



TEDI BRZ MILL

MILLING PRODUCTS



Series:

- ST (Center Cutting)
- SP (Non-Center Cutting)
- SE (Helical)
- SS (Ball Nose)
- SR (High Ramp)

Diameters:

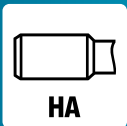
- Metric: 3-32 mm
- Inch: .125-1.250"

Materials:

- Non-Ferrous
- Plastics



Internal Cooling



HA

Shank (h6)
DIN 6535



Tough Applications; Tougher Brazed PCD Tools

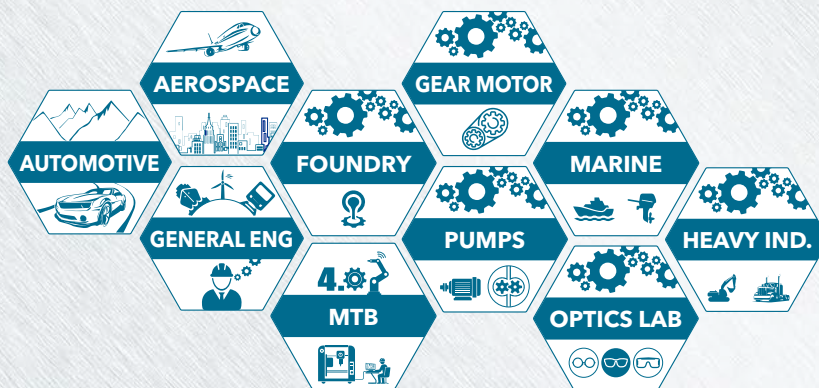
Features:

- Center cutting, 2-flute
- Non-center cutting, 3-flute
- Positive helix, 3-flute (for large depths-of-cut)
- Ball nose, 2-flute
- High ramp, 3-flute

Quick Delivery for In-Stock Inch & Metric Sizes

- Modified standards delivered in 2-3 weeks

TEDI GRZ MILL INTRODUCTION



IT.TE.DI.'s range of products covers all applications of metal removal. As part of our values, our KNOW HOW is applied to the most important macro-areas concerning precision machining. To our satisfaction, we PARTNERSHIP with the largest manufacturers, who are keen to test our technology to achieve new goals every day.

Responding to any need by adapting production activities on a global scale is, to date, the greatest challenge that every company must face: transforming this criticality into a strength is the aim of IT.TE.DI.

Our mission is to work in partnership with our customers to provide solutions that transform ideas into successful products. The quality of a personalized service is one of the distinctive factors that make the difference today. Only through a relationship of trust built on knowledge and experience will it be possible to ensure the achievement of objectives. Quality is not optional: professionalism and experience are key values for our customers' satisfaction.



MILLING

In modern production, the accuracy of milling plays a crucial role in achieving qualitative and quantitative targets. The use of our cutters allows us to optimize results in terms of cycle times and surface quality, from mirror surfaces to surfaces with controlled roughness.



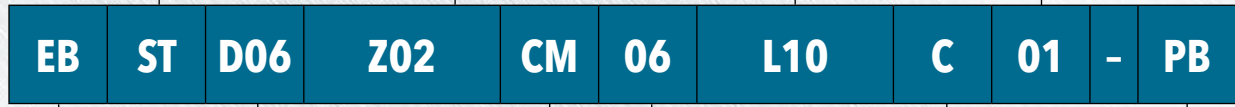
TEDI BRAZ MILL DESIGNATION SYSTEM OF CUTTER BODIES

TYPE OF MILL	
ST	CENTER CUTTING
SP	NON-CENTER CUTTING
SE	HELICAL
SS	BALL NOSE
SR	HIGH RAMP

OF CUTTING EDGES
1
2
3

AP MAX	
10	10 mm
20	20 mm
30	30 mm
L03	0.118"
L06	0.236"
L10	0.393"
L12	0.470"
L15	0.590"
L18	0.700"

LEAD DIMENSION	
01	0.1 mm
02	0.2 mm
04	0.4 mm
15	1.5 mm
20	2.0 mm
...	...



PRODUCT LINE	
EB	STANDARD BRAZED END MILL

CUTTING Ø	
D04	04 mm
D05	05 mm
D06	06 mm
D08	08 mm
D..	.. mm
I18	0.1875"
I25	0.2500"
I31	0.3125"
I37	0.3750"
I.."

SHANK Ø	
05	05 mm
06	06 mm
08	08 mm
10	10 mm
12	12 mm
14	14 mm
16	16 mm
20	20 mm
25	25 mm

LEAD	
C	45° CHAMFER
R	RADIUS

PCD GRADES*	
	PB
	PA
	PJ
	PG
	...

HOLDER	
CM	CYLINDRICAL SHANK
IC	ISO AD/B DIN 69871
BC	BTA/B MAS 403
HA	HSK A DIN 69893

*Standard PCD grade is "PB" unless noted otherwise.

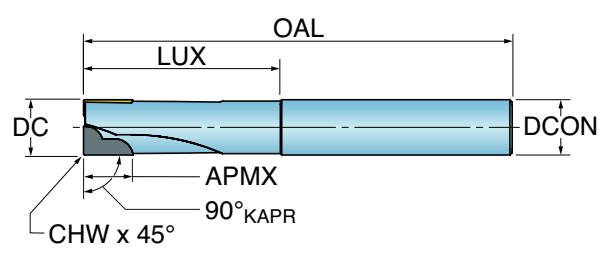
TediEndMill tools can be retipped with new PCD.



TEDI GRZ MILL ENDMILL SERIES ST

Shank: HA
ISO Material: N
NON-ISO Material: O

CENTER CUTTING, HIGH VERSATILITY



+/- 0.025 mm
+/- 0.0001"

+/- 0.1 mm
+/- 0.0039"

h6

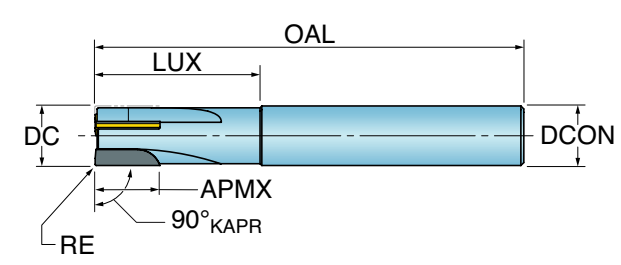
	Part Number	DC Cutting Diameter	CHW Corner Chamfer Length	APMX Depth of Cut Max.	LUX Usable Length Max.	OAL Overall Length	ZEFF Eff. Teeth	DCON Shank Diameter	Item
METRIC	EBSTD04Z01CM05L10C01	4 mm	0.1 mm	10 mm	36 mm	67 mm	1	5 mm	2736422
	EBSTD05Z01CM05L10C01	5 mm	0.1 mm	10 mm	36 mm	67 mm	1	5 mm	2736423
	EBSTD06Z02CM06L10C01	6 mm	0.1 mm	10 mm	27 mm	67 mm	2	6 mm	2902934
	EBSTD06Z02CM06L20C01	6 mm	0.1 mm	20 mm	27 mm	67 mm	2	6 mm	2709203
	EBSTD08Z02CM08L10C01	8 mm	0.1 mm	10 mm	33 mm	73 mm	2	8 mm	2709204
	EBSTD08Z02CM08L20C01	8 mm	0.1 mm	20 mm	33 mm	73 mm	2	8 mm	2709205
	EBSTD10Z02CM10L10C02	10 mm	0.2 mm	10 mm	38 mm	82 mm	2	10 mm	2709207
	EBSTD10Z02CM10L20C02	10 mm	0.2 mm	20 mm	38 mm	82 mm	2	10 mm	2709206
	EBSTD12Z02CM12L10C02	12 mm	0.2 mm	10 mm	43 mm	93 mm	2	12 mm	2709208
	EBSTD12Z02CM12L20C02	12 mm	0.2 mm	20 mm	43 mm	93 mm	2	12 mm	2709209
INCH	EBSTI15Z01CM05L10C01	0.156"	0.004"	0.394"	1.39"	2.64"	1	5 mm	2755616
	EBSTI18Z01CM05L10C01	0.188"	0.004"	0.394"	1.40"	2.64"	1	5 mm	2754524
	EBSTI25Z01CM06L10C01	0.250"	0.004"	0.394"	1.06"	2.64"	1	6 mm	2754525
	EBSTI25Z02CM06L20C01	0.250"	0.004"	0.787"	1.06"	2.64"	2	6 mm	2755622
	EBSTI31Z02CM08L10C01	0.313"	0.004"	0.394"	1.12"	3.23"	2	8 mm	2754526
	EBSTI31Z02CM08L20C01	0.313"	0.004"	0.787"	1.12"	3.23"	2	8 mm	2755623
	EBSTI37Z02CM10L10C01	0.375"	0.008"	0.394"	1.48"	3.23"	2	10 mm	2754527
	EBSTI37Z02CM10L20C02	0.375"	0.008"	0.787"	1.48"	3.23"	2	10 mm	2755624
	EBSTI50Z02CM12L10C01	0.500"	0.008"	0.394"	1.69"	3.66"	2	12 mm	2754528
	EBSTI50Z02CM12L20C02	0.500"	0.008"	0.787"	1.69"	3.66"	2	12 mm	2755625



TEDI GRZ MILL ENDMILL SERIES SP

Shank: HA
ISO Material: N
NON-ISO Material: O

NON-CENTER CUTTING, POSITIVE ANGLE



+/- 0.025 mm
+/- 0.0001"

+/- 0.1 mm
+/- 0.0039"

h6

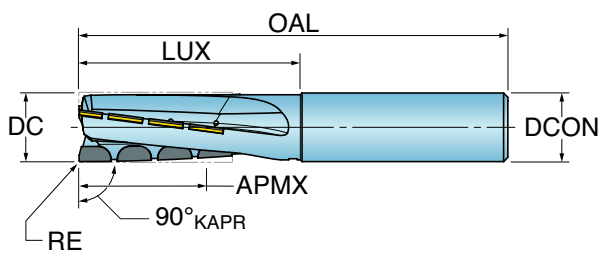
	Part Number	DC Cutting Diameter	RE Corner Radius	APMX Depth of Cut Max.	LUX Usable Length Max.	OAL Overall Length	ZEFF Eff. Teeth	RPMX Ramp Angle Max.	DCON Shank Diameter	Item
METRIC	EBSPD10Z03CM10L10R02	10 mm	0.2 mm	10 mm	28 mm	72 mm	3	3.5°	10 mm	4467308
	EBSPD12Z03CM12L10R02	12 mm	0.2 mm	10 mm	33 mm	83 mm	3	3.5°	12 mm	2711085
	EBSPD14Z03CM14L10R02	14 mm	0.2 mm	10 mm	37 mm	87 mm	3	3.5°	14 mm	2736425
	EBSPD16Z03CM16L10R02	16 mm	0.2 mm	10 mm	39 mm	92 mm	3	3.5°	16 mm	2709249
	EBSPD20Z03CM20L10R02	20 mm	0.2 mm	10 mm	49 mm	104 mm	3	3.5°	20 mm	3151350
INCH	EBSPI37Z03CM10L10R02	0.375"	0.008"	.375"	1.08"	2.84"	3	3.5°	10 mm	2754517
	EBSPI50Z03CM12L10R02	0.500"	0.008"	.375"	1.23"	3.27"	3	3.5°	12 mm	2754518
	EBSPI62Z03CM16L10R02	0.625"	0.008"	.375"	1.52"	3.62"	3	3.5°	16 mm	2754519
	EBSPI75Z03CM20L10R02	0.750"	0.008"	.375"	1.89"	3.98"	3	3.5°	20 mm	2754520



TEDI GRZ MILL ENDMILL SERIES SE

Shank: HA
 ISO Material: N
 NON-ISO Material: O

HELICAL CUTTING EDGES, LARGE DEPTH-OF-CUT



+/- 0.025 mm
+/- 0.0001"

+/- 0.1 mm
+/- 0.0039"

h6

	Part Number	DC Cutting Diameter	RE Corner Radius	APMX Depth of Cut Max.	LUX Usable Length Max.	OAL Overall Length	ZEFF Eff. Teeth	ZEP Eff. Teeth Periphery	NOF Flute Count	DCON Shank Diameter	Item
METRIC	EBSED16Z03CM16L30R02	16 mm	0.2 mm	30 mm	50 mm	100 mm	3	3	3	16 mm	2709255
	EBSED20Z03CM20L30R02	20 mm	0.2 mm	30 mm	50 mm	100 mm	3	3	3	20 mm	2709256
	EBSED25Z03CM25L30R02	25 mm	0.2 mm	30 mm	55 mm	100 mm	3	3	3	25 mm	2702942
INCH	EBSEI62Z03CM16L30R02	0.625"	0.008"	1.181"	1.969"	3.94"	3	3	3	16 mm	2754521
	EBSEI75Z03CM20L30R02	0.750"	0.008"	1.181"	1.969"	3.94"	3	3	3	20 mm	2754522
	EBSEI10Z03CM25L30R02	1.000"	0.008"	1.181"	1.969"	3.94"	3	3	3	25 mm	2754523

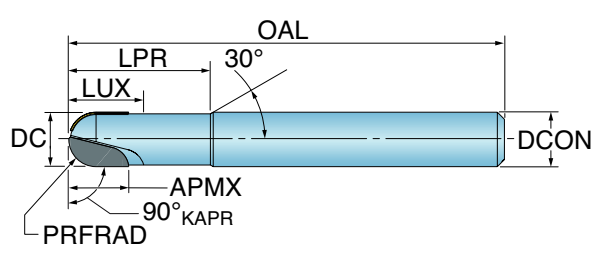


TEDI GRZ MILL ENDMILL SERIES SS

Shank: HA
 ISO Material: N
 NON-ISO Material: O

BRAZED SPHERICAL CUTTERS

Channeling Ramping Pocketing Contouring Helical Interpolation Coolant



+/- 0.025 mm
+/- 0.0001"

+/- 0.1 mm
+/- 0.0039"

h6

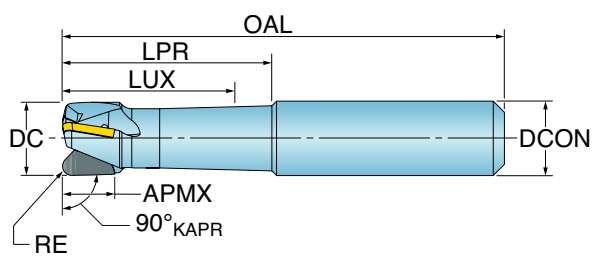
	Part Number	DC Cutting Diameter	PRFRAD Profile Radius	APMX Depth of Cut Max.	LUX Usable Length Max.	OAL Overall Length	ZEFF Eff. Teeth	LPR Protruding Length	DCON Shank Diameter	Item
METRIC	EBSSD03Z02CM06L03R15-PB	3 mm	1.5 mm	3 mm	9 mm	60 mm	2	13 mm	6 mm	2773506
	EBSSD04Z02CM06L03R20-PB	4 mm	2 mm	3 mm	15 mm	60 mm	2	19 mm	6 mm	2773507
	EBSSD05Z02CM06L03R25-PB	5 mm	2.5 mm	3 mm	15 mm	60 mm	2	19 mm	6 mm	2773508
	EBSSD06Z02CM06L06R30-PB	6 mm	3 mm	6 mm	15 mm	80 mm	2	19 mm	6 mm	2773509
	EBSSD08Z02CM08L10R40-PB	8 mm	4 mm	10 mm	20 mm	80 mm	2	24 mm	8 mm	2773510
	EBSSD10Z02CM10L10R50-PB	10 mm	5 mm	10 mm	26 mm	80 mm	2	30 mm	10 mm	2773511
	EBSSD12Z02CM12L10R60-PB	12 mm	6 mm	10 mm	35 mm	100 mm	2	39 mm	12 mm	2773512
	EBSSD16Z02CM16L10R80-PB	16 mm	8 mm	10 mm	35 mm	125 mm	2	39 mm	16 mm	2773513
INCH	EBSSI13Z02CM06L03R15-PB	.125"	.0625"	.118"	.354"	2.362"	2	.513"	6 mm	2776239
	EBSSI15Z02CM06L03R20-PB	.156"	.0781"	.118"	.590"	2.362"	2	.750"	6 mm	2776246
	EBSSI18Z02CM06L03R25-PB	.188"	.0938"	.118"	.590"	2.362"	2	.750"	6 mm	2776240
	EBSSI25Z02CM06L06R30-PB	.250"	.1250"	.236"	.590"	3.149"	2	.750"	6 mm	2776241
	EBSSI31Z02CM08L10R40-PB	.313"	.1563"	.393"	.787"	3.149"	2	.938"	8 mm	2776242
	EBSSI37Z02CM10L10R50-PB	.375"	.1875"	.393"	1.023"	3.149"	2	1.188"	10 mm	2776243
	EBSSI05Z02CM12L10R60-PB	.500"	.2500"	.393"	1.377"	3.937"	2	1.531"	12 mm	2776244
	EBSSI62Z02CM16L10R80-PB	.625"	.3125"	.393"	1.377"	4.921"	2	1.531"	16 mm	2776245



TEDI GRZ MILL ENDMILL SERIES SR

Shank: HA
 ISO Material: N
 NON-ISO Material: O

BRAZED HIGH RAMP CUTTERS



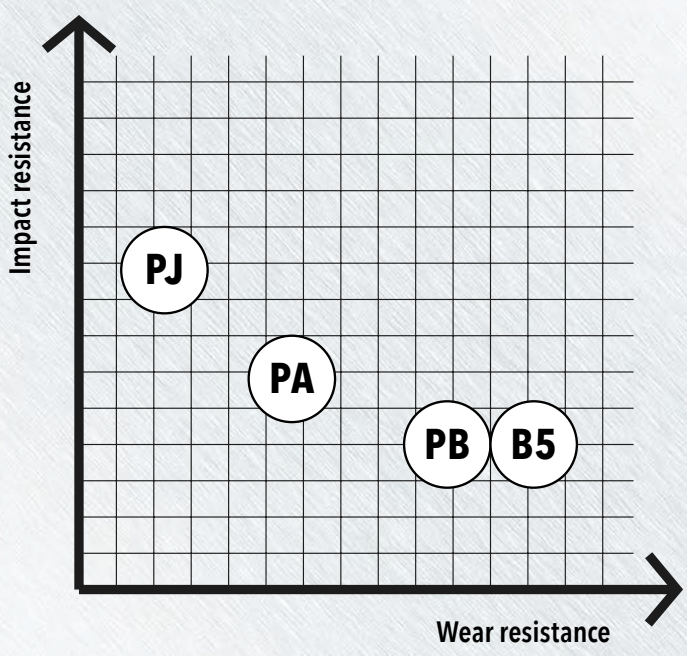
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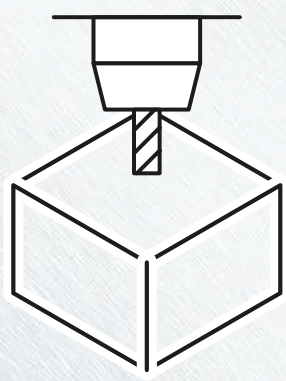
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	Part Number	DC Cutting Diameter	RE Corner Radius	APMX Depth of Cut Max.	LUX Usable Length Max.	OAL Overall Length	ZE Eff. Teeth	RPMX Ramp Angle Max.	LPR Protruding Length	DCON Shank Diameter	Item
METRIC	EBSRD16Z03CM16L10R20-PB	16 mm	2 mm	10 mm	45 mm	95 mm	3	15°	49 mm	16 mm	2773180
	EBSRD20Z03CM20L12R30-PB	20 mm	3 mm	12 mm	68 mm	120 mm	3	13°	72 mm	20 mm	2773181
	EBSRD25Z03CM25L15R30-PB	25 mm	3 mm	15 mm	82 mm	140 mm	3	11°	86 mm	25 mm	2773182
	EBSRD32Z03CM32L18R40-PB	32 mm	4 mm	18 mm	100 mm	162 mm	3	8°	104 mm	32 mm	2773183
INCH	EBSRI62Z03CM16L10R20-PB	.625"	.078"	.39"	1.75"	3.75"	3	15°	1.79"	16 mm	2776247
	EBSRI75Z03CM20L12R30-PB	.750"	.118"	.47"	2.68"	4.72"	3	13°	2.72"	20 mm	2776248
	EBSRI10Z03CM25L15R30-PB	1.000"	.118"	.59"	3.25"	5.50"	3	11°	3.29"	25 mm	2776249
	EBSRI12Z03CM32L18R40-PB	1.250"	.157"	.70"	3.94"	6.38"	3	8°	3.98"	32 mm	2776250

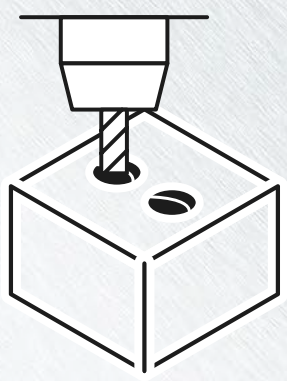
TEDI GRZ MILL GRADES OF PCD



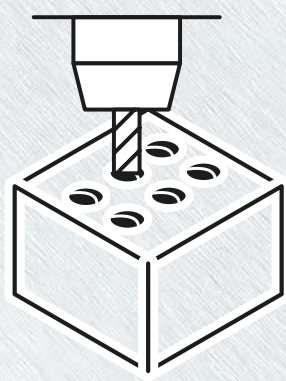
Grain Type	PCD Grade	Applications
Fine	PJ	<ul style="list-style-type: none"> • Ideal for finishing. • High impact resistance.
Medium	PA	<ul style="list-style-type: none"> • Ideal for roughing and finishing. • Balanced grain suitable for both impact and wear resistance.
Coarse	PB B5	<ul style="list-style-type: none"> • Ideal for roughing and finishing. • High wear resistance.



PJ



PA



PB = B5



TEDI GRZ MILL FORMULAS AND ABBREVIATIONS

Formulas and Abbreviations		Calculations			
		Metric		Inch	
\emptyset	Cutter diameter	[mm]	$V_c = \frac{\emptyset \times \pi \times n}{12}$	[in]	$V_c = \frac{\emptyset \times \pi \times n}{12}$
a_p	Axial cutting depth	[mm]		[in]	
a_e	Depth of pass	[mm]	$n = \frac{V_c \times 1000}{\emptyset \times \pi}$	[in]	$n = \frac{V_c \times 1000}{\emptyset \times \pi}$
V_c	Cutting speed	[mm/min]		[sfm]	
n	Number of RPM	[mm-1]	$V_f = f_z \times n \times z$	[min-1]	$V_f = f_z \times n \times z$
z	Number of cutting edges				
f_z	Tooth feed	[mm]	$f_z = \frac{V_f}{n \times z}$	[in]	$f_z = \frac{V_f}{n \times z}$
V_f	Feed	[mm/min]		[in/min]	
L_m	Working path	[mm]	$T_c = \frac{L_m}{V_f}$	[in]	$T_c = \frac{L_m}{V_f}$
T_c	Cutting time	[min]		[min]	
Q	Volume of chip removed	[cm ³ /min]	$Q = \frac{a_p \times a_e \times V_f}{1000}$	[in ³ /min]	$Q = \frac{a_p \times a_e \times V_f}{1000}$
K_c	Specific cutting force [N]-[PSI]	[N/min ²]		[lb/in ²]	
P	Power required	[kW]	$P = \frac{a_p \times a_e \times V_f \times K_c}{60 \times 10^6 \times \eta}$	[HP]	$P = \frac{a_p \times a_e \times V_f \times K_c}{60 \times 10^6 \times \eta}$
η	Efficiency factor				



TEDI GRZ MILL OPERATING GUIDELINES

Materials			Sharp Grade	Metric		Inch		
ISO	Type	Condition		Vc Cutting Speed (m/min)	fz Feed/Tooth (mm/z)	Vc Cutting Speed (SFM)	fz Feed/Tooth (inch/z)	
N	N1	Aluminum-wrought alloys	Not hardenable	PCD	≤ 6000	0.05÷0.25	≤ 19,685	.002-.010
			Hardenable					
	N2	Aluminum-cast alloys	Not hardenable < 7% Si	PCD	≤ 6000	0.05÷0.25	≤ 19,685	.002-.010
			Hardenable 7-12% Si					
			High temperatures ≥12%					
	N3	Copper alloys	Free cutting > 1% Pb	PCD	≤ 2000	0.05÷0.25	≤ 6500	.002-.010
			Brass					
			Electrolytic copper					
			Eco brass					
	N4	Graphite		PCD	≤ 2000	0.05÷0.2	≤ 6500	.002-.008
N5	Plastic	Thermoplast	PCD	≤ 2000	0.05÷0.25	≤ 6500	.002-.010	
		Duroplast						
K	K1	Gray cast iron (GG)	Ferritic/Pearlitic	CBN	1000÷2000	0.05÷0.25	3200-6500	.002-.010
			Pearlitic/Martensitic					
H	H1	Hardened steel	Hardened 55 HRC	CBN	150÷300	0.05÷0.25	500-1000	.002-.010
			Hardened 60 HRC					
O	O1	Plastic	AFK	PCD	≤ 2000	0.05÷0.25	≤ 2000	.002-.010
		Plastic (duroplastic)	CFRP/GRP					
		Plastic (thermoplastic)	CFRP/GRP					
	O2	Carbon matrix	CFC	PCD	≤ 2000	0.05÷0.25	≤ 2000	.002-.010

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.