



MEC Series

High Efficiency End Mills and Face Mills



Low Cutting Force, Reduced Chattering, and High Efficiency Machining

Large Tooling Lineup for Various Milling Applications

Featuring Grades PR1535 and CA6535 for Heat-resistant Alloy and PDL025 for Machining Aluminum

Fine Pitch End Mills & Face Mills Available



MEC

High Efficiency Endmills and Face Mills

Excellent Surface Finish with Low Cutting Force Design

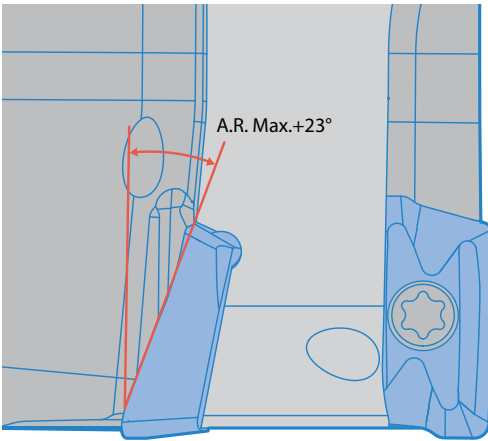
Insert Grades and Cutters for Various Applications

PDL025 DLC Coated Carbides for Aluminum Machining

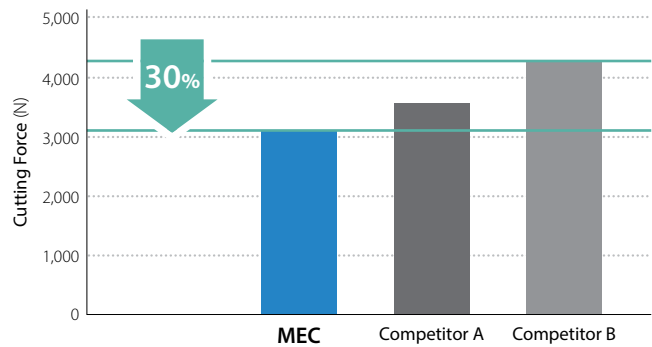


1 Low Cutting Force and Sharp Cutting Performance

Low Cutting Forces with Helical Cutting Edge Design



Cutting Force Comparison (Internal Evaluation)

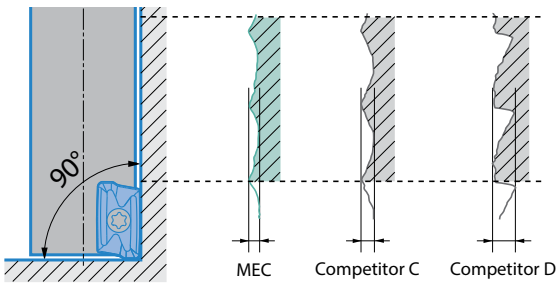


Cutting Conditions : $V_c = 328$ sfm $f_z = 0.008$ ipt, D.O.C. $\times a_e = 0.354'' \times 0.393''$, Dry, Cutter Dia. $D_c = \varnothing 0.787''$ Workpiece : 1049

2 Smooth surface of shoulder wall

Smoother shoulder wall finish with multiple passes

Shoulder Wall Surface Comparison (Internal Evaluation)



Cutting Conditions : $V_c = 394$ SFM, $f_z = 0.004$ ipt, D.O.C. $\times a_e = 0.118'' \times 0.197''$ Dry, Cutter Dia. $D_c = \varnothing 0.787''$ Workpiece : 1049

3 Large Tooling Lineup

Introducing Fine Pitch End Mills & Face Mills
High Efficiency Shouldering



End Mill

Face Mill

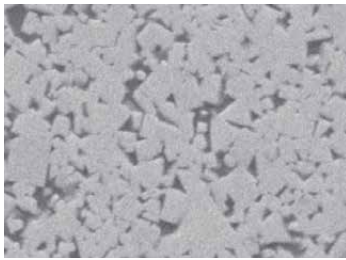
PR1535 MEGACOAT NANO

Fracture resistant with a tough substrate and high heat-resistant coating for stable machining of general steel, mold steel, and difficult-to-cut materials

1 23% Improved Fracture Toughness

An increase in cobalt content yields a substrate with greater toughness. Fracture toughness values are improved by 23% over previous grades.

High Toughness Carbide Base Material

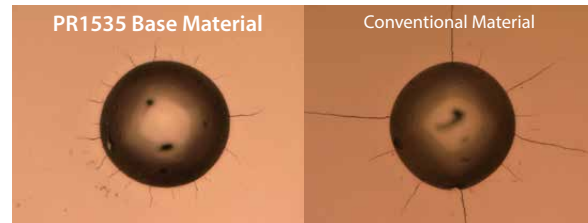


↑ 23%
Fracture Toughness

2 Stability Improvement

The coarse grain structure and uniform particle size correspond to improved heat resistance, with conductivity values decreased by 11%. The uniform structure also reduces crack propagation.

Cracking Comparison by Diamond Indenter (Internal Evaluation)

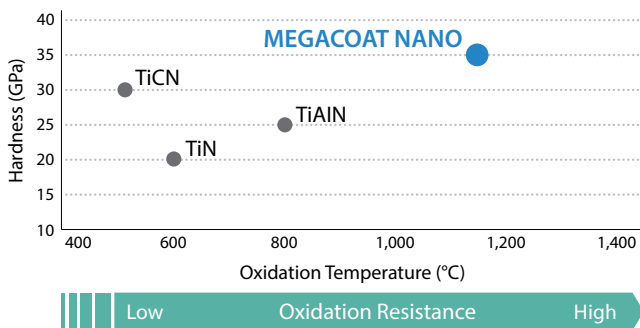


↑ Shock Resistance

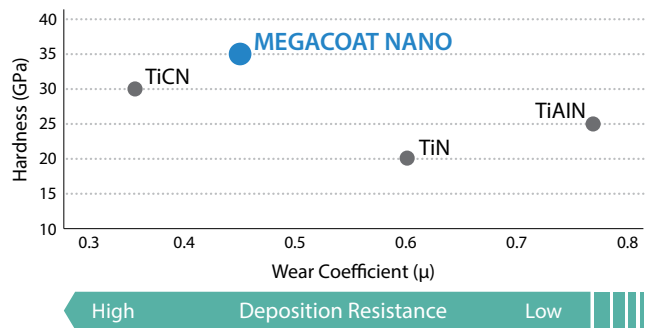
PR1535 Base Material
Short Cracks
(High Impact Improvement)

Conventional Material
Long Cracks

Coating Properties (Abrasion Resistance)



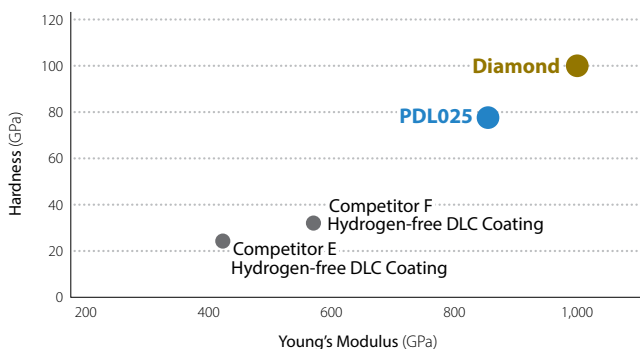
Coating Properties (Deposition Resistance)



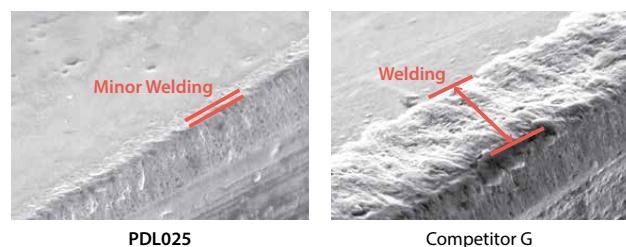
PDL025 DLC Coating

High Quality and Long Tool Life for Machining Aluminum
High Hardness with Kyocera's Proprietary Hydrogen-free DLC Coating

Coating Properties



Welding Resistance Comparison (Internal Evaluation)



Cutting Conditions : Vc = 2,630 SFM, fz = 0.004 ipt, D.O.C. x ae = 0.118" x 0.197" , Dry
Cutter Dia. Dc = ø1.000" Workpiece : 5052 Cutting Length : 187 ft

Applicable Inserts

Insert (Right-hand Shown)		Part Number	Dimension (in)					Angle		Cermet TN100M	CVD Coated Carbide CA6355	MEGA COAT NANO PR1535	MEGACOAT			PVD Coated Carbide PR830	Ref. Page for Applicable Toolholders			
			W1	S	D1	L	RE	AS	AN				PR1225	PR1230	PR1210					
			Usage Classification		P	M	K	N	S				H							
		BDMT 110302ER-JT	0.248	0.118	0.110	0.433	0.008	18°	15°	●	●	●		●	△	P6 P7				
		BDMT 110304ER-JT					0.016			●	●	●	●	△						
		BDMT 110308ER-JT					0.031			●	●	●	●	△						
				BDMT 11T302ER-JT	0.264	0.150	0.110	0.433	0.008	18°	13°	△	●	●		●	△	P6 P7 P8 P9 P10 P11		
				BDMT 11T304ER-JT					0.016			●	●	●	●	△				
				BDMT 11T308ER-JT					0.031			●	●	●	●	△				
						BDMT 11T312ER-JT	0.264	0.150	0.110	0.433	0.047	18°	13°	●	●	●		●	△	
						BDMT 11T316ER-JT					0.063			●	●	●	●	△		
						BDMT 11T320ER-JT					0.079			●	●	●	●	△		
								BDMT 11T324ER-JT	0.378	0.193	0.173	0.669	0.094	18°	13°	●	●	●		●
BDMT 11T331ER-JT	0.122							●					●			●	●	△		
BDMT 170404ER-JT	0.016							●					●			●	●	△		
								BDMT 170408ER-JT	0.378	0.193	0.173	0.669	0.031	18°	13°	●	●	●		●
		BDMT 170412ER-JT	0.047					●					●			●	●	△		
		BDMT 170416ER-JT	0.063					●					●			●	●	△		
								BDMT 170420ER-JT	0.378	0.193	0.173	0.669	0.079	18°	13°	●	●	●		●
				BDMT 170424ER-JT	0.094			●					●			●	●	△		
				BDMT 170431ER-JT	0.122			●					●			●	●	△		
								BDMT 170440ER-JT	0.378	0.193	0.173	0.669	0.157	18°	13°	△	●	●		●
						BDMT 110302ER-JS	0.008	●					●			●		△		
						BDMT 110304ER-JS	0.016	●					●			●		△		
								BDMT 110308ER-JS	0.248	0.118	0.110	0.433	0.031	18°	15°	●	●	●		△
BDMT 11T302ER-JS	0.008							●					●			●		△		
BDMT 11T304ER-JS	0.016							●					●			●		△		
								BDMT 11T308ER-JS	0.264	0.150	0.110	0.433	0.031	18°	13°	●	●	●		△
		BDMT 170404ER-JS	0.016					●					●			●		△		
		BDMT 170408ER-JS	0.031					●					●			●		△		
								BDMT 11T308ER-N2	0.264	0.150	0.110	0.433	0.031	18°	13°		●	●	●	●
				BDMT 11T308ER-N3	0.031								●			●	●	●	△	
				BDMT 170408ER-N3	0.031								●			●	●	●	△	
								BDMT 170408ER-N4	0.378	0.193	0.173	0.669	0.031	18°	13°		●	●	●	●
						BDMT 11T308ER-N2	0.031						●			●	●	●	△	
						BDMT 170408ER-N4	0.031						●			●	●	●	△	

★ : Roughing / 1st Choice
 ☆ : Roughing / 2nd Choice
 ■ : Finishing / 1st Choice
 □ : Finishing / 2nd Choice
 (In case hardness is under 45HRC)

Inserts are sold in 10 piece boxes

Recommended Cutting Conditions → **P12, P13** ● : Standard Item △ : Phaseout Item (will be removed from next brochure)

Applicable Inserts

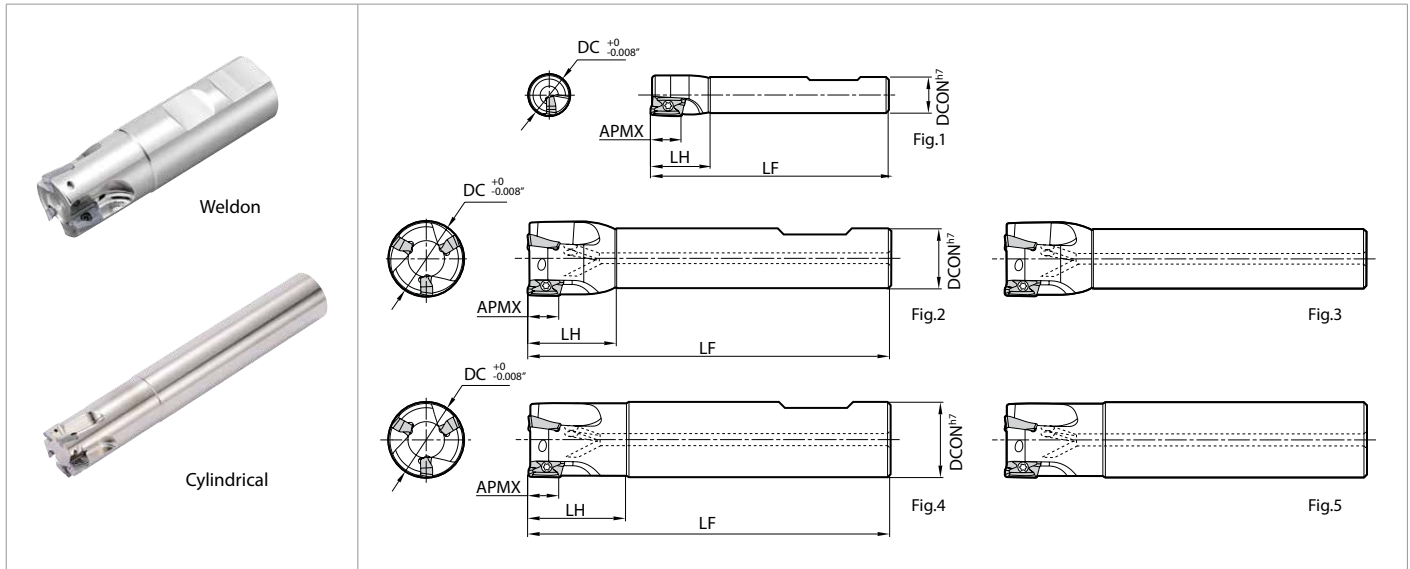
Usage Classification		P		M		K		N		S		H							
		Carbon Steel / Alloy Steel		Austenitic Stainless Steel		Martensitic Stainless Steel		Gray Cast Iron		Non Ferrous Metals		Heat Resistant Alloy (Ni-base)		Hard Materials		★	☆	□	■
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (In case hardness is under 45HRC)		M		K		N		S		H									
		Precipitation Hardened Stainless Steel		Nodular Cast Iron		Titanium Alloy		Hard Materials			☆	□	■						
Insert (Right-hand Shown)	Part Number	Dimension (mm)						Angle		DLC Coated Carbide	Carbide	PCD		Ref. Page for Applicable Toolholders					
		W1	S	D1	L	RE	LE	AS	AN	PD1025	GW25	KPD001	KPD230						
	BDGT 11T302FR-JA					0.008				●	●								
	11T304FR-JA	0.264	0.150	0.110	0.433	1/64	-	18°	13°	●	●								
	11T308FR-JA					1/32				●	●								
	BDGT 170404FR-JA					1/64				●	●								
	170408FR-JA					1/32				●	●								
	170420FR-JA	0.378	0.193	0.173	0.669	0.079	-	18°	13°	●	●								
	170431FR-JA					0.122				●	●								
	BDGT 11T302FR					0.008										●	●		
	11T304FR					1/64	0.150	18°	13°							●	●		
	11T308FR					1/32										●	●		
	BDGT 11T302FR-LE	0.264	0.150	0.110	0.453	0.008										●	●		
	11T304FR-LE					1/64	0.205	18°	13°							●	●		
	11T308FR-LE					1/32										●	●		
	BDMT 11T302FR	0.264	0.150	0.110	0.433	0.008	0.142	18°	13°							●	●		
	11T304FR					1/64										●	●		
	BDMT 170402FR	0.378	0.193	0.173	0.669	0.008	0.173	18°	13°							●	●		
	170404FR					1/64										●	●		

Recommended Cutting Conditions → P12, P13

Carbide Inserts are sold in 10 piece boxes
 PCD Inserts are sold in 1 piece boxes
 ● : Standard Item

Toolholders and Applicable Insert

Toolholder	Applicable Insert							Notes
MEC...-11	BDMT 1103○○ER-JT	BDMT 1103○○ER-JS	-	-	-	-	-	
MEC...-11T MEC...R-11	BDMT 11T3○○ER-JT	BDMT 11T3○○ER-JS	BDGT 11T3○○FR-JA	BDGT 11T3○○FR(-LE)	BDMT 11T3○○FR	-	-	Using notched insert (-N2/-N3/-N4) is not recommended.
MEC...-17 MEC...R-17	BDMT 1704○○ER-JT	BDMT 1704○○ER-JS	BDGT 1704○○FR-JA	-	BDMT 1704○○FR	-	-	
MECH...11	BDMT 11T3○○ER-JT	BDMT 11T3○○ER-JS	BDGT 11T3○○ER-JA	-	-	BDMT11T308ER-N2 BDMT11T308ER-N3	-	Notched insert (-N2/-N3/-N4) is 1st recommendation.
MECH...17	BDMT 1704○○ER-JT	BDMT 1704○○ER-JS	BDGT 1704○○FR-JA	-	-	BDMT170408ER-N3 BDMT170408ER-N4	-	



Toolholder Dimensions (Inch)

Shank	Part Number	Stock	No. of Inserts	Dimensions (in)					Rake Angle (°)		Coolant Hole	Drawing	Spare Parts		Max RPM		
				DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.			Insert Screw	Wrench			
																Fig.1	Fig.2
Weldon Standard Shank	MEC 0500-S500-11	●	1	0.500	0.500	2.650	0.787	0.400	12°	-21°	No	Fig.1	SB-2545TR	DTM-8	50,800		
	MEC 0625-S500-11T	●	2	0.625	0.500	2.750	0.906	0.400	18°	-14°	Yes	Fig.4	-	-	43,750		
	0625-S625-11T	●			0.625	3.000	1.024		20°	-10°					41,000		
	0750-S625-11T	●	3	0.750	0.625	3.050	1.142	0.400	21°	-10°		Fig.2	SB-2555TRG	DTM-8	41,000		
	0750-S750-11T	●										Fig.4			37,500		
	1000-S750-11T	●										Fig.4			37,500		
	1000-S100-11T	●	4	1.000	1.000	3.750	1.260	0.618	17°	-7°		Fig.2	-	-	33,900		
	1250-S100-11T	●										Fig.4			33,900		
	1250-S125-11T	●	5	1.250	1.250	4.000	1.575	0.618	19°	-7°		Fig.2	-	-	30,000		
	1500-S125-11T	●										Fig.2			30,000		
	MEC 1000-S750-17	●	2	1.000	0.750	3.500	1.417	0.618	16°	-11°		Fig.2	-	-	35,000		
	1000-S100-17	●			1.000	3.750	1.417					Fig.4			35,000		
	1250-S100-17	●	3	1.250	1.000	4.000	1.575	0.618	17°	-7°		Fig.2	SB-4070TRN	DTM-15	30,000		
	1250-S125-17	●			1.250	4.000	1.575					Fig.4			30,000		
	1500-S125-17	●	4	1.500	1.250	4.350	1.969	0.618	19°	-7°		Fig.2	-	-	25,000		
Cylindrical Long Shank	MEC 0750-S750-5.2-11T	●	2	0.750	0.750	5.200	2.362	0.400	20°	-10°		Yes	Fig.5	SB-2555TRG	DTM-8	41,000	
	1000-S100-6.3-11T	●		1.000	1.000	6.300	2.362	0.400	21°	-10°	37,500						
	1250-S125-7.9-11T	●		1.250	1.250	7.870	2.559	0.400	23°	-9°	33,900						
	1500-S125-9.5-11T	●		1.500	1.250	9.450	2.559	0.400	23°	-8°	30,000						
	MEC 1000-S100-6.3-17	●	2	1.000	1.000	6.300	2.362	0.618	16°	-11°	Fig.3		-	-	35,000		
	1250-S125-7.9-17	●		1.250	1.250	7.870	2.559	0.618	17°	-7°	Fig.5				SB-4070TRN	DTM-15	30,000
	1500-S125-9.5-17	●		1.500	1.250	9.450	2.559	0.618	17°	-7°	Fig.3				DTM-15	25,000	

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Recommended Cutting Conditions → P12, P13

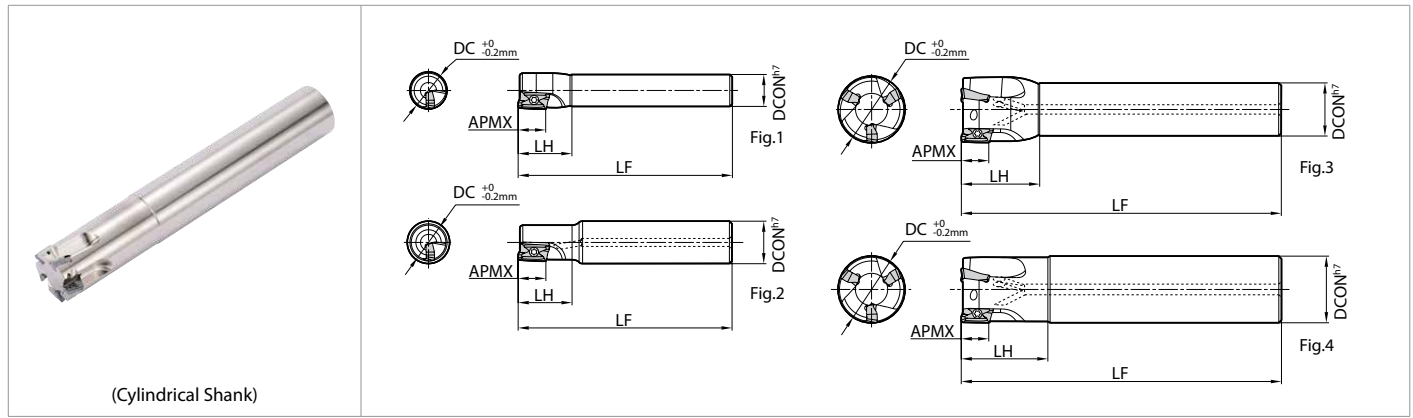
●: Standard item

Caution with Max. Revolution

When running an endmill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force. For more details, see "Warning" on page P13.

Applicable Inserts

Part Number	Applicable Inserts → P4, P5			Applicable PCD Inserts → P5	
MEC...-11	BDMT 1103 ○○ ER-JT	BDMT 1103 ○○ ER-JS	-	-	-
MEC...-11T	BDMT 11T3 ○○ ER-JT	BDMT 11T3 ○○ ER-JS	BDGT 11T3 ○○ FR-JA	BDGT 11T3 ○○ FR-(LE)	BDMT 11T3 ○○ FR
MEC...-17	BDMT 1704 ○○ ER-JT	BDMT 1704 ○○ ER-JS	BDGT 1704 ○○ FR-JA	-	BDMT 1704 ○○ FR



(Cylindrical Shank)

Toolholder Dimensions for 11mm Inserts (Metric)

Shank	Part Number	Stock	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Coolant Hole	Drawing	Spare Parts		Max RPM						
				DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.			Insert Screw	Wrench							
Cylindrical	MEC 10-S10-11 10-S16-11 12-S10-11 12-S12-11 12-S16-11 13-S12-11 14-S12-11 14-S16-11	●	1	10	10	80	17	10	+10°	-24°	No	Fig.1	SB-2545TR	DTM-8	54,800						
					16						20	Yes				Fig.2					
				10	+12°	No	Fig.1														
				12		12	Yes	Fig.2													
				16	-19°	No	Fig.1														
				16		Yes	Fig.2														
				MEC 16-S12-11T 16-S16-11T 17-S16-11T 18-S16-11T 19-S16-11T 20-S16-11T 20-S20-11T 21-S20-11T 22-S20-11T 24-S20-11T 25-S20-11T 25-S20-11T-4 25-S25-11T 25-S25-11T-4 28-S25-11T 30-S25-11T 32-S25-11T 32-S25-11T-5 32-S32-11T 32-S32-11T-5 40-S32-11T 50-S32-11T	●	2	2	16	12	100	23	10				+18°	-14°	No	Fig.1	SB-2555TRG	DTM-8
	16	30	Yes					Fig.4	43,750												
	17	16	23					-13°	Yes		Fig.3		43,500								
	18	110	26			10	+20°		-10°	Yes	Fig.3	43,000									
	19		20					30		+20°	-9°	Yes	Fig.4	42,000							
	20	20				10	+20°		-10°					Yes	Fig.3	41,000					
	20		20					10		+20°	-9°	Yes	Fig.3			41,000					
	21	20				10	+20°		-9°					Yes	Fig.3	40,300					
	22		24					10		+21°	-10°	Yes	Fig.3			39,600					
	24	20				10	+21°		-10°					Yes	Fig.3	38,200					
	25		25					120		29	10	+21°	-10°			Yes	Fig.3	37,500			
	25	3				25	32		10					+22°	-9°			Yes	Fig.4	37,500	
	25		3					25		32	10	+22°	-9°			Yes	Fig.3			35,800	
	28	4				28	25		32					10	+23°			-9°	Yes	Fig.3	34,800
	30		4					30		25	32	10	+23°			-9°	Yes				Fig.3
	32	5		32	130	40	10		+23°					-9°	Yes			Fig.3	33,900		
	32		4					32		130	40	10	+23°			-9°	Yes		Fig.4	30,000	
	40	5		40	32	150	50		+23°					-8°	Yes			Fig.3		22,500	
	50		5					50		32	150	50	+23°			-7°	Yes		Fig.3	22,500	
	MEC 20-S18-170-11T 20-S20-140-11T 20-S20-170-11T 22-S20-170-11T 25-S23-210-11T 25-S25-160-11T 25-S25-210-11T 28-S25-210-11T 32-S30-250-11T 32-S32-200-11T 32-S32-250-11T 35-S32-250-11T 40-S32-240-11T	●		2	2	18	170		10					30	10			+20°		-10°	Yes
			20			140	60	+21°		Yes	Fig.4	39,600									
			20			170	30														
			22	23	210	32	+21°	Yes	Fig.3	37,500											
			25	160	60																
			25	25	210	32	+22°	Yes	Fig.4	35,800											
			28	30	250	40															
32			32	200	65	+23°	-9°	Yes	Fig.3	33,900											
32			32	250	40																
35			35	250	40	+23°	-9°	Yes	Fig.3	32,600											
40			40	240	65																
MEC 20-S20-150-11T-3 25-S25-170-11T-3 25-S25-170-11T-4 30-S25-180-11T-3 32-S32-200-11T-3 32-S32-200-11T-4 32-S32-200-11T-5			●	3	3	20	20	10	150	10	+20°	-10°	Yes	Fig.4	SB-2555TRG	DTM-8	41,000				
						25	25		170								60	+21°	Yes	Fig.4	37,500
						30	25		180								32				
				32	32	200	65	+23°	-9°	Yes	Fig.3	34,800									
	32	32		200	65																
	32	4		32	32	200	65	+23°	-9°	Yes	Fig.4	33,900									
	32	5		32	32	200	65														

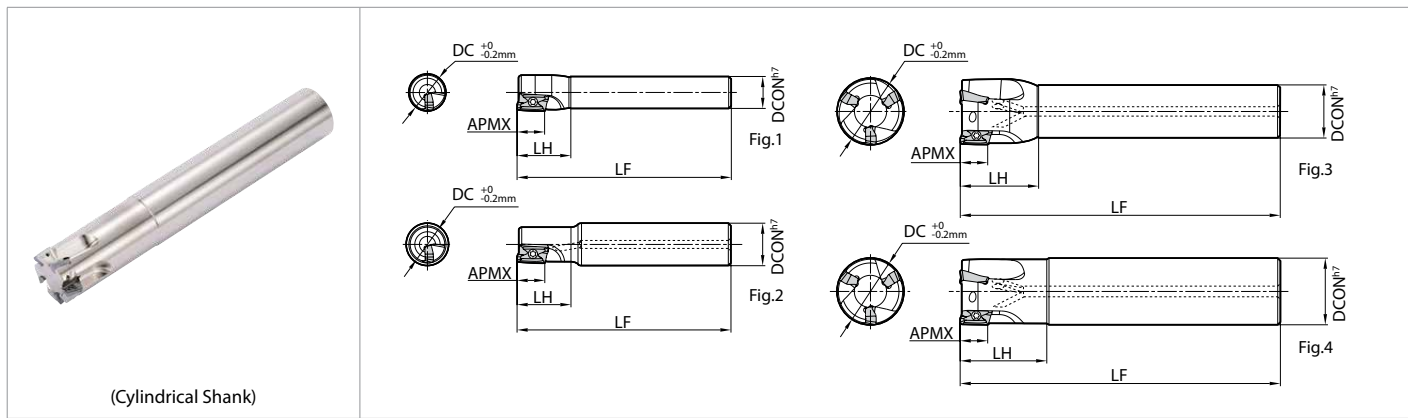
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Recommended Cutting Conditions → P12, P13

● : Standard item

Caution with Max. Revolution

When running an endmill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force. For more details, see "Warning" on page P13.



Toolholder Dimensions for 17mm Inserts (Metric)

Shank	Part Number	Stock	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Coolant Hole	Drawing	Spare Parts		Max RPM	
				DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.			Insert Screw	Wrench		
Standard Shank	MEC 25-S20-17	●	2	25	20	120	36	15.7	+16°	-11°	Yes	Fig.3	SB-4070TRN	DTM-15	35,000	
	25-S25-17	●		25	25											Fig.4
	32-S25-17	●	3	32	25	130	40	+17°	-7°	Fig.3		30,000				
	32-S32-17	●								Fig.4		30,000				
	40-S32-17	●	4	40	32	150	50	+19°	-7°	Fig.3		25,000				
	50-S32-17	●										50			17,000	
Cylindrical	Long Shank	MEC 25-S25-160-17	●	2	25	25	160	60	15.7	+16°	-11°	Yes	Fig.4	SB-4070TRN	DTM-15	35,000
		25-S25-210-17	●		25	210	36	Fig.3								32,500
		28-S25-210-17	●	32	200	65	15.7	+17°	-7°	Fig.4	30,000					
		32-S32-200-17	●										32			250
		32-S32-250-17	●	35	250	40	15.7	+17°	-7°	Fig.3	25,000					
		35-S32-250-17	●										35			240
	40-S32-240-17	●	40	240	65	Fig.3	25,000									
	Standard Shank	MEC 32-S32-250-17-3	●	3	32	32	250	65	15.7	+17°	-7°	Yes	Fig.4	SB-4070TRN	DTM-15	30,000
		40-S32-250-17-3	●		40											65
		40-S32-250-17-4	●	4	40	42	64	+19°	-6°	Fig.3	17,000					
		50-S42-250-17-4	●										50			42

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed






Recommended Cutting Conditions → P12, P13

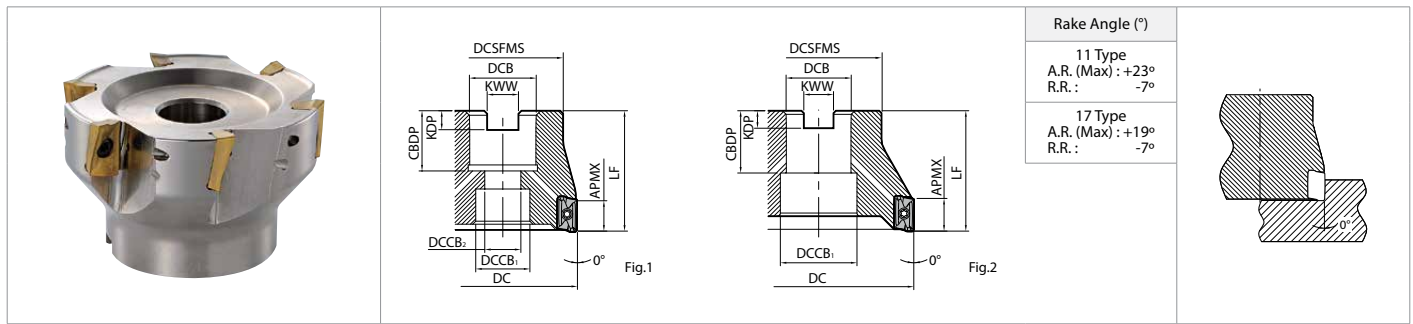
●: Standard item

Caution with Max. Revolution

When running an endmill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force. For more details, see "Warning" on page P13.

Applicable Inserts

Part Number	Applicable Inserts → P4, P5			Applicable PCD Inserts → P5	
					
MEC...-11	BDMT 1103 ○○ ER-JT	BDMT 1103 ○○ ER-JS	-	-	-
MEC...-11T	BDMT 11T3 ○○ ER-JT	BDMT 11T3 ○○ ER-JS	BDGT 11T3 ○○ FR-JA	BDGT 11T3 ○○ FR(-LE)	BDMT 11T3 ○○ FR
MEC...-17	BDMT 1704 ○○ ER-JT	BDMT 1704 ○○ ER-JS	BDGT 1704 ○○ FR-JA	-	BDMT 1704 ○○ FR



Toolholder Dimensions (Inch)

Part Number	Stock	No. of Inserts	Dimensions (in)									Coolant Hole	Drawing	Weight (kg)	Spare Parts		Max RPM	
			DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW				APMX	Insert Screw		Wrench
MEC 1500R-11T-5T	●	5	1.500	1.263		0.63			0.807					0.2			30,700	
2000R-11T-5T	●	5	2.000	1.606	0.750	0.646	0.417	1.575	0.819	0.188	0.312			0.3			22,300	
2500R-11T-6T	●	6	2.500	1.594		0.63			0.819			0.400	Yes	Fig.1	0.7	SB-2555TRG	DTM-8	20,400
3000R-11T-7T	●	7	3.000	1.917	1.000	0.827	0.555	1.969	0.878	0.223	0.375			1.0			18,500	
4000R-11-9TN	●	9	4.000	2.622	1.500	1.969	-	2.48	1.654	0.375	0.625			1.6			16,800	
MEC 2000R-17-4T	●	4	2.000											0.4			16,800	
NEW 2000R-17-5T	●	5	2.000	1.606	0.750	0.646	0.417	1.575	0.819	0.188	0.312	0.618	Yes	Fig.1	0.4			16,800
2500R-17-5T	●	5	2.500	1.634		0.646			0.819					0.8	SB-4070TRN	DTM-15	14,400	
3000R-17-6T	●	6	3.000	1.969	1.000	0.827	0.555	1.969	0.878	0.223	0.375			1.0			12,250	
4000R-17-7TN	●	7	4.000	2.622	1.500	1.969	-	2.48	1.654	0.375	0.625			1.8			10,400	

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed






Recommended Cutting Conditions → **P12, P13**

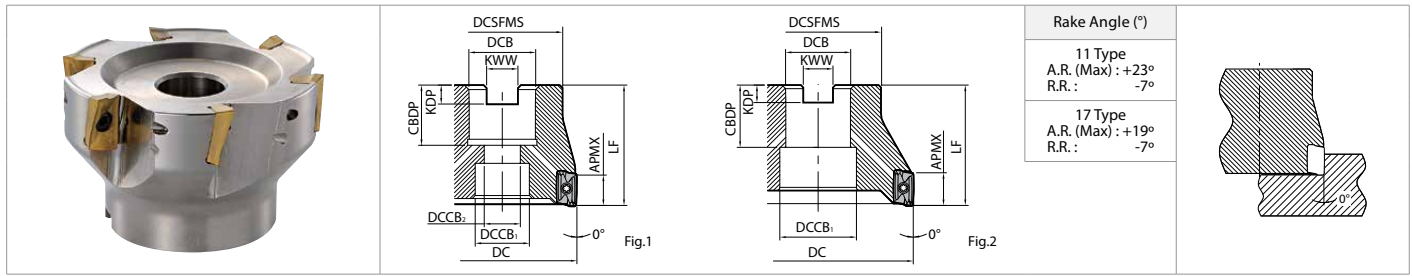
●: Standard item

Caution with Max. Revolution

When running an endmill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force. For more details, see "Warning" on page P13.

Applicable Inserts

Part Number	Applicable Inserts → P4, P5			Applicable PCD Inserts → P5	
					
MEC...-11	BDMT 1103 ○○ ER-JT	BDMT 1103 ○○ ER-JS	-	-	-
MEC...-11T	BDMT 11T3 ○○ ER-JT	BDMT 11T3 ○○ ER-JS	BDGT 11T3 ○○ FR-JA	BDGT 11T3 ○○ FR-(LE)	BDMT 11T3 ○○ FR
MEC...-17	BDMT1704 ○○ ER-JT	BDMT 1704 ○○ ER-JS	BDGT 1704 ○○ FR-JA	-	BDMT 1704 ○○ FR



Toolholder Dimensions (Metric)

Part Number	Stock	No. of Inserts	Dimensions (mm)											Coolant Hole	Drawing	Weight (kg)	Spare Parts		Max RPM
			DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	Insert Screw				Wrench		
Inch Bore Dia.	Coarse Pitch	MEC 063R-11-6T	63	40	1.000"	20	14	50	1.024"	0.236"	0.375"	10	Yes	Fig.1	0.8	SB-2555TRG	DTM-8	20,500	
		080R-11-7T	80	52.5	1.000"	20	14	50	1.024"	0.236"	0.375"	10	Yes	Fig.1	1.0			18,500	
		100R-11-9TN	100	65	1.250"	26	17.6	63	1.260"	0.315"	0.500"	10	Yes	Fig.1	1.8			17,000	
		125R-11-11T	125	80	1.500"	45	32	63	1.496"	0.625"	0.750"	10	Yes	Fig.1	3.4			15,000	
		160R-11-14T	160	100	2.000"	70	-	63	1.850"	0.394"	0.750"	10	Yes	Fig.2	4.4			13,900	
		MEC 063R-11-8T	8	63	40	1.000"	20	14	50	1.024"	0.236"	0.375"	10	Yes	Fig.1			0.8	20,500
	Fine Pitch	080R-11-10T	10	80	52.5	1.000"	20	14	50	1.024"	0.236"	0.375"	10	Yes	Fig.1	1.0	18,500		
		MEC 063R-17-5T	5	63	40	1.000"	20	14	50	1.024"	0.236"	0.375"	15.7	Yes	Fig.1	0.8	14,500		
		080R-17-6T	6	80	52.5	1.000"	20	14	50	1.024"	0.236"	0.375"	15.7	Yes	Fig.1	1.0	12,000		
		100R-17-7TN	7	100	65	1.250"	26	17.6	63	1.260"	0.315"	0.500"	15.7	Yes	Fig.1	1.8	10,500		
		125R-17-9T	9	125	80	1.500"	45	32	63	1.496"	0.625"	0.750"	15.7	Yes	Fig.1	3.4	8,900		
		160R-17-12T	12	160	100	2.000"	70	-	63	1.850"	0.394"	0.750"	15.7	Yes	Fig.2	4.5	7,400		
Metric Bore Dia.	Standard Pitch	MEC 040R-11-5T-M	40	34	16	14	8.5	40	20	5.5	8.5	10	Yes	Fig.1	0.2	SB-2555TRG	DTM-8	30,000	
		050R-11-5T-M	50	40	22	18	12	40	22	6.3	10.4	10	Yes	Fig.1	0.3			22,500	
		063R-11-6T-M	6	63	40	22	18	12	40	22	6.3	10.4	10	Yes	Fig.1			0.7	20,500
		080R-11-7T-M	7	80	52.5	27	20	14	50	26	7	12.4	10	Yes	Fig.1			1.0	18,500
		100R-11-9T-MN	9	100	65	32	26	17.6	55	26	8	14.4	10	Yes	Fig.1			1.6	17,000
		125R-11-11T-M	11	125	80	45	32	63	33	9.5	16.4	10	Yes	Fig.1	3.1			15,000	
	Fine Pitch	160R-11-14T-M	14	160	100	68	-	63	33	9.5	16.4	10	No	Fig.2	4.5	13,900			
		MEC 032R-11-5T-M	5	32	30	16	11.5	35	20	5.6	8.4	10	Yes	Fig.1	0.1	33,900			
		040R-11-6T-M	6	40	34	16	14	8.5	40	20	5.6	8.4	10	Yes	Fig.1	0.2	30,000		
		050R-11-7T-M	7	50	40	22	18	12	40	22	6.3	10.4	10	Yes	Fig.1	0.4	22,500		
		063R-11-8T-M	8	63	40	22	18	12	40	22	6.3	10.4	10	Yes	Fig.1	0.6	20,500		
		080R-11-10T-M	10	80	52.5	27	20	14	50	26.5	7	12.4	10	Yes	Fig.1	0.9	18,500		
Standard Pitch	100R-11-11T-M	11	100	65	32	26	17.6	55	34	8	14.4	10	Yes	Fig.1	1.7	17,000			
	MEC 040R-17-4T-M	4	40	34	16	14	8.5	40	20	5.5	8.5	15.7	Yes	Fig.1	0.3	25,000			
	050R-17-4T-M	5	50	40	22	18	12	40	22	6.3	10.4	15.7	Yes	Fig.1	0.4	17,000			
	063R-17-5T-M	6	63	40	22	18	12	40	22	6.3	10.4	15.7	Yes	Fig.1	0.6	14,500			
	080R-17-6T-M	8	80	52.5	27	20	14	50	26	7	12.4	15.7	Yes	Fig.1	1.0	12,000			
	100R-17-7T-MN	7	100	65	32	26	17.6	55	26	8	14.4	15.7	Yes	Fig.1	1.8	10,500			
	125R-17-9T-M	9	125	80	45	32	63	33	9.5	16.4	15.7	Yes	Fig.1	3.1	8,900				
	160R-17-12T-M	12	160	100	68	-	63	33	9.5	16.4	15.7	No	Fig.2	4.5	7,400				
	Fine Pitch	MEC 050R-17-5T-M	5	50	40	22	18	12	40	22	6.3	10.4	15.7	Yes	Fig.1	0.4	17,000		
		063R-17-6T-M	6	63	40	22	18	12	40	22	6.3	10.4	15.7	Yes	Fig.1	0.6	14,500		

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

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

Caution with Max. Revolution

When running an endmill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force. For more details, see "Warning" on page P13.

Recommended Cutting Conditions → P12, P13

When using Center-through Air / Coolant / Mist

If Center Through air (Coolant, Mist) is used, please use appropriate arbor and clamp with arbor bolt. (Table 1)

MEC's surface finish when shouldering with multiple passes

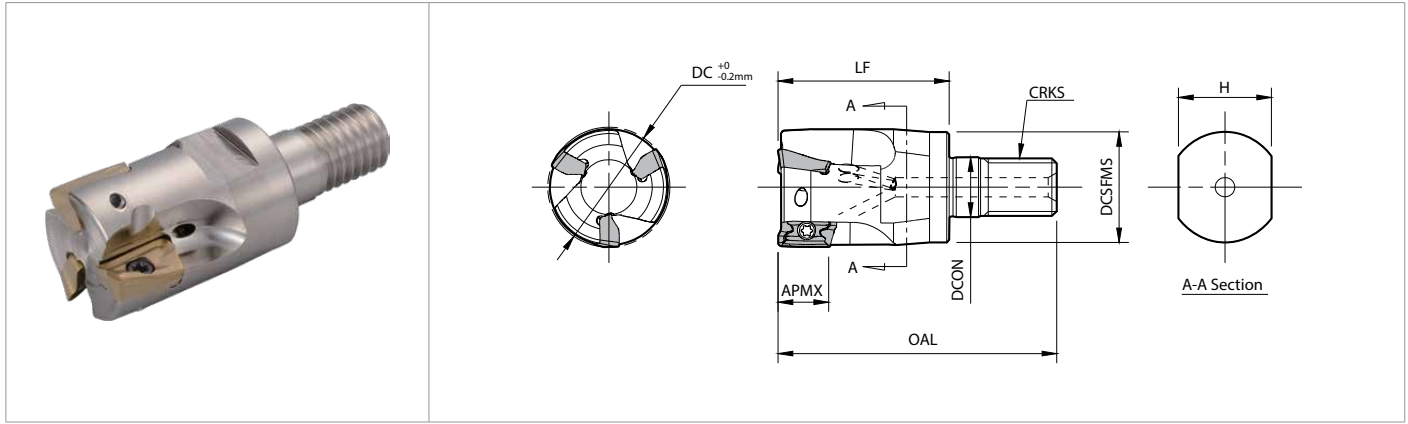
In order to obtain smoothly finished shoulder wall with multiple passes of MEC Milling Cutter, please keep D.O.C. less than 0.217" (5.5mm) for 11T3 type insert and also keep D.O.C. less than 0.354" (9mm) for 1704 type insert.

Toolholder	Arbor Bolt	Wrench	Toolholder	Arbor Bolt	Wrench
MEC040R----M	HH8×25H	LW-5 (Double width 5mm)	MEC160R---	HF24×60H	LW-17 (Double width 17mm)
MEC050R----M	HH10×30H	LW-6 (Double width 6mm)	MEC1500---	HH3/8-1.25H	
MEC063R----M		LW-6 (Double width 6mm)	MEC2500---		
MEC063R---	HH12×35H	LW-8 (Double width 8mm)	MEC3000---	HH1/2-1.25H	
MEC080R---		LW-8 (Double width 8mm)			
MEC100R----(M) N	HH16×52H	LW-12 (Double width 12mm)	MEC4000---	HH3/4-2.30H	
MEC125R----(M)	HF20×53H	LW-14 (Double width 14mm)			
MEC160R----M		LW-14 (Double width 14mm)			

Wrench is not included. Please purchase separately.

Applicable Inserts

Part Number	Applicable Inserts → P4, P5			Applicable PCD Inserts → P5	
MEC...-11T	BDMT 11T3 ○○ ER-JT	BDMT 11T3 ○○ ER-JS	BDGT 11T3 ○○ FR-JA	BDGT 11T3 ○○ FR-(LE)	BDMT 11T3 ○○ FR
MEC...-17	BDMT 1704 ○○ ER-JT	BDMT 1704 ○○ ER-JS	BDGT 1704 ○○ FR-JA	-	BDMT 1704 ○○ FR



Toolholder Dimensions (Metric)

Part Number	Stock	No. of Inserts	Dimensions (mm)								Rake Angle (°)		Coolant Hole	Applicable Inserts P4, P5	Max RPM
			DC	DCSFMS	DCON	OAL	LF	CRKS	H	APMX	A.R. (Max)	R.R.			
MEC 16-M08-11T-2T	●	2	16	14.7	8.5	43	25	M8xP1.25	12	10	+18°	-14°	Yes	BDMT11T3 BDGT11T3	43,750
20-M10-11T-2T	●	2	20	18.7	10.5	49	30	M10xP1.5	15		+20°	-10°			41,000
20-M10-11T-3T	●	3	20	18.7	10.5	49	30	M10xP1.5	15		+20°	-10°			41,000
25-M12-11T-3T	●	3	25	23	12.5	57	35	M12xP1.75	19		+21°	-10°			37,500
32-M16-11T-4T	●	4	32	30	17	63	40	M16xP2.0	24		+23°	-9°			33,900
MEC 25-M12-17-2T	●	2	25	23	12.5	57	35	M12xP1.75	19	15.7	+16°	-11°	Yes	BDMT1704 BDGT1704	35,000
32-M16-17-3T	●	3	32	30	17	63	40	M16xP2.0	24		+17°	-7°			30,000

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Recommended Cutting Conditions → **P12, P13**

●: Standard item

Caution with Max. Revolution

When running an endmill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force. For more details, see "Warning" on page P13.

Spare Parts

Part Number	Spare Parts		
	Insert Screw	Wrench	Anti-seize Compound
MEC 16-M08-11T-2T			
20-M10-11T-2T	SB-2555TRG	DTM-8	P-37
20-M10-11T-3T	Recommended Torque for Insert Screw 1.2N · m		
25-M12-11T-3T			
32-M16-11T-4T			
MEC 25-M12-17-2T	SB-4070TRN	DTM-15	
32-M16-17-3T	Recommended Torque for Insert Screw 3.5N · m		

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

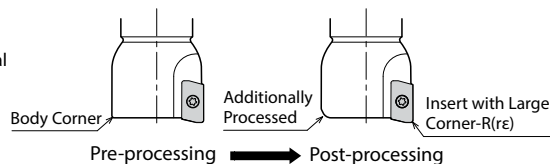
Applicable Inserts

Part Number	Applicable Inserts → P4, P5			Applicable PCD Inserts → P5	
MEC...-11T	BDMT 11T3 ○○ ER-JT	BDMT 11T3 ○○ ER-JS	BDGT 11T3 ○○ FR-JA	BDGT 11T3 ○○ FR-(LE)	BDMT 11T3 ○○ FR
MEC...-17	BDMT1704 ○○ ER-JT	BDMT 1704 ○○ ER-JS	BDGT 1704 ○○ FR-JA	-	BDMT 1704 ○○ FR

When using inserts with corner-R (RE) 1.6mm or larger, additional modifications of the cutter body will be necessary. Refer to the chart below for the recommended modifications.

Insert Corner-R (RE)	Additional Modifications of the Cutter Body Corner
1.6	R1.0
2.0	
2.4	R1.2
3.1	R1.6
4.0	R2.5

* R shape is recommended for additional processing to the body corner. When applying chamfer shaped additional processing, do not cut away too much.



JT Chipbreaker

Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)					
	Toolholder Part Number		Cermet	MEGACOAT NANO	MEGACOAT		PVD Coated Carbide	CVD Coated Carbide
	MEC0500~MEC0750 MEC10~MEC19	MEC1000~MEC1500 MEC20~MEC40 MEC1500R~MEC4000R MEC040R~MEC160R	TN100M	PR1535	PR1225	PR1210	PR830	CA6535
Carbon Steel	0.002~ 0.004 ~0.006	0.003~ 0.006 ~0.010	☆ 390~ 520 ~660	☆ 390~ 590 ~820	★ 390~ 590 ~820	-	☆ 390~ 520 ~660	-
Alloy Steel	0.002~ 0.004 ~0.005	0.003~ 0.006 ~0.008	☆ 330~ 460 ~590	☆ 330~ 520 ~720	★ 330~ 520 ~720	-	☆ 330~ 460 ~590	-
Mold Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.008	☆ 260~ 390 ~490	☆ 260~ 460 ~590	★ 260~ 460 ~590	-	☆ 260~ 390 ~490	-
Austenitic Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.006	-	☆ 330~ 520 ~660	330~ 520 ~660	-	☆ 330~ 460 ~590	-
Martensitic Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.008	-	☆ 490~ 660 ~820	-	-	-	★ 590~ 790 ~980
Precipitation Hardened Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.008	-	☆ 300~ 390 ~490	-	-	-	-
Gray Cast Iron	0.002~ 0.004 ~0.006	0.003~ 0.007 ~0.010	-	-	-	★ 390~ 590 ~820	-	-
Nodular Cast Iron	0.002~ 0.003 ~0.004	0.003~ 0.006 ~0.008	-	-	-	★ 330~ 490 ~660	-	-
Ni-base Heat-Resistant Alloy	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.006	-	★ 70~ 100 ~160	-	-	-	☆ 70~ 100 ~160
Titanium Alloy	0.002~ 0.004 ~0.004	0.003~ 0.005 ~0.008	-	☆ 130~ 200 ~260	-	☆ 100~ 160 ~230	-	-

* Bold numbers in the graph indicate the most recommended value of feed (fz) Adjust cutting speed and feed rate according to the actual machining conditions

* Machining with coolant is recommended for Ni-base heat resistant alloy and titanium alloys

★ : 1st Recommendation

☆ : 2nd Recommendation

JS Chipbreaker

Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)				
	Toolholder Part Number		MEGACOAT NANO	MEGACOAT		PVD Coated Carbide	CVD Coated Carbide
	MEC0500~MEC0750 MEC10~MEC19	MEC1000~MEC1500 MEC20~MEC40 MEC1500R~MEC4000R MEC040R~MEC160R	PR1535	PR1225	PR1210	PR830	CA6535
Carbon Steel	0.002~ 0.004 ~0.005	0.003~ 0.006 ~0.007	☆ 390~ 590 ~820	★ 390~ 590 ~820	-	☆ 390~ 520 ~660	-
Alloy Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.006	☆ 330~ 520 ~720	★ 330~ 520 ~720	-	☆ 330~ 460 ~590	-
Mold Steel	0.002~ 0.003 ~0.004	0.003~ 0.004 ~0.005	☆ 260~ 460 ~590	★ 260~ 460 ~590	-	☆ 260~ 390 ~490	-
Austenitic Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.004 ~0.005	★ 330~ 520 ~660	★ 330~ 520 ~660	-	☆ 330~ 460 ~590	-
Martensitic Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.004 ~0.005	☆ 490~ 660 ~820	-	-	-	★ 590~ 790 ~980
Precipitation Hardened Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.004 ~0.005	☆ 300~ 390 ~490	-	-	-	-
Ni-base Heat-Resistant Alloy	0.002~ 0.003 ~0.004	0.003~ 0.004 ~0.005	★ 70~ 100 ~160	-	-	-	☆ 70~ 100 ~160
Titanium Alloy	0.002~ 0.003 ~0.004	0.003~ 0.004 ~0.005	☆ 130~ 200 ~260	-	-	-	-

* Bold numbers in the graph indicate the most recommended value of feed (fz) Adjust cutting speed and feed rate according to the actual machining conditions

* Machining with coolant is recommended for Ni-base heat resistant alloy and titanium alloys

★ : 1st Recommendation

☆ : 2nd Recommendation

JA Chipbreaker

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)	
		DLC Coated Carbide	Carbide
		PDL025	GW25
Aluminum Alloy (Si 13% or Less)	0.002~0.012	660~3280	660~2620
Aluminum Alloy (Si 13% and Over)	0.002~0.008	660~980	660~980

PCD Inserts

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)
		PCD
		KPD230 (KPD001)
Aluminum Alloy (Si 13% or Less)	0.002~0.008	1640~4,920
Aluminum Alloy (Si 13% and Over)	0.002~0.006	980~3,280



Please observe below precautions fully. Failure to observe the precautions may cause serious damage to human body.

Warning about Maximum Revolution indicated on the main holder body

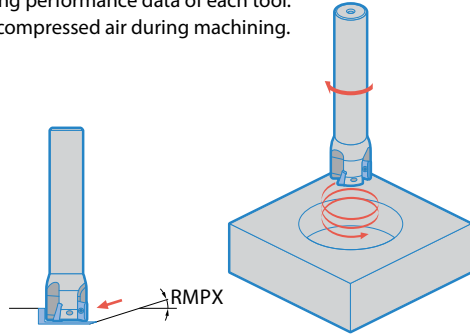
- When running the end mill and the face mill at revolutions exceeding the maximum revolution limit, the inserts or toolholder may be damaged due to the centrifugal force.
- For actual practical revolution, please set within recommended cutting condition.
- When using at a higher revolution (over 10,000 RPM), refer to the table to adjust the balance of MEC and suitable arbor.

Max RPM	Balance quality grade G ISO 1940-1 / 8821 (JIS B0905)
~20,000	G16
~30,000	G6.3
30,000~	G2.5

Ramping / Helical Milling / Plunging

Ramping / Helical Milling

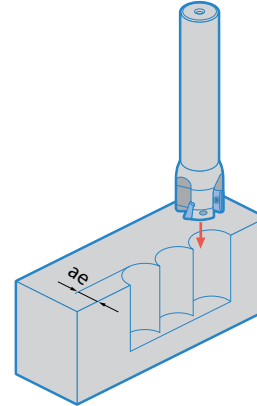
- Ramping Angle should be Under α°
- For plunge depth per revolution when helical milling, see the cutting performance data of each tool.
Use compressed air during machining.



Cutting Dia.	Applicable Inserts	Max. Ramping Angle (RMPX)
Ø0.625", Ø16~Ø18mm	BDMT 11T3 BDGT 11T3	3°
Ø0.750", Ø19~Ø21mm		5°
Ø1.000", Ø22~Ø25mm		2.5°
Ø1.250", Ø28~Ø32mm		1.5°
Ø1.500", Ø40mm		0.7°
Ø50mm~		Not Recommended
Ø1.000", Ø25mm	BDMT 1704	8°
Ø1.250", Ø32mm		5°
Ø1.500", Ø40mm		2.5°
Ø50mm~		Not Recommended

BDMT1103/BDGT1103.. inserts are not recommended for ramping or helical milling.

Plunging



Cutting Dia.	Applicable Inserts	Max. Ramping Angle (RMPX)
Ø0.625" Ø16~Ø19mm	BDMT 11T3 BDGT 11T3	0.060" 1.5mm
Ø0.750"~Ø4.000" Ø20~Ø160mm	BDMT 11T3 BDGT 11T3	0.197" 5mm
Ø1.500", Ø40mm Ø50mm~	BDMT 1704 BDGT 1704	0.315" 8mm

BDMT1103.. inserts are not recommended for ramping or helical milling.

Minimum Cutting Diameter for Helical Milling

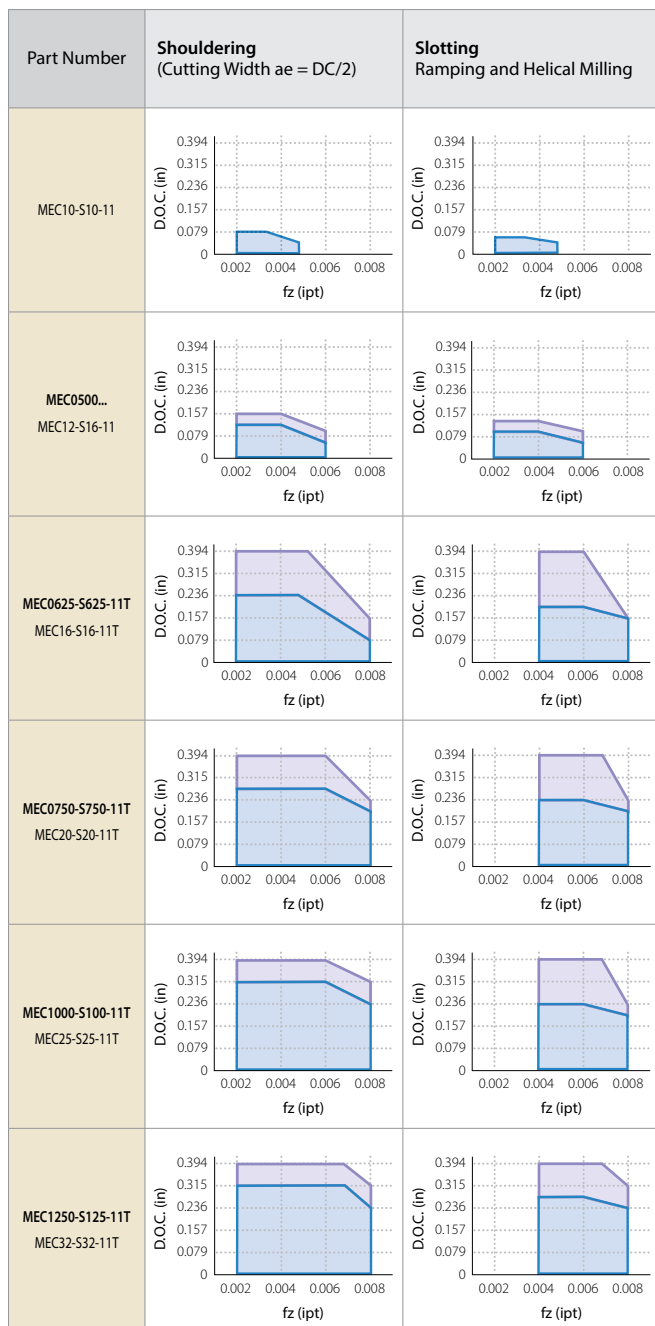
Insert	Cutter Dia.	Ø0.625"	Ø0.750"	Ø1.000"	Ø1.250"	Ø1.500"	Ø16mm	Ø18mm	Ø20mm	Ø22mm	Ø25mm	Ø28mm	Ø30mm	Ø32mm	Ø40mm	Ø50mm
BD_T11T3 Type	Min. Cutting Dia.	Ø0.827"	Ø1.102"	Ø1.575"	Ø2.087"	Ø2.598"	Ø21mm	Ø25mm	Ø29mm	Ø33mm	Ø39mm	Ø45mm	Ø49mm	Ø53mm	Ø69mm	Not recommended for helical milling.
	Min. Cutting Dia. for Flat Bottom	Ø1.102"	Ø1.339"	Ø1.850"	Ø2.362"	Ø2.835"	Ø28mm	Ø32mm	Ø36mm	Ø40mm	Ø46mm	Ø52mm	Ø56mm	Ø60mm	Ø76mm	
Insert	Cutter Dia.	Ø1.000"	Ø1.250"	Ø1.500"	Ø25mm	Ø32mm	Ø40mm	Ø50mm								
BD_T1704 Type	Min. Cutting Dia.	Ø1.339"	Ø1.850"	Ø2.362"	Ø34mm	Ø48mm	Ø64mm	Not recommended for helical milling.								
	Min. Cutting Dia. for Flat Bottom	Ø1.850"	Ø2.323"	Ø2.835"	Ø46mm	Ø60mm	Ø76mm									

Cutting Performance of MEC End Mills

(1) Overhang Length When Using BDMT 11mm-type Insert (Standard / Straight Shank)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)		Shape
		Standard	Long Shank	
Ø10mm	MEC10-S10-11	0.670	-	
Ø0.500" Ø12mm	MEC0500... MEC12-S16-11	0.787	1.180	
Ø0.625" Ø16mm	MEC0625-S625-11T MEC16-S16-11T	1.180	1.790	
Ø0.750" Ø20mm	MEC0750-S750-11T MEC20-S20-11T	1.180	1.790	
Ø1.000" Ø25mm	MEC1000-S100-11T MEC25-S25-11T	1.260	1.890	
Ø1.250" Ø32mm	MEC1250-S125-11T MEC32-S32-11T	1.580	2.360	

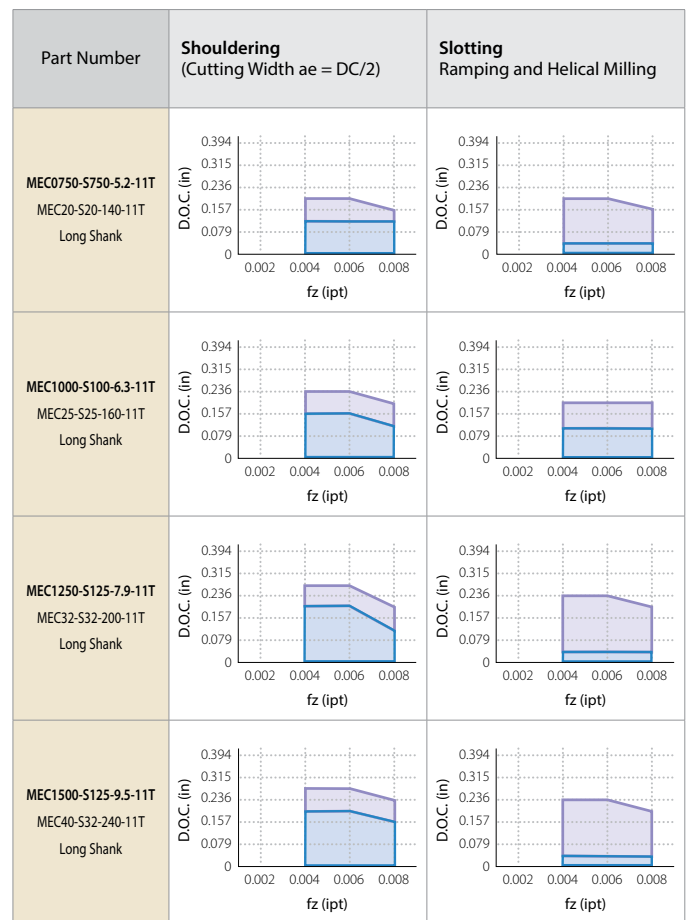
(JT Chipbreaker Vc = 400 sfm Workpiece :1049)



(2) Overhang Length When Using BDMT 11mm-type Insert (Long Shank)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)		Shape
		Standard	Long Shank	
Ø0.750" Ø20mm Long Shank	MEC0750-S750-5.2-11T MEC20-S20-140-11T	2.362	3.543	
Ø1.000" Ø25mm Long Shank	MEC1000-S100-6.3-11T MEC25-S25-160-11T	2.362	3.957	
Ø1.250" Ø32mm Long Shank	MEC1250-S125-7.9-11T MEC32-S32-200-11T	3.957	5.118	
Ø1.500" Ø40mm Long Shank	MEC1500-S125-9.5-11T MEC40-S32-240-11T	3.957	5.119	

(JT Chipbreaker Vc = 400 sfm Workpiece :1049)

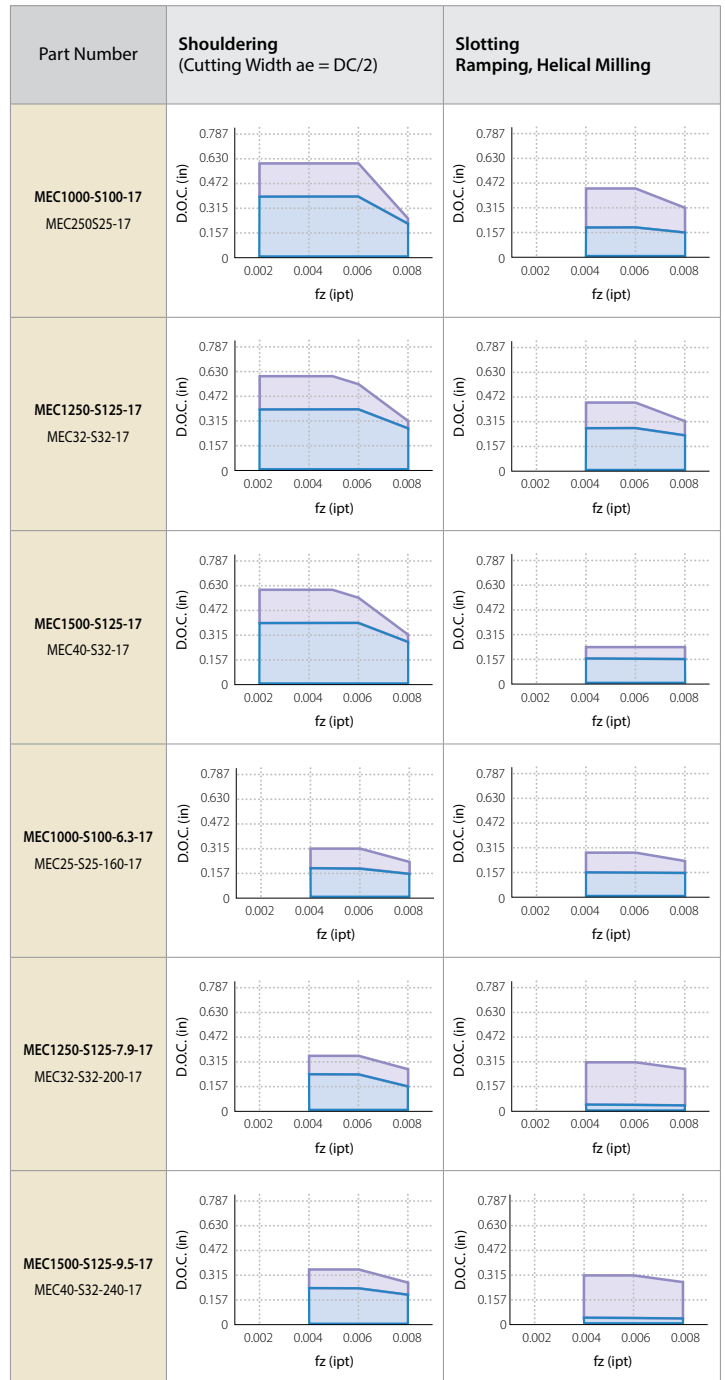


Cutting Performance of MEC End Mills

(3) Overhang Length When Using BDMT 17mm-type Insert

(JT Chipbreaker Vc = 400 sfm Workpiece :1049)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)		Shape
		1.417	2.126	
Ø1.000" Ø25mm	MEC1000-S100-17 MEC25-S25-17	1.417	2.126	
Ø1.250" Ø32mm	MEC1250-S125-17 MEC32-S32-17	1.575	2.362	
Ø1.500" Ø40mm	MEC1500-S125-17 MEC40-S32-17	1.969	2.953	
Ø1.000" Ø25mm Long Shank	MEC1000-S100-6.3-17 MEC25-S25-160-17	2.362	3.937	
Ø1.250" Ø32mm Long Shank	MEC1250-S125-7.9-17 MEC32-S32-200-17	3.937	5.118	
Ø1.500" Ø40mm Long Shank	MEC1500-S125-9.5-17 MEC40-S32-240-17	3.937	5.118	



Cutting Performance of MEC Face Mills

(1) Overhang Length When Using BDMT 11mm-type Insert

(JT Chipbreaker Vc = 400 sfm Workpiece :1049)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)
Ø1.500" Ø40mm	MEC1500R-11T-5T MEC040R-11-5T-M	4.528
Ø2.000" Ø50mm	MEC2000R-11T-5T MEC050R-11-OT-M	3.937
Ø2.500" Ø63mm	MEC2500R-11T-6T MEC063R-11-OT	3.740
	MEC063R-11-OT-M	
Ø3.000" Ø80mm	MEC3000R-11T-7T MEC080R-11-OT	3.740
Ø4.000" Ø100mm	MEC4000R-11-9TN MEC100R-11-9TN	4.252
	Ø125mm MEC125R-11-11T	
Ø160mm MEC160R-11-14T		

Shape

Part Number	Shouldering (Cutting Width ae = DC/2)	Slotting
MEC1500R-11T-5T MEC040R-11-5T-M		
MEC2000R-ØT-ØT MEC4000R-ØT-ØT MEC050R-11-OT-M MEC100R-11-9TN MEC100R-11-9T-MN		
MEC125R-11-11T(-M) MEC160R-11-14T(-M)		

(2) Overhang Length When Using BDMT 17mm-type Insert

(JT Chipbreaker Vc = 400 sfm Workpiece :1049)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)
Ø40mm MEC040R-17-4T-M		4.528
Ø2.000" Ø50mm MEC2000R-17-4T MEC050R-17-OT-M		3.937
Ø2.500" Ø63mm MEC2500R-17-4T MEC063R-17-OT		3.740
	MEC063R-17-OT-M	
Ø3.000" Ø80mm MEC3000R-17-6T MEC080R-17-OT		3.740
Ø4.000" Ø100mm MEC4000R-17-7T MEC100R-17-OTN		4.252
	Ø125mm MEC125R-17-9T(-M)	
Ø160mm MEC160R-17-12T(-M)		

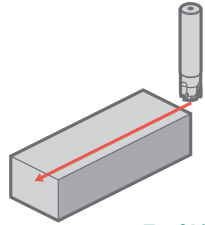
Shape

Part Number	Shouldering (Cutting Width ae = DC/2)	Slotting
MEC040R-17-4T-M		
MEC2000R-17-4T MEC050R-17-OT-M		
MEC2500R-ØT-ØT MEC4000R-ØT-ØT MEC063R-17-OT(-M) MEC100R-17-OTN MEC100R-17-7T-MN		
MEC125R-17-9T(-M) MEC160R-17-12T(-M)		

MEC Case Studies

RC55 (Prehardened Tool Steel)

Test Piece (54 - 56HRC)
 $V_c = 160$ sfm ($n = 800$ RPM)
 $f_z = 0.005$ ipt ($V_f = 11.80$ ipm)
 $D.O.C. \times a_e = 0.079" \times 0.55"$
 Dry
 MEC20-S20-11T (3 Teeth)
 BDMT11T308ER-JT (PR830)



Metal Removal Volume

MEC **4.35 in³** **24x** Tool Life

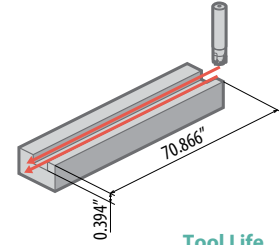
Competitor N (End Mill) **0.18 in³ (Chipping)**

Competitor N ($\phi 25$: 2 Teeth) caused chipping after 10 minutes machining with the conditions of $V_c=130$ sfm, $f_z=0.003$ ipt, $D.O.C. \times a_e=0.079" \times 0.118"$ and it was noisy. Also, higher feed rate was not possible because it would cause breakage. MEC maintained a good edge condition even after 10 minutes and was still available for further machining.

(User Evaluation)

SS400

Plate
 $V_c = 290$ sfm ($n = 1,400$ RPM)
 $f_z = 0.0047$ ipt ($V_f = 19.68$ ipm)
 $D.O.C. = 0.197" \times 2$ Passes
 Dry
 MEC20-S20-11T (3 Teeth)
 BDMT11T308ER-JT (PR830)



Number of Workpieces

MEC **23 pcs/edge** **2x** Tool Life

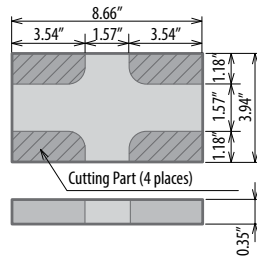
Competitor O (End Mill) **10~11 pcs/edge**

MEC doubled Competitor O's tool life under the same machining conditions.

(User Evaluation)

304

Plate
 $V_c = 410$ sfm ($n = 1,600$ RPM)
 $f_z = 0.004$ ipt ($V_f = 12.60$ ipm)
 $D.O.C. = 0.354"$
 Dry
 MEC25-S25-17 (2 Teeth)
 BDMT170408ER-JT (PR830)



Number of Workpieces

MEC **4 pcs/edge or over** **4x** Tool Life

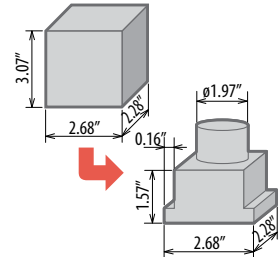
Competitor P (End Mill) **Under 1 pc/edge**

Competitor M showed higher cutting forces and caused cracking to the cutting edge. MEC produced 4 pcs/edge without cracking.

(User Evaluation)

Hot Tool Steel

Mold
 $V_c = 430$ sfm ($n = 1,040$ RPM)
 $f_z = 0.007$ ipt ($V_f = 36.85$ ipm)
 $D.O.C. \times a_e = 0.118" \times 0.197"$
 (depends on machined part)
 Dry (with air)
 MEC40-S32-11T (5 teeth)
 BDMT11T308ER-JT (PR830)



Cutting Time

MEC **2 Hours (Less Wear/Can Continue)** **Same or More** Tool Life

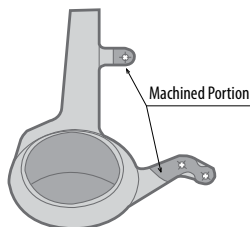
Competitor Q (End Mill) **2 Hours (Cracking/Cannot Continue)**

MEC tool life was better than Competitor Q. MEC's wear was less and able to machine further. Competitor mill had 6 teeth and its table feed rate was 36.85 ipm. ($f_z=0.006$ ipt)

(User Evaluation)

4131

Knuckle Steering
 $V_c = 490$ sfm ($n = 1,200$ RPM)
 $f_z = 0.004$ ipt ($V_f = 18.82$ ipm)
 $D.O.C. = 0.020" - 0.197"$ (Shouldering)
 Dry
 MEC40-S32-17 (4 teeth)
 BDMT170408ER-JT (PR830)



Number of Workpieces

MEC **150 pcs/edge** **3x** Tool Life

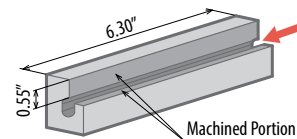
Competitor R (End Mill) **40 pcs/edge**

MEC surface finish was better than the Competitor end mill R and the tool life was over 3 times longer.

(User Evaluation)

Ni-base Heat Resistant Alloy

Turbine Part
 $V_c = 50$ sfm ($n = 120$ RPM)
 $f_z = 0.003$ ipt ($V_f = 1.50$ ipm)
 $D.O.C. = 0.020"$
 Wet
 MEC040R-17-4T-M (4 teeth)
 BDMT170408ER-JS PR1025



Number of Workpieces

MEC **9 pcs/edge** **9x** Tool Life

Competitor S (End Mill) **Less than 1 pc/edge**

Competitor S was not able to successfully machine one piece, but the MEC produced 9 pieces with good surface finishes.

(User Evaluation)

MECH

High Efficiency Helical End Mill

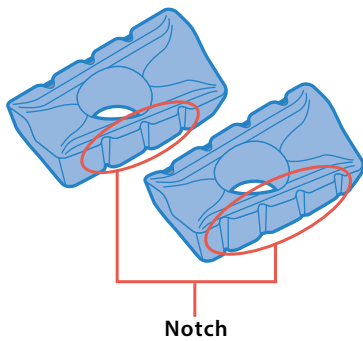
Notched Inserts Reduce Chattering, Break Chips into Small Pieces, and Improve Chip Evacuation

High Efficiency Heavy Machining with Large D.O.C.

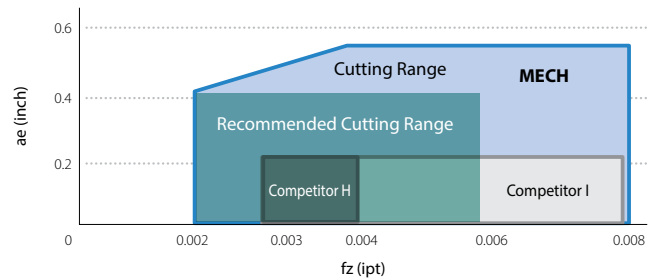


1 Low Cutting Forces with Notched Inserts for Heavy Machining

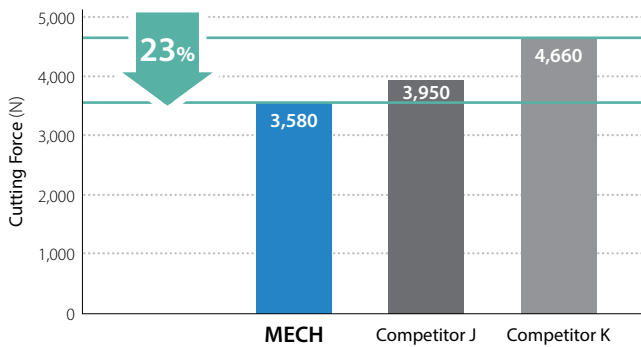
Notched Inserts Reduce Cutting Forces
Lower Cutting Forces and Reduced Chattering



Application Range Comparison (Internal Evaluation)

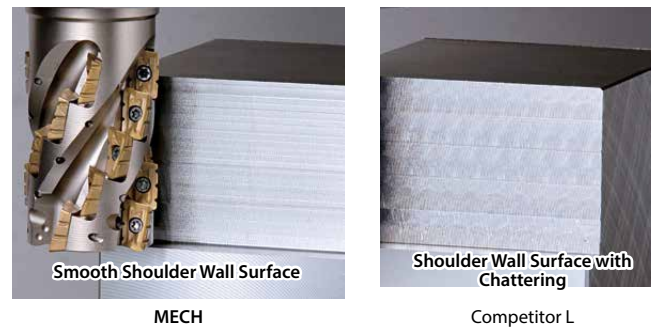


Cutting Force Comparison (Internal Evaluation)



Cutting Conditions : $V_c = 390$ ipm, $f_z = 0.004$ ipt, D.O.C. \times $a_e = 1.57'' \times 0.39''$, Dry
MECH032-S32-11-5-4T Workpiece : 1049

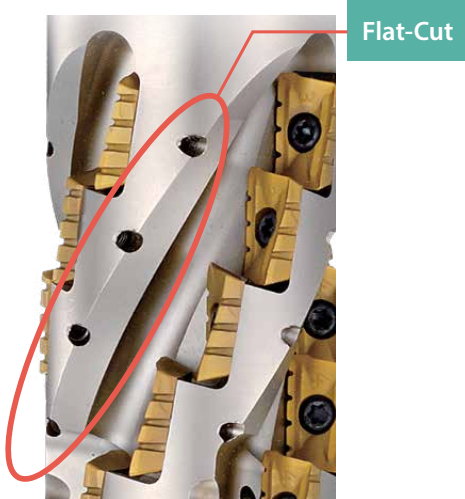
Surface Wall Comparison (Internal Evaluation)



Cutting Conditions : $V_c = 394$ sfm, $f_z = 0.005$ ipt, D.O.C. \times $a_e = 1.57'' \times 0.27''$, Dry
MECH032-S32-11-5-4T Workpiece : 1049

2 Improved Chip Evacuation

Notched Insert Breaks Chips into Small Pieces
Flat-Cut Flute Provides Excellent Chip Evacuation



Chips Comparison (Internal Evaluation)



MECH

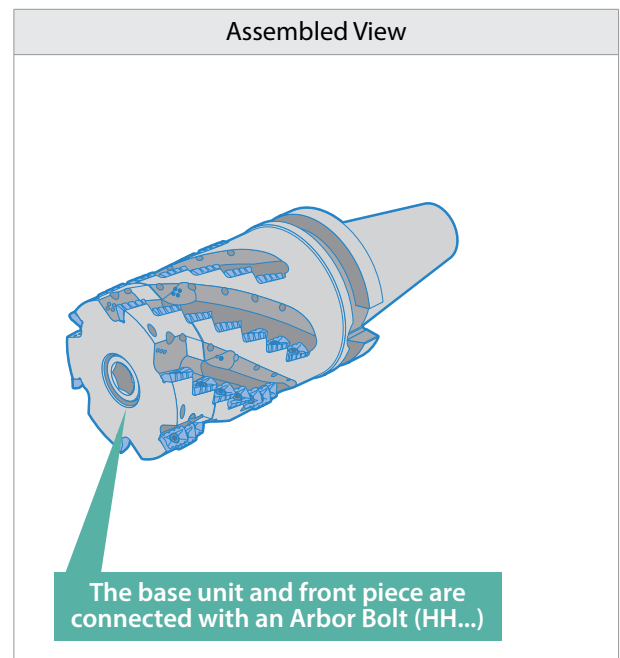
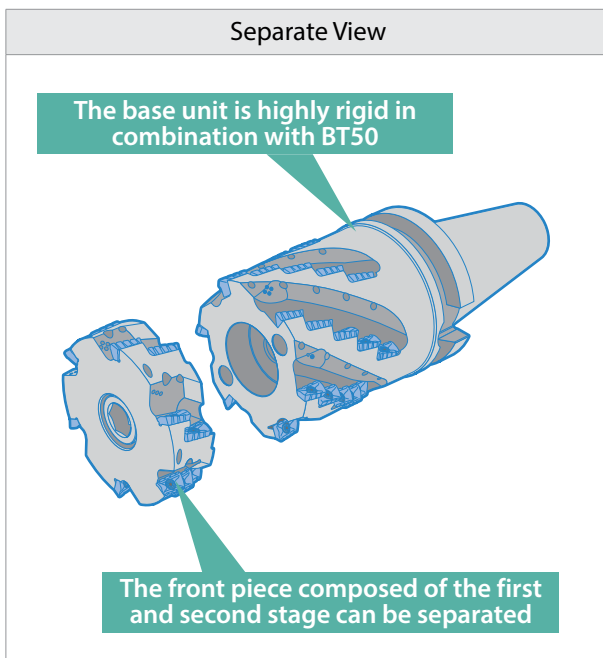


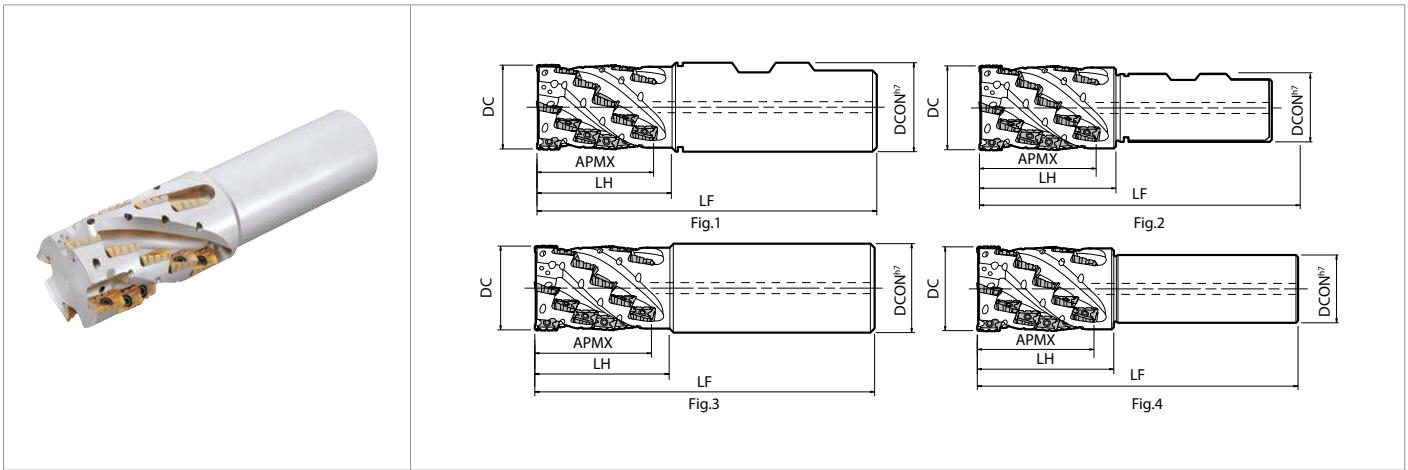
Competitor M

Cutting Conditions : $V_c = 390$ sfm, $f_z = 0.005$ ipt, D.O.C. \times ae = $1.57'' \times 0.27''$, Dry
MECH032-S32-11-5-4T Workpiece : SS400

3 MECH Interchangeable Head Minimizes Tooling Costs

If head is damaged, it can be replaced
Minimizing tooling costs





Toolholder Dimensions (Inch)

Shank	Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (in)					Rake Angle (°)		Drawing	Coolant Hole	Spare Parts			Applicable Inserts
						DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.			Insert Screw	Wrench	Anti-seize Compound	
Weldon	MECH 1000-W100-11-4-2T	●	2	4	8	1.00	1.00	4.17	1.81	1.46	+21°	-10°	Fig.1	No	SB-2555TRG	DTM-8	P-37	BDMT11T308ER-N2 BDMT11T308ER-N3
	1250-W125-11-5-2T	●				5	10	1.25	1.25	4.52	2.17	1.81						
	1250-W125-11-5-4T	●	4	6	24	1.50	4.90			2.52	2.16	-8°	Fig.1					
	1500-W125-11-6-4T	●					7	28	2.00	1.50	5.73							
	1500-W150-11-6-4T	●	6	7	42	2.00					1.50	5.73	2.95					
	2000-W150-11-7-4T	●					2	4	8	1.50								
	2000-W1500-11-7-6T	●	4	5	20	2.00					1.50	5.64	3.46					
	MECH 1500-W125-17-4-2T	●					4	5	20	2.00	6.26	3.46	2.91					
	1500-W150-17-4-2T	●	4	5	20	2.00					6.26	3.46	2.91					
	2000-W1500-17-5-4T	●					4	5	20	2.00	6.26	3.46	2.91					

Toolholder Dimensions (Metric)

Shank	Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Drawing	Coolant Hole	Spare Parts			Applicable Inserts
						DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.			Insert Screw	Wrench	Anti-seize Compound	
Cylindrical	MECH 025-S25-11-4-2T	●	2	4	8	25	25	120	46	37	+21°	-10°	Fig.3	Yes	SB-2555TRG	DTM-8	P-37	BDMT11T308ER-N2 BDMT11T308ER-N3
	032-S32-11-5-2T	●				5	10	32	32	140	55	46						
	032-S32-11-5-4T	●	4	6	24	40	150			64	55	-8°	Fig.4					
	040-S32-11-6-4T	●					7	28	50	42	160							
	040-S42-11-6-4T	●	6	7	42	50					172	75	64					
	050-S42-11-7-4T	●					4	5	20	50	42	170	88					
	050-S42-11-7-6T	●	4	5	20	50					42	170	88					
	MECH 040-S32-17-4-2T	●					4	5	20	50	42	170	88					
	040-S42-17-4-2T	●	4	5	20	50					42	170	88					
	050-S42-17-5-4T	●					4	5	20	50	42	170	88					





Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

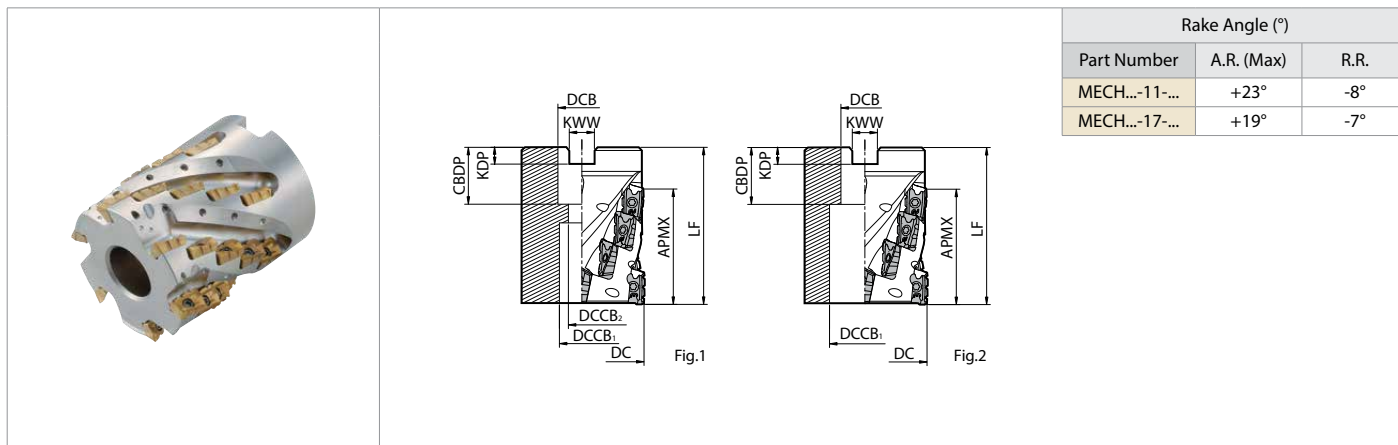
Recommended Cutting Conditions → **P27** ●: Standard item

Caution with Max. Revolution

When running an endmill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force. For more details, see "Warning" on page P13.

Applicable Inserts

Part Number	Applicable Inserts: P4			
	 2-Notch	 3-Notch	 3-Notch	 4-Notch
MECH...-11-...	BDMT 11T308ER-N2	BDMT 11T308ER-N3	-	-
MECH...-17-...	-	-	BDMT 170408ER-N3	BDMT 170408ER-N4



Toolholder Dimensions

Part Number	Stock	Unit	No. of Flutes	No. of Stages	No. of Inserts	Dimensions							Drawing	Spare Parts				Applicable Inserts						
						DC	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP		KWW	APMX	Insert Screw	Wrench		Anti-seize Compound	Arbor Bolt				
MECH 2000R-11-5-6T	●	inch	6	5	30					2.480				1.811	Fig.1	SB-2555TRG	DTM-8	P-37	HH3/8-1.5	BDMT11T308ER-N2 BDMT11T308ER-N3				
2000R-17-2-4T	●		4	2	8	2.00	0.75	0.63	0.417	2.047	0.750	0.197	0.313	1.181							SB-4070TRN	DTM-15	HH3/8-1.25	BDMT170408ER-N3 BDMT170408ER-N4
2000R-17-4-4T	●		4	4	16					3.070				2.322										
MECH 040R-11-4-4T-M	●	mm	4	4	16	40	16	15	9	50	19	5.6	8.4	37	Fig.1	SB-2555TRG	DTM-8	P-37	HH8X25 HH10X30	BDMT11T308ER-N2 BDMT11T308ER-N3				
050R-11-5-6T-M	●		6	5	30	50	22	18	11	63	21	6.3	10.4	46										
MECH 050R-17-2-4T-M	●		4	2	8					52				30							Fig.1	SB-4070TRN	DTM-15	P-37
050R-17-4-4T-M	●	4	4	16	50	22	18	11	78				59											
063R-17-3-4T-M	●	4	3	12	63	27	20	14	70	24	7	12.4	45	Fig.2										
080R-17-4-6T-M	●	6	4	24	80	32	26	18	85	28	8	14.4	59											
100R-17-4-6T-M	●	6	4	24	100	40	56	-	85	30	9	16.4	59											
MECH 063R-17-3-4T	●	mm	4	3	12	63	25.4	20	14	70	26	6	9.5	45	Fig.1	SB-4070TRN	DTM-15	P-37	HH12X35 HH16X45					
080R-17-4-6T	●		6	4	24	80	31.75	26	18	85	32	8	12.7	59										
100R-17-4-6T	●		6	4	24	100	38.1	56	-	85	38	10	15.9	59							Fig.2			

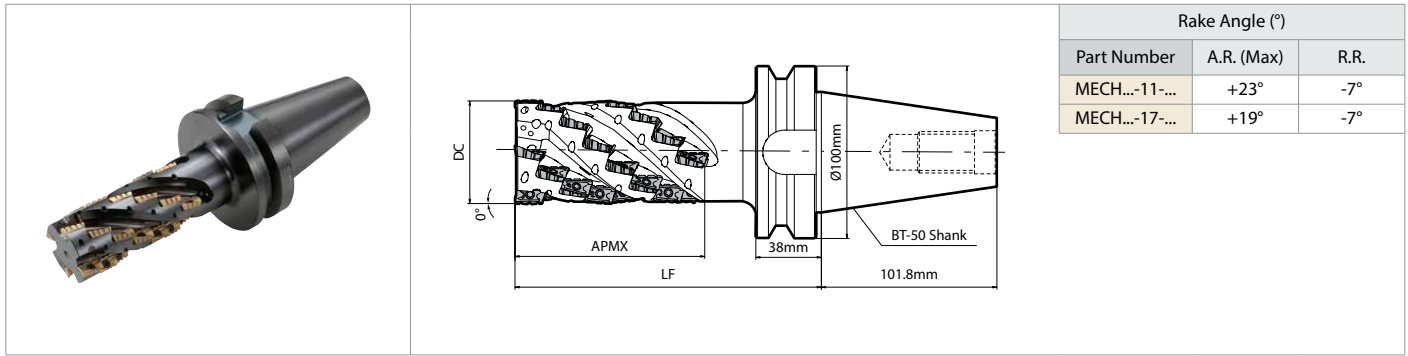
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Recommended Cutting Conditions → **P27** ●: Standard item

Applicable Inserts

Part Number	Applicable Inserts: P4			
	2-Notch	3-Notch	3-Notch	4-Notch
MECH...-11-...	BDMT 11T308ER-N2	BDMT 11T308ER-N3	-	-
MECH...-17-...	-	-	BDMT 170408ER-N3	BDMT 170408ER-N4

MECH-BT50 Integral Arbor (without Coolant Hole)



Toolholder Dimensions

Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (mm)			Weight (kg)	Spare Parts			Applicable Inserts
					DC	LF	APMX		Insert Screw	Wrench	Anti-seize Compound	
MECH 050R11-8-4T-BT50	●	4	8	32	50	143	73	4.8	SB-2555TRG	DTM-8	P-37	BDMT11T308ER-N2 BDMT11T308ER-N3
MECH 050R17-7-4T-BT50	●	4	7	28	50	173	104	4.9	SB-4070TRN	DTM-15	P-37	BDMT170408ER-N3 BDMT170408ER-N4
063R17-7-4T-BT50	●				63			5.9				
080R17-7-4T-BT50	●				80			7.8				
100R17-7-6T-BT50	●				100			10.2				

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Recommended Cutting Conditions → **P27** ●: Standard item

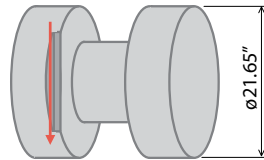
Applicable Inserts

Part Number	Applicable Inserts: P4			
	2-Notch	3-Notch	3-Notch	4-Notch
MECH050R11-...	BDMT 11T308ER-N2	BDMT 11T308ER-N3	-	-
MECH...R17-...	-	-	BDMT 170408ER-N3	BDMT 170408ER-N4

MECH Case Studies

Ship parts 1045

Vc = 490 sfm (n = 955 RPM)
 D.O.C. x ae = 2.75" x 0.39"
 fz = 0.008 ipt (Vf = 30.08 ipm)
 Dry
 MECH050-S42-17-5-4T(4 Flutes)
 BDMT170408ER-N3
 BDMT170408ER-N4
 (PR830)



Metal Removal Volume

MECH 534 cc/min **Productivity 4.6x**

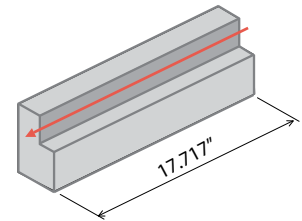
Competitor T 115 cc/min

MECH machining efficiency improved 4.6 times that of Competitor T

(User Evaluation)

Plate SS400

Vc = 490 sfm (n = 955 RPM)
 D.O.C. x ae = 2.75" x 0.39"
 fz = 0.008 ipt (Vf = 30.00 ipm)
 Dry
 MECH050-S42-17-5-4T(4 Flutes)
 BDMT170408ER-N3
 BDMT170408ER-N4
 (PR830)



Metal Removal Volume

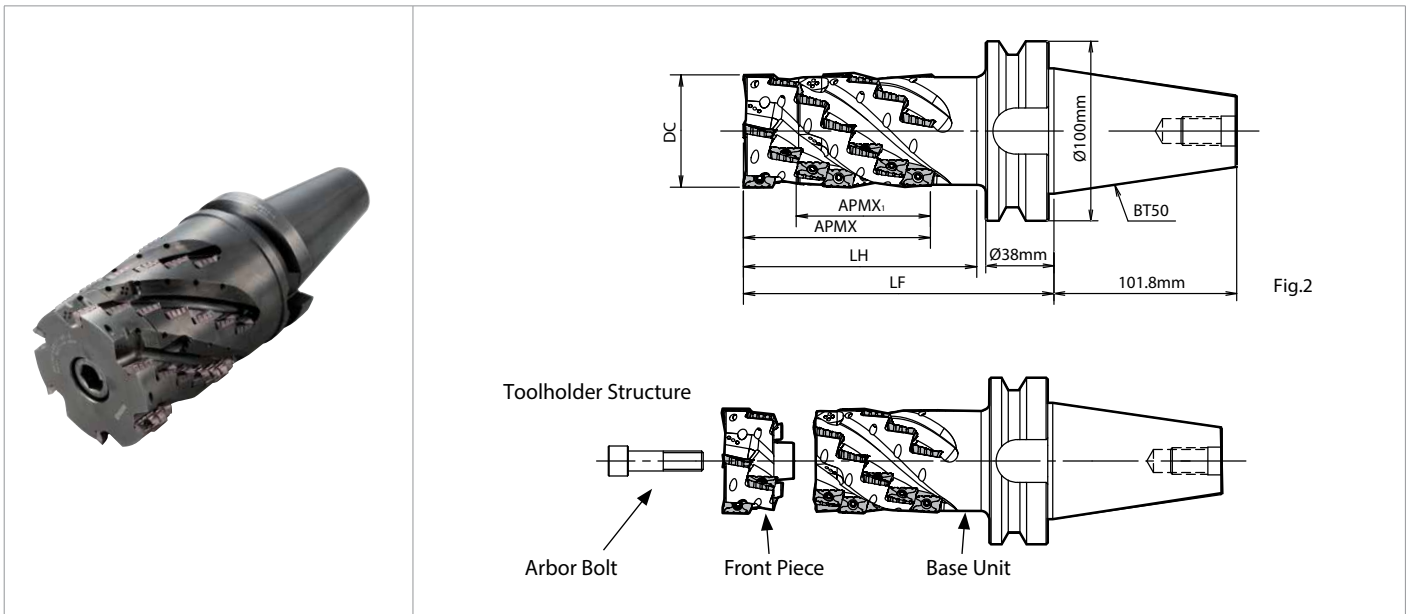
MECH 532 cc/min **Productivity 3.1x**

Competitor U 170 cc/min

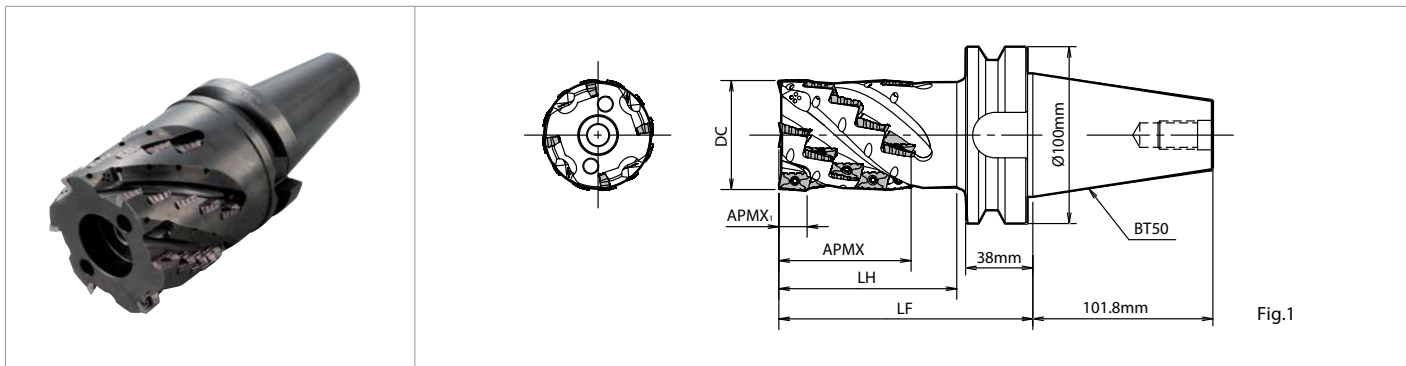
MECH machining efficiency improved 3.1 times that of Competitor U and had an excellent wall finish

(User Evaluation)

MECH-BT50SA Integral Arbor Set (without Coolant Hole)



MECH-BT50-A Base Unit (without Coolant Hole)



Toolholder Dimensions

Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Drawing	Weight (kg)	
					DC	LF	LH	APMX	APMX ₁	A.R.	R.R.			
Integral Arbor (Set)	MECH 050R11-4T-BT50SA	<input type="checkbox"/>	4	8	32	50	143	99	73	55	+23°	-7°	Fig.1	4.8
	063R17-4T-BT50SA	<input type="checkbox"/>		7	28	63	173	130	104	75	+19°	-7°		5.8
	080R17-4T-BT50SA	<input type="checkbox"/>		80	100	7.6								
	100R17-6T-BT50SA	<input type="checkbox"/>	6	7	42	100	9.8							
Base Unit	MECH 050R11-4T-BT50-A	<input type="checkbox"/>	4	6	24	50	125	81	55	10	+23°	-7°	Fig.2	4.6
	063R17-4T-BT50-A	<input type="checkbox"/>		5	20	63	143	100	75	16	+19°	-7°		5.4
	080R17-4T-BT50-A	<input type="checkbox"/>	80	6.8										
	100R17-6T-BT50-A	<input type="checkbox"/>	6	5	30	100	8.5							

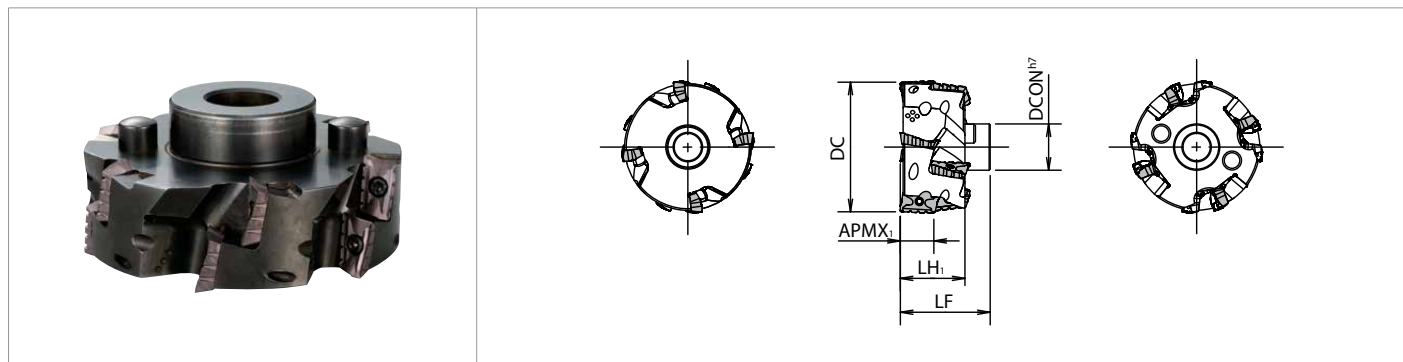
Recommended Cutting Conditions → P27 : Made to Order

Toolholder Structure

End Mill (Above)	=	Base Unit (Above)	+	Front Piece (1pc)	+	Arbor Bolt
MECH 050R11-4T-BT50SA		MECH050R11-4T-BT50-A		MECH050R11-4T-F		HH12X35
063R17-4T-BT50SA		MECH063R17-4T-BT50-A		MECH063R17-4T-F		HH12X40
080R17-4T-BT50SA		MECH080R17-4T-BT50-A		MECH080R17-4T-F		HH16X40
100R17-6T-BT50SA		MECH100R17-6T-BT50-A		MECH100R17-6T-F		HH20X40

MECH Interchangeable

MECH-F Front Piece (without Coolant Hole)



Toolholder Dimensions

Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Weight (kg)
					DC	DCON	LF	LH1	APMX1	A.R.	R.R.	
MECH 050R11-4T-F	●	4	2	8	50	22	32	18	10	+23°	-7°	0.2
063R17-4T-F	●				63	22						
080R17-4T-F	●				80	32	44	30	16	+19°	-7°	
100R17-6T-F	●	6	2	12	100	45						1.3

● : Standard Item

Applicable Inserts

End Mill	Base Unit	Front Piece	Applicable Inserts
MECH 050R11-4T-BT50SA	MECH050R11-4T-BT50-A	MECH050R11-4T-F	BDMT 11T308ER-N2 BDMT 11T308ER-N3
063R17-4T-BT50SA	MECH063R17-4T-BT50-A	MECH063R17-4T-F	BDMT 170408ER-N3 BDMT 170408ER-N4
080R17-4T-BT50SA	MECH080R17-4T-BT50-A	MECH080R17-4T-F	
100R17-6T-BT50SA	MECH100R17-6T-BT50-A	MECH100R17-6T-F	

Recommended Cutting Conditions → P27

Spare Parts





Part Number		Spare Parts				
		Insert Screw	Wrench (for Insert Screw)	Arbor Bolt	Wrench (for Arbor Bolt)	Anti-seize Compound
Integral Arbor (Set)	MECH 050R11-4T-BT50SA	SB-2555TRG	DTM-8	HH12X35	LW-10	P-37
	063R17-4T-BT50SA	SB-4070TRN	DTM-15	HH12X40	LW-10	
	080R17-4T-BT50SA			HH16X40	LW-14	
	100R17-6T-BT50SA			HH20X40	LW-17	
Base Unit	MECH 050R11-4T-BT50-A	SB-2555TRG	DTM-8	HH12X35	LW-10	
	063R17-4T-BT50-A	SB-4070TRN	DTM-15	HH12X40	LW-10	
	080R17-4T-BT50-A			HH16X40	LW-14	
	100R17-6T-BT50-A			HH20X40	LW-17	
Front Piece	MECH 050R11-4T-F	SB-2555TRG	-	-	-	
	063R17-4T-F	SB-4070TRN	-	-	-	
	080R17-4T-F					
	100R17-6T-F					

• If you purchased the front piece only, the insert screw wrench, arbor bolt, and arbor bolt wrench are not included.





 Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

MECH Inserts

MECH Helical End Mill

Part Number	No. of Flutes	No. of Inserts	No. of Inserts			
			BDMT11T308ER-		BDMT170408ER-	
			 N2	 N3	 N3	 N4
MECH 1000-W1000-11-4-2T 025-S25-11-4-2T	2	8	4	4		
1250-W1250-11-5-2T 032-S32-11-5-2T		10	5	5		
1250-W1250-11-5-4T 032-S32-11-5-4T	4	20	10	10		
1500-W1250-11-6-2T 040-S32-11-6-4T		24	12	12	-	-
1500-W1500-11-6-4T 040-S42-11-6-4T		28	14	14		
2000-W1500-11-7-4T 050-S42-11-7-4T		42	21	21		
2000-W1500-11-7-6T 050-S42-11-7-6T	6	42	21	21		
MECH 1500-W125-17-4-2T 040-S32-17-4-2T	2	8			4	4
1500-W150-17-4-2T 040-S42-17-4-2T						
2000-W1500-17-5-4T 050-S42-17-5-4T	4	20			10	10

MECH Helical Shell Mill

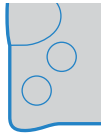
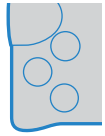
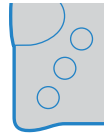

Part Number	No. of Flutes	No. of Inserts	No. of Inserts			
			BDMT11T308ER-		BDMT170408ER-	
			 N2	 N3	 N3	 N4
MECH 040R-11-4-4T-M	4	16	8	8		
2000R-11-5-6T 050R-11-5-6T-M	6	30	15	15	-	-
MECH 2000R-17-2-4T 050R-17-2-4T-M	4	8			4	4
2000R-17-4-4T 050R-17-4-4T-M		16			8	8
063R-17-3-4T-M		12			6	6
080R-17-4-6T-M	6	24	-	-	12	12
100R-17-4-6T-M						
MECH 063R-17-3-4T	4	12			6	6
080R-17-4-6T	6	24			12	12
100R-17-4-6T						

MECH Precautions when Installing Notched Inserts

1. Install notched inserts by matching the insert with the number of marks on the holder body.

2. When installing notched inserts in flute line, ensure that the number on the insert is the same as the insert in first stage. Ref. to Fig.1, 2 and 3.

Insert Number and Holder Marks

Insert Size	11 Type		17 Type	
	2	3	3	4
Insert No.				
Marks				

Using the cutter with the inserts installed incorrectly will damage the holder.

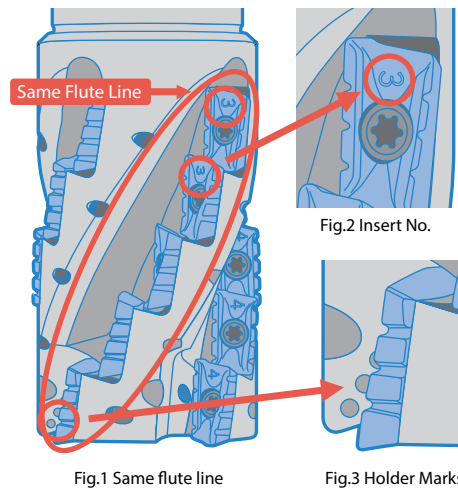


Fig.1 Same flute line

Fig.2 Insert No.

Fig.3 Holder Marks

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)				
		MEGACOAT NANO	MEGACOAT			PVD Coated Carbide
		PR1535	PR1225	PR1230	PR1210	PR830
Carbon Steel	0.003~0.004~0.006	☆ 390~590~820	☆ 390~590~820	★ 390~590~720	-	☆ 330~460~590
Alloy Steel	0.003~0.004~0.006	☆ 330~520~720	☆ 330~520~720	★ 330~520~660	-	☆ 330~460~590
Mold Steel	0.003~0.004~0.006	☆ 260~460~590	☆ 260~460~590	★ 260~460~520	-	☆ 330~390~490
Gray Cast Iron	0.003~0.006~0.007	-	-	-	★ 390~590~820	-
Nodular Cast Iron	0.003~0.006~0.007	-	-	-	★ 330~490~720	-
Titanium Alloys	0.003~0.004~0.006	★ 130~200~260	-	-	★ 100~160~230	-

* Bold numbers in the graph indicate the most recommended value of feed (fz) Adjust cutting speed and feed rate according to the actual machining conditions
 * Machining with coolant is recommended for titanium alloys
 * Recommended cutting conditions above are for notched inserts. If using an insert without a notch, the cutting depth (D.O.C.) and width (ae) should be 60% of that of notched inserts.

★ : 1st Recommendation
 ☆ : 2nd Recommendation

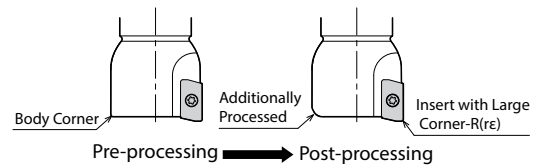
JA Chipbreaker

Workpiece Material	Feed Rate fz (ipt)	Vc (sfm)
		Carbide
		GW25
Aluminum Alloy (Si 13% or Less)	0.003~0.012	660~2620
Aluminum Alloy (Si 13% and Over)	0.003~0.008	660~980

When using inserts with corner-R (RE) 1.6mm or larger, additional modifications of the cutter body will be necessary. Refer to the table below for the recommended modifications. (Additional grind off is not necessary when corner-R (RE) is 1.2mm or less.)

Insert Corner-R (RE)	Additional Processing Dimension to Body Corner (mm)
1.6	R1.0
2.0	
2.4	R1.2
3.1	R1.6
4.0	R2.5

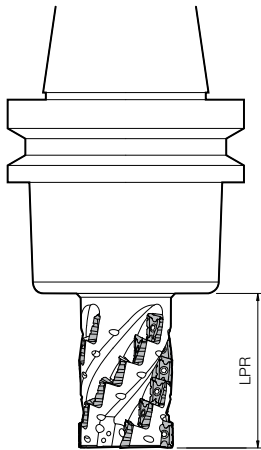
* Round-shaped additional processing is recommended. When applying chamfer shaped additional processing, do not cut away too much.



MECH Helical End Mill

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)
Ø1.000" Ø25mm	MECH1000-W1000-11-4-2T MECH025-S25-11-4-2T	1.89
Ø1.250" Ø32mm	MECH1250-W1250-11-5-2T MECH032-S32-11-5-2T	2.24
	MECH1250-W1250-11-5-4T MECH032-S32-11-5-4T	
Ø1.500" Ø40mm	MECH1500-W1250-11-6-4T MECH040-S32-11-6-4T	2.56
	MECH1500-W1500-11-6-4T MECH040-S42-11-6-4T	
Ø2.000" Ø50mm	MECH2000-W1500-11-7-4T MECH050-S42-11-7-4T	2.99
	MECH2000-W1500-11-7-6T MECH050-S42-11-7-6T	
Ø1.500" Ø40mm	MECH1500-W1250-17-4-2T MECH040-S32-17-4-2T	2.91
	MECH1500-W1500-17-4-2T MECH040-S42-17-4-2T	
Ø2.000" Ø50mm	MECH2000-W1500-17-5-4T MECH050-S42-17-5-4T	3.50

Shape



2 Flute Type

(Workpiece :1049)

Part Number	Shouldering	Slotting
	Cutting Speed: $V_c = 330 \sim 590$ sfm Feed $f_z = 0.003 \sim 0.006$ ipt	Cutting Speed: $V_c = 330 \sim 390$ sfm Feed $f_z = 0.003 \sim 0.005$ ipt
MECH1000-W1000-11-4-2T MECH025-S25-11-4-2T		
MECH1250-W1250-11-5-2T MECH032-S32-11-5-2T		
MECH1500-W1250-17-4-2T MECH1500-W1500-17-4-2T MECH040-S32-17-4-2T MECH040-S42-17-4-2T		

4 Flute / 6 Flute Type

MECH1250-W1250-11-5-4T MECH032-S32-11-5-4T	
MECH1500-W1250-11-6-4T MECH1500-W1500-11-6-4T MECH040-S32-11-6-4T MECH040-S42-11-6-4T	
MECH1200-W1500-11-7-4T MECH050-S42-11-7-4T	
MECH1200-W1500-11-7-6T MECH050-S42-11-7-6T	
MECH1200-W150017-5-4T MECH050-S42-17-5-4T	

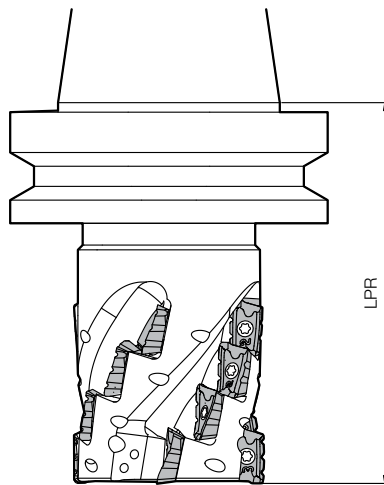
*4 and 6 flute types are not recommended for slotting

MECH Helical Shell Mill

(Workpiece :1049)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)
Ø40mm	MECH040R-11-4-4T-M	4.92
Ø2.000" Ø50mm	MECH2000R-11-5-6T MECH050R-11-5-6T-M	4.84
	MECH2000R-17-2-4T MECH050R-17-2-4T-M	4.41
	MECH2000R-17-4-4T MECH050R-17-4-4T-M	5.43
	MECH063R-17-3-4T-M	4.53
Ø80mm	MECH080R-17-4-6T-M	5.12
Ø100mm	MECH100R-17-4-6T-M	5.12

Shape



Part Number	Shouldering	
	Cutting Speed: Vc = 330~590 sfm Feed: fz = 0.003~0.006 ipt	
MECH040R-11-4-4T-M		MECH063R-17-3-4T-M
MECH2000R-11-5-6T MECH050R-11-5-6T-M		MECH080R-17-4-6T-M
MECH2000R-17-2-4T MECH050R-17-2-4T-M		MECH100R-17-4-6T-M
MECH2000R-17-4-4T MECH050R-17-4-4T-M		

*Not recommended for slotting

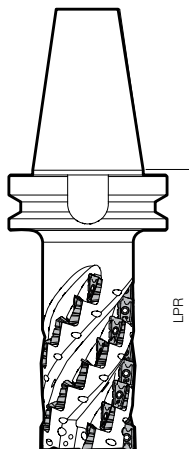
MECH-BT50 Integral Arbor

MECH-BT50SA Integral Arbor with Replaceable Front Piece

(Workpiece :1049)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)
Ø50mm	MECH050R11-8-4T-BT50 MECH050R11-4T-BT50SA	5.63
	MECH050R17-7-4T-BT50	6.81
Ø63mm	MECH063R17-7-4T-BT50 MECH063R17-4T-BT50SA	
Ø80mm	MECH080R17-7-4T-BT50 MECH080R17-4T-BT50SA	
Ø100mm	MECH100R17-7-6T-BT50 MECH100R17-6T-BT50SA	

Shape



Part Number	Shouldering	
	Cutting Speed: Vc = 330~590 sfm Feed: fz = 0.003~0.006 ipt	
MECH050R11-8-4T-BT50 MECH050R11-4T-BT50SA		MECH080R17-7-4T-BT50 MECH080R17-4T-BT50SA
MECH050R17-7-4T-BT50		MECH100R17-7-6T-BT50 MECH100R17-6T-BT50SA
MECH063R17-7-4T-BT50 MECH063R17-4T-BT50SA		

*Not recommended for slotting

MECX

High Efficiency Fine-Pitch Endmills & Facemills

Extra-fine Pitch increases Machining Efficiency

Ideal for Lower Horsepower Machines

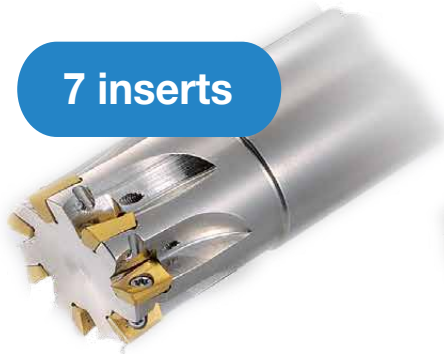


1 Increased Machining Efficiency

Multiple inserts promote high efficiency machining at higher table feeds

MECX vs MEC

(1" diameter cutter)



7 inserts

MECX1000-S100-07-7T



3 inserts

MEC1000-S100-11T



2 inserts

MEC1000-S100-17

Cutting Edge Strength Comparison (Internal Evaluation)

No. of Passes	25	50	75	
MECX-JT	[Blue arrow pointing to 75]			75
Competitor A	[Black bar to 28]			28
	[Black bar to 7]			7
Competitor B	[Black bar to 24]			24
	[Black bar to 20]			20

Vc = 400 sfm, fz = 0.008 ipt, D.O.C. x ae = 0.08" x 0.4"
4140 Steel

Toolholder Strength Comparison (Internal Evaluation)

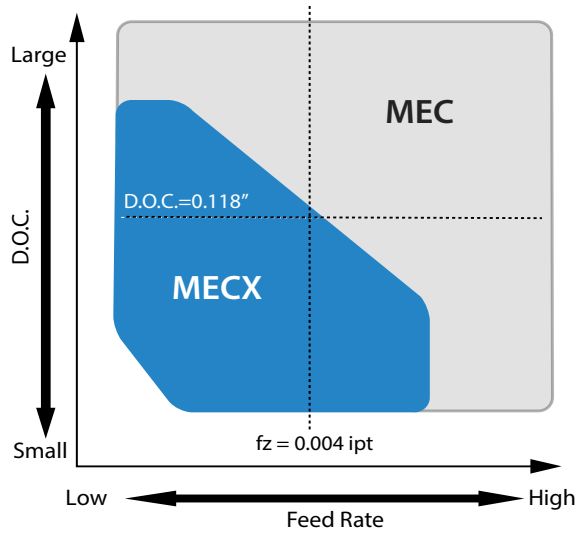
No. of Passes	100	200	300	
MECX-JT	[Blue arrow pointing to 260]			260
Competitor A	[Black bar to 60]			60
	[Black bar to 96]			96
Competitor B	[Black bar to 103]			103
	[Black bar to 227]			227

Cutting Diameter 0.787", Vc = 400 sfm, fz = 0.006 ipt, D.O.C. x ae = 0.200" x 0.275"
1049 Steel

2 MECX Lineup for Lower Horsepower Machines

Low resistance and high toughness, optimum for low horsepower machines
Face Mills hold up to 14 inserts for high precision milling

MEC & MECX Application Range



MECX Face Mill Series

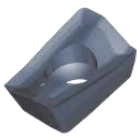
Cutter Dia: Ø1.25", Ø1.5", Ø2", Ø2.5"



3 Wide Range of Machining Applications

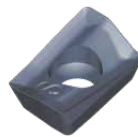
Various chipbreakers available for multiple machining applications

JT Chipbreaker



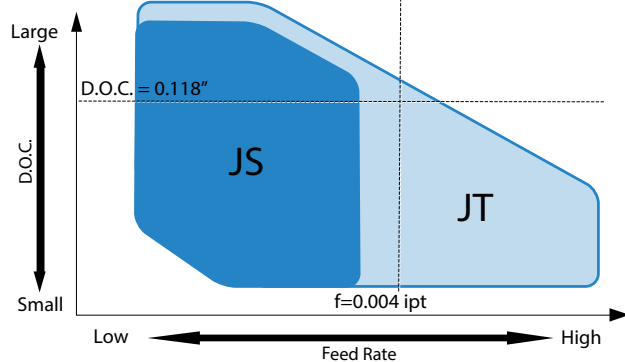
General Purpose
(Tough Edge)

JS Chipbreaker

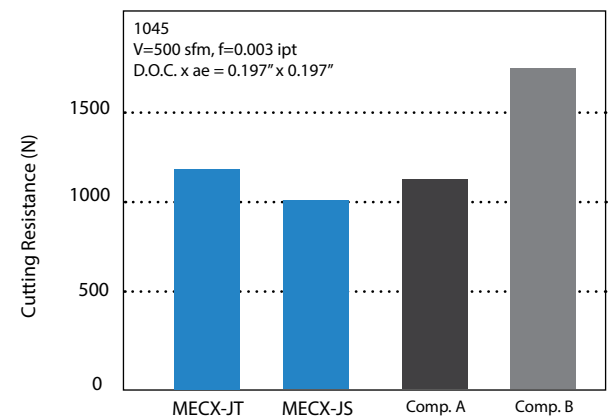


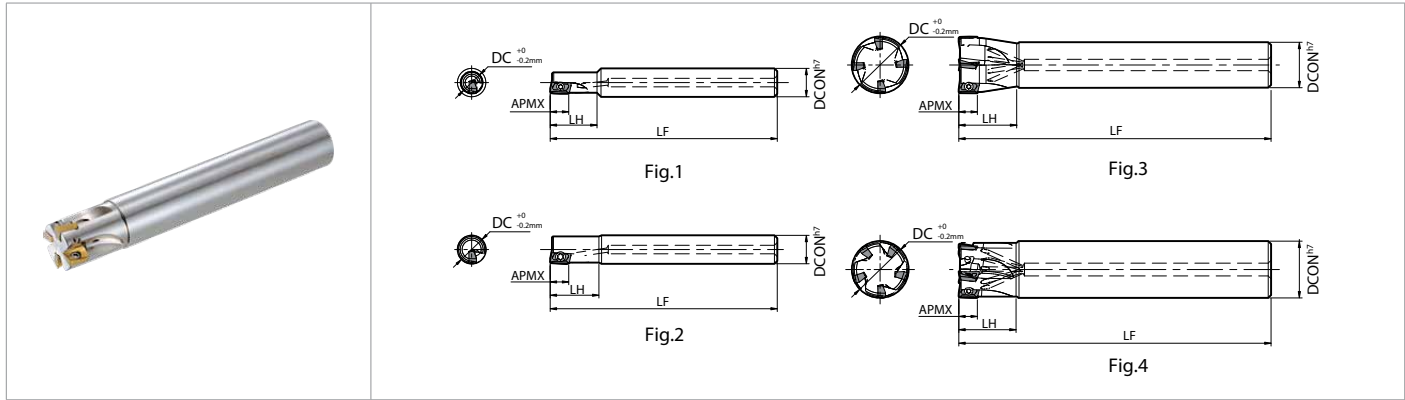
Low Resistance
(Sharp Edge)

Chipbreaker Application Chart



Low Cutting Forces (4140)





Toolholder Dimensions

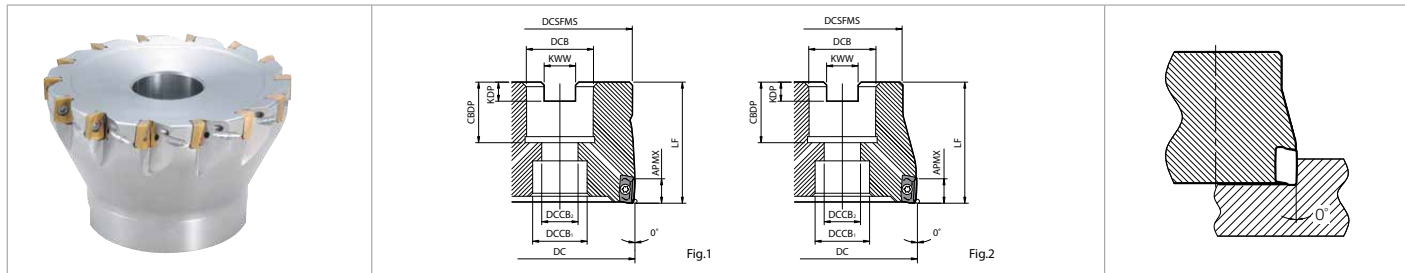
Shank	Part Number	Stock	Unit	No. of Inserts	Dimensions					Rake Angle (°)		Coolant Hole	Drawing	Spare Parts		Max RPM								
					DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.			Insert Screw	Wrench									
																	Fig. 1	Fig. 2	Fig. 3	Fig. 4				
Standard Shank	MECX 0375-S375-07-1T	●	inch	1	0.375	0.375	3.00	0.669	0.236	12.8°	-19.7°	Yes	Fig. 1	SB-2035TRG	DTM-6	47,150								
	0500-S500-07-2T	●		2	0.500	0.500	3.27	0.709		14.3°	-12.9°		Fig. 1			45,800								
	0625-S625-07-3T	●		3	0.625	3.50	0.787	16.3°		-11.3°	Fig. 2		SB-2042TRG	DTM-6	43,300									
	0750-S625-07-4T	●														4	4.00	Fig. 3	40,900					
	0750-S750-07-4T	●		4	0.750	4.00	0.787	16.3°		-10.9°	Fig. 2		SB-2042TRG	DTM-6	40,900									
	0750-S750-07-5T	●														5	Fig. 2	40,900						
	1000-S100-07-5T	●		5	1.000	4.50	0.984	0.236		16.3°	-9.5°		Yes	Fig. 2	SB-2042TRG	DTM-6	36,900							
	1000-S100-07-7T	●																7	0.750	Fig. 3	36,900			
	1000-S750-07-5T	●		5	0.750	4.50	0.984	0.236		16.3°	-9.5°		Yes	Fig. 2	SB-2042TRG	DTM-6	36,900							
	1250-S125-07-6T	●																6	Fig. 2	33,700				
1250-S125-07-8T	●	8	1.250	1.250	5.00	1.181	0.236	16.3°	-8.9°	Yes	Fig. 2	SB-2035TRG	DTM-6	33,700										
1250-S125-07-8T	●														8	Fig. 4	33,700							
Long Shank	MECXL 0625-S625-07-3T	●	inch	3	0.625	0.625	5.10	2.175	0.236	16.3°	-11.3°	Yes	Fig. 4	SB-2042TRG	DTM-6	43,300								
	0750-S750-07-4T	●		4	0.750	0.750	5.50	2.362		-10.9°	40,900													
	1000-S100-07-5T	●		5	1.000	1.000	6.30	2.559		-9.5°	36,900													
	1250-S125-07-6T	●		6	1.250	1.250	7.90	2.559		-8.9°	33,700													
Standard Shank	Standard Pitch	MECX	mm	1	8	10	80	16	6	11.7°	-24.0°	Yes	Fig. 1	SB-2035TRG	DTM-6	48,100								
					10					17	12.8°		-18.7°			Fig. 2	47,100							
				2	12	12	18	6	16.3°	-13.7°	Fig. 4		SB-2035TRG	DTM-6	46,200									
					14											18	-12.1°	Fig. 3	44,800					
				3	16	16	100	20	6	16.3°	-11.3°		Yes	Fig. 4	SB-2042TRG	DTM-6	43,200							
					17													10	-11.0°	Fig. 3	42,400			
				4	18	20	110	25	6	16.3°	-10.9°		Yes	Fig. 3	SB-2042TRG	DTM-6	41,600							
					20													20	-10.4°	Fig. 4	40,200			
	5	21	20	110	25	6	16.3°	-10.1°	Yes	Fig. 3	SB-2042TRG	DTM-6	39,500											
		25												20	-9.7°	Fig. 3	37,000							
	6	25	25	120	30	6	16.3°	-9.7°	Yes	Fig. 4	SB-2042TRG	DTM-6	37,000											
		26												25	-9.5°	Fig. 3	36,500							
	7	32	32	130	30	6	16.3°	-8.9°	Yes	Fig. 3	SB-2042TRG	DTM-6	33,600											
		33												32	-8.8°	Fig. 4	33,100							
	8	33	32	130	30	6	16.3°	-8.8°	Yes	Fig. 3	SB-2042TRG	DTM-6	33,100											
		33												32	-8.8°	Fig. 3	33,100							
Standard Shank	Fine Pitch	MECX	mm	4	16	16	100	20	6	16.3°	-11.3°	Yes	Fig. 4	SB-2042TRG	DTM-6	43,200								
					20												110	-10.4°	Fig. 3	40,200				
				5	20	20	120	25									6	16.3°	-10.4°	Yes	Fig. 3	SB-2042TRG	DTM-6	40,200
					25																			
				7	25	25	120	25									6	16.3°	-9.7°	Yes	Fig. 3	SB-2042TRG	DTM-6	37,000
					32																			
8	32	32	130	30	6	16.3°	-8.9°	Yes	Fig. 3	SB-2042TRG	DTM-6	33,600												
	32												32	-8.9°	Fig. 4	33,600								
Long Shank	Standard Pitch	MECX	mm	3	17	16	130	20	6	16.3°	-11.0°	Yes	Fig. 3	SB-2042TRG	DTM-6	42,400								
					21												20	140	25	-10.1°	39,500			
				26	25	160	25	-9.5°									36,500							

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

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

Caution with Max. Revolution

When running an endmill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force. For more details, see "Warning" on page P13.



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimensions											Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Spare Parts			Max RPM			
				DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	A.R. (Max)	R.R.	Insert Screw				Wrench	Arbor Bolt					
MECX 1250R-07-8T	●	inch	8	1.250	1.181	0.75	0.630	0.417	1.575	0.807	0.187	0.313	0.236	+7°	-8.9°	Yes	Fig.1	0.15	SB-2042TRG	DTM-6	HH3/8-1.25H	33,600				
1500R-07-10T	●		10	1.500	1.496										-8.4°							0.25	30,500			
2000R-07-12T	●		12	2.000	1.575										-8.3°							0.125	27,700			
2500R-07-14T	●		14	2.500	0.630										-7.9°							0.50	24,900			
MECX 032R-07-8T-M	●	mm	8	32	30	16	14	8.5	20	5.5	8.5	6	+7°	-8.9°	Yes	Fig.1	0.15	SB-2042TRG	DTM-6	HH8x25H	33,600					
040R-07-10T-M	●		10	40	38	-8.4°	0.25	30,500																		
050R-07-12T-M	△		12	50	40	22	18	12						40							22	6.3	10.4	-8.3°	0.35	27,700
063R-07-14T-M	△		14	63	-7.9°	0.50	24,900																			

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed ● : Standard Item △ : Phaseout Item (will be removed from next brochure)

Caution with Max. Revolution

When running an endmill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force. For more details, see "Warning" on page P13. To obtain a smooth shoulder wall finish using step milling, set D.O.C. within 0.197" for each cut.

Applicable Inserts

Usage Classification	Part Number	Dimension (in.)					Angle		CVD Coated Carbide	MEGACOAT NANO	MEGACOAT		PVD Coated Carbide
		W1	S	D1	L	RE	AS	AN			PR1225	PR1210	
		CA6535	PR1535	PR1225	PR1210	PR830							
★ : Roughing / 1st Choice ☆ : Roughing / 2nd Choice ■ : Finishing / 1st Choice □ : Finishing / 2nd Choice (In case hardness is under 45HRC)	P	Carbon Steel / Alloy Steel									★		☆
	P	Mold Steel									★		☆
	M	Austenitic Stainless Steel							★		☆		☆
		Martensitic Stainless Steel					★		☆				
		Precipitation Hardened Stainless Steel							★				
	K	Gray Cast Iron											★
		Nodular Cast Iron											★
	N	Non Ferrous Metals											
	S	Heat Resistant Alloy (Ni-base)					★		☆		★		
Titanium Alloy							★				★		
H	Hard Materials										□	□	
	BDMT 070302ER-JS					0.008			●	●	●		△
	070304ER-JS	0.181	0.102	0.091	0.264	0.016	16°	15°	●	●	●		△
	070308ER-JS					0.031			●	●	●		△
	BDMT 070302ER-JT					0.008			●	●	●	●	△
	070304ER-JT	0.181	0.102	0.091	0.264	0.016	16°	15°	●	●	●	●	△
	070308ER-JT					0.031			●	●	●	●	△

Inserts are sold in 10 piece boxes

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

Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)				
	JS Chipbreaker	JT Chipbreaker	MEGACOAT NANO	MEGACOAT		PVD Coated Carbide	CVD Coated Carbide
			PR1535	PR1225	PR1210	PR830	CA6535
Carbon Steel	0.0016~0.0031~0.0039	0.0024~0.0039~0.0047	☆ 390~590~820	★ 390~590~820	-	☆ 390~490~590	-
Alloy Steel	0.0016~0.0024~0.0031	0.0024~0.0031~0.0039	☆ 330~520~720	★ 330~520~720	-	☆ 330~460~590	-
Mold Steel	0.0016~0.0024~0.0031	0.0024~0.0031~0.0039	☆ 260~460~590	★ 260~460~590	-	☆ 260~390~490	-
Austenitic Stainless Steel	0.0012~0.0016~0.0020	0.0020~0.0024~0.0028	★ 330~520~660	☆ 330~520~660	-	-	-
Martensitic Stainless Steel	0.0012~0.0016~0.0020	0.0020~0.0024~0.0039	☆ 490~660~820	-	-	-	★ 590~790~980
Precipitation Hardened Stainless Steel	0.0012~0.0016~0.0020	0.0020~0.0024~0.0039	★ 300~390~490	-	-	-	-
Gray Cast Iron	0.0016~0.0031~0.0039	0.0031~0.0039~0.0059	-	-	★ 390~590~820	-	-
Nodular Cast Iron	0.0016~0.0024~0.0031	0.0031~0.0039~0.0047	-	-	★ 330~490~660	-	-
Ni-base Heat-Resistant Alloy	0.0012~0.0016~0.0020	0.0020~0.0024~0.0028	☆ 70~100~160	-	-	-	★ 70~100~160
Titanium Alloys	0.0016~0.0024~0.0031	0.0031~0.0039~0.0047	★ 130~200~260	-	☆ 100~160~230	-	-

* Bold numbers in the graph indicate the most recommended value of feed (fz) Adjust cutting speed and feed rate according to the actual machining conditions
 * Machining with coolant is recommended for Ni-base heat-resistant alloy and titanium alloys

★ : 1st Recommendation
 ☆ : 2nd Recommendation

Ramping / Helical Milling / Plunging

Ramping / Helical Milling

- Ramping Angle should be Under RMPX
- For plunge depth per revolution when helical milling, see the cutting performance data of each tool. Use compressed air during machining.

Cutting Dia.	Applicable Inserts	Max. Ramping Angle (RMPX)
Ø0.375", Ø8mm	BDMT 0703	Not Recommended
Ø10mm		1.5°
Ø0.500", Ø12mm, Ø14mm		2°
Ø0.625", Ø16mm		3°
Ø17mm, Ø18mm		1.5°
Ø0.750", Ø20mm		2°
Ø21mm		1.8°
Ø1.000", Ø25mm		1.3°
Ø26mm		1.2°
Ø1.250", Ø32mm		0.8°
Ø33mm		0.5°

Minimum Cutting Diameter for Helical Milling

MECX	Cutting Dia.	Ø0.375"	Ø0.500"	Ø0.625"	Ø0.750"	Ø8mm		Ø10mm	Ø12mm	Ø14mm	Ø16mm	Ø17mm	Ø18mm	Ø20mm
BDMT0703 Type	Min. Cutting Dia.	Ø0.512"	Ø0.748"	Ø0.984"	Ø1.260"	Not recommended for helical milling.		Ø14mm	Ø18mm	Ø22mm	Ø26mm	Ø28mm	Ø30mm	Ø34mm
	Min. Cutting Dia. for Flat Bottom	Ø0.630"	Ø0.866"	Ø1.142"	Ø1.378"			Ø17mm	Ø21mm	Ø25mm	Ø29mm	Ø31mm	Ø33mm	Ø37mm
MECX	Cutting Dia.	Ø1.000"	Ø1.250"	Ø21mm	Ø25mm	Ø26mm	Ø32mm	Ø33mm						
BDMT0703 Type	Min. Cutting Dia.	Ø1.732"	Ø2.244"	Ø36mm	Ø44mm	Ø46mm	Ø58mm	Ø60mm						
	Min. Cutting Dia. for Flat Bottom	Ø1.890"	Ø2.362"	Ø39mm	Ø47mm	Ø49mm	Ø61mm	Ø63mm						

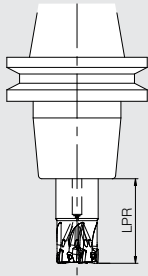
Cutting Performance of MECX

MECX End Mill

(JT Chipbreaker Vc = 400 sfm Workpiece :1049)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)	
Ø8mm	MECX08-S10-07-1T	0.630	-
Ø0.375" Ø10mm	MECX0375-S375-07-1T MECX10-S10-07-1T	0.670	-
Ø0.500" Ø12mm	MECX0500-S500-07-2T MECX12-S12-07-2T	0.709	1.180
Ø0.625" Ø16mm	MECX0625-S625-07-3T MECX16-S16-07-3T	0.787	1.570
Ø0.750" Ø20mm	MECX0750-S750-07-4T MECX20-S20-07-4T	0.787	1.570
Ø1.000" Ø25mm	MECX1000-S100-07-5T MECX25-S25-07-5T	1.000	1.970
Ø1.250" Ø32mm	MECX1250-S125-07-6T MECX32-S32-07-6T	1.180	1.970

Shape



- Machining with extended overhang length is not recommended for Ø0.315" and Ø0.394".
- The cutting performance list shows applicable range of JT Chipbreaker (PR830) with Standard flute-number type.
For Multi-Edge type, use with 70% or less of D.O.C..

• Cutting conditions of JS Chipbreaker

- (1) For MECX0375~MECX0500 / MECX08~MECX12
Decrease the feed rate by 25% according to cutting capability list.
- (2) For MECX 0625 / MECX16 and over
Decrease the feed rate and D.O.C. by 30% according to cutting capability list.

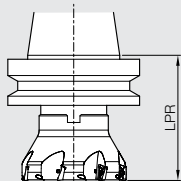
Part Number	Shouldering (Cutting Width ae = DC/2)	Slotting Ramping, Helical Milling
MECX08-S10-07-1T		
MECX0375-S375-07-1T MECX10-S10-07-1T		
MECX0500-S500-07-2T MECX12-S12-07-2T		
MECX0625-S625-07-3T MECX16-S16-07-3T		
MECX0750-S750-07-4T MECX20-S20-07-4T		
MECX1000-S100-07-5T MECX25-S25-07-5T		
MECX1250-S125-07-6T MECX32-S32-07-6T		

MECX Face Mill

(JT Chipbreaker Vc = 400 sfm Workpiece :1049)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)
Ø1.250" Ø32mm	MECX1250R-07-8T MECX032R-07-8T-M	3.937
Ø1.500" Ø40mm	MECX1500R-07-10T MECX040R-07-10T-M	
Ø2.000" Ø50mm	MECX2000R-07-12T MECX050R-07-12T-M	
Ø2.500" Ø63mm	MECX2500R-07-14T MECX063R-07-14T-M	

Shape



Part Number	Shouldering (Cutting Width ae = DC/2)
MECX1250R-07-8T MECX032R-07-8T-M	
MECX1500R-07-10T MECX040R-07-10T-M	
MECX2000R-07-12T MECX050R-07-12T-M	
MECX2500R-07-14T MECX063R-07-14T-M	

Not recommended for slotting



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