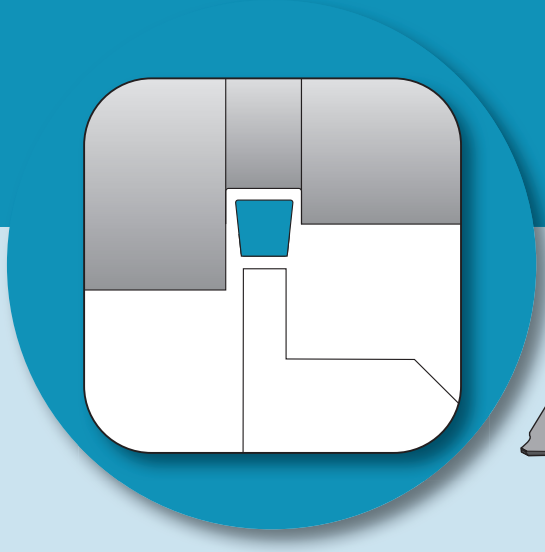
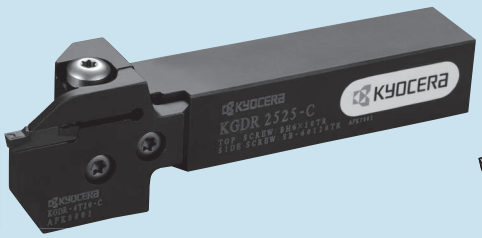
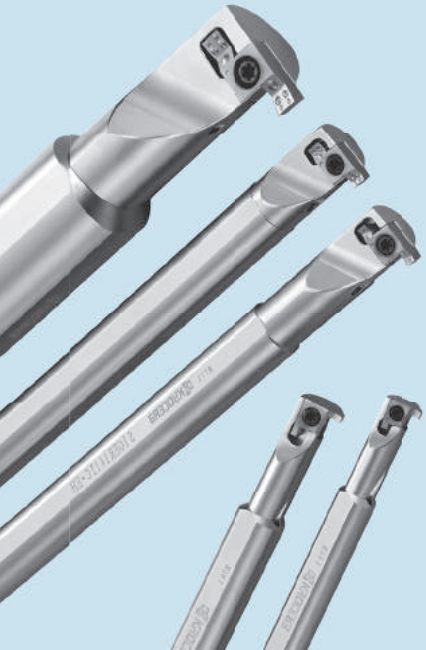


Grooving

G1~G114

G





Summary of External Grooving

KGD Grooving (External Grooving & Turning) (G21 ~ G35)

· Integral Type

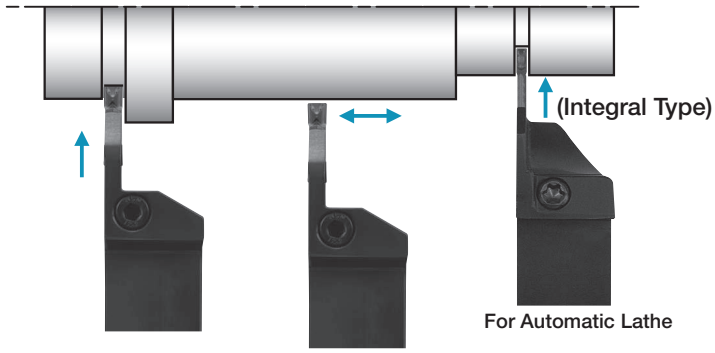
Type	KGD
Edge Width (mm)	2.0 ~ 8.0
Max. Grooving Depth (mm)	6 ~ 30
See Page	G25

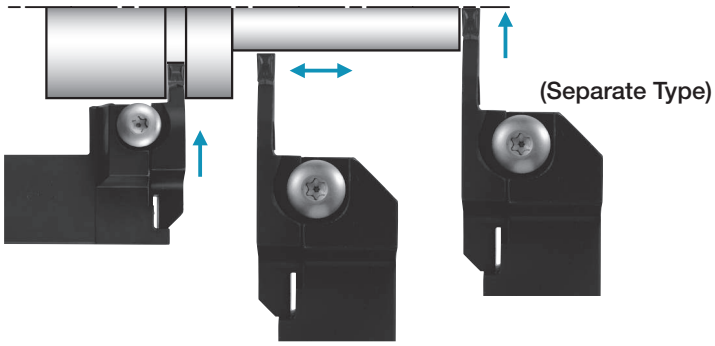
· Integral Type (Coolant-through Holders)

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 ~ 21
See Page	G28





· Separate Type

Type	* KGDS-S
Edge Width (mm)	3.0
Max. Grooving Depth (mm)	10
See Page	G30

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

· Separate Type

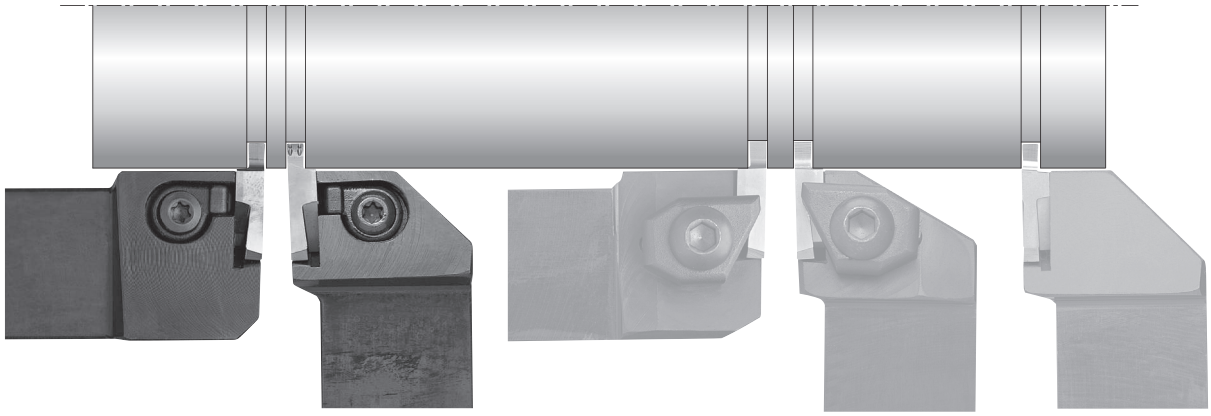
Type	* KGD-S
Edge Width (mm)	2.0 ~ 5.0
Max. Grooving Depth (mm)	10 ~ 25
See Page	G29

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

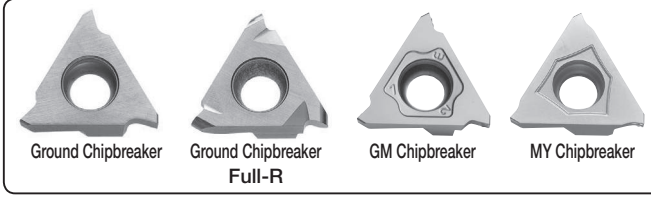
Low Cutting Force	Low Feed	General purpose	High Feed	Copying
GS	**GL**	**GM**	**PH**	**CM**

External Grooving (G6 ~ G20, G44, G45)

Shallow Grooving (Grooving Depth: ~5mm)



Type	KGBAS	KGBA	KGBS	KGB	KTG
Edge Width (mm)	0.33 ~ 4.8	0.33 ~ 4.8	0.33 ~ 4.8	0.33 ~ 4.8	0.75 ~ 4.5
Max. Grooving Depth (mm)	0.8 ~ 5.0	0.8 ~ 5.0	0.8 ~ 5.0	0.8 ~ 5.0	2.0 ~ 5.0
See Page	G9	G9	G10	G10	G20

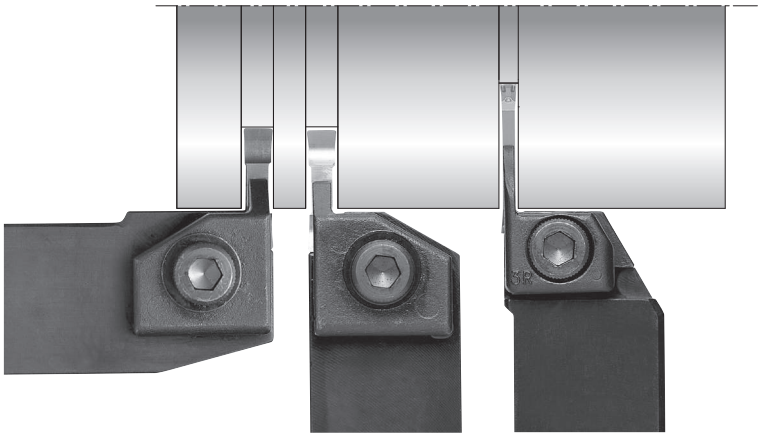


Edge Shape	General (Square)	Full-R (Round)	GM Chipbreaker	MY Chipbreaker
				

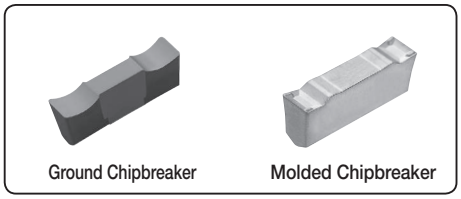
* These shallow groove types of the previous system will be switched to the system on the left.

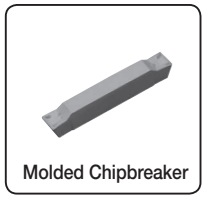
KGBS → KGBAS
KGB, KTG → KGBA

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	G44	G44	G45



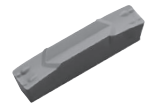


Summary of External Grooving

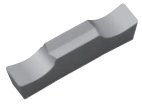
KGM Grooving (External Grooving & Turning) (G36 ~ G43)

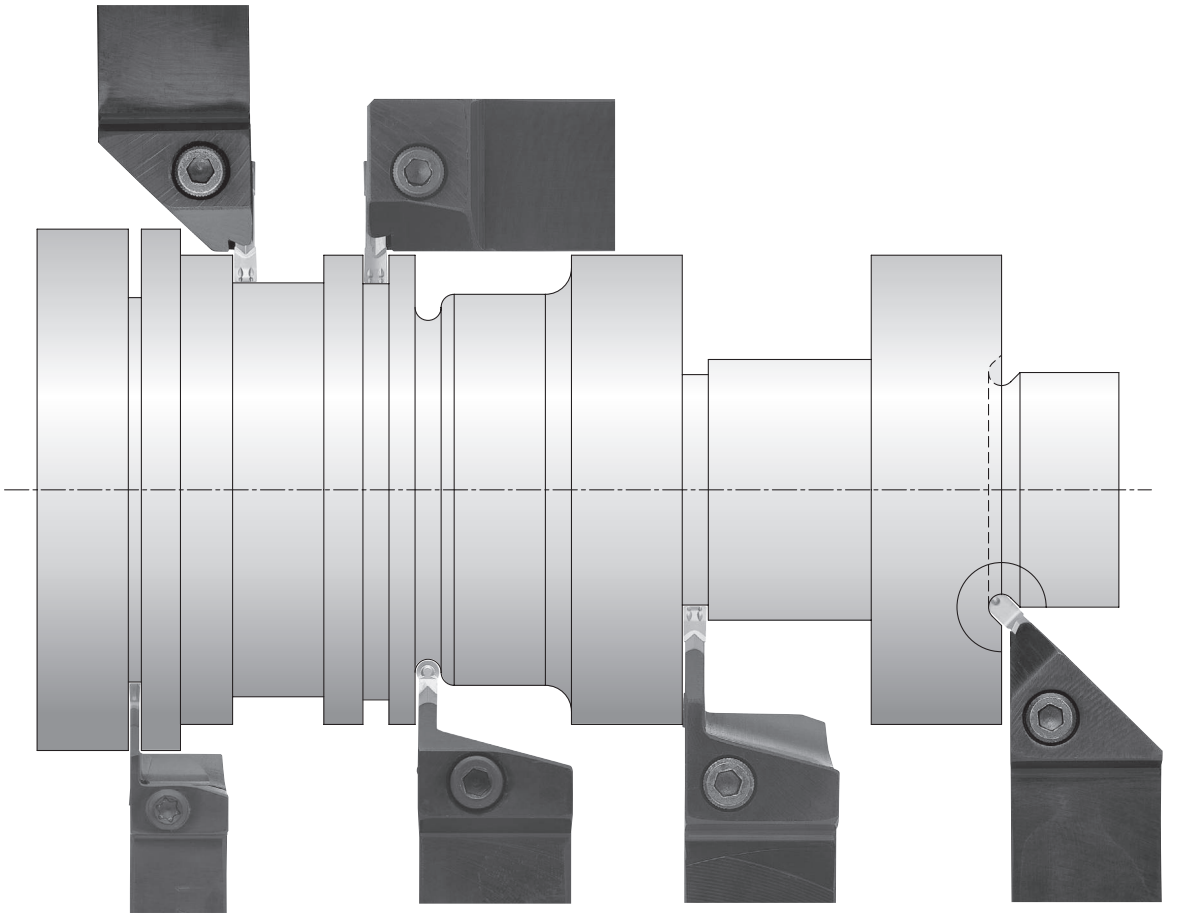
Type	KGMM
Edge Width (mm)	3.0 ~ 5.0
Max. Grooving Depth (mm)	4.8
See Page	**G42**

KGMS
3.0 ~ 5.0
4.8
G42


Molded Chipbreaker


Molded Chipbreaker Full-R


Ground Chipbreaker

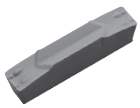


Type	KGM
Edge Width (mm)	1.5 ~ 4.0
Max. Grooving Depth (mm)	10 ~ 16
See Page	**G40**

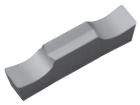
KGM
3.0 ~ 8.0
9 ~ 25
G40

KGM-T
2.0 ~ 6.0
17 ~ 30
G41

KGMU
3.0 ~ 5.0
3.5 ~ 4.5
G43


Molded Chipbreaker


Molded Chipbreaker Full-R


Ground Chipbreaker


Deep Grooving / Cut-off


Molded Chipbreaker Full-R

External Grooving of Precision Parts (G14 ~ G16, G18, G19, G28, G40)

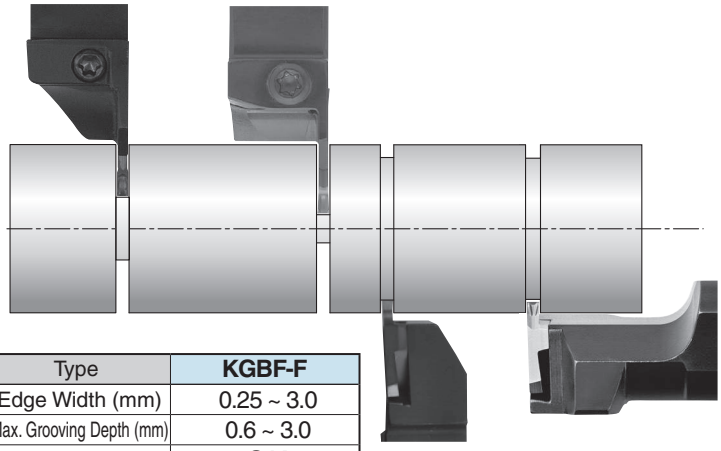
For Automatic Lathe

Type	KGD
Edge Width (mm)	2.0 ~ 4.0
Max. Grooving Depth (mm)	10 ~ 21
See Page	**G28**

Type	KGM
Edge Width (mm)	1.5 ~ 4.0
Max. Grooving Depth (mm)	10 ~ 16
See Page	**G40**

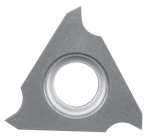
Molded Chipbreaker

Ground Chipbreaker

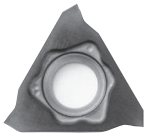


Type	KGBF-F
Edge Width (mm)	0.25 ~ 3.0
Max. Grooving Depth (mm)	0.6 ~ 3.0
See Page	**G14**

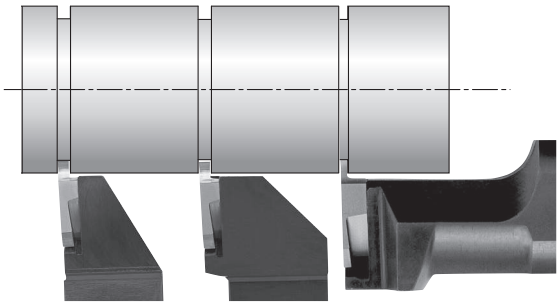
Type	KGBFS	KGBF-JCT	S-KGBF
Edge Width (mm)	0.25 ~ 3.0	0.25 ~ 3.0	0.25 ~ 3.0
Max. Grooving Depth (mm)	0.6 ~ 3.0	0.6 ~ 3.0	0.6 ~ 3.0
See Page	**G15**	**G16**	**G14**



Ground Chipbreaker

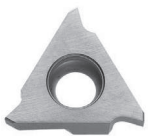


GL Chipbreaker



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

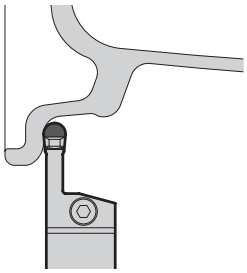
S-KTGF
0.33 ~ 2.5
0.8 ~ 2.5
G19



Ground Chipbreaker

For Aluminum Wheel External Grooving

(External / Facing / Copying) (G46)



Type	KGMW
Edge Width (mm)	6.0 ~ 8.0
Max. Grooving Depth (mm)	25
See Page	**G46**

1-edge PCD

Grooving Inserts

Applicable Inserts

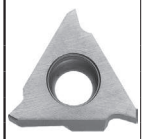
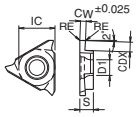
(mm)

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

		MEGACOAT Cermet	Cermet			MEGA COAT NANO	MEGA COAT	PVD Coated Carbide			Carbide
		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

See Page for Applicable Toolholders

Insert (Handed Insert shows Right-hand)	Description	Dimension (mm) CW	CDX	RE	Applicable Toolholders
 	GBA32R/L 033-005 *1	0.33	0.8	0.05	KGBAR/L...16 KGBASL/R...16 KIGBAL/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		
	160-020	1.60	2.5		
	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	KGBAR/L...22-15 KGBASL/R...22-15 KIGBAL/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	
	350-030			0.3	KGBAR/L...22-35 KGBASL/R...22-35 KIGBAL/R...22 (Internal)
	400-010	4.00		0.1	
	400-040			0.4	
	430-040	4.30			
	450-040	4.50			
	480-040	4.80			

G9
G10
G62
(Internal)

· CDX shows available grooving depth.

Recommended Cutting Conditions ⇨ G107

*1. The edge width tolerance of GBA32R/L 033-005 : 0.33$^{+0.02}_{-0.03}$
*2. The edge width tolerance of GBA32R/L 050-005 : 0.50$^{+0}_{-0.05}$

★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

Inserts are sold in 10 piece boxes

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

Applicable Inserts

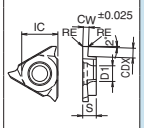
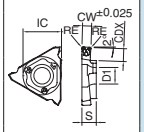
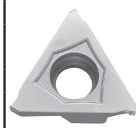
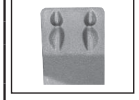
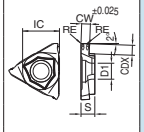
(mm)

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

		NEW					
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

See Page for Applicable Toolholders

Insert (Handed Insert shows Right-hand)	Description		Dimension (mm) CW	CDX	RE	Cermet TN620 R	Cermet TN620 L	Cermet TN6020 R	Cermet TN6020 L	MEGACOAT NANO PR1625 R	MEGACOAT NANO PR1625 L	MEGACOAT PR1215 R	MEGACOAT PR1215 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	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 G10
			075-005F	0.75			●	●												
			095-005F	0.95			●	●												
			100-005F	1.00			●	●												
			125-020F	1.25	2.0	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	0.3	●	●											KGBAR/L...22-35 KGBASL/R...22-35 KIGBAL/R...22 (Internal)	
			400-040F	4.00			●	●												
			430-040F	4.30		0.4	●													
			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)	G62 (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 ⊕ G107

* 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
○ : Check Availability
□ : Deleted from the next catalog

Inserts are sold in 10 piece boxes

Grooving Inserts

Applicable Inserts

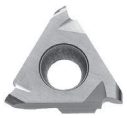
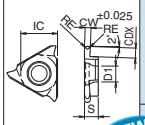
(mm)

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

		MEGACOAT Cermet	Cermet		MEGA COAT NANO	MEGA COAT	PVD Coated Carbide			Carbide	
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

See Page for Applicable Toolholders

Insert (Handed Insert shows Right-hand)	Description		Dimension (mm) 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	
 Full-R RF : Sharp Edge	GBA32R	200-100R	2.00	2.5	1.00									●		●								KGBAR...16 KGBASL...16 KIGBAL...16 (Internal)	G9 G10 G62 (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 KIGBAL/R...22 (Internal)	
		150-075R	1.50	3.5	0.75	●	●			●	●	●	●	●	●	○	○	●		●	●	●	●		
		200-100R	2.00		1.00	●	●			●	●	●	●	●	●	○	□	●	●	●	●	●	●		
		250-125R	2.50	4.0	1.25					●	●			●	●	○	□			●	●	●	●	★2	
		300-150R	3.00		1.50					●	●	●	●	●	●	□	□	●	●	●	●	●	●		
Full-R (Round) 		400-200R	4.00	5.0	2.00					●				●	●	□	□			●	●	●	●	KGBAR/L...22-35 KGBASL/R...22-35 KIGBAL/R...22 (Internal)	
	GBA43R/L NEW	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 G107

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

Applicable Inserts

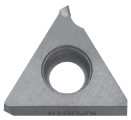
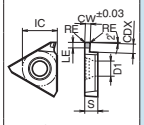
(mm)

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

		CBN				PCD			
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
●:Continuouss-Light Interruption / 1st Choice
◔:Continuous-Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice

See Page for Applicable Toolholders

Insert (Handed Insert shows Right-hand)	Description		Dimension (mm) CW	CDX	RE	KBN510 R	KBN510 L	KBN525 R	KBN525 L	KPD001 R	KPD001 L	KPD010 R	KPD010 L	Applicable Toolholders	
 1-edge	GBA32R	125-010	1.25	2.0	0.1							●		KGBAR...16 KGBASL...16 KIGBAL...16 (Internal)	G9 G10 G62 (Internal)
		150-010	1.50							●		●			
 GBA32 LE=1.7 GBA43 LE=1.9	GBA43R/L	125-010	1.25	2.0	0.1							●	●		
		125-020			0.2	●	□	●	●						
		150-010	1.50	3.5	0.1					●	●	●	●	KGBAR/L...22-15 KGBASL/R...22-15 KIGBAL/R...22 (Internal)	
		150-020			0.2	●	●	●	●						
		200-010	2.00		0.1					●	●	●	●		
		200-020			0.2	●	●	●	●						
		250-010	2.50	4.0	0.1					●	●	●	●		
		250-020			0.2	●	●	●	●					★2	
		300-010	3.00		0.1					●	●	●	●		
		300-020			0.2	●	●	●	●						

· CDX shows available grooving depth.

Recommended Cutting Conditions G107

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

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

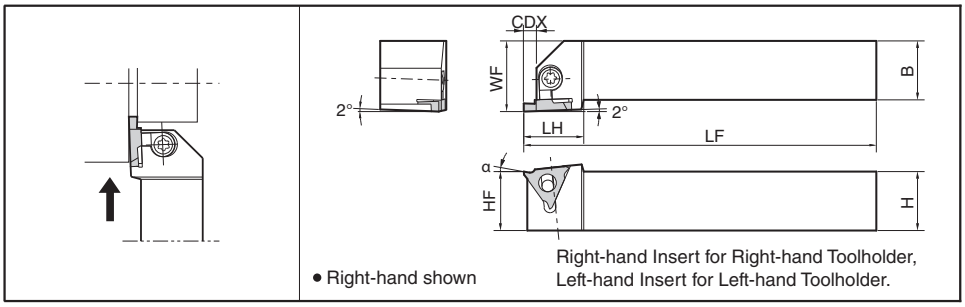
Inserts are sold in 10 piece boxes

CBN & PCD Inserts are sold in 1 piece boxes

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

External Shallow Grooving Toolholders

KGBA



• Right-hand shown

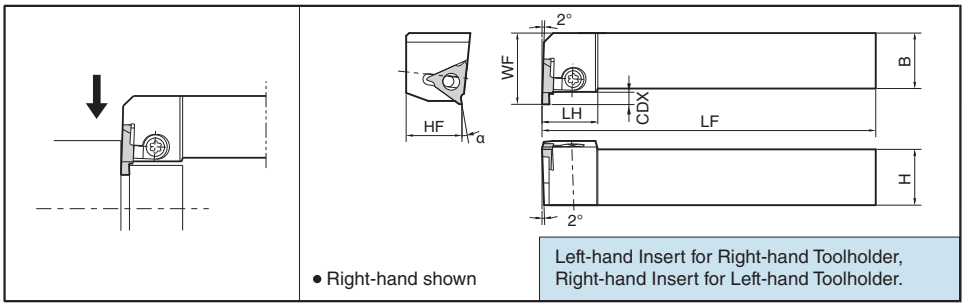
Right-hand Insert for Right-hand Toolholder,
Left-hand Insert for Left-hand Toolholder.

Alternative Toolholder Reference Table

KGBA ←	(KGB)
KGBA$^{R/L}$ ...22-15	KGB$^{R/L}$ ...22-15
KGBA$^{R/L}$ ...22-25	KGB$^{R/L}$ ...22-25
KGBA$^{R/L}$ ...22-35	KGB$^{R/L}$ ...22-35
KGBA$^{R/L}$ ...22-25T5	KGB$^{R/L}$ ...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)
KGBAS$^{R/L}$ ...22-15	KGBS$^{R/L}$ ...22-15
KGBAS$^{R/L}$ ...22-25	KGBS$^{R/L}$ ...22-25
KGBAS$^{R/L}$ ...22-35	KGBS$^{R/L}$ ...22-35
KGBAS$^{R/L}$ ...22-25T5	KGBS$^{R/L}$ ...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
KGBA$^{R/L}$	2020K-16	●	●	20	20	20	125	24	25	2.5	LGBA-16$^{R/L}$S	FT-15	GBA32$^{R/L}$ type
	2525M-16	●	●	25	25	25	150		30				
	2020K22-15	●	●	20	20	20	125	25.5	25	4.0	LGBA-22$^{R/L}$S		GBA43$^{R/L}$ 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			
KGBAS$^{R/L}$	2020K-16	●	●	20	20	20	125	25	25	2.5	LGBA-16$^{L/R}$S	FT-15	GBA32$^{L/R}$ type
	2525M-16	●	●	25	25	25	150		30				
	2020K22-15	●	●	20	20	20	125	25	27	4.0	LGBA-22$^{L/R}$S		GBA43$^{L/R}$ 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 : KGBA$^{R/L}$...LGBA-○○RS for Right-hand Toolholder and LGBA-○○LS for Left-hand Toolholder.
KGBAS$^{R/L}$...LGBA-○○LS for Right-hand Toolholder and LGBA-○○RS for Left-hand Toolholder.

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

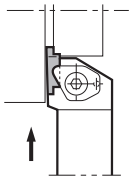
External Grooving Toolholders KGBA Short Shank types are available

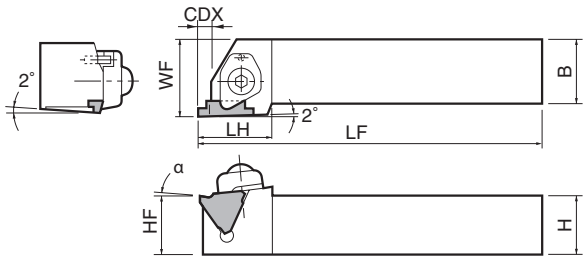
For NC lathe and HSK tooling, KGBAR2020K-○○(Overall length 125mm) short shank type KGBAR2020H22-○○ (Overall length 100mm) is available.
No longer required for the users to cut the shank portion.

● : Std. Item

External Shallow Grooving Toolholders [for GBA Insert]

KGB (Will be switched to KGBA ➡ G9)

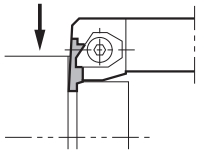


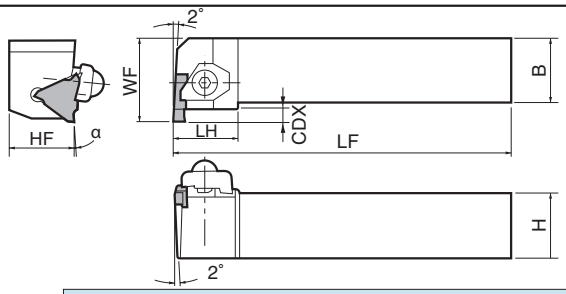


• Right-hand shown

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

KGBS (Will be switched to KGBAS ➡ G9)





• Right-hand shown

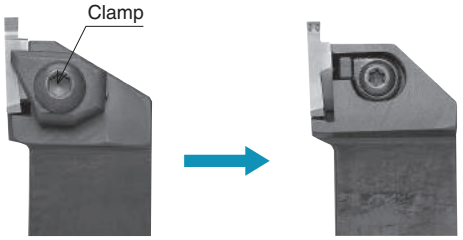
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

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
KGB R/L	2020K-16	○	○	20	20	20	125	24	25	2.5	CGB R/L	BH6X25	SP-6	LW-4	GBA32 R/L type
	2525M-16	○	○	25	25	25	150		30						
	2020K22-15	○	○	20	20	20	125	25.5	25	4.0					GBA43 R/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						
KGBS R/L	2020K-16	○	○	20	20	20	125	25	25	2.5	CGB L/R	BH6X25	SP-6	LW-4	GBA32 L/R type
	2525M-16	○	○	25	25	25	150		30						
	2020K22-15	○	○	20	20	20	125	25	27	4.0					GBA43 L/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 : KGB R/L ... CGBR for Right-hand Toolholder and CGBL for Left-hand Toolholder.
KGBS R/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

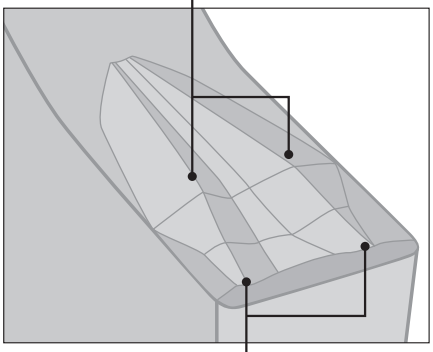
High Precision with Edge Width Tolerance of ±0.02mm

High Efficiency MEGACOAT Coating Technology for Long Tool Life

1 Stable Chip Control with GL Chipbreaker

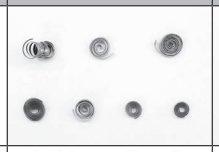
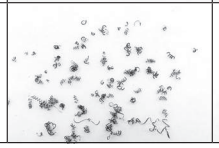
GL Chipbreaker controls chips stable at both grooving and turning.
(Turning is not recommended for GBF32R075-005GL)

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)

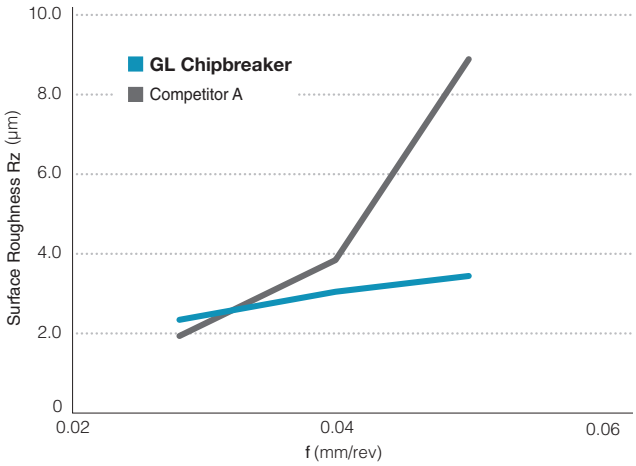
	GL Chipbreaker	Competitor A
Grooving f = 0.05 mm/rev d = 1.5 mm		
Turning f = 0.04 mm/rev ap = 0.2 mm		

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

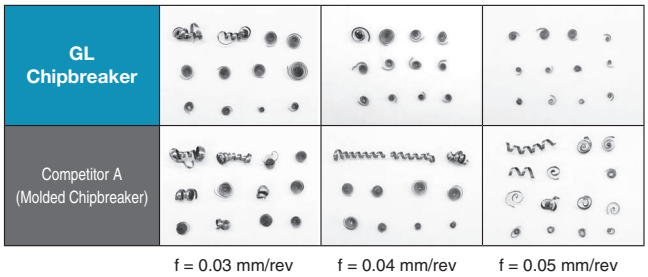
2 Good Surface Finish

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

Surface Roughness Comparison (Internal evaluation)



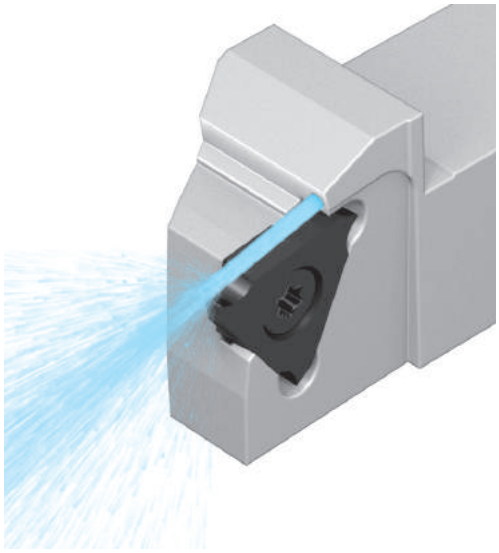
Chip Control Comparison (Internal evaluation)



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

For Automatic Lathe Great for High Pressure Coolant Grooving Toolholders KGBF-JCT

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



Coolant Hole

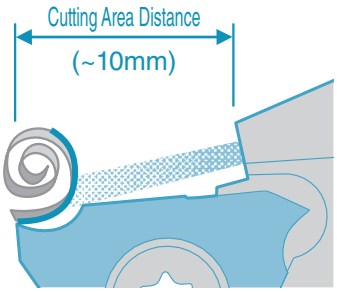
Ample supply of coolant to the cutting edge

Prevents coolant stream spreading which slows the coolant flow

Direction of Supply

Sufficient coolant between the chipbreaker and the chips

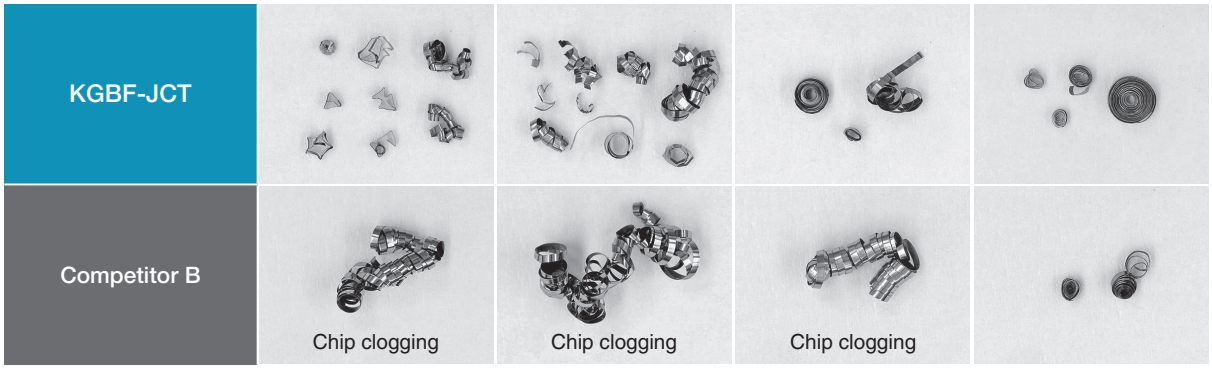
Stable chip curls and sufficient cooling of the insert



1 Excellent Chip Control

Chip Control Comparison (Internal evaluation)

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

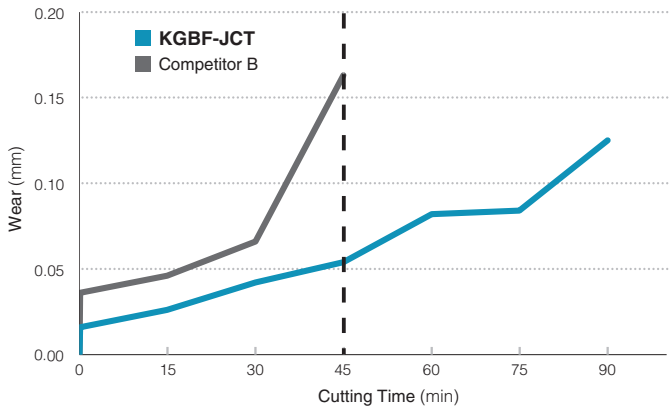


Cutting Conditions : Vc = 100 m/min, d = 2.5 mm, GBF32R200-010 PR1535, KGBFR1625H-16FJCT
Workpiece Material : TAB6400 (Ti-6Al-4V) External coolant + Internal coolant (1.5MPa) External Grooving

2 Superior Cooling Action Improves Tool Life

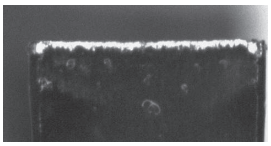
Wear Resistance Comparison (Internal evaluation)

KGBF-JCT Showed Superior Wear Resistance

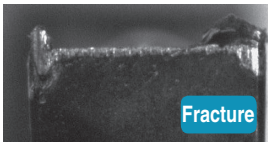


Cutting edge condition

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

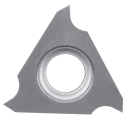
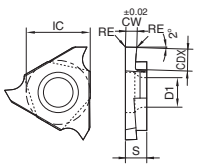
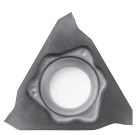
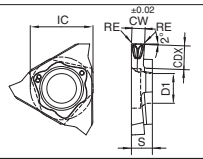
GBF / GBF-GL

(mm)

Description	IC	S	D1
GBF32_	9.525	3.18	4.4

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 PR1215 R	MEGACOAT PR1215 L	MEGACOAT NANO PR1535 R	MEGACOAT NANO PR1535 L	Carbide GW15 R	Carbide GW15 L	Applicable Toolholders	See Page for Applicable Toolholders
 	GBF32R/L 025-000F	0.25	0.6	0.00	●	●	●	●	●	●	KGBFR/L...16F S...KGBFL/-16 KGBFSR/L...16 KGBFR/-...-16FJCT	G14 G15 G16
	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 **G16**

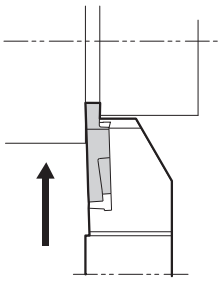
● : Std. Item

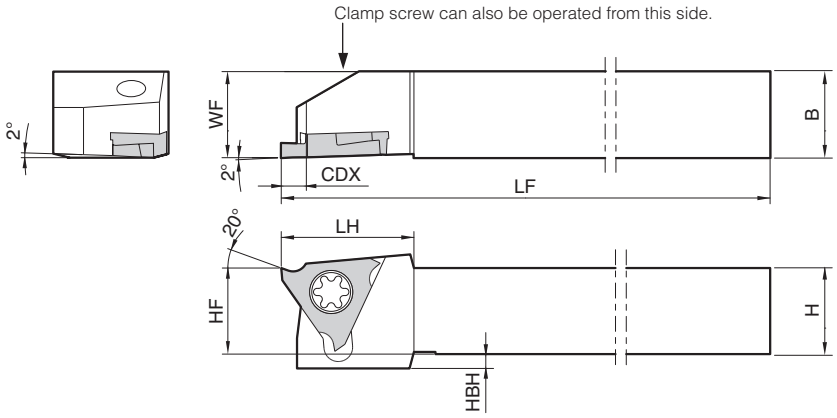
*1 Edge width tolerance of GBF32R/L033-000F/005 : 0.33 +0.015 −0.025
*2 Edge width tolerance of GBF32R/L043-000F/005 : 0.43 +0.015 −0.025
*3 Edge width tolerance of GBF32R/L053-000F/005 : 0.53 +0.015 −0.025

Recommended Cutting Conditions G17

Inserts are sold in 10 piece boxes

KGBF-F (without offset)





• Right-hand shown

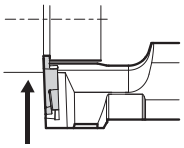
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

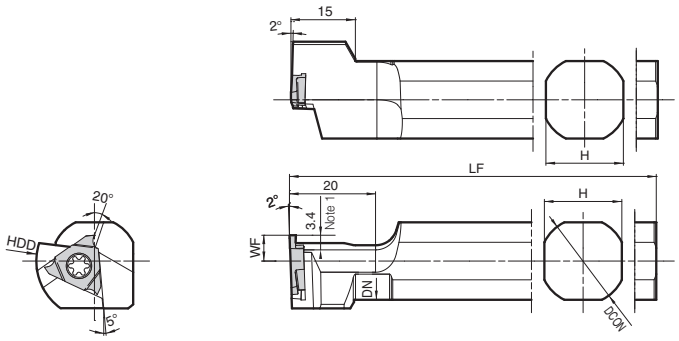
Toolholder Dimensions

Description		Stock		Dimension (mm)						Spare Parts	
										Clamp Screw	Wrench
		R	L	H=HF	HBH	B=WF	LF	LH	*CDX		
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.

S-KGBF (External Sleeve Holder)





• Left-hand shown

Right-hand Insert for Left-hand Toolholder.

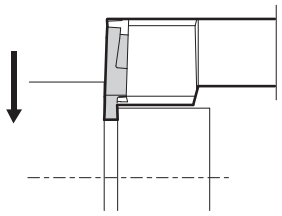
Note 1) CDX shows available grooving depth.

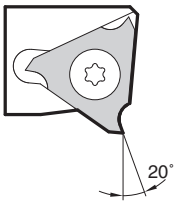
Toolholder Dimensions

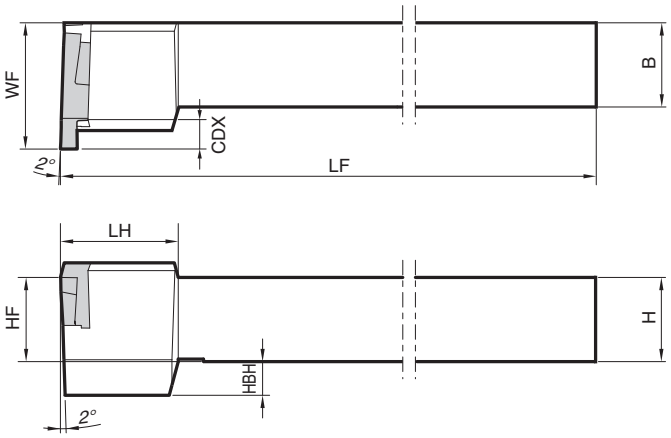
Description	Stock	Dimension (mm)						Spare Parts	
								Clamp Screw	Wrench
	L	DCON	LF	WF	DN	HDD	H		
S16F-KGBFL16	●	16	85	6	15	27	15	SB-4070TRW	FT-8
S19G-KGBFL16	●	19.05	90		18		17		
S19K-KGBFL16	●		120						
S20G-KGBFL16	●	20	90		19		18		
S20K-KGBFL16	●		120						
S22K-KGBFL16	●	22			21		20		
S25.0H-KGBFL16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

● : Std. Item

KGBFS







• Right-hand shown

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

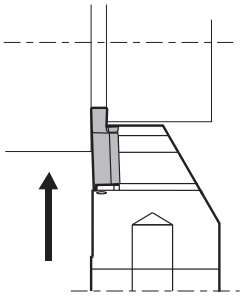
Toolholder Dimensions

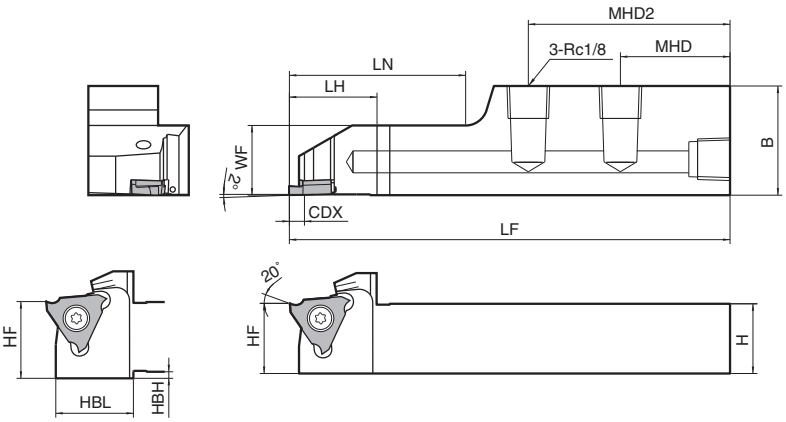
Description		Stock		Dimension (mm)							Spare Parts	
											Clamp Screw	Wrench
		R	L	H=HF	HBH	B	LF	LH	WF	CDX*1		
KGBFS R/L	1010JX-16	●	●	10	4	10	120	14	15	3	SB-4070TRW	FT-8
	1212JX-16	●	●	12	2	12			16			
	1616JX-16	●	●	16	-	16			20			

*1 CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.
Please check cautions on **G16** for the maximum workpiece diameter.

● : Std. Item

KGBF-JCT (Coolant-through Holders)





• Right-hand shown

Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Description		Stock		Dimension (mm)										Spare Parts		
														Clamp Screw	Wrench	Plug
		R	L	H=HF	HBH	B	LF	HBL	LH	LN	WF	CDX	MHD	MHD2			
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 **H14** and **H15** for piping parts of coolant-through holders.

Cautions

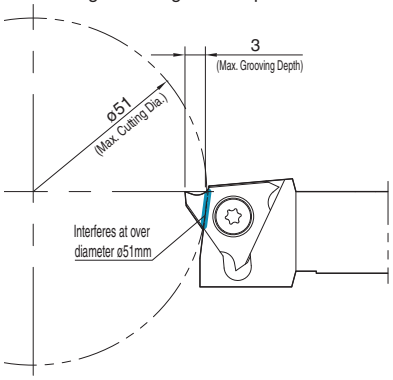
Compatibility with GBF and GBA

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

Recommended Cutting Conditions

Recommended Cutting Conditions (GBF)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)			(1) f for Grooving (mm/rev) / (2) f for Turning (mm) / (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 (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	★ 80 ~ 180	☆ 70 ~ 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	★ 50 ~ 120	-	(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	(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	(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	

★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions (GBF-000F [RE=0.00])

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)			(1) f for Grooving (mm/rev) / (2) f for Turning (mm) / (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 (2) Not recom. (3) Not recom.	(1) 0.01~0.04 (2) Not recom. (3) Not recom.	(1) 0.01~0.05 (2) 0.01~0.04 (3) MAX. 0.2	(1) 0.01~0.05 (2) 0.01~0.04 (3) MAX. 0.2	Coolant
Alloy Steel	★ 80 ~ 180	☆ 70 ~ 160	-	(1) 0.005~0.025 (2) Not recom. (3) Not recom.	(1) 0.01~0.03 (2) Not recom. (3) Not recom.	(1) 0.01~0.04 (2) 0.01~0.03 (3) MAX. 0.2	(1) 0.01~0.04 (2) 0.01~0.03 (3) MAX. 0.2	
Stainless Steel	☆ 60 ~ 130	★ 50 ~ 120	-	(1) 0.005~0.02 (2) Not recom. (3) Not recom.	(1) 0.01~0.025 (2) Not recom. (3) Not recom.	(1) 0.01~0.03 (2) 0.01~0.025 (3) MAX. 0.2	(1) 0.01~0.03 (2) 0.01~0.025 (3) MAX. 0.2	
Cast Iron	-	-	★ 60 ~ 100	(1) 0.005~0.03 (2) Not recom. (3) Not recom.	(1) 0.01~0.04 (2) Not recom. (3) Not recom.	(1) 0.01~0.05 (2) 0.01~0.04 (3) MAX. 0.2	(1) 0.01~0.05 (2) 0.01~0.04 (3) MAX. 0.2	
Aluminum Alloys	-	-	★ 150 ~ 400	(1) 0.005~0.03 (2) Not recom. (3) Not recom.	(1) 0.01~0.04 (2) Not recom. (3) Not recom.	(1) 0.01~0.05 (2) 0.01~0.04 (3) MAX. 0.2	(1) 0.01~0.05 (2) 0.01~0.04 (3) MAX. 0.2	
Brass	-	-	★ 150 ~ 300	(1) 0.01~0.03 (2) Not recom. (3) Not recom.	(1) 0.01~0.04 (2) Not recom. (3) Not recom.	(1) 0.01~0.05 (2) 0.01~0.04 (3) MAX. 0.2	(1) 0.01~0.05 (2) 0.01~0.04 (3) MAX. 0.2	

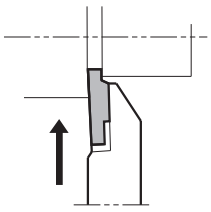
★ : 1st Recommendation ☆ : 2nd Recommendation

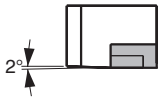
Recommended Cutting Conditions (GBF-GL)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)		(1) f for Grooving (mm/rev) / (2) f for Turning (mm) / (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 (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. 0.3	(1) 0.04~0.1 (2) 0.04~0.08 (3) MAX. 0.5	Coolant
Alloy Steel	★ 80 ~ 180	☆ 70 ~ 160	(1) 0.02~0.06 (2) Not recom. (3) Not recom.	(1) 0.03~0.07 (2) 0.03~0.06 (3) MAX. 0.2	(1) 0.03~0.07 (2) 0.03~0.06 (3) MAX. 0.3	(1) 0.04~0.09 (2) 0.04~0.08 (3) MAX. 0.5	
Stainless Steel	☆ 60 ~ 130	★ 50 ~ 120	(1) 0.02~0.06 (2) Not recom. (3) Not recom.	(1) 0.03~0.07 (2) 0.03~0.06 (3) MAX. 0.2	(1) 0.03~0.07 (2) 0.03~0.06 (3) MAX. 0.3	(1) 0.04~0.09 (2) 0.04~0.08 (3) MAX. 0.5	

★ : 1st Recommendation ☆ : 2nd Recommendation

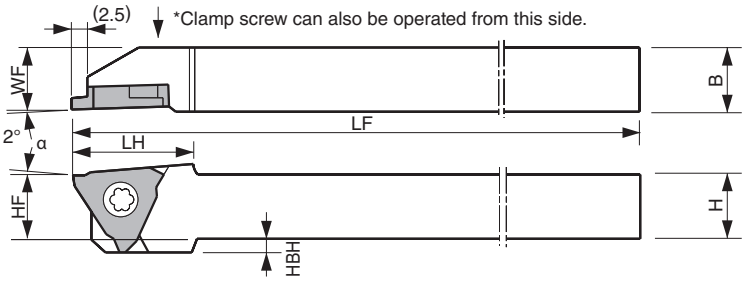
KTGF-F (without offset)





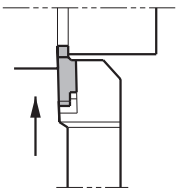
α	Insert Grades
20°	PR1115, PR1215 PR930, KW10
11°	KPD001
6°	TC40N

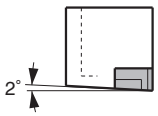
• Right-hand shown



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

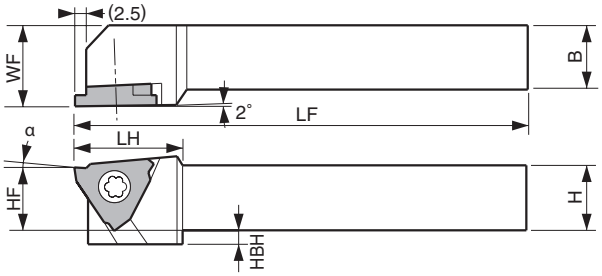
KTGF (with offset)





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.

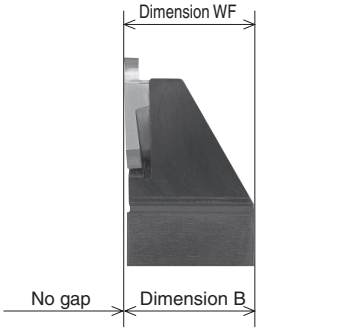
Toolholder Dimensions

Description		Stock R	Stock L	Dimension (mm) H	HBH	HF	B	LF	LH	WF	Spare Parts: Clamp Screw	Spare Parts: Wrench
KTGF R/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		
KTGF R/L	1212F-16F	●	●	12	-	12	12	85	18.5	12	SB-4070TRW	FT-8
KTGF R/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		

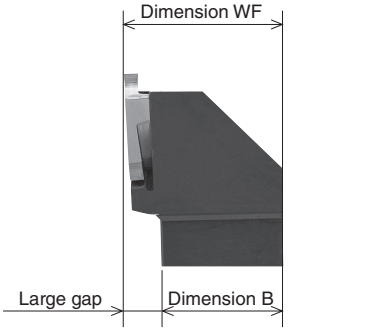
KTGF-F / KTGF Selection Reference

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

A : When operating the automatic lathe, the toolholder come 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.



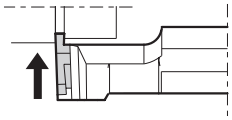
KTGF-F (without offset)

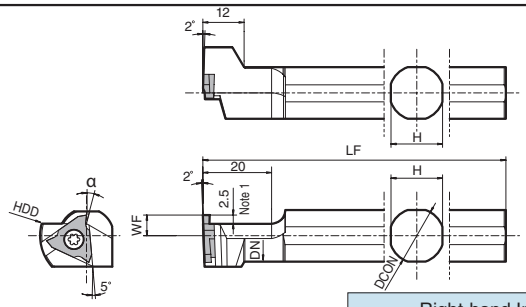


KTGF (with offset)

● : Std. Item

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

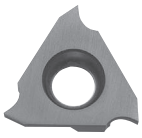
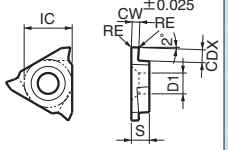
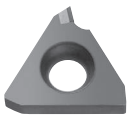
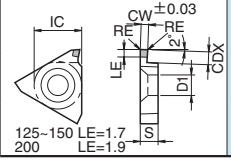
Description	Stock	Dimension (mm)						Spare Parts	
								Clamp Screw	Wrench
	L	DCON	LF	WF	DN	HDD	H		
S12F-KTGFL16	●	12	80	6	11.0	27	11	SB-4070TRS	FT-10
S14H-KTGFL16	●	14	100		13.0		13		
S15F-KTGFL16	●	15.875	85		14.6		15		
S16F-KTGFL16	●	16							
S19G-KTGFL16	●	19.05	90		17.6		17		
S19K-KTGFL16	●		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

		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 (Handed Insert shows Right-hand)		Description	Dimension (mm) CW	CDX	RE	Cermet TC40N R	Cermet TC40N L	MEGA COAT PR1215 R	MEGA COAT PR1215 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	Carbide KW10 R	Carbide KW10 L	PCD KPD001 R	PCD 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 G108

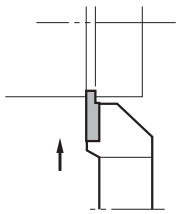
● : Std. Item
○ : Check Availability
□ : Deleted from the next catalog

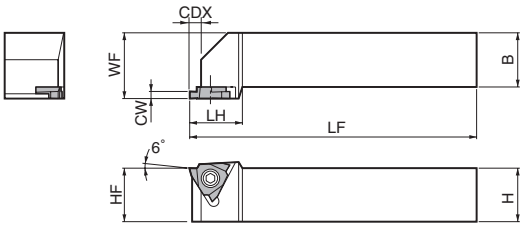
Inserts are sold in 10 piece boxes

CBN & PCD Inserts are sold in 1 piece boxes

External Shallow Grooving Toolholders [for TG Insert]

KTG (Will be switched to KGBA ➡ G9)





• Right-hand shown

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

Toolholder Dimensions

Description		Stock R	Stock L	H	HF	B	LF	LH	WF	CDX			Spare Parts: Clamp Screw		Spare Parts: Wrench		
KTG$^{R}_{L}$	2020K-16	☐	☐	20	20	20	125	20	25	2.5			SB-4TR	-	FT-15	-	
	2525M-16	☐	☐	25	25	25	150		30								
	2020K22-15	☐	☐	20	20	20	125	25	25	4.0			-	GS-50	-	LW-3	
	2525M22-15	☐	☐	25	25	25	150		30								
	2020K22-25	☐	☐	20	20	20	125	25	25	4.5							
	2525M22-25	☐	☐	25	25	25	150		30								
	2020K22-35	☐	☐	20	20	20	125	25	25	5.5							
	2525M22-35	☐	☐	25	25	25	150		30								

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

* GBA insert cannot be installed to this toolholder.

Applicable Inserts

(TG insert will be switched to GBA ➡ G6~G8)

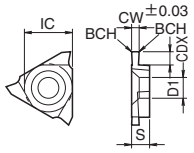
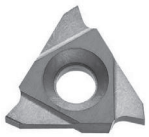
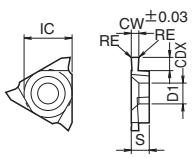
(mm)

Description	IC	S	D1
TG32_	9.525	3.18	4.5
TG43_	12.70	4.76	5.5

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

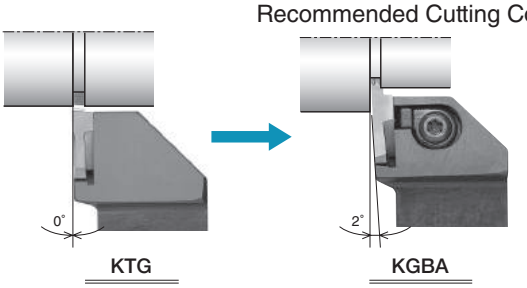
◕:Continuous~Light Interruption / 1st Choice
◔:Continuous~Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice

Insert (Handed Insert shows Right-hand)		Description		Dimension (mm) CW	CDX	BCH or RE	Cermet TN60 R	Cermet TN60 L	Applicable Toolholders	See Page for Applicable Toolholders
General (Square) (Corner is Chamfered) TG32 type	 (Corner is Chamfered)	TG32$^{R}_{L}$	075	0.75	2.0	C0.1	☐	☐	KTG$^{R}_{L}$...16	G20
			095	0.95			☐	☐		
			125	1.25			☐	☐		
			145	1.45			☐	☐		
			150	1.50			☐	☐		
			175	1.75			☐	☐		
			200	2.00			☐	☐		
 General (Square) (Corner is R shape) TG43 type		TG43$^{R}_{L}$	150	1.50	3.5	0.2	☐	☐	KTG$^{R}_{L}$...22-15	G20
			175	1.75			☐	☐		
			200	2.00			☐	☐		
			230	2.30			☐	☐		
			250	2.50	4.0	0.3	☐	☐	KTG$^{R}_{L}$...22-25	
			265	2.65			☐	☐		
			280	2.80			☐	☐		
			300	3.00			☐	☐		
			330	3.30			☐	☐		
			350	3.50	5.0	0.4	☐	☐	KTG$^{R}_{L}$...22-35	
			400	4.00			☐	☐		
			430	4.30			☐	☐		
			450	4.50			☐	☐		

· CDX shows available grooving depth.

Recommended Cutting Conditions ➡ G108

* KTG will be switched to KGBA. Machining against the wall is available.
* For applicable insert, TG insert will be switched to GBA.
  Change Insert Grade TN60 for TN90.
  There are various types of GBA insert grades available dependent on the user's cutting condition requirements.
* Check the corner-R(RE) of the insert when changing.



☐ : Deleted from the next catalog

Inserts are sold in 10 piece boxes

Features

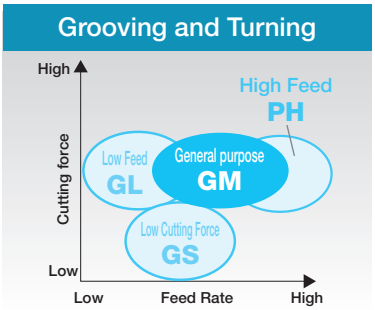
1 Various insert lineup

Smooth chip control
➡ Newly-introduced chipbreakers designed to cover a variety of workpiece materials.

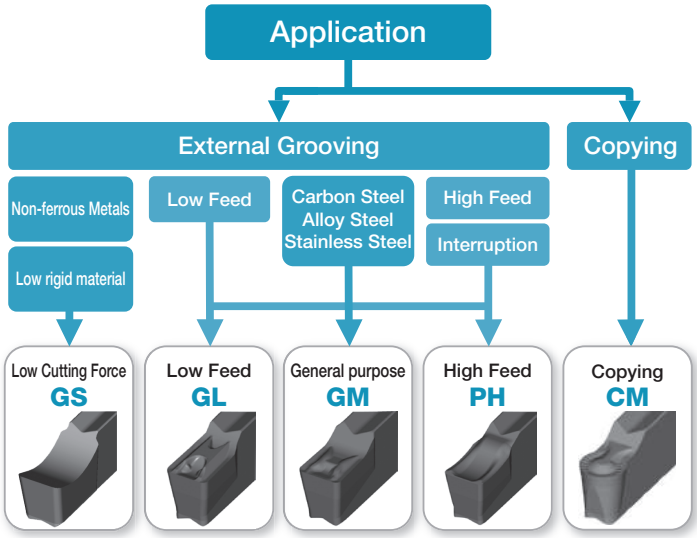
High precision edge preparation
➡ High precision molding technology with tolerance ±0.03mm (Edge width 2, 3, 4mm types)

Highly-reputed MEGACOAT technology
➡ Long tool life and high efficiency machining achieved by superior oxidation resistance and wear resistance.

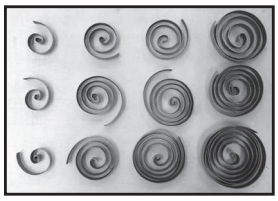
Application Map



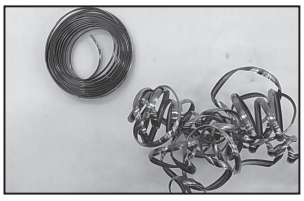
Chipbreaker Selection



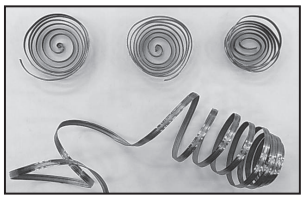
Chip Control Comparison (SCM415 Vc=150m/min, f=0.15mm/rev)



GM Chipbreaker



Competitor A



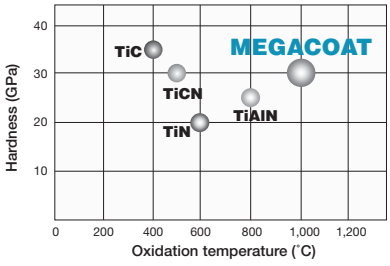
Competitor B

Smooth chip control

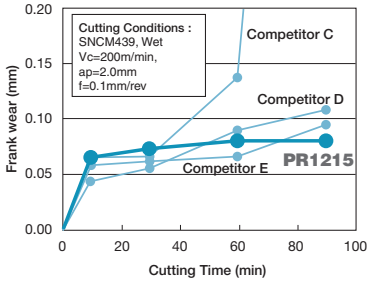
⬇

Less chip biting troubles

Features of MEGACOAT



Wear Resistance Comparison

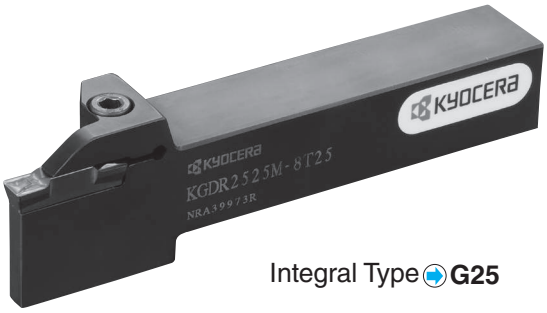


PR1225:
1st choice for cut-off, grooving and turning

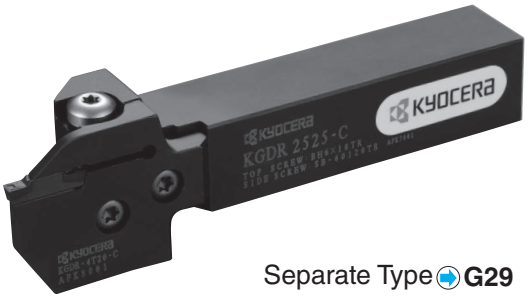
PR1215:
With superior wear resistance, recommended for grooving and cut-off under the stable conditions as well as machining of cast iron.

2 Toolholder

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



Integral Type G25

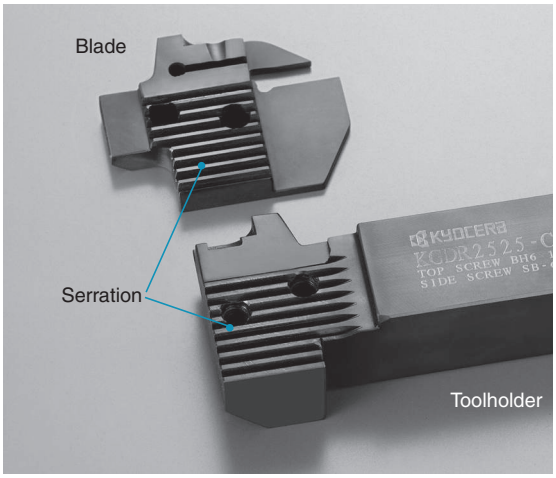


Separate Type G29

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.

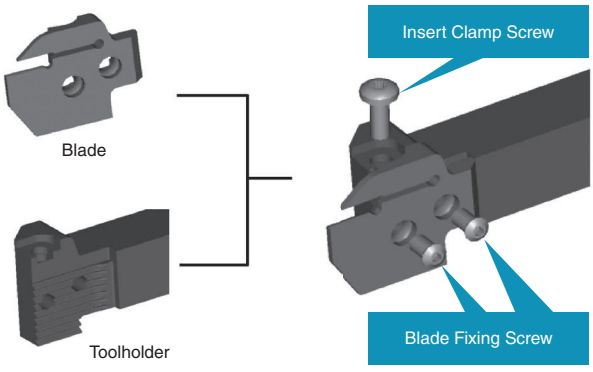


Toolholders for High Pressure Coolant G26

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) G29

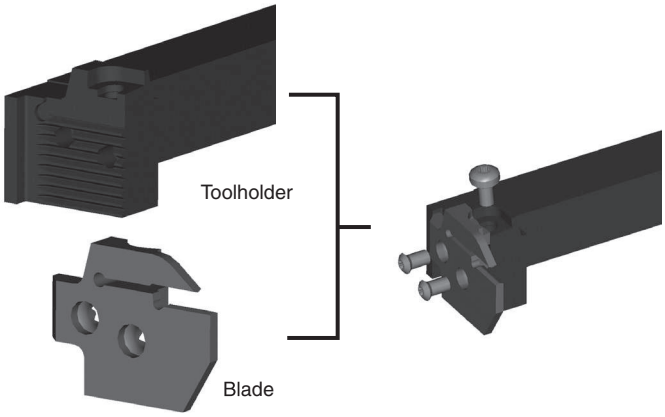


*** Note for the toolholder and blade combination of 0° Separate Type**

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

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

KGDS-S (90° Separate Type) G30



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

Toolholder (KGDS R/L ○○○○ -C)
+
Blade (KGD L/R - ○T○○ -C)

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

Inserts for Grooving and Cut-off

GDM / GDMS / GDG

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

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	●	●	●	●	●		G25 G28 ~ G30
				3020N-020GM	3.0					●	●	●	●	●		G25 ~ G30
				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			●	●	●	●	●		G25 G29 G30
				5020N-080GM			0.8			●	●	●	●	●		
				6020N-040GM	6.0		0.4			●	●	●	●	●		
				6020N-080GM			0.8			●	●	●	●	●		
				8030N-080GM	8.0	±0.05		30	5.5			●	●	●		G25
	General purpose 1-edge		GDMS	2220N-020GM	2.2	±0.03	0.2	20	4.3	●	●	●	●	●		G25 G28 ~ G30
				3020N-040GM	3.0		0.4			●	●	●	●	●		G25 ~ G30
				4020N-040GM	4.0					●	●	●	●	●		
				5020N-080GM	5.0	±0.04	0.8			●	●	●	●	●		G25 G29 G30
				6020N-080GM	6.0					●	●	●	●	●		
	Low Feed		GDM	2420N-020GL	2.4	±0.03	0.2	20	4.3	●	●	●	●	●		G25 G28 ~ G30
				3020N-020GL	3.0					●	●	●	●	●		G25 ~ G30
				3020N-040GL			0.4			●	●	●	●	●		
				4020N-020GL	4.0		0.2			●	●	●	●	●		
				4020N-040GL			0.4			●	●	●	●	●		
				5020N-040GL	5.0	±0.04				●	●	●	●	●		G25 G29 G30
				6020N-040GL	6.0					●	●	●	●	●		
Grooving	Low Cutting Force		GDG	2520N-020GS	2.5	±0.02	0.2	20	4.3	●	●	●	●	●	●	G25 G28 ~ G30
				3020N-020GS	3.0					●	●	●	●	●	●	G25 ~ G30
				3520N-020GS	3.5					●	●	●	●	●	●	
				4020N-040GS	4.0		0.4			●	●	●	●	●	●	
				5020N-040GS	5.0					●	●	●	●	●	●	G25 G29 G30
				6020N-040GS	6.0					●	●	●	●	●	●	
				8030N-040GS	8.0			30	5.5	●	●	●	●	●	●	G25
Full-R / Copying			GDM	3020N-150R-CM	3.0	±0.03	1.5	20	4.3	●	●	●	●	●		G25 ~ G30
				4020N-200R-CM	4.0		2.0			●	●	●	●	●		
				5020N-250R-CM	5.0	±0.04	2.5	*21		●	●	●	●	●		G25 G29 G30
				6020N-300R-CM	6.0		3.0			●	●	●	●	●		
Grooving / Cut-off	High Feed		GDM	2020N-020PH	2.0	±0.03	0.2	20	4.3			●	●	●		G25 G28 ~ G30
				3020N-030PH	3.0		0.3					●	●	●		G25 ~ G30
				4020N-030PH	4.0							●	●	●		
	High Feed 1-edge		GDMS	2020N-020PH	2.0	±0.03	0.2	20				●	●	●		G25 G28 ~ G30
				3020N-030PH	3.0		0.3					●	●	●		G25 ~ G30
				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 ➡ G33, G34

Inserts Identification System

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

G	D	M	S	30	20	N	–	040	GM

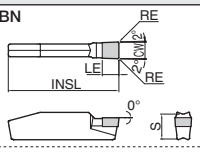
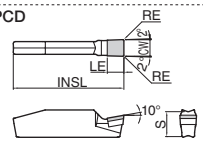
● : Std. Item

Inserts are sold in 10 piece boxes

Inserts for Grooving

GDGS (CBN / PCD)

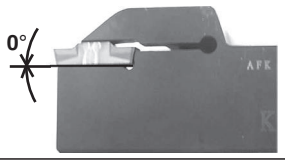
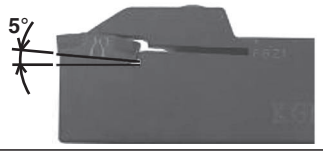
Classification of usage					
◕:Continuous~Light Interruption / 1st Choice ◔:Continuous~Light Interruption / 2nd Choice ●:Continuous / 1st Choice ○:Continuous / 2nd Choice	P	Carbon steel / Alloy steel			
	M	Stainless Steel			
	K	Cast Iron			
	N	Non-ferrous Metals			●
	S	Titanium Alloys			●
	H	Hard materials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

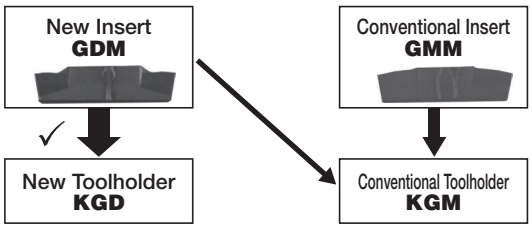
Insert			Description		Dimension (mm)						MEGA COAT CBN	CBN	PCD	See Page for Applicable Toolholders
					CW	Tolerance	RE	INSL	S	LE	KBN05M	KBN570	KPD001	
Grooving	 1-edge	CBN  PCD 	GDGS	2020N-020NB	2.0	±0.03	0.2	20	4.3	2.9	●	●	●	G25 G28 ~ G30
				3020N-020NB	3.0		0.2						●	G25 ~ G30
				3020N-040NB			0.4				●	●		
				4020N-020NB	4.0		0.2						●	
				4020N-040NB			0.4				●	●		
				5020N-020NB	5.0		0.2						●	G25 G29 G30
				5020N-040NB			0.4				●	●		
				6020N-020NB	6.0		0.2						●	
				6020N-040NB			0.4				●	●		

Recommended Cutting Conditions ➡ G33, G34

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°
	

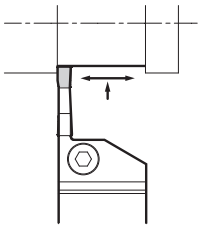


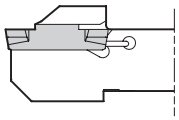
Installing conventional inserts to the new toolholder is not recommended.

CBN & PCD Inserts are sold in 1 piece boxes

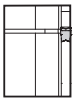
● : Std. Item

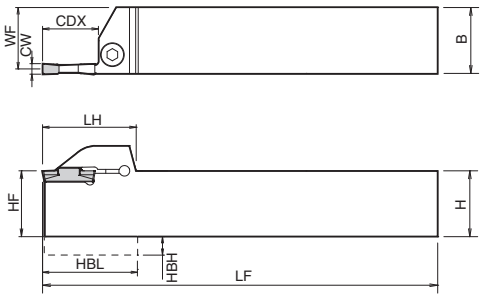
KGD (Integral Type)





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





• Right-hand shown

Toolholder Dimensions

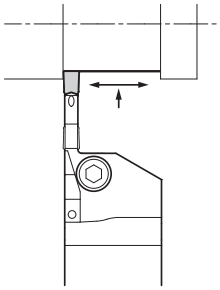
Width (mm)	Max. depth of cut (mm)	Description		Stock R	Stock L	Dimension (mm) H	HF	HBH	B	LF	LH	HBL	WF	CDX	Edge Width CW(mm) MIN.	MAX.	Spare Parts: Clamp Bolt	Spare Parts: Wrench
2	6	KGD R/L	1616H-2T06	●	●	16	16	4.0	16	100	27.7	28.0	15.2	6	2.0	3.0	HH5X16	LW-4
			2020K-2T06	●	●	20	20	-	20	125	28.0	-	19.2					
			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					

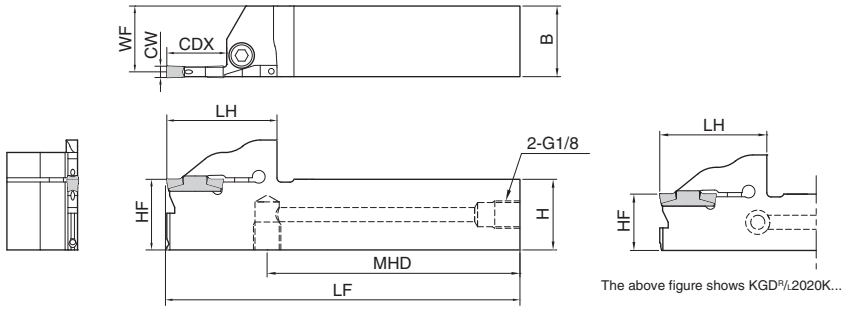
Note) 1. CDX : Maximum depth to which processing can be made. (If the CDX is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)
2. Recommended tightening torque of clamp bolt : 6.5N·m (HH5X○○), 8.0N·m (HH6X25), 2.5N·m (SE-50125TR)
3. Above toolholders are applicable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

Applicable Inserts ➡ G23, G24

● : Std. Item

KGD-JCT (Coolant-through Holders)





The above figure shows KGD$^{R}_{L}$2020K...

● 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	KGD$^{R}_{L}$ 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	KGD$^{R}_{L}$ 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	KGD$^{R}_{L}$ 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	KGD$^{R}_{L}$ 2525K-4T25JCT	●	●	25	25	25		44.0	23.3	25	84.5					

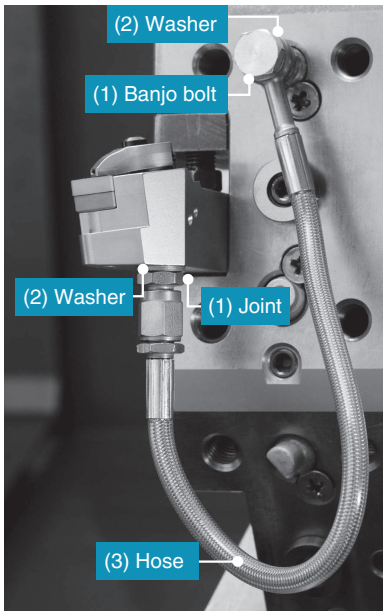
Please see **G27** for piping parts of coolant-through holders.

Applicable Inserts **G23, G24**

● : Std. Item

Easy Coolant Connections

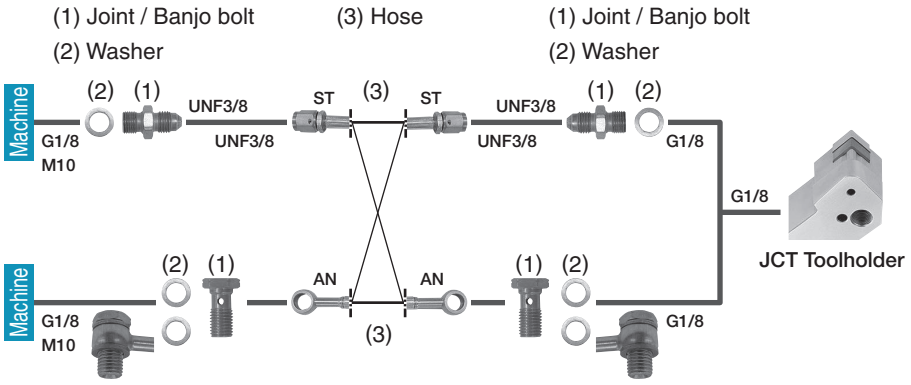
Easy Connection with High Pressure Hose and Joint



· **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**

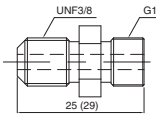
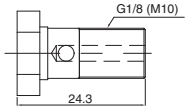
<Piping Installation Guide>



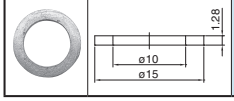
Piping Parts

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

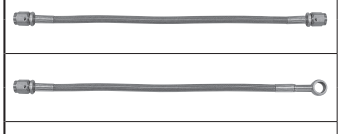
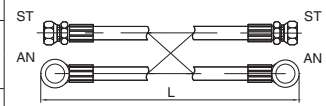
Shape		Description	Stock	Thread Standard (Thread connection to the machine)
		**J-G1/8-UNF3/8**	●	G1/8
		J-M10X1.5-UNF3/8	●	M10X1.5
Banjo bolt (for angled hose) 		**BB-G1/8**	●	G1/8
		BB-M10X1.5	●	M10X1.5

(2) Washer — Pressure Resistance : ~30MPa

Shape		Description	Stock
		**WS-10**	●

*Use 2 washers for a banjo bolt

(3) Hose — Pressure Resistance : ~30MPa

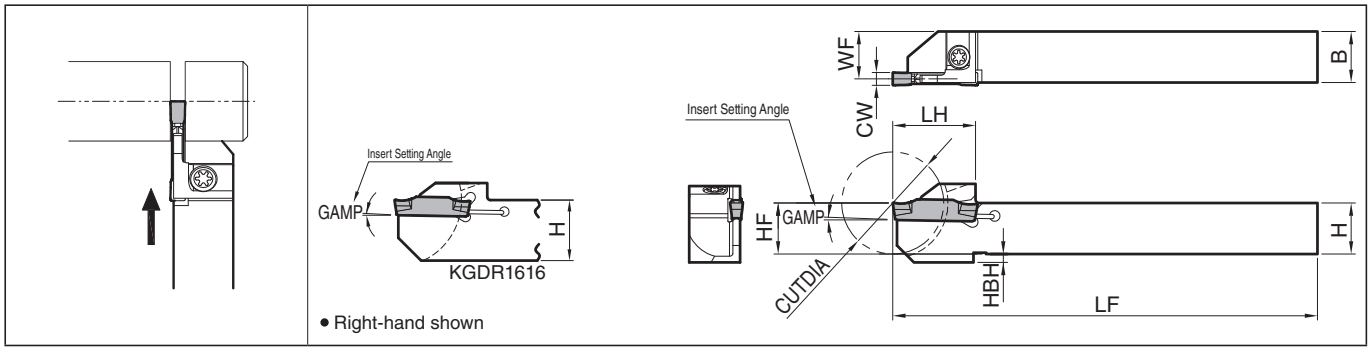
Shape		Description	Stock	Thread Standard		Dimension (mm) L
		**HS-ST-ST-200**	●	UNF3/8	UNF3/8	200
		HS-ST-ST-250	●			250
		HS-ST-AN-200	●	UNF3/8	- (Banjo bolt)	200
		HS-ST-AN-250	●			250
		HS-AN-AN-200	●	- (Banjo bolt)	- (Banjo bolt)	200
		HS-AN-AN-250	●			250

Cautions

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.

KGD (Integral Type for Automatic Lathe)

Edge Width : 2.0~4.0mm



• Right-hand shown

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	Spare Parts: 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	SE-50125TR	LTW-20
	1616JX-3D38	●	●	38						29						
	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 ➔ G23, G24

Toolholder Identification System

K G D R 1616 JX - 3 T 06

Toolholder Hand	Shank Size	Toolholder Length	Applicable Inserts	Cutting Dia.	Max. depth of cut
R : Right-hand L : Left-hand	16 x 16mm	120mm	GDM / GDMS 3~4mm	CUTDIA 38mm	06 : 6mm

D38 (Integral Type for Automatic Lathe)

06 (Integral Type)

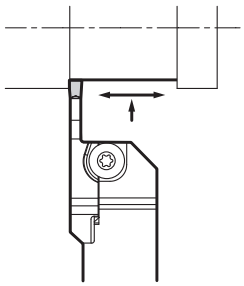
K G D R 2020 X - 3 T 10 S
KGDS

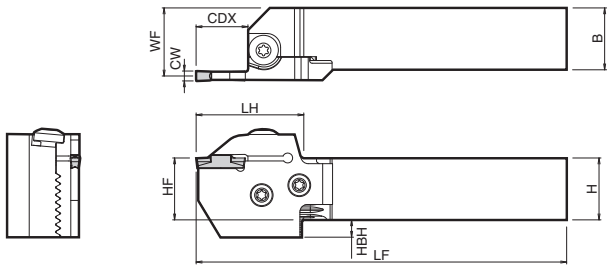
Toolholder Hand	Shank Size	Toolholder Type	Applicable Inserts	Max. depth of cut
R : Right-hand L : Left-hand	20 x 20mm	Unit Description	GDM / GDMS 3~4mm	10 : 10mm

S (Separate Type / Unit Description)

● : Std. Item

KGD-S (0° Separate Type)





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

Toolholder Dimensions (Blade + Toolholder)

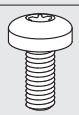
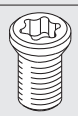
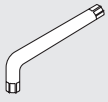
Shank Angle	Width (mm)	Max. depth of cut (mm)	Shank Size (mm)	Unit Description (Standard Stock Description)	Stock R	Stock L	Blade Description ➡G31	Toolholder Description ➡G31	Dimension (mm) H	HF	HBH	B	LF	LH	WF	CDX	Edge Width CW(mm) MIN.	MAX.
0°	2	17	□20	KGD$^{R}_{L}$ 2020X-2T17S	●	●	KGD$^{R}_{L}$-2T17-C	KGD$^{R}_{L}$2020-C	20	20	12	20	122	40	23.4	17	2.0	3.0
			□25	2525X-2T17S	●	●		KGD$^{R}_{L}$2525-C	25	25	7	25	147		28.4			
			□32	No unit description ➡				KGD$^{R}_{L}$3232-C	32	32	-	32	167		35.4			
	3	10	□20	KGD$^{R}_{L}$ 2020X-3T10S	●	●	KGD$^{R}_{L}$-3T10-C	KGD$^{R}_{L}$2020-C	20	20	12	20	115	33	23.0	10	3.0	4.0
			□25	2525X-3T10S	●	●		KGD$^{R}_{L}$2525-C	25	25	7	25	140		28.0			
			□32	3232X-3T10S	●	□		KGD$^{R}_{L}$3232-C	32	32	-	32	160		35.0			
		20	□20	KGD$^{R}_{L}$ 2020X-3T20S	●	●	KGD$^{R}_{L}$-3T20-C	KGD$^{R}_{L}$2020-C	20	20	12	20	125	43	23.0	20		
			□25	2525X-3T20S	●	●		KGD$^{R}_{L}$2525-C	25	25	7	25	150		28.0			
			□32	3232X-3T20S	●	●		KGD$^{R}_{L}$3232-C	32	32	-	32	170		35.0			
	4	10	□20	KGD$^{R}_{L}$ 2020X-4T10S	●	□	KGD$^{R}_{L}$-4T10-C	KGD$^{R}_{L}$2020-C	20	20	12	20	115	33	22.5	10	4.0	5.0
			□25	2525X-4T10S	●	□		KGD$^{R}_{L}$2525-C	25	25	7	25	140		27.5			
			□32	3232X-4T10S	□	□		KGD$^{R}_{L}$3232-C	32	32	-	32	160		34.5			
		20	□20	KGD$^{R}_{L}$ 2020X-4T20S	●	□	KGD$^{R}_{L}$-4T20-C	KGD$^{R}_{L}$2020-C	20	20	12	20	125	43	22.5	20		
			□25	2525X-4T20S	●	●		KGD$^{R}_{L}$2525-C	25	25	7	25	150		27.5			
			□32	3232X-4T20S	●	●		KGD$^{R}_{L}$3232-C	32	32	-	32	170		34.5			
		25	□20	KGD$^{R}_{L}$ 2020X-4T25S	●	●	KGD$^{R}_{L}$-4T25-C	KGD$^{R}_{L}$2020-C	20	20	12	20	130	48	22.5	25		
			□25	2525X-4T25S	●	●		KGD$^{R}_{L}$2525-C	25	25	7	25	155		27.5			
			□32	3232X-4T25S	●	●		KGD$^{R}_{L}$3232-C	32	32	-	32	175		34.5			
	5	10	□20	KGD$^{R}_{L}$ 2020X-5T10S	●	●	KGD$^{R}_{L}$-5T10-C	KGD$^{R}_{L}$2020-C	20	20	12	20	115	33	22.0	10	5.0	6.0
			□25	2525X-5T10S	●	□		KGD$^{R}_{L}$2525-C	25	25	7	25	140		27.0			
			□32	3232X-5T10S	□	□		KGD$^{R}_{L}$3232-C	32	32	-	32	160		34.0			
		25	□20	KGD$^{R}_{L}$ 2020X-5T25S	●	□	KGD$^{R}_{L}$-5T25-C	KGD$^{R}_{L}$2020-C	20	20	12	20	130	48	22.0	25		
			□25	2525X-5T25S	●	●		KGD$^{R}_{L}$2525-C	25	25	7	25	155		27.0			
			□32	3232X-5T25S	●	□		KGD$^{R}_{L}$3232-C	32	32	-	32	175		34.0			

Applicable Inserts ➡ **G23, G24**

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. In case the unit description is not available (No unit description), 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.)

Spare Parts (Common with separate types)

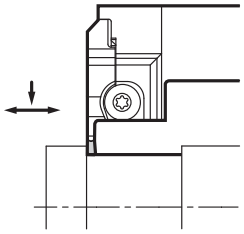
* The parts are included in the toolholder and unit.

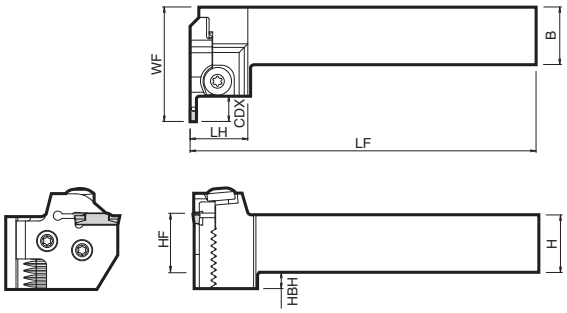
Unit Description	Spare Parts: Clamp Bolt (for Insert Clamp)	Spare Parts: Clamp Screw (for Blade)	Spare Parts: Wrench
			
KGD$^{R}_{L}$.....S	BH6X10TR	SB-60120TR	LTW-25

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

Grooving Toolholder

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 ➡G31	Toolholder Description ➡G31	Unit Description (Standard Stock Description)	Stock R	Stock L	Dimension (mm) H	HF	HBH	B	LF	LH	WF	CDX	Edge Width CW(mm) MIN.	MAX.
90°	2	17	□20	KGD$^{L}_{R}$-2T17-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	20	12	20	125	27.7	56.7	17	2.0	3.0
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	25	7	25	150					
	3	10	□20	KGD$^{L}_{R}$-3T10-C	KGDS$^{R}_{L}$2020-C	KGDS$^{R}_{L}$ 2020X-3T10S	●	●	20	20	12	20	125		49.7	10	3.0	4.0
			□25		KGDS$^{R}_{L}$2525-C	2525X-3T10S	●	●	25	25	7	25	150					
		20	□20	KGD$^{L}_{R}$-3T20-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	20	12	20	125		59.7	20		
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	25	7	25	150					
	4	10	□20	KGD$^{L}_{R}$-4T10-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	20	12	20	125		49.7	10	4.0	5.0
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	25	7	25	150					
		20	□20	KGD$^{L}_{R}$-4T20-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	20	12	20	125		59.7	20		
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	25	7	25	150					
		25	□20	KGD$^{L}_{R}$-4T25-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	20	12	20	125		64.7	25		
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	25	7	25	150					
	5	10	□20	KGD$^{L}_{R}$-5T10-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	20	12	20	125		49.7	10	5.0	6.0
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	25	7	25	150					
		25	□20	KGD$^{L}_{R}$-5T25-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	20	12	20	125		64.7	25		
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	25	7	25	150					

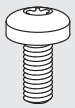
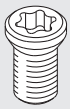
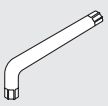
Note) 1. When using the toolholder in normal mounting position, the lower jaw of toolholder may interfere with the tool presetter.

Applicable Inserts ➡ **G23, G24**

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)

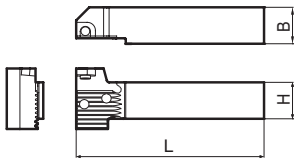
* The parts are included in the toolholder and unit.

Unit Description	Spare Parts: Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
			
KGDS$^{R}_{L}$.....S	BH6X10TR	SB-60120TR	LTW-25

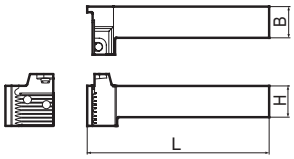
● : Std. Item

Toolholder

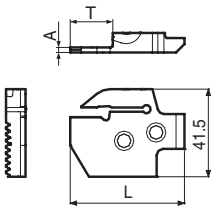
KGD-S (0° Separate Type)

Shape of 0° type Right-hand shown	Toolholder Description	Stock R	Stock L	Dimension (mm) L	B	H
	KGD$^{R}_{L}$ 2020-C	●	●	104	20	20
	2525-C	●	●	129	25	25
	3232-C	●	●	149	32	32

KGDS-S (90° Separate Type)

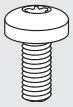
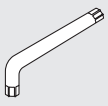
Shape of 90° type Right-hand shown	Toolholder Description	Stock R	Stock L	Dimension (mm) L	B	H
	KGDS$^{R}_{L}$ 2020-C	●	●	122	20	20
	2525-C	●	●	147	25	25

Blade

Shape of Blade Right-hand shown	Blade Description	Stock R	Stock L	Dimension (mm) L	T	A
	KGD$^{R}_{L}$ -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
			
KGD$^{R}_{L}$...S KGDS$^{R}_{L}$...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)

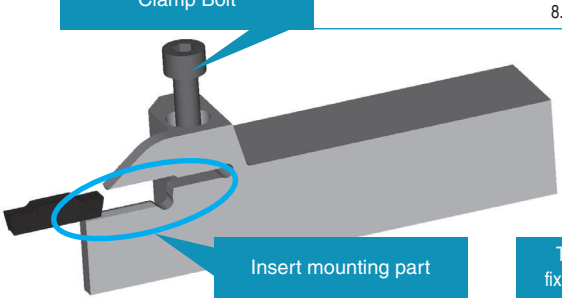


Fig. 1

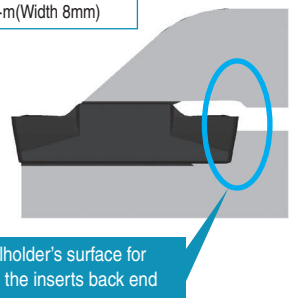


Fig. 2

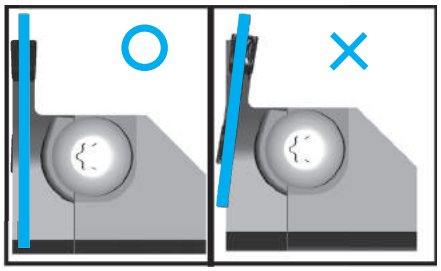


Fig. 3

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.

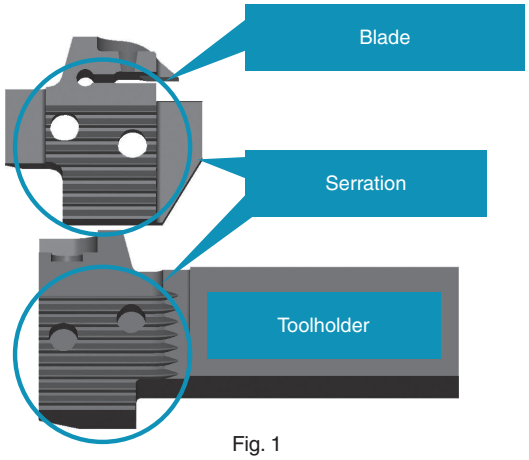


Fig. 1

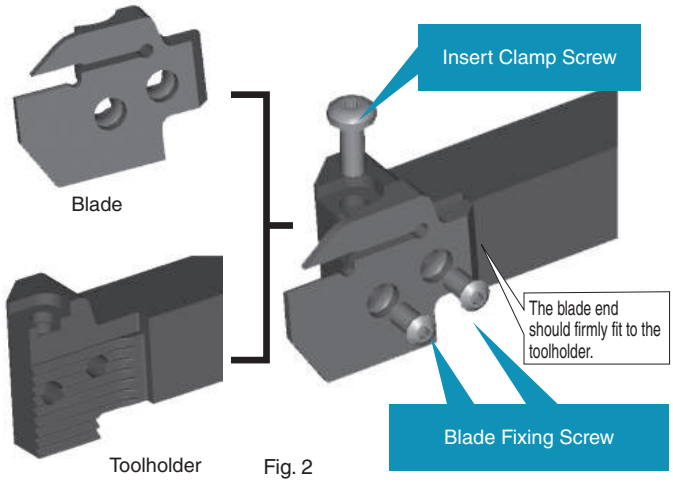
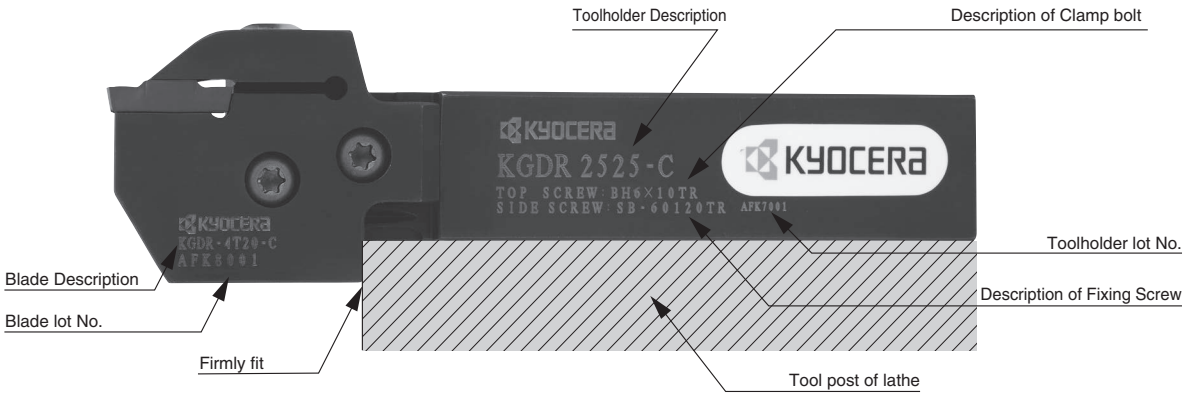


Fig. 2

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

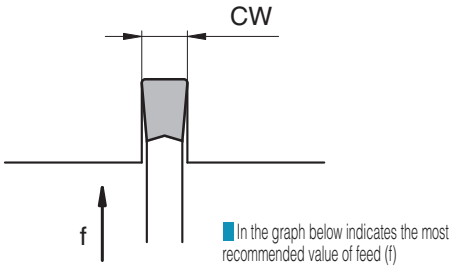
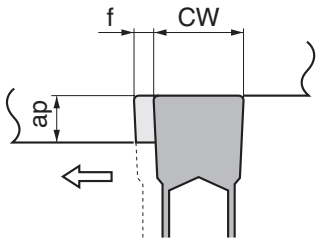
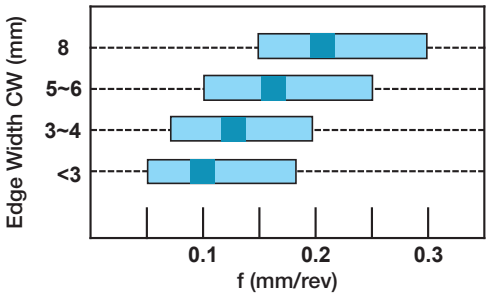
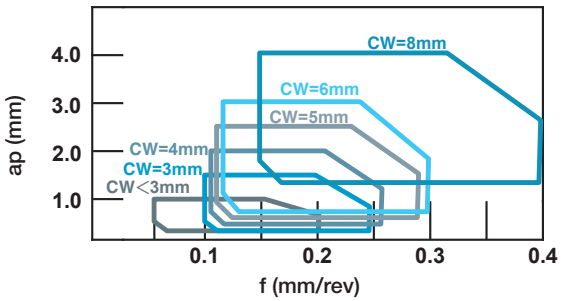
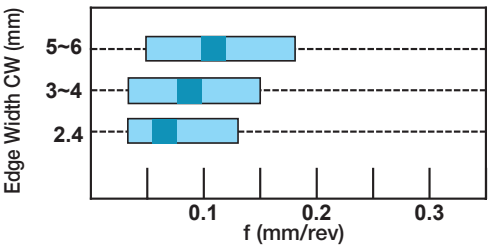
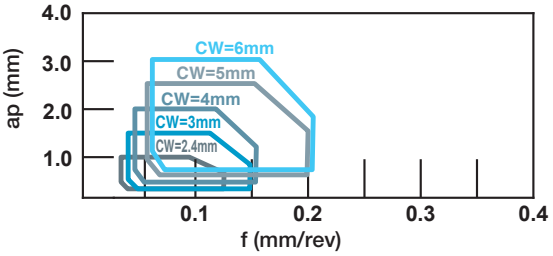
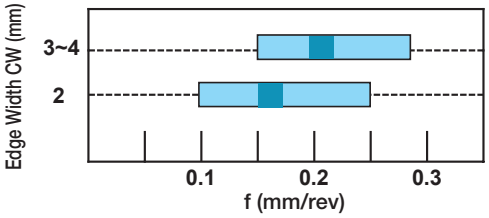
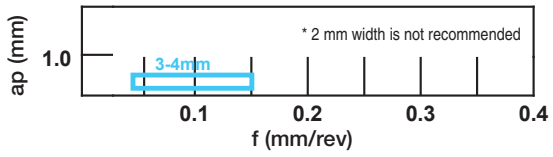
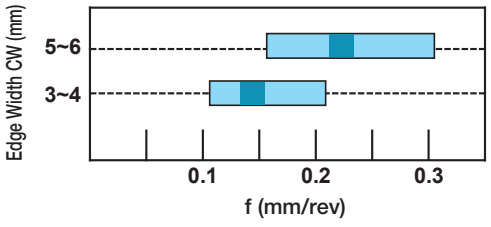
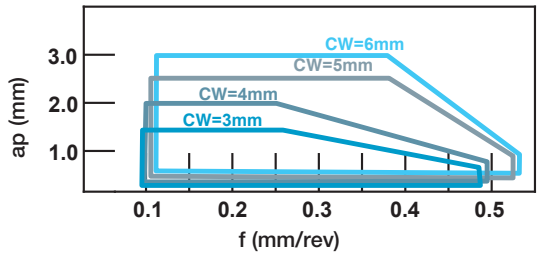
Recommended Cutting Conditions (Vc)

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
		
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.

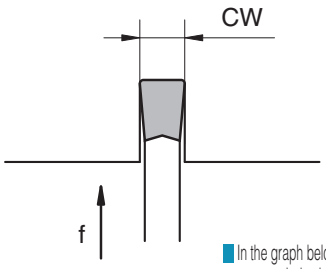
Recommended Cutting Conditions

Recommended Cutting Conditions (Feed Rate / ap)

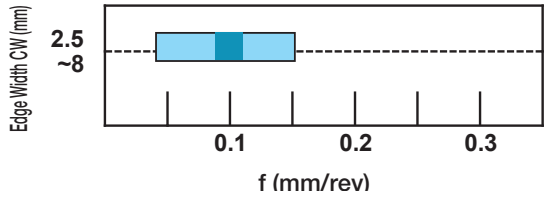
[Workpiece material: S50C]

Chipbreaker

Grooving



GS (Low cutting force)

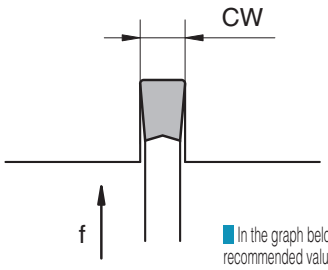


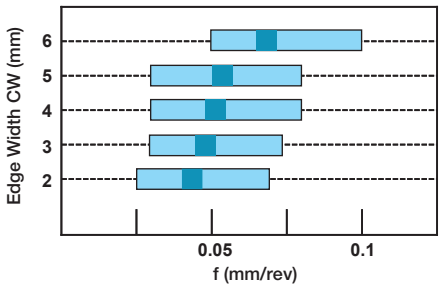
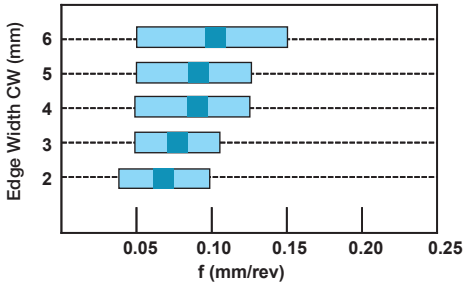
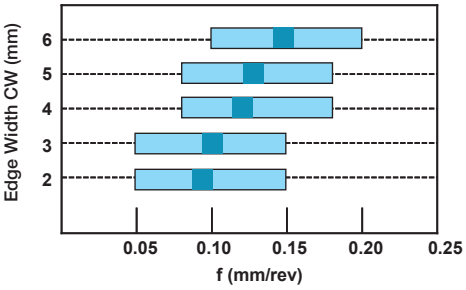
* When turning, keep ap less than or eaqual to the corner-R(RE).

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

Recommended Cutting Conditions (Feed Rate)

Grooving

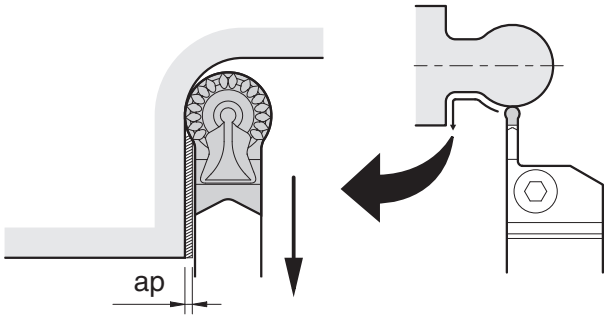


Workpiece Material	Insert Grades	
Hard Materials	KBN05M	
Sintered Steel	KBN570	
Non-ferrous Metals	KPD001	

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

Max. ap in back copying

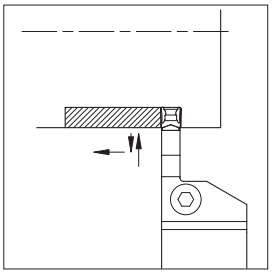
Description		Max. ap (ap : mm)				
		Toolholder Description				
		KGD…-2T…	KGD…-3T…	KGD…-4T…	KGD…-5T…	KGD…-6T…
GDM	3020N-150R-CM	0.24	0.20	-	-	-
	4020N-200R-CM	-	0.24	0.20	-	-
	5020N-250R-CM	-	-	0.30	0.20	-
	6020N-300R-CM	-	-	-	0.30	0.25



Guide for External Grooving

Point (I) (Turning after Grooving)

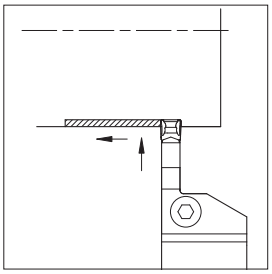
1) Grooving Depth 0.5mm or over : For roughing (Refer to Fig. 1)
Before turning, pull the tool back about 0.1mm after grooving, instead of turning subsequent to grooving.
(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting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

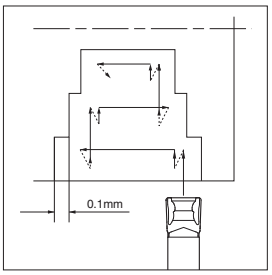
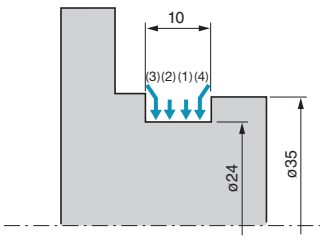


Fig. 3

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

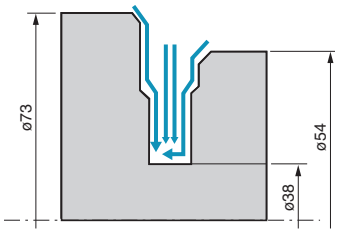
· GM chipbreaker (PR1225) showed 6 times longer tool life than that of Competitor K.
· Good chip control without burned chips.

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

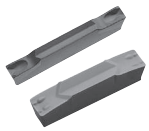
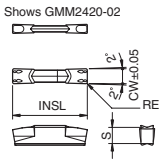
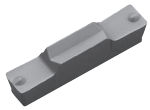
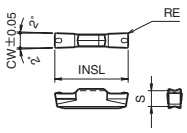
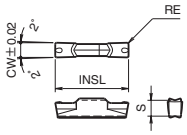
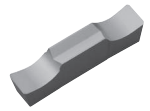
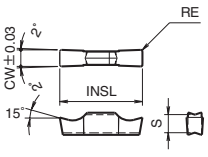
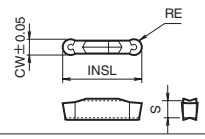
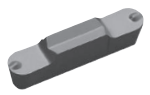
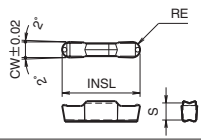
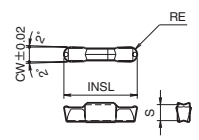
· GM chipbreaker reduced occurrence rate of chip tangling (occurrence rate 80% ⟹ 10%). The problem was persistent with Competitor L. Machining productivity is improved.

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

(User Evaluation)

GMM / GMG (Will be switched to GDM / GDG G23~G24)

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

Insert		Description		Dimension (mm)				Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	See Page for Applicable Toolholders
				CW	RE	INSL	S	TN90	CR9025	PR915	PR930	PR905	KW10	
 Chip Control Oriented / M Class		GMM	2420-020MW	2.4	0.2	20	4.3	○	○	□	○	○	○	G40 G41
			3020-020MW	3.0	0.2			○	○	○	○	○	○	
			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			□	○	○	○	○	□	
			6020-080MW		0.8			□	○	□	○	○	○	
			8030-080MW	8.0	0.8	30	5.5		○	○	○	○	○	G40,G67
 Sharp-Cutting Oriented / M Class		GMM	3020-020MS	3.0	0.2	20	4.3	○	○	○	○		○	G40 G41
			3020-040MS		0.4			○	○	○	○		○	
			4020-040MS	4.0	0.4			○	○	○	○		○	
			5020-040MS	5.0				□	○	○	○		○	
			6020-040MS	6.0					□		□		○	
 Sharp-Cutting Oriented / Precision Class		GMG	3020-000MS	3.0	0.0	20	4.3		□	○	○		□	G40 G41
			3020-020MS		0.2			○	○	○	○		○	
			3020-040MS		0.4			○	○	○	○		○	
			4020-020MS	4.0	0.2			○	□	□	○		○	
			4020-040MS		0.4			○	○	□	○		○	
			4020-080MS		0.8			□	○	○	○		□	
			5020-040MS	5.0	0.4	20	4.3	□	□	□	○		○	
			5020-080MS		0.8				□		○		□	
			6020-040MS	6.0	0.4	20	4.3		□		□		□	
			6020-080MS		0.8				□		□		○	
 Sharp-Cutting Oriented / Precision Class Gronnd Chipbreaker		GMG	2520-030MG	2.5	0.3	20	4.3	○	□	□	○		○	G40 G41
			3020-030MG	3.0				○	□	○	○	○	○	
			3520-030MG	3.5				□	□	□	○	○	□	
			4020-040MG	4.0	0.4			○	○	□	○	○	○	
			5020-040MG	5.0				○	□	□	○	○	○	
			6020-040MG	6.0				□	□		○	○	□	
			8030-050MG	8.0	0.5	30	5.5	○	○		○	○	○	G40,G67
 Chip Control Oriented / M Class Full-R / Copying		GMM	3020-150R	3.0	1.5	20	4.3	○	○	○	○	○	○	G40 G41
			4020-200R	4.0	2.0			○	○	○	○	○	○	
			5020-250R	5.0	2.5			□	○	□	○	○	○	
			6020-300R	6.0	3.0			○	○	□	○	○	○	
 Sharp-Cutting Oriented / Precision Class Full-R / Copying		GMG	3020-150R	3.0	1.5	20	4.3	○	○		○		○	G40 G41
			4020-200R	4.0	2.0			□	○		○		□	
			5020-250R	5.0	2.5				□		○		□	
			6020-300R	6.0	3.0				□		□		□	
 Undercutting Chip Control Oriented		GMG	3020-150RU	3.0	1.5	20	4.3		○		○		□	G40 G41 G43
			4020-200RU	4.0	2.0				□		○		□	
			5020-250RU	5.0	2.5				□		□		□	

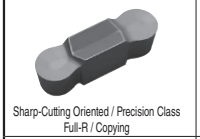
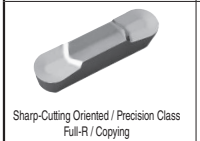
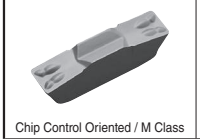
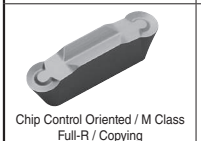
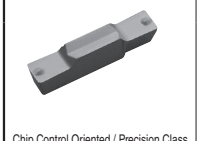
Recommended Cutting Conditions G111

Inserts are sold in 10 piece boxes

○ : Check Availability
□ : Deleted from the next catalog

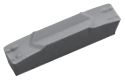
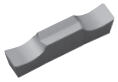
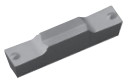
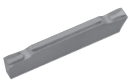
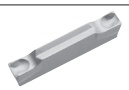
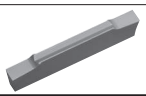
GMM / GMGA / FGG

Classification of usage			Cermet	CVD Coated Carbide	PVD Coated Carbide		Carbide	See Page for Applicable Toolholders
●:Continuous~Light Interruption / 1st Choice ◔:Continuous~Light Interruption / 2nd Choice ●: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~)						

Insert (Handed Insert shows Right-hand)	Description	Dimension (mm) CW	RE	INSL	S	TN90	CR9025	PR915	PR930	KW10	See Page for Applicable Toolholders
 Sharp-Cutting Oriented / Precision Class Full-R / Copying	**GMGA 6020-300R**	6.0	3.0	20	4.3					○	**G40 G41**
 Sharp-Cutting Oriented / Precision Class Full-R / Copying	**GMGA 8030-400R**	8.0	4.0	30	5.5					○	**G40 G67**
 Chip Control Oriented / M Class	**GMM 3014-04**	3.0	0.4	14	4.3	○	□	□	○	□	**G42**
 Chip Control Oriented / M Class Full-R / Copying	**GMM 3014-15R**	3.0	1.5	14	4.3	○			□	□	
 Chip Control Oriented Undercutting	**GMM 3014-15RU**	3.0	1.5	14	4.3				□		
 Chip Control Oriented / Precision Class Face Grooving	**FGG R/L 3020-02** **4020-04** **5020-04**	3.0 4.0 5.0	0.2 0.4 0.4	20	4.3	R L	R L	R L	R L	R L	**G42**

Recommended Cutting Conditions ➔ **G111**

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-chipbreaker 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.

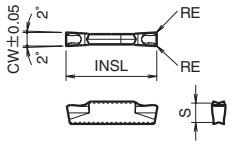
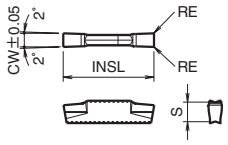
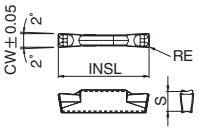
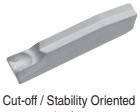
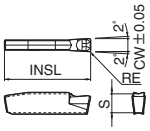
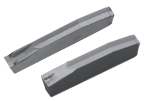
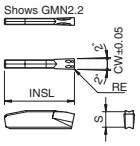
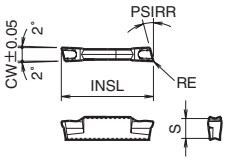
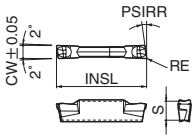
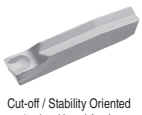
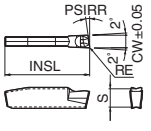
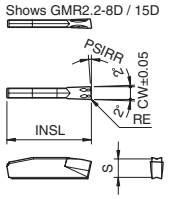
○ : Check Availability
□ : Deleted from the next catalog

Inserts are sold in 10 piece boxes

GMM / GMN / GM$^{R}_{L}$

(Will be switched to GDM / GDG
G23, G24, H18, H19)

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

Insert (Handed Insert shows Right-hand)		Description	Dimension (mm) 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	-				○	○	G40
				0.05						○			
		2020-MT	2.0	0.0							○	○	G40 G41
				0.05					○	○			
		2520-MT	2.5	0.0							○	○	
				0.05					□	○			
		3020-MT	3.0	0.0							○	○	
				0.05					○	○			
 Deep Grooving / Cut-off Sharp-Cutting Oriented Without Chipbreaker		GMM 1520-NB	1.5	0.0	20	4.3	-				○	○	G40
				0.05									
		2020-NB	2.0	0.0							○	○	
				0.05					□				
		2520-NB	2.5	0.0							○	□	
				0.05					□				
		3020-NB	3.0	0.0							□	○	
				0.05					□				
 Deep Grooving / Cut-off Stability Oriented		GMM 2020-TK	2.0	0.20	20	4.3	-			○	○	○	G40 G41
		2520-TK	2.5						□	○	○	○	
		3020-TK	3.0	0.25					○	○	○	○	
 Cut-off / Stability Oriented 1-edge		GMN 2-TK	2.0	0.20	20	4.3	-			○	○	○	
		3-TK	3.0	0.25					○	○	○	○	
		4-TK	4.0	0.30					○	○	○	○	
 Deep Grooving / Cut-off 1-edge	 Shows GMN2.2	GMN 2.2	2.2	0.17	20	4.3	-	○	○		○	○	
		3	3.0	0.20				○	○		○	○	
		4	4.0	0.25				○	○		○	○	
		5	5.0	0.80					○		○	○	
		6	6.0	0.80					○		○	○	
								R L	R L	R L	R L	R L	
 Cut-off Sharp-Cutting Oriented With lead angle		GMM 1520$^{R}_{L}$-MT-15D	1.5	0	20	4.3	15°				○ □	○ □	G40
				0.05						○			
		2020$^{R}_{L}$-MT-15D	2.0	0					○ □		○ ○	○ □	
				0.05					○ □	○			
		2520$^{R}_{L}$-MT-15D	2.5	0							○ □	□ □	
				0.05					□	○			
		3020$^{R}_{L}$-MT-15D	3.0	0							○ ○	○ □	
				0.05					○ □	○			
 Cut-off Stability Oriented With lead angle		GMM 2020R-TK-8D	2.0	0.20	20	4.3	8°			○	○	○	
		2520R-TK-8D	2.5	0.20					□	□	○	□	
		3020R-TK-8D	3.0	0.25					○	○	○	□	
 Cut-off / Stability Oriented 1-edge / Lead Angle		GMR 2-TK-8D	2.0	0.20	20	4.3	8°				○	○	G40 G41
		3-TK-8D	3.0	0.25						○	○	○	
		4-TK-8D	4.0	0.30						○	○	○	
 Cut-off / Sharp-Cutting Oriented 1-edge / Lead Angle	 Shows GMR2.2-8D / 15D	GM$^{R}_{L}$ 2.2-8D	2.2	0.17	20	4.3	8°	○	○		○	○ ○	
		2.2-15D		0.00			15°	○	○		○	○	
		3-4D	3.0	0.20			4°	○	○ ○		○	○ ○	
		4-4D	4.0	0.25					○ ○		○		

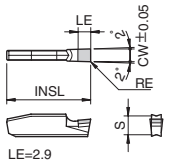
Recommended Cutting Conditions G111

○ : Check Availability
□ : Deleted from the next catalog

Inserts are sold in 10 piece boxes

GMN

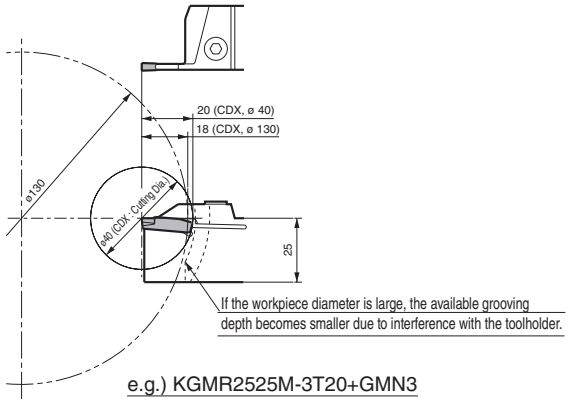
Classification of usage							
◕:Continuous~Light Interruption / 1st Choice ◔:Continuous~Light Interruption / 2nd Choice ●:Continuous / 1st Choice ○:Continuous / 2nd Choice	P	Carbon steel / Alloy steel					
	M	Stainless Steel					
	K	Cast Iron					
	N	Non-ferrous Metals			●		
	S	Titanium Alloys			●	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

Insert		Description	Dimension (mm)				CBN		PCD		See Page for Applicable Toolholders
			CW	RE	INSL	S	KBN510	KBN525	KPD001	KPD010	
 Deep Grooving 1-edge		GMN 2	2.0	0.2	20	4.3	○	○	○	○	G40 G41
				0.4							
		3	3.0	0.2					○	○	
				0.4			○	○			
		4	4.0	0.2					○	○	
				0.4			○	○			
		5	5.0	0.2					○	○	
				0.4			○	○			
		6	6.0	0.2						○	
				0.4			○	○			

Recommended Cutting Conditions ➡ G110

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.)																
KGMR/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	∞	∞									
	1010□-2.5…	-	-	-	-	-	-	-	20	25	32	40	60					
	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, GMR/L when using 1-edge insert)

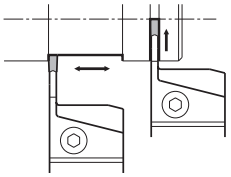
Toolholder Description		DCX (Cutting Dia.)												
KGMR/L	2012K-2T17 2020K-2T17 2525M-2T17	-	-	-	-	-	-	-	-	66	80	130	260	∞
	1616H-3T20	-	-	-	-	-	40	54	70	100	180	∞	∞	
	2012K-3T20 2020K-3T20 2525M-3T20 2020K-4T20 2525M-4T20	-	-	-	-	-	40	90	130	240	∞			
	2525M-4T25 2525M-5T25	-	-	50	140	240	∞	∞	∞	∞				
	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

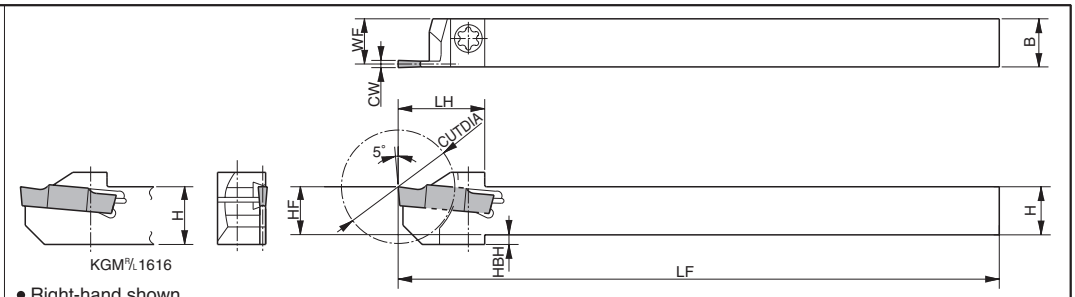
○ : Check Availability

CBN & PCD Inserts are sold in 1 piece boxes

KGM (for Automatic Lathe) (Will be switched to KGD ➡ G28)

Edge Width : 1.5~4.0mm





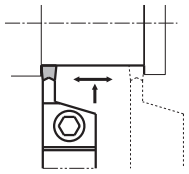
● Right-hand shown

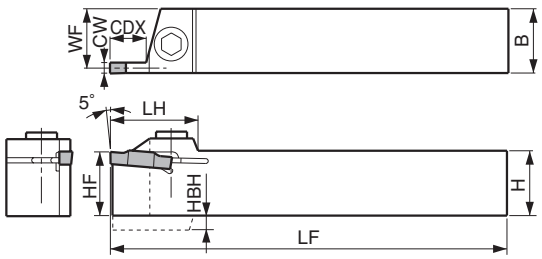
Toolholder Dimensions

Description		Stock R	Stock L	Cutting Dia. CUTDIA	Dimension (mm) H	HF	HBH	B	LF	LH	WF	Edge Width CW(mm) MIN.	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	1010JX-2.5	□	□	20	10	10	2	10	120	18	9	2.4	3.0	SE-40120TR	LTW-15S
	1212JX-2.5	○	○	25	12	12		12		19	11				
	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 ➡ G25 , G29)

Edge Width : 3.0~8.0mm





● Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	Dimension (mm) H	HF	HBH	B	LF	LH	WF	CDX	Edge Width CW(mm) MIN.	MAX.	Spare Parts: Screw		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							
	2020K-3	○	○	20	20	-	20	125		18.8		3.0	4.0	-	HH5X16	-	LW-4
	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		
	3232P-5	□	□	32	32		32	170		29.8							
KGM R/L	2525M-8	○	○	25	25	7.5	25	150	40	22.0	25	8.0	8.0	-	HH6X25	-	LW-5
	3232P-8	□	□	32	32	-	32	170		29.0							

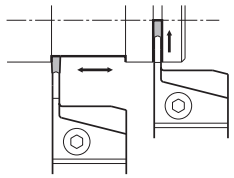
· CDX shows available grooving depth.

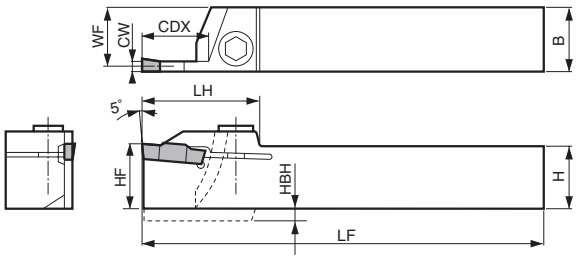
· 4mm width Insert can be installed in KGM R/L 1212H-3, but is not recommended due to the toolholder's rigidity.

○ : Check Availability
□ : Deleted from the next catalog

KGM-T (Deep Grooving Type) (Will be switched to KGD ⓖ G25)

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
KGM$^{R/L}$	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		
KGM$^{R/L}$	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		
KGM$^{R/L}$	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						
KGM$^{R/L}$	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							
KGM$^{R/L}$	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 (**G39**) 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

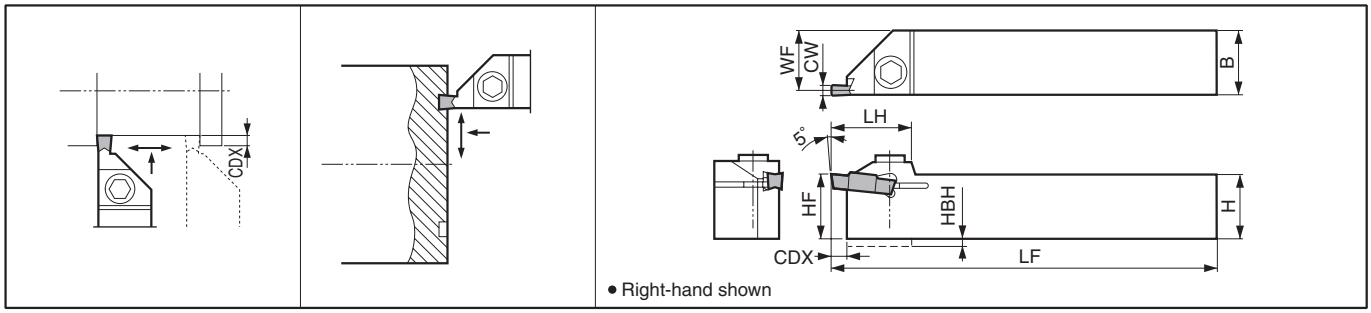
Applications	Grooving / Turning	Grooving / Turning	Grooving	Full-R / Copying	Full-R / Copying	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving
See Page	G36	G36	G36	G36	G37	G38	G38	G38	G38	G38	G39
Insert / Toolholder Description	MW	MS	MG			MT	NB	TK	TK		CBN PCD
KGM$^{R/L}$...1.5	-	-	-	-	-	GMM1520..MT GMM2020..MT GMM1520$^{R/L}$..MT GMM2020$^{R/L}$..MT	GMM1520..NB GMM2020..NB	GMM2020..TK GMM2020$^{R/L}$..TK	GMN2..TK GM$^{R/L}$2..TK	-	-
KGM$^{R/L}$...2(T)	GMM2420..MW GMM3020..MW	GMG3020..MS GMM3020..MS	GMG2520..MG GMG3020..MG	GMG3020..R GMM3020..R	-	GMM2020..MT GMM2520..MT GMM3020..MT GMM2020$^{R/L}$..MT GMM2520$^{R/L}$..MT GMM3020$^{R/L}$..MT	GMM2020..NB GMM2520..NB GMM3020..NB	GMM2020..TK GMM2520..TK GMM3020..TK GMM2020$^{R/L}$..TK GMM2520$^{R/L}$..TK GMM3020$^{R/L}$..TK	GMN2..TK GMN3..TK GM$^{R/L}$2..TK GM$^{R/L}$3..TK	GMN2.2 GMN3 GM$^{R/L}$2.2 GM$^{R/L}$3	GMN2 GMN3
KGM$^{R/L}$...2.5	GMM2420..MW GMM3020..MW	GMG3020..MS GMM3020..MS	GMG2520..MG GMG3020..MG	GMG3020..R GMM3020..R	-	GMM2520..MT GMM3020..MT GMM2520$^{R/L}$..MT GMM3020$^{R/L}$..MT	GMM2520..NB GMM3020..NB	GMM2520..TK GMM3020..TK GMM2520$^{R/L}$..TK GMM3020$^{R/L}$..TK	GMN3..TK GM$^{R/L}$3..TK	GMN3 GM$^{R/L}$3	GMN3
KGM$^{R/L}$...3(T)	GMM3020..MW GMM4020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS	GMG3020..MG GMG3520..MG GMG4020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R	-	GMM3020..MT GMM3020$^{R/L}$..MT	GMM3020..NB	GMM3020..TK GMM3020$^{R/L}$..TK	GMN3..TK GMN4..TK GM$^{R/L}$3..TK GM$^{R/L}$4..TK	GMN3 GMN4 GM$^{R/L}$3 GM$^{R/L}$4	GMN3 GMN4
KGM$^{R/L}$...4(T)	GMM4020..MW GMM5020..MW	GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG4020..MG GMG5020..MG	GMG4020..R GMM4020..R GMG5020..R GMM5020..R	-	-	-	-	GMN4..TK GM$^{R/L}$4..TK	GMN4 GMN5 GM$^{R/L}$4	GMN4 GMN5
KGM$^{R/L}$...5(T)	GMM5020..MW GMM6020..MW	GMG5020..MS GMM5020..MS GMG6020..MS GMM6020..MS	GMG5020..MG GMG6020..MG	GMG5020..R GMM5020..R GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN5 GMN6	GMN5 GMN6
KGM$^{R/L}$...6T	GMM6020..MW	GMG6020..MS GMM6020..MS	GMG6020..MG	GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN6	GMN6
KGM$^{R/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.

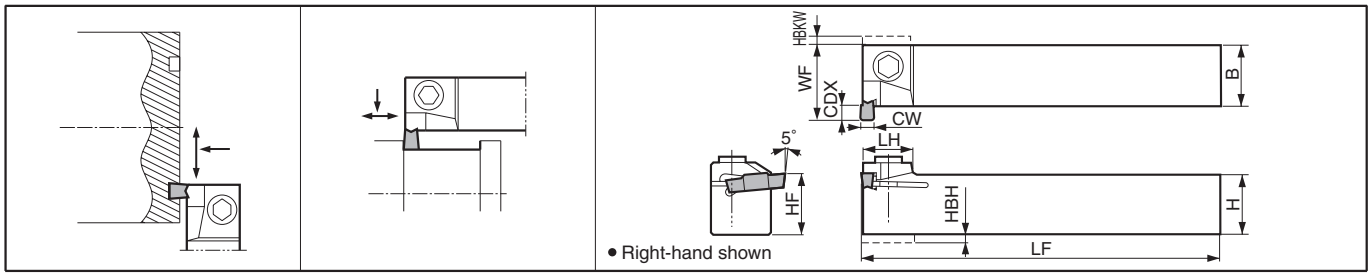
Recommended Cutting Conditions ⓖ **G111**
Recommended Cutting Conditions of CBN / PCD ⓖ **G110**

○ : Check Availability
□ : Deleted from the next catalog

KGMM



KGMS



Toolholder Dimensions

Description		Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	HBKW	CDX	Edge Width CW(mm) MIN.	Edge Width CW(mm) MAX.	Spare Parts: Screw	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench
KGMM$^{R}_{L}$	1212H-3	□	□	12	12	4	12	100	25	10.8	-	4.8	3.0	5.0	SB-5TR	-	LTW-20	-
	1616H-3	□	□	16	16	-	16			14.8					-	HH5X16	-	LW-4
	2020K-3	□	□	20	20		20	125		18.8					-		-	
	2525M-3	○	□	25	25		25	150		23.8					-	HH5X25	-	
KGMS$^{R}_{L}$	1212H-3	□	□	12	12	4	12	100	17	17	1.5	4.8	3.0	3.0	SB-5TR	-	LTW-20	-
	1616H-3	□	□	16	16	-	16			21.5			3.0	5.0	GS-50	-	-	LW-3
	2020K-3	□	□	20	20		20	125		25	-				-	HH5X16	-	LW-4
	2525M-3	○	□	25	25		25	150		30					-	HH5X25	-	

· CDX shows available grooving depth. (Ref. to the table **G43** for Face Grooving)

Applicable Inserts [External Grooving]

Applications	Grooving / Turning	Grooving / Turning	Grooving	Full-R / Copying	Grooving	Grooving	Grooving	Grooving	Grooving	Grooving
See Page	G36, G37	G36	G36	G36, G37	G38	G38	G38	G38	G38	G39
Insert / Toolholder Description	(MW)	MS	MG		MT	NB	TK	TK		CBN PCD
KGMS$^{R}_{L}$1212H-3	GMM3014..	-	-	GMM3014..R	-	-	-	-	-	-
KGMM$^{R}_{L}$...3 KGMS$^{R}_{L}$...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	G37	G36, G37	G36	G36	G36	G36	G38	G38	G38	G38
Insert / Toolholder Description			MW	MS	MG		MT	NB	TK	
KGMS$^{R}_{L}$1212H-3	-	GMM3014..RU	-	-	-	-	-	-	-	-
KGMM$^{R}_{L}$...3 KGMS$^{R}_{L}$...3	FGG$^{R}_{L}$3020.. FGG$^{R}_{L}$4020.. FGG$^{R}_{L}$5020..	GMG3020..RU GMG4020..RU GMG5020..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

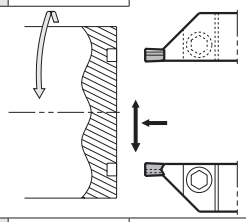
Recommended Cutting Conditions ➡ G111
Recommended Cutting Conditions of CBN / PCD ➡ G110

○ : Check Availability
□ : Deleted from the next catalog

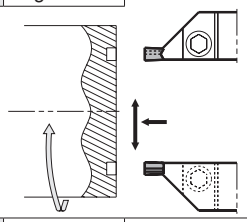
Selection of Insert & Toolholder (Face Grooving)

Case of KGMM

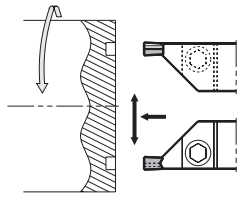
Toolholder	Left-hand
Insert	Left-hand



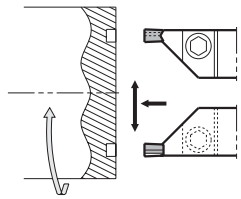
Toolholder	Right-hand
Insert	Right-hand



Toolholder	Right-hand
Insert	Left-hand

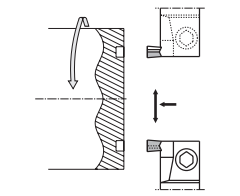


Toolholder	Left-hand
Insert	Right-hand

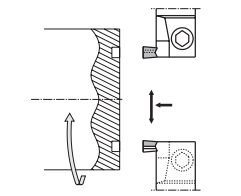


Case of KGMS

Toolholder	Right-hand
Insert	Left-hand

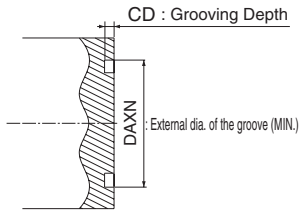


Toolholder	Left-hand
Insert	Right-hand



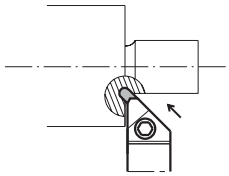
External dia. of the groove (MIN.) & Grooving Depth (Face Grooving)

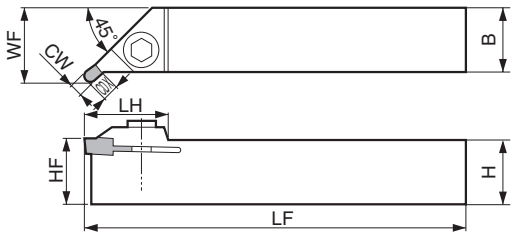
KGMM / KGMS (Common) (mm)



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
GMG5020-250RU	ø30	

KGMU (External Undercutting Toolholder)





• Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	H	HF	B	LF	LH	WF	CDX			Edge Width CW(mm) MIN.	Edge Width CW(mm) MAX.	Spare Parts: Clamp Bolt		Spare Parts: Wrench	
KGMU$^{R}_{L}$	2020K	□	□	20	20	20	125	28.5	23.6	4.8			3.0	5.0	HH5X16		LW-4	
	2525M	○	□	25	25	25	150		28.6					(6.0)	HH5X25			

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

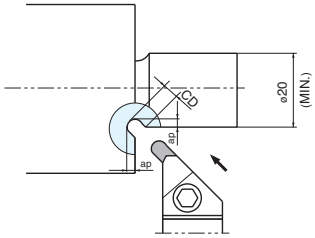
WF shows at GMM5020-RU. ( ) indicates external grooving inserts when installed.

Applicable Inserts

Applications	Undercutting		
See Page	G36		
Insert / Toolholder Description			
KGMU$^{R}_{L}$ 2020K 2525M	GMG3020..RU GMG4020..RU GMG5020..RU		

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

Undercut Depth CD

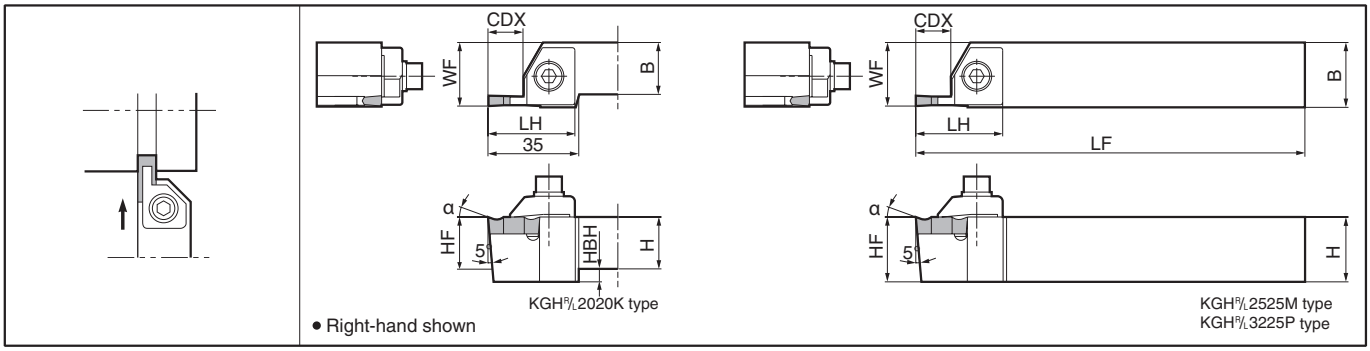


Description	Undercut Depth CD (mm)	Distance from the face of the workpiece ap (mm)
GMG3020-150RU	3.5	1.8
GMG4020-200RU	4.0	1.9
GMG5020-250RU	4.5	2.1

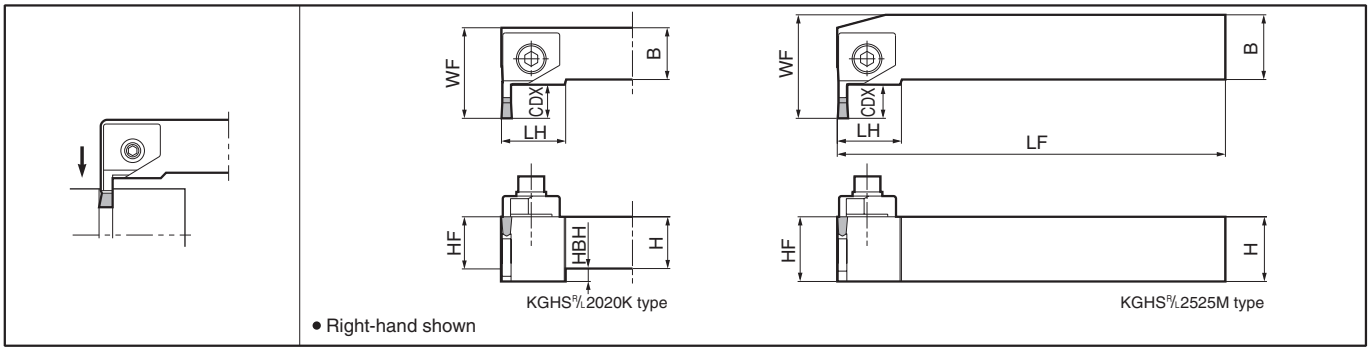
* In case of undercutting for the diameter 100mm or over, Inserts for External Grooving GMG○○20-○○○□□,GMM○○20-○○○□□,GMN○ are also available.

○ : Check Availability
□ : Deleted from the next catalog

KGH



KGHS



Toolholder Dimensions

Description		Stock		Dimension (mm)								Spare Parts				
												Clamp	Clamp Bolt	Washer	Spring	Wrench
		R	L	H	HF	HBH	B	LF	LH	WF	CDX					
KGHR/L	2020K-4	●	●	20	20	5	20	125	33.5	24.5-24.8	13	CGH-1R/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-1R/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-2R/L				
	2525M-7	●	●	25	25	-	25	150		24.5-25.0						
	2525M-10	●	●	25	25	-	25	150	41	25.5-26.5	17	CGH-3R/L				
	3225P-10	●		32	32	-	25	170		25.5-26.5						
KGHSR/L	2020K-4	●	●	20	20	5	20	125	25	35	13	CGH-1L/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-1L/R				
	2525M-5	●	●	25	25	-	25	150		40						

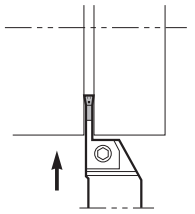
· CDX shows available grooving depth.
· WF of KGHR/L Toolholder depends on the insert's edge width.
· Clamp KGHR/L ... CGH-○R for Right-hand Toolholder and CGH-○L for Left-hand Toolholder.
KGHSR/L ... CGH-○L for Right-hand Toolholder and CGH-○R for Left-hand Toolholder.

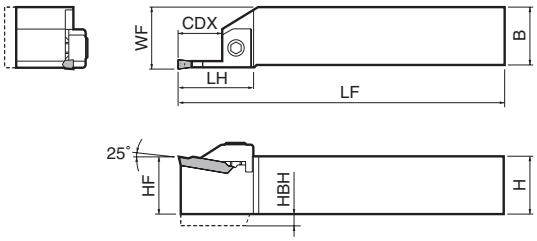
Rake Angle (α) after Installment of GH / GHU insert

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

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

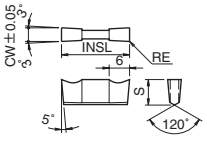
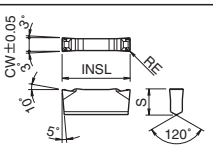
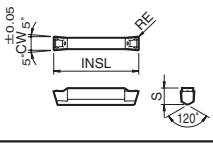
(mm)

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

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	Cermet TC40N	Cermet TC60M	CVD Coated Carbide CR9025	PVD Coated Carbide PR930	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	G44
			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			7020-02	7.0	0.2		●	●		●	●					
			7020-05		0.5		●	●		●	●	●		●		
			7520-02	7.5	0.2		●								KGH R/L...7 KGHS R/L...7	
			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	G44
			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	G45
			40	4.0	0.25	●			●						KGA R/L...4	
			50	5.0	0.30	●			●						KGA R/L...5	

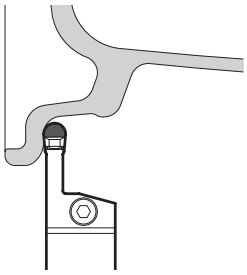
Ceramic insert is above shape.

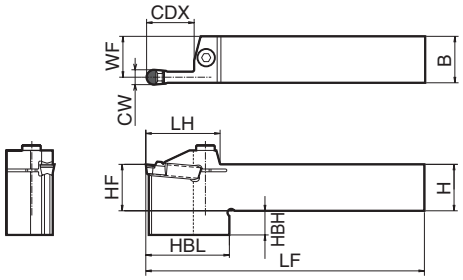
Recommended Cutting Conditions G108~G109

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

Inserts are sold in 10 piece boxes

KGMW (External / Facing / Copying)



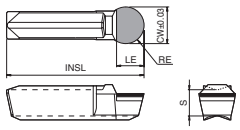
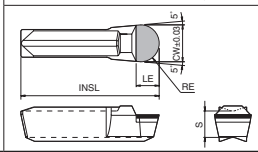


• Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	H	HF	HBH	B	LF	LH	HBL	WF	CDX	Spare Parts: Clamp Bolt	Spare Parts: Wrench	Applicable Inserts
KGMW R/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) CW	RE	INSL	S	LE	No. of Edge	PCD 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

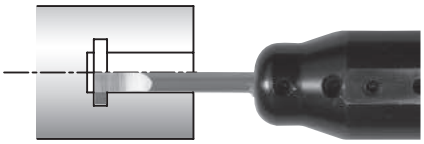
★ : 1st Recommendation

● : Std. Item

Summary of Internal Grooving

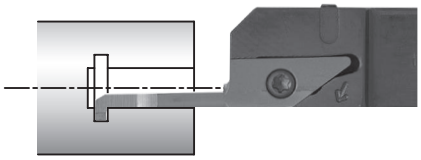
Small Dia. Internal Grooving ø3~ (G49 ~ G51)

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	G49

EZ Bars

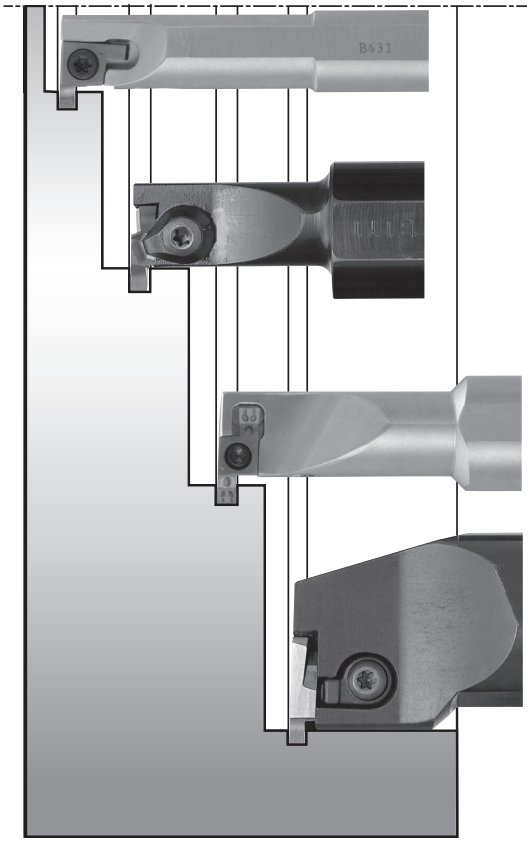


Type	VNG
Min. Bore Dia.	ø4 ~ ø7
Edge Width (mm)	1.0 ~ 2.0
Max. Grooving Depth (mm)	0.8 ~ 2.0
See Page	G51

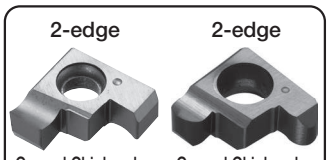
System Tip-Bars

Internal Grooving ø8~ (G53 ~ G63)

Shallow Grooving

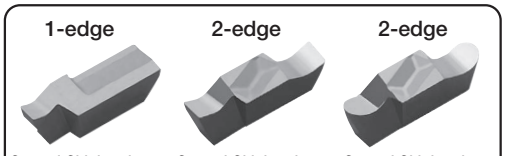


Type	SIGE
Min. Bore Dia.	ø8 ~ ø12
Edge Width (mm)	1.0 ~ 3.0
Max. Grooving Depth (mm)	1.5 ~ 2.2
See Page	G55



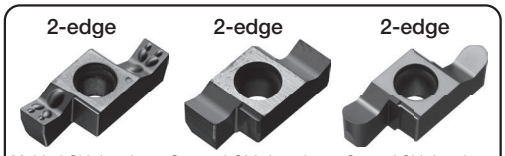
2-edge Ground Chipbreaker; 2-edge Ground Chipbreaker Full-R

Type	GIV
Min. Bore Dia.	ø12 ~ ø40
Edge Width (mm)	1.0 ~ 5.0
Max. Grooving Depth (mm)	1.7 ~ 6.3
See Page	G60



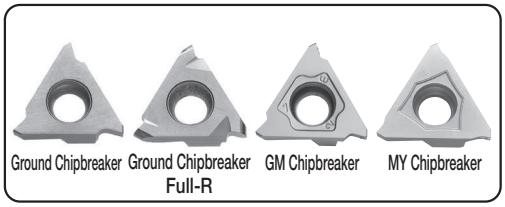
1-edge Ground Chipbreaker; 2-edge Ground Chipbreaker; 2-edge Ground Chipbreaker Full-R

Type	SIGE
Min. Bore Dia.	ø14 ~ ø40
Edge Width (mm)	1.0 ~ 5.0
Max. Grooving Depth (mm)	2.5 ~ 6.5
See Page	G55



2-edge Molded Chipbreaker; 2-edge Ground Chipbreaker; 2-edge 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	G62



Ground Chipbreaker; Ground Chipbreaker Full-R; GM Chipbreaker; MY Chipbreaker

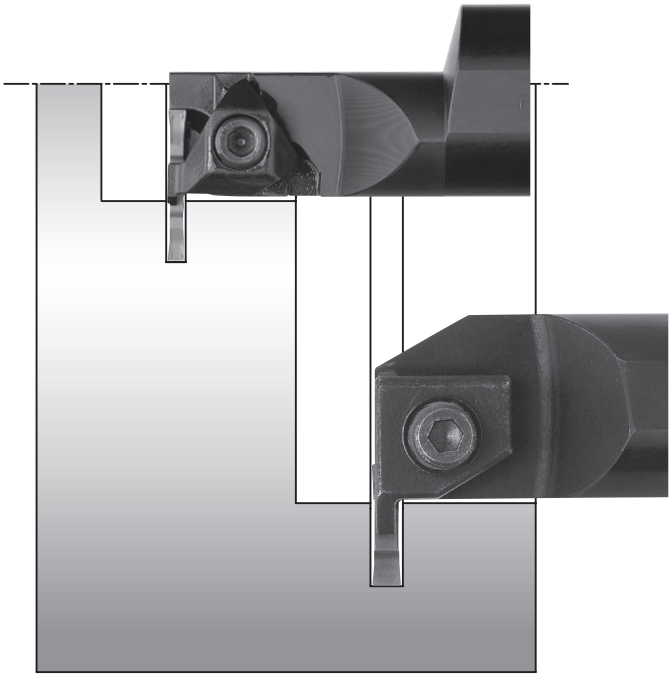
Type	KITG
Min. Bore Dia.	ø35 ~ ø45
Edge Width (mm)	0.75 ~ 4.5
Max. Grooving Depth (mm)	2.0 ~ 2.5
See Page	G63

Ground Chipbreaker

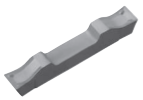
* **KITG** will be switched to **KIGBA**.

Summary of Internal Grooving

Deep Grooving (G66, G68)

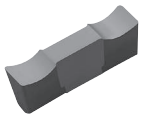


Type	KGIA
Min. Bore Dia.	ø32 ~ ø66
Edge Width (mm)	3.0 ~ 5.0
Max. Grooving Depth (mm)	10 ~ 15
See Page	**G68**



Molded Chipbreaker

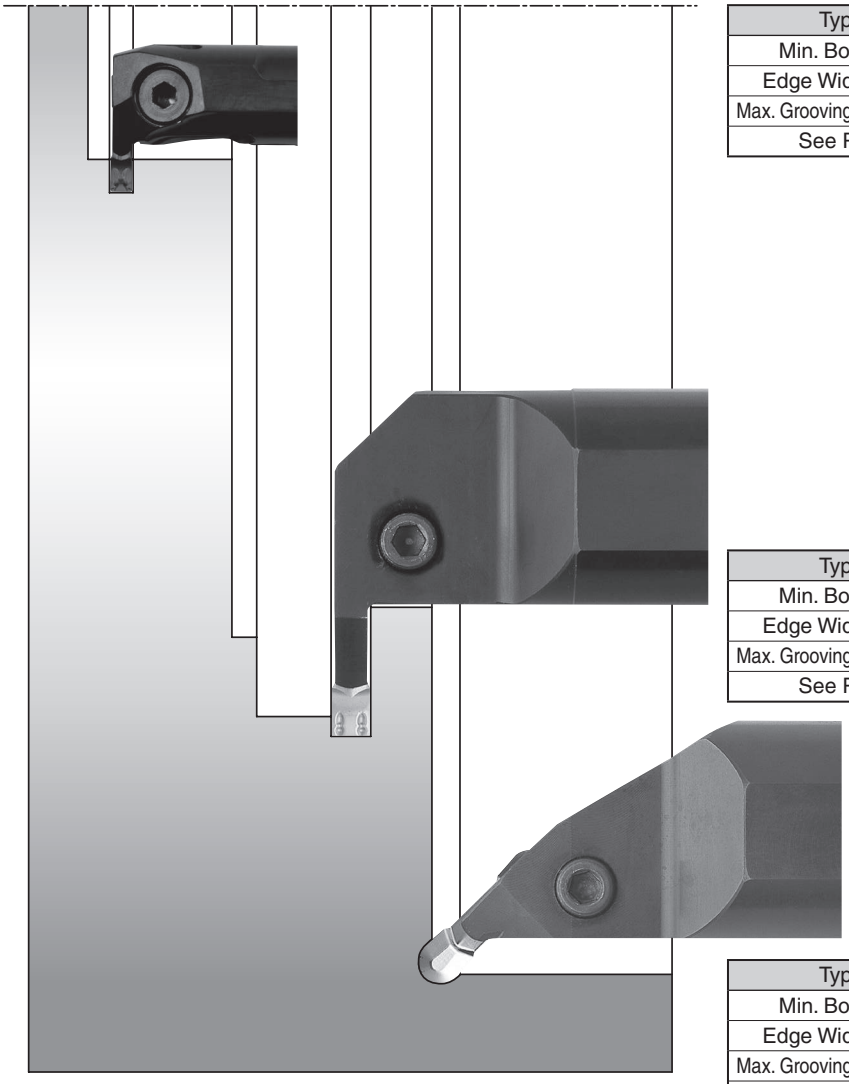
Type	KIGH
Min. Bore Dia.	ø45 ~ ø65
Edge Width (mm)	4.0 ~ 8.0
Max. Grooving Depth (mm)	12
See Page	**G66**



Ground Chipbreaker

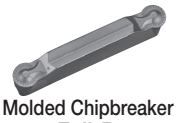
Molded Chipbreaker

Internal Grooving & Turning ø20~ (G64, G67)



Type	KGDI
Min. Bore Dia.	ø18 ~ ø40
Edge Width (mm)	2.0 ~ 5.0
Max. Grooving Depth (mm)	4.5 ~ 11.0
See Page	**G64**

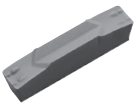
GMI Chipbreaker



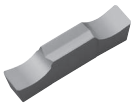
Molded Chipbreaker Full-R

Type	KIGM-8
Min. Bore Dia.	ø65
Edge Width (mm)	8.0
Max. Grooving Depth (mm)	20
See Page	**G67**

Type	KIGMU-8
Min. Bore Dia.	ø65
Edge Width (mm)	8.0
Max. Grooving Depth (mm)	2.2
See Page	**G67**



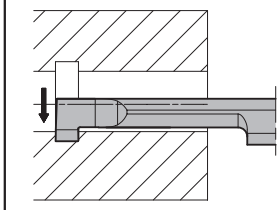
Molded Chipbreaker

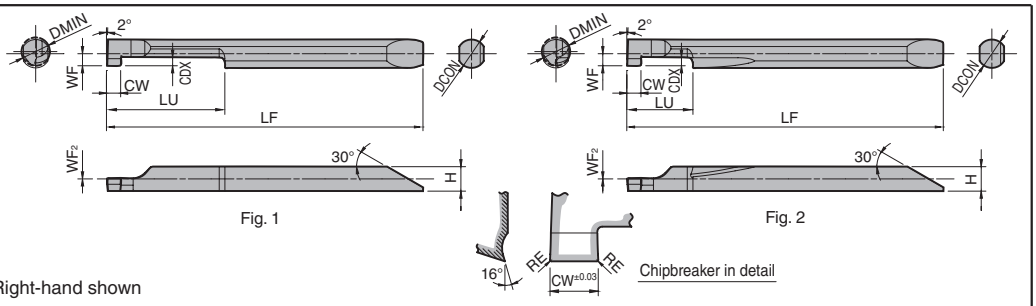


Ground Chipbreaker

Molded Chipbreaker Full-R

EZG (Small Dia. Internal Grooving) NEW





• Right-hand shown

Dimensions

Description		Min. Bore Dia.	Dimension (mm)									Drawing	MEGACOAT	Applicable Sleeves
		DMIN	CW ±0.03	RE	DCON	H	LF	LU	WF	WF2	CDX		PR1225	EZH F25~F29
EZGR	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	Applications	Insert Hand	Min. Bore Dia.	Shank Dia.	Edge Width	Type
	G : Internal Grooving	R : Right-hand	030 : 3mm 040 : 4mm ⋮	030 : 3mm 040 : 4mm ⋮	050 : 0.5mm 100 : 1.0mm 150 : 1.5mm ⋮	S : Short type (LU dimension)

Recommended Cutting Conditions

Workpiece Material	Insert Grades (Cutting Speed Vc: m/min)	EZGR030030-...S	EZGR040040-... EZGR050050-... EZGR040040-...S EZGR050050-...S	EZGR060060-... EZGR070070-... EZGR080070-... EZGR060060-...S EZGR070070-...S EZGR080070-...S	Remarks
	MEGACOAT				
	PR1225	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	

★ : 1st Recommendation

● : Std. Item

EZ Bars are sold in 1 piece boxes

Applicable Sleeves for Internal Grooving Inserts

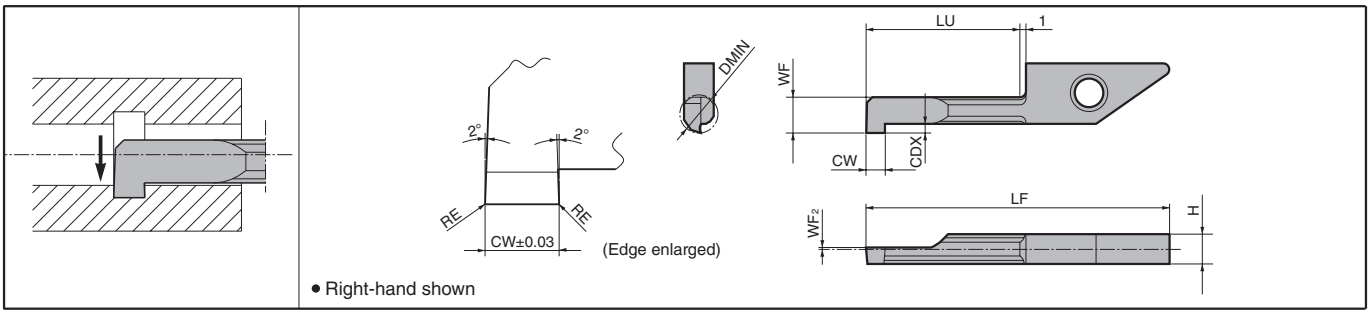
Applicable Sleeves

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

Small Dia. Internal Grooving System Tip-Bars

VNG



• Right-hand shown

Classification of usage										
● : 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.	Dimension (mm)								MEGA COAT		PVD	Carbide	PCD		See Page for Applicable Toolholders
		DMIN	CW	RE	H	LF	LU	WF	WF_2	CDX	PR1225		PR930	KW10	KPD001	KPD010	
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	MTO	
	0420-11NB		2.0												MTO	MTO	
	0510-11NB	5	1.0	0.05				4.4		1.0					MTO	MTO	
	0520-11NB		2.0												MTO	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	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)			VNG04 VNG05	VNG06 VNG07	Remarks
	MEGA COAT	PVD	Carbide	f (mm/rev)		
	PR1225	PR930	KW10			
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

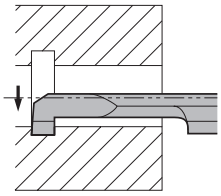
System Tip-Bars (VNG) are sold in 5 piece boxes

CBN & PCD Inserts are sold in 1 piece boxes

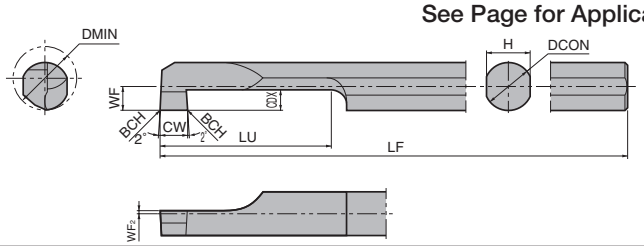
Tip-Bars for Small Dia. Internal Grooving PSG-S

PSG-S (Tip-Bars)

This insert will be switched to **EZG**.



See Page for Applicable Sleeves F86



• Right-hand shown

Dimensions

Description		Min. Bore Dia.	Dimension (mm)									PVD Coated Carbide		Carbide	
		DMIN	CW±0.03	BCH	DCON	H	LF	LU	WF	WF_2	CDX	PR930		KW10	
												R	L	R	L
PSG R/L	0510-60S	5	1.0	0.05	3.8	3.6	60	15	1.86	0.1	1.5			□	□
	0520-60S		2.0	0.1										□	□
	0610-70S	6	1.0	0.05	4.8	4.4	70	20	2.36			□	□	□	□
	0620-70S		2.0	0.1								□	□	□	□
	0710-70S	7	1.0	0.05	5.8	5.2	70	20	2.86	0.3	2.0	□		□	□
	0720-70S		2.0	0.1								□	□	□	
	0810-80S	8	1.0	0.05	6.8	6.2	80	25	3.38			□	□	□	□
	0820-80S		2.0	0.1								□	□	□	□

· CDX shows available grooving depth.

· WF_2 indicates the cutting edge is above the Tool's Center Position.

PSG-S (Tip-Bars)

Workpiece Material	Recommended Insert Grades(Cutting Speed Vc: m/min)			PSG05	PSG06 PSG07 PSG08	Remarks
	PVD Coated Carbide		Carbide			
	PR930		KW10	f (mm/rev)		
Carbon steel	★ 30~100			~0.03	~0.05	Coolant
Stainless Steel	★ 30~80			~0.02	~0.03	
Non-ferrous Metals			★ ~300	~0.05	~0.08	

★ : 1st Recommendation

Note for using the grooving tip-bars PSG-S

How to Install

Small dia. internal grooving requires accurate installation because an error of insert height or angle can affect the machining precision. When installing, set the cutting edge higher than the center line. The cutting edge of all the PSG-S tip-bars is designed to be higher than the center line.

(WF_2 of Tip-Bars dimension)

Tip-Bars are sold in 1 piece boxes

□ : Deleted from the next catalog

Internal Grooving SIGE

Applicable Inserts

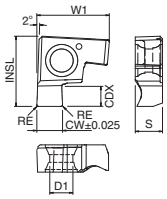
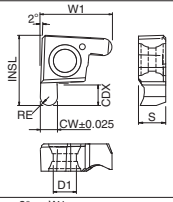
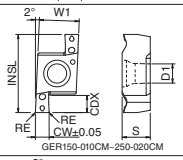
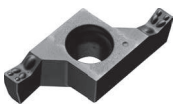
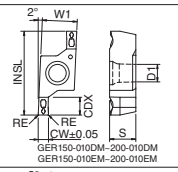
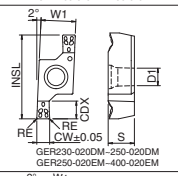
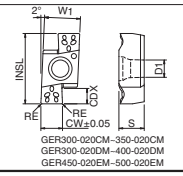
(mm)

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

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

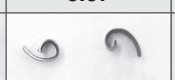
See Page for Applicable Toolholders

Insert (Handed Insert shows Right-hand)		Description		Dimension (mm) CW	CDX	RE	Cermet TN6020 R	Cermet TN6020 L	MEGA COAT PR1225 R	MEGA COAT PR1225 L	PVD Coated Carbide PR1025 R	PVD Coated Carbide PR1025 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide 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	G55 G56
			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	G55 G56 G57
			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	G55 G56
			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	G55 G56 G57
			200-100BR	2.00		1.0			●		●				●			
	 GER150-010CM–250-020CM	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					●		●							
	 GER150-010DM–200-010DM GER150-010EM–200-010EM	GER	150-010DM	1.50	3.0	0.1			●		●						SIGER...D-EH	G55
			200-010DM	2.00	3.2				●		●							
			230-020DM	2.30		0.2			●		●							
			250-020DM	2.50					●		●							
			300-020DM	3.00	4.5				●		●							
			350-020DM	3.50					●		●							
			400-020DM	4.00					●		●							
	 GER230-020DM–250-020DM GER250-020EM–400-020EM	GER	150-010EM	1.50	3.0	0.1			●		●						SIGER...E-EH	G55
			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				●		●							
2-edge Molded Chipbreaker	 GER300-020CM–350-020CM GER300-020DM–400-020DM GER450-020EM–500-020EM		500-020EM	5.00					●		●							

· CDX shows available grooving depth.

Recommended Cutting Conditions ➡ G58

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)

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

Inserts are sold in 10 piece boxes

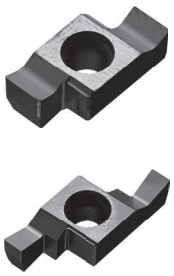
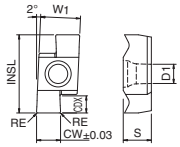
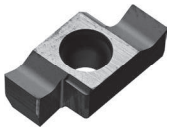
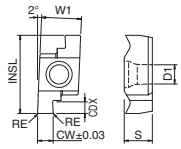
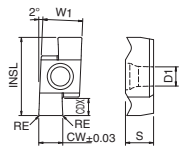
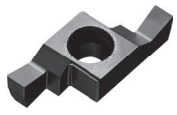
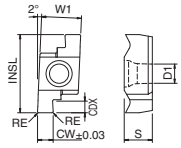
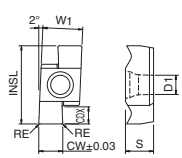
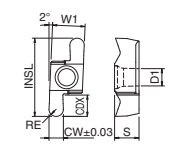
Applicable Inserts

(mm)

Description	W1	INSL	S	D1
GE$^{R}/_{L}$...-C	5.8	11.48	4.05	2.8
GER...-CR				
GE$^{R}/_{L}$...-D	6.8	16.44	5.05	3.4
GER...-DR				
GE$^{R}/_{L}$...-E	9.54	21.66	5.55	4.4

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	Cermet TN6020 R	Cermet TN6020 L	MEGA COAT PR1225 R	MEGA COAT PR1225 L	PVD Coated Carbide PR1025 R	PVD Coated Carbide PR1025 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Applicable Toolholders	See Page for Applicable Toolholders
 2-edge		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	G55 G56 G57
			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			●	●	●		●	●	●	□				
	 GER100-005D~280-020D	GE$^{R}/_{L}$	100-005D	1.00	2.5	0.05	●	□	●	●	●	●	●	●			SIGE$^{R}/_{L}$...D-EH	G55
			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			●		●	●	●	●	□					
	 GER300-020D~400-020D		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			●	□	●	●	●	□	●	□				
 2-edge	 GER100-005E~430-020E	GE$^{R}/_{L}$	100-005E	1.00	2.5	0.05	●	□	●	●	●	□	●	●			SIGE$^{R}/_{L}$...E-EH	G55
			150-010E	1.50	3.0	0.1	●	□	●	●	●	●	●	●				
			170-010E	1.70			●		●	●	●	●	●					
			185-010E	1.85			●				●	●	□					
			195-010E	1.95			●				●	●	□					
			200-010E	2.00			●	□	●		●	●	●	●				
			225-010E	2.25	3.2		●		●		●	●	●					
			230-020E	2.30		0.2	●	●	●		●	●	●	□				
			250-020E	2.50			●	●	●	●	●	●	●	●				
			275-020E	2.75			□		●		●	□	●					
			280-020E	2.80	4.5		●		●	●	●	●	□					
			300-020E	3.00			●	●	●	●	●	●	●	●				
			330-020E	3.30			●		●		●	●	□					
	 GER450-020E~500-020E		350-020E	3.50			●	●	●		●	●	●	●				
			400-020E	4.00	5.5		●	□	●		●	●	●	●				
			430-020E	4.30			●		●		□	□	□					
			450-020E	4.50			●	●	●		●	●	●	□				
			460-020E	4.60	6.5		□		●		●	□	□					
			500-020E	5.00			●	□	●		●	●	●	□				
 2-edge Full-R		GER	200-100CR	2.00	2.5	1.0			●		●		●				SIGER...C-EH SIGER...C-WH SIGER...C-WH-90	G55 G56 G57
			250-125CR	2.50		1.25			●		●		●					
			300-150CR	3.00		1.5			●		●		●					
		GER	200-100DR	2.00	3.2	1.0			●		●		●				SIGER...D-EH	G55
			300-150DR	3.00	4.5	1.5			●		●		●					

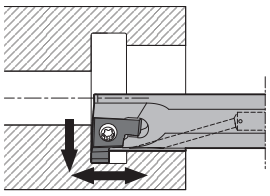
· CDX shows available grooving depth.

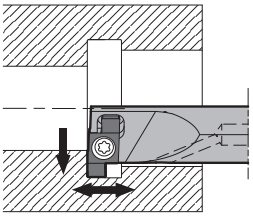
Recommended Cutting Conditions ➡ G58

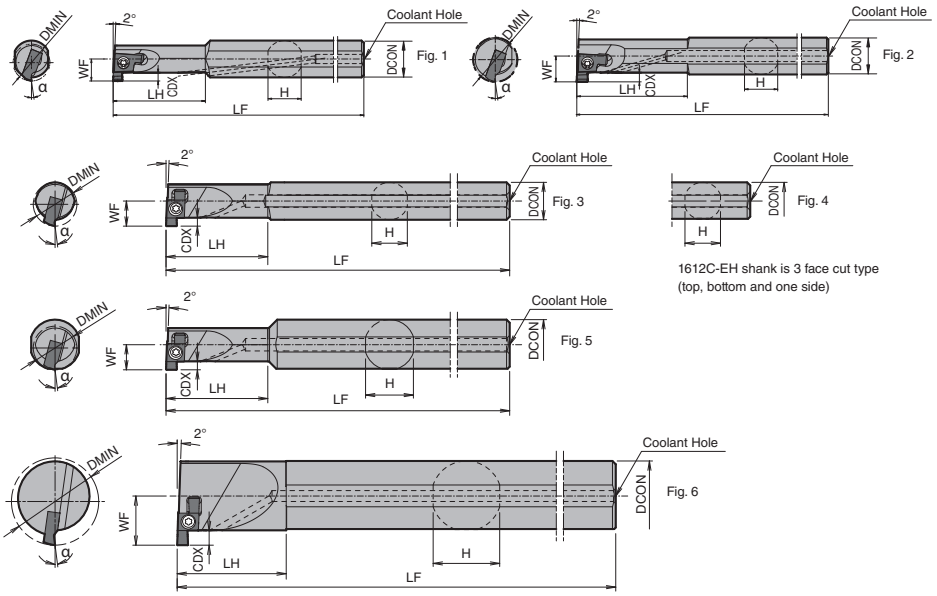
● : Std. Item
□ : Deleted from the next catalog

Inserts are sold in 10 piece boxes

SIGE-EH Excellent Bar (with Coolant Hole)







1612C-EH shank is 3 face cut type (top, bottom and one side)

● Right-hand shown

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

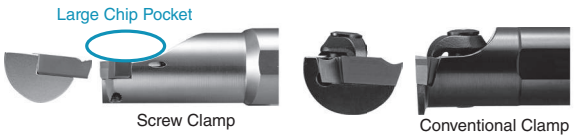
Toolholder Dimensions

Description		Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	CDX	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench		Applicable Inserts ➡G53, G54
SIGE$^{R/L}$	0808A-EH	●	●	8	8	7.2	100	20	4.8	1.5	Fig. 1	SB-2045TRN	FT-6	-	GE$^{R/L}$100-005A~GE$^{R/L}$200-010A GER100-050AR~GER200-100AR
	1010B-EH	●	●	10	10	9	125	25	6.2	2.2	Fig. 1	SB-2255TR	-	DT-7	GE$^{R/L}$100-005B~GE$^{R/L}$300-020B GER100-050BR~GER200-100BR
	1210B-EH	●	●	12				30	7		Fig. 2				
	1412C-EH	●	●	14	12	11.4	150	33	8	2.5	Fig. 3	SB-2570TR	FT-8	-	GE$^{R/L}$100-005C~GE$^{R/L}$350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR
	1612C-EH	●	●	16				20	8.5		Fig. 4				
	1616C-EH	●	●		16	15	160	36	9		Fig. 5				
	2020D-EH	●	●	20	20	19	180	40	12.1	4.5		SB-3080TR	FT-10	-	GE$^{R/L}$100-005D~GE$^{R/L}$400-020D GER150-010DM~GER400-020DM GER200-100DR~GER300-150DR
	2525E-EH	●	●	25	25	24	200	45	15.6	6.5		SB-4085TR	FT-15	-	GE$^{R/L}$100-005E~GE$^{R/L}$500-020E GER150-010EM~GER500-020EM
	3232E-EH	●	●	32	32	30.4	220	55	19						
	4032E-EH	●	●	40			250	45	23		Fig. 6				

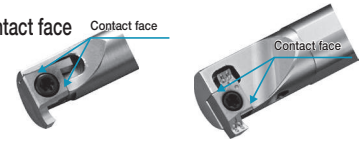
· CDX shows available grooving depth. Available Groove Depth : "CDX" Dimension of Insert.

Features

Large chip pocket screw clamp toolholder design enables excellent chip evacuation



Cutting edge is free from contact face



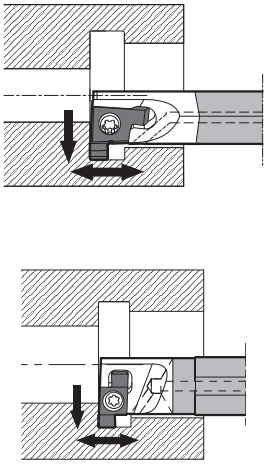
An 8mm minimum bore diameter with a 2-edge design

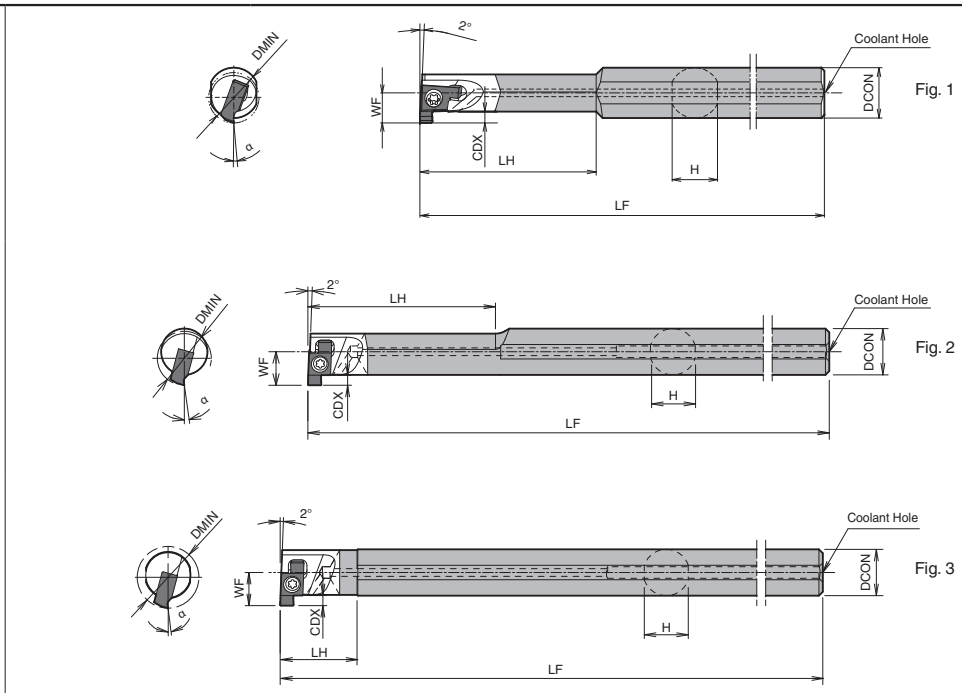
Cost effective chip control from a molded chipbreaker

GER...M

● : 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 R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	CDX	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench		Applicable Inserts ⇒ G53, G54
SIGE$^{R/L}$	0808A-WH	●	●	8	8	7.2	125	28	4.8	1.5	Fig. 1	SB-2045TRN	FT-6	-	GE$^{R/L}$100-005A~GE$^{R/L}$200-010A GER100-050AR~GER200-100AR
	1010B-WH	●	●	10	10	9	125	35	6.2	2.2	Fig. 1	SB-2255TR	-	DT-7	GE$^{R/L}$100-005B~GE$^{R/L}$300-020B GER100-050BR~GER200-100BR
	1210B-WH	●	●	12			140	45	7						
	1412C-WH	●	●	14	12	11.4	150	50	8.7	2.5	Fig. 2	SB-2570TR	FT-8	-	GE$^{R/L}$100-005C~GE$^{R/L}$350-020C 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.

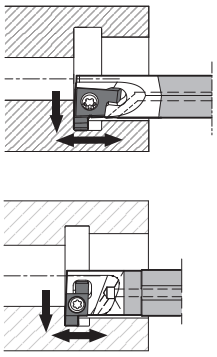
Applicable Insert & Rake Angle (α) after Installment of Insert

Toolholder Description		Applicable Insert & Rake Angle (α) after Installment of Insert: Ground Chipbreaker	α	Molded Chipbreaker	α
SIGE$^{R/L}$	0808A-EH	GE$^{R/L}$100-005A~GE$^{R/L}$200-010A GER100-050AR~GER200-100AR	5°	-	-
	1010B-EH 1210B-EH	GE$^{R/L}$100-005B~GE$^{R/L}$300-020B GER100-050BR~GER200-100BR	5°	-	-
	1412C-EH 1612C-EH 1616C-EH	GE$^{R/L}$100-005C~GE$^{R/L}$350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
	2020D-EH	GE$^{R/L}$100-005D~GE$^{R/L}$400-020D GER200-100DR~GER300-150DR	9°	GER150-010DM~GER400-020DM	10°
	2525E-EH 3232E-EH 4032E-EH	GE$^{R/L}$100-005E~GE$^{R/L}$500-020E	10°	GER150-010EM~GER500-020EM	10°
SIGE$^{R/L}$	0808A-WH	GE$^{R/L}$100-005A~GE$^{R/L}$200-010A GER100-050AR~GER200-100AR	5°	-	-
	1010B-WH 1210B-WH 1008B-WH-90 1210B-WH-90	GE$^{R/L}$100-005B~GE$^{R/L}$300-020B GER100-050BR~GER200-100BR	5°	-	-
	1412C-WH 1612C-WH 1412C-WH-90	GE$^{R/L}$100-005C~GE$^{R/L}$350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°

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)



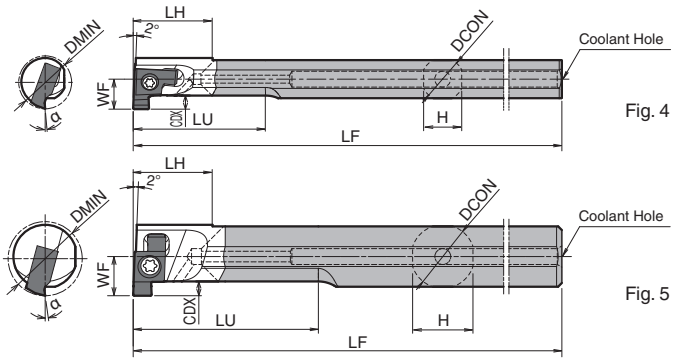


Fig. 4

Fig. 5

• Right-hand shown

Right-hand Insert for Right-hand Toolholder.

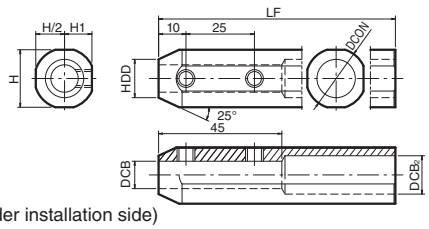
Toolholder Dimensions

Description		Stock	Min. Bore Dia.	Dimension (mm)							Drawing	Spare Parts		Applicable Inserts ➔G53, G54
			DMIN	DCON	H	LF	LU	*LH	WF	CDX		Clamp Screw	Wrench	
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.

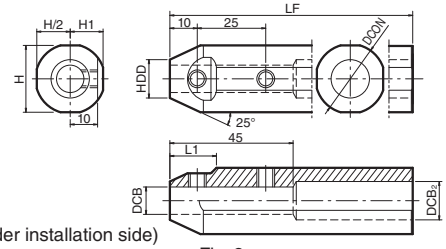
· See Page ➔ **G56** for Applicable Insert & Rake Angle (α) after Installment of Insert.

Applicable Sleeves



(Toolholder installation side)

Fig. 1



(Toolholder installation side)

Fig. 2

Description		Stock	Dimension (mm)								Drawing	Spare Parts		Applicable Machine Manufacturer
			DCB	DCON	HDD	DCB2	H	H1	LF	L1		Screw	Wrench	
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

Recommended Cutting Conditions (Ground Chipbreaker : GE^{R}/$_{L}$...A(R), GE^{R}/$_{L}$...B(R))

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)				(1) f for Grooving (mm/rev)			Remarks
	Cermet	MEGACOAT	PVD Coated Carbide	Carbide	(2) f for Turning (mm/rev)			
	TN6020	PR1225	PR1025	KW10	(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	
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 grade or carbide for turning with edge width 1mm. (GE^{R}/$_{L}$100-005A / 100-005B)

★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions (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)				(1) f for Grooving (mm/rev)							Remarks
	Cermet	MEGA COAT	PVD Coated Carbide	Carbide	(2) f for Turning (mm/rev)							
	TN6020	PR1225	PR1025	GW15	(3) ap for Turning (mm)							
					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

Recommended Cutting Conditions (Molded Chipbreakers : GER...CM, GER...DM, GER...EM)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)				(1) f for Grooving (mm/rev)						Remarks
	Cermet	MEGA COAT	PVD Coated Carbide	Carbide	(2) f for Turning (mm/rev)						
	TN6020	PR1225	PR1025	GW15	(3) ap for Turning (mm)						
					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

Insert for Small Dia. Internal Grooving

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

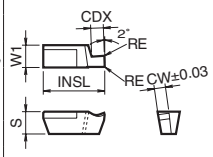
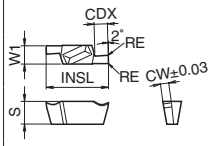
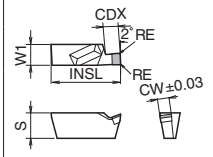
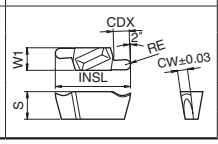
(mm)

Description	W1	INSL	S
GV$^{R}_{L}$...SS	3.6	9	3.0
GV$^{R}_{L}$...S	4.0	11	4.0
GV$^{R}_{L}$...A	4.0	12	5.0
GV$^{R}_{L}$...B	4.5	15	5.5
GV$^{R}_{L}$...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

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~)									

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

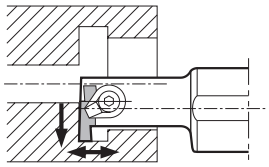
Recommended Cutting Conditions ➔ G110
See Page for Applicable Toolholders ➔ G61

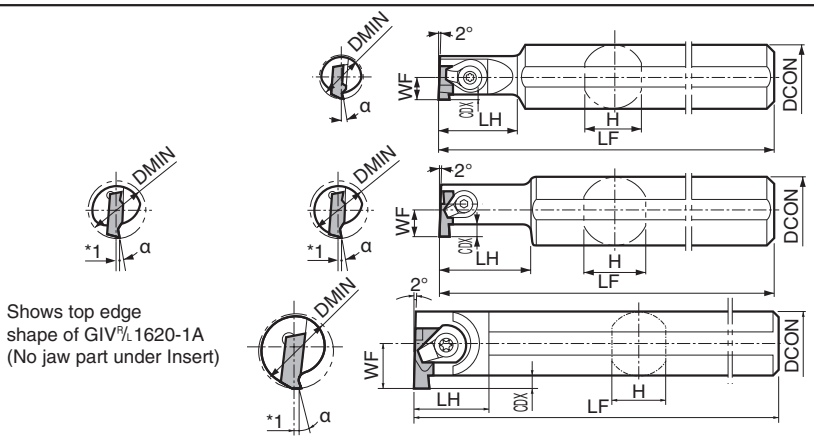
● : Std. Item
□ : Deleted from the next catalog
MTO : Made to order

Inserts are sold in 10 piece boxes

CBN & PCD Inserts are sold in 1 piece boxes

GIV



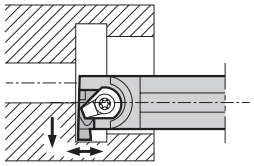


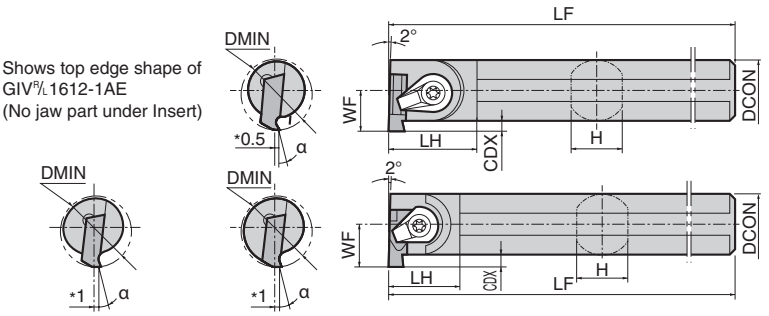
Shows top edge shape of GIV$^{R/L}$1620-1A (No jaw part under Insert)

• Right-hand shown

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

GIV-E Excellent Bar



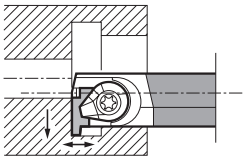


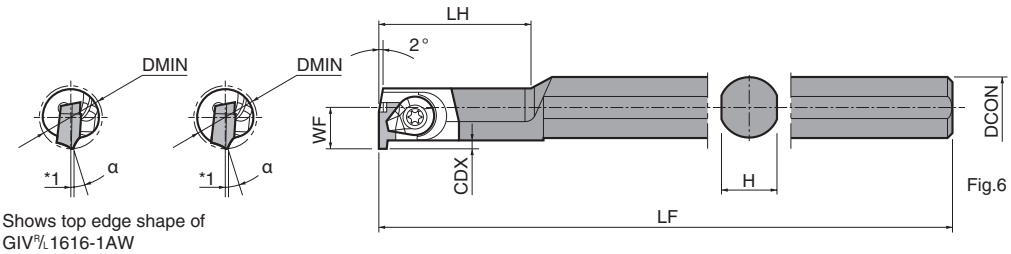
Shows top edge shape of GIV$^{R/L}$1612-1AE (No jaw part under Insert)

• 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 GIV$^{R/L}$1616-1AW (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 → G59		Rake Angle (α)	
	General Grooving (Square)	Full-R Grooving (Round)	TC40N	TN90,TC60M PR930,PR1225 KW10
GIV$^{R/L}$…1SS	GV$^{R/L}$100~300-020SS	-	10°	15°
GIV$^{R/L}$…1S	GV$^{R/L}$100~340-020S	-	10°	15°
GIV$^{R/L}$…1SE	GV$^{R/L}$100~340-020S	-	3°	8°
GIV$^{R/L}$…1A(□)	GV$^{R/L}$100~340-020A	GV$^{R/L}$200-100AR~300-150AR	3°	8°
GIV$^{R/L}$…1B(□)	GV$^{R/L}$145~250-020B	GV$^{R/L}$200-100BR	4°	9°
GIV$^{R/L}$…2B(□)	GV$^{R/L}$280~400-020B	GV$^{R/L}$300-150BR		
GIV$^{R/L}$…1C(□)	GV$^{R/L}$280~340-020C	-	5°	10°
GIV$^{R/L}$…2C(□)	GV$^{R/L}$400~500-020C	-		

* GIV, GIV-E and GIV-W are designed to set the cutting edge height 1mm above the center height. (0.5mm for GIV$^{R/L}$1612-1AE)

Toolholder Dimensions

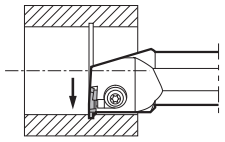
Description		Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	CDX	Drawing	Spare Parts: Clamp Set		Spare Parts: Wrench	Spare Parts: Wrench	See Page for Applicable Inserts
GIV$^{R}_{L}$	1216-1SS	●	●	12	16	15	150	20	6.0	2.2	Fig. 1	CPS-4V	-	FT-10	-	G59
	1420-1S	●	●	14	20	19	150	24	7.0	2.2	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						

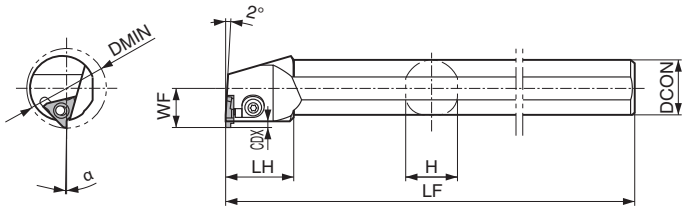
· CDX shows available grooving depth.

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





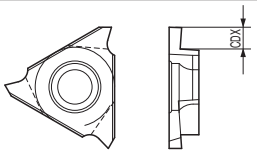
● Right-hand shown

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

Toolholder Dimensions

Description		Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	*CDX	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts ⇨G6~G8
KIGBA R/L	3525-16	●	●	35	25	23	220	30	17.5	2.8	LGBA-16 L/R S	FT-15	GBA32 L/R type
	4032-22	●	●	40	32	30	250	30	23.0	3.0	LGBA-22 L/R S	FT-15	GBA43 L/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.

Rake Angle (α) after Installment of GBA insert

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

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

α	Insert Description
+1°	GBA43 R/L150-020GM
+6°	GBA43 R/L175-020GM ≀ GBA43 R/L265-030GM
+3°	GBA43 R/L300-030GM ≀ GBA43 R/L400-040GM

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

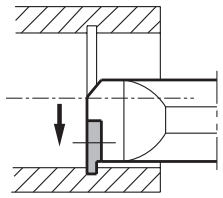
Rake Angle (α) after Installment of GBA-MY insert

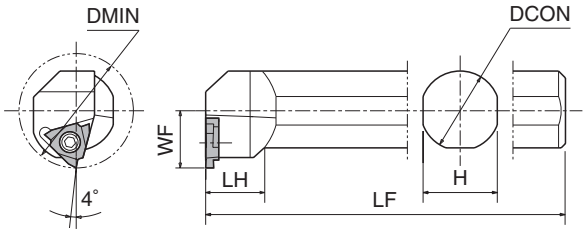
α	Insert Description
+6°	GBA43 R/L175-020MY ≀ GBA43 R/L350-030MY
+5°	GBA43 R/L400-040MY

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

● : Std. Item

KITG (Will be switched to KIGBA ➔ G62)





• Right-hand shown

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

Toolholder Dimensions

Description		Stock R	Stock L	Min. Bore Dia. DMIN	Dimension (mm) DCON	H	LF	LH	WF	Spare Parts: Clamp Screw		Spare Parts: Wrench	
KITG R/L	3525T-16	●	●	35	25	23	220	18	17.5	SB-4TR	-	FT-15	-
	4532T-22	●	●	45	32	30	250	20	22.5	-	GS-50	-	LW-3

· Available Grooving Depth : KITG R/L 3525T-16=2.0mm, KITG R/L 4532T-22=2.5mm

* KITG will be switched to KIGBA as an Internal Shallow Grooving Toolholder; however, it will continue to be sold as Internal Threading Toolholder (See Page ➔ J29).
· GBA Insert cannot be installed to this toolholder.

Applicable Inserts

(TG insert will be switched to GBA ➔ G6~G8)

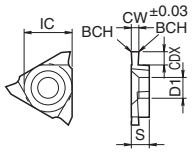
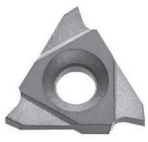
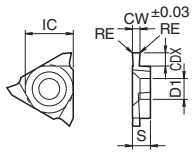
(mm)

Description	IC	S	D1
TG32_	9.525	3.18	4.5
TG43_	12.70	4.76	5.5

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	BCH or RE	Cermet TN60 R	Cermet TN60 L	Applicable Toolholders	See Page for Applicable Toolholders
General (Corner is Chamfered) TG32 type	 (Corner is Chamfered)	TG32 R/L	075	0.75	2.0	C0.1	□	□	KITG R/L ...16	G63
			095	0.95			□	□		
			125	1.25			□	□		
			145	1.45			□	□		
			150	1.50			□	□		
			175	1.75			□	□		
			200	2.00			□	□		
 General (Corner is R shape) TG43 type		TG43 R/L	150	1.50	3.5	0.2	□	□	KITG R/L ...22	G63
			175	1.75			□	□		
			200	2.00			□	□		
			230	2.30			□	□		
			250	2.50	4.0	0.3	□	□		
			265	2.65			□	□		
			280	2.80			□	□		
			300	3.00			□	□		
			330	3.30			□	□		
			350	3.50	5.0	0.4	□	□		
			400	4.00			□	□		
			430	4.30			□	□		
			450	4.50			□	□		

· CDX shows available grooving depth.

Recommended Cutting Conditions ➔ G108

* KITG will be switched to KIGBA.
* For applicable insert, TG insert will be switched to GBA.
Change Insert Grade TN60 for TN90.
There are various types of GBA insert grades available dependent on the user's cutting condition requirements.
* Check the corner-R(RE) of the insert when changing.

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

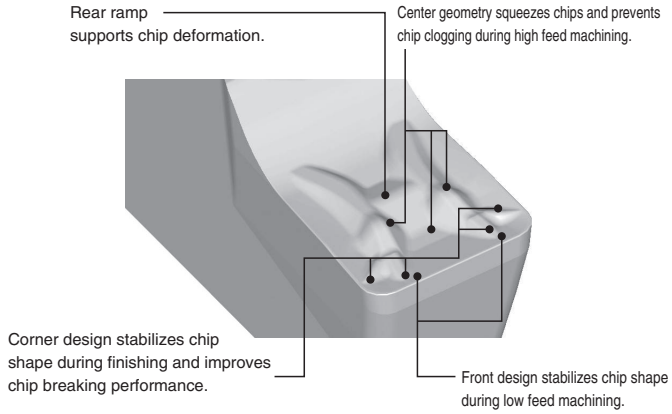
Inserts are sold in 10 piece boxes

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.



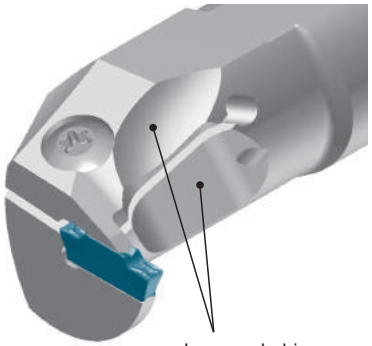
● Comparison of Chip Control (Internal evaluation)

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

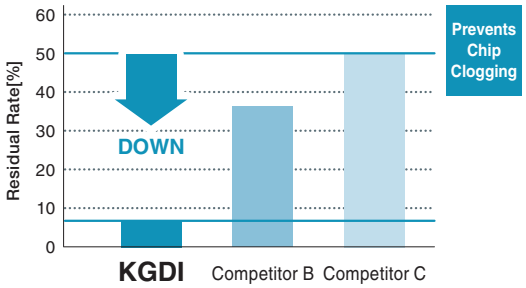
Smooth chip evacuation when grooving and finishing.



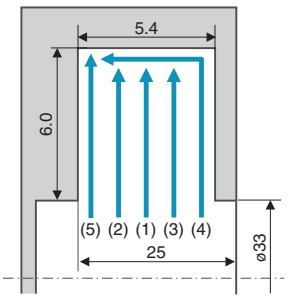
Improved chip evacuation by innovative chip pockets.

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)



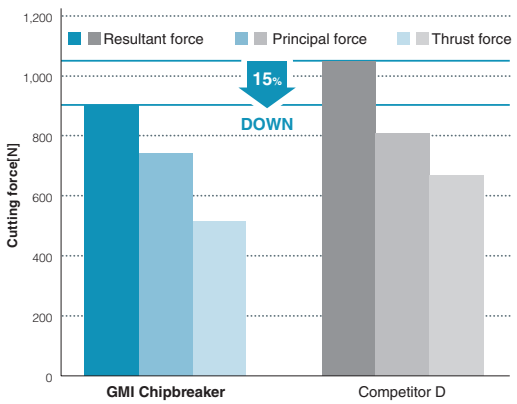
Chips remaining in machined bore were greatly reduced compared with Competitor B and C.



3 Low Cutting Forces and Stable Machining

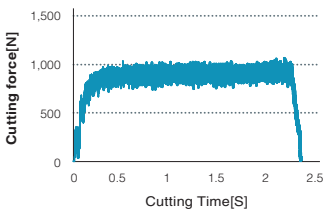
GMI chipbreaker prevents chip clogging and reduces cutting forces.

● Comparison of Cutting force (Internal evaluation)



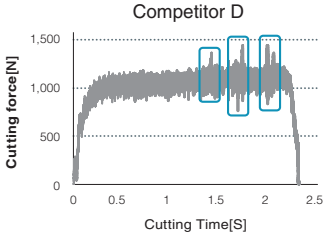
Cutting Conditions : Vc=150m/min, f=0.1mm/rev Toolholder : KGDIR3225B-3
Insert : GDM3015N-040GMI Workpiece Material : SCM415

GMI Chipbreaker



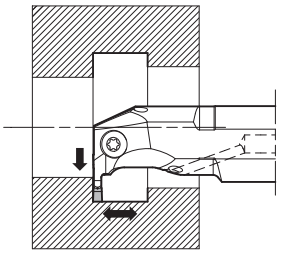
Stable machining with few changes in cutting force

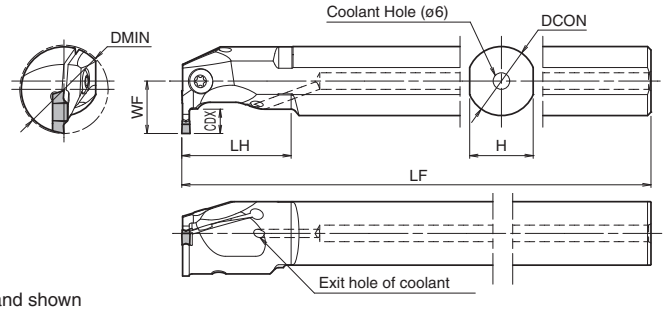
Competitor D



Instantaneous increase of cutting force due to clogged chips

KGDI





• Right-hand shown

Toolholder Dimensions

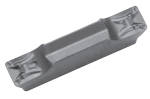
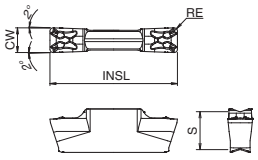
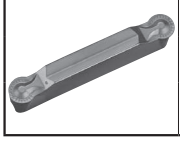
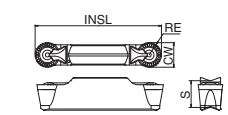
Description		Stock R	Stock L	Min. Bore Dia. DMIN with GMI	Min. Bore Dia. DMIN with CM	DCON	H	LF	LH	WF	CDX	Edge Width CW(mm) MIN.	Edge Width CW(mm) MAX.	Spare Parts: Clamp Screw		Spare Parts: Wrench	
KGDI R/L	1816B-2	●	●	18	-	16	15	150	25	9.5	4.5	2.0	2.0	GS-50	-	LW-3	-
	2520B-2	●	●	25		20	18	180	30	14.5	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

						Applicable Toolholders
P	Carbon steel / Alloy steel	●	◔	●	◔	
M	Stainless Steel		●	◔	◔	
K	Cast Iron				●	

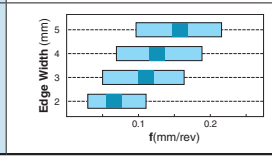
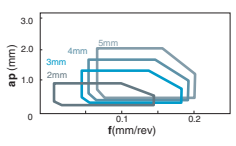
Insert		Description		Dimension (mm) CW	Tolerance	RE	INSL	S	Cermet TN620	MEGACOAT NANO PR1535	MEGACOAT PR1225	MEGACOAT PR1215	Applicable Toolholders
		GDM	2013N-020GMI	2.0	±0.03	0.2	13.5	4.3	●	●	●	●	KGDI R/L...-2
			3015N-040GMI	3.0		0.4	15.5	4.6	●	●	●	●	KGDI R/L...-3
			4020N-040GMI	4.0			20	4.3	●	●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

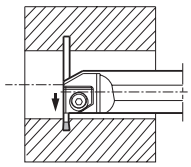
Chipbreaker	Grooving	Turning
GMI (General purpose)		

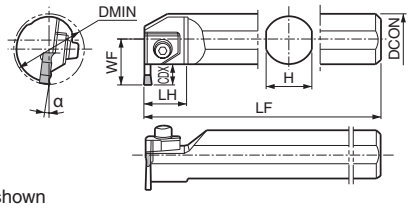
● : Std. Item

Inserts are sold in 10 piece boxes

Internal Large Dia. Deep Grooving Toolholders [GH / GHU Insert]

KIGH





• Right-hand shown

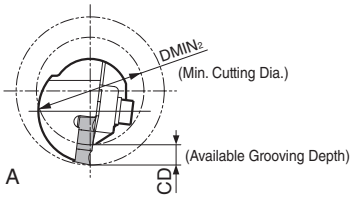


Fig. A

Toolholder Dimensions

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

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

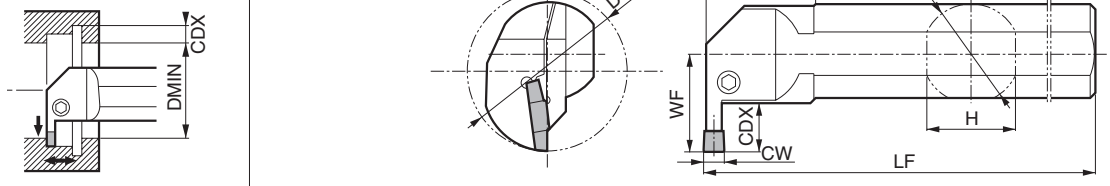
Insert		Description		Dimension (mm) CW	RE	Cermet TN60	TC40N	TC60M	CVD Coated Carbide CR9025	PVD Coated Carbide PR930	Carbide KW10	Ceramic A65	A66N	PT600M	Applicable Toolholders
Ground Chipbreaker		GH	4020-02	4.0	0.2		●	●		●	●				KIGHR4532B-4 5540B-4 6550B-4
			4020-05		0.5		●	●		●	●	●	●	●	
			4520-02	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			7020-02	7.0	0.2		●	●		●	●				KIGHR5540B-7 6550B-7
			7020-05		0.5		●	●		●	●	●		●	
			7520-02	7.5	0.2		●								
			7520-05		0.5		●								
Ceramic insert is above shape.			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 G108

● : Std. Item

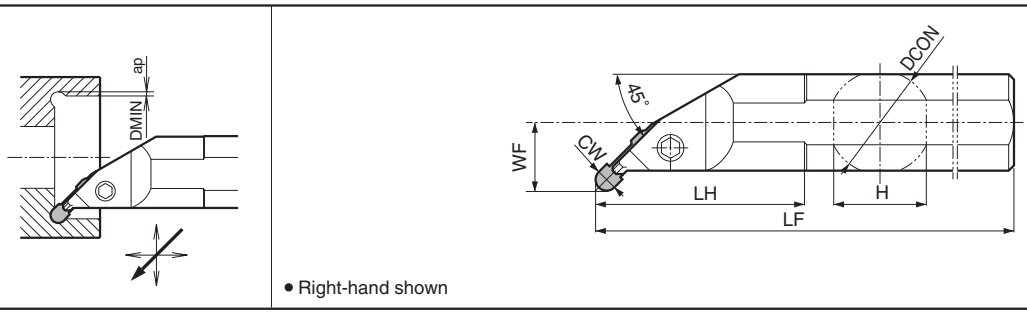
Inserts are sold in 10 piece boxes

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	Spare Parts: Wrench
KIGM R/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

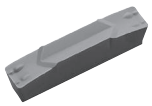
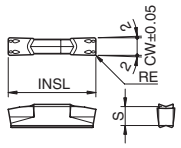
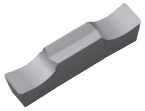
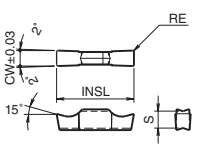
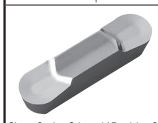
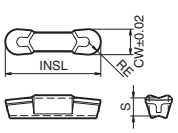
(mm)

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

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 PR915	PR930	PR905	Carbide KW10	Applicable Toolholders	See Page for Applicable Toolholders
 Chip Control Oriented / M Class		GMM 8030-080MW	8.0	0.8		○	○	○	○	○	KIGM R/L ...8 KIGMUR ...8	G67
 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						○		

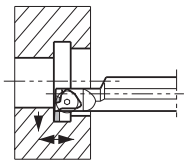
· If using a full-R insert with KIGM-8 toolholder, you need to modify the corner of insert adapter of toolholder.

Recommended Cutting Conditions G111

● : Std. Item
○ : Check Availability

Inserts are sold in 10 piece boxes

KGIA



Integral Type

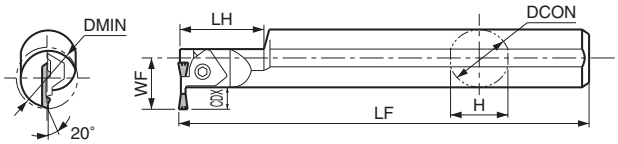
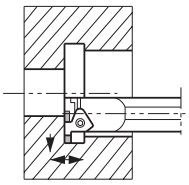


Fig. 1



Separate Type

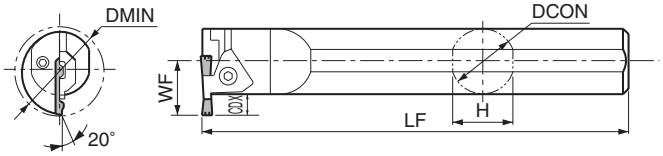


Fig. 2

• Right-hand shown

Toolholder Dimensions

Description		Stock	Min. Bore Dia. DMIN	Dimension (mm) 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						

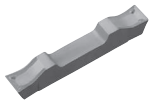
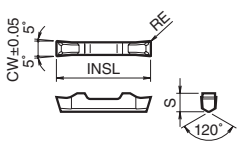
· CDX shows available grooving depth.

Composition

Type	Spare Parts / 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

				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	RE	INSL	S	Cermet TN60	CVD Coated Carbide CR9025	Applicable Toolholders
 Molded Chipbreaker		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 ➡ G109

Inserts are sold in 10 piece boxes

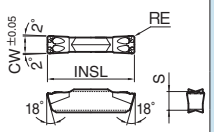
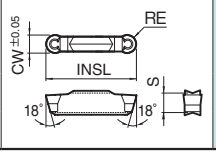
● : Std. Item

KIGM-V Applicable Inserts

(mm)

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

P	Carbon steel / Alloy steel			◔	●			Classification of usage
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
	Hard materials (40HRC~)							

Insert		Description		Dimension (mm)		Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Applicable Toolholders
				CW	RE	TN90	CR9025	PR915	PR930	PR905	KW10	
 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˚.

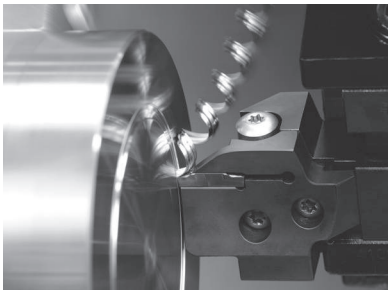
Recommended Cutting Conditions G111

○ : Check Availability
□ : Deleted from the next catalog

Inserts are sold in 10 piece boxes

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).



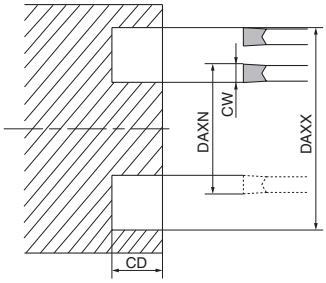
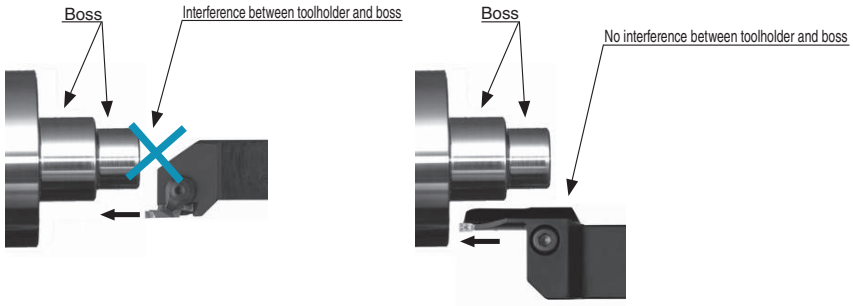


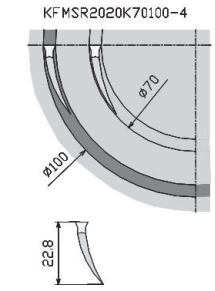
Fig. 1

Caution for Face Grooving

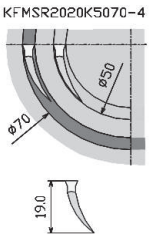
1) When face grooving, the suitable toolholder depends on the length of the boss



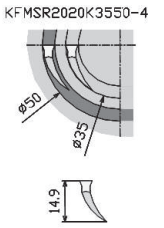
2) Selection of Face Grooving Toolholder



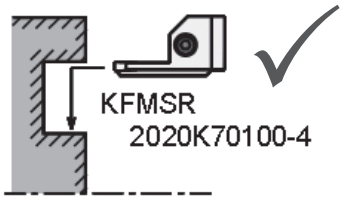
Shape of below jaw

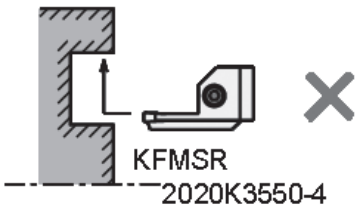


Shape of below jaw



Shape of below jaw





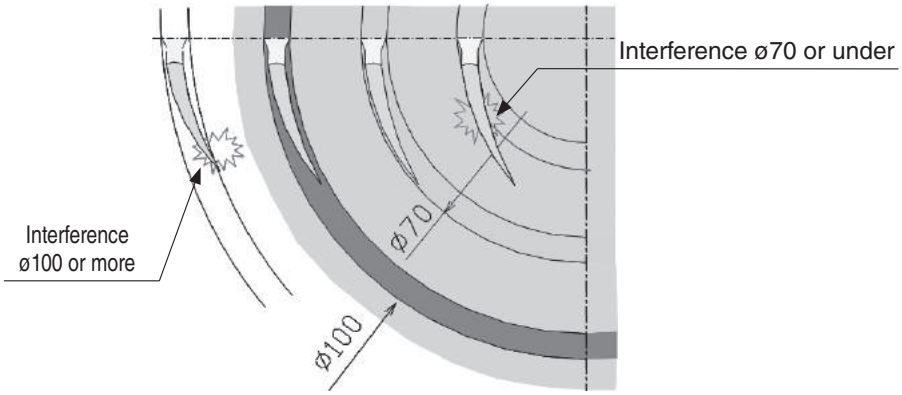
Wider grooving (turning) should be performed from the outside inwards

· Example of usage for the face grooving toolholder.

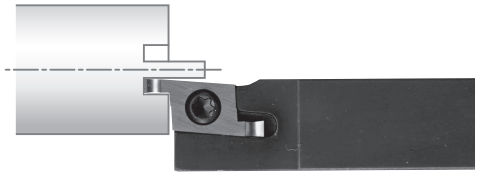
When face grooving, KFMSR2525M70100-4 should be between ø70~ø100 for grooving the outer diameter at first. If the workpiece is machined at a diameter ø100 or ø70, the jaw of toolholder interferes with the workpiece.

3) Interference of Face Grooving Toolholder

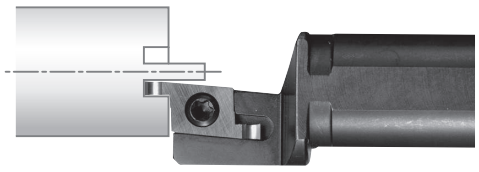
e.g.) KFMSR2525M70100-4



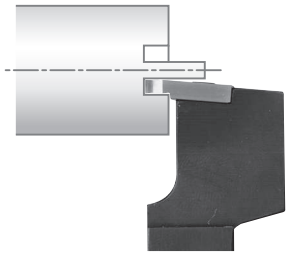
Small Dia. Face Grooving ø6~



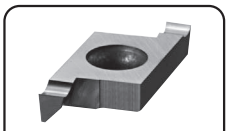
Type	STW
External dia. of the groove (MIN.)	ø6
Edge Width (mm)	0.5 ~ 2.0
Max. Grooving Depth (mm)	1.0 ~ 3.0
See Page	**G78**



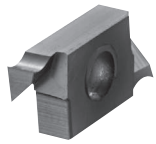
Type	S..-STW
External dia. of the groove (MIN.)	ø6
Edge Width (mm)	0.5 ~ 2.0
Max. Grooving Depth (mm)	1.0 ~ 3.0
See Page	**G78**



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	**G79**

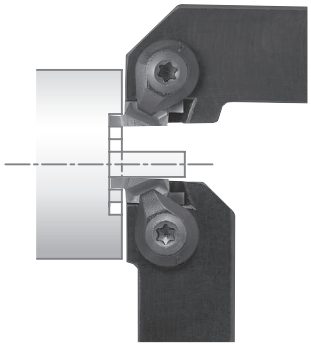


Twin-Bars for Horizontal type



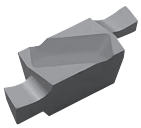
Twin-Bars for Vertical type

Small Dia. Face Grooving ø8~



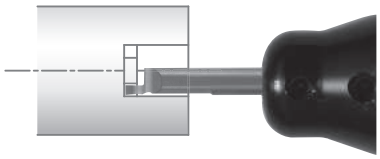
Type	GFVS-AA
External dia. of the groove (MIN.)	ø8
Edge Width (mm)	1.0 ~ 3.0
Max. Grooving Depth (mm)	2.2
See Page	**G94**

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	**G94**

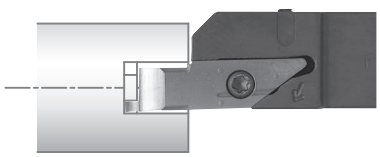


Ground Chipbreaker

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	**G74**



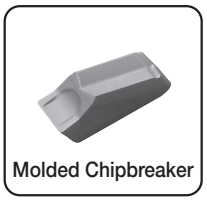
Type	VNFG
External dia. of the groove (MIN.)	ø8
Edge Width (mm)	1.0 ~ 3.0
Max. Grooving Depth (mm)	2.0 ~ 3.0
See Page	**G76**

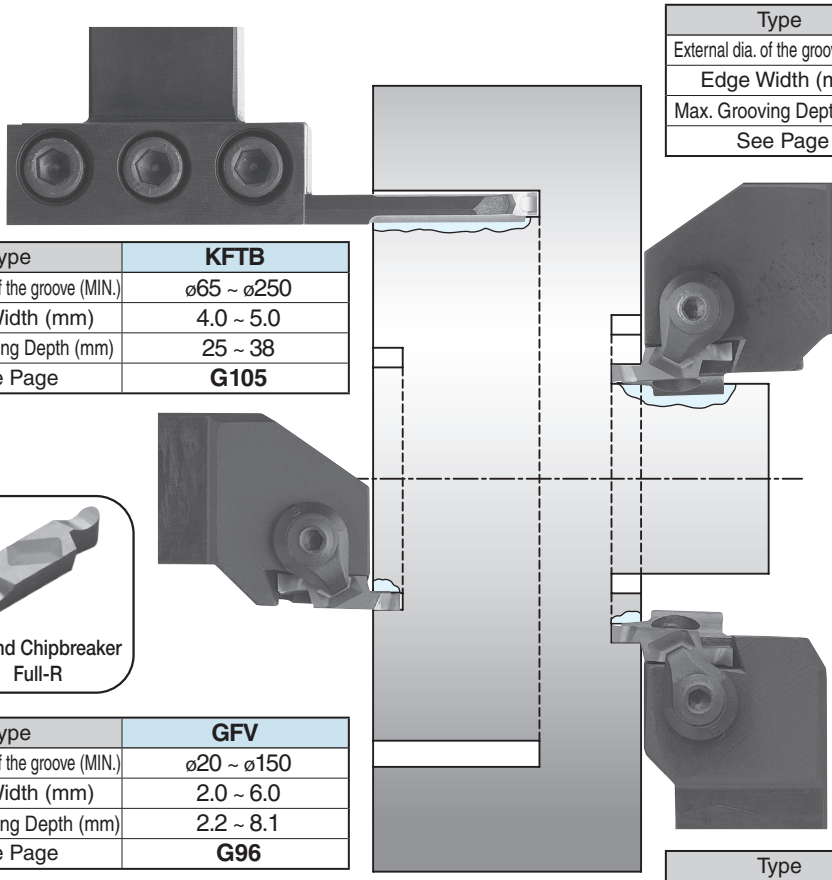
EZ Bars

System Tip-Bars

Summary of Face Grooving

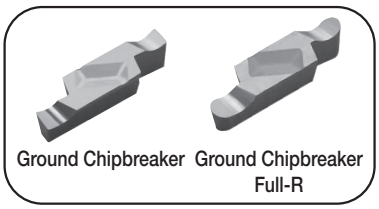
Face Grooving ø20~

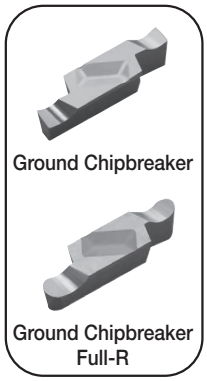




Type	GFVS
External dia. of the groove (MIN.)	ø35 ~ ø150
Edge Width (mm)	2.5 ~ 6.0
Max. Grooving Depth (mm)	4.6 ~ 8.1
See Page	**G98**

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	**G105**

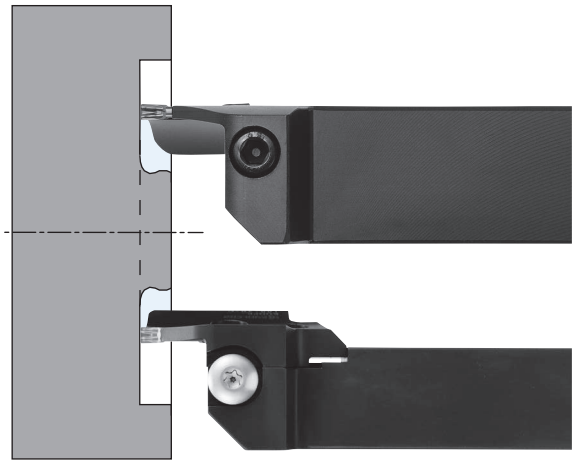




Type	GFV
External dia. of the groove (MIN.)	ø20 ~ ø150
Edge Width (mm)	2.0 ~ 6.0
Max. Grooving Depth (mm)	2.2 ~ 8.1
See Page	**G96**

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	**G98**

KGDF Face Grooving (G80 ~ G93)

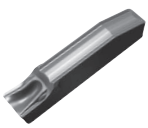
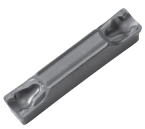


Type	KGDF-Z
External dia. of the groove (MIN.)	ø50
Edge Width (mm)	3.0 ~ 5.0
Max. Grooving Depth (mm)	15
See Page	**G88**

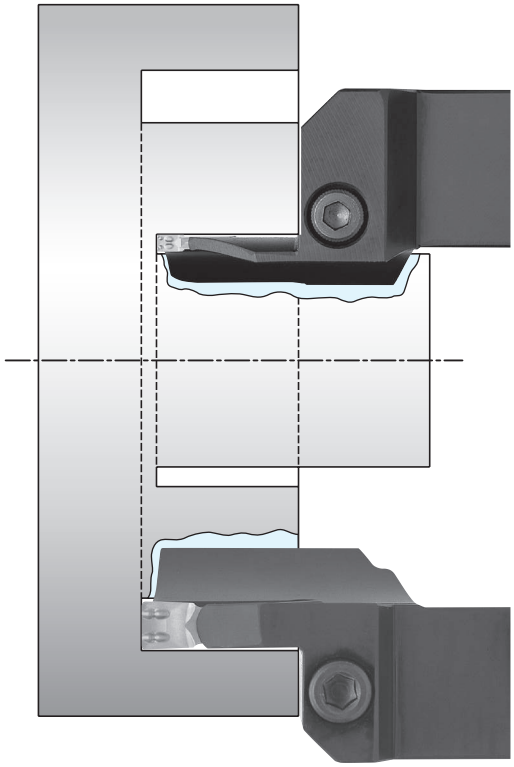
Type	*KGDF
External dia. of the groove (MIN.)	ø25
Edge Width (mm)	2.0 ~ 6.0
Max. Grooving Depth (mm)	6 ~ 32
See Page	**G84**

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

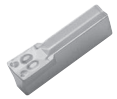
Grooving and Turning	Deep grooving and Turning	High Feed	Full-R
GM	**DM**	**GH**	**CM**


Face Grooving & Turning ø25~

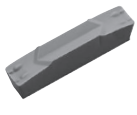


Type	KFMS
External dia. of the groove (MIN.)	ø25 ~ ø235
Edge Width (mm)	3.0 ~ 6.0
Max. Grooving Depth (mm)	13 ~ 32
See Page	**G102**

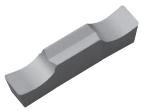


Molded Chipbreaker

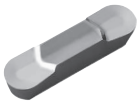
Type	KFMS-8
External dia. of the groove (MIN.)	ø54 ~ ø155
Edge Width (mm)	8.0
Max. Grooving Depth (mm)	25
See Page	**G104**



Molded Chipbreaker

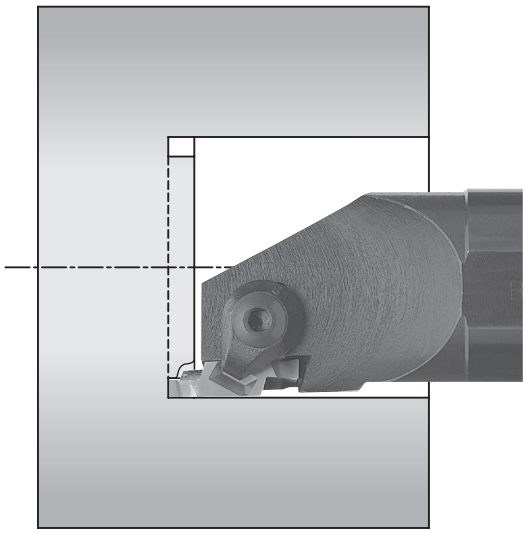


Ground Chipbreaker

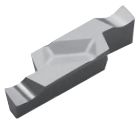


Molded Chipbreaker Full-R

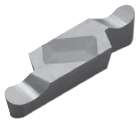
Face Grooving ø35~



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	**G106**



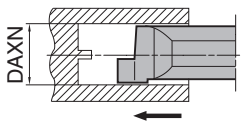
Ground Chipbreaker

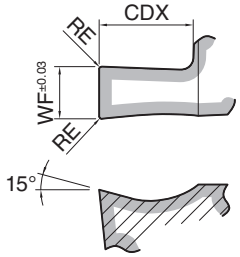


Ground Chipbreaker Full-R

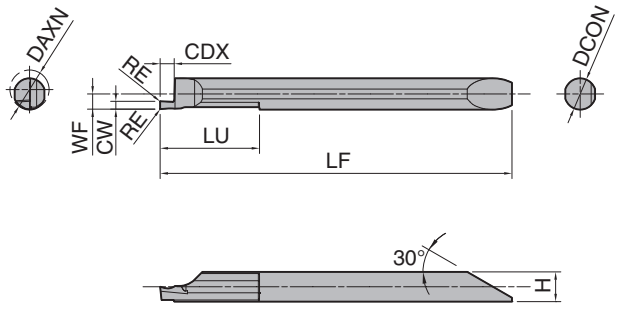
Small Dia. Face Grooving EZ Bars

EZFG





Detail of edge



• Right-hand shown

Dimensions

Description	External dia. of the groove (MIN.)	Dimension (mm)								MEGACOAT	Applicable Sleeves
	DAXN	CW$^{\pm0.03}$	RE	DCON	H	LF	LU	WF	CDX	PR1225	
EZFGR 050040-100	5	1.0	$^{\pm0.013}$0.05	4	3.8	45.0	12	1.9	1.5	●	EZH040..
050040-150		1.5							2.0	●	
EZFGR 060050-100	6	1.0	$^{\pm0.013}$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 080070-100	8	1.0	$^{\pm0.013}$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)	EZFGR050040-100 EZFGR060050-100 EZFGR080070-100	EZFGR050040-150 EZFGR060050-150 EZFGR080070-150	EZFGR060050-200 EZFGR080070-200	EZFGR080070-300	Remarks
	MEGACOAT					
	PR1225	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	

★ : 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
	FG : Face Grooving	R : Right-hand	050 : 5mm 060 : 6mm 080 : 8mm	040 : 4mm 050 : 5mm 070 : 7mm	100 : 1.0mm 150 : 1.5mm 200 : 2.0mm 300 : 3.0mm

EZ Bars are sold in 1 piece boxes

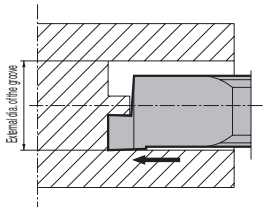
● : Std. Item

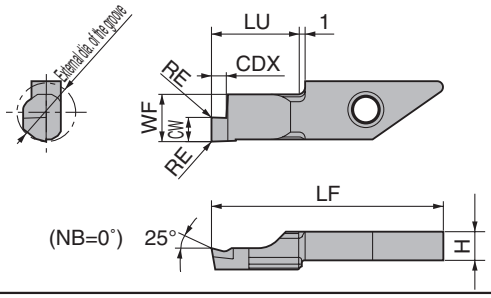
Applicable Sleeves

Sleeve				Applicable Insert for Internal Face 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)	EZFG	Shank Dia. DCON(mm)	
-	-	EZH 04012ST-80	12	EZFGR 050040-...	4	(General purpose)
		05012ST-80		EZFGR 060050-...	5	
		07012ST-80		EZFGR 080070-...	7	
-	EZH 04016HP-100	EZH 04016ST-100	16	EZFGR 050040-...	4	(General purpose)
	05016HP-100	05016ST-100		EZFGR 060050-...	5	
	07016HP-100	07016ST-100		EZFGR 080070-...	7	
EZH 04019CT-120	EZH 04019HP-120	EZH 04019ST-120	19.05	EZFGR 050040-...	4	Citizen Machinery
05019CT-120	05019HP-120	05019ST-120		EZFGR 060050-...	5	
07019CT-120	07019HP-120	07019ST-120		EZFGR 080070-...	7	
EZH 04020CT-120	EZH 04020HP-120	EZH 04020ST-120	20	EZFGR 050040-...	4	Eguro Tsugami Citizen Machinery (General purpose)
05020CT-120	05020HP-120	05020ST-120		EZFGR 060050-...	5	
07020CT-120	07020HP-120	07020ST-120		EZFGR 080070-...	7	
EZH 04022CT-135	EZH 04022HP-135	EZH 04022ST-135	22	EZFGR 050040-...	4	Star Micronics Nomura DS Tsugami
05022CT-135	05022HP-135	05022ST-135		EZFGR 060050-...	5	
07022CT-135	07022HP-135	07022ST-135		EZFGR 080070-...	7	
EZH 04025.0CT-135	EZH 04025.0HP-135	EZH 04025.0ST-135	25	EZFGR 050040-...	4	Eguro Tsugami Citizen Machinery (General purpose)
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZFGR 060050-...	5	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZFGR 080070-...	7	
EZH 04025.4CT-120	EZH 04025.4HP-120	EZH 04025.4ST-120	25.4	EZFGR 050040-...	4	Citizen Machinery
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZFGR 060050-...	5	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZFGR 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									
●: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±0.03	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	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.

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)			VNFG0810	VNFG0820	VNFG0830	Remarks
	MEGA COAT	PVD Coated Carbide	Carbide				
	PR1225	PR930	KW10	f (mm/rev)			
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

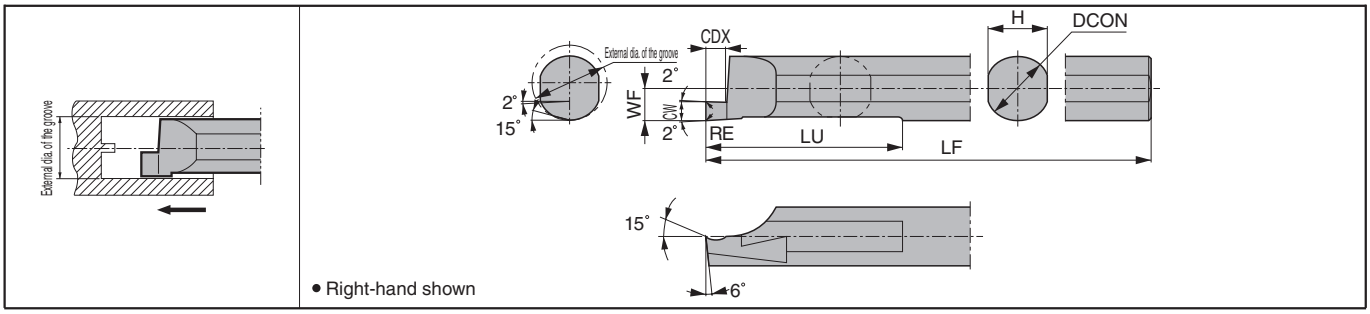
System Tip-Bars are sold in 5 piece boxes

CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item
MTO : Made to order

PSFG-S (Tip-Bars)

This insert will be switched to **EZFG.**



• Right-hand shown

Dimensions

Description	External dia. of the groove		Dimension (mm)								PVD Coated Carbide		Carbide		See Page for Applicable Sleeves
	DAXN [MIN.]	DAXX [MAX.]	CW±0.03	RE	DCON	H	LF	LU	WF	CDX	PR930 R	PR930 L	KW10 R	KW10 L	
PSFG R/L 0810-20S	8 (0)	∞ (∞)	1.0	0.05	6.8	6.2	80	25.5	3.4	2.0	□	□	□	□	F86
PSFG R/L 0820-20S			2.0								□	□	□	□	
PSFG R/L 0830-20S			3.0								□	□	□	□	

· 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.

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)			PSFG R/L 0810	PSFG R/L 0820	PSFG R/L 0830	Remarks
	PVD Coated Carbide		Carbide				
	PR930		KW10	f (mm/rev)			
Carbon steel / Alloy steel	★ 30~100			~0.02	~0.04	~0.05	Coolant
Stainless Steel	★ 30~80			~0.01	~0.02	~0.03	
Non-ferrous Metals			★ ~300	~0.04	~0.06	~0.08	

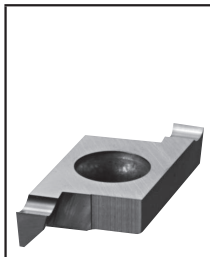
★ : 1st Recommendation

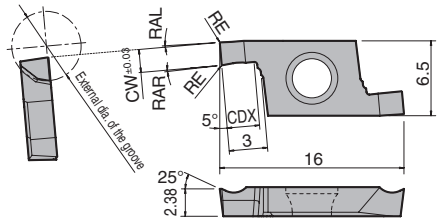
□ : Deleted from the next catalog

Tip-Bars are sold in 1 piece boxes

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	Dimension (mm) RE	Dimension (mm) CDX	Angle RA	Insert Grades PVD Coated Carbide PR1535	Insert Grades PVD Coated Carbide PR1025	Insert Grades 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 **F37**.)

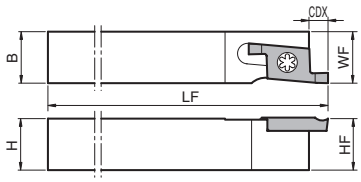


Fig. 1

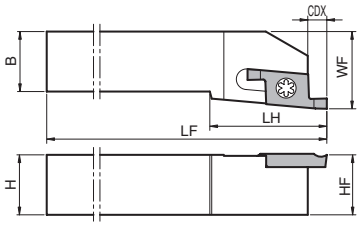


Fig. 2

● 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 G78
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 **F37**.)

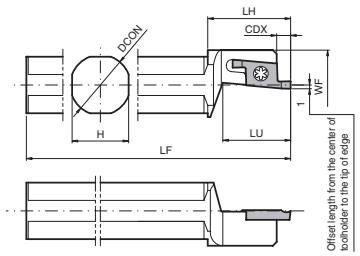


Fig. 1

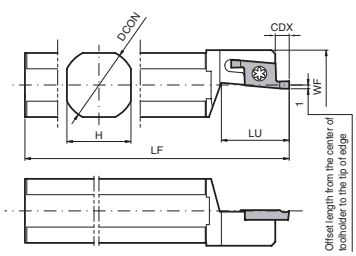


Fig. 2

● Left-hand shown

Toolholder Dimensions

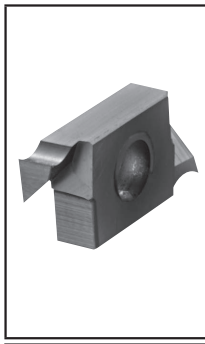
Description		Stock	Dimension (mm) DCON	WF	H	LF	LU	LH	CDX	Drawing	Spare Parts Clamp Screw	Spare Parts Wrench	Applicable Inserts G78
S12F-	STWL15	●	12	20	11	80	18	22	3	Fig. 1	SB-3080TR	LTW-10S	TWFGL○○○
S14H-	STWL15	●	14		13	100							
S15F-	STWL15	●	15.875		15	85							
S16F-	STWL15	●	16										
S19G-	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	22						
S25.0J-	STWL15	●	25	24.5	23	110							
S25K-	STWL15	●	25.4	25	23	120							

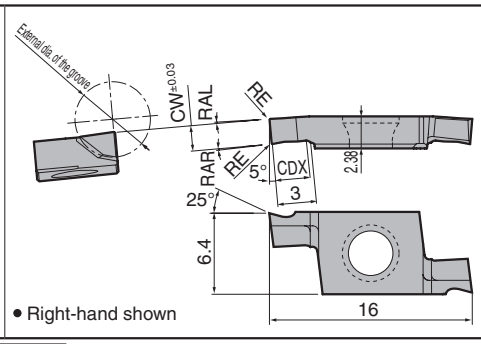
· CDX shows the distance from the toolholder to the cutting edge. Available groove depth : "CDX" of insert.

Twin-Bars are sold in 5 piece boxes

● : Std. Item

TWFGT (Vertical type)





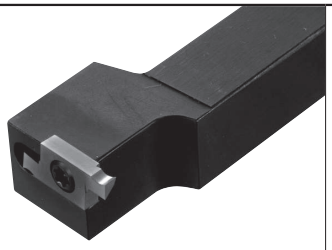
• Right-hand shown

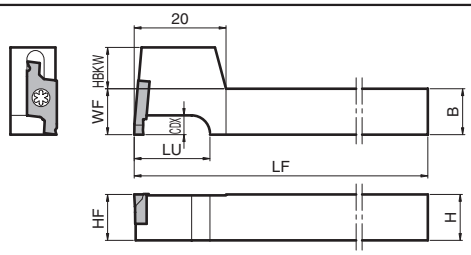
Description		External dia. of the groove DAXN [MIN.]	External dia. of the groove DAXX [MAX.]	Dimension (mm) CW	Dimension (mm) RE	Dimension (mm) CDX	Angle RA	Insert Grades PVD Coated Carbide PR1535	Insert Grades PVD Coated Carbide PR1025	Insert Grades Carbide KW10
TWFGTR	050	6 (0)	∞ (∞)	0.5	0.05	1.0	1.5°	●	●	●
	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	Dimension (mm) H	HF	B	LF	LU	WF	HBKW	CDX	Spare Parts Clamp Screw	Spare Parts Wrench	Applicable Inserts G79
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) PVD Coated Carbide	Carbide	TWFGL050 TWFGL080 TWFGL100 TWFGTR050 TWFGTR080 TWFGTR100	TWFGL125 TWFGL150 TWFGTR125 TWFGTR150	TWFGL180 TWFGL200 TWFGTR180 TWFGTR200	Remarks
	PR1025	KW10	f (mm/rev)			
Carbon steel / Alloy steel	★ 30~100		~0.02	~0.03	~0.04	Coolant
Stainless Steel	★ 30~80		~0.01	~0.02	~0.02	
Non-ferrous Metals		★ ~300	~0.03	~0.04	~0.06	

★ : 1st Recommendation

● : Std. Item

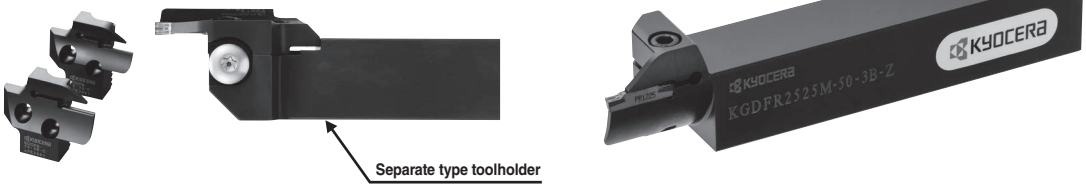
Twin-Bars are sold in 5 piece boxes

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

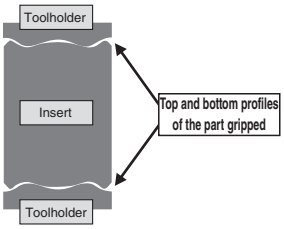


New insert clamping system "W Grip"

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.**



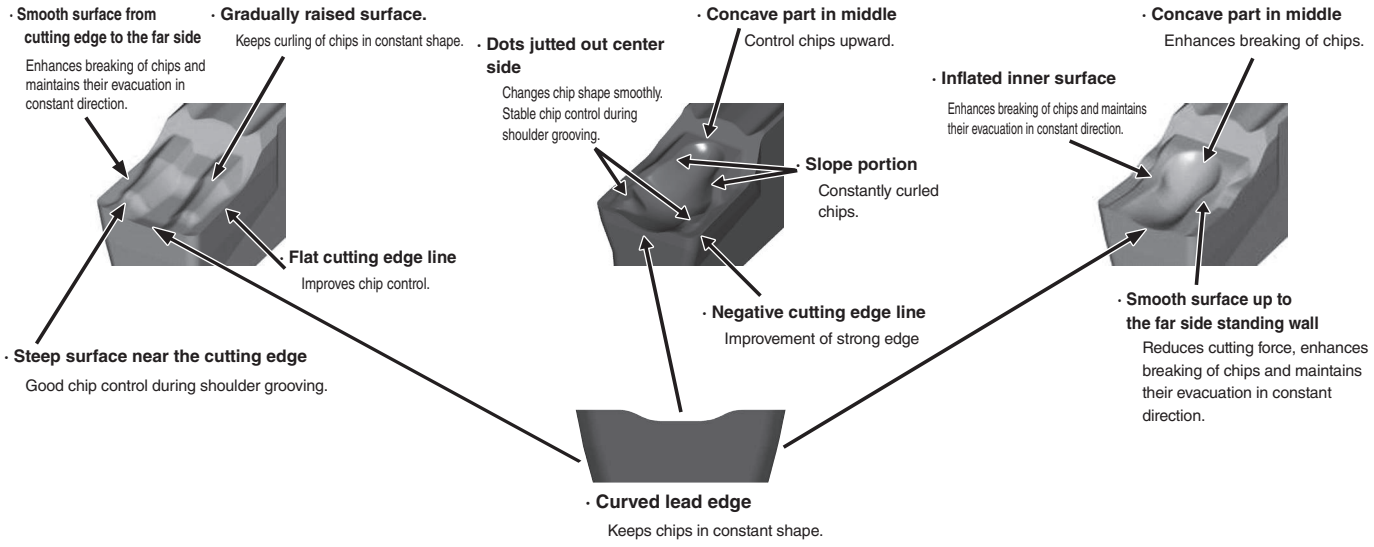
W Grip technology

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

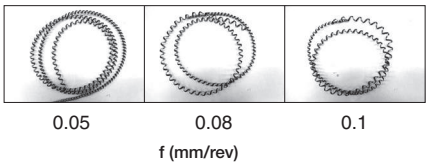
GM Chipbreaker for general purpose	GH Chipbreaker for high feed grooving	DM Chipbreaker for deep grooving



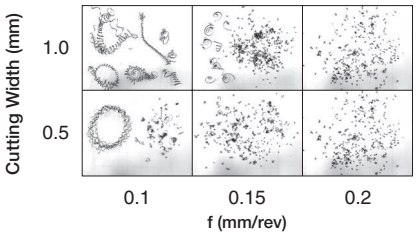
Chip Control of GM Chipbreaker

<Cutting Conditions>
Vc=150m/min f=0.05~0.2mm/rev GDFM5020N-040GM SCM415Wet

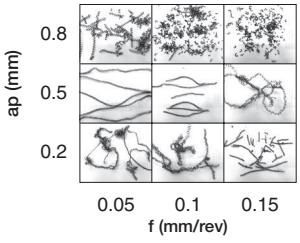
Face Grooving (ø62)



Side Grooving



Turning



High precision edge preparation

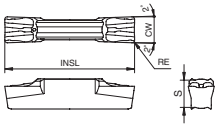
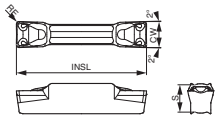
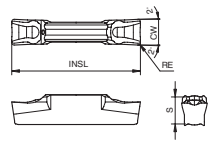
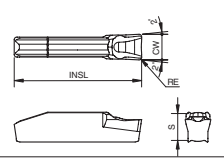
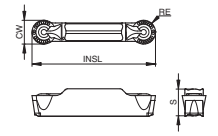
➡ High precision molding technology with tolerance ±0.03mm (Edge width 2, 3, 4mm types)

Highly-reputed MEGACOAT technology

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

GDFM / GDFMS

Classification of usage							
◕:Continuous-Light Interruption / 1st Choice ◷:Continuous-Light Interruption / 2nd Choice ●: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~)					

Insert			Description		Dimension (mm) CW	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		●	●	●	G84 ~ G90
				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					●	●	
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		●		●	●	

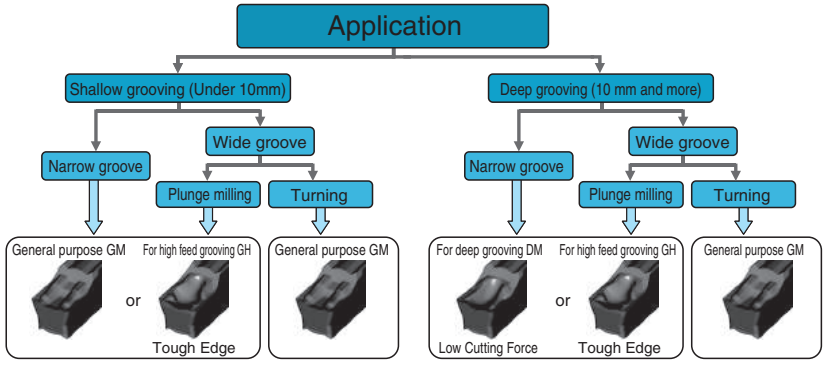
* GDFM40/50/60-CM differs from other descriptions in length (INSL) to avoid interference of a toolholder with workpiece.

Recommended Cutting Conditions ➡ G92

◆Inserts Identification System

G D F	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



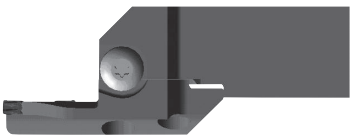
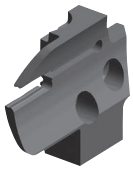
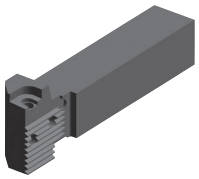
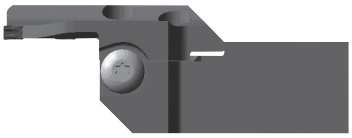
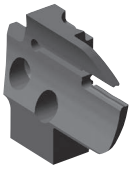
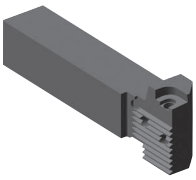
* If chip control is not stable when using the general GM chipbreaker for grooving, change the chipbreaker to the DM chipbreaker for deep grooving or GH chipbreaker for high feed grooving.

● : Std. Item

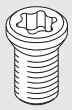
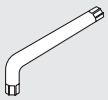
Inserts are sold in 10 piece boxes

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

Face Grooving Toolholder Assembly Identification System

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

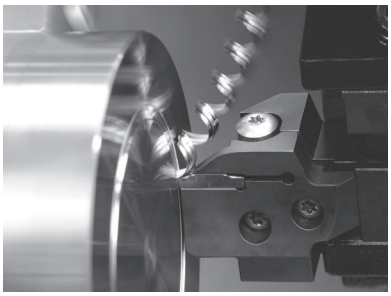
KGDF	R	2020	X	25	-	3	A	S

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

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.



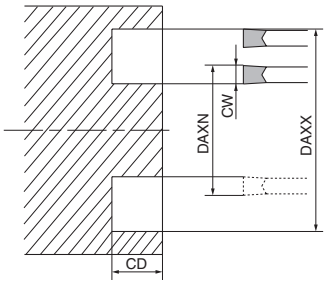
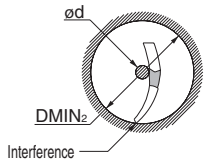


Fig. 1

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.

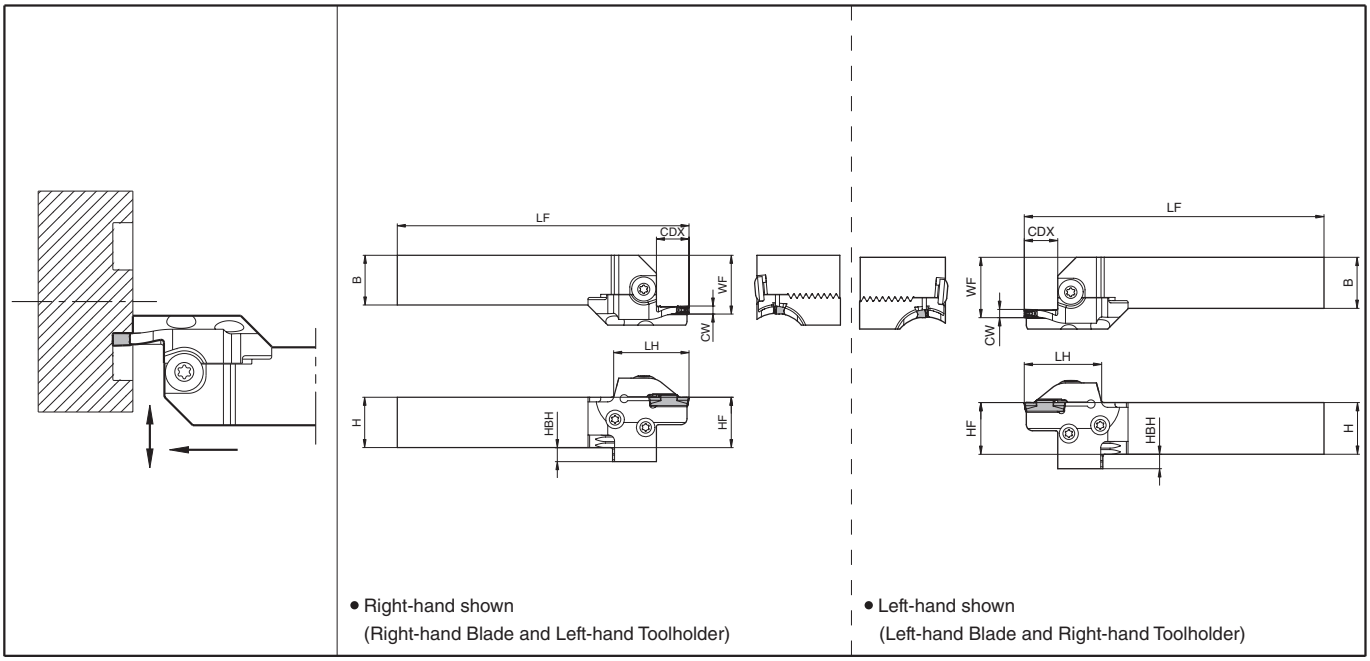


Remaining Boss Dia. ød

Description	DMIN2 25	26	27	28 and over
	ød (mm)			
KGDF R/L 2020X25-3AS 2525X25-3AS	4	2	0	0 (No remaining Boss)
KGDF R/L 2020X25-4AS 2525X25-4AS	6	3	0	
KGDF R/L 2020X25-5AS 2525X25-5AS	7	4	1	
KGDF R/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.]	Unit Description (Standard Stock Description)	Stock R	Stock L	Blade Description G91	Toolholder Description G31	Dimension (mm) H	HF	HBH	B	LF	LH	WF	CDX
0°	2	□20	6	25	30	KGDFR 2020X25-2AS	●	-	KGDFR -25-2A-C	KGDL2020-C	20	20	12	20	115	33	24.5	6
				30	35	2020X30-2AS	□	-	-30-2A-C									
				35	45	2020X35-2AS	●	-	-35-2A-C									
				45	60	2020X45-2AS	□	-	-45-2A-C									
				60	80	2020X60-2AS	●	-	-60-2A-C									
				80	100	2020X80-2AS	□	-	-80-2A-C									
				100	130	2020X100-2AS	●	-	-100-2A-C									
			13	25	30	No unit description ➡			-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 2525X25-2AS	●	-	KGDFR -25-2A-C	KGDL2525-C	25	25	7	25	140	33	29.5	6
				30	35	2525X30-2AS	●	-	-30-2A-C									
				35	45	2525X35-2AS	●	-	-35-2A-C									
				45	60	2525X45-2AS	●	-	-45-2A-C									
				60	80	2525X60-2AS	●	-	-60-2A-C									
				80	100	2525X80-2AS	●	-	-80-2A-C									
				100	130	2525X100-2AS	●	-	-100-2A-C									
			13	25	30	No unit description ➡			-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	No unit description ➡			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. In case the unit description is not available (No unit description), 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 ➡ G81

● : Std. Item
□ : 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.]	DAXX [MAX.]	Unit Description (Standard Stock Description)	Stock R	Stock L	Blade Description ➡G91	Toolholder Description ➡G31	H	HF	HBH	B	LF	LH	WF	CDX
0°	3	□20	13	25	30	KGDF$^{R}_{L}$ 2020X25-3AS	●	●	KGDF$^{R}_{L}$ -25-3A-C	KGD$^{L}_{R}$2020-C	20	20	12	20	118	36	24.5	13
				30	40	2020X30-3AS	●	●	-30-3A-C									
				40	50	2020X40-3AS	●	□	-40-3A-C									
			15	50	65	2020X50-3BS	●	□	-50-3B-C						120	38		15
				65	85	2020X65-3BS	□	□	-65-3B-C									
				85	110	2020X85-3BS	●	□	-85-3B-C									
				110	145	2020X110-3BS	□	□	-110-3B-C									
			22	50	65	2020X50-3CS	●	□	-50-3C-C						127	45		22
				65	85	2020X65-3CS	□	□	-65-3C-C									
			25	85	110	2020X85-3CS	□	□	-85-3C-C						130	48		25
				110	145	2020X110-3CS	●	□	-110-3C-C									
		□25	13	25	30	KGDF$^{R}_{L}$ 2525X25-3AS	●	●	KGDF$^{R}_{L}$ -25-3A-C	KGD$^{L}_{R}$2525-C	25	25	7	25	143	36	29.5	13
				30	40	2525X30-3AS	●	●	-30-3A-C									
				40	50	2525X40-3AS	●	●	-40-3A-C									
			15	50	65	2525X50-3BS	●	●	-50-3B-C						145	38		15
				65	85	2525X65-3BS	●	●	-65-3B-C									
				85	110	2525X85-3BS	●	●	-85-3B-C									
				110	145	2525X110-3BS	●	●	-110-3B-C									
			22	50	65	2525X50-3CS	●	□	-50-3C-C						152	45		22
				65	85	2525X65-3CS	●	□	-65-3C-C									
			25	85	110	2525X85-3CS	●	●	-85-3C-C						155	48		25
				110	145	2525X110-3CS	●	□	-110-3C-C									
		□32	13	25	30	No unit description ➡			KGDF$^{R}_{L}$ -25-3A-C	KGD$^{L}_{R}$3232-C	32	32	-	32	163	36	36.5	13
				30	40				-30-3A-C									
				40	50				-40-3A-C									
			15	50	65				-50-3B-C						165	38		15
				65	85				-65-3B-C									
				85	110				-85-3B-C									
				110	145				-110-3B-C									
			22	50	65				-50-3C-C						172	45		22
				65	85				-65-3C-C									
			25	85	110				-85-3C-C						175	48		25
				110	145				-110-3C-C									
0°	4	□20	13	25	35	KGDF$^{R}_{L}$ 2020X25-4AS	●	●	KGDF$^{R}_{L}$ -25-4A-C	KGD$^{L}_{R}$2020-C	20	20	12	20	118	36	24.5	13
			15	35	50	2020X35-4BS	●	●	-35-4B-C						120	38		15
				50	70	2020X50-4BS	●	□	-50-4B-C									
				70	100	2020X70-4BS	□	□	-70-4B-C									
				100	150	2020X100-4BS	□	□	-100-4B-C									
				150	220	2020X150-4BS	□	□	-150-4B-C									
				220	∞	2020X220-4BS	□	□	-220-4B-C									
			25	35	50	2020X35-4CS	●	□	-35-4C-C						130	48		25
				50	70	2020X50-4CS	●	●	-50-4C-C									
				70	100	2020X70-4CS	□	□	-70-4C-C									
				100	150	2020X100-4CS	□	□	-100-4C-C									
				150	220	2020X150-4CS	□	□	-150-4C-C									
				220	∞	2020X220-4CS	□	□	-220-4C-C									
		□25	13	25	35	KGDF$^{R}_{L}$ 2525X25-4AS	●	●	KGDF$^{R}_{L}$ -25-4A-C	KGD$^{L}_{R}$2525-C	25	25	7	25	143	36	29.5	13
			15	35	50	2525X35-4BS	●	●	-35-4B-C						145	38		15
				50	70	2525X50-4BS	●	●	-50-4B-C									
				70	100	2525X70-4BS	●	●	-70-4B-C									
				100	150	2525X100-4BS	●	●	-100-4B-C									
				150	220	2525X150-4BS	●	●	-150-4B-C									
				220	∞	2525X220-4BS	●	●	-220-4B-C									
			25	35	50	2525X35-4CS	●	□	-35-4C-C						155	48		25
				50	70	2525X50-4CS	●	●	-50-4C-C									
				70	100	2525X70-4CS	●	●	-70-4C-C									
				100	150	2525X100-4CS	●	●	-100-4C-C									
				150	220	2525X150-4CS	●	●	-150-4C-C									
				220	∞	2525X220-4CS	●	●	-220-4C-C									
		□32	13	25	35	No unit description ➡			KGDF$^{R}_{L}$ -25-4A-C	KGD$^{L}_{R}$3232-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. In case the unit description is not available (No unit description), 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.)

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

Applicable Inserts ➡ G81

Face Grooving Toolholders (Separate Type)

Toolholder Dimensions

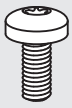
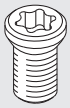
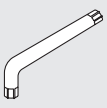
Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. depth of cut (mm)	External dia. of the groove (mm) DAXN [MIN.]	DAXX [MAX.]	Unit Description (Standard Stock Description)	Stock R	Stock L	Blade Description ➡G91	Toolholder Description ➡G31	Dimension (mm) H	HF	HBH	B	LF	LH	WF	CDX
0°	5	□20	15	25	35	KGDF$^{R}_{L}$ 2020X25-5BS	□	□	KGDF$^{R}_{L}$ -25-5B-C	KGD$^{L}_{R}$2020-C	20	20	12	20	120	38	24.5	15
				35	50	2020X35-5BS	□	□	-35-5B-C									
				50	75	2020X50-5BS	□	□	-50-5B-C									
				75	115	2020X75-5BS	●	●	-75-5B-C									
				115	180	2020X115-5BS	□	□	-115-5B-C									
				180	235	2020X180-5BS	□	□	-180-5B-C									
				235	∞	2020X235-5BS	□	□	-235-5B-C									
			20	25	35	2020X25-5CS	□	□	-25-5C-C						125	43		20
			25	35	50	2020X35-5CS	□	□	-35-5C-C						130	48		25
				50	75	2020X50-5CS	□	□	-50-5C-C									
				75	115	2020X75-5CS	□	□	-75-5C-C									
				115	180	2020X115-5CS	□	□	-115-5C-C									
				180	235	2020X180-5CS	□	□	-180-5C-C									
				235	∞	2020X235-5CS	□	□	-235-5C-C									
			32	75	115	No unit description ➡			-75-5D-C						137	55		32
				115	180				-115-5D-C									
				180	235				-180-5D-C									
				235	∞				-235-5D-C									
		□25	15	25	35	KGDF$^{R}_{L}$ 2525X25-5BS	●	□	KGDF$^{R}_{L}$ -25-5B-C	KGD$^{L}_{R}$2525-C	25	25	7	25	145	38	29.5	15
				35	50	2525X35-5BS	●	□	-35-5B-C									
				50	75	2525X50-5BS	●	●	-50-5B-C									
				75	115	2525X75-5BS	●	●	-75-5B-C									
				115	180	2525X115-5BS	●	●	-115-5B-C									
				180	235	2525X180-5BS	●	□	-180-5B-C									
				235	∞	2525X235-5BS	●	●	-235-5B-C									
			20	25	35	2525X25-5CS	●	●	-25-5C-C						150	43		20
			25	35	50	2525X35-5CS	●	□	-35-5C-C						155	48		25
				50	75	2525X50-5CS	●	□	-50-5C-C									
				75	115	No unit description ➡			-75-5C-C									
				115	180				-115-5C-C									
				180	235				-180-5C-C									
				235	∞				-235-5C-C									
			32	75	115	KGDF$^{R}_{L}$ 2525X75-5DS	●	●	-75-5D-C						162	55		32
				115	180	2525X115-5DS	●	●	-115-5D-C									
				180	235	2525X180-5DS	●	●	-180-5D-C									
				235	∞	2525X235-5DS	●	□	-235-5D-C									
		□32	15	25	35	No unit description ➡			KGDF$^{R}_{L}$ -25-5B-C	KGD$^{L}_{R}$3232-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. In case the unit description is not available (No unit description), 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 ➡ G81

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
			
KGDF$^{R}_{L}$ .....S	BH6X10TR	SB-60120TR	LTW-25

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

Toolholder Dimensions

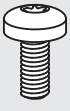
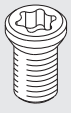
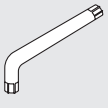
Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. depth of cut (mm)	External dia. of the groove (mm) DAXN [MIN.]	DAXX [MAX.]	Unit Description (Standard Stock Description)	Stock R	Stock L	Blade Description ➡G91	Toolholder Description ➡G31	Dimension (mm) H	HF	HBH	B	LF	LH	WF	CDX
0°	6	□20	15	25	35	KGDF$^{R}_{L}$ 2020X25-6BS	□	□	KGDF$^{R}_{L}$ -25-6B-C	KGD$^{L}_{R}$ 2020-C	20	20	12	20	120	38	24.5	15
				35	50	2020X35-6BS	□	□	-35-6B-C									
				50	75	2020X50-6BS	□	□	-50-6B-C									
				75	115	2020X75-6BS	□	□	-75-6B-C									
				115	180	2020X115-6BS	□	□	-115-6B-C									
				180	235	2020X180-6BS	□	□	-180-6B-C									
				235	∞	2020X235-6BS	□	□	-235-6B-C									
			20	25	35	2020X25-6CS	□	□	-25-6C-C						125	43		20
			25	35	50	2020X35-6CS	□	□	-35-6C-C						130	48		25
				50	75	2020X50-6CS	□	□	-50-6C-C									
				75	115	2020X75-6CS	□	□	-75-6C-C									
				115	180	2020X115-6CS	□	□	-115-6C-C									
				180	235	2020X180-6CS	□	□	-180-6C-C									
				235	∞	2020X235-6CS	□	□	-235-6C-C									
			32	75	115	No unit description ➡			-75-6D-C						137	55		32
				115	180				-115-6D-C									
				180	235				-180-6D-C									
				235	∞				-235-6D-C									
		□25	15	25	35	KGDF$^{R}_{L}$ 2525X25-6BS	●	□	KGDF$^{R}_{L}$ -25-6B-C	KGD$^{L}_{R}$ 2525-C	25	25	7	25	145	38	29.5	15
				35	50	2525X35-6BS	□	□	-35-6B-C									
				50	75	2525X50-6BS	●	●	-50-6B-C									
				75	115	2525X75-6BS	●	□	-75-6B-C									
				115	180	2525X115-6BS	□	□	-115-6B-C									
				180	235	2525X180-6BS	□	□	-180-6B-C									
				235	∞	2525X235-6BS	●	●	-235-6B-C									
			20	25	35	2525X25-6CS	□	□	-25-6C-C						150	43		20
			25	35	50	2525X35-6CS	□	□	-35-6C-C						155	48		25
				50	75	2525X50-6CS	□	□	-50-6C-C									
				75	115	No unit description ➡			-75-6C-C									
				115	180				-115-6C-C									
				180	235				-180-6C-C									
				235	∞				-235-6C-C									
			32	75	115	KGDF$^{R}_{L}$ 2525X75-6DS	●	□	-75-6D-C						162	55		32
				115	180	2525X115-6DS	□	□	-115-6D-C									
				180	235	2525X180-6DS	□	□	-180-6D-C									
				235	∞	2525X235-6DS	□	□	-235-6D-C									
		□32	15	25	35	No unit description ➡			KGDF$^{R}_{L}$ -25-6B-C	KGD$^{L}_{R}$ 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. In case the unit description is not available (No unit description), 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 ➡ G81

Spare Parts (Common with separate types)

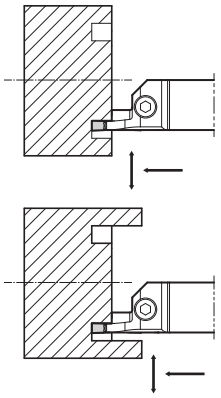
* The parts are included in the toolholder and unit.

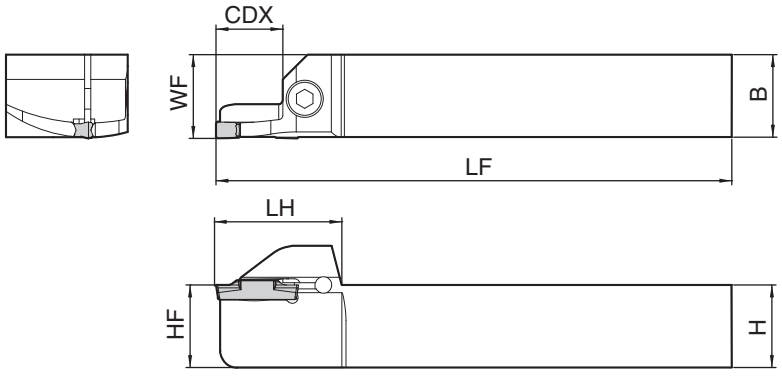
Unit Description	Spare Parts: Clamp Bolt (for Insert Clamp)	Spare Parts: Clamp Screw (for Blade)	Spare Parts: Wrench
			
KGDF$^{R}_{L}$ .....S	BH6X10TR	SB-60120TR	LTW-25

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

Face Grooving Toolholders (Integral Type)

KGDF-Z





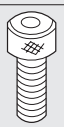
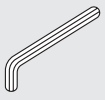
• Right-hand shown

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	KGDF R/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	KGDF R/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	KGDF R/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	KGDF R/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	KGDF R/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	KGDF R/L 2525M50-5B-Z	●	●	25	25	25	150		25.3	
			75	115	2525M75-5B-Z	●	●							
			115	180	2525M115-5B-Z	●	●							

Applicable Inserts G81

Spare Parts

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

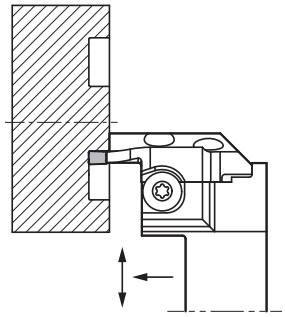
Toolholder Identification System (Integral Type)

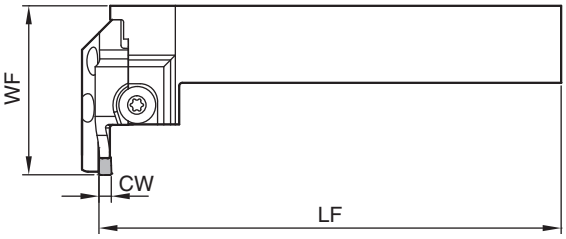
KGDF	R	2525	M	50	3	B	Z
Series: KGDF Face Grooving	Hand of Tool: R : Right-hand, L : Left-hand	Shank Size: 2020 : □20mm, 2525 : □25mm	Toolholder Length: K : 125mm, M : 150mm	External dia. of the groove (MIN.): 50 : 50mm ⋮ 115 : 115mm	Edge Width: 3 : 3mm, 4 : 4mm, 5 : 5mm	Grooving Depth: B : 15mm	Toolholder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

● : Std. Item

Face Grooving Toolholders (90° Separate Type)

KGDF





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

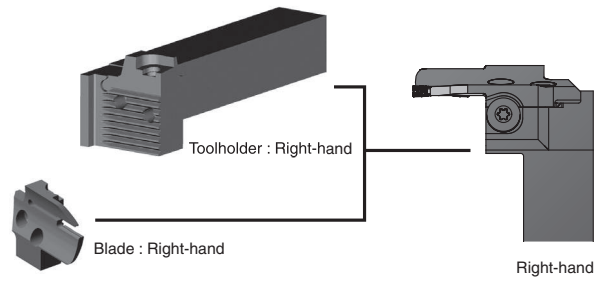
Combination of Toolholder & Blade

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 G91	Toolholder Description G31	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	KGDF$^{R}_{L}$ -25-3A-C	KGDS$^{R}_{L}$2020-C	125	52.7
				30	40	-30-3A-C			
				40	50	-40-3A-C			
			15	50	65	-50-3B-C			54.7
				65	85	-65-3B-C			
				85	110	-85-3B-C			
				110	145	-110-3B-C			
			22	50	65	-50-3C-C			59.7
				65	85	-65-3C-C			
			25	85	110	-85-3C-C			61.7
				110	145	-110-3C-C			
		□25	13	25	30	KGDF$^{R}_{L}$ -25-3A-C	KGDS$^{R}_{L}$2525-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 ➡ G81

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 G91	Toolholder Description G31	Dimension (mm) LF	WF
90°	4	□20	13	25	35	KGDF$^{R}_{L}$ -25-4A-C	KGDS$^{R}_{L}$2020-C	125	52.7
			15	35	50	-35-4B-C			54.7
				50	70	-50-4B-C			
				70	100	-70-4B-C			
				100	150	-100-4B-C			
				150	220	-150-4B-C			
				220	∞	-220-4B-C			
			25	35	50	-35-4C-C			64.7
				50	70	-50-4C-C			
				70	100	-70-4C-C			
				100	150	-100-4C-C			
				150	220	-150-4C-C			
				220	∞	-220-4C-C			
		□25	13	25	35	KGDF$^{R}_{L}$ -25-4A-C	KGDS$^{R}_{L}$2525-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 ➡ G81



- 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 ⇒G91	Toolholder Description ⇒G31	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 ⇒G81

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 ⇒G91	Toolholder Description ⇒G31	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			

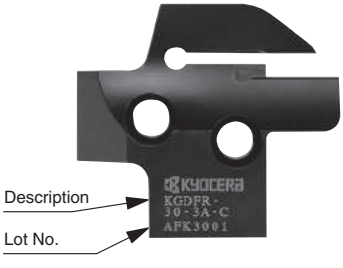
Applicable Inserts ⇒G81

Face Grooving Blade Identification System

Hand of blade	Width	Blade Symbol
R : Right-hand L : Left-hand	2 : 2mm 3 : 3mm 4 : 4mm 5 : 5mm 6 : 6mm	C : Applicable to toolholder with suffix "-C"

KGDF **R** - **25** - **3** **A** - **C**

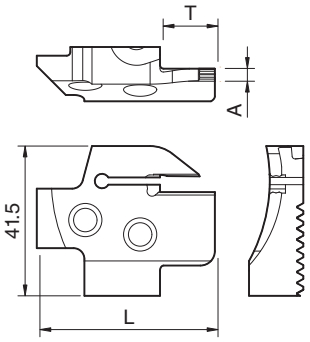
Series	External dia. of the groove (MIN.) : DAXN	Grooving Depth	
KGDF Face Grooving	Indicates the minimum external diameter suitable for the initial face grooving.	A : 6 / 13mm B : 13 / 15mm	2-edge insert (1-edge insert can also be used.)
	25 : 25mm ⋮ 235 : 235mm	C : 20mm~25mm D : 32mm	1-edge insert



Example of printing of blade description

Face Grooving Blade

Blade Dimensions

Shape	Blade Description		Stock		Dimension (mm)			External dia. of the groove (mm)		Edge Width (mm)	Applicable Inserts ➡G81	Toolholder Description ➡G31
								DAXN	DAXX			
			R	L	L	T	A	[MIN.]	[MAX.]	CW		
 Right-hand shown	KGDFR	-25-2A-C	●	-	44.35	6	1.5	25	30	2	GDFM 2020N-020GM	KGD$^{L}_{R}$...-C KGDS$^{R}_{L}$...-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			
	KGDF$^{R}_{L}$	-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			
	KGDF$^{R}_{L}$	-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	∞			
	KGDF$^{R}_{L}$	-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	∞			
	KGDF$^{R}_{L}$	-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

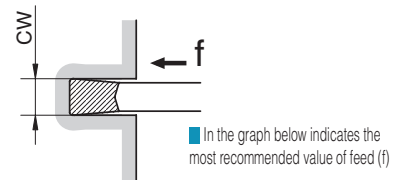
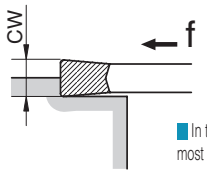
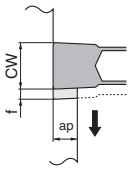
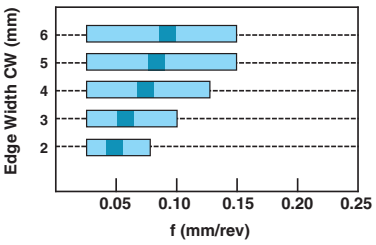
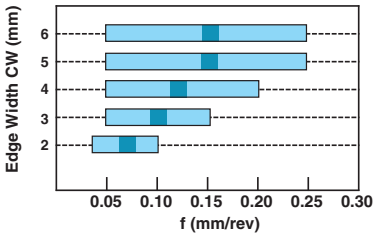
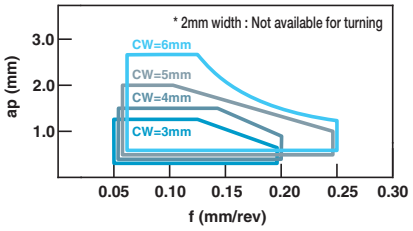
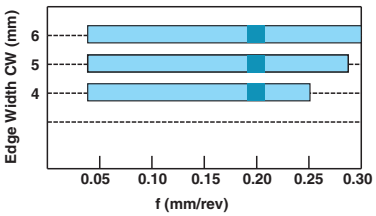
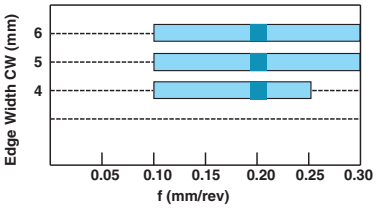
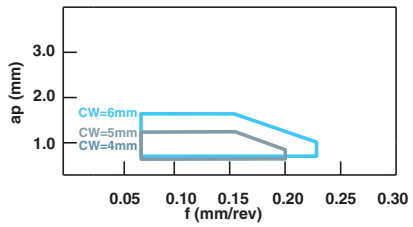
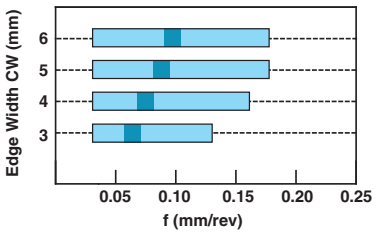
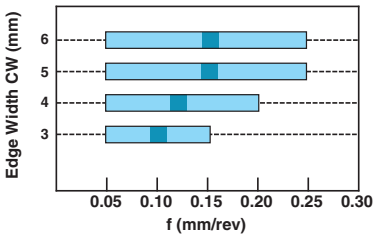
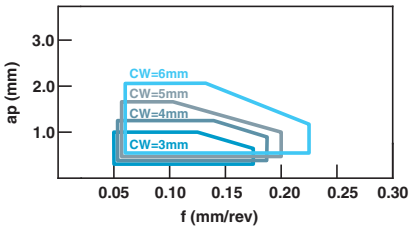
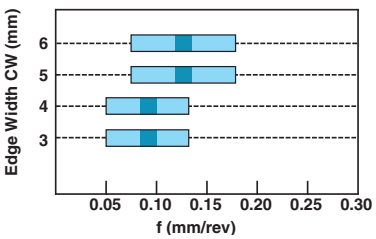
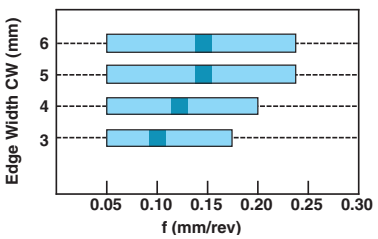
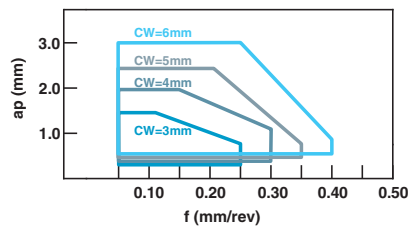
Recommended Cutting Conditions (Vc)

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.

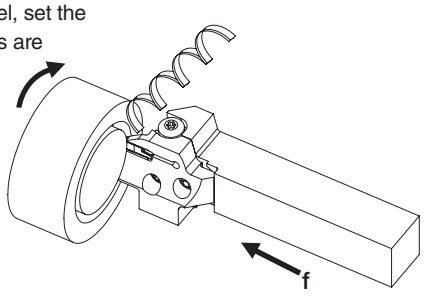
Guide for Face Grooving

1) Toolholder Selection

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

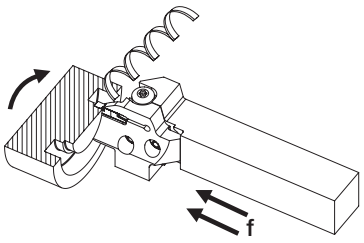
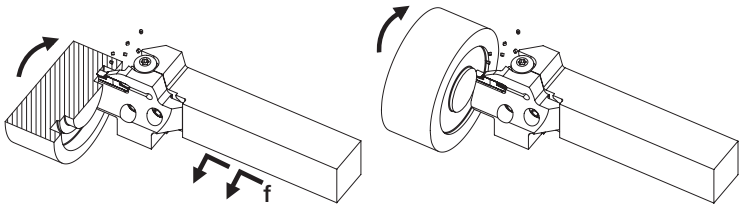
2) Cutting conditions (Feed rate : f)

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)

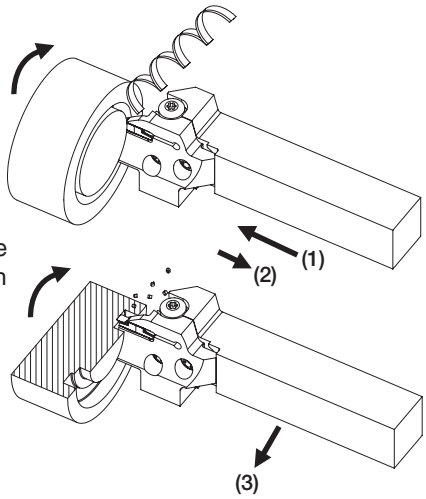
Start machining from the outside and then proceed to the inside. Chip control will be better in this way.

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)



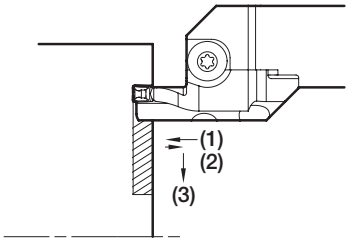


Fig. 1

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

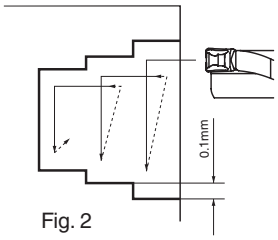
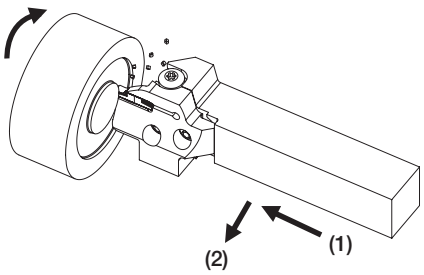


Fig. 2

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)



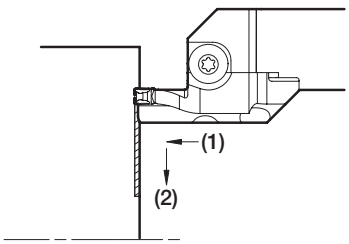
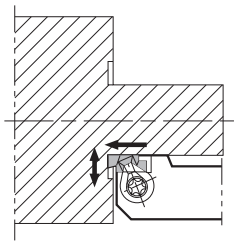
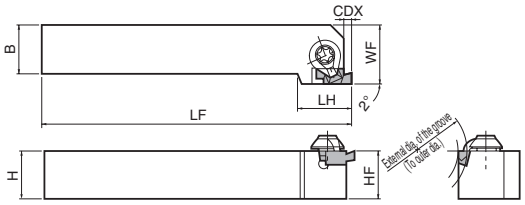


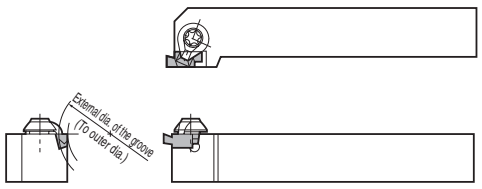
Fig. 3

GFVS-AA





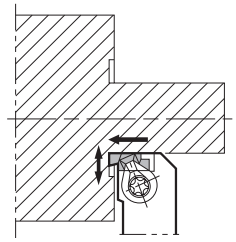
● Right-hand shown

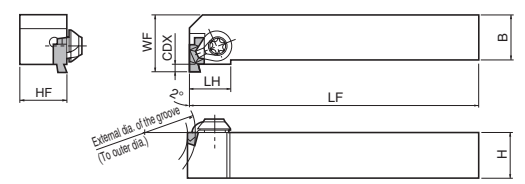


● Left-hand shown

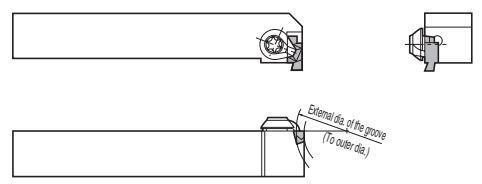
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

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		Dimension (mm)							External dia. of the groove		Spare Parts		Applicable Inserts ➔ G95
		R	L	H	HF	B	LF	LH	WF	CDX	DAXN [MIN.]	DAXX [MAX.]	Clamp Set	Wrench	
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

Grooving Inserts

Applicable Inserts

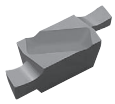
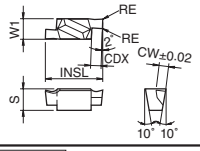
(mm)

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

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	MEGACOAT PR1225 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide KW10 R	Carbide 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	G94
		200-005AA	2.00			●	●	●	●	●	●		
		300-005AA	3.00			●	●	●	●	●	●		

· CDX shows available grooving depth.

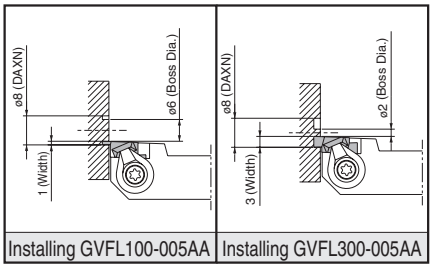
· GVF$^{R}_{L}$...005AA inserts are not compatible with GVF$^{R}_{L}$...– ○○○ A (See Page **G101**) inserts because their Side Relief Angle is 10˚.

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

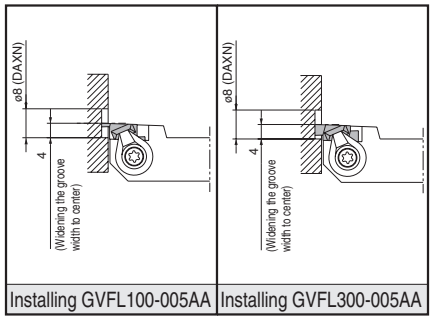
  If the initial groove is made smaller than this, the toolholder interferes with the workpiece.



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)

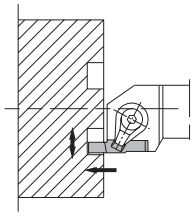
Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min) MEGA COAT PR1225	PVD Coated Carbide PR930	Carbide KW10	Grooving f (mm/rev)	Turning* ap (mm)	Turning* f (mm/rev)	Remarks
Carbon steel / Alloy steel	★ 50~100	☆ 50~100		0.01~0.05	Max.0.5	0.01~0.05	Coolant
Stainless Steel	★ 50~80	☆ 50~80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

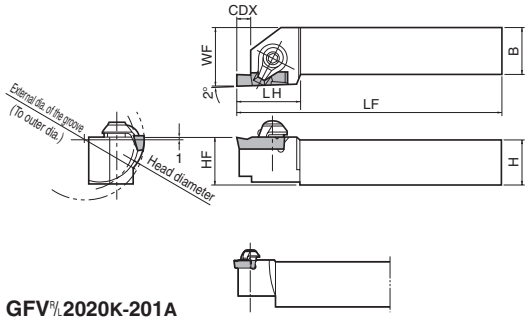
* ap has to be set for less than corner-R(RE) when turning of edge width 1.0 mm (GVF$^{R}_{L}$100-005AA). ★ : 1st Recommendation ☆ : 2nd Recommendation

● : Std. Item

Inserts are sold in 10 piece boxes

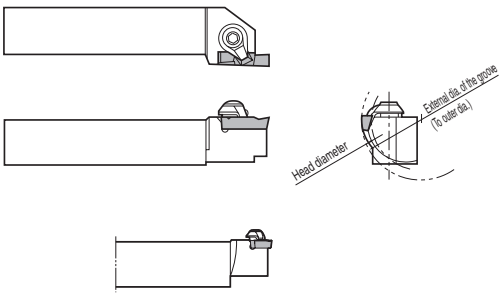
GFV





GFV$^{R/L}$2020K-201A
GFV$^{R/L}$2525M-201A
shows right figure

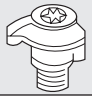
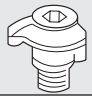
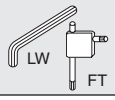
● Right-hand shown



● Left-hand shown

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

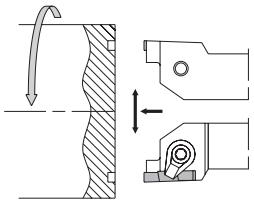
Toolholder Dimensions

Description		Stock		Dimension (mm)							External dia. of the groove		Spare Parts			Applicable Inserts ➔ G101
													Clamp Set		Wrench	
		R	L	H	HF	B	LF	LH	WF	CDX	DAXN [MIN.]	DAXX [MAX.]				
GFV$^{R/L}$	**2020K-201A**	●	●	20	21	20	125	20	25	2.2	20 (12)	∞	CPS-5V	-	FT-15	GVF$^{R/L}$200~340-020A
	2525M-201A	●	●	25	26	25	150	23	32							GVF$^{R/L}$200-…~300-…AR
GFV$^{R/L}$	**2020K-351B**	●	●	20	21	20	125	28	25	4.6	35 (25)	50 (∞)	-	CPS-6V	LW-3	GVF$^{R/L}$250~350-020B
	2525M-351B	●	●	25	26	25	150	30	32							GVF$^{R/L}$300-150BR
	2020K-352B	●	●	20	21	20	125	28	25	5.1						GVF$^{R/L}$400~490-020B
	2525M-352B	●	●	25	26	25	150	30	32							GVF$^{R/L}$400-200BR
	2020K-501B	●	●	20	21	20	125	28	25	4.6	50 (25)	70 (∞)				GVF$^{R/L}$250~350-020B
	2525M-501B	●	●	25	26	25	150	30	32							GVF$^{R/L}$300-150BR
	2020K-502B	●	●	20	21	20	125	28	25	5.1						GVF$^{R/L}$400~490-020B
	2525M-502B	●	●	25	26	25	150	30	32							GVF$^{R/L}$400-200BR
	2020K-701B	●	●	20	21	20	125	28	25	4.6	70 (25)	100 (∞)				GVF$^{R/L}$250~350-020B
	2525M-701B	●	●	25	26	25	150	30	32							GVF$^{R/L}$300-150BR
	2020K-702B	●	●	20	21	20	125	28	25	5.1						GVF$^{R/L}$400~490-020B
	2525M-702B	●	●	25	26	25	150	30	32							GVF$^{R/L}$400-200BR
GFV$^{R/L}$	**2525M-501C**	●	●	25	26	25	150	35	32	6.6	50 (25)	70 (∞)	-	CPS-8V	LW-4	GVF$^{R/L}$350~450-040C
	2525M-502C	●	●							8.1						GVF$^{R/L}$500~600-040C
	2525M-701C	●	●							6.6	70 (25)	100 (∞)				GVF$^{R/L}$350~450-040C
	2525M-702C	●	●							8.1						GVF$^{R/L}$500~600-040C
	2525M-1001C	●	●							6.6	100 (25)	150 (∞)				GVF$^{R/L}$350~450-040C
	2525M-1002C	●	●							8.1						GVF$^{R/L}$500~600-040C
	2525M-1501C	●	●							6.6	150 (25)	250 (∞)				GVF$^{R/L}$350~450-040C
	2525M-1502C	●	●							8.1						GVF$^{R/L}$500~600-040C

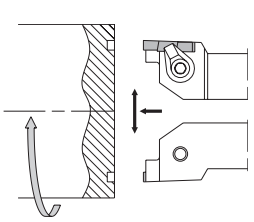
Note 1. CDX shows available grooving depth.
2. The value ( ) of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial groove between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).
The value ( ) of External dia. of the groove (DAXN) is the minimum diameter 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
Insert	Right-hand



Toolholder	Left-hand
Insert	Left-hand



● : Std. Item

External dia. of the groove of GFV

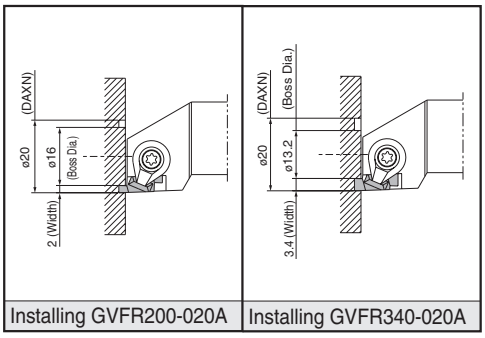
(1) e.g.) GFV$^{R/L}$...-201A

Description		External dia. of the groove DAXN [MIN.]	External dia. of the groove DAXX [MAX.]	Applicable Inserts
GFV$^{R/L}$	2020K-201A	20	∞	GVF$^{R/L}$200~340-020A
	2525M-201A	(12)	(∞)	GVF$^{R/L}$200-...~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.

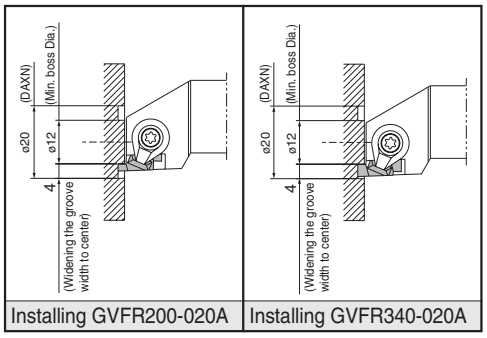
If the initial groove is made smaller than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.



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

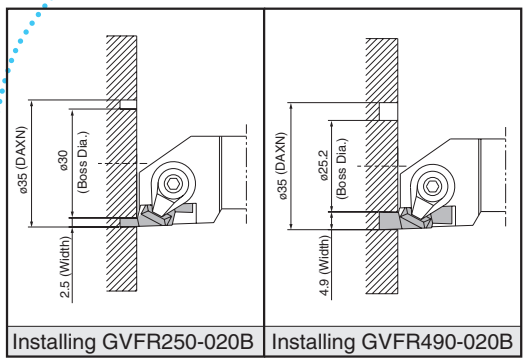
(2) e.g.) GFV$^{R/L}$...-351B/352B (same as GFV$^{R/L}$...-○○○B or GFV$^{R/L}$...-○○○C)

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

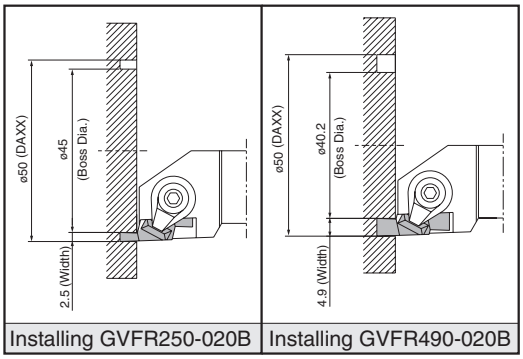
If the initial groove is made smaller than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.



Installing GVFR250-020B | Installing GVFR490-020B

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

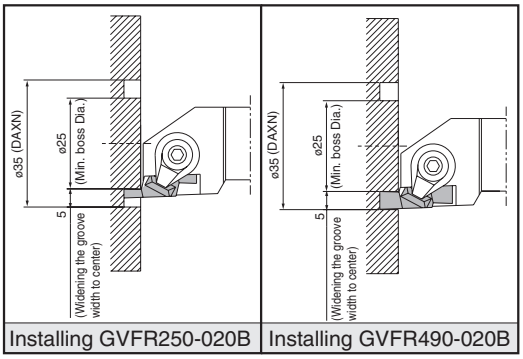
If the initial groove is made larger than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.



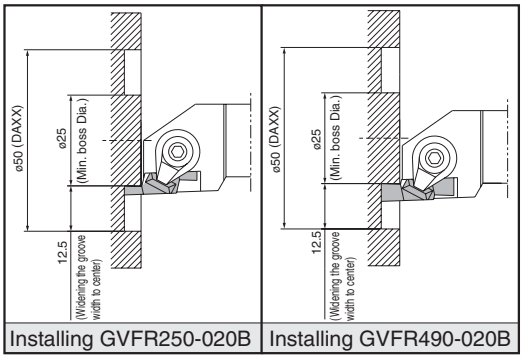
Installing GVFR250-020B | Installing GVFR490-020B

- 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

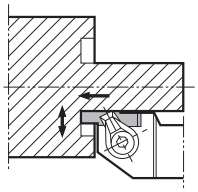


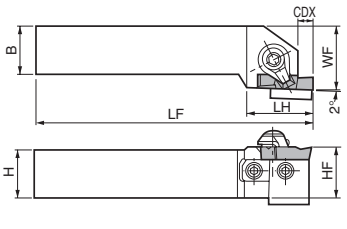
Installing GVFR250-020B | Installing GVFR490-020B

Face Grooving Toolholders [GVF Insert]

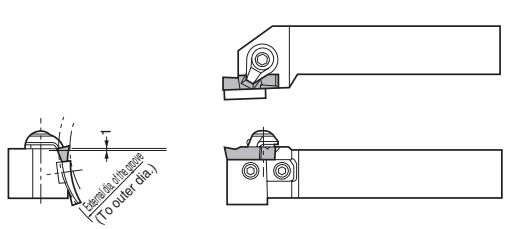
GFVS

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





• Right-hand shown

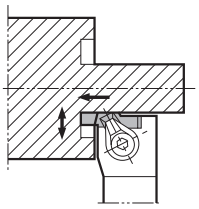


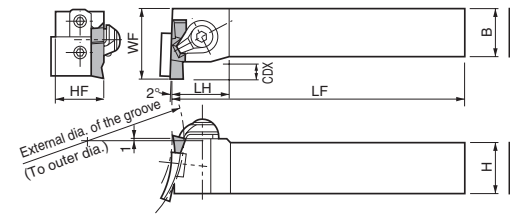
• Left-hand shown

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

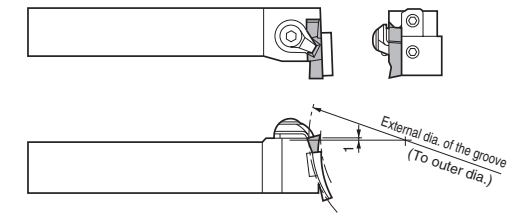
GFVT

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





• Right-hand shown

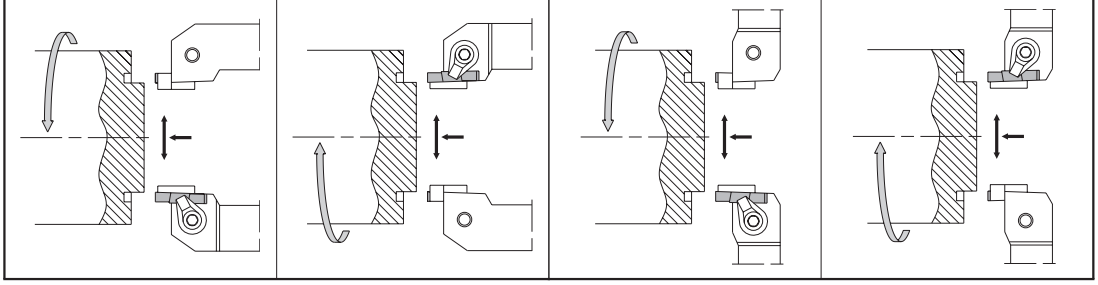


• Left-hand shown

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

Selection of Toolholder & Insert

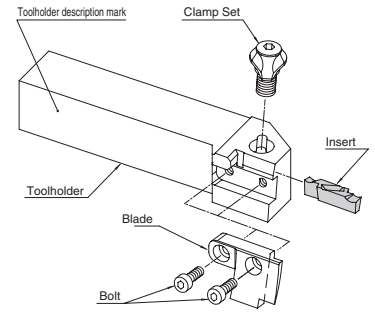
GFVS				GFVT			
Toolholder	Right-hand	Toolholder	Left-hand	Toolholder	Right-hand	Toolholder	Left-hand
Insert	Left-hand	Insert	Right-hand	Insert	Left-hand	Insert	Right-hand

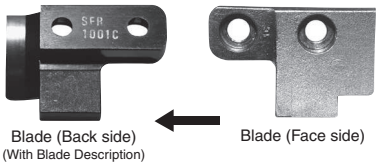


Combination of Base-Holder & Blade

Toolholder Description (Stamped below)	Stock R	Stock L	Blade Description	Toolholder Description (Unit Description)
GFVS$^{R}_{L}$2020K-HB GFVT$^{R}_{L}$2020K-HB	●	●	SF$^{R}_{L}$ -351B -352B -501B -502B -701B -702B	GFVS$^{R}_{L}$2020K -351B GFVT$^{R}_{L}$2020K -352B -501B -502B -701B -702B
GFVS$^{R}_{L}$2525M-HB GFVT$^{R}_{L}$2525M-HB	●	●	SF$^{R}_{L}$ -351B -352B -501B -502B -701B -702B	GFVS$^{R}_{L}$2525M -351B GFVT$^{R}_{L}$2525M -352B -501B -502B -701B -702B
GFVS$^{R}_{L}$2525M-HC GFVT$^{R}_{L}$2525M-HC	●	●	SF$^{R}_{L}$ -501C -502C -701C -702C -1001C -1002C -1501C -1502C	GFVS$^{R}_{L}$2525M -501C GFVT$^{R}_{L}$2525M -502C -701C -702C -1001C -1002C -1501C -1502C

Example of installation (GFVS)





Blade (Back side)
(With Blade Description)

Blade (Face side)

How to refer to the face grooving toolholder and blade

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".

· 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	Spare Parts: Wrench	Spare Parts: Blade	Spare Parts: Bolt	Applicable Inserts → G101
GFVS$^{R}_{L}$	2020K-351B	●	●	20	21	20	125	30	25	5.1	35 (25)	50 (∞)	CPS-6V	LW-3	SF$^{R}_{L}$-351B	HH4X12	GVF$^{R}_{L}$250~350-020B
	2525M-351B	●	●	25	26	25	150	32	32	(4.6)							GVF$^{R}_{L}$300-150BR
	2020K-352B	●	●	20	21	20	125	30	25	5.1					SF$^{R}_{L}$-352B		GVF$^{R}_{L}$400~490-020B
	2525M-352B	●	●	25	26	25	150	32	32	(5.1)							GVF$^{R}_{L}$400-200BR
	2020K-501B	●	●	20	21	20	125	30	25	5.1	50 (25)	70 (∞)			SF$^{R}_{L}$-501B		GVF$^{R}_{L}$250~350-020B
	2525M-501B	●	●	25	26	25	150	32	32	(4.6)							GVF$^{R}_{L}$300-150BR
	2020K-502B	●	●	20	21	20	125	30	25	5.1					SF$^{R}_{L}$-502B		GVF$^{R}_{L}$400~490-020B
	2525M-502B	●	●	25	26	25	150	32	32	(5.1)							GVF$^{R}_{L}$400-200BR
	2020K-701B	●	●	20	21	20	125	30	25	5.1	70 (25)	100 (∞)			SF$^{R}_{L}$-701B		GVF$^{R}_{L}$250~350-020B
	2525M-701B	●	●	25	26	25	150	32	32	(4.6)							GVF$^{R}_{L}$300-150BR
	2020K-702B	●	●	20	21	20	125	30	25	5.1					SF$^{R}_{L}$-702B		GVF$^{R}_{L}$400~490-020B
	2525M-702B	●	●	25	26	25	150	32	32	(5.1)							GVF$^{R}_{L}$400-200BR
GFVS$^{R}_{L}$	2525M-501C	●	●	25	26	25	150	32	32	8.1(6.6)	50 (25)	70 (∞)	CPS-8V	LW-4	SF$^{R}_{L}$-501C	HH4X12	GVF$^{R}_{L}$350~450-040C
	2525M-502C	●	●							8.1(8.1)					SF$^{R}_{L}$-502C		GVF$^{R}_{L}$500~600-040C
	2525M-701C	●	●							8.1(6.6)	70 (25)	100 (∞)			SF$^{R}_{L}$-701C		GVF$^{R}_{L}$350~450-040C
	2525M-702C	●	●							8.1(8.1)					SF$^{R}_{L}$-702C		GVF$^{R}_{L}$500~600-040C
	2525M-1001C	●	●							8.1(6.6)	100 (25)	150 (∞)			SF$^{R}_{L}$-1001C		GVF$^{R}_{L}$350~450-040C
	2525M-1002C	●	●							8.1(8.1)					SF$^{R}_{L}$-1002C		GVF$^{R}_{L}$500~600-040C
	2525M-1501C	●	●							8.1(6.6)	150 (25)	250 (∞)			SF$^{R}_{L}$-1501C		GVF$^{R}_{L}$350~450-040C
	2525M-1502C	●	●							8.1(8.1)					SF$^{R}_{L}$-1502C		GVF$^{R}_{L}$500~600-040C
GFVT$^{R}_{L}$	2020K-351B	●	●	20	21	20	125	22	30	5.1	35 (25)	50 (∞)	CPS-6V	LW-3	SF$^{R}_{L}$-351B	HH4X12	GVF$^{R}_{L}$250~350-020B
	2525M-351B	●	●	25	26	25	150	25	35	(4.6)							GVF$^{R}_{L}$300-150BR
	2020K-352B	●	●	20	21	20	125	22	30	5.1					SF$^{R}_{L}$-352B		GVF$^{R}_{L}$400-490-020B
	2525M-352B	●	●	25	26	25	150	25	35	(5.1)							GVF$^{R}_{L}$400-200BR
	2020K-501B	●	●	20	21	20	125	22	30	5.1	50 (25)	70 (∞)			SF$^{R}_{L}$-501B		GVF$^{R}_{L}$250~350-020B
	2525M-501B	●	●	25	26	25	150	25	35	(4.6)							GVF$^{R}_{L}$300-150BR
	2020K-502B	●	●	20	21	20	125	22	30	5.1					SF$^{R}_{L}$-502B		GVF$^{R}_{L}$400-490-020B
	2525M-502B	●	●	25	26	25	150	25	35	(5.1)							GVF$^{R}_{L}$400-200BR
	2020K-701B	●	●	20	21	20	125	22	30	5.1	70 (25)	100 (∞)			SF$^{R}_{L}$-701B		GVF$^{R}_{L}$250~350-020B
	2525M-701B	●	●	25	26	25	150	25	35	(4.6)							GVF$^{R}_{L}$300-150BR
	2020K-702B	●	●	20	21	20	125	22	30	5.1					SF$^{R}_{L}$-702B		GVF$^{R}_{L}$400-490-020B
	2525M-702B	●	●	25	26	25	150	25	35	(5.1)							GVF$^{R}_{L}$400-200BR
GFVT$^{R}_{L}$	2525M-501C	●	●	25	26	25	150	27	38	8.1(6.6)	50 (25)	70 (∞)	CPS-8V	LW-4	SF$^{R}_{L}$-501C	HH4X12	GVF$^{R}_{L}$350~450-040C
	2525M-502C	●	●							8.1(8.1)					SF$^{R}_{L}$-502C		GVF$^{R}_{L}$500~600-040C
	2525M-701C	●	●							8.1(6.6)	70 (25)	100 (∞)			SF$^{R}_{L}$-701C		GVF$^{R}_{L}$350~450-040C
	2525M-702C	●	●							8.1(8.1)					SF$^{R}_{L}$-702C		GVF$^{R}_{L}$500~600-040C
	2525M-1001C	●	●							8.1(6.6)	100 (25)	150 (∞)			SF$^{R}_{L}$-1001C		GVF$^{R}_{L}$350~450-040C
	2525M-1002C	●	●							8.1(8.1)					SF$^{R}_{L}$-1002C		GVF$^{R}_{L}$500~600-040C
	2525M-1501C	●	●							8.1(6.6)	150 (25)	250 (∞)			SF$^{R}_{L}$-1501C		GVF$^{R}_{L}$350~450-040C
	2525M-1502C	●	●							8.1(8.1)					SF$^{R}_{L}$-1502C		GVF$^{R}_{L}$500~600-040C

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.

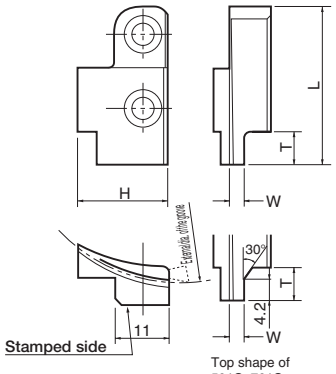
(e.g.) GFVSR2020K-HB + SFR-351B = GFVSR2020K-351B

(e.g.) GFVTR2020K-HB + SFR-351B = GFVTR2020K-351B

● : Std. Item

Face Grooving Toolholders

Blade Dimensions

Shape	Description	Stock R	Stock L	Dimension (mm) L	H	T	W	External dia. of the groove DAXN [MIN.]	External dia. of the groove DAXX [MAX.]	Applicable Inserts	Applicable Toolholders
	SF$^{R}_{L}$ -351B	●	●	30.5	11	4.7	2.0	35	50	GVF$^{L}_{R}$250~350-020B GVF$^{L}_{R}$300-150BR	GFV(S/T)$^{R}_{L}$○○○○□ -○○○B (Toolholder Stamp GFV(S/T)$^{R}_{L}$○○○○□-HB)
	-352B	●	●				3.4			GVF$^{L}_{R}$400~490-020B GVF$^{L}_{R}$400-200BR	
	SF$^{R}_{L}$ -501B	●	●		15		2.0	50	70	GVF$^{L}_{R}$250~350-020B GVF$^{L}_{R}$300-150BR	
	-502B	●	●				3.4			GVF$^{L}_{R}$400~490-020B GVF$^{L}_{R}$400-200BR	
	SF$^{R}_{L}$ -701B	●	●		17		2.0	70	100	GVF$^{L}_{R}$250~350-020B GVF$^{L}_{R}$300-150BR	
	-702B	●	●				3.4			GVF$^{L}_{R}$400~490-020B GVF$^{L}_{R}$400-200BR	
Stamped side Top shape of 501C, 701C, 1001C, 1501C ● Right-hand shown · Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.	SF$^{R}_{L}$ -501C	●	●	35	15	7.5	2.8	50	70	GVF$^{L}_{R}$350~450-040C	GFV(S/T)$^{R}_{L}$○○○○□ -○○○C (Toolholder Stamp GFV(S/T)$^{R}_{L}$○○○○□-HC)
	-502C	●	●				4.3			GVF$^{L}_{R}$500~600-040C	
	SF$^{R}_{L}$ -701C	●	●		20		2.8	70	100	GVF$^{L}_{R}$350~450-040C	
	-702C	●	●				4.3			GVF$^{L}_{R}$500~600-040C	
	SF$^{R}_{L}$ -1001C	●	●		23		2.8	100	150	GVF$^{L}_{R}$350~450-040C	
	-1002C	●	●				4.3			GVF$^{L}_{R}$500~600-040C	
	SF$^{R}_{L}$ -1501C	●	●		23		2.8	150	250	GVF$^{L}_{R}$350~450-040C	
	-1502C	●	●				4.3			GVF$^{L}_{R}$500~600-040C	

External dia. of the groove of GFVS / GFVT

e.g.) GFVS$^{R}_{L}$...-351B/352B

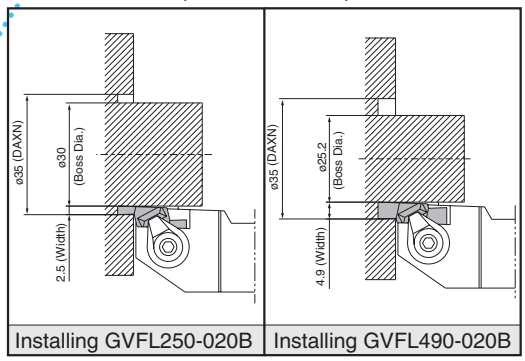
(same as GFVS$^{R}_{L}$...-○○○B, ...-○○○C ➡ G99
GFVT$^{R}_{L}$...-○○○B, ...-○○○C ➡ G99)

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

● 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

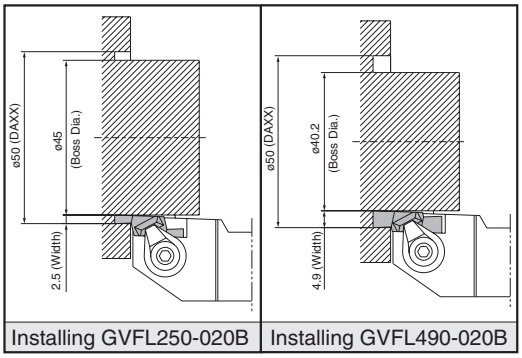
If the initial groove is made smaller than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.



Installing GVFL250-020B | Installing GVFL490-020B

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

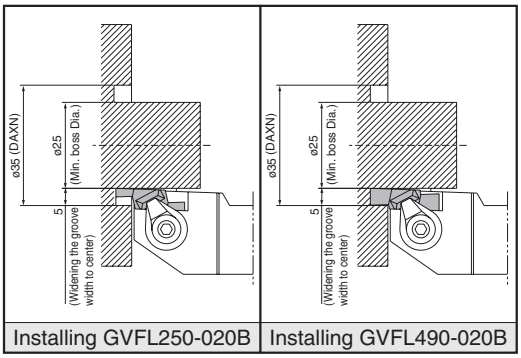
If the initial groove is made larger than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.



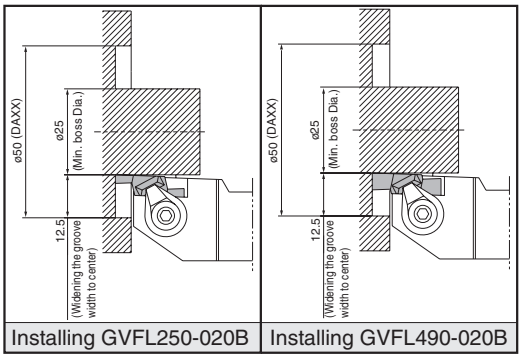
Installing GVFL250-020B | Installing GVFL490-020B

● 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

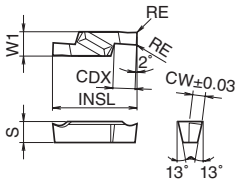
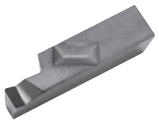
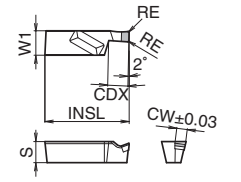
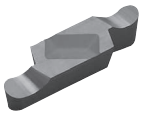
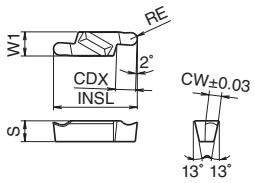
(mm)

Description	W1	INSL	S
GVF$^{R}_{L}$ ...-○○○**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)				●	○		
	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
		GVF$^{R}_{L}$	200-020A	2.00	2.3	0.2	●	●	●	●	●	●	●	●	●	●	●	●			GFV$^{R}_{L}$ ...-**201A** GIFV$^{R}_{L}$ ...-**201A**	G96 G106
			230-020A	2.30					●	●			●	●	●		●	●				
			250-020A	2.50					●	●	●		●	●	●	●	●	●				
			270-020A	2.70					●	●			●	●	●	●	●	●				
			290-020A	2.90					●	●			●	●	●	●	●	●				
			340-020A	3.40					●	●			●	●	●	●	●	●				
		GVF$^{R}_{L}$	250-020B	2.50	4.8	0.2	●	●	●	●	●	●	●	●	●	●	●	●			GFV$^{R}_{L}$ ...-○○**1B** GFVS$^{L}_{R}$ ...-○○**1B** GFVT$^{L}_{R}$ ...-○○**1B** GIFV$^{R}_{L}$ ...-○○**1B**	G96 G99 G106
			300-020B	3.00			●	●	●	●	●	●	●	●	●	●	●	●				
			350-020B	3.50			●	●	●	●	●	●	●	●	●	●	●	●				
			400-020B	4.00	5.3		●	●	●	●	●	●	●	●	●	●	●	●			GFV$^{R}_{L}$ ...-○○**2B** GFVS$^{L}_{R}$ ...-○○**2B** GFVT$^{L}_{R}$ ...-○○**2B** GIFV$^{R}_{L}$ ...-○○**2B**	
			430-020B	4.30					●	●	●	●	●	●	●	●	●	●				
			460-020B	4.60					●	●	□	□	●	●	●	●	●	●				
			490-020B	4.90					●	●	●	●	●	●	●	●	●	●				
		GVF$^{R}_{L}$	350-040C	3.50	6.8	0.4	●	●	●	●	●	●	●	●	●	●	●	●			GFV$^{R}_{L}$ ...-○○**1C** GFVS$^{L}_{R}$ ...-○○**1C** GFVT$^{L}_{R}$ ...-○○**1C** GIFV$^{R}_{L}$ ...-○○**1C**	
			400-040C	4.00			●	●	●	●	●	●	●	●	●	●	●	●				
			450-040C	4.50					●	●	●	●	●	●	●	●	●	●				
			500-040C	5.00	8.3		●	●	●	●	●	●	●	●	●	●	●	●			GFV$^{R}_{L}$ ...-○○**2C** GFVS$^{L}_{R}$ ...-○○**2C** GFVT$^{L}_{R}$ ...-○○**2C** GIFV$^{R}_{L}$ ...-○○**2C**	
			550-040C	5.50					□	□	●	●	●	●	●	●	●	●				
			600-040C	6.00					●	●	●	●	●	●	●	●	●	●				
 1-edge		GVF$^{R}_{L}$	250-020B	2.50	4.8	0.2													●	●	GFV$^{R}_{L}$ ...-○○**1B** GFVS$^{L}_{R}$ ...-○○**1B**	G96 G99 G106
			300-020B	3.00															●	●	GFVT$^{L}_{R}$ ...-○○**1B** GIFV$^{R}_{L}$ ...-○○**1B**	
			400-020B	4.00	5.3														MTO	MTO	GFV$^{R}_{L}$ ...-○○**2B** GFVS$^{L}_{R}$ ...-○○**2B** GFVT$^{L}_{R}$ ...-○○**2B** GIFV$^{R}_{L}$ ...-○○**2B**	
		GVF$^{R}_{L}$	350-020C	3.50	6.8	0.2													MTO		GFV$^{R}_{L}$ ...-○○**1C** GFVS$^{L}_{R}$ ...-○○**1C** GFVT$^{L}_{R}$ ...-○○**1C** GIFV$^{R}_{L}$ ...-○○**1C**	
			400-020C	4.00															MTO			
		GVF$^{R}_{L}$	350-040C	3.50	6.8	0.4													MTO			
			400-040C	4.00															MTO			
 Full-R		GVF$^{R}_{L}$	200-100AR	2.00	2.3	1.00							●	●	●	●	●	●			GFV$^{R}_{L}$ ...-**201A** GIFV$^{R}_{L}$ ...-**201A**	G96 G106
			250-125AR	2.50		1.25							●	●	●		●	●				
			300-150AR	3.00		1.50							●	●	●	●	●	●				
		GVF$^{R}_{L}$	300-150BR	3.00	4.8	1.50							●	●	●	●	●	●			GFV$^{R}_{L}$ ...-○○**1B** GFVS$^{L}_{R}$ ...-○○**1B** GFVT$^{L}_{R}$ ...-○○**1B** GIFV$^{R}_{L}$ ...-○○**1B**	G96 G99 G106
			400-200BR	4.00	5.3	2.00							●	●	●	●	●	●			GFV$^{R}_{L}$ ...-○○**2B** GFVS$^{L}_{R}$ ...-○○**2B** GFVT$^{L}_{R}$ ...-○○**2B** GIFV$^{R}_{L}$ ...-○○**2B**	

· CDX shows available grooving depth.

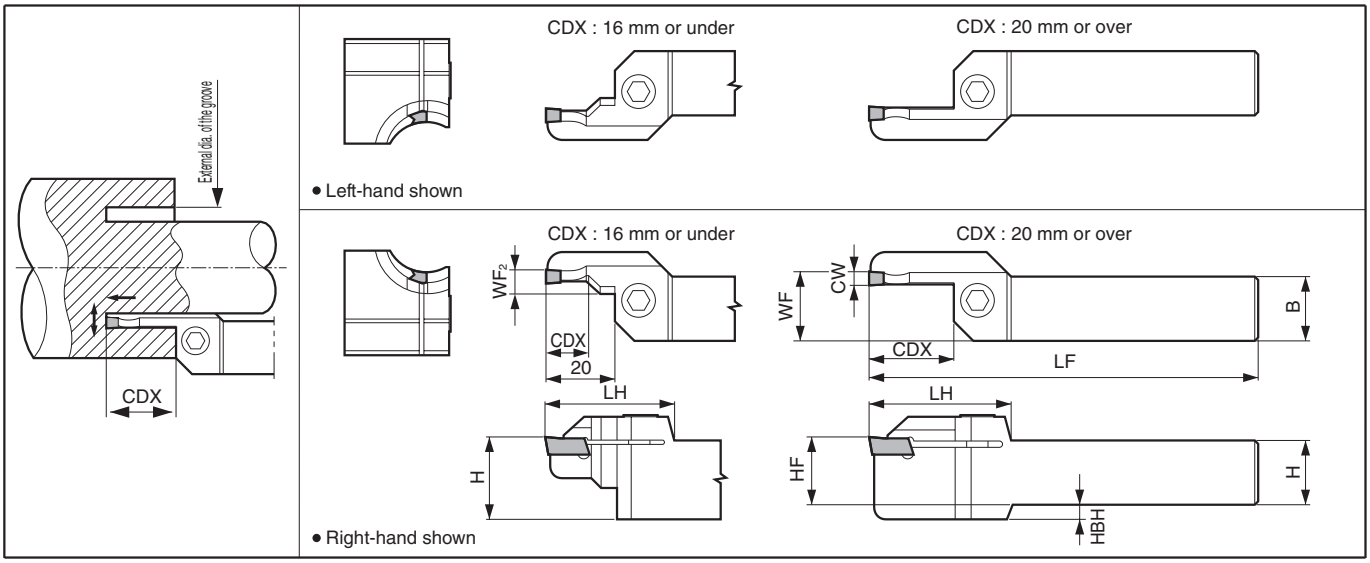
Recommended Cutting Conditions G110

● : Std. Item
□ : 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 → G80~G87)



Toolholder Dimensions

Description		Stock		Dimension (mm)									Edge Width (mm)	External dia. of the groove		Spare Parts			
		R	L	H	HF	HBH	B	LF	LH	WF	WF_2	CDX	CW	DAXN [MIN.]	DAXX [MAX.]	Clamp Bolt	Wrench		
KFMS R/L	2020K2530-3	●		20	20	-	20	125	39	20.7	6.1	13	3	25	30	HH5X20	LW-4		
	2020K3040-3	●												30	40				
	2020K4050-3	●												40	50				
	2020K5065-3	●							41		-	22		50	65				
	2020K6585-3	●												65	85				
	2020K85110-3	●				5			44			25		85	110				
	2020K110145-3	●												110	145				
	2525M2530-3	●	●	25	25	-	25	150	39	25.7	6.1	13		25	30	HH5X25	LW-4		
	2525M3040-3	●	●											30	40				
	2525M4050-3	●	●											40	50				
	2525M5065-3	●	●						41		-	22		50	65				
	2525M6585-3	●	●											65	85				
	2525M85110-3	●	●						44			25		85	110				
	2525M110145-3	●	●											110	145				
KFMS R/L	2020K2535-4	●		20	20	-	20	125	39	20.7	7.1	12	4	25	35	HH5X20	LW-4		
	2020K3550-4	●										20		35	50				
	2020K5070-4	●							44		-	25		50	70				
	2020K70100-4	●				5								70	100				
	2020K100150-4	●												100	150				
	2020K150220-4	●												150	220				
	2020K220800-4	●												220	∞				
	2525M2535-4	●	●	25	25	-	25	150	39	25.7	7.1	12		25	35	HH5X25	LW-4		
	2525M3550-4	●	●									20		35	50				
	2525M5070-4	●	●						44		-	25		50	70				
	2525M70100-4	●	●											70	100				
	2525M100150-4	●	●											100	150				
	2525M150220-4	●	●											150	220				
	2525M220800-4	●	●											220	∞				

● : Std. Item

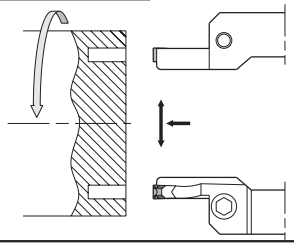
Toolholder Dimensions

Description		Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	WF_2	CDX	Edge Width (mm) CW	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	●												35	50		
	2020K5075-5	●				5			44			25		50	75		
	2020K75115-5	●												75	115		
	2020K115180-5	●												115	180		
	2020K180235-5	●												180	235		
	2020K235800-5	●												235	∞		
	2525M2535-5	●	●	25	25	-	25	150	39	25.7 (26.2)	-	20		25	35	HH5X25	LW-4
	2525M3550-5	●	●											35	50		
	2525M5075-5	●	●						44			25		50	75		
	2525M75115-5	●	●											75	115		
	2525M115180-5	●	●						51			32		115	180		
	2525M180235-5	●	●											180	235		
	2525M235800-5	●	●											235	∞		

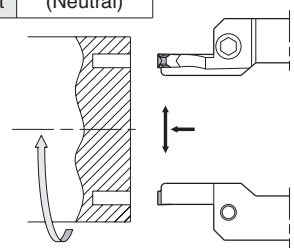
· CDX shows available grooving depth.
· External dia. of the groove : The diameter range of the initial groove.
· For KFMS$^{R}_{L}$...-5 toolholder can hold a 6mm width insert. ( ) value shows the dimension of a 6mm width insert.

Selection of Toolholder & Insert

Toolholder	Right-hand
Insert	(Neutral)



Toolholder	Left-hand
Insert	(Neutral)

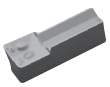
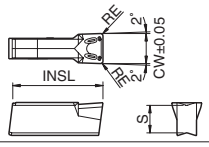
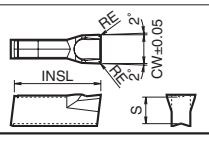


Applicable Inserts

(mm)

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

		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~)	

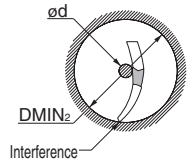
Insert		Description		Dimension (mm) CW	Dimension (mm) RE	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	PVD Coated Carbide PR905	Carbide KW10	Applicable Toolholders
 Face Grooving Chip Control Oriented / M Class		FMM	30-03	3.0	0.3	●	●	●	●	●	●	KFMS$^{R}_{L}$...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

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

Recommended Cutting Conditions G109

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)	

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.

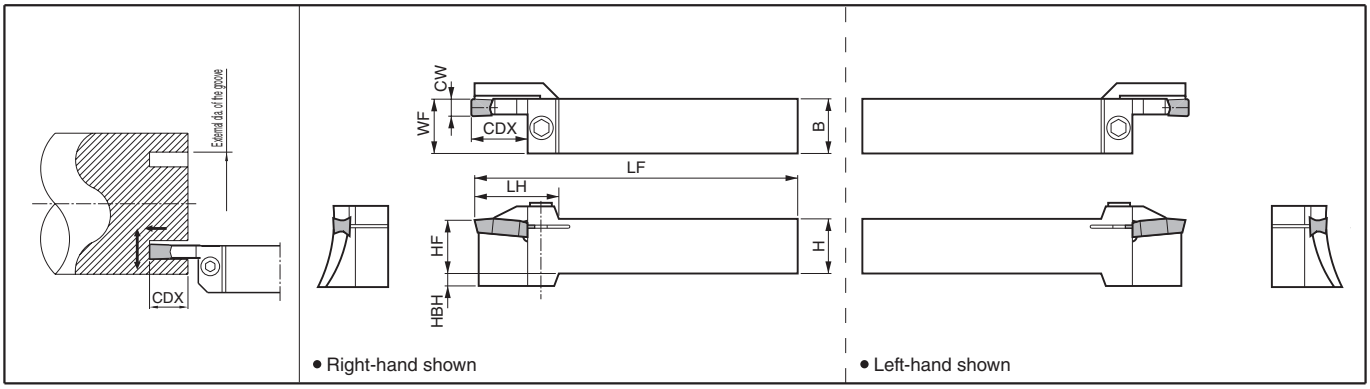
*( ) value shows the Dimension using FMM60-04 Insert.

● : Std. Item

Inserts are sold in 10 piece boxes

Face Grooving Toolholders

KFMS-8



Toolholder Dimensions

Description		Stock R	Stock L	H	HF	HBH	B	LF	LH	WF	CDX	CW	External dia. of the groove DAXN [MIN.]	External dia. of the groove DAXX [MAX.]	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.

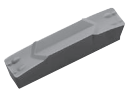
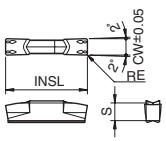
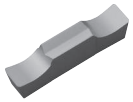
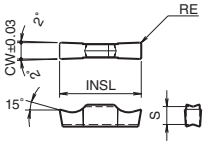
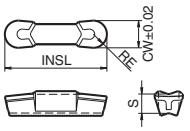
Applicable Inserts

(mm)

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

		Classification of usage
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	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						○	

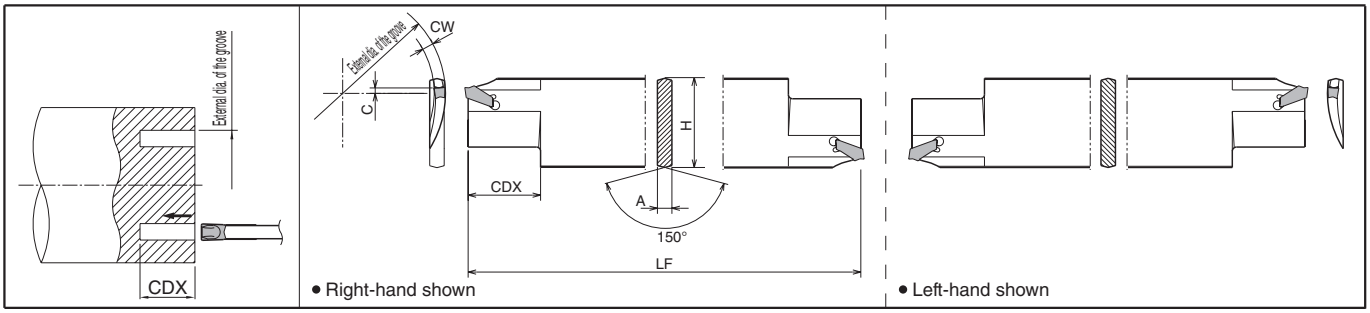
· If using a full-R insert with KFMS-8 toolholder, you need to modify the corner of insert adapter of toolholder.

Recommended Cutting Conditions ➡ G111

Inserts are sold in 10 piece boxes

● : Std. Item
○ : Check Availability

KFTB-S



Blade Dimensions

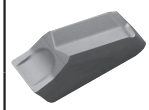
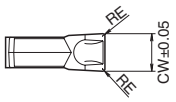
Description		Stock R	Stock L	Dimension (mm) *H	LF	A	CDX	C			Edge Width CW	External dia. of the groove DAXN [MIN.]	DAXX [MAX.]	Spare Parts Releasing Wrench	Applicable Inserts	Applicable Blocks ➡ H35
KFTB$^{R}_{L}$	65100-4S	●	●	32	150	5.2	25	4			4.0	65	100	LTK-5	FTK4	KTKTB20-32
	90150-4S	●	●				30	0				90	150			25-32
	150250-4S	●	●									140	250			32-32
	250800-4S	●	●			3.2						230	∞			KTKTBF25-32
KFTB$^{R}_{L}$	90150-5S	●	●	32	150	5.2	30	0			5.0	90	150		FTK5	32-32
	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

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

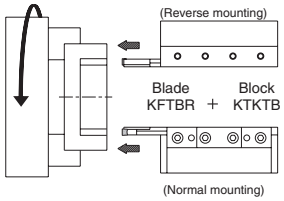
Insert		Description		Dimension (mm) CW	RE	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR930		Carbide KW10	Applicable Toolholders
		FTK	4	4.0	0.25	●	●	●		●	KFTB$^{R}_{L}$ 65100-4S, 90150-4S, 150250-4S, 250800-4S
			5	5.0		●	●	●		●	KFTB$^{R}_{L}$ 90150-5S, 150250-5S, 250800-5S

Recommended Cutting Conditions ➡ G110

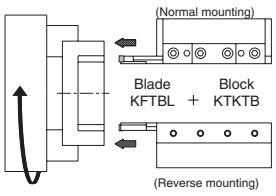
Selection of Blade and Insert

Combination of Blade + KTKTB

Blade	Right-hand
Insert	Neutral

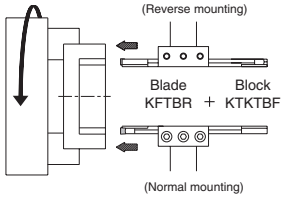


Blade	Left-hand
Insert	Neutral

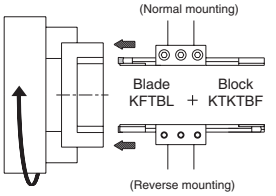


Combination of Blade + KTKTBF

Blade	Right-hand
Insert	Neutral

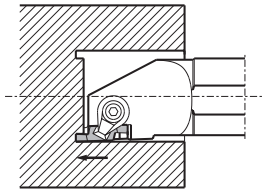


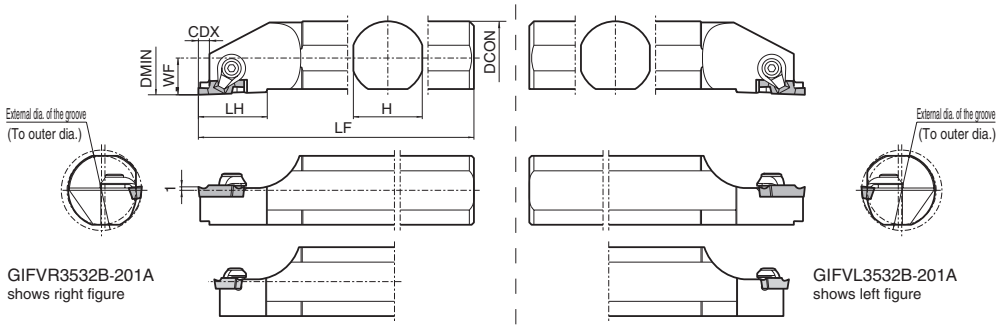
Blade	Left-hand
Insert	Neutral



● : Std. Item

GIFV





GIFVR3532B-201A
shows right figure

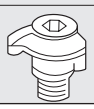
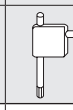
● Right-hand shown

GIFVL3532B-201A
shows left figure

● Left-hand shown

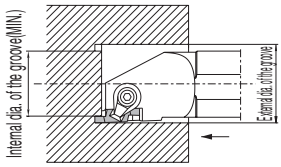
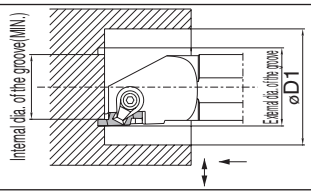
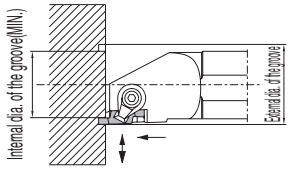
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description		Stock		Dimension (mm)							External dia. of the groove		Spare Parts				Applicable Inserts ➔ G101
													Clamp Set		Wrench		
		R	L	DMIN	DCON	H	LF	LH	WF	CDX	DAXN [MIN.]	DAXX [MAX.]					
GIFV$^{R}_{L}$	3532B-201A	●	●	35	32	30	250	23	16	2.2	35 (12)	∞	CPS-5V	-	FT-15	-	GVF$^{R}_{L}$...-...A GVF$^{R}_{L}$...-...AR
GIFV$^{R}_{L}$	3532B-351B	●	●	35				30		4.6	35 (25)	50 (∞)	-	CPS-6V	-	LW-3	GVF$^{R}_{L}$250~350-020B GVF$^{R}_{L}$300-150BR
	3532B-352B	●	●							5.1	35 (25)	50 (∞)					GVF$^{R}_{L}$400~490-020B GVF$^{R}_{L}$400-200BR
	5032B-501B	●	●	50						4.6	50 (25)	70 (∞)					GVF$^{R}_{L}$250~350-020B GVF$^{R}_{L}$300-150BR
	5032B-502B	●								5.1	50 (25)	70 (∞)					GVF$^{R}_{L}$400~490-020B GVF$^{R}_{L}$400-200BR
GIFV$^{R}_{L}$	5032B-501C	●	●	50				35		6.6	50 (25)	70 (∞)		CPS-8V		LW-4	GVF$^{R}_{L}$350~450-040C
	5032B-502C	●	●							8.1	50 (25)	70 (∞)					GVF$^{R}_{L}$500~600-040C

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	External dia. of the groove			Remarks
			(MIN.)	DAXN [MIN.]	DAXX [MAX.]	(MAX.)	
	GIFV$^{R}_{L}$	3532B-201A	-	35	∞	∞	-
	GIFV$^{R}_{L}$	3532B-351B			50		
		3532B-352B					
		5032B-501B		50	70		
		5032B-502B					
	GIFV$^{R}_{L}$	5032B-501C					
		5032B-502C					
	GIFV$^{R}_{L}$	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
	GIFV$^{R}_{L}$	3532B-351B	25		50		
		3532B-352B					
		5032B-501B		50	70		
		5032B-502B					
	GIFV$^{R}_{L}$	5032B-501C					
		5032B-502C					
	GIFV$^{R}_{L}$	3532B-201A	12	35	∞	∞	-
	GIFV$^{R}_{L}$	3532B-351B	25		50		
		3532B-352B					
		5032B-501B		50	70		
		5032B-502B					
	GIFV$^{R}_{L}$	5032B-501C					
		5032B-502C					

· 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

Recommended Cutting Conditions

◆ 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 033~100-...	GBA○○R/L 125~200-...	GBA○○R/L 230~300-...	GBA○○R/L 330~400-...	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.
MEGA indicates MEGACOAT, and MEGANANO indicates MEGACOAT NANO.
MC indicates MEGACOAT Cermet.

★ : 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						
	TN620	PR1215	GBA43R/L 140-010GM	GBA43R/L 150-020GM	GBA43R/L 175-020GM~ 230-020GM	GBA43R/L 250-030GM~ 350-030GM	GBA43R/L 400-040GM	
Carbon Steel	★ 80~240	☆ 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	(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	(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						
	TN6020	TC40N	PR1215	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)	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	
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

◆ 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

◆ TG inserts (Ground Chipbreaker) Will be switched to GBA.

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)								f (mm/rev)					Remarks
	Cermet			PVD Coated Carbide		Carbide	CBN	PCD						
	TN60	TC40N	TC60M	PR630	PR930	KW10	KBN510	KPD001 (KPD010)	TG○○R/L 075~095	TG○○R/L 125~200	TG○○R/L 230~300	TG○○R/L 330~400	TG○○R/L 430~450	
Carbon Steel	★ 150~220	-	-	-	-	-	-	-	0.03~0.07	0.03~0.08	0.05~0.1	0.05~0.12	0.05~0.12	Coolant
Alloy Steel	★ 130~200	-	-	-	-	-	-	-	0.02~0.06	0.03~0.07	0.05~0.09	0.05~0.1	0.05~0.1	

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

★ : 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	☆ 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	☆ 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	☆ 70~150	-	☆ 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

◆ 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

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	·ap ≤ 0.5CW
f (MAX.) (mm/rev)	under 3~5% of Edge Width	·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 ≤ $0.01CW^2$

Recommended Cutting Conditions

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	GVR/L 100~300-...SS 100~300-...S	GVR/L 145~185-...B	GVR/L 200~280-...B	GVR/L 300~400-...B			
	TN90	TC40N	TC60M	PR1225	PR930	KW10	GVR/L 100~340-...A 200~300-...AR		GVR/L 200-100BR	GVR/L 300-150BR	GVR/L 280~300-...C	GVR/L 340~400-...C	GVR/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 (GVR/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	GVFR/L 200~340...A	GVFR/L 250~350...B	GVFR/L 400~490...B	GVFR/L 350~450...C	GVFR/L 500~600...C	
	TN60	TN90	TC40N	TC60M	PR1225	PR930	KW10	GVFR/L 200-100AR ~300-150AR	GVFR/L 300-150BR	GVFR/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

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	PR660	PR930	KW10	f (mm/rev)					
Carbon Steel	☆ 120~200	★ 80~180	☆ 60~130	☆ 60~130	-	0.05~0.15	0.05~0.15				Coolant
Alloy Steel	☆ 100~160	★ 70~150	☆ 60~130	☆ 60~130	-	0.05~0.15	0.05~0.15				
Stainless Steel	☆ 80~150	☆ 60~140	★ 50~120	☆ 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

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	

★ : 1st Recommendation ☆ : 2nd Recommendation

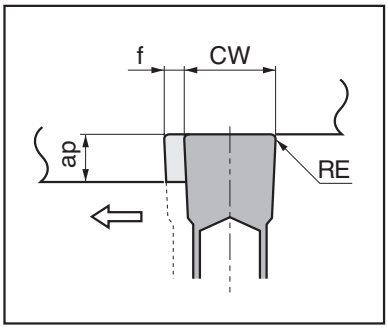
Ref. to the notes below for turning conditions.

(1) When using KGM Toolholder

	Recommended Cutting Conditions	
ap (MAX.) (mm)	80% or under of Edge Width	· ap ≤ 0.8CW
f (MAX.) (mm/rev)	10% or under of Edge Width	· f ≤ 0.1CW

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

Load(mm^2) \ 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 ≤ $\frac{1}{2}$ 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)	50% or under of Edge Width	·ap ≤ 0.5CW
f (MAX.) (mm/rev)	4% or under of Edge Width	·f ≤ 0.04CW

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

Load(mm^2) \ 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)	70% or under of Edge Width	·ap ≤ 0.7CW
f (MAX.) (mm/rev)	8% or under of Edge Width	·f ≤ 0.08CW

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

Load(mm^2) \ 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 / GMGA 8030 (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			

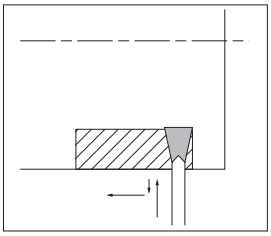
★ : 1st Recommendation ☆ : 2nd Recommendation

Guide for External Grooving

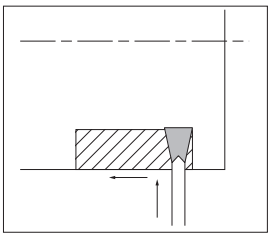
Point (I) (Turning after Grooving)

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.

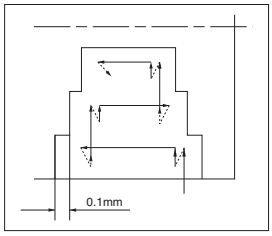


Fig. 3

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)

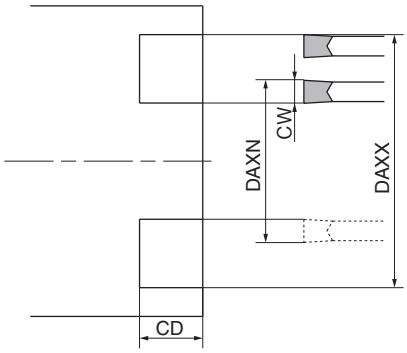


Fig. 1

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

Toolholder	Right-hand
Insert	(Neutral)

Toolholder	Left-hand
Insert	(Neutral)

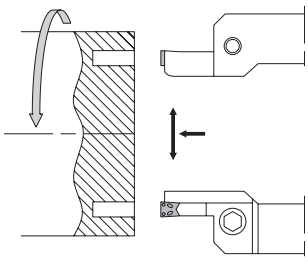


Fig. 2 Toolholder's Hand and Rotation

<Guide for turning>

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

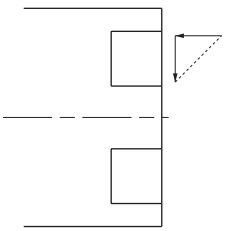


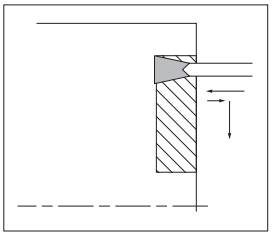
Fig. 3

Guide for Face Grooving (Continued)

Point (I) (Turning after Grooving)

1) Grooving Depth 0.5mm or over : For roughing (Refer to Fig. 4)

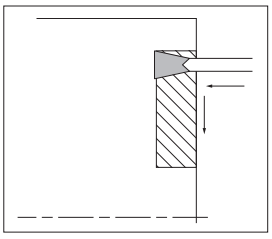
Before turning, pull the tool back about 0.1mm after grooving, instead of turning subsequent to grooving.
(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting edge.)



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.)

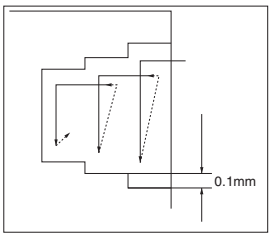
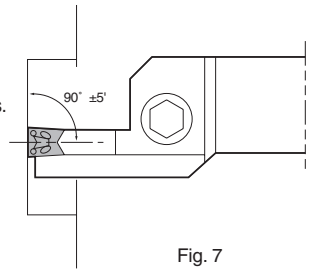


Fig. 6

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

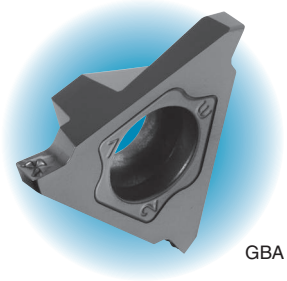
Guide for Grooving with Cermet Insert (Steel)

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.

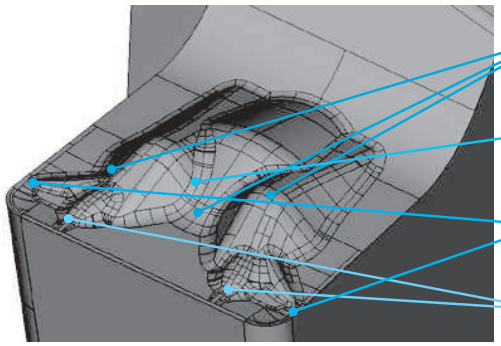
Chip Control of Grooving Insert with Molded Chipbreaker



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)

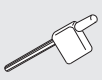
Multi Bump Design



- Center bump and dent squeeze and control chips
- Helps modifying chip shape
- Stable chip control at shoulder grooving and chamfering
- Front bump : Stabilize chip control at low feed rate

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
										
KTGF R/L	1010K-16F	125	SB-4070TRW	FT-8	-	KTGF R/L	1010JX-16F	120		G18
	1212M-16F	150					1212JX-16F	120		
	1616M-16F	150					1616JX-16F	120		
KGM R/L	0810K-1.5-125	125	SE-40120TR	-	LTW-15S		-	-	No Alternative	G40
	1010K-1.5-125	125				KGM R/L	1010JX-1.5	120		
	1212M-1.5-150	150					1212JX-1.5	120		
KGM R/L	0810K-2-125	125	SE-40120TR	-	LTW-15S		-	-	No Alternative	
	1010K-2-125	125				KGM R/L	1010JX-2	120		
	1212M-2-150	150					1212JX-2	120		
	1616M-2-150	150	SE-50125TR	-	LTW-20		1616JX-2	120		
KGM R/L	1010K-2.5-125	125	SE-40120TR	-	LTW-15S	KGM R/L	1010JX-2.5	120		
	1212M-2.5-150	150					1212JX-2.5	120		
	1616M-2.5-150	150	SE-50125TR	-	LTW-20		1616JX-2.5	120		
KGM R/L	1616M-3-150	150	SE-50125TR	-	LTW-20	KGM R/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.