

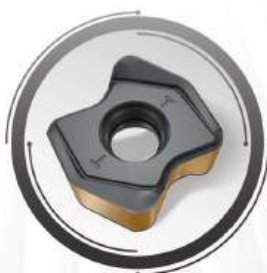
YOU

INTELLIGENTLY?

MACHINING

ISCAR MILLING LINES

Metric Catalog



ENDMILLS &
SOLID MILLS

FACE
MILLS

PROFILING

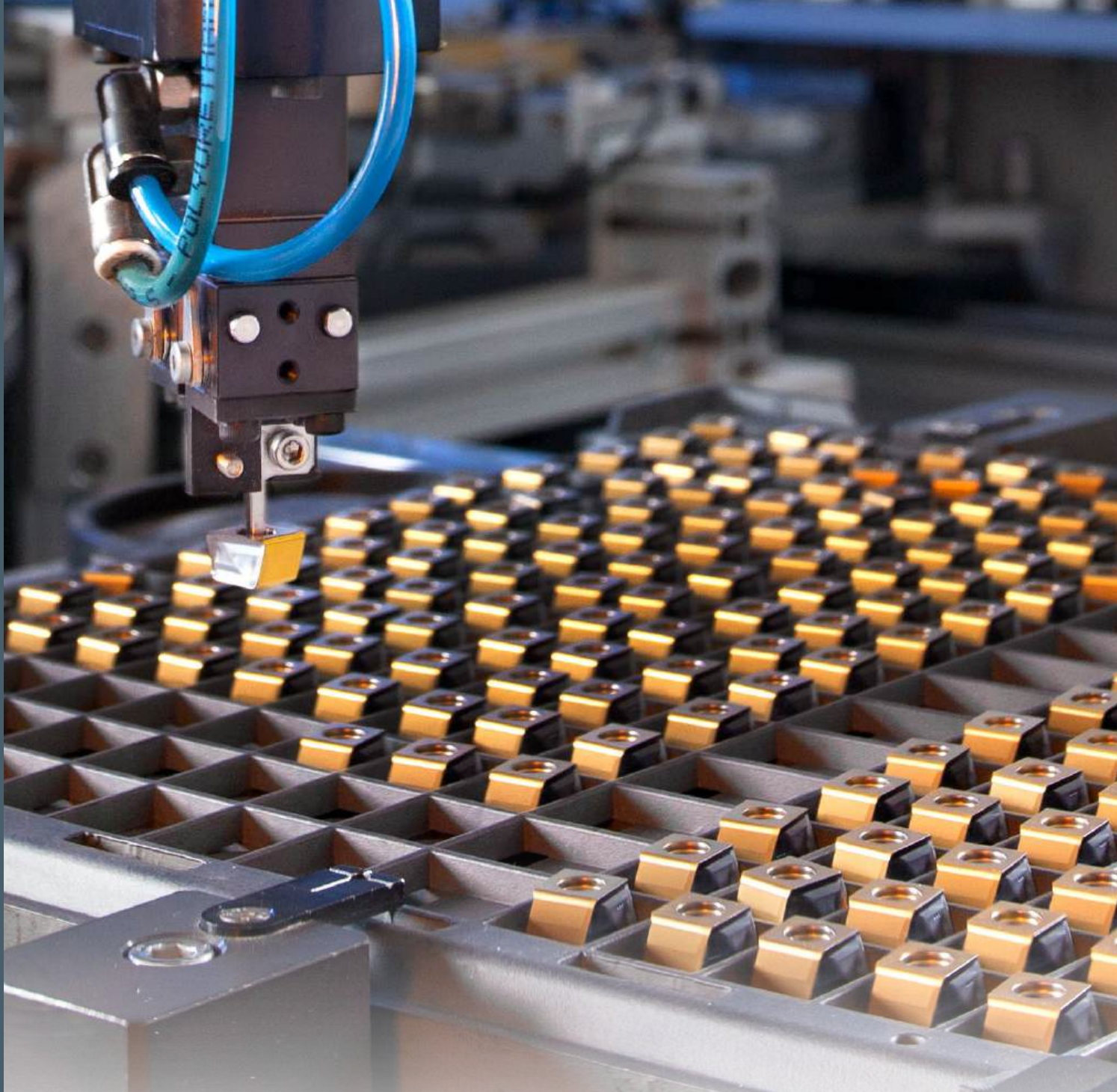
FAST FEED

SLOTING

THREAD
MILLING

MILLING
INSERTS

TOOLING
SYSTEMS



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CONTENTS

MILLING TOOLS**3****TOOLING SYSTEMS****623****MATERIALS AND GRADES****813****ALPHABETICAL INDEX****911**

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NEW PROJECT MANAGEMENT

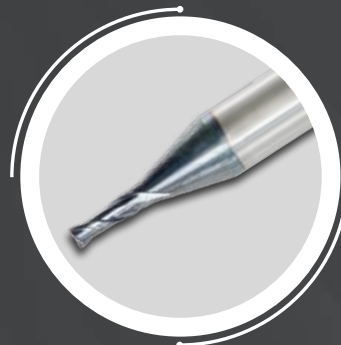
FAQ
FREQUENTLY ASKED QUESTIONS

MILLING TOOLS

YOU

INTELLIGENTLY?

MILLING



CONTENTS

INDEXABLE ENDMILLS	5
MULTI-MASTER	55
SOLID CARBIDE ENDMILLS	113
FACE MILLS	219
EXTENDED FLUTE CUTTERS	269
PLUNGING CUTTERS	292
PROFILING TOOLS	299
FAST FEED MILLING TOOLS	333
SLOTING & SLITTING CUTTERS	362
CUTTERS FOR ALUMINUM	433
THREAD MILLING TOOLS	444
MILLING INSERTS	507

INDEXABLE ENDMILLS



Endmills 90°

**QUICK-D-MILL****MDR**

page 12

**HELI-4-MILL****E90SO-04**

page 13

**HELI-DO****H690 EWN**

pages 14,20

**NAN-MILL****HM390 ETP-04**

page 15

**HELI-3-MILL****HM390 ETP/C/D**pages 16-17,22-23,
29-31,42,46**HELI-QUAD****E90**

pages 20,28

**LOGIQ-8-TANG****T890HT**

page 40

**TOR-MILL****E90CN**

page 19

**SUMO-MILL****T290 ELN**

pages 18,29

**HELI-PLUS****HP E90**

pages 21-22,49

**HELI-TANG****T490 ELN**

pages 23-25,40,41

**BALL-PLUS****HCE**

page 31

**HELI-2000****HM90 E90AP/AD**

pages 32-39,43-46

**HELI-DO****H490 E90AX**

pages 26-27,41,47

**HELI-DO****H690 E90AX**

page 39

**NEO-DO****S890 ESZ**

pages 18-19

**MILL-SHRED****P290 EPW**

pages 48-49

**HELI-MILL****E90AC**

page 50

**MULTI-MASTER****MULTI -MASTER**

pages 56-58

**SOLID-MILL****SOLID CARBIDE**

pages 130-134

Endmills 30°, 45°, 60°



ISCAR-MILL
E30/T230
page 51



CHAMF-MILL
CH45-PN
page 51



HELI-DO
SOE45
page 52



HELI-QUAD
E45X
page 53



ISCAR-MILL
E45/T245
page 53



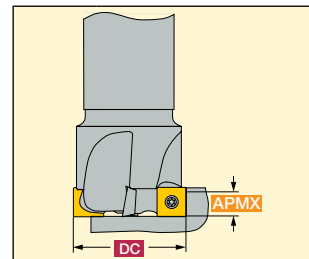
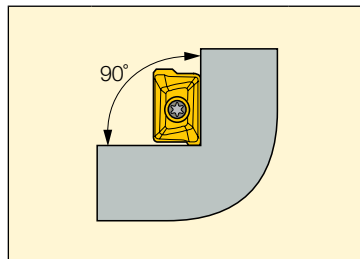
BALL-PLUS
HCM
pages 304-307



ISCAR-MILL
E60/T260
page 53



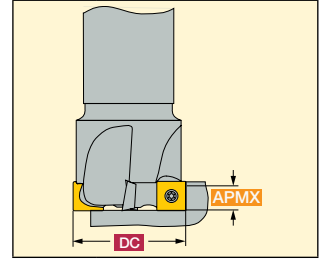
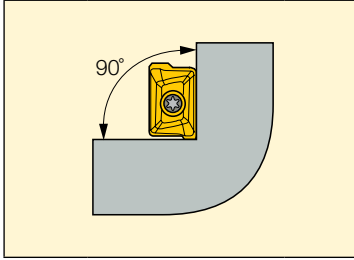
HELI-3-MILL
HM390 E10-80-07
page 54

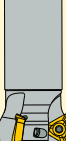
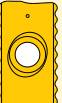
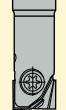
ISCAR^{MILL}**90° Endmills Selection Guide**

Tools	Pages	DC	6	8	10	12	14	16	17	18	19	20	21	22	25	28	30	32	38	40	50	63	80	Inserts
		APMX																						
 E90SO-04 E90SO-MM-04	13 13	3.5	•	•	•	•	•	•				•												 SOMT/CT 0402
 E90CN-M E90CN	19 19	4						•				•		•										 CNHT/MT 07
 S890 ESZ S890 ESZ-MMT	18 19	5													•			•						 S890 SZMU 0804
 E90SP E90X	28 20	9.6 5.8	•	•	•	•	•		•		•		•		•			•		•				 SPMT 10 XPMT 10 QPMR 10 QPMT 10 SOMT 06 XOMT 06 SPCT 10 SPMR 10
 T290 ELN-05 T290 ELN-MM-05 T290 ELN-10	18 18 29	5 10	•	•	•	•	•					•		•				•		•				 T290 LNMT 05 T290 LNMT 1004
 HP E90AN-07 HP E90AN-M-07 HP E90AN-MM-07 HP E90AT-19	21 21 22 49	7.7 18			•	•	•	•				•			•	•		•						  HP AD..19
 HM90 E90A-10 HM90 E90A-MM-10 HM90 E90A-M-10 HM90 E90AD-15 HM90 E90AD-M-15	32-37 37-38 39 43 50-52	10 10 10 14.3 14.3			•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•			 HM90 AP...10 AP...10 HM90 AD...15 AD...15
 H690 EWN-04 H690 EWN-07	14 20	4 7								•	•	•			•			•		•				 H690 WNMU 0403 H690 WNHU/WNMU 0705

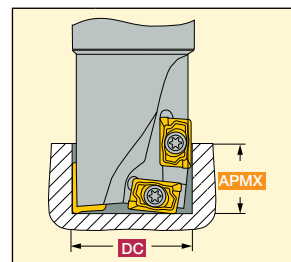
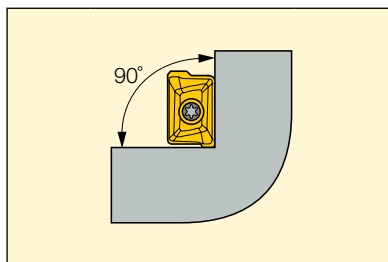
ISCARMILL

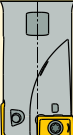
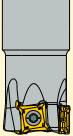
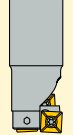
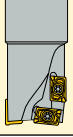
90° Endmills Selection Guide

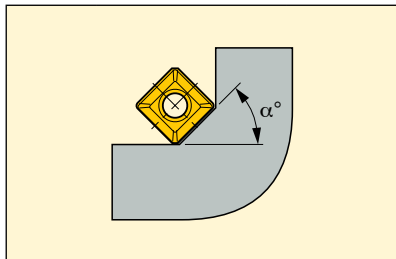


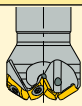
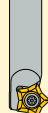
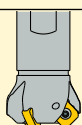
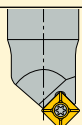
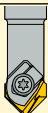
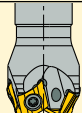
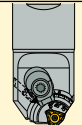
Tools		Pages	DC																									Inserts
			APMX	6	8	10	12	14	16	17	18	19	20	21	22	25	28	30	32	38	40	50	63	80				
	HM390 ETP-04	15	3 3.5 5 8 13 16																						 HM390 TPKR 0401 HM390 TPKT/CT 0502 HM390 TCKT/CT 0703 HM390 TPKT/CT 1003 HM390 TDKT/CT 1505 HM390 TDKT 1907			
	HM390 ETP-MM-04	15																										
	HM390 ETP-05	16																										
	HM390 ETP-MM-05	16-17																										
	HM390 ETC-07	22																										
	HM390 ETC-MM	23		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				
	HM390 ETP-10	29																										
	HM390 ETP-M	30																										
	HM390 ETP-C#-10	31																										
	HM390 ETD-15	42																										
	HM390 ETD-M	42																										
	HM390 ETD-19	46																										
	H490 E90AX-09	26	8 12 16.3																					 H490 ANKX/ANCX-09 H490 ANKX/ANCX-12 H490 ANKX/ANCX-17				
	H490 E90AX-M	27																										
	H490 E90AX-MM	27																										
	H490 E90AX-12	41																										
	H490 E90AX-17	47																										
	P290 EPW	48	12 18																					 P290 ACCT/KT1204 P290 ACCT/KT1806				
	P290 EPW-M	49																										
	H690 E90AX-10	39	8																					 H690 TNKX/TNCX 1005				
	T490 ELN-05	23	4.6 8 9 12.5 16																					 T490 LN..0502 T490 LN..0804 T490 LN..1106 T490 LN..1306 T490 LN..1607				
	T490 ELN-MM-05	23																										
	T490 ELN-08	24																										
	T490 ELN-M-08	25																										
	T490 ELN-MM...-08	25																										
	T490 ELN-11	40																										
	T490 ELN-13	41																										
	T490 ELN-16	46																										
	HCE	31	8.1- 14.7																					 HTR HCC				
	HCE-MM	31																										

Center Cutting Endmills



Tools	Pages	DC	8	10	12	14	16	17	18	19	20	21	22	25	28	30	32	38	40	50	63	80	Inserts
		APMX																					
 MDR-D-C MDR-MMT	12 12	7.3 8.9 11.5					•				•			•									 MDR ANMU
 T890HT ELN-R13	40	9.5																	•		•		 T890 LNHT 1306
 E90XC	50	5.8-22			•						•												 SOMT-HQ XOMT-HQ
 E90AC	50	19-38												•			•	•					 ADCT 1505 ADKT 1505 FDKT 1505

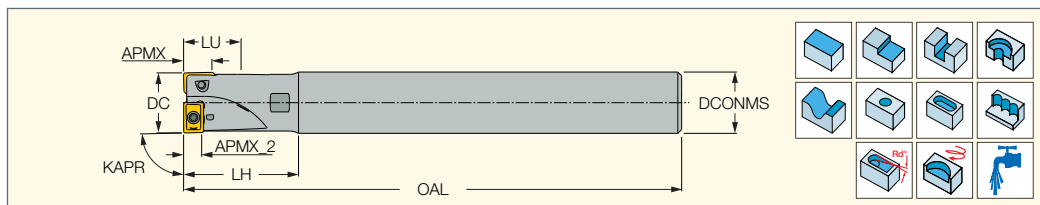
ISCARMILL**Endmills 30°, 45°, 60° Selection Guide**

Tools	Pages	DC APMX	6	8	12	16	20	25	30	32	40	Inserts
		Number of Teeth (Effective)										
 E30 / T230	51	2.5 7			4	3						 T290 LNMT 05
		α°=30°										 TPMT
 CH45-PN06 CH45-MM-PN06	51 51	1.5			1	1						 PNMT 0602-TN
		α°=45°										
 SOE 45 8/16	52	3.5-6						2		3	4	 S845 SNMU/SNHU 1306
		α°=45°										 ONMU/ONHU 0505
 E45X	53	4	1	1								 SOMT 06 XOMT 06 QOMT 06
		α°=45°										
 E45 / T245	53	3.6-9.7			1-4	2			3			 SCMT 12 SDMT 09 T290 LNMT 05 TPMT
		α°=45°										
 HCM	304-307	5 - 12			2	2	2	2				 HCD
		α°=45°										
 E60 / T260	53	4.5 12.3			4			2				 T290 LNMT 05 TPMT
		α°=60°										
 HM390 E10-80-07	54	0.35-1.97						1				 HM390 TCK/CT 0703
		α°=10°-80°										



MDR D-C-AN

Multi-Function Endmill Cutters



Designation	DC	APMX	APMX_2	KAPR ⁽¹⁾	CICT ⁽²⁾	LU ⁽³⁾	LH	OAL	DCONMS	Shank	MDN ⁽⁴⁾	MDX ⁽⁵⁾	MIID ⁽⁶⁾	
MDR D16-2-C16-AN07	16.00	7.30	4.70	90.0	2	12.00	30.0	130.00	16.00	C	16.80	30.80	MDR ANMU 0703...	0.14
MDR D20-2-C20-AN09	20.00	8.90	5.70	90.0	2	15.00	35.0	145.00	20.00	C	21.80	38.20	MDR ANMU 0903...	0.30
MDR D25-2-C25-AN12	25.00	11.50	6.50	90.0	2	18.50	50.0	150.00	25.00	C	26.30	47.60	MDR ANMU 1204...	0.47

New

- When drilling holes deeper than 5 mm, it is recommended to use the pecking method (G83)
- For user guide, see pages 616-622

⁽¹⁾ Tool cutting edge angle

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ Max.drilling depth

⁽⁴⁾ Minimum diameter to obtain a flat-bottom pocket having no protrusions by use of helical or circular interpolation

⁽⁵⁾ Maximum diameter to obtain a flat-bottom pocket having no protrusions by use of helical or circular interpolation

⁽⁶⁾ Master insert identification

For inserts, see pages: MDR ANMU PNTR (508)

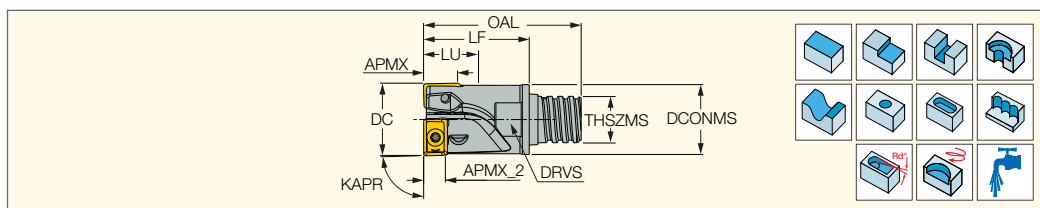
Spare Parts

Designation		
MDR D16-2-C16-AN07	SR M2.5-L6-D3.25-T7	T-7/51
MDR D20-2-C20-AN09	SR 10508082-HG	T-8/53
MDR D25-2-C25-AN12	SR 14-571	T-10/51



MDR MMT-JHP

Multi-Function Modular Head
for Endmill Cutters with
a MULTI-MASTER
Threaded Adaptation



Designation	DC	APMX	APMX_2	KAPR ⁽¹⁾	CICT ⁽²⁾	LU ⁽³⁾	LF	OAL	THSZMS	DCONMS	DRVS ⁽⁴⁾	RMPX ⁽⁵⁾	MDN ⁽⁶⁾	MDX ⁽⁷⁾	MIID ⁽⁸⁾	
MDR D16/.63-2-MMT10-07JHP	16.00	7.30	4.70	90.0	2	12.00	23.00	34.30	T10	15.20	13.0	90.0	16.80	30.80	MDR ANMU 07	0.07
MDR D20/.79-2-MMT12-09JHP	20.00	8.90	5.70	90.0	2	15.00	24.70	38.00	T12	18.30	16.0	90.0	21.80	38.20	MDR ANMU 09	0.08
MDR D25/.98-2-MMT15-12JHP	25.00	11.50	6.50	90.0	2	18.50	33.00	50.00	T15	23.90	20.0	90.0	26.30	47.60	MDR ANMU 12	0.08

New

- Do not apply lubricant to the MULTI-MASTER threaded connection
- When drilling holes deeper than 5 mm, it is recommended to use the pecking method (G83)
- For adaptation, see page 59
- For user guide, see pages 616-622

⁽¹⁾ Tool cutting edge angle

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ Max.drilling depth

⁽⁴⁾ Torque key size

⁽⁵⁾ Maximum ramping angle

⁽⁶⁾ Minimum diameter to obtain a flat-bottom pocket having no protrusions by use of helical or circular interpolation

⁽⁷⁾ Maximum diameter to obtain a flat-bottom pocket having no protrusions by use of helical or circular interpolation

⁽⁸⁾ Master insert identification

For inserts, see pages: MDR ANMU PNTR (508)

For holders, see pages: MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106)

• MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)

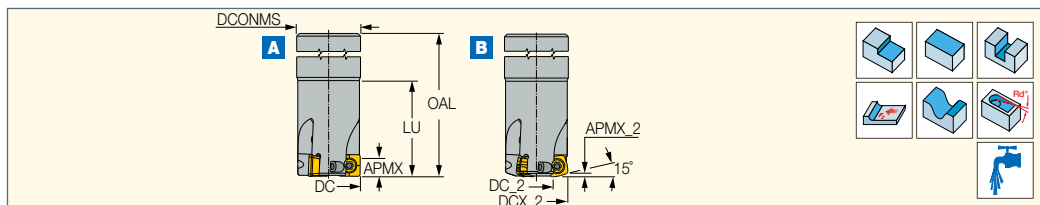
• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Spare Parts

Designation		
MDR D16/.63-2-MMT10-07JHP	SR M2.5-L6-D3.25-T7	T-7/51
MDR D20/.79-2-MMT12-09JHP	SR 10508082-HG	T-8/53
MDR D25/.98-2-MMT15-12JHP	SR 14-571	T-10/51

E90SO-04

Endmills Carrying Square Inserts for Shouldering and Fast Feed Milling Applications



Designation	DC	APMX	DC_2	DCX_2	APMX_2	LU	OAL	DCONMS	Shank ⁽¹⁾	CiCT ⁽²⁾	RMPX ⁽³⁾	MIID ⁽⁴⁾	MIID_2 ⁽⁵⁾	kg
E90SO D06-1-C06-04-C	6.00	3.50	-	6.17	0.50	15.00	57.00	6.00	C	1	-	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.06
E90SO D08-1-C08-04-C	8.00	3.50	1.90	8.17	0.50	15.30	60.00	8.00	C	1	8.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.01
E90SO D10-2-C10-04-C	10.00	3.50	3.90	10.17	0.50	18.00	70.00	10.00	C	2	6.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.04
E90SO D12-2-C12-04-C	12.00	3.50	5.90	12.17	0.50	18.00	70.00	12.00	C	2	3.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.05
E90SO D12-3-C12-04-C	12.00	3.50	5.90	12.17	0.50	18.00	70.00	12.00	C	3	3.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.05
E90SO D14-4-C14-04-C	14.00	3.50	7.90	14.17	0.50	20.00	80.00	14.00	C	4	2.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.08
E90SO D16-4-C16-04-C	16.00	3.50	9.90	16.17	0.50	20.00	90.00	16.00	C	4	2.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.12
E90SO D16-5-C16-04-C	16.00	3.50	9.90	16.17	0.50	20.00	90.00	16.00	C	5	2.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.12
E90SO D20-6-C20-04-C	20.00	3.50	13.90	20.17	0.50	25.00	110.00	20.00	C	6	1.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.23

• A - with SOMT/CT 0402 insert • B - with SOMT 0402-FF insert • Tightening torque 0.5 Nxm

(1) C-Cylindrical

(2) Number of inserts (or edges for solid tool)

(3) Maximum ramping angle - valid only with SOMT 040208 PNR-FF insert

(4) Master insert identification

(5) Master insert identification 2

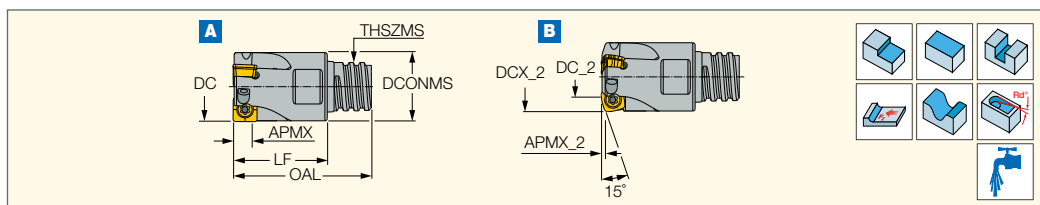
For inserts, see pages: SOMT 0402-FF (568) • SOMT/CT 0402 (568)

Spare Parts

Designation		
E90SO D06-1-C06-04-C	TS 18041/HG/S	T-6IP/51
E90SO D08-1-C08-04-C	TS 18041/HG/S	T-6IP/51
E90SO D10-2-C10-04-C	TS 18041/HG	T-6IP/51
E90SO D12-2-C12-04-C	TS 18041/HG	T-6IP/51
E90SO D12-3-C12-04-C	TS 18041/HG	T-6IP/51
E90SO D14-4-C14-04-C	TS 18041/HG	T-6IP/51
E90SO D16-4-C16-04-C	TS 18041/HG	T-6IP/51
E90SO D16-5-C16-04-C	TS 18041/HG	T-6IP/51
E90SO D20-6-C20-04-C	TS 18041/HG	T-6IP/51

E90SO-MM-04

Endmills with a MULTI-MASTER Connection Carrying Inserts for Shouldering and Fast Feed Applications



Designation	DC	APMX	DC_2	DCX_2	APMX_2	LF	OAL	CiCT ⁽¹⁾	DCONMS	THSZMS	DRVS ⁽²⁾	RMPX ⁽³⁾	MIID ⁽⁴⁾	MIID_2 ⁽⁵⁾	kg
E90SO D10-2-MMT06-04	10.00	3.50	3.90	10.17	0.50	15.00	21.30	2	9.70	T06	8.0	6.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.05
E90SO D12-3-MMT08-04	12.00	3.50	5.90	12.17	0.50	16.00	23.50	3	11.60	T08	10.0	3.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.15
E90SO D14-4-MMT08-04	14.00	3.50	7.90	14.17	0.50	16.00	23.50	4	13.60	T08	10.0	2.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.01
E90SO D16-5-MMT10-04	16.00	3.50	9.90	16.17	0.50	18.00	29.30	5	15.60	T10	13.0	2.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.03
E90SO D20-6-MMT12-04	20.00	3.50	13.90	20.17	0.50	25.00	38.80	6	19.60	T12	16.0	1.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.08

• A - with SOMT/CT 0402 insert • B - with SOMT 0402-FF insert • Tightening torque 0.5 Nxm

(1) Number of inserts (or edges for solid tool)

(2) Torque key size

(3) Maximum ramping angle - valid only with SOMT 040208 PNR-FF insert

(4) Master insert identification

(5) Master insert identification 2

For inserts, see pages: SOMT 0402-FF (568) • SOMT/CT 0402 (568)

For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102)

• MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104)

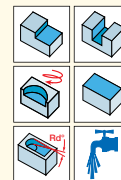
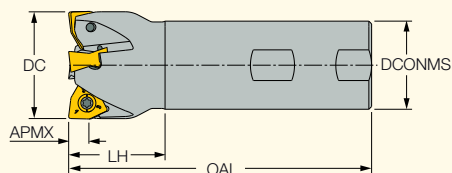
• MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Spare Parts

Designation		
E90SO-MM-04	TS 18041/HG	T-6IP/51

**H690 EWN-04**

90° Endmills Carrying
H690 WNMU 0403
Double-Sided Trigonal Inserts
with 6 Helical Cutting Edges



Designation	DC	CICT ⁽¹⁾	APMX	OAL	LH	DCONMS	Shank ⁽²⁾	RMPX ⁽³⁾	kg
H690 EWN D18-2-C16-R04	18.00	2	4.00	100.00	24.0	16.00	C	1.7	0.14
H690 EWN D18-2-C16-R04-B	18.00	2	4.00	160.00	24.0	16.00	C	1.7	0.21
H690 EWN D20-2-C19-R04-B	20.00	2	4.00	160.00	26.0	19.00	C	1.5	0.31
H690 EWN D20-2-C20-R04	20.00	2	4.00	110.00	26.0	20.00	C	1.5	0.42
H690 EWN D20-3-C19-R04-B	20.00	3	4.00	160.00	26.0	19.00	C	1.5	0.30
H690 EWN D20-3-C20-R04	20.00	3	4.00	110.00	26.0	20.00	C	1.5	0.24
H690 EWN D20-3-C20-R04-B	20.00	3	4.00	160.00	26.0	20.00	C	1.5	0.31
H690 EWN D20-3-W20-R04	20.00	3	4.00	85.00	26.0	20.00	W	1.5	0.16
H690 EWN D25-4-C25-R04	25.00	4	4.00	120.00	30.0	25.00	C	1.1	0.36
H690 EWN D25-5-C25-R04	25.00	5	4.00	120.00	30.0	25.00	C	1.1	0.37
H690 EWN D25-5-W25-R04	25.00	5	4.00	95.00	30.0	25.00	W	1.1	0.22
H690 EWN D32-5-C32-R04	32.00	5	4.00	130.00	35.0	32.00	C	0.8	0.68
H690 EWN D32-6-C32-R04	32.00	6	4.00	130.00	35.0	32.00	C	0.8	0.68
H690 EWN D32-6-W32-R04	32.00	6	4.00	110.00	35.0	32.00	W	0.8	0.56

• For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ C-Cylindrical, W-Weldon

⁽³⁾ Maximum ramping angle

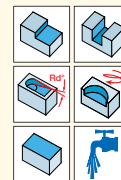
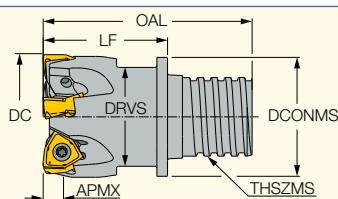
For inserts, see pages: H690 WNMU 0403 (536)

Spare Parts

Designation		
H690 EWN-04	SR M2.5X6-T7-60	T-7/51

**H690 EWN-MM-04**

90° Endmills with a MULTI-MASTER
ThreadedConnection Carrying
H690 WNMU 0403 Double
Sided Trigonal Inserts



Designation	DC	APMX	CICT ⁽¹⁾	LF	DCONMS	THSZMS	OAL	DRVS ⁽²⁾	RMPX ⁽³⁾	TQ_3 ⁽⁴⁾	kg
H690 EWN D20-3-MMT12-R04	20.00	4.00	3	20.00	18.30	T12	33.00	16.0	1.5	28	0.07
H690 EWN D25-5-MMT15-R04	25.00	4.00	5	25.00	23.90	T15	42.00	20.0	1.1	40	0.12

• Insert clamping screw must be lubricated every indexing. • For adaptation see page 59 • For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Clamping wrench size

⁽³⁾ Maximum ramping angle

⁽⁴⁾ Tool tightening torque (Nxm)

For inserts, see pages: H690 WNMU 0403 (536)

For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109)

• MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)

• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

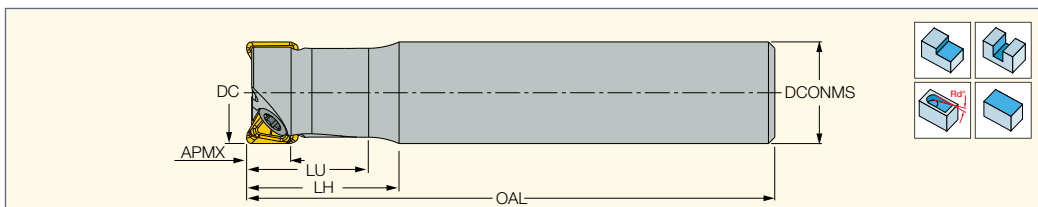
Spare Parts

Designation		
H690 EWN-MM-04	SR M2.5X6-T7-60 ^(a)	T-7/51

^(a) Tightening torque 0.9 Nxm

HM390 ETP-04

90° Small Diameter Endmills
 Carrying HM390 TPKR
 0401 Triangular Inserts with
 3 Helical Cutting Edges



Designation	DC	APMX	CICT ⁽¹⁾	OAL	LU	LH	DCONMS	Shank ⁽²⁾	RMPX ⁽³⁾	
HM390 ETP D08-2-C08-04	8.00	3.00	2	60.00	9.60	12.0	8.00	C	3.0	0.02
HM390 ETP D10-3-C10-04	10.00	3.00	3	80.00	12.60	15.0	10.00	C	2.5	0.05

• Tightening torque 0.5 Nxm

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ C-Cylindrical

⁽³⁾ Maximum ramping angle

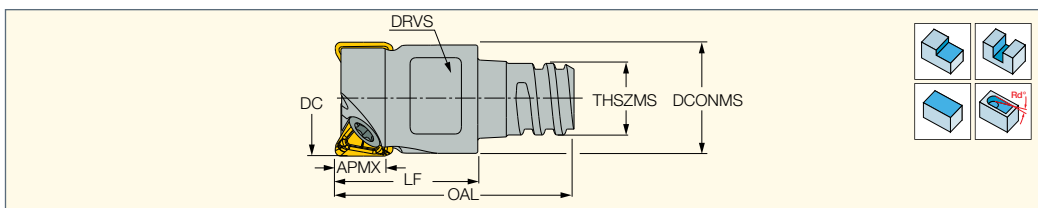
For inserts, see pages: HM390 TPKR 0401 (511)

Spare Parts

Designation		
HM390 ETP D08-2-C08-04	SR M2X0.4-3 T6	T-6/5 MAGNET 3X3
HM390 ETP D10-3-C10-04	SR M2X0.4-3.5 T6	T-6/5 MAGNET 3X3

HM390 ETP-MM-04

90° Endmills with a
 MULTI-MASTER Threaded
 Adaptation Carrying HM390
 TPKR 0401... Triangular Inserts



Designation	DC	APMX	CICT ⁽¹⁾	LF	DCONMS	THSZMS	OAL	DRVS ⁽²⁾	RMPX ⁽³⁾	
HM390 ETP D08-2-MMT05-04	8.00	3.00	2	10.00	7.60	T05	16.75	5.5	3.0	0.04
HM390 ETP D10-3-MMT06-04	10.00	3.00	3	12.00	9.60	T06	18.30	8.0	2.5	0.04

• Insert tightening torque 0.5 N*m • For adaptation, see page 59 • For user guide, see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Clamping wrench size

⁽³⁾ Maximum ramping angle

For inserts, see pages: HM390 TPKR 0401 (511)

For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102)

• MM S-A (straight shanks) (106) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109)

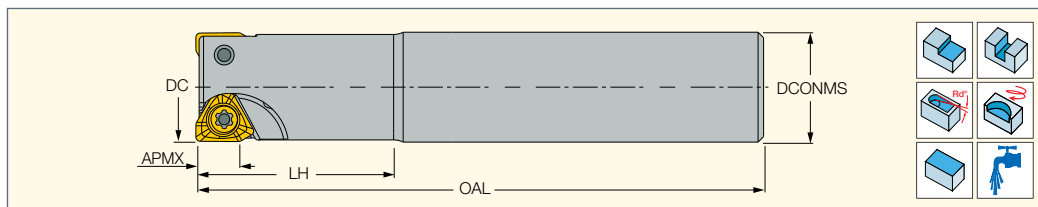
• MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Spare Parts

Designation		
HM390 ETP D08-2-MMT05-04	SR M2X0.4-3 T6	T-6/5 MAGNET 3X3
HM390 ETP D10-3-MMT06-04	SR M2X0.4-3.5 T6	T-6/5 MAGNET 3X3

**HM390 ETP-05**

90° Endmills Carrying HM390
TPKT 0502 Triangular Inserts
with 3 Helical Cutting Edges



Designation	DC	APMX	CICT ⁽¹⁾	OAL	LH	DCONMS	Shank ⁽²⁾	RMPX ⁽³⁾	kg
HM390 ETP D06-1-C06-05-C	6.00	3.50	1	57.00	15.0	6.00	C	1.0	0.06
HM390 ETP D08-1-C08-05-C	8.00	3.50	1	60.00	14.9	8.00	C	1.0	0.03
HM390 ETP D10-2-C10-05-C	10.00	3.50	2	70.00	18.0	10.00	C	2.0	0.03
HM390 ETP D12-3-C12-05-C	12.00	3.50	3	70.00	18.0	12.00	C	1.5	0.06
HM390 ETP D14-3-C14-05-C	14.00	3.50	3	80.00	20.0	14.00	C	1.5	0.08
HM390 ETP D16-4-C16-05-C	16.00	3.50	4	90.00	20.0	16.00	C	1.5	0.12

• Tightening torque 0.5 N*m • For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ C-Cylindrical

⁽³⁾ Maximum ramping angle

For inserts, see pages: HM390 TPKT/CT 0502 (511)

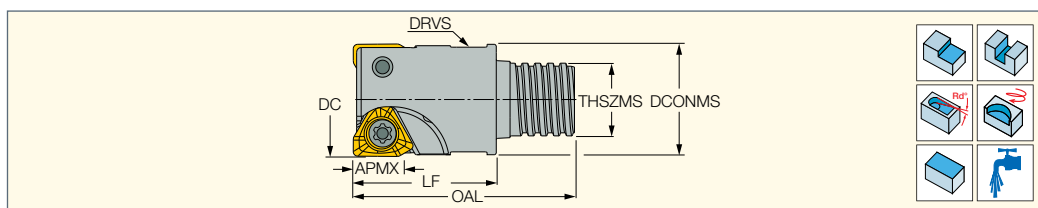
Spare Parts

Designation		
HM390 ETP D06-1-C06-05-C	TS 18041/HG/S	T-6IP/51 ^(a)
HM390 ETP D08-1-C08-05-C	TS 18041/HG/S	T-6IP/51 ^(a)
HM390 ETP D10-2-C10-05-C	TS 18041/HG	T-6IP/51 ^(a)
HM390 ETP D12-3-C12-05-C	TS 18041/HG	T-6IP/51 ^(a)
HM390 ETP D14-3-C14-05-C	TS 18041/HG	T-6IP/51 ^(a)
HM390 ETP D16-4-C16-05-C	TS 18041/HG	T-6IP/51 ^(a)

^(a) For optimal tightening torque, use 7007317 HSD 4-0.65NM + 7007375 BLD 4 T06-0.65NM optional torque limiting screwdriver.

**HM390 ETP-MM-05**

90° Endmills with a
MULTI-MASTER Threaded
Adaptation Carrying HM390
TPKT 0502... Triangular Inserts



Designation	DC	APMX	CICT ⁽¹⁾	LF	DCONMS	THSZMS	OAL	DRVS ⁽²⁾	RMPX ⁽³⁾	kg
HM390 ETP D10-2-MMT06-05	10.00	3.50	2	15.00	9.60	T06	21.60	8.0	2.0	0.01
HM390 ETP D12-3-MMT08-05	12.00	3.50	3	16.00	11.60	T08	24.20	10.0	1.5	0.00
HM390 ETP D14-3-MMT08-05	14.00	3.50	3	16.00	13.60	T08	22.90	10.0	1.5	0.01
HM390 ETP D16-4-MMT10-05	16.00	3.50	4	18.00	15.60	T10	29.80	13.0	1.5	0.03

• Insert tightening torque 0.5 N*m • For adaptation, see page 59 • For user guide, see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Clamping wrench size

⁽³⁾ Maximum ramping angle

For inserts, see pages: HM390 TPKT/CT 0502 (511)

For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102)

• MM S-A (straight shanks) (106) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)

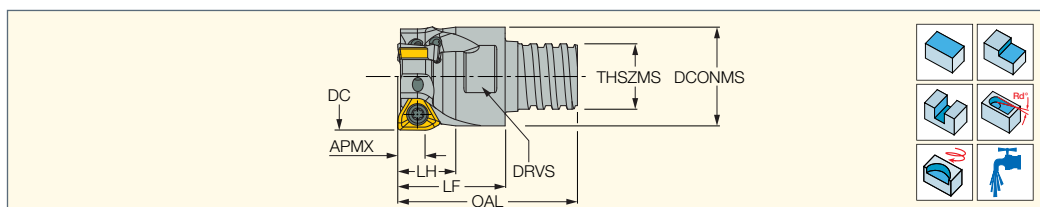
• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Spare Parts

Designation		
HM390 ETP-MM-05	TS 18041/HG	T-6IP/51 ^(a)

^(a) For optimal tightening torque, use 7007317 HSD 4-0.65NM + 7007375 BLD 4 T06-0.65NM optional torque limiting screwdriver.

HM390 ETPC/D-MM-JHP

 90° JHP Endmill with a
 MULTI-MASTER
 Threaded Adaptation


Designation	DC	APMX	CICT ⁽¹⁾	LF	DCONMS	THSZMS	OAL	DRVS ⁽²⁾	RMPX ⁽³⁾	MIID ⁽⁴⁾
HM390 ETPD16-4MMT10-05JHP	16.00	3.50	4	18.00	15.50	T10	29.30	13.0	1.5	HM390 TPKT 0502
HM390 ETPD20-5MMT12-05JHP	20.00	3.50	5	20.00	19.40	T12	33.27	16.0	1.3	HM390 TPKT 0502
HM390 ETPD16-2MMT10-07JHP	16.00	5.00	2	16.00	15.30	T10	27.30	13.0	1.9	HM390 TCKT 0703
HM390 ETPD20-3MMT12-07JHP	20.00	5.00	3	20.00	18.30	T12	33.30	16.0	1.4	HM390 TCKT 0703
HM390 ETPD25-4MMT15-07JHP	25.00	5.00	4	25.00	23.90	T15	42.00	20.0	1.0	HM390 TCKT 0703
HM390 ETPD25-3MMT15-10JHP	25.00	8.00	3	30.00	24.00	T15	47.00	20.0	2.9	HM390 TPKT 1003
HM390 ETPD32-4MMT21-10JHP	32.00	8.00	4	30.00	29.00	T21	53.10	24.0	2.1	HM390 TPKT 1003
HM390 ETDD40-4MMT21-15JHP	40.00	13.00	4	35.00	29.00	T21	58.10	24.0	2.1	HM390 TDKT 1505

New

• Insert tightening torque 0.5 N*m • For adaptation, see page 59 • For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Torque key size

(3) Maximum ramping angle

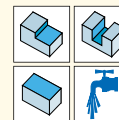
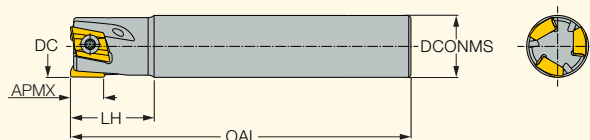
(4) Master insert identification

For inserts, see pages: HM390 TCKT/CT 0703 (512) • HM390 TDCR 1505 (514) • HM390 TDKT/CT 1505 (513) • HM390 TPCR 1003 (513)

• HM390 TPKT/CT 0502 (511) • HM390 TPKT/CT 1003 (512)

Spare Parts

Designation				
HM390 ETPD16-4MMT10-05JHP	TS 18041/HG	T-6IP/51		
HM390 ETPD20-5MMT12-05JHP	TS 18041/HG	T-6IP/51		
HM390 ETPD16-2MMT10-07JHP	SR M2.5X5-T7-60	T-7/51		
HM390 ETPD20-3MMT12-07JHP	SR M2.5X5-T7-60	T-7/51		
HM390 ETPD25-4MMT15-07JHP	SR M2.5X6-T7-60	T-7/51		
HM390 ETPD25-3MMT15-10JHP	SR 14-562/S		BLD T10/S7	SW6-SD
HM390 ETPD32-4MMT21-10JHP	SR 14-562/S		BLD T10/S7	SW6-SD
HM390 ETDD40-4MMT21-15JHP	SR 10511869		BLD IP20/S7	SW6-T

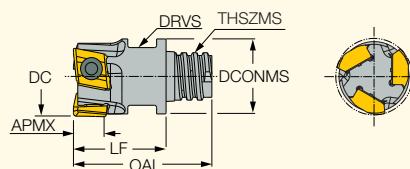
SUMOMILL
290 LINE**T290 ELN-05**Endmills Carrying Tangentially
Clamped Inserts

Designation	DC	CICT ⁽¹⁾	OAL	LH	APMX	DCONMS	Shank ⁽²⁾	kg		
T290 ELN D08-01-C08-05	8.00	1	60.00	20.0	5.00	8.00	C	0.02	SR 10503833	T-7/51
T290 ELN D10-02-C10-05	10.00	2	80.00	20.0	5.00	10.00	C	0.04	SR 10503833-S	T-7/51
T290 ELN D12-02-C12-05	12.00	2	80.00	20.0	5.00	12.00	C	0.06	SR 10503833	T-7/51
T290 ELN D12-03-C12-05	12.00	3	80.00	20.0	5.00	12.00	C	0.05	SR 10503833	T-7/51
T290 ELN D14-03-C14-05	14.00	3	80.00	20.0	5.00	14.00	C	0.08	SR 10503833	T-7/51
T290 ELN D16-04-C16-05	16.00	4	80.00	22.0	5.00	16.00	C	0.10	SR 10503833	T-7/51
T290 ELN D16-05-C16-05	16.00	5	80.00	22.0	5.00	16.00	C	0.10	SR 10503833	T-7/51

• For user guide, see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)⁽²⁾ C-Cylindrical

For inserts, see pages: T290 LNMT/LNHT 0502 (542)

SUMOMILL
290 LINE**T290 ELN-MM-05**Endmills with a
MULTI-MASTER Adaptation
Carrying Tangentially
Clamped Inserts

Designation	DC	CICT ⁽¹⁾	APMX	DCONMS	THSZMS	LF	OAL	DRVS ⁽²⁾	kg		
T290 ELN D10-02-MMT06-05	10.00	2	5.00	9.20	T06	13.40	20.00	8.0	0.01	SR 10503833-S	T-7/51
T290 ELN D12-03-MMT08-05	12.00	3	5.00	11.00	T08	16.00	24.00	10.0	0.01	SR 10503833	T-7/51
T290 ELN D14-03-MMT08-05	14.00	3	5.00	13.00	T08	16.06	24.00	10.0	0.01	SR 10503833	T-7/51
T290 ELN D16-04-MMT10-05	16.00	4	5.00	14.95	T10	19.25	30.55	13.0	0.03	SR 10503833	T-7/51

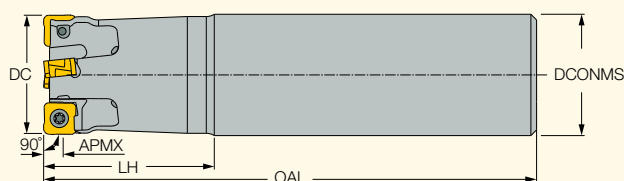
• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation see page 59 • For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)⁽²⁾ Clamping wrench size

For inserts, see pages: T290 LNMT/LNHT 0502 (542)

For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102)

• MM S-A (straight shanks) (106) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

NEODO
S90 LINE**S890 ESZ-R08**Endmills Carrying
Double-Sided Square Inserts
with 8 Cutting Edges

Designation	DC	APMX	CICT ⁽¹⁾	LH	OAL	DCONMS	Shank ⁽²⁾	MIID ⁽³⁾	kg
S890 ESZ D25-3-C25-R08	25.00	5.00	3	35.0	120.00	25.00	C	S890 SZMU 0804	0.35
S890 ESZ D25-3-W25-R08	25.00	5.00	3	35.0	95.00	25.00	W	S890 SZMU 0804	0.07
S890 ESZ D32-4-C32-R08	32.00	5.00	4	45.0	130.00	32.00	C	S890 SZMU 0804	0.66
S890 ESZ D32-4-W32-R08	32.00	5.00	4	45.0	110.00	32.00	W	S890 SZMU 0804	0.17

New

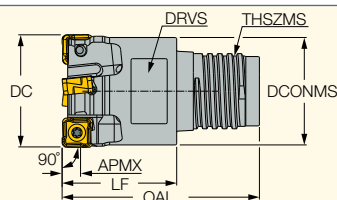
• For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)⁽²⁾ C-Cylindrical, W-Weldon⁽³⁾ Master insert identification

For inserts, see pages: S890 SZMU-0804PN (572)

Spare Parts

Designation		
S890 ESZ-R08	SR M3X0.5-L7.4 IP9	IP-9/151

**NEODO**
S90° LINE**S890 ESZ-MMT15-R08**Endmills Carrying
Double-Sided Square Inserts
with 8 Cutting Edges

Designation	DC	APMX	CICT ⁽¹⁾	LF	THSZMS	DCONMS	OAL	CSP ⁽²⁾	DRVS ⁽³⁾	MIID ⁽⁴⁾	kg
S890 ESZ D25-3-MMT15-R08	25.00	5.00	3	25.00	T15	23.90	42.00	1	20.0	S890 SZMU 0804...	0.10
S890 ESZ D32-4-MMT21-R08	32.00	5.00	4	32.00	T21	30.00	55.10	1	24.0	S890 SZMU0804...	0.20

New

• For user guide see pages 616-622

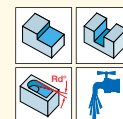
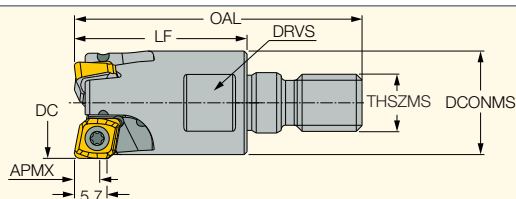
⁽¹⁾ Number of inserts (or edges for solid tool)⁽²⁾ 0 - Without coolant supply, 1 - With coolant supply⁽³⁾ Torque key size⁽⁴⁾ Master insert identification**For inserts, see pages:** S890 SZMU-0804PN (572)**For holders, see pages:** MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109)

• MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107)

• MM S-ER-H (108) • MM TS-A (105)

Spare Parts

Designation		
S890 ESZ-MMT15-R08	SR M3X0.5-L7.4 IP9	IP-9/151

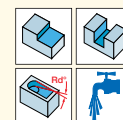
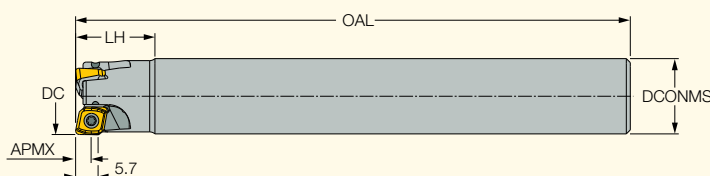
TORMILL**E90CN-M**90° Endmills with a FLEX-FIT
Threaded Connection Carrying
CNMT/HT 0703 Inserts

Designation	DC	CICT ⁽¹⁾	APMX ⁽²⁾	LF	OAL	THSZMS	RMPX ⁽³⁾	DCONMS	DRVS ⁽⁴⁾	TQ_3 ⁽⁵⁾	kg		
E90CN D16-2-M08-07-C	16.00	2	4.00	30.00	47.50	M08	5.0	13.00	13.0	20	0.03	SR 34-505/LHG	T-8/53
E90CN D20-3-M10-07-C	20.00	3	4.00	30.00	50.00	M10	3.5	18.00	16.0	29	0.05	SR 34-505/LHG	T-8/53
E90CN D25-4-M12-07-C	25.00	4	4.00	35.00	57.00	M12	2.5	21.00	17.0	33	0.09	SR 34-505/LHG	T-8/53

• For adaptation see page 59 • For user guide see pages 616-622 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

⁽¹⁾ Number of inserts (or edges for solid tool)⁽²⁾ Maximum recommended depth of cut for CNMT 070308-MM insert, APMX=2 mm for CNHT 070305 insert⁽³⁾ Maximum ramping angle⁽⁴⁾ Clamping wrench size⁽⁵⁾ Tool tightening torque Nxm**For inserts, see pages:** CNHT/MT 07 (611)**For holders, see pages:** BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360)

• ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

TORMILL**E90CN**90° Endmills Carrying
CNMT/HT 0703 Inserts

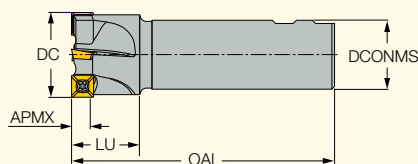
Designation	DC	CICT ⁽¹⁾	APMX ⁽²⁾	LH	OAL	RMPX ⁽³⁾	DCONMS	kg		
E90CN D16-2-L100-C15-07-C	16.00	2	4.00	20.0	100.00	5.0	15.00	0.11	SR 34-505/LHG	T-8/53
E90CN D20-3-L140-C19-07-C	20.00	3	4.00	20.0	140.00	3.5	19.00	0.27	SR 34-505/LHG	T-8/53
E90CN D25-4-L160-C24-07-C	25.00	4	4.00	20.0	160.00	2.5	24.00	0.48	SR 34-505/LHG	T-8/53

• For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)⁽²⁾ Maximum recommended depth of cut for CNMT 070308-MM insert, for CNHT 070305 insert APMX=2 mm⁽³⁾ Maximum ramping angle**For inserts, see pages:** CNHT/MT 07 (611)

HELIQUAD**E90X**

Endmills Carrying Square
Q/S/XOMT Inserts



Designation	DC	CICT ⁽¹⁾	APMX	LU	OAL	DCONMS	Shank ⁽²⁾	RMPX ⁽³⁾	kg		
E90X D08-C10-06	8.00	1	5.80	16.0	70.00	10.00	C	-	0.04	SR 34-508 M2.2X0.45	T-7/51
E90X D10-C10-06	10.00	1	5.80	20.0	80.00	10.00	C	-	0.04	SR 34-508 M2.2X0.45	T-7/51
E90X D12-C16-06	12.00	1	5.80	22.0	80.00	16.00	C	-	0.10	SR 34-508 M2.2X0.45	T-7/51
E90X D14-C16-06	14.00	2	5.80	20.0	80.00	16.00	C	9.0	0.11	SR 34-508/L	T-7/51
E90X D14-W16-06	14.00	2	5.80	22.0	70.00	16.00	W	9.0	0.09	SR 34-508/L	T-7/51
E90X D16-C16-06	16.00	2	5.80	20.0	90.00	16.00	C	5.5	0.13	SR 34-508/L	T-7/51
E90X D20-C20-06	20.00	3	5.80	22.0	110.00	20.00	C	3.0	0.25	SR 34-508/L	T-7/51
E90X D25-C20-06	25.00	4	5.80	25.0	120.00	20.00	C	1.7	0.29	SR 34-508/L	T-7/51
E90X D32-W25-06	32.00	5	5.80	25.0	90.00	25.00	W	1.3	0.34	SR 34-508/L	T-7/51

• For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

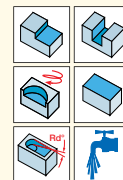
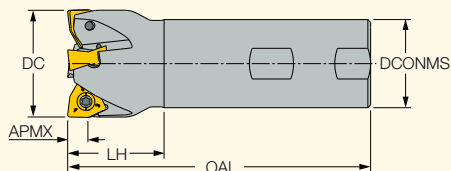
⁽²⁾ C-Cylindrical, W-Weldon

⁽³⁾ Maximum ramping angle

For inserts, see pages: QOMT-HQ (560) • SOMT-HQ (560) • XOMT-HQ (561)

HELI DO
TRIGON LINE**H690 EWN-07**

90° Endmills Carrying H690
WNMU 0704
Double-Sided Trigonal Inserts
with 6 Helical Cutting Edges



Designation	DC	CICT ⁽¹⁾	APMX	OAL	LH	DCONMS	Shank ⁽²⁾	RMPX ⁽³⁾	kg			
H690 EWN D032-03-W32-R07	32.00	3	7.00	110.00	48.0	32.00	W	2.0	0.56	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH
H690 EWN D040-04-W32-R07	40.00	4	7.00	110.00	35.0	32.00	W	1.5	0.64	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH

• Insert clamping screw must be lubricated every indexing • For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ C-cylindrical, W-Weldon

⁽³⁾ Maximum ramping angle

For inserts, see pages: H690 WNHU/WNMU 0705 (537)

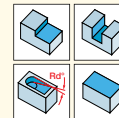
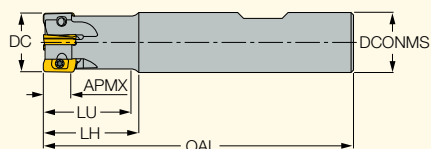




HELIPLUS

HP E90AN-07

Endmills with HELI-PLUS
HP ANKT 0702... Inserts



Designation	DC	CIC ⁽²⁾	LH	LU	OAL	APMX	DCONMS	Shank ⁽³⁾	RMPX ⁽⁴⁾	RMPX [°] 2 ⁽⁵⁾	RPMX ⁽⁶⁾	CSP ⁽⁷⁾	kg		
HP E90AN-D10-1-C10-07-C	10.00	1	20.0	18.0	80.00	7.70	10.00	C	2.5	-	66390	1	0.04	SR 34-533	T-6/51
HP E90AN-D12-2-C12-07-C	12.00	2	18.0	16.2	80.00	7.70	12.00	C	2.7	3.5	56970	1	0.06	SR 34-533/L/HG	T-6/51
HP E90AN-D14-2-C14-07-C	14.00	2	18.0	16.5	80.00	7.70	14.00	C	3.2	4.2	999	1	0.08	SR 34-533/L/HG	T-6/51
HP E90AN-D16-3-C15-07-C-B ⁽¹⁾	16.00	3	26.0	24.5	150.00	7.70	15.00	C	3.2	6.0	45100	1	0.17	SR 34-533/L/HG	T-6/51
HP E90AN-D16-3-C16-07-C	16.00	3	26.0	24.5	90.00	7.70	16.00	C	3.2	6.0	45100	1	0.11	SR 34-533/L/HG	T-6/51
HP E90AN-D16-3-W16-07	16.00	3	21.0	18.5	85.00	7.70	16.00	W	3.2	6.0	45100	0	0.12	SR 34-533/L/HG	T-6/51
HP E90AN-D16-4-C16-07-C	16.00	4	26.0	24.5	90.00	7.70	16.00	C	3.2	6.0	45100	1	0.11	SR 34-533/L/HG	T-6/51
HP E90AN-D16-4-W16-07	16.00	4	20.0	18.5	85.00	7.70	16.00	W	3.2	6.0	45100	0	0.12	SR 34-533/L/HG	T-6/51
HP E90AN-D20-4-C19-07-C-B ⁽¹⁾	20.00	4	22.0	20.5	160.00	7.70	19.00	C	2.4	4.5	38890	1	0.31	SR 34-533/L/HG	T-6/51
HP E90AN-D20-4-C20-07-C	20.00	4	22.0	20.5	110.00	7.70	20.00	C	2.4	4.5	38890	1	0.23	SR 34-533/L/HG	T-6/51
HP E90AN-D20-5-C20-07-C	20.00	5	22.0	20.5	110.00	7.70	20.00	C	2.4	4.5	38890	1	0.23	SR 34-533/L/HG	T-6/51
HP E90AN-D20-5-W20-07	20.00	5	22.0	20.5	90.00	7.70	20.00	W	2.4	4.5	38890	0	0.20	SR 34-533/L/HG	T-6/51
HP E90AN-D25-5-C20-07-C	25.00	5	24.0	-	120.00	7.70	20.00	C	2.0	3.0	33440	1	0.28	SR 34-533/L/HG	T-6/51
HP E90AN-D25-7-C20-07-C	25.00	7	24.0	-	120.00	7.70	20.00	C	2.0	3.0	33440	1	0.27	SR 34-533/L/HG	T-6/51
HP E90AN-D32-8-C25-07-C	32.00	8	30.0	-	130.00	7.70	25.00	C	1.4	2.5	26610	1	0.48	SR 34-533/L/HG	T-6/51

• Insert tightening torque: 0.6 Nxm. • For user guide see pages 616-622

⁽¹⁾ "B" suffix - cylindrical shank which may be shortened.

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ C-Cylindrical, W-Weldon

⁽⁴⁾ Maximum ramping angle

⁽⁵⁾ Values only for HP ANKT 0702R12T-FF insert

⁽⁶⁾ Maximum RPM

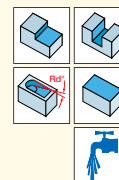
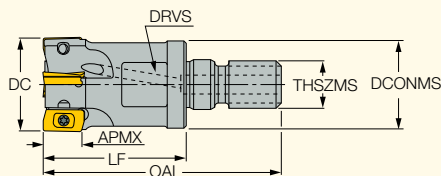
⁽⁷⁾ 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: HP ANCR 0702PNFR (509) • HP ANKT 0702-FF (510) • HP ANKT/ANCT 0702 PN-R/PNTR (508) • HP ANKW 070204PNTR (509)

HELIPLUS

HP E90AN-M-07

90° Endmills with a FLEX-FIT
Threaded Adaptation
Carrying HELI-PLUS HP
ANKT 0702... Inserts



Designation	DC	CIC ⁽¹⁾	THSZMS	OAL	LF	APMX	DCONMS	RMPX ⁽²⁾	RMPX [°] 2 ⁽³⁾	DRVS ⁽⁴⁾	TQ_3 ⁽⁵⁾	RPMX ⁽⁶⁾	kg		
HP E90AN-D25-5-M12	25.00	5	M12	57.00	35.00	7.70	21.00	2.0	3.0	17.1	33	33440	0.09	SR 34-533/L/HG	T-6/51

• Insert tightening torque: 0.6 Nxm. • For adaptation see page 59 • For user guide see pages 616-622 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

⁽³⁾ Values only for HP ANKT 0702R12T-FF insert

⁽⁴⁾ Torque key size

⁽⁵⁾ Tool tightening torque Nxm (lbfxin)

⁽⁶⁾ Maximum RPM

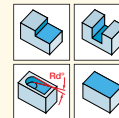
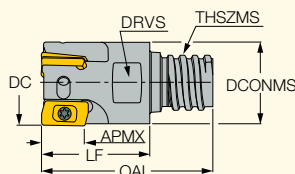
For inserts, see pages: HP ANCR 0702PNFR (509) • HP ANKT 0702-FF (510) • HP ANKT/ANCT 0702 PN-R/PNTR (508) • HP ANKW 070204PNTR (509)

For holders, see pages: (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360)

• ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

HELIPLUS**HP E90AN-MM-07**

90° Endmills with a
MULTI-MASTER Threaded
Adaptation Carrying HELI-PLUS
HP ANKT 0702.. Inserts



Designation	DC	CICT ⁽¹⁾	OAL	LF	APMX	THSZMS	DCONMS	DRVS ⁽²⁾	RMPX ⁽³⁾	RMPX ⁽⁴⁾	RMPX ⁽⁵⁾	kg		
HP E90AN-D12-2-MMT08	12.00	2	24.45	16.50	7.70	T08	10.60	10.0	2.7	3.5	56970	0.01	SR 34-533/L/HG	T-6/51
HP E90AN-D16-3-MMT10	16.00	3	31.75	20.00	7.70	T10	14.95	13.0	3.2	6.0	44860	0.03	SR 34-533/L/HG	T-6/51
HP E90AN-D16-4-MMT10	16.00	4	31.75	20.00	7.70	T10	14.95	13.0	3.2	6.0	37630	0.03	SR 34-533/L/HG	T-6/51
HP E90AN-D20-5-MMT12	20.00	5	35.30	21.50	7.70	T12	18.40	16.0	2.4	4.5	38890	0.05	SR 34-533/L/HG	T-6/51

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation see page 59 • For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Clamping wrench size

⁽³⁾ Maximum ramping angle

⁽⁴⁾ Values only for HP ANKT 0702R12T-FF insert

⁽⁵⁾ The maximum cutting speed (RPM) for the cutting head assembled on the shank should be the lower parameter (RMPX) of either the cutting head or the shank

For inserts, see pages: HP ANCR 0702PNFR (509) • HP ANKT 0702-FF (510) • HP ANKT/ANCT 0702 PN-R/PNTR (508) • HP ANKW 070204PNTR (509)

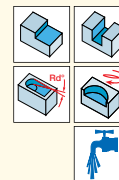
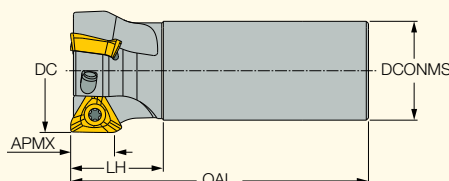
For holders, see pages: MM CAB (110) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106)

• MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)

• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

HELI3MILL
HM390 LINE**HM390 ETC-07**

90° Endmills Carrying
HM390 TCKT 0703
Triangular Inserts with 3
Helical Cutting Edges



Designation	DC	APMX	CICT ⁽¹⁾	OAL	LH	DCONMS	Shank ⁽²⁾	RMPX ⁽³⁾	kg		
HM390 ETC D14-1-C16-07	14.00	5.00	1	80.00	21.0	16.00	C	1.9	0.10	SR M2.5X5-T7-60	T-7/51
HM390 ETC D16-2-C15-07-B	16.00	5.00	2	150.00	26.0	15.00	C	1.9	0.17	SR M2.5X5-T7-60	T-7/51
HM390 ETC D16-2-C16-07	16.00	5.00	2	100.00	26.0	16.00	C	1.9	0.12	SR M2.5X5-T7-60	T-7/51
HM390 ETC D16-2-C16-07-B	16.00	5.00	2	150.00	40.0	16.00	C	1.9	0.19	SR M2.5X5-T7-60	T-7/51
HM390 ETC D16-2-W16-07	16.00	5.00	2	80.00	26.0	16.00	W	1.9	0.10	SR M2.5X5-T7-60	T-7/51
HM390 ETC D18-2-C16-07	18.00	5.00	2	100.00	30.0	16.00	C	1.4	0.13	SR M2.5X5-T7-60	T-7/51
HM390 ETC D18-2-C16-07-B	18.00	5.00	2	160.00	30.0	16.00	C	1.4	0.21	SR M2.5X5-T7-60	T-7/51
HM390 ETC D20-3-C16-07	20.00	5.00	3	55.00	20.0	16.00	C	1.4	0.07	SR M2.5X5-T7-60	T-7/51
HM390 ETC D20-3-C19-07-B	20.00	5.00	3	160.00	30.0	19.00	C	1.4	0.28	SR M2.5X5-T7-60	T-7/51
HM390 ETC D20-3-C20-07	20.00	5.00	3	110.00	30.0	20.00	C	1.4	0.21	SR M2.5X5-T7-60	T-7/51
HM390 ETC D20-3-C20-07-B	20.00	5.00	3	160.00	40.0	20.00	C	1.4	0.31	SR M2.5X5-T7-60	T-7/51
HM390 ETC D20-3-W20-07	20.00	5.00	3	85.00	30.0	20.00	W	1.4	0.16	SR M2.5X5-T7-60	T-7/51
HM390 ETC D22-3-C20-07	22.00	5.00	3	110.00	30.0	20.00	C	1.0	0.21	SR M2.5X5-T7-60	T-7/51
HM390 ETC D22-3-C20-07-B	22.00	5.00	3	180.00	30.0	20.00	C	1.0	0.37	SR M2.5X5-T7-60	T-7/51
HM390 ETC D25-4-C25-07	25.00	5.00	4	120.00	35.0	25.00	C	1.0	0.36	SR M2.5X6-T7-60	T-7/51
HM390 ETC D25-4-W25-07	25.00	5.00	4	95.00	35.0	25.00	W	1.0	0.28	SR M2.5X6-T7-60	T-7/51
HM390 ETC D28-4-C25-07-B	28.00	5.00	4	200.00	35.0	25.00	C	0.9	0.64	SR M2.5X6-T7-60	T-7/51
HM390 ETC D32-5-C32-07	32.00	5.00	5	130.00	45.0	32.00	C	0.8	0.68	SR M2.5X6-T7-60	T-7/51
HM390 ETC D32-5-W32-07	32.00	5.00	5	110.00	45.0	32.00	W	0.8	0.56	SR M2.5X6-T7-60	T-7/51

• Insert clamping screw must be lubricated every indexing. • Tightening torque 0.9 Nxm. • For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

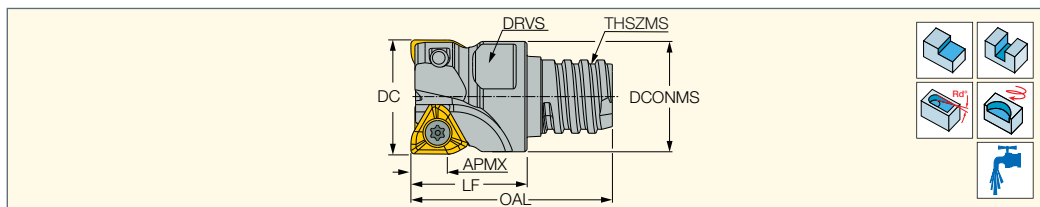
⁽²⁾ C-Cylindrical, W-Weldon

⁽³⁾ Maximum ramping angle

For inserts, see pages: HM390 TCKT/CT 0703 (512)

HM390 ETC-MM

90° Endmills with a
 MULTI-MASTER Threaded
 Adaptation Carrying HM390
 TCKT 0703 Triangular Inserts



Designation	DC	APMX	CICT ⁽¹⁾	LF	DCONMS	THSZMS	OAL	DRVS ⁽²⁾	RMPX ⁽³⁾			
HM390 ETC D16-2-MMT10-07	16.00	5.00	2	16.00	15.20	T10	27.30	13.0	1.9	0.02	SR M2.5X5-T7-60	T-7/51
HM390 ETC D20-3-MMT12-07	20.00	5.00	3	20.00	18.30	T12	33.30	16.0	1.4	0.04	SR M2.5X5-T7-60	T-7/51
HM390 ETC D25-4-MMT15-07	25.00	5.00	4	25.00	23.90	T15	42.00	20.0	1.0	0.08	SR M2.5X6-T7-60	T-7/51

• Insert clamping screw must be lubricated every indexing. • Tightening torque 0.9 Nxm. • For adaptation see page 59

• For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Clamping wrench size

⁽³⁾ Maximum ramping angle

For inserts, see pages: HM390 TCKT/CT 0703 (512)

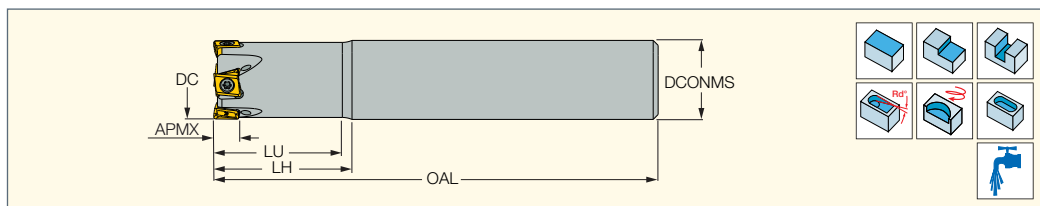
For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109)

• MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)

• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

T490 ELN-05

90° Endmills Carrying Tangentially
 Clamped Inserts with 4 Helical,
 4.6 mm Long Cutting Edges



Designation	DC	CICT ⁽¹⁾	OAL	LH	LU	APMX	DCONMS	Shank	RMPX ⁽²⁾	MIID ⁽³⁾		
T490 ELN D10-2-C10-05	10.00	2	80.00	21.0	20.1	4.60	10.00	C	1.3	T490 LNMT 0502PNR-RD	SR M2X0.4-3.8 IP6	T-6IP/51
T490 ELN D12-3-C12-05	12.00	3	80.00	25.5	23.3	4.60	12.00	C	0.9	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51
T490 ELN D16-4-C16-05	16.00	4	90.00	28.0	26.0	4.60	16.00	C	0.6	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51
T490 ELN D20-5-C20-05	20.00	5	110.00	27.0	25.5	4.60	20.00	C	0.5	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51
T490 ELN D25-6-C25-05	25.00	6	120.00	30.0	28.5	4.60	25.00	C	0.4	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51

New

• For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

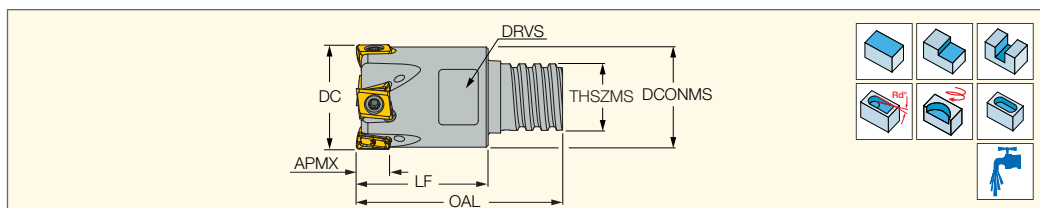
⁽²⁾ Maximum ramping angle

⁽³⁾ Master insert identification

For inserts, see pages: T490 LNMT 0502 (543)

T490 ELN-MM-05

90° Endmills with a
 MULTI-MASTER Threaded
 Adaptation Carrying
 Tangentially Clamped Inserts



Designation	DC	CICT ⁽¹⁾	APMX	DCONMS	LF	OAL	THSZMS	DRVS ⁽²⁾	RMPX ⁽³⁾		MIID ⁽⁴⁾		
T490 ELN D10-2-MMT06-05	10.00	2	4.60	9.20	13.00	19.30	T06	8.0	1.3	0.01	T490 LNMT 0502PNR-RD	SR M2X0.4-3.8 IP6	T-6IP/51
T490 ELN D12-3-MMT08-05	12.00	3	4.60	11.00	14.50	22.00	T08	10.0	0.9	0.01	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51
T490 ELN D16-4-MMT10-05	16.00	4	4.60	15.20	20.00	31.30	T10	13.0	0.6	0.03	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51
T490 ELN D20-5-MMT12-05	20.00	5	4.60	19.20	22.00	35.30	T12	16.0	0.5	0.05	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51

New

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation see page 59 • For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Torque key size

⁽³⁾ Maximum ramping angle

⁽⁴⁾ Master insert identification

For inserts, see pages: T490 LNMT 0502 (543)

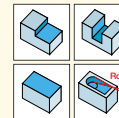
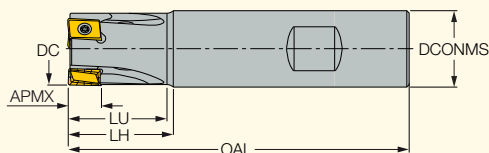
For holders, see pages: MM CAB (110) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109)

• MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)

• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

T490 ELN-08

90° Endmills Carrying Tangentially Clamped Inserts with 4 Helical, 8 mm Long Cutting Edges



Designation	DC	CICT ⁽¹⁾	LH	LU	APMX	OAL	DCONMS	Shank ⁽²⁾	CSP ⁽³⁾	RMPX ⁽⁴⁾	RMPX ⁽⁵⁾	kg		
T490 ELN D16-2-C15-08B	16.00	2	41.0	40.0	8.00	150.00	15.00	C	1	2.0	1.1	0.18	SR 10502813-HGSM	IP-7/51
T490 ELN D16-2-C16-08	16.00	2	28.0	26.0	8.00	90.00	16.00	C	0	2.0	1.1	0.13	SR 10502813-HGSM	IP-7/51
T490 ELN D16-2-C16-08C	16.00	2	28.0	26.0	8.00	90.00	16.00	C	1	2.0	1.1	0.12	SR 10502813-HGSM	IP-7/51
T490 ELN D16-2-W16-08	16.00	2	28.0	26.0	8.00	85.00	16.00	W	0	2.0	1.1	0.12	SR 10502813-HGSM	IP-7/51
T490 ELN D16-2-W16-08C	16.00	2	28.0	26.0	8.00	85.00	16.00	W	1	2.0	1.1	0.11	SR 10502813-HGSM	IP-7/51
T490 ELN D18-2-C20-08C	18.00	2	28.0	26.0	8.00	90.00	20.00	C	1	1.8	1.0	0.18	SR 10502813-HGSM	IP-7/51
T490 ELN D20-2-C19-08B	20.00	2	41.0	40.0	8.00	160.00	19.00	C	1	1.7	0.8	0.31	SR 10502813-HG-M	IP-7/51
T490 ELN D20-2-C20-08C	20.00	2	28.0	26.0	8.00	110.00	20.00	C	1	1.7	0.8	0.23	SR 10502813-HG-M	IP-7/51
T490 ELN D20-2-W20-08C	20.00	2	28.0	26.0	8.00	90.00	20.00	W	1	1.7	0.8	0.19	SR 10502813-HG-M	IP-7/51
T490 ELN D20-3-C20-08	20.00	3	28.0	26.0	8.00	110.00	20.00	C	0	1.7	0.8	0.25	SR 10502813-HG-M	IP-7/51
T490 ELN D20-3-C20-08C	20.00	3	28.0	26.0	8.00	110.00	20.00	C	1	1.7	0.8	0.23	SR 10502813-HG-M	IP-7/51
T490 ELN D20-3-W20-08	20.00	3	28.0	26.0	8.00	90.00	20.00	W	0	1.7	0.8	0.20	SR 10502813-HG-M	IP-7/51
T490 ELN D20-3-W20-08C	20.00	3	28.0	26.0	8.00	90.00	20.00	W	1	1.7	0.8	0.18	SR 10502813-HG-M	IP-7/51
T490 ELN D22-3-C20-08C	22.00	3	28.0	30.0	8.00	110.00	20.00	C	1	-	-	0.24	SR 10502813-HG-M	IP-7/51
T490 ELN D25-3-C24-08B	25.00	3	41.0	40.0	8.00	200.00	24.00	C	1	-	-	0.61	SR 10502813-HG-M	IP-7/51
T490 ELN D25-3-C25-08C	25.00	3	28.0	26.0	8.00	120.00	25.00	C	1	-	-	0.39	SR 10502813-HG-M	IP-7/51
T490 ELN D25-3-W25-08C	25.00	3	28.0	26.0	8.00	95.00	25.00	W	1	-	-	0.30	SR 10502813-HG-M	IP-7/51
T490 ELN D25-4-C25-08	25.00	4	28.0	26.0	8.00	120.00	25.00	C	0	-	-	0.43	SR 10502813-HG-M	IP-7/51
T490 ELN D25-4-C25-08C	25.00	4	28.0	26.0	8.00	120.00	25.00	C	1	-	-	0.39	SR 10502813-HG-M	IP-7/51
T490 ELN D25-4-W25-08	25.00	4	28.0	26.0	8.00	95.00	25.00	W	0	-	-	0.33	SR 10502813-HG-M	IP-7/51
T490 ELN D25-4-W25-08C	25.00	4	28.0	26.0	8.00	95.00	25.00	W	1	-	-	0.30	SR 10502813-HG-M	IP-7/51
T490 ELN D32-3-C32-08C	32.00	3	32.0	30.0	8.00	130.00	32.00	C	1	-	-	0.72	SR 10502813-HG-M	IP-7/51
T490 ELN D32-3-W32-08C	32.00	3	32.0	30.0	8.00	110.00	32.00	W	1	-	-	0.60	SR 10502813-HG-M	IP-7/51
T490 ELN D32-4-C32-08B	32.00	4	32.0	30.0	8.00	200.00	32.00	C	1	-	-	1.14	SR 10502813-HG-M	IP-7/51
T490 ELN D32-5-C32-08C	32.00	5	32.0	30.0	8.00	130.00	32.00	C	1	-	-	0.73	SR 10502813-HG-M	IP-7/51
T490 ELN D32-5-W32-08C	32.00	5	32.0	30.0	8.00	110.00	32.00	W	1	-	-	0.60	SR 10502813-HG-M	IP-7/51
T490 ELN D40-4-C32-08C	40.00	4	-	30.0	8.00	130.00	32.00	C	1	-	-	0.81	SR 10502813-HG-M	IP-7/51
T490 ELN D40-6-C32-08C	40.00	6	-	30.0	8.00	130.00	32.00	C	1	-	-	0.82	SR 10502813-HG-M	IP-7/51
T490 ELN D40-6-W32-08C	40.00	6	-	30.0	8.00	110.00	32.00	W	1	-	-	0.69	SR 10502813-HG-M	IP-7/51

• "B" suffix with long cylindrical shank which may be shortened. • For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) C-Cylindrical, W-Weldon

(3) 0 - Without coolant supply, 1 - With coolant supply

(4) Maximum ramping angle - valid only with T490 LNHT 080404PNR-RD inserts

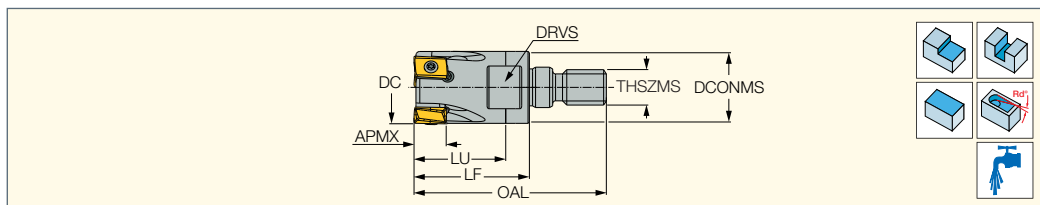
(5) Maximum ramping angle - valid only with T490 LNMT 080404PNR-RD inserts

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT/LNHT 0804 (544)



T490 ELN-M

90° Endmills with a FLEX-FIT Threaded Adaptation Carrying Tangentially Clamped Inserts



Designation	DC	CICT ⁽¹⁾	APMX	DCONMS	LU	LF	OAL	THSZMS	DRVS ⁽²⁾	RMPX ⁽³⁾	RMPX ⁽³⁾ _2 ⁽⁴⁾	TQ_3 ⁽⁵⁾	kg
T490 ELN D20-3-M10	20.00	3	8.00	18.70	-	30.00	50.00	M10	15.0	1.7	0.8	29	0.06
T490 ELN D25-3-M12	25.00	3	8.00	21.00	-	28.00	50.00	M12	17.0	-	-	33	0.08
T490 ELN D25-4-M12	25.00	4	8.00	21.00	-	28.00	50.00	M12	17.0	-	-	33	0.08
T490 ELN D32-3-M16-13	32.00	3	12.50	29.00	-	45.00	70.00	M16	25.0	-	-	40	0.22
T490 ELN D32-5-M16	32.00	5	8.00	29.00	-	30.00	55.00	M16	25.0	-	-	40	0.16

• For adaptation see page 59 • For user guide see pages 616-622 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Clamping wrench size

⁽³⁾ Maximum ramping angle - valid only with T490 LNHT 080404PNR-RD inserts

⁽⁴⁾ Maximum ramping angle - valid only with T490 LNMT 080404PNR-RD inserts

⁽⁵⁾ Tool tightening torque Nxm (lbfxin)

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNR-FF (547) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT 0804 (544) • T490 LNMT/LNHT/LNAR 1306 (546)

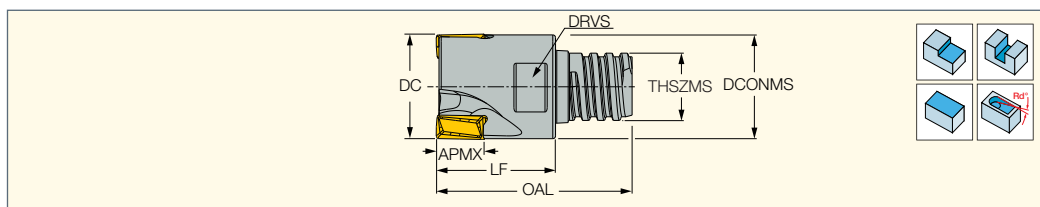
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

Spare Parts

Designation				
T490 ELN D20-3-M10	SR 10502813-HG-M	IP-7/51		
T490 ELN D25-3-M12	SR 10502813-HG-M	IP-7/51		
T490 ELN D25-4-M12	SR 10502813-HG-M	IP-7/51		
T490 ELN D32-3-M16-13	SR 34-535-SN		SW6-T-SH	BLD T15/S7
T490 ELN D32-5-M16	SR 10502813-HG-M	IP-7/51		

T490 ELN-MM-08

90° Endmills with a MULTI-MASTER Threaded Adaptation Carrying Tangentially Clamped Inserts



Designation	DC	CICT ⁽¹⁾	APMX	DCONMS	LF	OAL	THSZMS	DRVS ⁽²⁾	RMPX ⁽³⁾	RMPX ⁽³⁾ _2 ⁽⁴⁾	kg		
T490 ELN D16-2-MMT10	16.00	2	8.00	14.70	20.00	32.00	T10	13.0	2.0	1.1	0.03	SR 10502813-HGSM	IP-7/51
T490 ELN D20-3-MMT12	20.00	3	8.00	18.70	22.00	35.00	T12	16.0	1.7	0.8	0.05	SR 10502813-HG-M	IP-7/51

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation see page 59 • For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Clamping wrench size

⁽³⁾ Maximum ramping angle - valid only with T490 LNHT 080404PNR-RD inserts

⁽⁴⁾ Maximum ramping angle - valid only with T490 LNMT 080404PNR-RD inserts

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT/LNHT 0804 (544)

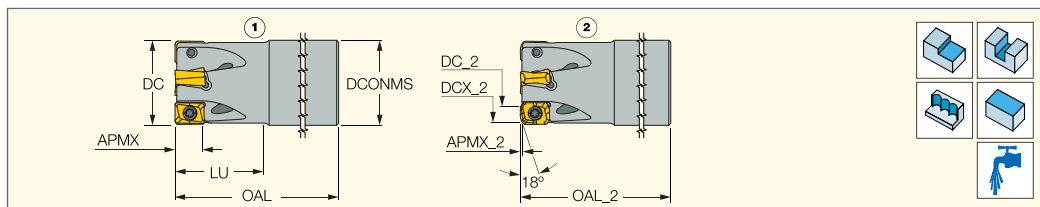
For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109)

• MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)

• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

**H490 E90AX-09**

90° Endmills Carrying H490
ANKX 09... Double-Sided
Rectangular Inserts with
4 Helical Cutting Edges



Designation	DC	DCX_2	DC_2	CICT ⁽¹⁾	APMX	APMX_2	AE ⁽²⁾	OAL	OAL_2	LU
H490 E90AX D16-2-C15-09-B	16.00	16.10	10.60	2	8.00	0.70	5.5	150.00	150.00	40.0
H490 E90AX D16-2-C16-09	16.00	16.10	10.60	2	8.00	0.70	5.5	90.00	90.00	26.0
H490 E90AX D16-2-W16-09	16.00	16.10	10.60	2	8.00	0.70	5.5	85.00	85.00	26.0
H490 E90AX D18-2-C16-09	18.00	18.10	12.60	2	8.00	0.70	5.5	90.00	90.00	25.0
H490 E90AX D20-2-C19-09-B	20.00	20.10	14.60	2	8.00	0.70	5.5	160.00	160.00	40.0
H490 E90AX D20-2-C20-09	20.00	20.10	14.60	2	8.00	0.70	5.5	110.00	110.00	26.0
H490 E90AX D20-2-W20-09	20.00	20.10	14.60	2	8.00	0.70	5.5	90.00	90.00	26.0
H490 E90AX D20-3-C20-09	20.00	20.10	14.60	3	8.00	0.70	5.5	110.00	110.00	26.0
H490 E90AX D20-3-W20-09	20.00	20.10	14.60	3	8.00	0.70	5.5	90.00	90.00	26.0
H490 E90AX D22-3-C20-09	22.00	22.10	16.60	3	8.00	0.70	5.5	115.00	115.00	25.0
H490 E90AX D25-3-C24-09-B	25.00	25.10	19.60	3	8.00	0.70	5.5	200.00	200.00	40.0
H490 E90AX D25-3-C25-09	25.00	25.10	19.60	3	8.00	0.70	5.5	120.00	120.00	26.0
H490 E90AX D25-3-W25-09	25.00	25.10	19.60	3	8.00	0.70	5.5	95.00	95.00	26.0
H490 E90AX D25-4-C25-09	25.00	25.10	19.60	4	8.00	0.70	5.5	120.00	120.00	26.0
H490 E90AX D25-4-W25-09	25.00	25.10	19.60	4	8.00	0.70	5.5	95.00	95.00	26.0
H490 E90AX D32-4-W32-09	32.00	32.10	26.60	4	8.00	0.70	5.5	110.00	110.00	30.0
H490 E90AX D32-5-C32-09	32.00	32.10	26.60	5	8.00	0.70	5.5	130.00	130.00	30.0
H490 E90AX D32-5-W32-09	32.00	32.10	26.60	5	8.00	0.70	5.5	110.00	110.00	30.0

Designation	DCNMS	RMPX°_2 ⁽³⁾	MDN	MDX	Shank ⁽⁴⁾	MIID ⁽⁵⁾	MIID_2 ⁽⁶⁾	
H490 E90AX D16-2-C15-09-B	15.00	4.0	26.70	31.20	C	H490 ANKX 0904	H490 ANKX 0904..FF	0.18
H490 E90AX D16-2-C16-09	16.00	4.0	26.70	31.20	C	H490 ANKX 0904	H490 ANKX 0904..FF	0.12
H490 E90AX D16-2-W16-09	16.00	4.0	26.70	31.20	W	H490 ANKX 0904	H490 ANKX 0904..FF	0.11
H490 E90AX D18-2-C16-09	16.00	3.0	30.70	35.20	C	H490 ANKX 0904	H490 ANKX 0904..FF	0.12
H490 E90AX D20-2-C19-09-B	19.00	2.5	34.70	39.20	C	H490 ANKX 0904	H490 ANKX 0904..FF	0.31
H490 E90AX D20-2-C20-09	20.00	2.5	34.70	39.20	C	H490 ANKX 0904	H490 ANKX 0904..FF	0.23
H490 E90AX D20-2-W20-09	20.00	2.5	34.70	39.20	W	H490 ANKX 0904	H490 ANKX 0904..FF	0.18
H490 E90AX D20-3-C20-09	20.00	2.5	34.70	39.20	C	H490 ANKX 0904	H490 ANKX 0904..FF	0.23
H490 E90AX D20-3-W20-09	20.00	2.5	34.70	39.20	W	H490 ANKX 0904	H490 ANKX 0904..FF	0.18
H490 E90AX D22-3-C20-09	20.00	1.6	38.70	43.20	C	H490 ANKX 0904	H490 ANKX 0904..FF	0.25
H490 E90AX D25-3-C24-09-B	24.00	1.6	44.70	49.20	C	H490 ANKX 0904	H490 ANKX 0904..FF	0.61
H490 E90AX D25-3-C25-09	25.00	1.6	44.70	49.20	C	H490 ANKX 0904	H490 ANKX 0904..FF	0.39
H490 E90AX D25-3-W25-09	25.00	1.6	44.70	49.20	W	H490 ANKX 0904	H490 ANKX 0904..FF	0.30
H490 E90AX D25-4-C25-09	25.00	1.6	44.70	49.20	C	H490 ANKX 0904	H490 ANKX 0904..FF	0.39
H490 E90AX D25-4-W25-09	25.00	1.6	44.70	49.20	W	H490 ANKX 0904	H490 ANKX 0904..FF	0.30
H490 E90AX D32-4-W32-09	32.00	1.4	58.70	63.20	W	H490 ANKX 0904	H490 ANKX 0904..FF	0.60
H490 E90AX D32-5-C32-09	32.00	1.4	58.70	63.20	C	H490 ANKX 0904	H490 ANKX 0904..FF	0.72
H490 E90AX D32-5-W32-09	32.00	1.4	58.70	63.20	W	H490 ANKX 0904	H490 ANKX 0904..FF	0.60

- For user guide, see pages 616-622 • "B" Suffix cylindrical shank which may be shortened • 1- with standard square insert • 2- with FF (fast feed) insert
- When assembled the H490 ANKX 0904R12T-FF insert, tool diameter enlarges by 0.1 mm

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum side plunge

⁽³⁾ Maximum ramping angle when using FF inserts

⁽⁴⁾ C-Cylindrical, W-Weldon

⁽⁵⁾ Master insert identification

⁽⁶⁾ Master insert identification 2

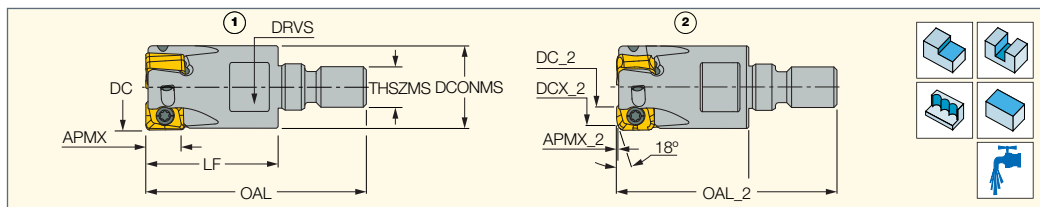
For inserts, see pages: H490 ANKX 0904-FF (538) • H490 ANKX/ANCX-09 (537)

Spare Parts

Designation			
H490 E90AX-09	SR 10508082-HG	SW4-SD	BLD T08/M7

H490 E90AX-M

90° Endmills with a FLEX-FIT
Threaded Connection Carrying
H490 ANKX/ANCX 09...
Double-Sided Rectangular Inserts



Designation	DC	DCX_2	DC_2	CICT ⁽¹⁾	APMX	APMX_2	MDN	MDX	RMPX°_2	AE
H490 E90AX D20-3-M10-09	20.00	20.10	14.60	3	8.00	0.70	34.70	39.20	2.5	5.5
H490 E90AX D25-4-M12-09	25.00	25.10	19.60	4	8.00	0.70	44.70	49.20	1.6	5.5
H490 E90AX D32-5-M16-09	32.00	32.10	26.60	5	8.00	0.70	58.70	63.20	1.4	5.5

Designation	LF_2	DCONMS	THSZMS	DRVS ⁽²⁾	MIID ⁽³⁾	MIID_2 ⁽⁴⁾	TQ_3 ⁽⁵⁾	
H490 E90AX D20-3-M10-09	30.00	18.70	M10	16.0	H490 ANCX 090404PDR	H490 ANKX 0904...-FF	29	0.06
H490 E90AX D25-4-M12-09	28.00	21.00	M12	17.0	H490 ANCX 090404PDR	H490 ANKX 0904...-FF	33	0.07
H490 E90AX D32-5-M16-09	30.00	29.00	M16	25.0	H490 ANCX 090404PDR	H490 ANKX 0904...-FF	40	0.16

• For adaptation, see page 59 • For user guide, see pages 616-622 • When mounting items with FLEXFIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

• 1- with standard square insert • 2- with FF (fast feed) insert

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Clamping wrench size

⁽³⁾ Master insert identification

⁽⁴⁾ Master insert identification 2

⁽⁵⁾ Tool tightening torque Nxmm (lbf·in)

For inserts, see pages: H490 ANKX 0904-FF (538) • H490 ANKX/ANCX-09 (537)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358)

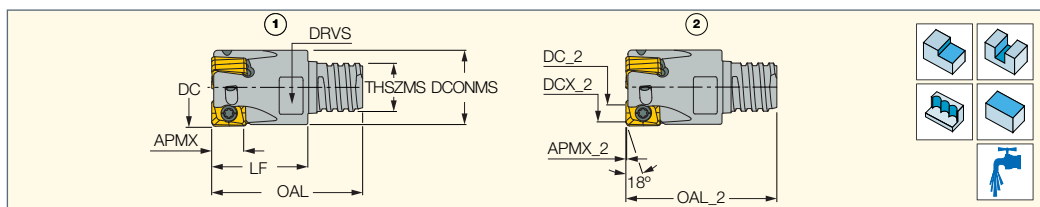
• DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

Spare Parts

Designation		
H490 E90AX-M	SR 10508082-HG	BLD T08/M7

H490 E90AX-MM

90° Endmills with a MULTI-MASTER
Threaded Connection Carrying
H490 ANKX/ANCX 090...
Double-Sided Rectangular Inserts



Designation	DC	DCX_2	DC_2	CICT ⁽¹⁾	APMX	APMX_2	AE	LF	RMPX°_2
H490 E90AX D20-3-MMT12-09	20.00	20.10	20.00	3	8.00	0.70	5.5	24.70	2.5

Designation	OAL	OAL_2	DCONMS	THSZMS	MDN	MDX	MIID ⁽²⁾	MIID_2 ⁽³⁾	DRVS ⁽⁴⁾	
H490 E90AX D20-3-MMT12-09	37.30	37.30	18.70	T12	34.70	39.20	H490 ANCX 090404PDR	H490 ANKX 0904...-FF	16.0	0.05

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation, see page 59 • For user guide, see pages 616-622

• 1- with standard square insert • 2- with FF (fast feed) insert

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Master insert identification

⁽³⁾ Master insert identification 2

⁽⁴⁾ Clamping wrench size

For inserts, see pages: H490 ANKX 0904-FF (470) • H490 ANKX/ANCX-09 (469)

For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104)

• MM S-A-HSK (109) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108)

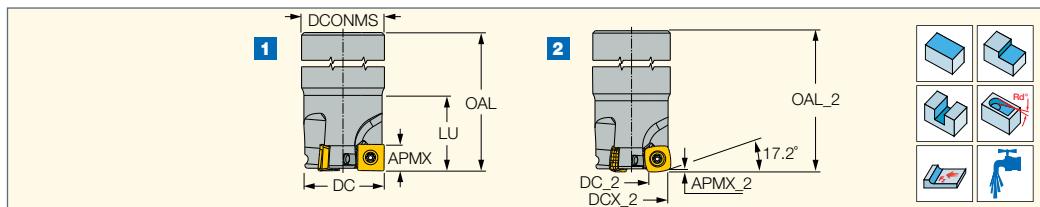
• MM TS-A (105) • MM TS2-A (105)

Spare Parts

Designation			
H490 E90AX-MM	SR 10508082-HG	BLD T08/M7	SW4-SD

HELICUAD**E90SP**

Endmills Carrying Square Inserts



Designation	DC	CICT ⁽¹⁾	DCONMS	LU	APMX	OAL	RMPX° ⁽²⁾	DC_2	DCX_2	APMX_2	OAL_2	RMPX°_2 ⁽³⁾	Shank ⁽⁴⁾	kg			
E90SP D25-02-C25-10	25.00	2	25.00	32.0	9.60	110.00	3.0	8.30	25.45	1.27	110.26	5.0	C	0.35	SR	105141114 ^(a)	BLD IP15/M7 SW6-T-SH
E90SP D25-02-W25-10	25.00	2	25.00	32.0	9.60	95.00	3.0	8.30	25.45	1.27	95.26	5.0	W	0.29	SR	105141114 ^(a)	BLD IP15/M7 SW6-T-SH
E90SP D25-03-C25-10	25.00	3	25.00	32.0	9.60	110.00	3.0	8.30	25.45	1.27	110.26	5.0	C	0.76	SR	105141114 ^(a)	BLD IP15/M7 SW6-T-SH
E90SP D25-03-W25-10	25.00	3	25.00	32.0	9.60	95.00	3.0	8.30	25.45	1.27	95.26	5.0	W	0.29	SR	105141114 ^(a)	BLD IP15/M7 SW6-T-SH
E90SP D32-03-C32-10	32.00	3	32.00	32.0	9.60	130.00	2.0	15.30	32.45	1.27	130.26	4.0	C	0.69	SR	105141114 ^(a)	BLD IP15/M7 SW6-T-SH
E90SP D32-03-W25-10	32.00	3	25.00	31.8	9.60	95.00	2.0	15.30	32.45	1.27	95.26	4.0	W	0.31	SR	105141114 ^(a)	BLD IP15/M7 SW6-T-SH
E90SP D32-04-W25-10	32.00	4	25.00	32.0	9.60	95.00	2.0	15.30	32.45	1.27	95.26	4.0	W	0.02	SR	105141114 ^(a)	BLD IP15/M7 SW6-T-SH
E90SP D40-04-C32-10	40.00	4	32.00	32.0	9.60	130.00	1.5	23.30	40.45	1.27	130.26	3.5	C	0.72	SR	105141114 ^(a)	BLD IP15/M7 SW6-T-SH
E90SP D40-04-W32-10	40.00	4	32.00	32.0	9.60	110.00	1.5	23.30	40.45	1.27	110.26	3.5	W	0.60	SR	105141114 ^(a)	BLD IP15/M7 SW6-T-SH
E90SP D40-05-W32-10	40.00	5	32.00	32.0	9.60	110.00	1.5	23.30	40.45	1.27	110.26	3.5	W	0.12	SR	105141114 ^(a)	BLD IP15/M7 SW6-T-SH
E90SP D50-06-C32-10	50.00	6	32.00	35.0	9.60	130.00	1.0	33.30	50.45	1.27	130.26	3.0	C	0.80	SR	105141114 ^(a)	BLD IP15/M7 SW6-T-SH

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle when using 90° inserts

⁽³⁾ Maximum ramping angle when using FF inserts

⁽⁴⁾ C-Cylindrical, W-Weldon

^(a) Recommended tightening torque: 4.8 N*m

For inserts, see pages: QPMR 1004-HQ-M (495) • QPMT 100408PDTN (495) • SPCT/SPMR PDR (496) • SPMT-HQ (495)

• XPMT-HQ (496)

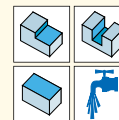
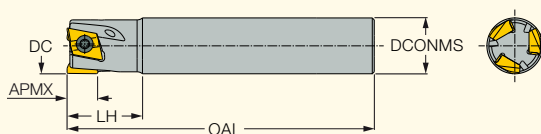




SUMOMILL
290 LINE

T290 ELN-10

Endmills Carrying Tangentially
Clamped Inserts



Designation	DC	CICT ⁽¹⁾	OAL	LH	APMX	DCONMS	Shank ⁽²⁾	kg			
T290 ELN D20-02-C20-10	20.00	2	110.00	27.0	10.00	20.00	C	0.22	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D20-03-C20-10	20.00	3	110.00	27.0	10.00	20.00	C	0.23	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D20-03-W20-10	20.00	3	90.00	28.0	10.00	20.00	W	0.18	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D25-03-C25-10-XL	25.00	3	150.00	30.0	10.00	25.00	C	0.51	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D25-04-C25-10	25.00	4	120.00	28.0	10.00	25.00	C	0.40	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D25-04-W25-10	25.00	4	95.00	30.0	10.00	25.00	W	0.30	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D32-05-C32-10	32.00	5	130.00	28.0	10.00	32.00	C	0.73	SR 10504970	BLD IP15/M7	SW6-T-SH

• For user guide, see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

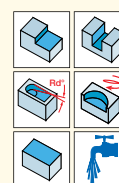
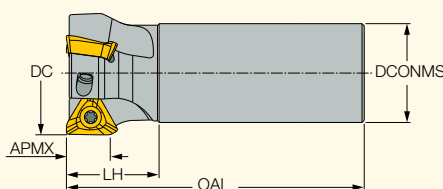
⁽²⁾ C-Cylindrical, W-Weldon

For inserts, see pages: T290 LNMT/LNHT 1004 (542)

HELI3MILL
HM390 LINE

HM390 ETP-10

90° Endmills Carrying HM390
TPKT 1003 Triangular Inserts
with 3 Helical Cutting Edges



Designation	DC	APMX	CICT ⁽¹⁾	OAL	LH	DCONMS	Shank ⁽²⁾	RMPX ⁽³⁾	kg			
HM390 ETP D25-2-C25-10	25.00	8.00	2	120.00	25.0	25.00	C	2.9	0.38	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D25-2-W25-10	25.00	8.00	2	95.00	25.0	25.00	W	2.9	0.30	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D25-3-C24-10-B	25.00	8.00	3	200.00	25.0	24.00	C	2.9	0.60	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D25-3-C25-10	25.00	8.00	3	120.00	25.0	25.00	C	2.9	0.38	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D25-3-C25-10-B	25.00	8.00	3	200.00	40.0	25.00	C	2.9	0.66	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D25-3-W25-10	25.00	8.00	3	95.00	25.0	25.00	W	2.9	0.30	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D25-4-C25-10	25.00	8.00	4	120.00	25.0	25.00	C	2.9	0.38	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D28-3-C25-10	28.00	8.00	3	120.00	25.0	25.00	C	2.5	0.40	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D28-3-C25-10-B	28.00	8.00	3	200.00	25.0	25.00	C	2.5	0.67	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-3-C31-10-B	32.00	8.00	3	250.00	30.0	31.00	C	2.1	1.33	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-3-C32-10	32.00	8.00	3	130.00	30.0	32.00	C	2.1	0.71	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-3-W32-10	32.00	8.00	3	110.00	30.0	32.00	W	2.1	0.58	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-4-C32-10	32.00	8.00	4	130.00	30.0	32.00	C	2.1	0.70	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-4-C32-10-B	32.00	8.00	4	200.00	40.0	32.00	C	2.1	1.11	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-4-W32-10	32.00	8.00	4	110.00	30.0	32.00	W	2.1	0.58	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D40-5-C32-10	40.00	8.00	5	130.00	30.0	32.00	C	1.6	0.76	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D40-5-W32-10	40.00	8.00	5	110.00	30.0	32.00	W	1.6	0.64	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D50-6-C32-10	50.00	8.00	6	130.00	38.0	32.00	C	1.2	0.86	SR 14-562/S	BLD T10/S7	SW6-SD

• For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

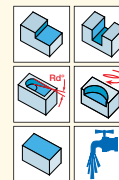
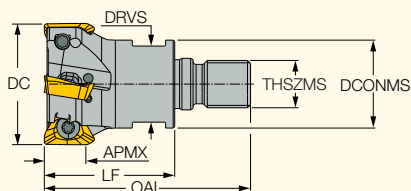
⁽²⁾ C-Cylindrical, W-Weldon

⁽³⁾ Maximum ramping angle

For inserts, see pages: HM390 TPCR 1003 (513) • HM390 TPKT/CT 1003 (512)

**HM390 ETP-M**

90° Endmills with a FLEX-FIT Threaded Adaptation Carrying HM90 TPKT 1003... Inserts with 3 Helical Cutting Edges



Designation	DC	APMX	CICT ⁽¹⁾	LF	DCONMS	THSZMS	OAL	DRVS ⁽²⁾	RMPX ⁽³⁾	TQ_3 ⁽⁴⁾				
HM390 ETP D25-3-M12	25.00	8.00	3	35.00	21.00	M12	57.00	17.1	2.9	33	0.08	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-4-M16	32.00	8.00	4	35.00	29.00	M16	60.00	25.1	2.1	40	0.16	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-5-10-M16	32.00	8.00	5	35.00	29.00	M16	60.00	25.1	2.1	40	0.17	SR 14-562/S	BLD T10/S7	SW6-SD

• For adaptation see page 59 • For user guide see pages 616-622 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Clamping wrench size

⁽³⁾ Maximum ramping angle

⁽⁴⁾ Tool tightening torque Nxm (lbf·in)

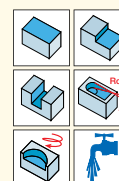
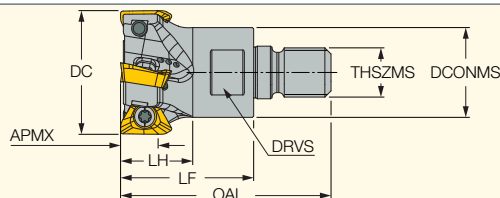
For inserts, see pages: HM390 TPCR 1003 (513) • HM390 TPKT/CT 1003 (512)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358)

• DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

**HM390 ETP/C/D-M-JHP**

90° JHP endmill with a FLEX-FIT threaded adaptation



Designation	DC	CICT ⁽¹⁾	APMX	OAL	LF	DCONMS	THSZMS	RMPX ⁽²⁾	MIID ⁽³⁾
HM390 ETC D16-2-M08-07JHP	16.00	2	5.00	38.00	20.50	15.30	M08	1.9	HM390 TCKT 0703
HM390 ETC D20-3-M10-07JHP	20.00	3	5.00	45.50	25.50	18.30	M10	1.4	HM390 TCKT 0703
HM390 ETC D25-4-M12-07JHP	25.00	4	5.00	59.00	37.00	21.00	M12	1.0	HM390 TCKT 0703
HM390 ETP D25-3-M12-10JHP	25.00	3	8.00	57.00	35.00	21.00	M12	2.9	HM390 TPKT 1003
HM390 ETP D32-4-M16-10JHP	32.00	4	8.00	55.00	30.00	29.00	M16	2.1	HM390 TPKT 1003
HM390 ETP D40-4-M16-10JHP	40.00	4	8.00	55.00	30.00	29.00	M16	1.6	HM390 TPKT 1003
HM390 ETD D40-4-M16-15JHP	40.00	4	13.00	68.00	43.00	29.00	M16	2.1	HM390 TDKT 1505

New

• When assembled the HM390 TDKT 1505PDR-FW insert, tool diameter enlarges by 1.0 mm • For user guide, see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

⁽³⁾ Master insert identification

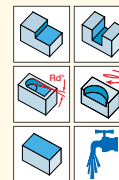
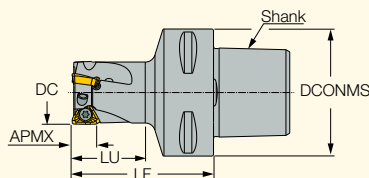
For holders, see pages: BT-ODP (FLEX-FIT) (359) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

Spare Parts

Designation				
HM390 ETC D16-2-M08-07JHP	SR M2.5X5-T7-60	T-7/51		
HM390 ETC D20-3-M10-07JHP	SR M2.5X5-T7-60	T-7/51		
HM390 ETC D25-4-M12-07JHP	SR M2.5X6-T7-60	T-7/51		
HM390 ETP D25-3-M12-10JHP	SR 14-562/S		BLD T10/S7	
HM390 ETP D32-4-M16-10JHP	SR 14-562/S		BLD T10/S7	SW6-SD
HM390 ETP D40-4-M16-10JHP	SR 14-562/S		BLD T10/S7	
HM390 ETD D40-4-M16-15JHP	SR 10511869		BLD IP20/S7	SW6-T

HM390 ETP-C#-10

90° Endmills Carrying HM390
 TPKT 1003 Triangular Inserts
 with 3 Helical Cutting Edges



Designation	DCONMS	DC	APMX	CICT ⁽¹⁾	LU	LF	RMPX ^{o(2)}	Shank	DCP ⁽³⁾				
HM390 ETP D25-3-L39-C3-10	32.00	25.00	8.00	3	39.0	55.00	2.9	CAMFIX	0	0.21	SR 14-562/S	BLD T10/S7	SW6-SD

• For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

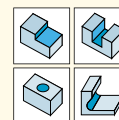
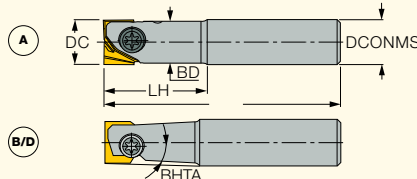
⁽²⁾ Maximum ramping angle

⁽³⁾ 1 - Slot for data chip, 0 - Without slot for data chip

For inserts, see pages: HM390 TPCR 1003 (513) • HM390 TPKT/CT 1003 (512)

BALLPLUS
HCE

Multifunction Endmills that Can
 Carry Several Insert Geometries



Designation	DC	LH	OAL	BD	DCONMS	Shank ⁽¹⁾	BHTA	Type	TQ ⁽²⁾				
HCE D12-A-L120-C12	12.00	30.0	120.00	11.10	12.00	C	-	A	6.0	0.10	SR 34-540	BLD T15/S7 ^(a)	SW6-T
HCE D12-B-L160-C20	12.00	50.0	160.00	-	20.00	C	4.6	B	6.0	0.42	SR 34-540	BLD T15/S7 ^(a)	SW6-T
HCE D12-D-L160-C16	12.00	60.0	160.00	-	16.00	C	1.9	D	6.0	0.21	SR 34-540	BLD T15/S7 ^(a)	SW6-T
HCE D16-A-L130-C16	16.00	36.0	130.00	14.90	16.00	C	-	A	7.8	0.19	SR 10503579	BLD T20/S7 ^(a)	SW6-T
HCE D16-B-L160-C25	16.00	60.0	160.00	-	25.00	C	4.3	B	7.8	0.50	SR 10503579	BLD T20/S7 ^(a)	SW6-T
HCE D16-D-L160-C20	16.00	65.0	160.00	-	20.00	C	1.7	D	7.8	0.32	SR 10503579	BLD T20/S7 ^(a)	SW6-T
HCE D20-A-L150-C20	20.00	60.0	150.00	18.80	20.00	C	-	A	12.0	0.33	SR 1052964	BLD T25/S7 ^(a)	SW6-T
HCE D20-D-L200-C25	20.00	90.0	200.00	-	25.00	C	1.6	D	12.0	0.62	SR 1052964	BLD T25/S7 ^(a)	SW6-T
HCE D25-A-L170-C25	25.00	70.0	170.00	23.00	25.00	C	-	A	12.0	0.57	SR 1051666	BLD T25/S7 ^(a)	SW6-T
HCE D25-D-L250-C32	25.00	125.0	250.00	-	32.00	C	1.6	D	12.0	1.20	SR 1051666	BLD T25/S7 ^(a)	SW6-T

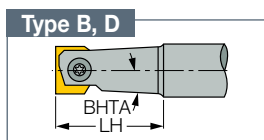
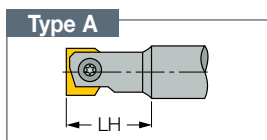
• For undercutting, use HTR inserts only • The dimensions are for HCC inserts with RE=0.5 mm • For user guide, see pages 616-622

⁽¹⁾ C-Cylindrical

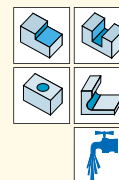
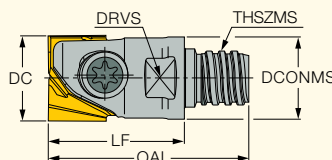
⁽²⁾ Screw Tightening Torque

^(a) Recommended torque value according to the "Tightening Torque" table

For inserts, see pages: HCC-QF (608) • HLB-QF (609)


BALLPLUS
HCE-MM

Multifunction Endmills with
 a MULTI-MASTER Threaded
 Adaptation that Mounts
 Several Insert Geometries



Designation	DC	OAL	LF	APMX	THSZMS	DCONMS	DRVS ⁽¹⁾	TQ ⁽²⁾				
HCE D12/.50-MMT08	12.00	28.00	20.00	8.10	T08	11.50	10.0	6.0	0.01	SR 34-540	BLD T15/S7 ^(a)	SW6-T
HCE D16/.62-MMT10	16.00	36.75	25.00	10.30	T10	15.20	13.0	7.8	0.03	SR 10503579	BLD T20/S7 ^(a)	SW6-T
HCE D20/.75-MMT12	20.00	48.80	35.40	12.80	T12	18.50	15.0	12.0	0.06	SR 1052964	BLD T25/S7 ^(a)	SW6-T

• For undercutting, use HTR inserts only • The dimensions are for HCC inserts with RE=0.5 mm • Do not apply lubricant to the MULTI-MASTER threaded connection

• For adaptation options, see page 59 • For user guide, see pages 616-622

⁽¹⁾ Width across flats (wrench should be ordered separately)

⁽²⁾ Screw Tightening Torque

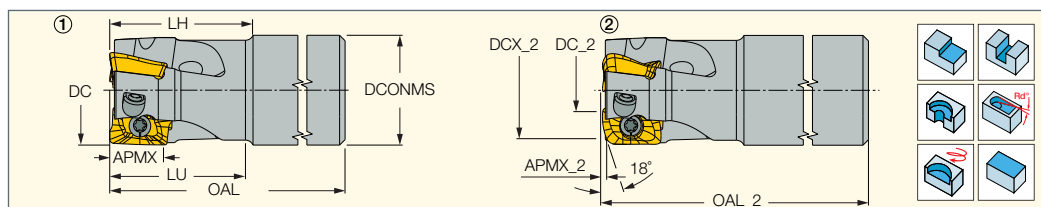
^(a) Recommended torque value according to the "Tightening Torque" table

For inserts, see pages: HCC-QF (608) • HLB-QF (609)

For holders, see pages: MM CAB (110) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106)

• MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)

• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

HELI2000**HM90 E90A-10**Endmills Carrying HM90
AP.. 1003... Inserts

Designation	DC	DCX_2	DC_2	DCONMS	APMX	APMX_2	CICT ⁽¹⁾	OAL	OAL_2	LH	LU
HM90 E90A-D10-1-C10	10.00	10.10	1.00	10.00	9.80	1.00	1	80.00	79.63	20.0	13.8
HM90 E90A-D10-1-C10-C	10.00	10.10	1.00	10.00	9.80	1.00	1	80.00	79.63	20.0	13.8
HM90 E90A-D10-1-C16-LB	10.00	10.10	1.00	16.00	9.80	1.00	1	160.00	159.63	30.0	13.8
HM90 E90A-D10-1-W16	10.00	-	-	16.00	9.80	-	1	80.00	-	20.0	10.6
HM90 E90A-D12-1-C16	12.00	12.10	3.00	16.00	9.80	1.00	1	80.00	79.63	20.0	14.0
HM90 E90A-D12-1-C16-LB	12.00	12.10	3.00	16.00	9.80	1.00	1	160.00	59.63	30.0	16.0
HM90 E90A-D12-1-W16	12.00	12.10	3.00	16.00	9.80	1.00	1	80.00	79.63	20.0	14.0
HM90 E90A-D12-1-W16-C	12.00	12.10	3.00	16.00	9.80	1.00	1	80.00	79.63	20.0	14.0
HM90 E90A-D12-1-C16-C	12.00	-	-	16.00	9.80	-	1	80.00	-	20.0	14.0
HM90 E90A-D14-1-C16	14.00	14.10	5.00	16.00	9.80	1.00	1	80.00	79.63	23.0	18.4
HM90 E90A-D14-1-W16	14.00	14.10	5.00	16.00	9.80	1.00	1	80.00	79.63	23.0	18.4
HM90 E90A-D16-2-C15-B	16.00	16.10	7.00	15.00	9.80	1.00	2	150.00	149.63	25.0	24.4
HM90 E90A-D16-2-C15-B-C	16.00	16.10	7.00	15.00	9.80	1.00	2	150.00	149.63	25.0	24.4
HM90 E90A-D16-2-C16	16.00	16.10	7.00	16.00	9.80	1.00	2	90.00	89.63	26.0	25.2
HM90 E90A-D16-2-C16-B	16.00	16.10	7.00	16.00	9.80	1.00	2	150.00	149.63	40.0	38.2
HM90 E90A-D16-2-C16-B-C	16.00	16.10	7.00	16.00	9.80	1.00	2	150.00	149.63	40.0	38.2
HM90 E90A-D16-2-C16-C	16.00	16.10	7.00	16.00	9.80	1.00	2	90.00	89.63	26.0	25.2
HM90 E90A-D16-2-C16-LB	16.00	16.10	7.00	16.00	9.80	1.00	2	180.00	179.63	40.0	38.1
HM90 E90A-D16-2-W16	16.00	16.10	7.00	16.00	9.80	1.00	2	85.00	84.63	26.0	25.2
HM90 E90A-D16-2-W16-C	16.00	16.10	7.00	16.00	9.80	1.00	2	85.00	84.63	26.0	25.2
HM90 E90A-D17-2-C16	17.00	17.10	8.00	16.00	9.80	1.00	2	90.00	89.63	28.0	27.0
HM90 E90A-D17-2-C16-L170	17.00	17.10	8.00	16.00	9.80	1.00	2	170.00	169.63	27.0	-

Designation	RMPX ⁽²⁾	RMPX°_2	MDN	MDX	Shank ⁽³⁾	CSP ⁽⁴⁾	RPMX ⁽⁵⁾	MIID ⁽⁶⁾	MIID_2 ⁽⁷⁾	kg
HM90 E90A-D10-1-C10	5.0	5.0	11.10	19.20	C	0	132843	HM90 APKT 1003 PDR	-	0.04
HM90 E90A-D10-1-C10-C	5.0	5.0	11.10	19.20	C	1	131850	HM90 APKT 1003 PDR	-	0.04
HM90 E90A-D10-1-C16-LB	5.0	5.0	11.10	19.20	C	0	132843	HM90 APKT 1003 PDR	-	0.22
HM90 E90A-D10-1-W16	5.0	-	-	-	W	0	132843	HM90 APKT 1003 PDR	-	0.10
HM90 E90A-D12-1-C16	32.0	32.0	15.10	23.20	C	0	92536	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.11
HM90 E90A-D12-1-C16-LB	32.0	32.0	15.10	23.20	C	0	92536	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.23
HM90 E90A-D12-1-W16	32.0	32.0	15.10	23.20	W	0	92536	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.11
HM90 E90A-D12-1-W16-C	32.0	32.0	15.10	23.20	W	1	92536	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.10
HM90 E90A-D12-1-C16-C	32.0	-	-	-	C	1	92536	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.10
HM90 E90A-D14-1-C16	7.0	7.0	19.10	27.20	C	0	75930	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.11
HM90 E90A-D14-1-W16	7.0	7.0	19.10	27.20	W	0	75930	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.11
HM90 E90A-D16-2-C15-B	15.0	15.0	23.10	31.20	C	0	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.19
HM90 E90A-D16-2-C15-B-C	15.0	15.0	23.10	31.20	C	1	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.17
HM90 E90A-D16-2-C16	15.0	15.0	23.10	31.20	C	0	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.12
HM90 E90A-D16-2-C16-B	15.0	15.0	23.10	31.20	C	0	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.22
HM90 E90A-D16-2-C16-B-C	15.0	15.0	23.10	31.20	C	1	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.20
HM90 E90A-D16-2-C16-C	15.0	15.0	23.10	31.20	C	1	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.11
HM90 E90A-D16-2-C16-LB	15.0	15.0	23.10	31.20	C	0	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.26
HM90 E90A-D16-2-W16	15.0	15.0	23.10	31.20	W	0	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.12
HM90 E90A-D16-2-W16-C	15.0	15.0	23.10	31.20	W	1	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.11
HM90 E90A-D17-2-C16	15.0	15.0	25.10	33.20	C	0	63393	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.13
HM90 E90A-D17-2-C16-L170	4.5	15.0	25.10	33.20	C	0	63393	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.25

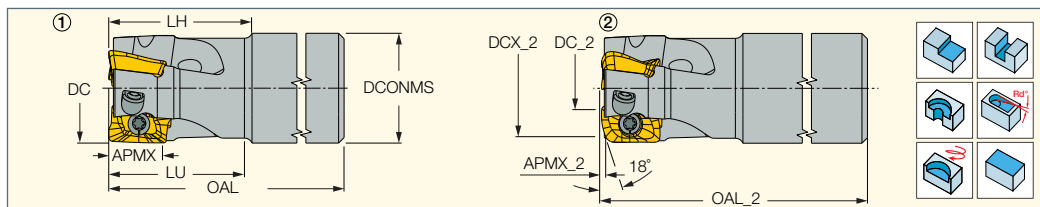
• 1 - with standard square insert • 2 - with FF (fast feed) insert • For user guide, see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)⁽²⁾ Maximum ramping angle⁽³⁾ C-Cylindrical, W-Weldon⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply⁽⁵⁾ Maximum RPM⁽⁶⁾ Master insert identification⁽⁷⁾ Master insert identification 2**For inserts, see pages:** APCR 1003PDR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519)

• APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518)

• APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515)

• HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)



Designation	DC	DCX_2	DC_2	DCONMS	APMX	APMX_2	CICT ⁽¹⁾	OAL	OAL_2	LH	LU
HM90 E90A-D18-2-C16	18.00	18.10	9.00	16.00	9.80	1.00	2	90.00	89.63	26.0	-
HM90 E90A-D18-2-C16-C	18.00	18.10	9.00	16.00	9.80	1.00	2	90.00	89.63	26.0	-
HM90 E90A-D18-2-W20	18.00	18.10	9.00	20.00	9.80	1.00	2	90.00	89.63	30.0	26.4
HM90 E90A-D18-2-W20-C	18.00	18.10	9.00	20.00	9.80	1.00	2	90.00	89.63	30.0	26.4
HM90 E90A-D19-2-C20	19.00	19.10	10.00	20.00	9.80	1.00	2	90.00	89.63	26.0	25.0
HM90 E90A-D20-2-C19-B	20.00	20.10	11.00	19.00	9.80	1.00	2	160.00	159.63	25.0	-
HM90 E90A-D20-2-C19-B-C	20.00	20.10	11.00	19.00	9.80	1.00	2	160.00	159.63	25.0	-
HM90 E90A-D20-2-C20	20.00	20.10	11.00	20.00	9.80	1.00	2	110.00	109.63	26.0	25.3
HM90 E90A-D20-2-C20-B	20.00	20.10	11.00	20.00	9.80	1.00	2	160.00	159.63	40.0	38.0
HM90 E90A-D20-2-C20-B-C	20.00	20.10	11.00	20.00	9.80	1.00	2	160.00	159.63	40.0	38.0
HM90 E90A-D20-2-C20-C	20.00	20.10	11.00	20.00	9.80	1.00	2	110.00	109.63	26.0	25.3
HM90 E90A-D20-2-C20-LB	20.00	20.10	11.00	20.00	9.80	1.00	2	200.00	199.63	40.0	38.0
HM90 E90A-D20-2-C20-XL	20.00	20.10	11.00	20.00	9.80	1.00	2	130.00	129.63	60.0	59.0
HM90 E90A-D20-2-W20	20.00	20.10	11.00	20.00	9.80	1.00	2	90.00	89.63	26.1	25.0
HM90 E90A-D20-2-W20-XL	20.00	20.10	11.00	20.00	9.80	1.00	2	130.00	129.63	60.0	59.0
HM90 E90A-D20-3-C20	20.00	20.10	11.00	20.00	9.80	1.00	3	110.00	109.63	26.1	25.0
HM90 E90A-D20-3-C20-C	20.00	20.10	11.00	20.00	9.80	1.00	3	110.00	109.63	26.1	25.0
HM90 E90A-D20-3-W16	20.00	20.10	11.00	16.00	9.80	1.00	3	85.00	84.63	26.1	-
HM90 E90A-D20-3-W16-C	20.00	20.10	11.00	16.00	9.80	1.00	3	85.00	84.63	26.1	-
HM90 E90A-D20-3-W20	20.00	20.10	11.00	20.00	9.80	1.00	3	90.00	89.63	26.1	25.0
HM90 E90A-D20-3-W20-C	20.00	20.10	11.00	20.00	9.80	1.00	3	90.00	89.63	26.1	25.0

Designation	RMPX ⁽²⁾	RMPX_2	MDN	MDX	Shank ⁽³⁾	CSP ⁽⁴⁾	RPMX ⁽⁵⁾	MIID ⁽⁶⁾	MIID_2 ⁽⁷⁾	
HM90 E90A-D18-2-C16	7.5	7.5	27.10	35.20	C	0	60361	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.13
HM90 E90A-D18-2-C16-C	7.5	7.5	27.10	35.20	C	1	60361	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.12
HM90 E90A-D18-2-W20	7.5	7.5	27.10	35.20	W	0	60361	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.18
HM90 E90A-D18-2-W20-C	7.5	7.5	27.10	35.20	W	1	60361	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.17
HM90 E90A-D19-2-C20	7.5	7.5	29.10	37.20	C	0	57727	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.19
HM90 E90A-D20-2-C19-B	7.5	7.5	31.10	39.20	C	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.33
HM90 E90A-D20-2-C19-B-C	7.5	7.5	31.10	39.20	C	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.30
HM90 E90A-D20-2-C20	7.5	7.5	31.10	39.20	C	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.24
HM90 E90A-D20-2-C20-B	7.5	7.5	31.10	39.20	C	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.36
HM90 E90A-D20-2-C20-B-C	7.5	7.5	31.10	39.20	C	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.33
HM90 E90A-D20-2-C20-C	7.5	7.5	31.10	39.20	C	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.22
HM90 E90A-D20-2-C20-LB	7.5	7.5	31.10	39.20	C	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.46
HM90 E90A-D20-2-C20-XL	7.5	7.5	31.10	39.20	C	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.27
HM90 E90A-D20-2-W20	7.5	7.5	31.10	39.20	W	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.19
HM90 E90A-D20-2-W20-XL	7.5	7.5	31.10	39.20	W	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.27
HM90 E90A-D20-3-C20	7.5	7.5	31.10	39.20	C	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.24
HM90 E90A-D20-3-C20-C	7.5	7.5	31.10	39.20	C	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.22
HM90 E90A-D20-3-W16	7.5	7.5	31.10	39.20	W	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.13
HM90 E90A-D20-3-W16-C	7.5	7.5	31.10	39.20	W	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.12
HM90 E90A-D20-3-W20	7.5	7.5	31.10	39.20	W	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.19
HM90 E90A-D20-3-W20-C	7.5	7.5	31.10	39.20	W	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.18

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

⁽⁵⁾ Maximum RPM

⁽⁶⁾ Master insert identification

⁽⁷⁾ Master insert identification 2

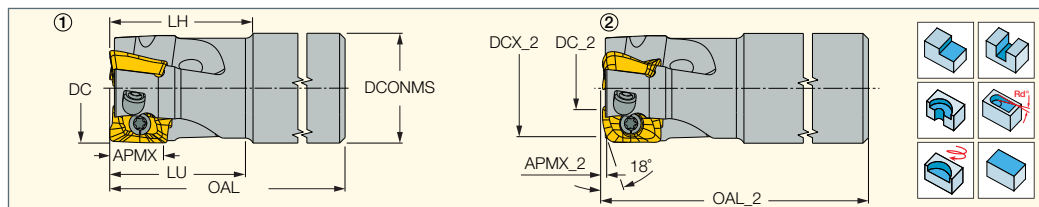
For inserts, see pages: APCR 1003PDR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519)

• APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518)

• APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515)

• HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

Continued

HELI2000**HM90 E90A-10**Endmills Carrying HM90
AP.. 1003... Inserts

Designation	DC	DCX_2	DC_2	DCONMS	APMX	APMX_2	CICT ⁽¹⁾	OAL	OAL_2	LH	LU
HM90 E90A-D20-2-W20-C	20.00	-	-	20.00	9.80	-	2	90.00	-	26.1	25.0
HM90 E90A-D21-2-C20-L270	21.00	21.10	12.00	20.00	9.80	1.00	2	270.00	269.63	26.0	-
HM90 E90A-D21-3-C20	21.00	21.10	12.00	20.00	9.80	1.00	3	115.00	114.63	26.0	25.0
HM90 E90A-D22-3-C20	22.00	22.10	13.00	20.00	9.80	1.00	3	115.00	114.63	26.0	-
HM90 E90A-D22-3-C20-C	22.00	22.10	13.00	20.00	9.80	1.00	3	115.00	114.63	26.0	-
HM90 E90A-D22-3-W25	22.00	22.10	13.00	25.00	9.80	1.00	3	95.00	94.63	26.0	21.0
HM90 E90A-D22-3-W25-C	22.00	22.10	13.00	25.00	9.80	1.00	3	95.00	94.63	26.0	21.0
HM90 E90A-D25-3-C24-B	25.00	25.10	16.00	24.00	9.80	1.00	3	200.00	199.63	25.0	-
HM90 E90A-D25-3-C24-B-C	25.00	25.10	16.00	24.00	9.80	1.00	3	200.00	199.63	25.0	24.0
HM90 E90A-D25-3-C25	25.00	25.10	16.00	25.00	9.80	1.00	3	120.00	119.63	26.1	25.0
HM90 E90A-D25-3-C25-B	25.00	25.10	16.00	25.00	9.80	1.00	3	200.00	199.63	40.0	37.0
HM90 E90A-D25-3-C25-B-C	25.00	25.10	16.00	25.00	9.80	1.00	3	200.00	199.63	40.0	37.0
HM90 E90A-D25-3-C25-C	25.00	25.10	16.00	25.00	9.80	1.00	3	120.00	119.63	26.1	25.0
HM90 E90A-D25-3-W25	25.00	25.10	16.00	25.00	9.80	1.00	3	95.00	94.63	26.1	25.0
HM90 E90A-D25-3-W25-C	25.00	25.10	16.00	25.00	9.80	1.00	3	95.00	94.63	26.1	25.0
HM90 E90A-D25-3-W25-XL	25.00	25.10	16.00	25.00	9.80	1.00	3	140.00	139.63	80.0	79.0
HM90 E90A-D25-4-C25	25.00	25.10	16.00	25.00	9.80	1.00	4	120.00	119.63	26.0	25.0
HM90 E90A-D25-4-C25-C	25.00	25.10	16.00	25.00	9.80	1.00	4	120.00	120.00	26.0	25.0
HM90 E90A-D25-4-W25	25.00	25.10	16.00	25.00	9.80	1.00	4	95.00	94.63	26.0	25.0
HM90 E90A-D25-4-W25-C	25.00	25.10	16.00	25.00	9.80	1.00	4	95.00	94.63	26.0	25.0
HM90 E90A-D25-2-C25	25.00	-	-	25.00	9.80	-	2	120.00	120.00	26.1	25.0
HM90 E90A-D25-2-W25	25.00	-	-	25.00	9.80	-	2	95.00	95.00	26.1	25.0

Designation	RMPX ⁽²⁾	RMPX_2	MDN	MDX	Shank ⁽³⁾	CSP ⁽⁴⁾	RPMX ⁽⁵⁾	MIID ⁽⁶⁾	MIID_2 ⁽⁷⁾	
HM90 E90A-D20-2-W20-C	7.5	-	-	-	W	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.18
HM90 E90A-D21-2-C20-L270	2.8	2.8	33.10	41.20	C	0	53729	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.64
HM90 E90A-D21-3-C20	7.5	2.8	33.10	41.20	C	0	53729	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.26
HM90 E90A-D22-3-C20	7.5	7.5	35.10	43.20	C	0	51846	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.26
HM90 E90A-D22-3-C20-C	7.5	7.5	35.10	43.20	C	1	51846	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.25
HM90 E90A-D22-3-W25	7.5	7.5	35.10	43.20	W	0	51846	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.31
HM90 E90A-D22-3-W25-C	7.5	7.5	35.10	43.20	W	1	51846	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.29
HM90 E90A-D25-3-C24-B	2.5	2.5	41.10	49.20	C	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.67
HM90 E90A-D25-3-C24-B-C	2.5	2.5	41.10	49.20	C	1	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.64
HM90 E90A-D25-3-C25	2.5	2.5	41.10	49.20	C	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.42
HM90 E90A-D25-3-C25-B	2.5	2.5	41.10	49.20	C	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.72
HM90 E90A-D25-3-C25-B-C	2.5	2.5	41.10	49.20	C	1	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.68
HM90 E90A-D25-3-C25-C	2.5	2.5	41.10	49.20	C	1	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.39
HM90 E90A-D25-3-W25	2.5	2.5	41.10	49.20	W	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.32
HM90 E90A-D25-3-W25-C	2.5	2.5	41.10	49.20	W	1	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.30
HM90 E90A-D25-3-W25-XL	2.5	2.5	41.10	49.20	W	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.47
HM90 E90A-D25-4-C25	2.5	2.5	41.10	49.20	C	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.42
HM90 E90A-D25-4-C25-C	2.5	2.5	41.10	49.20	C	1	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.39
HM90 E90A-D25-4-W25	2.5	2.5	41.10	49.20	W	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.31
HM90 E90A-D25-4-W25-C	2.5	2.5	41.10	49.20	W	1	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.30
HM90 E90A-D25-2-C25	2.5	-	-	-	C	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.42
HM90 E90A-D25-2-W25	2.5	-	-	-	W	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.32

• 1 - with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)⁽²⁾ Maximum ramping angle⁽³⁾ C-Cylindrical, W-Weldon⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply⁽⁵⁾ Maximum RPM⁽⁶⁾ Master insert identification⁽⁷⁾ Master insert identification 2

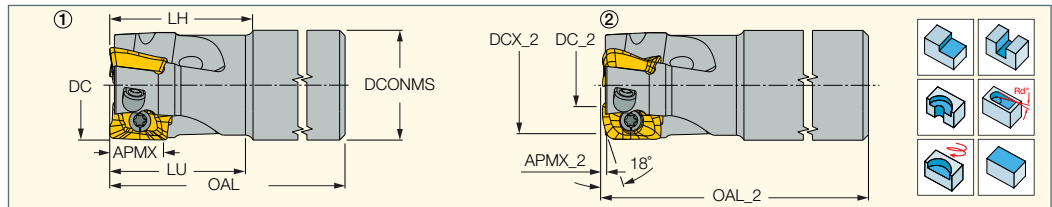
For inserts, see pages: APCR 1003PDR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519)

• APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518)

• APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515)

• HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

HM90 E90A-10

Endmills Carrying HM90
AP.. 1003... Inserts


Designation	DC	DCX_2	DC_2	DCONMS	APMX	APMX_2	CICT ⁽¹⁾	OAL	OAL_2	LH	LU
HM90 E90A-D28-4-C25	28.00	28.10	19.00	25.00	9.80	1.00	4	120.00	119.63	26.0	-
HM90 E90A-D28-4-C25-C	28.00	28.10	19.00	25.00	9.80	1.00	4	120.00	119.63	26.0	-
HM90 E90A-D28-4-W25	28.00	28.10	19.00	25.00	9.80	1.00	4	95.00	94.63	26.0	-
HM90 E90A-D30-4-C32	30.00	30.10	21.00	32.00	9.80	1.00	4	130.00	129.63	40.0	35.4
HM90 E90A-D30-4-W25	30.00	30.10	21.00	25.00	9.80	1.00	4	95.00	94.63	30.0	-
HM90 E90A-D30-4-W25-C	30.00	30.10	21.00	25.00	9.80	1.00	4	95.00	94.63	30.0	-
HM90 E90A-D32-3-C32	32.00	32.10	23.00	32.00	9.80	1.00	3	130.00	129.63	30.0	28.5
HM90 E90A-D32-3-W32	32.00	32.10	23.00	32.00	9.80	1.00	3	110.00	109.63	30.0	28.5
HM90 E90A-D32-4-C32	32.00	32.10	23.00	32.00	9.80	1.00	4	130.00	129.63	30.0	28.5
HM90 E90A-D32-4-C32-B	32.00	32.10	23.00	32.00	9.80	1.00	4	200.00	199.63	40.0	37.2
HM90 E90A-D32-4-C32-LB	32.00	32.10	23.00	32.00	9.80	1.00	4	250.00	249.63	40.0	37.2
HM90 E90A-D32-4-W25	32.00	32.10	23.00	25.00	9.80	1.00	4	95.00	94.63	30.0	-
HM90 E90A-D32-4-W32-XL	32.00	32.10	23.00	32.00	9.80	1.00	4	160.00	159.63	100.0	28.5
HM90 E90A-D32-5-C32	32.00	32.10	23.00	32.00	9.80	1.00	5	130.00	129.63	30.0	28.5
HM90 E90A-D32-5-C32-C	32.00	32.10	23.00	32.00	9.80	1.00	5	130.00	129.63	30.0	28.5
HM90 E90A-D32-5-W25	32.00	32.10	23.00	25.00	9.80	1.00	5	95.00	94.63	30.0	-
HM90 E90A-D32-5-W25-C	32.00	32.10	23.00	25.00	9.80	1.00	5	95.00	94.63	30.0	-
HM90 E90A-D32-5-W32-C	32.00	32.10	23.00	32.00	9.80	1.00	5	110.00	109.63	30.0	28.5
HM90 E90A-D40-5-C32	40.00	40.10	31.00	32.00	9.80	1.00	5	130.00	129.63	30.0	-
HM90 E90A-D40-5-W32-C	40.00	40.10	31.00	32.00	9.80	1.00	5	110.00	109.63	30.0	-
HM90 E90A-D50-7-C32	50.00	-	-	32.00	9.80	-	7	130.00	130.00	41.6	-

Designation	RMPX ⁽²⁾	RMPX_2	MDN	MDX	Shank ⁽³⁾	CSP ⁽⁴⁾	RPMX ⁽⁵⁾	MIID ⁽⁶⁾	MIID_2 ⁽⁷⁾	
HM90 E90A-D28-4-C25	2.0	2.0	47.10	55.20	C	0	44005	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.44
HM90 E90A-D28-4-C25-C	2.0	2.0	47.10	55.20	C	1	44005	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.41
HM90 E90A-D28-4-W25	2.0	2.0	47.10	55.20	W	0	44005	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.33
HM90 E90A-D30-4-C32	2.0	2.0	51.10	59.20	C	0	36782	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.72
HM90 E90A-D30-4-W25	2.0	2.0	51.10	59.20	W	0	36782	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.35
HM90 E90A-D30-4-W25-C	2.0	2.0	51.10	59.20	W	1	36782	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.33
HM90 E90A-D32-3-C32	3.0	3.0	55.10	63.20	C	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.76
HM90 E90A-D32-3-W32	3.0	3.0	55.10	63.20	W	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.63
HM90 E90A-D32-4-C32	3.0	3.0	55.10	63.20	C	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.75
HM90 E90A-D32-4-C32-B	3.0	3.0	55.10	63.20	C	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	1.18
HM90 E90A-D32-4-C32-LB	3.0	3.0	55.10	63.20	C	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	1.50
HM90 E90A-D32-4-W25	3.0	3.0	55.10	63.20	W	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.37
HM90 E90A-D32-4-W32-XL	3.0	3.0	55.10	63.20	W	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.87
HM90 E90A-D32-5-C32	3.0	3.0	55.10	63.20	C	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.75
HM90 E90A-D32-5-C32-C	3.0	3.0	55.10	63.20	C	1	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.72
HM90 E90A-D32-5-W25	3.0	3.0	55.10	63.20	W	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.37
HM90 E90A-D32-5-W25-C	3.0	3.0	55.10	63.20	W	1	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.35
HM90 E90A-D32-5-W32-C	3.0	3.0	55.10	63.20	W	1	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.60
HM90 E90A-D40-5-C32	2.7	2.7	71.10	79.20	C	0	31855	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.83
HM90 E90A-D40-5-W32-C	2.7	2.7	71.10	79.20	W	1	31855	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.68
HM90 E90A-D50-7-C32	2.7	-	-	-	C	0	28492	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.94

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

⁽⁵⁾ Maximum RPM

⁽⁶⁾ Master insert identification

⁽⁷⁾ Master insert identification 2

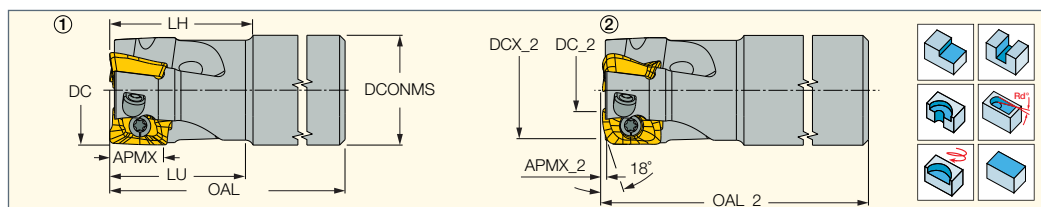
For inserts, see pages: APCR 1003PDR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519)

• APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518)

• APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515)

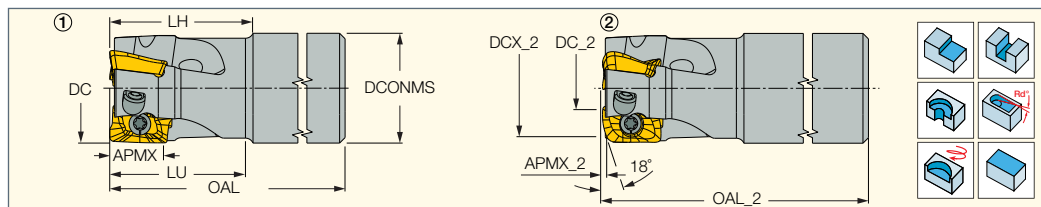
• HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

Continued

HELI2000**HM90 E90A-10**Endmills Carrying HM90
AP.. 1003... Inserts**Spare Parts**

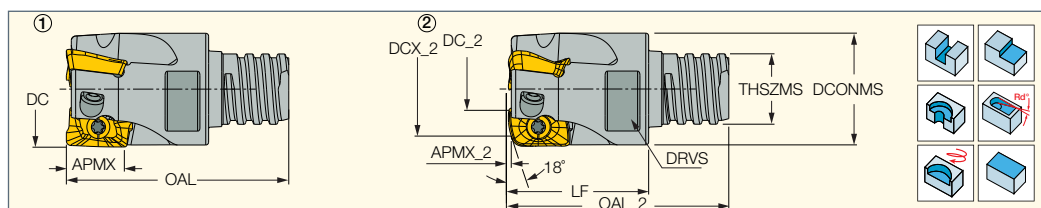
Designation				
HM90 E90A-D10-1-C10	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D10-1-C10-C	SR 34-505/HG	T-8/53		
HM90 E90A-D10-1-C16-LB	SR 34-505/HG	T-8/53		
HM90 E90A-D10-1-W16	SR 34-505/HG	T-8/53		
HM90 E90A-D12-1-C16	SR 34-505/HG	T-8/53		
HM90 E90A-D12-1-C16-LB	SR 34-505/HG	T-8/53		
HM90 E90A-D12-1-W16	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D12-1-W16-C	SR 34-505/HG	T-8/53		
HM90 E90A-D12-1-C16-C	SR 34-505/HG	T-8/53		
HM90 E90A-D14-1-C16	SR 34-505/HG	T-8/53		
HM90 E90A-D14-1-W16	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C15-B	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C15-B-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C16	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C16-B	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C16-B-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C16-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C16-LB	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-W16	SR 34-505/HG	T-8/53		
HM90 E90A-D16-2-W16-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D17-2-C16	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D17-2-C16-L170	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D18-2-C16	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D18-2-C16-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D18-2-W20	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D18-2-W20-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D19-2-C20	SR 34-505/HG	T-8/53		
HM90 E90A-D20-2-C19-B	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C19-B-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C20	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C20-B	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C20-B-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C20-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C20-LB	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C20-XL	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-W20	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-W20-XL	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-3-C20	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-3-C20-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-3-W16	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-3-W16-C	SR 34-505/HG	T-8/53		
HM90 E90A-D20-3-W20	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-3-W20-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-W20-C	SR 34-505/HG	T-8/53		
HM90 E90A-D21-2-C20-L270	SR 34-505/HG	T-8/53		
HM90 E90A-D21-3-C20	SR 34-505/HG	T-8/53		
HM90 E90A-D22-3-C20	SR 34-505/HG	T-8/53		
HM90 E90A-D22-3-C20-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D22-3-W25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D22-3-W25-C	SR 34-505/HG	T-8/53		
HM90 E90A-D25-3-C24-B	SR 34-505/HG	T-8/53		
HM90 E90A-D25-3-C24-B-C	SR 34-505/HG	T-8/53	BLD T08/M7	SW4-SD
HM90 E90A-D25-3-C25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-3-C25-B	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-3-C25-B-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-3-C25-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-3-W25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-3-W25-C	SR 34-505/HG	T-8/53	BLD T08/M7	SW4-SD
HM90 E90A-D25-3-W25-XL	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-4-C25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-4-C25-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-4-W25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-4-W25-C	SR 34-505/HG		BLD T08/M7	SW4-SD

HM90 E90A-10

Endmills Carrying HM90
AP.. 1003... Inserts

Spare Parts

Designation				
HM90 E90A-D25-2-C25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-2-W25	SR 34-505/HG	T-8/53		
HM90 E90A-D28-4-C25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D28-4-C25-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D28-4-W25	SR 34-505/HG	T-8/53		
HM90 E90A-D30-4-C32	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D30-4-W25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D30-4-W25-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-3-C32	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-3-W32	SR 34-505/HG	T-8/53		
HM90 E90A-D32-4-C32	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-4-C32-B	SR 34-505/HG	T-8/53		
HM90 E90A-D32-4-C32-LB	SR 34-505/HG	T-8/53		
HM90 E90A-D32-4-W25	SR 34-505/HG	T-8/53		
HM90 E90A-D32-4-W32-XL	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-5-C32	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-5-C32-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-5-W25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-5-W25-C	SR 34-505/HG	T-8/53		
HM90 E90A-D32-5-W32-C	SR 34-505/HG	T-8/53		
HM90 E90A-D40-5-C32	SR 34-505/HG	T-8/53		
HM90 E90A-D40-5-W32-C	SR 34-505/HG	T-8/53		
HM90 E90A-D50-7-C32	SR 34-505/HG		BLD T08/M7	SW4-SD

HELI2000
HM90 E90A-MM-10

90° Endmills with a
MULTI-MASTER Threaded
Adaptation Carrying HM90
AP.. 1003... Inserts


Designation	DC	DC_2	DCX_2	CICT ⁽¹⁾	APMX	APMX_2	OAL	OAL_2	RMPX ⁽²⁾	RMPX°_2	LF	THSZMS	DRVS ⁽³⁾
HM90 E90A-D16-2-MMT10	16.00	7.00	16.10	2	9.80	1.00	34.75	34.38	15.0	15.0	23.00	T10	13.0
HM90 E90A-D20-2-MMT12	20.00	11.00	20.10	2	9.80	1.00	38.30	37.93	7.5	7.5	24.60	T12	16.0
HM90 E90A-D20-3-MMT12	20.00	11.00	20.10	3	9.80	1.00	38.30	37.93	7.5	7.5	24.60	T12	16.0

Designation	MDN	MDX	RPMX ⁽⁴⁾	DCONMS		MIID ⁽⁵⁾	MIID_2 ⁽⁶⁾		
HM90 E90A-D16-2-MMT10	23.10	31.20	66712	15.30	0.03	APKT 1003PDR-HM	APKT 1003R8T-FF	SR 34-505/HG	
HM90 E90A-D20-2-MMT12	31.10	39.20	55578	19.20	0.05	APKT 1003PDR-HM	APKT 1003R8T-FF	SR 34-505/HG	T-8/53
HM90 E90A-D20-3-MMT12	31.10	39.20	55578	19.20	0.05	APKT 1003PDR-HM	APKT 1003R8T-FF	SR 34-505/HG	

- 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622 • Do not apply lubricant to the MULTI-MASTER threaded connection
- For adaptation see page 59

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

⁽³⁾ Clamping wrench size

⁽⁴⁾ The maximum cutting speed (RPM) for the cutting head assembled on the shank should be the lower parameter (RPMX) of either the cutting head or the shank

⁽⁵⁾ Master insert identification

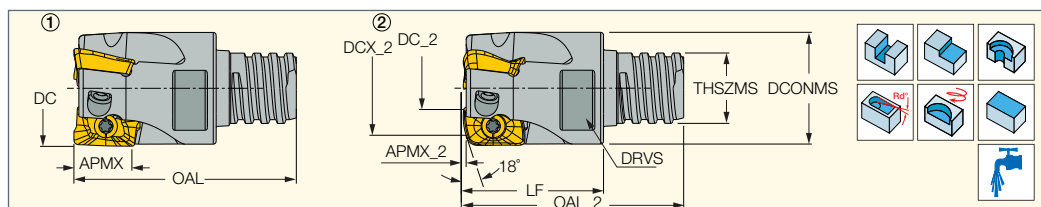
⁽⁶⁾ Master insert identification 2

For inserts, see pages: APCR 1003PDR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519)
• APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518)
• HM90 APCR 100304PDR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104)
• MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108)
• MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)⁽⁶⁾ Master insert identification 2

HELI2000
 JET LINE

HM90 E90A-MM-10-JHP
 90° JHP Endmills with a
 MULTI-MASTER Threaded
 Adaptation Carrying HELI-2000
 and HELI-MILL Inserts



Designation	DC	DC_2	DCX_2	CICT ⁽¹⁾	APMX	APMX_2	OAL	OAL_2	RMPX ⁽²⁾	RMPX°_2	MDN	MDX
HM90 E90A D16-2-MMT10-JHP	16.00	7.00	16.10	2	9.80	1.00	34.80	35.17	15.0	15.0	23.10	31.20
HM90 E90A D20-3-MMT12-JHP	20.00	11.00	20.10	3	9.80	1.00	38.50	38.87	7.5	7.5	31.10	39.20
HM90 E90A D25-4-MMT15-JHP	25.00	16.00	25.10	4	9.80	1.00	47.00	47.37	7.5	7.5	41.10	49.20
HM90 E90A D32-5-MMT21-JHP	32.00	23.00	32.10	5	9.80	1.00	57.95	58.32	3.0	3.0	55.10	63.20

Designation	LF	DCONMS	THSZMS	RPMX ⁽³⁾	DRVS ⁽⁴⁾	TQ_3 ⁽⁵⁾		MIID ⁽⁶⁾	MIID_2 ⁽⁷⁾
HM90 E90A D16-2-MMT10-JHP	23.40	15.60	T10	66710	13.0	28	0.10	APKT 1003PDR-HM	APKT 1003R8T-FF
HM90 E90A D20-3-MMT12-JHP	25.50	19.70	T12	55575	16.0	28	0.15	APKT 1003PDR-HM	APKT 1003R8T-FF
HM90 E90A D25-4-MMT15-JHP	30.00	24.70	T15	47510	20.0	40	0.05	APKT 1003PDR-HM	APKT 1003R8T-FF
HM90 E90A D32-5-MMT21-JHP	34.85	30.10	T21	35610	24.0	110	0.20	APKT 1003PDR-HM	APKT 1003R8T-FF

- 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622 • Do not apply lubricant to the MULTI-MASTER threaded connection
- For adaptation see page 59

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

⁽³⁾ The maximum cutting speed (RPM) for the cutting head assembled on the shank should be the lower parameter (RPMX) of either the cutting head or the shank

⁽⁴⁾ Torque key size

⁽⁵⁾ Tool tightening torque Nxm (lbfxin)

⁽⁶⁾ Master insert identification

⁽⁷⁾ Master insert identification 2

For inserts, see pages: APCR 1003PDR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519)

• APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518)

• APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515)

• HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104)

• MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108)

• MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Spare Parts

Designation				
HM90 E90A-MM-10-JHP	SR 34-505/HG	SR 34-505/HG ^(a)	BLD T08/M7	SW4-SD

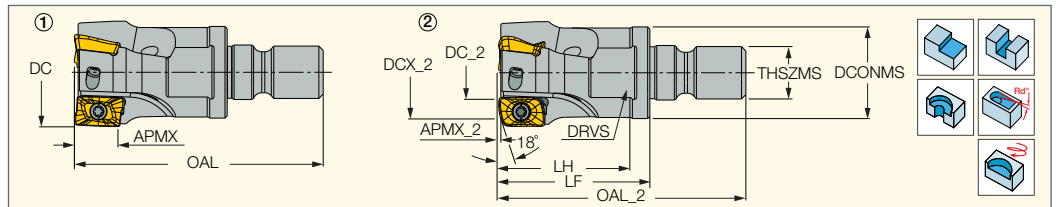
^(a) Recommended tightening torque for this item: 1.2 Nxm



HELI2000

HM90 E90A-M-10

90° Endmills with a FLEX-FIT
Threaded Adaptation Carrying
HM90 AP.. 1003... Inserts



Designation	DC	DC_2	DCX_2	CICT ⁽¹⁾	DCONMS	THSZMS	LH	LF	OAL	AL_2	APMX	APMX_2	RMPX ^{°(2)}	RMPX ^{°_2}
HM90 E90A-D16-2-M08	16.00	7.00	16.10	2	14.75	M08	24.0	30.00	47.50	47.13	9.80	1.00	15.0	15.0
HM90 E90A-D20-3-M10	20.00	11.00	20.10	3	18.00	M10	30.0	30.00	50.00	49.63	9.80	1.00	7.5	7.5
HM90 E90A-D20-3-M12	20.00	11.00	20.10	3	21.00	M12	24.0	30.00	52.00	51.63	9.80	1.00	7.5	7.5
HM90 E90A-D25-3-M12	25.00	16.00	25.10	3	21.00	M12	35.0	35.00	57.00	56.63	9.80	1.00	2.5	2.5
HM90 E90A-D25-4-M12	25.00	16.00	25.10	4	21.00	M12	35.0	35.00	57.00	56.63	9.80	1.00	2.5	2.5
HM90 E90A-D32-4-M16	32.00	23.00	32.10	4	29.00	M16	35.0	35.00	60.00	59.63	9.80	1.00	3.0	3.0

Designation	MDN	MDX	CSP ⁽³⁾	DRVS ⁽⁴⁾	TQ_3 ⁽⁵⁾	RPMX ⁽⁶⁾	MIID ⁽⁷⁾	MIID_2 ⁽⁸⁾	
HM90 E90A-D16-2-M08	23.10	31.20	0	9.6	20	66712	APKT 1003PDR-HM	APKT 1003R8T-FF	0.03
HM90 E90A-D20-3-M10	31.10	39.20	1	15.1	29	55578	APKT 1003PDR-HM	APKT 1003R8T-FF	0.05
HM90 E90A-D20-3-M12	31.10	39.20	1	17.1	33	55578	APKT 1003PDR-HM	APKT 1003R8T-FF	0.06
HM90 E90A-D25-3-M12	41.10	49.20	1	17.1	33	47512	APKT 1003PDR-HM	APKT 1003R8T-FF	0.08
HM90 E90A-D25-4-M12	41.10	49.20	1	17.1	33	47512	APKT 1003PDR-HM	APKT 1003R8T-FF	0.08
HM90 E90A-D32-4-M16	55.10	63.20	1	25.1	40	35614	APKT 1003PDR-HM	APKT 1003R8T-FF	0.16

- 1- with standard square insert • 2- with FF (fast feed) insert • For adaptation, see page 59 • For user guide see pages 616-622
- When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

⁽³⁾ 0 - Without coolant supply, 1 - With coolant supply

⁽⁴⁾ Torque key size

⁽⁵⁾ Tool tightening torque Nxmm (lbf·in)

⁽⁶⁾ Maximum RPM

⁽⁷⁾ Master insert identification

⁽⁸⁾ Master insert identification 2

For inserts, see pages: APCR 1003PDR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519) • APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518) • APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

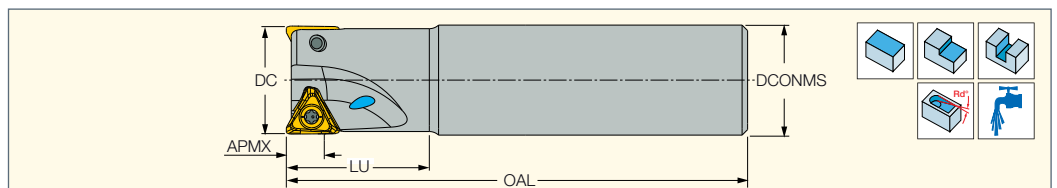
Spare Parts

Designation			
HM90 E90A-M-10	SR 34-505/HG	SW4-SD	BLD T08/M7

HELI DO

H690 E90AX-10

90° Endmills Carrying H690
TNKX 1005..Triangular Inserts
with 6 Helical Cutting Edges



Designation	DC	CICT ⁽¹⁾	APMX	OAL	LU	DCONMS	Shank ⁽²⁾	RMPX ^{°(3)}				
H690 E90AX D20-2-C20-10	20.00	2	8.00	110.00	26.0	20.00	C	2.8	0.23	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D20-2-W20-10	20.00	2	8.00	90.00	26.0	20.00	W	2.8	0.18	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D20-3-C20-10	20.00	3	8.00	110.00	26.0	20.00	C	2.8	0.23	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D20-3-W20-10	20.00	3	8.00	90.00	26.0	20.00	W	2.8	0.18	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D25-3-C25-10	25.00	3	8.00	120.00	26.0	25.00	C	2.6	0.39	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D25-3-W25-10	25.00	3	8.00	95.00	26.0	25.00	W	2.6	0.29	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D25-4-C25-10	25.00	4	8.00	120.00	26.0	25.00	C	2.6	0.39	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D25-4-W25-10	25.00	4	8.00	95.00	26.0	25.00	W	2.6	0.30	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D32-4-C32-10	32.00	4	8.00	130.00	30.0	32.00	C	1.6	0.72	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D32-4-W32-10	32.00	4	8.00	110.00	30.0	32.00	W	1.6	0.60	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D32-5-C32-10	32.00	5	8.00	130.00	30.0	32.00	C	1.6	0.71	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D32-5-W32-10	32.00	5	8.00	110.00	30.0	32.00	W	1.6	0.59	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D40-5-W32-10	40.00	5	8.00	110.00	38.0	32.00	W	1.1	0.63	SR 10508082-HG	BLD T08/M7	SW4-SD

• For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

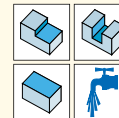
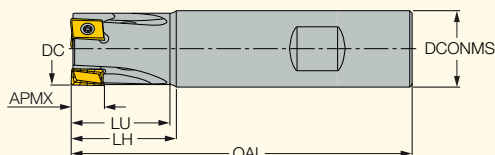
⁽²⁾ C-Cylindrical, W-Weldon

⁽³⁾ Maximum ramping angle

For inserts, see pages: H690 TNKX/TNCX 1005 (540)

HELI TANG
 T490 LINE

T490 ELN-11

 90° Endmills Carrying T490 LN#T
 11... Tangentially Clamped Inserts


Designation	DC	CICT ⁽²⁾	LH	LU	APMX	OAL	DCONMS	Shank ⁽³⁾	RMPX ⁽⁴⁾	kg			
T490 ELN D22-2-W25-11	22.00	2	35.0	33.0	9.00	95.00	25.00	W	-	0.29	SR 34-535-SN/L9.3	BLD T15/S7 ^(a)	SW6-SD
T490 ELN D25-3-C24-11B ⁽¹⁾	25.00	3	35.0	33.0	9.00	200.00	24.00	C	1.7	0.64	SR 34-535/L9.5-SN	BLD T15/S7 ^(a)	SW6-SD
T490 ELN D25-3-C25-11	25.00	3	35.0	33.0	9.00	120.00	25.00	C	1.7	0.40	SR 34-535/L9.5-SN	BLD T15/S7 ^(a)	SW6-SD
T490 ELN D25-3-W25-11	25.00	3	35.0	33.0	9.00	95.00	25.00	W	1.7	0.30	SR 34-535/L9.5-SN	BLD T15/S7 ^(a)	SW6-SD
T490 ELN D32-3-C32-11	32.00	3	40.0	38.0	9.00	130.00	32.00	C	1.5	0.73	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD
T490 ELN D32-3-C32-11B ⁽¹⁾	32.00	3	40.0	38.0	9.00	200.00	32.00	C	1.5	1.16	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD
T490 ELN D32-3-W32-11	32.00	3	40.0	38.0	9.00	110.00	32.00	W	1.5	0.60	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD
T490 ELN D32-4-C32-11	32.00	4	40.0	38.0	9.00	130.00	32.00	C	1.5	0.73	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD
T490 ELN D32-4-W32-11	32.00	4	40.0	38.0	9.00	110.00	32.00	W	1.5	0.60	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD
T490 ELN D40-4-C32-11	40.00	4	44.0	38.0	9.00	130.00	32.00	C	1.4	0.84	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD
T490 ELN D40-4-W32-11	40.00	4	44.0	38.0	9.00	115.00	32.00	W	1.4	0.75	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD
T490 ELN D40-5-C32-11	40.00	5	44.0	38.0	9.00	130.00	32.00	C	1.4	0.83	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD

• Important: Maximum clamping torque 3.2 N*m

⁽¹⁾ Long cylindrical shank

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ C-Cylindrical, W-Weldon

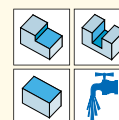
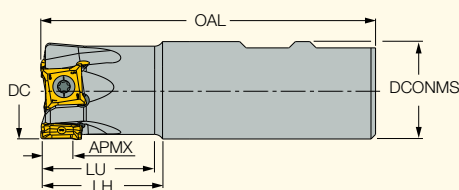
⁽⁴⁾ Maximum ramping angle - valid only with T490 LNHT 1106PNTR-RD insert

^(a) Recommended key handle for limiting torque to 3.2 N*m for this item is HSD 4-3.2NM (to be used with BLD 4 T15-4.8 blade)

For inserts, see pages: T490 LNMT/LNHT 1106 (545)

LOGIQTANG
 T890 MILLING LINE

T890HT ELN-R13

 90° Endmills Carrying T890 LNT
 1306... Tangentially Clamped
 Inserts with 8 Cutting Edges


Designation	DC	APMX	CICT ⁽¹⁾	DCONMS	Shank ⁽²⁾	LU	LH	OAL	kg
T890HT ELN D32-3-C32-13	32.00	9.50	3	32.00	C	37.40	40.0	130.00	0.68
T890HT ELN D32-3-C32-13B	32.00	9.50	3	32.00	C	47.40	50.0	250.00	1.43
T890HT ELN D32-3-W32-13	32.00	9.50	3	32.00	W	37.40	40.0	110.00	0.56
T890HT ELN D40-4-C32-13	40.00	9.50	4	32.00	C	-	44.0	130.00	0.12
T890HT ELN D40-4-W32-13	40.00	9.50	4	32.00	W	-	40.0	115.00	0.69

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ C-Cylindrical, W-Weldon

For inserts, see pages: T890 LN.. 1306 (543)

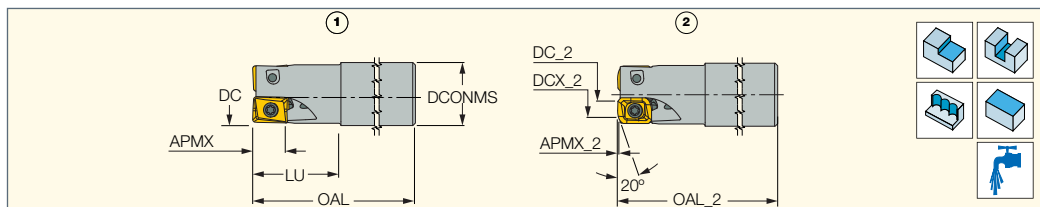
Spare Parts

Designation			
T890HT ELN-R13	SR 10513105 ^(a)	BLD IP20/M7	SW6-T-SH

^(a) Recommended tightening torque: 8.0 N*m (71.0 lbf*in)

H490 E90AX-12

90° Endmills Carrying H490
ANKX 12...Double-Sided
Rectangular Inserts with 4
Helical Cutting Edges



Designation	DC	DCX_2	DC_2	CICT ⁽¹⁾	APMX	APMX_2	AE ⁽²⁾	OAL	OAL_2	LU
H490 E90AX D25-2-C25-12	25.00	25.50	15.20	2	12.00	1.40	8.5	110.00	109.77	35.0
H490 E90AX D25-2-W25-12	25.00	25.50	15.20	2	12.00	1.40	8.5	110.00	109.77	35.0
H490 E90AX D32-3-C32-12	32.00	32.50	22.20	3	12.00	1.40	8.5	110.00	109.77	40.0
H490 E90AX D32-3-W32-12	32.00	32.50	22.20	3	12.00	1.40	8.5	110.00	109.77	40.0
H490 E90AX D40-4-C32-12	40.00	40.50	30.20	4	12.00	1.40	8.5	130.00	129.77	40.0
H490 E90AX D40-4-W32-12	40.00	40.50	30.20	4	12.00	1.40	8.5	115.00	114.77	40.0

Designation	DCONMS	Shank ⁽³⁾	RMPX° 2 ⁽⁴⁾	MDN	MDX	MIID ⁽⁵⁾	MIID_2 ⁽⁶⁾	kg
H490 E90AX D25-2-C25-12	25.00	C	4.5	40.70	50.00	H490 ANKX 1205PNTRR	H490 ANCX 1205...FF	0.36
H490 E90AX D25-2-W25-12	25.00	W	4.5	40.70	50.00	H490 ANKX 1205PNTRR	H490 ANCX 1205...FF	0.35
H490 E90AX D32-3-C32-12	32.00	C	3.1	54.70	64.00	H490 ANKX 1205PNTRR	H490 ANCX 1205...FF	0.60
H490 E90AX D32-3-W32-12	32.00	W	3.1	54.70	64.00	H490 ANKX 1205PNTRR	H490 ANCX 1205...FF	0.59
H490 E90AX D40-4-C32-12	32.00	C	2.3	70.70	80.00	H490 ANKX 1205PNTRR	H490 ANCX 1205...FF	0.83
H490 E90AX D40-4-W32-12	32.00	W	2.3	70.70	80.00	H490 ANKX 1205PNTRR	H490 ANCX 1205...FF	0.73

• For user guide, see pages 616-622 • 1- with standard square insert, 2- with FF (fast feed) insert • Ramping angle is valid only when H490 ANCX 1205R15T-FF insert is used • When assembled the H490 ANCX 1205R15T-FF insert, tool diameter enlarges by 0.5 mm

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum side plunge

⁽³⁾ C-Cylindrical, W-Weldon

⁽⁴⁾ Maximum ramping angle when using FF inserts

⁽⁵⁾ Master insert identification

⁽⁶⁾ Master insert identification 2

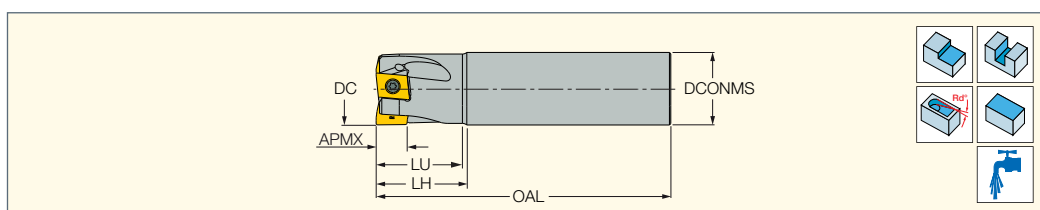
For inserts, see pages: H490 ANKX/ANCX 1205-FF (539) • H490 ANKX/ANCX-12 (538)

Spare Parts

Designation			
H490 E90AX D25-2-C25-12	SR 14-544/S	SW6-T	BLD T15/M7
H490 E90AX D25-2-W25-12	SR 14-544/S	SW6-T	BLD T15/M7
H490 E90AX D32-3-C32-12	SR 14-544	SW6-T	BLD T15/M7
H490 E90AX D32-3-W32-12	SR 14-544	SW6-T	BLD T15/M7
H490 E90AX D40-4-C32-12	SR 14-544	SW6-T	BLD T15/M7
H490 E90AX D40-4-W32-12	SR 14-544	SW6-T	BLD T15/M7

T490 ELN-13

90° Endmills Carrying Tangentially
Clamped Inserts with 4 Helical,
12.5 mm Long Cutting Edges



Designation	DC	CICT ⁽³⁾	OAL	LH	LU	APMX	DCONMS	Shank ⁽⁴⁾	RMPX° ⁽⁵⁾	kg			
T490 ELN D25-2-C25-13	25.00	2	120.00	35.0	33.0	12.50	25.00	C	-	0.39	SR M4.5-10507218 ^(a)	BLD T15/S7	SW6-T-SH
T490 ELN D25-2-W25-13 ⁽¹⁾	25.00	2	95.00	35.0	33.0	12.50	25.00	W	-	0.29	SR M4.5-10507218 ^(a)	BLD T15/S7	SW6-T-SH
T490 ELN D32-3-C32-13	32.00	3	130.00	40.0	38.0	12.50	32.00	C	2.1	0.72	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D32-3-C32-13B ⁽²⁾	32.00	3	250.00	50.0	48.0	12.50	32.00	C	2.1	1.44	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D32-3-W32-13	32.00	3	110.00	40.0	38.0	12.50	32.00	W	2.1	0.59	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D40-3-C40-13B ⁽²⁾	40.00	3	250.00	50.0	48.0	12.50	40.00	C	1.5	2.25	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D40-4-C32-13	40.00	4	130.00	40.0	-	12.50	32.00	C	1.5	0.81	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D40-4-W32-13	40.00	4	115.00	40.0	-	12.50	32.00	W	1.5	0.72	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D50-4-C32-13	50.00	4	130.00	36.5	-	12.50	32.00	C	1.1	0.96	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D50-5-C32-13	50.00	5	130.00	36.5	-	12.50	32.00	C	1.1	0.96	SR 34-535-SN	BLD T15/S7	SW6-T-SH

• For user guide see pages 616-622

⁽¹⁾ Cutting recommendations: at $a_p=5$, $f_z=0.15$ at $a_p=10$, $f_z=0.1$

⁽²⁾ "B" suffix for long cylindrical shank which may be shortened.

⁽³⁾ Number of inserts (or edges for solid tool)

⁽⁴⁾ C-Cylindrical, W-Weldon

⁽⁵⁾ Maximum ramping angle - valid only when T490 LNHT 1306 PNTR-RD insert is used

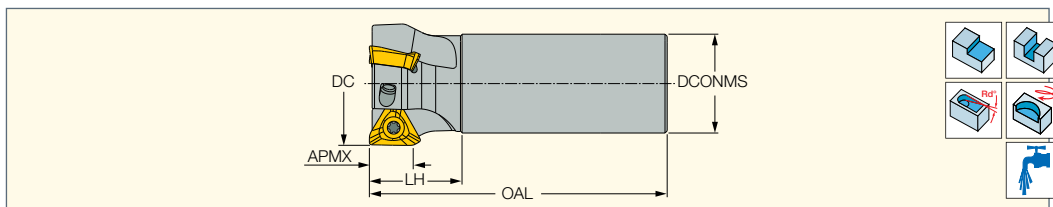
^(a) Recommended tightening torque: 4.8 N*m (42.5 lbf*in)

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNR-FF (547) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)



HM390 ETD-15

90° Endmills Carrying HM390
TDKT 1505 Triangular Inserts
with 3 Helical Cutting Edges



Designation	DC	APMX	CICT ⁽¹⁾	OAL	LH	DCONMS	RMPX ^{°(2)}				
HM390 ETD D040-3-C32-15	40.00	13.00	3	130.00	40.0	32.00	2.1	0.71	SR 10511869	BLD IP20/S7	SW6-T
HM390 ETD D040-4-C32-15	40.00	13.00	4	130.00	30.0	32.00	2.1	0.73	SR 10511869	BLD IP20/S7	SW6-T
HM390 ETD D050-4-C32-15	50.00	13.00	4	130.00	40.0	32.00	1.6	0.84	SR 10505427	BLD IP20/S7	SW6-T

• When assembled the HM390 TDKT 1505PDR-FW insert, tool diameter enlarges by 1.0 mm • For user guide, see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

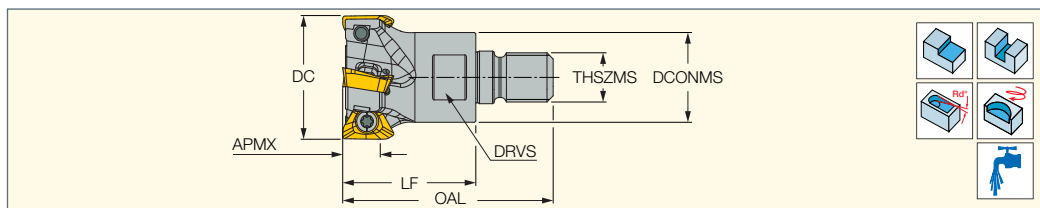
⁽²⁾ Maximum ramping angle

For inserts, see pages: HM390 TDCR 1505 (514) • HM390 TDKT/CT 1505 (513)



HM390 ETD-M

90° Endmills with a FLEX-FIT
Threaded Adaptation
Carrying HM390 TDKT
1505 Triangular Inserts



Designation	DC	APMX	CICT ⁽¹⁾	LF	DCONMS	THSZMS	OAL	DRVS ⁽²⁾	RMPX ^{°(3)}	TQ_3 ⁽⁴⁾				
HM390 ETD D040-4-M16	40.00	13.00	4	43.00	29.00	M16	68.00	25.0	1.6	40	0.22	SR 10511869	BLD IP20/S7	SW6-T

• For adaptation, see page 59 • For user guide, see pages 616-622 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

• When assembled the HM390 TDKT 1505PDR-FW insert, tool diameter enlarges by 1.0 mm

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Clamping wrench size

⁽³⁾ Maximum ramping angle

⁽⁴⁾ Tool tightening torque Nxmm (lbf·in)

For inserts, see pages: HM390 TDCR 1505 (514) • HM390 TDKT/CT 1505 (513)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360)

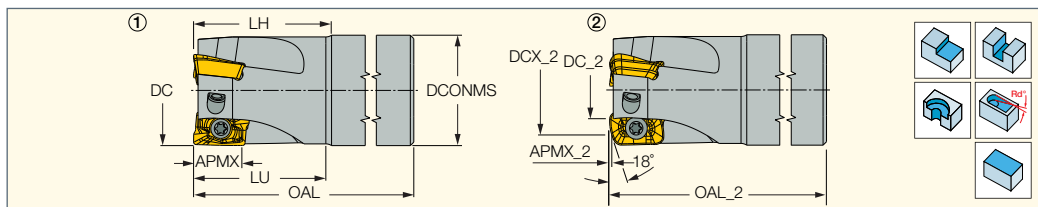
• HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)



HELI2000

HM90 E90AD-15

90° Endmills Carrying HM90
ADKT-1505... Inserts



Designation	DC	DCX_2	DC_2	DCONMS	APMX	APMX_2	CICT ⁽¹⁾	OAL	OAL_2	LH	LU	RMPX ^{o(2)}	RMPX ^o _2
HM90 E90AD-D20-1-C20	20.00	20.50	7.26	20.00	14.30	1.50	1	110.00	109.74	35.0	34.0	3.0	3.0
HM90 E90AD-D25-2-C24-B	25.00	25.50	12.26	24.00	14.30	1.50	2	200.00	199.74	30.0	-	11.5	11.5
HM90 E90AD-D25-2-C25	25.00	25.50	12.26	25.00	14.30	1.50	2	110.00	109.74	35.0	34.0	11.5	11.5
HM90 E90AD-D25-2-C25-B	25.00	25.50	12.26	25.00	14.30	1.50	2	200.00	199.74	50.0	49.0	11.5	11.5
HM90 E90AD-D25-2-C25-C	25.00	25.50	12.26	25.00	14.30	1.50	2	110.00	109.74	35.0	34.0	11.5	11.5
HM90 E90AD-D25-2-C25-XL	25.00	25.50	12.26	25.00	14.30	1.50	2	150.00	149.74	35.0	34.0	11.5	11.5
HM90 E90AD-D25-2-W25	25.00	25.50	12.26	25.00	14.30	1.50	2	100.00	99.74	35.0	34.0	11.5	11.5
HM90 E90AD-D25-2-W25-C	25.00	25.50	12.26	25.00	14.30	1.50	2	100.00	109.74	35.0	34.0	11.5	11.5
HM90 E90AD-D25-2-W25-XL	25.00	25.50	12.26	25.00	14.30	1.50	2	150.00	149.74	70.0	69.0	11.5	11.5
HM90 E90AD-D32-2-C32	32.00	32.50	19.26	32.00	14.30	1.50	2	120.00	119.74	40.0	38.0	5.3	5.3
HM90 E90AD-D32-3-C31-B	32.00	32.50	19.26	31.00	14.30	1.50	3	250.00	249.74	30.0	-	5.3	5.3
HM90 E90AD-D32-3-C32	32.00	32.50	19.26	32.00	14.30	1.50	3	120.00	119.74	40.0	38.0	5.3	5.3
HM90 E90AD-D32-3-C32-B	32.00	32.50	19.26	32.00	14.30	1.50	3	250.00	249.74	50.0	48.0	5.3	5.3
HM90 E90AD-D32-3-C32-C	32.00	32.50	19.26	32.00	14.30	1.50	3	120.00	119.74	40.0	38.0	5.3	5.3
HM90 E90AD-D32-3-C32-XL	32.00	32.50	19.26	32.00	14.30	1.50	3	160.00	159.74	40.0	38.0	5.3	5.3
HM90 E90AD-D32-3-W32	32.00	32.50	19.26	32.00	14.30	1.50	3	110.00	109.74	40.0	38.3	5.3	5.3
HM90 E90AD-D32-3-W32-C	32.00	32.50	19.26	32.00	14.30	1.50	3	110.00	109.74	40.0	38.3	5.3	5.3
HM90 E90AD-D32-3-W32-XL	32.00	32.50	19.26	32.00	14.30	1.50	3	160.00	159.74	40.0	38.3	5.3	5.3
HM90 E90AD-D40-3-C40-B	40.00	40.50	27.26	40.00	14.30	1.50	3	250.00	249.74	50.0	48.0	4.0	4.0
HM90 E90AD-D40-3-W40-XL	40.00	40.50	27.26	40.00	14.30	1.50	3	200.00	199.74	80.0	78.0	4.0	4.0
HM90 E90AD-D40-4-C32	40.00	40.50	27.26	32.00	14.30	1.50	4	130.00	129.74	40.0	-	4.0	4.0
HM90 E90AD-D40-4-W32	40.00	40.50	27.26	32.00	14.30	1.50	4	115.00	114.74	40.0	-	4.0	4.0
HM90 E90AD-D40-4-W32-C	40.00	40.50	13.26	32.00	14.30	1.50	4	115.00	114.74	40.0	-	4.0	11.5

Designation	MDN	MDX	Shank ⁽³⁾	RPMX ⁽⁴⁾	CSP ⁽⁵⁾	MIID_2 ⁽⁶⁾				
HM90 E90AD-D20-1-C20	27.76	40.00	C	51586	0	ADCT 1505R8T-FF	0.24	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C24-B	37.76	50.00	C	41967	0	ADCT 1505R8T-FF	0.67	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C25	37.76	50.00	C	41967	0	ADCT 1505R8T-FF	0.37	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C25-B	37.76	50.00	C	41967	0	ADCT 1505R8T-FF	0.71	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C25-C	37.76	50.00	C	41967	1	ADCT 1505R8T-FF	0.34	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C25-XL	37.76	50.00	C	41967	0	ADCT 1505R8T-FF	0.53	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D25-2-W25	37.76	50.00	W	41967	0	ADCT 1505R8T-FF	0.33	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-W25-C	37.76	50.00	W	41967	1	ADCT 1505R8T-FF	0.30	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-W25-XL	37.76	50.00	W	41967	0	ADCT 1505R8T-FF	0.51	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-2-C32	51.76	64.00	C	28924	0	ADCT 1505R8T-FF	0.68	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-C31-B	51.76	64.00	C	28924	0	ADCT 1505R8T-FF	1.41	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-C32	51.76	64.00	C	28924	0	ADCT 1505R8T-FF	0.67	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-C32-B	51.76	64.00	C	28924	0	ADCT 1505R8T-FF	1.48	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D32-3-C32-C	51.76	64.00	C	28924	1	ADCT 1505R8T-FF	0.63	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-C32-XL	51.76	64.00	C	28924	0	ADCT 1505R8T-FF	0.92	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D32-3-W32	51.76	64.00	W	28924	0	ADCT 1505R8T-FF	0.59	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D32-3-W32-C	51.76	64.00	W	28924	1	ADCT 1505R8T-FF	0.56	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D32-3-W32-XL	51.76	64.00	W	28924	0	ADCT 1505R8T-FF	0.91	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-3-C40-B	67.76	80.00	C	25870	0	ADCT 1505R8T-FF	2.34	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-3-W40-XL	67.76	80.00	W	25870	0	ADCT 1505R8T-FF	1.81	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-4-C32	67.76	80.00	C	25870	0	ADCT 1505R8T-FF	0.82	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-4-W32	67.76	80.00	W	25870	0	ADCT 1505R8T-FF	0.73	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-4-W32-C	39.76	52.00	W	25870	1	ADCT 1505R8T-FF	0.69	SR 14-544/S	SW6-SD	BLD T15/M7

• 1 - with standard square insert • 2 - with FF (fast feed) insert • For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

(4) Maximum RPM

(5) 0 - Without coolant supply, 1 - With coolant supply

(6) Master insert identification 2

For inserts, see pages: ADCR 1505PDRF (523) • ADCT 1505PDRF-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526)

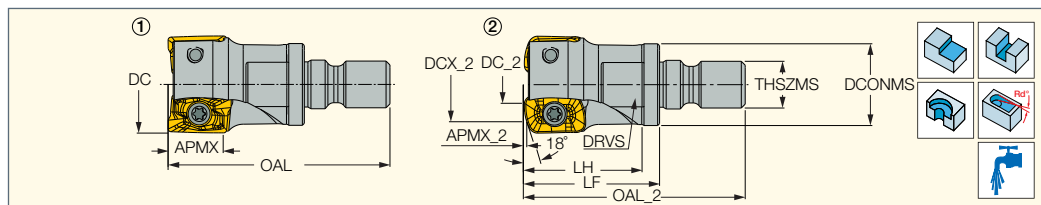
• ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADKW (CBN) (524) • ADKW (PCD) (524)

• ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDRF-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521)

• HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)

HELI2000**HM90 E90AD-M-15**

90° Endmills with a FLEX-FIT
Threaded Adaptation Carrying
HM90 ADKT-1505... Inserts



Designation	DC	DC_2	DCX_2	CICT ⁽¹⁾	APMX	APMX_2	DCONMS	THSZMS	LH	LF	OAL	OAL_2	RMPX ^{o(2)}	RMPX°_2
HM90 E90AD-D25-2-M12	25.00	12.26	25.50	2	14.30	1.50	21.00	M12	30.8	35.00	57.00	56.74	11.5	11.5
HM90 E90AD-D32-3-M16	32.00	19.26	32.50	3	14.30	1.50	29.00	M16	40.0	40.00	65.00	64.74	5.3	5.3
HM90 E90AD-D40-4-M16	40.00	27.26	40.50	4	14.30	1.50	29.00	M16	40.0	40.00	65.00	64.74	4.0	4.0

Designation	MDN	MDX	MIID ⁽³⁾	MIID_2 ⁽⁴⁾	RPMX ⁽⁵⁾	DRVS ⁽⁶⁾	TQ_3 ⁽⁷⁾	
HM90 E90AD-D25-2-M12	37.76	50.00	ADKT 1505PDTR	ADCT 1505R8T-FF	41967	17.1	33	0.08
HM90 E90AD-D32-3-M16	51.76	64.00	ADKT 1505PDTR	ADCT 1505R8T-FF	28924	25.1	40	0.16
HM90 E90AD-D40-4-M16	67.76	80.00	ADKT 1505PDTR	ADCT 1505R8T-FF	25870	25.1	40	0.21

- 1- with standard square insert • 2- with FF (fast feed) insert • For adaptation, see page 59 • For user guide see pages 616-622
- When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

⁽³⁾ Master insert identification

⁽⁴⁾ Master insert identification 2

⁽⁵⁾ Maximum RPM

⁽⁶⁾ Torque key size

⁽⁷⁾ Tool tightening torque Nxm (lbfxin)

For inserts, see pages: ADCR 1505PDR (523) • ADCT 1505PDR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526)
• ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADKW (CBN) (524) • ADKW (PCD) (524)
• ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDR-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521)
• HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358)
• DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

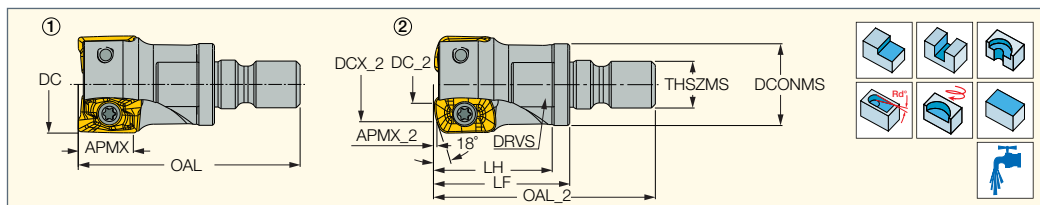
Spare Parts

Designation			
HM90 E90AD-D25-2-M12	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D32-3-M16	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D40-4-M16	SR 14-544/S	SW6-SD	BLD T15/M7



HELI2000
JET LINE

HM90 E90AD-M-15-JHP
90° JHP Endmills With a
FLEX-FIT Threaded Adaptation
Carrying HELI-2000 and
HELI-MILL Inserts



Designation	DC	DC_2	DCX_2	CICT ⁽¹⁾	APMX	APMX_2	OAL	OAL_2	RMPX ^{°(2)}	RMPX_2	LF	THSZMS
HM90 E90AD D32-3-M16-JHP	32.00	19.26	32.50	3	14.30	1.50	65.00	64.74	5.3	5.3	40.00	M16

Designation	MDN	MDX	RPMX ⁽³⁾	DRVS ⁽⁴⁾	DCONMS	TQ_3 ⁽⁵⁾	MIID ⁽⁶⁾	MIID_2 ⁽⁷⁾	
HM90 E90AD D32-3-M16-JHP	51.76	64.00	28924	25.0	30.50	40	ADKT 1505PDTR	ADCT 1505R8T-FF	0.17

- 1- with standard square insert • 2- with FF (fast feed) insert • For adaptation, see page 59 • For user guide see pages 616-622
- When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

⁽³⁾ Maximum RPM

⁽⁴⁾ Torque key size

⁽⁵⁾ Tool tightening torque NxM (lbf·in)

⁽⁶⁾ Master insert identification

⁽⁷⁾ Master insert identification 2

For inserts, see pages: ADCR 1505PDR (523) • ADCT 1505PDR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526) • ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADKW (CBN) (524) • ADKW (PCD) (524) • ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDR-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521) • HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360)

• HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

Spare Parts

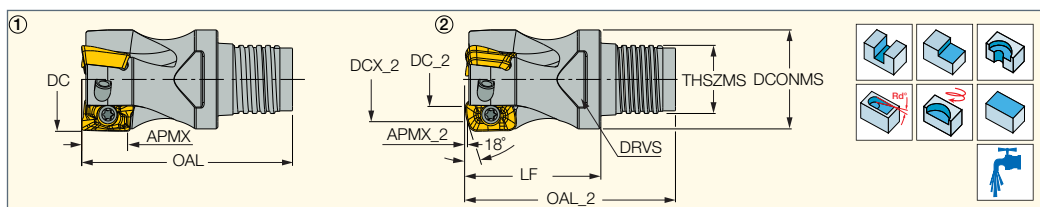
Designation				
HM90 E90AD-M-15-JHP	SR 14-544/S	SR 14-544/S ^(a)	BLD T15/M7	SW6-T-SH

^(a) Recommended tightening torque for this item: 4.8 NxM



HELI2000
JET LINE

HM90 E90AD-MM-15-JHP
90° JHP Endmills with a
MULTI-MASTER Threaded
Adaptation Carrying HELI-2000
and HELI-MILL Inserts



Designation	DC	DC_2	DCX_2	CICT ⁽¹⁾	APMX	APMX_2	OAL	OAL_2	DCONMS	RMPX ^{°(2)}	RMPX ^{°_2}	LF
HM90 E90AD D25-2-MMT15JHP	25.00	12.26	25.00	2	14.30	1.50	56.30	56.04	24.00	11.5	11.5	39.30
HM90 E90AD D32-3-MMT21JHP	32.00	19.26	32.50	3	14.30	1.50	63.00	62.74	30.50	5.3	5.3	39.90

Designation	RPMX ⁽³⁾	THSZMS	MDN	MDX	TQ_3 ⁽⁴⁾	DRVS ⁽⁵⁾	MIID ⁽⁶⁾	MIID_2 ⁽⁷⁾	
HM90 E90AD D25-2-MMT15JHP	41967	T15	37.76	50.00	40	20.0	ADKT 1505PDTR	ADKT 1505R8T-FF	0.10
HM90 E90AD D32-3-MMT21JHP	28924	T21	51.76	64.00	40	24.0	ADKT 1505PDTR	ADKT 1505R8T-FF	0.26

New

- 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622 • Do not apply lubricant to the MULTI-MASTER threaded connection

- For adaptation see page 59

- (1) Number of inserts (or edges for solid tool)

- (2) Maximum ramping angle

- (3) The maximum cutting speed (RPM) for the cutting head assembled on the shank should be the lower parameter (RPMX) of either the cutting head or the shank

- (4) Tool tightening torque Nxmm (lbf·in)

- (5) Torque key size

- (6) Master insert identification

- (7) Master insert identification 2

For inserts, see pages: ADCR 1505PDR (523) • ADCT 1505PDR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526) • ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADKW (CBN) (524) • ADKW (PCD) (524) • ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDR-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521) • HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)

For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104)

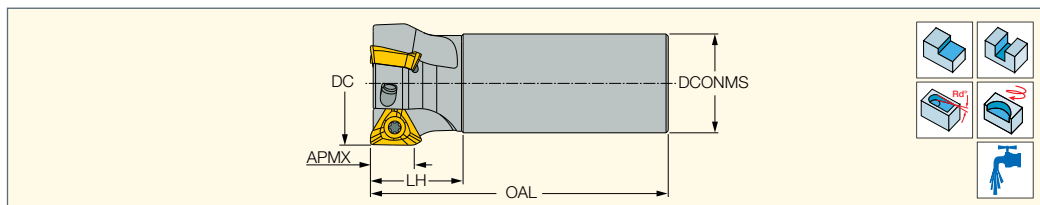
• MM S-A-HSK (109) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER-H (108) • MM TS-A (105)

Spare Parts

Designation			
HM90 E90AD-MM-15-JHP	SR 14-544/S	BLD T15/M7	SW6-T-SH

HELI3MILL
HM390 LINE

HM390 ETD-19
90° Endmills Carrying HM390
TDKT 1907 Triangular Inserts
with 3 Helical Cutting Edges



Designation	DC	APMX	CICT ⁽¹⁾	OAL	LH	DCONMS	RMPX ^{°(2)}	Shank ⁽³⁾				
HM390 ETD D040-2-C32-19	40.00	16.00	2	130.00	45.0	32.00	2.0	C	0.69	SR 14-591/L12	BLD T20/S7	SW6-T

- For user guide, see pages 616-622

- (1) Number of inserts (or edges for solid tool)

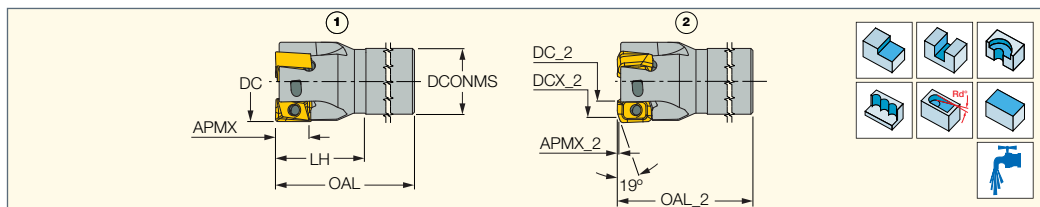
- (2) Maximum ramping angle

- (3) C-Cylindrical

For inserts, see pages: HM390 TDKT 1907 (514)

H490 E90AX-17

90° Endmills Carrying H490
ANKX 17... Double-Sided
Rectangular Inserts with 4
Helical Cutting Edges



Designation	DC	DCX_2	DC_2	CICT ⁽¹⁾	APMX	APMX_2	AE ⁽²⁾	OAL	OAL_2	LH	DCONMS
H490 E90AX D32-2-C32-17	32.00	33.50	21.70	2	16.30	1.60	9.5	130.00	129.86	44.0	32.00
H490 E90AX D32-2-W32-17	32.00	33.50	21.70	2	16.30	1.60	9.5	95.00	94.86	30.0	32.00
H490 E90AX D40-3-C32-17	40.00	41.50	29.70	3	16.30	1.60	9.5	130.00	129.86	44.0	32.00
H490 E90AX D40-3-W32-17	40.00	41.50	29.70	3	16.30	1.60	9.5	110.00	109.86	35.0	32.00
H490 E90AX D50-4-C32-17	50.00	51.50	39.70	4	16.30	1.60	9.5	120.00	119.86	40.0	32.00

Designation	Shank ⁽³⁾	RMPX°_2 ⁽⁴⁾	MDN	MDX	MIID ⁽⁵⁾	MIID_2 ⁽⁶⁾	
H490 E90AX D32-2-C32-17	C	5.5	55.20	66.00	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.70
H490 E90AX D32-2-W32-17	W	5.5	55.20	66.00	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.50
H490 E90AX D40-3-C32-17	C	3.7	71.20	82.00	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.76
H490 E90AX D40-3-W32-17	W	3.7	71.20	82.00	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.64
H490 E90AX D50-4-C32-17	C	2.5	91.20	102.00	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.81

• For user guide, see pages 616-622 • 1- with standard square insert, 2- with FF (fast feed) insert • Ramping angle is valid only when H490 ANKX 1706R15T-FF insert is used • When assembled the H490 ANKX 1706R15T-FF insert, tool diameter enlarges by 1.5 mm

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum side plunge

⁽³⁾ C-Cylindrical, W-Weldon

⁽⁴⁾ Maximum ramping angle when using FF inserts

⁽⁵⁾ Master insert identification

⁽⁶⁾ Master insert identification 2

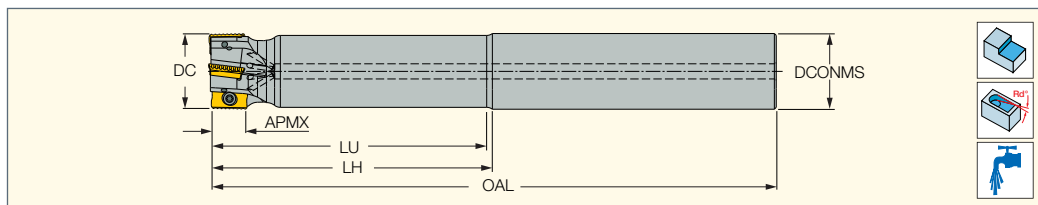
For inserts, see pages: H490 ANKX 1706-FF (540) • H490 ANKX/ANCX-17 (539)

Spare Parts

Designation			
H490 E90AX-17	SR 14-591	SW6-T	BLD T20/M7

MILLSHRED
 P290 LINE

P290 EPW

 Long Reach Endmills Carrying 12
 and 18 mm Long Edged Inserts


Designation	DC	CICT ⁽¹⁾	LU	LH	OAL	DCONMS	Shank ⁽²⁾	RMPX ⁽³⁾	APMX	MIID ⁽⁴⁾	kg
P290 EPW D20-2-100-W20-12	20.00	2	37.00	40.0	100.00	20.00	W	2.0	12.00	P290 ACKT 1204PDR-FW	0.20
P290 EPW D25-3-130-W25-12	25.00	3	68.00	70.0	130.00	25.00	W	1.4	12.00	P290 ACKT 1204PDR-FW	0.39
P290 EPW D25-3-160-C25-12	25.00	3	88.00	90.0	160.00	25.00	C	1.4	12.00	P290 ACKT 1204PDR-FW	0.47
P290 EPW D25-3-200-C25-12	25.00	3	117.00	120.0	200.00	25.00	C	1.4	12.00	P290 ACKT 1204PDR-FW	0.62
P290 EPW D32-4-130-W25-12	32.00	4	70.00	-	130.00	25.00	W	1.0	12.00	P290 ACKT 1204PDR-FW	0.46
P290 EPW D32-4-150-C25-12	32.00	4	90.00	-	150.00	25.00	C	1.0	12.00	P290 ACKT 1204PDR-FW	0.54
P290 EPW D25-2-120-W25-18	25.00	2	57.70	60.0	120.00	25.00	W	2.5	18.00	P290 ACKT 1806PDR-FW	0.36
P290 EPW D32-3-170-W32-18	32.00	3	97.70	100.0	170.00	32.00	W	2.0	18.00	P290 ACKT 1806PDR-FW	0.84
P290 EPW D32-3-210-C32-18	32.00	3	127.70	130.0	210.00	32.00	C	2.0	18.00	P290 ACKT 1806PDR-FW	1.06
P290 EPW D32-3-240-C32-18	32.00	3	157.00	160.0	240.00	32.00	C	2.0	18.00	P290 ACKT 1806PDR-FW	1.22
P290 EPW D40-4-170-W32-18	40.00	4	108.00	-	170.00	32.00	W	1.5	18.00	P290 ACKT 1806PDR-FW	0.95
P290 EPW D40-4-200-C32-18	40.00	4	140.00	-	200.00	32.00	C	1.5	18.00	P290 ACKT 1806PDR-FW	1.13
P290 EPW D40-4-250-W40-18	40.00	4	147.00	150.0	250.00	40.00	W	1.5	18.00	P290 ACKT 1806PDR-FW	2.08

• For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ C-Cylindrical, W-Weldon

⁽³⁾ Maximum ramping angle

⁽⁴⁾ Master insert identification

For inserts, see pages: P290 ACCT/KT (529) • P290 ACKT (529)

Spare Parts

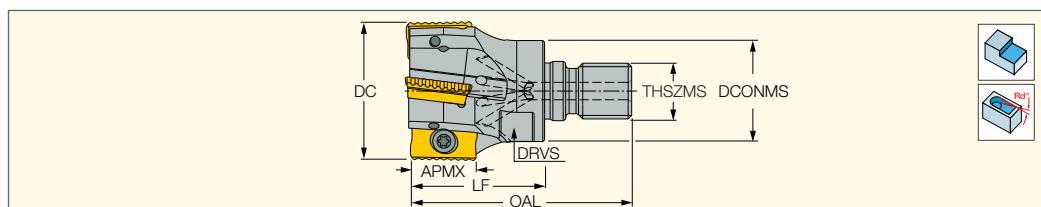
Designation				
P290 EPW D20-2-100-W20-12	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151		
P290 EPW D25-3-130-W25-12	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151		
P290 EPW D25-3-160-C25-12	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151		
P290 EPW D25-3-200-C25-12	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151		
P290 EPW D32-4-130-W25-12	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151		
P290 EPW D32-4-150-C25-12	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151		
P290 EPW D25-2-120-W25-18	SR 14-544/S ^(b)		BLD T15/M7	SW6-T-SH
P290 EPW D32-3-170-W32-18	SR 14-544/S ^(b)		BLD T15/M7	SW6-T-SH
P290 EPW D32-3-210-C32-18	SR 14-544/S ^(b)		BLD T15/M7	SW6-T-SH
P290 EPW D32-3-240-C32-18	SR 14-544/S ^(b)		BLD T15/M7	SW6-T-SH
P290 EPW D40-4-170-W32-18	SR 14-544/S ^(b)		BLD T15/M7	SW6-T-SH
P290 EPW D40-4-200-C32-18	SR 14-544/S ^(b)		BLD T15/M7	SW6-T-SH
P290 EPW D40-4-250-W40-18	SR 14-544/S ^(b)		BLD T15/M7	SW6-T-SH

^(a) Recommended tightening torque: 2.0 N*m

^(b) Recommended tightening torque: 4.8 N*m

P290 EPW-M

Endmills with FLEX-FIT Threaded Adaptation Carrying 12 and 18 mm Long Edged Inserts



Designation	DC	APMX	CICT ⁽¹⁾	LF	OAL	THSZMS	DCONMS	DRVS ⁽²⁾	RMPX ⁽³⁾	CSP ⁽⁴⁾	TQ_3 ⁽⁵⁾	kg
P290 EPW D20-2-M10-12	20.00	12.00	2	25.00	45.00	M10	18.00	15.0	2.0	0	29	0.04
P290 EPW D25-3-M12-12	25.00	12.00	3	30.00	52.00	M12	21.00	19.0	1.4	1	33	0.07
P290 EPW D32-4-M16-12	32.00	12.00	4	35.00	60.00	M16	29.00	25.0	1.0	1	40	0.16
P290 EPW D32-3-M16-18	32.00	18.00	3	40.00	65.00	M16	29.00	25.0	2.0	1	40	0.15
P290 EPW D40-4-M16-18	40.00	18.00	4	40.00	65.00	M16	29.00	25.0	1.5	1	40	0.20

• For adaptation see page 59 • For user guide, see pages 616-622 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Clamping wrench size

⁽³⁾ Maximum ramping angle

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

⁽⁵⁾ Tool tightening torque Nxm

For inserts, see pages: P290 ACCT/KT (529) • P290 ACKT (529)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358)

• DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

Spare Parts

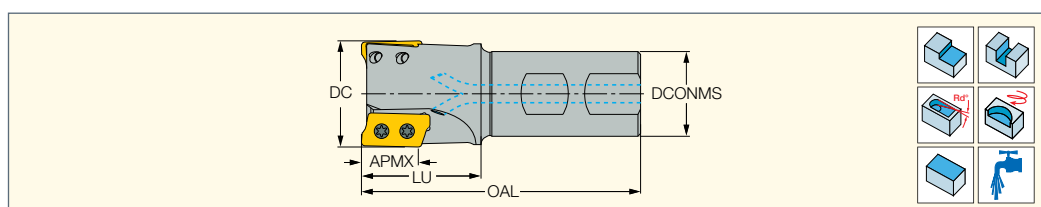
Designation				
P290 EPW D20-2-M10-12	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151		
P290 EPW D25-3-M12-12	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151		
P290 EPW D32-4-M16-12	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151		
P290 EPW D32-3-M16-18	SR 14-544/S ^(b)		BLD T15/M7	SW6-T-SH
P290 EPW D40-4-M16-18	SR 14-544/S ^(b)		BLD T15/M7	SW6-T-SH

^(a) Recommended tightening torque:2.0 N*m

^(b) Recommended tightening torque:4.8 N*m

HP E90AT-19

90° Endmills Carrying HP AD.. 1906.. Inserts



Designation	DC	CICT ⁽¹⁾	APMX	OAL	LU	DCONMS	RMPX ⁽²⁾	RPM ⁽³⁾	Shank ⁽⁴⁾	kg			
HP E90AT-D25-2-W25-19	25.00	2	18.70	100.00	40.0	25.00	14.0	27995	W	0.30	SR 14-571/L	SW6-SD	BLD T10/S7
HP E90AT-D32-3-W32-19	32.00	3	18.40	105.00	40.0	32.00	7.0	18330	W	0.52	SR 14-571/L	SW6-SD	BLD T10/S7

• First loosely attach the inner clamping screw, then the outer one. In the same order tighten them both. • For user guide, see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

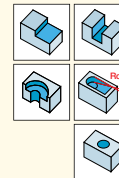
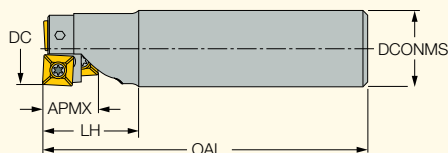
⁽³⁾ Maximum RPM

⁽⁴⁾ W-Weldon

For inserts, see pages: HP ADCR 1906 (532) • HP ADKT/ADCT 1906 (532)

HELICUT**E90XC**

Drilling Endmills Carrying
Square S/XOMT Inserts



Designation	DC	CICT ⁽¹⁾	NOF ⁽²⁾	APMX	LH	OAL	DCONMS	Shank ⁽³⁾	CSP ⁽⁴⁾			
E90XC D12-06-C12-06	12.00	1	1	5.80	25.0	90.00	12.00	C	0	0.07	SR 34-508 M2.2X0.45	T-7/51
E90XC D20-22-C20-06	20.00	5	1	22.00	37.0	120.00	20.00	C	1	0.24	SR 34-508/L	T-7/51

• Use the XOMT 06.... insert in central face location • For user guide, see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Number of flutes

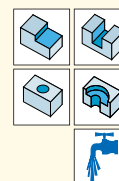
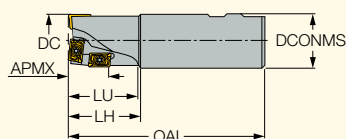
⁽³⁾ C-Cylindrical

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: SOMT-HQ (560) • XOMT-HQ (561)

HELMILL**E90AC**

Drilling Endmills Carrying
APKT/ADKT Inserts



Designation	DC	CICT ⁽¹⁾	NOF ⁽²⁾	APMX	LU	LH	OAL	DCONMS	Shank ⁽³⁾	MIID ⁽⁴⁾	
E90AC D25-20W25	25.00	3	2	19.00	49.0	50.0	110.00	25.00	W	APKT 1003PDR-HM	0.30
E90AC D32-25W32	32.00	3	2	25.00	48.0	50.0	130.00	32.00	W	ADCT 1505PDPR-HM	0.60
E90AC D38-25W32	38.00	5	2	26.00	-	50.0	130.00	32.00	W	ADCT 1505PDPR-HM	0.70

• For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Number of flutes

⁽³⁾ W-Weldon

⁽⁴⁾ Master insert identification

For inserts, see pages: ADCT 1505PDPR-HM (523) • ADKT 1505..R/L-HM (526) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526)

• APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • XPMT-HQ (563)

Spare Parts

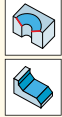
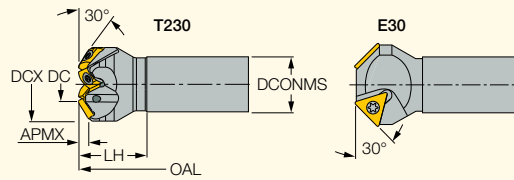
Designation				
E90AC D25-20W25	SR 34-505/HG	BLD T08/M7	SW4-SD	
E90AC D32-25W32	SR 14-544/S	BLD T15/M7	SW6-T-SH	
E90AC D38-25W32	SR 14-544/S	BLD T15/M7	SW6-T-SH	ZPN 4-520



ISCAR^{MILL}

E30 / T230

30° Chamfering Endmills



Designation	DC	DCX ⁽¹⁾	CICT ⁽²⁾	APMX	OAL	LH	DCONMS	Shank ⁽³⁾	CSP ⁽⁴⁾	MIID ⁽⁵⁾			
T230 ELN D12-4-C16-05	12.00	21.50	4	2.50	90.00	20.0	16.00	C	1	T290 LNHT 0502TR	0.13	SR 10503833	T-7/51
T230 ELN D12-4-W16-05	12.00	21.50	4	2.50	90.00	20.0	16.00	W	1	T290 LNHT 0502TR	0.13	SR 10503833	T-7/51
E30 D16-W25	16.00	40.90	3	7.00	100.00	36.4	25.00	W	0	TPMT 160304	0.42	SR 14-541	T-15/51

• For user guide see pages 616-622

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ C - Cylindrical, W - Weldon

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

⁽⁵⁾ Master insert identification

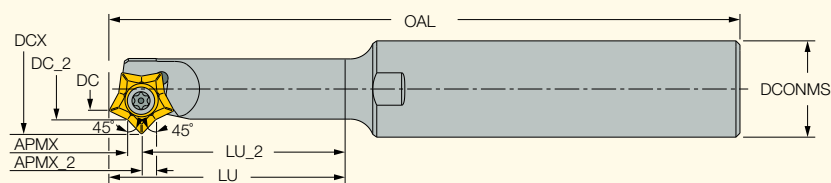
For inserts, see pages: T290 LNMT/LNHT 0502 (542) • TPMT (536)

CHAMF^{MILL}

CHAMFERING LINE

CH45-PN06

Upper and Bottom Chamfering Endmills Carrying Pentagonal Inserts



Designation	DCX ⁽¹⁾	DC_2	DC	APMX	APMX_2	DCONMS	CICT ⁽²⁾	LU	LU_2	OAL	DMIN ⁽³⁾	
CH45-10-30-1-C12-PN06	11.70	8.45	6.60	1.50	1.50	12.00	1	29.40	25.40	100.00	10.00	0.00
CH45-17-60-2-C16-PN06	16.70	13.45	11.40	1.50	1.50	16.00	2	29.40	25.40	110.00	17.00	0.13
CH45-19-80-3-C16-PN06	18.70	15.45	13.40	1.50	1.50	16.00	3	29.40	25.40	130.00	19.00	0.16

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ Minimum penetration diameter for back chamfering

For inserts, see pages: PNMT 0602-TN (613)

Spare Parts

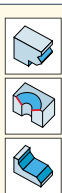
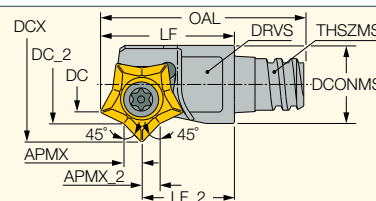
Designation		
CH45-PN06	SR M2.5X5-T7-60	T-7/51

CHAMF^{MILL}

CHAMFERING LINE

CH45-MM-PN06

Upper and Bottom Chamfering Endmills with a MULTI-MASTER Threaded Adaptation



Designation	DCX ⁽¹⁾	DC_2	DC	APMX	APMX_2	LF	LF_2	OAL	DCONMS	THSZMS	CICT ⁽²⁾	DRVS ⁽³⁾	DMIN ⁽⁴⁾	
CH45-10/39-1-MMT05-PN06	11.70	8.45	6.60	1.50	1.50	13.00	9.00	19.75	7.60	T05	1	5.5	10.00	0.00
CH45-17/67-2-MMT08-PN06	16.70	13.45	11.40	1.50	1.50	18.00	14.00	25.50	12.20	T08	2	10.0	17.00	0.02
CH45-19/75-3-MMT10-PN06	18.70	15.45	13.40	1.50	1.50	20.00	16.00	31.30	15.30	T10	3	13.0	19.00	0.02

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation options, see page 59 • For user guide, see pages 616-622

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ Width across flats (wrench should be ordered separately)

⁽⁴⁾ Minimum penetration diameter for back chamfering

For inserts, see pages: PNMT 0602-TN (613)

For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102)

• MM S-A (straight shanks) (106) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)

• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

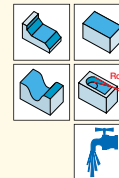
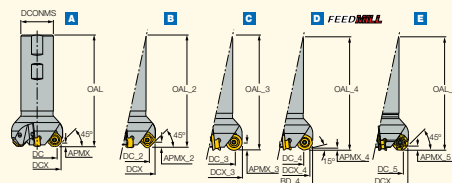
Spare Parts

Designation		
CH45-MM-PN06	SR M2.5X5-T7-60	T-7/51


HELIDO
800 LINE

SOE45 8/16

Multifunctional Endmills
for Octagonal, Square and
Round Insert Contours with
Several Entry Angles



Designation	DC	DC_2	DC_3	DC_4	DC_5	DCX ⁽¹⁾	DCX_3	DCX_4	BD_4	APMX	APMX_2	APMX_3	APMX_4	APMX_5
SOE45 8/16-D025-02-W20R	25.00	22.65	20.90	20.10	25.30	35.40	36.50	29.40	35.60	3.50	6.00	7.90	1.20	2.90
SOE45 8/16-D032-03-W25R	32.00	29.65	27.50	26.70	32.30	42.40	43.30	36.20	42.60	3.50	6.00	7.90	1.20	2.90
SOE45 8/16-D040-04-W32R	40.00	37.65	35.40	37.50	40.30	50.40	51.30	47.00	50.60	3.50	6.00	7.90	1.20	2.90

Designation	DCONMS	CICT ⁽²⁾	OAL	OAL_2	OAL_3	OAL_4	OAL_5	RMPX ⁽³⁾	
SOE45 8/16-D025-02-W20R	20.00	2	100.00	101.2	101.60	101.30	101.20	3.1	0.25
SOE45 8/16-D032-03-W25R	25.00	3	100.00	101.2	101.60	101.30	101.20	4.2	0.38
SOE45 8/16-D040-04-W32R	32.00	4	110.00	111.2	111.60	111.30	111.20	3.7	0.72

- A- with ONMU 0505... insert • B- with S845 SNMU 1305... insert • C- with RXMT 1607N insert • D- with OXMT 0507R08-FF insert
- E- with OXMT 050705-R-HP insert • Use only Torx Plus keys • For user guide see pages 616-622

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ Maximum ramping angle - valid only with RXMT 1607N insert

For inserts, see pages: ONHU 0505-W (574) • ONHU/ONMU-05 (574) • OXMT 0507 (575) • RXMT 1607 (602) • S845 SNHU 1305-W (569) • S845 SNMU/SNHU-13 (569)

Spare Parts

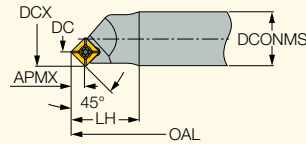
Designation			
SOE45 8/16	SR 11800745	BLD IP15/S7	SW6-T-SH



HELICUT

E45X

45° Chamfering Endmills
Carrying X/Q/SOMT 06 Inserts



Designation	DC	DCX ⁽¹⁾	CICT ⁽²⁾	APMX	LH	OAL	DCONMS	Shank ⁽³⁾	kg		
E45X D06-C12-06	6.00	14.10	1	4.00	25.0	80.00	12.00	C	0.06	SR 34-508 M2.2X0.45	T-7/51
E45X D06-W12-06	6.00	14.10	1	4.00	19.0	70.00	12.00	W	0.05	SR 34-508 M2.2X0.45	T-7/51
E45X D08-C16-06	8.00	16.10	1	4.00	25.0	100.00	16.00	C	0.14	SR 34-508 M2.2X0.45	T-7/51
E45X D08-W16-06	8.00	16.10	1	4.00	23.0	80.00	16.00	W	0.11	SR 34-508 M2.2X0.45	T-7/51

• For user guide, see pages 616-622

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of inserts (or edges for solid tool)

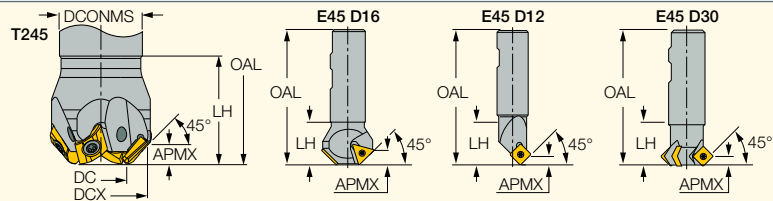
⁽³⁾ C-Cylindrical, W-Weldon

For inserts, see pages: QOMT-HQ (560) • SOMT-HQ (560) • XOMT-HQ (561)

ISCAR MILL

E45 / T245

45° Chamfering Endmills



Designation	DC	DCX ⁽¹⁾	CICT ⁽²⁾	APMX	OAL	LH	DCONMS	Shank ⁽³⁾	CSP ⁽⁴⁾	MIID ⁽⁵⁾	kg		
T245 ELN D12-4-C16-05	12.00	19.70	4	3.60	90.00	20.0	16.00	C	1	T290 LNHT 0502	0.12	SR 10503833	T-7/51
T245 ELN D12-4-W16-05	12.00	19.70	4	3.60	90.00	20.0	16.00	W	1	T290 LNHT 0502	0.12	SR 10503833	T-7/51
E45 D12-W20	12.00	23.20	1	5.60	100.00	30.0	20.00	W	0	SDMT 0903	0.20	SR 14-541	T-15/51
E45 D16-W25	16.00	35.90	2	9.70	100.00	33.0	25.00	W	0	TPMT 1603	0.35	SR 14-541	T-15/51
E45 D30-W25	30.00	46.10	3	7.80	100.00	35.0	25.00	W	0	SCMT 120408-19	0.37	SR 16-212	T-20/51
E45 D30-W32	30.00	46.10	3	7.80	110.00	35.0	32.00	W	0	SCMT 120408-19	0.61	SR 16-212	T-20/51

• For user guide see pages 616-622

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ W-Weldon C-Cylindrical

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

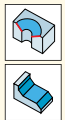
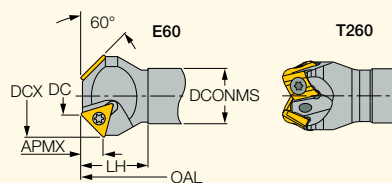
⁽⁵⁾ Master insert identification

For inserts, see pages: SCMT-19 (584) • SDMT-AD-N (584) • T290 LNMT/LNHT 0502 (542) • TPMT (536)

ISCAR MILL

E60 / T260

60° Chamfering Endmills



Designation	DC	DCX ⁽¹⁾	CICT ⁽²⁾	APMX	OAL	LH	DCONMS	Shank ⁽³⁾	CSP ⁽⁴⁾	MIID ⁽⁵⁾	kg		
T260 ELN D12-4-C12-05	12.00	17.50	4	4.50	80.00	20.0	12.00	C	1	T290 LNHT 0502	0.06	SR 10503833	T-7/51
T260 ELN D12-4-W12-05	12.00	17.50	4	4.50	80.00	20.0	12.00	W	1	T290 LNHT 0502	0.06	SR 10503833	T-7/51
E60 D25-W25	25.00	39.40	2	12.30	100.00	33.0	25.00	W	0	TPMT 1603	0.39	SR 14-541	T-15/51

• For user guide see pages 616-622

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ W-Weldon C-Cylindrical

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

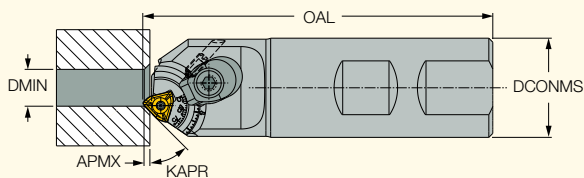
⁽⁵⁾ Master insert identification

For inserts, see pages: T290 LNMT/LNHT 0502 (542) • TPMT (536)



HM390 E10-80-07 Chamfering Endmill with an Adjustable Edge Angle

KAPR	DMIN	APMX	OAL
10°	5	0.35	87.15
20°	6.1	0.68	87.55
30°	7.3	1.00	87.90
40°	8.6	1.29	88.15
45°	9.3	1.41	88.20
50°	10	1.53	88.25
60°	11.3	1.73	88.20
70°	12.6	1.88	88.10
80°	13.9	1.97	87.85



Designation	CICT ⁽¹⁾	OAL	DCONMS	Shank ⁽²⁾	MIID ⁽³⁾	kg
HM390 E10-80 D05-1-W25-07	1	87.85	25.00	W	HM390 TCCT 0703PCR	0.28

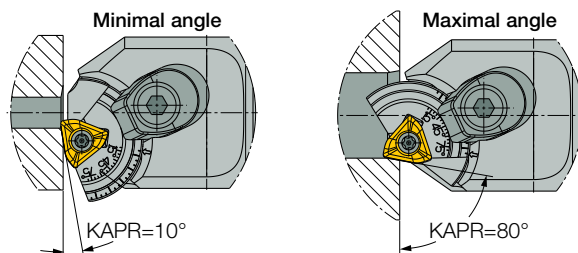
• For user guide see pages 616-622

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ W-Weldon

⁽³⁾ Master insert identification

For inserts, see pages: HM390 TCKT/CT 0703 (512)



Spare Parts

Designation						
HM390 E10-80 D05-1-W25-07	SR M4X10DIN912	T-7/51	CR E10-80 HM390-07	CLAMP E10-80	SR M2.5X5-T7-60	HW 3.0



MULTI-MASTER



Indexable Solid Carbide Milling Heads

Table of Contents

Type	Helix Angle	No. of Flutes	Diameter Range	Remarks	Page
MM HC	10°	2	7.8-16	Slot Drill Milling Heads	88  
MM EA	45°	2, 3	8-20	High Speed Machining on Aluminum	98 
MM EA-CF	40°	3, 4	8-25	High Speed Machining on Aluminum-CHATTER-FREE	99 
MM ECU	38°	3	7.7-19.7	For Keyways (DIN 6885)	89 
MM EC-3	45°	3	8-12		89 
MM EC-4	30°, 45°	4	5-20		90 
MM EC-6 MM EC-D	30°, 45° 50°	6 6, 8, 10	8-12 8-20	For Machining Hardened Steel (up to 65 HRC).	91 
MM ECK-CF	35°, 38°	5,6	8-32	For Machining Titanium Alloys	94 
MM EC-H-4-CF MM EC-H-5-CF	45°	4 5	7.7-18.45 7.7-23.9	CHATTER-FREE Endmill	94 95 
MM EC-8/10	30°, 45°	8,10	16-25		92 
MM EFS	45°	4	8-25	Finishred	96 
MM EFS-CF	38°	4	6-25	Finishred CHATTER-FREE	96 
MM EC-CF MM EC-CF-1.5xD	38° 36°, 46.5°	4, 12 4, 7, 9	8-25	CHATTER-FREE	93 92 
MM ERA	45°	3	8-25	Rough Machining on Aluminum	98 
MM ERS MM ERS-1.5xD	45° 40°-47°	4, 5, 6	8-25	Rough Milling	97 
MM EBA	45°	2,3	8-25	Ball Nose for Machining Aluminum	87-88 
MM EPG	—	1	8	Engraving	65 
MM FM	—	6	12-25	Face Mill	76 

E = Economical

Indexable Solid Carbide Milling Heads

Table of Contents

Type	Helix Angle	No. of Flutes	Diameter Range	Remarks	Page
MM EB MM EBC	30° 45°	2, 4 4	5-25 8-20	Ball Nose Milling	86 87
MM EOB	—	4	8,10,12,16	Oval-Shaped (Barrel)	75
MM EOBA	—	4	8,10,12,16	Oval-Shaped (Barrel)	76
MM ELB	—	4	8,10,12,16	Lens-Shaped (Barrel)	75
MM ELBA	—	4	8,10,12,16	Lens-Shaped (Barrel)	75
MM HCR MM HRF	—	2	8-16	Ball Nose for General Finishing	85
MM HBR	—	2	10-25.4	Center Cutting, 240° Spherical Cutting Profile	86
MM HT	—	2	10-20	Torodial	84
MM FF	—	2	10-20	FEED-MILL	82
MM EFF	—	4,6	8-25.4	FEED-MILL	83
MM ET	20°,30°	8,12	12,16	Tapered Heads for Finishing Operations	85
MM ETR	30°	6	8-16	Torodial	84
MM HR	—	2	8-20	Corner Rounding	64
MM ER	—	4	8-12.7	Corner Rounding	64
MM HCD	—	2	8-20	Chamfering, Countersinking and Spot Drilling for DIN 74 Screw	60
MM ECF	—	4, 6	8-25 10-25	Chamfering and Countersinking	61
MM ECS	—	2	1.07-6.41	Centering Drills (DIN 332)	66
MM ECD	—	2	6-16	Spot Drill	67

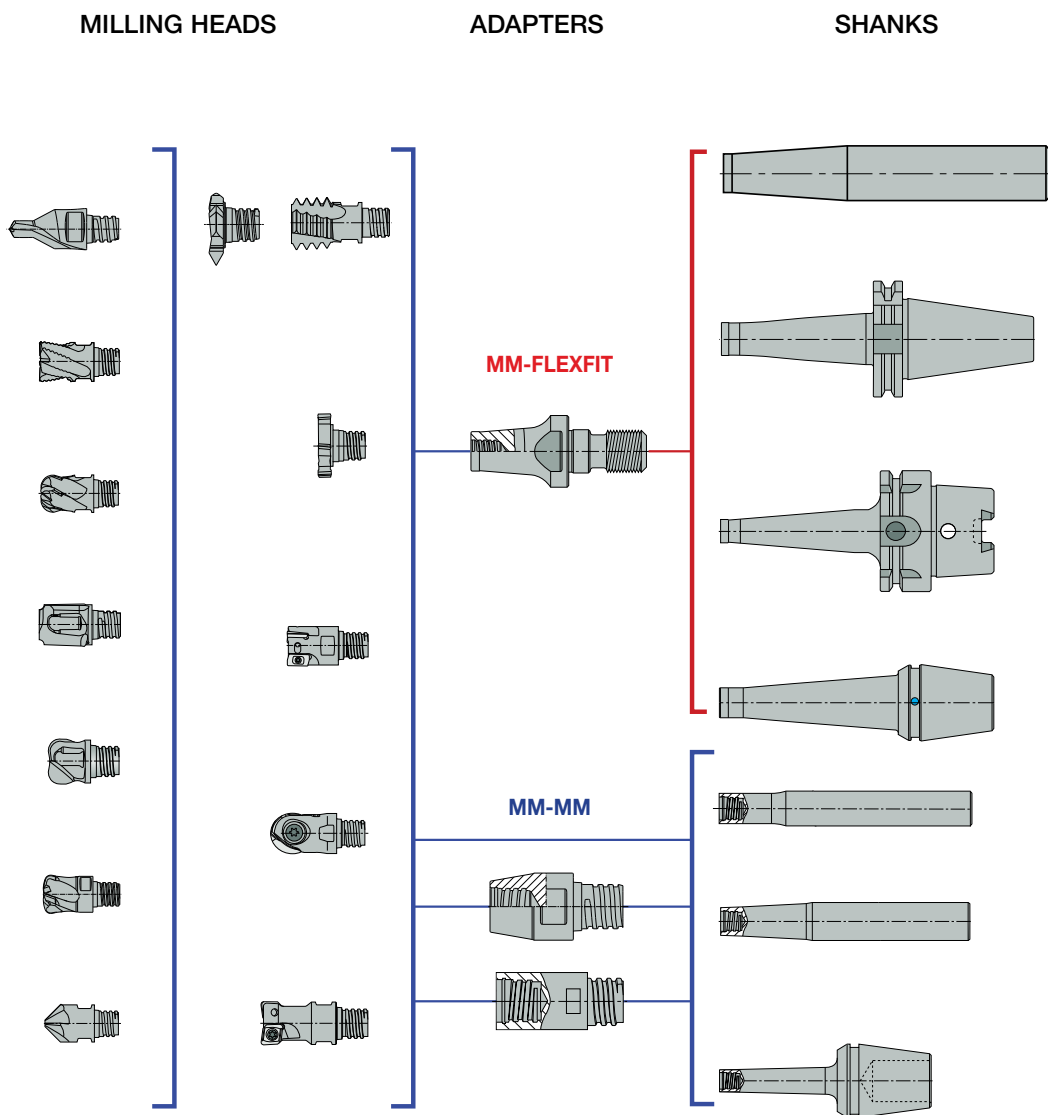
Indexable Solid Carbide Milling Heads

Table of Contents

Type	Helix Angle	No. of Flutes	Diameter Range	Remarks	Page
MM ECDF	—	2	8-20	Flat Bottom Drill Heads	68 
MM EFCB	—	4	11-14	Flat Counter Boring Heads	69 
MM SPD-3T	—	3	8-16	Exchangeable Drilling Heads	69 
MM HDF	—	2	9.8-15.7	Double Chamfering	61 
MM EDF	—	3	7.4-11.6	Double Chamfering	62 
MM TS	—	4,6	7.7-25	Groove Milling	70-71 
MM GRIT-3T6	—	3	15.7,17.7	Groove Milling	72 
MM GRIT-4T8 /6T10	—	4	21.7	Groove Milling	73 
MM SS	—	4	21.7	Involute Spline	76 
MM GRIT-45A	—	3,4	17.7,21.7	45° Chamfering	62 
MM GRIT 28P-DR	—	6	27.7	Double-Sided Corner Rounding Milling	63 
MM Dovetail	—	6	10.5-27.7		63 
MM TS-DG	—	4	15.88, 19.05, 25.4		71 
MM TRF 55	—	5,6	11.94,15.94, 19.94		77 
MM TRF 60	—	5,6	11.94,15.94, 19.94,27.7		78 
MM TRD MT-MM	—	3,4 3-6	15.7, 21.7 10-20	55°-DIN ISO 228, B.S 84 60°-ISO 68, DIN13	79 80-82 
MM ESR-G	—		8-32 8-25.4	Blank Heads	100-101 
MM TC-G	—		13.8,17.1,23.4, 28.6,35.6	Blank Heads	100 

E = Economical

MULTI-MASTER and FLEXFIT Connection Options

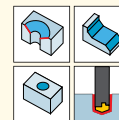
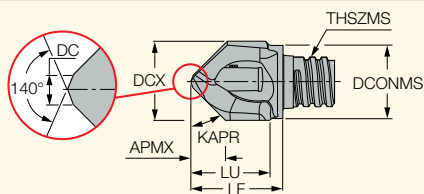


Features

Modular system reduces stock cost by using the same head with different shank options. Enables machining with larger overhang. Same head can be mounted on metric and inch combinations.

MM HCD

Interchangeable 2 Flute Solid Carbide Heads for Chamfering, Countersinking and Spot Drilling

**ECONOMICAL SOLUTION**

Designation	Dimensions										IC908
	DCX ⁽⁴⁾	DCXTOL	NOF ⁽⁵⁾	LU	THSZMS	DCONMS	LF	APMX	DC	KAPR ⁽⁶⁾	
MM HCD060-090-2T04	6.00	z9	2	6.86	T04	5.80	8.50	2.66	1.00	45.0	●
MM HCD080-060-2T05	8.00	h10	2	8.00	T05	7.60	10.50	6.08	1.20	60.0	●
MM HCD080-120-2T05	8.00	h10	2	7.80	T05	7.60	10.30	2.15	1.00	30.0	●
MM HCD080-090-2T05 ⁽¹⁾	8.00	z9	2	7.00	T05	7.60	9.75	3.15	1.00	45.0	●
MM HCD083-090-2T05 ⁽¹⁾	8.30	z9	2	7.50	T05	7.60	10.00	3.56	1.00	45.0	●
MM HCD.375-100-2T06 ⁽²⁾	9.50	h10	2	9.70	T06	9.50	13.40	3.60	2.00	40.0	●
MM HCD.375-080-2T06	9.50	z9	2	9.00	T06	9.20	11.80	5.00	2.00	50.0	●
MM HCD100-060-2T06	10.00	h10	2	9.30	T06	9.50	11.75	7.60	1.50	60.0	●
MM HCD100-120-2T06	10.00	h10	2	9.50	T06	9.50	12.70	2.70	1.50	30.0	●
MM HCD100-090-2T06-N ⁽¹⁾	10.00	z9	2	10.10	T06	9.50	14.00	4.50	1.50	45.0	●
MM HCD104-090-2T06 ⁽¹⁾	10.40	z9	2	9.00	T06	9.50	11.75	4.60	1.50	45.0	●
MM HCD120-060-2T08	12.00	h10	2	11.00	T08	11.50	15.40	9.24	1.50	60.0	●
MM HCD120-120-2T08	12.00	h10	2	11.65	T08	11.50	15.20	3.50	1.50	30.0	●
MM HCD120-090-2T08 ⁽¹⁾	12.00	z9	2	12.00	T08	11.50	15.50	5.30	1.50	45.0	●
MM HCD124-090-2T08 ⁽¹⁾	12.40	z9	2	11.80	T08	11.50	15.50	5.50	1.50	45.0	●
MM HCD.500-080-2T08 ⁽³⁾	12.70	z9	2	11.10	T08	12.20	15.50	6.80	1.50	50.0	●
MM HCD.500-100-2T08 ⁽²⁾	12.70	z9	2	10.90	T08	11.50	14.70	4.90	1.50	40.0	●
MM HCD.625-080-2T10	15.90	z9	2	15.20	T10	15.00	18.80	8.80	2.00	50.0	●
MM HCD.625-100-2T10 ⁽²⁾	15.90	z9	2	14.90	T10	15.10	19.00	6.20	2.00	40.0	●
MM HCD160-060-2T10	16.00	h10	2	16.20	T10	15.20	20.20	12.00	2.50	60.0	●
MM HCD160-120-2T10	16.00	h10	2	15.50	T10	15.20	19.90	4.40	1.50	30.0	●
MM HCD160-090-2T10-N	16.00	z9	2	15.70	T10	15.20	20.00	7.40	1.50	45.0	●
MM HCD165-090-2T10 ⁽¹⁾	16.50	z9	2	14.90	T10	15.20	18.80	7.10	1.50	45.0	●
MM HCD.750-080-2T12	19.05	z9	2	19.60	T12	18.45	24.70	11.00	2.00	50.0	●
MM HCD.750-100-2T12 ⁽²⁾	19.05	z9	2	18.50	T12	18.30	23.60	7.50	1.50	40.0	●
MM HCD200-060-2T12	20.00	h10	2	18.20	T12	18.30	24.70	15.50	2.60	60.0	●
MM HCD200-120-2T12	20.00	h10	2	14.65	T12	18.30	21.15	5.50	1.50	30.0	●
MM HCD200-090-2T12 ⁽¹⁾	20.00	z9	2	18.20	T12	18.30	24.70	9.40	1.50	45.0	●

• For shanks, see pages 101-111 • Clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ May be used for F-type (fine) countersink according to DIN 74.

⁽²⁾ May be used for 100° countersink according to ISO 5856, DIN EN 4072, ANSI B18.6.3-1972

⁽³⁾ Countersink according to American National and British standard flat screws.

⁽⁴⁾ Cutting diameter maximum

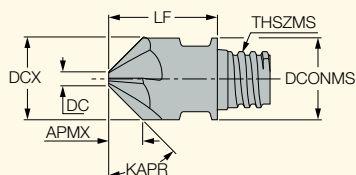
⁽⁵⁾ Number of flutes

⁽⁶⁾ Tool cutting edge angle

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM ECF

Interchangeable Solid Carbide Heads for Chamfering and Countersinking



Designation	Dimensions								IC908
	KAPR ⁽¹⁾	DCX ⁽²⁾	NOF ⁽³⁾	DC	APMX	THSZMS	DCONMS	LF	
MM ECF120-02/100-4T06	30.0	10.00	4	2.00	2.30	T06	10.00	13.00	●
MM ECF120-02/120-4T08	30.0	12.00	4	2.00	2.90	T08	12.00	16.50	●
MM ECF120-03/160-6T10	30.0	16.00	6	3.00	3.70	T10	16.00	20.50	●
MM ECF120-05/200-6T12	30.0	20.00	6	5.00	4.30	T12	18.45	25.50	●
MM ECF120-06/250-6T15	30.0	25.00	6	6.00	5.40	T15	25.00	25.00	●
MM ECF45-080-4T05	45.0	8.00	4	1.95	3.00	T05	8.00	10.00	●
MM ECF45-100-4T06	45.0	10.00	4	1.95	4.00	T06	10.00	13.00	●
MM ECF45-120-4T08	45.0	12.00	4	1.95	5.00	T08	12.00	16.50	●
MM ECF45-150-4T08	45.0	12.70	4	1.95	5.00	T08	12.70	16.50	●
MM ECF45-160-6T10	45.0	16.00	6	3.00	6.50	T10	16.00	20.50	●
MM ECF45-200-6T12	45.0	20.00	6	5.00	7.50	T12	18.45	25.50	●
MM ECF45-250-6T15-M	45.0	25.00	6	5.00	10.00	T15	25.00	25.00	●
MM ECF60-100-4T06	60.0	10.00	4	1.60	7.30	T06	10.00	13.00	●
MM ECF60-02/100-4T06	60.0	10.00	4	2.00	6.90	T06	10.00	13.00	●
MM ECF60-03/120-4T08	60.0	12.00	4	3.00	7.80	T08	12.00	16.50	●
MM ECF60-04/160-6T10	60.0	16.00	6	4.00	10.00	T10	16.00	20.50	●
MM ECF60-05/200-6T12	60.0	20.00	6	5.00	13.00	T12	18.45	25.50	●
MM ECF60-08/250-6T15	60.0	25.00	6	8.00	14.00	T15	25.00	25.00	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Tool cutting edge angle

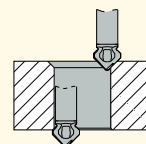
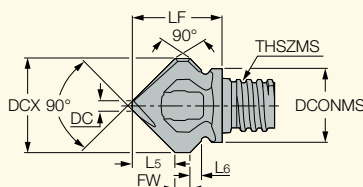
⁽²⁾ Cutting diameter maximum

⁽³⁾ Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM HDF

Interchangeable 2 Flute Solid Carbide Heads for Upper and Bottom Chamfering



ECONOMICAL SOLUTION

Designation	Dimensions										IC908
	DCX ⁽¹⁾	NOF ⁽²⁾	L5	L6	FW	DC	THSZMS	DCONMS	LF		
MM HDF100-090-2T05	9.80	2	4.30	0.90	2.50	1.20	T05	7.60	10.80	MM KEY 8X5*	●
MM HDF120-090-2T06	11.80	2	5.30	1.20	2.00	1.20	T06	9.30	11.20	MM KEY 10X7*	●
MM HDF160-090-2T08	15.70	2	7.10	2.20	2.00	1.50	T08	11.50	14.00	MM KEY 13X8*	●

• For shanks, see pages 101-111 • Clamping keys to be ordered separately • For tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection • For user guide, see pages 59,211-218

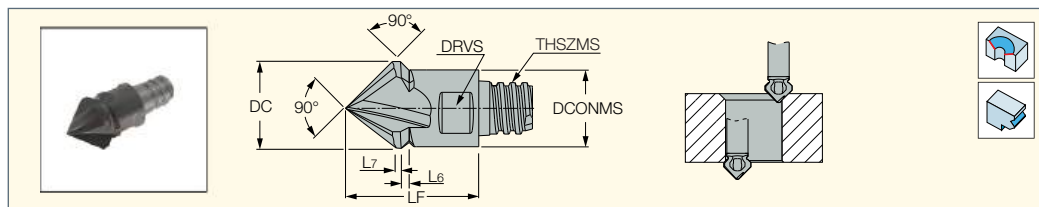
⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of flutes

* Optional, to be ordered separately

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM EDF

Interchangeable 3 Flute Solid Carbide Heads for Upper and Bottom Chamfering



Dimensions

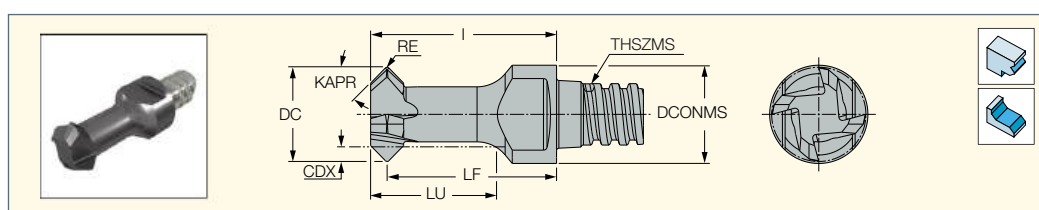
Designation	DC	DCONMS	NOF ⁽¹⁾	L6	L7	LF	THSZMS	IC908
MM EDF074-090-58-3T04	7.40	5.80	3	0.90	1.00	10.00	T04	•
MM EDF094-090-76-3T05	9.40	7.60	3	0.90	1.00	12.50	T05	•
MM EDF116-090-95-3T06	11.60	9.60	3	1.00	1.00	16.50	T06	•

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM TS-45

Interchangeable Solid Carbide Small Diameter 45° Chamfering Heads



Dimensions

Designation	DC	KAPR ⁽¹⁾	CDX ⁽²⁾	RE	NOF ⁽³⁾	I	THSZMS	DCONMS	LU	LF	IC908
MM TS077-45-20A-4T05	7.70	45.0	1.20	0.20	4	15.20	T05	8.00	10.3	13.85	•

• For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection

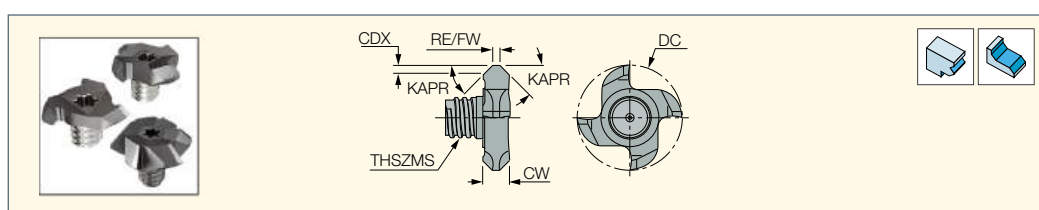
⁽¹⁾ Tool cutting edge angle

⁽²⁾ Cutting depth maximum

⁽³⁾ Number of flutes

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM GRIT-45A

Interchangeable Solid Carbide Small Diameter 45° Chamfering Heads



Dimensions

Designation	DC	KAPR ⁽¹⁾	CDX ⁽²⁾	RE	FW	CW	THSZMS	NOF ⁽³⁾	✓	IC908
MM GRIT18K-45A-3T6	17.70	45.0	1.40	0.10	-	3.47	T06	3	T-25/3*	•
MM GRIT18P-45A-3T6	17.70	45.0	1.40	0.10	-	3.47	T06	3	T-25/3*	•
MM GRIT22K-45A-4T8	21.70	45.0	1.70	-	1.50	5.55	T08	4	T-30/3 L*	•
MM GRIT22P-45A-4T8	21.70	45.0	1.70	-	1.50	5.55	T08	4	T-30/3 L*	•
MM GRIT28K-45A-6T10	27.70	45.0	4.00	-	0.50	9.80	T10	6	T-40/3 L*	•

• P-TYPE - Positive geometry for soft and gummy materials. • K-Type - For general steel machining. • Modification options on request. • Do not apply lubricant to the threaded connection. • For clamping instructions, see pages 111-112 • For shanks, see pages 101-111

⁽¹⁾ Tool cutting edge angle

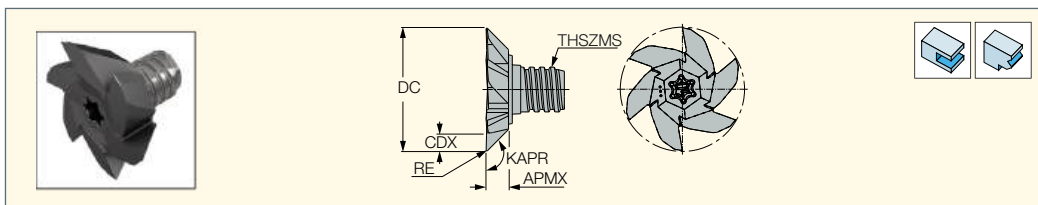
⁽²⁾ Cutting depth maximum

⁽³⁾ Number of flutes

* Optional, to be ordered separately

MM Dovetail

Interchangeable Solid Carbide Heads



Designation	Dimensions								IC908
	DC	KAPR ⁽¹⁾	CDX ⁽²⁾	APMX	RE	THSZMS	NOF ⁽³⁾	✓	
MM TS105-45D-06T04	10.50	135.0	1.33	1.60	0.20	T04	6	T-15/3*	●
MM TS135-45D-06T05	13.50	135.0	1.75	2.00	0.20	T05	6	T-20/3*	●
MM TS165-45D-06T06	16.50	135.0	1.75	2.00	0.20	T06	6	T-25/3*	●
MM TS195-45D-06T08	19.50	135.0	2.55	2.80	0.20	T08	6	T-30/3 L*	●
MM TS225-45D-06T08	22.50	135.0	3.48	3.70	0.20	T08	6	T-40/3 L*	●
MM TS250-45D-06T10	25.00	135.0	3.68	3.90	0.20	T10	6	T-50/3 L*	●
MM GRIT 28K-45D-6T10	27.70	135.0	4.00	4.20	0.20	T10	6	T-40/3 L*	●
MM TS105-60D-06T04	10.50	120.0	0.84	1.70	0.20	T04	6	T-15/3*	●
MM TS135-60D-06T05	13.50	120.0	1.67	3.10	0.20	T05	6	T-20/3*	●
MM TS165-60D-06T06	16.50	120.0	2.02	3.70	0.20	T06	6	T-25/3*	●
MM TS195-60D-06T08	19.50	120.0	2.70	4.80	0.20	T08	6	T-30/3 L*	●
MM TS225-60D-06T08	22.50	120.0	3.79	6.70	0.20	T08	6	T-40/3 L*	●
MM TS250-60D-06T10	25.00	120.0	3.85	6.80	0.20	T10	6	T-50/3 L*	●
MM GRIT 28K-60D-6T10	27.70	120.0	4.00	7.08	0.20	T10	6	T-40/3 L*	●
MM GRIT 28K-75D-6T10	27.70	105.0	2.20	8.39	0.20	T10	6	T-40/3 L*	●

• Use carbide shanks for groove milling heads • For user guide, see pages 59,211-218

⁽¹⁾ Tool cutting edge angle

⁽²⁾ Cutting depth maximum

⁽³⁾ Number of flutes

* Optional, to be ordered separately



MM GRIT 28K-45D-6T10



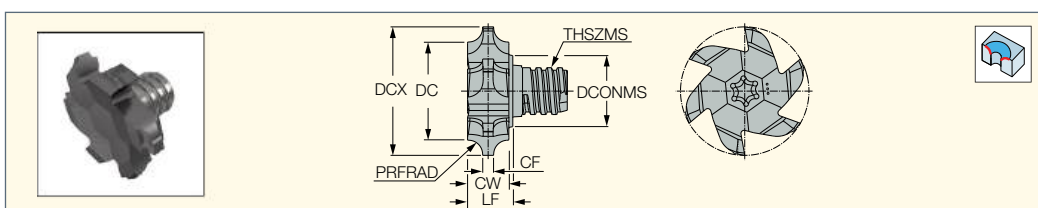
MM GRIT 28K-60D-6T10



MM GRIT 28K-75D-6T10

MM GRIT 28P-DR

Interchangeable 6 Flute Solid Carbide Double-Sided Corner Round Milling Heads



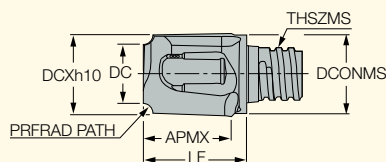
Designation	Dimensions										IC908
	PRFRAD	CF	DCX ⁽¹⁾	DC	LF	CW	NOF ⁽²⁾	THSZMS	DCONMS		
MM GRIT 28P-2.7-DR1.0	1.00	2.70	27.70	24.80	6.00	5.60	6	T10	15.30	T-40/3 L*	●
MM GRIT 28P-2.6-DR2.0	2.00	2.60	27.70	22.90	7.70	7.30	6	T10	15.30	T-40/3 L*	●
MM GRIT 28P-2.3-DR3.0	3.00	2.30	27.70	21.10	9.70	8.90	6	T10	15.30	T-40/3 L*	●
MM GRIT 28P-2.6-DR4.0	4.00	2.60	27.70	19.70	11.70	10.90	6	T10	15.30	T-40/3 L*	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of flutes

* Optional, to be ordered separately

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM HR
 Interchangeable 2 Flute
 Solid Carbide Corner
 Round Milling Heads
**ECONOMICAL SOLUTION**

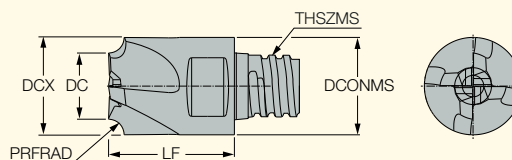
Designation	Dimensions									IC908
	DCX ⁽¹⁾	PRFRAD	Tm ⁽²⁾	NOF ⁽³⁾	DC	APMX	THSZMS	DCONMS	LF	
MM HR1.0/047-5.8-2T05	8.00	1.00	r0.5-3.0	2	5.80	7.50	T05	7.60	10.60	●
MM HR1.6/063-6.8-2T06	10.00	1.60	r0.5-3.0	2	6.80	9.50	T06	9.50	12.50	●
MM HR2.0/078-6.0-2T06	10.00	2.00	r0.5-3.0	2	6.00	9.50	T06	9.50	12.50	●
MM HR2.5/094-5.1-2T06	10.00	2.50	r0.5-3.0	2	5.10	9.50	T06	9.50	12.50	●
MM HR3.0/125-6.5-2T08	12.70	3.00	r0.5-4.0	2	6.50	12.00	T08	11.50	15.60	●
MM HR4.0/156-4.7-2T08	12.70	4.00	r0.5-4.0	2	4.70	12.00	T08	11.50	15.60	●
MM HR5.0/188-6.2-2T10	16.00	4.88	r0.5-5.0	2	6.20	15.00	T10	15.20	19.10	●
MM HR6.0/236-8.0-2T12	20.00	6.00	r0.5-6.0	2	8.00	7.00	T12	18.45	17.40	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Specially tailored radius range upon request.

⁽³⁾ Number of flutes

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM ER
 Interchangeable 4 Flute
 Solid Carbide Corner
 Round Milling Heads


Designation	Dimensions								IC908
	PRFRAD	Tm ⁽¹⁾	DC	DCX ⁽²⁾	DCONMS	NOF ⁽³⁾	LF	THSZMS	
MM ER0.5/020-5.0-4T04	0.50	0.5-1.0	5.00	6.00	6.00	4	8.50	T04	●
MM ER1.0/040-5.8-4T05	1.00	0.5-1.4	5.80	8.00	8.00	4	10.00	T05	●
MM ER1.6/063-6.8-4T06	1.60	0.5-2.5	6.80	10.00	10.00	4	13.00	T06	●
MM ER2.0/078-6.0-4T06	2.00	0.5-2.5	6.00	10.00	10.00	4	13.00	T06	●
MM ER2.5/094-5.1-4T06	2.50	0.5-2.5	5.10	10.00	10.00	4	13.00	T06	●
MM ER3.0/125-6.5-4T08	3.00	0.5-3.1	6.50	12.70	12.70	4	16.50	T08	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

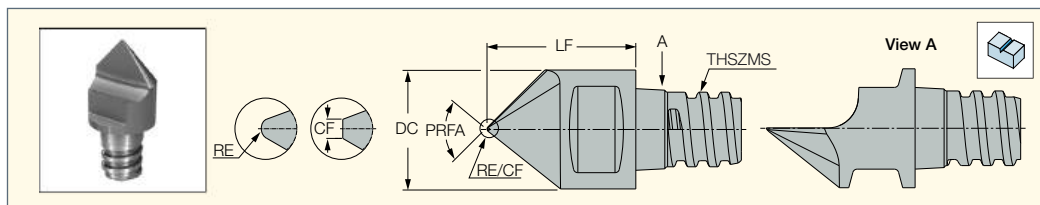
⁽¹⁾ Specially tailored radius range upon request.

⁽²⁾ Cutting diameter maximum

⁽³⁾ Number of flutes

MM EPG

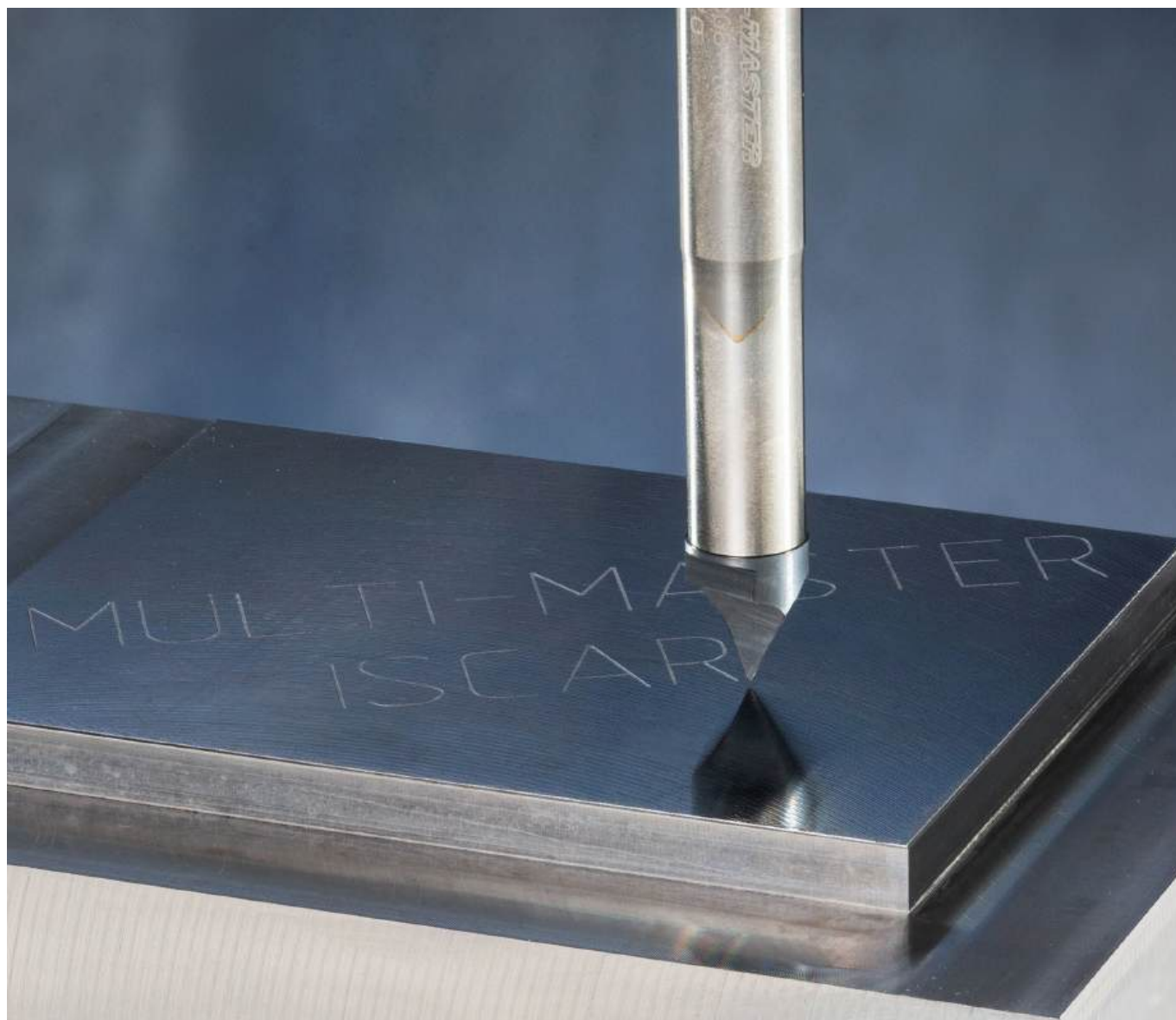
Single Flute MULTI-MASTER
Engraving Tool Head



Designation	Dimensions						IC908
	DC	RE	CF ⁽¹⁾	PRFA	LF	THSZMS	
MM EPG060/60-1T04	6.00	0.20	-	60.00	8.50	T04	●
MM EPG080/30-1T05	8.00	0.20	-	30.00	10.00	T05	●
MM EPG080/45-1T05	8.00	0.20	-	45.00	10.00	T05	●
MM EPG080/60-1T05	8.00	0.20	-	60.00	10.00	T05	●
MM EPG080/90-1T05	8.00	0.20	-	90.00	10.00	T05	●
MM EPG080/60-F50-1T05	8.00	-	0.50	60.00	10.00	T05	●
MM EPG080/60-F75-1T05	8.00	-	0.75	60.00	10.00	T05	●
MM EPG080/90-F32-1T05	8.00	-	0.32	90.00	10.00	T05	●
MM EPG080/90-F50-1T05	8.00	-	0.50	90.00	10.00	T05	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection

⁽¹⁾ Front flat



MULTI-MASTER**MM ECS**

Interchangeable Solid Carbide
Centering Drills (DIN 332)

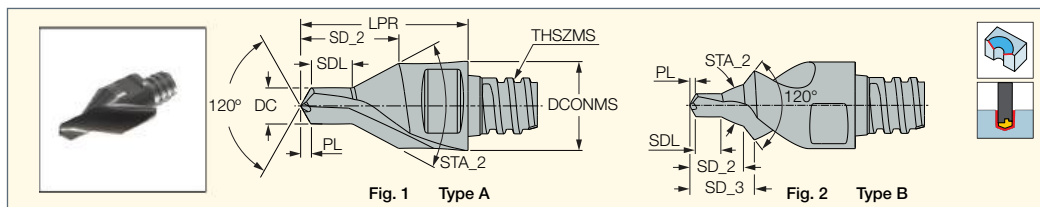
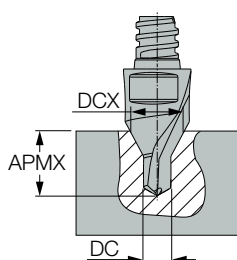


Fig. 1 Type A

Fig. 2 Type B

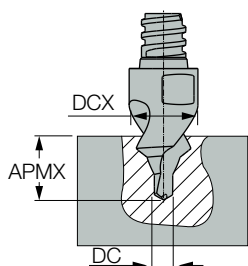
Designation	Dimensions										IC908
	DC	DCONMS	THSZMS	LPR	SDL	SD_2	SD_3	STA_2	PL	Fig.	
MM ECS-A1.00X06-2T04	1.07	6.00	T04	10.00	1.32	4.14	-	60.0	0.280	1	●
MM ECS-A1.60X06-2T04	1.65	6.00	T04	10.00	1.97	4.45	-	60.0	0.430	1	●
MM ECS-A2.00X06-2T04	2.07	6.00	T04	10.00	2.36	6.37	-	60.0	0.540	1	●
MM ECS-A3.15X08-2T05	3.28	8.00	T05	15.00	3.75	8.76	-	60.0	0.850	1	●
MM ECS-A4.00X10-2T06	4.12	10.00	T06	19.00	4.83	11.05	-	60.0	1.070	1	●
MM ECS-A5.00X12-2T08	5.13	12.00	T08	23.00	5.88	13.23	-	60.0	1.320	1	●
MM ECS-A6.30X16-2T10	6.46	16.00	T10	28.00	7.25	17.18	-	60.0	1.650	1	●
MM ECS-B3.15X12-2T08	3.24	12.00	T08	23.00	3.55	7.40	8.94	60.0	0.830	2	●
MM ECS-B4.00X127-2T08	4.09	12.70	T08	23.00	4.53	9.50	10.71	60.0	1.070	2	●
MM ECS-B5.00X19-2T12	5.09	18.45	T12	25.50	5.56	11.70	14.17	60.0	1.330	2	●
MM ECS-B6.30X20-2T12	6.41	18.45	T12	25.50	6.95	14.50	16.58	60.0	1.680	2	●

- For shanks, see pages 101-111
- For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection.
- For user guide, see pages 59,211-218



ISO

		IC908						
		*V _c x f _z [m/min x mm/tooth]						
		MM ECS-A1.00X06-2T04	MM ECS-A1.60X06-2T04	MM ECS-A2.00X06-2T04	MM ECS-A3.15X08-2T05	MM ECS-A4.00X10-2T06	MM ECS-A5.00X12-2T08	MM ECS-A6.30X16-2T10
		DCX=2.12, APMX=2.5	DCX=3.35, APMX=3.9	DCX=4.25, APMX=4.8	DCX=6.70, APMX=7.60	DCX=8.50, APMX=9.80	DCX=10.60, APMX=12.00	DCX=13.20, APMX=14.80
P	4340 24-29HRC	80x0.020	80x0.025	80x0.025	80x0.030	80x0.040	80x0.050	80x0.060
	4340 38-42HRC	65x0.020	65x0.025	65x0.025	65x0.030	65x0.040	65x0.050	65x0.060
M	316L MAX-215 HB	50x0.015	50x0.020	50x0.020	50x0.025	50x0.030	50x0.040	50x0.040
S	Inconel 718	15x0.010	15x0.010	15x0.015	15x0.015	15x0.020	15x0.020	15x0.025

* V_c Calculated for ØDC

ISO

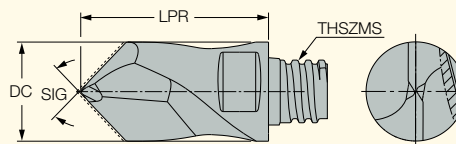
		IC908			
		*V _c x f _z [m/min x mm/tooth]			
		MM ECS-A3.15X12-2T08	MM ECS-A4.00X127-2T08	MM ECS-A5.00X19-2T12	MM ECS-A6.30X20-2T12
		DCX=10.00, APMX=8.80	DCX=12.50, APMX=11.00	DCX=16.00, APMX=13.900	DCX=18.00, APMX=16.80
P	4340 24-29HRC	75x0.030	75x0.040	75x0.050	75x0.060
	4340 38-42HRC	60x0.030	60x0.040	60x0.050	60x0.060
M	316L MAX-215 HB	45x0.025	45x0.030	45x0.040	45x0.040
S	Inconel 718	12x0.015	12x0.020	12x0.020	12x0.025

* V_c Calculated for ØDC

MULTI-MASTER

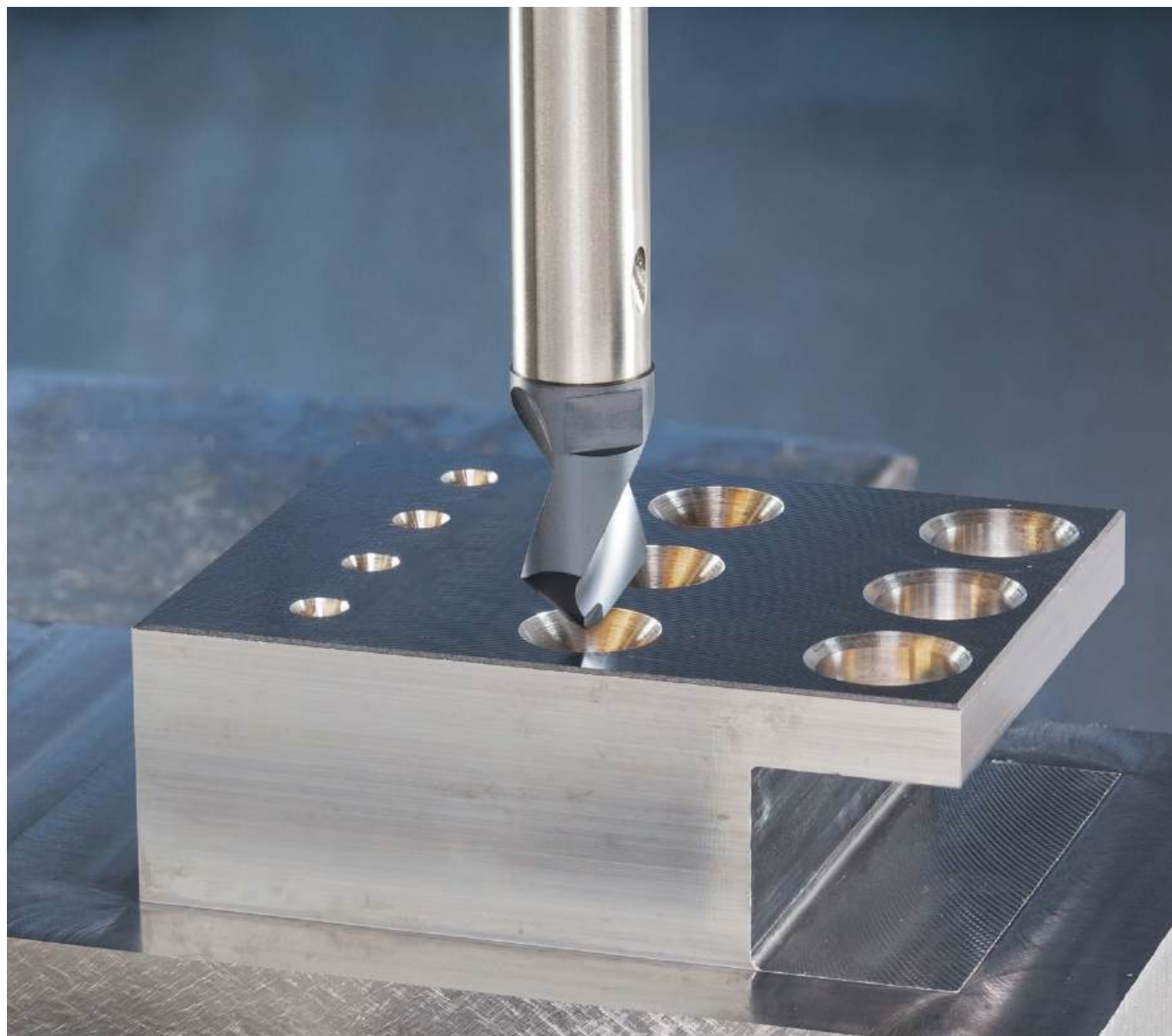
MM ECD

NC Spot Drills for Accurate Hole Location without the need for a Bushing Guide.



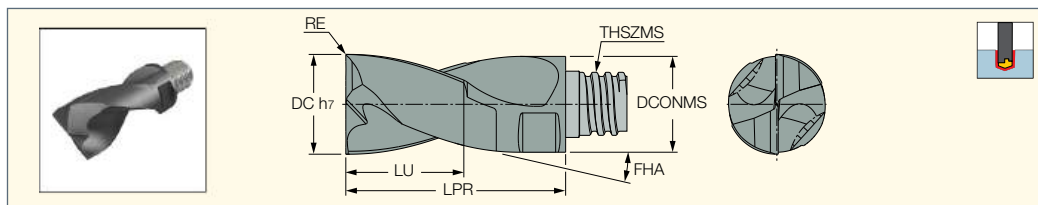
Designation	Dimensions				IC908
	DC	LPR	THSZMS	SIG	
MM ECD-06X145-2T04	6.00	8.50	T04	145	•
MM ECD-06X90-2T04	6.00	11.00	T04	90	•
MM ECD-08X145-2T05	8.00	10.00	T05	145	•
MM ECD-08X90-2T05	8.00	15.00	T05	90	•
MM ECD-10X145-2T06	10.00	13.00	T06	145	•
MM ECD-10X90-2T06	10.00	19.00	T06	90	•
MM ECD-12X145-2T08	12.00	16.50	T08	145	•
MM ECD-12X90-2T08	12.00	23.00	T08	90	•
MM ECD-16X145-2T10	16.00	20.50	T10	145	•
MM ECD-16X90-2T10	16.00	28.00	T10	90	•

- For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection



MULTI-MASTER**MM ECDF**

MULTI-MASTER

Exchangeable Solid Carbide
Flat Bottom Drill Heads

Designation	Dimensions								IC908
	DC	DCONMS	NOF ⁽¹⁾	LU	LPR	RE	FHA	THSZMS	
MM ECDF080A100-2T05	8.00	7.70	2	10.00	18.00	0.00	30.0	T05	●
MM ECDF085A120-2T05	8.50	7.70	2	12.00	22.00	0.00	30.0	T05	●
MM ECDF090A120-2T05	9.00	7.70	2	12.00	22.00	0.00	30.0	T05	●
MM ECDF095A120-2T06	9.50	9.20	2	12.00	22.00	0.00	30.0	T06	●
MM ECDF100A120-2T06	10.00	9.60	2	12.00	22.00	0.00	30.0	T06	●
MM ECDF105A120-2T06	10.50	9.60	2	12.00	23.00	0.00	30.0	T06	●
MM ECDF110A120-2T06	11.00	9.60	2	12.00	23.00	0.00	30.0	T06	●
MM ECDF115A120-2T06	11.50	9.60	2	12.00	23.00	0.00	30.0	T06	●
MM ECDF120A150-2T08	12.00	11.70	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF125A150-2T08	12.50	12.10	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF130A150-2T08	13.00	12.20	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF135A150-2T08	13.50	12.20	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF140A150-2T08	14.00	12.20	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF145A150-2T08	14.50	12.20	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF150A150-2T08	15.00	12.20	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF155A150-2T08	15.50	12.20	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF160A200-2T10	16.00	15.30	2	20.00	33.50	0.00	30.0	T10	●
MM ECDF165A200-2T10	16.50	15.30	2	20.00	33.50	0.00	30.0	T10	●
MM ECDF170A200-2T10	17.00	15.30	2	20.00	33.50	0.00	30.0	T10	●
MM ECDF175A200-2T10	17.50	15.30	2	20.00	33.50	0.00	30.0	T10	●
MM ECDF180A200-2T10	18.00	15.30	2	20.00	33.50	0.00	30.0	T10	●
MM ECDF185A200-2T12	18.50	18.20	2	25.00	41.00	0.00	30.0	T12	●
MM ECDF190A250-2T12	19.00	18.30	2	25.00	41.00	0.00	30.0	T12	●
MM ECDF195A250-2T12	19.50	18.30	2	25.00	41.00	0.00	30.0	T12	●
MM ECDF200A250-2T12	20.00	18.45	2	25.00	41.00	0.00	30.0	T12	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

Recommended Machining Conditions for Solid Carbide Endmill Heads DC=8.0-25.4 mm

ISO	Material		Condition	Tensile Strength [N/mm ²]	Hardness HB	Material Group No.	V m/min	Feed vs. Flat-Drill Diameter				
								DC=8.0-9.9	DC=10.0-12.9	DC=13.0-15.9	DC=16.0-17.9	DC=18.0-25.4
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	80-110-140	0.08 0.10 0.12	0.10 0.12 0.14	0.12 0.15 0.18	0.14 0.17 0.20	0.18 0.21 0.24
		≥ 0.25 %C	annealed	650	190	2						
		< 0.55 %C	quenched and tempered	850	250	3						
		≥ 0.55 %C	annealed	750	220	4						
	low alloy and cast steel (less than 5% of alloying elements)	quenched and tempered	annealed	1000	300	5	80-105-130	0.06 0.08 0.10	0.06 0.08 0.10	0.08 0.10 0.12	0.10 0.12 0.14	0.12 0.14 0.16
			annealed	600	200	6						
		quenched and tempered	annealed	930	275	7	60-80-100					
			quenched and tempered	1000	300	8						
		high alloyed steel, cast steel and tool steel	annealed	1200	350	9						
			quenched and tempered	680	200	10						
	stainless steel and cast steel	ferritic/martensitic	1100	325	11	60-80-100	0.01 0.02 0.03	0.02 0.03 0.04	0.03 0.04 0.05	0.04 0.05 0.06	0.06 0.07 0.08	
		martensitic	820	240	13							
M	stainless steel and cast steel	austenitic, duplex	600	180	14	60-80-100	0.01 0.02 0.03	0.02 0.03 0.04	0.03 0.04 0.05	0.04 0.05 0.06	0.06 0.07 0.08	
K	gray cast iron (GG)	ferritic / pearlitic		180	17	80-120-160	0.08 0.10 0.12	0.10 0.12 0.14	0.14 0.16 0.18	0.16 0.18 0.20	0.18 0.20 0.22	
		pearlitic / martensitic		260	18							
	nodular cast iron (GGG)	ferritic		160	15							
		pearlitic		250	16							
	malleable cast iron	ferritic		130	19							
		pearlitic		230	20							

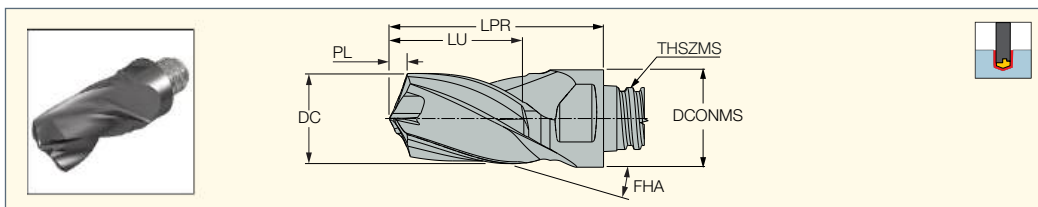
■ recommended cutting data

Spare Parts

Designation	
MM ECDF080A100-2T05	MM KEY 6X4*
MM ECDF100A120-2T06	MM KEY 8X5*
MM ECDF120A150-2T08	MM KEY 10X7*
MM ECDF160A200-2T10	MM KEY 13X8*
MM ECDF200A250-2T12	MM KEY 16X9*

* Optional, to be ordered separately

MM SPD-3T

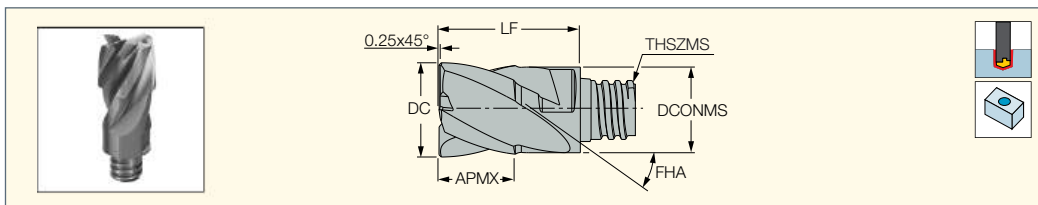
 Three-Flute Exchangeable
 Solid Carbide Drilling Heads


Designation	Dimensions							IC908
	DC	LU	LF	THSZMS	DCONMS	SIG	FHA	
MM SPD080-08-3T06	8.00	12.10	22.00	T06	10.00	142	15.0	●
MM SPD085-09-3T06	8.50	12.20	22.00	T06	10.00	142	15.0	●
MM SPD090-09-3T06	9.00	12.30	22.00	T06	10.00	142	15.0	●
MM SPD0925-10-3T06	9.25	13.80	22.00	T06	10.00	142	15.0	●
MM SPD095-10-3T06	9.50	13.90	22.00	T06	10.00	142	15.0	●
MM SPD100-10-3T08	10.00	15.00	27.00	T08	12.00	142	15.0	●
MM SPD105-11-3T08	10.50	15.00	27.00	T08	12.00	142	15.0	●
MM SPD1075-11-3T08	10.75	15.10	27.00	T08	12.00	142	15.0	●
MM SPD110-11-3T08	11.00	15.10	27.00	T08	12.00	142	15.0	●
MM SPD1125-12-3T08	11.25	16.20	27.00	T08	12.00	142	15.0	●
MM SPD115-12-3T08	11.50	16.20	27.00	T08	12.00	142	15.0	●
MM SPD120-12-3T08	12.00	16.60	27.00	T08	12.70	142	15.0	●
MM SPD125-13-3T08	12.50	16.60	27.00	T08	12.70	142	15.0	●
MM SPD1275-13-3T10	12.75	20.00	33.50	T10	16.00	142	15.0	●
MM SPD130-13-3T10	13.00	20.00	33.50	T10	16.00	142	15.0	●
MM SPD140-14-3T10	14.00	19.70	33.50	T10	16.00	142	15.0	●
MM SPD145-15-3T10	14.50	20.80	33.50	T10	16.00	142	15.0	●
MM SPD150-15-3T10	15.00	20.40	33.50	T10	16.00	142	15.0	●
MM SPD1525-16-3T10	15.25	20.50	33.50	T10	16.00	142	15.0	●
MM SPD155-16-3T10	15.50	20.50	33.50	T10	16.00	142	15.0	●
MM SPD160-16-3T12	16.00	25.10	41.00	T12	18.43	142	15.0	●

New

- For shanks, see pages 101-111
- For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection.
- For user guide, see pages 59,211-218

MM EFCB

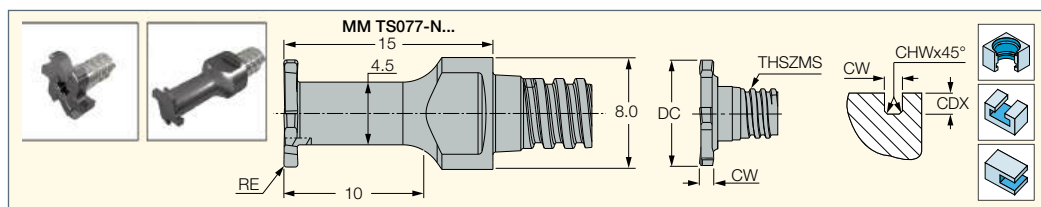
 Interchangeable 4 Flute 30°
 Helix Solid Carbide Heads
 for Flat Counter Boring


Designation	Dimensions									IC908	Recommended Machining Data f _z (mm/t)
	DC ⁽¹⁾	APMX	LF	DCONMS	THSZMS	NOF ⁽²⁾	FHA	CHW	KCH		
MM EFCB110A08-4T06	11.00	8.40	16.50	10.00	T06	4	30.0	0.25	45.0	●	0.03-0.04
MM EFCB140A11-4T08	14.00	11.50	28.00	12.00	T08	4	30.0	0.25	45.0	●	0.04-0.05

- 0.06 mm maximum concavity on the tool's bottom
- For shanks, see pages 101-117
- For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection.
- For user guide, see pages 59,211-218

⁽¹⁾ e8 tolerance

⁽²⁾ Number of flutes

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM TS-N
 Interchangeable Solid Carbide
 T-SLOT Milling Heads


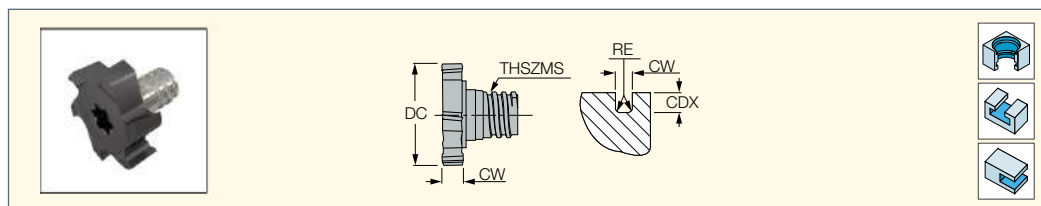
Designation	Dimensions										Tough ↔ Hard	
	DC	DCTOLL	CW	NOF ⁽¹⁾	THSZMS	CDX ⁽²⁾	RE	CHW			IC928	IC908
MM TS077-N07A-4T05	7.70	-0.0500	0.70	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N08A-4T05	7.70	-0.0500	0.80	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N09A-4T05	7.70	-0.0500	0.90	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N10A-4T05	7.70	-0.0500	1.00	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N15A-4T05	7.70	-0.0500	1.50	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N20A-4T05	7.70	-0.0500	2.00	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS105-N20D-06T04	10.50	-0.0500	2.00	6	T04	2.00	0.40	-		T-15/3*	●	
MM TS.500-N062P-06T05	12.70	-0.0500	1.58	6	T05	2.25	-	0.15		T-20/3*		●
MM TS.500-N078P-06T05	12.70	-0.0500	1.98	6	T05	2.25	-	0.15		T-20/3*		●
MM TS135-N20P-06T05	13.50	-0.0500	2.00	6	T05	2.65	-	0.20		T-20/3*		●
MM TS135-N25P-06T05	13.50	-0.0500	2.50	6	T05	2.65	-	0.20		T-20/3*		●

- For shanks, see pages 101-111
- For tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection
- For user guide, see pages 59,211-218

(1) Number of flutes

(2) Cutting depth maximum

* Optional, to be ordered separately

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM TS-H
 Interchangeable Solid Carbide
 T-SLOT Milling Heads with
 Diverse Corner Radii


Designation	Dimensions									IC908
	DC	DCTOLL	CW	CDX ⁽¹⁾	NOF ⁽²⁾	RE	THSZMS			
MM TS135-H30D-06T05	13.50	-0.0500	3.00	2.65	6	0.40	T05	T-20/3*		●
MM TS135-H40D-06T05	13.50	-0.0500	4.00	2.65	6	0.40	T05	T-20/3*		●
MM TS165-H40A-06T05	16.50	-0.0500	4.00	4.25	6	0.20	T05	T-20/3*		●
MM TS160-H20D-06T06	16.00	-0.0500	2.00	3.00	6	0.40	T06	T-20/3*		●
MM TS160-H30D-06T06	16.00	-0.0500	3.00	3.00	6	0.40	T06	T-25/3*		●
MM TS160-H40D-06T06	16.00	-0.0500	4.00	3.00	6	0.40	T06	T-25/3*		●
MM TS165-H20D-06T06	16.50	-0.0500	2.00	3.25	6	0.40	T06	T-20/3*		●
MM TS165-H30D-06T06	16.50	-0.0500	3.00	3.25	6	0.40	T06	T-25/3*		●
MM TS165-H40D-06T06	16.50	-0.0500	4.00	3.25	6	0.40	T06	T-25/3*		●
MM TS195-H60A-06T06	19.50	-0.0500	6.00	4.45	6	0.20	T06	T-25/3*		●
MM TS225-H60A-06T06	22.50	-0.0500	6.00	5.95	6	0.20	T06	T-25/3*		●
MM TS195-H40D-06T08	19.50	-0.0500	4.00	3.45	6	0.40	T08	T-30/3 L*		●
MM TS195-H50D-06T08	19.50	-0.0500	5.00	3.45	6	0.40	T08	T-30/3 L*		●
MM TS195-H60D-06T08	19.50	-0.0500	6.00	3.45	6	0.40	T08	T-30/3 L*		●
MM TS225-H40D-06T08	22.50	-0.0500	4.00	4.90	6	0.40	T08	T-40/3 L*		●
MM TS225-H50D-06T08	22.50	-0.0500	5.00	4.95	6	0.40	T08	T-40/3 L*		●
MM TS225-H60D-06T08	22.50	-0.0500	6.00	4.95	6	0.40	T08	T-40/3 L*		●
MM TS225-H80D-06T08	22.50	-0.0500	8.00	4.95	6	0.40	T08	T-40/3 L*		●
MM TS250-H50D-06T08	25.00	-0.0500	5.00	5.90	6	0.40	T08	T-50/3 L*		●
MM TS250-H60D-06T08	25.00	-0.0500	6.00	5.90	6	0.40	T08	T-50/3 L*		●
MM TS250-H80D-06T08	25.00	-0.0500	8.00	5.90	6	0.40	T08	T-50/3 L*		●
MM TS250-H50D-06T10	25.00	-0.0500	5.00	4.30	6	0.40	T10	T-50/3 L*		●
MM TS250-H60D-06T10	25.00	-0.0500	6.00	4.30	6	0.40	T10	T-50/3 L*		●
MM TS250-H80D-06T10	25.00	-0.0500	8.00	4.30	6	0.40	T10	T-50/3 L*		●

- Inserts in 5 mm and wider feature chip splitting edges
- For tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection
- For shanks, see pages 101-111
- For user guide, see pages 59,211-218

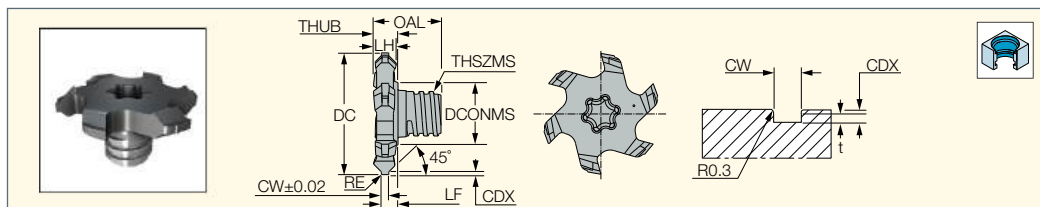
(1) Cutting depth maximum

(2) Number of flutes

* Optional, to be ordered separately

MM TS-C

Interchangeable Solid Carbide
 Circlip Groove Milling Heads
 Conform to DIN 471/472



Designation	Dimensions													IC928
	DC	CW	CDX	LF	t	RE	THUB	LH	OAL	DCONMS	NOF ⁽¹⁾	THSZMS	✓	
MM TS127C118T035-6T05	12.70	1.18	0.35	2.23	0.27	0.05	3.00	2.7	8.43	7.70	6	T05	T-20/3*	●
MM TS127C118T040-6T05	12.70	1.18	0.40	2.23	0.32	0.05	3.00	2.7	8.43	7.70	6	T05	T-20/3*	●
MM TS127C118T050-6T05	12.70	1.18	0.50	2.23	0.42	0.05	3.00	2.7	8.43	7.70	6	T05	T-20/3*	●
MM TS127C138T050-6T05	12.70	1.38	0.50	2.23	0.42	0.05	3.00	2.7	8.63	7.70	6	T05	T-20/3*	●
MM TS225C138T060-6T08	22.50	1.38	0.60	3.08	0.50	0.05	4.50	4.2	9.48	11.70	6	T08	T-40/3 L*	●
MM TS225C138T070-6T08	22.50	1.38	0.70	3.08	0.60	0.05	4.50	4.2	9.48	11.70	6	T08	T-40/3 L*	●
MM TS225C138T085-6T08	22.50	1.38	0.85	3.08	0.74	0.05	4.50	4.2	9.48	11.70	6	T08	T-40/3 L*	●
MM TS225C168T070-6T08	22.50	1.68	0.70	3.23	0.60	0.10	4.50	4.2	9.78	11.70	6	T08	T-40/3 L*	●
MM TS225C168T085-6T08	22.50	1.68	0.85	3.23	0.74	0.10	4.50	4.2	9.78	11.70	6	T08	T-40/3 L*	●
MM TS225C168T100-6T08	22.50	1.68	1.00	3.23	0.89	0.10	4.50	4.2	9.78	11.70	6	T08	T-40/3 L*	●
MM TS225C193T100-6T08	22.50	1.93	1.00	3.35	0.89	0.10	4.50	4.2	10.03	11.70	6	T08	T-40/3 L*	●
MM TS225C193T125-6T08	22.50	1.93	1.25	3.35	1.13	0.10	4.50	4.2	10.03	11.70	6	T08	T-40/3 L*	●
MM TS225C223T150-6T08	22.50	2.23	1.50	3.50	1.38	0.10	4.50	4.2	10.33	11.70	6	T08	T-40/3 L*	●
MM TS225C273T150-6T08	22.50	2.73	1.50	3.77	1.39	0.20	4.50	4.1	10.83	11.70	6	T08	T-40/3 L*	●
MM TS225C273T175-6T08	22.50	2.73	1.75	3.77	1.64	0.20	4.40	3.9	10.83	11.70	6	T08	T-40/3 L*	●
MM TS225C325T175-6T08	22.50	3.25	1.75	4.40	1.64	0.20	5.10	4.6	11.35	11.70	6	T08	T-40/3 L*	●

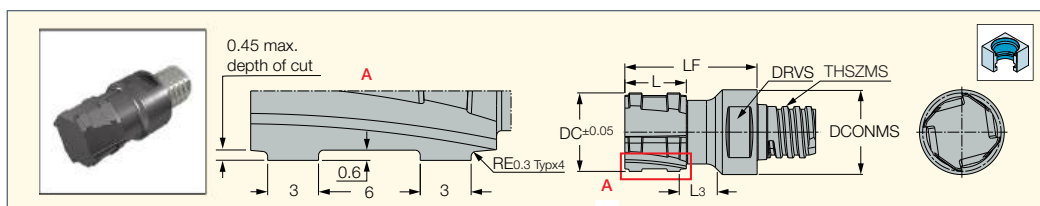
- For shanks, see pages 101-111
- For tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection
- For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

* Optional, to be ordered separately

MM TS-DG

Double Groove Internal
 Grooving Heads with a
 Threaded Connection for Heat
 Exchanger Tube Sheets



Designation	Dimensions										IC908
	DC	DCONMS	PHD ⁽¹⁾	THSZMS	NOF ⁽²⁾	LF	L3	L	DRVS ⁽³⁾	✓	
MM TS155-04T10-8238	15.50	16.00	15.88	T10	4	33.70	17.80	14.20	10.0	MM KEY 10X7*	●
MM TS185-04T12-8239	18.50	18.45	19.05	T12	4	34.50	18.30	14.50	13.0	MM KEY 13X8*	●
MM TS245-04T15-8240	24.50	23.80	25.40	T15	4	37.20	11.00	14.40	20.0	MM KEY 20*	●

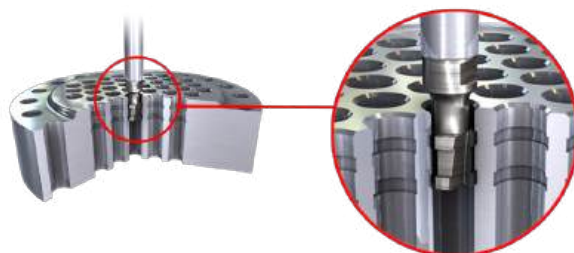
- For shanks, see pages 101-111
- For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection
- For user guide, see pages 59,211-218

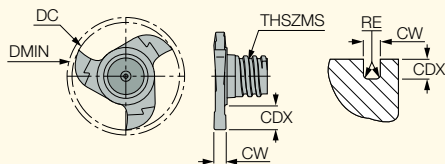
⁽¹⁾ For minimum tube outer diameter

⁽²⁾ Number of flutes

⁽³⁾ Clamping wrench size

* Optional, to be ordered separately



MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE**MM GRIT-3T6**Interchangeable Solid
Carbide Small Diameter
Groove Milling Heads

Designation	Dimensions								IC908
	DC	CW	CDX ⁽¹⁾	NOF ⁽²⁾	RE	DMIN ⁽³⁾	THSZMS	⌵	
MM GRIT16K150-010-3T6	15.70	1.50	2.80	3	0.10	16.00	T06	T-20/3*	●
MM GRIT16P150-010-3T6	15.70	1.50	2.80	3	0.10	16.00	T06	T-20/3*	●
MM GRIT16K157-020-3T6	15.70	1.57	2.80	3	0.20	16.00	T06	T-25/3*	●
MM GRIT16K200-020-3T6	15.70	2.00	2.80	3	0.20	16.00	T06	T-20/3*	●
MM GRIT16P220-110-3T6	15.70	2.20	2.80	3	1.10	16.00	T06	T-20/3*	●
MM GRIT16K239-020-3T6	15.70	2.39	2.80	3	0.20	16.00	T06	T-25/3*	●
MM GRIT16K250-020-3T6	15.70	2.50	2.80	3	0.20	16.00	T06	T-20/3*	●
MM GRIT16K300-020-3T6	15.70	3.00	2.80	3	0.20	16.00	T06	T-25/3*	●
MM GRIT16P300-020-3T6	15.70	3.00	2.80	3	0.20	16.00	T06	T-25/3*	●
MM GRIT16K317-020-3T6	15.70	3.17	2.80	3	0.20	16.00	T06	T-25/3*	●
MM GRIT18K120-005-3T6	17.70	1.20	3.80	3	0.05	18.00	T06	T-20/3*	●
MM GRIT18P120-060-3T6	17.70	1.20	3.80	3	0.60	18.00	T06	T-20/3*	●
MM GRIT18K140-005-3T6	17.70	1.40	3.80	3	0.05	18.00	T06	T-20/3*	●
MM GRIT18K150-010-3T6	17.70	1.50	3.80	3	0.10	18.00	T06	T-20/3*	●
MM GRIT18K157-020-3T6	17.70	1.57	3.80	3	0.20	18.00	T06	T-20/3*	●
MM GRIT18K170-005-3T6	17.70	1.70	3.80	3	0.05	18.00	T06	T-20/3*	●
MM GRIT18K200-020-3T6	17.70	2.00	3.80	3	0.20	18.00	T06	T-20/3*	●
MM GRIT18P200-100-3T6	17.70	2.00	3.80	3	1.00	18.00	T06	T-20/3*	●
MM GRIT18P220-110-3T6	17.70	2.20	3.80	3	1.10	18.00	T06	T-20/3*	●
MM GRIT18K239-020-3T6	17.70	2.39	3.80	3	0.20	18.00	T06	T-20/3*	●
MM GRIT18K250-020-3T6	17.70	2.50	3.80	3	0.20	18.00	T06	T-20/3*	●
MM GRIT18K300-020-3T6	17.70	3.00	3.80	3	0.20	18.00	T06	T-25/3*	●
MM GRIT18P300-150-3T6	17.70	3.00	3.80	3	1.50	18.00	T06	T-25/3*	●
MM GRIT18K317-020-3T6	17.70	3.17	3.80	3	0.20	18.00	T06	T-25/3*	●

• Recommended for O-rings and retaining rings • Modification options on request • Do not apply lubricant to the threaded connection • For clamping instructions, see pages 111-112 • For user guide, see pages 59,211-218 • For shanks, see pages 101-111 • K-Type - For general steel machining • P-Type - Positive geometry for soft and gummy materials

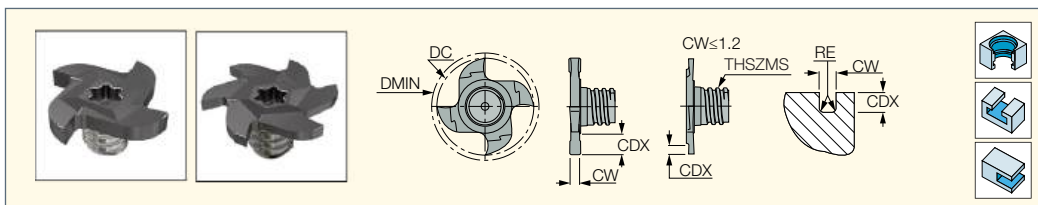
⁽¹⁾ Cutting depth maximum

⁽²⁾ Number of flutes

⁽³⁾ Minimum bore diameter

* Optional, to be ordered separately

MM GRIT-4T8/6T10

Interchangeable Solid
Carbide Small Diameter
Groove Milling Heads


Designation	Dimensions								IC908
	DC	CW	CDX ⁽¹⁾	NOF ⁽²⁾	RE	DMIN ⁽³⁾	THSZMS	✓	
MM GRIT22K076-000-4T8	21.70	0.76	1.50	4	0.00	22.00	T08	T-25/3*	●
MM GRIT22K086-000-4T8	21.70	0.86	1.70	4	0.00	22.00	T08	T-25/3*	●
MM GRIT22K096-000-4T8	21.70	0.96	1.90	4	0.00	22.00	T08	T-25/3*	●
MM GRIT22K100-005-4T8	21.70	1.00	2.00	4	0.05	22.00	T08	T-25/3*	●
MM GRIT22P100-005-4T8	21.70	1.00	2.00	4	0.05	22.00	T08	T-25/3*	●
MM GRIT22K120-005-4T8	21.70	1.20	4.50	4	0.05	22.00	T08	T-25/3*	●
MM GRIT22K140-005-4T8	21.70	1.40	4.50	4	0.05	22.00	T08	T-25/3*	●
MM GRIT22K157-000-4T8	21.70	1.57	4.50	4	0.00	22.00	T08	T-25/3*	●
MM GRIT22K170-010-4T8	21.70	1.70	4.50	4	0.10	22.00	T08	T-25/3*	●
MM GRIT22P170-010-4T8	21.70	1.70	4.50	4	0.10	22.00	T08	T-25/3*	●
MM GRIT22K195-020-4T8	21.70	1.95	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22K200-020-4T8	21.70	2.00	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22P200-020-4T8	21.70	2.00	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22K225-020-4T8	21.70	2.25	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22K239-020-4T8	21.70	2.39	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22K250-020-4T8	21.70	2.50	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22P250-020-4T8	21.70	2.50	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22K275-020-4T8	21.70	2.75	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22K300-020-4T8	21.70	3.00	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22P300-020-4T8	21.70	3.00	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22K317-020-4T8	21.70	3.17	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22K325-020-4T8	21.70	3.25	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22P381-020-4T8	21.70	3.81	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22K400-020-4T8	21.70	4.00	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22P400-020-4T8	21.70	4.00	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22P400-200-4T8	21.70	4.00	4.50	4	2.00	22.00	T08	T-30/3 L*	●
MM GRIT22K425-020-4T8	21.70	4.25	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22K425-120-4T8	21.70	4.25	4.50	4	1.20	22.00	T08	T-30/3 L*	●
MM GRIT22K475-020-4T8	21.70	4.75	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22K525-020-4T8	21.70	5.25	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22K600-300-4T8	21.70	6.00	4.50	4	3.00	22.00	T08	T-30/3 L*	●
MM GRIT28K250-020-6T10	27.70	2.50	6.00	6	0.20	28.00	T10	T-40/3 L*	●
MM GRIT28K525-020-6T10	27.70	5.25	6.00	6	0.20	28.00	T10	T-40/3 L*	●
MM GRIT28P700-350-6T10	27.70	7.00	6.00	6	3.50	28.00	T10	T-40/3 L*	●
MM GRIT28K1000-020-6T10	27.70	10.00	6.00	6	0.20	28.00	T10	T-40/3 L*	●
MM GRIT28K1100-020-6T10	27.70	11.00	6.00	6	0.20	28.00	T10	T-40/3 L*	●
MM GRIT28K1200-020-6T10	27.70	12.00	6.00	6	0.20	28.00	T10	T-40/3 L*	●
MM GRIT28K1300-020-6T10	27.70	13.00	6.00	6	0.20	28.00	T10	T-40/3 L*	●

• Recommended for Orings and retaining rings • K - for general steel & cast iron machining P - for soft and gummy materials • Modification options on request • Do not apply lubricant to the threaded connection • For clamping instructions, see pages 111-112 • For user guide, see pages 59,211-218 • For shanks, see pages 101-111

⁽¹⁾ Cutting depth maximum

⁽²⁾ Number of flutes

⁽³⁾ Minimum bore diameter

* Optional, to be ordered separately

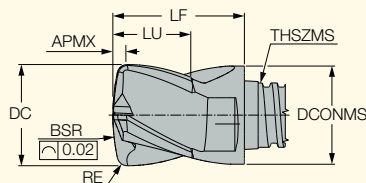
MULTI-MASTER**Machining Data for MULTI-MASTER Groove Milling Heads**

ISO	Material	Condition	Tensile Strength [N/mm ²]	Hardness HB	Material No.	MM-TS			MM-GRIT K-TYPE			MM-GRIT P-TYPE		
						Speed	Feed mm/t		Speed	Feed mm/t		Speed	Feed mm/t	
						V m/min	F _z (min)	F _z (max)	V m/min	F _z (min)	F _z (max)	V m/min	F _z (min)	F _z (max)
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C annealed	420	125	1	110-140	0.08	0.20	110-160	0.05	0.15	-	-	-
		>= 0.25 %C annealed	650	190	2	100-120	0.08	0.18	100-150	0.05	0.15	-	-	-
		< 0.55 %C and tempered >= 0.55 %C	850	250	3	70-100	0.08	0.15	80-100	0.05	0.15	-	-	-
			750	220	4	70-100	0.08	0.15	80-100	0.05	0.15	-	-	-
			1000	300	5	60-80	0.08	0.15	60-80	0.05	0.15	-	-	-
	low alloy and cast steel (less than 5% of alloying elements)	annealed	600	200	6	100-120	0.08	0.15	110-150	0.05	0.15	-	-	-
		quenched and tempered	930	275	7	90-120	0.08	0.15	100-120	0.05	0.15	-	-	-
			1000	300	8	80-110	0.08	0.15	70-110	0.05	0.15	-	-	-
			1200	350	9	70-100	0.05	0.12	70-100	0.05	0.15	-	-	-
	high alloyed steel, cast steel and tool steel	annealed	680	200	10	60-80	0.05	0.18	60-80	0.05	0.15	-	-	-
		quenched and tempered	1100	325	11	55-70	0.08	0.15	55-70	0.05	0.15	-	-	-
	stainless steel and cast steel	ferritic/martensitic.	680	200	12	100-130	0.06	0.12	100-130	0.03	0.15	100-130	0.03	0.10
		martensitic	820	240	13	100-120	0.08	0.15	100-130	0.03	0.15	100-130	0.03	0.10
M	stainless steel and cast steel	austenitic	600	180	14	80-120	0.05	0.10	90-120	0.03	0.12	90-120	0.03	0.10
K	grey cast iron (GG)	ferritic/pearlitic		180	15	160-220	0.10	0.20	160-220	0.03	0.12	-	-	-
		pearlitic / martensitic		260	16	120-200	0.10	0.15	120-200	0.03	0.12	-	-	-
	cast iron nodular (GGG)	ferritic		160	17	100-140	0.10	0.20	-	-	-	-	-	-
		pearlitic		250	18	80-100	0.10	0.15	-	-	-	-	-	-
	malleable cast iron	ferritic		130	19	180-250	0.10	0.20	180-250	0.03	0.15	-	-	-
		pearlitic		230	20	160-220	0.10	0.15	160-220	0.03	0.15	-	-	-
N	aluminum-wrought alloys	not cureable		60	21	800-1200	0.10	0.20	-	-	-	800-1200	0.05	0.15
		cured		100	22	800-1200	0.10	0.20	-	-	-	800-1200	0.05	0.15
	aluminum-cast-alloys	<=12% Si not cureable		75	23	-	-	-	-	-	-	600-1000	0.05	0.15
		cured		90	24	-	-	-	-	-	-	500-1000	0.05	0.15
		>12% Si high temperature		130	25	-	-	-	-	-	-	200-400	0.05	0.15
	copper alloys	free cutting		110	26	-	-	-	-	-	-	-	-	-
		brass		90	27	-	-	-	-	-	-	-	-	-
		electrolitic copper		100	28	-	-	-	-	-	-	-	-	-
	non-metallic	duroplastics, fiber plastics			29	-	-	-	-	-	-	-	-	-
		hard rubber			30	-	-	-	-	-	-	-	-	-
S	high temp. alloys	Fe based annealed		200	31	-	-	-	30-40	0.02	0.12	-	-	-
		cured		280	32	25-35	0.05	0.12	25-40	0.02	0.12	-	-	-
		Ni or Co based annealed		250	33	25-35	0.05	0.12	25-40	-	-	-	0.01	0.12
		cured		350	34	25-35	0.05	0.12	25-40	-	-	-	0.01	0.12
		cast		320	35	40-60	0.05	0.12	25-40	-	-	-	0.01	0.12
	titanium ti alloys		RM 400		36	40-60	0.05	0.12	40-60	-	-	-	0.05	0.12
		alpha+beta alloys cured	RM 1050		37	40-60	0.05	0.10	40-60	-	-	-	0.05	0.10
H	hardened steel	hardened		55 HRC	38									
		hardened		60 HRC	39									
	chilled cast iron	cast		400	40									
	cast iron	hardened		55 HRC	41									

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM ELB

Interchangeable Lens-Shaped
(Barrel) Solid Carbide
Heads for 3D Profiling



Designation	Dimensions									IC908
	DC	BSR	RE	LU	APMX	THSZMS	DCONMS	NOF ⁽¹⁾	LF	
MM ELB08R16A05-4T05	8.00	16.00	0.50	5.50	0.90	T05	7.70	4	10.00	●
MM ELB10R20A07-4T06	10.00	20.00	1.00	7.50	1.42	T06	9.70	4	13.00	●
MM ELB12R24A09-4T08	12.00	24.00	1.00	9.00	1.55	T08	11.70	4	16.50	●
MM ELB16R32A12-4T10	16.00	32.00	1.00	12.00	1.80	T10	15.30	4	20.50	●

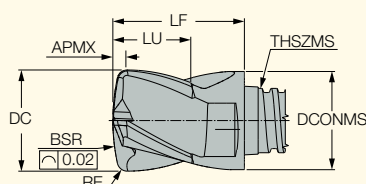
• For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM ELBA

Interchangeable Lens-Shaped
(Barrel) Solid Carbide Heads
for 3D Aluminum Profiling



Designation	Dimensions									IC08
	DC	BSR	RE	LU	APMX	THSZMS	DCONMS	NOF ⁽¹⁾	LF	
MM ELBA08R16A05-4T05	8.00	16.00	0.50	5.00	0.90	T05	8.00	4	10.00	●
MM ELBA10R20A07-4T06	10.00	20.00	1.00	7.00	1.42	T06	10.00	4	13.00	●
MM ELBA12R24A09-4T08	12.00	24.00	1.00	9.00	1.55	T08	12.00	4	16.50	●
MM ELBA16R32A12-4T10	16.00	32.00	1.00	12.00	1.80	T10	16.00	4	20.50	●

New

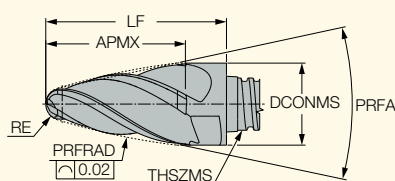
• For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM EOB

Interchangeable
Oval-Shaped (Barrel) Solid
Carbide Heads for 3D Profiling



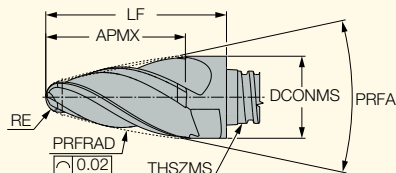
Designation	Dimensions								IC908
	PRFRAD	RE	APMX	PRFA	THSZMS	NOF ⁽¹⁾	DCONMS	LF	
MM EOB08R1.5R80A13-4T05	80.00	1.50	14.20	24.00	T05	4	8.00	18.00	●
MM EOB08R1.5R80A13-6T05	80.00	1.50	14.10	24.00	T05	6	8.00	18.00	●
MM EOB10R2.0R85A16-4T06	85.00	2.00	16.50	24.00	T06	4	10.00	22.00	●
MM EOB10R2.0R85A16-6T06	85.00	2.00	16.50	24.00	T06	6	10.00	22.00	●
MM EOB12R2.0R75A21-4T08	75.00	2.00	21.30	24.00	T08	4	12.00	27.00	●
MM EOB12R2.0R75A21-6T08	75.00	2.00	21.30	24.00	T08	6	12.00	27.00	●
MM EOB16R3.0R75A26-4T10	75.00	3.00	27.00	24.00	T10	4	16.00	33.50	●
MM EOB16R3.0R75A26-6T10	75.00	3.00	27.00	24.00	T10	6	16.00	33.50	●

• For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM EOBA

Interchangeable Oval-Shaped (Barrel) Solid Carbide Heads for 3D Aluminum Profiling



Designation	Dimensions								IC908
	PRFRAD	RE	APMX	PRFA	THSZMS	NOF ⁽¹⁾	DCONMS	LF	
MM EOBA08R1.5R80A13-4T05	80.00	1.50	14.20	24.00	T05	4	8.00	18.00	●
MM EOBA10R2.0R85A16-4T06	85.00	2.00	16.50	24.00	T06	4	10.00	22.00	●
MM EOBA12R2.0R75A21-4T08	75.00	2.00	21.30	24.00	T08	4	12.00	27.00	●
MM EOBA16R3.0R75A26-4T10	75.00	3.00	27.00	24.00	T10	4	16.00	33.50	●

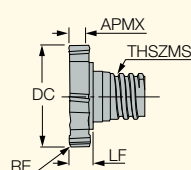
New

• For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM FM

Interchangeable Solid Carbide Face Milling Heads with MULTI-MASTER Threaded Connections



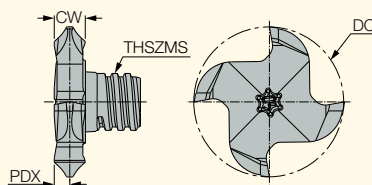
Designation	Dimensions							IC908	Recommended Machining Data f _z (mm/t)
	DC	APMX	RE	NOF ⁽¹⁾	THSZMS	LF	∠		
MM FM100-36R0.2-06T05	10.00	3.60	0.20	6	T05	4.40	T-20/3*	●	0.04-0.10
MM FM120-36R0.2-06T05	12.00	3.60	0.20	6	T05	4.40	T-20/3*	●	0.04-0.10
MM FM160-48R0.4-06T06	16.00	4.80	0.40	6	T06	5.60	T-25/3*	●	0.05-0.10
MM FM200-60R0.4-06T08	20.00	6.00	0.40	6	T08	6.80	T-40/3 L*	●	0.05-0.10
MM FM250-75R0.4-06T10	25.00	7.50	0.40	6	T10	8.40	T-50/3 L*	●	0.05-0.10

⁽¹⁾ Number of flutes

* Optional, to be ordered separately

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM SS

Interchangeable Solid Carbide Heads for Milling Involute Spline Shafts According to DIN 5480



Designation	Dimensions							IC908
	Module	T range ⁽¹⁾	DC	PDX	CW	NOF ⁽²⁾	THSZMS	
MM SS22M100Z1720-4T08	1.00	17-20	21.70	2.8	5.50	4	T08	●
MM SS22M100Z2125-4T08	1.00	21-25	21.70	2.3	4.50	4	T08	●
MM SS22M150Z1720-4T08	1.50	17-20	21.70	2.7	5.40	4	T08	●

• Tightening torque 1500 Nxcm • Do not apply lubricant to the threaded connection. • For clamping instructions, see pages 111-112

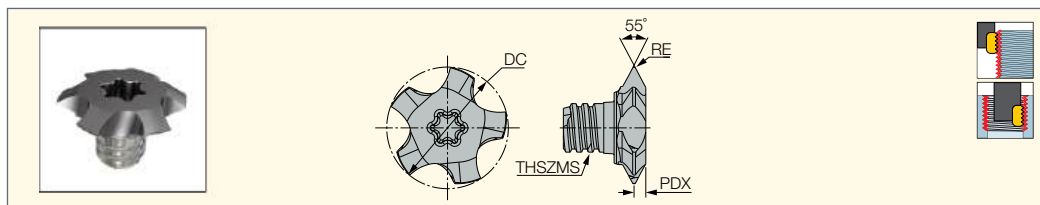
• For user guide, see pages 59,211-218 • For shanks see pages 101-111

⁽¹⁾ Teeth range

⁽²⁾ Number of flutes

MM TRF 55°

Interchangeable Solid Carbide
Milling Heads for 55° Partial
Profile Thread Milling



Designation	Dimensions										IC908
	DC	NOF ⁽¹⁾	TPIN ⁽²⁾	TPIX ⁽³⁾	RE	PDX	THSZMS	TDZ ⁽⁴⁾	DMIN	TQ ⁽⁵⁾	
MM TRF12-W55-P11-5T05	11.94	5	11.00	14.00	0.23	1.15	T05	15.875	13.60	7.0	●
MM TRF12-W55-P19-5T05	11.94	5	19.00	28.00	0.11	0.75	T05	14.287	13.10	10.0	●
MM TRF16-W55-P8-5T06	15.94	5	8.00	14.00	0.23	1.55	T06	20.637	18.30	15.0	●
MM TRF20-W55-P6-6T08	19.94	6	6.00	8.00	0.40	1.95	T08	25.4	21.30	28.0	●

• For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) • For shanks, see pages 101-111 • For clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection.

⁽¹⁾ Number of flutes

⁽²⁾ Threads per inch minimum

⁽³⁾ Threads per inch maximum

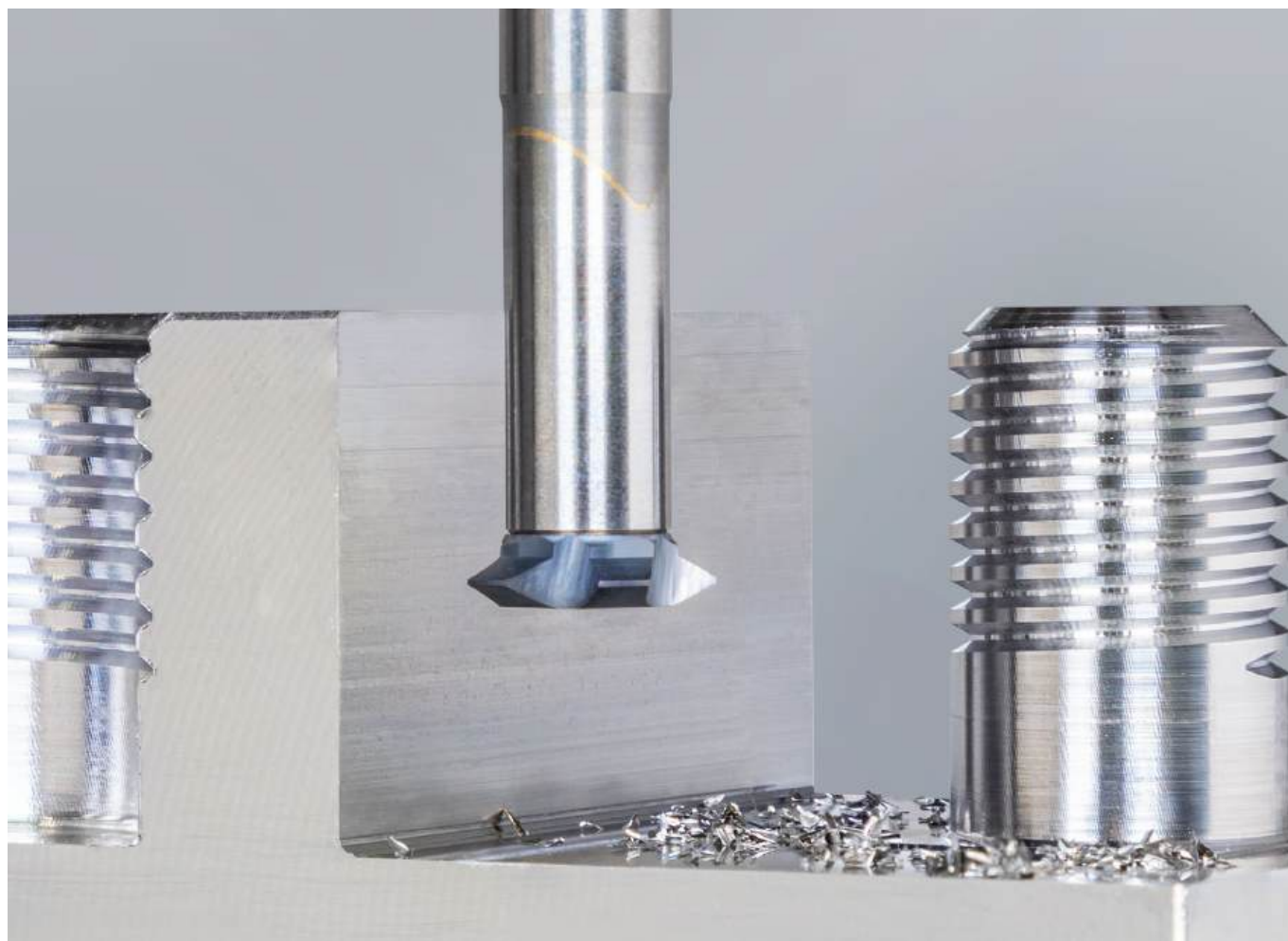
⁽⁴⁾ Smallest possible thread

⁽⁵⁾ Tightening torque

Spare Parts

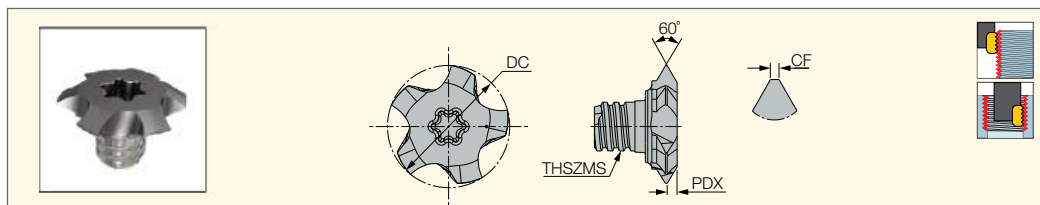
Designation	
MM TRF12-W55-P11-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF12-W55-P19-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF16-W55-P8-5T06	BIT SOCKET T25 3/8" DRIVE*
MM TRF20-W55-P6-6T08	BIT SOCKET T40 3/8" DRIVE*

* Optional, to be ordered separately



MM TRF 60°

Interchangeable Solid Carbide
Milling Heads for 60° Partial
Profile Thread Milling



Designation	Dimensions									
	DC	NOF ⁽¹⁾	TPN ⁽²⁾	TPX ⁽³⁾	TPN_DF2 ⁽⁴⁾	TPX_DF2 ⁽⁵⁾	TPIN ⁽⁶⁾	TPIX ⁽⁷⁾	TPIN_DF2 ⁽⁸⁾	TPIX_DF2 ⁽⁹⁾
MM TRF12A60-P080-5T05	11.94	5	0.500	0.800	0.400	0.800	28.00	56.00	32.00	64.00
MM TRF12A60-P175-5T05	11.94	5	1.000	1.750	0.800	1.500	14.00	28.00	16.00	32.00
MM TRF12A60-P250-5T05	11.94	5	2.000	2.500	1.750	2.000	10.00	13.00	11.00	15.00
MM TRF16A60-P080-5T06	15.94	5	0.500	0.800	0.400	0.800	28.00	56.00	32.00	64.00
MM TRF16A60-P175-5T06	15.94	5	1.000	1.750	0.800	1.500	14.00	28.00	16.00	32.00
MM TRF16A60-P300-5T06	15.94	5	2.000	3.000	1.750	2.500	8.00	13.00	10.00	15.00
MM TRF20A60-P200-6T08	19.94	6	1.000	2.000	0.800	1.750	13.00	28.00	15.00	32.00
MM TRF20A60-P300-6T08	19.94	6	2.000	3.000	1.750	2.500	8.00	13.00	10.00	15.00
MM TRF20A60-P400-6T08	19.94	6	3.000	4.000	2.500	3.500	6.00	9.00	7.00	10.00
MM TRF28A60-P600-5T10	27.70	5	5.000	6.000	4.500	5.000	4.00	5.00	5.00	6.00
MM TRF28A60-P500-6T10	27.70	6	3.000	5.000	2.500	4.500	6.00	8.00	6.00	10.00

Designation	Dimensions						IC908
	CF	PDX	THSZMS	TDZ ⁽¹⁰⁾	TQ	DMIN	
MM TRF12A60-P080-5T05	0.05	0.55	T05	M14	7.0	13.50	●
MM TRF12A60-P175-5T05	0.11	0.96	T05	M14	7.0	13.00	●
MM TRF12A60-P250-5T05	0.22	1.21	T05	M16	7.0	14.00	●
MM TRF16A60-P080-5T06	0.05	0.55	T06	M18	10.0	17.50	●
MM TRF16A60-P175-5T06	0.10	1.00	T06	M18	10.0	17.00	●
MM TRF16A60-P300-5T06	0.22	1.41	T06	M20	10.0	18.00	●
MM TRF20A60-P200-6T08	0.11	0.95	T08	M24	10.0	23.00	●
MM TRF20A60-P300-6T08	0.22	1.41	T08	M24	15.0	22.00	●
MM TRF20A60-P400-6T08	0.31	1.86	T08	M25	15.0	22.00	●
MM TRF28A60-P600-5T10	0.57	2.49	T10	M38	28.0	33.00	●
MM TRF28A60-P500-6T10	0.34	2.17	T10	M33	28.0	30.00	●

• For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) • For shanks, see pages 101-111 • For clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection.

⁽¹⁾ Number of flutes

⁽²⁾ Thread pitch minimum (mm)-internal

⁽³⁾ Thread pitch maximum (mm)-internal

⁽⁴⁾ Thread pitch minimum (mm)-external

⁽⁵⁾ Thread pitch maximum (mm)-external

⁽⁶⁾ Threads per inch minimum-internal

⁽⁷⁾ Threads per inch maximum-internal

⁽⁸⁾ Threads per inch minimum-external

⁽⁹⁾ Threads per inch maximum-external

⁽¹⁰⁾ Smallest possible thread

Spare Parts

Designation	
MM TRF12A60-P080-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF12A60-P175-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF12A60-P250-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF16A60-P080-5T06	BIT SOCKET T20 3/8" DRIVE*
MM TRF16A60-P175-5T06	BIT SOCKET T25 3/8" DRIVE*
MM TRF16A60-P300-5T06	BIT SOCKET T25 3/8" DRIVE*
MM TRF20A60-P200-6T08	BIT SOCKET T40 3/8" DRIVE*
MM TRF20A60-P300-6T08	BIT SOCKET T40 3/8" DRIVE*
MM TRF20A60-P400-6T08	BIT SOCKET T40 3/8" DRIVE*
MM TRF28A60-P600-5T10	BIT SOCKET T40 3/8" DRIVE*
MM TRF28A60-P500-6T10	BIT SOCKET T40 3/8" DRIVE*

* Optional, to be ordered separately

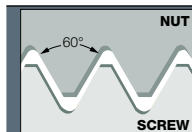
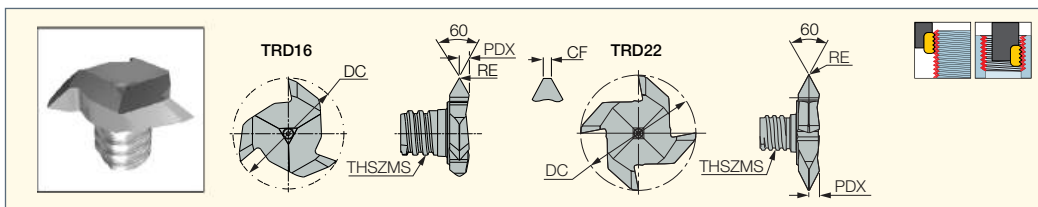


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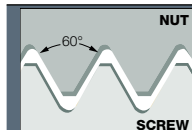
INDEXABLE SOLID CARBIDE LINE

MM TRD-M

Interchangeable Solid Carbide
Milling Heads for 60° Partial
Profile Thread Milling



Designation	DC	NOF ⁽¹⁾	TPN ⁽²⁾	TPX ⁽³⁾	TPN_DF2 ⁽⁴⁾	TPX_DF2 ⁽⁵⁾	TPIN ⁽⁶⁾	TPIX ⁽⁷⁾	TPIN_DF2 ⁽⁸⁾	TPIX_DF2 ⁽⁹⁾
MM TRD16-M60-05P-3T06	15.70	3	0.500	2.000	0.400	2.000	13.00	48.00	16.00	56.00
MM TRD16-M60-15P-3T06	15.70	3	1.500	2.000	1.000	1.500	13.00	16.00	16.00	28.00
MM TRD22-M60-30P-4T08	21.70	4	3.000	4.500	2.500	4.000	6.00	9.00	7.00	10.00



Designation	RE	CF	PDX	THSZMS	TDZ ⁽¹⁰⁾	DMIN	Tough ↔ Hard	
MM TRD16-M60-05P-3T06	- (11)	0.05	1.4	T06	M20	19.05	IC528	IC908
MM TRD16-M60-15P-3T06	0.05	-	1.4	T06	M22	19.05	•	•
MM TRD22-M60-30P-4T08	0.20	-	2.4	T08	M36	31.00	•	•

* For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) • For shanks, see pages 101-111 • For clamping instructions, see pages 111-112
• Do not apply lubricant to the threaded connection. • DIN13, ISO 68-1, ISO 965 (1&2) - Internal tolerance: 6H, External tolerance: 6g • ANSI/ASME B1.1 - Internal tolerance: 2B, External tolerance: 2A

- (1) Number of flutes
(2) Thread pitch minimum (mm)-internal
(3) Thread pitch maximum (mm)-internal
(4) Thread pitch minimum (mm)-external
(5) Thread pitch maximum (mm)-external
(6) Threads per inch minimum-internal
(7) Threads per inch maximum-internal
(8) Threads per inch minimum-external
(9) Threads per inch maximum-external
(10) Smallest possible thread
(11) Flat

Spare Parts

Designation		
MM TRD16-M60-05P-3T06	MM EGR 16-18*	T-25/3*
MM TRD16-M60-15P-3T06	MM EGR 16-18*	T-25/3*
MM TRD22-M60-30P-4T08	MM EGR 20-22*	T-30/3 L*

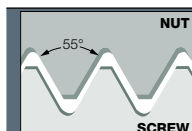
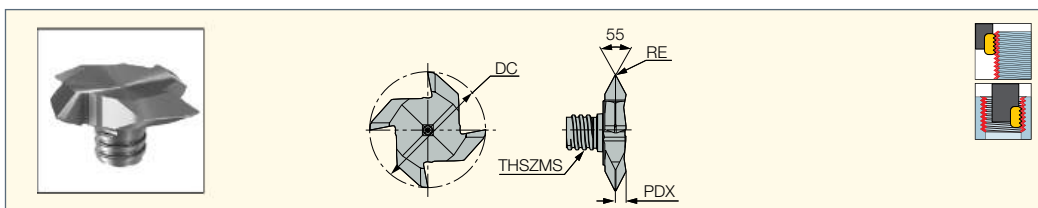
* Optional, to be ordered separately

MULTI-MASTER

INDEXABLE SOLID CARBIDE LINE

MM TRD-W

Interchangeable Solid Carbide
Milling Heads for 55° Partial
Profile Thread Milling



Designation	DC	NOF ⁽¹⁾	RE	PDX	TPIN ⁽²⁾	TPIX ⁽³⁾	TPIN_DF2 ⁽⁴⁾	TPIX_DF2 ⁽⁵⁾	THSZMS	TDZ ⁽⁶⁾	DMIN	Standard	Tough ↔ Hard	
MM TRD22-W55-14P-4T08	21.70	4	0.20	2.0	11.00	14.00	11.50	16.00	T08	G3/4	24.20	DIN ISO 228, B.S. 84	IC528	IC908

• For shanks, see pages 101-111 • For clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • B.S.84 Internal & External tolerance: Medium class

- (1) Number of flutes
(2) Threads per inch minimum-internal
(3) Threads per inch maximum-internal
(4) Threads per inch minimum-external
(5) Threads per inch maximum-external
(6) Thread diameter size

Spare Parts

Designation		
MM TRD-W	T-30/3 L*	MM EGR 20-22*

* Optional, to be ordered separately

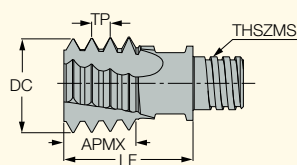


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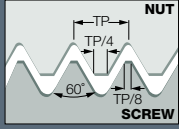
MT	10	D	6	0.75	ISO	MMT/MMTT
MULTI-MASTER thread mill	cutting dia.	no. of flutes	cutting length	pitch	thread profile iso un G (55°)	connection size

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE
MT-ISO-MM

Carbide Milling Heads with a Threaded Connection for Internal ISO Metric Thread



Application: General engineering

Designation	Dimensions										IC908
	TP ⁽¹⁾	M Coarse	M Fine	DC	NOF ⁽²⁾	APMX	LF	THSZMS			
 MT10D7.5 0.5ISO-MMT05	0.500	-	=>14	10.00	4	7.50	12.75	T05	MM KEY 6X4*		•
MT 10D6 0.75ISO-MMT05	0.750	-	=>12	10.00	4	6.00	12.75	T05	MM KEY 6X4*		•
MT 10D6 1.0ISO-MMT05	1.000	-	=>12	10.00	4	6.00	12.75	T05	MM KEY 6X4*		•
MT 10D5 1.25ISO-MMT05	1.250	-	=>14	10.00	4	5.00	12.75	T05	MM KEY 6X4*		•
MT 10D6 1.5ISO-MMT05	1.500	-	=>14	10.00	4	6.00	12.75	T05	MM KEY 6X4*		•
MT 12D8 0.5ISO-MMT06	0.500	-	=>16	12.00	4	8.00	14.30	T06	MM KEY 8X5*		•
MT 12E8 0.75ISO-MMT06	0.750	-	=>16	12.00	5	8.30	14.30	T06	MM KEY 8X5*		•
MT 12E8 1.0ISO-MMT06	1.000	-	=>16	12.00	5	8.00	14.30	T06	MM KEY 8X5*		•
MT 12D8 1.25ISO-MMT06	1.250	-	=>16	12.00	4	7.50	14.30	T06	MM KEY 8X5*		•
MT 12D7 1.5ISO-MMT06	1.500	-	=>16	12.00	4	7.60	14.30	T06	MM KEY 8X5*		•
MT 12D7 1.75ISO-MMT06	1.750	-	=>16	12.00	4	7.10	14.30	T06	MM KEY 8X5*		•
MT12D8 2.0ISO-MMT06	2.000	M16	=>17	12.00	4	8.00	14.30	T06	MM KEY 8X5*		•
MT 16F12 1.0ISO-MMT08	1.000	-	=>22	16.00	6	12.00	20.00	T08	MM KEY 10X7*		•
MT 16F12 1.5ISO-MMT08	1.500	-	=>20	16.00	6	12.00	20.00	T08	MM KEY 10X7*		•
MT 16E12 2.0ISO-MMT08	2.000	-	=>19	16.00	5	12.00	20.00	T08	MM KEY 10X7*		•
MT15.4E13 2.5ISO-MMT08	2.500	M20	=>22	15.40	5	12.70	20.00	T08	MM KEY 10X7*		•
MT 16C12 3.0ISO-MMT08	3.000	M24	=>25	16.00	3	12.10	20.00	T08	MM KEY 10X7*		•
MT20F14 2.0ISO-MMTT10	2.000	-	=>27	20.00	6	12.00	21.00	T10	BIT SOCKET T30 3/8" DRIVE*	T-40/3 L*	•
MT20D12 3.0ISO-MMTT10	3.000	-	=>27	20.00	4	12.20	21.00	T10	BIT SOCKET T40 3/8" DRIVE*	T-40/3 L*	•
MT20D14 3.5ISO-MMTT10	3.500	-	=>30	20.00	4	10.60	21.00	T10	BIT SOCKET T40 3/8" DRIVE*	T-40/3 L*	•

• Note: Description and dimensions relate to the new products with clamping flats. • For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection

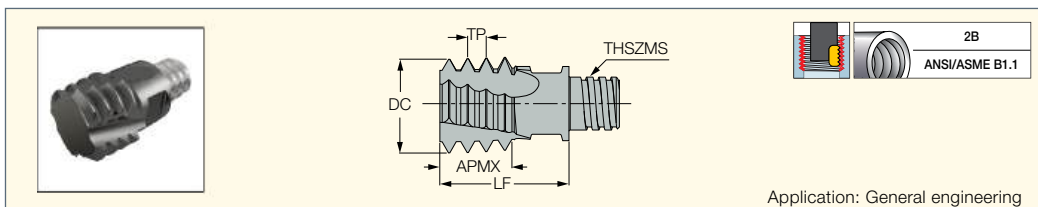
⁽¹⁾ Thread pitch

⁽²⁾ Number of flutes

* Optional, to be ordered separately

MT-UN-MM

Carbide Milling Heads with a Threaded Connection for Internal UN Thread Profile



Application: General engineering

Designation	Dimensions										IC908
	TPI ⁽¹⁾	UNC	UNF	UNEF	DC	NOF ⁽²⁾	APMX	LF	THSZMS	TP ⁽³⁾	
MT 10D7 32UN-MMT05	32.0	-	-	-	10.00	4	6.40	12.75	T05	0.794	●
MT 10D6 28UN-MMT05	28.0	-	-	1/2	10.00	4	5.50	12.75	T05	0.907	●
MT 10D6 24UN-MMT05	24.0	-	-	9/16-5/8	10.00	4	5.30	12.75	T05	1.058	●
MT 10D6 20UN-MMT05	20.0	-	1/2	-	10.00	4	5.10	12.75	T05	1.270	●
MT 10D5 18UN-MMT05	18.0	-	9/16-5/8	1 1/8-1 5/8	10.00	4	5.60	12.75	T05	1.411	●
MT 10D7 16UN-MMT05	16.0	-	3/4	-	10.00	4	6.40	12.75	T05	1.588	●
MT 12D8 24UN-MMT06	24.0	-	-	5/8- 11/16	12.00	4	7.40	14.30	T06	1.058	●
MT 12D8 20UN-MMT06	20.0	-	-	3/4 - 1	12.00	4	7.70	14.30	T06	1.270	●
MT 12D8 18UN-MMT06	18.0	-	5/8	=>1 11/16	12.00	4	7.10	14.30	T06	1.411	●
MT 12D8 16UN-MMT06	16.0	-	3/4	-	12.00	4	8.00	14.30	T06	1.588	●
MT 12D8 14UN-MMT06	14.0	-	7/8	-	12.00	4	7.30	14.30	T06	1.814	●
MT 16E11 18UN-MMT08	18.0	-	5/8	=>1 11/16	16.00	5	11.30	20.00	T08	1.411	●
MT 16E13 14UN-MMT08	14.0	-	7/8	-	16.00	5	12.70	20.00	T08	1.814	●
MT 16E13 12UN-MMT08	12.0	-	1-1 1/2	-	16.00	5	12.70	20.00	T08	2.117	●
MT 15.3D13 10UN-MMT08	10.0	3/4	-	-	15.30	4	12.70	20.00	T08	2.540	●
MT 16C11 9UN-MMT08	9.0	7/8	-	-	16.00	3	11.30	20.00	T08	2.822	●
MT 16C13 8UN-MMT08	8.0	1.0	-	-	16.00	3	12.70	20.00	T08	3.175	●
MT20F13 12UN-MMTT10	12.0	-	=>1	-	20.00	6	12.70	21.00	T10	2.117	●
MT20D13 8UN-MMTT10	8.0	1	-	-	20.00	4	12.70	21.00	T10	3.175	●
MT20D15 7UN-MMTT10	7.0	-	1 1/8 - 1 1/4	-	20.00	4	10.90	21.00	T10	3.629	●

• Note: Description and dimensions relate to the new products with clamping flats • For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection

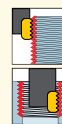
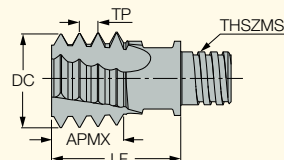
⁽¹⁾ Threads per inch

⁽²⁾ Number of flutes

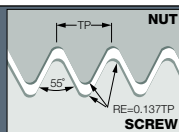
⁽³⁾ Thread pitch

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MT-W-MM

Carbide Milling Heads with a Threaded Connection for Internal and External 55° BSW Thread Profile



Application: General engineering fittings and pipe couplings



Designation	TPI ⁽¹⁾	TDZ	DC	NOF ⁽²⁾	APMX	LF	THSZMS	TP ⁽³⁾	IC908
MT 10D6 19W-MMT05	19.0	G1/4-3/8	10.00	4	5.30	12.75	T05	1.337	●
MT 16D13 14W-MMT08	14.0	G1/2-7/8	16.00	4	12.70	20.00	T08	1.814	●
MT 16D11 11W-MMT08	11.0	G=>1	16.00	4	11.50	20.00	T08	2.309	●
MT20F15 14W-MMTT10	14.0	G3/4-7/8	20.00	6	12.70	21.00	T10	1.814	●
MT20F14 11W-MMTT10	11.0	G=>1	20.00	6	11.50	21.00	T10	2.309	●

• Note: Description and dimensions relate to the new products with clamping flats • For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection • B.S.84 Internal & External tolerance: Medium class

⁽¹⁾ Threads per inch

⁽²⁾ Number of flutes

⁽³⁾ Thread pitch

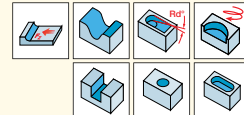
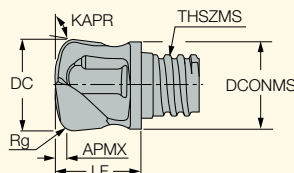


Thread Size	Key ⁽¹⁾	Torque Wrench ⁽¹⁾	Wrench ⁽¹⁾	Tightening Torque (N×cm)
T05	MM KEY 6x4	TORQUE WRENCH 5-50Nm 9X12	MM WRENCH 6-05	700
T06	MM KEY 8x5	TORQUE WRENCH 5-50Nm 9X12	MM WRENCH 8-06	1000
T08	MM KEY 10x7	TORQUE WRENCH 5-50Nm 9X12	MM WRENCH 10-08	1500
T10	MM KEY 13x8	TORQUE WRENCH 5-50Nm 9X12	MM WRENCH 13-10	2800

⁽¹⁾ Order separately

MULTI-MASTER
MM FF

Interchangeable 2 Flute FEED-MILL Solid Carbide Heads for Milling at Very Fast Feeds and Small D.O.C.



ECONOMICAL SOLUTION

Designation	Dimensions									Tough ↔ Hard		Recommended Machining Data
	DC	NOF ⁽¹⁾	APMX	Rg ⁽²⁾	THSZMS	DCONMS	LF	KAPR ⁽³⁾	RMPX ⁽⁴⁾	IC908	IC903	
MM FF100R1.5-L12-2T06	10.00	2	0.60	2.00	T06	9.60	12.50	97.0	7.0	●		0.30-0.60
MM FF120R2.0-2T08	12.00	2	0.68	2.50	T08	11.50	11.10	97.0	7.0	●	●	0.50-1.00
MM FF500R08-L59-2T08	12.70	2	0.68	2.50	T08	11.50	15.00	95.0	7.0	●		0.50-1.00
MM FF160R2.0-2T10	16.00	2	1.10	3.00	T10	15.20	13.50	97.0	7.0	●		0.55-1.10
MM FF200R2.0-2T12	20.00	2	1.50	3.40	T12	18.45	17.40	95.0	7.0	●		0.75-1.50

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

⁽²⁾ Radius for programming

⁽³⁾ Tool cutting edge angle

⁽⁴⁾ Maximum ramping angle

Machining Example:

Shank: MM S-B-L140-C16-T08

Milling head: MM FF 120R2.0-2T08

Workpiece material: SAE 4340 HRc 28

Plunging

a_p = 2 mm

V_c = 80 m/min

F = 0.24 m/min

Milling

a_p = 0.7 mm

a_e = 8 mm

V_c = 150 m/min

F_z = 1 mm/tooth

V_f = 7960 mm/min

Machining Example:

Shank: MM S-A-L070-W20-T10

Milling head: MM FF160R2.0-2T10 908

Workpiece material: P20 HRc 52

Milling

a_p = 0.2 mm

a_e = 6 mm

V_c = 150 m/min

F_z = 1.4 mm/tooth

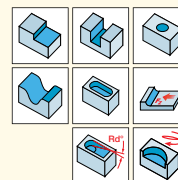
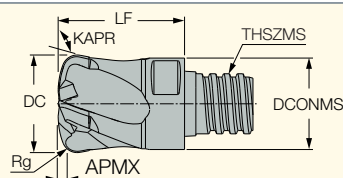
V_f = 8355

T = 60 min

MULTI^{FEED} MASTER

MM EFF

4, 6 Flute Solid Carbide Heads for Milling at Very Fast Feeds and Small D.O.C.



Designation	Dimensions										Tough ↔ Hard		Recommended Machining Data
	DC	NOF ⁽¹⁾	APMX	THSZMS	DCONMS	LF	RMPX ⁽²⁾	KAPR ⁽³⁾	Rg ⁽⁴⁾	CSP ⁽⁵⁾	IC908	IC903	
MM EFF080T3R1.62-4T05	8.00	4	0.40	T05	7.50	10.00	5.0	97.0	1.62	0		●	0.12-0.48
MM EFF080S2R0.86-6T05	8.00	6	0.40	T05	7.50	10.00	5.0	97.0	0.86	0		●	0.12-0.48
MM EFF100T4R2.01-4T06	10.00	4	0.50	T06	9.50	13.00	5.0	97.0	2.01	0		●	0.16-0.57
MM EFF100S2R1.0-6T06	10.00	6	0.45	T06	9.50	13.00	5.0	97.0	1.00	0		●	0.16-0.57
MM EFF100T2R1.0-6T06H	10.00	6	0.45	T06	9.50	10.00	3.0	97.0	1.00	1		●	0.16-0.47
MM EFF120T4R1.8-4T08H	12.00	4	0.60	T08	11.50	16.50	5.0	97.0	1.80	1	●	●	0.16-0.67
MM EFF120T4R2.47-4T08	12.00	4	0.60	T08	11.50	16.50	5.0	97.0	2.47	0		●	0.16-0.67
MM EFF120S3R1.2-6T08	12.00	6	0.65	T08	11.50	16.50	5.0	97.0	1.20	0		●	0.16-0.67
MM EFF120T2R1.2-6T08H	12.00	6	0.65	T08	11.50	12.00	3.0	97.0	1.20	1		●	0.16-0.54
MM EFF127T4R2.59-4T08	12.70	4	0.60	T08	12.20	16.50	5.0	97.0	2.59	0		●	0.16-0.67
MM EFF127S3R1.3-6T08	12.70	6	0.70	T08	12.70	16.50	5.0	97.0	1.30	0		●	0.16-0.67
MM EFF127T4R1.3-6T08H	12.70	6	0.70	T08	12.20	12.70	3.0	97.0	1.30	1		●	0.16-0.67
MM EFF160T5R2.2-4T10H	16.00	4	0.80	T10	15.40	20.50	5.0	97.0	2.20	1	●		0.20-0.75
MM EFF160T5R3.25-4T10	16.00	4	0.80	T10	15.40	20.50	5.0	97.0	3.25	0		●	0.20-0.75
MM EFF160S4R2.0-6T10	16.00	6	1.05	T10	15.40	20.50	5.0	97.0	2.00	0		●	0.20-0.75
MM EFF160T4R2.0-6T10H	16.00	6	1.05	T10	15.40	16.00	3.0	97.0	2.00	1		●	0.20-0.65
MM EFF200T6R4.02-4T12	20.00	4	1.00	T12	18.45	25.50	5.0	97.0	4.02	0		●	0.20-0.90
MM EFF200S5R2.2-6T12	20.00	6	1.25	T12	18.45	25.50	5.0	97.0	2.20	0		●	0.20-0.90
MM EFF200T5R2.2-6T12H	20.00	6	1.25	T12	18.45	20.00	3.0	97.0	2.20	1		●	0.20-0.80
MM EFF250A7R3.1-6T15	25.00	6	1.20	T15	23.90	25.00	5.0	97.0	3.10	0		●	0.25-1.00
MM EFF250S6R2.5-6T15	25.00	6	1.55	T15	23.90	25.00	5.0	97.0	2.50	0		●	0.25-1.00
MM EFF254A7R3.1-6T15	25.40	6	1.20	T15	23.90	25.00	5.0	97.0	3.10	0		●	0.25-1.00

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection • Heads with coolant supply are recommended for shouldering operations • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ Tool cutting edge angle

⁽⁴⁾ Radius for programming

⁽⁵⁾ 0 - Without coolant supply, 1 - With coolant supply

MULTI-MASTER Machining Recommendations for MM EFF Heads

VDI 3323	Material Group ⁽¹⁾	v _c (m/min)	f _z (mm/t) vs. Tool Diameter (mm)							
			a _p	a _e	8	10	12	16	20	25
P	1	180	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	2	160	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	3	160	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	4	160	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	5	150	0.045xD	0.7xD	0.43	0.50	0.57	0.65	0.75	0.87
	6	150	0.045xD	0.7xD	0.33	0.40	0.48	0.57	0.67	0.78
	7	140	0.045xD	0.7xD	0.33	0.40	0.48	0.57	0.67	0.78
	8	140	0.045xD	0.7xD	0.30	0.35	0.43	0.52	0.60	0.70
	9	140	0.045xD	0.7xD	0.30	0.35	0.43	0.52	0.60	0.70
	10	130	0.04xD	0.6xD	0.28	0.33	0.38	0.48	0.57	0.67
	11	120	0.04xD	0.6xD	0.25	0.30	0.35	0.43	0.52	0.62
	12, 13	120	0.04xD	0.6xD	0.30	0.35	0.43	0.52	0.60	0.70
K	15-16	180	APMX	0.7xD	0.45	0.52	0.60	0.70	0.80	0.90
	17-18	160	APMX	0.7xD	0.38	0.45	0.52	0.60	0.70	0.80
H	38.1 ⁽²⁾	100	0.035xD	0.45xD	0.20	0.25	0.33	0.40	0.48	0.55
	38.2 ⁽³⁾	80	0.03xD	0.3xD	0.16	0.22	0.30	0.38	0.45	0.52
	39 ⁽⁴⁾	60	0.02xD	0.25xD	0.12	0.16	0.16	0.20	0.20	0.25

⁽¹⁾ ISCAR material group in accordance with VDI 3323 standard

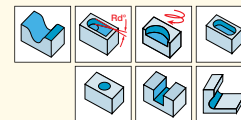
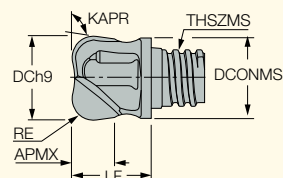
⁽²⁾ 45-49 HRC

⁽³⁾ 50-55 HRC

⁽⁴⁾ 56-63 HRC

a_p - maximum depth of cut

a_e - maximum width of cut

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM HT
 Torodial 2 Flute Interchangeable
 Solid Carbide Milling Heads
**ECONOMICAL SOLUTION**

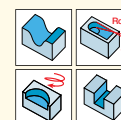
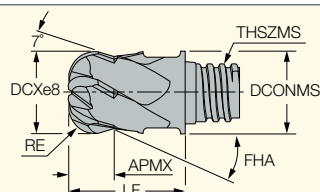
Designation	Dimensions									Tough ↔ Hard	
	DC	NOF ⁽¹⁾	APMX	RE	Tm ⁽²⁾	THSZMS	DCONMS	LF	KAPR ⁽³⁾	IC908	IC903
MM HT100C08R0.5-2T06	10.00	2	7.00	0.50	r0-1.0	T06	9.50	12.45	95.0	●	
MM HT100C08R1.0-2T06	10.00	2	7.00	1.00	r0-1.0	T06	9.50	12.45	95.0	●	
MM HT100N06R2.0-2T06	10.00	2	6.00	2.00	r0-3.0	T06	9.50	12.40	97.0	●	
MM HT100N07R0.5-2T06	10.00	2	6.90	0.50	r0-1.0	T06	9.50	11.20	95.0		●
MM HT100N07R1.0-2T06	10.00	2	6.90	1.00	r0-1.0	T06	9.50	11.20	95.0		●
MM HT100N07R2.0-2T06	10.00	2	6.90	2.00	r0-3.0	T06	9.50	11.20	95.0		●
MM HT100N07R3.0-2T06	10.00	2	6.90	3.00	r2.7-4.0	T06	9.50	11.20	95.0		●
MM HT120N06R3.0-2T06	12.00	2	5.40	3.00	r2.7-4.0	T06	9.10	9.10	97.0	●	
MM HT120N06R4.0-2T06	12.00	2	5.10	4.00	r2.7-4.0	T06	11.50	9.10	97.0	●	
MM HT120N06R1.6-2T08	12.00	2	5.70	1.60	r1.3-2.7	T08	11.50	11.10	97.0	●	●
MM HT120N06R2.0-2T08	12.00	2	5.90	2.00	r1.3-2.7	T08	11.50	11.10	97.0	●	●
MM HT120N06R2.5-2T08	12.00	2	5.50	2.50	r1.3-4.0	T08	11.50	11.10	97.0	●	
MM HT120N06R3.0-2T08	12.00	2	5.50	3.00	r2.7-4.4	T08	11.50	11.10	97.0	●	●
MM HT120N06R4.0-2T08	12.00	2	5.60	4.00	r2.7-4.4	T08	11.50	11.10	97.0	●	
MM HT160N07R2.0-2T10	16.00	2	6.90	2.00	r1.5-4.0	T10	15.20	13.10	97.0	●	
MM HT160N07R3.0-2T10	16.00	2	7.20	3.00	r1.5-4.0	T10	15.20	13.40	97.0	●	
MM HT160N07R4.0-2T10	16.00	2	7.10	4.00	r1.5-4.0	T10	15.20	13.40	97.0	●	
MM HT160N08R5.0-2T10	16.00	2	8.00	5.00	r2.7-4.4	T10	15.20	20.20	97.0	●	●
MM HT200N11R3.0-2T12	20.00	2	10.80	3.00	r3.0-8.0	T12	18.45	17.00	97.0	●	
MM HT200N11R4.0-2T12	20.00	2	11.10	4.00	r3.0-8.0	T12	18.45	17.30	97.0	●	
MM HT200N11R5.0-2T12	20.00	2	11.10	5.00	r3.0-8.0	T12	18.45	17.30	97.0	●	
MM HT200N11R6.0-2T12	20.00	2	11.00	6.00	r3.0-8.0	T12	18.45	17.30	97.0	●	
MM HT200N11R8.0-2T12	20.00	2	10.90	8.00	r3.0-8.0	T12	18.45	17.30	97.0	●	

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) Number of flutes

(2) Specially tailored radius range upon request

(3) Tool cutting edge angle

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM ETR
 Torodial 6 Flute Interchangeable
 Solid Carbide Milling Heads


Designation	Dimensions									Tough ↔ Hard	
	DCX ⁽¹⁾	RE	NOF ⁽²⁾	APMX	THSZMS	DCONMS	LF	FHA	RMPX ⁽³⁾	IC908	IC903
MM ETR080A4R05CF-6T05	8.00	0.50	6	4.00	T05	7.70	10.00	30.0	9.0		●
MM ETR080A4R10CF-6T05	8.00	1.00	6	4.00	T05	7.70	10.00	30.0	9.0		●
MM ETR080A04R2.0-6T05	8.00	2.00	6	5.00	T05	7.70	10.00	30.0	9.0	●	
MM ETR100A5R05CF-6T06	10.00	0.50	6	5.00	T06	9.60	13.00	30.0	9.0		●
MM ETR100A5R10CF-6T06	10.00	1.00	6	5.00	T06	9.60	13.00	30.0	9.0		●
MM ETR100A05R3.0-6T06	10.00	3.00	6	7.00	T06	9.60	13.00	30.0	9.0	●	
MM ETR120A7R05CF-6T08	12.00	0.50	6	7.00	T08	12.00	17.00	30.0	9.0		●
MM ETR120A7R10CF-6T08	12.00	1.00	6	7.00	T08	11.70	16.50	30.0	9.0		●
MM ETR120A07R4.0-6T08	12.00	4.00	6	9.00	T08	11.70	16.50	30.0	9.0	●	
MM ETR160A09R5.0-6T10	16.00	5.00	6	12.00	T10	15.30	20.50	30.0	9.0	●	

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) Cutting diameter maximum

(2) Number of flutes

(3) Maximum ramping angle

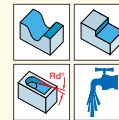
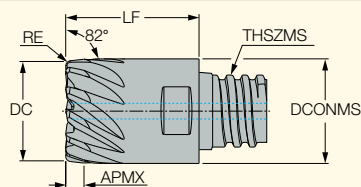


MULTI-MASTER

INDEXABLE SOLID CARBIDE LINE

MM ET

Solid Carbide Tapered Heads
with 20/30° Helix, Variable Pitch
and Coolant Holes for
CHATTER-FREE
Finishing Operations



Designation	Dimensions								IC908	Recommended Machining Data f _z (mm/t)
	DC	RE	NOF ⁽¹⁾	APMX	THSZMS	DCONMS	LF	RMPX ⁽²⁾		
MM ET11/8H4R10CF-8T08H	11.00	1.00	8	3.50	T08	12.00	16.50	3.0	●	0.04-0.10
MM ET15/8H4R10CF-12T10H	15.00	1.00	12	3.50	T10	16.00	20.50	3.0	●	0.05-0.11

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

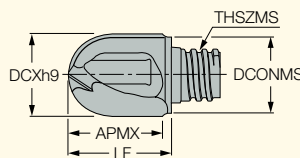
⁽²⁾ Maximum ramping angle

MULTI-MASTER

INDEXABLE SOLID CARBIDE LINE

MM HCR

Interchangeable 2 Flute Solid
Carbide Ball Nose Milling Heads



ECONOMICAL SOLUTION

Designation	Dimensions						IC908	
	DCX ⁽¹⁾	NOF ⁽²⁾	APMX	THSZMS	DCONMS	LF		
	MM HCR080-2T05	8.00	2	7.80	T05	7.60		9.95
	MM HCR100-2T06	10.00	2	10.00	T06	9.50		12.35
	MM HCR120-2T08	12.00	2	11.45	T08	11.50		15.30
MM HCR160-2T10	16.00	2	15.80	T10	15.20	19.10		

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Cutting diameter maximum

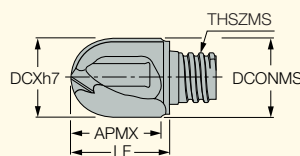
⁽²⁾ Number of flutes

MULTI-MASTER

INDEXABLE SOLID CARBIDE LINE

MM HRF

Interchangeable 2 Flute
Solid Carbide Ball Nose
Finishing Milling Heads



Designation	Dimensions						Tough ↔ Hard	
	DCX ⁽¹⁾	NOF ⁽²⁾	APMX	THSZMS	DCONMS	LF	IC908	IC903
MM HRF080-2T05	8.00	2	7.60	T05	7.60	9.95		●
MM HRF100-2T06	10.00	2	10.20	T06	9.50	12.35	●	●
MM HRF120-2T08	12.00	2	11.50	T08	11.50	15.30		●
MM HRF160-2T10	16.00	2	15.80	T10	15.20	19.10		●

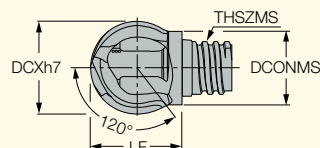
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of flutes

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM HBR

Interchangeable 2 Flute High Precision Ball Nose Solid Carbide Milling Heads

**ECONOMICAL SOLUTION**

Dimensions								IC908
Designation	DCX ⁽¹⁾	NOF ⁽²⁾	THSZMS	DCONMS	LF			
MM HBR080-2T04	8.00	2	T04	5.80	8.22	MM KEY 6X4*	●	
MM HBR100-2T05	10.00	2	T05	7.60	10.00	MM KEY 6X4*	●	
MM HBR120-2T06	12.00	2	T06	9.50	11.60	MM KEY 10X7*	●	
MM HBR160-2T08	16.00	2	T08	12.20	15.40	MM KEY 13X8*	●	
MM HBR200-2T10	20.00	2	T10	15.20	18.40	MM KEY 13X8*	●	
MM HBR250-2T12	25.00	2	T12	18.30	23.20	MM KEY 16X9*	●	

• For shanks, see pages 101-111 • For tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection.

• For user guide, see pages 59,211-218

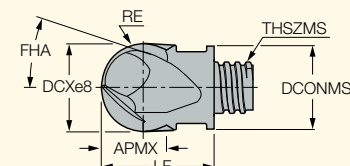
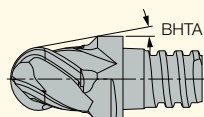
⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of flutes

* Optional, to be ordered separately

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM EB

Interchangeable Solid Carbide Ball Nose Milling Heads



Dimensions										IC908
Designation	DCX ⁽²⁾	NOF ⁽³⁾	APMX	RE	THSZMS	DCONMS	LF	FHA	BHTA	
MM EB050E07-4T05	5.00	4	7.00	2.49	T05	8.00	15.00	38.0	7.4	●
MM EB060E04-4T04	6.00	4	4.00	2.99	T04	5.80	8.50	37.0	-	●
MM EB060E05-4T05	6.00	4	5.00	2.99	T05	8.00	10.00	38.0	11.7	●
MM EB080A05-2T05	8.00	2	5.00	3.98	T05	7.70	10.00	30.0	-	●
MM EB080A05-4T05	8.00	4	5.00	3.98	T05	7.70	10.00	30.0	-	●
MM EB100A07-2T06	10.00	2	7.00	4.98	T06	9.60	13.00	30.0	-	●
MM EB100A07-4T06	10.00	4	7.00	4.98	T06	9.60	13.00	30.0	-	●
MM EB120A09-2T08	12.00	2	9.00	5.98	T08	11.70	16.50	30.0	-	●
MM EB120H09CF-3T08I ⁽¹⁾	12.00	3	9.00	5.98	T08	11.70	16.50	38.0	-	●
MM EB120A09-4T08	12.00	4	9.00	5.98	T08	11.70	16.50	30.0	-	●
MM EB160A09-2T10	16.00	2	9.00	7.98	T10	15.30	20.50	30.0	-	●
MM EB160A12-4T10	16.00	4	12.00	7.98	T10	15.30	20.50	30.0	-	●
MM EB200A15-4T12	20.00	4	15.00	9.97	T12	18.45	25.50	30.0	-	●
MM EB250A22-4T15	25.00	4	22.00	12.47	T15	23.90	37.00	30.0	-	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

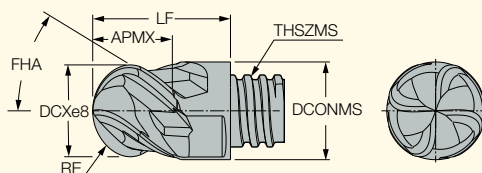
⁽¹⁾ With coolant holes directed to each flute

⁽²⁾ Cutting diameter maximum

⁽³⁾ Number of flutes

MM EBC

Interchangeable Solid Carbide
Ball Nose Milling Heads for High
Productivity on Hard Materials



Designation	Dimensions									IC903
	DCX ⁽¹⁾	NOF ⁽²⁾	APMX	RE	THSZMS	DCONMS	LF	FHA		
MM EBC080B05-4T05CF	8.00	4	5.40	3.98	T05	7.70	10.00	45.0	MM KEY 6X4*	●
MM EBC100B07-4T06CF	10.00	4	7.40	4.98	T06	9.60	13.00	45.0	MM KEY 8X5*	●
MM EBC120B09-4T08CF	12.00	4	9.30	5.98	T08	11.70	16.50	45.0	MM KEY 10X7*	●
MM EBC160B12-4T10CF	16.00	4	12.40	7.98	T10	15.30	20.50	45.0	MM KEY 13X8*	●
MM EBC200B15-4T12CF	20.00	4	16.00	9.97	T12	18.45	25.50	45.0		●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

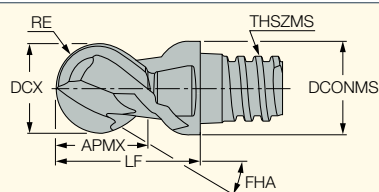
⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of flutes

* Optional, to be ordered separately

MM EBA-2

Interchangeable 2 Flute High
Precision Solid Carbide Ball Nose
Heads for Machining Aluminum


ALUMINUM

Designation	Dimensions									IC08
	DCX ⁽¹⁾	NOF ⁽²⁾	APMX	RE	RETOL ⁽³⁾	THSZMS	DCONMS	LF	FHA	
MM EBA080B05-2T05	8.00	2	5.00	3.98	0.010	T05	7.70	10.00	45.0	●
MM EBA100B07-2T06	10.00	2	7.00	4.98	0.010	T06	9.60	13.00	45.0	●
MM EBA120B09-2T08	12.00	2	9.00	5.98	0.012	T08	11.50	16.50	45.0	●
MM EBA160B12-2T10	16.00	2	12.00	7.98	0.012	T10	15.30	20.50	45.0	●
MM EBA200B15-2T12	20.00	2	15.00	9.97	0.012	T12	18.45	25.50	45.0	●
MM EBA250B22-2T15	25.00	2	22.00	12.50	0.012	T15	23.90	37.00	45.0	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

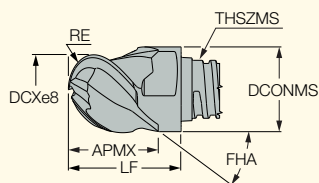
⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of flutes

⁽³⁾ Corner radius tolerance (+/-)

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM EBA-3

Interchangeable 3 Flute High Precision Solid Carbide Ball Nose Heads for Machining Aluminum

**ALUMINUM**

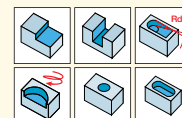
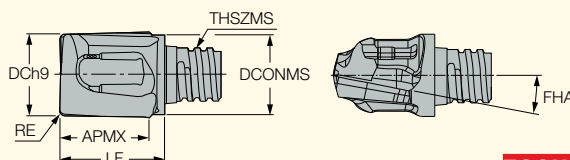
Designation	Dimensions									IC08
	DCX ⁽¹⁾	NOF ⁽²⁾	APMX	RE	RETOL ⁽³⁾	THSZMS	DCONMS	LF	FHA	
MM EBA080H05-3T05	8.00	3	5.50	3.98	0.010	T05	7.70	10.00	45.0	●
MM EBA100H07-3T06	10.00	3	7.50	4.98	0.010	T06	9.60	13.00	45.0	●
MM EBA120H09-3T08	12.00	3	9.50	5.98	0.012	T08	11.70	16.50	45.0	●
MM EBA160H12-3T10	16.00	3	12.70	7.98	0.012	T10	15.30	20.50	45.0	●
MM EBA200H15-3T12	20.00	3	15.60	9.97	0.012	T12	18.25	25.50	45.0	●
MM EBA250H22-3T15	25.00	3	22.60	12.47	0.015	T15	23.80	37.00	45.0	●

New

- For shanks, see pages 101-111
- For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection.
- For user guide, see pages 59,211-218

⁽¹⁾ Cutting diameter maximum⁽²⁾ Number of flutes⁽³⁾ Corner radius tolerance (+/-)
MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM HC

Interchangeable Solid Carbide Slot Drill Milling Heads with Two 10° Helix Flutes

**ECONOMICAL SOLUTION**

Designation	Dimensions									Tough ↔ Hard		Recommended Machining Data
	DC	NOF ⁽¹⁾	APMX	RE	Tm ⁽²⁾	THSZMS	DCONMS	LF	FHA	IC908	IC903	
MM HC078C08R0.2-2T05	7.80	2	7.70	0.20	r0-2.0	T05	7.60	10.00	10.0	●		0.03-0.09
MM HC080C08R0.4-2T05	8.00	2	7.70	0.40	r0-2.0	T05	7.60	10.00	10.0	●	●	0.03-0.09
MM HC080C08R1.0-2T05	8.00	2	7.70	1.00	r0-2.0	T05	7.60	10.00	10.0	●	●	0.03-0.09
MM HC080C08R2.0-2T05	8.00	2	7.70	2.00	r0-2.0	T05	7.60	10.00	10.0	●	●	0.03-0.09
MM HC098C10R0.3-2T06	9.80	2	9.00	0.30	r0-3.0	T06	9.50	12.35	10.0	●		0.03-0.10
MM HC100C10R0.4-2T06	10.00	2	9.00	0.40	r0-3.0	T06	9.50	12.35	10.0	●	●	0.03-0.10
MM HC100C10R1.0-2T06	10.00	2	9.00	1.00	r0-3.0	T06	9.50	12.35	10.0	●	●	0.03-0.10
MM HC100C10R2.0-2T06	10.00	2	9.00	2.00	r0-3.0	T06	9.50	12.35	10.0	●	●	0.03-0.10
MM HC117C13R0.3-2T08	11.70	2	10.00	0.30	r0-3.0	T08	11.50	14.20	10.0	●		0.04-0.11
MM HC120C13R0.4-2T08	12.00	2	10.00	0.40	r0-3.0	T08	11.50	14.20	10.0	●	●	0.04-0.11
MM HC120C13R1.0-2T08	12.00	2	10.00	1.00	r0-3.0	T08	11.50	14.20	10.0	●	●	0.04-0.11
MM HC120C13R2.0-2T08	12.00	2	10.00	2.00	r0-3.0	T08	11.50	14.20	10.0	●	●	0.04-0.11
MM HC140C11R0.4-2T08	14.00	2	11.60	0.40	r0-4.0	T08	11.50	15.05	10.0	●		0.04-0.12
MM HC157C16R0.3-2T10	15.70	2	15.00	0.30	r0-4.0	T10	15.20	19.05	10.0	●		0.05-0.13
MM HC160C16R0.4-2T10	16.00	2	14.90	0.40	r0-4.0	T10	15.20	19.05	10.0	●	●	0.05-0.13
MM HC160C16R0.8-2T10	16.00	2	14.90	0.80	r0-4.0	T10	15.15	19.05	10.0	●	●	0.05-0.13

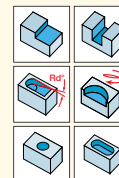
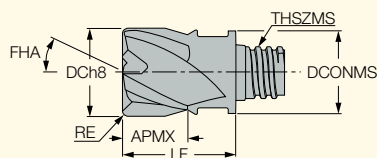
- For shanks, see pages 101-111
- For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection.
- For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes⁽²⁾ Specially tailored radius range, available upon request.

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM ECU

Interchangeable 3 Flute
Undersized Solid Carbide Heads
for Keyways (DIN 6885)



Designation	Dimensions								IC908	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA		
MM ECU077E04R020-3T05	7.70	3	4.00	0.20	T05	7.70	10.00	38.0	●	0.03-0.08
MM ECU097E05R030-3T06	9.70	3	5.00	0.30	T06	9.60	13.00	38.0	●	0.03-0.09
MM ECU117E07R030-3T08	11.70	3	7.00	0.30	T08	11.50	16.50	38.0	●	0.03-0.10
MM ECU157E08R030-3T10	15.70	3	8.00	0.30	T10	15.30	20.50	38.0	●	0.04-0.12
MM ECU197E12R040-3T12	19.70	3	12.00	0.40	T12	18.45	25.50	38.0	●	0.05-0.13

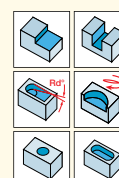
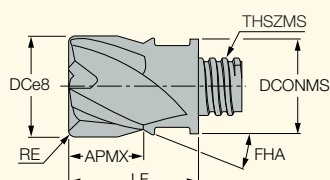
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM EC-3

Interchangeable 3 Flute
Solid Carbide Endmill
Heads with 45° Helix



Designation	Dimensions								IC908	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽²⁾	APMX	RE	THSZMS	LF	FHA	DCONMS		
MM EC080B05R0.4-3T05	8.00	3	5.00	0.40	T05	10.00	45.0	7.70	●	0.03-0.09
MM EC080B05R000-3T05	8.00	3	5.00	0.00	T05	10.00	45.0	7.70	●	0.03-0.09
MM EC100B07R000-3T06	10.00	3	7.00	0.00	T06	13.00	45.0	9.60	●	0.03-0.10
MM EC100B12R000-3T06	10.00	3	12.00	0.00	T06	19.00	45.0	9.60	●	0.03-0.10
MM EC120B09R000-3T08 ⁽¹⁾	12.00	3	9.00	0.00	T08	16.50	45.0	11.70	●	0.04-0.11
MM EC120B09R000-3T08	12.00	3	9.00	0.00	T08	16.50	45.0	11.70	●	0.04-0.11

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see page 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ With coolant holes directed to each flute

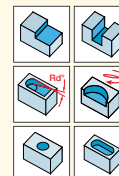
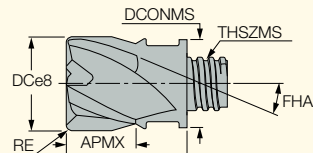
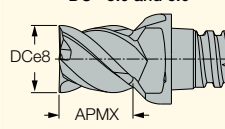
⁽²⁾ Number of flutes

MM EC-4

Interchangeable 4 Flute
Solid Carbide Endmill Heads
with 30°, 45° Helix and
Various Corner Radii



DC= 5.0 and 6.0



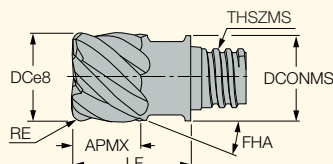
Designation	Dimensions								IC908	Recommended Machining Data f _z (mm/t)
	DC	RE	FHA	NOF ⁽¹⁾	APMX	THSZMS	DCONMS	LF		
MM EC050B07R000-4T05	5.00	0.00	45.0	4	7.00	T05	8.00	15.00	●	0.02-0.06
MM EC060B05R000-4T05	6.00	0.00	45.0	4	5.00	T05	8.00	10.00	●	0.03-0.07
MM EC060B04R0.5-4T04	6.00	0.50	45.0	4	4.00	T04	5.80	8.50	●	0.02-0.04
MM EC080B05R000-4T05	8.00	0.00	45.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080B09R000-4T05	8.00	0.00	45.0	4	9.00	T05	7.70	15.00	●	0.03-0.09
MM EC080A05R0.5-4T05	8.00	0.50	30.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080A09R0.5-4T05	8.00	0.50	30.0	4	9.00	T05	7.70	15.00	●	0.03-0.09
MM EC080B05R0.5-4T05	8.00	0.50	45.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080A05R1.0-4T05	8.00	1.00	30.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080B05R1.0-4T05	8.00	1.00	45.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080A05R1.5-4T05	8.00	1.50	30.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080B05R1.5-4T05	8.00	1.50	45.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC100B07R000-4T06	10.00	0.00	45.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC100B12R000-4T06	10.00	0.00	45.0	4	12.00	T06	9.60	19.00	●	0.03-0.10
MM EC100A07R0.5-4T06	10.00	0.50	30.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC100B07R0.5-4T06	10.00	0.50	45.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC100A07R1.0-4T06	10.00	1.00	30.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC100B07R1.0-4T06	10.00	1.00	45.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC120B09R000-4T08	12.00	0.00	45.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC120B14R000-4T08	12.00	0.00	45.0	4	14.00	T08	11.70	23.00	●	0.04-0.11
MM EC120A09R0.5-4T08	12.00	0.50	30.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC120B09R0.5-4T08	12.00	0.50	45.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC120A09R1.0-4T08	12.00	1.00	30.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC120B09R1.0-4T08	12.00	1.00	45.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC160B12R000-4T10	16.00	0.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R0.5-4T10	16.00	0.50	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R0.5-4T10	16.00	0.50	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R1.0-4T10	16.00	1.00	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R1.0-4T10	16.00	1.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R1.5-4T10	16.00	1.50	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R1.5-4T10	16.00	1.50	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R2.0-4T10	16.00	2.00	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R2.0-4T10	16.00	2.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R3.0-4T10	16.00	3.00	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R3.0-4T10	16.00	3.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R4.0-4T10	16.00	4.00	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R4.0-4T10	16.00	4.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC200B15R000-4T12	20.00	0.00	45.0	4	15.00	T12	18.45	25.50	●	0.05-0.13
MM EC200A15R0.5-4T12	20.00	0.50	30.0	4	15.00	T12	18.45	25.50	●	0.05-0.13
MM EC200A15R1.0-4T12	20.00	1.00	30.0	4	15.00	T12	18.45	25.50	●	0.05-0.13
MM EC200A15R2.0-4T12	20.00	2.00	30.0	4	15.00	T12	18.45	25.50	●	0.05-0.13
MM EC200A15R3.0-4T12	20.00	3.00	30.0	4	15.00	T12	18.45	25.50	●	0.05-0.13

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

MM EC-6

Interchangeable 6 Flute Solid Carbide Endmill Heads with 30°, 45° Helix and Corners with Different Radius



Designation	Dimensions										Recommended Machining Data
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA	RMPX ⁽²⁾	IC908	f _z (mm/t)
MM EC080A05R0.5-6T05	8.00	6	5.00	0.50	T05	7.70	10.00	30.0	6.0	●	0.03-0.09
MM EC080A05R1.0-6T05	8.00	6	5.00	1.00	T05	7.70	10.00	30.0	6.0	●	0.03-0.09
MM EC080A05R1.5-6T05	8.00	6	5.00	1.50	T05	7.70	10.00	30.0	6.0	●	0.03-0.09
MM EC080B05R0.5-6T05	8.00	6	5.00	0.50	T05	7.70	10.00	45.0	3.0	●	0.03-0.10
MM EC080B05R1.0-6T05	8.00	6	5.00	1.00	T05	7.70	10.00	45.0	3.0	●	0.03-0.09
MM EC080B05R1.5-6T05	8.00	6	5.00	1.50	T05	7.70	10.00	45.0	3.0	●	0.03-0.09
MM EC100A07R0.5-6T06	10.00	6	7.00	0.50	T06	9.60	13.00	30.0	6.0	●	0.03-0.10
MM EC100A07R1.0-6T06	10.00	6	7.00	1.00	T06	9.60	13.00	30.0	6.0	●	0.03-0.10
MM EC100A07R1.5-6T06	10.00	6	7.00	1.50	T06	9.60	13.00	30.0	6.0	●	0.03-0.10
MM EC100B07R0.5-6T06	10.00	6	7.00	0.50	T06	9.60	13.00	45.0	3.0	●	0.04-0.10
MM EC100B07R000-6T06	10.00	6	7.00	0.00	T06	9.60	13.00	45.0	3.0	●	0.03-0.10
MM EC100B07R1.0-6T06	10.00	6	7.00	1.00	T06	9.60	13.00	45.0	3.0	●	0.04-0.10
MM EC100B07R1.5-6T06	10.00	6	7.00	1.50	T06	9.60	13.00	45.0	3.0	●	0.03-0.10
MM EC100B12R1.5-6T06	10.00	6	12.00	1.50	T06	9.60	19.00	45.0	3.0	●	0.04-0.10
MM EC120A09R0.5-6T08	12.00	6	9.00	0.50	T08	11.70	16.50	30.0	6.0	●	0.04-0.11
MM EC120A09R1.0-6T08	12.00	6	9.00	1.00	T08	11.70	16.50	30.0	6.0	●	0.04-0.11
MM EC120B09R0.5-6T08	12.00	6	9.00	0.50	T08	11.70	16.50	45.0	3.0	●	0.04-0.10
MM EC120B09R000-6T08	12.00	6	9.00	0.00	T08	11.70	16.50	45.0	3.0	●	0.04-0.11
MM EC120B09R1.0-6T08	12.00	6	9.00	1.00	T08	11.70	16.50	45.0	3.0	●	0.04-0.10
MM EC120B09R1.5-6T08	12.00	6	9.00	1.50	T08	11.70	16.50	45.0	3.0	●	0.04-0.11

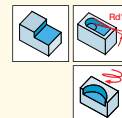
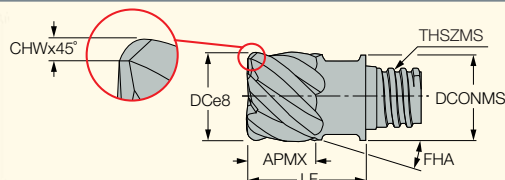
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

MM EC-D

Interchangeable 6, 8, 10 Flute Solid Carbide Endmill Heads with 50° Helix for Machining Hardened Steel



Designation	Dimensions										IC903	Recommended Machining Data
	DC	NOF ⁽¹⁾	APMX	CHW	KCH	THSZMS	DCONMS	LF	FHA	RMPX ⁽²⁾		f _z (mm/t)
MM EC080D05C01-6T05	8.00	6	5.00	0.10	45.0	T05	7.70	10.00	50.0	2.0	●	0.03-0.10
MM EC100D07C01-6T06	10.00	6	7.00	0.10	45.0	T06	9.60	13.00	50.0	2.0	●	0.03-0.10
MM EC120D09C01-6T08	12.00	6	9.00	0.10	45.0	T08	11.70	16.50	50.0	3.0	●	0.04-0.11
MM EC160D12C02-8T10	16.00	8	12.00	0.20	45.0	T10	15.30	20.50	50.0	3.0	●	0.05-0.13
MM EC200D15C02-10T12	20.00	10	15.00	0.20	45.0	T12	18.45	25.50	50.0	3.0	●	0.05-0.13

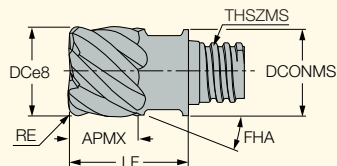
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM EC-8/10

Interchangeable 8, 10 Flute Solid Carbide Endmill Heads with 30°, 45° Helix and Corners with Different Radius



Designation	Dimensions									IC908	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽²⁾	APMX	RE	THSZMS	DCONMS	LF	FHA	RMPX ⁽³⁾		
MM EC160A12R0.5-8T10	16.00	8	12.00	0.50	T10	15.30	20.50	30.0	5.0	●	0.05-0.13
MM EC160A12R0.5-8T10H ⁽¹⁾	16.00	8	12.00	0.50	T10	15.30	20.50	30.0	5.0	●	0.05-0.13
MM EC160A12R1.0-8T10	16.00	8	12.00	1.00	T10	15.30	20.50	30.0	5.0	●	0.05-0.13
MM EC160A12R1.6-8T10	16.00	8	12.00	1.60	T10	15.30	20.50	30.0	5.0	●	0.05-0.13
MM EC160A12R2.0-8T10	16.00	8	12.00	2.00	T10	15.30	20.50	30.0	5.0	●	0.05-0.13
MM EC160B12R0.5-8T10	16.00	8	12.00	0.50	T10	15.30	20.50	45.0	5.0	●	0.05-0.13
MM EC160B12R1.0-8T10	16.00	8	12.00	1.00	T10	15.30	20.50	45.0	5.0	●	0.05-0.13
MM EC160B12R1.6-8T10	16.00	8	12.00	1.60	T10	15.30	20.50	45.0	5.0	●	0.05-0.13
MM EC160B12R2.0-8T10	16.00	8	12.00	2.00	T10	15.30	20.50	45.0	5.0	●	0.05-0.13
MM EC200A15R1.0-10T12	20.00	10	15.00	1.00	T12	18.45	25.50	30.0	3.0	●	0.05-0.13
MM EC200A15R2.0-10T12	20.00	10	15.00	2.00	T12	18.45	25.50	30.0	3.0	●	0.05-0.13
MM EC250A22R0.8-10T15	25.00	10	22.00	0.80	T15	23.90	37.00	30.0	3.0	●	0.05-0.13

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

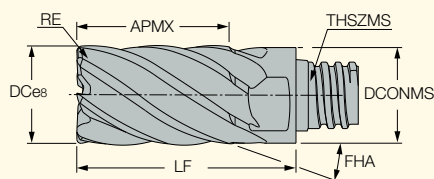
⁽¹⁾ With a central coolant hole

⁽²⁾ Number of flutes

⁽³⁾ Maximum ramping angle

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM EC-CF-Z7/9-1.5xD

Interchangeable 7, 9 Flute Solid Carbide Endmill Heads with 36° Helix and 1.5xD Flute Lengths



Designation	Dimensions									IC908	Recommended Machining Data f _z (mm/t)
	DC	APMX	RE	NOF ⁽¹⁾	THSZMS	DCONMS	LF	FHA	RMPX ⁽²⁾		
MM EC080H12R05CF-7T05	8.00	12.00	0.50	7	T05	7.70	18.00	36.0	3.0	●	0.03-0.10
MM EC100H15R05CF-7T06	10.00	15.00	0.50	7	T06	9.60	22.00	36.0	3.0	●	0.04-0.10
MM EC120H18R05CF-7T08	12.00	18.00	0.50	7	T08	11.70	27.00	36.0	3.0	●	0.04-0.10
MM EC160H24R08CF-9T10	16.00	24.00	0.80	9	T10	15.30	33.50	36.0	1.0	●	0.05-0.10
MM EC200H30R10CF-9T12	20.00	30.00	1.00	9	T12	18.45	41.00	36.0	1.0	●	0.05-0.10
MM EC250H37R10CF-9T15	25.00	37.00	1.00	9	T15	23.90	52.50	36.0	1.0	●	0.05-0.10

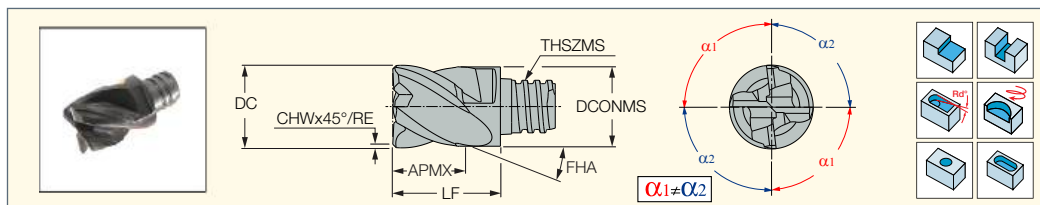
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

MM EC-CF

Interchangeable Solid Carbide Endmill Heads for CHATTER-FREE Roughing and Finishing Operations



Designation	Dimensions										IC908	Recommended Machining Data f _z (mm/t)
	DC	RE	NOF ⁽²⁾	APMX	THSZMS	DCONMS	LF	FHA	CHW	KCH		
MM EC080E05C3CF-4T05	8.00	-	4	5.00	T05	7.70	10.00	38.0	0.30	45.0	●	0.03-0.09
MM EC080E05R0CF-4T05	8.00	-	4	5.00	T05	7.70	10.00	38.0	-	-	●	0.03-0.09
MM EC080E05R05CF-4T05	8.00	0.50	4	5.00	T05	7.70	10.00	38.0	-	-	●	0.03-0.09
MM EC100E07C4CF-4T06	10.00	-	4	7.00	T06	9.60	13.00	38.0	0.40	45.0	●	0.03-0.10
MM EC100E07R00CF-4T06	10.00	-	4	7.00	T06	9.60	13.00	38.0	-	-	●	0.03-0.10
MM EC100E07R02CF-4T06	10.00	0.20	4	7.00	T06	9.60	13.00	38.0	-	-	●	0.03-0.10
MM EC100E07R04CF-4T06	10.00	0.40	4	7.00	T06	9.60	13.00	38.0	-	-	●	0.03-0.10
MM EC100E07R05CF-4T06	10.00	0.50	4	7.00	T06	9.60	13.00	38.0	-	-	●	0.03-0.10
MM EC100E07R25CF-4T06	10.00	2.50	4	7.00	T06	9.60	13.00	38.0	-	-	●	0.03-0.10
MM EC120E09C5CF-4T08	12.00	-	4	9.00	T08	11.70	16.50	38.0	0.50	45.0	●	0.04-0.11
MM EC120E09C5CF-4T08I ⁽¹⁾	12.00	-	4	9.00	T08	11.70	16.50	38.0	0.50	45.0	●	0.04-0.11
MM EC120E09R00CF-4T08	12.00	-	4	9.00	T08	11.70	16.50	38.0	-	-	●	0.04-0.11
MM EC120E09R02CF-4T08	12.00	0.20	4	9.00	T08	11.70	16.50	38.0	-	-	●	0.04-0.11
MM EC120E09R04CF-4T08	12.00	0.40	4	9.00	T08	11.70	16.50	38.0	-	-	●	0.04-0.11
MM EC120E09R05CF-4T08	12.00	0.50	4	9.00	T08	11.70	16.50	38.0	-	-	●	0.04-0.11
MM EC120E09R15CF-4T08	12.00	1.50	4	9.00	T08	11.70	16.50	38.0	-	-	●	0.04-0.11
MM EC160E12C6CF-4T10	16.00	-	4	12.00	T10	15.30	20.50	38.0	0.60	45.0	●	0.05-0.13
MM EC160E12R05CF-4T10	16.00	0.50	4	12.00	T10	15.30	20.50	38.0	-	-	●	0.05-0.13
MM EC200E15C6CF-4T12	20.00	-	4	15.00	T12	18.45	25.50	38.0	0.60	45.0	●	0.05-0.17
MM EC200E15R05CF-4T12	20.00	0.50	4	15.00	T12	18.45	25.50	38.0	-	-	●	0.05-0.17
MM EC250E28C6CF-12T15	25.00	-	12	28.00	T15	23.90	43.00	38.0	0.60	45.0	●	0.06-0.13
MM EC250E28C6CF-4T15	25.00	-	4	28.00	T15	23.90	43.00	38.0	0.60	45.0	●	0.06-0.17
MM EC250E22C6CF-4T15	25.00	-	4	22.00	T15	23.90	37.00	38.0	0.60	45.0	●	0.06-0.17
MM EC250E22R05CF-4T15	25.00	0.50	4	22.00	T15	23.90	37.00	38.0	-	-	●	0.06-0.17
MM EC250E22R10CF-4T15	25.00	1.00	4	22.00	T15	23.90	37.00	38.0	-	-	●	0.06-0.17
MM EC250E22R20CF-4T15	25.00	2.00	4	22.00	T15	23.90	37.00	38.0	-	-	●	0.06-0.17
MM EC250E22R30CF-4T15	25.00	3.00	4	22.00	T15	23.90	37.00	38.0	-	-	●	0.06-0.17
MM EC320H38C06-4T21	32.00	-	4	38.00	T21	30.00	55.00	38.0	0.60	45.0	●	0.06-0.18

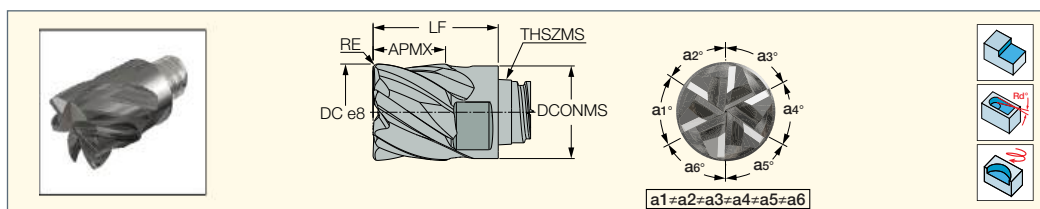
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ With coolant holes directed to each flute

⁽²⁾ Number of flutes

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM ECK-CF

5,6 Flute Solid Carbide Heads
with 35°/38° Helix Featuring
Different Corner Radii For
Machining Titanium Alloys



Designation	Dimensions								IC908	Recommended Machining Data f _z (mm/t)
	DC	RE	NOF ⁽¹⁾	APMX	THSZMS	DCONMS	LF	RMPX ⁽²⁾		
MM ECK080H05R04-6T05CF	8.00	0.40	6	5.00	T05	7.70	10.00	5.0	●	0.04-0.08
MM ECK100H07R05-6T06CF	10.00	0.50	6	7.00	T06	9.60	13.00	5.0	●	0.04-0.08
MM ECK120H09R05-6T08CF	12.00	0.50	6	9.00	T08	11.70	16.50	5.0	●	0.04-0.08
MM ECK160H12R08-6T10CF	16.00	0.80	6	12.00	T10	15.30	20.50	5.0	●	0.07-0.12
MM ECK160H12R30-6T10CF	16.00	3.00	6	12.00	T10	15.30	20.50	5.0	●	0.07-0.12
MM ECK160H12R40-6T10CF	16.00	4.00	6	12.00	T10	15.30	20.50	5.0	●	0.07-0.12
MM ECK200H15R10-6T12CF	20.00	1.00	6	15.00	T12	18.45	25.50	5.0	●	0.07-0.12
MM ECK200H15R30-6T12CF	20.00	3.00	6	15.00	T12	18.45	25.50	5.0	●	0.07-0.12
MM ECK200H15R40-6T12CF	20.00	4.00	6	15.00	T12	18.45	25.50	5.0	●	0.07-0.12
MM ECK250H22R10-6T15CF	25.00	1.00	6	22.00	T15	23.90	37.00	5.0	●	0.07-0.12
MM ECK250H22R30-6T15CF	25.00	3.00	6	22.00	T15	23.90	37.00	5.0	●	0.07-0.12
MM ECK250H22R40-6T15CF	25.00	4.00	6	22.00	T15	23.90	37.00	5.0	●	0.07-0.12
MM ECK320H38R4-5T21	32.00	4.00	5	38.00	T21	30.00	55.00	1.0	●	0.06-0.18
MM ECK320H38R5-5T21	32.00	5.00	5	38.00	T21	30.00	55.00	1.0	●	0.06-0.18

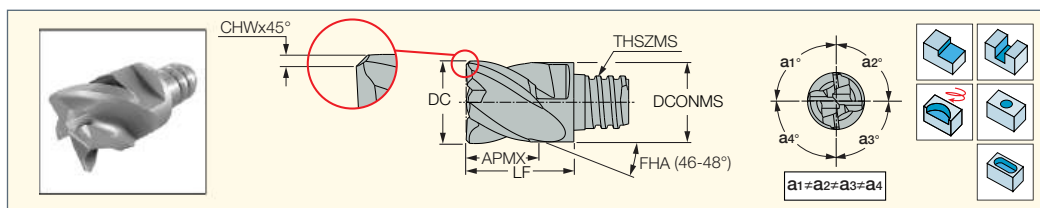
- For shanks, see pages 101-111
- For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection.
- For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM EC-H-4-CF

Interchangeable Carbide Endmill
Heads for CHATTER-FREE
Milling Alloyed Steel



Designation	Dimensions								IC908	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽¹⁾	APMX	THSZMS	DCONMS	LF	CHW	KCH		
MM EC080H05C3-4T05CF	8.00	4	5.00	T05	7.70	10.00	0.30	45.0	●	0.03-0.09
MM EC100H07C4-4T06CF	10.00	4	7.00	T06	9.60	13.00	0.40	45.0	●	0.03-0.10
MM EC120H09C5-4T08CF	12.00	4	9.00	T08	11.70	16.50	0.50	45.0	●	0.04-0.11
MM EC160H12C6-4T10CF	16.00	4	12.00	T10	15.30	20.50	0.60	45.0	●	0.05-0.13
MM EC200H15C6-4T12CF	20.00	4	15.00	T12	18.45	25.50	0.60	45.0	●	0.05-0.17

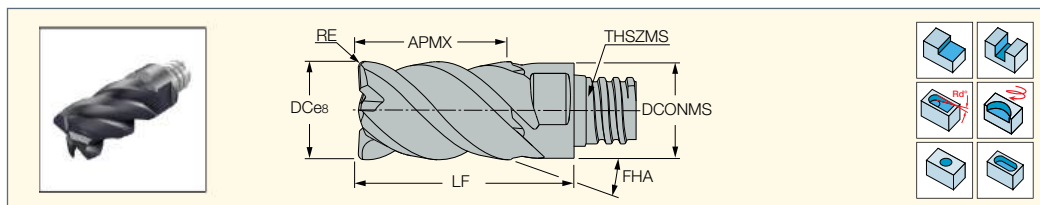
- For shanks, see pages 101-111
- For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection.
- For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM EC-Z4-1.5xD

Interchangeable Solid Carbide Endmill Heads with 1.5xD Flute Lengths for Roughing and Finishing



Designation	Dimensions								Tough ↔ Hard		Recommended Machining Data
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA	IC908	IC608	
MM EC080B12R000-4T05	8.00	4	12.00	0.00	T05	7.70	18.00	46.5		●	0.03-0.09
MM EC080H12R05CF-4T05	8.00	4	12.00	0.50	T05	7.70	18.00	46.5	●		0.03-0.09
MM EC100B15R000-4T06	10.00	4	15.00	0.00	T06	9.60	22.00	46.5		●	0.03-0.10
MM EC100H15R05CF-4T06	10.00	4	15.00	0.50	T06	9.60	22.00	46.5	●		0.03-0.10
MM EC120B18R000-4T08	12.00	4	18.00	0.00	T08	11.70	27.00	46.5		●	0.04-0.11
MM EC120H18R05CF-4T08	12.00	4	18.00	0.50	T08	11.70	27.00	46.5	●		0.04-0.11
MM EC160B24R000-4T10	16.00	4	24.00	0.00	T10	15.30	33.50	46.5		●	0.05-0.13
MM EC160H24R05CF-4T10	16.00	4	24.00	0.50	T10	15.30	33.50	46.5	●		0.05-0.13
MM EC200B30R000-4T12	20.00	4	30.00	0.00	T12	18.45	41.00	46.5		●	0.05-0.17
MM EC200H30R05CF-4T12	20.00	4	30.00	0.50	T12	18.45	41.00	46.5	●		0.05-0.17
MM EC250B37R000-4T15	25.00	4	37.00	0.00	T15	23.90	52.50	46.5		●	0.06-0.17
MM EC250H37R05CF-4T15	25.00	4	37.00	0.50	T15	23.90	52.50	46.5	●		0.06-0.17

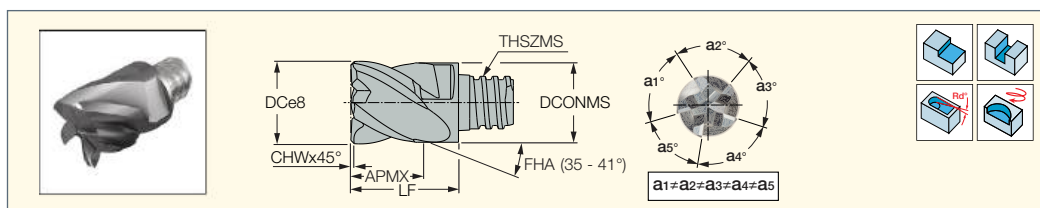
• For shanks, see pages 101-111 • Do not apply lubricant to the threaded connection • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM EC-H-5-CF

Interchangeable Carbide Endmill Heads for CHATTER-FREE Milling of High Temperature Alloys Such as Titanium and Inconel



Designation	Dimensions									IC908	Recommended Machining Data
	DC	NOF ⁽¹⁾	APMX	THSZMS	DCONMS	LF	RMPX ⁽²⁾	CHW	KCH		
MM EC080H05C3-5T05CF	8.00	5	5.00	T05	7.70	10.00	5.0	0.30	45.0	●	0.03-0.09
MM EC100H07C4-5T06CF	10.00	5	7.00	T06	9.60	13.00	5.0	0.40	45.0	●	0.03-0.10
MM EC120H09C5-5T08CF	12.00	5	9.00	T08	11.70	16.50	4.0	0.50	45.0	●	0.04-0.11
MM EC160H12C6-5T10CF	16.00	5	12.00	T10	15.30	20.50	4.0	0.60	45.0	●	0.05-0.13
MM EC200H15C6-5T12CF	20.00	5	15.00	T12	18.45	25.50	3.0	0.60	45.0	●	0.05-0.17
MM EC250H22C6-5T15CF	25.00	5	22.00	T15	23.90	37.00	3.0	0.60	45.0	●	0.06-0.17

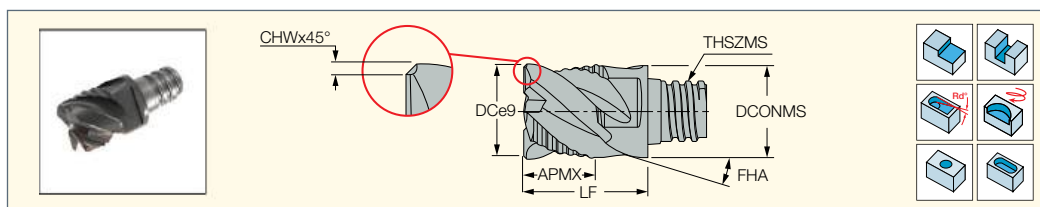
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM EFS

Combination of Interchangeable Solid Carbide Endmill Heads for Roughing and Finishing



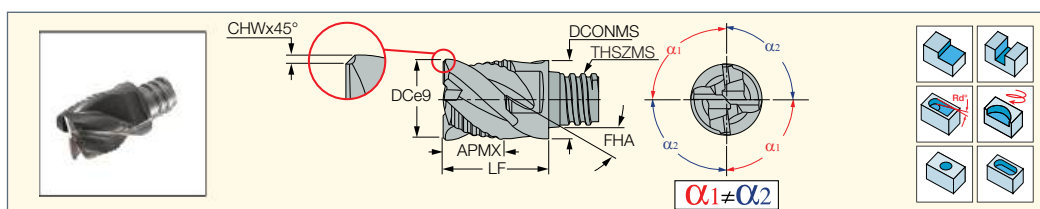
Designation	Dimensions									IC908	Recommended Machining Data f_z (mm/t)
	DC	NOF ⁽¹⁾	APMX	THSZMS	DCONMS	LF	FHA	CHW	KCH		
MM EFS080B05-4T05	8.00	4	5.00	T05	7.70	10.00	45.0	0.30	45.0	●	0.03-0.08
MM EFS100B07-4T06	10.00	4	7.00	T06	9.60	13.00	45.0	0.30	45.0	●	0.03-0.09
MM EFS120B09-4T08	12.00	4	9.00	T08	11.70	16.50	45.0	0.40	45.0	●	0.04-0.10
MM EFS160B12-4T10	16.00	4	12.00	T10	15.30	20.50	45.0	0.60	45.0	●	0.05-0.11
MM EFS200B15-4T12	20.00	4	15.00	T12	18.45	25.50	45.0	0.60	45.0	●	0.05-0.11
MM EFS250B22-4T15	25.00	4	22.00	T15	23.90	37.00	45.0	0.60	45.0	●	0.06-0.11

- For shanks, see pages 101-111
- For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection.
- For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM EFS-CF

4 Flute Solid Carbide Heads with 38° Helix and Variable Pitch for CHATTER-FREE Roughing and Finishing Applications



Designation	Dimensions									IC908	Recommended Machining Data f_z (mm/t)
	DC	NOF ⁽¹⁾	APMX	CHW	KCH	THSZMS	DCONMS	LF	FHA		
MM EFS060E05-4T05 CF	6.00	4	5.00	0.25	45.0	T05	7.70	10.00	38.0	●	0.03-0.08
MM EFS080E05-4T05 CF	8.00	4	5.00	0.30	45.0	T05	7.70	10.00	38.0	●	0.03-0.08
MM EFS100E07-4T06 CF	10.00	4	7.00	0.40	45.0	T06	9.60	13.00	38.0	●	0.03-0.09
MM EFS120E09-4T08 CF	12.00	4	9.00	0.50	45.0	T08	11.70	16.50	38.0	●	0.04-0.10
MM EFS160E12-4T10 CF	16.00	4	12.00	0.60	45.0	T10	15.30	20.50	38.0	●	0.05-0.11
MM EFS200E15-4T12 CF	20.00	4	16.00	0.60	45.0	T12	18.45	25.50	38.0	●	0.05-0.11
MM EFS250E22-4T15 CF	25.00	4	22.00	0.60	45.0	T15	23.90	37.00	38.0	●	0.06-0.11

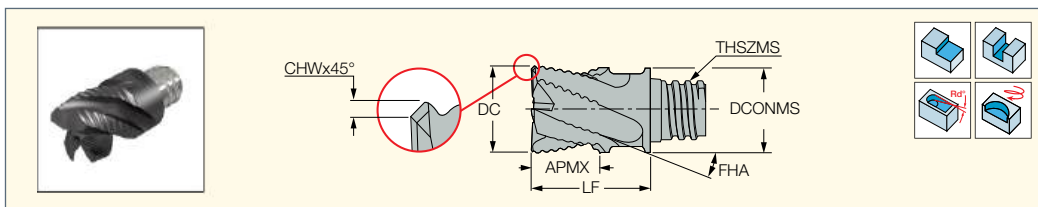
- For shanks, see pages 101-111
- For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection.
- For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM ERS

Interchangeable Solid Carbide
Rough Milling Heads for
High Metal Removal Rates



Designation	Dimensions										IC908	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽³⁾	APMX	THSZMS	DCONMS	LF	FHA	RMPX ⁽⁴⁾	CHW	KCH		
MM ERS080B05-4T05	8.00	4	5.00	T05	7.70	10.00	45.0	5.0	0.25	45.0	●	0.03-0.08
MM ERS080B09-4T05	8.00	4	9.00	T05	7.70	15.00	45.0	5.0	0.25	45.0	●	0.03-0.08
MM ERS100B07-4T06	10.00	4	7.00	T06	9.60	13.00	45.0	5.0	0.30	45.0	●	0.03-0.09
MM ERS120B09-4T08	12.00	4	9.00	T08	11.70	16.50	45.0	5.0	0.35	45.0	●	0.04-0.10
MM ERS120B09-4T08H ⁽¹⁾	12.00	4	9.00	T08	11.70	16.50	45.0	5.0	0.35	45.0	●	0.04-0.10
MM ERS120B09-4T08I ⁽²⁾	12.00	4	9.00	T08	11.70	16.50	45.0	5.0	0.35	45.0	●	0.04-0.11
MM ERS120B14-4T08	12.00	4	14.00	T08	11.70	23.00	45.0	5.0	0.35	45.0	●	0.04-0.10
MM ERS160B12-5T10	16.00	5	12.00	T10	15.30	20.50	45.0	5.0	0.40	45.0	●	0.04-0.10
MM ERS160B12-5T10H ⁽¹⁾	16.00	5	12.00	T10	15.30	20.50	45.0	5.0	0.40	45.0	●	0.04-0.10
MM ERS200B15-6T12	20.00	6	15.00	T12	18.45	25.50	45.0	3.0	0.40	45.0	●	0.05-0.11
MM ERS250B22-6T15	25.00	6	22.00	T15	23.90	37.00	45.0	3.0	0.50	45.0	●	0.05-0.11

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ With a central coolant hole

⁽²⁾ With coolant holes directed to each flute

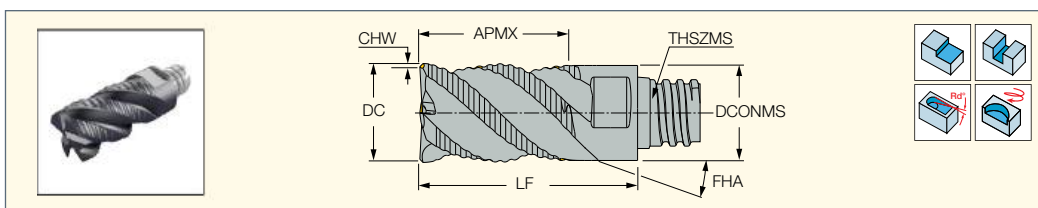
⁽³⁾ Number of flutes

⁽⁴⁾ Maximum ramping angle

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM ERS-1.5xD

Interchangeable Solid Carbide
Rough Milling Heads with
1.5xD Flute Lengths for High
Metal Removal Rates



Designation	Dimensions										IC908	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽¹⁾	APMX	CHW	KCH	THSZMS	DCONMS	LF	FHA	RMPX ⁽²⁾		
MM ERS080B12-4T05	8.00	4	12.00	0.25	45.0	T05	7.70	18.00	46.0	5.0	●	0.03-0.08
MM ERS100B15-4T06	10.00	4	15.00	0.30	45.0	T06	9.60	22.00	46.0	5.0	●	0.03-0.09
MM ERS120B18-4T08	12.00	4	18.00	0.35	45.0	T08	11.70	27.00	46.0	5.0	●	0.04-0.10
MM ERS160B24-5T10	16.00	5	24.00	0.40	45.0	T10	15.30	33.50	40.0	5.0	●	0.04-0.10
MM ERS200B30-6T12	20.00	6	30.00	0.40	45.0	T12	18.45	41.00	47.0	3.0	●	0.05-0.11
MM ERS250B37-6T15	25.00	6	37.00	0.50	45.0	T15	23.90	52.50	47.0	3.0	●	0.05-0.11

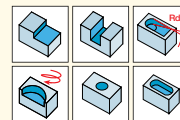
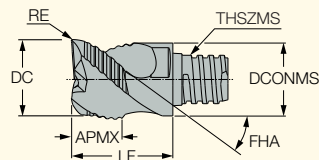
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM ERA

Interchangeable Solid Carbide
Rough Milling Heads for
Machining Aluminum at High
Metal Removal Rates

**ALUMINUM**

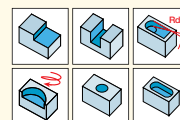
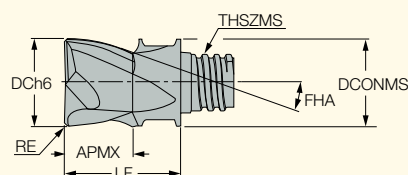
Designation	Dimensions								IC08	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA		
MM ERA080B05R0.2-3T05	8.00	3	5.00	0.20	T05	7.70	10.00	45.0	●	0.03-0.15
MM ERA100B06R0.2-3T06	10.00	3	6.00	0.20	T06	9.60	13.00	45.0	●	0.05-0.20
MM ERA120B08R0.2-3T08	12.00	3	8.00	0.20	T08	11.70	16.50	45.0	●	0.07-0.22
MM ERA160B10R0.2-3T10	16.00	3	10.00	0.20	T10	15.30	20.50	45.0	●	0.07-0.25
MM ERA200B12R0.2-3T12	20.00	3	12.00	0.20	T12	18.45	25.50	45.0	●	0.07-0.25
MM ERA250B19R0.2-3T15	25.00	3	19.00	0.20	T15	23.90	37.00	45.0	●	0.07-0.25

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE
MM EA

Interchangeable Solid Carbide
Slot Drill Milling Heads for
Machining Aluminum

**ALUMINUM**

Designation	Dimensions								IC08	Recommended Machining Data f _z (mm/t)
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA		
MM EA060B03R0.0-3T04	6.00	3	3.20	0.00	T04	5.80	8.50	45.0	●	0.02-0.05
MM EA080B05R0.5-2T05	8.00	2	5.00	0.50	T05	7.70	10.00	45.0	●	0.03-0.09
MM EA080B05R0.5-3T05	8.00	3	5.00	0.50	T05	7.70	10.00	45.0	●	0.03-0.09
MM EA100B07R0.5-2T06	10.00	2	7.00	0.50	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA100B07R1.0-2T06	10.00	2	7.00	1.00	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA100B06R0.5-3T06	10.00	3	6.00	0.50	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA100B06R1.0-3T06	10.00	3	6.00	1.00	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA120B09R0.5-2T08	12.00	2	9.00	0.50	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B09R1.0-2T08	12.00	2	9.00	1.00	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B08R0.5-3T08	12.00	3	8.00	0.50	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B08R1.0-3T08	12.00	3	8.00	1.00	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B08R3.0-3T08	12.00	3	8.00	3.00	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA160B10R000-3T10	16.00	3	10.00	0.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R1.0-3T10	16.00	3	10.00	1.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R2.0-3T10	16.00	3	10.00	2.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R3.0-3T10	16.00	3	10.00	3.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R4.0-3T10	16.00	3	10.00	4.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA200B12R0.5-3T12	20.00	3	12.00	0.50	T12	18.45	25.50	45.0	●	0.05-0.13
MM EA200B12R1.0-3T12	20.00	3	12.00	1.00	T12	18.45	25.50	45.0	●	0.05-0.13
MM EA200B12R2.0-3T12	20.00	3	12.00	2.00	T12	18.45	25.50	45.0	●	0.05-0.13
MM EA200B12R3.0-3T12	20.00	3	12.00	3.00	T12	18.45	25.50	45.0	●	0.05-0.13
MM EA200B12R4.0-3T12	20.00	3	12.00	4.00	T12	18.45	25.50	45.0	●	0.05-0.13

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection.

⁽¹⁾ Number of flutes

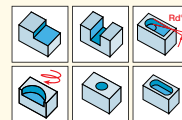
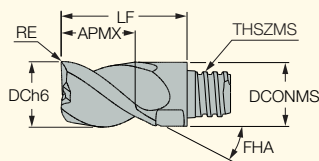


MULTI-MASTER

INDEXABLE SOLID CARBIDE LINE

MM EA-CF

Interchangeable Solid Carbide
Endmill Heads with Different
Helix for Machining Aluminum



ALUMINUM

Designation	Dimensions								IC08	Recommended Machining Data	
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA		f _z	(mm/t)
MM EA080H08R0CF-4T05	8.00	4	8.00	0.00	T05	7.70	15.00	40.0	●	0.03-0.09	
MM EA100H10R0CF-4T06	10.00	4	10.00	0.00	T06	9.60	19.00	40.0	●	0.03-0.10	
MM EA120H12R0.2CF-3T08	12.00	3	12.00	0.20	T08	11.70	23.00	40.0	●	0.04-0.11	
MM EA120H12R0CF-4T08	12.00	4	12.00	0.00	T08	11.70	23.00	40.0	●	0.04-0.11	
MM EA160H16R0.0CF-3T10	16.00	3	16.00	0.00	T10	15.30	28.00	40.0	●	0.05-0.13	
MM EA160H16R0.2CF-3T10	16.00	3	16.00	0.20	T10	15.30	28.00	40.0	●	0.05-0.13	
MM EA160H16R0.5CF-3T10	16.00	3	16.00	0.50	T10	15.30	28.00	40.0	●	0.05-0.13	
MM EA160H16R2.5CF-3T10	16.00	3	16.00	2.50	T10	15.30	28.00	40.0	●	0.05-0.13	
MM EA160H16R3CF-3T10	16.00	3	16.00	3.00	T10	15.30	28.00	40.0	●	0.05-0.13	
MM EA160H16R4CF-3T10	16.00	3	16.00	4.00	T10	15.30	26.00	40.0	●	0.05-0.13	
MM EA160H16R0CF-4T10	16.00	4	16.00	0.00	T10	15.30	26.00	40.0	●	0.05-0.13	
MM EA200H20R0.0CF-3T12	20.00	3	20.00	0.00	T12	18.45	34.00	40.0	●	0.05-0.13	
MM EA200H20R0.2CF-3T12	20.00	3	20.00	0.20	T12	18.45	34.00	40.0	●	0.05-0.13	
MM EA200H20R0.5CF-3T12	20.00	3	20.00	0.50	T12	18.45	34.00	40.0	●	0.05-0.13	
MM EA200H20R2.5CF-3T12	20.00	3	20.00	2.50	T12	18.45	34.00	40.0	●	0.05-0.13	
MM EA200H20R3CF-3T12	20.00	3	20.00	3.00	T12	18.30	34.00	40.0	●	0.05-0.13	
MM EA200H20R4CF-3T12	20.00	3	20.00	4.00	T12	18.45	34.00	40.0	●	0.05-0.13	
MM EA250H19R0.5-3T15	25.00	3	19.00	0.50	T15	23.90	37.00	40.0	●	0.06-0.16	
MM EA250H19R1.0-3T15	25.00	3	19.00	1.00	T15	23.90	37.00	40.0	●	0.06-0.16	
MM EA250H19R3.0-3T15	25.00	3	19.00	3.00	T15	23.90	37.00	40.0	●	0.06-0.16	
MM EA250H19R4.0-3T15	25.00	3	25.00	4.00	T15	23.90	37.00	40.0	●	0.06-0.16	
MM EA320H32R0.2-4T21	32.00	4	32.00	0.20	T21	29.90	55.00	38.0	●	0.06-0.16	
MM EA320H32R0.4-4T21	32.00	4	32.00	0.40	T21	29.90	55.00	38.0	●	0.06-0.16	
MM EA320H32R0.8-4T21	32.00	4	32.00	0.80	T21	29.90	55.00	38.0	●	0.06-0.16	

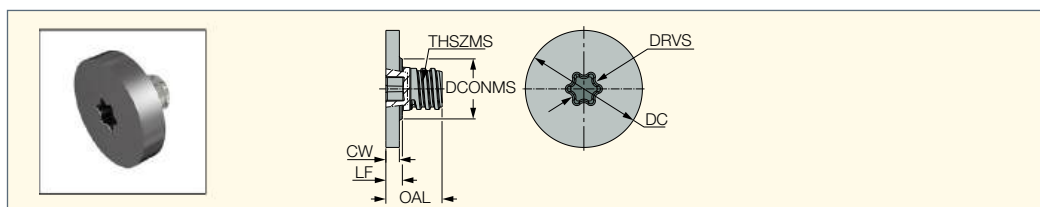
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

⁽¹⁾ Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TC-G

Interchangeable Cemented
Carbide Blank Heads



Designation	Dimensions							IC28
	DC	CW	LF	OAL	DCONMS	DRVS ⁽¹⁾	THSZMS	
MM TC138N-19-G-T05	13.80	1.90	2.50	9.60	7.60	20.0	T05	●
MM TC138N-23-G-T05	13.80	2.30	2.90	10.00	7.60	20.0	T05	●
MM TC138N-28-G-T05	13.80	2.80	3.40	10.50	7.60	20.0	T05	●
MM TC138N-35-G-T05	13.80	3.50	4.10	11.20	7.60	20.0	T05	●
MM TC138N-43-G-T05	13.80	4.30	4.90	12.00	7.60	20.0	T05	●
MM TC171N-19-G-T06	17.10	1.90	2.75	9.40	9.25	25.0	T06	●
MM TC171N-23-G-T06	17.10	2.30	3.15	9.80	9.25	25.0	T06	●
MM TC171N-33-G-T06	17.10	3.30	4.15	10.80	9.25	25.0	T06	●
MM TC171N-43-G-T06	17.10	4.30	5.15	11.80	9.25	25.0	T06	●
MM TC171N-50-G-T06	17.10	5.00	5.85	12.50	9.25	25.0	T06	●
MM TC234N-27-G-T08	23.40	2.70	3.30	11.25	12.00	40.0	T08	●
MM TC234N-42-G-T08	23.40	4.20	4.80	12.75	12.00	40.0	T08	●
MM TC234N-53-G-T08	23.40	5.30	5.90	13.85	12.00	40.0	T08	●
MM TC234N-66-G-T08	23.40	6.60	7.20	15.75	12.00	40.0	T08	●
MM TC234N-82-G-T08	23.40	8.20	8.80	17.35	12.00	40.0	T08	●
MM TC234N-99-G-T08	23.40	9.90	10.50	18.45	12.00	40.0	T08	●
MM TC286N-28-G-T10	28.60	2.80	3.65	15.40	15.30	40.0	T10	●
MM TC286N-36-G-T10	28.60	3.60	4.45	16.20	15.30	40.0	T10	●
MM TC286N-46-G-T10	28.60	4.60	5.45	17.20	15.30	40.0	T10	●
MM TC286N-56-G-T10	28.60	5.60	6.45	18.20	15.30	40.0	T10	●
MM TC286N-66-G-T10	28.60	6.60	7.45	19.20	15.30	40.0	T10	●
MM TC286N-83-G-T10	28.60	8.30	9.15	20.90	15.30	40.0	T10	●
MM TC286N-93-G-T10	28.60	9.30	10.15	21.90	15.30	40.0	T10	●
MM TC286N-103-G-T10	28.60	10.30	11.15	22.90	15.30	40.0	T10	●
MM TC356N-60-G-T12	35.60	6.00	6.55	20.35	18.30	50.0	T12	●
MM TC356N-100-G-T12	35.60	10.00	10.55	24.35	18.30	50.0	T12	●
MM TC356N-120-G-T12	35.60	12.00	12.55	26.35	18.30	50.0	T12	●
MM TC356N-160-G-T12	35.60	16.00	16.55	30.35	18.30	50.0	T12	●

• For shanks, see pages 101-111 • For tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection

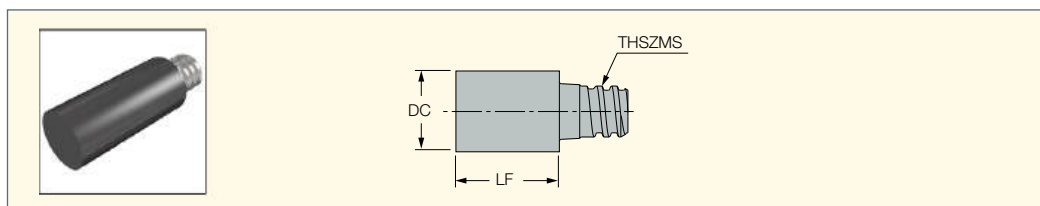
• For user guide, see pages 59,211-218

⁽¹⁾ Torque key size

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ESR-1.5D BLANKS

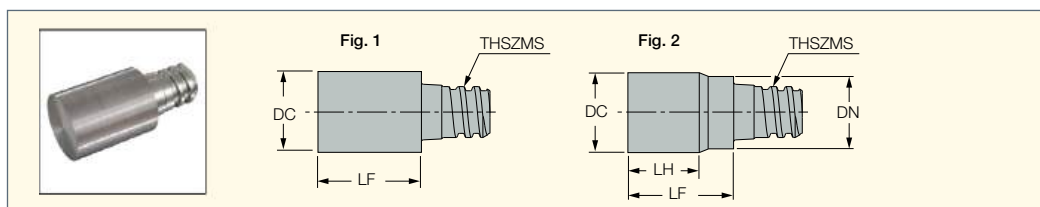
Interchangeable Solid
Carbide Blank Heads



Designation	Dimensions			IC08
	DC	LF	THSZMS	
MM ESR-G 080-18.0 T05 08	8.00	18.40	T05	●
MM ESR-G.375-.87T06	9.53	22.40	T06	●
MM ESR-G 100-22.0 T06	10.00	22.40	T06	●
MM ESR-G 120-27.0 T08 08	12.00	27.45	T08	●
MM ESR-G.500-1.06T08	12.70	27.45	T08	●
MM ESR-G 160-33.5 T10	16.00	34.00	T10	●
MM ESR-G.750-1.61T12	19.05	41.50	T12	●
MM ESR-G 200-41.0 T12	20.00	41.50	T12	●
MM ESR-G 250-52.5 T15	25.00	53.00	T15	●
MM ESR-G1.00-2.07T15	25.40	53.00	T15	●

MM ESR BLANKS

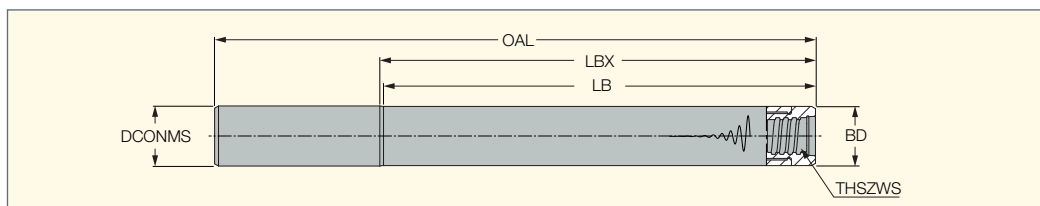
Interchangeable Solid
Carbide Blank Heads



Designation	Dimensions						Tough ↔ Hard	
	DC	LF	THSZMS	LH	DN	Fig.	IC08	IC03
MM ESR-G 080-10 T05	8.00	10.35	T05	-	-	1	●	●
MM ESR-G 080-15 T05	8.00	15.40	T05	-	-	1	●	
MM ESR-G.375-.56T06	9.53	13.35	T06	-	-	1	●	
MM ESR-G.375-.75T06	9.53	19.40	T06	-	-	1	●	
MM ESR-G 100-13 T05	10.00	13.35	T05	-	-	1	●	
MM ESR-G 100-13 T06	10.00	13.35	T06	-	-	1	●	●
MM ESR-G 100-19 T06	10.00	19.45	T06	-	-	1	●	
MM ESR-G 120-17 T06	12.00	17.05	T06	-	-	1	●	
MM ESR-G 120-17 T08	12.00	17.05	T08	-	-	1	●	
MM ESR-G 120-23 T08	12.00	23.40	T08	-	-	1	●	
MM ESR-G.500-.67T06	12.70	17.09	T06	-	-	1	●	
MM ESR-G.500-.67T08	12.70	17.09	T08	-	-	1	●	●
MM ESR-G.500-.91T08	12.70	23.45	T08	-	-	1	●	
MM ESR-G.625-.83 T10	15.88	20.90	T10	-	-	1	●	
MM ESR-G 160-21 T08	16.00	20.90	T08	-	-	1	●	
MM ESR-G 160-21 T10	16.00	20.90	T10	-	-	1	●	●
MM ESR-G 160-28 T08	16.00	28.45	T08	-	-	1	●	
MM ESR-G 160-28 T10	16.00	28.45	T10	-	-	1	●	
MM ESR-G.750-1.02T12	19.05	26.05	T12	17.0	18.45	2	●	
MM ESR-G 200-26 T12	20.00	28.10	T12	16.6	18.45	2	●	●
MM ESR-G 200-34 T12	20.00	34.50	T12	-	-	1	●	
MM ESR-G 222-295 T12	22.00	29.50	T12	17.9	18.45	2	●	
MM ESR-G 222-295 T10	22.22	29.50	T10	17.9	18.45	2	●	
MM ESR-G 250-25 T15	25.00	25.60	T15	-	-	1	●	●
MM ESR-G 250-37 T12	25.00	37.60	T12	-	-	1	●	
MM ESR-G 250-37 T15	25.00	37.60	T15	-	-	1	●	
MM ESR-G 320-55-T21 NECK	32.00	55.80	T21	39.5	30.00	2	●	

MULTI-MASTER
MM S-A-AV

Anti-Vibration Cylindrical
Shanks Mount Interchangeable
Milling Heads



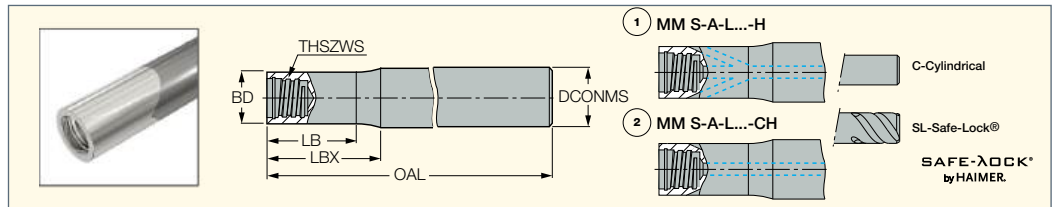
Designation	THSZWS	OAL	LBX	LB	DCONMS	BD
MM S-A-L175/120-C20-T12AV	T12	175.00	120.00	118.80	20.00	19.70
MM S-A-L200/145-C20-T12AV	T12	200.00	145.00	143.80	20.00	19.70
MM S-A-L210/150-C25-T15AV	T15	210.00	150.00	148.60	25.00	24.60
MM S-A-L250/190-C25-T15AV	T15	250.00	190.00	188.60	25.00	24.60

New

- Do not apply lubricant to the threaded connection

MULTI-MASTER**MM S-A (stepped shanks)**

Stepped Cylindrical Shanks
Mount Interchangeable
Milling Heads



Designation	THSZWS	DCONMS	BD	LB	LBX	OAL	Shank ⁽²⁾	Shank m. ⁽³⁾	CSP ⁽⁴⁾	Fig.	RPMX ⁽⁵⁾	Kg
MM S-A-L050-C08-T04	T04	8.00	5.80	9.90	14.0	50.00	C	S	0	-	60000	0.03
MM S-A-L060/20-C08-T04-C	T04	8.00	5.80	16.90	20.0	60.00	C	C	0	-	60000	0.03
MM S-A-L060-C08-T05	T05	8.00	7.60	12.50	15.0	60.00	C	S	0	-	60000	0.05
MM S-A-L065/24-SL08T05C	T05	8.00	7.60	24.00	25.6	65.00	SL	C	0	-	60000	0.04
MM S-A-L070-C08-T05-C	T05	8.00	7.60	18.60	20.0	70.00	C	C	0	-	60000	0.04
MM S-A-L070-C08-T05-W	T05	8.00	7.60	18.90	20.0	70.00	C	W	0	-	60000	0.06
MM S-A-L090-C08-T05-C	T05	8.00	7.60	38.60	40.0	90.00	C	C	0	-	50160	0.06
MM S-A-L090-C08-T05-W	T05	8.00	7.60	38.60	40.0	90.00	C	W	0	-	36090	0.07
MM S-A-L110-C08-T05-C	T05	8.00	7.60	57.90	60.0	110.00	C	C	0	-	30600	0.07
MM S-A-L110-C08-T05-W	T05	8.00	7.60	58.90	60.0	110.00	C	W	0	-	21060	0.09
MM S-A-L070-C10-T06-C	T06	10.00	9.60	18.50	20.0	70.00	C	C	0	-	54900	0.08
MM S-A-L070-C10-T06-W-H	T06	10.00	9.60	18.90	20.0	70.00	C	W	1	1	60000	0.08
MM S-A-L075-C10-T06	T06	10.00	9.60	17.70	20.0	75.00	C	S	0	-	60000	0.05
MM S-A-L075-C10-T06-H	T06	10.00	9.60	19.40	20.0	75.00	C	S	1	1	53940	0.04
MM S-A-L075/12-C10-T06-CH	T06	10.00	9.60	10.60	12.0	75.00	C	S	1	2	53940	0.04
MM S-A-L075/30-SL10T06C	T06	10.00	9.60	30.00	31.7	75.00	SL	C	0	-	53940	0.00
MM S-A-L090-C10-T06-C	T06	10.00	9.60	38.60	40.0	90.00	C	C	0	-	55170	0.06
MM S-A-L090/040C10T06C-H	T06	10.00	9.60	38.60	40.0	90.00	C	C	1	1	60000	0.08
MM S-A-L090-C10-T06-W	T06	10.00	9.60	17.20	20.0	90.00	C	W	0	-	41670	0.12
MM S-A-L090-C10-T06-W-H	T06	10.00	9.60	39.00	40.0	90.00	C	W	1	1	40860	0.10
MM S-A-L110-C10-T06-C	T06	10.00	9.60	57.90	60.0	110.00	C	C	0	-	34530	0.11
MM S-A-L110-C10-T06-W-H	T06	10.00	9.60	59.00	60.0	110.00	C	W	1	1	24840	0.12
MM S-A-L150-C10-T06-C	T06	10.00	9.60	98.50	100.0	150.00	C	C	0	-	16620	0.16
MM S-A-L070-C12-T08-C	T08	12.00	11.60	17.90	20.0	70.00	C	C	0	-	60000	0.10
MM S-A-L070-C12-T08-W-H	T08	12.00	11.60	18.70	20.0	70.00	C	W	1	1	60000	0.11
MM S-A-L085/36-C12T08C	T08	12.00	11.60	36.00	37.7	85.00	C	C	0	-	60000	0.13
MM S-A-L090/14-C12-T08-CH	T08	12.00	11.60	13.00	14.0	90.00	C	S	1	2	43000	0.08
MM S-A-L090-C12-T08	T08	12.00	11.60	13.30	16.0	90.00	C	S	0	-	43000	0.10
MM S-A-L070/020C12T08C-CH	T08	12.00	11.60	18.00	20.0	70.00	C	C	1	2	43050	0.08
MM S-A-L090-C12-T08-C	T08	12.00	11.60	39.00	40.0	90.00	C	C	0	-	43050	0.12
MM S-A-L090-C12-T08-H	T08	12.00	11.60	38.70	40.0	90.00	C	S	1	1	41040	0.08
MM S-A-L090-C12-T08-W-H	T08	12.00	11.60	38.70	40.0	90.00	C	W	1	1	49800	0.15
MM S-A-L090/040C12T08C-CH	T08	12.00	11.60	38.00	40.0	90.00	C	C	1	2	49800	0.11
MM S-A-L090/42-C12-T08-CH	T08	12.00	11.60	41.00	42.0	90.00	C	S	1	2	41010	0.07
MM S-A-L110-C12-T08-W	T08	12.00	11.60	17.00	20.0	110.00	C	W	0	-	31350	0.20
MM S-A-L110-C12-T08-C	T08	12.00	11.60	57.00	60.0	110.00	C	C	0	-	41040	0.16
MM S-A-L110-C12-T08-W-H	T08	12.00	11.60	58.70	60.0	110.00	C	W	1	1	30210	0.18
MM S-A-L110/060C12T08C-CH	T08	12.00	11.60	58.00	60.0	110.00	C	C	1	2	30210	0.12
MM S-A-L130-C12-T08-C	T08	12.00	11.60	78.60	80.0	130.00	C	C	0	-	27960	0.19
MM S-A-L130-C12-T08-W-H	T08	12.00	11.60	78.70	80.0	130.00	C	W	1	1	20100	0.21
MM S-A-L130/080C12T08C-CH	T08	12.00	11.60	78.00	80.0	130.00	C	C	1	2	20100	0.17
MM S-A-L070-C16-T10-W-H	T10	16.00	15.30	18.20	20.0	70.00	C	W	1	1	60000	0.00
MM S-A-L090-C16-T10-C	T10	16.00	15.30	38.00	40.0	90.00	C	C	0	-	60000	0.21
MM S-A-L090-C16-T10-W-H	T10	16.00	15.30	38.20	40.0	90.00	C	W	1	1	57510	0.27
MM S-A-L090/040C16T10C-CH	T10	16.00	15.30	38.00	40.0	90.00	C	C	1	2	57510	0.17
MM S-A-L100-C16-T10	T10	16.00	15.30	17.10	20.0	100.00	C	S	0	-	39000	0.15
MM S-A-L100-C16-T10-H	T10	16.00	15.30	48.00	50.0	100.00	C	S	1	1	37140	0.13
MM S-A-L100/20-C16-T10-CH	T10	16.00	15.30	18.00	20.0	100.00	C	S	1	2	37140	0.12
MM S-A-L100/42-C16-T10-CH	T10	16.00	15.30	40.20	42.0	100.00	C	S	1	2	38040	0.14
MM S-A-L100/48-C16T10C ⁽¹⁾	T10	16.00	15.30	48.00	50.3	100.00	C	C	0	-	38040	0.06
MM S-A-L110-C16-T10-C	T10	16.00	15.30	58.20	60.0	110.00	C	C	0	-	47010	0.27
MM S-A-L110-C16-T10-W-H	T10	16.00	15.30	58.20	60.0	110.00	C	W	1	1	36030	0.33
MM S-A-L110/060C16T10C-H	T10	16.00	15.30	58.10	60.0	110.00	C	C	1	1	60000	0.24
MM S-A-L110/060C16T10C-CH	T10	16.00	15.30	58.00	60.0	110.00	C	C	1	2	36030	0.28
MM S-A-L130-C16-T10-C	T10	16.00	15.30	77.40	80.0	130.00	C	C	0	-	33510	0.32
MM S-A-L130-C16-T10-W-H	T10	16.00	15.30	78.20	80.0	130.00	C	W	1	1	24450	0.41
MM S-A-L130/080C16T10C-CH	T10	16.00	15.30	78.00	80.0	130.00	C	C	1	2	24450	0.32
MM S-A-L150-C16-T10-C	T10	16.00	15.30	97.40	100.0	150.00	C	C	0	-	24660	0.37
MM S-A-L150-C16-T10-W-H	T10	16.00	15.30	98.20	100.0	150.00	C	W	1	1	17610	0.45
MM S-A-L090-C20-T12-C	T12	20.00	18.30	37.20	40.0	90.00	C	C	0	-	60000	0.27

• Do not apply lubricant to the threaded connection

⁽¹⁾ With Safe-Lock® (by Haimer) pull-out prevention helical grooves

⁽²⁾ C-Cylindrical, W-Weldon, SL-Safe-Lock® by Haimer, helical grooves that prevent pull-out (available upon request).

⁽³⁾ S-steel, C-carbide, W-tungsten

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

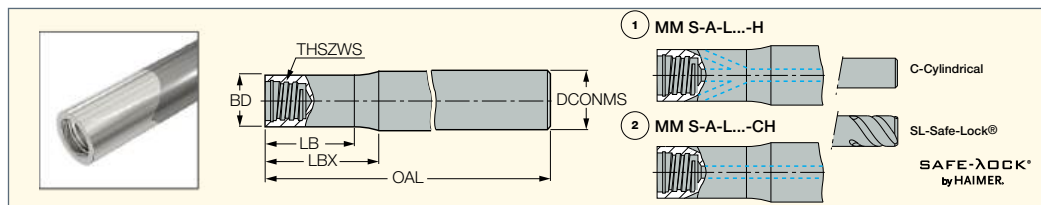
⁽⁵⁾ The maximum RPM must be calculated. Divide the listed max. RPM by the number of flutes (on the milling head) being used.

MM S-A (stepped shanks)

Stepped Cylindrical Shanks

Mount Interchangeable

Milling Heads



Designation	THSZWS	DCONMS	BD	LB	LBX	OAL	Shank ⁽²⁾	Shank m. ⁽³⁾	CSP ⁽⁴⁾	Fig.	RPMX ⁽⁵⁾	Kg
MM S-A-L090-C20-T12-W-H	T12	20.00	18.30	36.90	40.0	90.00	C	W	1	1	60000	0.41
MM S-A-L090/040C20T12C-CH	T12	20.00	18.30	37.20	40.0	90.00	C	C	1	2	60000	0.30
MM S-A-L110/50-SL20T12C	T12	20.00	18.30	50.00	53.3	110.00	SL	C	0	-	60000	0.41
MM S-A-L120-C20-T12	T12	20.00	18.30	20.30	25.0	120.00	C	S	0	-	36000	0.27
MM S-A-L120-C20-T12-H	T12	20.00	18.30	66.70	70.0	120.00	C	S	1	1	32160	0.25
MM S-A-L120/25-C20-T12-CH	T12	20.00	18.30	22.20	25.0	120.00	C	S	1	2	32160	0.12
MM S-A-L120/48-C20-T12-CH	T12	20.00	18.30	45.20	48.0	120.00	C	S	1	2	32160	0.20
MM S-A-L130-C20-T12-C	T12	20.00	18.30	77.20	80.0	130.00	C	C	0	-	42360	0.47
MM S-A-L130-C20-T12-W-H	T12	20.00	18.30	76.90	80.0	130.00	C	W	1	1	31650	0.59
MM S-A-L130/080C20T12C-CH	T12	20.00	18.30	77.20	80.0	130.00	C	C	1	2	42360	0.44
MM S-A-L170-C20-T12-C	T12	20.00	18.30	97.20	100.0	170.00	C	C	0	-	25170	0.63
MM S-A-L200-C20-T12-C	T12	20.00	18.30	116.50	120.0	200.00	C	C	0	-	17790	0.76
MM S-A-L200-C20-T12-W-H	T12	20.00	18.30	116.90	120.0	200.00	C	W	1	1	12540	0.92
MM S-A-L200/120C20T12C-CH	T12	20.00	18.30	117.20	120.0	200.00	C	C	1	2	17790	0.74
MM S-A-L120-C25-T15-C	T15	25.00	23.90	57.50	60.0	120.00	C	C	0	-	49400	0.64
MM S-A-L120-C25-T15-W-H	T15	25.00	23.90	58.00	60.0	120.00	C	W	1	1	41700	0.89
MM S-A-L125/63-C25T15C ⁽¹⁾	T15	25.00	24.00	63.00	65.8	125.00	C	C	0	-	41700	0.75
MM S-A-L135-C25-T15	T15	25.00	23.90	33.00	35.0	135.00	C	S	0	-	28290	0.47
MM S-A-L135/35-C25-T15-CH	T15	25.00	23.90	33.00	35.0	135.00	C	S	1	2	28230	0.42
MM S-A-L135/50-C25-T15-CH	T15	25.00	23.90	47.70	50.0	135.00	C	S	1	2	28230	0.40
MM S-A-L170-C25-T15-C	T15	25.00	23.90	98.00	100.0	170.00	C	C	0	-	27360	0.96
MM S-A-L175-C25-T15	T15	25.00	23.90	62.70	65.0	175.00	C	S	0	-	16890	0.10
MM S-A-L250-C25-T15-C	T15	25.00	23.90	148.00	150.0	250.00	C	C	0	-	12690	1.45
MM S-A-L100-W32-T21-CH	T21	32.00	30.00	-	-	100.00	W	S	1	2	12690	0.51
MM S-A-L100/32-C32-T21	T21	32.00	30.00	32.00	35.3	100.00	C	S	0	-	12690	0.56
MM S-A-L130/60-C32-T21-C	T21	32.00	30.00	60.00	63.3	130.00	C	C	0	-	12690	1.22
MM S-A-L135/64-C32T21C	T21	32.00	30.00	64.00	67.5	135.00	C	C	0	-	12690	1.02
MM S-A-L150/50-C32-T21	T21	32.00	30.00	50.00	53.5	150.00	C	S	0	-	12690	0.86
MM S-A-L150/50-C32-T21-CH	T21	32.00	30.00	50.00	53.3	150.00	C	S	1	2	12690	0.80
MM S-A-L170/100-C32-T21-C	T21	32.00	30.00	100.00	103.5	170.00	C	C	0	-	12690	1.22
MM S-A-L170/100C32T21C-CH	T21	32.00	30.00	100.00	103.5	170.00	C	C	1	2	12690	0.00
MM S-A-L250/150-C32-T21-C	T21	32.00	30.00	150.00	153.5	250.00	C	C	0	-	12690	2.50
MM S-A-L300/200-C32-T21-C	T21	32.00	30.00	200.00	203.5	300.00	C	C	0	-	12690	3.00

• Do not apply lubricant to the threaded connection

⁽¹⁾ With Safe-Lock® (by Haimer) pull-out prevention helical grooves

⁽²⁾ C-Cylindrical, W-Weldon, SL-Safe-Lock® by Haimer, helical grooves that prevent pull-out (available upon request).

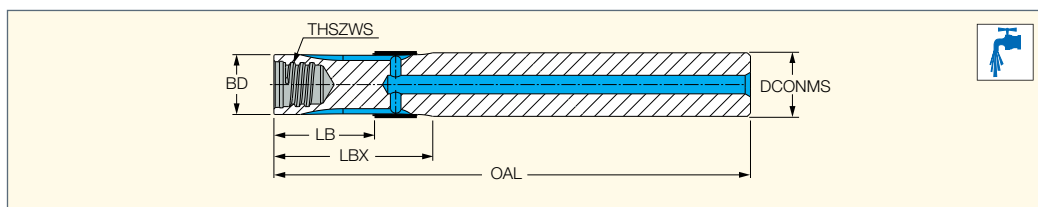
⁽³⁾ S-steel, C-carbide, W-tungsten

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

⁽⁵⁾ The maximum RPM must be calculated. Divide the listed max. RPM by the number of flutes (on the milling head) being used.

MULTI-MASTER**MM S-A-N**

Stepped Cylindrical Shanks with
Parallel Directed Coolant Mount
Interchangeable Milling Heads



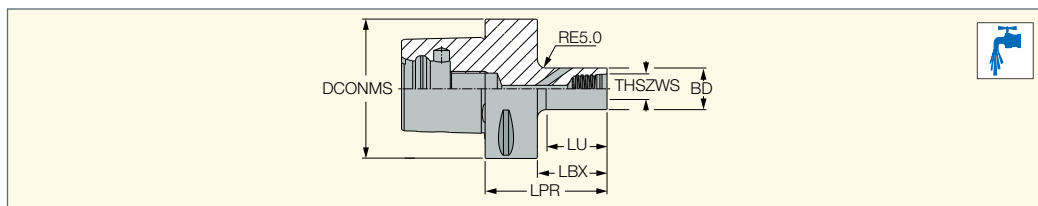
Designation	THSZWS	DCONMS	BD	LB	LBX	OAL	Shank m. ⁽¹⁾	kg
MM S-A-L075-C10-T06-N	T06	10.00	9.60	18.00	28.0	75.00	S	0.04
MM S-A-L090-C12-T08-N	T08	12.00	11.60	18.00	30.0	90.00	S	0.07
MM S-A-L100-C16-T10-N	T10	16.00	15.30	23.00	35.0	100.00	S	0.04

• Do not apply lubricant to the threaded connection

(1) S-steel

MULTI-MASTER**MM S-A-C#**

MULTI-MASTER Threaded
Connection Shanks with
a CAMFIX (ISO 26623-1)
Exchangeable Adaptation



Designation	DCONMS	THSZWS	BD	LPR	LBX	LU	DCP ⁽¹⁾	kg
MM S-A-H035-C3-T05	32.00	T05	7.60	35.00	20.0	15.00	0	0.12
MM S-A-H035-C3-T06	32.00	T06	9.25	35.00	20.0	15.00	0	0.12
MM S-A-H040-C3-T08	32.00	T08	11.60	40.00	25.0	20.00	0	0.13
MM S-A-H040-C3-T10	32.00	T10	15.30	40.00	25.0	20.00	0	0.15
MM S-A-H045-C3-T12	32.00	T12	18.30	45.00	30.0	25.00	0	0.16
MM S-A-H045-C4-T06	40.00	T06	9.25	45.00	25.0	20.00	0	0.25
MM S-A-H045-C4-T08	40.00	T08	11.60	45.00	25.0	20.00	0	0.25
MM S-A-H050-C4-T10	40.00	T10	15.30	50.00	30.0	25.00	0	0.28
MM S-A-H055-C4-T12	40.00	T12	18.30	55.00	35.0	30.00	0	0.22
MM S-A-H055-C4-T15	40.00	T15	23.90	55.00	35.0	30.00	0	0.35
MM S-A-H060-C5-T10	50.00	T10	15.30	60.00	40.0	35.00	0	0.22
MM S-A-H060-C5-T12	50.00	T12	18.30	60.00	40.0	35.00	0	0.48
MM S-A-H060-C5-T15	50.00	T15	23.90	60.00	40.0	35.00	0	0.58
MM S-A-H065-C6-T12	63.00	T12	18.30	65.00	43.0	38.00	0	0.80
MM S-A-H065-C6-T15	63.00	T15	23.90	65.00	43.0	38.00	0	0.84
MM S-A-H070-C8-T15	80.00	T15	23.90	70.00	40.0	35.00	0	1.83

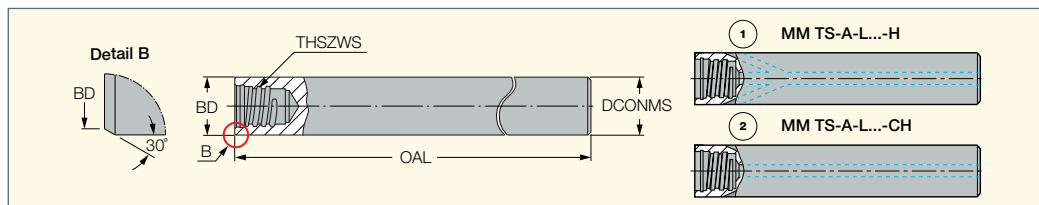
• Do not apply lubricant to the threaded connection • For adaptation options, see page 59

(1) 1 - Slot for data chip, 0 - Without slot for data chip

MULTI-MASTER

MM TS-A

Cylindrical Shanks Mount
Interchangeable Milling Heads



Designation	THSZWS	DCONMS	BD	OAL	Shank m. ⁽¹⁾	RPMX ⁽²⁾	CSP ⁽³⁾	Fig.	kg
MM TS-A-L070-C08-T04	T04	8.00	5.80	70.00	S	-	0	-	0.03
MM TS-A-L070-C08-T05	T05	8.00	7.60	70.00	S	60000	0	-	0.03
MM TS-A-L080-C10-T06	T06	10.00	9.60	80.00	S	47400	0	-	0.05
MM TS-A-L080-C10-T06-H	T06	10.00	9.60	80.00	S	46920	1	1	0.04
MM TS-A-L090-C12-T08	T08	12.00	11.60	90.00	S	43110	0	-	0.07
MM TS-A-L090-C12-T08-H	T08	12.00	11.60	90.00	S	42780	1	1	0.12
MM TS-A-L070-C16-T10-CH	T10	16.00	15.30	70.00	S	39420	1	2	0.00
MM TS-A-L100-C16-T10	T10	16.00	15.30	100.00	S	39420	0	-	0.16
MM TS-A-L100-C16-T10-H	T10	16.00	15.30	100.00	S	39210	1	1	0.14
MM TS-A-L090-C20-T12-CH	T12	20.00	18.30	90.00	S	-	1	2	0.20
MM TS-A-L100-C25-T15-CH	T15	25.00	23.90	100.00	S	-	1	2	0.34

• Do not apply lubricant to the threaded connection

⁽¹⁾ S-steel

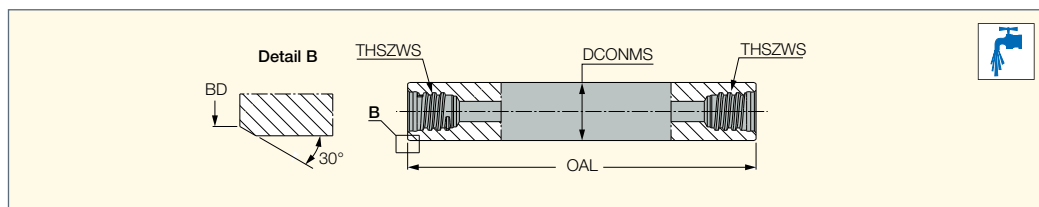
⁽²⁾ The actual maximum RPM to be calculated by dividing the listed RPM max by the number of the head's flutes being used.

⁽³⁾ 0 - Without coolant supply, 1 - With coolant supply

MULTI-MASTER

MM TS2-A

Double-Sided Cylindrical Shanks
for Interchangeable Heads



Designation	THSZWS	DCONMS	BD	OAL	Shank m.	kg
MM TS2-A-L050-C06-T04-CH	T04	6.00	5.80	50.00	S	0.03
MM TS2-A-L050-C08-T05-CH	T05	8.00	7.60	50.00	S	0.02
MM TS2-A-L060-C10-T06-CH	T06	10.00	9.60	60.00	S	0.04
MM TS2-A-L070-C12-T08-CH	T08	12.00	11.60	70.00	S	0.06
MM TS2-A-L080-C16-T10-CH	T10	16.00	15.30	80.00	S	0.00
MM TS2-A-L090-C20-T12-CH	T12	20.00	18.30	90.00	S	0.18

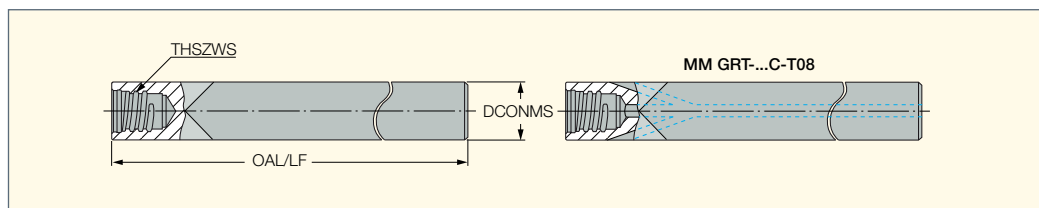
New

• Do not apply lubricant to the threaded connection

MULTI-MASTER

MM GRT (shanks)

Mount Slitting and Grooving
Interchangeable Milling Heads



Designation	THSZWS	DCONMS	OAL	Shank m. ⁽¹⁾	CSP ⁽²⁾	kg
MM GRT-095-T06	T06	9.52	80.00	C	0	0.07
MM GRT-100-T06	T06	10.00	100.00	C	0	0.10
MM GRT-120C-T08	T08	12.00	100.00	C	1	0.12
MM GRT-127C-T08	T08	12.70	120.00	C	1	0.17

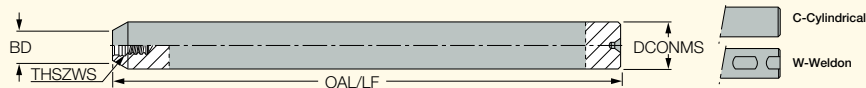
• MM GRT... shanks serve mainly for MM GRIT... slitting heads. When mounting other types of milling heads, do not exceed maximum specified depth of cut for the particular milling head. Since the shank diameter is not relieved, it may touch a wall on the workpiece being machined. • Use carbide shanks for groove milling heads and for applications requiring high rigidity and processes.

⁽¹⁾ C - Solid carbide

⁽²⁾ 0 - Without coolant supply, 1 - With coolant supply

MULTI-MASTER**MM S-A (straight shanks)**

Shanks Mount Interchangeable
Milling Heads



Designation	THSZWS	DCONMS	BD	OAL	Shank ⁽²⁾	Shank m. ⁽³⁾	RPMX ⁽⁴⁾	kg
MM S-A-L055-W12-T05	T05	12.00	7.60	55.00	W	S	60000	0.05
MM S-A-L070-C20T05	T05	20.00	7.60	70.00	C	S	60000	0.24
MM S-A-L150-C12-T05-B ⁽¹⁾	T05	12.00	7.60	150.00	C	S	18270	0.13
MM S-A-L065-W16-T06	T06	16.00	9.60	65.00	W	S	60000	0.09
MM S-A-L080-C25T06	T06	25.00	9.60	80.00	C	S	60000	0.29
MM S-A-L200-C16-T06-B ⁽¹⁾	T06	16.00	9.60	200.00	C	S	11970	0.33
MM S-A-L065-W16-T08	T08	16.00	11.60	65.00	W	S	60000	0.10
MM S-A-L080-C25T08	T08	25.00	11.60	80.00	C	S	60000	0.40
MM S-A-L250-C20-T08-B ⁽¹⁾	T08	20.00	11.60	250.00	C	S	9330	0.60
MM S-A-L070-W20-T10	T10	20.00	15.30	70.00	W	S	60000	0.17
MM S-A-L080-C32T10	T10	32.00	15.30	80.00	C	S	60000	0.65
MM S-A-L250-C25-T10-B ⁽¹⁾	T10	25.00	15.30	250.00	C	S	11130	0.94
MM S-A-L075-W25-T12	T12	25.00	18.30	75.00	W	S	60000	0.28
MM S-A-L080-C32T12	T12	32.00	18.30	80.00	C	S	60000	0.65
MM S-A-L100-W32-T15	T15	32.00	23.90	100.00	W	S	60000	0.30
MM S-A-L100-C40T15	T15	40.00	23.90	100.00	C	S	60000	0.94
MM S-A-L100-C40T21	T21	40.00	30.00	100.00	C	S	60000	1.56

• Do not apply lubricant to the threaded connection.

⁽¹⁾ "B" suffix - cylindrical shank which may be shortened.

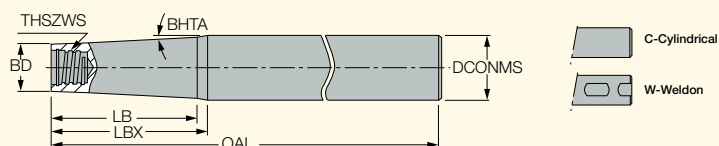
⁽²⁾ C-Cylindrical, W-Weldon

⁽³⁾ S-steel

⁽⁴⁾ The maximum RPM must be calculated. Divide the listed max. RPM by the number of flutes (on the milling head) being used.

MULTI-MASTER**MM S-B (85° conical shanks)**

Shanks Interchangeable
Milling Heads



Designation	THSZWS	DCONMS	BD	BHTA	Shank ⁽¹⁾	LB	LBX	OAL	Shank m. ⁽²⁾	RPMX ⁽³⁾	kg
MM S-B-L080/24-C08-T04	T04	8.00	5.80	2.6	C	-	24.0	80.00	S	60000	0.04
MM S-B-L080-C12-T05	T05	12.00	7.60	5.0	C	-	25.0	80.00	S	60000	0.06
MM S-B-L085/32-C16T05	T05	16.00	7.60	5.0	C	27.00	32.0	85.00	S	41280	0.11
MM S-B-L125-C16-T06	T06	16.00	9.60	5.0	C	31.50	31.7	125.00	S	41280	0.19
MM S-B-L095/40-C20T06	T06	20.00	9.60	5.0	C	34.00	40.0	95.00	S	41280	0.19
MM S-B-L140-C20-T06-W	T06	20.00	9.65	5.0	C	-	60.3	140.50	W	51180	0.62
MM S-B-L140-C16-T08	T08	16.00	11.60	5.0	C	19.30	22.0	140.00	S	25590	0.22
MM S-B-L100/48-C20T08	T08	20.00	11.60	5.0	C	-	48.0	100.00	S	25590	0.32
MM S-B-L140-C20-T10	T10	20.00	15.30	5.0	C	-	27.0	140.00	S	31020	0.34
MM S-B-L170-C25-T10	T10	25.00	15.30	5.0	C	-	56.0	170.00	S	29490	0.16
MM S-B-L120/55-C25T10	T10	25.00	15.30	5.0	C	-	55.4	120.00	S	29490	0.40
MM S-B-L160-C25-T12	T12	25.00	18.30	5.0	C	-	40.0	160.00	S	28680	0.08
MM S-B-L190-C32-T12	T12	32.00	18.30	5.0	C	-	80.0	190.00	S	34890	0.56
MM S-B-L150/78-C32T12	T12	32.00	18.30	5.0	C	-	78.3	150.00	S	34890	0.78
MM S-B-L200-C32-T15	T15	32.00	23.90	5.0	C	-	50.0	200.00	S	14160	1.19
MM S-B-L180/92-C40T15	T15	40.00	23.90	5.0	C	-	92.0	180.00	S	14160	0.28
MM S-B-L250-W40-T15	T15	40.00	23.90	5.0	W	-	100.0	250.00	S	21840	2.12
MM S-B-L150/57-C40T21	T21	40.00	30.00	5.0	C	-	57.0	150.00	S	21840	0.62

• Do not apply lubricant to the threaded connection.

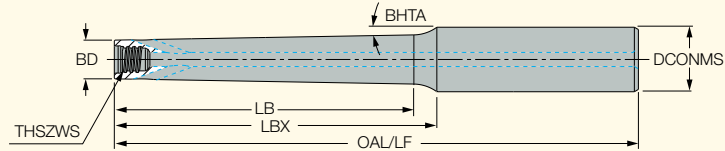
⁽¹⁾ C-Cylindrical, W-Weldon

⁽²⁾ S-steel, W-tungsten

⁽³⁾ The maximum RPM must be calculated. Divide the listed max. RPM by the number of flutes (on the milling head) being used.

MULTI-MASTER

MM S-D (89° conical shanks)
Shanks Mount Interchangeable
Milling Heads



Designation	THSZWS	DCONMS	BD	LB	Shank	LBX	OAL	BHTA	Shank m.	CSP ⁽¹⁾	RPMX ⁽²⁾	
MM S-D-L100-C12-T05	T05	12.00	7.60	29.60	C	35.0	100.00	1.0	S	0	52000	0.08
MM S-D-L110-C12-T05-C	T05	12.00	7.60	55.90	C	60.0	110.00	1.0	C	0	53430	0.13
MM S-D-L110-C12-T05-W-H	T05	12.00	7.60	55.70	C	60.0	110.00	1.0	W	1	38460	0.14
MM S-D-L130-C12-T05-C	T05	12.00	7.60	77.30	C	80.0	130.00	1.0	C	0	36420	0.15
MM S-D-L130-C12-T05-W-H	T05	12.00	7.60	76.40	C	80.0	130.00	1.0	W	1	26160	0.16
MM S-D-L150-C16-T05-C	T05	16.00	7.60	91.50	C	100.0	150.00	1.0	C	0	29700	0.26
MM S-D-L110-C12-T06-W-H	T06	12.00	9.60	58.80	C	60.0	110.00	1.0	W	1	36990	0.17
MM S-D-L130-C16-T06-W-H	T06	16.00	9.60	73.40	C	80.0	130.00	1.0	W	1	29490	0.28
MM S-D-L150-C16-T06-C	T06	16.00	9.60	95.40	C	100.0	150.00	1.0	C	0	30150	0.27
MM S-D-L150-C16-T06-W-H	T06	16.00	9.60	93.80	C	100.0	150.00	1.0	W	1	21660	0.33
MM S-D-L160-C16-T06	T06	16.00	9.60	46.80	C	55.0	160.00	1.0	S	0	23370	0.12
MM S-D-L170-C16-T06-C	T06	16.00	9.60	116.90	C	120.0	170.00	1.0	C	0	23400	0.11
MM S-D-L170-C16-T06-W	T06	16.00	9.60	46.30	C	55.0	170.00	1.0	W	0	21210	0.48
MM S-D-L130-C16-T08-C	T08	16.00	11.60	77.20	C	80.0	130.00	1.0	C	0	39870	0.28
MM S-D-L130-C16-T08-W-H	T08	16.00	11.60	76.40	C	80.0	130.00	1.0	W	1	29040	0.32
MM S-D-L150-C16-T08-C	T08	16.00	11.60	97.80	C	100.0	150.00	1.0	C	0	29970	0.33
MM S-D-L150-C16-T08-W-H	T08	16.00	11.60	98.30	C	100.0	150.00	1.0	W	1	21540	0.38
MM S-D-L170-C20-T08	T08	20.00	11.60	69.70	C	80.0	170.00	1.0	S	0	22680	0.30
MM S-D-L170-C20-T08-C	T08	20.00	11.60	112.00	C	120.0	170.00	1.0	C	0	26250	0.47
MM S-D-L170-C20-T08-W	T08	20.00	11.60	69.70	C	80.0	170.00	1.0	W	0	24900	0.65
MM S-D-L170-C20-T08-W-H	T08	20.00	11.60	113.10	C	120.0	170.00	1.0	W	1	18750	0.53
MM S-D-L150-C20-T10-C	T10	20.00	15.30	97.50	C	100.0	150.00	1.0	C	0	35610	0.10
MM S-D-L150-C20-T10-W-H	T10	20.00	15.30	96.80	C	100.0	150.00	1.0	W	1	25800	0.60
MM S-D-L170-C20-T10-C	T10	20.00	15.30	118.30	C	120.0	170.00	1.0	C	0	28140	0.61
MM S-D-L170-C20-T10-W-H	T10	20.00	15.30	118.00	C	120.0	170.00	1.0	W	1	20100	0.73
MM S-D-L190-C20-T10	T10	20.00	15.30	73.70	C	80.0	190.00	1.0	S	0	15780	0.42
MM S-D-L190-C20-T10-C	T10	20.00	15.30	-	C	140.0	190.00	1.0	C	0	22830	0.68
MM S-D-L190-C20-T10-W-H	T10	20.00	15.30	-	C	140.0	190.00	1.0	W	1	16170	0.83
MM S-D-L210-C20-T10-C	T10	20.00	15.30	-	C	160.0	210.00	1.0	C	0	18270	0.75
MM S-D-L210-C20-T10-W-H	T10	20.00	15.30	-	C	160.0	210.00	1.0	W	1	12870	0.93
MM S-D-L180-C25-T12-C	T12	25.00	18.30	115.70	C	120.0	180.00	1.0	C	0	29460	0.91
MM S-D-L180-C25-T12-W-H	T12	25.00	18.30	114.60	C	120.0	180.00	1.0	W	1	20940	1.15
MM S-D-L200-C25-T12-W-H	T12	25.00	18.30	146.60	C	150.0	200.00	1.0	W	1	16560	1.21
MM S-D-L210-C25-T12	T12	25.00	18.30	94.60	C	100.0	210.00	1.0	S	0	15540	0.66
MM S-D-L250-C25-T12-C	T12	25.00	18.30	135.60	C	140.0	250.00	1.0	C	0	16170	1.40
MM S-D-L250-C25-160T12W-H	T12	25.00	18.30	157.20	C	160.0	250.00	1.0	W	1	11310	1.76
MM S-D-L250-C25-T12-W-H	T12	25.00	18.30	135.60	C	140.0	250.00	1.0	W	1	11300	1.80
MM S-D-L250-C32-T15	T15	32.00	23.90	90.10	C	100.0	250.00	1.0	S	0	14160	1.00
MM S-D-L250-C32-T15-C	T15	32.00	23.90	143.30	C	150.0	250.00	1.0	C	0	20370	1.88
MM S-D-L300-C32-T15-C	T15	32.00	23.90	195.70	C	200.0	300.00	1.0	C	0	16000	2.62

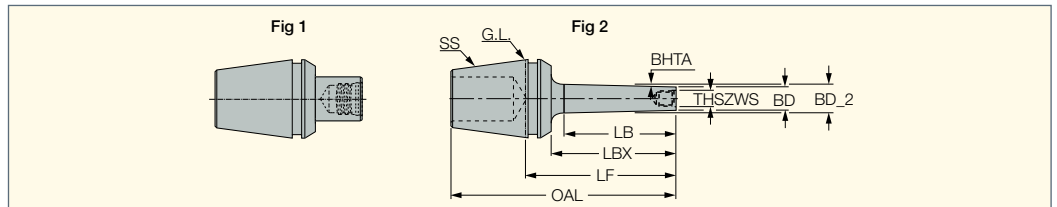
• Shank material (Shank m.): S-steel, C-carbide, W-tungsten. • Do not apply lubricant to the threaded connection.

⁽¹⁾ 0 - Without coolant supply, 1 - With coolant supply

⁽²⁾ The maximum RPM must be calculated. Divide the listed max. RPM by the number of flutes (on the milling head) being used.

MULTI-MASTER**MM S-ER**

Shanks that Mount
MULTI-MASTER Solid
Carbide Heads with an
ER Collet Adaptation

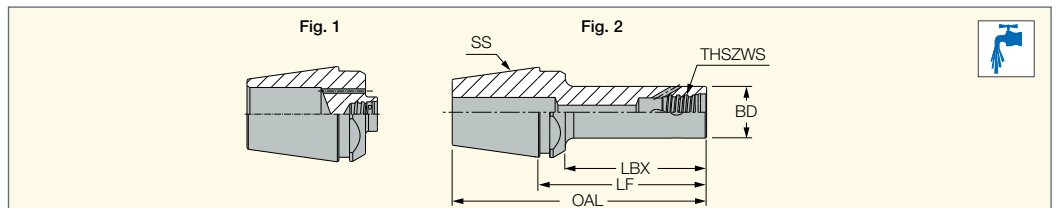


Designation	SS	THSZWS	BHTA	BD	BD_2	LB	LBX	LF	OAL	Fig.	kg
MM S-A-H004-ER11-T04	ER11	T04	-	5.80	-	-	4.0	9.60	22.00	1	0.01
MM S-A-H004-ER11-T05	ER11	T05	-	7.60	-	-	4.0	9.60	22.00	1	0.01
MM S-A-H10.5-ER11-T05	ER11	T05	-	7.60	-	-	10.5	16.10	28.50	1	0.01
MM S-A-H004-ER16-T08	ER16	T08	-	11.60	-	-	4.0	11.60	31.50	1	0.03
MM S-A-H10.5-ER16-T05	ER16	T05	-	7.60	-	-	10.5	18.10	38.00	1	0.03
MM S-A-H10.5-ER16-T06	ER16	T06	-	9.25	-	-	10.5	18.10	38.00	1	0.04
MM S-A-H013-ER16-T08	ER16	T08	-	11.60	-	-	14.0	20.60	40.50	1	0.02
MM S-A-H004-ER20-T10	ER20	T10	-	15.30	-	-	4.0	12.60	35.50	1	0.05
MM S-A-H10.5-ER20-T05	ER20	T05	-	7.60	-	-	10.5	19.10	42.00	1	0.04
MM S-A-H10.5-ER20-T06	ER20	T06	-	9.25	-	-	10.5	19.10	42.00	1	0.05
MM S-A-H016-ER20-T10	ER20	T10	-	15.30	-	-	16.0	24.60	47.50	1	0.06
MM S-A-H004-ER25-T12	ER25	T12	-	18.30	-	-	4.0	13.10	38.00	1	0.08
MM S-A-H10.5-ER25-T12	ER25	T12	-	18.30	-	-	10.5	19.60	44.50	1	0.06
MM S-A-H025-ER32-T06	ER32	T06	-	9.25	10.00	18.00	25.0	35.10	65.00	2	0.15
MM S-B-H025-ER32-T06	ER32	T06	5.0	9.60	13.50	22.30	25.0	35.10	65.00	2	0.16
MM S-B-H050-ER32-T06	ER32	T06	5.0	9.60	17.90	47.30	50.0	60.10	90.00	2	0.20
MM S-B-H075-ER32-T06	ER32	T06	5.0	9.60	22.60	74.10	75.0	85.10	115.00	2	0.25
MM S-D-H050-ER32-T06	ER32	T06	1.0	9.60	11.20	45.00	50.0	60.10	90.00	2	0.17

• Do not apply lubricant to the threaded connection. • For adaptation see page 59 • When a rigid ER collet is assembled in an ER holder, the actual protruding length of the holder becomes shorter by 2.0 mm for ER20 and by 3.0 mm for ER25/ER32

MULTI-MASTER**MM S-ER-H**

Shanks that Mount
MULTI-MASTER Solid Carbide
Heads with an ER Collet
Adaptation and Coolant Holes



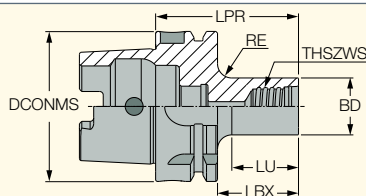
Designation	SS	THSZWS	BD	LBX	LF	OAL	Fig.	kg
MM S-A-H004-ER16-T05-H	ER16	T05	7.60	4.0	11.60	31.50	1	0.02
MM S-A-H004-ER16-T06-H	ER16	T06	9.25	4.0	11.60	31.50	1	0.03
MM S-A-H004-ER20-T05-H	ER20	T05	7.60	4.0	12.60	35.50	1	0.06
MM S-A-H004-ER20-T06-H	ER20	T06	9.25	4.0	12.60	35.50	1	0.06
MM S-A-H004-ER20-T08-H	ER20	T08	11.60	4.0	12.60	35.50	1	0.04
MM S-A-H013-ER20-T08-H	ER20	T08	11.60	13.0	21.60	44.50	1	0.07
MM S-A-H004-ER25-T05-H	ER25	T05	7.60	4.0	13.10	38.00	1	0.08
MM S-A-H004-ER25-T06-H	ER25	T06	9.25	4.0	13.10	38.00	1	0.07
MM S-A-H004-ER25-T08-H	ER25	T08	11.60	4.0	13.10	38.00	1	0.11
MM S-A-H004-ER25-T10-H	ER25	T10	15.30	4.0	13.10	38.00	1	0.10
MM S-A-H10.5-ER25-T05-H	ER25	T05	7.60	10.5	19.60	44.50	1	0.08
MM S-A-H10.5-ER25-T06-H	ER25	T06	9.25	10.5	19.60	44.50	1	0.12
MM S-A-H10.5-ER25-T08-H	ER25	T08	11.60	10.5	19.60	44.50	1	0.06
MM S-A-H10.5-ER25-T10-H	ER25	T10	15.30	10.5	19.60	44.50	1	0.10
MM S-A-H004-ER32-T05-H	ER32	T05	7.60	4.0	14.10	44.00	1	0.14
MM S-A-H025-ER32-T05-H	ER32	T05	7.60	25.0	35.10	65.00	1	0.14
MM S-A-H040-ER32-T05-H	ER32	T05	7.60	40.0	50.10	80.00	1	0.15
MM S-A-H004-ER32-T06-H	ER32	T06	9.60	4.0	14.10	44.00	1	0.14
MM S-A-H025-ER32-T06-H	ER32	T06	9.25	25.0	35.10	65.00	1	0.14
MM S-A-H040-ER32-T06-H	ER32	T06	9.25	40.0	50.10	80.00	1	0.22
MM S-A-H004-ER32-T08-H	ER32	T08	11.60	4.0	14.10	44.00	1	0.16
MM S-A-H025-ER32-T08-H	ER32	T08	11.60	25.0	35.10	65.00	1	0.16
MM S-A-H050-ER32-T08-H	ER32	T08	11.60	50.0	60.10	90.00	2	0.23
MM S-A-H004-ER32-T10-H	ER32	T10	15.30	4.0	14.10	44.00	1	0.14
MM S-A-H025-ER32-T10-H	ER32	T10	15.30	25.0	35.10	65.00	1	0.20
MM S-A-H050-ER32-T10-H	ER32	T10	15.20	50.0	60.10	90.00	2	0.25
MM S-A-H004-ER32-T12-H	ER32	T12	18.30	4.0	14.10	44.00	1	0.14
MM S-A-H025-ER32-T12-H	ER32	T12	18.30	25.0	35.10	65.00	1	0.17
MM S-A-H050-ER32-T12-H	ER32	T12	18.30	50.0	60.10	90.00	2	0.22
MM S-A-H004-ER32-T15-H	ER32	T15	23.90	4.0	14.10	44.00	1	0.16
MM S-A-H025-ER32-T15-H	ER32	T15	23.90	25.0	35.10	65.00	2	0.21
MM S-A-H050-ER32-T15-H	ER32	T15	23.90	50.0	60.10	90.00	2	0.25

• Do not apply lubricant to the threaded connection. • For adaptation see page 59

MULTI-MASTER HSK

MM S-A-HSK

MULTI-MASTER Threaded Connection Shanks with an Integral HSK DIN 69893 Form A Tapered Adaptation



Designation	DCONMS	THSZWS	BD	LPR	LBX	LU	RE	DCP ⁽¹⁾	kg
MM S-A-H035-HSK A40-T05	40.00	T05	7.60	35.00	15.0	10.00	5.0	1	0.20
MM S-A-H040-HSK A40-T06	40.00	T06	9.25	40.00	20.0	15.00	5.0	1	0.28
MM S-A-H045-HSK A40-T08	40.00	T08	11.60	45.00	25.0	20.00	5.0	1	0.24
MM S-A-H050-HSK A40-T10	40.00	T10	15.30	50.00	30.0	25.00	5.0	1	0.23
MM S-A-H050-HSK A40-T12	40.00	T12	18.30	50.00	30.0	25.00	5.0	1	0.27
MM S-A-H050-HSK A63-T06	63.00	T06	9.25	50.00	24.0	18.00	6.0	1	0.70
MM S-A-H050-HSK A63-T08	63.00	T08	11.60	50.00	24.0	18.00	6.0	1	0.72
MM S-A-H055-HSK A63-T10	63.00	T10	15.30	55.00	29.0	23.00	6.0	1	0.73
MM S-A-H055-HSK A63-T12	63.00	T12	18.30	55.00	29.0	23.00	6.0	1	0.40
MM S-A-H055-HSK A63-T21	63.00	T21	30.00	55.00	29.0	19.00	10.0	1	0.83
MM S-A-H060-HSK A63-T15	63.00	T15	23.90	62.00	34.0	28.00	6.0	1	0.76
MM S-A-H080-HSK A63-T21	63.00	T21	30.00	80.00	54.0	44.00	10.0	1	0.94

• Do not apply lubricant to the threaded connection • For adaptation options, see page 59

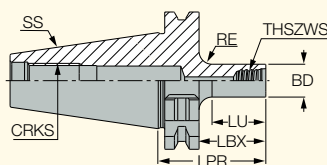
(1) 1 - Slot for data chip, 0 - Without slot for data chip

MULTI-MASTER

DIN69871

MM S-A-SK

DIN 69871 Integral Tapered Shanks Mount MULTI-MASTER Milling Heads



Designation	SS	CRKS	THSZWS	BD	LPR	LBX	LU	RE	kg
MM S-A-H040-SK 40-T06	40	M16	T06	9.25	40.00	21.0	15.00	6.0	0.86
MM S-A-H045-SK 40-T08	40	M16	T08	11.60	45.00	26.0	20.00	6.0	0.87
MM S-A-H050-SK 40-T10	40	M16	T10	15.30	50.00	31.0	25.00	6.0	0.83
MM S-A-H050-SK 40-T12	40	M16	T12	18.30	50.00	31.0	25.00	6.0	0.90
MM S-A-H050-SK 40-T15	40	M16	T15	23.90	50.00	31.0	25.00	6.0	0.09

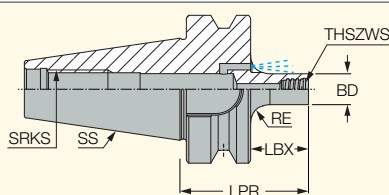
• Do not apply lubricant to the threaded connection • For adaptation, see page 59

MULTI-MASTER

BT MAS

MM S-A-BT

BT Integral Tapered Shanks Mount MULTI-MASTER Milling Heads



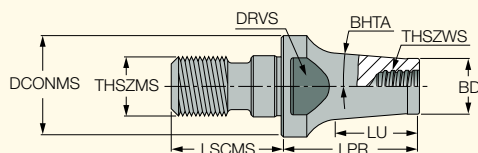
Designation	SS	CRKS	THSZWS	BD	LPR	LBX	RE
MM S-A-H040-BT30-T06-H	30	M12	T06	9.60	40.00	18.0	6.0
MM S-A-H045-BT30-T08-H	30	M12	T08	11.60	45.00	23.0	6.0
MM S-A-H050-BT30-T10-H	30	M12	T10	15.30	50.00	28.0	6.0
MM S-A-H050-BT30-T12-H	30	M12	T12	18.30	50.00	28.0	6.0
MM S-A-H050-BT30-T15-H	30	M12	T15	23.90	50.00	28.0	3.0

New

• Do not apply lubricant to the threaded connection • For adaptation, see page 59

MULTI-MASTER**MM CAB**

Adapters for Connecting
FLEX-FIT Shanks and
MULTI-MASTER Milling Heads



Designation	THSZWS	THSZMS	LPR	LU	BD	DCONMS	LSCMS	DRVS ⁽¹⁾	BHTA	TQ_3 ⁽²⁾	
MM CAB T06M06-16/.63	T06	M06	16.00	11.60	9.30	9.70	14.50	8.0	1.5	15	0.01
MM CAB T06M08-16/.63	T06	M08	16.00	13.70	9.60	13.00	17.50	11.0	6.0	20	0.02
MM CAB T06M08-25/1.0	T06	M08	25.00	11.30	9.30	13.00	17.50	11.0	1.5	20	0.02
MM CAB T06M10-25/1.0	T06	M10	25.00	16.60	9.60	18.00	20.00	11.0	5.0	29	0.04
MM CAB T08M08-16/.63	T08	M08	16.00	5.40	11.70	13.00	17.50	11.0	11.4	20	0.02
MM CAB T08M08-25/1.0	T08	M08	25.00	19.50	11.70	13.00	17.50	11.0	1.5	20	0.02
MM CAB T08M10-20/.75	T08	M10	20.00	11.30	11.70	18.00	20.00	13.0	7.0	29	0.04
MM CAB T08M10-25/1.0	T08	M10	25.00	14.20	11.70	18.00	20.00	11.0	1.5	29	0.03
MM CAB T08M12-20/.75	T08	M12	20.00	9.30	11.70	21.00	22.00	13.0	7.0	33	0.05
MM CAB T08M12-25/1.0	T08	M12	25.00	12.50	11.70	21.00	22.00	13.0	1.5	33	0.04

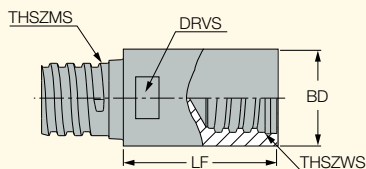
- Do not apply lubricant to the threaded connection
- When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

⁽¹⁾ Clamping wrench size

⁽²⁾ Tool tightening torque Nxm (lbfxin)

MULTI-MASTER**MM CAB-T-T**

MULTI-MASTER
Shank Extensions



Designation	BD	THSZWS	THSZMS	LF	DRVS ⁽¹⁾	
MM CAB T05T05-25/1.0-C	7.60	T05	T05	25.40	6.0	0.02
MM CAB T06T06-25/1.0-C	9.30	T06	T06	25.40	8.0	0.02
MM CAB T08T08-25/1.0-C	11.50	T08	T08	25.40	10.0	0.02
MM CAB T10T10-38/1.5-C	15.20	T10	T10	38.10	13.0	0.08
MM CAB T12T12-38/1.5-C	18.45	T12	T12	38.10	16.0	0.11
MM CAB T15T15-45/1.77-C	23.90	T15	T15	45.00	20.0	0.21

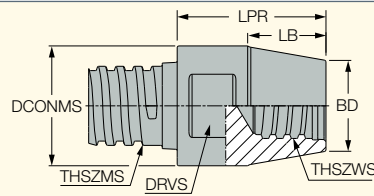
- Clamping key to be ordered separately
- For adaptation, see page 59

⁽¹⁾ Clamping wrench size

MULTI-MASTER

MM CAB-T-T-W

MULTI-MASTER Shank Reducers



Designation	DCONMS	THSZMS	THSZWS	BD	LB	LPR	DRVS ⁽¹⁾	kg
MM CAB T05T04-14.0/.55-W	7.60	T05	T04	5.80	8.20	14.00	5.5	0.01
MM CAB T06T05-15.0/.59-W	9.60	T06	T05	7.60	9.00	15.00	8.0	0.03
MM CAB T08T06-16.0/.63-W	11.60	T08	T06	9.60	9.00	16.00	10.0	0.04
MM CAB T10T08-19.0/.75-W	15.30	T10	T08	11.60	10.00	19.00	13.0	0.07
MM CAB T12T10-24.0/.94-W	18.30	T12	T10	15.30	15.00	24.00	16.0	0.12
MM CAB T15T12-30.0/1.18-W	23.90	T15	T12	18.30	17.50	30.00	20.0	0.24

New

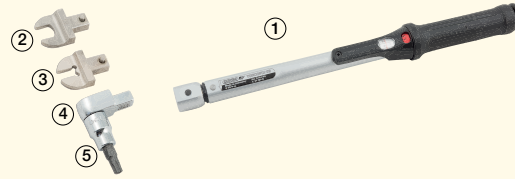
• Clamping key to be ordered separately • For adaptation, see page 59

⁽¹⁾ Torque key size

Accessories

MM Adjustable Torque Keys

Adjustable Torque Handle and Keys for Secure and Accurate Tightening of MULTI-MASTER Milling Heads



Designation	Fig.	Ts ⁽¹⁾	Key	TQ ⁽²⁾
TORQUE WRENCH 3-25NM 9X12	1	-	-	-
TORQUE WRENCH 5-50NM 9X12	1	-	-	-
MM WRENCH 6-05	2	T05	-	7.0
MM WRENCH 8-06	2	T06	-	10.0
MM WRENCH 10-08	2	T08	-	15.0
MM WRENCH 13-10	2	T10	-	28.0
MM WRENCH 16-12	2	T12	-	28.0
MM WRENCH 20-15	2	T15	-	40.0
MM WRENCH 24-21	2	T21	-	110.0
MM WRENCH 4E-05	3	T05	-	7.0
MM WRENCH 5E-06	3	T06	-	10.0
MM WRENCH 7E-08	3	T08	-	15.0
MM WRENCH 8E-10	3	T10	-	28.0
MM WRENCH 9E-12	3	T12	-	28.0
INSERT TOOL 3/8" 9X12mm	4	-	-	-
BIT SOCKET T20 3/8" DRIVE	5	-	Torx T20	-
BIT SOCKET T25 3/8" DRIVE	5	-	Torx T25	-
BIT SOCKET T30 3/8" DRIVE	5	-	Torx T30	-
BIT SOCKET T40 3/8" DRIVE	5	-	Torx T40	-
BIT SOCKET T50 3/8" DRIVE	5	-	Torx T50	-

• NOTE: Recommended clamping torque for each MULTI-MASTER connection size, see next page

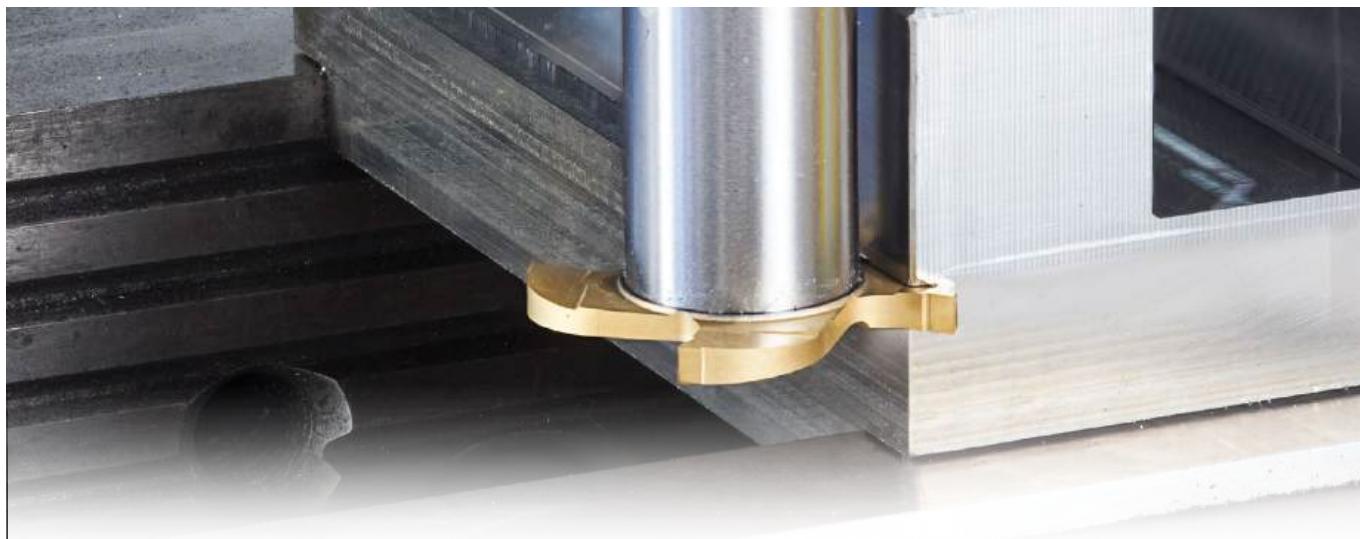
⁽¹⁾ MULTI-MASTER connection size

⁽²⁾ Clamping torque Nxnm

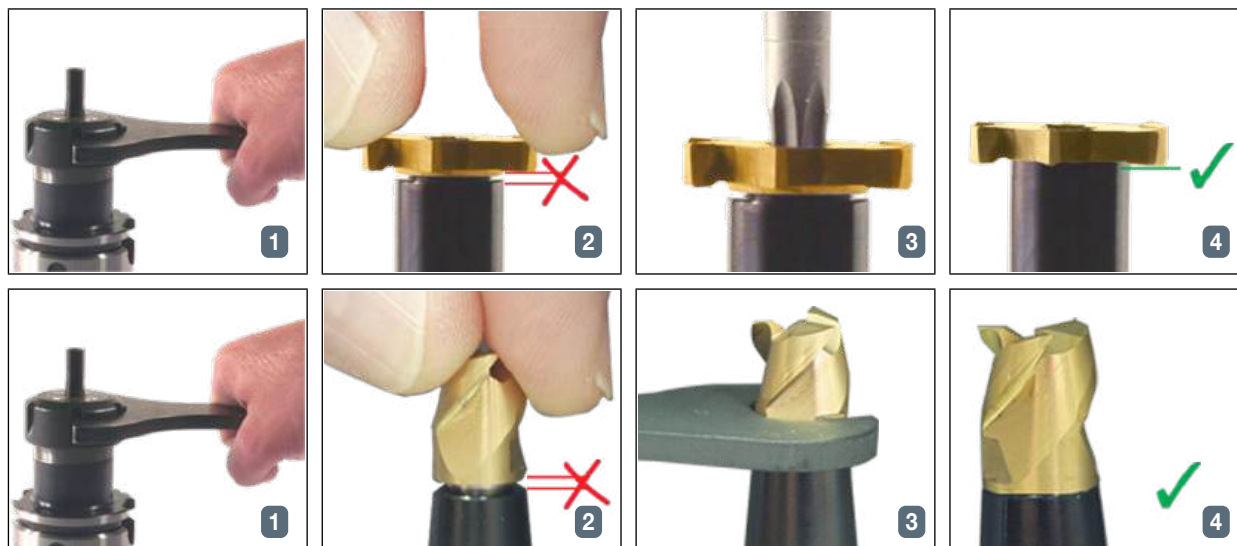
Adjustable Torque Handle with Interchangeable Wrenches for Clamping MULTI-MASTER Milling Heads



The adjustable torque handle, interchangeable wrenches and Torx bits are optional and should be ordered separately.

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE


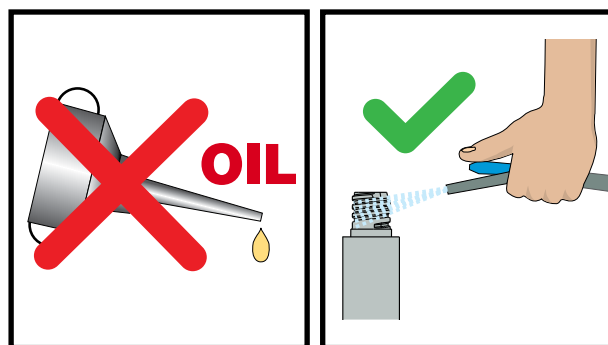
Clamping and Indexing Instructions



Do not apply lubricant to the threaded connection.

Thread Size	Key ⁽¹⁾	Tightening Torque (Nxcmm)
T04	MM KEY 4X3	400
T04	MM KEY 6x4	400
T05	MM KEY 6x4	700
T06	MM KEY 8x5	1000
T08	MM KEY 10x7	1500
T10	MM KEY 13x8	2800
T12	MM KEY 16x9	2800
T15	MM KEY 20	4000
T21	MM WRENCH 24-21	11000

⁽¹⁾ Order separately



Do not apply lubricant to the threaded connection

SOLID CARBIDE ENDMILLS



WORKPIECE MATERIAL	ISO	Page
STEEL	P	114
STAINLESS STEEL	M	118
CAST IRON	K	120
ALUMINUM / NON FERROUS MATERIALS	N	123
SUPERALLOYS / TITANIUM	S	125
HARD STEELS	H	127

P (Steel Materials)			
Tool Selection Priorities			
Tool	Rough	Semi-Finish	Finish/H.S.M
EC-H6/20	-	-	1
EC-E7/H7-CF	-	-	2
EFS-B44	5	6	-
EFS-E44-CF	4	5	-
ECR-B-MF	6	7	-
EC-E5L-CF	7	1	4
EC-E4L-CF	3	3	5
ECP-H4L-CF	2	4	-
EC-H4M-CF-E	1	2	3

ROUGHING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EC-H4M-CF-E	4-20	-	2xDC	4	CHWx45	NO	136
	ECP-H4L-CFR	10-20	3XDC	2xDC	4	RE	NO	137
	EC-E4L-CF	1-25	3XDC	2xDC	4	CHWx45	NO	151
	EFS-E44	6-25	-	2xDC	4	CHWx45	NO	148
	EFS-B44	4-25	3XDC	2xDC	4	CHWx45	NO	149
	ECR-B-MF	6-25	-	2xDC	4/6	CHWx45	NO	154
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152

FINISHING

P (Steel Materials)								
	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	145
	ECXL-B-4/6	10-20	-	6xDC	4/6	-	NO	184
	ECH-B-6	6-20	-	2xDC	6	-	NO	183

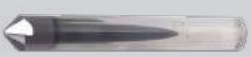
TROCHOIDAL / DYNAMIC MILLING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152

HIGH FEED MILLING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EFP-E4,5CF	6-20	-	2.5xDC	4/5	RE	NO	158
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	158

CHAMFERING AND DEBURRING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	ECF.../45	4-12	-	2.5xDC	4	-	NO	207
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	208

P (Steel Materials)

Tool Type	Features
EC-H4M-CF-E (ECO Type)	• Rough and finish operations • General use • Low power machines • CHATTER-FREE
ECP-H4L-CFR	• Rough operations • General use • Chip splitter CHATTER-FREE
EC-E4L-CF	• Rough and finish operations • Used for machining alloyed steel and general use • Low power machines CHATTER-FREE
EC-E5L-CF	• Rough and finish operations • Used for machining alloyed steel and general use • High material removal rates
ECR-B-MF	• Rough operations • Used in unstable components
EFS-E44	• Used for machining alloyed steel • Combination of VIBRAFREE and FINISH ROUGH
EFS-B44	• Unique design • Used for machining titanium, stainless and alloyed steel • Fully effective • Semi-finish surface quality
EC-E7/H7-CF	• For high speed machining • Trochoidal milling • Finish operations up to 10% X DC
EC-H-CF	• High speed machining • Multiflute solid endmill • Tools for super finish • Up to 5% X DC

P (Steel Materials)

ROUGH: AE = 40% - Full Cut , $A_p = 2 \times DC$

Material Group Parameters	Unalloyed Steel		Low Alloyed Steel		High Alloyed Steel		Martensitic Steels	Ferritic Steels	
	1-4	5	6-7	8-9	10	11	12	13	
V_c (IC900/608) (m/min)	160-180	140-150	120-160	130-150	130-150	70-90	80-100	60-90	
F_z (Ø6-8) (mm/t)	0.025-0.035	0.025-0.035	0.02-0.03	0.02-0.03	0.02-0.03	0.02-0.03	0.02-0.035	0.02-0.035	
F_z (Ø10-12) (mm/t)	0.03-0.045	0.03-0.045	0.03-0.045	0.03-0.045	0.03-0.045	0.03-0.045	0.03-0.04	0.03-0.04	
F_z (Ø16-20) (mm/t)	0.04-0.055	0.04-0.055	0.04-0.055	0.04-0.055	0.04-0.055	0.04-0.055	0.035-0.045	0.035-0.045	

SEMI-FINISH: AE = 10% - 40%, $A_p = 2 \times DC$

Material Group Parameters	Unalloyed Steel		Low Alloyed Steel		High Alloyed Steel		Martensitic Steels	Ferritic Steels	
	1-4	5	6-7	8-9	10	11	12	13	
V_c (IC900/608) (m/min)	200-220	150-170	160-180	150-170	150-160	90-110	100-130	90-120	
F_z (Ø6-8) (mm/t)	0.03-0.06	0.03-0.06	0.02-0.05	0.02-0.05	0.02-0.05	0.02-0.05	0.025-0.04	0.025-0.04	
F_z (Ø10-12) (mm/t)	0.06-0.07	0.06-0.07	0.04-0.065	0.04-0.065	0.04-0.065	0.04-0.065	0.035-0.045	0.035-0.045	
F_z (Ø16-20) (mm/t)	0.07-0.08	0.07-0.08	0.045-0.07	0.045-0.07	0.045-0.07	0.045-0.07	0.04-0.05	0.04-0.05	

FINISH: AE = 5% - 10%, $A_p = \text{Max. Cutting Length}$

Material Group Parameters	Unalloyed Steel		Low Alloyed Steel		High Alloyed Steel		Martensitic Steels	Ferritic Steels	
	1-4	5	6-7	8-9	10	11	12	13	
V_c (IC900/608) (m/min)	220-280	170-180	180-220	170-180	160-180	110-120	130-160	120-150	
V_c (IC902/903/702) (m/min)	230-290	180-200	190-230	180-230	170-190	120-130	140-170	130-160	
F_z (Ø6-8) (mm/t)	0.05-0.07	0.05-0.07	0.05-0.07	0.05-0.07	0.05-0.07	0.05-0.07	0.03-0.045	0.03-0.045	
F_z (Ø10-12) (mm/t)	0.07-0.08	0.07-0.08	0.07-0.08	0.07-0.08	0.07-0.08	0.07-0.08	0.04-0.05	0.04-0.05	
F_z (Ø16-20) (mm/t)	0.08-0.1	0.08-0.1	0.08-0.1	0.08-0.1	0.08-0.1	0.08-0.1	0.045-0.06	0.045-0.06	

M (Stainless Steel)
Tool Selection Priorities

Tool	Rough	Semi-Finish	Finish/H.S.M
ECY-S5-CFR	1	1	-
EC-H-CF	-	-	1
EC-E7/H7-CF	-	-	2
EFS-B44	6	7	-
ECP-E4L	5	6	-
EC-H5M-CFR	-	4	3
EC-H4M-CFR	4	5	5
ECP-H4L-CFR	3	3	-
EC-H4M-CF-E	2	2	4

ROUGHING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	ECY-S5-CFR	5-16	-	2xDC	5	RE	NO	140
	EC-H4M-CF-E	4-20	-	2xDC	4	CHWx45	NO	136
	ECP-H4L-CFR	10-20	3XDC	2xDC	4	RE	NO	137
	EC-H5M-CFR	4-20	-	2xDC	5	RE	NO	139
	EC-H4-L/M/XL-CFR	3-25	-	2xDC	-	RE	NO	137-138
	EFS-B44	6-25	3xDC	2xDC	4	CHWx45	NO	149
	ECP-E4L	5-20	3xDC	2xDC	4	CHWx45	NO	155

FINISHING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	ECY-S5-CFR	5-16	-	2xDC	5	RE	NO	140
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152
	EC-H5M-CFR	4-20	-	2xDC	5	RE	NO	139
	ECXL-B-4/6	10-20	-	6xDC	7	-	NO	184
	ECH-B-6	6-20	-	2xDC	6	-	NO	183

TROCHOIDAL / DYNAMIC MILLING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152

HIGH FEED MILLING

M (Stainless Steel)								
	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EFP-E4,5CF	6-20	-	2.5xDC	4/5	RE	NO	158
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	158

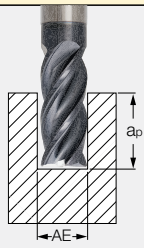
CHAMFERING AND DEBURRING

M (Stainless Steel)								
	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	ECF.../45	4-12	-	2.5xDC	4	-	NO	207
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	208

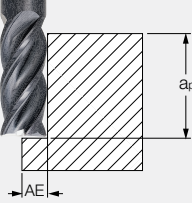
Tool Type	Features
ECY-S5-CFR	• Unique design • Used for machining stainless steel • Rough and finish operations • High material removal rates
EC-H4M-CF-E (ECO Type)	• Rough and finish operations • General use • Low power machines • CHATTER-FREE
ECP-H4L-CFR	• Rough operations • General use • Chip splitter CHATTER-FREE
EC-H4M-CFR	• Rough and finish operations • Used for machining stainless steel • High material removal rates
EC-H5M-CFR	• Rough and finish operations • Used for machining stainless steel • High material removal rates
ECP-E4L	• Used for machining stainless steel and high-temperature alloys • Chip Splitter
EFS-B44	• Unique design • Used for machining titanium, stainless and alloyed steel • Fully effective • Semi-finish surface quality
EC-E7/H7-CF	• For high speed machining • Trochoidal milling • Finish operations up to 10% X DC
EC-H-CF	• High speed machining • Multiflute solid endmill • Tools for super finish • Up to 5% X DC

M (Stainless Steel)

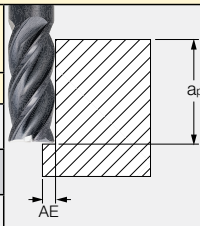
ROUGH: AE = 40% - Full Cut , $A_p = 2 \times DC$

Material Group Parameters	Austenitic Steels	
	14	
V_c (IC900/608) (m/min)	60-80	
F_z (Ø6-8) (mm/t)	0.02-0.035	
F_z (Ø10-12) (mm/t)	0.03-0.04	
F_z (Ø16-20) (mm/t)	0.035-0.045	

SEMI-FINISH: AE = 10% - 40%, $A_p = 2 \times DC$

Material Group Parameters	Austenitic Steels	
	14	
V_c (IC900/608) (m/min)	80-100	
F_z (Ø6-8) (mm/t)	0.025-0.04	
F_z (Ø10-12) (mm/t)	0.035-0.045	
F_z (Ø16-20) (mm/t)	0.04-0.05	

FINISH / H.S.M: AE = 5% - 10%, $A_p = \text{Max. Cutting Length}$

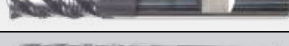
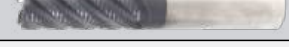
Material Group Parameters	Austenitic Steels	
	14	
V_c (IC900/608) (m/min)	100-120	
V_c (IC902/903/702) (m/min)	110-130	
F_z (Ø6-8) (mm/t)	0.03-0.045	
F_z (Ø10-12) (mm/t)	0.04-0.05	
F_z (Ø16-20) (mm/t)	0.045-0.06	

K (Cast Iron)

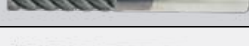
Tool Selection Priorities

Tool	Rough	Semi-Finish	Finish/HSM
EC-H-CF	-	-	1
EC-E7/H7-CF	-	-	2
EFS-B44	2	7	-
EFS-E44	5	6	-
ECR-B-MF	4	3	-
EC-E5L-CF	7	1	4
EC-E4L-CF	6	5	5
ECP-H4L-CFR	3	4	-
EC-H4M-CF-E	1	2	3

ROUGHING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EC-H4M-CF-E	4-20	-	2xDC	4	CHWx45	NO	136
	ECP-H4L-CFR	10-20	3XDC	2xDC	4	RE	NO	137
	EC-E4L-CF	1-25	3XDC	2xDC	4	CHWx45	NO	151
	EFS-E44	6-25	-	2xDC	4	CHWx45	NO	148
	EFS-B44	4-25	3xDC	2xDC	4	CHWx45	NO	149
	ECR-B-MF	6-20	-	2xDC	4/6	CHWx45	NO	149
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152

FINISHING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152
	ECXL-B-4/6	10-20	-	6xDC	4/6	-	NO	184
	ECH-B-6	6-20	-	2xDC	6	-	NO	183

TROCHOIDAL / DYNAMIC MILLING

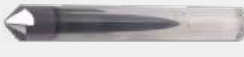
	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152



HIGH FEED MILLING

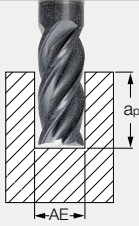
K (Cast Iron)								
	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EFP-E4,5CF	6-20	-	2.5xDC	4/5	RE	NO	158
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	158

CHAMFERING AND DEBURRING

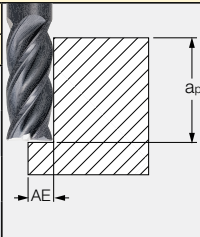
	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	ECF.../45	4-12	-	2.5xDC	4	-	NO	207
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	208

Tool Type	Features
EC-H4M-CF-E (ECO Type)	- Rough and finish operations - General use - Low power machines - CHATTER-FREE
ECP-H4L-CFR	- Rough operations - General use - Chip splitter CHATTER-FREE
EC-E4L-CF	- Rough and finish operations - Used for machining alloyed steel and general use - Low power machines no vibrations
EC-E5L-CF	- Rough and finish operations - Used for machining alloyed steel and general use - High material removal rates
ECR-B-MF	- Rough operations - Used on unstable components
EFS-E44	- Used for machining alloyed steel - Combination of VIBRAFREE and FINISHROUGH
EFS-B44	- Unique design - Used for machining titanium, stainless and alloyed steel - Fully effective - Semi-finish surface quality
EC-E7/H7-CF	- For high speed machining - Trochoidal milling - Finish operations up to 10% X DC
EC-H-CF	- High speed machining - Multiflute solid endmill - Tools for Super-Finish - Up to 5% X DC

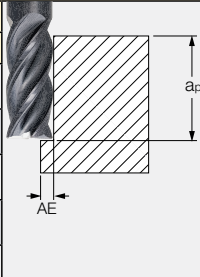
ROUGH: AE = 40% - Full Cut , A_p = 2 x DC

Material Group Parameters	Grey Cast Iron	Ductile Cast Iron	Malleable Cast Iron	
	15-16	17-18	19-20	
V _c (IC900/608) (m/min)	80-130	90-130	140-180	
F _z (Ø6-8) (mm/t)	0.02-0.04	0.02-0.04	0.02-0.04	
F _z (Ø10-12) (mm/t)	0.03-0.05	0.03-0.05	0.03-0.05	
F _z (Ø16-20) (mm/t)	0.04-0.06	0.04-0.06	0.04-0.06	

K (Cast Iron)**SEMI-FINISH: AE = 10% - 40%, A_p = 2 x DC**

Material Group Parameters	Grey Cast Iron	Ductile Cast Iron	Malleable Cast Iron	
	15-16	17-18	19-20	
V _c (IC900/608) (m/min)	130-180	130-200	180-220	
F _z (Ø6-8) (mm/t)	0.03-0.05	0.03-0.05	0.03-0.05	
F _z (Ø 10-12) (mm/t)	0.04-0.06	0.04-0.06	0.04-0.06	
F _z (Ø16-20) (mm/t)	0.06-0.07	0.06-0.07	0.06-0.07	

FINISH / H.S.M: AE = 5% - 10%, A_p = Max. Cutting Length

Material Group Parameters	Grey Cast Iron	Ductile Cast Iron	Malleable Cast Iron	
	15-16	17-18	19-20	
V _c (IC900/608) (m/min)	180-260	200-280	220-280	
V _c (IC902/903/702) (m/min)	190-270	210-290	220-290	
F _z (Ø6-8) (mm/t)	0.035-0.06	0.035-0.06	0.035-0.06	
F _z (Ø10-12) (mm/t)	0.06-0.065	0.06-0.065	0.06-0.065	
F _z (Ø16-20) (mm/t)	0.065-0.08	0.065-0.08	0.065-0.08	

N (Non-Ferrous Metals)**Tool Selection Priorities**

Tool	Rough	Semi-Finish	Finish/H.S.M
ECR-B3-R	5	6	-
ECA-B-3	6	3	3
ECA-H4-CF	2	1	1
ECAP-H3-CF	3	4	-
ECA-H3-CF	4	5	4

ROUGHING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	ECR-B3-R	1.5-25	3XDC	2xDC	3	RE	NO	186-188
	ECAP-H3-CF	10-25	5XDC	2xDC	3	RE	YES	189
	ECA-H4-CF	6-25	5XDC	2xDC	4	RE	NO	188
	ECA-B-3	4-20	4XDC	2xDC	3	RE	NO	192
	ECR-B3-R	6-20	-	1xDC	3	RE	NO	190

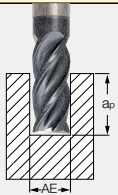
FINISHING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	ECA-H3-CF	1-25	3XDC	2xDC	3	RE	NO	186-188
	ECA-H4-CF	6-25	5XDC	2xDC	4	RE	NO	188
	ECA-B-3	4-20	4xDC	2xDC	3	RE	NO	192

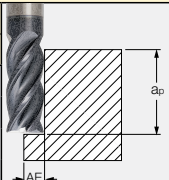
N (Non-Ferrous Metals)

Tool Type	Features
ECA-H3-CF	- Suitable for roughing and finishing operations - CHATTER-FREE - Full slot up to 1.5XDC and 2XDC * - Excellent solution for low power machines
ECAP-H3-CF	- Suitable for roughing - Chip splitter CHATTER-FREE - Internal coolant for better chip evacuation in deep cavity
ECA-H4-CF	- Suitable for roughing and finishing operations - CHATTER-FREE - Full slot up to 1XDC
ECA-B-3	- Suitable for roughing and finishing operations - Excellent surface finish
ECR-B3-R	- Suitable for roughing - Good cheap evacuation

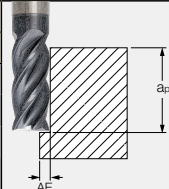
D 2x ROUGH: AE = 40% - Full Cut , A_p = 1.5xDC*

Material Group Parameters	Alu Wrought Alloy	Alu Cast Alloy	Copper Alloy	Electrolitic Copper	Non-Metallic	
	21-22	23-25	26-27	28	29-30	
V _c (IC08) (m/min)	700-760	400-550	500-520	350-360	350-360	
F _z (Ø6-8) (mm/t)	0.02-0.04	0.02-0.04	0.02-0.04	0.02-0.04	0.02-0.04	
F _z (Ø10-12) (mm/t)	0.03-0.05	0.03-0.05	0.03-0.05	0.03-0.05	0.03-0.05	
F _z (Ø 16-20) (mm/t)	0.03-0.07	0.03-0.07	0.03-0.07	0.03-0.07	0.03-0.07	

SEMI-FINISH: AE = 10% - 40%, A_p = 2 x DC

Material Group Parameters	Alu Wrought Alloy	Alu Cast Alloy	Copper Alloy	Electrolitic Copper	Non-Metallic	
	21-22	23-25	26-27	28	29-30	
V _c (IC08) (m/min)	760-840	550-700	520-530	360-370	360-370	
F _z (Ø6-8) (mm/t)	0.04-0.06	0.04-0.06	0.03-0.05	0.03-0.05	0.03-0.05	
F _z (Ø 10-12) (mm/t)	0.06-0.08	0.06-0.08	0.045-0.055	0.045-0.055	0.045-0.055	
F _z (Ø 16-20) (mm/t)	0.08-0.1	0.08-0.1	0.055-0.07	0.055-0.07	0.055-0.07	

FINISH / H.S.M: AE = 5% - 10%, A_p = Max. Cutting Length

Material Group Parameters	Alu Wrought Alloy	Alu Cast Alloy	Copper Alloy	Electrolitic Copper	Non-Metallic	
	21-22	23-25	26-27	28	29-30	
V _c (IC08) (m/min)	840-900	700-900	530-550	370-380	370-380	
F _z (Ø6-8) (mm/t)	0.045-0.07	0.045-0.07	0.035-0.06	0.035-0.06	0.035-0.06	
F _z (Ø10-12) (mm/t)	0.07-0.1	0.07-0.1	0.06-0.07	0.06-0.07	0.06-0.07	
F _z (Ø16-20) (mm/t)	0.1-0.15	0.1-0.15	0.065-0.08	0.065-0.08	0.065-0.08	

S (High Heat Resistant Alloys)

Tool Selection Priorities

Tool	Rough	Semi-Finish	Finish/H.S.M
EC-H-CF	-	-	1
EC-E7/H7-CF	-	-	2
ECK-H4M-CFR	3	3	-
ECR-B-MF	2	2	-
EC-H5M-CFR	7	4	3
EC-H4M-CFR	6	7	5
ECP-H4L-CFR	4	5	-
EC-H4M-CF-E	5	6	4

ROUGHING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EC-H4M-CF-E	4-20	-	2xDC	4	CHWx45	NO	136
	ECP-H4L-CFR	10-20	3XDC	2xDC	4	RE	NO	137
	EC-E4L-CF	1-25	3XDC	2xDC	4	CHWx45	NO	151
	ECK-H4M-CFR	6-20	-	2xDC	4	-	NO / YES	146
	EFS-B44	4-25	3xDC	2xDC	4	CHWx45	NO	149
	ECR-B-MF	6-25	-	2xDC	4/6	CHWx45	NO	149
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152

FINISHING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152
	ECXL-B-4/6	10-20	-	6xDC	4/6	-	NO	184
	ECH-B-6	6-20	-	2xDC	6	-	NO	183

TROCHOIDAL / DYNAMIC MILLING

S (High Heat Resistant Alloys)								
	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152

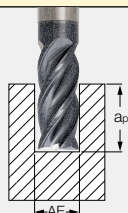
HIGH FEED MILLING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EFP-E4,5CF	6-20	-	2.5xDC	4/5	RE	NO	158
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	158

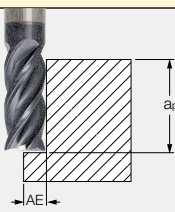
CHAMFERING AND DEBURRING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	ECF.../45	4-12	-	2.5xDC	4	-	NO	207
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	208

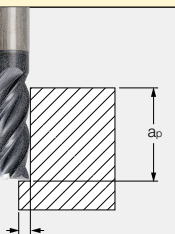
*ROUGH: AE = 40% - Full Cut , A_p = 1.5 x DC

Material Group Parameters	Nickel Based Alloys	Titanium and Ti Alloys	
	31-35	36-37	
V _c (IC900/608) (m/min)	20-40	30-50	
F _z (Ø6-8) (mm/t)	0.02-0.03	0.02-0.03	
F _z (Ø 10-12) (mm/t)	0.03-0.04	0.03-0.04	
F _z (Ø 16-20) (mm/t)	0.03-0.07	0.03-0.07	

SEMI-FINISH: AE = 10% - 40%, A_p = 2 x DC

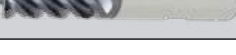
Material Group Parameters	Nickel Based Alloys	Titanium and Ti Alloys	
	31-35	36-37	
V _c (IC900/608) (m/min)	40-50	50-60	
F _z (Ø6-8) (mm/t)	0.03-0.04	0.03-0.04	
F _z (Ø 10-12) (mm/t)	0.035-0.05	0.035-0.05	
F _z (Ø 16-20) (mm/t)	0.05-0.08	0.05-0.08	

FINISH / H.S.M: AE = 5% - 10%, A_p = Max. Cutting Length

Material Group Parameters	Nickel Based Alloys	Titanium and Ti Alloys	
	31-35	36-37	
V _c (IC900/608) (m/min)	50-70	60-70	
V _c (IC902/903/702) (m/min)	55-80	65-80	
F _z (Ø6-8) (mm/t)	0.035-0.05	0.035-0.05	
F _z (Ø 10-12) (mm/t)	0.04-0.06	0.04-0.06	
F _z (Ø 16-20) (mm/t)	0.06-0.085	0.06-0.085	

H (Hard Materials)			
Tool Selection Priorities			
Tool	Rough	Semi-Finish	Finish/H.S.M
EC-H-CF	-	-	1
EC-E7/H7-CF	-	-	2
EFS-B44	2	3	-
ECR-B-MF	1	1	-
EC-E5L-CF	6	2	3
EC-E4L-CF	5	6	5
ECP-H4L-CFR	3	4	-
EC-H4M-CF-E	4	5	4

ROUGHING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EC-H4M-CF-E	4-20	-	2xDC	4	CHWx45	NO	136
	ECP-H4L-CFR	10-20	3XDC	2xDC	4	RE	NO	137
	EC-E4L-CF	1-25	3XDC	2xDC	4	CHWx45	NO	151
	EFS-B44	4-25	3xDC	2xDC	4	CHWx45	NO	149
	ECR-B-MF	6-25	-	2xDC	4/6	CHWx45	NO	149
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152

FINISHING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152
	ECXL-B-4/6	10-20	-	6xDC	4/6	-	NO	184
	ECH-B-6	6-20	-	2xDC	6	-	NO	183

TROCHOIDAL / DYNAMIC MILLING

H (Hard Materials)								
	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152

HIGH FEED MILLING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	EFP-E4,5CF	6-20	-	2.5xDC	4/5	RE	NO	158
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	158

CHAMFERING AND DEBURRING

	Designation	Ø	LU (Neck)	A _p	ZEFF	Corner Type	Coolant	Page
	ECF.../45	4-12	-	2.5xDC	4	-	NO	207
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	208

Tool Type	Features
EC-H4M-CF-E (ECO Type)	• Rough and finish operations • General use • Low power machines • CHATTER-FREE
ECP-H4L-CFR	• Rough operations • General use • Chip splitter CHATTER-FREE
EC-E4L-CF	• Rough and finish operations • Used for machining alloyed steel and general use • Low power machines no vibrations
EC-E5L-CF	• Rough and finish operations • Used for machining alloyed steel and general use • High material removal rates
ECR-B-MF	• Rough operations • Used on unstable components
EFS-B44	• Unique design • Used for machining titanium, stainless and alloyed steel • Fully effective • Semi-finish surface quality
EC-E7/H7-CF	• For high speed machining • Trochoidal milling • Finish operations up to 10% X DC
EC-H-CF	• High speed machining • Multiflute solid endmill • Tools for super finish • Up to 5% X DC

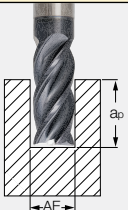
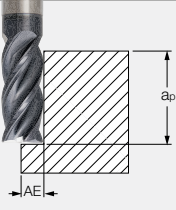
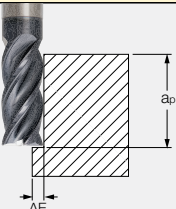
H (Hard Materials)				
ROUGH: AE = 40% - Full Cut , Ap = 2 x DC				
Material Group Parameters	Hardened Steel	Chilled Cast Iron	Cast Iron	
	38-39	40	41	
V _c (IC900/608) (m/min)	20-30	60-65	30-35	
F _z (Ø6 - 8) (mm/z)	0.01-0.015	0.01-0.015	0.01-0.015	
F _z (Ø 10 -12) (mm/z)	0.03-0.045	0.03-0.045	0.03-0.045	
F _z (Ø 16 -20) (mm/z)	0.04-0.05	0.04-0.05	0.04-0.05	
SEMI-FINISH: AE = 10% - 40%, Ap = 2 x DC				
Material Group Parameters	Hardened Steel	Chilled Cast Iron	Cast Iron	
	38-39	40	41	
V _c (IC900/608) (m/min)	30-40	65-70	35-40	
F _z (Ø6 - 8) (mm/z)	0.015-0.035	0.015-0.035	0.015-0.035	
F _z (Ø 10 -12) (mm/z)	0.035-0.055	0.035-0.055	0.035-0.055	
F _z (Ø 16 -20) (mm/z)	0.045-0.06	0.045-0.06	0.045-0.06	
FINISH / H.S.M: AE = 5% - 10%, Ap = Max. Cutting Length				
Material Group Parameters	Hardened Steel	Chilled Cast Iron	Cast Iron	
	38-39	40	41	
V _c (IC900/608) (m/min)	40-50	70-80	40-50	
V _c (IC902/903/702) (m/min)	45-60	75-90	45-60	
F _z (Ø6 - 8) (mm/z)	0.02-0.04	0.02-0.04	0.02-0.04	
F _z (Ø 10 -12) (mm/z)	0.04-0.06	0.04-0.06	0.04-0.06	
F _z (Ø 16 -20) (mm/z)	0.05-0.07	0.05-0.07	0.05-0.07	

Table of Contents

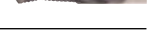
Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range	Remarks	Page	
EFS-E44	38°	2DC	<45	4	6-25		148	
ECK-H4M-CFR	different helix with variable pitch	2DC	Titanium	4	4-20		146	
ECK-H7/9-CFR	different helix with variable pitch	2DC	Titanium	7-9	6-20		147	
EFS-B44	45°	2DC	<55	4	4-25		149	
EC-H4S-CF	different helix with variable pitch	DC	<55	4	6-20		135	
EC-H4M-CF-E	different helix with variable pitch	2DC	<55	4	4-20		136	
EC-H4-L/M/XL/-CFR EC-H5M-CFR	different helix with variable pitch	-	<55	4	3-25		137-138 139	
ECP-H4L-CFR	different helix with variable pitch	2DC	<55	4	10-20		137	
EC-E7/H7-CF	different helix with variable pitch	2DC, 4DC	<55	7	2-20		141-142	
EC-H-CF	different helix with variable pitch	2DC	<55	6-20	6-20		152	
EC-E4L-CF EC-E4M-CF	38° helix with variable pitch	2DC	<45	4	1-25		151 150	
EC-E5L-CF	38° helix with variable pitch	2.5DC	<45	5	6-20		152	
EFP-E4,5CF	38° helix with variable pitch	2DC	<55	4-5	6-20	high feed at small D.O.C.	158	
ECR-B-X/L/M/S	45°	1-2DC	<55	4-7	5-20		153	
ECR-B-MF	45°	2DC	<65	4,6	6-25	excellent for hardened steel	149	
ECP-E-L	38°	2DC	<45	3,4	5-20	recommended for stainless steel	155	
ERF-A/E-3,4,6	30°, 38°	2DC	<55	3-6	4-25	fine pitch steel alloys	156	
ECR-T-M	20°	2DC	<55	4	6-20		157	

Table of Contents

Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range	Remarks	Page	
EBRF-T	20°	2DC	<55	3,4	6-20		157	
EFF-S	0°	0.05DC	<65	4	1-20		158	
ETR-A2	30°	1DC	<45	2	2-10		159	
EC-A2 (economical Short/ Medium/extra Long)	30°	1-10DC	<45	2	1-20		161	
EC/ECC-A-2	30°	2-3.5DC	<45	2	2-20	reinforced	160	
ECS/ECCS-E-3	38°	1-1.5DC	<45	3	2-20		159	
EC-B3 (economical-Short/ Medium)	45°	1-2DC	<45	3	1.5-20		163	
EC-E-3	38°	1-2.5DC	<45	3	1-20		164	
ECC-E-3	38°	2-3.5DC	<45	3	2-20	reinforced	165	
ECU-E-3	38°	2DC	<45	3	2.8-19.7	undersized for keyholes	165	
ECU-E-3-R	38°	1.25DC	<45	3	3.8-11.7	undersized for keyholes with corner radii	166	
EC-B-3/3R	45°	2-3.5DC	<45	3	2-20		167	
EC-B-4/4R	45°	2-3.5DC	<45	4	2-20		168	
EC-A-4/4R	30°	2-3.5DC	<45	4	2-20		169	
EC-A4 (economical- Medium & Extra Long)	30°	2-10DC	<45	4	2-20		171	
ECC-A-4	30°	2-3.5DC	<45	4	2-20	reinforced	170	
EC-A2-M EC-A2-T	30°	1-1.5DC	<65	2	0.3-6		179-180 172-177	
EC-A2-R/H	30°	1.5DC	<65	2	0.1-12		177-178	

Table of Contents

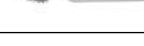
Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range	Remarks	Page	
EC-A2 (medium Length)	30°	2DC	<65	2	1-25		181	
EC-A4	30°	2-3DC	<65	4	2-25		182	
ECH-B-6	45°	2DC	<65	6	6-20	high temp. alloys	183	
ECL-B-4/6	45°	3-5DC	<45	4,6	6-20		183	
ECXL-B-4,6	45°	4-6DC	<45	4,6	10-20		184	
EC-D6	50°	2DC	<65	6	6-20		184	
EC-B6-H	45°	2DC	<65	6	6-20		185	
EC-B6	45°	4DC	<65	6	6-25		185	
EPN-F	15°	2-4DC	CFRP composites	9-12	3-12		193	
EPNC	15°	2-4DC	CFRP composites	10	8-12		194	
EPND	15°	2-4DC	CFRP composites	6-10	1.6-12		194	
EPX	15°	2DC	CFRP composites	6-8	6-12		195	
ECA-H3-CF	39-41° variable helix	2DC	aluminum	3	1-25		186-188	
ECA-H4-CF	different helix with variable pitch	1.5-2DC	aluminum	4	6-25		188	
ECAP-H3-CF	different helix with variable pitch	1.5-2DC	aluminum	3	10-25		189	
ERC-E-3	38°	2DC	aluminum	3	6-25		189	
ECR-B3-R	45°	1-3DC	aluminum	3	6-20		190	
ECR-B3-R-C	45°	DC	aluminum	3	8-25		190	

Table of Contents

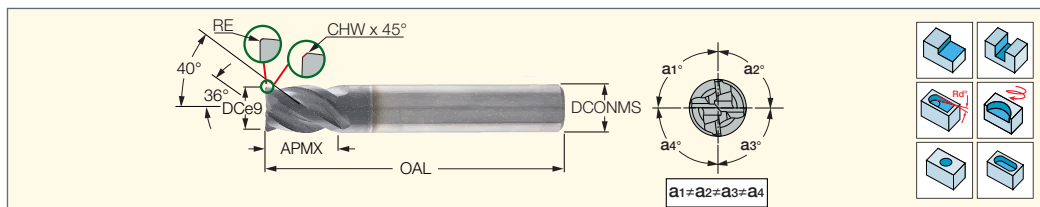
Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range	Remarks	Page	
ECA-B-2	45	2-3DC	Aluminum	2	4-20	high speed machining on aluminum	191	
ECA-B-3	45°	2-3DC	Aluminum	3	4-20	high speed machining on aluminum	192	
ECA-F-2	55°	2-5DC	Aluminum	2	4-25	high speed machining on aluminum	193	
EB-H-CF	different helix with variable pitch	2DC	<55	3-5	6-20		196	
EB-E4L-CF		2DC	<45	4	3-16		197	
EB-A-2		1-2DC	<45	2	2-20		197	
EB-A2 (stub Cut Length)		1DC	<70	2	1-25	stub cut length	198	
EB-A2 (rib Processing)	30°	1.5DC	<65	2	0.4-6		203-204	
EB-A2-H (rib Processing)	30°	0.8-1DC	<65	2	0.1-4.0		202	
EB-A2 (long With Neck)	30°	2-3DC	<65	2	3-25	long overhang length	204	
EB-A2 (extra Long)	30°	2-3DC	<65	2	2-20	extra long overhang length	205	
EB-A2 (tapered Flute & Neck)	30°	2DC	<65	2	1-12	tapered neck	205	
EB-A2 (precision Stub Cut)	30°	1DC	<65	2	1-25	precision stub cut	206	
ESB-A2	30°	0.75DC	<65	2	3-16	long overhand length	207	
ESB-A4	30°	0.75DC	<65	4	5-16		207	
EBM-A-2	30°	2-3DC	<45	2	0.4-2	miniature	206	
EB-A2 (economical)	30°	2-3DC	<45	2	2-20		199	
EB-A2 (economical- Extra Long)	30°	3.5-10DC	<45	2	3-20		199	

Table of Contents

Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range	Remarks	Page	
EB-A-3	30°	1.25DC	<45	3	1.6-12		200	
EB-A4 (economical-Short)	30°	1-2DC	<45	4	2-20		200	
EB-A-4 (short Length)	30°	1-1.5DC	<45	4	2-20		201	
EB-A-4 (medium Length)	30°	2-2.5DC	<45	4	3-20		201	
EBL-A-4	30°	2-3DC	<45	4	4-16		202	
ECF../45		1.5-2.5DC	<65	4	4-12		207	
ECD-S2	straight	-	-	2	3-12		208	
EOB		2.5-3D	<45	4	8-12	3d profiling	209	
ETB		1D	<45	4	8-12	3d profiling	210	
ELB		0.7D	<45	4,6	8-12	3d profiling	208	
ER-S4 R				4	6-12	for rounding corners	210	

EC-H4S-CF

Short 4 Flute Endmills with
Different Helix and Variable
Pitch for Chatter Dampening



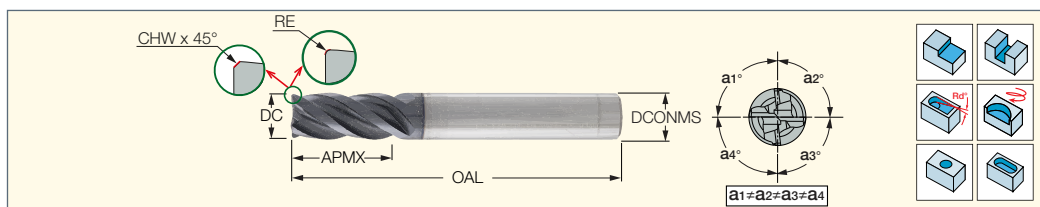
Designation	Dimensions										Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	RE	RMPX ⁽²⁾	Shank ⁽³⁾	CHW	KCH	IC900	IC608	
EC-H4S 06-06C06CF-E50	6.00	6.00	6.00	50.00	4	-	5.0	C	0.25	45.0	●	●	0.03-0.08
EC-H4S 06-06C06CFR.2E50	6.00	6.00	6.00	50.00	4	0.20	5.0	C	-	-	●	●	0.03-0.08
EC-H4S 06-06W06CF-E50	6.00	6.00	6.00	50.00	4	-	5.0	W	0.25	45.0	●	●	0.03-0.08
EC-H4S 08-08C08CF-E63	8.00	8.00	8.00	63.00	4	-	5.0	C	0.30	45.0	●	●	0.03-0.08
EC-H4S 08-08C08CFR.4E63	8.00	8.00	8.00	63.00	4	0.40	5.0	C	-	-	●	●	0.03-0.08
EC-H4S 08-08W08CF-E63	8.00	8.00	8.00	63.00	4	-	5.0	W	0.30	45.0	●	●	0.03-0.08
EC-H4S 10-10C10CF-E66	10.00	10.00	10.00	66.00	4	-	5.0	C	0.40	45.0	●	●	0.03-0.10
EC-H4S 10-10C10CFR.5E66	10.00	10.00	10.00	66.00	4	0.50	5.0	C	-	-	●	●	0.03-0.10
EC-H4S 10-10W10CF-E66	10.00	10.00	10.00	66.00	4	-	5.0	W	0.40	45.0	●	●	0.03-0.10
EC-H4S 12-12C12CF-E73	12.00	12.00	12.00	73.00	4	-	5.0	C	0.50	45.0	●	●	0.04-0.10
EC-H4S 12-12C12CFR.6E73	12.00	12.00	12.00	73.00	4	0.60	5.0	C	-	-	●	●	0.04-0.10
EC-H4S 12-12W12CF-E73	12.00	12.00	12.00	73.00	4	-	5.0	W	0.50	45.0	●	●	0.04-0.10
EC-H4S 16-16C16CF-E82	16.00	16.00	16.00	82.00	4	-	5.0	C	0.60	45.0	●	●	0.05-0.11
EC-H4S 16-16W16CF-E82	16.00	16.00	16.00	82.00	4	-	5.0	W	0.60	45.0	●	●	0.05-0.11
EC-H4S 20-20C20CF-E92	20.00	20.00	20.00	92.00	4	-	5.0	C	0.60	45.0	●	●	0.05-0.11
EC-H4S 20-20W20CF-E92	20.00	20.00	20.00	92.00	4	-	5.0	W	0.60	45.0	●	●	0.05-0.11

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

CHATTERFREE
SOLID MILL LINE**EC-H4M-CF-E**4 Flute Endmills with Different
Helix and Variable Pitch
for Chatter Dampening

Designation	Dimensions										IC900	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	RE	KCH	OAL	NOF ⁽¹⁾	RMPX ^{o(2)}	Shank ⁽³⁾	CHW		
EC-H4M 04-08C4CF-E50	4.00	4.00	8.00	-	45.0	50.00	4	5.0	C	0.15	●	0.03-0.05
EC-H4M 06-12C06CF-E57	6.00	6.00	12.00	-	45.0	57.00	4	5.0	C	0.25	●	0.03-0.07
EC-H4M 06-12C06CFR0.2-E57	6.00	6.00	12.00	0.20	-	57.00	4	5.0	C	-	●	0.03-0.07
EC-H4M 06-12C06CFR0.5-E57	6.00	6.00	12.00	0.50	-	57.00	4	5.0	C	-	●	0.03-0.07
EC-H4M 06-12C06CFR1-E57	6.00	6.00	12.00	1.00	-	57.00	4	5.0	C	-	●	0.03-0.07
EC-H4M 06-12W06CF-E57	6.00	6.00	12.00	-	45.0	57.00	4	5.0	W	0.25	●	0.03-0.07
EC-H4M 08-16C08CF-E63	8.00	8.00	16.00	-	45.0	63.00	4	5.0	C	0.30	●	0.03-0.09
EC-H4M 08-16C08CFR0.3-E63	8.00	8.00	16.00	0.30	-	63.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 08-16C08CFR0.5-E63	8.00	8.00	16.00	0.50	-	63.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 08-16C08CFR1.5-E63	8.00	8.00	16.00	1.50	-	63.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 08-16C08CFR1-E63	8.00	8.00	16.00	1.00	-	63.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 08-16W08CF-E63	8.00	8.00	16.00	-	45.0	63.00	4	5.0	W	0.30	●	0.03-0.09
EC-H4M 10-20C10CF-E72	10.00	10.00	20.00	-	45.0	72.00	4	5.0	C	0.40	●	0.03-0.09
EC-H4M 10-20C10CFR0.3-E72	10.00	10.00	20.00	0.30	-	72.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 10-20C10CFR0.5-E72	10.00	10.00	20.00	0.50	-	72.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 10-20C10CFR1.5-E72	10.00	10.00	20.00	1.50	-	72.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 10-20C10CFR1-E72	10.00	10.00	20.00	1.00	-	72.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 10-20W10CF-E72	10.00	10.00	20.00	-	45.0	72.00	4	5.0	W	0.40	●	0.03-0.09
EC-H4M 12-24C12CF-E83	12.00	12.00	24.00	-	45.0	83.00	4	5.0	C	0.50	●	0.04-0.10
EC-H4M 12-24C12CFR0.5-E83	12.00	12.00	24.00	0.50	-	83.00	4	5.0	C	-	●	0.04-0.10
EC-H4M 12-24C12CFR1.5-E83	12.00	12.00	24.00	1.50	-	83.00	4	5.0	C	-	●	0.04-0.10
EC-H4M 12-24C12CFR2-E83	12.00	12.00	24.00	2.00	-	83.00	4	5.0	C	-	●	0.04-0.10
EC-H4M 12-24C12CFR3-E83	12.00	12.00	24.00	3.00	-	83.00	4	5.0	C	-	●	0.04-0.10
EC-H4M 12-24W12CF-E83	12.00	12.00	24.00	-	45.0	83.00	4	5.0	W	0.50	●	0.04-0.10
EC-H4M 16-32C16CF-E92	16.00	16.00	32.00	-	45.0	92.00	4	5.0	C	0.60	●	0.05-0.11
EC-H4M 16-32C16CFR0.5-E92	16.00	16.00	32.00	0.50	-	92.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 16-32C16CFR1.5-E92	16.00	16.00	32.00	1.50	-	92.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 16-32C16CFR2-E92	16.00	16.00	32.00	2.00	-	92.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 16-32C16CFR3-E92	16.00	16.00	32.00	3.00	-	92.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 16-32C16CFR4-E92	16.00	16.00	32.00	4.00	-	92.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 16-32W16CF-E92	16.00	16.00	32.00	-	45.0	92.00	4	5.0	W	0.60	●	0.05-0.11
EC-H4M 20-40C20CF-E104	20.00	20.00	40.00	-	45.0	104.00	4	5.0	C	0.60	●	0.05-0.11
EC-H4M 20-40C20CFR0.5E104	20.00	20.00	40.00	0.50	-	104.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 20-40C20CFR1.5E104	20.00	20.00	40.00	1.50	-	104.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 20-40C20CFR2-E104	20.00	20.00	40.00	2.00	-	104.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 20-40C20CFR3-E104	20.00	20.00	40.00	3.00	-	104.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 20-40C20CFR5-E104	20.00	20.00	40.00	5.00	-	104.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 20-40W20CF-E104	20.00	20.00	40.00	-	45.0	104.00	4	5.0	W	0.60	●	0.05-0.11

• For user guide, see pages 211-218

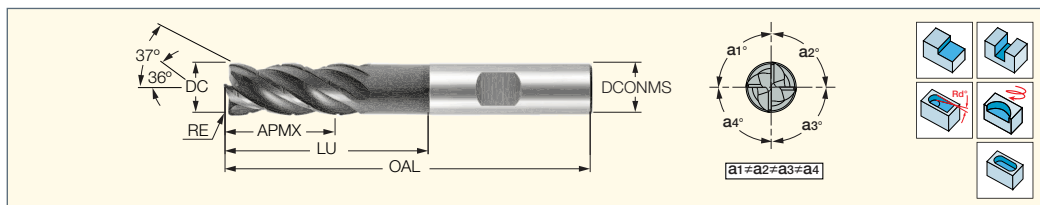
⁽¹⁾ Number of flutes⁽²⁾ Maximum ramping angle⁽³⁾ C-Cylindrical, W-Weldon



CHATTERFREE

ECP-H4L-CFR

4 Flute Solid Carbide Endmills
with Different Helix, Variable
Pitch and Chip Splitting
Cutting Edges for Roughing



Designation	Dimensions									IC900
	DC	DCONMS	APMX	LU	OAL	NOF ⁽¹⁾	Shank ⁽²⁾	RE	RMPX ⁽³⁾	
ECP-H4L 10-22/32W10CFR.5	10.00	10.00	22.00	32.0	72.00	4	W	0.50	5.0	●
ECP-H4L 10-22/40W10CFR.5	10.00	10.00	22.00	40.0	80.00	4	W	0.50	5.0	●
ECP-H4L 12-26/38W12CFR.5	12.00	12.00	26.00	38.0	83.00	4	W	0.50	5.0	●
ECP-H4L 12-26/50W12CFR.5	12.00	12.00	26.00	50.0	95.00	4	W	0.50	5.0	●
ECP-H4L 16-34/50W16CFR1	16.00	16.00	34.00	50.0	100.00	4	W	1.00	5.0	●
ECP-H4L 16-34/64W16CFR1	16.00	16.00	34.00	64.0	116.00	4	W	1.00	5.0	●
ECP-H4L 20-42/62W20CFR1	20.00	20.00	42.00	62.0	112.00	4	W	1.00	5.0	●
ECP-H4L 20-42/75W20CFR1	20.00	20.00	42.00	75.0	125.00	4	W	1.00	5.0	●

(1) Number of flutes

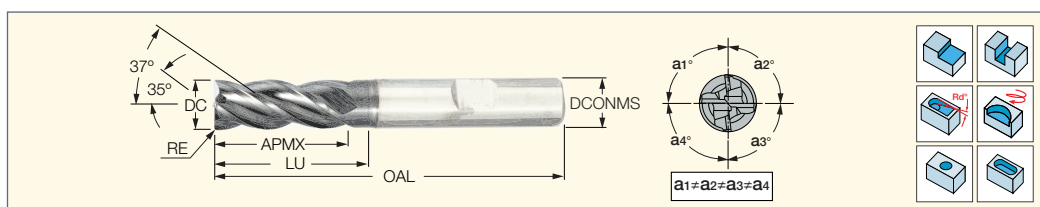
(2) C-Cylindrical, W-Weldon

(3) Maximum ramping angle

CHATTERFREE

EC-H4-L/M/XL-CFR

4 Flute Endmills with Different
Helix and Variable Pitch
for Chatter Dampening
with Assorted Radii



Designation	Dimensions										Tough ↕ Hard	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	NOF ⁽¹⁾	RE	RMPX ⁽²⁾	Shank ⁽³⁾	CSP ⁽⁴⁾	IC900	f _z (mm/t)
EC-H4L 03-08/10C6CFR.2	3.00	6.00	8.00	10.00	52.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4L 04-11/13C6CFR.2	4.00	6.00	11.00	13.00	52.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4L 05-13/20C6CFR.2	5.00	6.00	13.00	20.00	57.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4L 06-14/20C6CFR.2	6.00	6.00	14.00	20.00	52.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4L 06-14/20C6CFR.2C	6.00	6.00	14.00	20.00	52.00	4	0.20	5.0	C	1	●	0.03-0.06
EC-H4L 06-14/25C6CFR.2	6.00	6.00	14.00	25.00	57.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4L 06-14/25C6CFR.2C	6.00	6.00	14.00	25.00	57.00	4	0.20	5.0	C	1	●	0.03-0.06
EC-H4M 06-12C06CFR0.2-57	6.00	6.00	12.00	-	57.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4M 06-12C06CFR0.5-57	6.00	6.00	12.00	-	57.00	4	0.50	5.0	C	0	●	0.03-0.06
EC-H4M 06-12W06CFR0.2-57	6.00	6.00	12.00	-	57.00	4	0.20	5.0	W	0	●	0.03-0.06
EC-H4XL 06-12/25C06CFR.2	6.00	6.00	12.00	25.00	61.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4XL 06-12/25W06CFR.2	6.00	6.00	12.00	25.00	61.00	4	0.20	5.0	W	0	●	0.03-0.06
EC-H4L 08-18/26W8CFR.3	8.00	8.00	18.00	26.00	63.00	4	0.30	5.0	W	0	●	0.03-0.08
EC-H4L 08-18/26W8CFR.3C	8.00	8.00	18.00	26.00	63.00	4	0.30	5.0	W	1	●	0.03-0.08
EC-H4L 08-18/32W8CFR.3	8.00	8.00	18.00	32.00	63.00	4	0.30	5.0	W	0	●	0.03-0.08
EC-H4L 08-18/32W8CFR.3C	8.00	8.00	18.00	32.00	63.00	4	0.30	5.0	W	1	●	0.03-0.08
EC-H4M 08-16C08CFR0.4-63	8.00	8.00	16.00	-	63.00	4	0.40	5.0	C	0	●	0.03-0.08
EC-H4M 08-16C08CFR0.5-63	8.00	8.00	16.00	-	63.00	4	0.50	5.0	C	0	●	0.03-0.08
EC-H4M 08-16C08CFR1-63	8.00	8.00	16.00	-	63.00	4	1.00	5.0	C	0	●	0.03-0.08
EC-H4M 08-16W08CFR0.4-63	8.00	8.00	16.00	-	63.00	4	0.40	5.0	W	0	●	0.03-0.08
EC-H4M 08-16W08CFR1.5-63	8.00	8.00	16.00	-	63.00	4	1.50	5.0	W	0	●	0.03-0.08
EC-H4XL 08-16/32C08CFR.4	8.00	8.00	16.00	32.00	68.00	4	0.40	5.0	C	0	●	0.03-0.08
EC-H4XL 08-16/32W08CFR.4	8.00	8.00	16.00	32.00	68.00	4	0.40	5.0	W	0	●	0.03-0.08
EC-H4L 10-22/32W10CFR.5	10.00	10.00	22.00	32.00	72.00	4	0.50	5.0	W	0	●	0.03-0.09
EC-H4L 10-22/32W10CFR.5C	10.00	10.00	22.00	32.00	72.00	4	0.50	5.0	W	1	●	0.03-0.09
EC-H4L 10-22/40W10CFR.5	10.00	10.00	22.00	40.00	80.00	4	0.50	5.0	W	0	●	0.03-0.09
EC-H4L 10-22/40W10CFR.5C	10.00	10.00	22.00	40.00	80.00	4	0.50	5.0	W	1	●	0.03-0.09
EC-H4M 10-20C10CFR0.5-72	10.00	10.00	20.00	-	72.00	4	0.50	5.0	C	0	●	0.03-0.09

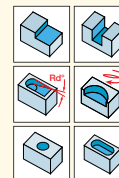
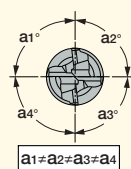
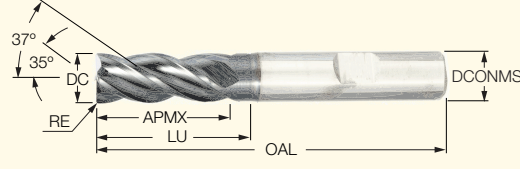
• For user guide, see pages 211-218

(1) Number of flutes

(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

Continued

CHATTERFREE
 SOLID MILL LINE
EC-H4-L/M/XL-CFR
 4 Flute Endmills with Different
 Helix and Variable Pitch
 for Chatter Dampening
 with Assorted Radii


Designation	Dimensions										Tough ↕ Hard	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	NOF ⁽¹⁾	RE	RMPX ^{o(2)}	Shank ⁽³⁾	CSP ⁽⁴⁾	IC900	f _z (mm/t)
EC-H4M 10-20W10CFR0.5-72	10.00	10.00	20.00	-	72.00	4	0.50	5.0	W	0	●	0.03-0.09
EC-H4M 10-20W10CFR1.5-72	10.00	10.00	20.00	-	72.00	4	1.50	5.0	W	0	●	0.03-0.09
EC-H4M 10-20W10CFR1-72	10.00	10.00	20.00	-	72.00	4	1.00	5.0	W	0	●	0.03-0.09
EC-H4XL 10-20/40C10CFR.5	10.00	10.00	20.00	40.00	80.00	4	0.50	5.0	C	0	●	0.03-0.09
EC-H4XL 10-20/40W10CFR.5	10.00	10.00	20.00	40.00	80.00	4	0.50	5.0	W	0	●	0.03-0.09
EC-H4L 12-26/38W12CFR.5	12.00	12.00	26.00	38.00	83.00	4	0.50	5.0	W	0	●	0.04-0.10
EC-H4L 12-26/38W12CFR.5C	12.00	12.00	26.00	38.00	83.00	4	0.50	5.0	W	1	●	0.04-0.10
EC-H4L 12-26/50W12CFR.5	12.00	12.00	26.00	50.00	95.00	4	0.50	5.0	W	0	●	0.04-0.10
EC-H4L 12-26/50W12CFR.5C	12.00	12.00	26.00	50.00	95.00	4	0.50	5.0	W	1	●	0.04-0.10
EC-H4M 12-24C12CFR0.6-83	12.00	12.00	24.00	-	83.00	4	0.60	5.0	C	0	●	0.04-0.10
EC-H4M 12-24W12CFR0.6-83	12.00	12.00	24.00	-	83.00	4	0.60	5.0	W	0	●	0.04-0.10
EC-H4M 12-24W12CFR1.5-83	12.00	12.00	24.00	-	83.00	4	1.50	5.0	W	0	●	0.04-0.10
EC-H4M 12-24W12CFR1-83	12.00	12.00	24.00	-	83.00	4	1.00	5.0	W	0	●	0.04-0.10
EC-H4M 12-24W12CFR2-83	12.00	12.00	24.00	-	83.00	4	2.00	5.0	W	0	●	0.04-0.10
EC-H4M 12-24W12CFR3-83	12.00	12.00	24.00	-	83.00	4	3.00	5.0	W	0	●	0.04-0.10
EC-H4XL 12-24/50C12CFR.6	12.00	12.00	24.00	50.00	95.00	4	0.60	5.0	C	0	●	0.04-0.10
EC-H4XL 12-24/50W12CFR.6	12.00	12.00	24.00	50.00	95.00	4	0.60	5.0	W	0	●	0.04-0.10
EC-H4M 14-28C14CFR0.7-83	14.00	14.00	28.00	-	83.00	4	0.70	5.0	C	0	●	0.04-0.11
EC-H4M 14-28W14CFR0.7-83	14.00	14.00	28.00	-	83.00	4	0.70	5.0	W	0	●	0.04-0.11
EC-H4L 16-34/50W16CFR1	16.00	16.00	34.00	50.00	100.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4L 16-34/50W16CFR1C	16.00	16.00	34.00	50.00	100.00	4	1.00	5.0	W	1	●	0.05-0.11
EC-H4L 16-34/64W16CFR1	16.00	16.00	34.00	64.00	116.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4L 16-34/64W16CFR1C	16.00	16.00	34.00	64.00	116.00	4	1.00	5.0	W	1	●	0.05-0.11
EC-H4M 16-32C16CFR0.8-92	16.00	16.00	32.00	-	92.00	4	0.80	5.0	C	0	●	0.05-0.11
EC-H4M 16-32W16CFR0.5-92	16.00	16.00	32.00	-	92.00	4	0.50	5.0	W	0	●	0.05-0.11
EC-H4M 16-32W16CFR0.8-92	16.00	16.00	32.00	-	92.00	4	0.80	5.0	W	0	●	0.05-0.11
EC-H4M 16-32W16CFR1.5-92	16.00	16.00	32.00	-	92.00	4	1.50	5.0	W	0	●	0.05-0.11
EC-H4M 16-32W16CFR1-92	16.00	16.00	32.00	-	92.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4M 16-32W16CFR2-92	16.00	16.00	32.00	-	92.00	4	2.00	5.0	W	0	●	0.05-0.11
EC-H4M 16-32W16CFR3-92	16.00	16.00	32.00	-	92.00	4	3.00	5.0	W	0	●	0.05-0.11
EC-H4M 16-32W16CFR4-92	16.00	16.00	32.00	-	92.00	4	4.00	5.0	W	0	●	0.05-0.11
EC-H4XL 16-32/64C16CFR.8	16.00	16.00	32.00	64.00	115.00	4	0.80	5.0	C	0	●	0.05-0.11
EC-H4XL 16-32/64W16CFR.8	16.00	16.00	32.00	64.00	115.00	4	0.80	5.0	W	0	●	0.05-0.11
EC-H4L 20-42/64W20CFR1	20.00	20.00	42.00	64.00	116.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4L 20-42/64W20CFR1C	20.00	20.00	42.00	64.00	112.00	4	1.00	5.0	W	1	●	0.05-0.11
EC-H4L 20-42/75W20CFR1	20.00	20.00	42.00	75.00	125.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4L 20-42/75W20CFR1C	20.00	20.00	42.00	75.00	125.00	4	1.00	5.0	W	1	●	0.05-0.11
EC-H4M 20-40C20CFR1.0-104	20.00	20.00	40.00	-	104.00	4	1.00	5.0	C	0	●	0.05-0.11
EC-H4M 20-40W20CFR1.0-104	20.00	20.00	40.00	-	104.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4M 20-40W20CFR1.5-104	20.00	20.00	40.00	-	104.00	4	1.50	5.0	W	0	●	0.05-0.11
EC-H4M 20-40W20CFR3-104	20.00	20.00	40.00	-	104.00	4	3.00	5.0	W	0	●	0.05-0.11
EC-H4M 20-40W20CFR5-104	20.00	20.00	40.00	-	104.00	4	5.00	5.0	W	0	●	0.05-0.11
EC-H4XL 20-40/75C20CFR1.0	20.00	20.00	40.00	75.00	125.00	4	1.00	5.0	C	0	●	0.05-0.11
EC-H4XL 20-40/75W20CFR1.0	20.00	20.00	40.00	75.00	125.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4M 25-50C25CFR1.2-121	25.00	25.00	50.00	-	121.00	4	1.20	5.0	C	0	●	0.06-0.11
EC-H4M 25-50W25CFR1.2-121	25.00	25.00	50.00	-	121.00	4	1.20	5.0	W	0	●	0.06-0.11

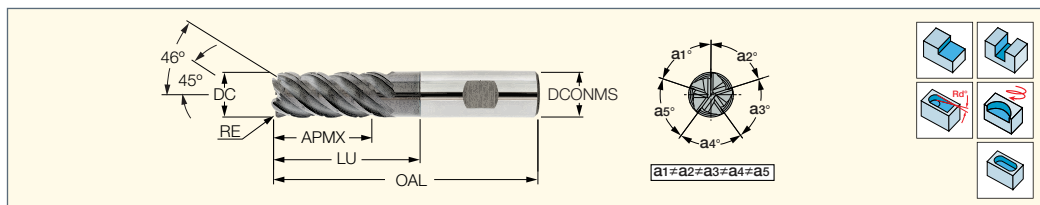
• For user guide, see pages 211-218

⁽¹⁾ Number of flutes⁽²⁾ Maximum ramping angle⁽³⁾ C-Cylindrical, W-Weldon

CHATTERFREE

SOLID MILL LINE

ECP-H5L-CFR
5 Flute Solid Carbide Endmills
with Different Helix, Variable
Pitch and Chip Splitting
Cutting Edges for Roughing



Designation	Dimensions									IC900	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	LU	OAL	NOF ⁽¹⁾	Shank	RE	RMPX ⁽²⁾		
ECP-H5L 08-18/26W08CFR.3	8.00	8.00	18.00	26.0	63.00	5	W	0.30	5.0	●	0.03-0.08
ECP-H5L 08-18/32W08CFR.3	8.00	8.00	18.00	32.0	68.00	5	W	0.30	5.0	●	0.03-0.08
ECP-H5L 10-22/32W10CFR.5	10.00	10.00	22.00	32.0	72.00	5	W	0.50	5.0	●	0.04-0.11
ECP-H5L 10-22/40W10CFR.5	10.00	10.00	22.00	40.0	80.00	5	W	0.50	5.0	●	0.04-0.11
ECP-H5L 12-26/38W12CFR.5	12.00	12.00	26.00	38.0	83.00	5	W	0.50	5.0	●	0.04-0.11
ECP-H5L 12-26/50W12CFR.5	12.00	12.00	26.00	50.0	95.00	5	W	0.50	5.0	●	0.04-0.11
ECP-H5L 16-34/50W16CFR.1	16.00	16.00	34.00	50.0	100.00	5	W	1.00	5.0	●	0.05-0.17
ECP-H5L 16-34/64W16CFR.1	16.00	16.00	34.00	64.0	116.00	5	W	1.00	5.0	●	0.05-0.17
ECP-H5L 20-42/62W20CFR.1	20.00	20.00	42.00	62.0	112.00	5	W	1.00	5.0	●	0.05-0.17
ECP-H5L 20-42/75W20CFR.1	20.00	20.00	42.00	75.0	125.00	5	W	1.00	5.0	●	0.05-0.17

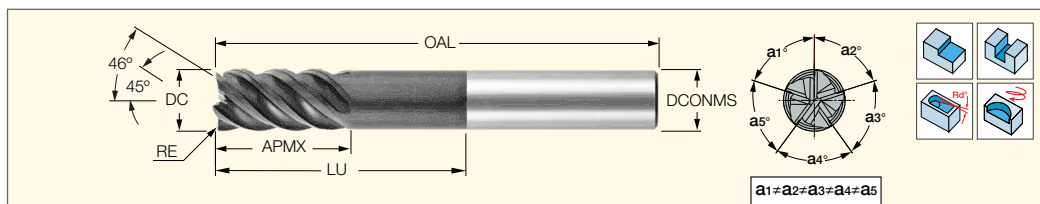
⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

CHATTERFREE

SOLID MILL LINE

EC-H5M-CFR
5 Flute Endmills with Different
Helix and Variable Pitch for
Chatter Dampening with
Assorted Radius Dimensions



Designation	Dimensions										IC900
	DC	DCONMS	APMX	LU	OAL	NOF ⁽¹⁾	RE	RMPX ⁽²⁾	Shank ⁽³⁾	CSP ⁽⁴⁾	
EC-H5M 04-09C06CFR0.2-57	4.00	6.00	9.00	12.00	57.00	5	0.20	2.0	C	0	●
EC-H5M 05-11C06CFR0.2-57	5.00	6.00	11.00	14.50	57.00	5	0.20	2.0	C	0	●
EC-H5M 06-10/25C06CFR.1	6.00	6.00	10.00	25.00	61.00	5	0.10	2.0	C	0	●
EC-H5M 06-10/25C06CFR.1C	6.00	6.00	10.00	25.00	61.00	5	0.10	2.0	C	1	●
EC-H5M 06-13/19C06CFR.1	6.00	6.00	13.00	19.00	55.00	5	0.10	2.0	C	0	●
EC-H5M 06-13/19C06CFR.1C	6.00	6.00	13.00	19.00	55.00	5	0.10	2.0	C	1	●
EC-H5M 08-13/33C08CFR.1	8.00	8.00	13.00	33.00	69.00	5	0.10	2.0	C	0	●
EC-H5M 08-13/33C08CFR.1C	8.00	8.00	13.00	33.00	69.00	5	0.10	2.0	C	1	●
EC-H5M 08-17/25C08CFR.1	8.00	8.00	17.00	25.00	61.00	5	0.10	2.0	C	0	●
EC-H5M 08-17/25C08CFR.1C	8.00	8.00	17.00	25.00	61.00	5	0.10	2.0	C	1	●
EC-H5M 10-17/42C10CFR.1	10.00	10.00	17.00	42.00	82.00	5	0.10	2.0	C	0	●
EC-H5M 10-17/42C10CFR.1C	10.00	10.00	17.00	42.00	82.00	5	0.10	2.0	C	1	●
EC-H5M 10-22/32C10CFR.1	10.00	10.00	22.00	32.00	72.00	5	0.10	2.0	C	0	●
EC-H5M 10-22/32C10CFR.1C	10.00	10.00	22.00	32.00	72.00	5	0.10	2.0	C	1	●
EC-H5M 12-20/50C12CFR.2	12.00	12.00	20.00	50.00	95.00	5	0.20	2.0	C	0	●
EC-H5M 12-20/50C12CFR.2C	12.00	12.00	20.00	50.00	95.00	5	0.20	2.0	C	1	●
EC-H5M 12-26/38C12CFR.2	12.00	12.00	26.00	38.00	83.00	5	0.20	2.0	C	0	●
EC-H5M 12-26/38C12CFR.2C	12.00	12.00	26.00	38.00	83.00	5	0.20	2.0	C	1	●
EC-H5M 16-26/66C16CFR.2	16.00	16.00	26.00	66.00	116.00	5	0.20	2.0	C	0	●
EC-H5M 16-26/66C16CFR.2C	16.00	16.00	26.00	66.00	114.00	5	0.20	2.0	C	1	●
EC-H5M 16-34/50C16CFR.2	16.00	16.00	34.00	50.00	98.00	5	0.20	2.0	C	0	●
EC-H5M 16-34/50C16CFR.2C	16.00	16.00	34.00	50.00	98.00	5	0.20	2.0	C	1	●
EC-H5M 20-32/82C20CFR.2	20.00	20.00	32.00	82.00	132.00	5	0.20	2.0	C	0	●
EC-H5M 20-32/82C20CFR.2C	20.00	20.00	32.00	82.00	132.00	5	0.20	2.0	C	1	●
EC-H5M 20-42/62C20CFR.2	20.00	20.00	42.00	62.00	112.00	5	0.20	2.0	C	0	●
EC-H5M 20-42/62C20CFR.2C	20.00	20.00	42.00	62.00	112.00	5	0.20	2.0	C	1	●

● For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

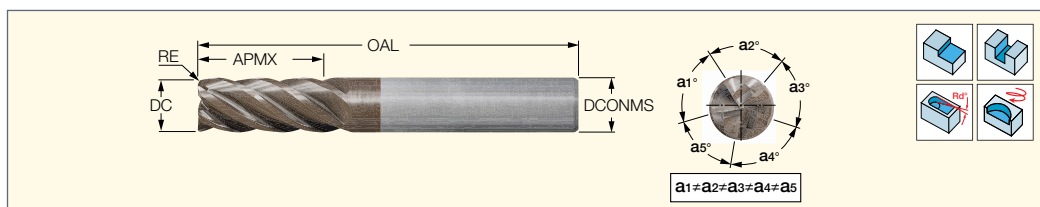
⁽³⁾ C-Cylindrical

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply


CHATTERFREE
 SOLID MILL LINE

ECY-S5-CFR

5 Flute Endmills with Different Helix for Milling Austenitic, Duplex, Cast and Precipitation Hardening Stainless Steels



Designation	Dimensions								IC608	Recommended Machining Data f_z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	RE	RMPX ⁽²⁾	Shank		
ECY-S5 05-11C06CFR.2-57	5.00	6.00	11.00	57.00	5	0.20	5.0	C	●	0.03-0.06
ECY-S5 06-13C06CFR.2-57	6.00	6.00	13.00	57.00	5	0.20	5.0	C	●	0.03-0.08
ECY-S5 08-19C08CFR.4-63 6	8.00	8.00	19.00	63.00	5	0.40	5.0	C	●	0.03-0.12
ECY-S5 10-22C10CFR.5-72 6	10.00	10.00	22.00	72.00	5	0.50	5.0	C	●	0.03-0.12
ECY-S5 12-26C12CFR.6-83 6	12.00	12.00	26.00	83.00	5	0.60	5.0	C	●	0.04-0.13
ECY-S5 16-32C16CFR.8-92 6	16.00	16.00	32.00	92.00	5	0.80	5.0	C	●	0.04-0.13

New

- For user guide, see pages 211-218

⁽¹⁾ Number of flutes

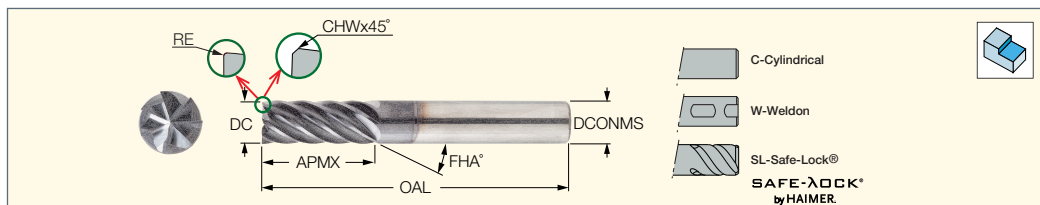
⁽²⁾ Maximum ramping angle



CHATTERFREE

EC-E7/H7-CF

7 Flute Endmills with Different Helix and Variable Pitch for CHATTER-FREE High Speed Finish Milling



Designation	Dimensions												Tough ↕ Hard IC902	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	Shank ⁽²⁾	NOF ⁽³⁾	FHA	RE	RETOL ⁽⁴⁾	CHW	KCH	RMPX ⁽⁵⁾		
EC-E7 02-04C06CF-M57	2.00	6.00	4.00	57.00	C 7	7	38.0	-	-	0.05	45.0	3.0	●	0.01-0.02
EC-E7 03-06C06CF-M57	3.00	6.00	6.00	57.00	C 7	7	38.0	-	-	0.10	45.0	3.0	●	0.02-0.05
EC-E7 04-08C06CF-M57	4.00	6.00	8.00	57.00	C 7	7	38.0	-	-	0.10	45.0	3.0	●	0.02-0.05
EC-E7 05-10C06CF-M57	5.00	6.00	10.00	57.00	C 7	7	38.0	-	-	0.20	45.0	3.0	●	0.03-0.07
EC-H7 06-12C06CF-M57	6.00	6.00	12.00	57.00	C 7	7	37.0	0.00	-	-	-	3.0	●	0.03-0.07
EC-H7 06-12C06CFR.2M57	6.00	6.00	12.00	57.00	C 7	7	37.0	0.20	0.050	-	-	3.0	●	0.03-0.10
EC-H7 06-18C06CF-M65	6.00	6.00	18.00	65.00	C 7	7	37.0	-	-	0.20	45.0	3.0	●	0.03-0.07
EC-H7 06-24C06CF-70	6.00	6.00	24.00	70.00	C 7	7	37.0	-	-	0.20	45.0	3.0	●	0.03-0.07
EC-H7 06-36C06CF-90	6.00	6.00	36.00	90.00	C 7	7	37.0	-	-	0.20	45.0	3.0	●	0.03-0.07
EC-H7 08-16C08CF-M63	8.00	8.00	16.00	63.00	C 7	7	37.0	0.00	-	-	-	3.0	●	0.03-0.09
EC-H7 08-16C08CFR.4M63	8.00	8.00	16.00	63.00	C 7	7	37.0	0.40	0.050	-	-	3.0	●	0.04-0.12
EC-H7 08-24C08CF-M90	8.00	8.00	24.00	90.00	C 7	7	37.0	-	-	0.20	45.0	3.0	●	0.03-0.08
EC-H7 08-32C08CF-90	8.00	8.00	32.00	90.00	C 7	7	37.0	-	-	0.20	45.0	3.0	●	0.03-0.09
EC-H7 08-48C08CF-110	8.00	8.00	48.00	110.00	C 7	7	37.0	-	-	0.20	45.0	3.0	●	0.03-0.08
EC-H7 10-20C10CF-M72	10.00	10.00	20.00	72.00	C 7	7	37.0	0.00	-	-	-	3.0	●	0.03-0.10
EC-H7 10-20C10CFR.5M72	10.00	10.00	20.00	72.00	C 7	7	37.0	0.50	-	-	-	3.0	●	0.03-0.10
EC-H7 10-20C10CFR1.6-M72	10.00	10.00	20.00	72.00	C 7	7	37.0	1.60	0.050	-	-	3.0	●	0.03-0.10
EC-H7 10-20C10CFR2.0-M72	10.00	10.00	20.00	72.00	C 7	7	37.0	2.00	0.050	-	-	3.0	●	0.03-0.10
EC-H7 10-20C10CFR2.5-M72	10.00	10.00	20.00	72.00	C 7	7	37.0	2.50	0.050	-	-	3.0	●	0.03-0.10
EC-H7 10-20C10CFR3.0-M72	10.00	10.00	20.00	72.00	C 7	7	37.0	3.00	0.070	-	-	3.0	●	0.03-0.10
EC-H7 10-20W10CF-M72	10.00	10.00	20.00	72.00	W 7	7	37.0	0.00	-	-	-	3.0	●	0.03-0.10
EC-H7 10-30C10CF-M100	10.00	10.00	30.00	85.00	C 7	7	37.0	-	-	0.30	45.0	3.0	●	0.03-0.10
EC-H7 10-30C10CFR0.5-M85	10.00	10.00	30.00	85.00	C 7	7	37.0	0.50	0.050	-	-	3.0	●	0.03-0.10
EC-H7 10-30C10CFR1.6-M85	10.00	10.00	30.00	85.00	C 7	7	37.0	1.60	0.050	-	-	3.0	●	0.03-0.10
EC-H7 10-30C10CFR2.0-M85	10.00	10.00	30.00	85.00	C 7	7	37.0	2.00	0.050	-	-	3.0	●	0.03-0.10
EC-H7 10-30C10CFR2.5-M85	10.00	10.00	30.00	85.00	C 7	7	37.0	2.50	0.050	-	-	3.0	●	0.03-0.10
EC-H7 10-30C10CFR3.0-M85	10.00	10.00	30.00	85.00	C 7	7	37.0	3.00	0.070	-	-	3.0	●	0.03-0.10
EC-H7 10-40C10CF-100	10.00	10.00	40.00	100.00	C 7	7	37.0	-	-	0.30	45.0	3.0	●	0.03-0.10
EC-H7 10-40C10CFR0.5-M100	10.00	10.00	40.00	100.00	C 7	7	37.0	0.50	0.050	-	-	3.0	●	0.03-0.10
EC-H7 10-40C10CFR1.6-M100	10.00	10.00	40.00	100.00	C 7	7	37.0	1.60	0.070	-	-	3.0	●	0.03-0.10
EC-H7 10-40C10CFR2.0-M100	10.00	10.00	40.00	100.00	C 7	7	37.0	2.00	0.070	-	-	3.0	●	0.03-0.10
EC-H7 10-40C10CFR2.5-M100	10.00	10.00	40.00	100.00	C 7	7	37.0	2.50	0.070	-	-	3.0	●	0.03-0.10
EC-H7 10-40C10CFR3.0-M100	10.00	10.00	40.00	100.00	C 7	7	37.0	3.00	0.080	-	-	3.0	●	0.03-0.10
EC-H7 10-60C10CF-130	10.00	10.00	60.00	130.00	C 7	7	37.0	-	-	0.30	45.0	3.0	●	0.03-0.10
EC-H7 10-60C10CFR0.5-M130	10.00	10.00	60.00	130.00	C 7	7	37.0	0.50	0.050	-	-	3.0	●	0.03-0.10
EC-H7 10-60C10CFR1.0-M130	10.00	10.00	60.00	130.00	C 7	7	37.0	1.00	0.050	-	-	3.0	●	0.03-0.10
EC-H7 12-24C12CF-M83	12.00	12.00	24.00	83.00	C 7	7	37.0	0.00	-	-	-	3.0	●	0.04-0.11
EC-H7 12-24C12CFR.6M83	12.00	12.00	24.00	83.00	C 7	7	37.0	0.60	-	-	-	3.0	●	0.04-0.11
EC-H7 12-24C12CFR1.6-M83	12.00	12.00	24.00	83.00	C 7	7	37.0	1.60	-	-	-	3.0	●	0.04-0.11
EC-H7 12-24C12CFR2.0-M83	12.00	12.00	24.00	83.00	C 7	7	37.0	2.00	-	-	-	3.0	●	0.04-0.11
EC-H7 12-24C12CFR2.5-M83	12.00	12.00	24.00	83.00	C 7	7	37.0	2.50	-	-	-	3.0	●	0.04-0.11
EC-H7 12-24C12CFR3.0-M83	12.00	12.00	24.00	83.00	C 7	7	37.0	3.00	-	-	-	3.0	●	0.04-0.11
EC-H7 12-24SL12CF-M83 ⁽¹⁾	12.00	12.00	24.00	83.00	SL 7	7	37.0	0.00	-	-	-	3.0	●	0.04-0.12
EC-H7 12-24SL12CFR.6M83 ⁽¹⁾	12.00	12.00	24.00	83.00	SL 7	7	37.0	0.60	-	-	-	3.0	●	0.04-0.12
EC-H7 12-24W12CF-M83	12.00	12.00	24.00	83.00	W 7	7	37.0	0.00	-	-	-	3.0	●	0.04-0.12
EC-H7 12-36C12CF-M95	12.00	12.00	36.00	95.00	C 7	7	37.0	-	-	0.30	45.0	3.0	●	0.04-0.12
EC-H7 12-36C12CFR0.6-M95	12.00	12.00	36.00	95.00	C 7	7	37.0	0.60	0.050	-	-	3.0	●	0.04-0.11
EC-H7 12-36C12CFR1.6-M95	12.00	12.00	36.00	95.00	C 7	7	37.0	1.60	0.050	-	-	3.0	●	0.04-0.11
EC-H7 12-36C12CFR2.0-M95	12.00	12.00	36.00	95.00	C 7	7	37.0	2.00	0.050	-	-	3.0	●	0.04-0.11
EC-H7 12-36C12CFR2.5-M95	12.00	12.00	36.00	95.00	C 7	7	37.0	2.50	0.050	-	-	3.0	●	0.04-0.11
EC-H7 12-36C12CFR3.0-M95	12.00	12.00	36.00	95.00	C 7	7	37.0	3.00	0.070	-	-	3.0	●	0.04-0.11
EC-H7 12-36SL12CF-M95 ⁽¹⁾	12.00	12.00	36.00	95.00	SL 7	7	37.0	-	-	-	-	3.0	●	0.04-0.12
EC-H7 12-48C12CF-110	12.00	12.00	48.00	110.00	C 7	7	37.0	-	-	0.30	45.0	3.0	●	0.04-0.11
EC-H7 12-48C12CFR0.6-M110	12.00	12.00	48.00	110.00	C 7	7	37.0	0.60	0.050	-	-	3.0	●	0.04-0.11
EC-H7 12-48C12CFR1.6-M110	12.00	12.00	48.00	110.00	C 7	7	37.0	1.60	0.070	-	-	3.0	●	0.04-0.11

• Enables processing at a radial width of cut (AE) of up to 0.10xDC, For user guide, see pages 211-218

⁽¹⁾ With Safe-Lock® (by Haimer) pull-out prevention helical grooves

⁽²⁾ C-Cylindrical, W-Weldon, SL-Safe-Lock® (by Haimer)

⁽³⁾ Number of flutes

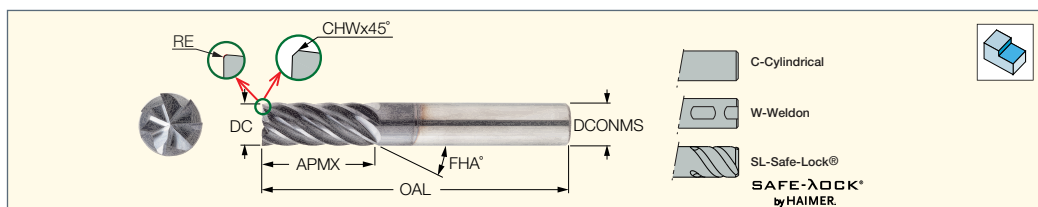
⁽⁴⁾ Corner radius tolerance (+/-)

⁽⁵⁾ Maximum ramping angle

Continued

CHATTERFREE
SOLID MILL LINE
EC-E7/H7-CF

7 Flute Endmills with Different Helix and Variable Pitch for CHATTER-FREE High Speed Finish Milling



Designation	Dimensions												Tough ↕ Hard IC902	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	Shank ⁽²⁾	NOF ⁽³⁾	FHA	RE	RETOL ⁽⁴⁾	CHW	KCH	RMPX ⁽⁵⁾		
EC-H7 12-48C12CFR2.0-M110	12.00	12.00	48.00	110.00	C 7	37.0	2.00	0.070	-	-	-	3.0	●	0.04-0.11
EC-H7 12-48C12CFR2.5-M110	12.00	12.00	48.00	110.00	C 7	37.0	2.50	0.070	-	-	-	3.0	●	0.04-0.11
EC-H7 12-48C12CFR3.0-M110	12.00	12.00	48.00	110.00	C 7	37.0	3.00	0.080	-	-	-	3.0	●	0.04-0.11
EC-H7 12-48SL12CF-110 ⁽¹⁾	12.00	12.00	48.00	110.00	SL 7	37.0	-	-	0.30	45.0	3.0	3.0	●	0.04-0.12
EC-H7 12-72C12CF-140	12.00	12.00	72.00	140.00	C 7	37.0	-	-	0.30	45.0	3.0	3.0	●	0.04-0.12
EC-H7 12-72C12CFR1.0-M140	12.00	12.00	72.00	140.00	C 7	37.0	1.00	0.050	-	-	-	3.0	●	0.04-0.11
EC-H7 12-72SL12CF-140 ⁽¹⁾	12.00	12.00	72.00	140.00	SL 7	37.0	-	-	0.30	45.0	3.0	3.0	●	0.04-0.12
EC-H7 16-32C16CF-M92	16.00	16.00	32.00	92.00	C 7	37.0	0.00	-	-	-	-	3.0	●	0.05-0.13
EC-H7 16-32C16CFR.8M92	16.00	16.00	32.00	92.00	C 7	37.0	0.80	-	-	-	-	3.0	●	0.05-0.13
EC-H7 16-32C16CFR1.6-M92	16.00	16.00	32.00	92.00	C 7	37.0	1.60	-	-	-	-	3.0	●	0.04-0.12
EC-H7 16-32C16CFR2.0-M92	16.00	16.00	32.00	92.00	C 7	37.0	2.00	-	-	-	-	3.0	●	0.04-0.12
EC-H7 16-32C16CFR2.5-M92	16.00	16.00	32.00	92.00	C 7	37.0	2.50	-	-	-	-	3.0	●	0.04-0.12
EC-H7 16-32C16CFR3.0-M92	16.00	16.00	32.00	92.00	C 7	37.0	3.00	-	-	-	-	3.0	●	0.04-0.12
EC-H7 16-32C16CFR4.0-M92	16.00	16.00	32.00	92.00	C 7	37.0	4.00	-	-	-	-	3.0	●	0.04-0.12
EC-H7 16-32SL16CF-M92 ⁽¹⁾	16.00	16.00	32.00	92.00	SL 7	37.0	-	-	-	-	-	3.0	●	0.04-0.12
EC-H7 16-32SL16CFR.8M92 ⁽¹⁾	16.00	16.00	32.00	92.00	SL 7	37.0	0.80	-	-	-	-	3.0	●	0.04-0.12
EC-H7 16-32W16CF-M92	16.00	16.00	32.00	92.00	W 7	37.0	0.00	-	-	-	-	3.0	●	0.05-0.13
EC-H7 16-48C16CF-M110	16.00	16.00	48.00	110.00	C 7	37.0	-	-	0.30	45.0	3.0	3.0	●	0.05-0.13
EC-H7 16-48C16CFR0.8-M110	16.00	16.00	48.00	110.00	C 7	37.0	0.80	0.050	-	-	-	3.0	●	0.05-0.13
EC-H7 16-48C16CFR1.6-M110	16.00	16.00	48.00	110.00	C 7	37.0	1.60	0.050	-	-	-	3.0	●	0.05-0.13
EC-H7 16-48C16CFR2.0-M110	16.00	16.00	48.00	110.00	C 7	37.0	2.00	0.050	-	-	-	3.0	●	0.05-0.13
EC-H7 16-48C16CFR2.5-M110	16.00	16.00	48.00	110.00	C 7	37.0	2.50	0.050	-	-	-	3.0	●	0.05-0.13
EC-H7 16-48C16CFR3.0-M110	16.00	16.00	48.00	110.00	C 7	37.0	3.00	0.070	-	-	-	3.0	●	0.05-0.13
EC-H7 16-48C16CFR4.0-M110	16.00	16.00	48.00	110.00	C 7	37.0	4.00	0.070	-	-	-	3.0	●	0.05-0.13
EC-H7 16-48SL16CF-M110 ⁽¹⁾	16.00	16.00	48.00	110.00	SL 7	37.0	-	-	0.30	45.0	3.0	3.0	●	0.04-0.12
EC-H7 16-64C16CF-131	16.00	16.00	64.00	131.00	C 7	37.0	-	-	0.30	45.0	3.0	3.0	●	0.05-0.13
EC-H7 16-64C16CFR0.8-M131	16.00	16.00	64.00	131.00	C 7	37.0	0.80	0.050	-	-	-	3.0	●	0.05-0.13
EC-H7 16-64C16CFR1.6-M131	16.00	16.00	64.00	131.00	C 7	37.0	1.60	0.070	-	-	-	3.0	●	0.05-0.13
EC-H7 16-64C16CFR2.0-M131	16.00	16.00	64.00	131.00	C 7	37.0	2.00	0.070	-	-	-	3.0	●	0.05-0.13
EC-H7 16-64C16CFR2.5-M131	16.00	16.00	64.00	131.00	C 7	37.0	2.50	0.070	-	-	-	3.0	●	0.05-0.13
EC-H7 16-64C16CFR3.0-M131	16.00	16.00	64.00	131.00	C 7	37.0	3.00	0.080	-	-	-	3.0	●	0.05-0.13
EC-H7 16-64C16CFR4.0-M131	16.00	16.00	64.00	131.00	C 7	37.0	4.00	0.080	-	-	-	3.0	●	0.05-0.13
EC-H7 16-64SL16CF-131 ⁽¹⁾	16.00	16.00	64.00	131.00	SL 7	37.0	-	-	0.30	45.0	3.0	3.0	●	0.04-0.12
EC-H7 16-96C16CF-175	16.00	16.00	96.00	175.00	C 7	37.0	-	-	0.30	45.0	3.0	3.0	●	0.05-0.13
EC-H7 16-96C16CFR1.0M175	16.00	16.00	96.00	175.00	C 7	37.0	1.00	0.050	-	-	-	3.0	●	0.05-0.13
EC-H7 16-96SL16CF-175 ⁽¹⁾	16.00	16.00	96.00	175.00	SL 7	37.0	-	-	0.30	45.0	3.0	3.0	●	0.04-0.12
EC-H7 20-40C20CF-M104	20.00	20.00	40.00	104.00	C 7	37.0	0.00	-	-	-	-	3.0	●	0.05-0.13
EC-H7 20-40C20CFR1.6-M104	20.00	20.00	40.00	104.00	C 7	37.0	1.60	0.060	-	-	-	3.0	●	0.05-0.13
EC-H7 20-40C20CFR1M104	20.00	20.00	40.00	104.00	C 7	37.0	1.00	-	-	-	-	3.0	●	0.05-0.13
EC-H7 20-40C20CFR2.0-M104	20.00	20.00	40.00	104.00	C 7	37.0	2.00	0.060	-	-	-	3.0	●	0.05-0.13
EC-H7 20-40C20CFR2.5-M104	20.00	20.00	40.00	104.00	C 7	37.0	2.50	0.060	-	-	-	3.0	●	0.05-0.13
EC-H7 20-40C20CFR3.0-M104	20.00	20.00	40.00	104.00	C 7	37.0	3.00	0.060	-	-	-	3.0	●	0.05-0.13
EC-H7 20-40C20CFR4.0-M104	20.00	20.00	40.00	104.00	C 7	37.0	4.00	0.080	-	-	-	3.0	●	0.05-0.13
EC-H7 20-40SL20CF-M104 ⁽¹⁾	20.00	20.00	40.00	104.00	SL 7	37.0	0.00	-	-	-	-	3.0	●	0.04-0.12
EC-H7 20-40SL20CFR1M104 ⁽¹⁾	20.00	20.00	40.00	104.00	SL 7	37.0	1.00	-	-	-	-	3.0	●	0.05-0.15
EC-H7 20-40W20CF-M104	20.00	20.00	40.00	104.00	W 7	37.0	0.00	-	-	-	-	3.0	●	0.05-0.13
EC-H7 20-60C20CF-M140	20.00	20.00	60.00	140.00	C 7	37.0	-	-	0.40	45.0	3.0	3.0	●	0.05-0.13
EC-H7 20-60C20CFR1.0-M140	20.00	20.00	60.00	140.00	C 7	37.0	1.00	0.060	-	-	-	3.0	●	0.05-0.13
EC-H7 20-60C20CFR2.0-M140	20.00	20.00	60.00	140.00	C 7	37.0	2.00	0.060	-	-	-	3.0	●	0.05-0.13
EC-H7 20-60C20CFR2.5-M140	20.00	20.00	60.00	140.00	C 7	37.0	2.50	0.060	-	-	-	3.0	●	0.05-0.13
EC-H7 20-60C20CFR3.0-M140	20.00	20.00	60.00	140.00	C 7	37.0	3.00	0.060	-	-	-	3.0	●	0.05-0.13
EC-H7 20-60C20CFR4.0-M140	20.00	20.00	60.00	140.00	C 7	37.0	4.00	0.080	-	-	-	3.0	●	0.05-0.13
EC-H7 20-60SL20CF-M140 ⁽¹⁾	20.00	20.00	60.00	140.00	SL 7	37.0	-	-	0.40	45.0	3.0	3.0	●	0.05-0.15
EC-H7 20-80C20CF-140	20.00	20.00	80.00	140.00	C 7	37.0	-	-	0.40	45.0	3.0	3.0	●	0.05-0.13
EC-H7 20-80C20CFR1.0-M140	20.00	20.00	80.00	140.00	C 7	37.0	1.00	0.060	-	-	-	3.0	●	0.05-0.13

• Enables processing at a radial width of cut (AE) of up to 0.10xDC, For user guide, see pages 211-218

⁽¹⁾ With Safe-Lock® (by Haimer) pull-out prevention helical grooves

⁽²⁾ C-Cylindrical, W-Weldon, SL-Safe-Lock® (by Haimer)

⁽³⁾ Number of flutes

⁽⁴⁾ Corner radius tolerance (+/-)

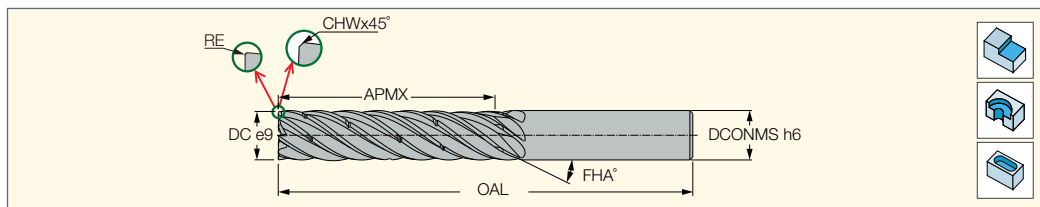
⁽⁵⁾ Maximum ramping angle



CHATTERFREE
SOLID MILL LINE

ECP-H7-CF

7 Flute Solid Carbide Endmills
with Different Helix, Variable Pitch
and Chip Splitting Cutting Edges



Designation	Dimensions											Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOFI ⁽¹⁾	FHA	Shank ⁽²⁾	RE	RETOL ⁽³⁾	CHW	KCH	IC900	IC902	
ECP-H7 06-18C06CF-65	6.00	6.00	18.00	65.00	7	36.0	C	-	-	0.20	45.0		●	0.02-0.07
ECP-H7 06-18W06CF-65	6.00	6.00	18.00	65.00	7	36.0	W	-	-	0.20	45.0		●	0.02-0.07
ECP-H7 06-24C06CF-70	6.00	6.00	24.00	70.00	7	36.0	C	-	-	0.20	45.0		●	0.02-0.07
ECP-H7 06-24W06CF-70	6.00	6.00	24.00	70.00	7	36.0	W	-	-	0.20	45.0		●	0.02-0.07
ECP-H7 06-36C06CF-90	6.00	6.00	36.00	90.00	7	36.0	C	-	-	0.20	45.0		●	0.02-0.07
ECP-H7 06-36W06CF-90	6.00	6.00	36.00	90.00	7	36.0	W	-	-	0.20	45.0		●	0.02-0.07
ECP-H7 08-24C08CF-90	8.00	8.00	24.00	90.00	7	36.0	C	-	-	0.20	45.0		●	0.02-0.08
ECP-H7 08-24W08CF-90	8.00	8.00	24.00	90.00	7	36.0	W	-	-	0.20	45.0		●	0.02-0.08
ECP-H7 08-32C08CF-90	8.00	8.00	32.00	90.00	7	36.0	C	-	-	0.20	45.0		●	0.02-0.09
ECP-H7 08-32W08CF-90	8.00	8.00	32.00	90.00	7	36.0	W	-	-	0.20	45.0		●	0.02-0.09
ECP-H7 08-48C08CF-110	8.00	8.00	48.00	110.00	7	36.0	C	-	-	0.20	45.0		●	0.02-0.08
ECP-H7 10-30C10CF-85	10.00	10.00	30.00	85.00	7	36.0	C	-	-	0.30	45.0		●	0.02-0.10
ECP-H7 10-30C10CFR0.5-85	10.00	10.00	30.00	85.00	7	36.0	C	0.50	0.050	-	-		●	0.02-0.10
ECP-H7 10-30W10CFR0.5-85	10.00	10.00	30.00	85.00	7	36.0	W	0.50	0.050	-	-		●	0.02-0.10
ECP-H7 10-30C10CFR1.6-85	10.00	10.00	30.00	85.00	7	36.0	C	1.60	0.050	-	-		●	0.02-0.10
ECP-H7 10-30C10CFR2.0-85	10.00	10.00	30.00	85.00	7	36.0	C	2.00	0.080	-	-		●	0.02-0.10
ECP-H7 10-30C10CFR2.5-85	10.00	10.00	30.00	85.00	7	36.0	C	2.50	0.080	-	-		●	0.02-0.10
ECP-H7 10-30C10CFR3.0-85	10.00	10.00	30.00	85.00	7	36.0	C	3.00	0.080	-	-		●	0.02-0.10
ECP-H7 10-40C10CF-100	10.00	10.00	40.00	100.00	7	36.0	C	-	-	0.30	45.0		●	0.02-0.10
ECP-H7 10-40C10CFR0.5-100	10.00	10.00	40.00	100.00	7	36.0	C	0.50	0.050	-	-		●	0.02-0.10
ECP-H7 10-40W10CFR0.5-100	10.00	10.00	40.00	100.00	7	36.0	W	0.50	0.050	-	-		●	0.02-0.10
ECP-H7 10-40C10CFR1.6-100	10.00	10.00	40.00	100.00	7	36.0	C	1.60	0.050	-	-		●	0.02-0.10
ECP-H7 10-40C10CFR2.0-100	10.00	10.00	40.00	100.00	7	36.0	C	2.00	0.080	-	-		●	0.02-0.10
ECP-H7 10-40C10CFR2.5-100	10.00	10.00	40.00	100.00	7	36.0	C	2.50	0.080	-	-		●	0.02-0.10
ECP-H7 10-40C10CFR3.0-100	10.00	10.00	40.00	100.00	7	36.0	C	3.00	0.080	-	-		●	0.02-0.10
ECP-H7 10-60C10CF-130	10.00	10.00	60.00	130.00	7	36.0	C	-	-	0.30	45.0		●	0.02-0.10
ECP-H7 10-60C10CFR0.5-130	10.00	10.00	60.00	130.00	7	36.0	C	0.50	0.050	-	-		●	0.04-0.12
ECP-H7 10-60C10CFR1.0-130	10.00	10.00	60.00	130.00	7	36.0	C	1.00	0.050	-	-		●	0.05-0.13
ECP-H7 12-36C12CF-95	12.00	12.00	36.00	95.00	7	36.0	C	-	-	0.30	45.0		●	0.04-0.12
ECP-H7 12-36C12CFR0.6-95	12.00	12.00	36.00	95.00	7	36.0	C	0.60	0.050	-	-		●	0.05-0.13
ECP-H7 12-36W12CFR0.6-95	12.00	12.00	36.00	95.00	7	36.0	W	0.60	0.050	-	-		●	0.05-0.13
ECP-H7 12-36C12CFR1.6-95	12.00	12.00	36.00	95.00	7	36.0	C	1.60	0.070	-	-		●	0.05-0.13
ECP-H7 12-36C12CFR2.0-95	12.00	12.00	36.00	95.00	7	36.0	C	2.00	0.050	-	-		●	0.05-0.13
ECP-H7 12-36C12CFR2.5-95	12.00	12.00	36.00	95.00	7	36.0	C	2.50	0.050	-	-		●	0.05-0.13
ECP-H7 12-36C12CFR3.0-95	12.00	12.00	36.00	95.00	7	36.0	C	3.00	0.070	-	-		●	0.05-0.13
ECP-H7 12-36C12CFR4.0-95	12.00	12.00	36.00	110.00	7	36.0	C	4.00	0.080	-	-		●	0.05-0.13
ECP-H7 12-48C12CF-110	12.00	12.00	48.00	110.00	7	36.0	C	-	-	0.30	45.0		●	0.04-0.11
ECP-H7 12-48C12CFR0.6-110	12.00	12.00	48.00	110.00	7	36.0	C	0.60	0.050	-	-		●	0.05-0.13
ECP-H7 12-48W12CFR0.6-110	12.00	12.00	48.00	110.00	7	36.0	W	0.60	0.050	-	-		●	0.05-0.13
ECP-H7 12-48C12CFR1.6-110	12.00	12.00	48.00	110.00	7	36.0	C	1.60	0.070	-	-		●	0.05-0.13
ECP-H7 12-48C12CFR2.0-110	12.00	12.00	48.00	110.00	7	36.0	C	2.00	0.060	-	-		●	0.05-0.13
ECP-H7 12-48C12CFR2.5-110	12.00	12.00	48.00	110.00	7	36.0	C	2.50	0.050	-	-		●	0.05-0.13
ECP-H7 12-48C12CFR3.0-110	12.00	12.00	48.00	110.00	7	36.0	C	3.00	0.070	-	-		●	0.05-0.13
ECP-H7 12-48C12CFR4.0-110	12.00	12.00	48.00	110.00	7	36.0	C	4.00	0.080	-	-		●	0.05-0.13
ECP-H7 12-72C12CF-140	12.00	12.00	72.00	140.00	7	36.0	C	-	-	0.30	45.0		●	0.04-0.12
ECP-H7 12-72C12CFR1.0-140	12.00	12.00	72.00	140.00	7	36.0	C	1.00	0.050	-	-		●	0.05-0.13
ECP-H6 16-32W16CFR0.8	16.00	16.00	32.00	92.00	6	-	W	0.80	0.050	-	-	●		0.05-0.13
ECP-H7 16-48C16CF-110	16.00	16.00	48.00	110.00	7	36.0	C	-	-	0.30	45.0		●	0.05-0.13
ECP-H7 16-48C16CFR0.8-110	16.00	16.00	48.00	110.00	7	36.0	C	0.80	0.050	-	-		●	0.05-0.13
ECP-H7 16-48C16CFR1.6-110	16.00	16.00	48.00	110.00	7	36.0	C	1.60	0.050	-	-		●	0.05-0.13
ECP-H7 16-48C16CFR2.0-110	16.00	16.00	48.00	110.00	7	36.0	C	2.00	0.050	-	-		●	0.05-0.13
ECP-H7 16-48C16CFR2.5-110	16.00	16.00	48.00	110.00	7	36.0	C	2.50	0.050	-	-		●	0.05-0.13
ECP-H7 16-48C16CFR3.0-110	16.00	16.00	48.00	110.00	7	36.0	C	3.00	0.070	-	-		●	0.05-0.13
ECP-H7 16-48C16CFR4.0-110	16.00	16.00	48.00	110.00	7	36.0	C	4.00	0.070	-	-		●	0.05-0.13
ECP-H7 16-64C16CF-131	16.00	16.00	64.00	131.00	7	36.0	C	-	-	0.30	45.0		●	0.05-0.13
ECP-H7 16-64C16CFR0.8-131	16.00	16.00	64.00	131.00	7	36.0	C	0.80	0.050	-	-		●	0.05-0.13
ECP-H7 16-64W16CFR0.8-131	16.00	16.00	64.00	131.00	7	36.0	W	0.80	0.050	-	-		●	0.05-0.13
ECP-H7 16-96C16CF-175	16.00	16.00	96.00	175.00	7	36.0	C	-	-	0.30	45.0		●	0.05-0.13

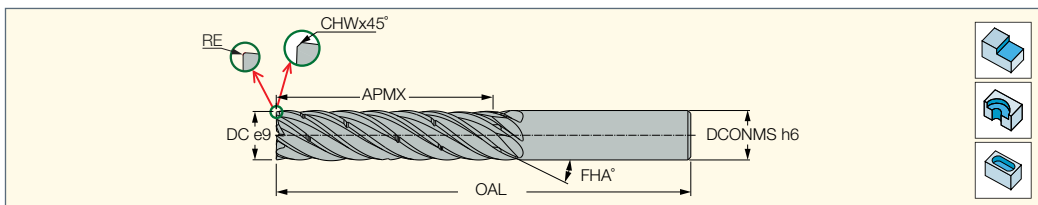
⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical, W-Weldon

⁽³⁾ Corner radius tolerance (+/-)

ECP-H7-CF

7 Flute Solid Carbide Endmills
 with Different Helix, Variable Pitch
 and Chip Splitting Cutting Edges



Designation	Dimensions											Tough ↔ Hard		Recommended Machining Data
	DC	DCNMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RE	RETOL ⁽³⁾	CHW	KCH	IC900	IC902	f _z (mm/t)
ECP-H7 16-96C16CFR1.0-175	16.00	16.00	96.00	175.00	7	36.0	C	1.00	0.050	-	-	●	●	0.05-0.13
ECP-H7 20-40C20CFR1.0	20.00	20.00	40.00	104.00	7	36.0	C	1.00	0.050	-	-	●	●	0.07-0.20
ECP-H7 20-40W20CFR1.0	20.00	20.00	40.00	104.00	7	36.0	W	1.00	0.050	-	-	●	●	0.07-0.20
ECP-H7 20-60C20CF-140	20.00	20.00	60.00	140.00	7	36.0	C	-	-	0.40	45.0	●	●	0.07-0.20
ECP-H7 20-60C20CFR1.0-140	20.00	20.00	60.00	140.00	7	36.0	C	1.00	0.050	-	-	●	●	0.07-0.20
ECP-H7 20-60W20CFR1.0-140	20.00	20.00	60.00	140.00	7	36.0	W	1.00	0.050	-	-	●	●	0.07-0.20
ECP-H7 20-60C20CFR2.0-140	20.00	20.00	60.00	140.00	7	36.0	C	2.00	0.050	-	-	●	●	0.07-0.20
ECP-H7 20-60C20CFR2.5-140	20.00	20.00	60.00	140.00	7	36.0	C	2.50	0.050	-	-	●	●	0.07-0.20
ECP-H7 20-60C20CFR3.0-140	20.00	20.00	60.00	140.00	7	36.0	C	3.00	0.050	-	-	●	●	0.07-0.20
ECP-H7 20-60C20CFR4.0-140	20.00	20.00	60.00	140.00	7	36.0	C	4.00	0.080	-	-	●	●	0.07-0.20
ECP-H7 20-80C20CF-140	20.00	20.00	80.00	140.00	7	36.0	C	-	-	0.40	45.0	●	●	0.05-0.20
ECP-H7 20-80W20CFR1.0-140	20.00	20.00	80.00	140.00	7	36.0	W	1.00	0.050	-	-	●	●	0.05-0.20

⁽¹⁾ Number of flutes⁽²⁾ C-Cylindrical, W-Weldon⁽³⁾ Corner radius tolerance (+/-)**Table - Average Cutting Data for ECP-H7...**

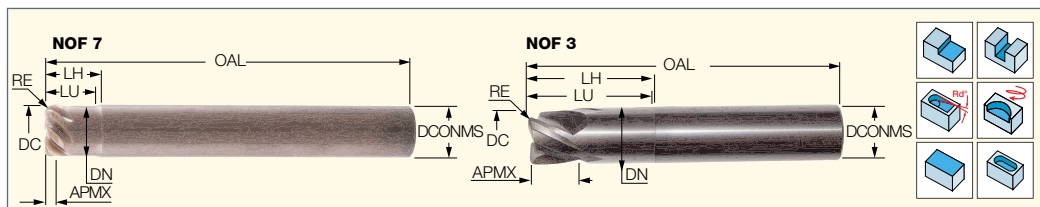
ISO class DIN/ ISO 513	Material	Condition	Hardness HB	Material Group No.	Typical Materials		Cutting Speed v _c [m/min]	f _z [mm/tooth]		Coolant
					AISI/SAE/ ASTM	DIN W.-Nr.		Starting	Range	
P	non-alloy steel and cast steel, free cutting steel	<0.25% C annealed	125	1	1020	1.1151	210-300	0.12	0.05-0.2	dry
		≥0.25% C annealed	190	2	1040	1.0511	200-280	0.12	0.05-0.2	
		<0.55% C quenched and tempered	250	3	1040	1.1186	200-260	0.1	0.05-0.2	
		annealed	220	4	1060	1.0601	180-250	0.1	0.05-0.2	
		≥0.55% C quenched and tempered	300	5	E 360	1.0070	180-240	0.1	0.05-0.2	
	low alloy and cast steel (less than 5% of alloying elements)	annealed	200	6	5120	1.0841	170-240	0.1	0.05-0.2	
		quenched and tempered	275	7	4340	1.6565	160-230	0.1	0.05-0.2	
			300	8	6150	1.8159	150-230	0.1	0.05-0.2	
			350	9		1.4882	140-220	0.1	0.05-0.2	
	high alloyed steel, cast steel and tool steel	annealed	200	10	H13	1.2344	120-210	0.08	0.05-0.2	
		quenched and tempered	325	11	T15	1.3243	110-170	0.08	0.05-0.2	
M	stainless steel and cast steel	ferritic/martensitic	200	12	420	1.4028	150-230	0.08	0.03-0.16	dry / wet
		martensitic	240	13	430	1.4021	140-220	0.08	0.03-0.16	
K	gray cast iron (GG)	austenitic, duplex	180	14	304L	1.4306	100-160	0.06	0.03-0.16	dry
K	gray cast iron (GG)	ferritic / pearlitic	180	15	CLASS25	0.6015	150-250	0.1	0.03-0.16	
		pearlitic / martensitic	260	16	CLASS45	0.6030	120-200	0.1	0.03-0.16	
	nodular cast iron (GGG)	ferritic	160	17	80-55-06	0.7050	150-300	0.08	0.03-0.16	
		pearlitic	250	18	100/70/03	0.7070	100-250	0.08	0.03-0.16	
	malleable cast iron	ferritic	130	19	32510	0.8135	150-300	0.08	0.03-0.16	
		pearlitic	230	20	90001	0.8170	100-220	0.08	0.03-0.16	
S	high temperature alloys	Fe based	annealed	31	330	1.4864	50-60	0.08	0.02-0.16	wet
			hardened	32		1.4977	40-50	0.03	0.02-0.16	
		Ni or Co based	annealed	33	Inconel 625	2.4856	35-50	0.04	0.02-0.16	
			hardened	34	Inconel 718	2.4668	25-35	0.03	0.02-0.16	
	titanium alloys	cast	320	35	Inconel X-750	2.4669	30-40	0.03	0.02-0.16	
		pure	HRC 30-32	36	AMS 5397	2.4674	65-110	0.1	0.02-0.16	
H	hardened steel	alpha-beta alloys, hardened	HRC 30-32	37	AMS R56400	3.7165	35-70	0.08	0.02-0.16	dry
		hardened	HRC 45-49	38.1	4340	1.6565	55-75	0.03	0.02-0.16	
		hardened	HRC 50-55	38.2	P20	1.2330	55-75	---	---	



SOLIDMILL CERAMIC ENDMILL

EC-E3/E7-CE (CER)

3 and 7 Flute Solid Ceramic Endmills with Relieved Necks for Machining Nickel Based Alloys, Cast Iron and Graphite



Designation	Dimensions											Tough ↔ Hard		Recommended Machining Data
	DC	APMX	LU	LH	DN	RE ⁽¹⁾	NOF ⁽²⁾	DCONMS	RMPX ⁽³⁾	OAL	Shank ⁽⁴⁾	IS35	IS6	
EC-E3 06-06/15C06R.4N50CE	6.00	6.00	14.50	15.0	5.50	0.42	3	6.00	3.0	50.00	C	●		0.02-0.03
EC-E3 08-08/20C08R.5N57CE	8.00	8.00	19.50	20.0	7.50	0.56	3	8.00	3.0	57.00	C	●		0.02-0.03
EC-E3 10-10/25C10R.7N65CE	10.00	10.00	24.50	25.0	9.50	0.70	3	10.00	3.0	65.00	C	●		0.02-0.03
EC-E3 12-12/30C12R1.N72CE	12.00	12.00	29.50	30.0	11.50	1.10	3	12.00	3.0	72.00	C	●		0.02-0.03
EC-E3 16-16/35C16R2.N83CE	16.00	16.00	34.50	35.0	15.50	1.90	3	16.00	3.0	83.00	C	●		0.02-0.04
EC-E7 08-02C08R1.0N63CE	8.00	0.40	8.00	9.5	7.50	1.00	7	8.00	3.0	63.00	C		●	0.02-0.03
EC-E7 10-02C10R1.5N72CE	10.00	0.70	10.00	11.5	9.50	1.50	7	10.00	3.0	72.00	C		●	0.02-0.03
EC-E7 12-02C12R1.5N83CE	12.00	1.30	10.00	12.0	11.50	1.50	7	12.00	3.0	83.00	C		●	0.02-0.03

- Recommended cutting speed on high temperature nickel-based superalloys: 250-1000 m/min
- Maximum width of cut for the 3 flute cutters is 0.1xDC
- Maximum width of cut for the 7 flute cutters is DC
- Only air coolant should be used

(1) Programming radius

(2) Number of flutes

(3) Maximum ramping angle

(4) C-Cylindrical

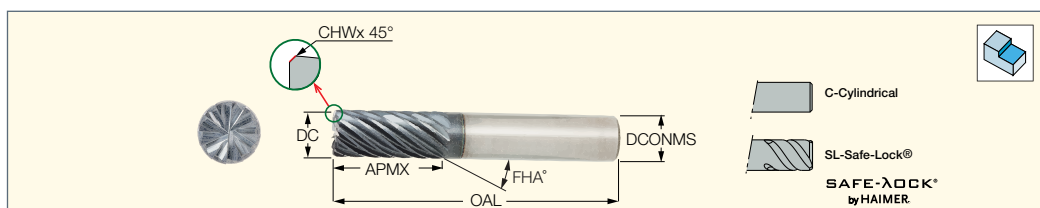
P	M	K	N(K)	S(M)	H(P/K)
		+	+	+	

+ recommended

CHATTERFREE SOLID MILL LINE

EC-H-CF

6-20 Flute Endmills with Different Helix and Variable Pitch for CHATTER-FREE High Speed Finish Milling



Designation	Dimensions									IC902	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽²⁾	FHA	Shank ⁽³⁾	CHW	KCH		f _z (mm/t)
EC-H6 06-12C06CF-H57	6.00	6.00	12.00	57.00	6	45.0	C	0.20	45.0	●	0.03-0.07
EC-H8 08-16C08CF-H63	8.00	8.00	16.00	63.00	8	45.0	C	0.20	45.0	●	0.03-0.09
EC-H10 10-20C10CF-H72	10.00	10.00	20.00	72.00	10	35.0	C	0.30	45.0	●	0.03-0.10
EC-H10 10-20SL10CF-H72 ⁽¹⁾	10.00	10.00	20.00	72.00	10	35.0	SL	-	-	●	0.03-0.10
EC-H12 12-24C12CF-H83	12.00	12.00	24.00	83.00	12	35.0	C	0.30	45.0	●	0.04-0.11
EC-H12 12-24SL12CF-H83 ⁽¹⁾	12.00	12.00	20.00	83.00	12	35.0	SL	-	-	●	0.04-0.11
EC-H16 16-32C16CF-H92	16.00	16.00	32.00	92.00	16	35.0	C	0.30	45.0	●	0.05-0.13
EC-H16 16-32SL16CF-H92 ⁽¹⁾	16.00	16.00	32.00	92.00	16	35.0	SL	-	-	●	0.05-0.13
EC-H20 20-40C20CFH104	20.00	20.00	40.00	104.00	20	30.0	C	0.40	45.0	●	0.05-0.13
EC-H20 20-40SL20CFH104 ⁽¹⁾	20.00	20.00	41.00	105.00	20	30.0	SL	-	-	●	0.05-0.13

- Enables processing at a radial width of cut (AE) of up to 0.06xDC. For user guide, see pages 211-218

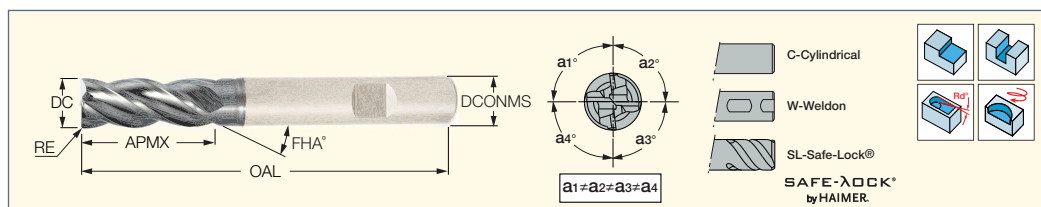
(1) With Safe-Lock® (by Haimer) pull-out prevention helical grooves

(2) Number of flutes

(3) C-Cylindrical, SL-Safe-Lock® (by Haimer)

ECK-H4M-CFR

Endmills with Different Helix,
Chamfered Edges and
Variable Pitch for Chatter
Dampening on Titanium



Designation	Dimensions										IC900	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽²⁾	RE	FHA	RMPX ⁽³⁾	Shank ⁽⁴⁾	CSP ⁽⁵⁾		
ECK-H4M 04-08C06CFR0.2-57	4.00	6.00	8.00	57.00	4	0.20	36.0	5.0	C	0	●	0.02-0.05
ECK-H4M 04-08C06CFR0.5-57	4.00	6.00	8.00	57.00	4	0.50	36.0	5.0	C	0	●	0.02-0.05
ECK-H4M 05-10C06CFR0.2-57	5.00	6.00	10.00	57.00	4	0.20	36.0	5.0	C	0	●	0.02-0.05
ECK-H4M 06-12C06CFR0.2-57	6.00	6.00	12.00	57.00	4	0.20	36.0	5.0	C	0	●	0.03-0.06
ECK-H4M 06-12C06CFR0.5-57	6.00	6.00	12.00	57.00	4	0.50	36.0	5.0	C	0	●	0.03-0.06
ECK-H4M 06-12C06CFR1-57	6.00	6.00	12.00	57.00	4	1.00	36.0	5.0	C	0	●	0.03-0.06
ECK-H4M 06-12W06CFR0.2-57	6.00	6.00	12.00	57.00	4	0.20	36.0	5.0	W	0	●	0.03-0.06
ECK-H4M 08-16C08CFR0.4-63	8.00	8.00	16.00	63.00	4	0.40	36.0	5.0	C	0	●	0.03-0.06
ECK-H4M 08-16C08CFR0.5-63	8.00	8.00	16.00	63.00	4	0.50	36.0	5.0	C	0	●	0.03-0.06
ECK-H4M 08-16C08CFR1-63	8.00	8.00	16.00	63.00	4	1.00	36.0	5.0	C	0	●	0.03-0.06
ECK-H4M 08-16W08CFR0.4-63	8.00	8.00	16.00	63.00	4	0.40	36.0	5.0	W	0	●	0.03-0.06
ECK-H4 10-20SL10CFR.5-72C ⁽¹⁾	10.00	10.00	20.00	72.00	4	0.50	36.0	5.0	SL	1	●	0.03-0.07
ECK-H4 10-20SL10CFR0.5-72 ⁽¹⁾	10.00	10.00	20.00	72.00	4	0.50	36.0	5.0	SL	0	●	0.03-0.07
ECK-H4M 10-20C10CFR0.5-72	10.00	10.00	20.00	72.00	4	0.50	36.0	5.0	C	0	●	0.03-0.07
ECK-H4M 10-20C10CFR1-72	10.00	10.00	20.00	72.00	4	1.00	36.0	5.0	C	0	●	0.03-0.07
ECK-H4M 10-20C10CFR2-72	10.00	10.00	20.00	72.00	4	2.00	36.0	5.0	C	0	●	0.03-0.07
ECK-H4M 10-20C10CFR3-72	10.00	10.00	20.00	72.00	4	3.00	36.0	5.0	C	0	●	0.03-0.07
ECK-H4M 10-20W10CFR0.5-72	10.00	10.00	20.00	72.00	4	0.50	36.0	5.0	W	0	●	0.03-0.07
ECK-H4 12-24SL12CFR0.6-83 ⁽¹⁾	12.00	12.00	24.00	83.00	4	0.60	36.0	5.0	SL	0	●	0.04-0.08
ECK-H4M 12-24C12CFR0.6-83	12.00	12.00	24.00	83.00	4	0.60	36.0	5.0	C	0	●	0.04-0.08
ECK-H4M 12-24C12CFR1-83	12.00	12.00	24.00	83.00	4	1.00	36.0	5.0	C	0	●	0.04-0.08
ECK-H4M 12-24C12CFR2-83	12.00	12.00	24.00	83.00	4	2.00	36.0	5.0	C	0	●	0.04-0.08
ECK-H4M 12-24C12CFR3-83	12.00	12.00	24.00	83.00	4	3.00	36.0	5.0	C	0	●	0.04-0.08
ECK-H4M 12-24W12CFR0.6-83	12.00	12.00	24.00	83.00	4	0.60	36.0	5.0	W	0	●	0.04-0.08
ECK-H4 16-32SL16CFR.8-92C ⁽¹⁾	16.00	16.00	32.00	92.00	4	0.80	36.0	5.0	SL	1	●	0.05-0.08
ECK-H4 16-32SL16CFR0.8-92 ⁽¹⁾	16.00	16.00	32.00	92.00	4	0.80	36.0	5.0	SL	0	●	0.05-0.08
ECK-H4M 16-32C16CFR0.8-92	16.00	16.00	32.00	92.00	4	0.80	36.0	5.0	C	0	●	0.05-0.08
ECK-H4M 16-32C16CFR1-92	16.00	16.00	32.00	92.00	4	1.00	36.0	5.0	C	0	●	0.05-0.08
ECK-H4M 16-32C16CFR2-92	16.00	16.00	32.00	92.00	4	2.00	36.0	5.0	C	0	●	0.05-0.08
ECK-H4M 16-32C16CFR3-92	16.00	16.00	32.00	92.00	4	3.00	36.0	5.0	C	0	●	0.05-0.08
ECK-H4M 16-32C16CFR4-92	16.00	16.00	32.00	92.00	4	4.00	36.0	5.0	C	0	●	0.05-0.08
ECK-H4M 16-32W16CFR0.8-92	16.00	16.00	32.00	92.00	4	0.80	36.0	5.0	W	0	●	0.05-0.08
ECK-H4 20-40SL20CFR1.-104 ⁽¹⁾	20.00	20.00	40.00	104.00	4	1.00	36.0	5.0	SL	0	●	0.05-0.08
ECK-H4M 20-40C20CFR1.-104	20.00	20.00	40.00	104.00	4	1.00	36.0	5.0	C	0	●	0.05-0.08
ECK-H4M 20-40W20CFR1.-104	20.00	20.00	40.00	104.00	4	1.00	36.0	5.0	W	0	●	0.05-0.08

• For user guide, see pages 211-218

⁽¹⁾ With Safe-Lock® (by Haimer) pull-out prevention helical grooves

⁽²⁾ Number of flutes

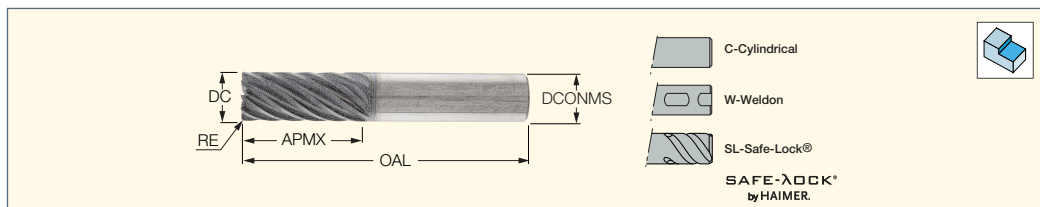
⁽³⁾ Maximum ramping angle

⁽⁴⁾ C-Cylindrical, W-Weldon, SL-Safe-Lock® (by Haimer)

⁽⁵⁾ 0 - Without coolant supply, 1 - With coolant supply

ECK-H7/9-CFR

7 and 9 Flute Endmills
with Different Helix and
Variable Pitch for Chatter
Dampening on Titanium



Designation	Dimensions								IC900
	DC	DCONMS	APMX	OAL	NOF ⁽²⁾	RE	RMPX ⁽³⁾	Shank ⁽⁴⁾	
ECK-H7 06-13C06CFR0.2T57	6.00	6.00	13.00	57.00	7	0.20	5.0	C	●
ECK-H7 06-13W06CFR0.2T57	6.00	6.00	13.00	57.00	7	0.20	5.0	W	●
ECK-H7 08-19C08CFR0.4T63	8.00	8.00	19.00	63.00	7	0.40	5.0	C	●
ECK-H7 08-19W08CFR0.4T63	8.00	8.00	19.00	63.00	7	0.40	5.0	W	●
ECK-H7 10-22C10CFR0.5T72	10.00	10.00	22.00	72.00	7	0.50	5.0	C	●
ECK-H7 10-22W10CFR0.5T72	10.00	10.00	22.00	72.00	7	0.50	5.0	W	●
ECK-H7 12-26C12CFR0.6T83	12.00	12.00	26.00	83.00	7	0.60	3.0	C	●
ECK-H7 12-26SL12CFR0.6T83 ⁽¹⁾	12.00	12.00	26.00	83.00	7	0.60	5.0	SL	●
ECK-H7 12-26W12CFR0.6T83	12.00	12.00	26.00	83.00	7	0.60	5.0	W	●
ECK-H9 16-32C16CFR0.8T92	16.00	16.00	32.00	92.00	9	0.80	5.0	C	●
ECK-H9 16-32SL16CFR0.8T92 ⁽¹⁾	16.00	16.00	32.00	92.00	9	0.80	5.0	SL	●
ECK-H9 16-32W16CFR0.8T92	16.00	16.00	32.00	92.00	9	0.80	5.0	W	●
ECK-H9 20-38C20CFR1T104	20.00	20.00	38.00	104.00	9	1.00	5.0	C	●
ECK-H9 20-38SL20CFR1T104 ⁽¹⁾	20.00	20.00	38.00	104.00	9	1.00	5.0	SL	●
ECK-H9 20-38W20CFR1T104	20.00	20.00	38.00	104.00	9	1.00	5.0	W	●

• Enables processing at a radial width of cut (AE) of up to 0.10xDC, For user guide, see pages 211-218

⁽¹⁾ With Safe-Lock® (by Haimer) pull-out prevention helical grooves

⁽²⁾ Number of flutes

⁽³⁾ Maximum ramping angle

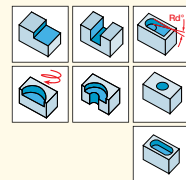
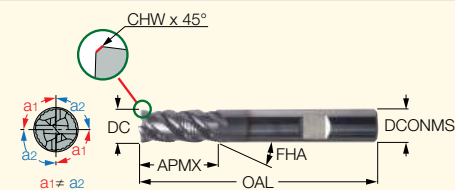
⁽⁴⁾ C-Cylindrical, W-Weldon, SL-Safe-Lock® (by Haimer)

Feed Recommendations

Designation	Finishing		High Speed Machining	
	fz (min) mm/t	fz (max) mm/t	fz (min) mm/t	fz (max) mm/t
ECK-H7 06-13C06CFR0.2T57	0.02	0.04	0.08	0.15
ECK-H7 06-13W06CFR0.2T57	0.02	0.04	0.08	0.15
ECK-H7 08-19C08CFR0.4T63	0.02	0.04	0.08	0.15
ECK-H7 08-19W08CFR0.4T63	0.02	0.04	0.08	0.15
ECK-H7 10-22C10CFR0.5T72	0.03	0.05	0.1	0.25
ECK-H7 10-22W10CFR0.5T72	0.03	0.05	0.1	0.25
ECK-H7 12-26C12CFR0.6T83	0.03	0.05	0.1	0.25
ECK-H7 12-26W12CFR0.6T83	0.03	0.05	0.1	0.25
ECK-H9 16-32C16CFR0.8T92	0.04	0.07	0.15	0.3
ECK-H9 16-32W16CFR0.8T92	0.04	0.07	0.15	0.3
ECK-H9 20-38C20CFR1T104	0.04	0.07	0.15	0.3
ECK-H9 20-38W20CFR1T104	0.04	0.07	0.15	0.3

FINISHRED**EFS-E44**

Combination of Roughing and Finishing Solid Carbide Endmills with Variable Pitch for Chatter Free Milling



Designation	Dimensions										IC900	Recommended Machining Data f_z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	CHW	KCH		
EFS-E44 06-14C06CF57	6.00	6.00	14.00	57.00	4	38.0	5.0	C	0.25	45.0	●	0.03-0.06
EFS-E44 06-14W06CF57	6.00	6.00	14.00	57.00	4	38.0	5.0	W	0.25	45.0	●	0.03-0.06
EFS-E44 08-18C08CF63	8.00	8.00	18.00	63.00	4	38.0	5.0	C	0.30	45.0	●	0.03-0.08
EFS-E44 08-18W08CF63	8.00	8.00	18.00	63.00	4	38.0	5.0	W	0.30	45.0	●	0.03-0.08
EFS-E44 10-22C10CF72	10.00	10.00	22.00	72.00	4	38.0	5.0	C	0.40	45.0	●	0.03-0.09
EFS-E44 10-22W10CF72	10.00	10.00	22.00	72.00	4	38.0	5.0	W	0.40	45.0	●	0.03-0.09
EFS-E44 12-26C12CF83	12.00	12.00	26.00	83.00	4	38.0	5.0	C	0.50	45.0	●	0.04-0.10
EFS-E44 12-26W12CF83	12.00	12.00	26.00	83.00	4	38.0	5.0	W	0.50	45.0	●	0.04-0.10
EFS-E44 14-30C14CF83	14.00	14.00	30.00	83.00	4	38.0	5.0	C	0.50	45.0	●	0.04-0.11
EFS-E44 14-30W14CF83	14.00	14.00	30.00	83.00	4	38.0	5.0	W	0.50	45.0	●	0.04-0.11
EFS-E44 16-34C16CF92	16.00	16.00	34.00	92.00	4	38.0	5.0	C	0.60	45.0	●	0.05-0.11
EFS-E44 16-34W16CF92	16.00	16.00	34.00	92.00	4	38.0	5.0	W	0.60	45.0	●	0.05-0.11
EFS-E44 20-42C20CF104	20.00	20.00	42.00	104.00	4	38.0	5.0	C	0.60	45.0	●	0.05-0.11
EFS-E44 20-42W20CF104	20.00	20.00	42.00	104.00	4	38.0	5.0	W	0.60	45.0	●	0.05-0.11
EFS-E44 25-52C25CF121	25.00	25.00	52.00	121.00	4	38.0	5.0	C	0.60	45.0	●	0.06-0.11
EFS-E44 25-52W25CF121	25.00	25.00	52.00	121.00	4	38.0	5.0	W	0.60	45.0	●	0.06-0.11

● Minimum width of cut for semi-finishing operation $\geq 0.05 \times DC$ ● For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

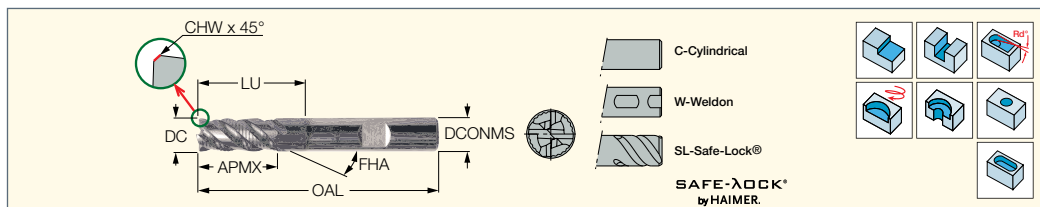
⁽³⁾ C-Cylindrical, W-Weldon



FINISHRED

EFS-B44

Combination of Roughing
and Finishing Solid Carbide
Endmills with a Single Tool



Designation	Dimensions												Tough ↔ Hard		Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	LU	OAL	NOF ⁽²⁾	FHA	RMPX ⁽³⁾	Shank ⁽⁴⁾	CSP ⁽⁵⁾	CHW	KCH	IC900	IC808	
EFS-B44 04-10C06-57	4.00	6.00	10.00	-	57.00	4	45.0	5.0	C	0	0.12	45.0	●		0.03-0.05
EFS-B44 05-12C06-57	5.00	6.00	12.00	-	57.00	4	45.0	5.0	C	0	0.18	45.0	●		0.03-0.06
EFS-B44 06-14/20C06-57	6.00	6.00	14.00	20.0	57.00	4	45.0	5.0	C	0	0.25	45.0	●		0.03-0.06
EFS-B44 06-14/20W06-57	6.00	6.00	14.00	20.0	57.00	4	45.0	5.0	W	0	0.25	45.0	●		0.03-0.06
EFS-B44 06-14C06-57	6.00	6.00	14.00	-	57.00	4	45.0	5.0	C	0	0.25	45.0	●	●	0.03-0.06
EFS-B44 06-14W06-57	6.00	6.00	14.00	-	57.00	4	45.0	5.0	W	0	0.25	45.0	●	●	0.03-0.06
EFS-B44 08-18/26C08-63	8.00	8.00	18.00	26.0	63.00	4	45.0	5.0	C	0	0.30	45.0	●		0.03-0.08
EFS-B44 08-18/26W08-63	8.00	8.00	18.00	26.0	63.00	4	45.0	5.0	W	0	0.30	45.0	●		0.03-0.08
EFS-B44 08-18C08-63	8.00	8.00	18.00	-	63.00	4	45.0	5.0	C	0	0.30	45.0	●	●	0.03-0.08
EFS-B44 08-18W08-63	8.00	8.00	18.00	-	63.00	4	45.0	5.0	W	0	0.30	45.0	●	●	0.03-0.08
EFS-B44 10-22/32C10-72	10.00	10.00	22.00	32.0	72.00	4	45.0	5.0	C	0	0.30	45.0	●		0.03-0.09
EFS-B44 10-22/32SL10-72 ⁽¹⁾	10.00	10.00	22.00	32.0	72.00	4	45.0	5.0	SL	0	0.00	45.0	●		0.03-0.09
EFS-B44 10-22/32W10-72	10.00	10.00	22.00	32.0	72.00	4	45.0	5.0	W	0	0.30	45.0	●		0.03-0.09
EFS-B44 10-22C10-72	10.00	10.00	22.00	-	72.00	4	45.0	5.0	C	0	0.30	45.0	●	●	0.03-0.09
EFS-B44 10-22SL10-72 ⁽¹⁾	10.00	10.00	22.00	-	72.00	4	45.0	5.0	SL	0	0.30	45.0	●		0.03-0.09
EFS-B44 10-22SL10-72C ⁽¹⁾	10.00	10.00	22.00	-	72.00	4	45.0	5.0	SL	1	0.30	45.0	●		0.04-0.07
EFS-B44 10-22W10-72	10.00	10.00	22.00	-	72.00	4	45.0	5.0	W	0	0.30	45.0	●	●	0.03-0.09
EFS-B44 12-26/38C12-83	12.00	12.00	26.00	38.0	83.00	4	45.0	5.0	C	0	0.40	45.0	●		0.04-0.10
EFS-B44 12-26/38SL12-83 ⁽¹⁾	12.00	12.00	26.00	38.0	83.00	4	45.0	5.0	SL	0	0.40	45.0	●		0.04-0.10
EFS-B44 12-26/38W12-83	12.00	12.00	26.00	38.0	83.00	4	45.0	5.0	W	0	0.40	45.0	●		0.04-0.10
EFS-B44 12-26C12-83	12.00	12.00	26.00	-	83.00	4	45.0	5.0	C	0	0.40	45.0	●	●	0.04-0.10
EFS-B44 12-26SL12-83 ⁽¹⁾	12.00	12.00	26.00	-	83.00	4	45.0	5.0	SL	0	0.40	45.0	●		0.04-0.10
EFS-B44 12-26SL12-83C ⁽¹⁾	12.00	12.00	26.00	-	83.00	4	45.0	5.0	SL	1	0.40	45.0	●		0.04-0.08
EFS-B44 12-26W12-83	12.00	12.00	26.00	-	83.00	4	45.0	5.0	W	0	0.40	45.0	●	●	0.04-0.10
EFS-B44 14-30C14-83	14.00	14.00	30.00	-	83.00	4	45.0	5.0	C	0	0.40	45.0	●	●	0.04-0.11
EFS-B44 14-30W14-83	14.00	14.00	30.00	-	83.00	4	45.0	5.0	W	0	0.40	45.0	●	●	0.04-0.11
EFS-B44 16-34/50C16-100	16.00	16.00	34.00	50.0	100.00	4	45.0	5.0	C	0	0.60	45.0	●		0.05-0.11
EFS-B44 16-34/50SL16-100 ⁽¹⁾	16.00	16.00	34.00	50.0	100.00	4	45.0	5.0	SL	0	0.60	45.0	●		0.05-0.11
EFS-B44 16-34/50W16-100	16.00	16.00	34.00	50.0	100.00	4	45.0	5.0	W	0	0.60	45.0	●		0.05-0.11
EFS-B44 16-34C16-92	16.00	16.00	34.00	-	92.00	4	45.0	5.0	C	0	0.60	45.0	●	●	0.05-0.11
EFS-B44 16-34SL16-92 ⁽¹⁾	16.00	16.00	34.00	-	92.00	4	45.0	5.0	SL	0	0.60	45.0	●		0.05-0.11
EFS-B44 16-34SL16-92C ⁽¹⁾	16.00	16.00	34.00	-	92.00	4	45.0	5.0	SL	1	0.60	45.0	●		0.05-0.08
EFS-B44 16-34W16-92	16.00	16.00	34.00	-	92.00	4	45.0	5.0	W	0	0.60	45.0	●	●	0.05-0.11
EFS-B44 20-42/62C20-125	20.00	20.00	42.00	62.0	125.00	4	45.0	5.0	C	0	0.60	45.0	●		0.05-0.11
EFS-B44 20-42/62SL20-125 ⁽¹⁾	20.00	20.00	42.00	62.0	125.00	4	45.0	5.0	SL	0	0.60	45.0	●		0.05-0.11
EFS-B44 20-42/62W20-125	20.00	20.00	42.00	62.0	125.00	4	45.0	5.0	W	0	0.60	45.0	●		0.05-0.11
EFS-B44 20-42C20-104	20.00	20.00	42.00	-	104.00	4	45.0	5.0	C	0	0.60	45.0	●	●	0.05-0.11
EFS-B44 20-42SL20-104 ⁽¹⁾	20.00	20.00	42.00	-	104.00	4	45.0	5.0	SL	0	0.60	45.0	●		0.05-0.11
EFS-B44 20-42W20-104	20.00	20.00	42.00	-	104.00	4	45.0	5.0	W	0	0.60	45.0	●	●	0.05-0.11
EFS-B44 25-52C25-121	25.00	25.00	52.00	-	121.00	4	45.0	5.0	C	0	0.60	45.0	●	●	0.06-0.11
EFS-B44 25-52SL25-121 ⁽¹⁾	25.00	25.00	52.00	-	121.00	4	45.0	5.0	SL	0	0.60	45.0	●		0.06-0.11
EFS-B44 25-52W25-121	25.00	25.00	52.00	-	121.00	4	45.0	5.0	W	0	0.60	45.0	●	●	0.06-0.11

● Minimum width of cut for semi-finishing operations $\geq 0.05 \times DC$ • For user guide, see pages 211-218

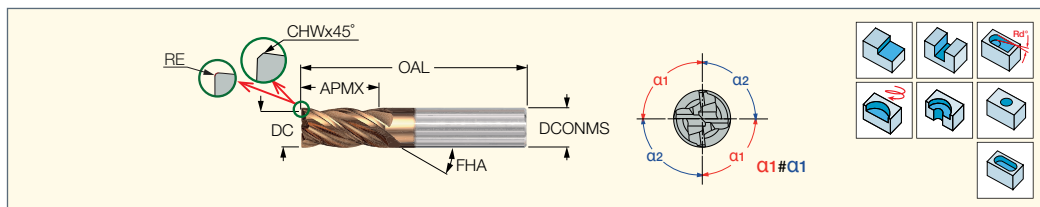
⁽¹⁾ With Safe-Lock® (by Haimer) pull-out prevention helical grooves

⁽²⁾ Number of flutes

⁽³⁾ Maximum ramping angle

⁽⁴⁾ C-Cylindrical, W-Weldon, SL-Safe-Lock® (by Haimer)

⁽⁵⁾ 0 - Without coolant supply, 1 - With coolant supply

CHATTERFREE
SOLID MILL LINE**EC-E4M-CF**4 Flute, 38° Helix Endmills, up to
2XD depth of cut with Variable
Pitch for Chatter Dampening

Designation	Dimensions											IC608	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank	CHW	KCH	RE		
EC-E4M 06-12C06CF-57	6.00	6.00	12.00	57.00	4	38.0	5.0	C	0.25	45.0	-	●	0.03-0.07
EC-E4M 06-12C06CFR0.5-57	6.00	6.00	12.00	50.00	4	38.0	5.0	C	-	-	0.50	●	0.03-0.07
EC-E4M 06-12C06CFR1-57	6.00	6.00	12.00	50.00	4	38.0	5.0	C	-	-	1.00	●	0.03-0.07
EC-E4M 08-16C08CF-63	8.00	8.00	16.00	63.00	4	38.0	5.0	C	0.30	45.0	-	●	0.03-0.09
EC-E4M 08-16C08CFR0.5-63	8.00	8.00	16.00	63.00	4	38.0	5.0	C	-	-	0.50	●	0.03-0.09
EC-E4M 08-16C08CFR1-63	8.00	8.00	16.00	63.00	4	38.0	5.0	C	-	-	1.00	●	0.03-0.09
EC-E4M 10-20C10CF-72	10.00	10.00	20.00	72.00	4	38.0	5.0	C	0.40	45.0	-	●	0.03-0.10
EC-E4M 10-20C10CFR0.5-72	10.00	10.00	20.00	72.00	4	38.0	5.0	C	-	-	0.50	●	0.03-0.10
EC-E4M 10-20C10CFR1-72	10.00	10.00	20.00	72.00	4	38.0	5.0	C	-	-	1.00	●	0.03-0.10
EC-E4M 10-20C10CFR2-72	10.00	10.00	20.00	72.00	4	38.0	5.0	C	-	-	2.00	●	0.03-0.10
EC-E4M 10-20C10CFR3-72	10.00	10.00	20.00	72.00	4	38.0	5.0	C	-	-	3.00	●	0.03-0.10
EC-E4M 12-24C12CF-83	12.00	12.00	24.00	83.00	4	38.0	5.0	C	0.50	45.0	-	●	0.04-0.11
EC-E4M 12-24C12CFR0.5-83	12.00	12.00	24.00	83.00	4	38.0	5.0	C	-	-	0.50	●	0.04-0.11
EC-E4M 12-24C12CFR1-83	12.00	12.00	24.00	83.00	4	38.0	5.0	C	-	-	1.00	●	0.04-0.11
EC-E4M 12-24C12CFR2-83	12.00	12.00	24.00	83.00	4	38.0	5.0	C	-	-	2.00	●	0.04-0.11
EC-E4M 12-24C12CFR3-83	12.00	12.00	24.00	83.00	4	38.0	5.0	C	-	-	3.00	●	0.04-0.11
EC-E4M 12-24W12CF-83	12.00	12.00	24.00	83.00	4	38.0	5.0	W	0.50	45.0	-	●	0.04-0.11
EC-E4M 16-32C16CF-100	16.00	16.00	32.00	100.00	4	38.0	5.0	C	0.60	45.0	-	●	0.05-0.13
EC-E4M 16-32C16CFR3-100	16.00	16.00	32.00	100.00	4	38.0	5.0	C	-	-	3.00	●	0.05-0.13
EC-E4M 16-32W16CF-100	16.00	16.00	32.00	100.00	4	38.0	5.0	W	0.60	45.0	-	●	0.05-0.13

New

• For user guide , see pages 211-218

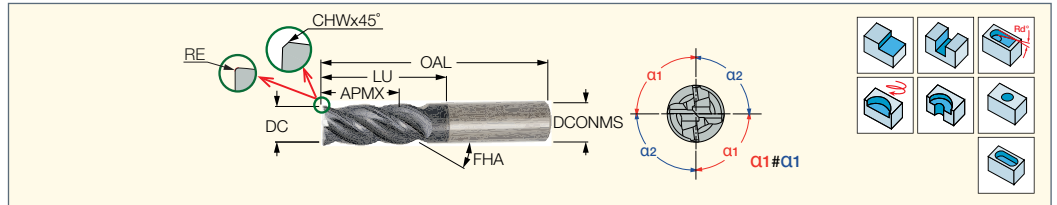
⁽¹⁾ Number of flutes⁽²⁾ Maximum ramping angle



CHATTERFREE

EC-E4L-CF

4 Flute, 38° Helix Endmills with
3xD Relieved Neck and Variable
Pitch for Chatter Dampening



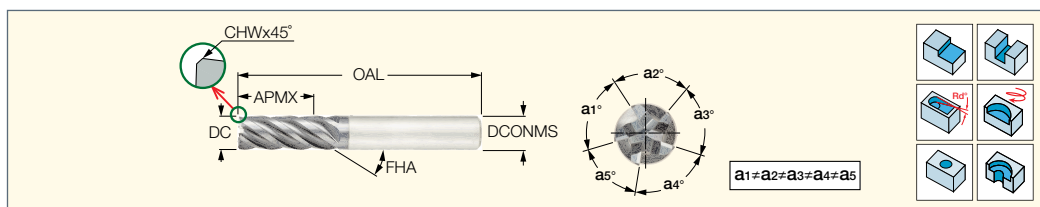
Designation	Dimensions													Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	RE	Shank ⁽³⁾	CHW	KCH	IC900	IC608	f _z (mm/t)	
EC-E4L 01-2/04C04CF50	1.00	4.00	2.00	4.00	50.00	4	38.0	5.0	-	C	0.04	45.0	●		0.02-0.05	
EC-E4L 02-4/06C04CF50	2.00	4.00	4.00	6.00	50.00	4	38.0	5.0	-	C	0.08	45.0	●		0.02-0.05	
EC-E4L 03-8/11C06CF57	3.00	6.00	8.00	11.00	57.00	4	38.0	5.0	-	C	0.10	45.0	●	●	0.02-0.05	
EC-E4L 04-10/14C06CF57	4.00	6.00	10.00	14.00	57.00	4	38.0	5.0	-	C	0.15	45.0	●	●	0.02-0.05	
EC-E4L 05-12/17C06CF57	5.00	6.00	12.00	17.00	57.00	4	38.0	5.0	-	C	0.18	45.0	●	●	0.02-0.06	
EC-E4L 06-14/20C06CFR0.2	6.00	6.00	14.00	20.00	57.00	4	38.0	5.0	0.20	C	-	-	●		0.03-0.07	
EC-E4L 06-14/20C06CFR0.5	6.00	6.00	14.00	20.00	57.00	4	38.0	5.0	0.50	C	-	-	●		0.03-0.07	
EC-E4L 06-14/20C06CFR1	6.00	6.00	14.00	20.00	57.00	4	38.0	5.0	1.00	C	-	-	●		0.03-0.07	
EC-E4L 06-14/20C06CF57	6.00	6.00	14.00	20.00	57.00	4	38.0	5.0	-	C	0.25	45.0	●	●	0.03-0.07	
EC-E4L 06-14/20W06CF57	6.00	6.00	14.00	20.00	57.00	4	38.0	5.0	-	W	0.25	45.0	●	●	0.03-0.07	
EC-E4L 08-18/26C08CFR0.3	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	0.30	C	-	-	●		0.03-0.08	
EC-E4L 08-18/26C08CFR0.5	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	0.50	C	-	-	●		0.03-0.08	
EC-E4L 08-18/26C08CFR1	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	1.00	C	-	-	●		0.03-0.08	
EC-E4L 08-18/26C08CFR1.5	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	1.50	C	-	-	●		0.03-0.08	
EC-E4L 08-18/26C08CFS63	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	-	C	-	-	●		0.03-0.08	
EC-E4L 08-18/26C08CF63	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	-	C	0.30	45.0	●	●	0.03-0.09	
EC-E4L 08-18/26W08CF63	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	-	W	0.30	45.0	●	●	0.03-0.09	
EC-E4L 10-22/32C10CFR0.5	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	0.50	C	-	-	●		0.03-0.10	
EC-E4L 10-22/32C10CFR1	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	1.00	C	-	-	●		0.03-0.10	
EC-E4L 10-22/32C10CFR1.5	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	1.50	C	-	-	●		0.03-0.10	
EC-E4L 10-22/32C10CFR2	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	2.00	C	-	-	●		0.03-0.10	
EC-E4L 10-22/32C10CFR3	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	3.00	C	-	-	●		0.03-0.10	
EC-E4L 10-22/32C10CFS72	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	-	C	-	-	●		0.03-0.09	
EC-E4L 10-22/32C10CF72	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	-	C	0.40	45.0	●	●	0.03-0.10	
EC-E4L 10-22/32W10CF72	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	-	W	0.40	45.0	●	●	0.03-0.10	
EC-E4L 12-26/38C12CFR0.5	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	0.50	C	-	-	●		0.04-0.11	
EC-E4L 12-26/38C12CFR1	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	1.00	C	-	-	●		0.04-0.11	
EC-E4L 12-26/38C12CFR1.5	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	1.50	C	-	-	●		0.04-0.11	
EC-E4L 12-26/38C12CFR2	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	2.00	C	-	-	●		0.04-0.11	
EC-E4L 12-26/38C12CFR3	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	3.00	C	-	-	●		0.04-0.11	
EC-E4L 12-26/38C12CFR4	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	4.00	C	-	-	●		0.04-0.11	
EC-E4L 12-26/38C12CFS83	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	-	C	-	-	●		0.04-0.10	
EC-E4L 12-26/38C12CF83	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	-	C	0.50	45.0	●	●	0.04-0.11	
EC-E4L 12-26/38W12CF83	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	-	W	0.50	45.0	●	●	0.04-0.11	
EC-E4L 16-34/50C16CFR2	16.00	16.00	34.00	50.00	100.00	4	38.0	5.0	2.00	C	-	-	●		0.05-0.13	
EC-E4L 16-34/50C16CFR3	16.00	16.00	34.00	50.00	100.00	4	38.0	5.0	3.00	C	-	-	●		0.05-0.13	
EC-E4L 16-34/50C16CFR5	16.00	16.00	34.00	50.00	100.00	4	38.0	5.0	5.00	C	-	-	●		0.05-0.13	
EC-E4L 16-34/50C16CF100	16.00	16.00	34.00	50.00	100.00	4	38.0	5.0	-	C	0.60	45.0	●	●	0.05-0.13	
EC-E4L 16-34/50W16CF100	16.00	16.00	34.00	50.00	100.00	4	38.0	5.0	1.00	W	0.60	45.0	●	●	0.05-0.13	
EC-E4L 20-42/60C20CFR2	20.00	20.00	42.00	60.00	110.00	4	38.0	5.0	2.00	C	-	-	●		0.05-0.17	
EC-E4L 20-42/60C20CFR3	20.00	20.00	42.00	60.00	110.00	4	38.0	5.0	3.00	C	-	-	●		0.05-0.17	
EC-E4L 20-42/60C20CFR5	20.00	20.00	42.00	60.00	110.00	4	38.0	5.0	5.00	C	-	-	●		0.05-0.17	
EC-E4L 20-42/60C20CF110	20.00	20.00	42.00	60.00	110.00	4	38.0	5.0	-	C	0.60	45.0	●	●	0.05-0.17	
EC-E4L 20-42/60W20CF110	20.00	20.00	42.00	60.00	110.00	4	38.0	5.0	-	W	0.60	45.0	●	●	0.05-0.17	
EC-E4L 25-50/65C25CFR2	25.00	25.00	50.00	65.00	121.00	4	38.0	5.0	2.00	C	-	-	●		0.05-0.17	
EC-E4L 25-50/65C25CFR3	25.00	25.00	50.00	65.00	121.00	4	38.0	5.0	3.00	C	-	-	●		0.05-0.17	
EC-E4L 25-50/65C25CFR5	25.00	25.00	50.00	65.00	121.00	4	38.0	5.0	5.00	C	-	-	●		0.05-0.17	
EC-E4L 25-50/65C25CF121	25.00	25.00	50.00	65.00	121.00	4	38.0	5.0	-	C	0.60	45.0	●		0.05-0.17	
EC-E4L 25-50/65W25CFR5	25.00	25.00	50.00	65.00	121.00	4	38.0	5.0	5.00	W	-	-	●		0.05-0.17	
EC-E4L 25-50/65W25CF121	25.00	25.00	50.00	65.00	121.00	4	38.0	5.0	-	W	0.60	45.0	●		0.05-0.17	

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

CHATTERFREE
SOLID MILL LINE**EC-E5L-CF**5 Flute, 38° Helix Medium Length
(2.5xD) Variable Pitch Endmills

Designation	Dimensions										IC900	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	CHW	KCH		
EC-E5L 06-15C06CF57	6.00	6.00	15.00	57.00	5	38.0	5.0	C	0.20	45.0	●	0.03-0.07
EC-E5L 06-15W06CF57	6.00	6.00	15.00	57.00	5	38.0	5.0	W	0.20	45.0	●	0.03-0.07
EC-E5L 08-20C08CF63	8.00	8.00	20.00	63.00	5	38.0	5.0	C	0.25	45.0	●	0.03-0.09
EC-E5L 08-20W08CF63	8.00	8.00	20.00	63.00	5	38.0	5.0	W	0.25	45.0	●	0.03-0.09
EC-E5L 10-25C10CF72	10.00	10.00	25.00	72.00	5	38.0	5.0	C	0.30	45.0	●	0.03-0.10
EC-E5L 10-25W10CF72	10.00	10.00	25.00	72.00	5	38.0	5.0	W	0.30	45.0	●	0.03-0.10
EC-E5L 12-30C12CF83	12.00	12.00	30.00	83.00	5	38.0	5.0	C	0.40	45.0	●	0.04-0.11
EC-E5L 12-30W12CF83	12.00	12.00	30.00	83.00	5	38.0	5.0	W	0.40	45.0	●	0.04-0.11
EC-E5L 16-40C16CF100	16.00	16.00	40.00	100.00	5	38.0	5.0	C	0.50	45.0	●	0.05-0.13
EC-E5L 16-40W16CF100	16.00	16.00	40.00	100.00	5	38.0	5.0	W	0.50	45.0	●	0.05-0.13
EC-E5L 20-50C20CF125	20.00	20.00	50.00	125.00	5	38.0	5.0	C	0.50	45.0	●	0.05-0.17
EC-E5L 20-50W20CF125	20.00	20.00	50.00	125.00	5	38.0	5.0	W	0.50	45.0	●	0.05-0.17

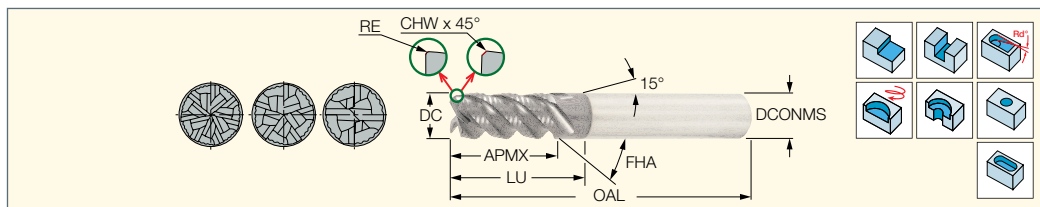
• For user guide, see pages 211-218

⁽¹⁾ Number of flutes⁽²⁾ Maximum ramping angle⁽³⁾ C-Cylindrical, W-Weldon

SOLIDSHRED

ECR-B-X/L/M/S

4-7 Flute, 45° Helix with
Different Length Solid Carbide
Roughing Endmills



Designation	Dimensions												IC900	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	NOF ⁽²⁾	FHA	RMPX ⁽³⁾	Shank ⁽⁴⁾	RE	CHW	KCH		f _z (mm/t)
ECR-B4M 05-10C06-57	5.00	6.00	10.00	15.00	57.00	4	45.0	5.0	C	-	0.20	45.0	●	0.02-0.05
ECR-B4M 05-10W06-57	5.00	6.00	10.00	15.00	57.00	4	45.0	5.0	W	-	0.20	45.0	●	0.02-0.05
ECR-B4S 05-05C06-57	5.00	6.00	5.00	10.00	57.00	4	45.0	5.0	C	-	0.20	45.0	●	0.02-0.05
ECR-B4S 05-05W06-57	5.00	6.00	5.00	10.00	57.00	4	45.0	5.0	W	-	0.20	45.0	●	0.02-0.05
ECR-B4L 06-12/18C06-57	6.00	6.00	12.00	18.00	57.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.06
ECR-B4L 06-12/18W06-57	6.00	6.00	12.00	18.00	57.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.06
ECR-B4M 06-12C06-57	6.00	6.00	12.00	-	57.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.06
ECR-B4M 06-12W06-57	6.00	6.00	12.00	-	57.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.06
ECR-B4S 06-06C06-57	6.00	6.00	6.00	-	57.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.06
ECR-B4S 06-06W06-57	6.00	6.00	6.00	-	57.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.06
ECR-B4S 07-07C08-63	7.00	8.00	7.00	14.10	63.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.07
ECR-B4L 08-16/24C08-63	8.00	8.00	16.00	24.00	63.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.08
ECR-B4L 08-16/24W08-63	8.00	8.00	16.00	24.00	63.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.08
ECR-B4M 08-16C08-63	8.00	8.00	16.00	-	63.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.08
ECR-B4M 08-16W08-63	8.00	8.00	16.00	-	63.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.08
ECR-B4S 08-08C08-63	8.00	8.00	8.00	-	63.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.08
ECR-B4S 08-08W08-63	8.00	8.00	8.00	-	63.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.08
ECR-B4X 08-12/32C08-68	8.00	8.00	12.00	32.00	68.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.08
ECR-B4X 08-12/32W08-68	8.00	8.00	12.00	32.00	68.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.08
ECR-B4L 10-20/30C10-72	10.00	10.00	20.00	30.00	72.00	4	45.0	5.0	C	-	0.30	45.0	●	0.03-0.09
ECR-B4L 10-20/30W10-72	10.00	10.00	20.00	30.00	72.00	4	45.0	5.0	W	-	0.30	45.0	●	0.03-0.09
ECR-B4M 10-20C10-72	10.00	10.00	20.00	-	72.00	4	45.0	5.0	C	-	0.30	45.0	●	0.03-0.09
ECR-B4M 10-20C10-72R1.0	10.00	10.00	20.00	-	72.00	4	45.0	5.0	C	1.00	-	-	●	0.03-0.09
ECR-B4M 10-20W10-72	10.00	10.00	20.00	-	72.00	4	45.0	5.0	W	-	0.30	45.0	●	0.03-0.09
ECR-B4S 10-10C10-72	10.00	10.00	10.00	-	72.00	4	45.0	5.0	C	-	0.30	45.0	●	0.03-0.09
ECR-B4S 10-10W10-72	10.00	10.00	10.00	-	72.00	4	45.0	5.0	W	-	0.30	45.0	●	0.03-0.09
ECR-B4X 10-15/40C10-80 90	10.00	10.00	15.00	40.00	80.00	4	45.0	5.0	C	-	0.30	45.0	●	0.03-0.09
ECR-B4X 10-15/40W10-80 90	10.00	10.00	15.00	40.00	80.00	4	45.0	5.0	W	-	0.30	45.0	●	0.03-0.09
ECR-B4L 12-24/36C12-83	12.00	12.00	24.00	36.00	83.00	4	45.0	5.0	C	-	0.35	45.0	●	0.04-0.10
ECR-B4L 12-24/36W12-83	12.00	12.00	24.00	36.00	83.00	4	45.0	5.0	W	-	0.35	45.0	●	0.04-0.10
ECR-B4M 12-24C12-83	12.00	12.00	24.00	-	83.00	4	45.0	5.0	C	-	0.35	45.0	●	0.04-0.10
ECR-B4M 12-24C12-83R1.2	12.00	12.00	24.00	-	83.00	4	45.0	5.0	C	1.20	-	-	●	0.04-0.10
ECR-B4M 12-24W12-83	12.00	12.00	24.00	-	83.00	4	45.0	5.0	W	-	0.35	45.0	●	0.04-0.10
ECR-B4M 12-24W12-83R1.2	12.00	12.00	24.00	-	83.00	4	45.0	5.0	W	1.20	-	-	●	0.04-0.10
ECR-B4S 12-12C12-83	12.00	12.00	12.00	-	83.00	4	45.0	5.0	C	-	0.35	45.0	●	0.04-0.10
ECR-B4S 12-12W12-83	12.00	12.00	12.00	-	83.00	4	45.0	5.0	W	-	0.35	45.0	●	0.04-0.10
ECR-B4X 12-18/48C12-100	12.00	12.00	18.00	48.00	100.00	4	45.0	5.0	C	-	0.35	45.0	●	0.04-0.10
ECR-B4X 12-18/48W12-100	12.00	12.00	18.00	48.00	100.00	4	45.0	5.0	W	-	0.35	45.0	●	0.05-0.11
ECR-B5L 16-32/48C16-100 ⁽¹⁾	16.00	16.00	32.00	48.00	100.00	5	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B5L 16-32/48W16-100 ⁽¹⁾	16.00	16.00	32.00	48.00	100.00	5	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11
ECR-B5M 16-32C16-92 ⁽¹⁾	16.00	16.00	32.00	-	92.00	5	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B5M 16-32C16-92R1.6 ⁽¹⁾	16.00	16.00	32.00	-	92.00	5	45.0	5.0	C	1.60	-	-	●	0.05-0.11
ECR-B5M 16-32W16-92 ⁽¹⁾	16.00	16.00	32.00	-	92.00	5	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11
ECR-B5M 16-32W16-92R1.6 ⁽¹⁾	16.00	16.00	32.00	-	92.00	5	45.0	5.0	W	1.60	-	-	●	0.05-0.11
ECR-B5S 16-16C16-92 ⁽¹⁾	16.00	16.00	16.00	-	92.00	5	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B5S 16-16W16-92 ⁽¹⁾	16.00	16.00	16.00	-	92.00	5	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11
ECR-B5X 16-24/64C16-115 ⁽¹⁾	16.00	16.00	24.00	64.00	115.00	5	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B5X 16-24/64W16-115 ⁽¹⁾	16.00	16.00	24.00	64.00	115.00	5	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11
ECR-B7L 20-40/60C20-110 ⁽¹⁾	20.00	20.00	40.00	60.00	110.00	7	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B7L 20-40/60W20-110 ⁽¹⁾	20.00	20.00	40.00	60.00	110.00	7	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11
ECR-B7M 20-40C20-104 ⁽¹⁾	20.00	20.00	40.00	-	104.00	7	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B7M 20-40W20-104 ⁽¹⁾	20.00	20.00	40.00	-	104.00	7	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11
ECR-B7S 20-20C20-104 ⁽¹⁾	20.00	20.00	20.00	-	104.00	7	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B7S 20-20W20-104 ⁽¹⁾	20.00	20.00	20.00	-	104.00	7	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11

• For user guide, see pages 211-218

⁽¹⁾ Cannot be used for plunging application

⁽²⁾ Number of flutes

⁽³⁾ Maximum ramping angle

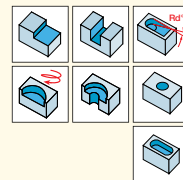
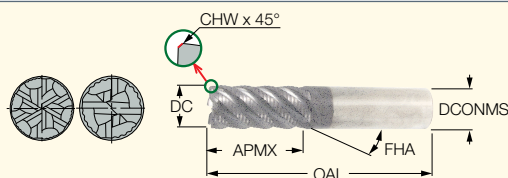
⁽⁴⁾ C-Cylindrical, W-Weldon



SOLIDSHRED

ECR-B-MF

4 and 6 Flute, 45° Helix
Medium Length Solid Carbide
Roughing Endmills for
Materials up to 65 HRC



Designation	Dimensions										IC900	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽²⁾	FHA	RMPX ⁽³⁾	Shank ⁽⁴⁾	CHW	KCH		
ECR-B4MF 06-14C06-57	6.00	6.00	14.00	57.00	4	45.0	5.0	C	0.25	45.0	●	0.03-0.06
ECR-B4MF 06-14W06-57	6.00	6.00	14.00	57.00	4	45.0	5.0	W	0.25	45.0	●	0.03-0.06
ECR-B4MF 08-18C08-63	8.00	8.00	18.00	63.00	4	45.0	5.0	C	0.30	45.0	●	0.03-0.08
ECR-B4MF 08-18W08-63	8.00	8.00	18.00	63.00	4	45.0	5.0	W	0.30	45.0	●	0.03-0.08
ECR-B4MF 10-22C10-72	10.00	10.00	22.00	72.00	4	45.0	5.0	C	0.30	45.0	●	0.03-0.09
ECR-B4MF 10-22W10-72	10.00	10.00	22.00	72.00	4	45.0	5.0	W	0.30	45.0	●	0.03-0.09
ECR-B4MF 12-26C12-83	12.00	12.00	26.00	83.00	4	45.0	5.0	C	0.40	45.0	●	0.04-0.10
ECR-B4MF 12-26W12-83	12.00	12.00	26.00	83.00	4	45.0	5.0	W	0.40	45.0	●	0.04-0.10
ECR-B4MF 14-30C14-83	14.00	14.00	30.00	83.00	4	45.0	5.0	C	0.40	45.0	●	0.04-0.11
ECR-B4MF 14-30W14-83	14.00	14.00	30.00	83.00	4	45.0	5.0	W	0.40	45.0	●	0.04-0.11
ECR-B6MF 16-34C16-92 ⁽¹⁾	16.00	16.00	34.00	92.00	6	45.0	5.0	C	0.50	45.0	●	0.05-0.11
ECR-B6MF 16-34W16-92 ⁽¹⁾	16.00	16.00	34.00	92.00	6	45.0	5.0	W	0.50	45.0	●	0.05-0.11
ECR-B6MF 20-42C20-104 ⁽¹⁾	20.00	20.00	42.00	104.00	6	45.0	5.0	C	0.70	45.0	●	0.05-0.11
ECR-B6MF 20-42W20-104 ⁽¹⁾	20.00	20.00	42.00	104.00	6	45.0	5.0	W	0.70	45.0	●	0.05-0.11
ECR-B6MF 25-52C25-121 ⁽¹⁾	25.00	25.00	52.00	121.00	6	45.0	5.0	C	0.90	45.0	●	0.06-0.11
ECR-B6MF 25-52W25-121 ⁽¹⁾	25.00	25.00	52.00	121.00	6	45.0	5.0	W	0.90	45.0	●	0.06-0.11

• The rougher's cutting edge profile has shallow serrations. • A very durable design which leaves only a small amount of material for the finishing cut. • For user guide, see pages 211-218

⁽¹⁾ Cannot be used for plunging application

⁽²⁾ Number of flutes

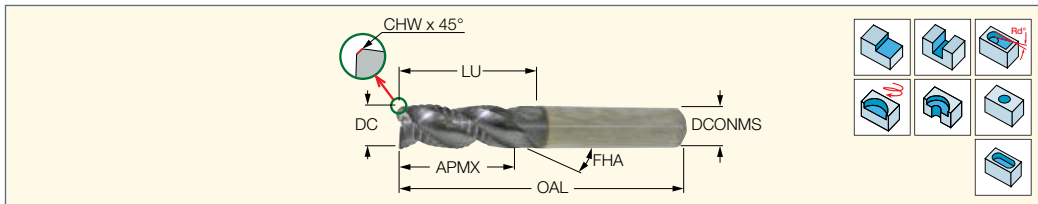
⁽³⁾ Maximum ramping angle

⁽⁴⁾ C-Cylindrical, W-Weldon

SOLIDSHRED

ECP-E3L

3 Flute, 38° Helix Solid Carbide
Roughing Endmills with 3xD
Relieved Necks and Chip
Splitting Cutting Edges



Designation	Dimensions											IC900	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	LU	OAL	NOF ⁽¹⁾	RMPX ^{o(2)}	FHA	Shank ⁽³⁾	CHW	KCH		
ECP-E3L 05-12/17C06S57	5.00	6.00	12.00	17.0	57.00	3	5.0	38.0	C	0.20	45.0	●	0.02-0.05
ECP-E3L 05-12/17W06S57	5.00	6.00	12.00	17.0	57.00	3	5.0	38.0	W	0.20	45.0	●	0.02-0.05
ECP-E3L 06-14/20C06S57	6.00	6.00	14.00	20.0	57.00	3	5.0	38.0	C	0.30	45.0	●	0.03-0.06
ECP-E3L 06-14/20W06S57	6.00	6.00	14.00	20.0	57.00	3	5.0	38.0	W	0.30	45.0	●	0.03-0.06
ECP-E3L 08-18/26C08S63	8.00	8.00	18.00	26.0	63.00	3	5.0	38.0	C	0.40	45.0	●	0.03-0.08
ECP-E3L 08-18/26W08S63	8.00	8.00	18.00	26.0	63.00	3	5.0	38.0	W	0.40	45.0	●	0.03-0.08
ECP-E3L 10-22/32C10S72	10.00	10.00	22.00	32.0	72.00	3	5.0	38.0	C	0.40	45.0	●	0.03-0.09
ECP-E3L 10-22/32W10S72	10.00	10.00	22.00	32.0	72.00	3	5.0	38.0	W	0.40	45.0	●	0.03-0.09
ECP-E3L 12-26/38C12S83	12.00	12.00	26.00	38.0	83.00	3	5.0	38.0	C	0.40	45.0	●	0.04-0.10
ECP-E3L 12-26/38W12S83	12.00	12.00	26.00	38.0	83.00	3	5.0	38.0	W	0.40	45.0	●	0.04-0.10
ECP-E3L 14-30/44C14S100	14.00	14.00	30.00	44.0	100.00	3	5.0	38.0	C	0.50	45.0	●	0.05-0.11
ECP-E3L 14-30/44W14S100	14.00	14.00	30.00	44.0	100.00	3	5.0	38.0	W	0.50	45.0	●	0.05-0.11
ECP-E3L 16-34/50C16S100	16.00	16.00	34.00	50.0	100.00	3	5.0	38.0	C	0.50	45.0	●	0.05-0.11
ECP-E3L 16-34/50W16S100	16.00	16.00	34.00	50.0	100.00	3	5.0	38.0	W	0.50	45.0	●	0.05-0.11
ECP-E3L 20-42/62C20S125	20.00	20.00	42.00	62.0	125.00	3	5.0	38.0	C	0.50	45.0	●	0.05-0.11
ECP-E3L 20-42/62W20S125	20.00	20.00	42.00	62.0	125.00	3	5.0	38.0	W	0.50	45.0	●	0.05-0.11

● Most recommended for machining stainless steel. ● For user guide, see pages 211-218

⁽¹⁾ Number of flutes

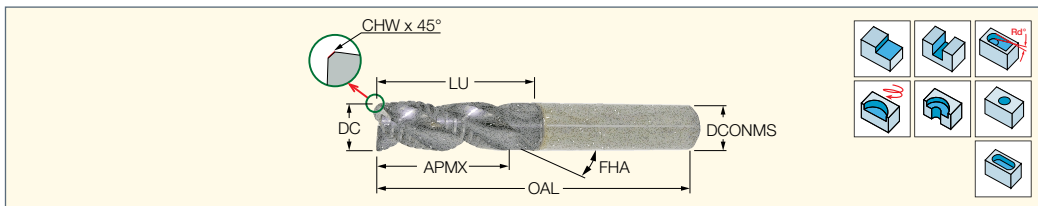
⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

SOLIDSHRED

ECP-E4L

4 Flute, 38° Helix Solid Carbide
Roughing Endmills with 3xD
Relieved Necks and Chip
Splitting Cutting Edges



Designation	Dimensions											IC900	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	LU	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RMPX ^{o(3)}	CHW	KCH		
ECP-E4L 05-12/17C06S57	5.00	6.00	12.00	17.0	57.00	4	38.0	C	5.0	0.20	45.0	●	0.02-0.05
ECP-E4L 05-12/17W06S57	5.00	6.00	12.00	17.0	57.00	4	38.0	W	5.0	0.20	45.0	●	0.02-0.05
ECP-E4L 06-14/20C06S57	6.00	6.00	14.00	20.0	57.00	4	38.0	C	5.0	0.30	45.0	●	0.03-0.06
ECP-E4L 06-14/20W06S57	6.00	6.00	14.00	20.0	57.00	4	38.0	W	5.0	0.30	45.0	●	0.03-0.06
ECP-E4L 08-18/26C08S63	8.00	8.00	18.00	26.0	63.00	4	38.0	C	5.0	0.40	45.0	●	0.03-0.08
ECP-E4L 08-18/26W08S63	8.00	8.00	18.00	26.0	63.00	4	38.0	W	5.0	0.40	45.0	●	0.03-0.08
ECP-E4L 10-22/32C10S72	10.00	10.00	22.00	32.0	72.00	4	38.0	C	5.0	0.40	45.0	●	0.03-0.09
ECP-E4L 10-22/32W10S72	10.00	10.00	22.00	32.0	72.00	4	38.0	W	5.0	0.40	45.0	●	0.03-0.09
ECP-E4L 12-26/38C12S83	12.00	12.00	26.00	38.0	83.00	4	38.0	C	5.0	0.40	45.0	●	0.04-0.10
ECP-E4L 12-26/38W12S83	12.00	12.00	26.00	38.0	83.00	4	38.0	W	5.0	0.40	45.0	●	0.04-0.10
ECP-E4L 14-30/44C14S100	14.00	14.00	30.00	44.0	100.00	4	38.0	C	5.0	0.50	45.0	●	0.04-0.11
ECP-E4L 14-30/44W14S100	14.00	14.00	30.00	44.0	100.00	4	38.0	W	5.0	0.50	45.0	●	0.04-0.11
ECP-E4L 16-34/50C16S100	16.00	16.00	34.00	50.0	100.00	4	38.0	C	5.0	0.50	45.0	●	0.05-0.12
ECP-E4L 16-34/50W16S100	16.00	16.00	34.00	50.0	100.00	4	38.0	W	5.0	0.50	45.0	●	0.05-0.12
ECP-E4L 20-42/62C20S125	20.00	20.00	42.00	62.0	125.00	4	38.0	C	5.0	0.50	45.0	●	0.05-0.15
ECP-E4L 20-42/62W20S125	20.00	20.00	42.00	62.0	125.00	4	38.0	W	5.0	0.50	45.0	●	0.05-0.15

● Most recommended for machining stainless steel. ● For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical, W-Weldon

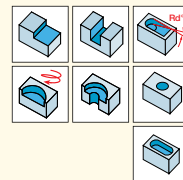
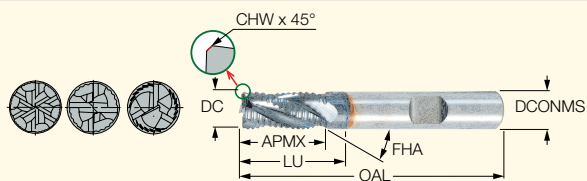
⁽³⁾ Maximum ramping angle



SOLIDSHRED

ERF-A/E-3,4,6

3, 4, and 6 Flute, 30° and 38° Helix Solid Carbide Roughing Endmills with 3xD Relieved Neck for Alloy Steel



Designation	Dimensions											IC900	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	LU	OAL	NOF ⁽²⁾	FHA	RMPX ⁽³⁾	Shank ⁽⁴⁾	CHW	KCH		
ERF040E08-3C06	4.00	6.00	8.00	13.00	57.00	3	38.0	5.0	C	0.25	45.0	●	0.02-0.05
ERF050E10-3C06	5.00	6.00	10.00	17.00	57.00	3	38.0	5.0	C	0.30	45.0	●	0.02-0.05
ERF060E13-3C06	6.00	6.00	13.00	21.00	57.00	3	38.0	5.0	C	0.30	45.0	●	0.03-0.06
ERF060E13-3W06	6.00	6.00	13.00	21.00	57.00	3	38.0	5.0	W	0.30	45.0	●	0.03-0.06
ERF070E20-3C08	7.00	8.00	20.00	26.00	63.00	3	38.0	5.0	C	0.30	45.0	●	0.03-0.07
ERF080E20-3C08	8.00	8.00	20.00	28.00	63.00	3	38.0	5.0	C	0.30	45.0	●	0.03-0.08
ERF080E20-3W08	8.00	8.00	20.00	28.00	63.00	3	38.0	5.0	W	0.30	45.0	●	0.03-0.08
ERF090A22-4C10	9.00	10.00	22.00	30.00	72.00	4	30.0	5.0	C	0.30	45.0	●	0.03-0.08
ERF100A22-4C10	10.00	10.00	22.00	30.00	72.00	4	30.0	5.0	C	0.30	45.0	●	0.03-0.09
ERF100A22-4W10	10.00	10.00	22.00	30.00	72.00	4	30.0	5.0	W	0.30	45.0	●	0.03-0.09
ERF110A25-4C12	11.00	12.00	25.00	31.00	83.00	4	30.0	5.0	C	0.30	45.0	●	0.03-0.09
ERF120A25-4C12	12.00	12.00	25.00	37.00	83.00	4	30.0	5.0	C	0.40	45.0	●	0.04-0.10
ERF120A25-4W12	12.00	12.00	25.00	37.00	83.00	4	30.0	5.0	W	0.40	45.0	●	0.04-0.10
ERF130A25-4C14	13.00	14.00	25.00	32.00	83.00	4	30.0	5.0	C	0.40	45.0	●	0.04-0.10
ERF140A25-4C14	14.00	14.00	25.00	37.00	83.00	4	30.0	5.0	C	0.50	45.0	●	0.04-0.11
ERF140A25-4W14	14.00	14.00	25.00	37.00	83.00	4	30.0	5.0	W	0.50	45.0	●	0.04-0.11
ERF160A32-4C16	16.00	16.00	32.00	44.00	92.00	4	30.0	5.0	C	0.50	45.0	●	0.05-0.11
ERF160A32-4W16	16.00	16.00	32.00	44.00	92.00	4	30.0	5.0	W	0.50	45.0	●	0.05-0.11
ERF180A32-4C18	18.00	18.00	32.00	44.00	92.00	4	30.0	5.0	C	0.50	45.0	●	0.05-0.11
ERF180A32-4W18	18.00	18.00	32.00	44.00	92.00	4	30.0	5.0	W	0.50	45.0	●	0.05-0.11
ERF200A38-4C20	20.00	20.00	38.00	55.00	104.00	4	30.0	5.0	C	0.60	45.0	●	0.05-0.11
ERF200A38-4W20	20.00	20.00	38.00	55.00	104.00	4	30.0	5.0	W	0.60	45.0	●	0.05-0.11
ERF250A45-6W25 ⁽¹⁾	25.00	25.00	45.00	64.00	121.00	6	30.0	5.0	W	0.60	45.0	●	0.06-0.11

• For user guide, see pages 211-218

⁽¹⁾ No center cutting • Cannot be used for plunging application

⁽²⁾ Number of flutes

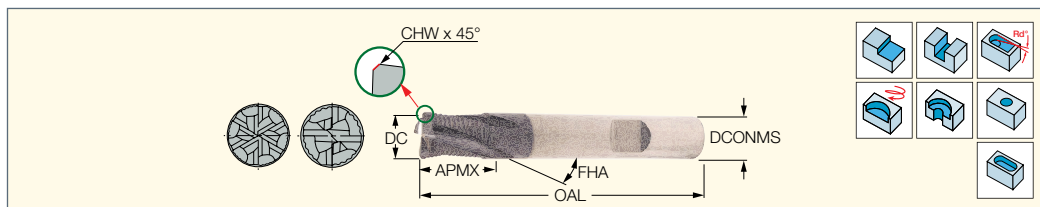
⁽³⁾ Maximum ramping angle

⁽⁴⁾ C-Cylindrical, W-Weldon

SOLIDSHRED

ECR-T-M

4 Flute, 20° Helix Medium Length
Solid Carbide Roughing Endmills
for High Stock Removal Rates



Designation	Dimensions										IC900	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	CHW	KCH		
ECR-T4M 06-10-C06-57	6.00	6.00	10.00	57.00	4	20.0	5.0	C	0.30	45.0	●	0.03-0.06
ECR-T4M 06-10-W06-57	6.00	6.00	10.00	57.00	4	20.0	5.0	W	0.30	45.0	●	0.03-0.06
ECR-T4M 08-16-C08-63	8.00	8.00	16.00	63.00	4	20.0	5.0	C	0.40	45.0	●	0.03-0.08
ECR-T4M 08-16-W08-63	8.00	8.00	16.00	63.00	4	20.0	5.0	W	0.40	45.0	●	0.03-0.08
ECR-T4M 10-20-C10-72	10.00	10.00	20.00	72.00	4	20.0	5.0	C	0.40	45.0	●	0.03-0.09
ECR-T4M 10-20-W10-72	10.00	10.00	20.00	72.00	4	20.0	5.0	W	0.40	45.0	●	0.03-0.09
ECR-T4M 12-24-C12-83	12.00	12.00	24.00	83.00	4	20.0	5.0	C	0.40	45.0	●	0.04-0.10
ECR-T4M 12-24-W12-83	12.00	12.00	24.00	83.00	4	20.0	5.0	W	0.40	45.0	●	0.04-0.10
ECR-T4M 16-32-C16-92	16.00	16.00	32.00	92.00	4	20.0	5.0	C	0.50	45.0	●	0.05-0.11
ECR-T4M 16-32-W16-92	16.00	16.00	32.00	92.00	4	20.0	5.0	W	0.50	45.0	●	0.05-0.11
ECR-T4M 20-40-C20-104	20.00	20.00	40.00	104.00	4	20.0	5.0	C	0.50	45.0	●	0.05-0.11
ECR-T4M 20-40-W20-104	20.00	20.00	40.00	104.00	4	20.0	5.0	W	0.50	45.0	●	0.05-0.11

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

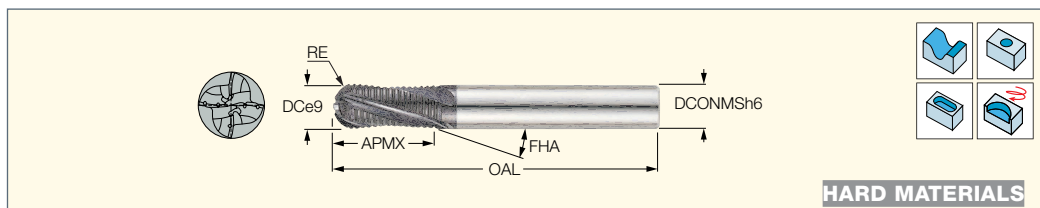
⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

SOLIDSHRED

EBRF-T

3, 4 Flute, 20° Helix Long
Solid Carbide Ball Nose
Endmills for Roughing
Materials up to 55 HRC



HARD MATERIALS

Designation	Dimensions									IC903
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RE	RETOL ⁽³⁾	
EBRF-T3 06-16C06M57	6.00	6.00	16.00	57.00	3	20.0	C	3.00	0.010	●
EBRF-T3 08-16C08M63	8.00	8.00	16.00	63.00	3	20.0	C	4.00	0.010	●
EBRF-T4 10-22C10M72	10.00	10.00	22.00	72.00	4	20.0	C	5.00	0.010	●
EBRF-T4 12-26C12M83	12.00	12.00	26.00	83.00	4	20.0	C	6.00	0.012	●
EBRF-T4 14-26C14M83	14.00	14.00	26.00	83.00	4	20.0	C	7.00	0.012	●
EBRF-T4 16-32C16M92	16.00	16.00	32.00	92.00	4	20.0	C	8.00	0.012	●
EBRF-T4 20-38C20M104	20.00	20.00	38.00	104.00	4	20.0	C	10.00	0.012	●

• For user guide, see pages 211-218

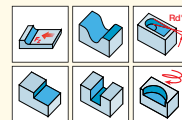
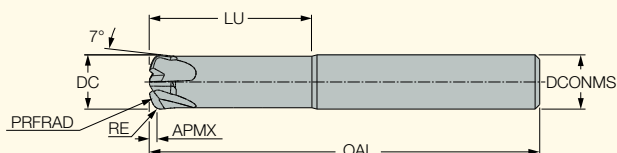
⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

⁽³⁾ Corner radius tolerance (+/-)

SOLID^{FEED} MILL**EFF-S2/S4/S6**

Solid Carbide Endmills with
Relieved Necks for Fast
Feed High Productivity



Designation	Dimensions									Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	OAL	NOF ⁽¹⁾	LU	RE ⁽²⁾	PRFRAD	APMX	Shank ⁽³⁾	IC903	IC902	
EFF-S2 01-04/03C6RP.15M50	1.00	6.00	50.00	2	3.0	0.15	0.8	0.06	C		●	0.02-0.05
EFF-S2 02-07/06C6RP0.3M50	2.00	6.00	50.00	2	6.0	0.30	1.6	0.11	C		●	0.10-0.14
EFF-S2 03-1/09C06RP0.5M50	3.00	6.00	50.00	2	9.0	0.50	2.4	0.18	C		●	0.10-0.20
EFF-S4-04 020/14C06M57	4.00	6.00	57.00	4	14.0	0.70	3.8	0.20	C		●	0.10-0.25
EFF-S4-05 022/17C06M57	5.00	6.00	57.00	4	17.0	0.90	4.0	0.31	C		●	0.10-0.30
EFF-S4-06 030/20C06R1.0M	6.00	6.00	57.00	4	20.0	1.23	5.3	0.29	C	●		0.10-0.30
EFF-S6-06 025/20C06R0.7M	6.00	6.00	57.00	6	20.0	0.70	5.0	0.33	C		●	0.10-0.25
EFF-S4-08 035/26C08R1.3M	8.00	8.00	63.00	4	26.0	1.62	7.0	0.40	C	●		0.10-0.40
EFF-S6-08 025/26C08R0.86M	8.00	8.00	63.00	6	26.0	0.86	6.0	0.40	C		●	0.10-0.35
EFF-S4-10 040/30C10R1.6M	10.00	10.00	72.00	4	30.0	2.01	8.8	0.50	C	●		0.15-0.50
EFF-S6-10 025/30C10R1.0M	10.00	10.00	72.00	6	30.0	1.00	6.0	0.50	C		●	0.15-0.45
EFF-S4-12 045/34C12R2.0M	12.00	12.00	83.00	4	34.0	2.46	10.6	0.57	C	●		0.15-0.50
EFF-S6-12 030/34C12R1.2M	12.00	12.00	83.00	6	34.0	1.20	10.0	0.65	C		●	0.15-0.45
EFF-S4-16 055/42C16R2.6M	16.00	16.00	92.00	4	42.0	3.25	14.0	0.80	C	●		0.20-0.60
EFF-S6-16 045/42C16R2.0M	16.00	16.00	92.00	6	42.0	2.00	16.0	1.10	C		●	0.20-0.55
EFF-S4-20 060/46C20R3.2M	20.00	20.00	104.00	4	46.0	4.01	17.7	1.00	C	●		0.20-0.70

• For user guide, see pages 211-218

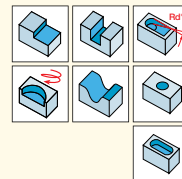
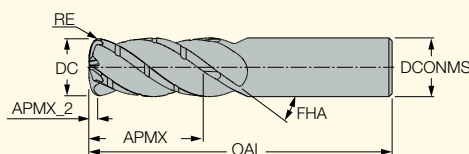
⁽¹⁾ Number of flutes

⁽²⁾ To be used for programming

⁽³⁾ C-Cylindrical

SOLID^{FEED} MILL**EFP-E4,5CF**

Solid Carbide Roughing
Endmills with Chip Splitting,
Cutting Edges, Variable Pitch
and Large Radius Front Edge



Designation	Dimensions										IC903	Recommended Machining Data
	DC	DCONMS	OAL	RE ⁽²⁾	NOF ⁽³⁾	FHA	APMX_2 ⁽⁴⁾	APMX	RMPX ⁽⁵⁾	Shank ⁽⁶⁾		
EFP-E4CF 06-12C06R1.0M57	6.00	6.00	57.00	1.00	4	38.0	0.30	12.00	5.0	C	●	0.02-0.30
EFP-E4CF 08-16C08R1.4M63	8.00	8.00	63.00	1.40	4	38.0	0.40	16.00	5.0	C	●	0.03-0.40
EFP-E4CF 10-20C10R1.7M72	10.00	10.00	72.00	1.70	4	38.0	0.50	20.00	5.0	C	●	0.03-0.50
EFP-E4CF 12-25C12R2.0M83	12.00	12.00	83.00	2.00	4	38.0	0.60	24.00	5.0	C	●	0.04-0.50
EFP-E4CF 16-32C16R2.7M92	16.00	16.00	92.00	2.70	4	38.0	0.80	32.00	5.0	C	●	0.05-0.60
EFP-E5CF 16-40C16R2.7M92 ⁽¹⁾	16.00	16.00	92.00	2.70	5	38.0	0.80	40.00	5.0	C	●	0.05-0.60
EFP-E4CF 20-40C20R3.4M104	20.00	20.00	104.00	3.40	4	38.0	1.00	40.00	5.0	C	●	0.05-0.70
EFP-E5CF 20-48C20R3.4M104 ⁽¹⁾	20.00	20.00	104.00	3.40	5	38.0	1.00	48.00	5.0	C	●	0.05-0.70

• For user guide, see pages 211-218

⁽¹⁾ Cannot be used for plunging application

⁽²⁾ Used for programming

⁽³⁾ Number of flutes

⁽⁴⁾ Maximum D.O.C. for high feed milling (FEEDMILL)

⁽⁵⁾ Maximum ramping angle

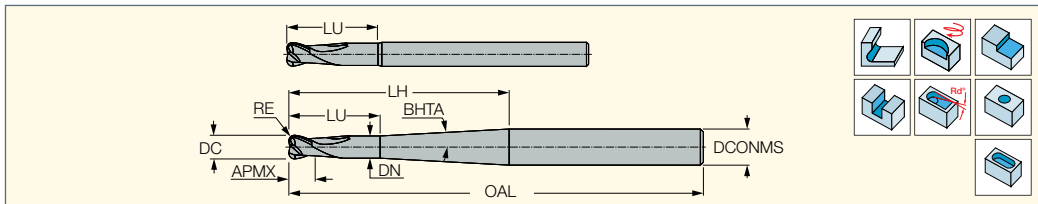
⁽⁶⁾ C-Cylindrical



SOLIDMILL
PREMIUM LINE

ETR-A2

2 Flute Toroidal Endmills



Designation	Dimensions												IC900	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	LU	DN	LH	BHTA	RMPX ⁽²⁾	RE	Shank ⁽³⁾		f _z (mm/t)
ETR-A2 02-2/08C06R.5M80	2.00	6.00	2.00	80.00	2	8.0	1.90	40.0	3.6	5.0	0.50	C	●	0.01-0.03
ETR-A2 03-2/12C06R.5M80	3.00	6.00	2.00	80.00	2	12.0	2.80	40.0	3.3	5.0	0.50	C	●	0.01-0.04
ETR-A2 04-3/16C06R1M80	4.00	6.00	3.00	80.00	2	16.0	3.70	40.0	2.8	5.0	1.00	C	●	0.02-0.05
ETR-A2 06-4/25C08R2M100	6.00	8.00	4.00	100.00	2	25.0	5.60	66.0	2.0	5.0	2.00	C	●	0.03-0.07
ETR-A2 10-6/40C12R3M160	10.00	12.00	6.00	158.00	2	40.0	9.60	110.0	1.0	5.0	3.00	C	●	0.03-0.10

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

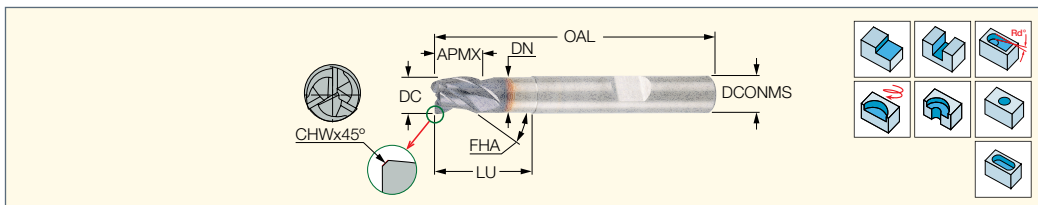
⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical

SOLIDMILL
PREMIUM LINE

ECS/ECCS-E-3

3 Flute, 38° Helix Short Solid Carbide Slot / Drill Endmills with 3xD Relieved Necks and Chamfered Corners



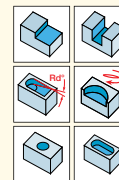
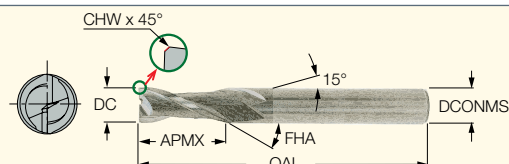
Designation	Dimensions												IC900	Recommended Machining Data
	DC	DCONMS	APMX	LU	DN	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	CHW	KCH		f _z (mm/t)
ECS020E03-3W06-57	2.00	6.00	3.00	8.00	1.90	57.00	3	38.0	5.0	W	-	-	●	0.01-0.03
ECS025E03-3W06-57	2.50	6.00	3.00	8.00	2.40	57.00	3	38.0	5.0	W	-	-	●	0.01-0.03
ECS030E04-3W06-57	3.00	6.00	4.00	9.00	2.90	57.00	3	38.0	5.0	W	-	-	●	0.01-0.04
ECS035E04-3W06-57	3.50	6.00	4.00	12.00	3.40	57.00	3	38.0	5.0	W	-	-	●	0.01-0.04
ECS040E05-3W06-57	4.00	6.00	5.00	13.00	3.90	57.00	3	38.0	5.0	W	-	-	●	0.02-0.05
ECS050E06-3W06-57	5.00	6.00	6.00	14.00	4.90	57.00	3	38.0	5.0	W	-	-	●	0.02-0.06
ECCS060E07-3W06-57	6.00	6.00	7.00	15.00	5.90	57.00	3	38.0	5.0	W	0.15	45.0	●	0.03-0.07
ECCS070E08-3W08-63	7.00	8.00	8.00	20.00	6.70	63.00	3	38.0	5.0	W	0.15	45.0	●	0.03-0.08
ECCS080E09-3W08-63	8.00	8.00	9.00	21.00	7.60	63.00	3	38.0	5.0	W	0.15	45.0	●	0.03-0.09
ECCS090E10-3W10-72	9.00	10.00	10.00	22.00	8.60	72.00	3	38.0	5.0	W	0.15	45.0	●	0.03-0.09
ECCS100E11-3W10-72	10.00	10.00	11.00	23.00	9.50	72.00	3	38.0	5.0	W	0.25	45.0	●	0.03-0.10
ECCS120E12-3W12-83	12.00	12.00	12.00	24.00	11.30	83.00	3	38.0	5.0	W	0.25	45.0	●	0.04-0.11
ECCS160E16-3W16-92	16.00	16.00	16.00	33.00	15.20	92.00	3	38.0	5.0	W	0.25	45.0	●	0.05-0.13

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ W-Weldon

SOLIDMILL
PREMIUM LINE**EC/ECC-A-2**2 Flute, 30 and 45° Helix
Medium Length Solid Carbide
Slot / Drill Endmills

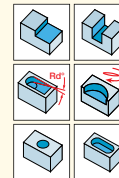
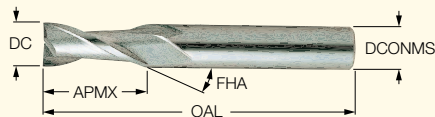
Designation	Dimensions										Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	KCH	CHW	IC08	IC900	
ECC020B07-2C03	2.00	3.00	7.00	38.00	2	45.0	5.0	C	45.0	0.10	●	●	0.01-0.03
EC020B07-2C03	2.00	3.00	7.00	38.00	2	45.0	5.0	C	-	-	●	●	0.01-0.03
EC020B07-2C06	2.00	6.00	7.00	57.00	2	45.0	5.0	C	-	-	●	●	0.01-0.03
ECC025A07-2C03	2.50	3.00	7.00	38.00	2	30.0	5.0	C	45.0	0.10	●	●	0.01-0.03
EC025A07-2C03	2.50	3.00	7.00	38.00	2	30.0	5.0	C	-	-	●	●	0.01-0.03
ECC030A10-2C03	3.00	3.00	10.00	38.00	2	30.0	5.0	C	45.0	0.10	●	●	0.01-0.04
EC030A10-2C03	3.00	3.00	10.00	38.00	2	30.0	5.0	C	-	-	●	●	0.01-0.04
EC030A10-2C06	3.00	6.00	10.00	57.00	2	30.0	5.0	C	-	-	●	●	0.01-0.04
EC035A12-2C04	3.50	4.00	12.00	50.00	2	30.0	5.0	C	-	-	●	●	0.01-0.04
ECC040A12-2C04	4.00	4.00	12.00	50.00	2	30.0	5.0	C	45.0	0.15	●	●	0.02-0.05
EC040A12-2C04	4.00	4.00	12.00	50.00	2	30.0	5.0	C	-	-	●	●	0.02-0.05
EC040A12-2C06	4.00	6.00	12.00	57.00	2	30.0	5.0	C	-	-	●	●	0.02-0.05
ECC050A14-2C05	5.00	5.00	14.00	50.00	2	30.0	5.0	C	0.15	45.0	●	●	0.02-0.06
EC050A14-2C05	5.00	5.00	14.00	50.00	2	30.0	5.0	C	-	-	●	●	0.02-0.06
EC050A14-2C06	5.00	6.00	14.00	57.00	2	30.0	5.0	C	-	-	●	●	0.02-0.06
ECC060A16-2C06	6.00	6.00	16.00	57.00	2	30.0	5.0	C	0.15	45.0	●	●	0.03-0.07
EC060A16-2C06	6.00	6.00	16.00	57.00	2	30.0	5.0	C	-	-	●	●	0.03-0.07
EC060A16-2W06	6.00	6.00	16.00	57.00	2	30.0	5.0	W	-	-	●	●	0.03-0.07
EC070A20-2C07	7.00	7.00	20.00	60.00	2	30.0	5.0	C	-	-	●	●	0.03-0.08
ECC080A20-2C08	8.00	8.00	20.00	63.00	2	30.0	5.0	C	45.0	0.15	●	●	0.03-0.09
EC080A20-2C08	8.00	8.00	20.00	63.00	2	30.0	5.0	C	-	-	●	●	0.03-0.09
EC080A20-2W08	8.00	8.00	20.00	63.00	2	30.0	5.0	W	-	-	●	●	0.03-0.09
ECC100A22-2C10	10.00	10.00	22.00	72.00	2	30.0	5.0	C	45.0	0.25	●	●	0.03-0.10
EC100A22-2C10	10.00	10.00	22.00	72.00	2	30.0	5.0	C	-	-	●	●	0.03-0.10
ECC120A25-2C12	12.00	12.00	25.00	83.00	2	30.0	5.0	C	0.25	45.0	●	●	0.04-0.11
EC120A25-2C12	12.00	12.00	25.00	83.00	2	30.0	5.0	C	-	-	●	●	0.04-0.11
EC140A25-2C14	14.00	14.00	25.00	83.00	2	30.0	5.0	C	-	-	●	●	0.04-0.12
ECC160A32-2C16	16.00	16.00	32.00	92.00	2	30.0	5.0	C	45.0	0.25	●	●	0.05-0.13
EC160A32-2C16	16.00	16.00	32.00	92.00	2	30.0	5.0	C	-	-	●	●	0.05-0.13
EC180A32-2C18	18.00	18.00	32.00	92.00	2	30.0	5.0	C	-	-	●	●	0.05-0.13
ECC200A38-2C20	20.00	20.00	38.00	104.00	2	30.0	5.0	C	45.0	0.25	●	●	0.05-0.13
EC200A38-2C20	20.00	20.00	38.00	104.00	2	30.0	5.0	C	-	-	●	●	0.05-0.13

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes⁽²⁾ Maximum ramping angle⁽³⁾ C-Cylindrical, W-Weldon

EC-A2 (economical-short/medium/extra long)

Economical Type 2 Flute, 30° Helix Center Cutting, Short, Medium, and Extra Long Length Solid Carbide Endmills



Designation	Dimensions								Tough ↔ Hard		Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	IC08	IC900	
EC-A2 01-03C04E50	1.00	4.00	3.00	50.00	2	30.0	5.0	C	●	●	0.0050-0.0100
EC-A2 015-045C04E50	1.50	4.00	4.50	50.00	2	30.0	5.0	C	●	●	0.0050-0.0200
EC-A2 02-08C02E32	2.00	2.00	8.00	32.00	2	30.0	5.0	C	●	●	0.0100-0.0300
EC-A2 02-03W06E50	2.00	6.00	3.00	50.00	2	30.0	5.0	W	●	●	0.0100-0.0300
EC-A2 025-08C025E32	2.50	2.50	8.00	32.00	2	30.0	5.0	C	●	●	0.0100-0.0300
EC-A2 03-12C03E38	3.00	3.00	12.00	38.00	2	30.0	5.0	C	●	●	0.0100-0.0400
EC-A2 03-30C03E75	3.00	3.00	30.00	75.00	2	30.0	5.0	C	●	●	0.0100-0.0400
EC-A2 03-04W06E50	3.00	6.00	4.00	50.00	2	30.0	5.0	W	●	●	0.0100-0.0400
EC-A2 035-12C035E32	3.50	3.50	12.00	32.00	2	30.0	5.0	C	●	●	0.0100-0.0400
EC-A2 04-12C04E50	4.00	4.00	12.00	50.00	2	30.0	5.0	C	●	●	0.0200-0.0500
EC-A2 04-30C04E75	4.00	4.00	30.00	75.00	2	30.0	5.0	C	●	●	0.0200-0.0500
EC-A2 04-05W06E54	4.00	6.00	5.00	54.00	2	30.0	5.0	W	●	●	0.0200-0.0500
EC-A2 045-05W06E54	4.50	6.00	5.00	54.00	2	30.0	5.0	W	●	●	0.0200-0.0500
EC-A2 05-14C05E50	5.00	5.00	14.00	50.00	2	30.0	5.0	C	●	●	0.0200-0.0600
EC-A2 05-40C05E100	5.00	5.00	40.00	100.00	2	30.0	5.0	C	●	●	0.0200-0.0600
EC-A2 05-06W06E54	5.00	6.00	6.00	54.00	2	30.0	5.0	W	●	●	0.0200-0.0600
EC-A2 055-16C055E50	5.50	5.50	16.00	50.00	2	30.0	5.0	C	●	●	0.0200-0.0600
EC-A2 06-07W06E54	6.00	6.00	7.00	54.00	2	30.0	5.0	W	●	●	0.0300-0.0700
EC-A2 06-16C06E50	6.00	6.00	16.00	50.00	2	30.0	5.0	C	●	●	0.0300-0.0700
EC-A2 06-50C06E150	6.00	6.00	50.00	150.00	2	30.0	5.0	C	●	●	0.0300-0.0700
EC-A2 07-20C07E60	7.00	7.00	20.00	60.00	2	30.0	5.0	C	●	●	0.0300-0.0800
EC-A2 08-09W08E58	8.00	8.00	9.00	58.00	2	30.0	5.0	W	●	●	0.0300-0.0900
EC-A2 08-20C08E63	8.00	8.00	20.00	63.00	2	30.0	5.0	C	●	●	0.0300-0.0900
EC-A2 08-50C08E150	8.00	8.00	50.00	150.00	2	30.0	5.0	C	●	●	0.0300-0.0900
EC-A2 09-20C09E60	9.00	9.00	20.00	60.00	2	30.0	5.0	C	●	●	0.0300-0.0900
EC-A2 10-11W10E66	10.00	10.00	11.00	66.00	2	30.0	5.0	W	●	●	0.0300-0.1000
EC-A2 10-22C10E72	10.00	10.00	22.00	72.00	2	30.0	5.0	C	●	●	0.0300-0.1000
EC-A2 10-60C10E150	10.00	10.00	60.00	150.00	2	30.0	5.0	C	●	●	0.0300-0.1000
EC-A2 12-22C12E73	12.00	12.00	22.00	73.00	2	30.0	5.0	C	●	●	0.0400-0.1100
EC-A2 12-75C12E150	12.00	12.00	75.00	150.00	2	30.0	5.0	C	●	●	0.0400-0.1100
EC-A2 14-25C14E75	14.00	14.00	25.00	75.00	2	30.0	5.0	C	●	●	0.0400-0.1200
EC-A2 14-65C14E150	14.00	14.00	65.00	150.00	2	30.0	5.0	C	●	●	0.0400-0.1200
EC-A2 16-25C16E92	16.00	16.00	25.00	92.00	2	30.0	5.0	C	●	●	0.0500-0.1300
EC-A2 16-65C16E150	16.00	16.00	65.00	150.00	2	30.0	5.0	C	●	●	0.0500-0.1300
EC-A2 18-18W18E84	18.00	18.00	18.00	84.00	2	30.0	5.0	W	●	●	0.0500-0.1300
EC-A2 20-20W20E92	20.00	20.00	20.00	92.00	2	30.0	5.0	W	●	●	0.0500-0.1300
EC-A2 20-32C20E100	20.00	20.00	32.00	100.00	2	30.0	5.0	C	●	●	0.0500-0.1300
EC-A2 20-65C20E150	20.00	20.00	65.00	150.00	2	30.0	5.0	C	●	●	0.0500-0.1300

• For user guide, see pages 211-218

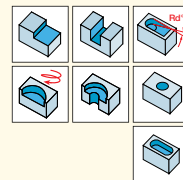
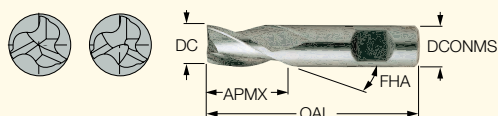
(1) Number of flutes

(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

EC-A3/E3 (economical-short/medium)

Economical Type 3 Flute,
30° and 38° Helix, Center
Cutting, Short, Medium Length
Solid Carbide Endmills



Designation	Dimensions								Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	IC08	IC900	
EC-A3 005-015C03E38	0.50	3.00	1.50	38.00	3	30.0	5.0	C	●	●	0.0070-0.0100
EC-A3 008-02C03E38	0.80	3.00	2.00	38.00	3	30.0	5.0	C	●	●	0.0070-0.0100
EC-A3 01-02C03E38	1.00	3.00	2.00	38.00	3	30.0	5.0	C	●	●	0.0100-0.0300
EC-A3 012-02C03E38	1.20	3.00	2.00	38.00	3	30.0	5.0	C	●	●	0.0100-0.0300
EC-A3 015-02C03E38	1.50	3.00	2.00	38.00	3	30.0	5.0	C	●	●	0.0100-0.0300
EC-A3 018-02C03E38	1.80	3.00	2.00	38.00	3	30.0	5.0	C	●	●	0.0100-0.0300
EC-E3 02-08C02E32	2.00	2.00	8.00	32.00	3	38.0	5.0	C	●	●	0.0100-0.0300
EC-E3 02-04C06E35	2.00	6.00	4.00	35.00	3	38.0	5.0	C	●	●	0.0100-0.0300
EC-E3 025-08C025E32	2.50	2.50	8.00	32.00	3	38.0	5.0	C	●	●	0.0100-0.0300
EC-E3 025-05C06E36	2.50	6.00	5.00	36.00	3	38.0	5.0	C	●	●	0.0100-0.0300
EC-E3 03-12C03E38	3.00	3.00	12.00	38.00	3	38.0	5.0	C	●	●	0.0100-0.0400
EC-E3 03-05C06E36	3.00	6.00	5.00	36.00	3	38.0	5.0	C	●	●	0.0100-0.0400
EC-A3 035-12C035E32	3.50	3.50	12.00	32.00	3	30.0	5.0	C	●	●	0.0100-0.0400
EC-A3 035-06W06E37	3.50	6.00	6.00	37.00	3	30.0	5.0	W	●	●	0.0100-0.0400
EC-E3 04-12C04E50	4.00	4.00	12.00	50.00	3	38.0	5.0	C	●	●	0.0200-0.0500
EC-E3 04-07C06E39	4.00	6.00	7.00	39.00	3	38.0	5.0	C	●	●	0.0200-0.0500
EC-A3 045-14C045E50	4.50	4.50	14.00	50.00	3	30.0	5.0	C	●	●	0.0200-0.0500
EC-A3 045-08W06E38	4.50	6.00	8.00	38.00	3	30.0	5.0	W	●	●	0.0200-0.0500
EC-E3 05-14C05E50	5.00	5.00	14.00	50.00	3	38.0	5.0	C	●	●	0.0200-0.0600
EC-E3 05-08C06E39	5.00	6.00	8.00	39.00	3	30.0	5.0	C	●	●	0.0200-0.0600
EC-A3 055-16C055E50	5.50	5.50	16.00	50.00	3	30.0	5.0	C	●	●	0.0200-0.0600
EC-A3 055-08W06E39	5.50	6.00	8.00	39.00	3	30.0	5.0	W	●	●	0.0200-0.0600
EC-E3 06-08C06E39	6.00	6.00	8.00	39.00	3	38.0	5.0	C	●	●	0.0300-0.0700
EC-E3 06-16C06E50	6.00	6.00	16.00	50.00	3	38.0	5.0	C	●	●	0.0300-0.0700
EC-A3 0675-10W08E42	6.75	8.00	10.00	42.00	3	30.0	5.0	W	●	●	0.0300-0.0700
EC-E3 07-20C07E60	7.00	7.00	20.00	60.00	3	30.0	5.0	C	●	●	0.0300-0.0800
EC-A3 07-10W08E42	7.00	8.00	10.00	42.00	3	30.0	5.0	W	●	●	0.0300-0.0800
EC-E3 08-11C08E43	8.00	8.00	11.00	43.00	3	38.0	5.0	C	●	●	0.0300-0.0900
EC-E3 08-20C08E63	8.00	8.00	20.00	63.00	3	38.0	5.0	C	●	●	0.0300-0.0900
EC-A3 09-20C09E60	9.00	9.00	20.00	60.00	3	30.0	5.0	C	●	●	0.0300-0.0900
EC-A3 09-11W10E48	9.00	10.00	11.00	48.00	3	30.0	5.0	W	●	●	0.0300-0.0900
EC-A3 097-11W10E48	9.70	10.00	11.00	48.00	3	30.0	5.0	W	●	●	0.0300-0.0900
EC-E3 10-13C10E50	10.00	10.00	13.00	50.00	3	38.0	5.0	C	●	●	0.0300-0.1000
EC-E3 10-22C10E72	10.00	10.00	22.00	72.00	3	38.0	5.0	C	●	●	0.0300-0.1000
EC-E3 12-15C12E55	12.00	12.00	15.00	55.00	3	30.0	5.0	C	●	●	0.0400-0.1100
EC-E3 12-22C12E73	12.00	12.00	22.00	73.00	3	38.0	5.0	C	●	●	0.0400-0.1100
EC-A3 14-25C14E75	14.00	14.00	25.00	75.00	3	30.0	5.0	C	●	●	0.0400-0.1200
EC-A3 16-18W16E62	16.00	16.00	18.00	62.00	3	30.0	5.0	W	●	●	0.0500-0.1300
EC-A3 16-25C16E75	16.00	16.00	25.00	75.00	3	30.0	5.0	C	●	●	0.0500-0.1300
EC-E3 20-32C20E104	20.00	20.00	32.00	104.00	3	38.0	5.0	C	●	●	0.0500-0.1300

• For user guide, see pages 211-218

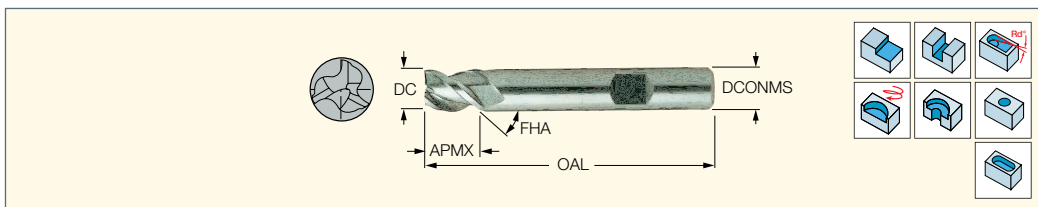
⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

EC-B3 (economical-short/medium)

Economical Type 3 Flute,
 45° Helix, Center Cutting,
 Short, Medium Length
 Solid Carbide Endmills



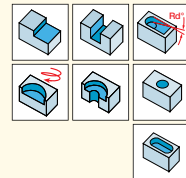
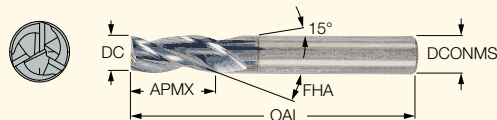
Designation	Dimensions								Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	IC08	IC900	
EC-B3 015-03C03E38	1.50	3.00	3.00	38.00	3	45.0	5.0	C	●	●	0.00-0.02
EC-B3 02-03W06E50	2.00	6.00	3.00	50.00	3	45.0	5.0	W	●	●	0.01-0.03
EC-B3 03-04W06E50	3.00	6.00	4.00	50.00	3	45.0	5.0	W	●	●	0.01-0.04
EC-B3 03-08C06E50	3.00	6.00	8.00	50.00	3	45.0	5.0	C	●	●	0.01-0.04
EC-B3 035-04W06E50	3.50	6.00	4.00	50.00	3	45.0	5.0	W	●	●	0.01-0.04
EC-B3 04-05W06E54	4.00	6.00	5.00	54.00	3	45.0	5.0	W	●	●	0.02-0.05
EC-B3 04-11C06E50	4.00	6.00	11.00	50.00	3	45.0	5.0	C	●	●	0.02-0.05
EC-B3 045-05W06E54	4.50	6.00	5.00	54.00	3	45.0	5.0	W	●	●	0.02-0.05
EC-B3 05-06C06E57	5.00	6.00	6.00	57.00	3	45.0	5.0	C	●	●	0.02-0.06
EC-B3 05-13C06E50	5.00	6.00	13.00	50.00	3	45.0	5.0	C	●	●	0.02-0.06
EC-B3 06-07W06E54	6.00	6.00	7.00	54.00	3	45.0	5.0	W	●	●	0.03-0.07
EC-B3 06-13C06E50	6.00	6.00	13.00	50.00	3	45.0	5.0	C	●	●	0.03-0.07
EC-B3 08-09W08E58	8.00	8.00	9.00	58.00	3	45.0	5.0	W	●	●	0.03-0.09
EC-B3 08-19C08E63	8.00	8.00	19.00	63.00	3	45.0	5.0	C	●	●	0.03-0.09
EC-B3 09-10W10E66	9.00	10.00	10.00	66.00	3	45.0	5.0	W	●	●	0.03-0.09
EC-B3 10-11W10E66	10.00	10.00	11.00	66.00	3	45.0	5.0	W	●	●	0.03-0.10
EC-B3 10-22C10E72	10.00	10.00	22.00	72.00	3	45.0	5.0	C	●	●	0.03-0.10
EC-B3 12-12W12E73	12.00	12.00	12.00	73.00	3	45.0	5.0	W	●	●	0.04-0.11
EC-B3 12-26C12E73	12.00	12.00	26.00	73.00	3	45.0	5.0	C	●	●	0.04-0.11
EC-B3 14-26C14E75	14.00	14.00	26.00	75.00	3	45.0	5.0	C	●	●	0.04-0.12
EC-B3 16-16W16E82	16.00	16.00	16.00	82.00	3	45.0	5.0	W	●	●	0.05-0.13
EC-B3 16-25C16E92	16.00	16.00	25.00	92.00	3	45.0	5.0	C	●	●	0.05-0.13
EC-B3 20-20W20E92	20.00	20.00	20.00	92.00	3	45.0	5.0	W	●	●	0.05-0.13
EC-B3 20-32C20E104	20.00	20.00	32.00	104.00	3	45.0	5.0	C	●	●	0.05-0.13

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

SOLIDMILL
PREMIUM LINE**EC-E-3**3 Flute, 38° Helix Medium
Length Solid Carbide Endmills

Designation	Dimensions								Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	IC08	IC900	
EC010E025-3C03	1.00	3.00	2.50	38.00	3	38.0	5.0	C		●	0.01-0.01
EC015E04-3C04	1.50	4.00	4.00	50.00	3	38.0	5.0	C		●	0.01-0.02
EC025E07-3C03	2.50	3.00	7.00	38.00	3	38.0	5.0	C		●	0.01-0.03
EC030E10-3C03	3.00	3.00	10.00	38.00	3	38.0	5.0	C	●	●	0.01-0.04
EC030E10-3C06	3.00	6.00	10.00	57.00	3	38.0	5.0	C		●	0.01-0.04
EC035E12-3C04	3.50	4.00	12.00	50.00	3	38.0	5.0	C	●	●	0.01-0.04
EC040E12-3C04	4.00	4.00	12.00	50.00	3	38.0	5.0	C	●	●	0.02-0.05
EC040E12-3C06	4.00	6.00	12.00	57.00	3	38.0	5.0	C		●	0.02-0.05
EC045E14-3C06	4.50	6.00	14.00	57.00	3	38.0	5.0	C	●	●	0.02-0.05
EC050E14-3C05	5.00	5.00	14.00	50.00	3	38.0	5.0	C	●	●	0.02-0.06
EC050E14-3C06	5.00	6.00	14.00	57.00	3	38.0	5.0	C		●	0.02-0.06
EC050E14-3W06	5.00	6.00	14.00	57.00	3	38.0	5.0	W		●	0.02-0.06
EC060E16-3C06	6.00	6.00	16.00	57.00	3	38.0	5.0	C	●	●	0.03-0.07
EC060E16-3W06	6.00	6.00	16.00	57.00	3	38.0	5.0	W		●	0.03-0.07
EC070E20-3C07	7.00	7.00	20.00	60.00	3	38.0	5.0	C	●	●	0.03-0.08
EC080E20-3C08	8.00	8.00	20.00	63.00	3	38.0	5.0	C	●	●	0.03-0.09
EC080E20-3W08	8.00	8.00	20.00	63.00	3	38.0	5.0	W		●	0.03-0.09
EC100E22-3C10	10.00	10.00	22.00	72.00	3	38.0	5.0	C	●	●	0.03-0.10
EC100E22-3W10	10.00	10.00	22.00	72.00	3	38.0	5.0	W		●	0.03-0.10
EC120E25-3C12	12.00	12.00	25.00	83.00	3	38.0	5.0	C	●	●	0.04-0.11
EC120E25-3W12	12.00	12.00	25.00	83.00	3	38.0	5.0	W		●	0.04-0.11
EC140E25-3C14	14.00	14.00	25.00	83.00	3	38.0	5.0	C		●	0.04-0.12
EC140E25-3W14	14.00	14.00	25.00	83.00	3	38.0	5.0	W		●	0.04-0.12
EC160E32-3C16	16.00	16.00	32.00	92.00	3	38.0	5.0	C	●	●	0.05-0.13
EC160E32-3W16	16.00	16.00	32.00	92.00	3	38.0	5.0	W		●	0.05-0.13
EC180E32-3C18	18.00	18.00	32.00	92.00	3	38.0	5.0	C		●	0.05-0.13
EC180E32-3W18	18.00	18.00	32.00	92.00	3	38.0	5.0	W		●	0.05-0.13
EC200E38-3C20	20.00	20.00	38.00	104.00	3	38.0	5.0	C		●	0.05-0.13
EC200E38-3W20	20.00	20.00	38.00	104.00	3	38.0	5.0	W		●	0.05-0.13

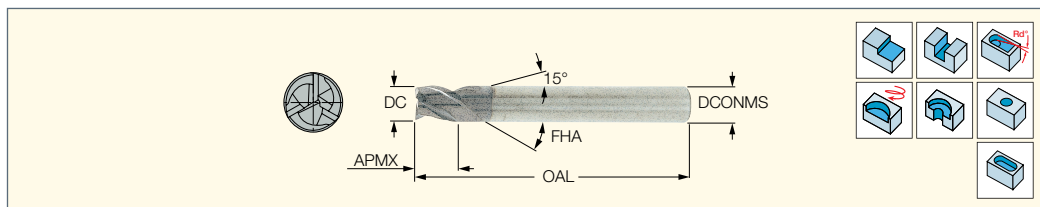
● Multi-purpose endmill. ● Suitable for deep slotting. ● For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

ECU-E-3

 3 Flute, 38° Helix Short
 Undersized Slot / Drill
 Solid Carbide Endmills


Designation	Dimensions								IC900	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾		
ECU028E04-3W06-57	2.80	6.00	4.00	57.00	3	38.0	5.0	W	●	0.01-0.04
ECU038E05-3W06-57	3.80	6.00	5.00	57.00	3	38.0	5.0	W	●	0.01-0.04
ECU048E06-3W06-57	4.80	6.00	6.00	57.00	3	38.0	5.0	W	●	0.02-0.05
ECU057E07-3W06-57	5.70	6.00	7.00	57.00	3	38.0	5.0	W	●	0.02-0.06
ECU067E08-3W08-63	6.70	8.00	8.00	63.00	3	38.0	5.0	W	●	0.03-0.07
ECU077E09-3W08-63	7.70	8.00	9.00	63.00	3	38.0	5.0	W	●	0.03-0.08
ECU097E11-3W10-72	9.70	10.00	11.00	72.00	3	38.0	5.0	W	●	0.03-0.09
ECU117E12-3W12-73	11.70	12.00	12.00	73.00	3	38.0	5.0	W	●	0.03-0.10
ECU137E16-3W14-83	13.70	14.00	14.00	83.00	3	38.0	5.0	W	●	0.04-0.11
ECU157E16-3W16-92	15.70	16.00	16.00	92.00	3	38.0	5.0	W	●	0.04-0.12
ECU177E18-3W18-92	17.70	18.00	18.00	92.00	3	38.0	5.0	W	●	0.05-0.13

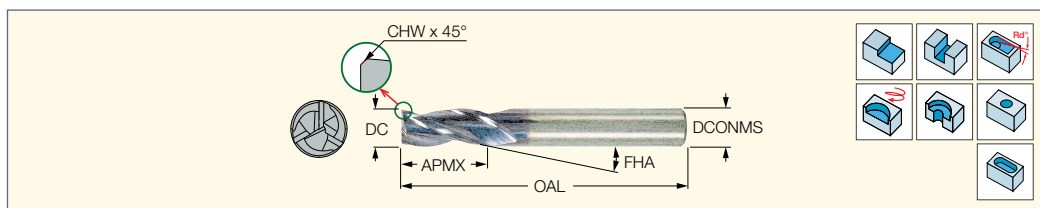
• Undersized short design for keyholes • For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ W-Weldon

ECC-E-3

 3 Flute, 38° Helix Medium Length
 Slot / Drill Solid Carbide Endmills
 with Chamfered Corners


Designation	Dimensions										IC900	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	CHW	KCH		
ECC030E10-3C03	3.00	3.00	10.00	38.00	3	38.0	5.0	C	0.10	45.0	●	0.01-0.04
ECC035E12-3C04	3.50	4.00	12.00	50.00	3	38.0	5.0	C	0.10	45.0	●	0.01-0.04
ECC040E12-3C04	4.00	4.00	12.00	50.00	3	38.0	5.0	C	0.15	45.0	●	0.02-0.05
ECC050E14-3C05	5.00	5.00	14.00	50.00	3	38.0	5.0	C	0.15	45.0	●	0.02-0.06
ECC060E16-3C06	6.00	6.00	16.00	57.00	3	38.0	5.0	C	0.15	45.0	●	0.03-0.07
ECC060E16-3W06	6.00	6.00	16.00	57.00	3	38.0	5.0	W	0.15	45.0	●	0.03-0.07
ECC080E20-3C08	8.00	8.00	20.00	63.00	3	38.0	5.0	C	0.15	45.0	●	0.03-0.09
ECC080E20-3W08	8.00	8.00	20.00	63.00	3	38.0	5.0	W	0.15	45.0	●	0.03-0.09
ECC100E22-3C10	10.00	10.00	22.00	72.00	3	38.0	5.0	C	0.25	45.0	●	0.03-0.10
ECC100E22-3W10	10.00	10.00	22.00	72.00	3	38.0	5.0	W	0.25	45.0	●	0.03-0.10
ECC120E25-3C12	12.00	12.00	25.00	83.00	3	38.0	5.0	C	0.25	45.0	●	0.04-0.11
ECC120E25-3W12	12.00	12.00	25.00	83.00	3	38.0	5.0	W	0.25	45.0	●	0.04-0.11
ECC160E32-3C16	16.00	16.00	32.00	92.00	3	38.0	5.0	C	0.25	45.0	●	0.05-0.13
ECC160E32-3W16	16.00	16.00	32.00	92.00	3	38.0	5.0	W	0.25	45.0	●	0.05-0.13
ECC200E38-3C20	20.00	20.00	38.00	104.00	3	38.0	5.0	C	0.25	45.0	●	0.05-0.13
ECC200E38-3W20	20.00	20.00	38.00	104.00	3	38.0	5.0	W	0.25	45.0	●	0.05-0.13

• Multi-purpose endmill • Suitable for deep slotting • For user guide, see pages 211-218

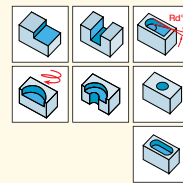
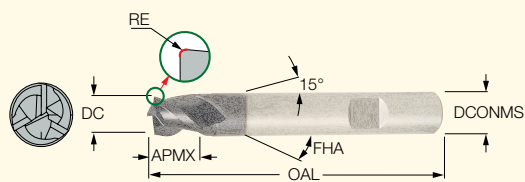
⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

SOLIDMILL
PREMIUM LINE**ECU-E-3-R**

3 Flute, 38° Helix Short
Undersized Slot / Drill Solid
Carbide Endmills with Various
Radii According to DIN 6885



Designation	Dimensions									IC900	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	RE	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾		
ECU038E05-3W06R01L57	3.80	6.00	5.00	0.10	57.00	3	38.0	5.0	W	●	0.01-0.04
ECU048E06-3W06R02L57	4.80	6.00	6.00	0.20	57.00	3	38.0	5.0	W	●	0.02-0.05
ECU057E07-3W06R02L57	5.70	6.00	7.00	0.20	57.00	3	38.0	5.0	W	●	0.02-0.06
ECU077E09-3W08R02L63	7.70	8.00	9.00	0.20	63.00	3	38.0	5.0	W	●	0.03-0.08
ECU097E11-3W10R03L72	9.70	10.00	11.00	0.30	72.00	3	38.0	5.0	W	●	0.03-0.09
ECU117E12-3W12R03L83	11.70	12.00	12.00	0.30	83.00	3	38.0	5.0	W	●	0.03-0.10

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ W-Weldon

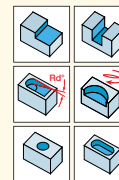
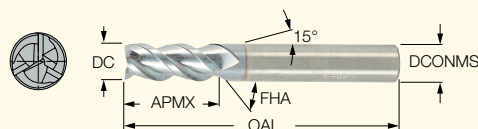




SOLIDMILL
PREMIUM LINE

EC-B-3/3R

3 Flute, 45° Helix Medium Length
Slot / Drill Solid Carbide Endmills



Designation	Dimensions									Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	RE	IC08	IC900	
EC020B07-3C03	2.00	3.00	7.00	38.00	3	45.0	5.0	C	-	●	●	0.01-0.03
EC020B07-3C06	2.00	6.00	7.00	57.00	3	45.0	5.0	C	-	●	●	0.01-0.03
EC025B07-3C03	2.50	3.00	7.00	38.00	3	45.0	5.0	C	-	●	●	0.01-0.03
EC030B10-3C03	3.00	3.00	10.00	38.00	3	45.0	5.0	C	-	●	●	0.01-0.04
EC030B10-3C06	3.00	6.00	10.00	57.00	3	45.0	5.0	C	-	●	●	0.01-0.04
EC040B12-3C04	4.00	4.00	12.00	50.00	3	45.0	5.0	C	-	●	●	0.02-0.05
EC040B12-3C06	4.00	6.00	12.00	57.00	3	45.0	5.0	C	-	●	●	0.02-0.05
EC050B14-3C05	5.00	5.00	14.00	50.00	3	45.0	5.0	C	-	●	●	0.02-0.06
EC050B14-3C06	5.00	6.00	14.00	57.00	3	45.0	5.0	C	-	●	●	0.02-0.06
EC060B13-3C06R0.5	6.00	6.00	13.00	57.00	3	45.0	5.0	C	0.50	●	●	0.03-0.07
EC060B13-3C06R1.0	6.00	6.00	13.00	57.00	3	45.0	5.0	C	1.00	●	●	0.03-0.07
EC060B16-3C06	6.00	6.00	16.00	57.00	3	45.0	5.0	C	-	●	●	0.03-0.07
EC060B16-3W06	6.00	6.00	16.00	57.00	3	45.0	5.0	W	-	●	●	0.03-0.07
EC070B16-3C07	7.00	7.00	16.00	60.00	3	45.0	5.0	C	-	●	●	0.03-0.08
EC080B20-3C08	8.00	8.00	20.00	63.00	3	45.0	5.0	C	-	●	●	0.03-0.09
EC080B20-3C08R0.5	8.00	8.00	20.00	63.00	3	45.0	5.0	C	0.50	●	●	0.03-0.09
EC080B20-3C08R1	8.00	8.00	20.00	63.00	3	45.0	5.0	C	1.00	●	●	0.03-0.09
EC080B20-3C08R1.5	8.00	8.00	20.00	63.00	3	45.0	5.0	C	1.50	●	●	0.03-0.09
EC080B20-3C08R2	8.00	8.00	20.00	63.00	3	45.0	5.0	C	2.00	●	●	0.03-0.09
EC080B20-3W08	8.00	8.00	20.00	63.00	3	45.0	5.0	W	-	●	●	0.03-0.09
EC090B20-3C09	9.00	9.00	20.00	67.00	3	45.0	5.0	C	-	●	●	0.03-0.09
EC100B22-3C10	10.00	10.00	22.00	72.00	3	45.0	5.0	C	-	●	●	0.03-0.10
EC100B22-3C10R0.5	10.00	10.00	22.00	72.00	3	45.0	5.0	C	0.50	●	●	0.03-0.10
EC100B22-3C10R1	10.00	10.00	22.00	72.00	3	45.0	5.0	C	1.00	●	●	0.03-0.10
EC100B22-3C10R1.5	10.00	10.00	22.00	72.00	3	45.0	5.0	C	1.50	●	●	0.03-0.10
EC100B22-3C10R2	10.00	10.00	22.00	72.00	3	45.0	5.0	C	2.00	●	●	0.03-0.10
EC100B22-3C10R3	10.00	10.00	22.00	72.00	3	45.0	5.0	C	3.00	●	●	0.03-0.10
EC100B22-3W10	10.00	10.00	22.00	72.00	3	45.0	5.0	W	-	●	●	0.03-0.10
EC120B25-3C12	12.00	12.00	25.00	83.00	3	45.0	5.0	C	-	●	●	0.04-0.11
EC120B25-3C12R0.5	12.00	12.00	25.00	83.00	3	45.0	5.0	C	0.50	●	●	0.04-0.11
EC120B25-3C12R1	12.00	12.00	25.00	83.00	3	45.0	5.0	C	1.00	●	●	0.04-0.11
EC120B25-3C12R1.5	12.00	12.00	25.00	83.00	3	45.0	5.0	C	1.50	●	●	0.04-0.11
EC120B25-3C12R2	12.00	12.00	25.00	83.00	3	45.0	5.0	C	2.00	●	●	0.04-0.11
EC120B25-3C12R3	12.00	12.00	25.00	83.00	3	45.0	5.0	C	3.00	●	●	0.04-0.11
EC120B25-3W12	12.00	12.00	25.00	83.00	3	45.0	5.0	W	-	●	●	0.04-0.11
EC140B25-3C14	14.00	14.00	25.00	83.00	3	45.0	5.0	C	-	●	●	0.04-0.12
EC140B25-3W14	14.00	14.00	25.00	83.00	3	45.0	5.0	W	-	●	●	0.04-0.12
EC160B32-3C16	16.00	16.00	32.00	92.00	3	45.0	5.0	C	-	●	●	0.05-0.13
EC160B32-3C16R0.5	16.00	16.00	32.00	92.00	3	45.0	5.0	C	0.50	●	●	0.05-0.13
EC160B32-3C16R1	16.00	16.00	32.00	92.00	3	45.0	5.0	C	1.00	●	●	0.05-0.13
EC160B32-3C16R2	16.00	16.00	32.00	92.00	3	45.0	5.0	C	2.00	●	●	0.05-0.13
EC160B32-3C16R3	16.00	16.00	32.00	92.00	3	45.0	5.0	C	3.00	●	●	0.05-0.13
EC160B32-3W16	16.00	16.00	32.00	92.00	3	45.0	5.0	W	-	●	●	0.05-0.13
EC180B32-3C18	18.00	18.00	32.00	92.00	3	45.0	5.0	C	-	●	●	0.05-0.13
EC180B32-3W18	18.00	18.00	32.00	92.00	3	45.0	5.0	W	-	●	●	0.05-0.13
EC200B38-3C20	20.00	20.00	38.00	104.00	3	45.0	5.0	C	-	●	●	0.05-0.13
EC200B38-3C20R0.5	20.00	20.00	38.00	104.00	3	45.0	5.0	C	0.50	●	●	0.05-0.13
EC200B38-3C20R1	20.00	20.00	38.00	104.00	3	45.0	5.0	C	1.00	●	●	0.05-0.13
EC200B38-3C20R2	20.00	20.00	38.00	104.00	3	45.0	5.0	C	2.00	●	●	0.05-0.13
EC200B38-3C20R3	20.00	20.00	38.00	104.00	3	45.0	5.0	C	3.00	●	●	0.05-0.13
EC200B38-3C20R4	20.00	20.00	38.00	104.00	3	45.0	5.0	C	4.00	●	●	0.05-0.13
EC200B38-3W20	20.00	20.00	38.00	104.00	3	45.0	5.0	W	-	●	●	0.05-0.13

• Excellent for deep slotting and shouldering. • For user guide, see pages 211-218

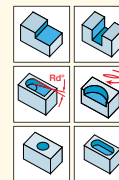
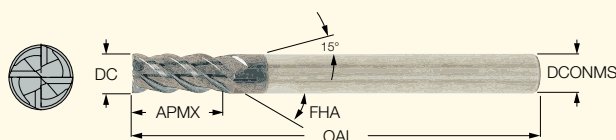
⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

EC-B-4/4R

4 Flute, 45° Helix Medium
Length Solid Carbide Endmills



Designation	Dimensions										Tough ↔ Hard	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	RE	IC900	IC902	
EC020B07-4C03	2.00	3.00	7.00	38.00	4	45.0	5.0	C	-	●		0.01-0.03
EC020B07-4C03R0.25-38	2.00	3.00	7.00	38.00	4	45.0	5.0	C	0.25		●	0.01-0.03
EC020B07-4C06	2.00	6.00	7.00	57.00	4	45.0	5.0	C	-	●		0.01-0.03
EC030B10-4C03	3.00	3.00	10.00	38.00	4	45.0	5.0	C	-	●		0.01-0.04
EC030B10-4C06	3.00	6.00	10.00	57.00	4	45.0	5.0	C	-	●		0.01-0.04
EC040B12-4C04	4.00	4.00	12.00	50.00	4	45.0	5.0	C	-	●		0.02-0.05
EC040B12-4C06	4.00	6.00	12.00	57.00	4	45.0	5.0	C	-	●		0.02-0.05
EC050B14-4C05	5.00	5.00	14.00	50.00	4	45.0	5.0	C	-	●		0.02-0.06
EC050B14-4C06	5.00	6.00	14.00	57.00	4	45.0	5.0	C	-	●		0.02-0.06
EC060B16-4C06	6.00	6.00	16.00	57.00	4	45.0	5.0	C	-	●		0.03-0.07
EC060B16-4C06R0.5	6.00	6.00	16.00	57.00	4	45.0	5.0	C	0.50	●		0.03-0.07
EC060B16-4C06R1	6.00	6.00	16.00	57.00	4	45.0	5.0	C	1.00	●		0.03-0.07
EC060B16-4W06	6.00	6.00	16.00	57.00	4	45.0	5.0	W	-	●		0.03-0.07
EC070B16-4C07	7.00	7.00	16.00	60.00	4	45.0	5.0	C	-	●		0.03-0.08
EC080B20-4C08	8.00	8.00	20.00	63.00	4	45.0	5.0	C	-	●		0.03-0.09
EC080B20-4C08R0.5	8.00	8.00	20.00	63.00	4	45.0	5.0	C	0.50	●		0.03-0.09
EC080B20-4C08R1	8.00	8.00	20.00	63.00	4	45.0	5.0	C	1.00	●		0.03-0.09
EC080B20-4C08R1.5	8.00	8.00	20.00	63.00	4	45.0	5.0	C	1.50	●		0.03-0.09
EC080B20-4C08R2	8.00	8.00	20.00	63.00	4	45.0	5.0	C	2.00	●		0.03-0.09
EC080B20-4W08	8.00	8.00	20.00	63.00	4	45.0	5.0	W	-	●		0.03-0.09
EC090B20-4C09	9.00	9.00	20.00	67.00	4	45.0	5.0	C	-	●		0.03-0.09
EC100B22-4C10	10.00	10.00	22.00	72.00	4	45.0	5.0	C	-	●		0.03-0.10
EC100B22-4C10R0.5	10.00	10.00	22.00	72.00	4	45.0	5.0	C	0.50	●		0.03-0.10
EC100B22-4C10R1	10.00	10.00	22.00	72.00	4	45.0	5.0	C	1.00	●		0.03-0.10
EC100B22-4C10R1.5	10.00	10.00	22.00	72.00	4	45.0	5.0	C	1.50	●		0.03-0.10
EC100B22-4C10R2	10.00	10.00	22.00	72.00	4	45.0	5.0	C	2.00	●		0.03-0.10
EC100B22-4C10R3	10.00	10.00	22.00	72.00	4	45.0	5.0	C	3.00	●		0.03-0.10
EC100B22-4W10	10.00	10.00	22.00	72.00	4	45.0	5.0	W	-	●		0.03-0.10
EC120B25-4C12	12.00	12.00	25.00	83.00	4	45.0	5.0	C	-	●		0.04-0.11
EC120B25-4C12R0.5	12.00	12.00	25.00	83.00	4	45.0	5.0	C	0.50	●		0.04-0.11
EC120B25-4C12R1	12.00	12.00	25.00	83.00	4	45.0	5.0	C	1.00	●		0.04-0.11
EC120B25-4C12R1.5	12.00	12.00	25.00	83.00	4	45.0	5.0	C	1.50	●		0.04-0.11
EC120B25-4C12R2	12.00	12.00	25.00	83.00	4	45.0	5.0	C	2.00	●		0.04-0.11
EC120B25-4C12R3	12.00	12.00	25.00	83.00	4	45.0	5.0	C	3.00	●		0.04-0.11
EC120B25-4W12	12.00	12.00	25.00	83.00	4	45.0	5.0	W	-	●		0.04-0.11
EC140B25-4C14	14.00	14.00	25.00	83.00	4	45.0	5.0	C	-	●		0.04-0.12
EC160B32-4C16	16.00	16.00	32.00	92.00	4	45.0	5.0	C	-	●		0.05-0.13
EC160B32-4C16R0.5	16.00	16.00	32.00	92.00	4	45.0	5.0	C	0.50	●		0.05-0.13
EC160B32-4C16R1	16.00	16.00	32.00	92.00	4	45.0	5.0	C	1.00	●		0.05-0.13
EC160B32-4C16R1.5	16.00	16.00	32.00	92.00	4	45.0	5.0	C	1.50	●		0.05-0.13
EC160B32-4C16R2	16.00	16.00	32.00	92.00	4	45.0	5.0	C	2.00	●		0.05-0.13
EC160B32-4C16R2.5	16.00	16.00	32.00	92.00	4	45.0	5.0	C	2.50	●		0.05-0.13
EC160B32-4C16R3	16.00	16.00	32.00	92.00	4	45.0	5.0	C	3.00	●		0.05-0.13
EC160B32-4W16	16.00	16.00	32.00	92.00	4	45.0	5.0	W	-	●		0.05-0.13
EC180B32-4C18	18.00	18.00	32.00	92.00	4	45.0	5.0	C	-	●		0.05-0.13
EC200B38-4C20	20.00	20.00	38.00	104.00	4	45.0	5.0	C	-	●		0.05-0.13
EC200B38-4C20R0.5	20.00	20.00	38.00	104.00	4	45.0	5.0	C	0.50	●		0.05-0.13
EC200B38-4C20R1	20.00	20.00	38.00	104.00	4	45.0	5.0	C	1.00	●		0.05-0.13
EC200B38-4C20R1.5	20.00	20.00	38.00	104.00	4	45.0	5.0	C	1.50	●		0.05-0.13
EC200B38-4C20R2	20.00	20.00	38.00	104.00	4	45.0	5.0	C	2.00	●		0.05-0.13
EC200B38-4C20R2.5	20.00	20.00	38.00	104.00	4	45.0	5.0	C	2.50	●		0.05-0.13
EC200B38-4C20R3	20.00	20.00	38.00	104.00	4	45.0	5.0	C	3.00	●		0.05-0.13
EC200B38-4C20R4	20.00	20.00	38.00	104.00	4	45.0	5.0	C	4.00	●		0.05-0.13
EC200B38-4C20R5	20.00	20.00	38.00	104.00	4	45.0	5.0	C	5.00	●		0.05-0.13
EC200B38-4W20	20.00	20.00	38.00	104.00	4	45.0	5.0	W	-	●		0.05-0.13

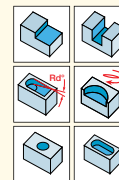
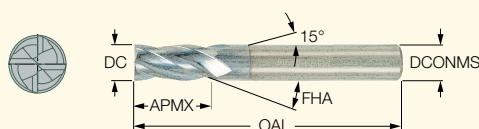
• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

EC-A-4/4R

 4 Flute, 30° Helix Medium
 Length Solid Carbide Endmills
 with Different Radii Dimensions


Designation	Dimensions										Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	RE	IC08	IC900	f _z (mm/t)	
EC020A07-4C03	2.00	3.00	7.00	38.00	4	30.0	5.0	C	-		●	0.01-0.03	
EC020A10-4C05R0.4	2.00	5.00	10.00	50.00	4	30.0	5.0	C	0.40		●	0.01-0.04	
EC025A07-4C03	2.50	3.00	7.00	38.00	4	30.0	5.0	C	-		●	0.01-0.03	
EC030A10-4C03	3.00	3.00	10.00	38.00	4	30.0	5.0	C	-		●	0.01-0.04	
EC030A10-4C03R0.6	3.00	3.00	10.00	38.00	4	30.0	5.0	C	0.60		●	0.01-0.04	
EC030A10-4C03R0.8	3.00	3.00	10.00	38.00	4	30.0	5.0	C	0.80		●	0.01-0.04	
EC030A10-4C04R0.4	3.00	4.00	10.00	50.00	4	30.0	5.0	C	0.40		●	0.01-0.04	
EC030A10-4C06	3.00	6.00	10.00	57.00	4	30.0	5.0	C	-		●	0.01-0.04	
EC035A12-4C04	3.50	4.00	12.00	50.00	4	30.0	5.0	C	-		●	0.01-0.04	
EC035A12-4C04R0.4	3.50	4.00	12.00	50.00	4	30.0	5.0	C	0.40		●	0.01-0.04	
EC040A07-4C04R0.4	4.00	4.00	7.00	50.00	4	30.0	5.0	C	0.40		●	0.02-0.05	
EC040A10-4C04R1.0	4.00	4.00	10.00	50.00	4	30.0	5.0	C	1.00		●	0.02-0.05	
EC040A12-4C04	4.00	4.00	12.00	50.00	4	30.0	5.0	C	-		●	0.02-0.05	
EC040A12-4C04R0.4	4.00	4.00	12.00	50.00	4	30.0	5.0	C	0.40		●	0.02-0.05	
EC040A12-4C04R0.8	4.00	4.00	12.00	50.00	4	30.0	5.0	C	0.80		●	0.02-0.05	
EC040A12-4C06	4.00	6.00	12.00	57.00	4	30.0	5.0	C	-		●	0.02-0.05	
EC045A14-4C06	4.50	6.00	14.00	57.00	4	30.0	5.0	C	-		●	0.02-0.05	
EC050A14-4C05	5.00	5.00	14.00	50.00	4	30.0	5.0	C	-		●	0.02-0.06	
EC050A14-4C05R0.5	5.00	5.00	14.00	50.00	4	30.0	5.0	C	0.50		●	0.02-0.06	
EC050A20-4C05R0.8	5.00	5.00	20.00	50.00	4	30.0	5.0	C	0.80		●	0.02-0.06	
EC050A14-4C06	5.00	6.00	14.00	57.00	4	30.0	5.0	C	-		●	0.02-0.06	
EC060A16-4C06	6.00	6.00	16.00	57.00	4	30.0	5.0	C	-	●	●	0.03-0.07	
EC060A16-4C06R0.4	6.00	6.00	16.00	57.00	4	30.0	5.0	C	0.40		●	0.03-0.07	
EC060A16-4C06R0.8	6.00	6.00	16.00	57.00	4	30.0	5.0	C	0.80		●	0.03-0.07	
EC060A16-4W06	6.00	6.00	16.00	57.00	4	30.0	5.0	W	-		●	0.03-0.07	
EC070A20-4C07	7.00	7.00	20.00	60.00	4	30.0	5.0	C	-	●	●	0.03-0.08	
EC075A20-4C08	7.50	8.00	20.00	63.00	4	30.0	5.0	C	-		●	0.03-0.08	
EC080A20-4C08	8.00	8.00	20.00	63.00	4	30.0	5.0	C	-	●	●	0.03-0.09	
EC080A20-4C08R0.8	8.00	8.00	20.00	63.00	4	30.0	5.0	C	0.80		●	0.03-0.09	
EC080A20-4W08	8.00	8.00	20.00	63.00	4	30.0	5.0	W	-		●	0.03-0.09	
EC100A22-4C10	10.00	10.00	22.00	72.00	4	30.0	5.0	C	-	●	●	0.03-0.10	
EC100A22-4W10	10.00	10.00	22.00	72.00	4	30.0	5.0	W	-		●	0.03-0.10	
EC120A25-4C12	12.00	12.00	25.00	83.00	4	30.0	5.0	C	-	●	●	0.04-0.11	
EC120A25-4W12	12.00	12.00	25.00	83.00	4	30.0	5.0	W	-		●	0.04-0.11	
EC140A25-4C14	14.00	14.00	25.00	83.00	4	30.0	5.0	C	-	●	●	0.04-0.12	
EC140A32-4C14	14.00	14.00	32.00	83.00	4	30.0	5.0	C	-		●	0.04-0.12	
EC160A32-4C16	16.00	16.00	32.00	92.00	4	30.0	5.0	C	-	●	●	0.05-0.13	
EC160A32-4W16	16.00	16.00	32.00	92.00	4	30.0	5.0	W	-		●	0.05-0.13	
EC160A40-4C16-92	16.00	16.00	40.00	92.00	4	30.0	5.0	C	-		●	0.05-0.13	
EC180A32-4C18	18.00	18.00	32.00	92.00	4	30.0	5.0	C	-		●	0.05-0.13	
EC200A38-4C20	20.00	20.00	38.00	104.00	4	30.0	5.0	C	-		●	0.05-0.13	
EC200A38-4W20	20.00	20.00	38.00	104.00	4	30.0	5.0	W	-		●	0.05-0.13	

● For user guide, see pages 211-218

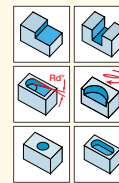
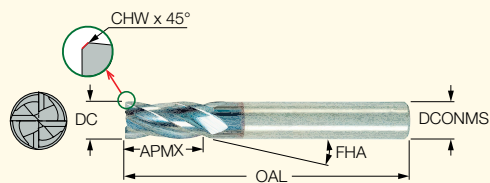
⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon


SOLIDMILL
 PREMIUM LINE

ECC-A-4

 4 Flute, 30° Helix Medium
 Length Solid Carbide Endmills
 with Chamfered Corners


Designation	Dimensions										IC900	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	CHW	KCH		
ECC020B07-4C03	2.00	3.00	7.00	38.00	4	45.0	5.0	C	0.10	45.0	●	0.01-0.03
ECC025A07-4C03	2.50	3.00	7.00	38.00	4	30.0	5.0	C	0.10	45.0	●	0.01-0.03
ECC030A10-4C03	3.00	3.00	10.00	38.00	4	30.0	5.0	C	0.10	45.0	●	0.01-0.04
ECC035A12-4C04	3.50	4.00	12.00	50.00	4	30.0	5.0	C	0.10	45.0	●	0.01-0.04
ECC040A12-4C04	4.00	4.00	12.00	50.00	4	30.0	5.0	C	0.15	45.0	●	0.02-0.05
ECC050A14-4C05	5.00	5.00	14.00	50.00	4	30.0	5.0	C	0.15	45.0	●	0.02-0.06
ECC060A16-4C06	6.00	6.00	16.00	57.00	4	30.0	5.0	C	0.15	45.0	●	0.03-0.07
ECC080A20-4C08	8.00	8.00	20.00	63.00	4	30.0	5.0	C	0.15	45.0	●	0.03-0.09
ECC080A20-4W08	8.00	8.00	20.00	63.00	4	30.0	5.0	W	0.15	45.0	●	0.03-0.09
ECC100A22-4C10	10.00	10.00	22.00	72.00	4	30.0	5.0	C	0.25	45.0	●	0.03-0.10
ECC100A22-4W10	10.00	10.00	22.00	72.00	4	30.0	5.0	W	0.25	45.0	●	0.03-0.10
ECC120A25-4C12	12.00	12.00	25.00	83.00	4	30.0	5.0	C	0.25	45.0	●	0.04-0.11
ECC120A25-4W12	12.00	12.00	25.00	83.00	4	30.0	5.0	W	0.25	45.0	●	0.04-0.11
ECC160A32-4C16	16.00	16.00	32.00	92.00	4	30.0	5.0	C	0.25	45.0	●	0.05-0.13
ECC160A32-4W16	16.00	16.00	32.00	92.00	4	30.0	5.0	W	0.25	45.0	●	0.05-0.13
ECC200A38-4W20	20.00	20.00	38.00	104.00	4	30.0	5.0	W	0.25	45.0	●	0.05-0.13
ECC200A38-4C20	20.00	20.00	38.00	104.00	4	30.0	5.0	C	0.25	45.0	●	0.05-0.13

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

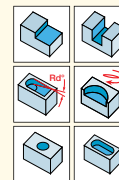
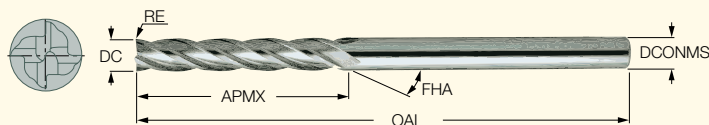
⁽³⁾ C-Cylindrical, W-Weldon



SOLIDMILL
TEC LINE

EC-A4 (economical-medium & extra long)

Economical Type 4 Flute,
30° Helix, Center Cutting,
Medium & Extra Long
Solid Carbide Endmills



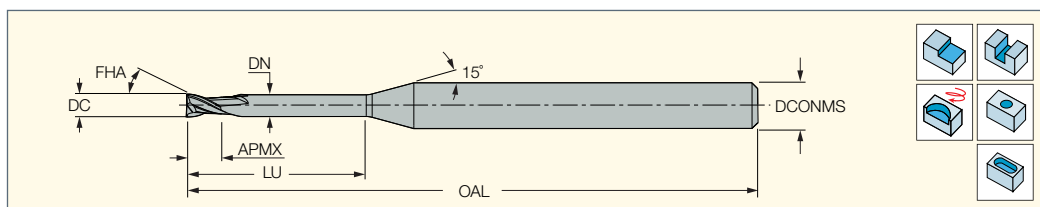
Designation	Dimensions									Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	RE	IC08	IC900	
EC-A4 02-08C02E32	2.00	2.00	8.00	32.00	4	30.0	5.0	C	0.00	●	●	0.01-0.03
EC-A4 025-08C025E32	2.50	2.50	8.00	32.00	4	30.0	5.0	C	0.00	●	●	0.01-0.03
EC-A4 03-12C03E38	3.00	3.00	12.00	38.00	4	30.0	5.0	C	0.00	●	●	0.01-0.04
EC-A4 03-30C03E75	3.00	3.00	30.00	75.00	4	30.0	5.0	C	0.00	●	●	0.01-0.04
EC-A4 04-12C04E50	4.00	4.00	12.00	50.00	4	30.0	5.0	C	0.00	●	●	0.02-0.05
EC-A4 04-30C04E75	4.00	4.00	30.00	75.00	4	30.0	5.0	C	0.00	●	●	0.02-0.05
EC-A4 05-14C05E50	5.00	5.00	14.00	50.00	4	30.0	5.0	C	0.00	●	●	0.02-0.06
EC-A4 05-40C05E100	5.00	5.00	40.00	100.00	4	30.0	5.0	C	0.00	●	●	0.02-0.06
EC-A4 055-16C055E50	5.50	5.50	16.00	50.00	4	30.0	5.0	C	0.00	●	●	0.02-0.06
EC-A4 06-16C06E50	6.00	6.00	16.00	50.00	4	30.0	5.0	C	0.00	●	●	0.03-0.07
EC-A4 06-18C06E61	6.00	6.00	18.00	61.00	4	30.0	5.0	C	0.00	●	●	0.03-0.07
EC-A4 06-50C06E150	6.00	6.00	50.00	150.00	4	30.0	5.0	C	0.00	●	●	0.03-0.07
EC-A4 07-20C07E60	7.00	7.00	20.00	60.00	4	30.0	5.0	C	0.00	●	●	0.03-0.08
EC-A4 08-20C08E63	8.00	8.00	20.00	63.00	4	30.0	5.0	C	0.00	●	●	0.03-0.09
EC-A4 08-20C08R.5E63	8.00	8.00	20.00	63.00	4	30.0	5.0	C	0.50		●	0.03-0.09
EC-A4 08-20C08R1E63	8.00	8.00	20.00	63.00	4	30.0	5.0	C	1.00		●	0.03-0.09
EC-A4 08-20C08R1.5E63	8.00	8.00	20.00	63.00	4	30.0	5.0	C	1.50		●	0.03-0.09
EC-A4 08-20C08R2-63	8.00	8.00	20.00	63.00	4	30.0	5.0	C	2.00		●	0.03-0.09
EC-A4 08-24C08E69	8.00	8.00	24.00	69.00	4	30.0	5.0	C	0.00	●	●	0.03-0.09
EC-A4 08-50C08E150	8.00	8.00	50.00	150.00	4	30.0	5.0	C	0.00	●	●	0.03-0.09
EC-A4 09-20C09E60	9.00	9.00	20.00	60.00	4	30.0	5.0	C	0.00	●	●	0.03-0.09
EC-A4 10-22C10E72	10.00	10.00	22.00	70.00	4	30.0	5.0	C	0.00	●	●	0.03-0.10
EC-A4 10-22C10R.5E72	10.00	10.00	22.00	72.00	4	30.0	5.0	C	0.50		●	0.03-0.10
EC-A4 10-22C10R.8E72	10.00	10.00	22.00	72.00	4	30.0	5.0	C	0.80		●	0.03-0.10
EC-A4 10-22C10R1E72	10.00	10.00	22.00	72.00	4	30.0	5.0	C	1.00		●	0.03-0.10
EC-A4 10-22C10R1.5E72	10.00	10.00	22.00	72.00	4	30.0	5.0	C	1.50		●	0.03-0.10
EC-A4 10-22C10R2E72	10.00	10.00	22.00	72.00	4	30.0	5.0	C	2.00		●	0.03-0.10
EC-A4 10-30C10E81	10.00	10.00	30.00	81.00	4	30.0	5.0	C	0.00	●	●	0.03-0.10
EC-A4 10-60C10E150	10.00	10.00	60.00	150.00	4	30.0	5.0	C	0.00	●	●	0.03-0.10
EC-A4 12-22C12E73	12.00	12.00	22.00	73.00	4	30.0	5.0	C	0.00	●	●	0.04-0.11
EC-A4 12-22C12R.5E73	12.00	12.00	22.00	73.00	4	30.0	5.0	C	0.50		●	0.04-0.11
EC-A4 12-22C12R.8E73	12.00	12.00	22.00	73.00	4	30.0	5.0	C	0.80		●	0.04-0.11
EC-A4 12-22C12R1.5E73	12.00	12.00	22.00	73.00	4	30.0	5.0	C	1.50		●	0.04-0.11
EC-A4 12-22C12R1E73	12.00	12.00	22.00	73.00	4	30.0	5.0	C	1.00		●	0.04-0.11
EC-A4 12-22C12R2E73	12.00	12.00	22.00	73.00	4	30.0	5.0	C	2.00		●	0.04-0.11
EC-A4 12-36C12E94	12.00	12.00	36.00	94.00	4	30.0	5.0	C	0.00	●	●	0.04-0.11
EC-A4 12-75C12E150	12.00	12.00	75.00	150.00	4	30.0	5.0	C	0.00	●	●	0.04-0.11
EC-A4 14-25C14E83	14.00	14.00	25.00	83.00	4	30.0	5.0	C	0.00	●	●	0.04-0.12
EC-A4 14-65C14E150	14.00	14.00	65.00	150.00	4	30.0	5.0	C	0.00	●	●	0.04-0.12
EC-A4 16-25C16E82	16.00	16.00	25.00	82.00	4	30.0	5.0	C	0.00	●	●	0.05-0.13
EC-A4 16-42C16E116	16.00	16.00	42.00	116.00	4	30.0	5.0	C	0.00	●		0.05-0.13
EC-A4 16-48C16E116	16.00	16.00	48.00	116.00	4	30.0	5.0	C	0.00		●	0.05-0.13
EC-A4 16-65C16E150	16.00	16.00	65.00	150.00	4	30.0	5.0	C	0.00	●	●	0.05-0.13
EC-A4 18-65C18E150	18.00	18.00	65.00	150.00	4	30.0	5.0	C	0.00	●	●	0.05-0.13
EC-A4 20-32C20E104	20.00	20.00	32.00	104.00	4	30.0	5.0	C	0.00	●	●	0.05-0.13
EC-A4 20-65C20E150	20.00	20.00	65.00	150.00	4	30.0	5.0	C	0.00	●	●	0.05-0.13

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical

SOLIDMILL
PREMIUM LINE**EC-A2-T**2 Flute Endmill for
High-Speed Machining Hardened
Steel of Up to 65 HRC

Designation	Dimensions									Tough ↕ Hard	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	DN	NOF ⁽¹⁾	FHA	Shank	IC602	f _z (mm/t)
EC-A2 003-04/1C4H45T	0.30	4.00	0.40	1.0	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/15C4H45T	0.30	4.00	0.40	1.5	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/2C4H45T	0.30	4.00	0.40	2.0	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/25C4H45T	0.30	4.00	0.40	2.5	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/3C4H45T	0.30	4.00	0.40	3.0	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/4C4H45T	0.30	4.00	0.40	4.0	45.00	0.27	2	30.0	C	●	0.0050-0.0080
EC-A2 003-04/5C4H45T	0.30	4.00	0.40	5.0	45.00	0.27	2	30.0	C	●	0.0050-0.0080
EC-A2 004-06/1C4H45T	0.40	4.00	0.60	1.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/15C4H45T	0.40	4.00	0.60	1.5	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/2C4H45T	0.40	4.00	0.60	2.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/25C4H45T	0.40	4.00	0.60	2.5	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/3C4H45T	0.40	4.00	0.60	3.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/4C4H45T	0.40	4.00	0.60	4.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/5C4H45T	0.40	4.00	0.60	5.0	45.00	0.37	2	30.0	C	●	0.0050-0.0080
EC-A2 004-06/6C4H45T	0.40	4.00	0.60	6.0	45.00	0.37	2	30.0	C	●	0.0050-0.0080
EC-A2 005-07/1C4H45T	0.50	4.00	0.70	1.0	45.00	0.45	2	30.0	C	●	0.0060-0.0100
EC-A2 005-07/15C4H45T	0.50	4.00	0.70	1.5	45.00	0.45	2	30.0	C	●	0.0060-0.0100
EC-A2 005-07/2C4H45T	0.50	4.00	0.70	2.0	45.00	0.45	2	30.0	C	●	0.0060-0.0100
EC-A2 005-07/25C4H45T	0.50	4.00	0.70	2.5	45.00	0.45	2	30.0	C	●	0.0060-0.0090
EC-A2 005-07/3C4H45T	0.50	4.00	0.70	3.0	45.00	0.45	2	30.0	C	●	0.0060-0.0090
EC-A2 005-07/4C4H45T	0.50	4.00	0.70	4.0	45.00	0.45	2	30.0	C	●	0.0060-0.0080
EC-A2 005-07/5C4H45T	0.50	4.00	0.70	5.0	45.00	0.45	2	30.0	C	●	0.0060-0.0080
EC-A2 005-07/6C4H45T	0.50	4.00	0.70	6.0	45.00	0.45	2	30.0	C	●	0.0050-0.0070
EC-A2 005-07/8C4H45T	0.50	4.00	0.70	8.0	45.00	0.45	2	30.0	C	●	0.0050-0.0070
EC-A2 006-09/10C4H45T	0.60	4.00	0.90	10.0	45.00	0.55	2	30.0	C	●	0.0060-0.0100
EC-A2 006-09/2C4H45T	0.60	4.00	0.90	2.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/3C4H45T	0.60	4.00	0.90	3.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/4C4H45T	0.60	4.00	0.90	4.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/5C4H45T	0.60	4.00	0.90	5.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/6C4H45T	0.60	4.00	0.90	6.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/8C4H45T	0.60	4.00	0.90	8.0	45.00	0.55	2	30.0	C	●	0.0060-0.0100
EC-A2 007-12/10C4H45T	0.70	4.00	1.20	10.0	45.00	0.65	2	30.0	C	●	0.0060-0.0100
EC-A2 007-12/12C4H45T	0.70	4.00	1.20	12.0	45.00	0.65	2	30.0	C	●	0.0060-0.0100
EC-A2 007-12/2C4H45T	0.70	4.00	1.20	2.0	45.00	0.65	2	30.0	C	●	0.0080-0.0130
EC-A2 007-12/4C4H45T	0.70	4.00	1.20	4.0	45.00	0.65	2	30.0	C	●	0.0080-0.0130
EC-A2 007-12/6C4H45T	0.70	4.00	1.20	6.0	45.00	0.65	2	30.0	C	●	0.0080-0.0130
EC-A2 007-12/8C4H45T	0.70	4.00	1.20	8.0	45.00	0.65	2	30.0	C	●	0.0080-0.0130
EC-A2 008-12/10C4H45T	0.80	4.00	1.20	10.0	45.00	0.73	2	30.0	C	●	0.0070-0.0120
EC-A2 008-12/12C4H45T	0.80	4.00	1.20	12.0	45.00	0.73	2	30.0	C	●	0.0070-0.0120
EC-A2 008-12/2C4H45T	0.80	4.00	1.20	2.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/3C4H45T	0.80	4.00	1.20	3.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/4C4H45T	0.80	4.00	1.20	4.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/5C4H45T	0.80	4.00	1.20	5.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/6C4H45T	0.80	4.00	1.20	6.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/8C4H45T	0.80	4.00	1.20	8.0	45.00	0.73	2	30.0	C	●	0.0070-0.0130
EC-A2 010-15/10C4H50T	1.00	4.00	1.50	10.0	50.00	0.95	2	30.0	C	●	0.0090-0.0160
EC-A2 010-15/12C4H50T	1.00	4.00	1.50	12.0	50.00	0.93	2	30.0	C	●	0.0080-0.0140
EC-A2 010-15/14C4H50T	1.00	4.00	1.50	14.0	50.00	0.93	2	30.0	C	●	0.0080-0.0140
EC-A2 010-15/16C4H50T	1.00	4.00	1.50	16.0	50.00	0.91	2	30.0	C	●	0.0080-0.0140
EC-A2 010-15/18C4H55T	1.00	4.00	1.50	18.0	55.00	0.91	2	30.0	C	●	0.0080-0.0120
EC-A2 010-15/20C4H55T	1.00	4.00	1.50	20.0	55.00	0.85	2	30.0	C	●	0.0080-0.0120
EC-A2 010-15/3C4H50T	1.00	4.00	1.50	3.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-15/4C4H50T	1.00	4.00	1.50	4.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-15/5C4H50T	1.00	4.00	1.50	5.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-15/6C4H50T	1.00	4.00	1.50	6.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-15/7C4H50T	1.00	4.00	1.50	7.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-15/8C4H50T	1.00	4.00	1.50	8.0	50.00	0.95	2	30.0	C	●	0.0090-0.0180
EC-A2 012-18/10C4H50T	1.20	4.00	1.80	10.0	50.00	1.15	2	30.0	C	●	0.0100-0.0190

New

• For user guide, see pages 211-218

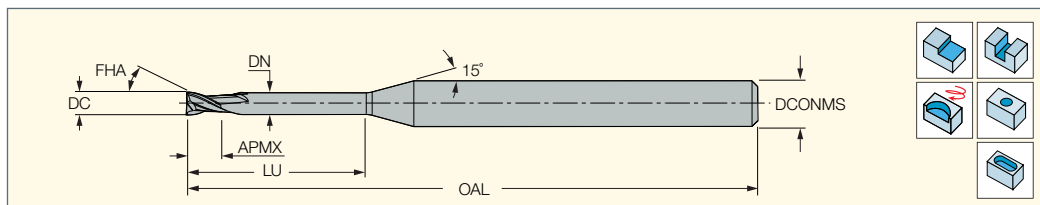
(1) Number of flutes



Continued
SOLIDMILL
PREMIUM LINE

EC-A2-T

2 Flute Endmill for
High-Speed Machining Hardened
Steel of Up to 65 HRC



Designation	Dimensions									Tough ↕ Hard	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	DN	NOF ⁽¹⁾	FHA	Shank	IC602	f _z (mm/t)
EC-A2 012-18/12C4H50T	1.20	4.00	1.80	12.0	50.00	1.15	2	30.0	C	●	0.0100-0.0180
EC-A2 012-18/16C4H50T	1.20	4.00	1.80	16.0	50.00	1.13	2	30.0	C	●	0.0100-0.0180
EC-A2 012-18/4C4H50T	1.20	4.00	1.80	4.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-18/6C4H50T	1.20	4.00	1.80	6.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-18/8C4H50T	1.20	4.00	1.80	8.0	50.00	1.15	2	30.0	C	●	0.0100-0.0200
EC-A2 015-23/10C4H50T	1.50	4.00	2.30	10.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-23/12C4H50T	1.50	4.00	2.30	12.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-23/14C4H50T	1.50	4.00	2.30	14.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-23/16C4H50T	1.50	4.00	2.30	16.0	50.00	1.41	2	30.0	C	●	0.0110-0.0150
EC-A2 015-23/18C4H55T	1.50	4.00	2.30	18.0	55.00	1.41	2	30.0	C	●	0.0110-0.0150
EC-A2 015-23/20C4H55T	1.50	4.00	2.30	20.0	55.00	1.41	2	30.0	C	●	0.0110-0.0150
EC-A2 015-23/4C4H50T	1.50	4.00	2.30	4.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-23/6C4H50T	1.50	4.00	2.30	6.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-23/8C4H50T	1.50	4.00	2.30	8.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 020-30/10C4H50T	2.00	4.00	3.00	10.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/12C4H50T	2.00	4.00	3.00	12.0	50.00	1.93	2	30.0	C	●	0.0160-0.0250
EC-A2 020-30/14C4H50T	2.00	4.00	3.00	14.0	50.00	1.93	2	30.0	C	●	0.0160-0.0250
EC-A2 020-30/16C4H50T	2.00	4.00	3.00	16.0	50.00	1.91	2	30.0	C	●	0.0150-0.0220
EC-A2 020-30/18C4H55T	2.00	4.00	3.00	18.0	55.00	1.91	2	30.0	C	●	0.0150-0.0220
EC-A2 020-30/20C4H55T	2.00	4.00	3.00	20.0	55.00	1.91	2	30.0	C	●	0.0130-0.0190
EC-A2 020-30/25C4H60T	2.00	4.00	3.00	25.0	60.00	1.91	2	30.0	C	●	0.0130-0.0190
EC-A2 020-30/30C4H70T	2.00	4.00	3.00	30.0	70.00	1.91	2	30.0	C	●	0.0100-0.0150
EC-A2 020-30/4C4H50T	2.00	4.00	3.00	4.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/6C4H50T	2.00	4.00	3.00	6.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/8C4H50T	2.00	4.00	3.00	8.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 025-40/10C4H50T	2.50	4.00	4.00	10.0	50.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 025-40/12C4H50T	2.50	4.00	4.00	12.0	50.00	2.40	2	30.0	C	●	0.0170-0.0400
EC-A2 025-40/16C4H50T	2.50	4.00	4.00	16.0	50.00	2.40	2	30.0	C	●	0.0150-0.0300
EC-A2 025-40/20C4H55T	2.50	4.00	4.00	20.0	55.00	2.40	2	30.0	C	●	0.0130-0.0200
EC-A2 025-40/8C4H50T	2.50	4.00	4.00	8.0	50.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 030-45/10C6H55T	3.00	6.00	4.50	10.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/12C6H55T	3.00	6.00	4.50	12.0	55.00	2.85	2	30.0	C	●	0.0180-0.0500
EC-A2 030-45/14C6H55T	3.00	6.00	4.50	14.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/16C6H55T	3.00	6.00	4.50	16.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/18C6H60T	3.00	6.00	4.50	18.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/20C6H60T	3.00	6.00	4.50	20.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/25C6H60T	3.00	6.00	4.50	25.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/30C6H70T	3.00	6.00	4.50	30.0	70.00	2.85	2	30.0	C	●	0.0150-0.0380
EC-A2 030-45/35C6H75T	3.00	6.00	4.50	35.0	75.00	2.85	2	30.0	C	●	0.0150-0.0380
EC-A2 030-45/40C6H80T	3.00	6.00	4.50	40.0	80.00	2.85	2	30.0	C	●	0.0150-0.0300
EC-A2 030-45/8C6H55T	3.00	6.00	4.50	8.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 040-60/10C6H55T	4.00	6.00	6.00	10.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/12C6H55T	4.00	6.00	6.00	12.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/16C6H55T	4.00	6.00	6.00	16.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/20C6H60T	4.00	6.00	6.00	20.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/25C6H60T	4.00	6.00	6.00	25.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/30C6H70T	4.00	6.00	6.00	30.0	70.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/35C6H75T	4.00	6.00	6.00	35.0	75.00	3.90	2	30.0	C	●	0.0300-0.0680
EC-A2 040-60/40C6H80T	4.00	6.00	6.00	40.0	80.00	3.90	2	30.0	C	●	0.0300-0.0680

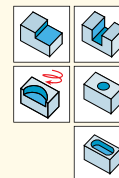
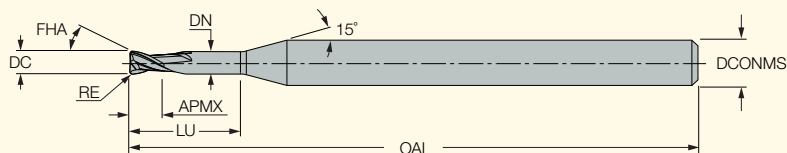
New

- For user guide, see pages 211-218

⁽¹⁾ Number of flutes

EC-A2-R-T

2 Flute Endmill with a Corner Radius for High Speed Machining
Hardened Steel of Up to 65 HRC



Designation	Dimensions										Tough ↕ Hard	Recommended Machining Data
	DC	DCONMS	APMX	RE	LU	OAL	DN	NOF ⁽¹⁾	FHA	Shank	IC602	f _z (mm/t)
EC-A2 003-04/1C4R005H45T	0.30	4.00	0.40	0.05	1.0	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/2C4R005H45T	0.30	4.00	0.40	0.05	2.0	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/3C4R005H45T	0.30	4.00	0.40	0.05	3.0	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/1C4R005H45T	0.40	4.00	0.60	0.05	1.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/15C4R005H45T	0.40	4.00	0.60	0.05	1.5	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/25C4R005H45T	0.40	4.00	0.60	0.05	2.5	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/3C4R005H45T	0.40	4.00	0.60	0.05	3.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/4C4R005H45T	0.40	4.00	0.60	0.05	4.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 005-07/1C4R005H45T	0.50	4.00	0.70	0.05	1.0	45.00	0.45	2	30.0	C	●	0.0060-0.0100
EC-A2 005-07/15C4R005H45T	0.50	4.00	0.70	0.05	1.5	45.00	0.45	2	30.0	C	●	0.0060-0.0100
EC-A2 005-07/25C4R005H45T	0.50	4.00	0.70	0.05	2.5	45.00	0.45	2	30.0	C	●	0.0060-0.0090
EC-A2 005-07/3C4R005H45T	0.50	4.00	0.70	0.05	3.0	45.00	0.45	2	30.0	C	●	0.0060-0.0090
EC-A2 005-07/4C4R005H45T	0.50	4.00	0.70	0.05	4.0	45.00	0.45	2	30.0	C	●	0.0060-0.0080
EC-A2 006-09/2C4R005H45T	0.60	4.00	0.90	0.05	2.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/2C4R010H45T	0.60	4.00	0.90	0.10	2.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/2C4R020H45T	0.60	4.00	0.90	0.20	2.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/4C4R005H45T	0.60	4.00	0.90	0.05	4.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/4C4R010H45T	0.60	4.00	0.90	0.10	4.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/4C4R020H45T	0.60	4.00	0.90	0.20	4.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/6C4R005H45T	0.60	4.00	0.90	0.05	6.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/6C4R010H45T	0.60	4.00	0.90	0.10	6.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/6C4R020H45T	0.60	4.00	0.90	0.20	6.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 008-12/2C4R005H45T	0.80	4.00	1.20	0.05	2.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/2C4R010H45T	0.80	4.00	1.20	0.10	2.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/2C4R020H45T	0.80	4.00	1.20	0.20	2.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/4C4R005H45T	0.80	4.00	1.20	0.05	4.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/4C4R010H45T	0.80	4.00	1.20	0.10	4.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/4C4R020H45T	0.80	4.00	1.20	0.20	4.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/6C4R005H45T	0.80	4.00	1.20	0.05	6.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/6C4R010H45T	0.80	4.00	1.20	0.10	6.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/6C4R020H45T	0.80	4.00	1.20	0.20	6.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/8C4R005H45T	0.80	4.00	1.20	0.05	8.0	45.00	0.73	2	30.0	C	●	0.0070-0.0130
EC-A2 008-12/8C4R010H45T	0.80	4.00	1.20	0.10	8.0	45.00	0.73	2	30.0	C	●	0.0070-0.0130
EC-A2 008-12/8C4R020H45T	0.80	4.00	1.20	0.20	8.0	45.00	0.73	2	30.0	C	●	0.0070-0.0130
EC-A2 010-20/10C4R005H50T	1.00	4.00	2.00	0.05	10.0	50.00	0.95	2	30.0	C	●	0.0090-0.0160
EC-A2 010-20/10C4R010H50T	1.00	4.00	2.00	0.10	10.0	50.00	0.95	2	30.0	C	●	0.0090-0.0160
EC-A2 010-20/10C4R020H50T	1.00	4.00	2.00	0.20	10.0	50.00	0.95	2	30.0	C	●	0.0090-0.0160
EC-A2 010-20/10C4R030H50T	1.00	4.00	2.00	0.30	10.0	50.00	0.95	2	30.0	C	●	0.0090-0.0160
EC-A2 010-20/3C4R005H50T	1.00	4.00	2.00	0.05	3.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/3C4R010H50T	1.00	4.00	2.00	0.10	3.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/3C4R020H50T	1.00	4.00	2.00	0.20	3.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/3C4R030H50T	1.00	4.00	2.00	0.30	3.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/4C4R005H50T	1.00	4.00	2.00	0.05	4.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/4C4R010H50T	1.00	4.00	2.00	0.10	4.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/4C4R020H50T	1.00	4.00	2.00	0.20	4.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/4C4R030H50T	1.00	4.00	2.00	0.30	4.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/6C4R005H50T	1.00	4.00	2.00	0.05	6.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/6C4R010H50T	1.00	4.00	2.00	0.10	6.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/6C4R020H50T	1.00	4.00	2.00	0.20	6.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/6C4R030H50T	1.00	4.00	2.00	0.30	6.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/8C4R005H50T	1.00	4.00	2.00	0.05	8.0	50.00	0.95	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/8C4R010H50T	1.00	4.00	2.00	0.10	8.0	50.00	0.95	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/8C4R020H50T	1.00	4.00	2.00	0.20	8.0	50.00	0.95	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/8C4R030H50T	1.00	4.00	2.00	0.30	8.0	50.00	0.95	2	30.0	C	●	0.0090-0.0180
EC-A2 012-22/10C4R010H50T	1.20	4.00	2.20	0.10	10.0	50.00	1.15	2	30.0	C	●	0.0100-0.0190
EC-A2 012-22/10C4R020H50T	1.20	4.00	2.20	0.20	10.0	50.00	1.15	2	30.0	C	●	0.0100-0.0190
EC-A2 012-22/10C4R030H50T	1.20	4.00	2.20	0.30	10.0	50.00	1.15	2	30.0	C	●	0.0100-0.0190

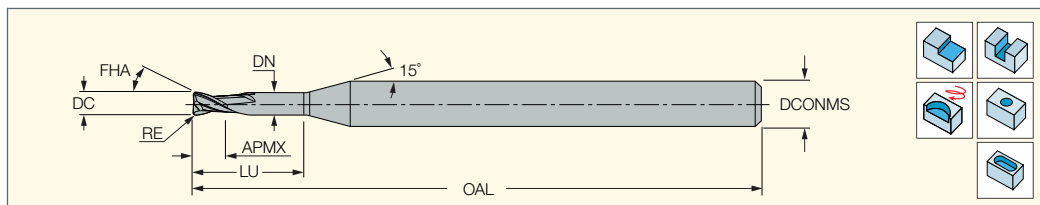
New

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes



Continued

SOLIDMILL
PREMIUM LINE**EC-A2-R-T**2 Flute Endmill with a Corner
Radius for High Speed Machining
Hardened Steel of Up to 65 HRC

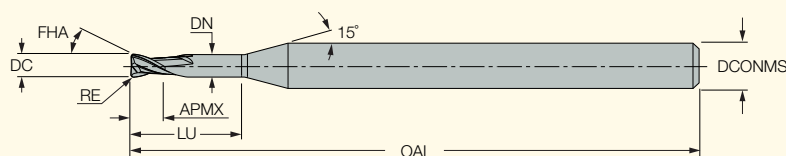
Designation	Dimensions										Tough ↕ Hard	Recommended Machining Data
	DC	DCONMS	APMX	RE	LU	OAL	DN	NOF ⁽¹⁾	FHA	Shank	IC602	f _z (mm/t)
EC-A2 012-22/4C4R010H50T	1.20	4.00	2.20	0.10	4.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/4C4R020H50T	1.20	4.00	2.20	0.20	4.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/4C4R030H50T	1.20	4.00	2.20	0.30	4.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/6C4R010H50T	1.20	4.00	2.20	0.10	6.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/6C4R020H50T	1.20	4.00	2.20	0.20	6.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/6C4R030H50T	1.20	4.00	2.20	0.30	6.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/8C4R010H50T	1.20	4.00	2.20	0.10	8.0	50.00	1.15	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/8C4R020H50T	1.20	4.00	2.20	0.20	8.0	50.00	1.15	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/8C4R030H50T	1.20	4.00	2.20	0.30	8.0	50.00	1.15	2	30.0	C	●	0.0100-0.0200
EC-A2 015-25/10C4R005H50T	1.50	4.00	2.50	0.05	10.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/10C4R010H50T	1.50	4.00	2.50	0.10	10.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/10C4R020H50T	1.50	4.00	2.50	0.20	10.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/10C4R030H50T	1.50	4.00	2.50	0.30	10.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/10C4R050H50T	1.50	4.00	2.50	0.50	10.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/12C4R005H50T	1.50	4.00	2.50	0.05	12.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-25/12C4R010H50T	1.50	4.00	2.50	0.10	12.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-25/12C4R020H50T	1.50	4.00	2.50	0.20	12.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-25/12C4R030H50T	1.50	4.00	2.50	0.30	12.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-25/12C4R050H50T	1.50	4.00	2.50	0.50	12.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-25/4C4R010H50T	1.50	4.00	2.50	0.10	4.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/4C4R020H50T	1.50	4.00	2.50	0.20	4.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/4C4R030H50T	1.50	4.00	2.50	0.30	4.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/4C4R050H50T	1.50	4.00	2.50	0.50	4.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/6C4R005H50T	1.50	4.00	2.50	0.05	6.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/6C4R010H50T	1.50	4.00	2.50	0.10	6.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/6C4R020H50T	1.50	4.00	2.50	0.20	6.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/6C4R030H50T	1.50	4.00	2.50	0.30	6.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/6C4R050H50T	1.50	4.00	2.50	0.50	6.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/8C4R005H50T	1.50	4.00	2.50	0.05	8.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/8C4R010H50T	1.50	4.00	2.50	0.10	8.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/8C4R020H50T	1.50	4.00	2.50	0.20	8.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/8C4R030H50T	1.50	4.00	2.50	0.30	8.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/8C4R050H50T	1.50	4.00	2.50	0.50	8.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 020-30/10C4R010H50T	2.00	4.00	3.00	0.10	10.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/10C4R020H50T	2.00	4.00	3.00	0.20	10.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/10C4R030H50T	2.00	4.00	3.00	0.30	10.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/10C4R050H50T	2.00	4.00	3.00	0.50	10.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/12C4R010H50T	2.00	4.00	3.00	0.10	12.0	50.00	1.93	2	30.0	C	●	0.0160-0.0250
EC-A2 020-30/12C4R020H50T	2.00	4.00	3.00	0.20	12.0	50.00	1.93	2	30.0	C	●	0.0160-0.0250
EC-A2 020-30/12C4R030H50T	2.00	4.00	3.00	0.30	12.0	50.00	1.93	2	30.0	C	●	0.0160-0.0250
EC-A2 020-30/12C4R050H50T	2.00	4.00	3.00	0.50	12.0	50.00	1.93	2	30.0	C	●	0.0160-0.0250
EC-A2 020-30/16C4R010H50T	2.00	4.00	3.00	0.10	16.0	50.00	1.91	2	30.0	C	●	0.0150-0.0220
EC-A2 020-30/16C4R020H50T	2.00	4.00	3.00	0.20	16.0	50.00	1.91	2	30.0	C	●	0.0150-0.0220
EC-A2 020-30/16C4R030H50T	2.00	4.00	3.00	0.30	16.0	50.00	1.91	2	30.0	C	●	0.0150-0.0220
EC-A2 020-30/16C4R050H50T	2.00	4.00	3.00	0.50	16.0	50.00	1.91	2	30.0	C	●	0.0150-0.0220
EC-A2 020-30/20C4R010H50T	2.00	4.00	3.00	0.10	20.0	50.00	1.91	2	30.0	C	●	0.0130-0.0190
EC-A2 020-30/20C4R020H50T	2.00	4.00	3.00	0.20	20.0	50.00	1.91	2	30.0	C	●	0.0130-0.0190
EC-A2 020-30/20C4R030H50T	2.00	4.00	3.00	0.30	20.0	50.00	1.91	2	30.0	C	●	0.0130-0.0190
EC-A2 020-30/20C4R050H50T	2.00	4.00	3.00	0.50	20.0	50.00	1.91	2	30.0	C	●	0.0130-0.0190
EC-A2 020-30/6C4R010H50T	2.00	4.00	3.00	0.10	6.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/6C4R020H50T	2.00	4.00	3.00	0.20	6.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/6C4R030H50T	2.00	4.00	3.00	0.30	6.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/6C4R050H50T	2.00	4.00	3.00	0.50	6.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/8C4R010H50T	2.00	4.00	3.00	0.10	8.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/8C4R020H50T	2.00	4.00	3.00	0.20	8.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/8C4R030H50T	2.00	4.00	3.00	0.30	8.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/8C4R050H50T	2.00	4.00	3.00	0.50	8.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400

New

• For user guide, see pages 211-218

(1) Number of flutes

Continued

SOLIDMILL
 PREMIUM LINE
EC-A2-R-T
 2 Flute Endmill with a Corner
 Radius for High Speed Machining
 Hardened Steel of Up to 65 HRC


Designation	Dimensions										Tough ↕ Hard	Recommended Machining Data
	DC	DCONMS	APMX	RE	LU	OAL	DN	NOF ⁽¹⁾	FHA	Shank	IC602	f _z (mm/t)
EC-A2 025-35/10C4R020H55T	2.50	4.00	3.50	0.20	10.0	55.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 025-35/10C4R030H55T	2.50	4.00	3.50	0.30	10.0	55.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 025-35/10C4R050H55T	2.50	4.00	3.50	0.50	10.0	55.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 025-35/12C4R020H55T	2.50	4.00	3.50	0.20	12.0	55.00	2.40	2	30.0	C	●	0.0170-0.0400
EC-A2 025-35/12C4R030H55T	2.50	4.00	3.50	0.30	12.0	55.00	2.40	2	30.0	C	●	0.0170-0.0400
EC-A2 025-35/12C4R050H55T	2.50	4.00	3.50	0.50	12.0	55.00	2.40	2	30.0	C	●	0.0170-0.0400
EC-A2 025-35/16C4R020H55T	2.50	4.00	3.50	0.20	16.0	55.00	2.40	2	30.0	C	●	0.0150-0.0300
EC-A2 025-35/16C4R030H55T	2.50	4.00	3.50	0.30	16.0	55.00	2.40	2	30.0	C	●	0.0150-0.0300
EC-A2 025-35/16C4R050H55T	2.50	4.00	3.50	0.50	16.0	55.00	2.40	2	30.0	C	●	0.0150-0.0300
EC-A2 025-35/8C4R020H55T	2.50	4.00	3.50	0.20	8.0	55.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 025-35/8C4R030H55T	2.50	4.00	3.50	0.30	8.0	55.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 025-35/8C4R050H55T	2.50	4.00	3.50	0.50	8.0	55.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 030-45/10C6R010H55T	3.00	6.00	4.50	0.10	10.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/10C6R030H55T	3.00	6.00	4.50	0.20	10.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/10C6R030H55T	3.00	6.00	4.50	0.30	10.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/10C6R050H55T	3.00	6.00	4.50	0.50	10.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/10C6R100H55T	3.00	6.00	4.50	1.00	10.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/12C6R010H55T	3.00	6.00	4.50	0.10	12.0	55.00	2.85	2	30.0	C	●	0.0180-0.0500
EC-A2 030-45/12C6R020H55T	3.00	6.00	4.50	0.20	12.0	55.00	2.85	2	30.0	C	●	0.0180-0.0500
EC-A2 030-45/12C6R030H55T	3.00	6.00	4.50	0.30	12.0	55.00	2.85	2	30.0	C	●	0.0180-0.0500
EC-A2 030-45/12C6R050H55T	3.00	6.00	4.50	0.50	12.0	55.00	2.85	2	30.0	C	●	0.0180-0.0500
EC-A2 030-45/12C6R100H55T	3.00	6.00	4.50	1.00	12.0	55.00	2.85	2	30.0	C	●	0.0180-0.0500
EC-A2 030-45/16C6R010H55T	3.00	6.00	4.50	0.10	16.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/16C6R020H55T	3.00	6.00	4.50	0.20	16.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/16C6R030H55T	3.00	6.00	4.50	0.30	16.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/16C6R050H55T	3.00	6.00	4.50	0.50	16.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/16C6R100H55T	3.00	6.00	4.50	1.00	16.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/20C6R010H60T	3.00	6.00	4.50	0.10	20.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/20C6R020H60T	3.00	6.00	4.50	0.20	20.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/20C6R030H60T	3.00	6.00	4.50	0.30	20.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/20C6R050H60T	3.00	6.00	4.50	0.50	20.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/20C6R100H60T	3.00	6.00	4.50	0.00	20.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/25C6R010H60T	3.00	6.00	4.50	0.10	25.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/25C6R020H60T	3.00	6.00	4.50	0.20	25.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/25C6R030H60T	3.00	6.00	4.50	0.30	25.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/25C6R050H60T	3.00	6.00	4.50	0.50	25.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/8C6R010H55T	3.00	6.00	4.50	0.10	8.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/8C6R020H55T	3.00	6.00	4.50	0.20	8.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/8C6R030H55T	3.00	6.00	4.50	0.30	8.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/8C6R050H55T	3.00	6.00	4.50	0.50	8.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/8C6R100H55T	3.00	6.00	4.50	1.00	8.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 040-60/10C6R010H55T	4.00	6.00	6.00	0.10	10.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/10C6R020H55T	4.00	6.00	6.00	0.20	10.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/10C6R030H55T	4.00	6.00	6.00	0.30	10.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/10C6R050H55T	4.00	6.00	6.00	0.50	10.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/10C6R100H55T	4.00	6.00	6.00	1.00	10.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/12C6R010H55T	4.00	6.00	6.00	0.10	12.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/12C6R020H55T	4.00	6.00	6.00	0.20	12.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/12C6R030H55T	4.00	6.00	6.00	0.30	12.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/12C6R050H55T	4.00	6.00	6.00	0.50	12.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/12C6R100H55T	4.00	6.00	6.00	1.00	12.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/16C6R010H55T	4.00	6.00	6.00	0.10	16.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/16C6R020H55T	4.00	6.00	6.00	0.20	16.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/16C6R030H55T	4.00	6.00	6.00	0.30	16.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/16C6R050H55T	4.00	6.00	6.00	0.50	16.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/16C6R100H55T	4.00	6.00	6.00	1.00	16.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/20C6R010H60T	4.00	6.00	6.00	0.10	20.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700

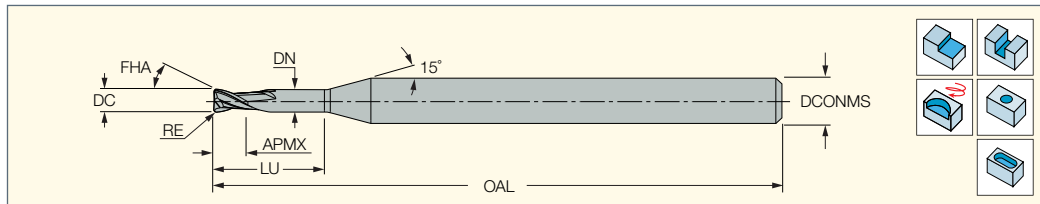
New

• For user guide, see pages 211-218

(1) Number of flutes

EC-A2-R-T

2 Flute Endmill with a Corner Radius for High Speed Machining
Hardened Steel of Up to 65 HRC



Designation	Dimensions										Tough ↕ Hard	Recommended Machining Data
	DC	DCONMS	APMX	RE	LU	OAL	DN	NOF ⁽¹⁾	FHA	Shank	IC602	f _z (mm/t)
EC-A2 040-60/20C6R020H60T	4.00	6.00	6.00	0.20	20.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/20C6R030H60T	4.00	6.00	6.00	0.30	20.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/20C6R050H60T	4.00	6.00	6.00	0.50	20.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/20C6R100H60T	4.00	6.00	6.00	1.00	20.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/25C6R010H60T	4.00	6.00	6.00	0.10	25.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/25C6R020H60T	4.00	6.00	6.00	0.20	25.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/25C6R030H60T	4.00	6.00	6.00	0.30	25.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/25C6R050H60T	4.00	6.00	6.00	0.50	25.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/25C6R100H60T	4.00	6.00	6.00	1.00	25.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/30C6R010H70T	4.00	6.00	6.00	0.10	30.0	70.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/30C6R020H70T	4.00	6.00	6.00	0.20	30.0	70.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/30C6R030H70T	4.00	6.00	6.00	0.30	30.0	70.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/30C6R050H70T	4.00	6.00	6.00	0.50	30.0	70.00	3.90	2	30.0	C	●	0.0300-0.0700

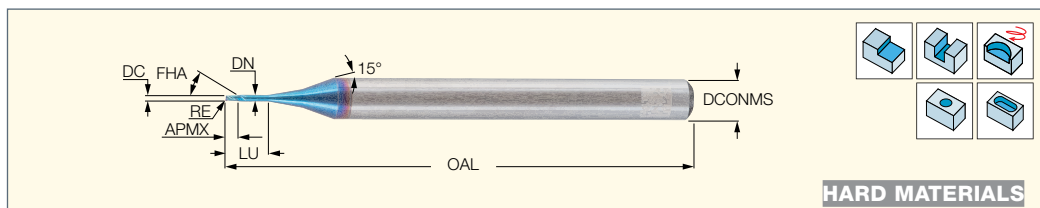
New

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

EC-A2-R/H (rib processing)

2 Flute, 30° Helix and Corner Radii Solid Carbide Endmills
for Rib Processing on Hard
Materials up to 65 HRC



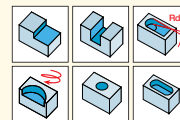
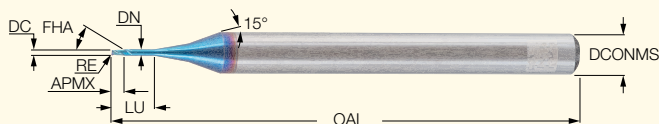
Designation	Dimensions										Tough ↕ Hard	Recommended Machining Data
	DC	DCONMS	APMX	RE	LU	OAL	DN	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	IC702	f _z (mm/t)
EC-A2 002-003/005C4H45	0.20	4.00	0.30	-	0.5	45.00	0.17	2	30.0	C	●	0.0030-0.0030
EC-A2 003-0045/01C4H45	0.30	4.00	0.45	-	1.0	45.00	0.27	2	30.0	C	●	0.0030-0.0040
EC-A2 003-0045/03C4H45	0.30	4.00	0.45	-	3.0	45.00	0.27	2	30.0	C	●	0.0030-0.0040
EC-A2 004-006/01C4H45	0.40	4.00	0.60	-	1.0	45.00	0.37	2	30.0	C	●	0.0030-0.0050
EC-A2 004-006/02C4H45	0.40	4.00	0.60	-	2.0	45.00	0.37	2	30.0	C	●	0.0030-0.0050
EC-A2 005-007/02C4H45	0.50	4.00	0.70	-	2.0	45.00	0.45	2	30.0	C	●	0.0030-0.0050
EC-A2 005-007/1.5C4R05H45	0.50	4.00	0.70	0.05	1.5	45.00	0.45	2	30.0	C	●	0.0010-0.0020
EC-A2 005-007/2.5C4R05H45	0.50	4.00	0.70	0.05	2.5	45.00	0.45	2	30.0	C	●	0.0010-0.0020
EC-A2 006-009/02C4H45	0.60	4.00	0.90	-	2.0	45.00	0.55	2	30.0	C	●	0.0030-0.0070
EC-A2 006-009/3C4R05H45	0.60	4.00	0.90	0.05	3.0	45.00	0.55	2	30.0	C	●	0.0010-0.0020
EC-A2 007-010/4C4R.1H45	0.70	4.00	1.00	0.10	4.0	45.00	0.65	2	30.0	C	●	0.0010-0.0030
EC-A2 008-012/04C4H45	0.80	4.00	1.20	-	4.0	45.00	0.75	2	30.0	C	●	0.0030-0.0080
EC-A2 008-012/06C4H45	0.80	4.00	1.20	-	6.0	45.00	0.75	2	30.0	C	●	0.0030-0.0090
EC-A2 008-012/4C4R.1H45	0.80	4.00	1.20	0.10	4.0	45.00	0.75	2	30.0	C	●	0.0010-0.0030
EC-A2 008-012/6C4R.1H45	0.80	4.00	1.20	0.10	6.0	45.00	0.75	2	30.0	C	●	0.0010-0.0030
EC-A2 010-015/04C4H45	1.00	4.00	1.50	-	4.0	45.00	0.97	2	30.0	C	●	0.0040-0.0120
EC-A2 010-015/06C4H45	1.00	4.00	1.50	-	6.0	45.00	0.97	2	30.0	C	●	0.0040-0.0120
EC-A2 010-015/08C4H45	1.00	4.00	1.50	-	8.0	45.00	0.95	2	30.0	C	●	0.0040-0.0120
EC-A2 010-015/10C4H45	1.00	4.00	1.50	-	10.0	45.00	0.95	2	30.0	C	●	0.0040-0.0120
EC-A2 010-015/12C4H45	1.00	4.00	1.50	-	12.0	45.00	0.93	2	30.0	C	●	0.0040-0.0120
EC-A2 010-015/20C4H55	1.00	4.00	1.50	-	20.0	55.00	0.93	2	30.0	C	●	0.0040-0.0120
EC-A2 010-015/4C6R.1H50	1.00	6.00	1.50	0.10	4.0	50.00	0.95	2	30.0	C	●	0.0020-0.0060
EC-A2 010-015/4C6R.2H50	1.00	6.00	1.50	0.20	4.0	50.00	0.95	2	30.0	C	●	0.0020-0.0060
EC-A2 010-015/4C6R.3H50	1.00	6.00	1.50	0.30	4.0	50.00	0.95	2	30.0	C	●	0.0020-0.0060
EC-A2 010-015/6C6R.1H50	1.00	6.00	1.50	0.10	6.0	50.00	0.95	2	30.0	C	●	0.0020-0.0060
EC-A2 010-015/6C6R.2H50	1.00	6.00	1.50	0.20	6.0	50.00	0.95	2	30.0	C	●	0.0020-0.0060

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

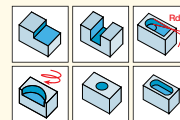
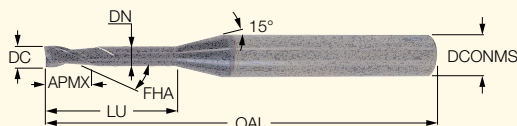
Continued

SOLIDMILL
 PREMIUM LINE
EC-A2-R/H (rib processing)
 2 Flute, 30° Helix and Corner
 Radii Solid Carbide Endmills
 for Rib Processing on Hard
 Materials up to 65 HRC
**HARD MATERIALS**

Designation	Dimensions											Tough ↔ Hard	Recommended Machining Data
	DC	DCONMS	APMX	RE	LU	OAL	DN	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	IC702	f _z (mm/t)	
EC-A2 010-015/6C6R.3H50	1.00	6.00	1.50	0.30	6.0	50.00	0.95	2	30.0	C	●	0.0020-0.0060	
EC-A2 010-015/8C6R.3H50	1.00	6.00	1.50	0.30	8.0	50.00	0.95	2	30.0	C	●	0.0020-0.0060	
EC-A2 012-018/06C4H45	1.20	4.00	1.80	-	6.0	45.00	1.17	2	30.0	C	●	0.0050-0.0150	
EC-A2 015-023/06C4H45	1.50	4.00	2.30	-	6.0	45.00	1.47	2	30.0	C	●	0.0050-0.0150	
EC-A2 015-023/08C4H45	1.50	4.00	2.30	-	8.0	45.00	1.45	2	30.0	C	●	0.0050-0.0150	
EC-A2 015-023/10C4H45	1.50	4.00	2.30	-	10.0	45.00	1.45	2	30.0	C	●	0.0050-0.0150	
EC-A2 015-023/12C4H45	1.50	4.00	2.30	-	12.0	45.00	1.41	2	30.0	C	●	0.0050-0.0150	
EC-A2 015-025/10C6R.2H50	1.50	6.00	2.50	0.20	10.0	50.00	1.45	2	30.0	C	●	0.0030-0.0080	
EC-A2 015-025/12C6R.2H50	1.50	6.00	2.50	0.20	12.0	50.00	1.45	2	30.0	C	●	0.0030-0.0080	
EC-A2 015-025/4C6R.2H50	1.50	6.00	2.50	0.20	4.0	50.00	1.45	2	30.0	C	●	0.0030-0.0080	
EC-A2 015-025/4C6R.3H50	1.50	6.00	2.50	0.30	4.0	50.00	1.45	2	30.0	C	●	0.0030-0.0080	
EC-A2 015-025/6C6R.2H50	1.50	6.00	2.50	0.20	6.0	50.00	1.45	2	30.0	C	●	0.0030-0.0080	
EC-A2 015-025/6C6R.3H50	1.50	6.00	2.50	0.30	6.0	50.00	1.45	2	30.0	C	●	0.0030-0.0080	
EC-A2 015-025/8C6R.2H50	1.50	6.00	2.50	0.20	8.0	50.00	1.45	2	30.0	C	●	0.0030-0.0080	
EC-A2 015-025/8C6R.3H50	1.50	6.00	2.50	0.30	8.0	50.00	1.45	2	30.0	C	●	0.0030-0.0080	
EC-A2 020-030/06C4H45	2.00	4.00	3.00	-	6.0	45.00	1.97	2	30.0	C	●	0.0100-0.0200	
EC-A2 020-030/08C4H45	2.00	4.00	3.00	-	8.0	45.00	1.95	2	30.0	C	●	0.0100-0.0200	
EC-A2 020-030/10C4H45	2.00	4.00	3.00	-	10.0	45.00	1.95	2	30.0	C	●	0.0100-0.0200	
EC-A2 020-030/12C4H45	2.00	4.00	3.00	-	12.0	45.00	1.93	2	30.0	C	●	0.0100-0.0200	
EC-A2 020-030/14C4H50	2.00	4.00	3.00	-	14.0	50.00	1.93	2	30.0	C	●	0.0100-0.0200	
EC-A2 020-030/16C4H50	2.00	4.00	3.00	-	16.0	50.00	1.91	2	30.0	C	●	0.0100-0.0200	
EC-A2 020-030/20C4H55	2.00	4.00	3.00	-	20.0	55.00	1.89	2	30.0	C	●	0.0100-0.0200	
EC-A2 020-030/25C4H60	2.00	4.00	3.00	-	25.0	60.00	1.89	2	30.0	C	●	0.0100-0.0200	
EC-A2 020-030/10C6R.2H55	2.00	6.00	3.00	0.20	10.0	55.00	1.95	2	30.0	C	●	0.0040-0.0100	
EC-A2 020-030/10C6R.3H55	2.00	6.00	3.00	0.30	10.0	55.00	1.95	2	30.0	C	●	0.0040-0.0100	
EC-A2 020-030/10C6R.5H55	2.00	6.00	3.00	0.50	10.0	55.00	1.95	2	30.0	C	●	0.0040-0.0100	
EC-A2 020-030/16C6R.3H55	2.00	6.00	3.00	0.30	16.0	55.00	1.95	2	30.0	C	●	0.0040-0.0100	
EC-A2 020-030/6C6R.2H50	2.00	6.00	3.00	0.20	6.0	50.00	1.95	2	30.0	C	●	0.0040-0.0100	
EC-A2 020-030/6C6R.3H50	2.00	6.00	3.00	0.30	6.0	50.00	1.95	2	30.0	C	●	0.0040-0.0100	
EC-A2 020-030/6C6R.5H50	2.00	6.00	3.00	0.50	6.0	50.00	1.95	2	30.0	C	●	0.0040-0.0100	
EC-A2 030-040/10C6R.2H55	3.00	6.00	4.00	0.20	10.0	55.00	2.85	2	30.0	C	●	0.0050-0.0150	
EC-A2 030-040/10C6R.5H55	3.00	6.00	4.00	0.50	10.0	55.00	2.85	2	30.0	C	●	0.0050-0.0150	
EC-A2 030-040/12C6R.2H55	3.00	6.00	4.00	0.20	12.0	55.00	2.85	2	30.0	C	●	0.0050-0.0150	
EC-A2 030-040/12C6R.3H55	3.00	6.00	4.00	0.30	12.0	55.00	2.85	2	30.0	C	●	0.0050-0.0150	
EC-A2 030-040/12C6R.5H55	3.00	6.00	4.00	0.50	12.0	55.00	2.85	2	30.0	C	●	0.0050-0.0150	
EC-A2 030-040/16C6R.5H55	3.00	6.00	4.00	0.50	16.0	55.00	2.85	2	30.0	C	●	0.0050-0.0150	
EC-A2 030-040/20C6R.5H55	3.00	6.00	4.00	0.50	20.0	55.00	2.85	2	30.0	C	●	0.0050-0.0150	
EC-A2 030-040/8C6R.2H55	3.00	6.00	4.00	0.20	8.0	55.00	2.85	2	30.0	C	●	0.0050-0.0150	
EC-A2 030-040/8C6R.3H55	3.00	6.00	4.00	0.30	8.0	55.00	2.85	2	30.0	C	●	0.0050-0.0150	
EC-A2 030-045/12C6H45	3.00	6.00	4.50	-	12.0	45.00	2.85	2	30.0	C	●	0.0150-0.0300	
EC-A2 030-045/16C6H55	3.00	6.00	4.50	-	16.0	55.00	2.85	2	30.0	C	●	0.0150-0.0300	
EC-A2 040-050/12C6R.2H55	4.00	6.00	5.00	0.20	12.0	55.00	3.85	2	30.0	C	●	0.0060-0.0200	
EC-A2 040-050/12C6R.5H55	4.00	6.00	5.00	0.50	12.0	55.00	3.85	2	30.0	C	●	0.0060-0.0200	
EC-A2 040-050/12C6R1.H55	4.00	6.00	5.00	1.00	12.0	55.00	3.85	2	30.0	C	●	0.0060-0.0200	
EC-A2 040-050/20C6R.2H55	4.00	6.00	5.00	0.20	20.0	55.00	3.85	2	30.0	C	●	0.0060-0.0200	
EC-A2 040-050/20C6R.3H55	4.00	6.00	5.00	0.30	20.0	55.00	3.85	2	30.0	C	●	0.0060-0.0200	
EC-A2 040-050/20C6R.5H55	4.00	6.00	5.00	0.50	20.0	55.00	3.85	2	30.0	C	●	0.0060-0.0200	
EC-A2 040-060/16C6H60	4.00	6.00	6.00	-	16.0	60.00	3.80	2	30.0	C	●	0.0200-0.0500	
EC-A2 060-070/20C6R.3H60	6.00	6.00	7.00	0.30	20.0	60.00	5.85	2	30.0	C	●	0.0080-0.0300	
EC-A2 060-070/20C6R.5H60	6.00	6.00	7.00	0.50	20.0	60.00	5.85	2	30.0	C	●	0.0080-0.0300	
EC-A2 060-070/20C6R1.H60	6.00	6.00	7.00	1.00	20.0	60.00	5.85	2	30.0	C	●	0.0080-0.0300	
EC-A2 060-070/20C6R1.5H60	6.00	6.00	7.00	1.50	20.0	60.00	5.85	2	30.0	C	●	0.0080-0.0300	
EC-A2 060-070/20C6R2.H60	6.00	6.00	7.00	2.00	20.0	60.00	5.85	2	30.0	C	●	0.0080-0.0300	
EC-A2 080-090/25C8R1.H60	8.00	8.00	9.00	1.00	25.0	60.00	7.70	2	30.0	C	●	0.0100-0.0350	
EC-A2 080-090/25C8R2.H60	8.00	8.00	9.00	2.00	25.0	60.00	7.70	2	30.0	C	●	0.0100-0.0350	
EC-A2 100-090/32C10R.3H70	10.00	10.00	9.00	0.30	32.0	70.00	9.70	2	30.0	C	●	0.0100-0.0400	
EC-A2 100-110/32C10R.5H70	10.00	10.00	11.00	0.50	32.0	70.00	9.70	2	30.0	C	●	0.0100-0.0400	

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes⁽²⁾ C-Cylindrical

EC-A2-M (rib processing)
 2 Flute, 30° Helix Solid Carbide
 Endmills for Rib Processing on
 Hard Materials up to 55 HRC

HARD MATERIALS

Designation	Dimensions										Tough ↕ Hard	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	DN	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	IC903	f _z (mm/t)
EC-A2 004-006/02C4M45	0.40	4.00	0.60	2.0	45.00	0.37	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 004-006/04C4M45	0.40	4.00	0.60	4.0	45.00	0.37	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 004-006/05C4M45	0.40	4.00	0.60	5.0	45.00	0.37	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 005-007/02C4M45	0.50	4.00	0.70	2.0	45.00	0.45	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 005-007/04C4M45	0.50	4.00	0.70	4.0	45.00	0.45	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 005-007/06C4M45	0.50	4.00	0.70	6.0	45.00	0.45	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 005-007/08C4M45	0.50	4.00	0.70	8.0	45.00	0.45	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 006-009/02C4M45	0.60	4.00	0.90	2.0	45.00	0.55	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 006-009/04C4M45	0.60	4.00	0.90	4.0	45.00	0.55	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 006-009/06C4M45	0.60	4.00	0.90	6.0	45.00	0.55	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 006-009/08C4M45	0.60	4.00	0.90	8.0	45.00	0.55	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 006-009/10C4M45	0.60	4.00	0.90	10.0	45.00	0.55	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 007-010/02C4M45	0.70	4.00	1.00	2.0	45.00	0.65	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 007-010/08C4M45	0.70	4.00	1.00	8.0	45.00	0.65	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 008-012/04C4M45	0.80	4.00	1.20	4.0	45.00	0.75	2	30.0	3.0	C	●	0.0020-0.0040
EC-A2 008-012/06C4M45	0.80	4.00	1.20	6.0	45.00	0.75	2	30.0	3.0	C	●	0.0020-0.0040
EC-A2 008-012/08C4M45	0.80	4.00	1.20	8.0	45.00	0.75	2	30.0	3.0	C	●	0.0020-0.0040
EC-A2 008-012/10C4M45	0.80	4.00	1.20	10.0	45.00	0.75	2	30.0	3.0	C	●	0.0020-0.0040
EC-A2 009-0135/06C4M45	0.90	4.00	1.35	6.0	45.00	0.85	2	30.0	3.0	C	●	0.0030-0.0050
EC-A2 009-0135/10C4M45	0.90	4.00	1.35	10.0	45.00	0.85	2	30.0	3.0	C	●	0.0030-0.0050
EC-A2 009-0135/15C4M50	0.90	4.00	1.35	15.0	50.00	0.85	2	30.0	3.0	C	●	0.0030-0.0050
EC-A2 010-015/04C4M45	1.00	4.00	1.50	4.0	45.00	0.97	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 010-015/06C4M45	1.00	4.00	1.50	6.0	45.00	0.97	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 010-015/08C4M45	1.00	4.00	1.50	8.0	45.00	0.95	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 010-015/10C4M45	1.00	4.00	1.50	10.0	45.00	0.95	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 010-015/12C4M45	1.00	4.00	1.50	12.0	45.00	0.93	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 010-015/16C4M50	1.00	4.00	1.50	16.0	50.00	0.93	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 010-015/20C4M55	1.00	4.00	1.50	20.0	55.00	0.93	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 012-018/06C4M45	1.20	4.00	1.80	6.0	45.00	1.17	2	30.0	3.0	C	●	0.0040-0.0075
EC-A2 012-018/08C4M45	1.20	4.00	1.80	8.0	45.00	1.15	2	30.0	3.0	C	●	0.0040-0.0075
EC-A2 012-018/10C4M45	1.20	4.00	1.80	10.0	45.00	1.15	2	30.0	3.0	C	●	0.0040-0.0075
EC-A2 012-018/16C4M50	1.20	4.00	1.80	16.0	50.00	1.13	2	30.0	3.0	C	●	0.0040-0.0075
EC-A2 014-021/06C4M45	1.40	4.00	2.10	6.0	45.00	1.35	2	30.0	3.0	C	●	0.0040-0.0080
EC-A2 014-021/08C4M45	1.40	4.00	2.10	8.0	45.00	1.35	2	30.0	3.0	C	●	0.0040-0.0080
EC-A2 014-021/10C4M45	1.40	4.00	2.10	10.0	45.00	1.35	2	30.0	3.0	C	●	0.0040-0.0080
EC-A2 015-023/06C4M45	1.50	4.00	2.30	6.0	45.00	1.47	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 015-023/08C4M45	1.50	4.00	2.30	8.0	45.00	1.45	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 015-023/10C4M45	1.50	4.00	2.30	10.0	45.00	1.45	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 015-023/12C4M45	1.50	4.00	2.30	12.0	45.00	1.41	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 015-023/14C4M50	1.50	4.00	2.30	14.0	50.00	1.41	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 015-023/16C4M50	1.50	4.00	2.30	16.0	50.00	1.41	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 015-023/20C4M55	1.50	4.00	2.30	20.0	55.00	1.41	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 016-024/06C4M45	1.60	4.00	2.40	6.0	45.00	1.57	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 016-024/08C4M45	1.60	4.00	2.40	8.0	45.00	1.55	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 016-024/10C4M45	1.60	4.00	2.40	10.0	45.00	1.55	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 016-024/18C4M55	1.60	4.00	2.40	18.0	55.00	1.53	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 016-024/26C4M60	1.60	4.00	2.40	26.0	60.00	1.53	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 018-027/06C4M45	1.80	4.00	2.70	6.0	45.00	1.77	2	30.0	3.0	C	●	0.0060-0.0100
EC-A2 018-027/08C4M45	1.80	4.00	2.70	8.0	45.00	1.75	2	30.0	3.0	C	●	0.0060-0.0100
EC-A2 018-027/10C4M45	1.80	4.00	2.70	10.0	45.00	1.75	2	30.0	3.0	C	●	0.0060-0.0100
EC-A2 018-027/12C4M45	1.80	4.00	2.70	12.0	45.00	1.73	2	30.0	3.0	C	●	0.0060-0.0100
EC-A2 018-027/14C4M50	1.80	4.00	2.70	14.0	50.00	1.73	2	30.0	3.0	C	●	0.0060-0.0100
EC-A2 020-030/06C4M45	2.00	4.00	3.00	6.0	45.00	1.97	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/08C4M45	2.00	4.00	3.00	8.0	45.00	1.95	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/10C4M45	2.00	4.00	3.00	10.0	45.00	1.95	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/12C4M45	2.00	4.00	3.00	12.0	45.00	1.93	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/14C4M50	2.00	4.00	3.00	14.0	50.00	1.93	2	30.0	3.0	C	●	0.0080-0.0150

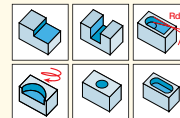
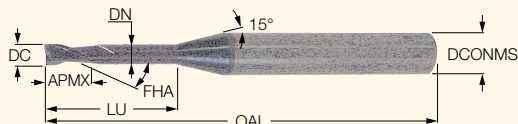
• The DC tolerance is: 0 - -0.015 mm • For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical

Continued

SOLIDMILL
 PREMIUM LINE
EC-A2-M (rib processing)
 2 Flute, 30° Helix Solid Carbide
 Endmills for Rib Processing on
 Hard Materials up to 55 HRC
**HARD MATERIALS**

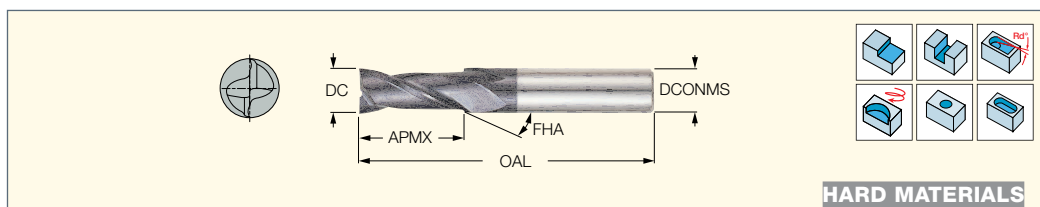
Designation	Dimensions										Tough ↕ Hard	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	DN	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	IC903	f _z (mm/t)
EC-A2 020-030/16C4M50	2.00	4.00	3.00	16.0	50.00	1.91	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/18C4M55	2.00	4.00	3.00	18.0	55.00	1.91	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/20C4M55	2.00	4.00	3.00	20.0	55.00	1.89	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/25C4M60	2.00	4.00	3.00	25.0	60.00	1.89	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/30C4M70	2.00	4.00	3.00	30.0	70.00	1.89	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 025-037/08C4M45	2.50	4.00	3.70	8.0	45.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/10C4M45	2.50	4.00	3.70	10.0	45.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/12C4M45	2.50	4.00	3.70	12.0	45.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/14C4M50	2.50	4.00	3.70	14.0	50.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/16C4M55	2.50	4.00	3.70	16.0	55.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/18C4M55	2.50	4.00	3.70	18.0	55.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/20C4M60	2.50	4.00	3.70	20.0	60.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/25C4M70	2.50	4.00	3.70	25.0	70.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/30C4M80	2.50	4.00	3.70	30.0	80.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 030-045/08C6M45	3.00	6.00	4.50	8.0	45.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/10C6M45	3.00	6.00	4.50	10.0	45.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/12C6M45	3.00	6.00	4.50	12.0	45.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/14C6M50	3.00	6.00	4.50	14.0	50.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/16C6M55	3.00	6.00	4.50	16.0	55.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/18C6M55	3.00	6.00	4.50	18.0	55.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/20C6M60	3.00	6.00	4.50	20.0	60.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/25C6M65	3.00	6.00	4.50	25.0	65.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/30C6M70	3.00	6.00	4.50	30.0	70.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/35C6M80	3.00	6.00	4.50	35.0	80.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/40C6M90	3.00	6.00	4.50	40.0	90.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 040-060/12C6M50	4.00	6.00	6.00	12.0	50.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/16C6M60	4.00	6.00	6.00	16.0	60.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/20C6M60	4.00	6.00	6.00	20.0	60.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/25C6M70	4.00	6.00	6.00	25.0	70.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/30C6M70	4.00	6.00	6.00	30.0	70.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/35C6M80	4.00	6.00	6.00	35.0	80.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/40C6M90	4.00	6.00	6.00	40.0	90.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/45C6M90	4.00	6.00	6.00	45.0	90.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/50C6M100	4.00	6.00	6.00	50.0	100.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 050-075/16C6M60	5.00	6.00	7.50	16.0	60.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 050-075/20C6M60	5.00	6.00	7.50	20.0	60.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 050-075/25C6M70	5.00	6.00	7.50	25.0	70.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 050-075/30C6M80	5.00	6.00	7.50	30.0	80.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 050-075/35C6M80	5.00	6.00	7.50	35.0	80.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 050-075/40C6M80	5.00	6.00	7.50	40.0	80.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 050-075/50C6M110	5.00	6.00	7.50	50.0	110.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 060-090/20C6M80	6.00	6.00	9.00	20.0	80.00	5.70	2	30.0	3.0	C	●	0.0150-0.0300
EC-A2 060-090/30C6M90	6.00	6.00	9.00	30.0	90.00	5.70	2	30.0	3.0	C	●	0.0150-0.0300
EC-A2 060-090/40C6M100	6.00	6.00	9.00	40.0	100.00	5.60	2	30.0	3.0	C	●	0.0150-0.0300
EC-A2 060-090/50C6M110	6.00	6.00	9.00	50.0	110.00	5.60	2	30.0	3.0	C	●	0.0150-0.0300

• The DC tolerance is: 0 - -0.015 mm

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes⁽²⁾ Maximum ramping angle⁽³⁾ C-Cylindrical

EC-A2 (medium length)
 2 Flute, 30° Helix Medium
 Length Solid Carbide Endmills
 for Hard Materials up to 65 HRC



Designation	Dimensions								IC903	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾		
EC-A2 010-025C06-40	1.00	6.00	2.50	40.00	2	30.0	5.0	C	●	0.0050-0.0100
EC-A2 015-040C06-40	1.50	6.00	4.00	40.00	2	30.0	5.0	C	●	0.0050-0.0200
EC-A2 020-060C06-40	2.00	6.00	6.00	40.00	2	30.0	5.0	C	●	0.0100-0.0300
EC-A2 025-080C06-40	2.50	6.00	8.00	40.00	2	30.0	5.0	C	●	0.0100-0.0300
EC-A2 030-080C06-45	3.00	6.00	8.00	45.00	2	30.0	5.0	C	●	0.0100-0.0400
EC-A2 035-10C06M45	3.50	6.00	10.00	45.00	2	30.0	5.0	C	●	0.0100-0.0400
EC-A2 040-11C06-45	4.00	6.00	11.00	45.00	2	30.0	5.0	C	●	0.0200-0.0500
EC-A2 045-11C06-45	4.50	6.00	11.00	45.00	2	30.0	5.0	C	●	0.0200-0.0500
EC-A2 050-13C06-50	5.00	6.00	13.00	50.00	2	30.0	5.0	C	●	0.0200-0.0600
EC-A2 055-13C06-50	5.50	6.00	13.00	50.00	2	30.0	5.0	C	●	0.0200-0.0600
EC-A2 060-13C06-50	6.00	6.00	13.00	50.00	2	30.0	5.0	C	●	0.0300-0.0700
EC-A2 065-16C08-60	6.50	8.00	16.00	60.00	2	30.0	5.0	C	●	0.0300-0.0700
EC-A2 070-16C08-60	7.00	8.00	16.00	60.00	2	30.0	5.0	C	●	0.0300-0.0800
EC-A2 075-16C08-60	7.50	8.00	16.00	60.00	2	30.0	5.0	C	●	0.0300-0.0800
EC-A2 080-19C08-60	8.00	8.00	19.00	60.00	2	30.0	5.0	C	●	0.0300-0.0900
EC-A2 085-19C10-70	8.50	10.00	19.00	70.00	2	30.0	5.0	C	●	0.0300-0.0900
EC-A2 090-19C10-70	9.00	10.00	19.00	70.00	2	30.0	5.0	C	●	0.0300-0.0900
EC-A2 095-19C10-70	9.50	10.00	19.00	70.00	2	30.0	5.0	C	●	0.0300-0.0900
EC-A2 100-22C10-70	10.00	10.00	22.00	70.00	2	30.0	5.0	C	●	0.0300-0.1000
EC-A2 110-22C12-75	11.00	12.00	22.00	75.00	2	30.0	5.0	C	●	0.0300-0.1000
EC-A2 120-26C12-75	12.00	12.00	26.00	75.00	2	30.0	5.0	C	●	0.0400-0.1100
EC-A2 150-26C16-90	15.00	16.00	26.00	90.00	2	30.0	5.0	C	●	0.0400-0.1200
EC-A2 160-32C16-100	16.00	16.00	32.00	100.00	2	30.0	5.0	C	●	0.0500-0.1300
EC-A2 180-32C18-100	18.00	18.00	32.00	100.00	2	30.0	5.0	C	●	0.0500-0.1300
EC-A2 200-38C20-105	20.00	20.00	38.00	105.00	2	30.0	5.0	C	●	0.0500-0.1300
EC-A2 220-38C20-105	22.00	20.00	38.00	105.00	2	30.0	5.0	C	●	0.0500-0.1300

• For user guide, see pages 211-218

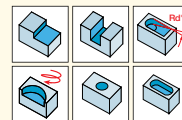
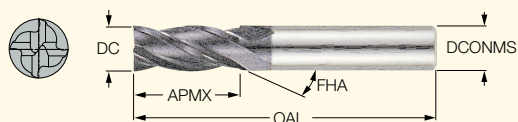
⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical

SOLIDMILL
PREMIUM LINE**EC-A4**

4 Flute, 30° Helix Medium
Length Solid Carbide Endmills
for Hard Materials up to 65 HRC

**HARD MATERIALS**

Designation	Dimensions								IC903	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾		
EC-A4 020-060C06-50	2.00	6.00	6.00	50.00	4	30.0	5.0	C	●	0.01-0.03
EC-A4 025-080C06-50	2.50	6.00	8.00	50.00	4	30.0	5.0	C	●	0.01-0.03
EC-A4 030-080C06-50	3.00	6.00	8.00	50.00	4	30.0	5.0	C	●	0.01-0.04
EC-A4 035-10C06-50	3.50	6.00	10.00	50.00	4	30.0	5.0	C	●	0.01-0.04
EC-A4 040-11C06-50	4.00	6.00	11.00	50.00	4	30.0	5.0	C	●	0.02-0.05
EC-A4 045-11C06-50	4.50	6.00	11.00	50.00	4	30.0	5.0	C	●	0.02-0.05
EC-A4 050-13C06-50	5.00	6.00	13.00	50.00	4	30.0	5.0	C	●	0.02-0.06
EC-A4 055-13C06-50	5.50	6.00	13.00	50.00	4	30.0	5.0	C	●	0.02-0.06
EC-A4 060-13C06-50	6.00	6.00	13.00	50.00	4	30.0	5.0	C	●	0.03-0.07
EC-A4 065-16C08-63	6.50	8.00	16.00	63.00	4	30.0	5.0	C	●	0.03-0.07
EC-A4 070-16C08-63	7.00	8.00	16.00	63.00	4	30.0	5.0	C	●	0.03-0.08
EC-A4 075-16C08-63	7.50	8.00	16.00	63.00	4	30.0	5.0	C	●	0.03-0.08
EC-A4 080-19C08-63	8.00	8.00	19.00	63.00	4	30.0	5.0	C	●	0.03-0.09
EC-A4 085-19C10-72	8.50	10.00	19.00	72.00	4	30.0	5.0	C	●	0.03-0.09
EC-A4 090-19C10-72	9.00	10.00	19.00	72.00	4	30.0	5.0	C	●	0.03-0.09
EC-A4 095-19C10-70	9.50	10.00	19.00	70.00	4	30.0	5.0	C	●	0.03-0.09
EC-A4 100-22C10-72	10.00	10.00	22.00	72.00	4	30.0	5.0	C	●	0.03-0.10
EC-A4 105-22C12-75	10.50	12.00	22.00	75.00	4	30.0	5.0	C	●	0.03-0.10
EC-A4 110-22C12-75	11.00	12.00	22.00	75.00	4	30.0	5.0	C	●	0.03-0.10
EC-A4 115-22C12-75	11.50	12.00	22.00	75.00	4	30.0	5.0	C	●	0.03-0.10
EC-A4 120-26C12-73	12.00	12.00	26.00	73.00	4	30.0	5.0	C	●	0.04-0.11
EC-A4 140-26C14-83	14.00	14.00	26.00	83.00	4	30.0	5.0	C	●	0.04-0.12
EC-A4 150-26C16-92	15.00	16.00	26.00	92.00	4	30.0	5.0	C	●	0.04-0.12
EC-A4 160-32C16-92	16.00	16.00	32.00	92.00	4	30.0	5.0	C	●	0.05-0.13
EC-A4 180-32C18-100	18.00	18.00	32.00	100.00	4	30.0	5.0	C	●	0.05-0.13
EC-A4 190-32C20-100	19.00	20.00	32.00	100.00	4	30.0	5.0	C	●	0.05-0.13
EC-A4 200-38C20-104	20.00	20.00	38.00	104.00	4	30.0	5.0	C	●	0.05-0.13
EC-A4 250-45C25-120	25.00	25.00	45.00	120.00	4	30.0	5.0	C	●	0.05-0.13

● The DC tolerance is: 0 - -0.03 mm ● For user guide, see pages 211-218

⁽¹⁾ Number of flutes

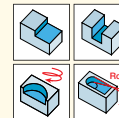
⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical



ECH-B-6

6 Flute, 45° Helix Medium
 Length Solid Carbide
 Endmills for Finishing Hard
 Materials up to 65 HRC


HARD MATERIALS

Designation	Dimensions								Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RMPX ⁽³⁾	IC900	IC903	
ECH060B16-6C06	6.00	6.00	16.00	57.00	6	45.0	C	5.0	●	●	0.03-0.07
ECH060B16-6W06	6.00	6.00	16.00	57.00	6	45.0	W	5.0	●	●	0.03-0.07
ECH080B20-6C08	8.00	8.00	20.00	63.00	6	45.0	C	5.0	●	●	0.03-0.09
ECH080B20-6W08	8.00	8.00	20.00	63.00	6	45.0	W	5.0	●	●	0.03-0.09
ECH100B22-6C10	10.00	10.00	22.00	72.00	6	45.0	C	5.0	●	●	0.03-0.10
ECH100B22-6W10	10.00	10.00	22.00	72.00	6	45.0	W	5.0	●	●	0.03-0.10
ECH120B25-6C12	12.00	12.00	25.00	83.00	6	45.0	C	5.0	●	●	0.04-0.11
ECH120B25-6W12	12.00	12.00	25.00	83.00	6	45.0	W	5.0	●	●	0.04-0.11
ECH160B32-6C16	16.00	16.00	32.00	92.00	6	45.0	C	5.0	●	●	0.05-0.13
ECH160B32-6W16	16.00	16.00	32.00	92.00	6	45.0	W	5.0	●	●	0.05-0.13
ECH200B38-6C20	20.00	20.00	38.00	104.00	6	45.0	C	5.0	●	●	0.05-0.13
ECH200B38-6W20	20.00	20.00	38.00	104.00	6	45.0	W	5.0	●	●	0.05-0.13

• Use IC903 for machining hardened steel up to 65 HRC • For user guide, see pages 211-218

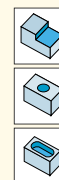
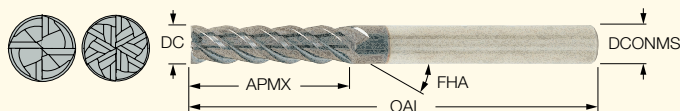
⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical, W-Weldon

⁽³⁾ Maximum ramping angle

ECL-B-4/6

4 & 6 Flute, 45° Helix Long
 Solid Carbide Endmills



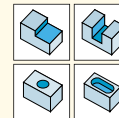
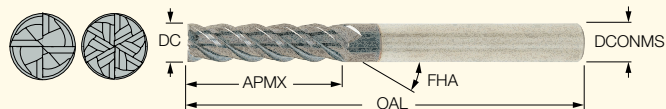
Designation	Dimensions								IC900	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽²⁾	FHA	Shank ⁽³⁾			
ECL060B24-4C06	6.00	6.00	24.00	65.00	4	45.0	C		●	0.03-0.07
ECL060B24-4W06	6.00	6.00	24.00	65.00	4	45.0	W		●	0.03-0.07
ECL080B32-4C08	8.00	8.00	32.00	79.00	4	45.0	C		●	0.03-0.09
ECL080B32-4W08	8.00	8.00	32.00	79.00	4	45.0	W		●	0.03-0.09
ECL100B40-4C10	10.00	10.00	40.00	100.00	4	45.0	C		●	0.03-0.10
ECL100B40-4W10	10.00	10.00	40.00	100.00	4	45.0	W		●	0.03-0.10
ECL120B48-4C12	12.00	12.00	48.00	100.00	4	45.0	C		●	0.04-0.11
ECL120B48-4W12	12.00	12.00	48.00	100.00	4	45.0	W		●	0.04-0.11
ECL140B50-4C14	14.00	14.00	50.00	100.00	4	45.0	C		●	0.04-0.12
ECL140B50-4W14	14.00	14.00	50.00	100.00	4	45.0	W		●	0.04-0.12
ECL160B56-6C16 ⁽¹⁾	16.00	16.00	56.00	115.00	6	45.0	C		●	0.05-0.13
ECL160B56-6W16 ⁽¹⁾	16.00	16.00	56.00	115.00	6	45.0	W		●	0.05-0.13
ECL200B60-6C20 ⁽¹⁾	20.00	20.00	60.00	125.00	6	45.0	C		●	0.05-0.13
ECL200B60-6W20 ⁽¹⁾	20.00	20.00	60.00	125.00	6	45.0	W		●	0.05-0.13

• Smooth cutting in extra long depth • For user guide, see pages 211-218

⁽¹⁾ Cannot be used for plunging application

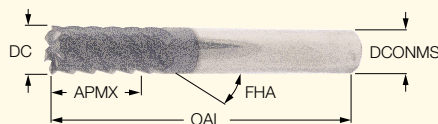
⁽²⁾ Number of flutes

⁽³⁾ C-Cylindrical, W-Weldon

SOLIDMILL
PREMIUM LINE**ECXL-B-4/6**4 & 6 Flute, 45° Helix Extra
Long Solid Carbide Endmills

Designation	Dimensions							IC900	Recommended Machining Data	
	DC	DCONMS	APMX	OAL	NOF ⁽²⁾	FHA	Shank ⁽³⁾		f _z (mm/t)	
ECXL100B60-4C10	10.00	10.00	60.00	112.00	4	45.0	C	●	0.03-0.10	
ECXL100B60-4W10	10.00	10.00	60.00	112.00	4	45.0	W	●	0.03-0.10	
ECXL120B72-4C12	12.00	12.00	72.00	150.00	4	45.0	C	●	0.04-0.11	
ECXL120B72-4W12	12.00	12.00	72.00	150.00	4	45.0	W	●	0.04-0.11	
ECXL160B80-6C16 ⁽¹⁾	16.00	16.00	80.00	150.00	6	45.0	C	●	0.05-0.13	
ECXL160B80-6W16 ⁽¹⁾	16.00	16.00	80.00	150.00	6	45.0	W	●	0.05-0.13	
ECXL200B80-6C20 ⁽¹⁾	20.00	20.00	80.00	150.00	6	45.0	C	●	0.05-0.13	

• Smooth cutting in extra long depth. • For user guide, see pages 211-218

⁽¹⁾ Cannot be used for plunging application⁽²⁾ Number of flutes⁽³⁾ C-Cylindrical, W-Weldon**SOLIDMILL**
PREMIUM LINE**EC-D6**6 Flute, 50° Helix Medium
Length Solid Carbide
Endmills for Finishing of Hard
Materials up to 65 HRC**HARD MATERIALS**

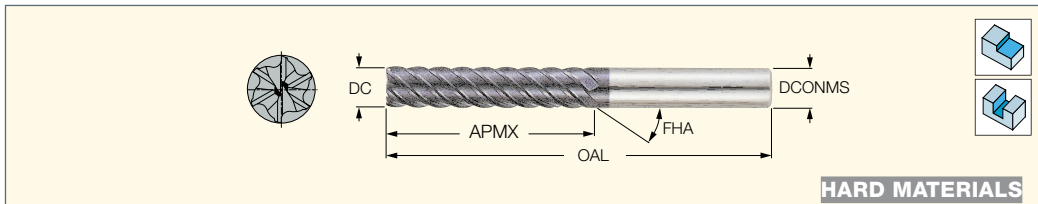
Designation	Dimensions								IC903	Recommended Machining Data	
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RMPX ⁽³⁾		f _z (mm/t)	
EC-D6 06-13C06H57	6.00	6.00	13.00	57.00	6	50.0	C	5.0	●	0.03-0.07	
EC-D6 08-20C08H63	8.00	8.00	20.00	63.00	6	50.0	C	5.0	●	0.03-0.09	
EC-D6 10-22C10H72	10.00	10.00	22.00	72.00	6	50.0	C	5.0	●	0.03-0.10	
EC-D6 12-25C12H83	12.00	12.00	25.00	83.00	6	50.0	C	5.0	●	0.04-0.11	
EC-D6 12-25W12H83	12.00	12.00	25.00	83.00	6	50.0	W	5.0	●	0.04-0.11	
EC-D6 14-30C14H83	14.00	14.00	30.00	83.00	6	50.0	C	5.0	●	0.04-0.12	
EC-D6 16-32C16H92	16.00	16.00	32.00	92.00	6	50.0	C	5.0	●	0.05-0.13	
EC-D6 20-38C20H104	20.00	20.00	38.00	104.00	6	50.0	C	5.0	●	0.05-0.13	

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes⁽²⁾ C-Cylindrical, W-Weldon⁽³⁾ Maximum ramping angle

EC-B6

6 Flute, 45° Helix Extra
 Long Solid Carbide
 Endmills for Finishing Hard
 Materials up to 65 HRC


HARD MATERIALS

Designation	Dimensions							IC903	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾		
EC-B6 060-026C06-70	6.00	6.00	26.00	70.00	6	45.0	C	●	0.03-0.07
EC-B6 080-036C08-90	8.00	8.00	36.00	90.00	6	45.0	C	●	0.03-0.09
EC-B6 100-46C10-100	10.00	10.00	46.00	100.00	6	45.0	C	●	0.03-0.10
EC-B6 120-56C12-110	12.00	12.00	56.00	110.00	6	45.0	C	●	0.04-0.11
EC-B6 160-66C16-130	16.00	16.00	66.00	130.00	6	45.0	C	●	0.05-0.13
EC-B6 200-76C20-140	20.00	20.00	76.00	140.00	6	45.0	C	●	0.05-0.13
EC-B6 250-92C25-180	25.00	25.00	92.00	180.00	6	45.0	C	●	0.05-0.13

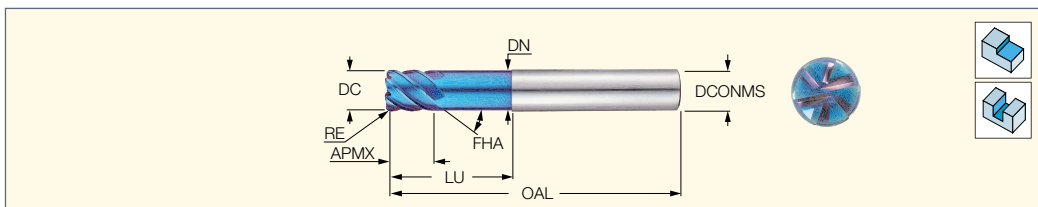
• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

EC-B6-H

6 Flute, 45° Helix Extra
 Long Solid Carbide
 Endmills for Finishing Hard
 Materials up to 65 HRC

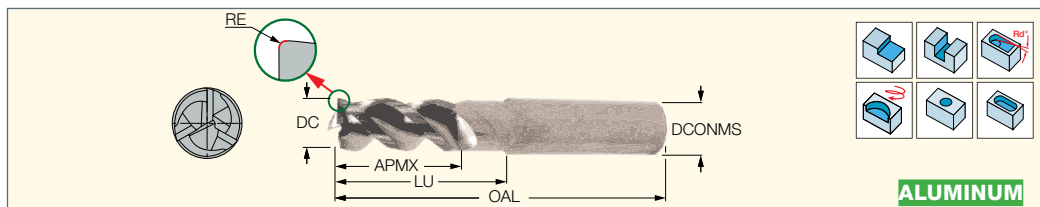


Designation	Dimensions										IC702	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	RE	DN	LU	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾		
EC-B6 06-06/14C06R.25H50	6.00	6.00	6.00	0.25	5.85	14.00	50.00	6	45.0	C	●	0.03-0.07
EC-B6 06-06/14C06R.5H50	6.00	6.00	6.00	0.50	5.70	14.00	50.00	6	45.0	C	●	0.03-0.07
EC-B6 06-13C06R.5H70	6.00	6.00	13.00	0.50	6.00	-	70.00	6	45.0	C	●	0.03-0.07
EC-B6 06-26C06R.5H70	6.00	6.00	26.00	0.50	6.00	-	70.00	6	45.0	C	●	0.03-0.07
EC-B6 08-08/24C08R.5H60	8.00	8.00	8.00	0.50	7.70	24.00	60.00	6	45.0	C	●	0.03-0.09
EC-B6 08-19C08R.5H90	8.00	8.00	19.00	0.50	8.00	-	90.00	6	45.0	C	●	0.03-0.09
EC-B6 08-36C08R.5H90	8.00	8.00	36.00	0.50	8.00	-	90.00	6	45.0	C	●	0.03-0.09
EC-B6 10-22C10R.5H100	10.00	10.00	22.00	0.50	10.00	-	100.00	6	45.0	C	●	0.03-0.10
EC-B6 10-22C10R1H100	10.00	10.00	22.00	1.00	10.00	-	100.00	6	45.0	C	●	0.03-0.10
EC-B6 10-46C10R1H100	10.00	10.00	46.00	1.00	10.00	-	100.00	6	45.0	C	●	0.03-0.10
EC-B6 12-26C12R.5H110	12.00	12.00	26.00	0.50	12.00	-	110.00	6	45.0	C	●	0.04-0.11
EC-B6 12-26C12R1H110	12.00	12.00	26.00	1.00	12.00	-	110.00	6	45.0	C	●	0.04-0.11
EC-B6 12-56C12R1H110	12.00	12.00	56.00	1.00	12.00	-	110.00	6	45.0	C	●	0.04-0.11
EC-B6 20-38C20R2H140	20.00	20.00	38.00	2.00	20.00	-	140.00	6	45.0	C	●	0.05-0.13
EC-B6 20-76C20R2H140	20.00	20.00	76.00	2.00	20.00	-	140.00	6	45.0	C	●	0.05-0.13

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

CHATTERFREE
SOLID MILL LINE**ECA-H3-CF**Solid Carbide Endmills with
Different Helix, Variable
Pitch, and Relieved Neck
for Machining Aluminum**ALUMINUM**

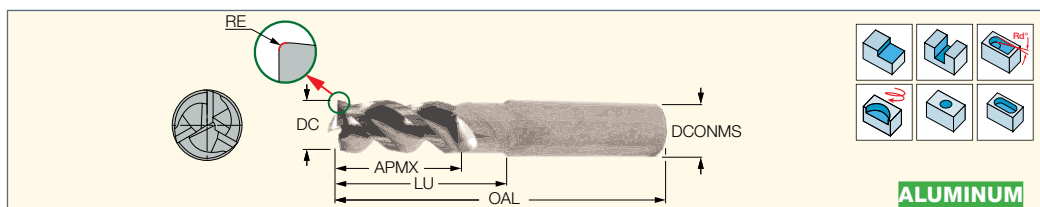
Designation	Dimensions										Tough ↔ Hard		Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	LU	RMPX ⁽²⁾	Shank ⁽³⁾	CSP ⁽⁴⁾	RE	IC08	IC1508	
ECA-H3 01-04C06CF-R05	1.00	6.00	4.00	57.00	3	5.40	5.0	wC	0	0.05	●		0.01-0.01
ECA-H3 015-04/06C06CF-R01	1.50	6.00	4.00	57.00	3	6.00	5.0	C	0	0.10	●		0.01-0.01
ECA-H3 02-05/08C06CF-R01	2.00	6.00	5.00	57.00	3	8.00	5.0	C	0	0.10	●		0.01-0.02
ECA-H3 025-05/08C06CF-R01	2.50	6.00	5.00	57.00	3	8.00	5.0	C	0	0.10	●		0.01-0.02
ECA-H3 03-07/12C06CF-R01	3.00	6.00	7.00	57.00	3	12.00	5.0	C	0	0.10	●		0.03-0.05
ECA-H3 04-10/16C06CF-R02	4.00	6.00	10.00	57.00	3	16.00	5.0	C	0	0.20	●		0.03-0.05
ECA-H3 05-12/20C06CF-R02	5.00	6.00	12.00	57.00	3	20.00	5.0	C	0	0.20	●		0.03-0.06
ECA-H3 06-09/18C06CF-R02	6.00	6.00	9.00	57.00	3	18.00	5.0	C	0	0.20	●		0.03-0.07
ECA-H3 06-09/18C06CF-R02D	6.00	6.00	9.00	57.00	3	18.00	5.0	C	0	0.20		●	0.03-0.07
ECA-H3 06-09/18C06CF-R04	6.00	6.00	9.00	57.00	3	18.00	5.0	C	0	0.40	●		0.03-0.07
ECA-H3 06-09/18C06CF-R08	6.00	6.00	9.00	57.00	3	18.00	5.0	C	0	0.80	●		0.03-0.07
ECA-H3 06-09/30C06CF-R02	6.00	6.00	9.00	65.00	3	30.00	5.0	C	0	0.20	●		0.03-0.07
ECA-H3 06-09/30C06CF-R02D	6.00	6.00	9.00	65.00	3	30.00	5.0	C	0	0.20		●	0.03-0.07
ECA-H3 06-09/30C06CF-R04	6.00	6.00	9.00	65.00	3	30.00	5.0	C	0	0.40	●		0.03-0.07
ECA-H3 06-09/30C06CF-R08	6.00	6.00	9.00	65.00	3	30.00	5.0	C	0	0.80	●		0.03-0.07
ECA-H3 06-09C06CF-R02-57	6.00	6.00	9.00	57.00	3	-	5.0	C	0	0.20	●		0.03-0.07
ECA-H3 06-12/18C06CF-R02C	6.00	6.00	12.00	57.00	3	18.00	5.0	C	1	0.20	●		0.03-0.07
ECA-H3 06-12/30C06CF-R02C	6.00	6.00	12.00	64.00	3	30.00	5.0	C	1	0.20	●		0.03-0.07
ECA-H3 06-14/24C06CF-R02	6.00	6.00	14.00	60.00	3	24.00	5.0	C	0	0.20	●		0.03-0.07
ECA-H3 06-14/24C06CF-R02D	6.00	6.00	14.00	60.00	3	24.00	5.0	C	0	0.20		●	0.03-0.07
ECA-H3 08-12/24C08CF-R02	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0	0.20	●		0.03-0.09
ECA-H3 08-12/24C08CF-R02D	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0	0.20		●	0.03-0.09
ECA-H3 08-12/24C08CF-R04	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0	0.40	●		0.03-0.09
ECA-H3 08-12/24C08CF-R08	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0	0.80	●		0.03-0.09
ECA-H3 08-12/24C08CF-R30	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0	3.00	●		0.03-0.09
ECA-H3 08-12/40C08CF-R02	8.00	8.00	12.00	79.00	3	40.00	5.0	C	0	0.20	●		0.03-0.09
ECA-H3 08-12/40C08CF-R02D	8.00	8.00	12.00	79.00	3	40.00	5.0	C	0	0.20		●	0.03-0.09
ECA-H3 08-12/40C08CF-R04	8.00	8.00	12.00	79.00	3	40.00	5.0	C	0	0.40	●		0.03-0.09
ECA-H3 08-12/40C08CF-R08	8.00	8.00	12.00	79.00	3	40.00	5.0	C	0	0.80	●		0.03-0.09
ECA-H3 08-12C08CF-R02-63	8.00	8.00	12.00	63.00	3	-	5.0	C	0	0.20	●		0.03-0.09
ECA-H3 08-16/24C08CF-R02C	8.00	8.00	16.00	63.00	3	24.00	5.0	C	1	0.20	●		0.03-0.09
ECA-H3 08-16/40C08CF-R02C	8.00	8.00	16.00	78.00	3	40.00	5.0	C	1	0.20	●		0.03-0.09
ECA-H3 08-18/32C08CF-R02	8.00	8.00	18.00	68.00	3	32.00	5.0	C	0	0.20	●		0.03-0.09
ECA-H3 08-18/32C08CF-R02D	8.00	8.00	18.00	68.00	3	32.00	5.0	C	0	0.20		●	0.03-0.09
ECA-H3 10-15/30C10CF-R02	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0	0.20	●		0.03-0.10
ECA-H3 10-15/30C10CF-R02D	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0	0.20		●	0.03-0.10
ECA-H3 10-15/30C10CF-R04	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0	0.40	●		0.03-0.10
ECA-H3 10-15/30C10CF-R08	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0	0.80	●		0.03-0.10
ECA-H3 10-15/30C10CF-R16	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0	1.60	●		0.03-0.10
ECA-H3 10-15/30C10CF-R30	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0	3.00	●		0.03-0.10
ECA-H3 10-15/50C10CF-R02	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	0.20	●		0.03-0.10
ECA-H3 10-15/50C10CF-R02D	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	0.20		●	0.03-0.10
ECA-H3 10-15/50C10CF-R04	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	0.40	●		0.03-0.10
ECA-H3 10-15/50C10CF-R08	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	0.80	●		0.03-0.10
ECA-H3 10-15/50C10CF-R16	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	1.60	●		0.03-0.10
ECA-H3 10-15/50C10CF-R20	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	2.00	●		0.03-0.10
ECA-H3 10-15/50C10CF-R30	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	3.00	●		0.03-0.10
ECA-H3 10-15C10CF-R02-72	10.00	10.00	15.00	72.00	3	-	5.0	C	0	0.20	●		0.03-0.10
ECA-H3 10-20/30C10CF-R02C	10.00	10.00	20.00	72.00	3	30.00	5.0	C	1	0.20	●		0.03-0.10
ECA-H3 10-20/50C10CF-R02C	10.00	10.00	20.00	100.00	3	50.00	5.0	C	1	0.20	●		0.03-0.10
ECA-H3 10-22/40C10CF-R02	10.00	10.00	22.00	80.00	3	40.00	5.0	C	0	0.20	●		0.03-0.10
ECA-H3 10-22/40C10CF-R02D	10.00	10.00	22.00	80.00	3	40.00	5.0	C	0	0.20		●	0.03-0.10
ECA-H3 10-22/40C10CF-R30	10.00	10.00	22.00	80.00	3	40.00	5.0	C	0	3.00	●		0.03-0.10
ECA-H3 12-18/36C12CF-R02	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	0.20	●		0.04-0.11
ECA-H3 12-18/36C12CF-R02D	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	0.20		●	0.04-0.11
ECA-H3 12-18/36C12CF-R04	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	0.40	●		0.04-0.11
ECA-H3 12-18/36C12CF-R08	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	0.80	●		0.04-0.11
ECA-H3 12-18/36C12CF-R16	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	1.60	●		0.04-0.11
ECA-H3 12-18/36C12CF-R20	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	2.00	●		0.04-0.11

• For user guide, see pages 211-218 • Grade IC1508 - DLC Coating

⁽¹⁾ Number of flutes⁽²⁾ Maximum ramping angle⁽³⁾ C-Cylindrical⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

ECA-H3-CF

Solid Carbide Endmills with Different Helix, Variable Pitch, and Relieved Neck for Machining Aluminum



Designation	Dimensions											Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	LU	RMPX ^{∘(2)}	Shank ⁽³⁾	CSP ⁽⁴⁾	RE	IC08	IC1508	f _z (mm/t)	
ECA-H3 12-18/36C12CF-R25	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	2.50	●		0.04-0.11	
ECA-H3 12-18/36C12CF-R30	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	3.00	●		0.04-0.11	
ECA-H3 12-18/60C12CF-R02	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	0.20	●		0.04-0.11	
ECA-H3 12-18/60C12CF-R02D	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	0.20		●	0.04-0.11	
ECA-H3 12-18/60C12CF-R04	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	0.40	●		0.04-0.11	
ECA-H3 12-18/60C12CF-R08	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	0.80	●		0.04-0.11	
ECA-H3 12-18/60C12CF-R16	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	1.60	●		0.04-0.11	
ECA-H3 12-18/60C12CF-R20	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	2.00	●		0.04-0.11	
ECA-H3 12-18/60C12CF-R25	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	2.50	●		0.04-0.11	
ECA-H3 12-18/60C12CF-R30	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	3.00	●		0.04-0.11	
ECA-H3 12-18C12CF-R02-83	12.00	12.00	18.00	83.00	3	-	5.0	C	0	0.20	●		0.04-0.11	
ECA-H3 12-24/36C12CF-R02C	12.00	12.00	24.00	83.00	3	36.00	5.0	C	1	0.20	●		0.04-0.11	
ECA-H3 12-24/60C12CF-R02C	12.00	12.00	24.00	100.00	3	60.00	5.0	C	1	0.20	●		0.04-0.11	
ECA-H3 12-26/48C12CF-R02	12.00	12.00	26.00	93.00	3	48.00	5.0	C	0	0.20	●		0.04-0.11	
ECA-H3 12-26/48C12CF-R02D	12.00	12.00	26.00	93.00	3	48.00	5.0	C	0	0.20		●	0.04-0.11	
ECA-H3 16-24/48C16CF-R02	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	0.20	●		0.05-0.13	
ECA-H3 16-24/48C16CF-R02D	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	0.20		●	0.05-0.13	
ECA-H3 16-24/48C16CF-R04	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	0.40	●		0.05-0.13	
ECA-H3 16-24/48C16CF-R08	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	0.80	●		0.05-0.13	
ECA-H3 16-24/48C16CF-R16	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	1.60	●		0.05-0.13	
ECA-H3 16-24/48C16CF-R20	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	2.00	●		0.05-0.13	
ECA-H3 16-24/48C16CF-R25	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	2.50	●		0.05-0.13	
ECA-H3 16-24/48C16CF-R30	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	3.00	●		0.05-0.13	
ECA-H3 16-24/48C16CF-R32	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	3.20	●		0.05-0.13	
ECA-H3 16-24/48C16CF-R40	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	4.00	●		0.05-0.13	
ECA-H3 16-24/48C16CF-R50	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	5.00	●		0.05-0.13	
ECA-H3 16-24/80C16CF-R02	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	0.20	●		0.05-0.13	
ECA-H3 16-24/80C16CF-R04	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	0.40	●		0.05-0.13	
ECA-H3 16-24/80C16CF-R08	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	0.80	●		0.05-0.13	
ECA-H3 16-24/80C16CF-R16	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	1.60	●		0.05-0.13	
ECA-H3 16-24/80C16CF-R20	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	2.00	●		0.05-0.13	
ECA-H3 16-24/80C16CF-R25	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	2.50	●		0.05-0.13	
ECA-H3 16-24/80C16CF-R30	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	3.00	●		0.05-0.13	
ECA-H3 16-24/80C16CF-R32	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	3.20	●		0.05-0.13	
ECA-H3 16-24/80C16CF-R40	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	4.00	●		0.05-0.13	
ECA-H3 16-24/80C16CF-R50	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	5.00	●		0.05-0.13	
ECA-H3 16-32/48C16CF-R02C	16.00	16.00	32.00	92.00	3	48.00	5.0	C	1	0.20	●		0.05-0.13	
ECA-H3 16-32/80C16CF-R02C	16.00	16.00	32.00	127.00	3	80.00	5.0	C	1	0.20	●		0.05-0.13	
ECA-H3 16-34/64C16CF-R02	16.00	16.00	34.00	115.00	3	64.00	5.0	C	0	0.20	●		0.05-0.13	
ECA-H3 16-34/64C16CF-R02D	16.00	16.00	34.00	115.00	3	64.00	5.0	C	0	0.20		●	0.05-0.13	
ECA-H3 20-30/100C20CF-R02	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0	0.20	●		0.05-0.14	
ECA-H3 20-30/100C20CF-R04	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0	0.40	●		0.05-0.14	
ECA-H3 20-30/100C20CF-R08	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0	0.80	●		0.05-0.14	
ECA-H3 20-30/100C20CF-R32	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0	3.20	●		0.05-0.14	
ECA-H3 20-30/100C20CF-R40	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0	4.00	●		0.05-0.14	
ECA-H3 20-30/100C20CF-R50	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0	5.00	●		0.05-0.14	
ECA-H3 20-30/60C20CF-R02	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	0.20	●		0.05-0.14	
ECA-H3 20-30/60C20CF-R02D	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	0.20		●	0.05-0.14	
ECA-H3 20-30/60C20CF-R04	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	0.40	●		0.05-0.14	
ECA-H3 20-30/60C20CF-R08	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	0.80	●		0.05-0.14	
ECA-H3 20-30/60C20CF-R16	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	1.60	●		0.05-0.14	
ECA-H3 20-30/60C20CF-R20	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	2.00	●		0.05-0.14	
ECA-H3 20-30/60C20CF-R32	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	3.20	●		0.05-0.14	
ECA-H3 20-30/60C20CF-R40	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	4.00	●		0.05-0.14	
ECA-H3 20-30/60C20CF-R50	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	5.00	●		0.05-0.14	
ECA-H3 20-40/60C20CF-R02C	20.00	20.00	40.00	109.00	3	60.00	5.0	C	1	0.20	●		0.05-0.14	
ECA-H3 20-42/80C20CF-R02	20.00	20.00	42.00	130.00	3	80.00	5.0	C	0	0.20	●		0.05-0.14	

- For user guide, see pages 211-218
- Grade IC1508 - DLC Coating

(1) Number of flutes

(2) Maximum ramping angle

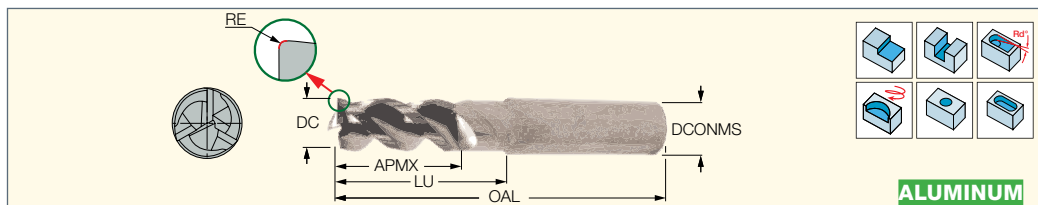
(3) C-Cylindrical

(4) 0 - Without coolant supply, 1 - With coolant supply

Continued

CHATTERFREE
SOLID MILL LINE
ECA-H3-CF

Solid Carbide Endmills with
Different Helix, Variable
Pitch, and Relieved Neck
for Machining Aluminum



Designation	Dimensions											Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	LU	RMPX ⁽²⁾	Shank ⁽³⁾	CSP ⁽⁴⁾	RE	IC08	IC1508	f _z (mm/t)	
ECA-H3 20-42/80C20CF-R02D	20.00	20.00	42.00	130.00	3	80.00	5.0	C	0	0.20		●	0.05-0.14	
ECA-H320-40/100C20CF-R02C	20.00	20.00	40.00	149.00	3	100.00	5.0	C	1	0.20	●		0.05-0.14	
ECA-H3 25-38/125C25CF-R02	25.00	25.00	38.00	185.00	3	125.00	5.0	C	0	0.20	●		0.05-0.15	
ECA-H3 25-38/125C25CF-R08	25.00	25.00	38.00	185.00	3	125.00	5.0	C	0	0.80	●		0.05-0.15	
ECA-H3 25-38/125C25CF-R16	25.00	25.00	38.00	185.00	3	125.00	5.0	C	0	1.60	●		0.05-0.15	
ECA-H3 25-38/125C25CF-R20	25.00	25.00	38.00	185.00	3	125.00	5.0	C	0	2.00	●		0.05-0.15	
ECA-H3 25-38/125C25CF-R40	25.00	25.00	38.00	185.00	3	125.00	5.0	C	0	4.00	●		0.05-0.15	
ECA-H3 25-38/125C25CF-R50	25.00	25.00	38.00	185.00	3	125.00	5.0	C	0	5.00	●		0.05-0.15	
ECA-H3 25-38/75C25CF-R02	25.00	25.00	38.00	130.00	3	75.00	5.0	C	0	0.20	●		0.05-0.15	
ECA-H3 25-38/75C25CF-R04	25.00	25.00	38.00	130.00	3	75.00	5.0	C	0	0.40	●		0.05-0.15	
ECA-H3 25-38/75C25CF-R16	25.00	25.00	38.00	130.00	3	75.00	5.0	C	0	1.60	●		0.05-0.15	
ECA-H3 25-38/75C25CF-R20	25.00	25.00	38.00	130.00	3	75.00	5.0	C	0	2.00	●		0.05-0.15	
ECA-H3 25-38/75C25CF-R32	25.00	25.00	38.00	130.00	3	75.00	5.0	C	0	3.20	●		0.05-0.15	
ECA-H3 25-38/75C25CF-R50	25.00	25.00	38.00	130.00	3	75.00	5.0	C	0	5.00	●		0.05-0.15	
ECA-H3 25-50/75C25CF-R02C	25.00	25.00	50.00	128.00	3	75.00	5.0	C	1	0.20	●		0.05-0.15	
ECA-H3 25-52/100C25CF-R02	25.00	25.00	52.00	156.00	3	100.00	5.0	C	0	0.20	●		0.05-0.15	
ECA-H325-50/125C25CF-R02C	25.00	25.00	50.00	183.00	3	125.00	5.0	C	1	0.20	●		0.05-0.15	

• For user guide, see pages 211-218 • Grade IC1508 - DLC Coating

⁽¹⁾ Number of flutes

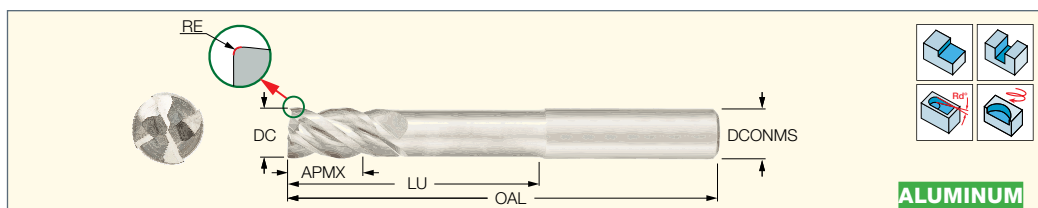
⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

CHATTERFREE
SOLID MILL LINE
ECA-H4-CF

Solid Carbide Endmills with
Different Helix and Long Neck
Relief for Machining Aluminum



Designation	Dimensions									IC08	Recommended Machining Data
	DC	APMX	LU	OAL	DCONMS	RE	NOF ⁽¹⁾	RMPX ^{o(2)}	Shank ⁽³⁾		f _z (mm/t)
ECA-H4 06-09/30C06CFR02	6.00	9.00	30.00	65.00	6.00	0.20	4	5.0	C	●	0.03-0.07
ECA-H4 06-12/18C06CFR02	6.00	12.00	18.00	57.00	6.00	0.20	4	5.0	C	●	0.03-0.07
ECA-H4 08-12/40C08CFR02	8.00	12.00	40.00	79.00	8.00	0.20	4	5.0	C	●	0.03-0.09
ECA-H4 08-16/24C08CFR02	8.00	16.00	24.00	63.00	8.00	0.20	4	5.0	C	●	0.03-0.09
ECA-H4 10-15/50C10CFR02	10.00	15.00	50.00	92.00	10.00	0.20	4	5.0	C	●	0.04-0.10
ECA-H4 10-20/30C10CFR02	10.00	20.00	30.00	72.00	10.00	0.20	4	5.0	C	●	0.04-0.10
ECA-H4 12-18/60C12CFR02	12.00	18.00	60.00	100.00	12.00	0.20	4	5.0	C	●	0.04-0.11
ECA-H4 12-24/36C12CFR02	12.00	24.00	36.00	83.00	12.00	0.20	4	5.0	C	●	0.04-0.11
ECA-H4 16-24/80C16CFR02	16.00	24.00	80.00	128.00	16.00	0.20	4	5.0	C	●	0.05-0.13
ECA-H4 16-32/48C16CFR02	16.00	32.00	48.00	100.00	16.00	0.20	4	5.0	C	●	0.05-0.13
ECA-H4 20-30/100C20CFR02	20.00	30.00	100.00	150.00	20.00	0.20	4	5.0	C	●	0.05-0.14
ECA-H4 20-40/60C20CFR02	20.00	40.00	60.00	110.00	20.00	0.20	4	5.0	C	●	0.05-0.14
ECA-H4 25-38/125C25CFR02	25.00	38.00	125.00	185.00	25.00	0.20	4	5.0	C	●	0.08-0.14
ECA-H4 25-50/75C25CFR02	25.00	50.00	75.00	130.00	25.00	0.20	4	5.0	C	●	0.08-0.14

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical

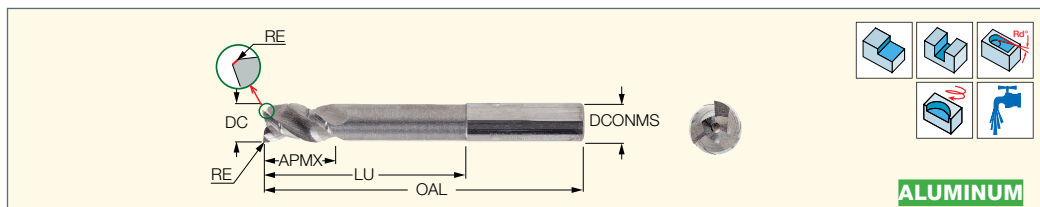


CHATTERFREE

SOLID MILL LINE

ECAP-H3-CF

Solid Carbide Endmills with
Different Helix, Variable Pitch,
Chip Splitters, and Coolant
Holes for Machining Aluminum



Designation	Dimensions									IC08	Recommended Machining Data
	DC	APMX	LU	OAL	DCONMS	RE	NOF ⁽¹⁾	RMPX ^{o(2)}	Shank ⁽³⁾		f _z (mm/t)
ECAP-H3 10-15/50C10CFR02C	10.00	15.00	50.0	92.00	10.00	0.20	3	5.0	C	●	0.03-0.10
ECAP-H3 10-22/40C10CFR02C	10.00	22.00	40.0	80.00	10.00	0.20	3	5.0	C	●	0.03-0.10
ECAP-H3 12-18/60C12CFR02C	12.00	18.00	60.0	100.00	12.00	0.20	3	5.0	C	●	0.04-0.11
ECAP-H3 12-26/48C12CFR02C	12.00	26.00	48.0	93.00	12.00	0.20	3	5.0	C	●	0.04-0.11
ECAP-H3 16-24/80C16CFR02C	16.00	24.00	80.0	128.00	16.00	0.20	3	5.0	C	●	0.05-0.13
ECAP-H3 16-34/64C16CFR02C	16.00	34.00	64.0	115.00	16.00	0.20	3	5.0	C	●	0.05-0.13
ECAP-H320-30/100C20CFR02C	20.00	30.00	100.0	150.00	20.00	0.20	3	5.0	C	●	0.05-0.14
ECAP-H3 20-42/80C20CFR02C	20.00	42.00	80.0	130.00	20.00	0.20	3	5.0	C	●	0.05-0.14
ECAP-H325-38/125C25CFR02C	25.00	38.00	125.0	185.00	25.00	0.20	3	5.0	C	●	0.05-0.14
ECAP-H325-52/100C25CFR02C	25.00	52.00	100.0	158.00	25.00	0.20	3	5.0	C	●	0.05-0.14

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

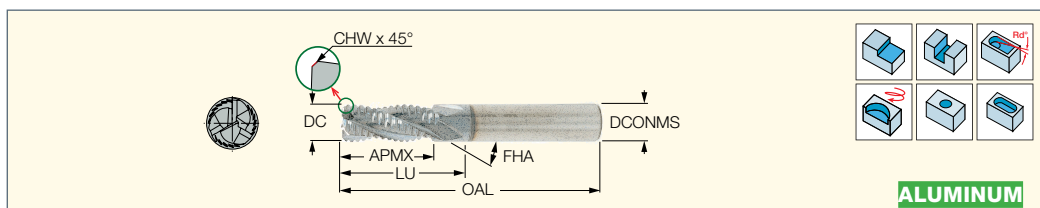
⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical

SOLIDSHRED

ERC-E-3

3 Flute, 38° Helix Medium
Length Solid Carbide Roughing
Endmills with 3xD Relieved
Necks for Machining Aluminum



Designation	Dimensions												Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	NOF ⁽¹⁾	FHA	RMPX ^{c(2)}	Shank ⁽³⁾	CHW	KCH	IC08	IC1508	f _z (mm/t)	
ERC060E13-3C06	6.00	6.00	13.00	21.00	57.00	3	38.0	5.0	C	0.50	45.0	●		0.03-0.07	
ERC060E13-3C06CH05DA57	6.00	6.00	13.00	21.00	57.00	3	38.0	5.0	C	0.50	45.0		●	0.03-0.07	
ERC060E13-3W06	6.00	6.00	13.00	21.00	57.00	3	38.0	5.0	W	0.50	45.0	●		0.03-0.07	
ERC080E20-3C08	8.00	8.00	20.00	28.00	63.00	3	38.0	5.0	C	0.50	45.0	●		0.03-0.15	
ERC080E20-3C08CH05DA63	8.00	8.00	20.00	28.00	63.00	3	38.0	5.0	C	0.50	45.0		●	0.03-0.15	
ERC080E20-3W08	8.00	8.00	20.00	28.00	63.00	3	38.0	5.0	W	0.50	45.0	●		0.03-0.15	
ERC100E22-3C10	10.00	10.00	22.00	30.00	72.00	3	38.0	5.0	C	0.60	45.0	●		0.05-0.20	
ERC100E22-3C10CH06DA72	10.00	10.00	22.00	30.00	72.00	3	38.0	5.0	C	0.60	45.0		●	0.05-0.20	
ERC100E22-3W10	10.00	10.00	22.00	30.00	72.00	3	38.0	5.0	W	0.60	45.0	●		0.05-0.20	
ERC120E25-3C12	12.00	12.00	25.00	37.00	83.00	3	38.0	5.0	C	0.60	45.0	●		0.07-0.22	
ERC120E25-3C12CH06DA83	12.00	12.00	25.00	37.00	83.00	3	38.0	5.0	C	0.60	45.0		●	0.07-0.22	
ERC120E25-3W12	12.00	12.00	25.00	37.00	83.00	3	38.0	5.0	W	0.60	45.0	●		0.07-0.22	
ERC160E32-3C16	16.00	16.00	32.00	44.00	92.00	3	38.0	5.0	C	0.60	45.0	●		0.07-0.25	
ERC160E32-3C16CH06DA92	16.00	16.00	32.00	44.00	92.00	3	38.0	5.0	C	0.60	45.0		●	0.07-0.25	
ERC160E32-3W16	16.00	16.00	32.00	44.00	92.00	3	38.0	5.0	W	0.60	45.0	●		0.07-0.25	
ERC200E38-3C20	20.00	20.00	38.00	55.00	104.00	3	38.0	5.0	C	0.70	45.0	●		0.07-0.25	
ERC200E38-3W20	20.00	20.00	38.00	55.00	104.00	3	38.0	5.0	W	0.70	45.0	●		0.07-0.25	
ERC250E45-3C25	25.00	25.00	45.00	64.00	121.00	3	38.0	5.0	C	0.70	45.0	●		0.07-0.25	

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

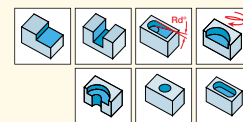
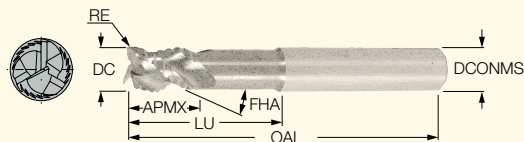
⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

• Grade IC1508 - DLC Coating

SOLIDSHRED**ECR-B3-R**

3 Flute, 45° Helix Solid Carbide
Roughing Endmills with 3xD
Relieved Necks for High Stock
Removal Rates of Aluminum

**ALUMINUM**

Designation	Dimensions										Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	LU	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	APMX	Shank ⁽³⁾	RE	IC08	IC1508	
ECR-B3 06-09/21C06R02A57	6.00	6.00	21.00	57.00	3	45.0	5.0	9.00	C	0.20	●		0.03-0.07
ECR-B3 06-09/21C06R02DA57	6.00	6.00	21.00	57.00	3	45.0	5.0	9.00	C	0.20		●	0.03-0.07
ECR-B3 06-09/21W06R02A57	6.00	6.00	21.00	57.00	3	45.0	5.0	9.00	W	0.20	●		0.03-0.07
ECR-B3 06-09/30C06R02A65	6.00	6.00	30.00	65.00	3	45.0	5.0	9.00	C	0.20	●		0.03-0.07
ECR-B3 06-09/30W06R02A65	6.00	6.00	30.00	65.00	3	45.0	5.0	9.00	W	0.20	●		0.03-0.07
ECR-B3 08-12/27C08R02A63	8.00	8.00	27.00	63.00	3	45.0	5.0	12.00	C	0.20	●		0.03-0.15
ECR-B3 08-12/27C08R02DA63	8.00	8.00	27.00	63.00	3	45.0	5.0	12.00	C	0.20		●	0.03-0.15
ECR-B3 08-12/27W08R02A63	8.00	8.00	27.00	63.00	3	45.0	5.0	12.00	W	0.20	●		0.03-0.15
ECR-B3 08-12/40C08R02A78	8.00	8.00	40.00	78.50	3	45.0	5.0	12.00	C	0.20	●		0.03-0.15
ECR-B3 08-12/40W08R02A78	8.00	8.00	40.00	78.50	3	45.0	5.0	12.00	W	0.20	●		0.03-0.15
ECR-B3 10-12/31C10R02A72	10.00	10.00	31.00	72.00	3	45.0	5.0	12.00	C	0.20	●		0.05-0.20
ECR-B3 10-12/31C10R02DA72	10.00	10.00	31.00	72.00	3	45.0	5.0	12.00	C	0.20		●	0.05-0.20
ECR-B3 10-12/31W10R02A72	10.00	10.00	31.00	72.00	3	45.0	5.0	12.00	W	0.20	●		0.05-0.20
ECR-B3 10-12/50C10R02A100	10.00	10.00	50.00	100.00	3	45.0	5.0	12.00	C	0.20	●		0.05-0.20
ECR-B3 10-12/50W10R02A100	10.00	10.00	50.00	100.00	3	45.0	5.0	12.00	W	0.20	●		0.05-0.20
ECR-B3 12-12/37C12R02A83	12.00	12.00	37.00	83.00	3	45.0	5.0	12.00	C	0.20	●		0.07-0.22
ECR-B3 12-12/37C12R02DA83	12.00	12.00	37.00	83.00	3	45.0	5.0	12.00	C	0.20		●	0.07-0.22
ECR-B3 12-12/37W12R02A83	12.00	12.00	37.00	83.00	3	45.0	5.0	12.00	W	0.20	●		0.07-0.22
ECR-B3 12-14/55C12R02A100	12.00	12.00	55.00	100.00	3	45.0	5.0	14.00	C	0.20	●		0.07-0.22
ECR-B3 12-14/55W12R02A100	12.00	12.00	55.00	100.00	3	45.0	5.0	14.00	W	0.20	●		0.07-0.22
ECR-B3 16-14/43C16R02A92	16.00	16.00	43.00	92.00	3	45.0	5.0	14.00	C	0.20	●		0.07-0.25
ECR-B3 16-14/43C16R02DA92	16.00	16.00	43.00	92.00	3	45.0	5.0	14.00	C	0.20		●	0.07-0.25
ECR-B3 16-14/43W16R02A92	16.00	16.00	43.00	92.00	3	45.0	5.0	14.00	W	0.20	●		0.07-0.25
ECR-B3 16-18/80C16R02A150	16.00	16.00	80.00	150.00	3	45.0	5.0	18.00	C	0.20	●		0.07-0.25
ECR-B3 16-18/80W16R02A150	16.00	16.00	80.00	150.00	3	45.0	5.0	18.00	W	0.20	●		0.07-0.25
ECR-B3 20-17/53C20R02A104	20.00	20.00	53.00	104.00	3	45.0	5.0	17.00	C	0.20	●		0.07-0.25
ECR-B3 20-17/53W20R02A104	20.00	20.00	53.00	104.00	3	45.0	5.0	17.00	W	0.20	●		0.07-0.25
ECR-B3 20-22/80C20R02A150	20.00	20.00	80.00	150.00	3	45.0	5.0	22.00	C	0.20	●		0.07-0.25
ECR-B3 20-22/80W20R02A150	20.00	20.00	80.00	150.00	3	45.0	5.0	22.00	W	0.20	●		0.07-0.25

• For user guide, see pages 211-218 • Grade IC1508 - DLC Coating

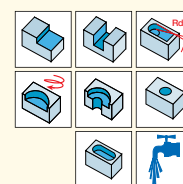
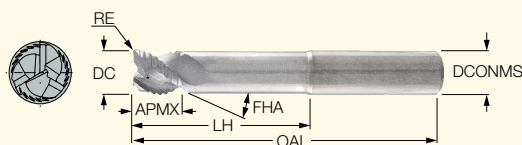
⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

SOLIDSHRED**ECR-B3-R-C**

3 Flute, 45° Helix Solid Carbide
Roughing Endmills with 3xD
Relieved Necks and Coolant
Channels for Aluminum



Designation	Dimensions										IC08	Recommended Machining Data
	DC	DCONMS	LH	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	APMX	Shank ⁽³⁾	RE		
ECR-B3 08-12/41C08R02A83C	8.00	8.00	41.0	83.00	3	45.0	20.0	12.00	C	0.20	●	0.05-0.15
ECR-B3 08-12/41C08R20A83C	8.00	8.00	41.0	83.00	3	45.0	20.0	12.00	C	2.00	●	0.05-0.15
ECR-B3 10-12/41C10R.2A83C	10.00	10.00	41.0	83.00	3	45.0	20.0	12.00	C	0.20	●	0.07-0.20
ECR-B3 10-12/41C10R20A83C	10.00	10.00	41.0	83.00	3	45.0	20.0	12.00	C	2.00	●	0.07-0.20
ECR-B3 12-12/41C12R.2A87C	12.00	12.00	41.0	87.00	3	45.0	20.0	12.00	C	0.20	●	0.10-0.22
ECR-B3 16-14/60C16R2A109C	16.00	16.00	60.0	109.00	3	45.0	20.0	14.00	C	2.00	●	0.10-0.25
ECR-B316-14/60C16R.2A109C	16.00	16.00	60.0	109.00	3	45.0	20.0	14.00	C	0.20	●	0.10-0.25
ECR-B316-14/60C16R40A109C	16.00	16.00	60.0	109.00	3	45.0	20.0	14.00	C	4.00	●	0.10-0.25
ECR-B320-17/60C20R40A111C	20.00	20.00	60.0	111.00	3	45.0	20.0	17.00	C	4.00	●	0.10-0.25
ECR-B320-30/100C25R4A150C	20.00	20.00	100.0	150.00	3	45.0	20.0	30.00	C	4.00	●	0.10-0.25
ECR-B325-25/74C25R40A130C	25.00	25.00	74.0	130.00	3	45.0	20.0	25.00	C	4.00	●	0.10-0.25

• For user guide, see pages 211-218

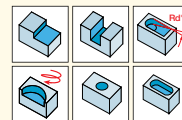
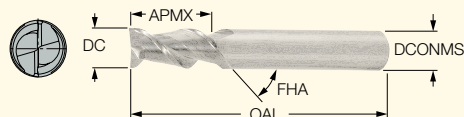
⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical

ECA-B-2

2 Flute, 45° Helix Medium
Length Solid Carbide Endmills
for Machining Aluminum


ALUMINUM

Designation	Dimensions								IC08	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾		
ECA040B12-2C06	4.00	6.00	12.00	57.00	2	45.0	5.0	C	●	0.02-0.05
ECA050B14-2C06	5.00	6.00	14.00	57.00	2	45.0	5.0	C	●	0.02-0.06
ECA060B16-2C06	6.00	6.00	16.00	57.00	2	45.0	5.0	C	●	0.03-0.07
ECA080B20-2C08	8.00	8.00	20.00	63.00	2	45.0	5.0	C	●	0.03-0.09
ECA100B22-2C10	10.00	10.00	22.00	72.00	2	45.0	5.0	C	●	0.03-0.10
ECA120B25-2C12	12.00	12.00	25.00	83.00	2	45.0	5.0	C	●	0.04-0.11
ECA160B32-2C16	16.00	16.00	32.00	92.00	2	45.0	5.0	C	●	0.05-0.13
ECA200B38-2C20	20.00	20.00	38.00	104.00	2	45.0	5.0	C	●	0.05-0.13

• For user guide, see pages 211-218

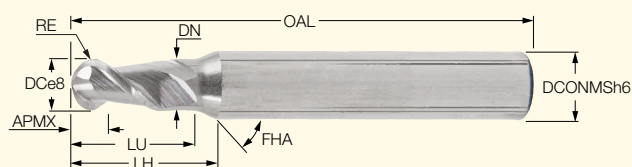
⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical

EBA-B2

2 Flute High Precision Solid
Carbide Ball Nose Endmills
for Machining Aluminum



Designation	Dimensions													IC08
	DC	DCONMS	APMX	OAL	LU	LH	DN	RE	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RETOLL ⁽³⁾	RETOLU ⁽⁴⁾	
EBA-B2 010-010/02C6-57	1.00	6.00	1.00	57.00	2.0	12.0	0.95	0.50	2	45.0	C	0.000	0.004	●
EBA-B2 020-020/04C6-57	2.00	6.00	2.00	57.00	4.0	12.0	1.80	1.00	2	45.0	C	0.000	0.005	●
EBA-B2 030-030/06C6-57	3.00	6.00	3.00	57.00	6.0	12.0	2.70	1.49	2	45.0	C	-0.010	0.010	●
EBA-B2 040-040/08C6-57	4.00	6.00	4.00	57.00	8.0	12.0	3.70	1.99	2	45.0	C	-0.010	0.010	●
EBA-B2 050-050/10C6-57	5.00	6.00	5.00	57.00	10.0	12.0	4.70	2.49	2	45.0	C	-0.010	0.010	●
EBA-B2 060-060/12C6-57	6.00	6.00	6.00	57.00	12.0	13.0	5.50	2.99	2	45.0	C	-0.010	0.010	●

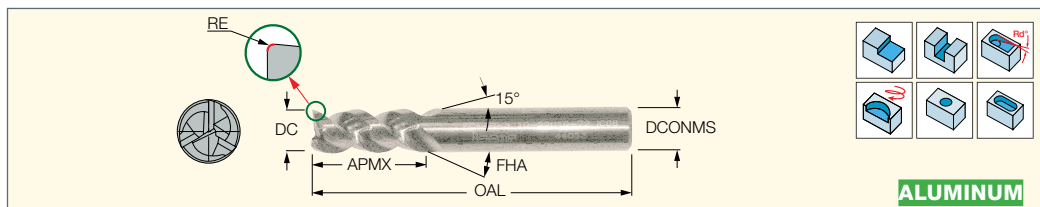
• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

⁽³⁾ Corner radius tolerance lower

⁽⁴⁾ Corner radius tolerance upper

SOLIDMILL
PREMIUM LINE**ECA-B-3**3 Flute, 45° Helix Medium
Length Solid Carbide Endmills
for Machining Aluminum

Designation	Dimensions									Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾	RE	IC08	IC1508	
ECA-B-3 04-12C06-57	4.00	6.00	12.00	57.00	3	45.0	5.0	C	0.10	●		0.02-0.05
ECA-B-3 04-12C06-57 R02D	4.00	6.00	12.00	57.00	3	45.0	5.0	C	0.20		●	0.02-0.05
ECA-B-3 04-12W06-57	4.00	6.00	12.00	57.00	3	45.0	5.0	W	0.10	●		0.02-0.05
ECA-B-3 05-14C06-57	5.00	6.00	14.00	57.00	3	45.0	5.0	C	0.20	●		0.02-0.06
ECA-B-3 05-14C06-57 R02D	5.00	6.00	14.00	57.00	3	45.0	5.0	C	0.20		●	0.02-0.06
ECA-B-3 05-14W06-57	5.00	6.00	14.00	57.00	3	45.0	5.0	W	0.20	●		0.02-0.06
ECA-B-3 06-16C06-57	6.00	6.00	16.00	57.00	3	45.0	5.0	C	0.20	●		0.03-0.07
ECA-B-3 06-16C06-57 R02D	6.00	6.00	16.00	57.00	3	45.0	5.0	C	0.20		●	0.03-0.07
ECA-B-3 06-16W06-57	6.00	6.00	16.00	57.00	3	45.0	5.0	W	0.20	●		0.03-0.07
ECA-B-3 06-24C06-65	6.00	6.00	24.00	65.00	3	45.0	3.0	C	0.20	●		0.03-0.07
ECA-B-3 08-20C08-63	8.00	8.00	20.00	63.00	3	45.0	5.0	C	0.20	●		0.03-0.09
ECA-B-3 08-20C08-63 R02D	8.00	8.00	20.00	63.00	3	45.0	5.0	C	0.20		●	0.03-0.09
ECA-B-3 08-20C08R3-63	8.00	8.00	20.00	63.00	3	45.0	5.0	C	3.00	●		0.03-0.09
ECA-B-3 08-20W08-63	8.00	8.00	20.00	63.00	3	45.0	5.0	W	0.20	●		0.03-0.09
ECA-B-3 08-32C08-79	8.00	8.00	32.00	79.00	3	45.0	3.0	C	0.20	●		0.03-0.08
ECA-B-3 10-22C10-72	10.00	10.00	22.00	72.00	3	45.0	5.0	C	0.20	●		0.03-0.10
ECA-B-3 10-22C10-72 R02D	10.00	10.00	22.00	72.00	3	45.0	5.0	C	0.20		●	0.03-0.10
ECA-B-3 10-22W10-72	10.00	10.00	22.00	72.00	3	45.0	5.0	W	0.20	●		0.03-0.10
ECA-B-3 10-25C10R3-72	10.00	10.00	25.00	72.00	3	45.0	5.0	C	3.00	●		0.03-0.10
ECA-B-3 10-25C10R4-72	10.00	10.00	25.00	72.00	3	45.0	5.0	C	4.00	●		0.03-0.10
ECA-B-3 10-40C10-92	10.00	10.00	40.00	92.00	3	45.0	3.0	C	0.20	●		0.03-0.09
ECA-B-3 12-25C12-83	12.00	12.00	25.00	83.00	3	45.0	5.0	C	0.20	●		0.04-0.11
ECA-B-3 12-25C12-83 R02D	12.00	12.00	25.00	83.00	3	45.0	5.0	C	0.20		●	0.04-0.11
ECA-B-3 12-25W12-83	12.00	12.00	25.00	83.00	3	45.0	5.0	W	0.20	●		0.04-0.11
ECA-B-3 12-30C12R3-83	12.00	12.00	30.00	83.00	3	45.0	5.0	C	3.00	●		0.04-0.11
ECA-B-3 12-30C12R4-83	12.00	12.00	30.00	83.00	3	45.0	5.0	C	4.00	●		0.04-0.11
ECA-B-3 12-48C12-100	12.00	12.00	48.00	100.00	3	45.0	3.0	C	0.20	●		0.03-0.11
ECA-B-3 14-30C14-83	14.00	14.00	30.00	83.00	3	45.0	5.0	C	0.20	●		0.04-0.12
ECA-B-3 14-30W14-83	14.00	14.00	30.00	83.00	3	45.0	5.0	W	0.20	●		0.04-0.12
ECA-B-3 16-32C16-92	16.00	16.00	32.00	92.00	3	45.0	5.0	C	0.20	●		0.05-0.13
ECA-B-3 16-32C16-92 R02D	16.00	16.00	32.00	92.00	3	45.0	5.0	C	0.20		●	0.05-0.13
ECA-B-3 16-32W16-92	16.00	16.00	32.00	92.00	3	45.0	5.0	W	0.20	●		0.05-0.13
ECA-B-3 20-38C20-104	20.00	20.00	38.00	104.00	3	45.0	5.0	C	0.20	●		0.05-0.13
ECA-B-3 20-38C20-104 R02D	20.00	20.00	38.00	104.00	3	45.0	5.0	C	0.20		●	0.05-0.13
ECA-B-3 20-38W20-104	20.00	20.00	38.00	104.00	3	45.0	5.0	W	0.20	●		0.05-0.13

• For user guide, see pages 211-218 • Grade IC1508 - DLC Coating

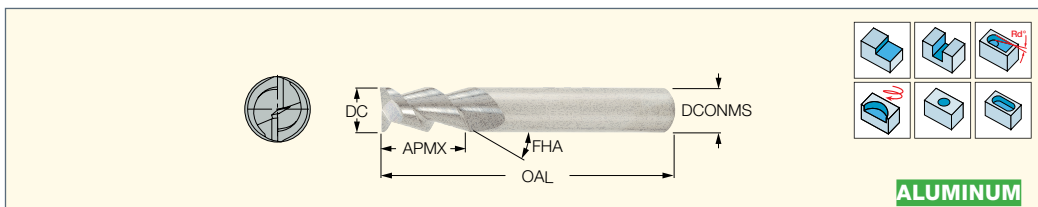
⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical, W-Weldon

ECA-F-2

2 Flute, 55° Helix Medium
 Length Solid Carbide Endmills
 for Machining Aluminum



Designation	Dimensions								IC08	Recommended Machining Data f _z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RMPX ⁽²⁾	Shank ⁽³⁾		
ECA040F11-2C04	4.00	4.00	11.00	50.00	2	55.0	5.0	C	●	0.02-0.05
ECA060F13-2C06	6.00	6.00	13.00	57.00	2	55.0	5.0	C	●	0.03-0.07
ECA080F20-2C08	8.00	8.00	20.00	63.00	2	55.0	5.0	C	●	0.03-0.09
ECA100F22-2C10	10.00	10.00	22.00	72.00	2	55.0	5.0	C	●	0.03-0.10
ECA120F25-2C12	12.00	12.00	25.00	83.00	2	55.0	5.0	C	●	0.04-0.11
ECA160F32-2C16	16.00	16.00	32.00	92.00	2	55.0	5.0	C	●	0.05-0.13
ECA200F38-2C20	20.00	20.00	38.00	104.00	2	55.0	5.0	C	●	0.05-0.13
ECA250F45-2C25	25.00	25.00	45.00	121.00	2	55.0	5.0	C	●	0.05-0.13

• For user guide, see pages 211-218

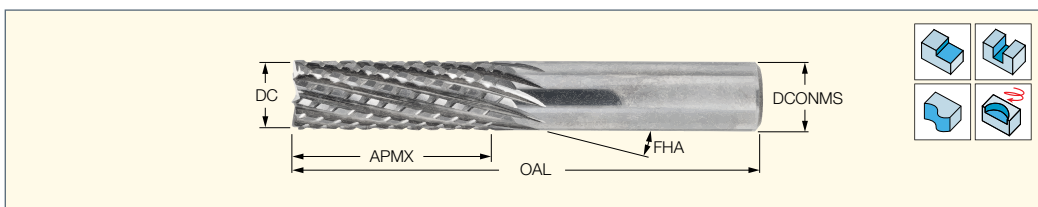
⁽¹⁾ Number of flutes

⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical

EPN-F

Solid Endmills with a Special
 Edge Configuration for
 Machining Different Types
 of Composite Materials



Designation	Dimensions							IC02	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽²⁾	FHA	Shank ⁽³⁾		f _z (mm/t)
EPN-F10 03-12C03F55	3.00	3.00	12.00	55.00	10	15.0	C	●	0.01-0.02
EPN-F10 04-16C04F55	4.00	4.00	16.00	55.00	10	15.0	C	●	0.01-0.02
EPN-F10 06-19C06F57	6.00	6.00	19.00	57.00	10	15.0	C	●	0.02-0.03
EPNF060S15-3L/9C06F57 ⁽¹⁾	6.00	6.00	15.00	57.00	9	15.0	C	●	0.02-0.04
EPN-F12 08-25C08F63	8.00	8.00	25.00	63.00	12	15.0	C	●	0.02-0.03
EPNF080S25-3L/10C8F72 ⁽¹⁾	8.00	8.00	25.00	72.00	10	15.0	C	●	0.02-0.04
EPN-F12 10-25C10F72	10.00	10.00	25.00	72.00	12	15.0	C	●	0.02-0.03
EPNF100S25-3L/12C10F72 ⁽¹⁾	10.00	10.00	25.00	72.00	12	15.0	C	●	0.02-0.04
EPN-F12 12-25C12F83	12.00	12.00	25.00	83.00	12	15.0	C	●	0.02-0.03

• Coated tools available on request • For user guide, see pages 211-218

⁽¹⁾ Deep chip gullets for eliminating chip jamming.

⁽²⁾ Number of flutes

⁽³⁾ C-Cylindrical

SOLIDMILL
PREMIUM LINE

EPNC

Solid Carbide Endmill with Special Cutting Edges, for Machining Different Types of Composite Materials



Designation	Dimensions							IC02	Recommended Machining Data f_z (mm/t)
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	RMPX ⁽²⁾	Shank ⁽³⁾		
EPNC-C10 08-25C08F63	8.00	8.00	25.00	63.00	10	5.0	C	●	0.02-0.08
EPNC-C10 10-25C10F72	10.00	10.00	25.00	72.00	10	5.0	C	●	0.02-0.08
EPNC-C10 12-25C12F83	12.00	12.00	25.00	83.00	10	5.0	C	●	0.02-0.08

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

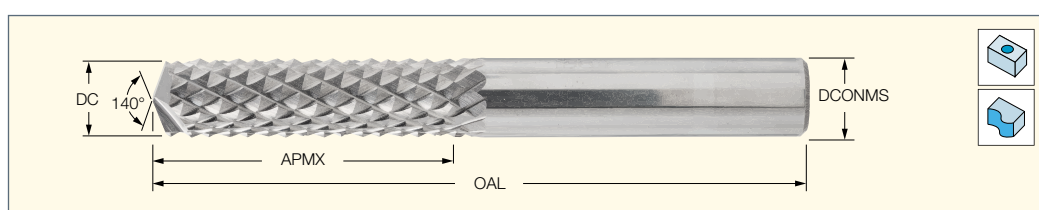
⁽²⁾ Maximum ramping angle

⁽³⁾ C-Cylindrical

SOLIDMILL
PREMIUM LINE

EPND

Solid Carbide Endmills with Special Cutting Edges, also for Drill Mill Applications



Designation	Dimensions						IC02	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	Shank ⁽²⁾		f _z (mm/t)
EPND-C6 016-5C03F55	1.60	3.00	5.00	55.00	6	C	●	0.0050-0.0100
EPND-C6 024-10C03F55	2.40	3.00	10.00	55.00	6	C	●	0.0050-0.0100
EPND-C8 03-12C03F55	3.00	3.00	12.00	55.00	8	C	●	0.0050-0.0120
EPND-C8 04-16C04F60	4.00	4.00	16.00	60.00	8	C	●	0.0050-0.0120
EPND-C10 06-19C06F65	6.00	6.00	19.00	65.00	10	C	●	0.0200-0.0800
EPND-C10 08-25C08F63	8.00	8.00	25.00	63.00	10	C	●	0.0200-0.0800
EPND-C10 10-25C10F72	10.00	10.00	25.00	72.00	10	C	●	0.0200-0.0800
EPND-C10 12-25C12F83	12.00	12.00	25.00	83.00	10	C	●	0.0200-0.0800

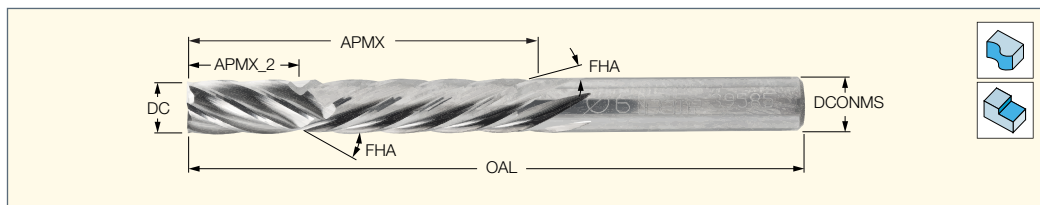
• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

EPX

Solid Carbide Endmills with Right-and Left-Hand Helix Flutes Enables Changing Direction at Mid Cutting Height

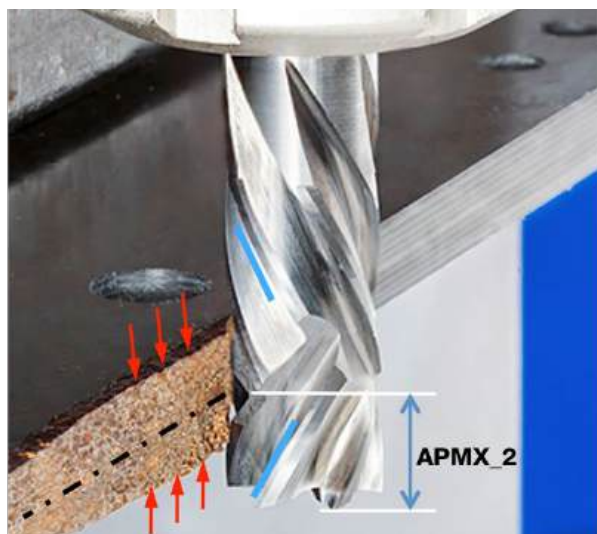


Designation	Dimensions								IC02	Recommended Machining Data f_z (mm/t)
	DC	DCONMS	APMX	APMX_2	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾		
EPX-F6 06-12C06F57	6.00	6.00	12.00	5.30	57.00	6	30.0	C	●	0.02-0.06
EPX-F6 08-16C08F63	8.00	8.00	16.00	6.60	63.00	6	30.0	C	●	0.02-0.06
EPX-F6 10-20C10F72	10.00	10.00	20.00	8.70	72.00	6	30.0	C	●	0.02-0.06
EPX-F8 12-24C12F83	12.00	12.00	24.00	10.60	83.00	8	30.0	C	●	0.02-0.06

• Important: For best results, the intersection of the alternating flute directions (APMX_2) should be positioned in the middle of the workpiece height • Coated tools available on request • For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical



CHATTERFREE
SOLID MILL LINE**EB-H-CF**

3/5 Flute Solid Carbide Ball
Nose Endmills with Different
Helix and Variable Pitch for
Materials up to 65 HRC



Designation	Dimensions									IC902
	DC	DCONMS	APMX	OAL	RE	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RETOL ⁽³⁾	
EB-H3 06-12C06CFH57	6.00	6.00	12.00	57.00	3.00	3	38.0	C	0.010	●
EB-H3 08-16C08CFH63	8.00	8.00	16.00	63.00	4.00	3	38.0	C	0.010	●
EB-H3 10-20C10CFH72	10.00	10.00	20.00	72.00	5.00	3	38.0	C	0.010	●
EB-H3 12-24C12CFH83	12.00	12.00	24.00	83.00	6.00	3	38.0	C	0.012	●
EB-H5 16-32C16CFH92	16.00	16.00	32.00	92.00	8.00	5	38.0	C	0.012	●
EB-H5 20-40C20CFH104	20.00	20.00	40.00	104.00	10.00	5	38.0	C	0.012	●

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

⁽³⁾ Corner radius tolerance (+/-)

Effective Cutting Diameter As a Function of Depth of Cut

Tool DC(mm) ap(mm)	Tool DC(mm)			
	8	10	12	
0.2	2.1	2.5	2.8	3.1
0.3	2.6	3	3.4	3.7
0.5	3.3	3.9	4.3	4.8
0.7	3.8	4.5	5.1	5.6
1	4.5	5.3	6	6.6
2	5.6	6.9	8	8.9
3	6	7.7	9.1	10.4
4	-	8	9.8	11.3
5	-	-	10	11.8
6	-	-	-	12

Feed Recommendations

ISO Class DIN/ISO 513	Material Group	f _z (mm/tooth) for DC			
		6	8	10	12
P	1-4	0.055	0.062	0.07	0.08
	5	0.043	0.05	0.06	0.068
	6-7	0.04	0.048	0.057	0.062
	8-9	0.035	0.038	0.045	0.05
	10	0.03	0.032	0.038	0.042
	11	0.025	0.028	0.035	0.038
K	12-13	0.03	0.032	0.038	0.042
	15-16	0.058	0.065	0.073	0.085
H	17-18	0.058	0.065	0.073	0.085
	38.1	0.021	0.025	0.027	0.03
	38.2	0.008	0.009	0.01	0.013
	39	0.007	0.007	0.008	0.009

The table refers to rough and semi-finish milling applications

For semi-finish and finishing applications, the table values should be reduced by 10-20%.

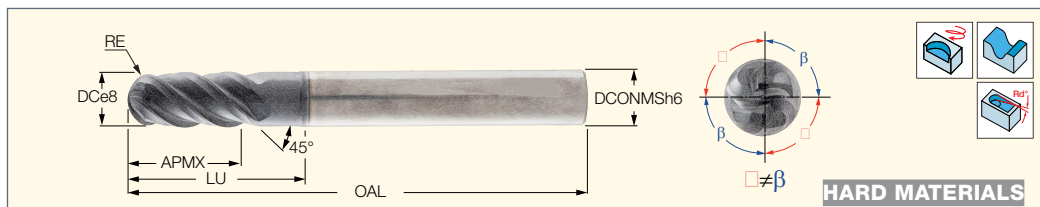
Cutting Speed Recommendations (IC902)

ISO Class DIN/ISO 513	Material Group	V _c (m/min)		
		Roughing	Semi-Finishing	Finishing
P	1	180	220	280
	2-4	150	170	200
	5	125	140	170
	6	130	150	190
	7-9	120	135	170
	10	115	130	165
	11	100	110	120
	12-13	110	110	150
K	15-16	160	180	220
	17-18	150	170	200
H	38.1	70	80	100
	38.2		40	50
	39		30	40

CHATTERFREE

EB-E4L-CF

4 Flute, 45° Helix Ball Nose Endmills with 3xD Relieved Necks and Variable Pitch for Chatter Dampening on Hard Materials



Designation	Dimensions									IC902
	DC	DCONMS	APMX	LU	OAL	RMPX ⁽¹⁾	NOF ⁽²⁾	RE	Shank ⁽³⁾	
EB-E4L 03-06/09C06CFH57	3.00	6.00	6.00	9.00	57.00	5.0	4	1.50	C	•
EB-E4L 04-08/12C06CFH57	4.00	6.00	8.00	12.00	57.00	5.0	4	2.00	C	•
EB-E4L 05-10/15C06CFH57	5.00	6.00	10.00	15.00	57.00	5.0	4	2.50	C	•
EB-E4L 06-12/18C06CFH57	6.00	6.00	12.00	18.00	57.00	5.0	4	3.00	C	•
EB-E4L 08-16/24C08CFH63	8.00	8.00	16.00	24.00	63.00	5.0	4	4.00	C	•
EB-E4L 10-20/30C10CFH72	10.00	10.00	20.00	30.00	72.00	5.0	4	5.00	C	•
EB-E4L 12-24/36C12CFH83	12.00	12.00	24.00	36.00	83.00	5.0	4	6.00	C	•
EB-E4L 16-32/48C16CFH92	16.00	16.00	32.00	48.00	92.00	5.0	4	8.00	C	•

• For user guide, see pages 211-218

⁽¹⁾ Maximum ramping angle

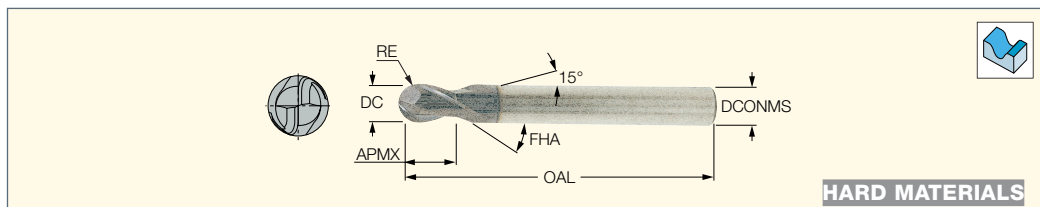
⁽²⁾ Number of flutes

⁽³⁾ C-Cylindrical

SOLIDMILL

EB-A-2

2 Flute, 30° Helix Short Solid Carbide Ball Nose Endmills



Designation	Dimensions										Tough ↔ Hard		
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RE	RETOLL ⁽³⁾	RETOLU ⁽⁴⁾	IC08	IC900	IC903
EB020A04-2C03	2.00	3.00	4.00	38.00	2	30.0	C	1.00	0.000	0.005	•	•	•
EB030A05-2C03	3.00	3.00	5.00	38.00	2	30.0	C	1.50	-0.010	0.010	•	•	•
EB030A05-2C06	3.00	6.00	5.00	57.00	2	30.0	C	1.50	-0.010	0.010	•	•	•
EB040A07-2C04	4.00	4.00	7.00	50.00	2	30.0	C	2.00	-0.010	0.010	•	•	•
EB040A07-2C06	4.00	6.00	7.00	57.00	2	30.0	C	2.00	-0.010	0.010	•	•	•
EB050A08-2C05	5.00	5.00	8.00	50.00	2	30.0	C	2.50	-0.010	0.010	•	•	•
EB050A08-2C06	5.00	6.00	8.00	57.00	2	30.0	C	2.50	-0.010	0.010	•	•	•
EB060A08-2C06	6.00	6.00	8.00	57.00	2	30.0	C	3.00	-0.010	0.010	•	•	•
EB080A11-2C08	8.00	8.00	11.00	63.00	2	30.0	C	4.00	-0.010	0.010	•	•	•
EB100A13-2C10	10.00	10.00	13.00	72.00	2	30.0	C	5.00	-0.010	0.010	•	•	•
EB120A14-2C12	12.00	12.00	14.00	83.00	2	30.0	C	6.00	-0.012	0.012	•	•	•
EB160A16-2C16	16.00	16.00	16.00	92.00	2	30.0	C	8.00	-0.012	0.012	•	•	•
EB200A20-2C20	20.00	20.00	20.00	104.00	2	30.0	C	10.00	-0.012	0.012	•	•	•

• Short and stable design for profiling (roughing). • For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

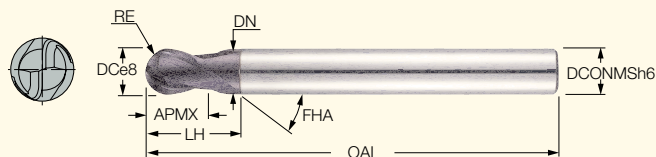
⁽³⁾ Corner radius tolerance lower

⁽⁴⁾ Corner radius tolerance upper

SOLIDMILL
PREMIUM LINE**EB-A2 (stub cut length)**

2 Flute, 30° Helix Stub

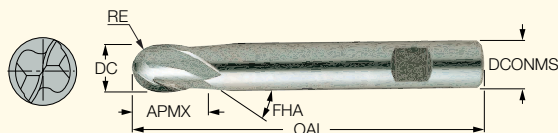
Cut Length Ball Nose

Solid Carbide Endmills for
Materials up to 55-70 HRC**HARD MATERIALS**

Designation	Dimensions												IC903
	DC	RE	DCONMS	APMX	OAL	LH	DN	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RETOLL ⁽³⁾	RETOLU ⁽⁴⁾	
EB-A2 01-01/02C04H50	1.00	0.50	4.00	1.00	50.00	2.2	0.95	2	30.0	C	0.000	0.004	●
EB-A2 012-012/02C04H50	1.20	0.60	4.00	1.20	50.00	2.6	1.10	2	30.0	C	-0.010	0.010	●
EB-A2 015-015/03C04H50	1.50	0.75	4.00	1.50	50.00	3.0	1.40	2	30.0	C	-0.010	0.010	●
EB-A2 02-02/04C06H50	2.00	1.00	6.00	2.00	50.00	4.0	1.90	2	30.0	C	0.000	0.005	●
EB-A2 03-03/06C06H60	3.00	1.50	6.00	3.00	60.00	6.0	2.90	2	30.0	C	-0.010	0.010	●
EB-A2 04-04/08C06H70	4.00	2.00	6.00	4.00	70.00	8.0	3.90	2	30.0	C	-0.010	0.010	●
EB-A2 05-05/10C06H80	5.00	2.50	6.00	5.00	80.00	10.0	4.90	2	30.0	C	-0.010	0.010	●
EB-A2 06-06/12C06H90	6.00	3.00	6.00	6.00	90.00	12.0	5.90	2	30.0	C	-0.010	0.010	●
EB-A2 07-07/14C08H90	7.00	3.50	8.00	7.00	90.00	14.0	6.90	2	30.0	C	-0.010	0.010	●
EB-A2 08-08/16C08H100	8.00	4.00	8.00	8.00	100.00	16.0	7.90	2	30.0	C	-0.010	0.010	●
EB-A2 10-10/20C10H100	10.00	5.00	10.00	10.00	100.00	20.0	9.90	2	30.0	C	-0.010	0.010	●
EB-A2 12-12/24C12H110	12.00	6.00	12.00	12.00	110.00	24.0	11.90	2	30.0	C	-0.012	0.012	●
EB-A2 14-14/28C14H110	14.00	7.00	14.00	14.00	110.00	28.0	13.80	2	30.0	C	-0.012	0.012	●
EB-A2 20-20/40C20H160	20.00	10.00	20.00	20.00	160.00	40.0	19.80	2	30.0	C	-0.012	0.012	●

● For user guide, see pages 211-218

⁽¹⁾ Number of flutes⁽²⁾ C-Cylindrical⁽³⁾ Lower tolerance corner radius⁽⁴⁾ Upper tolerance corner radius

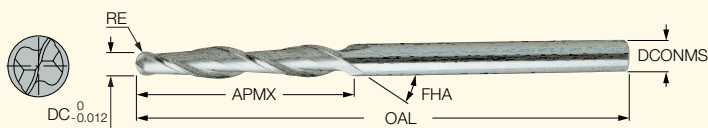
EB-A2 (economical)
 Economical Type 2 Flute,
 30° Helix Ball Nose Solid
 Carbide Endmills


Designation	Dimensions								Tough ↔ Hard	
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RE	IC08	IC900
EB-A2 02-06C03E38	2.00	3.00	6.00	38.00	2	30.0	C	1.00	●	●
EB-A2 02-04C06E48	2.00	6.00	4.00	48.00	2	30.0	C	1.00	●	●
EB-A2 025-04C06E48	2.50	6.00	4.00	48.00	2	30.0	C	1.25	●	●
EB-A2 03-04C06E48	3.00	6.00	4.00	48.00	2	30.0	C	1.50	●	●
EB-A2 03-07W06E57	3.00	6.00	7.00	57.00	2	30.0	W	1.50	●	●
EB-A2 04-06C06E50	4.00	6.00	6.00	50.00	2	30.0	C	2.00	●	●
EB-A2 04-08W06E57	4.00	6.00	8.00	57.00	2	30.0	W	2.00	●	●
EB-A2 05-07C06E51	5.00	6.00	7.00	51.00	2	30.0	C	2.50	●	●
EB-A2 05-10W06E57	5.00	6.00	10.00	57.00	2	30.0	W	2.50	●	●
EB-A2 06-07C06E51	6.00	6.00	7.00	51.00	2	30.0	C	3.00	●	●
EB-A2 06-10W06E57	6.00	6.00	10.00	57.00	2	30.0	W	3.00	●	●
EB-A2 08-09C08E63	8.00	8.00	9.00	63.00	2	30.0	C	4.00	●	●
EB-A2 08-16W08E63	8.00	8.00	16.00	63.00	2	30.0	W	4.00	●	●
EB-A2 10-10C10E66	10.00	10.00	10.00	66.00	2	30.0	C	5.00	●	●
EB-A2 10-19W10E72	10.00	10.00	19.00	72.00	2	30.0	W	5.00	●	●
EB-A2 12-14C12E71	12.00	12.00	14.00	71.00	2	30.0	C	6.00	●	●
EB-A2 12-22W12E83	12.00	12.00	22.00	83.00	2	30.0	W	6.00	●	●
EB-A2 16-26W16E92	16.00	16.00	26.00	92.00	2	30.0	W	8.00	●	●
EB-A2 18-26W18E92	18.00	18.00	26.00	92.00	2	30.0	W	9.00	●	●
EB-A2 20-20C20E82	20.00	20.00	20.00	82.00	2	30.0	C	10.00	●	●
EB-A2 20-32W20E104	20.00	20.00	32.00	104.00	2	30.0	W	10.00	●	●

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical, W-Weldon

EB-A2
(economical-extra long)
 Economical Type 2 Flute, 30°
 Helix Ball Nose Extra Long
 Solid Carbide Endmills


Designation	Dimensions									Tough ↔ Hard	
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RE	RETOL ⁽³⁾	IC08	IC900
EB-A2 03-30C03E75	3.00	3.00	30.00	75.00	2	30.0	C	1.50	0.020	●	●
EB-A2 04-30C04E75	4.00	4.00	30.00	75.00	2	30.0	C	2.00	0.020	●	●
EB-A2 05-40C05E100	5.00	5.00	40.00	100.00	2	30.0	C	2.50	0.020	●	●
EB-A2 06-50C06E150	6.00	6.00	50.00	150.00	2	30.0	C	3.00	0.020	●	●
EB-A2 08-50C08E150	8.00	8.00	50.00	150.00	2	30.0	C	4.00	0.020	●	●
EB-A2 10-60C10E150	10.00	10.00	60.00	150.00	2	30.0	C	5.00	0.020	●	●
EB-A2 12-75C12E150	12.00	12.00	75.00	150.00	2	30.0	C	6.00	0.020	●	●
EB-A2 16-75C16E150	16.00	16.00	75.00	150.00	2	30.0	C	8.00	0.020	●	●

• For user guide, see pages 211-218

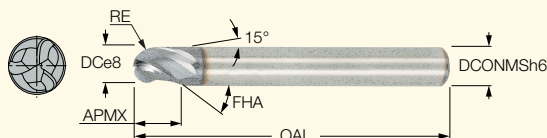
⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

⁽³⁾ Corner radius tolerance (+/-)

SOLIDMILL
PREMIUM LINE**EB-A-3**

3 Flute, 30° Helix Short Solid Carbide Ball Nose Endmills



Designation	Dimensions									IC900
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RE	RETOL ⁽³⁾	
EB016A020-3C03	1.60	3.00	2.00	38.00	3	30.0	C	0.80	0.006	●
EB030A05-3C03	3.00	3.00	5.00	38.00	3	30.0	C	1.50	0.010	●
EB030A05-3C06	3.00	6.00	5.00	57.00	3	30.0	C	1.50	0.010	●
EB040A07-3C04	4.00	4.00	7.00	50.00	3	30.0	C	2.00	0.010	●
EB040A07-3C06	4.00	6.00	7.00	57.00	3	30.0	C	2.00	0.010	●
EB050A08-3C05	5.00	5.00	8.00	50.00	3	30.0	C	2.50	0.010	●
EB050A08-3C06	5.00	6.00	8.00	57.00	3	30.0	C	2.50	0.010	●
EB060A08-3C06	6.00	6.00	8.00	57.00	3	30.0	C	3.00	0.010	●
EB080A11-3C08	8.00	8.00	11.00	63.00	3	30.0	C	4.00	0.010	●
EB100A13-3C10	10.00	10.00	13.00	72.00	3	30.0	C	5.00	0.010	●
EB120A14-3C12	12.00	12.00	14.00	83.00	3	30.0	C	6.00	0.012	●

• Short and stable design for profiling (roughing). • For user guide, see pages 211-218

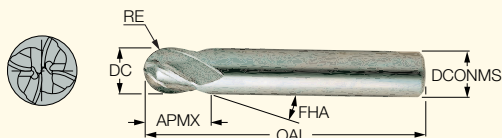
⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

⁽³⁾ Corner radius tolerance (+/-)

SOLIDMILL
TEC LINE**EB-A4 (economical-short)**

Economical Type 4 Flute, 30° Helix Ball Nose Short Solid Carbide Endmills



Designation	Dimensions										Tough ↔ Hard	
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	RE	Shank ⁽²⁾	RETOLL ⁽³⁾	RETOLU ⁽⁴⁾	IC08	IC900
EB-A4 02-04C06E50	2.00	6.00	4.00	50.00	4	30.0	1.00	C	0.000	0.005	●	●
EB-A4 03-04C06E50	3.00	6.00	4.00	50.00	4	30.0	1.50	C	-0.010	0.010	●	●
EB-A4 04-06C06E50	4.00	6.00	6.00	50.00	4	30.0	2.00	C	-0.010	0.010	●	●
EB-A4 05-07C06E51	5.00	6.00	7.00	51.00	4	30.0	2.50	C	-0.010	0.010	●	●
EB-A4 06-07C06E50	6.00	6.00	7.00	50.00	4	30.0	3.00	C	-0.010	0.010	●	●
EB-A4 06-07C06E51	6.00	6.00	7.00	51.00	4	30.0	3.00	C	-0.010	0.010	●	●
EB-A4 08-09C08E59	8.00	8.00	9.00	59.00	4	30.0	4.00	C	-0.010	0.010	●	●
EB-A4 10-10C10E66	10.00	10.00	10.00	66.00	4	30.0	5.00	C	-0.010	0.010	●	●
EB-A4 12-14C12E71	12.00	12.00	14.00	71.00	4	30.0	6.00	C	-0.012	0.012	●	●
EB-A4 16-16C16E76	16.00	16.00	16.00	76.00	4	30.0	8.00	C	-0.012	0.012	●	●
EB-A4 18-18C18E76	18.00	18.00	18.00	76.00	4	30.0	9.00	C	-0.012	0.012	●	●
EB-A4 20-20C20E82	20.00	20.00	20.00	82.00	4	30.0	10.00	C	-0.012	0.012	●	●

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

⁽³⁾ Lower tolerance limit

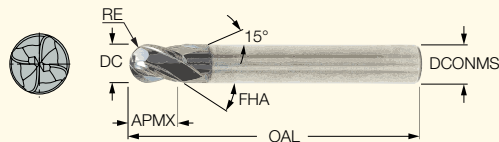
⁽⁴⁾ Upper tolerance limit



SOLIDMILL
PREMIUM LINE

EB-A-4 (short length)

4 Flute, 30° Helix Short Solid
Carbide Ball Nose Endmills



Designation	Dimensions									IC900
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RE	RETOL ⁽³⁾	
EB020A03/06-4C03L38	2.00	3.00	3.00	38.00	4	30.0	C	1.00	0.006	●
EB030A05-4C03	3.00	3.00	5.00	38.00	4	30.0	C	1.50	0.010	●
EB030A05-4C06	3.00	6.00	5.00	57.00	4	30.0	C	1.50	0.010	●
EB040A07-4C04	4.00	4.00	7.00	50.00	4	30.0	C	2.00	0.010	●
EB040A07-4C06	4.00	6.00	7.00	57.00	4	30.0	C	2.00	0.010	●
EB050A08-4C06	5.00	6.00	8.00	57.00	4	30.0	C	2.50	0.010	●
EB060A08-4C06	6.00	6.00	8.00	57.00	4	30.0	C	3.00	0.010	●
EB080A11-4C08	8.00	8.00	11.00	63.00	4	30.0	C	4.00	0.010	●
EB100A13-4C10	10.00	10.00	13.00	72.00	4	30.0	C	5.00	0.010	●
EB120A14-4C12	12.00	12.00	14.00	83.00	4	30.0	C	6.00	0.012	●
EB140A14-4C14	14.00	14.00	14.00	83.00	4	30.0	C	7.00	0.012	●
EB160A16-4C16	16.00	16.00	16.00	92.00	4	30.0	C	8.00	0.012	●
EB200A20-4C20	20.00	20.00	20.00	104.00	4	30.0	C	10.00	0.012	●

• Short and stable design for profiling (finishing). • For user guide, see pages 211-218

⁽¹⁾ Number of flutes

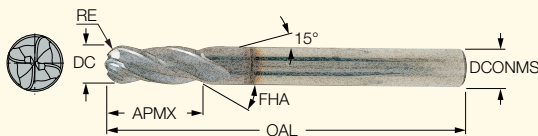
⁽²⁾ C-Cylindrical

⁽³⁾ Corner radius tolerance (+/-)

SOLIDMILL
PREMIUM LINE

EB-A-4 (medium length)

4 Flute, 30° Helix Medium Length
Solid Carbide Ball Nose Endmills



Designation	Dimensions									Tough ↔ Hard	
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RE		IC900	IC902
EB030A08-4C04	3.00	4.00	8.00	50.00	4	30.0	C	1.50		●	
EB040A12-4C04	4.00	4.00	12.00	50.00	4	30.0	C	2.00		●	●
EB050A14-4C05	5.00	5.00	14.00	50.00	4	30.0	C	2.50		●	
EB060A16-4C06	6.00	6.00	16.00	57.00	4	30.0	C	3.00		●	●
EB080A20-4C08	8.00	8.00	20.00	63.00	4	30.0	C	4.00		●	
EB090A11-4C09	9.00	9.00	11.00	67.00	4	30.0	C	4.50		●	
EB100A22-4C10	10.00	10.00	22.00	72.00	4	30.0	C	5.00		●	
EB120A25-4C12	12.00	12.00	25.00	83.00	4	30.0	C	6.00		●	
EB160A32-4C16	16.00	16.00	32.00	92.00	4	30.0	C	8.00		●	
EB200A38-4C20	20.00	20.00	38.00	104.00	4	30.0	C	10.00		●	

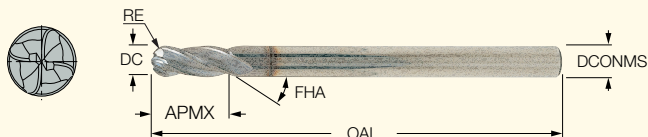
• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

SOLIDMILL
PREMIUM LINE**EBL-A-4**

4 Flute, 30° Helix Long Solid Carbide Ball Nose Endmills



Designation	Dimensions									IC900
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RE	RETOL ⁽³⁾	
EBL040A12-4C04	4.00	4.00	12.00	80.00	4	30.0	C	2.00	0.010	●
EBL060A16-4C06	6.00	6.00	16.00	100.00	4	30.0	C	3.00	0.010	●
EBL070A16-4C07	7.00	7.00	16.00	100.00	4	30.0	C	3.50	0.010	●
EBL080A20-4C08	8.00	8.00	20.00	100.00	4	30.0	C	4.00	0.010	●
EBL090A20-4C09	9.00	9.00	20.00	100.00	4	30.0	C	4.50	0.010	●
EBL100A22-4C10	10.00	10.00	22.00	100.00	4	30.0	C	5.00	0.010	●
EBL120A25-4C12	12.00	12.00	25.00	100.00	4	30.0	C	6.00	0.012	●
EBL160A32-4C16	16.00	16.00	32.00	125.00	4	30.0	C	8.00	0.012	●

• Profiling in deep cavities • For user guide, see pages 211-218

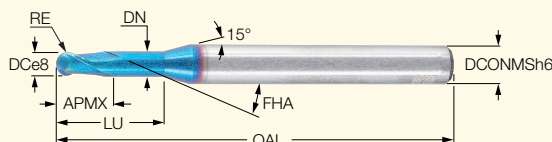
⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

⁽³⁾ Corner radius tolerance (+/-)

SOLIDMILL
PREMIUM LINE**EB-A2-H (rib processing)**

2 Flute, 30° Helix Rib Processing Solid Carbide Ball Nose Endmills for Materials up to 65 HRC



Designation	Dimensions											IC702	Recommended Machining Data
	DC	DCONMS	APMX	OAL	LU	DN	RE	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RETOL ⁽³⁾		f _z (mm/t)
EB-A2 004-004/03C4H45	0.40	4.00	0.40	45.00	3.0	0.37	0.20	2	30.0	C	0.005	●	0.0100-0.0150
EB-A2 005-004/04C4H45	0.50	4.00	0.40	45.00	4.0	0.45	0.25	2	30.0	C	0.005	●	0.0100-0.0150
EB-A2 005-004/08C4H45	0.50	4.00	0.40	45.00	8.0	0.45	0.25	2	30.0	C	0.005	●	0.0100-0.0150
EB-A2 006-005/02C4H45	0.60	4.00	0.50	45.00	2.0	0.55	0.30	2	30.0	C	0.005	●	0.0100-0.0150
EB-A2 006-005/04C4H45	0.60	4.00	0.50	45.00	4.0	0.55	0.30	2	30.0	C	0.005	●	0.0100-0.0150
EB-A2 006-005/08C4H45	0.60	4.00	0.50	45.00	8.0	0.55	0.30	2	30.0	C	0.005	●	0.0100-0.0150
EB-A2 008-006/02C4H45	0.80	4.00	0.60	45.00	2.0	0.75	0.40	2	30.0	C	0.005	●	0.0150-0.0250
EB-A2 008-006/04C4H45	0.80	4.00	0.60	45.00	4.0	0.75	0.40	2	30.0	C	0.005	●	0.0150-0.0250
EB-A2 008-006/06C4H45	0.80	4.00	0.60	45.00	6.0	0.75	0.40	2	30.0	C	0.005	●	0.0150-0.0250
EB-A2 010-008/03C4H45	1.00	4.00	0.80	45.00	3.0	0.95	0.50	2	30.0	C	0.005	●	0.0200-0.0350
EB-A2 010-008/04C4H45	1.00	4.00	0.80	45.00	4.0	0.95	0.50	2	30.0	C	0.005	●	0.0200-0.0350
EB-A2 010-008/06C4H45	1.00	4.00	0.80	45.00	6.0	0.95	0.50	2	30.0	C	0.005	●	0.0200-0.0350
EB-A2 010-008/08C4H45	1.00	4.00	0.80	45.00	8.0	0.95	0.50	2	30.0	C	0.005	●	0.0200-0.0350
EB-A2 010-008/10C4H45	1.00	4.00	0.80	45.00	10.0	0.95	0.50	2	30.0	C	0.005	●	0.0200-0.0350
EB-A2 010-008/20C4M55	1.00	4.00	0.80	55.00	20.0	0.95	0.50	2	30.0	C	0.005	●	0.0200-0.0350
EB-A2 012-010/08C4H45	1.20	4.00	1.00	45.00	8.0	1.15	0.60	2	30.0	C	0.005	●	0.0200-0.0450
EB-A2 015-012/06C4H45	1.50	4.00	1.20	45.00	6.0	1.45	0.75	2	30.0	C	0.005	●	0.0200-0.0450
EB-A2 015-012/10C4H45	1.50	4.00	1.20	45.00	10.0	1.45	0.75	2	30.0	C	0.005	●	0.0200-0.0450
EB-A2 015-012/12C4H45	1.50	4.00	1.20	45.00	12.0	1.45	0.75	2	30.0	C	0.005	●	0.0200-0.0450
EB-A2 015-012/20C4H55	1.50	4.00	1.20	55.00	20.0	1.45	0.75	2	30.0	C	0.005	●	0.0200-0.0450
EB-A2 020-016/04C4H45	2.00	4.00	1.60	45.00	4.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 020-016/06C4H45	2.00	4.00	1.60	45.00	6.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 020-016/10C4H45	2.00	4.00	1.60	45.00	10.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 020-016/12C4H50	2.00	4.00	1.60	50.00	12.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 020-016/14C4H50	2.00	4.00	1.60	50.00	14.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 020-016/16C4H50	2.00	4.00	1.60	50.00	16.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 020-016/20C4H55	2.00	4.00	1.60	55.00	20.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 030-024/12C6H50	3.00	6.00	2.40	50.00	12.0	2.85	1.50	2	30.0	C	0.005	●	0.0500-0.1000
EB-A2 030-024/16C6H55	3.00	6.00	2.40	55.00	16.0	2.85	1.50	2	30.0	C	0.005	●	0.0500-0.1000
EB-A2 030-024/20C6H60	3.00	6.00	2.40	60.00	20.0	2.85	1.50	2	30.0	C	0.005	●	0.0500-0.1000
EB-A2 030-024/25C6H65	3.00	6.00	2.40	65.00	25.0	2.85	1.50	2	30.0	C	0.005	●	0.0500-0.1000
EB-A2 040-032/16C6H60	4.00	6.00	3.20	60.00	16.0	3.85	2.00	2	30.0	C	0.005	●	0.0600-0.1500
EB-A2 040-032/20C6H65	4.00	6.00	3.20	65.00	20.0	3.85	2.00	2	30.0	C	0.005	●	0.0600-0.1500
EB-A2 040-032/25C6H70	4.00	6.00	3.20	70.00	25.0	3.85	2.00	2	30.0	C	0.005	●	0.0600-0.1500

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

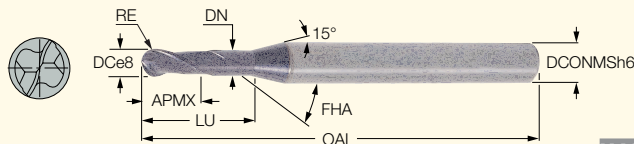
⁽³⁾ Corner radius tolerance (+/-)



SOLIDMILL
PREMIUM LINE

EB-A2 (rib processing)

2 Flute, 30° Helix Rib Processing
Solid Carbide Ball Nose Endmills
for Materials up to 55 HRC



HARD MATERIALS

Designation	Dimensions											Tough ↕ Hard	Recommended Machining Data
	DC	DCONMS	APMX	OAL	LU	DN	RE	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RETOL ⁽³⁾	IC903	f _z (mm/t)
EB-A2 004-006/01C4M45	0.40	4.00	0.60	45.00	1.0	0.36	0.20	2	30.0	C	0.010	●	0.0030-0.0060
EB-A2 004-006/02C4M45	0.40	4.00	0.60	45.00	2.0	0.36	0.20	2	30.0	C	0.010	●	0.0030-0.0060
EB-A2 004-006/03C4M45	0.40	4.00	0.60	45.00	3.0	0.36	0.20	2	30.0	C	0.010	●	0.0030-0.0060
EB-A2 005-007/02C4M45	0.50	4.00	0.70	45.00	2.0	0.45	0.25	2	30.0	C	0.010	●	0.0030-0.0060
EB-A2 005-007/04C4M45	0.50	4.00	0.70	45.00	4.0	0.45	0.25	2	30.0	C	0.010	●	0.0030-0.0060
EB-A2 005-007/06C4M45	0.50	4.00	0.70	45.00	6.0	0.45	0.25	2	30.0	C	0.010	●	0.0030-0.0060
EB-A2 005-007/08C4M45	0.50	4.00	0.70	45.00	8.0	0.45	0.25	2	30.0	C	0.010	●	0.0030-0.0060
EB-A2 006-009/02C4M45	0.60	4.00	0.90	45.00	2.0	0.55	0.30	2	30.0	C	0.010	●	0.0040-0.0080
EB-A2 006-009/04C4M45	0.60	4.00	0.90	45.00	4.0	0.55	0.30	2	30.0	C	0.010	●	0.0040-0.0080
EB-A2 008-012/02C4M45	0.80	4.00	1.20	45.00	2.0	0.75	0.40	2	30.0	C	0.010	●	0.0040-0.0080
EB-A2 008-012/04C4M45	0.80	4.00	1.20	45.00	4.0	0.75	0.40	2	30.0	C	0.010	●	0.0040-0.0080
EB-A2 008-012/06C4M45	0.80	4.00	1.20	45.00	6.0	0.75	0.40	2	30.0	C	0.010	●	0.0040-0.0080
EB-A2 008-012/10C4M45	0.80	4.00	1.20	45.00	10.0	0.75	0.40	2	30.0	C	0.010	●	0.0040-0.0080
EB-A2 010-015/03C4M45	1.00	4.00	1.50	45.00	3.0	0.97	0.50	2	30.0	C	0.010	●	0.0050-0.0100
EB-A2 010-015/04C4M45	1.00	4.00	1.50	45.00	4.0	0.97	0.50	2	30.0	C	0.010	●	0.0050-0.0100
EB-A2 010-015/05C4M45	1.00	4.00	1.50	45.00	5.0	0.97	0.50	2	30.0	C	0.010	●	0.0050-0.0100
EB-A2 010-015/06C4M45	1.00	4.00	1.50	45.00	6.0	0.97	0.50	2	30.0	C	0.010	●	0.0050-0.0100
EB-A2 010-015/07C4M45	1.00	4.00	1.50	45.00	7.0	0.95	0.50	2	30.0	C	0.010	●	0.0050-0.0100
EB-A2 010-015/08C4M45	1.00	4.00	1.50	45.00	8.0	0.95	0.50	2	30.0	C	0.010	●	0.0050-0.0100
EB-A2 010-015/10C4M45	1.00	4.00	1.50	45.00	10.0	0.95	0.50	2	30.0	C	0.010	●	0.0050-0.0100
EB-A2 010-015/12C4M45	1.00	4.00	1.50	45.00	12.0	0.93	0.50	2	30.0	C	0.010	●	0.0050-0.0100
EB-A2 010-015/14C4M50	1.00	4.00	1.50	50.00	14.0	0.93	0.50	2	30.0	C	0.010	●	0.0050-0.0100
EB-A2 010-015/16C4M50	1.00	4.00	1.50	50.00	16.0	0.93	0.50	2	30.0	C	0.010	●	0.0050-0.0100
EB-A2 010-015/20C4M55	1.00	4.00	1.50	55.00	20.0	0.93	0.50	2	30.0	C	0.010	●	0.0050-0.0100
EB-A2 012-018/08C4M45	1.20	4.00	1.80	45.00	8.0	1.17	0.60	2	30.0	C	0.010	●	0.0060-0.0150
EB-A2 012-018/12C4M45	1.20	4.00	1.80	45.00	12.0	1.13	0.60	2	30.0	C	0.010	●	0.0060-0.0150
EB-A2 014-021/08C4M45	1.40	4.00	2.10	45.00	8.0	1.35	0.70	2	30.0	C	0.010	●	0.0060-0.0150
EB-A2 014-021/16C4M50	1.40	4.00	2.10	50.00	16.0	1.31	0.70	2	30.0	C	0.010	●	0.0060-0.0150
EB-A2 015-015/03C04M50	1.50	4.00	1.50	50.00	3.0	1.47	0.75	2	30.0	C	0.010	●	0.0070-0.0160
EB-A2 015-023/06C4M45	1.50	4.00	2.30	45.00	6.0	1.47	0.75	2	30.0	C	0.010	●	0.0070-0.0160
EB-A2 015-023/08C4M45	1.50	4.00	2.30	45.00	8.0	1.45	0.75	2	30.0	C	0.010	●	0.0070-0.0160
EB-A2 015-023/10C4M45	1.50	4.00	2.30	45.00	10.0	1.45	0.75	2	30.0	C	0.010	●	0.0070-0.0160
EB-A2 015-023/12C4M45	1.50	4.00	2.30	45.00	12.0	1.43	0.75	2	30.0	C	0.010	●	0.0070-0.0160
EB-A2 015-023/20C4M55	1.50	4.00	2.30	55.00	20.0	1.39	0.75	2	30.0	C	0.010	●	0.0070-0.0160
EB-A2 016-024/08C4M45	1.60	4.00	2.40	45.00	8.0	1.55	0.80	2	30.0	C	0.010	●	0.0080-0.0170
EB-A2 016-024/12C4M45	1.60	4.00	2.40	45.00	12.0	1.53	0.80	2	30.0	C	0.010	●	0.0080-0.0170
EB-A2 018-027/08C4M45	1.80	4.00	2.70	45.00	8.0	1.75	0.90	2	30.0	C	0.010	●	0.0080-0.0180
EB-A2 018-027/12C4M45	1.80	4.00	2.70	45.00	12.0	1.73	0.90	2	30.0	C	0.010	●	0.0080-0.0180
EB-A2 018-027/16C4M50	1.80	4.00	2.70	50.00	16.0	1.71	0.90	2	30.0	C	0.010	●	0.0080-0.0180
EB-A2 020-030/04C4M45	2.00	4.00	3.00	45.00	4.0	1.97	1.00	2	30.0	C	0.010	●	0.0100-0.0210
EB-A2 020-030/06C4M45	2.00	4.00	3.00	45.00	6.0	1.97	1.00	2	30.0	C	0.010	●	0.0100-0.0210
EB-A2 020-030/10C4M45	2.00	4.00	3.00	45.00	10.0	1.93	1.00	2	30.0	C	0.010	●	0.0100-0.0210
EB-A2 020-030/12C4M50	2.00	4.00	3.00	50.00	12.0	1.93	1.00	2	30.0	C	0.010	●	0.0100-0.0210
EB-A2 020-030/14C4M50	2.00	4.00	3.00	50.00	14.0	1.93	1.00	2	30.0	C	0.010	●	0.0100-0.0210
EB-A2 020-030/16C4M50	2.00	4.00	3.00	50.00	16.0	1.91	1.00	2	30.0	C	0.010	●	0.0100-0.0210
EB-A2 020-030/20C4M55	2.00	4.00	3.00	55.00	20.0	1.89	1.00	2	30.0	C	0.010	●	0.0100-0.0210
EB-A2 020-030/25C4M60	2.00	4.00	3.00	60.00	25.0	1.89	1.00	2	30.0	C	0.010	●	0.0100-0.0210
EB-A2 020-030/30C4M70	2.00	4.00	3.00	70.00	30.0	1.89	1.00	2	30.0	C	0.010	●	0.0100-0.0210
EB-A2 030-045/08C6M50	3.00	6.00	4.50	50.00	8.0	2.85	1.50	2	30.0	C	0.010	●	0.0120-0.0300
EB-A2 030-045/10C6M50	3.00	6.00	4.50	50.00	10.0	2.85	1.50	2	30.0	C	0.010	●	0.0120-0.0300
EB-A2 030-045/12C6M50	3.00	6.00	4.50	50.00	12.0	2.85	1.50	2	30.0	C	0.010	●	0.0120-0.0300
EB-A2 030-045/16C6M55	3.00	6.00	4.50	55.00	16.0	2.85	1.50	2	30.0	C	0.010	●	0.0120-0.0300
EB-A2 030-045/20C6M60	3.00	6.00	4.50	60.00	20.0	2.85	1.50	2	30.0	C	0.010	●	0.0120-0.0300
EB-A2 030-045/25C6M65	3.00	6.00	4.50	65.00	25.0	2.85	1.50	2	30.0	C	0.010	●	0.0120-0.0300
EB-A2 030-045/30C6M70	3.00	6.00	4.50	70.00	30.0	2.85	1.50	2	30.0	C	0.010	●	0.0120-0.0300
EB-A2 030-045/35C6M80	3.00	6.00	4.50	80.00	35.0	2.85	1.50	2	30.0	C	0.010	●	0.0120-0.0300
EB-A2 040-060/10C6M60	4.00	6.00	6.00	60.00	10.0	3.80	2.00	2	30.0	C	0.010	●	0.0150-0.0350

• For user guide, see pages 211-218

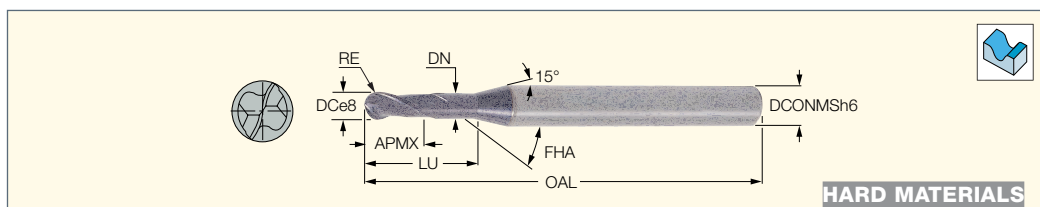
⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

⁽³⁾ Corner radius tolerance (+/-)

EB-A2 (rib processing)

2 Flute, 30° Helix Rib Processing
Solid Carbide Ball Nose Endmills
for Materials up to 55 HRC

**HARD MATERIALS**

Designation	Dimensions											Tough↔Hard IC903	Recommended Machining Data
	DC	DCONMS	APMX	OAL	LU	DN	RE	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RETOL ⁽³⁾	f _z (mm/t)	
EB-A2 040-060/12C6M60	4.00	6.00	6.00	60.00	12.0	3.80	2.00	2	30.0	C	0.010	●	0.0150-0.0350
EB-A2 040-060/16C6M60	4.00	6.00	6.00	60.00	16.0	3.80	2.00	2	30.0	C	0.010	●	0.0150-0.0350
EB-A2 040-060/20C6M65	4.00	6.00	6.00	65.00	20.0	3.80	2.00	2	30.0	C	0.010	●	0.0150-0.0350
EB-A2 040-060/25C6M70	4.00	6.00	6.00	70.00	25.0	3.80	2.00	2	30.0	C	0.010	●	0.0150-0.0350
EB-A2 040-060/30C6M70	4.00	6.00	6.00	70.00	30.0	3.80	2.00	2	30.0	C	0.010	●	0.0150-0.0350
EB-A2 040-060/35C6M80	4.00	6.00	6.00	80.00	35.0	3.80	2.00	2	30.0	C	0.010	●	0.0150-0.0350
EB-A2 040-060/45C6M90	4.00	6.00	6.00	90.00	45.0	3.80	2.00	2	30.0	C	0.010	●	0.0150-0.0350
EB-A2 050-075/20C6M60	5.00	6.00	7.50	60.00	20.0	4.80	2.50	2	30.0	C	0.010	●	0.0180-0.0440
EB-A2 050-075/25C6M70	5.00	6.00	7.50	70.00	25.0	4.80	2.50	2	30.0	C	0.010	●	0.0180-0.0440
EB-A2 050-075/30C6M80	5.00	6.00	7.50	80.00	30.0	4.80	2.50	2	30.0	C	0.010	●	0.0180-0.0440
EB-A2 050-075/35C6M80	5.00	6.00	7.50	80.00	35.0	4.80	2.50	2	30.0	C	0.010	●	0.0180-0.0440
EB-A2 060-090/20C6M80	6.00	6.00	9.00	80.00	20.0	5.80	3.00	2	30.0	C	0.010	●	0.0200-0.0500
EB-A2 060-090/30C6M90	6.00	6.00	9.00	90.00	30.0	5.80	3.00	2	30.0	C	0.010	●	0.0200-0.0500
EB-A2 060-090/40C6M100	6.00	6.00	9.00	100.00	40.0	5.80	3.00	2	30.0	C	0.010	●	0.0200-0.0500

• For user guide, see pages 211-218

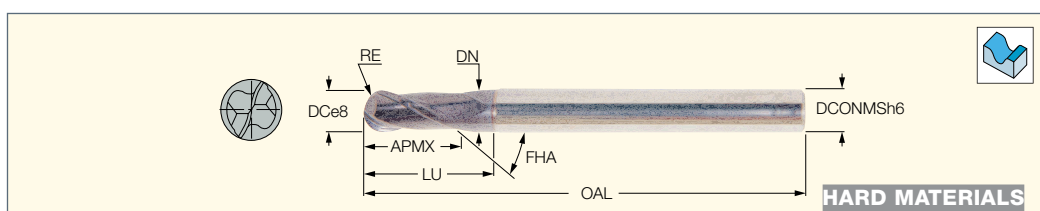
⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

⁽³⁾ Corner radius tolerance (+/-)

EB-A2 (long with neck)

2 Flute, 30° Helix Long Solid
Carbide Ball Nose Endmills
with Relieved Necks for
Materials up to 65 HRC

**HARD MATERIALS**

Designation	Dimensions												IC903
	DC	RE	DCONMS	APMX	OAL	LU	DN	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RETOL ⁽³⁾		
EB-A2 03-08C06M70	3.00	1.50	6.00	8.00	70.00	-	-	2	30.0	C	0.010	●	●
EB-A2 04-08C06M70	4.00	2.00	6.00	8.00	70.00	-	-	2	30.0	C	0.010	●	●
EB-A2 05-12C06M80	5.00	2.50	6.00	12.00	80.00	-	-	2	30.0	C	0.010	●	●
EB-A2 06-12/22C06M80	6.00	3.00	6.00	12.00	80.00	22.00	5.80	2	30.0	C	0.010	●	●
EB-A2 07-14C08M90	7.00	3.50	8.00	14.00	90.00	-	-	2	30.0	C	0.020	●	●
EB-A2 08-14/27C08M90	8.00	4.00	8.00	14.00	90.00	27.00	7.80	2	30.0	C	0.020	●	●
EB-A2 10-18/31C10M100	10.00	5.00	10.00	18.00	100.00	31.00	9.80	2	30.0	C	0.020	●	●
EB-A2 12-22/35C12M110	12.00	6.00	12.00	22.00	110.00	35.00	11.80	2	30.0	C	0.020	●	●
EB-A2 16-30/50C16M140	16.00	8.00	16.00	30.00	140.00	50.00	15.80	2	30.0	C	0.020	●	●

• For user guide, see pages 211-218

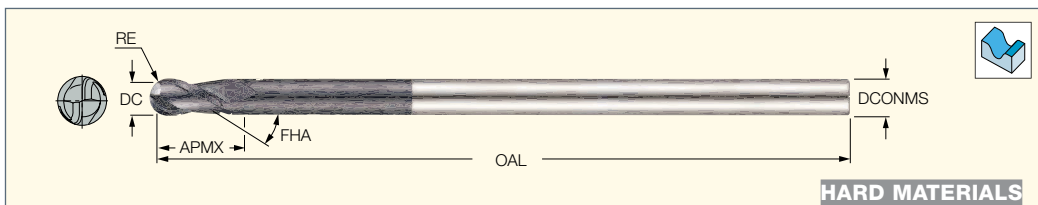
⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

⁽³⁾ Corner radius tolerance (+/-)

EB-A2 (extra long)

2 Flute, 30° Helix Extra Long
 Solid Carbide Ball Nose Endmills
 for Materials up to 65 HRC



Designation	Dimensions								IC903
	DC	RE	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	
EB-A2 02-06C03M80	2.00	1.00	3.00	6.00	80.00	2	30.0	C	●
EB-A2 03-08C03M100	3.00	1.50	3.00	8.00	100.00	2	30.0	C	●
EB-A2 04-08C04M100	4.00	2.00	4.00	8.00	100.00	2	30.0	C	●
EB-A2 06-10C06M120	6.00	3.00	6.00	10.00	120.00	2	30.0	C	●
EB-A2 08-14C08M140	8.00	4.00	8.00	14.00	140.00	2	30.0	C	●
EB-A2 10-18C10M180	10.00	5.00	10.00	18.00	180.00	2	30.0	C	●
EB-A2 12-22C12M200	12.00	6.00	12.00	22.00	200.00	2	30.0	C	●
EB-A2 16-30C16M250	16.00	8.00	16.00	30.00	250.00	2	30.0	C	●
EB-A2 20-38C20M250	20.00	10.00	20.00	38.00	250.00	2	30.0	C	●

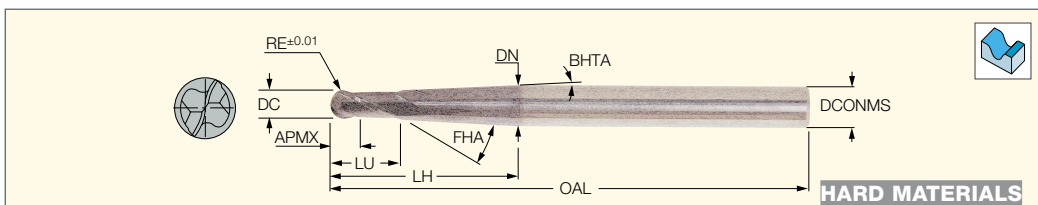
• The DC tolerance is: 0 - -0.030 mm • For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

EB-A2 (tapered flute & neck)

2 Tapered Flutes, 30° Helix
 Solid Carbide Ball Nose
 Endmills with Relieved Necks
 for Materials up to 65 HRC



Designation	Dimensions												IC903
	DC	RE	DCONMS	APMX	LU	LH	DN	BHTA	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	
EB-A2 01-02/04/1.5C06M60	1.00	0.50	6.00	2.00	4.0	23.0	2.00	1.5	60.00	2	30.0	C	●
EB-A2 01-02/04/3.0C06M80	1.00	0.50	6.00	2.00	4.0	42.0	5.00	3.0	80.00	2	30.0	C	●
EB-A2 01-02/04/5.0C06M60	1.00	0.50	6.00	2.00	4.0	23.0	4.30	5.0	60.00	2	30.0	C	●
EB-A2 02-04/06/1.5C06M60	2.00	1.00	6.00	4.00	6.0	23.0	2.90	1.5	60.00	2	30.0	C	●
EB-A2 02-04/06/3.0C06M80	2.00	1.00	6.00	4.00	6.0	41.0	5.70	3.0	80.00	2	30.0	C	●
EB-A2 02-04/06/5.0C06M60	2.00	1.00	6.00	4.00	6.0	23.0	5.00	5.0	60.00	2	30.0	C	●
EB-A2 03-06/08/1.5C06M90	3.00	1.50	6.00	6.00	8.0	52.0	5.30	1.5	90.00	2	30.0	C	●
EB-A2 03-06/08/3.0C06M70	3.00	1.50	6.00	6.00	8.0	32.0	5.60	3.0	70.00	2	30.0	C	●
EB-A2 04-08/10/1.5C06M90	4.00	2.00	6.00	8.00	10.0	49.0	6.00	1.5	90.00	2	30.0	C	●
EB-A2 04-08/10/3.0C06M70	4.00	2.00	6.00	8.00	10.0	28.0	6.00	3.0	70.00	2	30.0	C	●
EB-A2 05-10/12/1.5C08M110	5.00	2.50	8.00	10.00	12.0	61.0	7.60	1.5	110.00	2	30.0	C	●
EB-A2 06-12/15/1.5C08M110	6.00	3.00	8.00	12.00	15.0	53.0	8.00	1.5	110.00	2	30.0	C	●
EB-A2 06-12/15/3.0C08M90	6.00	3.00	8.00	12.00	15.0	34.0	8.00	3.0	90.00	2	30.0	C	●
EB-A2 08-14/17/1.5C10M120	8.00	4.00	10.00	14.00	17.0	55.0	10.00	1.5	120.00	2	30.0	C	●
EB-A2 08-14/17/3.0C10M100	8.00	4.00	10.00	14.00	17.0	36.0	10.00	3.0	100.00	2	30.0	C	●
EB-A2 10-18/21/1.5C12M130	10.00	5.00	12.00	18.00	21.0	59.0	12.00	1.5	130.00	2	30.0	C	●
EB-A2 10-18/21/3.0C12M110	10.00	5.00	12.00	18.00	21.0	40.0	12.00	3.0	110.00	2	30.0	C	●

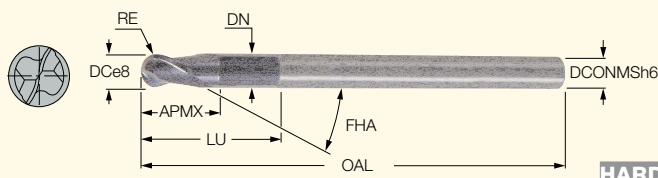
• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

SOLIDMILL
PREMIUM LINE**EB-A2 (precision stub cut)**

2 Flute, 30° Helix Stub Cut
Length High Precision Ball Nose
Endmills with Relieved Necks
for Materials up to 65 HRC

**HARD MATERIALS**

Designation	Dimensions												IC903
	DC	RE	DCONMS	APMX	LU	OAL	DN	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RETOLL ⁽³⁾	RETOLU ⁽⁴⁾	
EB-A2 01-01/02C04M50	1.00	0.50	4.00	1.00	2.20	50.00	0.95	2	30.0	C	0.000	0.004	●
EB-A2 01-01/02C06M50	1.00	0.50	6.00	1.00	2.20	50.00	0.95	2	30.0	C	-0.010	0.010	●
EB-A2 012-012/02C04M50	1.20	0.60	4.00	1.20	2.60	50.00	1.10	2	30.0	C	-0.010	0.010	●
EB-A2 02-02/04C06M50	2.00	1.00	6.00	2.00	4.00	50.00	1.90	2	30.0	C	-0.010	0.010	●
EB-A2 025-025/05C06M60	2.50	1.25	6.00	2.50	5.00	60.00	2.40	2	30.0	C	0.000	0.006	●
EB-A2 03-03/06C06M60	3.00	1.50	6.00	3.00	6.00	60.00	2.90	2	30.0	C	-0.010	0.010	●
EB-A2 04-04/08C06M70	4.00	2.00	6.00	4.00	8.00	70.00	3.90	2	30.0	C	-0.010	0.010	●
EB-A2 05-05/10C06M80	5.00	2.50	6.00	5.00	10.00	80.00	4.90	2	30.0	C	-0.010	0.010	●
EB-A2 06-06/12C06M90	6.00	3.00	6.00	6.00	12.00	90.00	5.90	2	30.0	C	-0.010	0.010	●
EB-A2 07-07/14C08M90	7.00	3.50	8.00	7.00	14.00	90.00	6.90	2	30.0	C	-0.010	0.010	●
EB-A2 08-08/16C08M100	8.00	4.00	8.00	8.00	16.00	100.00	7.90	2	30.0	C	-0.010	0.010	●
EB-A2 09-09/18C10M100	9.00	4.50	10.00	9.00	18.00	100.00	8.90	2	30.0	C	-0.010	0.010	●
EB-A2 10-10/20C10M100	10.00	5.00	10.00	10.00	20.00	100.00	9.90	2	30.0	C	-0.010	0.010	●
EB-A2 12-12/24C12M110	12.00	6.00	12.00	12.00	24.00	110.00	11.90	2	30.0	C	-0.012	0.012	●
EB-A2 14-14/28C14M110	14.00	7.00	14.00	14.00	28.00	110.00	13.80	2	30.0	C	-0.012	0.012	●
EB-A2 16-16/32C16M140	16.00	8.00	16.00	16.00	32.00	140.00	15.80	2	30.0	C	-0.012	0.012	●
EB-A2 25-25/50C25M180	25.00	12.50	25.00	25.00	50.00	180.00	24.80	2	30.0	C	-0.015	0.015	●

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes⁽²⁾ C-Cylindrical⁽³⁾ Corner radius tolerance lower⁽⁴⁾ Corner radius tolerance upper**SOLIDMILL**
PREMIUM LINE**EBM-A-2**

2 Flute, 30° Helix Medium
Length Solid Carbide Miniature
Ball Nose Endmills



Designation	Dimensions										Tough ↔ Hard	
	DC	RE	DCONMS	APMX	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	RETOLL ⁽³⁾	RETOLU ⁽⁴⁾	IC08	IC900
EBM004A008-2C03	0.40	0.20	3.00	0.80	38.00	2	30.0	C	0.000	0.004	●	●
EBM005A010-2C03	0.50	0.25	3.00	1.00	38.00	2	30.0	C	0.000	0.004	●	●
EBM006A012-2C03	0.60	0.30	3.00	1.20	38.00	2	30.0	C	0.000	0.004	●	●
EBM007A014-2C03	0.70	0.35	3.00	1.40	38.00	2	30.0	C	0.000	0.004	●	●
EBM008A016-2C03	0.80	0.40	3.00	1.60	38.00	2	30.0	C	0.000	0.004	●	●
EBM010A025-2C04	1.00	0.50	4.00	2.50	50.00	2	30.0	C	0.000	0.004	●	●
EBM012A030-2C04	1.20	0.60	4.00	3.00	50.00	2	30.0	C	0.000	0.004	●	●
EBM016A040-2C04	1.60	0.80	4.00	4.00	50.00	2	30.0	C	0.000	0.004	●	●
EBM020A060-2C04	2.00	1.00	4.00	6.00	50.00	2	30.0	C	0.000	0.004	●	●

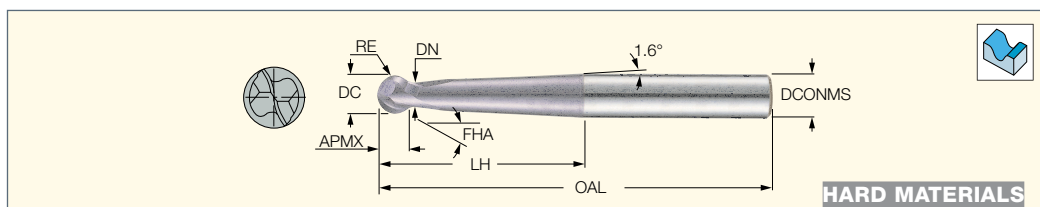
• Short and stable design for profiling (roughing). • For user guide, see pages 211-218

⁽¹⁾ Number of flutes⁽²⁾ C-Cylindrical⁽³⁾ Corner radius tolerance lower⁽⁴⁾ Corner radius tolerance upper

DC	Tolerance
DC≤0.6	DC 0.000 -0.010
0.6<DC≤2	DC 0.000 -0.012

ESB-A2

2 Flute, 30° Helix Spherical Long Solid Carbide Ball Nose Endmills for Materials up to 65 HRC



Designation	Dimensions										IC903
	DC	RE	DCONMS	APMX	LH	DN	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	
ESB-A2 03 02/30C06M80	3.00	1.50	6.00	2.30	30.0	2.50	80.00	2	30.0	C	●
ESB-A2 04 03/30C06M80	4.00	2.00	6.00	3.10	30.0	3.30	80.00	2	30.0	C	●
ESB-A2 05 03/38C06M80	5.00	2.50	6.00	3.90	38.0	4.10	80.00	2	30.0	C	●
ESB-A2 06 04/28C06M100	6.00	3.00	6.00	4.90	28.0	4.70	100.00	2	30.0	C	●
ESB-A2 08 06/33C08M100	8.00	4.00	8.00	6.30	33.0	6.50	100.00	2	30.0	C	●
ESB-A2 10 07/40C10M100	10.00	5.00	10.00	7.90	40.0	8.20	100.00	2	30.0	C	●
ESB-A2 16 12/59C16M150	16.00	8.00	16.00	12.40	59.0	13.40	150.00	2	30.0	C	●

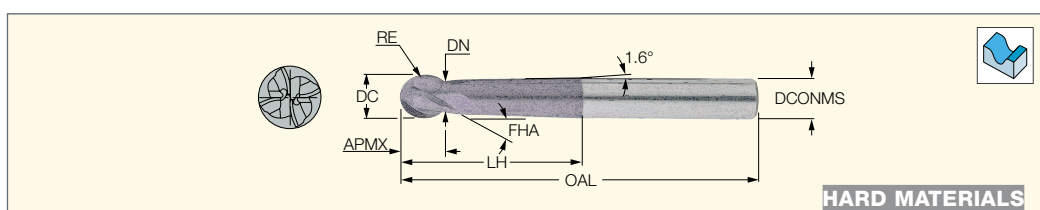
• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

ESB-A4

4 Flute, 30° Helix Spherical Long Solid Carbide Ball Nose Endmills for Materials up to 65 HRC



Designation	Dimensions										IC903
	DC	RE	DCONMS	APMX	LH	DN	OAL	NOF ⁽¹⁾	FHA	Shank ⁽²⁾	
ESB-A4 05 3/38C06M80	5.00	2.50	6.00	3.90	38.0	4.10	80.00	4	30.0	C	●
ESB-A4 06 4/28C06M100	6.00	3.00	6.00	4.90	28.0	4.70	100.00	4	30.0	C	●
ESB-A4 08 6/33C08M100	8.00	4.00	8.00	6.30	33.0	6.30	100.00	4	30.0	C	●
ESB-A4 10 7/40C10M100	10.00	5.00	10.00	7.90	40.0	8.20	100.00	4	30.0	C	●
ESB-A4 12 9/49C12M100	12.00	6.00	12.00	9.50	49.0	9.80	100.00	4	30.0	C	●

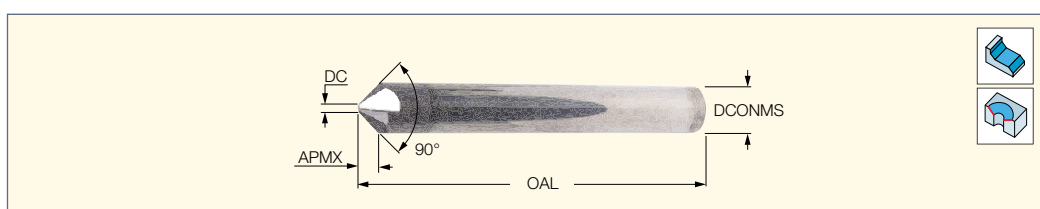
• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

ECF../45

45° Chamfering and Countersinking Solid Carbide Endmills

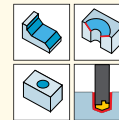


Designation	Dimensions						IC900
	DC	DCONMS	APMX	OAL	NOF ⁽¹⁾	Shank ⁽²⁾	
ECF D-1.5/45-4C04	1.00	4.00	1.50	50.00	4	C	●
ECF D-2/45-4C06	2.00	6.00	2.00	57.00	4	C	●
ECF D-3/45-4C08	2.00	8.00	3.00	63.00	4	C	●
ECF D-4/45-4C10	2.00	10.00	4.00	72.00	4	C	●
ECF D-5/45-4C12	2.00	12.00	5.00	83.00	4	C	●

• For user guide, see pages 211-218

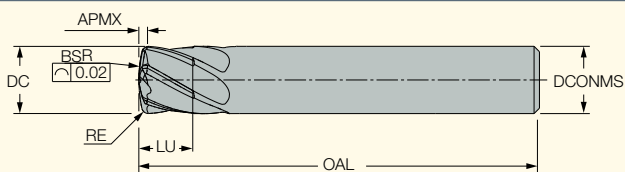
⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

SOLIDMILL
PREMIUM LINE**ECD-S2**Chamfering and Spot Drilling
Solid Carbide Tools

Designation	Dimensions							Tough ↔ Hard	
	DC	DCONMS	OAL	APMX	LU	Shank ⁽¹⁾	SIG	IC08	IC900
ECD-S2 030/90C03-38	3.00	3.00	38.00	1.37	6.00	C	90	●	●
ECD-S2 04/120C04-50	4.00	4.00	50.00	1.02	8.00	C	120	●	●
ECD-S2 040/60C04-50	4.00	4.00	50.00	2.75	7.80	C	60	●	●
ECD-S2 040/90C04-50	4.00	4.00	50.00	1.79	8.00	C	90	●	●
ECD-S2 05/120C05-50	5.00	5.00	50.00	1.28	10.00	C	120	●	●
ECD-S2 050/60C05-50	5.00	5.00	50.00	3.61	9.30	C	60	●	●
ECD-S2 050/90C05-50	5.00	5.00	50.00	2.24	10.00	C	90	●	●
ECD-S2 06/120C06-57	6.00	6.00	57.00	1.54	12.00	C	120	●	●
ECD-S2 060/60C06-57	6.00	6.00	57.00	4.34	10.70	C	60	●	●
ECD-S2 060/90C06-57	6.00	6.00	57.00	2.71	12.00	C	90	●	●
ECD-S2 08/120C08-63	8.00	8.00	63.00	2.05	16.00	C	120	●	●
ECD-S2 080/60C08-63	8.00	8.00	63.00	5.92	16.80	C	60	●	●
ECD-S2 080/90C08-63	8.00	8.00	63.00	3.63	16.00	C	90	●	●
ECD-S2 10/120C10-72	10.00	10.00	72.00	2.56	20.00	C	120	●	●
ECD-S2 100/60C10-72	10.00	10.00	72.00	7.21	19.30	C	60	●	●
ECD-S2 100/90C10-72	10.00	10.00	72.00	4.55	20.00	C	90	●	●
ECD-S2 12/120C12-73	12.00	12.00	73.00	3.08	24.00	C	120	●	●
ECD-S2 120/60C12-73	12.00	12.00	73.00	8.93	21.60	C	60	●	●
ECD-S2 120/90C12-73	12.00	12.00	73.00	5.47	24.00	C	90	●	●

• For user guide, see pages 211-218

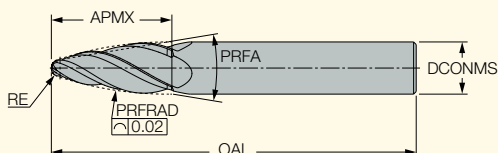
⁽¹⁾ C-Cylindrical**NEOBARREL**
PROFILE MILLING**ELB**Solid Carbide Lens-Shaped
(Barrel) Endmills for 3D Profiling

Designation	Dimensions									IC902
	DC	BSR	RE	LU	APMX	DCONMS	NOF ⁽¹⁾	OAL	Shank ⁽²⁾	
ELB-R0.75R16A5-6C8-63	8.00	15.00	0.75	5.00	1.10	8.00	6	63.00	C	●
ELB-R1R20A7-6C10-72	10.00	20.00	1.00	7.00	1.43	10.00	6	72.00	C	●
ELB-R1R25A9-6C12-83	12.00	25.00	1.00	9.00	1.53	12.00	6	83.00	C	●

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes⁽²⁾ C-Cylindrical

EOB

 Solid Carbide Oval-Shaped
 (Barrel) Endmills for 3D Profiling


Designation	Dimensions								Tough ↔ Hard	
	DCONMS	RE	PRFRAD	APMX	PRFA	NOF ⁽¹⁾	OAL	Shank ⁽²⁾	IC08	IC902
EOB-R1.5R85A17/5-8C06-57	6.00	1.50	85.00	17.00	10.82	8	57.00	C		
EOB-R1R90A24/7-4C08-63	8.00	1.00	90.00	24.50	14.88	4	63.00	C		•
EOB-R2R90A20/7-4C08-63	8.00	2.00	90.00	21.50	12.18	4	63.00	C		•
EOB-AL-R2R85A20/9-4C10-72	10.00	2.00	85.00	21.00	18.68	4	72.00	C	•	
EOB-R2R85A24/8-4C10-72	10.00	2.00	85.00	24.50	15.46	4	72.00	C		•
EOB-R3R85A21/6-4C10-72	10.00	3.00	85.00	21.30	12.62	4	72.00	C		•
EOB-R2R80A27/9-4C12-83	12.00	2.00	80.00	27.10	18.38	4	83.00	C		•
EOB-AL-R3R85A24/8-4C12-83	12.00	3.00	85.00	25.00	16.12	4	83.00	C	•	
EOB-R3R80A24/8-4C12-83	12.00	3.00	80.00	24.50	15.98	4	83.00	C		•
EOB-R4R80A21/6-8C12-83	12.00	4.00	80.00	21.50	13.10	8	83.00	C		•
EOB-R4R80A21/7-4C12-83	12.00	4.00	80.00	21.50	13.10	4	83.00	C		•
EOB-R4R1000A28/10-4C16-92	16.00	4.00	1000.00	27.00	20.00	4	92.00	C		•

• For user guide, see pages 211-218

⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

Recommended initial metric cutting parameters

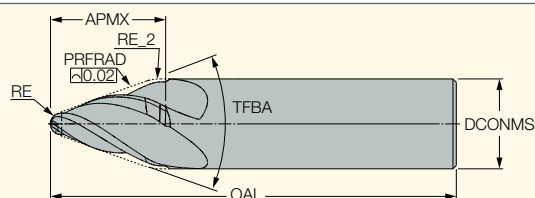
ISO	Material		Condition	Tensile Strength [N/mm ²]	Hardness HB	Material No. ⁽¹⁾	Cutting Parameters		
							v_c [m/min]	f_z [mm/t]	f_z start [mm/t]
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	210 - 300	0.005 - 0.01xD	0.006xD
		>= 0.25 %C	annealed	650	190	2	200 - 250	0.005 - 0.01xD	0.006xD
		< 0.55 %C	quenched and tempered	850	250	3	160 - 240	0.004 - 0.009xD	0.005xD
		>= 0.55 %C	annealed	750	220	4	160 - 240	0.003 - 0.008xD	0.004xD
			quenched and tempered	1000	300	5	140 - 200	0.004 - 0.009xD	0.005xD
	low alloy steel and cast steel (less than 5% of alloying elements)		annealed	600	200	6	160 - 240	0.003 - 0.008xD	0.004xD
			quenched and tempered	930	275	7	120 - 200	0.003 - 0.008xD	0.004xD
				1000	300	8	130 - 200	0.003 - 0.008xD	0.004xD
				1200	350	9	140 - 200	0.003 - 0.008xD	0.004xD
M	stainless steel and cast steel		annealed	680	200	10	130 - 200	0.003 - 0.008xD	0.004xD
			quenched and tempered	1100	325	11	70 - 130	0.003 - 0.007xD	0.003xD
			ferritic/martensitic	680	200	12	80 - 175	0.002 - 0.007xD	0.003xD
K	grey cast iron (GG)		martensitic	820	240	13	60 - 165	0.002 - 0.007xD	0.003xD
			austenitic	600	180	14	60 - 110	0.002 - 0.007xD	0.003xD
			ferritic/pearlitic		180	15	150 - 275	0.005 - 0.01xD	0.006xD
	cast iron nodular (GGG)		pearlitic		260	16	150 - 265	0.005 - 0.01xD	0.006xD
			ferritic		160	17	150 - 200	0.005 - 0.01xD	0.006xD
			pearlitic		250	18	90 - 150	0.004 - 0.009xD	0.005xD
S	high temp. alloys	Fe based	ferritic		130	19	150 - 200	0.005 - 0.01xD	0.006xD
			pearlitic		230	20	90 - 150	0.004 - 0.009xD	0.005xD
			annealed		200	31	20 - 45	0.002 - 0.004xD	0.003xD
		Ni or Co based	cured		280	32	20 - 35	0.002 - 0.004xD	0.003xD
			annealed		250	33	20 - 35	0.002 - 0.004xD	0.003xD
			cured		350	34	20 - 35	0.002 - 0.004xD	0.003xD
	titanium alloys		cast		320	35	60 - 90	0.002 - 0.004xD	0.003xD
			pure	Rm = 400		36	60 - 90	0.002 - 0.004xD	0.003xD
H	hardened steel		alpha+beta alloys cured	Rm = 1050		37	60 - 90	0.002 - 0.004xD	0.003xD
			hardened		55 HRC	38	40 - 80	0.001 - 0.003xD	0.002xD
	chilled cast iron		hardened		60 HRC	39			
	cast iron		cast		400	40	40 - 80	0.001 - 0.003xD	0.002xD
			hardened		55 HRC	41	40 - 80	0.001 - 0.003xD	0.002xD

⁽¹⁾ Based on ISO 513 and VDI 3323 Standards

NEOBARREL

ETB

Solid Carbide Taper-Shaped
(Barrel) Endmills for 3D Profiling



Designation	Dimensions									IC902
	PRFRAD	RE_2	RE	APMX	TFBA	DCONMS	NOF ⁽¹⁾	OAL	Shank ⁽²⁾	
ETB-R1R250A10/20-4C08-63	250.00	4.00	1.00	10.00	40.00	8.00	4	63.00	C	•
ETB-R2R250A11/20-4C10-72	250.00	5.00	2.00	11.00	40.00	10.00	4	72.00	C	•
ETB-R3R250A12/20-4C12-83	250.00	6.00	3.00	12.00	40.00	12.00	4	83.00	C	•

• For user guide, see pages 211-218

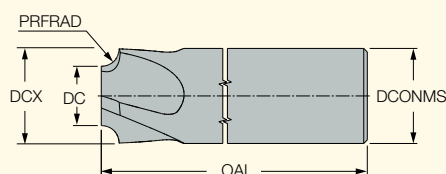
⁽¹⁾ Number of flutes

⁽²⁾ C-Cylindrical

SOLIDMILL

ER-S4 R

4 Flutes Corner Rounding
Solid Carbide Endmills



Designation	Dimensions						IC900
	PRFRAD	DC	DCX ⁽¹⁾	DCONMS	NOF ⁽²⁾	OAL	
ER-S4 R0.5D5.0C06-50	0.50	5.00	6.00	6.00	4	50.00	•
ER-S4 R.75D4.5C06-50	0.75	4.50	6.00	6.00	4	50.00	•
ER-S4 R1.0D4.0C06-50	1.00	4.00	6.00	6.00	4	50.00	•
ER-S4 R1.5D5.0C08-63	1.50	5.00	8.00	8.00	4	63.00	•
ER-S4 R2.0D6.0C10-66	2.00	6.00	10.00	10.00	4	66.00	•
ER-S4 R2.5D5.0C10-66	2.50	5.00	10.00	10.00	4	66.00	•
ER-S4 R3.0D6.0C12-73	3.00	6.00	12.00	12.00	4	73.00	•

New

• For user guide, see pages 211-218

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of flutes



Table of Contents

Grade Priorities for Solid Carbide Endmills

Material Groups		ISO P		ISO M	ISO K	ISO N	ISO S	ISO H
		1 - 11	12 - 13	14	15 - 20	21 - 28	31 - 37	38 - 41
		Steel	Stainless Steel Ferritic & Martensitic	Stainless Steel Austenitic & Duplex (Ferritic- Austenitic)	Cast Iron	Nonferrous	High Temp Alloys	Hard Steel & Hardened Cast Iron
Solid & MULTI-MASTER Endmills 	Harder ↑ ↓ Tougher	IC702	IC702	IC902	IS6*		IS6*	IC702
		IC902	IC902	IC903	IC902		IS902**	IC903
		IC903	IC903		IC903		IC903	
		IC608	IC608	IC608	IC608		IC900 (908)	IC608
		IC900 (908)	IC900 (908)	IC900 (908)	IC900 (908)			IC900 (908)
Roughing/ Semi-Finishing 	Harder ↑ ↓ Tougher					IC08	IC08	
Coolant		N	Y	Y	N	Y	Y	N
Solid & MULTI-MASTER Endmills 	Harder ↑ ↓ Tougher	IC702	IC702	IC902	IS6*		IC902	IC702
		IC902	IC902	IC608	IC902		IC903	IC902
		IC903	IC903		IC903		IC900 (908)	IC903
		IC608	IC608		IC608			IC608
Finishing 	Harder ↑ ↓ Tougher	IC900 (908)	IC900 (908)	IC900 (908)	IC900 (908)		IC900 (908)	IC900 (908)
						IC08		
Coolant		N	Y	Y	N	Y	Y	N

■ First choice

* SiAlON grade

** First choice for trochoidal milling

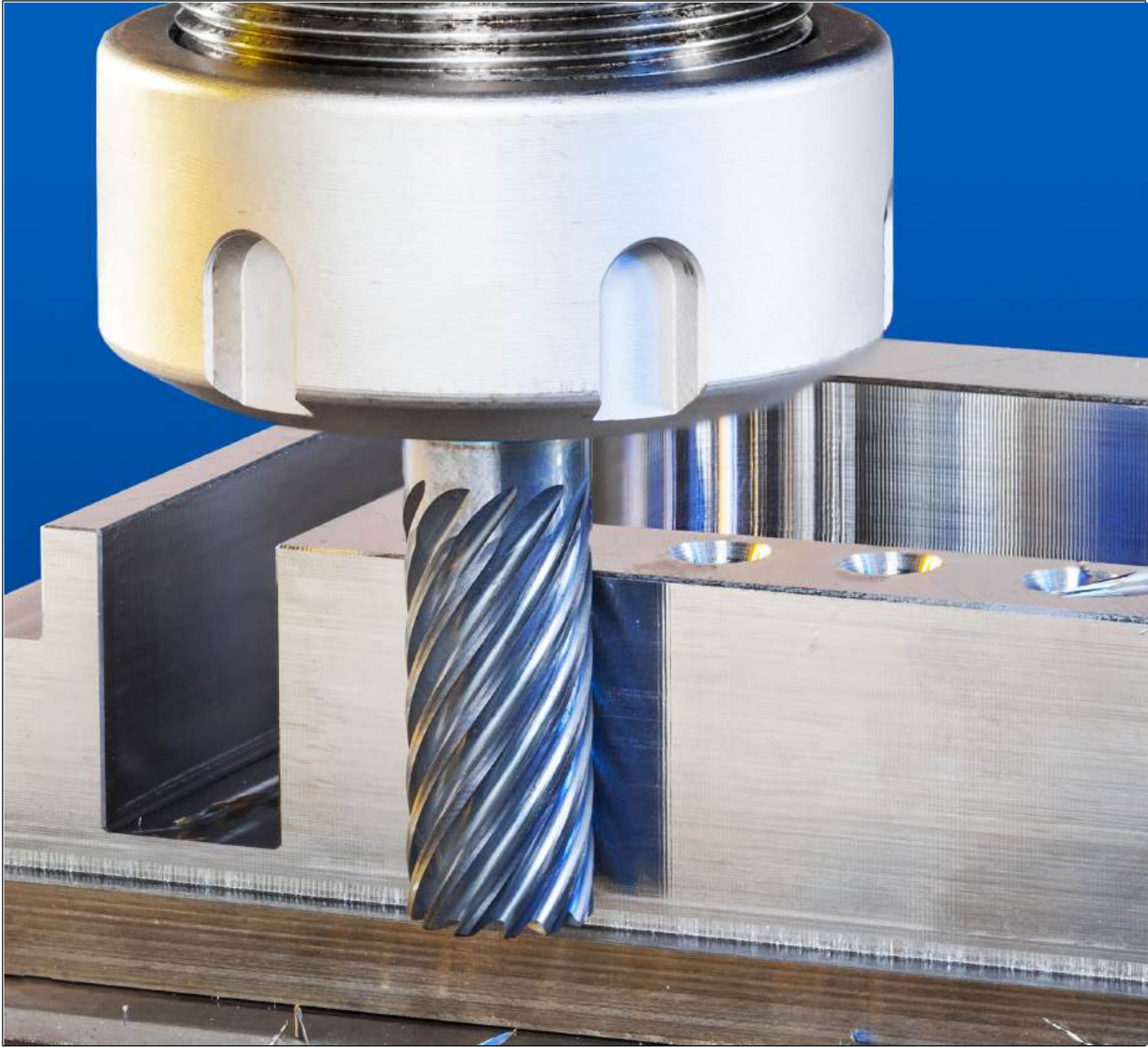
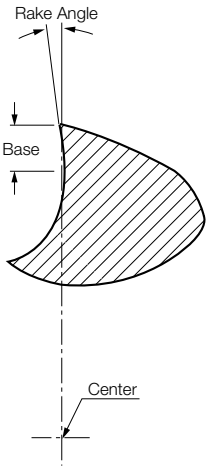


Machining Data for Solid Carbide and MULTI-MASTER Endmills

ISO	Material	Condition	Tensile Strength [N/mm ²]	Hardness HB	Material No.	Cutting Speed (m/min)		
						IC900/ IC608	IC903	IC08
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C annealed	420	125	1	260-280	260-280	180-200
		>= 0.25 %C annealed	650	190	2	200-230	200-230	140-160
		< 0.55 %C quenched and tempered	850	250	3	160-220	160-220	110-150
		>= 0.55 %C annealed	750	220	4	160-220	160-220	110-150
		>= 0.55 %C quenched and tempered	1000	300	5	140-180	140-180	100-130
	low alloy and cast steel (less than 5% of alloying elements)	annealed	600	200	6	160-220	160-220	110-150
		quenched and tempered	930	275	7	120-180	120-180	80-130
			1000	300	8	130-180	130-180	90-130
			1200	350	9	140-180	140-180	100-130
	high alloyed steel, cast steel and tool steel	annealed	680	200	10	130-180	130-180	90-130
		quenched and tempered	1100	325	11	70-120	70-120	50-80
	stainless steel and cast steel	ferritic/martensitic.	680	200	12	80-160	80-160	60-110
		martensitic	820	240	13	60-150	60-150	40-100
M	stainless steel and cast steel	austenitic	600	180	14	60-120	60-120	40-80
K	grey cast iron (GG)	ferritic/pearlitic		180	15	80-260	80-250	60-180
		pearlitic/martensitic		260	16	130-240	130-240	90-170
	cast iron nodular (GGG)	ferritic		160	17	150-280	150-270	100-200
		pearlitic		250	18	90-280	90-270	60-200
	malleable cast iron	ferritic		130	19	150-280	150-270	100-200
		pearlitic		230	20	140-240	140-240	100-170
N	aluminum-wrought alloys	not cureable		60	21			800-900
		cured		100	22			700-800
	aluminum-cast-alloys	<=12% Si not cureable		75	23			800-900
		cured		90	24			750-850
		>12% Si high temperature		130	25			400-450
	copper alloys	>1% Pb free cutting		110	26			500-550
		brass		90	27			500-550
		electrolitic copper		100	28			350-380
	non-metallic	duroplastics, fiber plastics			29			
		hard rubber			30			
S	high temp. alloys	Fe based annealed		200	31	20-40	20-40	10-20
		cured		280	32	20-40	20-30	10-20
		Ni or Co based annealed		250	33	20-50	20-30	20-50
		cured		350	34	20-70	20-30	20-50
		cast		320	35	30-70	30-80	20-50
	titanium ti alloys		RM 400		36	30-70	30-80	20-30
H	hardened steel	hardened		55 HRC	38	30-50	30-60	40-60
		hardened		60 HRC	39	30-40	30-40	20-30
	chilled cast iron	cast		400	40	60-80	70-90	65-75
	cast iron	hardened		55 HRC	41	30-50	30-60	40-45

Regrinding Instructions for Solid Carbide Endmills (Continued)
Base Distance for Rake Angle Measurement

Tool Diameter Base Distance		Tool Diameter Base Distance	
mm	In	mm	In
0.5<d1≤0.7	.02<d1≤.03	0.03	.001181
0.7<d1≤0.8	.03<d1≤.032	0.04	.001574
0.8<d1≤1.0	.032<d1≤.04	0.05	.001968
1.0<d1≤1.2	.04<d1≤.05	0.065	.002559
1.2<d1≤1.4	.05<d1≤.055	0.075	.002952
1.4<d1≤1.6	.055<d1≤.063	0.085	.003346
1.6<d1≤2	.063<d1≤.08	0.1	.003937
2<d1≤4	.08<d1≤.158	0.2	.007874
4<d1≤6.35	.158<d1≤.25	0.3	.01181
6.35<d1≤8	.25<d1≤.315	0.4	.01574
8<d1≤13	.315<d1≤.512	0.5	.01968
13<d1≤21	.512<d1≤.827	0.6	.02362
21<d1≤27	.827<d1≤1.063	0.7	.02755
27<d1≤	1.063<d1	0.8	.03149





Circle Segment Lines for Advanced Finish Milling Operations

Barrel Endmill

ISCAR's Barrel line comprises a variety of solid carbide endmills and **MULTI-MASTER** heads in different shapes: Oval, Taper & Lens.
For more information, refer to NPA 22-2020

Solid Carbide Endmills

- Oval Barrel – EOB
- Taper Barrel – ETB
- Lens Barrel – ELB

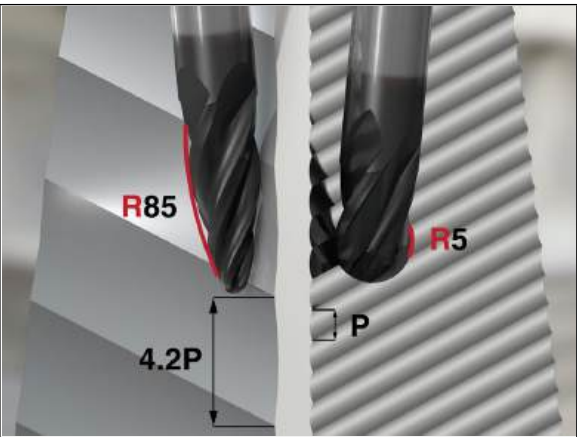
MULTI-MASTER Heads

- Oval Barrel – MM EOB
- Lens Barrel – MM ELB

Barrel Endmills Are Intended for Finish and Semi-Finish Machining of 3D Surfaces

Blade Rough	Blade Finish
	

A prominent advantage of a Barrel endmill over a Ball-Nose is the number of stepovers and, subsequent, machining time can be significantly reduced without degradation of the surface finish parameters.
The large-diameter arc of the endmill cutting edge results in a substantial reduction of the cusp height.



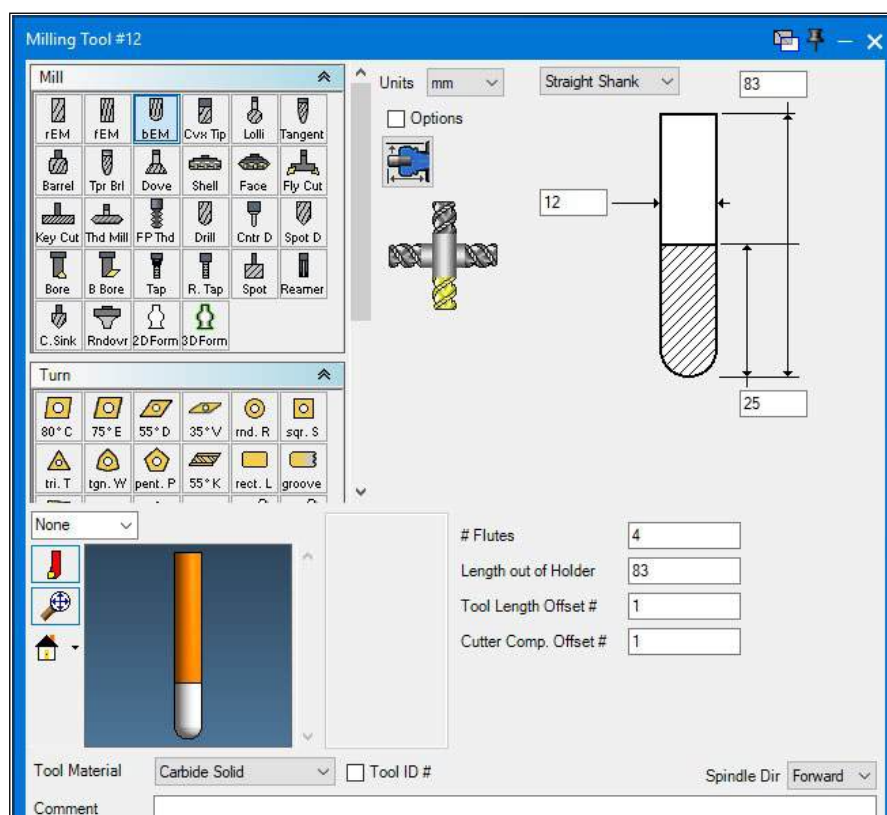
Machining Guidelines

The Most Important Thing to Remember

Programming circle segment tooling requires a supporting CAM system

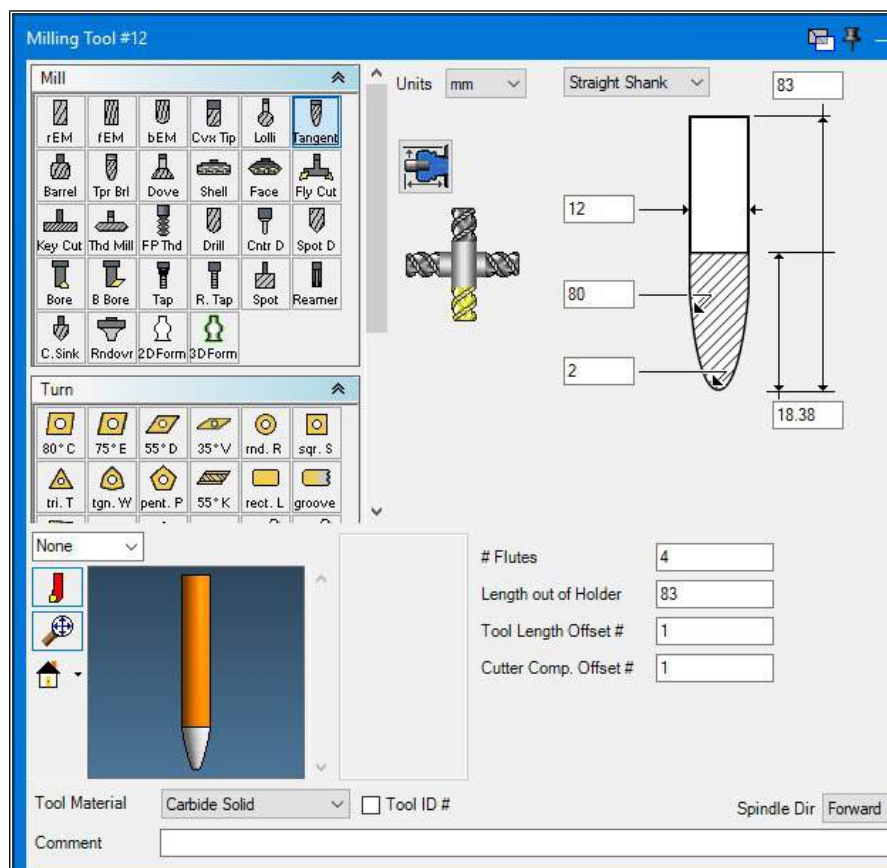
- **Step #1 – for Ball-Nose**

Select a Ball-Nose tool configuration and define its parameters.



- **Step #1 – for Oval Shape**

Select a Barrel tool configuration and define its parameters.



• **Step #1 – for Taper Shape**

Select a Taper tool configuration and set its parameters.

Milling Tool #12

Units: mm Straight Shank 83

12 10 6 250 3 0 25

Mill: rEM, fEM, bEM, Cvx Tip, Lolli, Tangent, Barrel, Tpr Brl, Dove, Shell, Face, Fly Cut, Key Cut, Thd Mill, FP Thd, Drill, Cntr D, Spot D, Bore, B Bore, Tap, R. Tap, Spot, Reamer, C. Sink, Rndovr, 2D Form, 3D Form

Turn: 80° C, 75° E, 55° D, 35° V, rnd. R, sqr. S, tri. T, tgn. W, pent. P, 55° K, rect. L, groove

None

Flutes: 4
Length out of Holder: 83
Tool Length Offset #: 1
Cutter Comp. Offset #: 1

Tool Material: Carbide Solid ☐ Tool ID # Spindle Dir: Forward

Comment:

• **Step #1 – for Lens Shape**

Select a Lens tool configuration and set its parameters.

Milling Tool #12

Units: mm Straight Shank 83

Options

12 25 1 0 10

Mill: rEM, fEM, bEM, Cvx Tip, Lolli, Tangent, Barrel, Tpr Brl, Dove, Shell, Face, Fly Cut, Key Cut, Thd Mill, FP Thd, Drill, Cntr D, Spot D, Bore, B Bore, Tap, R. Tap, Spot, Reamer, C. Sink, Rndovr, 2D Form, 3D Form

Turn: 80° C, 75° E, 55° D, 35° V, rnd. R, sqr. S, tri. T, tgn. W, pent. P, 55° K, rect. L, groove

None

Flutes: 4
Length out of Holder: 83
Tool Length Offset #: 1
Cutter Comp. Offset #: 1

Tool Material: Carbide Solid ☐ Tool ID # Spindle Dir: Forward

Comment:

• Step #2

Select the process. Each CAM defines different relevant processes, for example:

Surface, 5-Axis, Adv3D, etc.

Remember:

The advantage of barrel endmills is realized when used for 5 axis, finish milling operations

Important

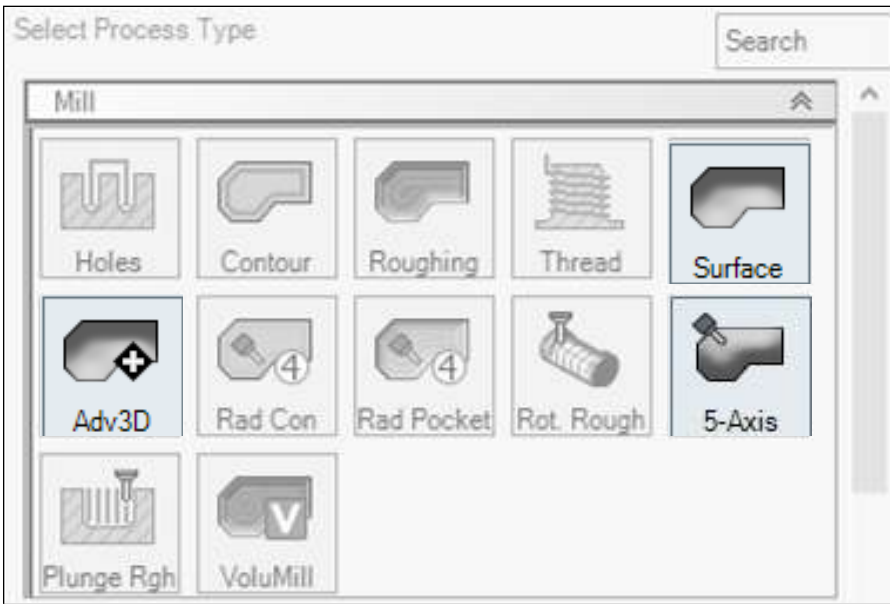
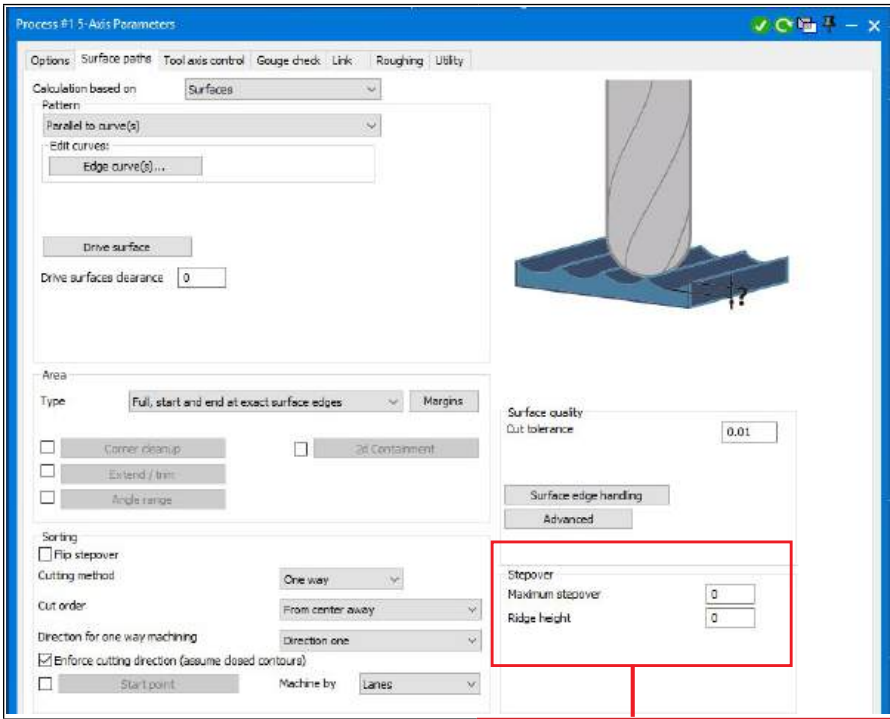
Each CAM software has its own features to configure the tools and their machining processes, but the definitions are similar.

The following example demonstrates only one way to define a Surface Finish (Ra) and is process dependent. In this example you will notice how many stepovers are required in order to obtain the same Ra with different tools.

There are many different options to define the required results from a tool.

Example

Same Ra – Different stepovers

Ball Nose Ø12 R6 [Ø.472" R.236"]	Stepover Maximum stepover 2
Oval Ø12 R80 [Ø.472" R3.15"]	Stepover Maximum stepover 7.4
Taper Ø12 R250 [Ø.472" R9.84"]	Stepover Maximum stepover 13.5
Lens Ø12 R25 [Ø.472" R.98"]	Stepover Maximum stepover 4.09

Take Into Consideration

Barrel milling should not always be considered the answer to finishing all 3D machined surfaces. Some part shapes are not conducive to Barrel milling operations. Sometimes, the blend radii of the machined part or the kinetics of the machine result in a complicated CAM tool path which may increase the cycle time compared to using a conventional Ball-Nose milling approach. This is where the need for a highly skilled programmer to make good and effective decisions comes into play.

Recommended Cutting Parameters to Start

ISO			Material	Condition	Tensile Strength [N/mm ²]	Hardness HB	Material No. ⁽¹⁾	Cutting Parameters		
								V _c m/min	F _z mm/t	F _z Start
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	210-300	0.005-0.01xD	0.006xD	
		>= 0.25 %C	annealed	650	190	2	200-250	0.005-0.01xD	0.006xD	
		< 0.55 %C	quenched and tempered							
				850	250	3	160-240	0.004-0.009xD	0.005xD	
		annealed	750	220	4	160-240	0.003-0.008xD	0.004xD		
	low alloy and cast steel (less than 5% of alloying elements)	>= 0.55 %C	quenched and tempered	1000	300	5	140-200	0.004-0.009xD	0.005xD	
				annealed	600	200	6	160-240	0.003-0.008xD	0.004xD
		quenched and tempered	930	275	7	120-200	0.003-0.008xD	0.004xD		
			1000	300	8	130-200	0.003-0.008xD	0.004xD		
	1200		350	9	140-200	0.003-0.008xD	0.004xD			
	high alloyed steel, cast steel and tool steel	annealed	680	200	10	130-200	0.003-0.008xD	0.004xD		
		quenched and tempered	1100	325	11	70-130	0.002-0.007xD	0.003xD		
									ferritic/martensitic	
	stainless steel and cast steel	martensitic	680	200	12	80-175	0.002-0.007xD	0.003xD		
	M	stainless steel and cast steel		martensitic	820	240	13	60-165	0.002-0.007xD	0.003xD
K	stainless steel and cast steel		austenitic	600	180	14	60-110	0.002-0.007xD	0.003xD	
	grey cast iron (GG)	ferritic/pearlitic		180	15	150-275	0.005-0.01xD	0.006xD		
		pearlitic		260	16	150-265	0.005-0.01xD	0.006xD		
	cast iron nodular (GGG)	ferritic		160	17	150-200	0.005-0.01xD	0.006xD		
		pearlitic		250	18	90-150	0.004-0.009xD	0.005xD		
	malleable cast iron	ferritic		130	19	150-200	0.005-0.01xD	0.006xD		
pearlitic			230	20	90-150	0.004-0.009xD	0.005xD			
S	high temp. alloys	Fe based	annealed		200	31	20-45	0.002-0.004xD	0.003xD	
			cured		280	32	20-35	0.002-0.004xD	0.003xD	
		Ni or Co based	annealed		250	33	20-35	0.002-0.004xD	0.003xD	
			cured		350	34	20-35	0.002-0.004xD	0.003xD	
			cast		320	35	60-90	0.002-0.004xD	0.003xD	
	titanium alloys	pure	Rm = 400		36	60-90	0.002-0.004xD	0.003xD		
		alpha+beta alloys	cured	Rm = 1050	37	60-90	0.002-0.004xD	0.003xD		
H	hardened steel		hardened		55 HRC	38	40-80	0.001-0.003xD	0.002xD	
			hardened		60 HRC	39				
	chilled cast iron		cast		400	40	40-80	0.001-0.003xD	0.002xD	
	cast iron		hardened		55 HRC	41	40-80	0.001-0.003xD	0.002xD	

FACE MILLS



Face Mills 90°



HELI-PLUS
HP F90AN-07
page 229



HELI-TANG
T490 FM/FLN
pages 226,231,238,244,250



HELI-QUAD
F90SP-10
page 234



HELI-2000
HM90 F90AP
pages 236-237



TANG-MILL
F90LN-N11
page 240



HELI-QUAD
F90SD-12
page 241



HELI-3-MILL
HM390 FT
pages 227,235,246,250



HELI-DO
H690 FWN
pages 227,230



HELI-DO
H690 F90AX
pages 238,252



HELI-DO
H490 F90A
pages 232,243,251



TANG-MILL
F90LN-N15
page 245



SUMO-MILL
T290 FLN
pages 234,244



HELI-2000
HM90 F90A
pages 236-237



ISCAR-MILL
F90
page 252



MILL-SHRED
P290 FPW/FCT
page 253



HELI-PLUS
HP F90AT
pages 253-254



LOGIQ-8-TANG
T890HT-R13
page 239



NEO-DO
S890 FSZ-R08
page 228

Face Mills 88°, 75°, 65°, 45°



HELI-DO
S890 FSN-13
page 242



ISCAR-MILL
F75-M
page 254



HELI-DO
S865 FSN-13
page 255



HELI-OCTO
HOF/HOE...R06
page 256



HELI-OCTO
HOF...R07
page 257



16-MILL
F45WG
page 258



16-MILL
F45NM
page 259



ISCAR-MILL
F45E
page 263



ISCAR-MILL
F45ST
page 263



HELI-DO
S845 F45SX
page 265



DOVE-IQ-MILL
IQ845
pages 257,258,264



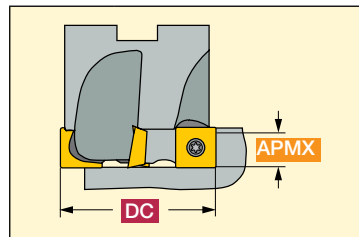
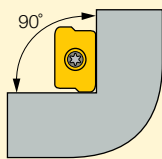
HELI-DO
SOF45
pages 260-261

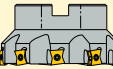


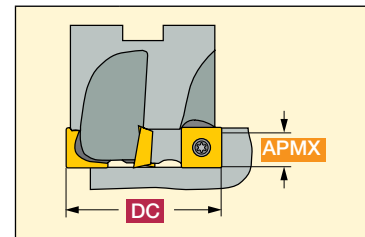
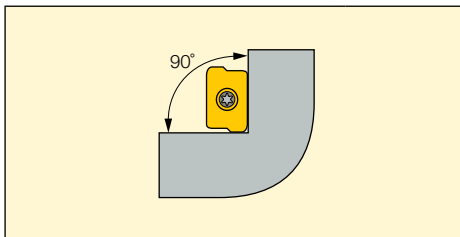
HELI-DO
SOF45-R18
page 267



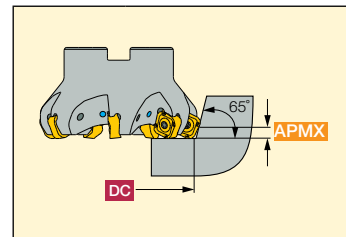
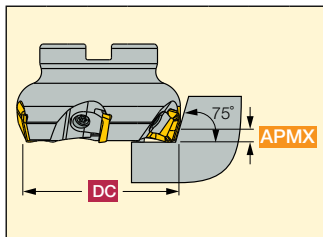
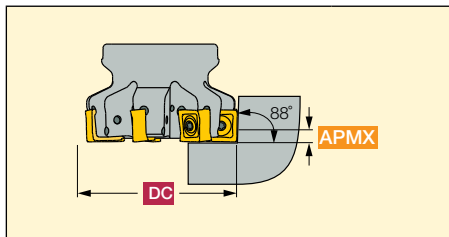
HELI-DO
SOF45-26
page 266

ISCAR^{MILL}**90° Face Mills Selection Guide**

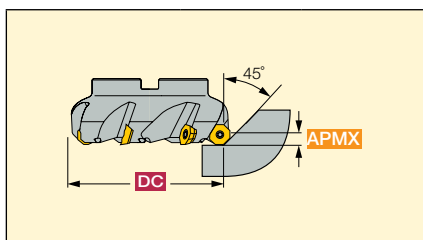
Tools	Pages	DC	25	32	40	50	63	80	100	125	160	200	250	315	Inserts	
		APMX	Number of Teeth (Effective)													
 H690 FWN	227 230	4 7		6	5 7	4 5 7 9	5 6 7 8 10	7 9	8 11	10					 H690 WN..04../07..	
 T490 FM-05	226	4	6	8	10	12									 T490 LNMT 0502	
 S890 FSZ-R08	228	5			5 6	6 8	7 10	8 12	10 14	12 18					 S890 SZMU-08...	
 HM390 FTC-07	227	5		4 5	5 6										 HM390 TCKT 07..	
 HP F90AN-07	229	7.7		6	8 10										 HP AN..0702..	
 T490 FLN-08	231	8		3 5	4 6	5 7 10	6 9	10							 T490 LN..08..	
 H490 F90AX-09	232	8		4 5	5 6	6 7	8 9								 H490 AN..09..	
 HM390 FTP-10	235	8			3 5	4 6	6 7	11	13						 HM390 TP.. 10..	
 T290 FLN-10	234	9		5	6										 T290 LNMT 10	
 F90SP-10	234	9.6			4	4 6	6 7	6 9							 SPMT/R 10... QPMT/R 10... XPMT 10... SPCT 10...	
 HM90 F90AP-10	236	10		3 5	5 6	4 6 7	6 7 9	8	9						 HM90 AP..10 AP...10	
 H690 F90AX-10	238	8		4 5	5 6	6 7	8								 H690 TN.. 10..	
 F90LN-N11	240	10			4 6	5 7	6 9	8 11	9 14	10 18					 LN.. 11...	
 T490 FLN-11	238	10			4 5	5 6	6 9	7 11	8 13						 T490 LN.. 11...	

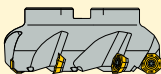
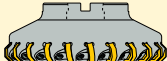
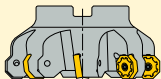
ISCAR^{MILL}**90° Face Mills Selection Guide**

Tools	Pages	DC	25	32	40	50	63	80	100	125	160	200	250	315	Inserts
		APMX	Number of Teeth (Effective)												
 F90SD-12	241	11.8				3 5	4 6	5	6 8	7 9	11	13			 SDMT 12... SDMR 12... QDMT 12... QDCT 12...
 H490 F90AX-12	243	12			4	3 5	4 6	5 7	6 9		9				 H490 AN.. 12...
 T490 FLN-13	244	12.5			4 5	5 6	6 8	7 10	8 13	9 17	12	15			 T490 LNMT 13..
 T890HT FLN-R13	239				3 4 5	4 5 6	6 7 8	6 7 9	8 12	9 15	12 20				 T890 LN.T 1306
 T290 FLN-15	244	14			4	5	6								 T290 LN.. 15...
 F90LN-N15	245	14				5	5 8	7 10	8 12	9 15	10 20	12 25	15		 LN.. 15...
 HM390 FTD-15	246	13			3 4	3 4 5	4 5 6	5 6 7	6 8	7 9	8 10	9			 HM390 TD... 1505...
 HM90 F90A-15	247	14.3			3 4	3 5	4 6	5 7	6 8	9					 HM90 AD.. 15...
 T490FLN-16	250	16				3 4	4 6	5 7	6 8	7 10	12	12			 T490 LNMT 16...
 HM390 FTD-19	250	16					5				10				 HM390 TDKT 1907
 H490 F90AX-17	251	16.3			3	3 4	4 6	5 7	5 8	7 10	8 12	10	12		 H490 AN.. 17...
 H690 F90AX-16	252	13.5				3 4	4 5	5 6	6 8	7 9	8 10	11			 HM690 TNKX 1606
 F90	252	18						6	8	8	10	12			 TPK...22
 P290 FPW/FCT	253	12 18		4	4 5	5 6	6	8	9						 P290 ACCT P290 ACKT
 HP F90AT-19	253	18				4									 HP AD.. 19...
 HP F90AT-22	254	21				3 4									 HP AD.. 22...

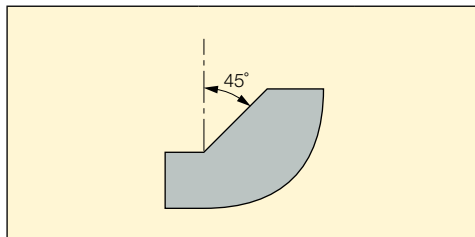
ISCAR^{MILL}**88°, 75°, 65° Endmills and Face Mills Selection Guide**

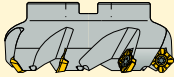
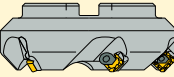
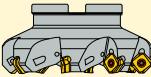
Tools	Pages	DC	25	32	40	50	63	80	100	125	160	200	250	315	Inserts	
		APMX														
		Number of Teeth (Effective)														
 S890 FSN-13	242	9			4	4	5	7	8	9	10				 S890 SN.. 13...	
		88°				5	7	9	11	14						
 F75-M	254	9.5				4	5	6	7	8					 SPKN/SPKR 12...	
		75°					5	6	7	8						
 S865 FSN-13	255	8				4	6	7	8	10					 S865 SNMU 13...	
		65°				6	8	10	12	16						

45° Endmills and Face Mills Selection Guide

Tools	Pages	DC	25	32	40	50	63	80	100	125	160	200	250	315	Inserts	
		APMX														
		Number of Teeth (Effective)														
 HOE / HOF	256 257	2.5 5.5		3	4	3 4	4 5	5 6	6 7	8	10	12	15	18	 OE.. 06.. OF.. 07... RF.. 19...	
 IQ845	257 258 264	2.6 4.6	3 4	4 5	4 5 6 7	4 5 6 9	5 7 11	6 8	7 10	9 12	11 15	14	17	20	 IQ845 SYHU 05,07...	
 F45WG	258	5.5						10	14	18	22				 ON.. 08...	
 F45NM	259	5.5					5	6 8	7 10	8 12	10 15	12	14		 ON.. 08...	
 SOF45	260	3.5 6.0			4	3 4 6	4 6 8	7 10	8 12	10 16	12	14	16	20	 ON.. 05... S845 SN.. 13...	

45° Face Mills Selection Guide

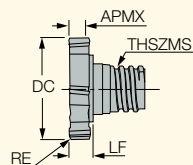


Tools	Pages	DC	25	32	40	50	63	80	100	125	160	200	250	315	Inserts	
		APMX	Number of Teeth (Effective)													
 F45ST	263	6.5			3	4	5	6	6	7	7				 SE.T 12...	
 F45E	263	6.5				4	5	6	6	6	8				 SE.. 12...	
 S845 F45SX-16	265	7.1			4	4 5	5 7	9	7 11	8 14	10 18	12	15		 S845 SX.. 16...	
 SOF45-R18	267	5 8				4	5	6 7	7 9	8 12	10 15	12 18	14 21	18 24	 SNMU 18 ONMU 07	
 SOF45-R26	266	7 11						4	5 6	6 8	8 10	10 12	12 14	14 16	 SNMU 26 ONMU 07	

MULTI-MASTER
 INDEXABLE SOLID CARBIDE LINE

MM FM

Interchangeable Solid Carbide
Face Milling Heads with
MULTI-MASTER Threaded
Connections



Designation	Dimensions							IC908	Recommended Machining Data f_z (mm/t)
	DC	APMX	RE	NOF ⁽¹⁾	THSZMS	LF			
MM FM100-36R0.2-06T05	10.00	3.60	0.20	6	T05	4.40	T-20/3*	●	0.04-0.10
MM FM120-36R0.2-06T05	12.00	3.60	0.20	6	T05	4.40	T-20/3*	●	0.04-0.10
MM FM160-48R0.4-06T06	16.00	4.80	0.40	6	T06	5.60	T-25/3*	●	0.05-0.10
MM FM200-60R0.4-06T08	20.00	6.00	0.40	6	T08	6.80	T-40/3 L*	●	0.05-0.10
MM FM250-75R0.4-06T10	25.00	7.50	0.40	6	T10	8.40	T-50/3 L*	●	0.05-0.10

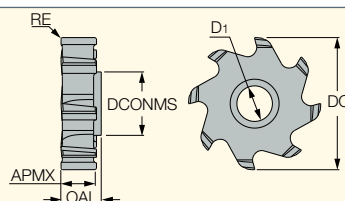
⁽¹⁾ Number of flutes

* Optional, to be ordered separately

T-FACE
 FACEMILL

SD FM

Interchangeable Solid Carbide
Face Milling Heads



Designation	Dimensions							IC908	Recommended Machining Data f_z (mm/t)
	DC	APMX	NOF ⁽¹⁾	RE	D1	DCONMS	OAL		
SD FM D32-8-R0.4-SP15	31.25	8.00	8	0.40	8.40	15.00	8.00	●	0.04-0.15
SD FM D40-10-R0.4-SP17	39.25	10.00	10	0.40	9.80	17.00	10.00	●	0.04-0.15
SD FM D50-12-R0.4-SP19	49.25	12.00	12	0.40	9.80	19.00	14.00	●	0.04-0.15

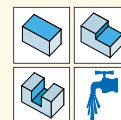
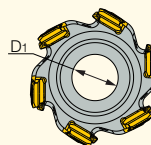
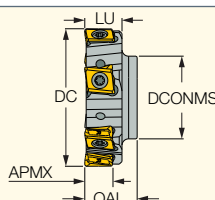
• For shanks, see page 227 • For user guide, see pages 616-621

⁽¹⁾ Number of flutes

HELI-TANG
 T490 LINE

T490 FM-05

90° Face Mills with a SP
Connection Carrying Tangentially
Clamped Inserts with 4 Helical
4.6 mm Long Cutting Edges



Designation	DC	CICT ⁽¹⁾	APMX	OAL	LU	DCONMS	D1	MIID ⁽²⁾
T490 FM D025-06-SP15-05	25.00	6	4.00	9.50	6.75	15.00	8.40	T490 LNMT 0502PNR-RD
T490 FM D032-08-SP17-05	32.00	8	4.00	10.50	6.75	17.00	9.80	T490 LNMT 0502PNR-RD
T490 FM D040-10-SP19-05	40.00	10	4.00	14.10	6.75	19.00	9.80	T490 LNMT 0502PNR-RD
T490 FM D050-12-SP19-05	50.00	12	4.00	14.10	6.75	19.00	9.80	T490 LNMT 0502PNR-RD

New

• For user guide, see pages 616-621

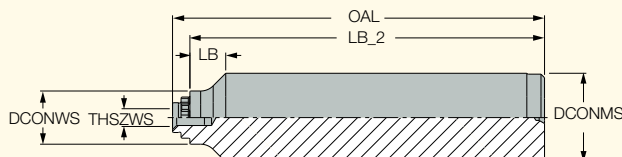
⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Master insert identification

For inserts, see pages: T490 LNMT 0502 (543)

Spare Parts

Designation		
T490 FM-05	SR M2X0.4-4.8 IP6	T-6IP/51

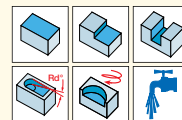
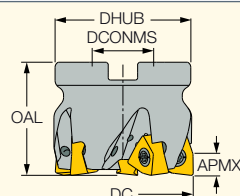
**T-FACE**
FACEMILL**SD FM-S-A-SP**Stepped Cylindrical Shanks
for Interchangeable Solid
Carbide Face Milling Heads

Designation	DCONMS	DCONWS	THSZWS	LB	LB_2	OAL	Shank ⁽¹⁾	kg
SD FM-S-A-L100-C25-SP15	25.00	15.00	M5x0.5	10.10	100.00	104.90	C	0.37
SD FM-S-A-L120-W25-SP15	25.00	15.00	M5x0.5	10.10	120.00	124.90	W	0.44
SD FM-S-A-L125-W32-SP17	32.00	17.00	M6x0.5	12.50	125.00	131.00	W	0.75
SD FM-S-A-L140-C32 SP17	32.00	17.00	M6x0.5	12.50	140.00	146.00	C	0.85
SD FM-S-A-L140-C32-SP19	32.00	19.00	M6x0.5	10.00	140.00	148.50	C	1.41
SD FM-S-A-L130-W40-SP19	40.00	19.00	M6x0.5	14.00	130.00	138.50	W	1.21

• Apply lubricant to the clamping screw

⁽¹⁾ C-Cylindrical, W-Weldon**Spare Parts**

Designation			
SD FM-S-A-L100-C25-SP15	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD FM-S-A-L120-W25-SP15	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD FM-S-A-L125-W32-SP17	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T
SD FM-S-A-L140-C32 SP17	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T
SD FM-S-A-L140-C32-SP19	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T
SD FM-S-A-L130-W40-SP19	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T

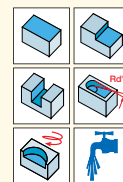
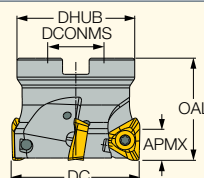
HELI DO
TRIGON LINE**H690 FWN-04**90° Face Mills Carrying
H690 WNMU 0403
Double-Sided Trigonal Inserts
with 6 Helical Cutting Edges

Designation	DC	CICT ⁽¹⁾	APMX	DHUB	DCONMS	OAL	Arbor ⁽²⁾	RMPX ⁽³⁾	kg			
H690 FWN D32-06-16-R04	32.00	6	4.00	30.40	16.00	35.00	A	0.8	0.16	SR M8X27-CSH50	SR M2.5X6-T7-60	T-7/51
H690 FWN D40-05-16-R04	40.00	5	4.00	38.00	16.00	35.00	A	0.6	0.20	SR M8X25DIN912	SR M2.5X6-T7-60	T-7/51
H690 FWN D40-07-16-R04	40.00	7	4.00	38.00	16.00	35.00	A	0.6	0.21	SR M8X25DIN912	SR M2.5X6-T7-60	T-7/51
H690 FWN D50-07-22-R04	50.00	7	4.00	48.00	22.00	40.00	A	0.5	0.37	SR M10X25 DIN912	SR M2.5X6-T7-60	T-7/51
H690 FWN D50-09-22-R04	50.00	9	4.00	48.00	22.00	40.00	A	0.5	0.38	SR M10X25 DIN912	SR M2.5X6-T7-60	T-7/51
H690 FWN D63-08-27-R04	63.00	8	4.00	60.00	27.00	40.00	B	0.2	0.39		SR M2.5X6-T7-60	T-7/51
H690 FWN D63-10-27-R04	63.00	10	4.00	60.00	27.00	40.00	B	0.2	0.39		SR M2.5X6-T7-60	T-7/51

• Insert clamping screw must be lubricated every indexing. • Tightening torque 0.9 Nxm. • For user guide see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)⁽²⁾ For adaptation options, see page 622⁽³⁾ Maximum ramping angle

For inserts, see pages: H690 WNMU 0403 (536)

HELI 3MILL
HM390 LINE**HM390 FTC-07**90° Face Mills Carrying HM390
TCKT 0703 Triangular Inserts
with 3 Helical Cutting Edges

Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽²⁾	RMPX ⁽³⁾	kg			
HM390 FTC D032-4-16-07	32.00	4	5.00	35.00	30.40	16.00	A	0.8	0.11	SR M2.5X6-T7-60	T-7/51	SR M8X25DIN912
HM390 FTC D032-5-16-07	32.00	5	5.00	35.00	30.40	16.00	A	0.8	0.10	SR M2.5X6-T7-60	T-7/51	SR M8X25DIN912
HM390 FTC D040-5-16-07	40.00	5	5.00	35.00	38.00	16.00	A	0.6	0.20	SR M2.5X6-T7-60	T-7/51	SR M8X25DIN912
HM390 FTC D040-6-16-07	40.00	6	5.00	35.00	38.00	16.00	A	0.6	0.20	SR M2.5X6-T7-60	T-7/51	SR M8X25DIN912

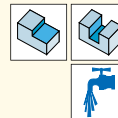
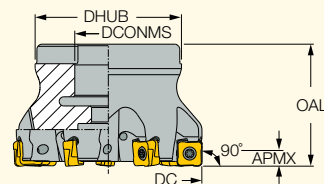
• Insert clamping screw must be lubricated every indexing • Tightening torque 0.9 Nxm • For user guide see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)⁽²⁾ For adaptation options, see page 622⁽³⁾ Maximum ramping angle

For inserts, see pages: HM390 TCKT/CT 0703 (512)

S890 FSZ-R08

Face Mills Carrying
Double-Sided Square Inserts
with 8 Cutting Edges



Designation	DC	APMX	OAL	CICT ⁽¹⁾	DCONMS	DHUB	Arbor	MIID ⁽²⁾	
S890 FSZ D032-04-16-R08	32.00	5.00	32.00	4	16.00	30.00	A	S890 SZMU 0804...	0.20
S890 FSZ D040-05-16-R08	40.00	5.00	35.00	5	16.00	38.00	A	S890 SZMU 0804...	0.24
S890 FSZ D040-06-16-R08	40.00	5.00	35.00	6	16.00	38.00	A	S890 SZMU 0804...	0.34
S890 FSZ D050-06-22-R08	50.00	5.00	40.00	6	22.00	48.00	A	S890 SZMU 0804...	0.35
S890 FSZ D050-08-22-R08	50.00	5.00	40.00	8	22.00	48.00	A	S890 SZMU 0804...	0.39
S890 FSZ D063-07-22-R08	63.00	5.00	40.00	7	22.00	48.00	A	S890 SZMU 0804...	0.60
S890 FSZ D063-10-22-R08	63.00	5.00	40.00	10	22.00	48.00	A	S890 SZMU 0804...	0.58
S890 FSZ D080-08-27-R08	80.00	5.00	50.00	8	27.00	60.00	B	S890 SZMU 0804...	0.98
S890 FSZ D080-12-27-R08	80.00	5.00	50.00	12	27.00	60.00	B	S890 SZMU 0804...	0.93
S890 FSZ D100-10-32-R08	100.00	5.00	50.00	10	32.00	78.00	B	S890 SZMU 0804...	1.52
S890 FSZ D100-14-32-R08	100.00	5.00	50.00	14	32.00	78.00	B	S890 SZMU 0804...	1.50
S890 FSZ D125-12-40-R08	125.00	5.00	50.00	12	40.00	92.00	B	S890 SZMU 0804...	2.29
S890 FSZ D125-18-40-R08	125.00	5.00	50.00	18	40.00	92.00	B	S890 SZMU 0804...	2.32

• For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Master insert identification

For inserts, see pages: S890 SZMU-0804PN (503)

When stepdown milling is performed by use of passes, the depth of cut per pass should not exceed the depth of cut as recommended in the ISCAR catalog.

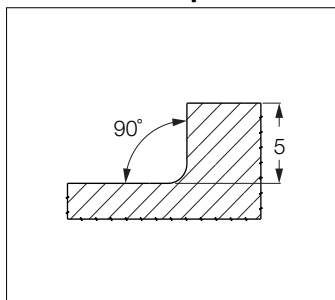


Fig. 1- Generated profile for a depth of cut of up to 5mm

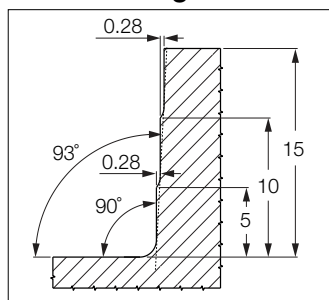


Fig. 2- Generated profile for a depth of cut in stepdown milling

Starting feed per tooth F_z for S890 face mills with inserts S890 SZMU 08...

Workpiece Material						F_z , mm/Tooth for Grades*				
ISO Class DIN/ISO 513	Description	Typical Representative		Hardness, HB	ISCAR Mat. Group**	IC 5100	IC810	IC808	IC845	IC5400
		AISI/SAE/ASTM	DIN W.-Nr.							
P	non-alloy steel	1020	1.044	130-180	1			0.1-0.25	0.1-0.25	0.1-0.25
	alloy steel	4340	1.658	260-300	8			0.1-0.2	0.1-0.2	0.1-0.2
		4340	1.658	HRC 35-42*	9			0.1-0.2	0.1-0.2	0.1-0.2
	high alloy steel	H13	1.234	200-220	10			0.08-0.15	0.08-0.15	0.08-0.15
M	martensitic S.S.	420	1.402	200	12			0.08-0.15	0.08-0.15	0.08-0.15
		304L	1.431	200	14			0.1-0.15	0.1-0.15	0.1-0.15
		316L	1.440	140	14			0.1-0.15	0.1-0.15	0.1-0.15
K	grey cast iron	class 40	0.6025 (GG25)	250	16	0.15-0.25	0.15-0.25			
	nodular cast iron	class 65-45-12	0.7050 (GGG50)	200	17	0.12-0.2	0.12-0.2			
H	hard steel and cast iron	H11	1.234	HRC 45-49	38.1			0.06-0.12	0.06-0.12	0.06-0.12
		P20	1.2330	HRC 50-55	38.2			0.05-0.1	0.05-0.1	0.05-0.1

* Quenched and tempered

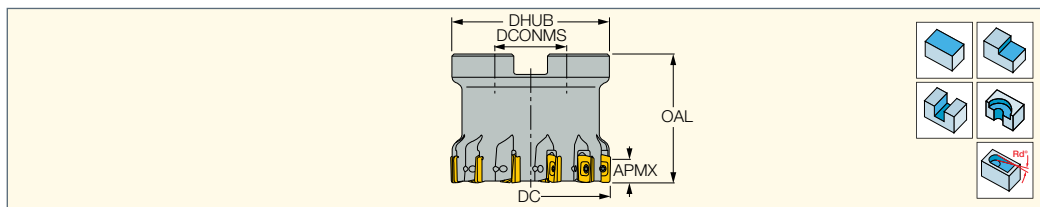
** ISCAR material group in accordance with VDI 3323 standard

Spare Parts

Designation			
S890 FSZ D032-04-16-R08	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151 ^(b)	SR M8X32 D11-C50-H6
S890 FSZ D040-05-16-R08	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151 ^(b)	SR M8X25DIN912
S890 FSZ D040-06-16-R08	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151 ^(b)	SR M8X25DIN912
S890 FSZ D050-06-22-R08	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151 ^(b)	SR M10X25 DIN912
S890 FSZ D050-08-22-R08	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151 ^(b)	SR M10X25 DIN912
S890 FSZ D063-07-22-R08	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151 ^(b)	SR M10X25 DIN912
S890 FSZ D063-10-22-R08	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151 ^(b)	SR M10X25 DIN912
S890 FSZ D080-08-27-R08	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151 ^(b)	
S890 FSZ D080-12-27-R08	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151 ^(b)	
S890 FSZ D100-10-32-R08	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151 ^(b)	
S890 FSZ D100-14-32-R08	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151 ^(b)	
S890 FSZ D125-12-40-R08	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151 ^(b)	
S890 FSZ D125-18-40-R08	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151 ^(b)	

^(a) Recommended tightening torque: 2 N*m

^(b) For limiting torque, use optional 7007382 BLD 4 IP09-2.0NM blade & 7007320 HSD 4-2.0NM handle.



Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	RMPX ⁽²⁾	Arbor ⁽³⁾	RPMX ⁽⁴⁾	
HP F90AN D32-06-16-07	32.00	6	7.70	35.00	30.40	16.00	1.4	A	26610	0.10
HP F90AN D40-08-22-07	40.00	8	7.70	40.00	38.00	22.00	1.0	A	23800	0.16
HP F90AN D40-10-22-07	40.00	10	7.70	40.00	38.00	22.00	1.0	A	23800	0.17

• Insert tightening torque: 0.62 Nxm • For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

⁽³⁾ For adaptation options, see page 622

⁽⁴⁾ Maximum RPM

For inserts, see pages: HP ANCR 0702PNFR (509) • HP ANKT 0702-FF (510) • HP ANKT/ANCT 0702 PN-R/PNTR (508) • HP ANKW 070204PNTR (509)

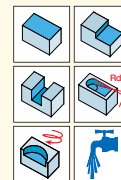
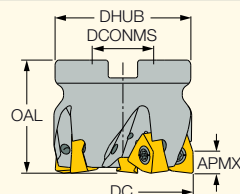
Spare Parts

Designation			
HP F90AN D32-06-16-07	SR 34-533/L/HG	T-6/51	SR M8X20DIN912
HP F90AN D40-08-22-07	SR 34-533/L/HG	T-6/51	SR M10X25 DIN912
HP F90AN D40-10-22-07	SR 34-533/L/HG	T-6/51	SR M10X25 DIN912



H690 FWN-07

90° Face Mills Carrying
H690 WNMU 0705
Double-Sided Trigonal Inserts
with 6 Helical Cutting Edges



Designation	DC	CICT ⁽¹⁾	APMX	DHUB	DCONMS	OAL	Arbor ⁽²⁾	RMPX ⁽³⁾	
H690 FWN D050-04-22-R07	50.00	4	7.00	48.00	22.00	40.00	A	1.2	0.33
H690 FWN D050-05-22-R07	50.00	5	7.00	48.00	22.00	40.00	A	1.2	0.33
H690 FWN D063-05-22-R07	63.00	5	7.00	48.00	22.00	40.00	A	1.1	0.50
H690 FWN D063-06-27-R07	63.00	6	7.00	60.00	27.00	50.00	A	1.1	0.72
H690 FWN D063-07-22-R07	63.00	7	7.00	48.00	22.00	40.00	A	1.1	0.50
H690 FWN D080-07-27-R07	80.00	7	7.00	60.00	27.00	50.00	B	1.0	1.00
H690 FWN D080-09-27-R07	80.00	9	7.00	60.00	27.00	50.00	B	1.0	0.98
H690 FWN D100-08-32-R07	100.00	8	7.00	70.00	32.00	50.00	B	0.8	1.57
H690 FWN D100-11-32-R07	100.00	11	7.00	70.00	32.00	50.00	B	0.8	1.62
H690 FWN D125-10-40-R07	125.00	10	7.00	82.00	40.00	63.00	B	0.5	2.82

• For cutting speed recommendations, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation options, see page 622

⁽³⁾ Maximum ramping angle

For inserts, see pages: H690 WNHU/WNMU 0705 (537)

Examples of Cutting Speed for H690 FWN/EWN...07 Cutters

ISO Class DIN/ ISO 513	Workpiece Material					Cutting Speed V _c , SFM, for Grades					
	Description	ISCAR Mat. Group*	Typical Materials		Hardness HB	IC808	IC5100	IC810	IC5400	IC830	IC330
			AISI/SAE/ ASTM	DIN W.-Nr.							
P	non-alloy steel	1	1020	1.044	130-180	180-250		150-220	150-220	130-200	120-180
	alloy steel	8	4340	1.6582	260-300	150-200		130-180	130-180	120-170	100-140
	alloy steel	9	4340	1.6582	HRC 35-42**	100-170		100-150	100-150	100-130	100-120
	high alloy steel	10	H13	1.2344	200-220	100-170		100-150	100-150	100-130	100-120
	martensitic S.S.	12	420	1.4021	200	100-150				100-130	100-120
K	grey cast iron	16	class 40	0.6025 (GG25)	250	200-250	220-300	220-300		180-230	
	nodular cast iron	17	class 65-45-12	0.7050 (GGG50)	200	160-220	180-250	180-250		150-200	

* ISCAR material group in accordance with VDI 3323 standard

** Quenched and tempered

• **First choice for grades**

Spare Parts

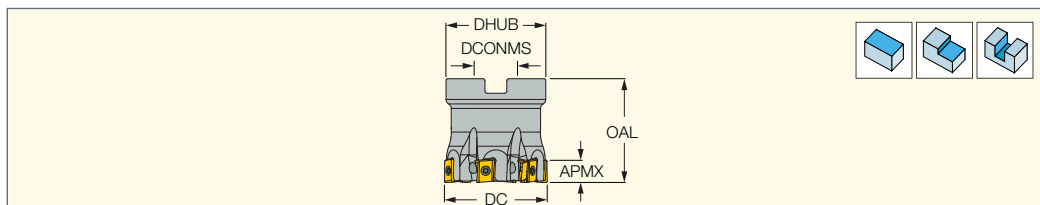
Designation				
H690 FWN D050-04-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
H690 FWN D050-05-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
H690 FWN D063-05-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
H690 FWN D063-06-27-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M12X30 DIN912
H690 FWN D063-07-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
H690 FWN D080-07-27-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
H690 FWN D080-09-27-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
H690 FWN D100-08-32-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
H690 FWN D100-11-32-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
H690 FWN D125-10-40-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	



HELITANG
T490 LINE

T490 FLN-08

90° Face Mills with Tangentially
Clamped Inserts



Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽²⁾	CSP ⁽³⁾	
T490 FLN D032-03-16-08	32.00	3	8.00	35.00	30.40	16.00	A	1	0.11
T490 FLN D032-05-16-08	32.00	5	8.00	35.00	30.40	16.00	A	1	0.11
T490 FLN D040-04-16-08	40.00	4	8.00	40.00	38.40	16.00	A	1	0.23
T490 FLN D040-06-16-08	40.00	6	8.00	40.00	38.40	16.00	A	1	0.32
T490 FLN D050-05-22-08	50.00	5	8.00	40.00	48.00	22.00	A	1	0.36
T490 FLN D050-07-22-08	50.00	7	8.00	40.00	48.00	22.00	A	1	0.37
T490 FLN D050-10-22-08	50.00	10	8.00	40.00	48.00	22.00	A	0	0.39
T490 FLN D063-06-27-08	63.00	6	8.00	40.00	60.00	27.00	A	1	0.60
T490 FLN D063-09-27-08	63.00	9	8.00	40.00	60.00	27.00	A	1	0.62
T490 FLN D080-10-27-08	80.00	10	8.00	50.00	60.00	27.00	B	0	0.84

• When machining slots, regular pitch cutters should be used • For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation options, see page 622

⁽³⁾ 0 - Without coolant supply, 1 - With coolant supply

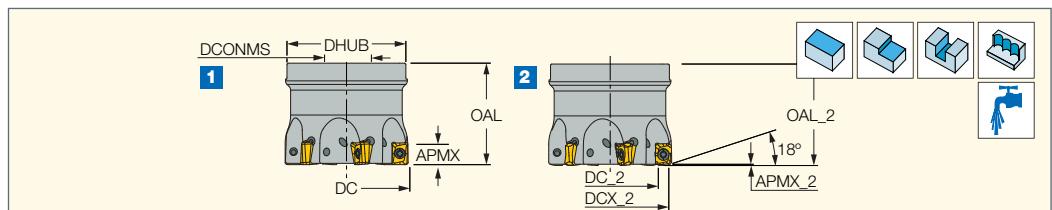
For inserts, see pages: T490 LNAR-P (548) • T490 LNMT/LNHT 0804 (544)

Spare Parts

Designation			
T490 FLN D032-03-16-08	SR 10502813-HG-M	IP-7/51	SR M8X20DIN912
T490 FLN D032-05-16-08	SR 10502813-HG-M	IP-7/51	SR M8X20DIN912
T490 FLN D040-04-16-08	SR 10502813-HG-M	IP-7/51	SR M8X30DIN912
T490 FLN D040-06-16-08	SR 10502813-HG-M	IP-7/51	SR M8X30DIN912
T490 FLN D050-05-22-08	SR 10502813-HG-M	IP-7/51	SR M10X25 DIN912
T490 FLN D050-07-22-08	SR 10502813-HG-M	IP-7/51	SR M10X25 DIN912
T490 FLN D050-10-22-08	SR 10502813-HG-M	IP-7/51	SR M10X20DIN912
T490 FLN D063-06-27-08	SR 10502813-HG-M	IP-7/51	SR M12X25 DIN 912
T490 FLN D063-09-27-08	SR 10502813-HG-M	IP-7/51	SR M12X25 DIN 912
T490 FLN D080-10-27-08	SR 10502813-HG-M	IP-7/51	

H490 F90AX-09

90° Face Mills Carrying H490 ANKX 09.. Double-Sided Rectangular Inserts with 4 Helical Cutting Edges



Designation	DC	DCX_2	DC_2	CICT ⁽¹⁾	APMX	APMX_2	AE ⁽²⁾	DHUB	DCONMS	OAL	OAL_2
H490 F90AX D032-4-16-09	32.00	32.10	26.60	4	8.00	0.70	5.5	30.40	16.00	35.00	35.00
H490 F90AX D032-5-16-09	32.00	32.10	26.60	5	8.00	0.70	5.5	30.40	16.00	35.00	35.00
H490 F90AX D040-5-16-09	40.00	40.10	34.60	5	8.00	0.70	5.5	38.40	16.00	40.00	40.00
H490 F90AX D040-6-16-09	40.00	40.10	34.60	6	8.00	0.70	5.5	38.40	16.00	40.00	40.00
H490 F90AX D050-6-22-09	50.00	50.10	44.60	6	8.00	0.70	5.5	48.00	22.00	40.00	40.00
H490 F90AX D050-7-22-09	50.00	50.10	44.60	7	8.00	0.70	5.5	48.00	22.00	40.00	40.00
H490 F90AX D063-8-22-09	63.00	63.10	57.60	8	8.00	0.70	5.5	60.00	22.00	40.00	40.00
H490 F90AX D063-9-22-09	63.00	63.10	57.60	9	8.00	0.70	5.5	60.00	22.00	40.00	40.00

Designation	RMPX°_2 ⁽³⁾	MDN	MDX	Arbor ⁽⁴⁾	MIID ⁽⁵⁾	MIID_2 ⁽⁶⁾	
H490 F90AX D032-4-16-09	1.4	58.70	63.20	A	H490 ANCX 090404PDR	H490 ANKX 0904...FF	0.10
H490 F90AX D032-5-16-09	1.4	58.70	63.20	A	H490 ANCX 090404PDR	H490 ANKX 0904...FF	0.10
H490 F90AX D040-5-16-09	1.0	74.70	79.20	A	H490 ANCX 090404PDR	H490 ANKX 0904...FF	0.22
H490 F90AX D040-6-16-09	1.0	74.70	79.20	A	H490 ANCX 090404PDR	H490 ANKX 0904...FF	0.22
H490 F90AX D050-6-22-09	0.6	94.70	99.20	A	H490 ANCX 090404PDR	H490 ANKX 0904...FF	0.36
H490 F90AX D050-7-22-09	0.6	94.70	99.20	A	H490 ANCX 090404PDR	H490 ANKX 0904...FF	0.37
H490 F90AX D063-8-22-09	0.5	120.70	125.20	A	H490 ANCX 090404PDR	H490 ANKX 0904...FF	0.62
H490 F90AX D063-9-22-09	0.5	120.70	125.20	A	H490 ANCX 090404PDR	H490 ANKX 0904...FF	0.64

- For user guide, see pages 616-621 • 1- with standard square insert, 2- with FF (fast feed) insert
- Ramping angle is valid only when H490 ANKX 0904R12T-FF insert is used
- When assembled the H490 ANKX 0904R12T-FF insert, tool diameter enlarges by 0.1 mm

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum side plunge

⁽³⁾ Maximum ramping angle when using FF inserts

⁽⁴⁾ For adaptation options, see page 622

⁽⁵⁾ Master insert identification

⁽⁶⁾ Master insert identification 2

For inserts, see pages: H490 ANKX 0904-FF (538) • H490 ANKX/ANCX-09 (537)

Spare Parts

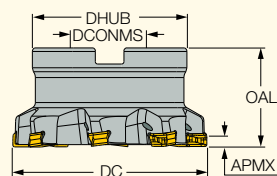
Designation				
H490 F90AX D032-4-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X20DIN912
H490 F90AX D032-5-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X20DIN912
H490 F90AX D040-5-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X30DIN912
H490 F90AX D040-6-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X30DIN912
H490 F90AX D050-6-22-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912
H490 F90AX D050-7-22-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912
H490 F90AX D063-8-22-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912
H490 F90AX D063-9-22-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912



TANGFIN
FINISH MILLING

HTF-R-LN10

Face Mills Carrying Tangentially
Clamped Inserts with 4
Cutting Edges for Extra
Fine Milling Applications



Designation	DC	APMX	CICT ⁽¹⁾	OAL	DHUB	DCONMS	Arbor ⁽²⁾	CSP ⁽³⁾	
HTF D050-05-22-R-LN10	50.00	0.25	5	40.00	48.00	22.00	A	1	0.31
HTF D063-06-22-R-LN10	63.00	0.30	6	40.00	48.00	22.00	A	1	0.43
HTF D080-07-27-R-LN10	80.00	0.35	7	50.00	60.00	27.00	B	1	0.81
HTF D100-08-32-R-LN10	100.00	0.40	8	50.00	78.00	32.00	B	1	1.44
HTF D125-09-40-R-LN10	125.00	0.45	9	63.00	92.00	40.00	B	1	2.55
HTF D160-10-40-R-LN10	160.00	0.50	10	63.00	95.00	40.00	C	0	3.75

• For best surface finish it is highly recommended to operate the cutter at maximal depth of cut • For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation see page 622

⁽³⁾ 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: HTP LN.. 1006 (611)

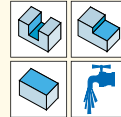
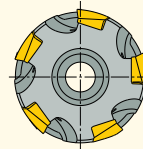
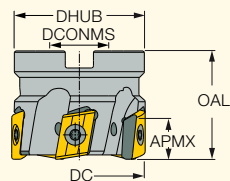
Spare Parts

Designation				
HTF D050-05-22-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HTF D063-06-22-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HTF D080-07-27-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	
HTF D100-08-32-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	
HTF D125-09-40-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	
HTF D160-10-40-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	



SUMOMILL
290 LINE**T290 FLN-10**

90° Face Mills Carrying T290
LNMT/LNHT 1004... Tangentially
Clamped Inserts



Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽²⁾	kg
T290 FLN D32-05-16-10	32.00	5	9.00	35.00	30.00	16.00	A	0.09
T290 FLN D40-06-16-10	40.00	6	9.00	35.00	34.00	16.00	A	0.16
T290 FLN D50-07-22-10	50.00	7	9.00	40.00	46.00	22.00	A	0.29

• For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation options, see page 622

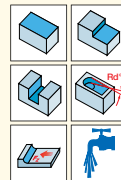
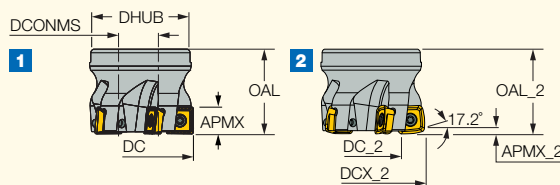
For inserts, see pages: T290 LNMT/LNHT 1004 (542)

Spare Parts

Designation				
T290 FLN D32-05-16-10	SR 10504970	BLD IP15/M7	SW6-T-SH	SR M8X20DIN912
T290 FLN D40-06-16-10	SR 10504970	BLD IP15/M7	SW6-T-SH	SR M8X20DIN912
T290 FLN D50-07-22-10	SR 10504970	BLD IP15/M7	SW6-T-SH	SR M10X25 DIN912

HELIQUAD**F90SP-10**

Face Mills Carrying
Square Inserts



Designation	DC ⁽¹⁾	CICT ⁽²⁾	DCONMS	DHUB	APMX	OAL	RMPX° ⁽³⁾	DC_2	DCX_2	APMX_2	OAL_2	RMPX°_2 ⁽⁴⁾	Arbor ⁽⁵⁾	kg
F90SP D40-04-16-10	40.00	4	16.00	38.00	9.60	40.00	1.5	23.30	40.45	1.27	40.26	3.5	A	0.42
F90SP D40-05-16-10	40.00	5	16.00	38.00	9.60	40.00	1.5	23.30	40.45	1.27	40.26	3.5	A	0.22
F90SP D50-04-22-10	50.00	4	22.00	48.00	9.60	40.00	1.0	33.30	50.45	1.27	40.26	3.0	A	0.37
F90SP D50-06-22-10	50.00	6	22.00	48.00	9.60	40.00	1.0	33.30	50.45	1.27	40.26	3.0	A	0.39
F90SP D63-06-22-10	63.00	6	22.00	48.00	9.60	40.00	0.8	46.30	63.45	1.27	40.26	2.8	A	0.48
F90SP D63-07-22-10	63.00	7	22.00	48.00	9.60	40.00	0.8	46.30	63.45	1.27	40.26	2.8	A	0.42
F90SP D80-06-27-10	80.00	6	27.00	60.00	9.60	50.00	0.8	63.30	80.45	1.27	50.26	2.8	B	0.88
F90SP D80-09-27-10	80.00	9	27.00	60.00	9.60	50.00	0.8	63.30	80.45	1.27	50.26	2.8	B	1.50

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-621

⁽¹⁾ D is 0.2 mm larger when QPMT inserts are used

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ Maximum ramping angle when using 90° inserts

⁽⁴⁾ Maximum ramping angle when using FF inserts

⁽⁵⁾ For adaptation options, see page 622

For inserts, see pages: QPMR 1004-HQ-M (561) • QPMT 100408PDTN (561) • SPCT/SPMR PDR (563) • SPMT-FF (562) • SPMT-HP (562)

• SPMT-HQ (562) • XPMT-HQ (563)

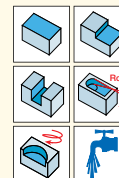
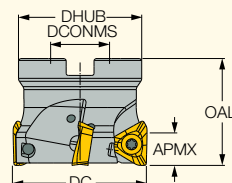
Spare Parts

Designation				
F90SP D40-04-16-10	SR 10514114 ^(a)	BLD IP15/M7	SW6-T-SH	SR M8X30DIN912
F90SP D40-05-16-10	SR 10514114 ^(a)	BLD IP15/M7	SW6-T-SH	SR M8X30DIN912
F90SP D50-04-22-10	SR 10514114 ^(a)	BLD IP15/M7	SW6-T-SH	SR M10X25 DIN912
F90SP D50-06-22-10	SR 10514114 ^(a)	BLD IP15/M7	SW6-T-SH	SR M10X25 DIN912
F90SP D63-06-22-10	SR 10514114 ^(a)	BLD IP15/M7	SW6-T-SH	SR M10X25 DIN912
F90SP D63-07-22-10	SR 10514114 ^(a)	BLD IP15/M7	SW6-T-SH	SR M10X25 DIN912
F90SP D80-06-27-10	SR 10514114 ^(a)	BLD IP15/M7	SW6-T-SH	SR M10X25 DIN912
F90SP D80-09-27-10	SR 10514114 ^(a)	BLD IP15/M7	SW6-T-SH	

^(a) Recommended tightening torque: 4.8 N*m

HM390 FTP-10

90° Face Mills Carrying HM390
 TPKT 1003 Triangular Inserts
 with 3 Helical Cutting Edges



Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽²⁾	RMPX ⁽³⁾	kg
HM390 FTP D040-3-16-10	40.00	3	8.00	40.00	38.40	16.00	A	1.6	0.50
HM390 FTP D040-5-16-10	40.00	5	8.00	40.00	38.40	16.00	A	1.6	0.23
HM390 FTP D050-4-22-10	50.00	4	8.00	40.00	48.00	22.00	A	1.2	0.33
HM390 FTP D050-6-22-10	50.00	6	8.00	40.00	48.00	22.00	A	1.2	0.34
HM390 FTP D050-7-22-10	50.00	7	8.00	40.00	48.00	22.00	A	1.2	0.35
HM390 FTP D063-6-22-10	63.00	6	8.00	45.00	59.00	22.00	A	0.9	0.69
HM390 FTP D063-6-27-10	63.00	6	8.00	45.00	61.00	27.00	A	0.9	0.63
HM390 FTP D063-7-22-10	63.00	7	8.00	45.00	61.00	22.00	A	0.9	0.69
HM390 FTP D063-7-27-10	63.00	7	8.00	45.00	61.00	27.00	A	0.9	0.68
HM390 FTP D080-11-27-10	80.00	11	8.00	50.00	60.00	27.00	A	0.8	0.98
HM390 FTP D100-13-27-10	100.00	13	8.00	50.00	60.00	27.00	A	0.8	1.38

• For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation see page 622

⁽³⁾ Maximum ramping angle

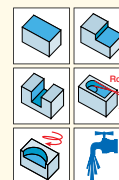
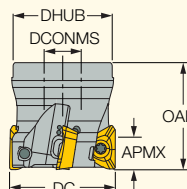
For inserts, see pages: HM390 TPCR 1003 (513) • HM390 TPKT/CT 1003 (512)

Spare Parts

Designation				
HM390 FTP D040-3-16-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M8X25DIN912
HM390 FTP D040-5-16-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M8X25DIN912
HM390 FTP D050-4-22-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HM390 FTP D050-6-22-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HM390 FTP D050-7-22-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HM390 FTP D063-6-22-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HM390 FTP D063-6-27-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M12X35DIN912
HM390 FTP D063-7-22-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HM390 FTP D063-7-27-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M12X35DIN912
HM390 FTP D080-11-27-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M12X35DIN912
HM390 FTP D100-13-27-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M12X35DIN912

HM390 FTP/C/D-JHP

90° JHP Face Mill with
 HM390 Triangular Inserts



Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	Arbor	RMPX ⁽²⁾	MIID ⁽³⁾
HM390 FTC D32-5-16-07-JHP	32.00	5	5.00	35.00	30.40	16.00	A	2.1	HM390 TCKT 0703
HM390 FTP D40-5-16-10-JHP	40.00	5	8.00	40.00	38.00	16.00	A	1.6	HM390 TPKT 1003
HM390 FTP D50-6-22-10-JHP	50.00	6	8.00	40.00	48.00	22.00	A	1.2	HM390 TPKT 1003
HM390 FTP D63-7-27-10-JHP	63.00	7	8.00	45.00	60.00	27.00	A	0.9	HM390 TPKT 1003
HM390 FTD D40-4-16-15-JHP	40.00	4	13.00	40.00	38.00	16.00	A	2.0	HM390 TDKT 1505
HM390 FTD D50-5-22-15-JHP	50.00	5	13.00	40.00	48.00	22.00	A	1.6	HM390 TDKT 1505
HM390 FTD D63-6-27-15-JHP	63.00	6	13.00	45.00	60.00	27.00	A	1.2	HM390 TDKT 1505

New

• When assembled the HM390 TDKT 1505PDR-FW insert, tool diameter enlarges by 1.0 mm • For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

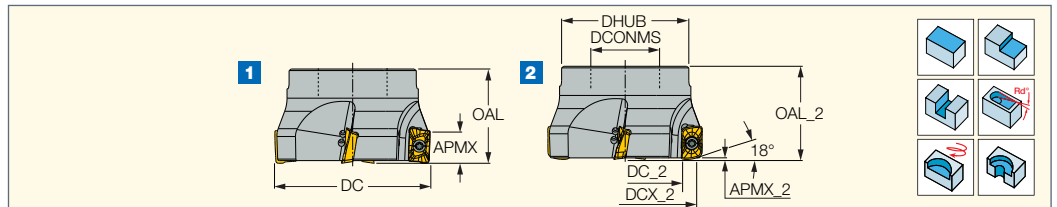
⁽³⁾ Master insert identification

For inserts, see pages: HM390 TCKT/CT 0703 (512) • HM390 TDCR 1505 (514) • HM390 TDKT/CT 1505 (513) • HM390 TPCR 1003 (513)

• HM390 TPKT/CT 1003 (512)

Spare Parts

Designation					
HM390 FTC D32-5-16-07-JHP	SR M2.5X6-T7-60	T-7/51			SR M8X25DIN912
HM390 FTP D40-5-16-10-JHP	SR 14-562/S		SW6-SD	BLD T10/S7	SR M8X37-1515
HM390 FTP D50-6-22-10-JHP	SR 14-562/S		SW6-SD	BLD T10/S7	SR M10X25 DIN912
HM390 FTP D63-7-27-10-JHP	SR 14-562/S		SW6-SD	BLD T10/S7	SR M12X35DIN912
HM390 FTD D40-4-16-15-JHP	SR 10511869		SW6-T	BLD IP20/S7	SR M8X37-1515
HM390 FTD D50-5-22-15-JHP	SR 10511869		SW6-T	BLD IP20/S7	SR M10X37-50DEG
HM390 FTD D63-6-27-15-JHP	SR 10505427		SW6-T	BLD IP20/S7	SR M12X35DIN912

HELI2000**HM90 F90AP-10**90° Face Mills Carrying HM90
APKT 1003... Inserts

Designation	DC	DC_2	DCX_2	CICT ⁽²⁾	APMX	APMX_2	OAL	OAL_2	MDN	MDX	DHUB
HM90 F90AP D32-3-16	32.00	23.00	32.10	3	9.80	1.00	35.00	34.63	55.10	63.20	30.40
HM90 F90AP D32-5-16	32.00	23.00	32.10	5	9.80	1.00	35.00	34.63	55.10	63.20	30.40
HM90 F90AP D40-5-22	40.00	31.00	40.10	5	9.80	1.00	40.00	39.63	71.10	79.20	38.40
HM90 F90AP D40-6-22	40.00	31.00	40.10	6	9.80	1.00	40.00	39.63	71.10	79.20	38.40
HM90 F90AP D50-6-22	50.00	41.00	50.10	6	9.80	1.00	40.00	39.63	91.10	99.20	48.40
HM90 F90AP D50-7-22	50.00	41.00	50.10	7	9.80	1.00	40.00	39.63	91.10	99.20	48.40
HM90 F90AP D63-7-22 ⁽¹⁾	63.00	54.00	63.10	7	9.80	1.00	40.00	39.63	117.10	125.20	59.00
HM90 F90AP D63-9-22	63.00	54.00	63.10	9	9.80	1.00	40.00	39.63	117.10	125.20	59.00
HM90 F90AP D80-8-27 ⁽¹⁾	80.00	71.00	80.10	8	9.80	1.00	50.00	49.63	151.10	159.20	70.00
HM90 F90AP D100-9-32 ⁽¹⁾	100.00	91.00	100.10	9	9.80	1.00	50.00	49.63	191.10	199.20	78.00

Designation	MIID ⁽³⁾	MIID_2 ⁽⁴⁾	RPMX ⁽⁵⁾	DCONMS	RMPX° ⁽⁶⁾	RMPX°_2	Arbor ⁽⁷⁾	
HM90 F90AP D32-3-16	APKT 1003PDR-HM	APKT 1003R8T-FF	35355	16.00	2.2	2.2	A	0.10
HM90 F90AP D32-5-16	APKT 1003PDR-HM	APKT 1003R8T-FF	35355	16.00	2.2	2.2	A	0.10
HM90 F90AP D40-5-22	APKT 1003PDR-HM	APKT 1003R8T-FF	31623	22.00	1.9	1.9	A	0.19
HM90 F90AP D40-6-22	APKT 1003PDR-HM	APKT 1003R8T-FF	31623	22.00	1.9	1.9	A	0.18
HM90 F90AP D50-6-22	APKT 1003PDR-HM	APKT 1003R8T-FF	28284	22.00	1.4	1.4	A	0.34
HM90 F90AP D50-7-22	APKT 1003PDR-HM	APKT 1003R8T-FF	28284	22.00	1.4	1.4	A	0.35
HM90 F90AP D63-7-22 ⁽¹⁾	APKT 1003PDR-HM	APKT 1003R8T-FF	25198	22.00	1.0	1.0	B	0.52
HM90 F90AP D63-9-22	APKT 1003PDR-HM	APKT 1003R8T-FF	25198	22.00	1.0	1.0	B	0.52
HM90 F90AP D80-8-27 ⁽¹⁾	APKT 1003PDR-HM	APKT 1003R8T-FF	22361	27.00	0.9	0.9	B	0.94
HM90 F90AP D100-9-32 ⁽¹⁾	APKT 1003PDR-HM	APKT 1003R8T-FF	20100	32.00	0.7	0.7	B	1.51

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-621

⁽¹⁾ For internal coolant through the holder, use a matching coolant set (should be ordered separately)

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ Master insert identification

⁽⁴⁾ Master insert identification 2

⁽⁵⁾ Maximum RPM

⁽⁶⁾ Maximum ramping angle

⁽⁷⁾ For adaptation options, see page 622

For inserts, see pages: APCR 1003PDR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519)

• APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518)

• APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515)

• HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

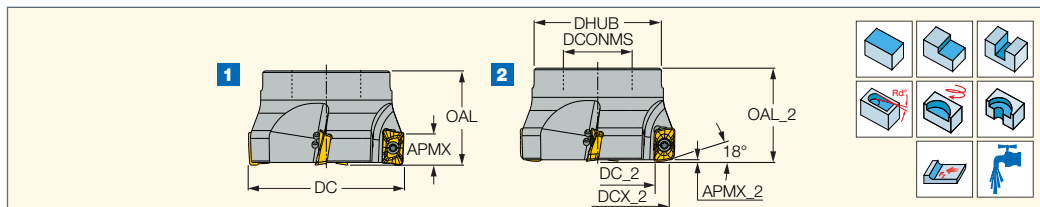
Spare Parts

Designation				
HM90 F90AP D32-3-16	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M8X20DIN912
HM90 F90AP D32-5-16	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M8X20DIN912
HM90 F90AP D40-5-22	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M10X25 DIN912
HM90 F90AP D40-6-22	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M10X25 DIN912
HM90 F90AP D50-6-22	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M10X25 DIN912
HM90 F90AP D50-7-22	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M10X25 DIN912
HM90 F90AP D63-7-22	SR 34-505/HG	SW4-SD	BLD T08/M7	
HM90 F90AP D63-9-22	SR 34-505/HG	SW4-SD	BLD T08/M7	
HM90 F90AP D80-8-27	SR 34-505/HG	SW4-SD	BLD T08/M7	
HM90 F90AP D100-9-32	SR 34-505/HG	SW4-SD	BLD T08/M7	

HELI2000

HM90 F90AP-AMT

90° Light Weight Face
Cutters Carrying HM90
AP...T 1003 inserts



Designation	DC	DC_2	DCX_2	CICT ⁽¹⁾	APMX	APMX_2	OAL	OAL_2	DHUB	DCONMS
HM90 F90AP D50-4-22-AMT	50.00	41.00	50.10	4	9.80	1.00	30.00	29.63	42.00	22.00
HM90 F90AP D63-6-22-AMT	63.00	54.00	63.10	6	9.80	1.00	31.00	30.63	48.00	22.00

Designation	RMPX ^{°(2)}	RMPX [°] _2	MDN	MDX	MIID ⁽³⁾	MIID_2 ⁽⁴⁾	Arbor	kg
HM90 F90AP D50-4-22-AMT	1.4	1.4	91.10	99.20	HM90 APCT 100302R-PDR	APKT 1003R8T-FF	A	0.13
HM90 F90AP D63-6-22-AMT	1.0	1.0	117.10	125.20	HM90 APCT 100302R-PDR	APKT 1003R8T-FF	A	0.20

New

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

⁽³⁾ Master insert identification

⁽⁴⁾ Master insert identification 2

For inserts, see pages: APCR 1003PDR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519)

• APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518)

• APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520)

• HM90 APKW 1003PDR (519)

Spare Parts

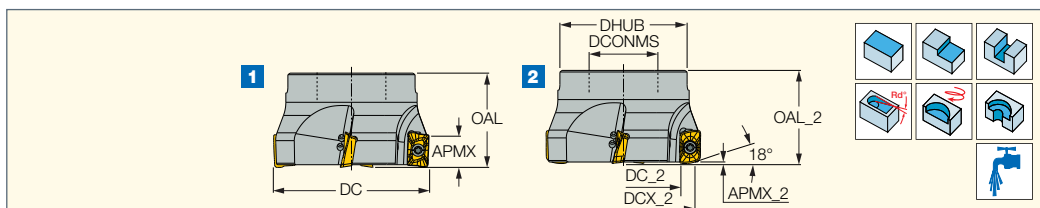
Designation			
HM90 F90AP-AMT	SR 34-505/HG ^(a)	SW4-SD	BLD T08/M7

^(a) Recommended tightening torque: 1.2 Nxm

HELI2000 JET LINE

HM90 F90AP-10-JHP

90° JHP Face Mills Carrying
HELI-2000 and HELI-MILL Inserts



Designation	DC	DC_2	DCX_2	CICT ⁽¹⁾	APMX	APMX_2	OAL	OAL_2	DHUB	DCONMS	MDN	MDX
HM90 F90AP D032-5-16-JHP	32.00	23.00	32.10	5	9.80	1.00	45.00	44.63	30.40	16.00	55.10	63.20
HM90 F90AP D040-6-16-JHP	40.00	31.00	40.10	6	9.80	1.00	40.00	39.63	38.40	16.00	71.10	79.20
HM90 F90AP D040-6-22-JHP	40.00	31.00	40.10	6	9.80	1.00	40.00	39.63	38.00	22.00	71.10	79.20
HM90 F90AP D050-7-22-JHP	50.00	41.00	50.10	7	9.80	1.00	50.00	49.63	48.00	22.00	91.10	99.20

Designation	RPMX ⁽²⁾	MIID ⁽³⁾	MIID_2 ⁽⁴⁾	RMPX ^{°(5)}	RMPX [°] _2	Arbor	kg
HM90 F90AP D032-5-16-JHP	35300	APKT 1003PDR-HM	APKT 1003R8T-FF	2.2	2.2	A	0.17
HM90 F90AP D040-6-16-JHP	31600	APKT 1003PDR-HM	APKT 1003R8T-FF	1.9	1.9	A	0.29
HM90 F90AP D040-6-22-JHP	31600	APKT 1003PDR-HM	APKT 1003R8T-FF	1.9	1.9	A	0.27
HM90 F90AP D050-7-22-JHP	28200	APKT 1003PDR-HM	APKT 1003R8T-FF	1.4	1.4	A	0.49

• 1- with standard square insert • 2- with FF (fast feed) insert • Use adaptation only with face coolant outlets

• For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum RPM

⁽³⁾ Master insert identification

⁽⁴⁾ Master insert identification 2

⁽⁵⁾ Maximum ramping angle

For inserts, see pages: APCR 1003PDR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519)

• APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518)

• APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520)

• HM90 APKW 1003PDR (519)

Spare Parts

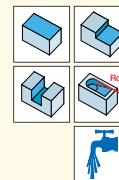
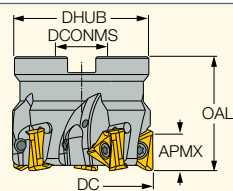
Designation				
HM90 F90AP D032-5-16-JHP	SR 34-505/HG ^(a)	SR PS 118-0416	BLD T08/M7	SW4-SD
HM90 F90AP D040-6-16-JHP	SR 34-505/HG	SR M8X25DIN912	BLD T08/M7	SW4-SD
HM90 F90AP D040-6-22-JHP	SR 34-505/HG ^(a)	SR PS 118-0273	BLD T08/M7	SW4-SD
HM90 F90AP D050-7-22-JHP	SR 34-505/HG ^(a)	SR PS 118-0271C	BLD T08/M7	SW4-SD

^(a) Recommended tightening torque for this item: 1.2 Nxm



H690 F90AX-10

90° Face Mills Carrying H690 TNKX 1005.. Triangular Inserts with 6 Helical Cutting Edges



Designation	DC	CICT ⁽¹⁾	APMX	DHUB	DCONMS	OAL	Arbor ⁽²⁾	RMPX ⁽³⁾	kg
H690 F90AX D032-4-16-10	32.00	4	8.00	30.40	16.00	35.00	A	1.6	0.10
H690 F90AX D032-5-16-10	32.00	5	8.00	30.40	16.00	35.00	A	1.6	0.10
H690 F90AX D040-5-16-10	40.00	5	8.00	38.00	16.00	40.00	A	1.1	0.22
H690 F90AX D040-6-16-10	40.00	6	8.00	38.00	16.00	40.00	A	1.1	0.21
H690 F90AX D050-6-22-10	50.00	6	8.00	48.00	22.00	40.00	A	1.0	0.35
H690 F90AX D050-7-22-10	50.00	7	8.00	48.00	22.00	40.00	A	1.0	0.36
H690 F90AX D063-8-22-10	63.00	8	8.00	48.00	22.00	40.00	A	0.7	0.47

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation options, see page 622

⁽³⁾ Maximum ramping angle

For inserts, see pages: H690 TNKX/TNCX 1005 (540)

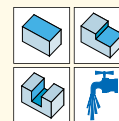
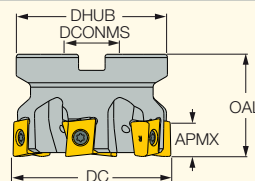
Spare Parts

Designation				
H690 F90AX D032-4-16-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X38-1515
H690 F90AX D032-5-16-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X38-1515
H690 F90AX D040-5-16-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X30DIN912
H690 F90AX D040-6-16-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X30DIN912
H690 F90AX D050-6-22-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912
H690 F90AX D050-7-22-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912
H690 F90AX D063-8-22-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912



T490 FLN-11

90° Face Mills Carrying T490 LNMT/LNHT 1106... Tangentially Clamped Inserts



Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽²⁾	RMPX ⁽³⁾	kg
T490 FLN D040-04-16-R-11	40.00	4	9.00	40.00	38.00	16.00	A	1.4	0.23
T490 FLN D040-05-16-R-11	40.00	5	9.00	40.00	38.00	16.00	A	1.4	0.22
T490 FLN D050-05-22-R-11	50.00	5	9.00	40.00	48.00	22.00	A	1.1	0.33
T490 FLN D050-06-22-R-11	50.00	6	9.00	40.00	48.00	22.00	A	1.1	0.33
T490 FLN D063-06-22-R-11	63.00	6	9.00	40.00	59.20	22.00	A	0.7	0.55
T490 FLN D063-09-22-R-11	63.00	9	9.00	40.00	59.20	22.00	A	0.7	0.55
T490 FLN D080-07-27-R-11	80.00	7	9.00	50.00	70.00	27.00	A	-	1.01
T490 FLN D080-11-27-R-11	80.00	11	9.00	50.00	70.00	27.00	A	-	1.04
T490 FLN D100-08-32-R-11	100.00	8	9.00	50.00	78.00	32.00	B	-	1.48
T490 FLN D100-13-32-R-11	100.00	13	9.00	50.00	78.00	32.00	B	-	1.55

• For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation options, see page 622

⁽³⁾ Maximum ramping angle - valid only with T490 LNHT 1106PNTR-RD insert

For inserts, see pages: T490 LNMT/LNHT 1106 (545)

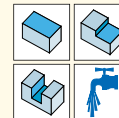
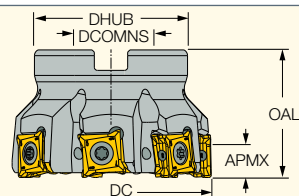
Spare Parts

Designation				
T490 FLN D040-04-16-R-11	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD	SR M8X30DIN912
T490 FLN D040-05-16-R-11	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD	SR M8X30DIN912
T490 FLN D050-05-22-R-11	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD	SR M10X25 DIN912
T490 FLN D050-06-22-R-11	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD	SR M10X25 DIN912
T490 FLN D063-06-22-R-11	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD	SR M10X25 DIN912
T490 FLN D063-09-22-R-11	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD	SR M10X25 DIN912
T490 FLN D080-07-27-R-11	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD	
T490 FLN D080-11-27-R-11	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD	
T490 FLN D100-08-32-R-11	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD	
T490 FLN D100-13-32-R-11	SR 34-535-SN	BLD T15/S7 ^(a)	SW6-SD	

^(a) Recommended key handle for limiting torque to 3.2 N*m for this item is HSD 4-3.2NM (to be used with BLD 4 T15-4.8 blade)

T890HT FLN-R13

90° Face Mills Carrying T890
 LNHT/LNAT 1306...
 Tangentially Clamped Inserts
 with 8 Cutting Edges



Designation	DC	APMX	CICT ⁽¹⁾	DCONMS	DHUB	OAL	Arbor	
T890HT FLN D040-03-16-R13	40.00	9.50	3	16.00	38.00	40.00	A	0.22
T890HT FLN D040-04-16-R13	40.00	9.50	4	16.00	38.00	40.00	A	0.21
T890HT FLN D040-05-16-R13	40.00	9.50	5	16.00	38.00	40.00	A	0.21
T890HT FLN D050-04-22-R13	50.00	9.50	4	22.00	48.00	40.00	A	0.33
T890HT FLN D050-05-22-R13	50.00	9.50	5	22.00	48.00	40.00	A	0.33
T890HT FLN D050-06-22-R13	50.00	9.50	6	22.00	48.00	40.00	A	0.35
T890HT FLN D063-06-22-R13	63.00	9.50	6	22.00	48.00	40.00	A	0.48
T890HT FLN D063-07-22-R13	63.00	9.50	7	22.00	48.00	40.00	A	0.48
T890HT FLN D063-08-22-R13	63.00	9.50	8	22.00	48.00	40.00	A	0.50
T890HT FLN D080-06-27-R13	80.00	9.50	6	27.00	60.00	50.00	B	0.88
T890HT FLN D080-07-27-R13	80.00	9.50	7	27.00	60.00	50.00	B	0.89
T890HT FLN D080-09-27-R13	80.00	9.50	9	27.00	60.00	50.00	B	0.91
T890HT FLN D100-08-32-R13	100.00	9.50	8	32.00	78.00	50.00	B	1.49
T890HT FLN D100-12-32-R13	100.00	9.50	12	32.00	78.00	50.00	B	1.62
T890HT FLN D125-09-40-R13	125.00	9.50	9	40.00	92.00	63.00	B	2.83
T890HT FLN D125-15-40-R13	125.00	9.50	15	40.00	92.00	63.00	B	2.93
T890HT FLN D160-12-40-R13	160.00	9.50	12	40.00	95.00	63.00	C	3.24
T890HT FLN D160-20-40-R13	160.00	9.50	20	40.00	95.00	63.00	C	3.53

• For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

For inserts, see pages: T890 LN.. 1306 (543)

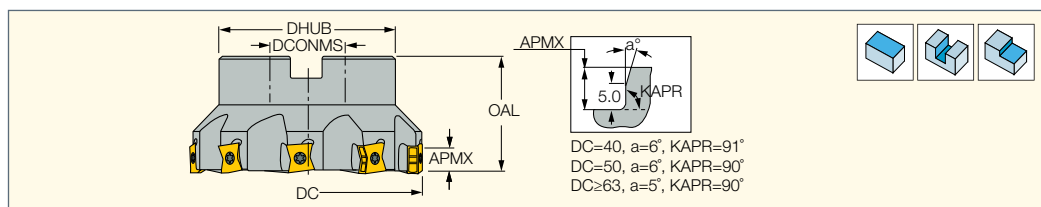
Spare Parts

Designation				
T890HT FLN D040-03-16-R13	SR 10513105-L10.5 ^(a)	BLD IP20/M7	SW6-T-SH	SR M8X30DIN912
T890HT FLN D040-04-16-R13	SR 10513105-L10.5 ^(a)	BLD IP20/M7	SW6-T-SH	SR M8X30DIN912
T890HT FLN D040-05-16-R13	SR 10513105-L10.5 ^(a)	BLD IP20/M7	SW6-T-SH	SR M8X30DIN912
T890HT FLN D050-04-22-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D050-05-22-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D050-06-22-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D063-06-22-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D063-07-22-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D063-08-22-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D080-06-27-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D080-07-27-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D080-09-27-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D100-08-32-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D100-12-32-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D125-09-40-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D125-15-40-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D160-12-40-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D160-20-40-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	

^(a) Recommended tightening torque: 9.0 N*m

F90LN-N11

90° Face Mills Carrying
LN..1106... Tangentially
Clamped Inserts



Designation	DC	CICT ⁽²⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽³⁾	
F90LN D040-04-16-R/L-N11	40.00	4	10.00	40.00	38.40	16.00	A	0.22
F90LN D040-06-16-L-N11	40.00	6	10.00	40.00	38.40	16.00	A	0.04
F90LN D040-06-16-R-N11	40.00	6	10.00	40.00	38.40	16.00	A	0.21
F90LN D050-05-22-R/L-N11	50.00	5	10.00	40.00	47.00	22.00	A	0.32
F90LN D050-07-22-L-N11	50.00	7	10.00	40.00	47.00	22.00	A	0.32
F90LN D050-07-22-R-N11	50.00	7	10.00	40.00	47.00	22.00	A	0.33
F90LN D063-06-22-R/L-N11	63.00	6	10.00	40.00	59.20	22.00	B	0.47
F90LN D063-09-22-R/L-N11	63.00	9	10.00	40.00	59.20	22.00	B	0.50
F90LN D080-08-27-R/L-N11 ⁽¹⁾	80.00	8	10.00	50.00	70.00	27.00	B	0.98
F90LN D080-11-27-R-N11 ⁽¹⁾	80.00	11	10.00	50.00	70.00	27.00	B	1.02
F90LN D100-09-32-L-N11 ⁽¹⁾	100.00	9	10.00	50.00	77.00	32.00	B	1.40
F90LN D100-09-32-R-N11 ⁽¹⁾	100.00	9	10.00	50.00	77.00	32.00	B	1.41
F90LN D100-14-32-R-N11 ⁽¹⁾	100.00	14	10.00	50.00	77.00	32.00	B	1.48
F90LN D125-10-40-L-N11 ⁽¹⁾	125.00	10	10.00	63.00	95.00	40.00	B	2.73
F90LN D125-10-40-R-N11 ⁽¹⁾	125.00	10	10.00	63.00	95.00	40.00	B	2.67
F90LN D125-18-40-R-N11 ⁽¹⁾	125.00	18	10.00	63.00	95.00	40.00	B	2.88

• For user guide, see pages 616-621

⁽¹⁾ For internal coolant through the holder, use a matching coolant set (should be ordered separately)

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ For adaptation options, see page 622

For inserts, see pages: LNAR 1106 (550) • LNAR 1106 (PCD) (551) • LNAR 1106PN-R-S-W (PCD) (551) • LNAT 1106-W (550) • LNAW-11 (CBN) (552)

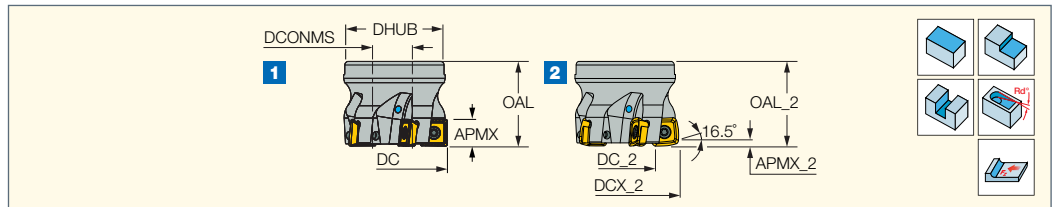
• LNHT 1106 PN-N HT (550) • LNHT 1106 PN-R HT (549) • LNKX/LNMT 1106 (549)

Spare Parts

Designation				
F90LN D040-04-16-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	SR M8X30DIN912
F90LN D040-06-16-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	SR M8X30DIN912
F90LN D050-05-22-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	SR M10X25 DIN912
F90LN D050-07-22-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	SR M10X25 DIN912
F90LN D063-06-22-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D063-09-22-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D080-08-27-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D080-11-27-R-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D100-09-32-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D100-14-32-R-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D125-10-40-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D125-18-40-R-N11	SR 34-550	SW6-SD	BLD T10/S7	

F90SD-12

Face Mills Carrying
Square Inserts



Designation	DC	CICT ⁽¹⁾	DCONMS	DHUB	APMX	OAL	DC_2	DCX_2	APMX_2	OAL_2	RMPX°_2 ⁽²⁾	Arbor ⁽³⁾	CSP ⁽⁴⁾	kg
F90SD D50-03-22-12	50.00	3	22.00	48.00	11.80	40.00	29.40	51.10	1.00	40.35	0.5	A	1	0.27
F90SD D50-05-22-12	50.00	5	22.00	48.00	11.80	40.00	29.40	51.10	1.00	40.35	0.5	A	1	0.28
F90SD D63-04-22-12	63.00	4	22.00	48.00	11.80	40.00	42.40	64.10	1.00	40.35	0.8	A	1	0.41
F90SD D63-06-22-12	63.00	6	22.00	48.00	11.80	40.00	42.40	64.40	1.00	40.35	0.8	A	1	0.43
F90SD D80-05-27-12	80.00	5	27.00	60.00	11.80	50.00	59.40	81.10	1.00	50.35	1.5	B	1	0.79
F90SD D100-06-32-12	100.00	6	32.00	78.00	11.80	50.00	79.40	101.10	1.00	50.35	1.1	B	1	1.44
F90SD D100-08-32-12	100.00	8	32.00	78.00	11.80	50.00	79.40	101.10	1.00	50.35	1.1	B	1	1.43
F90SD D125-07-40-12	125.00	7	40.00	92.00	11.80	50.00	104.40	126.10	1.00	50.35	0.8	B	1	2.13
F90SD D125-09-40-12	125.00	9	40.00	92.00	11.80	50.00	104.40	126.10	1.00	50.35	0.8	B	1	2.16
F90SD D160-11-40-12	160.00	11	40.00	95.00	11.80	50.00	139.40	161.10	1.00	50.35	0.6	C	0	2.95
F90SD D200-13-60-12	200.00	13	60.00	135.00	11.80	55.00	179.40	201.10	1.00	55.35	0.6	C	0	5.40

• 1 - with standard square insert • 2 - with FF (fast feed) insert • For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle (FF inserts only)

⁽³⁾ For adaptation options, see page 622

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

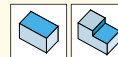
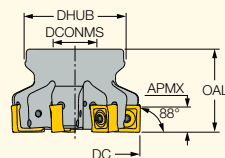
For inserts, see pages: QDCT-PDN (565) • QDMT 1205..PDTN-M (565) • SDMR-HQ (564) • SDMT-FF (564) • SDMT-PDR-HQ (563) • SDMT-PDR-RM (564)

Spare Parts

Designation				
F90SD D50-03-22-12	SR M4X0.7-L9.6 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
F90SD D50-05-22-12	SR M4X0.7-L9.6 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
F90SD D63-04-22-12	SR M4X0.7-L9.6 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
F90SD D63-06-22-12	SR M4X0.7-L9.6 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
F90SD D80-05-27-12	SR M4X0.7-L9.6 IP15	BLD IP15/M7	SW6-T-SH	
F90SD D100-06-32-12	SR M4X0.7-L9.6 IP15	BLD IP15/M7	SW6-T-SH	
F90SD D100-08-32-12	SR M4X0.7-L9.6 IP15	BLD IP15/M7	SW6-T-SH	
F90SD D125-07-40-12	SR M4X0.7-L9.6 IP15	BLD IP15/M7	SW6-T-SH	
F90SD D125-09-40-12	SR M4X0.7-L9.6 IP15	BLD IP15/M7	SW6-T-SH	
F90SD D160-11-40-12	SR M4X0.7-L9.6 IP15	BLD IP15/L7	SW6-T-SH	
F90SD D200-13-60-12	SR M4X0.7-L9.6 IP15	BLD IP15/L7	SW6-T-SH	


HELIDO
890 LINE

S890 FSN-13

 Face Mills Carrying Double
Sided Square Inserts
with 8 Cutting Edges


Designation	DC	APMX	OAL	CICT ⁽¹⁾	DCONMS	DHUB	Arbor ⁽²⁾	CSP ⁽³⁾	
S890 FSN D040-04-16-R13	40.00	9.00	40.00	4	16.00	38.00	A	1	0.19
S890 FSN D050-04-22-R13	50.00	9.00	40.00	4	22.00	48.00	A	1	0.28
S890 FSN D050-05-22-R13	50.00	9.00	40.00	5	22.00	48.00	A	1	0.29
S890 FSN D063-05-22-R13	63.00	9.00	40.00	5	22.00	48.00	A	1	0.39
S890 FSN D063-07-22-R13	63.00	9.00	40.00	7	22.00	48.00	A	1	0.39
S890 FSN D080-07-27-R13	80.00	9.00	50.00	7	27.00	60.00	B	1	0.74
S890 FSN D080-09-27-R13	80.00	9.00	50.00	9	27.00	60.00	B	1	0.74
S890 FSN D100-08-32-R13	100.00	9.00	50.00	8	32.00	70.00	B	1	1.25
S890 FSN D100-11-32-R13	100.00	9.00	50.00	11	32.00	70.00	B	1	1.27
S890 FSN D125-09-40-R13	125.00	9.00	63.00	9	40.00	82.00	B	1	2.29
S890 FSN D125-14-40-R13	125.00	9.00	63.00	14	40.00	82.00	B	1	2.30
S890 FSN D160-10-40-R13	160.00	9.00	63.00	10	40.00	106.00	C	0	4.28

• Use only Torx Plus keys • For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation options, see page 622

⁽³⁾ 0 - Without coolant supply, 1 - With coolant supply

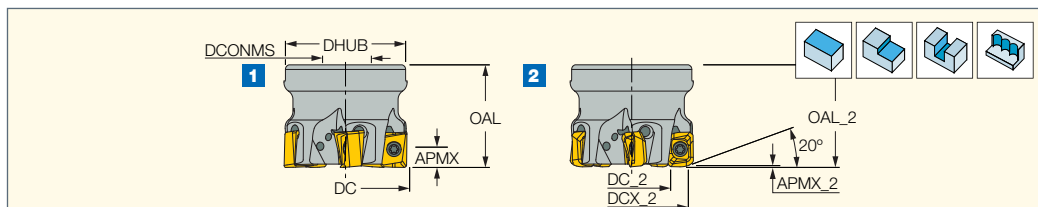
For inserts, see pages: S890 SNMU 1305PN (573)

Spare Parts

Designation				
S890 FSN D040-04-16-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M8X38-1515
S890 FSN D050-04-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
S890 FSN D050-05-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
S890 FSN D063-05-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
S890 FSN D063-07-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
S890 FSN D080-07-27-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S890 FSN D080-09-27-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S890 FSN D100-08-32-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S890 FSN D100-11-32-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S890 FSN D125-09-40-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S890 FSN D125-14-40-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S890 FSN D160-10-40-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	

**H490 F90AX-12**

90° Face Mills Carrying H490
ANKX 12.. Double-Sided
Rectangular Inserts with 4
Helical Cutting Edges



Designation	DC	DCX_2	DC_2	CICT ⁽¹⁾	APMX	APMX_2	AE ⁽²⁾	OAL	OAL_2	DHUB	DCONMS	Arbor ⁽³⁾
H490 F90AX D040-4-16-12	40.00	40.50	30.20	4	12.00	1.40	8.5	40.00	39.77	38.00	16.00	A
H490 F90AX D050-3-22-12	50.00	50.50	40.20	3	12.00	1.40	8.5	40.00	39.77	48.00	22.00	A
H490 F90AX D050-5-22-12	50.00	50.50	40.20	5	12.00	1.40	8.5	40.00	39.77	48.00	22.00	A
H490 F90AX D063-4-27-12	63.00	63.50	53.20	4	12.00	1.40	8.5	50.00	49.77	59.20	27.00	A
H490 F90AX D063-6-27-12	63.00	63.50	53.20	6	12.00	1.40	8.5	50.00	49.77	59.20	27.00	A
H490 F90AX D080-5-27-12	80.00	80.50	70.20	5	12.00	1.40	8.5	50.00	49.77	63.00	27.00	B
H490 F90AX D080-7-27-12	80.00	80.50	70.20	7	12.00	1.40	8.5	50.00	49.77	63.00	27.00	B
H490 F90AX D100-6-32-12	100.00	100.50	90.20	6	12.00	1.40	8.5	50.00	49.77	80.00	32.00	B
H490 F90AX D100-9-32-12	100.00	100.50	90.20	9	12.00	1.40	8.5	50.00	49.77	80.00	32.00	B
H490 F90AX D160-9-40-12	160.00	160.50	150.20	9	12.00	1.40	8.5	63.00	62.77	105.00	40.00	C

Designation	RMPX°_2 ⁽⁴⁾	MDN	MDX	CSP ⁽⁵⁾	MIID ⁽⁶⁾	MIID_2 ⁽⁷⁾	kg
H490 F90AX D040-4-16-12	2.3	70.70	80.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.20
H490 F90AX D050-3-22-12	1.6	90.70	100.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.33
H490 F90AX D050-5-22-12	1.6	90.70	100.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.32
H490 F90AX D063-4-27-12	1.2	116.70	126.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.68
H490 F90AX D063-6-27-12	1.2	116.70	126.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.65
H490 F90AX D080-5-27-12	0.9	150.70	160.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.83
H490 F90AX D080-7-27-12	0.9	150.70	160.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.85
H490 F90AX D100-6-32-12	0.6	190.70	200.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	1.41
H490 F90AX D100-9-32-12	0.6	190.70	200.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	1.47
H490 F90AX D160-9-40-12	0.3	310.70	320.00	0	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	3.87

• For user guide, see pages 616-621 • 1- with standard square insert, 2- with FF (fast feed) insert

• Ramping angle is valid only when H490 ANCX 1205R15T-FF insert is used

• When assembled the H490 ANCX 1205R15T-FF insert, tool diameter enlarges by 0.5 mm

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum side plunge

⁽³⁾ For adaptation options, see page 622

⁽⁴⁾ Maximum ramping angle when using FF inserts

⁽⁵⁾ 0 - Without coolant supply, 1 - With coolant supply

⁽⁶⁾ Master insert identification

⁽⁷⁾ Master insert identification 2

For inserts, see pages: H490 ANKX/ANCX 1205-FF (539) • H490 ANKX/ANCX-12 (538)

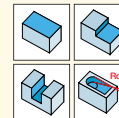
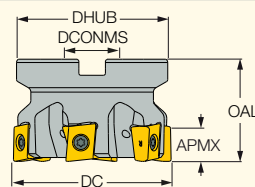
Spare Parts

Designation				
H490 F90AX D040-4-16-12	SR 14-544	BLD T15/M7	SW6-T	SR M8X30DIN912
H490 F90AX D050-3-22-12	SR 14-544	BLD T15/M7	SW6-T	SR M10X30 DIN912
H490 F90AX D050-5-22-12	SR 14-544	BLD T15/M7	SW6-T	SR M10X30 DIN912
H490 F90AX D063-4-27-12	SR 14-544	BLD T15/M7	SW6-T	SR M12X35DIN912
H490 F90AX D063-6-27-12	SR 14-544	BLD T15/M7	SW6-T	SR M12X35DIN912
H490 F90AX D080-5-27-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D080-7-27-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D100-6-32-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D100-9-32-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D160-9-40-12	SR 14-544	BLD T15/M7	SW6-T	

HELITANG
T490 LINE

T490 FLN-13

90° Face Mills Carrying
Tangentially Clamped
Inserts with 4 Helical 13mm
Long Cutting Edges



Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽²⁾	RMPX ⁽³⁾	CSP ⁽⁴⁾	kg
T490 FLN D040-04-16-R-13	40.00	4	12.50	40.00	38.00	16.00	A	2.1	1	0.22
T490 FLN D040-05-16-R-13	40.00	5	12.50	40.00	38.00	16.00	A	2.1	1	0.22
T490 FLN D050-05-22-R-13	50.00	5	12.50	40.00	47.00	22.00	A	1.1	1	0.31
T490 FLN D050-06-22-R-13	50.00	6	12.50	40.00	47.00	22.00	A	1.1	1	0.31
T490 FLN D063-06-22-R-13	63.00	6	12.50	40.00	59.20	22.00	A	0.8	1	0.55
T490 FLN D063-08-22-R-13	63.00	8	12.50	40.00	59.20	22.00	A	0.8	1	0.56
T490 FLN D080-07-27-R-13	80.00	7	12.50	50.00	70.00	27.00	B	0.4	1	0.98
T490 FLN D080-10-27-R-13	80.00	10	12.50	50.00	70.00	27.00	B	0.4	1	1.00
T490 FLN D100-08-32-R-13	100.00	8	12.50	50.00	78.00	32.00	B	0.3	1	1.45
T490 FLN D100-13-32-R-13	100.00	13	12.50	50.00	78.00	32.00	B	0.3	1	1.49
T490 FLN D125-09-40-R-13	125.00	9	12.50	63.00	82.00	40.00	B	0.2	1	2.16
T490 FLN D125-17-40-R-13	125.00	17	12.50	63.00	82.00	40.00	B	0.2	1	2.30
T490 FLN D160-12-40-R-13	160.00	12	12.50	63.00	120.00	40.00	C	-	0	4.32
T490 FLN D200-15-60-R-13	200.00	15	12.50	63.00	135.00	60.00	C	-	0	5.84

• When machining slots, coarse pitch cutters should be used • For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation options, see page 622

⁽³⁾ Maximum ramping angle - valid only when the T490 LNHT 1306 PNTR-RD insert is used. For the -FF insert, refer to -FF insert information

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNR-FF (547) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)

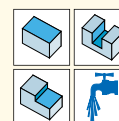
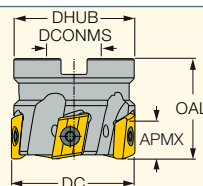
Spare Parts

Designation				
T490 FLN D040-04-16-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M8X30DIN912
T490 FLN D040-05-16-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M8X30DIN912
T490 FLN D050-05-22-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
T490 FLN D050-06-22-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
T490 FLN D063-06-22-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
T490 FLN D063-08-22-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
T490 FLN D080-07-27-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D080-10-27-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D100-08-32-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D100-13-32-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D125-09-40-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D125-17-40-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D160-12-40-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D200-15-60-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	

SUMOMILL
290 LINE

T290 FLN-15

90° Face Mills Carrying T290
LNMT 1506... Tangentially
Clamped Inserts



Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽²⁾	kg				
T290 FLN D040-04-16-15	40.00	4	14.00	40.00	36.00	16.00	A	0.20	SR 10505427	BLD IP20/S7	SW6-T	SR M8X25DIN912
T290 FLN D050-05-22-15	50.00	5	14.00	40.00	48.00	22.00	A	0.33	SR 10505427	BLD IP20/S7	SW6-T	SR M10X25DIN7984

• For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation options, see page 622

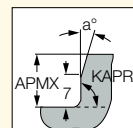
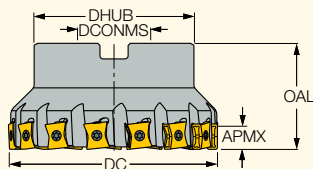
For inserts, see pages: T290 LNMT 1506 (542)



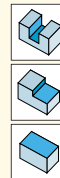
TANGMILL
TANGENTIAL LINE

F90LN-N15

90° Face Mills Carrying
LN..1506... Tangentially
Clamped Inserts



DC=50, a=8°, KAPR=91°
DC=63, a=6°, KAPR=90°
DC≥100, a=4.5°, KAPR=90°



Designation	DC	CICT ⁽²⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽³⁾	kg
F90LN D050-05-22-R/L-N15	50.00	5	14.00	40.00	47.00	22.00	A	0.33
F90LN D063-05-22-R/L-N15	63.00	5	14.00	40.00	59.20	22.00	B	0.48
F90LN D063-08-22-R/L-N15	63.00	8	14.00	40.00	59.20	22.00	B	0.50
F90LN D080-07-27-L-N15 ⁽¹⁾	80.00	7	14.00	50.00	70.00	27.00	B	1.01
F90LN D080-07-27-R-N15 ⁽¹⁾	80.00	7	14.00	50.00	70.00	27.00	B	1.02
F90LN D080-10-27-L-N15 ⁽¹⁾	80.00	10	14.00	50.00	70.00	27.00	B	1.05
F90LN D080-10-27-R-N15 ⁽¹⁾	80.00	10	14.00	50.00	70.00	27.00	B	1.06
F90LN D100-08-32-L-N15 ⁽¹⁾	100.00	8	14.00	50.00	78.00	32.00	B	0.50
F90LN D100-08-32-R-N15 ⁽¹⁾	100.00	8	14.00	50.00	78.00	32.00	B	1.52
F90LN D100-12-32-L-N15 ⁽¹⁾	100.00	12	14.00	50.00	78.00	32.00	B	1.59
F90LN D100-12-32-R-N15 ⁽¹⁾	100.00	12	14.00	50.00	78.00	32.00	B	1.60
F90LN D125-09-40-R/L-N15 ⁽¹⁾	125.00	9	14.00	63.00	95.00	40.00	B	2.95
F90LN D125-15-40-L-N15 ⁽¹⁾	125.00	15	14.00	63.00	95.00	40.00	B	3.06
F90LN D125-15-40-R-N15 ⁽¹⁾	125.00	15	14.00	63.00	95.00	40.00	B	3.07
F90LN D160-10-40-L-N15	160.00	10	14.00	63.00	120.00	40.00	C	4.30
F90LN D160-10-40-R-N15	160.00	10	14.00	63.00	120.00	40.00	C	4.29
F90LN D160-20-40-L-N15	160.00	20	14.00	63.00	120.00	40.00	C	4.48
F90LN D160-20-40-R-N15	160.00	20	14.00	63.00	120.00	40.00	C	4.50
F90LN D200-12-60-L-N15	200.00	12	14.00	63.00	135.00	60.00	C	6.67
F90LN D200-12-60-R-N15	200.00	12	14.00	63.00	135.00	60.00	C	6.64
F90LN D250-15-60-R-N15	250.00	15	14.00	63.00	150.00	60.00	C	10.39
F90LN D250-30-60-R-N15	250.00	30	14.00	63.00	150.00	60.00	C	10.83

• Left-hand cutters are designated by a red groove • For user guide, see pages 616-621

⁽¹⁾ For internal coolant through the holder, use a matching coolant set (should be ordered separately)

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ For adaptation options, see page 622

For inserts, see pages: LNA1506 (555) • LNA1506 PN-R-S (PCD) (556) • LNA1506-W (557) • LNA1506..PN-N MM (556) • LNAW-15 (CBN) (552)

• LNH1506 PNTN (CER) (556) • LNKX1506 1.5X45 PN-N (554) • LNKX1506PN-N PL (554) • LNMT1506PN-R-TS (553)

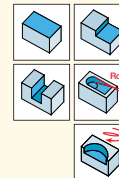
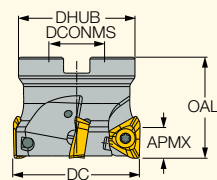
• LNMT/LNHT1506...-N HT (555) • LNMT/LNHT1506PN-R HT (554) • LNMW1506 PNTN (553)

Spare Parts

Designation				
F90LN D050-05-22-L-N15	SR 34-535	SW6-T	BLD T15/M7	SR M10X25 DIN912
F90LN D050-05-22-R-N15	SR 34-535	SW6-T-SH	BLD T15/M7	SR M10X25 DIN912
F90LN D063-05-22-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D063-08-22-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D080-07-27-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D080-10-27-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D100-08-32-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D100-12-32-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D125-09-40-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D125-15-40-L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D125-15-40-R-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D160-10-40-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D160-20-40-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D200-12-60-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D250-15-60-R-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D250-30-60-R-N15	SR 34-535	SW6-T-SH	BLD T15/M7	

HM390 FTD-15

90° Face Mills Carrying HM390
TDKT 1505 Triangular Inserts
with 3 Helical Cutting Edges



Designation	DC	CICT ⁽²⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽³⁾	RMPX ⁽⁴⁾	CSP ⁽⁵⁾	kg
HM390 FTD D040-3-16-15	40.00	3	13.00	40.00	38.40	16.00	A	2.0	1	0.20
HM390 FTD D040-4-16-15	40.00	4	13.00	40.00	38.40	16.00	A	2.0	1	0.19
HM390 FTD D050-3-22-15	50.00	3	13.00	40.00	46.00	22.00	A	1.6	1	0.25
HM390 FTD D050-4-22-15	50.00	4	13.00	40.00	46.00	22.00	A	1.6	1	0.28
HM390 FTD D050-5-22-15	50.00	5	13.00	40.00	46.00	22.00	A	1.6	1	0.28
HM390 FTD D063-4-27-15	63.00	4	13.00	45.00	59.00	27.00	A	1.2	1	0.53
HM390 FTD D063-5-22-15	63.00	5	13.00	45.00	59.00	22.00	A	1.2	1	0.58
HM390 FTD D063-5-27-15	63.00	5	13.00	45.00	59.00	27.00	A	1.2	1	0.53
HM390 FTD D063-6-22-15	63.00	6	13.00	45.00	59.00	22.00	A	1.2	1	0.62
HM390 FTD D063-6-27-15	63.00	6	13.00	45.00	59.00	27.00	A	1.2	1	0.57
HM390 FTD D080-5-27-15	80.00	5	13.00	50.00	74.00	27.00	A	0.9	1	1.11
HM390 FTD D080-6-27-15	80.00	6	13.00	50.00	74.00	27.00	A	0.9	1	0.14
HM390 FTD D080-7-27-15	80.00	7	13.00	50.00	74.00	27.00	A	0.9	1	1.18
HM390 FTD D100-6-32-15	100.00	6	13.00	50.00	80.00	32.00	B	0.7	1	1.31
HM390 FTD D100-8-32-15	100.00	8	13.00	50.00	80.00	32.00	B	0.7	1	1.46
HM390 FTD D125-7-40-15	125.00	7	13.00	63.00	82.00	40.00	B	0.5	1	2.12
HM390 FTD D125-9-40-15	125.00	9	13.00	63.00	82.00	40.00	B	0.5	1	2.29
HM390 FTD D160-8-40-15 ⁽¹⁾	160.00	8	13.00	63.00	105.00	40.00	C	0.3	0	3.57
HM390 FTD D160-10-40-15 ⁽¹⁾	160.00	10	13.00	63.00	105.00	40.00	C	0.3	0	4.02
HM390 FTD D200-9-60-15	200.00	9	13.00	63.00	135.00	60.00	C	0.2	0	5.23

• When assembled the HM390 TDKT 1505PDR-FW insert, tool diameter enlarges by 1.0 mm • For user guide, see pages 616-621

⁽¹⁾ For internal coolant through the holder, use a matching coolant set (should be ordered separately)

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ For adaptation options, see page 622

⁽⁴⁾ Maximum ramping angle

⁽⁵⁾ 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: HM390 TDCR 1505 (514) • HM390 TDKT/CT 1505 (513)

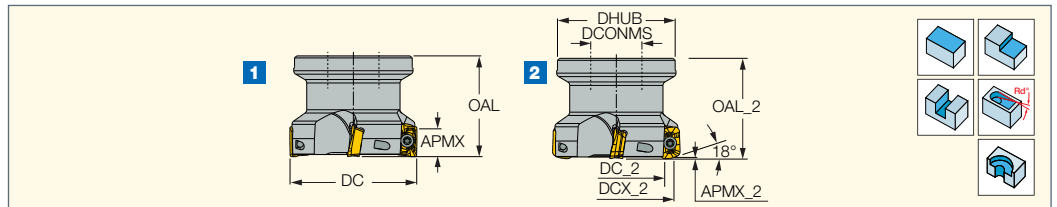
Spare Parts

Designation				
HM390 FTD D040-3-16-15	SR 10511869	BLD IP20/S7	SW6-T	SR M8X37-1515
HM390 FTD D040-4-16-15	SR 10511869	BLD IP20/S7	SW6-T	SR M8X37-1515
HM390 FTD D050-3-22-15	SR 10505427	BLD IP20/S7	SW6-T	SR M10X30 DIN912
HM390 FTD D050-4-22-15	SR 10505427	BLD IP20/S7	SW6-T	SR M10X30 DIN912
HM390 FTD D050-5-22-15	SR 10511869	BLD IP20/S7	SW6-T	SR M10X30 DIN912
HM390 FTD D063-4-27-15	SR 10505427	BLD IP20/S7	SW6-T	SR M12X35DIN912
HM390 FTD D063-5-22-15	SR 10511869	BLD IP20/S7	SW6-T	SR M10X30 DIN912
HM390 FTD D063-5-27-15	SR 10505427	BLD IP20/S7	SW6-T	SR M12X35DIN912
HM390 FTD D063-6-22-15	SR 10511869	BLD IP20/S7	SW6-T	SR M10X30 DIN912
HM390 FTD D063-6-27-15	SR 10505427	BLD IP20/S7	SW6-T	SR M12X35DIN912
HM390 FTD D080-5-27-15	SR 10505427	BLD IP20/S7	SW6-T	SR M12X40DIN912
HM390 FTD D080-6-27-15	SR 10505427	BLD IP20/S7	SW6-T	SR M12X40DIN912
HM390 FTD D080-7-27-15	SR 10505427	BLD IP20/S7	SW6-T	SR M12X40DIN912
HM390 FTD D100-6-32-15	SR 10505427	BLD IP20/S7	SW6-T	
HM390 FTD D100-8-32-15	SR 10505427	BLD IP20/S7	SW6-T	
HM390 FTD D125-7-40-15	SR 10505427	BLD IP20/S7	SW6-T	
HM390 FTD D125-9-40-15	SR 10505427	BLD IP20/S7	SW6-T	
HM390 FTD D160-8-40-15	SR 10505427	BLD IP20/S7	SW6-T	
HM390 FTD D160-10-40-15	SR 10505427	BLD IP20/S7	SW6-T	
HM390 FTD D200-9-60-15	SR 10505427	BLD IP20/S7	SW6-T	

HELI2000

HM90 F90A-15

90° Face Mills Carrying HM90
ADKT 1505... Inserts



Designation	DC	DC_2	DCX_2	APMX	APMX_2	OAL	OAL_2	DHUB	DCONMS	RMPX ⁽²⁾	RMPX°_2
HM90 F90A D 40-3-16	40.00	27.30	40.50	14.30	1.50	40.00	39.74	38.60	16.00	4.0	4.0
HM90 F90A D 40-4-16	40.00	27.30	40.50	14.30	1.50	40.00	39.74	38.60	16.00	4.0	4.0
HM90 F90A D 50-3-22	50.00	37.30	50.50	14.30	1.50	40.00	39.74	48.00	22.00	2.6	2.6
HM90 F90A D 50-5-22	50.00	37.30	50.50	14.30	1.50	40.00	39.74	48.00	22.00	2.6	2.6
HM90 F90A D 63-4-22	63.00	50.30	63.50	14.30	1.50	40.00	39.74	59.20	22.00	2.0	2.0
HM90 F90A D 63-6-22	63.00	50.30	63.50	14.30	1.50	40.00	39.74	59.20	22.00	2.0	2.0
HM90 F90A D 80-5-27 ⁽¹⁾	80.00	67.30	80.50	14.30	1.50	50.00	49.74	70.00	27.00	0.8	0.8
HM90 F90A D 80-7-27 ⁽¹⁾	80.00	67.30	80.50	14.30	1.50	50.00	49.74	70.00	27.00	0.8	0.8
HM90 F90A D100-6-32 ⁽¹⁾	100.00	87.30	100.50	14.30	1.50	50.00	49.74	78.00	32.00	0.7	0.7
HM90 F90A D100-8-32 ⁽¹⁾	100.00	87.30	100.50	14.30	1.50	50.00	49.74	78.00	32.00	0.7	0.7
HM90 F90A D125-9-40 ⁽¹⁾	125.00	112.30	125.50	14.30	1.50	63.00	62.74	90.00	40.00	0.5	0.5

Designation	Arbor ⁽³⁾	MDN	MDX	RPMX ⁽⁴⁾	MIID ⁽⁵⁾	MIID_2 ⁽⁶⁾	kg
HM90 F90A D 40-3-16	A	67.80	80.00	25870	ADKT 1505PDTR	ADKT 1505R8T-FF	0.20
HM90 F90A D 40-4-16	A	67.80	80.00	25870	ADKT 1505PDTR	ADKT 1505R8T-FF	0.19
HM90 F90A D 50-3-22	A	87.80	100.00	23139	ADKT 1505PDTR	ADKT 1505R8T-FF	0.32
HM90 F90A D 50-5-22	A	87.80	100.00	23139	ADKT 1505PDTR	ADKT 1505R8T-FF	0.30
HM90 F90A D 63-4-22	A	113.80	126.00	20614	ADKT 1505PDTR	ADKT 1505R8T-FF	0.55
HM90 F90A D 63-6-22	A	113.80	126.00	20614	ADKT 1505PDTR	ADKT 1505R8T-FF	0.52
HM90 F90A D 80-5-27 ⁽¹⁾	B	147.80	160.00	18293	ADKT 1505PDTR	ADKT 1505R8T-FF	0.91
HM90 F90A D 80-7-27 ⁽¹⁾	B	147.80	160.00	19293	ADKT 1505PDTR	ADKT 1505R8T-FF	0.88
HM90 F90A D100-6-32 ⁽¹⁾	B	187.80	200.00	16362	ADKT 1505PDTR	ADKT 1505R8T-FF	1.54
HM90 F90A D100-8-32 ⁽¹⁾	B	187.80	200.00	16362	ADKT 1505PDTR	ADKT 1505R8T-FF	1.49
HM90 F90A D125-9-40 ⁽¹⁾	B	237.80	250.00	14635	ADKT 1505PDTR	ADKT 1505R8T-FF	2.95

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-621

⁽¹⁾ For internal coolant through the holder, use a matching coolant set (should be ordered separately)

⁽²⁾ Maximum ramping angle

⁽³⁾ For adaptation options, see page 622

⁽⁴⁾ Maximum RPM

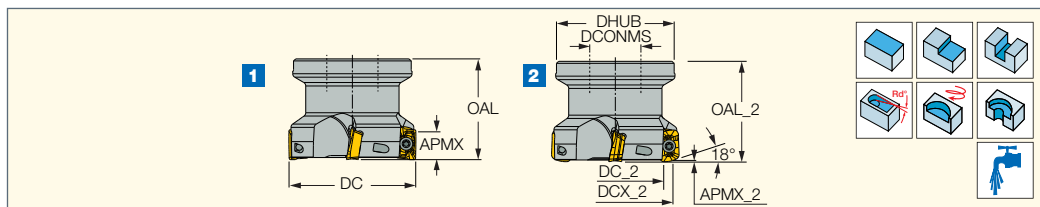
⁽⁵⁾ Master insert identification

⁽⁶⁾ Master insert identification 2

For inserts, see pages: ADCR 1505PDR (523) • ADCT 1505PDR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526)
• ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDR-76 (526) • ADKT 1505PDR/L-RM (525) • ADKW (CBN) (524) • ADKW (PCD) (524)
• ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDR-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521)
• HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)

Spare Parts

Designation				
HM90 F90A D 40-3-16	SR 14-544/S	BLD T15/M7	SW6-T-SH	SR M8x25DIN912
HM90 F90A D 40-4-16	SR 14-544/S	BLD T15/M7	SW6-T-SH	SR M8x25DIN912
HM90 F90A D 50-3-22	SR 14-544/S	BLD T15/M7	SW6-T-SH	SR M10x25 DIN912
HM90 F90A D 50-5-22	SR 14-544/S	BLD T15/M7	SW6-T-SH	SR M10x25 DIN912
HM90 F90A D 63-4-22	SR 14-544	BLD T15/M7	SW6-T-SH	SR M10x25 DIN912
HM90 F90A D 63-6-22	SR 14-544	BLD T15/M7	SW6-T-SH	SR M10x25 DIN912
HM90 F90A D 80-5-27	SR 14-544	BLD T15/M7	SW6-T-SH	
HM90 F90A D 80-7-27	SR 14-544	BLD T15/M7	SW6-T-SH	
HM90 F90A D100-6-32	SR 14-544	BLD T15/M7	SW6-T-SH	
HM90 F90A D100-8-32	SR 14-544	BLD T15/M7	SW6-T-SH	
HM90 F90A D125-9-40	SR 14-544	BLD T15/M7	SW6-T-SH	

HELI2000
JET LINE**HM90 F90A-15-JHP**90° JHP Face Mills Carrying
HELI-2000 and HELI-MILL Inserts

Designation	DC	DC_2	DCX_2	CICT ⁽¹⁾	APMX	APMX_2	OAL	OAL_2	DHUB	DCONMS	RPMX ⁽²⁾
HM90 F90A D050-5-22-JHP	50.00	37.30	50.50	5	14.30	1.50	50.00	39.74	48.00	22.00	23100
HM90 F90A D063-6-22-JHP	63.00	50.30	63.50	6	14.30	1.50	50.00	49.74	48.00	22.00	20600

Designation	MDN	MDX	MIID ⁽³⁾	MIID_2 ⁽⁴⁾	RMPX ⁽⁵⁾	RMPX°_2	Arbor	
HM90 F90A D050-5-22-JHP	87.80	100.00	ADKT 1505PDTR	ADKT 1505R8T-FF	2.6	2.6	A	0.50
HM90 F90A D063-6-22-JHP	113.80	126.00	ADKT 1505PDTR	ADKT 1505R8T-FF	2.0	2.0	A	0.76

• 1- with standard square insert • 2- with FF (fast feed) insert • Use adaptation only with face coolant outlets

• For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum RPM

⁽³⁾ Master insert identification

⁽⁴⁾ Master insert identification 2

⁽⁵⁾ Maximum ramping angle

For inserts, see pages: ADCR 1505PDFR (523) • ADCT 1505PDFR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526) • ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADKW (CBN) (524) • ADKW (PCD) (524) • ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDFR-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521) • HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)

Spare Parts

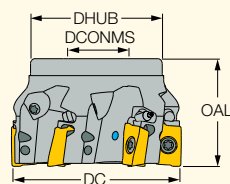
Designation				
HM90 F90A D050-5-22-JHP	SR 14-544/S ^(a)	SR PS 118-0273	BLD T15/M7	SW6-T-SH
HM90 F90A D063-6-22-JHP	SR 14-544 ^(a)	SR PS 118-0273	BLD T15/M7	SW6-T-SH

^(a) Recommended tightening torque for this item: 4.8 Nxm

HELI2000

F90AD-SFR

Adjustable Face Mills (used mainly for PCD/CBN inserts)



Designation	DC	CICT ⁽¹⁾	OAL	DHUB	DCONMS	Arbor ⁽²⁾	RPMX ⁽³⁾	
F90AD D050-04-22-SFR	50.00	4	40.00	49.00	22.00	A	23000	0.31
F90AD D063-04-22-SFR	63.00	4	40.00	50.00	22.00	A	20600	0.43
F90AD D063-06-22-SFR	63.00	6	40.00	50.00	22.00	A	20600	0.49
F90AD D080-06-27-SFR	80.00	6	50.00	60.00	27.00	B	18200	0.89

• These tools may also be used for regular HELI-2000 AD.. 1505... inserts, for applications that require precise frontal edge adjustment

• For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation options, see page 622

⁽³⁾ Maximum RPM

For inserts, see pages: ADKW (CBN) (524) • ADKW (PCD) (524) • ADCR 1505PDR (523) • ADCT 1505PDR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526) • ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDR-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521) • HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)



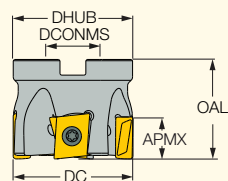
Spare Parts

Designation					
F90AD D050-04-22-SFR	SR 14-544/S	SR 11800782	BLD T15/S7	SW6-T-SH	SR M10X20DIN912
F90AD D063-04-22-SFR	SR 14-544/S	SR 11800782	BLD T15/S7	SW6-T-SH	SR M10X20DIN912
F90AD D063-06-22-SFR	SR 14-544/S	SR 11800782	BLD T15/S7	SW6-T-SH	SR M10X20DIN912
F90AD D080-06-27-SFR	SR 14-544/S	SR 11800782	BLD T15/S7	SW6-T-SH	

HELI TANG
T490 LINE

T490 FLN-16

90° Face Mills Carrying
Tangentially Clamped
Inserts with 4 Helical 16mm
Long Cutting Edges



Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽²⁾	CSP ⁽³⁾	kg
T490 FLN D050-03-22-16	50.00	3	16.00	40.00	48.00	22.00	A	1	0.30
T490 FLN D050-04-22-16	50.00	4	16.00	40.00	48.00	22.00	A	1	0.32
T490 FLN D063-06-27-16	63.00	6	16.00	45.00	60.00	27.00	A	1	0.62
T490 FLN D080-05-27-16	80.00	5	16.00	50.00	63.00	27.00	B	1	0.84
T490 FLN D080-07-27-16	80.00	7	16.00	50.00	63.00	27.00	B	1	0.91
T490 FLN D100-06-32-16	100.00	6	16.00	50.00	80.00	32.00	B	1	1.44
T490 FLN D100-08-32-16	100.00	8	16.00	50.00	80.00	32.00	B	1	1.50
T490 FLN D125-07-40-16	125.00	7	16.00	63.00	82.00	40.00	B	1	2.42
T490 FLN D125-10-40-16	125.00	10	16.00	63.00	82.00	40.00	B	1	2.46
T490 FLN D160-12-40-16	160.00	12	16.00	63.00	105.00	40.00	C	0	4.28
T490 FLN D200-12-60-16	200.00	12	16.00	63.00	135.00	60.00	C	0	5.40

• When machining slots, regular pitch cutters should be used. • For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation options, see page 622

⁽³⁾ 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT/LNHT 1607 (548)

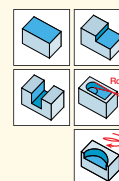
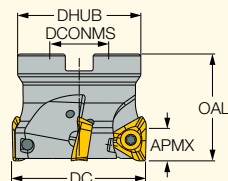
Spare Parts

Designation				
T490 FLN D050-03-22-16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
T490 FLN D050-04-22-16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
T490 FLN D063-06-27-16	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
T490 FLN D080-05-27-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D080-07-27-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D100-06-32-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D100-08-32-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D125-07-40-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D125-10-40-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D160-12-40-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D200-12-60-16	SR 14-591	BLD T20/M7	SW6-T	

HELI 3 MILL
HM390 LINE

HM390 FTD-19

90° Face Mills Carrying HM390
TDKT 1907 Triangular Inserts
with 3 Helical Cutting Edges



Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽²⁾	CSP ⁽³⁾	RMPX ⁽⁴⁾	kg
HM390 FTD D063-5-27-19	63.00	5	16.00	50.00	60.00	27.00	A	1	1.1	0.63
HM390 FTD D160-10-40-19	160.00	10	16.00	63.00	105.00	40.00	C	0	0.4	4.22

• For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation options, see page 622

⁽³⁾ 0 - Without coolant supply, 1 - With coolant supply

⁽⁴⁾ Maximum ramping angle

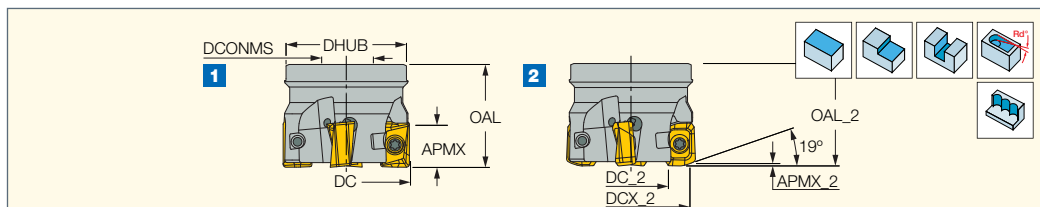
For inserts, see pages: HM390 TDKT 1907 (514)

Spare Parts

Designation				
HM390 FTD D063-5-27-19	SR 14-591/H	BLD T20/S7	SW6-T	SR M12X25 DIN 912
HM390 FTD D160-10-40-19	SR 14-591/H	BLD T20/M7	SW6-T	

H490 F90AX-17

90° Face Mills Carrying H490 ANKX 17.. Double-Sided Rectangular Inserts with 4 Helical Cutting Edges



Designation	DC	DCX_2	DC_2	CICT ⁽²⁾	APMX	APMX_2	AE ⁽³⁾	OAL	OAL_2	DHUB	DCONMS	Arbor ⁽⁴⁾
H490 F90AX D040-3-16-17	40.00	41.50	29.70	3	16.30	1.60	9.5	40.00	39.86	36.00	16.00	A
H490 F90AX D050-3-22-17	50.00	51.50	39.70	3	16.30	1.60	9.5	40.00	39.86	48.00	22.00	A
H490 F90AX D050-4-22-17	50.00	51.50	39.70	4	16.30	1.60	9.5	40.00	39.86	48.00	22.00	A
H490 F90AX D050-5-22-17	50.00	51.50	39.70	5	16.30	1.60	9.5	40.00	39.86	48.00	22.00	A
H490 F90AX D063-4-27-17	63.00	64.50	52.70	4	16.30	1.60	9.5	50.00	49.86	59.20	27.00	A
H490 F90AX D063-6-27-17	63.00	64.50	52.70	6	16.30	1.60	9.5	50.00	49.86	59.20	27.00	A
H490 F90AX D080-5-27-17	80.00	81.50	69.70	5	16.30	1.60	9.5	50.00	49.86	63.00	27.00	B
H490 F90AX D080-7-27-17	80.00	81.50	69.70	7	16.30	1.60	9.5	50.00	49.86	63.00	27.00	B
H490 F90AX D100-5-32-17	100.00	101.50	89.70	5	16.30	1.60	9.5	50.00	49.86	80.00	32.00	B
H490 F90AX D100-8-32-17	100.00	101.50	89.70	8	16.30	1.60	9.5	50.00	49.86	80.00	32.00	B
H490 F90AX D125-10-40-17	125.00	126.50	114.70	10	16.30	1.60	9.5	63.00	62.86	82.00	40.00	B
H490 F90AX D125-7-40-17	125.00	126.50	114.70	7	16.30	1.60	9.5	63.00	62.86	82.00	40.00	B
H490 F90AX D160-12-40-17 ⁽¹⁾	160.00	161.50	149.70	12	16.30	1.60	9.5	63.00	62.86	105.00	40.00	C
H490 F90AX D160-8-40-17 ⁽¹⁾	160.00	161.50	149.70	8	16.30	1.60	9.5	63.00	62.86	105.00	40.00	C
H490 F90AX D200-10-60-17	200.00	201.50	189.70	10	16.30	1.60	9.5	63.00	62.86	135.00	60.00	C
H490 F90AX D250-12-60-17	250.00	251.50	239.70	12	16.30	1.60	9.5	63.00	62.86	144.00	60.00	C

Designation	RMPX°_2 ⁽⁵⁾	MDN	MDX	CSP ⁽⁶⁾	MIID ⁽⁷⁾	MIID_2 ⁽⁸⁾	
H490 F90AX D040-3-16-17	3.7	71.20	82.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	0.18
H490 F90AX D050-3-22-17	2.5	91.20	102.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	0.32
H490 F90AX D050-4-22-17	2.5	91.20	102.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	0.30
H490 F90AX D050-5-22-17	2.5	91.20	102.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	0.48
H490 F90AX D063-4-27-17	1.7	117.20	128.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	0.63
H490 F90AX D063-6-27-17	1.7	117.20	128.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	0.67
H490 F90AX D080-5-27-17	1.3	151.20	162.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	0.79
H490 F90AX D080-7-27-17	1.3	151.20	162.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	0.80
H490 F90AX D100-5-32-17	1.0	191.20	202.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	1.39
H490 F90AX D100-8-32-17	1.0	191.20	202.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	1.47
H490 F90AX D125-10-40-17	0.8	241.20	252.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	5.41
H490 F90AX D125-7-40-17	0.8	241.20	252.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	2.24
H490 F90AX D160-12-40-17 ⁽¹⁾	0.6	311.20	322.00	0	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	4.09
H490 F90AX D160-8-40-17 ⁽¹⁾	0.6	311.20	322.00	0	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	3.64
H490 F90AX D200-10-60-17	0.5	391.20	402.00	0	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	5.99
H490 F90AX D250-12-60-17	0.4	491.20	502.00	0	H490 ANKX 170604PNTR	H490 ANKX 1706..FF	9.36

• For user guide, see pages 616-621 • 1- with standard square insert, 2- with FF (fast feed) insert

• Ramping angle is valid only when H490 ANKX 1706R15T-FF insert is used

• When assembled the H490 ANKX 1706R15T-FF insert, tool diameter enlarges by 1.5 mm

⁽¹⁾ For internal coolant through the holder, use a matching coolant set (should be ordered separately)

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ Maximum side plunge

⁽⁴⁾ For adaptation options, see page 622

⁽⁵⁾ Maximum ramping angle when using FF inserts

⁽⁶⁾ 0 - Without coolant supply, 1 - With coolant supply

⁽⁷⁾ Master insert identification

⁽⁸⁾ Master insert identification 2

For inserts, see pages: H490 ANKX 1706-FF (540) • H490 ANKX/ANCX-17 (539)

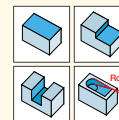
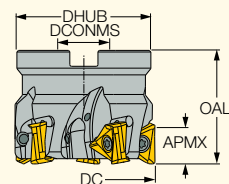
Spare Parts

Designation				
H490 F90AX D040-3-16-17	SR 14-591	BLD T20/M7	SW6-T	SR M8X25DIN912
H490 F90AX D050-3-22-17	SR 14-591	BLD T20/M7	SW6-T	SR M10X25 DIN912
H490 F90AX D050-4-22-17	SR 14-591	BLD T20/M7	SW6-T	SR M10X25 DIN912
H490 F90AX D050-5-22-17	SR 14-591	BLD T20/M7	SW6-T	SR M10X25 DIN912
H490 F90AX D063-4-27-17	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
H490 F90AX D063-6-27-17	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
H490 F90AX D080-5-27-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D080-7-27-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D100-5-32-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D100-8-32-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D125-10-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D125-7-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D160-12-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D160-8-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D200-10-60-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D250-12-60-17	SR 14-591	BLD T20/M7	SW6-T	



H690 F90AX-16

90° Face Mills Carrying H690
TNKX 1606.. Triangular Inserts
with 6 Helical Cutting Edges



Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽²⁾	RMPX ⁽³⁾	CSP ⁽⁴⁾	kg
H690 F90AX D050-3-22-16	50.00	3	13.50	40.00	48.00	22.00	A	3.0	1	0.31
H690 F90AX D050-4-22-16	50.00	4	13.50	40.00	48.00	22.00	A	3.0	1	0.30
H690 F90AX D063-4-27-16	63.00	4	13.50	50.00	59.00	27.00	A	2.0	1	0.63
H690 F90AX D063-5-27-16	63.00	5	13.50	50.00	59.00	27.00	A	2.0	1	0.64
H690 F90AX D080-5-27-16	80.00	5	13.50	50.00	76.00	27.00	A	1.0	1	1.20
H690 F90AX D080-6-27-16	80.00	6	13.50	50.00	76.00	27.00	A	1.0	1	1.21
H690 F90AX D100-6-32-16	100.00	6	13.50	50.00	80.00	32.00	B	1.0	1	1.29
H690 F90AX D100-8-32-16	100.00	8	13.50	50.00	80.00	32.00	B	1.0	1	1.41
H690 F90AX D125-7-40-16	125.00	7	13.50	63.00	82.00	40.00	B	0.5	1	2.14
H690 F90AX D125-9-40-16	125.00	9	13.50	63.00	82.00	40.00	B	0.5	1	2.29
H690 F90AX D160-8-40-16	160.00	8	13.50	63.00	105.00	40.00	C	-	0	3.03
H690 F90AX D160-10-40-16	160.00	10	13.50	63.00	105.00	40.00	C	-	0	3.46
H690 F90AX D200-11-60-16	200.00	11	13.50	63.00	135.00	60.00	C	-	0	5.09

• For cutting speed recommendations, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation options, see page 622

⁽³⁾ Maximum ramping angle

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: H690 TNKX 1606 (540)

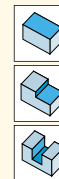
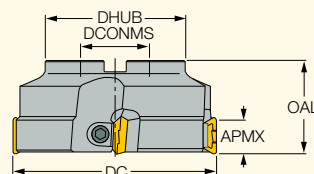
Spare Parts

Designation				
H690 F90AX D050-3-22-16	SR 14-591	BLD T20/M7	SW6-T	SR M10X40-1638
H690 F90AX D050-4-22-16	SR 14-591	BLD T20/M7	SW6-T	SR M10X40-1638
H690 F90AX D063-4-27-16	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
H690 F90AX D063-5-27-16	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
H690 F90AX D080-5-27-16	SR 14-591	BLD T20/M7	SW6-T	SR M12X35DIN912
H690 F90AX D080-6-27-16	SR 14-591	BLD T20/M7	SW6-T	SR M12X35DIN912
H690 F90AX D100-6-32-16	SR 14-591	BLD T20/M7	SW6-T	
H690 F90AX D100-8-32-16	SR 14-591	BLD T20/M7	SW6-T	
H690 F90AX D125-7-40-16	SR 14-591	BLD T20/M7	SW6-T	
H690 F90AX D125-9-40-16	SR 14-591	BLD T20/M7	SW6-T	
H690 F90AX D160-8-40-16	SR 14-591	BLD T20/M7	SW6-T	
H690 F90AX D160-10-40-16	SR 14-591	BLD T20/M7	SW6-T	
H690 F90AX D200-11-60-16	SR 14-591	BLD T20/M7	SW6-T	

ISCAR MILL

F90

90° Face Mills Carrying
TPKN/R Inserts



Designation	DC	CICT ⁽¹⁾	OAL	APMX	DHUB	DCONMS	Arbor ⁽²⁾	kg
F90 D080-27	80.00	6	50.00	18.00	55.00	27.00	B	1.05
F90 D100-32	100.00	8	50.00	18.00	70.00	32.00	B	1.57

• For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ For adaptation options, see page 622

For inserts, see pages: TPKN/TPKR (536)

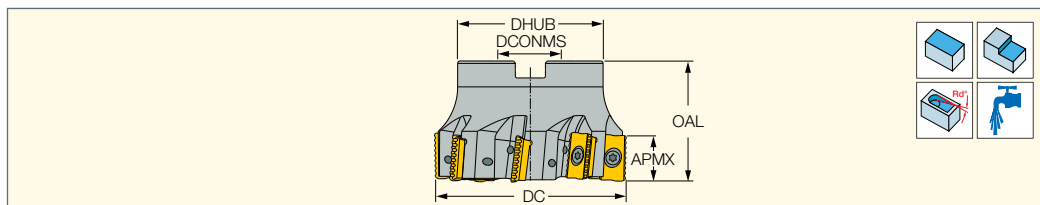
Spare Parts

Designation						
F90 D080-27	NTP 43-R	SR 35-342.3	HW 4P	LW 35-342 T	SR 35-343.4	HW 2.0
F90 D100-32	NTP 43-R	SR 35-342.3	HW 4P	LW 35-342 T	SR 35-403	HW 2.0

MILLSHRED

P290 LINE

P290 FPW/FCT
90° Face Mills Carrying 12 and 18mm Long Edged Inserts



Designation	DC	APMX	CICT ⁽²⁾	OAL	DHUB	DCONMS	Arbor ⁽³⁾	RMPX ⁽⁴⁾	
P290 FPW D032-04-16-12	32.00	12.00	4	50.00	30.40	16.00	A	1.0	0.16
P290 FPW D040-05-16-12	40.00	12.00	5	35.00	38.00	16.00	A	0.7	0.17
P290 FPW D050-06-22-12	50.00	12.00	6	40.00	48.00	22.00	A	0.5	0.31
P290 FPW D040-04-16-18	40.00	18.00	4	40.00	35.00	16.00	A	1.5	0.15
P290 FPW D050-05-22-18	50.00	18.00	5	40.00	45.00	22.00	A	1.0	0.27
P290 FCT D050-05-22-18 ⁽¹⁾	50.00	18.00	5	40.00	45.00	22.00	A	1.0	0.27
P290 FPW D063-06-22-18	63.00	18.00	6	40.00	48.00	22.00	A	0.8	0.47
P290 FPW D080-08-27-18	80.00	18.00	8	50.00	60.00	27.00	B	0.5	1.02
P290 FPW D100-09-32-18	100.00	18.00	9	55.00	78.00	32.00	B	0.3	1.87

• For user guide, see pages 616-621

⁽¹⁾ To be used only with P290 ACCT 1806PDR-HL/TL straight-edged inserts

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ For adaptation options, see page 622

⁽⁴⁾ Maximum ramping angle

For inserts, see pages: P290 ACCT/KT (529) • P290 ACKT (529)

Spare Parts

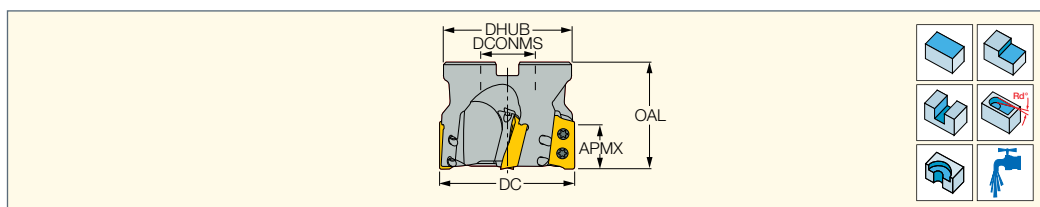
Designation					
P290 FPW D032-04-16-12	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151			SR M8X40-D11.5 DIN912
P290 FPW D040-05-16-12	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151			SR M8X25DIN912
P290 FPW D050-06-22-12	SR M3X0.5-L7.4 IP9 ^(a)	IP-9/151			SR M10X25 DIN912
P290 FPW D040-04-16-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M8X30DIN912
P290 FPW D050-05-22-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M10X25 DIN912
P290 FCT D050-05-22-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M10X25 DIN912
P290 FPW D063-06-22-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M10X25 DIN912
P290 FPW D080-08-27-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M12X30DIN912
P290 FPW D100-09-32-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M16X40DIN912

^(a) Recommended tightening torque:2.0 N*m

HELIPLUS

HP F90AT-19

90° Face Mills Carrying HP AD..
1906... Long Edged Inserts



Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	RMPX ⁽²⁾	RPMX ⁽³⁾	Arbor ⁽⁴⁾	
HP F90AT D50-4-22-19	50.00	4	18.10	50.00	46.50	22.00	5.0	14665	A	0.33

• Insert clamping/unclamping procedure: First loosely attach the rear clamping screw, then the face screw. In the same order, tighten them both.

• For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

⁽³⁾ Maximum RPM

⁽⁴⁾ For adaptation options, see page 622

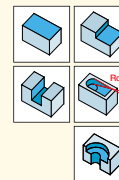
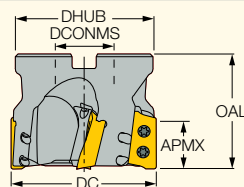
For inserts, see pages: HP ADCR 1906 (532) • HP ADKT/ADCT 1906 (532)

Spare Parts

Designation				
HP F90AT-19	SR 14-571/L	BLD T10/S7	SW6-SD	SR M10X30 DIN912

HELIPUS**HP F90AT-22**

90° Face Mills Carrying HP AD..
2207... Long Edged Inserts



Designation	DC	CICT ⁽¹⁾	APMX	OAL	DHUB	DCONMS	RMPX ⁽²⁾	RPMX ⁽³⁾	Arbor ⁽⁴⁾	CSP ⁽⁵⁾	kg
HP F90AT D50-3-22-22	50.00	3	21.00	50.00	48.00	22.00	5.0	13990	A	1	0.36
HP F90AT D50-4-22-22	50.00	4	21.00	50.00	48.00	22.00	5.0	13990	A	0	0.33

• Insert clamping/unclamping procedure: First loosely attach the rear clamping screw, then the face screw. In the same order, tighten them both.

• For user guide, see pages 616-621

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Maximum ramping angle

⁽³⁾ Maximum RPM

⁽⁴⁾ For adaptation options, see page 622

⁽⁵⁾ 0 - Without coolant supply, 1 - With coolant supply

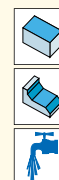
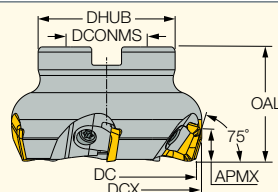
For inserts, see pages: HP ADCR 2207 (533) • HP ADKT/ADCT 2207 (532)

Spare Parts

Designation				
HP F90AT-22	SR 14-544	BLD T15/M7	SW6-T-SH	SR M10X30 DIN912

ISCAR MILL**F75-M**

75° Face Mills with
SPKN/SPKR 1203.. Inserts



Designation	DC	DCX ⁽¹⁾	CICT ⁽²⁾	APMX	OAL	DHUB	DCONMS	Arbor	MIID ⁽³⁾	kg
F75 D050-04-16-M	50.00	55.70	4	9.50	40.00	38.00	16.00	A	SPKN 1203EDTR	0.50
F75 D063-05-22-M	63.00	68.70	5	9.50	40.00	48.00	22.00	A	SPKN 1203EDTR	0.62
F75 D080-06-27-M	80.00	83.20	6	9.50	45.00	60.00	27.00	B	SPKN 1203EDTR	1.09
F75 D100-07-32-M	100.00	105.70	7	9.50	50.00	78.00	32.00	B	SPKN 1203EDTR	2.20
F75 D125-08-40-M	125.00	130.70	8	9.50	63.00	92.00	40.00	B	SPKN 1203EDTR	4.10

• For user guide see pages 616-621

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Cutting item count

⁽³⁾ Master insert identification

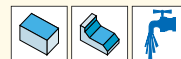
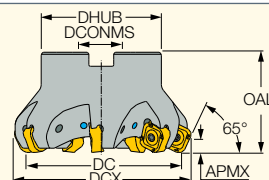
For inserts, see pages: SPKN ED.. (583) • SPKR ED...-76 (584) • SPKR EDTR-HS (583)

Spare Parts

Designation					
F75 D050-04-16-M	SR M8X30DIN912	BLD IP20/S7	SW6-T	LW35-475/8M	SR-118-069-CH
F75 D063-05-22-M	SR M10X25 DIN912	BLD IP20/S7	SW6-T	LW35-475/8M	SR-118-069-CH
F75 D080-06-27-M		BLD IP20/S7	SW6-T	LW35-475/8M	SR-118-069-CH
F75 D100-07-32-M		BLD IP20/S7	SW6-T	LW35-475/8M	SR-118-069-CH
F75 D125-08-40-M		BLD IP20/S7	SW6-T	LW35-475/8M	SR-118-069-CH

S865 FSN-13

65° Face Mills Carrying Inserts
with 8 Cutting Edges



Designation	DC	DCX ⁽¹⁾	CICT ⁽²⁾	OAL	DHUB	DCONMS	APMX ⁽³⁾	Arbor ⁽⁴⁾	
S865 FSN D050-04-22-R13	50.00	59.70	4	40.00	48.00	22.00	6.00	A	0.36
S865 FSN D050-06-22-R13	50.00	59.70	6	40.00	48.00	22.00	6.00	A	0.36
S865 FSN D063-06-22-R13	63.00	72.70	6	40.00	48.00	22.00	6.00	A	0.51
S865 FSN D063-08-22-R13	63.00	72.70	8	40.00	48.00	22.00	6.00	A	0.50
S865 FSN D080-07-27-R13	80.00	89.70	7	50.00	60.00	27.00	6.00	B	0.92
S865 FSN D080-10-27-R13	80.00	89.70	10	50.00	60.00	27.00	6.00	B	0.93
S865 FSN D100-08-32-R13	100.00	109.70	8	50.00	70.00	32.00	6.00	B	1.37
S865 FSN D100-12-32-R13	100.00	109.70	12	50.00	70.00	32.00	6.00	B	1.37
S865 FSN D125-10-40-R13	125.00	134.70	10	63.00	82.00	40.00	6.00	B	2.58
S865 FSN D125-16-40-R13	125.00	134.70	16	63.00	82.00	40.00	6.00	B	2.59

• For user guide, see pages 616-621

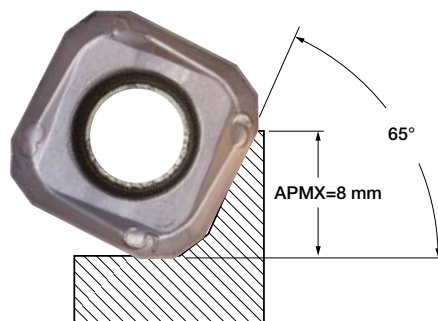
⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ Depth of cut on steel with coarse pitch cutters and on cast iron with fine pitch cutters may be increased to 8 mm.

⁽⁴⁾ For adaptation options, see page 622

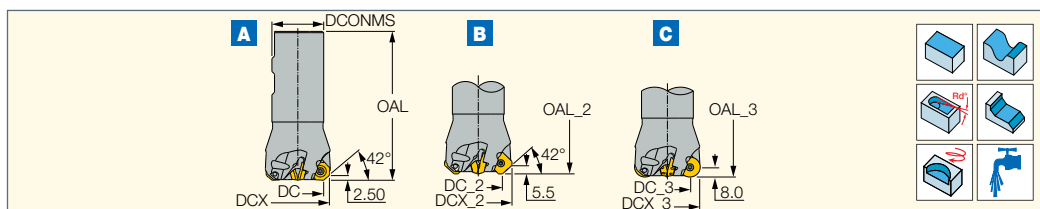
For inserts, see pages: S865 SNMU 1305ZNTR (571)


Spare Parts

Designation				
S865 FSN D050-04-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
S865 FSN D050-06-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
S865 FSN D063-06-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
S865 FSN D063-08-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
S865 FSN D080-07-27-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S865 FSN D080-10-27-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S865 FSN D100-08-32-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S865 FSN D100-12-32-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S865 FSN D125-10-40-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S865 FSN D125-16-40-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	

HELIOCTO**HOE-R06**

Endmills Carrying Octagonal, Square and Round Inserts



Designation	DC	DCX ⁽¹⁾	OAL	RMPX ⁽²⁾	DC_2	DCX_2	OAL_2	RMPX ⁽²⁾	DC_3	DCX_3	OAL_3	RMPX ⁽²⁾	DCONMS	CICT ⁽³⁾	kg
HOE D32-03-W32-R06	32.00	41.40	95.00	5.9	29.40	44.10	96.2	9.0	26.80	42.70	95.50	7.6	32.00	3	0.54
HOE D40-04-W40-R06	40.00	49.40	115.00	5.0	37.40	52.10	116.2	6.8	34.80	50.70	115.50	5.0	40.00	4	1.09
HOE D50-04-W40-R06	50.00	59.40	115.00	4.2	47.40	62.10	116.2	5.0	44.80	60.70	115.50	5.7	40.00	4	1.23

• A - with OEM. 060405... insert • B - with SECT/SEMT 1404... insert • C - with REM. 1505... round insert

⁽¹⁾ Cutting diameter maximum⁽²⁾ Maximum ramping angle⁽³⁾ Number of inserts (or edges for solid tool)

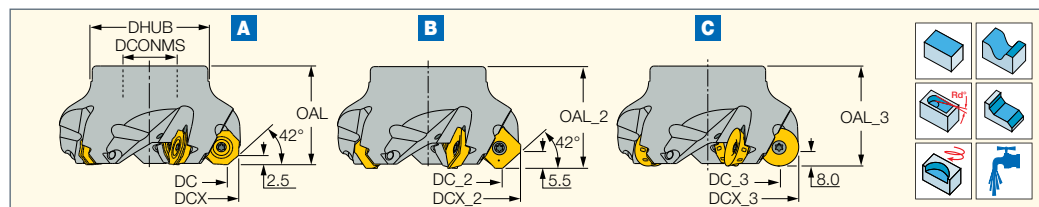
For inserts, see pages: OECR (575) • OEMT/OEKT 060405 (575) • OEMW-AETN (576) • REMT-76 (602) • SECT/SEMT 1404 (583)

Spare Parts

Designation			
HOE D32-03-W32-R06	SR 14-544/S	BLD T15/S7	SW6-T-SH
HOE D40-04-W40-R06	SR 14-544/S	BLD T15/S7	SW6-T-SH
HOE D50-04-W40-R06	SR 14-544	BLD T15/S7	SW6-T-SH

HELIOCTO**HOF-R06**

Face Mills Carrying Octagonal, Square, and Round Inserts



Designation	DC	DCX ⁽¹⁾	OAL	RMPX ⁽²⁾	DC_2	DCX_2	OAL_2	RMPX ⁽²⁾	DC_3	DCX_3	OAL_3	RMPX ⁽²⁾	CICT ⁽³⁾	DHUB	DCONMS	Arbor ⁽⁴⁾	kg
HOF D040-04-22-R06	40.00	49.40	40.00	5.0	37.40	52.10	41.2	6.8	34.80	50.70	40.50	5.0	4	48.00	22.00	A	0.33
HOF D050-04-22-R06	50.00	59.40	40.00	4.2	47.40	62.10	41.2	5.0	44.80	60.70	40.50	5.7	4	48.00	22.00	A	0.44
HOF D063-05-22-R06	63.00	72.40	40.00	3.2	60.40	75.10	41.2	4.0	57.80	73.70	40.50	4.0	5	52.00	22.00	A	0.58
HOF D080-06-27-R06	80.00	89.40	50.00	2.5	77.40	92.10	51.2	3.0	74.80	90.70	50.50	3.0	6	60.00	27.00	B	1.13
HOF D100-07-32-R06	100.00	109.40	50.00	1.9	97.40	112.10	51.2	2.3	94.80	110.70	50.50	2.2	7	70.00	32.00	B	1.65
HOF D125-08-40-R06	125.00	134.40	63.00	1.4	122.40	137.10	64.2	1.8	119.80	135.70	63.50	1.6	8	82.00	40.00	B	3.19

• A - with OEM. 060405... OECR 06.. inserts • B - with SECT/SEMT 1404... inserts • C - with REM. 1505... round insert

⁽¹⁾ Cutting diameter maximum⁽²⁾ Maximum ramping angle⁽³⁾ Number of inserts (or edges for solid tool)⁽⁴⁾ For adaptation options, see page 622

For inserts, see pages: OECR (575) • OEMT/OEKT 060405 (575) • OEMW-AETN (576) • REMT-76 (602) • SECT/SEMT 1404 (583)

Spare Parts

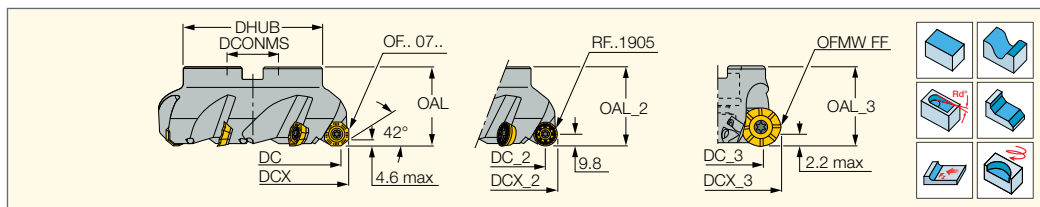
Designation				
HOF D040-04-22-R06	SR 14-544/S	BLD T15/S7	SW6-T-SH	SR M10X25DIN7984
HOF D050-04-22-R06	SR 14-544	BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
HOF D063-05-22-R06	SR 14-544	BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
HOF D080-06-27-R06	SR 14-544	BLD T15/M7	SW6-T-SH	
HOF D100-07-32-R06	SR 14-544	BLD T15/M7	SW6-T-SH	
HOF D125-08-40-R06	SR 14-544	BLD T15/M7	SW6-T-SH	



HELIOCTO

HOF-R07

Face Mills Carrying Octagonal Round and Fast Feed Segmented Round Inserts



Designation	DC	DCX ⁽²⁾	OAL	RMPX ⁽³⁾	DCX_2	DC_2	OAL_2	RMPX ⁽³⁾ _2 ⁽⁴⁾	DC_3	DCX_3	OAL_3	RMPX ⁽³⁾ _3 ⁽⁵⁾	CICT ⁽⁶⁾	DHUB	DCONMS	Arbor ⁽⁷⁾	kg
HOF D050-03-22-R07	50.00	62.50	40.00	6.5	63.30	43.56	40.50	9.0	44.80	64.00	40.60	9.0	3	48.00	22.00	A	0.30
HOF D063-04-22-R07	63.00	75.50	40.00	5.0	76.30	56.56	40.50	6.0	57.80	77.00	40.60	6.0	4	48.00	22.00	A	0.48
HOF D080-05-27-R07 ⁽¹⁾	80.00	92.50	50.00	3.5	93.30	73.56	50.50	4.5	92.50	94.00	50.60	4.5	5	60.00	27.00	B	0.91
HOF D100-06-32-R07 ⁽¹⁾	100.00	112.50	50.00	2.5	113.30	93.56	50.50	3.0	94.80	114.00	50.60	3.0	6	70.00	32.00	B	1.33
HOF D125-08-40-R07 ⁽¹⁾	125.00	137.50	63.00	2.5	138.30	118.56	63.50	2.5	119.80	139.00	63.60	2.5	8	82.00	40.00	B	2.70
HOF D160-10-40-R07	160.00	172.50	63.00	1.9	173.30	153.56	63.50	1.9	154.80	174.00	63.60	-	10	92.00	40.00	C	3.83
HOF D200-12-60-R07	200.00	212.50	63.00	1.5	213.30	193.56	63.50	1.5	194.80	214.00	63.60	-	12	150.00	60.00	C	7.03
HOF D250-15-60-R07	250.00	262.50	63.00	1.2	263.30	243.56	63.50	1.2	244.80	264.00	63.60	-	15	150.00	60.00	C	10.08
HOF D315-18-60-R07	315.00	327.50	80.00	0.9	328.30	308.56	80.50	0.9	309.80	329.00	80.60	-	18	215.00	60.00	C	21.00

• Helical interpolation is applicable up to and including 100 mm diameter • For user guide, see pages 616-621

⁽¹⁾ For internal coolant through the holder, use a matching coolant set (should be ordered separately)

⁽²⁾ Cutting diameter maximum

⁽³⁾ Maximum ramping angle with OF..07.. inserts

⁽⁴⁾ Dimensions with RF.. 1905 round inserts

⁽⁵⁾ Dimensions with OFMW FF inserts

⁽⁶⁾ Number of inserts (or edges for solid tool)

⁽⁷⁾ For adaptation options, see page 622

For inserts, see pages: OFCR/OFCT-AEN/AETN (577) • OFCR/OFCT-RW/AER (wiper) (577) • OFMT 07 (576) • OFMW-AETN (576) • OFMW-FF (578)

• RFMT 1905-76 (604)

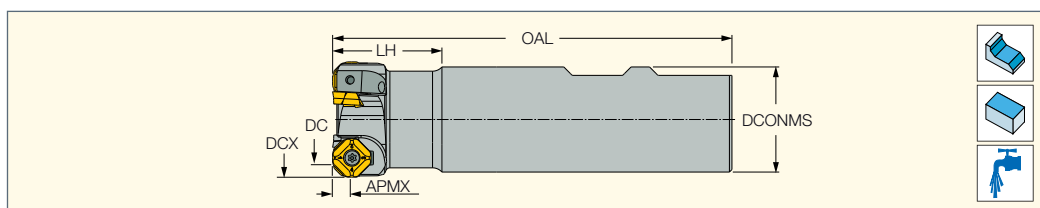
Spare Parts

Designation							
HOF D050-03-22-R07	SR 14-591/H	BLD T20/S7	SW6-T	THOF-07R	SR M2.5X8 DIN912 TUFLOK	HW 2.0	SR M10X25 DIN912
HOF D063-04-22-R07	SR 14-591/H	BLD T20/S7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	SR M10X25 DIN912
HOF D080-05-27-R07	SR 14-591/H	BLD T20/S7	SW6-T	THOF-07R	SR M2.5X8 DIN912 TUFLOK	HW 2.0	
HOF D100-06-32-R07	SR 14-591/H	BLD T20/M7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	
HOF D125-08-40-R07	SR 14-591/H	BLD T20/M7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	
HOF D160-10-40-R07	SR 14-591/H	BLD T20/L7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	
HOF D200-12-60-R07	SR 14-591/H	BLD T20/L7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	
HOF D250-15-60-R07	SR 14-591/H	BLD T20/L7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	
HOF D315-18-60-R07	SR 14-591/H	BLD T20/L7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	

DOVE IQ MILL

IQ845 ESY-R05

50° Endmills Carrying Square Inserts with 8 Cutting Edges



Designation	DC	DCX ⁽¹⁾	CICT ⁽²⁾	APMX	OAL	LH	DCONMS	Shank ⁽³⁾	kg		
IQ845 ESY D016-03-W20-R05	16.00	21.40	3	2.60	85.00	26.0	20.00	W	0.16	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D020-03-W20-R05	20.00	25.50	3	2.60	90.00	26.0	20.00	W	0.19	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D025-03-W25-R05	25.00	30.60	3	2.60	95.00	26.0	25.00	W	0.32	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D025-04-W25-R05	25.00	30.60	4	2.60	95.00	26.0	25.00	W	0.31	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D032-04-W32-R05	32.00	37.70	4	2.60	100.00	26.0	32.00	W	0.56	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D032-05-W32-R05	32.00	37.70	5	2.60	100.00	26.0	32.00	W	0.56	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D040-05-W40-R05	40.00	45.70	5	2.60	110.00	26.0	40.00	W	0.97	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D040-06-W40-R05	40.00	45.70	6	2.60	110.00	26.0	40.00	W	1.05	SR M2.5X6-T7-60	T-7/51

• For user guide, see pages 616-621

⁽¹⁾ Cutting diameter maximum

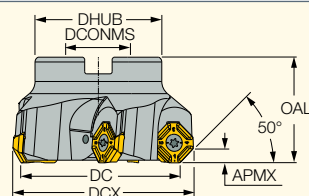
⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ W-Weldon

For inserts, see pages: IQ845 SYHU-05 (567)

DOVE IQ MILL
 845 LINE

IQ845 FSY-R05

 50° Face Mills Carrying Square
 Inserts with 8 Cutting Edges


Designation	DC	DCX ⁽¹⁾	CICT ⁽²⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽³⁾	kg			
IQ845 FSY D040-04-16-R05	40.00	45.70	4	2.60	40.00	38.00	16.00	A	0.28	SR M8X25DIN912	SR M2.5X6-T7-60	T-7/51
IQ845 FSY D040-07-16-R05	40.00	45.70	7	2.60	40.00	38.00	16.00	A	0.26	SR M8X25DIN912	SR M2.5X6-T7-60	T-7/51
IQ845 FSY D050-05-22-R05	50.00	55.80	5	2.60	40.00	48.00	22.00	A	0.44	SR M10X20DIN912	SR M2.5X6-T7-60	T-7/51
IQ845 FSY D050-09-22-R05	50.00	55.80	9	2.60	40.00	48.00	22.00	A	0.41	SR M10X20DIN912	SR M2.5X6-T7-60	T-7/51
IQ845 FSY D063-07-22-R05	63.00	68.80	7	2.60	40.00	48.00	22.00	B	0.57	SR M10X20DIN912	SR M2.5X6-T7-60	T-7/51
IQ845 FSY D063-11-22-R05	63.00	68.80	11	2.60	40.00	48.00	22.00	B	0.55	SR M10X20DIN912	SR M2.5X6-T7-60	T-7/51

• For user guide, see pages 616-621

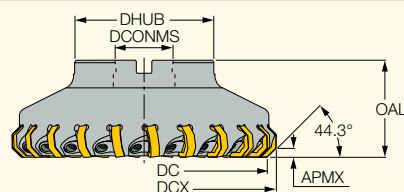
(1) Cutting diameter maximum

(2) Number of inserts (or edges for solid tool)

(3) For adaptation options, see page 622

For inserts, see pages: IQ845 SYHU-05 (567)

16MILL
F45WG

 45° Face Mills Carrying
 Octagonal ONHU/MU 0806...
 Inserts with 16 Cutting Edges


Designation	DC	DCX ⁽²⁾	CICT ⁽³⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽⁴⁾	kg
F45WG D080-10-27-FX-R08 ⁽¹⁾	80.00	92.00	10	5.50	50.00	60.00	27.00	B	1.11
F45WG D100-14-32-FX-R08 ⁽¹⁾	100.00	112.00	14	5.50	50.00	70.00	32.00	B	1.64
F45WG D125-18-40-FX-R08 ⁽¹⁾	125.00	137.00	18	5.50	63.00	82.00	40.00	B	3.00
F45WG D160-22-40-FX-R08	160.00	172.00	22	5.50	63.00	92.00	40.00	C	4.58

• Note: Recommended wedge clamping torque: 8.5-9.0 Nxm • For user guide, see pages 616-621

(1) For internal coolant through the holder, use a matching coolant set (should be ordered separately)

(2) Cutting diameter maximum

(3) Number of inserts (or edges for solid tool)

(4) For adaptation options, see page 622

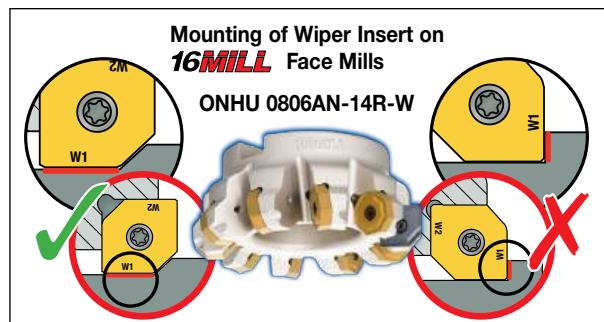
For inserts, see pages: ONHQ-TN (587) • ONHU 0806-N-PL (588) • ONHU 0806AN-W (588) • ONHU/ONMU 080608 AN-N-HP (588) • ONHU/ONMU-08-TN-MM (587)
 • ONHU/ONMU-08-TN/HL (587)

Wiper Inserts

Wiper inserts are used on face mill cutters, providing improved surface finish and thus eliminating the use of other finishing cutters.

ONHU 0806AN-14R-W mounted on **F45WG** and **F45NM** milling cutters. This insert provides 4 right-hand wiper edges.

Mounting instructions have been included in each insert package to avoid incorrect clamping orientation. Only correct mounting will provide high surface finish!

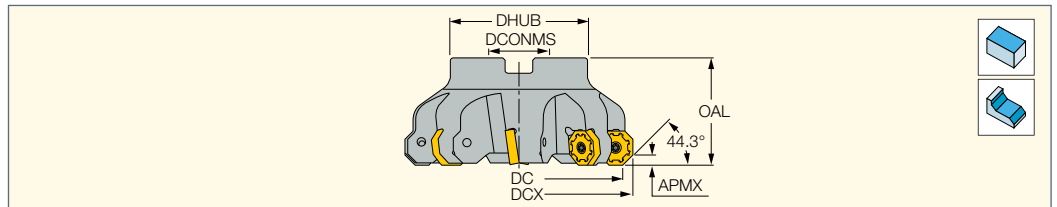

Spare Parts

Designation				
F45WG	SR 118-069	BLD IP20/S7	SW6-T	LW 35-475/M

16MILL

F45NM

45° Face Mills Carrying
Octagonal ONHU/MU 0806...
Inserts with 16 Cutting Edges



Designation	DC	DCX ⁽²⁾	CICT ⁽³⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽⁴⁾	
F45NM D063-05-22-R08	63.00	75.00	5	5.50	40.00	48.00	22.00	A	0.46
F45NM D080-06-27-R08 ⁽¹⁾	80.00	92.00	6	5.50	50.00	60.00	27.00	B	0.95
F45NM D080-08-27-R08 ⁽¹⁾	80.00	92.00	8	5.50	50.00	60.00	27.00	B	0.92
F45NM D100-07-32-R08 ⁽¹⁾	100.00	112.00	7	5.50	50.00	70.00	32.00	B	1.40
F45NM D100-10-32-R08 ⁽¹⁾	100.00	112.00	10	5.50	50.00	70.00	32.00	B	1.39
F45NM D125-08-40-R08 ⁽¹⁾	125.00	137.00	8	5.50	63.00	82.00	40.00	B	2.68
F45NM D125-12-40-R08 ⁽¹⁾	125.00	137.00	12	5.50	63.00	82.00	40.00	B	2.63
F45NM D160-10-40-R08	160.00	172.00	10	5.50	63.00	92.00	40.00	C	4.10
F45NM D160-15-40-R08	160.00	172.00	15	5.50	63.00	92.00	40.00	C	4.17
F45NM D200-12-60-R08	200.00	212.00	12	5.50	63.00	150.00	60.00	C	7.12
F45NM D250-14-60-R08	250.00	262.00	14	5.50	63.00	137.00	60.00	C	8.95

• Wiper inserts are used on face mill cutters, providing improved surface finish, thus eliminating the use of other finishing cutters

• For user guide, see pages 616-621

⁽¹⁾ For internal coolant through the holder, use a matching coolant set (should be ordered separately)

⁽²⁾ Cutting diameter maximum

⁽³⁾ Number of inserts (or edges for solid tool)

⁽⁴⁾ For adaptation options, see page 622

For inserts, see pages: ONHQ-TN (587) • ONHU 0806-N-PL (588) • ONHU 0806AN-W (588) • ONHU/ONMU 080608 AN-N-HP (588) • ONHU/ONMU-08-TN-MM (587)

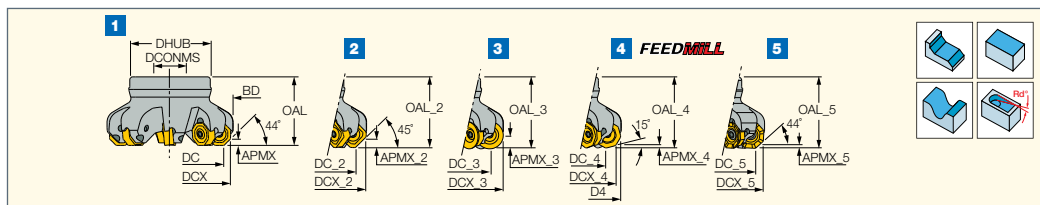
• ONHU/ONMU-08-TN/HL (587)

Spare Parts

Designation				
F45NM D063-05-22-R08	SR 14-591/H	BLD T20/S7	SW6-T	SR M10X25 DIN912
F45NM D080-06-27-R08	SR 14-591/H	BLD T20/S7	SW6-T	
F45NM D080-08-27-R08	SR 11800771	BLD IP15/S7	SW6-T-SH	
F45NM D100-07-32-R08	SR 14-591/H	BLD T20/S7	SW6-T	
F45NM D100-10-32-R08	SR 11800771	BLD IP15/S7	SW6-T-SH	
F45NM D125-08-40-R08	SR 14-591/H	BLD T20/S7	SW6-T	
F45NM D125-12-40-R08	SR 11800771	BLD IP15/S7	SW6-T-SH	
F45NM D160-10-40-R08	SR 14-591/H	BLD T20/L7	SW6-T	
F45NM D160-15-40-R08	SR 11800771	BLD IP15/M7	SW6-T-SH	
F45NM D200-12-60-R08	SR 14-591/H	BLD T20/L7	SW6-T	
F45NM D250-14-60-R08	SR 14-591/H	BLD T20/L7	SW6-T	

SOF45

Multifunction Face Mills for
Octagonal, Square and
Round Insert Contours with
Various Entry Angles



Designation	BD	DC	DCX ⁽¹⁾	DC_2	DCX_2	DC_3	DCX_3	DC_4	DCX_4	D4	DC_5	DCX_5	APMX	APMX_2	APMX_3	APMX_4	APMX_5
SOF45 8/16-D040-04-22R	50.40	40.00	48.00	37.65	50.40	35.40	51.20	34.50	44.00	50.50	40.30	50.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D050-04-22R	60.40	50.00	58.00	47.65	60.40	45.40	61.20	44.50	54.00	60.50	50.30	60.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D050-06-22R	60.40	50.00	58.00	47.65	60.40	45.40	61.20	44.50	54.00	60.50	50.30	60.0	3.50	6.00	7.90	1.20	2.90
SOF45 D050-04-22-R13	62.75	52.35	60.35	50.00	62.75	47.75	63.55	46.95	56.35	62.90	52.65	62.4	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D063-04-22R	73.40	63.00	71.00	60.65	73.40	58.40	74.20	57.50	67.00	73.50	63.30	73.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D063-06-22R	73.40	63.00	71.00	60.65	73.40	58.40	74.20	57.50	67.00	73.50	63.30	73.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D063-08-22R	73.40	63.00	71.00	60.65	73.40	58.40	74.20	57.50	67.00	73.50	63.30	73.0	3.50	6.00	7.90	1.20	2.90
SOF45 D063-06-22-R13	75.75	65.35	72.35	63.00	75.75	60.75	76.55	59.95	69.35	75.90	63.65	75.3	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D080-07-27R	90.40	80.00	88.00	77.65	90.40	65.40	91.20	74.50	84.00	90.50	80.30	90.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D080-10-27R	90.40	80.00	88.00	77.65	90.40	65.40	91.20	74.50	84.00	90.50	80.30	90.0	3.50	6.00	7.90	1.20	2.90
SOF45 D080-07-27-R13	92.75	82.35	90.35	80.00	92.75	77.60	93.40	76.95	86.35	92.90	82.65	92.3	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D100-08-32R	110.40	100.00	108.00	97.65	110.40	95.40	111.20	94.50	104.00	110.50	100.30	110.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D100-12-32R	110.40	100.00	108.00	97.65	110.40	95.40	111.20	94.50	104.00	110.50	100.30	110.0	3.50	6.00	7.90	1.20	2.90
SOF45 D100-08-32-R13	112.75	102.35	110.35	100.00	112.75	97.75	113.55	96.95	106.35	112.90	102.65	112.3	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D125-10-40R	135.40	125.00	133.00	122.65	135.40	120.40	136.20	119.50	129.00	135.50	125.30	135.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D125-16-40R	135.40	125.00	133.00	122.65	135.40	120.40	136.20	119.50	129.00	135.50	125.30	135.0	3.50	6.00	7.90	1.20	2.90
SOF45 D125-10-40-R13	137.75	127.35	135.35	125.00	137.75	122.75	138.55	121.95	131.35	137.90	127.65	137.3	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D160-12-40R	170.40	160.00	168.00	157.65	170.40	155.40	171.20	154.50	164.00	171.50	160.30	170.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D200-14-60R	210.40	200.00	208.00	197.65	210.40	195.40	211.20	194.50	204.00	211.50	200.50	210.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D250-16-60R	260.40	250.00	258.00	247.65	260.40	245.40	261.20	244.50	254.00	261.50	250.30	260.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D315-20-60R	325.40	315.00	323.00	312.65	325.40	310.40	326.20	309.50	319.00	326.50	315.30	325.0	3.50	6.00	7.90	1.20	2.90

Designation	OAL	OAL_2	OAL_3	OAL_4	OAL_5	CICT ⁽²⁾	DHUB	DCONMS	RMPX°_3 ⁽³⁾	Arbor ⁽⁴⁾	CSP ⁽⁵⁾
SOF45 8/16-D040-04-22R	40.00	41.2	41.60	41.30	41.20	4	45.00	22.00	3.7	A	1
SOF45 8/16-D050-04-22R	40.00	41.2	41.60	41.30	41.20	4	48.00	22.00	5.6	A	1
SOF45 8/16-D050-06-22R	40.00	41.2	41.60	41.30	41.20	6	48.00	22.00	5.6	A	1
SOF45 D050-04-22-R13	38.80	40.0	40.40	40.10	40.20	4	48.00	22.00	5.4	A	1
SOF45 8/16-D063-04-22R	40.00	41.2	41.60	41.30	41.20	4	48.00	22.00	6.3	A	1
SOF45 8/16-D063-06-22R	40.00	41.2	41.60	41.30	41.20	6	48.00	22.00	6.3	B	0
SOF45 8/16-D063-08-22R	40.00	41.2	41.60	41.30	41.20	8	48.00	22.00	6.3	B	0
SOF45 D063-06-22-R13	38.80	40.0	40.40	40.10	40.20	6	48.00	22.00	5.7	B	1
SOF45 8/16-D080-07-27R	50.00	51.2	51.60	51.30	51.20	7	60.00	27.00	6.2	B	0
SOF45 8/16-D080-10-27R	50.00	51.2	51.60	51.30	51.20	10	60.00	27.00	6.2	B	0
SOF45 D080-07-27-R13	48.80	50.0	50.40	50.10	50.20	7	60.00	27.00	6.0	B	1
SOF45 8/16-D100-08-32R	50.00	51.2	51.60	51.30	51.20	8	70.00	32.00	4.7	B	0
SOF45 8/16-D100-12-32R	50.00	51.2	51.60	51.30	51.20	12	70.00	32.00	4.7	B	0
SOF45 D100-08-32-R13	48.80	50.0	50.40	50.10	50.00	8	70.00	32.00	4.6	B	1
SOF45 8/16-D125-10-40R	63.00	64.2	64.60	64.30	64.20	10	82.00	40.00	3.6	B	0
SOF45 8/16-D125-16-40R	63.00	64.2	64.60	64.30	64.20	16	82.00	40.00	3.6	B	0
SOF45 D125-10-40-R13	61.80	63.0	63.40	63.10	63.20	10	82.00	40.00	3.5	B	1
SOF45 8/16-D160-12-40R	63.00	64.2	64.60	64.30	64.20	12	92.00	40.00	2.6	C	0
SOF45 8/16-D200-14-60R	63.00	64.2	64.60	64.30	64.20	14	135.00	60.00	2.0	C	0
SOF45 8/16-D250-16-60R	63.00	64.2	64.60	64.30	64.20	16	137.00	60.00	1.5	C	0
SOF45 8/16-D315-20-60R	80.00	81.2	81.60	81.30	81.20	20	222.00	60.00	1.0	C	0

- 1- with ONMU 0505... insert • 2- with S845 SNMU 1305... insert • 3- with RXMT 1607N insert • 4- with OXMT 0507R08-FF insert
- 5- with OXMT 050705-R-HP insert • Use only Torx Plus keys • For user guide, see pages 616-621

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ Valid only with RXMT 1607N insert

⁽⁴⁾ For adaptation options, see page 622

⁽⁵⁾ 0 - Without coolant supply, 1 - With coolant supply

⁽⁶⁾ Master insert identification

⁽⁷⁾ Master insert identification 2

⁽⁸⁾ Master insert identification 3

⁽⁹⁾ Master insert identification 4

⁽¹⁰⁾ Master insert identification 5

For inserts, see pages: ONHU 0505-W (574) • ONHU/ONMU-05 (574) • OXMT 0507 (575) • RXMT 1607 (602) • S845 SNHU 1305-W (569) • S845 SNMU/SNHU-13 (569)

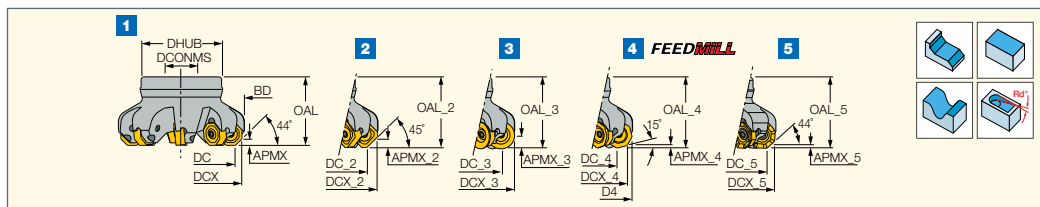


Continued

HELIDO
800 LINE

SOF45

Multifunction Face Mills for
Octagonal, Square and
Round Insert Contours with
Various Entry Angles



Designation	MIID ⁽⁶⁾	MIID_2 ⁽⁷⁾	MIID_3 ⁽⁸⁾	MIID_4 ⁽⁹⁾	MIID_5 ⁽¹⁰⁾	
SOF45 8/16-D040-04-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.29
SOF45 8/16-D050-04-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.39
SOF45 8/16-D050-06-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.38
SOF45 D050-04-22-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.38
SOF45 8/16-D063-04-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.54
SOF45 8/16-D063-06-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.47
SOF45 8/16-D063-08-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.46
SOF45 D063-06-22-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.50
SOF45 8/16-D080-07-27R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	1.01
SOF45 D050-10-22-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.96
SOF45 D080-07-27-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	1.00
SOF45 8/16-D100-08-32R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	1.39
SOF45 8/16-D100-12-32R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	1.35
SOF45 D100-08-32-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	1.47
SOF45 8/16-D125-10-40R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	2.63
SOF45 8/16-D125-16-40R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	2.53
SOF45 D125-10-40-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	2.63
SOF45 8/16-D160-12-40R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	3.35
SOF45 8/16-D200-14-60R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	5.77
SOF45 8/16-D250-16-60R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	7.98
SOF45 8/16-D315-20-60R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	18.97

• 1- with ONMU 0505... insert • 2- with S845 SNMU 1305... insert • 3- with RXMT 1607N insert • 4- with OXMT 0507R08-FF insert

• 5- with OXMT 050705-R-HP insert • Use only Torx Plus keys • For user guide, see pages 616-621

(1) Cutting diameter maximum

(2) Number of inserts (or edges for solid tool)

(3) Valid only with RXMT 1607N insert

(4) For adaptation options, see page 622

(5) 0 - Without coolant supply, 1 - With coolant supply

(6) Master insert identification

(7) Master insert identification 2

(8) Master insert identification 3

(9) Master insert identification 4

(10) Master insert identification 5

For inserts, see pages: ONHU 0505-W (574) • ONHU/ONMU-05 (574) • OXMT 0507 (575) • RXMT 1607 (602) • S845 SNHU 1305-W (569) • S845 SNMU/SNHU-13 (569)

Spare Parts

Designation				
SOF45 8/16-D040-04-22R	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	SR M10X25 DIN912
SOF45 8/16-D050-04-22R	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	SR M10X20DIN912
SOF45 8/16-D050-06-22R	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	SR M10X20DIN912
SOF45 D050-04-22-R13	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	SR M10X20DIN912
SOF45 8/16-D063-04-22R	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	SR M10X25 DIN912
SOF45 8/16-D063-06-22R	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	
SOF45 8/16-D063-08-22R	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	
SOF45 D063-06-22-R13	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	
SOF45 8/16-D080-07-27R	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	
SOF45 8/16-D080-10-27R	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	
SOF45 D080-07-27-R13	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	
SOF45 8/16-D100-08-32R	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	
SOF45 8/16-D100-12-32R	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	
SOF45 D100-08-32-R13	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	
SOF45 8/16-D125-10-40R	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	
SOF45 8/16-D125-16-40R	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	
SOF45 D125-10-40-R13	SR 11800745	BLD IP15/S7 ^(a)	SW6-T-SH	
SOF45 8/16-D160-12-40R	SR 11800745	BLD IP15/M7 ^(a)	SW6-T-SH	
SOF45 8/16-D200-14-60R	SR 11800745	BLD IP15/M7 ^(a)	SW6-T-SH	
SOF45 8/16-D250-16-60R	SR 11800745	BLD IP15/M7 ^(a)	SW6-T-SH	
SOF45 8/16-D315-20-60R	SR 11800745	BLD IP15/M7 ^(a)	SW6-T-SH	

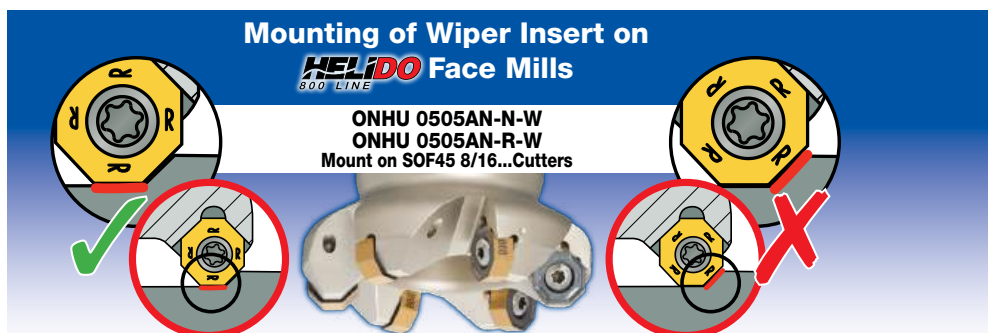
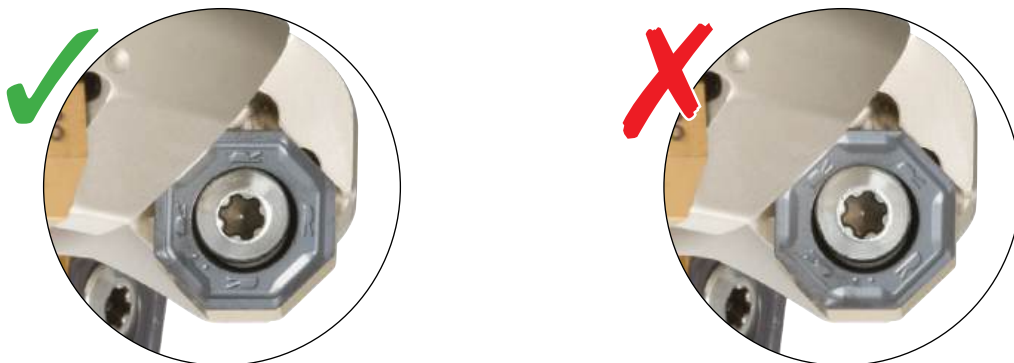
(a) IMPORTANT: Use only Torx Plus keys.

Wiper Inserts

Wiper inserts are used on face mill cutters, providing improved surface finish and thus eliminating the use of other finishing cutters.

ONHU 0505AN-R-W mounted on standard SOF45 milling cutters. This insert provides 8 right-hand wiper edges.

ONHU 0505AN-N-W mounted on SOF45 milling cutters. This insert provides 4 right-hand wiper edges to be used on standard tools and 4 left-hand wiper edges to be used on special left-hand SOF45 cutters.



S845 SNHU 1305AN-N-W mounted on SOF45 milling cutters when the square S845 SNMU/HU 1305AN... inserts are used. This insert provides 2 right-hand and 2 left-hand wiper edges.

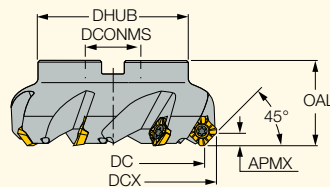




ISCAR^{MILL}

F45ST

45° Screw Clamped Face Mills
Carrying SEK/MT 12... Inserts



Designation	DC	DCX ⁽²⁾	CICT ⁽³⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽⁴⁾	kg
F45ST D040-22	40.00	50.00	3	6.50	40.00	44.00	22.00	A	0.30
F45ST D050-22	50.00	62.70	4	6.50	40.00	41.80	22.00	A	0.35
F45ST D063-22	63.00	75.00	5	6.50	40.00	50.00	22.00	A	0.57
F45ST D080-27 ⁽¹⁾	80.00	90.90	6	6.50	50.00	63.00	27.00	B	1.08
F45ST D100-32 ⁽¹⁾	100.00	110.00	6	6.50	50.00	72.00	32.00	B	1.61
F45ST D125-40 ⁽¹⁾	125.00	135.00	7	6.50	62.50	75.00	40.00	B	2.70
F45ST D160-40 ⁽¹⁾	160.00	170.70	7	6.50	63.00	92.00	40.00	C	4.06

• SE..1204 inserts are mounted directly on the cutter • SE..12T3 optional thinner inserts are mounted on a seat - TSE 12T3-N

• For user guide, see pages 616-621

⁽¹⁾ For internal coolant through the holder, use a matching coolant set (should be ordered separately)

⁽²⁾ Cutting diameter maximum

⁽³⁾ Number of inserts (or edges for solid tool)

⁽⁴⁾ For adaptation options, see page 622

For inserts, see pages: SEHT-AFN (581) • SEHW-AFTN (580) • SEKT-AF-R (579) • SEKT-AFTN (580) • SEMT 12..AFTN-76 (581) • SEMT 1204AF-R-HS (580)

Spare Parts

Designation									
F45ST D040-22	SR 14-536/S	BLD T20/M7	SW6-T-SH	SR M10X25DIN7984	HW 7.0				
F45ST D050-22	SR 34-523	BLD T15/M7	SW6-T	SR M10X25DIN7984	HW 7.0	SR 14-601 ^{(a)*}	TSE 12T3-N ^{(a)*}	SR TC-606 ^{(a)*}	HW 3.5 ^{(a)*}
F45ST D063-22	SR 34-523	BLD T15/M7	SW6-T	SR M10X25DIN7984	HW 7.0	SR 14-601 ^{(a)*}	TSE 12T3-N ^{(a)*}	SR TC-606 ^{(a)*}	HW 3.5 ^{(a)*}
F45ST D080-27	SR 34-523	BLD T15/M7	SW6-T-SH			SR 14-601 ^{(a)*}	TSE 12T3-N ^{(a)*}	SR TC-606 ^{(a)*}	HW 3.5 ^{(a)*}
F45ST D100-32	SR 34-523	BLD T15/M7	SW6-T			SR 14-601 ^{(a)*}	TSE 12T3-N ^{(a)*}	SR TC-606 ^{(a)*}	
F45ST D125-40	SR 34-523	BLD T15/M7	SW6-T			SR 14-601 ^{(a)*}	TSE 12T3-N ^{(a)*}	SR TC-606 ^{(a)*}	HW 3.5 ^{(a)*}
F45ST D160-40	SR 34-523	BLD T15/M7	SW6-T			SR 14-601 ^{(a)*}	TSE 12T3-N ^{(a)*}	SR TC-606 ^{(a)*}	HW 3.5 ^{(a)*}

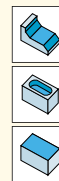
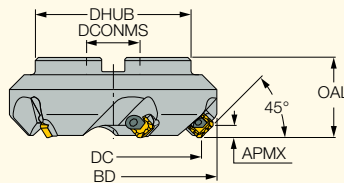
* Optional, to be ordered separately

^(a) Optional for insert SE..12T3

ISCAR^{MILL}

F45E

45° Face Mills Carrying
SEKN/R 12... Inserts



Designation	DC	BD	APMX	CICT ⁽²⁾	OAL	DHUB	DCONMS	Arbor ⁽³⁾	kg
F45E D 50-22	50.00	67.30	6.50	4	43.00	42.00	22.00	A	0.59
F45E D 63-22	63.00	81.20	6.50	5	40.00	42.50	22.00	A	0.81
F45E D 80-27 ⁽¹⁾	80.00	98.20	6.50	6	50.00	63.00	27.00	B	1.43
F45E D100-32 ⁽¹⁾	100.00	118.00	6.50	6	50.00	72.00	32.00	B	2.31
F45E D125-40 ⁽¹⁾	125.00	143.00	6.50	6	63.00	75.00	40.00	B	3.40
F45E D160-40	160.00	178.00	6.50	8	63.00	92.00	40.00	C	5.28

• For user guide, see pages 616-621

⁽¹⁾ For internal coolant through the holder, use a matching coolant set (should be ordered separately)

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ For adaptation options, see page 622

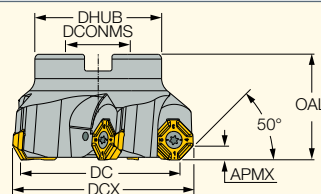
For inserts, see pages: SEKN-AF.. (581) • SEKR-AF-N-42 (582) • SEKR-AF..-76 (582) • SEKR-AFTR-HS (582)

Spare Parts

Designation								
F45E D 50-22	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P	SR M10X25DIN7984	HW 7.0
F45E D 63-22	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P	SR M10X25DIN7984	HW 7.0
F45E D 80-27	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P		
F45E D100-32	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P		
F45E D125-40	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P		
F45E D160-40	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P		

**IQ845 FSY-R07**

50° Face Mills Carrying Square Inserts with 8 Cutting Edges



Designation	DC	DCX ⁽¹⁾	CICT ⁽²⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽³⁾	CSP ⁽⁴⁾	kg
IQ845 FSY D050-04-22-R07	50.00	59.40	4	4.60	40.00	48.00	22.00	A	1	0.39
IQ845 FSY D050-05-22-R07	50.00	59.40	5	4.60	40.00	48.00	22.00	A	1	0.38
IQ845 FSY D063-05-22-R07	63.00	72.40	5	4.60	40.00	48.00	22.00	A	1	0.51
IQ845 FSY D063-07-22-R07	63.00	72.40	7	4.60	40.00	48.00	22.00	A	1	0.47
IQ845 FSY D080-06-27-R07	80.00	89.40	6	4.60	50.00	60.00	27.00	B	1	1.00
IQ845 FSY D080-08-27-R07	80.00	89.40	8	4.60	50.00	60.00	27.00	B	1	0.95
IQ845 FSY D100-07-32-R07	100.00	109.40	7	4.60	50.00	70.00	32.00	B	1	1.36
IQ845 FSY D100-10-32-R07	100.00	109.40	10	4.60	50.00	70.00	32.00	B	1	1.34
IQ845 FSY D125-09-40-R07	125.00	134.40	9	4.60	63.00	82.00	40.00	B	1	2.52
IQ845 FSY D125-12-40-R07	125.00	134.40	12	4.60	63.00	82.00	40.00	B	1	2.49
IQ845 FSY D160-11-40-R07	160.00	169.40	11	4.60	63.00	92.00	40.00	C	0	3.31
IQ845 FSY D160-15-40-R07	160.00	169.40	15	4.60	63.00	92.00	40.00	C	0	3.28
IQ845 FSY D200-14-60-R07	200.00	209.40	14	4.60	63.00	135.00	60.00	C	0	5.80
IQ845 FSY D250-17-60-R07	250.00	259.40	17	4.60	63.00	135.00	60.00	C	0	8.18
IQ845 FSY D315-20-60-R07	315.00	324.40	20	4.60	80.00	220.00	60.00	D	0	16.87

• For user guide, see pages 616-621

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ For adaptation options, see page 622

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

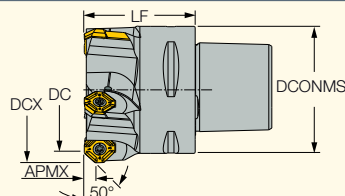
For inserts, see pages: IQ845 SYHU-07 (567)

Spare Parts

Designation				
IQ845 FSY D050-04-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
IQ845 FSY D050-05-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
IQ845 FSY D063-05-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
IQ845 FSY D063-07-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
IQ845 FSY D080-06-27-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D080-08-27-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D100-07-32-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D100-10-32-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D125-09-40-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D125-12-40-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D160-11-40-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D160-15-40-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D200-14-60-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D250-17-60-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D315-20-60-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	

**IQ845 FSY-C#-R07**

50° Face Mills Carrying Square Inserts with 8 Cutting Edges



Designation	DC	DCX ⁽¹⁾	CICT ⁽²⁾	APMX	LF	SS	DCP ⁽³⁾	kg			
IQ845 FSY D063-05-C6-R07	63.00	72.40	5	4.60	55.00	63	1	1.53	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH

• For user guide, see pages 616-621

⁽¹⁾ Cutting diameter maximum

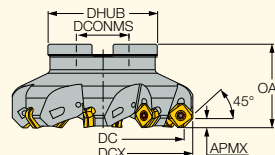
⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ 1 - Slot for data chip, 0 - Without slot for data chip

For inserts, see pages: IQ845 SYHU-07 (567)

**S845 F45SX-16**

45° Face Mills Carrying
Economical Inserts with 8 Helical
Right-Hand Cutting Edges



Designation	DC	DCX ⁽²⁾	CICT ⁽³⁾	APMX	OAL	DHUB	DCONMS	Arbor ⁽⁴⁾	CSP ⁽⁵⁾	
S845 F45SX D040-04-16-R16 ⁽¹⁾	40.00	54.80	4	7.15	45.00	48.00	16.00	A	1	0.39
S845 F45SX D050-04-22-R16	50.00	64.80	4	7.15	45.00	48.00	22.00	A	1	0.46
S845 F45SX D050-05-22-R16 ⁽¹⁾	50.00	64.80	5	7.15	45.00	48.00	22.00	A	1	0.44
S845 F45SX D063-05-22-R16	63.00	77.80	5	7.15	45.00	60.00	22.00	A	1	0.72
S845 F45SX D063-07-22-R16 ⁽¹⁾	63.00	77.90	7	7.15	45.00	60.00	22.00	A	1	0.72
S845 F45SX D080-09-27-R16 ⁽¹⁾	80.00	93.10	9	7.15	50.00	63.00	27.00	B	1	1.01
S845 F45SX D100-11-32-R16 ⁽¹⁾	100.00	114.60	11	7.15	50.00	80.00	32.00	B	1	1.65
S845 F45SX D100-07-32-R16	100.00	114.80	7	7.15	50.00	80.00	32.00	B	1	1.62
S845 F45SX D125-08-40-R16	125.00	139.80	8	7.15	63.00	82.00	40.00	B	1	2.68
S845 F45SX D125-14-40-R16 ⁽¹⁾	125.00	139.80	14	7.15	63.00	82.00	40.00	B	1	2.72
S845 F45SX D160-10-40-R16	160.00	174.80	10	7.15	63.00	105.00	40.00	C	0	4.16
S845 F45SX D160-18-40-R16 ⁽¹⁾	160.00	174.80	18	7.15	63.00	105.00	40.00	C	0	4.30
S845 F45SX D200-12-60-R16	200.00	214.80	12	7.15	63.00	135.00	60.00	C	0	5.82
S845 F45SX D250-15-60-R16	250.00	264.80	15	7.15	63.00	144.00	60.00	C	0	8.58

• Wiper inserts are used on face mill cutters, provide improved surface finish, eliminate the use of other finishing cutters.

• For user guide, see pages 616-621

⁽¹⁾ Fine pitch cutters, recommended for machining cast iron and for machining steel - up to 4 mm D.O.C.

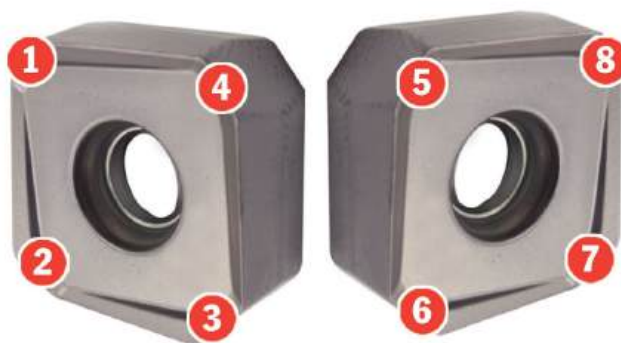
⁽²⁾ Cutting diameter maximum

⁽³⁾ Number of inserts (or edges for solid tool)

⁽⁴⁾ For adaptation options, see page 622

⁽⁵⁾ 0 - Without coolant supply, 1 - With coolant supply

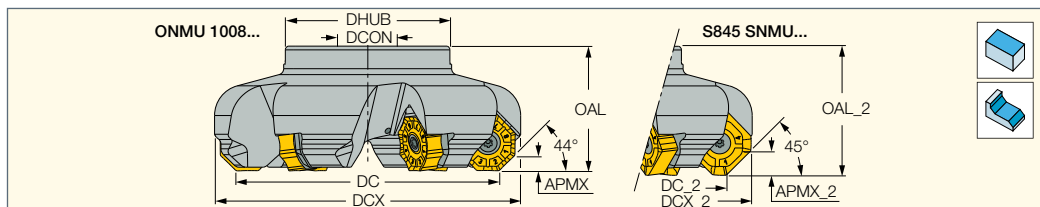
For inserts, see pages: S845 SXHU 1606-W (570) • S845 SXMU/SXCU-16 (569)

**Spare Parts**

Designation				
S845 F45SX D040-04-16-R16	SR 14-591	BLD T20/M7	SW6-T	SR M8X25DIN912
S845 F45SX D050-04-22-R16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
S845 F45SX D050-05-22-R16	SR 14-591-M	BLD T20/M7	SW6-T	SR M10X25DIN7984
S845 F45SX D063-05-22-R16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
S845 F45SX D063-07-22-R16	SR 14-591-M	BLD T20/M7	SW6-T	SR M10X25DIN7984
S845 F45SX D080-09-27-R16	SR 14-591-M	BLD T20/M7	SW6-T	
S845 F45SX D100-11-32-R16	SR 14-591-M	BLD T20/M7	SW6-T	
S845 F45SX D100-07-32-R16	SR 14-591	BLD T20/M7	SW6-T	
S845 F45SX D125-08-40-R16	SR 14-591	BLD T20/M7	SW6-T	
S845 F45SX D125-14-40-R16	SR 14-591-M	BLD T20/M7	SW6-T	
S845 F45SX D160-10-40-R16	SR 14-591	BLD T20/M7	SW6-T	
S845 F45SX D160-18-40-R16	SR 14-591-M	BLD T20/M7	SW6-T	
S845 F45SX D200-12-60-R16	SR 14-591	BLD T20/M7	SW6-T	
S845 F45SX D250-15-60-R16	SR 14-591	BLD T20/M7	SW6-T	

SOF45-26

Heavy Duty 45° Face Mills
Carrying Square or Octagonal
Double-Sided Inserts with
8/16 Cutting Edges



Designation	DC	DCX ⁽¹⁾	APMX	OAL	DC_2	APMX_2	OAL_2	CICT ⁽²⁾	DHUB	DCONMS	Arbor ⁽³⁾	CSP ⁽⁴⁾	
SOF45 D080-04-32-R26	84.10	104.50	7.00	60.80	80.00	11.00	63.0	4	70.00	32.00	A	1	1.68
SOF45 D100-05-32-R26	104.10	124.50	7.00	60.80	100.00	11.00	63.0	5	70.00	32.00	B	1	2.25
SOF45 D125-06-40-R26	129.10	149.50	7.00	60.80	125.00	11.00	63.0	6	82.00	40.00	B	1	3.08
SOF45 D160-08-40-R26	164.10	184.50	7.00	60.80	160.00	11.00	63.0	8	92.00	40.00	C	0	4.05
SOF45 D200-10-60-R26	204.10	224.50	7.00	60.80	200.00	11.00	63.0	10	135.00	60.00	C	0	9.10
SOF45 D250-12-60-R26	254.10	274.50	7.00	60.80	250.00	11.00	63.0	12	135.00	60.00	C	0	13.50
SOF45 D315-14-60-R26	319.10	339.50	7.00	77.80	315.00	11.00	80.0	14	220.00	60.00	C	0	19.73

• For user guide, see pages 616-621

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ For adaptation options, see page 622

⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply

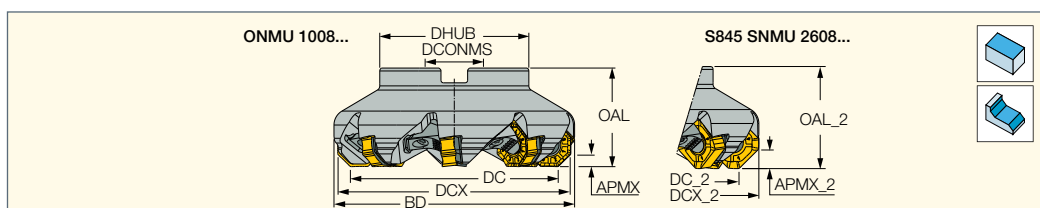
For inserts, see pages: ONMU 1008 (579) • S845 SNMU 2608 (571)

Spare Parts

Designation						
SOF45 D080-04-32-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/S7	SW6-T	SR M16-40C
SOF45 D100-05-32-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/S7	SW6-T	SR M16-40C
SOF45 D125-06-40-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/S7	SW6-T	
SOF45 D160-08-40-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/M7	SW6-T	
SOF45 D200-10-60-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/M7	SW6-T	
SOF45 D250-12-60-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/L7	SW6-T	
SOF45 D315-14-60-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/L7	SW6-T	

SOF45WG-R26

Heavy Duty 45° Face Mills
Carrying Wedge Clamped Square
or Octagonal Double-Sided
Inserts with 8/16 Cutting Edges



Designation	DC	BD	DCX ⁽¹⁾	APMX	OAL	DC_2	DCX_2	APMX_2	OAL_2	DCONMS	DHUB	Arbor	
SOF45WG D100-05-32-R26	104.10	123.50	118.80	7.00	60.80	100.00	123.50	11.00	63.00	32.00	78.00	B	2.46
SOF45WG D100-06-32-R26	104.10	123.50	118.80	7.00	60.80	100.00	123.50	11.00	63.00	32.00	78.00	B	2.33
SOF45WG D125-08-40-R26	129.10	148.50	143.80	7.00	60.80	125.00	148.50	11.00	63.00	40.00	92.00	B	3.41
SOF45WG D160-08-40-R26	164.10	183.80	178.80	7.00	60.80	160.00	183.80	11.00	63.00	40.00	95.00	C	4.84
SOF45WG D160-10-40-R26	164.10	183.80	178.80	7.00	60.80	160.00	183.80	11.00	63.00	40.00	95.00	C	4.58
SOF45WG D200-10-60-R26	204.10	223.50	218.80	7.00	60.80	200.00	223.50	11.00	63.00	60.00	180.00	C	9.47
SOF45WG D200-12-60-R26	204.10	223.50	218.80	7.00	60.80	200.00	223.50	11.00	63.00	60.00	180.00	C	9.20
SOF45WG D250-12-60-R26	254.10	273.30	268.80	7.00	60.80	250.00	273.30	11.00	63.00	60.00	180.00	C	12.68
SOF45WG D250-14-60-R26	254.10	273.30	268.80	7.00	60.80	250.00	273.30	11.00	63.00	60.00	180.00	C	12.44

• For user guide see pages 616-621

⁽¹⁾ Cutting diameter maximum

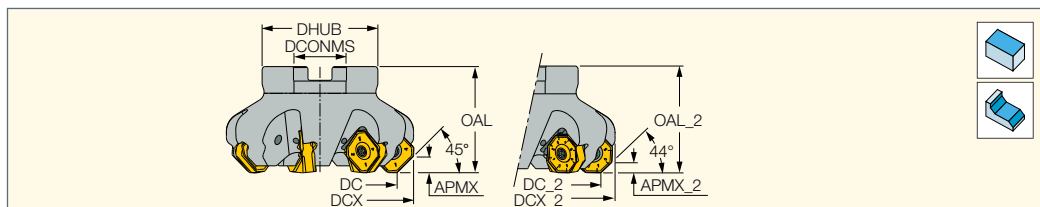
For inserts, see pages: ONMU 1008 (579) • S845 SNMU 2608 (571)

Spare Parts

Designation						
SOF45WG-R26	TSOF 26-N	SR M3.5X0.6-6.5 T10	LW CL-13 INJ	SR UNC 5/16-18X1 L/R	BLD IP25/S7	SW6-T

**SOF45-R18**

45° Face Mills Carrying Square
or Octagonal Double-Sided
Inserts with 8/16 Cutting Edges



Designation	DC	DCX ⁽¹⁾	APMX	OAL	DC_2	DCX_2	APMX_2	OAL_2	CICT ⁽²⁾	DHUB	DCONMS	Arbor	CSP ⁽³⁾	kg
SOF45 D050-04-22-R18	50.00	67.00	8.00	50.00	52.80	67.00	5.00	48.5	4	48.00	22.00	A	1	0.55
SOF45 D063-05-22-R18	63.00	80.00	8.00	50.00	65.80	80.00	5.00	48.5	5	52.00	22.00	A	1	0.80
SOF45 D063-05-27-R18	63.00	80.00	8.00	50.00	65.80	80.00	5.00	48.5	5	60.00	27.00	A	1	0.83
SOF45 D080-06-27-R18	80.00	97.00	8.00	55.00	82.80	97.00	5.00	53.5	6	60.00	27.00	A	1	1.29
SOF45 D080-07-27-R18	80.00	97.00	8.00	55.00	82.80	97.00	5.00	53.5	7	60.00	27.00	A	1	1.29
SOF45 D100-07-32-R18	100.00	117.00	8.00	55.00	102.80	117.00	5.00	53.5	7	78.00	32.00	B	1	1.95
SOF45 D100-09-32-R18	100.00	117.00	8.00	55.00	102.80	117.00	5.00	53.5	9	78.00	32.00	B	1	1.94
SOF45 D125-08-40-R18	125.00	142.00	8.00	63.00	127.80	142.00	5.00	61.5	8	92.00	40.00	B	1	3.38
SOF45 D125-12-40-R18	125.00	142.00	8.00	63.00	127.80	142.00	5.00	61.5	12	92.00	40.00	B	1	3.35
SOF45 D160-10-40-R18	160.00	177.00	8.00	63.00	162.80	177.00	5.00	61.5	10	95.00	40.00	C	0	4.20
SOF45 D160-15-40-R18	160.00	177.00	8.00	63.00	162.80	177.00	5.00	61.5	15	95.00	40.00	C	0	4.30
SOF45 D200-12-60-R18	200.00	217.00	8.00	63.00	202.80	217.00	5.00	61.5	12	135.00	60.00	C	0	6.88
SOF45 D200-18-60-R18	200.00	217.00	8.00	63.00	202.80	217.00	5.00	61.5	18	135.00	60.00	C	0	6.99
SOF45 D250-14-60-R18	250.00	267.00	8.00	63.00	252.80	267.00	5.00	61.5	14	135.00	60.00	C	0	10.50
SOF45 D250-21-60-R18	250.00	267.00	8.00	63.00	252.80	267.00	5.00	61.5	21	135.00	60.00	C	0	11.35
SOF45 D315-18-60-R18	315.00	332.00	8.00	80.00	317.80	332.00	5.00	78.5	18	230.00	60.00	C	0	22.36
SOF45 D315-24-60-R18	315.00	332.00	8.00	80.00	317.80	332.00	5.00	78.5	24	230.00	60.00	C	0	22.22

• For user guide, see pages 616-621

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: ONHU 0706AN-R-W (579) • ONMU/ONHU 0706 (578) • S845 SNHU 1806AN-N-W (570) • S845 SNMU/SNHU 1806 (570)

Spare Parts

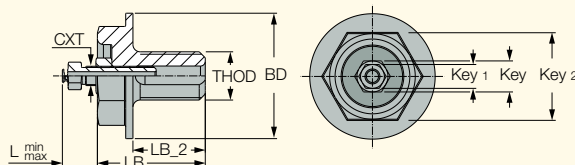
Designation				
SOF45 D050-04-22-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/S7	SW6-T	SR M10X25 DIN912
SOF45 D063-05-22-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/S7	SW6-T	SR M10X25 DIN912
SOF45 D063-05-27-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/S7	SW6-T	SR M12X25 DIN 912
SOF45 D080-06-27-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/S7	SW6-T	SR M12X25 DIN 912
SOF45 D080-07-27-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/S7	SW6-T	SR M12X25 DIN 912
SOF45 D100-07-32-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/S7	SW6-T	
SOF45 D100-09-32-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/S7	SW6-T	
SOF45 D125-08-40-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/S7	SW6-T	
SOF45 D125-12-40-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/S7	SW6-T	
SOF45 D160-10-40-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/M7	SW6-T	
SOF45 D160-15-40-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/M7	SW6-T	
SOF45 D200-12-60-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/M7	SW6-T	
SOF45 D200-18-60-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/M7	SW6-T	
SOF45 D250-14-60-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/M7	SW6-T	
SOF45 D250-21-60-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/M7	SW6-T	
SOF45 D315-18-60-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/M7	SW6-T	
SOF45 D315-24-60-R18	SR M5X0.8 16 IP20 ^(a)	BLD IP20/M7	SW6-T	

^(a) Recommended tightening torque: 9 N*m

Accessories

COOLANT SET

Clamping Screws with Adjustable Protruding Nozzles for Shell-Type Face Mills



Designation	BD	THOD	CXT	LB	LB_2	L min	L max	Key ⁽¹⁾	Key 1 ⁽²⁾	DRVS ⁽³⁾
COOLANT SET SR M10X1.5-22	28.00	M10	M4	25.00	18.00	2.0	17.0	7.00	6.00	21.00
COOLANT SET SRM12X1.75-27	35.00	M12	M4	31.00	22.00	2.0	17.0	7.00	6.00	27.00
COOLANT SET SR M16X2-32	42.00	M16	M8	37.00	26.00	3.0	25.0	13.00	10.00	30.00
COOLANT SET SR M20X2.5-40	52.00	M20	M8	45.00	30.00	3.0	25.0	13.00	10.00	36.00

⁽¹⁾ For the nut

⁽²⁾ For the nozzle

⁽³⁾ For the screw

Clamping Screws with Adjustable Protrusion Nozzles for Shell-Type Face Mills

The protrusion of the nozzle screw can be easily adjusted according to countersink depth, insert size or any other application requirement. The nozzle screw position can be secured by a locking nut.

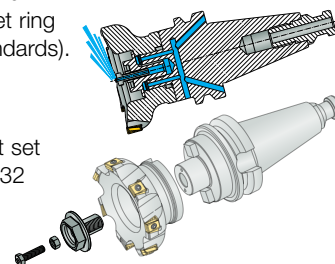
Tests show that cutting fluid supplied through the axis of a tool and directed radially at the bottom of the tool dramatically improves both the cooling effect and chip evacuation.

The screws are offered as sets, comprising a nozzle screw, locking screw, a locking nut and washers.

The locking nut can be tightened by a standard open-ended wrench, or preferably by an offset ring wrench (ISO 10104, DIN 838 or DIN 897 standards).

If desired, the following ring wrenches can also be ordered from **ISCAR**:

- 7000783 Ring Wrench 10X13 mm for coolant set SR M20X2.5-40 and Coolant set SR M16X2-32
- 7000788 Ring Wrench 6X7 mm for coolant set SRM12X1.75-27 and coolant set SR M10X1.5-22.



Assembly with a Lock Nut



Assembly without a Lock Nut



Spare Parts

Designation			
COOLANT SET SR M10X1.5-22	WASHER FLAT M4 DIN 433	SPRING PLUNGER	
COOLANT SET SRM12X1.75-27	WASHER FLAT M4 DIN 433	SPRING PLUNGER	
COOLANT SET SR M16X2-32	WASHER M8 DIN 433 A2	NOZZLE M8	NUT M8 DIN 934 A2
COOLANT SET SR M20X2.5-40	WASHER M8 DIN 433 A2	NOZZLE M8	NUT M8 DIN 934 A2