

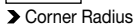
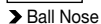
SOLID END MILLS



MAXI-RUSH Line

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Guide to Icons



Solid End Mill Line

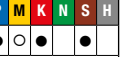
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Tool Selection Guide



Modular solid carbide end mill heads

	MXEE-03	MXEE(D)-04	MXEE-03	MXEE-104	MXES-R	MXEE-R
Series						
Type	Flat	Radius	Radius	Chamfer/Radius	Radius	Chamfer
Flute						
Grades	TT5523	TT5523	TT5523	TT5523	TT5523	TT5523
Material						
Diameter range (mm)	Ø8-Ø12	Ø5-Ø20	Ø7.7-Ø19.7	Ø8-Ø25	Ø8-Ø25	Ø8-Ø25
Pages	F17	F18	F20	F20	F21	F22

	MXEE-R-1.5D	MXEE-C04	MXEE-A02	MXEE-A03	MXEE-RA03	MXEE(D)-06
Series						
Type	Radius	Chamfer	Radius	Radius	Radius	Radius
Flute						
Grades	TT5523	TT5523	UF10/TTA101	UF10/TTA101	UF10	TT5523
Material						
Diameter range (mm)	Ø8-Ø20	Ø8-Ø25	Ø10-Ø12	Ø8-Ø20	Ø8-Ø20	Ø8-Ø12
Pages	F22	F23	F23	F24	F24	F25

● Recommended, ○ Suitable

Tool Selection Guide



Modular solid carbide end mill heads

	<u>MXED-08/10</u>	<u>MXED-107/109-1.5D</u>	<u>MXRB-02</u>	<u>MXRD-06</u>	<u>MXFX-02</u>	<u>MXFX-04/06</u>																																																																								
Series																																																																														
Type	Radius	Radius	Radius	Radius	Ball	Radius																																																																								
Flute																																																																														
Grades	TT5523	TT5523	TT5523	TT5523	TT5523	TT5513/TT5523																																																																								
Material	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○
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Diameter range (mm)	Ø16-Ø25	Ø10-Ø20	Ø20	Ø8-Ø16	Ø10-Ø20	Ø8-Ø25																																																																								
Pages	F25	F26	F26	F27	F27	F28																																																																								

	MXBD-BG-02	MXBD(E)-BG-04	MXBE-BH-04	MXBB-SG-02	MXBE-BGA02	MXCP-02																																																																								
Series																																																																														
Type	Ball	Ball	Ball	Ball (Spherical)	Ball	Chamfer																																																																								
Flute																																																																														
Grades	TT5523	TT5523	TT5513	TT5523	UF10/TTA101	TT5523																																																																								
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Diameter range (mm)	Ø8-Ø16	Ø6-Ø25	Ø8-Ø20	Ø8-Ø25	Ø8-Ø20	Ø8-Ø16.5																																																																								
Pages	F28	F29	F29	F30	F30	F31																																																																								

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Tool Selection Guide



Modular solid carbide end mill heads

	MXCA-04/06	MXCW-02	MXCR-02	MXCS-04	MXDP-02	MXGC-02																																																																								
Series																																																																														
Type	Chamfer	Chamfer	Concave	Chamfer	Center drill	Counter Boring																																																																								
Flute																																																																														
Grades	TT5523	TT5523	TT5523	TT5523	TT5523	TT5523																																																																								
Material	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○
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Diameter range (mm)	Ø10-Ø20	Ø9.8-Ø15.7	Ø8-Ø20	Ø7.7	Ø1.07-Ø6.41	Ø8-Ø16																																																																								
Pages	F32	F32	F33	F34	F34	F35																																																																								

	MXDS-02	MXEG-01	MXDG-04	MXCSL	MXCSO																																																												
Series																																																																	
Type	Drill & Chamfer	Engraving	Grooving	Lens Shape	Oval Shape																																																												
Flute																																																																	
Grades	TT5523	TT5523	TT5523	TT5523	TT5523																																																												
Material	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○
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Diameter range (mm)	Ø6-Ø16	Ø6-Ø8	Ø15.5-Ø24.5	Ø8-Ø16	Ø8-Ø16																																																												
Pages	F35	F36	F36	F37	F37																																																												

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Tool Selection Guide



Modular solid carbide end mill heads

	MXFM-I06	TTRD-A60	TTRD-W55	TDT-06																																																	
Series																																																					
Type	Milling	Thread	Thread	Dovetail																																																	
Flute																																																					
Grades	TT5523	TT5543	TT5543	TT5523																																																	
Material	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	○	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	
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Diameter range (mm)	Ø10-Ø25	Ø15.7-Ø21.7	Ø21.7	Ø27.7																																																	
Pages	F38	F39	F39	F40																																																	

Modular solid carbide slotting heads

	TST-3	TST-4/6	TST-A45	TTB-04	TTB-06																																																												
Series																																																																	
Type	Slot	Slot	Slot Chamfer	Slot	Slot																																																												
Flute																																																																	
Grades	TT5543	TT5523/TT5543	TT5523/TT5543	TT5523	TT5523/TT5543																																																												
Material	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	○	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	○	○	○	○	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td>●</td><td>○</td><td>○</td><td>○</td></tr></table>	P	M	K	N	S	H	●	○	●	○	○	○
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Diameter range (mm)	Ø15.7-Ø17.7	Ø21.7-Ø27.7	Ø17.7-Ø27.7	Ø7.7	Ø10.5-Ø25																																																												
Width of cut (mm)	1.5-3.17	0.76-10	3.4-9.8	1-2	1.58-8																																																												
Pages	F41	F42	F43	F43	F44																																																												

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Tool Selection Guide



Holders for MAXI-RUSH head

	<u>MXSSD</u>	<u>MXSSD-S</u>	<u>MXSSD-C</u>	<u>MXSSD-W-A</u>	<u>MXTSD-S</u>
Series					
Shank Type	Short	Step neck	Step neck	Step neck	Taper neck
Shank material	Steel/Carbide	Steel	Carbide	Tungsten	Steel
Internal coolant	X	●/X	●/X	●	X
Connection size	S04-S15	S05-S15	S05-S15	S06-S12	S04-S15
Shank range (mm)	Ø6-Ø32	Ø8-Ø25	Ø8-Ø25	Ø10-Ø20	Ø8-Ø32
Pages	F45	F46	F47	F48	F49

	<u>MXTSD-C</u>	<u>MXTSD-W-A</u>	<u>MXSTD-S</u>	<u>MXSC-C</u>	
Series					
Shank Type	Taper neck	Taper neck	Straight	Straight	
Shank material	Carbide	Tungsten	Steel	Carbide	
Internal coolant	X	●	X	●/X	
Connection size	S05-S15	S06	S04-S10	S06, S08	
Shank range (mm)	Ø12-Ø32	Ø12-Ø16	Ø6-Ø16	Ø10-Ø12	
Pages	F50	F51	F52	F52	

Tool Selection Guide



Adaptor for MAXI-RUSH head

Series	MXAD-M	MXER				
						
Shank Type	T-FLEXTEC	ER Collet				
Shank material	Steel	Steel				
Internal coolant	X	X				
Connection size	S08	S04-S08				
Shank range (mm)	M8 - M12	ER11 - ER25				
Pages	F53	F54				

Tool Selection Guide

Solid end mill

Series	<i>HARDMILL</i>	<i>SLIKSOLID</i>		<i>APEXMILL</i>	
	HSB 2CBN	UHP 4	UHP 4...R	SCSL	SCSO
					
Type	CBN Ball	Flat	Radius	Lens Shape	Oval Shape
Flute					
Length	Long neck	Medium	Medium	Medium	Medium
Grades	TB7015	TT5520	TT5520	TT5515	TT5515
Application	Finishing	General	General	Finishing	Finishing
Material	P M K N S H P M K N S H P M K N S H P M K N S H P M K N S H	P M K N S H P M K N S H P M K N S H P M K N S H P M K N S H	P M K N S H P M K N S H P M K N S H P M K N S H P M K N S H	P M K N S H P M K N S H P M K N S H P M K N S H P M K N S H	P M K N S H P M K N S H P M K N S H P M K N S H P M K N S H
Range	Ø0.4-Ø4	Ø2-Ø25	Ø3-Ø20	Ø8-Ø12	Ø8-Ø12
Pages	F60	F61	F62	F63	F63

Series	<i>APEXMILL</i>				
	SCST	HCEM 5	HFM 2	HFM 4	CFM 4...M
					
Type	Oval shape	Chamfer 45°	Flat	Flat	Chamfer
Flute					
Length	Medium	Medium	Medium	Medium	Medium
Grades	TT5515	TT5525	TT5515	TT5515	TT5525
Application	Finishing	General	*H.F.M	*H.F.M	General
Material	P M K N S H P M K N S H P M K N S H P M K N S H P M K N S H	P M K N S H P M K N S H P M K N S H P M K N S H P M K N S H	P M K N S H P M K N S H P M K N S H P M K N S H P M K N S H	P M K N S H P M K N S H P M K N S H P M K N S H P M K N S H	P M K N S H P M K N S H P M K N S H P M K N S H P M K N S H
Range	Ø8-Ø12	Ø8-Ø16	Ø4-Ø12	Ø6-Ø12	Ø6-Ø25
Pages	F64	F65	F66	F66	F67

► *H.F.M: High Feed Machining

● Recommended, ○ Suitable

Tool Selection Guide

Solid end mill

Series	APEX MILL		STAR MILL																																																														
	FSM 4...M	SBT 3...U	SBT 4...U	SED 4																																																													
				SED 4...U	SED 4...UL																																																												
																																																																	
Type	Chamfer	Ball	Ball	Flat	Flat																																																												
Flute																																																																	
Length	Medium	Medium	Medium	Medium	Long																																																												
Grades	TT5525	TT5515	TT5515	TT5515	TT5515																																																												
Application	Roughing+Finishing	Difficult-to-cut	Difficult-to-cut	Difficult-to-cut	Difficult-to-cut																																																												
Material	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>●</td><td>○</td><td></td><td></td><td></td><td></td></tr></table>	P	M	K	N	S	H	●	○					<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>○</td><td>●</td><td></td><td></td><td>●</td><td></td></tr></table>	P	M	K	N	S	H	○	●			●		<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>○</td><td>●</td><td></td><td></td><td>●</td><td></td></tr></table>	P	M	K	N	S	H	○	●			●		<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>○</td><td>●</td><td></td><td></td><td>●</td><td></td></tr></table>	P	M	K	N	S	H	○	●			●		<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td>○</td><td>●</td><td></td><td></td><td>●</td><td></td></tr></table>	P	M	K	N	S	H	○	●			●	
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Pages	F67	F68	F68	F69	F69																																																												

Series	STAR MILL																																																																
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	SED 4...-R	SED 4...-C	SED 7	SED 7...N																																																													
																																																																	
Type	Radius	Chamfer	Radius	Radius	Splitter																																																												
Flute																																																																	
Length	Medium	Medium	Medium	Medium	Medium																																																												
Grades	TT5515	TT5515	TT5515	TT5515	TT5525																																																												
Application	Difficult-to-cut	Difficult-to-cut	Difficult-to-cut	Difficult-to-cut	Difficult-to-cut																																																												
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P	M	K	N	S	H																																																												
○	●			●																																																													
Range	Ø2-Ø16	Ø4-Ø12	Ø6-Ø20	Ø6-Ø20	Ø3-Ø20																																																												
Pages	F70	F71	F71	F72	F73																																																												

● Recommended, ○ Suitable

Tool Selection Guide

Solid end mill

Series	ALUMINUM MILL			CERAMIC SPEED																																																																																																														
	AWE 3			CRF 4	CRF 6	CRH 4																																																																																																												
	AWE 3	AWE 3...ML	AWE 3...ML-R																																																																																																															
																																																																																																																		
Type	Wave Flat	Wave Flat	Wave Radius	Radius	Radius	Radius																																																																																																												
Flute																																																																																																																		
Length	Medium	Long	Long	Medium	Medium	Medium																																																																																																												
Grades	UF10	UF10	UF10	TC3030	TC3030	TC3030																																																																																																												
Application	Aluminum	Aluminum	Aluminum	* H.S.M	* H.S.M	* H.F.M																																																																																																												
Material	<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	P	M	K	N	S	H													<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	P	M	K	N	S	H													<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	P	M	K	N	S	H													<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	P	M	K	N	S	H													<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	P	M	K	N	S	H													<table><tr><td>P</td><td>M</td><td>K</td><td>N</td><td>S</td><td>H</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	P	M	K	N	S	H												
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Range	Ø6-Ø20	Ø6-Ø20	Ø6-Ø12	Ø6-Ø16	Ø6-Ø16	Ø6-Ø16																																																																																																												
Pages	F74	F74	F75	F75	F76	F76																																																																																																												

► *H.S.M: High Speed Machining

► *H.F.M: High Feed Machining

● Recommended, ○ Suitable

Series	DIA MILL					
	DMB 2	DEB 2		DMR 2	DER 3	
		DEB 2...S	DEB 2...L		DER 3...S	DER 3...L
						
Type	Ball	Ball	Ball	Radius	Radius	Radius
Flute						
Length	Miniature	Short	Long	Medium	Short	Long
Grades	TTD620	TTD620	TTD620	TTD620	TTD620	TTD620
Application	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
Material	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
Range	Ø0.6-Ø2	Ø3-Ø12	Ø3-Ø12	Ø0.6-Ø2	Ø3-Ø12	Ø4-Ø12
Pages	F77	F77	F78	F78	F79	F79

Tool Selection Guide

Solid end mill

Series					
	RRFE	RCFE	RCME	RCDE	RCOM
					
Type	Flat	Flat	Flat	Chamfer	Flat
Flute					
Length					
Grades	TTD610	TTD610	TTD610	TTD610	TTD610
Application	Roughing	Roughing	Medium	Drilling + Medium	Finishing
Material	Composite material	Composite material	Composite material	Composite material	Composite material
Range	Ø4-Ø12	Ø4-Ø12	Ø4-Ø12	Ø4-Ø12	Ø6-Ø12
Pages	F80	F80	F81	F81	F82

Series					
	RDCF				
					
Type	Flat				
Flute					
Length					
Grades	TTD610				
Application	Finishing				
Material	Composite material				
Range	Ø4-Ø12				
Pages	F82				

Grades

MAXI-RUSH grades

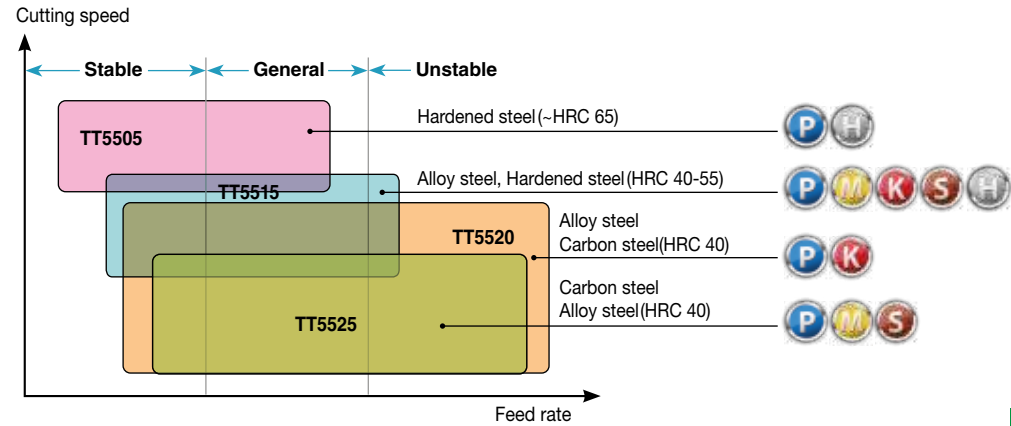
Grades	ISO	Characteristics & applications
TT5513 PVD coated	P10 – P30 K10 – K30	• Excellent abrasion resistant with ultra-fine substrate and optimum toughness • Improved anti-chipping and Anti-abrasion PVD AlTiN coated layer • Suitable for mold steels and pre hardened steels
TT5523 PVD coated	P20 – P40 M20 – M40 S20 – S40	• High speed milling of steel, stainless steel and high-temp alloy
TT5543 PVD coated	P30 – P50 M30 – M50 S30 – S50	• Interrupted and rough machining of steel, stainless steel and high-temp alloy
UF10 Uncoated	P25 – P35 M25 – M35 N25 – N35	• General machining of steel, aluminum alloys, non-ferrous materials • Submicron substrate
TTA101 PVD coated	P25 – P35 M25 – M35 N25 – N35	• Thin coating (less than 0.5µm) • Sharp edges even after coating • Low friction coefficient: minimizes built-up edges and promotes smooth chip evacuation • Hard coating (above HV 5000) • Oxidation resistance at high temperatures

Grades

Solid end mill grades

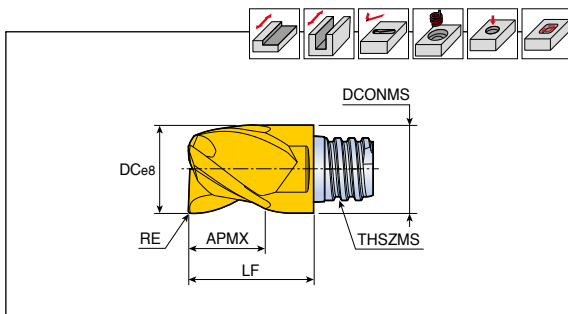
Grades	ISO	Characteristics & applications
TT5505 PVD coated	P05 – P25 H05 – H25	•High wear and oxidation resistance that delivers exceptional productivity levels •Hardened steel, pre-hardened steel (Hardness < 65 HRC) •High speed machining
TT5515 PVD coated	P10 – P30 M15 – M30 K10 – K30 S10 – S30 H10 – H30	•An ultra wear resistant high performance grade covering all ISO ranges •Alloy steel, pre-hardened steel, stainless steel, high-temp alloy (45 < HRC < 55) •Medium to high speed machining
TT5520 PVD coated	P10 – P30 K10 – K30	•Anti-abrasion and chipping resistant PVD coated layer •Single direction crystal aligned AlCrN layer - Excellent abrasion resistance with sub-micron substrate - Anti-abrasion and oxidation resistant PVD AlCrN coated layer
TT5525 PVD coated	P20 – P40 M20 – M40 S20 – S40	•Optimally balanced with wear resistant and anti-chipping properties •General machining of carbon steel, alloy steel, stainless steel, high-temp alloy (< 40 HRC) •Low to medium speed machining
TTD620 Diamond coated	Graphite	•High hardness and excellent wear resistance •Machining of graphite
TTD610 Diamond coated	Composite material	•Advanced nano diamond coating provides longer tool life and stability of machining •Excellent abrasive wear resistance (Hardness: more Hv 8000) •Machining of composite material
UF10N UF10 Uncoated	P25 – P35 M25 – M35 N25 – N35	•General machining of steel, aluminum alloys, non-ferrous materials •Submicron substrate
TC3030 Ceramic	S25 – S35	•SiAlON ceramic grade •High speed machining of nickel based super alloys

Selection guide for solid end mill grades



MAXI-RUSH Line



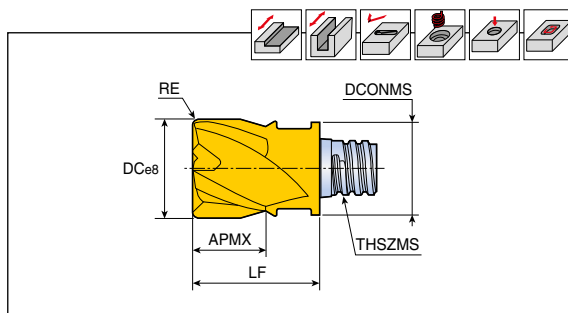


- ▶ Wrench should be ordered separately

- : Standard items

MXEE(D)-04

4 flute, for general purpose



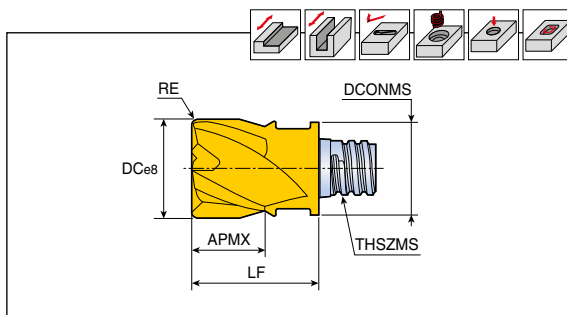
Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	FHA	APMX	LF	THSZMS	DCONMS	TT5523
MXEE 050L04R05-04S04	0.02-0.06	5	0.5	45	4	8.5	S04	6.0	●
MXEE 050L07R00-04S05	0.02-0.06	5	-	45	7	15.0	S05	8.0	●
MXEE 060L04R05-04S04	0.02-0.04	6	0.5	45	4	8.5	S04	5.8	●
MXEE 060L05R00-04S05	0.03-0.04	6	-	45	5	10.0	S05	8.0	●
MXED 080L05R05-04S05	0.03-0.09	8	0.5	30	5	10.0	S05	7.7	●
MXED 080L05R10-04S05	0.03-0.09	8	1.0	30	5	10.0	S05	7.7	●
MXED 080L05R15-04S05	0.03-0.09	8	1.5	30	5	10.0	S05	7.7	●
MXED 080L09R05-04S05	0.03-0.09	8	0.5	30	9	15.0	S05	7.7	●
MXEE 080L05R00-04S05	0.03-0.09	8	-	45	5	10.0	S05	7.7	●
MXEE 080L05R05-04S05	0.03-0.09	8	0.5	45	5	10.0	S05	7.7	●
MXEE 080L05R10-04S05	0.03-0.09	8	1.0	45	5	10.0	S05	7.7	●
MXEE 080L09R00-04S05	0.03-0.09	8	-	45	9	15.0	S05	7.7	●
MXED 100L07R05-04S06	0.03-0.10	10	0.5	30	7	13.0	S06	9.6	●
MXED 100L07R10-04S06	0.03-0.10	10	1.0	30	7	13.0	S06	9.6	●
MXEE 100L07R00-04S06	0.03-0.10	10	-	45	7	13.0	S06	9.6	●
MXEE 100L07R05-04S06	0.03-0.10	10	0.5	45	7	13.0	S06	9.6	●
MXEE 100L07R10-04S06	0.03-0.10	10	1.0	45	7	13.0	S06	9.6	●
MXEE 100L12R00-04S06	0.03-0.10	10	-	45	12	19.0	S06	9.6	●
MXED 120L09R05-04S08	0.04-0.11	12	0.5	30	9	16.5	S08	11.7	●
MXED 120L09R10-04S08	0.04-0.11	12	1.0	30	9	16.5	S08	11.7	●
MXEE 120L09R00-04S08	0.04-0.11	12	-	45	9	16.5	S08	11.7	●
MXEE 120L09R05-04S08	0.04-0.11	12	0.5	45	9	16.5	S08	11.7	●
MXEE 120L09R10-04S08	0.04-0.11	12	1.0	45	9	16.5	S08	11.7	●
MXEE 120L14R00-04S08	0.04-0.11	12	-	45	14	23.0	S08	11.7	●
MXED 160L12R05-04S10	0.05-0.13	16	0.5	30	12	20.5	S10	15.3	●
MXED 160L12R10-04S10	0.05-0.13	16	1.0	30	12	20.5	S10	15.3	●
MXED 160L12R15-04S10	0.05-0.13	16	1.5	30	12	20.5	S10	15.3	●
MXED 160L12R20-04S10	0.05-0.13	16	2.0	30	12	20.5	S10	15.3	●
MXED 160L12R30-04S10	0.05-0.13	16	3.0	30	12	20.5	S10	15.3	●
MXED 160L12R40-04S10	0.05-0.13	16	4.0	30	12	20.5	S10	15.3	●
MXEE 160L12R00-04S10	0.05-0.13	16	-	45	12	20.5	S10	15.3	●
MXEE 160L12R05-04S10	0.05-0.13	16	0.5	45	12	20.5	S10	15.3	●
MXEE 160L12R10-04S10	0.05-0.13	16	1.0	45	12	20.5	S10	15.3	●
MXEE 160L12R15-04S10	0.05-0.13	16	1.5	45	12	20.5	S10	15.3	●
MXEE 160L12R20-04S10	0.05-0.13	16	2.0	45	12	20.5	S10	15.3	●

► Wrench should be ordered separately

► FHA: Flute helix angle

●: Standard items

4 flute, for general purpose

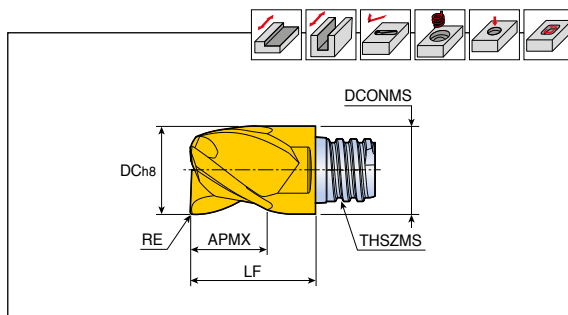


- ▶ Wrench should be ordered separately
- ▶ FHA: Flute helix angle

●: Standard items

MXEE-03

3 flute, for keyways



Designation	Feed (mm/tooth)	Dimension (mm)						Grade TT5523
		DC	RE	APMX	LF	THSZMS	DCONMS	
MXEE 077L04R02-03S05	0.03-0.08	7.7	0.2	4	10.0	S05	7.7	●
097L05R03-03S06	0.03-0.09	9.7	0.3	5	13.0	S06	9.7	●
117L07R03-03S08	0.03-0.10	11.7	0.3	7	16.5	S08	11.7	●
157L08R03-03S10	0.04-0.12	15.7	0.3	8	20.5	S10	15.3	●
197L12R04-03S12	0.05-0.13	19.7	0.4	12	25.5	S12	18.3	●

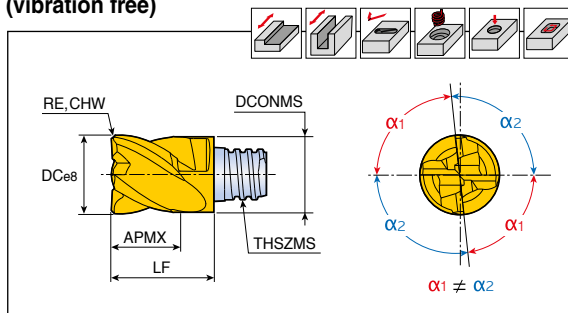
► Wrench should be ordered separately

●: Standard items

MXEE-104



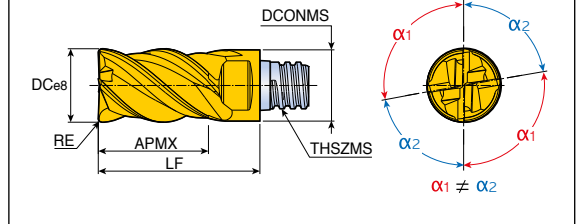
4 flute, unequal spacing of cutting edges (vibration free)



Designation	Feed (mm/tooth)	Dimension (mm)							Grade	
		DC	RE	CHW	APMX	LF	THSZMS	DCONMS	TT5523	
MXEE	080L05C30I04S05	0.03-0.09	8	-	0.3	5	10.0	S05	7.7	●
	100L07C40I04S06	0.03-0.10	10	-	0.4	7	13.0	S06	9.7	●
	120L09C50I04S08	0.04-0.11	12	-	0.5	9	16.5	S08	11.7	●
	160L12C60I04S10	0.05-0.13	16	-	0.6	12	20.5	S10	15.3	●
	200L15C60I04S12	0.05-0.17	20	-	0.6	15	25.5	S12	18.3	●
	250L22C60I04S15	0.06-0.17	25	-	0.6	22	37.0	S15	23.9	●
	250L22R00I04S15	0.06-0.17	25	-	-	22	37.0	S15	23.9	●
	250L22R05I04S15	0.06-0.17	25	0.5	-	22	37.0	S15	23.9	●
	250L22R10I04S15	0.06-0.17	25	1.0	-	22	37.0	S15	23.9	●
	250L22R20I04S15	0.06-0.17	25	2.0	-	22	37.0	S15	23.9	●
	250L22R30I04S15	0.06-0.17	25	3.0	-	22	37.0	S15	23.9	●

► Wrench should be ordered separately

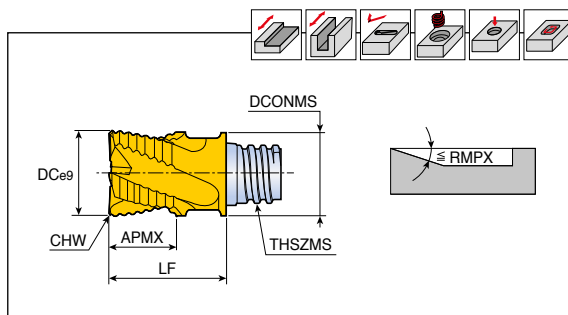
●: Standard items

[illegible]

●: Standard items

MXEE-R

4-6 flute, for roughing



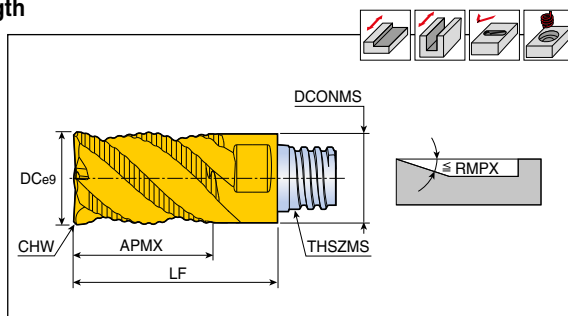
Designation	Feed (mm/tooth)	Dimension (mm)									Grade
		DC	NOF	CHW	APMX	LF	THSZMS	DCONMS	RMPX	TT5523	
MXEE 080L05C25R04S05	0.03-0.08	8	4	0.25	5	10.0	S05	7.7	5	●	
100L07C30R04S06	0.03-0.09	10	4	0.30	7	13.0	S06	9.7	5	●	
120L09C35R04S08	0.04-0.10	12	4	0.35	9	16.5	S08	11.7	5	●	
160L12C40R05S10	0.04-0.10	16	5	0.40	12	20.5	S10	15.3	5	●	
200L15C40R06S12	0.05-0.11	20	6	0.40	15	25.5	S12	18.3	3	●	
250L22C50R06S15	0.05-0.11	25	6	0.50	22	37.0	S15	23.9	3	●	

- Wrench should be ordered separately
- NOF: Number of flutes
- RMPX: Ramping angle maximum

●: Standard items

MXEE-R-1.5D

4-6 flute, for roughing with 1.5D flute length



Designation	Feed (mm/tooth)	Dimension (mm)									Grade
		DC	NOF	CHW	APMX	LF	THSZMS	DCONMS	RMPX	TT5523	
MXEE 080L12C25R04S05	0.03-0.08	8	4	0.25	12	18.0	S05	7.7	5	●	
100L15C30R04S06	0.03-0.09	10	4	0.30	15	22.0	S06	9.6	5	●	
120L18C35R04S08	0.04-0.10	12	4	0.35	18	27.0	S08	11.7	5	●	
160L24C40R05S10	0.04-0.10	16	5	0.40	24	33.5	S10	15.3	5	●	
200L30C40R06S12	0.05-0.11	20	6	0.40	30	41.0	S12	18.5	3	●	

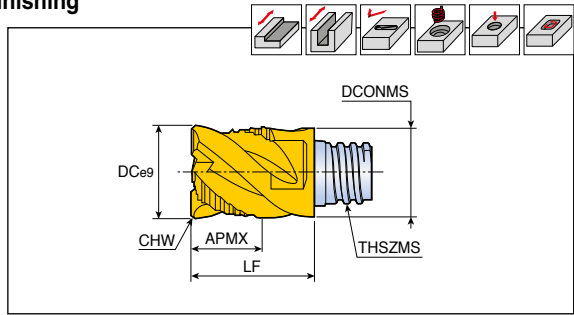
- Wrench should be ordered separately
- NOF: Number of flutes
- RMPX: Ramping angle maximum

●: Standard items

MXEE-C04



4 flute, combined edges for roughing & finishing



Designation	Feed (mm/tooth)	Dimension (mm)						Grade	
		DC	CHW	APMX	LF	THSZMS	DCONMS	TT5523	
MXEE 080L05C30C04S05	0.03-0.08	8	0.3	5	10.0	S05	7.7	●	
100L07C30C04S06	0.03-0.09	10	0.3	7	13.0	S06	9.7	●	
120L09C40C04S08	0.04-0.10	12	0.4	9	16.5	S08	11.7	●	
160L12C60C04S10	0.05-0.11	16	0.6	12	20.5	S10	15.3	●	
200L15C60C04S12	0.05-0.11	20	0.6	15	25.5	S12	18.3	●	
250L22C60C04S15	0.05-0.11	25	0.6	22	37.0	S15	23.9	●	

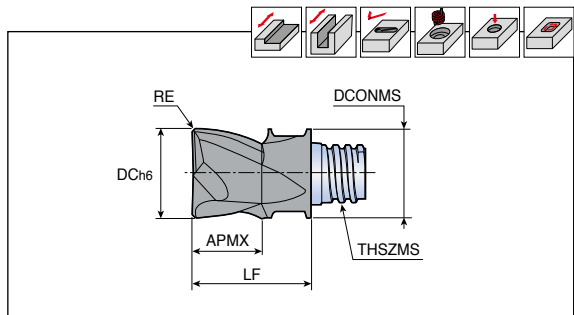
► Wrench should be ordered separately

●: Standard items

MXEE-A02



2 flute, for aluminum machining



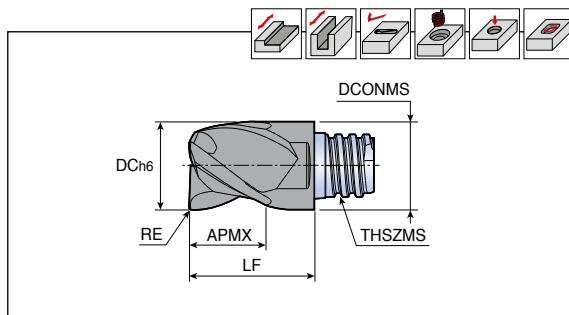
Designation	Feed (mm/tooth)	Dimension (mm)						Grade	
		DC	RE	APMX	LF	THSZMS	DCONMS	UF10	TTA101
MXEE 100L07R05A02S06	0.03-0.10	10	0.5	7	13.0	S06	9.7	●	●
100L07R10A02S06	0.03-0.10	10	1.0	7	13.0	S06	9.7	●	●
120L09R05A02S08	0.04-0.11	12	0.5	9	16.5	S08	11.7	●	●

► Wrench should be ordered separately

●: Standard items

MXEE-A03

3 flute, for aluminum machining



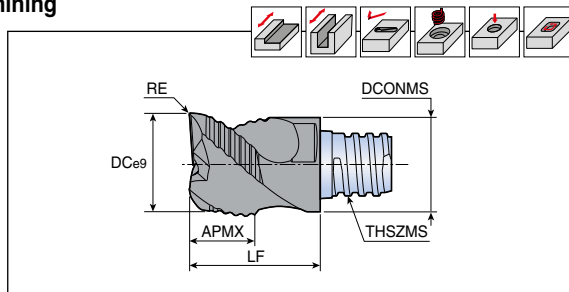
Designation	Feed (mm/tooth)	Dimension (mm)						Grade	
		DC	RE	APMX	LF	THSZMS	DCONMS	UF10	TTA101
MXEE 080L05R05A03S05	0.03-0.09	8	0.5	5	10.0	S05	7.7	●	●
100L06R05A03S06	0.03-0.10	10	0.5	6	13.0	S06	9.7	●	●
100L06R10A03S06	0.03-0.10	10	1.0	6	13.0	S06	9.7	●	●
120L08R05A03S08	0.04-0.11	12	0.5	8	16.5	S08	11.7	●	●
120L08R10A03S08	0.04-0.11	12	1.0	8	16.5	S08	11.7	●	●
160L10R00A03S10	0.05-0.13	16	-	10	20.5	S10	15.3	●	●
160L10R10A03S10	0.05-0.13	16	1.0	10	20.5	S10	15.3	●	●
160L10R20A03S10	0.05-0.13	16	2.0	10	20.5	S10	15.3	●	●
200L12R05A03S12	0.05-0.13	20	0.5	12	25.5	S12	18.3	●	●
200L12R10A03S12	0.05-0.13	20	1.0	12	25.5	S12	18.3	●	●
200L12R20A03S12	0.05-0.13	20	2.0	12	25.5	S12	18.3	●	●

► Wrench should be ordered separately

●: Standard items

MXEE-RA03

3 flute, for roughing with aluminum machining



Designation	Feed (mm/tooth)	Dimension (mm)						Grade	
		DC	RE	APMX	LF	THSZMS	DCONMS	UF10	
MXEE 080L05R02RA03S05	0.03-0.15	8	0.2	5	10.0	S05	7.7	●	
100L06R02RA03S06	0.05-0.20	10	0.2	6	13.0	S06	9.6	●	
120L08R02RA03S08	0.07-0.22	12	0.2	8	16.5	S08	11.7	●	
160L10R02RA03S10	0.07-0.25	16	0.2	10	20.5	S10	15.3	●	
200L12R02RA03S12	0.07-0.25	20	0.2	12	25.5	S12	18.5	●	

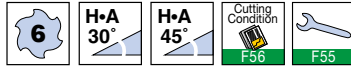
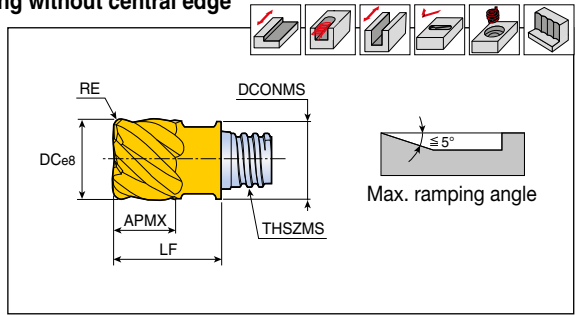
► Wrench should be ordered separately

●: Standard items

MXEE(D)-06



6 flute, for difficult-to-cut material machining without central edge



Designation	Feed (mm/tooth)	Dimension (mm)								Grade
		DC	RE	FHA	APMX	LF	THSZMS	DCONMS	TT5523	
MXEE 080L05R05-06S05	0.03-0.10	8	0.5	45	5	10.0	S05	7.7	●	
MXEE 080L05R10-06S05	0.03-0.10	8	1.0	45	5	10.0	S05	7.7	●	
MXED 100L07R05-06S06	0.03-0.10	10	0.5	30	7	13.0	S06	9.7	●	
MXED 100L07R10-06S06	0.03-0.10	10	1.0	30	7	13.0	S06	9.7	●	
MXEE 100L07R05-06S06	0.04-0.10	10	0.5	45	7	13.0	S06	9.7	●	
MXEE 100L07R10-06S06	0.04-0.10	10	1.0	45	7	13.0	S06	9.7	●	
MXEE 100L07R15-06S06	0.03-0.10	10	1.5	45	7	13.0	S06	9.7	●	
MXED 120L09R05-06S08	0.04-0.11	12	0.5	30	9	16.5	S08	11.7	●	
MXEE 120L09R00-06S08	0.04-0.11	12	-	45	9	16.5	S08	11.7	●	
MXEE 120L09R10-06S08	0.04-0.11	12	1.0	45	9	16.5	S08	11.7	●	
MXEE 120L09R15-06S08	0.04-0.11	12	1.5	45	9	16.5	S08	11.7	●	

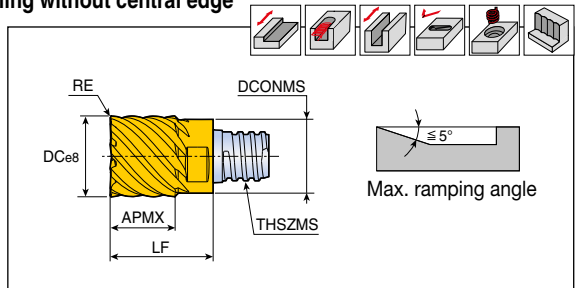
- ▶ Wrench should be ordered separately
- ▶ FHA: Flute Helix Angle

●: Standard items

MXED-08/10



8, 10 flute, for difficult-to-cut material machining without central edge



Designation	Feed (mm/tooth)	Dimension (mm)								Grade
		DC	NOF	RE	APMX	LF	THSZMS	DCONMS	TT5523	
MXED 160L12R05-08S10	0.05-0.13	16	8	0.5	12	20.5	S10	15.3	●	
160L12R10-08S10	0.05-0.13	16	8	1.0	12	20.5	S10	15.3	●	
160L12R20-08S10	0.05-0.13	16	8	2.0	12	20.5	S10	15.3	●	
200L15R10-10S12	0.05-0.13	20	10	1.0	15	25.5	S12	18.3	●	
200L15R20-10S12	0.05-0.13	20	10	2.0	15	25.5	S12	18.3	●	
250L22R10-10S15	0.05-0.13	25	10	1.0	22	37.0	S15	23.9	●	
250L22R20-10S15	0.05-0.13	25	10	2.0	22	37.0	S15	23.9	●	

- ▶ Wrench should be ordered separately
- ▶ NOF: Number of flutes

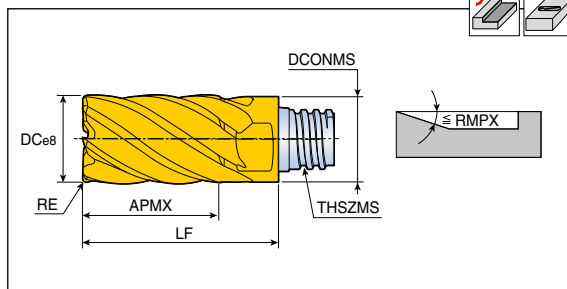
●: Standard items



MXED-I07/I09-1.5D



Long cutting edge 1.5D & 7,9 flutes & variable helix, pitch



Designation	Feed (mm/tooth)	Dimension (mm)								Grade
		DC	NOF	RE	APMX	LF	THSZMS	DCONMS	RMPX	TT5523
MXED 100L15R05I07S06	0.04-0.10	10	7	0.5	15	22.0	S06	9.6	3	●
120L18R05I07S08	0.04-0.10	12	7	0.5	18	27.0	S08	11.7	3	●
160L24R08I09S10	0.05-0.10	16	9	0.8	24	33.5	S10	15.3	1	●
200L30R10I09S12	0.05-0.10	20	9	1.0	30	41.0	S12	18.5	1	●

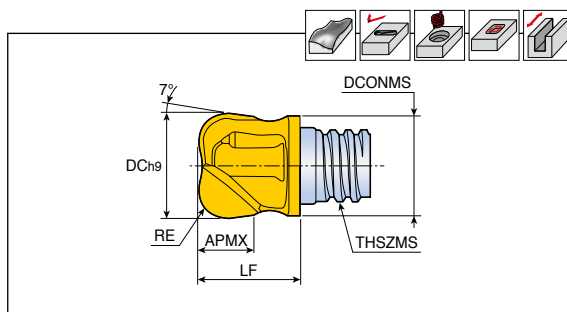
- Wrench should be ordered separately
- NOF: Number of flutes
- RMPX: Ramping angle maximum

●: Standard items

MXRB-02



2 flute, 7° back taper flute



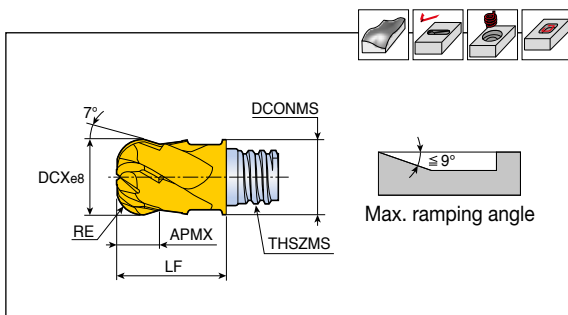
Designation	Feed (mm/tooth)	Dimension (mm)						Grade
		DC	RE	APMX	LF	THSZMS	DCONMS	TT5523
MXRB 200L11R50-02S12	0.05-0.15	20	5.0	11.3	17.3	S12	18.3	●

- Wrench should be ordered separately

●: Standard items

MXRD-06

6 flute, 7° back taper sided ground flute



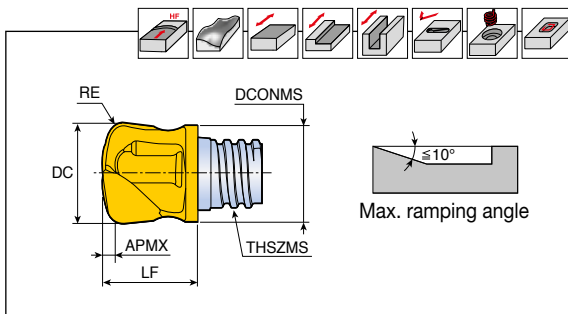
Designation	Dimension (mm)						Grade
	DCX	RE	APMX	LF	THSZMS	DCONMS	TT5523
MXRD 080L04R20-06S05	8	2.0	4	10.0	S05	7.7	●
100L05R30-06S06	10	3.0	5	13.0	S06	9.7	●
120L07R40-06S08	12	4.0	7	16.5	S08	11.7	●
160L09R50-06S10	16	5.0	9	20.5	S10	15.3	●

► Wrench should be ordered separately

●: Standard items

MXFX-02

2 flute, for high feed milling



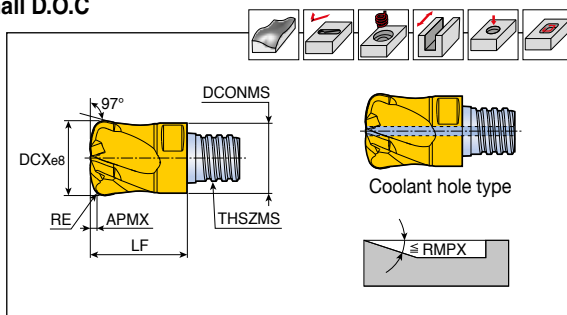
Designation	Feed (mm/tooth)	Dimension (mm)						Grade
		DC	RE	APMX	LF	THSZMS	DCONMS	TT5523
MXFX 100L0.6R20-02S06	0.30-0.60	10	2.0	0.6	12.5	S06	9.6	●
120L1.0R25-02S08	0.50-1.00	12	2.5	0.68	11.1	S08	11.5	●
160L1.1R30-02S10	0.55-1.10	16	3.0	1.1	20.0	S10	15.2	●
200L1.5R34-02S12	0.75-1.50	20	3.4	1.5	17.4	S12	18.3	●

► Wrench should be ordered separately

●: Standard items

MXFX-04/06

4,6 flute, for high feed machining and small D.O.C



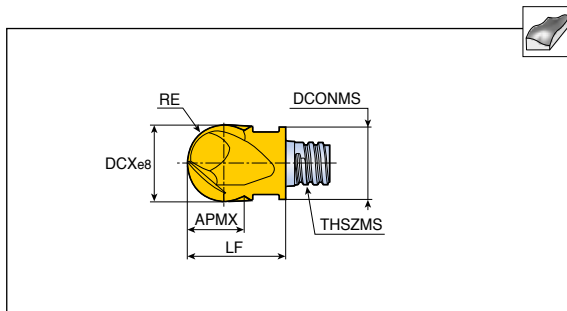
Designation	Feed (mm/tooth)	Dimension (mm)								Coolant hole	Grade	
		DC	NOF	RE	APMX	LF	THSZMS	DCONMS	RMPX		TT5513	TT5523
MXFX 080L0.4R16-04S05	0.12-0.48	8	4	1.62	0.4	10.0	S05	7.5	5	x	●	
100L0.5R20-04S06	0.16-0.57	10	4	2.01	0.5	13.0	S06	9.5	5	x	●	
100L0.4R10-06S06C	0.16-0.47	10	6	1.00	0.45	10.0	S06	9.5	3	●	●	
120L0.6R18-04S08C	0.16-0.67	12	4	1.80	0.6	16.5	S08	11.5	5	●		●
120L0.6R24-04S08	0.16-0.67	12	4	2.47	0.6	16.5	S08	11.5	5	x	●	
120L0.6R12-06S08C	0.16-0.54	12	6	1.20	0.65	12.0	S08	11.5	3	●	●	
160L0.8R22-04S10C	0.20-0.75	16	4	2.20	0.8	20.5	S10	15.4	5	●		●
160L0.8R32-04S10	0.20-0.75	16	4	3.25	0.8	20.5	S10	15.4	5	x	●	
200L1.0R40-04S12	0.20-0.90	20	4	4.02	1.0	25.5	S12	18.45	5	x	●	
250L1.2R31-06S15	0.25-1.00	25	6	3.10	1.2	25.0	S15	23.9	5	x	●	

- Wrench should be ordered separately
- NOF: Number of flutes
- RMPX: Ramping angle maximum

●: Standard items

MXBD-BG-02

2 flute, for high precision machining



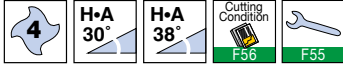
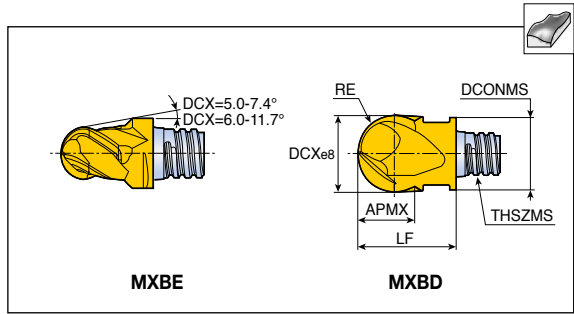
Designation	Dimension (mm)						Grade
	DCX	RE	APMX	LF	THSZMS	DCONMS	
MXBD 080L05-BG-02S05	8	3.98 ⁽¹⁾	5	10.0	S05	7.7	●
100L07-BG-02S06	10	4.98 ⁽¹⁾	7	13.0	S06	9.7	●
120L09-BG-02S08	12	5.98 ⁽²⁾	9	16.5	S08	11.7	●
160L09-BG-02S10	16	7.98 ⁽²⁾	9	20.5	S10	15.3	●

- Wrench should be ordered separately
- RE Tolerance: ⁽¹⁾± 0.01, ⁽²⁾± 0.012

●: Standard items

MXBD(E)-BG-04

4 flute, for high precision machining



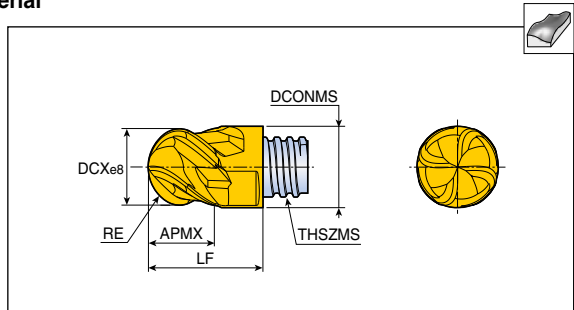
Designation	Dimension (mm)							Grade
	DCX	RE	FHA	APMX	LF	THSZMS	DCONMS	TT5523
MXBE 050L07-BG-04S05	5	2.49 ⁽¹⁾	38	7.0	15.0	S05	8.0	●
060L04-BG-04S04	6	2.99 ⁽¹⁾	38	4.0	8.5	S04	5.8	●
060L05-BG-04S05	6	2.99 ⁽¹⁾	38	5.5	10.0	S05	8.0	●
MXBD 080L05-BG-04S05	8	3.98 ⁽¹⁾	30	5.0	10.0	S05	7.7	●
100L07-BG-04S06	10	4.98 ⁽¹⁾	30	7.0	13.0	S06	9.7	●
120L09-BG-04S08	12	5.98 ⁽²⁾	30	9.0	16.5	S08	11.7	●
160L12-BG-04S10	16	7.98 ⁽²⁾	30	12.0	20.5	S10	15.3	●
200L15-BG-04S12	20	9.97 ⁽²⁾	30	15.0	25.5	S12	18.3	●
250L22-BG-04S15	25	12.47 ⁽³⁾	30	22.0	37.0	S15	23.9	●

- Wrench should be ordered separately
- RE Tolerance: ⁽¹⁾± 0.01, ⁽²⁾± 0.012, ⁽³⁾± 0.02
- FHA: Flute helix angle

●: Standard items

MXBE-BH-04

4 flute, for high productivity on hard material



Designation	Dimension (mm)						Grade
	DCX	RE	APMX	LF	THSZMS	DCONMS	TT5513
MXBE 080L05-BH-04S05	8	3.98 ⁽¹⁾	5.4	10.0	S05	7.7	●
100L07-BH-04S06	10	4.98 ⁽¹⁾	7.4	13.0	S06	9.6	●
120L09-BH-04S08	12	5.98 ⁽²⁾	9.3	16.5	S08	11.7	●
160L12-BH-04S10	16	7.98 ⁽²⁾	12.4	20.5	S10	15.3	●
200L16-BH-04S12	20	9.97 ⁽²⁾	16.0	25.5	S12	18.5	●

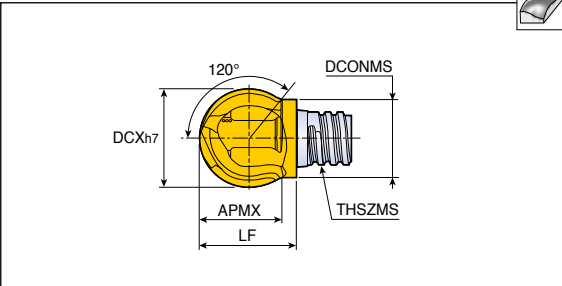
- Wrench should be ordered separately
- RE Tolerance: ⁽¹⁾± 0.01, ⁽²⁾± 0.012

●: Standard items

MXBB-SG-02



2 flute, spherical designed edge



Designation	Dimension (mm)					Key	Grade TT5523
	DCX	APMX	LF	THSZMS	DCONMS		
MXBB 080L05-SG-02S04	8	5	8.2	S04	5.8	MX KEY-S04	●
100L07-SG-02S05	10	7	10.0	S05	7.6	MX KEY-S05	●
120L09-SG-02S06	12	9	11.6	S06	9.5	MX KEY-S08	●
160L12-SG-02S08	16	12	15.4	S08	12.2	MX KEY-S10	●
200L15-SG-02S10	20	15	18.4	S10	15.2	MX KEY-S10	●
250L18-SG-02S12	25	18	23.2	S12	18.3	MX KEY-S12	●

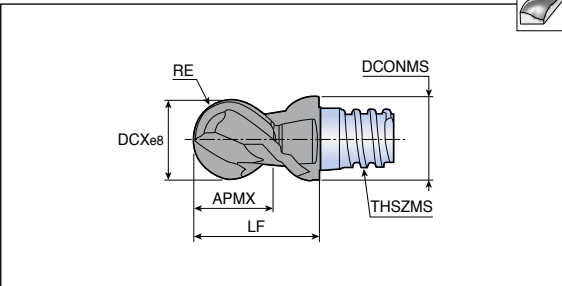
► Wrench should be ordered separately

●: Standard items

MXBE-BGA02



2 flute, for high precision aluminum machining

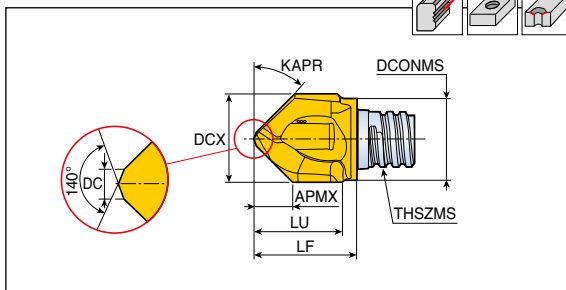


Designation	Dimension (mm)						Grade	
	DCX	RE	APMX	LF	THSZMS	DCONMS	UF10	TTA101
MXBE 080L05-BGA02S05	8	3.98 ⁽¹⁾	5	10.0	S05	7.7	●	●
100L07-BGA02S06	10	4.98 ⁽¹⁾	7	13.0	S06	9.7	●	●
120L09-BGA02S08	12	5.98 ⁽²⁾	9	16.5	S08	11.7	●	●
160L12-BGA02S10	16	7.98 ⁽²⁾	12	20.5	S10	15.3	●	●
200L15-BGA02S12	20	9.97 ⁽²⁾	15	25.5	S12	18.3	●	●

► Wrench should be ordered separately

●: Standard items

► RE Tolerance: ⁽¹⁾± 0.01, ⁽²⁾± 0.012



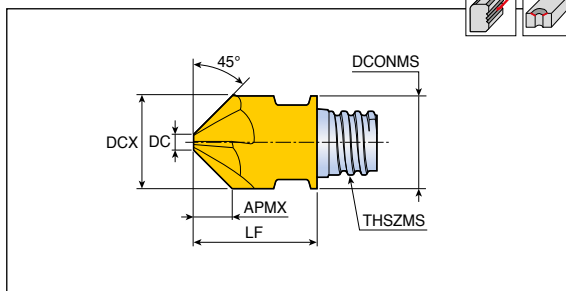
- ▶ Wrench should be ordered separately

●: Standard items

MXCA-04/06



4, 6 flute, chamfering and countersinking without central edge



Designation	Dimension (mm)							Grade
	DCX	DC	NOF	APMX	LF	THSZMS	DCONMS	
MXCA 100L04A45-04S06	10.0	1.95	4	4.0	13.0	S06	10.0	●
120L05A45-04S08	12.0	1.95	4	5.0	16.5	S08	12.0	●
127L05A45-04S08	12.7	1.98	4	5.3	16.5	S08	12.7	●
160L06A45-06S10	16.0	3.0	6	6.5	20.3	S10	16.0	●
200L07A45-06S12	20.0	5.0	6	7.5	25.5	S12	20.0	●

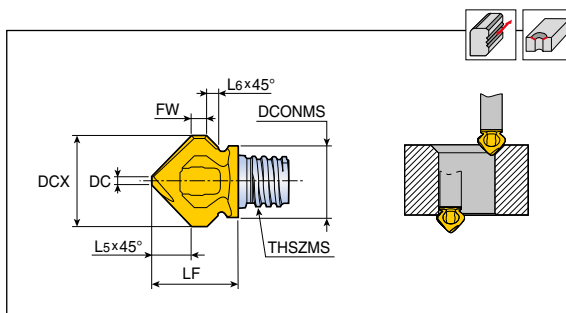
- Wrench should be ordered separately
- NOF: Number of flutes

●: Standard items

MXCW-02



2 flute, for double chamfering

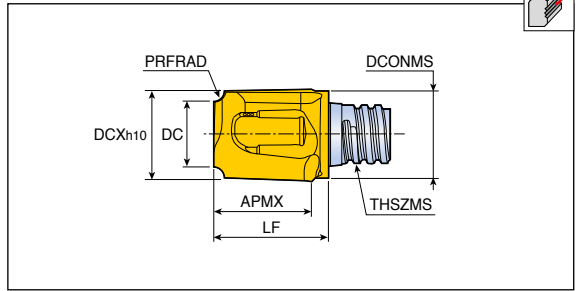


Designation	Dimension (mm)								Key	Grade
	DCX	DC	L5	LF	FW	L6	THSZMS	DCONMS		
MXCW 098L04A45-02S05	9.8	1.2	4.3	10.8	2.5	1.2	S05	7.6	MX KEY-S06	●
118L05A45-02S06	11.8	1.2	5.3	11.2	2.0	1.2	S06	9.3	MX KEY-S08	●
157L07A45-02S08	15.7	1.5	7.1	14.0	2.0	1.2	S08	11.5	MX KEY-S10	●

- Wrench should be ordered separately

●: Standard items

MAXIRUSH

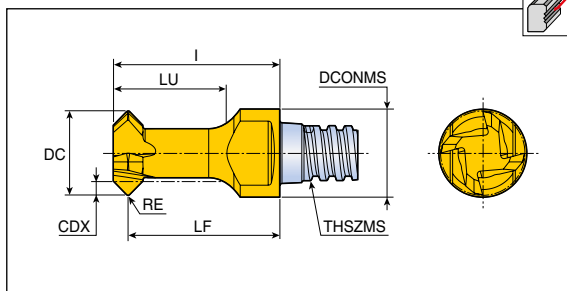


- ▶ Wrench should be ordered separately
- ▶ PRFRAD: Profile radius

●: Standard items

MXCS-04

4 flute, for chamfering



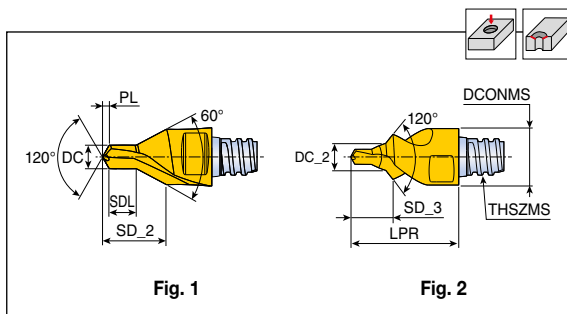
Designation	Dimension (mm)								Grade	
	DC	CDX	RE	LF	LU	I	THSZMS	DCONMS	TT5523	
MXCS 077L10A45-04S05	7.7	1.2	0.2	13.9	10.2	15.2	S05	8.0		●

► Wrench should be ordered separately

●: Standard items

MXDP-02

2 flute, for center drilling



Designation	Dimension (mm)										Grade	
	DC	DC2	SDL	SD_2	SD_3	LPR	THSZMS	DCONMS	PL	Fig	TT5523	
MXDP 107L01A30-02S04	1.07	-	1.32	4.14	-	10.0	S04	6.0	0.28	1	●	
165L02A30-02S04	1.65	-	1.97	4.45	-	10.0	S04	6.0	0.43	1	●	
207L02A30-02S04	2.07	-	2.36	6.37	-	10.0	S04	6.0	0.54	1	●	
328L04A30-02S05	3.28	-	3.75	8.76	-	15.0	S05	8.0	0.85	1	●	
412L05A30-02S06	4.12	-	4.83	11.05	-	19.0	S06	10.0	1.07	1	●	
513L07A30-02S08	5.13	-	5.88	13.23	-	23.0	S08	12.0	1.32	1	●	
646L08A30-02S10	6.46	-	7.25	17.18	-	28.0	S10	16.0	1.65	1	●	
MXDP 324L04B30-02S08	3.24	6.77	3.55	7.40	8.94	23.0	S08	12.0	0.83	2	●	
509L06B30-02S12	5.09	10.69	5.56	11.70	14.17	25.5	S12	18.5	1.33	2	●	
641L08B30-02S12	6.41	13.29	6.95	14.50	16.58	25.5	S12	20.0	1.68	2	●	

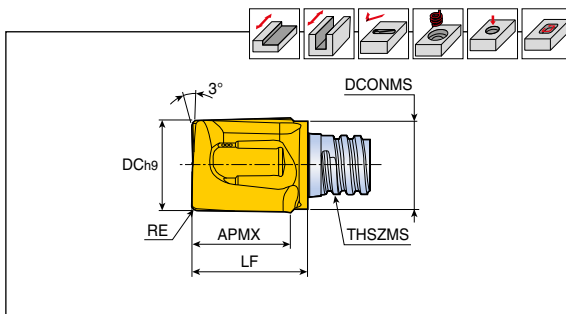
► Wrench should be ordered separately

●: Standard items

► SDL: Step diameter length

MXGC-02

2 flute, for drilling and milling



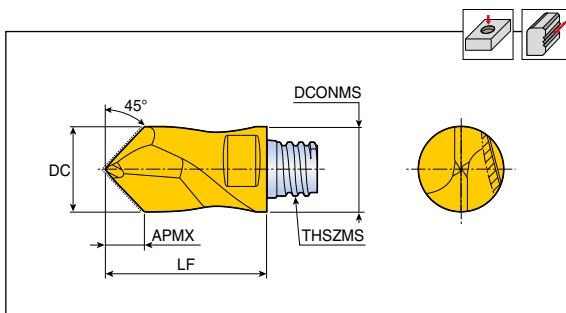
Designation	Feed (mm/tooth)	Dimension (mm)						Grade TT5523
		DC	RE	APMX	LF	THSZMS	DCONMS	
MXGC 080L08R04-02S05	0.03-0.09	8	0.4	7.7	10.0	S05	7.6	●
080L08R10-02S05	0.03-0.09	8	1.0	7.7	10.0	S05	7.6	●
100L09R04-02S06	0.03-0.10	10	0.4	9.0	12.4	S06	9.5	●
100L09R20-02S06	0.03-0.10	10	2.0	9.0	12.4	S06	9.5	●
120L10R04-02S08	0.04-0.11	12	0.4	10.0	14.2	S08	11.5	●
120L10R10-02S08	0.04-0.11	12	1.0	10.0	14.2	S08	11.5	●
120L10R20-02S08	0.04-0.11	12	2.0	10.0	14.2	S08	11.5	●
160L15R04-02S10	0.05-0.13	16	0.4	14.9	19.0	S10	15.2	●

► Wrench should be ordered separately

●: Standard items

MXDS-02

2 flute, for spot drill & chamfer



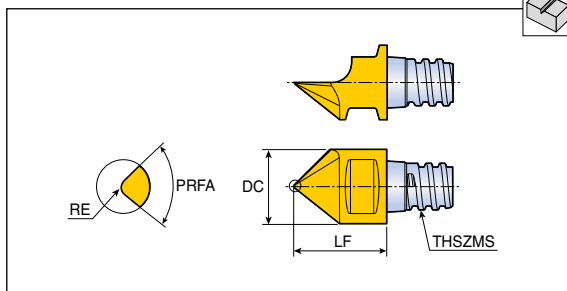
Designation	Dimension (mm)					Grade TT5523
	DC	APMX	LF	THSZMS	DCONMS	
MXDS 060A45-02S04	6	2.7	11.0	S04	5.7	●
080A45-02S05	8	3.7	15.0	S05	7.7	●
100A45-02S06	10	4.4	19.0	S06	9.7	●
120A45-02S08	12	5.4	23.0	S08	11.7	●
160A45-02S10	16	7.1	28.0	S10	15.3	●

► Wrench should be ordered separately

●: Standard items

MXEG-01

Single flute, for engraving



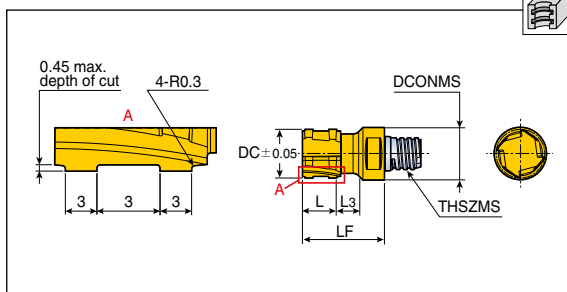
Designation	Dimension (mm)					Grade
	DC	RE	PRFA	LF	THSZMS	TT5523
MXEG 060A60-01S04	6	0.2	60	8.5	S04	●
080A30-01S05	8	0.2	30	10.0	S05	●
080A45-01S05	8	0.2	45	10.0	S05	●
080A60-01S05	8	0.2	60	10.0	S05	●
080A90-01S05	8	0.2	90	10.0	S05	●

► Wrench should be ordered separately

●: Standard items

MXDG-04

4 flute, internal grooving for heat exchanger tube sheets



Designation	Dimension (mm)							Key	Grade
	DC	L	L3	LF	THSZMS	DCONMS	D _{MIN}		TT5523
MXDG 155-04S10-8238	15.5	14.2	17.8	33.7	S10	16.0	15.88	MX KEY-S08	●
185-04S12-8239	18.5	14.5	18.3	34.5	S12	18.5	19.05	MX KEY-S10	●
245-04S15-8240	24.5	14.4	11.0	37.2	S15	23.8	25.40	MX KEY-S15	●

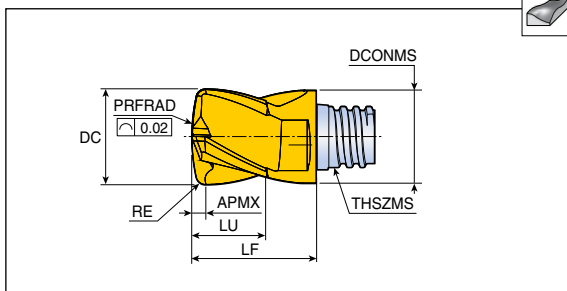
► Wrench should be ordered separately

●: Standard items

MXCSL



4 flute, lens shape for 5-axis profiling



Designation	Feed (mm/tooth)	Dimension (mm)								Grade
		DC	PRFRAD	RE	APMX	LU	LF	THSZMS	DCONMS	
MXCSL 4080R016-S05	0.02-0.08	8	16	0.5	0.9	5.5	10.0	S05	8	●
4100R020-S06	0.03-0.09	10	20	1.0	1.4	7.5	13.0	S06	10	●
4120R024-S08	0.03-0.10	12	24	1.0	1.6	9.0	16.5	S08	12	●
4160R032-S10	0.04-0.12	16	32	1.0	1.8	12.0	20.5	S10	16	●

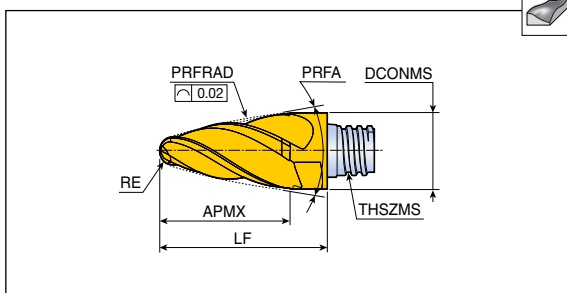
- ▶ Wrench should be ordered separately
- ▶ PRFRAD: Profile radius

●: Standard items

MXCSO



4 flute, oval shape for 5-axis profiling

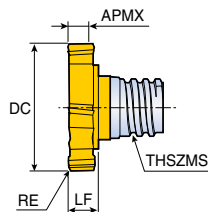
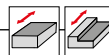


Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		PRFRAD	RE	APMX	LF	PRFA	THSZMS	DCONMS	
MXCSO 4080R080-S05	0.02-0.08	80	1.5	14.2	18.0	24	S05	8	●
4100R085-S06	0.03-0.09	85	2.0	16.5	22.0	24	S06	10	●
4120R075-S08	0.03-0.10	75	2.0	21.3	27.0	24	S08	12	●
4160R075-S10	0.04-0.12	75	3.0	27.0	33.4	24	S10	16	●

- ▶ Wrench should be ordered separately
- ▶ PRFRAD: Profile radius

●: Standard items

6 flute, for face milling

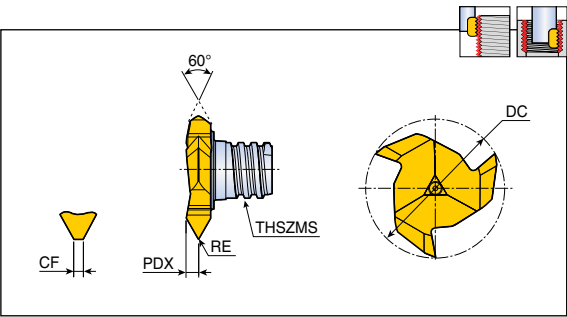


► Wrench should be ordered separately

TTRD-A60



3, 4 flute, ISO threading



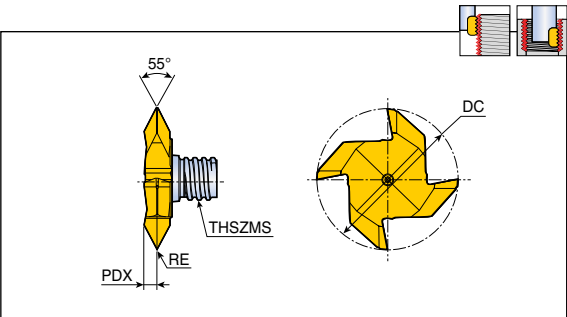
Designation	TP	Dimension (mm)								Grade
		DC	NOF	PDX	RE	CF	RANGE	THSZMS	TT5543	
TTRD 16A60-0.5P-3S06	0.5-2.0	15.7	3	1.4	-	0.05	M20	S06	●	
16A60-1.5P-3S06	1.5-2.0	15.7	3	1.4	0.05	-	M22	S06	●	
22A60-3.0P-4S08	3.0-4.5	21.7	4	2.4	0.20	-	M36	S08	●	

- ▶ Wrench should be ordered separately
- ▶ NOF: Number of flutes
- ▶ TP: Threads pitch
- : Standard items

TTRD-W55



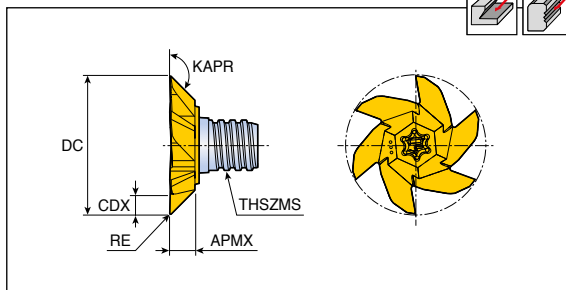
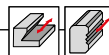
4 flute, BSW threading



Designation	TPI	Dimension (mm)					Grade
		DC	PDX	RE	RANGE	THSZMS	TT5543
TTRD 22W55-14P-4S08	14-11	21.7	2.0	0.2	3/4	S08	●

- ▶ Wrench should be ordered separately
- ▶ TPI: Threads per inch
- : Standard items

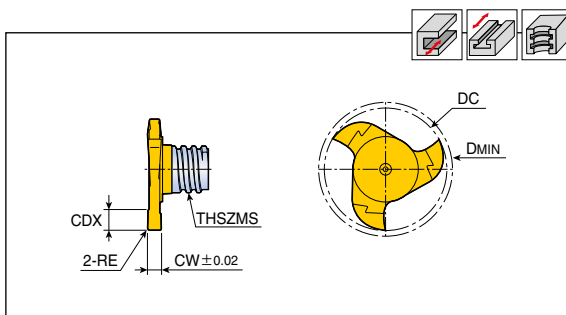
6 flute, dovetail



- ▶ Wrench should be ordered separately

●: Standard items

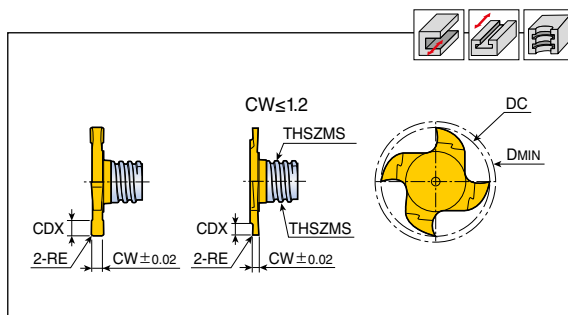
3 flute, for slotting



- ▶ Wrench should be ordered separately
- ▶ ⁽¹⁾ CW for circle clips according to DIN 471/472

●: Standard items

TST-4/6

[illegible]

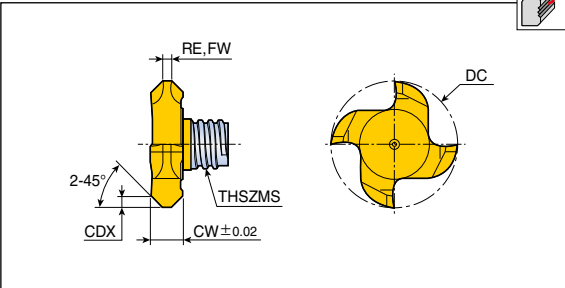
- ▶ Wrench should be ordered separately
- ▶ NOF: Number of flutes
- ▶ ⁽¹⁾ CW for circle clips according to DIN 471/472

●: Standard items

TST-A45



3-6 flute, for chamfering



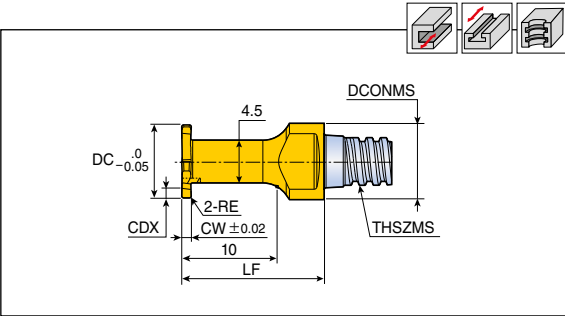
Designation	Feed (mm/tooth)	Dimension (mm)							Grade	
		DC	NOF	CW	CDX	RE	FW	THSZMS	TT5523	TT5543
TST 177L01.40A45-3S06	0.03-0.15	17.7	3	3.4	1.4	0.1	-	S06		●
217L01.70A45-4S08	0.03-0.17	21.7	4	5.5	1.7	-	1.5	S08		●
277L04.00A45-6S10	0.03-0.17	27.7	6	9.8	4.0	-	0.5	S10	●	

- ▶ Wrench should be ordered separately
- ▶ NOF: Number of flutes
- ▶ FW: Flat width
- : Standard items

TTB-04



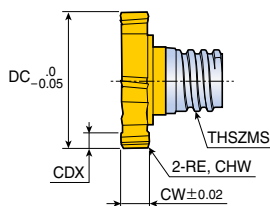
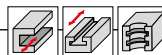
4 flute, for slotting



Designation	Feed (mm/tooth)	Dimension (mm)							Grade	
		DC	CW	CDX	RE	LF	THSZMS	DCONMS	TT5523	
TTB 077W1.0R02-04S05	0.02-0.08	7.7	1.0	1.2	0.2	15	S05	8.0		●
077W1.5R02-04S05	0.02-0.08	7.7	1.5	1.2	0.2	15	S05	8.0		●
077W2.0R02-04S05	0.02-0.08	7.7	2.0	1.2	0.2	15	S05	8.0		●

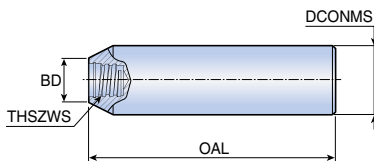
- ▶ Wrench should be ordered separately
- : Standard items

6 flute, for slotting

[illegible]

●: Standard items

High rigidity shank

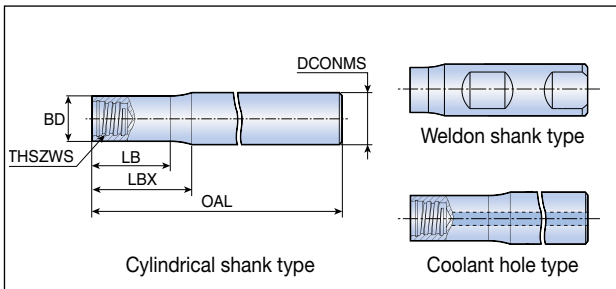
[illegible]

► THSZWS: Connection thread size

MXSSD-S

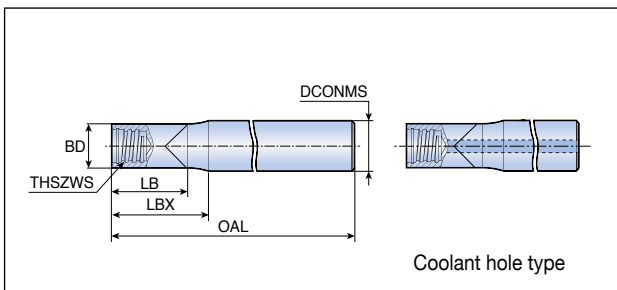


Steel shanks with step neck & internal coolant hole

[illegible]

- ▶ THSZWS: Connection thread size

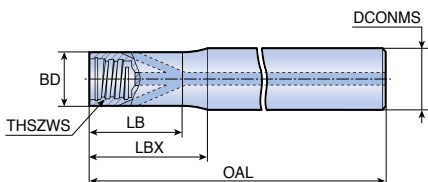
Carbide shanks with step neck & internal coolant hole



Designation	Dimension (mm)						Coolant hole	Shank material
	THSZWS	DCONMS	BD	OAL	LB	LBX		
MXSSD 08L070S05-C	S05	8	7.6	70	19	20	x	Carbide
08L090S05-C	S05	8	7.6	90	39	40	x	Carbide
08L110S05-C	S05	8	7.6	110	59	60	x	Carbide
10L070S06-C	S06	10	9.6	70	18.5	20	x	Carbide
10L090S06-C	S06	10	9.6	90	38.5	40	x	Carbide
10L110S06-C	S06	10	9.6	110	58.5	60	x	Carbide
10L150S06-C	S06	10	9.6	150	98.5	100	x	Carbide
12L070S08-C	S08	12	11.5	70	17	20	x	Carbide
12L070S08-C-A	S08	12	11.5	70	17	20	●	Carbide
12L090S08-C	S08	12	11.5	90	37	40	x	Carbide
12L090LS08-C-A	S08	12	11.5	90	37	40	●	Carbide
12L110S08-C	S08	12	11.5	110	57	60	x	Carbide
12L110S08-C-A	S08	12	11.5	110	57	60	●	Carbide
12L130S08-C	S08	12	11.5	130	77	80	x	Carbide
12L130S08-C-A	S08	12	11.5	130	77	80	●	Carbide
16L090S10-C	S10	16	15.2	90	38	40	x	Carbide
16L090S10-C-A	S10	16	15.2	90	38	40	●	Carbide
16L110S10-C	S10	16	15.2	110	58	60	x	Carbide
16L110S10-C-A	S10	16	15.2	110	58	60	●	Carbide
16L130S10-C	S10	16	15.2	130	78	80	x	Carbide
16L130S10-C-A	S10	16	15.2	130	78	80	●	Carbide
16L150S10-C	S10	16	15.2	150	98	100	x	Carbide
20L090S12-C	S12	20	18.3	90	37	40	x	Carbide
20L130S12-C	S12	20	18.3	130	77	80	x	Carbide
20L200S12-C	S12	20	18.3	200	117	120	x	Carbide
25L120S15-C	S15	25	23.9	120	58	60	x	Carbide
25L170S15-C	S15	25	23.9	170	98	100	x	Carbide
25L250S15-C	S15	25	23.9	250	148	150	x	Carbide

► THSZWS: Connection thread size

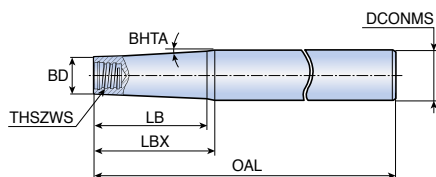
MAXIRUSH

[illegible]

► THSZWS: Connection thread size

MXTSD-S

Steel shanks with taper neck

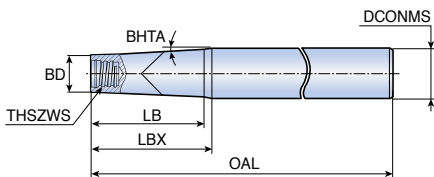


► THSZWS: Connection thread size

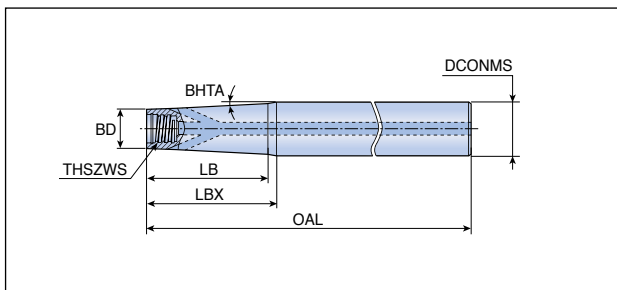
MXTSD-C



Carbide shanks with taper neck

[illegible]

- ▶ THSZWS: Connection thread size

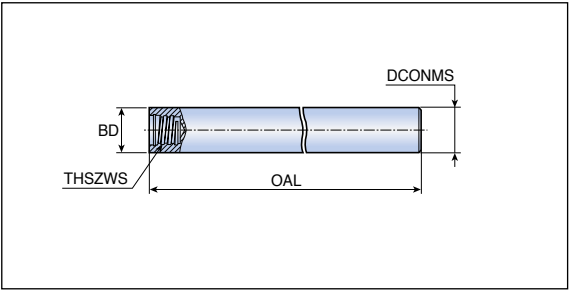
[illegible]

TaeguTec
Member INC Group

MXSTD-S



Straight steel shanks



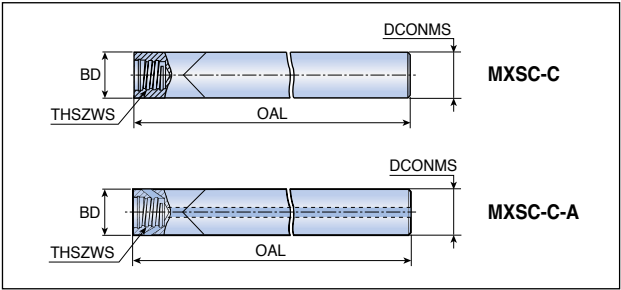
Designation	Dimension (mm)				Shank material
	THSZWS	DCONMS	BD	OAL	
MXSTD 06L070S04-S	S04	6	6	70	Steel
08L050S05-S	S05	8	8	50	Steel
08L070S05-S	S05	8	8	70	Steel
10L050S06-S	S06	10	10	50	Steel
10L080S06-S	S06	10	10	80	Steel
12L090S08-S	S08	12	12	90	Steel
16L100S10-S	S10	16	16	100	Steel

► THSZWS: Connection thread size

MXSC-C



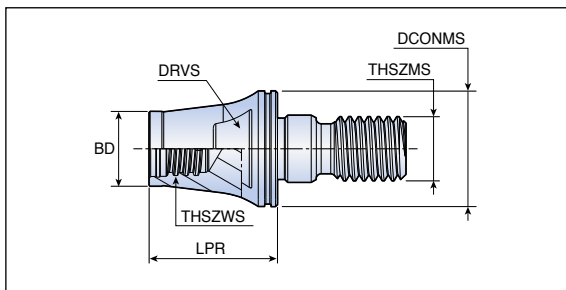
Straight carbide shanks



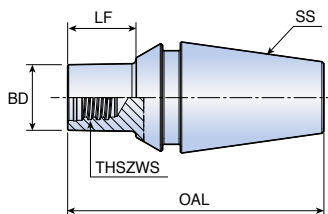
Designation	Dimension (mm)				Coolant hole	Shank material
	THSZWS	DCONMS	BD	OAL		
MXSC 100L100S06-C	S06	10	10	100	x	Carbide
120L100S08-C-A	S08	12	12	100	●	Carbide

► THSZWS: Connection thread size

Adapters for T-FLEXTEC

[illegible]

- ▶ THSZWS: Connection thread size
- ▶ DRVS: Clamping wrench size

[illegible]

► THSZWS: Connection thread size

Wrench

Appearance	Designation	Connection thread size	Torque (N.m)	Head
	MX KEY-S05	S04, S05	7	Square Ball Round Drilling Chamfering Counter boring
	MX KEY-S06	S06	10	
	MX KEY-S08	S08	15	
	MX KEY-S10	S10	28	
	MX KEY-S12	S12	28	
	MX KEY-S15	S15	40	
	MX SKEY-S06	S06	10	TST, TTRD
	MX SKEY-S08	S08	15	
	MX SKEY-T40L	S08	15	MXFM TDT TTB TST-6S10
		S10	28	
	MX SKEY-T20	S05	7	
		S06	10	
	MX SKEY-T25	S06	10	
	MX SKEY-T30L	S08	15	
	MX SKEY-T50L	S08	15	
		S10	28	

► Wrench should be ordered separately

Torque wrench

Appearance	Designation	Connection	Head designation	Torque (N.m)
Handle	 TORQUE WRENCH 5-50Nm 9x12	-	-	-
Open wrench for cylindrical head		MX WRENCH 6-05	MXED, MXEE MXES, MXRD MXBE, MXDP MXCA	7
		MX WRENCH 8-06		10
		MX WRENCH 10-08		15
		MX WRENCH 13-10		28
		MX WRENCH 16-12		28
		MX WRENCH 20-15		40
Open wrench for 2 flutes head		MX WRENCH 4E-05	MXRB, MXFX MXBB, MXCP MXGC, MXCW MXCR	7
		MX WRENCH 5E-06		10
		MX WRENCH 7E-08		15
		MX WRENCH 8E-10		28
		MX WRENCH 9E-12		28
90° adapter for torx bit		INSERT TOOL 9x12mm	-	-
Torx bit socket		BIT SOCKET T20 DRIVE	TTB TST277	7, 10
		BIT SOCKET T25 DRIVE		10
		BIT SOCKET T30 DRIVE		15
		BIT SOCKET T40 DRIVE		15, 28
		BIT SOCKET T50 DRIVE		15, 28

► Wrench should be ordered separately

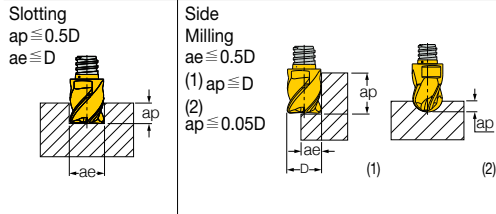
Recommended Cutting Conditions



Machining data for MAXI-RUSH

fz for Square & Round heads

(mm/tooth)



D (mm)	fz (mm/tooth)	D (mm)	fz (mm/tooth)
6	0.027-0.05	6	0.027-0.06
8	0.032-0.07	8	0.032-0.08
10	0.034-0.08	10	0.034-0.09
12	0.036-0.10	12	0.036-0.11
16	0.050-0.12	16	0.05 - 0.13
20	0.052-0.14	20	0.052-0.15
25	0.062-0.15	25	0.062-0.17

fz for Slotting heads

(mm/tooth)

ISO		
P	0.025-0.12	0.035-0.15
M	0.025-0.10	0.025-0.12
K	0.025-0.15	0.035-0.17
Thread Size	Key	Clamping Torque (N.m)
S04, S05	MX KEY-S05	7
S06	MX KEY-S06	10
S08	MX KEY-S08	15
S10	MX KEY-S10	28
S12	MX KEY-S12	28
S15	MX KEY-S15	40

Recommended Cutting Speed

ISO	Material No.	Hardness HB	Vc m/min
P	1	125	220-240
	2	190	170-200
	3-6	200	140-160
	7-8	300	110-130
	9-11	200	100-130
M	12-13	240	90-150
	14	180	70-100
K	15	180	70-240
	16	260	110-220
	17	170	130-250
	19	130	130-230
	20	230	100-200
N	21-24	90	600-700
S	33-35	350	10-20
	36-37	-	30-50
H	38	HRC55	30-40
	39	HRC60	25-30

High feed milling - MXFX Only

ISO	Material No.	Depth of cut (ap)	Width of cut (ae)	fz (mm/tooth) vs. Tool Diameter D(mm)						
				Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	
P	1	0.045xD	0.7xD	0.50	0.60	0.70	0.80	0.95	1.05	
	2	0.045xD	0.7xD	0.50	0.60	0.70	0.80	0.95	1.05	
	3	0.045xD	0.7xD	0.50	0.60	0.70	0.80	0.95	1.05	
	4	0.045xD	0.7xD	0.50	0.60	0.70	0.80	0.95	1.05	
	5	0.045xD	0.7xD	0.45	0.55	0.60	0.70	0.80	0.90	
	6	0.045xD	0.7xD	0.35	0.45	0.50	0.60	0.70	0.80	
	7	0.045xD	0.7xD	0.35	0.45	0.50	0.60	0.70	0.80	
	8	0.045xD	0.7xD	0.35	0.40	0.45	0.55	0.65	0.75	
	9	0.045xD	0.7xD	0.35	0.40	0.45	0.55	0.65	0.75	
	10	0.04xD	0.6xD	0.30	0.35	0.40	0.50	0.6	0.70	
	11	0.04xD	0.6xD	0.30	0.35	0.40	0.45	0.55	0.65	
M	12-14	0.04xD	0.6xD	0.35	0.40	0.45	0.55	0.65	0.75	
K	15-16	Apmax	0.7xD	0.50	0.55	0.65	0.75	0.85	0.95	
	17-20	Apmax	0.7xD	0.40	0.50	0.55	0.65	0.75	0.85	
H	38.1	0.035xD	0.45xD	0.25	0.30	0.35	0.45	0.50	0.60	
	38.2	0.03xD	0.3xD	0.20	0.25	0.35	0.40	0.50	0.55	
	39	0.02xD	0.25xD	0.15	0.20	0.20	0.25	0.25	0.30	

Solid End Mill Line



Designation System

SLIKSOLID

UHP **4** **100** x **25** x **72** **R0.5**
1 **2** **3** **4** **5** **6**

1 End mill type

UHP Flat



UHP_R Corner radius



2 No. of flute

4 4 Flutes



6 6 Flutes



3 Cutting diameter

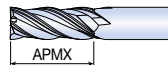
100 10.0 mm

DC

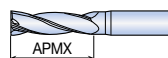


4 Length of cut

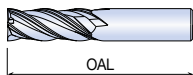
6 6 mm



40 40 mm



5 Tool length



6 Corner radius

-R□□ Corner radius

RE



Designation System



SBE 2 010 S - * * *

1 2 3 4 5/5*

1 End mill type

HSB/SBT/DEB	Ball nose	
SED	Flat	
DER	Corner radius	
SCSO/SCST	Taper	

2 No. of flute

2 2 Flutes	
4 4 Flutes	
6 6 Flutes	

3 Cutting diameter

010	1.0 mm	
100	10.0 mm	

4 Overall length

S	Short length	
M	Medium length	
L	Long length	
XL	Extra long length	

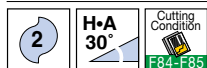
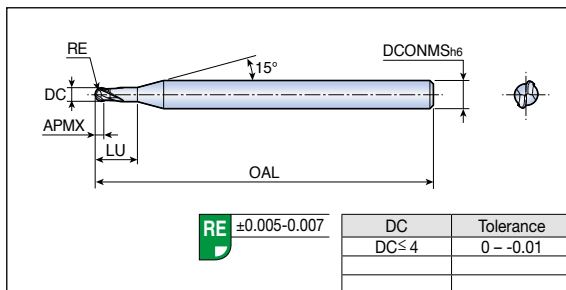
5 Others

-□	Shank diameter
-R□□	Corner radius

5* Length of cut

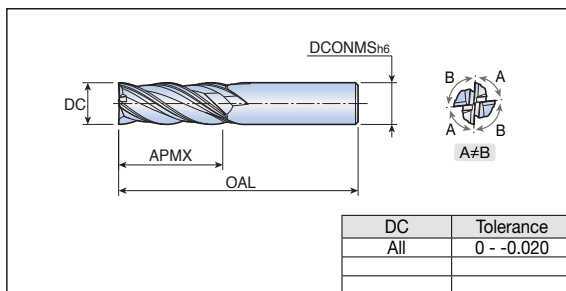
SCSO / SCST type	
24	24 mm

2 flute CBN ball

[illegible]

●: Standard items

4 flute medium flat

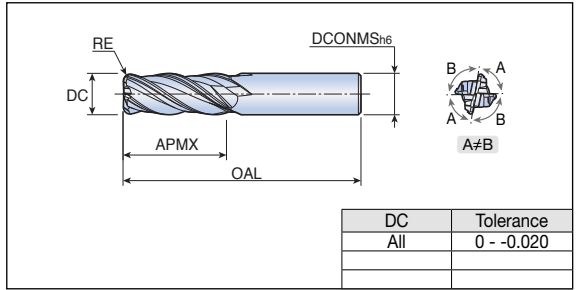


●: Standard items

UHP 4...R

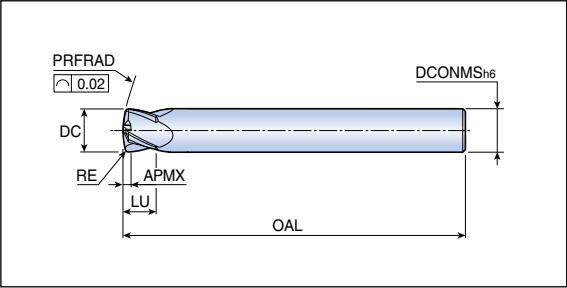
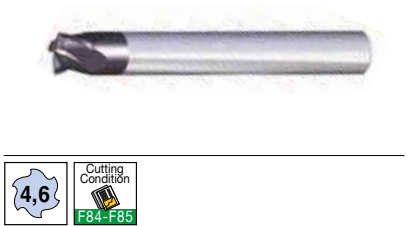


4 flute medium corner radius

[illegible]

●: Standard items

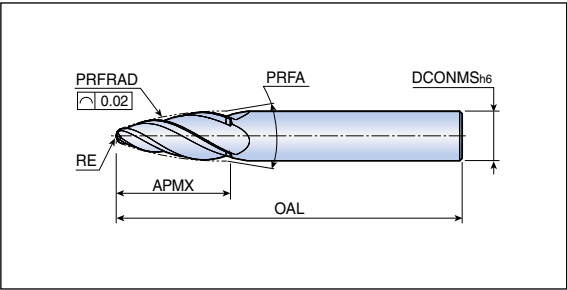
4, 6 flute, lens shape for 5-axis profiling



Designation	Feed (mm/tooth)	Dimension (mm)								Grade TT5515
		DC	NOF	PRFRAD	RE	APMX	LU	DCONMS	OAL	
SCSL 4080R015X05	0.02-0.08	8	4	15	0.75	1.1	5.0	8	63	●
6100R020X07	0.03-0.09	10	6	20	1.0	1.4	7.0	10	72	●
6120R025X09	0.03-0.10	12	6	25	1.0	1.5	9.0	12	83	●

► PRFRAD: Profile radius ●: Standard items

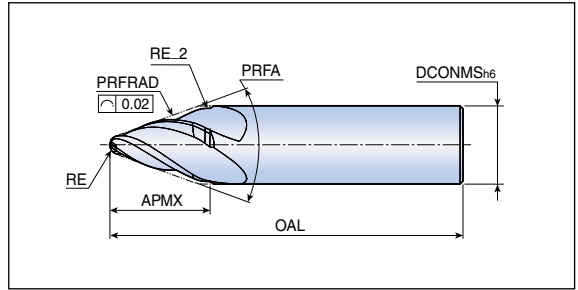
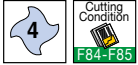
4 flute, oval shape for 5-axis profiling



Designation	Feed (mm/tooth)	Dimension (mm)						Grade TT5515
		PRFRAD	RE	APMX	PRFA	DCONMS	OAL	
SCSO 4080R090X24	0.02-0.08	90	1.0	24.8	14.9	8	63	●
4100R085X26	0.03-0.09	85	2.0	26.6	15.5	10	72	●
4120R080X27	0.03-0.10	80	2.0	27.1	18.4	12	83	●

► PRFRAD: Profile radius ●: Standard items

4 flute, tapered oval shape for 5-axis profiling

[illegible]

- ▶ PRFRAD: Profile radius

●: Standard items

5 flute, 45° chamfering



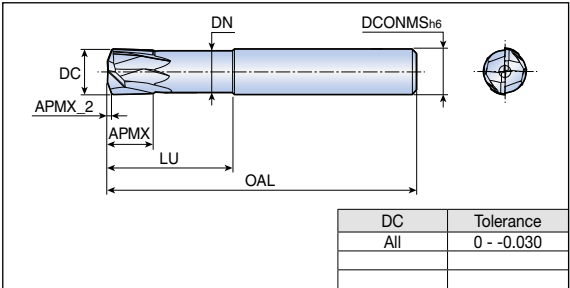
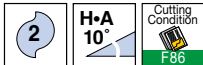
●: Standard items

HFM 2

2 flute high feed flat



- High Feed Machining (H.F.M)



Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	OAL	APMX	APMX_2*	LU	DN	DCONMS	
HFM 2040	0.2-0.4	4	47	4	0.3	10	3.9	6	●
2060	0.3-0.6	6	52	6	0.5	16	5.5	6	●
2080	0.4-0.7	8	60	8	0.75	22	7.3	8	●
2100	0.5-0.9	10	68	10	1.0	28	9.2	10	●
2120	0.5-1.0	12	76	12	1.1	33	11.0	12	●

► *: Maximum D.O.C for high feed milling

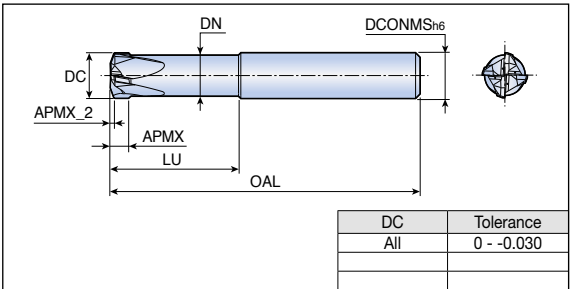
●: Standard items

HFM 4

4 flute high feed flat



- High Feed Machining (H.F.M)



Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	OAL	APMX	APMX_2*	LU	DN	DCONMS	
HFM 4060	0.3-0.5	6	52	2.5	0.5	16	5.4	6	●
4080	0.3-0.6	8	60	3.5	0.7	24	7.2	8	●
4100	0.4-0.8	10	68	4.0	0.75	28	9.2	10	●
4120	0.4-1.0	12	76	5.0	1.05	33	11.0	12	●

► *: Maximum D.O.C for high feed milling

●: Standard items

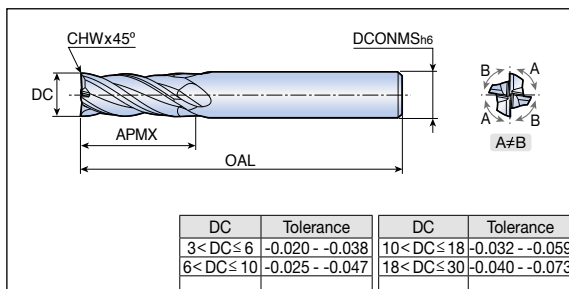
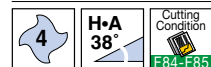
CFM 4...M

VFMILL APEX MILL

4 flute corner chamfer



- Vibration free mill



Designation	Feed (mm/tooth)	Dimension (mm)					Grade
		DC	CHW	OAL	APMX	DCONMS	
CFM 4060M	0.03-0.07	6	0.25	57	14	6	●
4080M	0.03-0.08	8	0.3	63	18	8	●
4100M	0.03-0.10	10	0.4	72	22	10	●
4120M	0.04-0.11	12	0.5	83	26	12	●
4160M	0.05-0.13	16	0.6	100	34	16	●
4200M	0.05-0.17	20	0.6	110	42	20	●
4250M	0.06-0.20	25	0.6	121	52	25	●

- : Standard items

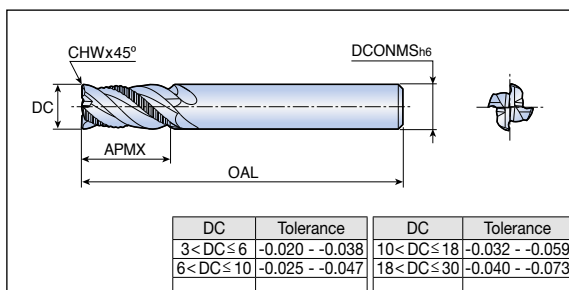
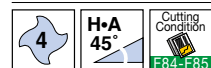
FSM 4...M

MULTIMILL APEX MILL

4 flute medium corner chamfer



- MULTIMILL (Rough + Finish)



Designation	Feed (mm/tooth)	Dimension (mm)					Grade
		DC	CHW	OAL	APMX	DCONMS	
FSM 4060M	0.03-0.06	6	0.25	57	14	6	●
4080M	0.03-0.08	8	0.3	63	18	8	●
4100M	0.03-0.09	10	0.3	72	22	10	●
4120M	0.04-0.11	12	0.4	83	26	12	●
4140M	0.04-0.11	14	0.4	83	30	14	●
4160M	0.05-0.11	16	0.6	92	34	16	●
4200M	0.05-0.11	20	0.6	104	42	20	●
4250M	0.06-0.11	25	0.6	121	52	25	●

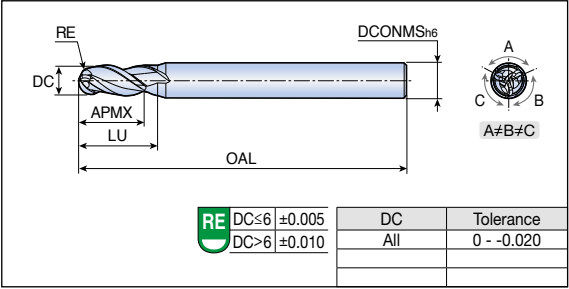
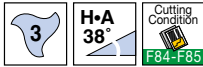
- : Standard items

SBT 3...U

3 flute medium ball



- Excellent chatter damping due to unequal spacing of cutting edges



Designation	Dimension (mm)						Grade
	DC	RE	OAL	APMX	LU	DCONMS	TT5515
SBT 3040U	4	2	70	8	10	6	●
3060U	6	3	80	12	-	6	●
3080U	8	4	90	16	-	8	●
3100U	10	5	100	20	-	10	●
3120U	12	6	110	25	-	12	●

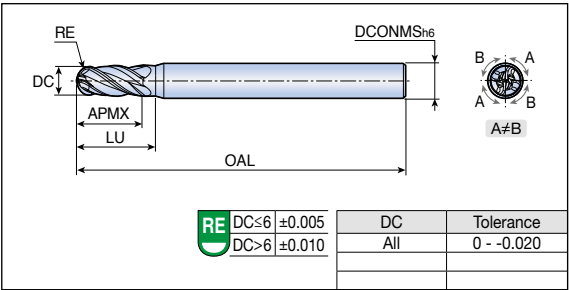
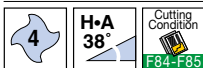
●: Standard items

SBT 4...U

4 flute medium ball



- Excellent chatter damping due to unequal spacing of cutting edges



Designation	Dimension (mm)						Grade
	DC	RE	OAL	APMX	LU	DCONMS	TT5515
SBT 4040U	4	2	70	8	10	6	●
4060U	6	3	80	12	-	6	●
4080U	8	4	90	16	-	8	●
4100U	10	5	100	20	-	10	●
4120U	12	6	110	25	-	12	●

●: Standard items

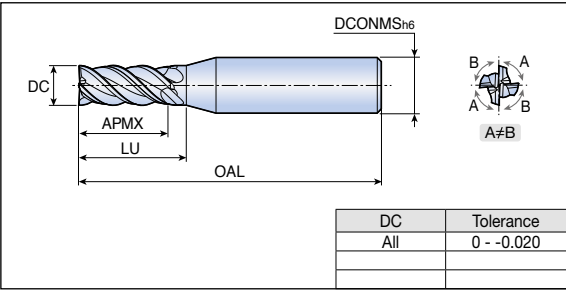
SED 4...U



4 flute medium flat



- Excellent chatter damping credit to unequal spacing of cutting edges



Designation	Feed (mm/tooth)	Dimension (mm)					Grade TT5515
		DC	OAL	APMX	LU	DCONMS	
SED 4030U	0.015-0.030	3	57	10	12	6	●
4040U	0.020-0.040	4	57	12	14	6	●
4050U	0.020-0.040	5	57	15	16	6	●
4060U	0.025-0.070	6	57	15	-	6	●
4080U	0.030-0.090	8	70	25	-	8	●
4100U	0.030-0.100	10	72	25	-	10	●
4120U	0.035-0.110	12	83	30	-	12	●
4160U	0.050-0.130	16	100	42	-	16	●
4200U	0.050-0.170	20	104	48	-	20	●

●: Standard items

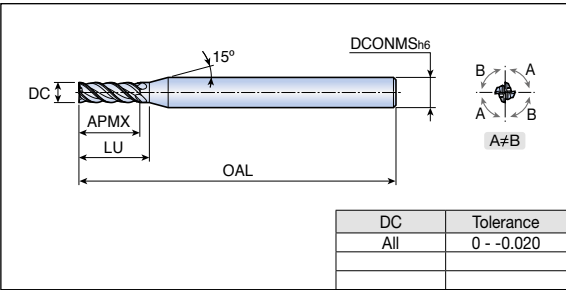
SED 4...UL



4 flute long flat



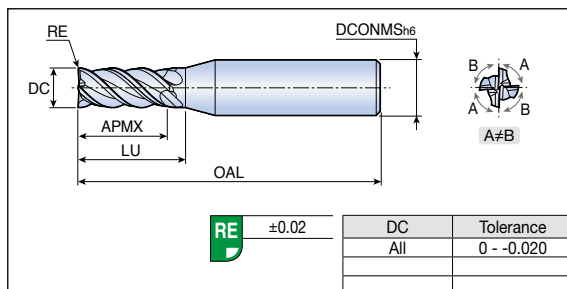
- Excellent chatter damping credit to unequal spacing of cutting edges



Designation	Feed (mm/tooth)	Dimension (mm)					Grade TT5515
		DC	OAL	APMX	LU	DCONMS	
SED 4030UL	0.015-0.030	3	63	10	12	6	●
4040UL	0.020-0.040	4	63	12	14	6	●
4060UL	0.025-0.070	6	65	20	-	6	●
4080UL	0.030-0.090	8	83	30	-	8	●
4100UL	0.030-0.100	10	83	35	-	10	●
4120UL	0.035-0.110	12	92	40	-	12	●

●: Standard items

-

[illegible]

●: Standard items

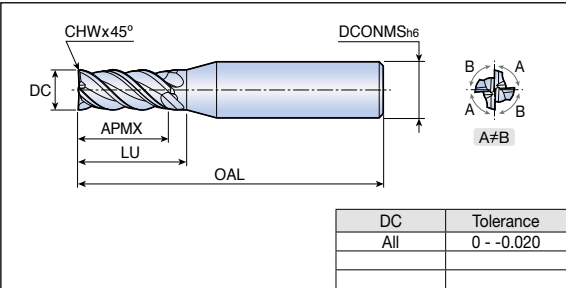
SED 4...-C



4 flute medium corner chamfer



- Excellent chatter damping credit to unequal spacing of cutting edges



Designation	Feed (mm/tooth)	Dimension (mm)						Grade TT5515
		DC	CHW	OAL	APMX	LU	DCONMS	
SED 4040U-C0.1	0.020-0.040	4	0.1	57	12	14	6	●
4060U-C0.2	0.030-0.060	6	0.2	57	15	-	6	●
4080U-C0.3	0.030-0.090	8	0.3	70	25	-	8	●
4100U-C0.3	0.030-0.100	10	0.3	72	25	-	10	●
4120U-C0.4	0.035-0.110	12	0.4	83	30	-	12	●

●: Standard items

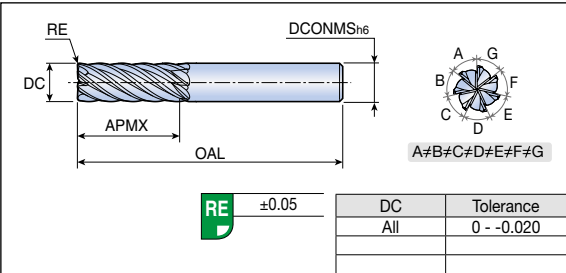
SED 7



7 flute medium corner radius



- Excellent chatter damping credit to unequal spacing of cutting edges
- For trochoidal operation



Designation	Feed (mm/tooth)	Dimension (mm)					Grade TT5515
		DC	RE	OAL	APMX	DCONMS	
SED 7060	0.02-0.04	6	0.5	57	15	6	●
7060-4D	0.02-0.04	6	0.5	70	24	6	●
7080	0.02-0.05	8	0.5	70	25	8	●
7080-4D	0.02-0.05	8	0.5	90	32	8	●
7100	0.03-0.07	10	0.5	72	25	10	●
7100-4D	0.03-0.07	10	0.5	100	40	10	●
7120	0.03-0.09	12	0.5	83	30	12	●
7120-4D	0.03-0.09	12	0.5	110	48	12	●
7140	0.04-0.10	14	0.5	90	35	14	●
7160	0.04-0.11	16	0.5	100	42	16	●
7160-4D	0.04-0.11	16	0.5	125	64	16	●
7200	0.05-0.12	20	0.5	104	48	20	●
7200-4D	0.05-0.12	20	0.5	150	80	20	●

► 4D: 4xD depth of cut

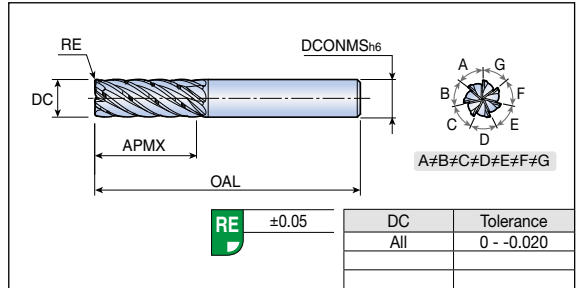
●: Standard items

STARMILL

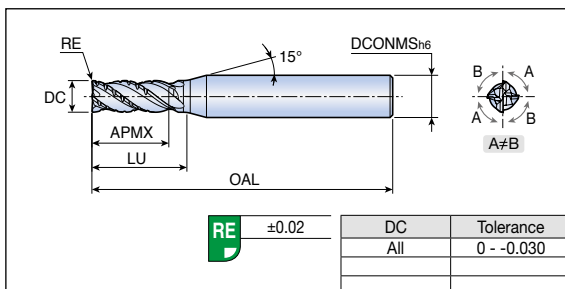
- 

Cutting Condition

F84-F85

[illegible]

●: Standard items

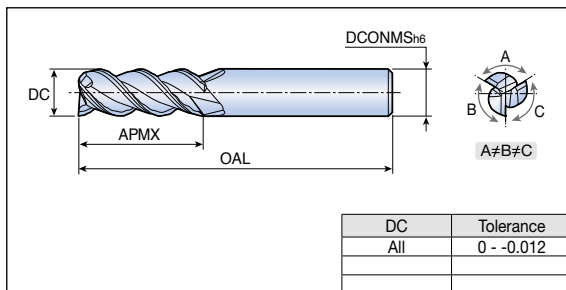
[illegible]

AWE 3

3 flute wave flat



- Wave cutting edge



Designation	Feed (mm/tooth)	Dimension (mm)				Grade
		DC	OAL	APMX	DCONMS	
AWE 3060	0.03-0.07	6	52	14	6	●
3080	0.03-0.09	8	60	14	8	●
3100	0.03-0.10	10	68	19	10	●
3120	0.03-0.12	12	76	22	12	●
3140	0.05-0.14	14	85	24	14	●
3160	0.05-0.14	16	90	30	16	●
3180	0.05-0.15	18	110	34	18	●
3200	0.05-0.15	20	110	38	20	●

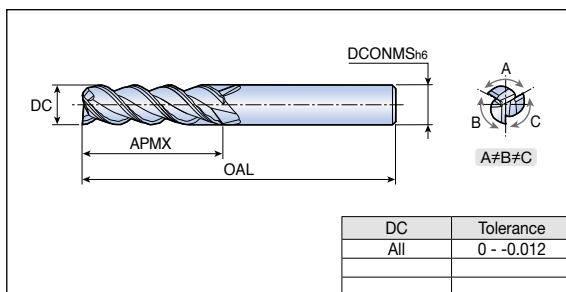
●: Standard items

AWE 3...ML

3 flute wave long flat



- Wave cutting edge



Designation	Feed (mm/tooth)	Dimension (mm)				Grade
		DC	OAL	APMX	DCONMS	
AWE 3060ML	0.03-0.07	6	65	20	6	●
3080ML	0.03-0.09	8	75	20	8	●
3100ML	0.03-0.10	10	80	25	10	●
3120ML	0.03-0.12	12	95	30	12	●
3140ML	0.03-0.12	14	110	35	14	●
3160ML	0.05-0.14	16	110	40	16	●
3180ML	0.05-0.15	18	125	45	18	●
3200ML	0.05-0.15	20	125	45	20	●

●: Standard items

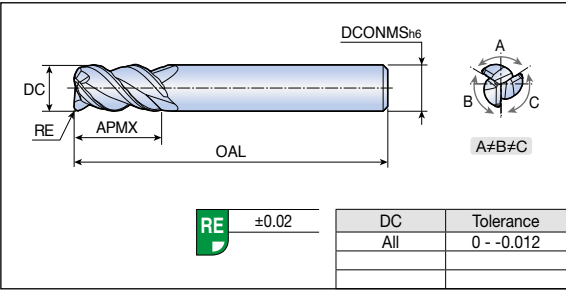
AWE 3...ML-R



3 flute wave long corner radius



- Wave cutting edge



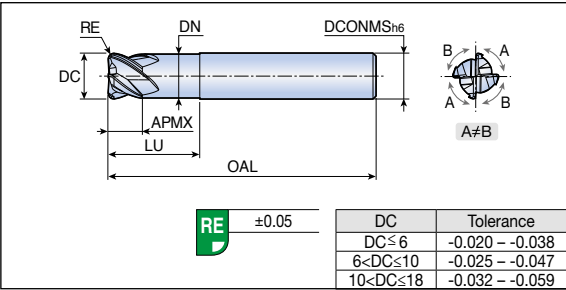
Designation	Feed (mm/tooth)	Dimension (mm)				Grade UF10
		DC	OAL	APMX	DCONMS	
AWE 3060ML-R0.5	0.03-0.07	6	65	20	6	●
3080ML-R0.5	0.03-0.09	8	75	20	8	●
3100ML-R1.0	0.03-0.10	10	80	25	10	●
3120ML-R1.0	0.03-0.12	12	95	30	12	●

●: Standard items

CRF 4



4 flute, Ceramic end mills

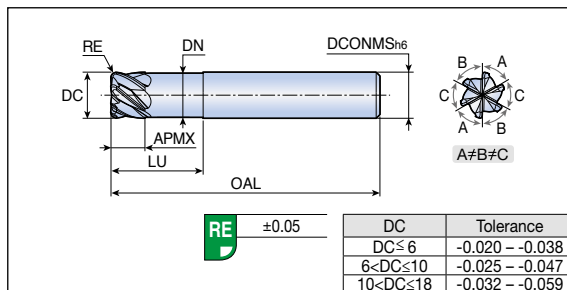


Designation	Feed (mm/tooth)	Dimension (mm)							Grade TC3030
		DC	RE	OAL	APMX	LU	DN	DCONMS	
CRF 4060 050 120	0.02-0.03	6	0.5	50	4.5	12	5.8	6	●
4080 100 160	0.02-0.03	8	1.0	57	6.0	16	7.7	8	●
4100 100 200	0.02-0.04	10	1.0	63	7.5	20	9.6	10	●
4120 150 240	0.03-0.05	12	1.5	70	9.0	24	11.5	12	●
4160 200 320	0.03-0.05	16	2.0	83	12.0	32	15.5	16	●

●: Standard items

CRF 6

6 flute, Ceramic end mills

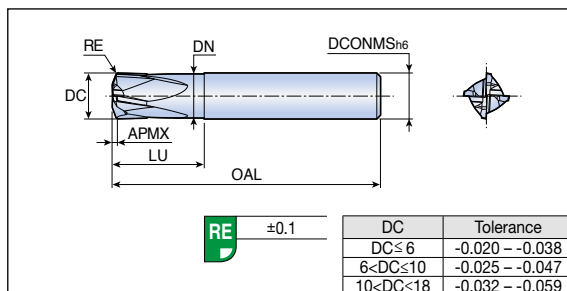


Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
CRF 6060 050 120	0.02-0.03	6	0.5	50	4.5	12	5.8	6	●
6080 100 160	0.02-0.03	8	1.0	57	6.0	16	7.7	8	●
6100 100 200	0.02-0.04	10	1.0	63	7.5	20	9.6	10	●
6120 150 240	0.03-0.05	12	1.5	70	9.0	24	11.5	12	●
6160 200 320	0.03-0.05	16	2.0	83	12.0	32	15.5	16	●

●: Standard items

CRH 4

4 flute, Ceramic end mills for high feed milling



Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
CRH 4060	0.1-0.15	6	0.7	50	0.55	12	5.8	6	●
4080	0.1-0.2	8	0.9	57	0.75	16	7.7	8	●
4100	0.1-0.2	10	1.0	63	0.85	20	9.6	10	●
4120	0.1-0.3	12	1.4	70	1.15	24	11.5	12	●
4160	0.1-0.3	16	1.8	83	1.55	32	15.5	16	●

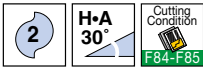
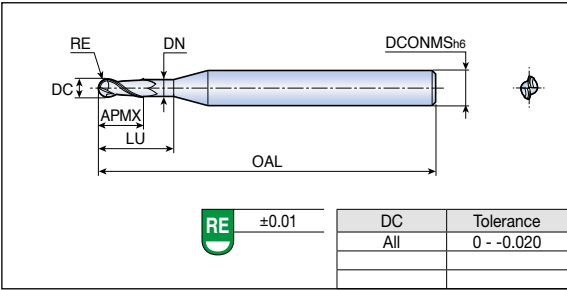
► RE: Program corner R

●: Standard items

DMB 2



2 flute miniature ball



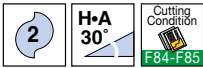
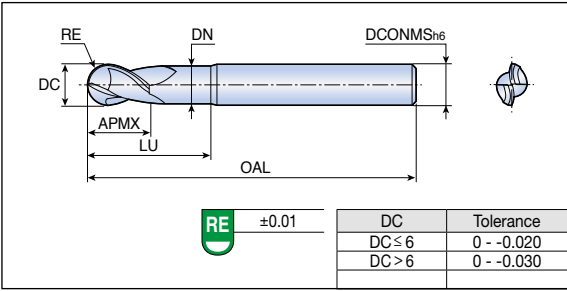
Designation	Dimension (mm)							Grade
	DC	RE	OAL	APMX	LU	DN	DCONMS	TTD620
DMB 2006-0.6x3.0	0.6	0.3	40	0.6	3.0	0.55	3	●
2010-1.0x5.0	1.0	0.5	40	1.0	5.0	0.95	3	●
2010-1.0x8.5	1.0	0.5	40	1.0	8.5	0.95	3	●
2015-1.5x7.5	1.5	0.75	50	1.5	7.5	1.4	3	●
2015-1.5x12.0	1.5	0.75	50	1.5	12.0	1.4	3	●
2020-2.2x10.0	2.0	1.0	60	2.2	10.0	1.9	3	●
2020-2.2x16.0	2.0	1.0	60	2.2	16.0	1.9	3	●

●: Standard items

DEB 2...S



2 flute short ball

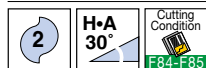
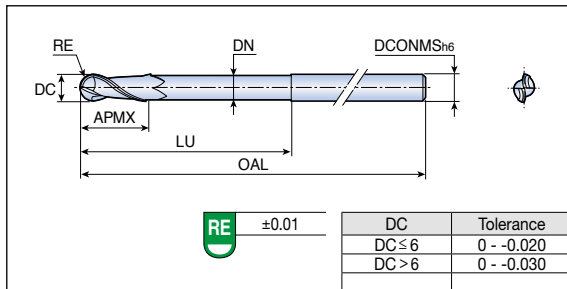


Designation	Dimension (mm)							Grade
	DC	RE	OAL	APMX	LU	DN	DCONMS	TTD620
DEB 2030S	3	1.5	60	4.5	6.5	2.8	6	●
2040S	4	2.0	65	6.0	8.0	3.7	6	●
2060S	6	3.0	75	9.0	12.0	5.6	6	●
2120S	12	6.0	90	18.0	36.0	11.4	12	●

●: Standard items

DEB 2...L

2 flute long neck ball

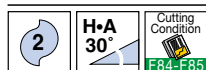
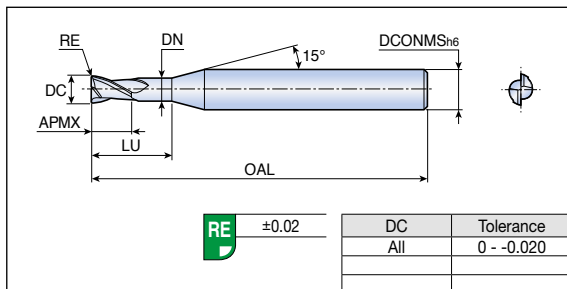


Designation	Dimension (mm)							Grade
	DC	RE	OAL	APMX	LU	DN	DCONMS	
DEB 2030L-4	3	1.5	80	15	25	2.9	4	●
2040L-4	4	2.0	80	20	30	3.9	4	●
2050L	5	2.5	100	30	50	4.9	6	●
2060L	6	3.0	100	30	50	5.5	6	●
2080L	8	4.0	110	40	60	7.5	8	●
2120L	12	6.0	130	55	75	11.5	12	●

●: Standard items

DMR 2

2 flute miniature corner radius

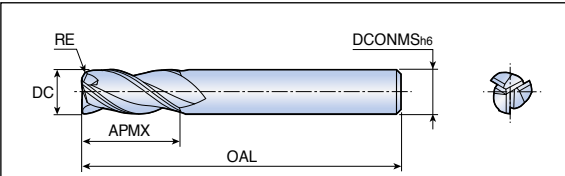


Designation	Feed (mm/tooth)	Dimension (mm)							Grade
		DC	RE	OAL	APMX	LU	DN	DCONMS	
DMR 2006-0.9x3.0	0.006-0.010	0.6	0.05	40	0.9	3.0	0.55	3	●
2008-1.2x4.0	0.008-0.015	0.8	0.05	40	1.2	4.0	0.75	3	●
2010-1.5x5.0	0.010-0.020	1.0	0.1	40	1.5	5.0	0.95	3	●
2010-1.5x8.5	0.010-0.020	1.0	0.1	40	1.5	8.5	0.95	3	●
2012-1.8x6.0	0.010-0.025	1.2	0.1	50	1.8	6.0	1.15	3	●
2015-2.2x7.5	0.015-0.035	1.5	0.15	50	2.2	7.5	1.4	3	●
2015-2.2x12.0	0.015-0.030	1.5	0.15	50	2.2	12.0	1.4	3	●
2020-2.2x10.0	0.015-0.040	2.0	0.15	60	2.2	10.0	1.9	3	●
2020-2.2x16.0	0.015-0.035	2.0	0.15	60	2.2	16.0	1.9	3	●

●: Standard items

3 flute short corner radius







RE ±0.02

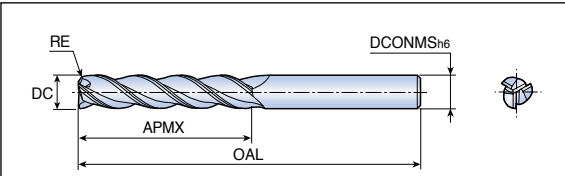
DC	Tolerance
DC ≤ 6	0 - -0.020
DC > 6	0 - -0.030

Designation	Feed (mm/tooth)	Dimension (mm)					Grade
		DC	RE	OAL	APMX	DCONMS	TTD620
DER 3030S-3	0.025-0.050	3	0.15	40	12	3	●
3040S-4	0.040-0.060	4	0.2	50	14	4	●
3050S-5	0.050-0.080	5	0.3	50	16	5	●
3060S	0.060-0.090	6	0.3	65	20	6	●
3080S	0.070-0.100	8	0.5	65	20	8	●
3100S	0.080-0.130	10	0.5	75	25	10	●
3120S	0.100-0.150	12	0.5	75	25	12	●

●: Standard items

3 flute long corner radius







RE ±0.02

DC	Tolerance
DC ≤ 6	0 - -0.020
DC > 6	0 - -0.030

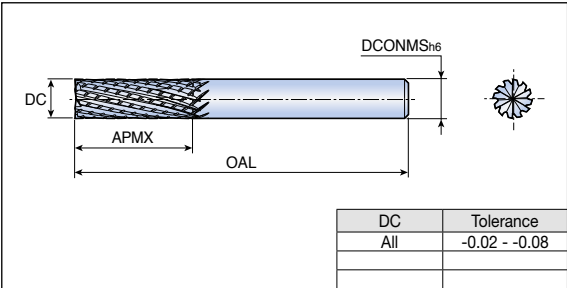
Designation	Feed (mm/tooth)	Dimension (mm)					Grade
		DC	RE	OAL	APMX	DCONMS	TTD620
DER 3040L-4	0.03-0.05	4	0.2	60	30	4	●
3050L-5	0.04-0.07	5	0.3	70	35	5	●
3060L	0.05-0.08	6	0.3	100	40	6	●
3080L	0.06-0.09	8	0.5	100	40	8	●
3100L	0.07-0.12	10	0.5	100	40	10	●
3120L	0.09-0.14	12	0.5	100	45	12	●

●: Standard items

RRFE



Roughing for composite material (Chip splitter)



DC	Tolerance
All	-0.02 - -0.08

Designation	Feed (mm/tooth)	Dimension (mm)					Grade
		DC	NOF	OAL	APMX	DCONMS	TTD610
RRFE 040	0.01-0.02	4	6	50	12	4	●
060	0.01-0.02	6	8	65	18	6	●
080	0.01-0.03	8	10	75	24	8	●
100	0.02-0.04	10	12	85	30	10	●
120	0.02-0.05	12	12	100	36	12	●

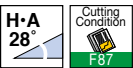
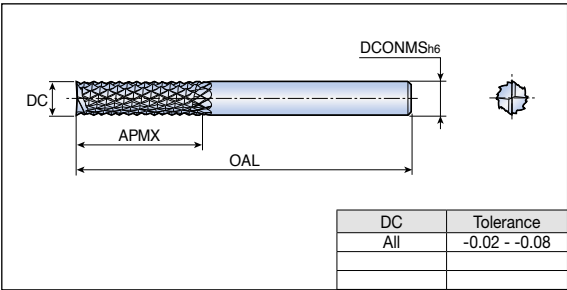
► NOF: Number of flutes

●: Standard items

RCFE



Roughing for composite material (Multi-flute)



DC	Tolerance
All	-0.02 - -0.08

Designation	Feed (mm/rev)	Dimension (mm)				Grade
		DC	OAL	APMX	DCONMS	TTD610
RCFE 040	0.03-0.06	4	50	12	4	●
060	0.07-0.15	6	65	18	6	●
080	0.10-0.20	8	75	24	8	●
100	0.15-0.30	10	85	30	10	●
120	0.20-0.40	12	100	36	12	●

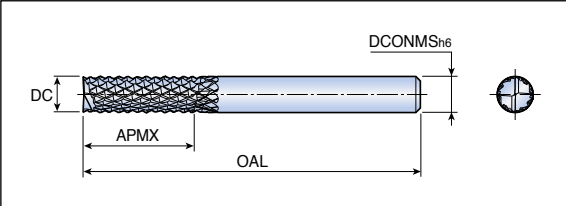
●: Standard items

RCME



Medium to finishing for composite materials (Multi-flute)





DC	Tolerance
All	-0.02 - -0.08



Designation	Feed (mm/rev)	Dimension (mm)				Grade
		DC	OAL	APMX	DCONMS	TTD610
RCME 040	0.03-0.06	4	50	12	4	●
060	0.07-0.15	6	65	18	6	●
080	0.10-0.20	8	75	24	8	●
100	0.15-0.30	10	85	30	10	●
120	0.20-0.40	12	100	36	12	●

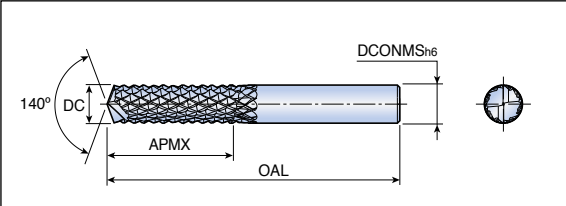
●: Standard items

RCDE



Medium to finishing for composite materials (Cutting edge for drilling + multi-flute)



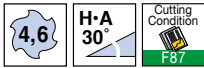


DC	Tolerance
All	-0.02 - -0.08



Designation	Feed (mm/rev)	Dimension (mm)				Grade
		DC	OAL	APMX	DCONMS	TTD610
RCDE 040	0.03-0.06	4	50	12	4	●
060	0.07-0.15	6	65	18	6	●
080	0.10-0.20	8	75	24	8	●
100	0.15-0.30	10	85	30	10	●
120	0.20-0.40	12	100	36	12	●

●: Standard items



► NOF: Number of flutes

► Notice: For best machining performance, the end mill's intersection point(APMX_2) should be positioned at the center of the workpiece thickness.

●: Standard items

Recommended Cutting Conditions

Machining data for solid end mill

ISO	Material	Condition	Tensile strength (N/mm ²)	Hardness HB	Material No.
P	Non-alloy steel, cast steel, free cutting steel	<0.25%C Annealed	420	125	1
		>=0.25%C Annealed	650	190	2
		<0.55%C Quenched and tempered	850	250	3
		>=0.55%C Annealed	750	220	4
		Quenched and tempered	1000	300	5
	Low alloy steel and cast steel (less than 5% of alloying elements)	Annealed	600	200	6
		Quenched and tempered	930	275	7
			1000	300	8
			1200	350	9
	High alloy steel, cast steel and tool steel	Annealed	680	200	10
		Quenched and tempered	1100	325	11
M	Stainless steel and cast steel	Ferritic / martensitic	680	200	12
		Martensitic	820	240	13
		Austenitic	600	180	14
K	Gray cast iron (GG)	Ferritic		160	15
		Pearlitic		250	16
	Cast iron nodular (GGG)	Ferritic		180	17
		Pearlitic		260	18
	Malleable cast iron	Ferritic		130	19
		Pearlitic		230	20
N	Aluminum - Wrought alloy	Not cureable		60	21
		Cured		100	22
	Aluminum-cast, alloyed	<=12% Si Not cureable		75	23
		Cured		90	24
		>12% Si High temp.		130	25
	Copper alloys	>1% Pb Free cutting		110	26
		Brass		90	27
		Electrolitic copper		100	28
	Non-metallic	Duroplastics, graphite		70 Shore D	29
		Hard rubber		55 Shore D	30
S	High temp. alloys	Fe based	Annealed	200	31
			Cured	280	32
		Ni or Co based	Annealed	250	33
			Cured	350	34
			Cast	320	35
	Titanium, Ti alloys	Pure	Rm 400	190	36
		Alpha+beta alloys cured	Rm 1050	310	37
H	Hardened steel	Hardened		55HRC	38
		Hardened		60HRC	39
	Chilled cast iron	Cast		400	40
	Cast iron nodular	Hardened		55HRC	41

► For more information of material groups, see the materials & grades "material conversion table"

■ Steel
 ■ Stainless steel
 ■ Cast iron
 ■ Nonferrous
 ■ High temp. alloys
 ■ Hardened steel

Recommended Cutting Conditions

Machining data for solid end mill

Cutting speed Vc(m/min)								
CBN	Coated						Uncoated	Ceramic
TB7015	TT5505	TT5515	TT5520/TT5513	TT5525/TT5523	TT5543	TTA101	UF10N/UF10	TC3030
	260-300	260-280	210-270	210-220	170-200		140-200	
	200-250	200-230	160-220	160-180	140-170		120-160	
	160-230	160-220	130-200	130-180	120-150		100-150	
	160-230	160-220	130-200	130-180	100-140		100-140	
	140-200	140-180	110-160	110-140	90-130		90-130	
	160-230	160-220	130-200	130-180	100-150		110-150	
	120-200	120-180	100-160	100-140	90-130		80-130	
	140-200	130-180	100-160	100-140	90-130		90-130	
	140-200	140-180	110-160	110-140	90-130		100-130	
	140-200	130-180	100-160	100-140	90-130		90-130	
	80-150	70-120	60-110	60-100	50-90		50-80	
		80-160	60-140	60-130	50-110		60-110	
		60-150	50-130	50-120	40-100		40-100	
		60-120	50-110	50-100	40-80		40-80	
	100-300	80-260	60-240	60-210	50-180		60-180	
	130-280	130-240	100-220	100-190	100-170		90-170	
	150-280	150-270	120-240	120-220	110-200		100-200	
	90-280	90-270	70-240	70-220	110-200		60-200	
	150-280	150-270	120-240	120-220	110-200		100-200	
	140-250	140-240	110-220	110-190	100-180		100-170	
						800-900	800-900	
						700-800	700-800	
						800-900	800-900	
						750-850	750-850	
						400-450	400-450	
						500-550	500-550	
						500-550	500-550	
						350-380	350-380	
	20-40	20-40	20-30	20-30	20-30		10-20	
	20-30	20-30	20-30	20-30	20-30		10-20	
	20-30	20-30	20-30	20-30	20-30		20-50	300-1000
	20-30	20-30	20-30	20-30	20-30		20-50	300-1000
	30-80	30-70	20-60	20-60	20-60		20-50	300-1000
		30-70	20-60	20-60	20-60		20-30	
		30-70	20-60	20-60	20-60		20-30	
100-210	30-60						40-60	
90-200	30-40						20-30	
120-200	70-90	60-80	40-70				65-75	
120-200	30-60	30-50	20-40				40-45	

Recommended Cutting Conditions



Machining data for ceramic end mill

CRF 4 teeth & 6 teeth

(Unit: mm)

Diameter	Cutting speed (m/min)	Feed (mm/tooth)	Shouldering, profiling		Slotting
			ap	ae	ae
Ø6	300-1000	0.02-0.03	-0.6xD	-0.1xD	-0.05xD
Ø8	300-1000	0.02-0.03	-0.6xD	-0.1xD	-0.05xD
Ø10	300-1000	0.02-0.04	-0.6xD	-0.1xD	-0.05xD
Ø12	300-1000	0.03-0.05	-0.6xD	-0.1xD	-0.05xD
Ø16	300-1000	0.03-0.05	-0.6xD	-0.1xD	-0.05xD

▶ ae must not exceed a maximum 1 mm

ap: axial direction DOC ae: radial direction DOC

▶ Apply a 30% reduction in feed during slotting, ramping (less 2.5°)

CRH 4 teeth

(Unit: mm)

Diameter	Cutting speed (m/min)	Feed (mm/tooth)	Shouldering, profiling	
			ap	ae
Ø6	300-1000	0.1-0.15	-0.05xD	-0.6xD
Ø8	300-1000	0.1-0.2	-0.05xD	-0.6xD
Ø10	300-1000	0.1-0.2	-0.05xD	-0.6xD
Ø12	300-1000	0.1-0.3	-0.05xD	-0.6xD
Ø16	300-1000	0.1-0.3	-0.05xD	-0.6xD

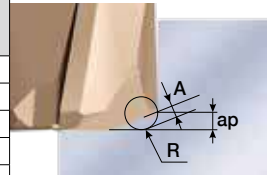
▶ ae must not exceed a maximum 1 mm

ap: axial direction DOC ae: radial direction DOC

▶ Apply a 30% reduction in feed during ramping (less 2.5°)

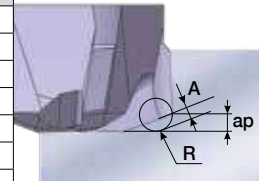
Programming tip - CRH

Diameter (CRH 4 teeth)	R (Program)	A Un-machined material thickness
Ø6	0.7	0.35
Ø8	0.9	0.47
Ø10	1.0	0.50
Ø12	1.4	0.70
Ø16	1.8	0.95



Programming tip - HFM 2 / HFM 4

Designation	Diameter	R (Program)	A (Un-machined)	ap (Max)
HFM 2040	Ø4	0.38	0.25	0.3
HFM 2060	Ø6	0.65	0.43	0.5
HFM 2080	Ø8	0.87	0.57	0.75
HFM 2010	Ø10	1.09	0.71	1
HFM 2012	Ø12	1.3	0.86	1.1
HFM 4060	Ø6	0.59	0.38	0.5
HFM 4080	Ø8	0.78	0.51	0.7
HFM 4010	Ø10	0.85	0.55	0.75
HFM 4012	Ø12	1.17	0.77	1.05



Recommended Cutting Conditions



Machining data for composite material

Grade: TTD610

Material		Cutting Speed Vc(m/min)					
		RRFE		RCFE		RCDE	
		Shouldering	Slotting	Shouldering	Slotting	Shouldering	Slotting
CFRP	CFRP	100-300	50-120	100-300	50-120	80-250	50-120
	Honeycomb	150-250	100-200	150-250	100-200	120-200	100-200
GFRP	GFRP	50-150	30-70	50-150	30-70	50-130	30-70
	Honeycomb	150-250	100-200	150-250	100-200	120-200	100-200

Material		Cutting Speed Vc(m/min)					
		RCME		RCOM		RDCF	
		Shouldering	Slotting	Shouldering	Slotting	Shouldering	Slotting
CFRP	CFRP	80-250	50-120	50-200	50-120	100-300	50-120
	Honeycomb	120-200	100-200	-	-	-	-
GFRP	GFRP	50-130	30-70	50-100	30-70	50-150	30-70
	Honeycomb	120-200	100-200	-	-	-	-

Material		RCDE & H-Drill				
		Drilling				
		Cutting speed Vc (m/min)	Drill diameter (mm) vs. Feed (mm/rev)			
			Ø3.0-Ø6.0	Ø6.1-Ø8.0	Ø8.1-Ø10.0	Ø10.1-Ø12.7
CFRP		50-150	0.02-0.07	0.03-0.08	0.03-0.08	0.04-0.10
GFRP		40-120	0.02-0.07	0.03-0.08	0.03-0.08	0.04-0.10

