)				Angle (°)	Carbide	Applicable Toolholder ➡ M305	
				IC	S	D1	RE	AN	PVD		-
									PR1810 PR1835		RW10
		SDMT 221E-K	SDMT 060304E-K	1/4	1/8	0.110	1/64	15	●●●	METS21-S25(-H) METS25-S25(-H)	
		(Use ISO Part Number)	SDMT 080308E-K	0.315	1/8	0.134	1/32	15	●●●	METS32-S32(-H)	
		SDMT 432E-K	SDMT 120408E-K	1/2	3/16	0.173	1/32	15	●●●	METS40-S32(-H) METS50-S32(-H)	

Recommended Cutting Conditions ➡ M307

M
MILLING45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
ApplicationsSDMT Inserts are
sold in 10 piece boxes

Recommended Cutting Conditions

Workpiece Material	fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)		
		MEGACOAT NANO EX		Carbide
		PR1810	PR1835	KW10
Carbon Steel	0.004~0.006	-	★ 330~660	-
Alloy Steel	0.003~0.005	-	★ 330~660	-
Mold Steel	0.002~0.004	-	★ 260~490	-
Cast Iron	0.004~0.006	★ 330~660	-	☆ 260~390
Non-ferrous Metals	0.004~0.006	-	-	★ 330~980

★ : 1st Recommendation ☆ : 2nd Recommendation

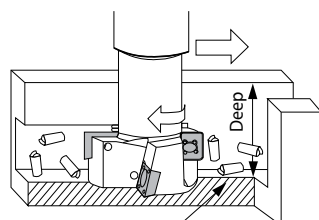
Part Number (T-Slot Nominal Size)	Steel			Cast Iron		
	Groove Shape at Pre-process	T-Slotting Conditions	Conditions to Prevent Chattering	Groove Shape at Pre-process	T-Slotting Conditions	Conditions to Prevent Chattering
METS21-S25(-H) (Nominal Size 12)	C = 0.039~0.118" 	Vc = 390 fz = 0.004 (n = 1,820) (Vf = 7.165)	Vc = 200 fz = 0.006 (n = 920) (Vf = 5.394)	C = Over 0.039" 	Vc = 390 fz = 0.005 (n = 1,820) (Vf = 8.583)	Vc = 260 fz = 0.006 (n = 1,210) (Vf = 7.165)
METS25-S25(-H) (Nominal Size 14)	C = 0.039~0.118" 	Vc = 390 fz = 0.004 (n = 1,530) (Vf = 12.047)	Vc = 200 fz = 0.006 (n = 760) (Vf = 8.976)	C = Over 0.039" 	Vc = 390 fz = 0.005 (n = 1,530) (Vf = 14.449)	Vc = 260 fz = 0.006 (n = 1,020) (Vf = 12.047)
METS32-S32(-H) (Nominal Size 18)	C = 0.039~0.118" 	Vc = 330 fz = 0.004 (n = 1,000) (Vf = 7.874)	Vc = 200 fz = 0.006 (n = 600) (Vf = 7.087)	C = Over 0.039" 	Vc = 390 fz = 0.005 (n = 1,190) (Vf = 11.260)	Vc = 260 fz = 0.006 (n = 800) (Vf = 9.449)
METS40-S32(-H) (Nominal Size 22)	C = 0.354" 	Vc = 260 fz = 0.006 Chattering is likely when set to shallower than C = 0.354".	Vc = 200 fz = 0.006 (n = 480) (Vf = 5.669)	C = Over 0.354" 	Vc = 390 fz = 0.006 (n = 960) (Vf = 8.976)	Vc = 260 fz = 0.006 (n = 640) (Vf = 7.559)
METS50-S32(-H) (Nominal Size 28)	Not recommended for steel because of chattering				Vc = 390 fz = 0.006 (n = 760) (Vf = 8.976)	Vc = 260 fz = 0.006 (n = 510) (Vf = 6.024)

Chattering is likely when fz is less than fz = 0.004 ipt. Keep feed rate between fz = 0.004~0.006 ipt.
For cast iron machining, the bigger the C-dimension becomes, the less chattering occurs.

[Cutting Speed : Vc (sfm), Spindle Revolution : n (min⁻¹), Feed Rate fz (ipt), Table Feed Vf (ipm)]

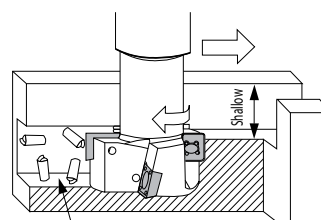
How to Prevent Damaging Chips when Steel Machining

Before Improvement (Deep Groove at Pre-Process)



Chips stay in the pre-process groove.

After Improvement (Shallow Groove at Pre-Process)

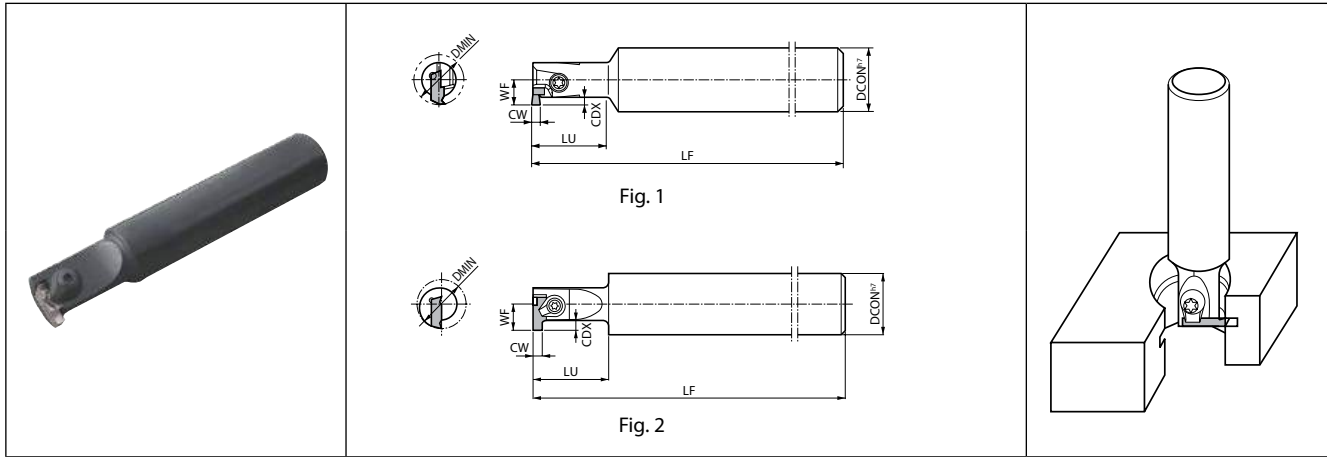


Chips are evacuated backward and chances of damaging chips are less.

Improvement of chip biting

Make pre-process groove shallower to prevent the tool from becoming damaged from chips.
Use compressed air to aid in chip evacuation.

MGI (Grooving End Mill)



Toolholder Dimensions

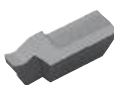
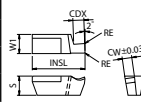
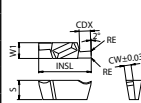
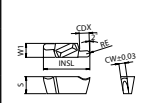
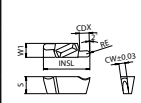
Unit	Part Number	Std. Item	Dimensions										Spare Parts					Applicable Inserts ➡ M309
			DMIN	DCON	LF	LU	CDX	WF	CW min.	CW max.	Coolant Hole	Fig.	Clamp Set	Clamp Set	Insert Screw	Wrench	Wrench	
																		
mm	MGI 1420-1SS	●	14	20	100	20	2.2	6.8	1	3	No	1	-	-	SB-4065TR	-	FT-15	GVR...-020SS
	MGI 1620-1S	●	16	20	110	25	2.2	7.8	1	3.4	No	1	-	-	SB-4085TR	-	FT-15	GVR...-020S
	MGI 2020-1A	●	20	20	110	30	2.2	9.8	1	3.4	No	2	CPS-5F	-	-	-	FT-15	GVR...-020A, GVR...-AR
	MGI 2220-1B	●	22	20	110	30	2.8	11	1.45	4	No	2	CPS-5F	-	-	-	FT-15	GVR...-020B, GVR...-BR
	MGI 3225-1C	●	32	25	120	35	5.5 (4.5)	16	2.8	4	No	2	-	CPS-6F	-	LW-3	-	GVR...-020C

CDX shows available grooving depth.

GVR280-020C, GVR300-020C inserts are available for groove depths up to 4.5mm.

GVR430 ~ 500-020C inserts can be installed into MGI3225-1C holders, but not recommended for steel machining because of toolholder's rigidity.

GVR

Usage Classification				Carbon steel / Alloy steel										●			○			P		
				Stainless steel										●			○			M		
● : Continuous ~Light interruption / 1st Choice ○ : Continuous ~Light interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice				Gray cast iron										●			K					
				Non-ferrous metals										●			N					
				Titanium alloy										●			S					
				Hard materials (~ 40HRC)										●			○			H		
				Hard materials (40HRC ~)																		
Insert		Part Number (Use with grade PR122S)	Previous Part Number (Use with grades PR930, KW10, TC40, TC60)	No. of Edges	Dimensions (mm)						Tolerance (mm)		Carbide			Cermat	Applicable Toolholder ● M308					
					CW	CDX	S	RE	INSL	W1	CW min.	CW max.	PVD	-	-							
													PR122S	PR930	KW10			TC40				
	 1-edge	GVR 100-020SS	GVR 100SS	1	1										●	●	●	MGI1420-1SS				
		125-020SS	125SS		1.25									●	●	●						
		145-020SS	145SS		1.45	2.3	3	0.2	9	3.6	-0.03	+0.03	●	●	●	●						
		200-020SS	200SS		2								●	●	●	●						
		250-020SS	250SS		2.5								●	●	●	●						
		300-020SS	300SS		3								●	●	●	●						
	 2-edge	GVR 100-020S	GVR 100S	1	1										●	●	●	MGI1620-1S				
		125-020S	125S		1.25									●	●	●						
		145-020S	145S		1.45	2.3	4	0.2	11	4	-0.03	+0.03	●	●	●	●						
		185-020S	185S		1.85								●	●	●	●						
		200-020S	200S		2								●	●	●	●						
		250-020S	250S		2.5								●	●	●	●						
	 2-edge / Full R / Copying	GVR 100-020A	GVR 100A	2	1										●	●	●	MGI2020-1A				
		125-020A	125A		1.25									●	●	●						
		145-020A	145A		1.45	2.3	5	0.2	12	4	-0.03	+0.03	●	●	●	●						
		185-020A	185A		1.85								●	●	●	●						
		200-020A	200A		2								●	●	●	●						
		250-020A	250A		2.5								●	●	●	●						
		GVR 145-020B	GVR 145B	2	1.45	2.8										●	●	●	MGI2220-1B			
		185-020B	185B		1.85	2.8								●	●	●						
		200-020B	200B		2	3.2								●	●	●						
		230-020B	230B		2.3	3.2								●	●	●						
		250-020B	250B		2.5	3.2	5.5	0.2	15	4.5	-0.03	+0.03	●	●	●	●						
		280-020B	280B		2.8	3.2							●	●	●	●						
		GVR 300-020B	GVR 300B	2	3	4.2										●	●	●	MGI3225-1C			
		340-020B	340B		3.4	4.2								●	●	●						
		400-020B	400B		4	4.2								●	●	●						
		GVR 280-020C	GVR 280C		2.8	4.5								●	●	●						
		300-020C	300C		3	4.5								●	●	●						
		340-020C	340C		3.4	5.5								●	●	●						
GVR 400-020C	GVR 400C	2	4	5.5	6.5	0.2	21	5.8	-0.03	+0.03	●	●	●	●	MGI2020-1A							
(430-020C)	(430C)		4.3	6.3							●	●	●	●								
(460-020C)	(460C)		4.6	6.3							●	●	●	●								
(500-020C)	(500C)		5	6.3							●	●	●	●								
GVR 200-100AR	GVR 100AR		2	2			1						●	●		●	MGI2020-1A					
250-125AR	125AR		2	2.5	2.3	5	1.25	12	4	-0.03	+0.03	●	●	●		●						
300-150AR	150AR	3	3			1.5						●	●	●								
	 2-edge / Full R / Copying	GVR 200-100BR	GVR 100BR	2	2	3.2		1					●	●	●	MGI2220-1B						
		300-150BR	150BR		3	4.2			1.5					●	●		●					
															●		●	●				

CDX shows available grooving depth.

Right-hand shown

GVR280-020C, GVR300-020C inserts are available for groove depths up to 4.5mm.

GVR430 ~ 500-020C inserts can be installed into MGI3225-1C holders, but not recommended for steel machining because of toolholder's rigidity.

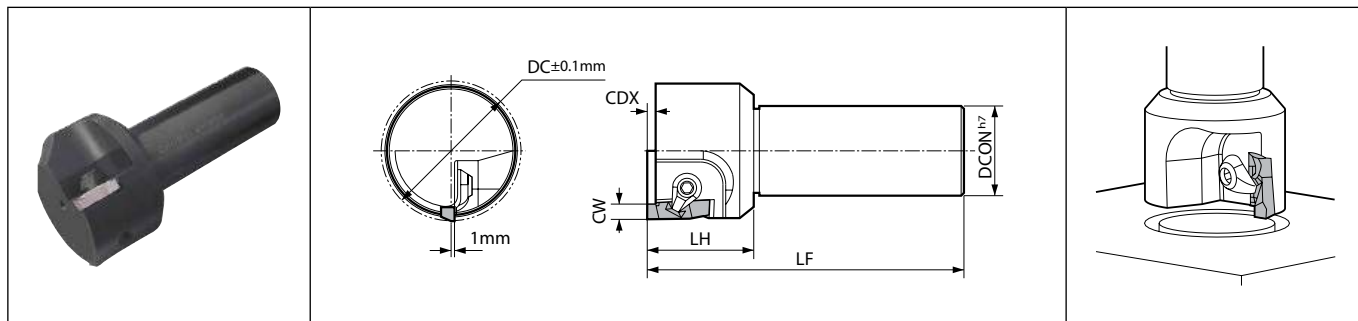
Recommended Cutting Conditions ➡ M311

GVR Inserts are
sold in 10 piece boxes

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

MVG (Ring Grooving End Mill)



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions							Coolant Hole	Spare Parts		Applicable Inserts
											Clamp Set	Wrench	
			DC	DCON	LF	LH	CDX	CW min.	CW max.				
mm	MVG 3032	● 30									CPS-6V	LW-3	GVFR400-020B GVFR430-020B GVFR460-020B GVFR490-020B
	3532	● 35											
	4032	● 40											
	4532	● 45	32	120	40	5.2	4	4.9	No				
	5032	● 50											
	5532	● 55											
	6032	● 60											

CDX shows available grooving depth.

GVFR

Usage Classification				Carbon steel / Alloy steel										P	
				Stainless steel										M	
				Gray cast iron										K	
				Non-ferrous metals										N	
				Titanium alloy										S	
				Hard materials (~ 40HRC)										H	
				Hard materials (40HRC ~)											
Insert	Part Number (Use with grade PR1225)	Previous Part Number (Use with grades PR930, KW10, TC40, TC60)	No. of Edges	Dimensions (mm)						Tolerance (mm)		Carbide		Applicable Toolholder	
				CW	CDX	S	RE	INSL	W1	CW min.	CW max.	PVD	-		
	GVFR 400-020B	GVFR 400B	2	4								●	●	MVG...	
	430-020B	430B		4.3	5.3	5	0.2	20	5.8	-0.03	+0.03	●	●		
	460-020B	460B		4.6								●	●		
	490-020B	490B		4.9								●	●		

CDX shows available grooving depth.
Right-hand shown

Recommended Cutting Conditions ➡ M311

GVFR Inserts are
sold in 10 piece boxes

MGI

Recommended Cutting Conditions

Workpiece Material	fz (ipt)	Recommended Insert Grades (Vc: sfm)				
		Cermet		MEGACOAT	PVD Coated Carbide	Carbide
		TC40	TC60	PR1225	PR930	KW10
Carbon Steel	0.002~0.006	☆ 390~660	☆ 330~590	★ 260~490	☆ 260~490	-
Alloy Steel	0.002~0.006	☆ 390~660	☆ 330~590	★ 260~490	☆ 260~490	-
Mold Steel	0.001~0.005	☆ 330~590	☆ 260~490	★ 200~430	☆ 200~430	-
Stainless Steel	0.001~0.005	☆ 330~590	★ 260~490	★ 200~430	☆ 200~430	-
Cast Iron	0.002~0.008	☆ 330~490	-	-	-	★ 260~490
Non-ferrous Metals	0.05~0.2	-	-	-	-	★ 330~980

Use down-cut machining.

★ : 1st Recommendation ☆ : 2nd Recommendation

MVG

Recommended Cutting Conditions

Workpiece Material	fz (ipt)	Recommended Insert Grades (Vc: sfm)				
		Cermet		MEGACOAT	PVD Coated Carbide	Carbide
		TC40	TC60	PR1225	PR930	KW10
Carbon Steel	0.002~0.006	★ 390~660	☆ 330~590	★ 260~560	☆ 260~490	-
Alloy Steel	0.002~0.006	★ 390~660	☆ 330~590	★ 260~560	☆ 260~490	-
Mold Steel	0.001~0.005	★ 330~590	☆ 260~490	★ 200~490	☆ 200~430	-
Stainless Steel	0.001~0.005	☆ 330~590	☆ 260~490	★ 200~490	☆ 200~430	-
Cast Iron	0.002~0.008	-	-	-	-	★ 260~490
Non-ferrous Metals	0.002~0.008	-	-	-	-	★ 330~980

★ : 1st Recommendation ☆ : 2nd Recommendation

API Ring Groover

Featuring an integral shank for maximum rigidity, Kyocera's API Ring Groovers are the most versatile ring grooving tools on the market.

ADVANTAGES

- Create ring grooves per API Spec 6A for BX, R, and RX style grooves
- Roughout and finish of inlay of API Ring Grooves
- Replaceable cartridges allow a single cutter body to produce multiple size API grooves
- Integral shank, multiple sizes and styles available

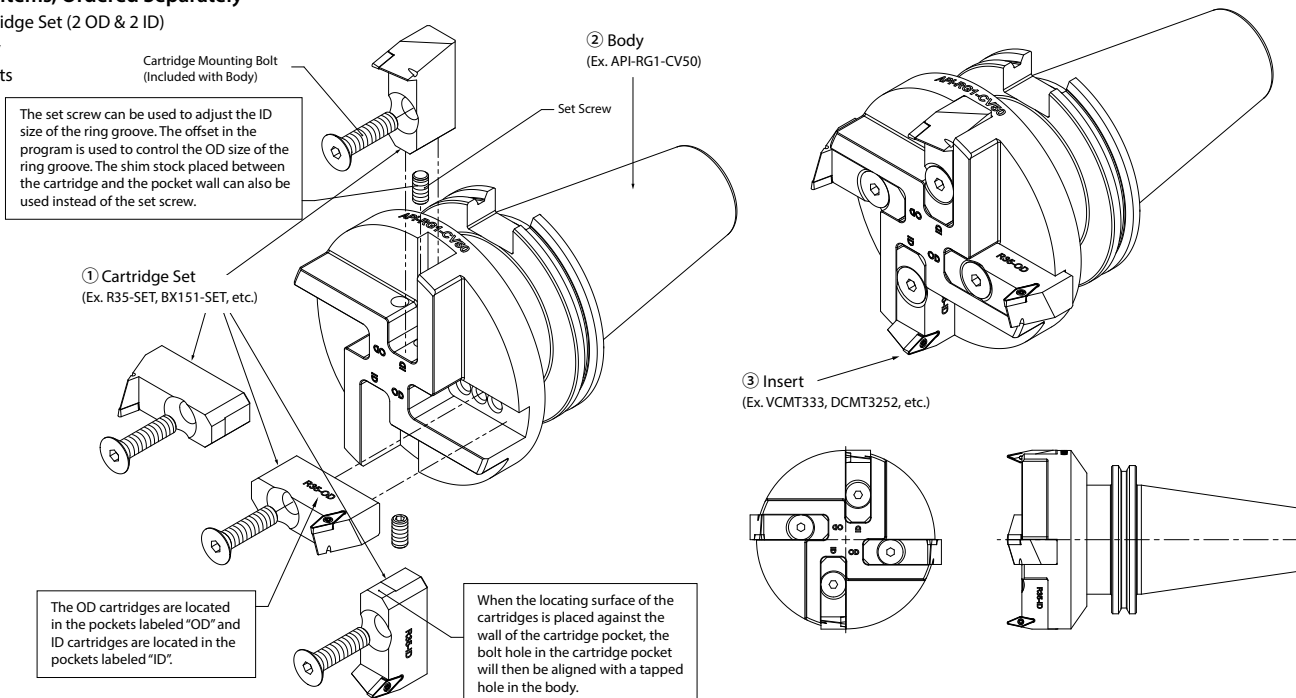


3 Line Items, Ordered Separately

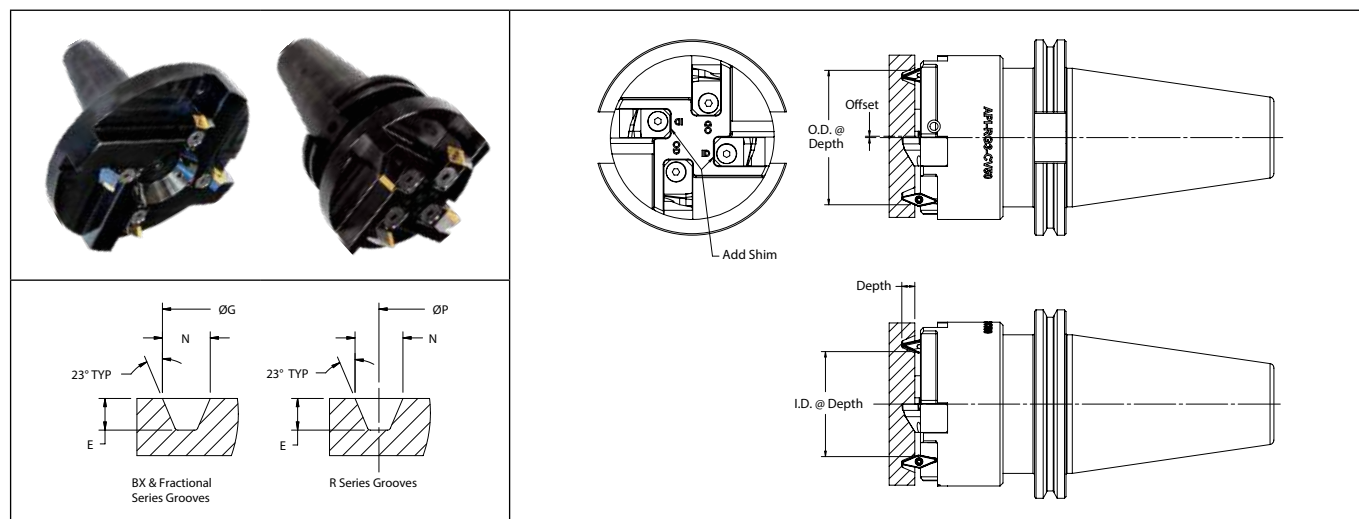
① Cartridge Set (2 OD & 2 ID)

② Body

③ Inserts



API Ring Groover (Body and Cartridges)



Ring / Cartridge Set Dimensions

Ring Specification	① Cartridge Set Part Number Choose Set	Std. Item	No. of Inserts	No. of Flutes	Dimensions (in)							Roughout Cartridges	Applicable Body Part Number
					Offset	Pitch	OD	Width	Depth	OD	ID		
						P	G	N	E	Depth	Depth		
BX-150	BX150-SET	●	4	2	0.061	-	2.893	0.450	0.220	2.771	2.115	-	API-RG-3-CV40 API-RG-3-CV50 API-RG-3-BT50 API-RG-3-DIN-69871
BX-150-R	BX150-R-SET	●		1	0.097	-	3.341	0.841	0.485	3.147	1.853	Yes	
BX-151	BX151-SET	●	4	2	0.065	-	3.062	0.466	0.220	2.932	2.260	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
BX-151-R	BX151-R-SET	●	4	1	0.097	-	3.496	0.846	0.485	3.302	1.998	Yes	API-RG-3-CV40 API-RG-3-CV50 API-RG-3-BT50 API-RG-3-DIN-69871
BX-152	BX152-SET	●	4	2	0.069	-	3.395	0.498	0.230	3.257	2.537	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
BX-152-R	BX152-R-SET	●		1	0.091	-	3.826	0.876	0.505	3.644	2.256	Yes	
BX-153	BX153-SET	●	4	2	0.077	-	4.046	0.554	0.270	3.892	3.092	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
BX-153-R	BX153-R-SET	●		1	0.110	-	4.486	0.936	0.535	4.266	2.834	Yes	
BX-154	BX154-SET	●	4	2	0.083	-	4.685	0.606	0.300	4.519	3.369	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
BX-154-R	BX154-R-SET	●		1	0.112	-	5.116	0.971	0.570	4.892	3.398	Yes	
BX-155	BX155-SET	●	4	2	0.100	-	5.930	0.698	0.330	5.730	4.734	-	API-RG-4-CV50 API-RG-4-BT50 API-RG-4-DIN-69871
BX-155-R	BX155-R-SET	●		1	0.223	-	6.366	1.076	0.595	5.920	4.660	Yes	
BX-156	BX156-SET	●	4	2	0.132	-	9.521	0.921	0.440	9.257	7.943	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
BX-156-R	BX156-R-SET	●		1	0.166	-	9.956	1.306	0.710	9.624	7.676	Yes	
BX-169	BX169-SET	●	4	2	0.081	-	6.955	0.666	0.380	6.793	5.785	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-16	R16-SET	●	4	2	0.026	2.000	-	0.344	0.250	2.292	1.708	-	API-RG-3-CV40 API-RG-3-CV50 API-RG-3-BT50 API-RG-3-DIN-69871
R-18	R18-SET	●				2.375				2.667	2.083	-	
R-20	R20-SET	●				2.688				2.980	2.396	-	
R-23	R23-SET	●	4	2	0.046	3.250	-	0.469	0.310	3.627	2.873	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
R-23-R	R23-R-SET	●		1	0.081	3.300				3.994	2.606	Yes	
R-24	R24-SET	●	4	2	0.046	3.750	-	0.469	0.310	4.127	3.373	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-24-R	R24-R-SET	●		1	0.077	3.800				4.517	3.083	Yes	
R-26	R26-SET	●	4	2	0.046	4.000	-	0.469	0.310	4.377	3.623	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-27	R27-SET	●		1	0.082	4.250				4.627	3.873	-	
R-31	R31-SET	●	4	2	0.044	4.875	-	0.469	0.310	5.256	4.494	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-31-R	R31-R-SET	●		1	0.072	4.920				5.632	4.208	Yes	
R-35	R35-SET	●	4	2	0.046	5.375	-	0.469	0.310	5.752	4.998	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-35-R	R35-R-SET	●		1	0.081	5.420				6.114	4.726	Yes	
R-37	R37-SET	●	4	2	0.046	5.875	-	0.469	0.310	6.252	5.498	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-39	R39-SET	●		1	0.081	6.375				6.752	5.998	-	
R-39-R	R39-R-SET	●	4	1	0.081	6.420	-	0.469	0.310	7.114	5.726	Yes	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-41	R41-SET	●		2	0.046	7.125				7.502	6.748	-	
R-44	R44-SET	●	4	2	0.046	7.625	-	0.469	0.310	8.002	7.248	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-44-R	R44-R-SET	●		1	0.071	7.670				8.384	6.956	Yes	
R-45	R45-SET	●	4	2	0.046	8.313	-	0.469	0.310	8.690	7.936	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-46	R46-SET	●		1	0.048	8.360				8.748	7.878	-	
R-46-R	R46-R-SET	●	4	1	0.082	8.360	-	0.469	0.310	9.112	7.608	Yes	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
1-13/16	1-13/16-SET	●		2	0.034	-	4.373			4.305	3.687	-	
2-1/16-10K	2-1/16-10K-SET	●	4	2	0.034	-	4.623	0.377	0.258	4.555	3.937	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
2-9/16-15K	2-9/16-15K-SET	□		2	0.034	-	5.873			5.805	5.187	-	
3-1/16-10K	3-1/16-10K-SET	●	4	2	0.034	-	5.748	0.377	0.258	5.680	5.062	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
4-1/16-10K	4-1/16-10K-SET	●		2	0.034	-	7.123			7.055	6.437	-	
5-1/8-10K	5-1/8-10K-SET	●	4	2	0.034	-	8.748	0.377	0.258	8.680	8.062	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
		●		2	0.034	-						-	

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Body

② Body Part Number Choose Body	Std. Item	Shank	Body Spare Parts	
			Mounting Bolt	Set Screw
API-RG-1-CV40	●	CAT40	01-05	01-08
API-RG-1-CV50	●	CAT50		
API-RG-1-BT50	●	BT50		
API-RG-1-BT40	□	BT40		
API-RG-1-DIN-69871	□	DIN69871	01-05	01-08
API-RG-2-CV50	●	CAT50		
API-RG-2-BT50	●	BT50		
API-RG-2-DIN-69871	□	DIN69871		
API-RG-3-CV40	●	CAT40	01-06	01-09
API-RG-3-CV50	●	CAT50		
API-RG-3-BT50	□	BT50		
API-RG-3-DIN-69871	□	DIN69871		
API-RG-4-CV50	●	CAT50	01-07	01-10
API-RG-4-BT50	□	BT50		
API-RG-4-DIN-69871	□	DIN69871		

Note

The OD and ID dimensions are to set the cut diameter of a given cartridge set using a pre-setter. The dimensions are the cut diameter of the tool at the depth of the ring groove. By setting zero at the nose radius then moving the presetter to the depth of the API groove the OD and ID can be preset to the dimensions shown.

See illustration on page [M312](#)

Cartridge Set Spare Parts and
Applicable Inserts [M314](#)

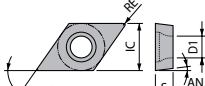
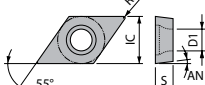
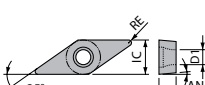
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Cartridge Set Spare Parts and Applicable Inserts

Ring Specification	Cartridge Set Part Number	Std. Item	Spare Parts		③ Applicable Inserts Choose Inserts
			Clamp Screw	Wrench	
					
BX-150	BX150-SET	●	SCR-02	T15	DCMT3252
BX-150-R	BX150-R-SET	●			DCMT3253
BX-151	BX151-SET	●			DCMT3252
BX-151-R	BX151-R-SET	●			DCMT3253
BX-152	BX152-SET	●			DCMT3252
BX-152-R	BX152-R-SET	●			DCMT3253
BX-153	BX153-SET	●			DCMT3252
BX-153-R	BX153-R-SET	●			DCMT3253
BX-154	BX154-SET	●			DCMT3252
BX-154-R	BX154-R-SET	●			DCMT3253
BX-155	BX155-SET	●			DCMT3252
BX-155-R	BX155-R-SET	●			VCMT333
BX-156	BX156-SET	●			VCMT332
BX-156-R	BX156-R-SET	●			VCMT333
BX-169	BX169-SET	●			VCMT332
R-16	R16-SET	●	SCR-01	T7	VCMT222
R-18	R18-SET	●			VCMT222
R-20	R20-SET	●			VCMT222
R-23	R23-SET	●	SCR-02	T15	DCMT3252
R-23-R	R23-R-SET	●			VCMT333
R-24	R24-SET	●			DCMT3252
R-24-R	R24-R-SET	●			VCMT333

Ring Specification	Cartridge Set Part Number	Std. Item	Spare Parts		③ Applicable Inserts Choose Inserts
			Clamp Screw	Wrench	
					
R-26	R26-SET	●	SCR-02	T15	DCMT3252
R-27	R27-SET	●			
R-31	R31-SET	●			
R-31-R	R31-R-SET	●			
R-35	R35-SET	●			VCMT333
R-35-R	R35-R-SET	●			DCMT3252
R-37	R37-SET	●			VCMT333
R-39	R39-SET	●			DCMT3252
R-39-R	R39-R-SET	●			VCMT333
R-41	R41-SET	●			DCMT3252
R-44	R44-SET	●			VCMT333
R-44-R	R44-R-SET	●			DCMT3252
R-45	R45-SET	●			VCMT333
R-46	R46-SET	●			DCMT3252
R-46-R	R46-R-SET	●			VCMT333
1-13/16	1-13/16-SET	●	SCR-01	T7	VCMT222
2-1/16-10K	2-1/16-10K-SET	●			
3-1/16-10K	3-1/16-10K-SET	●			
4-1/16-10K	4-1/16-10K-SET	●			
5-1/8-10K	5-1/8-10K-SET	●			

DCMT/VCMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)				Carbon steel / Alloy steel		★		☆	☆	☆	☆	P		
				Mold and die steel		★		☆	★	☆	☆			
				Stainless steel			★		★	★				M
				Gray cast iron		☆								K
				Nodular cast iron		☆								
				Non-ferrous metals										N
				Heat-resistant alloy			★	☆	☆	☆				S
				Titanium alloy					★					
Hard materials (≤ 60 HRC)												H		
Insert		Part Number ANSI	Part Number ISO	Dimensions (in)				Angle (°)	Carbide			Cermets	Applicable Cartridge	
				IC	S	D1	RE		AN	CVD	PVD			PVD
								CA125P		CA6525	PR0155	PR1535		PR1225	PV730	TN60
		DCMT 3252HQ	DCMT 11T308HQ	3/8	5/32	0.173	1/32	7	●	●	●	●	(See Table Above)	
		DCMT 3253CQ	DCMT 11T312CQ	3/8	5/32	0.173	3/64	7	●			●		
		VCMT 222HQ	VCMT 110308HQ	1/4	1/8	0.110	1/32	7			●			
		VCMT 332HQ	VCMT 160408HQ	3/8	3/16	0.173	1/32	7	●	●	●	●		
		333HQ	160412HQ				3/64				●			

DCMT / VCMT Inserts are
sold in 10 piece boxes

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)						
		CVD Coated Carbide		MEGACOAT HARD	MEGACOAT	MEGACOAT NANO	PVD Coated Cermet	Uncoated Cermet
		CA125P	CA6525	PR015S	PR122S	PR153S	PV730	TN60
Carbon Steel	0.002~0.006	★ 330~860	-	-	★ 260~560	☆ 390~820	☆ 330~590	☆ 390~660
Alloy Steel	0.002~0.006	★ 330~860	-	-	★ 260~560	☆ 330~720	☆ 330~590	☆ 390~660
Mold Steel	0.001~0.005	★ 330~690	-	-	★ 200~490	☆ 260~590	☆ 260~490	☆ 330~590
Austenitic Stainless Steel	0.001~0.005	-	★ 390~690	-	★ 200~490	★ 330~660	-	-
Martensitic Stainless Steel	0.001~0.005	-	★ 390~890	-	★ 200~490	☆ 390~820	☆ 260~490	☆ 330~590
Precipitation Hardened Stainless Steel	0.001~0.004	-	★ 260~490	-	★ 175~330	★ 300~490	-	-
Gray Cast Iron	0.002~0.008	☆ 260~490	-	-	-	-	-	-
Nodular Cast Iron	0.002~0.006	☆ 260~390	-	-	-	-	-	-
Ni-base Heat Resistant Alloy	0.002~0.005	-	★ 130~260	☆ 130~260	☆ 130~260	☆ 70~160	-	-
Titanium Alloy	0.002~0.006	-	-	-	-	★ 130~260	-	-

· Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy
Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

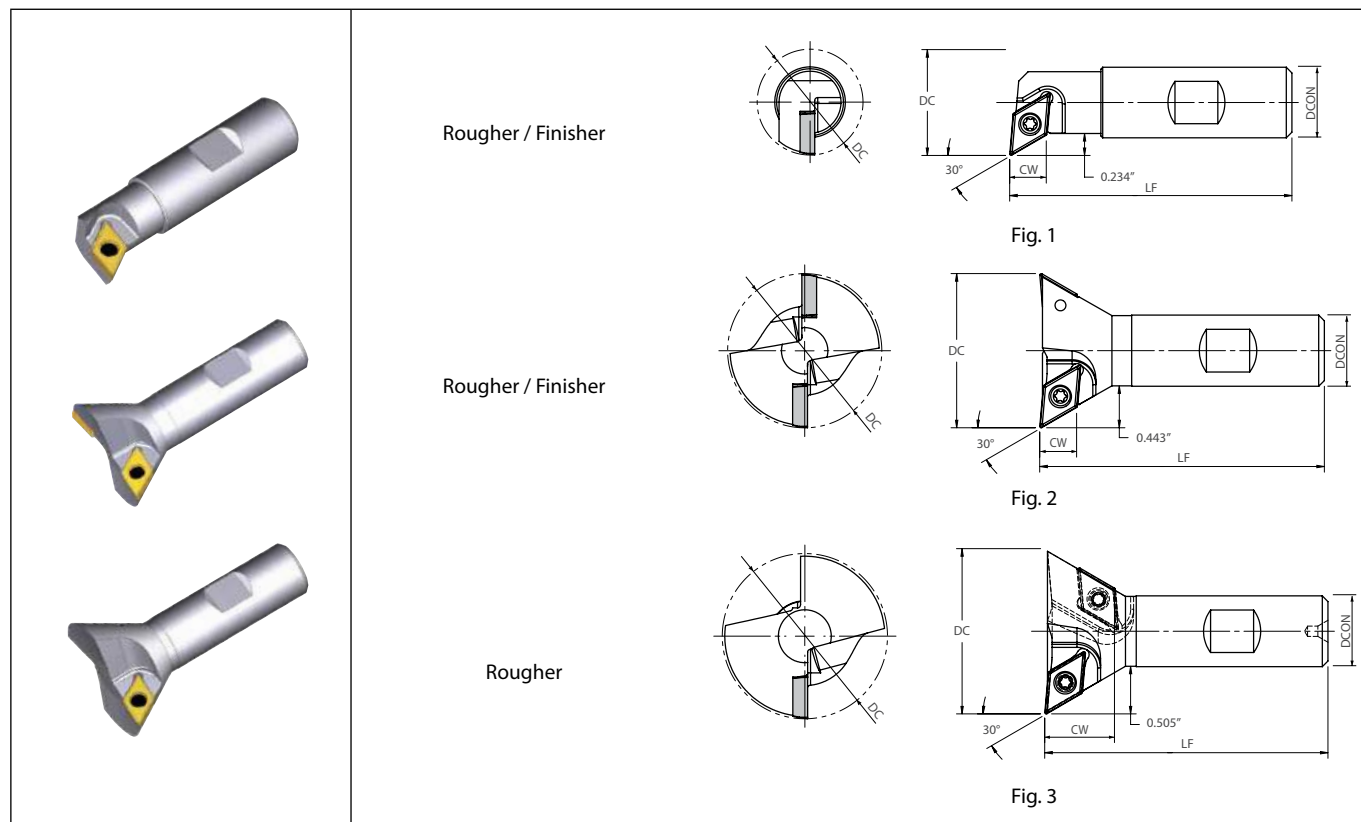
★ : 1st Recommendation ☆ : 2nd Recommendation

Sample CNC Program for the API Ring Groover

Sample is shown without cutter comp.
 N10 (Incremental Program)
 N20 G00 X (As required) Y (As required) Z.100 M03 S (As required)
 N30 G01 Z0.0 F100
 N40 G91 -Y (Offset) Z-.100 F (As required)
 N50 G03 J (Offset) Z-.100 F (As required)
 N60 G03 J (Offset) Z-.100
 Continue to Depth
 Last Pass
 N90 G03 J (Offset) Z0.00

Use 0.03 Depth in Z for Inconel and
0.04 Depth in Z for Steel

DC (Dovetail End Mills)

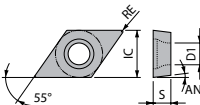


Toolholder Dimensions

Unit	Part Number		Std. Item	No. of Inserts	No. of Flutes	Dimensions				Coolant Hole	Fig.	Spare Parts		Applicable Inserts M317
						DC	DCON	LF	CW			Insert Screw 	Wrench 	
Inch	Weldon Shank	DC 1-1.13	●	1	1	1.125	0.750	3.000	0.388	No	1	SCR-02	T15	DCMT3251HQ
		2-1.63	●	2	2	1.625			0.388		2			
		2-1.75	●	2	1	1.750			0.739		3			

45°-70°
Lead Angle75°
Lead Angle88°-90°
Lead AngleFinish
MillingHigh Feed
MillingMulti-
FunctionalSlot
MillsBall-Nose
RadiusOther
Applications

DCMT

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)				Carbon steel / Alloy steel				★	■	P				
				Mold and die steel				★	■					
				Stainless steel				☆	★	M				
				Gray cast iron						K				
				Nodular cast iron										
				Non-ferrous metals						N				
				Heat-resistant alloy						S				
				Titanium alloy										
Hard materials						H								
Insert		Part Number ANSI		Part Number ISO		Dimensions (in)				Angle (°)	Carbide	Cermet	Applicable Toolholder ➡ M316	
						IC	S	D1	RE	AN	CVD	PVD		-
											CA6525	PR1535			TN620
		DCMT 3251HQ	DCMT 11T304HQ	3/8	5/32	0.173	1/64	7	●	●	●	DC...		

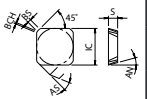
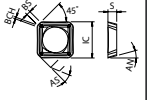
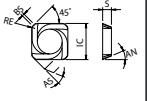
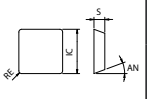
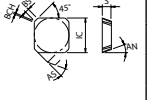
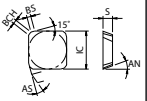
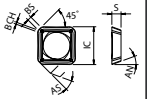
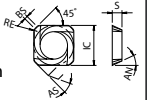
Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)		
		CVD Coated Carbide	MEGACOAT NANO	Uncoated Cermet
		CA6525	PR1535	TN620
Carbon Steel	0.003~0.006	-	★ 300~650	☆ 660~980
Alloy Steel	0.003~0.005	-	★ 300~650	☆ 590~820
Mold Steel	0.002~0.004	-	★ 250~500	☆ 490~720
Austenitic Stainless Steel	0.002~0.004	-	★ 300~550	-
Martensitic Stainless Steel	0.002~0.005	★ 250~500	☆ 300~650	-
Precipitation Hardened Stainless Steel	0.002~0.004	☆ 200~450	★ 200~400	-
Gray Cast Iron	0.003~0.006	-	-	-
Nodular Cast Iron	0.002~0.005	-	-	-
Ni-base Heat Resistant Alloy	0.002~0.004	★ 70~160	☆ 70~160	-
Titanium Alloy	0.002~0.004	-	★ 130~260	-

· Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy ★ : 1st Recommendation ☆ : 2nd Recommendation
Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

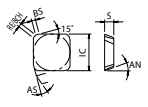
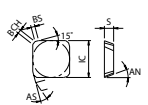
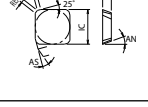
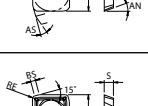
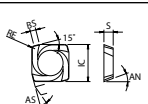
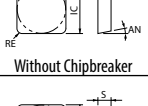
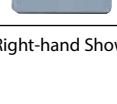
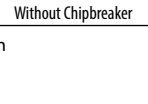
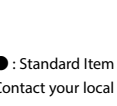
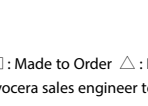
DCMT Inserts are
sold in 10 piece boxes

S-Type Inserts (Solid without Hole)

Usage Classification				Carbon steel / Alloy steel										P			
				Mold and die steel										M			
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)				Austenitic stainless steel										K			
				Martensitic stainless steel										N			
				Precipitation hardened stainless steel										S			
				Gray cast iron										H			
				Nodular cast iron													
				Non-ferrous metals													
				Heat-resistant alloy													
				Titanium alloy													
				Hard materials													
Insert		Part Number ANSI	Part Number ISO	No. of Edges	Dimensions (in)						Angle (°)		Carbide				Applicable Toolholder
					IC	S	BCH	INSL	RE	BS	AN	AS	CVD	PVD	-	-	
		SDKN 42AUFN	SDKN 1203AUFN	4	1/2	1/8	0.020	-	-	0.047	15	23					-
		SDKN 42AUTN	SDKN 1203AUTN	4	1/2	1/8	0.020	-	-	0.047	15	23					
		(Use ISO Part Number)	SDKN 1504AUTN	4	5/8	3/16	0.020	-	-	0.047	15	23					
		SEKR 42AUEN-S	SEKR 1203AUEN-S	4	1/2	1/8	0.020	-	-	0.067	15	23					-
		SDMR 42AUER-H	SDMR 1203AUER-H	4	1/2	1/8	0.020	-	0.039	0.031	15	23					-
		SEC 422	SEC 120308	4	1/2	1/8	-	-	1/32	-	20	-					-
		424	120316						1/16								
		SEEN 42AFTN	SEEN 1203AFTN	4	1/2	1/8	0.020	-	-	0.055	20	25					-
		SEKN 42AFFN	SEKN 1203AFFN	4	1/2	1/8	0.020	-	-	0.055	20	25					
		SEKN 42AFTN	SEKN 1203AFTN	4	1/2	1/8	0.020	-	-	0.055	20	25					
		SEKN 43AFTN	SEKN 1204AFTN	4	1/2	3/16	0.020	-	-	0.055	20	25					
		SEKN 53AFTN	SEKN 1504AFTN	4	5/8	3/16	0.020	-	-	0.055	20	25					
		SEEN 42AFFR-W	SEEN 1203AFFR-W	1	1/2	1/8	-	0.573	-	0.138	20	25					-
		SEEN 42AFTR-W	SEEN 1203AFTR-W	1	1/2	1/8	-	0.573	-	0.138	20	25					
		SEKN 42EFTR	SEKN 1203EFTR	4	1/2	1/8	0.047	-	-	0.055	20	25					-
		SEKR 42AFEN-S	SEKR 1203AFEN-S	4	1/2	1/8	0.020	-	-	0.067	20	25					-
		SEMR 42AFER-H	SEMR 1203AFER-H	4	1/2	1/8	-	-	0.039	0.039	20	25					-

S-Type inserts are
sold in 10 piece boxesSEEN-W inserts are
sold in 5 piece boxes● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

S-Type Inserts (Solid without Hole)

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)				Carbon steel / Alloy steel					☆	★	■	P							
				Mold and die steel					☆	★	■								
				Austenitic stainless steel					☆	★		M							
				Martensitic stainless steel															
				Precipitation hardened stainless steel															
				Gray cast iron					★	☆	☆	☆	K						
				Nodular cast iron					★	☆	☆								
				Non-ferrous metals								★	N						
				Heat-resistant alloy									S						
				Titanium alloy															
				Hard materials									H						
Insert		Part Number ANSI	Part Number ISO	Dimensions (in)					Angle (°)		Carbide				Cermet	Applicable Toolholder			
				IC	S	BCH	RE	BS	AN	AS	CVD	PVD			- KV10		- TN100M		
												CA420M	PR1210	PR1225				PR1810	PR1825	TN60
		SPCN 42EDTR	SPCN 1203EDTR	1/2	1/8	-	0.039	0.079	11	15							●		-
		SPKN 42EDER	SPKN 1203EDER	1/2	1/8	0.039	-	0.063	11	15	●								
		SPKN 42EDTR	SPKN 1203EDTR	1/2	1/8	-	0.039	0.079	11	15		●						●	
		42EDTL	1203EDTL			-	0.039									●			
		SPKN 53EDFR	SPKN 1504EDFR	5/8	3/16	0.039	-	0.087	11	15								●	
		SPKN 53EDTR	SPKN 1504EDTR	5/8	3/16	0.039	-	0.087	11	15	●	●					●	-	
		SPEN 42EEER	SPEN 1203EEER	1/2	1/8	0.039	-	0.055	11	20	●								
		SPEN 42EESR	SPEN 1203EESR	1/2	1/8	0.039	-	0.055	11	20			●					-	
		SPCN 42XPTR	SPCN 1203XPTR	1/2	1/8	-	0.039	0.079	11	11							●		
		SPKN 42XPFR	SPKN 1203XPFR	1/2	1/8	0.039	-	0.079	11	11							●	-	
		SPKN 42XPTR	SPKN 1203XPTR	1/2	1/8	-	0.039	0.079	11	11							●		
		SPKN 53XETR	SPKN 1504XETR	5/8	3/16	0.039	-	0.079	11	20									●
		SPCN 63EETR1	SPCN 1904EETR1	3/4	3/16	0.028	-	0.047	11	20							●	-	
		SPKR 42EDER-S	SPKR 1203EDER-S	1/2	1/8	-	0.079	0.039	11	15		●						-	
		SPMR 42EDER-H	SPMR 1203EDER-H	1/2	1/8	-	0.039	0.079	11	15						●		-	
		SPG 321	SPGN 090304	3/8	1/8	-	1/64	-	11	-							●	-	
		322	090308				1/32									●			
		SPG 421	SPGN 120304	1/2	1/8	-	1/64	-	11	-									●
		422	SPMN 120308	1/2	1/8	-	1/32	-	11								●	-	
		423	120312				3/64									●			
		SPM 432	SPMN 120408	1/2	3/16	-	1/32	-	11		●								●
		433	120412	1/2	3/16	-	3/64	-	11		●						●		

Right-hand Shown

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)				Carbon steel / Alloy steel		■		P										
				Mold and die steel		■												
				Austenitic stainless steel				M										
				Martensitic stainless steel														
				Precipitation hardened stainless steel														
				Gray cast iron		★												
								Nodular cast iron		★		K						
Non-ferrous metals								N										
				Heat-resistant alloy				S										
				Titanium alloy														
				Hard materials				H										
Insert		Part Number ANSI		Part Number ISO		No. of Edges		Dimensions (in)					Angle (°)		Carbide		Applicable Toolholder	
								IC	S	RE	BCH	BS	AN	AS	CVD CA420M	Cermat TN100M		
	SNCN 43XNTN	SNCN 1204XNTN	8	1/2	3/16	-	0.079	0.079	-	-		●		-				
	SNKN 43XNTN	SNKN 1204XNTN	8	1/2	3/16	-	0.079	0.079	-	-		●		-				
	SNMF 43XNTN	SNMF 1204XNTN	8	1/2	3/16	-	0.079	0.079	-	-		●		-				
Without Chipbreaker	SNM 433	SNMN 120412	8	1/2	3/16	3/64	-	-	-	-		●		-				
	436	120424				3/32	-	-	-	-		●						

Right-hand Shown

S-Type inserts are sold in 10 piece boxes

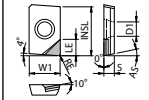
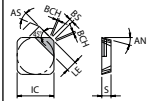
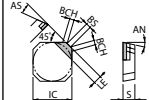
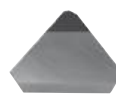
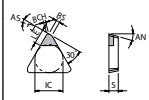
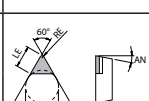
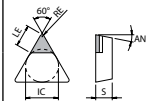
Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)				Carbon steel / Alloy steel								☆	☆	■	■	P			
				Mold and die steel								☆	☆	■	■				
				Austenitic stainless steel								☆	☆	■	■				
				Martensitic stainless steel															
				Precipitation hardened stainless steel															
				Gray cast iron								★		☆					
				Nodular cast iron								★							
				Non-ferrous metals										★					
				Heat-resistant alloy															
				Titanium alloy															
Hard materials												H							
Insert		Part Number ANSI	Part Number ISO	No. of Edges	Dimensions (in)					Angle (°)		Carbide			Cermet			Applicable Toolholder	
					IC	S	BCH	RE	BS	AN	AS	PVD			-	-			
												PR1210	PR1225	PR1535	PR1825	KW10	TN100M		TN60
	TEKN 32PTFR	TEKN 1603PTFR	3	3/8	1/8	0.028	-	0.055	20	22									-
	TEKN 32PTTR	TEKN 1603PTTR	3	3/8	1/8	0.028	-	0.055	20	22	●								
	TEEN 43PTTR	TEEN 2204PTTR	3	1/2	3/16	-	0.039	0.055	20	22									
	TEKN 43PTFR	TEKN 2204PTFR	3	1/2	3/16	0.028	-	0.055	20	22									
	TEKN 43PTTR	TEKN 2204PTTR	3	1/2	3/16	0.028	-	0.055	20	22	●								
	TEKR 43PTER-S	TEKR 2204PTER-S	3	1/2	3/16	-	0.039	0.055	20	22		●							-
	TEMR 32PTER-H	TEMR 1603PTER-H	3	3/8	1/8	-	1/32	0.047	20	22									-
TEMR 43PTER-H	TEMR 2204PTER-H	3	1/2	3/16	-	0.039	0.055	20	22										
	TPC 32P4R	TPC 1603P4R	3	3/8	1/8	0.026	-	0.063	11	15								●	-
	TPK 32PDFR	TPKN 1603PDFR	3	3/8	1/8	0.028	-	0.047	11	15							●		MTP90-125-75W MTP90-150-75W
	TPK 32PDTR	TPKN 1603PDTR	3	3/8	1/8	0.028	-	0.047	11	15	●	●					●		MTP90-200-75W MTP90-200-R8
	TPK 43PDFR	TPKN 2204PDFR	3	1/2	3/16	0.028	-	0.063	11	15							●		MTP90-200-125W MTP90-250-125W
	TPK 43PDTR	TPKN 2204PDTR	3	1/2	3/16	0.028	-	0.063	11	15	●	●					●		
	TPKR 43PDER-S	TPKR 2204PDER-S	3	1/2	3/16	-	0.039	0.055	11	15		●							MTP90-200-125W MTP90-250-125W
	TPMR 32PDER-H	TPMR 1603PDER-H	3	3/8	1/8	-	1/32	0.047	11	15							●		MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8
TPMR 43PDER-H	TPMR 2204PDER-H	3	1/2	3/16	-	0.039	0.055	11	15								●		MTP90-200-125W MTP90-250-125W
Without Chipbreaker	TPG 181505 18151	TPGN 090202 090204	3	7/32	0.094	-	0.008 1/64	-	11	-							●	●	-
	TPG 2205 221 222	TPGN 110302 110304 110308	3	1/4	1/8	-	0.008 1/64 1/32	-	11	-							●	●	MTP90-075-75W MTP90-100-75W
	TPG 321	TPGN 160304	3	3/8	1/8	-	1/64	-	11	-							●	●	MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-200-R8
	322	160308	3	3/8	1/8	-	1/32	-	11	-							●	●	

T-Type inserts are sold in 10 piece boxes

M321

A	INSERT GRADES
B	TURNING INSERTS
C	GBR / PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

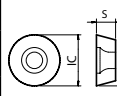
PCD Inserts

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)				Carbon steel / Alloy steel															P	
				Mold and die steel																
				Austenitic stainless steel															M	
				Martensitic stainless steel																
				Precipitation hardened stainless steel																
				Gray cast iron															K	
				Nodular cast iron																
				Non-ferrous metals												□		■	N	
				Heat-resistant alloy															S	
				Titanium alloy												□		■		
				Hard materials															H	
Insert		Part Number ANSI	Part Number ISO	No. of Edges	Dimensions (in)										Angle (°)		PCD			Applicable Toolholder
					IC	W1	S	D1	RE	INSL	LE	BCH	BS	AN	AS	-				
																KPD001	KPD010	KPD230		
		NDCW 3205FRX 3205FRX-NE	NDCW 150302FRX 150302FRX-NE	1	-	3/8	1/8	0.173	0.008	0.591	0.224 0.201	-	-	-	15	●	●	DMC...SX(...) DMC...H		
		SDKN 42AUFN	SDKN 1203AUFN	1	1/2	-	1/8	-	-	-	0.142	0.020	0.047	15	23	●		-		
		SEEN 42AFFN	SEEN 1203AFFN	1	1/2	-	1/8	-	-	-	0.138	0.020	0.055	20	25	●	●	-		
		TEEN 32PTFR 32PTFR-NE	TEEN 1603PTFR 1603PTFR-NE	1	3/8	-	1/8	-	-	-	0.185 0.161	0.024	0.055	20	22	●	●	-		
		TEKN 43PTFR 43PTFR-NE	TEKN 2204PTFR 2204PTFR-NE	1	1/2	-	3/16	-	-	-	0.189 0.165	0.028	0.071	20	22	●	●	-		
		TPG 2205 221	TPGN 110302 110304	1	1/4	-	1/8	-	0.008 1/64	0.154 0.146	-	-	-	11	-	●	●	MTP90-075-75W MTP90-100-75W		

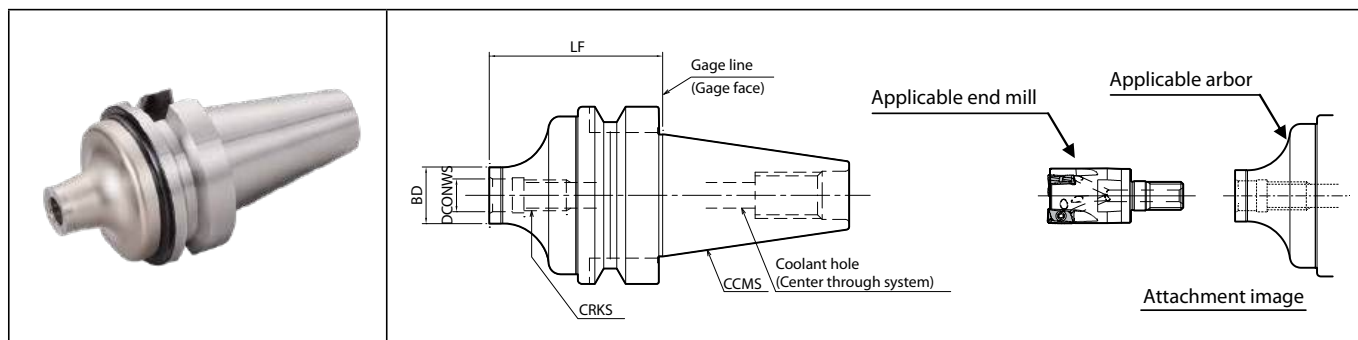
Right-hand Shown

PCD Inserts are
sold in 1 piece boxes

Additional Geometries (with Hole)

Usage Classification ★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (Hardness 45HRC or less)				Carbon steel / Alloy steel										☆	■	■	P																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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				Gray cast iron										☆	★	☆			K																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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Insert		Part Number ANSI	Part Number ISO	Dimensions (in)						Angle (°)		Carbide						Cermat	Applicable Toolholder																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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Right-hand Shown

BT Arbor (for modular head / double-face clamping spindle)

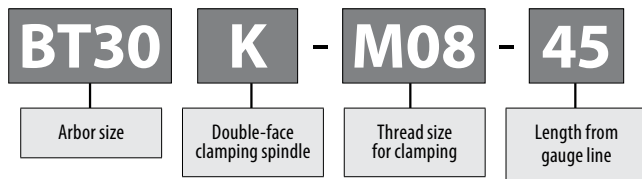
Dimensions

Unit	Part Number	Std. Item	Dimensions				Coolant Hole	Arbor (Double-Face Clamping)	Applicable Modular Head End Mill MA90, MEW, MEC, MEV, MFH-RAPTOR, MFH-MAX, MFH-Mini, MFH-Micro, MRX
			LF	BD	DCONWS	CRKS			
mm	BT30K- M08-45	●	45	14.7	8.5	M8×1.25	Yes	BT30	(MEW/MEC/MFH/MRX)...-M08-...
		●		18.7	10.5	M10×1.5			(MA90/MEW/MEC/MEV/MFH/MRX)...-M10-...
		●		23	12.5	M12×1.75			(MA90/MEW/MEC/MEV/MFH/MRX)...-M12-...
	BT40K- M08-55	●	55	14.7	8.5	M8×1.25	Yes	BT40	(MEW/MEC/MFH/MRX)...-M08-...
		●	60	18.7	10.5	M10×1.5			(MA90/MEW/MEC/MEV/MFH/MRX)...-M10-...
		●	55	23	12.5	M12×1.75			(MA90/MEW/MEC/MEV/MFH/MRX)...-M12-...
		●	65	30	17	M16×2.0			(MA90/MEW/MEC/MEV/MFH/MRX)...-M16-...

Actual End Mill Depth

Arbor Part Number	Unit	Applicable Modular End Mill (Head)			Actual End Mill Depth LUX
		Part Number	Cutting Dia.	Dimensions	
			DC	LF	
BT30K- M08-45	Inch	MFH0625-M08-03... (MFH-Micro)	0.625	0.984	1.252
	mm	MFH16-M08-01... (MFH-Micro)	16	22	28.8
		...16-M08-...	16	25	31.8
		...17-M08-...	17		33.2
		...18-M08-...	18		34.2
	Inch	...0750-M10-...	0.750	1.181	1.449
	mm	...20-M10-...	20	30	36.8
		...22-M10-...	22		39.2
	Inch	...1000-M12-...	1.000	1.378	1.685
	mm	...25-M12-...	25	35	42.8
		...28-M12-...	28		45.5
BT40K- M08-55	Inch	MFH16-M08-01... (MFH-Micro)	16	22	28.7
	mm	...16-M08-...	16	25	31.7
		...17-M08-...	17		33.2
		...18-M08-...	18		34.3
	mm	...20-M10-...	20	30	38.7
		...22-M10-...	22		44.5
	mm	...25-M12-...	25	35	44.6
		...28-M12-...	28		47.6
	Inch	...1250-M16-...	1.250	1.575	2.016
	mm	...32-M16-...	32	40	51.2
		...35-M16-...	35		60.2
		...40-M16-...	40		64

Arbor Identification System



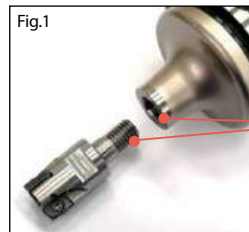
How to Attach Modular Head End Mill

1. When clamping the head on the arbor, make sure there is no dust or chips inside (Fig. 1).
Do NOT put lubricant on the clamping portion.
2. Attach the head on the arbor and fix it using the wrench (Fig. 2).
See Table 1 for Recommended Torque.
(Note) The wrench is NOT included with product.

Table 1. Recommended Head Tightening Torque

Thread Dia. Tolerance	Wrench Width Across Flat (mm)	Recommended Torque (Nm)
M8	12	23
M10	15	46
M12	19	80
M16	24	90

3. Confirm that the head is fixed firmly on the arbor (Fig. 3).



Ensure there are NO chips between the arbor and head.



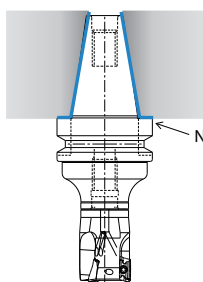
See Table 1 for wrench size and recommended torque



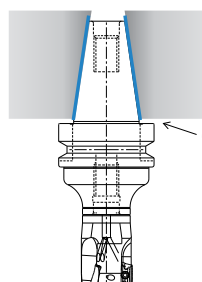
No space in between

Standard BT Spindle Mounting

The double-face clamping arbor can be mounted on a general BT spindle and used like a standard BT arbor; however, its double-face clamping advantages will not be fully realized on a general BT spindle.



Double-face clamping arbor mounted on double-face clamping spindle



Double-face clamping arbor mounted on general spindle

Quick Change Tooling

N

Polygon Taper Shank (KPC Series)		N2~N17
CN Inserts		N4
DN Inserts		N6
TN Inserts		N8
VN Inserts		N10
WN Inserts		N12
VB / VC Inserts		N13
GBA Inserts	(Shallow Grooving)	N15
GDM / GDG Inserts	(Grooving)	N16
16E% Inserts	(External Threading)	N17
HSK-T Tooling (ICTM Standard)		N18~N33
Toolholders for Square Shank	External Turning / External Facing	N20
CN Inserts		N22
DN Inserts		N24
TN Inserts		N26
WN Inserts		N28
VB / VC Inserts		N30
GBA Inserts	(Shallow Grooving)	N32
16ER / 22ER Inserts	(External Threading)	N32
Toolholders for Boring Bars / Drills		N33

PSC Shank Tools

Polygon Taper Shank

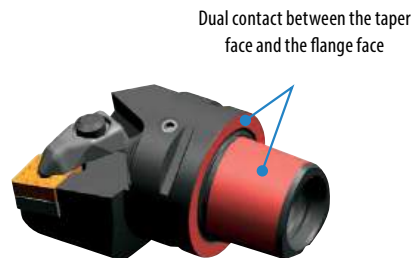
PSC Shank Tools

JIS B 6066-1

ISO26623-1 Polygonal taper interface with flange contact surface

1 High Rigidity

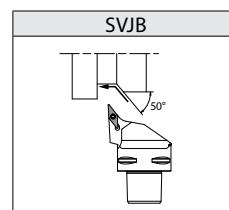
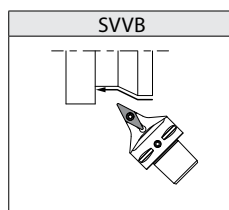
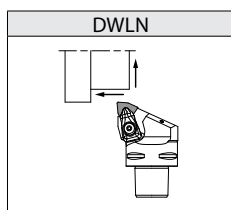
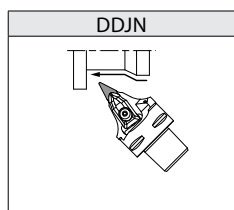
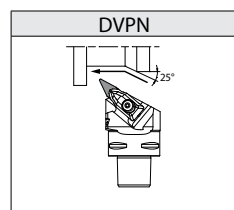
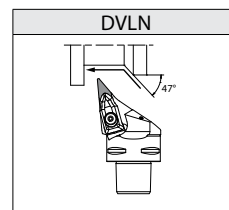
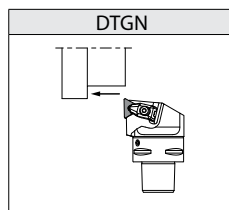
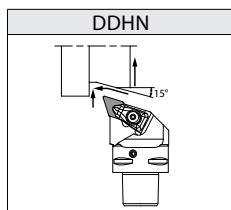
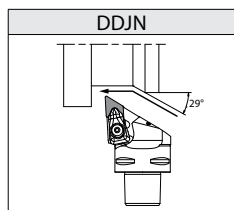
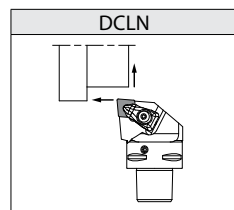
Polygon taper design and dual contact between the taper and the flange face for high rigidity



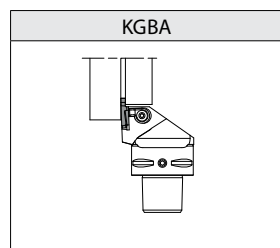
2 High Precision

Locational accuracy within $\pm 2\mu\text{m}$

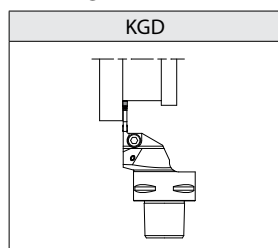
Distributes cutting forces evenly between 3 faces for enhanced rigidity and centering accuracy



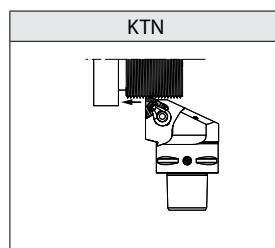
Grooving



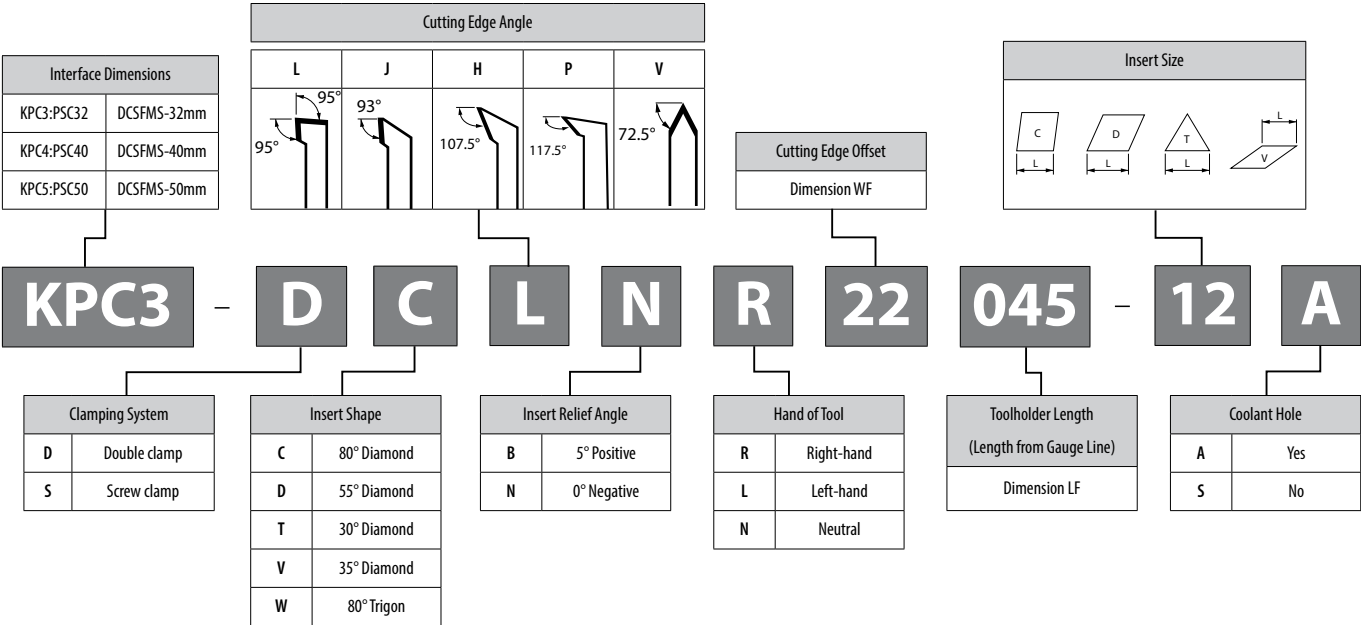
Grooving / Cut-off



Threading

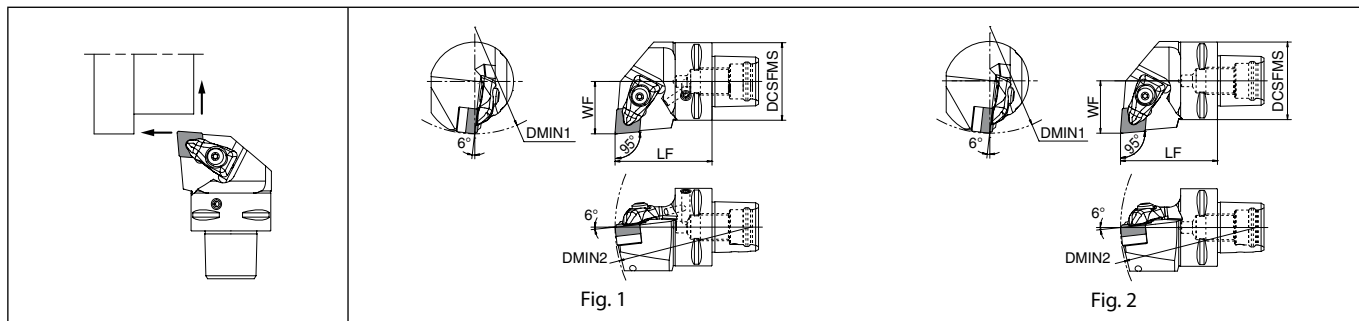


Identification System (for External Holders)



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DCLN (External Turning)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Coolant Hole	Dimensions					Standard Corner-R(RE)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Applicable Inserts
		R	L		DCSFMS	LF	WF	DMIN1	DMIN2					
mm	KPC3-DCLN% 22045-12A	●	●	Yes	32	45	22	60	121	0.8	-6	-6	1	CN□A43... CN□G43... CN□M43...
	KPC4-DCLN% 27050-12A	●	●		40	50	27	110	140					
	KPC5-DCLN% 35060-12A	●	●		50	60	35		165					
	KPC3-DCLN% 22045-12S	●	●	No	32	45	22	60	121	0.8	-6	-6	2	
	KPC4-DCLN% 27050-12S	●	●		40	50	27	110	140					
	KPC5-DCLN% 35060-12S	●	●		50	60	35		165					

Part Number	Spare Parts									
	Clamp	Screw (for clamp)	Spring	Shim	Shim*	Shim	Shim*	Shim Screw	Shim Screw	Wrench
KPC3-DCLN% 22045-12A	CP-3D-S	CS-3D-TR	SP-3D	-	-	SP-441P	SP-441P-C	-	M3X8	FT-15
KPC4-DCLN% 27050-12A				DC-44	DC-44-C	-	-	SB-4085TR	-	
KPC5-DCLN% 35060-12A				-	-	SP-441P	SP-441P-C	-	M3X8	
KPC3-DCLN% 22045-12S	CP-3D-S	CS-3D-TR	SP-3D	-	-	SP-441P	SP-441P-C	-	M3X8	FT-15
KPC4-DCLN% 27050-12S				DC-44	DC-44-C	-	-	SB-4085TR	-	
KPC5-DCLN% 35060-12S				-	-	SP-441P	SP-441P-C	-	M3X8	

Pressure Resistance : up to 1,015 psi

When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

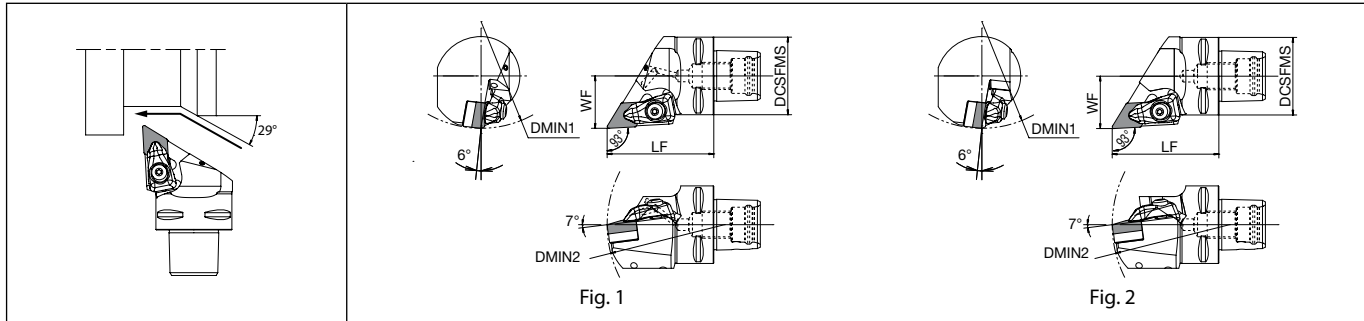
When using inserts with SX chipbreaker, use shim (-C type) sold separately.

Recommended Tightening Torque : 3.9N·m

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B16	B16	B16	B16	B16	B16	B16	B17
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	CQ	CJ	TN-V	PMG	GS	PG	PS	PT
Page	B17	B17	B17	B17	B17	B17	B18	B18
Applications	Medium - Roughing	Roughing	Roughing	Roughing	Medium	Medium - Roughing	Medium - Roughing	Low Carbon Steel
Insert								
Chipbreaker	GT	Standard	PH	PX	R/L	R/L-25R	Z	XF
Page	B18	B18	B18	B19	B23	B23	B23	B19
Applications	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker	XP	XQ	XS	SK	FP-TK	TK	MQ	MS
Page	B19	B19	B19	B19	B19	B20	B20	B20
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	MU	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B20	B21	B21	B21	B22	B22	B22	B22
Applications	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials / Cast Iron
Insert								
Chipbreaker	Ceramic	R/L-A3	AH	PCD	SQ	SG	R/L-SX	CBN
Page	B113	B23	B23	C34	B20	B21	B21	C8
Applications	Hard Materials	Hard Materials	Hard Materials					
Insert								
Chipbreaker	HH	HL	HD					
Page	C9	C9	C9					

DDJN (External Turning / External Copying)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Coolant Hole	Dimensions					Standard Corner-R(R/E)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Spare Parts						Applicable Inserts
		R	L		DCSFMS	LF	WF	DMIN1	DMIN2					Clamp	Screw (for clamp)	Spring	Shim	Screw	Wrench	
mm	KPC3-DDJN% 22050-15A	●	●	Yes	32	50	22	121	0.8	-6	-7	1							DN□A43... DN□G43... DN□M43...	
	KPC4-DDJN% 27055-15A	●	●		40	55	27	110					145	CP-3D-S	CS-3D-TR	SP-3D	DD-44 (DD-43*)	SB-4085TRP	FT-15	
	KPC5-DDJN% 35060-15A	●	●		50	60	35	165												
	KPC3-DDJN% 22050-15S	●	●	No	32	50	22	121	0.8	-6	-7	2							DN□A43... DN□G43... DN□M43...	
	KPC4-DDJN% 27055-15S	●	●		40	55	27	110					145	CP-3D-S	CS-3D-TR	SP-3D	DD-44 (DD-43*)	SB-4085TRP	FT-15	
	KPC5-DDJN% 35060-15S	●	●		50	60	35	165												

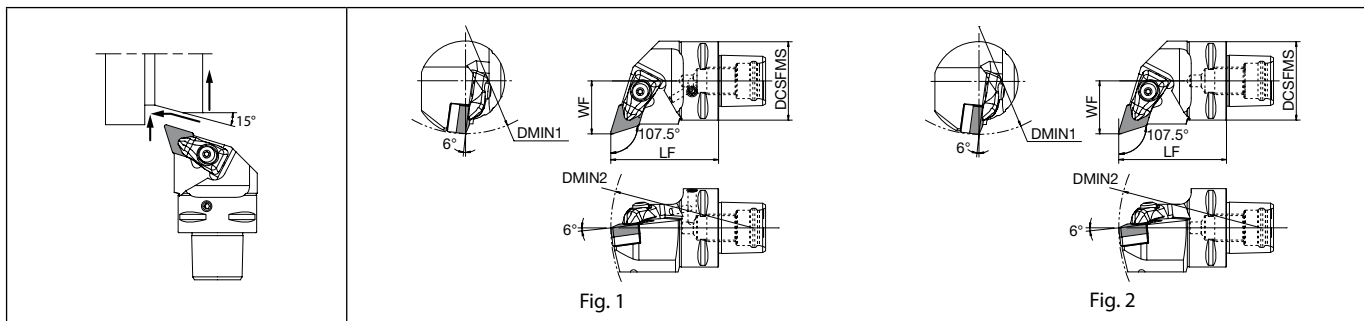
Pressure Resistance : up to 1,015 psi

When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

Shims indicated with * must be purchased separately for thicker inserts

Recommended Tightening Torque : 3.9 N·m

DDHN (External Turning / External Facing / External Copying)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Coolant Hole	Dimensions					Standard Corner-R(RE)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Spare Parts						Applicable Inserts
		R	L		DCSFMS	LF	WF	DMIN1	DMIN2					Clamp	Screw (for clamp)	Spring	Shim	Screw	Wrench	
mm	KPC3-DDHN % 22050-15A	●	●	Yes	32	50	22	121	0.8	-6	-6	1							DN□A43... DN□G43... DN□M43...	
	KPC4-DDHN % 27055-15A	●	●		40	55	27	110												145
	KPC5-DDHN % 35060-15A	●	●		50	60	35													165
	KPC3-DDHN % 22050-15S	●	●	No	32	50	22	121	0.8	-6	-6	2							DN□A43... DN□G43... DN□M43...	
	KPC4-DDHN % 27055-15S	●	●		40	55	27	110												145
	KPC5-DDHN % 35060-15S	●	●		50	60	35													165

Pressure Resistance : up to 1,015 psi

When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

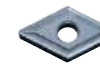
Shims indicated with * must be purchased separately for thicker inserts

Recommended Tightening Torque : 3.9 N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

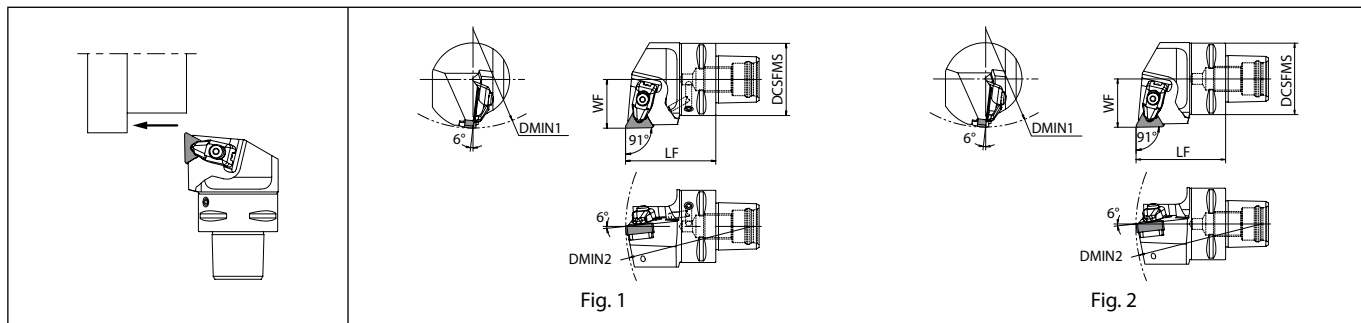
Contact your local Kyocera sales engineer to upgrade old products to new technology

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing
Insert								
Chipbreaker	PP	GP	PQ	HQ	CQ	CJ	TN-V	PMG
Page	B24	B24	B24	B25	B25	B25	B25	B25
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing
Insert								
Chipbreaker	GS	PG	PS	PT	GT	Standard	PH	PX
Page	B25	B26	B26	B26	B26	B27	B27	B27
Applications	Medium	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Large ap	Medium - Roughing
Insert								
Chipbreaker	R/L	XF	XP	XQ	XS	SK	R-LD	FP-TK
Page	B32	B27	B27	B27	B27	B28	B28	B28
Applications	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	TK	MQ	MS	MU	KQ	KG	KH	C
Page	B28	B28	B29	B29	B30	B30	B30	B30
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys
Insert								
Chipbreaker	ZS	GC	No Chipbreaker	Ceramic	% -A3	AH	PCD	SQ
Page	B30	B30	B31	B114	B31	B31	C35	B29
Applications	Heat-Resistant Alloys	Hard Materials / Cast Iron	Hard Materials	Hard Materials	Hard Materials			
Insert								
Chipbreaker	SG	CBN	HH	HL	HD			
Page	B29	C10	C11	C11	C11			

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DTGN (External Turning)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Coolant Hole	Dimensions					Standard Corner-R(RE)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Applicable Inserts
		R	L		DCSFMS	LF	WF	DMIN1	DMIN2					
mm	KPC3-DTGN% 22040-16A	●	●	Yes	32	40	22	110	116	0.8	-6	-6	1	TN□A33... TN□G33... TN□M33...
	KPC4-DTGN% 27050-16A	●	●		40	50	27		140					
	KPC5-DTGN% 35060-16A	●	●		50	60	35		165					
	KPC3-DTGN% 22040-16S	●	●	No	32	40	22	110	116	0.8	-6	-6	2	TN□A33... TN□G33... TN□M33...
	KPC4-DTGN% 27050-16S	●	●		40	50	27		140					
	KPC5-DTGN% 35060-16S	●	●		50	60	35		165					

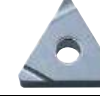
Part Number	Spare Parts						
	Clamp	Screw (for clamp)	Spring	Wrench (for clamp)	Shim	Screw	Wrench (for shim / sold separately)
KPC3-DTGN% 22040-16A	CP-2D	CS-2D	SP-2D	LW-2.5	DT-32	SB-3080TR	FT-10
KPC4-DTGN% 27050-16A							
KPC5-DTGN% 35060-16A							
KPC3-DTGN% 22040-16S	CP-2D	CS-2D	SP-2D	LW-2.5	DT-32	SB-3080TR	FT-10
KPC4-DTGN% 27050-16S							
KPC5-DTGN% 35060-16S							

Pressure Resistance : up to 1,015 psi

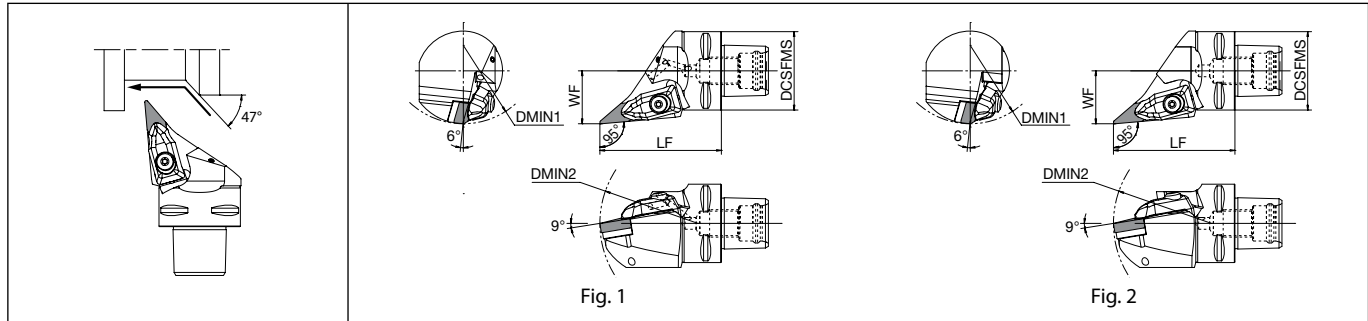
When using inserts with a corner-R (RE) greater than 1/16" (1.6 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

Recommended Tightening Torque : 1.7 N·m

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	PP	GP	PQ	HQ	CQ	PMG	GS	PG
Page	B39	B39	B39	B39	B39	B40	B40	B40
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing	Finishing	Finishing
Insert								
Chipbreaker	PS	PT	GT	Standard	PH	PX	P/L-SSF	P/L-S
Page	B40	B40	B40	B40	B41	B41	B45	B45
Applications	Finishing - Medium	Medium - Roughing	Medium - Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium
Insert								
Chipbreaker	P/L-B	P/L-C	P/L-25R	XF	XP	XQ	XS	SK
Page	B45	B46	B46	B41	B41	B41	B41	B42
Applications	Large ap	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless steel	Cast Iron
Insert								
Chipbreaker	R-LD	FP-TK	TK	MQ	MS	MU	P/L-ST	KQ
Page	B42	B42	B42	B42	B42	B42	B43	B43
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals
Insert								
Chipbreaker	KG	KH	C	ZS	GC	No Chipbreaker	Ceramic	P/L-A3
Page	B43	B43	B43	B43	B43	B44	B118	B44
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron				
Insert								
Chipbreaker	AH	PCD	SG	CBN				
Page	B44	C36	B43	C13				

DVLN (External Turning / External Copying)



Toolholder Dimensions

Right-hand shown

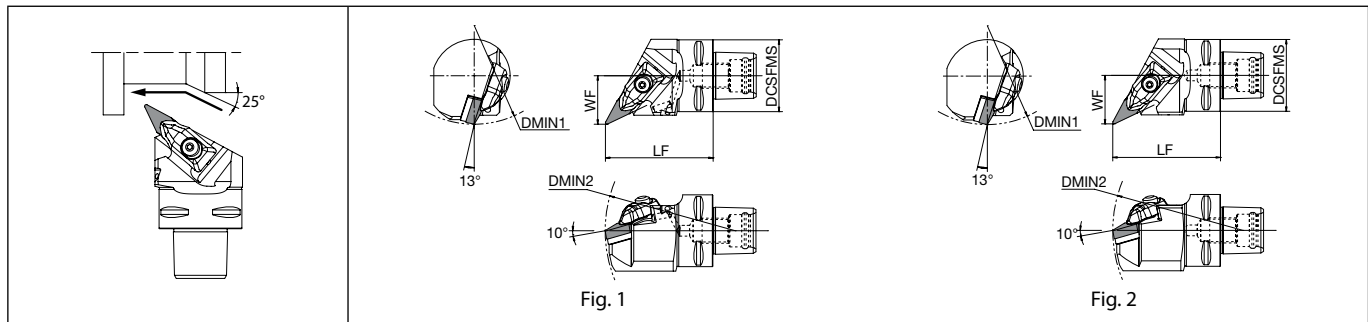
Unit	Part Number	Std. Item		Coolant Hole	Dimensions					Standard Corner-R(RE)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Spare Parts						Applicable Inserts
		R	L		DCSFMS	LF	WF	DMIN1	DMIN2					Clamp	Screw (for clamp)	Spring	Shim	Screw	Wrench	
mm	KPC3-DVLN% 22058-16A	●	●	Yes	32	58	22	80	100	0.8	-6	-9	1							VN□A33... VN□G33... VN□M33...
	KPC4-DVLN% 27062-16A	●	●		40	62	27													
	KPC5-DVLN% 35065-16A	●	●		50	65	35													
	KPC3-DVLN% 22058-16S	●	●	No	32	58	22	80	100	0.8	-6	-9	2							VN□A33... VN□G33... VN□M33...
	KPC4-DVLN% 27062-16S	●	●		40	62	27													
	KPC5-DVLN% 35065-16S	●	●		50	65	35													

Pressure Resistance : up to 1,015 psi

When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

Recommended Tightening Torque : 3.9 N·m

DVPN (External Turning / External facing / External Copying)



Toolholder Dimensions

Right-hand shown

Unit	Part Number	Std. Item		Coolant Hole	Dimensions					Standard Corner-R(RE)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Spare Parts						Applicable Inserts
		R	L		DCSFMS	LF	WF	DMIN1	DMIN2											
mm	KPC3-DVPN% 22055-16A	●	●	Yes	32	55	22		130	0.8	-13	-10	1							VN□A33... VN□G33... VN□M33...
	KPC4-DVPN% 27060-16A	●	●		40	60	27	110	145											
	KPC5-DVPN% 35065-16A	●	●		50	65	35		165											
	KPC3-DVPN% 22055-16S	●	●	No	32	55	22		130	0.8	-13	-10	2							VN□A33... VN□G33... VN□M33...
	KPC4-DVPN% 27060-16S	●	●		40	60	27	110	145											
	KPC5-DVPN% 35065-16S	●	●		50	65	35		165											

Pressure Resistance : up to 1,015 psi

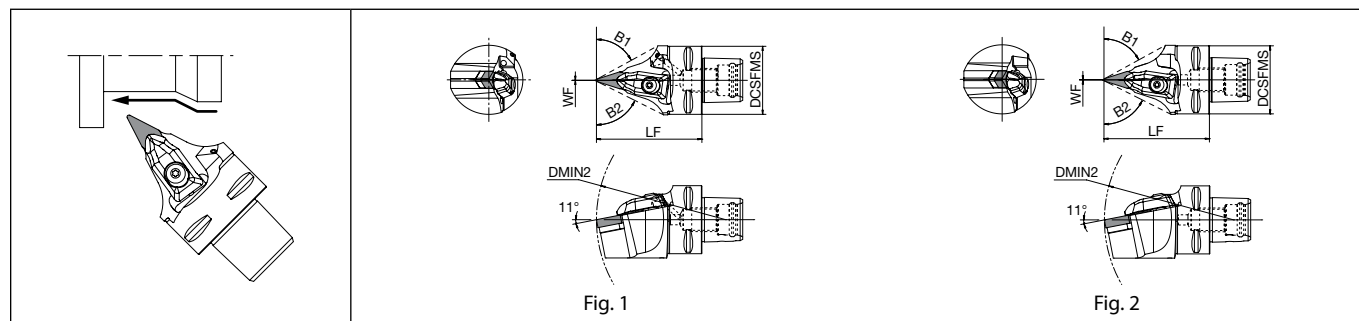
When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

Recommended Tightening Torque : 3.9 N·m

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

DVVN (External Copying)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item	Coolant Hole	Dimensions				Angle (°)		Standard Corner-R(RE)	Fig.	Spare Parts						Applicable Inserts
				DCSFMS	LF	WF	DMIN2	B1	B2			Clamp	Screw (for clamp)	Screw	Shim	Spring	Wrench	
		N																
mm	KPC4-DVVNN 00062-16A	●	Yes	40	62	0	152	61	63	0.8	1							VN□A33... VN□G33... VN□M33...
	KPC5-DVVNN 00065-16A	●		50	65	0	170	59	59									
	KPC3-DVVNN 00058-16S	●	No	32	58	0	140	68	68	0.8	2							
	KPC4-DVVNN 00062-16S	●		40	62	0	152	61	63									
	KPC5-DVVNN 00065-16S	●		50	65	0	170	59	59									

Pressure Resistance : up to 1,015 psi

When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the shim are necessary in order to prevent workpiece and shim from interfering with each other.

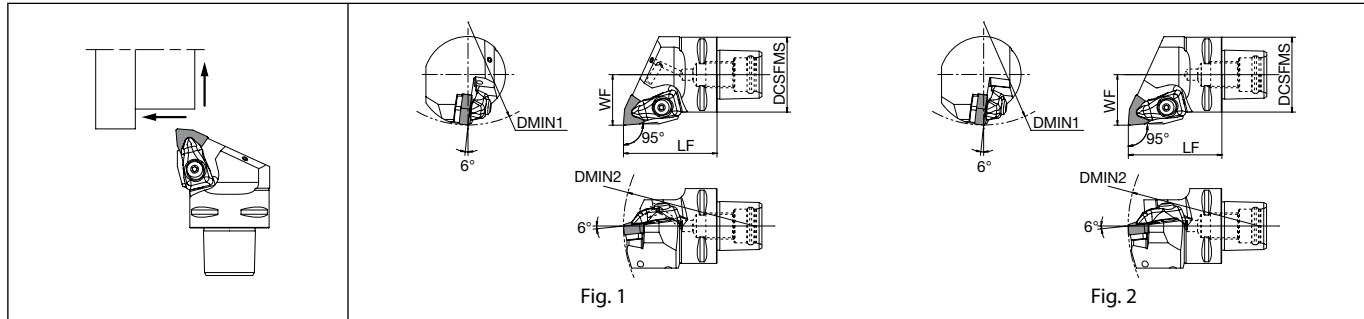
Recommended Tightening Torque : 3.9 N·m

Angle B1 and B2 show the area of interference between the holder and the cutting edge

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium	Roughing
Insert								
Chipbreaker	PP	GP	R ₁ /VC	VF	PQ	HQ	TN-V	Standard
Page	B47	B47	B47	B47	B47	B47	B47	B47
Applications	Finishing - Medium	Finishing	Medium	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron
Insert								
Chipbreaker	SK	R ₁ /S	R/L	MQ	MS	MU	KG	KH
Page	B48	B49	B49	B48	B48	B48	B48	B48
Applications	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron			
Insert								
Chipbreaker	No Chipbreaker	Ceramic	PCD	SG	CBN			
Page	B49	B119	C37	B48	C14			

DWLN (External Turning / External Facing)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Coolant Hole	Dimensions				Standard Corner-R(RE)	Side Rake Angle (°)	Inclination Angle (°)	Fig.	Spare Parts						Applicable Inserts
		R	L		DCSFMS	LF	WF	DMIN1					Clamp	Screw (for clamp)	Spring	Shim	Screw	Wrench	
mm	KPC3-DWLN% 22047-08A	●	●	Yes	32	47	22	121	0.8	-6	-6	1	CP-3D-S	CS-3D-TR	SP-3D	DW-42	SB-4085TR	FT-15	WN□A43... WN□G43... WN□M43...
	KPC4-DWLN% 27050-08A	●	●		40	50	27	110											
	KPC5-DWLN% 35060-08A	●	●		50	60	35	165											
	KPC3-DWLN% 22047-08S	●	●	No	32	47	22	121	0.8	-6	-6	2	CP-3D-S	CS-3D-TR	SP-3D	DW-42	SB-4085TR	FT-15	WN□A43... WN□G43... WN□M43...
	KPC4-DWLN% 27050-08S	●	●		40	50	27	110											
	KPC5-DWLN% 35060-08S	●	●		50	60	35	165											

Pressure Resistance : up to 1,015 psi

Recommended Tightening Torque : 3.9 N·m

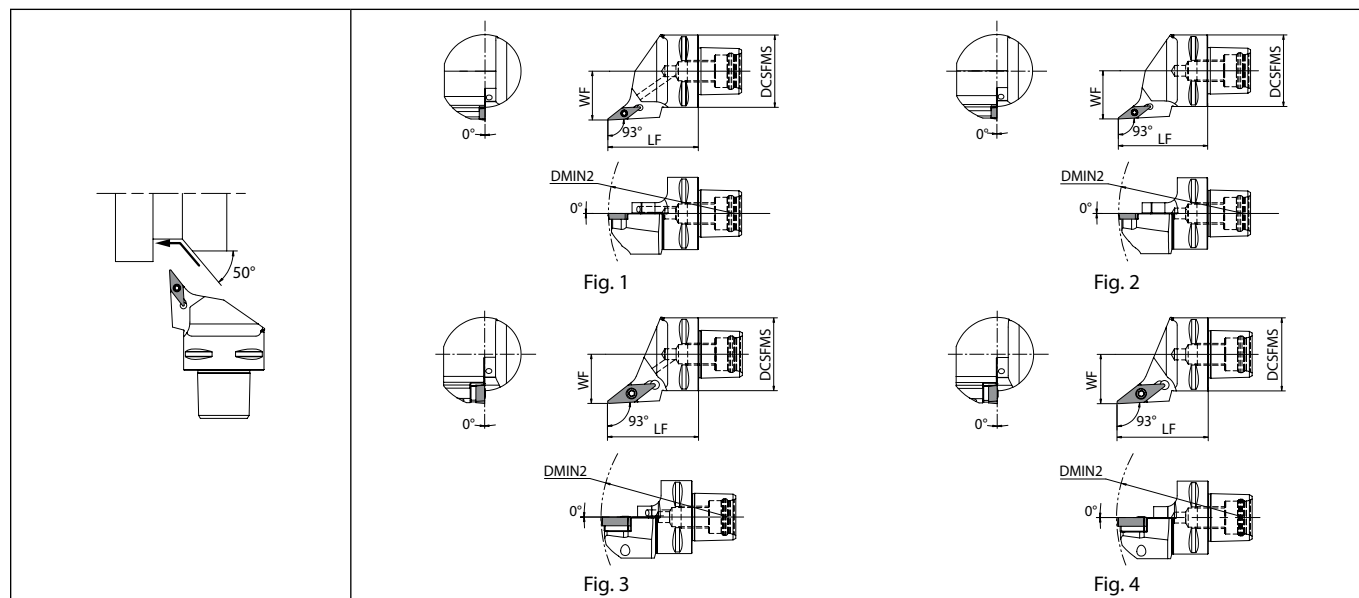
Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B50	B50	B50	B50	B50	B50	B50	B51
Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	CQ	CJ	PMG	GS	PG	PS	PT	GT
Page	B51	B51	B51	B51	B51	B51	B51	B52
Applications	Roughing	Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Stainless steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker	Standard	PH	XP	XQ	XS	TK	MQ	MS
Page	B52	B52	B52	B52	B52	B52	B53	B53
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	MU	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B53	B53	B53	B53	B54	B54	B54	B54
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron				
Insert								
Chipbreaker	AH	PCD	SG	CBN				
Page	B54	C38	B53	C15				

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

SVJB (External Turning / External Copying)



Right-hand shown

Toolholder Dimensions

Unit	Part Number	Std. Item		Coolant Hole	Dimensions				Standard Corner-R(RE)	Fig.	Spare Parts						Applicable Inserts
											Screw	Wrench	Wrench	Shim	Shim Screw	Wrench	
		R	L		DCSFMS	LF	WF	DMIN2									
mm	KPC3-SVJB% 22040-11A	●	●	Yes	32	40	22	116	0.4	1	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	KPC4-SVJB% 27050-11A	●	●		40	50	27	140									
	KPC5-SVJB% 35060-11A	●	●		50	60	35	165									
	KPC3-SVJB% 22040-11S	●	●	No	32	40	22	116	0.4	2	SB-2570TR	-	FT-8	-	-	-	VB□T22... VB□W22...
	KPC4-SVJB% 27050-11S	●	●		40	50	27	140									
	KPC5-SVJB% 35060-11S	●	●		50	60	35	165									
	KPC3-SVJB% 22047-16A	●	●	Yes	32	47	22	116	0.8	3	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	KPC4-SVJB% 27050-16A	●	●		40	50	27	140									
	KPC5-SVJB% 35060-16A	●	●		50	60	35	165									
	KPC3-SVJB% 22047-16S	●	●	No	32	47	22	116	0.8	4	SB-40125TRN	FT-15	-	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	KPC4-SVJB% 27050-16S	●	●		40	50	27	140									
	KPC5-SVJB% 35060-16S	●	●		50	60	35	165									

Pressure Resistance : up to 1,015 psi

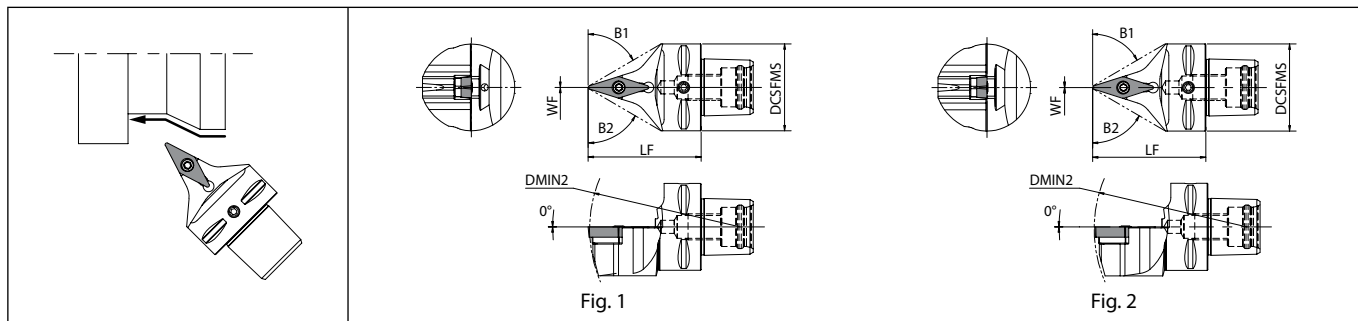
Recommended Tightening Torque is 1.2N·m for VB..22 inserts and 3.5N·m for VB(C)..33 inserts.

When using inserts with a corner-R (RE) greater than 1/32" (0.8 mm), additional modifications to the toolholder are necessary in order to prevent workpiece and shim from interfering with each other.

When using inserts with a corner-R (RE) greater than 3/64" (1.2 mm), additional modifications to the toolholder or shim are necessary in order to prevent workpiece and shim from interfering with each other.

When using inserts with a corner-R (RE) of 0.008" and 1/64" (0.2mm and 0.4mm), shim (SVN-32S*) is recommended (sold separately).

SVVB (External Copying)



Toolholder Dimensions

Unit	Part Number	Std. Item	Coolant Hole	Dimensions				Angle (°)		Standard Corner-R(RE)	Fig.	Spare Parts					Applicable Inserts
				DCSFMS	LF	WF	DMIN2	B1	B2			Screw	Wrench	Shim	Shim Screw	Wrench	
mm	KPC3-SVVBN 00048-16A	●	Yes	32	48	0	116	62	62	0.8	1	SB-40125TRN	FT-15	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	KPC4-SVVBN 00052-16A	●		40	52	0	140	59	59								
	KPC5-SVVBN 00060-16A	●		50	60	0	165	56	56								
	KPC3-SVVBN 00048-16S	●	No	32	48	0	116	62	62	0.8	2	SB-40125TRN	FT-15	SVN-32N (SVN-32S*)	SS-4N	LW-4	VB□T33... VB□W33... VC□T33...
	KPC4-SVVBN 00052-16S	●		40	52	0	140	59	59								
	KPC5-SVVBN 00060-16S	●		50	60	0	165	56	56								

Pressure Resistance : up to 1,015 psi

When using inserts with a corner-R (RE) of 0.008" and 1/64" (0.2mm and 0.4mm), shim (SVN-32S*) is recommended (sold separately).

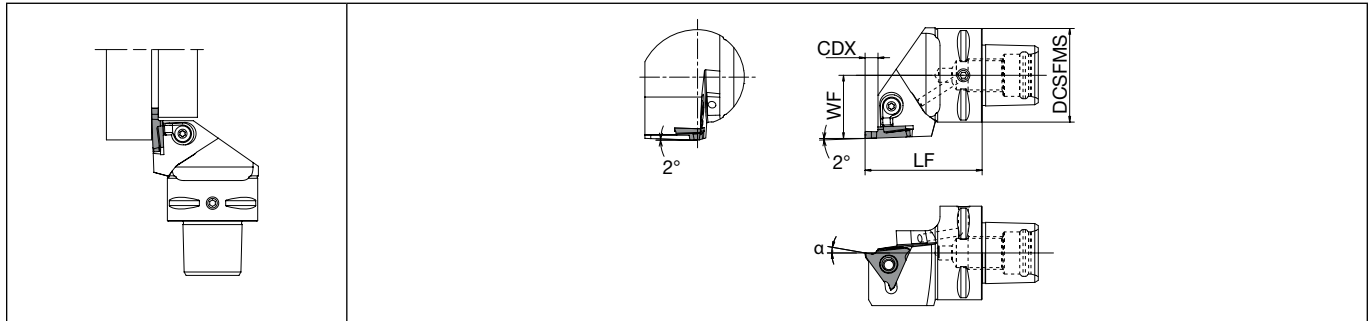
Angle B1 and B2 show the area of interference between the holder and the cutting edge

Recommended Tightening Torque : 3.5 N·m

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Non-Ferrous Metals
Insert								
Chipbreaker	PP	GP	VF	HQ	F/F	F/FSF	Y	PCD
Page	B97	B97	B97	B97	B98	B98	B99	C49
Applications	Hard Materials							
Insert								
Chipbreaker	CBN							
Page	C26							

KGBA (Shallow Grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Coolant Hole	Dimensions				Spare Parts		Applicable Inserts  G6~G12
		R	L		DCS/FMS	LF	WF	CDX	Clamp Set	Wrench	
											
mm	KPC3-KGBA % 22040-16	●	●	Yes	32	40	22	2.5	LGBA-16% S	FT-15	GBA32% ...
	KPC4-KGBA % 27050-16	●	●		40	50	27				
	KPC5-KGBA % 35060-16	●	●		50	60	35				
	KPC3-KGBA % 22040-2215	●	●	Yes	32	40	22	4	LGBA-22% S	FT-15	GBA43% ...
	KPC4-KGBA % 27050-2215	●	●		40	50	27				
	KPC5-KGBA % 35060-2215	●	●		50	60	35				
	KPC3-KGBA % 22040-2225	●	●	Yes	32	40	22	5.5	LGBA-22% S	FT-15	
	KPC4-KGBA % 27050-2225	●	●		40	50	27				
	KPC5-KGBA % 35060-2225	●	●		50	60	35				
	KPC3-KGBA % 22040-2235	●	●	Yes	32	40	22	5.5	LGBA-22% S	FT-15	
	KPC4-KGBA % 27050-2235	●	●		40	50	27				
	KPC5-KGBA % 35060-2235	●	●		50	60	35				

Pressure Resistance : up to 1,015 psi

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : See "CDX" dimension of Insert.

Clamp Set : LGBA-○○RS for Right-hand Toolholder and LGBA-○○LS for Left-hand Toolholder.

Rake Angle (α) after Installment of Insert (Ref. table below.)

Rake Angle (α) after Installment of GBA insert

GBA32 ^{R/L} 000-000		GBA43 ^{R/L} 000-000		GBA43 ^{R/L} 000-000R (Full-R)		
α	Insert Grades	α	Insert Grades	α	Insert Grades	Full-R Part Number
10°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215 KPD001, KPD010	0°	KBN510, KBN525	10°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215	050R~150R
		10°	TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215 KPD001, KPD010		TN620, TN90, PV7040 PR2015, PR2025, PR1625, PR1215	200R
20°	KW10	20°	KW10	14°	KW10	050R~200R

Rake Angle (α) after Installment of GBA-GM insert

α	Insert Part Number
10°	GBA43%L 150-020GM
15°	GBA43%L 175-020GM
	GBA43%L 265-030GM
12°	GBA43%L 300-030GM
	GBA43%L 400-040GM

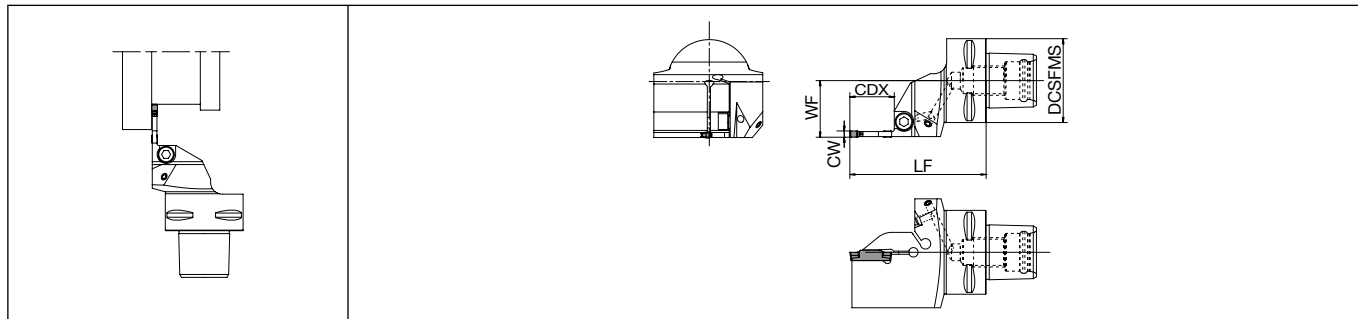
α indicates the rake angle at the center of the edge width, after installing insert.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

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INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGD (External Grooving)



Right-hand shown

Toolholder Dimensions

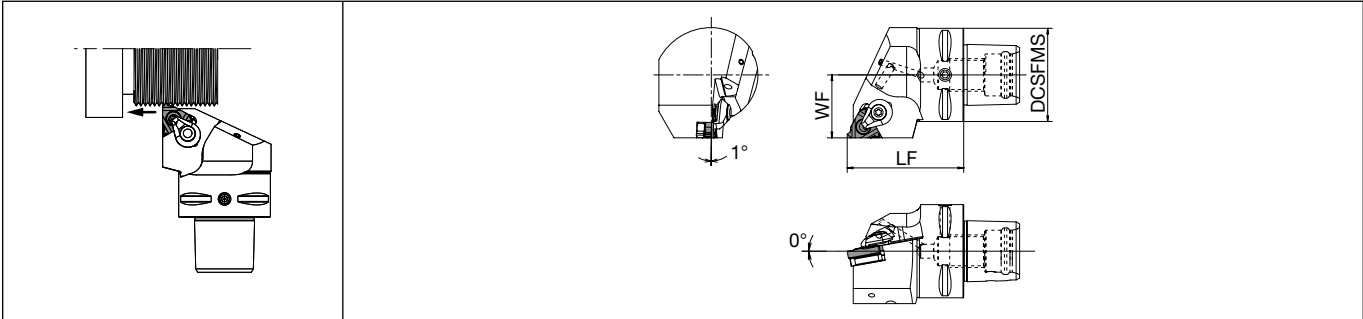
Unit	Part Number	Std. Item		Coolant Hole	Dimensions						Spare Parts		Applicable Inserts ➡ G30~G33
		R	L		DCSfMS	LF	WF	CDX	CW min.	CW max.			
mm	KPC3-KGD 22050-2T10	●	●	Yes	32	50	22	10	2	3	HH5X16	LW-4	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...
	KPC4-KGD 27055-2T10	●	●		40	55	27						
	KPC5-KGD 35060-2T10	●	●		50	60	35						
	KPC3-KGD 22055-2T17	●	●	Yes	32	55	22	17			HH5X16	LW-4	
	KPC4-KGD 27060-2T17	●	●		40	60	27						
	KPC5-KGD 35060-2T17	●	●		50	60	35						
	KPC3-KGD 22050-3T10	●	●	Yes	32	50	22	10	3	4	HH5X16	LW-4	GD..3020... GD..3520... GD..4020...
	KPC4-KGD 27055-3T10	●	●		40	55	27						
	KPC5-KGD 35060-3T10	●	●		50	60	35						
	KPC3-KGD 22060-3T20	●	●	Yes	32	60	22	20			HH5X16	LW-4	
	KPC4-KGD 27065-3T20	●	●		40	65	27						
	KPC5-KGD 35065-3T20	●	●		50	65	35						
	KPC3-KGD 22050-4T10	●	●	Yes	32	50	22	10	4	5	HH5X16	LW-4	GD..4020... GD..5020...
	KPC4-KGD 27055-4T10	●	●		40	55	27						
	KPC5-KGD 35060-4T10	●	●		50	60	35						
	KPC4-KGD 27065-4T20	●	●	Yes	40	65	27	20			HH5X16	LW-4	
	KPC5-KGD 35065-4T20	●	●		50	65	35						
	KPC4-KGD 27070-4T25	●	●		40	70	27						
KPC5-KGD 35070-4T25	●	●	Yes	50	70	35	25	HH5X16	LW-4				
KPC4-KGD 27055-5T10	●	●		Yes	40	55				27	10	HH5X16	LW-4
KPC5-KGD 35060-5T10	●	●			50	60				35			
KPC4-KGD 27060-5T17	●	●	Yes	40	60	27	17	HH5X16	LW-4	GD..5020... GD..6020...			
KPC5-KGD 35060-5T17	●	●		50	60	35							

Pressure Resistance : up to 1,015 psi

Recommended Tightening Torque : 6.5 N·m

CDX dimension shows available grooving depth (if CDX dimension is 20mm or more, using a 2-edge insert, the maximum grooving depth is 18mm)

KTN (External Threading)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Coolant Hole	Dimensions			Spare Parts				Applicable Inserts ➡ J6, J8, J10 J12, J14, J16 J18, J20
		R	L		DCSFM	LF	WF					
mm	KPC3-KTN% 22040-16	●	●	Yes	32	40	22					16E% type
KPC4-KTN% 27050-16	●	●	40		50	27						
KPC5-KTN% 35060-16	●	●	50		60	35						

Pressure Resistance : up to 1,015 psi

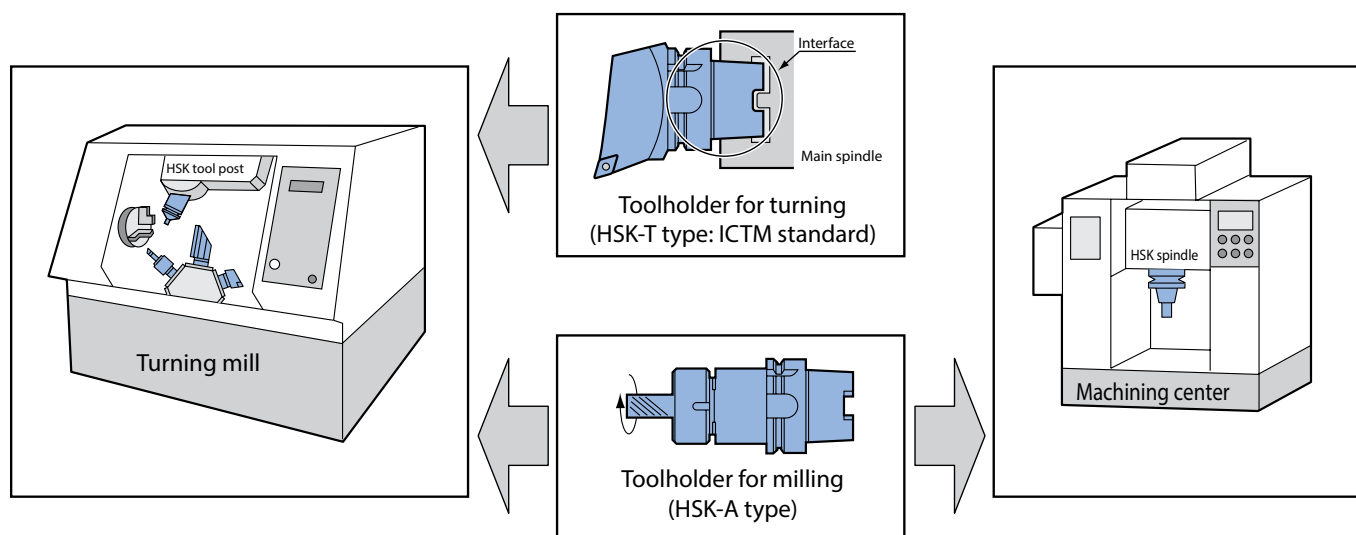
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Tools for Mill Turn

HSK-T Series

- The turning mill is a machine that combines turning and milling functions. Now an interface (between workpiece and toolholder - similar to a milling arbor) is available for the turning mill that fulfils the ICTM standard.
- ICTM standard was developed by 16 companies in Japan, as the interface between turning mill machines. It is based on the two-face restraint type standard "ISO 12164-1:2001 HSK Standard Shank"
- This standard became an International Standard as ISO Standard "ISO12164-3:2008" in 2008.
Part Number is indicated as HSK-○○○.

1 Compatible with HSK-A type for Machining Centers

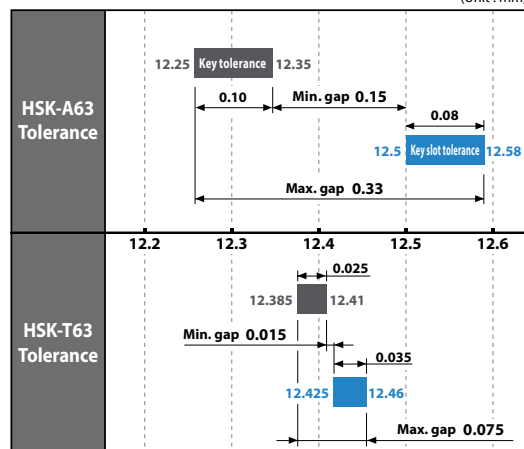


2 Machining Precision

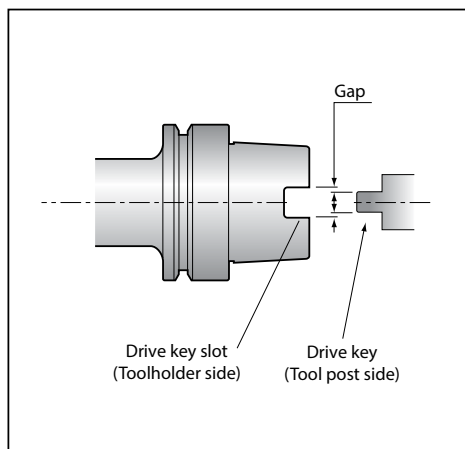
Machining precision for turning is improved by minimizing the gap between the drive key slot on the toolholder side and the drive key on the toolpost side.

Gap Comparison of a Key and Key Slot

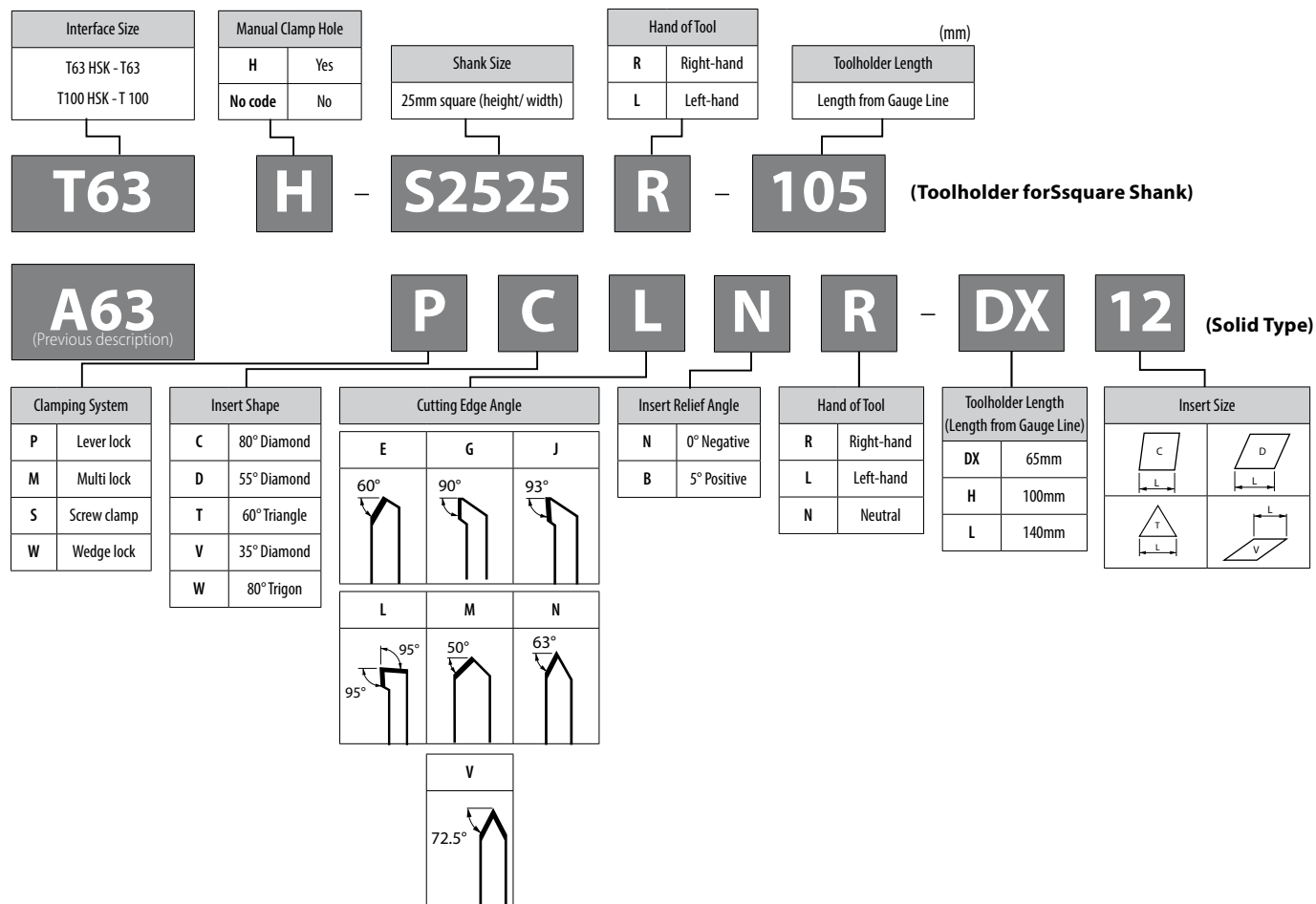
(Unit : mm)



Gap Effect

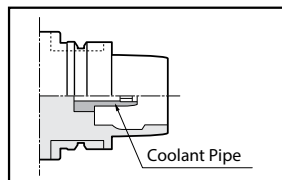


Identification System (External Holders)



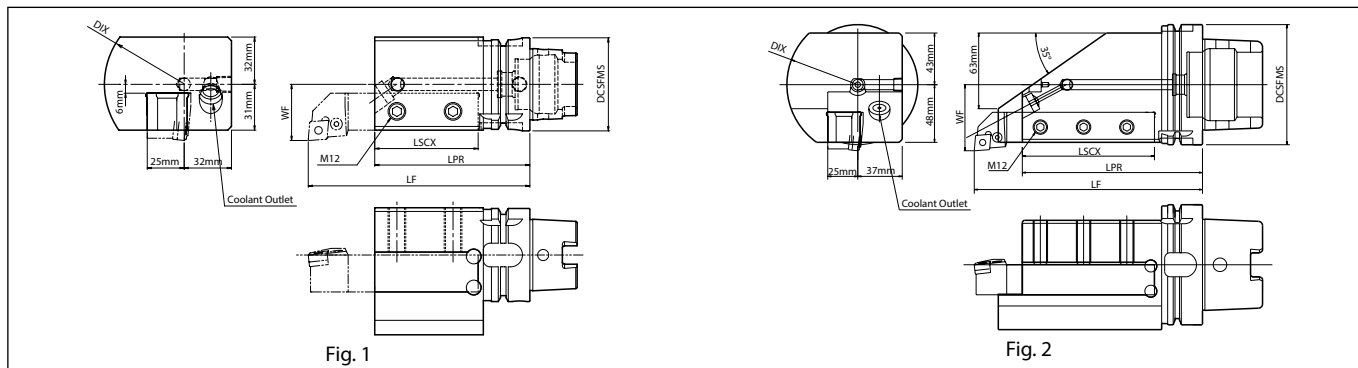
Coolant Pipe

Coolant Pipe is built into toolholder.



INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Toolholder for Square Shank (External Turning / External Facing)



Right-hand shown

Toolholder Dimensions

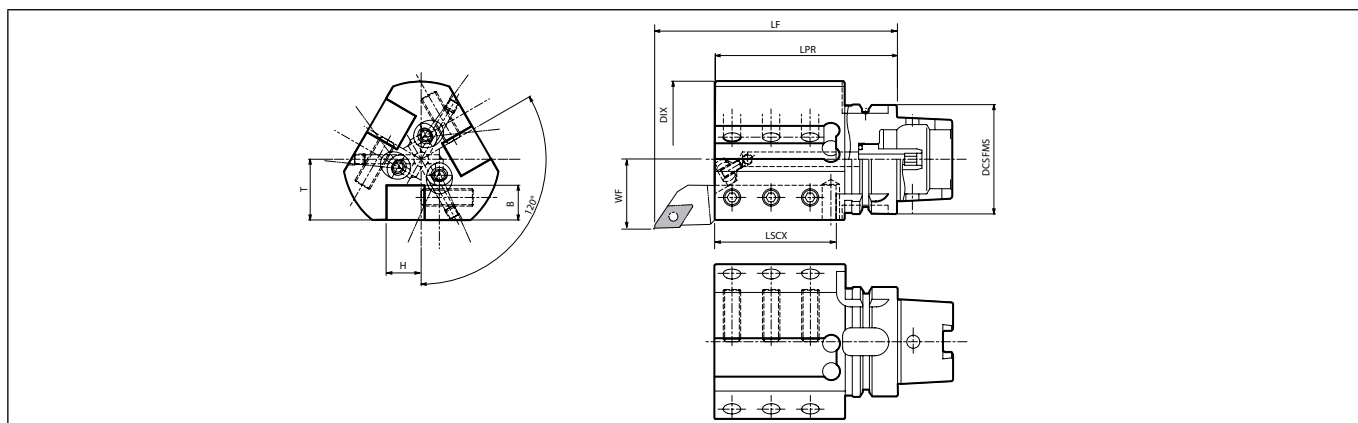
Unit	Part Number	Std. Item		Dimensions						Fig.	Spare Parts		
											Screw	Coolant Pipe	Wrench
		R	L	DCSFMS	DIX	LF	LPR	LSCX	WF				
mm	T63H- S2525%L-105	●	●	63	108	150	105	70	38	1	HS12X25	CL63-1	LW-6
mm	T100H- S2525%L-150	●	●	100	118	190	150	110	55	2	HS12X30	CL100-1	LW-6

Coolant outlet direction is adjustable.

For 25mm square shank.

These toolholders are not compatible with Mazak INTEGREX i and j series.

Toolholder for Square Shank (External Turning / External Facing)



Right-hand shown

Toolholder Dimensions

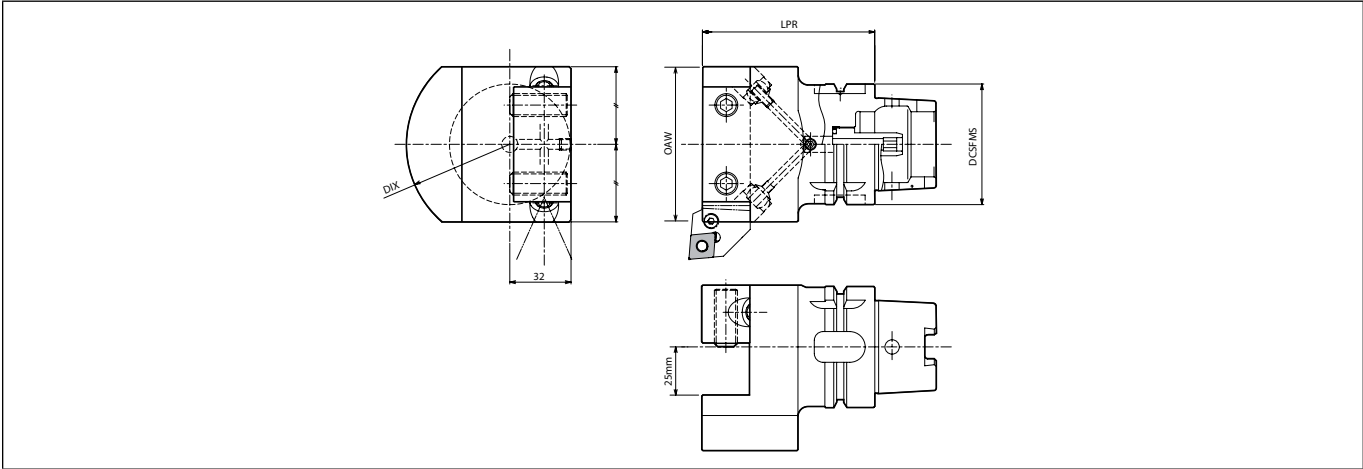
Unit	Part Number	Std. Item		Dimensions								Spare Parts		
												Screw	Coolant Pipe	Wrench
		R	DCSFMS	DIX	H	B	T	LF	LPR	LSCX	WF			
mm	T63H- S2020R-105T	●	63	90	20	20	35	150	105	70	40	HS12X30	CL63-1	LW-6
mm	T100H- S2525R-150T	●	100	118	25	25	48	190	150	110	55	HS12X35	CL100-1	LW-6

Coolant outlet direction is adjustable.

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Toolholder for Square Shank (External Facing / External Turning)



Right-hand shown

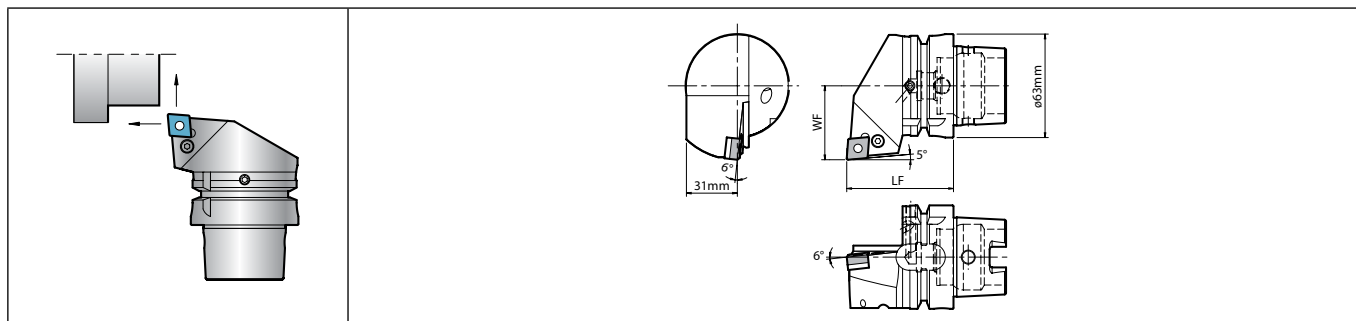
Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions				Spare Parts		
							Screw	Coolant Pipe	Wrench
		N	DCSFMS	DIX	LPR	OAW			
mm	T63H- S2525-90F S2525-120F	●	63	108	90	81	HS12X30	CL63-1	LW-6
		●			120				
	T100H- S2525-105F S2525-150F	●	100	118	105	96	HS12X30	CL100-1	LW-6
		●			150				

Coolant outlet direction is adjustable.
These toolholders are not compatible with Yamazaki Mazak INTRGREX i and j series.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

PCLN (External Turning / External Facing)



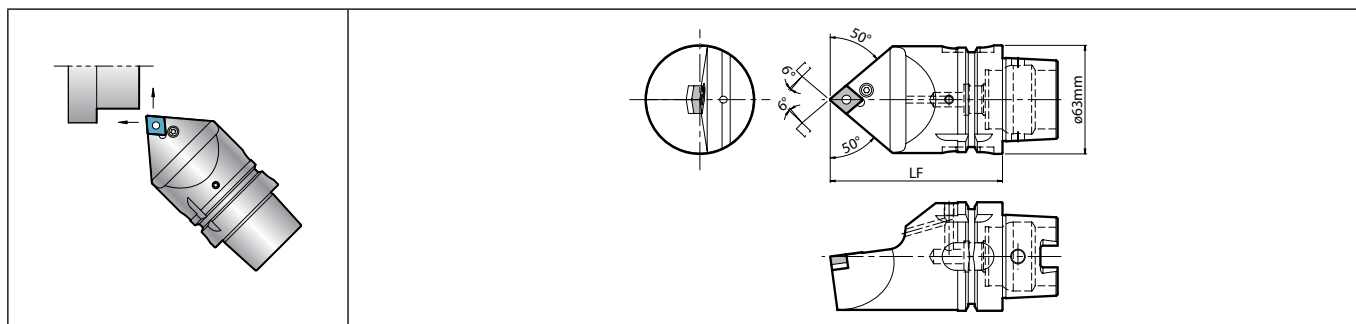
Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions		Spare Parts							Applicable Inserts
						Coolant Pipe	Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench	
		R	L	LF	WF								
mm	T63H- PCLN [●] -DX12	●	●	65	45	CL63-1	LL-2N	LS-2N	PC-2	LSP-2	LC-42N (LC-42N-C*)	LW-3	CN□A43..., CN□G43... CN□M43...

When using inserts with SX chipbreaker, use shim (-C type) sold separately.

PCMN (External Turning / External Facing)



Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions	Spare Parts								Applicable Inserts
				Coolant Pipe	Lever	Lock Screw	Punch	Shim Pin	Shim	Shim*	Wrench	
		N	LF									
mm	T63H- PCMNN-H12 PCMNN-L12	●	100	CL63-1	LL-2N	LS-2N	PC-2	LSP-2	LC-42N	LC-42N-C	LW-3	CN□A43..., CN□G43... CN□M43...
		●	140									

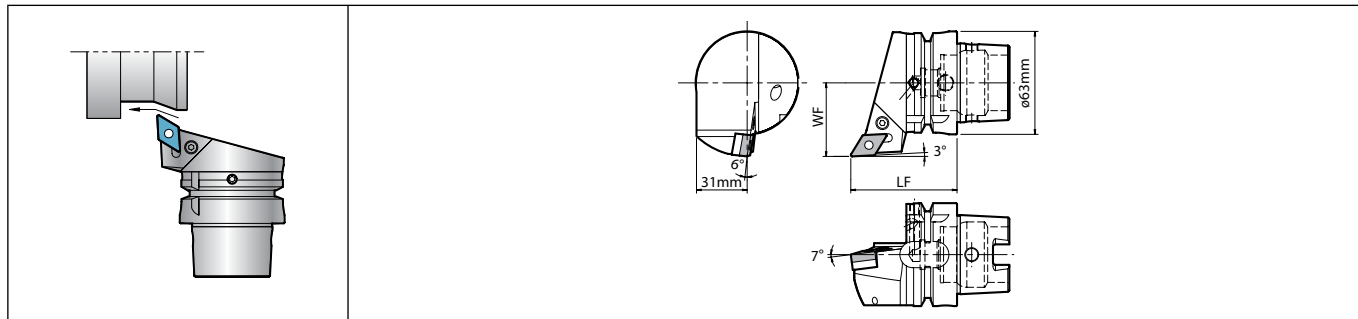
When using inserts with SX chipbreaker, use shim (-C type) sold separately.

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B16	B16	B16	B16	B16	B16	B16	B17
Applications	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	CQ	CJ	TN-V	PMG	GS	PG	PS	PT
Page	B17	B17	B17	B17	B17	B17	B18	B18
Applications	Medium - Roughing	Roughing	Roughing	Roughing	Medium	Medium - Roughing	Medium - Roughing	Low Carbon Steel
Insert								
Chipbreaker	GT	Standard	PH	PX	R/L	R/L-25R	Z	XF
Page	B18	B18	B18	B19	B23	B23	B23	B19
Applications	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker	XP	XQ	XS	SK	FP-TK	TK	MQ	MS
Page	B19	B19	B19	B19	B19	B20	B20	B20
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	MU	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B20	B21	B21	B21	B22	B22	B22	B22
Applications	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials / Cast Iron
Insert								
Chipbreaker	Ceramic	R/L-A3	AH	PCD	SQ	SG	R/L-SX	CBN
Page	B113	B23	B23	C34	B20	B21	B21	C8
Applications	Hard Materials	Hard Materials	Hard Materials					
Insert								
Chipbreaker	HH	HL	HD					
Page	C9	C9	C9					

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

PDJN (External Turning / External Copying)



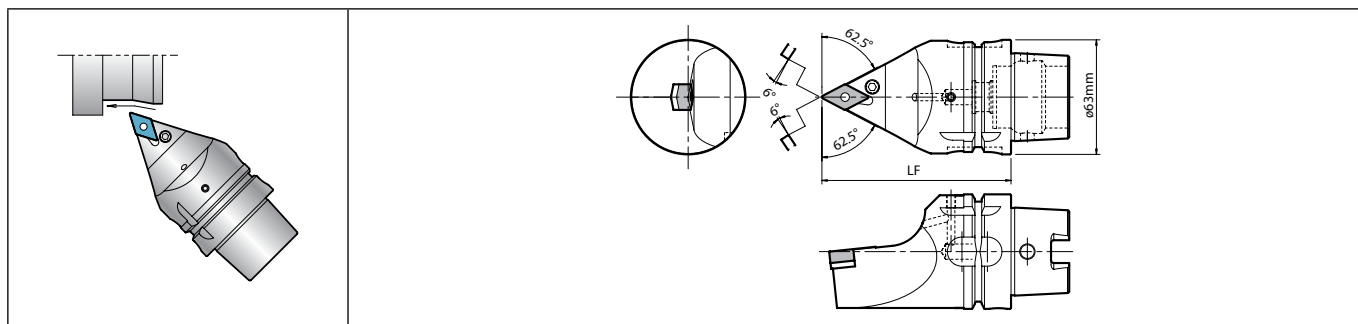
Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions		Spare Parts								Applicable Inserts
					Coolant Pipe	Lever	Lock Screw	Punch	Shim Pin	Shim	Shim*	Wrench	
		R	LF	WF									
mm	T63H- PDJNR-DX15	●	65	45	CL63-1	LL-3N	LS-2N	PC-2	LSP-2	LD-42	LD-42-20	LW-3	DN□A43..., DN□G43... DN□M43...

When using inserts with corner-R(RE) greater than 1/16" (1.6mm), please purchase shim LD-42-20* (sold separately) to prevent workpiece and shim from interfering each other.

PDNN (External Turning / External Copying)

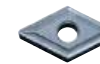


Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions		Spare Parts								Applicable Inserts
					Coolant Pipe	Lever	Lock Screw	Punch	Shim Pin	Shim	Shim*	Wrench	
		N	LF										
mm	T63H- PDNNN-H15	●	100		CL63-1	LL-3N	LS-2N	PC-2	LSP-2	LD-42	LD-42-20	LW-3	DN□A43..., DN□G43...
	PDNNN-L15	●	140										DN□M43...

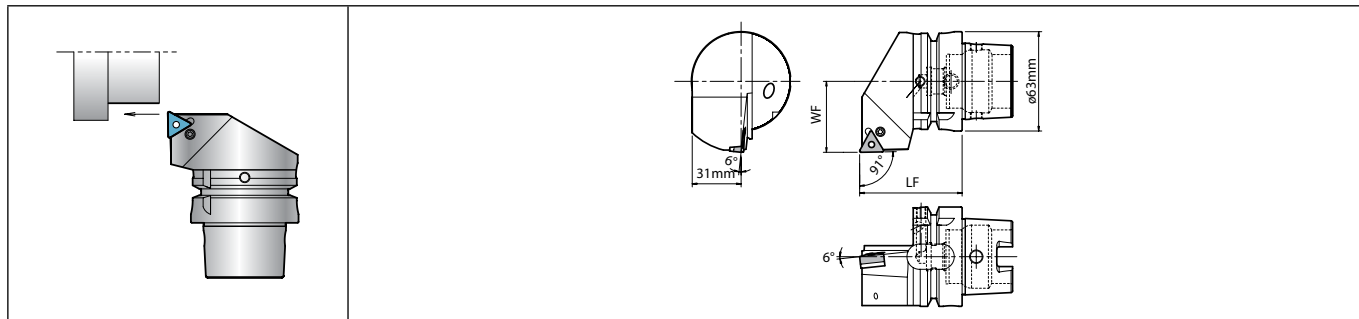
When using inserts with corner-R(RE) greater than 1/16" (1.6mm), please purchase shim LD-42-20* (sold separately) to prevent workpiece and shim from interfering each other.

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium	Medium - Roughing
Insert								
Chipbreaker	PP	GP	PQ	HQ	CQ	CJ	TN-V	PMG
Page	B24	B24	B24	B25	B25	B25	B25	B25
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing
Insert								
Chipbreaker	GS	PG	PS	PT	GT	Standard	PH	PX
Page	B25	B26	B26	B26	B26	B27	B27	B27
Applications	Medium	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium	Large ap	Medium - Roughing
Insert								
Chipbreaker	R/L	XF	XP	XQ	XS	SK	R-LD	FP-TK
Page	B32	B27	B27	B27	B27	B28	B28	B28
Applications	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	TK	MQ	MS	MU	KQ	KG	KH	C
Page	B28	B28	B29	B29	B30	B30	B30	B30
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys
Insert								
Chipbreaker	ZS	GC	No Chipbreaker	Ceramic	%/-A3	AH	PCD	SQ
Page	B30	B30	B31	B114	B31	B31	C35	B29
Applications	Heat-Resistant Alloys	Hard Materials / Cast Iron	Hard Materials	Hard Materials	Hard Materials			
Insert								
Chipbreaker	SG	CBN	HH	HL	HD			
Page	B29	C10	C11	C11	C11			

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

PTGN (External Turning)



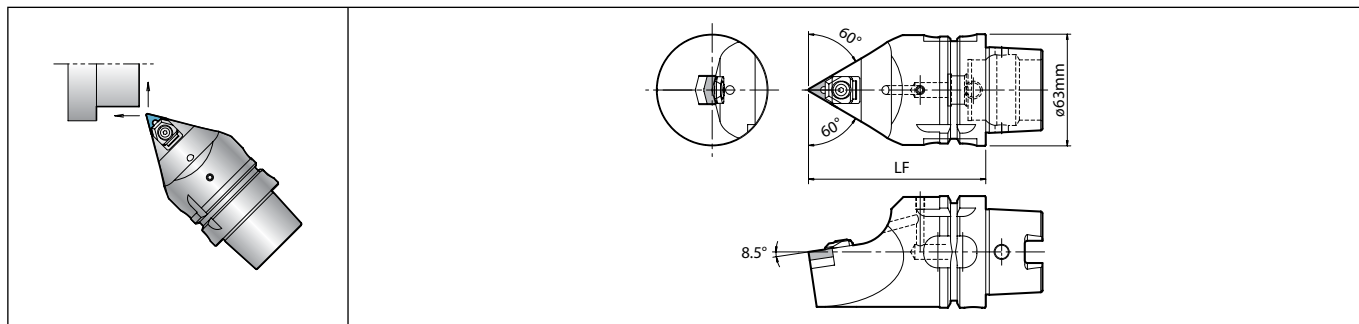
Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions		Spare Parts								Applicable Inserts
		R	L	LF	WF	Coolant Pipe	Lever	Lock Screw	Punch	Shim Pin	Shim	Shim*	Wrench	
mm	T63H- PTGN ^{9/16} -DX16	●	●	65	45	CL63-1	LL-1N	LS-1N	PC-1	LSP-1	LT-32N	LT-32N-20	FH-2.5	TN□A33..., TN□G33... TN□M33...

When using inserts with corner-R(RE) greater than 1/16" (1.6mm), please purchase shim LT-32N-20* (sold separately) to prevent workpiece and shim from interfering each other.

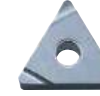
WTEN (External Turning / External Facing)



Toolholder Dimensions

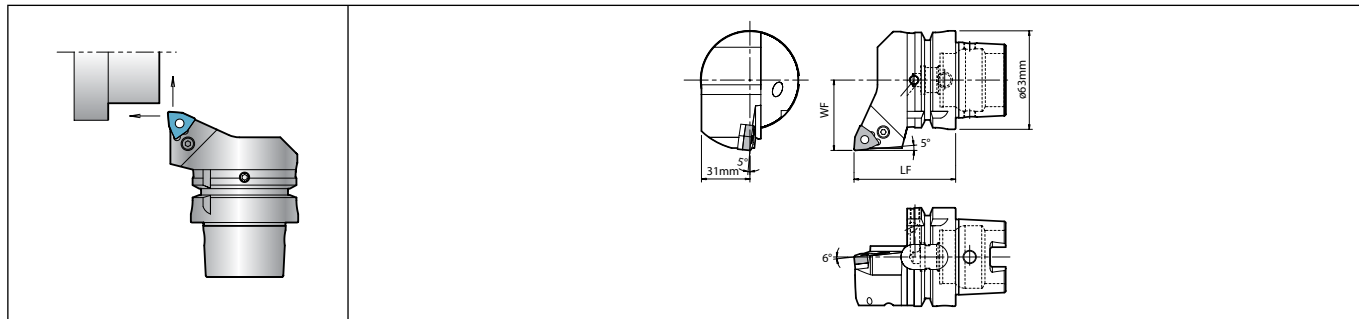
Unit	Part Number	Std. Item		Dimensions		Spare Parts							Applicable Inserts
		N	LF			Clamp Set	Coolant Pipe	Nut	Shim Pin	Shim	Spacer	Wrench	
mm	T63H- WTENN-H16 WTENN-L16	●	100			WCS-1N	CL63-1	WN-1	WP-1S	WTN-33	WSP-1	LW-3	TN□A33..., TN□G33... TN□M33...
		●	140										

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	PP	GP	PQ	HQ	CQ	PMG	GS	PG
Page	B39	B39	B39	B39	B39	B40	B40	B40
Applications	Medium - Roughing	Medium - Roughing	Medium - Roughing	Roughing	Roughing	Roughing	Finishing	Finishing
Insert								
Chipbreaker	PS	PT	GT	Standard	PH	PX	P/L-SSF	P/L-S
Page	B40	B40	B40	B40	B41	B41	B45	B45
Applications	Finishing - Medium	Medium - Roughing	Medium - Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Finishing - Medium
Insert								
Chipbreaker	P/L-B	P/L-C	P/L-25R	XF	XP	XQ	XS	SK
Page	B45	B46	B46	B41	B41	B41	B41	B42
Applications	Large ap	Medium - Roughing	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless steel	Cast Iron
Insert								
Chipbreaker	R-LD	FP-TK	TK	MQ	MS	MU	P/L-ST	KQ
Page	B42	B42	B42	B42	B42	B42	B43	B43
Applications	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron / Hard Materials	Non-Ferrous Metals
Insert								
Chipbreaker	KG	KH	C	ZS	GC	No Chipbreaker	Ceramic	P/L-A3
Page	B43	B43	B43	B43	B43	B44	B118	B44
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron				
Insert								
Chipbreaker	AH	PCD	SG	CBN				
Page	B44	C36	B43	C13				

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

PWLN (External Turning / External Facing)

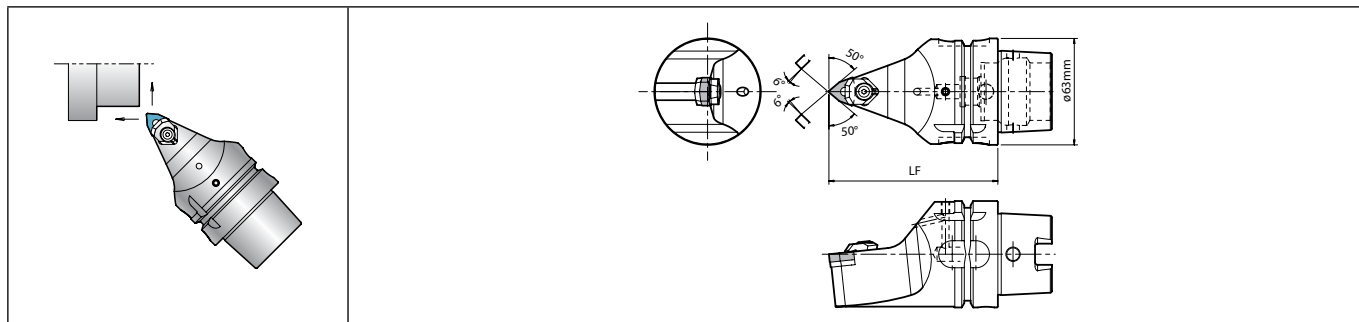


Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions		Spare Parts							Applicable Inserts
		R	L	LF	WF	Coolant Pipe	Lever	Lock Screw	Punch	Shim Pin	Shim	Wrench	
mm	T63H- PWLN [●] -DX08	●	●	65	45	CL63-1	LL-2N	LS-2N	PC-2	LSP-2	LW-42N	LW-3	WN□A43..., WN□G43... WN□M43...

WWMN (External Turning / External Facing)



Toolholder Dimensions

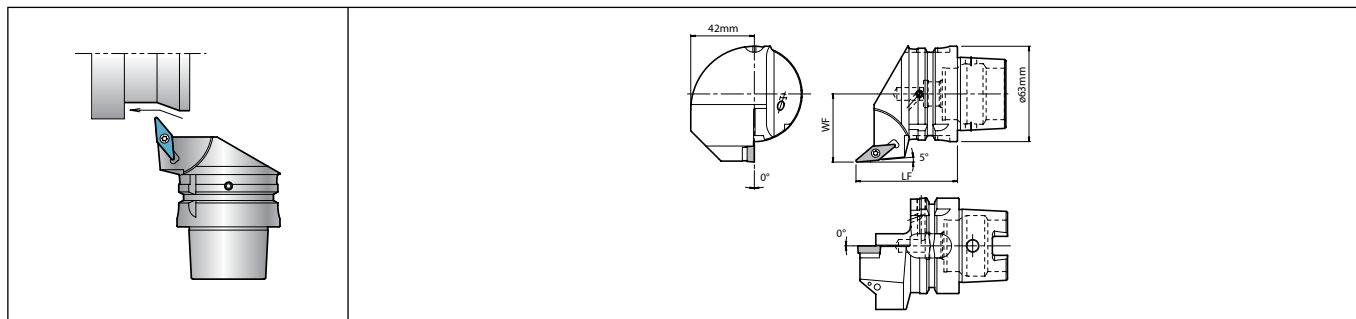
Unit	Part Number	Std. Item	Dimensions	Spare Parts						Applicable Inserts
				Clamp set	Coolant Pipe	Nut	Shim Pin	Shim	Wrench	
		N	LF							
mm	T63H- WWMNN-H08 WWMNN-L08	●	100	WCS-8	CL63-1	WN-1	WP5X15	WWN-42	LW-3	WN□A43..., WN□G43... WN□M43...
●	140									

Applicable Inserts

Applications	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Finishing	Finishing	Finishing - Medium	Finishing - Medium
Insert								
Chipbreaker	WF	WP	WE	WQ	PP	GP	PQ	HQ
Page	B50	B50	B50	B50	B50	B50	B50	B51
Applications	Finishing - Medium	Finishing - Medium	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing	Medium - Roughing
Insert								
Chipbreaker	CQ	CJ	PMG	GS	PG	PS	PT	GT
Page	B51	B51	B51	B51	B51	B51	B51	B52
Applications	Roughing	Roughing	Low Carbon Steel	Low Carbon Steel	Low Carbon Steel	Stainless steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys	Stainless Steel / Heat-Resistant Alloys
Insert								
Chipbreaker	Standard	PH	XP	XQ	XS	TK	MQ	MS
Page	B52	B52	B52	B52	B52	B52	B53	B53
Applications	Stainless Steel / Heat-Resistant Alloys	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert								
Chipbreaker	MU	KQ	KG	KH	C	ZS	GC	No Chipbreaker
Page	B53	B53	B53	B53	B54	B54	B54	B54
Applications	Non-Ferrous Metals	Non-Ferrous Metals	Heat-Resistant Alloys	Hard Materials / Cast Iron				
Insert								
Chipbreaker	AH	PCD	SG	CBN				
Page	B54	C38	B53	C15				

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SVLB (External Turning / External Copying)

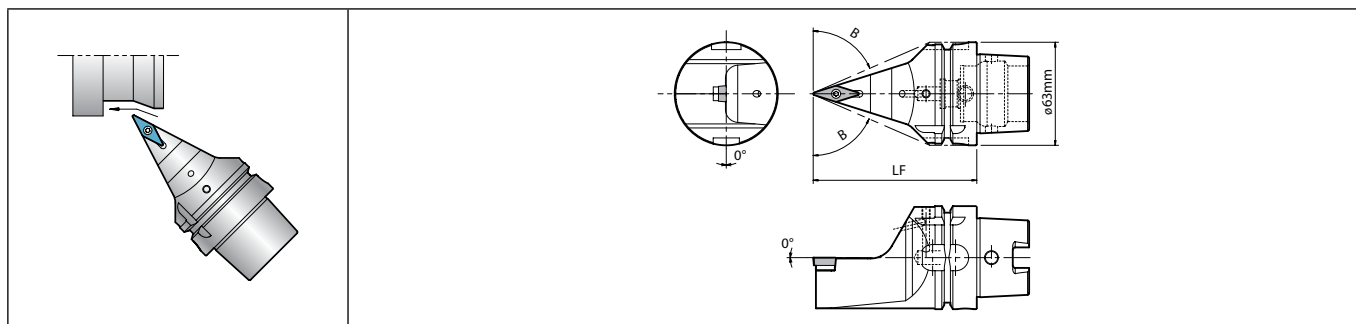


Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions		Spare Parts						Applicable Inserts
						Coolant Pipe	Screw	Shim Screw	Shim	Wrench	Wrench	
		R	L	LF	WF							
mm	T63H- SVLB%-DX16N	●	●	65	45	CL63-1	SB-40125TRN	SS-4N	SVN-32N	LW-4	FT-15	VB□T33..., VB□W33... VC□T33...

SVVB (External Turning / External Copying)



Toolholder Dimensions

Unit	Part Number	Std. Item		Dimensions	Spare Parts						Applicable Inserts
					Coolant Pipe	Screw	Shim Screw	Shim	Wrench	Wrench	
		N	LF	B (°)							
mm	T63H- SVVBN-H16N SVVBN-L16N	●	100	66.5	CL63-1	SB-40125TRN	SS-4N	SVN-32N	LW-4	FT-15	VB□T33..., VB□W33... VC□T33...
		●	140	72.5							

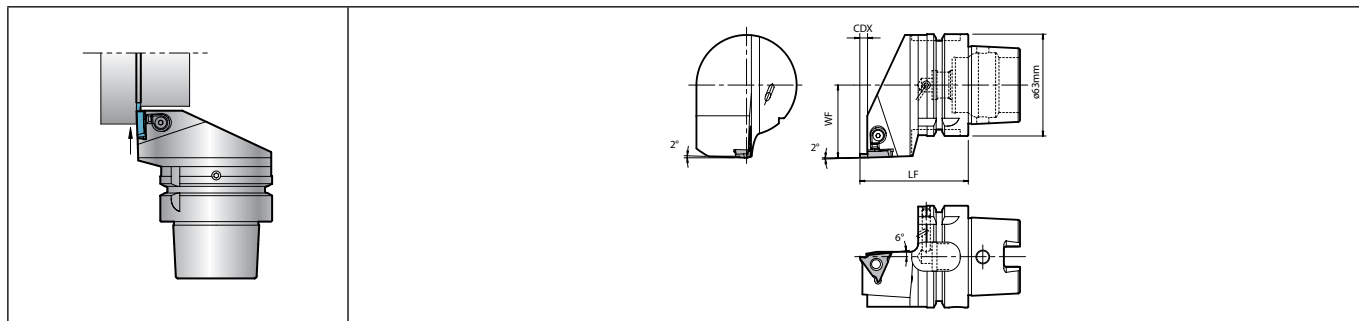
Angle B show the interference angle from the line of cutting edge and toolholder.

Applicable Inserts

Applications	Finishing	Finishing	Finishing	Finishing - Medium	Finishing - Medium	Non-Ferrous Metals	Hard Materials
Insert							
Chip Breaker Type	PP	GP	VF	HQ	R/L - Y	PCD	CBN
Page	B97, B100	B97	B97	B97	B99	C49	C26

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGBA (Shallow Grooving)



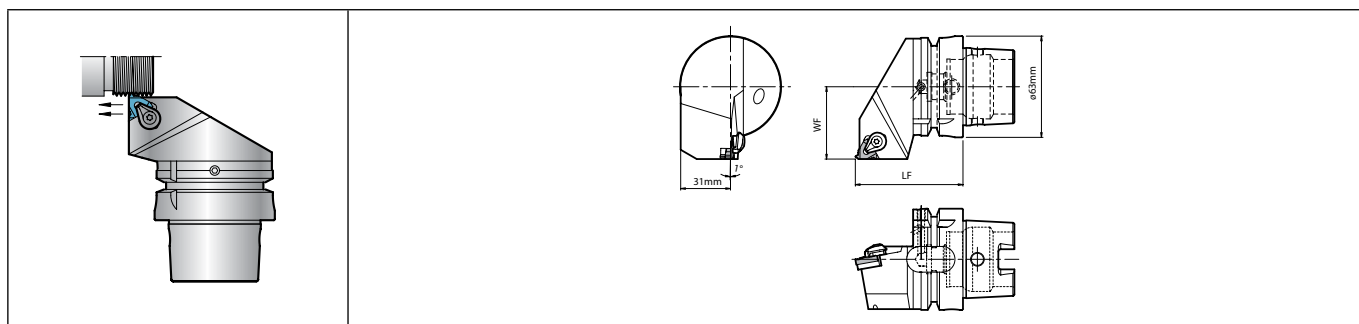
Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Unit	Part Number	Std. Item	Dimensions				Spare Parts			Applicable Inserts ➡ G6~G12
							Clamp Set	Coolant Pipe	Wrench	
		R	LF	WF	CDX					
mm	T63H- KGBAR-16	●	67	45	2.5	LGBA-16LS	CL63-1	FT-15	GBA32R...	
	KGBAR-22-15	●			4	LGBA-22LS			GBA43R...	
	KGBAR-22-25	●			4.5					
	KGBAR-22-35	●			5.5					

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : See "CDX" dimension of Insert.

KTN (External Threading)

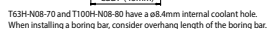


Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

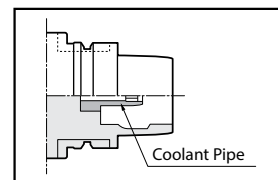
Unit	Part Number	Std. Item	Dimensions			Spare Parts							Applicable Inserts ➡ J6, J8, J10 J12, J14, J16 J18, J20
			R	LF	WF	Clamp Set	Clamp Set	Coolant Pipe	Shim Screw	Shim	Wrench	Wrench	
mm	T63H- KTNR-16	●	67	45		CPS-5S	-	CL63-1	SP3X8	TN-32	-	FT-15	16ER type
	KTNR-22	●				-	CPS-6S			TN-43	LW-3	-	22ER type

A	INSERT GRADES
B	TURNING INSERTS
C	CBN/PCD INSERTS
D	TURNING HOLDERS
E	SMALL TOOLS
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
K	DRILLING
M	MILLING
N	QUICK CHANGE TOOLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX



Unit	Part Number	Std. Item	Dimensions							M	Spare Parts			Notes		
											Screw	Coolant Pipe	Wrench			
			N	DCB	DCSFMS	BD	LF	CBDP	L1		L2					
mm	T63H-	●	8	63	28	70	45	9	20	M8	HS8X10	CL63-1	LW-4	For Boring Bar		
	N10-80	●	10		35	80	55		22		HS8X12					
	N12-90	●	12		42	90	65	11	30	M10	HS10X16				LW-5	
	N16-100	●	16		48	100	75									
	N20-120	●	20		52	120	95						13			40
	N25-140	●	25		56	140	115	50	HS12X12							
	N32-160	●	32			160	135	60	HS12X12							

Identification System (HSK Holders for Boring Bars / Drills)



P

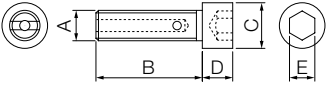
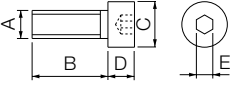
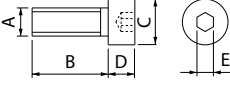
Screws / Bolts	P2~P7
Pins	P8
Shims	P9~P13
Cartridges	P14
Clamp Sets	P15~P16
Clamps	P17~P18
Chipbreakers	P19
Wrenches	P20~P21
Electric Wrenches - DTD500 Electric Torque Insert Driver	P22
Spings / Nuts / Punches / Others	P23
Discontinued Tools - Spare Parts List	P24~P40

Unit	Drawing	Part Number	Std. Item	Dimensions						Angle		Torque (N-m)	Notes
				A	B	C	D	E	F	α	θ		
mm		AJ -3110	●	M3X0.35	6.0	6.5	4.0	2.0	-	-	-	-	
		AJ -519TR	●	M5X0.8	19.0	10.0	-	T15	-	-	40°	-	
		BH 3X6	△	M3X0.5	6.0	-	2.0	2.0	-	-	-	-	
		3X12	●	M3X0.5	12.0	-	2.0	2.0	-	-	-		
		6X25	●	M6X1.0	25.0	-	4.0	4.0	-	-	-		
		BH 4X8TR	●	M4X0.7	8.5	6.2	3.0	T15	-	-	-	3.5	
		6X10TR	●	M6X1.0	10.0	12.0	5.0	T25	-	-	-	6.5	
		CP 8X23TL	●	M8X1.25	23.0	15.0	-	T25	-	-	-	6.0	L... shows Left-hand thread
		CS -2D	●	M4X0.7	21.5	6.4	3.5	2.5	2.0	-	-	1.7	
-3D		●	M5X0.8	22.0	8.0	4.0	3.0	2.5	-	-	3.9		
-5D		●	M5X0.8	28.0	8.0	4.0	3.0	2.5	-	-	3.0		
	CS -3D-TR	●	M5X0.8	22.0	8.0	4.0	T15	T15	-	-	3.9		
	GS -50	●	M5X0.8	13.0	7.5	-	3.0	-	-	82°	-		
	HF 16X40HA	●							14.0	-	-	-	With Coolant Hole
	20X53HA	●	M20X2.5	33.0	50.0	20.0	14.0						
	24X60H	●	M24X3.0	40.5	65.0	19.5	17.0						
	HF 0500X35HC	●	1/2-20 UNF	1.378	1.673	0.646	0.313	0.709	-	-	-	With Coolant Hole	
	0625X44HC	●	5/8-18 UNF	0.790	2.461	0.724	0.313	1.575					
	0625X48HC	●	5/8-18 UNF	0.790	2.461	0.567	0.313	1.575					
mm		HH 12X35HC	●	M12X1.75	35.0	42.5	16.4	8.0	18.0	-	-	-	With Coolant Hole
		HF 16X48HC	●	M16X2.0	30.0	62.5	18.4	12.0	40.0				

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Screw / Bolts

Unit	Drawing	Part Number		Std. Item	Dimensions						Angle		Torque (N-m)	Notes
					A	B	C	D	E	F	α	θ		
Inch		HH 3/8-1.25H	●	3/8-24 UNF	1.250	0.550	0.375	0.312					With Coolant Hole	
		1/2-1.25H	●	1/2-20 UNF		0.750	0.500	0.375						
		3/4-2.3H	●	3/4-16 UNF		1.500	1.120	0.750						0.625
		HH 1/4-0.75	●	1/4-28 UNF	0.750	0.375	0.250	0.188						
		3/8-1.25	●	3/8-24 UNF	1.250	0.550	0.375	0.312						
		1/2-1.25	●	1/2-20 UNF	1.250	0.750	0.500	0.375						
mm		HH 3X6	●	M3X0.5	6.0	5.5	3.0	2.5					L . . . shows Left-hand thread	
		3X10S	●		10.0	5.0								
		3X12	●		12.0	5.5								
		HH 3.5X10S	●	M3.5X0.6	10.0	5.5	3.0	2.5	-	-	-			
		HH 4X12S	●	M4X0.7	12.0	7.0	4.0	3.0						
		4X16	●		16.0									
		HH 5X12	●	M5X0.8	12.0	8.5	5.0	4.0						
		5X15	●		15.0									
		5X15L	●		15.0									
		5X16	●		16.0									
		5X20	●		20.0									
		5X25	●		25.0									
		5X30	△		30.0									
		HH 6X12	△	M6X1.0	12.0	10.0	6.0	5.0						
		6X18	●		18.0									
		6X20	●		20.0									
		6X25	●		25.0									
		6X30	●		30.0									
		HH 8X20	●	M8X1.25	20.0	13.0	8.0	6.0						
		8X25	●		25.0									
		HH 10X30	●	M10X1.5	30.0	16.0	10.0	8.0	-	-	-			
		HH 12X35	●	M12X1.75	35.0	18.0	12.0	10.0						
		12X40	●		40.0									
		HH 16X40	●	M16X2.0	40.0	24.0	16.0	14.0						
		16X45	●		45.0									
		HH 20X40	●	M20X2.5	40.0	30.0	20.0	17.0						
		20X55	●		55.0									

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Unit	Drawing	Part Number	Std. Item	Dimensions						Angle		Torque (N-m)	Notes
				A	B	C	D	E	F	α	θ		
mm		HH 4X12	●	M4X0.7	10.0	7.0	4.0	3.0	2.0	-	-	-	
		HH 10X30H	●	M10X1.5	30.0	16.0	10.0	6.0	-	-	-	-	With coolant hole
		10X35HK	●		35.0								
		12X35H	●	M12X1.75	35.0	18.0	12.0	8.0					
		HS 3X3P	△	M3X0.5	2.9	-	-	1.5	-	-	-	1.0	HS4X4P and HS6X4P have a flat edge Clamp Screw equivalent to JIS B-1177
		3X4P	●		3.9								
		3X4	●		4.0								
		HS 4X4P	●	M4X0.7	3.9	-	-	2.0	-	-	-	2.0	
		4X4	●		4.0							3.0	
		HS 5X5	●	M5X0.8	5.0	-	-	2.5	-	-	-	4.0	
		HS 6X4P	●	M6X0.75	3.9								
		6X6	●	M6X1.0	6.0								
		6X14	●		14.0								
		6X22	●		22.0								
		HS 10X10	●	M10X1.5	10.0	-	-	5.0	-	-	-	-	
		HS 12X25	●	M12X1.75	25.0	-	-	6.0	-	-	-		
		HS 5X4LP	●	M5X0.8	4.0	-	-	2.5	-	-	-	-	
		HS -2524TRP	●	M2.5X0.35	2.4	-	-	5IP	-	-	-	0.5	IP shows Torx Plus
		-2534TRP	●		3.4			6IP				0.8	
		-3048TRP	●	M3X0.5	4.8			7IP				1.2	
		-4067TRP	●	M4X0.7	6.7								
		HS -50100TRP	●	M5X0.8	10	6.0	-	15IP	-	-	-	3.5	IP shows Torx Plus

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

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Unit	Drawing	Part Number	Std. Item	Dimensions						Angle		Torque (N-m)	Notes	
				A	B	C	D	E	F	α	θ			
mm		HSB 4X8%	●	M4X0.7	8.0	R2.0	-	2.0	-	-	-	2.0	R...shows Right-hand thread L...shows Left-hand thread	
		LS -03N	●	M5X0.8	9.7	M5X0.8	-	2.0	-	-	-	2.0	N: Silver coated	
		LS -03SN	●		12.0			2.5				3.0		
		LS -05	●	M5X0.8	15.5	M5X0.8	-	2.0	2.0	-	-	2.0		
		LS -1N	●	M6X1.0	17.0	6.0	-	2.5	2.5	-	-	3.0	N: Silver coated	
		LS -1SN	●		14.2									
		LS -1T	●		21.0									
		LS -2N	●	M8X1.0	20.0	8.0	-	3.0	3.0	-	-	4.0		
		LS -3	●		22.0									
		LS -4N	●		24.0									
		LS -5	●	M10X1.0	29.0	10.0	-	4.0	4.0	-	-	-		
		LS -1P	●	M6X1.0	16.5	6.0	-	10IP	10IP	-	-	2.0		IP shows Torx Plus
		LS -2P	●	M8X1.0	18.2	8.0		15IP	15IP			3.5		
		LS -3P	●		21.8									
		LS -11	●	M6X1.0	9.5	-	-	3.0	-	-	-	-		
		LS -15	●		12.5									
		M 3X8	●	M3X0.5	8.0	5.5	2.0	-	-	-	-	-	Flat fillister head screw equivalent to JIS B-1101	
		M 3X12	●		12.0									
		M 4X10	●	M4X0.7	10.0	7.0	2.6							
		SB -1TR	●	M2X0.4	5.3	3.8	-	-	T6	82°		0.5	R...shows right-hand thread	
		SB -2TR	●	M2.5X0.45	6.2	4.5			T8			1.2		
		SB -3TR	●	M3X0.5	7.2	4.8			T10			2.0		
		SB -3STR	●		6.4	5.2						3.5		
		SB -3.5TR	●	M3.5X0.6	9.3	5.6			T15			90°		4.5
		SB -4TR	●	M4X0.7	7.7	5.8				T20	60°			0.5
		SB -5TR	●	M5X0.8	20.0	8.7			0.8					
		SB -2290TR	●	M2.2X0.45	9.2	2.8			T6			0.5		
		SB -25100TR	●	M2.5X0.45	10.0	3.5			T7			0.8		
		SB -40115TR	●	M4X0.7	11.5	5.5			T15	3.5				
		SB -5070TR	●	M5X0.8	7.0	6.8			T20	4.5				
		SB -5090TR	●		9.0									
		SB -50120TR	●		12.0									

Reference

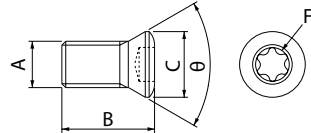
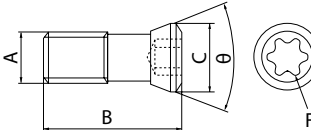
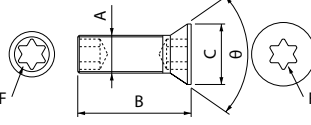
Torx and Torx Plus have different cross-sections.



Torx



Torx Plus

Unit	Drawing	Part Number		Std. Item	Dimensions						Angle		Torque (N-m)	Notes			
					A	B	C	D	E	F	α	θ					
mm	  SB-40125TRN	SB	-1STR	●	M2X0.4	5.0	3.1	-	-	T6	-	60°	0.5	R... shows right-hand thread L... shows left-hand thread IP shows Torx Plus			
			-1635TR	●	M1.6X0.35	3.3	2.6									55°	
			-1840TRP	●	M1.8X0.35	4.0	2.5								6IP	60°	
			-2035TR	●	M2X0.4	3.7	3.0								T6	55°	
			-2035TRG	●		3.5	2.7								6IP	60°	
			-2037TRP	●		3.7									T6	37°	
			-2040TR	●		3.8	3.0								6IP	60°	
			-2040TRG	●		4.0									T8	1.2	
			-2041TRP	●		4.1	2.7								T6	0.5	
			-2042TRG	●		4.3											
			-2045TR	●		4.8	3.0										
			-2060TR	●		5.8	3.5										
			-2080TR	●		8.3	2.8										
		SB	-2250TR	●	M2.2X0.45	5.1	3.1	-	-	T7	-	60°	0.8				
			-2255TR	●		5.5	3.5										
			-2260TR	●		5.8	3.1										
			-2270T P/L	●		6.8	3.2										
		SB	-2545TR	●	M2.5X0.45	4.6	3.5	-	-	T8	-	60°	1.2				
			-2555TRG	●		5.4											
			-2555TRP	●		5.5											
			-2560TR	●		5.7											
			-2570TR	●		6.8											
		SB	-3060TR	●	M3X0.5	5.3	4.2	-	-	T10	-	60°	2.0				
			-3060TRP	●		6.0											
			-3065TRP	●		6.5				4.0							
			-3070TRG	●		7.0	4.2			T10			2.0				
			-3070T P/L	●			4.0			T8			1.2				
			-3070TRP	●			4.2			10IP			55°		2.0		
			-3076TRP	●		7.6	3.9										
			-3080TR	●		8.0	4.2									T10	60°
		SB	-3573TRP	●	M3.5X0.6	7.3	5.0	-	-	10IP	-	60°	2.0				
			-3575TRP	●		7.5	4.9										
			-3580TR	●		8.0	5.3			T15			3.5				
			-3590TRP	●		9.0				15IP			4.0				
			-3592TR	●		9.2				5.1			T10		2.0		
			-35120TRP	●		12.0	5.2			15IP			4.0				
		SB	-4050TRN	●	M4X0.5	4.6	5.1	-	-	T10	-	57°	2.0				
			-4065TR	●	M4X0.7	6.7	5.5			T15		3.5					
			-4070TRG	●		7.0											
			-4070TRN	●		7.7							5.4				
			-4070TRS	●		6.7	5.5			T10		2.0					
			-4075TRP	●		7.5				15IP		3.5					
			-4082TPR	●		8.2				T15							
			-4085TR	●		8.5				15IP							
			-4085TRP	●		8.6											
			-4090TRP	●		9.0	5.7										
			-4090TRPN	●			5.5			T15			50°				
			-40104TRP	●	10.4	5.7											
			-40120TR	●	12.0	5.1											
			-40125TRN	●	12.5	5.2											
			-40140TR	●		5.5											
			-40140TRN	●	14.0	6.7											
			-40140TRN	●								75°					
		SB	-44865UTRP	●	UNF No. 4-48	6.5	3.8			-		-	8IP		-	60°	1.2
			-44880UTRP	●		8.0											
		SB	-4570TRN	●	M4.5X0.5	6.8	6.0	-	-	T10	-	57°	2.0				
			-45130TR	●	M4.5X0.75	13.0	6.6			20IP		55°	4.5				
		SB	-5085TR	●	M5X0.8	8.5	6.8	-	-	T20	-	50°	4.5				
			-50110TRP	●		11.0	7.0			20IP		60°					
			-50120TRP	●		12.0	6.8										
			-50120TRPH	●											7.2		
			-50120TRS	●									15IP									3.5
			-50140TR	●		14.0	7.3			T15		50°			4.2		
			-50140TRP	●						20IP		60°			4.5		
		SB	-60120TR	●		M6X1.0	12.0			8.5		-	-		T25	-	60°
			-60130TRP	●	13.0		20IP	4.5									
			-60200TRP	●		20.0		6.0									
			SB	-4070TRW	●	M4X0.7	6.7	5.5	-	-	T8	-	60°		1.2	R... shows right-hand thread	
				-4590TRWN	●	M4.5X0.75	9.3	5.6			T10		57°		2.0		

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

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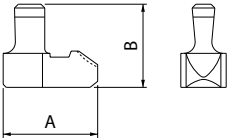
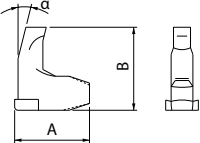
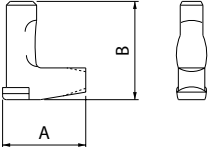
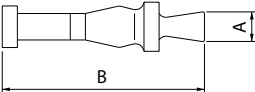
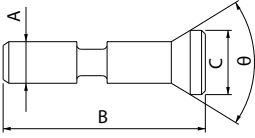
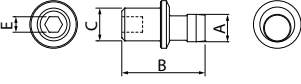
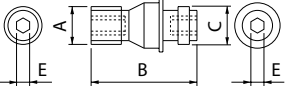
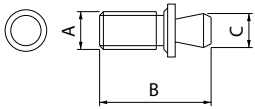
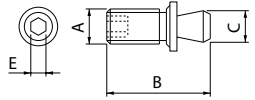
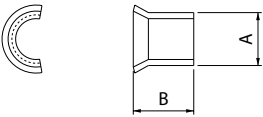
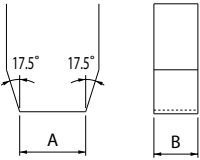
Unit	Drawing	Part Number	Std. Item	Dimensions						Angle		Torque (N-m)	Notes			
				A	B	C	D	E	F	α	θ					
mm		SC	-30067	●	M3X0.35	6.7	4.4	-	-	T8	-	60°	1.2	IP shows Torx Plus		
	-35085	●	M3.5X0.35	8.5	5.7	T10	2.0									
	-40100	●	M4X0.5	10.0	6.0	T15	3.5									
	-50130	●	M5X0.5	13.0	6.6	T20	4.5									
	-60160	●	M6X0.75	16.0	8.0	T25	6.0									
	-60210	●		21.0	9.6	T30	8.0									
		SCR	-01	●	M2.5X0.45	6.6	3.6	-	-	T7	-	60°	0.8	IP shows Torx Plus		
	-03	●	M3X0.5	8.4	4.6	-	-	T9	1.6							
	-04	●	M2.5X0.45	4.6	3.6	-	-	T7	0.8							
	-05	●														
	-16	●	M3.5X0.6	6.9	5.0	-	-	T10	2.0							
	-30	●		8.9												
		SE	-3070TRP	△	M3X0.5	7.0	4.3	-	-	9IP	-	43°	1.7	IP shows Torx Plus		
	-40050TRN	△		5.0												
	-40055TR	△	M4X0.7	5.5	5.0					T15		44°	3.5			
	-40068TR	●		6.8												
	-40080TR	△		8.0												
	-40090TR	●		9.0												
	-40100TR	●		10.0												
		SE	-40120TR	●	M4X0.7	12.0	5.6	-	-						T15	-	60°	3.5	IP shows Torx Plus
	-50125TR	●	M5X0.8	12.5	6.8	T20	4.5									
		SP	3X6	●	M3X0.5	6.0	6.0	-	-	-	-	90°	-	Cross recessed flat head screw equivalent to JIS...B-1111		
	3X8	●	8.0													
3X10	●	10.0														
	SP	4X9	●	M4X0.7	9.0	5.6	-	2.0	-	-	90°	-				
	SP	8X35	●	M8X1.25	35.0	11.0	4.4	5.0	-	-	90°	-				
	SPW	-5035	●	M5X0.5	7.0	6.3	M3.5X0.6	3.5	-	-	-	-	A shows External, D shows Internal. External and Internal threads are both Right-hand threads.			
-6045	●	M6X0.75	9.0	7.5	M4.5X0.75	4.5										
-7050	●	M7X0.75	9.0	8.8	M5X0.8	5.0										
	SS	-4N	●	M5.5X0.5	8.5	6.6	M4X0.7	4.0	-	-	-	-				
	SV	-60136TR	●	M6X1.0	13.6	6.3	-	-	T20	-	6°	4.5	Torx			
	TH	8X15	●	M8X1.25	20.0	8.5	-	4.0	-	-	-	-				
	W	6X17	●	M6X1.0	17.0	-	-	-	T20	-	-	4.5				
6X18N	●	18.0	T15		3.5											
	W	6X20	●	M6X1.0	20.5	-	-	3.0	-	-	-	-				
8X18	●	M8X1.25	18.0	4.0												
	W	10X31	●	M10X1.0	31.0	M10X1.5	-	5.0	-	-	-	-				
inch		XNS 610	●	3/8-24UNF	1.250	0.500	-	0.188	-	-	-	-	Differential screw			

* No socket on right-hand thread side

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INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Unit	Drawing	Part Number		Std. Item	Dimensions						Angle		Notes
					A	B	C	D	E	F	α	θ	
mm		LL	-03N	●	7.8	6.3	-	-	-	-	-	-	
		-03SN	●	11.1	8.9								
		-03TN	●	8.3	8.9								
		LL	-05C	●	10.7	11.7	-	-	-	-	12°	-	
		-1CN	●	13.0	13.3	14°							
		-2C	●	18.8	17.6	14°							
		LL	-1K	●	10.0	12.0	-	-	-	-	-	-	
		-1N	●	10.3	12.0								
		-1DN	●	12.3	12.0								
		-2K	●	13.3	13.2								
		-2N	●	13.5	13.0								
		-3K	●	16.0	14.8								
		-3N	●	16.4	13.0								
		-4N	●	16.4	14.7								
		-5N	●	17.1	16.7								
		-6	●	20.7	21.0								
		LP	-2S	●	3.65	20.0	-	-	-	-	-	-	
			-6S	●	3.65	25.0	-	-	-	-	-	-	
		LPA	-11	●	2.8	11.0	4.2	-	-	-	-	60°	
			-13	●		13.0							
			-17	●		17.0							
		LPF	-11	●	11.0	3.5	-	-	-	-	60°		
			-1113	●	13.0								
			-1117	●	17.0								
			-13	●	13.0	5.5							
			-17	●	17.0								
		PP	-4	●	4.6	14.0	5.5	-	3.0	-	-	-	
		TS	-3S	●	M5X0.8	15.0	3.60	-	2.0	-	-	-	
		WP	-1S	●	M5X0.8	18.0	3.65	-	-	-	-	-	
			5X15	●		15.0	5.0						
		WP	5X11	●	M5X0.8	10.5	5.0	-	2.0	-	-	-	
		LSP	-1	●	5.0	5.3	-	-	-	-	-	-	
			-2	●	6.5	5.6							
			-3	●	8.25	7.9							
			-4	●	9.5	10.0							
		LSP	-2K	●	5.1	5.2							
			-3K	●	6.7	5.7							
		P	-03	●	2.8	1.95	-	-	-	-	-	-	
			-03S	●	3.5	1.95	-	-	-	-	-	-	

Unit	Drawing Handed spare parts show right-hand	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		DC -42	●	12.0	3.2	1.2	6.0	4.4	R1.2	-	-	Shim Screw: SB-4085TR
		DC -44	●	12.55	5.0	1.5	6.0	4.4	R0.8	-	-	
		DC -44-C	●	12.55	5.0	1.5	6.0	4.4	-	-	-	Shim Screw: SB-4085TR
		DD -42	●	12.55	3.2	1.2	6.0	4.4	R1.2	-	-	Shim Screw: SB-4085TR
		DD -42-16	●		3.2	1.2			R1.6			
		DD -43	●		3.4	1.3			R0.8			
		DD -44	●		5.0	1.5			R0.8			
		DS -42	●	12.0	3.2	1.2	6.0	4.4	R1.2	-	-	Shim Screw: SB-4085TR
		DS -44	●	12.55	5.0	1.5	6.0	4.4	R0.8	-	-	
		DT -32	●	8.63	3.2	0.95	5.0	3.4	R1.6	3°	-	Shim Screw: SB-3080TR
		DT -42	●	12.46		1.2	6.0	4.4	R1.2	-	-	Shim Screw: SB-4085TR
		DV -33	●	9.40	3.5	1.2	6.0	4.4	R1.0	-	-	Shim Screw: SB-4085TR
		DW -42	●	11.5	3.2	1.2	6.0	4.4	R1.2	4°	-	Shim Screw: SB-4085TR
		DW -44	●	12.65	5.0	1.5	6.0	4.4	R0.8	-	-	
		556 C%	●	34.0	10.0	12.7	5.6	5.0	R1.6	0°	55°	R...shows Right-hand L...shows Left-hand Shim Screw: HH5X16
		KPS -42	●	11.5	3.2	2.0	7.2	3.2	C1.0	7°	-	Shim Screw: SP3X8
		KPT -32	●	8.0	3.2	1.9	7.0	3.2	R0.4	11°	-	Shim Screw: SP3X8 SP3X10
		KPT -42	●	10.5	3.2	1.9	7.0	3.2	R0.8	11°	-	
		KVN -32	●	9.52	3.2	2.1	7.6	5.5	R0.8	-	-	Lock pin: LP-2S LP-6S
		LC -32N	●	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim pin: LSP-1
		LC -42N	●	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim pin: LSP-2
		LC -53N	●	15.9	4.8	1.7	10.0	8.0	R1.2	-	-	Shim pin: LSP-3
		LC -63	△	19.0	4.8	2.0	11.61	9.3	R1.6	-	-	Shim pin: LSP-4

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INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

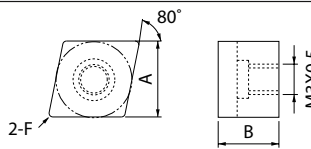
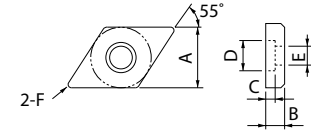
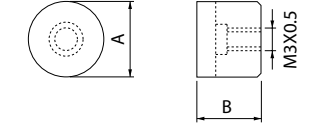
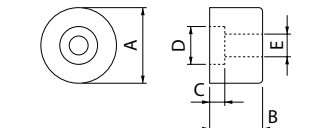
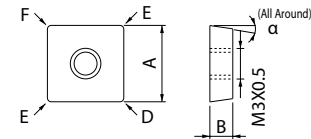
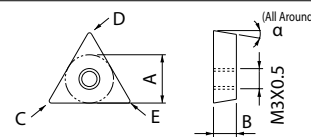
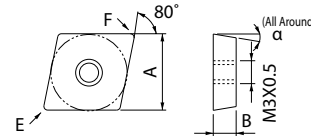
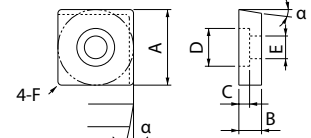
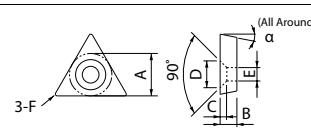
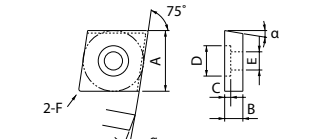
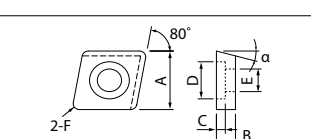
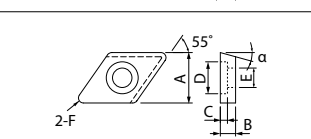
Unit	Drawing Handed spare parts show right-hand	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		LC -42N-C	●	12.65	3.2	1.5	8.01	6.28	-	-	-	Shim pin: LSP-2
		-53N-C	●	15.9	4.8	1.7	10.0	8.0	-	-	-	Shim pin: LSP-3
		-63-C	△	19.0	4.8	2.0	11.61	9.3	-	-	-	Shim pin: LSP-4
		LC -42N%	●	12.65	3.2	1.5	8.01	6.28	R0.8	10°	-	R... shows right-hand L... shows left-hand Shim pin: LSP-2
		LD -32N	●	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim pin: LSP-1
		-4K43	●	11.7	4.8	3.0	8.3	6.60	R1.2	-	-	Shim pin: LSP-3K
		-42	●	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim pin: LSP-2
		-42-20	●						R2.0	-	-	
		-43	●	12.65	4.8	3.1	8.5	6.28	R0.8	-	-	
		LR -80	●	9.47	3.2	1.3	6.25	4.75	-	-	-	Shim pin: LSP-1
		-81	●	12.65	3.2	1.5	8.01	6.28	-	-	-	Shim pin: LSP-2
		LR -10C	●	8.5	3.2	6.3	6.3	4.7	-	-	-	Shim pin: LSP-1
		-12C	●	10.0	3.2	6.3	6.3	4.7	-	-	-	
		-16C	●	13.6	3.2	7.9	8.01	6.28	-	-	-	Shim pin: LSP-2
		LS -32	●	9.47	3.2	1.3	6.18	4.68	R0.8	-	-	Shim pin: LSP-1
		-42	●	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim pin: LSP-2
		LT -3K	●	8.53	2.7	1.0	6.1	5.13	R0.8	-	-	Shim pin: LSP-2K
		-32N	●	9.47	2.7	1.3	6.18	4.68	R0.8	-	-	Shim pin: LSP-1
		-42N	●	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim pin: LSP-2
		LW -32N	●	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim pin: LSP-1
		-42N	●	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim pin: LSP-2
		LW -42N%	●	12.65	3.2	1.5	8.01	6.28	R0.8	10°	-	R... shows right-hand L... shows left-hand shim pin: LSP-2
		MFPN -45	●	17.07	3.5	1.95	9.8	7.18	R3.5	-	-	Shim Screw: SPW-7050
		MFSE -105	●	10.5	3.0	1.4	7.0	5.3	-	7°	45°	
		MFWN -90	●	15.25	4.0	2.5	9.44	7.25	R3.0 R4.0	-	-	Shim Screw: SPW-7050
		MSD -42	●	10.7	3.2	1.85	7.0	3.3	-	20°	45°	Shim Screw: SP3X8
		MSE -4245S	●	10.3	3.2	2.0	6.0	5.0	-	20°	45°	Shim Screw: SP4X9
		MSE -4215	●	10.53	3.2	1.5	6.4	3.4	-	25°	15°	Shim Screw: SP3X8
		-4245	●	10.53	3.2	1.5	6.4	3.4	-	25°	45°	Shim Screw: SP3X8

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Unit	Drawing	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		MS0 -4T245	●	10.0	2.0	4.7	6.4	4.8	-	27°	45°	Shim Screw: SP3X6
		MS0 -5200	●	12.6	3.18	1.8	8.27	6.66	R0.8	15°	-	Shim Screw: SPW-6045
		MSP -42	●	11.3	3.2	1.85	7.0	3.3	-	15°	15°	Shim Screw: SP3X8
		MTE -42	●	9.8	3.2	-	6.4	3.4	-	25°	-	Shim Screw: SP3X8
		MVN -32	●	9.52	3.2	2.1	7.4	6.5	R0.8	-	-	Lock pin: TS-3S
		PD -42	●	12.7	3.2	1.7	6.0	8.4	0.8	12°	-	Shim Screw: SB-2050TR
		SP -129	●	9.52	9.52	R0.8	R1.6	R1.2	R1.6	-	-	Shim Screw: HH3X12
		SP -141	●	12.7	4.0	2.4	6.2	3.3	R1.2	-	-	Shim Screw: M3X8
		-143	●	12.7	7.2	2.4	6.2	3.3	R1.2	-	-	Shim Screw: M3X12
		-162	●	15.8	6.0	3.4	8.0	4.4	R1.5	-	-	Shim Screw: M4X10
		SP -148	●	12.7	8.8	2.4	6.2	3.3	R1.2	-	-	Shim Screw: BH3X12
		SP -219	●	6.35	9.52	R0.8	R1.2	R1.6	-	-	-	Shim Screw: HH3X12
		SP -221	●	9.52	4.0	2.5	6.5	3.5	R1.2	-	-	Shim Screw: M3X8
		-223	●	9.52	7.2	2.5	6.5	3.5	R1.2	-	-	Shim Screw: M3X12
		SP -342	●	12.7	6.0	2.5	6.5	3.5	R1.2	-	75°	Shim Screw: M3X8
		-441	●	12.7	4.0	2.5	6.2	3.3	R0.8	-	80°	Shim Screw: M3X8
		-443	●	12.7	7.2	2.5	6.2	3.3	R0.8	-	80°	Shim Screw: M3X12
		-454	●	15.7	8.0	3.4	8.0	4.5	R1.6	-	80°	Shim Screw: M4X10

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Unit	Drawing	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		SP -429	●	9.52	9.52	-	-	-	R1.2	-	-	Shim Screw : HH3X12
		SP -521	●	10.0	4.0	2.5	6.2	3.3	R1.0	-	-	Shim Screw : M3X8
		SP -826	●	9.52	7.9	-	-	-	-	-	-	Shim Screw : HH3X12
		-829	●	9.52	9.52	-	-	-	-	-	-	
		SP -841	●	12.7	4.0	2.4	6.2	3.3	-	-	-	Shim Screw : M3X8
		-843	●	12.7	7.2	2.4	6.2	3.3	-	-	-	Shim Screw : M3X12
		-849	●	12.7	8.8	2.4	6.2	3.3	-	-	-	Shim Screw : BH3X12
		-861	●	15.8	6.0	3.4	8.0	4.4	-	-	-	Shim Screw : M4X10
		SP -130A	●	9.52	3.2	-	R0.4	R0.8	R1.2	8°	-	Shim Screw : BH3X12
		SP -210A	△	6.35	3.2	R0.4	R0.8	R1.2	-	8°	-	Shim Screw : BH3X6
		SP -420A	●	9.52	3.2	-	-	R0.8	R1.2	8°	-	Shim Screw : BH3X6
		SP -141P	●	12.7	4.0	2.4	6.2	3.3	R1.2	7°	-	Shim Screw : M3X8
		-143P	●	12.7	7.2	2.4	6.2	3.3	R1.2	7°	-	Shim Screw : M3X12
		SP -230P	●	8.3	3.2	2.0	7.2	3.2	R0.5	7°	-	Shim Screw : SP3X10
		SP -341P	●	12.6	4.0	2.5	6.5	3.5	R1.2	7°	-	Shim Screw : M3X8
		SP -441P	●	12.7	4.0	2.5	6.2	3.3	R1.2	11°	-	Shim Screw : M3X8
		SP -521P	●	10.0	4.0	2.5	6.2	3.3	R1.2	11°	-	Shim Screw : M3X8

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

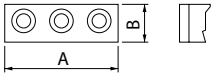
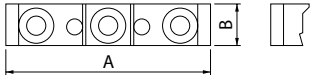
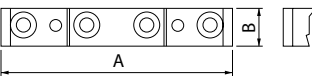
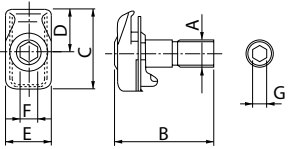
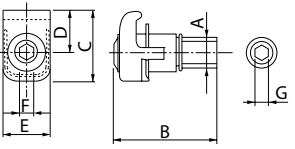
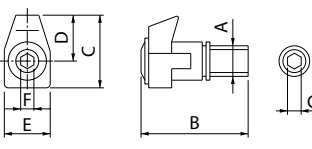
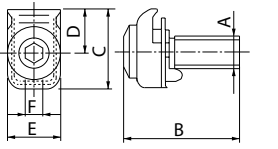
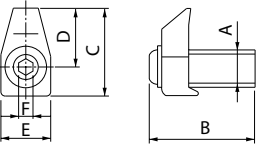
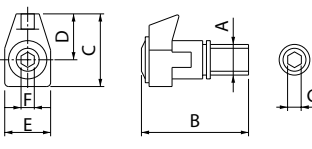
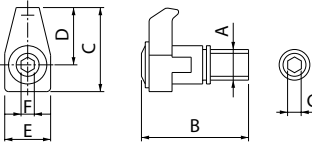
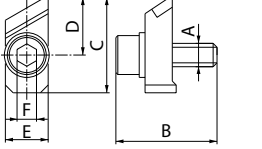
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Unit	Drawing Handed spare parts show right-hand	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		SP -RC	●	12.6	3.0	-	7.35	3.35	-	-	-	Shim Screw: SP3X8
		SVN -32	●	8.0	3.2	1.5	3.1	2.3	R0.4	-	-	Shim Screw: SB-2050TR
		SVN -32N	●	8.2	3.2	1.5	7.0	5.9	R0.6	-	-	Shim Screw: SS-4N
		SVN -32S	●	8.2	3.2	1.5	7.0	5.9	R0.2	-	-	Shim Screw: SS-4N 1-edge
		TN -32	●	9.52	3.2	6.5	7.0	4.2	R0.4	-	-	Shim Screw: SP3X8
		-43	●	12.70	3.2	8.1	7.0	4.2	R0.5	-	-	
		TNW -32	●	9.52	3.2	4.8	7.0	4.2	-	-	-	Shim Screw: SP3X8
		WTN -33	●	9.52	4.76	2.5	7.0	5.3	R0.8	-	-	Shim pin: WP-1S
		-33-20	●						R2.0			
		WWN -42	●	12.7	3.0	1.4	7.0	5.3	R1.2	-	-	Shim pin: WPSX15
		WWP -42	●	12.7	3.0	1.5	8.3	5.3	R1.2	11°	-	Shim pin: WPSX11
		-42-16	●						R1.6			

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Unit	Drawing Handed spare parts show right-hand	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		MAP -2216	△	-	9.0	11.0	19.8	-	-	20°	-	Clamp Screw SB-40140TR
		MAP -2506	●	-	9.5	14.9	20	-	-	5°	-	Clamp Screw SB-40140TR
		LSE -445R	●	12.7	13.0	19.5	26.0	-	-	20°	45°	Dimension A shows insert I.C.
		LSO -445R	●	13.494	12.0	21.3	23.5	-	-	27°	45°	

Clamp Sets

Unit	Drawing Handed spare parts show right-hand	Part Number	Std. Item	Dimensions							Notes
				A	B	C	D	E	F	G	
mm		BCS -1	●	64.0	13.0	-	-	-	-	-	
		-5	●	48.0	16.5	-	-	-	-	-	
		BCS -2	●	74.0	15.0	-	-	-	-	-	
		-3	●	88.0	16.0	-	-	-	-	-	
		BCS -4	●	98.0	16.0	-	-	-	-	-	
		CE -010	●	M8X1.25	28.0	24.0	12.8	13.0	4.0	4.0	G: Indicates hexagon hole two side widths of back side of bolts
		-220	●			27.0	15.8	15.0			
		CE -020	●	M8X1.25	30.0	17.0	10.5	12.7	4.0	4.0	G: Indicates hexagon hole two side widths of back side of bolts
		CE -030	●	M8X1.25	30.0	19.0	12.5	12.7	4.0	4.0	G: Indicates hexagon hole two side widths of back side of bolts
		-040	●			22.5	16.0				
		CE -320	●	M6X1.0	24.5	18.2	9.7	12.7	4.0	-	
		CE -360S	●	M6X1.0	16.0	18.0	10.55	12.4	4.0	-	
		CE -030A	●	M8X1.25	30.0	20.0	13.7	12.7	4.0	-	G: Indicates hexagon hole two side widths of back side of bolts
		CE -410	●	M8X1.25	30.0	26.0	19.5	12.7	4.0	4.0	G: Indicates hexagon hole two side widths of back side of bolts
		-430	●			29.0	22.5				
		CP -RC%	●	M6X1.0	20.0	24.5	14.8	11.0	5.0	-	R...shows right-hand L...shows left-hand

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Clamp Sets

Unit	Drawing Handed Spare Parts show Right-hand	Part Number	Std. Item	Dimensions							Notes
				A	B	C	D	E	F	G	
mm		CPS -1	●	M3X0.5	9.0	10.0	5.2	5.5	2.0	-	
		CPS -2	●	M5X0.8	14.5	14.0	8.5	6.8	2.5	2.5	G: Indicates hexagon hole two side widths of back side of bolts
		-2P	●		18.0						
		-3	●	M6X1.0	19.0	16.5	10.0	8.8	3.0	3.0	
		CPS -2S	●	M5X0.8	13.5	14.0	8.5	6.8	T15	2.0	G: Indicates hexagon hole two side widths of back side of bolts
		-2TR	●		15.0						
		CPS -4V	●	M4X0.7	8.9	11.3	7.3	8.0	T10	-	G: Indicates hexagon hole two side widths of back side of bolts
		-5F	●	M5X0.8	11.3	12.7	7.5	10.3	T15	2.5	
		-5S	●		18.0	15.0	9.5	11.0		2.0	
		-5V	●		13.5	12.7	7.5	10.3		2.5	
		CPS -6F	●	M6X1.0	16.5	15.6	9.5	12.2	3.0	-	G: Indicates hexagon hole two side widths of back side of bolts
		-6M	●		18.5	17.5	11.0	13.0		3.0	
		-6S	●			18.0	12.0	12.0			
		-6V	●			15.6	9.5	12.2			
		-8V	●	M8X1.25	24.0	20.8	13.0	15.5	4.0	4.0	
	CPS -5E	△	M5X0.8	13.5	17.5	12.0	9.0	T15	2.5	G: Indicates hexagon hole two side widths of back side of bolts	
	CPS -5%L	●	M5X0.8	18.0	17.5	12.0	9.0	2.5	2.5	G: Indicates hexagon hole two side widths of back side of bolts R...shows Right-hand Thread L...shows Left-hand Thread	
	LGBA -16% S	●	M5X0.8	15.0	16.1	11.2	9.85	T15	2.0	G: Indicates hexagon hole two side widths of back side of bolts R...shows right-hand L...shows left-hand	
	-22% S	●			17.6	12.7					
	WCS -1N	●	M6X1.0	21.0	15.7	-	15.0	3.0	-		
	WCS -8	●	M6X1.0	21.0	19.4	-	15.0	3.0	-		

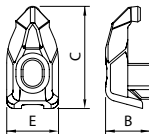
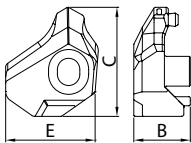
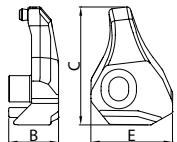
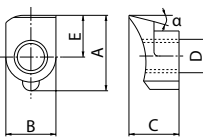
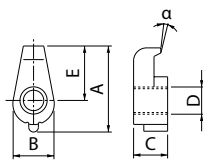
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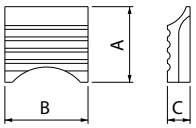
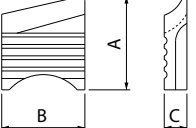
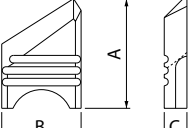
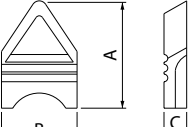
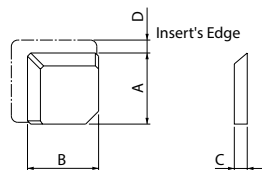
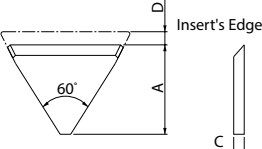
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Clamps

Unit	Drawing Handed spare parts show right-hand	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		C 08R	●	7.6	8.7	8.9	3.6	M5X0.8 (Left-hand Thread)	-	10°	-	
		C 09N	●	6.0	9.0	9.8	5.3	M6X1.0 (Left-hand Thread)	-	10°	-	Clamp Screw: W6X18N
		CH -20R	△	13.1	15.5	14.8	7.5	5.3	-	10°	-	Clamp Screw: TH8X15
		CGA -3%	●	24.0	17.66	12.0	6.2	1.9	11.0	-	-	R...shows right-hand L...shows left-hand
		-4%	●	24.0	17.66	12.0	6.2	2.9	11.0	-	-	
		-5%	●	27.5	18.66	12.0	6.2	3.9	14.5	-	-	
		CGB %L	△	19.0	14.0	8.2	6.35	9.5	-	-	-	R...shows right-hand L...shows left-hand
		CGH -1%	●	25.0	22.0	8.0	6.05	3.0	5.5	-	-	R...shows right-hand L...shows left-hand
		-2%	●					5.0				
		-3%	●					6.0				
		CGIA -3R	●	10.7	17.0	10.5	5.2	1.8	2.0	-	-	
		-4R	●			11.5		2.5				
		-5R	●	15.7		10.5		3.5	7.0			

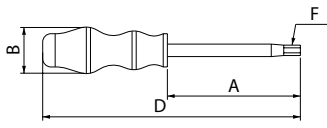
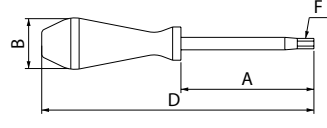
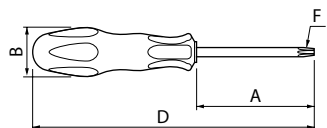
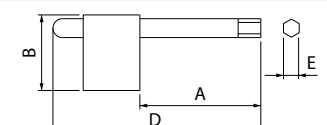
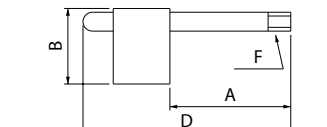
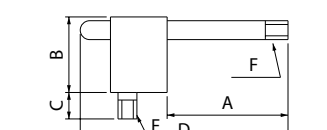
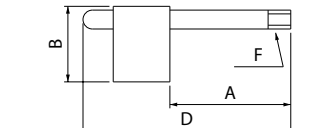
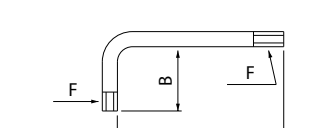
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Unit	Drawing Handed spare parts show right-hand	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		CP -2D	●	-	10.0	21.6	-	10.4	-	-	-	
	-3D	●	12.0		27.6	14.0						
	-5D	●	13.0		32.0							
		CP -2D-1/2-JCT	●	-	13.5	25.3	-	21.5	-	-	-	
		CP -3D-1/2-JCT	●	-	13.1	26.4	-	17.9	-	-	-	
		-4D-1/2-JCT	●			28.4		18.2				
		-5D-JCT	●			31.9		21.5				
		CP -8TE	●	17.9	12.0	12.0	M8X1.25 (Left-hand Thread)	10.0	-	15°	-	
		CP -8W	●	20.9	12.0	8.0	M8X1.25 (Left-hand Thread)	13.0	-	3°	-	

Unit	Drawing Handed spare parts show right-hand	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		CB -11	●	11.5	12.7	3.5	-	-	-	-	-	
		-51	●	16.0	15.6	3.5	-	-	-	-	-	
		CB -12	●	14.0	12.7	3.5	-	-	-	-	-	Right-hand
		-13	●	14.0	12.7	3.5	-	-	-	-	-	Left-hand
		CB -14	●	18.51	12.7	3.5	-	-	-	-	-	Right-hand
		-15	●	18.51	12.7	3.5	-	-	-	-	-	Left-hand
		CB -16	●	18.0	12.7	3.5	-	-	-	-	-	
		-17	●	21.0	15.6	3.5	-	-	-	-	-	
		CB -S3220	△	7.94	7.94	1.0	2.0	-	-	-	-	
		-S4220	△	11.12	11.12	2.0	2.0	-	-	-	-	
		CB -T2212	△	7.48	-	1.5	1.2	-	-	-	-	
		-T3220	△	10.87	-	2.0	2.0	-	-	-	-	

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

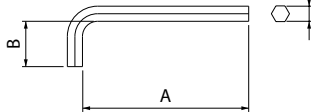
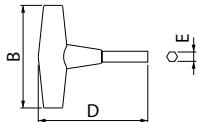
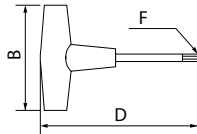
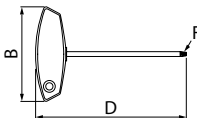
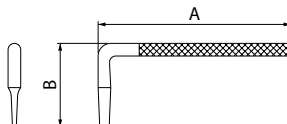
Wrenches

Unit	Drawing	Part Number	Std. Item	Dimensions						Angle		Notes	
				A	B	C	D	E	F	α	θ		
mm		DT -8	●	70	26	-	150	-	T8	-	-	Torx	
		DT -10	●	70	29	-	160	-	T10	-	-	Torx	
		-15	●	70	32		170		T15				
		-20	●	90	32		190		T20				
		-25	●	82	36		190		T25				
		DTM -6	●	40	17	-	115	-	T6	-	-	Torx Top of wrench is magnetized	
		-7	●	44	17		119		T7				
		-8	●	70	24		150		T8				
		-10	●	70	28		167		T10				
		-15	●	70	31		174		T15				
		DTP	-6	●	73	23	-	150	-	6IP	-	-	IP shows Torx Plus
			-7	●						7IP			
			-9	●	61	30		174		9IP			
			-15	●	81	33		186		15IP			
			-20	●	100			206		20IP			
			DTPM	-8	●	70		24		-			
		-10		●	70	28	165	10IP					
		-15		●	70	31	174	15IP					
		FH -2	●	40	20	-	71	2.0	-	-	-	Hexagon	
		-2.5	●	45	20		76	2.5					
		FT -6	●	35	15	-	65	-	T6	-	-	Torx	
		-7	●	34	15		62		T7				
		-8	●	40	20		74		T8				
		-10	●	40	20		74		T10				
		FT -15	●	45	25	10	80	-	T15	-	-	Torx	
		FTP -5	●	35	15	-	65	-	5IP	-	-	IP shows Torx Plus	
		-6	●	34			62		6IP				
		LTW -8SS	●	43	6	-	-	-	T8	-	-	Torx	
		-10S	●	62	10				T10				
		-10SS	●	47	7				T10				
		-15S	●	62	10				T15				
		-20	●	58	19				T20				
		-25	●	65	20				T25				

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Wrenches

Unit	Drawing	Part Number		Std. Item	Dimensions						Angle		Notes
					A	B	C	D	E	F	α	θ	
mm		LW	-1.5	●	45	14	-	-	1.5	-	-	-	Hexagon
			-2	●	50	16			2.0				
			-2.5	●	56	18			2.5				
			-3	●	63	20			3.0				
			-4	●	70	25			4.0				
			-4.5	●	78	26			4.5				
			-5	●	80	28			5.0				
			-6	●	90	32			6.0				
			-8	●	109	36			8.0				
			-10	●	112	40			10.0				
			-14	●	140	56			14.0				
			-17	●	160	63			17.0				
			-19	●	180	70			19.0				
		TH	-4	●	-	80	-	83	4.0	-	-	-	Hexagon
		TT	-15	●	-	70	-	118	-	T15	-	-	Torx
			-25	●		70		69		T25			
			-25L	●		80		145		T25			
			-30	●		80		110		T30			
		TTC	-20	●	-	98	-	130	-	T20	-	-	
			-25	●						T25			
		TTP	-20	●	-	70	-	138	-	20IP	-	-		IP shows Torx Plus
		TTW	-15	●	-	80	-	125	-	T15	-	-	Torx
		LTK	-5	●	70	30	-	-	-	-	-	-	

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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DTD500 Electric Torque Insert Driver

Quick and easy insert replacements with precise torque control

Driver Specifications

Part Number	DTD500
Power Source	DC 3.7V (Embedded Li-ion Battery)
Capacity	970mAh
No-Load Rotation Speed	270 RPM
Max. Electric Torque	1 N·m
Manual Preset Torque	1 - 5 N·m (0.05 N·m Increments) 8.9 - 44 in·lb (0.4 in·lb Increments)
Work Capacity Per Charge (approx.)	Can tighten approx. 400 screws per charge (Ex. Screw: SB-S0410TR / Cutter: MFPN453000R-ST)
Chuck Capability	1/4in Hexagonal Flat-to-Flat
Charging Time	~110 min
Dimensions	8.7 × 1.97 × 2.17in / 221 × 50 × 55mm
Weight	1.26 lbs / 570g

✓ Includes 5 magnetic bits and a USB Type-C charging cable

✓ Charging indicator light



Included Accessories

Variety Bit Set:

- (T8×65mm / T15×64mm / 8IP×65mm / 15IP×65mm / 20IP×65mm)
- 1m USB Charging Cable (Type-C)

Bit Shape	Size	Torque (N·m)	Torque (in·lb)	Screw Size
	T8	1.2	10.6	M2 / M2.5 / M3 / M4
	T15	3.5	31	M3.5 / M4 / M5
	8IP	1.2	10.6	M2.5 / M3
	15IP	3.5 / 4	31 / 35	M3.5 / M4 / M5
	20IP	4.5	40	M4.5 / M5 / M6



Optional Accessories (Parts below sold separately in 5-piece packs)

Bit Shape	Part Number	Size	Length (mm)	Length (in)	Torque (N·m)	Torque (in·lb)	Screw Size
	TB-T6x65	T6	65	2.56	0.5	4.4	M1.6 / M2 / M2.2
	TB-T8x65	T8	65	2.56	1.2	10.6	M2 / M2.5 / M3 / M4
	TB-T8x110		110	4.33			
	TB-T10x65	T10	65	2.56	2	18	M3 / M3.5 / M4 / M4.5
	TB-T15x65	T15	65	2.56	3.5	31	M3.5 / M4 / M5
	TB-T15x110		110	4.33			
	TB-T20x65	T20	65	2.56	4.5	40	M5 / M6
	TB-T25x65	T25	65	2.56	5	44	M6 / M8
	TPB-6IPx65	6IP	65	2.56	0.5	4.4	M2 / M3
	TPB-8IPx65	8IP	65	2.56	1.2	10.6	M2.5 / M3 / Inch 4-48
	TPB-8IPx110		110	4.33			
	TPB-10IPx65	10IP	65	2.56	2	18	M3 / M3.5
	TPB-15IPx65	15IP	65	2.56	3.5	31	M3.5 / M4 / M5
	TPB-15IPx110		110	4.33			
	TPB-20IPx65	20IP	65	2.56	4.5	40	M4.5 / M5 / M6
	TPB-20IPx110		110	4.33			
	TPB-25IPx65	25IP	65	2.56	5	44	M6 / M8
	TBTPB-VS65	T8 | 8IP | T15 | 15IP | 20IP	65	2.56	See above for each size		M2 / M2.5 / M3 / M3.5 / M4 / M4.5 / M5 / M6
	TBTPB-VS110	T8 | 8IP | T15 | 15IP | 20IP	110	4.33			

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Unit	Drawing	Part Number	Std. Item	Dimensions						Angle		Notes
				A	B	C	D	E	F	α	θ	
mm		SP -2D	●	8.5	5.6	-	-	-	-	-	-	Spring
		-3D	●	12.0	7.2							
		-5	●	12.0	6.7							
		-5D	●	12.0	7.2							
		-6	●	12.0	7.7							
		W -6	●	11.5	1.6	6.4	-	-	-	-	-	Washer
		6-14	●	11.5	1.4	6.4						
		WB -5	●	10.0	1.0	5.3						Washer (Brass)
		-6	●	11.5	1.6	6.4						
		-8	●	15.5	1.6	8.4						
		WSP -1	●	15.1	4.0	3.5	2.5	-	R1.25	-	-	Spacer
		DN 10	●	6.2	5.1	4.5	5.7	2.6	4.0	-	-	Nozzle
		20	●	10.1	7.7	7.0	9.6	M4X0.7	6.0			
		GP -1	●	PT1/8	7.0	-	-	5.0	-	-	-	Plug
		-2	●	PT1/4	9.0	-	-	6.0	-	-	-	
		WN -1	●	M5X8	10.0	7.0	-	3.0	-	-	-	Nut
		PC -1	●	60.0	8.5	-	-	-	-	-	-	Punch
		-2	●	62.2	10.0	-	-	-	-	-	-	
		HH 12X35HC	●	M12X1.75	35.0	42.5	16.4	8.0	18.0	-	-	Arbor bolt
		HF 16X48HC	●	M16X2.0	30.0	62.5	18.4	12.0	40.0	-	-	
		CC -125-MFAH	●	87.5	11.4	53.0	-	-	-	-	-	Coolant Cover
		-160-MFAH	●	122.5	12.4	70.0	-	-	-	-	-	
		CC -200-MFAH	●	162.5	14.4	-	-	-	-	-	-	Coolant Cover
		-250-MFAH	●	212.5		-	-	-	-	-	-	
		-315-MFAH	●	277.5		-	-	-	-	-	-	

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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External Turning Toolholders

Part Number			Spare Parts				
			Lever	Lock Screw	Shim	Shim Pin	Wrench
PSBN%	1616H	-09	LL-1N	LS-1N	LS-32	LSP-1	PC-1
PSKN%	1616H	-09	LL-1N	LS-1N	LS-32	LSP-1	PC-1

External Turning Toolholders for Ceramic Inserts

Part Number			Spare Parts			
			Lever	Lock Screw	Shim Pin	Wrench
PTGN%	1212F	-11	LL-03N	LS-03N	P-03	FH-2
	.....	-11	LL-03TN	LS-03SN	P-03S	FH-2.5
PTFN%	1212F	-11	LL-03N	LS-03N	P-03	FH-2
	.....	-11	LL-03TN	LS-03SN	P-03S	FH-2.5

External Turning Toolholders for Ceramic Inserts

Part Number			Spare Parts				
			Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
CCLNR	2525M	-16	CB-17	CE-220	LW-4	SP-454	M4X10
CS-N%	.....	-12	CB-11	CE-020	LW-4	SP-141 *(SP-143)	M3X8 *(M3X12)
CSKN%	.....	-12	CB-11	CE-020	LW-4	SP-141 *(SP-143)	M3X8 *(M3X12)
CSYN%	.....	-12	CB-11	CE-020	LW-4	SP-141 *(SP-143)	M3X8 *(M3X12)
CSSN%	.....	-12	CB-11	CE-020	LW-4	SP-141 *(SP-143)	M3X8 *(M3X12)

* Shim & shim screw: When using SN□□43.. Insert, purchase spare parts in () separately.

External Turning Toolholders for Solid CBN Inserts

Part Number			Spare Parts			
			Clamp Set	Wrench	Shim	Shim Screw
CCLN%	.....	-12GX	CE-410	LW-4	SP-441	M3X8
CDHN%	.....	-12GX	CE-410	LW-4	SP-521	M3X8
	.....	-15GX	CE-430		SP-541	
CDJN%	.....	-12GX	CE-410	LW-4	SP-521	M3X8
	.....	-15GX	CE-430		SP-541	
CSRN%	.....	-12GX	CE-410	LW-4	SP-141	M3X8
	.....	-15GX			SP-162	M4X10
CSDNN	.....	-12GX	CE-410	LW-4	SP-141	M3X8
	.....	-15GX			SP-162	M4X10
CSSN%	.....	-12GX	CE-410	LW-4	SP-141	M3X8
	.....	-15GX			SP-162	M4X10
CS-N%	.....	-12GX	CE-410	LW-4	SP-141	M3X8
	.....	-15GX			SP-162	M4X10
CSKN%	.....	-12GX	CE-410	LW-4	SP-141	M3X8
	.....	-15GX			SP-162	M4X10
CSYN%	.....	-12GX	CE-410	LW-4	SP-141	M3X8
	.....	-15GX			SP-162	M4X10

External Turning Toolholders for Solid CBN Inserts

Part Number			Spare Parts			
			Clamp Set	Wrench	Shim	Shim Screw
CCLN%	.....	-09A	CE-030A	LW-4	SP-429	HH3X12
CSRN%	2525M	-09A	CE-030A	LW-4	SP-129	HH3X12
	2525M	-12A			SP-148 *(SP-143)	BH3X12
CSKN%	2525M	-09A	CE-030A	LW-4	SP-129	HH3X12
	2525M	-12A			SP-148 *(SP-143)	BH3X12
CSYN%	2525M	-09A	CE-030A	LW-4	SP-129	HH3X12
	2525M	-12A			SP-148 *(SP-143)	BH3X12
CSDNN	.....	-09A	CE-040	LW-4	SP-129	HH3X12
	2525M	-12A			SP-148 *(SP-143)	BH3X12
CTUN%	.....	-11A	CE-030A	LW-4	SP-219	HH3X12

* Shim for -12A type toolholder : When using SN□□43.. insert, purchase spare parts in () separately.

Toolholders for Bearing Machining

Part Number			Spare Parts				
			Lever	Lock Screw	Shim	Shim pin	Punch
PRGC%	.....	-12BE	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1
	.....	-16BE	LL-2C	LS-1T	LR-16C	LSP-2	PC-2
PRGC%	.....	-12BF	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1
	.....	-16BF	LL-2C	LS-1T	LR-16C	LSP-2	PC-2

Toolholders for Back Turning

Part Number			Spare Parts			
			Anchor pin	Lock Screw	Clamp Screw	Wrench
AABSR	0810K	-40F	LPA-11	HSB4X8R	-	FH-2
	1010..	-40F				
	1212..	-40F	LPA-13			
	1616..	-40F	LPA-17			
SABSR	.....	-40F	-	-	SB-3080TR	FT-10
AABWR	0810K	-40F	LPA-11	HSB4X8R	-	FH-2
	1010..	-40F				
	1212..	-40F	LPA-13			
	1616..	-40F	LPA-17			
SABWR	.....	-40F	-	-	SB-3080TR	FT-10
AABWR	0810K	-50F	LPA-11	HSB4X8R	-	FH-2
	1010..	-50F				
	1212..	-50F	LPA-13			
	1616..	-50F	LPA-17			
SABWR	.....	-50F	-	-	SB-3080TR	FT-10

KTKF

Part Number			Spare Parts	
			Clamp Screw	Wrench
KTKF%	.....	-12	SB-4590TRWN	LTW-10S
	.....	-16		

External Toolholders (Back Clamp)

Part Number			Spare Parts		
			Anchor Pin	Lock Screw	Wrench
ACLC%	0810K	-06F	LPF-11	HSB4X8%	FH-2
	1010K	-06F			
	1010K	-09F	LPF-13		
	1212M	-09F			
	1616M	-09F	LPF-17		
ADJC%	0810K	-07F	LPF-11	HSB4X8%	FH-2
	1010K	-07F			
	1010K	-11F	LPF-13		
	1212M	-11F			
	1616M	-11F	LPF-17		
ADNCR	0810K	-07F	LPF-11	HSB4X8R	FH-2
	1010K	-07F			
	1010K	-11F	LPF-13		
	1212M	-11F			
	1616M	-11F	LPF-17		
AVJB%	1010K	-11F	LPF-11	HSB4X8%	FH-2
	1212M	-11F	LPF-1113		
	1616M	-11F	LPF-1117		
AVVBR	1010K	-11F	LPF-11	HSB4X8R	FH-2
	1212M	-11F	LPF-1113		
	1616M	-11F	LPF-1117		

* Lock Screw: HSB4X8R for R-hand toolholder, HSB4X8L for L-hand toolholder.

External Toolholders (Screw Clamp)

Part Number			Spare Parts	
			Clamp Screw	Wrench
SCLC%	.....	-06	SB-2570TR	FT-8
	.....	-09	SB-4085TR	FT-15
	.....	-12	SB-5090TR	LTW-20
SCAC%	.....	-06	SB-2570TR	FT-8
	.....	-09	SB-4085TR	FT-15
	1212F	-09FF		
SDJC%	.....	-07F	SB-2570TR	FT-8
	.....	-11F	SB-4085TR	FT-15
SDLC%	.....	-07FF	SB-2570TR	FT-8
	.....	-11FF	SB-4085TR	FT-15
SDXC%	.....	-07	SB-2570TR	FT-8
	.....	-11	SB-4085TR	FT-15
SDNC%	.....	-07F	SB-2570TR	FT-8
	.....	-11F	SB-4085TR	FT-15
SDNCN	.....	-07	SB-2570TR	FT-8
	.....	-11	SB-4085TR	FT-15
SDLP%	.....	-07F	SB-2570TR	FT-8
	.....	-11F	SB-4085TR	FT-15
STGC%	.....	-08	SB-2050TR	FT-6
	.....	-08	SB-2050TR	FT-6
STGP%	.....	-11	SB-3080TR	FT-10
	.....	-11F	SB-2570TR	FT-8
SVJB%	.....	-11F	SB-2570TR	FT-8
SVLP%	.....	-08FF	SB-2050TR	FT-6
	.....	-11FF	SB-2570TR	FT-8
	.....	-11F		
SVPP%	.....	-08FF	SB-2050TR	FT-6
	.....	-11FF	SB-2570TR	FT-8
	.....	-11		
SYXP%	.....	-06F	SB-2050TR	FT-6

External Toolholders (Screw Clamp)

Part Number			Spare Parts		
			Clamp Screw	Wrench	Plug
SCLCR	.....	-09FFJCT	SB-408STR	FT-15	GP-1
SDJCR	.....	-11..JCT	SB-408STR	FT-15	GP-1
SVJBR	.....	-11FFJCT	SB-2570TR	FT-8	GP-1
SVJPR	.....	-11FFJCT	SB-2570TR	FT-8	GP-1

External Toolholders (Screw Clamp)

Part Number			Spare Parts				
			Clamp Screw	Wrench	Shim	Shim Screw	Wrench
SVPB%	.....	-11	SB-2570TR	FT-8	-	-	-
	.....	-16N	SB-4012STRN	FT-15	SVN-32N	SS-4N	LW-4
SVVBN	.....	-11	SB-2570TR	FT-8	-	-	-
	.....	-16N	SB-4012STRN	FT-15	SVN-32N	SS-4N	LW-4

External Toolholders (Top Clamp)

Part Number			Spare Parts				
			Clamp Set	Wrench	Shim	Shim Screw	Chipbreaker
CSBP%	.....	-09N	CPS-2P	LW-2.5	-	-	CB-S3220
CSKP%	.....	-09N	CPS-2P	LW-2.5	-	-	CB-S3220
	.....	-12N	CPS-3	LW-3	KPS-42	SP3X8	CB-S4220
CSSP%	.....	-09N	CPS-2P	LW-2.5	-	-	CB-S3220
	.....	-12N	CPS-3	LW-3	KPS-42	SP3X8	CB-S4220
CSDPN	.....	-12N	CPS-3	LW-3	KPS-42	SP3X8	CB-S4220
CTGP%	.....	-11N	CPS-2P	LW-2.5	-	-	CB-T2212
	.....	-16N	CPS-3	LW-3	KPT-32	SP3X8	CB-T3220
CTFP%	.....	-11N	CPS-2P	LW-2.5	-	-	CB-T2212
	.....	-16N	CPS-3	LW-3	KPT-32	SP3X8	CB-T3220
CTTP%	.....	-11N	CPS-2P	LW-2.5	-	-	CB-T2212
	.....	-16N	CPS-3	LW-3	KPT-32	SP3X8	CB-T3220

EZ Bar PLUS

Part Number	Spare Parts	
	Clamp Screw	Wrench
S045X-SCLCR03-050EZ	SB-1635TR	FT-6
S060X-SCLCR04-070EZ	SB-2035TR	
C045X-SCLCR03-050EZ	SB-1635TR	FT-6
C060X-SCLCR04-070EZ	SB-2035TR	

Twin Bars

Part Number	Spare Parts	
	Clamp Screw	Wrench
STW% -15	SB-3080TR	LTW-10S
STWSR -15T	SB-3080TR	LTW-10S

Swiss IQ Bars

Part Number	Spare Parts			
	Clamp Screw	Wrench	Screw (Side stopper)	Wrench
SVNR 1010H -12	SB-3080TR	FT-10	HS3X4	LW-1.5
1212K -12			HS3X8	
1616K -12			HS3X12	
2020K -12			HS3X16	
2525M -12				
SVNSR -12-..	SB-3080TR	LTW-10S	HS3X4	LW-1.5
S12F- SVNR 12	SB-3080TR	FT-10	HS3X4	LW-1.5
S14G- SVNR 12				
S16H- SVNR 12				
S19H- SVNR 12			HS3X8	
S19N- SVNR 12				
S20H- SVNR 12				
S25H- SVNR 12				
S25Q- SVNR 12			HS3X12	
S.... SVNR 12S	SB-3080TR	FT-10	HS3X4	LW-1.5

Swiss IQ Bars (S-SVN-XN)

Part Number	Spare Parts		
	Clamp Screw	Wrench	Clamp Screw
S...- SVNR 12XN	SB-3080TR	FT-10	SP3X4

PSH Sleeve

Part Number	Spare Parts	
	Clamp Screw	Wrench
PSH 02.. -..	HS3X4P	LW-1.5
03.. -..		
PSH 04.. -..	HS4X4P	LW-2
05.. -..		
06.. -..		
07.. -..		

Boring Bars (Screw Clamp)

Part Number	Spare Parts	
	Clamp Screw	Wrench
S10H- SCLC% 03-..E	SB-1635TR	FT-6
S10J- SCLC% 04-..E	SB-2035TR	
S08X- SCLC% 06-10E	SB-2545TR	FT-8
S08X- SCLC% 06-10	SB-2545TR	FT-8
C...- SCLC% 03-..	SB-1635TR	FT-6
C...- SCLC% 04-..	SB-2035TR	
C08L- SCLC% 06-10	SB-2545TR	FT-8
A08H- SCLC% 06-10E	SB-2545TR	FT-8
E...- SCLC% 06-..	SB-2545TR	FT-8
S..M- SCLP% 08-..E	SB-35TR	FT-10
S...- SCLP% 09-..E	SB-4TR	FT-15
S..M- SCLP% 08-..	SB-35TR	FT-10
S...- SCLP% 09-..	SB-4TR	FT-15
C10N- SCLP% 08-..	SB-35TR	FT-10
C...- SCLP% 09-..	SB-4TR	FT-15
A..X- SCLP% 08-..E	SB-35TR	FT-10
A...- SCLP% 09-..E	SB-4TR	FT-15
E10N- SCLP% 08-12	SB-35TR	FT-10
E10N- SCLP% 08-12A-..	SB-3060TR	
E...- SCLP% 09-..	SB-4TR	FT-15
S...- SDUC% 07-..E	SB-2560TR	FT-8
S...- SDUC% 11-..E	SB-4085TR	FT-15
S...- SDUC% 07-..	SB-2560TR	FT-8
S...- SDUC% 11-..	SB-4085TR	FT-15
C...- SDUC% 07-..	SB-2560TR	FT-8
C...- SDUC% 11-..	SB-4085TR	FT-15
S...- SDZC% 07-..E	SB-2560TR	FT-8
S...- SDZC% 11-..E	SB-4085TR	FT-15
S...- SDZC% 07-..	SB-2560TR	FT-8
S...- SDZC% 11-..	SB-4085TR	FT-15
C06J- STLB% 06-08A	SB-2035TR	FT-6
E08L- STLP% 08-10A	SB-1TR	
E08L- STLP% 09-10A	SB-2545TR	FT-8
E10N- STLP% 09-..		
E10N- STLP% 11-..	SB-3060TR	FT-10
S06H- STUB% 06-08E	SB-15TR	FT-6
S08K- STUP% 08-10E	SB-1TR	
S..M- STUP% 09-..E	SB-2TR	FT-8
S...- STUP% 11-..E	SB-3TR	FT-10
S..X- STUP% 16-..E	SB-4TR	FT-15
S06H- STUB% 06-08	SB-15TR	FT-6
S08K- STUP% 08-10	SB-1TR	
S..M- STUP% 09-..	SB-2TR	FT-8
S...- STUP% 11-..	SB-3TR	FT-10
S25X- STUP% 16-32	SB-4TR	FT-15
C10L- STUB% 06-08	SB-15TR	FT-6
C08L- STUP% 08-10	SB-1TR	
C...- STUP% 09-..	SB-2TR	FT-8
C...- STUP% 11-..	SB-3TR	FT-10
C20S- STUP% 16-..	SB-4TR	FT-15
A08H- STUP% 08-10E	SB-1TR	FT-6
A..X- STUP% 09-..E	SB-2TR	FT-8
A...- STUP% 11-..E	SB-3TR	FT-10
A...- STUP% 16-..E	SB-4TR	FT-15
E08L- STUP% 08-10	SB-1TR	FT-6
E...- STUP% 09-..	SB-2TR	FT-8
E...- STUP% 11-..	SB-3TR	FT-10
E20S- STUP% 16-25	SB-4TR	FT-15

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Boring Bars (Screw Clamp)

Part Number		Spare Parts	
		Clamp Screw	Wrench
S...- SWUB% 08-..E		SB-2050TR	FT-6
S12M- SWUP% 11-14E		SB-2545TR	FT-8
S...- SWUP% 11-..E		SB-2560TR	
S...- SWUP% 16-..E		SB-4065TR	FT-15
S...- SWUB% 06-..		SB-2040TR	FT-6
S10J- SWUB% 08-..		SB-2035TR	
C...- SWUB% 06-..		SB-2035TR	FT-6
C07K- SWUB% 08-..			
C08L- SWUB% 08-..		SB-2050TR	
C10N- SWUB% 08-..			
C12Q- SWUP% 11-14(-./.)		SB-2545TR	FT-8
C12Q- SWUP% 11-16(-./.)		SB-2560TR	
C16X- SWUP% 11-18(-./.)			
C...- SWUP% 16-..		SB-4065TR	FT-15
E...- SWUB% 08-..		SB-2050TR	FT-6
S16Q- SSKPR09-20		SB-4TR	FT-15
S20R- SSKPR09-25			
S25X- SSKPR12-32		GS-50S	LW-3
S32S- SSKPR12-40		GS-50	
S12M- SYXP% 06-12E		SB-2040TR	FT-6
S16Q- SYXP% 06-16E		SB-2045TR	

Boring Bars (Screw Clamp)

Part Number		Spare Parts				
		Clamp Screw	Wrench	Shim	Shim Screw	Wrench (For shim screw)
S12M-	SVJP% 08-16E	SB-2050TR	FT-6	-	-	-
S...-	SVJC% 08-..E		FT-8			
S...-	SVJB% 11-..E		SB-2570TR			
S...-	SVJB% 16-..EN	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
S32S-	SVJB% 16-40E	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S40T-	SVJB% 16-50E					
S10M-	SVPC% 08-16E		SB-2050TR	FT-6	-	-
S...-	SVPB% 11-..E	SB-2570TR	FT-8			
S...-	SVPB% 16-..EN	SB-40125TRN	FT-15	SVN-32N				SS-4N	LW-4
S25X-	SVPB% 16-34E	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S32S-	SVPB% 16-40E					
S12M-	SVUC% 08-16E		SB-2050TR	FT-6	-	-
S...-	SVUB% 11-..E	SB-2570TR	FT-8			
S...-	SVUB% 16-..EN	SB-40125TRN	FT-15	SVN-32N				SS-4N	LW-4
S25X-	SVUB% 16-34E	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S32S-	SVUB% 16-40E					
S12M-	SVZC% 08-16E		SB-2050TR	FT-6	-	-
S...-	SVZB% 11-..E	SB-2570TR	FT-8			
S...-	SVZB% 16-..EN	SB-40125TRN	FT-15	SVN-32N				SS-4N	LW-4
S25X-	SVZB% 16-34E	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S32S-	SVZB% 16-40E					

Boring Bars (Top Clamp)

Part Number	Spare Parts				
	Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
S12L- CTUP% 09-16	-	CPS-1	FH-2	-	-
S...- CTUP% 11-..	-	CPS-2	FH-2.5	-	-
S25X- CTUP% 16-34	-	CPS-3	LW-3	-	-
S32S- CTUP% 16-43				KPT-32	SP3X10
S40X- CTUP% 16-50					
S32S- CTUC% 16-40	*CB-13/12	CE-320	LW-4	SP-230P	SP3X10
S...- CCLN% 09-..A	-	CE-360S	LW-4	SP-420A	BH3X6
S...- CSKN% 09-..A	-	CE-360S	LW-4	SP-130A	BH3X12
S32S- CSKPR12-43	CPS-3	-	LW-3	KPS-42	SP3X10

* CB-13 for Right-hand Toolholder, CB-12 for Left-hand Toolholder.

Boring Bars for Ceramic Inserts (Top Clamp)

Part Number			Spare Parts				
			Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
S32S-	CCLN%	-12-40GX	-	CE-410	LW-4	-	-
S40T-	CCLN%	-12-50GX				SP-441P	M3X8
S32S-	CDUN%	-12-40GX	-	CE-410	LW-4	-	-
S40T-	CDUN%	-12-50GX				SP-521P	M3X8
S32S-	CSKN%	-12-40GX	-	CE-410	LW-4	-	-
S40T-	CSKN%	-12-50GX				SP-141P	M3X8
S40T-	CSKN%	-12-50	*1 CB-13/12	CE-320	LW-4	SP-141P *2 (SP-143P)	M3X8 *2 (M3X12)

*1 CB-13 for right-hand toolholder, CB-12 for left-hand toolholder.

*2 When using SN□□43... Insert, please purchase spare parts in () separately.

Bearing Machining - Boring Bars (Square Shank)

Part Number			Spare Parts	
			Clamp Screw	Wrench
SRCP%	2020B-12	-A20	SB-4TR	FT-15
	2525B-16	-A32	SB-5090TR	LW-20

Sleeves for IQ Bars

Part Number			Spare Parts	
			Screw	Wrench
PH	02	...-	HS3X4	LW-1.5
	03	...-		
	04	...-		
	05	...-	HS4X4	LW-2
	06	...-		
	07	...-		

KTG

Part Number			Spare Parts	
			Clamp Screw	Wrench
KTG%	....	-16	SB-4TR	FT-15
	....	22-..	GS-50	LW-3

KN91

Part Number			Spare Parts				
			Clamp	Clamp Bolt	Washer	Spring	Wrench
KN91%	44	-4	*CE-111/121	BH8X30	W-8	SP-8	LW-5
	44	-5					
	44	-7	*CE-131/141				

* KN91% 44-4/5 ... CE-111 for right-hand toolholder, and CE-121 for left-hand toolholder.

KN91% 44-7 ... CE-131 for right-hand toolholder, and CE-141 for left-hand toolholder.

AD Anti-Vibration Bars

Part Number	Spare Parts													
	Lever	Lock Screw	Punch	Shim Pin	Shim	Clamp Screw	Wrench	Boring Adapter	Clamp Bolt		Wrench			
HA32 PCLN% 12-40	LL-2K	LS-2P	PC-2K	LSP-3K	LC-4K	-	-	DTPM-15	AD32U	HH5X20 (3 pc)	HH5X30 (1 pc)	LW-4		
HA40 PCLN% 12-50									AD40V					
HA50 PCLN% 12-63									AD50W	HH6X20 (3 pc)	HH6X30 (1 pc)	LW-5		
HA32 PDUN% 15-43	LL-3K	LS-3P			LD-4K43 (LD-4K*)				AD32U	HH5X20 (3 pc)	HH5X30 (1 pc)	LW-4		
HA40 PDUN% 15-50									AD40V					
HA50 PDUN% 15-63									AD50W	HH6X20 (3 pc)	HH6X30 (1 pc)	LW-5		
HA32 PTFN% 16-40	LL-1K	LS-1P		LSP-2K				LT-3K	DTPM-10	AD32U	HH5X20 (3 pc)	HH5X30 (1 pc)	LW-4	
HA40 PTFN% 16-50										AD40V				
HA50 PTFN% 16-63										AD50W	HH6X20 (3 pc)	HH6X30 (1 pc)	LW-5	
HA32 SCLC% 09-40	-	-		-	-			-	SB-3580TR	FT-15	AD32U	HH5X20 (3 pc)	HH5X30 (1 pc)	LW-4
HA32 SDUC% 11-40									SB-3580TR	FT-15	AD32U			

*Punch (PC-2K) is not included. Purchase separately.

*When using DN□□44... inserts, purchase LD-4K separately.

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Bearing Machining - Internal Filletting (Square Shank)

Part Number			Spare Parts	
			Clamp Set	Wrench
CBSN%	...B-12	-A20	CP-RC%	LW-5

KTGF

Part Number			Spare Parts	
			Clamp Screw	Wrench
KTGF%	.....	-16F	SB-4070TRW	FT-8
KTGF%	.....	-16	SB-4070TRS	FT-10

S-KTGF

Part Number			Spare Parts	
			Clamp Screw	Wrench
S....	-KTGFL16		SB-4070TRS	FT-10

KGHS

Part Number			Spare Parts				
			Clamp	Clamp Bolt	Washer	Spring	Wrench
KGHS%	.....	-4	CGH-1 ¹ / _R	HH6X25	W-6	SP-6	LW-5
	.....	-5					
	.....	-7	CGH-2 ¹ / _R				

Clamp: KGHS% ... CGH-OL for right-hand toolholder, and CGH-OR for left-hand toolholder.

Discontinued Tools - Spare Parts List

KGA

Part Number		Spare Parts			
		Clamp	Clamp Bolt	Spring	Wrench
KGA %L	 -3	CGA-3 %L	HH6X20	SP-6	LW-5
	 -4	CGA-4 %L			
	 -5	CGA-5 %L			

Clamp: CGA-OR for right-hand toolholder and CGA-OL for left-hand toolholder.

KGD^R%L-S

Part Number		Spare Parts		
		Clamp Bolt (for insert clamp)	Clamp Screw (for blade)	Wrench
KGD %L	-S	BH6X10TR	SB-60120TR	LTW-25

KGD-JCT (for Small Parts Machining)

Part Number		Spare Parts		
		Clamp Screw	Wrench	Plug
KGD %L	 - ... JCT	SB-40120TR	LTW-155	GP-1

KGDF^R%L-S

Part Number		Spare Parts		
		Clamp Bolt (for insert clamp)	Clamp Screw (for blade)	Wrench
KGDF %L	-S	BH6X10TR	SB-60120TR	LTW-25

KGM

Part Number			Spare Parts	
			Screw	Wrench
KGM %L	1212H	-3	SB-5TR	LTW-20
	1616H	-3	HH5X16	LW-4
	2020K	-3		
	2525M	-3		
KGM %L	2020K	-4	HH5X16	LW-4
	2525M	-4	HH5X25	
KGM %L	2020K	-5	HH5X16	LW-4
	2525M	-5	HH5X25	
	3232P	-5		
KGM %L	2525M	-8	HH6X25	LW-5
	3232P	-8		

KGM-T

Part Number		Spare Parts	
		Screw	Wrench
KGM %L	2012K-2T17	SB-5TR	LTW-20
	2020K-2T17	HH5X16	LW-4
	2525M-2T17	HH5X25	
KGM %L	1616H-3T20	HH5X16	LW-4
	2012K-3T20	SB-5TR	LTW-20
	2020K-3T20	HH5X16	LW-4
	2525M-3T20	HH5X25	
KGM %L	2020K-4T20	HH5X16	LW-4
	2525M-4T20	HH5X25	
	2525M-4T25		
KGM %L	2525M-5T25	HH5X25	LW-4
	3232P-5T25		
KGM %L	2525M-6T30	HH5X25	LW-4

KGM (for Small Parts Machining)

Part Number			Spare Parts	
			Clamp Screw	Wrench
KGM %L	0810K	- ...	SE-40120TR	LTW-155
	1010..	- ...		
	1212..	- 1.5-...		
	1212..	- 2-...		
	1212..	- 2.5-...		
KGM %L	1616..	- 2-...	SE-50125TR	LTW-20
	1616..	- 2.5-...		
	1616..	- 3-...		
	1616..	- 3-...		

KGMM / KGMS

Part Number		Spare Parts	
		Screw	Wrench
KGMM %L	1212H-3	SB-5TR	LTW-20
	1616H-3	HH5X16	LW-4
	2020K-3		
	2525M-3		
KGMS %L	1212H-3	SB-5TR	LTW-20
	1616H-3	GS-50	LW-3
	2020K-3	HH5X16	LW-4
	2525M-3	HH5X25	

Discontinued Tools - Spare Parts List

KG MU

Part Number		Spare Parts	
		Clamp Bolt	Wrench
KG MU %	2020K	HHSX16	LW-4
	2525M	HHSX25	

KIGH

Part Number		Spare Parts				
		Clamp	Clamp Bolt	Washer	Spring	Wrench
KIGHR	-4	CGH-1L	HH6X25	W-6	SP-6	LW-5
	-5					
	-7	CGH-2L				

KIGM-V

Part Number		Spare Parts	
		Clamp Screw	Wrench
KIGM %	2016B-3V	GS-50	LW-3
	2520B-3V		
	3225B-3V	SB-5TR	LTW-20
	3225B-4V	SB-5TR	LTW-20
	4032B-4V		

GFVS-AA / GFVT-AA

Part Number		Spare Parts	
		Clamp Set	Wrench
GFVS %	 -08AA	CPS-5V	FT-15
GFVT %	 -08AA	CPS-5V	FT-15

GIFV

Part Number		Spare Parts	
		Clamp Set	Wrench
GIFV %	5032B-502B	CPS-6V	LW-3

KTKF-JCT

Part Number		Spare Parts		
		Clamp Screw	Wrench	Plug
KTKF %	 - ... JCT	SB-4590TRWN	FT-10	GP-1

KTKFS (for Sub Spindle Tooling)

Part Number		Spare Parts	
		Clamp Screw	Wrench
KTKFS %	 - ...	SB-4050TRN	LTW-10S

KTKH-S

Part Number		Spare Parts
		Releasing wrench
KTKH %	 - ...S	LTK-5

KTKH-B

Part Number			Spare Parts	
			Clamp Screw	Wrench
KTKH %	0808K	- ...B	SE-40120TR	FT-15
	1010K	- ...B		
	1212M	- ...B		
	1414M	- ...B		
	1616M	- ...B	SE-50125TR	LTW-20

KTTX

Part Number		Spare Parts	
		Clamp Screw	Wrench
KTTXR	 -16F	SB-4070TRW	FT-8

DRS

Part Number			Spare Parts	
			Clamp Screw	Wrench
S20	-DRS	10...	SB-2080TR	FT-6
	-DRS	11...	SB-2290TR	FT-6
	-DRS	12...	SB-25100TR	DT-7

DRX

Part Number			Spare Parts	
			Clamp Screw	Wrench
S..	-DRX	- . -03	SB-2042TRG	DTM-6
	-DRX	- . -04	SB-2042TRG	DTM-6
	-DRX	- . -05	SB-2045TR	DTM-6
	-DRX	- . -06	SB-2250TR	DTM-7
	-DRX	- . -07	SB-2570TR	DTM-8
	-DRX	- . -09	SB-3080TR	DTM-10
	-DRX	- . -11	SB-4085TR	DTM-15
	-DRX	- . -14	SB-5090TR	DT-20
	-DRX	- . -17	SB-60120TR	DT-25

MFPN45 (Face Mill)

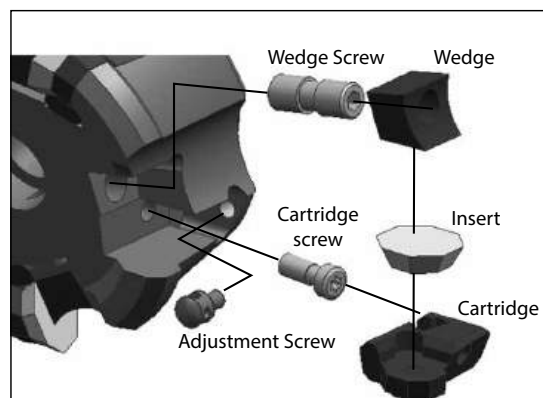
Part Number	Spare Parts		
	Clamp Screw	Wrench	Anti-seize compound
MFPN 45100R-10T-M ~ 45200R-20T-M	SB-40140TRN	DTM-15	P-37

MOF45

Part Number	Spare Parts		
	Clamp Screw	Wrench	Mounting bolt
MOF 45080R-05-6T 45100R-05-.T ~ 45200R-05-.T	SB-4082TPR	DTP-15	HH12X35
			-
			-
MOF 45080R-07-5T 45100R-07-.T ~ 45200R-07-.T	SB-50120TRS	DTP-15	HH12X35
			-
			-
MOF 45040R-05-3T-M 45050R-05-4T-M 45063R-05-5T-M 45080R-05-6T-M 45100R-05-.T-M ~ 45200R-05-.T-M	SB-4082TPR	DTP-15	HH8X25
			HH10X30
			HH12X35
			-
			-
			-
MOF 45063R-07-4T-M 45080R-07-5T-M 45100R-07-.T-M ~ 45200R-07-.T-M	SB-50120TRS	DTP-15	HH10X30S
			HH12X35
			-
			-
			-

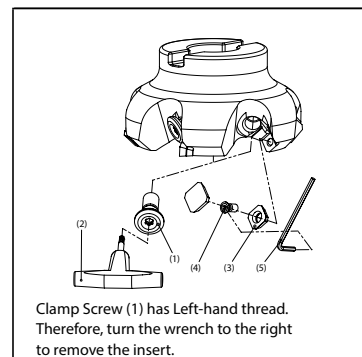
MOFX45

Part Number	Cartridge	Cartridge Screw	Wedge	Wedge Screw
MOFX45...	LOF07R	SH-50150TR	WOF07R	W8X21
Part Number	Adjustment Screw	Wrench (for Wedge)	Wrench (for Cartridge)	
MOFX45...	AJ-412	TH-4	TTC-20	



MSE45 (Face Mill)

Part Number	(1) Clamp Screw	(2) Wrench	(3) Shim	(4) Shim Screw	(5) Wrench
MSE 45040R-.T-M 45050R-.T-M	CP8X15TL (Left-hand Thread)	TTC-25	MSE-4245S	SP4X9	LW-2 (for Shim Screw)
MSE 45080R-.T ~ 45200R-.T					
MSE 45063R-.T-M ~ 45200R-.T-M					



Mounting bolt (SP8X35) is included for MSE45040R-.T-M.

Mounting bolt (HH10X30S) is included for MSE45050R-.T-M and MSE45063R-.T-M.

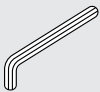
Mounting bolt (HH12X35) is included for MSE45080R-.T-M and MSE45080R-.T.

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INSERT GRADES	A
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CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

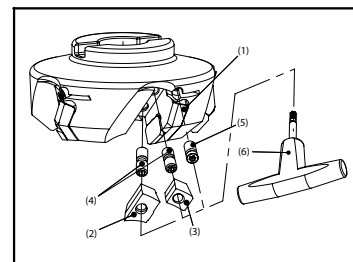
MSE45 (End Mill)

Part Number	Spare Parts			
	Clamp Set	Wrench	Shim	Shim Screw
				
MSE 4550 4563 4580-32	CPS-6M	LW-3	MSE-4245	SP3X8

MSE45-SF (Face Mill)

Part Number	(1) Cartridge	(2) Clamp	(3) Clamp	(4) Clamp Screw	(5) Adjustment Screw	(6) Wrench
						
MSE 45...R-T-SF 45...R-T-M-SF	LSE-445SR	C43R (for Insert)	C44R (for Cartridge)	W6X17	SV-60136TR	TTC-20

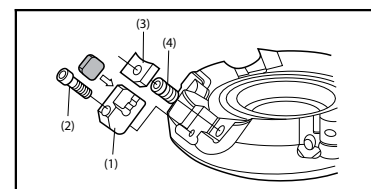
Mounting bolt (HH10X30S) is included for MSE45063R-4T-M-SF.
Mounting bolt (HH12X35) is included for MSE45080R-5T-M-SF.



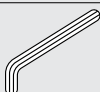
MSD45 (Face Mill)

Part Number	(1) Cartridge	(2) Cartridge clamp screw	(3) Clamp	(4) Clamp Screw	Wrench
					
MSD 45...R	LSD-445R	HH4X16	C20R	TH8X15	TH-4

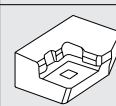
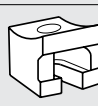
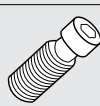
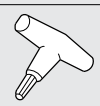
· Mounting bolt (HH12X35) is included for MSD4580R.

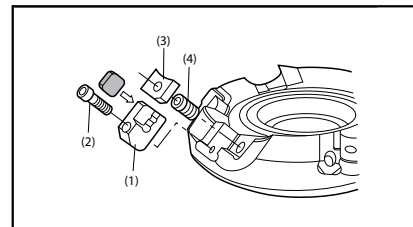


MSD45 (End Mill)

Part Number	Spare Parts			
	Clamp Set	Wrench	Shim	Shim Screw
				
MSD 4550 4563 4580-32	CPS-6M	LW-3	MSD-42	SP3X8

MSO45 (Face Mill)

Part Number	(1) Cartridge	(2) Cartridge clamp screw	(3) Clamp	(4) Clamp Screw	Wrench
					
MSO 45...R	LSO-445R	HH4X16	CH-20R	TH8X15	TH-4



MSO45-S (End Mill)

Part Number	Spare Parts				
	Shim	Shim Screw	Clamp	Clamp Screw	Wrench
MSO 45...S	MSO-4T245	SP3X6	CH-20R	TH8X15	TH-4

MSO45-09 (Face Mill)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MSO 45...R-09	SB-3060TR	DT-10

MSO45-S-09 (End Mill)

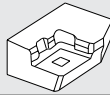
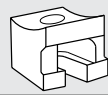
Part Number	Spare Parts	
	Clamp Screw	Wrench
MSO 45...S32-09	SB-3060TR	DT-10

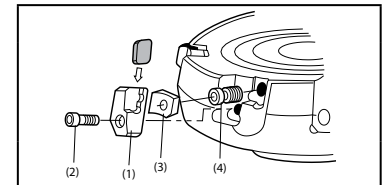
Discontinued Tools - Spare Parts List

MSP15 / MSE15 (End Mill)

Part Number	Clamp Set		Wrench		Shim		Shim Screw	
								
MSP 15..	CPS-6M		LW-3		MSP-42		SP3X8	
MSE 15..	CPS-6M		LW-3		MSE-4215		SP3X8	

MSP15 (Face Mill)

Part Number	(1) Cartridge	(2) Cartridge clamp screw	(3) Clamp	(4) Clamp Screw	Wrench
					
MSP 15...R	LSP-415R	HH4X16	C25R	TH8X15	TH-4



Mounting bolt (HH12X35) is included in MSP1580R.

MEC (Face Mill)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MEC ...R-11-..T(-M)	SB-2555TRG	DTM-8
MEC ...R-17-..T(-M)	SB-4070TRN	DTM-15

MEC (End Mill)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MEC ...W-..-1103(-H)	SB-2545TR	DTM-8
MEC ...W-..-11T3(-H)	SB-2555TRG	DTM-8
MEC ...W-..-1704-H	SB-4070TRN	DTM-15

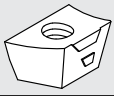
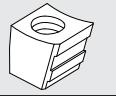
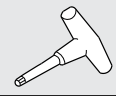
MECX (Face Mill)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MECX 050R-07-12T-M	SB-2042TRG	DTM-6
MECX 063R-07-14T-M		

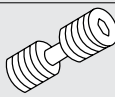
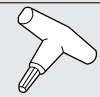
MECX (End Mill)

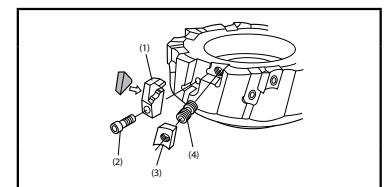
Part Number	Spare Parts	
	Clamp Screw	Wrench
MECX 32-532-07-6T	SB-2042TRG	DTM-6
MECX 33-532-200-07-6T		

MTE90-SF

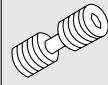
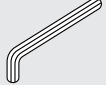
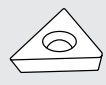
Part Number	Cartridge	Clamp	Clamp	Clamp Screw	Adjustment Screw	Wrench
						
MTE 90...-SF	LTE-490SR	C91R (for Insert)	C92R (for Cartridge)	W8X16	SV-60136R	TTC-25

MTE90 (Face Mill)

Part Number	(1) Cartridge	(2) Cartridge clamp screw	(3) Clamp	(4) Clamp Screw	Wrench
					
MTE 90...R	LTE-490R	HH4X16	C17R	W8X18	TH-4



MTE90 (End Mill)

Part Number	Spare Parts				
	Clamp	Clamp Screw	Wrench	Shim	Shim Screw
MTE 9050					
MTE 9063					
MTE 9080-32					
	CP-8TE	W8X18	LW-4	MTE-42	SP3X8

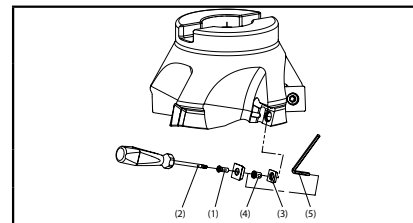
Discontinued Tools - Spare Parts List

MFWN (Face Mill)

Part Number	Spare Parts		
	Clamp Screw	Wrench	Anti-seize compound
MFWN 90100R-9T-M 90250R-18T-M	SB-40140TRN	DTM-15	P-37

MSO90 (Face Mill)

Part Number	(1) Clamp Screw	(2) Wrench	(3) Shim	(4) Shim Screw	(5) Wrench
					
MSO 90...R-15-.T	SB-45130TR	DTP-20	MSO-5200	SPW-6045	Lw-4.5 (For shim screw)
MSO 90...R-15-.T-M					



Mounting bolt (HH12X35) is included for MSO90080R-15-.T-M and MSO90080R-15-.T

Mounting bolt (HH10X305) is included for MSO90063R-15-.T-M

MSO90-S (End Mill)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MSO 90...S32-09	SB-3080TR	DT-10
90...S32-15	SB-5085TR	DT-20

MSO90-09 (Face Mill)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MSO 90...R-09	SB-3080TR	DT-10

MEA / MEB

Part Number	Spare Parts	
	Clamp Screw	Wrench
MEA .. -S..(- ...)	SB-2560TR	DT-8
MEB .. -S..	SB-4085TR	DT-15

DMC

Part Number	Spare Parts	
	Clamp Screw	Wrench
DMC 8.. (- S..)	SB-2545TR	FT-8
DMC 0..	SB-3060TR	FT-10

MTP

Part Number	Spare Parts				
	Clamp	Clamp Screw	Wrench	Shim	Shim Screw
MTP 90..	CP-8W	W8X18	LW-4	KPT-42	SP3X8

MTPS / MTES

Part Number	Clamp Set	Wrench
	 	
MTPS ...	CPS-2S	FT-15
MTES ...	CPS-5ES	

MEAL

Part Number	Spare Parts	
	Clamp Screw	Wrench
MEAL .. -S..	SB-5085TR	DT-20

MRP-S (End Mill)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MRP ...-S.. -08(-...)	SB-3060TR	DT-10
...-S.. -10-.T(-...)	SB-3080TR	DT-10
...-S.. -12(-.T)(-...)	SB-4085TR	DT-15
050-S42 -12(-300)	SB-40115TR	
...-S.. -16(-...)	SB-50120TR	DT-20

Discontinued Tools - Spare Parts List

MRP (Face Mill)

Part Number			Spare Parts	
			Clamp Screw	Wrench
MRP	...R	-10- .T	SB-3080TR	DT-10
MRP	050R	-12	SB-40115TR	DT-15
	063R	-12		
	080R	-12	SB-4085TR	
	080R	-12-7T		
MRP	...R	-16(- .T)	SB-50120TR	DT-20
MRP	...R	-20	SB-60120TR	DT-25

MHD (Helical End Mill)

Part Number			Spare Parts					
			Clamp Screw	Wrench	Clamp Bolt		Wrench	
					1 Front Piece	2 Front Pieces		
MHD	32-S32	-SA	SB-2560TR	DT-8	-	HH8X50	LW-6	
	40-S32	-SA	SB-3080TR	DT-10		HH8X65		
	40-S42	-SA				HH12X65		LW-10
	50-S42	-SA						
MHD	40-S42	-SB	SB-3080TR	DT-10	HH8X40	-	LW-6	
	50-S42	-SB			HH12X40		LW-10	
MHD	20S-S20	-C	SB-2560TR	DT-8	-	-	-	
	25-S25	-C						
	32-S32	-C						
	40-S42	-C	SB-3080TR	DT-10				
	50-S42	-C						
MHD	32-S32	-A	SB-2560TR	DT-8	HH8X35	HH8X50	LW-6	
	40-S32	-A	SB-3080TR	DT-10	HH8X40	HH8X65		
	40-S42	-A			HH12X40	HH12X65		LW-10
	50-S42	-A						
MHD	32-S32	-A-130	SB-2560TR	DT-8	HH8X35	HH8X50	LW-6	
	40-S32	-A-150	SB-3080TR	DT-10	HH8X40	HH8X65		
	50-S42	-A-150			HH12X40	HH12X65		LW-10
MHD	40-S42	-B	SB-3080TR	DT-10	HH8X40	-	LW-6	
	50-S42	-B			HH12X40		LW-10	
MHD	32	-F	SB-2560TR	DT-8	-	-	-	
	40	-F	SB-3080TR	DT-10				
	50	-F						

MHD (Face Mill and Integral Arbor Type)

Part Number			Spare Parts			
			Clamp Screw	Wrench	Clamp Bolt	Wrench
MHD	63-FMA	-SA	SB-3080TR	DT-10	HH16X90	LW-14
	80-FMA	-SA			HH20X110	LW-17
	100-FMA	-SA			HH24X110	LW-19
MHD	63-FMA	-A			HH16X90	LW-14
	80-FMA	-A			HH20X110	LW-17
	100-FMA	-A			HH24X110	LW-19
MHD	63-BT50	-SA			HH16X65	LW-14
	80-BT50	-SA			HH20X90	LW-17
	100-BT50	-SA			HH24X90	LW-19
MHD	63-BT50	-A			HH16X65	LW-14
	80-BT50	-A			HH20X90	LW-17
	100-BT50	-A			HH24X90	LW-19
MHD	63	-F			-	-
	80	-F				
	100	-F				

MHD (Radius Type)

Part Number			Spare Parts						
			Clamp Screw		Wrench		Clamp Bolt		Wrench
			For bottom insert	For middle insert	For bottom insert	For middle insert	1 Front piece	2 Front pieces	
MHD	32-S32	-4RSA	SB-2560TR	SB-2560TR	DT-8	DT-8	-	HH8X50	LW-6
	40-S32	-5RSA	SB-3080TR	SB-3080TR	DT-10	DT-10		HH8X55	
	40-S42	-5RSA			DT-15	DT-10		HH12X55	LW-10
	50-S42	-6RSA	SB-4085TR						
MHD	32-S32	-A	SB-2560TR		DT-8		-	HH8X50	LW-6
	40-S32	-A	SB-3080TR		DT-10			HH8X65	
	40-S42	-A						HH12X65	LW-10
	50-S42	-A							
MHD	32	-F	SB-2560TR		DT-8		-	-	-
	40	-F	SB-3080TR		DT-10				
	50	-F							
MHD	32	-4RF	SB-2560TR	SB-2560TR	DT-8	DT-8	-	-	-
	40	-5RF	SB-3080TR	SB-3080TR	DT-10	DT-10			
	50	-6RF	SB-4085TR		DT-15				

MEZ

Part Number			Spare Parts	
			Clamp Screw	Wrench
MEZ	16-S16....		SB-2040TRG	DTM-6
	20-S20....		SB-2555TRG	DT-8
	25-S25....		SB-3070TRG	DT-10
	32-S32....		SB-4070TRG	DT-15
	40-S32....		SB-3070TRG	DT-10
	50-S42....		SB-4070TRG	DT-15

MGI

Part Number			Spare Parts	
			Clamp Set	Wrench
MGI	-1C		CPS-6F	LW-3

MVG

Part Number			Spare Parts	
			Clamp Set	Wrench
MVG	....		CPS-6V	LW-3

Blank Tool

Part Number			Spare Parts
			Coolant pipe
T63H	-BL....		CL63-1

Flange Holder

Part Number			Spare Parts					
			Screw	Wrench	Mounting bolt	Wrench	Adjustment Screw	Wrench
SF22F	-SCLCL09	-40P	SB-4085TR	FT-15	HH5X30	LW-4	HS3X4	LW-1.5
	-SDUCL11	-40P	SB-4085TR	FT-15	HH5X30	LW-4	HS3X4	LW-1.5
	-SVUBL11	-40P	SB-2570TR	FT-8	HH5X30	LW-4	HS3X4	LW-1.5
	-KTGFL16	-40P	SB-4070TRS	FT-10	HH5X30	LW-4	HS3X4	LW-1.5
	-KTTXL16	-40P	SB-4070TRW	FT-8	HH5X30	LW-4	HS3X4	LW-1.5

Flange Holder (Sleeve Type)

Part Number			Spare Parts					
			Mounting bolt	Wrench	Adjustment Screw	Wrench	Screw (for fixing toolholder)	Wrench
SF22F	-SH..	-40P	HH5X30	LW-4	HS3X4	LW-1.5	HS6X4P	LW-3

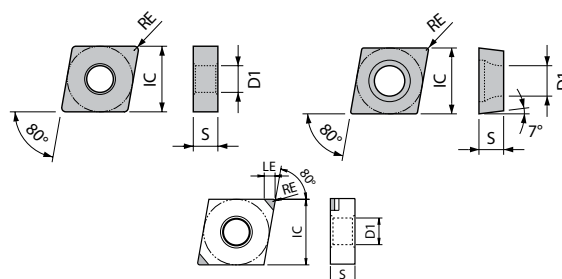
R

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Milling Insert Cross Reference Table	R36
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Turning Dimensions

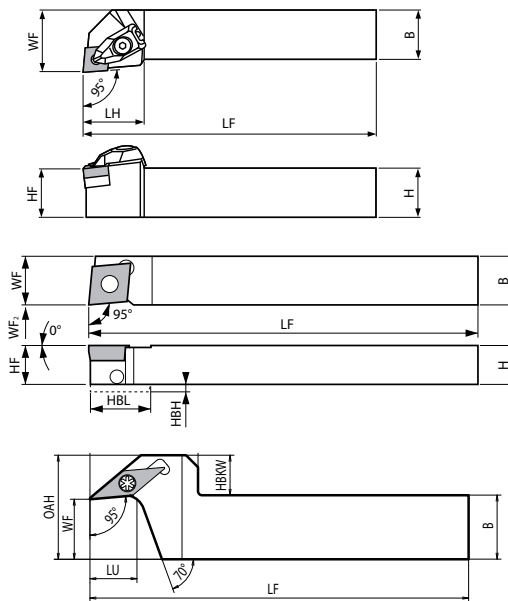
Turning Inserts

Symbol	Description	Previous Symbol
AN	Relief Angle	α
D1	Hole Diameter	$\varnothing d$
IC	Inscribed Circle Diameter	A
RE	Corner Radius	$r\epsilon$
S	Insert Thickness	T
LE	Edge Length (PCD / CBN Tip)	S



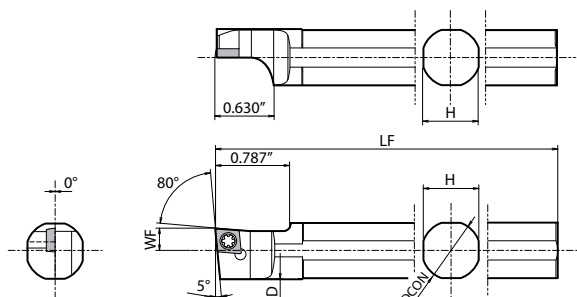
External Turning Holders (Square Shank)

Symbol	Description	Previous Symbol
B	Shank Width	B
H	Shank Height	H1
HF	Cutting Edge Height	h
HL	Head Bottom Offset Length	L2
HBH	Head Bottom Offset Height	H2
HBKW	Head Back Offset Width	F2
LF	Functional Length	L1
LH	Head Length	L2
LU	Usable Length	T
LN	Neck Length	L3, L4
WF	Cutting Edge Distance	F1
WF ₂ , WFS	Cutting Edge Distance (Secondary)	F2
OAH	Overall Height	F1
MHD	Mounting Hole Distance	M1
MHD2	Mounting Hole Distance (Secondary)	M2



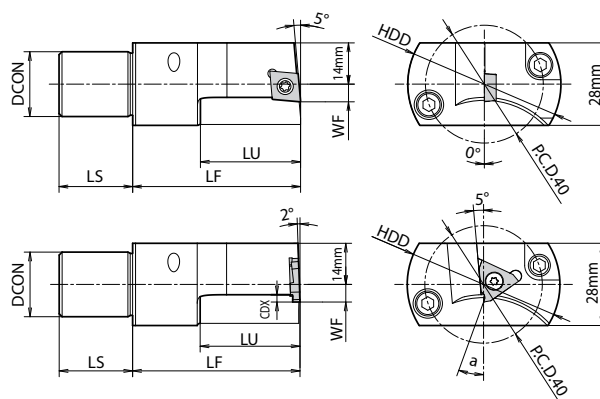
External Turning Holders (Round Shank)

Symbol	Description	Previous Symbol
DCON	Connection Diameter	$\varnothing D, \varnothing D1$
LF	Functional Length	L1
WF	Cutting Edge Distance	F1
WF ₂	Cutting Edge Distance (Secondary)	F2
BD	Body Diameter	$\varnothing d, \varnothing d1$
H	Shank Flat Width	H1



Sub-Spindle Turning Holders

Symbol	Description	Previous Symbol
DCON	Connection Diameter	$\varnothing D$
HDD	Head Diameter	$\varnothing D1, \varnothing D2$
LF	Functional Length	L2
LS	Shank Length	-
LU	Usable Length	L3
WF	Cutting Edge Distance	F1
WF ₂	Cutting Edge Distance (Secondary)	F2
CDX	Maximum Cutting Depth	B



Boring Dimensions

Boring Bars

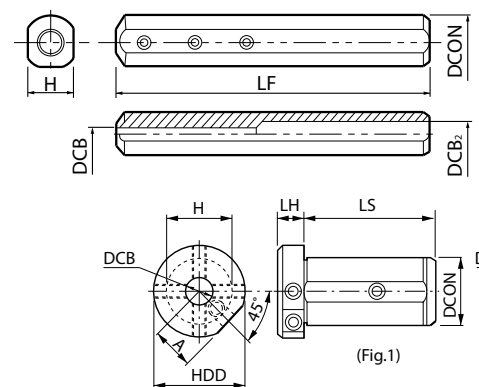
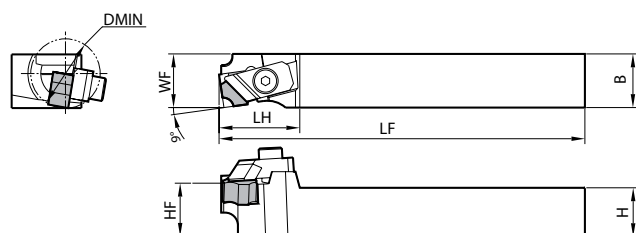
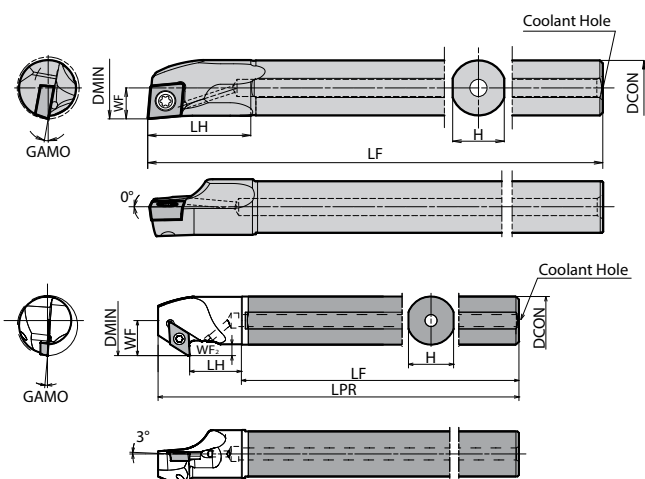
Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD, ØD1
GAMO	Rake Angle	h
H	Shank Flat Width	H
LF	Functional Length	L1
LH	Head Length	L2
LPR	Full Length	L1
LU	Usable Length	L2
RE	Corner Radius	rh
WF	Cutting Edge Distance	F
WF ₂	Cutting Edge Distance (Secondary)	F2

Boring Bars (Square Shank)

Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
B	Shank Width	B
H	Shank Height	H1
HF	Cutting Edge Height	h
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Distance	F1

Boring Bar Sleeves

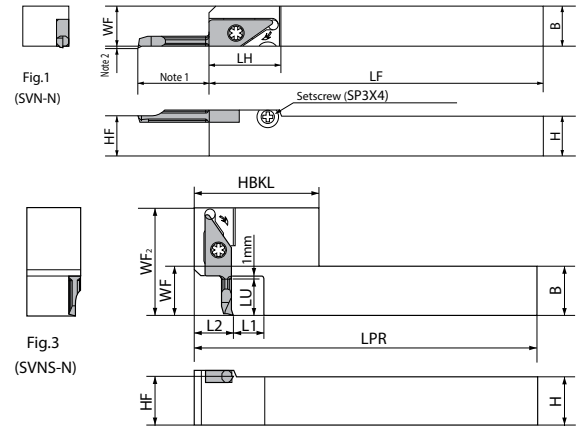
Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD, ØD1
DCB	Connection Bore Diameter	Ød1
HDD	Head Diameter	ØD2
DCB ₂	Connection Bore Diameter (Secondary)	Ød1, Ød2
H	Shank Flat Width	-
LF	Functional Length	L1
LS	Shank Length	L1
LH	Head Length	L2
A	Head Flat Distance	-



Boring Dimensions (Continued)

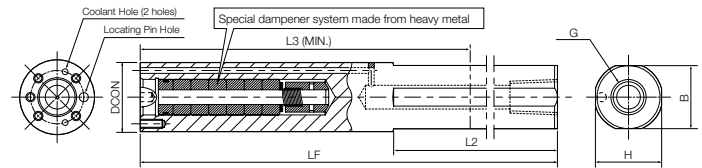
Micro Boring Bar Holders (Square Shank)

Symbol	Description	Previous Symbol
HF	Cutting Edge Height	h
H	Shank Height	H1
B	Shank Width	-
LF	Functional Length	L1
LPR	Protruding Length	L1
LH	Head Length	L2
HBKL	Head Back Offset Length	F2
HBKW	Head Back Offset Width	F2
WF	Cutting Edge Distance	F1
WF ₂	Cutting Edge Distance (Secondary)	F1
LU	Usable Length	F3
L1	Holder Clearance Distance 1	L3
L2	Holder Clearance Distance 2	L4



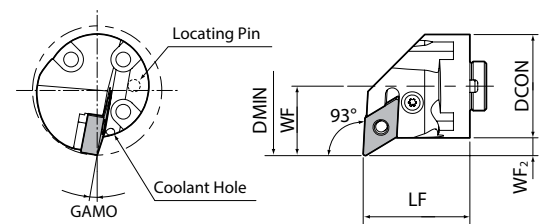
Boring Bar Adapters

Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD1
H	Shank Flat Height	-
B	Shank Flat Width	-
LF	Functional Length	L1
L2	Shank Length	-
L3 (Min)	Minimum Modification Length	-
G	Coolant Hole Thread Size	-



Replaceable Boring Bar Heads

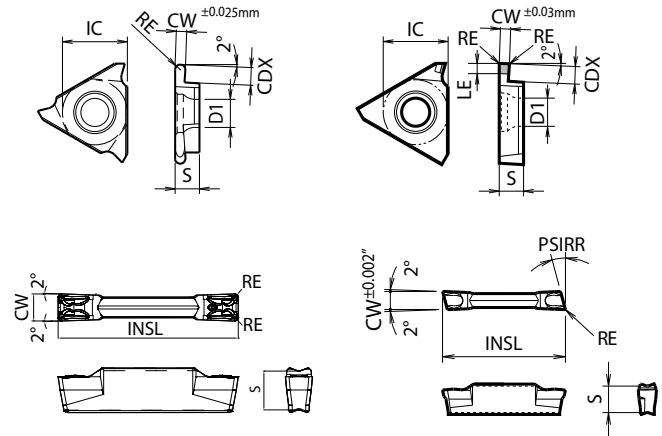
Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD
LF	Functional Length	L1
WF	Cutting Edge Distance	F
WF ₂	Cutting Edge Distance (Secondary)	S
GAMO	Rake Angle	h
RE	Corner Radius	rε



Grooving and Cut-Off Dimensions

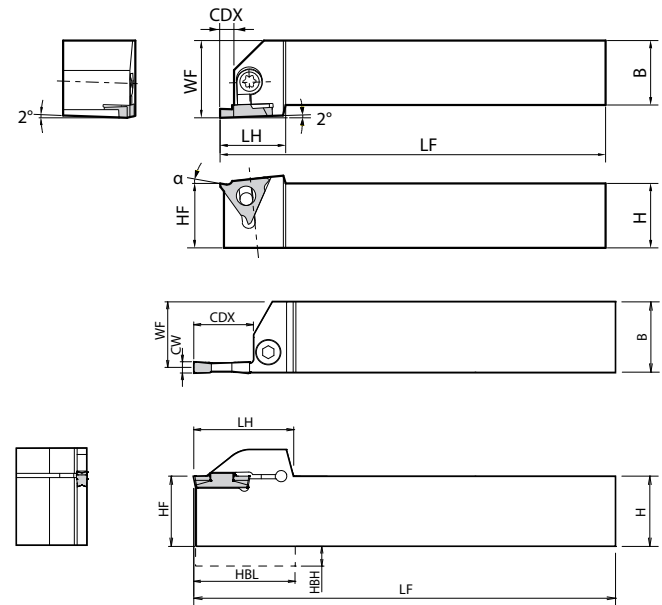
Grooving and Cut-Off Inserts

Symbol	Description	Previous Symbol
IC	Inscribed Circle Diameter	A
BCH	Corner Chamfer Length	C
CDX	Maximum Cutting Depth	B
CW	Cutting Edge Width	W
CUTDIA	Maximum Cut-Off Diameter	ØDmax
LE	Edge Length (PCD / CBN Tip)	S
D1	Hole Diameter	Ød
DAXN	Face Groove Diameter (Min.)	ØD
DAXX	Face Groove Diameter (Max.)	ØD
INSL	Insert Length	L
PSIRS	Lead Angle	h
RE	Corner Radius	rε
S	Insert Thickness	H, T, M
W1	Insert Width	A



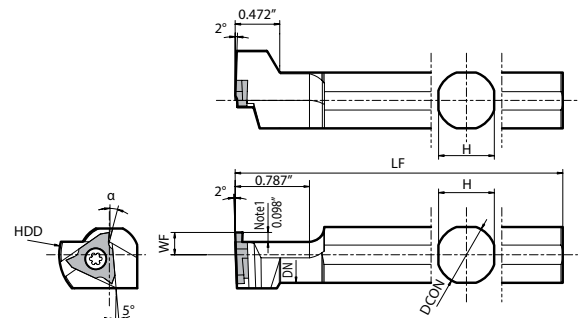
External Grooving Holders (Square Shank)

Symbol	Description	Previous Symbol
B	Shank Width	-
CDX	Maximum Cutting Depth	T
H	Shank Height	H1
HF	Cutting Edge Height	h
HL	Head Bottom Offset Length	L3
HBH	Head Bottom Offset Height	H2
HBKW	Head Back Offset Width	F2
LF	Functional Length	L1
LH	Head Length	L2
LN	Neck Length	-
WF	Cutting Edge Distance	F1
GAMP	Axial Rake Angle	h
MHD	Mounting Hole Distance	M1
MHD2	Mounting Hole Distance (Secondary)	M2



External Grooving Holders (Round Shank)

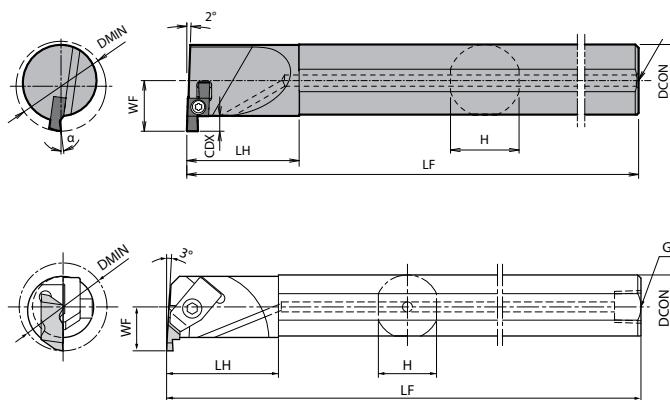
Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD
LF	Functional Length	L1
WF	Cutting Edge Distance	F1
DN	Neck Diameter	Ød1
HDD	Head Diameter	Ød2
H	Shank Flat Height	H1



Grooving and Cut-Off Dimensions (Continued)

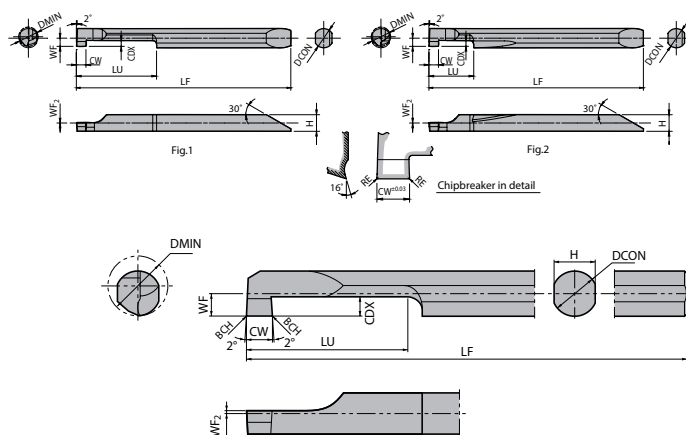
Internal Grooving Holders

Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD
H	Shank Flat Height	H1
LF	Functional Length	L1
LH	Head Length	L2
LU	Usable Length	L2
WF	Cutting Edge Distance	F1
CDX	Maximum Cutting Depth	T
G	Coolant Hole Thread Size	-



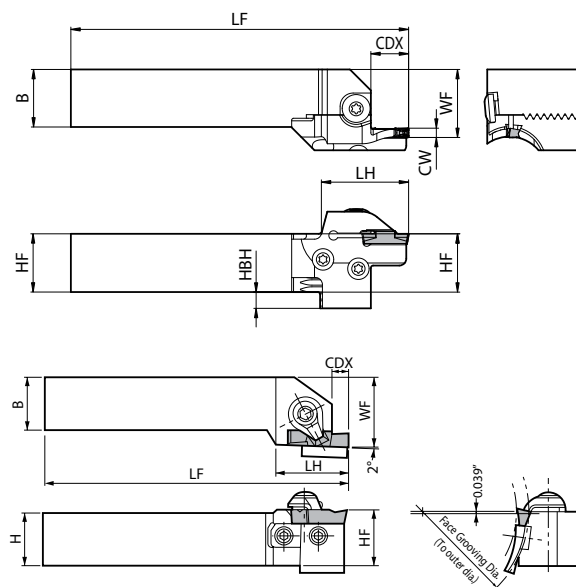
Micro Grooving Bars

Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD
DAXN	Face Groove Diameter (Min.)	ØD
DAXX	Face Groove Diameter (Max.)	ØD
CW	Cutting Edge Width	W
BCH	Corner Chamfer Length	C
H	Bar Flat Height	H1
LF	Functional Length	L1
LU	Usable Length	L2
WF	Cutting Edge Distance	F
WF ₂	Cutting Edge Distance (Secondary)	L4
LH	Head Length	L2
CDX	Maximum Cutting Depth	T
RE	Corner Radius	rε



Face Grooving Toolholders

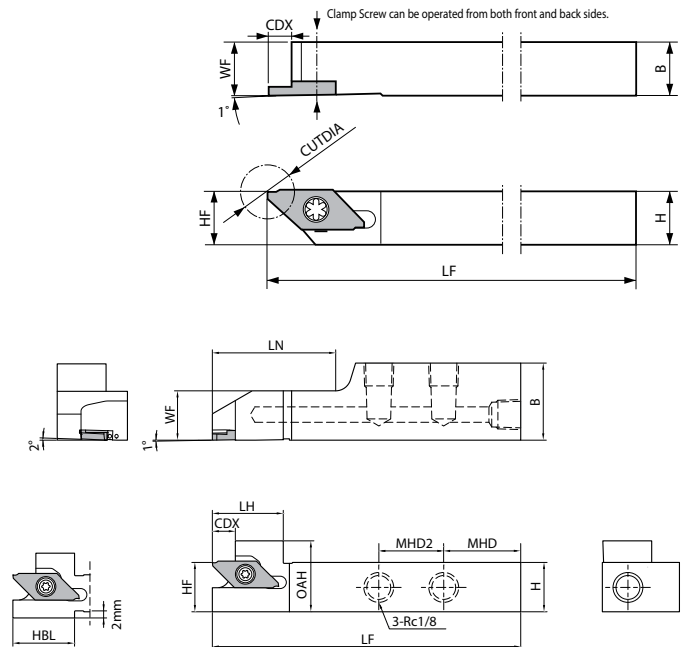
Symbol	Description	Previous Symbol
DAXN	Face Groove Diameter (Min.)	ØD
DAXX	Face Groove Diameter (Max.)	ØD
H	Shank Height	H1
HF	Cutting Edge Height	h
HBH	Head Bottom Offset Height	H2
B	Shank Width	-
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Distance	F, F1
WF ₂	Cutting Edge Distance (Secondary)	S
CDX	Maximum Cutting Depth	T
CW	Cutting Edge Width	W



Grooving and Cut-Off Dimensions (Continued)

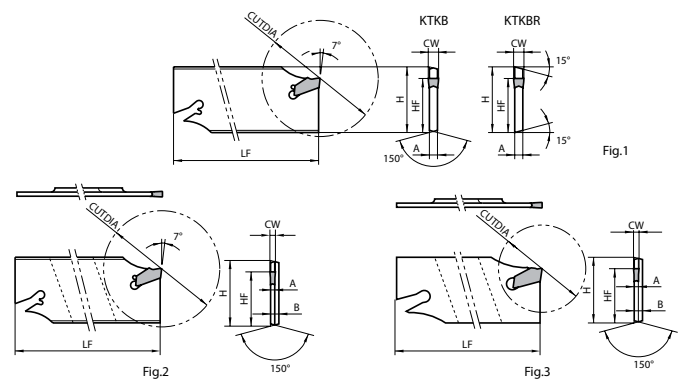
Cut-Off Toolholders

Symbol	Description	Previous Symbol
CUTDIA	Maximum Cut-Off Diameter	$\varnothing D_{max}$
H	Shank Height	H1
HF	Cutting Edge Height	h
OAL	Overall Length	L1
B	Shank Width	-
LF	Functional Length	L1
LH	Head Length	L2
LN	Neck Length	L3
LN2	Neck Length (Secondary)	-
HBL	Head Bottom Offset Length	L3
HBH	Head Bottom Offset Height	H2
WF	Cutting Edge Distance	F1
CDX	Maximum Cutting Depth	T
GAMP	Axial Rake Angle	h
MHD	Mounting Hole Distance	M1
MHD2	Mounting Hole Distance (Secondary)	M2



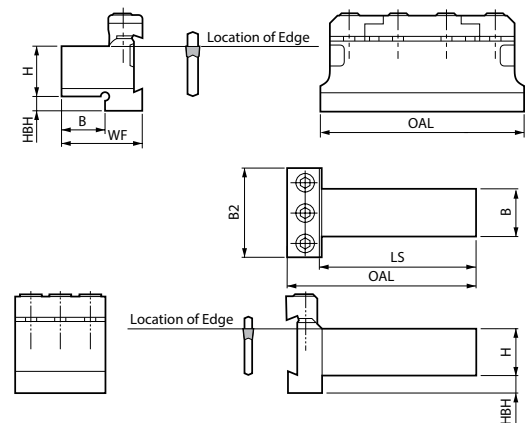
Cut-Off Blades

Symbol	Description	Previous Symbol
CUTDIA	Maximum Cut-Off Diameter	$\varnothing D_{max}$
H	Blade Height	H1
HF	Cutting Edge Height	h
B	Blade Width	-
LF	Functional Length	L1
A	Insert Mount Width	-
CW	Cutting Edge Width	W



Cut-Off Tool Blocks

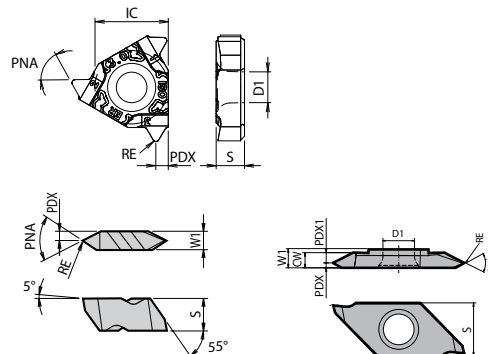
Symbol	Description	Previous Symbol
H	Shank Height	H1
HBH	Head Bottom Offset Height	H2
B	Shank Width	B1
B2	Blade Mount Width	-
OAL	Overall Length	L1
LS	Shank Length	L2



Threading Dimensions

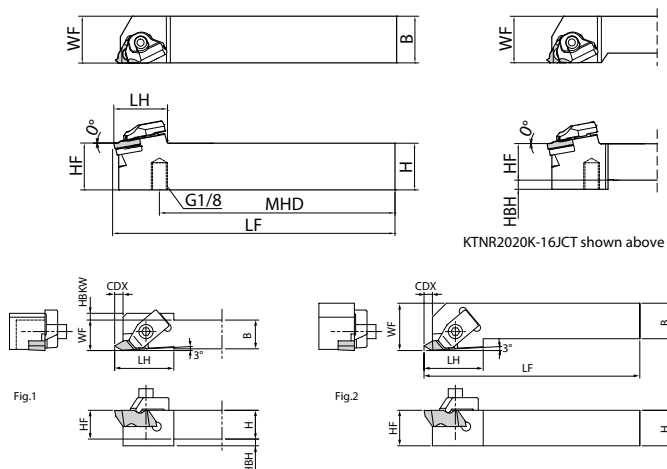
Threading Inserts

Symbol	Description	Previous Symbol
IC	Inscribed Circle Diameter	A
S	Insert Thickness	T
D1	Hole Diameter	Ød
PDX	Profile Distance	S, S1
PDX1	Profile Distance (Secondary)	S2
PNA	Included Angle	h
RE	Corner Radius	rε
W1	Insert Width	T
CW	Cutting Edge Width	W



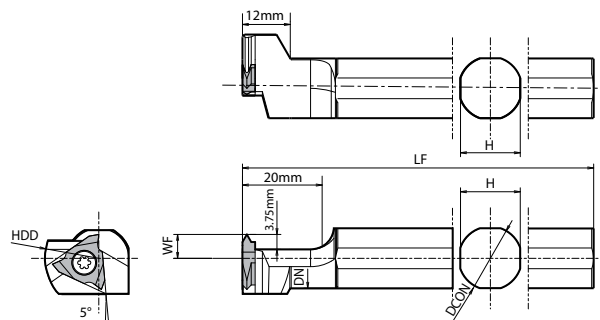
External Threading Toolholders (Square Shank)

Symbol	Description	Previous Symbol
H	Shank Height	H1
HF	Cutting Edge Height	h
HBH	Head Bottom Offset Height	H2
B	Shank Width	-
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Distance	F1
MHD	Mounting Hole Distance	M1
HBKW	Head Back Offset Width	F2
CDX	Maximum Cutting Depth	T
LPR	Protruding Length	T



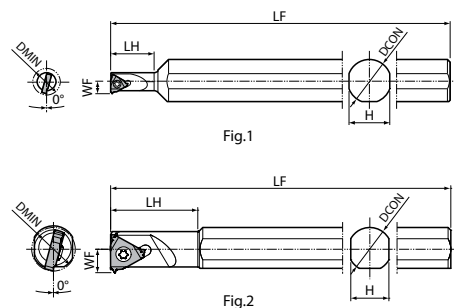
External Threading Toolholders (Round Shank)

Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD
LF	Functional Length	L1
WF	Cutting Edge Distance	F1
DN	Neck Diameter	Ød1
HDD	Head Diameter	Ød2
H	Shank Flat Height	H1



Internal Threading Toolholders

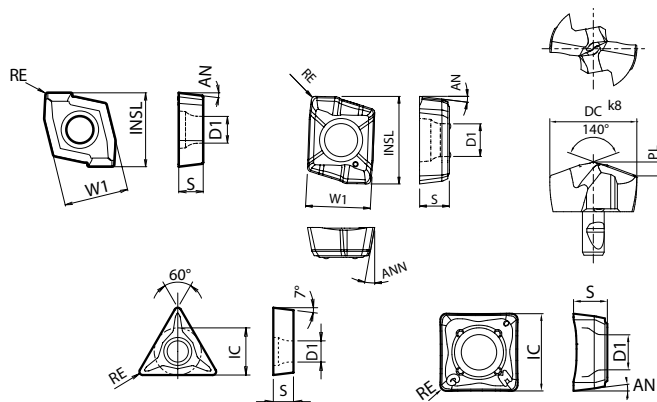
Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD
H	Shank Flat Width	-
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Distance	F1



Drilling Dimensions

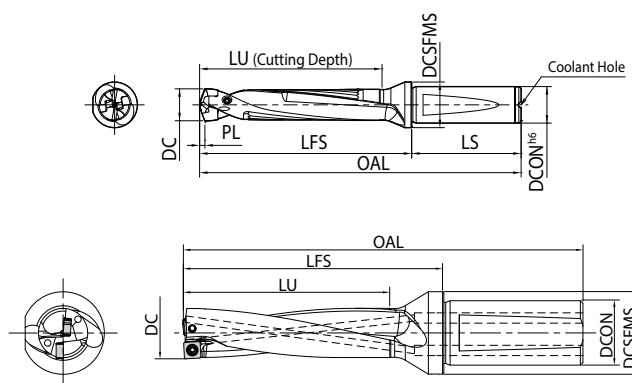
Drilling Inserts

Symbol	Description	Previous Symbol
IC	Inscribed Circle Diameter	A
S	Insert Thickness	T
W1	Insert Width	W
INSL	Insert Length	L
D1	Hole Diameter	$\varnothing d$
DC	Cutting Diameter	$\varnothing D_c$
DC ₂	Cutting Diameter	$\varnothing D_2$
PL	Point Length	L _p
RE	Corner Radius	r _ε
AN	Relief Angle (Minor)	lj
ANN	Relief Angle (Major)	ff



Drilling Toolholders

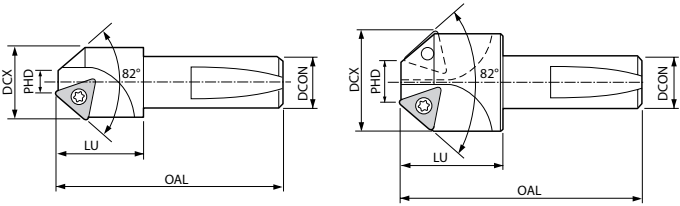
Symbol	Description	Previous Symbol
DC	Cutting Diameter	$\varnothing D_c$
DCON	Connection Diameter	$\varnothing D$
OAL	Overall Length	L
LFS	Functional Length	L1
LU	Cutting Depth	L3
LS	Shank Length	-
DCSFMS	Contact Surface Diameter Machine Side	$\varnothing d_1$
LCF	Flute Length	L2
Rc	Coolant Hole Thread Size	-



Drilling Dimensions (Continued)

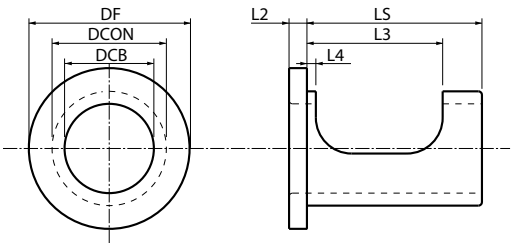
Countersinks

Symbol	Description	Previous Symbol
DCX	Maximum Cutting Diameter	ØD
PHD	Premachined Hole Diameter	ØDs
DCON	Connection Diameter	Ød
OAL	Overall Length	L
LU	Usable Length	L1



Drilling Sleeves

Symbol	Description	Previous Symbol
DCB	Connection Bore Diameter	Ød
DCON	Connection Diameter	ØD1
DF	Flange Diameter	ØD2
LS	Shank Length	L1

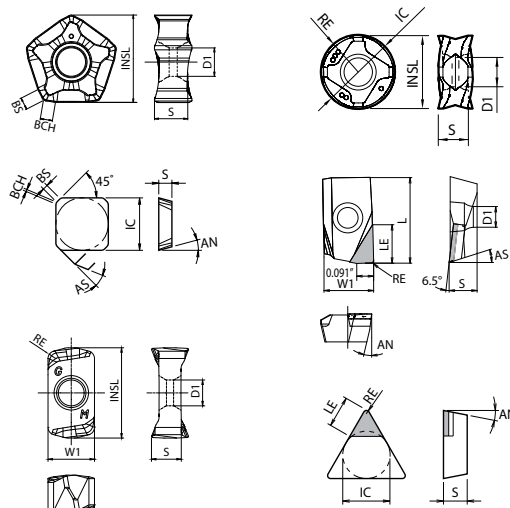


INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Milling Dimensions

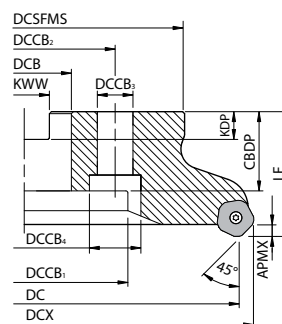
Milling Inserts

Symbol	Description	Previous Symbol
IC	Inscribed Circle Diameter	A
S	Insert Thickness	T
BCH	Corner Chamfer Length	X
RE	Corner Radius	rε
BS	Wiper Edge Length	Z
INSL	Insert Length	L
D1	Hole Diameter	Ød
L	Cutting Edge Length	W
W1	Insert Width	A
AN	Relief Angle (Major)	IJ
AS	Relief Angle (Wiper Edge)	ff
LE	Edge Length (PCD / CBN Tip)	S
GAN	Insert Rake Angle	h



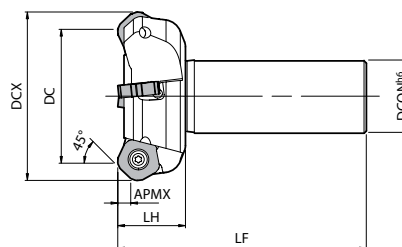
Face Mills

Symbol	Description	Previous Symbol
DC	Cutting Diameter	ØD
DCX	Maximum Cutting Diameter	ØD1
DCSFMS	Contact Surface Diameter Machine Side	ØD2
DCB	Connection Bore Diameter	Ød
DCCB ₁	Connection Counterbore Diameter	Ød1
DCCB ₂	Mounting Bolt Hole Diameter	Ød2
LF	Functional Length	H
CBDP	Connection Bore Depth	E
KDP	Keyway Depth	a
KWW	Keyway Width	b
PCD	Secondary Bolt Distance	ØC
APMX	Maximum Cutting Depth	S
KAPR	Lead Angle	-



End Mills

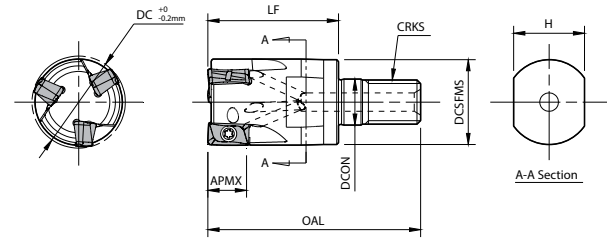
Symbol	Description	Previous Symbol
DC	Cutting Diameter	ØD
DCX	Maximum Cutting Diameter	ØD1
DCON	Connection Diameter	Ød, Ød1
DN	Neck Diameter	Ød2
CW	Cutting Width	W
LF	Functional Length	L
LH	Head Length	κ, κ1, L2
LU	Usable Length	κ2
LS	Shank Length	L3
LN	Neck Length	L1
APMX	Maximum Cutting Depth	S
RMPX	Maximum Ramping Angle	IJ
A.R.	Axial Rake Angle	-
R.R.	Radial Rake Angle	-
KAPR	Lead Angle	-
TA	Taper Angle	h



Milling Dimensions (Continued)

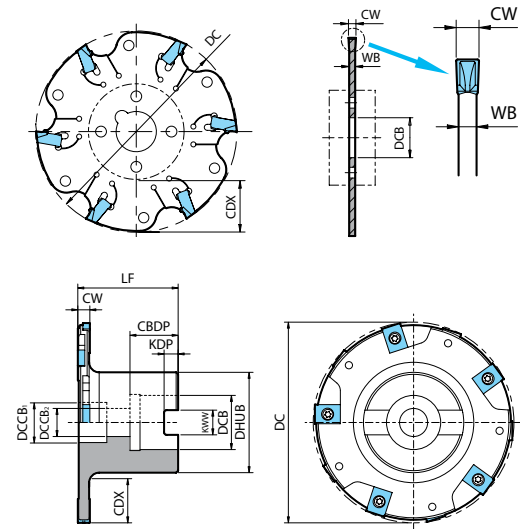
Modular End Mills

Symbol	Description	Previous Symbol
DC	Cutting Diameter	ØD
DCSFMS	Contact Surface Diameter Machine Side	ØD1
DCON	Connection Diameter	Ød
OAL	Overall Length	L
LF	Functional Length	L1
CRKS	Connection Retaining Knob Thread Size	M1
H	Weldon Flat Width	-
APMX	Maximum Cutting Depth	S
RMPX	Maximum Ramping Angle	U
A.R.	Axial Rake Angle	-
R.R.	Radial Rake Angle	-
KAPR	Lead Angle	-



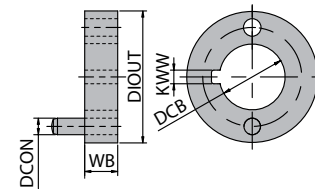
Slot Mills

Symbol	Description	Previous Symbol
CW	Cutting Edge Width	W
CDX	Maximum Cutting Depth	T
DC	Cutting Diameter	ØD
DCB	Connection Bore Diameter	Ød
WB	Body Width	A
DCSFMS	Contact Surface Diameter Machine Side	Ød1
DHUB	Hub Diameter	ØA
THUB	Hub Thickness	A
LF	Functional Length	L1
LN	Neck Leck	H
CBDP	Connection Bore Depth	E
KDP	Keyway Depth	a
KWW	Keyway Width	b
DCCB ₁	Connection Counterbore Diameter	Ød1
DCCB ₂	Mounting Bolt Hole Diameter	Ød2
APMX	Maximum Cutting Depth	W.O.C.1, S



Slot Mill Drive Rings

Symbol	Description	Previous Symbol
DCB	Connection Bore Diameter	Ød
DIOUT	Outside Diameter	ØD
WB	Body Width	A1
KWW	Keyway Width	a
DCON	Connection Diameter	Ød1



Inch / Metric Conversion Chart

Cutting Speed (Vc)

Cutting Speed (Vc)	
SFM	m/min
300	91
600	183
900	274

SFM = (0.262 x rpm) x dia.(inch)
3.28feet/min (SFM) = 1m/min

SFM (Surface Feet per Minute)

D.O.C. (ap)

D.O.C. (ap)	
inch	mm
0.02	0.5
0.04	1.0
0.08	2.0

1inch = 25.4mm
0.04inch = 1mm

IPR Feed Rate (f)

Feed Rate (f)	
ipr	m/min
0.002	0.05
0.004	0.1
0.008	0.2

1ipr = 25.4mm/rev
0.004ipr = 0.1mm/rev

ipr (Inch per Revolution)
mm/rev (mm per Revolution)

IPT Feed Rate (fz)

Feed Rate (fz)	
ipt	mm/t
0.002	0.05
0.004	0.1
0.008	0.2

1ipt = 25.4mm/t
0.004ipt = 0.1mm/t

ipt (Inch per Tooth)
mm/t (mm per Tooth)

Torque

lbft	Nm
0.738	1

lbft (Pound x Feet)
Nm (Newton x Meter)

SI Derived Units Conversion Chart

Bold units are the ones by SI derived unit.

Extracted from JIS handbook "Iron and Steel"

Force

N	kgf	dyn
1	1.019 72 x 10 ⁻¹	1 x 10 ⁵
9.806 65	1	9.806 65 x 10 ⁵
1 x 10⁻⁵	1.019 72 x 10 ⁻⁶	1

Stress

1Pa=1N/m², 1MPa=1N/mm²

Pa or N/m ²	MPa or N/mm ²	kgf/mm ²	kgf/cm ²	kgf/m ²
1	1 x 10⁻⁶	1.019 72 x 10 ⁻⁷	1.019 72 x 10 ⁻⁵	1.019 72 x 10 ⁻¹
1 x 10⁶	1	1.019 72 x 10 ⁻¹	1.019 72 x 10	1.019 72 x 10 ⁵
9.806 65 x 10⁶	9.806 65	1	1 x 10 ²	1 x 10 ⁶
9.806 65 x 10⁴	9.806 65 x 10⁻²	1 x 10 ⁻²	1	1 x 10 ⁴
9.806 65	9.806 65 x 10⁻⁶	1 x 10 ⁻⁶	1 x 10 ⁻⁴	1

Pressure

1Pa=1N/m²

Pa	kPa	MPa	bar	kgf/cm ²
1	1 x 10⁻³	1 x 10⁻⁶	1 x 10 ⁻⁵	1.019 72 x 10 ⁻⁵
1 x 10³	1	1 x 10⁻³	1 x 10 ⁻²	1.019 72 x 10 ⁻²
1 x 10⁶	1 x 10³	1	1 x 10	1.019 72 x 10
1 x 10⁵	1 x 10²	1 x 10⁻¹	1	1.019 72
9.806 65 x 10⁴	9.806 65 x 10	9.806 65 x 10⁻²	9.806 65 x 10 ⁻¹	1

Theoretical (Geometrical) Surface Roughness

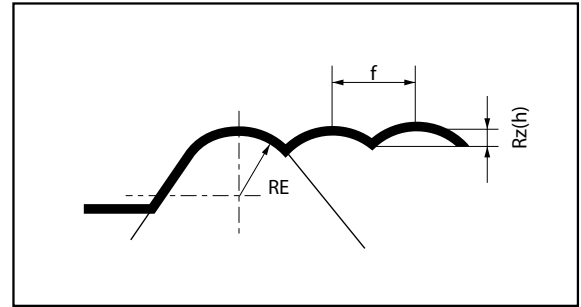
Theoretical surface roughness for turning indicates the minimum roughness value from the cutting conditions and it is shown by the formula as follows.

$$Rz(h) = \frac{f^2}{8RE} \times 10^3$$

$Rz(h)$: Theoretical surface roughness [μm]

f : Feed rate [mm/rev]

RE : Corner radius of insert [mm]



How to obtain surface roughness values

Type	Symbol	How to obtain	Explanation
Max. height roughness	Rz	Rz is a mean value in micron meter obtained from the distance of the highest peaks and the lowest valleys within the range of sampled reference length " l " in the direction of the center line of the roughness curve. Note) When calculating Rz , extraordinarily high or low threads are considered as damages and excluded from the calculation, and only standard lengths are used. $Rz = Rp + Rv$	
Ten points mean roughness	Rz_{JIS}	Rz_{JIS} is a mean value in micron meter obtained from the distance of 5 highest peaks (Yp) and the 5 lowest valleys (Yv) measured from the center line of the roughness curve within the range of sampled reference length " l ". $Rz_{JIS} = \frac{(Yp1 + Yp2 + Yp3 + Yp4 + Yp5) + (Yv1 + Yv2 + Yv3 + Yv4 + Yv5)}{5}$	 $Yp1, Yp2, Yp3, Yp4, Yp5$: Distance from the mean line to the highest 5 peaks in the range of sampled reference length " l " $Yv1, Yv2, Yv3, Yv4, Yv5$: Distance from the mean line to the lowest 5 valleys in the range of sampled reference length " l "
Arithmetical mean roughness	Ra	Ra is obtained from the following formula in micron meter, the roughness curve is expressed by $y=f(x)$, the X-axis is in the direction of the center line and the Y-axis is the vertical magnification of the roughness curve in the range of sampled reference length " l ". $Ra = \frac{1}{l} \int_0^l |f(x)| dx$	

Relationship with triangle symbol

Arithmetical mean roughness $Ra(\mu\text{m})$	Max. height roughness $Rz(\mu\text{m})$	Ten points mean roughness $Rz_{JIS}(\mu\text{m})$	*(Triangle symbol)
0.025 0.05 0.1 0.2	0.1 0.2 0.4 0.8	0.1 0.2 0.4 0.8	
0.4 0.8 1.6	1.6 3.2 6.3	1.6 3.2 6.3	
3.2 6.3	12.5 25	12.5 25	
12.5 25	50 100	50 100	

* Triangle symbol was removed from JIS standard in the 1994 Revision.

How to Indicate

- When Ra is $1.6\mu\text{m} \rightarrow 1.6\mu\text{m}Ra$
- When Rz is $6.3\mu\text{m} \rightarrow 6.3\mu\text{m}Rz$
- When Rz_{JIS} is $6.3\mu\text{m} \rightarrow 6.3\mu\text{m}Rz_{JIS}$

Indication in JIS standard

Example of Ra indication		Example of Rz indication	
1. When indicating the upper limit only (when upper limit is $6.3\mu\text{m}Ra$)		1. When indicating the upper limit only indicate surface roughness following the parameter symbol.	
2. When indicating both lower and upper limit (when upper limit is $6.3\mu\text{m}Ra$, lower limit is $1.6\mu\text{m}Ra$)		2. When indicating both lower and upper limit indicate surface roughness as (upper limit ~ lower limit) following the parameter symbol.	

Note: The indications of Ra and Rz are different.

Caution - Symbols for Surface Roughness

The above information is based on JIS B 0601-2001.

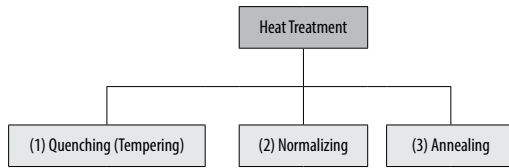
However, some symbols were revised as shown in the right table in accordance with ISO Standard from JIS B 0601-2001 version.

Ten Points Mean Roughness (Rz) was eliminated from 2001 version but it still remains as Rz_{JIS} reference, since it was popular in Japan.

Type	Symbol of JIS B 0601-1994	Symbol of JIS B 0601-2001
Max. height roughness	Ry	Rz
Ten points mean roughness	Rz	(Rz_{JIS})
Arithmetical mean roughness	Ra	Ra

Heat Treatment

One of the ways to determine the hardness of steel is the heat treatment and it is classified to 3 types.



Heat Treatment Method	Detail	Effect
	· Quenching (Tempering) After heating to 727°C or over, cool rapidly down to 550°C in water or oil.	Quenching makes steel hard. Because it cools down red-hot steel very rapidly in water or oil, but it may promote internal stress. In order to remove such internal stress, tempering is used. (After cooled down once, reheat it to 200°C ~ 600°C)
	· Normalizing After heating to 727°C or over, cool down rapidly to 600°C and then to normal temperature.	It miniaturizes the crystals. (Steel is also composed of small cells.) It is used to improve the mechanical character or machinability.
	· Annealing After heating to 727°C or over, cool down very slowly to 600°C, then to normal temperature.	It miniaturizes the crystals like the process of normalizing, but the crystal size is bigger than that of normalizing. It targets machinability improvement and distortion correction.

Hardness Value

Hardness	Reference Standard	Example	Explanation of Example
Brinell Hardness	JIS Z 2243: 1992	250HB	Hardness value: 250, Hardness symbol: HB
		200 ~ 250HB	When the hardness has the range
Vickers Hardness	JIS Z 2244: 1998	640HV	Hardness value: 640, Hardness symbol: HV
Rockwell Hardness	JIS Z 2245: 1992	60HRC	Hardness value: 60, Hardness symbol: HRC
Shore Hardness	JIS Z 2246: 1992	50HS	Hardness value: 50, Hardness symbol: HS

Vickers Hardness Conversion Chart

Vickers Hardness (HV)	Brinell Hardness 10mm Dia. Ball Load: 3,000kgf (HB)		Rockwell Hardness ²⁾			Shore Hardness (HS)	Tensile Strength MPa ¹⁾
	Standard Ball	Tungsten Carbide Ball	A Scale Load: 60kgf Diamond Point (HRA)	B Scale Load: 100kgf 1.6mm (1/16in) Dia. Ball (HRB)	C Scale Load: 150kgf Diamond Point (HRC)		
940	-	-	85.6	-	68.0	97	
920	-	-	85.3	-	67.5	96	
900	-	-	85.0	-	67.0	95	
880	-	(767)	84.7	-	66.4	93	
860	-	(757)	84.4	-	65.9	92	
840	-	(745)	84.1	-	65.3	91	
820	-	(733)	83.8	-	64.7	90	
800	-	(722)	83.4	-	64.0	88	
780	-	(710)	83.0	-	63.3	87	
760	-	(698)	82.6	-	62.5	86	
740	-	(684)	82.2	-	61.8	84	
720	-	(670)	81.8	-	61.0	83	
700	-	(656)	81.3	-	60.1	81	
690	-	(647)	81.1	-	59.7	-	
680	-	(638)	80.8	-	59.2	80	
670	-	630	80.6	-	58.8	-	
660	-	620	80.3	-	58.3	79	
650	-	611	80.0	-	57.8	-	
640	-	601	79.8	-	57.3	77	
630	-	591	79.5	-	56.8	-	
620	-	582	79.2	-	56.3	75	
610	-	573	78.9	-	55.7	-	
600	-	564	78.6	-	55.2	74	
590	-	554	78.4	-	54.7	-	2055
580	-	545	78.0	-	54.1	72	2020
570	-	535	77.8	-	53.6	-	1985
560	-	525	77.4	-	53.0	71	1950
550	505	517	77.0	-	52.3	-	1905
540	496	507	76.7	-	51.7	69	1860
530	488	497	76.4	-	51.1	-	1825
520	480	488	76.1	-	50.5	67	1795
510	473	479	75.7	-	49.8	-	1750
500	465	471	75.3	-	49.1	66	1705
490	456	460	74.9	-	48.4	-	1660
480	448	452	74.5	-	47.7	64	1620
470	441	442	74.1	-	46.9	-	1570
460	433	433	73.6	-	46.1	62	1530
450	425	425	73.3	-	45.3	-	1495
440	415	415	72.8	-	44.5	59	1460
430	405	405	72.3	-	43.6	-	1410
420	397	397	71.8	-	42.7	57	1370
410	388	388	71.4	-	41.8	-	1330
400	379	379	70.8	-	40.8	55	1290
390	369	369	70.3	-	39.8	-	1240
380	360	360	69.8	(110.0)	38.8	52	1205
370	350	350	69.2	-	37.7	-	1170
360	341	341	68.7	(109.0)	36.6	50	1130
350	331	331	68.1	-	35.5	-	1095
340	322	322	67.6	(108.0)	34.4	47	1070
330	313	313	67.0	-	33.3	-	1035

Vickers Hardness (HV)	Brinell Hardness 10mm Dia. Ball Load: 3,000kgf (HB)		Rockwell Hardness ²⁾			Shore Hardness (HS)	Tensile Strength MPa ¹⁾
	Standard Ball	Tungsten Carbide Ball	A Scale Load: 60kgf Diamond Point (HRA)	B Scale Load: 100kgf 1.6mm (1/16in) Dia. Ball (HRB)	C Scale Load: 150kgf Diamond Point (HRC)		
320	303	303	66.4	(107.0)	32.2	45	1005
310	294	294	65.8	-	31.0	-	980
300	284	284	65.2	(105.5)	29.8	42	950
295	280	280	64.8	-	29.2	-	935
290	275	275	64.5	(104.5)	28.5	41	915
285	270	270	64.2	-	27.8	-	905
280	265	265	63.8	(103.5)	27.1	40	890
275	261	261	63.5	-	26.4	-	875
270	256	256	63.1	(102.0)	25.6	38	855
265	252	252	62.7	-	24.8	-	840
260	247	247	62.4	(101.0)	24.0	37	825
255	243	243	62.0	-	23.1	-	805
250	238	238	61.6	99.5	22.2	36	795
245	233	233	61.2	-	21.3	-	780
240	228	228	60.7	98.1	20.3	34	765
230	219	219	-	96.7	(18.0)	33	730
220	209	209	-	95.0	(15.7)	32	695
210	200	200	-	93.4	(13.4)	30	670
200	190	190	-	91.5	(11.0)	29	635
190	181	181	-	89.5	(8.5)	28	605
180	171	171	-	87.1	(6.0)	26	580
170	162	162	-	85.0	(3.0)	25	545
160	152	152	-	81.7	(0.0)	24	515
150	143	143	-	78.7	-	22	490
140	133	133	-	75.0	-	21	455
130	124	124	-	71.2	-	20	425
120	114	114	-	66.7	-	-	390
110	105	105	-	62.3	-	-	-
100	95	95	-	56.2	-	-	-
95	90	90	-	52.0	-	-	-
90	86	86	-	48.0	-	-	-
85	81	81	-	41.0	-	-	-

Extracted from JIS handbook "Iron & steel" (SAE J 417)

Note:

1. 1 MPa = 1 N/mm²

2. Value in () is not in practical use, but reference only.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Ferrous materials

Classification		Name of JIS standard	Symbol
Structural steel		Rolled steel for welded structure	SM
		Re-rolled steel	SRB
		Rolled steel for general structure	SS
		Light gauge steel for general structure	SSC
		Hot-rolled steel plate, sheet and strip for automobile structural use	SAPH
Steel sheet		Cold-rolled steel plate, sheet and strip	SPC
		Hot-rolled soft steel plate, sheet and strip	SPH
Steel pipe		Carbon steel pipe for ordinary piping	SGP
		Carbon steel pipe for boiler / heat exchanger	STB
		Seamless steel pipe for high pressure gas cylinder	STH
		Carbon steel pipe for general structural use	STK
		Carbon steel pipe for machine structural use	STKM
		Alloy steel pipe for structural use	STKS
		Stainless steel pipe for machine structural use	SUS-TK
		Steel square pipe for general structural use	STKR
		Alloy steel pipe for ordinary piping	STPA
		Carbon steel pipe for pressure service	STPG
		Carbon steel pipe for high-temperature service	STPT
		Carbon steel pipe for high-pressure service	STS
		Stainless steel pipe for ordinary piping	SUS-TP
Machine structural steel		Carbon steel for machine structural use	SxxC,SxxCK
		Aluminum chromium molybdenum steel	SACM
		Chromium molybdenum steel	SCM
		Chromium steel	SCr
		Nickel chromium steel	SNC
		Nickel chromium molybdenum steel	SNCM
		Manganese steel and manganese chromium steel for machine structural use	SMn,SMnC
Special steel	Tool steel	Carbon tool steel	SK
		Hollow drill steel	SKC
		Alloy tool steel	SKS,SKD,SKT
		High speed tool steel	SKH
	Special steel	Free cutting carbon steel	SUM
		High carbon chromium bearing steel	SUJ
		Spring steel	SUP
	Stainless steel	Stainless steel bar	SUS-B
		Hot-rolled stainless steel plate, sheet and strip	SUS-HP,SUS-HS
		Cold-rolled stainless steel plate, sheet and strip	SUS-CP,SUS-CS
	Heat-resisting steel	Heat-resisting steel bar	SUH-B,SUH-CB
		Heat-resisting steel plate and sheet	SUH-HP,SUH-CP
	Superalloy	Corrosion-resisting and heat-resisting superalloy bar	NCF-B
Corrosion-resisting and heat-resisting superalloy plate and sheet		NCF-P	

Classification	Name of JIS standard	Symbol
Forged steel	Carbon steel forging	SF
	Chromium molybdenum steel forging	SFCM
	Nickel chromium molybdenum steel forging	SFNCM
Cast iron	Gray cast iron	FC
	Spheroidal graphite cast iron	FCD
	Blackheart malleable cast iron	FCMB
	Whiteheart malleable cast iron	FCMW
	Pearlitic malleable cast iron	FCMP
Cast steel	Carbon cast steel	SC
	High tensile strength carbon cast steel & low alloy cast steel	SCC
	Stainless cast steel	SCS
	Heat-resisting cast steel	SCH
	High manganese cast steel	SCMnH
	Cast steel for high temperature and high pressure service	SCPH

Non-ferrous metals

Classification	Name of JIS standard	Symbol
Copper	Copper and copper alloy sheet / strip	CxxxxP CxxxxPP CxxxxR
	Copper and copper alloy rod and bar	CxxxxBD CxxxxBDS CxxxxBE
Aluminum alloys and aluminum alloys expanded material	Aluminum and Al. alloy sheet / strip	AxxxxP AxxxxPC
	Aluminum and Al. alloy rod, bar, and wire	AxxxxBE AxxxxBES AxxxxBD AxxxxBDS AxxxxW AxxxxWS
	Aluminum and Al. alloy extruded shape	AxxxxS
	Aluminum and Al. alloy forging	AxxxxFD AxxxxFH
Magnesium alloy expanded material	Magnesium alloy sheet and plate	MP
	Magnesium alloy rod and bar	MB
Nickel alloy	Nickel copper alloy sheet and plate	NCuP
	Nickel copper alloy rod and bar	NCuB
Titanium expanded material	Titanium rod and bar	TB
Casting	Brass casting	CAC20x
	High strength brass casting	CAC30x
	Bronze casting	CAC40x
	Phosphoric bronze casting	CAC50x
	Aluminum bronze casting	CAC70x
	Aluminum alloy casting	AC
	Magnesium alloy casting	MC
	Zinc alloy die casting	ZDCx
	Aluminum alloy die casting	ADC
	Magnesium alloy die casting	MD
	White metal	WJ

Material Cross Reference Table

Steel

Classification	USA	Japan	China	UK	Germany	France	Russia
	AISI/SAE	JIS	GB	BS	DIN	NF	ГОСТ
Carbon Steel for Machine Structural Use	1010	S10C	08 10	040A10 045A10 045M10	C10E C10R	XC10	
	1012	S12C		040A12		XC12	
	1015	S15C	15	055M15	C15E C15R		
	1017	S17C				XC18	
	1020	S20C	20	070M20 C22 C22E C22R	C22 C22E C22R	C22 C22E C22R	
	1023	S22C					
	1025	S25C	25	C25 C25E C22R	C25 C25E C25R	C25 C25E C25R	
	1029	S28C					25Г
	1030	S30C	30	080A30 080M30 C30 C30E C30R	C30 C30E C30R	C30 C30E C30R	30Г
		S33C					30Г
	1035	S35C	35	C35 C35E C35R	C35 C35E C35R	C35 C35E C35R	35Г
	1038	S38C					35Г
	1039 1040	S40C	40	080M40 C40 C40E C40R	C40 C40E C40R	C40 C40E C40R	40Г
	1042 1043	S43C		080A42			40Г
	1045 1046	S45C	45	C45 C45E C45R	C45 C45E C45R	C45 C45E C45R	45Г
		S48C		080A47			45Г
	1049	S50C	50	080M50 C50 C50E C50R	C50 C50E C50R	C50 C50E C50R	50Г
	1050 1053	S53C					50Г
	1055	S55C	55	070M55 C55 C55E C55R	C55 C55E C55R	C55 C55E C55R	
	1059 1060	S58C	60	C60 C60E C60R	C60 C60E C60R	C60 C60E C60R	60Г
		S09CK		045A10 045M10	C10E	XC10	
		S15CK	15F		C15E	XC12	
		S20CK				XC18	

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
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Material Cross Reference Table

Steel

Classification	USA	Japan	China	UK	Germany	France	Russia
	AISI/SAE	JIS	GB	BS	DIN	NF	ГОСТ
Nickel Chromium Steel		SNC236			36NiCr6		40XH
		SNC415	12CrNi2		14NiCr10		
		SNC631	30CrNi3		36NiCr10		30XH3A
		SNC815	12Cr2Ni4	655M13	15NiCr13		
		SNC836	37CrNi3		31NiCr14		
Nickel Chromium Molybdenum Steel	8615 8617 8620 8622	SNCM220	20CrNiMo	80SA20 805M20 80SA22 805M22	20NiCrMo2 20NiCrMoS2	20NCD 2	
	8637 8640	SNCM240			40NiCrMo2-2		
		SNCM415					
	4320	SNCM420	18CrNiMnMoA		17NiCrMo6-4		20XH2M (20XHM)
		SNCM431			30CrNiMo8		
	4340	SNCM439	40CrNiMoA		40NiCrMo6		
		SNCM447			34CrNiMo6		
		SNCM616					
		SNCM625					
		SNCM630					
		SNCM815					
Chromium Steel		SCr415	15Cr 15CrA		17Cr3 17CrS3		15X 15XA
	5120	SCr420	20Cr				20X
	5130 5132	SCr430	30Cr	34Cr4 34CrS4	34Cr4 34CrS4	34Cr4 34CrS4	30X
	5132	SCr435	35Cr	37Cr4 37CrS4	37Cr4 37CrS4	37Cr4 37CrS4	35X
	5140	SCr440	40Cr	530M40 41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40X
		SCr445	45Cr 50Cr				45X
Chromium Molybdenum Steel		SCM415	15CrMo		15CrMo4		
		SCM418	20CrMo		18CrMo4 18CrMoS4		20XM
		SCM420		708M20	20CrMo5		20XM
		SCM421					
	4130	SCM430	30CrMo 30CrMoA				30XM 30XMA
		SCM432					
	4137	SCM435	35CrMo	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	35XM
	4140 4142	SCM440	42CrMo	708M40 709M40 42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	
	4145 4147	SCM445					
		SCM822					

Material Cross Reference Table

Steel

Classification	USA	Japan	China	UK	Germany	France	Russia
	AISI/SAE	JIS	GB	BS	DIN	NF	ГОСТ
Manganese Chromium Steel Manganese Steel	1522	SMn420	20Mn2	150M19	20Mn5		
	1536	SMn433	30Mn2 35Mn2	150M36	34Mn5		30Г2 35Г2
	1541	SMn438	40Mn2	150M36	36Mn5		35Г2 40Г2
	1541	SMn443	45Mn2				40Г2 45Г2
	5115	SMnC420	15CrMn		16MnCr5		
	5140	SMnC443	40CrMn				
Structural Steel with Specified Hardenability Band (H-Shape Steel)	1522H	SMn420H					
		SMn433H					
	1541H	SMn438H					
	1541H	SMn443H					
		SMnC420H					
		SMnC443H					
		SCr415H	15CrH		17Cr3 17CrS3		15X
	5120H	SCr420H	20Cr1H		17Cr3		20X
	5130H 5132H	SCr430H		34Cr4 34CrS4	34Cr4 34CrS3	34Cr4 34CrS4	30X
	5135H	SCr435H		37Cr4 37CrS4	37Cr4 34CrS4	37Cr4 37CrS4	35X
	5140H	SCr440H	40CrH	41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40X
	4118H	SCM415H	15CrMoH		15CrMo5		
		SCM418H			18CrMo4 18CrMoS4		
	4118H	SCM420H	20CrMoH	708H20	18CrMo4		
	4135H 4137H	SCM435H		34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	
	4140H 4142H	SCM440H	42CrMoH	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	
	4145H 4147H	SCM445H					
		SCM822H					
		SNC415H					
		SNC631H					
		SNC815H	12Cr2Ni4H	655H13	15NiCr13		
	8617H 8620H 8622H	SNCM220H	20CrNiMoH	805H17 805H20 805H22	21NiCrMo2	20N CD 2	
	4320H	SNCM420H	20CrNi2MoH		20NiCrMoS6-4		

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Material Cross Reference Table

Steel

Classification	USA		Japan	China	UK	Germany	France	Russia
	UNS	AISI	JIS	GB	BS	DIN	NF	ГОСТ
Stainless Steel	S20100	201	SUS 201	1Cr17Mn6Ni5N			Z12CMN17-07Az	
	S20200	202	SUS 202	1Cr18Mn8Ni5N	284S16			12X17Г9AH4
	S30100	301	SUS 301	1Cr18Mn10Ni5Mo3N 1Cr17Ni7	301S21	X12CrNi17 7	Z11CN17-08	07X16H6
	S30153		SUS 301L			X2CrNi18-7		
			SUS 301J1			X12CrNi17 7		
	S30200	302	SUS 302	1Cr18Ni9	302S25		Z12CN18-09	12X18H9
	S30215	302B	SUS 302B					
	S30300	303	SUS 303	Y1Cr18Ni9	303S21	X10CrNiS18 9	Z8CNF18-09	
	S30323	303Se	SUS 303Se	Y1Cr18Ni9Se	303S41			12X18H10E
	S30400	304	SUS 304	0Cr18Ni9	304S31	X5CrNi18 10	Z7CN18-09	08X18H10
	S30403	304L	SUS 304L	00Cr18Ni10	304S11	X2CrNi19 11	Z3CN19-11	03X18H11
	S30451	304N	SUS 304N1	0Cr18Ni9N			Z6CN19-09Az	
	S30452		SUS 304N2	0Cr19Ni10NbN				
	S30453	304LN	SUS 304LN	00Cr18Ni10N		X2CrNi18 10	Z3CN18-10Az	
			SUS 304J1					
			SUS 304J2					
	S30431	S30431	SUS 304J3					
	S30500	305	SUS 305	1Cr18Ni12	305S19	X5CrNi18 12	Z8CN18-12	06X18H11
			SUS 305J1					
	S30908	309S	SUS 309S	0Cr23Ni13			Z10CN24-13	
	S31008	310S	SUS 310S	0Cr25Ni20	310S31		Z8CN25-20	10X23H18
	S31600	316	SUS 316	0Cr17Ni12Mo2	316S31	X5CrNiMo17 12 2	Z7CND17-12-02	
			SUS 316F			X5CrNiMo17 13 3	Z6CND18-12-03	
	S31603	316L	SUS 316L	00Cr17Ni14Mo2	316S11	X2CrNiMo17 13 2	Z3CND17-12-02	
						X2CrNiMo17 14 3	Z3CND17-13-03	03X17H14M3
	S31651	316N	SUS 316N	0Cr17Ni12Mo2N				
	S31653	316LN	SUS 316LN	00Cr17Ni13Mo2N		X2CrNiMoN17 12 2	Z3CND17-11Az	
						X2CrNiMoN17 13 3	Z3CND17-12Az	
	S31635		SUS 316Ti			X6CrNiMoTi17 12 2	Z6CNDT17-12	08X17H13M2T
			SUS 316J1	0Cr18Ni12Mo2Cu2				
			SUS 316J1L	00Cr18Ni14Mo2Cu2				
	S31700	317	SUS 317	0Cr19Ni13Mo3	317S16			
	S31703	317L	SUS 317L	00Cr19Ni13Mo3	317S12	X2CrNiMo18 16 4	Z3CND19-15-04	
	S31753		SUS 317LN				Z3CND19-14Az	
			SUS 317J1	0Cr18Ni16Mo5				
			SUS 317J2					
			SUS 317J3L					
	N08367		SUS 836L					
	N08904	N08904	SUS 890L		904S14		Z2NCUDU25-20	
	S32100	321	SUS 321	1Cr18Ni9Ti 0Cr18Ni10Ti	321S31	X6CrNiTi18 10	Z6CNT18-10	08X18H10T
	S34700	347	SUS 347	0Cr18Ni11Nb	347S31	X6CrNiNb18 10	Z6CNNb18-10	08X18H12S
	S38400	384	SUS 384				Z6CN18-16	
	S30430	304Cu	SUS XM7	0Cr18Ni9Cu3	394S17		Z2CNU18-10	
	S38100		SUS XM15J1	0Cr18Ni13Si4			Z15CNS20-12	
	S32900	329	SUS 329J1	0Cr26Ni5Mo2				
	S39240	S31803	SUS 329J3L				Z3CNDU22-05Az	08X21H6M2T
	S39275	S31260	SUS 329J4L				Z3CNDU25-07Az	

Material Cross Reference Table

Steel

Classification	USA		Japan	China	UK	Germany	France	Russia
	UNS	AISI	JIS	GB	BS	DIN	NF	ГОСТ
Stainless Steel	S40500	405	SUS 405	0Cr13Al 0Cr13	405S17	X6CrAl13	Z8CA12	
			SUS 410L	00Cr12			Z3C14	
	S42900	429	SUS 429					
	S43000	430	SUS 430	1Cr17	430S17	X6Cr17	Z8C17	12X17
	S43020	430F	SUS 430F	Y1Cr17		X7CrMoS18	Z8CF17	
	S43035		SUS 430LX			X6CrTi17	Z4CT17	
			SUS 430J1L			X6CrNb17	Z4CNb17	
	S43400	434	SUS 434	1Cr17Mo	434S17	X6CrMo17 1	Z8CD17-01	
	S43600	436	SUS 436L					
			SUS 436J1L					
	S44400	444	SUS 444				Z3CDT18-02	
	S44700		SUS 447J1	00Cr30Mo2				
	S44627		SUS XM27	00Cr27Mo			Z1CD26-01	
	S40300	403	SUS 403	1Cr12				
	S41000	410	SUS 410	1Cr13	410S21	X10Cr13	Z13C13	
	S41008	410S	SUS 410S		403S17	X6Cr13	Z8C12	08X13
			SUS 410F2					
	S41025		SUS 410J1	1Cr13Mo 1Cr12Mo		X12CrS13		
	S41600	416	SUS 416	Y1Cr13	416S21		Z11CF13	
	S42000	420	SUS 420J1	2Cr13	420S29	X20Cr13	Z20C13	20X13
	S42000	420	SUS 420J2	3Cr13	420S37	X30Cr13	Z33C13	30X13
	S42020	420F	SUS 420F	Y3Cr13			Z30CF13	
			SUS 420F2					
			SUS 429J1					
	S43100	431	SUS 431	1Cr17Ni2	431S29	X20CrNi17 2	Z15CN16-02	20X17H2
	S44002	440A	SUS 440A	7Cr17			Z70C15	
	S44003	440B	SUS 440B	8Cr17				
	S44004	440C	SUS 440C	9Cr18 11Cr17 9Cr18Mo			Z100CD17	95X18
	S44020	S44020	SUS 440F	Y11Cr17				
	S17400	S17400	SUS 630	0Cr17Ni4CuNb		X5CrNiCuNb16-4	Z6CNU17-04	
	S17700	S17700	SUS 631	0Cr17Ni7Al		X7CrNiAl17 7	Z9CNA17-07	09X17H7 Ю
			SUS 632J1					

Representative Classification of Stainless Steel (JIS)

Austenitic Stainless Steel

JIS	
SUS201	SUS309S
SUS202	SUS310S
SUS301	SUS316
SUS302	SUS316L
SUS302B	SUS316N
SUS303	SUS317
SUS303Se	SUS317L
SUS304	SUS321
SUS304L	SUS347
SUS304N1	SUS384
SUS304N2	SUSXM7
SUS305	SUSXM15J1
SUS308	

Ferritic Stainless Steel

JIS
SUS405
SUS429
SUS430
SUS430F
SUS434
SUSXM27

Martensitic Stainless Steel

JIS
SUS403
SUS410
SUS410S
SUS416
SUS420J1
SUS420F
SUS431
SUS440A
SUS440B
SUS440C
SUS440F

Precipitation Hardened Stainless Steel

JIS
SUS630
SUS631

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
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Material Cross Reference Table

Steel

Classification	USA		Japan	China	UK	Germany	France	Russia
	UNS	AISI	JIS	GB	BS	DIN	NF	ГОСТ
Heat Resisting Steel			SUH 31		331S42		Z35CNWS14-14	45X14H14B2M
			SUH 35		349S52		Z52CMN21-09Az	
	S63008		SUH 36	5Cr21Mn9Ni4N	349S54	X53CrMnNi21 9	Z55CMN21-09Az	55X20 Г 9AH4
	S63017		SUH 37	2Cr21Ni12N	381S34			
			SUH 38					
	S30900	309	SUH 309	2Cr23Ni13	309S24		Z15CN24-13	
	S31000	310	SUH 310	2Cr25Ni20	310S24	CrNi2520	Z15CN25-20	20X25H20C2
	N08330	N08330	SUH 330	1Cr16Ni35			Z12NCS35-16	
	S66286		SUH 660	0Cr15Ni25Ti2MoAlVB			Z6NCTV25-20	
	R30155		SUH 661					
			SUH 21			CrAl1205		
	S40900	409	SUH 409		409S19	X6CrTi12	Z6CT12	
			SUH 409L				Z3CT12	
	S44600	446	SUH 446	2Cr25N			Z12C25	15X28
	S65007		SUH 1	4Cr9Si2	401S45	X45CrSi9 3	Z45CS9	
			SUH 3	4Cr10Si2Mo			Z40CSD10	40X10C2M
			SUH 4	8Cr20Si2Ni	443S65		Z80CSN20-02	
			SUH 11					40X 9C2
			SUH 600	2Cr12MoVNBn				20X12BHMБФP
	S42200		SUH 616	2Cr12NiMoWV				

Representative Classification of Heat Resisting Steel (JIS)

Austenitic Heat Resisting Steel

JIS
SUH31
SUH35
SUH36
SUH37
SUH38
SUH309
SUH310
SUH330
SUH660
SUH661

Ferritic Heat Resisting Steel

JIS
SUH21
SUH409
SUH446

Martensitic Heat Resisting Steel

JIS
SUH1
SUH3
SUH4
SUH11
SUH600
SUH616

Material Cross Reference Table

Steel

Classification	USA	Japan	China	UK	Germany	France	Russia
	AISI/ASTM	JIS	GB	BS	DIN	NF	ГОСТ
Carbon Tool Steel		SK140 (SK1)	T13			C140E3U	Y13
	W1-11¹/₂	SK120 (SK2)	T12			C120E3U	Y12
	W1-10	SK105 (SK3)	T11		C105W1	C105E2U	Y11
	W1-9	SK95 (SK4)	T10			C90E2U	Y10
	W1-8	SK85 (SK5)	T8Mn T9		C80W1	C90E2U C80E2U	Y8Г Y9
		SK75 (SK6)	T8		C80W1	C80E2U C70E2U	Y8
		SK65 (SK7)	T7		C70W2	C70E2U	Y7
High Speed Tool Steel	T1	SKH2	W18Cr4V	BT1		HS18-0-1	P18
	T4	SKH3	W18Cr4VCo5	BT4	S18-1-2-5	HS18-1-1-5	P18K5Φ2
	T5	SKH4	W18Cr4V2Co8	BT5		HS18-0-2-9	P18K5Φ
	T15	SKH10	W12Cr4V5Co5	BT15	S12-1-4-5	HS12-1-5-5	
	M2	SKH51	W6Mo5Cr4V2	BM2	S6-5-2	HS6-5-2	P6M5
	M3-1	SKH52	CW6Mo5Cr4V2 W6Mo5Cr4V3				P6M5Φ3
	M3-2	SKH53	CW6Mo5Cr4V3		S6-5-3	HS6-5-3	P6M5Φ3
	M4	SKH54		BM4		HS6-5-4	
	M35 M41	SKH55	W6Mo5Cr4V2Co5 W7Mo5Cr4V2Co5	BM35	S6-5-2-5	HS6-5-2-5HC	P6M5K5
	M36	SKH56					
		SKH57		BT42	S10-4-3-10	HS10-4-3-10	
	M7	SKH58	W2Mo9Cr4V2			HS2-9-2	
Alloy Tool Steel	M42	SKH59	W2Mo9Cr4VCo8	BM42	S2-10-1-8	HS2-9-1-8	
	F2	SKS11					XB4
		SKS2			105WCr6	105WCr5	XBГ
		SKS21	W				
		SKS5					
	L6	SKS51					
		SKS7					
		SKS8	Cr06			C140E3UCr4	13X
	S1	SKS4	5CrW2Si 6CrW2Si				6XB2C 5XB2CΦ
	S1	SKS41	4CrW2Si				4XB2C
	W2-9¹/₂	SKS43		BW2		100V2	
	W2-8	SKS44					
		SKS3	9CrWMn				9XBГ
		SKS31	CrWMn		105WCr6	105WCr5	XBГ
		SKS93					
		SKS94					
		SKS95	8MnSi				
	D3	SKD1	Cr12	BD3	X210Cr12	X200Cr12	X12
	D2	SKD10	Cr12Mo1V1		X153CrMoV12		X12MΦ
	D2	SKD11	Cr12MoV	BD2	X153CrMoV12	X160CrMoV12	
	A2	SKD12	Cr5Mo1V	BA2		X100CrMoV5	
		SKD4				X32WCrV3	
	H21	SKD5	3Cr2W8V	BH21	X30WCrV9-3	X30WCrV9	
	H11	SKD6	4Cr5MoSiV	BH11	X38CrMoV51	X38CrMoV5	4X5MΦC
	H13	SKD61	4Cr5MoSiV1	BH13	X40CrMoV51	X40CrMoV5	4X5MΦ1C
	H12	SKD62		BH12		X35CrWMoV5	3X3M3Φ
	H10	SKD7	4Cr3Mo3SiV	BH10	X32CrMoV33	32CrMoV12-18	
	H19	SKD8		BH19			
		SKT3				55CrNiMoV4	
		SKT4	5CrNiMo	BH224/5	55NiCrMoV6	55NiCrMoV7	5XHM

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Material Cross Reference Table

Steel

Classification	USA	Japan	China	UK	Germany	France	Russia
	AISI/ASTM	JIS	GB	BS	DIN	NF	ГОСТ
Spring Steel	1075 1078	SUP3					75 80 85
		SUP6	55Si2Mn		56SiCr7	60Si7	60C2
	9260	SUP7	60Si2Mn 60Si2MnA		61SiCr7	60Si7	60C2Г
	5155	SUP9	55CrMnA		55Cr3	55Cr3	
	5160	SUP9A	60CrMnA		55Cr3	60Cr3	
	6150	SUP10	50CrVA	735A51, 735H51	50CrV4	51CrV4	ХФА50ХГФА
	51B60	SUP11A	60CrMnBA		51CrV4		50ХГР
	9254	SUP12		685A57, 685H57	54SiCr6	54SiCr6	
	4161	SUP13	60CrMnMoA	705A60, 705H60	60CrMn3-2	60CrMo4	
Free Cutting Carbon Steel	1110	SUM11					
	1108	SUM12	Y12				
	1212	SUM21					
	1213	SUM22	Y15	(230M07)	95Mn28	S250	
	12L13	SUM22L	Y12Pb		95MnPb28	S250Pb	
	1215	SUM23					
		SUM23L					
	12L14	SUM24L	Y15Pb		95MnPb28	S250Pb	
		SUM25			95Mn36	S300	
	1117	SUM31			15S10		
		SUM31L					
		SUM32	Y20	210M15, 210A15		(13MF4)	
	1137	SUM41	Y30 Y35			(35MF6)	
	1141	SUM42	Y40Mn			(45MF6.1)	
	1144	SUM43		(226M44)		(45MF6.3)	
Carbon Chromium Bearing Steel	51100	SUJ1	GCr4				
	52100	SUJ2	GCr15		100Cr6	100Cr6	ШХ15
	ASTM A 485 Grade 1	SUJ3	GCr15SiMn				
		SUJ4	GCr15SiMo				
		SUJ5	GCr18Mo				

Material Cross Reference Table

Cast Iron

Classification	USA	Japan	China	UK	Germany	France	Russia
	AISI/SAE	JIS	GB	BS	DIN	NF	ГОСТ
Gray Cast Iron	NO.20	FC100	HT100	100	GG10		CY10
	NO.30	FC150	HT150	150	GG15	FGL150	CY15
	NO.35	FC200	HT200	200	GG20	FGL200	CY20
	NO.45	FC250	HT250	250	GG25	FGL250	CY25
	NO.50	FC300	HT300	300	GG30	FGL300	CY30
	NO.60	FC350	HT350	350	GG35	FGL350	CY35
					GG40	FGL400	CY40
Nodular Cast Iron	60-40-18	FCD400	QT400-18	400/17	GGG40	FGS370-17	BY40
	65-45-12	FCD450	QT450-10	420/12		FGS400-12	BY45
	70-50-05	FCD500	QT500-7	500/7	GGG50	FGS500-7	BY50
	80-60-03	FCD600	QT600-3	600/7	GGG60	FGS600-2	BY60
	100-70-03	FCD700	QT700-2	700/2	GGG70	FGS700-2	BY70
	120-90-02	FCD800	QT800-2	800/2	GGG80	FGS800-2	BY80
			QT900-2	900/2			BY100

Non-Ferrous Metals

Classification	USA	Japan	China	UK	Germany	France	Russia
	ASTM	JIS	GB	BS	DIN	NF	ГОСТ
Aluminum Alloys	1199		1A99		A199.99R		A99
			1A97		A199.98R		A97
			1A95				A95
		A1080	1A80	1080(1A)	A199.90	1080A	A8
	1050	A1050	1A50	1050(1B)	A199.50	1050A	A5
	5052	A5052	5A02	NS4	AlMg2.5	5052	Amg
			5A03	NS5			AMg3
	5056	A5056	5A05	NB6	AlMg5		AMg5V
	5456	A5556	5A30	NG61		5957	
	2036	A2117	2A01		AlCu2.5Mg0.5	2117	D18
		A2017	2A11	HF15	AlCuMg1	2017S	D1
	2124	A2024	2A12		AlCuMg2	2024	D16AVTV
	2319		2B16				
		A2N01	2A80				AK4
	2218	A2018	2A90				AK2
	2014	A2014	2A14		AlCuSiMn	2014	AK8
	7175	A7075	7A09		AlZnMgCu1.5	7075	V95P
Aluminum Alloy Casting	356.2	AC4C	ZAISi7Mn	LM25	G-AlSi7Mg		
	413.2	AC3A	ZAISi12	LM6	G-Al12	A-S12-Y4	AL2
	355.2		ZAISi5Cu1Mg				AL5
	413.0	AC8A	ZAISi2Cu2Mg1		G-Al12(Cu)		
			ZAICu5Mn				AL19
	201.0		ZAICu5MnCdVA				
	520.2		ZAiMg10	LM10	G-AlMg10	AG11	AL8
			ZAiMg5Si		G-AlMg5Si		AL13

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Insert Grade Cross Reference Table

CVD Coated Carbide (Turning)

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P01	CA510	JC110V	HG8010 HG3305	MC6115 MC6015		GC4405 GC4305 GC4315	TP0501	AC8015P AC810P	T9205 T9105	KCP05B KCP05 KCPK05	IC8150 IC5005
	P10	CA115P CA510 CA515	JC110V JC215V	GM8015 HG8010	MC6115 MC6015 MY5015 MC6125	CP7	GC4405 GC4415 GC4305 GC4315 GC4325	TP0501 TP1501	AC8015P AC8020P AC810P	T9205 T9105 T9215 T9115	KCP05B KCP05 KCPK05 KCP10B KCP10	IC8150 IC8250 IC5005
	P20	CA125P CA025P CA525 CR9025	JC110V JC215V	GM8020 HG8025	MC6115 MC6015 MY5015 MC6125 MC6025 UE6020	CP7	GC4415 GC4315 GC4425 GC4325 GC4335	TP1501 TP2501 TP3501 TP25 TP40	AC8020P AC8025P AC820P	T9215 T9115 T9225 T9125	KCP10B KCP10 KCP25B KCP25	IC8150 IC8250 IC8350
	P30	CA125P CA025P CA525 CA530 CR9025	JC215V JC325V JC450V	GM25 GM8035 HG8025	MC6125 MC6025 UE6020 MC6035 UH6400	CP7	GC4425 GC4325 GC4335	TP2501 TP3501 TP25 TP40	AC8035P AC830P AC6030M AC630M	T9225 T9125 T9235 T9135	KCP25B KCP25 KCP30B KCP30	IC8250 IC8350
	P40	CA530	JC325V JC450V	GX30	MC6035 UH6400		GC4335 GC4325	TP3501 TP40	AC8035P AC830P AC6030M AC630M	T9235 T9135 T6215	KCP30B KCP30 KCP40B KCP40	IC8350
M (Stainless Steel)	M10	CA6515	JC605X JC110V	HG8025	MC7015 US7020		GC2015 GC1515	TM1501	AC6020M	T6215 T6120	KCM15B KCM15	IC6015 IC8150
	M20	CA6515 CA6525	JC605X JC110V	HG8025 GM8020	MC7015 US7020 MC7025		GC1515 GC2015 GC2025 GC2220	TM1501 TM2501	AC6020M AC6030M AC630M	T6215 T6120 T6130	KCM15B KCM15 KCM25B KCM25	IC6015 IC6025 IC8150 IC8250
	M30	CA6525	JC110V JC525X	HG8025 GM25 GM8035	MC7025 US7020 US735		GC2025 GC2220 GC235	TM1501 TM2501 TM3501	AC6030M AC630M AC8035P AC830P	T6215 T6130	KCM25B KCM25 KCM35B KCM35	IC6025 IC8350
	M40		JC525X	GX30 GM8035	MC7025 US735		GC235	TP40 TM2501 TM3501	AC6030M AC630M		KCM35B KCM35	
K (Cast Iron)	K01	CA410K CA310 CA4505	JC050W JC105V JC605W	HX3505 HX3515	MC5105 MC5005		GC3210 GC3005 GC4305	TK0501	AC4010K	T5105 T505	KCK05B KCK05	IC5005 IC428
	K10	CA410K CA415K CA310 CA315 CA4505 CA4515	JC050W JC105V JC110V JC108W	HX3305 HX3515 HG8010 HG8025 GM8020	MC5105 MC5115 MC5005 MC5015 MY5015 MH515	CP1	GC3210 GC3005 GC4305 GC4315	TK0501 TK1501	AC4010K AC4015K	T5105 T5115 T505 T515	KCK05B KCK05 KCK15B KCK15	IC5005 IC5010 IC418 IC428 IC8150
	K20	CA415K CA315 CA320 CA4515	JC110V JC108W JC215V	HX3515 HG8010 GM8020 HG8025	MC5115 MC5125 MC5015 MY5015 MH515	CP1	GC3210 GC3225 GC4315 GC4325	TK0501 TK1501	AC4015K AC420K AC425K AC8025P	T5115 T5125 T515	KCK15B KCK15 KCK20B KCK20	IC5005 IC5010 IC418 IC428 IC8150
	K30	CA320	JC108W JC215V	GM8020 HG8025	MC5125		GC3225 GC4325	TK1501		T5125	KCP25B KCK20	

Insert Grade Cross Reference Table

PVD Coated Carbide (Turning)

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P01	PR1705										
	P10	PR1705 PR1215 PR1725 PR2015		IP2000	MS6015 VP10MF VP10RT	VM1 DT4 DM4		TS2000 CP200	AC1030U ACZ150 AC5005S AC5015S AC5025S AC520U	AH8005	KCS10 KCU10 KC5010	IC807 IC907 IC1007
	P20	PR1215 PR1225 PR1625 PR1725 PR2015 PR2025		IP2000	MS6015 VP10MF VP10RT VP15TF	VM1 QM3 DT4 TM4 DM4	GC1125 GC15	TS2000 TS2500 CP200	AC1030U AC5025S AC520U AC530U	AH8015 AH6225 AH120 AH725 SH725	KCS10 KCU10 KC5010 KCU25 KC5025	IC807 IC808 IC907 IC908 IC1007
	P30	PR1225 PR1535 PR2025		IP2000 IP3000	MS6015 MS7025 VP15TF VP20MF VP20RT	QM3 TM4	GC1125	TS2500 CP500 CP600	AC1030U AC530U	AH8015 AH6225 AH7025 SH730 J740	KCU25 KC5025	IC808 IC908 IC830 IC1008 IC228 IC528
	P40	PR1535 PR2025		IP3000	VP15TF VP20MF VP20RT	QM3 TM4		CP500 CP600	AC1030U	AH6225		IC830 IC228 IC528 IC3028
M (Stainless Steel)	M10	PR1215 PR1225 PR2025 PR1205	JC5003 JC8015	IP050S IP100S	VP10MF VP10RT	VM1 DT4 DM4	GC1115 GC1125 GC15	TS2000 TS2050 TS2500 CP200	AC5005S AC5015S AC510U AC520U ACZ150	AH8005 AH6225	KCS10 KCU10 KC5010	IC806 IC807 IC907 IC1007
	M20	PR1215 PR1725 PR1225 PR1515 PR2025 PR1205	JC5003 JC8015 JC5015 JC5118	IP100S	MS7025 MS9025 VP10MF VP10RT VP15TF	VM1 QM3 DT4 TM4 DM4 ZM3 ST4	GC1115 GC1125 GC15	TS2000 TS2500 CP200 CP500	AC5015S AC5025S AC1030U AC520U	AH8015 AH6225 AH7025 AH120 AH725	KCS10 KCU10 KC5010 KCU25 KC5025	IC808 IC908 IC1008
	M30	PR1125 PR1535 PR2025	JC5015 JC5118	IP100S	MS7025 MS9025 VP15TF VP20MF VP20RT	QM3 DT4 TM4 DM4 ZM3 ST4	GC2035 GC1125	TS2500 CP500 CP600	AC5025S AC6040M AC1030U AC520U AC530U	AH6235 SH725 SH730 J740	KCU25 KC5025	IC908 IC830 IC1008
	M40	PR1535	JC5118		MP7035 VP15TF VP20MF VP20RT	QM3 TM4 ST4	GC2035	CP500 CP600	AC6040M AC1030U AC530U	AH6235		IC830 IC3028
K (Cast Iron)	K01	PR2015								AH110	KCS10 KCU10 KC5010	
	K10	PR1215 PR2015			VP10RT		GC15	TS2000 CP200	AC1030U AC510U ACZ150 AC5015S	AH110 GH110	KCS10 KCU10 KC5010	
	K20	PR1215 PR2015			VP10RT VP15TF VP20RT			TS2000 TS2500 CP200	AC1030U AC510U ACZ150 AC5015S AC5025S	AH8015 AH6225 AH7025 AH120	KCS10 KCU10 KC5010 KCU25 KC5025	IC807 IC907 IC908 IC1007 IC1008
	K30	PR2015			VP15TF VP20RT			TS2000 TS2500 CP200 CP500	AC1030U AC530U	AH120 GH130	KCU25 KC5025	IC807 IC907 IC908 IC1007 IC1008
S (Difficult-to-cut material)	S01	PR005S PR115S	JC5003		MV9005 MP9005 VP05RT			TH1000		AH8005		IC804
	S10	PR005S PR015S PR115S PR120S	JC8015 JC5015 JC5118	HS910S JP910S	MP9005 MP9015 VP10RT		GC1105	TH1000 TS2000 TS2050 CP200	AC5005S AC5015S AC510U ACZ150	AH8005 AH8015 AH6225	KCS10 KCU10 KC5010	IC806 IC807 IC907 IC1007
	S20	PR015S PR115S PR120S PR153S	JC5015 JC5118	HS911S JP911S	MP9015 MP9025 MS9025 VP15TF		GC1105 GC1115 GC1125 GC15	TS2000 TS2050 TS2500 CP200	AC5015S AC5025S AC1030U AC520U	AH8015 AH7025 AH6225	KCS10 KCU10 KCU25	IC907 IC908 IC1007 IC1008
	S30	PR153S			MP9025 MS9025 VP20RT		GC1125			AH7025 AH6235	KCU25 KC5025	IC908 IC1008

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Insert Grade Cross Reference Table

Cermet (Turning)

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P01	TN610 PV710	LN10		AP25N VP25N	T15 Q15	CT5015 CT525		T1000A T1500Z	NS520	KT315 KTP10	IC20N IC520N
	P10	TN610 TN620 TN60 PV710 PV720 PV7040 CCX	LN10 NIT		NX2525 AP25N VP25N	T15 Q15 Z15	CT5015 CT525 GC1525	TP1020 TP1030	T1000A T1500A T1500Z	AT9530 GT9530 J9530	KT315 KTP10	IC20N IC30N IC520N IC530N
	P20	TN620 TN90 PV730 PV720	NIT CX75 PX90	CZ25	NX2525 NX3035 MP3025 AP25N VP45N	C7X N40 C7Z	CT5015 GC1525	TP1020 TP1030	T1500A T2500A T1500Z T2500Z	NS9530 AT9530 GT9530 J9530		IC20N IC30N IC520N IC530N
	P30	PV730	CX75 PX90	CZ25	NX3035 MP3025 VP45N	C7X N40 C7Z	GC1525		T2500A T2500Z	NS9530		IC30N IC530N
M (Stainless Steel)	M10	TN610 TN620 PV710 PV720	LN10 NIT CX75		AP25N VP25N	T15 Z15 Q15	CT525 GC1525		T1000A	NS520	KT315 KTP10	IC20N IC520N
	M20	TN620 TN90 PV720 PV730	LN10 NIT CX75 PX90		NX2525 AP25N VP25N	Q15	GC1525	TP1030	T1000A T1500A	NS9530 AT9530 GT9530 J9530		IC20N IC30N IC520N IC530N
	M30	PV730	PX90	CZ25					T1500A	NS9530		IC30N IC530N
K (Cast Iron)	K01	PV7005 CCX	LN10 NIT		AP25N VP25N	T15 Q15	CT5015			NS520	KT315 KTP10	
	K10	TN610 CCX PV7005 PV7040	LN10 NIT	CZ25	NX2525 AP25N VP25N	T15 Q15 Z15	CT5015		T1000A	NS9530 AT9530 GT9530 J9530	KT315 KTP10	
	K20		NIT	CZ25	NX2525 AP25N VP25N					NS9530		

Boldface grade shows PVD Coated Cermet. (CCX is CVD Coated Cermet grade)

Carbide

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
K (Cast Iron)	K01	KW10	KG03	WH01 WH05	HTI05T				H2 H1	TH03	K313 K68 GH1 K115M	
	K10	KW10 GW15	KG10 KT9 CR1	WH10	HTI05T HTI10		H13A	HX 890	H1 EH510	TH10	K313 K68 K110M	IC20
	K20	GW15 GW25	KT9 CR1 KG20	WH20	HTI10 UTI20T		H13A	HX 890 883	G10E H10E EH520	KS15F KS20	K313 K68 GH2	IC20
	K30		KG30		UTI20T		H13A	HX 883	G10E H10E			
N (Non-Ferrous Alloys)	N01	GW05			HTI10 MT2010		H10	H15		KS05F	GH1 K115M	
	N10	KW10 GW15 GW25	KT9 CR1	WH10	HTI10 MT2010	KM1	H10 H13A	KX HX 890 H15 H25		TH10	K313 K68 K110M	IC4 IC20 IC28
	N20	GW15 GW25	KT9 CR1		HTI10 MT2010 TF15		H10 H13A	KX HX 890 883 H15 H25		KS15F	K313 K68 GH2	IC20 IC28
	N30				TF15			KX HX 883 H25				IC28
S (Difficult-to-Cut Material)	S01	SW05			MT9005 RT9005		H10A					
	S10	KW10 SW10 GW15 GW25	KG10	WH10	MT9005 RT9005 MT9015 RT9010		H10A H10F H13A	HX 890 883	EH510 EH520	KS05F TH10	K313 K68 K110M	IC20
	S20	SW10 SW25 GW25	KG20		MT9015 RT9010 TF15 RT9020	KM1	H10A H10F H13A	HX 890 883 H25	EH510 EH520	KS15F TH10	K313 K68 GH2	IC20 IC28
	S30	SW25			TF15 RT9020		H10F H13A	HX 883				

Insert Grade Cross Reference Table

Coated Carbide (Milling / Drilling)

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P10	PR1825 PR1525	DH108 DH110 DH111 DH115	PCA12M PN15M PN208 JP4105	MV1020		GC1010	F40M MK2050 MP1501 MP2501	ACP200 ACP2000 ACP100	AH120 AH725	KC505M KC510M KC515M	IC608 IC902 IC5400
	P20	PR1825 PR1835 PR1525 CA520D	DH111 DH115 JC8015 JC8118	CY150 CY9020 JP4120	MP6120 VP15TF MC7020 FH7020 F7030	TM1 DT4 DM4	GC1130 GC4220 GC4330 GC3040	F40M MP3000 MP1501 MP2501 MP3501	ACP3000 ACU2500 ACP200 XCU2500 ACP2000	AH3135 AH9030 AH3225 T3225	KC522M KC525M	IC808 IC810 IC900 IC908 IC910 IC5500
	P30	PR1825 PR1835 PR1525 PR1535	JC8118 JC8050 JC7550 JC7560	HC844 CY25 CY250 JS4045 GF30	MP6130 VP15TF VP20RT UP20M F7030	ZM3	GC1130 GC2030 GC4330 GC3040	F40M F25M MP3000 MP2501 MP3501	ACP3000 ACU2500 ACP300 XCU2500	AH3225 AH6030 AH130 T3130 T3225	KC530M KC725M KC735M KCPM40 KCPK30	IC300 IC830 IC845 IC908 IC910
	P40	PR1835 PR1535	JC5240 JC8050 JC7550 JC7560	PTH30E PTH40H JS4060 GX2140 GX2160	VP30RT		GC2040 GC4340	F40M MP2050 MP2501 MP3501	ACP3000 ACU2500 ACP300	AH140	KC725M KC735M KCPM40 KCPK30	IC328 IC330 IC830 IC928 IC4050
M (Stainless Steel)	M10	PR1835 PR1535 CA6535	DH108 DH111 DS108 JC8015	PN15M PN215	MC7020		GC1010 GC1130	F40M F25M	ACM100 ACK300 XCS2000 ACM200	AH725	KC515M	IC608 IC902 IC5400
	M20	PR1835 PR1525 PR1535 CA6535	DH108 DH111 DS108 JC8015 JC8118	JP4120	VP15TF MC7020 F7030	DT4 DM4	GC2030 S30T GC1130	F40M MS2050	ACS2500 ACU2500 ACP300 XCU2500 ACM200	AH3135 AH3225 AH6030 AH725 T3225	KC522M KC525M	IC300 IC808 IC900 IC908 IC5820
	M30	PR1835 PR1525 PR1535 CA6535	JC8118 JC8050 JC7550 JC7560	HC844 CY250 JS4045 PTH30E	MP7130 MP7030 VP20RT UP20M	ZM3	GC1040 S30T GC2040 GC4230 GC4240	F40M MS2050 T25M MM4500	ACM300 ACS2500 ACS3000 XCU2500 ACM200	AH3135 AH130 T3225 T3130	KC530M KC725M KC735M KCPM40 KCSM30	IC330 IC830 IC882 IC928 IC5820
	M40	PR1835 PR1525 PR1535 CA6535	JC8050 JC7550 JC7560	PTH40H JM4160 AX2040 GX2160	MP7140 VP30RT		GC1040 S40T GC2040 GC4240	F40M MP2050 MM4500	ACM300 ACS3000	AH140	KC725M KCPM40 KCSM40	IC328 IC882
K (Cast Iron)	K01	PR1810 PR1510 CA415D	DH102 DH103	ATH80D ATH08M TH308	MP8010 MV1020 MC5020		GC1010	MK2050 MH1000 MK1500	ACK3000	AH110		IC902
	K10	PR1810 PR1510 CA415D CA420M	DH108 DH110 DH111 JC8015	ATH10E TH315 CY100H	MP8010 MV1020 MC5020		GC1020 GC3220 K15W	MK2050 MH1000 MK1500	ACK3000 XCK2000 ACK2000 ACK200	AH110 AH120 T1215 T1115	KC514M KCK15 KCK20	IC608 IC903 IC5100
	K20	PR1810 PR1510 CA415D CA420M	DH115 JC8015 JC8118	CY9020 CY150 PTH135 JP4120 GX2120	VP15TF MV1020 MC5020 MC520		GC3330 GC3040 K15W K20W K20D	MK2050 MK1500 MP3501	ACK3000 ACU2500 XCK2000 XCU2500 ACK2000	AH120 AH9030 T1215	KC520M KC524M KCK20	IC808 IC810 IC908 IC910 DT7150
	K30	PR1810 PR1510	JC8118 JC5240	CY250 JS4045 GX2040 GX2160	VP20RT MC5020		GC3330 GC3040 K20W	MK2050 F40M MK1500 MP3501	ACK3000 ACU2500 ACK300	AH120	KC522M KC524M KCPK30	IC808 IC810 IC908 IC910
S (Difficult-to-Cut Material)	S10	PR1535 CA6535	DS108 DS118 JC8015 JC8118	JP4120 JS1025	MP9120 VP15TF		GC1010 GC1130	F40M MS2050 MS2500	ACM100 ACU2500 ACK300 ACP300	AH120 AH725	KC510M	IC380 IC902 IC908 IC928
	S20	PR1535 CA6535	DS150 JC8050 JC8118	PTH30H	MP9120 MP9130 VP15TF		S30T GC2030 GC1130	F40M MS2050 MS2500	ACS2500 ACU2500 ACP300	AH725 AH130 AH6030	KC522M KC525M KCSM30	IC840 IC882 IC900 IC5280
	S30	PR1535	JC7550 JC7560	JM4160	MP9140		GC1040 S40T GC2040	MS2050	ACM300 ACS2500 ACS3000	AH130	KC522M KC725M KCSM40	IC328 IC330 IC830 IC928

Boldface grade shows CVD Coated Carbide

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INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Insert Grade Cross Reference Table

Cermet (Milling)

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P10	TN60 TN620M PV60M	CX75	CH550 MZ1000	NX2525 VP25N		CT530			NS740	KTPK20	IC30N
	P20	TN620M TN100M PV60M	CX75 CX90	CH7000	NX2525 MX3020 VP25N		CT530			NS740	KTPK20	IC30N
	P30	TN620M TN100M	CX90		MX3030 NX4545				T2500A T250A T4500A			IC30N
M (Stainless Steel)	M10	TN100M	CX75		NX2525 VP25N		CT530			NS740		IC30N
	M20	TN100M	CX75	CH550	NX2525 MX3020 VP25N		CT530			NS740	KTPK20	IC30N
	M30				MX3030 NX4545							
K (Cast Iron)	K01		CX75									
	K10		CX75		NX2525 VP25N					NS740	KTPK20	
	K20		CX75		NX2525 MX3020 MX3030 VP25N						KTPK20	

Boldface grade shows PVD Coated Cermet.

Ceramic

Classification		Kyocera	Dijet	Nippon Tungsten	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
K (Cast Iron)	K01	KA30 A65 KS6015 A66N PT600M CS7050		NPC-H2 NPC-A2		HC1 HC2 HC6 HW2 WA1 WA5	CC6190 CC620 CC650		NB90S	TZ120 LX21	KYK10	IN110 IN22 IN23 IS6 IS8 IS80
	K10	A65 KS6015 KS6050 A66N PT600M CS7050		NX NXA Whisker WIN		HC1 HC2 HC6 HW2 WA1 WA5 SX6 SP9	CC6190			FX105 CX710	KYK10 KY3500 KYK25	IN110 IN22 IN23 IS6 IS8 IS420 IS80
	K20	KS6050				SX6 SX9				FX105 CX710	KY3500	IS8 IS80
S (Difficult-to-Cut Material)	S10	KS6030				JX1 JX3 JP2 120	CC6060 CC6160 CC6065 CC670	CS100	WX120	WG300 FX510 TS300		IN110 IS25
	S20	KS6030 KS6040	CA200	Whisker WIN		JX1 JX3 WA1 WA5 SX3 SX7 JP2 120	CC6060 CC6160 CC6065 CC670	CS100 CS300 CW100	WX120		KYS30 KYSP30 KYS25	IS25 IS35 IS9 IW7
	S30	KS6040				JX1 JX3 SX9 JP2 120			WX120		KYS30	IS9 IW7
H (Hardened Materials)	H01	A65 A66N PT600M		NPC-A2		HC2 HC7 450 ZC7	CC6050 CC650		NB100C	LX10 LX11		
	H10	A65 A66N PT600M		NPC-A2 Whisker WIN		450	CC670		NB100C	WG300	KY1615	IN22 IN23 IW7 IN420

Boldface grade shows PVD Coated Ceramic.

Insert Grade Cross Reference Table

CBN

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
K (Cast Iron)	K01	KBN475 KBN60M KBN900	JBN795 JBN330 JBN500		MB710 BC5110	B23 B30 B52	CB7925 CB50 CB7525	CBN300	BN7125 BN500 NCB100 BNC500	BX910 BX930 BX870	KB1630 KB5630	IB50
	K10	KBN60M KBN900	JBN795 JBN300 JBN330 JBN500 JBN245	BH200	MB730 MB4120	B23 B30 B52	CB7925 CB50 CB7525	CBN200 CBN300 CBN600 CK2065 CH3515 CBN160C CBN300P CBN400C	BN7125 BN500 BNC500	BX470 BX480	KB1630 KB1340 KB5630	IB50 IB55 IB90
	K20	KBN900	JBN245	BH250	MB730 MB4120 MBS140	B16	CB50	CBN200 CBN300 CBN500 CBN600 CK2065 CH3515 CBN160C CBN300P CBN400C	BN7125 BNS8125 BNC8115	BX905 BXC90	KB1630 KB1340 KB1345 KB5630 KBK45	
H (Hardened Materials)	H01	KBN510 KBN010 KBN05M KBN10M	JBN245 JBN795 JBN500		BC8105	B52 B5K	CB20 CB50 CB7105	CBN010 CH0550	BN1000 BN2000 BNX10 BNC2105 BNC2010 BNC2115	BX310 BXM10	KBH10	IB50 IB10H IB10HC
	H10	KBN510 KBN525 KBN010 KBN015 KBN020 KBN05M KBN10M KBN25M KBN900	JBN795 JBN500	BH200	MB8110 MB8120 BC8110 BC8120 BC8210 BC8220	B36 B6K	CB50 CB7105 CB7015	CBN010 CBN150 CH0550 CBN060K CH2540 CH2581 CH3515	BN2000 BNC2010 BNC2020 BNC2115 BNC2125 BNC160 BNC200	BX330 BX530 BXA10 BXM10	KBH10 KB5610	IB50 IB55 IB10H IB10HC
	H20	KBN015 KBN020 KBN25M KBN35M KBN900		BH250	MB8120 BC8120 BC8220	B36 B40	CB7025 CB7125 CB7525	CBN150 CH1050 CBN060K CH2540 CH2581 CH3515	BN2000 BNX20 BNC2020 BNC2125 BNC200	BX360 BX850 BXA20 BXM20	KBH10 KBH20 KB5625	IB55 IB20H IB25HA IB25HC
	H30	KBN020 KBN35M KBN900		BH250	MB8130 BC8220 BC8130	B40 B22	CB7135 CB7525	CH2540 CH2581 CH3515	BN350 BNC300	BX380 BXC50 BR35F	KBH20 KB1630 KB5625 KB5630	IB55 IB20H IB25HA IB25HC
Sintered Steel	-	KBN570 KBN70M	JBN795 JBN330		MB4120	B23 B30	CB7135 CB7125	CBN200	BN7115 BN7125	BX470 BX480	KB5630	IB05S IB10S IB90

Boldface grade shows PVD Coated CBN.

PCD

Classification		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
N (Non-Ferrous Metals)	N01	KPD001 KPD230 KPD250	JDA30 JDA735			UC1 PD1 PD2	CD05 CD10	PCD05	DA90 DA150 DA1000	DX160 DX180	KD1400 KD1405	ID5
	N10	KPD001 KPD010 KPD230 KPD250	JDA735 JDA10		MD220	PD1 PD2	CD05 CD10	PCD05 PCD20 PCD30	DA150 DA1000	DX140 DX160	KD1400 KD1405 KD1410 KD1415 KD1425	ID5
	N20	KPD001 KPD010 KPD230 KPD250	JDA10 JDA715		MD220 MD2030	PD1 PD2		PCD05 PCD20 PCD30 PCD30M	DA1000 DA2200	DX110 DX120	KD1400 KD1425	

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Molded Chipbreaker Cross Reference Table

Molded Chipbreaker Cross Reference Table

Negative Inserts

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Cutting Range		Kyocera		Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
		General Chipbreaker	Chipbreaker for Gummy Material / Soft Steel										
Carbon Steel / Alloy Steel	Finishing (with wiper edge)	WF WP	-	-	-	SW	-	WL WF	W-FF2 W-MF2	SEW LUW	AFW FW	FW	WF
	Finishing - Medium (with wiper edge)	WE WQ	-	-	-	MW	-	WM WMX	W-M3 W-M5	GUW	ASW SW	MW	WG
	Finishing	DP GP PP	XF XP	F1 FA FT PF	BE BH FE	F FH FS FY PK FP	UL WM ZF1	XF QF	FF1	FP FB FE SP FA FL LU	TF 01 AS TSF	FF UF FS LF	F3P SF PF
	Finishing - Medium	HQ PQ CQ CJ VC VF	XQ	UA UT	AB B CE CT	SH C SA LP SY	WV WR	LC PF	FF2 MF2	SU EX SJ SX UJ SE	TS NS CB 11 17 27 ZF	K RP FN FM	NF SM
	Medium - Roughing	PMG PG GS PS	XS	UR UB	AE DE AH	MV MP MA MH	Z5 ZW1	XM QM SM SMC PM PMC	M3 MF3	UA UG GE GU	AM DM NM TM ZM	MN	M3P TF PP
	Medium - Roughing High Feed Rate	PT GT	-	GC PQ	AR AY	GH RP	GS	MR XMR	M5 MR5 MR6	MU UX ME	TH 32Y 32 37	RP RN	R3P NR
	Roughing	Standard PH	-	GG LG GQ	RE	MT Standard	G	Standard 23 HM	MR7	MC MU MX UZ	31 33 F-K THS	PR MG	GN
	Roughing Single-sided High Feed Rate	PX	-	GS RM UC UP UD	H HX HE TE UE	HV HR HX HZ HL HM	-	QR PR HR	R4 R5 R6 R7 RR6 R57 RP	HG HP MP HF	TU TRS 57 65 TUS	RP RH RM RW	TNM NM
Stainless Steel, Difficult-to-Cut Material	Finishing	MQ SQ	-	SF	BH MP	FS SH FJ LM LS	ZF1	MF	M1	SU EF	SF SS	FP	F3M VL F3S
	Medium - Roughing	MS MU TK SG SX	-	GP SZ	DE SE PV VI	MS MA GM MJ MM ES MH GH GJ RM RS	ZP WS	MM MMC MR XMR SM SMR SF SGF SMC MRR	MF1 MF3 A3 A5 M5 56 R8 RR9 MF4	EG EX MU UP EM	HMM SM SA S SH HRM HPF	P MP MS UP	TF PP M3M R3M
Cast Iron	Medium	KQ KG C Standard	-	-	AH VA V	LK MF Standard	-	KF KM	-	UZ UX UJ	Standard 33 CF	FN	GN
	Roughing	KH GC ZS	-	-	-	GH RK	-	KR KRR	MR9	GZ	CM CH	RP UN	NR
Non-Ferrous Metals	Medium - Roughing	AH	-	-	-	-	-	AL	95	AG	P	GP MS	PP

Molded Chipbreaker Cross Reference Table

Positive Inserts

Cutting Range		Kyocera		Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
		General Chipbreaker	Chipbreaker for Gummy Material / Soft Steel										
Carbon Steel / Alloy Steel	Minute D.O.C.	CF	-	-	-	-	-	-	-	-	01	-	-
	Finishing (with wiper edge)	WP	-	-	-	SW	-	WF WK WM	W-F1 W-F2	LUW SDW	SW	FW	WF
	Finishing	PF DP GP PP VF	XP	ASF	-	FV SQ FP SMG	AZ3 AMX AZ7 FG	PF UF XF	FF1	FB GU FC FK FP LU	PF PSF 23	11 GF UF FP	PF SM
	Finishing - Medium (1)	HQ	XQ	ACB FT	JE	MQ MV LP	AF1	PM UM SMC	F1 M3	LB SF SU SS	PS PSS 24	LF	14
	Finishing - Medium (2)	GK	-	BM	JQ	Standard	QD CL	PF PMC XM	MF2 M5	US GU	-	-	F3P
	Medium	Standard	-	-	J	MP No Indication	AM5 AM3 AZ8	PR UR KM XR	F2	MU SC	PM	GM MP MR	Standard
Stainless Steel, Difficult-to- Cut Material	Finishing - Medium	MQ	-	-	MP	FM FV SV LM LS MS	-	MF MMC SM MR MM	-	LU	PSS JS PF PSF PS PM	FW FP MW	PF WF F2M
Non-Ferrous Metals	Finishing - Medium	AP AH	-	ALU	-	AZ	-	AL	AL	AG AW	AL	HP	AF AS

Positive Inserts (for Small Parts Machining)

Cutting Range		Kyocera	Dijet	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Carbon Steel / Alloy Steel	Minute D.O.C.	CF	-	-	-	-	-	-	-	01	-	-
	Finishing	PF CK GF SKS	ASF	JQ	FP FV SMG LS-P	AZ7 AMX ZR	PF XF	FF1	SI FC	PF	11 UF FP	PF SM
	Finishing - Medium	GQ SK	ACB FT	JE	LP AM MV	AM3 YL	PM XM	F1 MF2	SU	PS	LF	14
	Medium	GK	-	J	MP Standard	QD CL	PR	F2	SC	PM	MF MP	Standard
Stainless Steel	Finishing	MQ	-	MP	FM FV SV LM	-	MF	-	LU	JS PF PSF	FW FP MW	WF
Non-Ferrous Metals	Finishing - Medium	AP AH	ALU AWI	-	AZ	-	AL	AL	AG AW	AL	HP	AF AS

Cera-Notch Conversion Table

Insert Style		Kyocera	Horizon	Tool-Flo	Kennametal	RTW	Valenite	Sandvik	Mitsubishi
Notch Style Grooving Insert	Face Grooving	KCFP	HF	FLF	NF	-	-	TLF*	EF
	ID/OD Grooving	KCG/KCGP	HG	FLG	NG	PG	VLG	TLG*	EG
	ID/OD with Chipbreaker	KCGP MY	HG RK-LK	FLG CB	NG RK-LK	PG RK-LK	-	-	EG RK-LK
	ID/OD with Positive Rake	KCGP	HGP	FLGP	NGP	-	VLGP	TLGP*	EGP
	ID/OD Deep Grooving	KCGDP	HGD	FLGD	NGD	PGD	-	-	EGD
	Full Nose Radius	KCRP	HR	FLR	NR	PR	VLR	TLR*	EGR
	Full Nose Radius with Positive Rake	KCRP	HRP	FLRP	NRP	PRP	VLRP	TLRP*	-
Notch Style Threading Insert	60° V Partial Profile	KCT	HT	FLT	NT	PT	VLT	TLT*	ET
	60° V Fine Pitch Positive	KCTK	HTK	FLTK	NTK	PTK	VLTK	TLTK*	-
	60° V Positive	KCTP	HTP	FLTP	NTP	PTP	VLTP	TLTP*	-

* Sandvik inserts require a Kyocera or industrial standard clamp due to different clamping system.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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Milling Insert Cross Reference Table

Milling Insert Cross Reference Table

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Kyocera		Class	Applications	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	Sandvik	Sumitomo	Tungaloy	Iscar
ANSI	ISO								
SDMR42AUER-H SDKR42AUEH-S	SDMR1203AUER-H SDKR1203AUEH-S	M K	Steel		(SDNR1203AEEN-JS)		SDMR1203AEEN SDMR1203AETN	SDMR1203AETN-MJ SDKR1203AESR-MJ SDKR1203AETN-MJ SDKR1203AEPN-MS SDKR42ZSR-MJ SDKR42ZPN-MS	SDKR1203AUTR-HS SDKR1203AUN-76
SDKN42AUTN	SDKN1203AUTN	K			SDKN1203AEN SDKN1203AETN (SDNN1203AETN1)		SDKN42MT (SDNN1203AETN)	SDKN1203AETN-12 SDKN42ZTN	SDKN1203AETN
SDKN42AUFN	SDKN1203AUFN	K	Cast Iron				SDKN42M (SDNN1203AEEN)	SDKN1203AEFN-12 SDKN42ZFN	
			Non-Ferrous				SDKN42M	(SDCN1203AEFN-D) (SDCN42ZFN-DIA)	
SDKN53AUTN	SDKN1504AUTN	K	Steel		SDKN1504AEN SDKN1504AETN		SDKN53MT	SDKN1504AETN SDKN53ZTN	SDKN1504AETN
SEMR42AFER-H SEKR42AFEN-S	SEMR1203AFER-H SEKR1203AFEN-S	M K	Steel		(SEER1203AFEN-JS)	SEKR1203AZ-WM (SEER1203AZ-WL)	SEMR1203AFEN (SEER1203AFEN)	SEMR1203AFTN-MJ SEKR1203AFSR-MJ SEKR1203AFTN-MJ SEKR1203AFPN-MS	SEKR1203AFTR-HS SEKR1203AFR-HS SEKR1203AFN-76 SEKR1203AF-N-42
SEEN42AFTN	SEEN1203AFTN	E		SEEN1203AFTN	SEEN1203AFTN1		SEEN42MT	SEEN1203AFTNCR-14	
SEKN42AFTN	SEKN1203AFTN	K		SEKN1203AFTN	SEKN1203AFTN1 (SENN1203AFTN1)	SEKN1203AZ (SEMN1203AZ)	SEKN42MT (SENN1203AFTN)	SEKN1203AFTN SEKN1203AFTN-16 SEKN42AFTN SEKN42AFTN16	
SEKN42AFFN	SEKN1203AFFN	K	Cast Iron	SEKN1203AFFN	(SEEN1203AFFN1)	SEKN1203AZ (SEMN1203AZ)	SEKN42M (SENN1203AFEN)	SEKN1203AFFN SEKN42AFFN	
SEEN42AFFN	SEEN1203AFFN	E	Non-Ferrous	(SEKN1203AFFN)	(SECN1203AFFR1)				
SEKN42EFTR	SEKN1203EFTR	K	Steel		SEKN1203EFTR1	(SECN1203EER)		SEKN1203EFTR (SECN1203EFTR) (SEEN1203EFTR) (SECN42EFTRCR) (SEEN42EFTRCR)	
SEKN53AFTN	SEKN1504AFTN	K	Steel	SEKN1504AFTN		SEKN1504AZ	SEKN53MT		SEKN1504AFTN
SPEN42EESR	SPEN1203EESR	E	Cast Iron		SPEN42EFSR1 SPEN1203EESR1 SPEN1203EEER1 (SPNN1203EEER1)				
SPMR42EDER-H SPKR42EDER-S	SPMR1203EDER-H SPKR1203EDER-S	M K	Steel	SPKN1203EDER SPEN1203EDR-WC	(SPER1203EDER-JS)	SPKN1203EDR-WH		SPKR1203EDSR-MJ SPKR42SSR-MJ	SPKR1203EDR-76 SPKR1203EDTR-HS
SPCN42EDTR	SPCN1203EDTR	C		SPKN1203EDT31R SPAN1203EDR	(SPEN1203EDR)	(SPAN1203EDR)	SPCH42TR-R	SPCN1203EDTR SPCN42STR	
SPKN42EDTR	SPKN1203EDTR	K		SPKN1203EDTR	SPKN1203EDR	SPKN1203EDR	(SPCH42TR) (SPCH42TR-R)	SPKN1203EDTR SPKN42STR (SPEN1203EDTR) (SPEN42STR)	SPKN1203EDTR SPKN1203EDTR-42
SPKN42EDFR	SPKN1203EDFR	K	Cast Iron	SPKN1203EDFR		SPKN1203EDR	(SPCH42R)	SPKN1203EDFR SPKN42SFR	SPKN1203EDFR
SPKN53EDTR	SPKN1504EDTR	K	Steel	SPKN1504EDT32R SPKN1504EDTR	SPKN1504EDR	SPKN1504EDR	(SPCH53TR-R)	SPKN1504EDTR SPKN53STR (SPCN1504EDTR) (SPCN53STR)	SPKN1504EDTR
SPKN53EDFR	SPKN1504EDFR	K	Cast Iron	SPKN1504EDFR			(SPCH53R-R) (SPCH53TR-R)	SPKN1504EDFR SPKN53SFR	SPKN1504EDFR

Note 1. Tolerance is different for part numbers in ().

2. Since edge shape of milling insert is slightly different by each manufacturer, please adjust edges (Z-axis direction) during operation.

Milling Insert Cross Reference Table

Milling Insert Cross Reference Table

This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

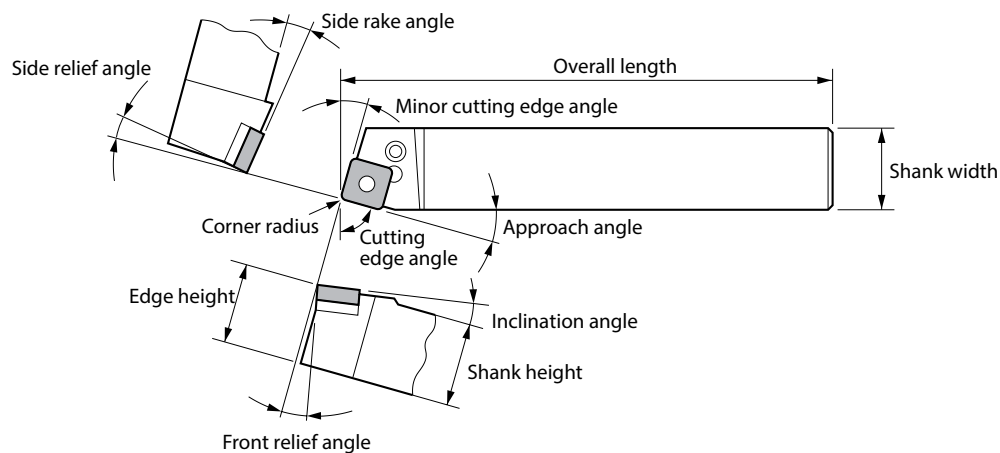
Kyocera		Class	Applications	MOLDINO (Mitsubishi Hitachi Tool)	Mitsubishi	Sandvik	Sumitomo	Tungaloy	Iscar
ANSI	ISO								
SPCN42XPTR	SPCN1203XPTR	C	Steel					SPCN1203ZPTR SPCN42ZTR	
SPKN42XPTR	SPKN1203XPTR	K						SPKN1203ZPTR SPKN42ZTR (SPEN1203ZPTR) (SPEN42ZTR)	
SPKN42XPFR	SPKN1203XPFR	K	Cast Iron					SPKN1203ZPFR SPKN42ZFR	
SPKN53XETR	SPKN1504XETR	K	Steel		SPK53C2SR				
TPMR32PDER-H	TPMR1603PDER-H	M	Steel		(TPER1603PPER-JS)	(TPKN1603PPR-WH)			(TPKR1603PPTR-HS)
TPKN32PDTR	TPKN1603PDTR	K		TPKN1603PRR	TPKN1603PPR (TPEN1603PPR)	TPKN1603PPR	TPKN32TR		TPKN1603PPTR
TPKN32PDFR	TPKN1603PDFR	K	Cast Iron	TPKN1603PDR		TPKN1603PPR	TPKN32R		TPKN1603PPFR
TPMR43PDER-H TPKR43PDER-S	TPMR2204PDER-H TPKR2204PDER-S	M K	Steel		(TPER2204PDER-JS)	TPKN2204PDR-WH		TPMR2204PDSR-MJ TPKR2204PDSR-MJ TPKR43ZSR-MJ	TPKR2204PDTR-HS TPKR2204PD-R-76
TPKN43PDTR	TPKN2204PDTR	K		TPKN2204PDR	TPKN2204PDR (TPEN2204PDR)	TPKN2204PDR	(TPCH43TR)	TPKN2204PPTR TPKN43ZTR (TPCN2204PPTR) (TPCN43ZTR)	TPKN2204PDTR TPKN2204PDTR-42
TPKN43PDFR	TPKN2204PDFR	K	Cast Iron	TPKN2204PDFR			(TPCH43R)	TPKN2204PPFR TPKN43ZFR (TPCN2204PPFR) (TPCN43ZFR) (TPEN2204PPTR-16) (TPEN43ZTR)	TPKN2204PDFR
TEMR32PTER-H	TEMR1603PTER-H	M	Steel		(TEER1603PEER-JS)			(TEKR1603PEPR-MS)	
TEKN32PTTR	TEKN1603PTTR	K			(TEEN1603PETR1)		TEKN32TR	(TECN1603PETR) (TEEN1603PETR) (TECN32ZTR) (TEEN32ZTR)	
TEKN32PTFR	TEKN1603PTFR	K	Cast Iron		(TEEN1603PEFR1)		TEKN32R	(TEEN1603PEFR) (TEEN32ZFR)	
TEEN32PTFR	TEEN1603PTFR	E	Non-Ferrous		(TECN1603PEFR1)		TEEN32R	(TECN1603PEFR-D) (TECN32ZFR-DIA)	
TEMR43PTER-H TEKR43PTER-S	TEMR2204PTER-H TEKR2204PTER-S	M K	Steel		(TEER2204PEER-JS)			TEKR2204PEPR-MS	
TEEN43PTTR	TEEN2204PTTR	E			TEEN2204PETR1		TEEN43TR	TEEN2204PETR (TECN2204PETR) TEEN43ZTR (TECN43ZTR)	
TEKN43PTTR	TEKN2204PTTR	K			TEKN2204PETR1		TEKN43TR	(TEEN2204PETR) (TECN2204PETR) (TEEN43ZTR) (TECN43ZTR)	
TEKN43PTFR	TEKN2204PTFR	K	Cast Iron		(TEEN2204PEFR1)		TEKN43R	(TEEN2204PEFR) (TEEN43ZFR)	
			Non-Ferrous		(TECN2204PEFR1)		(TEEN43R)	(TECN2204PEFR-D) (TECN43ZFR-DIA)	
SNCN43XNTN	SNCN1204XNTN	C	Steel		SNC43B2S		(CSN43MT)	SNCN1204ZNTN SNCN43ZTN	
SNKN43XNTN	SNKN1204XNTN	K			SNK43B2S		(CSN43MT)	SNKN1204ZNTN SNKN43ZTN	
SNMF43XNTN	SNMF1204XNTN	M	Steel		(SNKF43B2S)		(CSNB43MT)	(SNKF1204ZNTN) (SNKF43ZFN)	

Note 1. Tolerance is different for part numbers in ().

2. Since edge shape of milling insert is slightly different by each manufacturer, please adjust edges (Z-axis direction) during operation.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Terms and Angles of Turning Toolholder



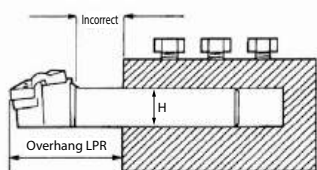
Function of Tool Angles

Tool Angle	Name	Function	Effect
Rake Angle	Side rake angle	Affects cutting force, cutting heat, chip evacuation and tool life.	- If it is positive (+) angle, sharper cutting performance is obtained. (less cutting force, less edge strength) - Positive (+) angle is recommended for easy to machine workpieces or thin workpieces. - Smaller rake angle or negative (-) angle is recommended when a stronger edge is required like scale machining or interrupted machining.
	Inclination angle		
Relief angle	Front relief angle	Prevents the tool's contact to the workpiece surface, except the cutting edge.	When it is small, the cutting edge becomes strong, but the wear at relief faces may shorten the tool life.
	Side relief angle		
Cutting edge angle	Cutting edge angle	Affects chip control and the direction of cutting force.	When it is large, chip thickness becomes thick and chip control improves.
	Approach angle	Affects chip control and the direction of cutting force.	- When it is large, chip thickness becomes thin and chip control worsens, but cutting force is dispersed and edge strength improves. - When it is small, chip control ability improves.
	Minor cutting edge angle	Prevents friction between cutting edge and workpiece surface.	When it is large, edge strength deteriorates.

Toolholder Rigidity

1. Flexure of Toolholder

$$\delta = \frac{4 \times F \times (LPR)^3}{E \times B \times H^3} = \frac{4 \times k \times ap \times f \times (LPR)^3}{E \times B \times H^3}$$



Symbol	Name	Unit
δ (delta)	Deflection	mm
B	Shank width	mm
H	Shank height	mm
E	Young ratio	N/mm ²
ap	Depth of cut	mm
f	Feed rate	mm/rev
k	Specific cutting force	N/mm ²
LPR	Overhang	mm
F	Cutting force	N

$$(F = k \times ap \times f)$$

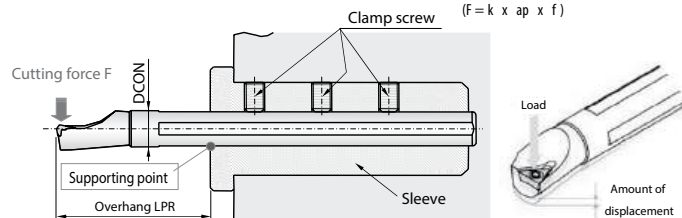
The flexural strength of toolholder will decrease by increasing of shank height by third root and will decrease of reducing overhang by third root. Minimizing toolholder shank overhang as much as possible is important as well as shank's sectional square measure.

2. Flexure of Boring Bar

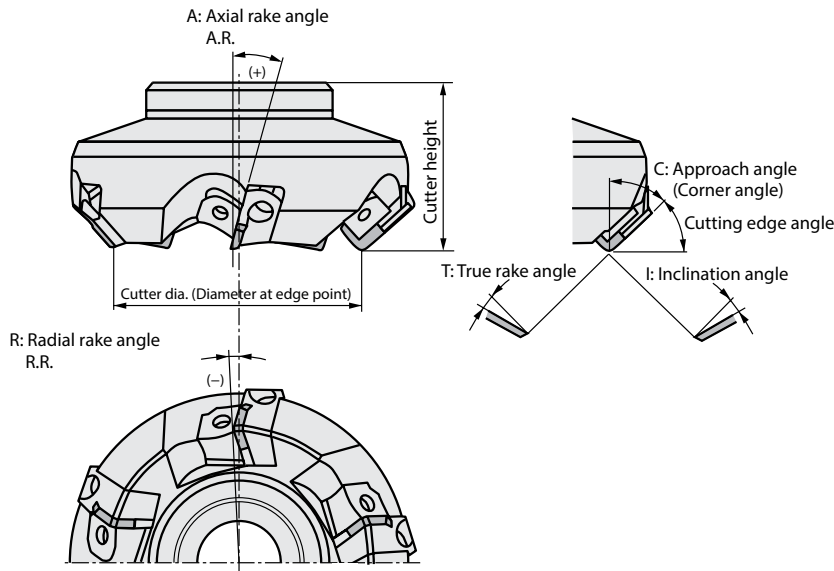
$$\delta = \frac{64 \times F \times (LPR)^3}{3 \times E \times \pi \times (DCON)^4} = \frac{64 \times k \times ap \times f \times (LPR)^3}{3 \times E \times \pi \times (DCON)^4}$$

Symbol	Name	Unit
δ (delta)	Deflection	mm
DCON	Shank dia.	mm
E	Young ratio	N/mm ²
ap	Depth of cut	mm
f	Feed rate	mm/rev
k	Specific cutting force	N/mm ²
LPR	Overhang	mm
F	Cutting force	N

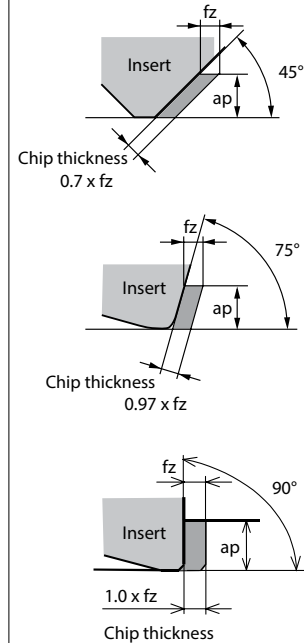
$$(F = k \times ap \times f)$$



Terms and Angles of Milling Cutters



• Cutting edge angle and chip thickness



Function of Tool Angles

Symbol	Name	Function	Effect
A	Axial rake angle (A.R.)	Controls chip flow direction and cutting force	When it is positive ... Good cutting performance and less chip welding
R	Radial rake angle (R.R.)	Controls chip flow direction and cutting force	When it is negative ... Good chip evacuation
C	Approach angle	Controls chip thickness and chip flow direction	When it is large ... Thinner chip thickness Lower cutting load
T	True rake angle	Actual rake angle	When it is positive ... Good cutting performance and less chip welding, but lower edge strength When it is negative ... Higher edge strength but easier to weld
I	Inclination angle	Controls chip flow direction	When it is positive ... Good chip evacuation Less cutting force Lower edge stability of the corner part

The formula for true rake angle: $\tan T = \tan R \times \cos C + \tan A \times \sin C$

The formula for inclination angle: $\tan I = \tan A \times \cos C - \tan R \times \sin C$

No. of Inserts (Z)

1) If the number of stages is one

If the number of stages is one, it is not indicated on the catalogue.
Please use "No. of inserts" of the catalogue for "Z" of the formula to calculate cutting conditions.

2) If the number of stages is more than two

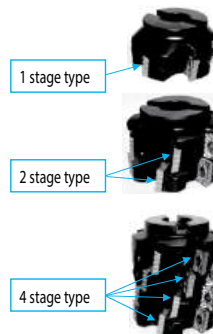
If the number of stages is more than two, it is indicated on the catalogue.
Please use "No. of flutes" of the catalogue for "Z" of the formula to calculate cutting conditions.



Toolholder dimensions

Description			Availability	Dimension (mm)					
				Inlets					
				DC	DOH	LF	LH	ARMX	
MECX	08-S10-07-1T		●	1	8	10		16	
	14-S12-07-2T		●	2	14	12	80	18	
	17-S16-07-3T		●	3	17		100		

$$fz = \frac{V_f}{Z \times n} \Rightarrow V_f = fz \times Z \times n$$



Toolholder dimensions

Description	Availability	Flutes		Stages
		Inserts	Stages	
MSR 063R-1M	●	4	1	
063R-2M	●	8	2	
080R-1M	●	4	1	
080R-2M	●	8	2	
080R-4M	●	16	4	

$$fz = \frac{V_f}{Z \times n} \Rightarrow V_f = fz \times Z \times n$$

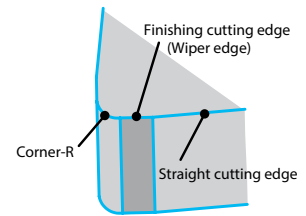
Precautions when using Wiper Inserts

About Wiper Inserts

A wiper insert is designed with a wiper edge that is located between corner radius and straight cutting edge shown in figure on the right.

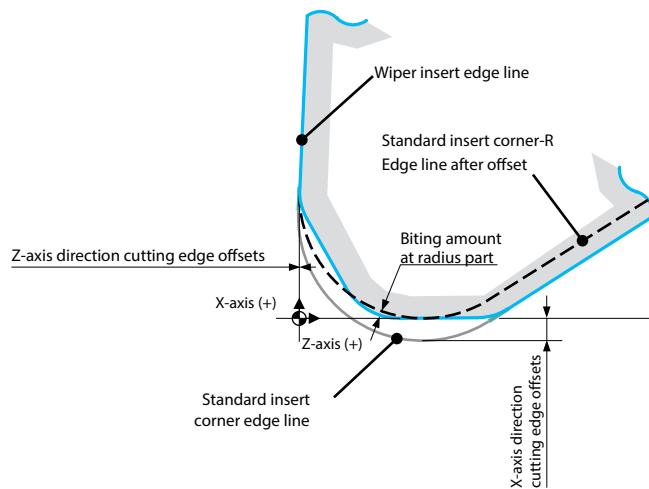
Advantages

- A wiper edge geometry provides improved surface finish quality even at increased feed rates
- Improved machining efficiency : Reduced cutting time with higher feed rate as well as consolidation of roughing and finishing provide high machining efficiency
- Longer tool life : Reduced cutting time with higher feed rate leads to increase part production
- Excellent chip control : Higher feed rate makes chips thicker, which allows chips to be broken easier



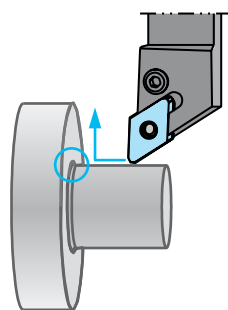
Precautions when using WF / WE Chipbreaker (Negative Insert)

Tip of Corner-R (DNMX, TNMX)



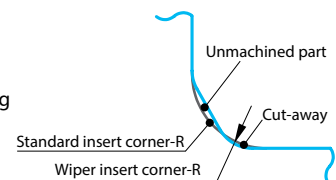
Caution when Machining Inside Corner-R

Do not use this wiper insert if a precise inside corner-R is required like shown in the figure below.



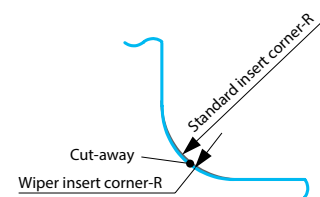
DNMX / TNMX WF chipbreaker

- More incomplete cutting and excessive cutting during machining with this chipbreaker than the machining with a standard insert
- The inside corner-R dimension become smaller than the requirement.



CNMG / WNMG WF / WE chipbreaker

- The inside corner-R dimension would be smaller than the requirement (Cutting excessively).



* From external turning to up facing without arc complement
(A wiper edge does not work during up facing)

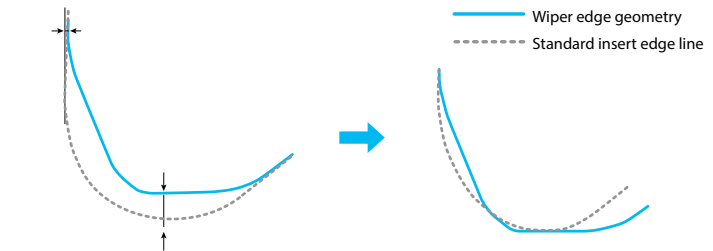
Precautions when using Wiper Inserts

WF / WE Chipbreaker Edge Position Offset Adjustment

For D type and T type inserts, cutting edge offsets are required.

Cutting Edge Offsets (in)					
DNMX431WF DNMX441WF		DNMX432WF DNMX442WF		DNMX433WF DNMX443WF	
X-axis direction	Z-axis direction	X-axis direction	Z-axis direction	X-axis direction	Z-axis direction
0.0094	0.0008	0.0055	0.0004	0.0043	0.0004

Cutting Edge Offsets (in)					
TNMX331WF		TNMX332WF		TNMX333WF	
X-axis direction	Z-axis direction	X-axis direction	Z-axis direction	X-axis direction	Z-axis direction
0.0094	0.0004	0.0063	0.0000	0.0043	0.0000

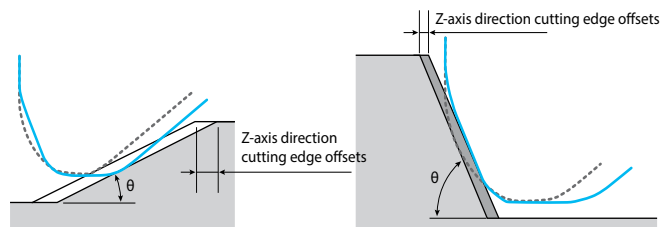


For D type and T type inserts, program corrections are required for ramping and up facing.

Program corrections for tapered part of workpiece (Z-axis direction cutting edge offsets)

DNMX43 / DNMX44 Inserts

Z-axis Cutting Edge Offsets (in)	Corner-R (RE) (in)	Ramping Angle θ					
		0°	5°	10°	15°	20°	25°
	1/64	0.0000	-0.0134	-0.0138	-0.0142	-0.0142	-0.0142
	1/32	0.0000	-0.0102	-0.0102	-0.0098	-0.0094	-0.0087



Z-axis Cutting Edge Offsets (in)	Corner-R (RE) (in)	Up Facing Angle θ																		
		0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
	1/64	0.0000	-0.0008	-0.0012	-0.0012	-0.0016	-0.0020	-0.0024	-0.0028	-0.0031	-0.0035	-0.0039	-0.0043	-0.0047	-0.0039	-0.0031	-0.0024	-0.0016	-0.0008	0.0000
	1/32	0.0000	0.0051	0.0047	0.0043	0.0035	0.0028	0.0020	0.0016	0.0008	0.0000	-0.0008	-0.0020	-0.0028	-0.0024	-0.0016	-0.0008	-0.0004	-0.0004	0.0000
3/64	0.0000	0.0142	0.0134	0.0122	0.0106	0.0094	0.0079	0.0063	0.0051	0.0035	0.0020	0.0000	-0.0016	-0.0024	-0.0012	-0.0008	-0.0004	-0.0004	0.0000	

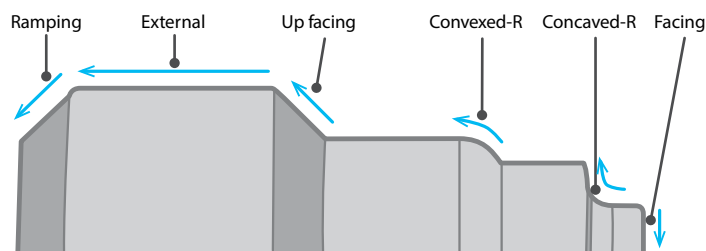
TNMX33 Inserts

Z-axis Cutting Edge Offsets (in)	Corner-R (RE) (in)	Ramping Angle θ					
		0°	5°	10°	15°	20°	25°
	0.4	0.0000					
	0.8	0.0000					

Do not use TNMX33 insert for ramping.

Z-axis Cutting Edge Offsets (in)	Corner-R (RE) (in)	Up Facing Angle θ																		
		0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
	1/64	0.0000	-0.0024	-0.0020	-0.0020	-0.0024	-0.0028	-0.0031	-0.0031	-0.0035	-0.0039	-0.0043	-0.0047	-0.0051	-0.0047	-0.0039	-0.0028	-0.0020	-0.0008	0.0000
	1/32	0.0000	0.0043	0.0043	0.0039	0.0031	0.0024	0.0016	0.0008	0.0000	-0.0008	-0.0016	-0.0024	-0.0031	-0.0031	-0.0024	-0.0016	-0.0008	-0.0004	0.0000
3/64	0.0000	0.0134	0.0126	0.0114	0.0098	0.0087	0.0075	0.0059	0.0055	0.0031	0.0016	0.0000	-0.0020	-0.0020	-0.0012	-0.0004	0.0000	0.0000	0.0000	

Caution (Finished Edge Line)



Applications	Notes
External / Facing	Please check the applicable toolholder to confirm the lead angle matches the angle of the wiper.
Up Facing Ramping	For D type and T type inserts, Z-axis program corrections are required.
Convexed-R / Concaved-R	Do not use wiper inserts if a precise radial shape is needed.

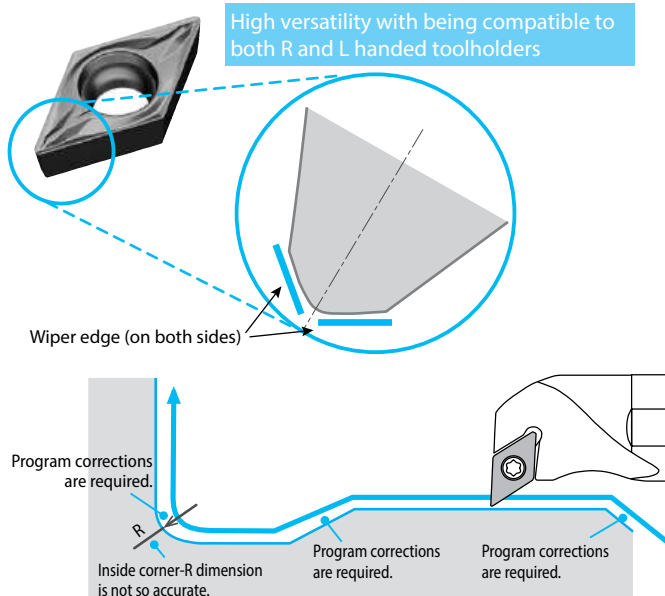
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Precautions when using Wiper Inserts

Precautions when using WP chipbreaker (Positive insert)

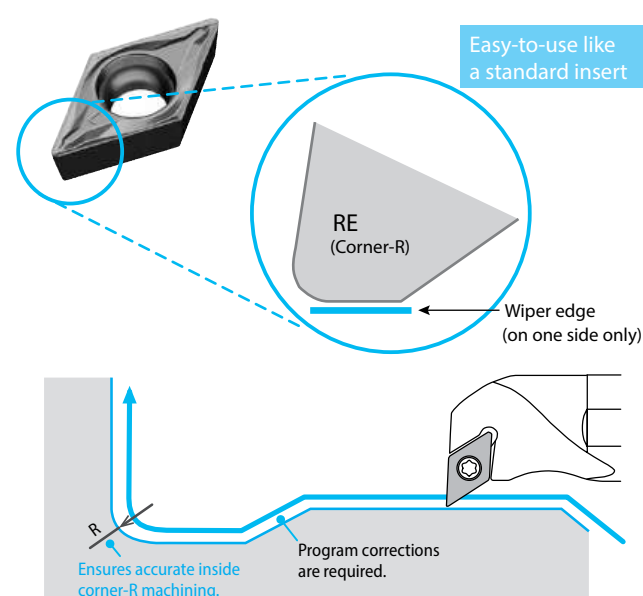
Proper use for a neutral insert and a handed insert

Neutral



- When use a neutral type insert,
- you need to correct programs for three areas.
 - it should be used for machining which does not require inside corner-R accuracy.

Handed (Left-hand shown)

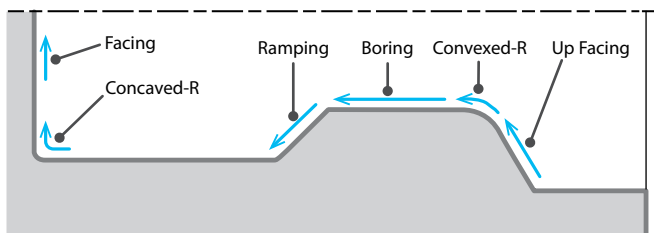


- When use a handed insert,
- you need to correct program for ramping.
 - it provides accurate inside corner-R machining.

➔ Less program correction is required as well as easy-to-use like a standard insert

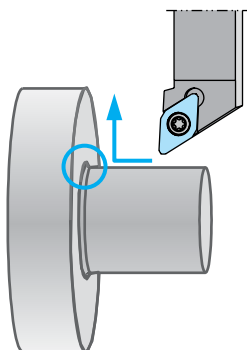
* Position of cutting edge differs from a standard insert. Cutting edge adjustment is required.

Caution (Finished Edge Line)



Caution when Machining Inside Corner-R

Do not use this wiper insert if a precise inside corner-R is required when such a machining in the figure below.



DCMX / TC(P)MX * Neutral WP chipbreaker

- Incomplete or excessive cutting when machining with this chipbreaker than machining with a standard insert
- The inside corner-R dimension become smaller

CCMT * Neutral DCMX / TPMX * Handed WP Chipbreaker

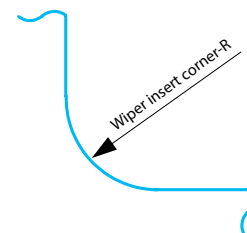
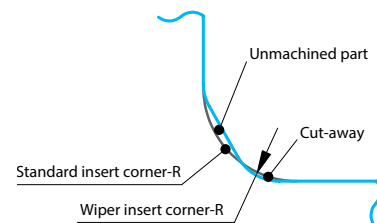
- No problem in the finished line on workpiece (Adjustments are required)

Neutral

Applications	Caution
Boring / Facing	Please check the applicable toolholder to confirm the lead angle matches the angle of the wiper.
Up Facing / Ramping	For D type and T type inserts, Z-axis program corrections are required.
Convexed-R / Concaved-R	Do not use wiper inserts if a precise R shape is needed.

Handed

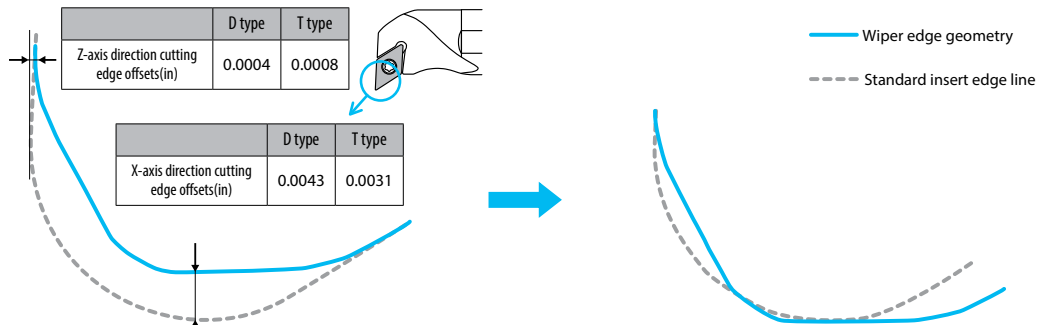
Applications	Caution
Boring	Please check the applicable toolholder to confirm the lead angle matches the angle of the wiper.
Ramping	For D type and T type inserts, Z-axis program corrections are required.
Convexed-R / Concaved-R	Surface finish quality is as standard insert is.
Up Facing	Surface finish quality is as standard insert is.
Facing	Surface finish quality is as standard insert is.



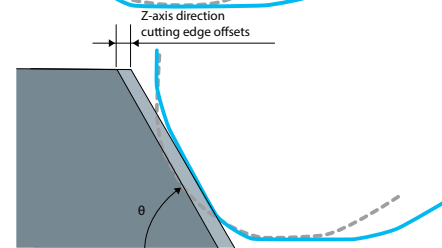
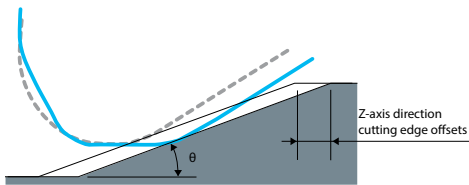
WP Chipbreaker (Positive Insert) Edge Position Offset Adjustment

Neutral

For D type and T type inserts, cutting edge offsets are required.

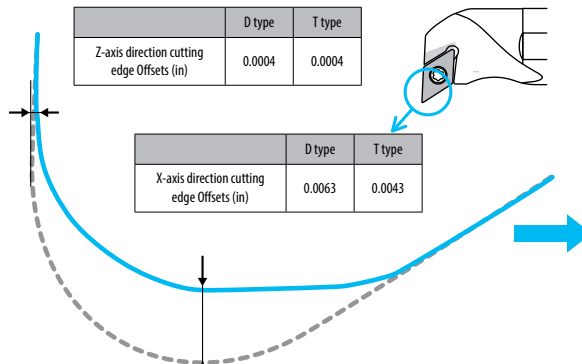


For D type and T type inserts, program corrections are required for ramping and up facing.

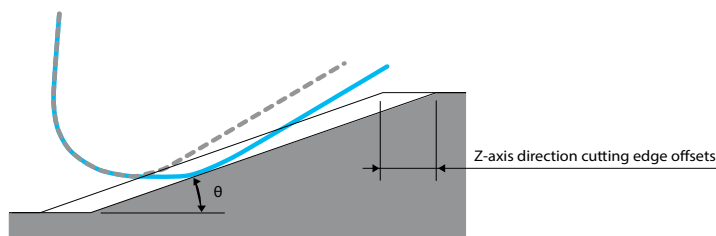


Handed Insert

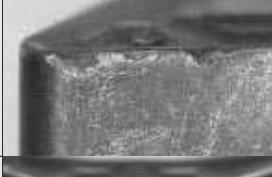
For D type and T type inserts, cutting edge offsets are required.



For D type and T type inserts, program corrections are required for ramping.



Cutting Edges Figuration and Countermeasures

Typical Cutting Edge Figuration		Observation	Causes	Countermeasures
Nose wear		Deterioration of surface roughness and dimensional accuracy	- Too high Vc - End of tool life	- Reduce Vc - Change to higher wear resistant grade
Notching		- Burr formation - Cutting force increase	Too high f and Vc	- Sharper cutting performance - Reduce Vc - Change to higher heat resistant grade
Crater wear		- Chip control deterioration - Surface finish deterioration (peeled surface)	Too high Vc	- Reduce Vc - Change to high speed type like Cermet or Al₂O₃ coated insert grade
Plastic deformation		- Workpiece dimension changes - Crack at nose	- Too high cutting load - Inappropriate insert grade	- Change to harder grade - Reduce f and ap
Crack from wear		- Surface finish's sudden deterioration - Workpiece dimension changes	Too high Vc	- Change the tool earlier - Change to higher wear resistant grade
Chipping		- Cutting force increase - Surface roughness deterioration	- Too high f - Chattering - Lack of insert toughness	- Reduce f and ap - Change to more rigid toolholder - Change to tougher grade
Crack from welding or built-up edge		- Surface finish deterioration - Cutting force increase	Too low Vc	- Increase Vc - Improve sharp cutting performance (rake angle, chamfer)
Mechanical fracture		- Sudden cracking - Unstable tool life	- Too high f and ap - Chattering	- Change to tougher grade - Enlarge chamfer - Enlarge Corner-R(RE) - Change to more rigid toolholder
Fracture from thermal crack		- Cracking by heat cycle - Possible in interrupted machining and milling	Too high Vc and f	- Reduce f - Reduce Vc - Change to dry cutting
Flaking		- Possible in hard materials machining - Possible in machining with chattering	- Lack of insert toughness - Poor rigidity of toolholder	- Change to tougher grade (TiC-base ceramic to CBN.) - Change to more rigid toolholder - Change edge preparation

Turning

Trouble			Check Item		Insert Grades				Cutting Conditions					Tool Geometry							Setting		Machine	
					Change to Harder Grade	Change to Tougher Grade	Change to More Thermal Shock Resistant Grade	Change to More Welding Resistant Grade	Vc	f	D.O.C.	Tool path review	Coolant		Chipbreaker Review	Rake Angle	Corner- R (RE)	Approach Angle	Edge Strength / Honing	Change to Higher Tolerance (M→G)	Toolholder Rigidity	Workpiece / Tool Installation	Overhang Length	Power Rigidity
													Wet	Dry											Larger ↑ Smaller ↓
			Countermeasures		Trouble item		Higher (Larger) ↑ Lower (Smaller) ↓																	
Unstable Dimension	Unstable Workpiece Dimension	Unsuitable insert tolerance																●						
		Tool and workpiece evacuation										●	●↑	●↓	●↓				●	●	●	●		
	Frequent Offset During Machining	Flank wear increase	●												●↑									
		Unsuitable cutting conditions					●↓	●↑																
		Built-up edge				●	●↑																	
Surface Roughness Deterioration	Poor Surface Roughness	Poor cutting by tool wear	●			●	●↓				●		●	●↑	●↑		●↓	●						
		Chipping		●				●↓	●↓			●		●↑		●↑				●	●	●		
		Welding, built-up edge				●	●↑				●		●	●↑			●↓	●						
		Unsuitable cutting conditions				●↑	●↓	●↓		●														
		Unsuitable tool geometry										●		●↑		●↓	●							
		Vibration, chattering		●			●↓	●↓	●↓				●	●↑	●↓	●↓	●↓		●	●	●	●		
Heat	Deterioration of Accuracy or Tool Life by Cutting Heat	Unsuitable cutting conditions				●↓	●↓	●↓		●														
		Unsuitable insert grades and tool geometry	●									●	●↑			●↓								
Burr, Workpiece Chip off and Scuffing	Burr	Unsuitable cutting conditions				●↓	●↑		●	●														
		Unsuitable insert grades and tool geometry	●									●	●↑	●↓	●↓	●↓								
	Workpiece Chip Off	Unsuitable cutting conditions					●↓	●↓	●															
		Unsuitable insert grades and tool geometry	●									●	●↑	●↑	●↑	●↓		●	●	●	●			
	Scuffing	Unsuitable cutting conditions				●↑	●↓			●														
		Unsuitable insert grades and tool geometry	●		●							●	●↑			●↓								
Edge Damage	Wear Increase at Relief Face, Rake Face	Flank wear	●			●↓				●		●	●↑	●↑		●↓								
		Rake face wear	●			●↓	●↓	●↓		●		●	●↑		●↑									
	Notching	Notching			●	●↓				●														
	Chipping	Vibration, chattering		●			●↓	●↓				●			●↑	●↑		●	●	●	●			
	Crack	Unsuitable insert grades and cutting conditions		●	●		●↓	●↓				●		●↑	●↑	●↑		●	●	●	●			
	Thermal Crack	Work hardness, unsuitable insert grades and cutting conditions			●		●↓	●↓	●↓		●	●	●↑			●↓								
	Edge Nose Deformation	Edge nose deformation during interrupted machining	●				●↓	●↓	●↓			●	●↓	●↑	●↑	●↑								
	Built-up Edge	Work hardness, unsuitable insert grades and cutting conditions				●	●↑	●↑			●		●↑			●↓	●							
Chip Control	Long, Tangling Chips	Unsuitable cutting conditions				●↓	●↑	●↑	●		●													
		Unsuitable tool geometry										●		●↓	●↓									
	Chips Scattering	Unsuitable cutting conditions					●↓	●↓			●													
		Unsuitable tool geometry										●		●↑	●↑									

*1. To prevent chattering, the higher f may be suitable.

*2. To prevent scuffing, the higher f may be suitable.

*3. When using X chipbreaker insert for soft steel and low carbon steel, the higher Vc cuts chips short.

Milling

Trouble		Check Item	Insert Grades				Cutting Conditions						Tool Geometry										Setting	Machine
		Countermeasures	Change to Harder Grade	Change to Tougher Grade	Change to More Thermal Shock Resistant Grade	Change to More Welding Resistant Grade	Vc	fz	D.O.C.	Cutter Dia. Cutting Width Review	Tool Path Review	Coolant Usage of Mist Dry	Insert with Chipbreaker	Relief Angle	Corner Angle	Edge Strength / Honing	No. of Inserts	Chip Pocket	Wiper Edge (Relief Angle) Review	Insert Runout Check	Cutter Rigidity	Workpiece / Tool Installation	Overhang Length	Power, Rigidity
		Trouble item					Higher (Larger)↑ Lower (Smaller)↓							Larger ↑ Smaller ↓			More↑ Less↓	Larger↑ Smaller↓						
Edge Damage	Flank Wear Increase	Unsuitable cutting conditions					● ↓					●												
		Unsuitable tool geometry	●											● ↑		● ↓			●					
	Rake Face Wear Increase	Unsuitable cutting conditions					● ↓	● ↓	● ↓			●												
		Unsuitable tool geometry	●											● ↑	● ↑	● ↓								
	Chipping, Cracking	Unsuitable cutting conditions					● ↓	● ↓	●	●														
		Unsuitable tool geometry		●										● ↓	● ↑	● ↑			●	●	●	●	●	●
	Edge Breakage by Thermal Shock	Unsuitable cutting conditions					● ↓	● ↓	● ↓			●												
		Unsuitable tool geometry		●										● ↑		● ↓								
	Built-up Edge	Unsuitable cutting conditions					● ↑	● ↑				●												
		Unsuitable tool geometry			●									● ↑		● ↓								
Cutting Accuracy	Poor Surface Finish	Unsuitable cutting conditions					● ↑	● ↓	● ↓			●						● ↓	● ↓		●	●		●
		Unsuitable tool geometry	●		●																	●	●	●
	Burr Formation	Unsuitable cutting conditions					● ↓	● ↓	● ↓	●	●									●				
		Unsuitable tool geometry												● ↑	● ↓	● ↓			●					
	Workpiece Chip Off	Unsuitable cutting conditions					● ↓	● ↓			●													
		Unsuitable tool geometry												● ↑	● ↑	● ↓	● ↑		●					
	Poor Planeness / Parallelism	Tool and workpiece evacuation					● ↓	● ↓				● ^{*5}	●	●	● ↑	● ↓	● ↓	● ↓		●	●	●	●	●
Others	Heavy Chattering, Vibration	Unsuitable cutting conditions, installation					● ↓	● ^{*1} ↓	● ^{*2} ↓	●	● ^{*4}		●	●	● ↑	● ↓	● ↓	● ↓			●	●	●	●
	Damaging Chips	Unsuitable cutting conditions					● ↑	● ^{*3} ↓		●		● ^{*6}	●											
		Unsuitable tool geometry											●	● ↑				● ↓	● ↑					

*1. To prevent chattering, the higher fz may be suitable.

*2. To prevent chattering, the larger ap may be suitable.

*3. Higher fz may be suitable.

*4. Down-cut method is recommended for helical end milling.

*5. If the surface is warped by cutting heat.

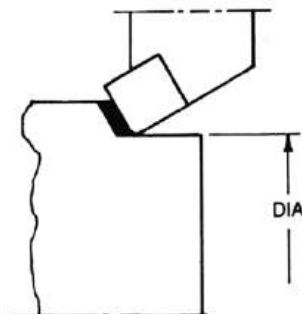
*6. Compressed air is recommended.

Drilling (Magic Drill Series)

Trouble			Check Item	Insert Grades		Cutting Conditions		Tool Geometry			Setting				Machine	
			Countermeasures	Change to Harder Grade	Change to Tougher Grade	Vc	fz	Coolant Discharge Condition	Chipbreaker Review	Inner Edge's Center Height Check (Core Dia. Check)	Toolholder Rigidity Improvement (Short Type)	Workpiece / Tool Installation	Insert Installation	Offset Check	Adjustable Sleeve Usage	Power, Rigidity
Edge Damage	Unusual Wear	Unsuitable cutting speed (too high)	●		●↓											
		Unsuitable cutting speed (too low)		●	●↑											
		Unsuitable coolant discharge					●									
		Poor rigidity of machine / workpiece								●						●
		Small hole dia.												↑1	●	
		Unsuitable insert grade	●													
	Inner Edge Cracking	No core, too small core							●↑							
		Poor rigidity of machine / workpiece								●	●					●
		Unstable drilling start				●↓										
		High hardness workpiece	●		●↓	●↓										
		Clogged chips			●↑				●↓							
		Unstable insert installation										●				
	Outer Edge Cracking	Poor rigidity of machine / workpiece									●					●
		Unstable drilling start				●↓										
		High hardness workpiece	●		●↓	●↓										
		Poor chip control		●	●↑											
		Unstable insert installation										●				
Toolholder, Others	Scratches on Tool Body	Poor rigidity of machine / workpiece									●					●
		Inaccurate tool installment												↑1	●	
		Clogged chips			●↑	●↓										
		Unstable drilling start				●↓										
	Poor Hole Dia. Accuracy / Surface Finish	Poor rigidity of machine / workpiece									●					●
		Poor rigidity of toolholder								●		●				
		Inaccurate tool installment												↑1	●	
		Clogged chips			●↑	●↓			●↓							
		Large core dia.							●↓							
		Unstable drilling start				●↓										
		Unsuitable coolant discharge					●									
		Large Vibration / Chattering	Unsuitable cutting conditions, installation			●↑	●↓				●	●				
	Long Chips	Unsuitable cutting conditions			●↑											
		Unsuitable chipbreaker						●								
	Machine Failure	Lack of machine power			●↓	●↓		●								●

*1. For lathe operation

Turning

**Surface Speed per Minute**

$$\text{SFM} = 0.262 \times \text{DIA} \times \text{RPM}$$

Revolutions per Minute

$$\text{RPM} = \frac{3.820 \times \text{SFM}}{\text{DIA}}$$

Feedrate (inches/minute)

$$\text{IPM} = \text{IPR} \times \text{RPM}$$

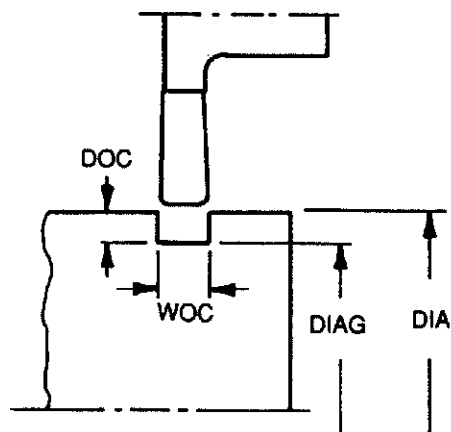
Chip Thinning for Non-Round Inserts (inches/revolution)

$$\text{Programmed IPR} = \frac{t_{\text{chip Max}}}{\cos \alpha}$$

Chip Thinning for Round Inserts (inches/revolution)

$$\text{Programmed IPR} = \frac{t_{\text{chip Max}}}{\sqrt{-\frac{4ap}{ic} - \left(\frac{2ap}{ic}\right)^2}}$$

External Grooving

**Surface Speed per Minute**

$$\text{SFM} = 0.262 \times \text{DIA} \times \text{RPM}$$

Revolutions per Minute

$$\text{RPM} = \frac{3.820 \times \text{SFM}}{\text{DIA}}$$

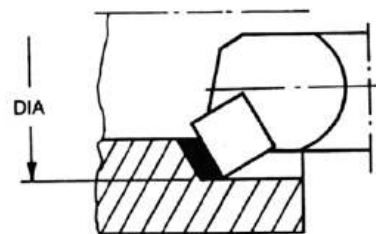
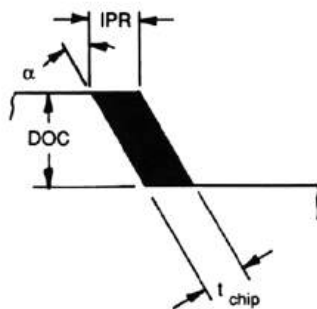
Feedrate (inches/minute)

$$\text{IPM} = \text{IPR} \times \text{RPM}$$

Feedrate (inches/revolution)

$$\text{IPR} = t_{\text{chip}}$$

Boring

**Metal Removal Rate**

$$Q = 12 \times \text{DOC} \times \text{IPR} \times \text{SFM} \text{ (in}^3\text{/minute)}$$

Horsepower Required at the Spindle

$$\text{HPS} = Q \times \text{UHP}$$

Horsepower Required at the Motor

$$\text{HPM} = \frac{\text{HPS}}{\text{EFF}}$$

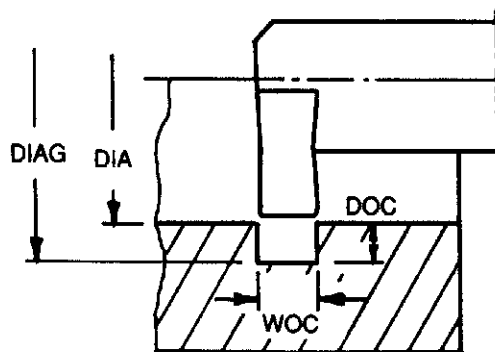
Time in Cut (seconds)

$$T = \frac{15.7 \times \text{DIA} \times \text{LOC}}{\text{SFM} \times \text{IPR}}$$

or

$$T = \frac{60 \times \text{LOC}}{\text{IPM}}$$

Internal Grooving

**Metal Removal Rate**

$$Q = 12 \times \text{WOC} \times \text{IPR} \times \text{SFM} \text{ (cu.in/minute)}$$

Horsepower Required at the Spindle

$$\text{HPS} = Q \times \text{UHP}$$

Horsepower Required at the Motor

$$\text{HPM} = \frac{\text{HPS}}{\text{EFF}}$$

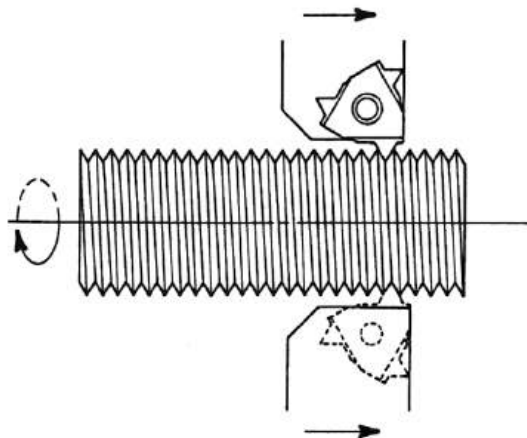
Time in Cut (seconds)

$$T = \frac{7.85 \times \text{DOC} \times (\text{DIA} + \text{DIAG})}{\text{SFM} \times \text{IPR}}$$

or

$$T = \frac{60 \times \text{LOC}}{\text{IPM}}$$

External Threading

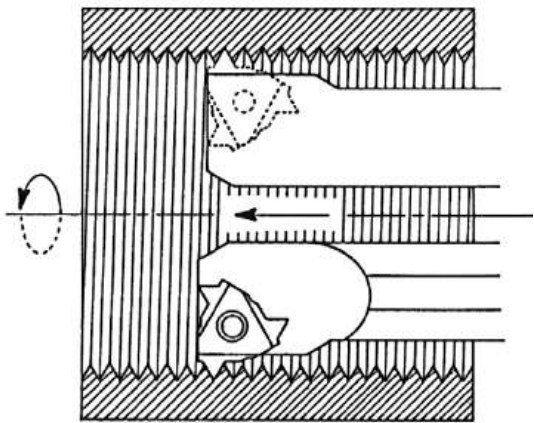


Surface Speed per Minute
 $SFM = 0.262 \times DIA \times RPM$

Revolutions per Minute
 $RPM = \frac{3.820 \times SFM}{DIA}$

Feedrate (inches/minute)
 $IPM = IPR \times RPM$

Internal Threading



Time in Cut (seconds)
 $T = \frac{60 \times LOC \times NO. OF PASSES}{IPR \times RPM}$

Feedrate

Standard Threads

$$IPR = \frac{1}{TPI}$$

Metric Threads

$$IPR = \frac{P_{mm}}{25.4}$$

Definition of Terms

- DIA = Diameter of the Workpiece (Inches)
- DOC = Depth of Cut (Inches)
- EFF = Machine Efficiency
- f = Feedrate (See IPM and IPR)
- HPM = Horsepower Required at the Motor
- HPS = Horsepower Required at the Spindle
- IPM = Feedrate (Inches per Minute)
- IPR = Feedrate (Inches per Revolution)
- IC = Insert inscribed circle (inches)

- LOC = Length of Cut (Inches)
- Q = Metal Removal Rate (Cubic Inches per Minute)
- RPM = Revolutions per Minute
- SFM = Surface Speed (Feet per Minute)
- T = Time (in Seconds)
- tchip Max = Maximum Recommended Chip Thickness (Inches)
- UHP = Unit Horsepower Factor
- 1 = Lead Angle

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Turning

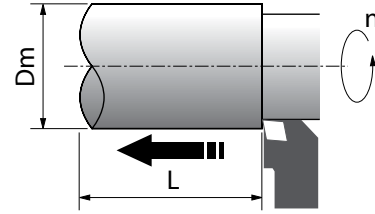
Cutting Speed

$$V_c = \frac{\pi \times D_m \times n}{1,000}$$

V_c : Cutting speed [m/min]

D_m : Workpiece dia. [mm]

n : Spindle revolution [min^{-1}]



Power Requirement

$$P_c = \frac{K_s \times V_c \times a_p \times f}{6,120 \times \eta}$$

P_c : Power requirement [kW]

P_{HP} : Power requirement (Horse power) [HP]

V_c : Cutting speed [m/min]

a_p : Depth of cut [mm]

f : Feed rate [mm/rev]

K_s : Specific cutting force [kgf/mm^2]

η : Mechanical efficiency (0.7 ~ 0.8)

$$P_{HP} = \frac{K_s \times V_c \times a_p \times f}{4,500 \times \eta}$$

K_s [kgf/mm^2]	
Low carbon steel	190
Medium carbon steel	210
High carbon steel	240
Low alloy steel	190
High alloy steel	245
Cast iron	93
Malleable cast iron	120
Bronze, brass	70

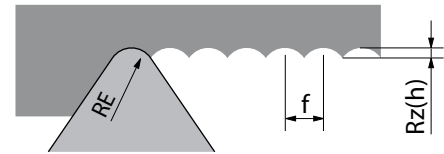
Theoretical Surface Roughness

$$R_z(h) = \frac{f^2}{8 \times RE} \times 1,000$$

$R_z(h)$: Theoretical surface roughness [μm]

f : Feed rate [mm/rev]

RE : Corner radius of insert [mm]



Chip Removal Volume

$$Q = V_c \times a_p \times f$$

Q : Chip removal volume [$\text{cm}^3/\text{min} = \text{cc}/\text{min}$]

V_c : Cutting speed [m/min]

a_p : Depth of cut [mm]

f : Feed rate [mm/rev]

Edge Position Compensation when Changing Corner-R(RE)

$$\Delta X = (RE - RE') \times \left\{ \frac{\cos \left(\frac{EPSR}{2} + (KRINS - 90^\circ) \right)}{\sin \frac{EPSR}{2}} - 1 \right\}$$

$$\Delta Z = (RE - RE') \times \left\{ \frac{\sin \left(\frac{EPSR}{2} + (KRINS - 90^\circ) \right)}{\sin \frac{EPSR}{2}} - 1 \right\}$$

ΔX : X-axis direction cutting edge offsets [mm]

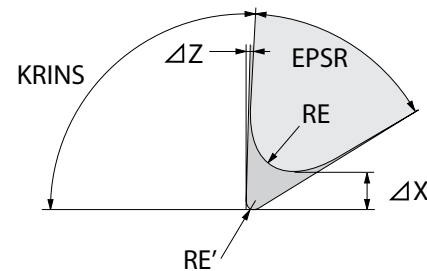
ΔZ : Z-axis direction cutting edge offsets [mm]

RE : Corner-R before change [mm]

RE' : Corner-R after change [mm]

$EPSR$: Insert corner angle [$^\circ$]

$KRINS$: Toolholder's cutting edge angle [$^\circ$]



Toolholder type	Insert corner angle EPSR	Cutting edge angle KRINS	ΔX	ΔZ
DCLN/PCLN	80°	95°	0.100 x (RE-RE')	0.100 x (RE-RE')
DTGN/PTGN	60°	91°	0.714 x (RE-RE')	0.030 x (RE-RE')
DDJN/PDJN	55°	93°	0.866 x (RE-RE')	0.099 x (RE-RE')
DDHN/PDHN	55°	107.5°	0.531 x (RE-RE')	0.531 x (RE-RE')
DVLN/PVLN	35°	95°	2.072 x (RE-RE')	0.273 x (RE-RE')
DVPN/PVPN	35°	117.5°	1.351 x (RE-RE')	1.351 x (RE-RE')
DSBN/PSBN	90°	75°	0.225 x (RE-RE')	-0.293 x (RE-RE')

Example: Compensation when changing corner-R from 0.8 to 0.4, using PCLN toolholder,

$$\Delta X = 0.100 \times (0.8 - 0.4) = 0.04(\text{mm})$$

$$\Delta Z = 0.100 \times (0.8 - 0.4) = 0.04(\text{mm})$$

Turning (Cutting time)

Cutting time (External turning case 1: 1 pass machining)

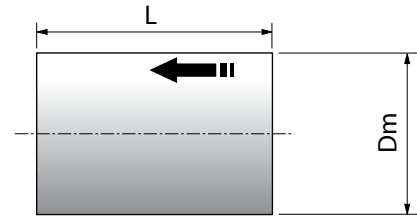
At constant revolution

$$T = \frac{60 \times L}{f \times n}$$

At constant cutting speed

$$T = \frac{60 \times \pi \times L \times D_m}{1,000 \times f \times V_c}$$

T : Cutting time [sec]
 L : Cutting length [mm]
 f : Feed rate [mm/rev]
 n : Spindle revolution [min⁻¹]
 D_m : Workpiece dia. [mm]
 V_c : Cutting speed [m/min]



Cutting time (External turning case 2: multi-pass machining)

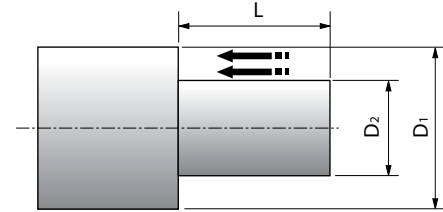
At constant revolution

$$T = \frac{60 \times L}{f \times n} \times N$$

At constant cutting speed

$$T = \frac{60 \times \pi \times L \times (D_1 + D_2)}{2 \times 1,000 \times f \times V_c} \times N$$

T : Cutting time [sec]
 L : Cutting length per pass [mm]
 ap : Depth of cut per pass [mm]
 f : Feed rate [mm/rev]
 n : Spindle revolution [min⁻¹]
 D₁ : Max. dia. of workpiece [mm]
 D₂ : Min. dia. of workpiece [mm]
 V_c : Cutting speed [m/min]
 N : Number of passes = (D₁ - D₂) / ap / 2 (if it is indivisible, obtain integer by rounding up one place of decimals.)



Cutting time (Facing)

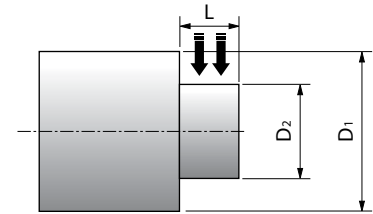
At constant revolution

$$T = \frac{60 \times (D_1 - D_2)}{2 \times f \times n} \times N$$

At constant cutting speed

$$T_1 = \frac{60 \times \pi \times (D_1 + D_2) \times (D_1 - D_2)}{4,000 \times f \times V_c} \times N$$

T : Cutting time [sec]
 T₁ : Cutting time before reaching
 Max. spindle revolution [sec]
 L : Cutting length [mm]
 ap : Depth of cut per pass [mm]
 f : Feed rate [mm/rev]
 n : Spindle revolution [min⁻¹]
 D₁ : Max. dia. of workpiece [mm]
 D₂ : Min. dia. of workpiece [mm]
 V_c : Cutting speed [m/min]
 N : Number of passes = L / ap (if it is indivisible, obtain integer by rounding up one place of decimals.)



Cutting time (Grooving)

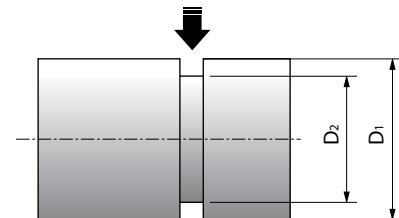
At constant revolution

$$T = \frac{60 \times (D_1 - D_2)}{2 \times f \times n}$$

At constant cutting speed

$$T_1 = \frac{60 \times \pi \times (D_1 + D_2) \times (D_1 - D_2)}{4,000 \times f \times V_c}$$

T : Cutting time [sec]
 T₁ : Cutting time before reaching
 Max. spindle revolution [sec]
 L : Cutting length [mm]
 f : Feed rate [mm/rev]
 n : Spindle revolution [min⁻¹]
 D₁ : Max. dia. of workpiece [mm]
 D₂ : Min. dia. of workpiece [mm]
 V_c : Cutting speed [m/min]



Cutting time (Cut-off)

At constant revolution

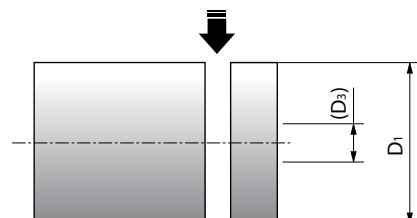
$$T = \frac{60 \times D_1}{2 \times f \times n}$$

At constant cutting speed

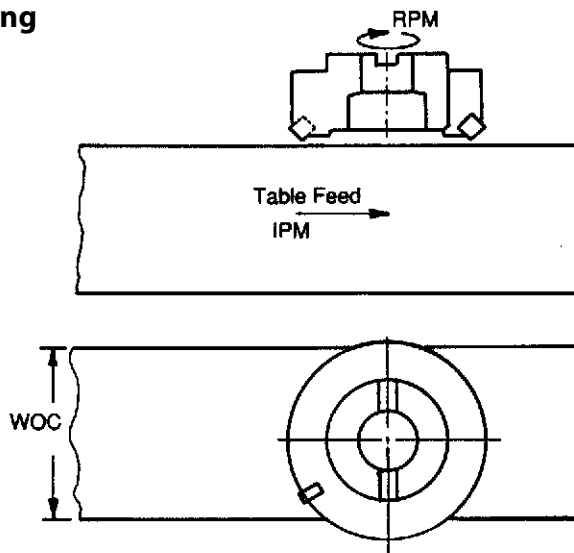
$$T_1 = \frac{60 \times \pi \times (D_1 + D_3) \times (D_1 - D_3)}{4,000 \times f \times V_c}$$

$$T_3 = T_1 + \frac{60 \times D_3}{2 \times f \times n_{\max}}$$

T : Cutting time [sec]
 T₁ : Cutting time before reaching
 Max. spindle revolution [sec]
 T₃ : Cutting time when reaching
 Max. spindle revolution [sec]
 f : Feed rate [mm/rev]
 n : Spindle revolution [min⁻¹]
 n_{max} : Max. spindle revolution [min⁻¹]
 D₁ : Max. dia. of workpiece [mm]
 D₃ : Diameter when reaching max. spindle revolution [mm]
 V_c : Cutting speed [m/min]



Milling



Surface Speed per Minute

$$\text{SFM} = 0.262 \times \text{DIA} \times \text{RPM}$$

Revolutions per Minute

$$\text{RPM} = \frac{3.820 \times \text{SFM}}{\text{DIA}}$$

Feedrate (inches/minute)

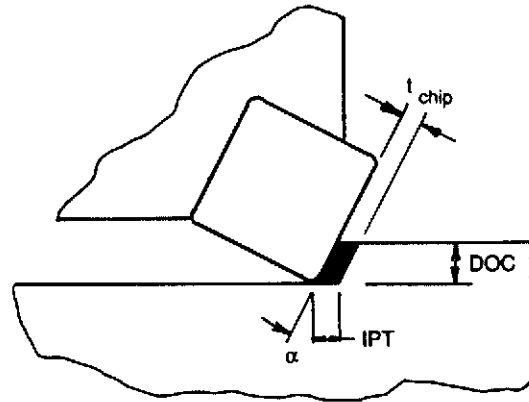
$$\text{IPM} = \text{IPT} \times \text{N} \times \text{RPM}$$

Feedrate (inches/tooth)

$$\text{Programmed IPT} = \frac{t_{\text{chip Max}}}{\cos \text{IJ}}$$

Radial Chip Thinning for 90° Cutters

$$f_1 = \frac{1/2 \left(\frac{\text{Dia}}{\text{Ae}} \right)}{\sqrt{\left(\frac{\text{Dia}}{\text{Ae}} \right)^2 - 1}}$$



$$\text{Table Feed with } f_1 \text{ Compensation (inches/minute)} \\ = \text{IPT} \times \text{N} \times \text{RPM} \times f_1$$

Metal Removal Rate

$$Q = \text{WOC} \times \text{DOC} \times \text{IPM (in/min)}$$

Horsepower Required at the Spindle

$$\text{HPS} = Q \times \text{UHP}$$

Horsepower Required at the Motor

$$\text{HPM} = \text{HPS} / \text{EFF}$$

Time in Cut (Seconds)

$$T = \frac{15.7 \times \text{DIA} \times \text{LOC}}{\text{SFM} \times \text{IPR} \times \text{N}}$$

or

$$T = \frac{60 \times \text{LOC}}{\text{IPM}}$$

Definition of Terms

DIA = Diameter of the Workpiece (Inches)	WOC = Width of Cut (Inches)
D.O.C. = Axial Depth of Cut (Inches)	LOC = Length of Cut (Inches)
EFF = Machine Efficiency	N = Number of Effective Teeth in Cutter
f = Feedrate (See IPM, IPR, and IPT)	Q = Metal Removal Rate (Cubic Inches per Minute)
HPM = Horsepower Required at the Motor (HP)	RPM = Revolutions per Minute
HPS = Horsepower Required at the Spindle (HP)	SFM = Surface Speed (Feet per Minute)
IPM = Feedrate (Inches per Minute)	T = Time (in Seconds)
IPR = Feedrate (Inches per Revolution)	tchip Max = Maximum Recommended Chip Thickness (Inches)
IPT = Feedrate (Inches per Tooth)	UHP = Unit Horsepower Factor
f ₁ = Cutter Compensation Factor	IJ = Lead Angle

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Milling

Cutting Speed

$$V_c = \frac{\pi \times DC \times n}{1,000}$$

V_c : Cutting speed [m/min]

DC : Cutter dia. [mm]

n : Spindle revolution [min^{-1}]

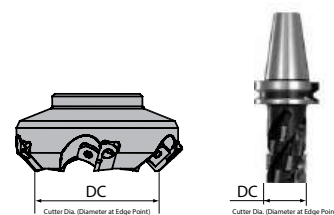


Table Feed and Feed Per Tooth

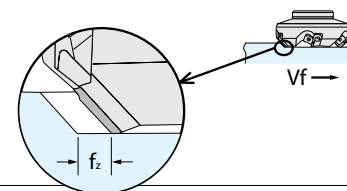
$$f_z = \frac{V_f}{Z \times n}$$

f_z : Feed per tooth [mm/t]

V_f : Table feed [mm/min]

Z : No. of inserts

n : Spindle revolution [min^{-1}]



Power Requirement

$$P_c = \frac{K_s \times Q}{6,120 \times \eta} = \frac{K_s \times a_e \times V_f \times a_p}{6,120,000 \times \eta}$$

$$= \frac{K_s \times a_e \times f_z \times Z \times n \times a_p}{6,120,000 \times \eta}$$

$$P_{HP} = \frac{6,120}{4,500} \times P_c$$

P_c : Power requirement [kW]

P_{HP} : Power requirement (Horse power) [HP]

a_e : Width of cut [mm]

V_f : Table feed [mm/min]

f_z : Feed per tooth [mm/t]

Z : No. of inserts

n : Spindle revolution [min^{-1}]

a_p : Depth of cut [mm]

K_s : Specific cutting force [kgf/mm²]

η : Mechanical efficiency (0.7 ~ 0.8)

Q : Chip removal volume [$\text{cm}^3/\text{min}=\text{cc}/\text{min}$]

K_s [kgf/mm ²]	
Low carbon steel	190
Medium carbon steel	210
High carbon steel	240
Low alloy steel	190
High alloy steel	245
Cast iron	93
Malleable cast iron	120
Bronze, Brass	70

Chip Removal Volume

$$Q = \frac{a_e \times V_f \times a_p}{1,000} = \frac{a_e \times f_z \times Z \times n \times a_p}{1,000}$$

Q : Chip removal volume [$\text{cm}^3/\text{min}=\text{cc}/\text{min}$]

a_e : Width of cut [mm]

V_f : Table feed [mm/min]

f_z : Feed per tooth [mm/t]

Z : No. of inserts

n : Spindle revolution [min^{-1}]

a_p : Depth of cut [mm]

Cutting Time

$$T = \frac{60 \times L'}{V_f} = \frac{60 \times L'}{f_z \times Z \times n}$$

T : Cutting time [sec]

L' : Total table transfer length [mm]

($= L + DC + 2a$)

L : Workpiece length [mm]

DC : Cutter dia. [mm]

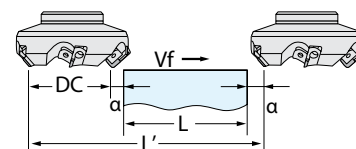
a : Idling distance [mm]

V_f : Table feed [mm/min]

f_z : Feed per tooth [mm/t]

Z : No. of inserts

n : Spindle revolution [min^{-1}]



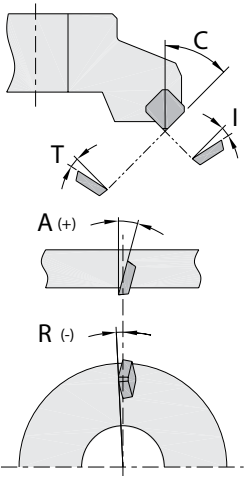
True Rake Angle

$\tan T = \tan R \times \cos C + \tan A \times \sin C$

Inclination Angle

$\tan I = \tan A \times \cos C - \tan R \times \sin C$

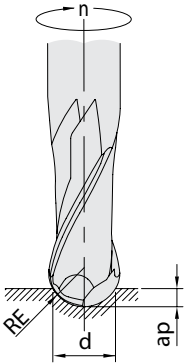
- A (GAMP) : Axial rake angle (A.R.) [°] (-90° < A < 90°)
- R (GAMF) : Radial rake angle (R.R.) [°] (-90° < R < 90°)
- C (KAPR) : Approach angle [°] (0° < C < 90°)
- T (GAMN) : True rake angle [°] (-90° < T < 90°)
- I (GAMO) : Inclination angle [°] (-90° < I < 90°)



Ball-Nose End Mill Cutting Speed and Revolution

$$n = \frac{1,000 \times V_a}{2 \times \pi \times \sqrt{ap(2RE-ap)}}$$

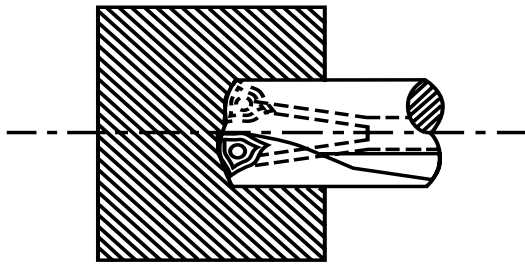
- n : Revolution [min⁻¹]
- RE : Radius of ball-nose end mill (Ball part's radius) [mm]
- ap : Depth of cut [mm]
- V_a : Cutting speed at actual dia. d [m/min]



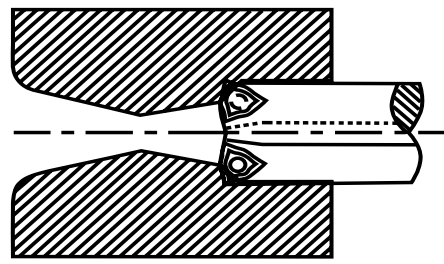
INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Drilling

DRILLING



CORE DRILLING



Surface Speed Per Minute

$$\text{SFM} = 0.262 \times \text{DIA} \times \text{RPM}$$

Revolutions Per Minute

$$\text{RPM} = \frac{3.82 \times \text{SFM}}{\text{DIA}}$$

Feedrate (inches/minute)

$$\text{IPM} = \text{IPR} \times \text{RPM}$$

Feedrate (inches/revolution)

$$\text{IPR} = \text{IPT} \times \text{N}$$

Metal Removal Rate (in³ per minute)

$$\text{Drill: } Q = 3 \times \text{DIA} \times \text{IPR} \times \text{SFM}$$

$$\text{Coredrill: } Q = 12 \times \text{DOC} \times \text{IPR} \times \text{SFM}$$

Horsepower Required at the Spindle

$$\text{HPS} = Q \times \text{UHP}$$

Horsepower Required at the Motor

$$\text{HPM} = \frac{\text{HPS}}{\text{EFF}}$$

Time in Cut

$$T = \frac{15.7 \times \text{DIA} \times \text{LOC}}{\text{SFM} \times \text{IPR}}$$

or

$$T = \frac{60 \times \text{LOC}}{\text{IPM}}$$

Definition of Terms

DIA = Diameter of the Drill (Inches)

DOC = Depth of Cut (Inches)

EFF = Machine Efficiency

HPM = Horsepower at Motor

HPS = Horsepower at Spindle

IPM = Feedrate (Inches Per Minute)

IPR = Feedrate (Inches Per Revolution)

IPT = Chipload (Inches Per Tooth)

LOC = Length of Cut (Inches)

N = Number of Effective Flutes

N = 1 For Drills

N = 2 For Coredrills

Q = Metal Removal Rate (Cubic Inches Per Minute)

RPM = Revolutions Per Minute

SFM = Surface Speed (Feet Per Minute)

T = Time (Seconds)

UHP = Unit Horsepower (See Table Below)

UNIT HORSEPOWER FACTORS

Material	Hardness (BHN)	UHP Factor (HP/in3/min)	Material	Hardness (BHN)	UHP Factor (HP/in3/min)
Aluminum	---	0.25	1050	225	0.80
Brass	---	0.25	4140	275	0.70
Copper	---	0.30	52100	225	0.67
Gray Cast Iron	200	0.33	6150	375	1.30
Nodular Iron	225	0.54	Cast Steel	225	0.62
Inconel 700	330	1.10	Stainless Steel	225	0.73
1020	165	0.58			

Drilling (Magic Drill Series)

Cutting Speed

$$V_c = \frac{\pi \times DC \times n}{1,000}$$

- V_c : Cutting speed [m/min]
 DC : Drill dia. [mm]
 n : Spindle revolution [min^{-1}]

Feed Rate (Milling)

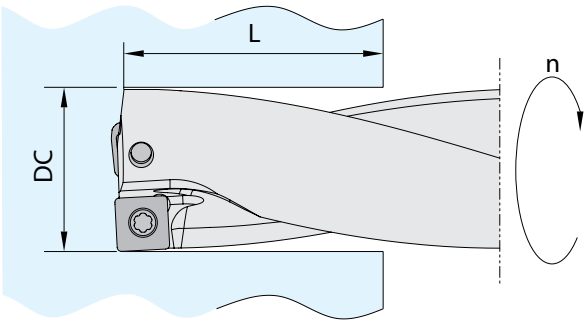
$$V_f = f_z \times Z \times n$$

- V_f : Table feed [mm/min]
 f_z : Feed per tooth [mm/t]
 Z : No. of inserts (No. of insert = 1)
 n : Spindle revolution [min^{-1}]

Cutting Time

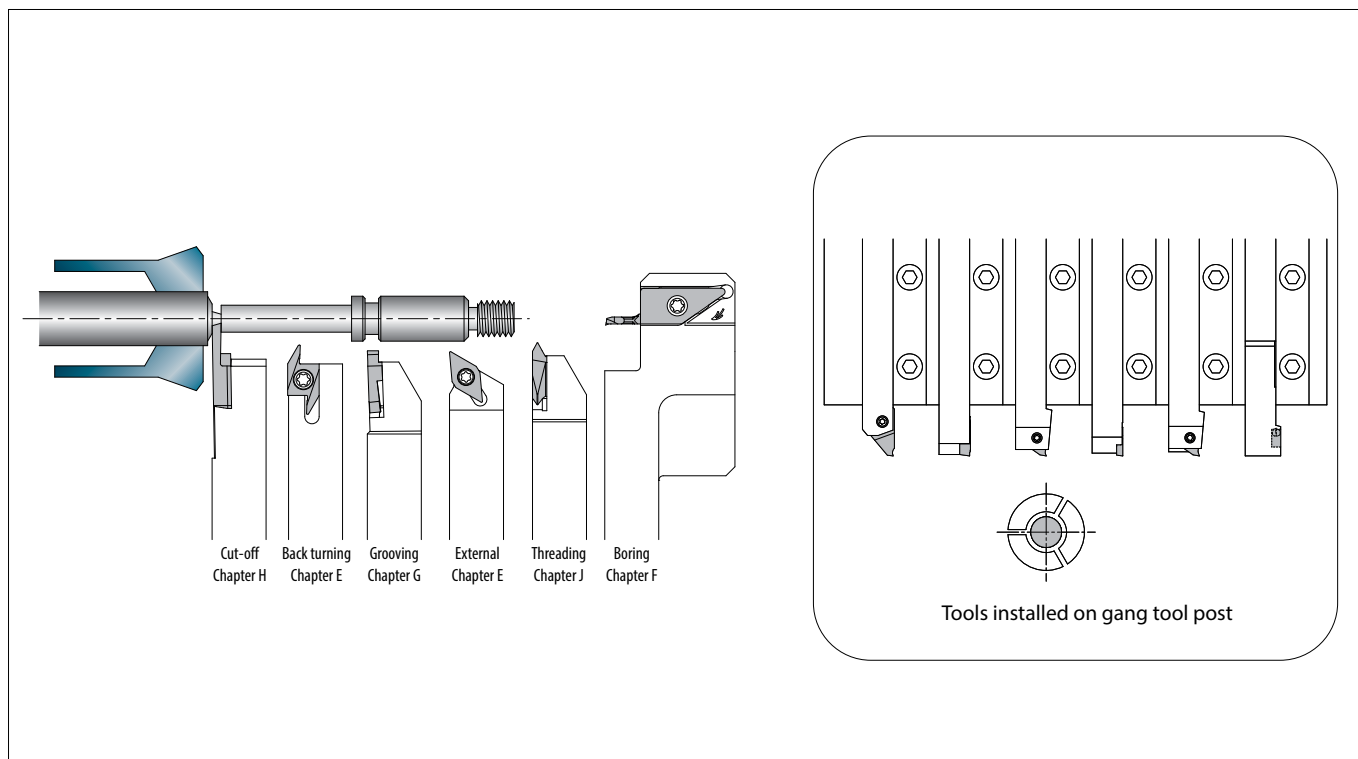
$$T = \frac{60 \times L}{f \times n} = \frac{60 \times \pi \times DC \times L}{1,000 \times V_c \times f}$$

- T : Cutting time [sec]
 L : Drilling depth [mm]
 f : Feed rate [mm/rev]
 n : Spindle revolution [min^{-1}]
 DC : Drill dia. [mm]
 V_c : Cutting speed [m/min]

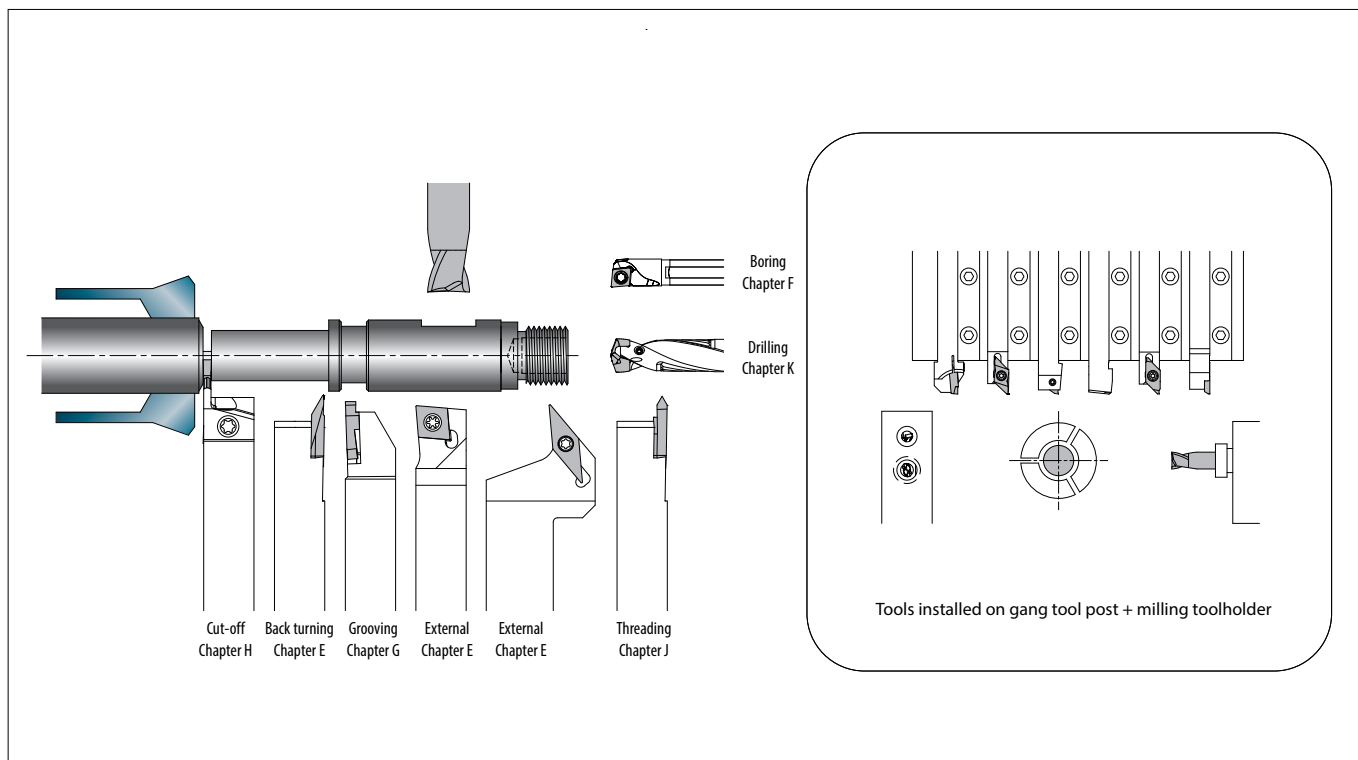


INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

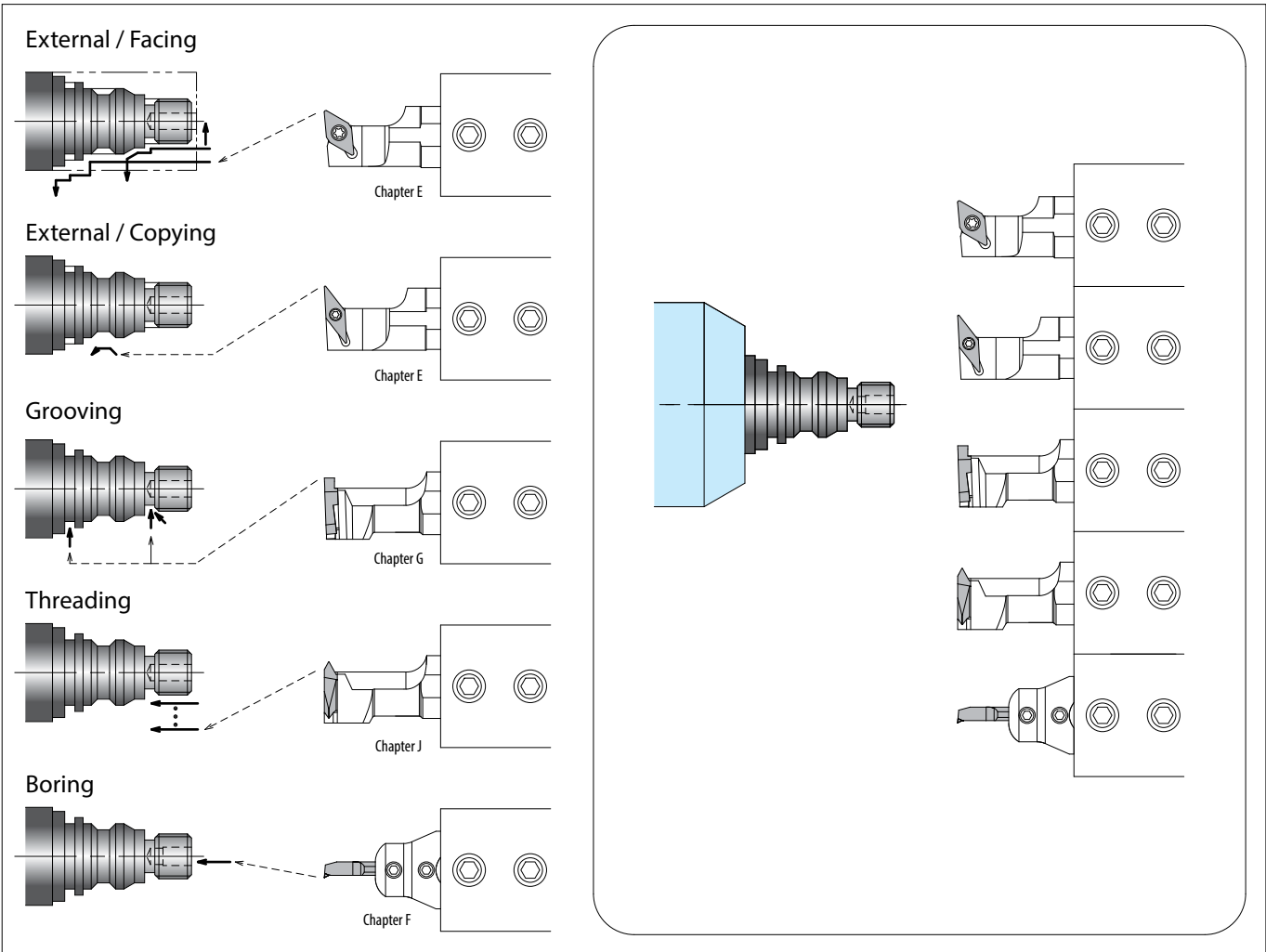
Tooling Example 1: CNC Swiss Style Lathe (Gang Type)



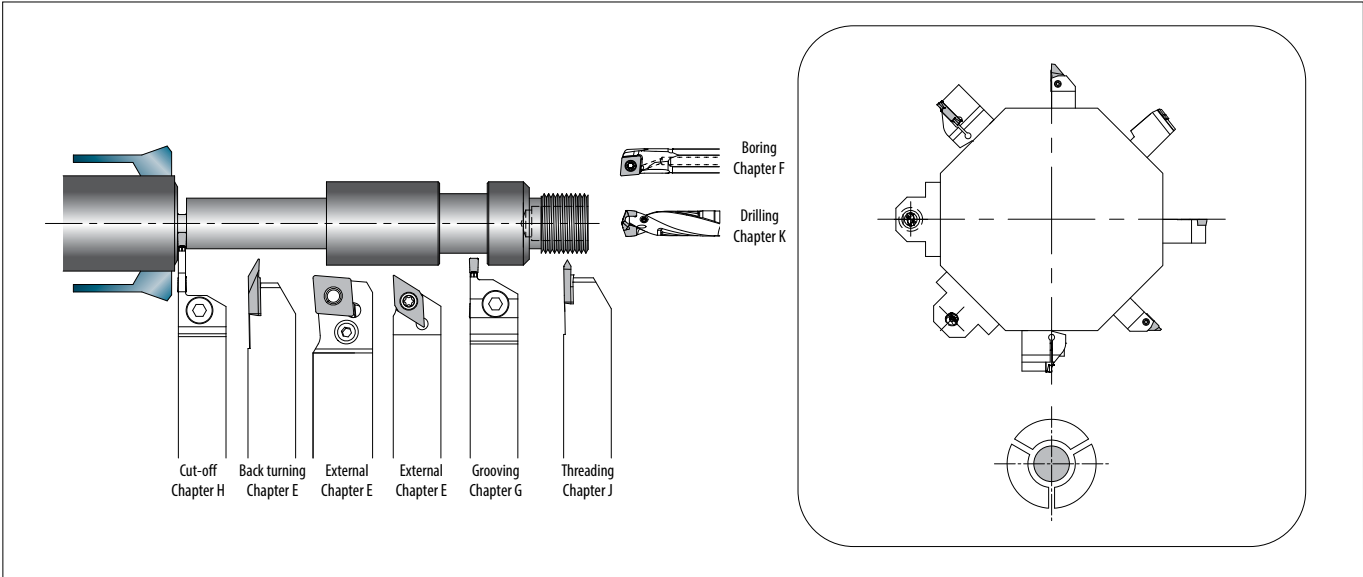
Tooling Example 2: CNC Swiss Style Lathe (Gang Type)



Tooling Example 3: CNC Swiss Style Lathe (Opposed Gang Type)



Tooling Example 4: CNC Swiss Style Lathe (Turret type)



For Tooling Layout and Swiss Style Lathe List by Manufacturer, See Page R46~R54

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Citizen Machinery (Cincom Products)

(Dimensions: mm)

Model	Toolholder Dimensions (Gang Tool Post)	Number of Tools	Toolholder Dimensions (Turret Tool Post)	Number of Tools	Sleeve Dia. (Horizontal/Opposed)	Max. Cutting Dia.	Notes
A12/16	10 x 10 x 100	5			ø19.05/ø20	ø12/ø16	
A20	12(13) x 12(13) x 120 * Cut-off toolholder: □16mm	6			ø25.4	ø20	
A20 VII	12(13) x 12(13) x 120 * Cut-off toolholder: □16mm	6			ø25.4	ø20	
A32	16 x 16 x 150	6			ø25.4	ø32	
B12	10 x 10 x 100	5			ø19.05/ø20	ø12	
B12E/B16E	10 x 10 x 120(60)	5			ø19.05(ø20 ^{OP})	ø12/ø16	
B20	12(13) x 12(13) x 120	6			ø19.05/ø20	ø20	
BL12	10 x 10 x 60 ~ 120	5			ø20(ø19.05)	ø12	
BL20/25	12(13) x 12(13) x 120	4 ~ 7			ø20(ø19.05)	ø20/ø25	
C12/16	10 x 10 x 120	6			ø19.05	ø12/ø16	
C32	16 x 16 x 130	5			ø25.4	ø32	
D25	16 x 16 x 150 * Cut-off toolholder: □19mm				ø25.4	ø25	
F10			10 x 10 x 60	10	ø19.05	ø10	
F12			10 x 10 x 60	10	ø19.05	ø12	
F16			10 x 10 x 60	10	ø19.05	ø16	
F20			16(19) x 16(13) x 90	10	ø25.4	ø20	
F25			16(19) x 16(13) x 90	10	ø25.4	ø25	
FL25			16 x 16 x 90	12		ø25	
FL42			16 x 16 x 90	12		ø42	
G32			16(19) x 16(19) x 90	10	-	ø32	
K12/16	12(10) x 12(10) x 100	6(7)			ø19.05/ø20	ø12/ø16	
K12E/K16E	12 x 12 x 120	6			ø19.05/ø20	ø12/ø16	
L10	8 x 8 x 100 ~ 130	5			ø15.875	ø10	
L12	10 x 10 x 100	6			ø19.05	ø12	
L16	12(10) x 12(10) x 130	5			ø19.05	ø16	
L20,L20E	12 x 12 x 130 * Cut-off toolholder: □16mm	5			ø19.05	ø20	
L20X,L220	12(13,16) x 12(13,16) x 120 * Cut-off toolholder: □16mm	5 ~ 7			ø19.05	ø20	
L25	16 x 16 x 130	5			ø25.4	ø25	
L32	16 x 16 x 130	5			ø25.4	ø32	
M12	10 x 10 x 120	5	10 x 10 x 60	10 + α	ø19.05	ø12	
M16	10 x 10 x 120	5	10 x 10 x 60	10 + α	ø19.05	ø16	
M20	16 x 16 x 130	5	16 x 16 x 90	10 + α	ø25.4	ø20	
M32	16 x 16 x 130	5	16 x 16 x 90	10 + α	ø25.4	ø32	
MC20	13 x 13 x 120	2 + 2 + 2			ø19.05/ø20.0	ø20.0	
MSL12	10 x 10 x 120				-	ø12	
R04	8 x 8 x 120	5			ø15.875	ø4	
R07	8 x 8 x 120	5			ø15.875	ø7	
RL01	10(8) x 10(8) x 90				ø16(ø20)	ø10	
RL02	16 x 16 x 90				ø20	ø20	
RL21	10(12) x 10(12) x 90				ø19.05	ø35	

Manufacturers are in random order.

Swiss Style Lathe List by Manufacturer

Citizen Machinery (Miyano Products)

(Dimensions: mm)

Model	Toolholder Dimensions (Gang Tool Post)	Number of Tools	Toolholder Dimensions (Turret Tool Post)	Number of Tools	Sleeve Dia. (Horizontal/Opposed)	Max. Cutting Dia.	Notes	Notes
ABX-51SY2			20 x 20 x 125(100)	24	ø25	48	ø51	
ABX-51SYY2			20 x 20 x 125(100)	24	ø25	48	ø51	
ABX-51TH5			20 x 20 x 125(100)	36	ø25	72	ø51	
ABX-51THY2			20 x 20 x 125(100)	36	ø25	72	ø51	
ABX-64SY2			20 x 20 x 125(100)	24	ø25	48	ø64	
ABX-64SYY2			20 x 20 x 125(100)	24	ø25	48	ø64	
ABX-64TH5			20 x 20 x 125(100)	36	ø25	72	ø64	
ABX-64THY2			20 x 20 x 125(100)	36	ø25	72	ø64	
BNA-34C			20 x 20 x 125(100)	8(16)	ø25	24	ø34	
BNA-34DHY			20 x 20 x 125(100)	14(22)	ø25	27	ø34	
BNA-34S			20 x 20 x 125(100)	8(16)	ø25	24	ø34	
BNA-42C/C2			20 x 20 x 125(100)	8(16)	ø25	24	ø42	
BNA-42DHY			20 x 20 x 125(100)	14(22)	ø25	27	ø42	
BNA-42DHY2			20 x 20 x 125(100)	14(22)	ø25	27	ø42	
BNA-42DHY3			20 x 20 x 125(100)	14(22)	ø25	27	ø42	
BNA-42GTY	20 x 20 x 125(100)	3	20 x 20 x 125(100)	8(16)	ø25	24(7)	ø42	
BNA-42MSY2			20 x 20 x 125(100)	8(16)	ø25	24	ø42	
BNA-42S/S2			20 x 20 x 125(100)	8(16)	ø25	24	ø42	
BNA-42C5/SY5			20 x 20 x 125(100)	12(24)	ø25	24	ø42	
BNC-42C7			20 x 20 x 125(100)	8(16)	ø25	24	ø42	
BND-51C2			20 x 20 x 125(100)	12	ø25	24	ø51	
BND-51S2			20 x 20 x 125(100)	12	ø25	24	ø51	
BND-51SY2			20 x 20 x 125(100)	12	ø25	24	ø51	
BNE-42S6			20 x 20 x 125(100)	24	ø25	48	ø42	
BNE-42SY6			20 x 20 x 125(100)	24	ø25	48	ø42	
BNE-51S6			20 x 20 x 125(100)	24	ø25	48	ø51	
BNE-51SY6			20 x 20 x 125(100)	24	ø25	48	ø51	
BNE-51MSY			20 x 20 x 125(100)	24	ø25	48	ø51	
BNE-51MY			20 x 20 x 125(100)	24	ø25	48	ø51	
BNE-65MY			20 x 20 x 125(100)	24	ø25	48	ø65	
BNJ-34S3/S5			20 x 20 x 125(100)	18	ø25	30	ø34	
BNJ-34SY3/SY5			20 x 20 x 125(100)	18	ø25	30	ø34	
BNJ-42S3/S5			20 x 20 x 125(100)	18	ø25	30	ø42	
BNJ-42S6			20 x 20 x 125(100)	20	ø25	40	ø42	
BNJ-42SY3/SY5			20 x 20 x 125(100)	18	ø25	30	ø42	
BNJ-42SY5			20 x 20 x 125(100)	18	ø25	30	ø42	
BNJ-42SY6			20 x 20 x 125(100)	20	ø25	40	ø42	
BNJ-51S3/S5			20 x 20 x 125(100)	18	ø25	30	ø51	
BNJ-51SY3/SY5			20 x 20 x 125(100)	18	ø25	30	ø51	
BNJ-51SY6			20 x 20 x 125(100)	20	ø25	40	ø51	
GN-3200	12(16) x 12(16) x 70 ~ 120	4 ~ 5			ø20		ø40	
GN-3200W	12(16) x 12(16) x 70 ~ 120	4 ~ 5			ø20		ø40	"Number of tools" is per turret.
GN-4200	12(16) x 12(16) x 70 ~ 120	6 ~ 7			ø20		ø40	
LX-06E2			20 x 20 x 125(100)	8	ø32	8		6 inch power chuck
LX-06E3			20 x 20 x 125(100)	8	ø32	8		6 inch power chuck
LX-08C			25 x 25 x 150	10	ø40	10		8 inch power chuck
LX-08E2			25 x 25 x 150	8	ø40	8		8 inch power chuck
LX-08E3			25 x 25 x 150	8	ø40	8		8 inch power chuck
LX-08R			20 x 20 x 125(100)	10	ø25	20		8 inch power chuck
LZ-01R2			20 x 20 x 125(100)	12	ø25	24		6 inch power chuck
LZ-01RY2			20 x 20 x 125(100)	12	ø25	24		6 inch power chuck
LZ-02R2			20 x 20 x 125(100)	10	ø25	20		8 inch power chuck
LZ-02RY2			20 x 20 x 125(100)	10	ø25	20		8 inch power chuck
RL01III	10 x 10 x 70 ~ 120	2 ~ 3			ø16		ø10	
RL01V	10 x 10 x 70 ~ 120	2 ~ 3			ø16		ø10	
RL03	12(16) x 12(16) x 70 ~ 120	4 ~ 5			ø20		ø40	
VC03	12(16) x 12(16) x 70 ~ 120	4 ~ 5			ø20		ø40	

* Number of tools shown in parentheses is the maximum number of toolholder mountable including ø25mm sleeves.

Manufacturers are in random order.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Star Micronics

(Dimensions: mm)

Model	Toolholder Dimensions (Gang Tool Post)	Number of Tools	Toolholder Dimensions (Turret Tool Post)	Number of Tools	Sleeve Dia. (Front/Rear)	Number of Tools	Max. Cutting Dia.	Notes
SB-16	12 x 12 x 95 ~ 130	5			ø22/ø22	4/4	ø16	Only D/E for rear-end sleeves
(A/C/D/E)	12(10) x 12(10) x 95 ~ 130	6			ø22/ø22	4/4	ø16	
SB-12II (C/E)	12 x 12 x 95 ~ 130	6			ø22/ø22	4/4	ø13	Only E for rear-end sleeves
SB-16II (C/E)	12(10) x 12(10) x 95 ~ 130	6			ø22/ø22	4/4	ø16	
SB-20 A/C/E	12 x 12 x 95 ~ 130	6			ø22/ø22	4/4	ø20	
SB-12R typeG	12 x 12 x 95 ~ 130	6			ø22/ø22	4/4		
	10 x 10 x 95 ~ 130	7			ø22/ø22	4/4	ø13	
SB-16III	12 x 12 x 95 ~ 130	5			ø22/ø22	4/4		
	10 x 10 x 95 ~ 130	6			ø22/ø22	4/4	ø16	
SB-16R/20R typeN	12 x 12 x 95 ~ 130	6			ø22/ø22	4/4		
	10 x 10 x 95 ~ 130	7			ø22/ø22	4/4	ø16/ø23	
SB-16R/20R typeG	12 x 12 x 95 ~ 130	6			ø22/ø22	4/4		
	10 x 10 x 95 ~ 130	7			ø22/ø22	4/4	ø16/ø23	
SB-16R/20R typeGB	12 x 12 x 95 ~ 130	6			ø22/ø22	4/4		
	10 x 10 x 95 ~ 130	7			ø22/ø22	4/4	ø16/ø23	
SC20	12 x 12 x 95 ~ 130	5			ø22/-	4/-		
	10 x 10 x 95 ~ 130	6			ø22/-	4/-	ø20	
SG-42			16 x 16 x 84 ~ 88(71 ~ 82) 20 x 20 x 84 ~ 88		ø22+ø32/-		ø42	
SL-7/10	10 x 10 x 95 ~ 115	6						
	8 x 8 x 68 ~ 115	6			ø16+ø22/ø16+ø22	4~6/6	ø10	
SR-10J	8 x 8 x 67 ~ 110 (Spacer is needed)	6			ø16/ø16+ø22	4/4	ø10	
SR-20RII	12 x 12 x 100 ~ 135	6			ø22/ø22	4/4	ø23	
SR-20RIII	12 x 12 x 95 ~ 135	6			ø22/ø22	6/4	ø23	
SR-20J typeC	12 x 12 x 95 ~ 135	6			ø22/ø22	6/4	ø23	
SR-20J typeN	12 x 12 x 95 ~ 135	6			ø22/ø22	6/4	ø23	
SR-20JII typeA	12 x 12 x 100 ~ 135	6			ø22/ø22	7/4	ø23	
SR-20JII typeB	12 x 12 x 100 ~ 135	6			ø22/ø22	7/8	ø23	
SR-20IV typeA	12 x 12 x 100 ~ 130	7			ø22/ø22	6/8	ø23	
SR-20IV typeB	12 x 12 x 100 ~ 130	7			ø22/ø22	6/8	ø23	
SR-25J/32J	16 x 16 x 95 ~ 155	6			ø22+ø32/ø22	4/4	ø32	
SR-32JII typeA	16 x 16 x 95 ~ 165	6			ø22+ø32/ø22	5/6	ø34	
SR-32JII typeB	16 x 16 x 95 ~ 165	6			ø22+ø32/ø22	5/8	ø34	
SB-32JIII typeA	16 x 16 x 95 ~ 165	6			ø22+ø32/ø22	5/6	ø34	
SB-32JIII typeB	16 x 16 x 95 ~ 165	6			ø22+ø32/ø22	5/8	ø34	
SR-38 typeA	16 x 16 x 95 ~ 135	4						
	16 x 16 x 100	2			ø22+ø32/ø22	5/8	ø38	
	20 x 20 x 105 ~ 135 (Cut-off)	1						
SR-38 typeB	16 x 16 x 95 ~ 135	4						
	16 x 16 x 100	2			ø22+ø32/ø22	5/8	ø38	
	20 x 20 x 105 ~ 135 (Cut-off)	1						
SR-38J	16 x 16 x 95 ~ 135	4						
	16 x 16 x 95 ~ 135 (Optional)	3			ø22+ø32/ø22	5/4	ø38	
	20 x 20 x 105 ~ 135 (Cut-off)	1						
ST-20			12 x 12 x 73 ~ 79 12 x 12 x 65 ~ 73 (Cut-off) 16 x 16 x 64 ~ 73 16 x 16 x 65 ~ 73 (Cut-off)		ø22+ø32/ø22+ø32		ø20	
ST-38			16 x 16 x 83 ~ 88 16 x 16 x 71 ~ 82 16 x 16 x 84 ~ 88 (Cut-off) 20 x 20 x 84 ~ 88 20 x 20 x 84 ~ 88 (Cut-off)		ø22+ø32/ø22+ø32		ø38	
SV-12/20	12 x 12 x 95 ~ 135	5	12 x 12 x 70 ~ 78		ø22+ø32/-		ø12/ø20	
	16 x 16 x 95 ~ 135	4	16 x 16 x 65 ~ 70					
SV-20R	12 x 12 x 95 ~ 135	7	12 x 12 x 70 ~ 78		ø22+ø32/ø22	- / 8	ø23	
	16 x 16 x 95 ~ 135	6	16 x 16 x 65 ~ 70					
SV-32	16 x 16 x 95 ~ 135	4	16 x 16 x 60 ~ 78(80 ~ 88)		ø22+ø32/-		ø32	
	16 x 16 x 105 ~ 135	4	16 x 16 x 84 ~ 88					
SV-38R	20 x 20 x 115 ~ 135 (Cut-off)	1	16 x 16 x 71 ~ 82 20 x 20 x 84 ~ 88		ø22+ø32/ø34	- / 8	ø38	
SW-12RII	10x 10 x 95 ~ 115	7			ø16/ø22	4/8	ø13	
SW-20	12 x 12 x 80 ~ 150							
	16 x 16 x 80 ~ 144	6			ø22/ø22	4/8	ø23	
SX-38 typeA	16 x 16 x 95 ~ 135	4	16 x 16 x 84 ~ 88					
	20 x 20 x 105 ~ 135 (Cut-off)	1	16 x 16 x 71 ~ 82 20 x 20 x 84 ~ 88		ø22+ø32/ø34	- / 8	ø38	
SX-38 typeB	16 x 16 x 95 ~ 135	4	16 x 16 x 84 ~ 88					
	20 x 20 x 105 ~ 135 (Cut-off)	1	16 x 16 x 71 ~ 82 20 x 20 x 84 ~ 88		ø22+ø32/ø34	- / 8	ø38	

Manufacturers are in random order.

Eguro

(Dimensions: mm)

Model	Toolholder Dimensions (Gang Tool Post)	Number of Tools	Toolholder Dimensions (Turret Tool Post)	Number of Tools	Sleeve Dia. (Horizontal/Opposed)	Number of Tools	Max. Cutting Dia.	Notes
NUCBOY-8EX	12 x 12	6			ø20 or ø25 or ø30	5	ø20	
NUCLET-10EX/EL	16 x 16	6			ø20 or ø25 or ø30	5	ø25.5	
NUCPAL-10EX/EL	16 x 16	10			ø20 or ø25 or ø30	8	ø25.5	
NUCLET-10vv	16 x 16	6			ø20 or ø25 or ø30	5	ø25.5	
NUCBOY-8LL	12 x 12	2			ø20 or ø25 or ø30	2	ø20	
NUCLET-10LL	16 x 16	2			ø20 or ø25 or ø30	2	ø25.5	
NUCROBO-8EX	12 x 12	6			ø20 or ø25 or ø30	5	ø20	
NUCROBO-101	16 x 16	6			ø20 or ø25 or ø30	5	ø25.5	
NUCROBO-202	16 x 16	10			ø20 or ø25 or ø30	8	ø25.5	
SANAX-6	12 x 12	10			ø12 or ø16/ø30	3~6/2	ø15	
SANAX-10	16 x 16	10			ø20 or ø30/ø30	5~8/3	ø25.5	
SANATURN-6	12 x 12	5			ø16/ø30	3~5/2	ø15	
SANATURN-10	16 x 16	6			ø20/ø30	7/3	ø25.5	
EBN-10EX	12 x 12	5			ø20 or ø25 or ø30	4	ø25.5	
GL-120	12 x 12	4			-		ø20	
EB-6	8 x 8	2			-		ø15	
EB-8	10 x 10	2			-		ø20	
EB-10	10 x 10	2			-		ø25.5	

Manufacturers are in random order.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Tsugami

(Dimensions: mm)

Model	Toolholder Dimensions (Gang Tool Post)	Number of Tools	Toolholder Dimensions (Turret Tool Post)	Number of Tools	Sleeve Dia. (Horizontal/Opposed)	Number of Tools	Max. Cutting Dia.	Notes
B073-III	8 x 8 x 85	9	-	-	ø20/-	4/-	ø7	
B074/075-III	8 x 8 x 85	9	-	-	ø20/ø20	4/4(8)	ø7	
B0123-III	12 x 12 x 85	9	-	-	ø20/-	4/-	ø12	
B0124/125/126-III	12 x 12 x 85	9	-	-	ø20/ø20	4/4(8)	ø12	
B0128W	12 x 12 x 85	9	-	-	ø20/ø20	4/8	ø12	
B0203-III	12 x 12 x 85	9	-	-	ø20/-	4/-	ø20	
B0204/205/206-III	12 x 12 x 85	9	-	-	ø20/ø20	4/4(8)	ø20	
B0208W	12 x 12 x 85	9	-	-	ø20/ø20	4/8	ø20	
BM163-III	12 x 12 x 85	9	-	-	ø20/-	4/-	ø16	
BM164/165-III	12 x 12 x 85	9	-	-	ø20/ø20	4/4(8)	ø16	
BW127J-I / II	12 x 12 x 85	7	-	-	ø20/ø20	3/9	ø20	
BW128J-I / II	12 x 12 x 85	7	-	-	ø20/ø20	3/9	ø20	
BW128ZJ-I / II	12 x 12 x 85	7	-	-	ø20/ø20	3/9	ø20	
BW129ZJ-I / II	12 x 12 x 85	7	-	-	ø20/ø20	3/9	ø20	
BW207J-I / II	12 x 12 x 85/16 x 16 x 85	5/2	-	-	ø20/ø20	3/9	ø20	
BW208J-I / II	12 x 12 x 85/16 x 16 x 85	5/2	-	-	ø20/ø20	3/9	ø20	
BW208ZJ-I / II	12 x 12 x 85/16 x 16 x 85	5/2	-	-	ø20/ø20	3/9	ø20	
BW209ZJ-I / II	12 x 12 x 85/16 x 16 x 85	5/2	-	-	ø20/ø20	3/9	ø20	
B0265/265B/266-II	16 x 16 x 100	12	-	-	ø25/ø25	5/4	ø26	
B0325/325B/326-II	16 x 16 x 100	12	-	-	ø25/ø25	5/4	ø32	
B0385/385L	20 x 20 x 125	8	-	-	ø32/ø32	3/5	ø38	
B0265/266-III B0266/326-III	16 x 16 x 100	12	-	-	ø25/ø25	5/4	ø26/ø32	
B0265/325V-III B0266/326V-III	16 x 16 x 100	6	-	-	ø25/ø25	5/4	ø26/ø32	
B0385/6 (L)-III	16 x 16 x 100/20 x 20 x 125	11/1	-	-	ø32,ø25/ø32	3-2/5	ø38	
B0385/6 (L)V-III	16 x 16 x 100/20 x 20 x 125	5/1	-	-	ø32,ø25/ø32	3-2/5	ø38	
B038T	-	-	20 x 20 x 125	St.8	ø32/ø25		ø38	
BH20/BH20Z	12 x 12 x 85	4	12 x 12 x 85	St.12	ø25/ø32		ø20	
BH38	16 x 16 x 125	5	20 x 20 x 125	St.12	ø25/ø32		ø38.1	
C150/CH154	12 x 12 x 60 ~ 100	4 ~ 6	-	-	-		ø80	
C180	12 x 12 x 60 ~ 100	4 ~ 6	-	-	-		ø120	
C220/220T	12 x 12 x 60 ~ 100	6 ~ 8	-	-	-		ø120	
C300-IV	16 x 16 x 100 ~ 130	6 ~ 10	-	-	-		ø165	
C300H	16 x 16 x 100 ~ 130	6 ~ 10	-	-	-		ø165	
P013	8 x 8 x 100 ~ 120	6	-	-	ø16/-	3/-	ø1	
P014	8 x 8 x 100 ~ 120	6	-	-	ø16/ø16	3/3	ø1	
P033	8 x 8 x 100 ~ 120	6	-	-	ø16/-	3/-	ø3	
P034	8 x 8 x 100 ~ 120	6	-	-	ø16/ø16	3/3	ø3	
S205/206	12 x 12 x 100	8	-	-	ø22/ø20	5/4	ø20	
S205/206-II	12 x 12 x 100	9	-	-	ø25/ø25	7/4(8)	ø20	
SS207/SS207-5AX	12 x 12 x 100	8	-	-	ø22/ø20	4/4	ø20	
SS26	16 x 16 x 100	7	-	-	ø22/ø20	5/3	ø26	
SS32/32L	16 x 16 x 100	7	-	-	ø22/ø20	5/3	ø32	
SS267/SS267-5AX	16 x 16 x 100	8	-	-	ø25/ø25	4/4	ø26	
SS327/SS327-5AX	16 x 16 x 100	8	-	-	ø25/ø25	4/4	ø32	
BW269ZJ	16 x 16 x 100	7	-	-	ø25/ø25	5/(8)	ø26	
BW329ZJ	16 x 16 x 100	7	-	-	ø25/ø25	5/(8)	ø32	
MB25	-	-	20 x 20 x 90	2 x St.8	ø20/ø32	5/4	ø25	
M06JC-II	-	-	20 x 20 x 125	St.8	ø25		ø220/ø42	
M06J-II	-	-	25 x 25 x 150	St.8	ø32/ø40		ø260/ø51	
M08J-II	-	-	25 x 25 x 150	St.8	ø32/ø40		ø280/ø65	
M08JL5-II	-	-	25 x 25 x 150	St.8	ø32/ø40		ø280/ø65	
M08JL8-II	-	-	25 x 25 x 150	St.8	ø32/ø40		ø280/ø65	
M06D-II	-	-	25 x 25 x 150	St.12	ø40		ø260/ø51	
M08D-II	-	-	25 x 25 x 150	St.12	ø40		ø280/ø65	
M06DY-II	-	-	25 x 25 x 150	St.12	ø40		ø260/ø51	
M08DY-II	-	-	25 x 25 x 150	St.12	ø40		ø280/ø65	
M06SJ-II	-	-	25 x 25 x 150	St.12	ø40		ø260/ø51	
M08SJ-II	-	-	25 x 25 x 150	St.12	ø40		ø280/ø65	
M06SD-II	-	-	25 x 25 x 150	St.12	ø40		ø260/ø51	
M08SD-II	-	-	25 x 25 x 150	St.12	ø40		ø280/ø65	
M06SY-II	-	-	25 x 25 x 150	St.12	ø40		ø260/ø51	
M08SY-II	-	-	25 x 25 x 150	St.12	ø40		ø280/ø65	
TMU1	20 x 20 x 100 ~ 125	1	20 x 20 x 125	St.16	ø32/ø32		ø38	
TMB2	20 x 20 x 100 ~ 125	1	20 x 20 x 125	St.16	ø32/ø32		ø51	
TMA8F	20 x 20 x 100 ~ 125	1			ø32/ø32		ø65	
TMA8J	20 x 20 x 100 ~ 125	1			ø32/ø32		ø65	
TMA8H	20 x 20 x 100 ~ 125	1			ø32/ø32		ø65	

Manufacturers are in random order.

Swiss Style Lathe List by Manufacturer

Nomura DS

(Dimensions: mm)

Model	Toolholder Dimensions (Gang Tool Post)	Number of Tools	Toolholder Dimensions (Turret Tool Post)	Number of Tools	Sleeve Dia. (Horizontal/Opposed)	Number of Tools	Max. Cutting Dia.	Notes
NN-10C	10 x 10 x 130	6			ø17		ø10	
NN-10CS	10 x 10 x 130	5			ø17	4	ø10	
NN-10SII	10 x 10 x 130	5			ø23		ø10	
NN-10T	10 x 10 x 130	7			ø23		ø10	
NN-10SB5	10 x 10 x 130	5			ø23		ø13	
NN-10EX2	10 x 10 x 120	6			ø16	4	ø10	
NN-10EX2	10 x 10 x 80	7			ø16	4	ø10	
NN-16SB5	10 x 10 x 130	5			ø23		ø16	
NN-16SB6 Type1	12.7 x 12.7 x 130*	7			ø17(ø22)	4	ø16	
NN-16SB6 Type2	12.7 x 12.7 x 130*	5			ø17(ø22)	4	ø16	
NN-16SB6 Type2.5	12.7 x 12.7 x 130*	6			ø17(ø22)	5	ø16	
NN-16SB6 Type3	12.7 x 12.7 x 130*	5			ø17(ø22)	4	ø16	
NN-16SB7	12.7 x 12.7 x 130*	5			ø16	4	ø16	
NN-16SB7-M8	12.7 x 12.7 x 130*	5			ø16	4	ø16	
NN-20SB	12.7 x 12.7 x 130*	5			ø16	3	ø20	
					ø22	2	ø20	
NN-16HIII	12 x 12 x 130	6			ø23		ø16	
NN-20HIII	12 x 12 x 130	6			ø23		ø20	
NN-16UIII	12 x 12 x 130	5			ø23		ø16	
NN-20UIII	12 x 12 x 130	5			ø23		ø20	
NN-20CS	12.7 x 12.7 x 130	5(6)			ø22	4	ø20(ø25)	
NN-20U5	12.7 x 12.7 x 150	5(6)			ø22	4	ø20(ø25)	
NN-32U5	12.7 x 12.7 x 150	3(4)			ø32	1	ø32	
	16 x 16 x 130	2			ø22	3		
NN-16UB5	12 x 12 x 130	5			ø23		ø16	
NN-20UB5	12 x 12 x 130	5			ø23		ø20	
NN-20UB7	12 x 12 x 130	6			ø23		ø20	
NN-20UB8	12.7 x 12.7 x 150*	5(6)			ø22	4	ø20(ø25)	
NN-20UB10	12.7 x 12.7 x 150*	5(6)			ø22	4	ø20(ø25)	
NN-32UB8	12.7 x 12.7 x 150*	3(4)			ø32	1	ø32	
	16 x 16 x 130	2			ø22	3		
NN-32UB10W	12.7 x 12.7 x 150*	3(4)			ø32	1	ø32	
	16 x 16 x 130	2			ø22	3		
NN-20YB	12 x 12 x 130	6			ø23		ø20	
NN-25YB/32YB	16 x 16 x 130	5			ø23/ø32		ø25/ø32	
NN-32YB5	16 x 16 x 130	5			ø22/ø32	4	ø32	
NN-32YB5 XB	16 x 16 x 130	6			ø22/ø32	5/1	ø32	
NN-16J	12.7 x 12.7 x 130*	6			ø23		ø16	
NN-20J	12.7 x 12.7 x 130*	6			ø23		ø20	
NN-20J2	12.7 x 12.7 x 130*	6			ø22	4	ø20	
NN-20J5	12.7 x 12.7 x 130*	6			ø22	4	ø20	
NN-20J5 XB	12.7 x 12.7 x 130*	5			ø22	4	ø20	
NN-32J	16 x 16 x 130	6			ø25	2	ø32	
					ø32	3		
NN-32DB	16 x 16 x 130	8			ø22	4	ø32	
					ø32	1		
NN-38KM	16 x 16 x 130	5			ø25	3	ø38	
					ø32	2		

* 12 x 12 toolholder mountable

Manufacturers are in random order.

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

List of instruments and Applicable Small Tools and Toolholders

Models of major machine tool manufacturers				Applicable Toolholders
Manufacturer	Model (Automatic Lathe)	Toolholder Size	Total Length of Attached Toolholder (Max.)	
Citizen Machinery	A12,A16,B12,L12,RL01,RL21	10 x 10	100	...1010F-..
	K12,K16	12 x 12		...1212F-..
	RL02	16 x 16		...1616H-..
	B12E,B16E,BL12,C12,C16,M12,M16 MSL12	10 x 10	120	...1010JX-..
	A20,A20VII,B20,BL20,BL25,K12E,K16E L20X,L220,MC20	12 x 12		...1212JX-..
	L16,L20,L20E	12 x 12	130	...1212JX-..
	C32,L25,L32,M20,M32	16 x 16	150	...1616JX-..
	A32,D25			
Star Micronics	SW-12RII	10 x 10	120	...1010JX-..
	SB-16A,SB-16C,SB-16D,SB-12II,SB-16II SB-12R/16R/20R,SR-20IV,SB-20A/C/E,SC20	12 x 12	130	...1212JX-..
	SR-20RII,SR-20III,SV-12,SV-20,SR-20J	12 x 12	135	...1212JX-..
	SV-20R,SV-32,SV-38R,SR-38J, SX-38	16 x 16		...1616JX-..
	SR-25J,SR-32J,SW-20	16 x 16	150	...1616JX-..
Tsugami	B0,BH20,BM,BW2	12 x 12	85	...1212F-..
	C150,C180,C220,S205,S206,SS207	12 x 12	100	...1212F-..
	BH38,B0265,B0266,B0325,B0326 SS26,SS32/32L,SS267,SS327	16 x 16		...1616H-..
Nomura DS	NN-10C,NN-10CS,NN-10EX2,NN-10SII NN-10SB5,NN-10T,NN-16SB5	10 x 10	130	...1010JX-..
	NN-16HIII,NN-16UB5,NN-16UIII NN-20HIII,NN-20UIII,NN-20UB5,NN-20YB	12 x 12		...1212JX-..
	NN-25YB,NN-32YB5,NN-32J,NN-38KM	16 x 16		...1616JX-..

Manufacturers are in random order.

T

Listed in Alphanumeric Order

Part Numbers in Alphanumeric Order

○ : Number □ : Letter

Part Number	Page	Description
Numeric		
○-○○/○○- (○○K-)SET	M313	Cartridge Set (API Ring Groover)
○/○(○)- SHCS-CB	K11	Toolholder (Drilling) Counterbore
02-03	K107	Spare Parts (Cartridge) Coremaster
06IR ○○○○(○)	J17, J19	Insert (Threading)
08IR ○○○○(○)	J17, J19	Insert (Threading)
11IR ○○○○○	J19	Insert (Threading)
11IR A○○	J17, J19	Insert (Threading)
11IR ○○BSPT	J13	Insert (Threading)
11IR ○○BSPT-TF	J13	Insert (Threading) / TF Series
11IR ○○BSPT-TQ	J13	Insert (Threading) / TQ Series
11I ^{PH} ○○○ISO	J7	Insert (Threading)
11IR ○○○ISO-TF	J7	Insert (Threading) / TF Series
11IR ○○○ISO-TQ	J7	Insert (Threading) / TQ Series
16ER ○○○○	J16, J18	Insert (Threading)
16ER ○○BSPT	J12	Insert (Threading)
16ER ○○BSPT-TF	J12	Insert (Threading) / TF Series
16ER ○○BSPT-TQ	J12	Insert (Threading) / TQ Series
16E ^{PH} ○○○ISO	J6	Insert (Threading)
16ER ○○○ISO-TF	J6	Insert (Threading) / TF Series
16ER ○○○ISO-TQ	J6	Insert (Threading) / TQ Series
16ER ○○(○)NPT	J14	Insert (Threading)
16ER ○○○TR	J20	Insert (Threading)
16ER ○○UN	J8	Insert (Threading)
16ER ○○UN-TF	J8	Insert (Threading) / TF Series
16ER ○○UN-TQ	J8	Insert (Threading) / TQ Series
16ER ○○W	J10	Insert (Threading)
16ER ○○W-TF	J10	Insert (Threading) / TF Series
16ER ○○W-TQ	J10	Insert (Threading) / TQ Series
16ER A○○	J16, J18	Insert (Threading)
16ER A○○-TF	J16, J18	Insert (Threading) / TF Series
16ER A○○-TQ	J16, J18	Insert (Threading) / TQ Series
16ER AG○○	J18	Insert (Threading)
16ER AG○○-TF	J16	Insert (Threading) / TF Series
16ER AG○○-TQ	J16	Insert (Threading) / TQ Series
16ER G○○	J18	Insert (Threading)
16ER G○○-TF	J18	Insert (Threading) / TF Series
16ER G○○-TQ	J18	Insert (Threading) / TQ Series
16IR ○○○○(○)	J17, J19	Insert (Threading)
16IR ○○BSPT	J13	Insert (Threading)
16IR ○○BSPT-TF	J13	Insert (Threading) / TF Series
16IR ○○BSPT-TQ	J13	Insert (Threading) / TQ Series
16I ^{PH} ○○○ISO	J7	Insert (Threading)
16IR ○○○ISO-TF	J7	Insert (Threading) / TF Series

Part Number	Page	Description
16IR ○○○ISO-TQ	J7	Insert (Threading) / TQ Series
16IR ○○(○)NPT	J15	Insert (Threading)
16IR ○○○TR	J21	Insert (Threading)
16IR ○○UN	J9	Insert (Threading)
16IR ○○UN-TF	J9	Insert (Threading) / TF Series
16IR ○○UN-TQ	J9	Insert (Threading) / TQ Series
16IR ○○W	J11	Insert (Threading)
16IR ○○W-TF	J11	Insert (Threading) / TF Series
16IR ○○W-TQ	J11	Insert (Threading) / TQ Series
16IR A○○	J17, J19	Insert (Threading)
16IR AG○○	J17, J19	Insert (Threading)
16IR G○○	J19	Insert (Threading)
22ER ○○○ISO	J6	Insert (Threading)
22ER ○○○TR	J20	Insert (Threading)
22ER ○○UN	J8	Insert (Threading)
22ER N○○	J16	Insert (Threading)
22IR ○○○ISO	J7	Insert (Threading)
22IR ○○○TR	J21	Insert (Threading)
22IR ○○UN	J9	Insert (Threading)
22IR N○○	J17, J19	Insert (Threading)
556C ^{PH}	P9	Spare Parts (Shim)
A		
A○○□- DCLN ^{PH} ○	F147	Boring Bars (Double Clamp)
A○○□- DCLN ^{PH} ○○-○○	F147	Boring Bars (Double Clamp)
A○○□- DDUN ^{PH} ○	F152	Boring Bars (Double Clamp)
A○○□- DDUN ^{PH} ○○-○○	F152	Boring Bars (Double Clamp)
A○○□- DSKN ^{PH} ○○-○○	F158	Boring Bars (Double Clamp)
A○○□- DTFN ^{PH} ○○-○○	F159	Boring Bars (Double Clamp)
A○○□- DWLN ^{PH} ○	F164	Boring Bars (Double Clamp)
A○○□- DWLN ^{PH} ○○-○○	F164	Boring Bars (Double Clamp)
A○○□- KKC ^{PH} ○	G94, J36	Toolholder (Cera-Notch Grooving / Threading)
A○○□- PCLN ^{PH} ○	F148	Boring Bars
A○○□- PCLN ^{PH} ○○-○○	F148	Boring Bars
A○○□- PDUN ^{PH} 3	F150	Boring Bars
A○○□- PDUN ^{PH} 11-○○	F150	Boring Bars
A○○□- PTUN ^{PH} 11-○○	F160	Boring Bars
A○○□- PWLN ^{PH} 06-○○	F162	Boring Bars
A○○□- SCLCR○	F67	Boring Bars (General Purpose)
A○○□- SCLC ^{PH} ○AE	F62	Boring Bars (Dynamic Bar)
A○○□- SCLC ^{PH} ○○-○○AE	F62	Boring Bars (Dynamic Bar)
A○○□- SCLP ^{PH} ○(○)AE	F70	Boring Bars (Dynamic Bar)
A○○□- SCLP ^{PH} ○○-○○AE	F70	Boring Bars (Dynamic Bar)
A○○□- SDQC ^{PH} ○AE	F78	Boring Bars (Dynamic Bar)
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A○○□- SDZC%L ○○-○○AE	F82	Boring Bars (Dynamic Bar)
A○○□- STLB%L ○.○AE	F90	Boring Bars (Dynamic Bar)
A○○□- STLC%L ○○-○○AE	F100	Boring Bars (Dynamic Bar)
A○○□- STLP%L ○(.○)AE	F90	Boring Bars (Dynamic Bar)
A○○□- STLP%L ○○-○○AE	F90	Boring Bars (Dynamic Bar)
A○○□- SVJB%L ○AE	F102	Boring Bars (Dynamic Bar)
A○○□- SVJB%L ○○-○○AE	F102	Boring Bars (Dynamic Bar)
A○○□- SVJC%L ○○-○○AE	F102	Boring Bars (Dynamic Bar)
A○○□- SVJP%L ○○-○○AE	F102	Boring Bars (Dynamic Bar)
A○○□- SVPB%L ○AE	F106	Boring Bars (Dynamic Bar)
A○○□- SVPB%L ○○-○○AE	F106	Boring Bars (Dynamic Bar)
A○○□- SVPCL%L ○.○AE	F106	Boring Bars (Dynamic Bar)
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A○○□- SVUB%L ○AE	F108	Boring Bars (Dynamic Bar)
A○○□- SVUB%L ○○-○○AE	F108	Boring Bars (Dynamic Bar)
A○○□- SVUC%L ○.○AE	F108	Boring Bars (Dynamic Bar)
A○○□- SVUC%L ○○-○○AE	F108	Boring Bars (Dynamic Bar)
A○○□- SVZB%L ○AE	F110	Boring Bars (Dynamic Bar)
A○○□- SVZB%L ○○-○○AE	F110	Boring Bars (Dynamic Bar)
A○○□- SVZC%L ○.○AE	F110	Boring Bars (Dynamic Bar)
A○○□- SVZC%L ○○-○○AE	F110	Boring Bars (Dynamic Bar)
A○○□- SVZCL%L ○○-○○AE	F110	Boring Bars (Dynamic Bar)
A○○□- SWUB%L ○.○AE	F116	Boring Bars (Dynamic Bar)
A○○□- SWUB%L ○○-○○AE	F116	Boring Bars (Dynamic Bar)
A○○□- SWUP%L ○AE	F116	Boring Bars (Dynamic Bar)
A○○□- SWUP%L ○○-○○AE	F116	Boring Bars (Dynamic Bar)
A○○□- SZJB%L ○○-○○AE	F124	Boring Bars (Dynamic Bar)
A○○□- SZLB%L ○○-○○AE	F127	Boring Bars (Dynamic Bar)
A○○□- SZQB%L ○○-○○AE	F126	Boring Bars (Dynamic Bar)
A○○□- SZXB%L ○○-○○AE	F125	Boring Bars (Dynamic Bar)
A○○□- SZZB%L ○○-○○AE	F128	Boring Bars (Dynamic Bar)
AABSR ○(○)-○○□(□)F	E20	Toolholder (Back Turning)
AABSR ○○○○□(□)-○○F	E20	Toolholder (Back Turning)
AABWR ○(○)-○○□(□)F	E21, E22	Toolholder (Back Turning)
AABWR ○○○○□(□)-○○F	E21, E22	Toolholder (Back Turning)
ABS ○○R○○○○	B112	Insert (Back Turning)
ABS ○○R○○○○M	B112	Insert (Back Turning)
ABW ○○R○○○○	B112	Insert (Back Turning)
ABW ○○R○○○○M	B112	Insert (Back Turning)
ACLC%L ○(○)-○JXFF	E26	Toolholder (Turning)
ACLC%L ○○○○JX-○○FF	E26	Toolholder (Turning)
ADJC%L ○(○)-○JXFF	E30	Toolholder (Turning)
ADJC%L ○○○○JX-○○FF	E30	Toolholder (Turning)
AJ-519TR	P2	Spare Parts (Adjustment Screw)

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AJ-16X30	K37	Spare Parts (Adjustment Screw)
AJ-20X30	K37	Spare Parts (Adjustment Screw)
AJ-22X35	K37	Spare Parts (Adjustment Screw)
APET ○○○○PDFR	M217, M298	Insert (Milling) FM-AL / EM-AL / CM-AL
APET ○○○○○○	M217, M298	Insert (Milling) FM-AL / EM-AL / CM-AL
API-RG-○ BT○○	M313	Body Part (API Ring Groovers)
API-RG-○ CV○○	M313	Body Part (API Ring Groovers)
API-RG-○ DIN-○○○○○	M313	Body Part (API Ring Groovers)
APMT ○○○○○○EL-NB○	M181	Insert (Milling) MSR
APMT ○○○○○○ER-NB○(P)	M181	Insert (Milling) MSR
ASL ○○○○○(○)-○○○	K74	Adjustable Sleeve (Drilling) for Magic Drill (DRV / DRZ)
AVJB%L ○(○)-○JXFF	E42	Toolholder (Turning)
AVJB%L ○○○○JX-11FF	E42	Toolholder (Turning)
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BB-G1/8	D13, G49, H60	Piping Banjo Bolt
BB-M10X1.5	D13, G49, H60	Piping Banjo Bolt
BCS -○	P15	Spare Parts (Clamp Set)
BDGT ○○T○○○FR	C62, M105	Insert (Milling) MEC
BDGT ○○(□)○○○(○)FR-JA	M105	Insert (Milling) MEC
BDGT ○○T○○○FR-LE	C62, M105	Insert (Milling) MEC
BDMT ○○(□)○○○(○)ER-JS	M104, M114, M140	Insert (Milling) MEC / MECX / MECHT
BDMT ○○(□)○○○(○)ER-JT	M104, M114	Insert (Milling) MEC / MECX
BDMT ○○(□)○○○(○)ER-N○	M132	Insert (Milling) MECH
BDMT ○○(□)○○○(○)FR	C62, M105	Insert (Milling) MEC
BH3X6	P2	Spare Parts (Screw)
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BT40K- M○○-○○	M324	Arbor Attachment
BX ○○○-SET	M303	Cartridge Set (API Ring Groover)
BX ○○○-R-SET	M303	Cartridge Set (API Ring Groover)
C		
○○□- SCLCR%L	F68	Boring Bars (General Purpose)
○○□- SCLC%L ○○-○○AN	F64	Boring Bars (Dynamic Bar)
○○○○□- SCLCR○○-○○○E2P	F34	Boring Bars (EZ Bar PLUS)
○○□- SCLP%L ○(.○)	F73	Boring Bars (General Purpose)
○○□- SJLC%L ○○-○○○	F88	Boring Bars
○○□- SJZC%L ○○-○○○	F89	Boring Bars
○○□- STLB%L ○○-○○A	F92	Boring Bars (Dynamic Bar)
○○□- STLB%L ○○-○○AN	F92	Boring Bars (Dynamic Bar)
○○○○□- STLBRO○-○○○E2P	F36	Boring Bars (EZ Bar PLUS)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
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○○○□- STXB% 〇〇-○○○	F98	Boring Bars
○○○□- STXP% 〇〇-○○	F98	Boring Bars
○○○□- STZB% 〇〇-○○○	F99	Boring Bars
○○○○(○)□- SWUB% 〇.〇	F121	Boring Bars (General Purpose)
○○○□- SWUB% 〇〇-○○AN	F118	Boring Bars (Dynamic Bar)
○○○○□- SWUBR○-○○○E2P	F38	Boring Bars (EZ Bar PLUS)
C08R	P17	Spare Parts (Clamp)
C09N	P17	Spare Parts (Clamp)
CB-11	P19	Spare Parts (Chipbreaker)
CB-12	P19	Spare Parts (Chipbreaker)
CB-13	P19	Spare Parts (Chipbreaker)
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CB-S3220	P19	Spare Parts (Chipbreaker)
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CBSN% 〇〇〇〇□-○○	D74	Toolholder (Turning)
CBSN% 〇〇〇〇B-12-A20	F133	Boring Bar (for Bearing Machining)
CB-T2212	P19	Spare Parts (Chipbreaker)
CB-T3220	P19	Spare Parts (Chipbreaker)
CC-125-MFAH	P23	Spare Parts (Coolant Cover)
CC-160-MFAH	P23	Spare Parts (Coolant Cover)
CC-200-MFAH	P23	Spare Parts (Coolant Cover)
CC-250-MFAH	P23	Spare Parts (Coolant Cover)
CC-315-MFAH	P23	Spare Parts (Coolant Cover)
CCET 〇〇〇〇F% -USF	B63	Insert (Turning)
CCET 〇〇〇〇(○)(○)MF% -J	B65	Insert (Turning)
CCET 〇〇〇〇(○)(○)MF% -U	B63	Insert (Turning)
CCET 〇〇〇〇(○)(○)MF% -USF	B63	Insert (Turning)
CCET 〇〇〇〇(○)(○)M% -F	B62	Insert (Turning)
CCET 〇〇〇〇(○)(○)M% -FSF	B61	Insert (Turning)
CCET 〇〇〇〇(○)M% -P	B63	Insert (Turning)
CCET 〇〇〇〇(○)M% -FSF	B61	Insert (Turning)
CCGT 〇〇〇〇(○)	B60	Insert (Turning)
CCGT 〇〇〇〇AH	B66	Insert (Turning)
CCGT 〇〇〇〇(○)AP	B66	Insert (Turning)
CCGT 〇〇〇〇(○)E% -U	B65	Insert (Turning)
CCGT 〇〇〇〇F% -U	B64	Insert (Turning)
CCGT 〇〇〇〇(○)ME% -U	B65	Insert (Turning)
CCGT 〇〇〇〇(○)(○)MF	B61	Insert (Turning)
CCGT 〇〇〇〇(○)MFP-GF	B58	Insert (Turning)
CCGT 〇〇〇〇(○)MFP-GQ	B59	Insert (Turning)

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CCGT 〇〇〇〇(○)(○)MFP-PF	B58	Insert (Turning)
CCGT 〇〇〇〇(○)MFP-SK	B59	Insert (Turning)
CCGT 〇〇〇〇(○)(○)MFP-SKS	B59	Insert (Turning)
CCGT 〇〇〇〇(○)(○)MF% -U	B64	Insert (Turning)
CCGT 〇〇〇〇〇〇MP-CF	B58	Insert (Turning)
CCGT 〇〇〇〇(○)MP-CK	B59	Insert (Turning)
CCGT 〇〇〇〇(○)(○)M% -F	B62	Insert (Turning)
CCGT 〇〇〇〇(○)(○)% -A3	B66	Insert (Turning)
CCGT 〇〇〇〇(○)(○)% -F	B62	Insert (Turning)
CCGW 〇〇〇〇(○)(○)	B66, C39	Insert (Turning)
CCGW 〇〇〇〇(○)(○)NE	C39	Insert (Turning)
CCGW 〇〇〇〇(○)(○)SE	C39	Insert (Turning)
CCLN% 〇〇〇〇□-○○	D53	Toolholder (Turning)
CCLN% 〇〇〇〇□-○○A	D66	Toolholder (Turning)
CCMT 〇〇〇〇(○)	B60, C39	Insert (Turning)
CCMT 〇〇〇〇(○)APD	C40	Insert (Turning)
CCMT 〇〇〇(○)(○)GK	B60	Insert (Turning)
CCMT 〇〇〇〇(○)HQ	B60	Insert (Turning)
CCMT 〇〇〇〇MQ	B61	Insert (Turning)
CCMT 〇〇〇〇(○)NE	C39	Insert (Turning)
CCMT 〇〇〇〇(○)PP	B60	Insert (Turning)
CCMT 〇〇〇〇(○)SE	C39	Insert (Turning)
CCMT 〇〇〇〇(○)WJP	B60	Insert (Turning)
CCMW 〇〇〇〇MEF	C20	Insert (Turning)
CCMW 〇〇〇〇〇〇〇〇〇MES	C20	Insert (Turning)
CCMW 〇〇〇〇(○)(○)〇〇〇〇〇〇SET	C20	Insert (Turning)
CCMW 〇〇〇〇(○)(○)T〇〇〇〇〇〇ME	C20	Insert (Turning)
CCMW 〇〇〇〇(○)(○)T〇〇〇〇〇〇SE	C20	Insert (Turning)
CCMW 〇〇〇〇〇〇〇〇〇〇〇MET	C20	Insert (Turning)
CCN-5	H60	Coolant Piping
CCRN% 〇〇〇〇□-○○A	D66	Toolholder (Turning)
CD -〇〇〇〇(-C)	K107	Toolholder (Drilling) Coremaster Coredrill (CD)
CD -〇〇〇〇-LC	K108	Toolholder (Drilling) Coremaster Coredrill (CD-LC)
CD -〇〇〇〇-XL	K108	Toolholder (Drilling) Coremaster Coredrill (CD-XL)
CDJN% 〇〇〇〇□-○○	D54	Toolholder (Turning)
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CE-030	P15	Spare Parts (Clamp Set)
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CGA-3 [®]	P17	Spare Parts (Clamp)
CGA-4 [®]	P17	Spare Parts (Clamp)
CGA-5 [®]	P17	Spare Parts (Clamp)
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CH-20R	P17	Spare Parts (Clamp)
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CM ○○○○-○○-○○	M296	End Mill (Chamfering)
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CNGA ○○○MEF	C8	Insert (Turning)
CNGA ○○○ME4	C8	Insert (Turning)
CNGA ○○○S○○○○○	B113	Insert (Turning)
CNGA ○○○(○)S○○○○○ME	C8	Insert (Turning)
CNGA ○○○S○○○○○MEH	C8	Insert (Turning)
CNGA ○○○S○○○○○MEP	C8	Insert (Turning)
CNGA ○○○S○○○○○MET	C8	Insert (Turning)
CNGA ○○○S○○○○○MEW	C8	Insert (Turning)
CNGA ○○○T○○○○○	B113	Insert (Turning)
CNGA ○○○T○○○○○AA	B113	Insert (Turning)
CNGA ○○○T○○○○○ME	C8	Insert (Turning)
CNGG ○○○AH	B23	Insert (Turning)
CNGG ○○○FL	B23	Insert (Turning)
CNGG ○○○FP-TK	B19	Insert (Turning)
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CNGG ○○○L-A3	B23	Insert (Turning)
CNGG ○○○(○)L-S	B23	Insert (Turning)
CNGG ○○○(○)MFP-SK	B19	Insert (Turning)
CNGG ○○○R	B23	Insert (Turning)
CNGG ○○○R-25R	B23	Insert (Turning)
CNGG ○○○R-A3	B23	Insert (Turning)

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CNGG ○○○(○)R-S	B23	Insert (Turning)
CNGG ○○○TK	B20	Insert (Turning)
CNGG ○○○Z	B23	Insert (Turning)
CNGM ○○○ME-HD	C9	Insert (Turning)
CNGM ○○○ME-HH	C9	Insert (Turning)
CNGM ○○○ME-HL	C9	Insert (Turning)
CNG ○○○T○○○○○AA	B113	Insert (Turning)
CNG ○○○T○○○○○	B113	Insert (Turning)
CNGU ○○○○(○)(○)MFR-F	B55	Insert (Turning)
CNGU ○○○○(○)(○)MFR-U	B55	Insert (Turning)
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CNM ○○○	C16	Insert (Turning)
CNM ○○○T○○○○○	B113	Insert (Turning)
CNMA ○○○	B22	Insert (Turning)
CNMA ○○○T○○○○○	B113	Insert (Turning)
CNMA ○○○T○○○○○AA	B113	Insert (Turning)
CNMG ○○○	B18	Insert (Turning)
CNMG ○○○AH	B23	Insert (Turning)
CNMG ○○○C	B22	Insert (Turning)
CNMG ○○○CJ	B17	Insert (Turning)
CNMG ○○○CQ	B17	Insert (Turning)
CNMG ○○○GC	B22	Insert (Turning)
CNMG ○○○(○)GP	B16	Insert (Turning)
CNMG ○○○GS	B17	Insert (Turning)
CNMG ○○○GT	B18	Insert (Turning)
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CNMG ○○○HS	B18	Insert (Turning)
CNMG ○○○HX	B19	Insert (Turning)
CNMG ○○○KG	B21	Insert (Turning)
CNMG ○○○KH	B21	Insert (Turning)
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CNMG ○○○MS	B20	Insert (Turning)
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CNMG ○○○PT	B18	Insert (Turning)
CNMG ○○○SG	B21	Insert (Turning)
CNMG ○○○SQ	B20	Insert (Turning)
CNMG ○○○TK	B20	Insert (Turning)
CNMG ○○○TN-V	B17	Insert (Turning)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
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SPARE PARTS	P
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	T

Part Numbers in Alphanumeric Order

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Part Number	Page	Description
CNMG ○○○WE	B16	Insert (Turning)
CNMG ○○○WF	B16	Insert (Turning)
CNMG ○○○WP	B16	Insert (Turning)
CNMG ○○○WQ	B16	Insert (Turning)
CNMG ○○○XF	B19	Insert (Turning)
CNMG ○○○XP	B19	Insert (Turning)
CNMG ○○○XQ	B19	Insert (Turning)
CNMG ○○○XS	B19	Insert (Turning)
CNMG ○○○ZS	B22	Insert (Turning)
CNMM ○○○HX	B19	Insert (Turning)
CNMM ○○○(○)M	C34	Insert (Turning)
CNMM ○○○(○)M-NE	C34	Insert (Turning)
CNMM ○○○(○)M-SE	C34	Insert (Turning)
CNMM ○○○PX	B19	Insert (Turning)
CNMM ○○XL-SX	B21	Insert (Turning)
CNMM ○○XR-SX	B21	Insert (Turning)
CNMU ○○○○(○)E-GK	B55	Insert (Turning)
CP-2D	P18	Spare Parts (Clamp)
CP-2D- ³ / ₁₆ -JCT	P18	Spare Parts (Clamp)
CP-3D	P18	Spare Parts (Clamp)
CP-3D- ³ / ₁₆ -JCT	P18	Spare Parts (Clamp)
CP-4D- ³ / ₁₆ -JCT	P18	Spare Parts (Clamp)
CP-5D	P18	Spare Parts (Clamp)
CP-5D-JCT	P18	Spare Parts (Clamp)
CP-8TE	P18	Spare Parts (Clamp)
CP-8W	P18	Spare Parts (Clamp)
CP8X23TL	P2	Spare Parts (Screw)
CP-CH10	K37	Spare Parts (Clamp)
CP-CH12	K37	Spare Parts (Clamp)
CP-CH14	K37	Spare Parts (Clamp)
CP-CH16	K37	Spare Parts (Clamp)
CP-CH18	K37	Spare Parts (Clamp)
CP-CH20	K37	Spare Parts (Clamp)
CPGB ○○○S○○○○○MES	C21	Insert (Turning)
CPGB ○○○(○)(○)S○○○○○MET	C21	Insert (Turning)
CPGB ○○○(○)(○)T○○○○○OME	C21	Insert (Turning)
CPGB ○○○(○)(○)(○)T○○○○○OSE	C21	Insert (Turning)
CPGT ○○○○(○)	B66	Insert (Turning)
CPMB ○○○(○)(○)(○)	B67	Insert (Turning)
CPMH ○○○(○)(○)(○)	B67, C41	Insert (Turning)
CPMH ○○○(○)(○)HQ	B67	Insert (Turning)
CPMH ○○○(○)(○)(○)NE	C41	Insert (Turning)
CPMH ○○○(○)(○) ³ / ₁₆ -Y	B67	Insert (Turning)
CPMH ○○○(○)SE	C41	Insert (Turning)

Part Number	Page	Description
CPMT ○○○(○)(○)GP	B67	Insert (Turning)
CPMT ○○○(○)(○)(○)PP	B67	Insert (Turning)
CPMT ○○○(○)(○)XP	B67	Insert (Turning)
CPMT ○○○XQ	B67	Insert (Turning)
CP-RC ³ / ₁₆	P15	Spare Parts (Clamp Set)
CPS-1	P16	Spare Parts (Clamp Set)
CPS-2	P16	Spare Parts (Clamp Set)
CPS-2P	P16	Spare Parts (Clamp Set)
CPS-2S	P16	Spare Parts (Clamp Set)
CPS-2TR	P16	Spare Parts (Clamp Set)
CPS-3	P16	Spare Parts (Clamp Set)
CPS-4V	P16	Spare Parts (Clamp Set)
CPS-5E	P16	Spare Parts (Clamp Set)
CPS-5F	P16	Spare Parts (Clamp Set)
CPS-5 ³ / ₁₆	P16	Spare Parts (Clamp Set)
CPS-5S	P16	Spare Parts (Clamp Set)
CPS-5V	P16	Spare Parts (Clamp Set)
CPS-6F	P16	Spare Parts (Clamp Set)
CPS-6M	P16	Spare Parts (Clamp Set)
CPS-6S	P16	Spare Parts (Clamp Set)
CPS-6V	P16	Spare Parts (Clamp Set)
CPS-8V	P16	Spare Parts (Clamp Set)
CP-ST-R1/8	H17	Coolant Coupler
CRDCN ○○-○	D64	Toolholder (Turning)
CRDNN ○○-○□	D64	Toolholder (Turning)
CRDNN ○○○○□-○○	D64	Toolholder (Turning)
CRDNN ○○○○□-○○A	D67	Toolholder (Turning)
CRSN ³ / ₁₆ ○○○○□-○○	D63	Toolholder (Turning)
CRSN ³ / ₁₆ ○○○○□-○○A	D67	Toolholder (Turning)
CS ○○-○○○	K113	Toolholder (Drilling) Countersink (CS)
CS-2D	P2	Spare Parts (Screw)
CS-3D	P2	Spare Parts (Screw)
CS-5D	P2	Spare Parts (Screw)
CS-3D-TR	P2	Spare Parts (Screw)
CSDNN ○○○○□-○○	D60	Toolholder (Turning)
CSDNN ○○○○□-○○A	D70	Toolholder (Turning)
CSKN ³ / ₁₆ ○○○○□-○○	D58	Toolholder (Turning)
CSKNR ○○○○□-○○A	D69	Toolholder (Turning)
CS-N ³ / ₁₆ ○○○○□-○○	D58	Toolholder (Turning)
CSRN ³ / ₁₆ ○○-○□	D56	Toolholder (Turning)
CSRN ³ / ₁₆ ○○○○□-○○	D56	Toolholder (Turning)
CSRN ³ / ₁₆ ○○○○□-○○A	D69	Toolholder (Turning)
CSSN ³ / ₁₆ ○○-○□	D59	Toolholder (Turning)
CSSN ³ / ₁₆ ○○○○□-○○	D59	Toolholder (Turning)

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CSYN% 〇〇〇〇□-〇〇	D59	Toolholder (Turning)
CT12T3-45DA	K36	Chamfer Insert (Drilling) DRA
CTJN% 〇〇-〇□	D62	Toolholder (Turning)
CTJN% 〇〇〇〇□-〇〇	D62	Toolholder (Turning)
CTJN% 〇〇〇〇□-〇〇A	D72	Toolholder (Turning)
CTUN% 〇〇〇〇□-〇〇	D62	Toolholder (Turning)
D		
DA 〇〇〇〇M-FTP	K10	Insert (Drilling) DRA Magic Drill
DA 〇〇〇〇M-FTP-H	K11	Insert (Drilling) DRA Magic Drill
DA 〇〇〇〇M-GM	K6~K9	Insert (Drilling) DRA Magic Drill
DA 〇〇〇〇M-HQP	K13~K15	Insert (Drilling) DRA Magic Drill
DA 〇〇〇〇M-HQS	K16~K17	Insert (Drilling) DRA Magic Drill
DB 〇〇〇R〇〇	G71	Insert (Grooving)
DB 〇〇〇□(□□)T00420	G71	Insert (Grooving)
DC 〇-〇.〇〇	M316	End Mill (DC Dovetail)
DC-42	P9	Spare Parts (Shim)
DC-44	P9	Spare Parts (Shim)
DC-44-C	P9	Spare Parts (Shim)
DCET 〇〇〇〇〇F% -JSF	B76	Insert (Turning)
DCET 〇〇〇〇〇F% -USF	B74	Insert (Turning)
DCET 〇〇〇〇(〇)(〇)MF% -J	B77	Insert (Turning)
DCET 〇〇〇〇〇MF% -JSF	B76	Insert (Turning)
DCET 〇〇〇〇〇FR-U	B74	Insert (Turning)
DCET 〇〇〇〇(〇)(〇)MF% -U	B74	Insert (Turning)
DCET 〇〇〇〇(〇)(〇)MF% -USF	B74	Insert (Turning)
DCET 〇〇〇〇(〇)(〇)M% -F	B72	Insert (Turning)
DCET 〇〇〇〇(〇)(〇)M% -FSF	B72	Insert (Turning)
DCET 〇〇〇〇(〇)% -FSF	B72	Insert (Turning)
DCGT 〇〇〇〇(〇)	B70	Insert (Turning)
DCGT 〇〇〇〇AH	B78	Insert (Turning)
DCGT 〇〇〇〇(〇)AP	B78	Insert (Turning)
DCGT 〇〇〇〇〇CF	B68	Insert (Turning)
DCGT 〇〇〇〇〇CK	B68	Insert (Turning)
DCGT 〇〇〇〇(〇)E% -J	B77	Insert (Turning)
DCGT 〇〇〇〇(〇)E% -U	B76	Insert (Turning)
DCGT 〇〇〇〇(〇)F% -J	B77	Insert (Turning)
DCGT 〇〇〇〇〇F% -U	B75	Insert (Turning)
DCGT 〇〇〇〇(〇)FN-Z	B70	Insert (Turning)
DCGT 〇〇〇〇(〇)M	B70	Insert (Turning)
DCGT 〇〇〇〇(〇)ME% -J	B77	Insert (Turning)
DCGT 〇〇〇〇(〇)ME% -U	B76	Insert (Turning)
DCGT 〇〇〇〇(〇)(〇)MF	B70	Insert (Turning)
DCGT 〇〇〇〇(〇)MFP-GF	B68	Insert (Turning)

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DCGT 〇〇〇〇(〇)MFP-GQ	B69	Insert (Turning)
DCGT 〇〇〇〇(〇)MFP-SK	B68	Insert (Turning)
DCGT 〇〇〇〇(〇)(〇)MFP-SKS	B68	Insert (Turning)
DCGT 〇〇〇〇(〇)(〇)MF% -J	B77	Insert (Turning)
DCGT 〇〇〇〇(〇)(〇)MF% -U	B75	Insert (Turning)
DCGT 〇〇〇〇〇MP-CF	B68	Insert (Turning)
DCGT 〇〇〇〇〇MP-CK	B68	Insert (Turning)
DCGT 〇〇〇〇(〇)(〇)M% -F	B73	Insert (Turning)
DCGT 〇〇〇〇(〇)% -A3	B78	Insert (Turning)
DCGT 〇〇〇〇(〇)% -F	B73	Insert (Turning)
DCGT 〇〇〇〇(〇)% -FS	B73	Insert (Turning)
DCGW 〇〇〇〇(〇)	B78	Insert (Turning)
DCLN% 〇〇-〇□	D8	Toolholder (Turning)
DCLN% 〇〇-〇□JCT	D9	Toolholder (Turning)
DCLN% 〇〇〇〇□-〇〇	D8	Toolholder (Turning)
DCLN% 〇〇〇〇□-〇〇JCT	D9	Toolholder (Turning)
DCMT 〇〇〇〇(〇)	B70, C42	Insert (Turning/Milling)
DCMT 〇〇〇〇(〇)APD	C42	Insert (Turning)
DCMT 〇〇〇〇〇CQ	M314	Insert (Milling) / API Insert (Ring Grooving)
DCMT 〇〇〇〇(〇)GK	B70	Insert (Turning)
DCMT 〇〇〇〇(〇)GP	B69	Insert (Turning)
DCMT 〇〇〇〇(〇)HQ	B70, M314, M317	Insert (Turning/Milling) / API Insert (Ring Grooving, Dovetail)
DCMT 〇〇〇〇(〇)MQ	B71	Insert (Turning)
DCMT 〇〇〇〇(〇)NE	C42	Insert (Turning)
DCMT 〇〇〇〇(〇)PP	B69	Insert (Turning)
DCMT 〇〇〇〇(〇)% -NE	C42	Insert (Turning)
DCMT 〇〇〇〇(〇)SE	C42	Insert (Turning)
DCMT 〇〇〇〇(〇)XP	B71	Insert (Turning)
DCMT 〇〇〇〇〇XQ	B71	Insert (Turning)
DCMW 〇〇〇〇MEF	C22	Insert (Turning)
DCMW 〇〇〇〇(〇)S〇〇〇〇〇MES	C22	Insert (Turning)
DCMW 〇〇〇〇(〇)S〇〇〇〇〇MET	C22	Insert (Turning)
DCMW 〇〇〇〇S〇〇〇〇〇SET	C22	Insert (Turning)
DCMW 〇〇〇〇(〇)T〇〇〇〇〇ME	C22	Insert (Turning)
DCMW 〇〇〇〇(〇)T〇〇〇〇〇SE	C22	Insert (Turning)
DCMX 〇〇〇〇(〇)WP	B69	Insert (Turning)
DCMX 〇〇〇〇% -WP	B69	Insert (Turning)
DD-42	P9	Spare Parts (Shim)
DD-42-16	P9	Spare Parts (Shim)
DD-43	P9	Spare Parts (Shim)
DD-44	P9	Spare Parts (Shim)
DDJN% 〇〇-〇□	D14	Toolholder (Turning)
DDJN% 〇〇-〇□JCT	D15	Toolholder (Turning)
DDJN% 〇〇〇〇□-〇〇〇〇	D14	Toolholder (Turning)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
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DDJN [®] ○○○○□-○○JCT	D15	Toolholder (Turning)
DDHN [®] ○○○○□-○○○○	D16	Toolholder (Turning)
DMC ○○○H	M187	End Mill (DMC-H)
DMC ○○○SX	M186	End Mill (DMC-SX)
DMC ○○○SXT	M186	End Mill (DMC-SX)
DMC ○○○SX-○○○	M186	End Mill (DMC-SX)
DN10	P23	Spare Parts (Nozzle)
DN20	P23	Spare Parts (Nozzle)
DNG ○○○T○○○○○	B114	Insert (Turning)
DNG ○○○T○○○○○AA	B114	Insert (Turning)
DNGA ○○○MEF	C10	Insert (Turning)
DNGA ○○○ME4	C10	Insert (Turning)
DNGA ○○○S○○○○○	B114	Insert (Turning)
DNGA ○○○(○)S○○○○○ME	C10	Insert (Turning)
DNGA ○○○S○○○○○MEH	C10	Insert (Turning)
DNGA ○○○S○○○○○MEP	C10	Insert (Turning)
DNGA ○○○S○○○○○MET	C10	Insert (Turning)
DNGA ○○○T○○○○○	B114	Insert (Turning)
DNGA ○○○T○○○○○AA	B114	Insert (Turning)
DNGG ○○○AH	B31	Insert (Turning)
DNGG ○○○FP-TK	B28	Insert (Turning)
DNGG ○○○L	B32	Insert (Turning)
DNGG ○○○L-A3	B31	Insert (Turning)
DNGG ○○○(○)L-S	B32	Insert (Turning)
DNGG ○○○(○)MFP-SK	B28	Insert (Turning)
DNGG ○○○R	B32	Insert (Turning)
DNGG ○○○R-A3	B31	Insert (Turning)
DNGG ○○○(○)R-S	B32	Insert (Turning)
DNGG ○○○TK	B28	Insert (Turning)
DNGM ○○○ME-HD	C11	Insert (Turning)
DNGM ○○○ME-HH	C11	Insert (Turning)
DNGM ○○○ME-HL	C11	Insert (Turning)
DNGU ○○○○(○)MER-U	B56	Insert (Turning)
DNGU ○○○○(○)MFP-SK	B56	Insert (Turning)
DNGU ○○○○(○)(○)MFR-F	B56	Insert (Turning)
DNGU ○○○○(○)(○)MFR-U	B56	Insert (Turning)
DNMA ○○○	B31	Insert (Turning)
DNMG ○○○	B27	Insert (Turning)
DNMG ○○○AH	B31	Insert (Turning)
DNMG ○○○C	B30	Insert (Turning)
DNMG ○○○CJ	B25	Insert (Turning)
DNMG ○○○CQ	B25	Insert (Turning)
DNMG ○○○GC	B30	Insert (Turning)
DNMG ○○○(○)GP	B24	Insert (Turning)
DNMG ○○○GS	B25	Insert (Turning)

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DNMG ○○○GT	B26	Insert (Turning)
DNMG ○○○(○)HQ	B25	Insert (Turning)
DNMG ○○○KG	B30	Insert (Turning)
DNMG ○○○KH	B30	Insert (Turning)
DNMG ○○○KQ	B30	Insert (Turning)
DNMG ○○○MQ	B28	Insert (Turning)
DNMG ○○○MS	B29	Insert (Turning)
DNMG ○○○MU	B29	Insert (Turning)
DNMG ○○○PG	B26	Insert (Turning)
DNMG ○○○PH	B27	Insert (Turning)
DNMG ○○○PMG	B25	Insert (Turning)
DNMG ○○○(○)PP	B24	Insert (Turning)
DNMG ○○○PQ	B24	Insert (Turning)
DNMG ○○○PS	B26	Insert (Turning)
DNMG ○○○PT	B26	Insert (Turning)
DNMG ○○○(○)R-LD	B28	Insert (Turning)
DNMG ○○○ [®] L-ST	B29	Insert (Turning)
DNMG ○○○SG	B29	Insert (Turning)
DNMG ○○○SQ	B29	Insert (Turning)
DNMG ○○○TK	B28	Insert (Turning)
DNMG ○○○TN-V	B25	Insert (Turning)
DNMG ○○○XF	B27	Insert (Turning)
DNMG ○○○XP	B27	Insert (Turning)
DNMG ○○○XQ	B27	Insert (Turning)
DNMG ○○○XS	B27	Insert (Turning)
DNMG ○○○ZS	B30	Insert (Turning)
DNMM ○○○(○)M	C35	Insert (Turning)
DNMM ○○○(○)M-NE	C35	Insert (Turning)
DNMM ○○○(○)M-SE	C35	Insert (Turning)
DNMM ○○○PX	B27	Insert (Turning)
DNMP ○○○TK	B28	Insert (Turning)
DNMU ○○○○(○)E-GK	B56	Insert (Turning)
DNMX ○○○WF	B24	Insert (Turning)
DPET ○○○○F [®] L-USF	B79	Insert (Turning)
DPET ○○○○MF [®] L-USF	B79	Insert (Turning)
DPET ○○○○M [®] L-FSF	B79	Insert (Turning)
DPET ○○○○ [®] L-FSF	B79	Insert (Turning)
DR- ○○-○○(□)	M267	Spare Parts (Drive Ring)
DR- ○○○○-○○○○(□)	M266	Spare Parts (Drive Ring)
DR- ○○○○	K100~K103	Toolholder (Drilling) HOLESOT Drill (DR)
DR- ○○○○-X1	K102~K103	Toolholder (Drilling) HOLESOT Drill (DR)
DR- ○○○○-X3N	K100~K103	Toolholder (Drilling) HOLESOT Drill (DR)
DRV -CH○○	K68	Chamfering Attachment DRV

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DS-44	P9	Spare Parts (Shim)
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DT-8	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DT-10	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DT-15	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DT-20	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DT-25	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DT-32	P9	Spare Parts (Shim)
DT-42	P9	Spare Parts (Shim)
DTD500	P22	Electric Wrench (Insert Torque Driver)
DTGN [®] ○○○○□-○○	D25	Toolholder (Turning)
DTGN [®] ○○○○□-○○JCT	D26	Toolholder (Turning)
DTM-6	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DTM-7	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DTM-8	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DTM-10	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DTM-15	P20	Spare Parts (Torx Wrench / Screwdriver Type)
DTP-6	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTP-7	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTP-9	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTP-15	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTP-20	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTPM-8	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTPM-10	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTPM-15	P20	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DV-33	P9	Spare Parts (Shim)
DVJN [®] ○○-○□	D34	Toolholder (Turning)
DVLN [®] ○○○○□-○○	D34	Toolholder (Turning)
DVLN [®] ○○-○□JCT	D35	Toolholder (Turning)
DVLN [®] ○○○○□-○○JCT	D35	Toolholder (Turning)
DVPN [®] ○○-○□	D36	Toolholder (Turning)
DVPN [®] ○○○○□-○○	D36	Toolholder (Turning)
DVPN [®] ○○○○□-○○JCT	D37	Toolholder (Turning)
DW-42	P9	Spare Parts (Shim)
DW-44	P9	Spare Parts (Shim)

Part Number	Page	Description
DWLN [®] ○○-○□	D48	Toolholder (Turning)
DWLN [®] ○○○○□-○○	D48	Toolholder (Turning)
DWLN [®] ○○-○□JCT	D49	Toolholder (Turning)
DWLN [®] ○○○○□-○○JCT	D49	Toolholder (Turning)
DVNN ○○-○□	D38	Toolholder (Turning)
DVNN ○○○○□-○○	D38	Toolholder (Turning)
DVNN ○○○○□-○○JCT	D39	Toolholder (Turning)
E		
E○○□- SCLC [®] ○A	F64	Boring Bars (Dynamic Bar)
E○○□- SCLC [®] ○A-○/○	F64	Boring Bars (Dynamic Bar)
E○○□- SCLC [®] ○○-○○A	F64	Boring Bars (Dynamic Bar)
E○○□- SCLC [®] ○○-○○A-○/○	F64	Boring Bars (Dynamic Bar)
E○○□- SCLC [®] ○○-○○AN	F64	Boring Bars (Dynamic Bar)
E○○□- SCLC [®] ○○-○○AN-○/○	F64	Boring Bars (Dynamic Bar)
E○○□- SCLP [®] ○○-○○A	F71	Boring Bars (Dynamic Bar)
E○○□- SCLP [®] ○○-○○A-○/○	F71	Boring Bars (Dynamic Bar)
E○○□- SCLP [®] ○○-○○AN	F71	Boring Bars (Dynamic Bar)
E○○□- SCLP [®] ○○-○○AN-○/○	F71	Boring Bars (Dynamic Bar)
E○○□- SDQC [®] ○A	F80	Boring Bars (Dynamic Bar)
E○○□- SDQC [®] ○A-○/○	F80	Boring Bars (Dynamic Bar)
E○○□- SDQC [®] ○○-○○A	F80	Boring Bars (Dynamic Bar)
E○○□- SDQC [®] ○○-○○A-○/○	F80	Boring Bars (Dynamic Bar)
E○○□- SDUC [®] ○A	F76	Boring Bars (Dynamic Bar)
E○○□- SDUC [®] ○A-○/○	F76	Boring Bars (Dynamic Bar)
E○○□- SDUC [®] ○○-○○A	F76	Boring Bars (Dynamic Bar)
E○○□- SDUC [®] ○○-○○A-○/○	F76	Boring Bars (Dynamic Bar)
E○○□- SDZC [®] ○○-○○A	F84	Boring Bars (Dynamic Bar)
E○○□- STLP [®] ○○-○○A	F92	Boring Bars (Dynamic Bar)
E○○□- STLP [®] ○○-○○A-○/○	F92	Boring Bars (Dynamic Bar)
E○○□- STLP [®] ○○-○○AN	F92	Boring Bars (Dynamic Bar)
E○○□- STLP [®] ○○-○○AN-○/○	F92	Boring Bars (Dynamic Bar)
E○○□- SVPB [®] ○○-○○A	F107	Boring Bars (Dynamic Bar)
E○○□- SVPC [®] ○○-○○A	F107	Boring Bars (Dynamic Bar)
E○○□- SVUB [®] ○○-○○A	F109	Boring Bars (Dynamic Bar)
E○○□- SVUC [®] ○○-○○A	F109	Boring Bars (Dynamic Bar)
E○○□- SWUB [®] ○○-○○AN	F118	Boring Bars (Dynamic Bar)
E○○□- SWUB [®] ○○-○○AN-○/○	F118	Boring Bars (Dynamic Bar)
E○○□- SWUP [®] ○○-○○A	F118	Boring Bars (Dynamic Bar)
E○○□- SWUP [®] ○○-○○A-○/○	F118	Boring Bars (Dynamic Bar)
EGTR 16-1	G70	Toolholder (External Grooving)
EM ○○○○	M190	End Mill
EM ○○○○-○○	M190	End Mill
EM ○○○○-○○-3F	M190	End Mill
EM ○○○○-○○○S	M190	End Mill

INSERT GRADES	A
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CBN / PCD INSERTS	C
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SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
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EM ○○○○-○.○	M190	End Mill (Extended Length)
EM ○○○○-AL	M216	End Mill (for Aluminum Machining)
EM ○○○○-○.○○(○)-AL	M216	End Mill (for Aluminum Machining)
EM ○○○○-3F	M190	End Mill
EM ○○○○-○○○-LE	M191	End Mill (Long Edge)
ENG ○○○T○○○○○	B115	Insert (Turning)
ENG ○○○T○○○○○AA	B115	Insert (Turning)
ENET ○○○○PAER-□	M205	Insert (Milling) MFAH
EZBCR ○○○○○-○○-○○	F29	EZ Bars (Chamfering)
EZBFR ○○○○○-○○○	F26	EZ Bars (Boring)
EZBPR ○○○○○-○○○(-○○)	F28	EZ Bars (Internal Profiling)
EZBR ○○○○○-○○○NB	C32, C58, F24	EZ Bars (Boring)
EZB $\frac{1}{2}$ ○○○○○HP-○○○F	F21	EZ Bars (Boring)
EZBR ○○○○○HP-○○○G	F20	EZ Bars (Boring)
EZB $\frac{1}{2}$ ○○○○○HP-○○○H	F18	EZ Bars (Boring)
EZBR ○○○○○HP-○○○H-LT	F19	EZ Bars (Boring)
EZBR ○○○○○ST-○○○F	F23	EZ Bars (Boring)
EZBR ○○○○○ST-○○○H	F22	EZ Bars (Boring)
EZBTR ○○○○○-○○○	F32	EZ Bars (Back Boring)
EZFG $\frac{1}{2}$ ○○○○○-○○○	G99	EZ Bars (Internal Face Grooving)
EZG $\frac{1}{2}$ ○○○○○-○○○	G75	EZ Bars (Internal Grooving)
EZG $\frac{1}{2}$ ○○○○○-○○○S	G75	EZ Bars (Internal Grooving)
EZH ○○○○○(○)CT-○○○	F40~F41	Sleeve
EZH ○○○○○(○)HP-○○○	F42~F43	Sleeve
EZH ○○○○○(○)ST-○○○	F44~F45	Sleeve
EZTR ○○○○○-○○-○○○	J44	EZ Bars (Internal Threading)
EZVBR ○○○○○-○○○	F30	EZ Bars (Boring / Internal Facing / Internal Profiling)
F		
FH-2	P20	Spare Parts (Hexagon Wrench / Flag Type)
FM ○○○○-90RH	M192	Face Mill (Fixed Pocket)
FM ○○○○-90AL-(125)	M216	Face Mill (Fixed Pocket)
FM AL-○○○○-90-○	M216	Face Mill (Fixed Pocket)
FMM ○○-○○	G148	Insert (Grooving)
FMN ○	G148	Insert (Grooving)
FT-6	P20	Spare Parts (Torx Wrench / Flag Type)
FT-7	P20	Spare Parts (Torx Wrench / Flag Type)
FT-8	P20	Spare Parts (Torx Wrench / Flag Type)
FT-10	P20	Spare Parts (Torx Wrench / Flag Type)
FT-15	P20	Spare Parts (Torx Wrench / Flag Type)
FTK ○	G151	Insert (Face Grooving)
FTP-5	P20	Spare Parts (Torx Plus Wrench / Flag Type)
FTP-6	P20	Spare Parts (Torx Plus Wrench / Flag Type)

Part Number	Page	Description
G		
GBA ○○ $\frac{1}{2}$ ○○○-(○○○)	C29, C52, G6~G9, G12	Insert (Grooving)
GBA ○○ $\frac{1}{2}$ ○○○-○○○F	G7, G10	Insert (Grooving)
GBA ○○ $\frac{1}{2}$ ○○○-○○○GM	G11	Insert (Grooving)
GBA ○○ $\frac{1}{2}$ ○○○-○○○R	G7, G12	Insert (Grooving)
GBA ○○ $\frac{1}{2}$ ○○○-○○○RF	G12	Insert (Grooving)
GBF ○○ $\frac{1}{2}$ ○○○-○○○	G19~G20	Insert (Grooving)
GBF ○○ $\frac{1}{2}$ ○○○-○○○F	G18	Insert (Grooving)
GBF ○○ $\frac{1}{2}$ ○○○-○○○GL	G18	Insert (Grooving)
GC ○○ $\frac{1}{2}$ ○○○-○○○	G79	Insert (Grooving)
GC ○○R○○○-○○○R	G79	Insert (Grooving)
GDFG ○○○○N-○○○GS	G107	Insert (Face Grooving)
GDFM ○○○○N-○○○DM	G107	Insert (Face Grooving)
GDFM ○○○○N-○○○GH	G107	Insert (Face Grooving)
GDFM ○○○○N-○○○GM	G107	Insert (Face Grooving)
GDFM ○○○○N-○○○R-CM	G107	Insert (Face Grooving)
GDFMS ○○○○N-○○○DM	G107	Insert (Face Grooving)
GDG ○○○○N-○○○AM	G41	Insert (Grooving)
GDG ○○○○N-○○○GS	G41, G90	Insert (Grooving)
GDG ○○○○N-○○○PG	H32	Insert (Cut-Off)
GDG ○○○○ $\frac{1}{2}$ L-○○○PG-○○○D	H32	Insert (Cut-Off)
GDGS ○○○○N-○○○NB	C30, C54, G43	Insert (Grooving)
GDM ○○○○N-○○○GL	G41	Insert (Grooving)
GDM ○○○○N-○○○GM	G40	Insert (Grooving)
GDM ○○○○N-○○○GMI	G90	Insert (Grooving)
GDM ○○○○N-○○○PF	H32	Insert (Cut-Off)
GDM ○○○○N-○○○PH	G42, H33	Insert (Grooving / Cut-Off)
GDM ○○○○N-○○○PM	H33	Insert (Cut-Off)
GDM ○○○○N-○○○PQ	H32	Insert (Cut-Off)
GDM ○○○○N-○○○R-CM	G42, G90	Insert (Grooving)
GDM ○○○○ $\frac{1}{2}$ L-○○○PF-○○○D	H32	Insert (Cut-Off)
GDM ○○○○ $\frac{1}{2}$ L-○○○PM-○○○D	H33	Insert (Cut-Off)
GDM ○○○○ $\frac{1}{2}$ L-○○○PQ-○○○D	H32	Insert (Cut-Off)
GDMS ○○○○N-○○○GM	G40	Insert (Grooving)
GDMS ○○○○N-○○○PH	G42, H33	Insert (Grooving / Cut-Off)
GDMS ○○○○N-○○○PM	H33	Insert (Cut-Off)
GDMS ○○○○ $\frac{1}{2}$ L-○○○PM-○○○D	H33	Insert (Cut-Off)
GE $\frac{1}{2}$ ○○○-○○○A	G82	Insert (Grooving)
GER ○○○-○○○AR	G82	Insert (Grooving)
GE $\frac{1}{2}$ ○○○-○○○B	G82	Insert (Grooving)
GER ○○○-○○○BR	G82	Insert (Grooving)
GE $\frac{1}{2}$ ○○○-○○○C	G84	Insert (Grooving)
GER ○○○-○○○CM	G83	Insert (Grooving)
GER ○○○-○○○CR	G84	Insert (Grooving)

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GE% 〇〇〇-〇〇〇D	G84	Insert (Grooving)
GER 〇〇〇-〇〇〇DM	G83	Insert (Grooving)
GER 〇〇〇-〇〇〇DR	G84	Insert (Grooving)
GE% 〇〇〇-〇〇〇E	G85	Insert (Grooving)
GE% 〇〇〇-〇〇〇EM	G85	Insert (Grooving)
GFV% 〇〇〇〇□-〇〇〇(○)□	G137	Toolholder (Face Grooving)
GFVS% 〇〇-H□	G143	Toolholder (Face Grooving)
GFVS% 〇〇〇〇□-H□	G143	Toolholder (Face Grooving)
GFVS% 〇〇〇〇□-〇〇〇AA	G135	Toolholder (Face Grooving)
GFVS% 〇〇-〇〇〇(○)□	G139	Toolholder (Face Grooving)
GFVS% 〇〇〇〇□-〇〇〇(○)□	G140	Toolholder (Face Grooving)
GFVT% 〇〇-H□	G143	Toolholder (Face Grooving)
GFVT% 〇〇〇〇□-H□	G143	Toolholder (Face Grooving)
GFVT% 〇〇〇〇□-〇〇〇AA	G135	Toolholder (Face Grooving)
GFVT% 〇〇-〇〇〇(○)□	G141	Toolholder (Face Grooving)
GFVT% 〇〇〇〇□-〇〇〇(○)□	G142	Toolholder (Face Grooving)
GG 〇〇〇-〇〇T00320	G70	Insert (Grooving)
GH 〇〇〇〇(○)-〇〇	B124, G66, G92	Insert (Grooving)
GHU 〇〇-〇〇	G66, G92	Insert (Grooving)
GIFV% 〇〇〇〇B-〇〇〇□	G145	Toolholder (Face Grooving)
GMGW 〇〇〇〇-〇〇R	C56, G72	Insert (Grooving)
GMGW 〇〇〇〇-〇〇R-HR	C56, G72	Insert (Grooving)
GMN 〇	C31, G55	Insert (Grooving)
GOMT 〇〇(□)〇〇〇ER-D	M262	Insert (Milling) MEY
GP-1	P23	Spare Parts (Plug)
GP-2	P23	Spare Parts (Plug)
G5-50	P2	Spare Parts (Screw)
GV% 〇〇〇□R	M309	Insert (Grooving / Previous Description)
GV% 〇〇〇□(□)	M309	Insert (Grooving / Previous Description)
GV% 〇〇〇-〇〇〇□(□)	M309	Insert (Grooving)
GVF% 〇〇〇□	M310	Insert (Grooving / Previous Description)
GVF% 〇〇〇-〇〇〇AA	G134	Insert (Grooving)
GVF% 〇〇〇-〇〇〇□	C53, G136, M310	Insert (Grooving)
GVF% 〇〇〇-〇〇〇□R	G136	Insert (Grooving)
GZG 〇〇〇〇N-〇〇〇GS	G28	Insert (Grooving)
GZG 〇〇〇〇N-〇〇〇PG	H22	Insert (Cut-Off)
GZG 〇〇〇〇% 〇〇〇PG-15D	H22	Insert (Cut-Off)
GZM 〇〇〇〇N-〇〇〇CM	G28	Insert (Grooving)
GZM 〇〇〇〇N-〇〇〇GL	G28	Insert (Grooving)
GZM 〇〇〇〇N-〇〇〇GM	G28	Insert (Grooving)
GZM 〇〇〇〇N-〇〇〇PF	H22	Insert (Cut-Off)
GZM 〇〇〇〇N-〇〇〇PH	G28, H23	Insert (Grooving / Cut-Off)
GZM 〇〇〇〇N-〇〇〇PM	H23	Insert (Cut-Off)

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GZM 〇〇〇〇% 〇〇〇PM-6D	H23	Insert (Cut-Off)
GZGS 〇〇〇〇N-〇〇〇NB	G28	Insert (Grooving)
GZMS 〇〇〇〇N-〇〇〇GM	G28	Insert (Grooving)
GZMS 〇〇〇〇N-〇〇〇PH	G28	Insert (Grooving)
GZMS 〇〇〇〇N-〇〇〇PM	H23	Insert (Cut-Off)
H		
HF0500X35HC	P2	Spare Parts (Screw with Coolant Hole)
HF0625X44HC	P2	Spare Parts (Screw with Coolant Hole)
HF0625X48HC	P2	Spare Parts (Screw with Coolant Hole)
HF16X48HC	P2	Spare Parts (Screw with Coolant Hole)
HF20X53H	M102	Spare Parts (Screw)
HF20X53HA	P2	Spare Parts (Screw with Coolant Hole)
HF24X60H	P2	Spare Parts (Screw)
HF24X60HA	M202	Spare Parts (Screw with Coolant Hole)
HH1/2-1.25	P3	Spare Parts (Arbor / Mounting Bolt)
HH1/2-1.25H	P3	Spare Parts (Arbor / Mounting Bolt)
HH1/4-0.75	P3	Spare Parts (Arbor / Mounting Bolt)
HH3/4-2.3H	P3	Spare Parts (Arbor / Mounting Bolt)
HH3/8-1.25	P3	Spare Parts (Arbor / Mounting Bolt)
HH3/8-1.25H	P3	Spare Parts (Arbor / Mounting Bolt)
HH3X6	P3	Spare Parts (Screw)
HH3X10S	P3	Spare Parts (Screw)
HH3X12	P3	Spare Parts (Screw)
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HH4X12	P4	Spare Parts (Screw)
HH4X12S	P3	Spare Parts (Screw)
HH4X16	P3	Spare Parts (Screw)
HH5X12	P3	Spare Parts (Screw)
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HH5X16	P3	Spare Parts (Screw)
HH5X20	P3	Spare Parts (Screw)
HH5X25	P3	Spare Parts (Screw)
HH5X30	P3	Spare Parts (Screw)
HH6X12	P3	Spare Parts (Screw)
HH6X18	P3	Spare Parts (Clamp Screw)
HH6X20	P3	Spare Parts (Screw)
HH6X25	P3	Spare Parts (Screw)
HH6X30	P3	Spare Parts (Screw)
HH8X20	P3	Spare Parts (Clamp Screw)
HH8X25	P3	Spare Parts (Screw)
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HH10X30	P3	Spare Parts (Screw)

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HH12X35HC	P2	Spare Parts (Screw with Coolant Hole)
HH12X40	P3	Spare Parts (Screw)
HH16X40	P3	Spare Parts (Screw)
HH16X45	P3	Spare Parts (Screw)
HH20X40	P3	Spare Parts (Screw)
HH20X55	P3	Spare Parts (Screw)
HRSN % 〇〇-〇□	D63	Toolholder (Turning)
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HS3X4	P4	Spare Parts (Screw)
HS3X4P	P4	Spare Parts (Screw)
HS4X4	P4	Spare Parts (Screw)
HS4X4P	P4	Spare Parts (Screw)
HS5X4LP	P4	Spare Parts (Screw)
HS5X5	P4	Spare Parts (Screw)
HS6X4P	P4	Spare Parts (Screw)
HS6X6	P4	Spare Parts (Screw)
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HS-2534TRP	P4	Spare Parts (Clamp Screw)
HS-3048TRP	P4	Spare Parts (Clamp Screw)
HS-4067TRP	P4	Spare Parts (Clamp Screw)
HS-50100TRP	P4	Spare Parts (Clamp Screw)
HSB4X8 %	P5	Spare Parts (Screw)
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HSDNN 〇〇-〇□	D60	Toolholder (Turning)
HSRN % 〇〇-〇□	D57	Toolholder (Turning)
HS-AN-AN- 〇〇〇	D13, G49, H60	Spare Parts (Hose)
HS-ST-AN- 〇〇〇	D13, G49, H60	Spare Parts (Hose)
HS-ST-ST- 〇〇〇	D13, G49, H60	Spare Parts (Hose)
I		
J		
JCET 〇〇〇〇〇(〇)M % -F	B80	Insert (Turning)
JCET 〇〇〇〇〇(〇)M % -FSF	B80	Insert (Turning)
JCET 〇〇〇〇〇(〇) % -FSF	B80	Insert (Turning)
JCGT 〇〇〇〇〇(〇) % -F	B80	Insert (Turning)
J-AN-R1/8-G1/8 (-L)	H17	Coolant Joint
J-G1/8-UNF3/8	D13, G49, H60	Piping Joint

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J-ST-G3/8-G1/4	F145	Coolant Joint
J-ST-G1/2-G3/8	F145	Coolant Joint
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J-ST-NPT1/8-RC1/8	H17	Coolant Joint
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J-ST-R1/8-G1/8 (-L)	H17	Coolant Joint
J-ST-R1/8-RC1/8	H17	Coolant Joint
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KAVH 〇〇-PCLN % 〇〇	F138	Anti-Vibration Boring Bar Head
KAVH 〇〇-PDUN % 〇〇	F140	Anti-Vibration Boring Bar Head
KAVH 〇〇-PTFN % 〇〇	F142	Anti-Vibration Boring Bar Head
KAVH 〇〇-SCLC % 〇〇	F134	Anti-Vibration Boring Bar Head
KAVH 〇〇-SDUC % 〇〇	F135	Anti-Vibration Boring Bar Head
KAVH 〇〇-STLP % 〇〇	F136	Anti-Vibration Boring Bar Head
KAVH 〇〇-SVUB % 〇〇	F137	Anti-Vibration Boring Bar Head
KAV- D〇〇-〇(〇)D	F144	Anti-Vibration Boring Bar Shank
KAV- G〇〇-〇〇D	F144	Anti-Vibration Boring Bar Shank
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KCG 〇〇〇〇 %	G64	Insert (Cera-Notch Grooving)
KCGDP 〇〇〇〇 %	G64	Insert (Cera-Notch Grooving)
KCGP 〇〇〇〇L	G63	Insert (Cera-Notch Grooving)
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KCGT 〇〇〇〇〇〇FR-AL	M213	Insert (Milling) MEAS
KCRP 〇〇〇〇 %	G64	Insert (Cera-Notch Grooving)
KCT 〇 %	J34	Insert (Cera-Notch Threading)
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KFMS % 〇〇〇〇□〇〇(〇)〇〇(〇)-〇	G149~G150	Toolholder (Face Grooving)
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KGBA % 〇〇-〇-〇〇	G13	Toolholder (Grooving)
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MB45- ○○○R-○○TO(○)C-(○○)M	M16	Face Mill (MB45)
MB45- ○○○R-○○TO(○)-M	M16	Face Mill (MB45)
MB45- ○○(○)(○)S○○(○)-○○TOC	M17	End Mill (MB45)
MCLN ^{PL} ○○-○□	D10	Toolholder (Turning)
MCSE ○○○	M299	End Mill (Chamfering)
MCSE ○○○-○○D	M299	End Mill (Chamfering)
MD90- ○○○RA-TO○CMSF	M197	Face Mill (MD90)
MD90- ○○○RA-TO○CSF	M197	Face Mill (MD90)
MD90- ○○○RA-TO○C○○(○)SF	M197	Face Mill (MD90)
MD90- ○○○RA-TO○C○○(○)MSF	M197	Face Mill (MD90)
MD90- ○○○RS-TO(○)CMSF	M196	Face Mill (MD90)

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MDJN%L ○○-○□	D17	Toolholder (Turning)
MEAS ○○○○S-○○○○○-○○-OT	M216	End Mill (for Aluminum Machining)
MEAS ○○○○S○○○○○○○○T○○○	M216	End Mill (for Aluminum Machining)
MEAS ○○-S○○-○○-OT	M216	End Mill (for Aluminum Machining)
MEAS ○○-S○○-○○-OT-○○○	M216	End Mill (for Aluminum Machining)
MEAS ○○○○R-○○-OT	M216	Face Mill (for Aluminum Machining)
MEAS ○○○R-○○-OT-M	M216	Face Mill (for Aluminum Machining)
MEC ○○○○S-○○○-○○	M96	End Mill (MEC)
MEC ○○○○S-○○○-○○T	M96	End Mill (MEC)
MEC ○○○○S-○○○-○,○-○○	M97	End Mill (MEC)
MEC ○○○○S-○○○-○,○-○○T	M97	End Mill (MEC)
MEC ○○-M○○-○○(T)-OT	M103	Modular Head End Mill (MEC)
MEC ○○-S○○-○○	M98, M100	End Mill (MEC)
MEC ○○-S○○-○○T	M98, M99	End Mill (MEC)
MEC ○○-S○○-○○○-○○	M100	End Mill (MEC)
MEC ○○-S○○-○○○-○○○	M100	End Mill (MEC)
MEC ○○-S○○-○○○-○○T	M99	End Mill (MEC)
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MEC ○○○○R-○○(T)-○T(N)	M101	Face Mill (MEC)
MEC ○○○R-○○-○(○)T(N)	M102	Face Mill (MEC)
MEC ○○○R-○○-○(○)T-M(N)	M102	Face Mill (MEC)
MEC ○○○R-○○-○(○)(□)	M102	Face Mill (MEC)
MECH ○○○R-○○-○-OT	M131	Shell Mill (MECH)
MECH ○○○○R-○○-○-OT	M131	Shell Mill (MECH)
MECH ○○○R-○○-○-OT-M	M131	Shell Mill (MECH)
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MECH ○○○○W○○○(○)-○○-○-OT	M130	End Mill (MECH)
MECHT ○○R-○○-○○(○○)-○-○T-M	M142	Shell Mill (MECHT)
MECHT ○○S-○○-○○-○-OT	M142	End Mill (MECHT)
MECX(L) ○○○○S-○○○-○○-OT	M112	End Mill (MECX)
MECX ○○-S○○-○○-OT	M112	End Mill (MECX)
MECX ○○-S○○-○○○-○○-OT	M112	End Mill (MECX)
MECX ○○○○R-○○-○(○)T	M113	Face Mill (MECX)
MECX ○○○R-○○-○(○)T-M	M113	Face Mill (MECX)
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METS ○○-S○○	M305	End Mill (T-Slotting)
METS ○○-S○○-H	M305	End Mill (T-Slotting)
MEV ○○○○S-○○○-○-○○-OT	M120	End Mill (MEV)
MEV ○○○○W-○○○-○○-OT	M120	End Mill (MEV)
MEV ○○-M○○-○○-OT	M122	Modular Head End Mill (MEV)
MEV ○○-S○○-○○-OT	M121	End Mill (MEV)
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MEW ○○-W○○-○○-OT	M86	End Mill (MEW)
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MEW ○○○R-○○-OT(-M)	M89	Face Mill (MEW)
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MEW ○○○○W○○○-○○-OT	M84	End Mill (MEW)
MEW ○○○○W○○○-○-○○-OT	M84	End Mill (MEW)
MEW ○○○○W○○○-○○○-○○-OT	M84	End Mill (MEW)
MEWH ○○○R-○○-○-OT-M	M127	Shell Mill (MEWH)
MEWH ○○○○R-○○-○-OT	M127	Shell Mill (MEWH)
MEWH ○○○S-○○-○○-○-OT	M126	End Mill (MEWH)
MEWH ○○○○W○○○-○○-○-OT	M126	End Mill (MEWH)
MEY ○○○○S-○○○-HG	M254	End Mill (Multi-functional)
MEY ○○-S○○	M261	End Mill (Multi-functional)
MEY ○○-S○○-○○○	M261	End Mill (Multi-functional)
MEY ○○-S○○-○○○H	M261	End Mill (Multi-functional)
MFAH ○○○RA-○(○)T-M(○○)-SF	M203	Face Mill (MFAH)
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MFAH ○○○RS-○(○)T-SF	M204	Face Mill (MFAH)
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MFF ○○○R-M-SF	M221	Face Mill (MFF)
MFH ○○○○M○○-01-OT	M256	Modular End Mill (MFH-Micro)
MFH ○○-M○○-01-OT	M256	Modular End Mill (MFH-Micro)
MFH ○○○○M○○-03-OT	M250	Modular End Mill (MFH-Mini)
MFH ○○-M○○-03-OT	M250	Modular End Mill (MFH-Mini)
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MFH ○○○R-03-OT-M	M249	Face Mill (MFH-Mini)
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MFH ○○○○R-10-OT	M225	Face Mill (MFH-RAPTOR)
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MFH ○○-S○○-01-OT	M255	End Mill (MFH-Micro)
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MFH ○○-W○○-03-○T	M248	End Mill (MFH-Mini)
MFH ○○○○-W○○○-04-○T	M241	End Mill (MFH-MAX)
MFH ○○-W○○-04-○T	M241	End Mill (MFH-MAX)
MFH ○○○○-W○○○-10-○T	M229	End Mill (MFH-RAPTOR)
MFH ○○-W○○-10-○T	M230	End Mill (MFH-RAPTOR)
MFK ○○○(○)R-11-○(○)T	M52	Face Mill (MFK)
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MFK ○○○R-11-○(○)T-M-SF	M56	Face Mill (MFK-SF)
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MFSE 45○○○% -○(○)T	M40	Face Mill (MFSE45)
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MFSN 88○○○R-○(○)T-M-G	M159	Face Mill (MFSN88)
MFSN 88○○○R-S32-○T-G	M161	End Mill (MFSN88)
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MFWN 90○○○○R-W125-○T	M148	End Mill (MFWN)
MFWN 90○○○R-○(○)T(-M)	M146, M147	Face Mill (MFWN)
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MFWN 90○○○R-S○○-○T	M148	End Mill (MFWN)
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MRFW ○○-S○○	M271	End Mill (Ball-Nose)
MRFW ○○-S○○-○○○	M271	End Mill (Ball-Nose)
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MRW ○○-S○○-○○-○T-○○○	M280	End Mill (MRW)
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MSRS 90○○○R-○-○(○)T	M173	Face Mill (MSRS90)
MSRS 90○○○R-○-○(○)T-M	M173	Face Mill (MSRS90)
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MVVNN ○○-○□	D42	Toolholder (Turning)
MVVNN ○○○○□-○○	D42	Toolholder (Turning)
MWLN%L ○○-○□	D50	Toolholder (Turning)
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PKM ○○N-○○○PM	H52	Insert (Cut-Off)
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PNMU ○○○○ANER-GM	M28	Insert (Milling) MFPN45
PNMU ○○○○ANER-SM	M28	Insert (Milling) MFPN45
PNMU ○○○○XNER-GH	M36	Insert (Milling) MFPN66
PNMU ○○○○XNER-GM	M36	Insert (Milling) MFPN66
PNMU ○○○○XNER-SM	M36	Insert (Milling) MFPN66
PP-4	P8	Spare Parts (Lock Pin)
PR07-ST-UNF3/8	F145	Resin Join (with O-Ring)
PRGC%L ○○-○○□□	D45	Toolholder (Turning)
PRGC%L ○○○○□-○○	D45	Toolholder (Turning)
PRGC%L ○○○○□-○○BE	D73	Toolholder (Turning)
PRGN%L ○○○○□-○○	D47	Toolholder (Turning)
PRXC%L ○○-○○□□	D46	Toolholder (Turning)
PRXC%L ○○○○□-○○	D46	Toolholder (Turning)
PSBN%L ○○○○□-○○	D21	Toolholder (Turning)
PSDNN ○○○○□-○○	D22	Toolholder (Turning)
PSKN%L ○○○○□-○○	D23	Toolholder (Turning)
PSSN%L ○○○○□-○○	D23	Toolholder (Turning)
P-ST-RC1/8	H17	Coolant Coupler
PTFN%L ○○-○□	D29	Toolholder (Turning)
PTFN%L ○○○○□-○○	D29	Toolholder (Turning)
PTGN%L ○○-○□	D28	Toolholder (Turning)
PTGN%L ○○○○□-○○	D28	Toolholder (Turning)
PTLNR ○○○○JX-○○FF	E68	Toolholder (for Small Double-Sided Tools)
PVLN%L ○○○○□-○○Q	D43	Toolholder (Turning)
PVPN%L ○○○○□-○○Q	D43	Toolholder (Turning)
PVVNN ○○○○□-○○Q	D44	Toolholder (Turning)
PWLN%L ○○-○□	D50	Toolholder (Turning)
PWLN%L ○○○○□-○○	D50	Toolholder (Turning)
Q		
R		
R ○○-(R)-(-SET)	M313	Cartridge Set (API Ring Groover)
R ○○-SET	M313	Cartridge Set (API Ring Groover)
RBG ○○K○○○○○	B123	Insert (Turning)
RCGX ○○○○M0-AQ	B81	Insert (Turning)
RCGX ○○E○○○	B123	Insert (Turning)
RCGX ○○○H○○○T○○○○○	B123	Insert (Turning)
RCGX ○○(○)S○○○○○	B123	Insert (Turning)
RCGX ○○(○)T○○○○○	B123	Insert (Turning)
RCGX ○○○T○○○○○○○○○AA	B123	Insert (Turning)
RCMA ○○(○)T○○○○○○○○○AA	B123	Insert (Turning)
RCMT ○○○○M0-BB	B109	Insert (Turning)
RCMT ○○SR	B81	Insert (Turning)
RCMX ○○○○M0	B81	Insert (Turning)

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Part Number	Page	Description
RDFG ○○FR	M272	Insert (Milling) MRF / MRFW
RDGT ○○○○M0ER-GM	M291	Insert (Milling) MRX
RDGT ○○○○M0ER-SM	M291	Insert (Milling) MRX
RDHX ○○(□)○(○)MOT	M323	Insert (Milling)
RDMT ○○TOM0-H	M323	Insert (Milling)
RDMT ○○○○M0EN-GH	M291	Insert (Milling) MRX
RDMT ○○○○M0ER-GM	M291	Insert (Milling) MRX
RNG ○○E○○○	B116	Insert (Turning)
RNG ○○K○○○○○	B116	Insert (Turning)
RNG ○○S○○○○○	B116	Insert (Turning)
RNG ○○T○○○○○	B116	Insert (Turning)
RNG ○○T○○○○○AA	B116	Insert (Turning)
RNM ○○	C17	Insert (Turning)
RNMG ○○	B33	Insert (Turning)
ROMU ○○○○M0ER-GH	M281	Insert (Milling) MRW
ROMU ○○○○M0ER-GM	M281	Insert (Milling) MRW
ROMU ○○○○M0ER-SM	M281	Insert (Milling) MRW
RPG ○○E○○○	B120	Insert (Turning)
RPG ○○T○○○○○	B120	Insert (Turning)
RPGT ○○(□)○(○)M0ER-GM	M291	Insert (Milling) MRX
RPGT ○○(□)○(○)M0ER-SM	M291	Insert (Milling) MRX
RPGX ○○E○○○	B123	Insert (Turning)
RPGX ○○T○○○○○	B123	Insert (Turning)
RPMT ○○(□)○(○)M0	M313	Insert (Milling)
RPMT ○○(○)○(○)M0-BB	B109	Insert (Turning)
RPMT ○○(□)○(○)M0EN-GH	M291	Insert (Milling) MRX
RPMT ○○(□)○(○)M0ER-GM	M291	Insert (Milling) MRX
RPMT ○○○○M0-H	M323	Insert (Milling)
RPMW ○○○○M0TN	M291	Insert (Milling) MRX
S		
SOO- CHOO-DRA	K36	Chamfering Attachment (Drilling) DRA Magic Drill
SOOO- DRV○○○○○-○-○○	K50~K54	Toolholder (Drilling) DRV Magic Drill
SOO- DRV○○○M-○-○○	K56~K64	Toolholder (Drilling) DRV Magic Drill
SOO- DRZ○○○○○(○)(○)-○○	K86~K92	Toolholder (Drilling) DRZ Magic Drill
SOO(○)- DRZ○○○○○(○○)(○)(○)-○○○	K80~K85	Toolholder (Drilling) DRZ Magic Drill
SOO□- CELNROO-○○	F167	Boring Bars
SOO□- CSKPROO-○○	F130	Boring Bars
SOO□- CTUN% 〇〇-〇〇A	F168	Boring Bars
SOO□- CTUP% 〇	F131	Boring Bars
SOO□- CTUP% 〇〇-〇〇	F131	Boring Bars
SOO(○)□- KGBFL16	G24	Sleeve Holder (Grooving)
SOO(○)□- KTNL16	J25	Sleeve Holder (Threading)
SOO(○)□- KTTXL16	J39	Sleeve Holder (Threading)
SOO□- PCLN% 〇	F148	Boring Bars

Part Number	Page	Description
SOO□- PCLN% 〇〇-〇〇	F148	Boring Bars
SOO□- PDQN% 15-〇〇	F155	Boring Bars
SOO□- PDUN% 11-〇〇	F150	Boring Bars
SOO□- PDUN% 15-〇〇	F154	Boring Bars
SOO□- PDZN% 15-〇〇	F156	Boring Bars
SOO□- PTUN% 〇〇-〇〇	F160	Boring Bars
SOO□- PWLN% 〇〇-〇〇	F162	Boring Bars
SOO(○)□- SCLCLOO	E58	Sleeve Holder (Turning)
SOO□- SCLC% 〇〇-〇〇A	F63	Boring Bars (Dynamic Bar)
SOO□- SCLC% 〇	F67	Boring Bars (General Purpose)
SOO□- SCLC% 〇.〇E	F66	Boring Bars (General Purpose)
SOO□- SCLC% 〇〇-〇〇AE	F62	Boring Bars (Dynamic Bar)
SOOO□- SCLCROO-〇〇〇EZP	F33	Boring Bars (EZ Bar PLUS)
SOO□- SCLP% 〇(○)	F72	Boring Bars (General Purpose)
SOO□- SCLP% 〇〇-〇〇A	F70	Boring Bars (Dynamic Bar)
SOO(○)□- SDLCLOO	E60	Sleeve Holder (Turning)
SOO□- SDQC% 〇〇-〇〇A	F79	Boring Bars (Dynamic Bar)
SOO(○)□- SDUCLLOO	E59	Sleeve Holder (Turning)
SOO□- SDUC% 〇	F86	Boring Bars (General Purpose)
SOO□- SDUC% 〇〇-〇〇A	F75	Boring Bars (Dynamic Bar)
SOO□- SDZC% 〇	F87	Boring Bars (General Purpose)
SOO□- SDZC% 〇〇-〇〇A	F83	Boring Bars (Dynamic Bar)
SOO□- SINR-〇	J26	Toolholder (Threading)
SOO□- SSKPROO-〇〇	F129	Boring Bars (General Purpose)
SOO□- STLB% 〇.〇AE	F90	Boring Bars (Dynamic Bar)
SOO□- STLB% 〇〇-〇〇A	F91	Boring Bars (Dynamic Bar)
SOO□- STLB% 〇〇-〇〇AE	F90	Boring Bars (Dynamic Bar)
SOOO□- STLBROO-〇〇〇EZP	F35	Boring Bars (EZ Bar PLUS)
SOO□- STLC% 〇〇-〇〇A	F101	Boring Bars (Dynamic Bar)
SOO□- STLP% 〇〇-〇〇A	F91	Boring Bars (Dynamic Bar)
SOOO□- STLPROO-〇〇〇EZP	F35	Boring Bars (EZ Bar PLUS)
SOO□- STUB% 〇.〇	F94	Boring Bars (General Purpose)
SOO□- STUP% 〇(○)	F94	Boring Bars (General Purpose)
SOO(○)□- STWL15	G103	Toolholder (for Twin Bars)
SOO□- STWP% 〇	F97, J51	Toolholder (Boring / Threading)
SOO□- STWP% 〇〇-〇〇	F97, J51	Toolholder (Boring / Threading)
SOO□- STWP% 〇〇-〇〇E	F97, J51	Toolholder (Boring / Threading)
SOO(○)□- STWR15	F59	Toolholder (for Twin Bars)
SOO□- SVJB% 〇	F112	Boring Bars (General Purpose)
SOO□- SVJB% 〇〇-〇〇A	F103	Boring Bars (Dynamic Bar)
SOO□- SVJC% 〇〇-〇〇A	F103	Boring Bars (Dynamic Bar)
SOO□- SVJP% 〇〇-〇〇A	F103	Boring Bars (Dynamic Bar)
SOO□- SVN12N	F52	Toolholder (for Swiss IQ Bars)
SOO(○)□- SVN12SN	F53	Toolholder (for Swiss IQ Bars)
SOO(○)□- SVN12SXN	F57	Toolholder (for Swiss IQ Bars)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
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SVPB%○○-○○A	F106	Boring Bars (Dynamic Bar)
SVPB%○E	F113	Boring Bars (General Purpose)
SVPC%○○-○○A	F106	Boring Bars (Dynamic Bar)
SVUBLO○	E62	Sleeve Holder (Turning)
SVUB%○○-○○A	F108	Boring Bars (Dynamic Bar)
SVUB%○E	F113	Boring Bars (General Purpose)
SVUCL○○	E63	Sleeve Holder (Turning)
SVUC%○,○E	F113	Boring Bars (General Purpose)
SVUC%○○-○○A	F108	Boring Bars (Dynamic Bar)
SVZB%○E	F114	Boring Bars (General Purpose)
SVZB%○○-○○A	F111	Boring Bars (Dynamic Bar)
SVZC%○○-○○A	F111	Boring Bars (Dynamic Bar)
SWUB%○,○	F120	Boring Bars (General Purpose)
SWUB%○,○AE	F116	Boring Bars (Dynamic Bar)
SWUB%○○-○○A	F117	Boring Bars (Dynamic Bar)
SWUB%○○-○○AE	F116	Boring Bars (Dynamic Bar)
SWUBR○○-○○EZP	F38	Boring Bars (EZ Bar PLUS)
SWUP%○○-○○A	F117	Boring Bars (Dynamic Bar)
WWLN%○○-○○E	F165	Boring Bars
SABSR ○(○)-○○□(□)F	E20	Toolholder (Turning)
SABSR ○○○○□(□)-○○F	E20	Toolholder (Turning)
SABWR ○(○)-○○□□F	E21	Toolholder (Turning)
SABWR ○○○○□(□)-○○F	E21	Toolholder (Turning)
SB-1STR	P6	Spare Parts (Screw)
SB-1TR	P5	Spare Parts (Screw)
SB-2TR	P5	Spare Parts (Screw)
SB-3STR	P5	Spare Parts (Screw)
SB-3TR	P5	Spare Parts (Screw)
SB-3.5TR	P5	Spare Parts (Screw)
SB-4TR	P5	Spare Parts (Screw)
SB-5TR	P5	Spare Parts (Screw)
SB-1635TR	P6	Spare Parts (Screw)
SB-1840TRP	P6	Spare Parts (Screw)
SB-2035TR	P6	Spare Parts (Screw)
SB-2035TRG	P6	Spare Parts (Screw)
SB-2037TRP	P6	Spare Parts (Screw)
SB-2040TR	P6	Spare Parts (Screw)
SB-2040TRG	P6	Spare Parts (Screw)
SB-2041TRP	P6	Spare Parts (Screw)
SB-2042TRG	P6	Spare Parts (Screw)
SB-2045TR	P6	Spare Parts (Screw)
SB-2045TRN	P6	Spare Parts (Screw)
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SB-2250TR	P6	Spare Parts (Screw)
SB-2255TR	P6	Spare Parts (Screw)
SB-2260TR	P6	Spare Parts (Screw)
SB-2270T%	P6	Spare Parts (Screw)
SB-2290TR	P5	Spare Parts (Screw)
SB-2545TR	P6	Spare Parts (Screw)
SB-2555TRG	P6	Spare Parts (Screw)
SB-2555TRP	P6	Spare Parts (Screw)
SB-2560TR	P6	Spare Parts (Screw)
SB-2570TR	P6	Spare Parts (Screw)
SB-25100TR	P5	Spare Parts (Screw)
SB-3060TR	P6	Spare Parts (Screw)
SB-3060TRP	P6	Spare Parts (Screw)
SB-3065TRP	P6	Spare Parts (Screw)
SB-3070TRG	P6	Spare Parts (Screw)
SB-3070TR%	P6	Spare Parts (Screw)
SB-3070TRP	P6	Spare Parts (Screw)
SB-3076TRP	P6	Spare Parts (Screw)
SB-3080TR	P6	Spare Parts (Screw)
SB-3573TRP	P6	Spare Parts (Screw)
SB-3575TRP	P6	Spare Parts (Screw)
SB-3580TR	P6	Spare Parts (Screw)
SB-3590TRP	P6	Spare Parts (Screw)
SB-3592TR	P6	Spare Parts (Screw)
SB-35120TRP	P6	Spare Parts (Screw)
SB-4050TRN	P6	Spare Parts (Screw)
SB-4060TR	P6	Spare Parts (Screw)
SB-4070TRG	P6	Spare Parts (Screw)
SB-4070TRN	P6	Spare Parts (Screw)
SB-4070TRS	P6	Spare Parts (Screw)
SB-4070TRW	P6	Spare Parts (Screw)
SB-4075TRP	P6	Spare Parts (Screw)
SB-4082TPR	P6	Spare Parts (Screw)
SB-4085TR	P6	Spare Parts (Screw)
SB-4085TRP	P6	Spare Parts (Screw)
SB-4086TRP	P6	Spare Parts (Screw)
SB-4090TRP	P6	Spare Parts (Screw)
SB-4090TRPN	P6	Spare Parts (Screw)
SB-40104TRP	P6	Spare Parts (Screw)
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SB-40120TR	P6	Spare Parts (Screw)
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SB-5070TR	P5	Spare Parts (Screw)
SB-5085TR	P6	Spare Parts (Screw)
SB-5090TR	P5	Spare Parts (Screw)
SB-50110TRP	P6	Spare Parts (Screw)
SB-50120TR	P5	Spare Parts (Screw)
SB-50120TRP	P6	Spare Parts (Screw)
SB-50120TRPH	P6	Spare Parts (Screw)
SB-50120TRS	P6	Spare Parts (Screw)
SB-50140TR	P6	Spare Parts (Screw)
SB-50140TRP	P6	Spare Parts (Screw)
SB-60120TR	P6	Spare Parts (Screw)
SB-60130TRP	P6	Spare Parts (Screw)
SB-60200TRP	P6	Spare Parts (Screw)
SC-30067	P7	Spare Parts (Screw)
SC-35085	P7	Spare Parts (Screw)
SC-40100	P7	Spare Parts (Screw)
SC-50130	P7	Spare Parts (Screw)
SC-60160	P7	Spare Parts (Screw)
SC-60210	P7	Spare Parts (Screw)
SCLC%L ○(○)-○□	E29	Toolholder (Turning)
SCLC%L ○○○○□-○○	E29	Toolholder (Turning)
SCLC%L ○○-○JXFF	E27	Toolholder (Turning)
SCLC%L ○○○○□(□)-○○FF	E27	Toolholder (Turning)
SCLCR ○(○).○(○)-○FJCTM	E28	Toolholder (Turning)
SCLCR ○○○○JX-○○FFJCTM	E28	Toolholder (Turning)
SCLNR ○(○)-○.○□F	E64	Toolholder (for Small Double-Sided Tools)
SCLNR ○○○○□-○○FF	E64	Toolholder (for Small Double-Sided Tools)
SCMT ○○○○HQ	B82	Insert (Turning)
SCMT ○○○○○○-GH-E	K47	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-GH-I	K49	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-GM-E	K47	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-GM-I	K49	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-SM-E	K47	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-SM-I	K49	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-XM-E	K47	Insert (Drilling) DRV Magic Drill
SCMT ○○○○○○-XM-I	K49	Insert (Drilling) DRV Magic Drill
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SCR-03	P7	Spare Parts (Screw)
SCR-04	P7	Spare Parts (Screw)

Part Number	Page	Description
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SCR-16	P7	Spare Parts (Screw)
SCR-30	P7	Spare Parts (Screw)
SDJC%L ○(○)-○□(□)	E33	Toolholder (Turning)
SDJC%L ○○○○□-○○	E33	Toolholder (Turning)
SDJCR ○○(○)-○JX-FO	E23	Toolholder (Goose-neck Holder)
SDJCR ○○○○JX-○○-FO○	E23	Toolholder (Goose-neck Holder)
SDJC%L ○(○)-○JXFF	E31	Toolholder (Turning)
SDJC%L ○○○○□(□)-○○FF	E31	Toolholder (Turning)
SDJCR ○○(○)-○□□JCTM	E32	Toolholder (Turning)
SDJCR ○○○○JX-○○FFJCTM	E32	Toolholder (Turning)
SDJCR ○○○○JX-○○-FO○JCTM	E32	Toolholder (Turning)
SDJCR ○○○○□□-○○FF-Y	E34	Toolholder (Turning)
SDKN ○○AUFN	C62, M318, M322	Insert (Milling)
SDKN ○○AUTN	M318	Insert (Milling)
SDKR ○○AUEN-S	M318	Insert (Milling)
SDKW ○○○○AESN	M323	Insert (Milling)
SDKW ○○○○AETN	M323	Insert (Milling)
SDKW ○○(□)○○○○FN	M300	Insert (Milling) MCSE
SDKW ○○(□)○○○○TN	M300	Insert (Milling) MCSE
SDLC%L ○(○)-○JXFF	E36	Toolholder (Turning)
SDLC%L ○○○○□(□)-○○FF	E36	Toolholder (Turning)
SDLNR ○(○)-○.○□F	E65	Toolholder (for Small Double-Sided Tools)
SDLNR ○○○○□-○○FF	E65	Toolholder (for Small Double-Sided Tools)
SDLP%L ○○○○□(□)-○○FF	E39	Toolholder (Turning)
SDMR ○○AUER-H	M318	Insert (Milling)
SDMT ○○.○○C	M290	Insert (Milling) MCSE
SDMT ○○○○AESR-H	M323	Insert (Milling)
SDMT ○○○○(○)(○)(○)E-K	M306	Insert (Milling) METS
SDMT ○○○E-K	M306	Insert (Milling) METS
SDNCN ○(○)-○JX	E37	Toolholder (Turning)
SDNCN ○○○○□(□)-○○	E37	Toolholder (Turning)
SDXC%L ○○○○JX-○○	E36	Toolholder (Turning)
SE-3070TRP	P7	Spare Parts (Screw)
SE-40050TRN	P7	Spare Parts (Screw)
SE-40055TR	P7	Spare Parts (Screw)
SE-40068TR	P7	Spare Parts (Screw)
SE-40080TR	P7	Spare Parts (Screw)
SE-40090TR	P7	Spare Parts (Screw)
SE-40100TR	P7	Spare Parts (Screw)
SE-40120TR	P7	Spare Parts (Screw)
SE-50125TR	P7	Spare Parts (Screw)
SEC ○○○	M318	Insert (Milling)
SEEN ○○AFN	C62, M322	Insert (Milling)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
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Part Number	Page	Description
SEEN ○○AFRR-W	M318	Insert (Milling)
SEEN ○○AFTN	M318	Insert (Milling)
SEEN ○○AFTR-W	M318	Insert (Milling)
SEET ○○TOAGFN-AL	M42	Insert (Milling) MFSE45
SEET ○○TOAGSN-GL	M42	Insert (Milling) MFSE45
SEET ○○TOAGSN-SL	M42	Insert (Milling) MFSE45
SEKN ○○AFFN	M318	Insert (Milling)
SEKN ○○AFTN	M318	Insert (Milling)
SEKN ○○EFTR	M318	Insert (Milling)
SEKR ○○AFEN-S	M318	Insert (Milling)
SEKT ○○AFEN-S	M323	Insert (Milling)
SEKW ○○AFTN	M323	Insert (Milling)
SEKW ○○○FN	M300	Insert (Milling) MCSE
SEKW ○○○TN	M300	Insert (Milling) MCSE
SEMR ○○AFER-H	M318	Insert (Milling)
SEMT ○○○C	M300	Insert (Milling) MCSE
SF○○- DRA○○○M-○(,○)	K26~K30	Toolholder (Drilling) DRA Magic Drill
SF○○○○- DRA○○○M-○(,○)	K18~K21	Toolholder (Drilling) DRA Magic Drill
SF ^{PK} - ○○○(○)□	G144	Blade (Face Grooving)
SF22F- SH20-○□(-HA)	E71	Sub-Spindle Holders
SH ○○○○-○○○	F172	Sleeve (for Boring Bar)
SHA ○○○○(,○)-○○○	F171	Sleeve
SHC ○○○○-○○	F172	Coolant Sleeve (for Boring Bar)
SHE ○○○○-○○	K74	Adjustable Sleeve (Drilling) for Magic Drill (DRV / DRZ)
SHEM ○○○○-○○	F144	Anti-Vibration Boring Bar Sleeve
SHS ○○○○N-○○	F144	Anti-Vibration Boring Bar Sleeve
SHS ○○○○-○○	F144	Anti-Vibration Boring Bar Sleeve
SIG ^{PK} ○○○○-EH	G80	Toolholder (Grooving)
SIG ^{PK} ○○○○-WH	G81	Toolholder (Grooving)
SIG ^{PK} ○○○○-WH-L○○(○)	G81	Toolholder (Grooving)
SIG ^{PK} ○○○○-EH	G86	Toolholder (Grooving)
SIG ^{PK} ○○○○□-EH	G86	Toolholder (Grooving)
SIG ^{PK} ○○○○□-WH	G87	Toolholder (Grooving)
SIGER ○○○○□-WH-90	G88	Toolholder (Grooving / for Small Tools)
SIN ^{PK} ○○○○S-○○	J26	Toolholder (Threading)
SIN ^{PK} ○○○○S-○○E	J26	Toolholder (Threading)
SJS- ○	F173	Coolant Joint
SL- ○(,○-○○)	F172	Sleeve (for Boring Bar)
SLT ○○-○○KB	M268	Insert (Slot Milling) MSTA
SLT ○○-○○KD	M268	Insert (Slot Milling) MSTA
SNCN ○○XNTN	M320	Insert (Milling)
SNEU ○○○○ANEN-W	M18	Insert (Milling) MB45
SNEU ○○○○ANER-GM	M18	Insert (Milling) MB45
SNEU ○○○○ANER-SM	M18	Insert (Milling) MB45

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SNEU ○○○○ANFR-AM	M18	Insert (Milling) MB45
SNG ○○○S○○○○○	B117	Insert (Turning)
SNG ○○○T○○○○○	B117	Insert (Turning)
SNG ○○○T○○○○○AA	B117	Insert (Turning)
SNGA ○○○	B37	Insert (Turning)
SNGA ○○○MEF	C12	Insert (Turning)
SNGA ○○○S○○○○○	B117	Insert (Turning)
SNGA ○○○S○○○○○ME	C12	Insert (Turning)
SNGA ○○○S○○○○○MEH	C12	Insert (Turning)
SNGA ○○○S○○○○○MEP	C12	Insert (Turning)
SNGA ○○○S○○○○○MET	C12	Insert (Turning)
SNGA ○○○T○○○○○	B117	Insert (Turning)
SNGA ○○○T○○○○○AA	B117	Insert (Turning)
SNGG ○○○L-25R	B37	Insert (Turning)
SNGG ○○○L-B/C	B37	Insert (Turning)
SNGG ○○○R-25R	B37	Insert (Turning)
SNGG ○○○R-B/C	B37	Insert (Turning)
SNKN ○○XNTN	M320	Insert (Milling)
SNM ○○○	B38, C18, M320	Insert (Turning / Milling)
SNM ○○○T○○○○○	B117	Insert (Turning)
SNMA ○○○	B37	Insert (Turning)
SNMA ○○○T○○○○○AA	B117	Insert (Turning)
SNMF ○○○○○○-21	B109	Insert (Turning)
SNMF ○○XNTN	M320	Insert (Milling)
SNMG ○○○	B34	Insert (Turning)
SNMG ○○○C	B36	Insert (Turning)
SNMG ○○○(○)GC	B37	Insert (Turning)
SNMG ○○○HQ	B34	Insert (Turning)
SNMG ○○○KG	B36	Insert (Turning)
SNMG ○○○KH	B36	Insert (Turning)
SNMG ○○○L-C	B37	Insert (Turning)
SNMG ○○○MQ	B36	Insert (Turning)
SNMG ○○○MS	B36	Insert (Turning)
SNMG ○○○MU	B36	Insert (Turning)
SNMG ○○○PMG	B34	Insert (Turning)
SNMG ○○○PG	B34	Insert (Turning)
SNMG ○○○PH	B35	Insert (Turning)
SNMG ○○○PQ	B34	Insert (Turning)
SNMG ○○○PS	B34	Insert (Turning)
SNMG ○○○PT	B34	Insert (Turning)
SNMG ○○○R-C	B37	Insert (Turning)
SNMG ○○○SG	B36	Insert (Turning)
SNMG ○○○XP	B35	Insert (Turning)
SNMG ○○○XQ	B35	Insert (Turning)
SNMG ○○○XS	B35	Insert (Turning)

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SNMG ○○○ZS	B37	Insert (Turning)
SNMM ○○○PX	B35	Insert (Turning)
SNMU ○○○○○EN-GH	M162	Insert (Milling) MFSN88
SNMU ○○○○○EN-GM	M162	Insert (Milling) MFSN88
SNMU ○○○○○EN-SM	M162	Insert (Milling) MFSN88
SNMU ○○○○ANER-GH	M18	Insert (Milling) MB45
SNMU ○○○○ANER-GM	M18	Insert (Milling) MB45
SOMT ○○○○○ER-FL	M233	Insert (Milling) MFH
SOMT ○○○○○ER-GH	M233	Insert (Milling) MFH
SOMT ○○○○○ER-GM	M233	Insert (Milling) MFH
SOMT ○○○○○ER-LD	M233	Insert (Milling) MFH
SP-2D	P23	Spare Parts (Spring)
SP-3D	P23	Spare Parts (Spring)
SP-5	P23	Spare Parts (Spring)
SP-5D	P23	Spare Parts (Spring)
SP-6	P23	Spare Parts (Spring)
SP3X6	P7	Spare Parts (Screw)
SP3X8	P7	Spare Parts (Screw)
SP3X10	P7	Spare Parts (Screw)
SP4X9	P7	Spare Parts (Screw)
SP8X35	P7	Spare Parts (Screw)
SP-129	P11	Spare Parts (Shim)
SP-130A	P12	Spare Parts (Shim)
SP-141	P11	Spare Parts (Shim)
SP-141P	P12	Spare Parts (Shim)
SP-143	P11	Spare Parts (Shim)
SP-143P	P12	Spare Parts (Shim)
SP-148	P11	Spare Parts (Shim)
SP-162	P11	Spare Parts (Shim)
SP-210A	P12	Spare Parts (Shim)
SP-219	P11	Spare Parts (Shim)
SP-221	P11	Spare Parts (Shim)
SP-223	P11	Spare Parts (Shim)
SP-230P	P12	Spare Parts (Shim)
SP-341P	P12	Spare Parts (Shim)
SP-342	P11	Spare Parts (Shim)
SP-420A	P12	Spare Parts (Shim)
SP-429	P12	Spare Parts (Shim)
SP-441	P11	Spare Parts (Shim)
SP-441P	P12	Spare Parts (Shim)
SP-443	P11	Spare Parts (Shim)
SP-454	P11	Spare Parts (Shim)
SP-521	P12	Spare Parts (Shim)
SP-521P	P12	Spare Parts (Shim)
SP-826	P12	Spare Parts (Shim)

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SP-829	P12	Spare Parts (Shim)
SP-841	P12	Spare Parts (Shim)
SP-843	P12	Spare Parts (Shim)
SP-849	P12	Spare Parts (Shim)
SP-861	P12	Spare Parts (Shim)
SPCN ○○EDTR	M319	Insert (Milling)
SPCN ○○EETR1	M319	Insert (Milling)
SPCN ○○XPTR	M319	Insert (Milling)
SPEN ○○EER	M319	Insert (Milling)
SPEN ○○EESR	M319	Insert (Milling)
SPG ○○○	B83, C43, M319	Insert (Turning / Milling)
SPG ○○○NE	C43	Insert (Turning / Milling)
SPG ○○○T○○○○○AA	B121	Insert (Turning)
SPG ○○○T○○○○○	B121	Insert (Turning)
SPGH ○○○L	B82	Insert (Turning)
SPGR ○○○%L	B83	Insert (Turning)
SPKN ○○EDER	M319	Insert (Milling)
SPKN ○○EDFR	M319	Insert (Milling)
SPKN ○○EDT%L	M319	Insert (Milling)
SPKN ○○XETR	M319	Insert (Milling)
SPKN ○○XPFR	M319	Insert (Milling)
SPKN ○○XPTR	M319	Insert (Milling)
SPKR ○○EDER-S	M319	Insert (Milling)
SPM ○○○	B83, M319	Insert (Turning / Milling)
SPMR ○○○	B83	Insert (Turning / Milling)
SPMR ○○○G	B83	Insert (Turning / Milling)
SPMR ○○EDER-H	M319	Insert (Milling)
SPMT ○○○○EDER-NB○	M66	Insert (Milling) MSRS15
SPMT ○○○○EDER-NB○P	M66	Insert (Milling) MSRS15
SPMT ○○○○EDER-V	M66	Insert (Milling) MSRS15
SPMT ○○○○EDSR-NB○T	M66	Insert (Milling) MSRS15
SPMT ○○○○○EN-GM	M303	Insert (Milling) MEF
SPMT ○○○○○EN-NB○	M174	Insert (Milling) MSRS90
SPMT ○○○○○EN-NB○P	M174	Insert (Milling) MSRS90
SPMT ○○○○○EN-V	M174	Insert (Milling) MSRS90
SPMT ○○○○○E-Z	M303	Insert (Milling) MEF
SP-RC	P13	Spare Parts (Shim)
SPW-5035	P7	Spare Parts (Screw)
SPW-6045	P7	Spare Parts (Screw)
SPW-7050	P7	Spare Parts (Screw)
SRCP%L ○○○○B-○○-A○○	F132	Boring Bar (for Bearing Machining)
SS-4N	P7	Spare Parts (Shim Screw)
SS○○- DRA○○○M-○(○)	K31~K34	Toolholder (Drilling) DRA Magic Drill
SS○○○○- DRA○○○M-○(○)	K22~K25	Toolholder (Drilling) DRA Magic Drill
STGC%L ○○○○□-○○	E40	Toolholder (Turning)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
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STGP [℥] ○○○○□-○○	E41	Toolholder (Turning)
STLNR ○-○.○□F	E66	Toolholder (for Small Double-Sided Tools)
STLNR ○○○○□-○○FF	E66	Toolholder (for Small Double-Sided Tools)
STWL ○○○○□-15	G102	Toolholder (for Twin Bars)
STWR ○○○○□-15	F58	Toolholder (for Twin Bars)
STWSR ○○○○□(□)-15T	F61, G105	Toolholder (for Twin Bars)
SV-60136TR	P7	Spare Parts (Screw)
SVJB [℥] ○(○)-○□	E43, E45	Toolholder (Turning)
SVJB [℥] ○○○○□-○○	E45	Toolholder (Turning)
SVJB [℥] ○(○)-○□□FF	E43	Toolholder (Turning)
SVJB [℥] ○○○○□□-○○FF	E43	Toolholder (Turning)
SVJB [℥] ○○○○□-○○(N)	E45	Toolholder (Turning)
SVJBR ○(○)(.○)-○FFJCTM	E44	Toolholder (Turning)
SVJBR ○○○○JX-○○FFJCTM	E44	Toolholder (Turning)
SVJC [℥] ○○○○□(□)-○○FF	E48	Toolholder (Turning)
SVJP [℥] ○(○)-○□□FF	E51	Toolholder (Turning)
SVJP [℥] ○○○○□(□)-○○FF	E51	Toolholder (Turning)
SVJPR ○(○)(.○)-○FFJCTM	E51	Toolholder (Turning)
SVJPR ○○○○JX-○○FFJCTM	E51	Toolholder (Turning)
SVLC [℥] ○○○○□(□)-○○FF	E48	Toolholder (Turning)
SVLP [℥] ○-○□□FF	E52	Toolholder (Turning)
SVLP [℥] ○○○○□(□)-○○FF	E52	Toolholder (Turning)
SVLPR ○○(○)-○JX-F○	E24	Toolholder (Goose-neck Holder)
SVLPR ○○○○JX-○○-F○○	E24	Toolholder (Goose-neck Holder)
SVNR ○○○○□-12N	F50	Toolholder (for Swiss IQ Bars)
SVN-32	P13	Spare Parts (Shim)
SVN-32N	P13	Spare Parts (Shim)
SVN-32S	P13	Spare Parts (Shim)
SVNSR ○○○○□-12-○○N	F51	Toolholder (for Swiss IQ Bars)
SVNSR ○○○○□-12-○○XN	F55	Toolholder (for Swiss IQ Bars)
SVPB [℥] ○○○○□(□)-○○	E46	Toolholder (Turning)
SVPB [℥] ○○○○□-○○N	E46	Toolholder (Turning)
SVPCR ○○○○□(□)-○○FF	E49	Toolholder (Turning)
SVPPR ○(○)-○(○)□□FF	E53	Toolholder (Turning)
SVPPR ○○○○□(□)-○○FF	E53	Toolholder (Turning)
SVVBN ○(○)-○□□	E47	Toolholder (Turning)
SVVBN ○○○○□(□)-○○	E47	Toolholder (Turning)
SVVBN ○○○○□-○○N	E47	Toolholder (Turning)
SVVCN ○○○○JX-11	E50	Toolholder (Turning)
SZLB [℥] ○○-○□-C	E56	Toolholder (Turning)
SZLB [℥] ○○○○□-13C	E56	Toolholder (Turning)
SZPB [℥] ○○-○□-C	E56	Toolholder (Turning)
SZPB [℥] ○○○○□-13C	E56	Toolholder (Turning)
SZVBN ○○-○□-C	E57	Toolholder (Turning)

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SZVBN ○○○○□-13C	E57	Toolholder (Turning)
T		
T63H- KGBA [℥] -16	N32	Grooving (HSK Tooling)
T63H- KGBA [℥] -22-○○	N32	Grooving (HSK Tooling)
T63H- KTNR-○○	N32	Threading (HSK Tooling)
T63H- N○○-○○(○)	N33	Toolholder (HSK Tooling)
T63H- PCLN [℥] -DX12	N22	Toolholder (HSK Tooling)
T63H- PCMNN-□12	N22	Toolholder (HSK Tooling)
T63H- PDJN [℥] -DX15	N24	Toolholder (HSK Tooling)
T63H- PDNNN-□15	N24	Toolholder (HSK Tooling)
T63H- PTGN [℥] -DX16	N26	Toolholder (HSK Tooling)
T63H- PWLN [℥] -DX08	N28	Toolholder (HSK Tooling)
T63H- S2020R-105T	N20	Toolholder (HSK Tooling)
T63H- S2525-○○(○)F	N21	Toolholder (HSK Tooling)
T63H- S2525 [℥] -○○○	N20	Toolholder (HSK Tooling)
T63H- SVLB [℥] -DX16N	N30	Toolholder (HSK Tooling)
T63H- SVVBN-□16N	N30	Toolholder (HSK Tooling)
T63H- WTENN-□16	N26	Toolholder (HSK Tooling)
T63H- WWMNN-□08	N28	Toolholder (HSK Tooling)
T100H- S2525-○○○F	N21	Toolholder (HSK Tooling)
T100H- S2525R-○○○T	N20	Toolholder (HSK Tooling)
T100H- S2525 [℥] -○○○	N20	Toolholder (HSK Tooling)
TBET ○○○○(○)(○)M [℥]	B84	Insert (Turning)
TBG ○○○○(○)T○○○○○AA	B122	Insert (Turning)
TBG ○○○○(○)T○○○○○	B122, C25	Insert (Turning)
TBGT ○○○○○CF	B84	Insert (Turning)
TBGT ○○○○(○)MFP-PF	B84	Insert (Turning)
TBGT ○○○○○MP-CF	B84	Insert (Turning)
TBGT ○○○○(○) [℥]	B84	Insert (Turning)
TBGW ○○○○(○)	B84	Insert (Turning)
TBGW ○○○○(○)NE	C44	Insert (Turning)
TBMT ○○○○(○)	C44	Insert (Turning)
TBMT ○○○○(○)DP	B84	Insert (Turning)
TBMT ○○○○(○)NE	C44	Insert (Turning)
TB- T○(○)x65	P22	Wrench Bit Set (DTD500)
TB- T○(○)x110	P22	Wrench Bit Set (DTD500)
TBTPB- VS65	P22	Wrench Bit Variety Set (DTD500)
TBTPB- VS110	P22	Wrench Bit Variety Set (DTD500)
TCET ○○○○(○)(○)F [℥] -USF	B85	Insert (Turning)
TCET ○○○○MF [℥] -USF	B85	Insert (Turning)
TCGT ○○○(○)(○)(○)E [℥] -U	B86	Insert (Turning)
TCGT ○○○○(○)(○)F [℥] -U	B86	Insert (Turning)
TCGT ○○○(○)(○)(○)ME [℥] -U	B86	Insert (Turning)
TCGT ○○○(○)(○)(○)MF [℥] -U	B86	Insert (Turning)

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TCGT ○○○(○)℥-A3	B87	Insert (Turning)
TCGW ○○○(○)(○)(○)	B87	Insert (Turning)
TCGW ○○○(○)NE	C45	Insert (Turning)
TCGW ○○○(○)SE	C45	Insert (Turning)
TCMT ○○○○(○)(○)	C45	Insert (Turning)
TCMT ○○○○HP	K110	Insert (Drilling) Counterbore
TCMT ○○○○(○)(○)HQ	B85, K110, K112	Insert (Turning/Drilling) Counterbore/Countersink
TCMT ○○○(○)(○)(○)NE	C45	Insert (Turning)
TCMT ○○○(○)SE	C45	Insert (Turning)
TCMX ○○○○(○)WP	B85	Insert (Turning)
TEEN ○○PTFR	C62, M322	Insert (Milling)
TEEN ○○PTFR-NE	C62, M322	Insert (Milling)
TEEN ○○PTTR	M321	Insert (Milling)
TEKN ○○PTFR	C62, M321	Insert (Milling)
TEKN ○○PTFR-NE	C62, M322	Insert (Milling)
TEKN ○○PTTR	M321	Insert (Milling)
TEKR ○○PTFR-S	M321	Insert (Milling)
TEMR ○○PTFR-H	M321	Insert (Milling)
TH-4	P21	Spare Parts (Hexagon Wrench / T-shaped Type)
TH8X15	P7	Spare Parts (Screw)
TKN ○(.○)	H64	Insert (Cut-Off)
TKN ○(.○)-P	H64	Insert (Cut-Off)
TK℥ ○(.○)	H64	Insert (Cut-Off)
TK℥ ○(.○)-P	H64	Insert (Cut-Off)
TKF ○○R○○○-AGT	C57, E14	Insert (Grooving / Turning)
TKF ○○℥○○○-AS	C57, E14	Insert (Grooving / Turning)
TKF ○○℥○○○-GTP	B111, E12	Insert (Grooving / Turning)
TKF ○○℥○○○-NB	C57, E14, H6, H8	Insert (Grooving / Turning)
TKF ○○℥○○○-NB-○○DR	H7, H8	Insert (Cut-Off)
TKF ○○℥○○○-S	H6, H8	Insert (Cut-Off)
TKF ○○℥○○○-S-○○DR	H6, H8	Insert (Cut-Off)
TKF ○○℥○○○-T	H6, H8	Insert (Cut-Off)
TKF ○○℥○○○-T-○○DR	H6, H8	Insert (Cut-Off)
TKFB ○○L○○○○○MR	B110, E12	Insert (Back Turning)
TKFB ○○R○○○○○-GQ	B110, E12	Insert (Back Turning)
TKFB ○○R○○○○○P-GQ	B110, E12	Insert (Back Turning)
TKFB ○○R○○○○○M	B110, E12	Insert (Back Turning)
TKFT 12℥○○○○(○)	J28	Insert (Threading)
TN-32	P13	Spare Parts (Shim)
TN-43	P13	Spare Parts (Shim)
TNEG ○○○(○)℥-SSF	B45	Insert (Turning)
TNG ○○○S○○○○○	B118	Insert (Turning)
TNG ○○○T○○○○○	B118	Insert (Turning)
TNG ○○○T○○○○○AA	B118	Insert (Turning)

Part Number	Page	Description
TNGA ○○○	B44	Insert (Turning)
TNGA ○○○MEF	C13	Insert (Turning)
TNGA ○○○ME6	C13	Insert (Turning)
TNGA ○○○S○○○○○	B118	Insert (Turning)
TNGA ○○○(○)S○○○○○ME	C13	Insert (Turning)
TNGA ○○○S○○○○○MEH	C13	Insert (Turning)
TNGA ○○○S○○○○○MEP	C13	Insert (Turning)
TNGA ○○○S○○○○○MET	C13	Insert (Turning)
TNGA ○○○T○○○○○	B118	Insert (Turning)
TNGA ○○○T○○○○○AA	B118	Insert (Turning)
TNGG ○○○AH	B44	Insert (Turning)
TNGG ○○○FP-TK	B42	Insert (Turning)
TNGG ○○○(○)L	B46	Insert (Turning)
TNGG ○○○L-25R	B46	Insert (Turning)
TNGG ○○○L-A3	B44	Insert (Turning)
TNGG ○○○(○)L-B	B45	Insert (Turning)
TNGG ○○○(○)L-C	B46	Insert (Turning)
TNGG ○○○(○)L-S	B45	Insert (Turning)
TNGG ○○○(○)M-SK	B42	Insert (Turning)
TNGG ○○○(○)MFP-SK	B42	Insert (Turning)
TNGG ○○○TK	B42	Insert (Turning)
TNGG ○○○(○)R	B46	Insert (Turning)
TNGG ○○○R-25R	B46	Insert (Turning)
TNGG ○○○R-A3	B44	Insert (Turning)
TNGG ○○○(○)R-B	B45	Insert (Turning)
TNGG ○○○(○)R-C	B46	Insert (Turning)
TNGG ○○○(○)R-S	B45	Insert (Turning)
TNGU ○○○○(○)MER-U	B57	Insert (Turning)
TNGU ○○○○(○)(○)MFR-F	B57	Insert (Turning)
TNGU ○○○○(○)(○)MFR-U	B57	Insert (Turning)
TNM ○○○	C19	Insert (Turning)
TNMA ○○○	B44	Insert (Turning)
TNMG ○○○	B40	Insert (Turning)
TNMG ○○○AH	B44	Insert (Turning)
TNMG ○○○C	B43	Insert (Turning)
TNMG ○○○CQ	B39	Insert (Turning)
TNMG ○○○GC	B43	Insert (Turning)
TNMG ○○○(○)GP	B39	Insert (Turning)
TNMG ○○○GS	B40	Insert (Turning)
TNMG ○○○GT	B40	Insert (Turning)
TNMG ○○○HQ	B39	Insert (Turning)
TNMG ○○○KG	B43	Insert (Turning)
TNMG ○○○KH	B43	Insert (Turning)
TNMG ○○○KQ	B43	Insert (Turning)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

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Part Number	Page	Description
TNMG ○○○L-ST	B43	Insert (Turning)
TNMG ○○○MQ	B42	Insert (Turning)
TNMG ○○○MS	B42	Insert (Turning)
TNMG ○○○MU	B42	Insert (Turning)
TNMG ○○○PG	B40	Insert (Turning)
TNMG ○○○PH	B41	Insert (Turning)
TNMG ○○○PMG	B40	Insert (Turning)
TNMG ○○○(○)PP	B39	Insert (Turning)
TNMG ○○○PQ	B39	Insert (Turning)
TNMG ○○○PS	B40	Insert (Turning)
TNMG ○○○PT	B40	Insert (Turning)
TNMG ○○○(○)R-LD	B42	Insert (Turning)
TNMG ○○○R-ST	B43	Insert (Turning)
TNMG ○○○SG	B43	Insert (Turning)
TNMG ○○○TK	B42	Insert (Turning)
TNMG ○○○XF	B41	Insert (Turning)
TNMG ○○○XP	B41	Insert (Turning)
TNMG ○○○XQ	B41	Insert (Turning)
TNMG ○○○XS	B41	Insert (Turning)
TNMG ○○○ZS	B43	Insert (Turning)
TNMM ○○○(○)M	C36	Insert (Turning)
TNMM ○○○(○)M-NE	C36	Insert (Turning)
TNMM ○○○(○)M-SE	C36	Insert (Turning)
TNMM ○○○PX	B41	Insert (Turning)
TNMX ○○○WF	B39	Insert (Turning)
TNW-32	P13	Spare Parts (Shim)
TOMT ○○○○○ER-GM	M123	Insert (Milling) MEV
TOMT ○○○○○ER-SM	M123	Insert (Milling) MEV
TP ○○○	B92	Insert (Turning)
TPB- T(○)IPx65	P22	Wrench Bit Set (DTD500)
TPB- T(○)IPx110	P22	Wrench Bit Set (DTD500)
TPC 32P4R	M321	Insert (Milling)
TPEH ○○○(○)(○)(○)M%L-P	B92	Insert (Turning)
TPET ○○○(○)(○)F%L-USF	B94	Insert (Turning)
TPET ○○○(○)(○)M%L-USF	B94	Insert (Turning)
TPET ○○○(○)(○)M%L-FSF	B92	Insert (Turning)
TPET ○○○(○)(○)F%L-FSF	B92	Insert (Turning)
TPG ○○○(○)(○)(○)	B96, C48, M185, M321, M322	Insert (Turning / Milling)
TPG ○○○NE	C48	Insert (Turning / Milling)
TPG ○○○(○)SE	C48	Insert (Turning / Milling)
TPG ○○○S○○○○○SET	C25	Insert (Turning)
TPG ○○○(○)(○)T○○○○○	B122	Insert (Turning)
TPG ○○○(○)(○)T○○○○○AA	B122	Insert (Turning)
TPG ○○○(○)T○○○○○ME	C25	Insert (Turning)

Part Number	Page	Description
TPG ○○○(○)T○○○○○SE	C25	Insert (Turning)
TPGB ○○○(○)(○)(○)	B94, C46, J50	Insert (Turning / Threading)
TPGB ○○○MEF	C23	Insert (Turning)
TPGB ○○○(○)(○)(○)NE	C46	Insert (Turning)
TPGB ○○○(○)(○)(○)SE	C46	Insert (Turning)
TPGB ○○○S○○○○○MES	C23	Insert (Turning)
TPGB ○○○(○)S○○○○○MET	C23	Insert (Turning)
TPGB ○○○(○)(○)(○)S○○○○○SET	C23	Insert (Turning)
TPGB ○○○(○)T○○○○○ME	C23	Insert (Turning)
TPGB ○○○(○)(○)(○)T○○○○○SE	C23	Insert (Turning)
TPGH ○○○(○)(○)(○)M%L	B91	Insert (Turning)
TPGH ○○○(○)ML-H	B93	Insert (Turning)
TPGH ○○○(○)(○)(○)F%L	B90	Insert (Turning)
TPGH ○○○(○)(○)(○)F%L-H	B93	Insert (Turning)
TPGR ○○○(○)F%L-A/B/C	B96	Insert (Turning)
TPGR ○○○(○)(○)F%L-F	B96	Insert (Turning)
TPGT ○○○(○)(○)AP	B94	Insert (Turning)
TPGT ○○○○○○CF	B88	Insert (Turning)
TPGT ○○○(○)L-H	B93	Insert (Turning)
TPGT ○○○○○(○)MFP-PF	B88	Insert (Turning)
TPGT ○○○○○○MP-CF	B88	Insert (Turning)
TPGW ○○○S○○○○○MET	C24	Insert (Turning)
TPGW ○○○T○○○○○ME	C24	Insert (Turning)
TPGW ○○○T○○○○○SE	C24	Insert (Turning)
TPK ○○PDR	M185, M321	Insert (Milling) MTP90
TPK ○○PDTR	M185, M321	Insert (Milling) MTP90
TPKR ○○PDER-S	M185, M321	Insert (Milling) MTP90
TPM ○○○	B96, M185, M321	Insert (Turning / Milling)
TPMH ○○○(○)(○)(○)	C47	Insert (Turning)
TPMH ○○○(○)(○)(○)NE	C47	Insert (Turning)
TPMH ○○○(○)(○)(○)SE	C47	Insert (Turning)
TPMR ○○○	B95	Insert (Turning)
TPMR ○○○DP	B95	Insert (Turning)
TPMR ○○○(○)(○)(○)G	B95	Insert (Turning)
TPMR ○○○GP	B95	Insert (Turning)
TPMR ○○○HQ	B95	Insert (Turning)
TPMR ○○PDER-H	M185, M321	Insert (Milling) MTP90
TPMT ○○○(○)APD	C47	Insert (Turning)
TPMT ○○○(○)(○)(○)GP	B89	Insert (Turning)
TPMT ○○○(○)(○)(○)HQ	B89	Insert (Turning)
TPMT ○○○(○)(○)(○)PP	B88	Insert (Turning)
TPMT ○○○(○)(○)XP	B89	Insert (Turning)
TPMT ○○○XQ	B89	Insert (Turning)
TPMX ○○○(○)(○)(○)WP	B88	Insert (Turning)

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Part Number	Page	Description
TPMX ○○○%L-WP	B88	Insert (Turning)
TS-3S	P8	Spare Parts (Lock Pin)
TT-15	P21	Spare Parts (Torx Wrench / T-shaped Type)
TT-25	P21	Spare Parts (Torx Wrench / T-shaped Type)
TT-25L	P21	Spare Parts (Torx Wrench / T-shaped Type)
TT-30	P21	Spare Parts (Torx Wrench / T-shaped Type)
TT 43ER○○○M	J40	Insert (Threading)
TT ○○%L○○○○	J40, J42	Insert (Threading)
TTC-20	P21	Spare Parts (Torx Wrench / T-shaped Type)
TTC-25	P21	Spare Parts (Torx Wrench / T-shaped Type)
TTP-20	P21	Spare Parts (Torx Plus Wrench / T-shaped Type)
TTW-15	P21	Spare Parts (Torx Wrench / T-shaped Type)
TTX 32R○○○○○(○)	J38	Insert (Threading)
TTX 32R○○○○○(○)S	J38	Insert (Threading)
TWBR ○○○○-○○○	F58	Twin Bars (Boring)
TWBTR ○○○○-○○○	F60	Twin Bars (Boring)
TWFG L ○○○	G102	Twin Bars (Face Grooving)
TWFGTR ○○○	G104	Twin Bars (Face Grooving)
U		
V		
VBET ○○○○(○)M%L-F	B98	Insert (Turning)
VBET ○○○○(○)M%L-FSF	B98	Insert (Turning)
VBET ○○○○(○)M%L-FSF	B98	Insert (Turning)
VBET ○○○○(○)M%L-Y	B99	Insert (Turning)
VBGT ○○○○(○)FN-Z	B98	Insert (Turning)
VBGT ○○○○(○)M%L-F	B98	Insert (Turning)
VBGT ○○○○(○)M%L-Y	B99	Insert (Turning)
VBGT ○○○○%L-F	B98	Insert (Turning)
VBGT ○○○○%L-Y	B99	Insert (Turning)
VBGW ○○○MEF	C26	Insert (Turning)
VBGW ○○○S○○○○○MES	C26	Insert (Turning)
VBGW ○○○○(○)S○○○○○MET	C26	Insert (Turning)
VBGW ○○○S○○○○○SET	C26	Insert (Turning)
VBGW ○○○○(○)T○○○○○ME	C26	Insert (Turning)
VBGW ○○○○(○)T○○○○○SE	C26	Insert (Turning)
VBMT ○○○○(○)(○)	C49	Insert (Turning)
VBMT ○○○GP	B97	Insert (Turning)
VBMT ○○○HQ	B97	Insert (Turning)
VBMT ○○○○(○)NE	C49	Insert (Turning)
VBMT ○○○○(○)PP	B97	Insert (Turning)

Part Number	Page	Description
VBMT ○○○○(○)SE	C49	Insert (Turning)
VBMT ○○○○(○)VF	B97	Insert (Turning)
VCET ○○○○(○)M%L-F	B101	Insert (Turning)
VCET ○○○○(○)(○)M%L-Y	B101	Insert (Turning)
VCGT ○○○	B101	Insert (Turning)
VCGT ○○○AH	B101	Insert (Turning)
VCGT ○○○AP	B101	Insert (Turning)
VCGT ○○○%L-A3	B101	Insert (Turning)
VCGT ○○○○(○)FN-Z	B101	Insert (Turning)
VCGT ○○○○MFP-GF	B100	Insert (Turning)
VCGT ○○○○MP-CF	B100	Insert (Turning)
VCGT ○○○○(○)MFP-SKS	B100	Insert (Turning)
VCGW ○○○○○○(○)S○○○○○MET	C27	Insert (Turning)
VCGW ○○○○○S○○○○○SET	C27	Insert (Turning)
VCGW ○○○○○○(○)T○○○○○ME	C27	Insert (Turning)
VCGW ○○○○○○(○)T○○○○○SE	C27	Insert (Turning)
VCMT ○○○○○○(○)	C50	Insert (Turning)
VCMT ○○○○(○)(○)(○)HQ	B100, M314	Insert (Turning/Milling) / API Insert (Ring Grooving)
VCMT ○○○○○○(○)NE	C50	Insert (Turning)
VCMT ○○○○(○)(○)(○)PP	B100	Insert (Turning)
VCMT ○○○○○○(○)SE	C50	Insert (Turning)
VCMT ○○○○○○(○)VF	B100	Insert (Turning)
VNBR ○○○○-○○○(○)	F47	Swiss IQ Bars (Boring)
VNBR ○○○○-○○○(○)NB	C59, F48	Swiss IQ Bars (Boring)
VNBR ○○○○(○○)-○○○(○)S	F46	Swiss IQ Bars (Boring)
VNBTR ○○○○-○○○(○)	F49	Swiss IQ Bars (Boring)
VNBXR ○○○○(○)-○○○(○)S	F54	Swiss IQ Bars (Boring)
VNFRG ○○○○-○○	G101	Swiss IQ Bars (Face Grooving)
VNFRG ○○○○-○○NB	C61, G101	Swiss IQ Bars (Face Grooving)
VNGA ○○○	B49	Insert (Turning)
VNGA ○○○MEF	C14	Insert (Turning)
VNGA ○○○ME4	C14	Insert (Turning)
VNGA ○○○S○○○○○	B119	Insert (Turning)
VNGA ○○○○(○)S○○○○○ME	C14	Insert (Turning)
VNGA ○○○S○○○○○MEH	C14	Insert (Turning)
VNGA ○○○S○○○○○MEP	C14	Insert (Turning)
VNGA ○○○S○○○○○MET	C14	Insert (Turning)
VNGA ○○○T○○○○○	B119	Insert (Turning)
VNGA ○○○T○○○○○AA	B119	Insert (Turning)
VNGG ○○○○(○)L	B49	Insert (Turning)
VNGG ○○○○(○)L-S	B49	Insert (Turning)
VNGG ○○○○(○)MFP-SK	B48	Insert (Turning)
VNGG ○○○○(○)M-SK	B48	Insert (Turning)
VNGG ○○○○(○)R	B49	Insert (Turning)

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
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VNGG ○○○(○)R-S	B49	Insert (Turning)
VNGR ○○○○-○○	G77	Swiss IQ Bars (Grooving)
VNGR ○○○○-○○NB	C60, G77	Swiss IQ Bars (Grooving)
VNMA ○○○T○○○○○AA	B119	Insert (Turning)
VNMG ○○○	B47	Insert (Turning)
VNMG ○○○(○)GP	B47	Insert (Turning)
VNMG ○○○HQ	B47	Insert (Turning)
VNMG ○○○KG	B48	Insert (Turning)
VNMG ○○○KH	B48	Insert (Turning)
VNMG ○○○L-VC	B47	Insert (Turning)
VNMG ○○○MQ	B48	Insert (Turning)
VNMG ○○○MS	B48	Insert (Turning)
VNMG ○○○MU	B48	Insert (Turning)
VNMG ○○○(○)PP	B47	Insert (Turning)
VNMG ○○○PQ	B47	Insert (Turning)
VNMG ○○○R-VC	B47	Insert (Turning)
VNMG ○○○SG	B48	Insert (Turning)
VNMG ○○○TN-V	B47	Insert (Turning)
VNMG ○○○VF	B47	Insert (Turning)
VNMM ○○○(○)M	C37	Insert (Turning)
VNMM ○○○(○)M-NE	C37	Insert (Turning)
VNMM ○○○(○)M-SE	C37	Insert (Turning)
VNTR ○○○-○○	J48	Swiss IQ Bars (Threading)
VPET ○○○○(○)(○)F%L-USF	B104	Insert (Turning)
VPET ○○○○(○)(○)M%L-F	B103	Insert (Turning)
VPET ○○○○(○)(○)M%L-FSF	B103	Insert (Turning)
VPET ○○○○(○)MF%L-J	B104	Insert (Turning)
VPET ○○○○(○)(○)MF%L-U	B104	Insert (Turning)
VPET ○○○○(○)(○)MF%L-USF	B104	Insert (Turning)
VPET ○○○○(○)(○)%L-FSF	B103	Insert (Turning)
VPGT ○○○○CF	B102	Insert (Turning)
VPGT ○○○○(○)(○)CK	B102	Insert (Turning)
VPGT ○○○○MFP-GF	B102	Insert (Turning)
VPGT ○○○(○)MFP-SKS	B102	Insert (Turning)
VPGT ○○○○MP-CF	B102	Insert (Turning)
VPGT ○○○○(○)(○)MP-CK	B102	Insert (Turning)
W		
W-6	P23	Spare Parts (Washer)
W6-14	P23	Spare Parts (Washer)
W6X20	P7	Spare Parts (Screw)
W8X18	P7	Spare Parts (Screw)
W10X31	P7	Spare Parts (Screw)
WB-5	P23	Spare Parts (Washer)
WB-6	P23	Spare Parts (Washer)

Part Number	Page	Description
WB-8	P23	Spare Parts (Washer)
WBET ○○○○(○)(○)M%L-F	B105	Insert (Turning)
WBET ○○○○(○)(○)M%L-P	B106	Insert (Turning)
WBGD ○○○○(○)MFP%L-PF	B105	Insert (Turning)
WBGD ○○○○MP%L-CF	B105	Insert (Turning)
WBGD ○○○○(○)(○)%L-F	B106	Insert (Turning)
WBGW ○○○○(○)(○)%L	B106	Insert (Turning)
WBGW ○○○○(○)(○)S○○○○○%L-SET	C28	Insert (Turning)
WBGW ○○○○(○)T○○○○○%L-SE	C28	Insert (Turning)
WBMT ○○○○(○)(○)L	C51	Insert (Turning)
WBMT ○○○○L-NE	C51	Insert (Turning)
WBMT ○○○○(○)(○)L-SE	C51	Insert (Turning)
WBMT ○○○○(○)(○)%L-DP	B105	Insert (Turning)
WCMX ○○○○○○-M1(A)	K99, K106	Insert (Drilling) HOLESOT Drill (DR) / Coremaster Coredrill
WCMX ○○T○○○-M1(A)	K99, K106	Insert (Drilling) HOLESOT Drill (DR) / Coremaster Coredrill
WCS-1N	P16	Spare Parts (Clamp Set)
WCS-8	P16	Spare Parts (Clamp Set)
WN-1	P23	Spare Parts (Shim Nut)
WNEU ○○○○○○EN-GL	M149	Insert (Milling) MFWN
WNGA ○○○MEF	C15	Insert (Turning)
WNGA ○○○S○○○○○ME	C15	Insert (Turning)
WNGA ○○○S○○○○○MET	C15	Insert (Turning)
WNGA ○○○T○○○○○ME	C15	Insert (Turning)
WNGA ○○○T○○○○○AA	B119	Insert (Turning)
WNGA ○○○T○○○○○	B119	Insert (Turning)
WNGG ○○○AH	B54	Insert (Turning)
WNGG ○○○L	B54	Insert (Turning)
WNGG ○○○(○)L-S	B54	Insert (Turning)
WNGG ○○○R	B54	Insert (Turning)
WNGG ○○○(○)R-S	B54	Insert (Turning)
WNGG ○○○TK	B52	Insert (Turning)
WNGT ○○○○○○FN-AM	M149	Insert (Milling) MFWN
WNMA ○○○	B54	Insert (Turning)
WNMG ○○○	B52	Insert (Turning)
WNMG ○○○C	B54	Insert (Turning)
WNMG ○○○CJ	B51	Insert (Turning)
WNMG ○○○CQ	B51	Insert (Turning)
WNMG ○○○GC	B54	Insert (Turning)
WNMG ○○○GP	B50	Insert (Turning)
WNMG ○○○GS	B51	Insert (Turning)
WNMG ○○○GT	B52	Insert (Turning)
WNMG ○○○(○)HQ	B51	Insert (Turning)
WNMG ○○○KG	B53	Insert (Turning)

Part Number Index

Part Numbers in Alphanumeric Order

○ : Number □ : Letter

Part Number	Page	Description
WNMG ○○○KH	B53	Insert (Turning)
WNMG ○○○KQ	B53	Insert (Turning)
WNMG ○○○MQ	B53	Insert (Turning)
WNMG ○○○MS	B53	Insert (Turning)
WNMG ○○○MU	B53	Insert (Turning)
WNMG ○○○PG	B51	Insert (Turning)
WNMG ○○○PH	B52	Insert (Turning)
WNMG ○○○PMG	B51	Insert (Turning)
WNMG ○○○(○)PP	B50	Insert (Turning)
WNMG ○○○PQ	B50	Insert (Turning)
WNMG ○○○PS	B51	Insert (Turning)
WNMG ○○○PT	B51	Insert (Turning)
WNMG ○○○SG	B53	Insert (Turning)
WNMG ○○○TK	B52	Insert (Turning)
WNMG ○○○WE	B50	Insert (Turning)
WNMG ○○○WF	B50	Insert (Turning)
WNMG ○○○WP	B50	Insert (Turning)
WNMG ○○○WQ	B50	Insert (Turning)
WNMG ○○○XP	B52	Insert (Turning)
WNMG ○○○XQ	B52	Insert (Turning)
WNMG ○○○XS	B52	Insert (Turning)
WNMG ○○○ZS	B54	Insert (Turning)
WNMM ○○○(○)M-NE	C38	Insert (Turning)
WNMM ○○○(○)M-SE	C38	Insert (Turning)
WNMU ○○○○○EN-GH	M149, M155	Insert (Milling) MFWN / MFWN-Mini
WNMU ○○○○○EN-GM	M149, M155	Insert (Milling) MFWN / MFWN-Mini
WNMU ○○○○○EN-SM	M149, M155	Insert (Milling) MFWN / MFWN-Mini
WNMX ○○○EL	B50	Insert (Turning)
WNMX ○○○ER	B50	Insert (Turning)
WP-1S	P8	Spare Parts (Shim Pin)
WPSX11	P8	Spare Parts (Shim Pin)
WPSX15	P8	Spare Parts (Shim Pin)
WPGT ○○○(○)M%L-Y	B107	Insert (Turning)
WPGT ○○○(○)(○)%L-Y	B107	Insert (Turning)
WPGW ○○○(○)(○)	B107	Insert (Turning)
WPMT ○○○○○	C51	Insert (Turning)
WPMT ○○○(○)GP	B107	Insert (Turning)
WPMT ○○○(○)(○)HQ	B107	Insert (Turning)
WPMT ○○○○○NE	C51	Insert (Turning)
WPMT ○○○○○SE	C51	Insert (Turning)
WS-10	D13, G49, H60	Spare Parts (Washer)
WSP-1	P23	Spare Parts (Spacer)
WTENN ○○○○□-○○N	D32	Toolholder (Turning)
WTJN%L ○○-○□	D31	Toolholder (Turning)

Part Number	Page	Description
WTJN%L ○○○○□-○○N	D31	Toolholder (Turning)
WTKN%L ○○-○□	D31	Toolholder (Turning)
WTKN%L ○○○○□-○○N	D31	Toolholder (Turning)
WTN-33	P13	Spare Parts (Shim)
WTN-33-20	P13	Spare Parts (Shim)
WWLN%L ○○○○□-○○	D51	Toolholder (Turning)
WWN-42	P13	Spare Parts (Shim)
WWP-42	P13	Spare Parts (Shim)
WWP-42-16	P13	Spare Parts (Shim)
X		
XNS610	P7	Spare Parts (Mounting Screw)
XPMT ○○○○○○	M193, M297	Insert (Milling) EM / CM
XPMT ○○T○○○	M193, M297	Insert (Milling) EM / FM90 / CM
Y		
Z		
ZBMT ○○T○○○GF	B108	Insert (Turning / Boring)
ZBMT ○○T○○○R-GF-15D	B108	Insert (Turning / Boring)
ZCMT ○○○○○○	K78	Insert (Drilling) DRZ Magic Drill
ZCMT ○○○○○○SP	K78	Insert (Drilling) DRZ Magic Drill
ZCMT ○○○○○○SU	K78	Insert (Drilling) DRZ Magic Drill

INSERT GRADES	A
TURNING INSERTS	B
CBN / PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
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