

THE NEW VALUE FRONTIER



External & Internal Shallow Grooving Tools

GBA

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GBA



Smooth Chip Control with Molded Chipbreaker and Excellent Surface Finish

Large Lineup of Chipbreakers and Insert Grades

New Grades PR1625 for Stable Machining

Smooth Chip Control with GM Chipbreaker



NEW PR1625
for Stable Machining



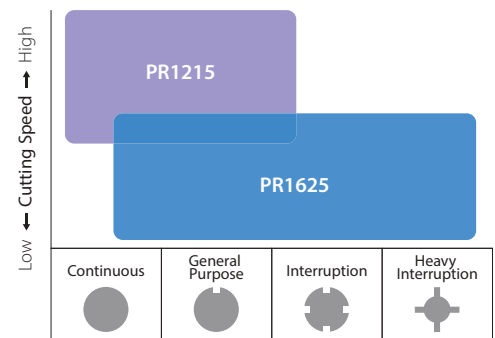
GBA

Smooth Chip Control with Molded Chipbreaker and Excellent Surface Finish
New Grade PR1625 for Stable Machining. Expanding Tooling Lineup

1 Various Insert Grade Allows Wide Variety of Machining

Recommended Grade for Steel

- General Purpose : PR1215
- (Surface Finish Oriented) : TN620
- for Stable Machining : PR1625

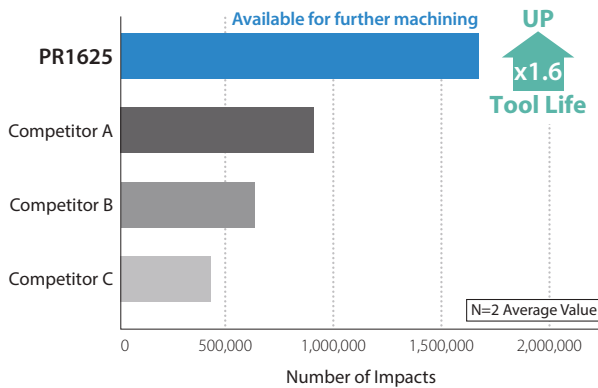


PR1625

Cemented carbide grade with high stability and MEGACOAT NANO with excellent adhesion resistance provides high toughness and high hardness

Long tool life is achieved in the interrupted grooving including drum and shaft of mission engine parts.

Fracture Resistance Comparison (Internal Evaluation)



Cutting Edge after Machining



Cutting Conditions : $V_c = 140$ m/min, $f = 0.12$ mm/rev, Insert width 3mm
Workpiece : SCM440 with 16 Slots External Grooving (Heavy Interruption)

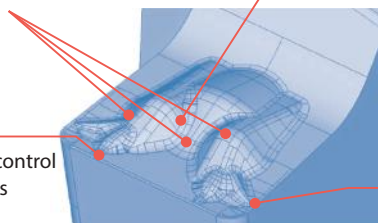
2 Smooth chip control with GM chipbreaker

Multi-Bump Design

Advanced chip breaker design squeezes the chip for better control.

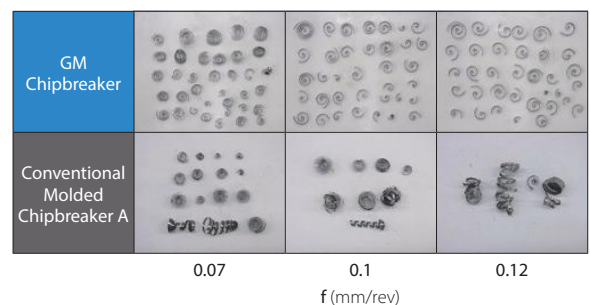
Helps form chip shape

Front Bump: Stabilizes chip control at low feed rates



Stable chip control during shouldering and chamfering

Chip Control Comparison (Internal Evaluation)



Cutting Conditions : $V_c = 200$ m/min, Edge Width 2.0 mm, Grooving
Workpiece : SCr420 ($\phi 40$)

Standard Stock Item Description

NEW

Description	A	T	ød	Usage Classification	
				● : Continuous / 1st Choice	○ : Continuous / 2nd Choice
GBA32_	9.525	3.18	4.4	●	○
GBA43_	12.70	4.76	5.5	●	○
GBA43 R/L480	12.70	5.00	5.5	●	○

Insert Right-hand Insert Shown	Description	Dimension (mm)			MEGACOAT Cermet	Cermet				MEGA COAT		MEGA COAT NANO			PVD Coated Carbide			Carbide	Applicable Toolholders		
		W	B	re		PV7040 R L	TC40N R L	TN90 R L	PR1215 R L	PR1625 R L	PR1115 R L	PR905 R L	PR930 R L	KW10 R L							
	GBA32 R/L	033-005*1	0.33	0.8	0.05															KGBA R/L...16 KGBAS L/R...16 KIGBA L/R...16(Internal)	
		050-005*2	0.50	1.0																	
		075-005	0.75	1.2																	
		095-005	0.95																		
		100-005	1.00																		
		110-005	1.10	2.0																	
		120-005	1.20																		
		125-020	1.25																		
		130-020	1.30																		
		140-020	1.40	2.5																	
		145-020	1.45	2.0																	
				2.5																	
				2.0																	
		150-020	1.50																		
		160-020	1.60	2.5																	
		170-020	1.70																		
		175-020	1.75	2.0																	
		200-020	2.00																		
	225-020	2.25	2.5																		
	250-020	2.50																			
	300-020	3.00																			
	GBA43 R/L	125-010	1.25	2.0	0.1															KGBA R/L...22-15 KGBAS L/R...22-15 KIGBA L/R...22(Internal)	
		125-020	1.40	3.5	0.2																
		140-020	1.40	2.0																	
		145-020	1.45																		
		150-010	1.50		0.1																
		150-020	1.50																		
		170-020	1.70		0.2																
		175-020	1.75																		
		185-020	1.85	3.5																	
		195-020	1.95																		
		200-010	2.00		0.1																
		200-020	2.00																		
		225-020	2.25		0.2																
		230-020	2.30																		
250-010		2.50	5.0	0.1														★ 1			
250-030			4.0																★ 2		
			5.0																★ 1		
265-030		4.0	0.3															★ 2			
		5.0																★ 1			
280-030	2.80	4.0																★ 2			
300-010	3.00	5.0	0.1															★ 1			
300-030		4.0																★ 2			
		5.0																★ 1			
325-030	3.25	5.0	0.3															★ 2			
330-030	3.30	4.0																★ 2			
																		★ 1			
350-010	3.50		0.1																		
350-030	3.50		0.3																		
400-010	4.00		0.1																		
400-040	4.00	5.0																			
430-040	4.30		0.4																		
450-040	4.50																				
480-040	4.80																				

Dimension B shows available grooving depth.

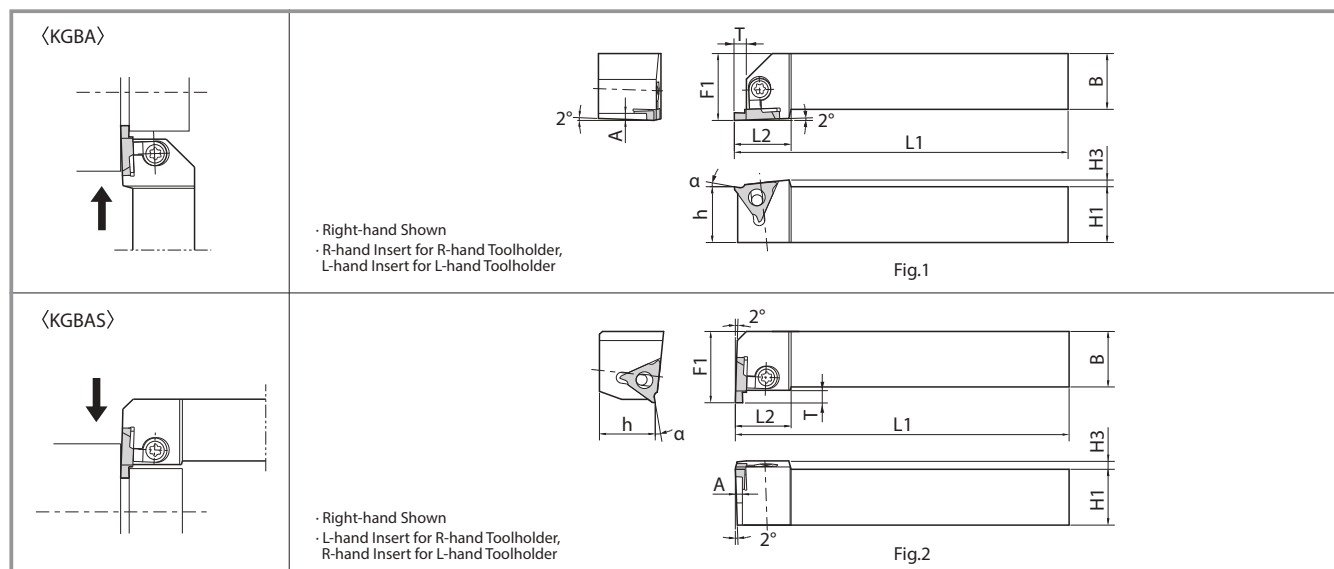
* 1. The edge width tolerance of GBA32 R/L 033-005 : 0.33^{+0.025}
 * 2. The edge width tolerance of GBA32 R/L 050-005 : 0.50^{+0.025}

● : Standard Stock
 ○ : Check Availability

★ Applicable Toolholders

- 1: KGBA R/L...22-25T5, KGBAS L/R...22-25T5, KIGBA L/R...22
 2: KGBA R/L...22-25T5, KGBAS L/R...22-25T5, KGBA R/L...22-25, KGBAS L/R...22-25, KIGBA L/R...22

KGBA/KGBAS (External Grooving Toolholders)



Toolholder Dimensions

Description	Std.		Dimension (mm)									Spare Parts		Applicable Inserts
	R	L	H1=h	H3	B	L1	L2	F1	A	T	Insert	Clamp Set	Wrench	
KGBA ^{R/L}	2020K-16	●	20	4.0	20	125	24	25	—	2.5	Fig.1	LGBA-16 ^{R/L} S		GBA32 ^{R/L} Type
	2525M-16	●	25	4.0	25	150	25.5	30	1.0	4.0				
	2020K22-15	●	20	4.0	20	125	25.5	25	2.0	4.5				
	2525M22-15	●	25	4.0	25	150	25.5	30	2.0	4.5				
	2020K22-25	●	20	4.0	20	125	25.5	25	2.0	5.5				
	2525M22-25	●	25	4.0	25	150	25.5	30	2.0	5.5				
	2020K22-25T5	●	20	4.0	20	125	25.5	25	2.0	5.5				
	2525M22-25T5	●	25	4.0	25	150	25.5	30	2.0	5.5				
	2020K22-35	●	20	4.0	20	125	25.5	25	3.0	5.5				
	2525M22-35	●	25	4.0	25	150	25.5	30	3.0	5.5				
2020H22-15*	●							1.0	4.0					
2020H22-25*	●		20	4.0	20	100	25.5	25	2.0	4.5				
2020H22-35*	●							3.0	5.5					
KGBAS ^{R/L}	2020K-16	●	20	4.0	20	125	25	25	—	2.5	Fig.2	LGBA-16 ^{L/R} S		GBA32 ^{L/R} Type
	2525M-16	●	25	4.5	25	150	27	32	1.0	4.0				
	2020K22-15	●	20	4.5	20	125	25	27	2.0	4.5				
	2525M22-15	●	25	5.0	25	150	25	32	2.0	4.5				
	2020K22-25	●	20	4.5	20	125	25	27	2.0	4.5				
	2525M22-25	●	25	5.0	25	150	25	32	2.0	4.5				
	2020K22-25T5	●	20	4.5	20	125	25	27	2.0	5.5				
	2525M22-25T5	●	25	5.0	25	150	25	32	2.0	5.5				
	2020K22-35	●	20	4.5	20	125	25	27	3.0	5.5				
2525M22-35	●	25	5.0	25	150	25	32	3.0	5.5					

Dimension T shows the distance from the toolholder to the cutting edge. Available Groove Depth: "B" Dimension of Insert.

* Short Shank Type

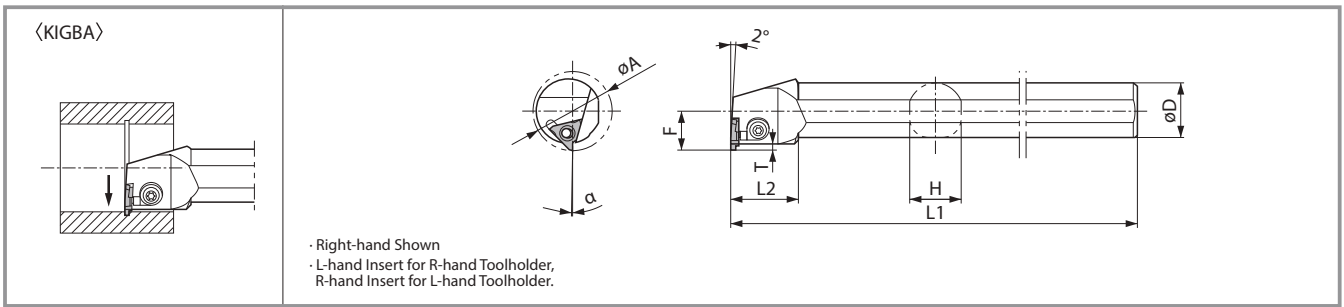
Clamp Set: KGBA ^{R/L} ... LGBA-○○RS for Right-hand Toolholder, and LGBA-○○LS for Left-hand Toolholder.
KGBAS ^{R/L} ... LGBA-○○LS for Right-hand Toolholder, and LGBA-○○RS for Left-hand Toolholder.

● : Standard Stock

External Grooving Toolholders KGBA Short Shank types are available

For NC lathe and HSK tooling, KGBAR2020K-○○ (Overall length 125mm) short shank type KGBAR2020H22-○○ (Overall length 100mm) is available. No longer requires the user to cut the shank portion.

KIGBA (Internal Grooving Toolholders)

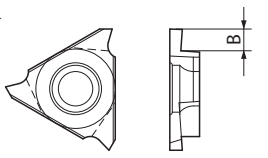


Toolholder Dimensions

Description	Stock		Min. Cutting Dia.	Dimension (mm)						Spare Parts		Applicable Insert
	R	L		ϕA	ϕD	H	L1	L2	F	*T	Clamp Set	
KIGBA ^{R/L} 3525-16	●	●	35	25	23	220	30	17.5	2.8	LGBA-16 ^{L/R} S	FT-15	GBA32 ^{L/R} Type
	●	●	40	32	30	250	30	23.0	3.0			

● : Standard Stock

* Dimension T Shows the distance from the Toolholder to the cutting edge.
 Available Grooving Depth depends on the insert.
 KIGBA ^{R/L}3525-16 : Dimension B of the applicable insert (GBA32 type)
 4032-22 : Dimension B of the applicable insert (GBA43 type)



- 2.0 mm (Dimension B < 3.0mm)
- 3.0 mm (Dimension B ≥ 3.0mm)

Clamp Set : LGBA-○○LS for Right-hand Toolholder, and LGBA-○○RS for Left-hand Toolholder.

Rake Angle after Installment of GBA (α)

For GBA32 ^{R/L} ○○○-○○○		For GBA43 ^{R/L} ○○○-○○○		For GBA43 ^{R/L} ○○○-○○○R (Full R)		
α	Insert Grade	α	Insert Grade	α	Insert Grade	Full-R Description
+1°	TN620,TN90,PV7040,PR930 PR1115,PR1215,PR1625,PR905 KPD001, KPD010	-9°	KBN510, KBN525	+1°	TN620,TN90,PV7040,PR930 PR1115,PR1215,PR905	050R ~ 150R
		+1°	TN620,TC40N,TN90,PV7040 PR930,PR1115,PR1215,PR1625 PR905, KPD001, KPD010		TN620,TN90,PV7040,PR930 PR1115,PR1215,PR1625,PR905	200R
+11°	KW10	+11°	KW10	+5°	KW10	050R ~ 200R

Rake Angle (α) after Installment of GBA-GM type

α	Insert Description
+1°	GBA43 ^{R/L} 150-020GM
+6°	GBA43 ^{R/L} 175-020GM
	GBA43 ^{R/L} 265-030GM
+3°	GBA43 ^{R/L} 300-030GM
	GBA43 ^{R/L} 400-040GM

α indicates the rake angle at the center of the edge width, after installing insert.

Rake Angle after Installment of GBA-MY (α)

α	Insert Description
+6°	GBA43 ^{R/L} 175-020MY
	GBA43 ^{R/L} 350-030MY
+5°	GBA43 ^{R/L} 400-040MY

α indicates the rake angle at the center of the edge width, after installing insert.

Recommended Cutting Conditions ★: 1st Recommendation ☆: 2nd Recommendation

GBA Inserts (Ground Chipbreaker)

(Wet)

Workpiece	Recommended Insert Grades(Cutting Speed: m/min)												(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)				
	MC	Cermet			MEGA	MEGA NANO	PVD Coated Carbide			Carbide	CBN	PCD	GBA ○○ R/L 033 – 100-...	GBA ○○ R/L 125 – 200-...	GBA ○○ R/L 230 – 300-...	GBA ○○ R/L 330 – 400-...	GBA ○○ R/L 400 – 480-...
	PV7040	TN620	TC40N	TN90	PR1215	PR1625	PR930	PR1115	PR905	KW10	KBN510 KBN525	KPD001 (KPD010)					
Carbon Steel	150 – 240 ☆	80 – 220 ★	150 – 220 ☆	150 – 220 ☆	80 – 200 ★	80 – 180 ★	80 – 180 ☆	80 – 180 ☆	-	-	-	-	(1)0.03 – 0.08 (2)Not Recommended (3)Not Recommended	(1)0.04 – 0.09 (2)0.04 – 0.09 (3)Max. 0.3	(1)0.05 – 0.1 (2)0.05 – 0.1 (3)Max. 0.5	(1)0.05 – 0.12 (2)0.05 – 0.1 (3)Max. 0.5	(1)0.05 – 0.12 (2)0.05 – 0.1 (3)Max. 0.8
Alloy Steel	130 – 220 ☆	80 – 200 ★	130 – 200 ☆	130 – 200 ☆	80 – 180 ★	80 – 160 ★	80 – 160 ☆	80 – 160 ☆	-	-	-	-	(1)0.03 – 0.07 (2)Not Recommended (3)Not Recommended	(1)0.04 – 0.08 (2)0.04 – 0.08 (3)Max. 0.3	(1)0.05 – 0.09 (2)0.05 – 0.09 (3)Max. 0.5	(1)0.05 – 0.1 (2)0.05 – 0.1 (3)Max. 0.5	(1)0.05 – 0.1 (2)0.05 – 0.1 (3)Max. 0.8
Stainless Steel	-	-	-	70 – 150 ☆	60 – 150 ☆	60 – 130 ★	60 – 130 ☆	60 – 130 ☆	-	-	-	-	(1)0.03 – 0.07 (2)Not Recommended (3)Not Recommended	(1)0.04 – 0.08 (2)0.04 – 0.08 (3)Max. 0.3	(1)0.05 – 0.09 (2)0.05 – 0.09 (3)Max. 0.5	(1)0.05 – 0.1 (2)0.05 – 0.1 (3)Max. 0.5	(1)0.05 – 0.1 (2)0.05 – 0.1 (3)Max. 0.8
Cast Iron	-	-	-	-	-	-	-	-	80 – 180 ★	60 – 120 ☆	150 – 400 ★	-	(1)0.03 – 0.08 (2)Not Recommended (3)Not Recommended	(1)0.04 – 0.09 (2)0.04 – 0.09 (3)Max. 0.3	(1)0.05 – 0.1 (2)0.05 – 0.1 (3)Max. 0.5	(1)0.05 – 0.12 (2)0.05 – 0.1 (3)Max. 0.5	(1)0.05 – 0.12 (2)0.05 – 0.1 (3)Max. 0.8
Aluminum	-	-	-	-	-	-	-	-	-	150 – 400 ★	-	150 – 2,000 ★	(1)0.05 – 0.12 (2)Not Recommended (3)Not Recommended	(1)0.05 – 0.15 (2)0.05 – 0.15 (3)Max. 0.5	(1)0.05 – 0.15 (2)0.05 – 0.15 (3)Max. 0.8	(1)0.08 – 0.15 (2)0.08 – 0.15 (3)Max. 0.8	(1)0.08 – 0.15 (2)0.08 – 0.15 (3)Max. 0.8
Brass	-	-	-	-	-	-	-	-	-	150 – 300 ★	-	200 – 800 ★	(1)0.05 – 0.12 (2)Not Recommended (3)Not Recommended	(1)0.05 – 0.15 (2)0.05 – 0.15 (3)Max. 0.5	(1)0.05 – 0.15 (2)0.05 – 0.15 (3)Max. 0.8	(1)0.08 – 0.15 (2)0.08 – 0.15 (3)Max. 0.8	(1)0.08 – 0.15 (2)0.08 – 0.15 (3)Max. 0.8
Hard Materials	-	-	-	-	-	-	-	-	-	-	80 – 120 ★	-	-	(1)0.02 – 0.05 (2)Not Recommended (3)Not Recommended	(1)0.03 – 0.07 (2)0.01 – 0.04 (3)Max. 0.1	-	-

Above cutting conditions are for external grooving. Set both cutting speed and feed rate 10% lower for internal grooving.

MEGA indicates MEGACOAT, and MEGANANO indicates MEGACOAT NANO.

MC indicates MEGACOAT Cermet

GBA Inserts (GM Chipbreaker)

(Wet)

Workpiece	Recommended Insert Grades (Cutting Speed Vc: m/min)			(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)				
	Cermet	MEGACOAT	MEGACOAT NANO	GBA43 R/L 140-010GM	GBA43 R/L 150-020GM	GBA43 R/L 175-020GM – 230-020GM	GBA43 R/L 250-030GM – 350-030GM	GBA43 R/L 400-040GM
	TN620	PR1215	PR1625					
Carbon Steel (SxxC etc.)	80 – 240 ★	80 – 220 ☆	80 – 200 ☆	(1)0.03 – 0.1 (2)0.03 – 0.08 (3)Max. 0.2	(1)0.03 – 0.12 (2)0.03 – 0.08 (3)Max. 0.3	(1)0.03 – 0.12 (2)0.03 – 0.09 (3)Max. 0.3	(1)0.04 – 0.15 (2)0.05 – 0.1 (3)Max. 0.5	(1)0.05 – 0.15 (2)0.05 – 0.1 (3)Max. 0.8
Alloy Steel (SCM etc.)	80 – 220 ★	80 – 200 ☆	80 – 180 ☆	(1)0.03 – 0.1 (2)0.03 – 0.08 (3)Max. 0.2	(1)0.03 – 0.12 (2)0.03 – 0.08 (3)Max. 0.3	(1)0.03 – 0.12 (2)0.03 – 0.09 (3)Max. 0.3	(1)0.04 – 0.15 (2)0.05 – 0.1 (3)Max. 0.5	(1)0.05 – 0.15 (2)0.05 – 0.1 (3)Max. 0.8
Stainless Steel (SUS304 etc.)	-	60 – 150 ★	60 – 130 ★	(1)0.03 – 0.1 (2)0.03 – 0.08 (3)Max. 0.2	(1)0.03 – 0.1 (2)0.03 – 0.08 (3)Max. 0.3	(1)0.03 – 0.1 (2)0.03 – 0.09 (3)Max. 0.3	(1)0.04 – 0.12 (2)0.05 – 0.1 (3)Max. 0.5	(1)0.04 – 0.12 (2)0.05 – 0.1 (3)Max. 0.8

Above cutting conditions are for external grooving. For internal grooving, set both cutting speed and feed rate 20% lower.

GBA Inserts (MY Chipbreaker)

(Wet)

Workpiece	Recommended Insert Grades(Cutting Speed Vc: m/min)								(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)				
	Cermet		MEGA	PVD Coated Carbide		Carbide	CBN	PCD	GBA43 R/L 175-020MY – 200-020MY	GBA43 R/L 230-020MY – 265-030MY	GBA43 R/L 300-030MY	GBA43 R/L 330-030MY – 350-030MY	GBA43 R/L 400-040MY
	TN6020	TC40N	PR1215	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)					
Carbon Steel (SxxC etc.)	150 – 220 ☆	-	80 – 200 ★	80 – 200 ☆	80 – 200 ☆	-	-	-	(1)0.03 – 0.08 (2)0.03 – 0.1 (3)Max. 0.3	(1)0.04 – 0.09 (2)0.04 – 0.09 (3)Max. 0.3	(1)0.05 – 0.1 (2)0.05 – 0.1 (3)Max. 0.5	(1)0.05 – 0.12 (2)0.05 – 0.1 (3)Max. 0.5	(1)0.05 – 0.12 (2)0.05 – 0.1 (3)Max. 0.8
Alloy Steel (SCM etc.)	130 – 200 ☆	-	80 – 180 ★	80 – 180 ☆	80 – 180 ☆	-	-	-	(1)0.03 – 0.07 (2)0.03 – 0.1 (3)Max. 0.3	(1)0.04 – 0.08 (2)0.04 – 0.08 (3)Max. 0.3	(1)0.05 – 0.09 (2)0.05 – 0.09 (3)Max. 0.5	(1)0.05 – 0.1 (2)0.05 – 0.1 (3)Max. 0.5	(1)0.05 – 0.1 (2)0.05 – 0.1 (3)Max. 0.8
Stainless Steel (SUS304 etc.)	70 – 150 ☆	-	60 – 150 ☆	60 – 150 ☆	60 – 150 ★	-	-	-	(1)0.03 – 0.07 (2)0.03 – 0.1 (3)Max. 0.3	(1)0.04 – 0.08 (2)0.04 – 0.08 (3)Max. 0.3	(1)0.05 – 0.09 (2)0.05 – 0.09 (3)Max. 0.5	(1)0.05 – 0.1 (2)0.05 – 0.1 (3)Max. 0.5	(1)0.05 – 0.1 (2)0.05 – 0.1 (3)Max. 0.8

Above cutting conditions are for external grooving. For internal grooving, set both cutting speed and feed rate 20% lower.

MEGA indicates MEGACOAT