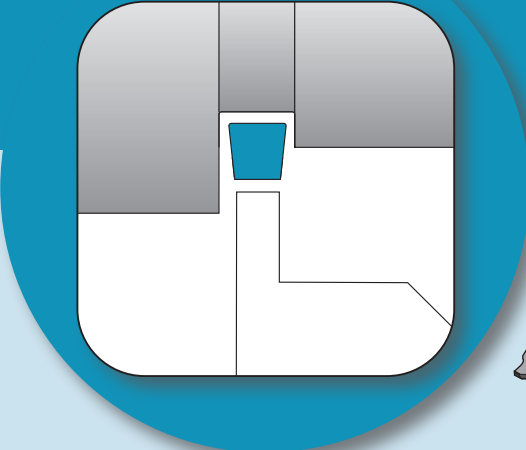


# Grooving

**G1~G108**



# G

## External Grooving

**G2~G40**

Summary of External Grooving	G2
KGBA / KGBAS	G9
KGB / KGBS → Will be switched to KGBA / KGBAS	G11
KGBF-F	G12
KTGF-F / KTGF	G14
S...KTGF	Sleeve Holder G15
KTG → Will be switched to KGBA	G16
KGD (Integral Type for Automatic Lathe)	G21
KGD (Integral Type)	G22
KGD-S (0° Separate Type)	G23
KGDS-S (90° Separate Type)	G24
KGM (For automatic lathe)	G34
KGM-T	G35
KGMM / KGMS	G36
KGMU	G37
KGH / KGHS	G38
KGA	G39
KGMW (For Aluminum Wheel)	G40

## Internal Grooving

**G41~G63**

Summary of Internal Grooving	G41
EZG	EZ Bars G43
VNG	System Tip-Bars G45
HPG	2-Edge Tip-Bars G46
PSG-S → Will be switched to EZG	Tip-Bars G46
SIGE-EH / SIGE-WH / SIGE-WH-90	G49
GIV / GIV-E / GIV-W	G54
KIGBA	G56
KITG → Will be switched to KIGBA	G57
KIGM-V	G60
KIGH	G61
KIGM-8 / KIGMU-8	G62
KGIA	G63

## Face Grooving

**G64~G100**

Summary of Face Grooving	G64
EZFG	G68
VNFG	System Tip-Bars G70
HPFG	2-Edge Tip-Bars G71
PSFG-S → Will be switched to EZFG	Tip-Bars G71
TWFG / TWFGT	Twin-Bars G72
KGDF (0° Separate Type)	G78
KGDF-Z (Integral Type)	G82
KGDF (90° Separate Type)	G83
GFVS-AA / GFVT-AA	G88
GFV	G90
GFVS / GFVT	G92
KFMS	G96
KFMS-8	G98
KFTB-S	G99
GIFV (Boring Bar Type)	G100

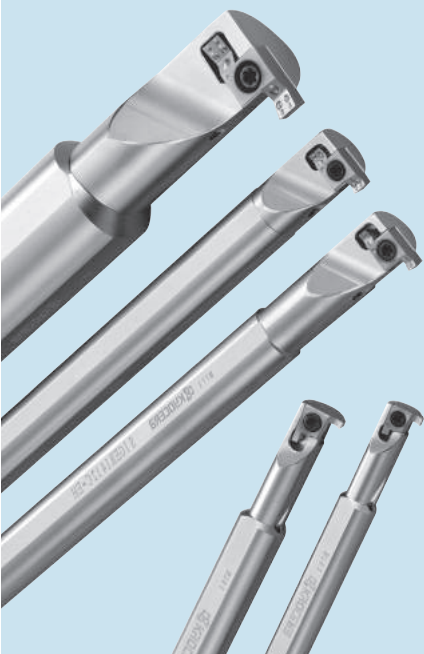
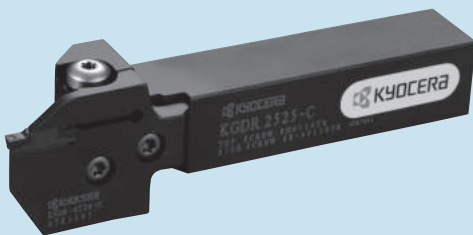
## Technical Information

**G101~G108**

Recommended Cutting Conditions	G101
Guide for Grooving	G106

## Alternative Toolholder Reference Table for Grooving Toolholder

**G108**



# Summary of External Grooving

## ■ KGD Grooving (External Grooving & Turning) (G17~G29)

### · Integral Type

Type	KGD
Edge Width (mm)	2.0~8.0
Grooving Depth (mm)	6~30
Ref. to Page	<b>G22</b>

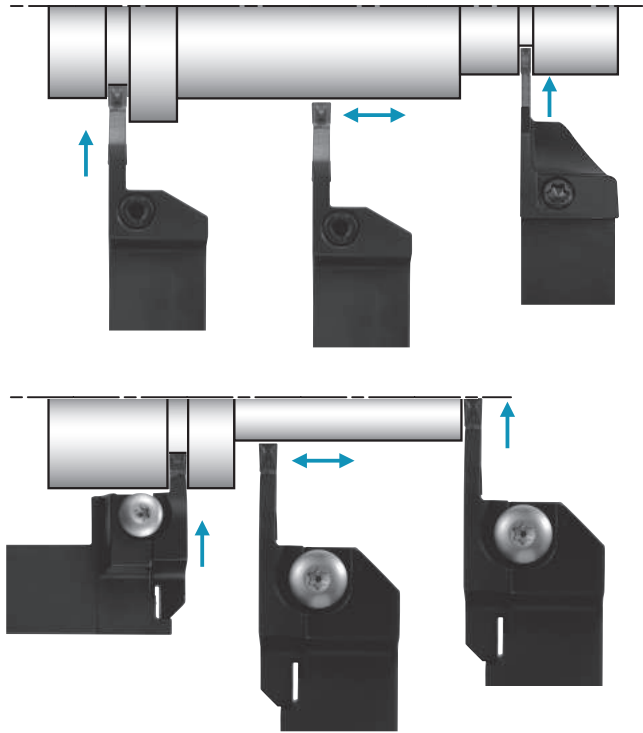
### · Integral Type for Automatic Lathe

Type	KGD
Edge Width (mm)	2.0~4.0
Grooving Depth (mm)	10~21
Ref. to Page	<b>G21</b>

### · Separate Type

Type	*KGD-S
Edge Width (mm)	3.0
Grooving Depth (mm)	10
Ref. to Page	<b>G24</b>

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

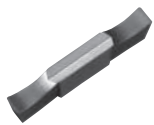


### · Separate Type

Type	*KGD-S
Edge Width (mm)	2.0~5.0
Grooving Depth (mm)	10~25
Ref. to Page	<b>G23</b>

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

Low Cutting Force  
**GS**



Low Feed  
**GL**



General purpose  
**GM**



High Feed  
**PH**



Copying  
**CM**



G

Grooving

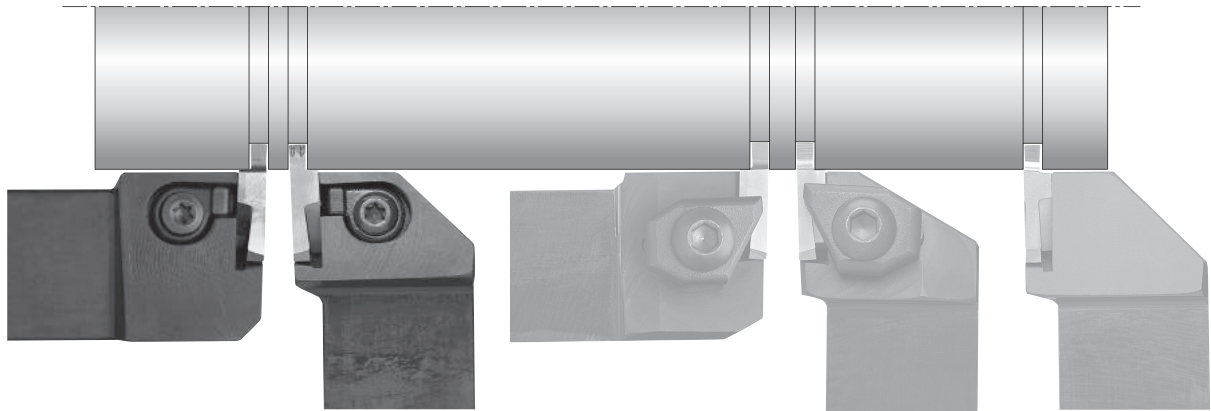
External

Internal

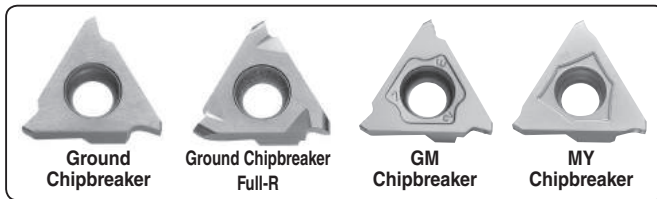
Face

## External Grooving (G6-G16, G38, G39)

### Shallow Grooving (Grooving Depth: ~5mm)



Type	<b>KGBAS</b>	<b>KGBA</b>	<b>KGBS</b>	<b>KGB</b>	<b>KTG</b>
Edge Width (mm)	0.33~4.8	0.33~4.8	0.5~4.8	0.5~4.8	0.75~4.5
Grooving Depth (mm)	0.8~5.0	0.8~5.0	1.0~5.0	1.0~5.0	2.0~5.0
Ref. to Page	<b>G9</b>	<b>G9</b>	<b>G11</b>	<b>G11</b>	<b>G16</b>

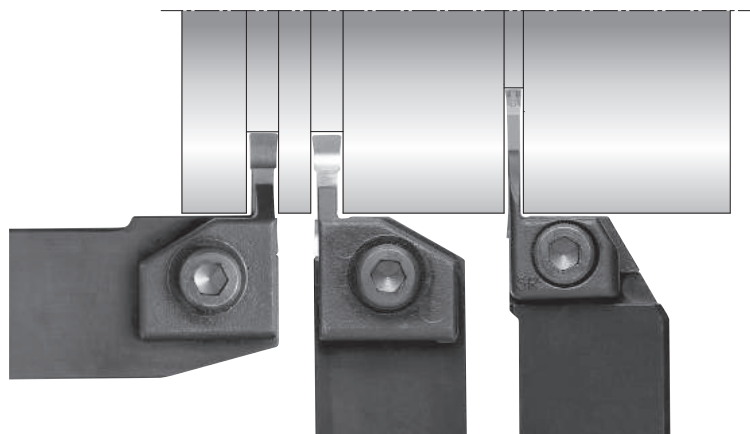


Edge Shape	General (Square)	Full-R (Round)	GM Chipbreaker	MY Chipbreaker

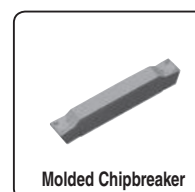
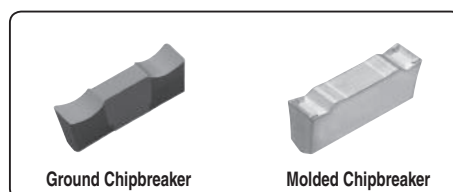
\* These shallow groove types of the previous system will be switched to the system on the left.

**KGBS** → **KGBAS**  
**KGB** → **KGBA**  
**KTG** → **KGBA**

### Deep Grooving (Grooving Depth: ~25mm)



Type	<b>KGHS</b>	<b>KGH</b>	<b>KGA</b>
Edge Width (mm)	4.0~8.0	4.0~12.0	3.0~5.0
Grooving Depth (mm)	13	13~17	20~25
Ref. to Page	<b>G38</b>	<b>G38</b>	<b>G39</b>

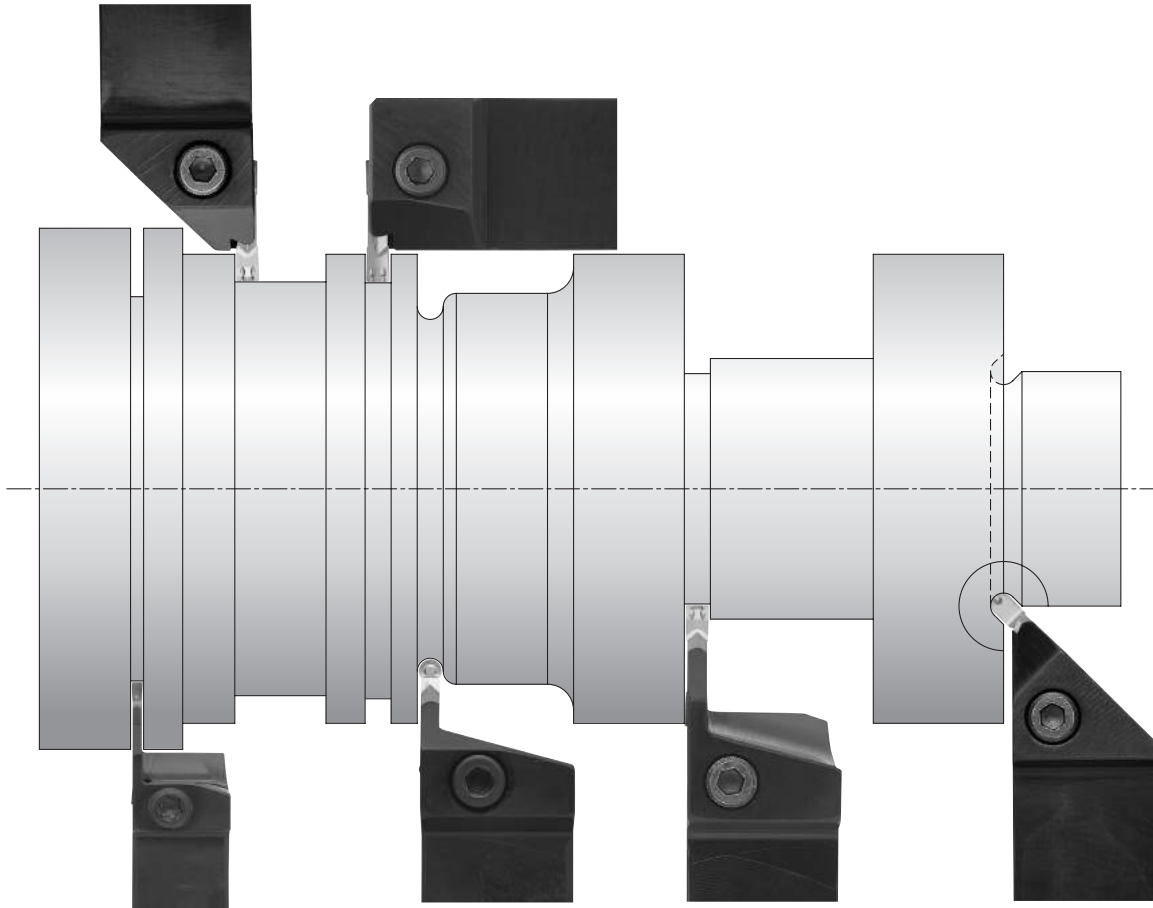


# Summary of External Grooving

## ■ KGM Grooving (External Grooving & Turning) (G30~G37)

Type	KGMM
Edge Width (mm)	3.0~5.0
Grooving Depth (mm)	4.8
Ref. to Page	<b>G36</b>

Type	KGMS
Edge Width (mm)	3.0~5.0
Grooving Depth (mm)	4.8
Ref. to Page	<b>G36</b>

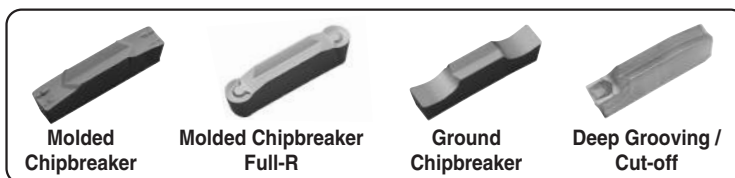


Type	KGM
Edge Width (mm)	1.5~4.0
Grooving Depth (mm)	10~16
Ref. to Page	<b>G34</b>

Type	KGM
Edge Width (mm)	3.0~8.0
Grooving Depth (mm)	9~25
Ref. to Page	<b>G34</b>

Type	KGM-T
Edge Width (mm)	2.0~6.0
Grooving Depth (mm)	17~30
Ref. to Page	<b>G35</b>

Type	KGMU
Edge Width (mm)	3.0~5.0
Grooving Depth (mm)	3.5~4.5
Ref. to Page	<b>G37</b>



G

Grooving

External

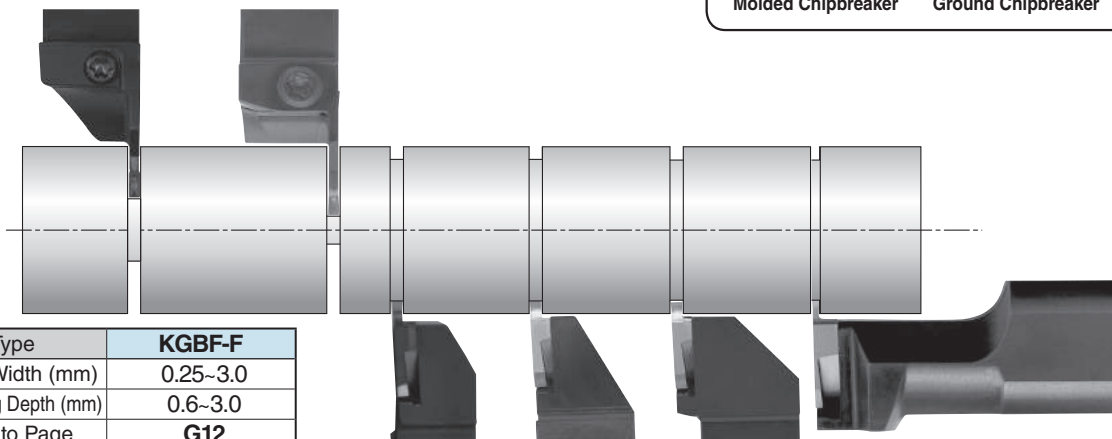
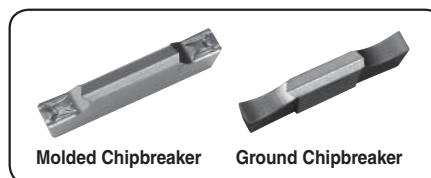
Internal

Face

## External Grooving of Precision Parts (G14, G15, G21, G34)

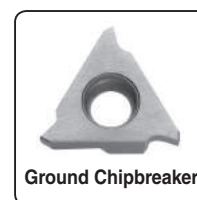
### For Automatic Lathe

Type	KGD	Type	KGM
Edge Width (mm)	2.0~4.0	Edge Width (mm)	1.5~4.0
Grooving Depth (mm)	10~21	Grooving Depth (mm)	10~16
Ref. to Page	<b>G21</b>	Ref. to Page	<b>G34</b>

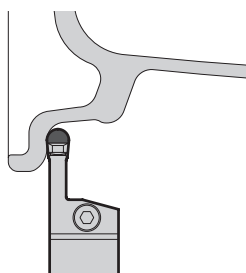


Type	KGBF-F
Edge Width (mm)	0.25~3.0
Grooving Depth (mm)	0.6~3.0
Ref. to Page	<b>G12</b>

Type	KTGF-F	KTGF	S-KTGF
Edge Width (mm)	0.33~2.5		0.33~2.5
Grooving Depth (mm)	0.8~2.5		0.8~2.5
Ref. to Page	<b>G14</b>		<b>G15</b>



## For Aluminum Wheel External Grooving (External / Facing / Copying) (G40)



Type	KGMW
Edge Width (mm)	6.0~8.0
Grooving Depth (mm)	25
Ref. to Page	<b>G40</b>



# Grooving Inserts

NEW

## Applicable Inserts

Description	A	T	φd	(mm)	Dimension (mm)		MEGACOAT Cermet		Cermet		MEGA COAT		PVD Coated Carbide				Carbide	Applicable Toolholders		
					W	B	re	PV7040	TC40N	TN90	PR1215	PR1115	PR905	PR930	KW10					
					R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L
<b>GBA32%</b>	9.525	3.18	4.4																	Classification of usage ●: Continuous-Light Interruption / 1st Choice ☺: Continuous-Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice
<b>GBA43%</b>	12.70	4.76	5.5																	
<b>GBA43%/480</b>	12.70	5.00	5.5																	

Insert	Description	Dimension (mm)	W	B	re	MEGACOAT Cermet		Cermet		MEGA COAT		PVD Coated Carbide				Carbide	Applicable Toolholders				
						PV7040	TC40N	TN90	PR1215	PR1115	PR905	PR930	KW10								
Handed Insert shows Right-hand	<b>GBA32%/</b> 033-005 *1	0.33	0.8	0.05	0.05														KGBA <sup>®</sup> / <sub>L</sub> ...16 KGBAS <sup>½</sup> / <sub>R</sub> ...16 KIGBA <sup>®</sup> / <sub>R</sub> ...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	2.5																		
	125-020	1.25																			
	130-020	1.30																			
	140-020	1.40																			
		145-020	1.45	2.0																	
			2.5	0.2																	
		150-020	1.50																		
		160-020	1.60																		
		170-020	1.70																		
		175-020	1.75																		
		200-020	2.00	2.5																	
		225-020	2.25																		
		250-020	2.50																		
		300-020	3.00																		
		<b>GBA43%/</b> 125-010	1.25		2.0	0.1															
			125-020		1.25	2.0															
		140-020	1.40		3.5	0.2															
		145-020	1.45	2.0	0.1																
		150-010	1.50																		
		150-020	1.50																		
		170-020	1.70																		
	175-020	1.75																			
	185-020	1.85	3.5	0.2																	
	195-020	1.95																			
	200-010	2.00	5.0	0.1																	
	200-020	2.00	2.50	0.1																	
	225-020	2.25																			
	230-020	2.30																			
	250-010	2.50			4.0																
	250-030	2.50			5.0																
					4.0																
	265-030	2.65			4.0	0.3															
			5.0																		
			4.0																		
	280-030	2.80	4.0	0.1																	
	300-010	3.00	5.0																		
			4.0																		
	300-030	3.00	4.0																		
	325-030	3.25	5.0	0.3																	
			4.0																		
	330-030	3.30	4.0	0.1																	
	350-010	3.50	5.0																		
			4.0																		
	350-030	3.50	4.0																		
	400-010	4.00	5.0		0.4																
	400-040	4.00																			
	430-040	4.30																			
	450-040	4.50																			
	480-040	4.80																			

\* Dimension B shows available grooving depth.  
 \*1. The edge width tolerance of GBA32%/ 033-005<sup>0,02</sup>  
 \*2. The edge width tolerance of GBA32%/ 050-005<sup>0,05</sup>

Recommended Cutting Conditions **G101**

- ★ Applicable Toolholders
- 1: KGBA<sup>®</sup>/<sub>L</sub>...22-25T5, KGBAS<sup>½</sup>/<sub>R</sub>...22-25T5, KIGBA<sup>®</sup>/<sub>R</sub>...22
- 2: KGBA<sup>®</sup>/<sub>L</sub>...22-25T5, KGBAS<sup>½</sup>/<sub>R</sub>...22-25T5, KGBA<sup>®</sup>/<sub>L</sub>...22-25, KGBAS<sup>½</sup>/<sub>R</sub>...22-25, KIGBA<sup>®</sup>/<sub>R</sub>...22

Inserts are sold in 10 piece boxes.

●: Std. Item

G

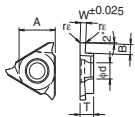
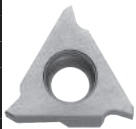


Grooving

External


Internal

Face



# Applicable Inserts

NEW

Description	A	T	φd	(mm)	P	M	K	N	S	H	Classification of usage ● : Continuous-Light Interruption / 1st Choice ☺ : Continuous-Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice				
					Carbon steel / Alloy steel										
					Stainless Steel										
Dimension (mm)		Cermet		MEGACOAT	PVD Coated Carbide		Applicable Toolholders								
W	B	rε	TN620	TN6020	PR1215	PR1115		PR930							
			R	L	R	L		R	L	R	L				
 <p>Sharp Edge</p>	<b>GBA32<sup>3/4</sup></b> 050-005F * 075-005F 095-005F 100-005F 125-020F 145-020F 150-020F 175-020F 200-020F 250-020F	0.50	1.0	0.05	●	●									<b>KGBA<sup>3/4</sup>...16</b> <b>KGBAS<sup>3/4</sup>...16</b> <b>KIGBA<sup>3/4</sup>...16 (Internal)</b>
					●	●									
					●	●									
					●	●									
					●	●									
		●	●												
		●	●												
		●	●												
		●	●												
		●	●												
	<b>GBA43<sup>3/4</sup></b> 125-020F 145-020F 150-020F 175-020F 185-020F 200-020F 230-020F 250-030F 265-030F 280-030F 300-030F 330-030F 350-030F 400-040F 430-040F 450-040F 480-040F	1.25	2.0	0.2	●	●									<b>KGBA<sup>3/4</sup>...22-15</b> <b>KGBAS<sup>3/4</sup>...22-15</b> <b>KIGBA<sup>3/4</sup>...22 (Internal)</b>
					●	●									
					●	●									
					●	●									
					●	●									
		●	●												
		●	●												
		●	●												
		●	●												
		●	●												
<b>GBA43<sup>3/4</sup></b> 140-010GM 150-020GM 175-020GM 185-020GM 200-020GM 230-020GM 250-030GM 265-030GM 300-030GM 330-030GM 350-030GM 400-040GM	1.40	3.5	0.2	●	●			●	●					<b>KGBA<sup>3/4</sup>...22-15</b> <b>KGBAS<sup>3/4</sup>...22-15</b> <b>KIGBA<sup>3/4</sup>...22 (Internal)</b>	
				●	●			●	●						
				●	●			●	●						
				●	●			●	●						
				●	●			●	●						
	●	●					●	●							
	●	●					●	●							
	●	●					●	●							
	●	●					●	●							
	●	●					●	●							
<b>GBA43<sup>3/4</sup></b> 175-020MY 185-020MY 200-020MY 230-020MY 250-030MY 265-030MY 300-030MY 330-030MY 350-030MY 400-040MY	1.75	3.5	0.2			●	●	●	●	●	●	●	●	<b>KGBA<sup>3/4</sup>...22-15</b> <b>KGBAS<sup>3/4</sup>...22-15</b> <b>KIGBA<sup>3/4</sup>...22 (Internal)</b>	
						●	●	●	●	●	●	●	●		
						●	●	●	●	●	●	●	●		
						●	●	●	●	●	●	●	●		
						●	●	●	●	●	●	●	●		
							●	●			★2				
							●	●			★1				
							●	●			★2				
							●	●			★1				
							●	●			★2				

- Dimension B shows available grooving depth.  
 \* The edge width tolerance of GBA32<sup>3/4</sup> 050-005F is ±0.05

- ★ Applicable Toolholders  
 1: KGBA<sup>3/4</sup>...22-25T5, KGBAS<sup>3/4</sup>...22-25T5, KIGBA<sup>3/4</sup>...22  
 2: KGBA<sup>3/4</sup>...22-25T5, KGBAS<sup>3/4</sup>...22-25T5, KGBA<sup>3/4</sup>...22-25, KGBAS<sup>3/4</sup>...22-25, KIGBA<sup>3/4</sup>...22

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

α	Insert Description
10°	GBA43 <sup>3/4</sup> 150-020GM
15°	GBA43 <sup>3/4</sup> 175-020GM
	GBA43 <sup>3/4</sup> 265-030GM
12°	GBA43 <sup>3/4</sup> 300-030GM
	GBA43 <sup>3/4</sup> 400-040GM

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

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

α	Insert Description
15°	GBA43 <sup>3/4</sup> 175-020MY
	GBA43 <sup>3/4</sup> 350-030MY
14°	GBA43 <sup>3/4</sup> 400-040MY

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

● : Std. Item

Inserts are sold in 10 piece boxes.



G9  
G11

G56  
(Internal)

Ref. to Page for Applicable Toolholders

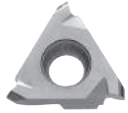
# Grooving Inserts

NEW

## Applicable Inserts

Description	A	T	ød	(mm)	P	M	K	N	S	MEGACOAT Cermets		MEGACOAT		PVD Coated Carbide				Carbide	Applicable Toolholders	Ref. to Page for Applicable Toolholders
					Carbon steel / Alloy steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Titanium Alloys	PV7040	TN620	TN90	PR1215	PR1115	PR905	PR930	KW10			
GBA32	9.525	3.18	4.4		●	○					●	○							● : Continuous-Light Interruption / 1st Choice ○ : Continuous / 2nd Choice	
GBA43	12.70	4.76	5.5																○ : Continuous / 2nd Choice	
GBA43 <sup>R/L</sup> 480	12.70	5.00	5.5								●	○							● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	

Insert	Description	Dimension (mm)			CBN				PCD				Applicable Toolholders	Ref. to Page for Applicable Toolholders						
		W	B	r <sub>ε</sub>	KBN510		KBN525		KPD001		KPD010									
 Full-R Full-R (Round)	GBA32R 200-100R	2.00	2.5	1.00														KGBA <sup>R/L</sup> ...16 KGBAS <sup>R/L</sup> ...16 KIGBA <sup>R/L</sup> ...16 (Internal)	G9 G11 G56 (Internal)	
	300-150R	3.00		1.50																
	GBA43 <sup>R/L</sup>	100-050R	1.00	2.0	0.50	●	●	●	●	●	●	●	●	●	●	●	●	●		KGBA <sup>R/L</sup> ...22-15 KGBAS <sup>R/L</sup> ...22-15 KIGBA <sup>R/L</sup> ...22 (Internal)
		150-075R	1.50	3.5	0.75	●	●	●	●	●	●	●	●	●	●	●	●	●		
		200-100R	2.00		1.00	●	●	●	●	●	●	●	●	●	●	●	●	●		
		250-125R	2.50	4.0	1.25			●	●	●	●	●	●	●	●	●	●	●		
		300-150R	3.00		1.50			●	●	●	●	●	●	●	●	●	●	●		
	GBA43 <sup>R/L</sup>	100-050RF	1.00	2.0	0.50	●	●													KGBA <sup>R/L</sup> ...22-35 KGBAS <sup>R/L</sup> ...22-35 KIGBA <sup>R/L</sup> ...22 (Internal)
		150-075RF	1.50	3.5	0.75	●	●													
		200-100RF	2.00		1.00	●	●													
		250-125RF	2.50	4.0	1.25	●	●													
		300-150RF	3.00		1.50	●	●													
	400-200RF	4.00	5.0	2.00			●	●	●	●	●	●	●	●	●	●	●	●		

Dimension B shows available grooving depth.

Recommended Cutting Conditions **G101**

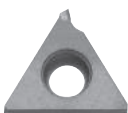
★ Applicable Toolholders

2: KGBA<sup>R/L</sup>...22-25T5, KGBAS<sup>R/L</sup>...22-25T5, KGBA<sup>R/L</sup>...22-25, KGBAS<sup>R/L</sup>...22-25, KIGBA<sup>R/L</sup>...22

## Applicable Inserts

Description	A	T	ød	(mm)	P	M	K	N	S	MEGACOAT Cermets		MEGACOAT		PVD Coated Carbide				Carbide	Applicable Toolholders	Ref. to Page for Applicable Toolholders
					Carbon steel / Alloy steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Titanium Alloys	PV7040	TN620	TN90	PR1215	PR1115	PR905	PR930	KW10			
GBA32	9.525	3.18	4.4		●	○													● : Continuous-Light Interruption / 1st Choice ○ : Continuous / 2nd Choice	
GBA43	12.70	4.76	5.5																○ : Continuous / 2nd Choice	
GBA43 <sup>R/L</sup> 480	12.70	5.00	5.5								○	●							● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	

Insert	Description	Dimension (mm)			CBN				PCD				Applicable Toolholders	Ref. to Page for Applicable Toolholders						
		W	B	r <sub>ε</sub>	KBN510		KBN525		KPD001		KPD010									
 1-edge	GBA32R 125-010	1.25	2.0	0.1														KGBA <sup>R/L</sup> ...16 KGBAS <sup>R/L</sup> ...16 KIGBA <sup>R/L</sup> ...16 (Internal)	G9 G11 G56 (Internal)	
	150-010	1.50		0.1																
	GBA43 <sup>R/L</sup>	125-010	1.25	2.0	0.1	●	●	●	●											KGBA <sup>R/L</sup> ...22-15 KGBAS <sup>R/L</sup> ...22-15 KIGBA <sup>R/L</sup> ...22 (Internal)
		125-020	1.25	3.5	0.2	●	●	●	●											
		150-010	1.50		0.1	●	●	●	●											
		150-020	1.50	4.0	0.2	●	●	●	●											
		200-010	2.00		0.1	●	●	●	●											
	GBA43 <sup>R/L</sup>	200-020	2.00	3.00	0.2	●	●	●	●											★2
		250-010	2.50		0.1	●	●	●	●											
		250-020	2.50	4.0	0.2	●	●	●	●											
		300-010	3.00		0.1	●	●	●	●											
		300-020	3.00	0.2	●	●	●	●												

Dimension B shows available grooving depth.

Recommended Cutting Conditions **G101**

★ Applicable Toolholders

2: KGBA<sup>R/L</sup>...22-25T5, KGBAS<sup>R/L</sup>...22-25T5, KGBA<sup>R/L</sup>...22-25, KGBAS<sup>R/L</sup>...22-25, KIGBA<sup>R/L</sup>...22

GBA type applicable for KGBA / KGBAS type toolholders is also usable for KGB / KGBS type toolholders.

● Rake Angle (α) after Installment of GBA type

GBA32 <sup>R/L</sup> 000-000		GBA43 <sup>R/L</sup> 000-000		GBA43 <sup>R/L</sup> 000-000R (Full-R)	
α	Insert Grades	α	Insert Grades	α	Insert Grades
10°	TN620, TN90, PV7040, PR930 PR1115, PR1215, PR905 KPD001, KPD010	0°	KBN510, KBN525	10°	TN620, TN90, PV7040, PR930 PR1115, PR1215, PR905
	20°	KW10	10°		TN620, TN90, PV7040 PR930, PR1115, PR1215, PR905 KPD001, KPD010
			20°	KW10	

For GM Chipbreaker and MY Chipbreaker, ref. to page G7.

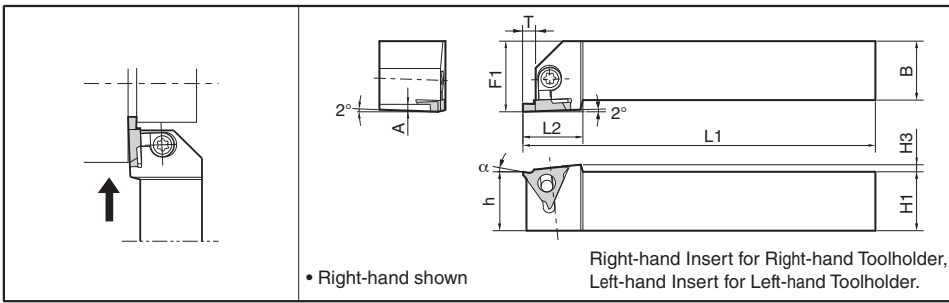
Inserts are sold in 10 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Item



### ■ KGBA

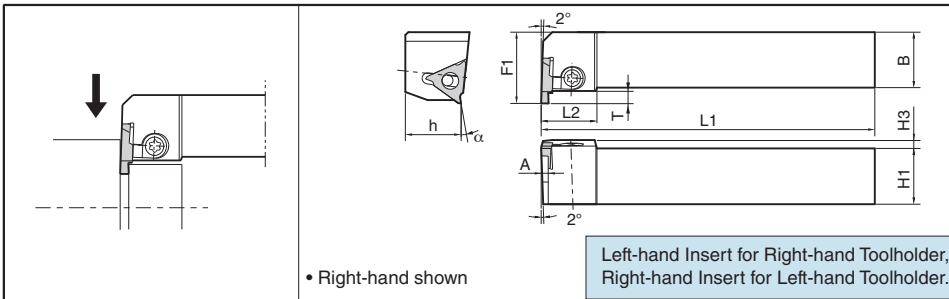


### ■ Alternative Toolholder Reference Table

KGBA ← (KGB)	(KGB)
KGBA <sup>90°</sup> ...22-15	KGB <sup>90°</sup> ...22-15
KGBA <sup>90°</sup> ...22-25	KGB <sup>90°</sup> ...22-25
KGBA <sup>90°</sup> ...22-35	KGB <sup>90°</sup> ...22-35
KGBA <sup>90°</sup> ...22-25T5	KGB <sup>90°</sup> ...22-25 (Available grooving depth has a limit)

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

### ■ KGBAS



### ■ Alternative Toolholder Reference Table

KGBAS ← (KGBS)	(KGBS)
KGBAS <sup>90°</sup> ...22-15	KGBS <sup>90°</sup> ...22-15
KGBAS <sup>90°</sup> ...22-25	KGBS <sup>90°</sup> ...22-25
KGBAS <sup>90°</sup> ...22-35	KGBS <sup>90°</sup> ...22-35
KGBAS <sup>90°</sup> ...22-25T5	KGBS <sup>90°</sup> ...22-25 (Available grooving depth has a limit)

### ● Toolholder Dimensions

Description	Std.	Dimension (mm)										Spare Parts		Applicable Inserts ● G6~G8														
		R	L	H1-h	H3	B	L1	L2	F1	A	T	Clamp Set	Wrench															
KGBA <sup>90°</sup> 2020K-16 2525M-16 2020K22-15 2525M22-15 2020K22-25 2525M22-25 2020K22-25T5 2525M22-25T5 2020K22-35 2525M22-35 2020H22-15* 2020H22-25* 2020H22-35*	● ●	20	4.0	20	125	24	25	-	2.5			LGBA-16 <sup>90°</sup> S	FT-15	GBA32 <sup>90°</sup> L type														
	● ●	25	4.0	20	125	25.5	25	1.0	4.0			LGBA-22 <sup>90°</sup> S		GBA43 <sup>90°</sup> L type														
	● ●	25	4.0	20	125	25.5	25	2.0	4.5						FT-15	GBA43 <sup>90°</sup> L type												
	● ●	25	4.0	20	125	25.5	25	2.0	5.5								FT-15	GBA43 <sup>90°</sup> L type										
	● ●	25	4.0	20	125	25.5	25	3.0											FT-15	GBA43 <sup>90°</sup> L type								
	●							1.0	4.0												FT-15	GBA43 <sup>90°</sup> L type						
	●		20	4.0	20	100	25.5	25	2.0	4.5													FT-15	GBA43 <sup>90°</sup> L type				
	●							3.0	5.5																FT-15	GBA43 <sup>90°</sup> L type		
	● ●	20	4.0	20	125	25	25	-	2.5																		LGBA-16 <sup>90°</sup> S	GBA32 <sup>90°</sup> L type
	● ●	25	4.5	20	125	25	27	1.0	4.0																			
● ●	25	5.0	20	125	25	32	2.0	4.5			LGBA-22 <sup>90°</sup> S		GBA43 <sup>90°</sup> L type															
● ●	25	5.0	20	125	25	32	2.0	4.5				LGBA-22 <sup>90°</sup> S		GBA43 <sup>90°</sup> L type														
● ●	25	5.0	20	125	25	32	2.0	5.5							LGBA-22 <sup>90°</sup> S	GBA43 <sup>90°</sup> L type												
● ●	25	5.0	20	125	25	32	3.0										LGBA-22 <sup>90°</sup> S	GBA43 <sup>90°</sup> L type										
● ●	25	5.0	20	125	25	32													LGBA-22 <sup>90°</sup> S	GBA43 <sup>90°</sup> L type								

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

\* mark indicates short shank type

- Clamp Set : KGBA<sup>90°</sup>...LGBA-○RS for Right-hand Toolholder, and LGBA-○OLS for Left-hand Toolholder.  
KGBAS<sup>90°</sup>...LGBA-○OLS for Right-hand Toolholder, and LGBA-○ORS for Left-hand Toolholder.

### ■ External Grooving Toolholders KGBA Short Shank types are available

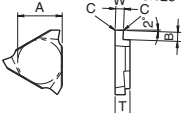
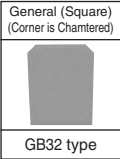

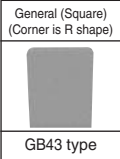
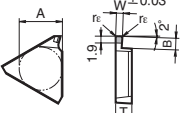
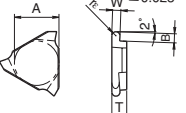
For NC lathe and HSK tooling, KGBAR2020K-○ (Overall length 125mm) short shank type KGBAR2020H22-○ (Overall length 100mm) is available.  
No longer required for the users to cut the shank portion.

## Applicable Inserts

Description	A	T
GB32_	9.525	3.18
GB43_	12.70	4.76
GB43 <sup>R/L</sup> 480	12.70	5.00

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)			Cermet		PVD Coated Carbide		PCD	Applicable Toolholders	Ref. to Page for Applicable Toolholders						
		W	B	C or re	TC40N	TC60M	PR630	PR930	KPD010								
					R	L	R	L	R			L	R	L			
Handed Insert shows Right-hand 	<b>GB32<sup>R/L</sup></b> 050* 075 095 100 125 145 150 200 250	0.50 0.75 0.95 1.00 1.25 1.45 1.50 2.00 2.50	1.0 2.0 2.5	C0.05 C0.10													
General (Square) (Corner is Chamfered)  GB32 type  General (Square) (Corner is R shape)  GB43 type GB insert will be switched to GBA. Check the corner-R(re) of the insert when changing.	<b>GB43<sup>R/L</sup></b> 125 145 150 175 185 200 230 250 265 280 300 330 350 400 430 450 480	1.25 1.45 1.50 1.75 1.85 2.00 2.30 2.50 2.65 2.80 3.00 3.30 3.50 4.00 4.30 4.50 4.80	2.0 3.5 4.0 5.0	0.1 0.2 0.2 0.2 0.2 0.1 0.2 0.2 0.3 0.3 0.3 0.1 0.3 0.4 0.4 0.4 0.4													
					1-edge 	<b>GB43<sup>R/L</sup></b> 125 150 200 250 300	1.25 1.50 2.00 2.50 3.00	2.0 3.5 4.0	0.1								
Full-R 	<b>GB43<sup>R/L</sup></b> 050R 075R 100R 125R 150R 200R	1.00 1.50 2.00 2.50 3.00 4.00	2.0 3.5 4.0 5.0	0.50 0.75 1.00 1.25 1.50 2.00													

· Dimension B shows available grooving depth.  
 · The edge width tolerance of GB32<sup>R/L</sup>050 is different 0.50<sup>+0.05</sup> (\*)

Recommended Cutting Conditions **G101**

\* Insert grades selection standard when changing to GBA.

GB Inserts	GBA Inserts
TC40N	TC40N / PV7040
TC60M	TN620 / TN90
PR630	PR1215 / PR1115
PR930	PR1215 / PR1115
KPD010	KPD001 (KPD010)

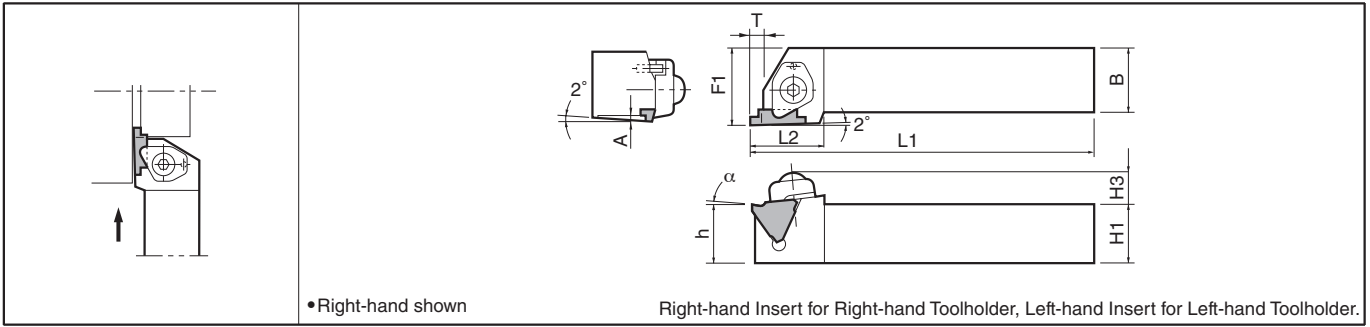
\* Check the corner-R(re) of the insert when changing.

○ : Check Availability  
 □ : Deleted from the next catalogue

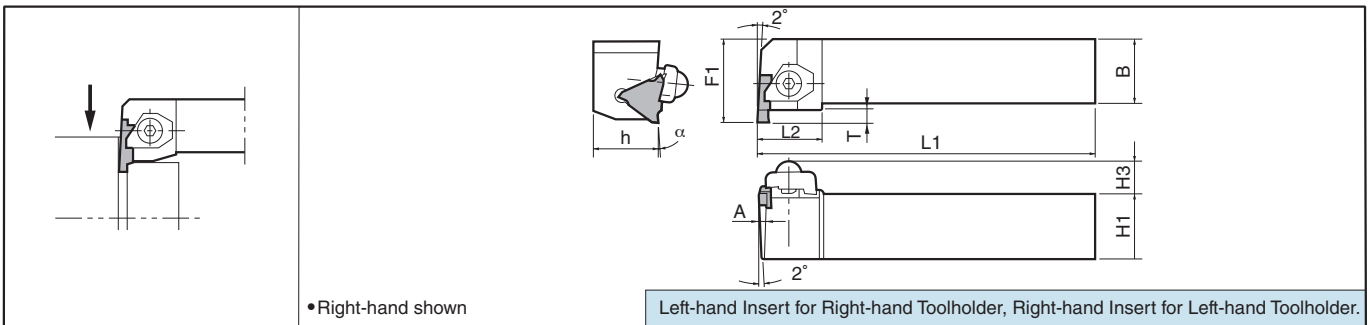
**G10** Inserts are sold in 10 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

### KGB (Will be switched to KGBA Ⓞ G9)



### KGBS (Will be switched to KGBAS Ⓞ G9)



### Toolholder Dimensions

Description	Std.	Dimension (mm)										Spare Parts				Applicable Inserts Ⓞ G6~G8 Ⓞ G10		
		R		L		H1=h	H3	B	L1	L2	F1	A	T	Clamp	Clamp Bolt		Spring	Wrench
		○	○	○	○													
<b>KGB<sup>R/L</sup></b> 2020K-16 2525M-16 2020K22-15 2525M22-15 2020K22-25 2525M22-25 2020K22-35 2525M22-35	○	○	20	11	20	125	24	25	-	2.5	CGB <sup>R/L</sup>	BH6X25	SP-6	LW-4	GB32 <sup>R/L</sup> type GBA32 <sup>R/L</sup> type			
	○	○	25		25	150												
	○	○	20	11.5	20	125	25.5	25	1.0	4.0					GB43 <sup>R/L</sup> type GBA43 <sup>R/L</sup> type			
	○	○	25		25	150												
	○	○	20	11.5	20	125	25.5	25	2.0	4.5								
	○	○	25		25	150												
<b>KGBS<sup>R/L</sup></b> 2020K-16 2525M-16 2020K22-15 2525M22-15 2020K22-25 2525M22-25 2020K22-35 2525M22-35	○	○	20	11	20	125	25	25	-	2.5	CGB <sup>L/R</sup>	BH6X25	SP-6	LW-4	GB32 <sup>R/L</sup> type GBA32 <sup>R/L</sup> type			
	○	○	25		25	150												
	○	○	20	11.5	20	125	25	27	1.0	4.0					GB43 <sup>R/L</sup> type GBA43 <sup>R/L</sup> type			
	○	○	25		25	150												
	○	○	20	11.5	20	125	25	27	2.0	4.5								
	○	○	25		25	150												

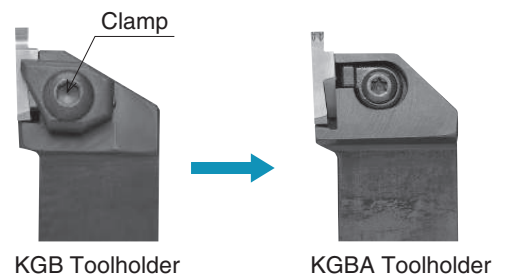
Dimension T shows the distance from the toolholder to the cutting edge. Available Groove Depth: "B" Dimension of Insert.

Clamp: KGB<sup>R/L</sup> ... CGBR for Right-hand Toolholder, and CGBL for Left-hand Toolholder.

KGBS<sup>R/L</sup> ... CGBL for Right-hand Toolholder, and CGBR for Left-hand Toolholder.

### Rake Angle(α) after Installment of GB type

GB32 <sup>R/L</sup> ○○○○		GB43 <sup>R/L</sup> ○○○○		GB43 <sup>R/L</sup> ○○○○R (Full-R)	
α	Insert Grades	α	Insert Grades	α	Insert Grades
5°	TC60M PR630	5°	TC40N PR630 TC60M PR930	5°	TC60M } 050R~150R PR630 }
20°	KW10	10°	KPD010	14°	TC60M } 200R PR630 } KW10...050R~200R
		20°	KW10		



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

\* For applicable insert, GB insert will be switched to GBA.

There are various types of GBA insert grades available dependent on the user's cutting condition requirements.

## GBF

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

				Dimension (mm)			MEGACOAT	MEGACOAT NANO	Carbide	Applicable Toolholders	Ref. to Page for Applicable Toolholders				
Description	A	T	φd	W	B	re	PR1215	PR1535	GW15						
Handed Insert shows Right-hand							R	L	R			L	R	L	
	9.525	3.18	4.4	GBF32 <sup>3</sup> / <sub>L</sub> 025-005			0.05	●	●	●	●	●	●		
				030-005				0.25	0.6	●	●	●	●	●	●
				033-005				0.30	0.8	●	●	●	●	●	●
				043-005				0.33	1.0	●	●	●	●	●	●
				050-005				0.43	1.0	●	●	●	●	●	●
				053-005				0.50	1.2	●	●	●	●	●	●
				065-005				0.53	1.2	●	●	●	●	●	●
				075-005				0.65	1.2	●	●	●	●	●	●
				080-005				0.75	1.2	●	●	●	●	●	●
				080-005				0.80	1.2	●	●	●	●	●	●
				095-005				0.80	1.2	●	●	●	●	●	●
				095-005				0.95	1.2	●	●	●	●	●	●
				100-005				0.95	1.2	●	●	●	●	●	●
				100-005				1.00	2.0	●	●	●	●	●	●
				110-005				1.00	2.0	●	●	●	●	●	●
				110-005				1.10	2.0	●	●	●	●	●	●
				120-005				1.10	2.0	●	●	●	●	●	●
				120-005				1.20	2.0	●	●	●	●	●	●
				125-010				1.20	2.0	●	●	●	●	●	●
				125-010				1.25	2.0	●	●	●	●	●	●
				130-010				1.25	2.0	●	●	●	●	●	●
				130-010				1.30	2.0	●	●	●	●	●	●
				140-010				1.30	2.0	●	●	●	●	●	●
				140-010				1.40	2.7	●	●	●	●	●	●
				145-010				1.40	2.7	●	●	●	●	●	●
				145-010				1.45	2.7	●	●	●	●	●	●
				150-010				1.45	2.7	●	●	●	●	●	●
				150-010				1.50	2.7	●	●	●	●	●	●
				165-010				1.50	2.7	●	●	●	●	●	●
				165-010				1.65	3.0	●	●	●	●	●	●
170-010			1.65	3.0	●	●	●	●	●	●					
170-010			1.70	3.0	●	●	●	●	●	●					
175-010			1.70	3.0	●	●	●	●	●	●					
175-010			1.75	3.0	●	●	●	●	●	●					
200-010			1.75	3.0	●	●	●	●	●	●					
200-010			2.00	3.0	●	●	●	●	●	●					
225-010			2.00	3.0	●	●	●	●	●	●					
225-010			2.25	3.0	●	●	●	●	●	●					
250-010			2.25	3.0	●	●	●	●	●	●					
250-010			2.50	3.0	●	●	●	●	●	●					
300-010			2.50	3.0	●	●	●	●	●	●					
300-010			3.00	3.0	●	●	●	●	●	●					

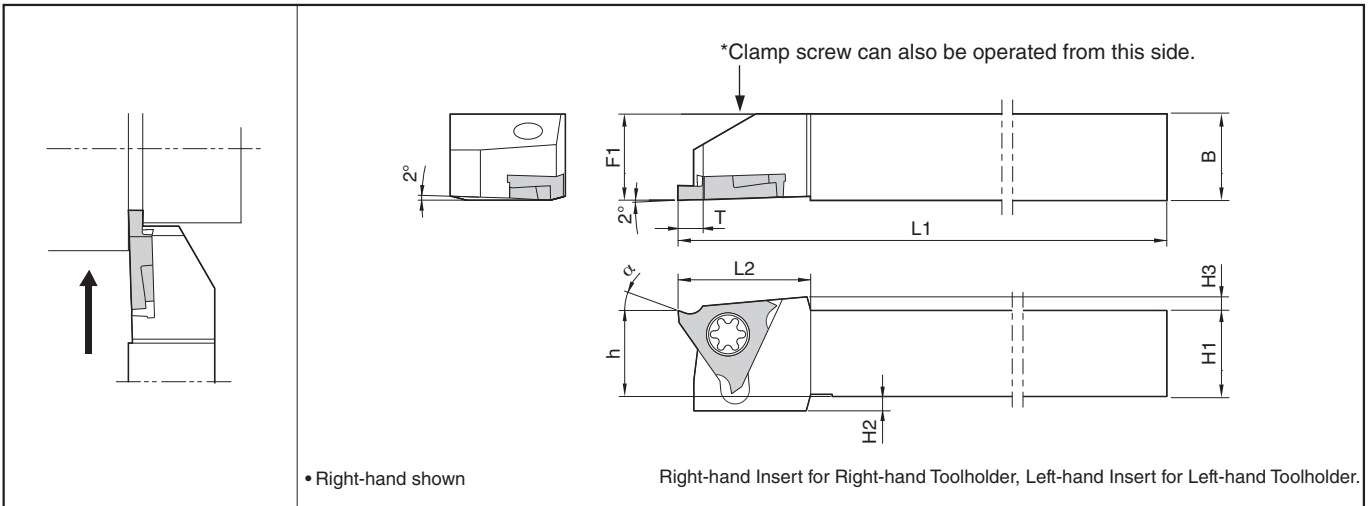
## Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)			(1) f for Grooving (mm/rev)				Remarks
	MEGACOAT	MEGACOAT NANO	Carbide	(2) f for Turning (mm/rev)				
	PR1215	PR1535	GW15	(3) ap for Turning (mm)				
				GBF32 <sup>3</sup> / <sub>L</sub> 025-053	GBF32 <sup>3</sup> / <sub>L</sub> 065-095	GBF32 <sup>3</sup> / <sub>L</sub> 100-145	GBF32 <sup>3</sup> / <sub>L</sub> 150-300	
Carbon Steel	★ 80-180	☆ 70-160	-	(1) 0.01-0.05	(1) 0.02-0.07	(1) 0.03-0.08	(1) 0.03-0.08	Coolant
				(2) Not recom.	(2) Not recom.	(2) 0.03-0.06	(2) 0.03-0.06	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Alloy Steel	★ 80-180	☆ 70-160	-	(1) 0.01-0.04	(1) 0.02-0.06	(1) 0.03-0.07	(1) 0.03-0.07	
				(2) Not recom.	(2) Not recom.	(2) 0.02-0.05	(2) 0.02-0.05	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Stainless Steel	☆ 60-130	★ 50-120	-	(1) 0.01-0.04	(1) 0.02-0.06	(1) 0.03-0.07	(1) 0.03-0.07	
				(2) Not recom.	(2) Not recom.	(2) 0.02-0.05	(2) 0.02-0.05	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Cast Iron	-	-	★ 60-100	(1) 0.01-0.05	(1) 0.02-0.07	(1) 0.03-0.08	(1) 0.03-0.08	
				(2) Not recom.	(2) Not recom.	(2) 0.03-0.06	(2) 0.03-0.06	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Aluminum	-	-	★ 150-400	(1) 0.01-0.05	(1) 0.02-0.07	(1) 0.03-0.08	(1) 0.03-0.08	
				(2) Not recom.	(2) Not recom.	(2) 0.03-0.06	(2) 0.03-0.06	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Brass	-	-	★ 150-300	(1) 0.01-0.04	(1) 0.02-0.06	(1) 0.03-0.07	(1) 0.03-0.07	
				(2) Not recom.	(2) Not recom.	(2) 0.02-0.05	(2) 0.02-0.05	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	

★:1st Recommendation ☆:2nd Recommendation

● : Std. Item

**KGBF-F (without offset)**



**Toolholder Dimensions**

Description	Std.		Dimension (mm)							Spare Parts	
	R	L	H1=h	H2	H3	B=F1	L1	L2	T	Clamp Screw	Wrench
<b>KGBF<sup>R/L</sup></b> 1010JX-16F	●	●	10	4	2.1	10	120	18.5	3	SB-4070TRW	FT-8
	●	●	12	2		12					
	●	●	16	-		16					
	●	●	20	-		20					

\* Dimension T shows the distance from the toolholder to the cutting edge. Available Groove Depth: "B" Dimension of Insert.  
 Max. cutting dia. is  $\phi 51$ mm  
 The rake angle after installation in the toolholder is 20°.

**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°

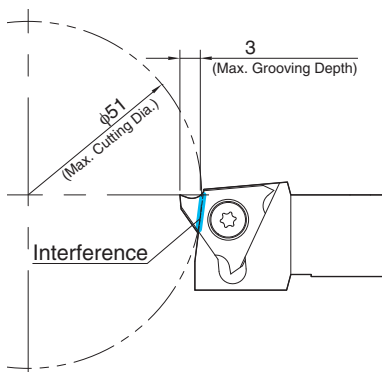
2.5 mm groove depth is available on workpiece diameters up to 200 mm max.

2.2 mm groove depth is available on workpiece diameters over 200 mm

**Max. Cutting Dia.**

Max. cutting dia. is  $\phi 51$ mm

The workpiece interferes with the holder at  $\phi 51$  mm workpiece diameter or larger



● : Std. Item

# External Shallow Grooving Toolholders [for TGF Insert]

## KTGF-F (without offset)

$\alpha$	Insert Grades
20°	PR1115, PR1215 PR930, KW10
11°	KPD001
6°	TC40N

• Right-hand shown

\*Clamp screw can also be operated from this side.

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

## KTGF (with offset)

$\alpha$	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	Std.	Dimension (mm)									Spare Parts					
		R	L	H1-h	H2	H3	B	L1	L2	F1	Clamp Screw	Wrench				
KTGF <sup>R/L</sup> 1010JX-16F 1212JX-16F 1616JX-16F	●●	10	2		10				10			SB-4070TRW	FT-8			
	●●	12	-	2.5	12	120	18.5	12								
	●●	16			16			16								
KTGF <sup>R/L</sup> 1212F-16F	●●	12	-	2.5	12	85	18.5	12			SB-4070TRW	FT-8				
KTGF <sup>R/L</sup> 1010F-16 1212H-16 1616H-16 2020K-16 2525M-16	●●	10	4		10	80		12			SB-4070TRS	FT-10				
	●●	12	2		12	100	18.5	16								
	●●	16		2.5	16	100		20								
	●●	20	-		20	125	20	25								
	●●	25			25	150	20	32								

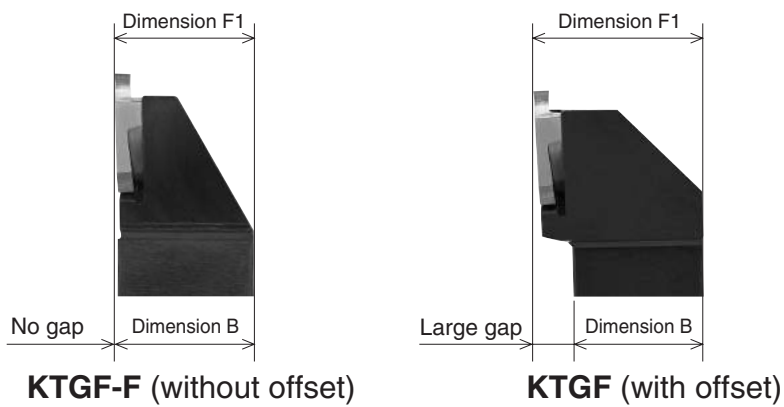
## KTGF-F / KTGF Selection Reference

Q: What is the difference between "Without Offset" and "With Offset" of KTGF toolholders for external grooving?

A: When operating the automatic lathe, the toolholder come very close to the chuck.

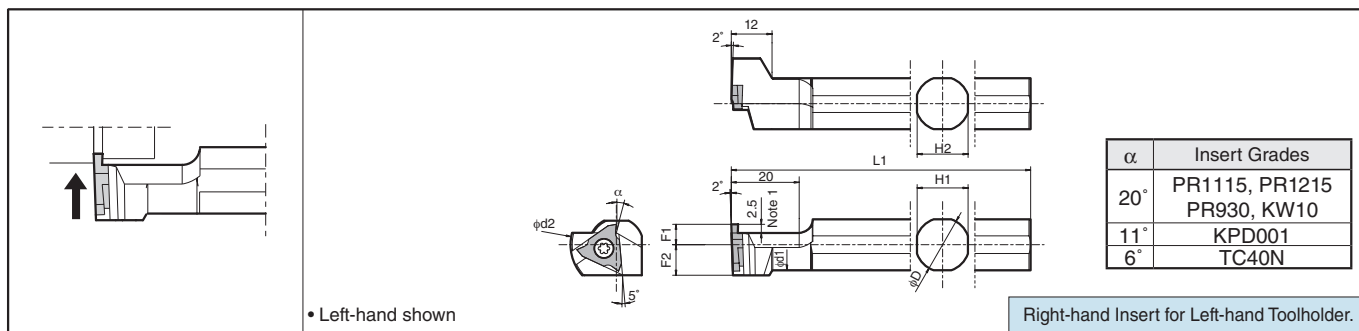
In such cases, the "With Offset" toolholder sometimes interferes with the chuck due to the large gap between B and F1 dimensions as shown below.

It is necessary to use "Without Offset" in such cases.



G  
Grooving  
External  
Internal  
Face

**S-KTGF (Sleeve Holder)**



Note 1) Dimension B shows available grooving depth.

**Toolholder Dimensions**

Description	Std.	Dimension (mm)							Spare Parts					
		$\phi D$	L1	F1	F2	$\phi d1$	$\phi d2$	H1=H2	Clamp Screw	Wrench				
S12F-KTGFL16	●	12	80	6	9.0	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									17.6	17		
S19G-KTGFL16	●	19.05	90								18.6	18		
S19K-KTGFL16	●		120								10	14.0	23.6	32
S20G-KTGFL16	●	90												
S20K-KTGFL16	●	120												
S25.0H-KTGFL16	●	25	100	10	14.0	23.6	32	23						
S25K-KTGFL16	●	25.4	120											

**Applicable Inserts**

Description	A	T	$\phi d$	P Carbon steel / Alloy steel	M Stainless Steel	K Cast Iron	N Non-ferrous Metals	S Titanium Alloys	H Hard materials (~40HRC)	H Hard materials (40HRC~)	Classification of usage	
											● : Continuous / 1st Choice	○ : Continuous / 2nd Choice
TGF32_	9.525	3.18	4.6						●	○	○	○

Insert	Description	Dimension(mm)					Applicable Toolholders										Ref. to Page for Applicable Toolholders		
		W	B	$r\epsilon$	Cermet		MEGACOAT		PVD Coated Carbide		Carbide		PCD						
					TC40N	PR1215	PR930	PR1115	KW10	KPD001	KTGF^L...16F	KTGF^L...16	S...KTGFL^L-16						
	TGF32 <sup>L</sup> 033-005	0.33	0.8	0.05															
	050-005	0.50	1.2	0.05	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	075-010	0.75	2.0	0.1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	095-010	0.95			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	100-010	1.00			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	120-010	1.20			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	125-010	1.25	2.5	0.1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	140-010	1.40			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	145-010	1.45			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	150-010	1.50			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
175-010	1.75	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	
200-010	2.00	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	
250-010	2.50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	TGF32 <sup>L</sup> 125-010	1.25	2.0	0.1													●		
	150-010	1.50																	●
	200-010	2.00																	

• Dimension B shows available grooving depth.

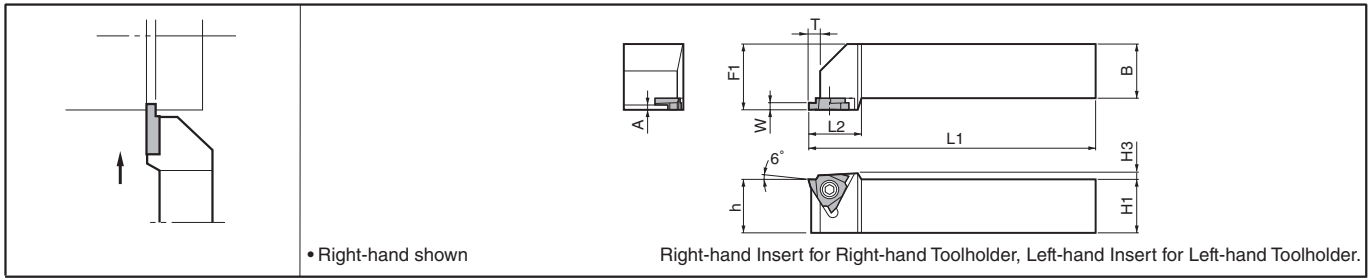
Recommended Cutting Conditions **G102**

● : Std. Item

Inserts are sold in 10 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

### KTG (Will be switched to KGBA → G9)



### Toolholder Dimensions

Description	Std.	Dimension (mm)										Spare Parts					
		R	L	H1-h	H3	B	L1	L2	F1	A	T	Clamp Screw		Wrench			
<b>KTG<sup>R/L</sup></b>																	
<b>2020K-16</b>	○ ○		20	3.0	20	125	20	25	-	2.5			SB-4TR	-	FT-15	-	
<b>2525M-16</b>	○ ○		25		25	150		30									
<b>2020K22-15</b>	○ ○		20	3.0	20	125	25	25	1.0	4.0							
<b>2525M22-15</b>	○ ○		25		25	150		30									
<b>2020K22-25</b>	○ ○		20	3.0	20	125	25	25	2.0	4.5			-	GS-50	-	LW-3	
<b>2525M22-25</b>	○ ○		25		25	150		30									
<b>2020K22-35</b>	○ ○		20	3.0	20	125	25	25	3.0	5.5							
<b>2525M22-35</b>	○ ○		25		25	150		30									

· Dimension T shows the distance from the toolholder to the cutting edge. Available groove depth: "B" dimension of insert.

\* GBA insert cannot be installed to this toolholder.

### Applicable Inserts (TG insert will be switched to GBA → G6-G8)

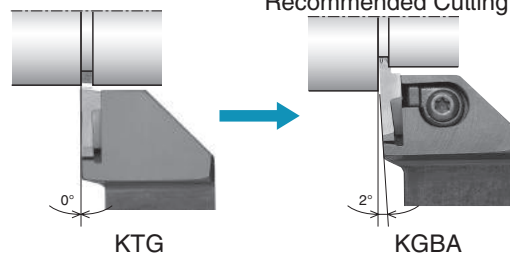
Description	A	T	φd
<b>TG32<sub>—</sub></b>	9.525	3.18	4.5
<b>TG43<sub>—</sub></b>	12.70	4.76	5.5

P	Carbon steel / Alloy steel		Classification of usage ●: Continuous-Light Interruption / 1st Choice ☺: Continuous-Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice
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 TN60	Applicable Toolholders	Ref. to Page for Applicable Toolholders		
		W	B	C or r <sub>c</sub>					
								R	L
 TG32 type  (Corner is Chamfered)	<b>TG32<sup>R/L</sup></b>	<b>075</b>	0.75	2.0	C0.1	○	○	<b>KTG<sup>R/L</sup>...16</b>	<b>G16</b>
	<b>095</b>	0.95	○			○			
	<b>125</b>	1.25	○			○			
	<b>145</b>	1.45	○			○			
	<b>150</b>	1.50	○			○			
	<b>175</b>	1.75	○			○			
 TG43 type  (Corner is R shape)	<b>TG43<sup>R/L</sup></b>	<b>150</b>	1.50	3.5	0.2	○	○	<b>KTG<sup>R/L</sup>...22-15</b>	
	<b>175</b>	1.75	○			○			
	<b>200</b>	2.00	○			○			
	<b>230</b>	2.30	4.0	0.3	○	○	<b>KTG<sup>R/L</sup>...22-25</b>		
	<b>250</b>	2.50			○	○			
	<b>265</b>	2.65			○	○			
	<b>280</b>	2.80	5.0	0.4	○	○	<b>KTG<sup>R/L</sup>...22-35</b>		
	<b>300</b>	3.00			○	○			
	<b>330</b>	3.30			○	○			
	<b>350</b>	3.50			○	○			
<b>400</b>	4.00			○	○				
<b>430</b>	4.30			○	○				
<b>450</b>	4.50			○	○				

· Dimension B shows available grooving depth.

- \* 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(r<sub>c</sub>) of the insert when changing.



### Recommended Cutting Conditions → G102



## Features

### 1 Various insert lineup

#### Smooth chip control

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

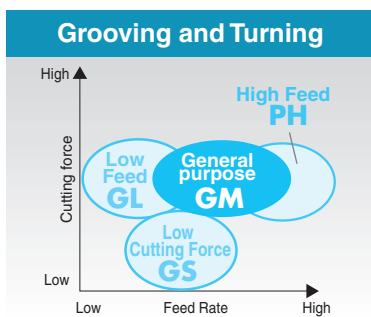
#### High precision edge preparation

➔ High precision molding technology with tolerance  $\pm 0.03\text{mm}$  (Edge width 2, 3, 4mm types)

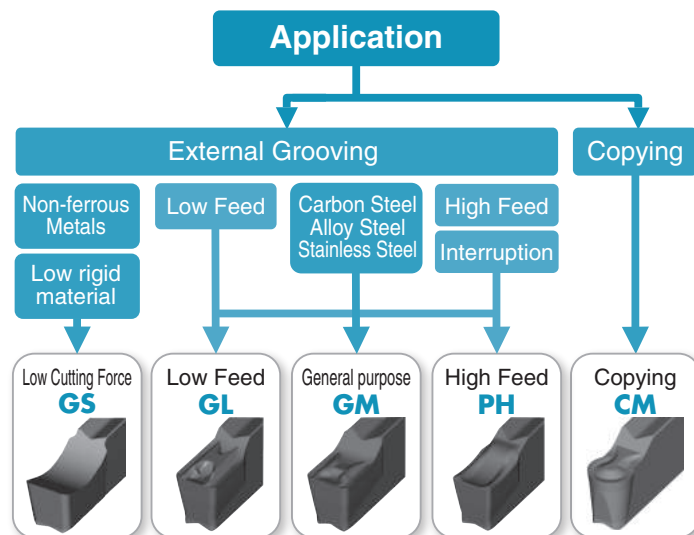
#### Highly-reputed MEGACOAT technology

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

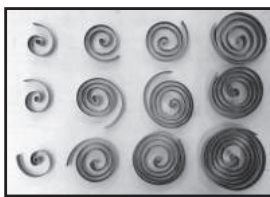
#### Application Map



#### Chipbreaker Selection



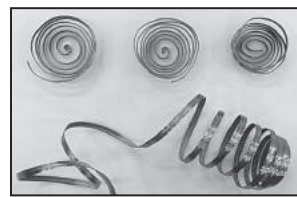
#### Comparison of Chip Control (SCM415 Vc=150m/min, f=0.15mm/rev)



GM Chipbreaker



Competitor A



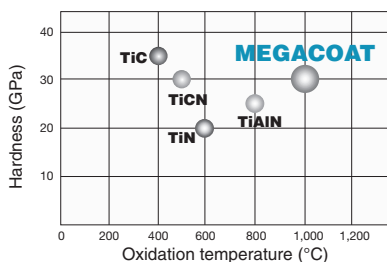
Competitor B

Smooth chip control

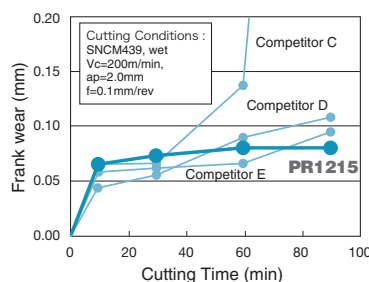


Less chip biting troubles

#### Features of MEGACOAT



#### Comparison of Wear Resistance

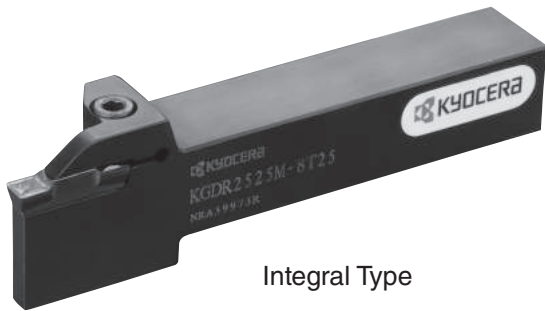


**PR1225:**  
1st choice for cut-off, grooving and turning.

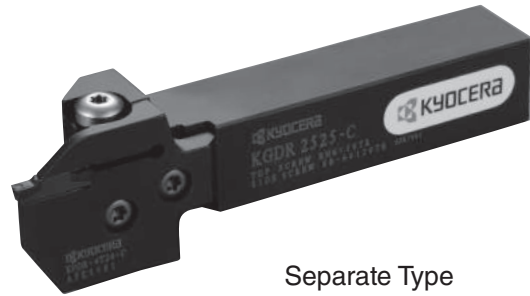
**PR1215:**  
With superior wear resistance, recommended for grooving and cut-off under the stable conditions as well as machining of cast iron.

## 2 Toolholder

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



Integral Type

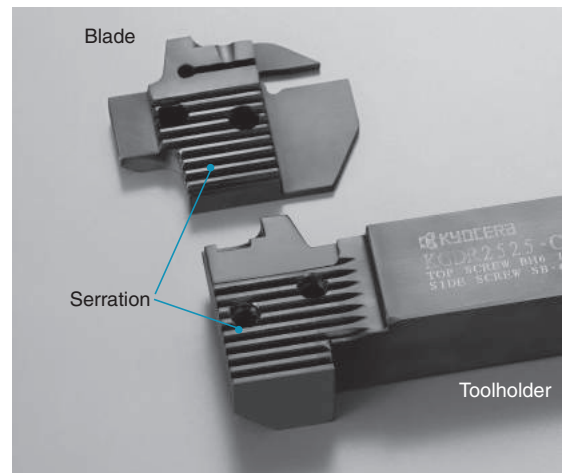


Separate Type

● 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.



G



Grooving

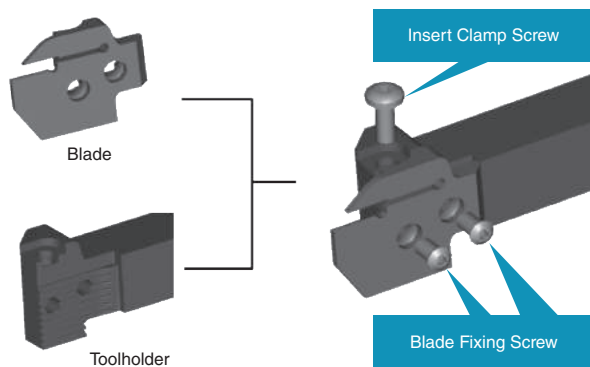
External

Internal

Face

### Structure of toolholder unit (Toolholder + Blade)

● KGD-S (0° Separate Type)



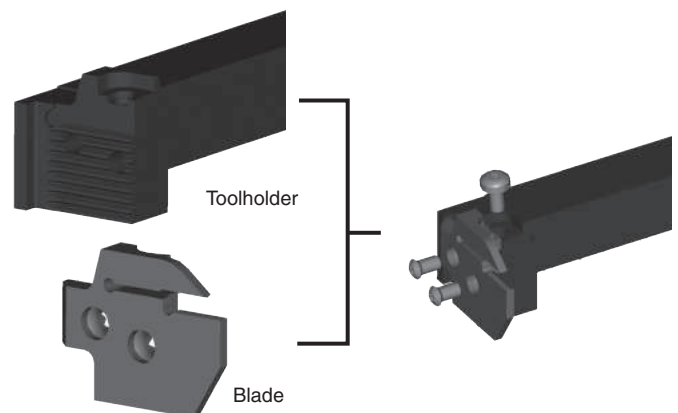
\* Note for the toolholder and blade combination of 0° Separate Type

Toolholder (KGD<sup>1/4</sup>-○○○○-C)

+ Blade (KGD<sup>1/4</sup>-○T○○-C)

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

● KGDS-S (90° Separate Type)



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

Toolholder (KGDS<sup>1/4</sup>-○○○○-C)

+ Blade (KGD<sup>1/4</sup>-○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

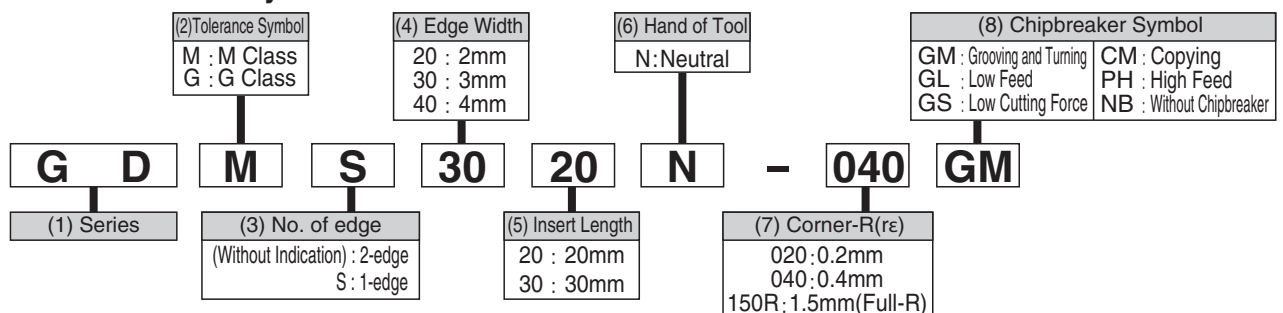
Classification of usage	P	Carbon steel / Alloy steel	●	○					
	M	Stainless Steel			●	○	○	○	
● : Continuous-Light Interruption / 1st Choice	K	Cast Iron						●	
○ : Continuous-Light Interruption / 2nd Choice	N	Non-ferrous Metals							○
● : Continuous / 1st Choice	S	Titanium Alloys			●				○
○ : Continuous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

Insert	Description	Dimension (mm)					Cermet					Carbide	Ref. to Page for Applicable Toolholders		
		W	Tolerance	re	M	L	H	TN620	TN90	PR1535	PR1225			PR1215	GW15
Grooving and Turning General purpose	GDM 2420N-020GM	2.4	±0.03	0.2	1.95	20	4.3	●	●	●	●	●	●		G21
	3020N-020GM	3.0		0.4	2.3			●	●	●	●	●	●		G22
	3020N-040GM	3.0		0.4	2.3			●	●	●	●	●	●		G23
	4020N-020GM	4.0		0.2	3.3			●	●	●	●	●	●		G24
	4020N-040GM	4.0		0.4	3.3			●	●	●	●	●	●		
	4020N-080GM	4.0		0.8	3.3			●	●	●	●	●	●		
	5020N-040GM	5.0		0.4	4.2			●	●	●	●	●	●		G22
	5020N-080GM	5.0		0.8	4.2			●	●	●	●	●	●		G23
	6020N-040GM	6.0		0.4	5.2			●	●	●	●	●	●		G24
	6020N-080GM	6.0		0.8	5.2			●	●	●	●	●	●		
Grooving and Turning General purpose 1-edge	GDMS 2220N-020GM	2.2	±0.03	0.2	1.75	20	4.3	○	●	○	●	●	●		G21
	3020N-040GM	3.0		0.4	2.3			○	●	○	●	●	●		G22
	4020N-040GM	4.0		0.4	3.3			○	●	○	●	●	●		G23
	5020N-080GM	5.0		0.8	4.2			○	●	○	●	●	●		G24
	6020N-080GM	6.0		0.8	5.2			○	●	○	●	●	●		G22
		6.0		0.8	5.2			○	●	○	●	●	●		G23
Grooving and Turning Low Feed	GDM 2420N-020GL	2.4	±0.03	0.2	1.95	20	4.3	○	●	○	●	●	●		G21
	3020N-020GL	3.0		0.4	2.3			○	●	○	●	●	●		G22
	3020N-040GL	3.0		0.4	2.3			○	●	○	●	●	●		G23
	4020N-020GL	4.0		0.2	3.3			○	●	○	●	●	●		G24
	4020N-040GL	4.0		0.4	3.3			○	●	○	●	●	●		
	5020N-040GL	5.0		0.4	4.2			○	●	○	●	●	●		G22
Grooving Low Cutting Force	GDG 2520N-020GS	2.5	±0.02	0.2	2.0	20	4.3	●	●	●	●	●	●		G21
	3020N-020GS	3.0		0.2	2.3			●	●	●	●	●	●		G22
	3520N-020GS	3.5		0.2	2.8			●	●	●	●	●	●		G23
	4020N-040GS	4.0		0.4	3.3			●	●	●	●	●	●		G24
	5020N-040GS	5.0		0.4	4.2			●	●	●	●	●	●		G22
	6020N-040GS	6.0		0.4	5.2			○	●	○	●	●	●		G23
Full-R / Copying	GDM 3020N-150R-CM	3.0	±0.03	1.5	2.3	20	4.3	○	●	○	●	●	●		G21
	4020N-200R-CM	4.0		2.0	3.3			○	●	○	●	●	●		G22
	5020N-250R-CM	5.0		2.5	4.2			○	●	○	●	●	●		G23
	6020N-300R-CM	6.0		3.0	5.2			○	●	○	●	●	●		G24
Grooving / Cut-off High Feed	GDM 2020N-020PH	2.0	±0.03	0.2	1.5	20	4.3			●	●	●			G21
	3020N-030PH	3.0		0.3	2.3					●	●	●			G22
	4020N-030PH	4.0		0.3	3.3					●	●	●			G23
	GDMS 2020N-020PH	2.0		0.2	1.5					●	●	●			G24
	3020N-030PH	3.0		0.3	2.3					●	●	●			
	4020N-030PH	4.0		0.3	3.3					●	●	●			

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

Recommended Cutting Conditions G27,G28

### Inserts Identification System



● : Std. Item  
○ : Check Availability

Inserts are sold in 10 piece boxes.



# Inserts for Grooving

## GDGS (CBN / PCD)

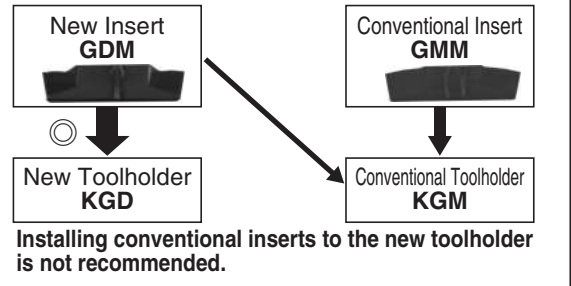
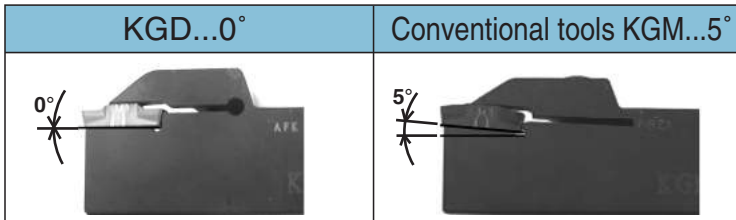
Classification of usage	P	Carbon steel / Alloy steel			
	M	Stainless Steel			
●: Continuous-Light Interruption / 1st Choice	K	Cast Iron			
☺: Continuous-Light Interruption / 2nd Choice	N	Non-ferrous Metals			●
●: Continuous / 1st Choice	S	Titanium Alloys			●
○: Continuous / 2nd Choice	H	Hard materials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

Insert	Description	Dimension (mm)						Angle $\theta$	MEGA CBN	CBN	PCD	Ref. to Page for Applicable Toolholders
		W	r <sub>e</sub>	M	L	H	S					
	<b>GDGS 2020N-020NB</b>	2.0	0.2	1.8					●	●	●	G21
	<b>3020N-020NB</b>	3.0	0.2	2.3								G22
	<b>3020N-040NB</b>		0.4									G23
	<b>4020N-020NB</b>	4.0	0.2	3.3	20	4.3	2.9	-				G24
	<b>4020N-040NB</b>		0.4									G22
	<b>5020N-020NB</b>	5.0	0.2	4.2								G23
	<b>5020N-040NB</b>		0.4									G24
	<b>6020N-020NB</b>	6.0	0.2	5.2								G22
	<b>6020N-040NB</b>		0.4									G23

Recommended Cutting Conditions ● G27, G28

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

#### Insert setting angle for grooving toolholders



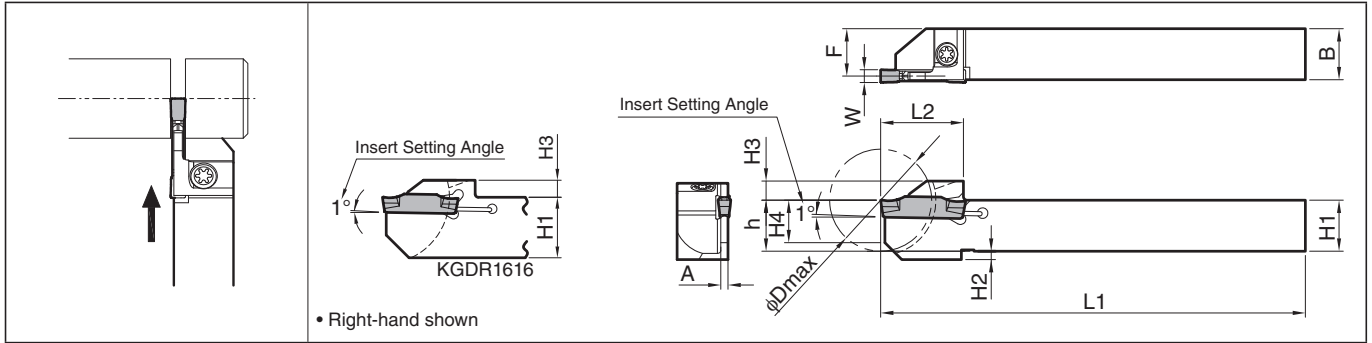
CBN & PCD Inserts are sold in 1 piece boxes.

●: Std. Item

# Toolholders for Grooving and Cut-off

## KG D (Integral Type for Automatic Lathe)

Edge Width: 2.0~4.0mm



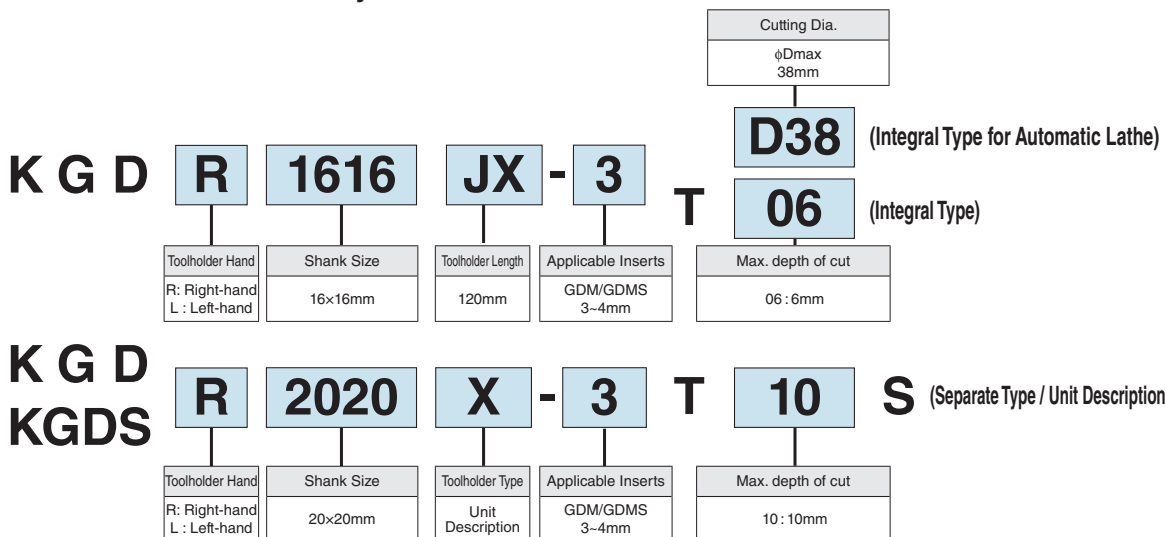
### Toolholder Dimensions

Description	Std.		Cutting Dia.	Dimension (mm)										Angle	Edge Width W(mm)		Spare Parts	
	R	L		φDmax	H1=h	H2	H3	H4	B	L1	L2	F	A		θ	MIN.	MAX.	Clamp Screw
<b>KG D</b> 1010JX-2	●	●	20	10	2	4.5	8	10	120	18	9.15	1.7	1°	2.0	3.0	SB-40120TR	LTW-15S	
1212F-2	●	●	24	12														10
1212JX-2	●	●	32	16	-	9.5	20	12	125	32.5	11.2	1.6	0°	2.0	3.0	HH5X16	LW-4	
1616JX-2	●	●	34	20														20
2012K-2D34	●	●	34	20	-	9.5	20	12	20	125	32.5	11	0°	2.4	3.0	HH5X16	LW-4	
2020K-2D34	●	●	34	20														20
<b>KG D</b> 1010JX-2.4	●	●	20	10	2	4.5	8	10	120	18	9	2.0	1°	2.4	3.0	SB-40120TR	LTW-15S	
1212F-2.4	●	●	24	12														10
1212JX-2.4	●	●	32	16	-	9.5	20	12	125	32.5	11	2.4	0°	2.4	3.0	HH5X16	LW-4	
1616JX-2.4	●	●	34	20														20
2012K-2.4D34	●	●	34	20	-	9.5	20	12	20	125	32.5	11	0°	2.4	3.0	HH5X16	LW-4	
2020K-2.4D34	●	●	34	20														20
<b>KG D</b> 1212JX-3	●	●	24	12	2	4.5	10	16	120	24.5	14.8	2.4	1°	3.0	4.0	SB-40120TR	LTW-15S	
1616JX-3	●	●	32	16														10
1616JX-3D38	●	●	38	19	-	6	13	13	125	29	11.8	2.4	1°	3.0	4.0	SE-50125TR	LTW-20	
1913K-3D38	●	●	38	19														13
2012JX-3D42	●	●	42	20	-	7.5	14	12	120	31	10.8	2.4	1°	3.0	4.0	SE-50125TR	LTW-20	
2012JX-3D51	●	●	51															7.5
2020JX-3D42	●	●	42	20	-	6	14	20	120	31	18.8	2.4	1°	3.0	4.0	SE-50125TR	LTW-20	
2020JX-3D51	●	●	51															6

- Note) 1. 4mm width Insert can be installed in KG D 1212JX-3, but is not recommended due to the toolholder's rigidity.  
 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 φ36mm with KG D/L...-3D38, KG D/L...-3D42 or KG D/L...-3D51 toolholders, please use 1-edge inserts.

Applicable Inserts ● G19, G20

### Toolholder Identification System

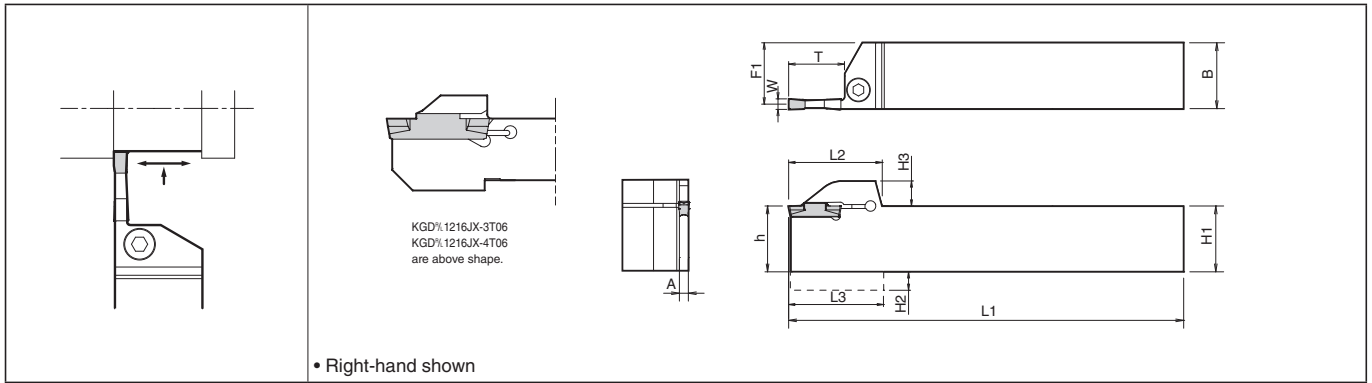


● : Std. Item



# Toolholders for Grooving and Cut-off

## KGD (Integral Type)



### Toolholder Dimensions

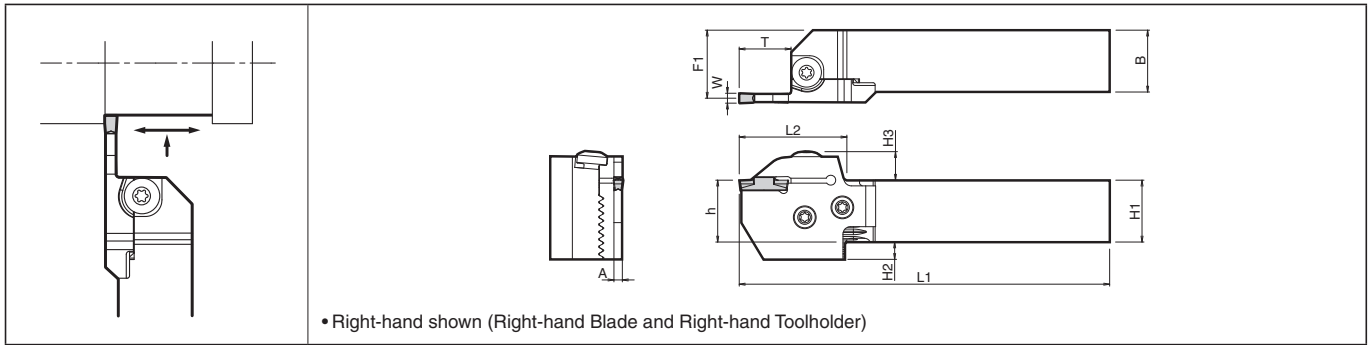
Width (mm)	Max. depth of cu (mm)	Description	Std.		Dimension (mm)										Edge Width W (mm)		Spare Parts							
			R	L	H1-h	H2	H3	B	L1	L2	L3	F1	A	T	MIN.	MAX.	Clamp Bolt	Wrench						
2	6	KGD% 1616H-2T06	●	●	16	4.0	9.5	16	100	27.7	28.0	15.2	1.7	6	2.0	3.0	HH5X16	LW-4						
		2020K-2T06	●	●	20	-		20	125	28.0	-	19.2					HH5X25							
		2525M-2T06	●	●	25	-		25	150	24.2	24.2	HH5X25												
	10	KGD% 1616H-2T10	●	●	16	4.0		16	100	30.2	30.5	15.2		10			HH5X16							
		2020K-2T10	●	●	20	-		20	125	30.5	-	19.2					HH5X25							
		2525M-2T10	●	●	25	-		25	150	24.2	24.2	HH5X25												
		17	KGD% 1616H-2T17	●	●	16		4.0	16	100	31.2	31.5					15.2		17	HH5X16				
			2012K-2T17	●	●	20		-	12	125	-	11.2					HH5X16							
			2020K-2T17	●	●	20		-	20	125	32.5	-					19.2			HH5X25				
	17	2525M-2T17	●	●	25	-		25	150	24.2	24.2	HH5X25												
		2.4	KGD% 2012K-2.4T17	●	●	20		-	12	125	32.5	-		11.0			2.0		17	2.4	3.0	HH5X16	LW-4	
			2020K-2.4T17	●	●	20		-	20	125	19.0	19.0		HH5X16										
2020K-2.4T17	●		●	20	-	20	125	19.0	19.0	HH5X16														
3	6	KGD% 1216JX-3T06	●	●	12	2.0	9.5	16	120	19.5	19	14.8	2.4	6	3.0	4.0	SE-50125TR	LW-4						
		1616H-3T06	●	●	16	4.0		20	125	28.0	-	18.8					HH5X16							
		2020K-3T06	●	●	20	-		25	150	23.8	23.8	HH5X25												
	10	KGD% 1616H-3T10	●	●	16	4.0		16	100	30.2	30.5	14.8		10			HH5X16							
		2020K-3T10	●	●	20	-		20	125	30.5	-	18.8					HH5X25							
		2525M-3T10	●	●	25	-		25	150	23.8	23.8	HH5X25												
		20	KGD% 1616H-3T20	●	●	16		4.0	16	100	34.2	34.5					14.8		20	HH5X16				
			2012K-3T20	●	●	20		-	12	125	34.5	-					10.8			HH5X16				
			2020K-3T20	●	●	20		-	20	125	18.8	18.8					HH5X25							
	20	2525M-3T20	●	●	25	-		25	150	35.5	23.8	23.8		HH5X25										
		4	KGD% 1216JX-4T06	●	●	12		2.0	9.5	16	120	19.5		19			14.3		3.4	6	4.0	5.0	SE-50125TR	LW-4
			KGD% 2020K-4T10	●	●	20		-		20	125	30.5		18.3			10						HH5X16	
2525M-4T10	●		●	25	-	25	150	23.3		23.3	20	HH5X25												
20	KGD% 2020K-4T20		●	●	20	-	20	125		34.5	-	18.3	20	HH5X16										
	2525M-4T20		●	●	25	-	25	150		35.5	23.3	25	HH5X25											
25	KGD% 2525M-4T25	●	●	25	-	25	150	40.5	23.3	23.3	25	HH5X25												
	5	KGD% 2020K-5T10	●	●	20	-	9.5	20	125	30.5	17.8	4.4	10	5.0	6.0	HH5X16	LW-4							
		2525M-5T10	●	●	25	-		25	150	22.8	22.8					17		HH5X25						
		KGD% 2020K-5T17	●	●	20	-		20	125	37.5	-					17.8		25	HH5X25					
25	2525M-5T17	●	●	25	-	25	150	22.8	22.8	25	HH5X25													
	6	KGD% 2525M-6T15	●	●	25	-	25	150	32.5	-	22.4	5.3	15	6.0	6.0	HH5X25	LW-4							
KGD% 2525M-6T30		●	●	25	-	25	150	45.5	-	22.4	30					HH5X25								
8	25	KGD% 2525M-8T25	●	●	25	7.0	25	150	43.3	44.2	22.0	6.0	25	8.0	8.0	HH6X25	LW-5							
		3232P-8T25	●	●	32	-	32	170	-	29.0	29.0					HH6X25								

Note) 1. Dimension T : Maximum depth to which processing can be made. (If the dimension T 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○○), 2.5N·m(SE-50125TR)  
 3. Above toolholders are applicable to Cut-off, too.

Applicable Inserts G19, G20

●: Std. Item

## KGD-S (0° Separate Type)



### Toolholder Dimensions (Blade + Toolholder)

Shank Angle	Width (mm)	Max. depth of cut (mm)	Shank Size (mm)	Unit Description (Standard Stock Description)	Std.		Blade Description G25	Toolholder Description G25	Dimension (mm)										Edge Width W (mm)	
					R	L			H1-h	H2	H3	B	L1	L2	L3	F1	A	T	MIN.	MAX.
0°	2	17	□20	KGD <sup>®</sup> / <sub>L</sub> 2020X-2T17S	●	●	KGD <sup>®</sup> / <sub>L</sub> -2T17-C	KGD <sup>®</sup> / <sub>L</sub> 2020-C	20	12	11.6	20	122	40	23.4	1.7	17	2.0	3.0	
			□25	2525X-2T17S	●	●		KGD <sup>®</sup> / <sub>L</sub> 2525-C	25	7		25	147							28.4
			□32	No unit description →	●	●		KGD <sup>®</sup> / <sub>L</sub> 3232-C	32	-		32	167							35.4
	3	10	□20	KGD <sup>®</sup> / <sub>L</sub> 2020X-3T10S	●	●	KGD <sup>®</sup> / <sub>L</sub> -3T10-C	KGD <sup>®</sup> / <sub>L</sub> 2020-C	20	12	20	115	33	23.0	2.4	10	3.0	4.0		
			□25	2525X-3T10S	●	●		KGD <sup>®</sup> / <sub>L</sub> 2525-C	25	7	25	140							28.0	
			□32	3232X-3T10S	●	●		KGD <sup>®</sup> / <sub>L</sub> 3232-C	32	-	32	160							35.0	
		20	□20	KGD <sup>®</sup> / <sub>L</sub> 2020X-3T20S	●	●	KGD <sup>®</sup> / <sub>L</sub> -3T20-C	KGD <sup>®</sup> / <sub>L</sub> 2020-C	20	12	20	125	43	23.0	2.4	20	3.0	4.0		
			□25	2525X-3T20S	●	●		KGD <sup>®</sup> / <sub>L</sub> 2525-C	25	7	25	150							28.0	
			□32	3232X-3T20S	●	●		KGD <sup>®</sup> / <sub>L</sub> 3232-C	32	-	32	170							35.0	
	4	10	□20	KGD <sup>®</sup> / <sub>L</sub> 2020X-4T10S	●	●	KGD <sup>®</sup> / <sub>L</sub> -4T10-C	KGD <sup>®</sup> / <sub>L</sub> 2020-C	20	12	20	115	33	22.5	3.4	10	4.0	5.0		
			□25	2525X-4T10S	●	●		KGD <sup>®</sup> / <sub>L</sub> 2525-C	25	7	25	140							27.5	
			□32	3232X-4T10S	●	●		KGD <sup>®</sup> / <sub>L</sub> 3232-C	32	-	32	160							34.5	
		20	□20	KGD <sup>®</sup> / <sub>L</sub> 2020X-4T20S	●	●	KGD <sup>®</sup> / <sub>L</sub> -4T20-C	KGD <sup>®</sup> / <sub>L</sub> 2020-C	20	12	20	125	43	22.5	3.4	20	4.0	5.0		
			□25	2525X-4T20S	●	●		KGD <sup>®</sup> / <sub>L</sub> 2525-C	25	7	25	150							27.5	
			□32	3232X-4T20S	●	●		KGD <sup>®</sup> / <sub>L</sub> 3232-C	32	-	32	170							34.5	
		25	□20	KGD <sup>®</sup> / <sub>L</sub> 2020X-4T25S	●	●	KGD <sup>®</sup> / <sub>L</sub> -4T25-C	KGD <sup>®</sup> / <sub>L</sub> 2020-C	20	12	20	130	48	22.5	3.4	25	4.0	5.0		
			□25	2525X-4T25S	●	●		KGD <sup>®</sup> / <sub>L</sub> 2525-C	25	7	25	155							27.5	
			□32	3232X-4T25S	●	●		KGD <sup>®</sup> / <sub>L</sub> 3232-C	32	-	32	175							34.5	
	5	10	□20	KGD <sup>®</sup> / <sub>L</sub> 2020X-5T10S	●	●	KGD <sup>®</sup> / <sub>L</sub> -5T10-C	KGD <sup>®</sup> / <sub>L</sub> 2020-C	20	12	20	115	33	22.0	4.4	10	5.0	6.0		
			□25	2525X-5T10S	●	●		KGD <sup>®</sup> / <sub>L</sub> 2525-C	25	7	25	140							27.0	
			□32	3232X-5T10S	●	●		KGD <sup>®</sup> / <sub>L</sub> 3232-C	32	-	32	160							34.0	
		25	□20	KGD <sup>®</sup> / <sub>L</sub> 2020X-5T25S	●	●	KGD <sup>®</sup> / <sub>L</sub> -5T25-C	KGD <sup>®</sup> / <sub>L</sub> 2020-C	20	12	20	130	48	22.0	4.4	25	5.0	6.0		
			□25	2525X-5T25S	●	●		KGD <sup>®</sup> / <sub>L</sub> 2525-C	25	7	25	155							27.0	
			□32	3232X-5T25S	●	●		KGD <sup>®</sup> / <sub>L</sub> 3232-C	32	-	32	175							34.0	

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

Applicable Inserts G19, G20

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. Dimension T : Maximum depth to which processing can be made. (If the dimension T 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.

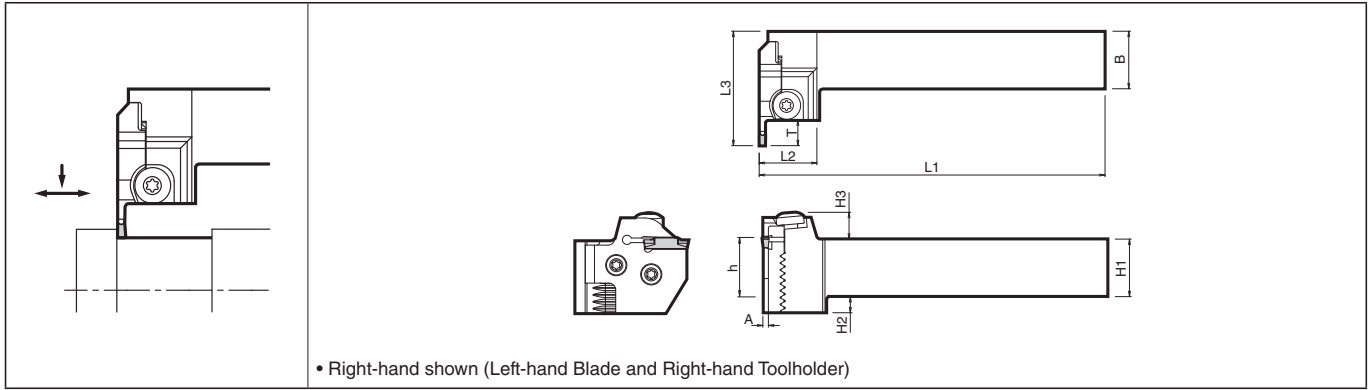
Unit Description	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
KGD <sup>®</sup> / <sub>L</sub> .....S	BH6X10TR	SB-60120TR	LTW-25

● : Std. Item



# Grooving Toolholder

## KGDS-S (90° Separate Type)



### Toolholder Dimensions (Blade + Toolholder)

Shank Angle	Width (mm)	Max. depth of cut (mm)	Shank Size (mm)	Blade Description G25	Toolholder Description G25	Unit Description (Standard Stock Description)	Std.		Dimension (mm)											Edge Width W (mm)						
							R	L	H1-h	H2	H3	B	L1	L2	L3	F1	A	T	MIN.	MAX.						
90°	2	17	□20	KGDS <sup>1/4</sup> -2T17-C	KGDS <sup>1/4</sup> .2020-C	-	-	-	20	12	11.6	20	125	27.7	56.7	-	1.7	17	2.0	3.0						
			□25	KGDS <sup>1/4</sup> .2525-C	-	-	-	25	7	25		150														
	3	10	□20	KGDS <sup>1/4</sup> -3T10-C	KGDS <sup>1/4</sup> .2020-C	KGDS <sup>1/4</sup> .2020X-3T10S	●	●	20	12		20	125								49.7	-	2.4	10	3.0	4.0
			□25	KGDS <sup>1/4</sup> .2525-C	2525X-3T10S	●	●	25	7	25		150														
		20	□20	KGDS <sup>1/4</sup> -3T20-C	KGDS <sup>1/4</sup> .2020-C	-	-	-	20	12		20	125													
			□25	KGDS <sup>1/4</sup> .2525-C	-	-	-	25	7	25		150														
	4	10	□20	KGDS <sup>1/4</sup> -4T10-C	KGDS <sup>1/4</sup> .2020-C	-	-	-	20	12		20	125								49.7	-	3.4	20	4.0	5.0
			□25	KGDS <sup>1/4</sup> .2525-C	-	-	-	25	7	25		150														
		20	□20	KGDS <sup>1/4</sup> -4T20-C	KGDS <sup>1/4</sup> .2020-C	-	-	-	20	12		20	125													
			□25	KGDS <sup>1/4</sup> .2525-C	-	-	-	25	7	25		150														
		25	□20	KGDS <sup>1/4</sup> -4T25-C	KGDS <sup>1/4</sup> .2020-C	-	-	-	20	12		20	125													
			□25	KGDS <sup>1/4</sup> .2525-C	-	-	-	25	7	25		150														
5	10	□20	KGDS <sup>1/4</sup> -5T10-C	KGDS <sup>1/4</sup> .2020-C	-	-	-	20	12	20	125	49.7	-	4.4	10	5.0	6.0									
		□25	KGDS <sup>1/4</sup> .2525-C	-	-	-	25	7	25	150																
	25	□20	KGDS <sup>1/4</sup> -5T25-C	KGDS <sup>1/4</sup> .2020-C	-	-	-	20	12	20	125															
		□25	KGDS <sup>1/4</sup> .2525-C	-	-	-	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.

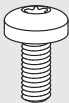
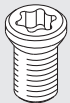
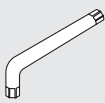
2. The toolholder and blade descriptions are printed on the toolholder body. (Unit description is not printed.)  
KGDS-S: **Left-hand Blade for Right-hand Toolholder, Right-hand Blade for Left-hand Toolholder.**  
**The toolholder is applicable for all blade with suitable hand.**

3. Dimension T : Maximum depth to which processing can be made. (If the dimension T is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)

Applicable Inserts ● G19,G20

### 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 <sup>1/4</sup> .....S			
	BH6X10TR	SB-60120TR	LTW-25

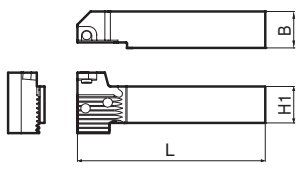
● : Std. Item



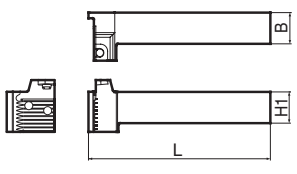
# Toolholders and Blades for Grooving and Cut-off

## ● Toolholder

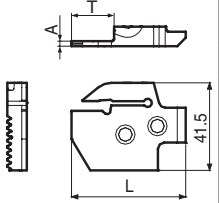
### KGD-S (0° Separate Type)

Shape of 0° type Right-hand shown	Toolholder Description	Std.		Dimension		
		R	L	L	B	H1
	<b>KGD<sup>R/L</sup> 2020-C</b>	●	●	104	20	20
	<b>2525-C</b>	●	●	129	25	25
	<b>3232-C</b>	●	●	149	32	32

### KGDS-S (90° Separate Type)

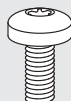

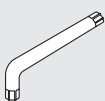
Shape of 90° type Right-hand shown	Toolholder Description	Std.		Dimension		
		R	L	L	B	H1
	<b>KGDS<sup>R/L</sup> 2020-C</b>	●	●	122	20	20
	<b>2525-C</b>	●	●	147	25	25

## ● Blade

Shape of Blade Right-hand shown	Blade Description	Std.		Dimension		
		R	L	L	T	A
	<b>KGD<sup>R/L</sup> -2T17-C</b>	●	●	51.2	17.2	1.7
	<b>-3T10-C</b>	●	●	44.2	10.2	2.4
	<b>-3T20-C</b>	●	●	53.2	20.2	
	<b>-4T10-C</b>	●	●	44.2	10.2	3.4
	<b>-4T20-C</b>	●	●	54.2	20.2	
	<b>-4T25-C</b>	●	●	59.2	25.2	4.4
	<b>-5T10-C</b>	●	●	44.2	10.2	
	<b>-5T25-C</b>	●	●	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
			
<b>KGD<sup>R/L</sup>.....S</b> <b>KGDS<sup>R/L</sup>.....S</b>	BH6X10TR	SB-60120TR	LTW-25

● : Std. Item



# Setting the inserts and the blade

## Setting the inserts

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. 2 and 3).
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)

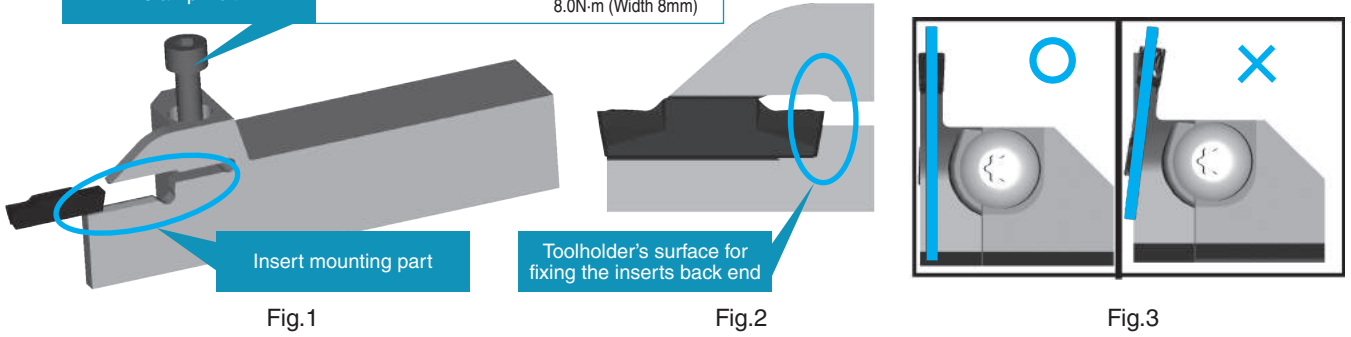


Fig.1

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.

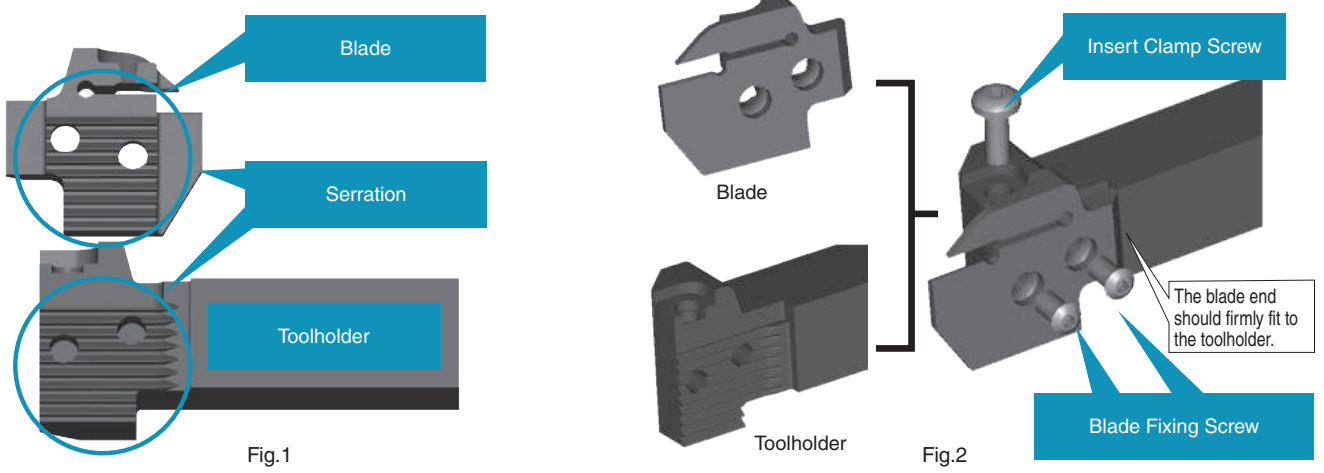
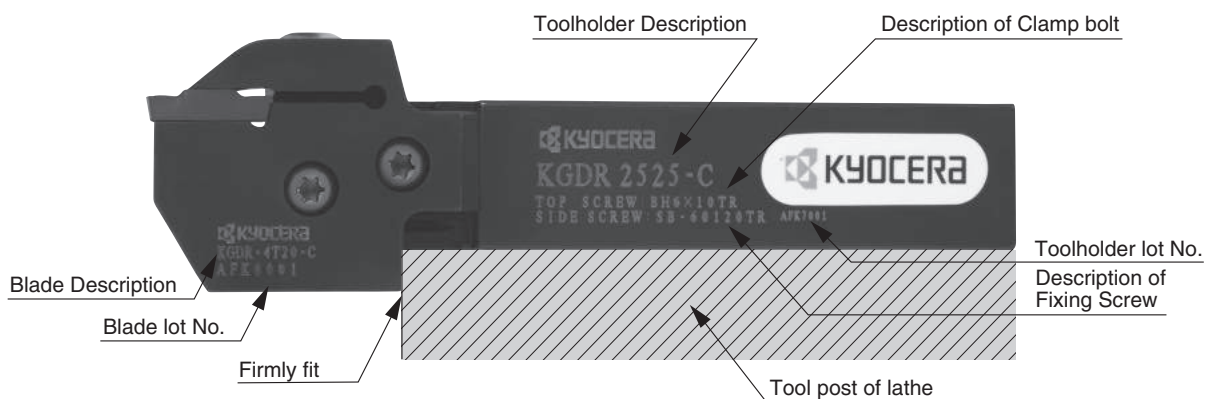


Fig.1

Fig.2

## Separate type Toolholder Identification System and Their Setting to Lathe

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



G



Grooving

- External
- Internal
- Face

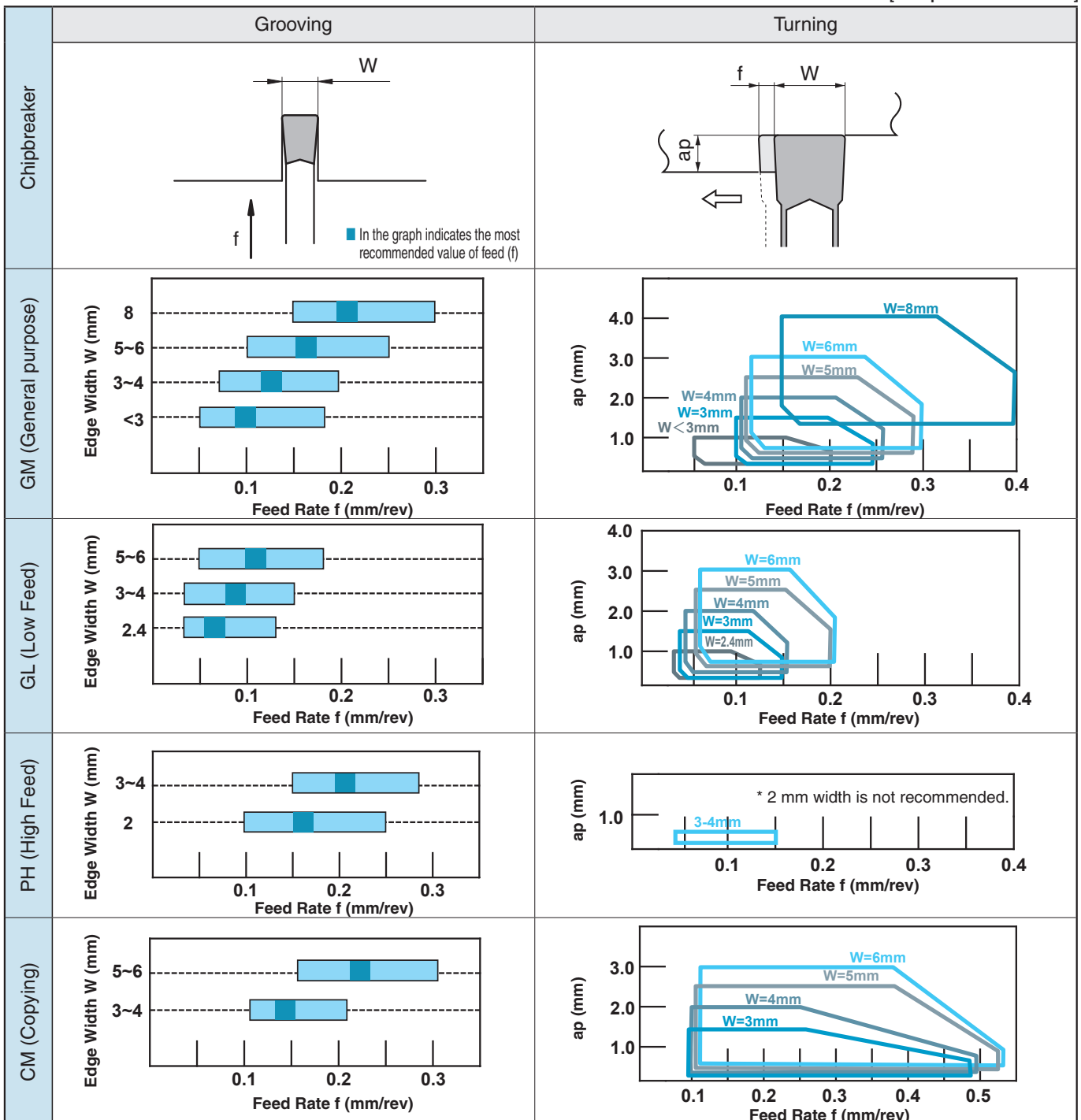
# Recommended Cutting Conditions

## 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	-	-	-	-	
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	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  
[Workpiece Material: S50C]

## Recommended Cutting Conditions (Feed Rate / ap)

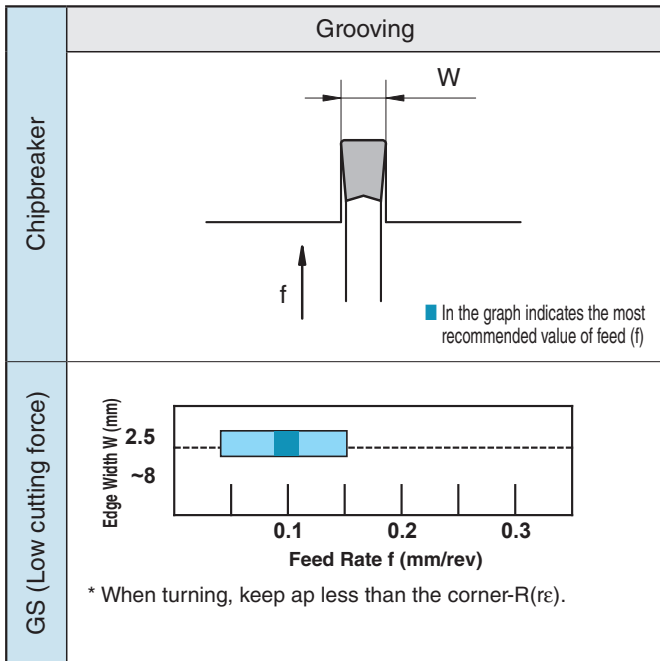


Note) 1. The above values are based on the condition that the dimension T of toolholder is 17 mm or less.  
2. If the toolholder is not for the 8mm width insert and its dimension T is over 17mm, set the values for turning to less than 90% of those above.



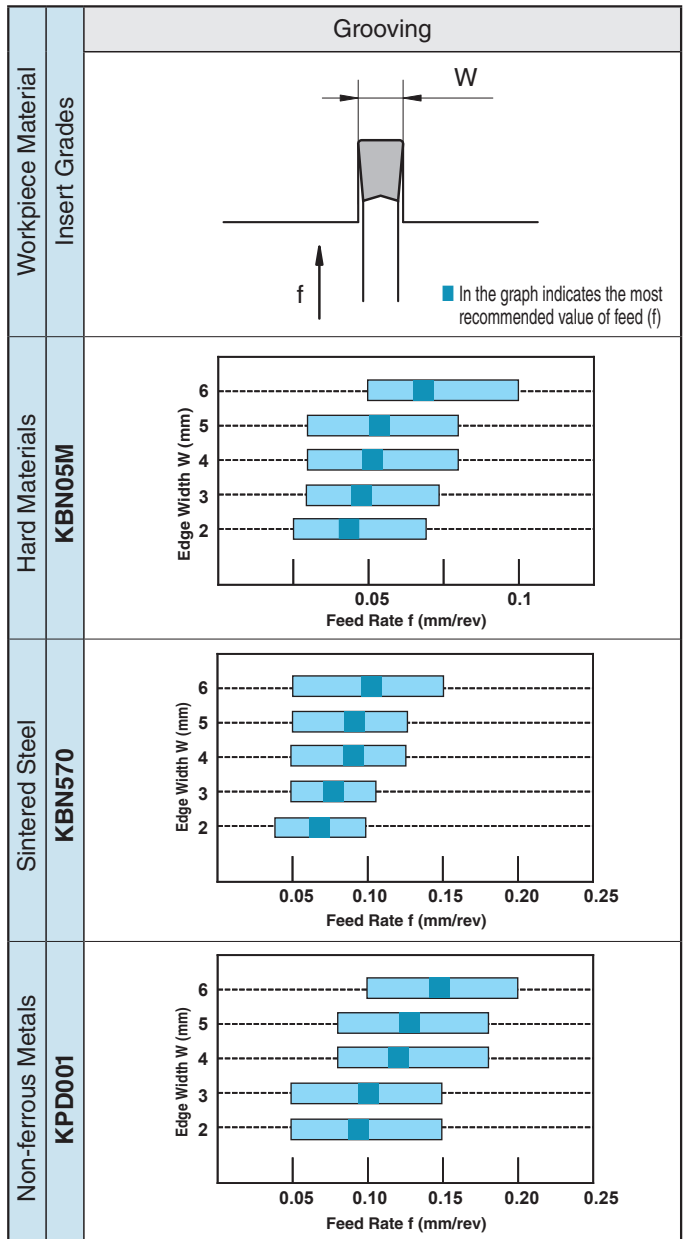
# Recommended Cutting Conditions

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



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

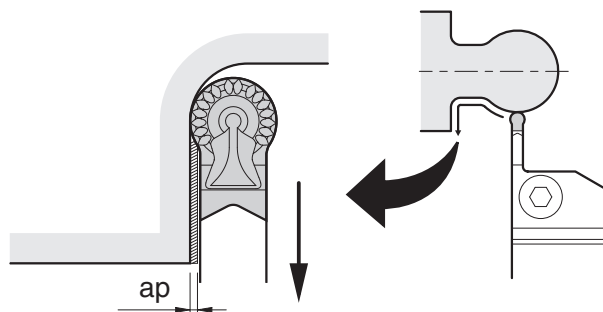
## ◆ Recommended Cutting Conditions (Feed Rate)



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

### ● Max. ap in back copying

Description	Max. 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



G

Grooving

External

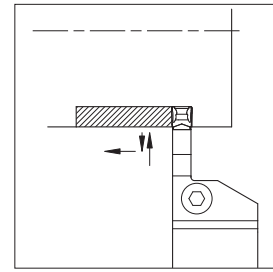
Internal

Face

## Guide for External Grooving

### Point (I) (Turning after Grooving)

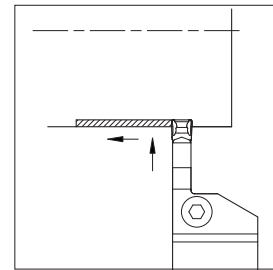
- 1) Grooving Depth Over 0.5mm: For roughing (Refer to Fig. 1)  
Before turning, pull the tool back about 0.1mm after grooving, instead of turning subsequent to grooving.  
(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting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



Before turning, pull the tool back about 0.1mm after grooving.  
(Grooving Depth Over 0.5mm: At roughing)

Fig.1

- 2) Grooving Depth under 0.5mm: 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 under 0.5mm: 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,  $a_p$  over 0.5mm is recommended.)
- Note) If the workpiece is not supported at the center, reduce the feed rate when grooving towards center.

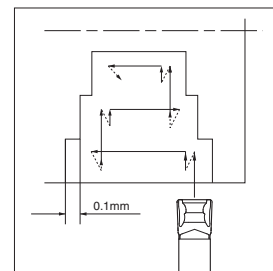


Fig.3

## Case Studies

SCr420H (Grooving)	
<ul style="list-style-type: none"> <li>·Gear</li> <li>·<math>V_c=113\sim 164</math> m/min</li> <li>·<math>f=0.06</math> mm/rev</li> <li>·Wet</li> <li>·GDM4020N-040GM (PR1225)</li> <li>·KGDL2525X-3T10S</li> </ul>	
<b>GM Chipbreaker (PR1225)</b>	<b>1,500 pcs/C</b>
Competitor K (PVD Coated Carbide)	<b>250 pcs/C</b>
<ul style="list-style-type: none"> <li>· GM chipbreaker (PR1225) showed 6 times longer tool life than that of Competitor K.</li> <li>· Good chip control without burned chips.</li> </ul>	
(Evaluation by the user)	

SCM420 (Grooving / Turning)	
<ul style="list-style-type: none"> <li>·Gear</li> <li>·<math>V_c=170</math> m/min</li> <li>·<math>f=0.15</math> mm/rev (Roughing)</li> <li>·<math>0.10</math> mm/rev (Finishing)</li> <li>·<math>a_p=0.2</math> mm (Finishing)</li> <li>·Wet</li> <li>·GDM4020N-040GM (PR1215)</li> <li>·KGDR2525X-4T20S</li> </ul>	
<b>GM Chipbreaker (PR1215)</b>	<b>250 pcs/C</b>
Competitor L (Roughing: PVD Coated Carbide) (Finishing: Cermet)	<b>200 pcs/C</b>
<ul style="list-style-type: none"> <li>· GM chipbreaker reduced occurrence rate of tangle of chips (occurrence rate 80% <math>\Rightarrow</math> 10%). The problem was persistent with Competitor L. Machining productivity is improved.</li> </ul>	
(Evaluation by the user)	

# Multi-Function / Grooving (Cut-off)

**GMM / GMG** (Will be switched to GDM / GDG **G19~G20**)

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


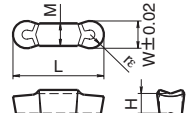

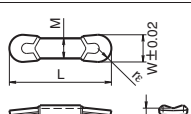
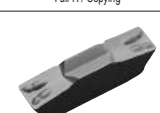
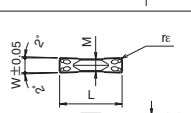

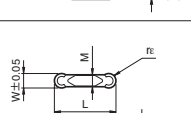

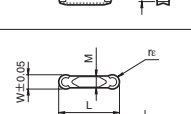

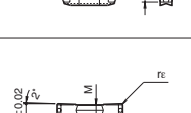
Insert	Description	Dimension (mm)						Coating					Ref. to Page for Applicable Toolholders
		W	re	M	L	H	Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	
<p>Chip Control Oriented / M Class</p>	<b>GMM</b> 2420-020MW	2.4	0.2	1.9	20	4.3							G34 G35
	3020-020MW	3.0	0.2	2.3									
	3020-040MW		0.4										
	4020-020MW	4.0	0.2	3.3									
	4020-040MW		0.4										
	4020-080MW	5.0	0.8	4.2									
	5020-040MW		0.4										
	5020-080MW	6.0	0.8	5.2									
	6020-040MW		0.4										
6020-080MW	0.8												
8030-080MW	8.0	0.8	6.0	30	5.5							G34,G62	
<p>Sharp-Cutting Oriented / M Class</p>	<b>GMM</b> 3020-020MS	3.0	0.2	2.3	20	4.3						G34 G35	
	3020-040MS		0.4										
	4020-040MS	4.0	0.4	3.3									
	5020-040MS		0.4										
	6020-040MS	6.0	0.4	5.2									
<p>Sharp-Cutting Oriented / Precision Class</p>	<b>GMG</b> 3020-000MS	3.0	0.0	2.3	20	4.3						G34 G35	
	3020-020MS		0.2										
	3020-040MS		0.4										
	4020-020MS	4.0	0.2	3.3									
	4020-040MS		0.4										
	4020-080MS	5.0	0.8	4.2									
	5020-040MS		0.4										
	5020-080MS	6.0	0.8	5.2									
6020-040MS	0.4												
6020-080MS	0.8												
<p>Sharp-Cutting Oriented / Precision Class Ground Chipbreaker</p>	<b>GMG</b> 2520-030MG	2.5	0.3	2.0	20	4.3							G34 G35
	3020-030MG	3.0		2.3									
	3520-030MG	3.5		2.8									
	4020-040MG	4.0		3.3									
	5020-040MG	5.0		4.2									
	6020-040MG	6.0		5.2									
	8030-050MG	8.0		0.5			6.0	30	5.5				
<p>Chip Control Oriented / M Class Full-R / Copying</p>	<b>GMM</b> 3020-150R	3.0	1.5	2.3	20	4.3						G34 G35	
	4020-200R	4.0	2.0	3.3									
	5020-250R	5.0	2.5	4.2									
	6020-300R	6.0	3.0	5.2									
<p>Sharp-Cutting Oriented / Precision Class Full-R / Copying</p>	<b>GMG</b> 3020-150R	3.0	1.5	2.3	20	4.3						G34 G35	
	4020-200R	4.0	2.0	3.3									
	5020-250R	5.0	2.5	4.2									
	6020-300R	6.0	3.0	5.2									
<p>Undercutting Chip Control Oriented</p>	<b>GMG</b> 3020-150RU	3.0	1.5	2.3	20	4.3						G34 G35 G37	
	4020-200RU	4.0	2.0	3.3									
	5020-250RU	5.0	2.5	4.2									

Recommended Cutting Conditions **G105**

: Std. Item  
 : Deleted from the next catalogue


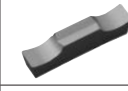




# GMM / GMGA / FGG

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







Insert Handed Insert shows Right-hand	Description	Dimension (mm)					Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide		Carbide KW10	Ref. to Page for Applicable Toolholders
		W	r <sub>ε</sub>	M	L	H			PR915	PR930		
 Sharp-Cutting Oriented / Precision Class Full-R / Copying	 <b>GMGA 6020-300R</b>	6.0	3.0	4.3	20	4.3					●	<b>G34 G35</b>
 Sharp-Cutting Oriented / Precision Class Full-R / Copying	 <b>GMGA 8030-400R</b>	8.0	4.0	6.0	30	5.5					●	<b>G34 G62</b>
 Chip Control Oriented / M Class	 <b>GMM 3014-04</b>	3.0	0.4	2.3	14	4.3	●	●	●	●	●	<b>G36</b>
 Chip Control Oriented / M Class Full-R / Copying	 <b>GMM 3014-15R</b>	3.0	1.5	2.3	14	4.3	●	□		●	●	
 Chip Control Oriented Undercutting	 <b>GMM 3014-15RU</b>	3.0	1.5	2.3	14	4.3				●		
 Chip Control Oriented / Precision Class Face Grooving	 <b>FGG <sup>7</sup>/<sub>L</sub> 3020-02 4020-04 5020-04</b>	3.0 4.0 5.0	0.2 0.4 0.4	2.3 3.3 4.2	20	4.3	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	<b>G36</b>

Recommended Cutting Conditions **G105**

## 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(r <sub>ε</sub> ) and minimize the core which remains in the center of the face.
GMM-TK		Large corner-R(r <sub>ε</sub> ) and stable performance at cut-off.
GMM-NB		Flat rake face and non-chipbreaker. It works well for brass

## Edge Preparation

Edge Prep.	Chamfer + Honed Corner-R(r <sub>ε</sub> ) = 0.05	Chamfer + Honed Sharp Corner
		
MT Chipbreaker	<b>CR9025 / PR915</b>	<b>PR930 / KW10</b>
Edge Prep.	Chamfer + Honed Corner-R(r <sub>ε</sub> ) = 0.2-0.3	Sharp Edge Corner-R(r <sub>ε</sub> ) = 0.2-0.3
		
TK Chipbreaker	<b>CR9025 / PR915</b>	<b>PR930 / KW10</b>
Edge Prep.	Honed Corner-R(r <sub>ε</sub> ) = 0.05	Sharp Edge Sharp Corner
		
Without Chipbreaker (-NB)	<b>CR9025</b>	<b>PR930 / KW10</b>

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

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

Inserts are sold in 10 piece boxes.




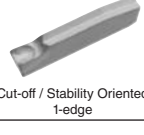








# Grooving / Cut-off (Multi-Function)

## GMM / GMN

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)					Angle	Cermat	CVD Coated Carbide	PVD Coated Carbide	Carbide	Ref. to Page for Applicable Toolholders			
		W	ε	M	L	H							θ	TN90	CR9025
 Deep Grooving / Cut-off Sharp-Cutting Oriented	<b>GMM 1520-MT</b>	1.5	0.0 0.05	1.2	20	4.3	-				●	●			
	<b>2020-MT</b>	2.0	0.0 0.05	1.5				●	●		●	●			
	<b>2520-MT</b>	2.5	0.0 0.05	1.9				●	●		●	●			
	<b>3020-MT</b>	3.0	0.0 0.05	2.3				●	●		●	●			
 Deep Grooving / Cut-off Sharp-Cutting Oriented Without Chipbreaker	<b>GMM 1520-NB</b>	1.5	0.0 0.05	1.2	20	4.3	-				●	●			
	<b>2020-NB</b>	2.0	0.0 0.05	1.5				●			●	●			
	<b>2520-NB</b>	2.5	0.0 0.05	1.9				●			●	●			
	<b>3020-NB</b>	3.0	0.0 0.05	2.3				●			●	●			
 Deep Grooving / Cut-off Stability Oriented	<b>GMM 2020-TK</b>	2.0	0.20	1.5	20	4.3	-			●	●	●			
	<b>2520-TK</b>	2.5		1.9				●	●	●					
	<b>3020-TK</b>	3.0		0.30				2.3	●	●	●				
 Cut-off / Stability Oriented 1-edge	<b>GMN 2-TK</b>	2.0	0.20	1.5	20	4.3	-			●	●	●			
	<b>3-TK</b>	3.0	0.25	2.3				●	●	●					
	<b>4-TK</b>	4.0	0.30	3.3				●	●	●					
 Deep Grooving / Cut-off 1-edge	<b>GMN 2.2</b>	2.2	0.17	1.8	20	4.3	-	●	●		●	●			
	<b>3</b>	3.0	0.20	2.3				●	●	●	●				
	<b>4</b>	4.0	0.25	3.3				●	●	●	●				
	<b>5</b>	5.0	0.80	4.2				●	●	●	●				
	<b>6</b>	6.0	0.80	5.2				●	●	●	●				
 Cut-off Sharp-Cutting Oriented With lead angle	<b>GMM 1520%L-MT-15D</b>	1.5	0 0.05	1.2	20	4.3	15°	R	L	R	L	R	L	R	L
	<b>2020%L-MT-15D</b>	2.0	0 0.05	1.5				●	●	●	●	●	●	●	
	<b>2520%L-MT-15D</b>	2.5	0 0.05	1.9				●	●	●	●	●	●	●	
	<b>3020%L-MT-15D</b>	3.0	0 0.05	2.3				●	●	●	●	●	●	●	
 Cut-off Stability Oriented With lead angle	<b>GMM 2020R-TK-8D</b>	2.0	0.20	1.5	20	4.3	8°			●	●	●			
	<b>2520R-TK-8D</b>	2.5	0.20	1.9				●	●	●	●				
	<b>3020R-TK-8D</b>	3.0	0.25	2.3				●	●	●	●				
 Cut-off / Stability Oriented 1-edge / Lead Angle	<b>GMR 2-TK-8D</b>	2.0	0.20	1.5	20	4.3	8°			□	●	●			
	<b>3-TK-8D</b>	3.0	0.25	2.3				□	●	●					
	<b>4-TK-8D</b>	4.0	0.30	3.3				□	●	●					
 Cut-off / Sharp-Cutting Oriented 1-edge / Lead Angle	<b>GM%L 2.2-8D</b>	2.2	0.17	1.8	20	4.3	8°	●	●		●	●			
	<b>2.2-15D</b>		0.00				15°	●	●	●	●				
	<b>3-4D</b>	3.0	0.20	2.3			4°	●	●	●	●				
	<b>4-4D</b>	4.0	0.25	3.3			●	●	●	●					


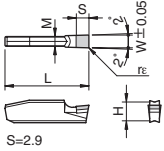
Recommended Cutting Conditions  **G105**

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



# GMN

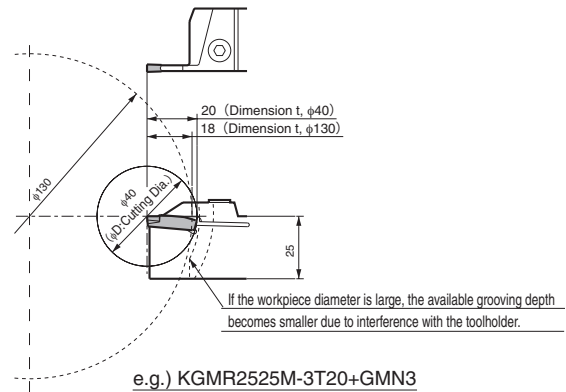
<b>Classification of usage</b> P Carbon steel / Alloy steel M Stainless Steel ●: Continuous-Light Interruption / 1st Choice ○: Continuous-Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice	K	Cast Iron				
	N	Non-ferrous Metals			●	
	S	Titanium Alloys			●	
	H	Hard materials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

Insert	Description	Dimension (mm)					Angle θ	CBN		PCD		Ref. to Page for Applicable Toolholders
		W	r <sub>ε</sub>	M	L	H		KBN510	KBN525	KPD001	KPD010	
 Deep Grooving 1-edge  S=2.9	<b>GMN 2</b>	2.0	0.2 0.4	1.8	20	4.3	-	●	●	●	●	<b>G34</b> <b>G35</b>
	<b>3</b>	3.0	0.2 0.4	2.3				●	●	●	●	
	<b>4</b>	4.0	0.2 0.4	3.3				●	●	●	●	
	<b>5</b>	5.0	0.2 0.4	4.2				●	●	●	●	
	<b>6</b>	6.0	0.2 0.4	5.2				●	●	●	●	

Recommended Cutting Conditions **G104**

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

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



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

Toolholder Description	φD (Cutting Dia.)																
	10	14	16	32	∞	10	14	16	32	∞	10	14	16	32	∞		
<b>KGM<sup>φ/L</sup></b> 0810K-1.5-125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1010□-1.5...	-	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞		
1212□-1.5...	-	-	-	-	25	26	28	32	36	40	60	100	∞	∞	∞		
0810K-2-125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1010□-2...	-	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞		
1212□-2...	-	-	-	-	25	26	28	32	36	40	60	100	∞	∞	∞		
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 t (mm)	16	15	14	13	12.5	12	11	10	9	8	7	6	5	4	3	2	1

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

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

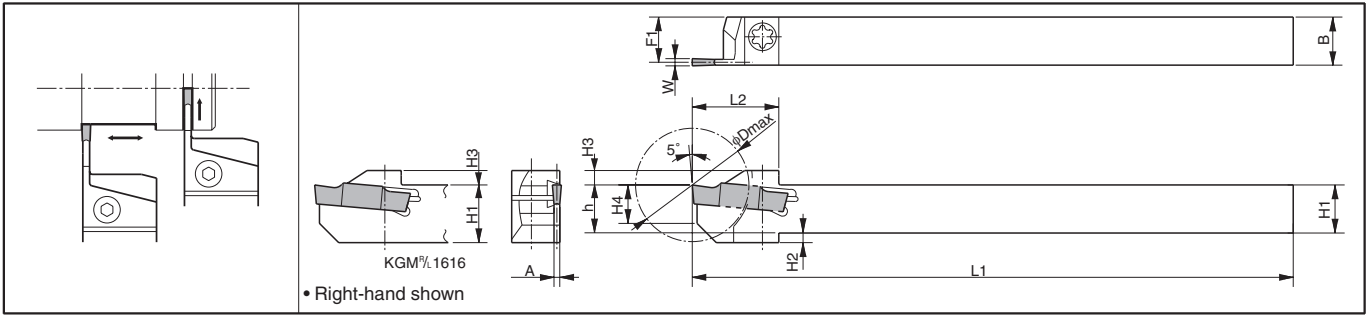
●: Std. Item

CBN & PCD Inserts are sold in 1 piece boxes.





# External Grooving Toolholders

## KGM (For Automatic Lathe) (Will be switched to KGD )

Edge Width: 1.5~4.0mm

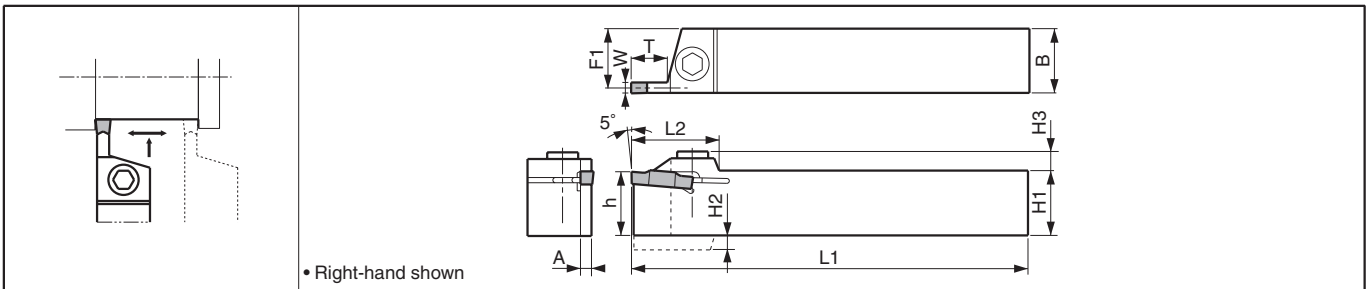


### Toolholder Dimensions





Description	Std.		Cutting Dia. $\phi D_{max}$	Dimension (mm)										Edge Width W (mm)		Spare Parts	
	R	L		H1=h	H2	H3	H4	B	L1	L2	F1	A	MIN.	MAX.			
KGM <sup>F/L</sup> 1010JX-1.5	●	●	20	10	2	3	8	10	120	18	9.4	1.2	1.5	2.0		SE-40120TR	LTW-15S
	●	●	25	12		4	10	12		19	11.4						
KGM <sup>F/L</sup> 1010JX-2	●	●	20	10	2	3	8	10	120	18	9.15	1.7	2.0	3.0		SE-40120TR	LTW-15S
	●	●	25	12		4	10	12		19	11.15						
	●	●	32	16		-	4	9		16	24.5						
KGM <sup>F/L</sup> 1616JX-2	●	●	32	16	-	4	9	16	120	24.5	15.15	2.4	3.0	4.0	SE-50125TR	LTW-20	
	●	●	20	10	2	3	8	10	18	9	2.0	2.4	3.0	SE-40120TR	LTW-15S		
	●	●	25	12	4	10	12	19	11	2.0	2.4	3.0	SE-50125TR	LTW-20			
KGM <sup>F/L</sup> 1616JX-2.5	●	●	32	16	-	4	9	16	120	24.5	15	2.4	3.0	4.0	SE-50125TR	LTW-20	
KGM <sup>F/L</sup> 1616JX-3	●	●	32	16	-	4	9	16	120	24.5	14.8	2.4	3.0	4.0	SE-50125TR	LTW-20	
KGM <sup>F/L</sup> 1212F-1.5-85	●		25	12	2	4	10	12	85	19	11.4	1.2	1.5	2.0	SE-40120TR	LTW-15S	
KGM <sup>F/L</sup> 1212F-2-85	●	●	25	12	2	4	10	12	85	19	11.15	1.7	2.0	3.0	SE-40120TR	LTW-15S	
KGM <sup>F/L</sup> 1212F-2.5-85	●	●	25	12	2	4	10	12	85	19	11	2.0	2.4	3.0	SE-40120TR	LTW-15S	

## KGM (Will be switched to KGD )

Edge Width: 3.0~8.0mm



### Toolholder Dimensions

Description	Std.		Dimension (mm)										Edge Width W (mm)		Spare Parts			
	R	L	H1=h	H2	H3	B	L1	L2	F1	A	T	MIN.	MAX.	Screw		Wrench		
																		
KGM <sup>F/L</sup> 1212H-3	●	●	12	4	6	12	100	27	10.8	2.4	9	3.0	3.0	SB-5TR	-	LTW-20	-	
	●	●	16		7	16			14.8									
KGM <sup>F/L</sup> 2020K-3	●	●	20	-	7	20	125	27	18.8	3.4	10	3.0	4.0	-	-	-	-	
	●	●	25	-	7	25	150		23.8									
	●	●	25	-	7	25	150		23.8									
KGM <sup>F/L</sup> 2525M-3	●	●	25	-	7	25	150	27	23.8	3.4	10	4.0	5.0	-	-	-	-	
	●	●	25	-	7	25	150	23.3										
KGM <sup>F/L</sup> 2020K-4	●	●	20	-	7	20	125	27	18.3	3.4	10	4.0	5.0	-	-	-	-	
	●	●	25	-	7	25	150		23.3									
KGM <sup>F/L</sup> 2525M-4	●	●	25	-	7	25	150	27	17.8	3.4	10	5.0	6.0	-	-	-	-	
	●	●	25	-	7	25	150		22.8									
	●	●	32	-	7	32	170		29.8									
KGM <sup>F/L</sup> 3232P-5	●	●	32	-	7	32	170	27	29.8	3.4	10	5.0	6.0	-	-	-	-	
	●	●	32	-	7	32	170		29.8									
KGM <sup>F/L</sup> 2020K-5	●	●	20	-	7	20	125	27	17.8	3.4	10	5.0	6.0	-	-	-	-	
	●	●	25	-	7	25	150		22.8									
KGM <sup>F/L</sup> 2525M-5	●	●	25	-	7	25	150	27	22.8	3.4	10	5.0	6.0	-	-	-	-	
	●	●	32	-	7	32	170		29.8									
KGM <sup>F/L</sup> 3232P-5	●	●	32	-	7	32	170	27	29.8	3.4	10	5.0	6.0	-	-	-	-	
	●	●	32	-	7	32	170		29.8									
KGM <sup>F/L</sup> 2525M-8	●	●	25	7.5	10.5	25	150	40	22.0	6.0	25	8.0	8.0	-	-	-	-	
	●	●	32	-		10.5	32		170									29.0

• Dimension T shows available grooving depth.

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

● : Std. Item

G

Grooving

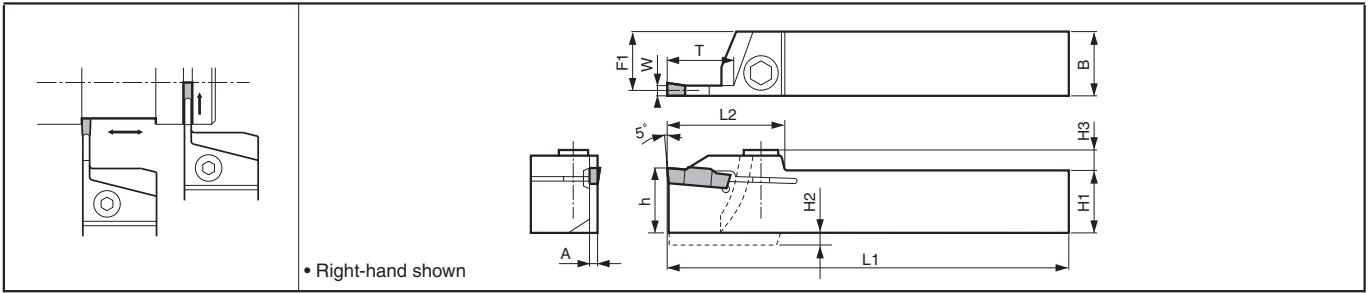
External

Internal





Face

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

Edge Width: 2.0~6.0mm



## Toolholder Dimensions



Description	Std.	Dimension (mm)											Edge Width W (mm)		Spare Parts			
		R	L	H1-h	H2	H3	B	L1	L2	F1	A	T	MIN.	MAX.	Screw		Wrench	
																		
KGM <sup>R/L</sup> 2012K-2T17 2020K-2T17 2525M-2T17	●●	20	-	7	12	125	33	11.15	1.7	17		2.0	3.0	SB-5TR	-	LTW-20	-	
	●●	25			20	150		19.15						-	HH5X16	-	LW-4	
	●●	25			25	150		24.15						-	HH5X25	-	LW-4	
KGM <sup>R/L</sup> 1616H-3T20 2012K-3T20 2020K-3T20 2525M-3T20	●●	16	4		16	100		14.8				3.0	4.0	-	HH5X16	-	LW-4	
	●●	20		7	12	125	36	10.8	2.4	20				SB-5TR	-	LTW-20	-	
	●●	20			20	125	36	18.8						-	HH5X16	-	LW-4	
KGM <sup>R/L</sup> 2020K-4T20 2525M-4T20 2525M-4T25	●●	20			20	125	36	18.3		20		4.0	5.0	-	HH5X16	-	LW-4	
	●●	25		7.5	25	150	36	23.3	3.4	25				-	HH5X25	-	LW-4	
	●●	25			25	150	41	23.3						-	HH5X25	-	LW-4	
KGM <sup>R/L</sup> 2525M-5T25 3232P-5T25	●●	25		8.5	25	150	42	22.8	4.4	25		5.0	6.0	-	HH5X25	-	LW-4	
	●●	32			32	170	42	29.8						-	HH5X25	-	LW-4	
KGM <sup>R/L</sup> 2525M-6T30	●●	25		9.5	25	150	45	22.4	5.3	30		6.0	6.0	-	HH5X25	-	LW-4	

• Dimension T shows the distance from the toolholder to the cutting edge. Ref. to the Table (G33) for the relationship between the available grooving depth and the cutting dia.  
• When using GMG / GMM type (2-edge) insert, set the groove depth under 15mm.

## Applicable Inserts

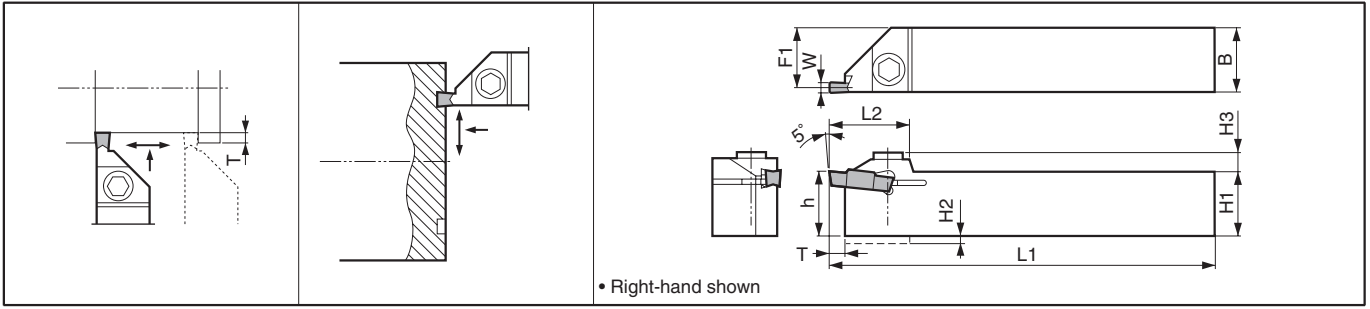
Applications	Grooving / Turning	Grooving / Turning	Grooving	Full-R / Copying	Full-R / Copying	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving
Ref. to Page	G30	G30	G30	G30	G31	G32	G32	G32	G32	G32	G33
Insert	MW	MS	MG			MT	NB	TK	TK		CBN PCD
KGM <sup>R/L</sup> ...1.5	-	-	-	-	-	GMM1520..MT GMM2020..MT GMM1520%L..MT GMM2020%L..MT	GMM1520..NB GMM2020..NB	GMM2020..TK GMM2020%L..TK	GMN2..TK GMF%2..TK	-	-
KGM <sup>R/L</sup> ...2(T)	GMM2420..MW GMM3020..MW	GMG3020..MS GMM3020..MS	GMG2520..MG GMM3020..MG	GMG3020..R GMM3020..R	-	GMM2020..MT GMM2520..MT GMM3020..MT GMM2020%L..MT GMM2520%L..MT GMM3020%L..MT	GMM2020..NB GMM2520..NB GMM3020..NB	GMM2020..TK GMM2520..TK GMM3020..TK GMM2020%L..TK GMM2520%L..TK GMM3020%L..TK	GMN2..TK GMN3..TK GMF%2..TK GMF%3..TK	GMN2.2 GMN3 GMF%2.2 GMF%3	GMN2 GMN3
KGM <sup>R/L</sup> ...2.5	GMM2420..MW GMM3020..MW	GMG3020..MS GMM3020..MS	GMG2520..MG GMM3020..MG	GMG3020..R GMM3020..R	-	GMM2520..MT GMM3020..MT GMM2520%L..MT GMM3020%L..MT	GMM2520..NB GMM3020..NB	GMM2520..TK GMM3020..TK GMM2520%L..TK GMM3020%L..TK	GMN3..TK GMF%3..TK	GMN3 GMF%3	GMN3
KGM <sup>R/L</sup> ...3(T)	GMM3020..MW GMM4020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS	GMG3020..MG GMM3520..MG GMG4020..MG GMM4020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R	-	GMM3020..MT GMM3020%L..MT	GMM3020..NB	GMM3020..TK GMM3020%L..TK	GMN3..TK GMN4..TK GMF%3..TK GMF%4..TK	GMN3 GMN4 GMF%3 GMF%4	GMN3 GMN4
KGM <sup>R/L</sup> ...4(T)	GMM4020..MW GMM5020..MW	GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG4020..MG GMM5020..MG	GMG4020..R GMM4020..R GMG5020..R GMM5020..R	-	-	-	-	GMN4..TK GMF%4..TK	GMN4 GMN5 GMF%4	GMN4 GMN5
KGM <sup>R/L</sup> ...5(T)	GMM5020..MW GMM6020..MW	GMG5020..MS GMM5020..MS GMG6020..MS GMM6020..MS	GMG5020..MG GMM6020..MG	GMG5020..R GMM5020..R GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN5 GMN6	GMN5 GMN6
KGM <sup>R/L</sup> ...6T	GMM6020..MW	GMG6020..MS GMM6020..MS	GMG6020..MG	GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN6	GMN6
KGM <sup>R/L</sup> ...8	GMM8030..MW	-	GMG8030..MG	-	GMGA8030..R	-	-	-	-	-	-

• If using a full-R insert, you need to modify the corner of insert adapter part (dimension A) of toolholder.

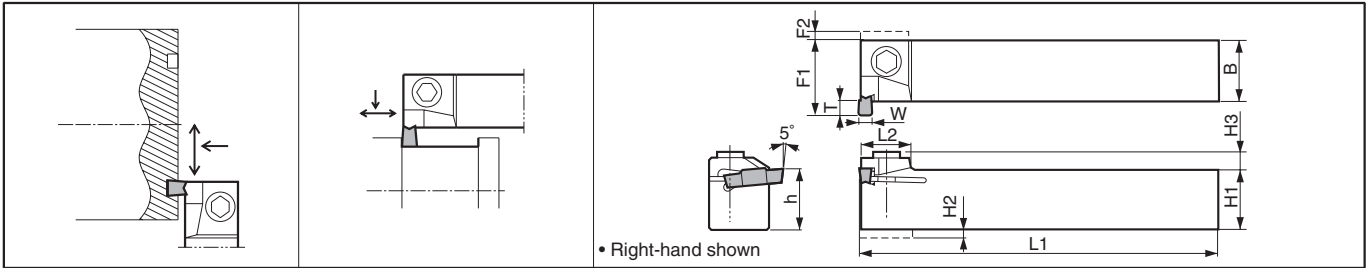
Recommended Cutting Conditions  **G105**  
Recommended Cutting Conditions of CBN / PCD  **G104**

# External Grooving (External / Face Grooving) Toolholders

## KGMM



## KGMS



### Toolholder Dimensions

Description	Std.		Dimension (mm)										Edge Width W (mm)		Spare Parts			
	R	L	H1-h	H2	H3	B	L1	L2	F1	F2	T	MIN.	MAX.	Screw		Wrench		
														SB-5TR	HH5X16	LTW-20	LW-4	
<b>KGMM</b> <sup>R/L</sup> 1212H-3 1616H-3 2020K-3 2525M-3	●●	12	4	5	12	100	25	10.8	-	4.8	3.0	5.0	SB-5TR	-	LTW-20	-		
	●●	16	14.8		-			-					-					
	●●	20	-	6	20	125	18.8	-	-	-	-	-	-	-	-	-		
	●●	25	-	6	25	150	23.8	-	-	-	-	-	-	-	-	-	-	
<b>KGMS</b> <sup>R/L</sup> 1212H-3 1616H-3 2020K-3 2525M-3	●●	12	4	5	12	100	17	17	1.5	4.8	3.0	3.0	SB-5TR	-	LTW-20	-		
	●●	16	21.5		-			-					-	LW-3				
	●●	20	-	6	20	125	25	-	-	-	-	-	-	-	-	-		
	●●	25	-	6	25	150	30	-	-	-	-	-	-	-	-	-	-	

• Dimension T shows available grooving depth. (Ref. to the table G37 for Face Grooving)

### Applicable Inserts [External Grooving]

Applications	Grooving / Turning	Grooving / Turning	Grooving	Full-R / Copying	Grooving	Grooving	Grooving	Grooving	Grooving	Grooving
Ref. to Page	G30,G31	G30	G30	G30,G31	G32	G32	G32	G32	G32	G32
Insert	<b>(MW)</b>	<b>MS</b>	<b>MG</b>		<b>MT</b>	<b>NB</b>	<b>TK</b>	<b>TK</b>		<b>CBN PCD</b>
Toolholder Description										
<b>KGMS</b> <sup>R/L</sup> 1212H-3	GMM3014..	-	-	GMM3014..R	-	-	-	-	-	-
<b>KGMM</b> <sup>R/L</sup> ...3 <b>KGMS</b> <sup>R/L</sup> ...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
Ref. to Page	G31	G30,G31	G30	G30	G30	G30	G32	G32	G32	G32
Insert			<b>MW</b>	<b>MS</b>	<b>MG</b>		<b>MT</b>	<b>NB</b>	<b>TK</b>	
Toolholder Description										
<b>KGMS</b> <sup>R/L</sup> 1212H-3	-	GMM3014..RU	-	-	-	-	-	-	-	-
<b>KGMM</b> <sup>R/L</sup> ...3 <b>KGMS</b> <sup>R/L</sup> ...3	FGG <sup>R/L</sup> 3020.. FGG <sup>R/L</sup> 4020.. FGG <sup>R/L</sup> 5020..	GMG3020..RU GMM3020..RU GMG4020..RU GMM4020..RU GMG5020..RU GMM5020..RU	GMM3020..MW GMM4020..MW GMM5020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG3520..MG GMM3520..MG GMG4020..MG GMM4020..MG GMG5020..MG GMM5020..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

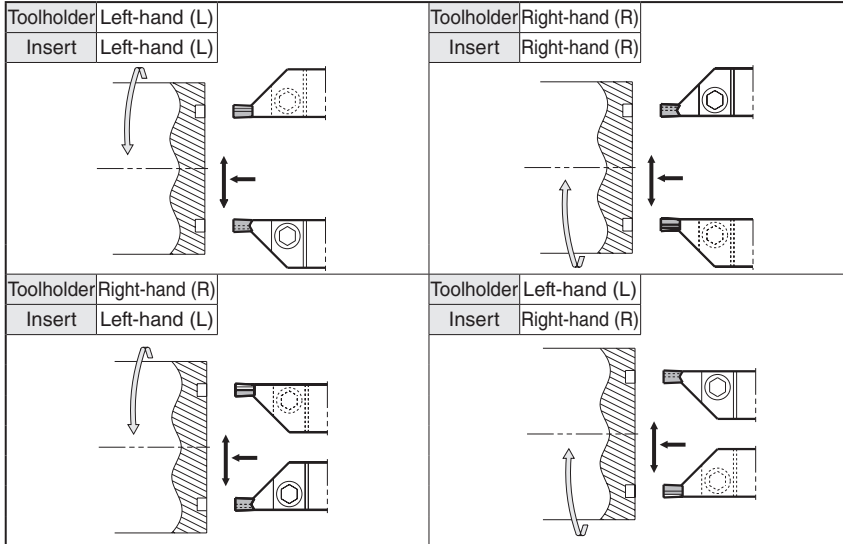
Recommended Cutting Conditions **G105**

Recommended Cutting Conditions of CBN / PCD **G104**

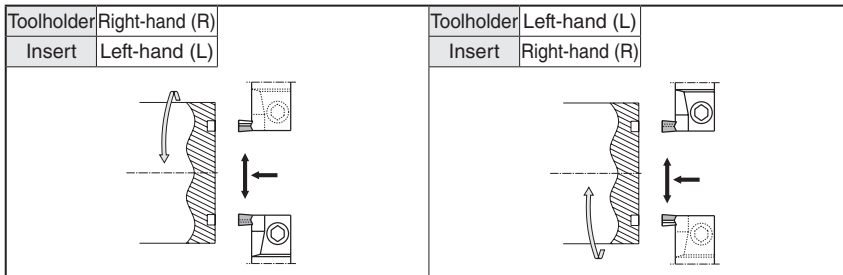
● : Std. Item

◆ Selection of Insert & Toolholder (Face Grooving)

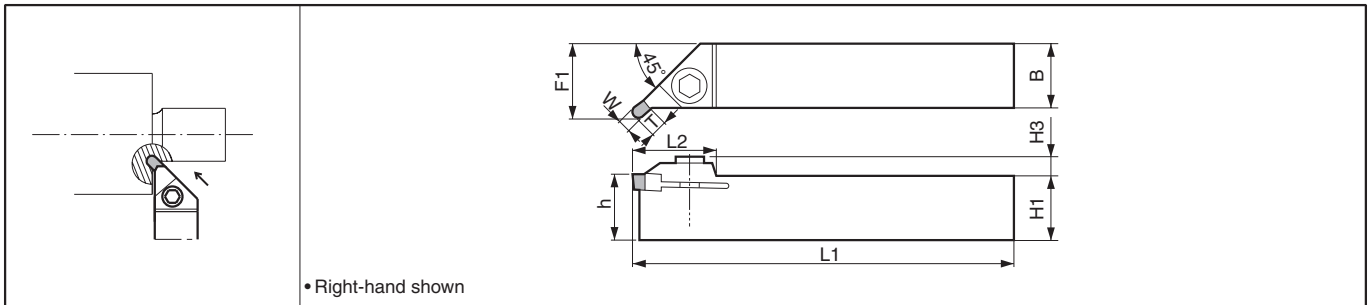
● Case of KGMM



● Case of KGMS



■ KGMU (External Undercutting Toolholder)



● Toolholder Dimensions

Description	Std.	Dimension (mm)								Edge Width W (mm)		Spare Parts		
		R	L	H1-h	H3	B	L1	L2	F1	T	MIN.	MAX.	Clamp Bolt	Wrench
KGMU <sup>R/L</sup> 2020K 2525M	● ●	20	6	20	125	28.5	23.6	4.8		3.0	5.0	HH5X16	LW-4	
	● ●	25		25	150	28.6				(6.0)		HH5X25		

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

Dimension F1 shows at GMM5020-RU. ( ) indicates external grooving inserts when installed.

● Applicable Inserts

Applications	Undercutting		
Ref. to Page	G30		
Insert			
Toolholder Description			
KGMU <sup>R/L</sup> 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 t

Description	Undercut Depth	
	t (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

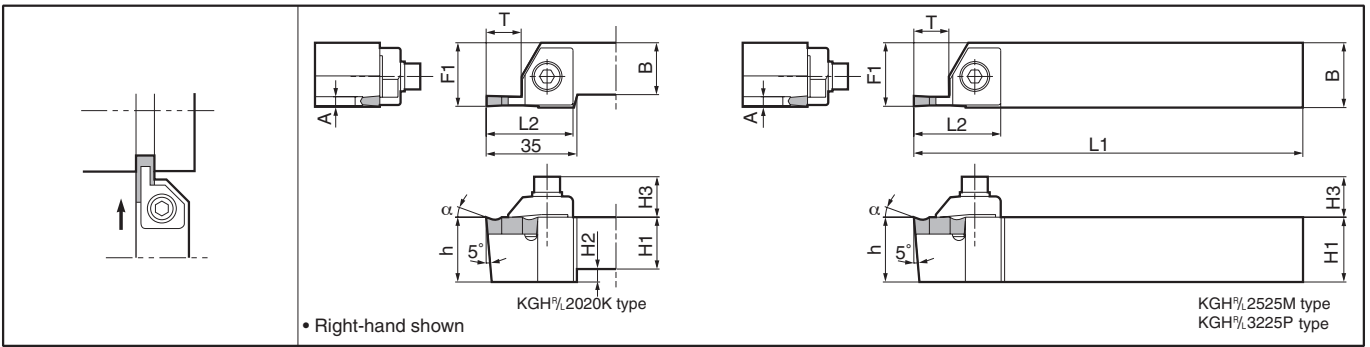
\* In case of undercutting for the diameter over 100mm, Inserts for External Grooving GMG○○20-○○○○□□, GMM○○20-○○○○□□, GMN○ are also available.

◆ Face Groove Dia. & Grooving Depth (Face Grooving)

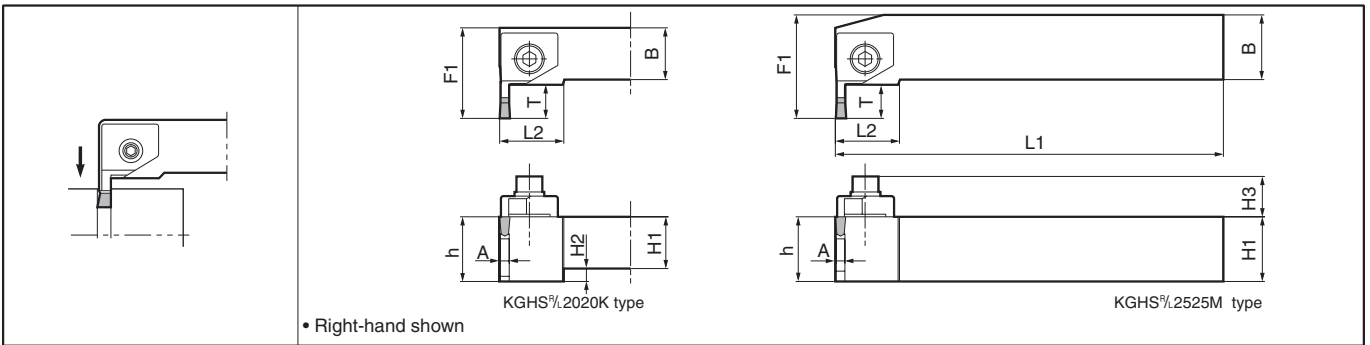
● KGMM / KGMS (Common) (mm)

Description	φDmin	t
GMG/GMM3020-○○○○□□	φ100	4.8
GMG/GMM4020-○○○○□□		
GMG/GMM5020-○○○○□□		
FGG <sup>R/L</sup> 3020-02	φ22	4.3
FGG <sup>R/L</sup> 4020-04	φ28	4.8
FGG <sup>R/L</sup> 5020-04	φ30	
GMG3020-150RU	φ22	4.3
GMG4020-200RU	φ28	
GMG5020-250RU	φ30	

**KGH**



**KGHS**



**Toolholder Dimensions**

Description	Std.		Dimension (mm)									Spare Parts				
	R	L	H1-h	H2	H3	B	L1	L2	F1	A	T	Clamp	Clamp Bolt	Washer	Spring	Wrench
<b>KGH</b> $\frac{R}{L}$ 2020K-4 2525M-4 2020K-5 2525M-5 3225P-5 2020K-7 2525M-7 2525M-10 3225P-10	●	●	20	5	-	20	125	33.5	24.5-24.8	3.4	13	CGH-1 $\frac{R}{L}$				
	●	●	25	-	15.6	25	150	33.5	24.5-24.8	3.4	13					
	●	●	20	5	-	20	125	33.5	25.0-25.8	4.2	13					
	●	●	25	-	15.6	25	150	33.5	25.0-25.8	4.2	13					
	●	●	32	-	-	25	170	33.5	25.0-25.8	4.2	13					
	●	●	20	5	-	20	125	33.5	24.5-25.0	5.8	13					
	●	●	25	-	15.6	25	150	33.5	24.5-25.0	5.8	13					
<b>KGHS</b> $\frac{R}{L}$ 2020K-4 2525M-4 2020K-5 2525M-5	●	●	20	5	-	20	125	25	35	3.4	13	CGH-1 $\frac{R}{L}$				
	●	●	25	-	15.6	25	150	25	40	4.2	13					
	●	●	20	5	-	20	125	25	35	4.2	13					
	●	●	25	-	15.6	25	150	25	40	4.2	13					
	●	●	25	-	-	25	150	25	40	4.2	13					

- Dimension T shows available grooving depth.

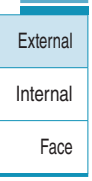
- Dimension F1 of KGH  $\frac{R}{L}$  Toolholder depends on the insert's edge width.

- Clamp KGH  $\frac{R}{L}$  ... CGH-OR for Right-hand Toolholder, and CGH-OL for Left-hand Toolholder.

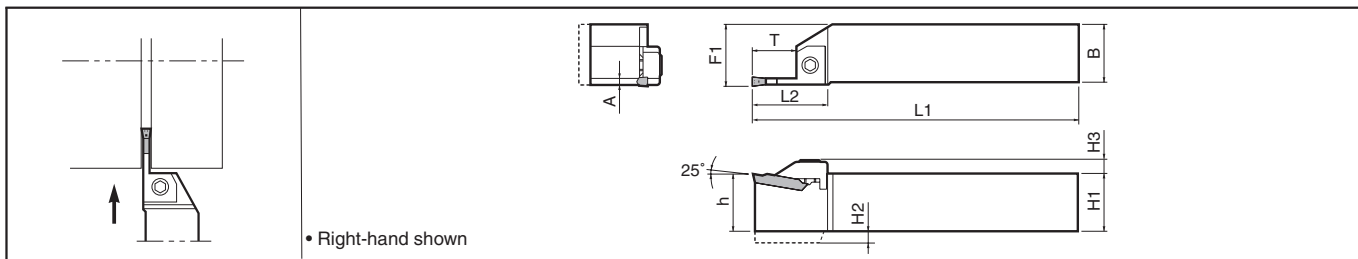
KGHS  $\frac{R}{L}$  ... CGH-OL for Right-hand Toolholder, and CGH-OR for Left-hand Toolholder.

**Rake Angle ( $\alpha$ ) after Installment of GH / GHU**

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



KGA



• Right-hand shown

Toolholder Dimensions

Description	Std.	Dimension (mm)											Spare Parts			
		R	L	H1-h	H2	H3	B	L1	L2	F1	A	T	Clamp	Clamp Bolt	Spring	Wrench
KGA <sup>R/L</sup>	2020K-3	●	●	20	5	6	20	125	37	21.5	2.3	20	CGA-3 <sup>R/L</sup>	HH6X20	SP-6	LW-5
	2525M-3	●	●	25	-	6	25	150	37	26.5	2.3	20				
	2020K-4	●	●	20	5	6	20	125	37	21.5	3.3	20	CGA-4 <sup>R/L</sup>			
	2525M-4	●	●	25	-	6	25	150	37	26.5	3.3	20				
	2020K-5	●	●	20	5	6	20	125	42	21.5	4.3	25	CGA-5 <sup>R/L</sup>			
2525M-5	●	●	25	-	6	25	150	42	26.5	4.3	25					

• Dimension T shows available grooving depth.

• Clamp: CGA-OR for Right-hand Toolholder, and CGA-OL for Left-hand Toolholder.

Applicable Inserts

Insert	Description	Dimension (mm)		Material										Applicable Toolholders	Ref. to Page for Applicable Toolholders		
		W	r <sub>ε</sub>	P	M	K	N	S	H	Cermet	PVD Coated Carbide	PVD Coated Carbide	Carbide			Ceramic	
<p>Ground Chipbreaker</p>	GH 4020-02	4.0	0.2	●	●	●	●	●	●	●	●	●	●	●	●: Continuous-Light Interruption / 1st Choice ◐: Continuous-Light Interruption / 2nd Choice ●: Continuous / 1st Choice ◐: Continuous / 2nd Choice	G38	
		4020-05	4.0	0.5	●	●	●	●	●	●	●	●	●	●			●
	GH 4520-02	4.5	0.2	●	●	●	●	●	●	●	●	●	●	●			KGH <sup>R/L</sup> ...4 KGHS <sup>R/L</sup> ...4
		4520-05	4.5	0.5	●	●	●	●	●	●	●	●	●	●			
	GH 5020-02	5.0	0.2	●	●	●	●	●	●	●	●	●	●	●			KGH <sup>R/L</sup> ...5 KGHS <sup>R/L</sup> ...5
		5020-05	5.0	0.5	●	●	●	●	●	●	●	●	●	●			
	GH 5520-02	5.5	0.2	●	●	●	●	●	●	●	●	●	●	●			KGH <sup>R/L</sup> ...5 KGHS <sup>R/L</sup> ...5
		5520-05	5.5	0.5	●	●	●	●	●	●	●	●	●	●			
	GH 6020-02	6.0	0.2	●	●	●	●	●	●	●	●	●	●	●			KGH <sup>R/L</sup> ...5 KGHS <sup>R/L</sup> ...5
		6020-05	6.0	0.5	●	●	●	●	●	●	●	●	●	●			
	GH 6520-02	6.5	0.2	●	●	●	●	●	●	●	●	●	●	●			KGH <sup>R/L</sup> ...5 KGHS <sup>R/L</sup> ...5
		6520-05	6.5	0.5	●	●	●	●	●	●	●	●	●	●			
	GH 7020-02	7.0	0.2	●	●	●	●	●	●	●	●	●	●	●			KGH <sup>R/L</sup> ...7 KGHS <sup>R/L</sup> ...7
7020-05		7.0	0.5	●	●	●	●	●	●	●	●	●	●				
GH 7520-02	7.5	0.2	●	●	●	●	●	●	●	●	●	●	●	KGH <sup>R/L</sup> ...7 KGHS <sup>R/L</sup> ...7			
	7520-05	7.5	0.5	●	●	●	●	●	●	●	●	●	●				
GH 8020-02	8.0	0.2	●	●	●	●	●	●	●	●	●	●	●	KGH <sup>R/L</sup> ...7 KGHS <sup>R/L</sup> ...7			
	8020-05	8.0	0.5	●	●	●	●	●	●	●	●	●	●				
GH 10025-05	10.0	0.5	●	●	●	●	●	●	●	●	●	●	●	KGH <sup>R/L</sup> ...10			
	12025-05	12.0	0.5	●	●	●	●	●	●	●	●	●	●				
<p>Molded Chipbreaker</p>	GHU 40-20	4.0	0.25	●	●	●	●	●	●	●	●	●	●	KGH <sup>R/L</sup> ...4 4KGHS <sup>R/L</sup> ...4	G38		
	GHU 50-20	5.0	0.30	●	●	●	●	●	●	●	●	●	●				
	GHU 60-20	6.0	0.30	●	●	●	●	●	●	●	●	●	●				
<p>Ceramic</p>	GA 30	3.0	0.20	●	●	●	●	●	●	●	●	●	●	KGA <sup>R/L</sup> ...3 KGA <sup>R/L</sup> ...4 KGA <sup>R/L</sup> ...5	G39		
	GA 40	4.0	0.25	●	●	●	●	●	●	●	●	●	●				
	GA 50	5.0	0.30	●	●	●	●	●	●	●	●	●	●				

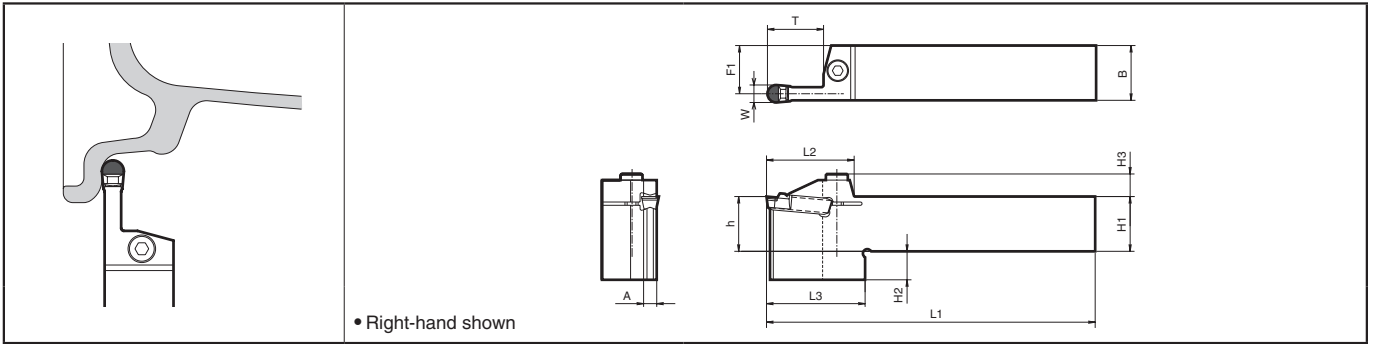
Recommended Cutting Conditions G102~G103

●: Std. Item

Inserts are sold in 10 piece boxes.

# For Aluminum Wheel External Grooving

## KGMW (External / Facing / Copying)



### Toolholder Dimensions

Description	Std.		Dimension (mm)										Spare Parts		Applicable Inserts
	R	L	H1=h	H2	H3	B	L1	L2	L3	F1	A	T	Clamp Bolt	Wrench	
KGMW <sup>R/L</sup> 2525M-6	●	●	25	13	10.3	25	150	40	55	22.8	4.4	25	HH6X25	LW-5	GMGW6030-30R
	●	●								22	6				GMGW8030-40R GMGW8030-40R-HR

### Applicable Inserts

Insert	Description	Dimension (mm)						No. of Edge	PCD
		W	r <sub>e</sub>	L	H	M	S		
	GMGW 6030-30R	6	3	30	5.5	5	4.5	1	●
	8030-40R	8	4			6	6	1	●
	GMGW 8030-40R-HR	8	4	30	5.5	6	5	1	●

· GMGW inserts are exclusively used for KGMW type 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	★ 150~2,700	(1) 0.05~0.3 (2) 0.2~0.8 (3) MAX. 3

★ : 1st Recommendation

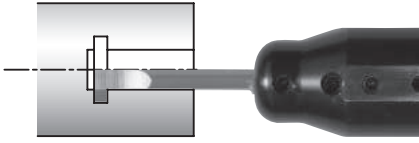
● : Std. Item



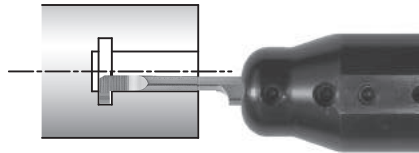
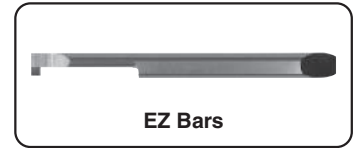
# Summary of Internal Grooving

## Small Dia. Internal Grooving $\phi 3\sim$ (G43~G46)

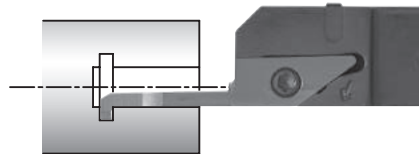
### EZ Bars, 2-Edge Tip-Bars & System Tip-Bars



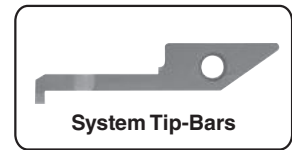
Type	EZG
Min. Bore Dia.	$\phi 3\sim\phi 8$
Edge Width (mm)	0.5~2.0
Grooving Depth (mm)	1.0~2.0
Ref. to Page	G43



Type	HPG
Min. Bore Dia.	$\phi 4\sim\phi 7$
Edge Width (mm)	1.0~2.0
Grooving Depth (mm)	1.0~2.0
Ref. to Page	G46

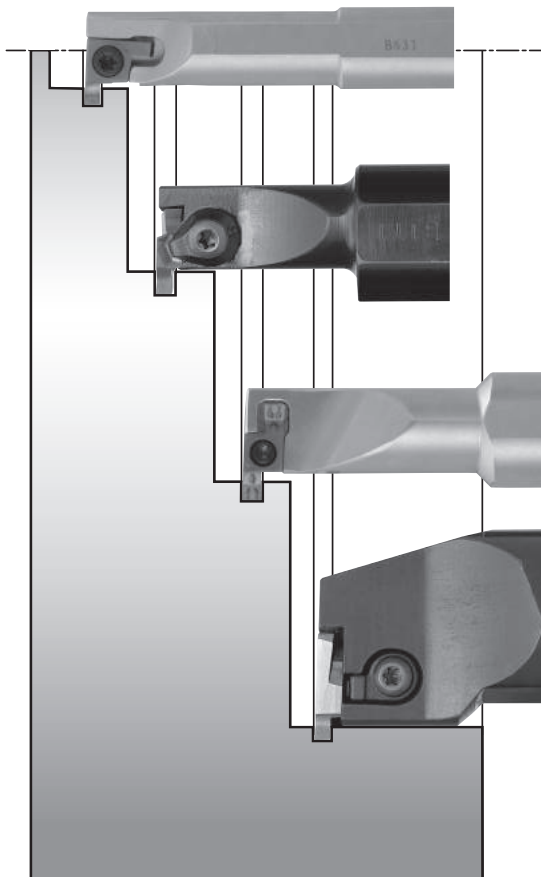


Type	VNG
Min. Bore Dia.	$\phi 4\sim\phi 7$
Edge Width (mm)	1.0~2.0
Grooving Depth (mm)	0.8~2.0
Ref. to Page	G45

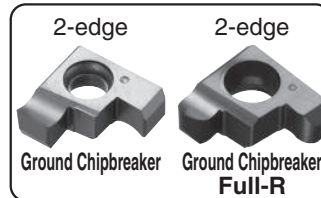


## Internal Grooving $\phi 8\sim$ (G47~G57)

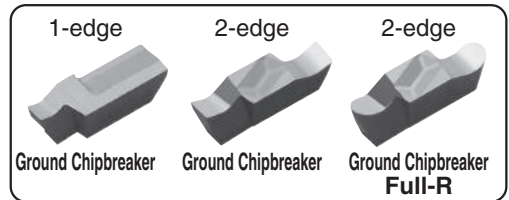
### Shallow Grooving



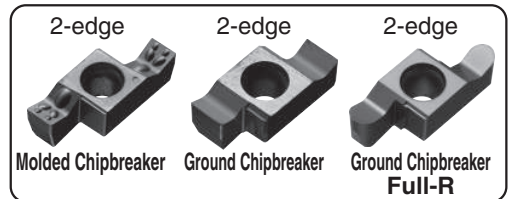
Type	SIGE
Min. Bore Dia.	$\phi 8\sim\phi 12$
Edge Width (mm)	1.0~3.0
Grooving Depth (mm)	1.5~2.2
Ref. to Page	G49



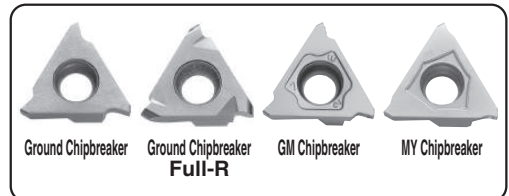
Type	GIV
Min. Bore Dia.	$\phi 12\sim\phi 40$
Edge Width (mm)	1.0~5.0
Grooving Depth (mm)	1.7~6.3
Ref. to Page	G54



Type	SIGE
Min. Bore Dia.	$\phi 14\sim\phi 40$
Edge Width (mm)	1.0~5.0
Grooving Depth (mm)	2.5~6.5
Ref. to Page	G49



Type	KIGBA
Min. Bore Dia.	$\phi 35\sim\phi 40$
Edge Width (mm)	0.33~4.8
Grooving Depth (mm)	0.8~2.8
Ref. to Page	G56



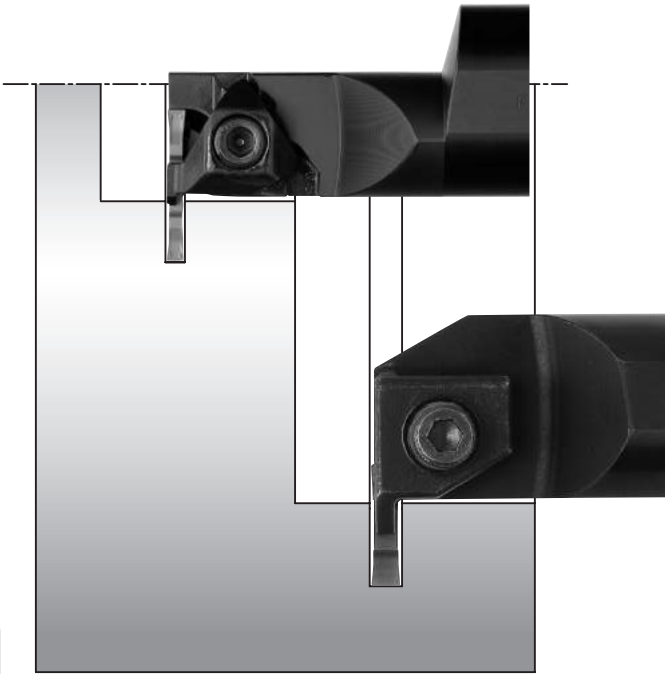
Type	KITG
Min. Bore Dia.	$\phi 35\sim\phi 45$
Edge Width (mm)	0.75~4.5
Grooving Depth (mm)	2.0~2.5
Ref. to Page	G57



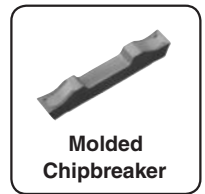
\* KITG will be switched to KIGBA.

# Summary of Internal Grooving

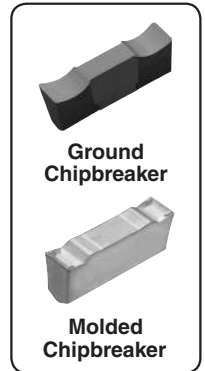
## ● Deep Grooving (G61, G63)



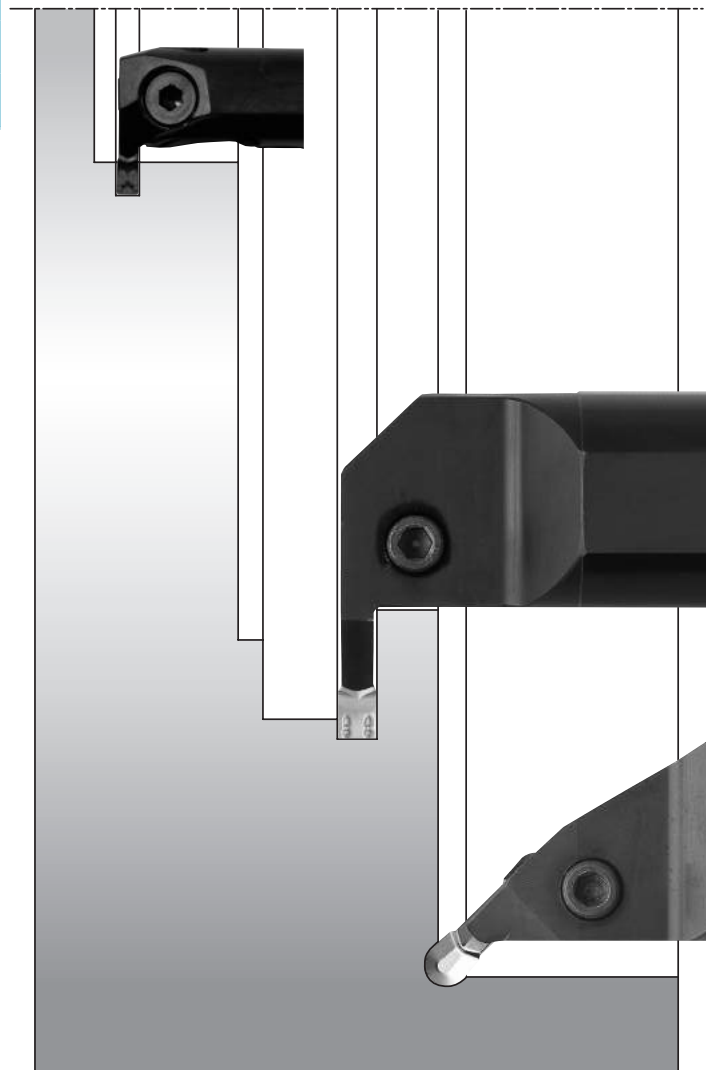
Type	KGIA
Min. Bore Dia.	φ32~φ66
Edge Width (mm)	3.0~5.0
Grooving Depth (mm)	10~15
Ref. to Page	G63



Type	KIGH
Min. Bore Dia.	φ45~φ65
Edge Width (mm)	4.0~8.0
Grooving Depth (mm)	12
Ref. to Page	G61



## ■ Internal Grooving & Turning φ20~ (G58, G60, G62)

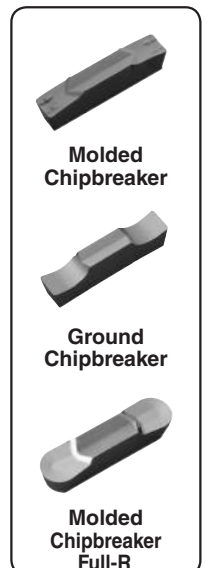


Type	KGDI
Min. Bore Dia.	φ18~φ40
Edge Width (mm)	2.0~5.0
Grooving Depth (mm)	4.5~11.0
Ref. to Page	G58



Type	KIGM-V
Min. Bore Dia.	φ20~φ40
Edge Width (mm)	3.0~5.0
Grooving Depth (mm)	5.5~11.0
Ref. to Page	G60

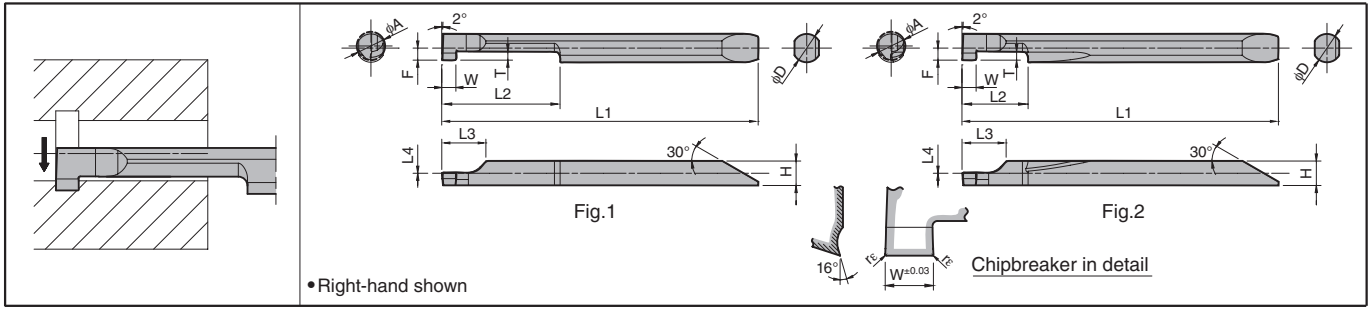
Type	KIGM-8
Min. Bore Dia.	φ65
Edge Width (mm)	8.0
Grooving Depth (mm)	20
Ref. to Page	G62



Type	KIGMU-8
Min. Bore Dia.	φ65
Edge Width (mm)	8.0
Grooving Depth (mm)	2.2
Ref. to Page	G62

# Small Dia. Internal Grooving EZ Bars

## EZG (Small Dia. Internal Grooving) **NEW**

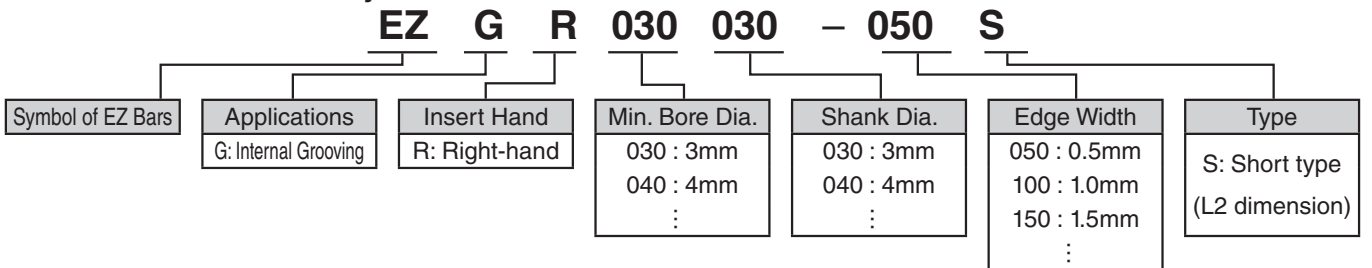


### Dimensions

Description	Min. Bore Dia.		Dimension (mm)									Drawing	MEGACOAT PR1225	Applicable Sleeves EZH F23~F27						
	φA	W <sup>±0.03</sup>	rε	φD	H	L1	L2	L3	L4	F	T									
EZGR 040040-050 040040-100 040040-150 040040-200 050050-100 050050-150 050050-200 060060-100 060060-150 060060-200 070070-100 070070-150 070070-200 080070-100 080070-150 080070-200	4	0.5	±0.013 0.05	4	3.45	44.7	12	6.2	0	1.7	1	Fig.2	●	EZH040..						
		1.0											●							
		1.5											●							
		2.0											●							
	5	1.0		5	4.3	52.8	20	6.7		7.6	2.15		1.5		2.65	2	Fig.1	●	EZH050..	
		1.5																●		
		2.0																●		
		2.0																●		
	6	1.0		6	5.15	60.7	10	6.7		7.6	2.15		1.5		2.65	2		Fig.2	●	EZH060..
		1.5																	●	
		2.0																	●	
		2.0																	●	
7	1.0	7	6.2	63.7	10	6.7	7.6	3.05	2	3.05	2	Fig.1	●	EZH070..						
	1.5												●							
	2.0												●							
	2.0												●							
8	1.0	8	6.2	63.7	10	6.7	7.6	3.45	2	3.45	2		Fig.2	●	EZH070..					
	1.5													●						
	2.0													●						
	2.0													●						
EZGR 030030-050S 030030-100S 040040-050S 040040-100S 040040-150S 040040-200S 050050-100S 050050-150S 050050-200S 060060-100S 060060-150S 060060-200S 070070-100S 070070-150S 070070-200S 080070-100S 080070-150S 080070-200S	3	0.5	±0.013 0.05	3	2.5	38.7	5	4.8	0	1.25	0.8			Fig.2	●	EZH030..				
		1.0													●					
		1.0													●					
		1.0													●					
	4	0.5		4	3.45	44.7	8	6.2		6.2	6.2	1.7			1	1	Fig.1	●	EZH040..	
		1.0																●		
		1.5																●		
		2.0																●		
	5	1.0		5	4.3	52.8	10	6.7		6.7	6.7	2.15	1.5		1.5	Fig.2		●	EZH050..	
		1.5																●		
		2.0																●		
		2.0																●		
6	1.0	6	5.15	60.7	10	6.7	6.7	6.7	2.65	2	2	Fig.1	●	EZH060..						
	1.5												●							
	2.0												●							
	2.0												●							
7	1.0	7	6.2	63.7	10	6.7	6.7	6.7	3.05	2	2		Fig.2	●	EZH070..					
	1.5													●						
	2.0													●						
	2.0													●						
8	1.0	8	6.2	63.7	10	6.7	6.7	6.7	3.45	2	2			Fig.1	●	EZH070..				
	1.5														●					
	2.0														●					
	2.0														●					

· Dimension T shows available grooving depth.

### EZ Bars Identification System



### 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				
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

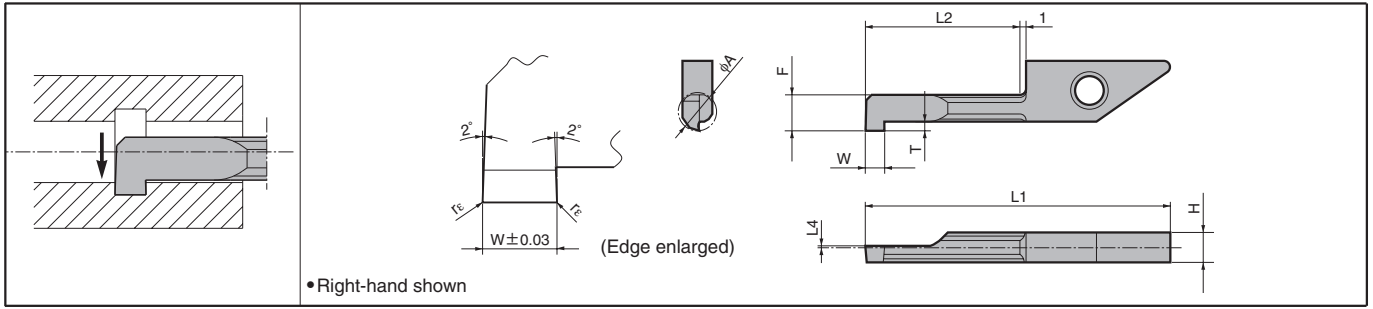
## ● Applicable Sleeves

Sleeve			Applicable Insert for Small Dia. Internal Grooving				Applicable Machine Manufacturer
EZH-CT (Adjustable overhang length with coolant hole) ● F23	EZH-HP (Adjustable overhang length) ● F24	EZH-ST ● F26	Sleeve Shank Dia. φD1 (mm)	EZG	HPG	Shank Dia. φD (mm)	
-	-	EZH 03012ST-80 04012ST-80 05012ST-80 06012ST-80 07012ST-80	12	EZGR ...030-... EZGR ...040-... EZGR ...050-... EZGR ...060-... EZGR ...070-...	- HPG <sup>R/L</sup> 0404-... HPG <sup>R/L</sup> 0505-... HPG <sup>R/L</sup> 0606-... HPG <sup>R/L</sup> 0707-...	3 4 5 6 7	(General purpose)
-	EZH 03016HP-100 04016HP-100 05016HP-100 06016HP-100 07016HP-100	EZH 03016ST-100 04016ST-100 05016ST-100 06016ST-100 07016ST-100	16	EZGR ...030-... EZGR ...040-... EZGR ...050-... EZGR ...060-... EZGR ...070-...	- HPG <sup>R/L</sup> 0404-... HPG <sup>R/L</sup> 0505-... HPG <sup>R/L</sup> 0606-... HPG <sup>R/L</sup> 0707-...	3 4 5 6 7	(General purpose)
EZH 03019CT-120 04019CT-120 05019CT-120 06019CT-120 07019CT-120	EZH 03019HP-120 04019HP-120 05019HP-120 06019HP-120 07019HP-120	EZH 03019ST-120 04019ST-120 05019ST-120 06019ST-120 07019ST-120	19.05	EZGR ...030-... EZGR ...040-... EZGR ...050-... EZGR ...060-... EZGR ...070-...	- HPG <sup>R/L</sup> 0404-... HPG <sup>R/L</sup> 0505-... HPG <sup>R/L</sup> 0606-... HPG <sup>R/L</sup> 0707-...	3 4 5 6 7	Citizen Machinery
EZH 03020CT-120 04020CT-120 05020CT-120 06020CT-120 07020CT-120	EZH 03020HP-120 04020HP-120 05020HP-120 06020HP-120 07020HP-120	EZH 03020ST-120 04020ST-120 05020ST-120 06020ST-120 07020ST-120	20	EZGR ...030-... EZGR ...040-... EZGR ...050-... EZGR ...060-... EZGR ...070-...	- HPG <sup>R/L</sup> 0404-... HPG <sup>R/L</sup> 0505-... HPG <sup>R/L</sup> 0606-... HPG <sup>R/L</sup> 0707-...	3 4 5 6 7	Eguro Tsugami Citizen Machinery (General purpose)
EZH 03022CT-135 04022CT-135 05022CT-135 06022CT-135 07022CT-135	EZH 03022HP-135 04022HP-135 05022HP-135 06022HP-135 07022HP-135	EZH 03022ST-135 04022ST-135 05022ST-135 06022ST-135 07022ST-135	22	EZGR ...030-... EZGR ...040-... EZGR ...050-... EZGR ...060-... EZGR ...070-...	- HPG <sup>R/L</sup> 0404-... HPG <sup>R/L</sup> 0505-... HPG <sup>R/L</sup> 0606-... HPG <sup>R/L</sup> 0707-...	3 4 5 6 7	Star Micronics Nomura DS Tsugami
EZH 03025.0CT-135 04025.0CT-135 05025.0CT-135 06025.0CT-135 07025.0CT-135	EZH 03025.0HP-135 04025.0HP-135 05025.0HP-135 06025.0HP-135 07025.0HP-135	EZH 03025.0ST-135 04025.0ST-135 05025.0ST-135 06025.0ST-135 07025.0ST-135	25	EZGR ...030-... EZGR ...040-... EZGR ...050-... EZGR ...060-... EZGR ...070-...	- HPG <sup>R/L</sup> 0404-... HPG <sup>R/L</sup> 0505-... HPG <sup>R/L</sup> 0606-... HPG <sup>R/L</sup> 0707-...	3 4 5 6 7	Eguro Tsugami Citizen Machinery (General purpose)
EZH 03025.4CT-120 04025.4CT-120 05025.4CT-120 06025.4CT-120 07025.4CT-120	EZH 03025.4HP-120 04025.4HP-120 05025.4HP-120 06025.4HP-120 07025.4HP-120	EZH 03025.4ST-120 04025.4ST-120 05025.4ST-120 06025.4ST-120 07025.4ST-120	25.4	EZGR ...030-... EZGR ...040-... EZGR ...050-... EZGR ...060-... EZGR ...070-...	- HPG <sup>R/L</sup> 0404-... HPG <sup>R/L</sup> 0505-... HPG <sup>R/L</sup> 0606-... HPG <sup>R/L</sup> 0707-...	3 4 5 6 7	Citizen Machinery

- Choose sleeves (φd1) to meet with φD dimension of Internal Grooving Inserts.
- Adjustment Pin cannot be installed to EZH-ST sleeves.
- To adjust overhang of the bar, please use EZH-CT/HP Sleeves.
- Machine manufacturers in random order.



## VNG



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~)						

### Dimensions

Description	Min. Bore Dia.	Dimension (mm)										MEGA COAT	PVD	Carbide	PCD		Ref. to Page for Applicable Toolholders						
		φA	W	re	φD	H	L1	L2	L3	L4	F				T	PR1225		PR930	KW10	KPD001	KPD010		
VNGR	0410-11	4	1.0	0.05	-	3.9	30.8	11	-	0.1	3.5	0.8	●	●	●								
	0420-11		2.0																				
	0510-11	5	1.0	0.05			39.8	20		0.3	5.2	1.8	●	●	●								
	0520-11		2.0																				
	0610-20	6	1.0	0.05			39.8	20		0.3	5.2	1.8	●	●	●								
	0620-20		2.0																				
	0710-20	7	1.0	0.05			39.8	20		0.3	6.2	2.0	●	●	●								
0720-20	2.0																						
VNGR	0410-11NB	4	1.0	0.05	-	3.9	30.8	11	-	0.1	3.5	0.8					MTO	MTO					
	0420-11NB		2.0																				
	0510-11NB	5	1.0	0.05			39.8	20		0.3	5.2	1.8								MTO	MTO		
	0520-11NB		2.0																				
	0610-20NB	6	1.0	0.05			39.8	20		0.3	5.2	1.8								MTO	MTO		
	0620-20NB		2.0																				
	0710-20NB	7	1.0	0.05			39.8	20		0.3	6.2	2.0								MTO	MTO		
0720-20NB	2.0																						

- Dimension T shows available grooving depth.

- Dimension L4 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	PVD	Carbide			
	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	

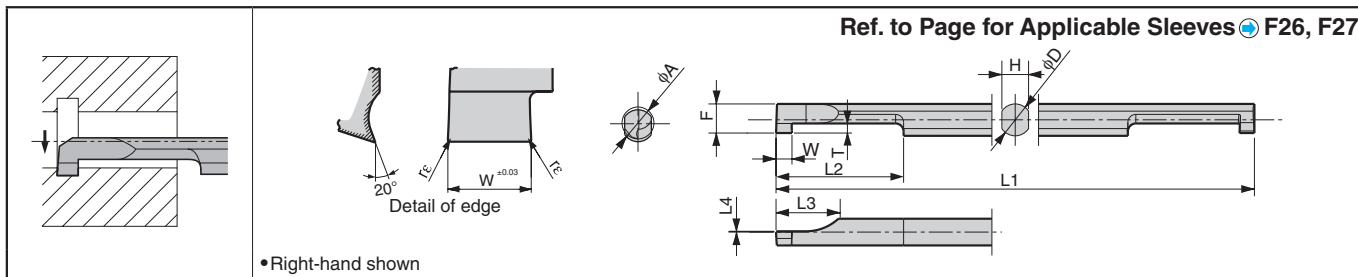
★ : 1st Recommendation ☆ : 2nd Recommendation

● : 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.

## HPG (Small Dia. Internal Grooving)



### Dimensions

Description	Min. Bore Dia.		Dimension (mm)									PVD Coated Carbide		Carbide	
	φA	W±0.03	rε	φD	H	L1	L2	L3	L4	F	T	PR930		KW10	
												R	L	R	L
<b>HPG<sup>R/L</sup> 0404-10</b>	4	1	0.05	4	3.35	60	15	8	0	3.65	1	●	●	●	
<b>0404-20</b>		2										●	●	●	
<b>0505-10</b>	5	1	0.05	5	4.3	70	20	10	0	4.55	1.5	●	●	●	
<b>0505-20</b>		2										●	●	●	
<b>0606-10</b>	6	1	0.05	6	5.2	80	25	10	0	5.5	2	●	●	●	
<b>0606-20</b>		2										●	●	●	
<b>0707-10</b>	7	1	0.05	7	6.2	80	25	10	0	6.45	2	●	●	●	
<b>0707-20</b>		2										●	●	●	

• Dimension T shows available grooving depth.

### Description Table for Tip-Bars and Applicable Sleeves

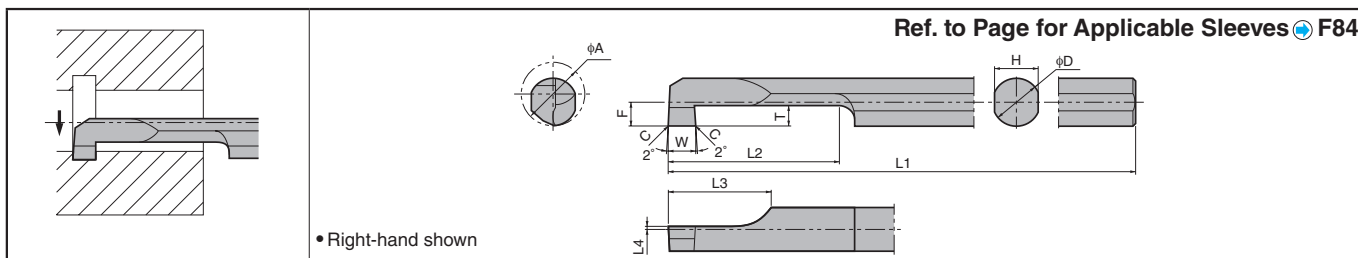
### Recommended Cutting Conditions

Tip-Bars Description	Applicable Sleeves		Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)		HPG <sup>R/L</sup> 04 HPG <sup>R/L</sup> 05	HPG <sup>R/L</sup> 06 HPG <sup>R/L</sup> 07	Remarks
	F26, F27			PVD Coated Carbide	Carbide			
				PR930	KW10			
<b>HPG<sup>R/L</sup> 0404...</b>	<b>EZH</b>	<b>04.....</b>	Carbon steel / Alloy steel	★ 30-100	-	-0.03	~0.05	Coolant
<b>0505...</b>		<b>05.....</b>	Stainless Steel	★ 30-80	-	-0.02	~0.03	
<b>0606...</b>		<b>06.....</b>	Non-ferrous Metals	-	★ ~300	-0.05	~0.08	
<b>0707...</b>		<b>07.....</b>						

★: 1st Recommendation

## PSG-S (Tip-Bars)

This insert will be switched to EZG.



### Dimensions

Description	Min. Bore Dia.		Dimension (mm)									PVD Coated Carbide		Carbide	
	φA	W±0.03	C	φD	H	L1	L2	L3	L4	F	T	PR930		KW10	
												R	L	R	L
<b>PSG<sup>R/L</sup> 0510-60S</b>	5	1.0	0.05	3.8	3.6	60	15	8	0.1	1.86	1.5			○	○
<b>0520-60S</b>		2.0	0.1									○	○	○	○
<b>0610-70S</b>	6	1.0	0.05	4.8	4.4	70	20	10	0.3	2.36	2.0	○	○	○	○
<b>0620-70S</b>		2.0	0.1									○	○	○	○
<b>0710-70S</b>	7	1.0	0.05	5.8	5.2	70	20	10	0.3	2.86	2.0	○	□	○	○
<b>0720-70S</b>		2.0	0.1									○	○	○	□
<b>0810-80S</b>	8	1.0	0.05	6.8	6.2	80	25	10	0.3	3.38	2.0	○	○	○	○
<b>0820-80S</b>		2.0	0.1									○	○	○	○

• Dimension T shows available grooving depth.

• Dimension L4 indicates the cutting edge is above the Tool's Center Position.

Recommended Cutting Conditions G103

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



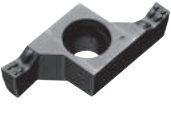
# Internal Grooving SIGE

## Applicable Inserts

Description	A	L	H	φd
GE <sup>®</sup> /L...-A	6.69	6.5	2.58	2.5
GER...-AR	6.69	6.5	2.58	2.5
GE <sup>®</sup> /L...-B	8.46	8.2	3.18	2.7
GER...-BR	8.46	8.2	3.18	2.7
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)	H Hard materials (40HRC~)
	●	☺				●	○

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

Insert  Handed Insert shows Right-hand	Description	Dimension (mm)				Cermet TN6020	MEGA COAT PR1225	PVD Coated Carbide PR1025	Carbide				Applicable Toolholders	Ref. to Page for Applicable Toolholders		
		W	B	C	rε				GW15		KW10					
									R	L	R	L				
 2-edge	GE <sup>®</sup> /L 100-005A	1.00	1.5	1.8	0.05	●	●	●	●	●	●	●	●	SIGE <sup>®</sup> /L...A-EH SIGE <sup>®</sup> /L...A-WH	G49 G50	
	120-005A	1.20				●	●	●	●	●	●	●	●			
	125-005A	1.25				●	●	●	●	●	●	●	●			
	150-010A	1.50	●	●	●	●	●	●	●	●	●	●				
	200-010A	2.00	●	●	●	●	●	●	●	●	●	●				
	GE <sup>®</sup> /L 100-005B	1.00	2.2	2.6	0.05	●	●	●	●	●	●	●	●	SIGE <sup>®</sup> /L...B-EH SIGE <sup>®</sup> /L...B-WH SIGER...B-WH-90	G49 G50 G51	
	120-005B	1.20				●	●	●	●	●	●	●	●			
	125-005B	1.25				●	●	●	●	●	●	●	●			
	145-010B	1.45			●	●	●	●	●	●	●	●				
	150-010B	1.50			●	●	●	●	●	●	●	●				
200-010B	2.00	●			●	●	●	●	●	●	●					
250-020B	2.50	●	●	●	●	●	●	●	●	●						
300-020B	3.00	●	●	●	●	●	●	●	●	●	●					
 2-edge Full-R	GER 100-050AR	1.00	1.5	1.8	0.5	●	●	●	●	●	●	●	SIGER...A-EH SIGER...A-WH	G49 G50		
	200-100AR	2.00				●	●	●	●	●	●	●			●	
	GER 100-050BR	1.00	2.2	2.6	0.5	●	●	●	●	●	●	●	SIGER...B-EH SIGER...B-WH SIGER...B-WH-90	G49 G50 G51		
	200-100BR	2.00				●	●	●	●	●	●	●			●	
	 2-edge Molded Chipbreaker	GER 150-010CM	1.50	2.5	2.7	0.1	●	●	●	●	●	●	●	SIGER...C-EH SIGER...C-WH SIGER...C-WH-90	G49 G50 G51	
		200-010CM	2.00				●	●	●	●	●	●	●			●
		250-020CM	2.50			●	●	●	●	●	●	●	●			
		300-020CM	3.00			●	●	●	●	●	●	●	●			
		350-020CM	3.50			●	●	●	●	●	●	●	●			
		GER 150-010DM	1.50	4.8	4.8	0.1	●	●	●	●	●	●	●	SIGER...D-EH	G49	
		200-010DM	2.00				●	●	●	●	●	●	●			●
		230-020DM	2.30				●	●	●	●	●	●	●			●
		250-020DM	2.50			●	●	●	●	●	●	●	●			
		300-020DM	3.00			●	●	●	●	●	●	●	●			
	350-020DM	3.50	●			●	●	●	●	●	●	●				
	GER 150-010EM	1.50	6.8	6.8	0.1	●	●	●	●	●	●	●	SIGER...E-EH	G49		
	200-010EM	2.00				●	●	●	●	●	●	●			●	
	250-020EM	2.50				●	●	●	●	●	●	●			●	
300-020EM	3.00	●				●	●	●	●	●	●	●				
350-020EM	3.50	●			●	●	●	●	●	●	●					
400-020EM	4.00	●			●	●	●	●	●	●	●					
450-020EM	4.50	●			●	●	●	●	●	●	●					
500-020EM	5.00	●			●	●	●	●	●	●	●					

Dimension B shows available grooving depth.

Recommended Cutting Conditions **G52**

### Comparison of Chip Control (Molded Chipbreaker)

Description	f (mm/rev)			Evaluation
	SCM415 (Bore Dia. φ16)			
	0.05	0.07	0.1	
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)

● : Std. Item

### Comparison of Chip Control (Min. Bore Dia.: φ8)

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

[Vc=50m/min, ap=1.25mm, Wet]

(Internal evaluation)

Inserts are sold in 10 piece boxes.

# Internal Grooving SIGE

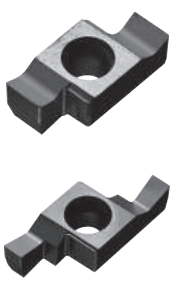
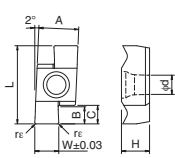
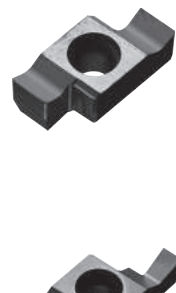
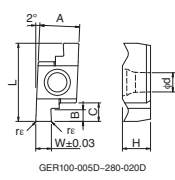

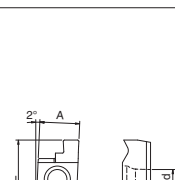
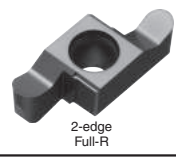
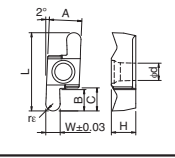
## Applicable Inserts

(mm)

Description	A	L	H	φd
GE <sup>®</sup> /L...-C	5.8	11.48	4.05	2.8
GER...-CR	5.8	11.48	4.05	2.8
GE <sup>®</sup> /L...-D	6.8	16.44	5.05	3.4
GER...-DR	6.8	16.44	5.05	3.4
GE <sup>®</sup> /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	Description	Dimension (mm)				Cermet	MEGA COAT	PVD Coated Carbide	Carbide				Applicable Toolholders	Ref. to Page for Applicable Toolholders						
		W	B	C	re				TN6020		PR1225				PR1025		GW15		KW10	
									R	L	R	L			R	L	R	L	R	L
 2-edge	 GER100-005D-280-020D	GE <sup>®</sup> /L 100-005C	1.00	2.5	2.7	0.05	●	●	●	●	●	●	●	●	●	●	SIGE <sup>®</sup> /L...C-EH SIGE <sup>®</sup> /L...C-WH SIGER...C-WH-90	G49 G50 G51		
		120-005C	1.20				●	●	●	●	●	●	●	●	●	●			●	
		125-005C	1.25				●	●	●	●	●	●	●	●	●	●			●	
		140-005C	1.40				●	●	●	●	●	●	●	●	●	●			●	
		145-010C	1.45				●	●	●	●	●	●	●	●	●	●			●	
		150-010C	1.50				●	●	●	●	●	●	●	●	●	●			●	
		170-010C	1.70				●	●	●	●	●	●	●	●	●	●			●	
		185-010C	1.85				●	●	●	●	●	●	●	●	●	●			●	
		195-010C	1.95				●	●	●	●	●	●	●	●	●	●			●	
		200-010C	2.00				●	●	●	●	●	●	●	●	●	●			●	
		250-020C	2.50				●	●	●	●	●	●	●	●	●	●			●	
		300-020C	3.00				●	●	●	●	●	●	●	●	●	●			●	
		350-020C	3.50				●	●	●	●	●	●	●	●	●	●			●	
 2-edge	 GER100-005D-280-020D	GE <sup>®</sup> /L 100-005D	1.00	2.5	3.0	0.05	●	●	●	●	●	●	●	●	●	SIGE <sup>®</sup> /L...D-EH				
		140-005D	1.40				●	●	●	●	●	●	●	●	●			●		
		145-010D	1.45				●	●	●	●	●	●	●	●	●			●		
		150-010D	1.50				●	●	●	●	●	●	●	●	●			●		
		170-010D	1.70				●	●	●	●	●	●	●	●	●			●		
		185-010D	1.85				●	●	●	●	●	●	●	●	●			●		
		195-010D	1.95				●	●	●	●	●	●	●	●	●			●		
		200-010D	2.00				●	●	●	●	●	●	●	●	●			●		
		225-010D	2.25				●	●	●	●	●	●	●	●	●			●		
		230-020D	2.30				●	●	●	●	●	●	●	●	●			●		
		250-020D	2.50				●	●	●	●	●	●	●	●	●			●		
		275-020D	2.75				●	●	●	●	●	●	●	●	●			●		
		280-020D	2.80				●	●	●	●	●	●	●	●	●			●		
300-020D	3.00	●	●	●	●	●	●	●	●	●	●									
330-020D	3.30	●	●	●	●	●	●	●	●	●	●									
350-020D	3.50	●	●	●	●	●	●	●	●	●	●									
400-020D	4.00	●	●	●	●	●	●	●	●	●	●									
 2-edge	 GER100-005E-430-020E	GE <sup>®</sup> /L 100-005E	1.00	2.5	3.0	0.05	●	●	●	●	●	●	●	●	●	SIGE <sup>®</sup> /L...E-EH	G49			
		150-010E	1.50				●	●	●	●	●	●	●	●	●			●		
		170-010E	1.70				●	●	●	●	●	●	●	●	●			●		
		185-010E	1.85				●	●	●	●	●	●	●	●	●			●		
		195-010E	1.95				●	●	●	●	●	●	●	●	●			●		
		200-010E	2.00				●	●	●	●	●	●	●	●	●			●		
		225-010E	2.25				●	●	●	●	●	●	●	●	●			●		
		230-020E	2.30				●	●	●	●	●	●	●	●	●			●		
		250-020E	2.50				●	●	●	●	●	●	●	●	●			●		
		275-020E	2.75				●	●	●	●	●	●	●	●	●			●		
		280-020E	2.80				●	●	●	●	●	●	●	●	●			●		
		300-020E	3.00				●	●	●	●	●	●	●	●	●			●		
		330-020E	3.30				●	●	●	●	●	●	●	●	●			●		
350-020E	3.50	●	●	●	●	●	●	●	●	●	●									
400-020E	4.00	●	●	●	●	●	●	●	●	●	●									
430-020E	4.30	●	●	●	●	●	●	●	●	●	●									
450-020E	4.50	●	●	●	●	●	●	●	●	●	●									
460-020E	4.60	●	●	●	●	●	●	●	●	●	●									
500-020E	5.00	●	●	●	●	●	●	●	●	●	●									
 2-edge Full-R	 GER200-100CR	GER 200-100CR	2.00	2.5	2.7	1.0	●	●	●	●	●	●	●	●	●	SIGER...C-EH SIGER...C-WH SIGER...C-WH-90	G49 G50 G51			
		250-125CR	2.50				●	●	●	●	●	●	●	●	●					
		300-150CR	3.00				●	●	●	●	●	●	●	●	●					
		GER 200-100DR	2.00				3.2	4.8	1.0	●	●	●	●	●	●			●	●	
		300-150DR	3.00							●	●	●	●	●	●			●	●	●

Dimension B shows available grooving depth.

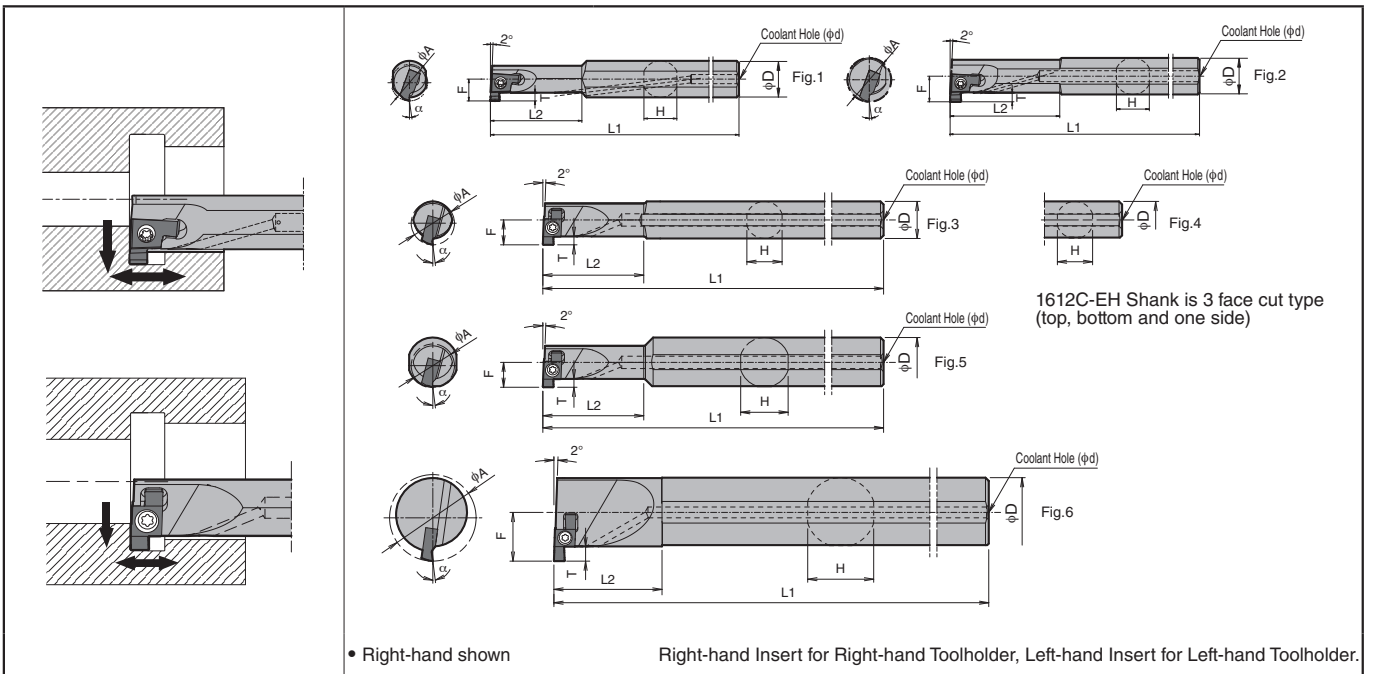
Recommended Cutting Conditions **G52**

● : Std. Item

**G48** Inserts are sold in 10 piece boxes.



## SIGE-EH Excellent Bar (with Coolant Hole)



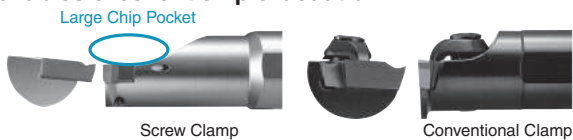
### Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)							Drawing	Spare Parts			Applicable Inserts G47, G48	
	R	L		φA	φD	H	L1	L2	F	T		φd	Clamp Screw	Wrench		
														FT		DT
SIGE <sup>®</sup> 0808A-EH	●	●	8	8	7.2	100	20	4.8	1.5	3	Fig.1	SB-2045TRN	FT-6	-	GE%100-005A~GE%200-010A GER100-050AR~GER200-100AR	
1010B-EH	●	●	10	10	9	125	25	6.2	2.2	3	Fig.1	SB-2255TR	-	DT-7	GE%100-005B~GE%300-020B GER100-050BR~GER200-100BR	
1210B-EH	●	●	12				30	7								
1412C-EH	●	●	14	12	11.4	150	33	8	2.5	4	Fig.3	SB-2570TR	FT-8	-	GE%100-005C~GE%350-020C GER150-010CM~GER350020CM GER200-100CR~GER300-150CR	
1612C-EH	●	●	16				20	8.5								
1616C-EH	●	●	16	16	15	160	36	9	5	5	Fig.4					
2020D-EH	●	●	20	20	19	180	40	12.1	4.5	5	Fig.5	SB-3080TR	FT-10	-	GE%100-005D~GE%400-020D GER150-010DM~GER400-020DM GER200-100DR~GER300-150DR	
2525E-EH	●	●	25	25	24	200	45	15.6	6.5	5	Fig.6	SB-4085TR	FT-15	-	GE%100-005E~GE%500-020E GER150-010EM~GER500-020EM	
3232E-EH	●	●	32	32	30.4	220	55	19								
4032E-EH	●	●	40			250	45	23								

• Dimension T shows available grooving depth. Available Groove Depth: "B" Dimension of Insert.

### Features

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



- Cost effective chip control from a molded chipbreaker



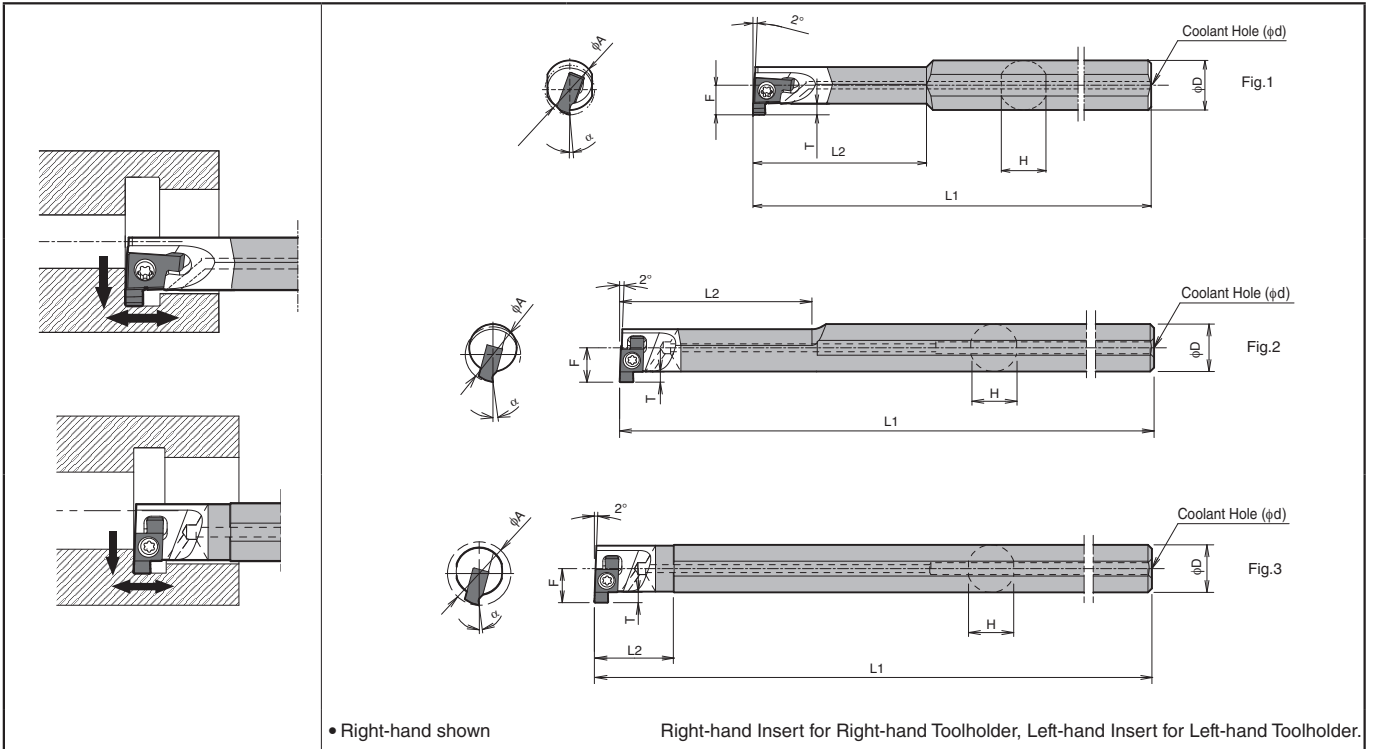
- Cutting edge is free from contact face



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

# Internal Grooving SIGE

## SIGE-WH Carbide Shank Bar (with Coolant Hole)



### Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)							Drawing	Spare Parts			Applicable Inserts G47, G48
	R	L		φA	φD	H	L1	L2	F	T		φd	Clamp Screw	Wrench	
														FT 	
SIGE <sup>®</sup> /L 0808A-WH	●	●	8	8	7.2	125	28	4.8	1.5	3	Fig.1	SB-2045TRN	FT-6	-	GE <sup>®</sup> /L 100-005A~GE <sup>®</sup> /L 200-010A GER100-050AR~GER200-100AR
1010B-WH	●	●	10	10	9	125	35	6.2	2.2	3		SB-2255TR	-	DT-7	GE <sup>®</sup> /L 100-005B~GE <sup>®</sup> /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	4	Fig.2	SB-2570TR	FT-8	-	GE <sup>®</sup> /L 100-005C~GE <sup>®</sup> /L 350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR
1612C-WH	●	●	16			180	20	8.5							

Dimension T shows available grooving depth. Available Groove Depth: "B" 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 <sup>®</sup> /L 0808A-EH	GE <sup>®</sup> /L 100-005A~GE <sup>®</sup> /L 200-010A GER100-050AR~GER200-100AR	5°	-	-
1010B-EH	GE <sup>®</sup> /L 100-005B~GE <sup>®</sup> /L 300-020B GER100-050BR~GER200-100BR	5°	-	-
1210B-EH				
1412C-EH	GE <sup>®</sup> /L 100-005C~GE <sup>®</sup> /L 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
1612C-EH				
1616C-EH	GE <sup>®</sup> /L 100-005D~GE <sup>®</sup> /L 400-020D GER200-100DR~GER300-150DR	9°	GER150-010DM~GER400-020DM	10°
2020D-EH				
2525E-EH				
3232E-EH				
4032E-EH	GE <sup>®</sup> /L 100-005E~GE <sup>®</sup> /L 500-020E	10°	GER150-010EM~GER500-020EM	10°
SIGE <sup>®</sup> /L 0808A-WH	GE <sup>®</sup> /L 100-005A~GE <sup>®</sup> /L 200-010A GER100-050AR~GER200-100AR	5°	-	-
1010B-WH	GE <sup>®</sup> /L 100-005B~GE <sup>®</sup> /L 300-020B GER100-050BR~GER200-100BR	5°	-	-
1210B-WH				
1008B-WH-90				
1210B-WH-90	GE <sup>®</sup> /L 100-005C~GE <sup>®</sup> /L 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
1412C-WH				
1612C-WH				
1412C-WH-90				

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

● : Std. Item

G

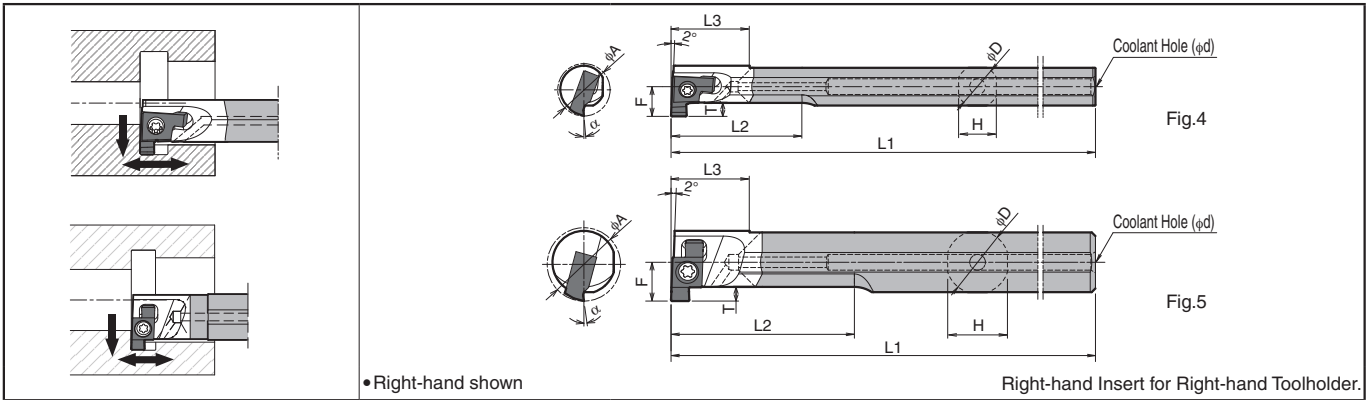
Grooving

External

Internal

Face

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



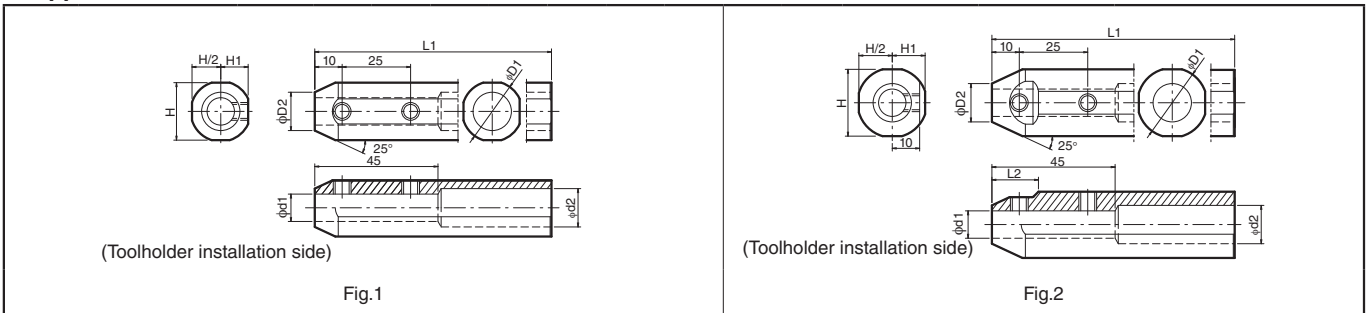
### Toolholder Dimensions

Description	Std.	Min. Bore Dia.	Dimension (mm)									Drawing	Spare Parts		Applicable Inserts G47, G48
			φA	φD	H	L1	L2	*L3	F	T	φd		Clamp Screw	Wrench	
SIGER 1008B-WH-90	●	10	8	7.2	90	25	15	5.6	2.2	3	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	3	Fig.5	SB-2570TR	FT-8	GER100-005C~GER350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR	

\*Dimension L3 shows minimum overhang length.

· Ref. to Page G50 for Applicable Insert & Rake Angle (α) after Installation of Insert.

### Applicable Sleeves



Description	Std.	Dimension (mm)								Drawing	Spare Parts		Applicable Machine Manufacturer
		φd1	φD1	φD2	φd2	H	H1	L1	L2		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	HS6X4P	LW-3	Citizen Machinery
1025.0-135	●	10											
1225.0-135	●	12											
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	HS6X4P	LW-3	Citizen Machinery
1020-120	●	10											
SHA 0825.4-120	●	8	25.4	14	14	24.4	12	120	17	Fig.2	HS6X4P	LW-3	Citizen Machinery
1025.4-120	●	10											
1225.4-120	●	12											
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											
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											

\* Length of φd1...45mm (All of SHA sleeves)

· Choose sleeves (φd1) to meet with φD dimension of toolholder.

· Machine manufacturers in random order.

● : Std. Item



# Internal Grooving SIGE

## ◆ Recommended Cutting Conditions (Ground Chipbreaker: GE<sup>R/L</sup>...A(R), GE<sup>R/L</sup>...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 <sup>R/L</sup> 100-200-010A 100-200-100AR	GE <sup>R/L</sup> 100-200-010B 100-200-100BR	GE <sup>R/L</sup> 250-300-020B	
Carbon Steel	☆ 50~80	★ 50~80	☆ 50~80	-	(1) 0.01~0.03 (2) 0.01~0.03 (3) Max. 0.05	(1) 0.02~0.04 (2) 0.02~0.04 (3) Max. 0.05	(1) 0.02~0.04 (2) 0.02~0.04 (3) Max. 0.1	Coolant
Alloy Steel	☆ 50~80	★ 50~80	☆ 50~80	-	(1) 0.01~0.03 (2) 0.01~0.03 (3) Max. 0.05	(1) 0.02~0.04 (2) 0.02~0.04 (3) Max. 0.05	(1) 0.02~0.04 (2) 0.02~0.04 (3) Max. 0.1	
Stainless Steel	-	★ 50~80	☆ 50~80	-	(1) 0.01~0.03 (2) 0.01~0.03 (3) Max. 0.05	(1) 0.01~0.03 (2) 0.01~0.03 (3) Max. 0.05	(1) 0.01~0.03 (2) 0.01~0.03 (3) Max. 0.1	
Cast Iron	-	-	-	★ 50~80	(1) 0.01~0.03 (2) 0.01~0.03 (3) Max. 0.05	(1) 0.02~0.04 (2) 0.02~0.04 (3) Max. 0.05	(1) 0.02~0.04 (2) 0.02~0.04 (3) Max. 0.1	
Aluminum	-	-	-	★ 50~100	(1) 0.01~0.03 (2) 0.01~0.03 (3) Max. 0.1	(1) 0.02~0.04 (2) 0.02~0.04 (3) Max. 0.1	(1) 0.02~0.04 (2) 0.02~0.04 (3) Max. 0.2	
Brass	-	-	-	★ 50~100	(1) 0.01~0.03 (2) 0.01~0.03 (3) Max. 0.1	(1) 0.02~0.04 (2) 0.02~0.04 (3) Max. 0.1	(1) 0.02~0.04 (2) 0.02~0.04 (3) Max. 0.2	

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

★: 1st Recommendation ☆: 2nd Recommendation

## ◆ Recommended Cutting Conditions (Ground Chipbreaker: GE<sup>R/L</sup>...C(R), GE<sup>R/L</sup>...D(R), GE<sup>R/L</sup>...E)

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	GW15	(3) ap for Turning (mm)							
					GE <sup>R/L</sup> 100-200-010C 200-100CR	GE <sup>R/L</sup> 250-350-020C 250-300-150CR			GE <sup>R/L</sup> 300-400-020D 300-150DR			GE <sup>R/L</sup> 350-400-020E
Carbon Steel	☆ 120~180	★ 60~140	☆ 60~140	-	(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) 0.04~0.09 (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	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	Coolant
Alloy Steel	☆ 100~160	★ 60~120	☆ 60~120	-	(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) 0.04~0.08 (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	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	
Stainless Steel	☆ 70~130	★ 60~110	☆ 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) 0.04~0.08 (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	(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) 0.04~0.09 (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	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	
Aluminum	-	-	-	★ 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) 0.05~0.15 (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	(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) 0.05~0.15 (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	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	

\* Use PVD coated grade or carbide for turning with edge width 1mm. (GE<sup>R/L</sup>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	MEGACOAT	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 300-400-020DM			GER 350-400-020EM
Carbon Steel	-	★ 60~160	☆ 60~160	-	(1) 0.03~0.1 (2) 0.03~0.1 (3) Max. 1.0	(1) 0.03~0.12 (2) 0.03~0.1 (3) Max. 1.5	(1) 0.04~0.12 (2) 0.04~0.1 (3) Max. 1.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 1.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 1.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 1.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 1.5	Coolant
Alloy Steel	-	★ 60~140	☆ 60~140	-	(1) 0.03~0.1 (2) 0.03~0.1 (3) Max. 1.0	(1) 0.03~0.1 (2) 0.03~0.1 (3) Max. 1.5	(1) 0.04~0.12 (2) 0.04~0.1 (3) Max. 1.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 1.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 1.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 1.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 1.5	
Stainless Steel	-	★ 60~110	☆ 60~110	-	(1) 0.03~0.08 (2) 0.03~0.1 (3) Max. 1.0	(1) 0.03~0.08 (2) 0.03~0.1 (3) Max. 1.5	(1) 0.04~0.08 (2) 0.04~0.1 (3) Max. 1.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 1.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 1.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 1.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 1.5	

★: 1st Recommendation ☆: 2nd Recommendation

G

Grooving

External


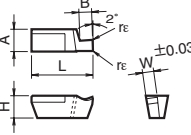

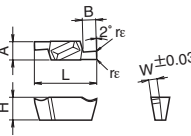



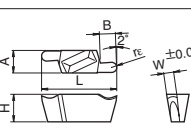
Internal

Face

# Insert for Small Dia. Internal Grooving

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

(mm)

Description	A	L	H	Classification of usage	Dimension (mm)		Cermert		MEGA COAT	PVD Coated Carbide	Carbide	PCD	Applicable Toolholders						
					W	B	r <sub>e</sub>	TN90		TC40NTC60MPR1225	PR930	KW10		KPD010					
								R	L						R	L	R	L	R
<b>GV<sup>R/L</sup>...SS</b>	3.6	9	3.0	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-)									Applicable Toolholders						
<b>GV<sup>R/L</sup>...S</b>	4.0	11	4.0																
<b>GV<sup>R/L</sup>...A</b>	4.0	12	5.0																
<b>GV<sup>R/L</sup>...B</b>	4.5	15	5.5																
<b>GV<sup>R/L</sup>...C</b>	5.8	21	6.5																
● : Continuous-Light Interruption / 1st Choice ○ : Continuous-Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice																			
Insert		Description		Dimension (mm)		Cermert		MEGA COAT	PVD Coated Carbide	Carbide	PCD	Applicable Toolholders							
Handed Insert shows Right-hand		W	B	r <sub>e</sub>	TN90		TC40NTC60MPR1225	PR930	KW10	KPD010									
					R	L					R		L	R	L	R	L		
 <p>1-edge</p>		<b>GV<sup>R/L</sup></b> 100-020SS 125-020SS 145-020SS 200-020SS 250-020SS 300-020SS	2.3	0.2	●				●	●	●	●	●		GIV <sup>R/L</sup> ...1SS				
					●				●	●	●	●	●	●					
					●				●	●	●	●	●	●					
					●				●	●	●	●	●	●					
					●				●	●	●	●	●	●					
		 <p>2-edge</p>		<b>GV<sup>R/L</sup></b> 100-020A 125-020A 145-020A 185-020A 200-020A 250-020A 300-020A 340-020A	2.3	0.2	●				●	●	●	●	●		GIV <sup>R/L</sup> ...1A GIV <sup>R/L</sup> ...1AE GIV <sup>R/L</sup> ...1AW		
							●				●	●	●	●	●	●			
							●				●	●	●	●	●	●			
							●				●	●	●	●	●	●			
							●				●	●	●	●	●	●			
 <p>2-edge</p>				<b>GV<sup>R/L</sup></b> 145-020B 185-020B 200-020B 230-020B 250-020B 280-020B 300-020B 340-020B 400-020B	2.8	0.2	●				●	●	●	●	●		GIV <sup>R/L</sup> ...1B GIV <sup>R/L</sup> ...1BE GIV <sup>R/L</sup> ...1BW		
							●				●	●	●	●	●	●			
					3.2	0.2	●				●	●	●	●	●	●			
							●				●	●	●	●	●	●			
							●				●	●	●	●	●	●			
		4.2	0.2	●				●	●	●	●	●	●						
				●				●	●	●	●	●	●						
		<b>GV<sup>R/L</sup></b> 280-020C 300-020C 340-020C 400-020C 430-020C 460-020C 500-020C	4.5	0.2	●	●	●	●	●	●	●	●	●		GIV <sup>R/L</sup> ...1C GIV <sup>R/L</sup> ...1CE GIV <sup>R/L</sup> ...1CW				
					●	●	●	●	●	●	●	●	●	●					
			5.5	0.2	●				●	●	●	●	●	●		GIV <sup>R/L</sup> ...2C GIV <sup>R/L</sup> ...2CE GIV <sup>R/L</sup> ...2CW			
●							●	●	●	●	●	●							
●							●	●	●	●	●	●							
<b>GV<sup>R/L</sup></b> 145-020A 200-020A 300-020A 200-020B 250-020B 300-020B 300-020C 400-020C	2.3	0.2										● MTO	GIV <sup>R/L</sup> ...1A GIV <sup>R/L</sup> ...1AE GIV <sup>R/L</sup> ...1AW						
														● MTO					
														MTO MTO					
	3.2	0.2	●										● MTO	GIV <sup>R/L</sup> ...1B GIV <sup>R/L</sup> ...1BE GIV <sup>R/L</sup> ...1BW					
			●										● MTO						
4.2	0.2											MTO MTO	GIV <sup>R/L</sup> ...2B □ GIV <sup>R/L</sup> ...1C □ GIV <sup>R/L</sup> ...2C □						
												MTO MTO							
 <p>2-edge Full-R</p>		<b>GV<sup>R/L</sup></b> 200-100AR 250-125AR 300-150AR	2.3	1.00 1.25 1.50					●	●	●	●	●		GIV <sup>R/L</sup> ...1A GIV <sup>R/L</sup> ...1AE GIV <sup>R/L</sup> ...1AW				
													●	●		●	●		
														●		●	●	●	
		<b>GV<sup>R/L</sup></b> 200-100BR 300-150BR	3.2 4.2	1.00 1.50	●					●	●	●	●		GIV <sup>R/L</sup> ...1B □ GIV <sup>R/L</sup> ...2B □				
					●							●	●	●		●			

Dimension B shows available grooving depth.

Recommended Cutting Conditions **G104**  
 Ref. to Page for Applicable Toolholders **G55**

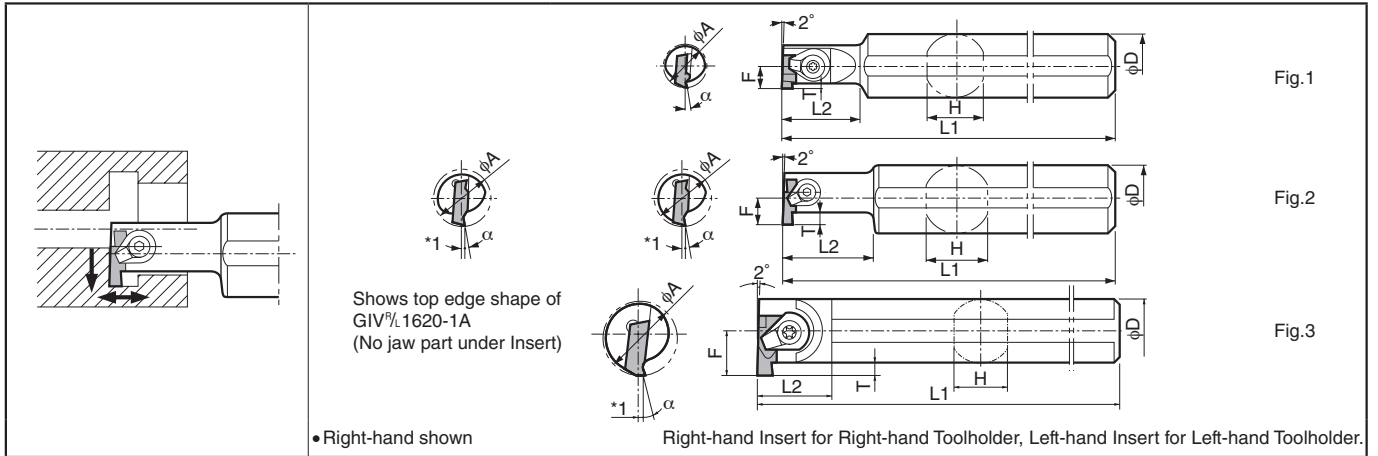
● : Std. Item  
 MTO : Made to order

Inserts are sold in 10 piece boxes.

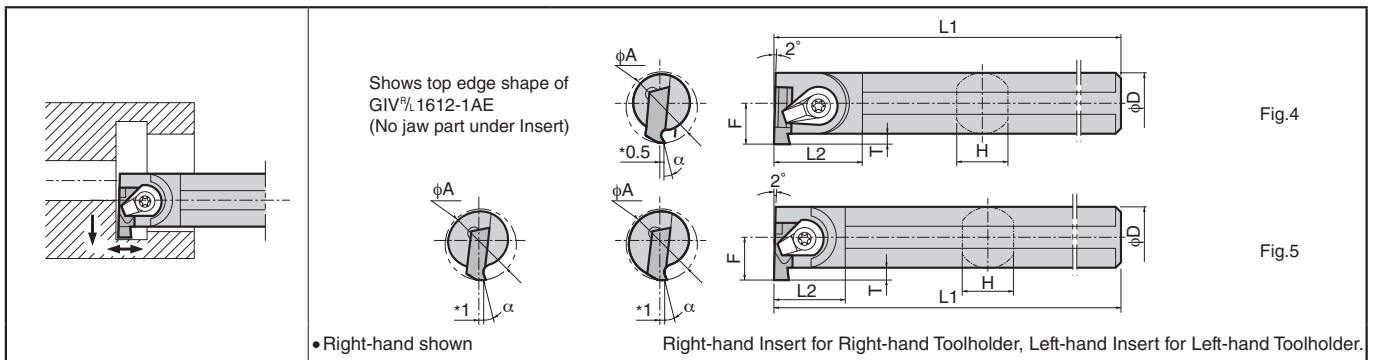
CBN & PCD Inserts are sold in 1 piece boxes.

# Small Dia. Internal Grooving Toolholders [GV Insert]

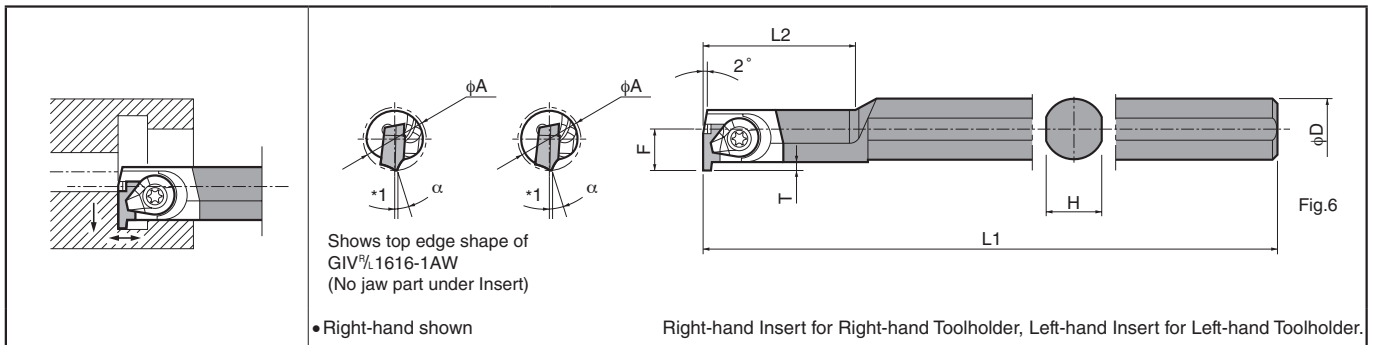
## GIV



## GIV-E Excellent Bar



## GIV-W Carbide Shank Bar

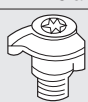
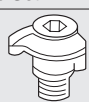
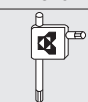
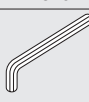


### Applicable Insert & Rake Angle ( $\alpha$ ) after Installment of Insert

Toolholder Description	Insert Description <b>G53</b>		Rake Angle ( $\alpha$ )	
	General Grooving (Square)	Full-R Grooving (Round)	TC40N	TN90, TC60M PR930, PR1225 KW10
GIV%L...1SS	GV%L100~300-020SS	-	10°	15°
GIV%L...1S	GV%L100~340-020S	-	10°	15°
GIV%L...1SE	GV%L100~340-020S	-	3°	8°
GIV%L...1A(□)	GV%L100~340-020A	GV%L200-100AR~300-150AR	3°	8°
GIV%L...1B(□)	GV%L145~250-020B	GV%L200-100BR	4°	9°
GIV%L...2B(□)	GV%L280~400-020B	GV%L300-150BR	4°	9°
GIV%L...1C(□)	GV%L280~340-020C	-	5°	10°
GIV%L...2C(□)	GV%L400~500-020C	-	5°	10°

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

● Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)							Drawing	Spare Parts				Ref. to Page for Applicable Inserts
	R	L		φA	φD	H	L1	L2	F	T		Clamp Set		Wrench	Wrench	
																
GIV <sup>R/L</sup>	1216-1SS	●●	12	16	15	150	20	6.0	2.2	Fig.1	CPS-4V	-	FT-10	-	G53	
	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	●●								Fig.3						
	4032-1C	●●								Fig.3						
	2532-2C	●●	25	32	30	200	43	12.5	Note 4) 5.5	Fig.2	-	CPS-6V	-	LW-3		
	3232-2C	●●								Fig.2						
4032-2C	●●	Fig.3														
GIV <sup>R/L</sup>	1412-1SE	●●	14	12	11.4	150	18	7.7	1.7	Fig.4	CPS-5F	-	FT-15	-	G53	
	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	●●							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	●●							Note 7) 4.5							
	4032-1CE	●●							Note 7) 4.5							
	2720-2CE	●●							Note 4) 5.5							
3225-2CE	●●	25	20	19	200	25	16.2	Note 4) 5.5	Fig.5	-	CPS-6V	-	LW-3			
4032-2CE	●●															
GIV <sup>R/L</sup>	1616-1AW	●●	16	16	15	175	48	10.6	2.2	Fig.6	CPS-5V	-	FT-15	-	G53	
	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														

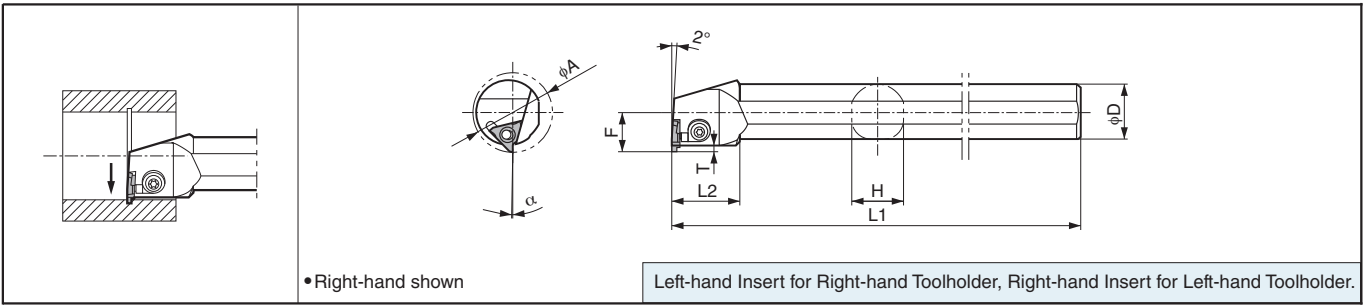
· Dimension T shows available grooving depth.

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



# Internal Shallow Grooving Toolholders

## KIGBA



### Toolholder Dimensions

Description	Std.	Min. Bore Dia.	Dimension (mm)								Spare Parts		Applicable Inserts G6~G8	
			R	L	phi A	phi D	H	L1	L2	F	*T	Clamp Set		Wrench
<b>KIGBA<sup>R/L</sup> 3525-16</b>	●●	35	25	23	220	30	17.5	2.8			LGBA-16 <sup>1/2</sup> S	FT-15	GBA32 <sup>1/2</sup> type	
<b>4032-22</b>	●●	40	32	30	250	30	23.0	3.0			LGBA-22 <sup>1/2</sup> S	FT-15	GBA43 <sup>1/2</sup> type	

\*Dimension T shows the distance from the toolholder to the cutting edge.  
 Available Grooving Depth depends on the insert.  
 KIGBA<sup>R/L</sup> 3525-16: Dimension B of the applicable insert (GBA32 type)  
 4032-22: Dimension B of the applicable insert (GBA43 type)  
 1. 2.0mm (Dimension B < 2.8mm)  
 2. 2.8mm (Dimension B ≥ 2.8mm)

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

### Rake Angle (α) after Installment of GBA type

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

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

α	Insert Description
+1°	GBA43 <sup>R/L</sup> 150-020GM
+6°	GBA43 <sup>R/L</sup> 175-020GM
	GBA43 <sup>R/L</sup> 265-030GM
+3°	GBA43 <sup>R/L</sup> 300-030GM
	GBA43 <sup>R/L</sup> 400-040GM

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

### Rake Angle (α) after Installment of GBA-MY type

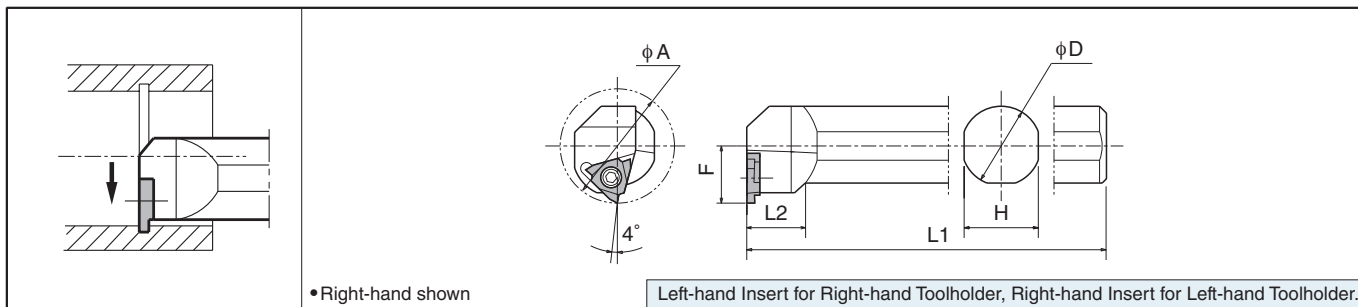
α	Insert Description
+6°	GBA43 <sup>R/L</sup> 175-020MY
+5°	GBA43 <sup>R/L</sup> 350-030MY
	GBA43 <sup>R/L</sup> 400-040MY

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



# Internal Large Dia. Shallow Grooving Toolholders [TG Insert]

## KITG (Will be switched to KIGBA → G56)



### Toolholder Dimensions

Description	Std.	Min. Bore Dia.	Dimension (mm)							Spare Parts				
			R	L	φA	φD	H	L1	L2	F	Clamp Screw		Wrench	
<b>KITG<sup>R/L</sup></b> 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<sup>R/L</sup>3525T-16=2.0mm, KITG<sup>R/L</sup>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 (→ J23).  
 - GBA Insert cannot be installed to this toolholder.

## Applicable Inserts (TG insert will be switched to GBA → G6~G8)

Description	A	T	φd	P	M	K	N	S	H	Classification of usage	
										●	○
<b>TG32<sub>-</sub></b>	9.525	3.18	4.5	P	M	K	N	S	H	●	○
<b>TG43<sub>-</sub></b>	12.70	4.76	5.5							○	○

Insert	Description	Dimension (mm)			Cermet		Applicable Toolholders	Ref. to Page for Applicable Toolholders		
		W	B	C or r <sub>e</sub>	TN60	R			L	
 General (Square) (Corner is Chamfered) TG32 type	 (Corner is Chamfered)	<b>TG32<sup>R/L</sup></b>	075	0.75	2.0	C0.1	○	○	<b>KITG<sup>R/L</sup>...16</b>	<b>G57</b>
		095	0.95	○			○			
		125	1.25	○			○			
		145	1.45	○			○			
		150	1.50	○			○			
		175	1.75	○			○			
 General (Square) (Corner is R shape) TG43 type		<b>TG43<sup>R/L</sup></b>	150	1.50	3.5	0.2	○	○	<b>KITG<sup>R/L</sup>...22</b>	<b>G57</b>
		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	5.0	0.4	○	○			
		350	3.50			○	○			
		400	4.00			○	○			
		430	4.30			○	○			
450	4.50			○	○					

Dimension B shows available grooving depth.

Recommended Cutting Conditions → G102

\* 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(r<sub>e</sub>) of the insert when changing.

● : Std. Item  
 ○ : Check Availability

Inserts are sold in 10 piece boxes.

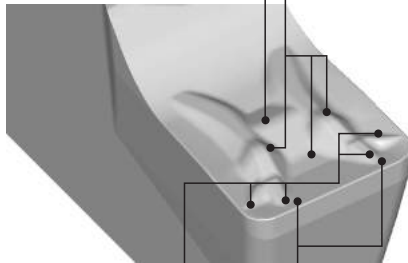
# KGDI

Stable Machining with Excellent Chip Control and Smooth Chip Evacuation

## Point 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.

Rear ramp supports chip deformation. Center geometry squeezes chips and prevents chip clogging during high feed machining.



### Comparison of Chip Control (Internal evaluation)



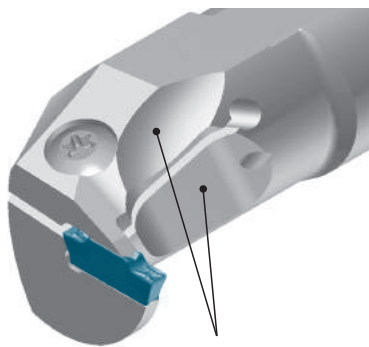
GMI Chipbreaker      Competitor A      Conventional product F

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

Cutting Conditions :  $V_c=100\text{m/min}$ ,  $f=0.07\text{mm/rev}$  Toolholder : KGDIR3225B-3  
Insert : GDM3015N-040GMI Workpiece Material : SCr420

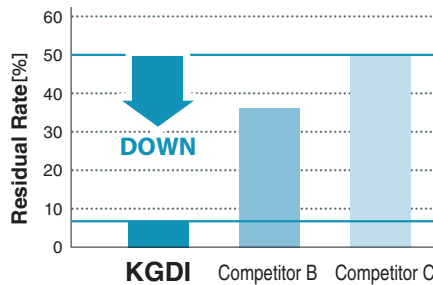
## Point 2 Smooth Chip Evacuation by Creating Chip Pocket

Smooth chip evacuation when grooving and finishing.

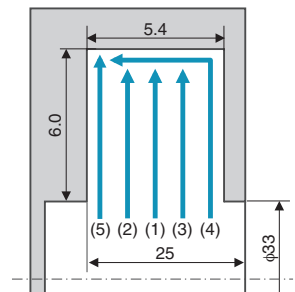


Cutting Conditions :  $V_c=100\text{m/min}$   
(1) :  $a_p=3\text{mm}$ , (2)(3) :  $a_p=1\text{mm}$ , (4)(5) :  $a_p=0.2\text{mm}$   
 $f=0.08\text{mm/rev}$   
Toolholder : KGDIR3225B-3  
Insert : GDM3015N-040GMI  
Workpiece Material : SCM415

### Residual Chips (Internal evaluation)



Prevents Chip Clogging

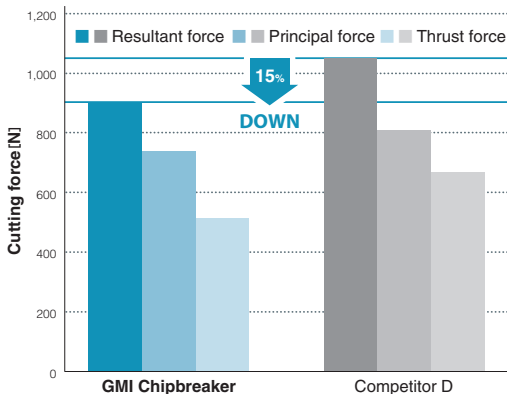


Chips remaining in machined bore were greatly reduced compared with Competitor B and C.

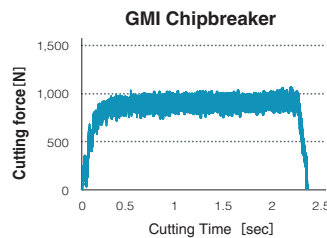
## Point 3 Low Cutting Forces and Stable Machining

GMI chipbreaker prevents chip clogging and reduces cutting forces.

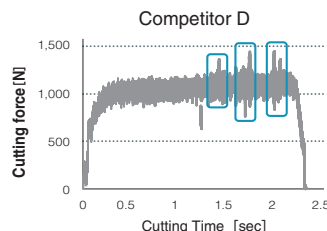
### Comparison of Cutting force (Internal evaluation)



Cutting Conditions :  $V_c=150\text{m/min}$ ,  $f=0.1\text{mm/rev}$   
Toolholder : KGDIR3225B-3 Insert : GDM3015N-040GMI  
Workpiece Material : SCM415



Stable machining with few changes in cutting force.



Instantaneous increase of cutting force due to clogged chips.

G

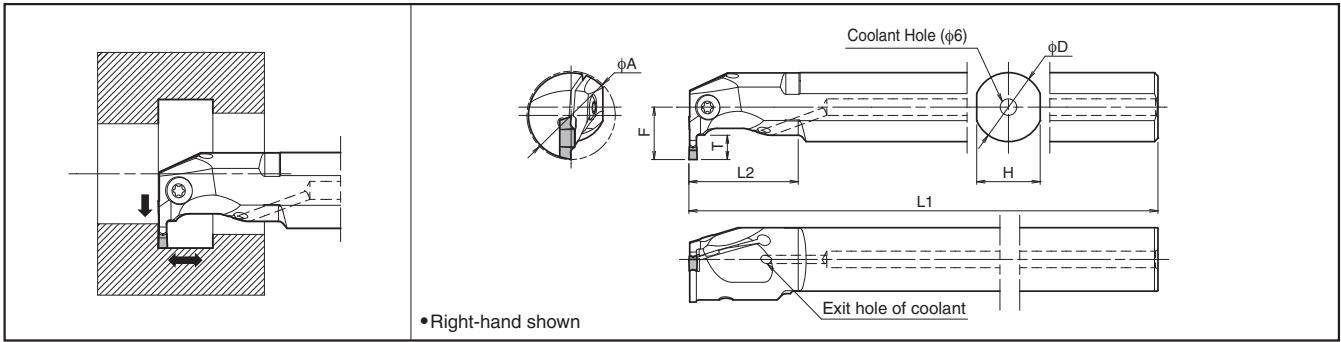
Grooving

External

Internal

Face

KGDI



• Right-hand shown

Toolholder Dimensions

Description	Std.		Min. Bore Dia.		Dimension (mm)						Edge Width W (mm)		Spare Parts			
	R	L	φA		φD	H	L1	L2	F	T	MIN.	MAX.	Clamp Screw		Wrench	
			with GMI	with CM									GS-50	SB-5TR	LW-3	LTW-20
KGDI <sup>φL</sup> 1816B-2 2520B-2 3225B-2	●	●	18		16	15	150	25	9.5	4.5	2.0	2.0	GS-50	—	LW-3	—
	●	●	25		20	18	180	30	14.5	6			—	SB-5TR	—	LTW-20
	●	●	32		25	23	200	40	19	7			—	SB-5TR	—	LTW-20
KGDI <sup>φL</sup> 2016B-3 2520B-3 3225B-3	●	●	20	21	16	15	150	25	11.5	5.5	3.0	3.0	GS-50	—	LW-3	—
	●	●	25	26	20	18	180	30	14.5	6			—	SB-5TR	—	LTW-20
	●	●	32	33	25	23	200	40	19	8			—	SB-5TR	—	LTW-20
KGDI <sup>φL</sup> 3225B-4 4032B-4	●	●	32	40 (34*)	25	23	200	40	19	8.5	4.0	5.0	—	SB-5TR	—	LTW-20
	●	●	40	48 (42*)	32	29	220	50	23.5	11			—	SB-5TR	—	LTW-20
KGDI <sup>φL</sup> 3225B-5 4032B-5	●	●	32	37 (34*)	25	23	200	40	19	8.5	5.0	5.0	—	SB-5TR	—	LTW-20
	●	●	40	45 (42*)	32	29	220	50	23.5	11			—	SB-5TR	—	LTW-20

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

Applicable Inserts

Classification of usage		P	Carbon steel / Alloy steel			Applicable Toolholders			
●	Continuous-Light Interruption / 1st Choice	M	Stainless Steel			●	○	○	○
○	Continuous-Light Interruption / 2nd Choice	K	Cast Iron			○	○	○	○
●	Continuous / 1st Choice								
○	Continuous / 2nd Choice								

Insert	Description	Dimension (mm)						Cermet				MEGACOAT				Applicable Toolholders
		W	Tolerance	re	M	L	H	TN620	PR1535	PR1225	PR1215	MEGACOAT NANO	PR1225	PR1215		
								●	●	●	●	○	○	●	●	
	GDM 2013N-020GMI	2.0		0.2	1.5	13.5	4.3	●	●	●	●	●	●	●	●	KGDI <sup>φL</sup> ...-2
	3015N-040GMI	3.0	±0.03		2.4	15.5	4.6	●	●	●	●	●	●	●	●	KGDI <sup>φL</sup> ...-3
	4020N-040GMI	4.0		0.4	3.4			●	●	●	●	●	●	●	●	KGDI <sup>φL</sup> ...-4
	5020N-040GMI	5.0	±0.04		4.4	20	4.3	●	●	●	●	●	●	●	●	KGDI <sup>φL</sup> ...-4
	5020N-080GMI							0.8	●	●	●	●	●	●	●	●
	GDM 3015N-150R-CM	3.0		1.5	2.3	16.3	4.6	○	○	●	●	○	○	○	○	KGDI <sup>φL</sup> ...-3
	4020N-200R-CM	4.0	±0.03	2.0	3.3	20		○	○	●	●	○	○	○	○	KGDI <sup>φL</sup> ...-4
	5020N-250R-CM	5.0	±0.04	2.5	4.2	21		○	○	●	●	○	○	○	○	KGDI <sup>φL</sup> ...-4 KGDI <sup>φL</sup> ...-5

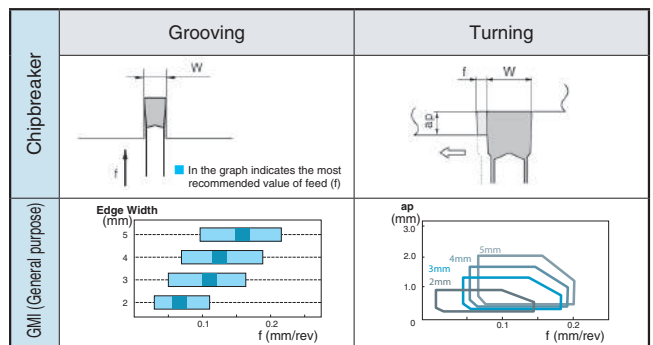
Recommended Cutting Conditions (Vc)

Workpiece Material	Chip-breaker	Recommended Insert Grades (Cutting Speed Vc: m/min)				Remarks
		Cermet		MEGACOAT		
		TN620	PR1535	PR1225	PR1215	
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

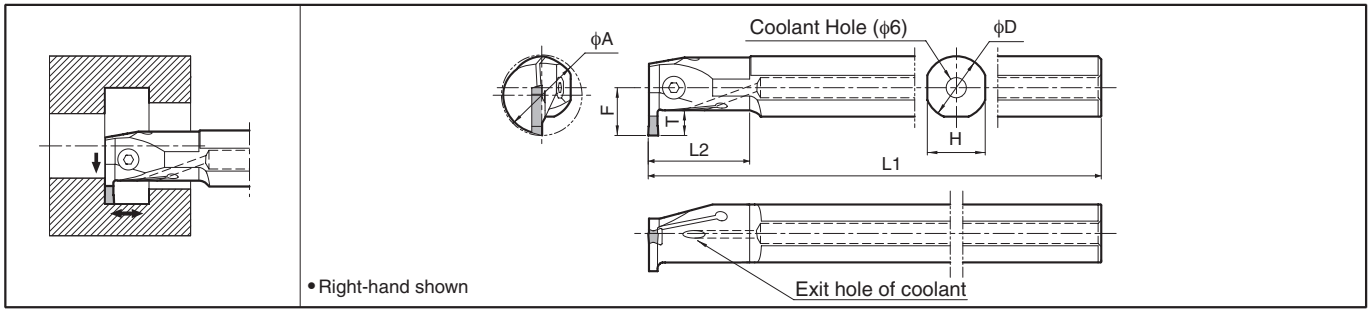
● : Std. Item  
○ : Check Availability

Recommended Cutting Conditions (f, ap)



# Internal Grooving Toolholders

## KIGM-V (Will be switched to KGDI G58~G59)



### Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)							Edge Width W (mm)		Spare Parts					
	R	L		φA	φD	H	L1	L2	F	T	MIN.	MAX.	Clamp Screw		Wrench			
	<b>KIGM<sup>®</sup>/L</b>																	
<b>2016B-3V</b>	○	○	20	16	15	150	25	11.5	5.5				GS-50	-	LW-3	-		
<b>2520B-3V</b>	○	○	25	20	18	180	32	14.5	6.0			3.0	3.0	-	SB-5TR	-	LTW-20	
<b>3225B-3V</b>	○	○	32	25	23	200	40	19	8.0					-	SB-5TR	-	LTW-20	
<b>3225B-4V</b>	○	○	32	25	23	200	40	19	8.5			4.0	5.0	-	SB-5TR	-	LTW-20	
<b>4032B-4V</b>	○	○	40	32	29	220	50	23.5	11.0					-	SB-5TR	-	LTW-20	

• Dimension T shows available grooving depth.

### Applicable Inserts (mm)

Description	L	H	P	M	K	N	S	H	Dimension (mm)		Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Classification of usage	
									W	rε			M	TN90	CR9025			PR915
<b>GMM3015...V</b>	15.5	4.3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>GMM4020...V</b>	20		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>GMM5020...V</b>	20		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>GMM3015-040V</b>			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>GMM4020-040V</b>			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>GMM5020-080V</b>			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>GMM3015-150VR</b>			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>GMM4020-200VR</b>			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>GMM5020-250VR</b>			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

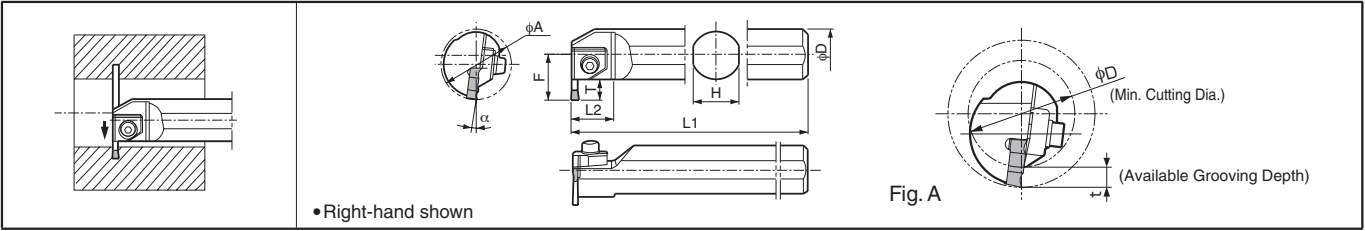
• It is not recommended to use this for KIGM-V Internal Grooving Toolholders against GMM...V / GMM...VR which the front relief angle is 18°, because the relief angle of the insert used for GMM4020-04 toolholder is 10°.

Recommended Cutting Conditions **G105**

Inserts are sold in 10 piece boxes.

○ : Check Availability  
□ : Deleted from the next catalogue

### KIGH



• Right-hand shown

Fig. A

### Toolholder Dimensions

Description	Std.	Min. Bore Dia.	Dimension (mm)							Spare Parts						
			φA	φD	H	L1	L2	F	T	Clamp	Clamp Bolt	Washer	Spring	Wrench		
<b>KIGHR</b>																
4532B-4	●	45	32	30	200		28.2									
5540B-4	●	55	40	38	250	27	32.3	12								
6550B-4	●	65	50	48	300		37.3									
4532B-5	●	45	32	30	200		28.2									
5540B-5	●	55	40	38	250	27	32.3	12								
6550B-5	●	65	50	48	300		37.3									
5540B-7	●	55	40	38	250	27	32.3	12								
6550B-7	●	65	50	48	300		37.3									

• Dimension T shows the distance from the toolholder to the cutting edge. For the available grooving depth (t), ref. to "List of Min. Available Cutting Diameter and Groove Depth".  
 • Dimension L2 depends on the insert's edge width.

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

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	φD (Min. Cutting Dia.)					
<b>KIGHR</b>						
4532B-○	φ110	φ70	φ65	φ60	φ55	φ45
5540B-○	φ70	φ60	φ55			
6550B-○	φ65					
Available Grooving Depth t (mm)	12	11.5	11	10	9	Under 8

### Applicable Inserts

Description	L (mm)	H (mm)
GH4020-○○~GH8020-○○	20	7.5
GHU○○-○○	20	

P	M	K	N	S	H	Classification of usage											
Carbon steel / Alloy steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Titanium Alloys	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)		Cermet						PVD Coated Carbide		Ceramic		Applicable Toolholders
		W	re	TN60	TN90	TC40N	TC60M	CR9025	PR930	KW10	A65	A66N	PT600M	
<p>Ground Chipbreaker</p>	GH 4020-02	4.0	0.2	●	●	●	●	●	●	●	●	●	KIGHR4532B-4 5540B-4 6550B-4	
		4.0	0.5	●	●	●	●	●	●	●	●	●		
	4.5	0.2	●	●	●	●	●	●	●	●	●	KIGHR4532B-5 5540B-5 6550B-5		
	4.5	0.5	●	●	●	●	●	●	●	●	●			
	5.0	0.2	●	●	●	●	●	●	●	●	●			
	5.0	0.5	●	●	●	●	●	●	●	●	●			
	<p>Ceramic</p>	GH 5520-02	5.5	0.2	●	●	●	●	●	●	●	●	KIGHR5540B-7 6550B-7	
			5.5	0.5	●	●	●	●	●	●	●	●		
		6.0	0.2	●	●	●	●	●	●	●	●	●		
		6.0	0.5	●	●	●	●	●	●	●	●	●		
6.5		0.2	●	●	●	●	●	●	●	●	●			
6.5		0.5	●	●	●	●	●	●	●	●	●			
7.0		0.2	●	●	●	●	●	●	●	●	●			
7.0		0.5	●	●	●	●	●	●	●	●	●			
<p>Molded Chipbreaker</p>	GHU 40-20	4.0	0.25	●				●				KIGHR...○○○○B-4		
		5.0	0.30	●				●						
	GHU 50-20	5.0	0.30	●				●				KIGHR...○○○○B-5		
		6.0	0.30	●				●						

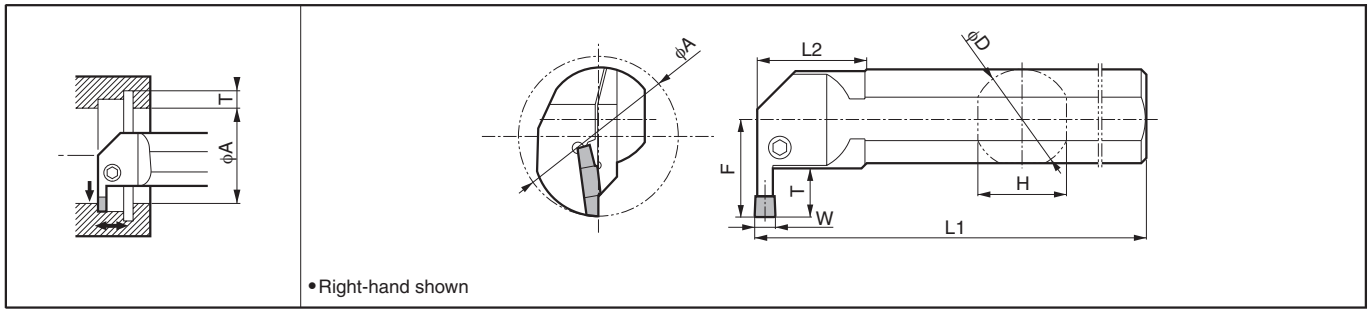
Recommended Cutting Conditions ● G102

● : Std. Item

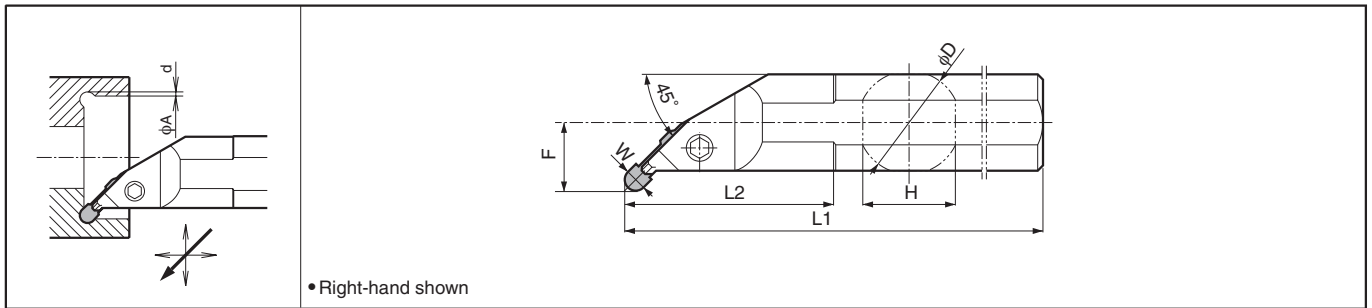
Inserts are sold in 10 piece boxes.

# Internal Grooving Toolholder / Internal Undercutting Toolholder

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



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



### Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)										Edge Width W (mm)		Spare Parts	
	R	L		φA	φD	H	L1	L2	F	T	d	MIN.	MAX.	Clamp Bolt 	Wrench 		
	<b>KIGM<sup>R/L</sup> 6540B-8</b>	●	●	65	40	36	300	41	41	20	-		8.0			8.0	HH6X20
<b>KIGMUR 6540B-8</b>	●		65	40	36	300	83	26	-	2.2		8.0	8.0	HH6X20	LW-5		

• Dimension T shows available grooving depth.

• Dimension d shows the distance from the internal face of the workpiece.

## Applicable Inserts (mm)

Description	L	H
<b>GMM8030-080MW</b>	30	5.5
<b>GMG8030-050MG</b>		
<b>GMGA8030-400R</b>		

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

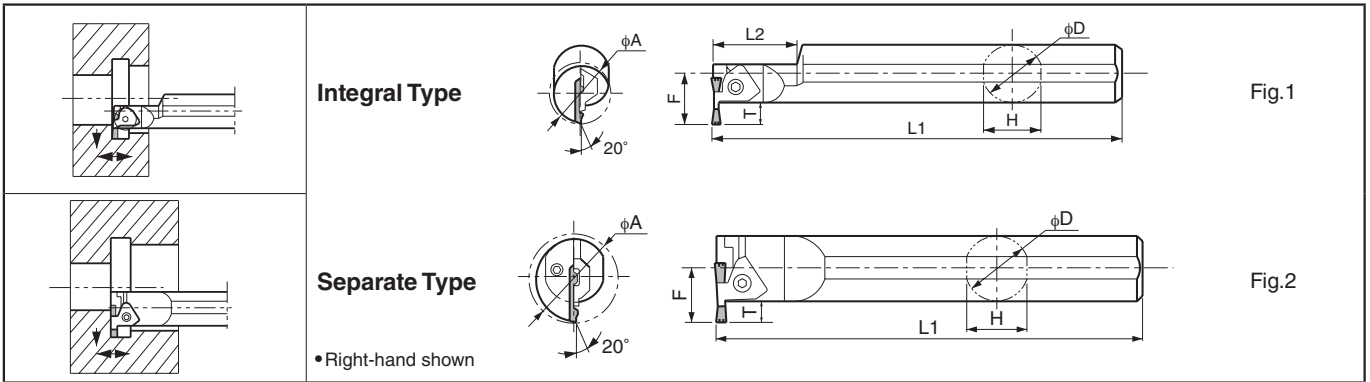
Insert	Description	Dimension (mm)			Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Applicable Toolholders	Ref. to Page for Applicable Toolholders
		W	re	M			TN90	CR9025	PR915			
 Chip Control Oriented M Class	 <b>GMM 8030-080MW</b>	8.0	0.8	6.0		●	●	●	●	●	<b>KIGM<sup>R/L</sup> ...8</b> <b>KIGMUR...8</b>	<b>G62</b>
 Sharp-Cutting Oriented / Precision Class Ground Chipbreaker	 <b>GMG 8030-050MG</b>	8.0	0.5	6.0	●	●		●	●	●		
 Sharp-Cutting Oriented / Precision Class Full-R / Copying	 <b>GMGA 8030-400R</b>	8.0	4.0	6.0						●		

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

Recommended Cutting Conditions **G105**

# Internal Large Dia. Deep Grooving Toolholders [GIA Insert]

## KGIA



### Toolholder Dimensions

Description	Std.	Min. Bore Dia.	Dimension (mm)							Drawing	Spare Parts			
			φA	φD	H	L1	L2	F	T		Clamp	Clamp Bolt	Spring	Wrench
<b>KGIA</b>	<b>3232B-3</b>	●	32	32	30.4	200	45	26.5		Fig.1	CGIA-3R	HH5X15	SP-5	LW-4
	<b>4332B-3</b>	●	43	32	30	200	-	26.3	10	Fig.2				
	<b>5140B-3</b>	●	51	40	38	250	-	30.3		Fig.2				
	<b>3232B-4</b>	●	32	32	30.4	200	45	26.5		Fig.1				
	<b>4332B-4</b>	●	43	32	30	200	-	26.3	10	Fig.2				
	<b>5140B-4</b>	●	51	40	38	250	-	30.3		Fig.2				
	<b>5640B-5</b>	●	56	40	38	250	-	35.3	15	Fig.2				
<b>6650B-5</b>	●	66	50	48	250	-	40.3		Fig.2					


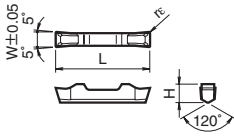
• Dimension T shows available grooving depth.

### Composition

Type	Spare Parts	Toolholder	Blade	Clamp Screw	Wrench
Integral Type	<b>KGIA</b> <b>3232B-3</b>	-	-	-	-
Separate Type	<b>4332B-3</b>	KGIA32H	BGIAR43-3	SB-40140TR	FT-15
	<b>5140B-3</b>	KGIA40H	BGIAR51-3		
Integral Type	<b>3232B-4</b>	-	-	-	-
Separate Type	<b>4332B-4</b>	KGIA32H	BGIAR43-4	SB-40140TR	FT-15
	<b>5140B-4</b>	KGIA40H	BGIAR51-4		
Separate Type	<b>5640B-5</b>	KGIA40H	BGIAR56-5	SB-40140TR	FT-15
	<b>6650B-5</b>	KGIA50H	BGIAR66-5		

## Applicable Inserts

				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-)			○	●

Insert	Description	Dimension (mm)				Cement TN60 CVD Coated Carbide CR9025	Applicable Toolholders
		W	re	L	H		
 Molded Chipbreaker 	<b>GIA 30</b>	3.0	0.20	25	5.0	● ●	<b>KGIA...3</b>
	<b>40</b>	4.0	0.25			● ●	<b>KGIA...4</b>
	<b>50</b>	5.0	0.30	30	● ●	<b>KGIA...5</b>	

Recommended Cutting Conditions ● G103

● : Std. Item

Inserts are sold in 10 piece boxes.

# Summary of Face Grooving

## Face Grooving Dia. $\phi D$

Face grooving diameter ( $\phi D$ ) is the suitable value for the initial grooving on the unprocessed workpiece (Ref. to Fig.1).

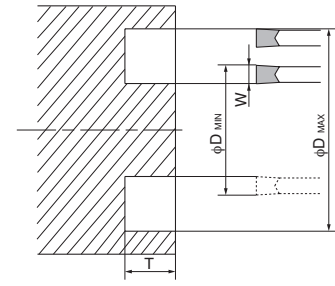
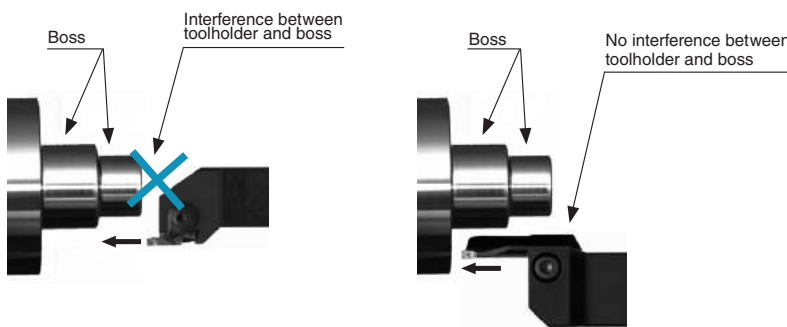


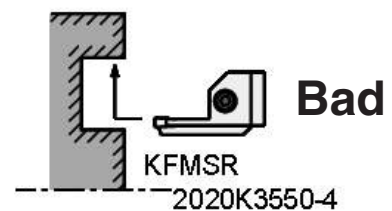
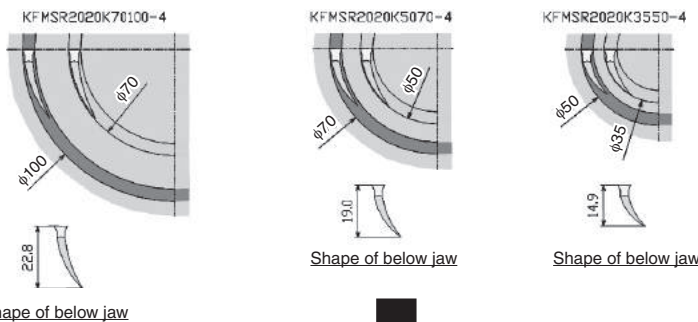
Fig.1

## Caution for Face Grooving

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



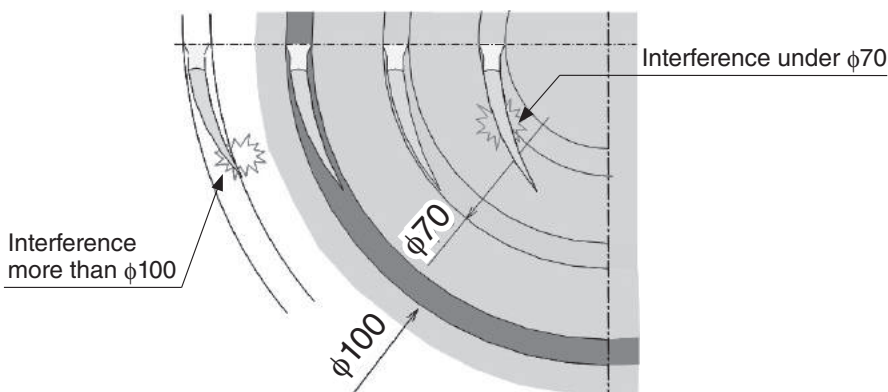
2) Selection of Face Grooving Toolholder



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

3) Interference of Face Grooving Toolholder

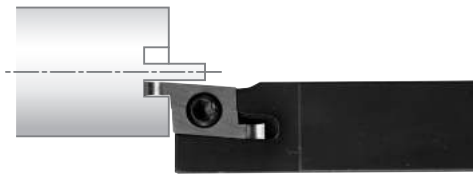
e.g.) KFMSR2525M70100-4



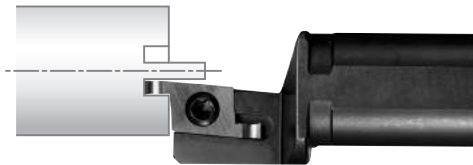
• Example of usage for the face grooving toolholder. When face grooving, KFMSR2525M70100-4 should be between  $\phi 70 \sim \phi 100$  for grooving the outer diameter at first. If the workpiece is machined at a diameter  $\phi 100$  or  $\phi 70$ , the jaw of toolholder interferes with the workpiece.



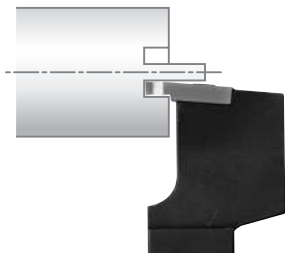
## ■ Small Dia. Face Grooving $\phi 6\sim$



Type	STW
Face Groove Dia.	$\phi 6$
Edge Width (mm)	0.5~2.0
Grooving Depth(mm)	1.0~3.0
Ref. to Page	<b>G72</b>



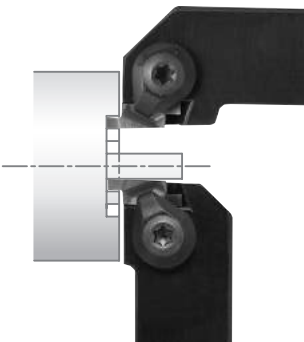
Type	S.-STW
Face Groove Dia.	$\phi 6$
Edge Width (mm)	0.5~2.0
Grooving Depth(mm)	1.0~3.0
Ref. to Page	<b>G72</b>



Type	STWS
Face Groove Dia.	$\phi 6$
Edge Width (mm)	0.5~2.0
Grooving Depth(mm)	1.0~3.0
Ref. to Page	<b>G73</b>

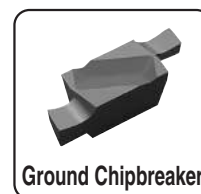


## ■ Small Dia. Face Grooving $\phi 8\sim$

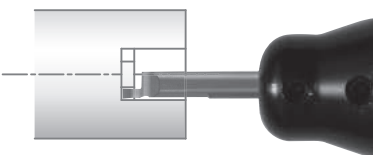


Type	GFVS-AA
Face Groove Dia.	$\phi 8$
Edge Width (mm)	1.0~3.0
Grooving Depth(mm)	2.2
Ref. to Page	<b>G88</b>

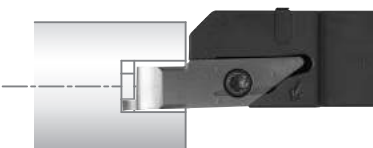
Type	GFVT-AA
Face Groove Dia.	$\phi 8$
Edge Width (mm)	1.0~3.0
Grooving Depth(mm)	2.2
Ref. to Page	<b>G88</b>



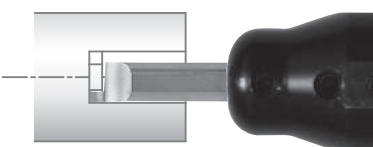
## ■ Small Dia. Face Grooving $\phi 5\sim, \phi 8\sim$



Type	EZFG
Face Groove Dia.	$\phi 5, \phi 6, \phi 8$
Edge Width (mm)	1.0~3.0
Grooving Depth(mm)	1.5~3.0
Ref. to Page	<b>G68</b>



Type	VNFG
Face Groove Dia.	$\phi 8$
Edge Width (mm)	1.0~3.0
Grooving Depth(mm)	2.0~3.0
Ref. to Page	<b>G70</b>



Type	HPFG
Face Groove Dia.	$\phi 8$
Edge Width (mm)	1.0~3.0
Grooving Depth(mm)	2.0~3.0
Ref. to Page	<b>G71</b>



# Summary of Face Grooving

## Face Grooving $\phi 20\sim$

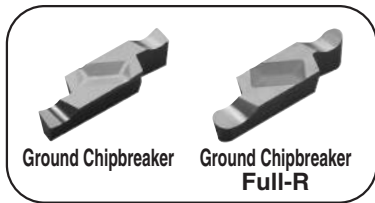


Molded Chipbreaker



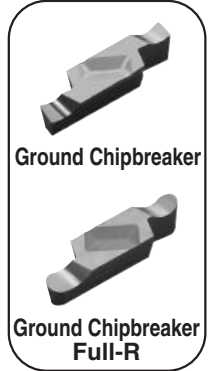
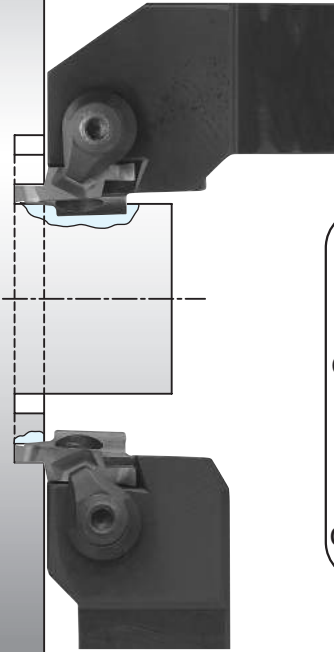
Type	KFTB
Face Groove Dia.	$\phi 65\sim\phi 250$
Edge Width (mm)	4.0~5.0
Grooving Depth (mm)	25~38
Ref. to Page	<b>G99</b>

Type	GFVS
Face Groove Dia.	$\phi 35\sim\phi 150$
Edge Width (mm)	2.5~6.0
Grooving Depth (mm)	4.6~8.1
Ref. to Page	<b>G92</b>



Ground Chipbreaker    Ground Chipbreaker Full-R

Type	GFV
Face Groove Dia.	$\phi 20\sim\phi 150$
Edge Width (mm)	2.0~6.0
Grooving Depth (mm)	2.2~8.1
Ref. to Page	<b>G90</b>



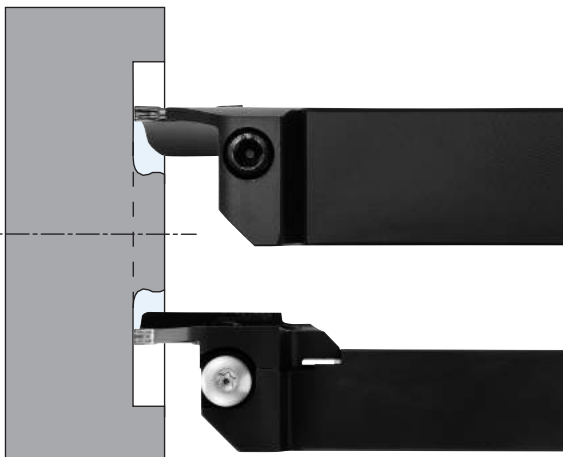
Ground Chipbreaker Full-R

Ground Chipbreaker Full-R

Type	GFVT
Face Groove Dia.	$\phi 35\sim\phi 150$
Edge Width (mm)	2.5~6.0
Grooving Depth (mm)	4.6~8.1
Ref. to Page	<b>G92</b>

- G
- Grooving
- External
- Internal
- Face

## KGDF Face Grooving $\phi 25\sim$ (G74~G87)



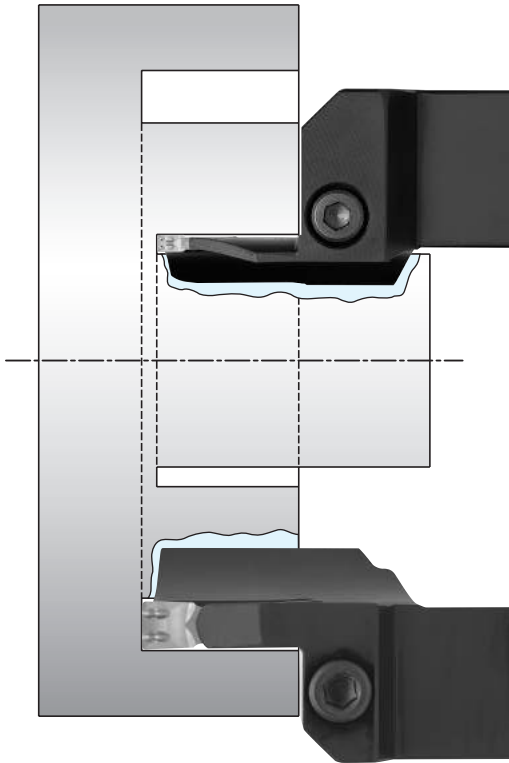
Type	KGDF-Z
Face Groove Dia.	$\phi 50$
Edge Width (mm)	3.0~5.0
Grooving Depth (mm)	15
Ref. to Page	<b>G82</b>

Type	*KGDF
Face Groove Dia.	$\phi 25$
Edge Width (mm)	2.0~6.0
Grooving Depth (mm)	6~32
Ref. to Page	<b>G78</b>

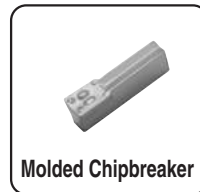
\* The separate type toolholders can accept all the blades if their hand is matching.

<b>Grooving and Turning</b> <b>GM</b> 	<b>Deep grooving and Turning</b> <b>DM</b> 	<b>High Feed</b> <b>GH</b> 	<b>Full-R</b> <b>CM</b> 
--	---	-----------------------------------	--------------------------------

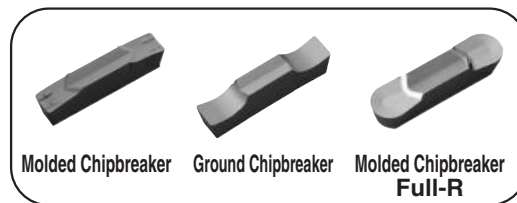
## ■ Face Grooving & Turning $\phi 25\sim$



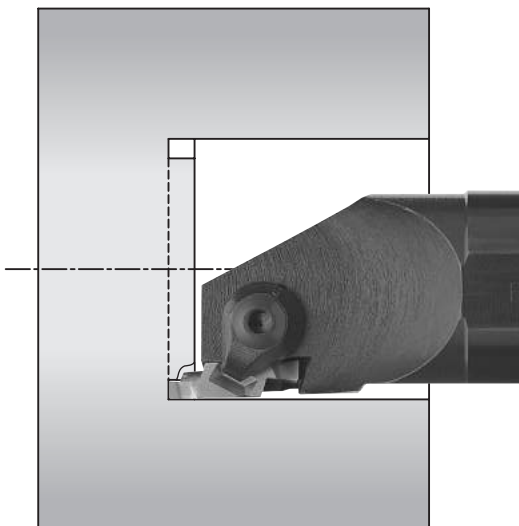
Type	KFMS
Face Groove Dia.	$\phi 25\sim\phi 235$
Edge Width (mm)	3.0~6.0
Grooving Depth(mm)	13~32
Ref. to Page	<b>G96</b>



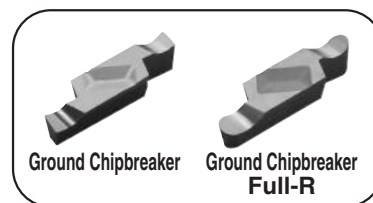
Type	KFMS-8
Face Groove Dia.	$\phi 54\sim\phi 155$
Edge Width (mm)	8.0
Grooving Depth(mm)	25
Ref. to Page	<b>G98</b>



## ■ Face Grooving $\phi 35\sim$

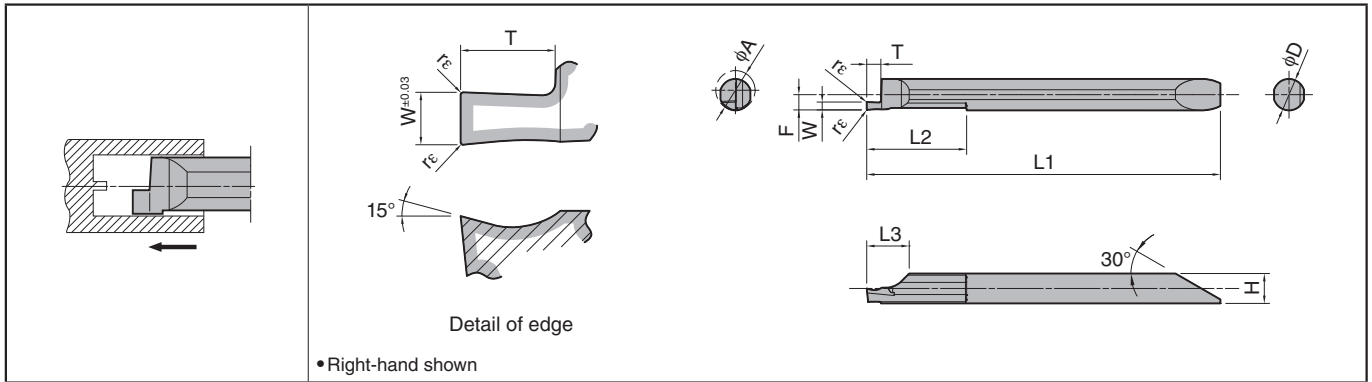


Type	GIFV
Face Groove Dia.	$\phi 35\sim\phi 50$
Edge Width (mm)	2.0~6.0
Grooving Depth(mm)	2.2~8.1
Ref. to Page	<b>G100</b>



# Small Dia. Face Grooving EZ Bars

## EZFG



### Dimensions

Description	Min. Face Groove Dia.	Dimension (mm)									MEGACOAT PR1225	Applicable Sleeves
		$\phi A$	$W^{\pm 0.03}$	$r\epsilon$	$\phi D$	H	L1	L2	L3	F		
EZFGR 050040-100 050040-150	5	1.0	$\pm 0.013$ 0.05	4	3.8	45.0	12	5.4	1.9	1.5	●	EZH040..
		1.5								2.0		
EZFGR 060050-100 060050-150 060050-200	6	1.0	$\pm 0.013$ 0.05	5	4.8	53.2	15	6.9	2.4	1.5	●	EZH050..
		1.5								2.5		
		2.0								3.0		
EZFGR 080070-100 080070-150 080070-200 080070-300	8	1.0	$\pm 0.013$ 0.05	7	6.8	64.2	25	7.9	3.4	2.0	●	EZH070..
		1.5								2.5		
		2.0								3.0		
		3.0								3.0		

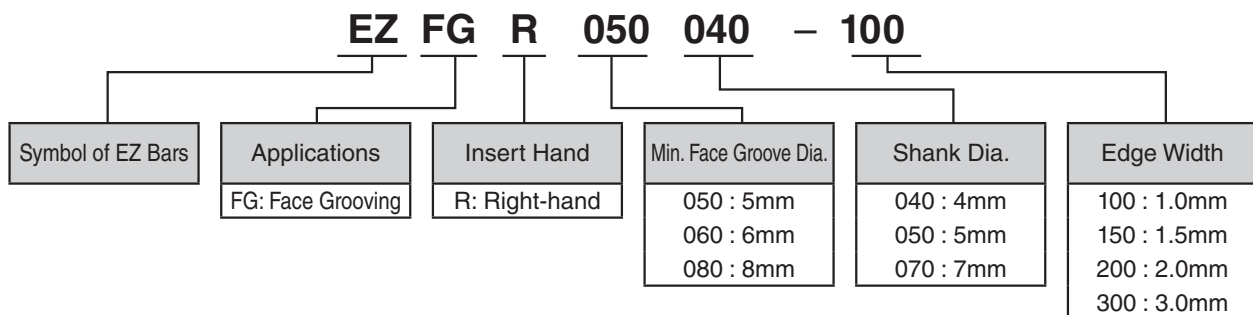
• Dimension T shows available grooving depth.

### 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)
	PR1225						
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 Bars are sold in 1 piece boxes.

● : Std. Item

● Applicable Sleeves

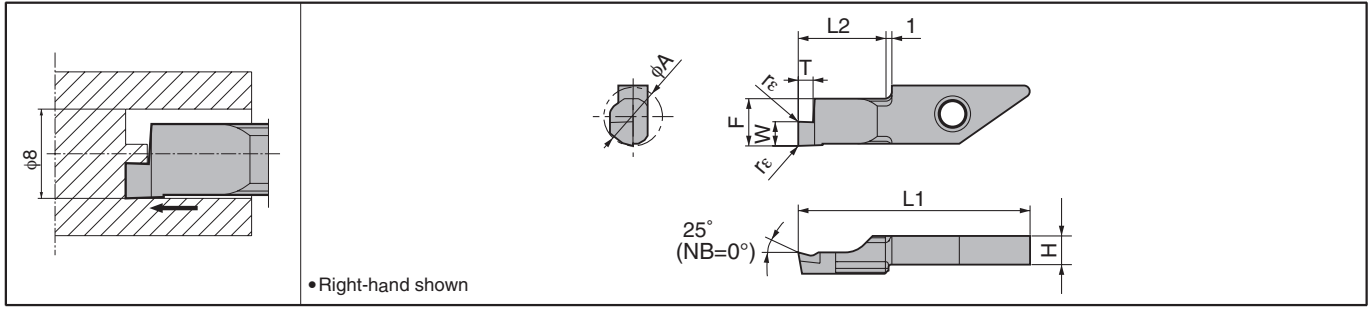
Sleeve				Applicable Insert for Internal Face Grooving			Applicable Machine Manufacturer
EZH-CT (Adjustable overhang length with coolant hole) ⦿ F23	EZH-HP (Adjustable overhang length) ⦿ F24	EZH-ST ⦿ F26	Sleeve Shank Dia. φD1 (mm)	EZFG	HPFG <sup>β</sup> <sub>L</sub>	Shank Dia. φD (mm)	
-	-	EZH 04012ST-80 05012ST-80 07012ST-80	12	EZFGR ...040-... EZFGR ...050-... EZFGR ...070-...	- - HPFG <sup>β</sup> <sub>L</sub> 0807-...	4 5 7	(General purpose)
-	EZH 04016HP-100 05016HP-100 07016HP-100	EZH 04016ST-100 05016ST-100 07016ST-100	16	EZFGR ...040-... EZFGR ...050-... EZFGR ...070-...	- - HPFG <sup>β</sup> <sub>L</sub> 0807-...	4 5 7	(General purpose)
EZH 04019CT-120 05019CT-120 07019CT-120	EZH 04019HP-120 05019HP-120 07019HP-120	EZH 04019ST-120 05019ST-120 07019ST-120	19.05	EZFGR ...040-... EZFGR ...050-... EZFGR ...070-...	- - HPFG <sup>β</sup> <sub>L</sub> 0807-...	4 5 7	Citizen Machinery
EZH 04020CT-120 05020CT-120 07020CT-120	EZH 04020HP-120 05020HP-120 07020HP-120	EZH 04020ST-120 05020ST-120 07020ST-120	20	EZFGR ...040-... EZFGR ...050-... EZFGR ...070-...	- - HPFG <sup>β</sup> <sub>L</sub> 0807-...	4 5 7	Eguro Tsugami Citizen Machinery (General purpose)
EZH 04022CT-135 05022CT-135 07022CT-135	EZH 04022HP-135 05022HP-135 07022HP-135	EZH 04022ST-135 05022ST-135 07022ST-135	22	EZFGR ...040-... EZFGR ...050-... EZFGR ...070-...	- - HPFG <sup>β</sup> <sub>L</sub> 0807-...	4 5 7	Star Micronics Nomura DS Tsugami
EZH 04025.0CT-135 05025.0CT-135 07025.0CT-135	EZH 04025.0HP-135 05025.0HP-135 07025.0HP-135	EZH 04025.0ST-135 05025.0ST-135 07025.0ST-135	25	EZFGR ...040-... EZFGR ...050-... EZFGR ...070-...	- - HPFG <sup>β</sup> <sub>L</sub> 0807-...	4 5 7	Eguro Tsugami Citizen Machinery (General purpose)
EZH 04025.4CT-120 05025.4CT-120 07025.4CT-120	EZH 04025.4HP-120 05025.4HP-120 07025.4HP-120	EZH 04025.4ST-120 05025.4ST-120 07025.4ST-120	25.4	EZFGR ...040-... EZFGR ...050-... EZFGR ...070-...	- - HPFG <sup>β</sup> <sub>L</sub> 0807-...	4 5 7	Citizen Machinery

- Choose sleeves (φd1) to meet with φD 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.



# System Tip-Bars for Small Dia. Internal Face Grooving

## VNFG (System Tip-Bars)



### Dimensions

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

Description	Face Grooving Dia. φA		Dimension (mm)							MEGA COAT		PVD	Carbide	PCD		Ref. to Page for Applicable Toolholders
	MIN.	MAX.	W <sup>+0.03</sup>	rε	H	L1	L2	F	T	PR1225	PR930	KW10	KPD001	KPD010		
VNFGR 0810-10 0820-10 0830-10	8 (0)	∞	1.0	0.05	3.9	29.6	10	7.3	2.0	●	●	●			F30 F31	
			2.0						●	●	●					
			3.0						●	●	●					
VNFGR 0820-10NB 0830-10NB			2.0	0.05	3.9	29.6	10	7.3	2.0				MTO	MTO		
			3.0									MTO	MTO			

• Dimension T shows available grooving depth.

• Face grooving diameter φA MIN. (0) means that you can make the initial groove within MIN. - MAX. and then widen it to the center.

### Recommended Cutting Conditions

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

G

Grooving

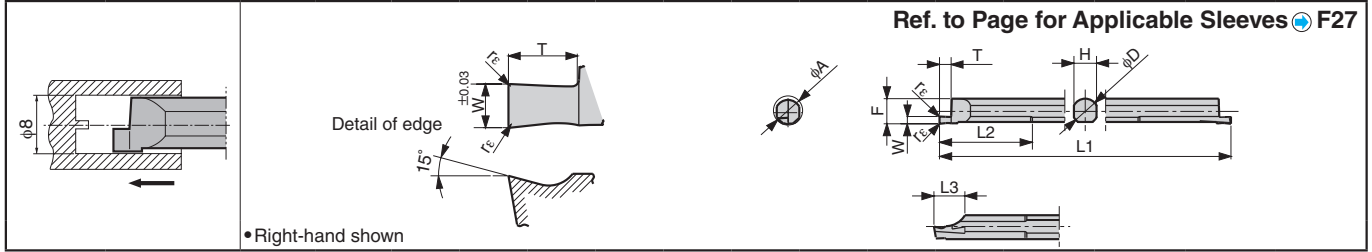
External

Internal

Face

# Tip-Bars for Internal Face Grooving HPFG / PSFG-S

## HPFG Face Grooving (Small Dia.)



### Dimensions

Description	Face Grooving Dia. $\phi A$		Dimension (mm)									Insert Grades			
	MIN.	MAX.	$W^{\pm 0.03}$	$r_{\epsilon}$	$\phi D$	H	L1	L2	L3	F	T	PVD Coated Carbide		Carbide	
												PR930		KW10	
<b>HPFG<sup>R/L</sup> 0807-10</b>	8 (0)	$\infty$ ( $\infty$ )	1	0.05	7	6.2	80	25	8.5	6.9	2	●	●	●	
<b>0807-20</b>			2									●	●	●	
<b>0807-30</b>			3									●	●	●	

• Dimension T shows available grooving depth.

• Face grooving diameter  $\phi A$  MIN. (0) means that you can make the initial groove within MIN. - MAX. and then widen it to the center.

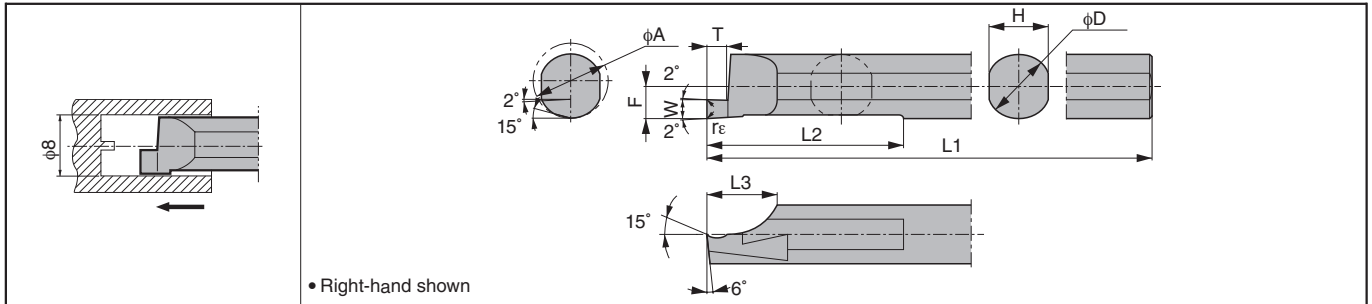
### Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)		HPFG <sup>R/L</sup> 0807-10	HPFG <sup>R/L</sup> 0807-20	HPFG <sup>R/L</sup> 0807-30	Remarks
	PVD Coated Carbide	Carbide				
	PR930	KW10				
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

## PSFG-S (Tip-Bars)

This insert will be switched to EZFG.



Description	Face Grooving Dia. $\phi A$		Dimension (mm)									PVD Coated Carbide		Carbide		Ref. to Page for Applicable Sleeves
	MIN.	MAX.	$W^{\pm 0.03}$	$r_{\epsilon}$	$\phi D$	H	L1	L2	L3	F	T	PR930		KW10		
												R	L	R	L	
<b>PSFG<sup>R/L</sup> 0810-20S</b>	8 (0)	$\infty$ ( $\infty$ )	1.0	0.05	6.8	6.2	80	25.5	7	3.4	2.0	○	○	○	○	<b>F84</b>
<b>0820-20S</b>			2.0									○	○	○	○	
<b>0830-20S</b>			3.0									○	○	○	○	

• Dimension T shows available grooving depth.

• Face grooving diameter  $\phi A$  MIN. (0) means that you can make the initial groove within MIN. - MAX. and then widen it to the center.

### Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)		PSFG <sup>R/L</sup> 0810	PSFG <sup>R/L</sup> 0820	PSFG <sup>R/L</sup> 0830	Remarks
	PVD Coated Carbide	Carbide				
	PR930	KW10				
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	

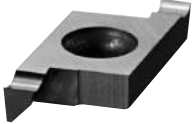
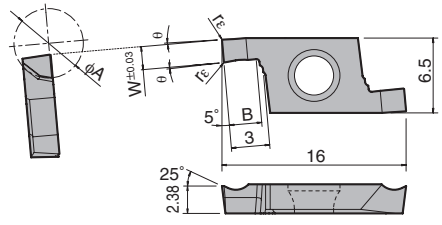
★ : 1st Recommendation

● : Std. Item  
○ : Check Availability

Tip-Bars are sold in 1 piece boxes.

# Small Dia. Face Grooving (Twin-Bars)

## TWFG (Horizontal type)


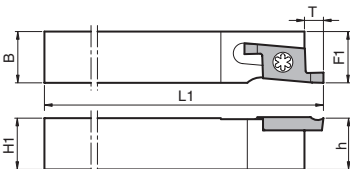
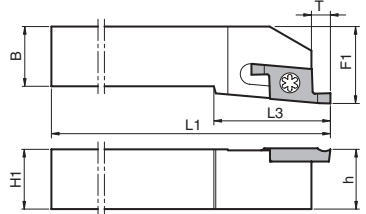
  <p>• Left-hand shown</p>	Description	Face Grooving Dia. φA		Dimension (mm)			Angle	Insert Grades		
		MIN.	MAX.	W	r <sub>e</sub>	B	θ	PVD Coated Carbide	Carbide	
	TWFG L	050	6 (0)	∞ (∞)	0.5	0.05	1.0	1.5°	PR1025	KW10
		080			0.8		1.5			
		100			1.0					
		125			1.25	2.2	2°			
		150			1.5					
		180			1.8	3.0				
		200			2.0					

• Dimension B shows available grooving depth.

• Face grooving diameter φA MIN. (0) means that you can make the initial groove within MIN. - MAX. and then widen it to the center.

## STW (Square Shank for Horizontal type)

(For right-hand toolholder for boring, ref. to page F34.)

	 <p>Fig.1</p>	 <p>Fig.2</p>
	• Left-hand shown	


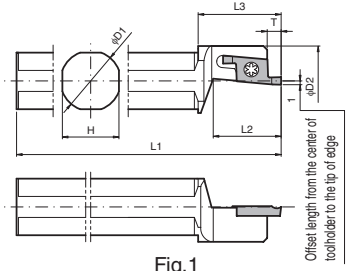
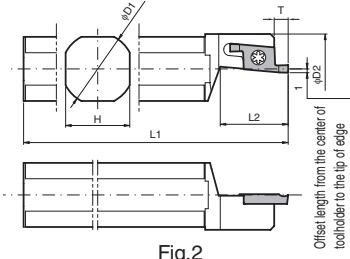
### Toolholder Dimensions

Description	Std.	Dimension (mm)									Drawing	Spare Parts		Applicable Inserts G72
		H1=h	B	L1	L2	L3	F1	F2	T	F3		Clamp Screw	Wrench	
STWL 1010F-15	●	10	10	85	-	-	10	-	3	-	Fig.1	SB-3080TR	LTW-10S	TWFG L○○○
1212F-15	●	12	12				12							
1212K-15	●	12	12	12										
1616K-15	●	16	16	125	-	16								
2020K-15	●	20	20			25	25							
2525M-15	●	25	25	150	25	32	Fig.2							

• Dimension T shows the distance from the toolholder to the cutting edge. Available groove depth: "B" dimension of insert.

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

(For right-hand toolholder for boring, ref. to page F34.)

	 <p>Fig.1</p>	 <p>Fig.2</p>
	• Left-hand shown	

### Toolholder Dimensions

Description	Std.	Dimension (mm)							Drawing	Spare Parts		Applicable Inserts G72
		φD1	φD2	H	L1	L2	L3	T		Clamp Screw	Wrench	
S12F- STWL15	●	12	20	11	80	18	22	3	Fig.1	SB-3080TR	LTW-10S	TWFG L○○○
S14H- STWL15	●	14		13	100							
S15F- STWL15	●	15.875		15	85							
S16F- STWL15	●	16		17	90							
S19G- STWL15	●	19.05	18.5	120	-	3	Fig.2					
S19K- STWL15	●	20	19.5	90								
S20G- STWL15	●	20	18	120								
S20K- STWL15	●	22	21.5	125								
S22K- STWL15	●	22	21.5	20	125	22						
S25.0J- STWL15	●	25	24.5	23	110							
S25K- STWL15	●	25.4	25	23	120							

• Dimension T shows the distance from the toolholder to the cutting edge. Available groove depth: "B" dimension of insert.

G

Grooving

External

Internal

Face


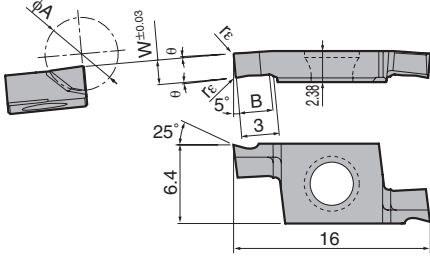
G72

Twin-Bars are sold in 5 piece boxes.

● : Std. Item




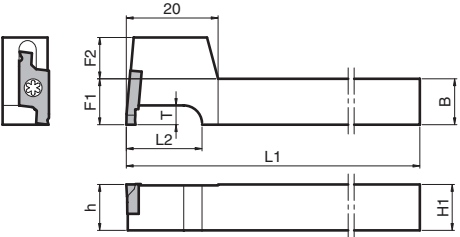
## TWFGT (Vertical type)

		Description	Face Grooving Dia. φA		Dimension (mm)			Angle	Insert Grades	
			MIN.	MAX.	W	r <sub>e</sub>	B	θ	PVD Coated Carbide	Carbide
		TWFGTR	050		0.5		1.0	1.5°	●	●
			080		0.8		1.5		●	●
			100	6	1.0	0.05	2.2	2°	●	●
			125						1.25	●
			150	(0)	1.5			●	●	
			180	(∞)	1.8			●	●	
			200		2.0			●	●	

• Right-hand shown

• Dimension B shows available grooving depth. • Face grooving diameter φA MIN. (0) means that you can make the initial groove within MIN. - MAX. and then widen it to the center.

## STWS (Square Shank for vertical type : L-shape)

		• Right-hand shown

### Toolholder Dimensions

Description	Std.	Dimension (mm)										Drawing	Spare Parts		Applicable Inserts G73
		H1=h	B	L1	L2	L3	F1	F2	T	F3	Clamp Screw		Wrench		
STWSR 1010JX-15T	●	10	10	120	16		10	9					SB-3080TR	LTW-10S	TWFGTR○○○
1212JX-15T	●	12	12				12	7							
1616JX-15T	●	16	16		20	-	16	3	3	-	-				
STWSR 1010F-15T	●	10	10	85	16		10	9							
1212F-15T	●	12	12				12	7							

• Dimension T shows the distance from the toolholder to the cutting edge. Available groove depth: "B" dimension of insert.

### Recommended Cutting Conditions (TWFG / TWFGT)

Workpiece Material	Recommended Insert Grades (Cutting Speed V <sub>c</sub> : m/min)		TWFGT050	TWFGT125	TWFGT180	Remarks
	PVD Coated Carbide	Carbide	TWFGTR050	TWFGTR125	TWFGTR180	
	PR1025	KW10	TWFGTR080	TWFGTR150	TWFGTR200	
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	

f (mm/rev)

★ : 1st Recommendation

● : Std. Item

Twin-Bars are sold in 5 piece boxes.

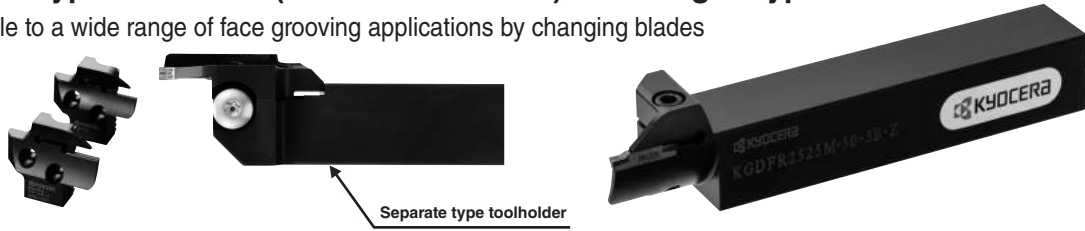
G73

# 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

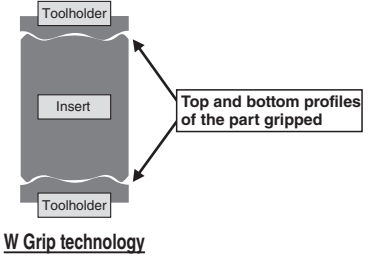


### New insert clamping system "W Grip"

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.



### Smooth chip control

For general purpose GM Chipbreaker, For high feed grooving GH Chipbreaker, For deep grooving DM Chipbreaker

## Advantages of Chipbreaker

#### For general purpose GM Chipbreaker

- Smooth surface from cutting edge to the far side
- Gradually raised surface. Keeps curling of chips in constant shape.
- Enhances breaking of chips and maintains their evacuation direction constant.
- Flat cutting edge line. Improves chip control.
- Steep surface near the cutting edge. Good chip control during shoulder grooving.

#### For high feed grooving GH Chipbreaker

- Concave part in middle. Control chips upward.
- Dots jutt out center side. Changes chip shape smoothly. Stable chip control during shoulder grooving.
- Slope portion. Constantly curled chips.
- Negative cutting edge line. Improvement of strong edge.
- Curved lead edge. Keeps chips in constant shape.

#### For deep grooving DM Chipbreaker

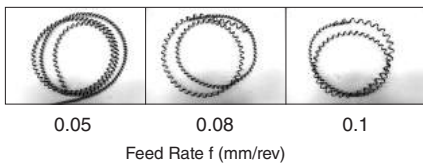
- Concave part in middle. Enhances breaking of chips.
- Inflated inner surface. Enhances breaking of chips and maintains their evacuation direction constant.
- Smooth surface up to the far side standing wall. Reduces cutting force, enhances breaking of chips and maintains their evacuation in constant direction.

## Chip Control of GM Chipbreaker

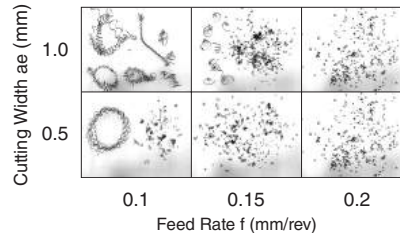
<Cutting Conditions>

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

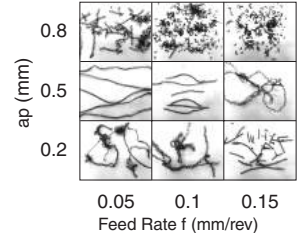
### Face Grooving (φ62)



### Side Grooving



### Turning



## High precision edge preparation

- ➔ High precision molding technology with tolerance  $\pm 0.03\text{mm}$  (Edge width 2, 3, 4mm types)

## Highly-reputed MEGACOAT technology

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

G

Grooving

External

Internal

Face

# GDFM / GDFMS

Classification of usage	P	Carbon steel / Alloy steel	●	●	☺
	M	Stainless Steel			●
K	Cast Iron				●
N	Non-ferrous Metals				
S	Titanium Alloys				
H	Hard materials (~40HRC)				
	Hard materials (40HRC-)				

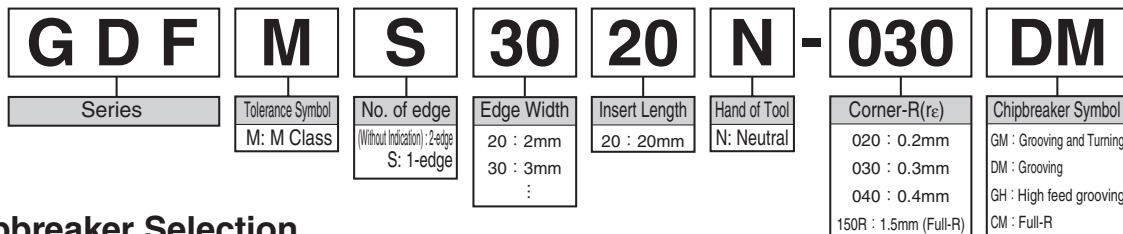
●: Continuous-Light Interruption / 1st Choice  
 ☺: Continuous-Light Interruption / 2nd Choice  
 ●: Continuous / 1st Choice  
 ○: Continuous / 2nd Choice

Insert	Description	Dimension (mm)					Cermet		MEGACOAT		Ref. to Page for Applicable Toolholders
		W	r <sub>e</sub>	M	L	H	TN620	TN90	PR1225	PR1215	
Grooving and Turning	GDFM 2020N-020GM	2.0		0.2	1.5	21	3.9		●	●	●
	3020N-030GM	3.0	±0.03	0.3	2.1		4.3		●	●	●
	4020N-040GM	4.0		0.4	3.1				●	●	●
	5020N-040GM	5.0		0.4	4.1	20	4.5		●	●	●
	<b>NEW</b> 5020N-080GM	5.0	±0.04	0.8	4.1				●	●	●
	<b>NEW</b> 6020N-040GM	6.0		0.4	5.0				●	●	●
	<b>NEW</b> 6020N-080GM	6.0		0.8	5.0				●	●	●
Grooving and Turning (high feed)	GDFM 4020N-040GH	4.0	±0.03	0.4	3.1					●	●
	5020N-040GH	5.0		0.4	4.1	20	4.5			●	●
	5020N-080GH	5.0	±0.04	0.8	4.1					●	●
	6020N-040GH	6.0		0.4	5.0					●	●
	6020N-080GH	6.0		0.8	5.0					●	●
Deep grooving and Turning	GDFM 3020N-030DM	3.0	±0.03	0.3	2.1		4.3		●	●	●
	4020N-040DM	4.0		0.4	3.1	20	4.5		●	●	●
	5020N-040DM	5.0	±0.04	0.4	4.1				●	●	●
	6020N-040DM	6.0		0.4	5.0				●	●	●
Deep grooving and Turning (1-edge)	GDFMS 3020N-030DM	3.0	±0.03	0.3	2.1		4.3		●	●	●
	4020N-040DM	4.0		0.4	3.1	20	4.5		●	●	●
	5020N-040DM	5.0	±0.04	0.4	4.1				●	●	●
	6020N-040DM	6.0		0.4	5.0				●	●	●
Full-R	GDFM 3020N-150R-CM	3.0	±0.03	1.5	2.1	20	4.3	●		●	●
	4020N-200R-CM	4.0		2.0	3.1	*21	4.5	●		●	●
	5020N-250R-CM	5.0	±0.04	2.5	4.1			●		●	●
	6020N-300R-CM	6.0		3.0	5.0	*22		●		●	●

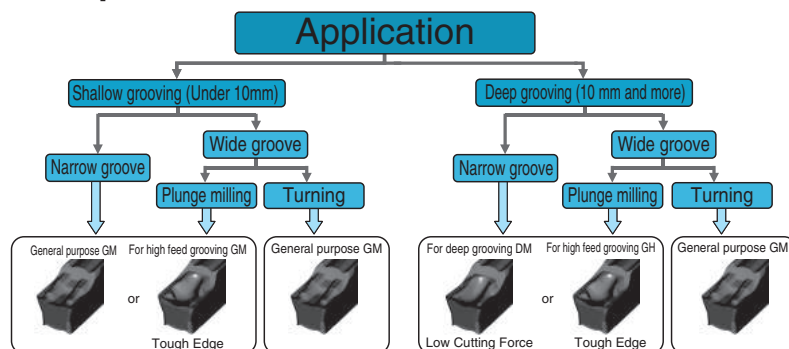
\*GDFM40/50/60-CM differs from other descriptions in length (L) to avoid interference of a toolholder with workpiece.

Recommended Cutting Conditions **G86**

## Inserts Identification System



## 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.

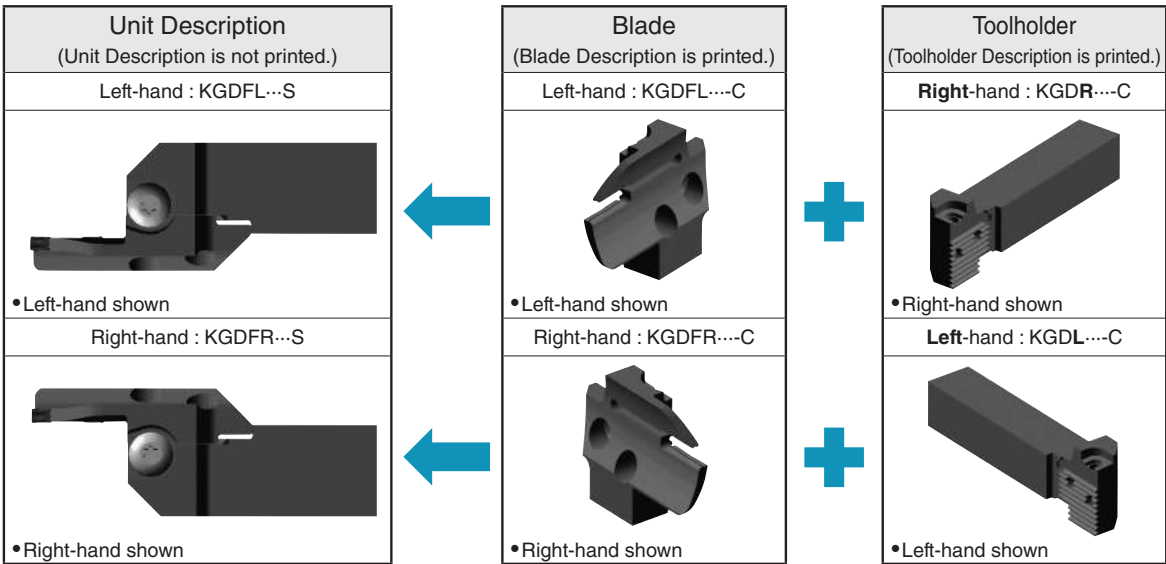
● : Std. Item

Inserts are sold in 10 piece boxes.




# Face Grooving Toolholders (Separate Type)

## KGDF

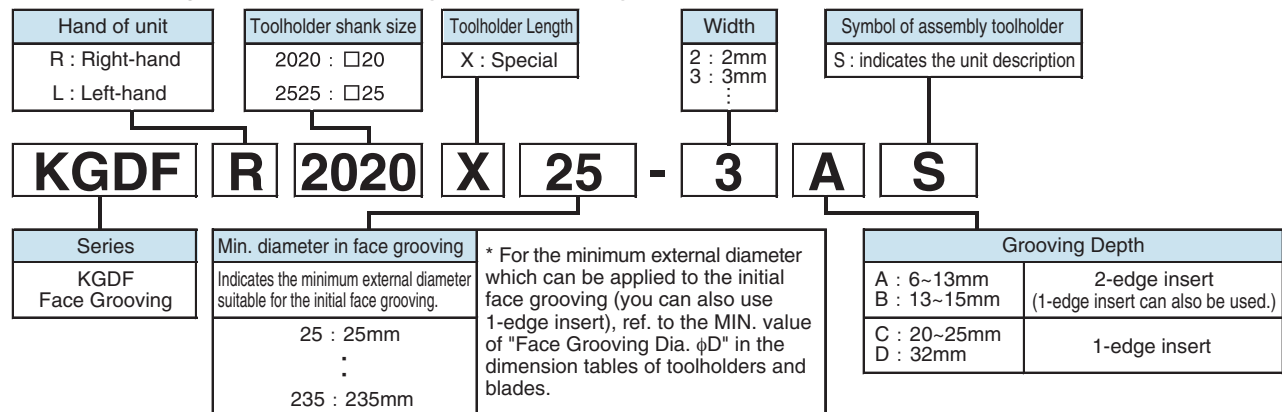
### Toolholder Assembly Identification



- 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



G

Grooving

External

Internal

Face

### ◆ Face Grooving Dia. $\phi D$

Face grooving diameter ( $\phi D$ ) is the suitable value 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.

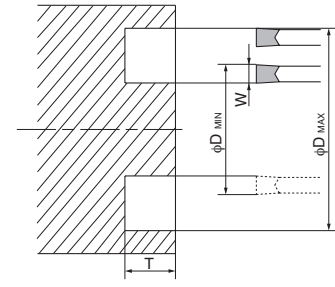


Fig.1

### ◆ 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.

Description	$\phi D$			
	25	26	27	28 and over
<b>KGDF<sup>R/L</sup> 2020X25-3AS</b> <b>2525X25-3AS</b>	4	2	0	0 (No remaining Boss)
<b>KGDF<sup>R/L</sup> 2020X25-4AS</b> <b>2525X25-4AS</b>	6	3	0	
<b>KGDF<sup>R/L</sup> 2020X25-5AS</b> <b>2525X25-5AS</b>	7	4	1	
<b>KGDF<sup>R/L</sup> 2020X25-6AS</b> <b>2525X25-6AS</b>	9	4	1	

$\phi d$

Interference

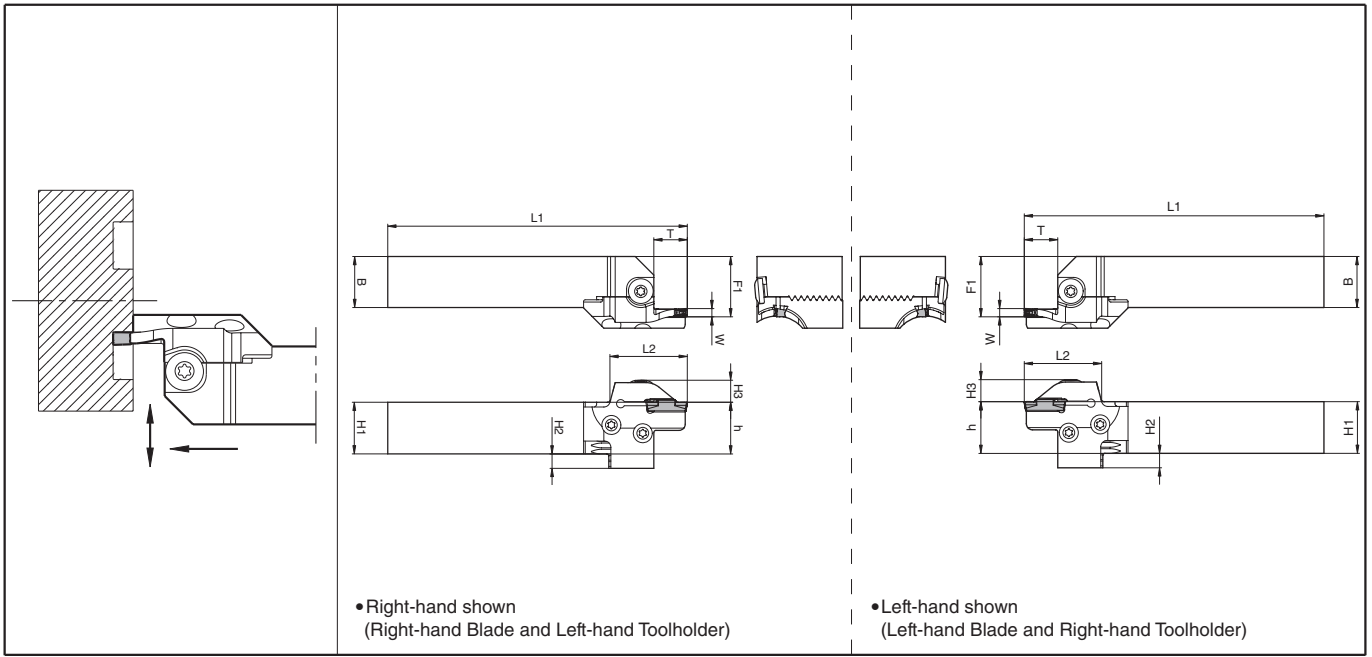
Remaining Boss Dia.  $\phi d$

$\phi d$  (mm)

e.g.) KGDFR2020X25-3AS with  $\phi 25$  as first cut towards the center, it will cause a rubbing with the toolholder cartridge if  $\phi d$  is 4.0mm.

# Face Grooving Toolholders (Separate Type)

## 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 W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. $\phi D$ (mm)		Unit Description (Standard Stock Description)	Std.		Blade Description G85	Toolholder Description G25	Dimension (mm)										
				MIN.	MAX.		R	L			H1=h	H2	H3	B	L1	L2	F1	T			
0°	20	6	6	25	30	KGDFR 2020X25-2AS	●	-	KGDFR -25-2A-C	KGDL2020-C	20	12	11.6	20	115	33	24.5	6			
				30	35		●	-							-30-2A-C	118	36	13			
				35	45		●	-							-35-2A-C	No unit description →	120	38	15		
				45	60		●	-							-45-2A-C						
				60	80		●	-							-60-2A-C						
				80	100		●	-							-80-2A-C						
		100	130	●	-	-100-2A-C															
		13	15	6	6	25	30	KGDFR 2525X25-2AS	●	-	KGDFR -25-2A-C	KGDL2525-C	25	7	11.6	25	143	36	29.5	13	
						30	35		●	-							-30-2A-C	No unit description →	145	38	15
						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																
	32	6	6	6	25	30	KGDFR 2525X25-2AS	●	-	KGDFR -25-2A-C	KGDL3232-C	32	-	11.6	32	160	33	36.5	6		
					30	35		●	-							-30-2A-C	No unit description →	163	36	13	
					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	15	6	6	25	30	KGDFR 2525X25-2AS	●	-	KGDFR -25-2A-C	KGDL3232-C	32	-	11.6	32	163	36	36.5	13	
						30	35		●	-							-30-2A-C	No unit description →	165	38	15
						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																	

Note) 1. In case the unit description is not available (No unit description), please purchase toolholder and blade separately.

2. Dimension T : Maximum depth to which processing can be made. (If the dimension T is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)

Applicable Inserts G75

● : Std. Item

● Toolholder Dimensions

Shank Angle	Edge Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. $\phi$ D (mm)		Unit Description (Standard Stock Description)	Std.		Blade Description ● G85	Toolholder Description ● G25	Dimension (mm)											
				MIN.	MAX.		R	L			H1=h	H2	H3	B	L1	L2	F1	T				
0°	3	□20	13	25	30	KGDF <sup>®</sup> / <sub>L</sub> 2020X25-3AS	●	●	KGDF <sup>®</sup> / <sub>L</sub> -25-3A-C	KGD <sup>1/2</sup> / <sub>R</sub> 2020-C	20	12	11.6	20	118	36	24.5	15				
				30	40		●	●											-30-3A-C			
				40	50		●	●											-40-3A-C			
			15	50	65		●	●							-50-3B-C							
				65	85		●	●							-65-3B-C							
				85	110		●	●							-85-3B-C							
			22	110	145		●	●							-110-3B-C							
				50	65		●	●							-50-3C-C							
				65	85		●	●							-65-3C-C							
			25	85	110		●	●							-85-3C-C							
				110	145		●	●							-110-3C-C							
				25	30		KGDF <sup>®</sup> / <sub>L</sub> 2525X25-3AS	●							●	KGDF <sup>®</sup> / <sub>L</sub> -25-3A-C		KGD <sup>1/2</sup> / <sub>R</sub> 2525-C	25	7	11.6	25
		13	30	40	●	●	-30-3A-C															
			40	50	●	●	-40-3A-C															
			50	65	●	●	-50-3B-C															
		15	65	85	●	●	-65-3B-C															
			85	110	●	●	-85-3B-C															
			110	145	●	●	-110-3B-C															
		22	50	65	●	●	-50-3C-C															
			65	85	●	●	-65-3C-C															
			85	110	●	●	-85-3C-C															
		25	110	145	●	●	-110-3C-C															
			25	30	No unit description →					KGDF <sup>®</sup> / <sub>L</sub> -25-3A-C	KGD <sup>1/2</sup> / <sub>R</sub> 3232-C	32	-	11.6	32	163	36					
			13	30														40	●	●	-30-3A-C	
40	50	●		●														-40-3A-C				
50	65	●		●												-50-3B-C						
15	65	85	●	●												-65-3B-C						
	85	110	●	●												-85-3B-C						
	110	145	●	●												-110-3B-C						
22	50	65	●	●												-50-3C-C						
	65	85	●	●												-65-3C-C						
	85	110	●	●												-85-3C-C						
25	110	145	●	●												-110-3C-C						
	13	25	KGDF <sup>®</sup> / <sub>L</sub> 2020X25-4AS	●												●	KGDF <sup>®</sup> / <sub>L</sub> -25-4A-C	KGD <sup>1/2</sup> / <sub>R</sub> 2020-C	20	12	11.6	20
	15	35	50	●	●	-35-4B-C																
50		70	●	●	-50-4B-C																	
70		100	●	●	-70-4B-C																	
25	100	150	●	●	-100-4B-C																	
	150	220	●	●	-150-4B-C																	
	220	∞	●	●	-220-4B-C																	
25	35	50	●	●	-35-4C-C																	
	50	70	●	●	-50-4C-C																	
	70	100	●	●	-70-4C-C																	
25	100	150	●	●	-100-4C-C																	
	150	220	●	●	-150-4C-C																	
	220	∞	●	●	-220-4C-C																	
0°	4	□25	13	25	35	KGDF <sup>®</sup> / <sub>L</sub> 2525X25-4AS	●	●	KGDF <sup>®</sup> / <sub>L</sub> -25-4A-C	KGD <sup>1/2</sup> / <sub>R</sub> 2525-C	25	7	11.6	25	143	36	29.5	15				
				35	50		●	●											-35-4B-C			
				50	70		●	●											-50-4B-C			
			15	70	100		●	●							-70-4B-C							
				100	150		●	●							-100-4B-C							
				150	220		●	●							-150-4B-C							
			25	220	∞		●	●							-220-4B-C							
				35	50		●	●							-35-4C-C							
				50	70		●	●							-50-4C-C							
			25	70	100		●	●							-70-4C-C							
				100	150		●	●							-100-4C-C							
				150	220		●	●							-150-4C-C							
		25	220	∞	●	●	-220-4C-C															
			13	25	No unit description →					KGDF <sup>®</sup> / <sub>L</sub> -25-4A-C	KGD <sup>1/2</sup> / <sub>R</sub> 3232-C	32	-	11.6	32	163	36	36.5	15			
			15	35																50	●	●
		50		70																●	●	-50-4B-C
		70		100												●	●		-70-4B-C			
		25	100	150												●	●		-100-4B-C			
			150	220												●	●		-150-4B-C			
			220	∞												●	●		-220-4B-C			
		25	35	50												●	●		-35-4C-C			
			50	70												●	●		-50-4C-C			
			70	100												●	●		-70-4C-C			
		25	100	150												●	●		-100-4C-C			
150	220		●	●												-150-4C-C						
220	∞		●	●	-220-4C-C																	
25	13	25	No unit description →					KGDF <sup>®</sup> / <sub>L</sub> -25-4A-C	KGD <sup>1/2</sup> / <sub>R</sub> 3232-C	32	-	11.6	32	175	48	25	25					
	15	35																50	●	●	-35-4B-C	
		50																70	●	●	-50-4B-C	
70		100												●	●		-70-4B-C					
25	100	150												●	●		-100-4B-C					
	150	220												●	●		-150-4B-C					
	220	∞												●	●		-220-4B-C					
25	35	50												●	●		-35-4C-C					
	50	70												●	●		-50-4C-C					
	70	100												●	●		-70-4C-C					
25	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. Dimension T : Maximum depth to which processing can be made. (If the dimension T is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)

Applicable Inserts ● G75

● : Std. Item



Grooving

# Face Grooving Toolholders (Separate Type)

## Toolholder Dimensions



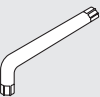
Shank Angle	Edge Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. $\phi$ D (mm)		Unit Description (Standard Stock Description)	Std.		Blade Description G85	Toolholder Description G25	Dimension (mm)																														
				MIN.	MAX.		R	L			H1=h	H2	H3	B	L1	L2	F1	T																							
0°	5	□20	15	25	35	KGDF <sup>R/L</sup> 2020X25-5BS	●	●	KGDF <sup>R/L</sup> -25-5B-C	KG D <sup>L/R</sup> 2020-C	20	12	11.6	20					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	KGDF <sup>R/L</sup> 2020X25-5CS	●	●	-25-5C-C						20	12	11.6	20				125	43		24.5	20															
				35	50		●	●																			-35-5C-C														
				50	75		●	●																			-50-5C-C														
				75	115		●	●																			-75-5C-C														
				115	180		●	●																			-115-5C-C														
				180	235		●	●																			-180-5C-C														
			235	∞	●	●	-235-5C-C																																		
			25	25	35	KGDF <sup>R/L</sup> 2020X25-5CS	●	●	-25-5C-C						20	12	11.6	20				130	48		25	25															
				35	50		●	●																			-35-5C-C														
				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	No unit description →									-75-5D-C	20	12	11.6	20				137	55		32	32														
				115	180																							-115-5D-C													
				180	235																							-180-5D-C													
		235		∞					-235-5D-C																																
								-75-5D-C																																	
								-115-5D-C																																	
								-180-5D-C																																	
								-235-5D-C																																	
		□25	15	25	35	KGDF <sup>R/L</sup> 2525X25-5BS	●	●	KGDF <sup>R/L</sup> -25-5B-C						KG D <sup>L/R</sup> 2525-C	25	7	11.6	25					15	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	KGDF <sup>R/L</sup> 2525X25-5CS																		●	●	-25-5C-C	KG D <sup>L/R</sup> 2525-C	25	7	11.6	25				150	43	29.5	20	
					35		50																			●	●														-35-5C-C
					50		75																			●	●														-50-5C-C
					75		115																			●	●														-75-5C-C
					115		180																			●	●														-115-5C-C
			180		235	●	●		-180-5C-C																																
			235	∞	●	●	-235-5C-C																																		
			25	75	115	No unit description →														-75-5D-C	KG D <sup>L/R</sup> 2525-C	25	7	11.6	25			155						48	25	25					
				115	180																																-115-5D-C				
				180	235																																-180-5D-C				
				235	∞																																-235-5D-C				
																																					-75-5D-C				
								-115-5D-C																																	
							-180-5D-C																																		
							-235-5D-C																																		
32	75		115	180	KGDF <sup>R/L</sup> 2525X75-5DS	●	●	-75-5D-C	KG D <sup>L/R</sup> 3232-C	32	-	11.6	32															162						55	32						
			115	180		●	●																													-115-5D-C					
		180	235	●		●	-180-5D-C																																		
		235	∞	●		●	-235-5D-C																																		
															-75-5D-C																										
															-115-5D-C																										
	15	25	35	No unit description →				-25-5B-C						KG D <sup>L/R</sup> 3232-C	32	-	11.6	32										15						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	No unit description →				-25-5C-C	KG D <sup>L/R</sup> 3232-C											32	-						11.6	32			170	43	36.5	20								
	35	50																																-35-5C-C							
	50	75																																-50-5C-C							
	75	115																			-75-5C-C																				
	115	180																			-115-5C-C																				
	180	235																			-180-5C-C																				
235	∞					-235-5C-C																																			
25	75	115	No unit description →				-75-5D-C														KG D <sup>L/R</sup> 3232-C	32	-	11.6	32					175	48	25	25								
	115	180																																-115-5D-C							
	180	235																																-180-5D-C							
	235	∞																																-235-5D-C							
									-75-5D-C																																
									-115-5D-C																																
32	75	115	No unit description →				-75-5D-C		KG D <sup>L/R</sup> 3232-C	32	-	11.6	32																	182	55	32	32								
	115	180																																-115-5D-C							
	180	235																																-180-5D-C							
	235	∞																																-235-5D-C							
														-75-5D-C																											
														-115-5D-C																											

Note) 1. In case the unit description is not available (No unit description), please purchase toolholder and blade separately.  
2. Dimension T : Maximum depth to which processing can be made. (If the dimension T is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)

Applicable Inserts G75

## 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 <sup>R/L</sup> .....S			
	BH6X10TR	SB-60120TR	LTW-25

● : Std. Item



## ● Toolholder Dimensions



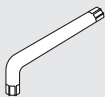
Shank Angle	Edge Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. φD (mm)		Unit Description (Standard Stock Description)		Std.		Blade Description ● G85	Toolholder Description ● G25	Dimension (mm)														
				MIN.	MAX.			R	L			H1=h	H2	H3	B	L1	L2	F1	T							
0°	6	□20	15	25	35	KGDF <sup>φ</sup> <sub>L</sub>	2020X25-6BS	●	●	KGDF <sup>φ</sup> <sub>L</sub>	-25-6B-C	KGD <sup>1</sup> / <sub>R</sub> 2020-C	20	12	11.6	20	120	38	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																	
			25	35	50	2020X35-6CS	●	●	-35-6C-C																	
			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																		
			115	180	No unit description →		-115-6D-C																			
			180	235	No unit description →		-180-6D-C																			
			235	∞	No unit description →		-235-6D-C																			
			□25	15	20	25	35	KGDF <sup>φ</sup> <sub>L</sub>	2525X25-6BS	●	●						KGDF <sup>φ</sup> <sub>L</sub>	-25-6B-C	KGD <sup>1</sup> / <sub>R</sub> 2525-C	25	7	11.6	25	145	38	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																		
		25	25		35	2525X25-6CS	●	●	-25-6C-C																	
		35	50		2525X35-6CS	●	●	-35-6C-C																		
		50	75		2525X50-6CS	●	●	-50-6C-C																		
		75	115		No unit description →		-75-6C-C																			
		115	180		No unit description →		-115-6C-C																			
		180	235		No unit description →		-180-6C-C																			
		235	∞		No unit description →		-235-6C-C																			
		32	75		115	KGDF <sup>φ</sup> <sub>L</sub>	2525X75-6DS	●	●	-75-6D-C																
		115	180		2525X115-6DS	●	●	-115-6D-C																		
		180	235		2525X180-6DS	●	●	-180-6D-C																		
		235	∞		2525X235-6DS	●	●	-235-6D-C																		
		□32	15		20	25	35	KGDF <sup>φ</sup> <sub>L</sub>	2525X25-6BS	●	●	KGDF <sup>φ</sup> <sub>L</sub>	-25-6B-C	KGD <sup>1</sup> / <sub>R</sub> 3232-C	32	-	11.6	32						165	38	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																		
		25		25	35	No unit description →		-25-6C-C																		
		35		50	No unit description →		-35-6C-C																			
		50		75	No unit description →		-50-6C-C																			
		75		115	No unit description →		-75-6C-C																			
		115		180	No unit description →		-115-6C-C																			
180	235	No unit description →		-180-6C-C																						
235	∞	No unit description →		-235-6C-C																						
32	75	115		No unit description →		-75-6D-C																				
115	180	No unit description →		-115-6D-C																						
180	235	No unit description →		-180-6D-C																						
235	∞	No unit description →		-235-6D-C																						

Note) 1. In case the unit description is not available (No unit description), please purchase toolholder and blade separately.  
2. Dimension T : Maximum depth to which processing can be made. (If the dimension T is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)

Applicable Inserts ● G75

## ● 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 <sup>φ</sup> <sub>L</sub> .....S	 BH6X10TR	 SB-60120TR	 LTW-25

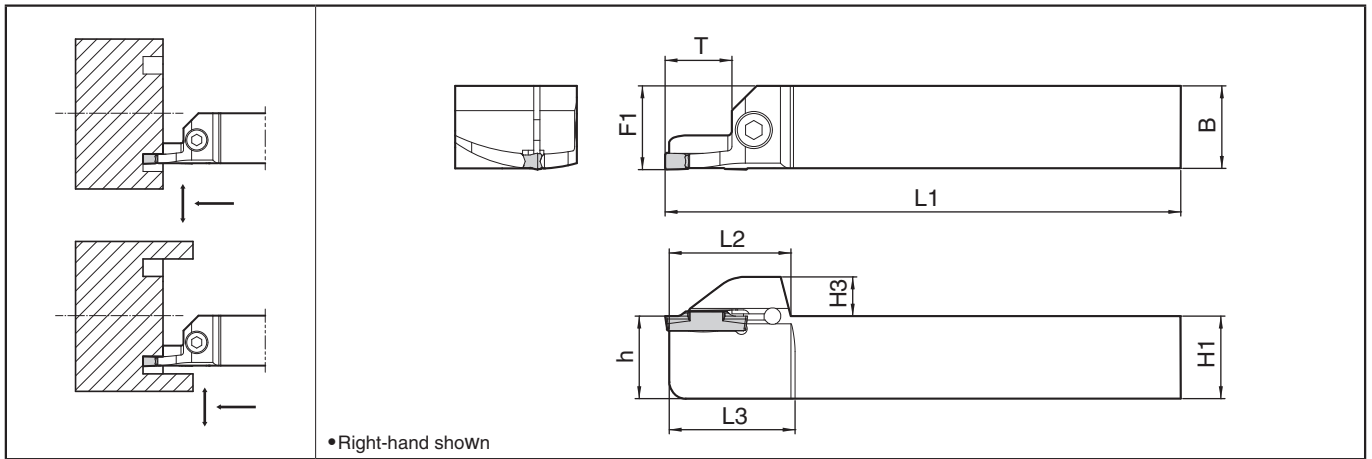
● : Std. Item



Grooving

# Face Grooving Toolholders (Integral Type)

## KGDF-Z NEW


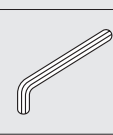


### Toolholder Dimensions

Edge Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. $\phi$ D (mm)		Description	Std.		Dimension (mm)							
			MIN.	MAX.		R	L	H1-h	H3	B	L1	L2	L3	F1	T
3	□20	15	50	65	KGDF <sup>R/L</sup> 2020K50-3B-Z	●	●	20	9.5	20	125	30.5	31	20.3	15
			65	85		●	●								
			85	110		●	●								
	110		145	KGDF <sup>R/L</sup> 2020K110-3B-Z	●	●									
	50		65	KGDF <sup>R/L</sup> 2525M50-3B-Z	●	●	25	25		150	25.3				
	65		85		●	●									
85	110	●	●												
110	145	KGDF <sup>R/L</sup> 2525M110-3B-Z	●	●											
4	□20	15	50	70	KGDF <sup>R/L</sup> 2020K50-4B-Z	●	●	20	9.5	20	125	30.5	31	20.3	15
			70	100		●	●								
			100	150		●	●								
	50		70	KGDF <sup>R/L</sup> 2525M50-4B-Z	●	●	25	25		150	25.3				
	70		100		●	●									
	100		150		●	●									
100	150	KGDF <sup>R/L</sup> 2525M100-4B-Z	●	●											
5	□20	15	50	75	KGDF <sup>R/L</sup> 2020K50-5B-Z	●	●	20	9.5	20	125	30.5	31	20.3	15
			75	115		●	●								
			115	180		●	●								
	50		75	KGDF <sup>R/L</sup> 2525M50-5B-Z	●	●	25	25		150	25.3				
	75		115		●	●									
	115		180		●	●									
115	180	KGDF <sup>R/L</sup> 2525M115-5B-Z	●	●											

Applicable Inserts **G75**

### Spare Parts

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

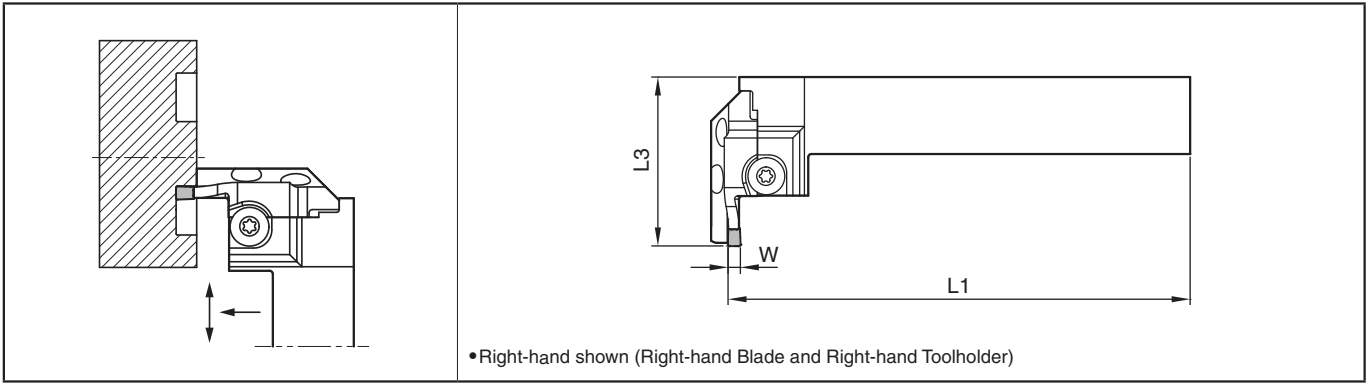
### Toolholder Identification System (Integral Type)

<b>KGDF</b>	<b>R</b>	<b>2525</b>	<b>M</b>	<b>50</b>	<b>3</b>	<b>B</b>	<b>Z</b>
Series	Hand of Tool	Shank Size	Toolholder Length	Min. Face Groove Dia.	Edge Width	Grooving Depth	Toolholder Type
KGDF Face Grooving	R: Right-hand L: Left-hand	2020 : □20mm 2525 : □25mm	K : 125mm M : 150mm	50 : 50mm : 50mm 115 : 115mm	3 : 3mm 4 : 4mm 5 : 5mm	B : 15mm	Z : Integral Type

● : Std. Item

# Face Grooving Toolholders (90° Separate Type)

## KGDF



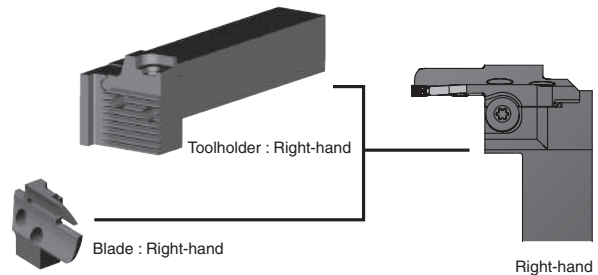
### Combination of Toolholder & Blade

Shank Angle	Edge Width W (mm)	Shank Size (mm)	Face Grooving Dia. $\phi$ D (mm)	Max. depth of cut (mm)	Blade Description G85	Toolholder Description G25	Dimension (mm)			
							MIN.	MAX.	L1	L3
90°	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	-25-2B-C	52.7					
		30	35	-30-2B-C						
		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	-25-2B-C					52.7	
	30		35	-30-2B-C						
	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°	20	13	25	30	KGDF <sup>90</sup> -25-3A-C	KGDS <sup>90</sup> .2020-C	125	52.7		
			30	40					-30-3A-C	
			40	50					-40-3A-C	
			50	65					-50-3B-C	
			65	85					-65-3B-C	
			85	110					-85-3B-C	
		110	145	-110-3B-C						
		15	50	-50-3C-C	54.7					
		65	85	-65-3C-C						
		85	110	-85-3C-C						
		110	145	-110-3C-C						
		22	50	-50-3C-C					59.7	
	65	85	-65-3C-C							
	85	110	-85-3C-C							
	110	145	-110-3C-C							
	25	50	-50-3C-C	61.7						
	65	85	-65-3C-C							
	85	110	-85-3C-C							
	110	145	-110-3C-C							
	25	13	25		30	KGDF <sup>90</sup> -25-3A-C	KGDS <sup>90</sup> .2525-C	150	52.7	
	30		40		-30-3A-C					
	40		50	-40-3A-C						
	50		65	-50-3B-C						
	65		85	-65-3B-C						
85	110		-85-3B-C							
110	145		-110-3B-C							
15	50		-50-3C-C	54.7						
65	85		-65-3C-C							
85	110		-85-3C-C							
110	145		-110-3C-C							
22	50		-50-3C-C		59.7					
65	85	-65-3C-C								
85	110	-85-3C-C								
110	145	-110-3C-C								
25	50	-50-3C-C	61.7							
65	85	-65-3C-C								
85	110	-85-3C-C								
110	145	-110-3C-C								

Applicable Inserts G75

Shank Angle	Edge Width W (mm)	Shank Size (mm)	Face Grooving Dia. $\phi$ D (mm)	Max. depth of cut (mm)	Blade Description G85	Toolholder Description G25	Dimension (mm)			
							MIN.	MAX.	L1	L3
90°	20	4	13	25	35	KGDF <sup>90</sup> -25-4A-C	KGDS <sup>90</sup> .2020-C	125	52.7	
			35	50	-35-4B-C					
			50	70	-50-4B-C					
			70	100	-70-4B-C					
			100	150	-100-4B-C					
			150	220	-150-4B-C					
		220	$\infty$	-220-4B-C						
		13	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	$\infty$	-220-4C-C							
	25	4	13	25	35	KGDF <sup>90</sup> -25-4A-C	KGDS <sup>90</sup> .2525-C	150	52.7	
	35		50	-35-4B-C						
	50		70	-50-4B-C						
	70		100	-70-4B-C						
	100		150	-100-4B-C						
	150		220	-150-4B-C						
	220		$\infty$	-220-4B-C						
	13		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	$\infty$	-220-4C-C								

Applicable Inserts G75



- 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.

G



Grooving

# Face Grooving Toolholders (90° Separate Type)

## Combination of Blade & Toolholder

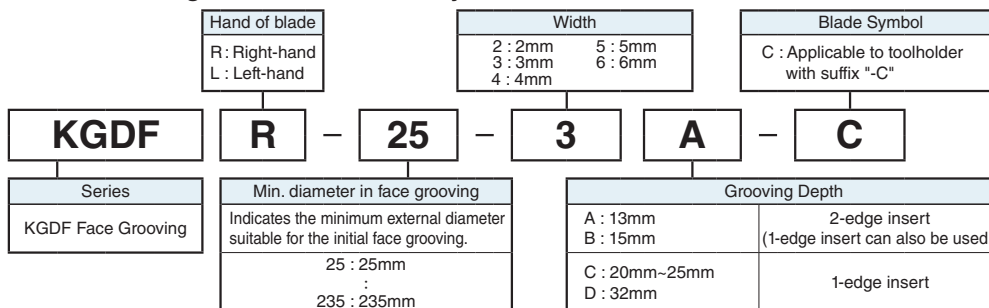
Shank Angle	Edge Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. φD (mm)		Blade Description G85	Toolholder Description G25	Dimension (mm)		
				MIN.	MAX.			L1	L3	
90°	5	□ 20	15	25	35	KGDF <sup>®</sup> /-25-5B-C	KGDS <sup>®</sup> /2020-C	125	54.7	
				35	50	-35-5B-C				
				50	75	-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		
			35	50	-35-5C-C					
			50	75	-50-5C-C					
			75	115	-75-5C-C					
			115	180	-115-5C-C					
		180	235	-180-5C-C						
		235	∞	-235-5C-C						
		25	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 <sup>®</sup> /-25-5B-C	KGDS <sup>®</sup> /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					
35	50		-35-5C-C							
50	75		-50-5C-C							
75	115		-75-5C-C							
115	180		-115-5C-C							
180	235	-180-5C-C								
235	∞	-235-5C-C								
25	75	115	-75-5D-C	71.7						
115	180	-115-5D-C								
180	235	-180-5D-C								
235	∞	-235-5D-C								

Applicable Inserts G75

Shank Angle	Edge Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. φD (mm)		Blade Description G85	Toolholder Description G25	Dimension (mm)		
				MIN.	MAX.			L1	L3	
90°	6	□ 20	15	25	35	KGDF <sup>®</sup> /-25-6B-C	KGDS <sup>®</sup> /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		
			35	50	-35-6C-C					
			50	75	-50-6C-C					
			75	115	-75-6C-C					
			115	180	-115-6C-C					
		180	235	-180-6C-C						
		235	∞	-235-6C-C						
		25	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 <sup>®</sup> /-25-6B-C	KGDS <sup>®</sup> /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					
35	50		-35-6C-C							
50	75		-50-6C-C							
75	115		-75-6C-C							
115	180		-115-6C-C							
180	235	-180-6C-C								
235	∞	-235-6C-C								
25	75	115	-75-6D-C	71.7						
115	180	-115-6D-C								
180	235	-180-6D-C								
235	∞	-235-6D-C								

Applicable Inserts G75

## Face Grooving Blade Identification System



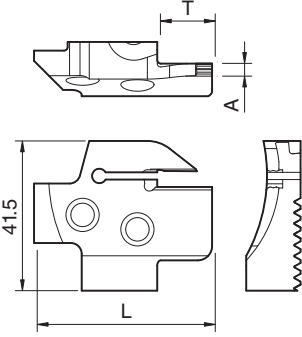
Description

Lot No.

Example of printing of blade description

# Face Grooving Blade

## Blade Dimensions

Shape	Blade Description	Std.		Dimension (mm)			Face Grooving Dia. $\phi D$ (mm)		Edge Width (mm) W	Applicable Inserts G75	Toolholder Description G25
		R	L	L	T	A	MIN.	MAX.			
 <p>Right-hand shown</p>	KGDFR	-25-2A-C	●	-	44.35	6	1.5	25	30	2	GDFM2020N-020GM
		-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	1.5	25	30		
		-30-2B-C	●	-				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 <sup>R/L</sup>	-25-3A-C	●	●	47.35	13	2	25	30	3	GDFM3020N-030GM GDFM3020N-030DM GDFMS3020N-030DM GDFM3020N-150R-CM
		-30-3A-C	●	●				30	40		
		-40-3A-C	●	●				40	50		
		-50-3B-C	●	●	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	●	●	59.35	25	65	85				
	-85-3C-C	●	●			85	110				
	-110-3C-C	●	●			110	145				
	KGDF <sup>R/L</sup>	-25-4A-C	●	●	47.35	13	3	25	35	4	GDFM4020N-040GM GDFM4020N-040GH GDFM4020N-040DM GDFMS4020N-040DM GDFM4020N-200R-CM
		-35-4B-C	●	●				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	$\infty$					
		-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			$\infty$				
	KGDF <sup>R/L</sup>	-25-5B-C	●	●	49.35	15	4	25	35	5	GDFM5020N-040GM GDFM5020N-080GM GDFM5020N-040GH GDFMS5020N-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	$\infty$					
-25-5C-C		●	●	54.35	20	25		35			
-35-5C-C		●	●			35		50			
-50-5C-C		●	●			50		75			
-75-5C-C		●	●	59.35	25	75		115			
-115-5C-C		●	●			115		180			
-180-5C-C		●	●			180		235			
-235-5C-C		●	●	235	$\infty$						
-75-5D-C		●	●	66.35	32	75		115			
-115-5D-C	●	●	115			180					
-180-5D-C	●	●	180			235					
-235-5D-C	●	●	235			$\infty$					
KGDF <sup>R/L</sup>	-25-6B-C	●	●	49.35	15	5	25	35	6	GDFM6020N-040GM GDFM6020N-080GM GDFM6020N-040GH GDFM6020N-080GH GDFM6020N-040DM GDFMS6020N-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	$\infty$						
	-25-6C-C	●	●	54.35	20		25	35			
	-35-6C-C	●	●				35	50			
	-50-6C-C	●	●				50	75			
	-75-6C-C	●	●	59.35	25		75	115			
	-115-6C-C	●	●				115	180			
	-180-6C-C	●	●				180	235			
	-235-6C-C	●	●	235	$\infty$						
	-75-6D-C	●	●	66.35	32		75	115			
-115-6D-C	●	●	115			180					
-180-6D-C	●	●	180			235					
-235-6D-C	●	●	235			$\infty$					

● : Std. Item



Grooving

# Recommended Cutting Conditions

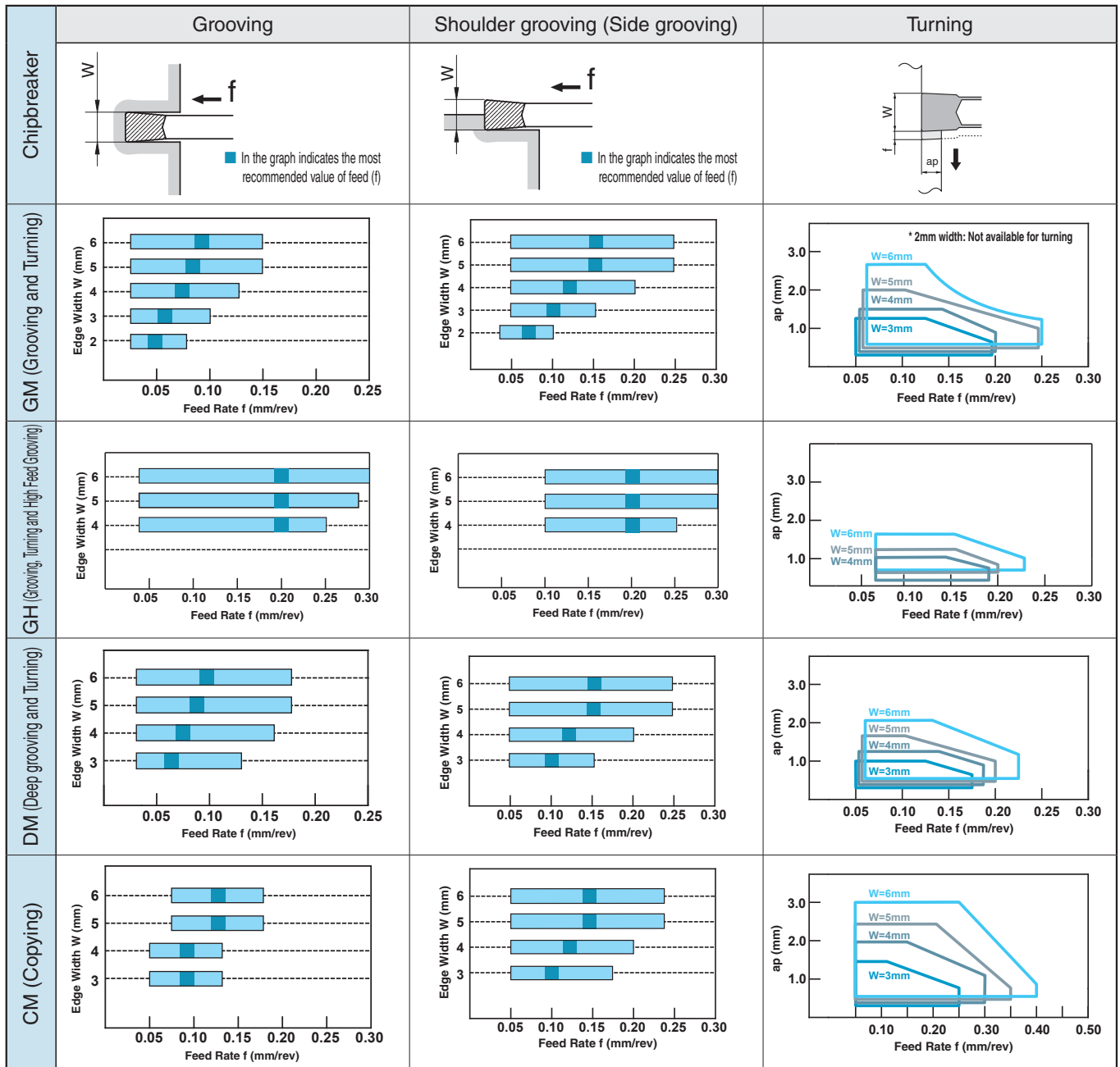
## ◆ Recommended Cutting Conditions (Vc)

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]



- 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 dimension T of toolholder is 15 mm or less.
- 2) If the toolholder's dimension T is over 15 mm, set the values for turning to less than 90% of those above.

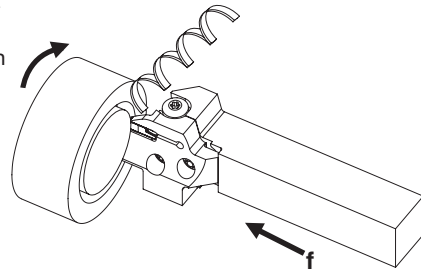
## Guide for Face Grooving

### 1) Toolholder Selection

Check the range of applicable "face grooving diameter" as well as the groove width and depth.

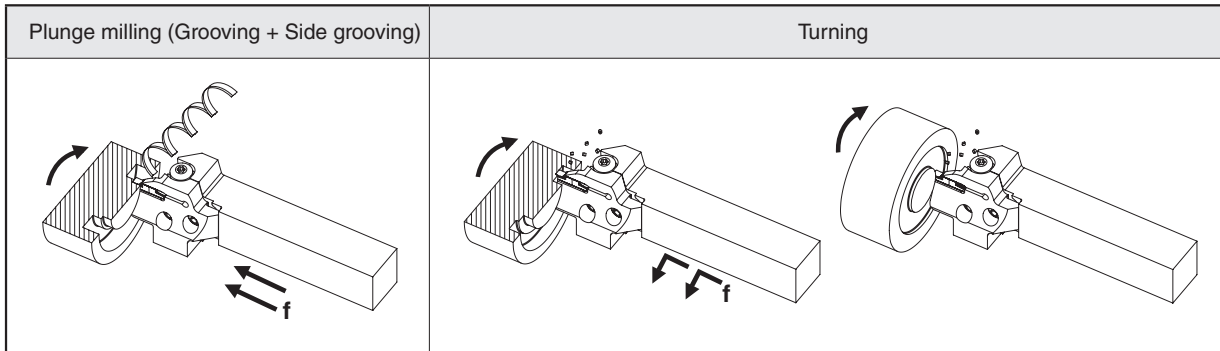
### 2) Cutting conditions (Feed rate : f)

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.



### 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.
- (3) Perform turning (Ref. to Fig.1)

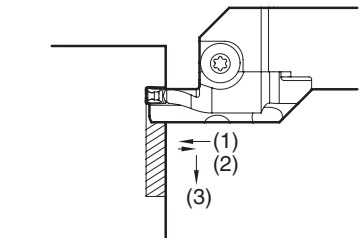
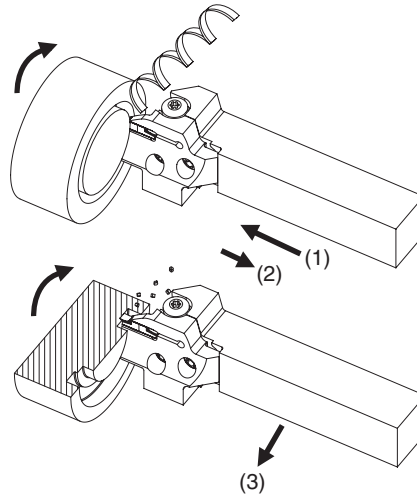


Fig.1

- When widening the face groove width (Ref. to Fig.2) Apply the "Step Turning". Then perform finishing.

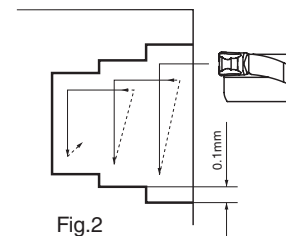


Fig.2

#### 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)

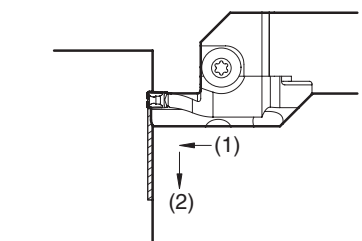
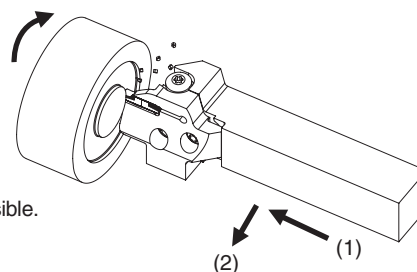
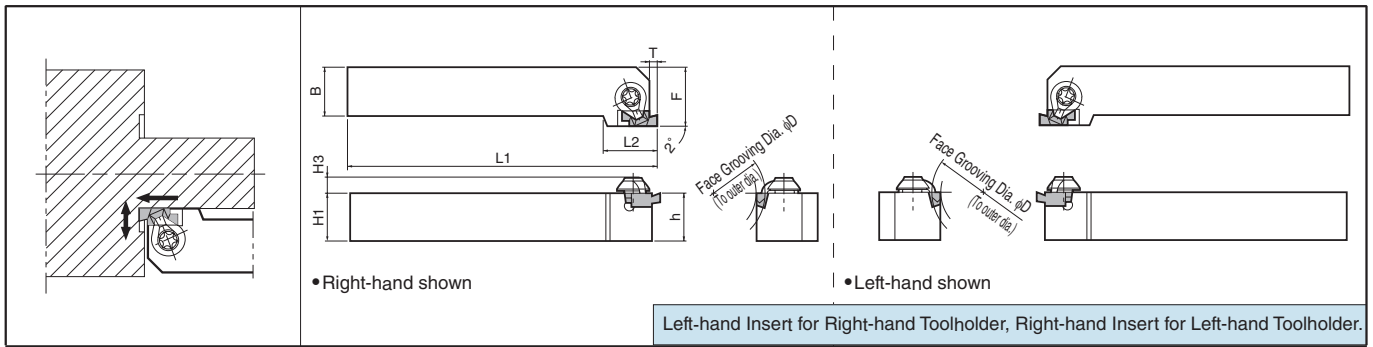


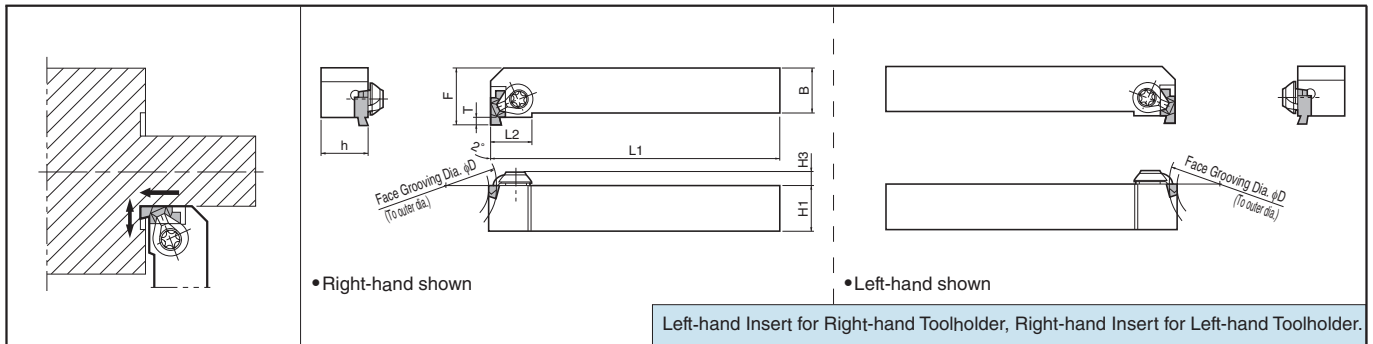
Fig.3

# Small Dia. Face Grooving Toolholders [GVF-AA Insert]



## GFVS-AA



## GFVT-AA



### Toolholder Dimensions

Description	Std.	Dimension (mm)										Face Grooving Dia. $\phi D$		Spare Parts		Applicable Inserts G89
		R	L	H1	h	H3	B	L1	L2	F	T	MIN.	MAX.	 Clamp Set	 Wrench	
GFVS <sup>R/L</sup>	2020K-08AA	●	●	20	20	5.5	20	125	18	25	2.2	8	$\infty$	CPS-5V	FT-15	GVF <sup>R</sup> 100-005AA ? GVF <sup>R</sup> 300-005AA
	2525M-08AA	●	●	25	25		25	150		32		0	$\infty$			
GFVT <sup>R/L</sup>	2020K-08AA	●	●	20	20	5.5	20	125	14	25	2.2	8	$\infty$	CPS-5V	FT-15	GVF <sup>R</sup> 100-005AA ? GVF <sup>R</sup> 300-005AA
	2525M-08AA	●	●	25	25		25	150		32		0	$\infty$			

Note 1. Dimension T shows available grooving depth.

2. The value ( ) of Face Grooving Dia. ( $\phi D$  MAX.) is the maximum outer diameter value after the initial groove between MIN.-MAX. (It is possible to widen the groove to infinity  $\infty$ ).

The value ( ) of Face Grooving Dia. ( $\phi D$  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 MIN.-MAX.

G

Grooving

External

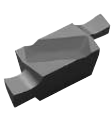
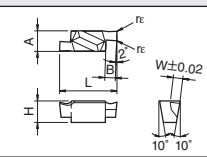
Internal

Face



# Grooving Inserts

## Applicable Inserts

Description	(mm)			P	M	K	N	S	H	Classification of usage		
	A	L	H									
<b>GVF<sup>R/L</sup> 100-...AA</b>	4.3	12	4.5	●	○			●		●: Continuous-Light Interruption / 1st Choice ○: Continuous-Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice		
<b>200-...AA</b>												
<b>300-...AA</b>												
Insert	Description	Dimension (mm)			MEGACOAT		PVD Coated Carbide		Carbide		Applicable Toolholders	Ref. to Page for Applicable Toolholders
		W	B	r <sub>ε</sub>	PR1225		PR930		KW10			
Handed Insert shows Right-hand												
 	<b>GVF<sup>R/L</sup> 100-005AA</b>	1.00	2.2	0.05	●	●	●	●	●	●	GFVS <sup>L/R</sup> ...08AA GFVT <sup>L/R</sup> ...08AA	G88
	<b>200-005AA</b>	2.00			●	●	●	●	●	●		
	<b>300-005AA</b>	3.00			●	●	●	●	●	●		

• Dimension B shows available grooving depth.

• GVF<sup>R/L</sup>...005AA inserts are not compatible with GVF<sup>R/L</sup>...○○○A (Ref. to Page G95) inserts because their Side Relief Angle is 10°.

### Face Grooving Diameter of GFVS-AA (also GFVT-AA)

Description	Face Grooving Dia. φD		Applicable Inserts
	MIN.	MAX.	
<b>GFVS<sup>R/L</sup> 2020K-08AA</b> <b>2525M-08AA</b>	8	∞	GVF <sup>L/R</sup> 100-005AA
<b>GFVT<sup>R/L</sup> 2020K-08AA</b> <b>2525M-08AA</b>	(0)	(∞)	GVF <sup>L/R</sup> 300-005AA

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

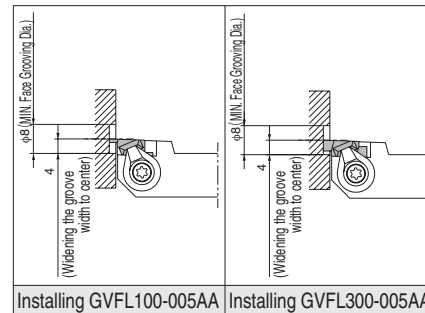
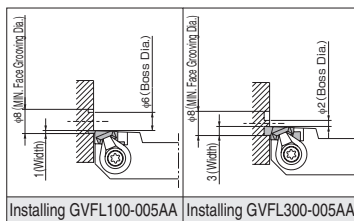
• When machining towards the outer diameter then there is no MAX. limit to the further groove machining.

• When machining the initial groove on the face at MIN. (φ8)

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

• When widening the groove width to inner diameter.

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



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

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)			Grooving	Turning*		Remarks
	MEGACOAT	PVD Coated Carbide	Carbide		f (mm/rev)	ap (mm)	
	PR1225	PR930	KW10				
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(r<sub>ε</sub>) when turning of edge width 1.0 mm (GVF<sup>R/L</sup>100-005AA).

★ :1st Recommendation ☆ :2nd Recommendation

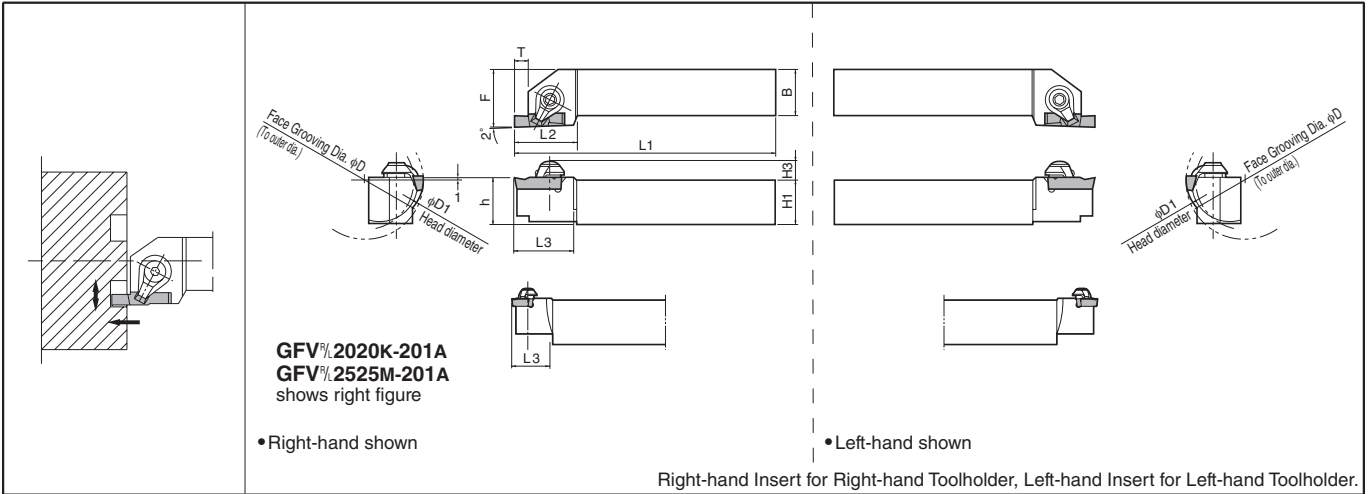
● : Std. Item

Inserts are sold in 10 piece boxes.



# Face Grooving Toolholders [GVF Insert]

## GFV



### Toolholder Dimensions

Description	Std.	Dimension (mm)											Face Grooving Dia. $\phi D$		Spare Parts		Applicable Inserts ➔ G95		
		R	L	H1	h	H3	B	L1	L2	L3	F	T	$\phi D1$	MIN.	MAX.	Clamp Set		Wrench	
GFV <sup>R/L</sup> 2020K-201A 2525M-201A	●●		20	21	6.5	20	125	20	19	25	2.2	40	20	$\infty$	CPS-5V	-	FT-15	GFV <sup>R/L</sup> 200~340-020A GFV <sup>R/L</sup> 200~...~300~...AR	
GFV <sup>R/L</sup> 2020K-351B 2525M-351B	●●		20	21		20	125	28	26	25	4.6		35	35	50				GFV <sup>R/L</sup> 250~350-020B GFV <sup>R/L</sup> 300-150BR
2020K-352B 2525M-352B	●●		20	21		20	125	28	26	25	5.1			(25)	( $\infty$ )				GFV <sup>R/L</sup> 400~490-020B GFV <sup>R/L</sup> 400-200BR
2020K-501B 2525M-501B	●●		20	21		20	125	28	26	25	4.6		50	50	70		CPS-6V	LW-3	GFV <sup>R/L</sup> 250~350-020B GFV <sup>R/L</sup> 300-150BR
2020K-502B 2525M-502B	●●		20	21	8.0	20	125	28	26	25	5.1		(25)	( $\infty$ )					GFV <sup>R/L</sup> 400~490-020B GFV <sup>R/L</sup> 400-200BR
2020K-701B 2525M-701B	●●		20	21		20	125	28	26	25	4.6		70	70	100				GFV <sup>R/L</sup> 250~350-020B GFV <sup>R/L</sup> 300-150BR
2020K-702B 2525M-702B	●●		20	21		20	125	28	26	25	5.1		(25)	( $\infty$ )					GFV <sup>R/L</sup> 400~490-020B GFV <sup>R/L</sup> 400-200BR
GFV <sup>R/L</sup> 2525M-501C 2525M-502C	●●										6.6	50	50	70					GFV <sup>R/L</sup> 350~450-040C GFV <sup>R/L</sup> 500~600-040C
2525M-701C 2525M-702C	●●								33		6.6	70	70	100					GFV <sup>R/L</sup> 350~450-040C GFV <sup>R/L</sup> 500~600-040C
2525M-1001C 2525M-1002C	●●		25	26	9.5	25	150	35		32	6.6	100	100	150					GFV <sup>R/L</sup> 350~450-040C GFV <sup>R/L</sup> 500~600-040C
2525M-1501C 2525M-1502C	●●								35		6.6	150	150	250					GFV <sup>R/L</sup> 350~450-040C GFV <sup>R/L</sup> 500~600-040C

Note 1. Dimension T shows available grooving depth.

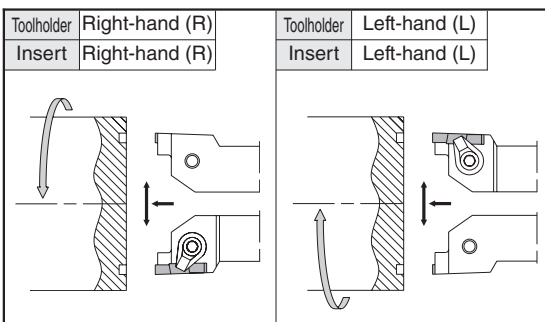
2.  $\phi D1$  shows toolholder head diameter to L3.

3. The value ( ) of Face Grooving Dia. ( $\phi D$  MAX.) is the maximum outer diameter value after the initial groove between MIN.-MAX. (It is possible to widen the groove to infinity  $\infty$ ).

The value ( ) of Face Grooving Dia. ( $\phi D$  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 MIN.-MAX.

4. 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



● : Std. Item

◆ Face Grooving Diameter of GFV

(1) e.g.) GFV<sup>R/L</sup>....-201A

Description	Face Grooving Dia. $\phi D$		Applicable Inserts
	MIN.	MAX.	
GFV <sup>R/L</sup> 2020K-201A 2525M-201A	20	$\infty$	GFV <sup>R/L</sup> .200~340-020A GFV <sup>R/L</sup> .200....~300....AR
	(12)	( $\infty$ )	

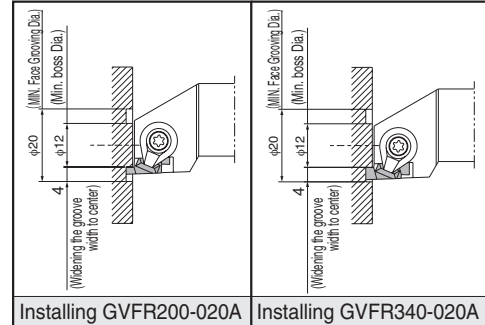
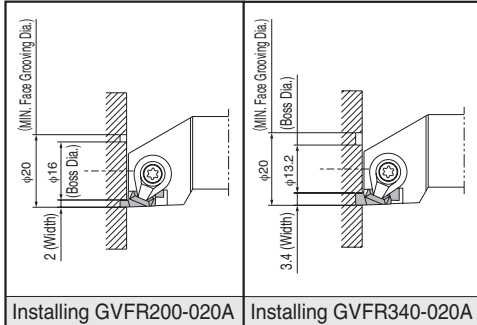
• It is available to infinity  $\infty$  in case of machining the first groove bigger than MIN.

• 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 MIN.  $\phi 20$  • When widening the groove width to inner diameter.

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

Face groove diameter  $\phi D$  MIN. (12) is the limit; the toolholder interferes with the workpiece in case of smaller than  $\phi 12$ .  
The toolholder interferes with the workpiece when closer to the center.



(2) e.g.) GFV<sup>R/L</sup>....-351B/352B (same as GFV<sup>R/L</sup>....-○○○B or GFV<sup>R/L</sup>....-○○○C)

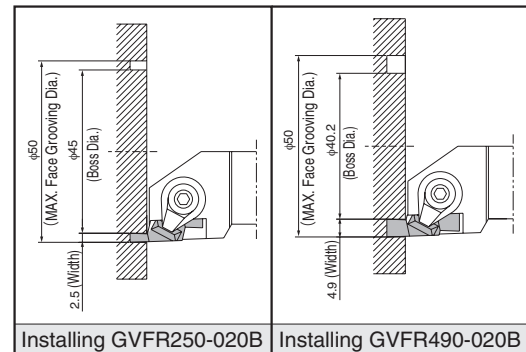
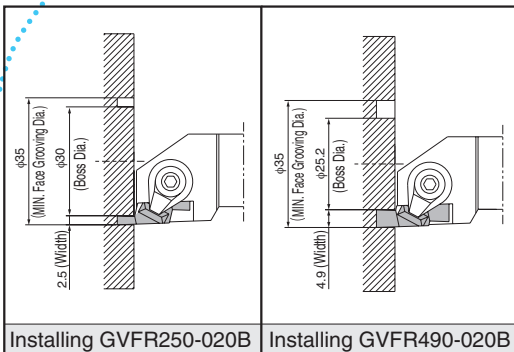
Description	Face Grooving Dia. $\phi D$		Applicable Inserts
	MIN.	MAX.	
GFV <sup>R/L</sup> 2020K-351B 2525M-351B 2020K-352B 2525M-352B	35	50	GFV <sup>R/L</sup> .250~350-020B GFV <sup>R/L</sup> .300-150BR GFV <sup>R/L</sup> .400~490-020B GFV <sup>R/L</sup> .400-200BR
	(25)	( $\infty$ )	

• It is possible to widen the groove to infinity  $\infty$  when machining the initial groove within MIN.-MAX. and then widening to outer diameter.

• When machining the initial groove on the face at MIN.  $\phi 35$  • When machining the initial groove on the face at MAX.  $\phi 50$ .

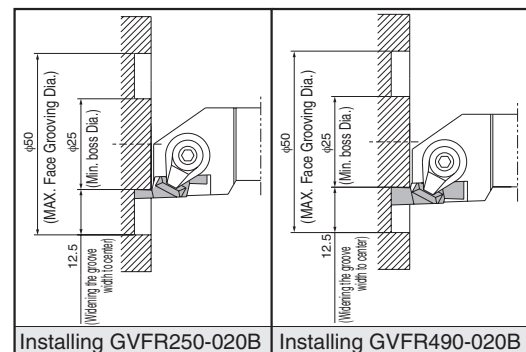
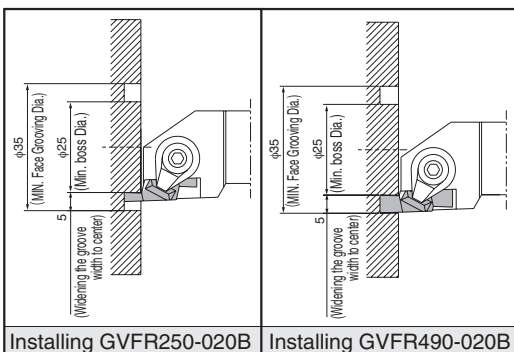
If the initial groove is made smaller than this, the toolholder interferes with the workpiece.  
Boss Dia. depends on insert width.

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



• When widening the groove width to inner diameter.

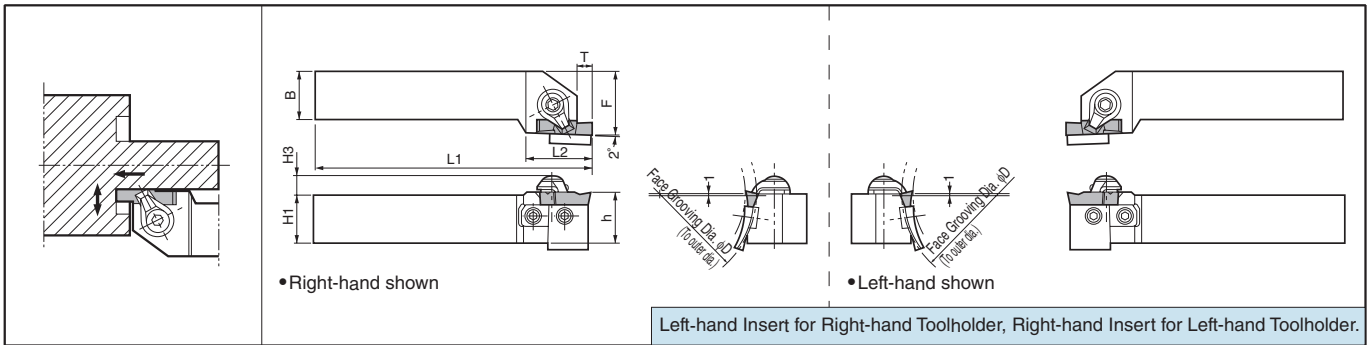
Face Grooving Dia.  $\phi D$  MIN. ( $\phi 25$  Boss Dia.) is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at  $\phi D$  MIN. ( $\phi 35$ ) or  $\phi D$  MAX. ( $\phi 50$ ).  
The toolholder interferes with the workpiece when closer to the center.



# Face Grooving Toolholders [GVF Insert]

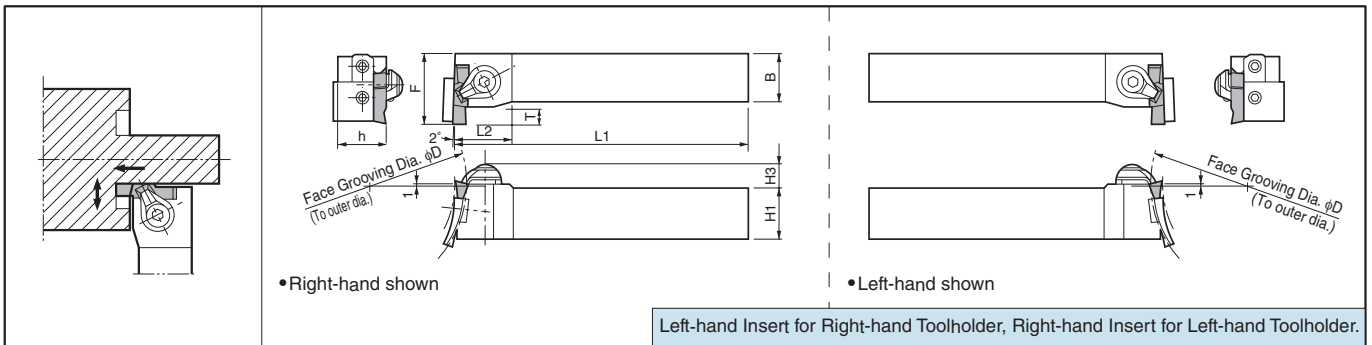
## GFVS

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



## GFVT

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



### Selection of Toolholder & Insert



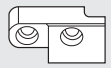





GFVS				GFVT			
Toolholder	Right-hand (R)	Toolholder	Left-hand (L)	Toolholder	Right-hand (R)	Toolholder	Left-hand (L)
Insert	Left-hand (L)	Insert	Right-hand (R)	Insert	Left-hand (L)	Insert	Right-hand (R)

### Combination of Base-Holder & Blade

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

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

● Toolholder Dimensions

Description	Std.		Dimension (mm)									Face Grooving Dia.		Spare Parts				Applicable Inserts ➔ G95				
	R	L	H1	h	H3	B	L1	L2	F	T	MIN.	MAX.	Clamp Set	Wrench	Blade	Bolt						
																						
GFVS <sup>®</sup> / <sub>L</sub> 2020K-351B 2525M-351B 2020K-352B 2525M-352B 2020K-501B 2525M-501B 2020K-502B 2525M-502B 2020K-701B 2525M-701B 2020K-702B 2525M-702B	●●	●●	20	21	8.0	20	125	30	25	5.1	35	50		LW-3	SF <sup>®</sup> / <sub>L</sub> -351B	HH4X12	GVF%250-350-020B					
	●●	●●	25	26		25	150	32	32	(4.6)					(25)		(∞)	SF <sup>®</sup> / <sub>L</sub> -352B	GVF%300-150BR			
	●●	●●	20	21		20	125	30	25	5.1	50	70			SF <sup>®</sup> / <sub>L</sub> -501B		GVF%400-490-020B					
	●●	●●	25	26		25	150	32	32	(5.1)					(25)		(∞)	SF <sup>®</sup> / <sub>L</sub> -502B	GVF%400-200BR			
	●●	●●	20	21		20	125	30	25	5.1	70	100			SF <sup>®</sup> / <sub>L</sub> -701B		GVF%250-350-020B					
	●●	●●	25	26		25	150	32	32	(4.6)					(25)		(∞)	SF <sup>®</sup> / <sub>L</sub> -702B	GVF%300-150BR			
	●●	●●	20	21		20	125	30	25	5.1	70	100			SF <sup>®</sup> / <sub>L</sub> -701B		GVF%400-490-020B					
	●●	●●	25	26		25	150	32	32	(5.1)					(25)		(∞)	SF <sup>®</sup> / <sub>L</sub> -702B	GVF%400-200BR			
	GFVS <sup>®</sup> / <sub>L</sub> 2525M-501C 2525M-502C 2525M-701C 2525M-702C 2525M-1001C 2525M-1002C 2525M-1501C 2525M-1502C	●●	●●	25		26	9.5	25	150	32	32	8.1(6.6)			50		70		LW-4	SF <sup>®</sup> / <sub>L</sub> -501C	HH4X12	GVF%350-450-040C
		●●	●●									8.1(8.1)			(25)		(∞)			SF <sup>®</sup> / <sub>L</sub> -502C		GVF%500-600-040C
●●		●●	8.1(6.6)		70							100	SF <sup>®</sup> / <sub>L</sub> -701C	GVF%350-450-040C								
●●		●●	8.1(8.1)		(25)							(∞)	SF <sup>®</sup> / <sub>L</sub> -702C	GVF%500-600-040C								
●●		●●	8.1(6.6)		100							150	SF <sup>®</sup> / <sub>L</sub> -1001C	GVF%350-450-040C								
●●		●●	8.1(8.1)		(25)							(∞)	SF <sup>®</sup> / <sub>L</sub> -1002C	GVF%500-600-040C								
●●		●●	8.1(6.6)		150							250	SF <sup>®</sup> / <sub>L</sub> -1501C	GVF%350-450-040C								
●●		●●	8.1(8.1)		(25)							(∞)	SF <sup>®</sup> / <sub>L</sub> -1502C	GVF%500-600-040C								
GFVT <sup>®</sup> / <sub>L</sub> 2020K-351B 2525M-351B 2020K-352B 2525M-352B 2020K-501B 2525M-501B 2020K-502B 2525M-502B 2020K-701B 2525M-701B 2020K-702B 2525M-702B	●●	●●	20	21	8.0	20	125	22	30	5.1	35	50		LW-3	SF <sup>®</sup> / <sub>L</sub> -351B	HH4X12	GVF%250-350-020B					
	●●	●●	25	26		25	150	25	35	(4.6)					(25)		(∞)	SF <sup>®</sup> / <sub>L</sub> -352B	GVF%300-150BR			
	●●	●●	20	21		20	125	22	30	5.1	50	70			SF <sup>®</sup> / <sub>L</sub> -501B		GVF%400-490-020B					
	●●	●●	25	26		25	150	25	35	(5.1)					(25)		(∞)	SF <sup>®</sup> / <sub>L</sub> -502B	GVF%400-200BR			
	●●	●●	20	21		20	125	22	30	5.1	70	100			SF <sup>®</sup> / <sub>L</sub> -701B		GVF%250-350-020B					
	●●	●●	25	26		25	150	25	35	(4.6)					(25)		(∞)	SF <sup>®</sup> / <sub>L</sub> -702B	GVF%300-150BR			
	●●	●●	20	21		20	125	22	30	5.1	70	100			SF <sup>®</sup> / <sub>L</sub> -701B		GVF%400-490-020B					
	●●	●●	25	26		25	150	25	35	(5.1)					(25)		(∞)	SF <sup>®</sup> / <sub>L</sub> -702B	GVF%400-200BR			
	GFVT <sup>®</sup> / <sub>L</sub> 2525M-501C 2525M-502C 2525M-701C 2525M-702C 2525M-1001C 2525M-1002C 2525M-1501C 2525M-1502C	●●	●●	25		26	9.5	25	150	27	38	8.1(6.6)			50		70		LW-4	SF <sup>®</sup> / <sub>L</sub> -501C	HH4X12	GVF%350-450-040C
		●●	●●									8.1(8.1)			(25)		(∞)			SF <sup>®</sup> / <sub>L</sub> -502C		GVF%500-600-040C
●●		●●	8.1(6.6)		70							100	SF <sup>®</sup> / <sub>L</sub> -701C	GVF%350-450-040C								
●●		●●	8.1(8.1)		(25)							(∞)	SF <sup>®</sup> / <sub>L</sub> -702C	GVF%500-600-040C								
●●		●●	8.1(6.6)		100							150	SF <sup>®</sup> / <sub>L</sub> -1001C	GVF%350-450-040C								
●●		●●	8.1(8.1)		(25)							(∞)	SF <sup>®</sup> / <sub>L</sub> -1002C	GVF%500-600-040C								
●●		●●	8.1(6.6)		150							250	SF <sup>®</sup> / <sub>L</sub> -1501C	GVF%350-450-040C								
●●		●●	8.1(8.1)		(25)							(∞)	SF <sup>®</sup> / <sub>L</sub> -1502C	GVF%500-600-040C								

- Note 1. [ Dimension T shows the distance from the toolholder to the cutting edge. The grooving depth is the mentioned in ( ). ]
2. The value ( ) of Face Grooving Dia. (φD MAX.) is the maximum outer diameter value after the initial groove between MIN.-MAX. (It is possible to widen the groove to infinity ∞).  
The value ( ) of Face Grooving Dia. (φD 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 MIN.-MAX.
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



# Face Grooving Toolholders

## Blade Dimensions

Shape	Description	Std.		Dimension (mm)				Face Grooving Dia. $\phi D$		Applicable Inserts	Applicable Toolholders		
		R	L	L	H	T	W	MIN.	MAX.				
<p>Stamped side</p> <p>Top shape of 501C, 701C, 1001C, 1501C</p>	<b>SF<sup>R/L</sup> -351B</b>	●	●	30.5	11	4.7	2.0	35	50	GVF <sup>1/2</sup> <sub>R</sub> 250~350-020B GVF <sup>1/2</sup> <sub>R</sub> 300-150BR GVF <sup>1/2</sup> <sub>R</sub> 400~490-020B GVF <sup>1/2</sup> <sub>R</sub> 400-200BR	<b>GFV(S/T)<sup>1/2</sup><sub>L</sub>○○○○□</b> -○○○ <b>B</b> (Toolholder Stamp GFV(S/T) <sup>1/2</sup> <sub>L</sub> ○○○○□-HB)		
	<b>-352B</b>	●	●										
	<b>SF<sup>R/L</sup> -501B</b>	●	●	15	2.0	50	70	GVF <sup>1/2</sup> <sub>R</sub> 250~350-020B GVF <sup>1/2</sup> <sub>R</sub> 300-150BR GVF <sup>1/2</sup> <sub>R</sub> 400~490-020B GVF <sup>1/2</sup> <sub>R</sub> 400-200BR	<b>GFV(S/T)<sup>1/2</sup><sub>L</sub>○○○○□</b> -○○○ <b>C</b> (Toolholder Stamp GFV(S/T) <sup>1/2</sup> <sub>L</sub> ○○○○□-HC)				
	<b>-502B</b>	●	●										
	<b>SF<sup>R/L</sup> -701B</b>	●	●	17	2.0	70	100			GVF <sup>1/2</sup> <sub>R</sub> 250~350-020B GVF <sup>1/2</sup> <sub>R</sub> 300-150BR GVF <sup>1/2</sup> <sub>R</sub> 400~490-020B GVF <sup>1/2</sup> <sub>R</sub> 400-200BR	<b>GFV(S/T)<sup>1/2</sup><sub>L</sub>○○○○□</b> -○○○ <b>C</b> (Toolholder Stamp GFV(S/T) <sup>1/2</sup> <sub>L</sub> ○○○○□-HC)		
	<b>-702B</b>	●	●										
	<b>SF<sup>R/L</sup> -501C</b>	●	●	35	15	7.5	2.8	50	70			GVF <sup>1/2</sup> <sub>R</sub> 350~450-040C GVF <sup>1/2</sup> <sub>R</sub> 500~600-040C	<b>GFV(S/T)<sup>1/2</sup><sub>L</sub>○○○○□</b> -○○○ <b>C</b> (Toolholder Stamp GFV(S/T) <sup>1/2</sup> <sub>L</sub> ○○○○□-HC)
	<b>-502C</b>	●	●										
	<b>SF<sup>R/L</sup> -701C</b>	●	●	20	2.8	70	100	2.8	100	150			
	<b>-702C</b>	●	●										
	<b>SF<sup>R/L</sup> -1001C</b>	●	●	23	2.8	100	150	2.8	150	250			
	<b>-1002C</b>	●	●										
	<b>SF<sup>R/L</sup> -1501C</b>	●	●	23	2.8	150	250	2.8	150	250			
	<b>-1502C</b>	●	●										

• Right-hand shown

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

## Face Grooving Diameter of GFVS / GFVT

e.g.) GFVS<sup>R/L</sup>....-351B / 352B

(same as GFVS<sup>R/L</sup>...-○○○B, ...-○○○C **G93**)

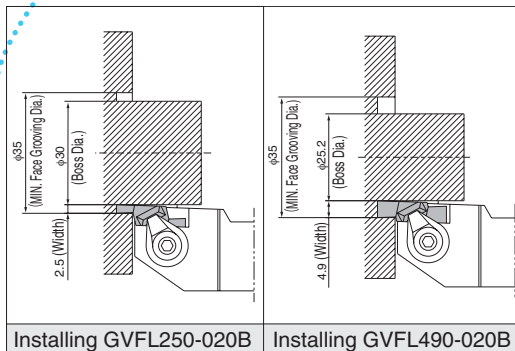
GFVT<sup>R/L</sup>...-○○○B, ...-○○○C **G93**)

Description	Face Grooving Dia. $\phi D$		Applicable Inserts
	MIN.	MAX.	
<b>GFVS<sup>R/L</sup> 2020K-351B</b>	35 (25)	50 ( $\infty$ )	GVF <sup>1/2</sup> <sub>R</sub> 250~350-020B
<b>2525M-351B</b>			GVF <sup>1/2</sup> <sub>R</sub> 300-150BR
<b>2020K-352B</b>			GVF <sup>1/2</sup> <sub>R</sub> 400~490-020B
<b>2525M-352B</b>			GVF <sup>1/2</sup> <sub>R</sub> 400-200BR

• It is possible to widen the groove to infinity  $\infty$  when machining the initial groove within MIN.-MAX. and then widening to outer diameter.

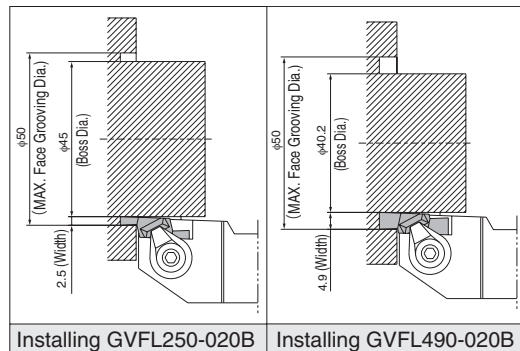
• When machining the initial groove on the face at MIN.  $\phi 35$

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



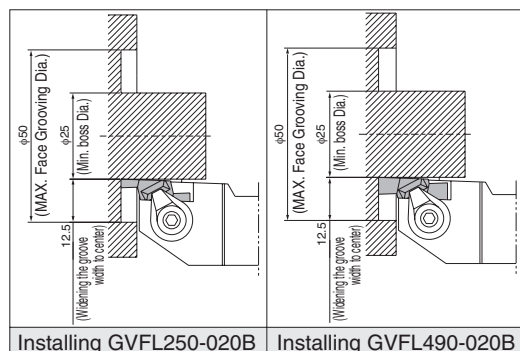
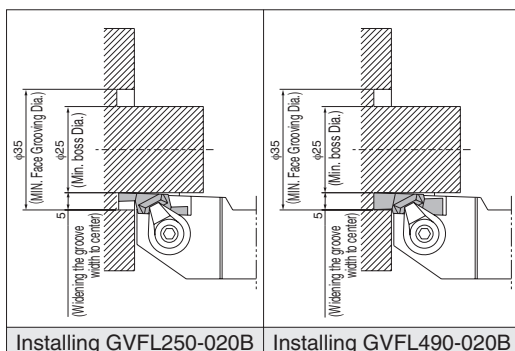
• When machining the initial groove on the face at MAX.  $\phi 50$ .

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



• When widening the groove width to inner diameter.

Face Grooving Dia.  $\phi D$  MIN. ( $\phi 25$  Boss Dia.) is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at  $\phi D$  MIN. ( $\phi 35$ ) or  $\phi D$  MAX. ( $\phi 50$ ). The toolholder interferes with the workpiece when closer to the center.

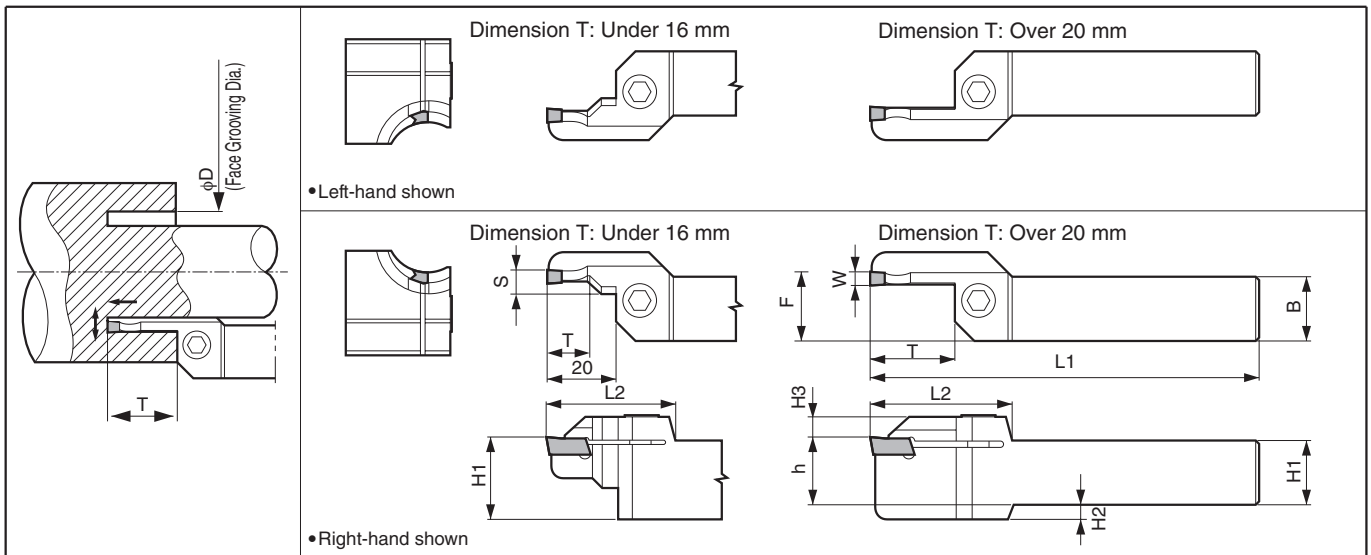


● : Std. Item



# Face Grooving Toolholders

## KFMS (Will be switched to KGDF ● G74~G80)



### ● Toolholder Dimensions

Description	Std.		Dimension (mm)										Edge Width (mm)	Face Grooving Dia. φD		Spare Parts				
	R	L	H1-h	H2	H3	B	L1	L2	F	S	T	W		MIN.	MAX.	Clamp Bolt	Wrench			
<b>KFMS<sup>R/L</sup></b>																				
2020K2530-3	●							39		6.1	13	3	25	30	HH5X20	LW-4				
2020K3040-3	●												30	40						
2020K4050-3	●												40	50						
2020K5065-3	●		20	-	10	20	125	41	20.7		22		50	65						
2020K6585-3	●												65	85						
2020K85110-3	●			5				44		-	25		85	110						
2020K110145-3	●												110	145						
2525M2530-3	●	●						39		6.1	13		25	30	HH5X25	LW-4				
2525M3040-3	●	●											30	40						
2525M4050-3	●	●											40	50						
2525M5065-3	●	●	25	-	10	25	150	41	25.7		22		50	65						
2525M6585-3	●	●											65	85						
2525M85110-3	●	●						44		-	25		85	110						
2525M110145-3	●	●										110	145							
<b>KFMS<sup>R/L</sup></b>																				
2020K2535-4	●							39		7.1	12	4	25	35	HH5X20	LW-4				
2020K3550-4	●										20		35	50						
2020K5070-4	●												50	70						
2020K70100-4	●		20	-	10	20	125		20.7		25		70	100						
2020K100150-4	●							44					100	150						
2020K150220-4	●			5									150	220						
2020K220800-4	●												220	∞						
2525M2535-4	●	●						39		7.1	12		25	35	HH5X25	LW-4				
2525M3550-4	●	●									20		35	50						
2525M5070-4	●	●											50	70						
2525M70100-4	●	●	25	-	10	25	150		25.7		25		70	100						
2525M100150-4	●	●						44					100	150						
2525M150220-4	●	●											150	220						
2525M220800-4	●	●										220	∞							

● : Std. Item



## ● Toolholder Dimensions

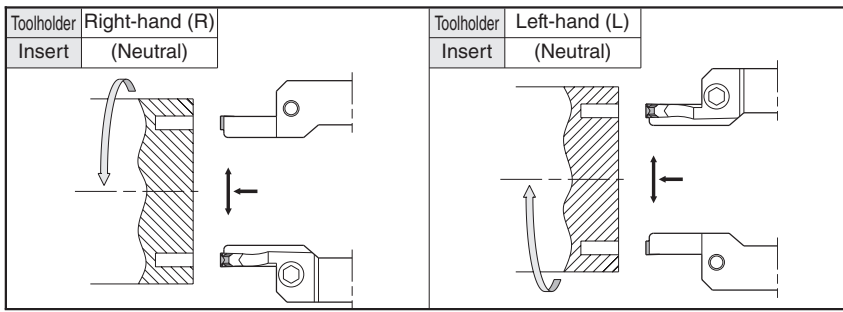
Description	Std.		Dimension (mm)										Edge Width (mm)	Face Grooving Dia. $\phi$ D		Spare Parts		
	R	L	H1-h	H2	H3	B	L1	L2	F	S	T	W	MIN.	MAX.	Clamp Bolt	Wrench		
<b>KFMS<sup>R/L</sup></b> 2020K2535-5 2020K3550-5 2020K5075-5 2020K75115-5 2020K115180-5 2020K180235-5 2020K235800-5	●			-	10			39			20	5 (6)	25	35	HH5X20	LW-4		
	●												35	50				
	●												50	75				
	●		20			20	125		20.7 (21.2)				75	115				
	●			5	10								115	180				
	●												180	235				
2525M2535-5 2525M3550-5 2525M5075-5 2525M75115-5 2525M115180-5 2525M180235-5 2525M235800-5	●●							39			20	5 (6)	25	35	HH5X25	LW-4		
	●●												35	50				
	●●												50	75				
	●●		25			25	150		25.7 (26.2)				75	115				
	●●												115	180				
	●●												180	235				
								51			32							
													235	$\infty$				

Dimension T shows available grooving depth.

Face Grooving Dia.  $\phi$ D: The diameter range of the initial groove.

For KFMS<sup>R/L</sup>...-5 toolholder can hold a 6mm width insert. ( ) value shows the dimension of a 6mm width insert.

## ◆ Selection of Toolholder & Insert



## ■ Applicable Inserts (mm)

Description	L	H
<b>FMM30-03</b>   <b>FMM60-04</b>	12	3.5
<b>FMN3</b>   <b>FMN6</b>	12	3.5

	P	M	K	N	S	H	Classification of usage												
	Carbon steel / Alloy steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Titanium Alloys	Hard materials (~40HRC) Hard materials (40HRC~)													
							●	●	●	●	●	○	○	○	○	○	○	○	○
							●	●	●	●	●	○	○	○	○	○	○	○	○
							●	●	●	●	●	○	○	○	○	○	○	○	○
							●	●	●	●	●	○	○	○	○	○	○	○	○

Insert	Description	Dimension (mm)			Cermets TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	PVD Coated Carbide PR905	Carbide KW10	Applicable Toolholders
		W	$r\epsilon$	M							
<p>Face Grooving Chip Control Oriented / M Class</p>	<b>FMM 30-03</b>	3.0	0.3	2.0	●	●	●	●	●	●	<b>KFMS<sup>R/L</sup>...3</b>
	<b>40-04</b>	4.0	0.4	2.6	●	●	●	●	●	●	<b>KFMS<sup>R/L</sup>...4</b>
	<b>50-04</b>	5.0		3.4	●	●	●	●	●	●	<b>KFMS<sup>R/L</sup>...5</b>
	<b>60-04</b>	6.0		4.0	●	●	●	●	●	●	<b>KFMS<sup>R/L</sup>...5</b>
<p>Face Grooving Sharp-Cutting Oriented / M Class</p>	<b>FMN 3</b>	3.0		0.25	2.0	●	●	●	●	●	●
	<b>4</b>	4.0	2.6		●	●	●	●	●	●	<b>KFMS<sup>R/L</sup>...4</b>
	<b>5</b>	5.0	3.4		●	●	●	●	●	●	<b>KFMS<sup>R/L</sup>...5</b>
	<b>6</b>	6.0	4.0		●	●	●	●	●	●	<b>KFMS<sup>R/L</sup>...5</b>

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

Recommended Cutting Conditions ● G103

## ◆ 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.

Description	$\phi$ D				Remaining Boss Dia. $\phi$ d
	25	26	27	28 and over	
<b>KFMS<sup>R/L</sup> 2020K2530-3</b>	4	2	0	0	(No remaining Boss)
<b>KFMS<sup>R/L</sup> 2525M2530-3</b>	4	2	0	0	
<b>KFMS<sup>R/L</sup> 2020K2535-4</b>	6	3	0	0	
<b>KFMS<sup>R/L</sup> 2525M2535-4</b>	6	3	0	0	
<b>KFMS<sup>R/L</sup> 2020K2535-5</b>	7	4	1	1	
<b>KFMS<sup>R/L</sup> 2525M2535-5</b>	*(5)	*(2)	*(0)	*(0)	

e.g.)

KFMSR 2525M2530-3 with  $\phi$ 25 as first cut towards the center, it will cause a rubbing with the toolholder cartridge if  $\phi$ d is 4.0mm.

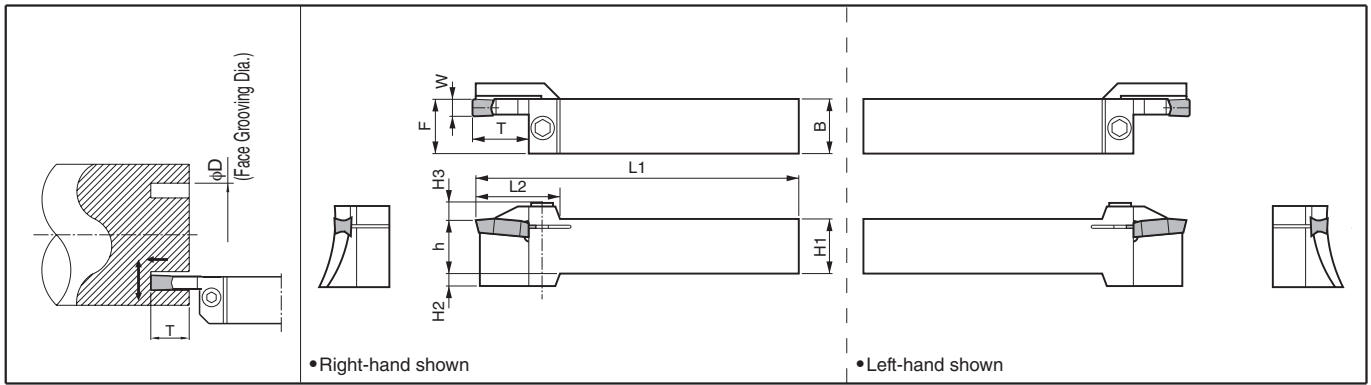
\*( ) value shows the Dimension using FMM60-04 Insert.

● : Std. Item

Inserts are sold in 10 piece boxes.

# Face Grooving Toolholders

## KFMS-8



• Right-hand shown

• Left-hand shown

### Toolholder Dimensions

Description	Std.		Dimension (mm)									Edge Width (mm)	Face Grooving Dia. φD		Spare Parts		
	R	L	H1-h	H2	H3	B	L1	L2	F	T	W		MIN.	MAX.	Clamp Bolt	Wrench	
<b>KFMS<sup>R/L</sup> 2525M5464-8</b>	●	●		-				41					54 (0)	64 (∞)	HH6X25	LW-5	
<b>2525M6382-8</b>	●	●	25	2.4	9	25	150	41	26	25	8	63 (0)	82 (∞)				
<b>2525M80115-8</b>	●	●		6	8			40			8	80 (0)	115 (∞)				
<b>2525M105160-8</b>	●	●		6	8			40			8	105 (0)	160 (∞)				
<b>2525M155510-8</b>	●	●	25	6	8	25	150	43	26	25	8	155 (0)	510 (∞)				
<b>3232P155510-8</b>	●		32	-		32	170	43	33		8	155 (0)	510 (∞)				


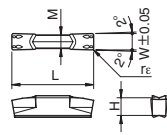
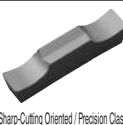
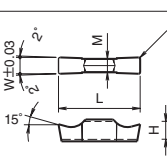

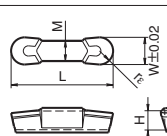
• Dimension T shows available grooving depth.

• The value ( ) of Face Grooving Dia. (φD MAX.) is the maximum outer diameter value after the initial groove between MIN.-MAX. (It is possible to widen the groove to infinity ∞).  
The value ( ) of Face Grooving Dia. (φD 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 MIN.-MAX..

### Applicable Inserts

Description	L (mm)	H (mm)
<b>GMM 8030-080MW</b>	30	5.5
<b>GMG 8030-050MG</b>	30	5.5
<b>GMGA 8030-400R</b>	30	5.5

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

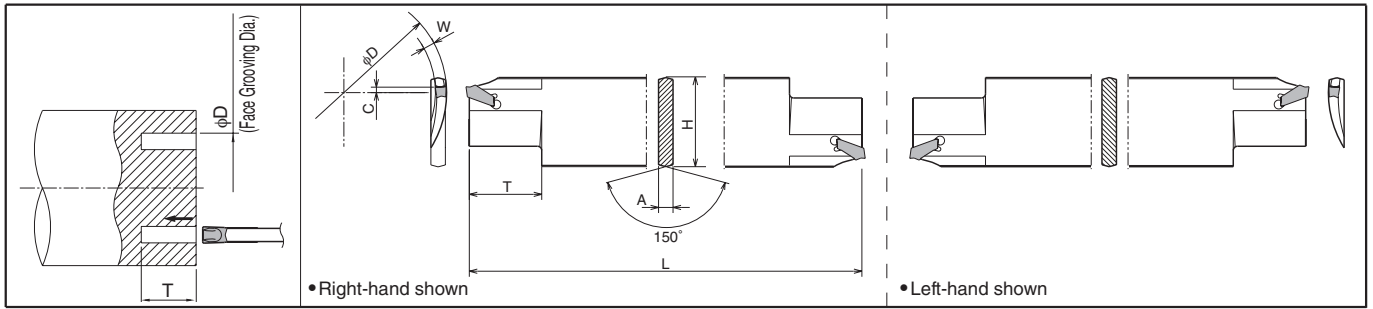
Insert	Description	Dimension (mm)			Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Applicable Toolholders
		W	rε	M			TN90	CR9025	PR915		
 Chip Control Oriented / M Class		8.0	0.8	6.0		●	●	●	●	●	KFMS <sup>R/L</sup> ...8
 Sharp-Cutting Oriented / Precision Class Ground Chippresetter		8.0	0.5	6.0	●	●		●	●	●	
 Sharp-Cutting Oriented / Precision Class Full-R / Copying		8.0	4.0	6.0						●	

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

Recommended Cutting Conditions **G105**

# Face Grooving Blade

## KFTB-S



### Blade Dimensions

Description	Std.		Dimension (mm)							Edge Width	Face Grooving Dia. ϕD		Spare Parts Releasing Wrench	Applicable Inserts	Applicable Blocks H27
	R	L	*H	L	A	T	C	W	MIN.		MAX.				
KFTB <sup>R/L</sup> 65100-4S 90150-4S 150250-4S 250800-4S	●	●	32	150	5.2	25	4		4.0	65	100	LTK-5	FTK4	KTKTB20-32 25-32 32-32	
	●	●				30	0			90	150				
	●	●				3.2	230			∞					
	●	●				30	0			140	250				
KFTB <sup>R/L</sup> 90150-5S 150250-5S 250800-5S	●	●	32	150	5.2	30	0		5.0	90	150		FTK5	KTKTBF25-32 32-32	
	●	●				32	0			150	250				
	●	●				4.0	38			250	∞				
	●	●				30	0			150	250				

- Dimension T shows available grooving depth.

- Face Grooving Dia. ϕD: 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).

- KFTB<sup>R/L</sup>65100-4S toolholder is designed with the edge position 4mm above the Center.

\*Dimension H shows virtual apex distance.

### Applicable Inserts

P	M	K	N	S	H	Classification of usage	
Carbon steel / Alloy steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Titanium Alloys	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)		Cermet TN90	PVD Coated Carbide CR9025	PVD Coated Carbide PR660	Carbide PR930	Carbide KW10	Applicable Toolholders
		W	rε						
	FTK 4	4.0	0.25	●	●	○	●	●	KFTB <sup>R/L</sup> 65100-4S 90150-4S 150250-4S 250800-4S
	FTK 5	5.0	0.25	●	●	○	●	●	KFTB <sup>R/L</sup> 90150-5S 150250-5S 250800-5S

Recommended Cutting Conditions G104

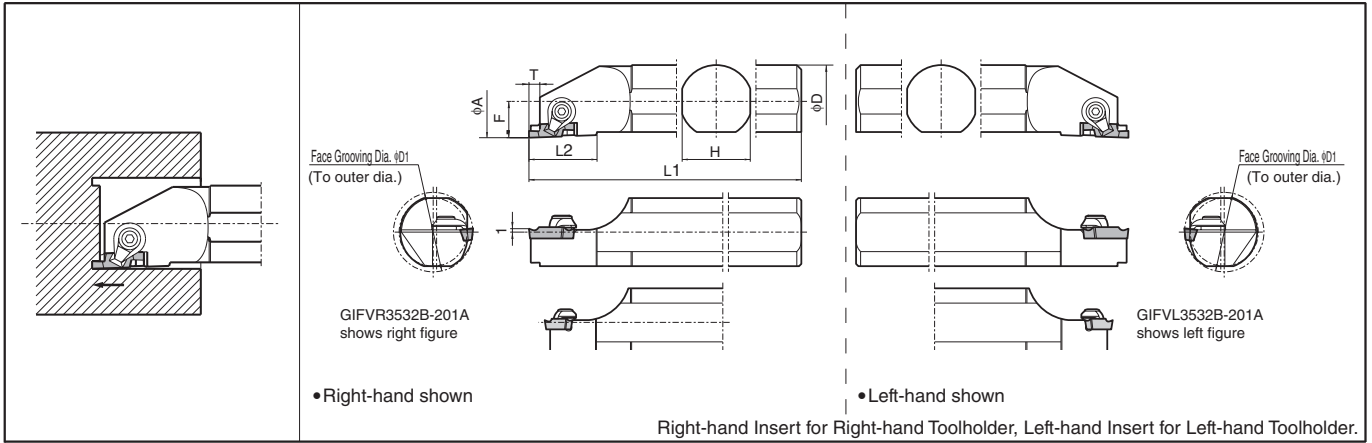
### Selection of Blade and Insert

Combination of Blade + KTKTB				Combination of Blade + KTKTBF			
Blade	Right-hand (R)	Blade	Left-hand (L)	Blade	Right-hand (R)	Blade	Left-hand (L)
Insert	Neutral	Insert	Neutral	Insert	Neutral	Insert	Neutral
<p>(Normal mounting)</p>		<p>(Normal mounting)</p>		<p>(Normal mounting)</p>		<p>(Normal mounting)</p>	
<p>(Reverse mounting)</p>		<p>(Reverse mounting)</p>		<p>(Reverse mounting)</p>		<p>(Reverse mounting)</p>	

●: Std. Item  
○: Check Availability



### GIFV



### Toolholder Dimensions

Description	Std.		Dimension (mm)								Face Grooving Dia. $\phi D1$		Spare Parts				Applicable Inserts ➔ G95
	R	L	$\phi A$	$\phi D$	H	L1	L2	F	T	MIN.	MAX.	Clamp Set		Wrench			
GIFV <sup>R/L</sup> 3532B-201A	●	●	35				23		2.2	35 (12)	$\infty$	CPS-5V	-	FT-15	-	GVF <sup>R/L</sup> ...-...A GVF <sup>R/L</sup> ...-...AR	
GIFV <sup>R/L</sup> 3532B-351B	●	●	35						4.6	35 (25)	$\infty$	CPS-6V	-	-	LW-3	GVF <sup>R/L</sup> 250-350-020B GVF <sup>R/L</sup> 300-150BR	
3532B-352B	●	●							5.1	35 (25)	$\infty$						
5032B-501B	●	●	32	30	250		16	4.6	50 (25)	70 ( $\infty$ )							
5032B-502B	●	●	50						5.1	50 (25)	$\infty$					GVF <sup>R/L</sup> 250-350-020B GVF <sup>R/L</sup> 300-150BR GVF <sup>R/L</sup> 400-490-020B GVF <sup>R/L</sup> 400-200BR	
GIFV <sup>R/L</sup> 5032B-501C	●	●	50						6.6	50 (25)	$\infty$	CPS-8V	-	-	LW-4	GVF <sup>R/L</sup> 350-450-040C	
5032B-502C	●	●		35					8.1	50 (25)	$\infty$					GVF <sup>R/L</sup> 500-600-040C	

Note 1. Dimension T shows available grooving depth.

2. Standard toolholders are designed with the edge position 1.0mm above the center.

### Face Grooving Dia. $\phi D1$ depends on the application.

Applications	Description	Face Grooving Dia. $\phi d1$		Face Grooving Dia. $\phi D1$		Remarks
		(MIN.)	MAX.	(MIN.)	(MAX.)	
	GIFV <sup>R/L</sup> 3532B-201A		$\infty$			-
	GIFV <sup>R/L</sup> 3532B-351B		35	50		
	3532B-352B				$\infty$	
	5032B-501B		50	70		
	5032B-502B					
	GIFV <sup>R/L</sup> 5032B-501C 5032B-502C					
	GIFV <sup>R/L</sup> 3532B-201A	12	$\infty$	35	50	If $\phi D2 \geq 58-2W$ , the Face Grooving Dia. can be expanded to $\phi d1$ (MIN.) toward the Center. W = Edge Width  If $\phi D2 \geq 75-2W$ , the Face Grooving Dia. can be expanded to $\phi d1$ (MIN.) toward the Center. W = Edge Width
	GIFV <sup>R/L</sup> 3532B-351B					
	3532B-352B					
	5032B-501B	25	50	70		
	5032B-502B					
	GIFV <sup>R/L</sup> 5032B-501C 5032B-502C					
	GIFV <sup>R/L</sup> 3532B-201A	12	$\infty$	35	50	-
	GIFV <sup>R/L</sup> 3532B-351B					
	3532B-352B					
	5032B-501B	25	50	70		
	5032B-502B					
	GIFV <sup>R/L</sup> 5032B-501C 5032B-502C					

The value ( ) of Face Grooving Dia. ( $\phi D1$  MAX.) is the maximum outer diameter value after the initial groove between MIN.-MAX. (It is possible to widen the groove to infinity  $\infty$ )

The value ( ) of Face Grooving Dia. ( $\phi d1$  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 MIN.-MAX.

● : 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	PVD Coated Carbide		Carbide	CBN	PCD	GBA○○%L 033~100-...	GBA○○%L 125~200-...	GBA○○%L 230~300-...	GBA○○%L 330~400-...	GBA○○%L 400~480-...		
	PV7040	TN620	TC40N	TN90	PR1215	PR930	PR1115	PR905	KW10	KBN510 KBN625						KPD001 (KPD010)	
Carbon Steel	☆ 150-240	★ 80-220	☆ 150-220	☆ 150-220	★ 80-200	☆ 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	
Alloy Steel	☆ 130-220	★ 80-200	☆ 130-200	☆ 130-200	★ 80-180	☆ 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	-	-	-	-	(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	-	-	-	-	-	-	-	-	★ 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. ★:1st Recommendation ☆:2nd Recommendation  
MC indicates MEGACOAT Cermet. MEGA indicates MEGACOAT

## ◆ 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			GBA43%L 140-010GM	GBA43%L 150-020GM	GBA43%L 175-020GM~ 230-020GM	GBA43%L 250-030GM~ 350-030GM	GBA43%L 400-040GM	
	TN620	PR1215	PR1215	PR930	PR1115						
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				
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.

## ◆ 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	GBA43%L 175-020MY~ 200-020MY	GBA43%L 230-020MY~ 265-030MY	GBA43%L 300-030MY	GBA43%L 330-030MY~ 350-030MY	GBA43%L 400-040MY	
	TN6020	TC40N	PR1215	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)						
Carbon Steel	☆ 150-220	-	★ 80-200	☆ 80-200	☆ 80-200	-	-	-	(1) 0.03-0.08 (2) 0.03-0.08 (3) Max. 0.3	(1) 0.04-0.09 (2) 0.04-0.09 (3) Max. 0.3	(1) 0.05-0.1 (2) 0.05-0.1 (3) Max. 0.5	(1) 0.05-0.12 (2) 0.05-0.1 (3) Max. 0.5	(1) 0.05-0.12 (2) 0.05-0.1 (3) Max. 0.8	
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. ★:1st Recommendation ☆:2nd Recommendation  
MEGA indicates MEGACOAT

## ◆ GB inserts (Ground Chipbreaker) will be switched to GBA.

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	CBN	PCD	GB○○%L 050~100	GB○○%L 125~200	GB○○%L 230~300	GB○○%L 330~400	GB○○%L 400~480	
	TN90	TC40N	TC60M	PR630	PR930	KW10	KBN510	KPD001 (KPD010)						
Carbon Steel	-	☆ 150-220	☆ 100-150	☆ 80-200	★ 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	
Alloy Steel	-	☆ 130-200	☆ 80-130	☆ 80-180	★ 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	-	-	☆ 60-100	☆ 60-150	★ 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	-	-	-	-	-	★ 60-100	-	-	(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	-	-	-	-	-	★ 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	

★:1st Recommendation ☆:2nd Recommendation



Grooving

# 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		PVD Coated Carbide		Carbide	CBN	PCD	TGF32 <sup>R/L</sup>		TGF32 <sup>R/L</sup>			TGF32 <sup>R/L</sup>	
	TC40N	PR1215	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)	033~050-005		075~095-010			100~145-010	
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	-	-	-	-	★ 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	TG○○ <sup>R/L</sup>		TG○○ <sup>R/L</sup>		TG○○ <sup>R/L</sup>					
	TN60	TC40N	TC60M	PR630	PR930	KW10	KBN510	KPD001 (KPD010)	075~095		125~200			230~300		330~400	
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		GH		GH			GH	
	TN90	TC40N	TC60M	PR930	KW10	A65	A66N	PT600M	40~50...	55~70...	75~80...		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	-	-	-	-	★ 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		GHU			
	TN60	TC40N	TC60M	CR9025	PR630	PR930	A65	A66N	40-20	50-20		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

G

Grooving

◆ 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
	Cermets				CVD Coated Carbide	PVD Coated Carbide		Carbide	GA 30	GA 40	GA 50	
	TN60	TN90	TC40N	TC60M	CR9025	PR630	PR930	KW10				
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
	Cermets				CVD Coated Carbide	PVD Coated Carbide		Carbide	GIA 30	GIA 40	GIA 50	
	TN60	TN90	TC40N	TC60M	CR9025	PR630	PR930	KW10				
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

◆ 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				
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 type

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 as shown in the Table 1. The cutting edge of all the PSG-S type tip-bars is designed to be higher than the center line. (L4 of Tip-Bars dimension)



G



Grooving

■ FMM / FMN

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)						Face Grooving (FMM / FMN)			Turning (FMM)			Remarks
	Cermets		CVD Coated Carbide		PVD Coated 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	
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	-	-	-	-	-	★ 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.

★ :1st Recommendation ☆ :2nd Recommendation

FMN type Inserts are only for Deep Grooving, and when used for turning, set to ap=0.2mm and under.

◆ 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 ≤ 0.5w
f (MAX.) (mm/rev)	under 3~5% of Edge Width · f ≤ [0.03(Min.) ~ 0.05(Max.)]w

ap x f should be as follows.

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

· apxf ≤ 0.01w<sup>2</sup>

# 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			MEGACOAT	PVD Coated Carbide	Carbide	GV <sup>FL</sup> 100-300...SS 100-300...S	GV <sup>FL</sup> 145-185...B	GV <sup>FL</sup> 200-280...B	GV <sup>FL</sup> 300-400...B			
	TN90	TC40N	TC60M	PR1225	PR930	KW10	GV <sup>FL</sup> 100-340...A 200-300...AR		GV <sup>FL</sup> 200-100BR	GV <sup>FL</sup> 300-150BR	GV <sup>FL</sup> 280-300...C	GV <sup>FL</sup> 340-400...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
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	-	-	-	-	-	★ 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 grade or carbide for turning with edge width 1mm (GV<sup>FL</sup>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				MEGACOAT	PVD Coated Carbide	Carbide	GVF <sup>FL</sup> 200-340...A	GVF <sup>FL</sup> 250-350...B	GVF <sup>FL</sup> 400-490...B	GVF <sup>FL</sup> 350-450...C	GVF <sup>FL</sup> 500-600...C	
	TN60	TN90	TC40N	TC60M	PR1225	PR930	KW10	GVF <sup>FL</sup> 200-100AR ~300-150AR	GVF <sup>FL</sup> 300-150BR	GVF <sup>FL</sup> 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	
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	-	-	-	-	-	-	★ 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.

★ :1st Recommendation ☆ :2nd Recommendation

The ap should be under 0.5mm if a good surface finish is required.

## ◆ 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			
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	-	-	-	-	★ 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		GMN2	GMN3	GMN4 GMN5	GMN6	
	KBN510 KBN525		KPD001 (KPD010)						
Aluminum	-	-	★ 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	
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

G

Grooving



# Recommended Cutting Conditions

## GMG / GMM / GMN / GMGA

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)						Grooving				Turning				Remarks
	Cermets		CVD Coated Carbide		PVD Coated Carbide		Carbide		Edge Width W (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	
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	-	-	-	-	-	★ 200~500	0.05-0.20	0.08-0.25	0.10-0.25	0.12-0.30	0.10-0.20	0.10-0.25	0.10-0.25	0.15-0.30	
Brass	-	-	-	-	-	★ 100~200	0.05-0.15	0.08-0.20	0.10-0.25	0.12-0.30	0.10-0.20	0.10-0.25	0.10-0.25	0.15-0.30	

◆ Ref. to the notes below for turning conditions.

★ :1st Recommendation ☆ :2nd Recommendation

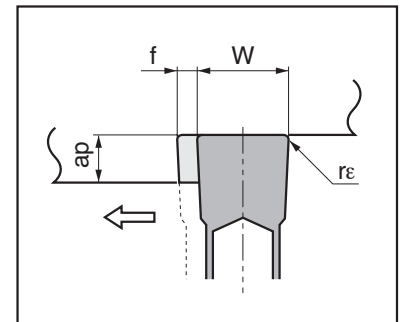
### (1) When using KGM Toolholder

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

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

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

$$\cdot ap \times f \leq \frac{1}{2} \times 0.8W \times 0.1W = 0.04W^2$$



### (2) When using KGM-T Toolholder (Deep grooving type)

Use 90% of KGM conditions

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

	Recommended Cutting Conditions
ap (MAX.) (mm)	under 50% of Edge Width ·ap ≤ 0.5W
f (MAX.) (mm/rev)	under 4% of Edge Width ·f ≤ 0.04W

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

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

·apxf ≤ 0.02W<sup>2</sup>

### (4) When using KIGM Toolholder

	Recommended Cutting Conditions
ap (MAX.) (mm)	under 70% of Edge Width ·ap ≤ 0.7W
f (MAX.) (mm/rev)	under 8% of Edge Width ·f ≤ 0.08W

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

Load(mm)	Edge Width(mm)	3.0	4.0	5.0
ap × f		~0.25	~0.44	~0.70

·apxf ≤ 0.04W<sup>2</sup>

## GMG / GMM / GMGA 8030 (Face Grooving)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)						Face Grooving			Turning			Remarks
	Cermets		CVD Coated Carbide		PVD Coated Carbide		Carbide			Edge Width W (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			
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	-	-	-	-	-	★ 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 Over 0.5mm: For roughing (Refer to Fig.1)

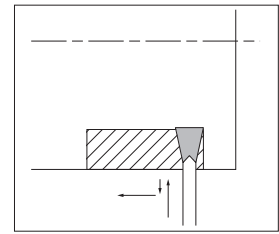
Before turning, pull the tool back about 0.1mm after grooving, instead of turning subsequent to grooving.

(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 under 0.5mm: For finishing (Refer to Fig.2)

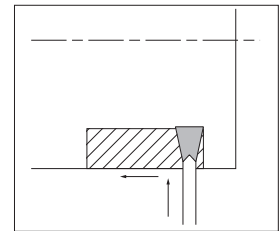
Turning subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.

(Retention time is not necessary.)



Before turning, pull the tool back about 0.1mm after grooving.  
(Grooving Depth Over 0.5mm: At roughing)

Fig.1



Turning subsequent to grooving  
(Grooving Depth under 0.5mm: 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 over 0.5mm is recommended.)

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

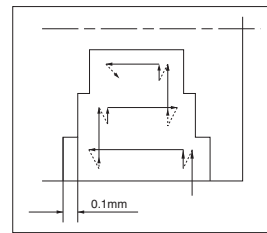


Fig.3

## Guide for Face Grooving

### <Toolholder Selection>

(1) Choose the best tool depending on the groove width.

The Cutting Dia.  $\phi D$  listed in the catalog indicates the depth of the first plunge of face grooving as shown in Fig.1.



(2) Confirm Grooving Depth (dimension T)



(3) It is recommended to install the toolholder in the reverse position. (Fig. 2)

(This will provide smooth chip flow and chip clearance.)

### <Guide for turning>

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

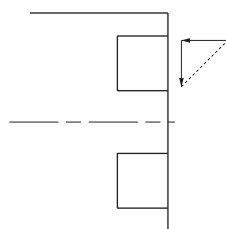


Fig.3

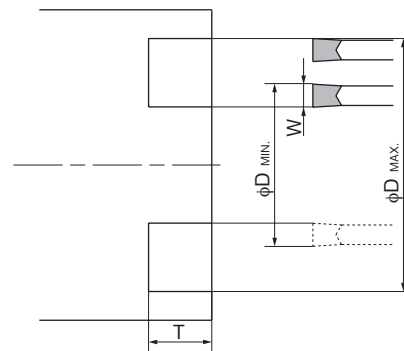


Fig.1

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

Fig.2 Toolholder's Hand and Rotation

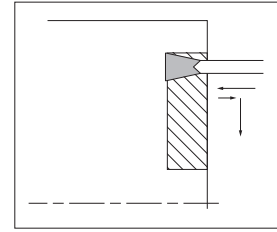
## ■ Guide for Face Grooving (Continued)

### ● Point (I) (Turning after Grooving)

#### 1) Grooving Depth Over 0.5mm: 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.)



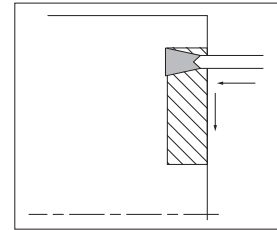
Before turning, pull the tool back about 0.1mm after grooving.  
(Grooving Depth Over 0.5mm: At roughing)

Fig.4

#### 2) Grooving Depth under 0.5mm: 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 under 0.5mm: 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 over 0.5mm is recommended.)

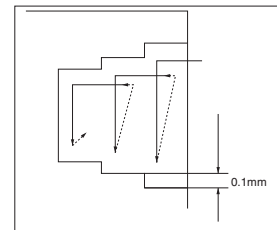


Fig.6

### ● Trouble shooting

Trouble	Countermeasures
Whitish trace remains at the groove bottom.	<p>(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.</p> <p>(2) Check the insert edge's parallelness. Adjustment: Apply the insert edge to the workpiece face and adjust the toolholder within the angle of <math>\pm 5^\circ</math>. (Fig.7)</p> <p style="text-align: right;">Fig.7</p>
Chips are entangled.	<p>(1) Install the toolholder in the reverse position. Adjust the coolant flow to the cutting edge.</p> <p>(2) When widening the groove, do not machine one deep groove. Instead, repeat shallow grooving and turning.</p>
Insert cracks when turning.	Reverse the facing direction.
Groove is not straight.	Check the edge's parallelness. Decrease the feed rate.

# Guide for Grooving

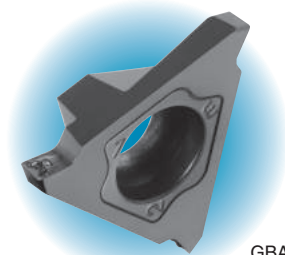
## ● Guide for Grooving with Cermet Insert (Steel)

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

## ● How to Improve Surface Finish (when surface roughness below $3\mu\text{m Rz}$ is required)

1. Increase the cutting speed ( $V_c=220\text{m/min MAX.}$ )
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

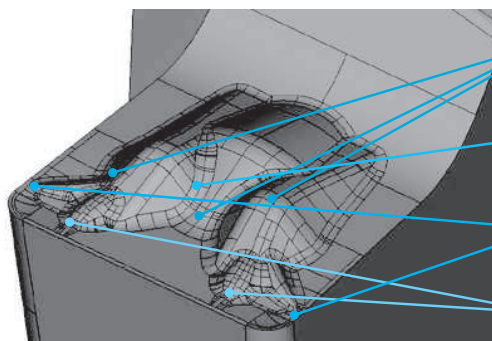


GBA GM Chipbreaker

1. Good chip control to cover wide application range stable chip control 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)

G

## 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 due to optimum bump layout on the chipbreaker

## ■ Alternative Toolholder Reference Table for Grooving Toolholder

Description	Conventional Toolholder			Alternative Toolholder			Ref. to Page	
	Overall length (mm)	Spare Parts			Description	Overall length (mm)		Remarks
		Clamp Screw	Wrench	Wrench				
<b>KTGF<sup>F/L</sup></b> 1010K-16F	125	SB-4070TRW	FT-8	-	<b>KTGF<sup>F/L</sup></b> 1010JX-16F	120	G14	
1212M-16F	150				1212JX-16F	120		
1616M-16F	150				1616JX-16F	120		
<b>KGM<sup>F/L</sup></b> 0810K-1.5-125	125	SE-40120TR	-	LTW-15S	-	-	No replacement	
1010K-1.5-125	125				<b>KGM<sup>F/L</sup></b> 1010JX-1.5	120		
1212M-1.5-150	150				1212JX-1.5	120		
<b>KGM<sup>F/L</sup></b> 0810K-2-125	125	SE-40120TR	-	LTW-15S	-	-	No replacement	
1010K-2-125	125				<b>KGM<sup>F/L</sup></b> 1010JX-2	120		
1212M-2-150	150				1212JX-2	120		
<b>KGM<sup>F/L</sup></b> 1616M-2-150	150	SE-50125TR	-	LTW-20	1616JX-2	120		
<b>KGM<sup>F/L</sup></b> 1010K-2.5-125	125	SE-40120TR	-	LTW-15S	<b>KGM<sup>F/L</sup></b> 1010JX-2.5	120		
1212M-2.5-150	150				1212JX-2.5	120		
1616M-2.5-150	150				1616JX-2.5	120		
<b>KGM<sup>F/L</sup></b> 1616M-3-150	150	SE-50125TR	-	LTW-20	<b>KGM<sup>F/L</sup></b> 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.