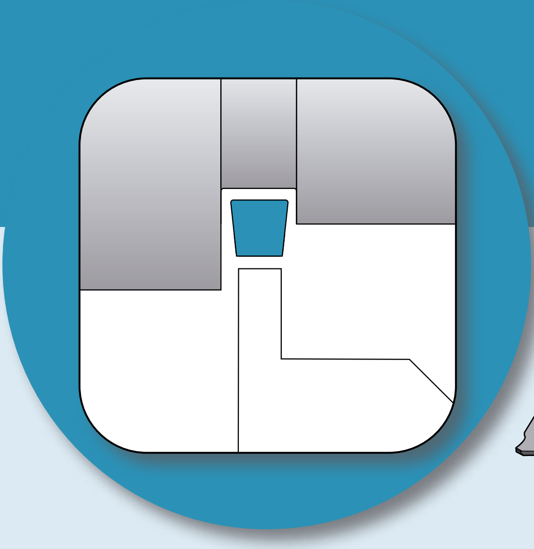
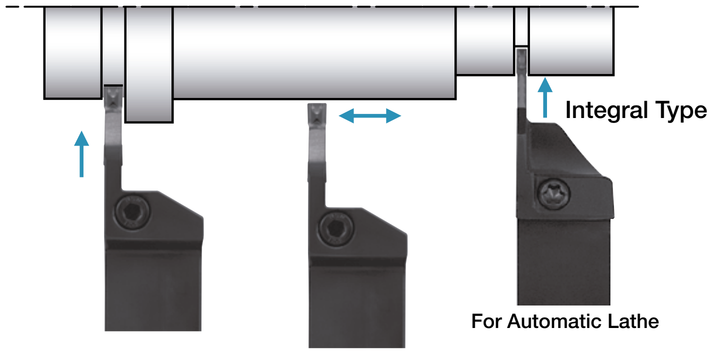


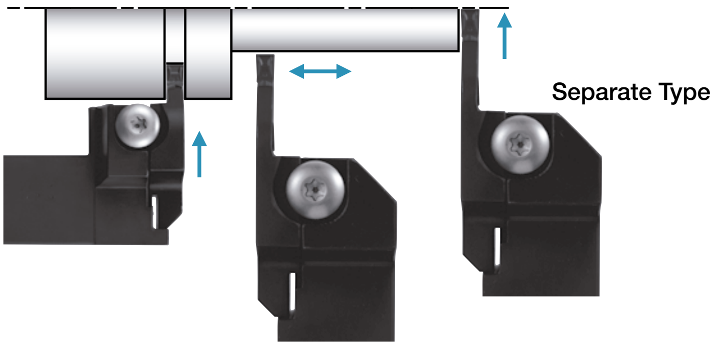
Grooving

G1~G120

G

KGD Grooving (External Grooving & Turning) (G20 ~ G37)





· Integral Type

Type	KGD
Edge Width (mm)	2.0 ~ 8.0
Max. Grooving Depth (mm)	6 ~ 30
See Page	**G24**

· Integral Type (Coolant-through Holders)

Type	KGD-JCT
Edge Width (mm)	3.0 ~ 5.0
Max. Grooving Depth (mm)	6 ~ 25
See Page	**G26**

· Integral Type for Automatic Lathe

Type	KGD
Edge Width (mm)	2.0 ~ 4.0
Max. Grooving Depth (mm)	10 ~ 25.5
See Page	**G25**

· Integral Type for Automatic Lathe (Coolant-through Holders)

Type	KGD-JCT
Edge Width (mm)	2.0 ~ 4.0
Max. Grooving Depth (mm)	12 ~ 16
See Page	**G28**

· Separate Type

Type	* KGDS-S
Edge Width (mm)	3.0
Max. Grooving Depth (mm)	10
See Page	**G31**

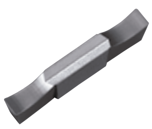
* The separate type toolholders can accept all the blades if their hand is matching.

· Separate Type

Type	* KGD-S
Edge Width (mm)	2.0 ~ 5.0
Max. Grooving Depth (mm)	10 ~ 25
See Page	**G30**

* The separate type toolholders can accept all the blades if their hand is matching.

Low Cutting Force
GS



Low Feed
GL

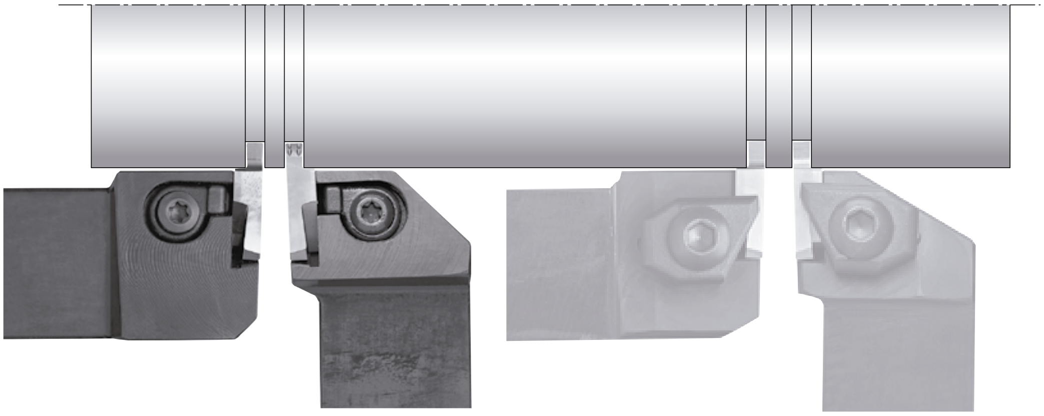
General purpose
GM

High Feed
PH

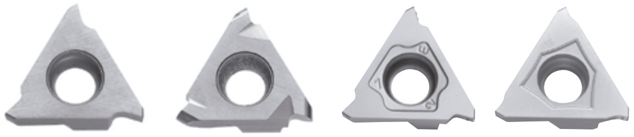
Copying
CM

External Grooving (G6 ~ G11, G46, G47)

Shallow Grooving (Grooving Depth: ~5mm)



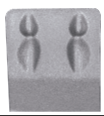
Type	KGBAS	KGBA(-JCT)	KGBS	KGB
Edge Width (mm)	0.33 ~ 4.8	0.33 ~ 4.8	0.33 ~ 4.8	0.33 ~ 4.8
Max. Grooving Depth (mm)	0.8 ~ 5.0	0.8 ~ 5.0	0.8 ~ 5.0	0.8 ~ 5.0
See Page	**G9**	**G9, G10**	**G11**	**G11**



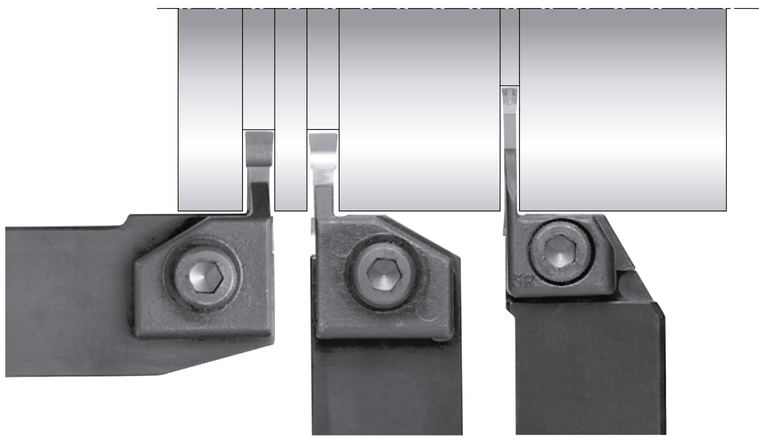
Ground Chipbreaker / Ground Chipbreaker **Full-R** / GM Chipbreaker / MY Chipbreaker

* These shallow groove types of the previous system will be switched to the system on the left.

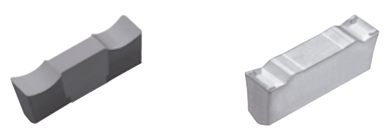
KGBS ⟶ KGBAS
KGB ⟶ KGBA

	General (Square)	Full-R (Round)	GM Chipbreaker	MY Chipbreaker
Edge Shape				

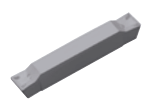
Deep Grooving (Grooving Depth : ~25mm)



Type	KGHS	KGH	KGA
Edge Width (mm)	4.0 ~ 8.0	4.0 ~ 12.0	3.0 ~ 5.0
Max. Grooving Depth (mm)	13	13 ~ 17	20 ~ 25
See Page	**G46**	**G46**	**G47**



Ground Chipbreaker / Molded Chipbreaker



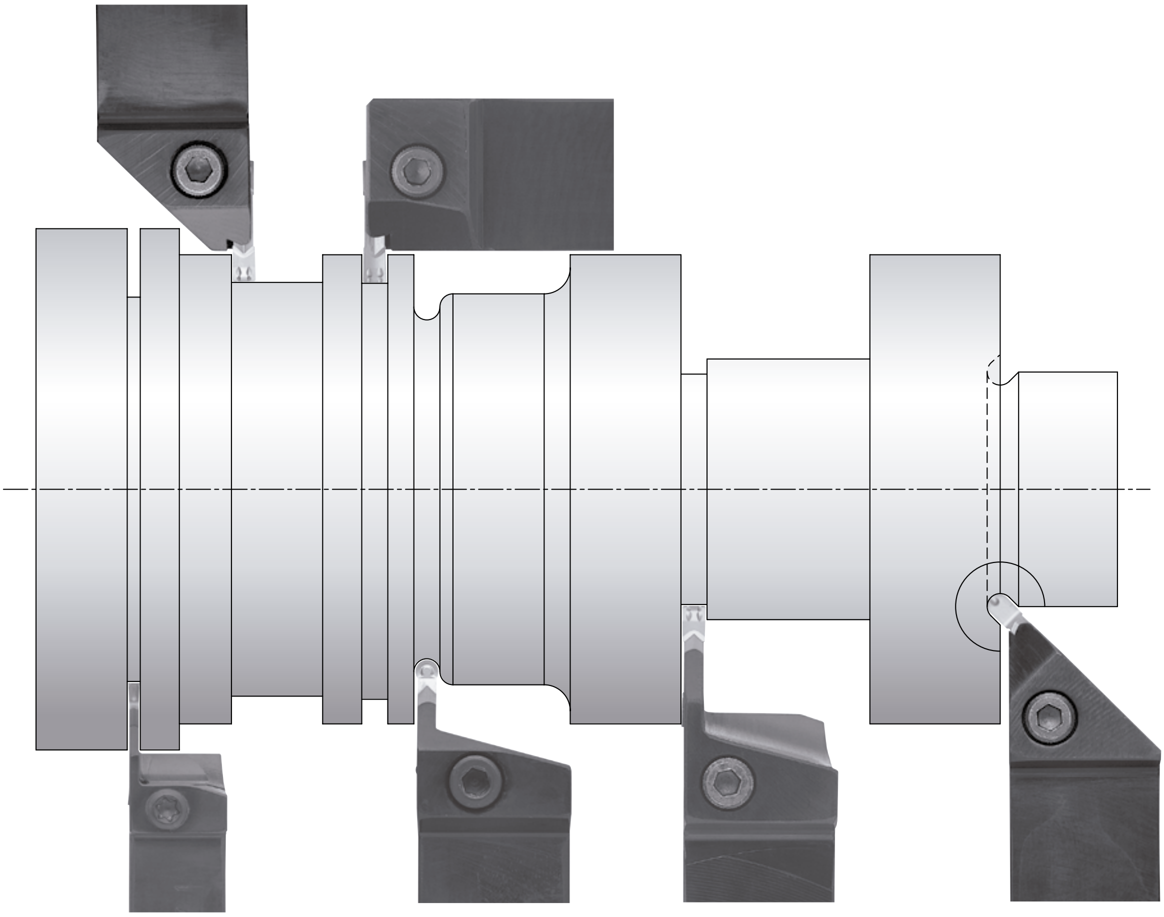
Molded Chipbreaker

Summary of External Grooving

KGM Grooving (External Grooving & Turning) (G38 ~ G45)

Type	KGMM	KGMS
Edge Width (mm)	3.0 ~ 5.0	3.0 ~ 5.0
Max. Grooving Depth (mm)	4.8	4.8
See Page	**G44**	**G44**

Molded Chipbreaker | Molded Chipbreaker Full-R | Ground Chipbreaker



Type	KGM	KGM	KGM-T	KGMU
Edge Width (mm)	1.5 ~ 4.0	3.0 ~ 8.0	2.0 ~ 6.0	3.0 ~ 5.0
Max. Grooving Depth (mm)	10 ~ 16	9 ~ 25	17 ~ 30	3.5 ~ 4.5
See Page	**G42**	**G42**	**G43**	**G45**

Molded Chipbreaker | Molded Chipbreaker Full-R | Ground Chipbreaker | Deep Grooving / Cut-off

Molded Chipbreaker Full-R

External Grooving of Precision Parts (G15 ~ G17, G18, G19, G25, G28, G29, G42)

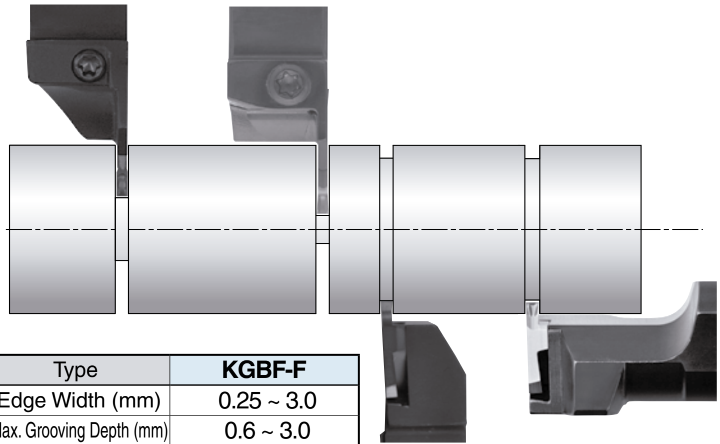
For Automatic Lathe

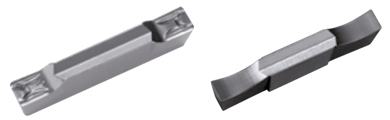
Type	KGD
Edge Width (mm)	2.0 ~ 4.0
Max. Grooving Depth (mm)	10 ~ 25.5
See Page	G25

· Coolant-through Holders

Type	KGD-JCT
Edge Width (mm)	2.0 ~ 4.0
Max. Grooving Depth (mm)	12 ~ 16
See Page	G28

Type	KGM
Edge Width (mm)	1.5 ~ 4.0
Max. Grooving Depth (mm)	10 ~ 16
See Page	G42



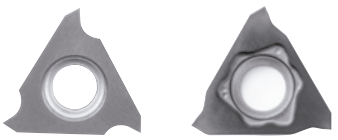


Molded Chipbreaker   Ground Chipbreaker

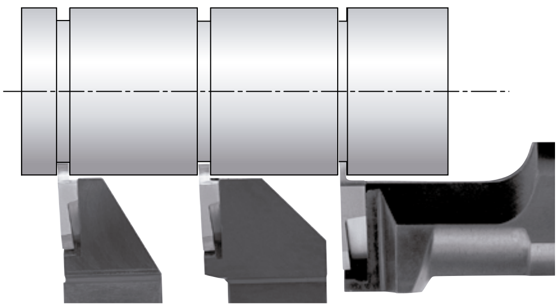
Type	KGBF-F
Edge Width (mm)	0.25 ~ 3.0
Max. Grooving Depth (mm)	0.6 ~ 3.0
See Page	G15

· Coolant-through Holders

Type	KGBFS	KGBF-JCT	S-KGBF
Edge Width (mm)	0.25 ~ 3.0	0.25 ~ 3.0	0.25 ~ 3.0
Max. Grooving Depth (mm)	0.6 ~ 3.0	0.6 ~ 3.0	0.6 ~ 3.0
See Page	G16	G17	G15

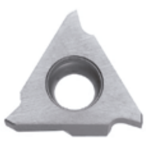


Ground Chipbreaker   GL Chipbreaker



Type	KTGF-F	KTGF
Edge Width (mm)	0.33 ~ 2.5	
Max. Grooving Depth (mm)	0.8 ~ 2.5	
See Page	G18	

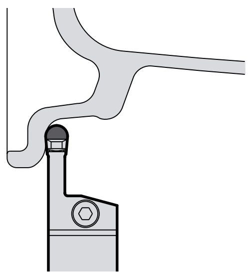
S-KTGF
0.33 ~ 2.5
0.8 ~ 2.5
G19



Ground Chipbreaker

For Aluminum Wheel External Grooving

(External / Facing / Copying) (G48)



Type	KGMW
Edge Width (mm)	6.0 ~ 8.0
Max. Grooving Depth (mm)	25
See Page	G48

1-edge PCD

NEW

Applicable Inserts

(mm)

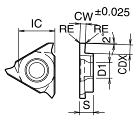
Description	IC	S	D1
GBA32_	9.525	3.18	4.4
GBA43_	12.70	4.76	5.5
GBA43R/L480	12.70	5.00	5.5

Work material	PV7040	TC40N	TN90	PR1625	PR1215	PR1115	PR905	PR930	KW10
P Carbon Steel / Alloy Steel	●			◕	●	◔		◔	
M Stainless Steel				◕	●	◔		◔	
K Cast Iron					◕		◔		◔
N Non-ferrous Metals									◕
S Titanium Alloys									◕
H Hard Materials (~40HRC) / Hard Materials (40HRC~)					●	○		○	

Classification of usage
◕: Continuous~Light Interruption / 1st Choice
◔: Continuous~Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

Insert

Handed Insert shows Right-hand



Description	CW	CDX	RE	PV7040 (MEGACOAT Cermet) R	PV7040 L	TC40N (Cermet) R	TC40N L	TN90 (Cermet) R	TN90 L	PR1625 (MEGACOAT NANO) R	PR1625 L	PR1215 (MEGACOAT) R	PR1215 L	PR1115 (PVD Coated Carbide) R	PR1115 L	PR905 (PVD Coated Carbide) R	PR905 L	PR930 (PVD Coated Carbide) R	PR930 L	KW10 (Carbide) R	KW10 L	Applicable Toolholders
GBA32R/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						●												●	●	
		1.2								●	●	●	●	●	●			●	●			
075-005	0.75	2.0		●	●			●		●	●	●	●	●	●	●		●	●	●	●	
095-005	0.95							●	□	●	●	●	●	●	●			●	●	●	●	
100-005	1.00			●	●			●	●	●	●	●	●	●	●	●		●	●	●	●	
110-005	1.10									●	●			●	●	●						
120-005	1.20									●	●	●	●	●	●							
125-020	1.25		0.2	●	●			●	●	●	●	●	●	●	●			●	●	●	●	
130-020	1.30									●	●	●	●	●								
140-020	1.40	2.5								●	●	●	●	●	●	●						
145-020	1.45	2.0						●	□											●	●	
		2.5								●	●	●	●	●	●			●	●			
150-020	1.50	2.0		●	●			●	●											●	●	
		2.5								●	●	●	●	●	●	□		●	●			
160-020	1.60									●	●	●	●	●								
170-020	1.70									●	●	●	●	●	●							
175-020	1.75	2.0						●	●											●	●	
		2.5								●	●	●	●	●	●	●		●	●			
200-020	2.00			●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	
225-020	2.25									●	●	●	●	●	□							
250-020	2.50							●	●	●	●	●	●	●	●			●	●	●	●	
300-020	3.00									●	●	●	●	●	●	●	●					
GBA43R/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			0.2	●	●	●	●	●	●	●	●	●	●	□	□	●		●	●	●	●	
140-020	1.40	3.5								●	●	●	●	□		●						
145-020	1.45	2.0				●	●	●	●											●	●	
		3.5								●	●	●	●	□				●	●			
150-010	1.50		0.1							●	●	●	●	□								
150-020			0.2	●	●	●	●	●	●	●	●	●	●	□	□	●	□	●	●	●	●	
170-020	1.70									●	●	●	●	□	□	●	●					
175-020	1.75					●		●	●	●	●	●	●	□		●	●	●	●	●	●	
185-020	1.85					●	●	●	□	●	●	●	●	□		●	●	●	●	●	●	
195-020	1.95									●	●			□	□	□						
200-010	2.00		0.1							●	●	●	●	□	□							
200-020			0.2	●	●	●	●	●	●	●	●	●	●	□	□	●	●	●	●	●	●	
225-020	2.25									●	●	●	●	□		●	□					
230-020	2.30					●	●	●	●	●	●	●	●	□	□	●	●	●	●	●	●	
250-010	2.50	5.0	0.1							●	●	●	●	□	□							★1
250-030		4.0	0.3	●	●	●	●	●	●											●	●	★2
		5.0								●	●	●	●	□		●	●	●	●			★1
265-030	2.65	4.0				●		●	●											●	●	★2
		5.0								●	●	●	●					●	●			★1
280-030	2.80	4.0				●		●	●											●	●	★2
		5.0								●	●	●	●	□		□		●	●			★1
300-010	3.00		0.1							●	●	●	●	□								
300-030		4.0	0.3	●	●	●	●	●	●											●	●	★2
		5.0								●	●	●	●	□	□	●		●	●			★1
325-030	3.25									●						●						★2
330-030	3.30	4.0				●	●	●	□											●	●	
		5.0								●	●	●	●	□	□	●		●	●			★1
350-010	3.50		0.1							●	●	●	●	□								KGBA R/L…22-35 KGBAS L/R…22-35 KIGBA L/R…22 (Internal)
350-030			0.3			●	●	●	●	●	●	●	●	□		●	●	●	●	●	●	
400-010	4.00		0.1							●	●	●	●									
400-040			0.4	●	●	●	●	●	●	●	●	●	●	□		●	●	●	●	●	●	
430-040	4.30					●	□	●		●	●	●	●					●		●	●	
450-040	4.50					●		●		●	●	●	●					●	●	●	●	
480-040	4.80							●		●	●	●	●					●	●	●	●	

See Page for Applicable Toolholders: G9 ~ G11, G66 (Internal)

· CDX shows available grooving depth.

*1. The edge width tolerance of GBA32R/L033-005 : $0.33^{+0.02}_{-0.03}$

*2. The edge width tolerance of GBA32R/L050-005 : $0.50^{+0.05}_{-0}$

Recommended Cutting Conditions ➡ G111

★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

Inserts are sold in 10 piece boxes

● : Std. Item

□ : Deleted from the next catalog

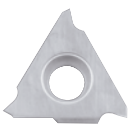
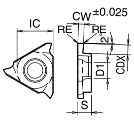
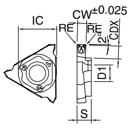
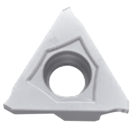
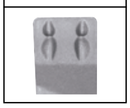
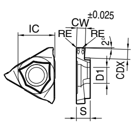
Applicable Inserts

(mm)

Description	IC	S	D1
GBA32_	9.525	3.18	4.4
GBA43_	12.70	4.76	5.5
GBA43R/L480	12.70	5.00	5.5

		TN620	TN6020	PR1625	PR1215	PR1115	PR930
P	Carbon Steel / Alloy Steel	●	○	◕	●	◌	◌
M	Stainless Steel			◕	●	◌	◌
K	Cast Iron						
N	Non-ferrous Metals						
S	Titanium Alloys						
H	Hard Materials (~40HRC)				●	○	○
H	Hard Materials (40HRC~)						

Classification of usage
◕ : Continuous~Light Interruption / 1st Choice
◌ : Continuous~Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

Insert (Handed Insert shows Right-hand)	Description	CW	CDX	RE	Cermet TN620 R	TN620 L	TN6020 R	TN6020 L	MEGACOAT NANO PR1625 R	PR1625 L	MEGACOAT PR1215 R	PR1215 L	PVD Coated Carbide PR1115 R	PR1115 L	PR930 R	PR930 L	Applicable Toolholders	See Page for Applicable Toolholders
NEW  Sharp Edge 	GBA32R/L 050-005F *	0.50	1.0	0.05	●	●											KGBAR/L…16 KGBASL/R…16 KIGBAL/R…16 (Internal)	G9 ~ G11 G66 (Internal)
	075-005F	0.75	2.0		●	●												
	095-005F	0.95			●	●												
	100-005F	1.00			●	●												
	125-020F	1.25		0.2	●	●												
	145-020F	1.45			●	●												
	150-020F	1.50			●	●												
	175-020F	1.75			●	●												
	200-020F	2.00	2.5		●	●												
	250-020F	2.50			●	●												
	GBA43R/L 125-020F	1.25	2.0	0.2	●	●											KGBAR/L…22-15 KGBASL/R…22-15 KIGBAL/R…22 (Internal)	
	145-020F	1.45			●	●												
	150-020F	1.50	3.5		●	●												
	175-020F	1.75			●	●												
	185-020F	1.85			●	●												
	200-020F	2.00			●	●												
	230-020F	2.30			●	●												
	250-030F	2.50	4.0	0.3	●	●											KGBAR/L…22-25T5 KGBASL/R…22-25T5 KIGBAL/R…22 (Internal)	
	265-030F	2.65			●	●												
	280-030F	2.80			●	●												
	300-030F	3.00			●	●												
	330-030F	3.30			●	●												
	350-030F	3.50	5.0		●	●											KGBAR/L…22-35 KGBASL/R…22-35 KIGBAL/R…22 (Internal)	
	400-040F	4.00		0.4	●	●												
	430-040F	4.30			●													
	450-040F	4.50			●													
	480-040F	4.80			●													
NEW  Molded Chipbreaker GM Chipbreaker  	GBA43R/L 140-010GM	1.40	3.5	0.1	●	●			●	●	●	●					KGBAR/L…22-15 KGBASL/R…22-15 KIGBAL/R…22 (Internal)	
	150-020GM	1.50		0.2	●	●			●	●	●	●						
	175-020GM	1.75			●	●			●	●	●	●						
	185-020GM	1.85			●	●			●	●	●	●						
	200-020GM	2.00			●	●			●	●	●	●						
	230-020GM	2.30			●	●			●	●	●	●						
	250-030GM	2.50	5.0	0.3	●	●			●	●	●	●					KGBAR/L…22-25T5 KGBASL/R…22-25T5 KIGBAL/R…22 (Internal)	
	265-030GM	2.65			●	●			●	●	●	●						
	300-030GM	3.00			●	●			●	●	●	●						
	330-030GM	3.30			●	●			●	●	●	●						
	350-030GM	3.50			●	●			●	●	●	●					KGBAR/L…22-35 KGBASL/R…22-35 KIGBAL/R…22 (Internal)	
	400-040GM	4.00		0.4	●	●			●	●	●	●						
 Molded Chipbreaker MY Chipbreaker  	GBA43R/L 175-020MY	1.75	3.5	0.2			●	●			●	●	□	□	●	●	KGBAR/L…22-15 KGBASL/R…22-15 KIGBAL/R…22 (Internal)	
	185-020MY	1.85					●	●			●	●	□		●	●		
	200-020MY	2.00					●	●			●	●	□	□	●	●		
	230-020MY	2.30					●	●			●	●			●	●		
	250-030MY	2.50	4.0	0.3			●	●									★2	
			5.0								●	●	□		●	●	★1	
	265-030MY	2.65	4.0				●	●									★2	
			5.0								●	●	□		●		★1	
	300-030MY	3.00	4.0				●	●									★2	
			5.0								●	●	□	□	●	●	★1	
	330-030MY	3.30	4.0				●										★2	
			5.0								●	●	□		●		★1	
	350-030MY	3.50	5.0				●	●			●	●	□		●	●	KGBAR/L…22-35 KGBASL/R…22-35 KIGBAL/R…22 (Internal)	
	400-040MY	4.00		0.4			●	●			●	●	□		●	●		

· CDX shows available grooving depth.

Recommended Cutting Conditions ➡ G111

* The edge width tolerance of GBA32R/L050-005F:0.50 $^{+0.05}_{-0}$

★Applicable Toolholders
1:KGBAR/L…22-25T5, KGBASL/R …22-25T5, KIGBAL/R…22
2:KGBAR/L…22-25T5, KGBASL/R …22-25T5, KGBAR/L…22-25, KGBASL/R …22-25, KIGBAL/R…22

● Rake Angle (α) after Installment of GBA-GM insert

α	Insert Description
10°	GBA43R/L150-020GM
15°	GBA43R/L175-020GM ~ GBA43R/L265-030GM
12°	GBA43R/L300-030GM ~ GBA43R/L400-040GM

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

● Rake Angle (α) after Installment of GBA-MY insert

α	Insert Description
15°	GBA43R/L175-020MY ~ GBA43R/L350-030MY
14°	GBA43R/L400-040MY

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

● : Std. Item
□ : Deleted from the next catalog

Inserts are sold in 10 piece boxes

Grooving Inserts

NEW

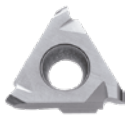
Applicable Inserts

(mm)

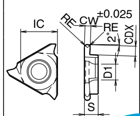
Description	IC	S	D1
GBA32_	9.525	3.18	4.4
GBA43_	12.70	4.76	5.5
GBA43R/L480	12.70	5.00	5.5

		PV7040	TN620	TN90	PR1625	PR1215	PR1115	PR905	PR930	KW10
P	Carbon Steel / Alloy Steel	●	○		◐	●	◌		◌	
M	Stainless Steel				◐	●	◌		◌	
K	Cast Iron							◌		◌
N	Non-ferrous Metals									◐
S	Titanium Alloys									◐
H	Hard Materials (~40HRC)					●	○		○	
H	Hard Materials (40HRC~)									

Classification of usage
◐ : Continuous~Light Interruption / 1st Choice
◌ : Continuous~Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice



Full-R
RF : Sharp Edge



Full-R (Round)

NEW

Insert (Handed Insert shows Right-hand)	Description		CW	CDX	RE	PV7040 R	PV7040 L	TN620 R	TN620 L	TN90 R	TN90 L	PR1625 R	PR1625 L	PR1215 R	PR1215 L	PR1115 R	PR1115 L	PR905 R	PR905 L	PR930 R	PR930 L	KW10 R	KW10 L	Applicable Toolholders	See Page for Applicable Toolholders
						MEGACOAT Cermet		Cermet				MEGA COAT NANO		MEGA COAT		PVD Coated Carbide						Carbide			
	GBA32R	200-100R	2.00	2.5	1.00							●		●		●								KGBAR…16 KGBASL…16 KIGBAL…16 (Internal)	
		300-150R	3.00		1.50							●		●		●									
	GBA43R/L	100-050R	1.00	2.0	0.50	●	●			●	●	●	●	●	●	□	□			●	●	●	●	KGBAR/L…22-15 KGBASL/R…22-15	G9 ~ G11 G66 (Internal)
		150-075R	1.50	3.5	0.75	●	●			●	●	●	●	●	●	□	□	●		●	●	●	●		
		200-100R	2.00		1.00	●	●			●	●	●	●	●	●	□		●	●	●	●	●	●	KIGBAL/R…22 (Internal)	
		250-125R	2.50	4.0	1.25					●	□	●	●	●	●	□				●	●	●	●	★2	
		300-150R	3.00		1.50					●	●	●	●	●	●			●	●	●	●	●	●		
		400-200R	4.00	5.0	2.00					●		●	●	●	●					●	●	●	●	KGBAR/L…22-35 KGBASL/R…22-35 KIGBAL/R…22 (Internal)	
	GBA43R/L	100-050RF	1.00	2.0	0.50			●	●															KGBAR/L…22-15 KGBASL/R…22-15	
		150-075RF	1.50	3.5	0.75			●	●																
		200-100RF	2.00		1.00			●	●															KIGBAL/R…22 (Internal)	
		250-125RF	2.50	4.0	1.25			●	●															★2	
		300-150RF	3.00		1.50			●	●																
		400-200RF	4.00	5.0	2.00			●																KGBAR/L…22-35 KGBASL/R…22-35 KIGBAL/R…22 (Internal)	

· CDX shows available grooving depth.

Recommended Cutting Conditions ➔ G111

★Applicable Toolholders
2:KGBAR/L…22-25T5, KGBASL/R…22-25T5, KGBAR/L…22-25, KGBASL/R…22-25, KIGBAL/R…22

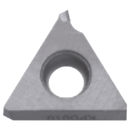
Applicable Inserts

(mm)

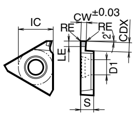
Description	IC	S	D1
GBA32_	9.525	3.18	4.4
GBA43_	12.70	4.76	5.5
GBA43R/L480	12.70	5.00	5.5

		KBN510	KBN525	KPD001	KPD010
P	Carbon Steel / Alloy Steel				
M	Stainless Steel				
K	Cast Iron				
N	Non-ferrous Metals			●	
S	Titanium Alloys			●	
H	Hard Materials (~40HRC)				
H	Hard Materials (40HRC~)	○	●		

Classification of usage
◐ : Continuous~Light Interruption / 1st Choice
◌ : Continuous~Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice



1-edge



GBA32 LE=1.7
GBA43 LE=1.9

Insert (Handed Insert shows Right-hand)	Description		CW	CDX	RE	KBN510 R	KBN510 L	KBN525 R	KBN525 L	KPD001 R	KPD001 L	KPD010 R	KPD010 L	Applicable Toolholders	See Page for Applicable Toolholders
						CBN				PCD					
	GBA32R	125-010	1.25	2.0	0.1							●		KGBAR…16 KGBASL…16 KIGBAL…16 (Internal)	
		150-010	1.50							●		●			
	GBA43R/L	125-010	1.25	2.0	0.1							●	●	KGBAR/L…22-15 KGBASL/R…22-15 KIGBAL/R…22 (Internal)	G9 ~ G11 G66 (Internal)
		125-020			0.2	●		●	●						
		150-010	1.50	3.5	0.1					●	●	●	●		
		150-020			0.2	●	●	●	●						
		200-010	2.00		0.1					●	●	●	●		
		200-020			0.2	●	●	●	●						
		250-010	2.50	4.0	0.1					●	●	●	●	★2	
		250-020			0.2	●	□	●	●						
		300-010	3.00		0.1					●	●	●	●		
		300-020			0.2	●	□	●	●						

· CDX shows available grooving depth.

Recommended Cutting Conditions ➔ G111

★Applicable Toolholders
2:KGBAR/L…22-25T5, KGBASL/R…22-25T5, KGBAR/L…22-25, KGBASL/R…22-25, KIGBAL/R…22

GBA inserts applicable for KGBA / KGBAS toolholders and KGB / KGBS toolholders.

● Rake Angle (α) after Installment of GBA insert

GBA32R/L○○○-○○○ α	GBA32R/L○○○-○○○ Insert Grades	GBA43R/L○○○-○○○ α	GBA43R/L○○○-○○○ Insert Grades	GBA43R/L○○○-○○○ R (Full-R) α	GBA43R/L○○○-○○○ R (Full-R) Insert Grades	Full-R Description
10°	TN620,TN90,PV7040,PR930 PR1115,PR1215,PR905 KPD001,KPD010	0°	KBN510, KBN525	10°	TN620,TN90,PV7040,PR930 PR1115,PR1215,PR905	050R~150R
		10°	TN620,TC40N,TN90,PV7040 PR930,PR1115,PR1215,PR905 KPD001, KPD010	14°	TN620,TN90,PV7040,PR930 PR1115,PR1215,PR905	200R
20°	KW10	20°	KW10		KW10	050R~200R

· For GM Chipbreaker and MY Chipbreaker, See page G7.

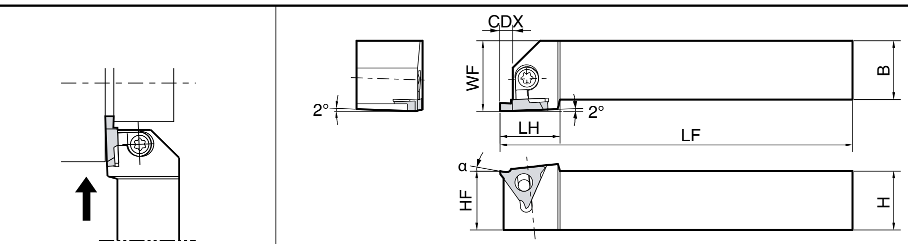
Inserts are sold in 10 piece boxes

CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item
□ : Deleted from the next catalog

External Shallow Grooving Toolholders

KGBA



●Right-hand shown

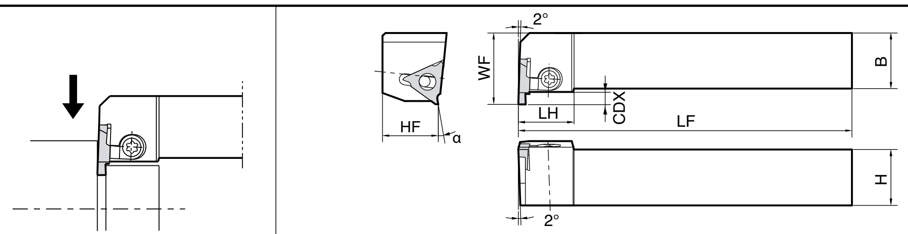
Right-hand Insert for Right-hand Toolholder,
Left-hand Insert for Left-hand Toolholder.

Alternative Toolholder Reference Table

KGBA ←	(KGB)
KGBAR/L ...22-15	KGBR/L ...22-15
KGBAR/L ...22-25	KGBR/L ...22-25
KGBAR/L ...22-35	KGBR/L ...22-35
KGBAR/L ...22-25T5	KGBR/L ...22-25 (Available grooving depth has a limit)

· Short shank type is not available for KGB / KGBS.

KGBAS



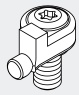
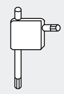
●Right-hand shown

Left-hand Insert for Right-hand Toolholder,
Right-hand Insert for Left-hand Toolholder.

Alternative Toolholder Reference Table

KGBAS ←	(KGBS)
KGBASR/L ...22-15	KGBSR/L ...22-15
KGBASR/L ...22-25	KGBSR/L ...22-25
KGBASR/L ...22-35	KGBSR/L ...22-35
KGBASR/L ...22-25T5	KGBSR/L ...22-25 (Available grooving depth has a limit)

Toolholder Dimensions

Description		Stock R	Stock L	Dimension (mm) H	HF	B	LF	LH	WF	CDX	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts ➡ G6 ~ G8
KGBAR/L	2020K-16	●	●	20	20	20	125	24	25	2.5	LGBA-16R/LS	FT-15	GBA32R/L type
	2525M-16	●	●	25	25	25	150		30				
	2020K22-15	●	●	20	20	20	125	25.5	25	4.0	LGBA-22R/LS		GBA43R/L type
	2525M22-15	●	●	25	25	25	150		30				
	2020K22-25	●	●	20	20	20	125	25.5	25	4.5			
	2525M22-25	●	●	25	25	25	150		30				
	2020K22-25T5	●	●	20	20	20	125	25.5	25	5.5			
	2525M22-25T5	●	●	25	25	25	150		30				
	2020K22-35	●	●	20	20	20	125	25.5	25				
	2525M22-35	●	●	25	25	25	150		30				
	2020H22-15*	●		20	20	20	100	25.5	25	4.0			
	2020H22-25*	●								4.5			
	2020H22-35*	●								5.5			
KGBASR/L	2020K-16	●	●	20	20	20	125	25	25	2.5	LGBA-16L/RS	FT-15	GBA32L/R type
	2525M-16	●	●	25	25	25	150		30				
	2020K22-15	●	●	20	20	20	125	25	27	4.0	LGBA-22L/RS		GBA43L/R type
	2525M22-15	●	●	25	25	25	150		32				
	2020K22-25	●	●	20	20	20	125	25	27	4.5			
	2525M22-25	●	●	25	25	25	150		32				
	2020K22-25T5	●	●	20	20	20	125	25	27	5.5			
	2525M22-25T5	●	●	25	25	25	150		32				
	2020K22-35	●	●	20	20	20	125	25	27				
	2525M22-35	●	●	25	25	25	150		32				

· CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

* mark indicates short shank type

· Clamp Set : KGBAR/L...LGBA-○○RS for Right-hand Toolholder and LGBA-○○LS for Left-hand Toolholder.
KGBASR/L...LGBA-○○LS for Right-hand Toolholder and LGBA-○○RS for Left-hand Toolholder.

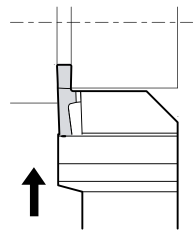
· See Page **G7** and **G8** for Applicable Insert & Rake Angle (α) after Installment of Insert.

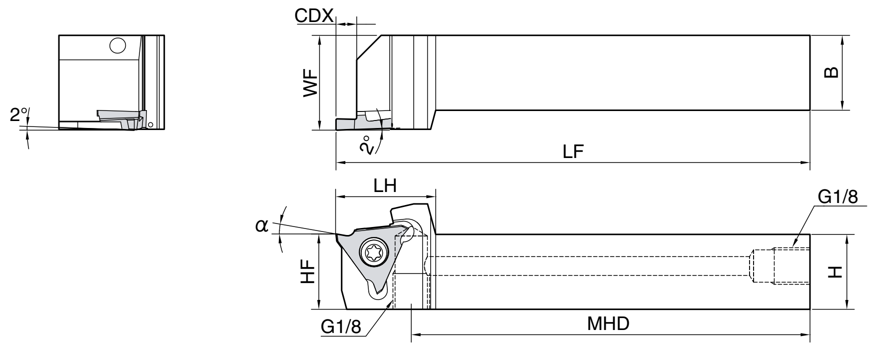
External Grooving Toolholders **KGBA** Short Shank types are available

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

● : Std. Item

KGBA-JCT (Coolant-through Holders) NEW

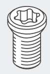
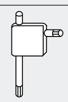
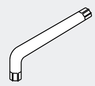
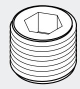




● Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock		Dimension (mm)								Spare Parts				Applicable Inserts ➡ G6~G8
											Clamp Screw	Wrench		Plug	
	R	L	H	HF	B	LF	LH	WF	CDX	MHD					
KGBA R/L 2020K-16JCT	●	●	20	20	20	125	24.0	25	2.5	107.5	SB-4085TR	FT-15	-	HSG1/8X8.0	GBA32R/L type
2525K-16JCT	●	●	25	25	25			30							
2020K22-15JCT	●	●	20	20	20		26.5	25	4	105	SB-5085TR	-	LTW-20		GBA43R/L type
2525K22-15JCT	●	●	25	25	25			30							
2020K22-25JCT	●	●	20	20	20			25	5.5						
2525K22-25JCT	●	●	25	25	25			30							
2020K22-35JCT	●	●	20	20	20			25							
2525K22-35JCT	●	●	25	25	25			30							

· CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

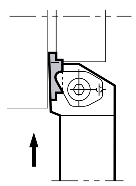
・KGBA-JCT Toolholder is Screw Clamp Type

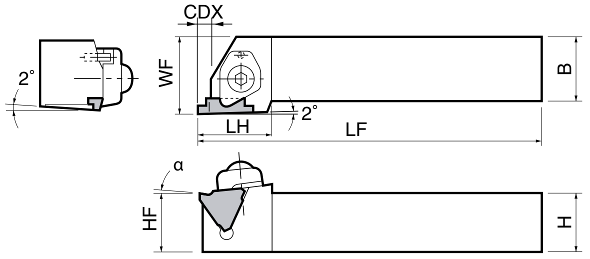
· See Page **G7** and **G8** for Applicable Insert & Rake Angle (α) after Installment of Insert.

・Please see page **H14** and **H15** for piping parts of coolant-through holders.

● : Std. Item

KGB (Will be switched to KGBA ➡ G9)

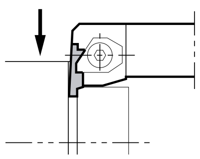


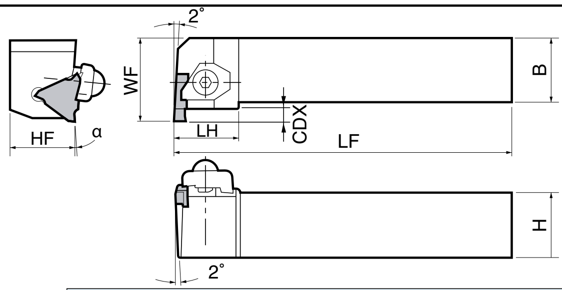


• Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

KGBS (Will be switched to KGBAS ➡ G9)





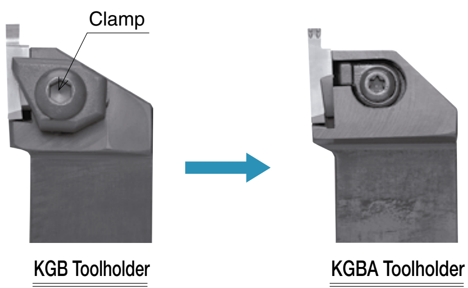
• Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description		Stock R	Stock L	Dimension (mm) H	HF	B	LF	LH	WF	CDX	Spare Parts Clamp	Clamp Bolt	Spring	Wrench	Applicable Inserts ➡ G6~G8
KGBR/L	2020K-16	○	○	20	20	20	125	24	25	2.5	CGBR/L	BH6X25	SP-6	LW-4	GBA32R/L type
	2525M-16	○	○	25	25	25	150		30						
	2020K22-15	○	○	20	20	20	125	25.5	25	4.0					GBA43R/L type
	2525M22-15	○	○	25	25	25	150		30						
	2020K22-25	○	○	20	20	20	125	25.5	25	4.5					
	2525M22-25	○	○	25	25	25	150		30						
	2020K22-35	○	○	20	20	20	125	25.5	25	5.5					
	2525M22-35	○	○	25	25	25	150		30						
KGBSR/L	2020K-16	○	○	20	20	20	125	25	25	2.5	CGBL/R	BH6X25	SP-6	LW-4	GBA32L/R type
	2525M-16	○	○	25	25	25	150		30						
	2020K22-15	○	○	20	20	20	125	25	27	4.0					GBA43L/R type
	2525M22-15	○	○	25	25	25	150		32						
	2020K22-25	○	○	20	20	20	125	25	27	4.5					
	2525M22-25	○	○	25	25	25	150		32						
	2020K22-35	○	○	20	20	20	125	25	27	5.5					
	2525M22-35	○	○	25	25	25	150		32						

· CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.
· Clamp : KGBR/L ... CGBR for Right-hand Toolholder and CGBL for Left-hand Toolholder.
KGBSR/L ... CGBL for Right-hand Toolholder and CGBR for Left-hand Toolholder.



KGB Toolholder KGBA Toolholder

* KGB / KGBS toolholder will be switched to KGBA / KGBAS.
Better Chip flow.

○ : Check Availability

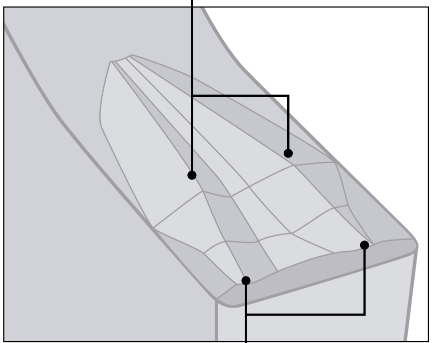
GBF

High Precision with Edge Width Tolerance of ±0.02mm
High Efficiency MEGACOAT Coating Technology for Long Tool Life

1 Stable Chip Control with GL Chipbreaker

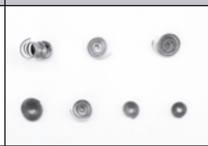
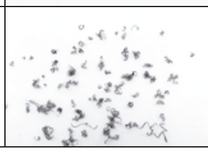
GL Chipbreaker controls chips stable at both grooving and turning.
(Turning is not recommended for GBF32R075-005GL)

Twin Dots Stable Chip Control



Front Edge Dots Chips are short, curled and break evenly in low feed machining.
Prevents chip clogging.

Chip Control Comparison (Internal evaluation)

	GL Chipbreaker	Competitor A
Grooving f = 0.05 mm/rev d = 1.5 mm		
Turning f = 0.04 mm/rev ap = 0.2 mm		

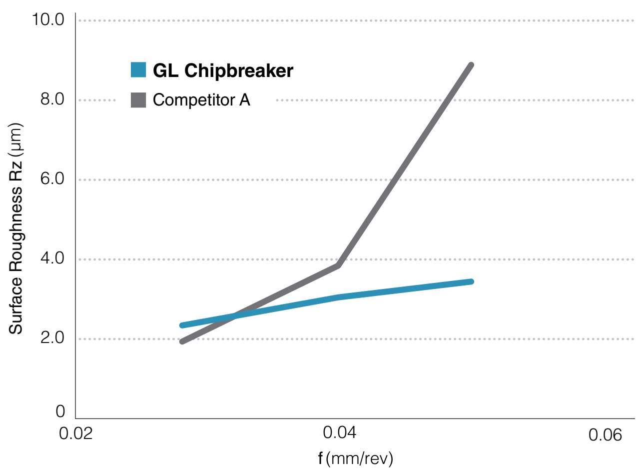
Cutting Conditions : Vc = 80 m/min, Edge Width 1 mm
Workpiece Material : SUS304

G
Grooving
External
Internal
Face

2 Good Surface Finish

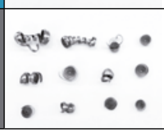
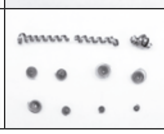
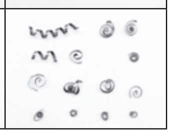
GL Chipbreaker controls chips stable at high feed machining,
Good surface finish of side wall

Surface Roughness Comparison (Internal evaluation)



Cutting Conditions : Vc = 80 m/min, d = 1.5 mm, f = 0.03~0.05 mm/rev, Edge Width 1 mm
Workpiece Material : SCM415

Chip Control Comparison (Internal evaluation)

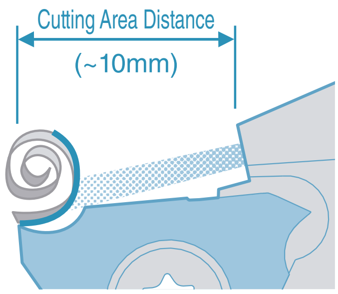
GL Chipbreaker			
Competitor A (Molded Chipbreaker)			
	f = 0.03	f = 0.04	f = 0.05

Discharges coolant from the top of the insert. Provides excellent chip control and long tool life

Coolant Hole

Ample supply of coolant to the cutting edge

Prevents coolant stream spreading which slows the coolant flow



Direction of Supply

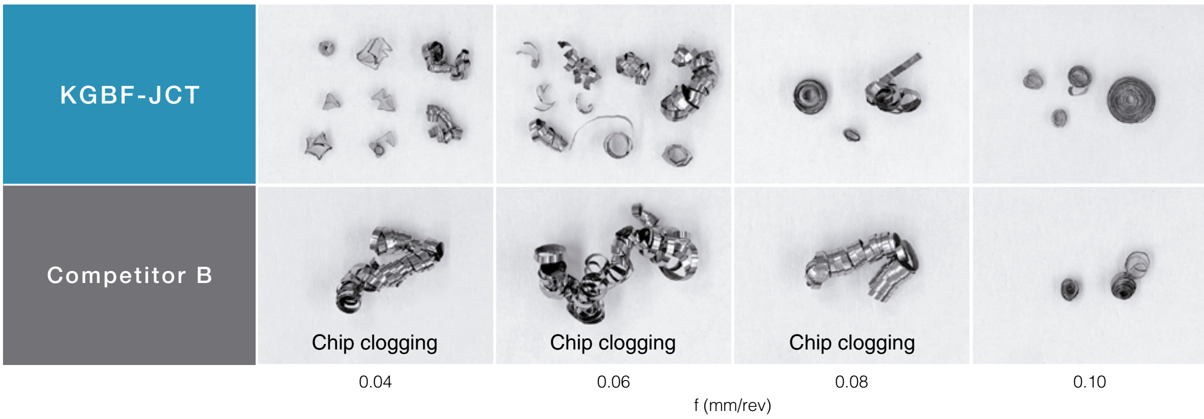
Sufficient coolant between the chipbreaker and the chips

Stable chip curls and sufficient cooling of the insert

1 Excellent Chip Control

Chip Control Comparison (Internal evaluation)

KGBF-JCT provided much better chip control with reducing chip clogging

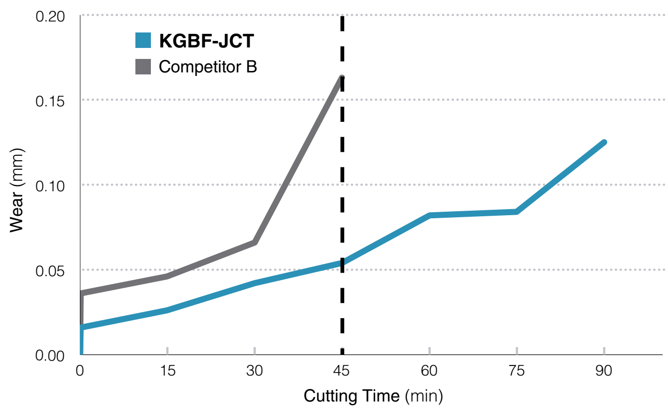


Cutting Conditions : Vc = 100 m/min, d = 2.5 mm, GBF32R200-010 PR1535, KGBFR1625H-16FJCT
Workpiece Material : TAB6400 (Ti-6Al-4V) External coolant + Internal coolant (1.5MPa) External Grooving

2 Superior Cooling Action Improves Tool Life

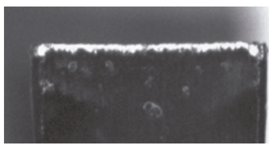
Wear Resistance Comparison (Internal evaluation)

KGBF-JCT Showed Superior Wear Resistance

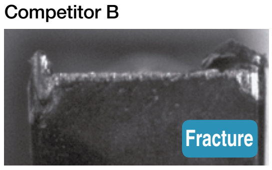


Cutting edge condition

KGBF-JCT



Competitor B



Cutting Conditions : Vc = 150 m/min, d = 1.8 mm, f = 0.06 mm/rev, GBF32R100-005GL PR1535, KGBFR1625H-16FJCT
Workpiece Material : SUS304 External coolant + Internal coolant (1.5MPa) External Grooving

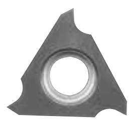
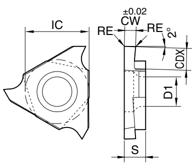
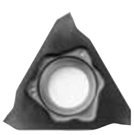
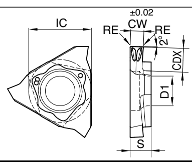
GBF / GBF-GL

(mm)

Description	IC	S	D1
GBF32_	9.525	3.18	4.4

		MEGACOAT PR1215	MEGACOAT NANO PR1535	Carbide GW15
P	Carbon Steel / Alloy Steel	◕	◔	
M	Stainless Steel	○	◕	
K	Cast Iron			◕
N	Non-ferrous Metals			◕
S	Titanium Alloys			◕
H	Hard Materials (~40HRC)			
	Hard Materials (40HRC~)			

Classification of usage
◕ : Continuous~Light Interruption / 1st Choice
◔ : Continuous~Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

Insert (Handed Insert shows Right-hand)	Description	CW	CDX	RE	MEGACOAT PR1215 R	PR1215 L	MEGACOAT NANO PR1535 R	PR1535 L	Carbide GW15 R	GW15 L	Applicable Toolholders	See Page for Applicable Toolholders
 	GBF32R/L 025-000F	0.25	0.6	0.00	●	●	●	●	●	●	KGBFR/L…16F S…KGBFL/R-16 KGBFSR/L…16 KGBFR/L-…-16FJCT	G15 G16 G17
	025-005			0.05	●	●	●	●	●	●		
	030-000F	0.30	0.8	0.00	●	●	●	●	●	●		
	030-005			0.05	●	●	●	●	●	●		
	033-000F*1	0.33		0.00	●	●	●	●	●	●		
	033-005 *1			0.05	●	●	●	●	●	●		
	043-000F*2	0.43	1.0	0.00	●	●	●	●	●	●		
	043-005 *2			0.05	●	●	●	●	●	●		
	050-000F	0.50	1.2	0.00	●	●	●	●	●	●		
	050-005			0.05	●	●	●	●	●	●		
	053-000F*3	0.53		0.00	●	●	●	●	●	●		
	053-005 *3			0.05	●	●	●	●	●	●		
	065-000F	0.65		0.00	●	●	●	●	●	●		
	065-005			0.05	●	●	●	●	●	●		
	075-000F	0.75	2.0	0.00	●	●	●	●	●	●		
	075-005			0.05	●	●	●	●	●	●		
	080-000F	0.80		0.00	●	●	●	●	●	●		
	080-005			0.05	●	●	●	●	●	●		
	095-000F	0.95		0.00	●	●	●	●	●	●		
	095-005			0.05	●	●	●	●	●	●		
	100-000F	1.00		0.00	●	●	●	●	●	●		
	100-005			0.05	●	●	●	●	●	●		
	110-000F	1.10		0.00	●	●	●	●	●	●		
	110-005			0.05	●	●	●	●	●	●		
	120-000F	1.20		0.00	●	●	●	●	●	●		
	120-005			0.05	●	●	●	●	●	●		
	125-000F	1.25		0.00	●	●	●	●	●	●		
	125-005			0.05	●	●	●	●	●	●		
	125-010			0.1	●	●	●	●	●	●		
	130-000F	1.30		0.00	●	●	●	●	●	●		
	130-005			0.05	●	●	●	●	●	●		
	130-010			0.1	●	●	●	●	●	●		
	140-000F	1.40	2.7	0.00	●	●	●	●	●	●		
	140-005			0.05	●	●	●	●	●	●		
	140-010			0.1	●	●	●	●	●	●		
	145-000F	1.45		0.00	●	●	●	●	●	●		
	145-005			0.05	●	●	●	●	●	●		
	145-010			0.1	●	●	●	●	●	●		
	150-000F	1.50		0.00	●	●	●	●	●	●		
	150-005			0.05	●	●	●	●	●	●		
	150-010			0.1	●	●	●	●	●	●		
	165-000F	1.65		0.00	●	●	●	●	●	●		
	165-005			0.05	●	●	●	●	●	●		
	165-010			0.1	●	●	●	●	●	●		
	170-000F	1.70	3.0	0.00	●	●	●	●	●	●		
	170-005			0.05	●	●	●	●	●	●		
	170-010			0.1	●	●	●	●	●	●		
	175-000F	1.75		0.00	●	●	●	●	●	●		
	175-005			0.05	●	●	●	●	●	●		
	175-010			0.1	●	●	●	●	●	●		
	200-000F	2.00		0.00	●	●	●	●	●	●		
	200-005			0.05	●	●	●	●	●	●		
	200-010			0.1	●	●	●	●	●	●		
	225-005	2.25		0.05	●	●	●	●	●	●		
	225-010			0.1	●	●	●	●	●	●		
	250-005	2.50		0.05	●	●	●	●	●	●		
	250-010			0.1	●	●	●	●	●	●		
	300-005	3.00		0.05	●	●	●	●	●	●		
	300-010			0.1	●	●	●	●	●	●		
 	GBF32R 075-005GL	0.75	2.0	0.05	●		●					
	095-005GL	0.95	2.0	0.05	●		●					
	100-005GL	1.00	2.0	0.05	●		●					
	150-010GL	1.50	2.7	0.10	●		●					
	200-010GL	2.00	3.0	0.10	●		●					
	300-010GL	3.00	3.0	0.10	●		●					

Max. Cutting Dia. : See Page **G17**

*1 Edge width tolerance of GBF32R/L033-000F/005 : $0.33^{+0.015}_{-0.025}$
*2 Edge width tolerance of GBF32R/L043-000F/005 : $0.43^{+0.015}_{-0.025}$
*3 Edge width tolerance of GBF32R/L053-000F/005 : $0.53^{+0.015}_{-0.025}$

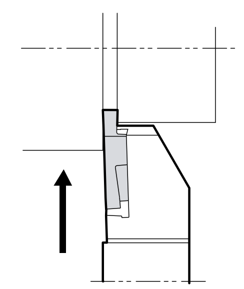
Recommended Cutting Conditions ➡ **G112**

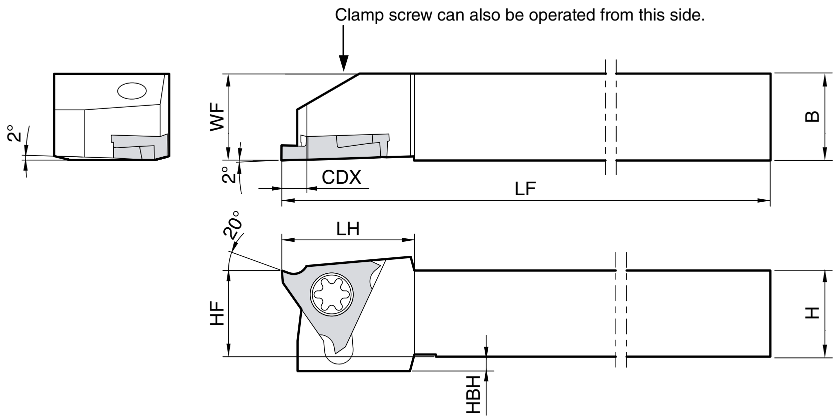
● : Std. Item

Inserts are sold in 10 piece boxes

G Grooving | External | Internal | Face

KGBF-F (without offset)





● Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

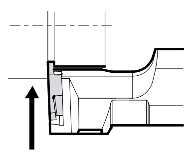
Toolholder Dimensions

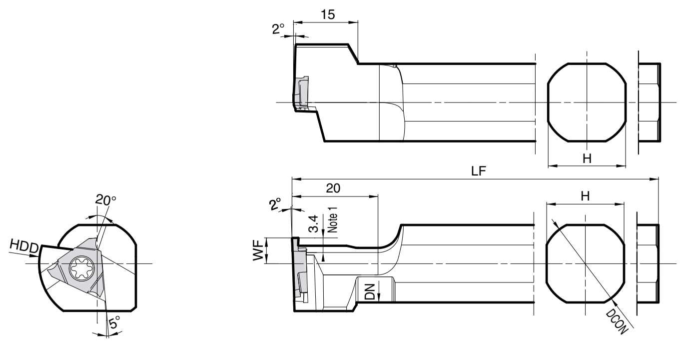
Description		Stock		Dimension (mm)						Spare Parts	
		R	L	H=HF	HBH	B=WF	LF	LH	*CDX	Clamp Screw	Wrench
KGBF R/L	1010JX-16F	●	●	10	4	10	120	18.5	3	SB-4070TRW	FT-8
	1212JX-16F	●	●	12	2	12					
	1616JX-16F	●	●	16	-	16					
	2020JX-16F	●	●	20	-	20					

* CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.

Applicable Inserts ➡ G14

S-KGBF (External Sleeve Holder)





● Left-hand shown

Right-hand Insert for Left-hand Toolholder.

Note 1) CDX shows available grooving depth.

Toolholder Dimensions

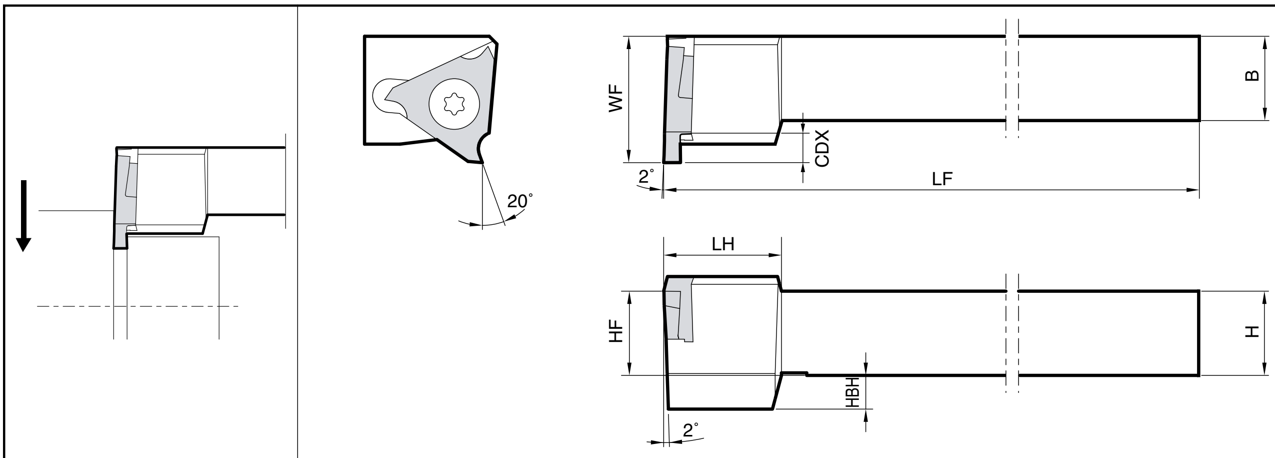
Description	Stock	Dimension (mm)						Spare Parts	
	L	DCON	LF	WF	DN	HDD	H	Clamp Screw	Wrench
S16F-KGBFL16	●	16	85	6	15	27	15	SB-4070TRW	FT-8
S19G-KGBFL16	●	19.05	90		18		17		
S19K-KGBFL16	●		120						
S20G-KGBFL16	●	20	90		19		18		
S20K-KGBFL16	●		120						
S22K-KGBFL16	●	22			21		20		
S25.0H-KGBFL16	●	25	100	10	24	32	23		
S25K-KGBFL16	●	25.4	120						

● : Std. Item

Applicable Inserts ➡ G14

A Insert Grades
B Turning Indexable Inserts
C CBN & PCD Tools
D External
E Small Parts Machining
F Boring
G Grooving
H Cut-off
J Threading
K Drilling
L Solid Tools
M Milling
N Tools for Turning Mill
P Spare Parts
R Technical Information
T Index

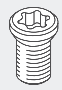
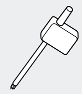
KGBFS



● Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock		Dimension (mm)							Spare Parts	
										Clamp Screw	Wrench
	R	L	H=HF	HBH	B	LF	LH	WF	CDX*1		
KGBFS R/L 1010JX-16	●	●	10	4	10	120	14	15	3	SB-4070TRW	FT-8
1212JX-16	●	●	12	2	12			16			
1616JX-16	●	●	16	-	16			20			

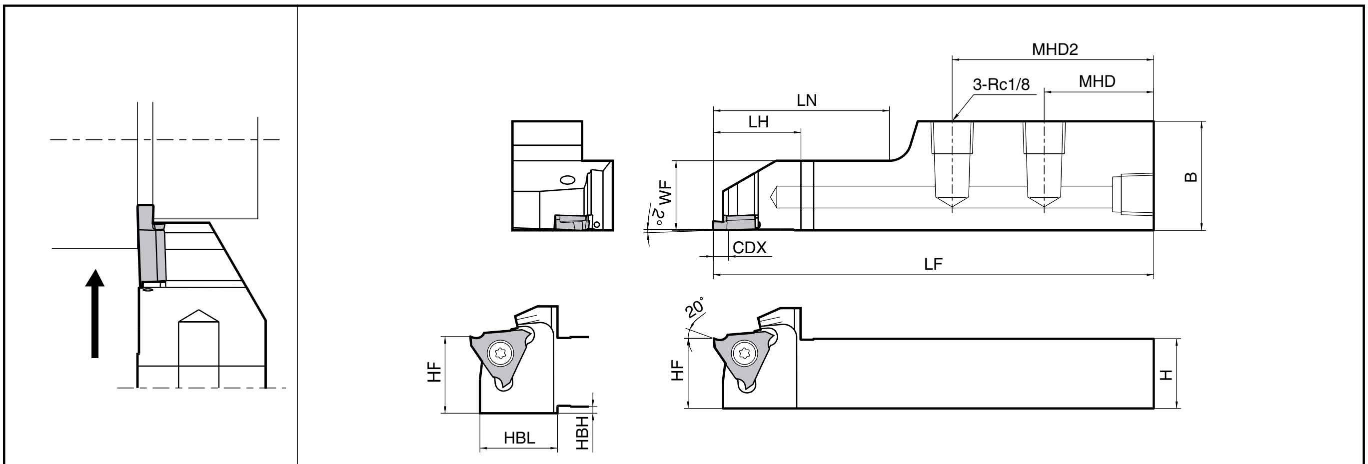
*1 CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.
Please check cautions on **G17** for the maximum workpiece diameter.

Applicable Inserts ➡ **G14**

G
Grooving
External
Internal
Face

● : Std. Item

KGBF-JCT (Coolant-through Holders)



● Right-hand shown

Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Description		Stock R	Stock L	H=HF	HBH	B	LF	HBL	LH	LN	WF	CDX[*1]	MHD	MHD2	Spare Parts: Clamp Screw	Spare Parts: Wrench	Spare Parts: Plug
KGBFR	1220H-16FJCT	●		12	1.5	20	100	20	20	28	12	3	35	-	SB-4070TRW	FT-8	GP-1
	1625H-16FJCT	●		16	-	25	100	-	20	40	16	3	25	46			
	2025H-16FJCT	●		20	-	25	100	-	20	40	20	3	25	46			

*1 CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.
Please see page **H14** and **H15** for piping parts of coolant-through holders.

Cautions

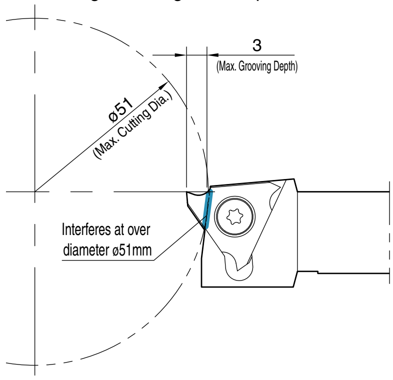
Compatibility with GBF and GBA

1. GBF will fit KGBA / KGBAS toolholders
   Caution : The maximum groove depth for KGBA / KGBAS toolholders is 2.5 mm
2. GBA inserts will also fit KGBF-F toolholders
   Caution : The rake angle after installation in the toolholder is 11˚

KGBF-F toolholder with GBF Insert Maximum Machining Diameter

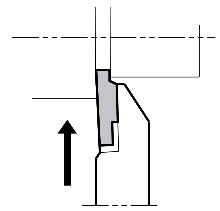
3 mm groove depth is available on workpiece diameters up to ø51mm
2.7 mm groove depth is available on workpiece diameters up to ø100mm,
2.5 mm or less groove depth is available on workpiece diameters up to ø200mm
The workpiece will interfere with the holder at maximum cutting diameters or larger.

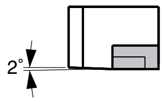
Machining at 3mm groove depth



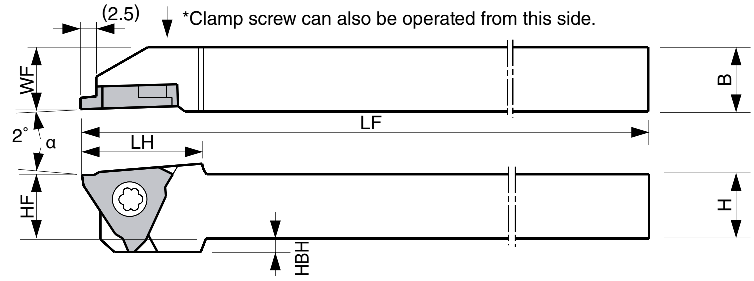
● : Std. Item

KTGF-F (without offset)





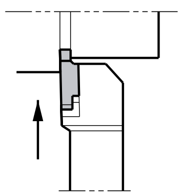
α	Insert Grades
20°	PR1115, PR1215 PR930, KW10
11°	KPD001
6°	TC40N

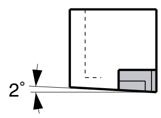


• Right-hand shown

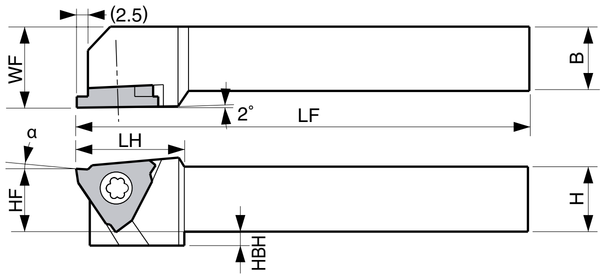
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

KTGF (with offset)





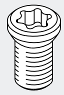
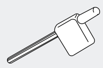
α	Insert Grades
20°	PR1115, PR1215 PR930, KW10
11°	KPD001
6°	TC40N



• Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

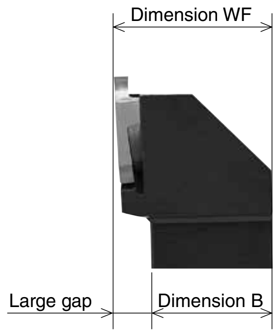
Description		Stock		Dimension (mm)									Spare Parts				
													Clamp Screw	Wrench			
		R	L	H	HBH	HF	B	LF	LH	WF							
KTGFR/L	**1010JX-16F**	●	●	10	2	10	10	120	18.5	10			SB-4070TRW	FT-8			
	1212JX-16F	●	●	12	-	12	12			12							
	1616JX-16F	●	●	16		16	16			16							
KTGFR/L	**1212F-16F**	●	●	12	-	12	12	85	18.5	12			SB-4070TRW	FT-8			
KTGFR/L	**1010F-16**	●	●	10	4	10	10	80	18.5	12			SB-4070TRS	FT-10			
	1212H-16	●	●	12	2	12	12	100		16							
	1616H-16	●	●	16		16	16	100		20							
	2020K-16	●	●	20	-	20	20	125	20	25							
	2525M-16	●	●	25		25	25	150		32							

KTGF-F / KTGF Selection Reference

Q : When is it recommended to use "Without Offset" of KTGF-F toolholders for external grooving?

A : When operating the automatic lathe, the toolholder comes very close to the chuck.
In such cases, the "With Offset" toolholder sometimes interferes with the chuck due to the large gap between B and WF dimensions as shown below.
It is necessary to use "Without Offset" in such cases.

KTGF-F (without offset)

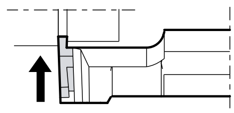


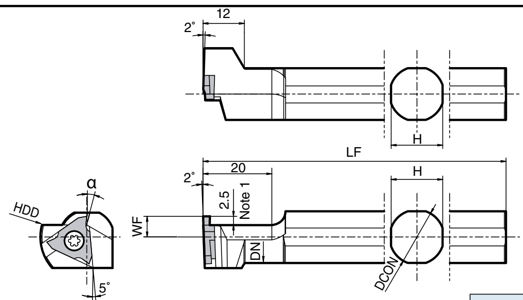
KTGF (with offset)

● : Std. Item

G Grooving External Internal Face

S-KTGF (Sleeve Holder)





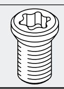
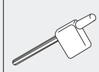
α	Insert Grades
20°	PR1115, PR1215 PR930, KW10
11°	KPD001
6°	TC40N

● Left-hand shown

Right-hand Insert for Left-hand Toolholder.

Note 1) CDX shows available grooving depth.

Toolholder Dimensions

Description	Stock	Dimension (mm)						Spare Parts	
								Clamp Screw	Wrench
	L	DCON	LF	WF	DN	HDD	H		
S12F-KTGFL16	●	12	80	6	11.0	27	11	SB-4070TRS	FT-10
S14H-KTGFL16	●	14	100		13.0		13		
S15F-KTGFL16	●	15.875	85		14.6		15		
S16F-KTGFL16	●	16							
S19G-KTGFL16	●	19.05	90		17.6		17		
S19K-KTGFL16	●		120						
S20G-KTGFL16	●	20	90		18.6		18		
S20K-KTGFL16	●		120						
S25.0H-KTGFL16	●	25	100	10	23.6	37	23		
S25K-KTGFL16	●	25.4	120						

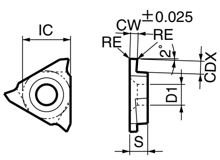
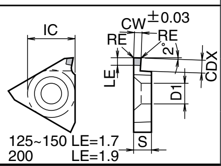
Applicable Inserts

(mm)

Description	IC	S	D1
TGF32_	9.525	3.18	4.6

		TC40N	PR1215	PR930	PR1115	KW10	KPD001
P	Carbon Steel / Alloy Steel		◕	◔	◔		
M	Stainless Steel		●	◔	◕		
K	Cast Iron					◕	
N	Non-ferrous Metals					◕	●
S	Titanium Alloys					◕	●
H	Hard Materials (~40HRC)		●	○	○		
	Hard Materials (40HRC~)						

Classification of usage
◕ : Continuous~Light Interruption / 1st Choice
◔ : Continuous~Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

Insert (Handed Insert shows Right-hand)		Description	CW	CDX	RE	Cermet TC40N R	TC40N L	MEGA COAT PR1215 R	PR1215 L	PVD Coated Carbide PR930 R	PR930 L	PR1115 R	PR1115 L	Carbide KW10 R	KW10 L	PCD KPD001 R	KPD001 L	Applicable Toolholders	See Page for Applicable Toolholders
		TGF32R/L 033-005	0.33	0.8	0.05			●		●		□		●				KTGFR/L...16F KTGFR/L...16 S...KTGFL/-16	G18 G19
		050-005	0.50	1.2		●		●	●	●	●	□		●					
		075-010	0.75	2.0	0.1	●		●	●	●	●	□	□	●					
		095-010	0.95			●		●	●	●	●	□		●					
		100-010	1.00			●		●	●	●	●	□		●					
		120-010	1.20					●	●			□							
		125-010	1.25			●		●	●	●	●	□		●					
		140-010	1.40					●	●			□							
		145-010	1.45			●		●	●	●	●			●					
		150-010	1.50			●		●	●	●	●	□	□	●					
		175-010	1.75			●		●	●	●	●	□		●					
		200-010	2.00	2.5		●		●	●	●	●	□		●					
		250-010	2.50			●		●	●	●	●	□		●					
 1-edge	 125~150 LE=1.7 200 LE=1.9	TGF32R/L 125-010	1.25	2.0	0.1											●			
		150-010	1.50													●			
		200-010	2.00	2.5												●			

· CDX shows available grooving depth.

Recommended Cutting Conditions ➡ G113

● : Std. Item
□ : Deleted from the next catalog

Inserts are sold in 10 piece boxes

CBN & PCD Inserts are sold in 1 piece boxes

Features

1 Various insert lineup

●Smooth chip control

➡ **Newly-introduced chipbreakers designed to cover a variety of workpiece materials.**

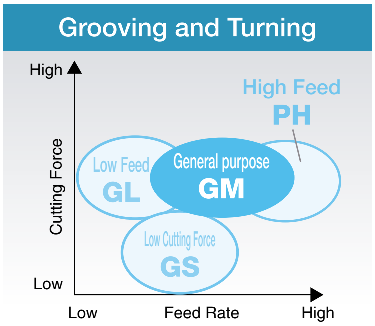
●High precision edge preparation

➡ **High precision molding technology with tolerance ±0.03mm (Edge width 2, 3, 4mm types)**

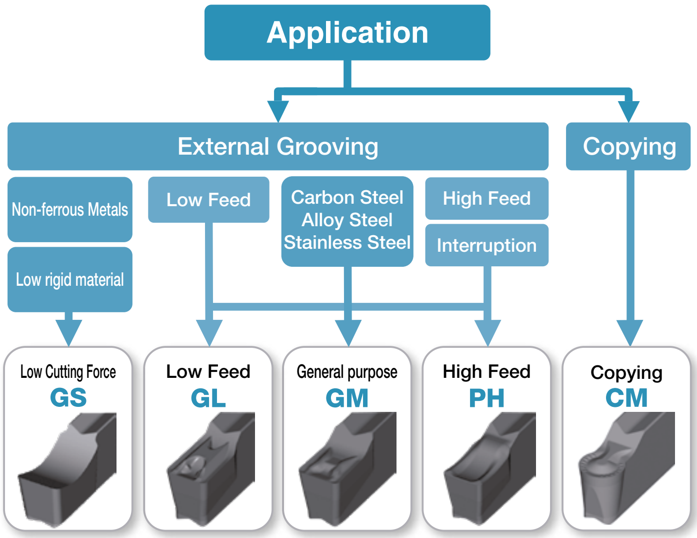
●Highly-reputed MEGACOAT technology

➡ **Long tool life and high efficiency machining achieved by superior oxidation resistance and wear resistance.**

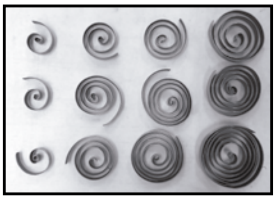
● Application Map

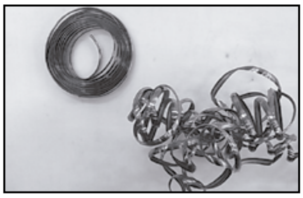


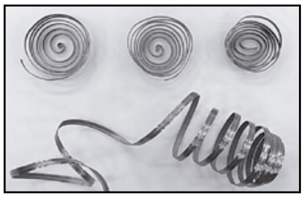
● Chipbreaker Selection



● Chip Control Comparison (SCM415 Vc=150m/min, f=0.15mm/rev)


GM Chipbreaker


Competitor A

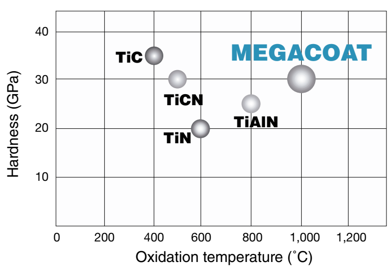

Competitor B

Smooth chip control

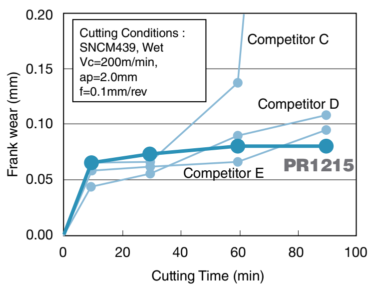
⬇

Less chip biting troubles

●Features of MEGACOAT



● Wear Resistance Comparison



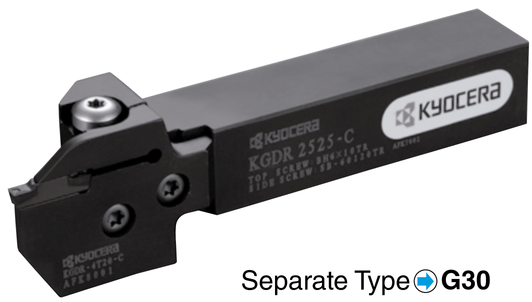
PR1225 :
1st choice for cut-off, grooving and turning

PR1215 :
With superior wear resistance, recommended for grooving and cut-off under the stable conditions as well as machining of cast iron.

2 Toolholder

●Integral Type and Separate Type (Toolholder + Blade) are available

Integral Type ➡ G24

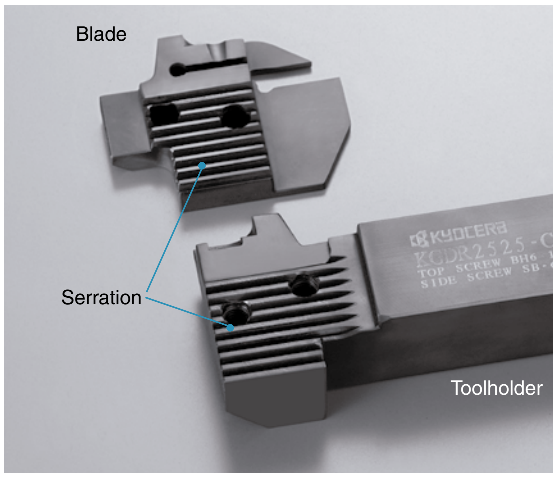


Separate Type ➡ G30

●High rigidity separate type toolholder

➡ **Adaptable to wide applications by changing blades**

Deals with various edge widths and cutting depths by changing the blade and toolholder combination. Even if the blade is broken, you only need to replace the broken part.

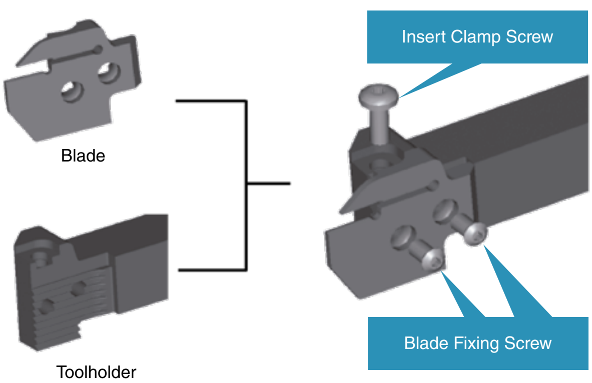


●Toolholders for High Pressure Coolant ➡ G26

Added coolant-through holder KGD-JCT with superior chip control and long tool life

Structure of toolholder unit (Toolholder + Blade)

●KGD-S (0° Separate Type) ➡ G30

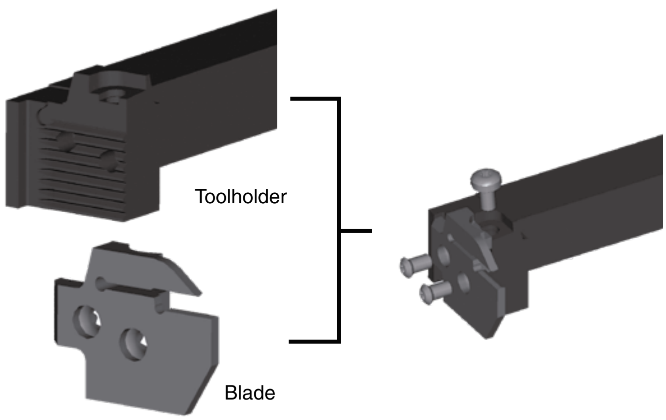


*** Note for the toolholder and blade combination of 0˚ Separate Type**

Toolholder(KGDR/L ○○○○-C)
+
Blade(KGDR/L-○T○○-C)

⇒Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.

●KGDS-S (90° Separate Type) ➡ G31



*** Note for the toolholder and blade combination of 90˚ separate type**

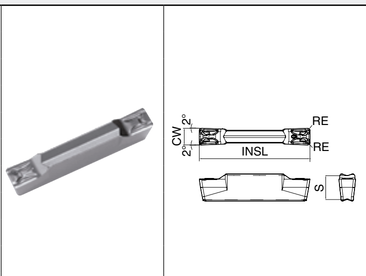
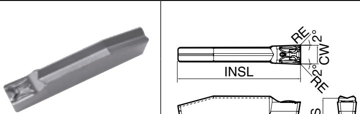
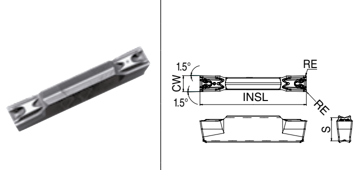
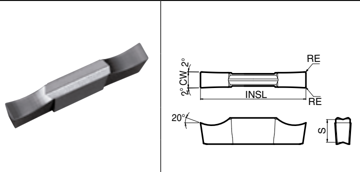
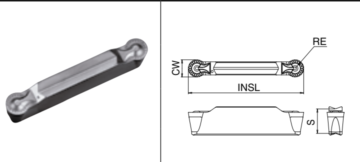
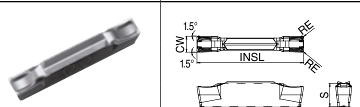
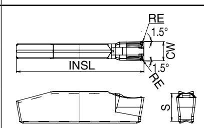
Toolholder(KGDSR/L ○○○○-C)
+
Blade(KGDL/R-○T○○-C)

⇒Left-hand Blade for Right-hand Toolholder, Right-hand Blade for Left-hand Toolholder.

GDM / GDMS / GDG

Classification of usage			TN620	TN90	PR1535	PR1225	PR1215	GW15
	P	Carbon Steel / Alloy Steel	●	○		◕	◔	
	M	Stainless Steel			◕	◔	◔	
	K	Cast Iron					◕	
	N	Non-ferrous Metals						◕
	S	Titanium Alloys			◕			◔
	H	Hard Materials (~40HRC)				○		
		Hard Materials (40HRC~)						

◕ : Continuous~Light Interruption / 1st Choice
◔ : Continuous~Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

	Insert		Description		Dimension (mm) CW	CW Tolerance	RE	INSL	S	Cermet TN620	Cermet TN90	MEGACOAT NANO PR1535	MEGACOAT PR1225	MEGACOAT PR1215	Carbide GW15	See Page for Applicable Toolholders
Grooving and Turning	General purpose		GDM	2420N-020GM	2.4	±0.03	0.2	20	4.3	●	●	●	●	●		G24 ~ G31
				3020N-020GM	3.0					●	●	●	●	●		
				3020N-040GM			0.4			●	●	●	●	●		
				4020N-020GM	4.0		0.2			●	●	●	●	●		
				4020N-040GM			0.4			●	●	●	●	●		
				4020N-080GM			0.8			●	●	●	●	●		
				5020N-040GM	5.0	±0.04	0.4			●	●	●	●	●		G24 G30 G31
				5020N-080GM			0.8			●	□	●	●	●		
				6020N-040GM	6.0		0.4			●	●	●	●	●		
				6020N-080GM			0.8			●	●	●	●	●		
				8030N-080GM	8.0	±0.05		30	5.5			●	●	●		G24
	General purpose 1-edge		GDMS	2220N-020GM	2.2	±0.03	0.2	20	4.3	●	●	●	●	●		G24 ~ G31
				3020N-040GM	3.0		0.4			●	□	●	●	●		
				4020N-040GM	4.0					●	●	●	●	●		
				5020N-080GM	5.0	±0.04	0.8			●	□	●	●	●		G24 G30 G31
				6020N-080GM	6.0					●	□	●	●	●		
	Low Feed		GDM	2420N-020GL	2.4	±0.03	0.2	20	4.3	●	●	●	●	●		G24 ~ G31
				3020N-020GL	3.0					●	●	●	●	●		
				3020N-040GL			0.4			●	●	●	●	●		
				4020N-020GL	4.0		0.2			●	●	●	●	●		
				4020N-040GL			0.4			●	□	●	●	●		
				5020N-040GL	5.0	±0.04				●	●	●	●	●		G24 G30 G31
				6020N-040GL	6.0					●	□	●	●	●		
Grooving	Low Cutting Force		GDG	2520N-020GS	2.5	±0.02	0.2	20	4.3	●	●	●	●	●	●	G24 ~ G31
				3020N-020GS	3.0					●	●	●	●	●	●	
				3520N-020GS	3.5					●	□	●	●	●	●	
				4020N-040GS	4.0		0.4			●	●	●	●	●	●	
				5020N-040GS	5.0					●	●	●	●	●	●	G24 G30 G31
				6020N-040GS	6.0					●	□	●	●	●	●	
				8030N-040GS	8.0			30	5.5	●	□	●	●	●	●	G24
Full-R / Copying			GDM	3020N-150R-CM	3.0	±0.03	1.5	20	4.3	●	●	●	●	●		G24 ~ G31
				4020N-200R-CM	4.0		2.0			●	●	●	●	●		
				5020N-250R-CM	5.0	±0.04	2.5	*21		●	●	●	●	●		G24 G30 G31
				6020N-300R-CM	6.0		3.0			●	□	●	●	●		
Grooving / Cut-off	High Feed		GDM	2020N-020PH	2.0	±0.03	0.2	20	4.3			●	●	●		G24 ~ G31
				3020N-030PH	3.0		0.3					●	●	●		
				4020N-030PH	4.0							●	●	●		
	High Feed 1-edge	 	GDMS	2020N-020PH	2.0	±0.03	0.2	20				●	●	●		
				3020N-030PH	3.0		0.3					●	●	●		
				4020N-030PH	4.0							●	●	●		

*GDM50/60-CM differs from other descriptions in length (INSL) to avoid interference of a toolholder with workpiece.

Recommended Cutting Conditions ➡ G34, G35

◆ Inserts Identification System

G D M S 30 20 N – 040 GM

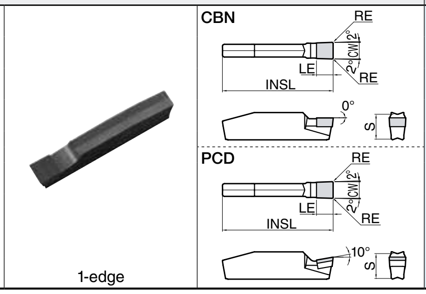
- (1) Series: G D
- (2) Tolerance Symbol: M : M Class / G : G Class
- (3) No. of edge: No Indication : 2-edge / S : 1-edge
- (4) Edge Width: 20 : 2mm / 30 : 3mm / 40 : 4mm
- (5) Insert Length: 20 : 20mm / 30 : 30mm
- (6) Hand of Tool: N : Neutral
- (7) Corner-R(RE): 020 : 0.2mm / 040 : 0.4mm / 150R : 1.5mm (Full-R)
- (8) Chipbreaker Symbol: GM : Grooving and Turning / GL : Low Feed / GS : Low Cutting Force / CM : Copying / PH : High Feed / NB : Without Chipbreaker

● : Std. Item
□ : Deleted from the next catalog

Inserts are sold in 10 piece boxes

GDGS (CBN / PCD)

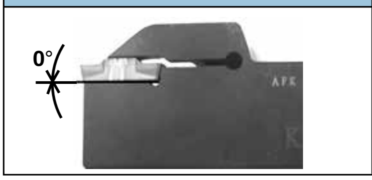
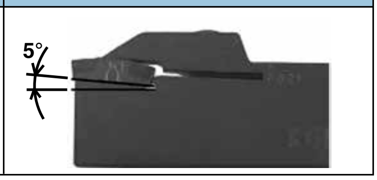
Classification of usage			KBN05M	KBN570	KPD001
	P	Carbon Steel / Alloy Steel			
	M	Stainless Steel			
	K	Cast Iron			
◕ : Continuous~Light Interruption / 1st Choice	N	Non-ferrous Metals			●
◌ : Continuous~Light Interruption / 2nd Choice	S	Titanium Alloys			●
● : Continuous / 1st Choice	H	Hard Materials (~40HRC)			
○ : Continuous / 2nd Choice	H	Hard Materials (40HRC~)	●		
		Sintered Steel		●	

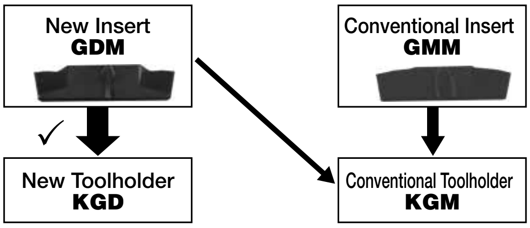
Insert		Description	CW	Tolerance	RE	INSL	S	LE	MEGA COAT CBN KBN05M	CBN KBN570	PCD KPD001	See Page for Applicable Toolholders
Grooving		GDGS 2020N-020NB	2.0	±0.03	0.2	20	4.3	2.9	●	●	●	G24 ~ G31
		3020N-020NB	3.0		0.2						●	
		3020N-040NB			0.4				●	●		
		4020N-020NB	4.0		0.2						●	
		4020N-040NB			0.4				●	●		
		5020N-020NB	5.0		0.2						●	G24 G30 G31
		5020N-040NB			0.4				●	●		
		6020N-020NB	6.0		0.2						●	
		6020N-040NB			0.4				●	□		

Recommended Cutting Conditions ➡ G34, G35

◆Note for the toolholder and insert combination of KGD (new) and KGM (conventional)

●Insert setting angle for grooving toolholders

KGD : 0˚	Conventional tools KGM : 5˚
	

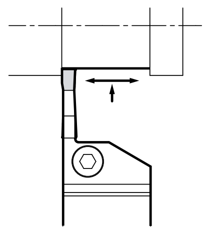


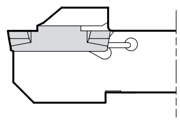
Installing conventional inserts to the new toolholder is not recommended.

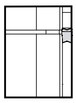
● : Std. Item
□ : Deleted from the next catalog

CBN & PCD Inserts are sold in 1 piece boxes

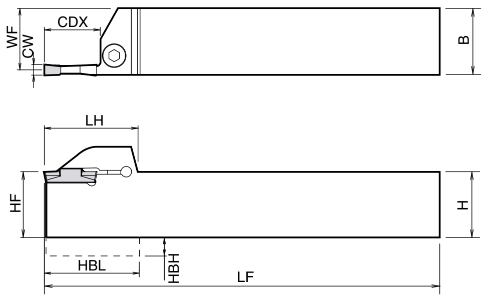
KGD (Integral Type)







KGD R/L 1216JX-3T06
KGD R/L 1216JX-4T06
shows above figure



•Right-hand shown

Toolholder Dimensions

Width (mm)	Max. depth of cut (mm)	Description		Stock		Dimension (mm)									Edge Width CW(mm)		Spare Parts	
				R	L	H	HF	HBH	B	LF	LH	HBL	WF	CDX	MIN.	MAX.	Clamp Bolt	Wrench
2	6	KGD R/L	1616H-2T06	●	●	16	16	4.0	16	100	27.7	28.0	15.2	6	2.0	3.0	HH5X16	LW-4
			2020K-2T06	●	●	20	20	-	20	125	28.0	-	19.2					
			2525M-2T06	●	●	25	25		25	150			24.2				HH5X25	
	10	KGD R/L	1616H-2T10	●	●	16	16	4.0	16	100	30.2	30.5	15.2	10			HH5X16	
			2020K-2T10	●	●	20	20	-	20	125	30.5	-	19.2					
			2525M-2T10	●	●	25	25		25	150			24.2				HH5X25	
	17	KGD R/L	1616H-2T17	●	●	16	16	4.0	16	100	31.2	31.5	15.2	17			HH5X16	
			2012K-2T17	●	●	20	20	-	12	125	32.5	-	11.2					
			2020K-2T17	●	●				20				19.2					
			2525M-2T17	●	●	25	25		25	150			24.2				HH5X25	
2.4	17	KGD R/L	2012K-2.4T17	●	●	20	20	-	12	125	32.5	-	11.0	17	2.4	3.0	HH5X16	LW-4
			2020K-2.4T17	●	●				20				19.0					
3	6	KGD R/L	1216JX-3T06	●	●	12	12	2.0	16	120	19.5	19	14.8	6	3.0	4.0	SE-50125TR	LTW-20
			1616H-3T06	●	●	16	16	4.0		100	27.7	28.0					HH5X16	LW-4
			2020K-3T06	●	●	20	20	-	20	125	28.0	-	18.8					
			2525M-3T06	●	●	25	25		25	150			23.8				HH5X25	
	10	KGD R/L	1616H-3T10	●	●	16	16	4.0	16	100	30.2	30.5	14.8	10			HH5X16	
			2020K-3T10	●	●	20	20	-	20	125	30.5	-	18.8					
			2525M-3T10	●	●	25	25		25	150			23.8				HH5X25	
	20	KGD R/L	1616H-3T20	●	●	16	16	4.0	16	100	34.2	34.5	14.8	20			HH5X16	
			2012K-3T20	●	●	20	20	-	12	125	34.5	-	10.8					
			2020K-3T20	●	●				20				18.8					
			2525M-3T20	●	●	25	25		25	150	35.5		23.8				HH5X25	
4	6	KGD R/L	1216JX-4T06	●	●	12	12	2.0	16	120	19.5	19	14.3	6	4.0	5.0	SE-50125TR	LTW-20
	10	KGD R/L	2020K-4T10	●	●	20	20	-	20	125	30.5	-	18.3	10			HH5X16	LW-4
			2525M-4T10	●	●	25	25		25	150			23.3				HH5X25	
	20	KGD R/L	2020K-4T20	●	●	20	20		20	125	34.5		18.3	20			HH5X16	
			2525M-4T20	●	●	25	25		25	150	35.5		23.3				HH5X25	
	25	KGD R/L	2525M-4T25	●	●	25	25		25	150	40.5		23.3	25				
5	10	KGD R/L	2020K-5T10	●	●	20	20	-	20	125	30.5	-	17.8	10	5.0	6.0	HH5X16	LW-4
			2525M-5T10	●	●	25	25		25	150			22.8				HH5X25	
	17	KGD R/L	2020K-5T17	●	●	20	20		20	125	37.5		17.8	17				
			2525M-5T17	●	●	25	25		25	150			22.8					
	25	KGD R/L	2525M-5T25	●	●	25	25		25	150	40.5		22.8	25				
6	15	KGD R/L	2525M-6T15	●	●	25	25	-	25	150	32.5	-	22.4	15	6.0	6.0	HH5X25	LW-4
	30	KGD R/L	2525M-6T30	●	●	25	25		25	150	45.5		22.4	30				
8	25	KGD R/L	2525M-8T25	●	●	25	25	7.0	25	150	43.3	44.2	22.0	25	8.0	8.0	HH6X25	LW-5
			3232P-8T25	●	●	32	32	-	32	170		-	29.0					

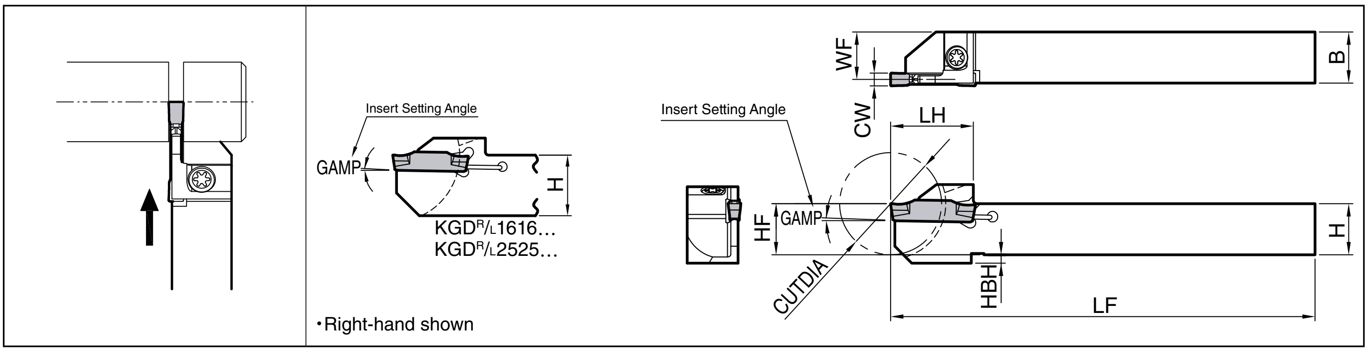
Note) 1. CDX : Maximum depth to which processing can be made. (If the CDX is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)
2. Recommended tightening torque of clamp bolt : 6.5N·m (HH5X○○), 8.0N·m (HH6X25), 2.5N·m (SE-50125TR)
3. Above toolholders are applicable to Cut-off, too.

Applicable Inserts ➡ G22, G23

● : Std. Item

KGD (Integral Type for Automatic Lathe)

Edge Width : 2.0~4.0mm



Toolholder Dimensions

Description		Stock R	Stock L	Cutting Dia. CUTDIA	Dimension (mm) H	HF	HBH	B	LF	LH	WF	Angle GAMP	Edge Width CW(mm) MIN.	MAX.	Spare Parts Clamp Screw	Wrench
KGDR/L	1010JX-2	●	●	20	10	10	2	10	120	18	9.2	1°	2.0	3.0	SB-40120TR	LTW-15S
	1212F-2	●	●	24	12	12		12	85	19.5	11.2					
	1212JX-2	●	●						120							
	1616JX-2	●	●	32	16	16	-	16		24.5	15.2					
	2012K-2D34	●	●	34	20	20		12	125	32.5	11.2	0°			HH5X16	LW-4
	2020K-2D34	●	●					20			19.2					
	2525K-2D34	●	●		25	25		25			24.2					
KGDR/L	1010JX-2.4	●	●	20	10	10	2	10	120	18	9	1°	2.4	3.0	SB-40120TR	LTW-15S
	1212F-2.4	●	●	24	12	12		12	85	19.5	11					
	1212JX-2.4	●	●						120							
	1616JX-2.4	●	●	32	16	16	-	16		24.5	15					
	2012K-2.4D34	●	●	34	20	20		12	125	32.5	11	0°			HH5X16	LW-4
	2020K-2.4D34	●	●					20			19					
	2525K-2.4D34	●	●		25	25		25			24					
KGDR/L	1212JX-3	●	●	24	12	12	2	12	120	19.5	10.8	1°	3.0	3.0	SB-40120TR	LTW-15S
	1616JX-3	●	●	32	16	16	-	16		24.5	14.8			4.0		
	1616JX-3D38	●	●	38						29					SE-50125TR	LTW-20
	1913K-3D38	●	●		19	19		13	125		11.8					
	2012JX-3D42	●	●	42	20	20		12	120	31	10.8					
	2012JX-3D51	●	●	51						36						
	2020JX-3D42	●	●	42				20		31	18.8					
	2020JX-3D51	●	●	51						36						
	2525K-3D51	●	●		25	25		25	125	41.5	23.8	0°			HH5X16	LW-4

Note) 1. 4mm width Insert cannot be installed in KGDR/L1212JX-3

2. Recommended tightening torque of clamp screw : 2.0N·m (SB-40120TR), 2.5N·m (SE-50125TR), 6.5N·m (HH5X16)

3. When machining the material greater than ø36mm with KGDR/L...-3D38, KGDR/L...-3D42 or KGDR/L...-3D51 toolholders, please use 1-edge inserts. Maximum cuttinng diameter for 2-edge inserts is ø36mm.

Applicable Inserts ➔ G22, G23

Toolholder Identification System

KGD R 1616 JX - 3 T 06 D38

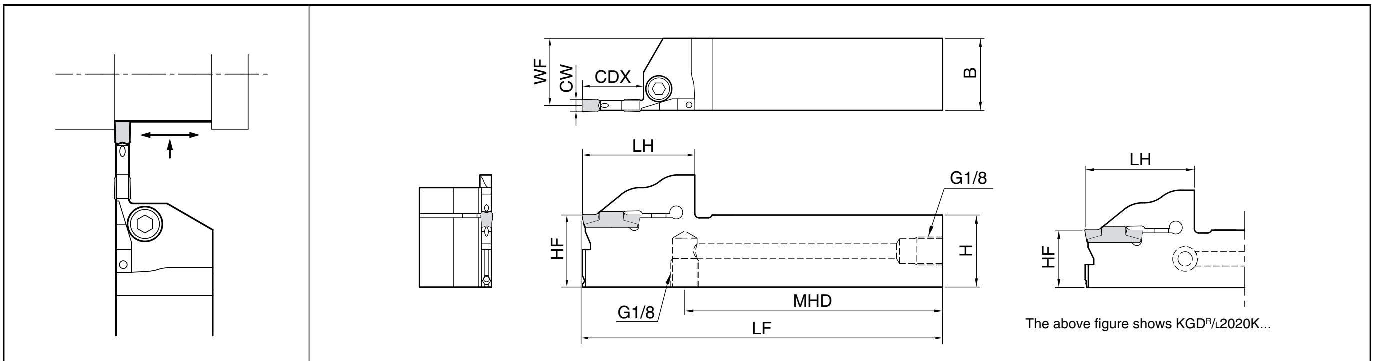
- R — Toolholder Hand: R : Right-hand, L : Left-hand
- 1616 — Shank Size: 16 x 16mm
- JX — Toolholder Length: 120mm
- 3 — Applicable Inserts: GDM / GDMS 3~4mm
- 06 — Max. depth of cut: 06 : 6mm (Integral Type)
- D38 — Cutting Dia. CUTDIA 38mm (Integral Type for Automatic Lathe)

KGD / KGDS R 2020 X - 3 T 10 S

- R — Toolholder Hand: R : Right-hand, L : Left-hand
- 2020 — Shank Size: 20 x 20mm
- X — Toolholder Type: Unit Description
- 3 — Applicable Inserts: GDM / GDMS 3~4mm
- 10 — Max. depth of cut: 10 : 10mm
- S — (Separate Type / Unit Description)

● : Std. Item

KGD-JCT (Coolant-through Holders)



•Right-hand shown

Toolholder Dimensions

Pressure Resistance : ~15MPa

Width (mm)	Max. depth of cut (mm)	Description	Stock R	Stock L	H	HF	B	LF	LH	WF	CDX	MHD	Edge Width CW (mm) MIN.	Edge Width CW (mm) MAX.	Spare Parts Clamp Bolt	Spare Parts Wrench	Spare Parts Plug
3	6	KGDR/L 2020K-3T06JCT	●	●	20	20	20	125	31.5	18.8	6	96.2	3.0	4.0	HH5X16	LW-4	HSG1/8X8.0
		2525K-3T06JCT	●	●	25	25	25			23.8		96.5			HH5X25		
	10	2020K-3T10JCT	●	●	20	20	20		34.0	18.8	10	94.2			HH5X16		
		2525K-3T10JCT	●	●	25	25	25			23.8		94.5			HH5X25		
	20	2020K-3T20JCT	●	●	20	20	20		38.0	18.8	20	90.2			HH5X16		
		2525K-3T20JCT	●	●	25	25	25		39.0	23.8		89.5			HH5X25		
4	10	KGDR/L 2020K-4T10JCT	●	●	20	20	20	125	34.0	18.3	10	94.2	4.0	5.0	HH5X16	LW-4	HSG1/8X8.0
		2525K-4T10JCT	●	●	25	25	25			23.3		94.5			HH5X25		
	20	KGDR/L 2020K-4T20JCT	●	●	20	20	20		38.0	18.3	20	90.2			HH5X16		
		2525K-4T20JCT	●	●	25	25	25		39.0	23.3		89.5			HH5X25		
	25	KGDR/L 2525K-4T25JCT	●	●	25	25	25		44.0	23.3	25	84.5					

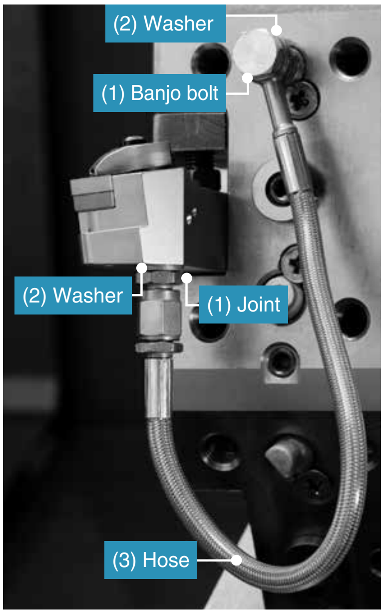
Please see page G27 for piping parts of coolant-through holders.

Applicable Inserts ➡ G22, G23

●: Std. Item

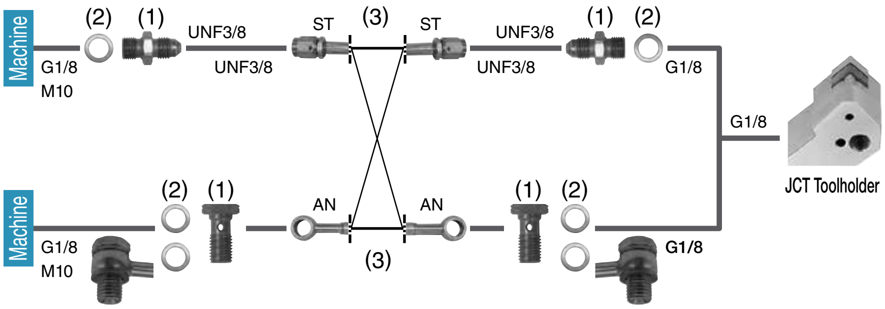
Easy Coolant Connections

Easy Connection with High Pressure Hose and Joint



- Even without a high pressure pump, internal coolant can be used at a normal pressure.
- Banjo bolt available for angled hose connection
  Can be used in a variety of machines

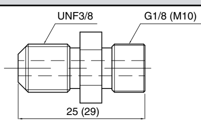
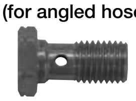
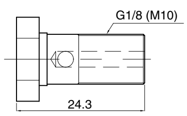
<Piping Installation Guide>



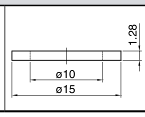
Piping Parts

Optional Piping Parts Available
Choose among (1)(2)(3) based on the machine spec and piping configuration
(1) Joint / Banjo bolt x 2 (2) Washer x 2-4 (3) Hose x 1

(1) Joint / Banjo bolt — Pressure Resistance : ~30MPa

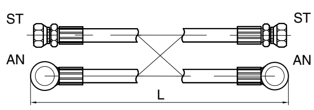
Shape		Description	Stock	Thread Standard Thread connection to the machine
		**J-G1/8-UNF3/8**	●	**G1/8**
		J-M10X1.5-UNF3/8	●	**M10X1.5**
Banjo bolt (for angled hose) 		**BB-G1/8**	●	**G1/8**
		BB-M10X1.5	●	**M10X1.5**

(2) Washer — Pressure Resistance : ~30MPa

Shape		Description	Stock
		**WS-10**	●

*Use 2 washers for a banjo bolt

(3) Hose — Pressure Resistance : ~30MPa

Shape		Description	Stock	Thread Standard		Dimension(mm) L
		**HS-ST-ST-200**	●	**UNF3/8**	**UNF3/8**	**200**
		HS-ST-ST-250	●			**250**
		**HS-ST-AN-200**	●	**UNF3/8**	- (Banjo bolt)	**200**
		HS-ST-AN-250	●			**250**
		**HS-AN-AN-200**	●	- (Banjo bolt)	- (Banjo bolt)	**200**
		HS-AN-AN-250	●			**250**

<u>Cautions</u>

1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure.
   Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.

Great for High Pressure Coolant Cut-off Toolholders

KGD-JCT (for automatic lathe)

NEW

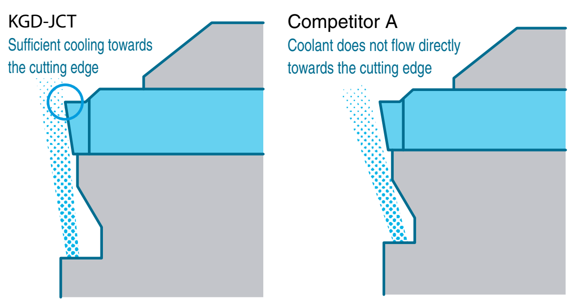
Cut-off Holders for High Pressure Coolant with Long Tool Life

The Optimized Coolant Hole Position Effectively Cools the Cutting Edge

1 Optimized Coolant Hole Position

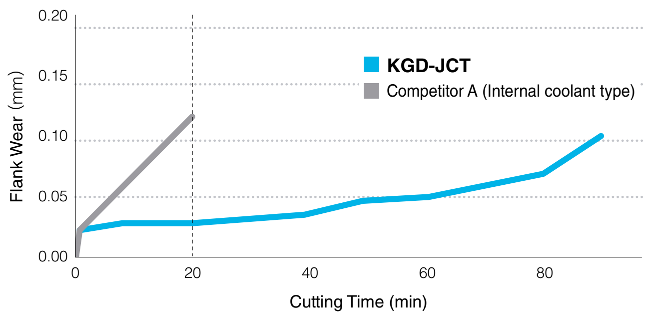
2 Discharge Coolant towards the Flank Face of the Insert

Coolant Discharging (Image)



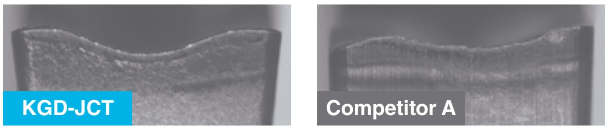
Effective Cooling of the Cutting Edge

Wear Resistance Comparison (Internal evaluation)



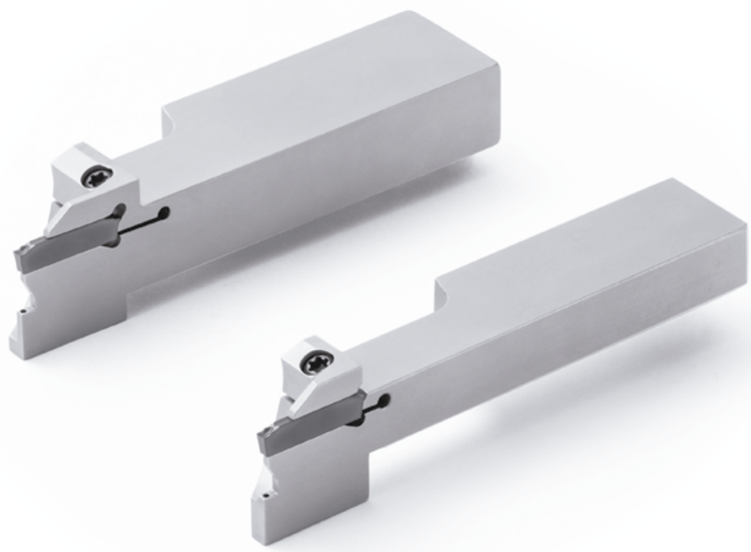
Cutting Conditions : Vc=80m/min, f=0.06mm/rev (~2mm : f=0.02mm/rev), KGDR1625H-2JCT, GDM2020N-015PF PR1535 (Edge Width : 2.0mm) Workpiece Material : SUS304 (ø25) Internal coolant (1.5MPa) Cut-off

Cutting edge condition (after machining 20min)

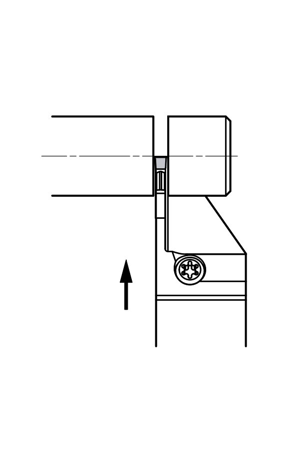


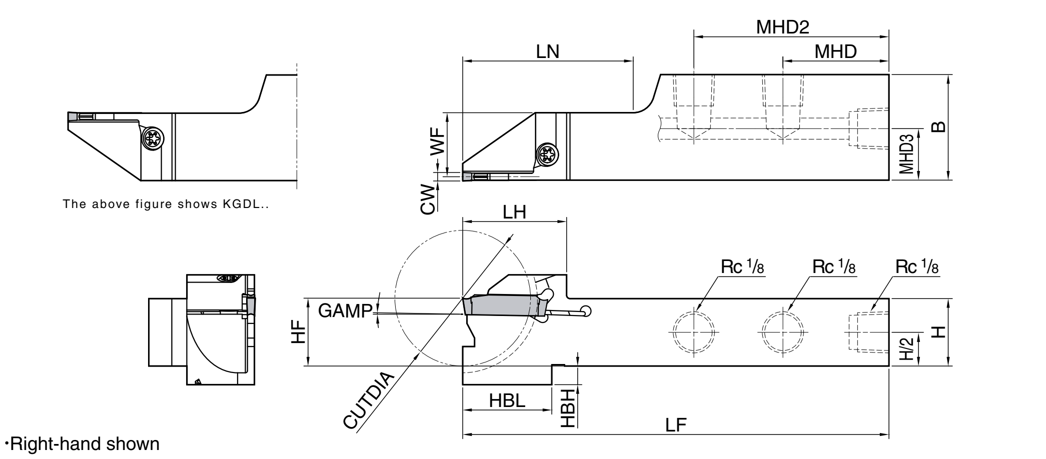
High density and high speeds coolant provides effective cooling of the cutting edge

Superior cooling action improves tool life



KGD-JCT (for automatic lathe) NEW





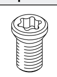
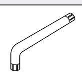
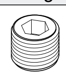
•Right-hand shown

Toolholder Dimensions

Description	Stock	Cutting Dia.	Dimension (mm)											Angle	Edge Width CW (mm)		Applicable Inserts ➡ G22,G23
		CUTDIA	H=HF	HBH	B	LF	LH	HBL	LN	WF	MHD	MHD2	MHD3	GAMP	MIN.	MAX.	
KGDR 1220H-2JCT	●	24	12	8.5	20	100	19.5	21	44	11.2	35	-	8.4	1°	2.0	3.0	GDM type GDG type (GDMS type) (GDGS type)
KGDL 1220H-2JCT	●							21.5					7.7				
KGDR 1625H-2JCT	●	32	16	4.5	25		24.5	21	40	15.2	25	46	12.2				
KGDL 1625H-2JCT	●												7.7				
KGDR 1220H-2.4JCT	●	24	12	8.5	20	100	19.5	21	44	11	35	-	8.4	1°	2.4	3.0	
KGDL 1220H-2.4JCT	●							21.5					7.7				
KGDR 1625H-2.4JCT	●	32	16	4.5	25		24.5	21	40	15	25	46	12.2				
KGDL 1625H-2.4JCT	●												7.7				
KGDR 1220H-3JCT	●	24	12	8.5	20	100	19.5	21	44	10.8	35	-	8.6	1°	3.0	3.0	
KGDL 1220H-3JCT	●							21.5					7.7				
KGDR 1625H-3JCT	●	32	16	4.5	25		24.5	21	40	14.8	25	46	12.2			4.0	
KGDL 1625H-3JCT	●												7.7				

Recommended Cutting Conditions ➡ G34, G35

Spare Parts

Clamp Screw	Wrench	Plug
		
SB-40120TR	LTW-15S	GP-1

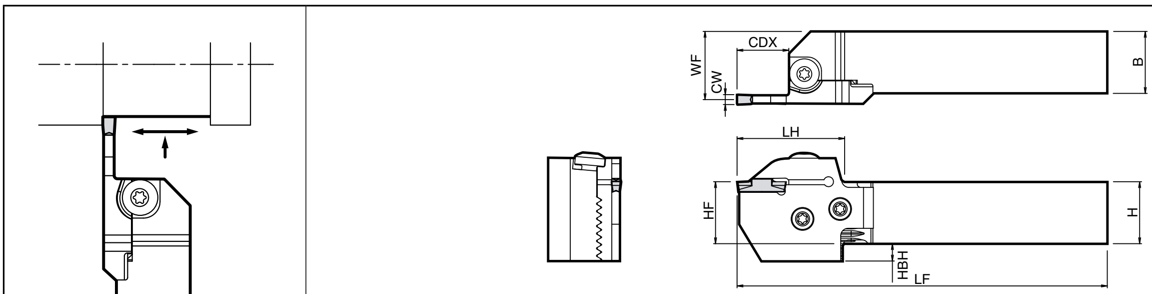
Toolholder Identification System

K G D R 1220 H - 2 JCT

R	1220	H	2	JCT
Toolholder Hand	Shank Size	Toolholder Length	Applicable Inserts	Others
R : Right-hand L : Left-hand	12 × 20 mm	100 mm	GDM/GDMS 2~3 mm	Coolant-through Holders

● : Std. Item

KGD-S (0° Separate Type)



・Right-hand shown (Right-hand Blade and Right-hand Toolholder)

Toolholder Dimensions (Blade + Toolholder)

Shank Angle	Width (mm)	Max. depth of cut (mm)	Shank Size (mm)	Unit Description (Standard Stock Description)	Stock R	Stock L	Blade Description ➡ G32	Toolholder Description ➡ G32	H	HF	HBH	B	LF	LH	WF	CDX	Edge Width CW(mm) MIN.	Edge Width CW(mm) MAX.
0°	2	17	□20	KGD R/L 2020X-2T17S	●	□	KGD R/L-2T17-C	KGD R/L2020-C	20	20	12	20	122	40	23.4	17	2.0	3.0
			□25	2525X-2T17S	●	●		KGD R/L2525-C	25	25	7	25	147		28.4			
			□32	No unit description ➡				KGD R/L3232-C	32	32	-	32	167		35.4			
	3	10	□20	KGD R/L 2020X-3T10S	●	□	KGD R/L-3T10-C	KGD R/L2020-C	20	20	12	20	115	33	23.0	10	3.0	4.0
			□25	2525X-3T10S	●	□		KGD R/L2525-C	25	25	7	25	140		28.0			
			□32	3232X-3T10S	□	-		KGD R/L3232-C	32	32	-	32	160		35.0			
		20	□20	KGD R/L 2020X-3T20S	●	●	KGD R/L-3T20-C	KGD R/L2020-C	20	20	12	20	125	43	23.0	20		
			□25	2525X-3T20S	●	●		KGD R/L2525-C	25	25	7	25	150		28.0			
			□32	3232X-3T20S	●	□		KGD R/L3232-C	32	32	-	32	170		35.0			
	4	10	□20	KGD R/L 2020X-4T10S	●	-	KGD R/L-4T10-C	KGD R/L2020-C	20	20	12	20	115	33	22.5	10	4.0	5.0
			□25	2525X-4T10S	●	-		KGD R/L2525-C	25	25	7	25	140		27.5			
			□32	3232X-4T10S	-	-		KGD R/L3232-C	32	32	-	32	160		34.5			
		20	□20	KGD R/L 2020X-4T20S	●	-	KGD R/L-4T20-C	KGD R/L2020-C	20	20	12	20	125	43	22.5	20		
			□25	2525X-4T20S	●	●		KGD R/L2525-C	25	25	7	25	150		27.5			
			□32	3232X-4T20S	●	□		KGD R/L3232-C	32	32	-	32	170		34.5			
		25	□20	KGD R/L 2020X-4T25S	●	●	KGD R/L-4T25-C	KGD R/L2020-C	20	20	12	20	130	48	22.5	25		
			□25	2525X-4T25S	●	●		KGD R/L2525-C	25	25	7	25	155		27.5			
			□32	3232X-4T25S	●	□		KGD R/L3232-C	32	32	-	32	175		34.5			
	5	10	□20	KGD R/L 2020X-5T10S	●	●	KGD R/L-5T10-C	KGD R/L2020-C	20	20	12	20	115	33	22.0	10	5.0	6.0
			□25	2525X-5T10S	●	-		KGD R/L2525-C	25	25	7	25	140		27.0			
			□32	3232X-5T10S	-	-		KGD R/L3232-C	32	32	-	32	160		34.0			
		25	□20	KGD R/L 2020X-5T25S	□	-	KGD R/L-5T25-C	KGD R/L2020-C	20	20	12	20	130	48	22.0	25		
			□25	2525X-5T25S	●	●		KGD R/L2525-C	25	25	7	25	155		27.0			
			□32	3232X-5T25S	●	-		KGD R/L3232-C	32	32	-	32	175		34.0			

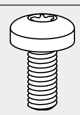
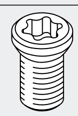
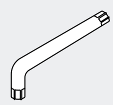
Note) 1. When using the toolholder in normal mounting position, the lower jaw of toolholder may interfere with the tool presetter.
2. The toolholder and blade descriptions are printed on the toolholder body. (Unit description is not printed.)
KGD-S : **Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.**
The toolholder is applicable for all blade with suitable hand.
3. When the unit description is not available (No unit description) and/or stock status is "-", please purchase toolholder and blade separately.
4. CDX : Maximum depth to which processing can be made. (If the CDX is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)

Applicable Inserts ➡ **G22, G23**

Spare Parts

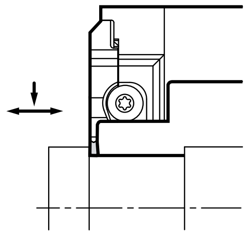
(Common with separate types)

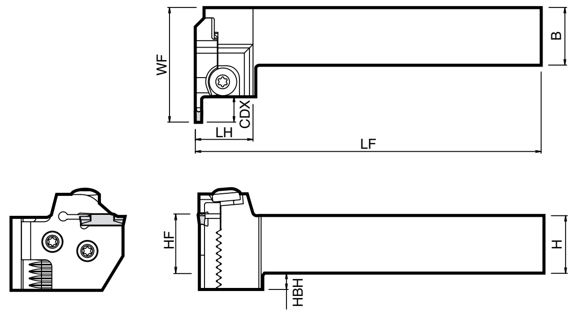
* The parts are included in the toolholder and unit.

Unit Description	Spare Parts: Clamp Bolt (for Insert Clamp)	Spare Parts: Clamp Screw (for Blade)	Spare Parts: Wrench
			
KGD R/L.....S	BH6X10TR	SB-60120TR	LTW-25

● : Std. Item
□ : Deleted from the next catalog

KGDS-S (90° Separate Type)





・Right-hand shown (Left-hand Blade and Right-hand Toolholder)

Toolholder Dimensions (Blade + Toolholder)

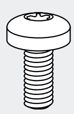
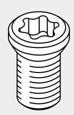
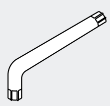
Shank Angle	Width (mm)	Max. depth of cut (mm)	Shank Size (mm)	Blade Description ➡ G32	Toolholder Description ➡ G32	Unit Description (Standard Stock Description)	Stock		Dimension (mm)								Edge Width CW(mm)	
							R	L	H	HF	HBH	B	LF	LH	WF	CDX	MIN.	MAX.
90°	2	17	□20	KGD L/R-2T17-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125	27.7	56.7	17	2.0	3.0
			□25		KGDS R/L2525-C	-	-	-	25	25	7	25	150					
	3	10	□20	KGD L/R-3T10-C	KGDS R/L2020-C	KGDS R/L 2020X-3T10S	●	●	20	20	12	20	125		49.7	10	3.0	4.0
			□25		KGDS R/L2525-C	2525X-3T10S	●	●	25	25	7	25	150					
		20	□20	KGD L/R-3T20-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125		59.7	20		
			□25		KGDS R/L2525-C	-	-	-	25	25	7	25	150					
	4	10	□20	KGD L/R-4T10-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125		49.7	10	4.0	5.0
			□25		KGDS R/L2525-C	-	-	-	25	25	7	25	150					
		20	□20	KGD L/R-4T20-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125		59.7	20		
			□25		KGDS R/L2525-C	-	-	-	25	25	7	25	150					
		25	□20	KGD L/R-4T25-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125		64.7	25		
			□25		KGDS R/L2525-C	-	-	-	25	25	7	25	150					
	5	10	□20	KGD L/R-5T10-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125		49.7	10	5.0	6.0
			□25		KGDS R/L2525-C	-	-	-	25	25	7	25	150					
		25	□20	KGD L/R-5T25-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125		64.7	25		
			□25		KGDS R/L2525-C	-	-	-	25	25	7	25	150					

Applicable Inserts ➡ **G22, G23**

Note) 1. When using the toolholder in normal mounting position, the lower jaw of toolholder may interfere with the tool presetter.
2. The toolholder and blade descriptions are printed on the toolholder body. (Unit description is not printed.)
KGDS-S : **Left-hand Blade for Right-hand Toolholder, Right-hand Blade for Left-hand Toolholder.**
The toolholder is applicable for all blade with suitable hand.
3. CDX : Maximum depth to which processing can be made. (If the CDX is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)

Spare Parts (Common with separate types)

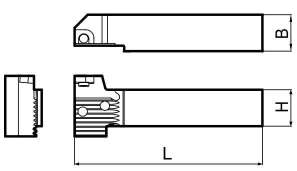
* The parts are included in the toolholder and unit.

Unit Description	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
			
KGDS R/L.....S	BH6X10TR	SB-60120TR	LTW-25

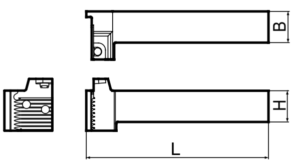
● : Std. Item

Toolholder

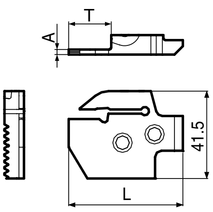
KGD-S (0˚ Separate Type)

Shape of 0˚ type Right-hand shown	Toolholder Description	Stock		Dimension (mm)		
		R	L	L	B	H
	KGDR/L 2020-C	●	●	104	20	20
	2525-C	●	●	129	25	25
	3232-C	●	●	149	32	32

KGDS-S (90º Separate Type)

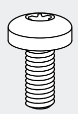
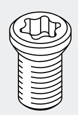
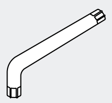
Shape of 90˚ type Right-hand shown	Toolholder Description	Stock		Dimension (mm)		
		R	L	L	B	H
	KGDSR/L 2020-C	●	●	122	20	20
	2525-C	●	●	147	25	25

Blade

Shape of Blade Right-hand shown	Blade Description	Stock		Dimension (mm)		
		R	L	L	T	A
	KGDR/L -2T17-C	●	●	51.2	17.2	1.7
	-3T10-C	●	●	44.2	10.2	2.4
	-3T20-C	●	●	53.2	20.2	
	-4T10-C	●	●	44.2	10.2	3.4
	-4T20-C	●	●	54.2	20.2	
	-4T25-C	●	●	59.2	25.2	
	-5T10-C	●	●	44.2	10.2	4.4
	-5T25-C	●	●	59.2	25.2	

Spare Parts (Common with separate types)

* The parts are included in the toolholder.

Unit Description	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
			
KGDR/L…S KGDSR/L…S	BH6X10TR	SB-60120TR	LTW-25

● : Std. Item

Setting the insert and the blade

Setting the insert

1. Use compressed air or other measures to remove chips from the insert mounting part (Ref. to Fig. 1).
2. Put the insert into the toolholder and push it makes contact with the back end of toolholder's surface (Ref. to Fig. 1 and 2).
3. Keeping the insert fit to the surface, tighten the insert clamp screw at an appropriate torque.
4. Make sure that there is no gap between the insert and the back end of the toolholder's surface and that the insert is set straight. (Ref. to Fig. 2 and 3)

Clamp Screw (for Automatic Lathe)	Recommended tightening torque : 2.0N·m (SB-40120TR) 2.5N·m (SE-50125TR)
Clamp Bolt	Recommended tightening torque : 6.5N·m (Width 2~6mm) 8.0N·m (Width 8mm)

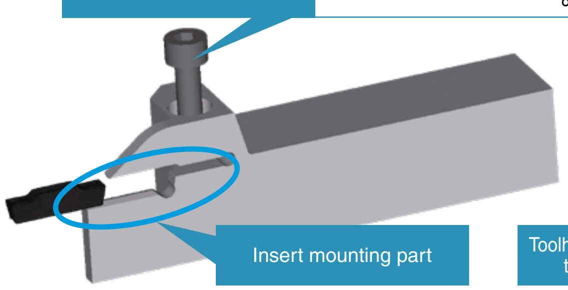


Fig. 1

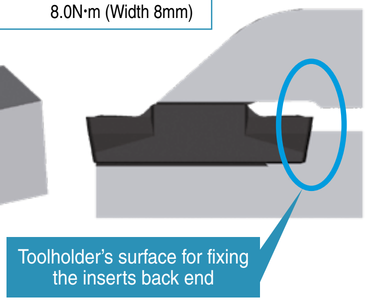


Fig. 2

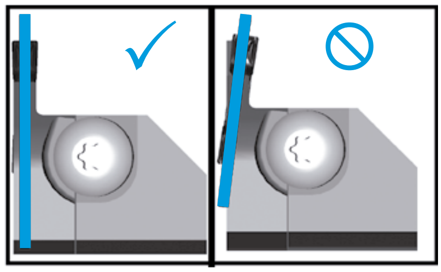


Fig. 3

Setting the blade (Separate type toolholder)

1. Use compressed air or other measures to remove chips and dust from the serration part (Ref. to Fig. 1).
2. Mate and fit the serrations of the blade and toolholder, and also fit the blade end to the toolholder. (Ref. to Fig. 2)
3. Tighten the blade fixing screws at an appropriate torque. You can tighten them in any order. (Ref. to Fig. 2) (Recommended tightening torque : 8N·m)
4. Set the insert after setting the blade.

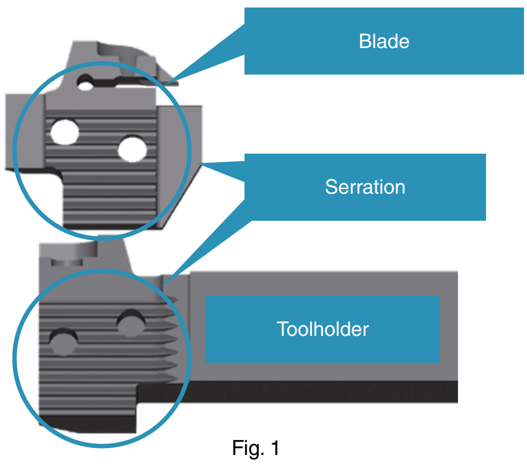


Fig. 1

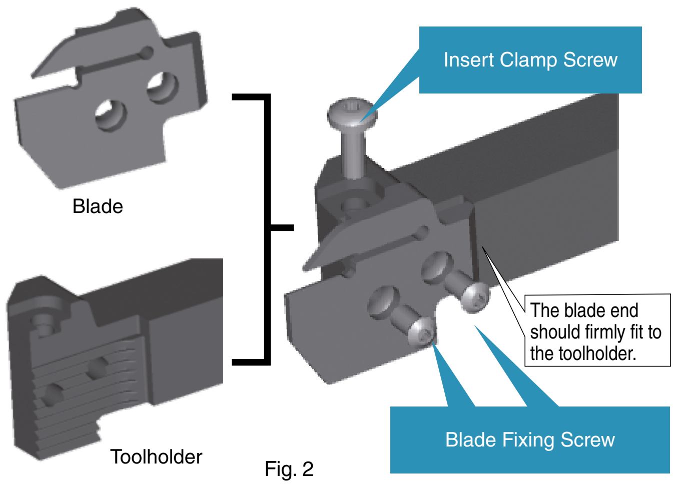
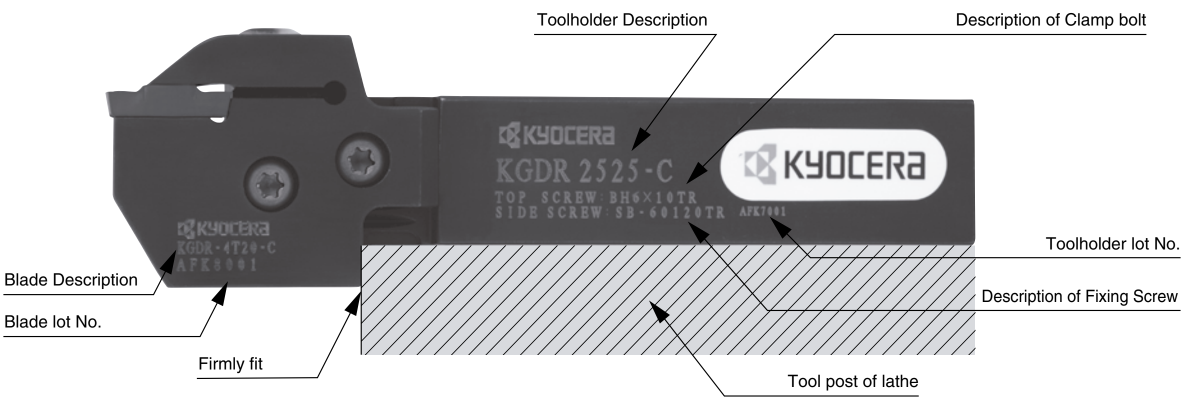


Fig. 2

Separate type Toolholder Identification System and the Setting to Lathe

• Firmly fit the lower jaw to the tool post of the lathe.



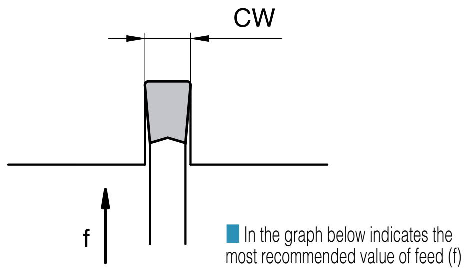
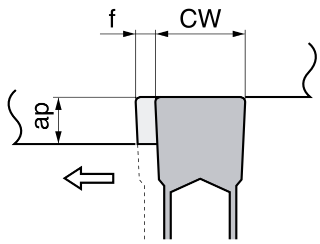
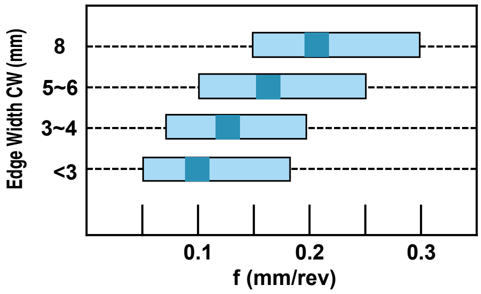
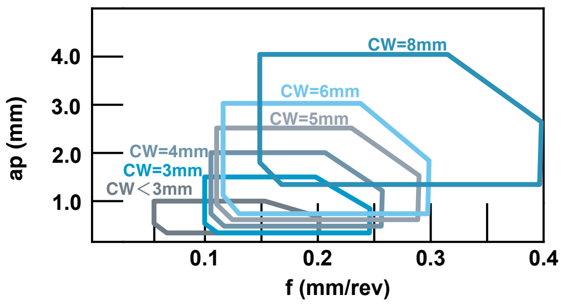
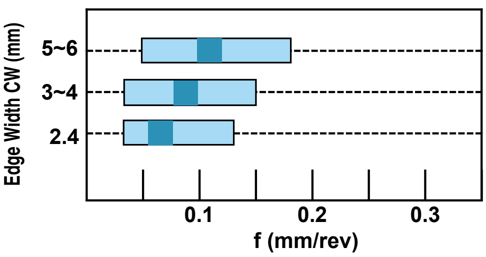
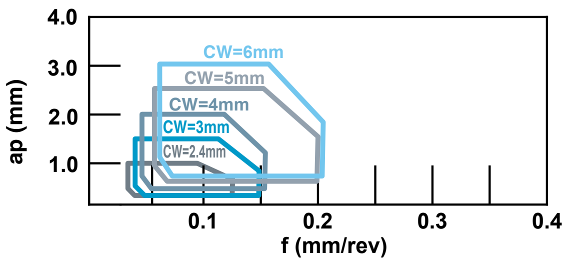
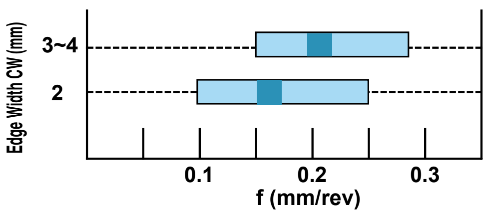
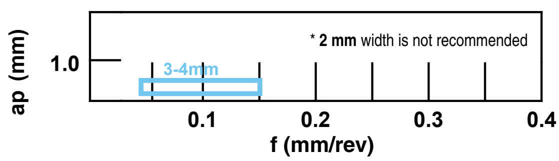
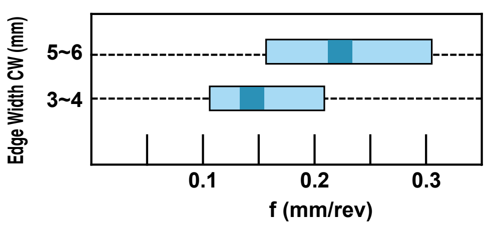
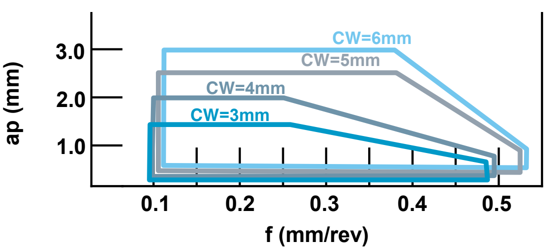
Recommended Cutting Conditions (Vc)

Workpiece Material	Chipbreaker	Recommended Insert Grades (Cutting Speed Vc: m/min)									Remarks
		Cermet		MEGACOAT NANO	MEGACOAT		Carbide	MEGACOAT CBN	CBN	PCD	
		TN620	TN90	PR1535	PR1225	PR1215	GW15	KBN05M	KBN570	KPD001	
Carbon Steel	GM GL CM PH GS	☆ 80~220	☆ 100~220	☆ 80~200	★ 80~200	☆ 100~200	-	-	-	-	Coolant
Alloy Steel		☆ 70~200	☆ 80~200	☆ 70~180	★ 70~180	☆ 80~180	-	-	-	-	
Stainless Steel		-	-	★ 60~150	☆ 60~150	☆ 60~150	-	-	-	-	
Cast Iron		-	-	-	-	★ 100~200	-	-	-	-	
Aluminum Alloys	GS NB	-	-	-	-	-	☆ 200~500	-	-	★ 150~2,000	
Brass		-	-	-	-	-	☆ 100~200	-	-	★ 200~800	
Hard Materials	NB	-	-	-	-	-	-	★ 80~150	-	-	
Sintered Steel		-	-	-	-	-	-	-	★ 100~250	-	

★ : 1st Recommendation ☆ : 2nd Recommendation

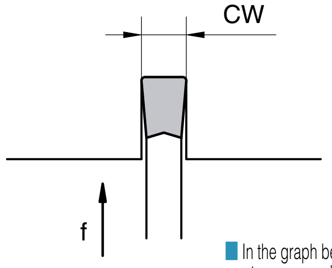
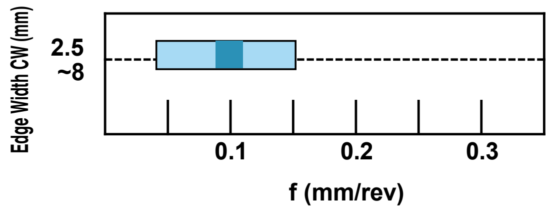
Recommended Cutting Conditions (Feed Rate / ap)

[Workpiece Material : S50C]

Chipbreaker	Grooving	Turning
	 ■ In the graph below indicates the most recommended value of feed (f)	
GM (General purpose)		
GL (Low Feed)		
PH (High Feed)		
CM (Copying)		

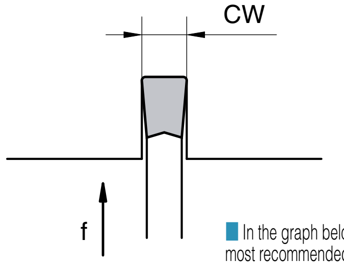
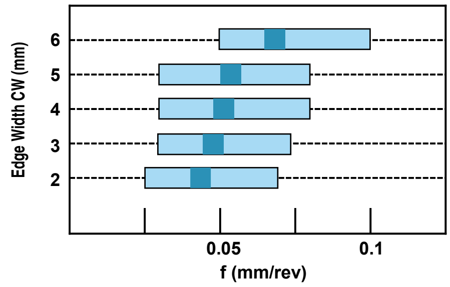
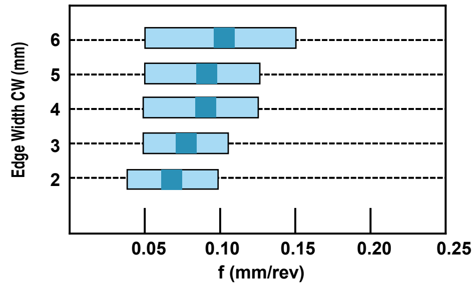
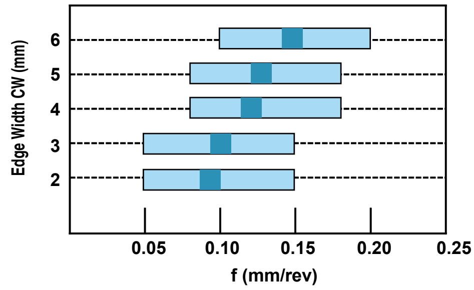
Note) 1. The above values are based on the condition that CDX of toolholder is 17 mm or less.
2. If the toolholder is not for the 8mm width insert and its dimension CDX is over 17mm, set the values for turning to 90% or less of those above.

◆ Recommended Cutting Conditions (Feed Rate / ap) [Workpiece Material : S50C]

Chipbreaker	Grooving
	 ■ In the graph below indicates the most recommended value of feed (f)
GS (Low cutting force)	 * When turning, keep ap less than or equal to the corner-R(RE).

Note) 1. The above values are based on the condition that CDX of toolholder is 17 mm or less.

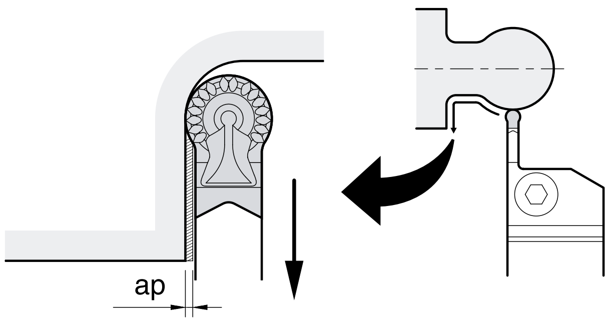
◆ Recommended Cutting Conditions (Feed Rate)

Workpiece Material	Insert Grades	Grooving
		 ■ In the graph below indicates the most recommended value of feed (f)
Hard Materials	**KBN05M**	
Sintered Steel	**KBN570**	
Non-ferrous Metals	**KPD001**	

◆ CM Chipbreaker [Cutting amount (ap) in back copying]

● Max. ap in back copying

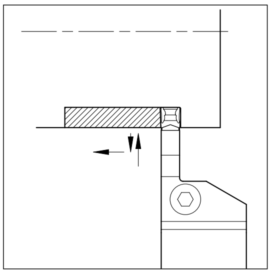
Description		Max. ap (ap : mm)				
		Toolholder Description				
		KGD…-2T…	KGD…-3T…	KGD…-4T…	KGD…-5T…	KGD…-6T…
GDM	3020N-150R-CM	0.24	0.20	-	-	-
	4020N-200R-CM	-	0.24	0.20	-	-
	5020N-250R-CM	-	-	0.30	0.20	-
	6020N-300R-CM	-	-	-	0.30	0.25



Guide for External Grooving

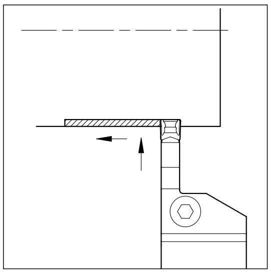
Point (I) (Turning after Grooving)

1) Grooving Depth 0.5mm or over : For roughing (Refer to Fig. 1)
Before turning, pull the tool back about 0.1mm after grooving, instead of turning subsequent to grooving.
(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting edge.)



Before turning, pull the tool back about 0.1mm after grooving.
(Grooving Depth 0.5mm or over at roughing)
Fig. 1

2) Grooving Depth 0.5mm or under : For finishing (Refer to Fig. 2)
Turning subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.
(Retention time is not necessary.)



Turning subsequent to grooving
(Grooving Depth 0.5mm or under at finishing)
Fig. 2

Point (II)

1) When widening the groove width (Refer to Fig. 3), apply the "Step Turning."
2) The widened groove and side walls should be finished last.
(For better chip control, ap 0.5mm or over is recommended.)
Note) If the workpiece is not supported at the center,
reduce the feed rate when grooving towards center.

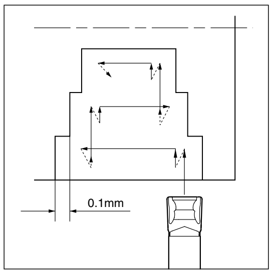
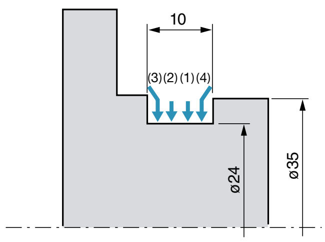


Fig. 3

G
Grooving
External
Internal
Face

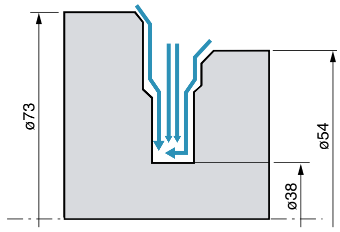
Case Studies

SCr420H (Grooving)	
·Gear ·Vc=113~164 m/min ·f=0.06 mm/rev ·Wet ·GDM4020N-040GM (PR1225) ·KGDL2525X-3T10S	
GM Chipbreaker (PR1225)	1,500 pcs/edge
Competitor K (PVD Coated Carbide)	250 pcs/edge (x6 longer life)

· GM chipbreaker (PR1225) showed 6 times longer tool life than that of Competitor K.
· Good chip control without burned chips.

GM Chipbreaker Competitor K

(User Evaluation)

SCM420 (Grooving / Turning)	
·Gear ·Vc=170m/min ·f=0.15 mm/rev (Roughing) 0.10 mm/rev (Finishing) ·ap=0.2mm (Finishing) ·Wet ·GDM4020N-040GM (PR1215) ·KGDR2525X-4T20S	
GM Chipbreaker (PR1215)	250 pcs/edge
Competitor L (Roughing: PVD Coated Carbide) (Finishing: Cermet)	200 pcs/edge

· GM chipbreaker reduced occurrence rate of chip tangling (occurrence rate 80% ⇒ 10%), on the contrary the problem was persistent with Competitor L. Machining productivity is improved.

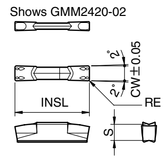
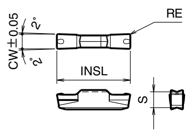
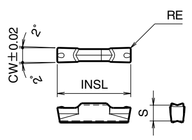
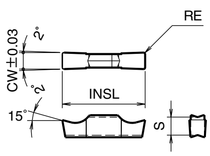
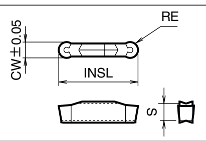
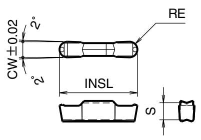
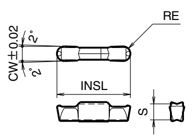
Smooth chip control **GM Chipbreaker (Finishing)** Chips easily tangled Competitor L (Finishing)

(User Evaluation)

GMM / GMG (Will be switched to GDM / GDG G22~G23)

(Will be switched to GDM / GDG ➡ G22~G23)

Classification of usage			TN90	CR9025	PR915	PR930	PR905	KW10
◕ : Continuous~Light Interruption / 1st Choice	P	Carbon Steel / Alloy Steel			◔	◕		
◔ : Continuous~Light Interruption / 2nd Choice	M	Stainless Steel			◕	◔		
● : Continuous / 1st Choice	K	Cast Iron					◕	◔
○ : Continuous / 2nd Choice	N	Non-ferrous Metals						◕
	S	Titanium Alloys						◕
	H	Hard Materials (~40HRC)			○	●		
	H	Hard Materials (40HRC~)						

Insert	Description		CW	RE	INSL	S	TN90 (Cermet)	CR9025 (CVD Coated Carbide)	PR915 (PVD Coated Carbide)	PR930 (PVD Coated Carbide)	PR905 (PVD Coated Carbide)	KW10 (Carbide)	See Page for Applicable Toolholders
  Chip Control Oriented / M Class	GMM	2420-020MW	2.4	0.2	20	4.3	○	○		○	○	○	G42,G43
		3020-020MW	3.0	0.2			○	○	○	○	○	○	G42~G44
		3020-040MW		0.4			○	○	○	○	○	○	
		4020-020MW	4.0	0.2			○	○		○	○		
		4020-040MW		0.4			○	○	○	○	○	○	
		4020-080MW		0.8			○	○	○	○	○		
		5020-040MW	5.0	0.4			○	○		○	○	○	
		5020-080MW		0.8			○	○	○	○	○	○	
		6020-040MW	6.0	0.4				○	○	○	○		G42,G43
		6020-080MW		0.8				○		○	○	○	
		8030-080MW	8.0	0.8	30	5.5		○	○	○	○	○	G42,G71
  Sharp-Cutting Oriented / M Class	GMM	3020-020MS	3.0	0.2	20	4.3	○	○	○	○		○	G42~G44
		3020-040MS		0.4			○	○	○	○		○	
		4020-040MS	4.0	0.4			○	○	○	○		○	
		5020-040MS	5.0					○	○	○		○	
		6020-040MS	6.0									○	G42,G43
  Sharp-Cutting Oriented / Precision Class	GMG	3020-000MS	3.0	0.0	20	4.3			○	○			G42~G44
		3020-020MS		0.2			○	○	○	○		○	
		3020-040MS		0.4			○	○	○	○		○	
		4020-020MS	4.0	0.2	20	4.3	○			○		○	
		4020-040MS		0.4			○	○		○		○	
		4020-080MS		0.8				○	○	○			
		5020-040MS	5.0	0.4	20	4.3				○		○	
		5020-080MS		0.8						○			
		6020-080MS	6.0	0.8	20	4.3						○	G42,G43
  Sharp-Cutting Oriented / Precision Class Ground Chipbreaker	GMG	2520-030MG	2.5	0.3	20	4.3	○			○		○	G42,G43
		3020-030MG	3.0				○		○	○	○	○	G42~G44
		3520-030MG	3.5							○	○		
		4020-040MG	4.0	0.4			○	○		○	○	○	
		5020-040MG	5.0				○			○	○	○	
		6020-040MG	6.0							○	○		G42,G43
		8030-050MG	8.0	0.5	30	5.5	○	○		○	○	○	G42,G71
  Chip Control Oriented / M Class Full-R / Copying	GMM	3020-150R	3.0	1.5	20	4.3	○	○	○	○	○	○	G42~G44
		4020-200R	4.0	2.0			○	○	○	○	○	○	
		5020-250R	5.0	2.5				○		○	○	○	
		6020-300R	6.0	3.0			○	○		○	○	○	G42,G43
  Sharp-Cutting Oriented / Precision Class Full-R / Copying	GMG	3020-150R	3.0	1.5	20	4.3	○	○		○		○	G42~G44
		4020-200R	4.0	2.0				○		○			
		5020-250R	5.0	2.5						○			
  Undercutting Chip Control Oriented	GMG	3020-150RU	3.0	1.5	20	4.3		○		○			G42~G45
		4020-200RU	4.0	2.0						○			

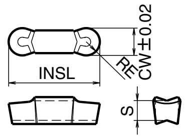
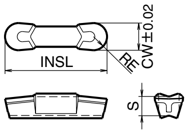
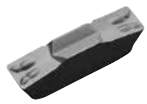
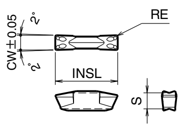
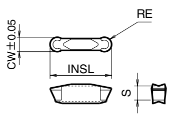
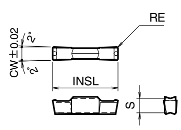
Recommended Cutting Conditions ➡ G117

○ : Check Availability

Inserts are sold in 10 piece boxes

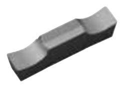
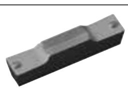
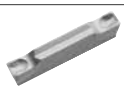
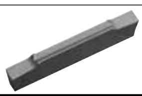
GMM / GMGA / FGG

Classification of usage			TN90	CR9025	PR915	PR930	KW10
◐ : Continuous~Light Interruption / 1st Choice	P	Carbon Steel / Alloy Steel				◐	
◌ : Continuous~Light Interruption / 2nd Choice	M	Stainless Steel				◌	
● : Continuous / 1st Choice	K	Cast Iron					◐
○ : Continuous / 2nd Choice	N	Non-ferrous Metals					◐
	S	Titanium Alloys					◐
	H	Hard Materials (~40HRC)				●	
	H	Hard Materials (40HRC~)					

Insert (Handed Insert shows Right-hand)		Description	CW	RE	INSL	S	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	Carbide KW10	See Page for Applicable Toolholders
 Sharp-Cutting Oriented / Precision Class Full-R / Copying		**GMGA 6020-300R**	6.0	3.0	20	4.3					○	**G42 G43**
 Sharp-Cutting Oriented / Precision Class Full-R / Copying		**GMGA 8030-400R**	8.0	4.0	30	5.5					○	**G42 G71**
 Chip Control Oriented / M Class		**GMM 3014-04**	3.0	0.4	14	4.3	○			○		**G44**
 Chip Control Oriented / M Class Full-R / Copying		**GMM 3014-15R**	3.0	1.5	14	4.3	○					**G44**
 Chip Control Oriented / Precision Class Face Grooving		**FGG R/L 3020-02**	3.0	0.2	20	4.3	R: L:	R: ○ L: ○	R: L:	R: ○ L: ○	R: ○ L: ○	**G44**
		FGG R/L 4020-04	4.0	0.4	20	4.3	R: L:	R: ○ L: ○	R: L:	R: ○ L: ○	R: ○ L: ○	**G44**
		FGG R/L 5020-04	5.0	0.4	20	4.3	R: L:	R: ○ L: ○	R: L:	R: L:	R: ○ L: ○	**G44**

Recommended Cutting Conditions ➡ **G117**

Features of Chipbreaker

Series	Insert	Features
GMM MW		Excellent chip evacuation at Grooving, Turning, Cut-off
GMG MG		Low cutting force with ground chipbreaker
GMG MS GMM MS		Grooving / Turning / Cut-off operations are minimum cutting force at Positive Edge
GMM MT		Small corner-R(RE) and minimize the core which remains in the center of the face
GMM TK		Large corner-R(RE) and stable performance at cut-off
GMM NB		Flat rake face and non-chipbreake It works well for brass

◆ Edge Preparation

Edge Prep.	Chamfered + R-honed Corner-R(RE) = 0.05	Chamfered + R-honed Sharp Corner
		
MT Chipbreaker	**CR9025 / PR915**	**PR930 / KW10**
Edge Prep.	Chamfered + R-honed Corner-R(RE) = 0.2 ~ 0.3	Sharp Edge Corner-R(RE) = 0.2 ~ 0.3
		
TK Chipbreaker	**CR9025 / PR915**	**PR930 / KW10**
Edge Prep.	R-honed Corner-R(RE) = 0.05	Sharp Edge Sharp Corner
		
Without Chipbreaker (-NB)	**CR9025**	**PR930 / KW10**

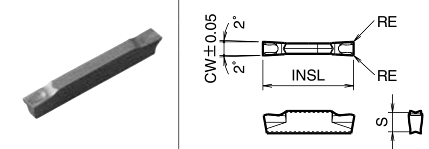
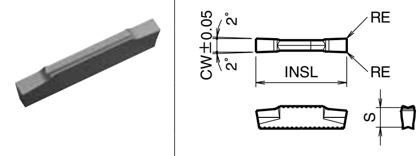
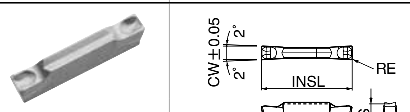
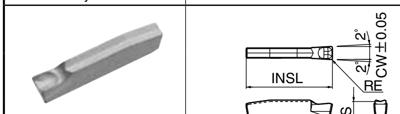
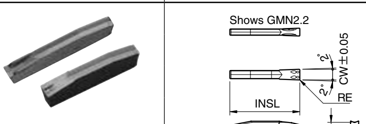
· Sharp Edge Spec. can reduce cutting force by 40% less than that of chamfer edge.

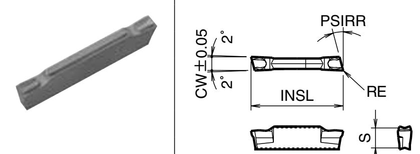
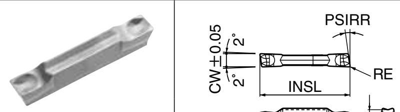
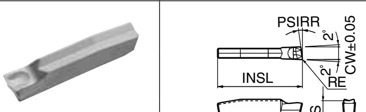
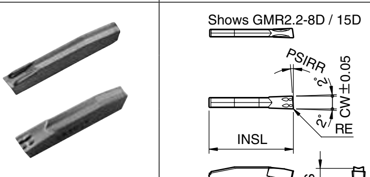
○ : Check Availability

GMM / GMN / GM^R/L

(Will be switched to GDM / GDG ➡ G22, G23, H18, H19)

Classification of usage			TN90	CR9025	PR915	PR930	KW10
◕ : Continuous~Light Interruption / 1st Choice	P	Carbon Steel / Alloy Steel			◔	◕	
◔ : Continuous~Light Interruption / 2nd Choice	M	Stainless Steel			◕	◔	
● : Continuous / 1st Choice	K	Cast Iron					◕
○ : Continuous / 2nd Choice	N	Non-ferrous Metals					◕
	S	Titanium Alloys					◕
	H	Hard Materials (~40HRC)			○	●	
		Hard Materials (40HRC~)					

Insert (Handed Insert shows Right-hand)	Description	CW	RE	INSL	S	Angle PSIR^R/L	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	Carbide KW10	See Page for Applicable Toolholders
 Deep Grooving / Cut-off Sharp-Cutting Oriented	GMM 1520-MT	1.5	0.0	20	4.3	-				○	○	G42
			0.05						○			
	2020-MT	2.0	0.0							○	○	G42 G43
			0.05					○	○			
	2520-MT	2.5	0.0							○	○	
			0.05						○			
	3020-MT	3.0	0.0							○	○	G42~G44
			0.05					○	○			
 Deep Grooving / Cut-off Sharp-Cutting Oriented Without Chipbreaker	GMM 1520-NB	1.5	0.0	20	4.3	-				○	○	G42
	2020-NB	2.0	0.0							○	○	G42 G43
	2520-NB	2.5	0.0							○		
	3020-NB	3.0	0.0								○	G42~G44
 Deep Grooving / Cut-off Stability Oriented	GMM 2020-TK	2.0	0.20	20	4.3	-			○	○	○	G42 G43
	2520-TK	2.5							○	○	○	
	3020-TK	3.0	0.25					○	○	○	○	G42~G44
 Cut-off / Stability Oriented 1-edge	GMN 2-TK	2.0	0.20	20	4.3	-			○	○	○	G42,G43
	3-TK	3.0	0.25					○	○	○	○	G42 ~ G44
	4-TK	4.0	0.30					○	○	○	○	
 Deep Grooving / Cut-off 1-edge	GMN 2.2	2.2	0.17	20	4.3	-	○	○		○	○	G42,G43
	3	3.0	0.20				○	○		○	○	G42 ~ G44
	4	4.0	0.25				○	○		○	○	
	5	5.0	0.80					○		○	○	
	6	6.0	0.80					○		○	○	G42,G43

Insert	Description	CW	RE	INSL	S	PSIR^R/L	TN90 R	TN90 L	CR9025 R	CR9025 L	PR915 R	PR915 L	PR930 R	PR930 L	KW10 R	KW10 L	See Page for Applicable Toolholders
 Cut-off Sharp-Cutting Oriented With lead angle	GMM 1520^R/L-MT-15D	1.5	0	20	4.3	15°							○		○		G42
			0.05								○						
	2020^R/L-MT-15D	2.0	0										○	○	○		G42 G43
			0.05						○		○						
	2520^R/L-MT-15D	2.5	0										○				
			0.05								○						
	3020^R/L-MT-15D	3.0	0										○	○	○		G42~G44
			0.05						○		○						
 Cut-off Stability Oriented With lead angle	GMM 2020R-TK-8D	2.0	0.20	20	4.3	8°					○		○		○		G42 G43
	2520R-TK-8D	2.5	0.20										○				
	3020R-TK-8D	3.0	0.25						○		○		○				G42~G44
 Cut-off / Stability Oriented 1-edge / Lead Angle	GMR 2-TK-8D	2.0	0.20	20	4.3	8°							○		○		G42,G43
	3-TK-8D	3.0	0.25								○		○		○		G42 ~ G44
	4-TK-8D	4.0	0.30								○		○		○		
 Cut-off / Sharp-Cutting Oriented 1-edge / Lead Angle	GM^R/L 2.2-8D	2.2	0.17	20	4.3	8°	○		○				○	○	○		G42 G43
	2.2-15D	2.2	0.00			15°	○		○				○		○		
	3-4D	3.0	0.20			4°	○		○	○			○	○	○		G42 ~ G44
	4-4D	4.0	0.25						○	○			○				

Recommended Cutting Conditions ➡ G117

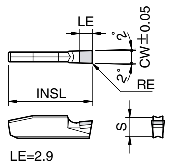
○ : Check Availability

Inserts are sold in 10 piece boxes

GMN

Classification of usage			KBN510	KBN525	KPD001	KPD010
	P	Carbon Steel / Alloy Steel				
	M	Stainless Steel				
◖: Continuous~Light Interruption / 1st Choice	K	Cast Iron				
◌: Continuous~Light Interruption / 2nd Choice	N	Non-ferrous Metals			●	
●: Continuous / 1st Choice	S	Titanium Alloys			●	
○: Continuous / 2nd Choice	H	Hard Materials (~40HRC)				
		Hard Materials (40HRC~)	○	●		

Deep Grooving
1-edge

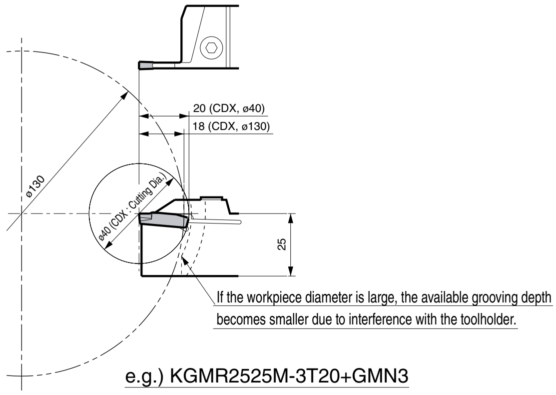


Insert	Description	CW	RE	INSL	S	KBN510 (CBN)	KBN525 (CBN)	KPD001 (PCD)	KPD010 (PCD)	See Page for Applicable Toolholders
Deep Grooving 1-edge	GMN 2	2.0	0.2	20	4.3	○	○	○	○	G42,G43
			0.4							
	3	3.0	0.2					○	○	G42 G43 G44
			0.4			○	○			
	4	4.0	0.2					○	○	
			0.4			○	○			
	5	5.0	0.2					○	○	
			0.4			○	○			
	6	6.0	0.2						○	G42,G43
			0.4			○	○			

Recommended Cutting Conditions ➡ G116

Available Cutting Diameter of KGM (for automatic lathe) / KGM-T

· There is a limit to available grooving depth depending on the workpiece diameter.



e.g.) KGMR2525M-3T20+GMN3

◆ KGM (for automatic lathe) Possible Cutting Diameter and Available Grooving Depth Table

Toolholder Description	DCX (Cutting Dia.)																
KGM R/L 0810K-1.5-125	-	-	-	-	-	-	-	-	-	-	-	-	10	14	16	32	∞
1010□-1.5…	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞	
1212□-1.5…	-	-	-	-	25	26	28	32	36	40	60	100					
0810K-2-125	-	-	-	-	-	-	-	-	-	-	-	-	10	14	16	32	
1010□-2…	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞	
1212□-2…	-	-	-	-	25	26	28	50	∞	∞	∞	∞					
1616□-2…	32	40	50	60	80	100	∞	∞									
1212□-2.5…	-	-	-	-	25	26	28	32	36	40	60	100					
1616□-2.5…	32	40	50	60	80	100	∞	∞	∞	∞	∞	∞					
1616□-3…	32	40	50	60	80	100											
Available Grooving Depth CDX (mm)	16	15	14	13	12.5	12	11	10	9	8	7	6	5	4	3	2	1

◆ KGM-T Possible Cutting Diameter and Available Grooving Depth Table (GMN, GM R/L when using 1-edge insert)

Toolholder Description	DCX (Cutting Dia.)												
KGM R/L 2012K-2T17 / 2020K-2T17 / 2525M-2T17	-	-	-	-	-	-	-	-	66	80	130	260	∞
1616H-3T20	-	-	-	-	-	40	54	70	100	180	∞	∞	
2012K-3T20 / 2020K-3T20 / 2525M-3T20 / 2020K-4T20 / 2525M-4T20	-	-	-	-	-	40	90	130	240	∞			
2525M-4T25 / 2525M-5T25	-	-	50	140	240	∞	∞	∞	∞				
3232P-5T25	-	-	50	280	600								
2525M-6T30	100	300	∞	∞	∞								
Available Grooving Depth CDX (mm)	30	27	25	23	22	20	19	18	17	16	15	14	Under 13

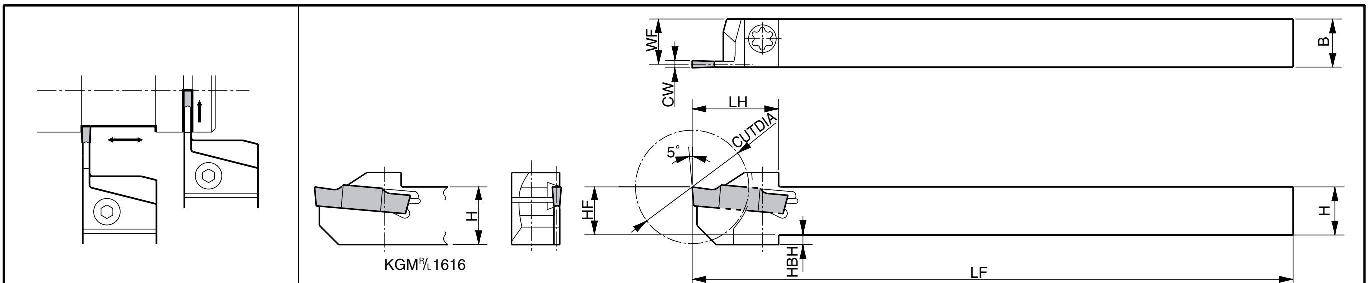
○ : Check Availability

CBN & PCD Inserts are sold in 1 piece boxes

External Grooving Toolholders

KGM (for Automatic Lathe) (Will be switched to KGD ➔ G25)

Edge Width : 1.5 ~ 4.0mm



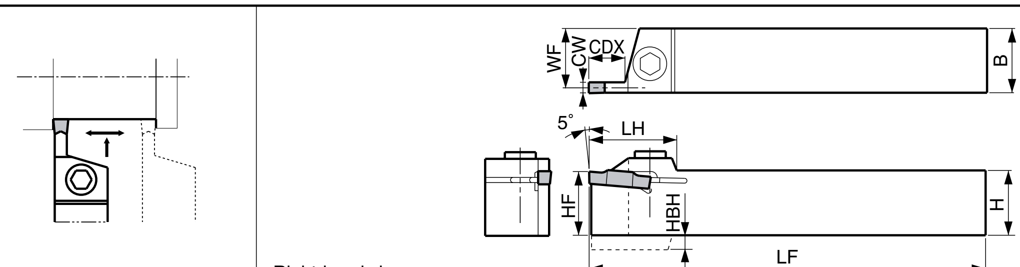
• Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	Cutting Dia. CUTDIA	H	HF	HBH	B	LF	LH	WF	Edge Width CW(mm) MIN.	Edge Width CW(mm) MAX.	Spare Parts: Clamp Screw	Spare Parts: Wrench
KGM$^{R}/_{L}$	1010JX-1.5	○	○	20	10	10	2	10	120	18	9.4	1.5	2.0	SE-40120TR	LTW-15S
	1212JX-1.5	○	○	25	12	12		12		19	11.4				
KGM$^{R}/_{L}$	1010JX-2	○	○	20	10	10	2	10	120	18	9.15	2.0	3.0	SE-40120TR	LTW-15S
	1212JX-2	○	○	25	12	12		12		19	11.15				
	1616JX-2	○	○	32	16	16	-	16		24.5	15.15			SE-50125TR	LTW-20
KGM$^{R}/_{L}$	1212JX-2.5	○	○	25	12	12	2	12	120	19	11	2.4	3.0	SE-40120TR	LTW-15S
	1616JX-2.5	○	○	32	16	16	-	16		24.5	15			SE-50125TR	LTW-20
KGM$^{R}/_{L}$	1616JX-3	○	○	32	16	16	-	16	120	24.5	14.8	3.0	4.0	SE-50125TR	LTW-20
KGM$^{R}/_{L}$	1212F-1.5-85	○		25	12	12	2	12	85	19	11.4	1.5	2.0	SE-40120TR	LTW-15S
KGM$^{R}/_{L}$	1212F-2-85	○	○	25	12	12	2	12	85	19	11.15	2.0	3.0	SE-40120TR	LTW-15S
KGM$^{R}/_{L}$	1212F-2.5-85	○		25	12	12	2	12	85	19	11	2.4	3.0	SE-40120TR	LTW-15S

KGM (Will be switched to KGD ➔ G24, G30)

Edge Width : 3.0 ~ 8.0mm



• Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	CDX	Edge Width CW(mm) MIN.	Edge Width CW(mm) MAX.	Spare Parts: Screw	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench
KGM$^{R}/_{L}$	1212H-3	○		12	12	4	12	100	27	10.8	9	3.0	3.0	SB-5TR	-	LTW-20	-
	1616H-3	○		16	16		16			14.8		3.0	4.0	-	HH5X16	-	LW-4
	2020K-3	○	○	20	20	-	20	125		18.8							
	2525M-3	○	○	25	25		25	150		23.8					HH5X25		
KGM$^{R}/_{L}$	2020K-4	○		20	20	-	20	125	27	18.3	10	4.0	5.0	-	HH5X16	-	LW-4
	2525M-4	○	○	25	25		25	150		23.3					HH5X25		
KGM$^{R}/_{L}$	2020K-5	○		20	20	-	20	125	27	17.8	10	5.0	6.0	-	HH5X16	-	LW-4
	2525M-5	○		25	25		25	150		22.8					HH5X25		
KGM$^{R}/_{L}$	2525M-8	○	○	25	25	7.5	25	150	40	22.0	25	8.0	8.0	-	HH6X25	-	LW-5

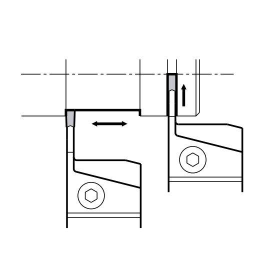
· CDX shows available grooving depth.

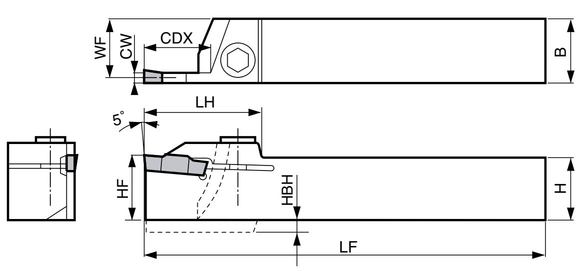
· 4mm width Insert can be installed in KGM$^{R}/_{L}$1212H-3, but is not recommended due to the toolholder's rigidity.

○ : Check Availability

KGM-T (Deep Grooving Type) (Will be switched to KGD → G24)

Edge Width : 2.0~6.0mm





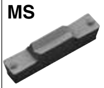
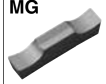
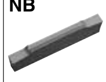
• Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	CDX	Edge Width CW(mm) MIN.	Edge Width CW(mm) MAX.	Spare Parts Screw	Spare Parts Screw	Spare Parts Wrench	Spare Parts Wrench
KGMR/L	2012K-2T17		○	20	20	-	12	125	33	11.15	17	2.0	3.0	SB-5TR	-	LTW-20	-
	2020K-2T17	○	○				20			19.15				-	HH5X16	-	LW-4
	2525M-2T17	○	○	25	25		25	150		24.15					HH5X25		
KGMR/L	1616H-3T20	○		16	16	4	16	100	36	14.8	20	3.0	4.0	-	HH5X16	-	LW-4
	2012K-3T20		○	20	20	-	12	125		10.8				SB-5TR	-	LTW-20	-
	2020K-3T20	○	○				20			18.8				-	HH5X16	-	LW-4
	2525M-3T20	○	○	25	25		25	150		23.8					HH5X25		
KGMR/L	2020K-4T20	○		20	20	-	20	125	36	18.3	20	4.0	5.0	-	HH5X16	-	LW-4
	2525M-4T20	○		25	25		25	150		23.3					HH5X25		
	2525M-4T25	○	○						41		25						
KGMR/L	2525M-5T25	○	○	25	25	-	25	150	42	22.8	25	5.0	6.0	-	HH5X25	-	LW-4
	3232P-5T25	○		32	32		32	170		29.8							
KGMR/L	2525M-6T30	○		25	25	-	25	150	45	22.4	30	6.0	6.0	-	HH5X25	-	LW-4

· CDX shows the distance from the toolholder to the cutting edge. Ref. to the Table (**G41**) for the relationship between the available grooving depth and the cutting dia.
· When using GMG / GMM (2-edge) insert, set the groove depth under 15mm.

Applicable Inserts

Applications	Grooving / Turning	Grooving / Turning	Grooving	Full-R / Copying	Full-R / Copying	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving
See Page	G38	G38	G38	G38	G39	G40	G40	G40	G40	G40	G41
Insert / Toolholder Description	MW 	MS 	MG 			MT 	NB 	TK 	TK 		CBN PCD 
KGMR/L…1.5	-	-	-	-	-	GMM1520..MT GMM2020..MT GMM1520R/L..MT GMM2020R/L..MT	GMM1520..NB GMM2020..NB	GMM2020..TK GMM2020R/L..TK	GMN2..TK GMR/L2..TK	-	-
KGMR/L…2(T)	GMM2420..MW GMM3020..MW	GMG3020..MS GMM3020..MS	GMG2520..MG GMG3020..MG	GMG3020..R GMM3020..R	-	GMM2020..MT GMM2520..MT GMM3020..MT GMM2020R/L..MT GMM2520R/L..MT GMM3020R/L..MT	GMM2020..NB GMM2520..NB GMM3020..NB	GMM2020..TK GMM2520..TK GMM3020..TK GMM2020R/L..TK GMM2520R/L..TK GMM3020R/L..TK	GMN2..TK GMN3..TK GMR/L2..TK GMR/L3..TK	GMN2.2 GMN3 GMR/L2.2 GMR/L3	GMN2 GMN3
KGMR/L…2.5	GMM2420..MW GMM3020..MW	GMG3020..MS GMM3020..MS	GMG2520..MG GMG3020..MG	GMG3020..R GMM3020..R	-	GMM2520..MT GMM3020..MT GMM2520R/L..MT GMM3020R/L..MT	GMM2520..NB GMM3020..NB	GMM2520..TK GMM3020..TK GMM2520R/L..TK GMM3020R/L..TK	GMN3..TK GMR/L3..TK	GMN3 GMR/L3	GMN3
KGMR/L…3(T)	GMM3020..MW GMM4020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS	GMG3020..MG GMG3520..MG GMG4020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R	-	GMM3020..MT GMM3020R/L..MT	GMM3020..NB	GMM3020..TK GMM3020R/L..TK	GMN3..TK GMN4..TK GMR/L3..TK GMR/L4..TK	GMN3 GMN4 GMR/L3 GMR/L4	GMN3 GMN4
KGMR/L…4(T)	GMM4020..MW GMM5020..MW	GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG4020..MG GMG5020..MG	GMG4020..R GMM4020..R GMG5020..R GMM5020..R	-	-	-	-	GMN4..TK GMR/L4..TK	GMN4 GMN5 GMR/L4	GMN4 GMN5
KGMR/L…5(T)	GMM5020..MW GMM6020..MW	GMG5020..MS GMM5020..MS GMG6020..MS GMM6020..MS	GMG5020..MG GMG6020..MG	GMG5020..R GMM5020..R GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN5 GMN6	GMN5 GMN6
KGMR/L…6T	GMM6020..MW	GMG6020..MS GMM6020..MS	GMG6020..MG	GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN6	GMN6
KGMR/L…8	GMM8030..MW	-	GMG8030..MG	-	GMGA8030..R	-	-	-	-	-	-

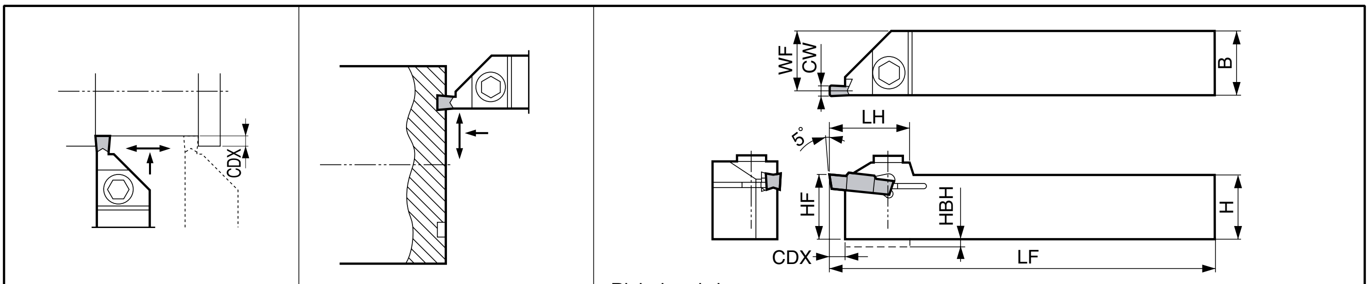
· If using a full-R insert, you need to modify the corner of insert adapter part of toolholder.

Recommended Cutting Conditions → **G117**
Recommended Cutting Conditions of CBN / PCD → **G116**

○ : Check Availability

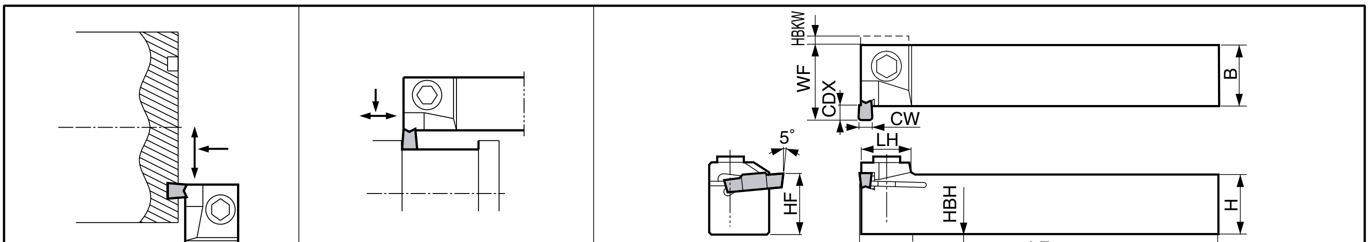
G
Grooving
External
Internal
Face

KGMM



• Right-hand shown

KGMS



• Right-hand shown

Toolholder Dimensions

Description		Stock		Dimension (mm)									Edge Width CW(mm)		Spare Parts			
															Screw		Wrench	
		R	L	H	HF	HBH	B	LF	LH	WF	HBKW	CDX	MIN.	MAX.				
KGMMR	2525M-3	○		25	25	-	25	150	25	23.8	-	4.8	3.0	5.0	-	HH5X25	-	LW-4
KGMSR	2525M-3	○		25	25	-	25	150	17	30	-	4.8	3.0	5.0	-	HH5X25	-	LW-4

· CDX shows available grooving depth. (Ref. to the table **G45** for Face Grooving)

Applicable Inserts [External Grooving]

Applications	Grooving / Turning	Grooving / Turning	Grooving	Full-R / Copying	Grooving	Grooving	Grooving	Grooving	Grooving	Grooving
See Page	G38	G38	G38	G38	G40	G40	G40	G40	G40	G41
Insert / Toolholder Description	MW	MS	MG		MT	NB	TK	TK		CBN PCD
KGMMR…3 KGMSR…3	GMM3020..MW GMM4020..MW GMM5020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG3020..MG GMG3520..MG GMG4020..MG GMG5020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R GMG5020..R GMM5020..R	GMM3020..MT	GMM3020..NB	GMM3020..TK	GMN3..TK GMN4..TK	GMN3 GMN4 GMN5	GMN3 GMN4 GMN5

Applicable Inserts [Face Grooving]

Applications	Grooving / Turning	Undercutting	Grooving / Turning	Grooving / Turning	Grooving	Full-R / Copying	Grooving	Grooving	Grooving	Grooving
See Page	G39	G38	G38	G38	G38	G38	G40	G40	G40	G40
Insert / Toolholder Description			MW	MS	MG		MT	NB	TK	
KGMMR…3 KGMSR…3	FGG$^{R}/_{L}$3020.. FGG$^{R}/_{L}$4020.. FGG$^{R}/_{L}$5020..	GMG3020..RU GMG4020..RU	GMM3020..MW GMM4020..MW GMM5020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG3020..MG GMG3520..MG GMG4020..MG GMG5020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R GMG5020..R GMM5020..R	GMM3020..MT	GMM3020..NB	GMM3020..TK	GMN3 GMN4 GMN5 GMN3..TK GMN4..TK

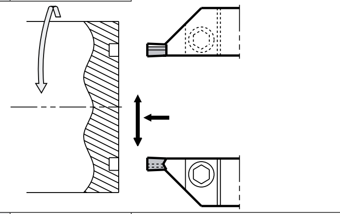
Recommended Cutting Conditions ➡ **G117**
Recommended Cutting Conditions of CBN / PCD ➡ **G116**

○ : Check Availability

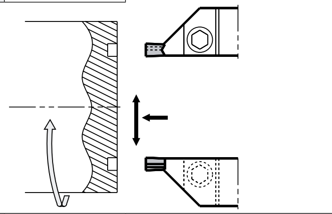
Selection of Insert & Toolholder (Face Grooving)

Case of KGMM

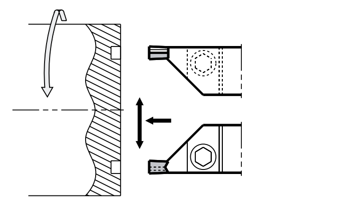
Toolholder	Left-hand
Insert	Left-hand



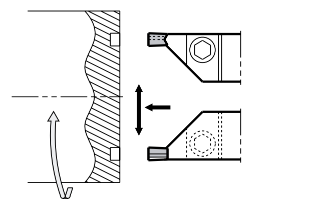
Toolholder	Right-hand
Insert	Right-hand



Toolholder	Right-hand
Insert	Left-hand

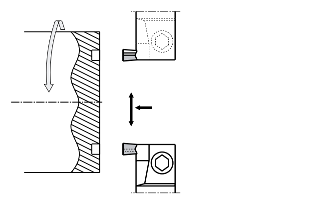


Toolholder	Left-hand
Insert	Right-hand

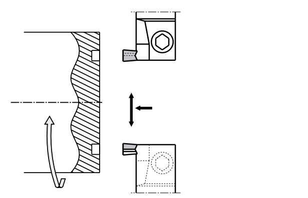


Case of KGMS

Toolholder	Right-hand
Insert	Left-hand

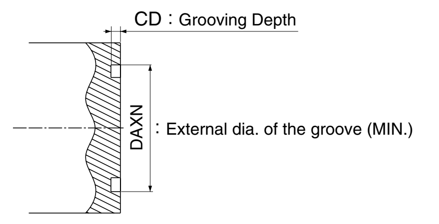


Toolholder	Left-hand
Insert	Right-hand



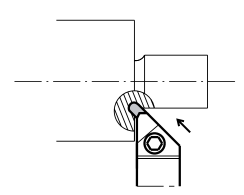
External dia. of the groove (MIN.) & Grooving Depth (Face Grooving)

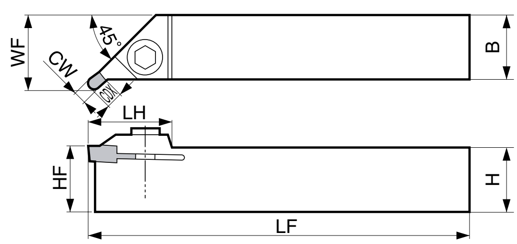
KGMM / KGMS (Common) (mm)



Description	DAXN	CD
GMG/GMM3020-○○○□□	ø100	4.8
GMG/GMM4020-○○○□□		
GMG/GMM5020-○○○□□		
FGG R/L 3020-02	ø22	4.3
FGG R/L 4020-04	ø28	4.8
FGG R/L 5020-04	ø30	
GMG3020-150RU	ø22	4.3
GMG4020-200RU	ø28	4.8

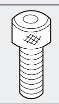
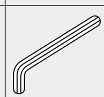
KGMU (External Undercutting Toolholder)





• Right-hand shown

Toolholder Dimensions

Description	Stock		Dimension (mm)									Edge Width CW(mm)		Spare Parts			
														Clamp Bolt		Wrench	
	R	L	H	HF	B	LF	LH	WF	CDX			MIN.	MAX.				
KGMUR 2525M	○		25	25	25	150	28.5	28.6	4.8			3.0	5.0 (6.0)	HH5X25		LW-4	

· CDX shows the distance from the toolholder to the cutting edge. Ref. to the table below for the available grooving depth.

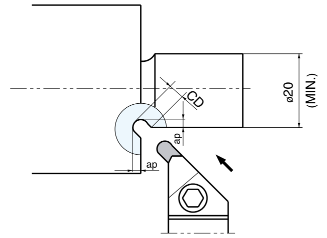
WF shows at GMM5020-RU. ( ) indicates external grooving inserts when installed.

Applicable Inserts

Applications	Undercutting		
See Page	G38		
Insert / Toolholder Description			
KGMUR 2525M	GMG3020..RU GMG4020..RU		

· External grooving inserts (grooving width 3mm~6mm) will be attached.
(In case of using GMG○○20-○○○□□, GMM○○20-○○○□□, GMN○ insert)

Undercut Depth CD

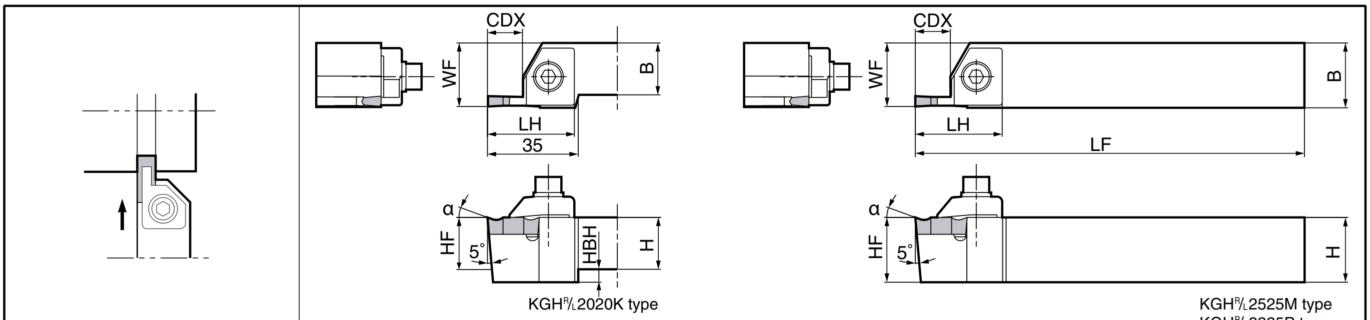


Description	Undercut Depth CD (mm)	Distance from the face of the workpiece ap (mm)
GMG3020-150RU	3.5	1.8
GMG4020-200RU	4.0	1.9
GMG5020-250RU	4.5	2.1

※ In case of undercutting for the diameter 100mm or over, Inserts for External Grooving GMG ○○ 20- ○○○□□ ,GMM ○○ 20- ○○○□□ , GMN ○ are also available.

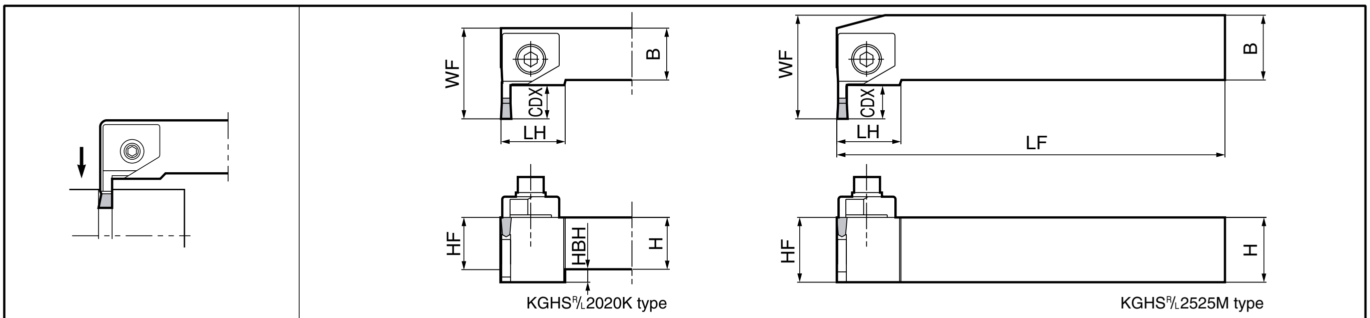
○ : Check Availability

KGH



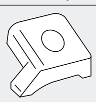
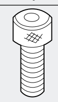
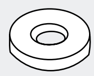
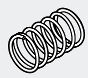
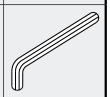
● Right-hand shown

KGHS



● Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	CDX	Clamp 	Clamp Bolt 	Washer 	Spring 	Wrench 
KGH R/L	**2020K-4**	●	●	20	20	5	20	125	33.5	24.5-24.8	13	CGH-1 R/L	HH6X25	W-6	SP-6	LW-5
	2525M-4	●	●	25	25	-	25	150		24.5-24.8						
	2020K-5	●	●	20	20	5	20	125	33.5	25.0-25.8	13	CGH-1 R/L				
	2525M-5	●	●	25	25	-	25	150		25.0-25.8						
	3225P-5	●	●	32	32	-	25	170		25.0-25.8						
	2020K-7	●	●	20	20	5	20	125	33.5	24.5-25.0	13	CGH-2 R/L				
	2525M-7	●	●	25	25	-	25	150		24.5-25.0						
	2525M-10	●	●	25	25	-	25	150	41	25.5-26.5	17	CGH-3 R/L				
	3225P-10	●		32	32	-	25	170		25.5-26.5						
KGHS R/L	**2020K-4**	●	●	20	20	5	20	125	25	35	13	CGH-1 L/R	HH6X25	W-6	SP-6	LW-5
	2525M-4	●	●	25	25	-	25	150		40						
	2020K-5	●	●	20	20	5	20	125	25	35	13	CGH-1 L/R				
	2525M-5	●	●	25	25	-	25	150		40						

· CDX shows available grooving depth.
· WF of KGH R/L Toolholder depends on the insert's edge width.
· Clamp KGH R/L··· CGH- ○ R for Right-hand Toolholder and CGH- ○ L for Left-hand Toolholder.
KGHS R/L···CGH- ○ L for Right-hand Toolholder and CGH- ○ R for Left-hand Toolholder.

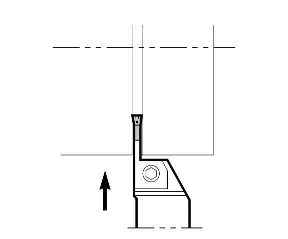
Rake Angle (α) after Installment of GH / GHU insert

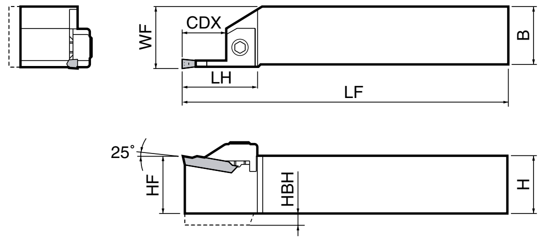
When using GH ○○○○ - ○○		When using GHU ○○ - ○○	
α	Insert Grades	α	Insert Grades
0°	A65, A66N, PT600M	10°	TN60 CR9025
10°	TC40N		
20°	TN90, TC60M PR930 KW10		

● : Std. Item

G
Grooving
External
Internal
Face

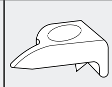
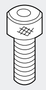
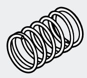
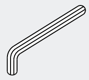
KGA





• Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	CDX	Spare Parts: Clamp	Clamp Bolt	Spring	Wrench
															
KGA R/L	2020K-3	●	●	20	20	5	20	125	37	21.5	20	CGA-3 R/L	HH6X20	SP-6	LW-5
	2525M-3	●	●	25	25	-	25	150		26.5					
	2020K-4	●		20	20	5	20	125	37	21.5	20	CGA-4 R/L			
	2525M-4	●		25	25	-	25	150		26.5					
	2020K-5	●		20	20	5	20	125	42	21.5	25	CGA-5 R/L			
	2525M-5	●		25	25	-	25	150		26.5					

· CDX shows available grooving depth.

· Clamp : CGA-○R for Right-hand Toolholder and CGA-○L for Left-hand Toolholder.

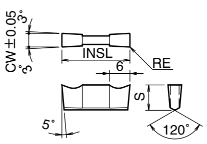
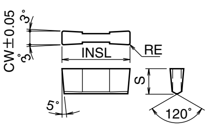
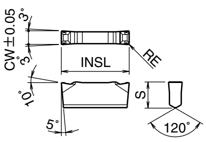
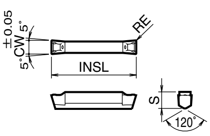
Applicable Inserts

(mm)

Description	INSL	S
GH4020-○○~GH8020-○○	20	7.5
GH10025-05~GH12025-05	25	
GHU○○-○○	20	
GA30 , GA40	25	5.0
GA50	30	

	Work Material	TN60	TC40N	TC60M	CR9025	PR930		KW10	A65	A66N	PT600M
P	Carbon Steel / Alloy Steel					◐					
M	Stainless Steel					◐					
K	Cast Iron							◐	○		●
N	Non-ferrous Metals							◐			
S	Titanium Alloys							◐			
H	Hard Materials (~40HRC)					●					
	Hard Materials (40HRC~)									○	●

Classification of usage
- ◐ : Continuous~Light Interruption / 1st Choice
- ◑ : Continuous~Light Interruption / 2nd Choice
- ● : Continuous / 1st Choice
- ○ : Continuous / 2nd Choice

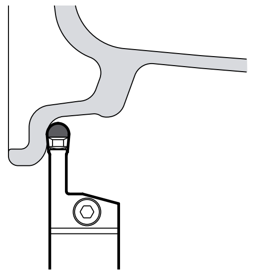
Insert		Description		CW	RE	Cermet TN60	Cermet TC40N	Cermet TC60M	CVD Coated Carbide CR9025	PVD Coated Carbide PR930	PVD Coated Carbide	Carbide KW10	Ceramic A65	Ceramic A66N	Ceramic PT600M	Applicable Toolholders	See Page for Applicable Toolholders
 Ground Chipbreaker		GH	4020-02	4.0	0.2		●	●		●		●				KGH R/L…4 KGHS R/L…4	G46
			4020-05		0.5		●	●		●		●	○	○	○		
			4520-02	4.5	0.2		●										
			4520-05		0.5		●										
			5020-02	5.0	0.2		●	●		●		●				KGH R/L…5 KGHS R/L…5	
			5020-05		0.5		●	●		●		●	○	○	○		
			5520-02	5.5	0.2		●										
			5520-05		0.5		●										
			6020-02	6.0	0.2		●	●		●		●					
			6020-05		0.5		●	●		●		●	○		○		
			6520-02	6.5	0.2		●										
			6520-05		0.5		●										
 Ceramic	 Ceramic insert is above shape.		7020-02	7.0	0.2		●	●		●		●				KGH R/L…7 KGHS R/L…7	
			7020-05		0.5		●	●		●		●	○		□		
			7520-02	7.5	0.2		●										
			7520-05		0.5		●										
			8020-02	8.0	0.2		●	●		●		●					
			8020-05		0.5		●	●		●		●					
			10025-05	10.0	0.5			□		●		●				KGH R/L…10	
			12025-05	12.0	0.5			●		●		●					
 Molded Chipbreaker		GHU	40-20	4.0	0.25	●			●							KGH R/L…4 KGHS R/L…4	G46
			50-20	5.0	0.30	●			●							KGH R/L…5 KGHS R/L…5	
			60-20	6.0	0.30	●			●								
		GA	30	3.0	0.20	●			●							KGA R/L…3	G47
			40	4.0	0.25	●			●							KGA R/L…4	
			50	5.0	0.30	●			●							KGA R/L…5	

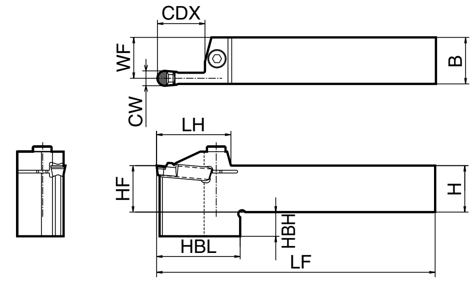
Recommended Cutting Conditions ➡ G113~G114

● : Std. Item
○ : Check Availability
□ : Deleted from the next catalog

Inserts are sold in 10 piece boxes

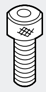
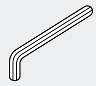
KGMW (External / Facing / Copying)



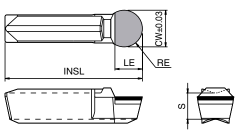
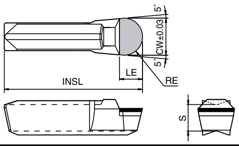


● Right-hand shown

● Toolholder Dimensions

Description		Stock		Dimension (mm)									Spare Parts		Applicable Inserts
													Clamp Bolt	Wrench	
		R	L	H	HF	HBH	B	LF	LH	HBL	WF	CDX			
KGMWR/L	**2525M-6**	●	●	25	25	13	25	150	40	55	22.8	25	HH6X25	LW-5	GMGW6030-30R
	2525M-8	●	●								22				GMGW8030-40R GMGW8030-40R-HR

● Applicable Inserts

Insert		Description		Dimension (mm)					No. of Edge	PCD
				CW	RE	INSL	S	LE		**KPD001**
		**GMGW**	**6030-30R**	6	3	30	5.5	4.5	1	●
			8030-40R	8	4			6	1	●
		**GMGW**	**8030-40R-HR**	8	4	30	5.5	5	1	●

· GMGW inserts are exclusively used for KGMW toolholder. It cannot be used for other toolholder because of its different installation angle.
· GMGW inserts Edge Preparation : R-honed Cutting Edge.

◆ Recommended Cutting Conditions

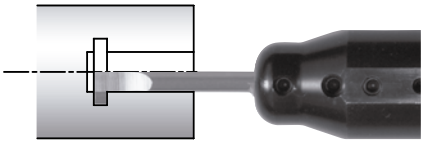
Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min) PCD **KPD001**	(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)
Aluminum Alloys	★ 150~2,700	(1) 0.05~0.3 (2) 0.2~0.8 (3) MAX. 3

★ : 1st Recommendation

● : Std. Item

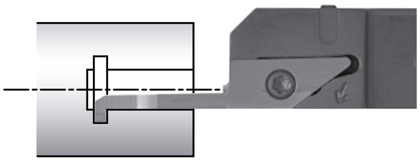
Small Dia. Internal Grooving ø3~ (G51, G53)

EZ Bars, System Tip-Bars



Type	EZG
Min. Bore Dia.	ø3 ~ ø8
Edge Width (mm)	0.5 ~ 2.0
Max. Grooving Depth (mm)	1.0 ~ 2.0
See Page	G51

EZ Bars

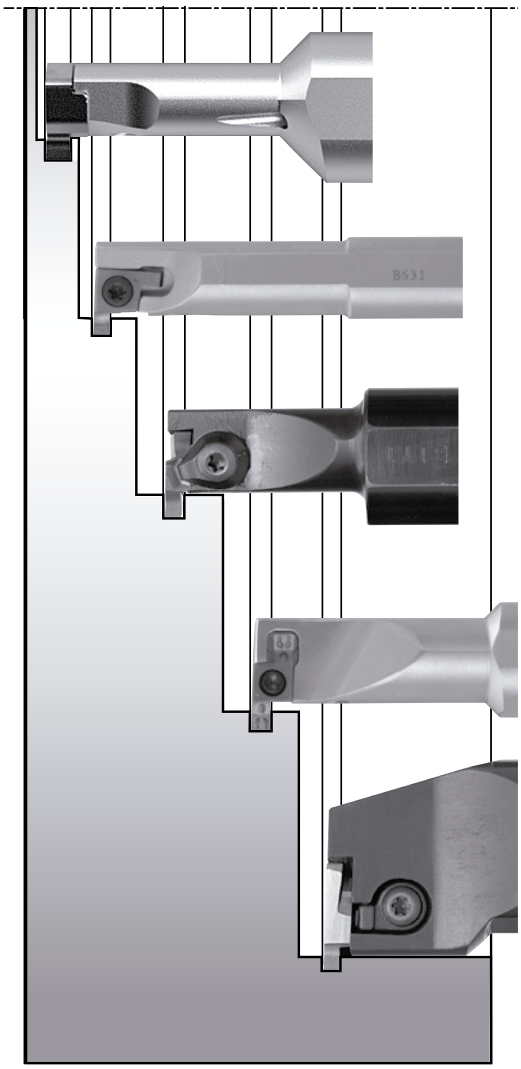


Type	VNG
Min. Bore Dia.	ø4 ~ ø7
Edge Width (mm)	1.0 ~ 2.0
Max. Grooving Depth (mm)	0.8 ~ 2.0
See Page	G53

System Tip-Bars

Internal Grooving ø8~ (G57, G60, G64, G66)

Shallow Grooving



Type	SIGC
Min. Bore Dia.	ø8 ~ ø12
Edge Width (mm)	1.0 ~ 3.0
Max. Grooving Depth (mm)	1.0 ~ 3.0
See Page	G57

1-edge

Ground Chipbreaker

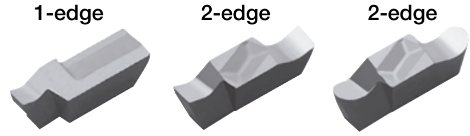
Type	SIGE
Min. Bore Dia.	ø8 ~ ø12
Edge Width (mm)	1.0 ~ 3.0
Max. Grooving Depth (mm)	1.5 ~ 2.2
See Page	G60

2-edge / 2-edge

Ground Chipbreaker / Ground Chipbreaker Full-R

Type	GIV
Min. Bore Dia.	ø12 ~ ø40
Edge Width (mm)	1.0 ~ 5.0
Max. Grooving Depth (mm)	1.7 ~ 6.3
See Page	G64

1-edge / 2-edge / 2-edge



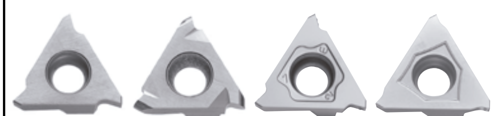
Ground Chipbreaker / Ground Chipbreaker / Ground Chipbreaker Full-R

Type	SIGE
Min. Bore Dia.	ø14 ~ ø40
Edge Width (mm)	1.0 ~ 5.0
Max. Grooving Depth (mm)	2.5 ~ 6.5
See Page	G60

2-edge / 2-edge / 2-edge

Molded Chipbreaker / Ground Chipbreaker / Ground Chipbreaker Full-R

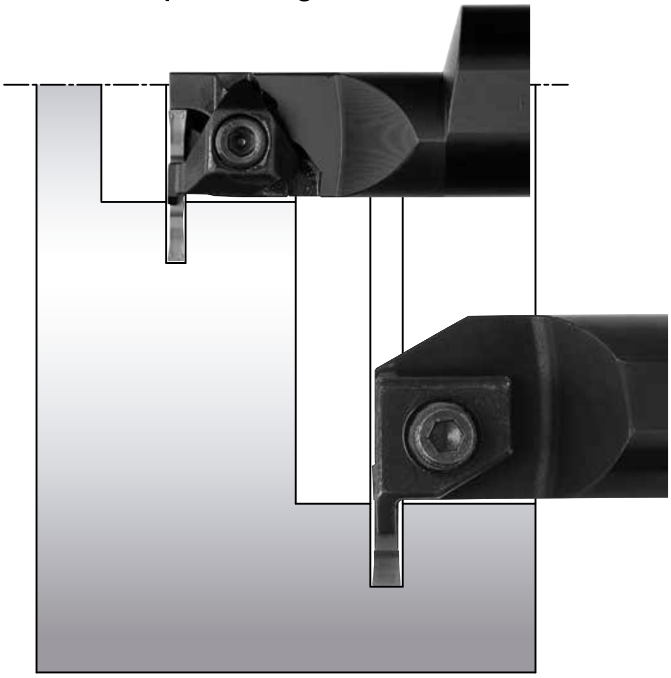
Type	KIGBA
Min. Bore Dia.	ø35 ~ ø40
Edge Width (mm)	0.33 ~ 4.8
Max. Grooving Depth (mm)	0.8 ~ 2.8
See Page	G66



Ground Chipbreaker / Ground Chipbreaker Full-R / GM Chipbreaker / MY Chipbreaker

Summary of Internal Grooving

Deep Grooving (G70, G72)



Type	KGIA
Min. Bore Dia.	ø32 ~ ø66
Edge Width (mm)	3.0 ~ 5.0
Max. Grooving Depth (mm)	10 ~ 15
See Page	G72

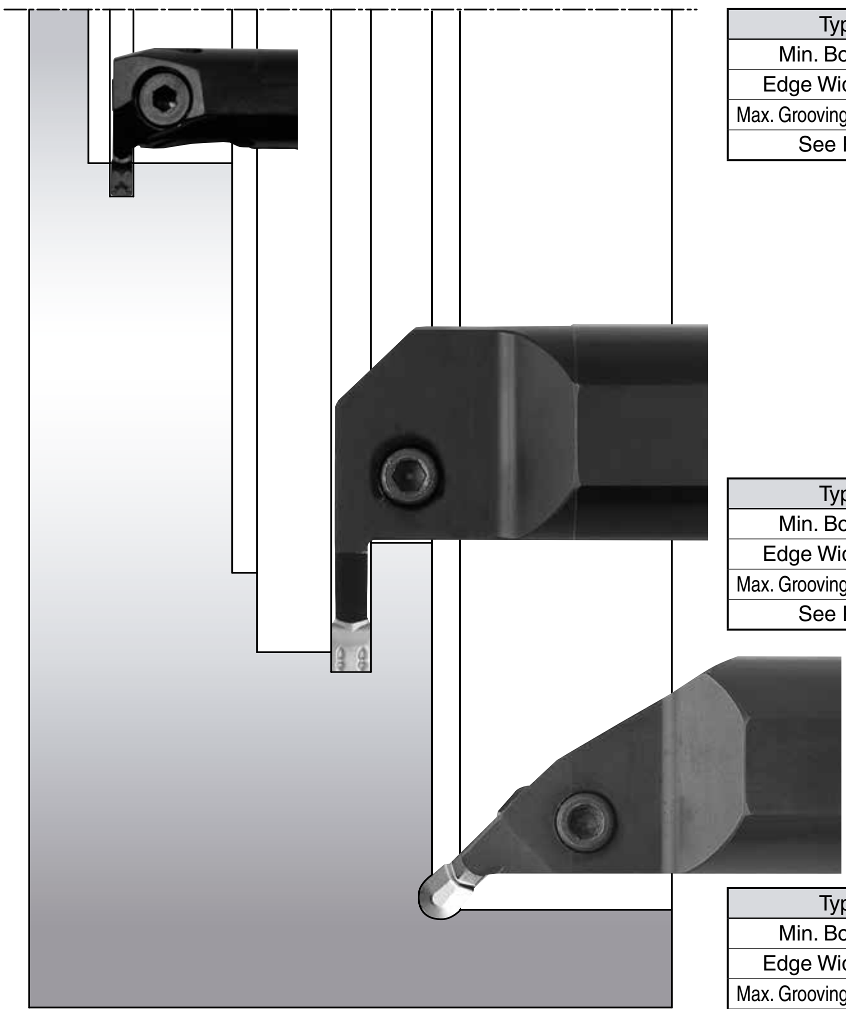
Molded Chipbreaker

Type	KIGH
Min. Bore Dia.	ø45 ~ ø65
Edge Width (mm)	4.0 ~ 8.0
Max. Grooving Depth (mm)	12
See Page	G70

Ground Chipbreaker

Molded Chipbreaker

Internal Grooving & Turning ø20~ (G69, G71)



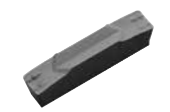
Type	KGDI
Min. Bore Dia.	ø18 ~ ø40
Edge Width (mm)	2.0 ~ 5.0
Max. Grooving Depth (mm)	4.5 ~ 11.0
See Page	G69

GMI Chipbreaker

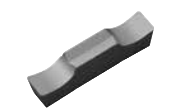
Molded Chipbreaker
Full-R

Type	KIGM-8
Min. Bore Dia.	ø65
Edge Width (mm)	8.0
Max. Grooving Depth (mm)	20
See Page	G71

Type	KIGMU-8
Min. Bore Dia.	ø65
Edge Width (mm)	8.0
Max. Grooving Depth (mm)	2.2
See Page	G71



Molded Chipbreaker



Ground Chipbreaker

Molded Chipbreaker
Full-R

EZG (Small Dia. Internal Grooving) NEW

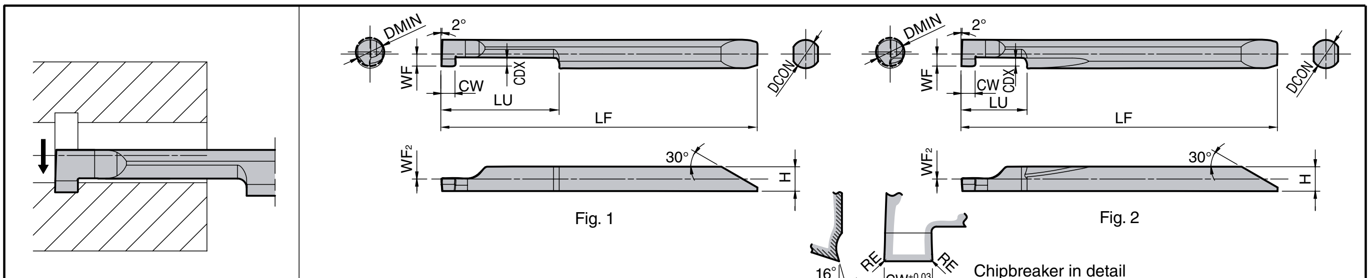


Fig. 1

Fig. 2

Chipbreaker in detail

• Right-hand shown

Dimensions

Description		Min. Bore Dia. DMIN	Dimension (mm) CW ±0.03	RE	DCON	H	LF	LU	WF	WF2	CDX	Drawing	MEGACOAT PR1225 R	MEGACOAT PR1225 L	Carbide GW05 R	Applicable Sleeves EZH ➔F25~F29
EZG R/L	040040-050	4	0.5	±0.013 0.05	4	3.45	44.7	12	1.7	0	1	Fig. 2	●	●	●	EZH040..
	040040-100		1.0										●	●	●	
	040040-150		1.5										●	●	●	
	040040-200		2.0										●	●	●	
	050050-100	5	1.0		5	4.3	52.8	20	2.15		1.5	Fig. 1	●	●	●	EZH050..
	050050-150		1.5										●	●	●	
	050050-200		2.0										●	●	●	
	060060-100	6	1.0		6	5.15	60.7		2.65		2		●	●	●	EZH060..
	060060-150		1.5										●	●	●	
	060060-200		2.0										●	●	●	
	070070-100	7	1.0		7	6.2	63.7	25	3.05		2		●	●	●	EZH070..
	070070-150		1.5										●	●	●	
	070070-200		2.0										●	●	●	
	080070-100	8	1.0						3.45		2		●	●	●	
	080070-150		1.5										●	●	●	
	080070-200		2.0										●	●	●	
EZGR	030030-050S	3	0.5	±0.013 0.05	3	2.5	38.7	5	1.25	0	0.8	Fig. 2	●			EZH030..
	030030-100S		1.0										●			
	040040-050S	4	0.5		4	3.45	44.7	8	1.7		1		●			EZH040..
	040040-100S		1.0										●			
	040040-150S		1.5										●			
	040040-200S		2.0										●			
	050050-100S	5	1.0		5	4.3	52.8	10	2.15		1.5		●			EZH050..
	050050-150S		1.5										●			
	050050-200S		2.0										●			
	060060-100S	6	1.0		6	5.15	60.7		2.65		2		●			EZH060..
	060060-150S		1.5										●			
	060060-200S		2.0										●			
	070070-100S	7	1.0		7	6.2	63.7		3.05				●			EZH070..
	070070-150S		1.5										●			
	070070-200S		2.0										●			
	080070-100S	8	1.0						3.45				●			
	080070-150S		1.5										●			
	080070-200S		2.0										●			

· CDX shows available grooving depth.

EZ Bars Identification System

EZ G R 030 030 - 050 S

- **Symbol of EZ Bars**: EZ
- **Applications**: G : Internal Grooving
- **Insert Hand**: R : Right-hand / L : Left-hand
- **Min. Bore Dia.**: 030 : 3mm / 040 : 4mm / ⋮
- **Shank Dia.**: 030 : 3mm / 040 : 4mm / ⋮
- **Edge Width**: 050 : 0.5mm / 100 : 1.0mm / 150 : 1.5mm / ⋮
- **Type**: S : Short type (LU dimension)

Recommended Cutting Conditions

Workpiece Material	Insert Grades (Cutting Speed Vc: m/min) MEGACOAT PR1225	Carbide GW05	EZGR030030-...S	EZGR040040-...(S) EZGR050050-...(S)	EZGR060060-...(S) EZGR070070-...(S) EZGR080070-...(S)	Remarks
			f (mm/rev)			
Carbon Steel / Alloy Steel	★ 30 ~ 100	-	~0.02	~0.03	~0.05	Coolant
Stainless Steel	★ 30 ~ 80	-	~0.01	~0.02	~0.03	
Non-ferrous Metals	-	★ ~ 300	-	~0.05	~0.08	

★ : 1st Recommendation

● : Std. Item

EZ Bars are sold in 1 piece boxes

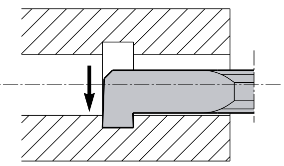
Applicable Sleeves for Internal Grooving Inserts

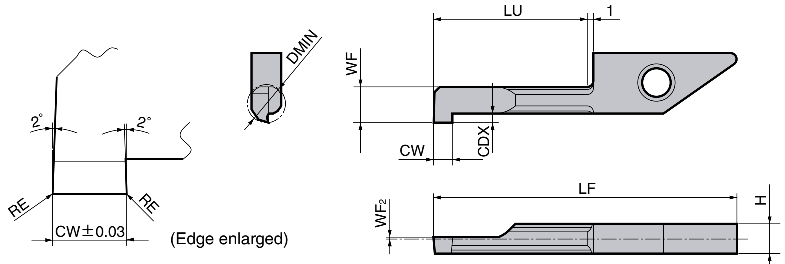
Applicable Sleeves

Sleeve				Applicable Insert for Small Dia. Internal Grooving		Applicable Machine Manufacturer
EZH-CT (Adjustable overhang length with coolant hole) F25	EZH-HP (Adjustable overhang length) F26	EZH-ST F28	Sleeve Shank Dia. DCON(mm)	EZG	Shank Dia. DCON(mm)	
-	-	EZH 03012ST-80	12	EZG_ 030030-...	3	(General purpose)
		04012ST-80		EZG_ 040040-...	4	
		05012ST-80		EZG_ 050050-...	5	
		06012ST-80		EZG_ 060060-...	6	
		07012ST-80		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
-	EZH 03016HP-100	EZH 03016ST-100	16	EZG_ 030030-...	3	(General purpose)
	04016HP-100	04016ST-100		EZG_ 040040-...	4	
	05016HP-100	05016ST-100		EZG_ 050050-...	5	
	06016HP-100	06016ST-100		EZG_ 060060-...	6	
	07016HP-100	07016ST-100		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03019CT-120	EZH 03019HP-120	EZH 03019ST-120	19.05	EZG_ 030030-...	3	Citizen Machinery
04019CT-120	04019HP-120	04019ST-120		EZG_ 040040-...	4	
05019CT-120	05019HP-120	05019ST-120		EZG_ 050050-...	5	
06019CT-120	06019HP-120	06019ST-120		EZG_ 060060-...	6	
07019CT-120	07019HP-120	07019ST-120		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03020CT-120	EZH 03020HP-120	EZH 03020ST-120	20	EZG_ 030030-...	3	Eguro Tsugami Citizen Machinery (General purpose)
04020CT-120	04020HP-120	04020ST-120		EZG_ 040040-...	4	
05020CT-120	05020HP-120	05020ST-120		EZG_ 050050-...	5	
06020CT-120	06020HP-120	06020ST-120		EZG_ 060060-...	6	
07020CT-120	07020HP-120	07020ST-120		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03022CT-135	EZH 03022HP-135	EZH 03022ST-135	22	EZG_ 030030-...	3	Star Micronics Nomura DS Tsugami
04022CT-135	04022HP-135	04022ST-135		EZG_ 040040-...	4	
05022CT-135	05022HP-135	05022ST-135		EZG_ 050050-...	5	
06022CT-135	06022HP-135	06022ST-135		EZG_ 060060-...	6	
07022CT-135	07022HP-135	07022ST-135		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03025.0CT-135	EZH 03025.0HP-135	EZH 03025.0ST-135	25	EZG_ 030030-...	3	Eguro Tsugami Citizen Machinery (General purpose)
04025.0CT-135	04025.0HP-135	04025.0ST-135		EZG_ 040040-...	4	
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZG_ 050050-...	5	
06025.0CT-135	06025.0HP-135	06025.0ST-135		EZG_ 060060-...	6	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZG_ 070070-...	7	
				EZG_ 080070-...	8	
EZH 03025.4CT-120	EZH 03025.4HP-120	EZH 03025.4ST-120	25.4	EZG_ 030030-...	3	Citizen Machinery
04025.4CT-120	04025.4HP-120	04025.4ST-120		EZG_ 040040-...	4	
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZG_ 050050-...	5	
06025.4CT-120	06025.4HP-120	06025.4ST-120		EZG_ 060060-...	6	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZG_ 070070-...	7	
				EZG_ 080070-...	8	

· Choose sleeves (DCB) to meet with DCON dimension of Internal Grooving Inserts.
· Adjustment Pin cannot be installed to **EZH-ST** sleeves.
To adjust overhang of the bar, please use **EZH-CT / HP** Sleeves.
· Machine manufacturers in random order.

VNG





● Right-hand shown

Classification of usage			PR1225		PR930	KW10	KPD001	KPD010	
● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel	●		○				See Page for Applicable Toolholders
	M	Stainless Steel	●		○				
	K	Cast Iron				●			
	N	Non-ferrous Metals					●		
	S	Titanium Alloys					●		
	H	Hard Materials (~40HRC)	○		○				
		Hard Materials (40HRC~)							

Dimensions

Description		Min. Bore Dia. DMIN	CW	RE	H	LF	LU	WF	WF2	CDX	MEGA COAT PR1225		PVD PR930	Carbide KW10	PCD KPD001	PCD KPD010	See Page for Applicable Toolholders
VNGR	0410-11	4	1.0	0.05	3.9	30.8	11	3.5	0.1	0.8	●		●	●			F32 F33
	0420-11		2.0								●		●	●			
	0510-11	5	1.0	0.05				4.4		1.0	●		●	●			
	0520-11		2.0								●		●	●			
	0610-20	6	1.0	0.05		39.8	20	5.2	0.3	1.8	●		●	●			
	0620-20		2.0								●		●	●			
	0710-20	7	1.0	0.05				6.2		2.0	●		●	●			
	0720-20		2.0								●		●	●			
VNGR	0410-11NB	4	1.0	0.05	3.9	30.8	11	3.5	0.1	0.8					MTO		
	0420-11NB		2.0												MTO		
	0510-11NB	5	1.0	0.05				4.4		1.0					MTO		
	0520-11NB		2.0												MTO		
	0610-20NB	6	1.0	0.05		39.8	20	5.2	0.3	1.8					MTO	MTO	
	0620-20NB		2.0												MTO	MTO	
	0710-20NB	7	1.0	0.05				6.2		2.0					MTO	MTO	
	0720-20NB		2.0												MTO		

· CDX shows available grooving depth.
· WF_2 indicates the cutting edge is above the Tool's Center Position.

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min) MEGA COAT PR1225	PVD PR930	Carbide KW10	VNG04 VNG05 f (mm/rev)	VNG06 VNG07 f (mm/rev)	Remarks
Carbon Steel / Alloy Steel	★ 30~100	☆ 30~100		~0.03	~0.05	Coolant
Stainless Steel	★ 30~80	☆ 30~80		~0.02	~0.03	
Non-ferrous Metals			★ ~300	~0.05	~0.08	

★ : 1st Recommendation ☆ : 2nd Recommendation

● : Std. Item
MTO : Made to order

System Tip-Bars (VNG) are sold in 5 piece boxes

CBN & PCD Inserts are sold in 1 piece boxes

High Precision Small Dia. Internal Grooving

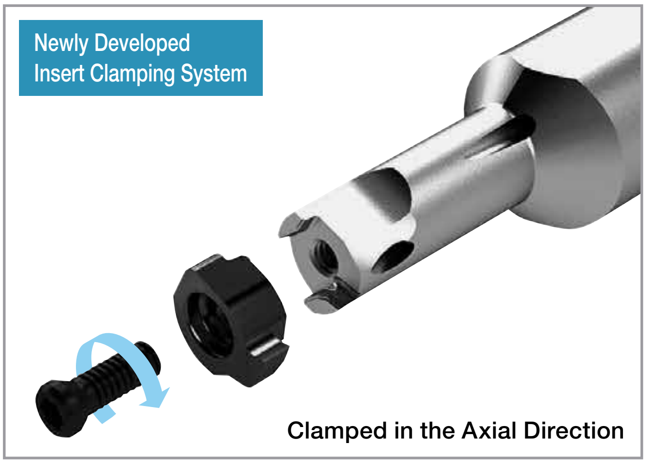
SIGC

Newly Developed Clamping System Ensures a Firm Insert Hold to Provide High-Precision Machining.

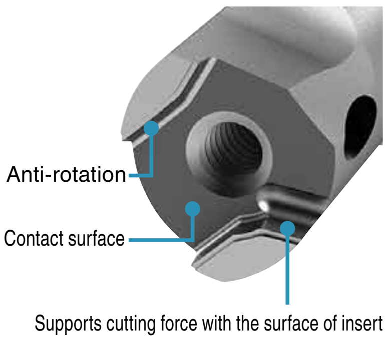
Excellent Chip Evacuation with Double Coolant Holes and Optimized Flute Shape with a ø8mm Minimum Cutting Diameter

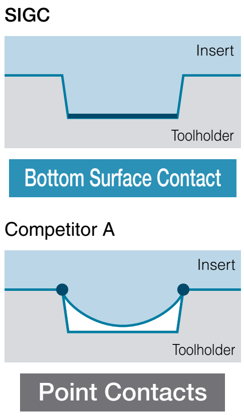
1 Firm Insert Clamping System Provides High-Precision Machining

Firm clamping action by pulling the bottom surface of the insert in axial direction
Stable machining is achieved by ensuring a firm clamp on the insert



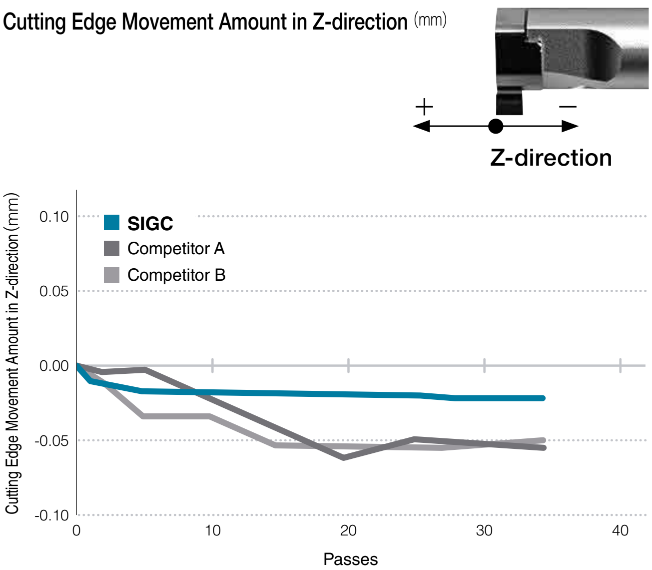
Clamping Part (Image)
Firm clamping is available due to large contact surface

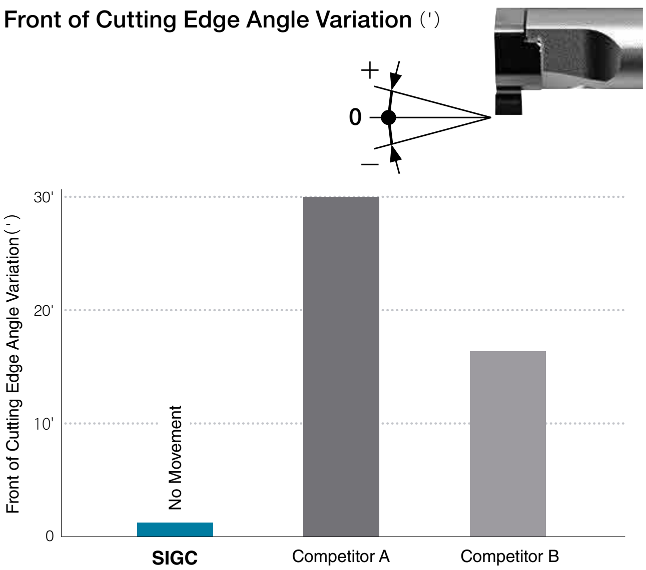




Cutting Edge Stability Position Comparison (Internal evaluation)

Measurement of the cutting edge position and angle after turning





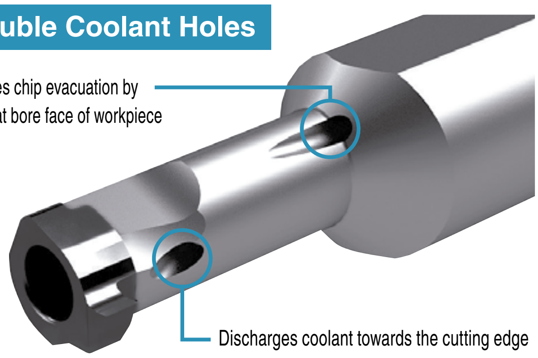
Cutting Conditions : Vc = 50 m/min, ap = 0.2 mm, f = 0.05 mm/rev, Wet Workpiece Material : SCM435 External Turning

SIGC ensures high precision machining by preventing cutting edge position movement

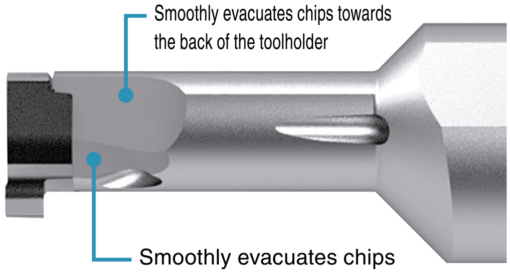
2 Excellent Chip Evacuation

Excellent Chip Evacuation with Double Coolant Holes and Optimized Flute Shape

Double Coolant Holes



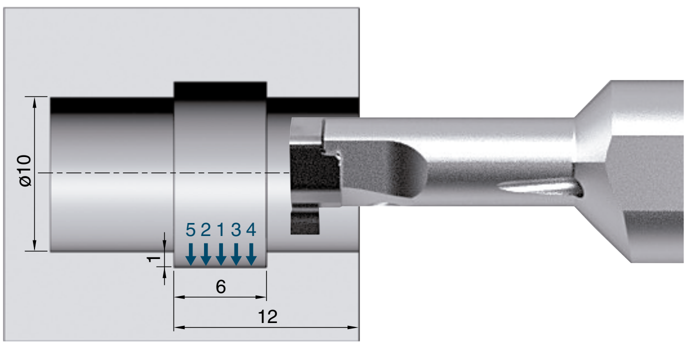
Flute Shape



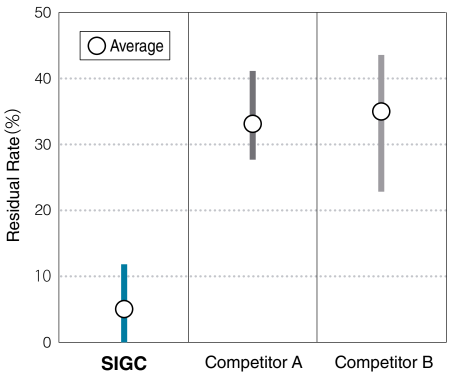
Provides a better solution when facing chip evacuation difficulties in small internal grooving
Prevents chip crunching

Chip Evacuation Comparison (Internal evaluation)

Cutting Conditions : Vc = 50 m/min, ap = 1.0 mm (Shouldering), f = 0.03 mm/rev, Wet (Internal coolant), Workpiece Material : SCM415, Edge Width 2 mm

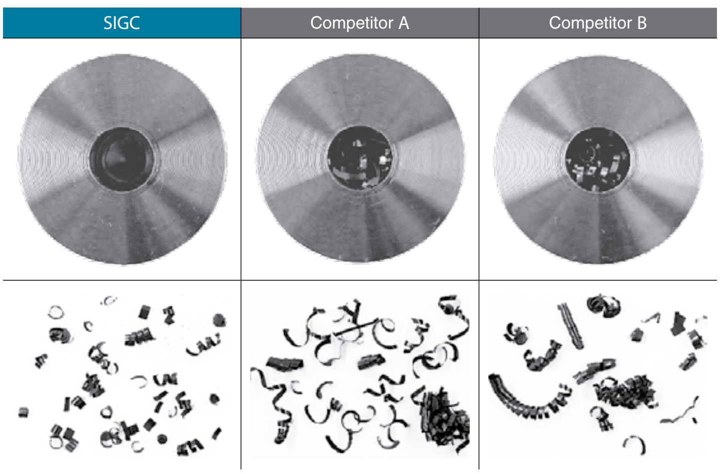


Residual Rate (%)



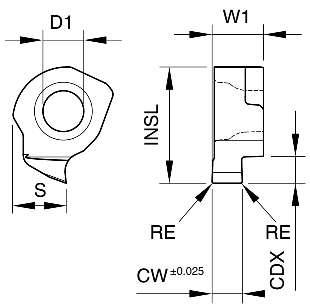
$$\text{Residual Rate}\ (\%) = \frac{\text{Weight of remaining chip in the hole (g)}}{\text{Weight of chips removed (g)}} \times 100$$

Chip Evacuation Comparison



No Remaining Chips
Chip Evacuation : Good

Applicable Inserts



Insert (Handed Insert shows Right-hand)	Description	Dimension (mm) CW	CDX	RE	W1	INSL	S	D1	MEGACOAT NANO PLUS PR1725 R	L	MEGACOAT NANO PR1535 R	L	Applicable Toolholders
	GC08R/L 100-005	1.00	1.5	0.05	3.4	7.7	3.5	2.7	●	●	●	●	SIGCR/L 0812-EH
	120-005	1.20							●	●	●	●	
	125-005	1.25							●	●	●	●	
	150-010	1.50		0.1					●	●	●	●	
	200-010	2.00							●	●	●	●	
	GC10R/L 100-005	1.00	2.2	0.05	4.7	9.6	4.4	3.5	●	●	●	●	SIGCR/L 1016-EH
	120-005	1.20							●	●	●	●	
	125-005	1.25							●	●	●	●	
	145-010	1.45		0.1					●	●	●	●	
	150-010	1.50							●	●	●	●	
	200-010	2.00							●	●	●	●	
	250-020	2.50		0.2					●	●	●	●	
	300-020	3.00							●	●	●	●	
	GC12R/L 100-005	1.00	2.2	0.05	4.7	11.6	5.4	3.5	●	●	●	●	SIGCR/L 1216-EH
	120-005	1.20							●	●	●	●	
	125-005	1.25							●	●	●	●	
	145-010	1.45		0.1					●	●	●	●	
	150-010	1.50							●	●	●	●	
	200-010	2.00							●	●	●	●	
	250-020	2.50		0.2					●	●	●	●	
	300-020	3.00							●	●	●	●	

· CDX shows available grooving depth.

G
Grooving
External
Internal
Face

Recommended Cutting Conditions

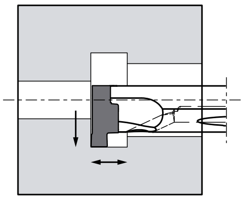
Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min) MEGACOAT NANO PLUS PR1725	MEGACOAT NANO PR1535	(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm) GC08R/L…	GC10R/L, GC12R/L 100 ~ 200…	GC10R/L, GC12R/L 250 ~ 300…	Remarks
Carbon Steel	★ 50~80	☆ 50~80	(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	Coolant
			(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
			(3) Max. 0.05	(3) Max. 0.05	(3) Max. 0.1	
Alloy Steel	★ 50~80	☆ 50~80	(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	
			(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
			(3) Max. 0.05	(3) Max. 0.05	(3) Max. 0.1	
Stainless Steel	☆ 50~80	★ 50~80	(1) 0.01~0.03	(1) 0.01~0.03	(1) 0.01~0.03	
			(2) 0.01~0.03	(2) 0.01~0.03	(2) 0.01~0.03	
			(3) Max. 0.05	(3) Max. 0.05	(3) Max. 0.1	

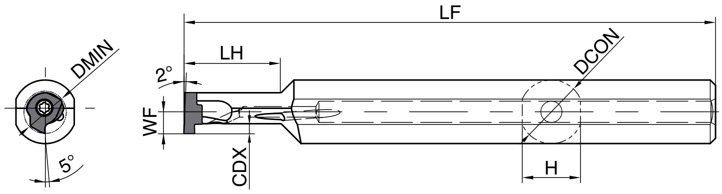
★ : 1st Recommendation ☆ : 2nd Recommendation

GC type inserts are sold in 5 piece boxes

● : Std. Item

SIGC Excellent Bar (with Coolant Hole)

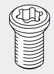
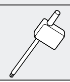




● Right-hand shown

Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)						Spare Parts		Applicable Inserts ➡G56
										Clamp Screw	Wrench	
	R	L	DMIN	DCON	H	LF	LH	WF	CDX			
SIGCR/L 0812-EH	●	●	8	12	11	100	18	4.1	1.5	SB-2270TR/L	FT-7	GC08R/L100-005~GC08R/L200-010
1016-EH	●	●	10	16	15	100	21	5.0	2.2	SB-3070TR/L	FT-8	GC10R/L100-005~GC10R/L300-020
1216-EH	●	●	12	16	15	110	25	6.0	2.2			GC12R/L100-005~GC12R/L300-020

Setting the insert
·Use compressed air or other measures to remove chips from the insert pocket
·Mount the insert into the toolholder ensure the bottom makes contact with the end of the toolholder's surface
·Keeping the insert seated, tighten the insert clamp screw at an appropriate torque
Recommended tightening torque : 0.8 N·m(SB-2270TR/L),1.2 N·m(SB-3070TR/L)

Applicable Sleeves

Applicable Sleeves. Please see page **F84, F85** for more details.

Shank Size (Hole Dia.: mm)	12 (12 mm)	16 (16 mm)
Toolholder Description	SIGCR/L 0812-EH	SIGCR/L 1016-EH SIGCR/L 1216-EH
SH Sleeves (For Boring Bars)	SH 12…	SH 16…
SHC Sleeves (Coolant Sleeve)	SHC 12…	SHC 16…
SHA Sleeves	SHA 12…	–

● : Std. Item

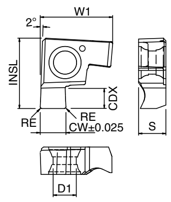
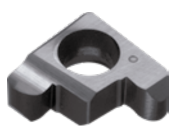
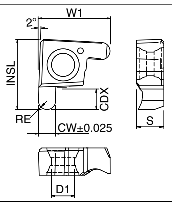
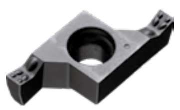
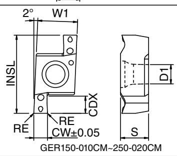
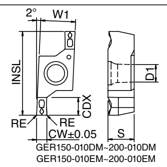
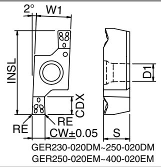
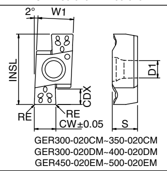
Applicable Inserts

(mm)

Description	W1	INSL	S	D1
GE$^{R}/_{L}$...-A	6.69	6.5	2.58	2.5
GER...-AR				
GE$^{R}/_{L}$...-B	8.46	8.2	3.18	2.7
GER...-BR				
GER...-CM	5.8	11.48	4.05	2.8
GER...-DM	6.8	16.44	5.05	3.4
GER...-EM	9.54	21.66	5.55	4.4

		TN6020	PR1225	PR1025	GW15	KW10
P	Carbon Steel / Alloy Steel		◕	◔		
M	Stainless Steel		◕	◔		
K	Cast Iron					◔
N	Non-ferrous Metals					◕
S	Titanium Alloys					◕
H	Hard Materials (~40HRC)		●	○		
	Hard Materials (40HRC~)					

Classification of usage
◕ : Continuous-Light Interruption / 1st Choice
◔ : Continuous-Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

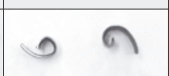
Insert (Handed Insert shows Right-hand)		Description		CW	CDX	RE	Cermet TN6020 R	TN6020 L	MEGA COAT PR1225 R	PR1225 L	PVD Coated Carbide PR1025 R	PR1025 L	Carbide GW15 R	GW15 L	KW10 R	KW10 L	Applicable Toolholders	See Page for Applicable Toolholders
 2-edge		GE$^{R}/_{L}$	100-005A	1.00	1.5	0.05	●		●	●	●	●			●	□	SIGE$^{R}/_{L}$...A-EH SIGE$^{R}/_{L}$...A-WH	G60 G61
			120-005A	1.20			●		●	●	●				□			
			125-005A	1.25			□		●	●	●	●			●	□		
			150-010A	1.50		0.1	●	□	●	●	●	□			●	●		
			200-010A	2.00			●		●	●	●	●			●	□		
		GE$^{R}/_{L}$	100-005B	1.00	2.2	0.05	●		●	●	●	●			●	●	SIGE$^{R}/_{L}$...B-EH SIGE$^{R}/_{L}$...B-WH SIGER...B-WH-90	G60 G61 G62
			120-005B	1.20			●		●	●	●				●			
			125-005B	1.25			□		●	●	●	□			●			
			145-010B	1.45		0.1	●		●	●	●				●			
			150-010B	1.50			●	●	●	●	●	□			●	□		
			200-010B	2.00			●	●	●	●	●	●			●	●		
			250-020B	2.50		0.2	●	●	●	●	●	●			●			
			300-020B	3.00			●	●	●	●	●	●			●	●		
 2-edge Full-R		GER	100-050AR	1.00	1.5	0.5			●		●				●		SIGER...A-EH SIGER...A-WH	G60 G61
			200-100AR	2.00		1.0			●		●				□			
		GER	100-050BR	1.00	2.2	0.5			●		●				●		SIGER...B-EH SIGER...B-WH SIGER...B-WH-90	G60 G61 G62
			200-100BR	2.00		1.0			●		●				●			
  2-edge Molded Chipbreaker		GER	150-010CM	1.50	2.5	0.1			●		●						SIGER...C-EH SIGER...C-WH SIGER...C-WH-90	
			200-010CM	2.00					●		●							
			250-020CM	2.50		0.2			●		●							
			300-020CM	3.00					●		●							
			350-020CM	3.50					●		●							
		GER	150-010DM	1.50	3.0	0.1			●		●						SIGER...D-EH	
			200-010DM	2.00					●		●							
			230-020DM	2.30	3.2	0.2			●		●							
			250-020DM	2.50					●		●							
			300-020DM	3.00					●		●							
			350-020DM	3.50	4.5				●		●							
			400-020DM	4.00					●		●							
		GER	150-010EM	1.50	3.0	0.1			●		●						SIGER...E-EH	G60
			200-010EM	2.00	3.2				●		●							
			250-020EM	2.50	4.5	0.2			●		●							
			300-020EM	3.00					●		●							
			350-020EM	3.50	5.5				●		●							
			400-020EM	4.00					●		●							
			450-020EM	4.50	6.5				●		●							
			500-020EM	5.00					●		●							

G60 G61 G62 (for SIGER...B-EH / B-WH / B-WH-90 and SIGER...C-EH / C-WH / C-WH-90)

· CDX shows available grooving depth.

Recommended Cutting Conditions ➡ G115

Chip Control Comparison (Molded Chipbreaker)

Description \ f (mm/rev)	SCM415 (Bore Dia. : ø16) 0.05	0.07	0.1	Evaluation
SIGER1612C-EH GER300-020CM(PR1025)				Good Chip Control
Competitor A Width : 3mm			Insert Fracture	Unstable Chip Control and biting
Competitor B Width : 3mm				Unstable Chip Control and biting

〔Vc =100m/min, ap=2.0mm , Wet〕 (Internal evaluation)

Chip Control Comparison (Min. Bore Dia. : ø8)

Description \ f (mm/rev)	SCM415 0.02	Evaluation
SIGER0808A-EH GER200-010A (PR1025)		✓
Competitor C Width : 2mm		⃠ Chipping

〔Vc=50m/min, ap=1.25mm, Wet〕 (Internal evaluation)

Inserts are sold in 10 piece boxes

● : Std. Item
□ : Deleted from the next catalog

G Grooving External Internal Face

Applicable Inserts

(mm)

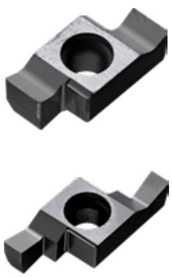
Description	W1	INSL	S	D1
GE R/L...-C	5.8	11.48	4.05	3.1
GER...-CR				
GE R/L...-D	6.8	16.44	5.05	3.6
GER...-DR				
GE R/L...-E	9.54	21.66	5.55	4.6

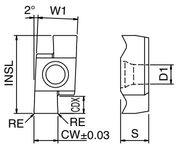
		TN6020	PR1225	PR1025	GW15	KW10
P	Carbon Steel / Alloy Steel		◕	◔		
M	Stainless Steel		◕	◔		
K	Cast Iron				◔	
N	Non-ferrous Metals				◕	
S	Titanium Alloys				◕	
H	Hard Materials (~40HRC)		●	○		
	Hard Materials (40HRC~)					

Classification of usage
◕ : Continuous~Light Interruption / 1st Choice
◔ : Continuous~Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

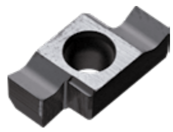
Insert

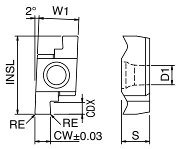
Handed Insert shows Right-hand



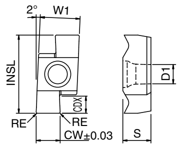


2-edge

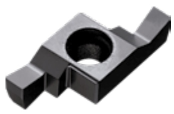


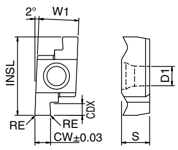


GER100-005D~280-020D

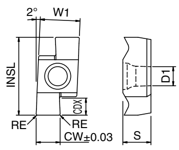


GER300-020D~400-020D



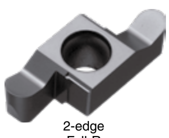


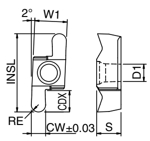
GER100-005E~430-020E



GER450-020E~500-020E

2-edge





2-edge
Full-R

Description	CW	CDX	RE	TN6020 (Cermet) R	TN6020 L	PR1225 (MEGA COAT) R	PR1225 L	PR1025 (PVD Coated Carbide) R	PR1025 L	GW15 (Carbide) R	GW15 L	KW10 (Carbide) R	KW10 L	Applicable Toolholders	See Page for Applicable Toolholders
GE R/L 100-005C	1.00	2.5	0.05	●	●	●	●	●	●	●	●			SIGE R/L...C-EH SIGE R/L...C-WH SIGER...C-WH-90	G60 G61 G62
120-005C	1.20			●		●	●	●	●	●					
125-005C	1.25			●		●		●	●	●	●				
140-005C	1.40			●		●		●	□	●					
145-010C	1.45		0.1			●		●	●	□	□				
150-010C	1.50			●		●	●	●	●	●	●				
170-010C	1.70			□		●		●		●					
185-010C	1.85					●		●	□	□					
195-010C	1.95					●		□	□						
200-010C	2.00			●	□	●	●	●	●	●	●				
250-020C	2.50		0.2	●	●	●	●	●	□	●	●				
300-020C	3.00			●	●	●	●	●	●	●					
350-020C	3.50			□	□	●		●	●	●					
GE R/L 100-005D	1.00	2.5	0.05	●		●	●	●	●	●	●			SIGE R/L...D-EH	G60
140-005D	1.40			●		●	●	●		●					
145-010D	1.45		0.10	●		●		●	●						
150-010D	1.50	3.0		●	●	●	●	●	●	●	●				
170-010D	1.70			●		●	●	●		□					
185-010D	1.85							●	□						
195-010D	1.95							●							
200-010D	2.00	3.2		●	●	●	●	●	●	●	□				
225-010D	2.25			□		●	●	●	●						
230-020D	2.30		0.20	●		●	●	□		●					
250-020D	2.50			●	●	●	●	●	●	●	□				
275-020D	2.75							□							
280-020D	2.80							●		●					
300-020D	3.00	4.5		●	●	●	●	●	●	●	●				
330-020D	3.30							●							
350-020D	3.50					●		□		□	□				
400-020D	4.00			●		●	●	●		●					
GE R/L 100-005E	1.00	2.5	0.05	●		●	●	●		●	□			SIGE R/L...E-EH	
150-010E	1.50	3.0	0.1	●		●	●	●	●	●	●				
170-010E	1.70			●		●	●	●	●	●					
185-010E	1.85			●				●	●						
195-010E	1.95			□				●	●						
200-010E	2.00	3.2		●		●		●	●	●	●				
225-010E	2.25			●		●		●	□	●					
230-020E	2.30		0.2	●	●	●		●	□	●					
250-020E	2.50	4.5		●	●	●	●	●	●	●	●				
275-020E	2.75					●		□		●					
280-020E	2.80			●		●	●	●	●						
300-020E	3.00			●	●	●	●	●	●	●	●				
330-020E	3.30			●		●		●	●						
350-020E	3.50	5.5		●	●	●		●	●	●	□				
400-020E	4.00			●		●		●	●	●	●				
430-020E	4.30			●		●									
450-020E	4.50	6.5		●	□	●		□	□	●					
460-020E	4.60					●		●							
500-020E	5.00			●		●		●	●	●					
GER 200-100CR	2.00	2.5	1.0			●		●		●				SIGER...C-EH SIGER...C-WH SIGER...C-WH-90	G60 G61 G62
250-125CR	2.50		1.25			●		●		●					
300-150CR	3.00		1.5			●		●		●					
GER 200-100DR	2.00	3.2	1.0			●		●		●				SIGER...D-EH	G60
300-150DR	3.00	4.5	1.5			●		●		●					

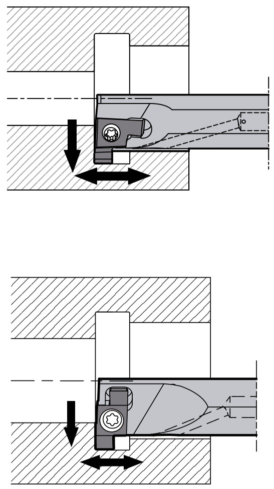
· CDX shows available grooving depth.

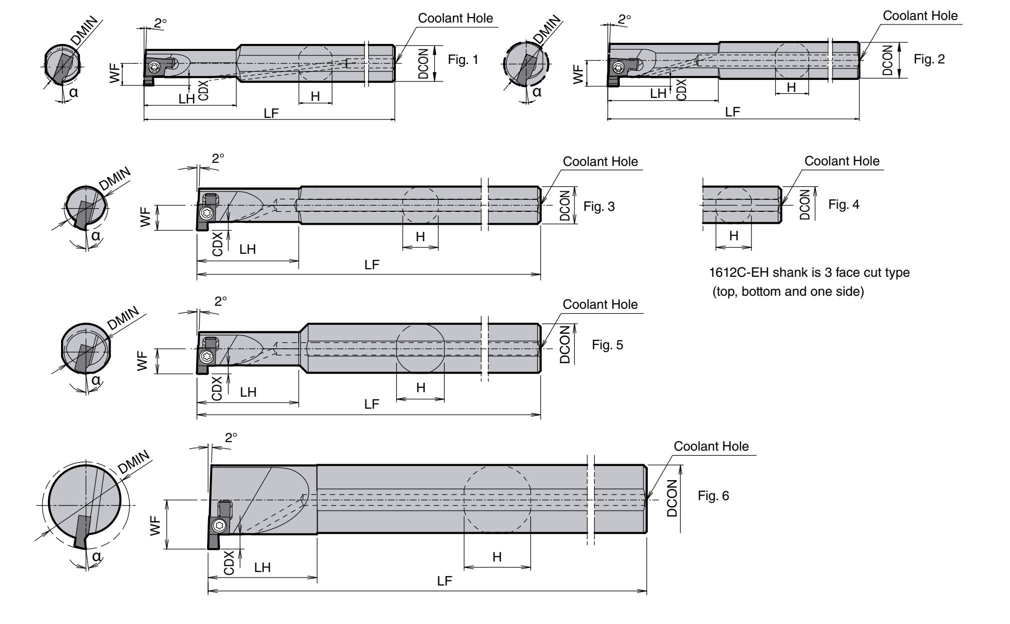
Recommended Cutting Conditions ➡ G115

● : Std. Item
□ : Deleted from the next catalog

Inserts are sold in 10 piece boxes

SIGE-EH Excellent Bar (with Coolant Hole)





● Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

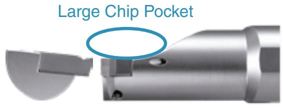
Toolholder Dimensions

Description	Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	CDX	Drawing	Spare Parts Clamp Screw	Wrench FT	Wrench DT	Applicable Inserts ➡G58, G59
SIGER/L 0808A-EH	●	●	8	8	7.2	100	20	4.8	1.5	Fig. 1	SB-2045TRN	FT-6	-	GER/L100-005A~GER/L200-010A GER100-050AR~GER200-100AR
1010B-EH	●	●	10	10	9	125	25	6.2	2.2	Fig. 1	SB-2255TR	-	DT-7	GER/L100-005B~GER/L300-020B GER100-050BR~GER200-100BR
1210B-EH	●	●	12				30	7		Fig. 2				
1412C-EH	●	●	14	12	11.4	150	33	8	2.5	Fig. 3	SB-2570TR	FT-8	-	GER/L100-005C~GER/L350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR
1612C-EH	●	●	16				20	8.5		Fig. 4				
1616C-EH	●	●		16	15	160	36	9		Fig. 5				
2020D-EH	●	●	20	20	19	180	40	12.1	4.5		SB-3080TR	FT-10	-	GER/L100-005D~GER/L400-020D GER150-010DM~GER400-020DM GER200-100DR~GER300-150DR
2525E-EH	●	●	25	25	24	200	45	15.6	6.5		SB-4085TR	FT-15	-	GER/L100-005E~GER/L500-020E GER150-010EM~GER500-020EM
3232E-EH	●	●	32	32	30.4	220	55	19						
4032E-EH	●	●	40			250	45	23		Fig. 6				

· CDX shows available grooving depth. Available Groove Depth : "CDX" Dimension of Insert.

Features

● Large chip pocket screw clamp toolholder design enables excellent chip evacuation



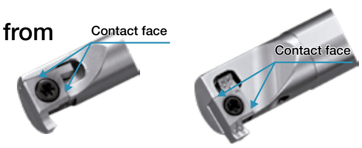
Screw Clamp

Conventional Clamp

● Cost effective chip control from a molded chipbreaker

GER...M

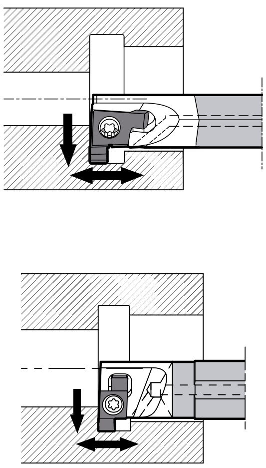
● Cutting edge is free from contact face

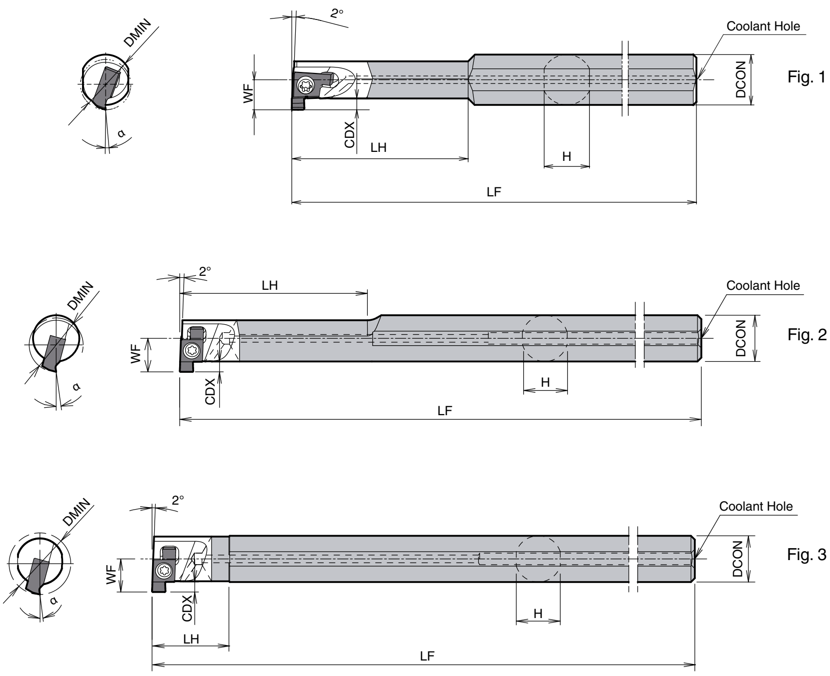


● An 8mm minimum bore diameter with a 2-edge design

● : Std. Item

SIGE-WH Carbide Shank Bar (with Coolant Hole)





● Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)						Drawing	Spare Parts			Applicable Inserts ➡G58, G59
											Clamp Screw	Wrench		
	R	L	DMIN	DCON	H	LF	LH	WF	CDX			FT	DT	
SIGER/L 0808A-WH	●	●	8	8	7.2	125	28	4.8	1.5	Fig. 1	SB-2045TRN	FT-6	-	GER/L100-005A~GER/L200-010A GER100-050AR~GER200-100AR
1010B-WH	●	●	10	10	9	125	35	6.2	2.2		SB-2255TR	-	DT-7	GER/L100-005B~GER/L300-020B GER100-050BR~GER200-100BR
1210B-WH	●	●	12			140	45	7						
1412C-WH	●	●	14	12	11.4	150	50	8.7	2.5	Fig. 2	SB-2570TR	FT-8	-	GER/L100-005C~GER/L350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR
1612C-WH	●	●	16			180	20	8.5		Fig. 3				

· CDX shows available grooving depth. Available Groove Depth : "CDX" Dimension of Insert.

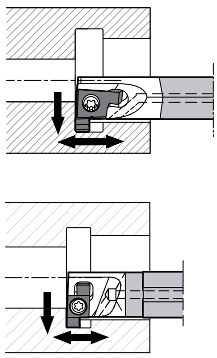
Applicable Insert & Rake Angle (α) after Installment of Insert

Toolholder Description	Applicable Insert & Rake Angle (α) after Installment of Insert			
	Ground Chipbreaker	α	Molded Chipbreaker	α
SIGER/L 0808A-EH	GER/L100-005A~GER/L200-010A GER100-050AR~GER200-100AR	5°	-	-
1010B-EH	GER/L100-005B~GER/L300-020B GER100-050BR~GER200-100BR	5°	-	-
1210B-EH				
1412C-EH	GER/L100-005C~GER/L350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
1612C-EH				
1616C-EH				
2020D-EH	GER/L100-005D~GER/L400-020D GER200-100DR~GER300-150DR	9°	GER150-010DM~GER400-020DM	10°
2525E-EH	GER/L100-005E~GER/L500-020E	10°	GER150-010EM~GER500-020EM	10°
3232E-EH				
4032E-EH				
SIGER/L 0808A-WH	GER/L100-005A~GER/L200-010A GER100-050AR~GER200-100AR	5°	-	-
1010B-WH	GER/L100-005B~GER/L300-020B GER100-050BR~GER200-100BR	5°	-	-
1210B-WH				
1008B-WH-90				
1210B-WH-90				
1412C-WH	GER/L100-005C~GER/L350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
1612C-WH				
1412C-WH-90				

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

● : Std. Item

SIGE-WH-90 (for Automatic Lathe) Carbide Shank Bar (with Coolant Hole)



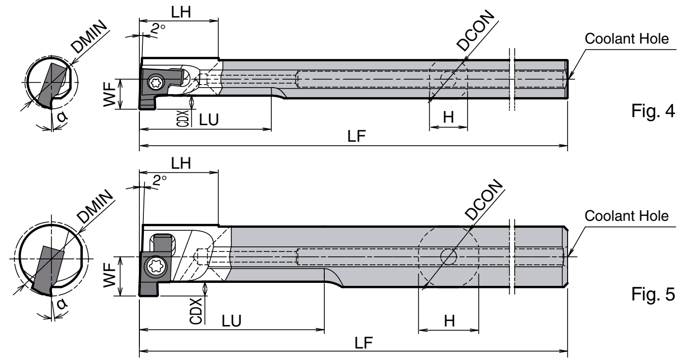


Fig. 4

Fig. 5

• Right-hand shown

Right-hand Insert for Right-hand Toolholder.

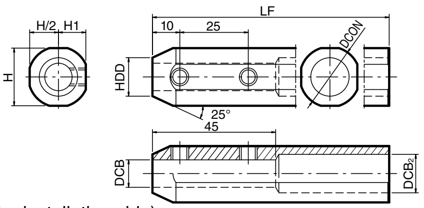
Toolholder Dimensions

Description	Stock	Min. Bore Dia. DMIN	DCON	H	LF	LU	*LH	WF	CDX	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Inserts ➡G58, G59
SIGER 1008B-WH-90	●	10	8	7.2	90	25	15	5.6	2.2	Fig. 4	SB-2255TR	FT-7	GER100-005B~GER300-020B GER100-050BR~GER200-100BR
1210B-WH-90	●	12	10	9.4		30		6.6					
1412C-WH-90	●	14	12	11.4	90	35	15	7.4	2.5	Fig. 5	SB-2570TR	FT-8	GER100-005C~GER350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR

* LH shows minimum overhang length.

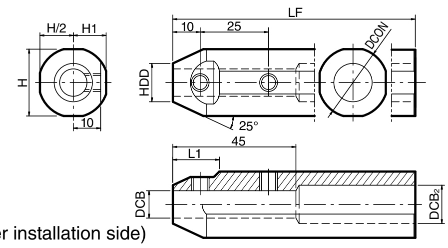
· See Page ➡ **G61** for Applicable Insert & Rake Angle (α) after Installment of Insert.

Applicable Sleeves



(Toolholder installation side)

Fig. 1



(Toolholder installation side)

Fig. 2

Description	Stock	DCB	DCON	HDD	DCB_2	H	H1	LF	L1	Drawing	Spare Parts: Screw	Spare Parts: Wrench	Applicable Machine Manufacturer
SHA 0820-120	●	8	20	14	12	19	9.25	120	-	Fig. 1	HS6X4P	LW-3	Eguro Tsugami Citizen Machinery
1020-120	●	10											
SHA 0825.0-135	●	8	25	14	14	24	11.5	135	17	Fig. 2			
1025.0-135	●	10											
1225.0-135	●	12		16									
SHA 0819-120	●	8	19.05	14	12	18	8.75	120	-	Fig. 1	HS6X4P	LW-3	Citizen Machinery
1019-120	●	10											
SHA 0820-120	●	8	20	14	12	19	9.25	120	-	Fig. 1			
1020-120	●	10											
SHA 0825.4-120	●	8	25.4	14	14	24.4	12	120	17	Fig. 2			
1025.4-120	●	10											
1225.4-120	●	12		16									
SHA 0822-125	●	8	22	14	14	21	10	125	-	Fig. 1	HS6X4P	LW-3	Star Micronics Nomura DS
1022-125	●	10											
1222-125	●	12		16									
SHA 0823-120	●	8	23	14	14	22	10.5	120	16	Fig. 2	HS6X4P	LW-3	Nomura DS
1023-120	●	10											
1223-120	●	12		16									

* Length of DCB···45mm (All of SHA sleeves)

· Choose sleeves (DCB) to meet with DCON dimension of toolholder.

· Machine manufacturers in random order.

● : Std. Item

G
Grooving
External
Internal
Face

Inserts for Small Dia. Internal Grooving

Applicable Inserts (GIV / GIV-E / GIV-W)

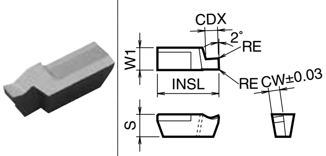
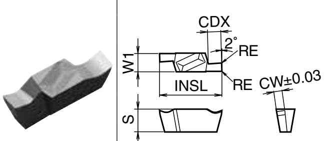
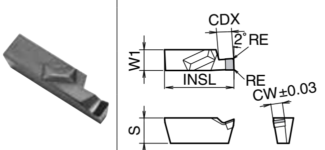
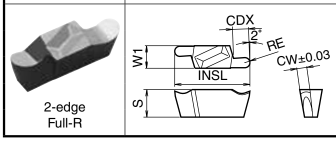
(mm)

Description	W1	INSL	S
GVR/L...SS	3.6	9	3.0
GVR/L...S	4.0	11	4.0
GVR/L...A	4.0	12	5.0
GVR/L...B	4.5	15	5.5
GVR/L...C	5.8	21	6.5

Classification of usage

- ◕ : Continuous~Light Interruption / 1st Choice
- ◌ : Continuous~Light Interruption / 2nd Choice
- ● : Continuous / 1st Choice
- ○ : Continuous / 2nd Choice

		TN90	TC40N	TC60M	PR1225	PR930	KW10	KPD010
P	Carbon Steel / Alloy Steel				◕	◌		
M	Stainless Steel				◕	◌		
K	Cast Iron						◕	
N	Non-ferrous Metals						◕	●
S	Titanium Alloys						◕	●
H	Hard Materials (~40HRC)				○	○		
H	Hard Materials (40HRC~)							

Insert (Handed Insert shows Right-hand)	Description		CW	CDX	RE	Cermet TN90 R	TN90 L	TC40N R	TC40N L	TC60M R	TC60M L	MEGA COAT PR1225 R	PR1225 L	PVD Coated Carbide PR930 R	PR930 L	Carbide KW10 R	KW10 L	PCD KPD010 R	KPD010 L	Applicable Toolholders
 1-edge	GVR/L	100-020SS	1.00	2.3	0.2	○				●		●	●	●		●	●			GIVR/L...1SS
		125-020SS	1.25	2.3	0.2	□				●		●	●	●		●	●			
		145-020SS	1.45	2.3	0.2	○				●		●	●	●	●	●	●			
		200-020SS	2.00	2.3	0.2	○				●		●	●	●		●	●			
		250-020SS	2.50	2.3	0.2					●		●	●	●		●	●			
		300-020SS	3.00	2.3	0.2	□				●		●	●	●	●	●	●			
	GVR/L	100-020S	1.00	2.3	0.2	○		●	●	●		●	●	●	●	●	●			GIVR/L...1S GIVR/L...1SE
		125-020S	1.25	2.3	0.2	○		●	●	●		●		●		●	●			
		145-020S	1.45	2.3	0.2			●	□	●		●		●		●	●			
		185-020S	1.85	2.3	0.2			●	□	●		●		●		●	●			
		200-020S	2.00	2.3	0.2	○		●	●	●		●	●	●	●	●	●			
		250-020S	2.50	2.3	0.2			●	□	●		●	●	●		●	●			
		340-020S	3.40	2.3	0.2			●	□	●		●		●		●	●			
 2-edge	GVR/L	100-020A	1.00	2.3	0.2	○		●	●	●	●	●	●	●	●	●	●			GIVR/L...1A GIVR/L...1AE GIVR/L...1AW
		125-020A	1.25	2.3	0.2	○		●	●	●		●	●	●		●	●			
		145-020A	1.45	2.3	0.2	○		●	●	●	●	●	●	●		●	●			
		185-020A	1.85	2.3	0.2	□		●	□	●		●	●	●		●	●			
		200-020A	2.00	2.3	0.2	○		●	●	●	●	●	●	●	●	●	●			
		250-020A	2.50	2.3	0.2	○		●	□	●		●	●	●		●	●			
		300-020A	3.00	2.3	0.2	○		●	□	●		●		●		●	●			
		340-020A	3.40	2.3	0.2			●	□	●		●		●		●	●			
	GVR/L	145-020B	1.45	2.8	0.2	○		●	●	●	●	●	●	●	●	●	●			GIVR/L...1B GIVR/L...1BE GIVR/L...1BW
		185-020B	1.85	2.8	0.2	○		●	●	●	●	●		●		●				
		200-020B	2.00	3.2	0.2	○	○	●	●	●	●	●	●	●	●	●	●			
		230-020B	2.30	3.2	0.2	○		●	□	●	●	●	●	●	●	●				
		250-020B	2.50	3.2	0.2	○		●	●	●	●	●	●	●	●	●	●			
		280-020B	2.80	3.2	0.2			●	●	●		●		●		●				GIVR/L...2B GIVR/L...2BE GIVR/L...2BW
		300-020B	3.00	4.2	0.2	○	□	●	●	●	●	●	●	●	●	●	●			
		340-020B	3.40	4.2	0.2			●	□	●		●		●		●				
		400-020B	4.00	4.2	0.2	○		●	□	●		●		●		●	●			
	GVR/L	280-020C	2.80	4.5	0.2	○		●	●	●	●	●	●	●		●	●			GIVR/L...1C GIVR/L...1CE GIVR/L...1CW
		300-020C	3.00	4.5	0.2	○	○	●	●	●	●	●	●	●	●	●	●			
		340-020C	3.40	5.5	0.2	○		●	●	●	●	●	●	●	●	●	●			
		400-020C	4.00	5.5	0.2	○		●	●	●	●	●	●	●	●	●	●			GIVR/L...2C GIVR/L...2CE GIVR/L...2CW
		430-020C	4.30	6.3	0.2	□		●	●	●	●	●		●		●	●			
		460-020C	4.60	6.3	0.2			●	□			●		●		●	●			
		500-020C	5.00	6.3	0.2			●	□	●	●	●	●	●	●	●	●			
 1-edge	GVR	145-020A	1.45	2.3	0.2													●		GIVR...1A GIVR...1AE GIVR...1AW
		200-020A	2.00	2.3	0.2													●		
	GVR	200-020B	2.00	3.2	0.2													●		GIVR...1B GIVR...1BE GIVR...1BW
		250-020B	2.50	3.2	0.2													●		
	GVR	300-020C	3.00	4.5	0.2													MTO		GIVR...1C□
		400-020C	4.00	5.5	0.2													MTO		GIVR...2C□
 2-edge Full-R	GVR/L	200-100AR	2.00	2.3	1.00					●		●	●	●	●	●				GIVR/L...1A GIVR/L...1AE GIVR/L...1AW
		250-125AR	2.50	2.3	1.25					●		●		●		●				
		300-150AR	3.00	2.3	1.50					●		●		●		●				
	GVR	200-100BR	2.00	3.2	1.00	○				●		●		●		●				GIVR...1B□
		300-150BR	3.00	4.2	1.50	○				●		●		●		●				GIVR...2B□

· CDX shows available grooving depth.

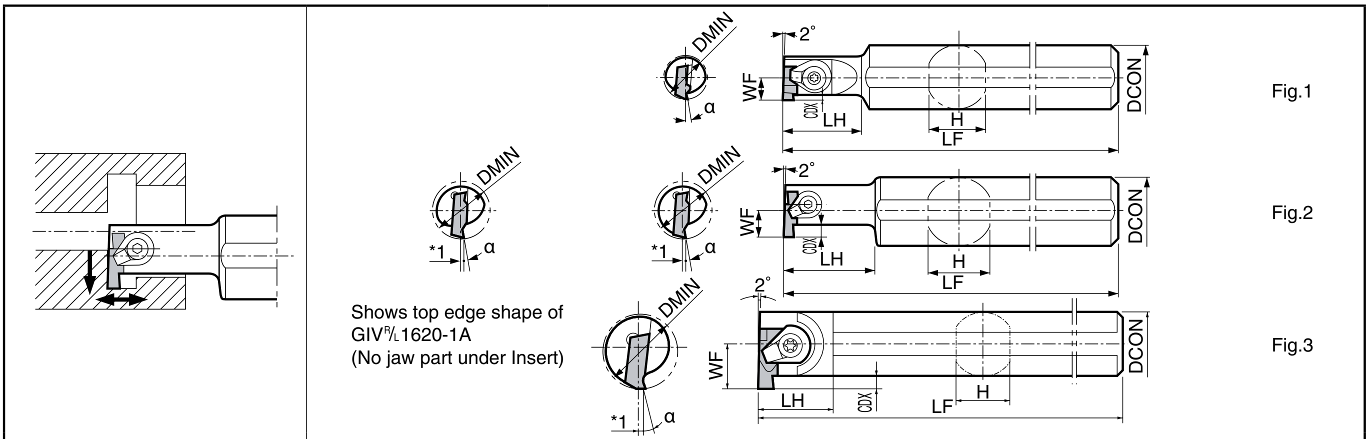
Recommended Cutting Conditions ➡ G116
See Page for Applicable Toolholders ➡ G65

● : Std. Item
○ : Check Availability
□ : Deleted from the next catalog
MTO : Made to order

Inserts are sold in 10 piece boxes

CBN & PCD Inserts are sold in 1 piece boxes

GIV

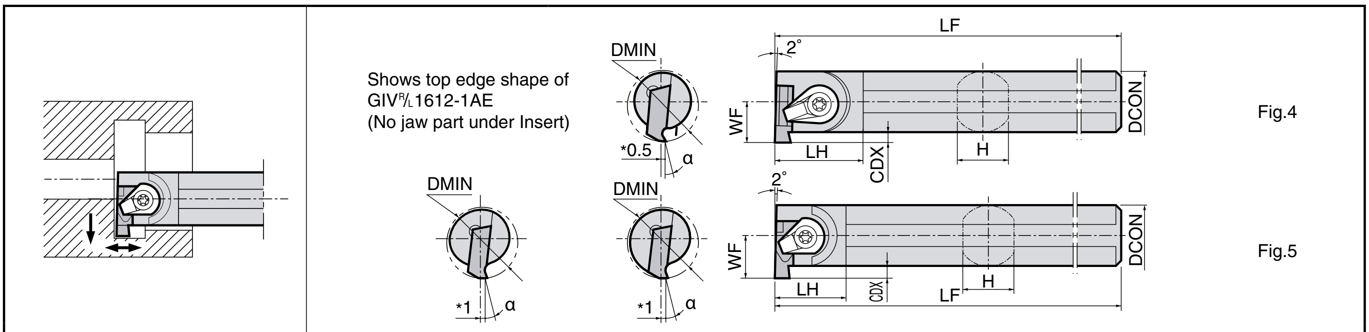


Shows top edge shape of GIVR/L1620-1A (No jaw part under Insert)

● Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

GIV-E Excellent Bar

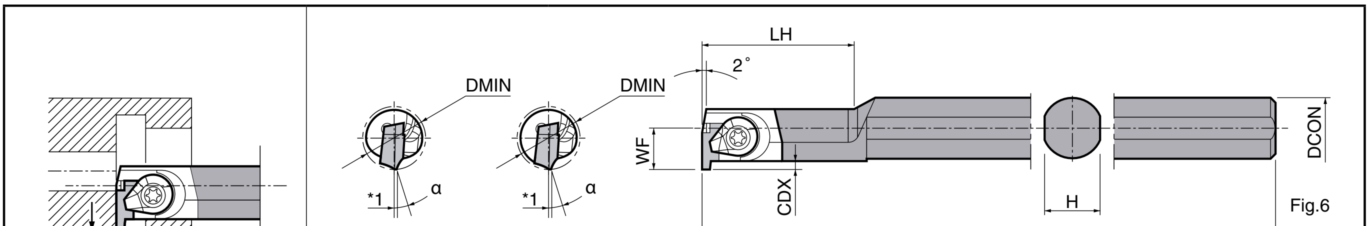


Shows top edge shape of GIVR/L1612-1AE (No jaw part under Insert)

● Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

GIV-W Carbide Shank Bar



Shows top edge shape of GIVR/L1616-1AW (No jaw part under Insert)

● Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

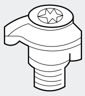
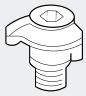
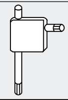
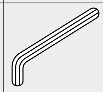
● Applicable Insert & Rake Angle (α) after Installment of Insert

Toolholder Description	Insert Description ➡ G63		Rake Angle(α)	
	General Grooving (Square)	Full-R Grooving (Round)	TC40N	TN90,TC60M PR930,PR1225 KW10
GIVR/L…1SS	GVR/L100~300-020SS	-	10°	15°
GIVR/L…1S	GVR/L100~340-020S	-	10°	15°
GIVR/L…1SE	GVR/L100~340-020S	-	3°	8°
GIVR/L…1A(□)	GVR/L100~340-020A	GVR/L200-100AR~300-150AR	3°	8°
GIVR/L…1B(□)	GVR/L145~250-020B	GVR/L200-100BR	4°	9°
GIVR/L…2B(□)	GVR/L280~400-020B	GVR/L300-150BR		
GIVR/L…1C(□)	GVR/L280~340-020C	-	5°	10°
GIVR/L…2C(□)	GVR/L400~500-020C	-		

* GIV, GIV-E and GIV-W are designed to set the cutting edge height 1mm above the center height. (0.5mm for GIVR/L1612-1AE)

G
Grooving
External
Internal
Face

Toolholder Dimensions

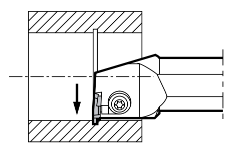
Description		Stock		Min. Bore Dia.	Dimension (mm)						Drawing	Spare Parts				See Page for Applicable Inserts
												Clamp Set		Wrench	Wrench	
		R	L	DMIN	DCON	H	LF	LH	WF	CDX						
GIV$^{R}/_{L}$	1216-1SS	●	●	12	16	15	150	20	6.0	2.2	Fig. 1	CPS-4V	-	FT-10	-	G63
	1420-1S	●	●	14	20	19	150	24	7.0	2.2	Fig. 1	CPS-5F	-	FT-15	-	
	1620-1A	●	●	16	20	19	160	28	8.0	2.2	Fig. 2	CPS-5V	-	FT-15	-	
	2025-1B	●	●	20	25	23	180	35	10.0	Note 1) 2.8	Fig. 2	CPS-5V	-	FT-15	-	
	2025-2B	●	●							Note 2) 3.2						
	2532-1C	●	●	25	32	30	200	43	12.5	Note 3) 4.5	Fig. 2	-	CPS-6V	-	LW-3	
	3232-1C	●	●	32			220	52	16.0							
	4032-1C	●	●	40			250	43	21.0		Fig. 3					
	2532-2C	●	●	25	32	30	200	43	12.5	Note 4) 5.5	Fig. 2					
	3232-2C	●	●	32			220	52	16.0							
	4032-2C	●	●	40			250	43	22.2		Fig. 3					
GIV$^{R}/_{L}$	1412-1SE	●	●	14	12	11.4	150	18	7.7	1.7	Fig. 4	CPS-5F	-	FT-15	-	
	1612-1AE	●	●	16	12	11.4	150	19	8.2	2.2	Fig. 5	CPS-5V	-	FT-15	-	
	2016-1BE	●	●	20	16	15.2	180	20	11.2	Note 1) 2.8	Fig. 5	CPS-5V	-	FT-15	-	
	2016-2BE	●	●					19	11.7	Note 5) 3.2						
	2520-1CE	●	●	25	20	19	200	25	14.5	Note 6) 4.5	Fig. 5	-	CPS-6V	-	LW-3	
	3225-1CE	●	●	32	25	24	220	24	17.5	Note 7) 4.5						
	4032-1CE	●	●	40	32	31	240	29	21.0	Note 7) 4.5						
	2720-2CE	●	●	27	20	19	200	25	16.2	Note 4) 5.5						
	3225-2CE	●	●	32	25	24	220	24	18.7							
	4032-2CE	●	●	40	32	31	240	29	22.2							
GIV$^{R}/_{L}$	1616-1AW	●	●	16	16	15	175	48	10.6	2.2	Fig. 6	CPS-5V	-	FT-15	-	
	2020-1BW	●	●	20	20	19	220	60	14.6	Note 1) 2.8	Fig. 6	CPS-5V	-	FT-15	-	
	2020-2BW	●	●							Note 2) 3.2						
	2525-1CW	●	●	25	25	24	260	70	19.1	Note 3) 4.5	Fig. 6	-	CPS-6V	-	LW-3	
	2525-2CW	●	●							Note 4) 5.5						

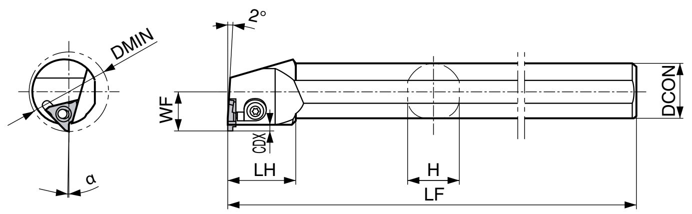
· CDX shows available grooving depth.

Note 1) GV$^{R}/_{L}$200~250-020B Insert can be used up to a Groove Depth 3.2mm.
Note 2) GV$^{R}/_{L}$300~400-020B Insert can be used up to a Groove Depth 4.2mm.
Note 3) GV$^{R}/_{L}$340-020C Insert can be used up to a Groove Depth 5.5mm.
Note 4) GV$^{R}/_{L}$430~500-020C Insert can be used up to a Groove Depth 6.3mm.
Note 5) GV$^{R}/_{L}$300~400-020B Insert can be used up to a Groove Depth 3.8mm. (When using GIV$^{R}/_{L}$2016-2BE)
Note 6) GV$^{R}/_{L}$340-020C Insert can be used up to a Groove Depth 4.7mm. (When using GIV$^{R}/_{L}$2520-1CE)
Note 7) GV$^{R}/_{L}$340-020C Insert can be used up to a Groove Depth 5.3mm. (When using GIV$^{R}/_{L}$3225-1CE, GIV$^{R}/_{L}$4032-1CE)
If you need any of insert groove depth specified in notes 1 to 7, modify the dimension CDX of toolholder.

● : Std. Item

KIGBA

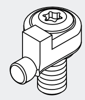
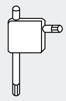




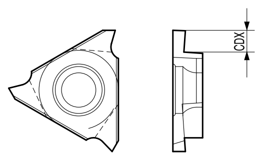
● Right-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description		Stock		Min. Bore Dia.	Dimension (mm)							Spare Parts		Applicable Inserts ➡G6~G8
												Clamp Set	Wrench	
		R	L	DMIN	DCON	H	LF	LH	WF	*CDX				
KIGBA R/L	**3525-16**	●	●	35	25	23	220	30	17.5	2.8		LGBA-16L/RS	FT-15	GBA32L/R type
	4032-22	●	●	40	32	30	250	30	23.0	3.0		LGBA-22L/RS	FT-15	GBA43L/R type

*CDX shows the distance from the toolholder to the cutting edge.
Available Grooving Depth depends on the insert.
KIGBA R/L 3525-16 : CDX of the applicable insert (GBA32)
4032-22 : CDX of the applicable insert (GBA43)
(1) 2.0mm (CDX < 3.0mm)
(2) 3.0mm (CDX ≥ 3.0mm)



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

G

Grooving

External

Internal

Face

● : Std. Item

Rake Angle (α) after Installment of GBA insert

<table>
<tr><th colspan="2">GBA32R/L○○○-○○○</th><th colspan="2">GBA43R/L○○○-○○○</th><th colspan="3">GBA43R/L○○○-○○○R (Full-R)</th></tr>
<tr><th>α</th><th>Insert Grades</th><th>α</th><th>Insert Grades</th><th>α</th><th>Insert Grades</th><th>Full-R Description</th></tr>
<tr><td rowspan="2">+1°</td><td rowspan="2">TN620,TN90,PV7040,PR930
PR1115, PR1215, PR1625
PR905,
KPD001, KPD010</td><td>-9°</td><td>KBN510, KBN525</td><td>+1°</td><td>TN620,TN90,PV7040,PR930
PR1115,PR1215,PR1625
PR905</td><td>050R~150R</td></tr>
<tr><td rowspan="2">+1°</td><td rowspan="2">TN620,TC40N,TN90,PV7040
PR930, PR1115, PR1215,
PR1625, PR905
KPD001, KPD010</td><td rowspan="3">+5°</td><td>TN620,TN90,PV7040,PR930
PR1115,PR1215,PR1625
PR905</td><td>200R</td></tr>
<tr><td rowspan="2">+11°</td><td rowspan="2">KW10</td><td rowspan="2">KW10</td><td rowspan="2">050R~200R</td></tr>
<tr><td>+11°</td><td>KW10</td></tr>
</table>

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

<table>
<tr><th>α</th><th>Insert Description</th></tr>
<tr><td>+1°</td><td>GBA43R/L150-020GM</td></tr>
<tr><td>+6°</td><td>GBA43R/L175-020GM
~
GBA43R/L265-030GM</td></tr>
<tr><td>+3°</td><td>GBA43R/L300-030GM
~
GBA43R/L400-040GM</td></tr>
</table>

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

Rake Angle (α) after Installment of GBA-MY insert

<table>
<tr><th>α</th><th>Insert Description</th></tr>
<tr><td>+6°</td><td>GBA43R/L175-020MY
~
GBA43R/L350-030MY</td></tr>
<tr><td>+5°</td><td>GBA43R/L400-040MY</td></tr>
</table>

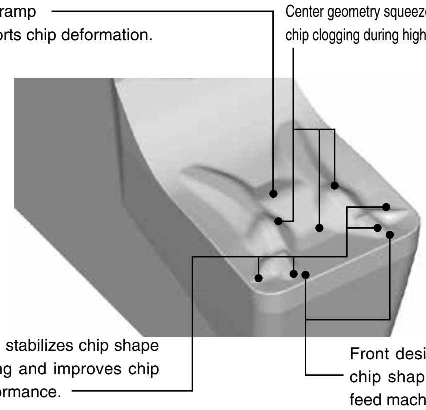
α indicates the rake angle at the center of the edge width, after installing insert.

KGDI

Stable Machining with Excellent Chip Control and Smooth Chip Evacuation

1 Excellent Chip Control with GMI Chipbreaker for Internal Grooving

Evenly breaks chips in various cutting conditions with newly designed chipbreaker geometry.
Good chip control even in finishing applications with small depths of cut.



Chip Control Comparison (Internal evaluation)

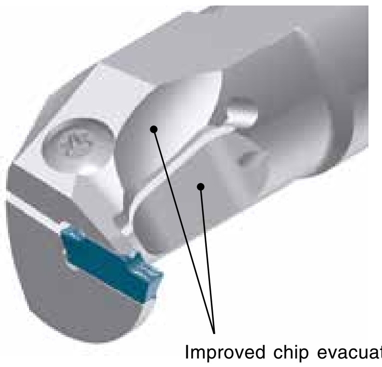
GMI Chipbreaker | Competitor A | Conventional F

Smooth chip control with stable chip shape compared with Competitor A and Conventional F.
Prevents frequent machine stops caused by tangled chips.

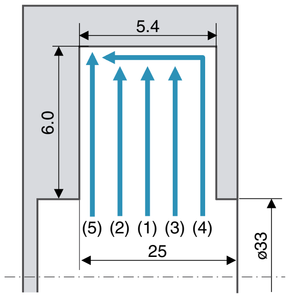
Cutting Conditions : Vc=100m/min, f=0.07mm/rev Toolholder : KGDIR3225B-3
Insert : GDM3015N-040GMI Workpiece Material : SCr420

2 Smooth Chip Evacuation by Creating Chip Pocket

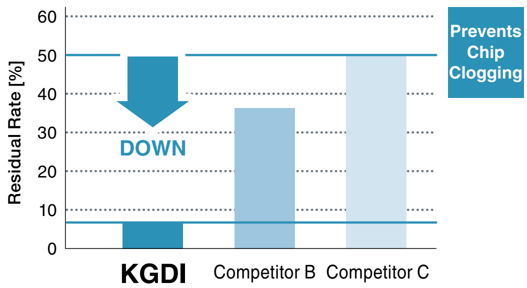
Smooth chip evacuation when grooving and finishing.



Cutting Conditions : Vc=100m/min
(1) ap=3mm, (2)(3) ap=1mm, (4)(5) ap=0.2mm
f=0.08mm/rev
Toolholder : KGDIR3225B-3
Insert : GDM3015N-040GMI
Workpiece Material : SCM415



Residual Chips (Internal evaluation)

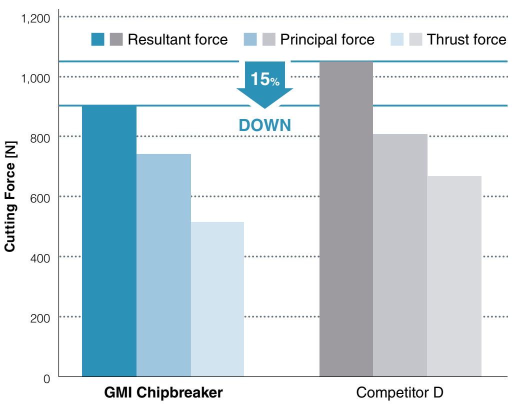


Chips remaining in machined bore were greatly reduced compared with Competitor B and C.

3 Low Cutting Forces and Stable Machining

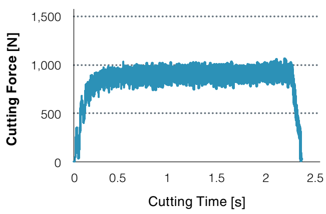
GMI chipbreaker prevents chip clogging and reduces cutting forces.

Cutting Force Comparison (Internal evaluation)



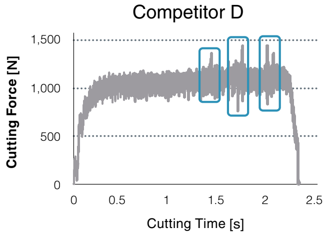
Cutting Conditions : Vc=150m/min, f=0.1mm/rev Toolholder : KGDIR3225B-3
Insert : GDM3015N-040GMI Workpiece Material : SCM415

GMI Chipbreaker



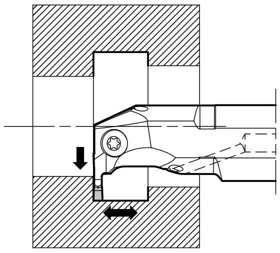
Stable machining with few changes in cutting force

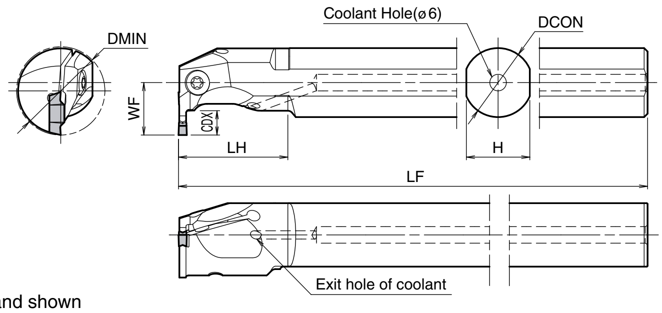
Competitor D



Instantaneous increase of cutting force due to clogged chips

KGDI





• Right-hand shown

Toolholder Dimensions

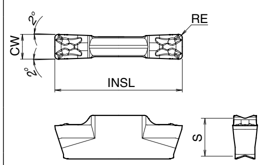
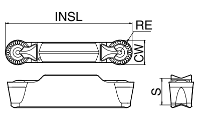
Description		Stock R	Stock L	Min. Bore Dia. DMIN with GMI	Min. Bore Dia. DMIN with CM	DCON	H	LF	LH	WF	CDX	Edge Width CW(mm) MIN.	Edge Width CW(mm) MAX.	Spare Parts Clamp Screw	Spare Parts Clamp Screw	Spare Parts Wrench	Spare Parts Wrench
KGDI R/L	1816B-2	●	●	18	-	16	15	150	25	9.5	4.5	2.0	2.0	GS-50	-	LW-3	-
	2520B-2	●	●	25		20	18	180	30	14.5	6						
	3225B-2	●	●	32		25	23	200	40	19	7			-	SB-5TR	-	LTW-20
KGDI R/L	2016B-3	●	●	20	21	16	15	150	25	11.5	5.5	3.0	3.0	GS-50	-	LW-3	-
	2520B-3	●	●	25	26	20	18	180	30	14.5	6						
	3225B-3	●	●	32	33	25	23	200	40	19	8			-	SB-5TR	-	LTW-20
KGDI R/L	3225B-4	●	●	32	40(34*)	25	23	200	40	19	8.5	4.0	5.0	-	SB-5TR	-	LTW-20
	4032B-4	●	●	40	48(42*)	32	29	220	50	23.5	11						
KGDI R/L	3225B-5	●	●	32	37(34*)	25	23	200	40	19	8.5	5.0	5.0	-	SB-5TR	-	LTW-20
	4032B-5	●	●	40	45(42*)	32	29	220	50	23.5	11						

* Possible by slightly chamfering toolholder's tip about 0.5 mm

Applicable Inserts

Classification of usage
◕ : Continuous~Light Interruption / 1st Choice
◌ : Continuous~Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

		TN620	PR1535	PR1225	PR1215
P	Carbon Steel / Alloy Steel	●	◌	◕	◌
M	Stainless Steel		◕	◌	◌
K	Cast Iron				◕

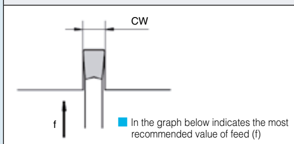
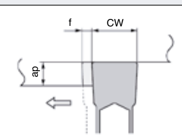
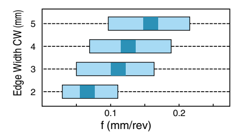
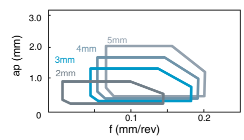
Insert		Description		Dimension (mm) CW	Tolerance	RE	INSL	S	Cermet TN620	MEGACOAT NANO PR1535	MEGACOAT PR1225	MEGACOAT PR1215	Applicable Toolholders
		GDM	2013N-020GMI	2.0		0.2	13.5	4.3	●	●	●	●	KGDI R/L...-2
			3015N-040GMI	3.0	±0.03	0.4	15.5	4.6	●	●	●	●	KGDI R/L...-3
			4020N-040GMI	4.0			20	4.3	●	●	●	●	KGDI R/L...-4
			5020N-040GMI	5.0	±0.04				●	●	●	●	KGDI R/L...-4 KGDI R/L...-5
			5020N-080GMI			0.8			●	●	●	●	
		GDM	3015N-150R-CM	3.0	±0.03	1.5	16.3	4.6	●	●	●	●	KGDI R/L...-3
			4020N-200R-CM	4.0		2.0	20	4.3	●	●	●	●	KGDI R/L...-4
			5020N-250R-CM	5.0	±0.04	2.5	21		●	●	●	●	KGDI R/L...-4 KGDI R/L...-5

Recommended Cutting Conditions (Vc)

Workpiece Material	Chipbreaker	Recommended Insert Grades (Cutting Speed Vc : m/min) Cermet TN620	MEGACOAT NANO PR1535	MEGACOAT PR1225	MEGACOAT PR1215	Remarks
Carbon Steel	GMI CM	☆ 100~220	☆ 80~150	★ 80~200	☆ 100~200	Coolant
Alloy Steel		☆ 80~200	☆ 70~150	★ 70~180	☆ 80~180	
Stainless Steel		☆ 70~180	★ 60~150	☆ 60~150	☆ 60~150	
Cast Iron					★ 100~200	

★ : 1st Recommendation ☆ : 2nd Recommendation

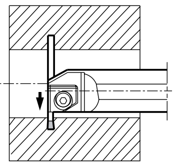
Recommended Cutting Conditions (f, ap)

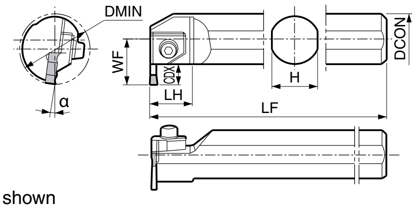
Chipbreaker	Grooving	Turning
		
GMI (General purpose)		

● : Std. Item

Inserts are sold in 10 piece boxes

KIGH





• Right-hand shown

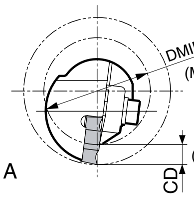
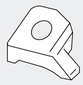
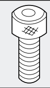
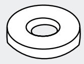
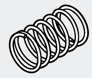
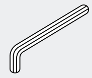


Fig. A

● Toolholder Dimensions

Description		Stock	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	CDX			Spare Parts Clamp	Clamp Bolt	Washer	Spring	Wrench
																
KIGHR	**4532B-4**	●	45	32	30	200		28.2								
	5540B-4	●	55	40	38	250	27	32.3	12							
	6550B-4	●	65	50	48	300		37.3								
	4532B-5	●	45	32	30	200		28.2				CGH-1L				
	5540B-5	●	55	40	38	250	27	32.3	12				HH6X25	W-6	SP-6	LW-5
	6550B-5	●	65	50	48	300		37.3								
	5540B-7	●	55	40	38	250	27	32.3	12			CGH-2L				
	6550B-7	□	65	50	48	300		37.3								

· CDX shows the distance from the toolholder to the cutting edge. For the available grooving depth (CD), ref. to "List of Min. Available Cutting Diameter and Groove Depth".
· LH depends on the insert's edge width.

● Rake Angle (α) after Installment of GH / GHU insert

GH○○○○-○○		GHU○○-○○	
α	Insert Grades	α	Insert Grades
-5°	A65, A66N, PT600M	+5°	TN60 CR9025
+5°	TC40N		
+15°	TN90, TC60M PR930 KW10		

◆ List of the Min. Cutting Diameter and Grooving Depth (Refer to Fig. A)

Toolholder Description		øD (Min. Cutting Dia.)					
KIGHR	**4532B-** ○	ø110	ø70	ø65	ø60	ø55	ø45
	5540B- ○	ø70	ø60	ø55			
	6550B- ○	ø65					
Available Grooving Depth CD (mm)		12	11.5	11	10	9	Under 8

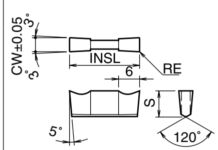
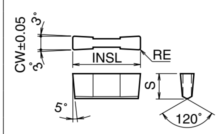
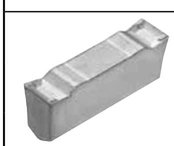
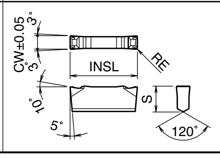
Applicable Inserts

(mm)

Description	INSL	S
GH4020-○○ ~ GH8020-○○	20	7.5
GHU○○-○○	20	

		TN60	TC40N	TC60M	CR9025	PR930		KW10	A65	A66N	PT600M
P	Carbon Steel / Alloy Steel					◐					
M	Stainless Steel					◐					
K	Cast Iron							◐	○		●
N	Non-ferrous Metals							◐			
S	Titanium Alloys							◐			
H	Hard Materials (~40HRC)					●					
	Hard Materials (40HRC~)									○	●

Classification of usage
◐ : Continuous~Light Interruption / 1st Choice
◔ : Continuous~Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

Insert		Description		Dimension (mm) CW	RE	Cermet TN60	TC40N	TC60M	CVD Coated Carbide CR9025	PVD Coated Carbide PR930		Carbide KW10	Ceramic A65	A66N	PT600M	Applicable Toolholders
 Ground Chipbreaker		**GH**	**4020-02**	4.0	0.2		●	●		●		●				**KIGHR4532B-4 5540B-4 6550B-4**
			4020-05		0.5		●	●		●		●	○	○	○	
			4520-02	4.5	0.2		●									
			4520-05		0.5		●									
			5020-02	5.0	0.2		●	●		●		●				**KIGHR4532B-5 5540B-5 6550B-5**
			5020-05		0.5		●	●		●		●	○	○	○	
			5520-02	5.5	0.2		●									
			5520-05		0.5		●									
			6020-02	6.0	0.2		●	●		●		●				
			6020-05		0.5		●	●		●		●	○		○	
			6520-02	6.5	0.2		●									
			6520-05		0.5		●									
 Ceramic	 Ceramic insert is above shape.		**7020-02**	7.0	0.2		●	●		●		●				**KIGHR5540B-7 6550B-7**
			7020-05		0.5		●	●		●		●	○		□	
			7520-02	7.5	0.2		●									
			7520-05		0.5		●									
			8020-02	8.0	0.2		●	●		●		●				
			8020-05		0.5		●	●		●		●				
 Molded Chipbreaker		**GHU**	**40-20**	4.0	0.25	●			●							**KIGHR ... ○○○○B-4**
			50-20	5.0	0.30	●			●							**KIGHR ... ○○○○B-5**
			60-20	6.0	0.30	●			●							

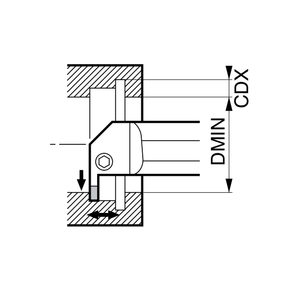
Recommended Cutting Conditions ➡ G113

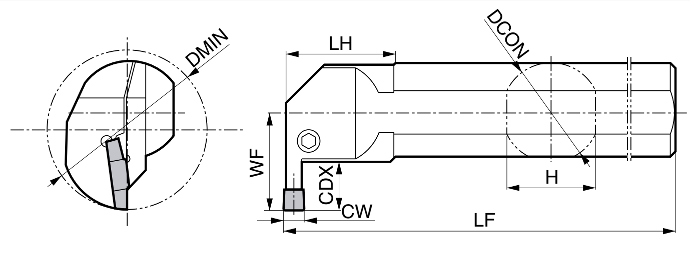
Inserts are sold in 10 piece boxes

● : Std. Item
○ : Check Availability
□ : Deleted from the next catalog

G
Grooving
External
Internal
Face

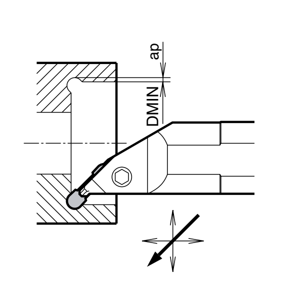
KIGM-8 (8mm-Width Insert / Large Internal Diameter Deep Grooving)

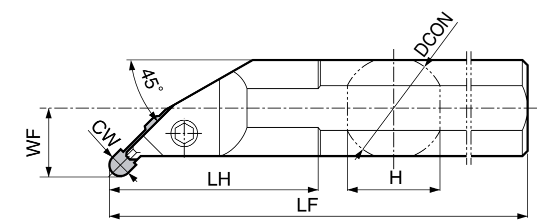




• Right-hand shown

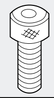
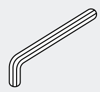
KIGMU-8 (8mm-Width Insert / Large Internal Diameter Undercut Grooving)





• Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	CDX	ap	Edge Width CW(mm) MIN.	MAX.	Spare Parts: Clamp Bolt 	Wrench 
KIGMR/L	6540B-8	●	●	65	40	36	300	41	41	20	-	8.0	8.0	HH6X20	LW-5
KIGMUR	6540B-8	●		65	40	36	300	83	26	-	2.2	8.0	8.0	HH6X20	LW-5

· CDX shows available grooving depth.

· ap shows the distance from the internal face of the workpiece.

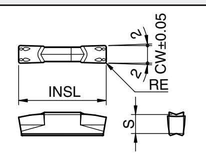
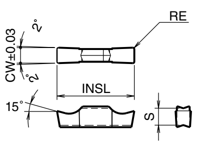
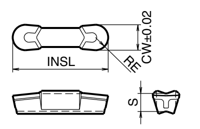
Applicable Inserts

(mm)

Description	INSL	S
GMM8030-080MW	30	5.5
GMG8030-050MG		
GMGA8030-400R		

		Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	PVD Coated Carbide PR905	Carbide KW10
P	Carbon Steel / Alloy Steel			◔	◕		
M	Stainless Steel			◕	◔		
K	Cast Iron					◕	◔
N	Non-ferrous Metals						◕
S	Titanium Alloys						◕
H	Hard Materials (~40HRC)			○	●		
H	Hard Materials (40HRC~)						

Classification of usage
◕ : Continuous~Light Interruption / 1st Choice
◔ : Continuous~Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

Insert		Description	Dimension (mm) CW	RE	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	PVD Coated Carbide PR905	Carbide KW10	Applicable Toolholders	See Page for Applicable Toolholders
 Chip Control Oriented / M Class		GMM 8030-080MW	8.0	0.8		○	○	○	○	○	KIGMR/L ...8 KIGMUR ...8	G71
 Sharp-Cutting Oriented / Precision Class Ground Chipbreaker		GMG 8030-050MG	8.0	0.5	○	○		○	○	○		
 Sharp-Cutting Oriented / Precision Class Full-R / Copying		GMGA 8030-400R	8.0	4.0						○		

· If using a full-R insert with KIGM-8 toolholder, you need to modify the corner of insert adapter of toolholder.

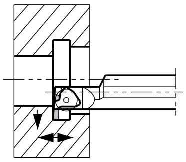
Recommended Cutting Conditions ➡ G117

● : Std. Item
○ : Check Availability

Inserts are sold in 10 piece boxes

A Insert Grades
B Turning Indexable Inserts
C CBN & PCD Tools
D External
E Small Parts Machining
F Boring
G Grooving
H Cut-off
J Threading
K Drilling
L Solid Tools
M Milling
N Tools for Turning Mill
P Spare Parts
R Technical Information
T Index

KGIA



Integral Type

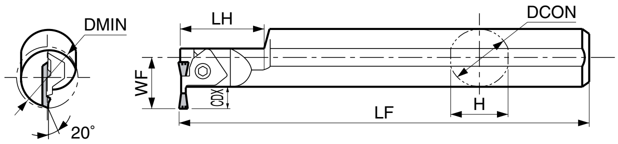
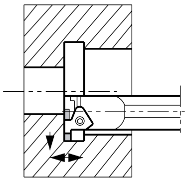


Fig. 1



Separate Type

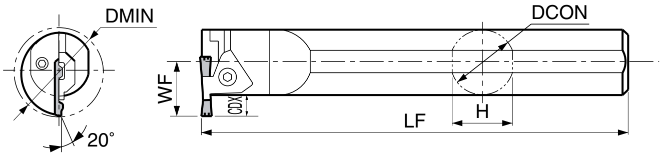
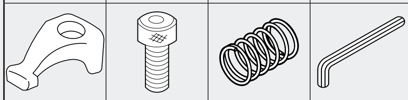


Fig. 2

• Right-hand shown

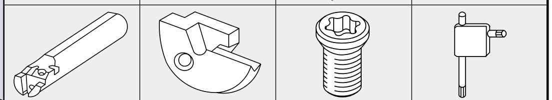
Toolholder Dimensions



Description		Stock	Min. Bore Dia. DMIN	DCON	H	LF	LH	WF	CDX	Drawing	Spare Parts: Clamp	Clamp Bolt	Spring	Wrench
KGIAR	3232B-3	●	32	32	30.4	200	45	26.5	10	Fig. 1	CGIA-3R	HH5X15	SP-5	LW-4
	4332B-3	●	43	32	30	200	-	26.3		Fig. 2				
	5140B-3	●	51	40	38	250	-	30.3						
	3232B-4	●	32	32	30.4	200	45	26.5	10	Fig. 1	CGIA-4R			
	4332B-4	●	43	32	30	200	-	26.3		Fig. 2				
	5140B-4	●	51	40	38	250	-	30.3						
	5640B-5	●	56	40	38	250	-	35.3	15	Fig. 2	CGIA-5R			
	6650B-5	●	66	50	48	250	-	40.3						

· CDX shows available grooving depth.

Composition



Type	Toolholder Description		Toolholder	Blade	Clamp Screw	Wrench
Integral Type	KGIAR	3232B-3	-	-	-	-
Separate Type		4332B-3	KGIAR32H	BGIAR43-3	SB-40140TR	FT-15
		5140B-3	KGIAR40H	BGIAR51-3		
Integral Type		3232B-4	-	-	-	-
Separate Type		4332B-4	KGIAR32H	BGIAR43-4	SB-40140TR	FT-15
		5140B-4	KGIAR40H	BGIAR51-4		
Separate Type		5640B-5	KGIAR40H	BGIAR56-5	SB-40140TR	FT-15
		6650B-5	KGIAR50H	BGIAR66-5		

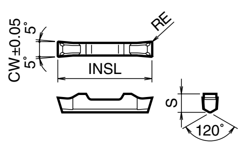
Applicable Inserts

P	Carbon Steel / Alloy Steel	○	◕
M	Stainless Steel	○	◕
K	Cast Iron		
N	Non-ferrous Metals		
S	Titanium Alloys		
H	Hard Materials (~40HRC)	○	●
	Hard Materials (40HRC~)		

Classification of usage

◕ : Continuous~Light Interruption / 1st Choice
◌ : Continuous~Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

Molded Chipbreaker



Description		CW	RE	INSL	S	Cermet TN60	CVD Coated Carbide CR9025	Applicable Toolholders
GIA	30	3.0	0.20	25	5.0	●	●	KGIAR …3
	40	4.0	0.25			●	●	KGIAR …4
	50	5.0	0.30	30		●	●	KGIAR …5

Recommended Cutting Conditions ➡ G114

● : Std. Item

Inserts are sold in 10 piece boxes

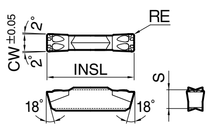
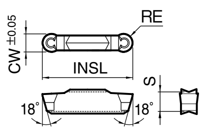
KIGM-V Applicable Inserts

(mm)

Description	INSL	S
GMM3015…V☐	15.5	4.3
GMM4020…V☐	20	4.3
GMM5020…V☐	20	4.3

	Workpiece	TN90	CR9025	PR915	PR930	PR905	KW10
P	Carbon Steel / Alloy Steel			◔	◕		
M	Stainless Steel			◕	◔		
K	Cast Iron					◕	◔
N	Non-ferrous Metals						◕
S	Titanium Alloys						◕
H	Hard Materials (~40HRC)			○	●		
H	Hard Materials (40HRC~)						

Classification of usage
◕ : Continuous~Light Interruption / 1st Choice
◔ : Continuous~Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

Insert		Description		Dimension (mm) CW	RE	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PR930	PR905	Carbide KW10	Applicable Toolholders
 Chip Control Oriented / M Class		GMM	3015-040V	3.0	0.4	○	○	○	○	○	○	KIGM R/L 2016B-3V, 2520B-3V, 3225B-3V
			4020-040V	4.0	0.4	○	○	○	○	○	○	KIGM R/L 3225B-4V, 4032B-4V
			5020-080V	5.0	0.8		○	○	○	○	○	
 Chip Control Oriented / M Class Full-R / Copying		GMM	3015-150VR	3.0	1.5		☐		☐	☐	☐	KIGM R/L 2016B-3V, 2520B-3V, 3225B-3V
			4020-200VR	4.0	2.0				☐	☐		KIGM R/L 3225B-4V, 4032B-4V
			5020-250VR	5.0	2.5				☐			

· It is not recommended to use this for KIGM-V Internal Grooving Toolholders which require GMM...V / GMM...VR type inserts with the 18° front relief angle, because the relief angle of the insert used for GMM4020-04 toolholder is 10°.

Recommended Cutting Conditions ➡ G117

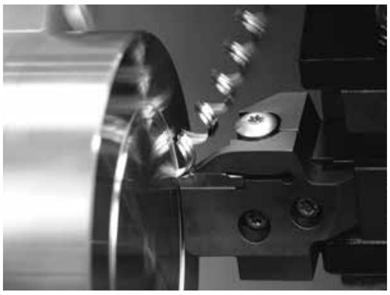
○ : Check Availability
☐ : Deleted from the next catalog

Inserts are sold in 10 piece boxes

Summary of Face Grooving

External dia. of the groove DAXN / DAXX

External dia. of the groove within DAXN ~ DAXX are the available range for the initial grooving on the unprocessed workpiece (Ref. to Fig. 1).



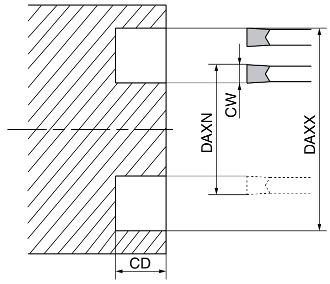
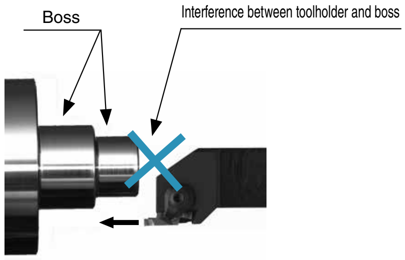
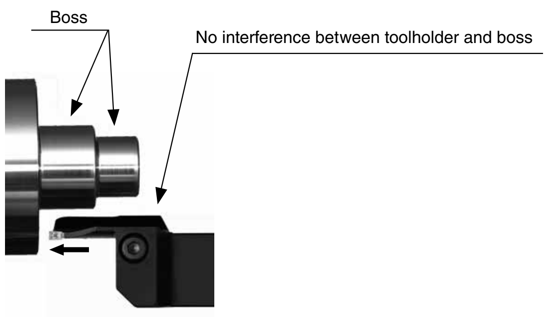


Fig. 1

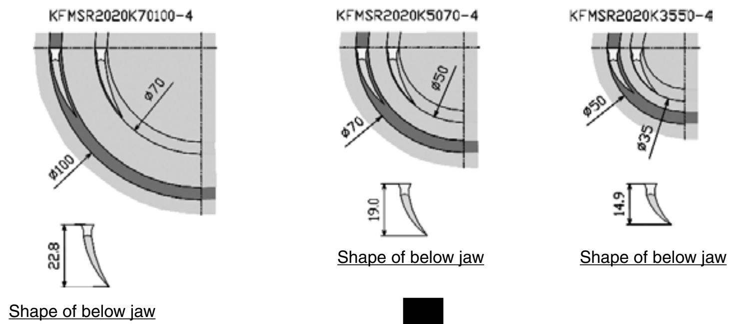
Caution for Face Grooving

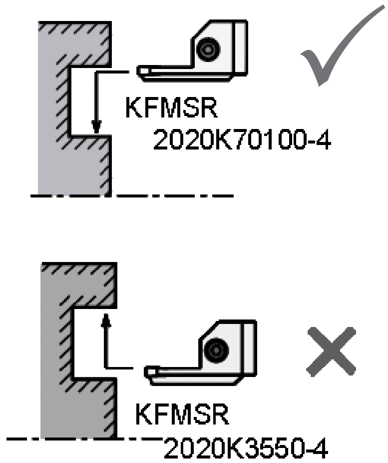
1) When face grooving, the suitable toolholder depends on the length of the boss





2) Selection of Face Grooving Toolholder





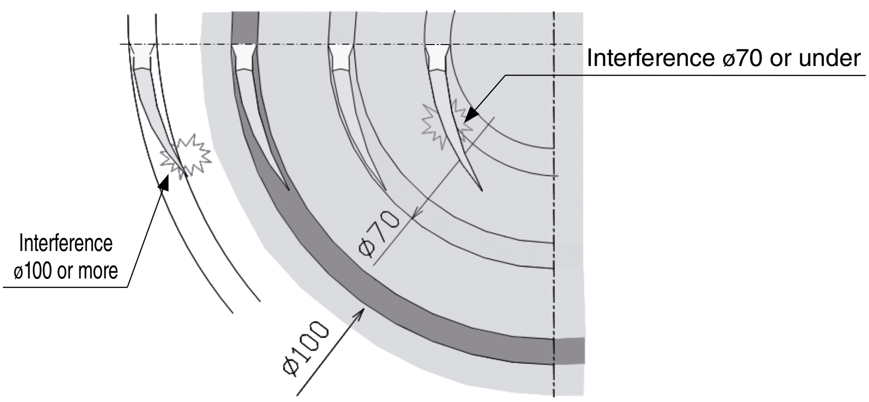
Wider grooving (turning) should be performed from the outside inwards

・Example of usage for the face grooving toolholder.

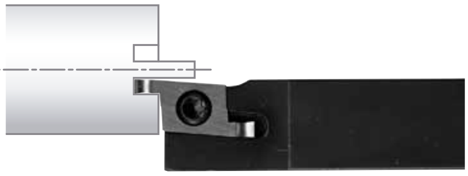
When face grooving, KFMSR2525M70100-4 should be between ø70~ø100 for grooving the outer diameter at first. If the workpiece is machined at a diameter ø100 or ø70, the jaw of toolholder interferes with the workpiece.

3) Interference of Face Grooving Toolholder

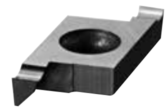
e.g.) KFMSR2525M70100-4



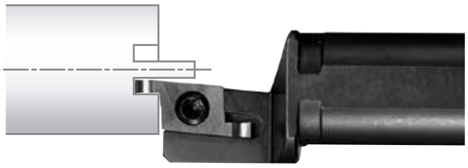
Small Dia. Face Grooving ø6~



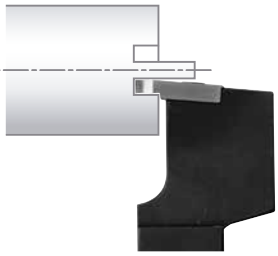
Type	STW
External dia. of the groove (MIN.)	ø6
Edge Width (mm)	0.5 ~ 2.0
Max. Grooving Depth (mm)	1.0 ~ 3.0
See Page	G82



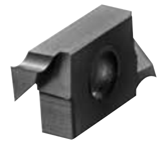
Twin-Bars for Horizontal type



Type	S..-STW
External dia. of the groove (MIN.)	ø6
Edge Width (mm)	0.5 ~ 2.0
Max. Grooving Depth (mm)	1.0 ~ 3.0
See Page	G82

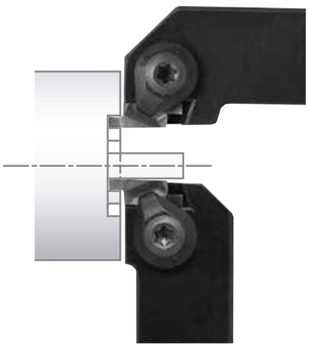


Type	STWS
External dia. of the groove (MIN.)	ø6
Edge Width (mm)	0.5 ~ 2.0
Max. Grooving Depth (mm)	1.0 ~ 3.0
See Page	G83

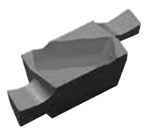


Twin-Bars for Vertical type

Small Dia. Face Grooving ø8~



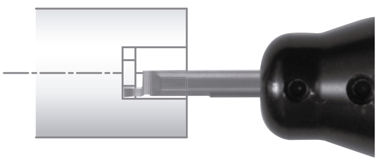
Type	GFVS-AA
External dia. of the groove (MIN.)	ø8
Edge Width (mm)	1.0 ~ 3.0
Max. Grooving Depth (mm)	2.2
See Page	G98



Ground Chipbreaker

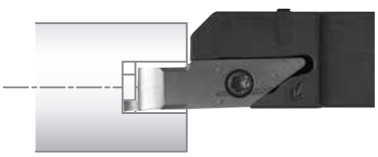
Type	GFVT-AA
External dia. of the groove (MIN.)	ø8
Edge Width (mm)	1.0 ~ 3.0
Max. Grooving Depth (mm)	2.2
See Page	G98

Small Dia. Face Grooving ø5~, ø8~



Type	EZFG
External dia. of the groove (MIN.)	ø5, ø6, ø8
Edge Width (mm)	1.0 ~ 3.0
Max. Grooving Depth (mm)	1.5 ~ 3.0
See Page	G78

EZ Bars



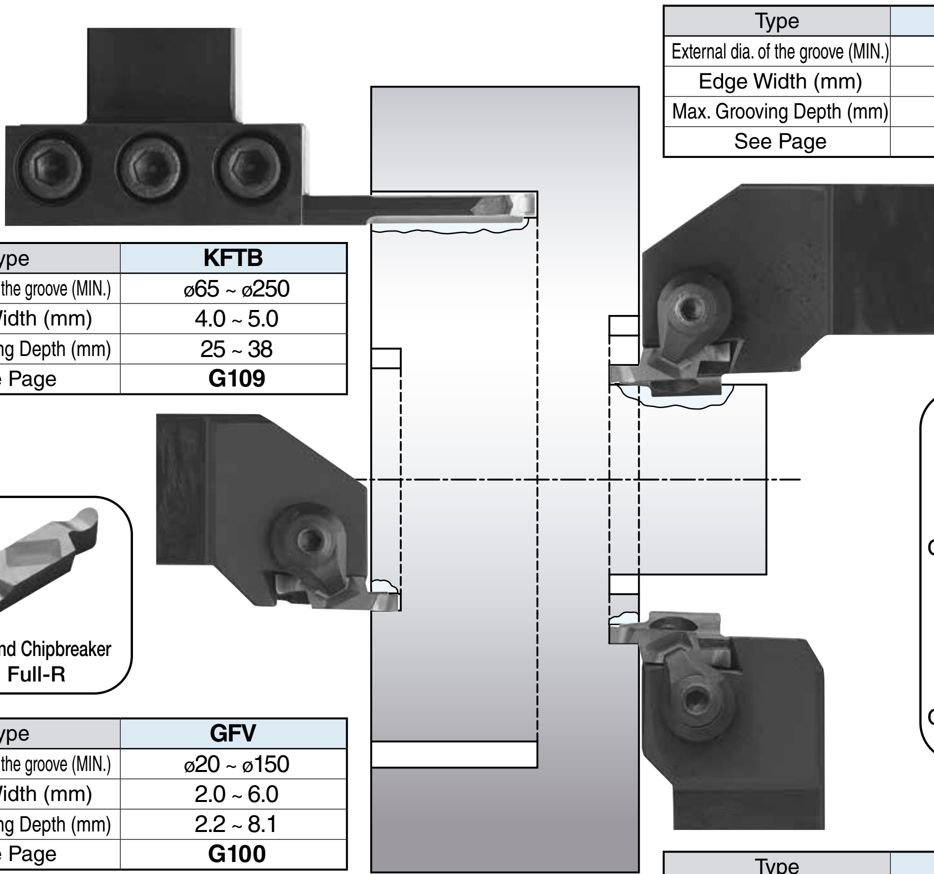
Type	VNFG
External dia. of the groove (MIN.)	ø8
Edge Width (mm)	1.0 ~ 3.0
Max. Grooving Depth (mm)	2.0 ~ 3.0
See Page	G80

System Tip-Bars

Summary of Face Grooving

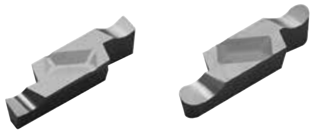
Face Grooving ø20~

Molded Chipbreaker



Type	GFVS
External dia. of the groove (MIN.)	ø35 ~ ø150
Edge Width (mm)	2.5 ~ 6.0
Max. Grooving Depth (mm)	4.6 ~ 8.1
See Page	G103

Type	KFTB
External dia. of the groove (MIN.)	ø65 ~ ø250
Edge Width (mm)	4.0 ~ 5.0
Max. Grooving Depth (mm)	25 ~ 38
See Page	G109



Ground Chipbreaker　Ground Chipbreaker Full-R

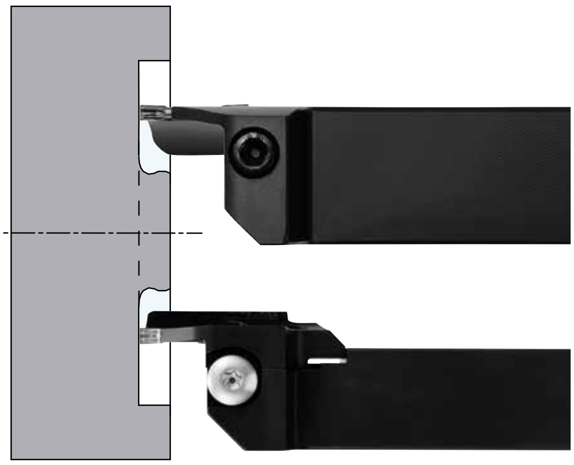
Ground Chipbreaker

Ground Chipbreaker Full-R

Type	GFV
External dia. of the groove (MIN.)	ø20 ~ ø150
Edge Width (mm)	2.0 ~ 6.0
Max. Grooving Depth (mm)	2.2 ~ 8.1
See Page	G100

Type	GFVT
External dia. of the groove (MIN.)	ø35 ~ ø150
Edge Width (mm)	2.5 ~ 6.0
Max. Grooving Depth (mm)	4.6 ~ 8.1
See Page	G103

KGDF Face Grooving ø25~



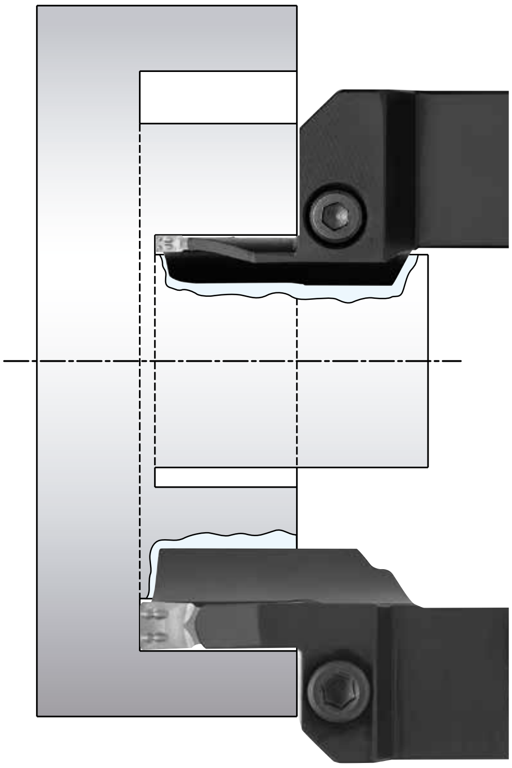
Type	KGDF-Z
External dia. of the groove (MIN.)	ø50
Edge Width (mm)	3.0 ~ 5.0
Max. Grooving Depth (mm)	15
See Page	G92

Type	*KGDF
External dia. of the groove (MIN.)	ø25
Edge Width (mm)	2.0 ~ 6.0
Max. Grooving Depth (mm)	6 ~ 32
See Page	G88

* The separate type toolholders can accept all the blades if their hand is matching.

Grooving and Turning	Deep grooving and Turning	High Feed	Full-R
GM	**DM**	**GH**	**CM**

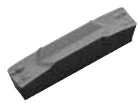
Face Grooving & Turning ø25~



Type	KFMS
External dia. of the groove (MIN.)	ø25 ~ ø235
Edge Width (mm)	3.0 ~ 6.0
Max. Grooving Depth (mm)	13 ~ 32
See Page	**G106**

Molded Chipbreaker

Type	KFMS-8
External dia. of the groove (MIN.)	ø54 ~ ø155
Edge Width (mm)	8.0
Max. Grooving Depth (mm)	25
See Page	**G108**

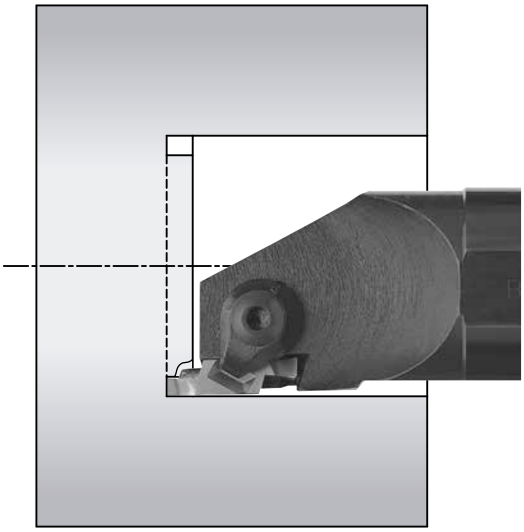


Molded Chipbreaker

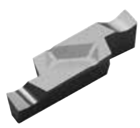
Ground Chipbreaker

Molded Chipbreaker Full-R

Face Grooving ø35~



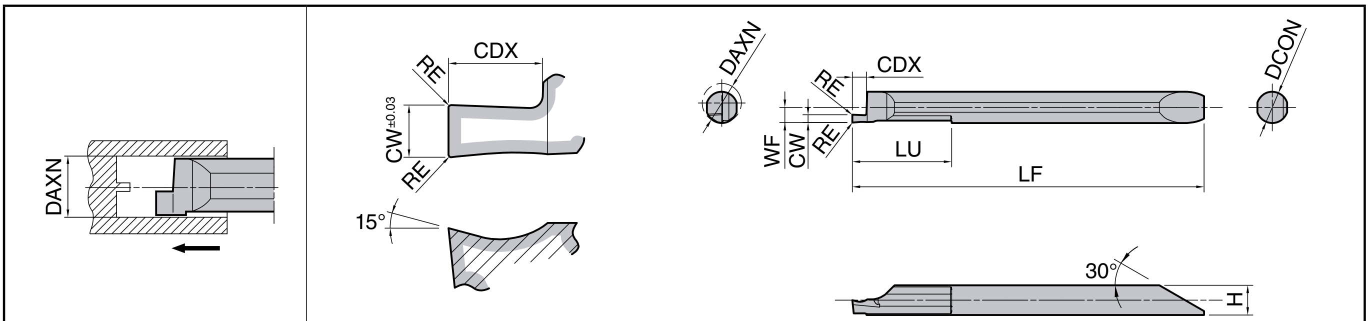
Type	GIFV
External dia. of the groove (MIN.)	ø35 ~ ø50
Edge Width (mm)	2.0 ~ 6.0
Max. Grooving Depth (mm)	2.2 ~ 8.1
See Page	**G110**



Ground Chipbreaker

Ground Chipbreaker Full-R

EZFG



Detail of edge

● Right-hand shown

● Dimensions

Description	External dia. of the groove (MIN.) DAXN	Dimension (mm) CW±0.03	RE	DCON	H	LF	LU	WF	CDX	MEGACOAT PR1225 R	MEGACOAT PR1225 L	Carbide GW05 R	Applicable Sleeves
EZFGR/L 050040-100	5	1.0	± 0.013 0.05	4	3.8	45.0	12	1.9	1.5	●	●	●	EZH040..
050040-150		1.5							2.0	●	●	●	
EZFGR/L 060050-100	6	1.0	± 0.013 0.05	5	4.8	53.2	15	2.4	1.5	●	●	●	EZH050..
060050-150		1.5							2.5	●	●	●	
060050-200		2.0							3.0	●	●	●	
EZFGR/L 080070-100	8	1.0	± 0.013 0.05	7	6.8	64.2	25	3.4	2.0	●	●	●	EZH070..
080070-150		1.5							2.5	●	●	●	
080070-200		2.0							3.0	●	●	●	
080070-300		3.0								●	●	●	

· CDX shows available grooving depth.

◆ Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min) MEGACOAT PR1225	Carbide GW05	EZFGR050040-100 EZFGR060050-100 EZFGR080070-100	EZFGR050040-150 EZFGR060050-150 EZFGR080070-150	EZFGR060050-200 EZFGR080070-200	EZFGR080070-300	Remarks
			f (mm/rev)				
Carbon Steel / Alloy Steel	★ 30~100	-	~0.02	~0.03	~0.04	~0.05	Coolant
Stainless Steel	★ 30~80	-	~0.01	~0.02	~0.02	~0.03	
Non-ferrous Metals	-	★ ~300	~0.03	~0.05	~0.06	~0.08	

★ : 1st Recommendation

◆ EZ Bars Identification System

EZ FG R 050 040 - 100

Symbol of EZ Bars	Applications	Insert Hand	External dia. of the groove (MIN.)	Shank Dia.	Edge Width
EZ	FG : Face Grooving	R : Right-hand	050 : 5mm	040 : 4mm	100 : 1.0mm
			060 : 6mm	050 : 5mm	150 : 1.5mm
			080 : 8mm	070 : 7mm	200 : 2.0mm
					300 : 3.0mm

● : Std. Item

G

Grooving

External

Internal

Face

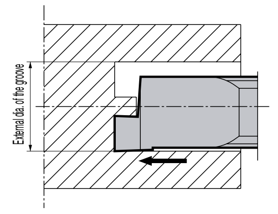
EZ Bars are sold in 1 piece boxes

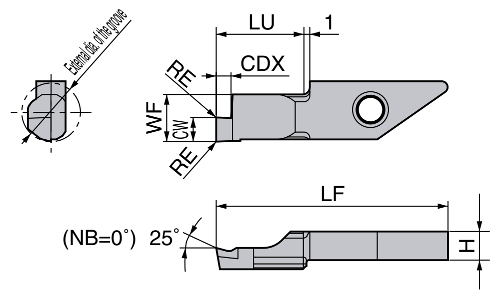
Applicable Sleeves

Sleeve: EZH-CT (Adjustable overhang length with coolant hole) ➡ F25	Sleeve: EZH-HP (Adjustable overhang length) ➡ F26	Sleeve: EZH-ST ➡ F28	Sleeve Shank Dia. DCON(mm)	Applicable Insert for Internal Face Grooving: EZFG	Shank Dia. DCON(mm)	Applicable Machine Manufacturer
-	-	EZH 04012ST-80	12	EZFG$^R/_L$ 050040-...	4	(General purpose)
		05012ST-80		EZFG$^R/_L$ 060050-...	5	
		07012ST-80		EZFG$^R/_L$ 080070-...	7	
-	EZH 04016HP-100	EZH 04016ST-100	16	EZFG$^R/_L$ 050040-...	4	(General purpose)
	05016HP-100	05016ST-100		EZFG$^R/_L$ 060050-...	5	
	07016HP-100	07016ST-100		EZFG$^R/_L$ 080070-...	7	
EZH 04019CT-120	EZH 04019HP-120	EZH 04019ST-120	19.05	EZFG$^R/_L$ 050040-...	4	Citizen Machinery
05019CT-120	05019HP-120	05019ST-120		EZFG$^R/_L$ 060050-...	5	
07019CT-120	07019HP-120	07019ST-120		EZFG$^R/_L$ 080070-...	7	
EZH 04020CT-120	EZH 04020HP-120	EZH 04020ST-120	20	EZFG$^R/_L$ 050040-...	4	Eguro Tsugami Citizen Machinery (General purpose)
05020CT-120	05020HP-120	05020ST-120		EZFG$^R/_L$ 060050-...	5	
07020CT-120	07020HP-120	07020ST-120		EZFG$^R/_L$ 080070-...	7	
EZH 04022CT-135	EZH 04022HP-135	EZH 04022ST-135	22	EZFG$^R/_L$ 050040-...	4	Star Micronics Nomura DS Tsugami
05022CT-135	05022HP-135	05022ST-135		EZFG$^R/_L$ 060050-...	5	
07022CT-135	07022HP-135	07022ST-135		EZFG$^R/_L$ 080070-...	7	
EZH 04025.0CT-135	EZH 04025.0HP-135	EZH 04025.0ST-135	25	EZFG$^R/_L$ 050040-...	4	Eguro Tsugami Citizen Machinery (General purpose)
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZFG$^R/_L$ 060050-...	5	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZFG$^R/_L$ 080070-...	7	
EZH 04025.4CT-120	EZH 04025.4HP-120	EZH 04025.4ST-120	25.4	EZFG$^R/_L$ 050040-...	4	Citizen Machinery
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZFG$^R/_L$ 060050-...	5	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZFG$^R/_L$ 080070-...	7	

· Choose sleeves (DCB) to meet with DCON dimension of Face Grooving Inserts.
· Adjustment Pin cannot be installed to **EZH-ST** sleeves. To adjust overhang of the bar, please use **EZH-CT / HP** sleeves.
· Machine manufacturers in random order

VNFG (System Tip-Bars)





● Right-hand shown

Dimensions

Classification of usage			PR1225		PR930	KW10	KPD001	KPD010
● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel	●		○			
	M	Stainless Steel	●		○			
	K	Cast Iron				●		
	N	Non-ferrous Metals				○	●	
	S	Titanium Alloys				○	●	
	H	Hard Materials (~40HRC)	○		○			
		Hard Materials (40HRC~)						

Description		External dia. of the groove		Dimension (mm)							MEGA COAT		PVD	Carbide	PCD		See Page for Applicable Toolholders
		DAXN [MIN.]	DAXX [MAX.]	CW $^{\pm0.03}$	RE	H	LF	LU	WF	CDX	PR1225		PR930	KW10	KPD001	KPD010	
VNFGR	0810-10	8 (0)	∞ (∞)	1.0	0.05	3.9	29.6	10	7.3	2.0	●		●	●			F32 F33
	0820-10			2.0							●		●	●			
	0830-10			3.0						3.0	●		●	●			
VNFGR	0820-10NB			2.0	0.05	3.9	29.6	10	7.3	2.0					MTO	MTO	
	0830-10NB			3.0						3.0					MTO		

· CDX shows available grooving depth.

· External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.

System Tip-Bars are sold in 5 piece boxes

CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item
MTO : Made to order

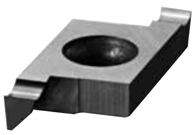
Recommended Cutting Conditions

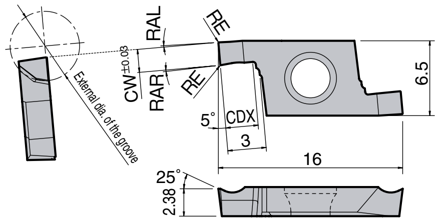
Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min) MEGA COAT PR1225	PVD Coated Carbide PR930	Carbide KW10	VNFG0810 f (mm/rev)	VNFG0820 f (mm/rev)	VNFG0830 f (mm/rev)	Remarks
Carbon Steel / Alloy Steel	★ 30~100	☆ 30~100		~0.02	~0.04	~0.05	Coolant
Stainless Steel	★ 30~80	☆ 30~80		~0.01	~0.02	~0.03	
Non-ferrous Metals			★ ~300	~0.04	~0.06	~0.08	

★ : 1st Recommendation ☆ : 2nd Recommendation

Small Dia. Face Grooving (Twin-Bars)

TWFG (Horizontal type)





● Left-hand shown

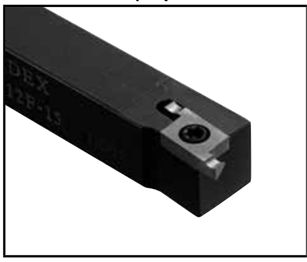
Description		External dia. of the groove DAXN [MIN.]	External dia. of the groove DAXX [MAX.]	Dimension (mm) CW	RE	CDX	Angle RA	Insert Grades PVD Coated Carbide PR1535	PR1025	Carbide KW10
TWFGL	050	6 (0)	∞ (∞)	0.5	0.05	1.0	1.5°	●	○	●
	080			0.8		1.5		●	○	●
	100			1.0		2.2	2°	●	○	●
	125			1.25				●	○	●
	150			1.5				●	○	●
	180			1.8		3.0		●	○	●
	200			2.0				●	○	●

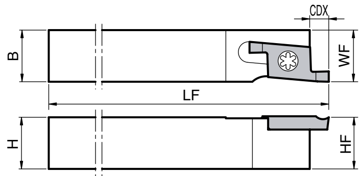
· CDX shows available grooving depth.

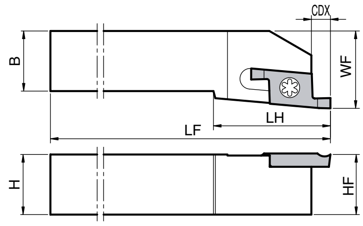
· External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.

STW (Square Shank for Horizontal type)

(For right-hand toolholder for boring, See page **F36**.)







● Left-hand shown

Toolholder Dimensions

Description		Stock	Dimension (mm) H	HF	B	LF	LH	WF	CDX	Drawing	Spare Parts Clamp Screw	Spare Parts Wrench	Applicable Inserts ➡ G82
STWL	1010F-15	●	10	10	10	85	-	10	3	Fig. 1	SB-3080TR	LTW-10S	TWFGL○○○
	1212F-15	●	12	12	12			12					
	1212K-15	●	12	12	12	125		12					
	1616K-15	●	16	16	16			16					
	2020K-15	●	20	20	20		25	25		Fig. 2			
	2525M-15	●	25	25	25	150		32					

· CDX shows the distance from the toolholder to the cutting edge. Available groove depth : "CDX" of insert.

S..-STW (Round Shank for Horizontal type)

(For right-hand toolholder for boring, See page **F36**.)

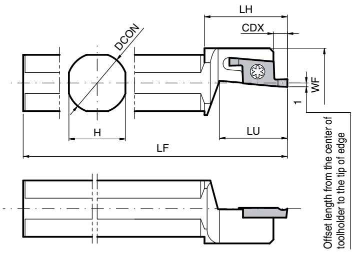


Fig. 1

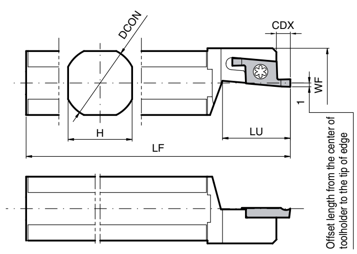


Fig. 2

● Left-hand shown

Toolholder Dimensions

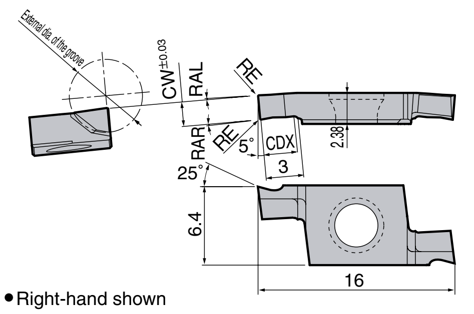
Description		Stock	Dimension (mm) DCON	WF	H	LF	LU	LH	CDX	Drawing	Spare Parts Clamp Screw	Spare Parts Wrench	Applicable Inserts ➡ G82
S12F-	STWL15	●	12	20	11	80	18	22	3	Fig. 1	SB-3080TR	LTW-10S	TWFGL○○○
S14H-	STWL15	●	14		13	100							
S15F-	STWL15	●	15.875		15	85							
S16F-	STWL15	●	16										
S19G-	STWL15	●	19.05	18.5	17	90		-	3	Fig. 2			
S19K-	STWL15	●				120							
S20G-	STWL15	●	20	19.5	18	90							
S20K-	STWL15	●				120							
S22K-	STWL15	●	22	21.5	20	125							
S25.0J-	STWL15	●	25	24.5	23	110	22						
S25K-	STWL15	●	25.4	25		120							

· CDX shows the distance from the toolholder to the cutting edge. Available groove depth : "CDX" of insert.

Twin-Bars are sold in 5 piece boxes

● : Std. Item
○ : Check Availability

TWFGT (Vertical type)



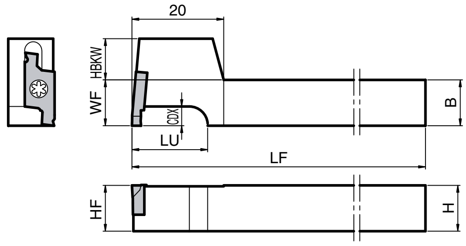
●Right-hand shown

Description		External dia. of the groove DAXN [MIN.]	External dia. of the groove DAXX [MAX.]	CW	RE	CDX	Angle RA	PR1535 (PVD Coated Carbide)	PR1025 (PVD Coated Carbide)	KW10 (Carbide)
TWFGTR	**050**	6 (0)	∞ (∞)	0.5	0.05	1.0	1.5°	●	○	●
	080			0.8		1.5		●	○	●
	100			1.0		2.2	2°	●	○	●
	125			1.25				●	○	●
	150			1.5				●	○	●
	180			1.8		3.0		●	○	●
	200			2.0				●	○	●

· CDX shows available grooving depth.

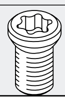
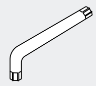
· External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.

STWS (Square Shank for vertical type , L-shape)



●Right-hand shown

Toolholder Dimensions

Description		Stock	H	HF	B	LF	LU	WF	HBKW	CDX	Clamp Screw 	Wrench 	Applicable Inserts ➡ G83
STWSR	**1010JX-15T**	●	10	10	10	120	16	10	9	3	SB-3080TR	LTW-10S	TWFGTR○○○
	1212JX-15T	●	12	12	12			12	7				
	1616JX-15T	●	16	16	16		20	16	3				
STWSR	**1010F-15T**	●	10	10	10	85	16	10	9				
	1212F-15T	●	12	12	12			12	7				

· CDX shows the distance from the toolholder to the cutting edge. Available groove depth : "CDX" of insert.

Recommended Cutting Conditions (TWFG / TWFGT)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min) MEGACOAT NANO PR1535	PVD Coated Carbide PR1025	Carbide KW10	TWFGL050 TWFGL080 TWFGL100 TWFGTR050 TWFGTR080 TWFGTR100 f (mm/rev)	TWFGL125 TWFGL150 TWFGTR125 TWFGTR150 f (mm/rev)	TWFGL180 TWFGL200 TWFGTR180 TWFGTR200 f (mm/rev)	Remarks
Carbon Steel / Alloy Steel	★ 30~100	☆ 30~100	-	~0.02	~0.03	~0.04	Coolant
Stainless Steel	★ 30~80	☆ 30~80	-	~0.01	~0.02	~0.02	
Non-ferrous Metals	-	-	★ ~300	~0.03	~0.04	~0.06	

★ : 1st Recommendation ☆ : 2nd Recommendation

● : Std. Item
○ : Check Availability

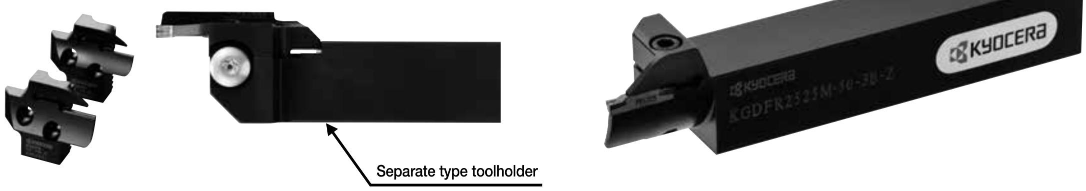
Twin-Bars are sold in 5 piece boxes

KGDF Face Grooving

Features

● Separate type toolholder (toolholder + blade) and Integral type toolholder are available

Adaptable to a wide range of face grooving applications by changing blades



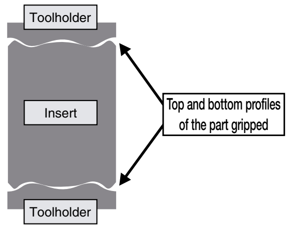
● **New insert clamping system "W Grip"**

Unique "W Grip" (insert anti-slip structure) provides stable machining quality

1) Prevents abnormal machining surface and / or insert breakage resulting from slip of insert.

2) Improves repetitive installation accuracy of insert

***GDFM and GDFMS inserts are not applicable to KGD external grooving, cut-off and KGDI internal grooving toolholders.**



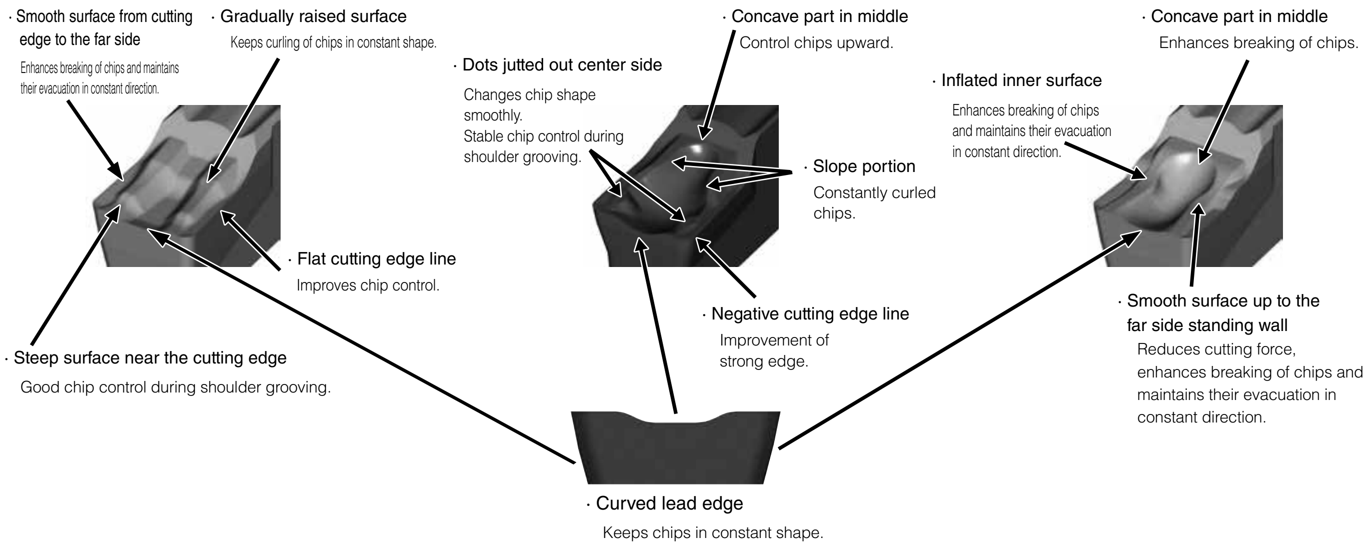
W Grip technology

● **Smooth chip control**

GM Chipbreaker for general purpose, GH Chipbreaker for high feed grooving, and DM Chipbreaker for deep grooving are available.

Advantages of Chipbreaker

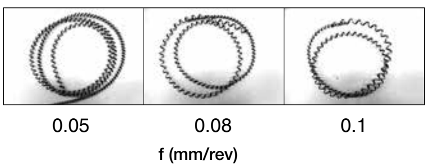
GM Chipbreaker for general purpose | GH Chipbreaker for high feed grooving | DM Chipbreaker for deep grooving



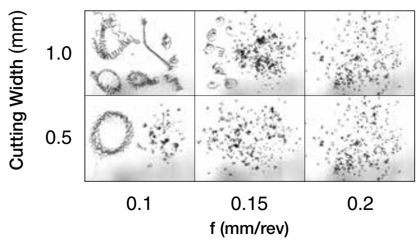
Chip Control of GM Chipbreaker

<Cutting Conditions>
Vc=150m/min f =0.05~0.2mm/rev GDFM5020N-040GM SCM415 Wet

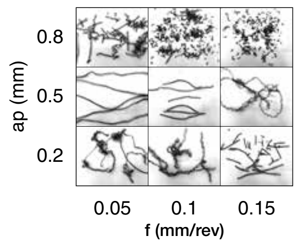
● Face Grooving (ø62)



● Side Grooving



● Turning



High precision edge preparation

➡ High precision molding technology with tolerance ±0.03mm (Edge width 2, 3, 4mm types)

Highly-reputed MEGACOAT technology

➡ Long tool life and high efficiency machining achieved by superior oxidation resistance and wear resistance.

G

Grooving

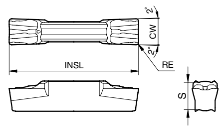
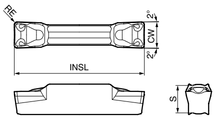
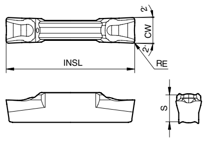
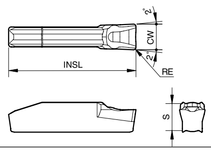
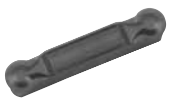
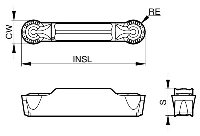
External

Internal

Face

GDFM / GDFMS

Classification of usage		P	Carbon Steel / Alloy Steel	●		◐	◌
◐ : Continuous~Light Interruption / 1st Choice		M	Stainless Steel			◐	◌
◌ : Continuous~Light Interruption / 2nd Choice		K	Cast Iron				◐
● : Continuous / 1st Choice		N	Non-ferrous Metals				
○ : Continuous / 2nd Choice		S	Titanium Alloys				
		H	Hard Materials (~40HRC)				
			Hard Materials (40HRC~)				

Insert			Description	Dimension (mm) CW	Tolerance	RE	INSL	S	Cermet TN620	Cermet TN90	MEGACOAT PR1225	MEGACOAT PR1215	See Page for Applicable Toolholders
Grooving and Turning			GDFM 2020N-020GM	2.0	±0.03	0.2	21	3.9		●	●	●	
			3020N-030GM	3.0		0.3	20	4.3		●	●	●	
			4020N-040GM	4.0		0.4		4.5		●	●	●	
			5020N-040GM	5.0	±0.04					●	●	●	
			5020N-080GM			0.8				●	●	●	
			6020N-040GM	6.0		0.4				●	●	●	
			6020N-080GM			0.8				●	●	●	
Grooving and Turning (High feed)			GDFM 4020N-040GH	4.0	±0.03	0.4	20	4.5			●	●	
			5020N-040GH	5.0	±0.04						●	●	
			5020N-080GH			0.8					●	●	
			6020N-040GH	6.0		0.4					●	●	
			6020N-080GH			0.8					●	●	G88 ~ G94
Deep grooving and Turning			GDFM 3020N-030DM	3.0	±0.03	0.3	20	4.3		●	●	●	
			4020N-040DM	4.0		0.4		4.5		●	●	●	
			5020N-040DM	5.0	±0.04					●	●	●	
			6020N-040DM	6.0						●	●	●	
	 1-edge		GDFMS 3020N-030DM	3.0	±0.03	0.3	20	4.3		●	●	●	
			4020N-040DM	4.0		0.4		4.5		●	●	●	
			5020N-040DM	5.0	±0.04					●	●	●	
			6020N-040DM	6.0						●	●	●	
Full-R			GDFM 3020N-150R-CM	3.0	±0.03	1.5	20	4.3	●		●	●	
			4020N-200R-CM	4.0		2.0	*21	4.5	●		●	●	
			5020N-250R-CM	5.0	±0.04	2.5			●		●	●	
			6020N-300R-CM	6.0		3.0	*22		●		●	●	

* GDFM40/50/60-CM differs from other descriptions in length (INSL) to avoid interference of a toolholder with workpiece.

Recommended Cutting Conditions ➡ G96

◆Inserts Identification System

GDF	M	S	30	20	N	-	030	DM
Series	Tolerance Symbol M : M Class	No. of edge No Indication : 2-edge S : 1-edge	Edge Width 20 : 2mm 30 : 3mm ⋮	Insert Length 20 : 20mm	Hand of Tool N : Neutral		Corner-R(RE) 020 : 0.2mm 030 : 0.3mm 040 : 0.4mm 150R : 1.5mm(Full-R)	Chipbreaker Symbol GM : Grooving and Turning DM : Grooving GH : High feed grooving CM : Full-R

Chipbreaker Selection

Application

- Shallow grooving (Under 10mm)
  - Narrow groove → General purpose GM  or For high feed grooving GH  Tough Edge
  - Wide groove
    - Plunge milling → (General purpose GM or For high feed grooving GH)
    - Turning → General purpose GM 
- Deep grooving (10 mm and more)
  - Narrow groove → For deep grooving DM  Low Cutting Force or For high feed grooving GH  Tough Edge
  - Wide groove
    - Plunge milling → (For deep grooving DM or For high feed grooving GH)
    - Turning → General purpose GM 

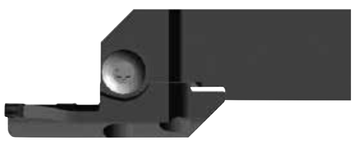
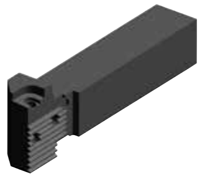
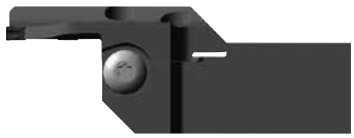
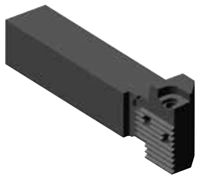
* If chip control is not stable when using the general GM chipbreaker for grooving, change the chipbreaker to the DM chipbreaker for deep grooving or GH chipbreaker for high feed grooving.

● : Std. Item

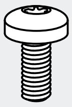
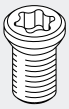
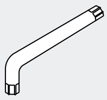
Inserts are sold in 10 piece boxes

KGDF

Toolholder Assembly Identification

Unit Description (Unit Description is not printed.)	Blade (Blade Description is printed.)	Toolholder (Toolholder Description is printed.)
Left-hand : KGDFL…S	Left-hand : KGDFL…-C	Right-hand : KGDR…-C
 ●Left-hand shown	 ●Left-hand shown	 ●Right-hand shown
Right-hand : KGDFR…S	Right-hand : KGDFR…-C	Left-hand : KGDL…-C
 ●Right-hand shown	 ●Right-hand shown	 ●Left-hand shown

- Right-hand Blade for **Left-hand** Toolholder, Left-hand Blade for **Right-hand** Toolholder.
- The Unit Description is not printed on the product. It is printed on the box label.
- Combination of the toolholder and blade (both separately sold) can make up the corresponding assembly.
- The insert clamping screw (BH6X10TR), blade fixing screw (SB-60120TR) and wrench (LTW-25) which are included in the toolholder can be used.

Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
		
BH6X10TR	SB-60120TR	LTW-25

G
Grooving
External
Internal
Face

Face Grooving Toolholder Assembly Identification System

KGDF R 2020 X 25 - 3 A S

Hand of unit	Toolholder shank size	Toolholder Length	Width	Symbol of assembly toolholder
R : Right-hand	2020 : □20	X : Special	2 : 2mm	S : indicates the unit description
L : Left-hand	2525 : □25		3 : 3mm ⋮	

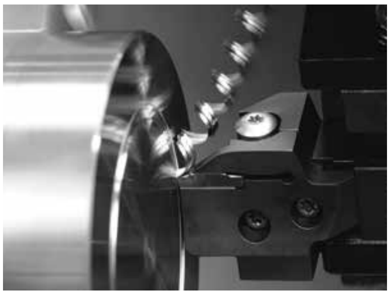
Series
KGDF Face Grooving

External dia. of the groove (MIN.) : DAXN	
Indicates the minimum external diameter suitable for the initial face grooving.	* For the maximum external diameter which can be applied to the initial face grooving (you can also use 1-edge insert), ref. to the MAX. : DAXX value of "External dia. of the groove" in the dimension tables of toolholders and blades.
25 : 25mm · · 235 : 235mm	

Grooving Depth	
A : 6~13mm B : 13~15mm	2-edge insert (1-edge insert can also be used.)
C : 20~25mm D : 32mm	1-edge insert

◆ External dia. of the groove DAXN / DAXX

External dia. of the groove within DAXN ~ DAXX are the available range for the initial grooving on the unprocessed workpiece (Ref. to Fig. 1).
Then, you can widen it up to the center towards the inside (excluding the models listed in the right table)
and towards the outside according to machine limits.



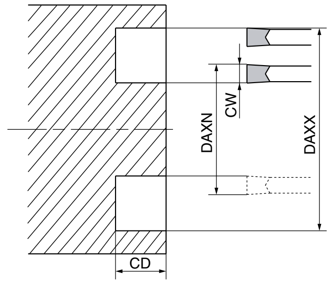
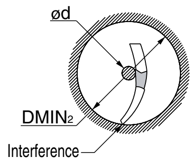


Fig. 1

◆ Limit of Turning toward Center

Turning towards the Center causes the toolholder to interfere with the groove wall depending on the initial cut's diameter.

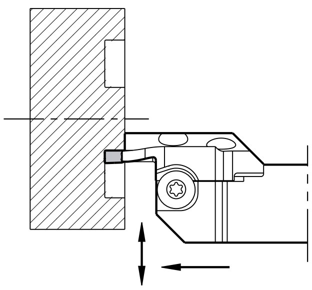


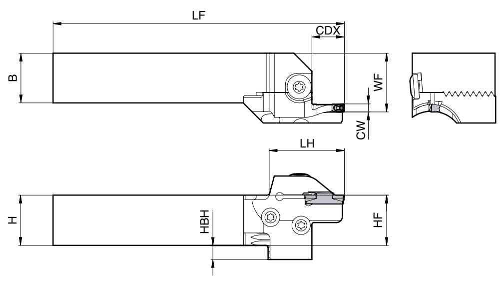
Remaining Boss Dia. ød

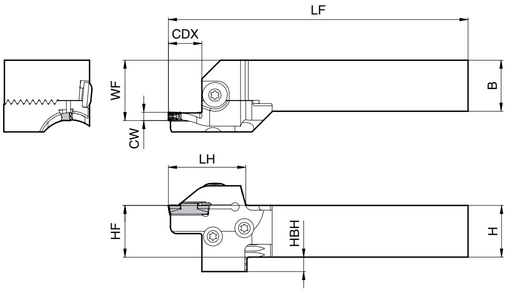
Description \ DMIN2	25	26	27	28 and over
	ød (mm)			
KGDFR/L 2020X25-3AS / 2525X25-3AS	4	2	0	0 (No remaining Boss)
KGDFR/L 2020X25-4AS / 2525X25-4AS	6	3	0	
KGDFR/L 2020X25-5AS / 2525X25-5AS	7	4	1	
KGDFR/L 2020X25-6AS / 2525X25-6AS	9	4	1	

e.g.)
KGDFR2020X25-3AS with ø25 as first cut towards the center, it will cause a rubbing with the toolholder cartridge if ød is 4.0mm.

KGDF







● Right-hand shown
(Right-hand Blade and Left-hand Toolholder)

● Left-hand shown
(Left-hand Blade and Right-hand Toolholder)

● Toolholder Dimensions

Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. depth of cut (mm)	External dia. of the groove (mm) DAXN [MIN.]	DAXX [MAX.]	Blade Description ➡G95	Toolholder Description ➡G32	Unit Description (Standard Stock Description)	Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	CDX
0°	2	□ 20	6	25	30	KGDFR -25-2A-C	KGDL2020-C	KGDFR 2020X25-2AS	○	-	20	20	12	20	115	33	24.5	6
				30	35	-30-2A-C		2020X30-2AS	-	-								
				35	45	-35-2A-C		2020X35-2AS	□	-								
				45	60	-45-2A-C		2020X45-2AS	-	-								
				60	80	-60-2A-C		2020X60-2AS	□	-								
				80	100	-80-2A-C		2020X80-2AS	-	-								
				100	130	-100-2A-C		2020X100-2AS	□	-								
			13	25	30	-25-2B-C		-							118	36		13
			15	30	35	-30-2B-C									120	38		15
				35	45	-35-2B-C												
				45	60	-45-2B-C												
				60	80	-60-2B-C												
				80	100	-80-2B-C												
				100	130	-100-2B-C												
		□ 25	6	25	30	KGDFR -25-2A-C	KGDL2525-C	KGDFR 2525X25-2AS	○	-	25	25	7	25	140	33	29.5	6
				30	35	-30-2A-C		2525X30-2AS	○	-								
				35	45	-35-2A-C		2525X35-2AS	○	-								
				45	60	-45-2A-C		2525X45-2AS	○	-								
				60	80	-60-2A-C		2525X60-2AS	○	-								
				80	100	-80-2A-C		2525X80-2AS	○	-								
				100	130	-100-2A-C		2525X100-2AS	○	-								
			13	25	30	-25-2B-C		-							143	36		13
			15	30	35	-30-2B-C									145	38		15
				35	45	-35-2B-C												
				45	60	-45-2B-C												
				60	80	-60-2B-C												
				80	100	-80-2B-C												
				100	130	-100-2B-C												
		□ 32	6	25	30	KGDFR -25-2A-C	KGDL3232-C	-			32	32	-	32	160	33	36.5	6
				30	35	-30-2A-C												
				35	45	-35-2A-C												
				45	60	-45-2A-C												
				60	80	-60-2A-C												
				80	100	-80-2A-C												
				100	130	-100-2A-C												
			13	25	30	-25-2B-C									163	36		13
			15	30	35	-30-2B-C									165	38		15
				35	45	-35-2B-C												
				45	60	-45-2B-C												
				60	80	-60-2B-C												
				80	100	-80-2B-C												
				100	130	-100-2B-C												

Note) 1. When the unit description is not available (the stock is "-"), please purchase toolholder and blade separately.
2. CDX : Maximum depth to which processing can be made. (If the CDX is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)

Applicable Inserts ➡ G85

○ : Check Availability
□ : Deleted from the next catalog

Toolholder Dimensions

Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. depth of cut (mm)	External dia. of the groove (mm) DAXN [MIN.]	External dia. of the groove (mm) DAXX [MAX.]	Blade Description ➡G95	Toolholder Description ➡G32	Unit Description (Standard Stock Description)	Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	CDX
0°	3	□ 20	13	25	30	KGDFR/L-25-3A-C	KGDL/R2020-C	KGDFR/L2020X25-3AS	○	○	20	20	12	20	118	36	24.5	13
				30	40	-30-3A-C		2020X30-3AS	○	□								
				40	50	-40-3A-C		2020X40-3AS	□	-								
			15	50	65	-50-3B-C		2020X50-3BS	○	-					120	38		15
				65	85	-65-3B-C		2020X65-3BS	-	-								
				85	110	-85-3B-C		2020X85-3BS	□	-								
				110	145	-110-3B-C		2020X110-3BS	-	-								
			22	50	65	-50-3C-C		2020X50-3CS	○	-					127	45		22
				65	85	-65-3C-C		2020X65-3CS	-	-								
			25	85	110	-85-3C-C		2020X85-3CS	-	-					130	48		25
				110	145	-110-3C-C		2020X110-3CS	□	-								
		□ 25	13	25	30	KGDFR/L-25-3A-C	KGDL/R2525-C	KGDFR/L2525X25-3AS	○	□	25	25	7	25	143	36	29.5	13
				30	40	-30-3A-C		2525X30-3AS	○	□								
				40	50	-40-3A-C		2525X40-3AS	○	□								
			15	50	65	-50-3B-C		2525X50-3BS	○	○					145	38		15
				65	85	-65-3B-C		2525X65-3BS	○	○								
				85	110	-85-3B-C		2525X85-3BS	○	○								
				110	145	-110-3B-C		2525X110-3BS	○	□								
			22	50	65	-50-3C-C		2525X50-3CS	○	-					152	45		22
				65	85	-65-3C-C		2525X65-3CS	□	-								
			25	85	110	-85-3C-C		2525X85-3CS	□	□					155	48		25
				110	145	-110-3C-C		2525X110-3CS	○	-								
		□ 32	13	25	30	KGDFR/L-25-3A-C	KGDL/R3232-C	-			32	32	-	32	163	36	36.5	13
				30	40	-30-3A-C												
				40	50	-40-3A-C												
			15	50	65	-50-3B-C									165	38		15
				65	85	-65-3B-C												
				85	110	-85-3B-C												
				110	145	-110-3B-C												
			22	50	65	-50-3C-C									172	45		22
				65	85	-65-3C-C												
			25	85	110	-85-3C-C									175	48		25
				110	145	-110-3C-C												
0°	4	□ 20	13	25	35	KGDFR/L-25-4A-C	KGDL/R2020-C	KGDFR/L2020X25-4AS	○	□	20	20	12	20	118	36	24.5	13
			15	35	50	-35-4B-C		2020X35-4BS	○	□					120	38		15
				50	70	-50-4B-C		2020X50-4BS	□	-								
				70	100	-70-4B-C		2020X70-4BS	-	-								
				100	150	-100-4B-C		2020X100-4BS	-	-								
				150	220	-150-4B-C		2020X150-4BS	-	-								
				220	∞	-220-4B-C		2020X220-4BS	-	-								
			25	35	50	-35-4C-C		2020X35-4CS	□	-					130	48		25
				50	70	-50-4C-C		2020X50-4CS	□	□								
				70	100	-70-4C-C		2020X70-4CS	-	-								
				100	150	-100-4C-C		2020X100-4CS	-	-								
				150	220	-150-4C-C		2020X150-4CS	-	-								
				220	∞	-220-4C-C		2020X220-4CS	-	-								
		□ 25	13	25	35	KGDFR/L-25-4A-C	KGDL/R2525-C	KGDFR/L2525X25-4AS	○	□	25	25	7	25	143	36	29.5	13
			15	35	50	-35-4B-C		2525X35-4BS	○	○					145	38		15
				50	70	-50-4B-C		2525X50-4BS	○	○								
				70	100	-70-4B-C		2525X70-4BS	○	□								
				100	150	-100-4B-C		2525X100-4BS	○	○								
				150	220	-150-4B-C		2525X150-4BS	○	□								
				220	∞	-220-4B-C		2525X220-4BS	○	○								
			25	35	50	-35-4C-C		2525X35-4CS	○	-					155	48		25
				50	70	-50-4C-C		2525X50-4CS	○	□								
				70	100	-70-4C-C		2525X70-4CS	○	○								
				100	150	-100-4C-C		2525X100-4CS	○	□								
				150	220	-150-4C-C		2525X150-4CS	○	□								
				220	∞	-220-4C-C		2525X220-4CS	○	○								
		□ 32	13	25	35	KGDFR/L-25-4A-C	KGDL/R3232-C	-			32	32	-	32	163	36	36.5	13
			15	35	50	-35-4B-C									165	38		15
				50	70	-50-4B-C												
				70	100	-70-4B-C												
				100	150	-100-4B-C												
				150	220	-150-4B-C												
				220	∞	-220-4B-C												
			25	35	50	-35-4C-C									175	48		25
				50	70	-50-4C-C												
				70	100	-70-4C-C												
				100	150	-100-4C-C												
				150	220	-150-4C-C												
				220	∞	-220-4C-C												

Note) 1. When the unit description is not available (the stock is "-"), please purchase toolholder and blade separately.
2. CDX : Maximum depth to which processing can be made. (If the CDX is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)

○ : Check Availability
□ : Deleted from the next catalog

Applicable Inserts ➡ G85

Toolholder Dimensions

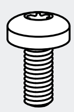
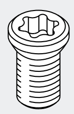
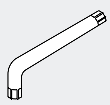
Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. depth of cut (mm)	External dia. of the groove (mm) DAXN [MIN.]	External dia. of the groove (mm) DAXX [MAX.]	Blade Description ➡G95	Toolholder Description ➡G32	Unit Description (Standard Stock Description)	Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	CDX
0°	5	□20	15	25	35	KGDFR/L-25-5B-C	KGDL/R2020-C	KGDFR/L2020X25-5BS	-	-	20	20	12	20	120	38	24.5	15
				35	50	-35-5B-C		2020X35-5BS	-	-								
				50	75	-50-5B-C		2020X50-5BS	-	-								
				75	115	-75-5B-C		2020X75-5BS	○	○								
				115	180	-115-5B-C		2020X115-5BS	-	-								
				180	235	-180-5B-C		2020X180-5BS	-	-								
				235	∞	-235-5B-C		2020X235-5BS	-	-								
			20	25	35	-25-5C-C		2020X25-5CS	-	-					125	43		20
			25	35	50	-35-5C-C		2020X35-5CS	-	-					130	48		25
				50	75	-50-5C-C		2020X50-5CS	-	-								
				75	115	-75-5C-C		2020X75-5CS	-	-								
				115	180	-115-5C-C		2020X115-5CS	-	-								
				180	235	-180-5C-C		2020X180-5CS	-	-								
				235	∞	-235-5C-C		2020X235-5CS	-	-								
			32	75	115	-75-5D-C		-							137	55		32
				115	180	-115-5D-C												
				180	235	-180-5D-C												
				235	∞	-235-5D-C												
		□25	15	25	35	KGDFR/L-25-5B-C	KGDL/R2525-C	KGDFR/L2525X25-5BS	○	-	25	25	7	25	145	38	29.5	15
				35	50	-35-5B-C		2525X35-5BS	□	-								
				50	75	-50-5B-C		2525X50-5BS	○	□								
				75	115	-75-5B-C		2525X75-5BS	○	○								
				115	180	-115-5B-C		2525X115-5BS	□	□								
				180	235	-180-5B-C		2525X180-5BS	□	-								
				235	∞	-235-5B-C		2525X235-5BS	○	□								
			20	25	35	-25-5C-C		2525X25-5CS	□	□					150	43		20
			25	35	50	-35-5C-C		2525X35-5CS	○	-					155	48		25
				50	75	-50-5C-C		2525X50-5CS	○	-								
				75	115	-75-5C-C		-										
				115	180	-115-5C-C												
				180	235	-180-5C-C												
				235	∞	-235-5C-C												
			32	75	115	-75-5D-C		KGDFR/L2525X75-5DS	○	□					162	55		32
				115	180	-115-5D-C		2525X115-5DS	○	□								
				180	235	-180-5D-C		2525X180-5DS	○	□								
				235	∞	-235-5D-C		2525X235-5DS	○	-								
		□32	15	25	35	KGDFR/L-25-5B-C	KGDL/R3232-C	-			32	32	-	32	165	38	36.5	15
				35	50	-35-5B-C												
				50	75	-50-5B-C												
				75	115	-75-5B-C												
				115	180	-115-5B-C												
				180	235	-180-5B-C												
				235	∞	-235-5B-C												
			20	25	35	-25-5C-C									170	43		20
			25	35	50	-35-5C-C									175	48		25
				50	75	-50-5C-C												
				75	115	-75-5C-C												
				115	180	-115-5C-C												
				180	235	-180-5C-C												
				235	∞	-235-5C-C												
			32	75	115	-75-5D-C									182	55		32
				115	180	-115-5D-C												
				180	235	-180-5D-C												
				235	∞	-235-5D-C												

Note) 1. When the unit description is not available (the stock is "-"), please purchase toolholder and blade separately.
2. CDX : Maximum depth to which processing can be made. (If the CDX is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)

Applicable Inserts ➡ G85

Spare Parts (Common with separate types)

* The parts are included in the toolholder and unit.

Unit Description	Spare Parts: Clamp Bolt (for Insert Clamp)	Spare Parts: Clamp Screw (for Blade)	Spare Parts: Wrench
			
KGDFR/L ....S	BH6X10TR	SB-60120TR	LTW-25

○ : Check Availability
□ : Deleted from the next catalog

G
Grooving
External
Internal
Face

Toolholder Dimensions

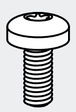
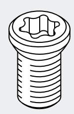
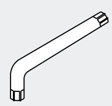
Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. depth of cut (mm)	External dia. of the groove (mm) DAXN [MIN.]	DAXX [MAX.]	Blade Description G95	Toolholder Description G32	Unit Description (Standard Stock Description)	Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	CDX
0°	6	□ 20	15	25	35	KGDFR/L -25-6B-C	KGDL/R 2020-C	-			20	20	12	20	120	38	24.5	15
				35	50	-35-6B-C												
				50	75	-50-6B-C												
				75	115	-75-6B-C												
				115	180	-115-6B-C												
				180	235	-180-6B-C												
				235	∞	-235-6B-C												
			20	25	35	-25-6C-C									125	43		20
			25	35	50	-35-6C-C									130	48		25
				50	75	-50-6C-C												
				75	115	-75-6C-C												
				115	180	-115-6C-C												
				180	235	-180-6C-C												
				235	∞	-235-6C-C												
			32	75	115	-75-6D-C									137	55		32
				115	180	-115-6D-C												
				180	235	-180-6D-C												
				235	∞	-235-6D-C												
		□ 25	15	25	35	KGDFR/L -25-6B-C	KGDL/R 2525-C	KGDFR/L 2525X25-6BS	□	-	25	25	7	25	145	38	29.5	15
				35	50	-35-6B-C		2525X35-6BS	-	-								
				50	75	-50-6B-C		2525X50-6BS	□	□								
				75	115	-75-6B-C		2525X75-6BS	□	-								
				115	180	-115-6B-C		2525X115-6BS	-	-								
				180	235	-180-6B-C		2525X180-6BS	-	-								
				235	∞	-235-6B-C		2525X235-6BS	□	□								
			20	25	35	-25-6C-C		2525X25-6CS	-	-					150	43		20
			25	35	50	-35-6C-C		2525X35-6CS	-	-					155	48		25
				50	75	-50-6C-C		2525X50-6CS	-	-								
				75	115	-75-6C-C		-										
				115	180	-115-6C-C												
				180	235	-180-6C-C												
				235	∞	-235-6C-C												
			32	75	115	-75-6D-C		KGDFR/L 2525X75-6DS	□	-					162	55		32
				115	180	-115-6D-C		2525X115-6DS	-	-								
				180	235	-180-6D-C		2525X180-6DS	-	-								
				235	∞	-235-6D-C		2525X235-6DS	-	-								
		□ 32	15	25	35	KGDFR/L -25-6B-C	KGDL/R 3232-C	-			32	32	-	32	165	38	36.5	15
				35	50	-35-6B-C												
				50	75	-50-6B-C												
				75	115	-75-6B-C												
				115	180	-115-6B-C												
				180	235	-180-6B-C												
				235	∞	-235-6B-C												
			20	25	35	-25-6C-C									170	43		20
			25	35	50	-35-6C-C									175	48		25
				50	75	-50-6C-C												
				75	115	-75-6C-C												
				115	180	-115-6C-C												
				180	235	-180-6C-C												
				235	∞	-235-6C-C												
			32	75	115	-75-6D-C									182	55		32
				115	180	-115-6D-C												
				180	235	-180-6D-C												
				235	∞	-235-6D-C												

Note) 1. When the unit description is not available (the stock is "-"), please purchase toolholder and blade separately.
2. CDX : Maximum depth to which processing can be made. (If the CDX is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)

Applicable Inserts G85

Spare Parts (Common with separate types)

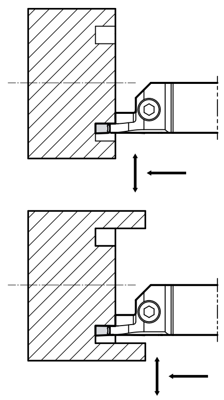
* The parts are included in the toolholder and unit.

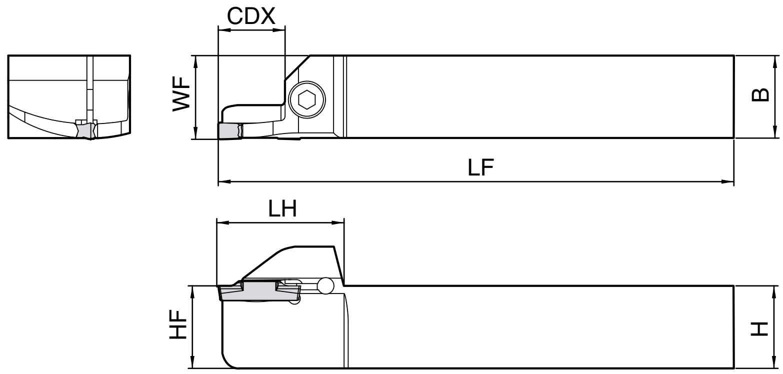
Unit Description	Spare Parts: Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
			
KGDFR/L .....S	BH6X10TR	SB-60120TR	LTW-25

□ : Deleted from the next catalog

A Insert Grades
B Turning Indexable Inserts
C CBN & PCD Tools
D External
E Small Parts Machining
F Boring
G Grooving
H Cut-off
J Threading
K Drilling
L Solid Tools
M Milling
N Tools for Turning Mill
P Spare Parts
R Technical Information
T Index

KGDF-Z





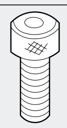
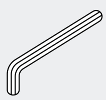
●Right-hand shown

Toolholder Dimensions

Edge Width CW (mm)	Shank Size (mm)	Max. depth of cut (mm)	External dia. of the groove (mm) DAXN [MIN.]	DAXX [MAX.]	Description	Stock R	Stock L	H	HF	B	LF	LH	WF	CDX
3	□20	15	50	65	KGDFR/L 2020K50-3B-Z	●	●	20	20	20	125	30.5	20.3	15
			65	85	2020K65-3B-Z	●	●							
			85	110	2020K85-3B-Z	●	●							
			110	145	2020K110-3B-Z	●	●							
	□25		50	65	KGDFR/L 2525M50-3B-Z	●	●	25	25	25	150		25.3	
			65	85	2525M65-3B-Z	●	●							
			85	110	2525M85-3B-Z	●	●							
			110	145	2525M110-3B-Z	●	●							
4	□20	15	50	70	KGDFR/L 2020K50-4B-Z	●	●	20	20	20	125	30.5	20.3	15
			70	100	2020K70-4B-Z	●	●							
			100	150	2020K100-4B-Z	●	●							
	□25		50	70	KGDFR/L 2525M50-4B-Z	●	●	25	25	25	150		25.3	
			70	100	2525M70-4B-Z	●	●							
			100	150	2525M100-4B-Z	●	●							
5	□20	15	50	75	KGDFR/L 2020K50-5B-Z	●	●	20	20	20	125	30.5	20.3	15
			75	115	2020K75-5B-Z	●	●							
			115	180	2020K115-5B-Z	●	●							
	□25		50	75	KGDFR/L 2525M50-5B-Z	●	●	25	25	25	150		25.3	
			75	115	2525M75-5B-Z	●	●							
			115	180	2525M115-5B-Z	●	●							

Applicable Inserts ➡ G85

Spare Parts

Description	Spare Parts: Clamp Bolt	Spare Parts: Wrench
		
KGDFR/L...-Z	HH5X16	LW-4

Toolholder Identification System (Integral Type)

KGDF	R	2525	M	50	3	B	Z
Series	Hand of Tool	Shank Size	Toolholder Length	External dia. of the groove (MIN.)	Edge Width	Grooving Depth	Toolholder Type
KGDF Face Grooving	R : Right-hand L : Left-hand	2020 : □20mm 2525 : □25mm	K : 125mm M : 150mm	50 : 50mm : 115 : 115mm	3 : 3mm 4 : 4mm 5 : 5mm	B : 15mm	Z : Integral Type

● : Std. Item

G

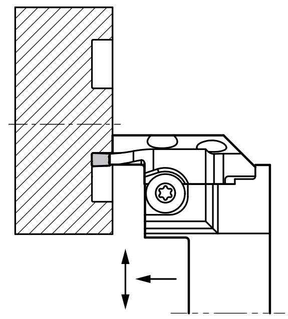
Grooving

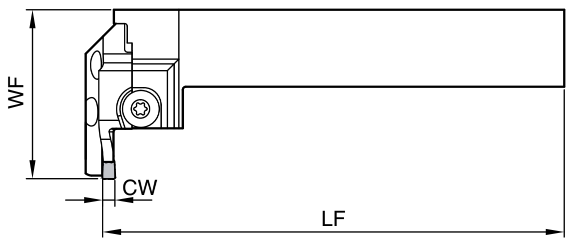
External

Internal

Face

KGDF





• Right-hand shown (Right-hand Blade and Right-hand Toolholder)

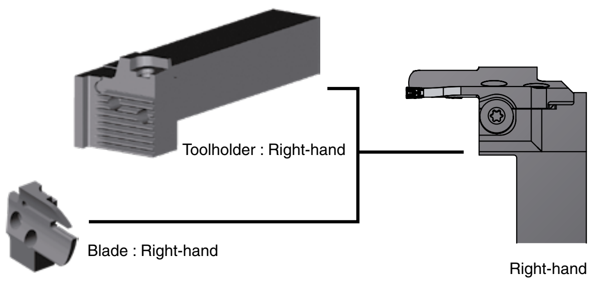
Combination of Toolholder & Blade

Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. depth of cut (mm)	External dia. of the groove (mm) DAXN [MIN.]	DAXX [MAX.]	Blade Description ➡G95	Toolholder Description ➡G32	Dimension (mm) LF	WF
90°	2	□20	6	25	30	KGDFR -25-2A-C	KGDSR2020-C	125	49.7
				30	35	-30-2A-C			
				35	45	-35-2A-C			
				45	60	-45-2A-C			
				60	80	-60-2A-C			
				80	100	-80-2A-C			
				100	130	-100-2A-C			
			13	25	30	-25-2B-C			52.7
			15	30	35	-30-2B-C			54.7
				35	45	-35-2B-C			
				45	60	-45-2B-C			
				60	80	-60-2B-C			
				80	100	-80-2B-C			
				100	130	-100-2B-C			
		□25	6	25	30	KGDFR -25-2A-C	KGDSR2525-C	150	49.7
				30	35	-30-2A-C			
				35	45	-35-2A-C			
				45	60	-45-2A-C			
				60	80	-60-2A-C			
				80	100	-80-2A-C			
				100	130	-100-2A-C			
			13	25	30	-25-2B-C			52.7
			15	30	35	-30-2B-C			54.7
				35	45	-35-2B-C			
				45	60	-45-2B-C			
				60	80	-60-2B-C			
				80	100	-80-2B-C			
				100	130	-100-2B-C			
90°	3	□20	13	25	30	KGDFR/L -25-3A-C	KGDSR/L2020-C	125	52.7
				30	40	-30-3A-C			
				40	50	-40-3A-C			
			15	50	65	-50-3B-C			54.7
				65	85	-65-3B-C			
				85	110	-85-3B-C			
				110	145	-110-3B-C			
			22	50	65	-50-3C-C			59.7
				65	85	-65-3C-C			
			25	85	110	-85-3C-C			61.7
				110	145	-110-3C-C			
		□25	13	25	30	KGDFR/L -25-3A-C	KGDSR/L2525-C	150	52.7
				30	40	-30-3A-C			
				40	50	-40-3A-C			
			15	50	65	-50-3B-C			54.7
				65	85	-65-3B-C			
				85	110	-85-3B-C			
				110	145	-110-3B-C			
			22	50	65	-50-3C-C			59.7
				65	85	-65-3C-C			
			25	85	110	-85-3C-C			61.7
				110	145	-110-3C-C			

Applicable Inserts ➡ G85

Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. depth of cut (mm)	External dia. of the groove (mm) DAXN [MIN.]	DAXX [MAX.]	Blade Description ➡G95	Toolholder Description ➡G32	Dimension (mm) LF	WF
90°	4	□20	13	25	35	KGDFR/L -25-4A-C	KGDSR/L2020-C	125	52.7
			15	35	50	-35-4B-C			54.7
				50	70	-50-4B-C			
				70	100	-70-4B-C			
				100	150	-100-4B-C			
				150	220	-150-4B-C			
				220	∞	-220-4B-C			
			25	35	50	-35-4C-C			64.7
				50	70	-50-4C-C			
				70	100	-70-4C-C			
				100	150	-100-4C-C			
				150	220	-150-4C-C			
				220	∞	-220-4C-C			
		□25	13	25	35	KGDFR/L -25-4A-C	KGDSR/L2525-C	150	52.7
			15	35	50	-35-4B-C			54.7
				50	70	-50-4B-C			
				70	100	-70-4B-C			
				100	150	-100-4B-C			
				150	220	-150-4B-C			
				220	∞	-220-4B-C			
			25	35	50	-35-4C-C			64.7
				50	70	-50-4C-C			
				70	100	-70-4C-C			
				100	150	-100-4C-C			
				150	220	-150-4C-C			
				220	∞	-220-4C-C			

Applicable Inserts ➡ G85



· KGDF 90˚ type is not available as unit (Toolholder + blade). Please purchase toolholder and blade separately.
· Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.
· The insert clamping screw (BH6X10TR), blade fixing screw (SB-60120TR) and wrench (LTW-25) which are included in the toolholder can be used.

Face Grooving Toolholders (90° Separate Type)

Combination of Blade & Toolholder

Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. depth of cut (mm)	External dia. of the groove (mm) DAXN [MIN.]	DAXX [MAX.]	Blade Description ➡G95	Toolholder Description ➡G32	Dimension (mm) LF	WF
90°	5	□ 20	15	25	35	KGDF R/L -25-5B-C	KGDS R/L 2020-C	125	54.7
				35	50	-35-5B-C			
				50	75	-50-5B-C			
				75	115	-75-5B-C			
				115	180	-115-5B-C			
				180	235	-180-5B-C			
				235	∞	-235-5B-C			
			20	25	35	-25-5C-C			59.7
			25	35	50	-35-5C-C			64.7
				50	75	-50-5C-C			
				75	115	-75-5C-C			
				115	180	-115-5C-C			
				180	235	-180-5C-C			
				235	∞	-235-5C-C			
			32	75	115	-75-5D-C			71.7
				115	180	-115-5D-C			
				180	235	-180-5D-C			
				235	∞	-235-5D-C			
		□ 25	15	25	35	KGDF R/L -25-5B-C	KGDS R/L 2525-C	150	54.7
				35	50	-35-5B-C			
				50	75	-50-5B-C			
				75	115	-75-5B-C			
				115	180	-115-5B-C			
				180	235	-180-5B-C			
				235	∞	-235-5B-C			
			20	25	35	-25-5C-C			59.7
			25	35	50	-35-5C-C			64.7
				50	75	-50-5C-C			
				75	115	-75-5C-C			
				115	180	-115-5C-C			
				180	235	-180-5C-C			
				235	∞	-235-5C-C			
			32	75	115	-75-5D-C			71.7
				115	180	-115-5D-C			
				180	235	-180-5D-C			
				235	∞	-235-5D-C			

Applicable Inserts ➡ **G85**

Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. depth of cut (mm)	External dia. of the groove (mm) DAXN [MIN.]	DAXX [MAX.]	Blade Description ➡G95	Toolholder Description ➡G32	Dimension (mm) LF	WF
90°	6	□ 20	15	25	35	KGDF R/L -25-6B-C	KGDS R/L 2020-C	125	54.7
				35	50	-35-6B-C			
				50	75	-50-6B-C			
				75	115	-75-6B-C			
				115	180	-115-6B-C			
				180	235	-180-6B-C			
				235	∞	-235-6B-C			
			20	25	35	-25-6C-C			59.7
			25	35	50	-35-6C-C			64.7
				50	75	-50-6C-C			
				75	115	-75-6C-C			
				115	180	-115-6C-C			
				180	235	-180-6C-C			
				235	∞	-235-6C-C			
			32	75	115	-75-6D-C			71.7
				115	180	-115-6D-C			
				180	235	-180-6D-C			
				235	∞	-235-6D-C			
		□ 25	15	25	35	KGDF R/L -25-6B-C	KGDS R/L 2525-C	150	54.7
				35	50	-35-6B-C			
				50	75	-50-6B-C			
				75	115	-75-6B-C			
				115	180	-115-6B-C			
				180	235	-180-6B-C			
				235	∞	-235-6B-C			
			20	25	35	-25-6C-C			59.7
			25	35	50	-35-6C-C			64.7
				50	75	-50-6C-C			
				75	115	-75-6C-C			
				115	180	-115-6C-C			
				180	235	-180-6C-C			
				235	∞	-235-6C-C			
			32	75	115	-75-6D-C			71.7
				115	180	-115-6D-C			
				180	235	-180-6D-C			
				235	∞	-235-6D-C			

Applicable Inserts ➡ **G85**

Face Grooving Blade Identification System

KGDF R - 25 - 3 A - C

Series
KGDF
Face Grooving

Hand of blade
R : Right-hand
L : Left-hand

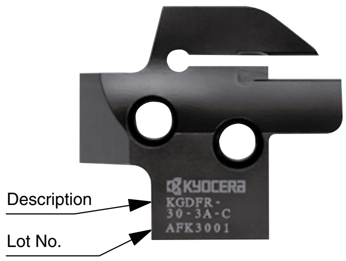
External dia. of the groove (MIN.) : DAXN
Indicates the minimum external diameter suitable for the initial face grooving.
25 : 25mm
:
235 : 235mm

Width
2 : 2mm
3 : 3mm
4 : 4mm
5 : 5mm
6 : 6mm

Grooving Depth

A : 6/13mm B : 13/15mm	2-edge insert (1-edge insert can also be used.)
C : 20mm~25mm D : 32mm	1-edge insert

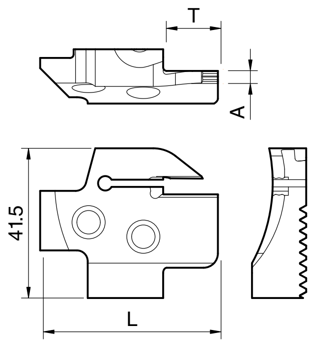
Blade Symbol
C : Applicable to toolholder with suffix "-C"



Example of printing of blade description

Face Grooving Blade

Blade Dimensions



Right-hand shown

Blade Description		Stock R	Stock L	Dimension (mm) L	Dimension (mm) T	Dimension (mm) A	External dia. of the groove (mm) DAXN [MIN.]	External dia. of the groove (mm) DAXX [MAX.]	Edge Width (mm) CW	Applicable Inserts ➡G85	Toolholder Description ➡G32
KGDFR	**-25-2A-C**	●	-	44.35	6	1.5	25	30	2	GDFM 2020N-020GM	KGDL/R...-C KGDSR/L...-C
	-30-2A-C	●	-				30	35			
	-35-2A-C	●	-				35	45			
	-45-2A-C	●	-				45	60			
	-60-2A-C	●	-				60	80			
	-80-2A-C	●	-				80	100			
	-100-2A-C	●	-				100	130			
	-25-2B-C	●	-	47.35	13		25	30			
	-30-2B-C	●	-	49.35	15		30	35			
	-35-2B-C	●	-				35	45			
	-45-2B-C	●	-				45	60			
	-60-2B-C	●	-				60	80			
	-80-2B-C	●	-				80	100			
	-100-2B-C	●	-				100	130			
KGDFR/L	**-25-3A-C**	●	●	47.35	13	2	25	30	3	GDFM 3020N-030GM GDFM 3020N-030DM GDFMS 3020N-030DM GDFM3020N-150R-CM	
	-30-3A-C	●	●				30	40			
	-40-3A-C	●	●				40	50			
	-50-3B-C	●	●	49.35	15		50	65			
	-65-3B-C	●	●				65	85			
	-85-3B-C	●	●				85	110			
	-110-3B-C	●	●				110	145			
	-50-3C-C	●	●	56.35	22		50	65			
	-65-3C-C	●	●				65	85			
	-85-3C-C	●	●	59.35	25		85	110			
	-110-3C-C	●	●				110	145			
KGDFR/L	**-25-4A-C**	●	●	47.35	13	3	25	35	4	GDFM 4020N-040GM GDFM 4020N-040GH GDFM 4020N-040DM GDFMS 4020N-040DM GDFM4020N-200R-CM	
	-35-4B-C	●	●	49.35	15		35	50			
	-50-4B-C	●	●				50	70			
	-70-4B-C	●	●				70	100			
	-100-4B-C	●	●				100	150			
	-150-4B-C	●	●				150	220			
	-220-4B-C	●	●				220	∞			
	-35-4C-C	●	●	59.35	25		35	50			
	-50-4C-C	●	●				50	70			
	-70-4C-C	●	●				70	100			
	-100-4C-C	●	●				100	150			
	-150-4C-C	●	●				150	220			
	-220-4C-C	●	●				220	∞			
KGDFR/L	**-25-5B-C**	●	●	49.35	15	4	25	35	5	GDFM 5020N-040GM GDFM 5020N-080GM GDFM 5020N-040GH GDFM 5020N-080GH GDFM 5020N-040DM GDFMS 5020N-040DM GDFM5020N-250R-CM	
	-35-5B-C	●	●				35	50			
	-50-5B-C	●	●				50	75			
	-75-5B-C	●	●				75	115			
	-115-5B-C	●	●				115	180			
	-180-5B-C	●	●				180	235			
	-235-5B-C	●	●				235	∞			
	-25-5C-C	●	●	54.35	20		25	35			
	-35-5C-C	●	●	59.35	25		35	50			
	-50-5C-C	●	●				50	75			
	-75-5C-C	●	●				75	115			
	-115-5C-C	●	●				115	180			
	-180-5C-C	●	●				180	235			
	-235-5C-C	●	●				235	∞			
	-75-5D-C	●	●	66.35	32		75	115			
	-115-5D-C	●	●				115	180			
	-180-5D-C	●	●				180	235			
	-235-5D-C	●	●				235	∞			
KGDFR/L	**-25-6B-C**	●	●	49.35	15	5	25	35	6	GDFM 6020N-040GM GDFM 6020N-080GM GDFM 6020N-040GH GDFM 6020N-080GH GDFM 6020N-040DM GDFMS 6020N-040DM GDFM6020N-300R-CM	
	-35-6B-C	●	●				35	50			
	-50-6B-C	●	●				50	75			
	-75-6B-C	●	●				75	115			
	-115-6B-C	●	●				115	180			
	-180-6B-C	●	●				180	235			
	-235-6B-C	●	●				235	∞			
	-25-6C-C	●	●	54.35	20		25	35			
	-35-6C-C	●	●	59.35	25		35	50			
	-50-6C-C	●	●				50	75			
	-75-6C-C	●	●				75	115			
	-115-6C-C	●	●				115	180			
	-180-6C-C	●	●				180	235			
	-235-6C-C	●	●				235	∞			
	-75-6D-C	●	●	66.35	32		75	115			
	-115-6D-C	●	●				115	180			
	-180-6D-C	●	●				180	235			
	-235-6D-C	●	●				235	∞			

● : Std. Item

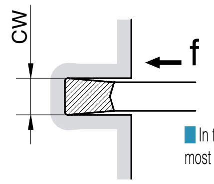
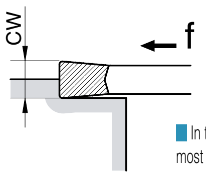
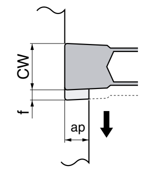
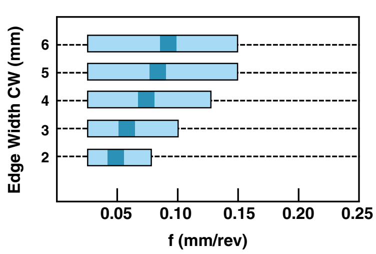
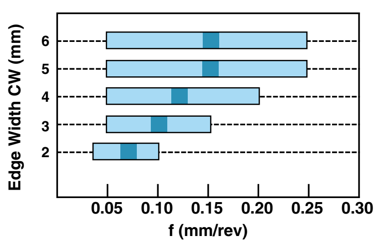
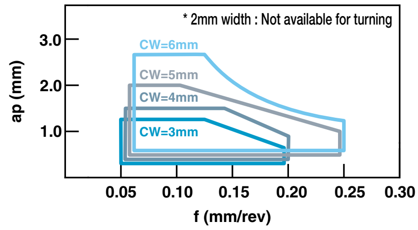
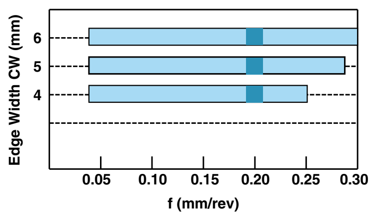
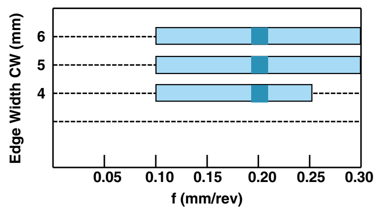
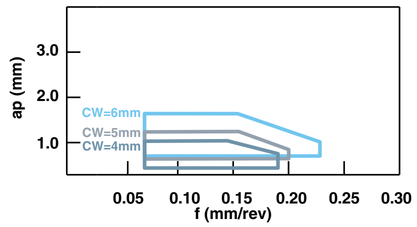
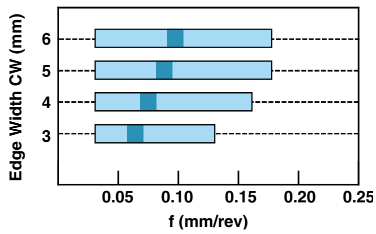
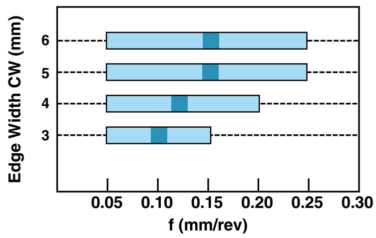
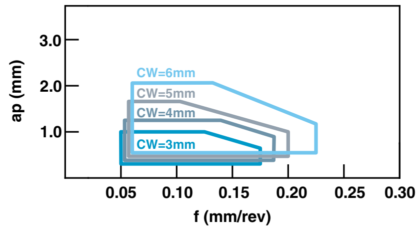
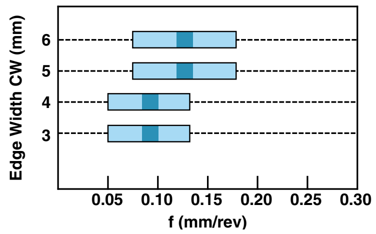
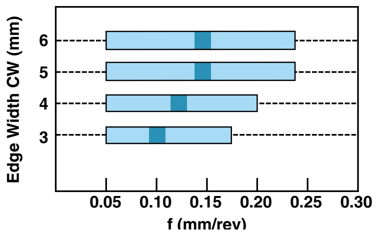
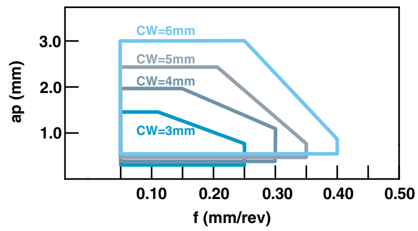
Recommended Cutting Conditions (Vc)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min)				Remarks
	Cermet		MEGACOAT		
	TN620	TN90	PR1225	PR1215	
Carbon Steel	☆ 60~200	☆ 80~200	★ 60~160	☆ 80~160	Coolant
Alloy Steel	☆ 60~160	☆ 70~160	★ 60~150	☆ 60~150	
Stainless Steel	-	-	★ 50~120	☆ 50~120	
Cast Iron	-	-	-	★ 80~160	

★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions (Feed Rate / ap)

[Workpiece Material : S50C]

Chipbreaker	Grooving	Shoulder grooving (Side grooving)	Turning
	 In the graph below indicates the most recommended value of feed (f)	 In the graph below indicates the most recommended value of feed (f)	
GM (Grooving,Turning)			
GH (Grooving, Turning, High Feed Grooving)			
DM (Deep grooving,Turning)			
CM (Copying)			

●When shoulder grooving
- · If ap is set smaller, set feed higher.
- · If ap is set larger, set feed lower.

1) The above values are based on the condition that the CDX of toolholder is 15 mm or less.
2) If the toolholder's CDX is over 15 mm, set the values for turning to 90% or less of those above.

For Successful Machining with KGDF

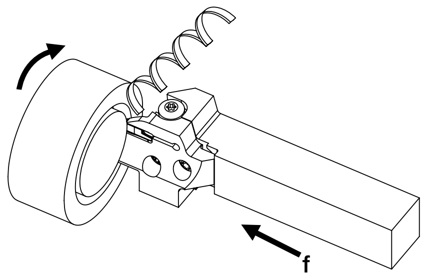
Guide for Face Grooving

1) Toolholder Selection

Check the range of applicable "External dia. of the groove" as well as the groove width and depth.

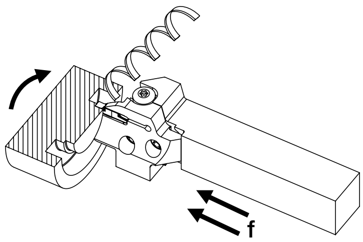
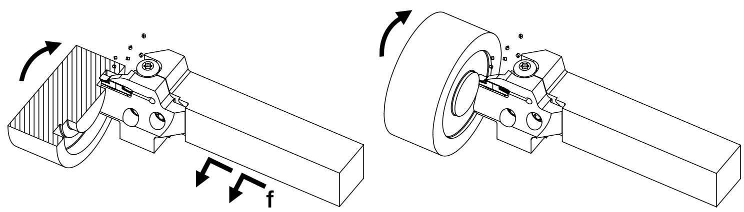
2) Cutting conditions (Feed rate : f)

When machining on steel, set the feed rate (f) so that chips are created in a helical form in cut-off.



3) How to widen the groove (Plunge milling and Turning)

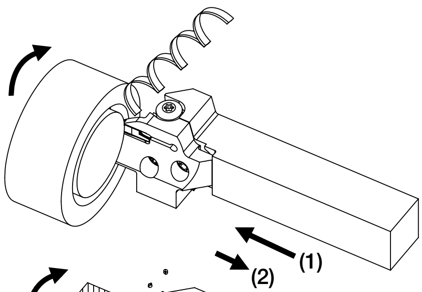
Start machining from the outside and then proceed to the inside. Chip control will be better in this way.

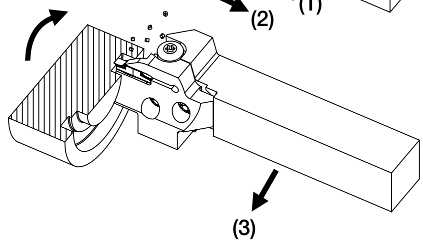
Plunge milling (Grooving + Side grooving)	Turning
	

4) Guide for turning

A. When the cutting amount (ap) is over 0.5 mm

(1) Perform Plunge milling.
(2) Return the cutting by 0.1 mm.
(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting edge.)
(3) Perform turning.
(Ref. to Fig. 1)





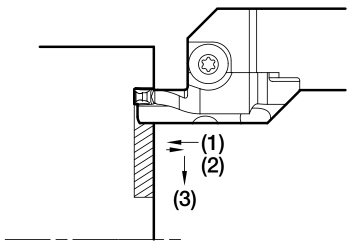


Fig. 1

● When widening the face groove width (Ref. to Fig. 2)
Apply the “Step Turning”.
Then perform finishing.

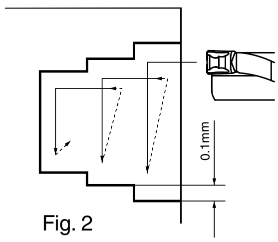
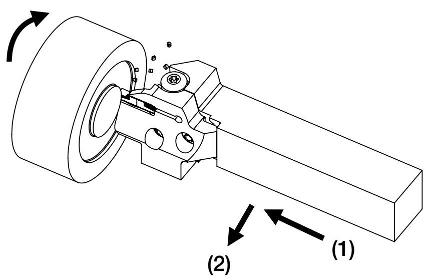


Fig. 2

B. When the cutting amount (ap) is under 0.5 mm

(1) Perform Plunge milling.
(2) Perform turning.

Machining without interruption is possible. (Ref. to Fig. 3)



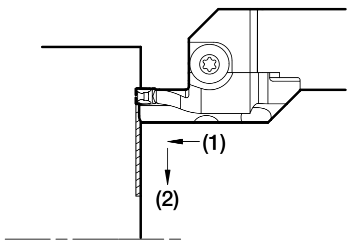
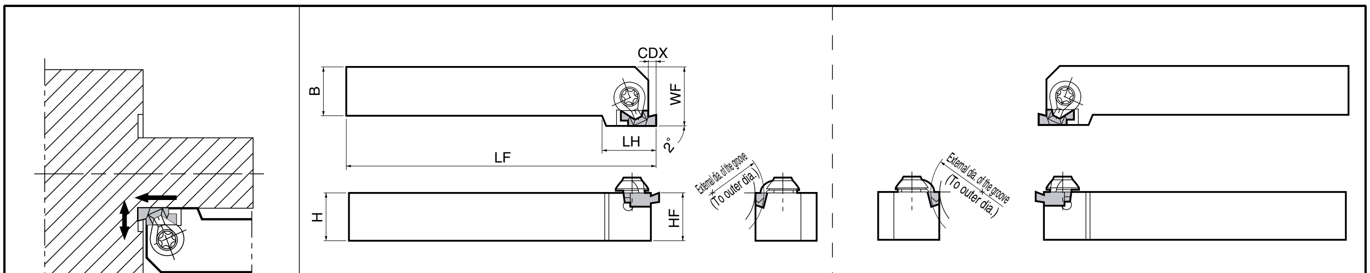


Fig. 3

GFVS-AA

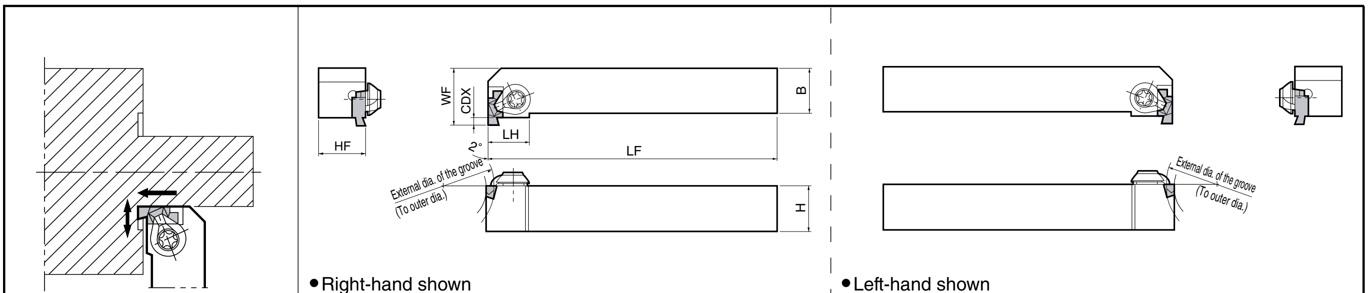


●Right-hand shown

●Left-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

GFVT-AA



●Right-hand shown

●Left-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

● Toolholder Dimensions

Description		Stock R	Stock L	Dimension (mm) H	HF	B	LF	LH	WF	CDX	External dia. of the groove DAXN [MIN.]	DAXX [MAX.]	Spare Parts Clamp Set	Wrench	Applicable Inserts ➡ G99
GFVSR/L	2020K-08AA	●	●	20	20	20	125	18	25	2.2	8 (0)	∞ (∞)	CPS-5V	FT-15	GVFL/R100-005AA ~ GVFL/R300-005AA
	2525M-08AA	●	●	25	25	25	150		32						
GFVTR/L	2020K-08AA	●	●	20	20	20	125	14	25	2.2	8 (0)	∞ (∞)	CPS-5V	FT-15	GVFL/R100-005AA ~ GVFL/R300-005AA
	2525M-08AA	●	●	25	25	25	150		32						

Note 1. CDX shows available grooving depth.

2. The value ( ) of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial groove between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞). The value ( ) of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN ~ DAXX.

● : Std. Item

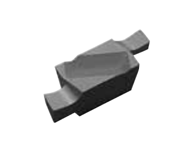
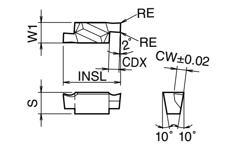
Applicable Inserts

(mm)

Description		W1	INSL	S
GVF$^{R}/_{L}$	100-…AA	4.3	12	4.5
	200-…AA			
	300-…AA			

		MEGACOAT PR1225	PVD Coated Carbide PR930	Carbide KW10
P	Carbon Steel / Alloy Steel	●	○	
M	Stainless Steel	●	○	
K	Cast Iron			◕
N	Non-ferrous Metals			◕
S	Titanium Alloys			◕
H	Hard Materials (~40HRC)	●	○	
	Hard Materials (40HRC~)			

Classification of usage
◕:Continuous~Light Interruption / 1st Choice
◔:Continuous~Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice

Insert (Handed Insert shows Right-hand)	Description	Dimension (mm) CW	CDX	RE	MEGACOAT PR1225 R	PR1225 L	PVD Coated Carbide PR930 R	PR930 L	Carbide KW10 R	KW10 L	Applicable Toolholders	See Page for Applicable Toolholders
 	GVF$^{R}/_{L}$ 100-005AA	1.00	2.2	0.05	●	●	●	●	●	●	GFVS$^{L}/_{R}$...-08AA GFVT$^{L}/_{R}$...-08AA	G98
	200-005AA	2.00			●	●	●	●	●	●		
	300-005AA	3.00			●	●	●	●	●	●		

· CDX shows available grooving depth.

· GVF$^{R}/_{L}$...005AA inserts are not compatible with GVF$^{R}/_{L}$...– ○○○ A (See Page **G105**) inserts because their Side Relief Angle is 10°.

External dia. of the groove of GFVS-AA (apply to GFVT-AA)

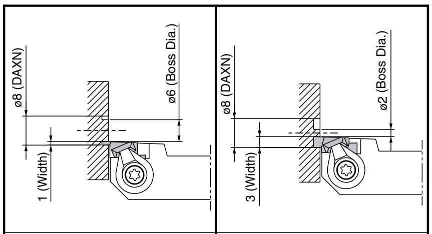
Description		External dia. of the groove DAXN [MIN.]	DAXX [MAX.]	Applicable Inserts
GFVS$^{R}/_{L}$	2020K-08AA	8	∞	GVF$^{L}/_{R}$100-005AA ~ GVF$^{L}/_{R}$300-005AA
	2525M-08AA			
GFVT$^{R}/_{L}$	2020K-08AA	(0)	(∞)	
	2525M-08AA			

• It is available to infinity ∞ in case of machining the first groove bigger than DAXN.

• When machining towards the outer diameter then there is no MAX. limit to the further groove machining.

• When machining the initial groove on the face at DAXN ø8

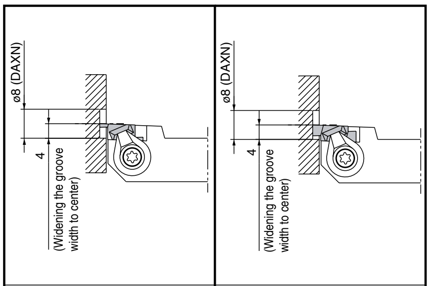
If the initial groove is made smaller than this, the toolholder interferes with the workpiece.



Installing GVFL100-005AA | Installing GVFL300-005AA

• When widening the groove width to inner diameter.

For machining up to the center of the workpiece regardless of insert width.



Installing GVFL100-005AA | Installing GVFL300-005AA

Recommended Cutting Conditions (GFVS-AA / GFVT-AA)

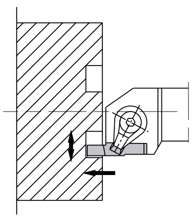
Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min) MEGA COAT PR1225	PVD Coated Carbide PR930	Carbide KW10	Grooving f (mm/rev)	Turning* ap (mm)	Turning* f (mm/rev)	Remarks
Carbon Steel / Alloy Steel	★ 50~100	☆ 50~100		0.01~0.05	Max.0.5	0.01~0.05	Coolant
Stainless Steel	★ 50~80	☆ 50~80		0.01~0.03	Max.0.3	0.01~0.02	
Non-ferrous Metals			★ ~200	0.01~0.08	Max.0.5	0.01~0.08	

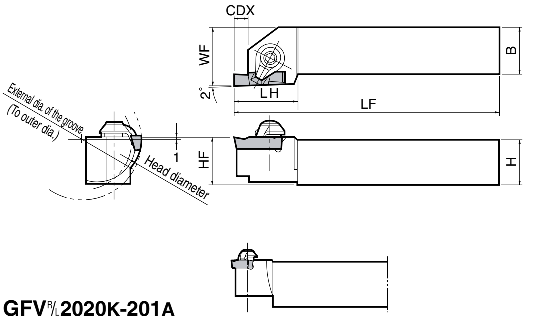
* ap has to be set for less than corner-R(RE) when turning of edge width 1.0 mm (GVF$^{R}/_{L}$100-005AA). ★ : 1st Recommendation ☆ : 2nd Recommendation

● : Std. Item

Inserts are sold in 10 piece boxes

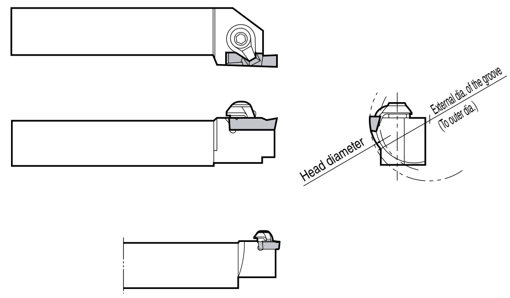
GFV





GFVR/L2020K-201A
GFVR/L2525M-201A
shows right figure

● Right-hand shown



● Left-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

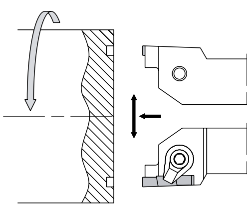
Toolholder Dimensions

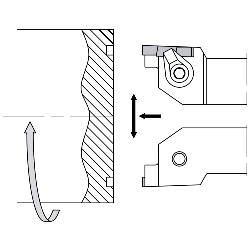
Description	Stock		Dimension (mm)							External dia. of the groove		Spare Parts			Applicable Inserts ➡ G105
	R	L	H	HF	B	LF	LH	WF	CDX	DAXN [MIN.]	DAXX [MAX.]	Clamp Set	Clamp Set	Wrench LW FT	
GFVR/L 2020K-201A	●	●	20	21	20	125	20	25	2.2	20	∞	CPS-5V	-	FT-15	GVFR/L200~340-020A
2525M-201A	●	●	25	26	25	150	23	32		(12)					GVFR/L200-…~300-…AR
GFVR/L 2020K-351B	●	●	20	21	20	125	28	25	4.6	35	50	-	CPS-6V	LW-3	GVFR/L250~350-020B
2525M-351B	●	●	25	26	25	150	30	32		(25)	(∞)				GVFR/L300-150BR
2020K-352B	●	●	20	21	20	125	28	25	5.1						GVFR/L400~490-020B
2525M-352B	●	●	25	26	25	150	30	32							GVFR/L400-200BR
2020K-501B	●	●	20	21	20	125	28	25	4.6	50	70				GVFR/L250~350-020B
2525M-501B	●	●	25	26	25	150	30	32		(25)	(∞)				GVFR/L300-150BR
2020K-502B	●	●	20	21	20	125	28	25	5.1						GVFR/L400~490-020B
2525M-502B	●	●	25	26	25	150	30	32							GVFR/L400-200BR
2020K-701B	●	●	20	21	20	125	28	25	4.6	70	100				GVFR/L250~350-020B
2525M-701B	●	●	25	26	25	150	30	32		(25)	(∞)				GVFR/L300-150BR
2020K-702B	●	●	20	21	20	125	28	25	5.1						GVFR/L400~490-020B
2525M-702B	●	●	25	26	25	150	30	32							GVFR/L400-200BR
GFVR/L 2525M-501C	●	●	25	26	25	150	35	32	6.6	50	70	-	CPS-8V	LW-4	GVFR/L350~450-040C
2525M-502C	●	●							8.1	(25)	(∞)				GVFR/L500~600-040C
2525M-701C	●	●							6.6	70	100				GVFR/L350~450-040C
2525M-702C	●	●							8.1	(25)	(∞)				GVFR/L500~600-040C
2525M-1001C	●	●							6.6	100	150				GVFR/L350~450-040C
2525M-1002C	●	●							8.1	(25)	(∞)				GVFR/L500~600-040C
2525M-1501C	●	●							6.6	150	250				GVFR/L350~450-040C
2525M-1502C	●	●							8.1	(25)	(∞)				GVFR/L500~600-040C

Note 1. CDX shows available grooving depth.
2. The value ( ) of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial groove between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).
The value ( ) of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN ~ DAXX.
3. Standard toolholders are designed with the edge position 1.0mm above the center. When using non-standard toolholders, set the edge position 1.0mm above the center.

Selection of Toolholder & Insert

Toolholder	Right-hand	Toolholder	Left-hand
Insert	Right-hand	Insert	Left-hand





● : Std. Item

◆ External dia. of the groove of GFV

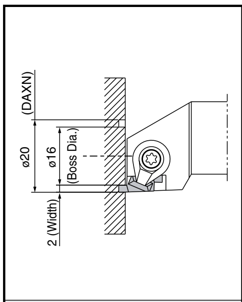
(1) e.g.) GFVR/L...-201A

Description		External dia. of the groove DAXN [MIN.]	External dia. of the groove DAXX [MAX.]	Applicable Inserts
GFVR/L	2020K-201A	20	∞	GFVR/L200~340-020A
	2525M-201A	(12)	(∞)	GFVR/L200-…~300-…AR

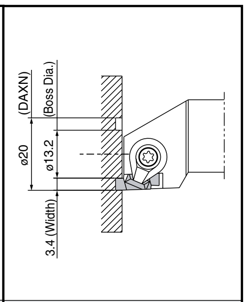
- It is available to infinity ∞ in case of machining the first groove bigger than DAXN.
- When machining towards the outer diameter then there is no MAX. limit to the further groove machining.

- When machining the initial groove on the face at DAXN ø20

If the initial groove is made smaller than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.



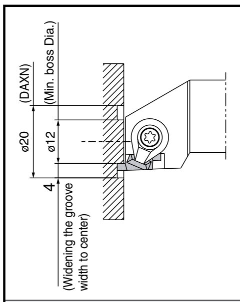
Installing GVFR200-020A



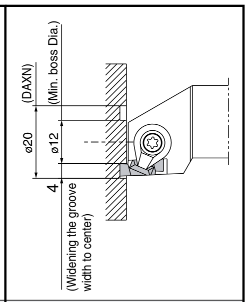
Installing GVFR340-020A

- When widening the groove width to inner diameter.

Face groove diameter DAXN (12) is the limit; the toolholder interferes with the workpiece in case of smaller than ø12. The toolholder interferes with the workpiece when closer to the center.



Installing GVFR200-020A



Installing GVFR340-020A

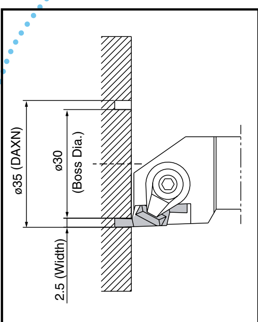
(2) e.g.) GFVR/L...-351B/352B (same as GFVR/L...-○○○B or GFVR/L...-○○○C)

Description		External dia. of the groove DAXN [MIN.]	External dia. of the groove DAXX [MAX.]	Applicable Inserts
GFVR/L	2020K-351B			GFVR/L250~350-020B
	2525M-351B	35	50	GFVR/L300-150BR
	2020K-352B	(25)	(∞)	GFVR/L400~490-020B
	2525M-352B			GFVR/L400-200BR

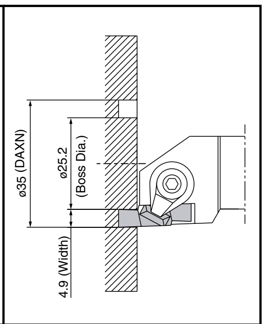
- It is possible to widen the groove to infinity ∞ when machining the initial groove within DAXN ~ DAXX and then widening to outer diameter.

- When machining the initial groove on the face at DAXN ø35

If the initial groove is made smaller than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.



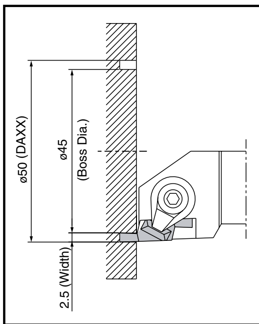
Installing GVFR250-020B



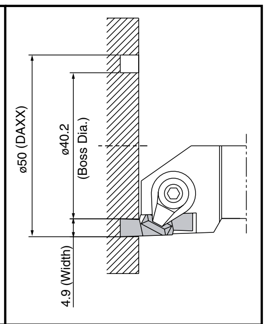
Installing GVFR490-020B

- When machining the initial groove on the face at DAXX ø50.

If the initial groove is made larger than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.



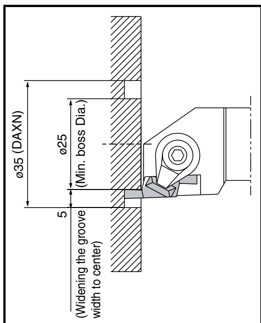
Installing GVFR250-020B



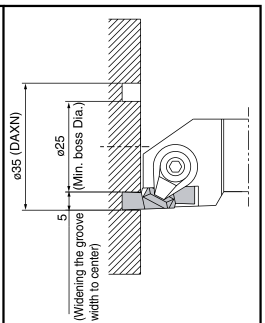
Installing GVFR490-020B

- When widening the groove width to inner diameter.

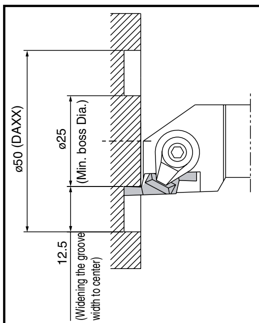
ø25 Boss Dia. is the limitation regardless of insert width,
even widening the groove width to the center from the initial groove at DAXN (ø35) or DAXX (ø50).
The toolholder interferes with the workpiece when closer to the center.



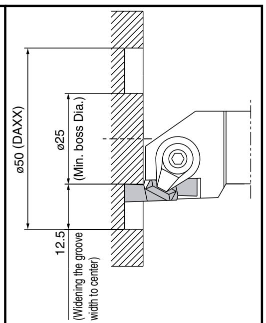
Installing GVFR250-020B



Installing GVFR490-020B



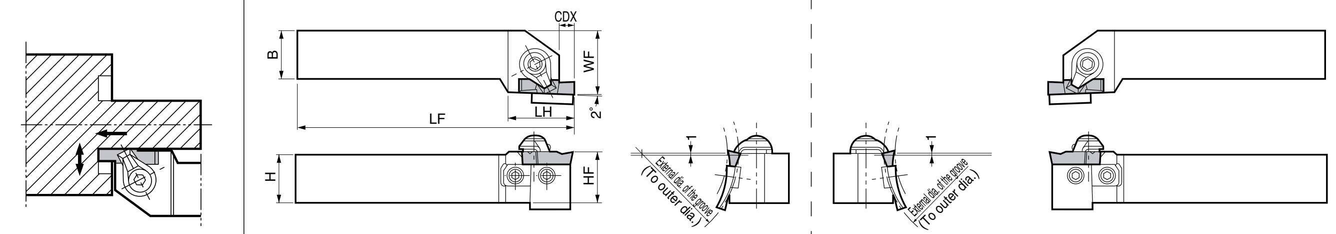
Installing GVFR250-020B



Installing GVFR490-020B

GFVS

This toolholder can machine various face grooving diameters by replacing the blade.



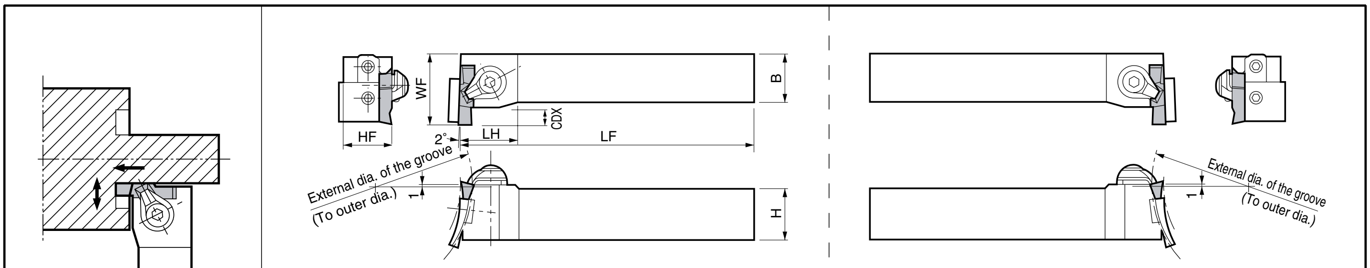
● Right-hand shown

● Left-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

GFVT

This toolholder can machine various face grooving diameters by replacing the blade.

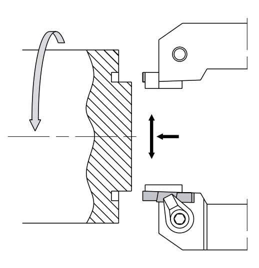
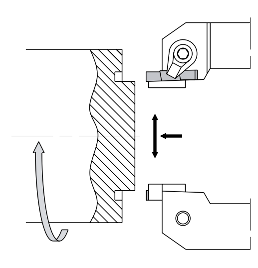
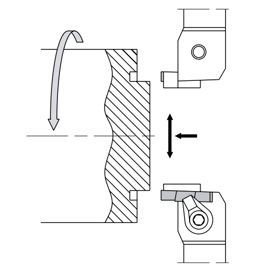
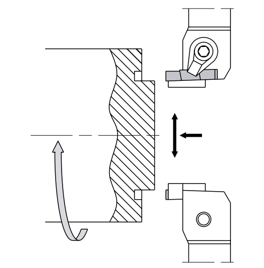


● Right-hand shown

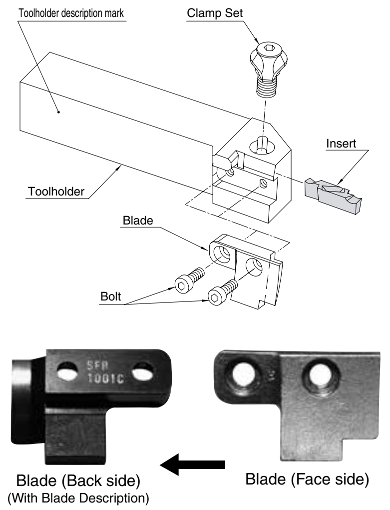
● Left-hand shown

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

◆ Selection of Toolholder & Insert

GFVS		GFVS		GFVT		GFVT	
Toolholder	Right-hand	Toolholder	Left-hand	Toolholder	Right-hand	Toolholder	Left-hand
Insert	Left-hand	Insert	Right-hand	Insert	Left-hand	Insert	Right-hand
							

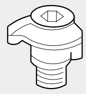
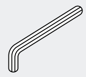
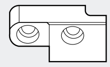
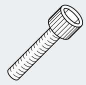
● Combination of Base-Holder & Blade

Toolholder Description (Stamped below)	Stock R	Stock L	Blade Description	Toolholder Description (Unit Description)	Example of installation (GFVS)	How to refer to the face grooving toolholder and blade
GFVS$^{R}/_{L}$2020K-HB	●	●	SF$^{R}/_{L}$ -351B	GFVS$^{R}/_{L}$2020K -351B		Q : Though "GFVSR2525M-HC" is marked on the face grooving toolholder, the size of cutting dia. is unknown. How could it be found out? A : Take off the blade. Description of the blade is listed on the back of the blade. Using the description, check the description of the toolholder in the catalog. If "SFR-1001C" is integrated to "GFVSR2525M-HC", the description of the toolholder is "GVFSR2525M-1001C".
GFVT$^{R}/_{L}$2020K-HB	●	●	-352B	GFVT$^{R}/_{L}$2020K -352B		
			-501B	-501B		
			-502B	-502B		
			-701B	-701B		
			-702B	-702B		
GFVS$^{R}/_{L}$2525M-HB	●	●	SF$^{R}/_{L}$ -351B	GFVS$^{R}/_{L}$2525M -351B		
GFVT$^{R}/_{L}$2525M-HB	●	●	-352B	GFVT$^{R}/_{L}$2525M -352B		
			-501B	-501B		
			-502B	-502B		
			-701B	-701B		
			-702B	-702B		
GFVS$^{R}/_{L}$2525M-HC	●	●	SF$^{R}/_{L}$ -501C	GFVS$^{R}/_{L}$2525M -501C		
GFVT$^{R}/_{L}$2525M-HC	●	●	-502C	GFVT$^{R}/_{L}$2525M -502C		
			-701C	-701C		
			-702C	-702C		
			-1001C	-1001C		
			-1002C	-1002C		
			-1501C	-1501C		
			-1502C	-1502C		

· Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.
· Installation of GFVT is also pursuing example of installation of GFVS.

● : Std. Item

Toolholder Dimensions

Description	Stock R	Stock L	H	HF	B	LF	LH	WF	CDX	External dia. of the groove DAXN [MIN.]	External dia. of the groove DAXX [MAX.]	Spare Parts: Clamp Set 	Wrench 	Blade 	Bolt 	Applicable Inserts (→ G105)
GFVSR/L 2020K-351B	●	●	20	21	20	125	30	25	5.1	35 (25)	50 (∞)	CPS-6V	LW-3	SFR/L-351B	HH4X12	GVFL/R250~350-020B
2525M-351B	●	●	25	26	25	150	32	32	(4.6)							GVFL/R300-150BR
2020K-352B	●	●	20	21	20	125	30	25	5.1					SFR/L-352B		GVFL/R400~490-020B
2525M-352B	●	●	25	26	25	150	32	32	(5.1)							GVFL/R400-200BR
2020K-501B	●	●	20	21	20	125	30	25	5.1	50 (25)	70 (∞)			SFR/L-501B		GVFL/R250~350-020B
2525M-501B	●	●	25	26	25	150	32	32	(4.6)							GVFL/R300-150BR
2020K-502B	●	●	20	21	20	125	30	25	5.1					SFR/L-502B		GVFL/R400~490-020B
2525M-502B	●	●	25	26	25	150	32	32	(5.1)							GVFL/R400-200BR
2020K-701B	●	●	20	21	20	125	30	25	5.1	70 (25)	100 (∞)			SFR/L-701B		GVFL/R250~350-020B
2525M-701B	●	●	25	26	25	150	32	32	(4.6)							GVFL/R300-150BR
2020K-702B	●	●	20	21	20	125	30	25	5.1					SFR/L-702B		GVFL/R400~490-020B
2525M-702B	●	●	25	26	25	150	32	32	(5.1)							GVFL/R400-200BR
GFVSR/L 2525M-501C	●	●	25	26	25	150	32	32	8.1(6.6)	50 (25)	70 (∞)	CPS-8V	LW-4	SFR/L-501C	HH4X12	GVFL/R350~450-040C
2525M-502C	●	●							8.1(8.1)					SFR/L-502C		GVFL/R500~600-040C
2525M-701C	●	●							8.1(6.6)	70 (25)	100 (∞)			SFR/L-701C		GVFL/R350~450-040C
2525M-702C	●	●							8.1(8.1)					SFR/L-702C		GVFL/R500~600-040C
2525M-1001C	●	●							8.1(6.6)	100 (25)	150 (∞)			SFR/L-1001C		GVFL/R350~450-040C
2525M-1002C	●	●							8.1(8.1)					SFR/L-1002C		GVFL/R500~600-040C
2525M-1501C	●	●							8.1(6.6)	150 (25)	250 (∞)			SFR/L-1501C		GVFL/R350~450-040C
2525M-1502C	●	●							8.1(8.1)					SFR/L-1502C		GVFL/R500~600-040C
GFVTR/L 2020K-351B	●	●	20	21	20	125	22	30	5.1	35 (25)	50 (∞)	CPS-6V	LW-3	SFR/L-351B	HH4X12	GVFL/R250~350-020B
2525M-351B	●	●	25	26	25	150	25	35	(4.6)							GVFL/R300-150BR
2020K-352B	●	●	20	21	20	125	22	30	5.1					SFR/L-352B		GVFL/R400~490-020B
2525M-352B	●	●	25	26	25	150	25	35	(5.1)							GVFL/R400-200BR
2020K-501B	●	●	20	21	20	125	22	30	5.1	50 (25)	70 (∞)			SFR/L-501B		GVFL/R250~350-020B
2525M-501B	●	●	25	26	25	150	25	35	(4.6)							GVFL/R300-150BR
2020K-502B	●	●	20	21	20	125	22	30	5.1					SFR/L-502B		GVFL/R400~490-020B
2525M-502B	●	●	25	26	25	150	25	35	(5.1)							GVFL/R400-200BR
2020K-701B	●	●	20	21	20	125	22	30	5.1	70 (25)	100 (∞)			SFR/L-701B		GVFL/R250~350-020B
2525M-701B	●	●	25	26	25	150	25	35	(4.6)							GVFL/R300-150BR
2020K-702B	●	●	20	21	20	125	22	30	5.1					SFR/L-702B		GVFL/R400~490-020B
2525M-702B	●	●	25	26	25	150	25	35	(5.1)							GVFL/R400-200BR
GFVTR/L 2525M-501C	●	●	25	26	25	150	27	38	8.1(6.6)	50 (25)	70 (∞)	CPS-8V	LW-4	SFR/L-501C	HH4X12	GVFL/R350~450-040C
2525M-502C	●	●							8.1(8.1)					SFR/L-502C		GVFL/R500~600-040C
2525M-701C	●	●							8.1(6.6)	70 (25)	100 (∞)			SFR/L-701C		GVFL/R350~450-040C
2525M-702C	●	●							8.1(8.1)					SFR/L-702C		GVFL/R500~600-040C
2525M-1001C	●	●							8.1(6.6)	100 (25)	150 (∞)			SFR/L-1001C		GVFL/R350~450-040C
2525M-1002C	●	●							8.1(8.1)					SFR/L-1002C		GVFL/R500~600-040C
2525M-1501C	●	●							8.1(6.6)	150 (25)	250 (∞)			SFR/L-1501C		GVFL/R350~450-040C
2525M-1502C	●	●							8.1(8.1)					SFR/L-1502C		GVFL/R500~600-040C

Note 1. CDX shows the distance from the toolholder to the cutting edge. The grooving depth is the mentioned in ( ).

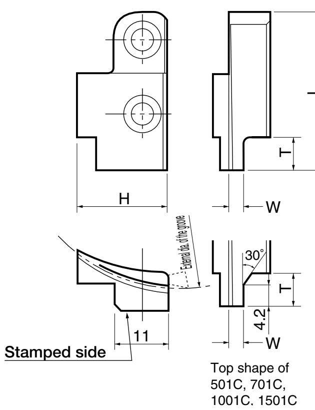
2. The value ( ) of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial groove between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞). The value ( ) of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN ~ DAXX.

3. Standard toolholders are designed with the edge position 1.0mm above the center. When using non-standard toolholders, set the edge position 1.0mm above the center.

4. GFVS and GFVT are composed of a base-holder and a blade. If the blade should be damaged, replace it with a new blade as listed in the left table.
(e.g.) GFVSR2020K-HB + SFR-351B = GFVSR2020K-351B
(e.g.) GFVTR2020K-HB + SFR-351B = GFVTR2020K-351B

● : Std. Item

Blade Dimensions

Shape	Description	Stock R	Stock L	Dimension (mm) L	H	T	W	External dia. of the groove DAXN [MIN.]	DAXX [MAX.]	Applicable Inserts	Applicable Toolholders
	SFR/L -351B	●	●	30.5	11	4.7	2.0	35	50	GVFL/R250~350-020B GVFL/R300-150BR	GFV(S/T)R/L○○○○□-○○○B (Toolholder Stamp GFV(S/T)R/L○○○○□-HB)
	-352B	●	●				3.4			GVFL/R400~490-020B GVFL/R400-200BR	
	SFR/L -501B	●	●		15		2.0	50	70	GVFL/R250~350-020B GVFL/R300-150BR	
	-502B	●	●				3.4			GVFL/R400~490-020B GVFL/R400-200BR	
	SFR/L -701B	●	●		17		2.0	70	100	GVFL/R250~350-020B GVFL/R300-150BR	
	-702B	●	●				3.4			GVFL/R400~490-020B GVFL/R400-200BR	
	SFR/L -501C	●	●	35	15	7.5	2.8	50	70	GVFL/R350~450-040C	GFV(S/T)R/L○○○○□-○○○C (Toolholder Stamp GFV(S/T)R/L○○○○□-HC)
	-502C	●	●				4.3			GVFL/R500~600-040C	
	SFR/L -701C	●	●		20		2.8	70	100	GVFL/R350~450-040C	
	-702C	●	●				4.3			GVFL/R500~600-040C	
● Right-hand shown	SFR/L -1001C	●	●		23		2.8	100	150	GVFL/R350~450-040C	
	-1002C	●	●				4.3			GVFL/R500~600-040C	
· Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.	SFR/L -1501C	●	●		23		2.8	150	250	GVFL/R350~450-040C	
	-1502C	●	●				4.3			GVFL/R500~600-040C	

◆ External dia. of the groove of GFVS / GFVT

e.g.) GFVSR/L...-351B/352B

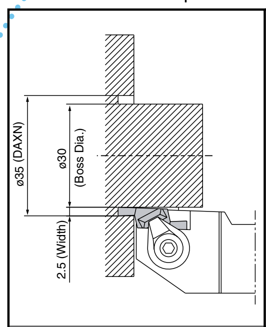
(same as GFVSR/L...-○○○B, ...-○○○C **G103**
GFVTR/L...-○○○B, ...-○○○C **G103)**

Description		External dia. of the groove DAXN [MIN.]	DAXX [MAX.]	Applicable Inserts
GFVSR/L	2020K-351B	35 (25)	50 (∞)	GVFL/R 250~350-020B
	2525M-351B			GVFL/R 300-150BR
	2020K-352B			GVFL/R 400~490-020B
	2525M-352B			GVFL/R 400-200BR

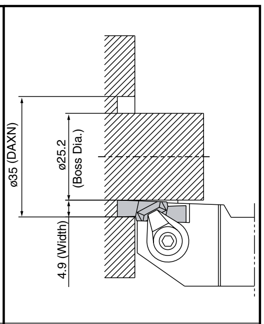
- It is possible to widen the groove to infinity ∞ when machining the initial groove within DAXN ~ DAXX and then widening to outer diameter.

- When machining the initial groove on the face at DAXN ø35

If the initial groove is made smaller than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.



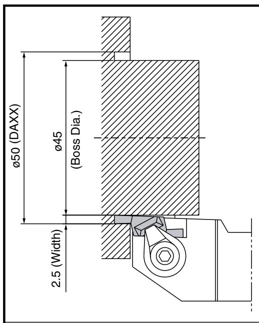
Installing GVFL250-020B



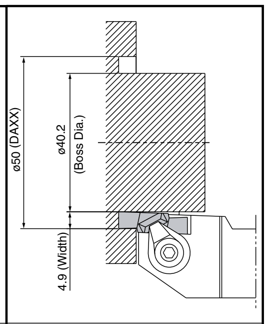
Installing GVFL490-020B

- When machining the initial groove on the face at DAXX ø50

If the initial groove is made larger than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.



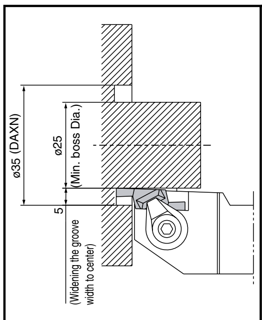
Installing GVFL250-020B



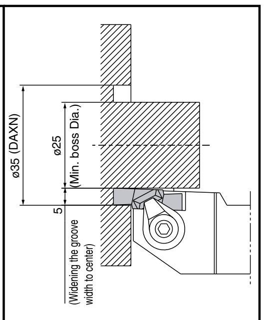
Installing GVFL490-020B

- When widening the groove width to inner diameter

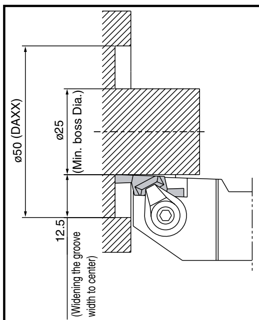
ø25 Boss Dia. is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at DAXN (ø35) or DAXX (ø50).
The toolholder interferes with the workpiece when closer to the center.



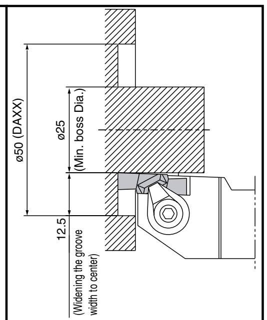
Installing GVFL250-020B



Installing GVFL490-020B



Installing GVFL250-020B



Installing GVFL490-020B

● : Std. Item

Applicable Inserts

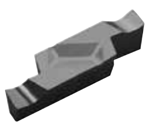
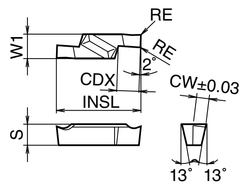
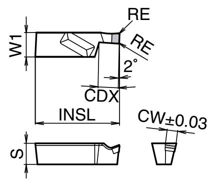
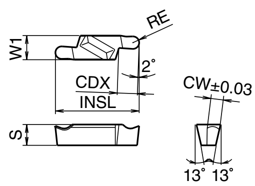
(mm)

Description	W1	INSL	S
GFVR/L ...- ○○○ A	4.3	12	4.5
...- ○○○ B	5.8	20	5.0
...- ○○○ C	7.0	27	7.0
...- ○○○ AR	4.3	12	4.5
...- ○○○ BR	5.8	20	5.0

		TN90	TC40N	TC60M	PR1225	PR930	KW10	KPD010
P	Carbon Steel / Alloy Steel				◐	◌		
M	Stainless Steel				◐	◌		
K	Cast Iron						◐	
N	Non-ferrous Metals						◐	●
S	Titanium Alloys						◐	●
H	Hard Materials (~40HRC)				●	○		
H	Hard Materials (40HRC~)							

Classification of usage

◐:Continuous~Light Interruption / 1st Choice
◌:Continuous~Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice

Insert (Handed Insert shows Right-hand)	Description	Dimension (mm) CW	CDX	RE	Cermet TN90 R	TN90 L	TC40N R	TC40N L	TC60M R	TC60M L	MEGA COAT PR1225 R	PR1225 L	PVD Coated Carbide PR930 R	PR930 L	Carbide KW10 R	KW10 L	PCD KPD010 R	KPD010 L	Applicable Toolholders	See Page for Applicable Toolholders
 	GVFR/L 200-020A	2.00	2.3	0.2	○	○	●	●	●	●	●	●	●	●	●	●			GFVR/L ...-201A, GIFVR/L ...-201A	G100, G110
	230-020A	2.30					●	□			●	●	●		●	●				
	250-020A	2.50					●	●	●		●	●	●	●	●	●				
	270-020A	2.70					□	□			●	●	●	●	●	●				
	290-020A	2.90					●	●			●	●	●	●	●	●				
	340-020A	3.40					●	□			●	●	●	●	●	●				
	GVFR/L 250-020B	2.50	4.8	0.2	○	○	●	●	●	●	●	●	●	●	●	●			GFVR/L ...- ○○ 1B, GFVSL/R ...- ○○ 1B, GFVTL/R ...- ○○ 1B, GIFVR/L ...- ○○ 1B	G100, G103, G110
	300-020B	3.00			○	○	●	●	●	●	●	●	●	●	●	●				
	350-020B	3.50			○	○	●	●	●	●	●	●	●	●	●	●				
	400-020B	4.00	5.3		○	○	●	●	●	●	●	●	●	●	●	●			GFVR/L ...- ○○ 2B, GFVSL/R ...- ○○ 2B, GFVTL/R ...- ○○ 2B, GIFVR/L ...- ○○ 2B	
	430-020B	4.30					●	●	●	●	●	●	●	●	●	●				
	460-020B	4.60					●	●			●	●	●	●	●	●				
	490-020B	4.90					●	●	●	●	●	●	●	●	●	●				
	GVFR/L 350-040C	3.50	6.8	0.4	○	○	●	●	●	●	●	●	●	●	●	●			GFVR/L ...- ○○ 1C, GFVSL/R ...- ○○ 1C, GFVTL/R ...- ○○ 1C, GIFVR/L ...- ○○ 1C	
	400-040C	4.00			○	○	●	●	●	●	●	●	●	●	●	●				
	450-040C	4.50					●	●	●	●	●	●	●	●	●	●				
	500-040C	5.00	8.3		○	○	●	●	●	●	●	●	●	●	●	●			GFVR/L ...- ○○ 2C, GFVSL/R ...- ○○ 2C, GFVTL/R ...- ○○ 2C, GIFVR/L ...- ○○ 2C	
	550-040C	5.50							●	●	●	●	●	●	●	●				
	600-040C	6.00					●	●	□	□	●	●	●	●	●	●				
  1-edge	GVFR/L 250-020B	2.50	4.8	0.2													●	●	GFVR/L ...- ○○ 1B, GFVSL/R ...- ○○ 1B, GFVTL/R ...- ○○ 1B, GIFVR/L ...- ○○ 1B	
	300-020B	3.00															●	●		
	400-020B	4.00	5.3														MTO	MTO	GFVR/L ...- ○○ 2B, GFVSL/R ...- ○○ 2B, GFVTL/R ...- ○○ 2B, GIFVR/L ...- ○○ 2B	
	GVFR/L 350-020C	3.50	6.8	0.2													MTO		GFVR/L ...- ○○ 1C, GFVSL/R ...- ○○ 1C	
	GVFR/L 350-040C	3.50	6.8	0.4													MTO		GFVTL/R ...- ○○ 1C, GIFVR/L ...- ○○ 1C	
  Full-R	GVFR/L 200-100AR	2.00	2.3	1.00							●	●	●	●	●	●			GFVR/L ...-201A, GIFVR/L ...-201A	G100, G110
	250-125AR	2.50		1.25							●	●	●		●	●				
	300-150AR	3.00		1.50							●	●	●	●	●	●				
	GVFR/L 300-150BR	3.00	4.8	1.50							●	●	●	●	●	●			GFVR/L ...- ○○ 1B, GFVSL/R ...- ○○ 1B, GFVTL/R ...- ○○ 1B, GIFVR/L ...- ○○ 1B	G100, G103, G110
	400-200BR	4.00	5.3	2.00							●	●	●	●	●	●			GFVR/L ...- ○○ 2B, GFVSL/R ...- ○○ 2B, GFVTL/R ...- ○○ 2B, GIFVR/L ...- ○○ 2B	

Recommended Cutting Conditions ➡ G116

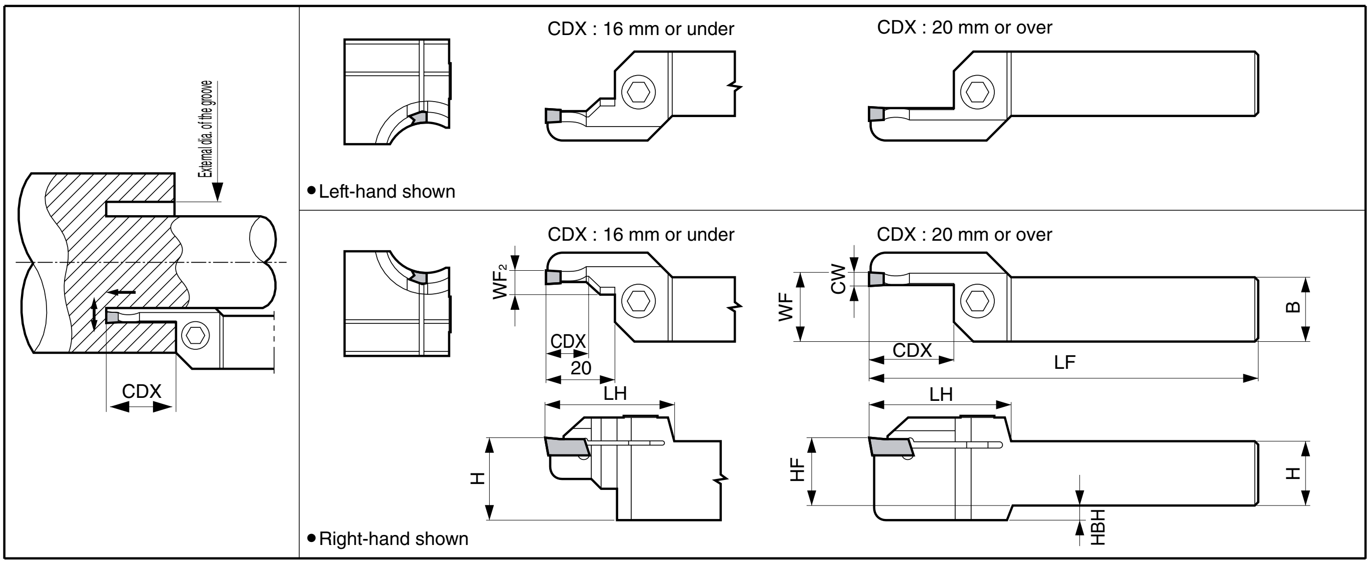
· CDX shows available grooving depth.

● : Std. Item
○ : Check Availability
□ : Deleted from the next catalog
MTO : Made to order

Inserts are sold in 10 piece boxes

CBN & PCD Inserts are sold in 1 piece boxes

KFMS (Will be switched to KGDF ➡ G84~G91)



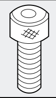
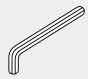
Toolholder Dimensions

Description	Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	WF$_2$	CDX	Edge Width (mm) CW	External dia. of the groove DAXN [MIN.]	DAXX [MAX.]	Spare Parts: Clamp Bolt	Wrench		
KFMS R/L 2020K2530-3	●												25	30				
2020K3040-3	●							39		6.1	13		30	40				
2020K4050-3	●				-								40	50				
2020K5065-3	●		20	20		20	125	41	20.7		22		50	65	HH5X20	LW-4		
2020K6585-3	●									-			65	85				
2020K85110-3	●				5			44			25		85	110				
2020K110145-3	●												110	145				
2525M2530-3	●	●										3	25	30				
2525M3040-3	●	●						39		6.1	13		30	40				
2525M4050-3	●	●											40	50				
2525M5065-3	●	●	25	25	-	25	150	41	25.7		22		50	65	HH5X25	LW-4		
2525M6585-3	●	●								-			65	85				
2525M85110-3	●	●						44			25		85	110				
2525M110145-3	●	●											110	145				
KFMS R/L 2020K2535-4	●							39		7.1	12		25	35				
2020K3550-4	●				-						20		35	50				
2020K5070-4	●												50	70				
2020K70100-4	●		20	20		20	125		20.7	-			70	100	HH5X20	LW-4		
2020K100150-4	●				5			44			25		100	150				
2020K150220-4	●												150	220				
2020K220800-4	●												220	∞				
2525M2535-4	●	●						39		7.1	12	4	25	35				
2525M3550-4	●	●									20		35	50				
2525M5070-4	●	●											50	70				
2525M70100-4	●	●	25	25	-	25	150		25.7	-			70	100	HH5X25	LW-4		
2525M100150-4	●	●						44			25		100	150				
2525M150220-4	●	●											150	220				
2525M220800-4	●	●											220	∞				

● : Std. Item

Toolholder Dimensions

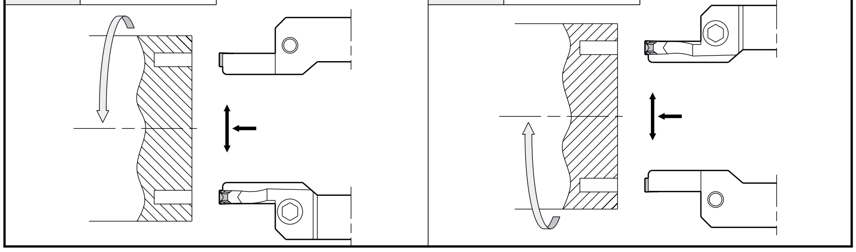
Description	Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	WF2	CDX	CW	Edge Width (mm) / External dia. of the groove DAXN [MIN.]	DAXX [MAX.]	Spare Parts Clamp Bolt	Spare Parts Wrench
KFMS R/L 2020K2535-5	●		20	20	-	20	125	39	20.7 (21.2)	-	20	5 (6)	25	35	HH5X20	LW-4
2020K3550-5	●		20	20	-	20	125	39	20.7 (21.2)	-	20	5 (6)	35	50	HH5X20	LW-4
2020K5075-5	●		20	20	-	20	125	44	20.7 (21.2)	-	25	5 (6)	50	75	HH5X20	LW-4
2020K75115-5	●		20	20	5	20	125	44	20.7 (21.2)	-	25	5 (6)	75	115	HH5X20	LW-4
2020K115180-5	●		20	20	5	20	125	44	20.7 (21.2)	-	25	5 (6)	115	180	HH5X20	LW-4
2020K180235-5	●		20	20	5	20	125	44	20.7 (21.2)	-	25	5 (6)	180	235	HH5X20	LW-4
2020K235800-5	●		20	20	5	20	125	44	20.7 (21.2)	-	25	5 (6)	235	∞	HH5X20	LW-4
2525M2535-5	●	●	25	25	-	25	150	39	25.7 (26.2)	-	20	5 (6)	25	35	HH5X25	LW-4
2525M3550-5	●	●	25	25	-	25	150	39	25.7 (26.2)	-	20	5 (6)	35	50	HH5X25	LW-4
2525M5075-5	●	●	25	25	-	25	150	44	25.7 (26.2)	-	25	5 (6)	50	75	HH5X25	LW-4
2525M75115-5	●	●	25	25	-	25	150	51	25.7 (26.2)	-	32	5 (6)	75	115	HH5X25	LW-4
2525M115180-5	●	●	25	25	-	25	150	51	25.7 (26.2)	-	32	5 (6)	115	180	HH5X25	LW-4
2525M180235-5	●	●	25	25	-	25	150	51	25.7 (26.2)	-	32	5 (6)	180	235	HH5X25	LW-4
2525M235800-5	●	●	25	25	-	25	150	51	25.7 (26.2)	-	32	5 (6)	235	∞	HH5X25	LW-4

· CDX shows available grooving depth.
· External dia. of the groove : The diameter range of the initial groove.
· For KFMS R/L...-5 toolholder can hold a 6mm width insert. ( ) value shows the dimension of a 6mm width insert.

Selection of Toolholder & Insert

Toolholder	Right-hand	Toolholder	Left-hand
Insert	(Neutral)	Insert	(Neutral)

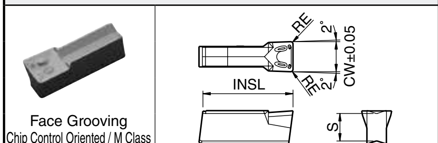
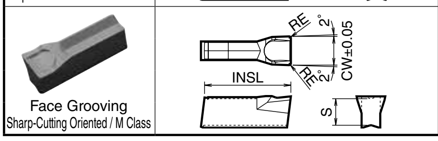


Applicable Inserts (mm)

Description	INSL	S
FMM30-03 ~ FMM60-04	12	3.5
FMN3 ~ FMN6	12	3.5

		TN90	CR9025	PR915	PR930	PR905	KW10
P	Carbon Steel / Alloy Steel				◐		
M	Stainless Steel				◐		
K	Cast Iron					◐	◔
N	Non-ferrous Metals						◐
S	Titanium Alloys						◐
H	Hard Materials (~40HRC)				○		
H	Hard Materials (40HRC~)						

Classification of usage
◐:Continuous~Light Interruption / 1st Choice
◔:Continuous~Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice

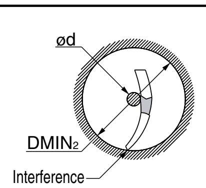
Insert		Description		Dimension (mm) CW	RE	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	PVD Coated Carbide PR905	Carbide KW10	Applicable Toolholders
 Face Grooving Chip Control Oriented / M Class		FMM	30-03	3.0	0.3	●	●	●	●	●	●	KFMS R/L... 3
			40-04	4.0	0.4	●	●	●	●	●	●	KFMS R/L... 4
			50-04	5.0	0.4	●	●	●	●	●	●	KFMS R/L... 5
			60-04	6.0	0.4	●	●		●	●	●	KFMS R/L... 5
 Face Grooving Sharp-Cutting Oriented / M Class		FMN	3	3.0	0.25	●	●		●		●	KFMS R/L... 3
			4	4.0	0.25	●	●		●		●	KFMS R/L... 4
			5	5.0	0.25	●	●		●		●	KFMS R/L... 5
			6	6.0	0.25		●		●		●	KFMS R/L... 5

· FMN inserts are only for Deep Grooving and not applicable for Turning.

Recommended Cutting Conditions ➡ G114

Limit of Turning toward Center

Turning towards the Center causes the toolholder to interfere with the groove wall depending on the initial cut's diameter.



Remaining Boss Dia. ød

Description \ DMIN2	25	26	27	28 and over
	ød (mm)			
KFMS R/L 2020K2530-3 / KFMS R/L 2525M2530-3	4	2	0	0
KFMS R/L 2020K2535-4 / KFMS R/L 2525M2535-4	6	3	0	(No remaining Boss)
KFMS R/L 2020K2535-5 / KFMS R/L 2525M2535-5	7 *(5)	4 *(2)	1 *(0)	(No remaining Boss)

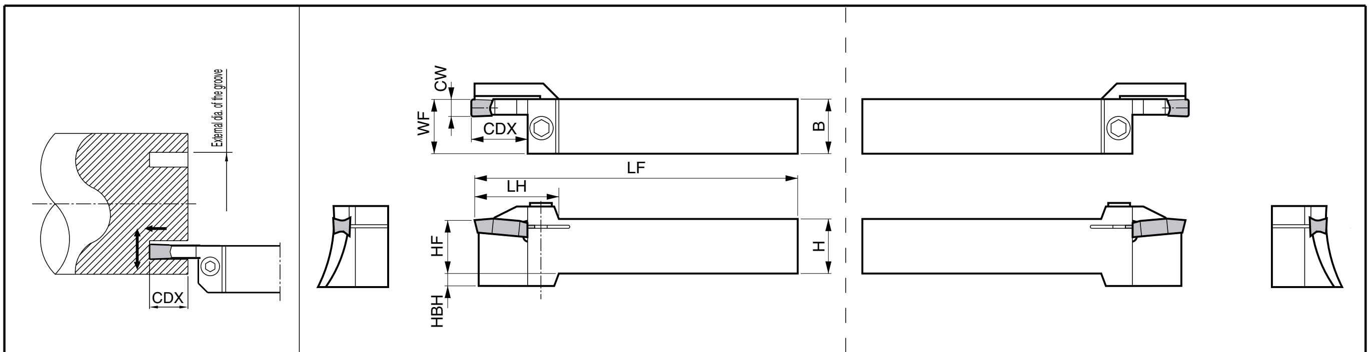
e.g.)
KFMSR 2525M2530-3 with ø25 as first cut towards the center, it will cause a rubbing with the toolholder cartridge if ød is 4.0mm.

*( ) value shows the Dimension using FMM60-04 Insert.

● : Std. Item

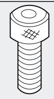
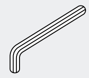
Inserts are sold in 10 piece boxes

KFMS-8



●Right-hand shown ●Left-hand shown

Toolholder Dimensions

Description	Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	CDX	CW (Edge Width (mm))	DAXN [MIN.] (External dia. of the groove)	DAXX [MAX.] (External dia. of the groove)	Spare Parts: Clamp Bolt 	Spare Parts: Wrench 	
KFMS R/L 2525M5464-8	●	●	25	25	-	25	150	41	26	25	8	54 (0)	64 (∞)	HH6X25	LW-5	
2525M6382-8	●	●			2.4							63 (0)	82 (∞)			
2525M80115-8	●	●			6			40				80 (0)	115 (∞)			
2525M105160-8	●	●										105 (0)	160 (∞)			
2525M155510-8	●	●	25	25	6	25	150	43	26	25	8	155 (0)	510 (∞)			
3232P155510-8	●		32	32	-	32	170		33							

· CDX shows available grooving depth.

· The value ( ) of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial groove between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).
The value ( ) of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN ~ DAXX.

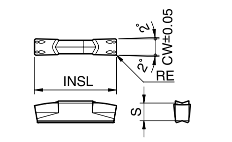
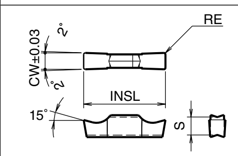
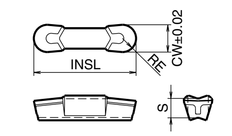
Applicable Inserts

(mm)

Description	INSL	S
GMM 8030-080MW	30	5.5
GMG 8030-050MG		
GMGA 8030-400R		

		TN90	CR9025	PR915	PR930	PR905	KW10
P	Carbon Steel / Alloy Steel			◔	◕		
M	Stainless Steel			◕	◔		
K	Cast Iron					◕	◔
N	Non-ferrous Metals						◕
S	Titanium Alloys						◕
H	Hard Materials (~40HRC)			○	●		
	Hard Materials (40HRC~)						

Classification of usage
◕:Continuous~Light Interruption / 1st Choice
◔:Continuous~Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice

Insert		Description	Dimension (mm) CW	Dimension (mm) RE	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	PVD Coated Carbide PR905	Carbide KW10	Applicable Toolholders
 Chip Control Oriented / M Class		**GMM 8030-080MW**	8.0	0.8		○	○	○	○	○	**KFMS R/L ...8**
 Sharp-Cutting Oriented / Precision Class Ground Chipbreaker		**GMG 8030-050MG**	8.0	0.5	○	○		○	○	○	
 Sharp-Cutting Oriented / Precision Class Full-R / Copying		**GMGA 8030-400R**	8.0	4.0						○	

· If using a full-R insert with KFMS-8 toolholder, you need to modify the corner of insert adapter of toolholder.

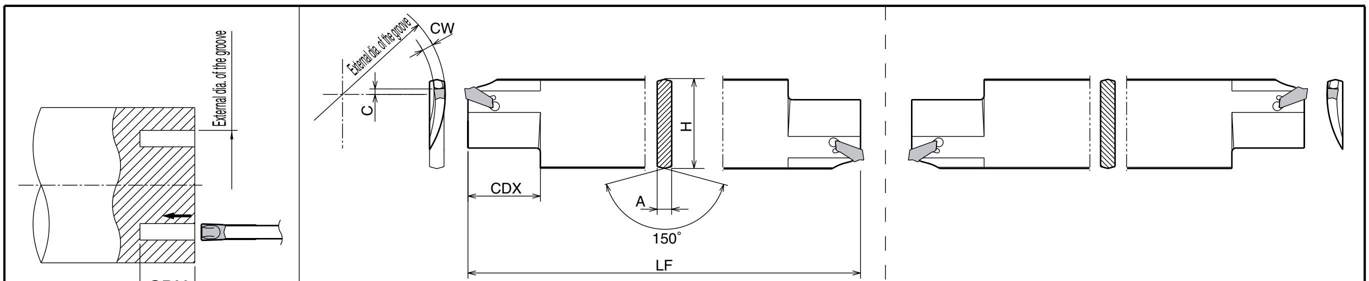
Recommended Cutting Conditions ➡ G117

Inserts are sold in 10 piece boxes

● : Std. Item
○ : Check Availability

G
Grooving
External
Internal
Face

KFTB-S



• Right-hand shown • Left-hand shown

Blade Dimensions

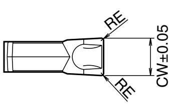
Description		Stock R	Stock L	Dimension (mm) *H	LF	A	CDX	C	Edge Width CW	External dia. of the groove DAXN [MIN.]	DAXX [MAX.]	Spare Parts Releasing Wrench	Applicable Inserts	Applicable Blocks ➡ H37
KFTB R/L	65100-4S	●	●	32	150	5.2	25	4	4.0	65	100	LTK-5	FTK4	KTKTB20-32 25-32 32-32 KTKTBF25-32 32-32
	90150-4S	●	●				30	0		90	150			
	150250-4S	●	●							140	250			
	250800-4S	●	●			3.2				230	∞			
KFTB R/L	90150-5S	●	●	32	150	5.2	30	0	5.0	90	150		FTK5	
	150250-5S	●	●				32			150	250			
	250800-5S	●	●			4.0	38			250	∞			

· CDX shows available grooving depth.
· External dia. of the groove : The diameter range of the initial groove.
· The insert has Self-Clamping system and it is not suitable for tight tolerance grooves (tolerance±0.05mm).
· Lightly tap an Insert with a Plastic hammer. (End of insert does not touch toolholder.)
· KFTB R/L 65100-4S toolholder is designed with the edge position 4mm above the Center.
* Dimension H shows virtual apex distance.

Applicable Inserts

		TN90	CR9025	PR930		KW10
P	Carbon Steel / Alloy Steel			◕		
M	Stainless Steel			◕		
K	Cast Iron					◕
N	Non-ferrous Metals					◕
S	Titanium Alloys					◕
H	Hard Materials (~40HRC)			○		
	Hard Materials (40HRC~)					

Classification of usage
◕:Continuous~Light Interruption / 1st Choice
◔:Continuous~Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice

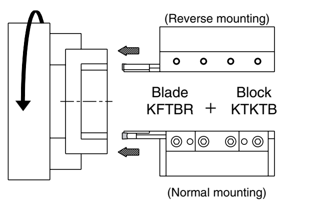
Insert		Description		Dimension (mm) CW	RE	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR930		Carbide KW10	Applicable Toolholders
		FTK	4	4.0	0.25	●	●	●		●	KFTB R/L 65100-4S 90150-4S 150250-4S 250800-4S
			5	5.0		●	●	●		●	KFTB R/L 90150-5S 150250-5S 250800-5S

Recommended Cutting Conditions ➡ G116

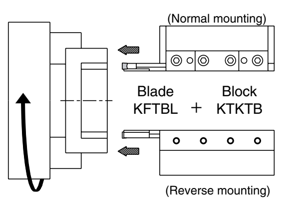
Selection of Blade and Insert

Combination of Blade + KTKTB

Blade	Right-hand
Insert	Neutral

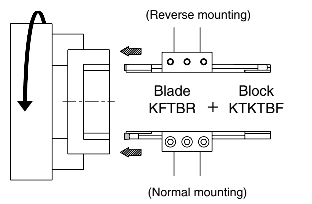


Blade	Left-hand
Insert	Neutral

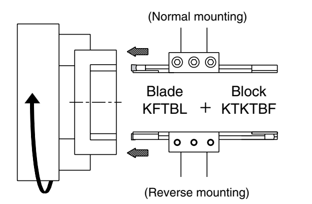


Combination of Blade + KTKTBF

Blade	Right-hand
Insert	Neutral



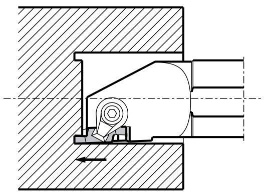
Blade	Left-hand
Insert	Neutral

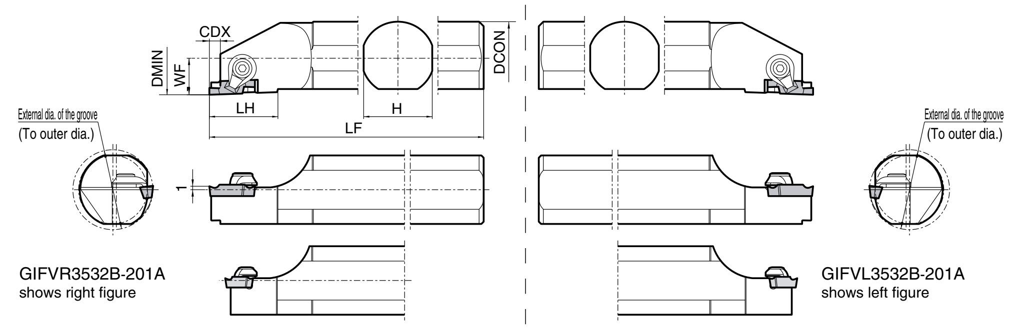


● : Std. Item

Face Grooving Toolholders (Round Shank) [GVF Insert]

GIFV





● Right-hand shown

● Left-hand shown

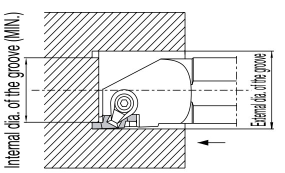
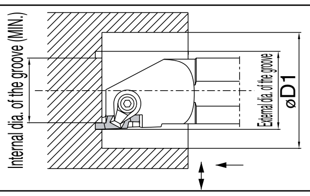
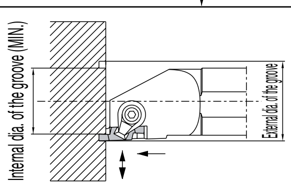
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Stock R	Stock L	DMIN	DCON	H	LF	LH	WF	CDX	External dia. of the groove DAXN [MIN.]	External dia. of the groove DAXX [MAX.]	Spare Parts: Clamp Set	Spare Parts: Clamp Set	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts ➔ G105
GIFVR/L 3532B-201A	●	●	35	32	30	250	23	16	2.2	35 (12)	∞	CPS-5V	-	FT-15	-	GVFR/L...-...A GVFR/L...-...AR
GIFVR/L 3532B-351B	●	●	35	32	30	250	30	16	4.6	35 (25)	50 (∞)	-	CPS-6V	-	LW-3	GVFR/L250~350-020B GVFR/L300-150BR
3532B-352B	●	●	35	32	30	250	30	16	5.1	35 (25)	50 (∞)	-	CPS-6V	-	LW-3	GVFR/L400~490-020B GVFR/L400-200BR
5032B-501B	●	●	50	32	30	250	30	16	4.6	50 (25)	70 (∞)	-	CPS-6V	-	LW-3	GVFR/L250~350-020B GVFR/L300-150BR
5032B-502B	●		50	32	30	250	30	16	5.1	50 (25)	70 (∞)	-	CPS-6V	-	LW-3	GVFR/L400~490-020B GVFR/L400-200BR
GIFVR/L 5032B-501C	●	●	50	32	30	250	35	16	6.6	50 (25)	70 (∞)	-	CPS-8V	-	LW-4	GVFR/L350~450-040C
5032B-502C	●	●	50	32	30	250	35	16	8.1	50 (25)	70 (∞)	-	CPS-8V	-	LW-4	GVFR/L500~600-040C

Note 1. CDX shows available grooving depth.
2. Standard toolholders are designed with the edge position 1.0mm above the center.

External dia. of the groove depends on the application.

Applications	Description	Internal dia. of the groove (MIN.)	External dia. of the groove DAXN [MIN.]	External dia. of the groove DAXX [MAX.]	External dia. of the groove (MAX.)	Remarks
	GIFVR/L 3532B-201A	-	35	∞	∞	-
	GIFVR/L 3532B-351B	-	35	50	∞	-
	3532B-352B	-	35	50	∞	-
	5032B-501B	-	50	70	∞	-
	5032B-502B	-	50	70	∞	-
	GIFVR/L 5032B-501C	-	50	70	∞	-
	5032B-502C	-	50	70	∞	-
	GIFVR/L 3532B-201A	12	35	∞	∞	If øD1 ≥ 58-2CW, the Face Grooving Dia. can be expanded to Internal dia. of the groove (MIN.) toward the Center. CW = Edge Width If øD1 ≥ 75-2CW, the Face Grooving Dia. can be expanded to Internal dia. of the groove (MIN.) toward the Center. CW = Edge Width
	GIFVR/L 3532B-351B	25	35	50	∞	
	3532B-352B	25	35	50	∞	
	5032B-501B	25	50	70	∞	
	5032B-502B	25	50	70	∞	
	GIFVR/L 5032B-501C	25	50	70	∞	
	5032B-502C	25	50	70	∞	
	GIFVR/L 3532B-201A	12	35	∞	∞	-
	GIFVR/L 3532B-351B	25	35	50	∞	-
	3532B-352B	25	35	50	∞	-
	5032B-501B	25	50	70	∞	-
	5032B-502B	25	50	70	∞	-
	GIFVR/L 5032B-501C	25	50	70	∞	-
	5032B-502C	25	50	70	∞	-

· The value ( ) of External dia. of the groove (MAX.) is the maximum outer diameter value after the initial groove between DAXN ~ DAXX (It is possible to widen the groove to infinity ∞).
· The value ( ) of Internal dia. of the groove (MIN.) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN ~ DAXX.

● : Std. Item

GBA inserts (Ground Chipbreaker)

Workpiece Material	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)					Remarks
	MC	Cermet			MEGA	MEGA NANO	PVD Coated Carbide			Carbide	CBN	PCD						
	PV7040	TN620	TC40N	TN90	PR1215	PR1625	PR930	PR1115	PR905	KW10	KBN510 KBN525	KPD001 (KPD010)	GBA○○R/L 033~120-...	GBA○○R/L 125~225-...	GBA○○R/L 230~325-...	GBA○○R/L 330~350-...	GBA○○R/L 400~480-...	
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 recom. (3) Not recom.	(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	Coolant
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 recom. (3) Not recom.	(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 recom. (3) Not recom.	(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 recom. (3) Not recom.	(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 Alloys	-	-	-	-	-	-	-	-	-	★ 150~400	-	★ 150~2,000	(1) 0.05~0.12 (2) Not recom. (3) Not recom.	(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 recom. (3) Not recom.	(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 recom. (3) Not recom.	(1) 0.03~0.07 (2) 0.01~0.04 (3) Max. 0.1	-	-	

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving.
MC indicates MEGACOAT Cermet.
MEGA indicates MEGACOAT, and MEGANANO indicates MEGACOAT NANO.

★ : 1st Recommendation ☆ : 2nd Recommendation

GBA inserts (GM Chipbreaker)

Workpiece Material	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)					Remarks
	Cermet	MEGACOAT NANO	MEGACOAT	GBA43R/L 140-010GM	GBA43R/L 150-020GM	GBA43R/L 175-020GM~230-020GM	GBA43R/L 250-030GM~350-030GM	GBA43R/L 400-040GM	
	TN620	**PR1625**	**PR1215**						
Carbon Steel	★ 80~240	★ 80~220	☆ 80~220	(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	Coolant
Alloy Steel	★ 80~220	★ 80~200	☆ 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	
Stainless Steel	-	★ 60~150	☆ 60~150	(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 condition is for external grooving. Set both cutting speed and feed 20% lower for internal grooving.

★ : 1st Recommendation ☆ : 2nd Recommendation

GBA inserts (MY Chipbreaker)

Workpiece Material	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)					Remarks
	Cermet		MEGA	PVD Coated Carbide		Carbide	CBN	PCD	GBA43R/L 175-020MY~200-020MY	GBA43R/L 230-020MY~265-030MY	GBA43R/L 300-030MY	GBA43R/L 330-030MY~350-030MY	GBA43R/L 400-040MY	
	TN6020	TC40N	PR1215	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)						
Carbon Steel	☆ 150~220	-	★ 80~200	☆ 80~200	☆ 80~200	-	-	-	(1) 0.03~0.08 (2) 0.03~0.08 (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	Coolant
Alloy Steel	☆ 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	☆ 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 condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving. MEGA indicates MEGACOAT.

★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions

GBF inserts

Workpiece Material	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)				Remarks
	MEGACOAT	MEGACOAT NANO	Carbide					
	PR1215	PR1535	GW15	GBF32R/L025 - 053	GBF32R/L065 - 095	GBF32R/L100 - 145	GBF32R/L150 - 300	
Carbon Steel	★ 80 ~ 180	☆ 70 ~ 160	-	(1) 0.01~0.05	(1) 0.02~0.07	(1) 0.03~0.08	(1) 0.03~0.08	Coolant
				(2) Not recom.	(2) Not recom.	(2) 0.03~0.06	(2) 0.03~0.06	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Alloy Steel	★ 80 ~ 180	☆ 70 ~ 160	-	(1) 0.01~0.04	(1) 0.02~0.06	(1) 0.03~0.07	(1) 0.03~0.07	
				(2) Not recom.	(2) Not recom.	(2) 0.02~0.05	(2) 0.02~0.05	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Stainless Steel	☆ 60 ~ 130	★ 50 ~ 120	-	(1) 0.01~0.04	(1) 0.02~0.06	(1) 0.03~0.07	(1) 0.03~0.07	
				(2) Not recom.	(2) Not recom.	(2) 0.02~0.05	(2) 0.02~0.05	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Cast Iron	-	-	★ 60 ~ 100	(1) 0.01~0.05	(1) 0.02~0.07	(1) 0.03~0.08	(1) 0.03~0.08	
				(2) Not recom.	(2) Not recom.	(2) 0.03~0.06	(2) 0.03~0.06	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Aluminum Alloys	-	-	★ 150 ~ 400	(1) 0.01~0.05	(1) 0.02~0.07	(1) 0.03~0.08	(1) 0.03~0.08	
				(2) Not recom.	(2) Not recom.	(2) 0.03~0.06	(2) 0.03~0.06	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Brass	-	-	★ 150 ~ 300	(1) 0.01~0.04	(1) 0.02~0.06	(1) 0.03~0.07	(1) 0.03~0.07	
				(2) Not recom.	(2) Not recom.	(2) 0.02~0.05	(2) 0.02~0.05	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	

★ : 1st Recommendation ☆ : 2nd Recommendation

GBF-000F inserts〔RE=0.00〕

Workpiece Material	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)				Remarks
	MEGACOAT	MEGACOAT NANO	Carbide					
	PR1215	PR1535	GW15	GBF32R/L 025 ~ 053 - 000F	GBF32R/L 065 ~ 095 - 000F	GBF32R/L 100 ~ 145 - 000F	GBF32R/L 150 ~ 200 - 000F	
Carbon Steel	★ 80 ~ 180	☆ 70 ~ 160	-	(1) 0.005~0.03	(1) 0.01~0.04	(1) 0.01~0.05	(1) 0.01~0.05	Coolant
				(2) Not recom.	(2) Not recom.	(2) 0.01~0.04	(2) 0.01~0.04	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Alloy Steel	★ 80 ~ 180	☆ 70 ~ 160	-	(1) 0.005~0.025	(1) 0.01~0.03	(1) 0.01~0.04	(1) 0.01~0.04	
				(2) Not recom.	(2) Not recom.	(2) 0.01~0.03	(2) 0.01~0.03	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Stainless Steel	☆ 60 ~ 130	★ 50 ~ 120	-	(1) 0.005~0.02	(1) 0.01~0.025	(1) 0.01~0.03	(1) 0.01~0.03	
				(2) Not recom.	(2) Not recom.	(2) 0.01~0.025	(2) 0.01~0.025	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Cast Iron	-	-	★ 60 ~ 100	(1) 0.005~0.03	(1) 0.01~0.04	(1) 0.01~0.05	(1) 0.01~0.05	
				(2) Not recom.	(2) Not recom.	(2) 0.01~0.04	(2) 0.01~0.04	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Aluminum Alloys	-	-	★ 150 ~ 400	(1) 0.005~0.03	(1) 0.01~0.04	(1) 0.01~0.05	(1) 0.01~0.05	
				(2) Not recom.	(2) Not recom.	(2) 0.01~0.04	(2) 0.01~0.04	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Brass	-	-	★ 150 ~ 300	(1) 0.01~0.03	(1) 0.01~0.04	(1) 0.01~0.05	(1) 0.01~0.05	
				(2) Not recom.	(2) Not recom.	(2) 0.01~0.04	(2) 0.01~0.04	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	

★ : 1st Recommendation ☆ : 2nd Recommendation

GBF-GL inserts

Workpiece Material	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)				Remarks
	MEGACOAT	MEGACOAT NANO					
	PR1215	PR1535	GBF32R075 - 005GL	GBF32R095 - 100-005GL	GBF32R150 - 200-010GL	GBF32R300 - 010GL	
Carbon Steel	★ 80 ~ 180	☆ 70 ~ 160	(1) 0.02~0.07	(1) 0.03~0.08	(1) 0.03~0.08	(1) 0.04~0.1	Coolant
			(2) Not recom.	(2) 0.03~0.06	(2) 0.03~0.06	(2) 0.04~0.08	
			(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.3	(3) MAX. 0.5	
Alloy Steel	★ 80 ~ 180	☆ 70 ~ 160	(1) 0.02~0.06	(1) 0.03~0.07	(1) 0.03~0.07	(1) 0.04~0.09	
			(2) Not recom.	(2) 0.03~0.06	(2) 0.03~0.06	(2) 0.04~0.08	
			(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.3	(3) MAX. 0.5	
Stainless Steel	☆ 60 ~ 130	★ 50 ~ 120	(1) 0.02~0.06	(1) 0.03~0.07	(1) 0.03~0.07	(1) 0.04~0.09	
			(2) Not recom.	(2) 0.03~0.06	(2) 0.03~0.06	(2) 0.04~0.08	
			(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.3	(3) MAX. 0.5	

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ TGF inserts (Ground Chipbreaker)

Workpiece Material	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)				Remarks
	Cermet	MEGA	PVD Coated Carbide		Carbide	CBN	PCD					
	TC40N	PR1215	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)	TGF32R/L 033~050-005	TGF32R/L 075~095-010	TGF32R/L 100~145-010	TGF32R/L 150~250-010	
Carbon Steel	☆ 150~220	★ 80~180	☆ 80~180	☆ 80~180	-	-	-	(1) 0.01~0.05 (2) Not recom. (3) Not recom.	(1) 0.02~0.07 (2) Not recom. (3) Not recom.	(1) 0.03~0.08 (2) 0.03~0.06 (3) Max. 0.2	(1) 0.03~0.08 (2) 0.03~0.06 (3) Max. 0.2	Coolant
Alloy Steel	☆ 130~200	★ 80~160	☆ 80~160	☆ 80~160	-	-	-	(1) 0.01~0.04 (2) Not recom. (3) Not recom.	(1) 0.02~0.06 (2) Not recom. (3) Not recom.	(1) 0.03~0.07 (2) 0.02~0.05 (3) Max. 0.2	(1) 0.03~0.07 (2) 0.02~0.05 (3) Max. 0.2	
Stainless Steel	-	☆ 60~130	☆ 60~130	★ 60~130	-	-	-	(1) 0.01~0.04 (2) Not recom. (3) Not recom.	(1) 0.02~0.06 (2) Not recom. (3) Not recom.	(1) 0.03~0.07 (2) 0.02~0.05 (3) Max. 0.2	(1) 0.03~0.07 (2) 0.02~0.05 (3) Max. 0.2	
Cast Iron	-	-	-	-	★ 60~100	-	-	(1) 0.01~0.05 (2) Not recom. (3) Not recom.	(1) 0.02~0.07 (2) Not recom. (3) Not recom.	(1) 0.03~0.08 (2) 0.03~0.06 (3) Max. 0.2	(1) 0.03~0.08 (2) 0.03~0.06 (3) Max. 0.2	
Aluminum Alloys	-	-	-	-	★ 150~400	-	★ 150~2,000	(1) 0.01~0.05 (2) Not recom. (3) Not recom.	(1) 0.02~0.07 (2) Not recom. (3) Not recom.	(1) 0.03~0.08 (2) 0.03~0.06 (3) Max. 0.2	(1) 0.03~0.08 (2) 0.03~0.06 (3) Max. 0.2	
Brass	-	-	-	-	★ 150~300	-	★ 200~800	(1) 0.01~0.04 (2) Not recom. (3) Not recom.	(1) 0.02~0.06 (2) Not recom. (3) Not recom.	(1) 0.03~0.07 (2) 0.02~0.05 (3) Max. 0.2	(1) 0.03~0.07 (2) 0.02~0.05 (3) Max. 0.2	

· MEGA indicates MEGACOAT.

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GH inserts (Ground Chipbreaker)

Workpiece Material	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)					Remarks
	Cermet			PVD Coated Carbide	Carbide	Ceramic								
	TN90	TC40N	TC60M	PR930	KW10	A65	A66N	PT600M	GH 40~50...	GH 55~70...	GH 75~80...	GH 100~120...		
Carbon Steel	-	☆ 150~220	☆ 100~150	★ 80~180	-	-	-	-	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.1~0.25 (2) 0.1~0.2 (3) Max. 1.5	(1) 0.15~0.3 (2) 0.15~0.25 (3) Max. 2.0		Coolant
Alloy Steel	-	☆ 130~200	☆ 80~130	★ 80~160	-	-	-	-	(1) 0.07~0.18 (2) 0.07~0.13 (3) Max. 1.0	(1) 0.07~0.18 (2) 0.07~0.13 (3) Max. 1.0	(1) 0.1~0.23 (2) 0.1~0.18 (3) Max. 1.5	(1) 0.15~0.27 (2) 0.15~0.22 (3) Max. 2.0		
Stainless Steel	-	-	☆ 60~100	★ 60~130	-	-	-	-	(1) 0.07~0.16 (2) 0.07~0.13 (3) Max. 1.0	(1) 0.07~0.16 (2) 0.07~0.13 (3) Max. 1.0	(1) 0.1~0.21 (2) 0.1~0.18 (3) Max. 1.5	(1) 0.15~0.25 (2) 0.15~0.22 (3) Max. 2.0		
Cast Iron	-	-	-	-	★ 60~100	☆ 150~300	☆ 150~300	☆ 150~300	KW10 (1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0 A65/A66N (1) 0.03~0.07 (2) Not recom. (3) Not recom.	KW10 (1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0 A65/A66N (1) 0.03~0.07 (2) Not recom. (3) Not recom.	KW10 (1) 0.1~0.25 (2) 0.1~0.2 (3) Max. 1.5 A65/A66N (1) 0.05~0.09 (2) Not recom. (3) Not recom.	KW10 (1) 0.15~0.3 (2) 0.15~0.25 (3) Max. 2.0 A65/A66N (1) 0.05~0.09 (2) Not recom. (3) Not recom.		
Aluminum Alloys	-	-	-	-	★ 150~400	-	-	-	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.1~0.25 (2) 0.1~0.2 (3) Max. 1.5	(1) 0.15~0.3 (2) 0.15~0.25 (3) Max. 2.0		
Brass	-	-	-	-	★ 150~300	-	-	-	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.1~0.25 (2) 0.1~0.2 (3) Max. 1.5	(1) 0.15~0.3 (2) 0.15~0.25 (3) Max. 2.0		
Hard Materials	-	-	-	-	-	☆ 40~80	☆ 40~80	☆ 40~80	(1) 0.02~0.05 (2) 0.01~0.03 (3) Max. 0.1	(1) 0.02~0.05 (2) 0.01~0.03 (3) Max. 0.2	(1) 0.02~0.05 (2) 0.01~0.04 (3) Max. 0.2			

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GHU Inserts (Molded Chipbreaker)

Workpiece Material	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)				Remarks
	Cermet			CVD Coated Carbide	PVD Coated Carbide		Ceramic						
	TN60	TC40N	TC60M	CR9025	PR630	PR930	A65	A66N	GHU 40-20	GHU 50-20	GHU 60-20		
Carbon Steel	☆ 130~200	-	-	☆ 80~180	-	-	-	-	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.0	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.0	(1) 0.06~0.15 (2) 0.05~0.12 (3) Max. 1.5		Coolant
Alloy Steel	☆ 100~180	-	-	☆ 80~160	-	-	-	-	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.0	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.0	(1) 0.06~0.15 (2) 0.05~0.12 (3) Max. 1.5		
Stainless Steel	-	-	-	☆ 60~130	-	-	-	-	(1) 0.06~0.1 (2) 0.05~0.08 (3) Max. 0.8	(1) 0.06~0.1 (2) 0.05~0.08 (3) Max. 0.8	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.2		

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions

◆ GA Inserts (Molded Chipbreaker)

Workpiece Material	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)					Remarks
	Cermet				CVD Coated Carbide	PVD Coated Carbide		Carbide						
	TN60	TN90	TC40N	TC60M	CR9025	PR630	PR930	KW10	GA 30	GA 40	GA 50			
Carbon Steel	☆ 130~200	-	-	-	★ 80~180	-	-	-	(1) 0.06~0.18 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.06~0.21 (2) 0.05~0.17 (3) Max. 1.0	(1) 0.06~0.25 (2) 0.05~0.2 (3) Max. 1.3			Coolant
Alloy Steel	☆ 100~180	-	-	-	★ 80~160	-	-	-	(1) 0.06~0.15 (2) 0.05~0.12 (3) Max. 0.3	(1) 0.06~0.18 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.06~0.22 (2) 0.05~0.18 (3) Max. 0.8			
Stainless Steel	-	-	-	-	★ 60~130	-	-	-	(1) 0.06~0.1 (2) 0.05~0.08 (3) Max. 0.8	(1) 0.06~0.1 (2) 0.05~0.08 (3) Max. 0.8	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.2			

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GIA Inserts (Molded Chipbreaker)

Workpiece Material	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)					Remarks
	Cermet				CVD Coated Carbide	PVD Coated Carbide		Carbide						
	TN60	TN90	TC40N	TC60M	CR9025	PR630	PR930	KW10	GIA 30	GIA 40	GIA 50			
Carbon Steel	☆ 60~120	-	-	-	★ 60~120	-	-	-	(1) 0.04~0.08 (2) 0.02~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.02~0.08 (3) Max. 0.4	(1) 0.05~0.1 (2) 0.05~0.08 (3) Max. 0.5			Coolant
Alloy Steel	☆ 60~100	-	-	-	★ 60~100	-	-	-	(1) 0.04~0.07 (2) 0.02~0.07 (3) Max. 0.3	(1) 0.04~0.07 (2) 0.02~0.07 (3) Max. 0.4	(1) 0.05~0.08 (2) 0.05~0.08 (3) Max. 0.5			
Stainless Steel	-	-	-	-	★ 60~80	-	-	-	(1) 0.04~0.07 (2) 0.02~0.07 (3) Max. 0.3	(1) 0.04~0.07 (2) 0.02~0.07 (3) Max. 0.4	(1) 0.05~0.08 (2) 0.05~0.08 (3) Max. 0.5			

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ FMM / FMN Inserts

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min)						Face Grooving (FMM / FMN)			Turning (FMM)			Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Edge Width (mm)			Edge Width (mm)			
	TN90	CR9025	PR915	PR930	PR905	KW10	3.0	4.0	5.0 / 6.0	3.0	4.0	5.0 / 6.0	
							f (mm/rev)			f (mm/rev)			
Carbon Steel	☆ 100~220	☆ 80~200	☆ 80~200	★ 80~200	-	-	0.03~0.05	0.03~0.08	0.05~0.10	0.05~0.10	0.05~0.25	0.10~0.30	Coolant
Alloy Steel	☆ 80~200	☆ 70~180	☆ 70~180	★ 70~180	-	-	0.03~0.05	0.03~0.08	0.05~0.10	0.05~0.10	0.05~0.25	0.10~0.30	
Stainless Steel	☆ 70~160	☆ 60~150	★ 60~150	☆ 60~150	-	-	0.03~0.05	0.03~0.08	0.05~0.10	0.05~0.10	0.05~0.25	0.10~0.30	
Cast Iron	-	-	-	-	★ 80~180	☆ 70~150	0.03~0.05	0.03~0.08	0.05~0.10	0.05~0.10	0.05~0.25	0.10~0.30	
Aluminum Alloys	-	-	-	-	-	★ 200~500	0.03~0.05	0.03~0.08	0.05~0.10	0.05~0.10	0.05~0.25	0.10~0.30	
Brass	-	-	-	-	-	★ 100~200	0.03~0.05	0.03~0.08	0.05~0.10	0.05~0.10	0.05~0.25	0.10~0.30	

· Set the feed rate 1/100 of edge width on the first groove and check chip evacuation.
· FMN type Inserts are only for Deep Grooving, and when used for turning, set to ap=0.2mm and under.

★ : 1st Recommendation ☆ : 2nd Recommendation

Ref. to the notes below for turning conditions.

ap and f of FMM

	Recommended Cutting Conditions
ap (MAX.) (mm)	under 50% of Edge Width
f (MAX.) (mm/rev)	under 3~5% of Edge Width

· ap≤0.5CW
· f≤0.03 (Min.) ~ 0.05 (Max.)CW

ap x f should be as follows.

Load (mm^2) \ Edge Width (mm)	3.0	4.0	5.0	6.0
ap x f	~0.09	~0.14	~0.25	~0.36

· ap x f≤0.01CW^2

G

Grooving

◆ SIGE (Ground Chipbreaker : GE R/L...A(R), GE R/L...B(R))

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min) Cermet TN6020	MEGACOAT PR1225	PVD Coated Carbide PR1025	Carbide KW10	(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm) GE R/L 100~200-010A 100~200-100AR	GE R/L 100~200-010B 100~200-100BR	GE R/L 250~300-020B	Remarks
Carbon Steel	☆ 50~80	★ 50~80	☆ 50~80	-	(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	Coolant
					(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
					(3) Max. 0.05	(3) Max. 0.05	(3) Max. 0.1	
Alloy Steel	☆ 50~80	★ 50~80	☆ 50~80	-	(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	
					(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
					(3) Max. 0.05	(3) Max. 0.05	(3) Max. 0.1	
Stainless Steel	-	★ 50~80	☆ 50~80	-	(1) 0.01~0.03	(1) 0.01~0.03	(1) 0.01~0.03	
					(2) 0.01~0.03	(2) 0.01~0.03	(2) 0.01~0.03	
					(3) Max. 0.05	(3) Max. 0.05	(3) Max. 0.1	
Cast Iron	-	-	-	★ 50~80	(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	
					(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
					(3) Max. 0.05	(3) Max. 0.05	(3) Max. 0.1	
Aluminum Alloys	-	-	-	★ 50~100	(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	
					(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
					(3) Max. 0.1	(3) Max. 0.1	(3) Max. 0.2	
Brass	-	-	-	★ 50~100	(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	
					(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
					(3) Max. 0.1	(3) Max. 0.1	(3) Max. 0.2	

* Use PVD coated carbide or carbide for turning with edge width 1mm. (GE R/L 100-005A / 100-005B)

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ SIGE (Ground Chipbreaker : GE R/L···C(R), GE R/L··D(R), GE R/L···E)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min) Cermet TN6020	MEGA COAT PR1225	PVD Coated Carbide PR1025	Carbide GW15	(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)							Remarks
					GE R/L 100~200-010C 200-100CR	GE R/L 250~350-020C 250~300-150CR						
					GE R/L 100~145-010D	GE R/L 150~195-010D	GE R/L 200~280-020D 200-100DR		GE R/L 300~400-020D 300-150DR			
					GE R/L 100-010E	GE R/L 150~195-010E	GE R/L 200~225-010E 230-020E	GE R/L 250~330-020E		GE R/L 350~430-020E	GE R/L 450~500-020E	
Carbon Steel	☆ 120~180	★ 60~140	☆ 60~140	-	(1) 0.03~0.08	(1) 0.03~0.08	(1) 0.04~0.09	(1) 0.04~0.09	(1) 0.05~0.12	(1) 0.05~0.12	(1) 0.05~0.12	Coolant
					(2) 0.03~0.08	(2) 0.03~0.08	(2) 0.04~0.09	(2) 0.04~0.09	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	
Alloy Steel	☆ 100~160	★ 60~120	☆ 60~120	-	(1) 0.03~0.07	(1) 0.03~0.07	(1) 0.04~0.08	(1) 0.04~0.08	(1) 0.05~0.1	(1) 0.05~0.1	(1) 0.05~0.1	
					(2) 0.03~0.1	(2) 0.03~0.1	(2) 0.04~0.08	(2) 0.04~0.08	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	
Stainless Steel	☆ 70~130	★ 60~110	☆ 60~110	-	(1) 0.03~0.07	(1) 0.03~0.07	(1) 0.04~0.08	(1) 0.04~0.08	(1) 0.05~0.1	(1) 0.05~0.1	(1) 0.05~0.1	
					(2) 0.03~0.1	(2) 0.03~0.1	(2) 0.04~0.08	(2) 0.04~0.08	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	
Cast Iron	-	-	-	★ 60~100	(1) 0.03~0.08	(1) 0.03~0.08	(1) 0.04~0.09	(1) 0.04~0.09	(1) 0.05~0.12	(1) 0.05~0.12	(1) 0.05~0.12	
					(2) 0.03~0.08	(2) 0.03~0.08	(2) 0.04~0.09	(2) 0.04~0.09	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	
Aluminum Alloys	-	-	-	★ 150~300	(1) 0.05~0.12	(1) 0.05~0.12	(1) 0.05~0.15	(1) 0.05~0.15	(1) 0.08~0.15	(1) 0.08~0.15	(1) 0.08~0.15	
					(2) 0.05~0.12	(2) 0.05~0.12	(2) 0.05~0.15	(2) 0.05~0.15	(2) 0.08~0.15	(2) 0.08~0.15	(2) 0.08~0.15	
					(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.8	(3) Max. 0.8	(3) Max. 0.8	
Brass	-	-	-	★ 100~250	(1) 0.05~0.12	(1) 0.05~0.12	(1) 0.05~0.15	(1) 0.05~0.15	(1) 0.08~0.15	(1) 0.08~0.15	(1) 0.08~0.15	
					(2) 0.05~0.12	(2) 0.05~0.12	(2) 0.05~0.15	(2) 0.05~0.15	(2) 0.08~0.15	(2) 0.08~0.15	(2) 0.08~0.15	
					(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.8	(3) Max. 0.8	(3) Max. 0.8	

* Use PVD coated carbide or carbide for turning with edge width 1mm. (GE R/L 100-010C / 100-010D / 100-010E)

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ SIGE (Molded Chipbreakers : GER...CM, GER...DM, GER...EM)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min) Cermet TN6020	MEGA COAT PR1225	PVD Coated Carbide PR1025	Carbide GW15	(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)						Remarks
					GER 150~200-010CM	GER 250~350-020CM					
					GER 150~200-010DM		GER 230~250-020DM	GER 300~400-020DM			
					GER 150~200-010EM			GER 250~300-020EM	GER 350~400-020EM	GER 450~500-020EM	
Carbon Steel	-	★ 60~160	☆ 60~160	-	(1) 0.03~0.1	(1) 0.03~0.12	(1) 0.04~0.12	(1) 0.05~0.12	(1) 0.05~0.12	(1) 0.05~0.12	Coolant
					(2) 0.03~0.1	(2) 0.03~0.1	(2) 0.04~0.1	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max. 1.0	(3) Max. 1.5	(3) Max. 1.5	(3) Max. 1.5	(3) Max. 1.5	(3) Max. 1.5	
Alloy Steel	-	★ 60~140	☆ 60~140	-	(1) 0.03~0.1	(1) 0.03~0.1	(1) 0.04~0.12	(1) 0.05~0.12	(1) 0.05~0.12	(1) 0.05~0.12	
					(2) 0.03~0.1	(2) 0.03~0.1	(2) 0.04~0.1	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max. 1.0	(3) Max. 1.5	(3) Max. 1.5	(3) Max. 1.5	(3) Max. 1.5	(3) Max. 1.5	
Stainless Steel	-	★ 60~110	☆ 60~110	-	(1) 0.03~0.08	(1) 0.03~0.08	(1) 0.04~0.08	(1) 0.05~0.1	(1) 0.05~0.1	(1) 0.05~0.1	
					(2) 0.03~0.1	(2) 0.03~0.1	(2) 0.04~0.1	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max. 1.0	(3) Max. 1.5	(3) Max. 1.5	(3) Max. 1.5	(3) Max. 1.5	(3) Max. 1.5	

★ : 1st Recommendation ☆ : 2nd Recommendation

GV Inserts (Ground Chipbreaker)

Workpiece Material	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)							Remarks
	Cermet			MEGA COAT	PVD Coated Carbide	Carbide	GV$^R/_L$ 100~300-...SS 100~300-...S	GV$^R/_L$ 145~185-...B	GV$^R/_L$ 200~280-...B	GV$^R/_L$ 300~400-...B				
	TN90	TC40N	TC60M	PR1225	PR930	KW10	GV$^R/_L$ 100~340-...A 200~300-...AR		GV$^R/_L$ 200-100BR	GV$^R/_L$ 300-150BR	GV$^R/_L$ 280~300-...C	GV$^R/_L$ 340~400-...C	GV$^R/_L$ 430~500-...C	
Carbon Steel	☆ 120~180	☆ 120~180	☆ 80~120	★ 80~160	☆ 80~140	-	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(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. 0.5	Coolant
Alloy Steel	☆ 100~160	☆ 100~160	☆ 80~100	★ 80~140	☆ 80~120	-	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(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) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(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. 0.5	
Stainless Steel	☆ 70~130	-	☆ 60~100	★ 60~130	☆ 60~110	-	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(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) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(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. 0.5	
Cast Iron	-	-	-	-	-	★ 60~100	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(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. 0.5	
Aluminum Alloys	-	-	-	-	-	★ 150~300	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(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	-	-	-	-	-	★ 100~250	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(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	

* Use MEGACOAT, PVD coated carbide or carbide for turning with edge width 1mm (GV$^R/_L$100SS / 100S / 100A)

★ : 1st Recommendation ☆ : 2nd Recommendation

GVF Inserts (Ground Chipbreaker)

Workpiece Material	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)					Remarks
	Cermet			MEGA COAT	PVD Coated Carbide	Carbide	GVF$^R/_L$ 200~340...A	GVF$^R/_L$ 250~350...B	GVF$^R/_L$ 400~490...B	GVF$^R/_L$ 350~450...C	GVF$^R/_L$ 500~600...C	
	TN90	TC40N	TC60M	PR1225	PR930	KW10	GVF$^R/_L$ 200-100AR ~300-150AR	GVF$^R/_L$ 300-150BR	GVF$^R/_L$ 400-200BR			
Carbon Steel	☆ 150~220	☆ 150~220	☆ 100~150	★ 80~200	☆ 80~180	-	(1) 0.03~0.08 (2) 0.03~0.08 (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	Coolant
Alloy Steel	☆ 130~200	☆ 130~200	☆ 80~130	★ 80~180	☆ 80~160	-	(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	☆ 70~150	-	☆ 60~100	★ 80~150	☆ 60~130	-	(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	
Cast Iron	-	-	-	-	-	★ 60~100	(1) 0.03~0.08 (2) 0.03~0.08 (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	
Aluminum Alloys	-	-	-	-	-	★ 150~400	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(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	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(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	

· Apply a sufficient amount of coolant.
· The ap should be under 0.5mm if a good surface finish is required.

★ : 1st Recommendation ☆ : 2nd Recommendation

FTK Inserts

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min)				Edge Width (mm)					Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide	Carbide	4.0	5.0				
	TN90	CR9025	PR930	KW10	f (mm/rev)					
Carbon Steel	☆ 120~200	★ 80~180	☆ 60~130	-	0.05~0.15	0.05~0.15				Coolant
Alloy Steel	☆ 100~160	★ 70~150	☆ 60~130	-	0.05~0.15	0.05~0.15				
Stainless Steel	☆ 80~150	☆ 60~140	☆ 50~120	-	0.05~0.15	0.05~0.15				
Cast Iron	-	-	-	★ 50~100	0.10~0.30	0.10~0.30				
Aluminum Alloys	-	-	-	★ 200~450	0.05~0.25	0.05~0.25				
Brass	-	-	-	★ 100~200	0.05~0.25	0.05~0.25				

★ : 1st Recommendation ☆ : 2nd Recommendation

GMN Inserts (CBN / PCD)

Workpiece Material	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)				Remarks
	CBN	PCD					
	KBN510 KBN525	KPD001 (KPD010)	GMN2	GMN3	GMN4 GMN5	GMN6	
Aluminum Alloys	-	★ 150~2,000	(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) 0.08~0.18 (2) 0.08~0.18 (3) Max. 0.8	(1) 0.10~0.20 (2) 0.10~0.20 (3) Max. 0.8	Coolant
Brass	-	★ 200~800	(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) 0.08~0.18 (2) 0.08~0.18 (3) Max. 0.8	(1) 0.10~0.20 (2) 0.10~0.20 (3) Max. 0.8	
Cast Iron	★ 150~400	-	(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) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	
Hard Materials	★ 80~120	-	(1) 0.02~0.05 (2) 0.01~0.03 (3) Max. 0.1	(1) 0.03~0.07 (2) 0.01~0.05 (3) Max. 0.2	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.4	

★ : 1st Recommendation

Recommended Cutting Conditions

◆ GMG / GMM / GMN / GMGA Inserts

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min)						Grooving				Turning				Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Edge Width (mm)				Edge Width (mm)				
	TN90	CR9025	PR915	PR930	PR905	KW10	2.0~3.0	4.0	5.0	6.0 / 8.0	2.0~3.0	4.0	5.0	6.0 / 8.0	
							f (mm/rev)				f (mm/rev)				
Carbon Steel	☆ 100~220	☆ 80~200	☆ 80~200	★ 80~200	-	-	0.05~0.15	0.10~0.25	0.15~0.35	0.20~0.35	0.10~0.20	0.15~0.30	0.20~0.40	0.25~0.40	Coolant
Alloy Steel	☆ 80~200	☆ 70~180	☆ 70~180	★ 70~180	-	-	0.05~0.15	0.10~0.25	0.15~0.35	0.20~0.35	0.10~0.20	0.15~0.30	0.20~0.40	0.25~0.40	
Stainless Steel	☆ 70~160	☆ 60~150	★ 60~150	☆ 60~150	-	-	0.05~0.15	0.10~0.20	0.15~0.35	0.20~0.35	0.10~0.20	0.15~0.25	0.20~0.40	0.25~0.40	
Cast Iron	-	-	-	-	★ 100~200	☆ 70~150	0.05~0.20	0.10~0.30	0.15~0.40	0.20~0.40	0.10~0.25	0.15~0.35	0.20~0.45	0.25~0.45	
Aluminum Alloys	-	-	-	-	-	★ 200~500	0.05~0.20	0.08~0.25	0.10~0.25	0.12~0.30	0.10~0.20	0.10~0.25	0.10~0.25	0.15~0.30	
Brass	-	-	-	-	-	★ 100~200	0.05~0.15	0.08~0.20	0.10~0.25	0.12~0.30	0.10~0.20	0.10~0.25	0.10~0.25	0.15~0.30	

Ref. to the notes below for turning conditions.

★ : 1st Recommendation ☆ : 2nd Recommendation

(1) When using KGM Toolholder

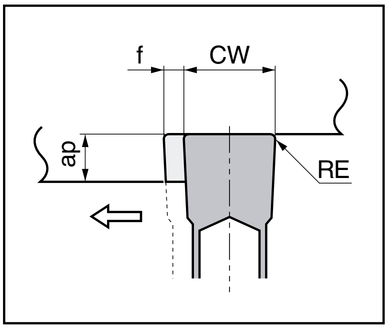
	Recommended Cutting Conditions
ap (MAX.) (mm)	under 80% of Edge Width
f (MAX.) (mm/rev)	under 10% of Edge Width

・ap≤0.8CW
・f≤0.1CW

(ap) x (f) shall not exceed 1/2 of ap (MAX.) x f (MAX.)

Load(mm²) \ Edge Width(mm)	2.0~2.5	3.0	4.0	5.0	6.0	8.0
ap x f	~0.20	~0.36	~0.64	~1.00	~1.44	~2.56

・ap x f$\leq\frac{1}{2}$ x 0.8CW x 0.1CW=0.04CW^2



(2) When using KGM-T Toolholder (Deep grooving type)
Use 90% of KGM conditions

(3) When using KGMM / KGMS / KFMS-8 Toolholder

	Recommended Cutting Conditions
ap (MAX.) (mm)	under 50% of Edge Width
f (MAX.) (mm/rev)	under 4% of Edge Width

・ap≤0.5CW
・f≤0.04CW

should be as follows. (50% or under of KGM)

Load(mm²) \ Edge Width(mm)	2.0~2.5	3.0	4.0	5.0	6.0	8.0
ap x f	~0.10	~0.18	~0.32	~0.50	~0.72	~1.28

・ap x f≤0.02CW^2

(4) When using KIGM Toolholder

	Recommended Cutting Conditions
ap (MAX.) (mm)	under 70% of Edge Width
f (MAX.) (mm/rev)	under 8% of Edge Width

・ap≤0.7CW
・f≤0.08CW

should be as follows. (under 70% of KGM)

Load(mm²) \ Edge Width(mm)	3.0	4.0	5.0
ap x f	~0.25	~0.44	~0.70

・ap×f≤0.04CW^2

◆ GMG / GMM / GMGA8030 Inserts (Face Grooving)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc : m/min)						Face Grooving			Turning			Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Edge Width (mm)			Edge Width (mm)			
	TN90	CR9025	PR915	PR930	PR905	KW10	8.0			8.0			
							f (mm/rev)			f (mm/rev)			
Carbon Steel	☆ 100~220	☆ 80~160	☆ 80~160	★ 80~160	-	-	0.1~0.2			0.1~0.25			Coolant
Alloy Steel	☆ 80~160	☆ 70~160	☆ 70~160	★ 70~160	-	-	0.1~0.2			0.1~0.25			
Stainless Steel	☆ 70~140	☆ 60~130	★ 60~130	☆ 60~130	-	-	0.1~0.2			0.1~0.25			
Cast Iron	-	-	-	-	★ 80~180	☆ 70~130	0.1~0.3			0.1~0.35			
Aluminum Alloys	-	-	-	-	-	★ 200~300	0.08~0.25			0.08~0.30			
Brass	-	-	-	-	-	★ 100~150	0.08~0.25			0.08~0.30			

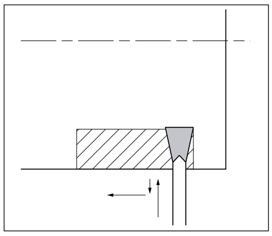
★ : 1st Recommendation ☆ : 2nd Recommendation

Guide for Grooving

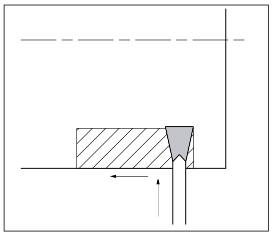
Guide for External Grooving

Point (I) (Turning after Grooving)

1) Grooving Depth 0.5mm or over : For roughing (Refer to Fig. 1)
   Before turning, pull the tool back about 0.1mm after grooving, instead of turning subsequent to grooving.
   (Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting edge.)
2) Grooving Depth 0.5mm or under : For finishing (Refer to Fig. 2)
   Turning subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge. (Retention time is not necessary.)



Before turning, pull the tool back about 0.1mm after grooving.
(Grooving Depth 0.5mm or over at roughing)
Fig. 1



Turning subsequent to grooving
(Grooving Depth 0.5mm or under at finishing)
Fig. 2

Point (II)

1) When widening the groove width (Refer to Fig. 3), apply the "Step Turning."
2) The widened groove and side walls should be finished last.
   (For better chip control, ap 0.5mm or over is recommended.)

Note) If the workpiece is not supported at the center, reduce the feed rate when grooving towards center.

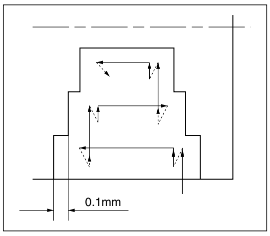


Fig. 3

Guide for Face Grooving

<Toolholder Selection>

(1) Choose the best tool depending on the groove width.
External dia. of the groove listed in the catalog indicates the available range (between DAXN and DAXX) for the initial grooving on the unprocessed workpiece (Ref. to Fig. 1).

(2) Confirm Grooving Depth (CD)

(3) It is recommended to install the toolholder in the reverse position. (Fig. 2)
(This will provide smooth chip flow and chip clearance.)

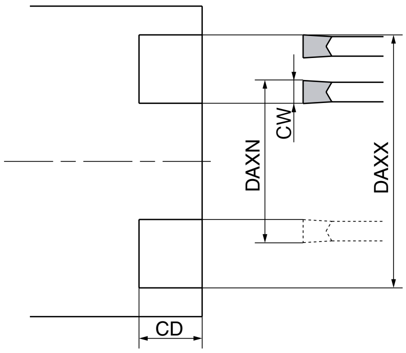


Fig. 1

Toolholder	Right-hand	Toolholder	Left-hand
Insert	(Neutral)	Insert	(Neutral)

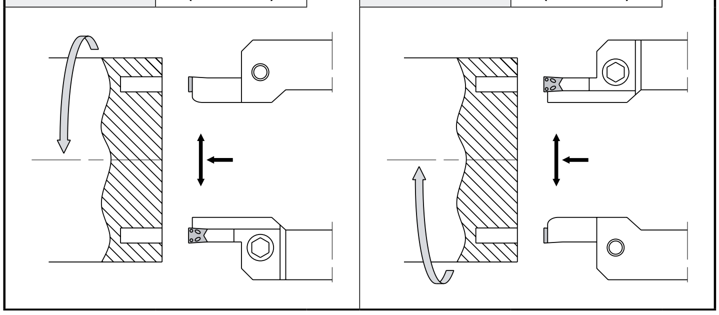


Fig. 2 Toolholder's Hand and Rotation

<Guide for turning>

Turning direction should be from the outer diameter to the inner diameter as shown in Fig. 3
This improves chip evacuation.

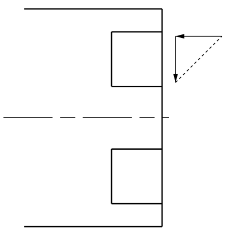
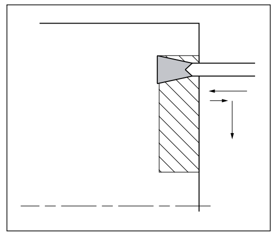


Fig. 3

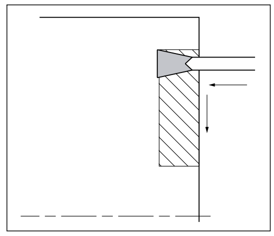
Guide for Face Grooving (Continued)

Point (I) (Turning after Grooving)

1) Grooving Depth 0.5mm or over : For roughing (Refer to Fig. 4)
Before turning, pull the tool back about 0.1mm after grooving, instead of turning subsequent to grooving.
(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting edge.)


Before turning, pull the tool back about 0.1mm after grooving.
(Grooving Depth 0.5mm or over at roughing)
Fig. 4

2) Grooving Depth 0.5mm or under : For finishing (Refer to Fig. 5)
Turning subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.
(Retention time is not necessary.)


Turning subsequent to grooving
(Grooving Depth 0.5mm or under at finishing)
Fig. 5

Point (II)

1) When widening the groove width. (Ref. to Fig. 6)
Apply the “Step Turning”.
2) The widened groove and side walls should be finished last.
(For better chip control, ap 0.5mm or over is recommended.)

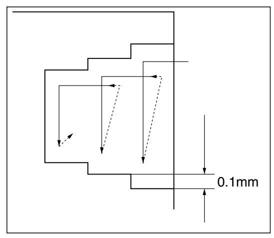
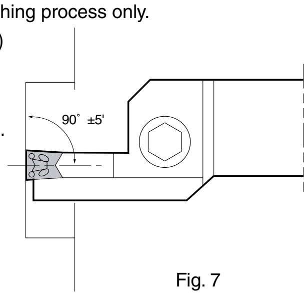


Fig. 6

Trouble shooting

Trouble	Countermeasures
Whitish trace remains at the groove bottom.	(1) Increase the cutting speed for finishing process only. (This can handle most of the cases.) If the method is not successful, try (2) as follows. (2) Check the insert edge's parallelness. (Adjustment: Apply the insert edge to the workpiece face and adjust the toolholder within the angle of ±5'. (Fig. 7))  Fig. 7
Chips are entangled.	(1) Install the toolholder in the reverse position. Adjust the coolant flow to the cutting edge. (2) When widening the groove, do not machine one deep groove. Instead, repeat shallow grooving and turning.
Insert cracks when turning.	Reverse the facing direction.
Groove is not straight.	Check the edge's parallelness. Decrease the feed rate.

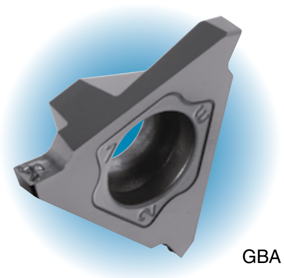
Guide for Grooving with Cermet Insert (Steel)

1. Set the f under 0.12mm/rev (0.05~0.10mm/rev normally).
2. Coolant is recommended.
3. Set the cutting speed Vc=150~220m/min.
4. Set the toolholder overhang as short as possible.

How to Improve Surface Finish (when surface roughness below 3µm Rz is required)

1. Increase the cutting speed (Vc=220m/min MAX.)
2. Program retention time at the groove bottom.
3. Apply a light hone to the cutting edge by hand lapper.

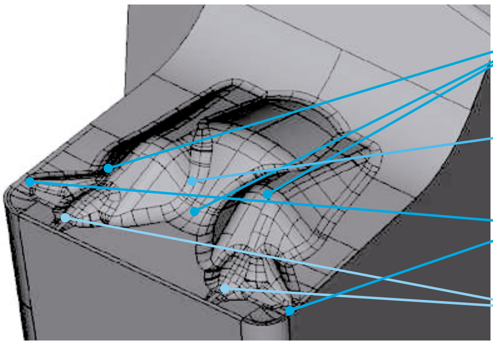
Chip Control of Grooving Insert with Molded Chipbreaker



GBA GM chipbreaker

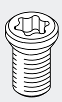
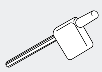
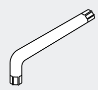
1. Good chip control to cover wide application range stable chip control.
   Stable chip control at high cutting speed, covering wide range of feed rate
2. Improved chip control and excellent surface finish.
   Superior chip control performance and MEGACOAT PR1215 realizes the excellent surface quality
3. Chip control improvement at automated production line.
   (prevent frequent machine stop)

Multi Bump Design



Smooth chip control with optimum bump layout on the chipbreaker

Alternative Toolholder Reference Table for Grooving Toolholder

Conventional Toolholder					Alternative Toolholder			
Description	Overall length (mm)	Spare Parts: Clamp Screw 	Spare Parts: Wrench 	Spare Parts: Wrench 	Description	Overall length (mm)	Remarks	See Page
KTGFR/L 1010K-16F	125	SB-4070TRW	FT-8	-	**KTGFR/L 1010JX-16F**	120		**G18**
1212M-16F	150				**1212JX-16F**	120		
1616M-16F	150				**1616JX-16F**	120		
KGMR/L 0810K-1.5-125	125	SE-40120TR	-	LTW-15S	**-**	-	No Alternative	**G42**
1010K-1.5-125	125				**KGMR/L 1010JX-1.5**	120		
1212M-1.5-150	150				**1212JX-1.5**	120		
KGMR/L 0810K-2-125	125	SE-40120TR	-	LTW-15S	**-**	-	No Alternative	
1010K-2-125	125				**KGMR/L 1010JX-2**	120		
1212M-2-150	150				**1212JX-2**	120		
1616M-2-150	150	SE-50125TR	-	LTW-20	**1616JX-2**	120		
KGMR/L 1010K-2.5-125	125	SE-40120TR	-	LTW-15S	**-**	-	No Alternative	
1212M-2.5-150	150				**KGMR/L 1212JX-2.5**	120		
1616M-2.5-150	150	SE-50125TR	-	LTW-20	**1616JX-2.5**	120		
KGMR/L 1616M-3-150	150	SE-50125TR	-	LTW-20	**KGMR/L 1616JX-3**	120		

Note) The corresponding alternative toolholder may be different from the conventional toolholder in insert clamping system or insert size.
Make sure of their specifications by referring to the catalog or other documents.