

Grooving

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Alternative Toolholder Reference Table for Grooving Toolholder G104

Summary of External Grooving

■ KGD Grooving (External Grooving & Turning) (G15~G27)

• Integral Type

Type	KGD
Edge Width (mm)	2.0~8.0
Grooving Depth (mm)	6~30
Ref. to Page	G20

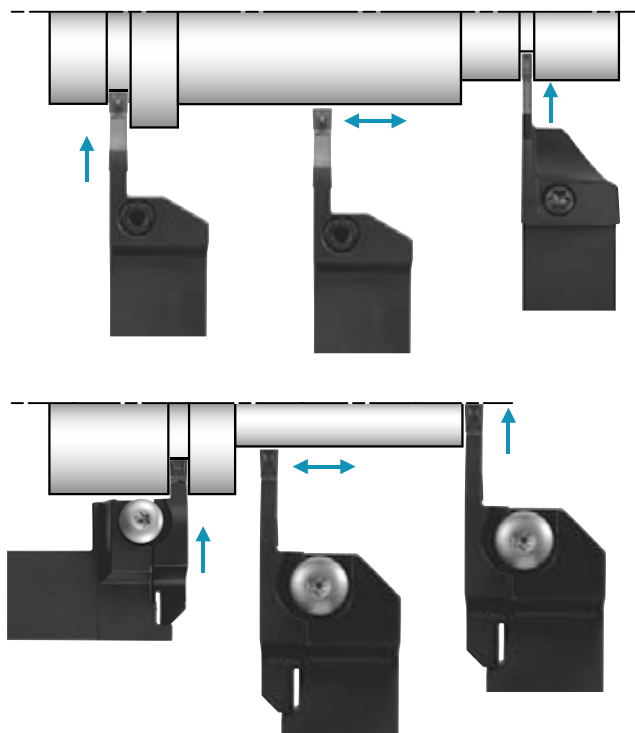
• Integral Type for Automatic Lathe

Type	KGD
Edge Width (mm)	2.0~4.0
Grooving Depth (mm)	10~21
Ref. to Page	G19

• Separate Type

Type	*KGDS-S
Edge Width (mm)	3.0
Grooving Depth (mm)	10
Ref. to Page	G22

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

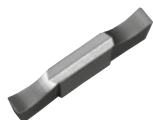


• Separate Type

Type	*KGD-S
Edge Width (mm)	2.0~5.0
Grooving Depth (mm)	10~25
Ref. to Page	G21

* 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

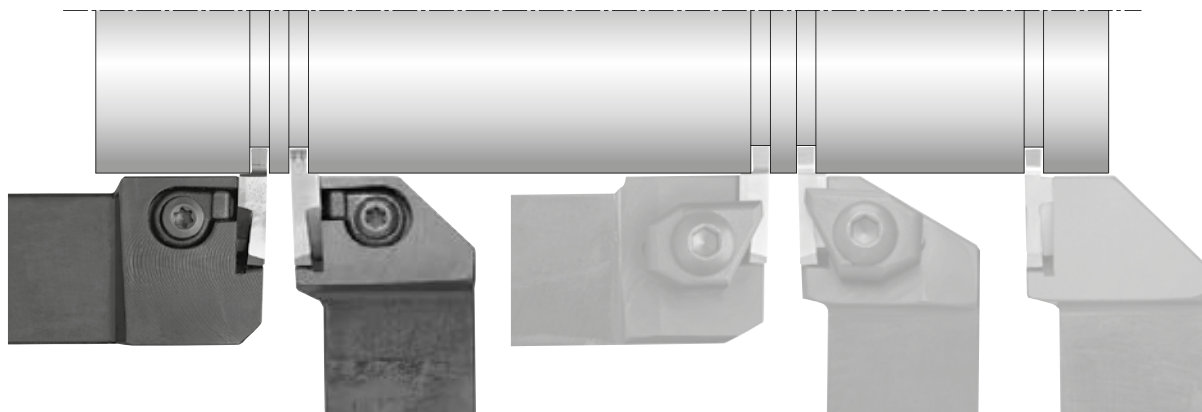


G

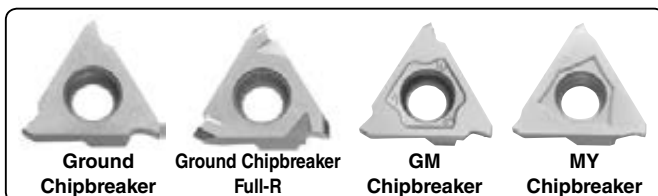
Grooving

■ External Grooving (G6~G14, G36, G37)

● Shallow Grooving (Grooving Depth: ~5mm)



Type	KGBAS	KGBA	KGBS	KGB	KTG
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	G9	G9	G11	G11	G14

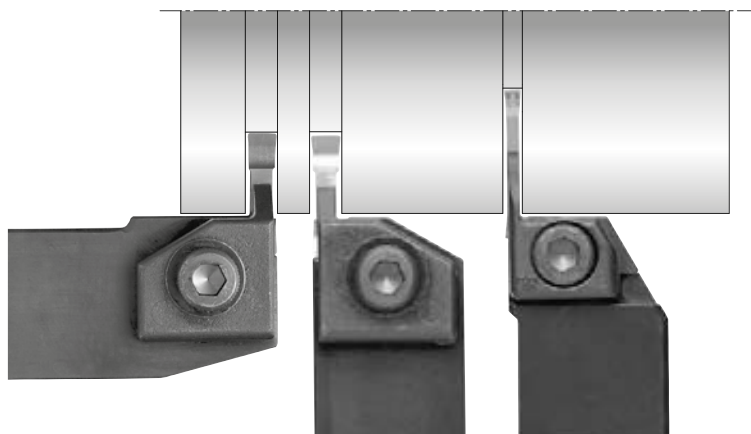


	General (Square)	Full-R (Round)	GM Chipbreaker	MY Chipbreaker
Edge Shape				

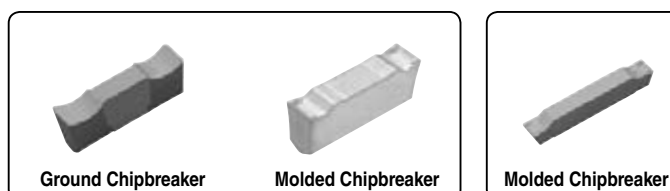
* These shallow groove types of the previous system will be switched to the system on the left.

KGBS → KGBAS
 KGB → KGBA
 KTG → KGBA

● Deep Grooving (Grooving Depth: ~25mm)



Type	KGHS	KGH	KGA
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	G36	G36	G37

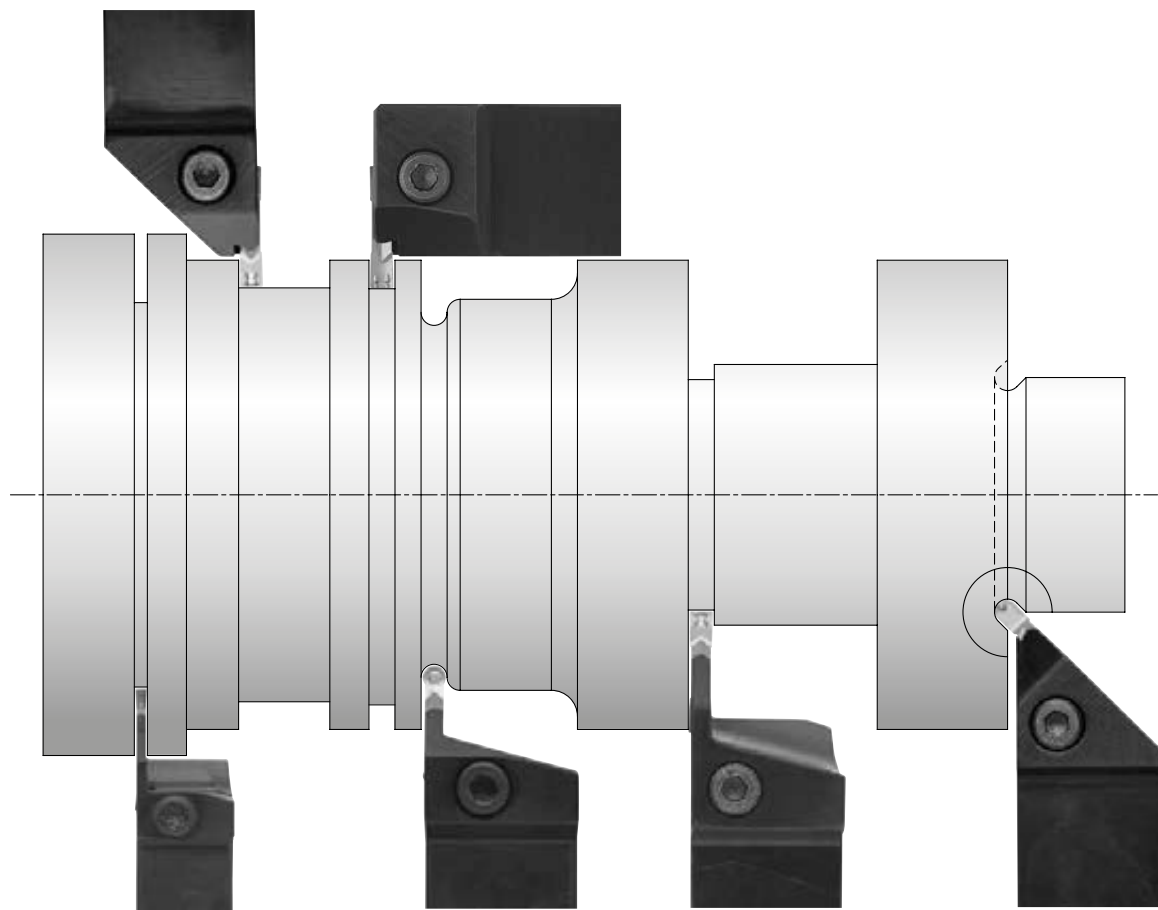


Summary of External Grooving

■ KGM Grooving (External Grooving & Turning) (G28~G35)

Type	KGMM
Edge Width (mm)	3.0~5.0
Grooving Depth (mm)	4.8
Ref. to Page	G34

KGMS
3.0~5.0
4.8
G34

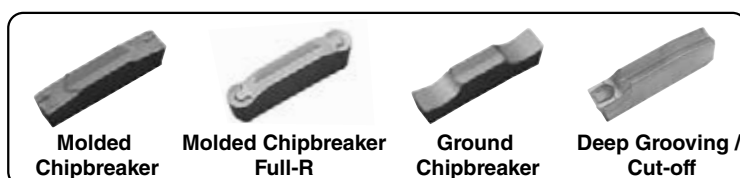


Type	KGM
Edge Width (mm)	1.5~4.0
Grooving Depth (mm)	10~16
Ref. to Page	G32

KGM
3.0~8.0
9~25
G32

KGM-T
2.0~6.0
17~30
G33

KGMU
3.0~5.0
3.5~4.5
G35



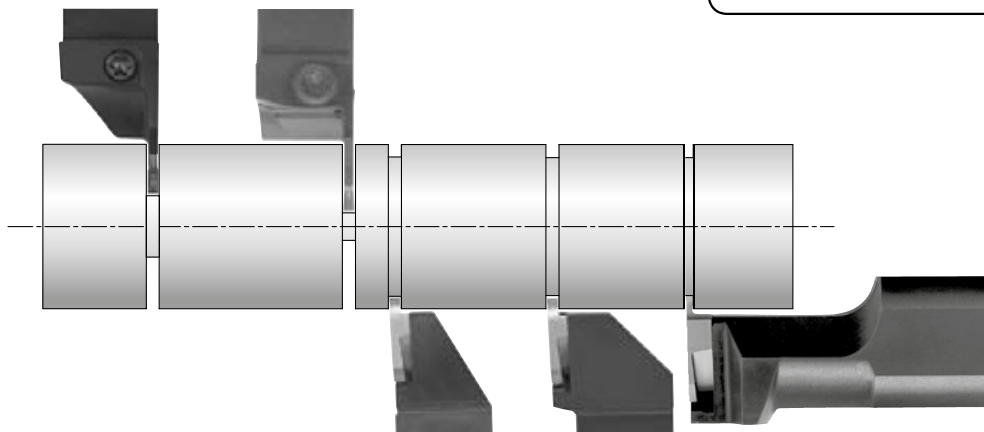
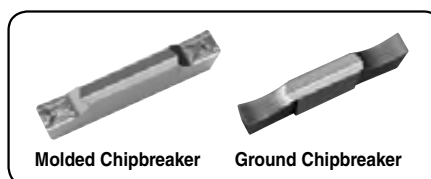
G

Grooving

■ External Grooving of Precision Parts (G12, G13, G19, G32)

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	G19	Ref. to Page	G32

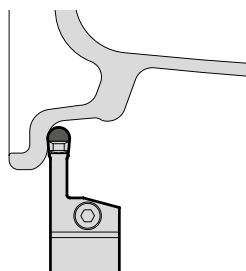


Type	KTGF-F	KTGF
Edge Width (mm)	0.33~2.5	
Grooving Depth (mm)	0.8~2.5	
Ref. to Page	G12	

S-KTGF
0.33~2.5
0.8~2.5
G13



■ For Aluminum Wheel External Grooving (External / Facing / Copying) (G38)



Type	KGMW
Edge Width (mm)	6.0~8.0
Grooving Depth (mm)	25
Ref. to Page	G38



G



Grooving

NEW

G



Grooving

11

Recommended Cutting Conditions ⓘ G97

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

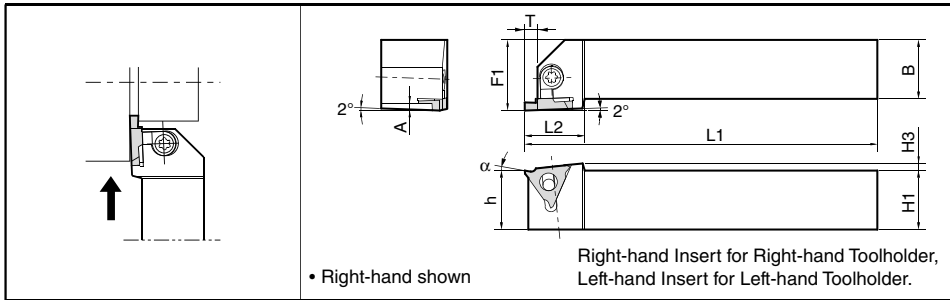
For GM Chipbreaker and MY Chipbreaker, ref. to page G7.

G8

CBN & PCD Inserts are sold in 1 piece boxes.

1 piece boxes. <http://steelcam.org>
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■ KGBA

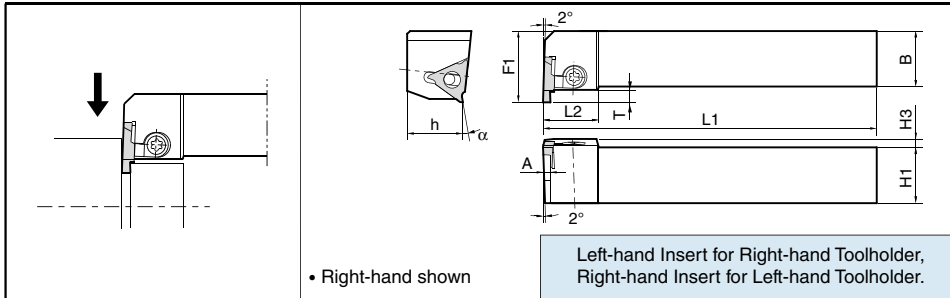


● Alternative Toolholder Reference Table

KGBA ← (KGB)	
KGBA ^{R/L} ...22-15	KGB ^{R/L} ...22-15
KGBA ^{R/L} ...22-25	KGB ^{R/L} ...22-25
KGBA ^{R/L} ...22-35	KGB ^{R/L} ...22-35
KGBA ^{R/L} ...22-25T5	KGB ^{R/L} ...22-25 (Available grooving depth has a limit)

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

■ KGBAS



● Alternative Toolholder Reference Table

KGBAS ← (KGBS)	
KGBAS ^{R/L} ...22-15	KGBS ^{R/L} ...22-15
KGBAS ^{R/L} ...22-25	KGBS ^{R/L} ...22-25
KGBAS ^{R/L} ...22-35	KGBS ^{R/L} ...22-35
KGBAS ^{R/L} ...22-25T5	KGBS ^{R/L} ...22-25 (Available grooving depth has a limit)

● Toolholder Dimensions

Description		Std.		Dimension (mm)										Spare Parts		Applicable Inserts ⚙️ G6~G8		
														Clamp Set	Wrench			
		R	L	H1=h	H3	B	L1	L2	F1	A	T							
KGBA ^{R/L}	2020K-16 2525M-16	●	●	20 25	4.0	20 25	125 150	24	25 30	-	2.5			LGBA-16 ^{R/L} S	FT-15	GBA32 ^{R/L}  e		
	2020K22-15 2525M22-15	●	●	20 25	4.0	20 25	125 150	25.5	25 30	1.0	4.0			LGBA-22 ^{R/L} S		GBA43 ^{R/L}  e		
	2020K22-25 2525M22-25	●	●	20 25	4.0	20 25	125 150	25.5	25 30	2.0	4.5							
	2020K22-25T5 2525M22-25T5	●	●	20 25	4.0	20 25	125 150	25.5	25 30	2.0	5.5							
	2020K22-35 2525M22-35	●	●	20 25	4.0	20 25	125 150	25.5	25 30	3.0								
	2020H22-15*	●		20	4.0	20	100	25.5	25	1.0	4.0							
	2020H22-25*	●								2.0	4.5							
	2020H22-35*	●								3.0	5.5							
	KGBAS ^{R/L}	2020K-16 2525M-16	●	●	20 25	4.0 4.5	20 25	125 150	25	25 30	-	2.5						LGBA-16 ^{R/L} S
		2020K22-15 2525M22-15	●	●	20 25	4.5 5.0	20 25	125 150	25	27 32	1.0	4.0				LGBA-22 ^{R/L} S	GBA43 ^{R/L}  e	
2020K22-25 2525M22-25		●	●	20 25	4.5 5.0	20 25	125 150	25	27 32	2.0	4.5							
2020K22-25T5 2525M22-25T5		●	●	20 25	4.5 5.0	20 25	125 150	25	27 32	2.0	5.5							
2020K22-35 2525M22-35		●	●	20 25	4.5 5.0	20 25	125 150	25	27 32	3.0								

• Dimension T shows the distance from the Toolholder to the cutting edge. Dimension B shows available grooving depth.

* mark indicates short shank type

• Clamp Set : KGBA^{R/L}...LGBA-OORS for Right-hand Toolholder, and LGBA-OOLS for Left-hand Toolholder.
KGBAS^{R/L}...LGBA-OOLS for Right-hand Toolholder, and LGBA-OORS for Left-hand Toolholder.

■ External Grooving Toolholders KGBA Short Shank types are available

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

GB inserts will be switched to GBA (G6~G8)

(mm)

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~)							

· Dimension B: shows available grooving depth.

· The edge width tolerance of GB32²/050 is different 0.50^{+0.05} (*)

Recommended Cutting Conditions **G97**

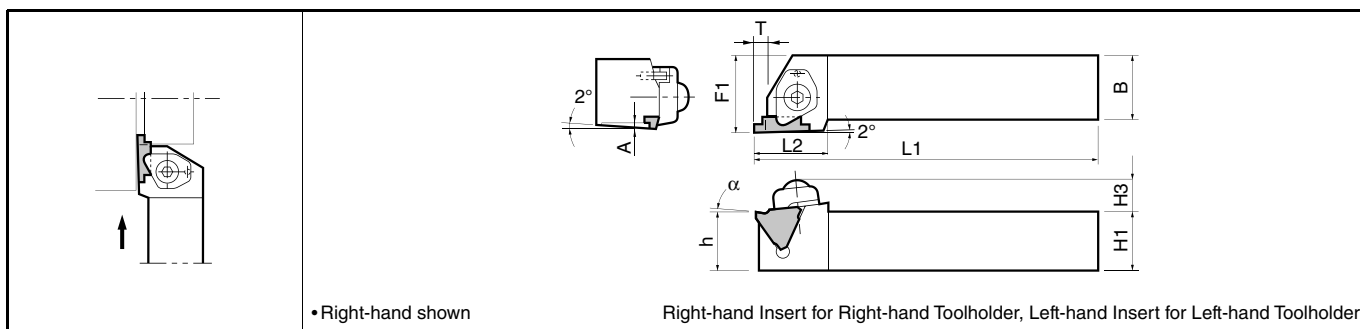
GB Inserts	GBA Inserts
TC40N	TC40N / PV7040
TC60M	TN90
PR630	PR1215 / PR1115
PR930	PR1215 / PR1115
KPD010	KPD001(KPD010)

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

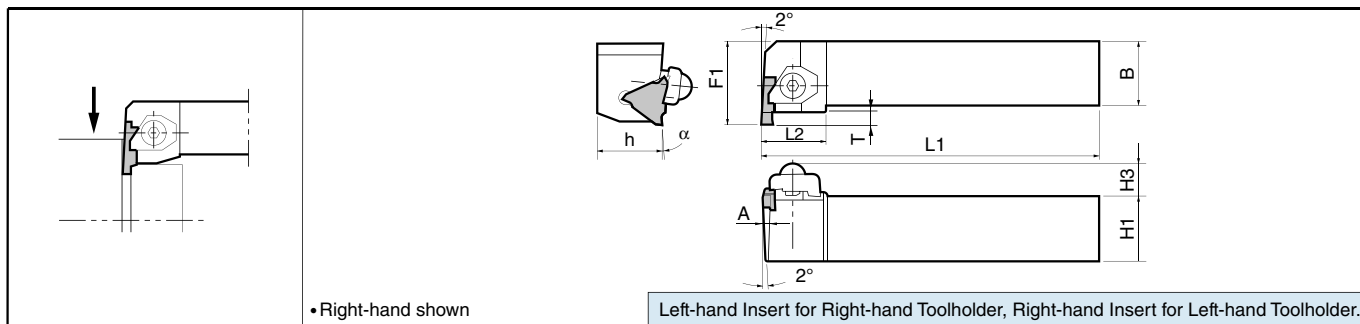
CBN & PCD Inserts are sold in 1 piece boxes.

△ : Will be switched to new item(Check Availability)
R : Std. Item (Right-hand Only)
Will be switched to new item (Check Availability)

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	
KGB^{R/L} 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 ^{R/L}	BH6X25	SP-6	LW-4	GB32 ^{R/L} type GBA32 ^{R/L} type
	○	○	25		25	150		30							
	○	○	20		20	125	25.5	25	1.0	4.0					
	○	○	25	11.5	25	150		30							
	○	○	20		20	125	25.5	25	2.0	4.5					GB43 ^{R/L} type GBA43 ^{R/L} type
	○	○	25	11.5	25	150		30							
KGBS^{R/L} 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 ^{L/R}	BH6X25	SP-6	LW-4	GB32 ^{R/L} type GBA32 ^{R/L} type
	○	○	25		25	150		30							
	○	○	20		20	125	25	27	1.0	4.0					
	○	○	25	11.5	25	150		32							
	○	○	20		20	125	25	27	2.0	4.5					GB43 ^{R/L} type GBA43 ^{R/L} type
	○	○	25	11.5	25	150		32							

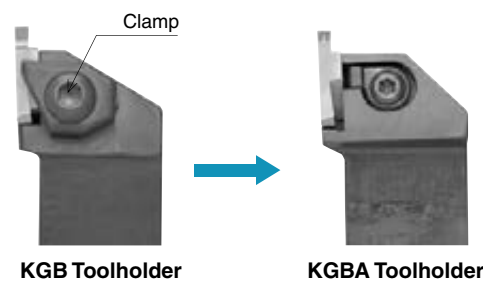
• Dimension T shows the distance from the Toolholder to the cutting edge. Dimension B shows available grooving depth.

• Clamp: KGB^{R/L} ... CGBR for Right-hand Toolholder, and CGBL for Left-hand Toolholder.

KGBS^{R/L} ... CGBL for Right-hand Toolholder, and CGBR for Left-hand Toolholder.

Rake Angle (α) after Installment of GB

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

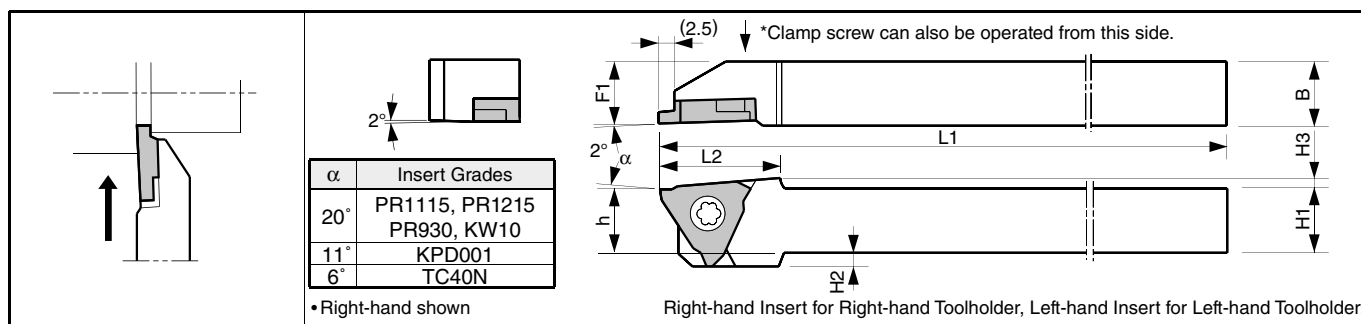


* KGB / KGBS toolholder will be switched to KGBA / KGBAS.
Better Chip flow.

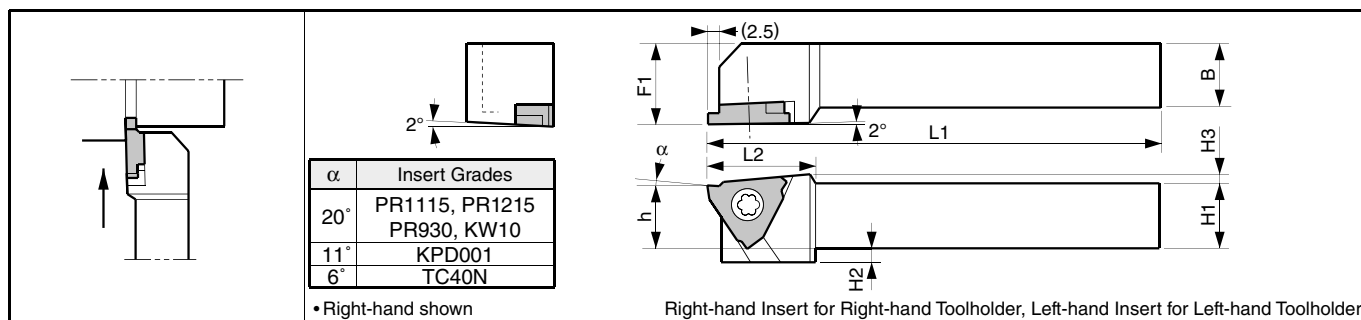
* For applicable insert, GB insert will be switched to GBA.
There are various type of GBA insert materials available
dependent on the user's cutting condition requirements.

External Shallow Grooving Toolholders [for TGF Insert]

■ KTGF-F (without offset)



■ KTGF (with offset)



● Toolholder Dimensions

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

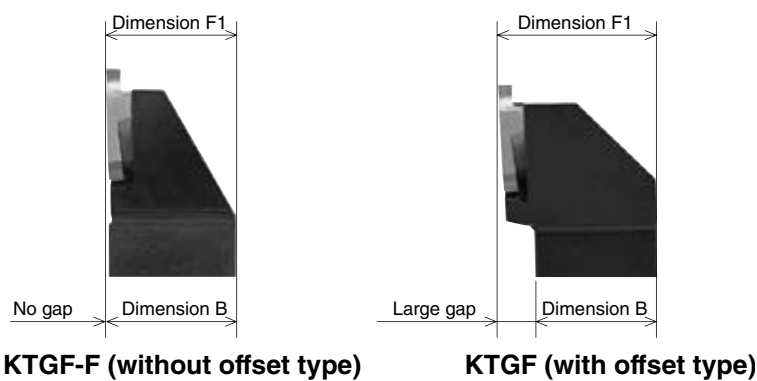
● Usage difference between KTGF-F and KTGF toolholders

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

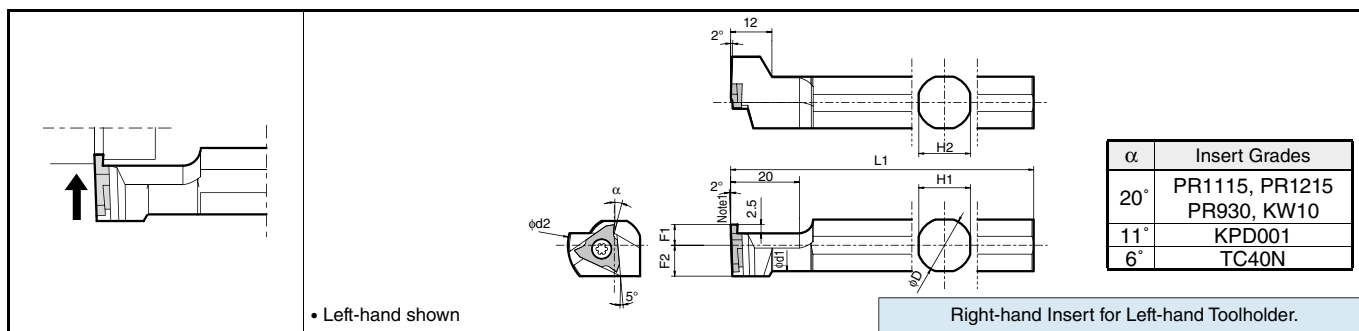
A: When operating the automatic lathe, the toolholder come very close to the chuck.

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.



S-KTGF (Sleeve Holder)

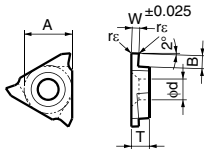
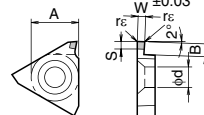


Note1) Dimension B shows available grooving depth.

Toolholder Dimensions

Description	Std.	Dimension (mm)							Spare Parts	
									Clamp Screw	Wrench
		φD	L1	F1	F2	φd1	φd2	H1=H2		
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			10.5	17.6		17		
S19G-KTGFL16	●	19.05	90							
S19K-KTGFL16	●		120							
S20G-KTGFL16	●	20	90	11.0	18.6	18				
S20K-KTGFL16	●		120							
S25.0H-KTGFL16	●	25	100	10	14.0	23.6	32	23		
S25K-KTGFL16	●	25.4	120							

Applicable Inserts

Applicable Inserts														Classification of usage	
(mm)				P	Carbon steel / Alloy steel									●	Continuous-Light Interruption / 1st Choice
				M	Stainless Steel									○	Continuous-Light Interruption / 2nd Choice
				K	Cast Iron									●	Continuous / 1st Choice
				N	Non-ferrous Metals									○	Continuous / 2nd Choice
				S	Titanium Alloys									●	Continuous / 1st Choice
				H	Hard materials (~40HRC)									○	Continuous / 2nd Choice
					Hard materials (40HRC~)										
Description		A	T	φd	Dimension (mm)			Cermet	MEGA COAT	PVD Coated Carbide	Carbide	PCD	Applicable Toolholders		Ref. to Page for Applicable Toolholders
TGF32_		9.525	3.18	4.5				TC40N	PR1215	PR930	PR1115	KW10	KPD001		
Insert		Description			W	B	rε								
Handed Insert shows Right-hand															
		TGF32 ^{R/L} 033-005			0.33	0.8	0.05		R	R	R	R		KTGF ^{R/L} ...16F KTGF ^{R/L} ...16 S...KTGF ^L 16	G12 G13
		050-005			0.50	1.2		R	●	●	●	R			
		075-010			0.75	R		●	●	●	R				
		095-010			0.95	R		●	●	●	R				
		100-010			1.00	R		●	●	●	R				
		120-010			1.20			●	●	●	R				
		125-010			1.25	2.0		R	●	●	●	R			
		140-010			1.40				●	●					
		145-010			1.45			R	●	●	●	R			
		150-010			1.50			R	●	●	●	R			
		175-010			1.75			R	●	●	●	R			
		200-010			2.00			R	●	●	●	R			
250-010			2.50	2.5	R	●	●	●	R						
		TGF32 ^{R/L} 125-010			1.25	2.0	0.1					R			
		150-010			1.50							R			
		200-010			2.00			2.5							R

• Dimension B: shows available grooving depth.

Recommended Cutting Conditions G98

● : Std. Item
R : Std. Item (Right-hand Only)

Заказ инструмента: <http://steelcut.org>
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Inserts are sold in 10 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

• Right-hand shown

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

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

* GBA Insert cannot be installed to this toolholder.

Description	A	T	ϕd
TG32_	9.525	3.18	4.5
TG43_	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		Description	Dimension (mm)			Cermet				Applicable Toolholders	Ref. to Page for Applicable Toolholders
			W	B	C or r ϵ	TN60	TN90	TC40N	TC60M		
Handed Insert shows Right-hand											
General (Square) (Corner is Chamfered)  TG32 type	 (Corner is Chamfered)	TG32 ^{R/L}	075	0.75	2.0	C0.1	☒	☐	☐	KTG ^{R/L} ...16	G14
			095	0.95			☒	☐	☐		
			125	1.25			☒	☐	☐		
			145	1.45			☒	☐	☐		
			150	1.50			☒	☐	☐		
			175	1.75			☒	☐	☐		
			200	2.00			☒	☐	☐		
 General (Square) (Corner is R shape)  TG43 type		TG43 ^{R/L}	150	1.50	3.5	0.2	☐	☐	☐	KTG ^{R/L} ...22-15	G14
			175	1.75			☐	☐	☐		
			200	2.00			☐	☐	☐		
			230	2.30			☐	☐	☐		
			250	2.50			☐	☐	☐		
			265	2.65	4.0	0.3	☐	☐	☐	KTG ^{R/L} ...22-25	
			280	2.80			☐	☐	☐		
			300	3.00			☐	☐	☐		
			330	3.30			☐	☐	☐		
			350	3.50			☐	☐	☐		
			400	4.00	5.0	0.4	☐	☐	☐	KTG ^{R/L} ...22-35	
			430	4.30			☐	☐	☐		
			450	4.50			☐	☐	☐		

* Check the corner-R(r_{ε}) of the insert when changing.



Features

1 Various insert lineup

Smooth chip control

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

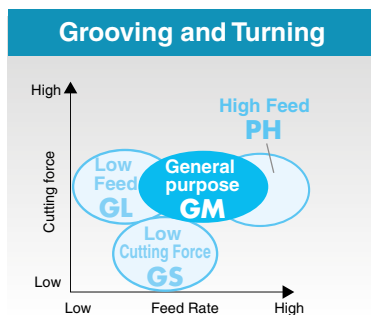
High precision edge preparation

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

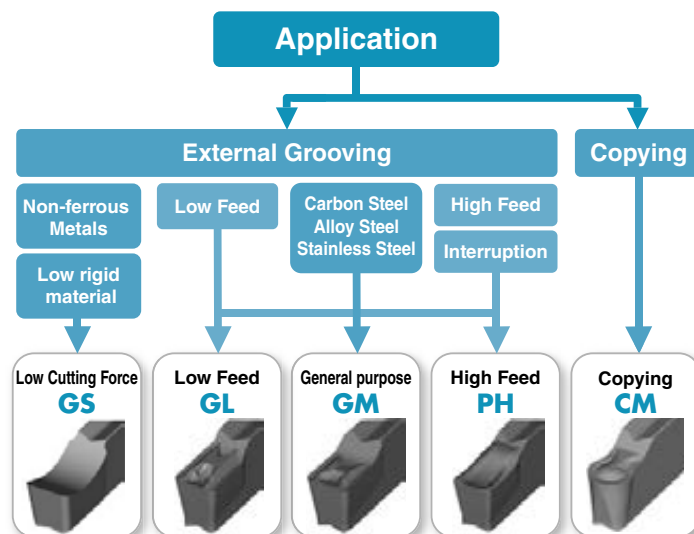
Highly-reputed MEGACOAT technology

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

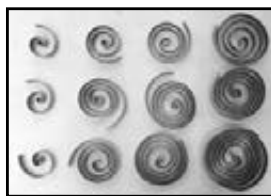
Application Map



Chipbreaker Selection



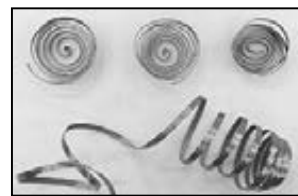
Comparison of Chip Control (SCM415 Vc=150m/min, f=0.15mm/rev)



GM Chipbreaker



Competitor A



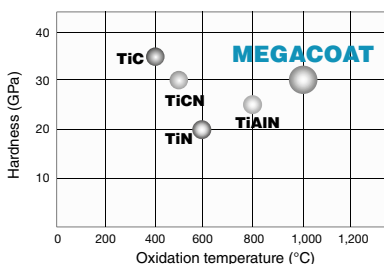
Competitor B

Smooth chip control

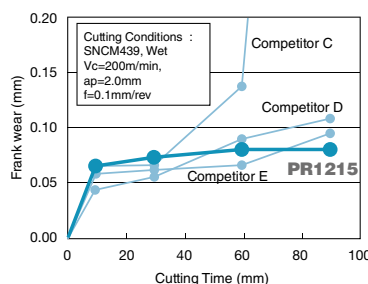


Less chip biting troubles

Features of MEGACOAT



Comparison of Wear Resistance



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

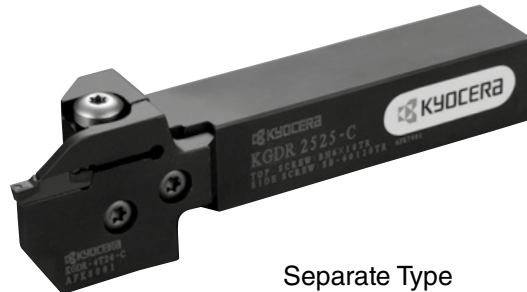
PR1215:
With superior wear resistance, recommended for grooving and cut-off under the stable conditions as well as machining of cast iron.

2 Toolholder

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



Integral Type

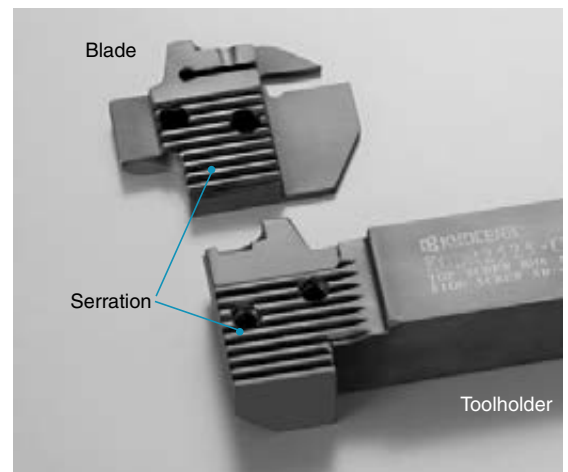


Separate Type

- High rigidity separate type toolholder

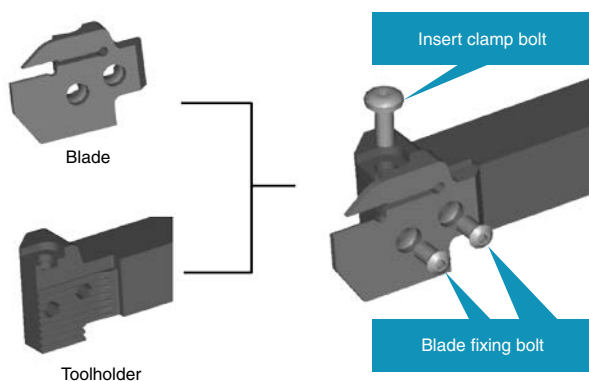
➡ Adaptable to wide applications by changing blades

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.



■ Structure of toolholder unit (Toolholder + Blade)

- KGD-S (0° separate type)



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

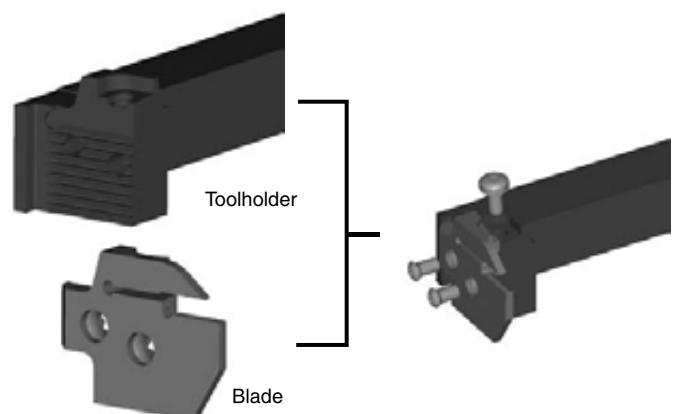
Toolholder (KGD^{R/L} ○○○○-C)

+

Blade (KGD^{R/L}-○T○○-C)

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

- KGDS-S (90° separate type)



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

Toolholder (KGDS^{R/L} ○○○○-C)

+

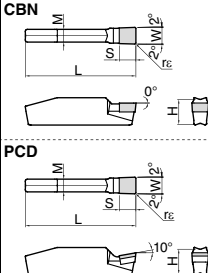
Blade (KGD^{R/L}-○T○○-C)

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

Inserts for Grooving

GDGS (CBN / PCD)

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~) Sintered Steel	●		●

Insert		Description	Dimension (mm)						Angle (°)	MEGA COAT CBN	CBN	PCD	Ref. to Applicable				
			W	rε	M	L	H	S						θ	KBN05M	KBN570	KPD001
Grooving  1-edge		GDGS 2020N-020NB 3020N-020NB 3020N-040NB 4020N-020NB 4020N-040NB 5020N-020NB 5020N-040NB 6020N-020NB 6020N-040NB	2.0	±0.03	0.2	1.8	20	4.3	2.9	-	●	●	●	G19			
					0.2	2.3								●	●	●	G20
			3.0		0.4								●	●	●	G21	
					0.2	3.3									●	●	G22
			4.0		0.4								●	●	●	G20	
					0.2	4.2								●	●	●	G21
			5.0		0.4								●	●	●	G22	
					0.2	5.2								●	●	●	
			6.0		0.4								●	●	●		

Recommended Cutting Conditions ➔ G25, G26

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

● Insert setting angle for grooving toolholders

KGD...0°	Conventional tools KGM...5°
	

New Insert
GDM

New Toolholder
KGD

Conventional Insert
GMM

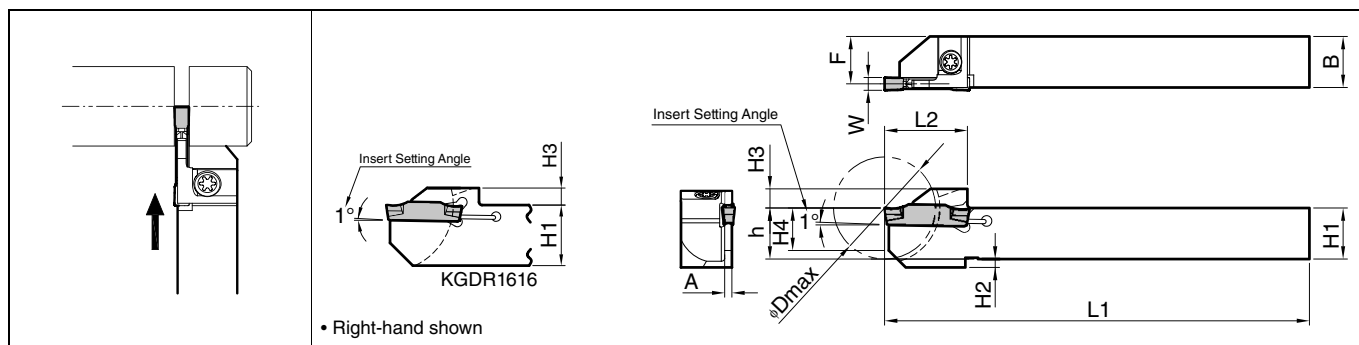
Conventional Toolholder
KGM

Installing conventional inserts to the new toolholder is not recommended.

Toolholders for Grooving and Cut-off

KG D (Integral Type for Automatic Lathe)

Width: 2.0~4.0mm



Toolholder Dimensions

Description	Std.		Cutting Dia.	Dimension (mm)										Width W(mm)		Spare Parts	
	R	L		φDmax	H1=h	H2	H3	H4	B	L1	L2	F	A	MIN.	MAX.	Clamp Screw	Wrench
																	
KG D¹/L 1010JX-2	●	●	20	10	2	4.5	8	10	120	18	9.15	1.7	2.0	3.0	SB-40120TR for Clamp Screw Recommended tightening torque 2.0N·m	LTW-15S for Clamp Screw Recommended tightening torque 2.0N·m	
1212JX-2	●	●	24	12	2		10	12		19.5	11.15						
1616JX-2	●	●	32	16	-		10	16		24.5	15.15						
KG D¹/L 1010JX-2.4	●	●	20	10	2		8	10	120	18	9	2.0	2.4	3.0	SB-40120TR for Clamp Screw Recommended tightening torque 2.0N·m	LTW-15S for Clamp Screw Recommended tightening torque 2.0N·m	
1212JX-2.4	●	●	24	12	2		10	12		19.5	11						
1616JX-2.4	●	●	32	16	-		10	16		24.5	15						
KG D¹/L 1212JX-3	●	●	24	12	2	10	12	120	19.5	10.8	2.4	3.0	3.0	SB-40120TR for Clamp Screw Recommended tightening torque 2.0N·m	LTW-15S for Clamp Screw Recommended tightening torque 2.0N·m		
1616JX-3	●	●	32	16	-	10	16		24.5	14.8							
KG D¹/L 1212F-2	●	●	24	12	2	10	12	85	19.5	11.15	1.7	2.0	3.0	SB-40120TR for Clamp Screw Recommended tightening torque 2.0N·m	LTW-15S for Clamp Screw Recommended tightening torque 2.0N·m		
1212F-2.4	●	●	24	12	2	10	12		19.5	11						2.0	2.4
KG D¹/L 1616JX-3D38	●	●	38	16	-	6	10	16	120	29	14.8	2.4	3.0	4.0	SE-50125TR for Clamp Screw Recommended tightening torque 2.5N·m	LTW-20 for Clamp Screw Recommended tightening torque 2.5N·m	
2012JX-3D42	●	●	42	20	-		14	12		31	10.8						
2020JX-3D42	●	●					20			18.8							

Note) 1. 4mm width Insert can be installed in KG D¹/L 1212JX-3, but is not recommended due to the toolholder's rigidity.

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

3. When machining the material greater than $\phi 36$ mm with KGDR/L....3D38 or KGDR/L....3D42 toolholders, please use 1-edge inserts.

Applicable Inserts **G17, G18**

Toolholder Identification System

K G D **R** **1616** **JX - 3** **D38** (Integral Type for Automatic Lathe)

Toolholder Hand R: Right-hand L: Left-hand	Shank Size 16×16mm	Toolholder Length 120mm	Applicable Inserts GDM/GDMS 3~4mm	Cutting Dia. ϕ Dmax 38mm
--	-----------------------	----------------------------	---	-------------------------------------

K G D **R** **1616** **H - 2** **T** **06** (Integral Type)

Toolholder Hand R: Right-hand L: Left-hand	Shank Size 16×16mm	Toolholder Length 100mm	Applicable Inserts GDM/GDMS 2~3mm	Max. depth of cut 06 : 6mm
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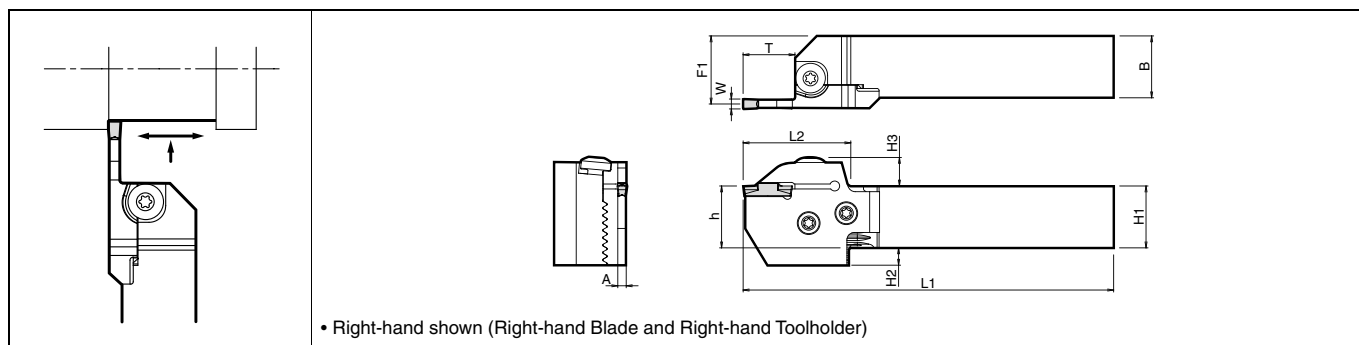
K G D **R** **2020** **X - 3** **T** **10** **S** (Separate Type / Unit Description)

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



KGD-S (0° separate type)



Toolholder Dimensions (Toolholder + Blade)

Shank Angle	Width (mm)	Max. depth of cut (mm)	Shank Size (mm)	Unit Description (Standard Stock Description)	Std.		Blade Description 🌀 G23	Toolholder Description 🌀 G23	Dimension (mm)											Width W(mm)		
					R	L			H1=h	H2	H3	B	L1	L2	L3	F1	A	T	MIN.	MAX.		
0°	2	17	□20	KGD [®] / 2020X-2T17S	●	●	KGD [®] /-2T17-C	KGD [®] / 2020-C	20	12	11.6	20	122	40		23.4	1.7	17	2.0	3.0		
			□25	2525X-2T17S	●	●		KGD [®] / 2525-C	25	7		25	147			28.4						
			□32	No unit description ➡				KGD [®] / 3232-C	32	-		32	167			35.4						
	3	10	□20	KGD [®] / 2020X-3T10S	●	●	KGD [®] /-3T10-C	KGD [®] / 2020-C	20	12	11.6	20	115	33		23.0	2.4	10	3.0	4.0		
			□25	2525X-3T10S	●	●		KGD [®] / 2525-C	25	7		25	140			28.0						
			□32	3232X-3T10S	●	●		KGD [®] / 3232-C	32	-		32	160			35.0						
		20	□20	KGD [®] / 2020X-3T20S	●	●	KGD [®] /-3T20-C	KGD [®] / 2020-C	20	12		20	125	43		23.0		20				
			□25	2525X-3T20S	●	●		KGD [®] / 2525-C	25	7		25	150			28.0						
			□32	3232X-3T20S	●	●		KGD [®] / 3232-C	32	-		32	170			35.0						
	4	10	□20	KGD [®] / 2020X-4T10S	●	●	KGD [®] /-4T10-C	KGD [®] / 2020-C	20	12	11.6	20	115	33		22.5	3.4	10	4.0	5.0		
			□25	2525X-4T10S	●	●		KGD [®] / 2525-C	25	7		25	140			27.5						
			□32	3232X-4T10S	●	●		KGD [®] / 3232-C	32	-		32	160			34.5						
		20	□20	KGD [®] / 2020X-4T20S	●	●	KGD [®] /-4T20-C	KGD [®] / 2020-C	20	12		20	125	43		22.5		20				
			□25	2525X-4T20S	●	●		KGD [®] / 2525-C	25	7		25	150			27.5						
			□32	3232X-4T20S	●	●		KGD [®] / 3232-C	32	-		32	170			34.5						
		25	□20	KGD [®] / 2020X-4T25S	●	●	KGD [®] /-4T25-C	KGD [®] / 2020-C	20	12		20	130	48		22.5		25				
			□25	2525X-4T25S	●	●		KGD [®] / 2525-C	25	7		25	155			27.5						
			□32	3232X-4T25S	●	●		KGD [®] / 3232-C	32	-		32	175			34.5						
	5	10	□20	KGD [®] / 2020X-5T10S	●	●	KGD [®] /-5T10-C	KGD [®] / 2020-C	20	12		20	115	33		22.0	4.4	10	5.0	6.0		
			□25	2525X-5T10S	●	●		KGD [®] / 2525-C	25	7		25	140			27.0						
			□32	3232X-5T10S	●	●		KGD [®] / 3232-C	32	-		32	160			34.0						
		25	□20	KGD [®] / 2020X-5T25S	●	●	KGD [®] /-5T25-C	KGD [®] / 2020-C	20	12		20	130	48		22.0		25				
			□25	2525X-5T25S	●	●		KGD [®] / 2525-C	25	7		25	155			27.0						
			□32	3232X-5T25S	●	●		KGD [®] / 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 **G17, G18**
 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)

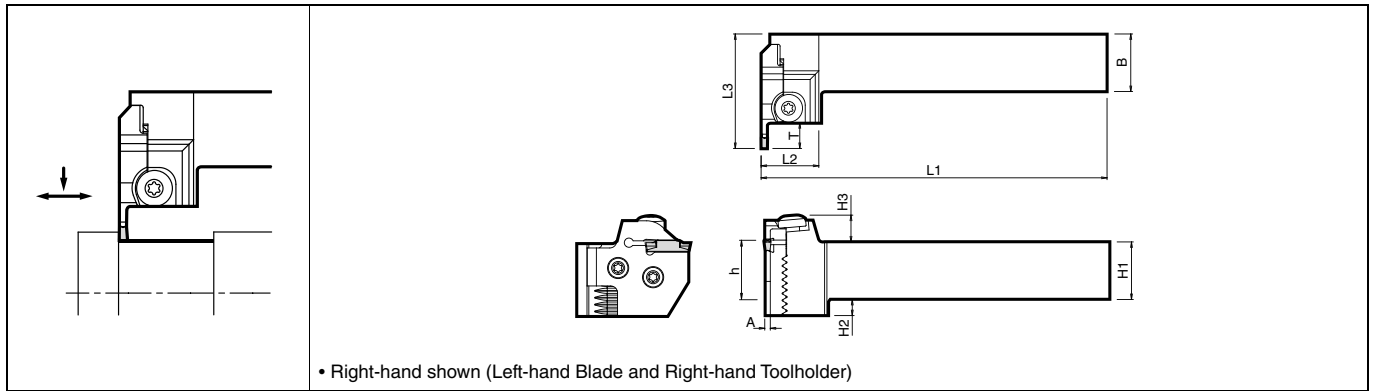
* The parts are included in the toolholder and unit.

Unit Description	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Bolt (for Blade)	Wrench
KGD [®] /...S			
	BH6X10TR	SB-60120TR	LTW-25

● : Std. Item

Toolholder for Grooving

KGDS-S (90° separate type)



Toolholder Dimensions (Toolholder + Blade)

Shank Angle	Width (mm)	Max. depth of cut (mm)	Shank Size (mm)	Blade Description ➔ G23	Toolholder Description ➔ G23	Unit Description (Standard Stock Description)	Std.	Dimension (mm)												Width W(mm)	
								R	L	H1=h	H2	H3	B	L1	L2	L3	F1	A	T	MIN.	MAX.
90°	2	17	□20	KGD ^{1/2} /R-2T17-C	KGDS ^{1/2} /2020-C	-	-	-	20	12			20	125		56.7		1.7	17	2.0	3.0
			□25		KGDS ^{1/2} /2525-C	-	-	-	25	7			25	150							
	3	10	□20	KGD ^{1/2} /R-3T10-C	KGDS ^{1/2} /2020-C	KGDS ^{1/2} / 2020X-3T10S	●	●	20	12			20	125		49.7		10		3.0	4.0
			□25		KGDS ^{1/2} /2525-C	2525X-3T10S	●	●	25	7			25	150				2.4			
		20	□20	KGD ^{1/2} /R-3T20-C	KGDS ^{1/2} /2020-C	-	-	-	20	12			20	125		59.7		20			
			□25		KGDS ^{1/2} /2525-C	-	-	-	25	7			25	150							
	4	10	□20	KGD ^{1/2} /R-4T10-C	KGDS ^{1/2} /2020-C	-	-	-	20	12			20	125		49.7		10			
			□25		KGDS ^{1/2} /2525-C	-	-	-	25	7			25	150							
		20	□20	KGD ^{1/2} /R-4T20-C	KGDS ^{1/2} /2020-C	-	-	-	20	12			20	125		59.7		20		4.0	5.0
			□25		KGDS ^{1/2} /2525-C	-	-	-	25	7			25	150				3.4			
		25	□20	KGD ^{1/2} /R-4T25-C	KGDS ^{1/2} /2020-C	-	-	-	20	12			20	125		64.7		25			
			□25		KGDS ^{1/2} /2525-C	-	-	-	25	7			25	150							
	5	10	□20	KGD ^{1/2} /R-5T10-C	KGDS ^{1/2} /2020-C	-	-	-	20	12			20	125		49.7		10			
			□25		KGDS ^{1/2} /2525-C	-	-	-	25	7			25	150				4.4			
		25	□20	KGD ^{1/2} /R-5T25-C	KGDS ^{1/2} /2020-C	-	-	-	20	12			20	125		64.7		25		5.0	6.0
			□25		KGDS ^{1/2} /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. Applicable Inserts ➔ G17, G18
 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.)

Spare Parts (Common with separate types)

* The parts are included in the toolholder and unit.

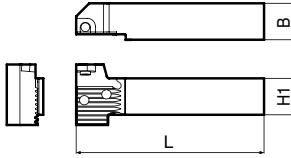
Unit Description	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Bolt (for Blade)	Wrench
KGDS ^{1/2} /.....S	BH6X10TR	SB-60120TR	LTW-25

● : Std. Item

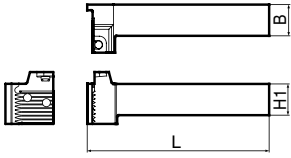
Toolholders and blades for Grooving and Cut-off

● Toolholder

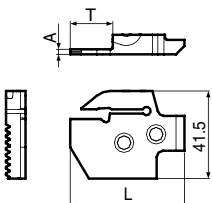
KGDS (0° separate type)

Shape of 0° type Right-hand shown	Toolholder Description	Std.		Dimension		
		R	L	L	B	H1
	KGDS [®] /L 2020-C	●	●	104	20	20
	2525-C	●	●	129	25	25
	3232-C	●	●	149	32	32

KGDS-S (90° separate type)

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

● Blade

Shape of Blade Right-hand shown	Blade Description	Std.		Dimension		
		R	L	L	T	A
	KGDS [®] /L -2T17-C	●	●	51.2	17.2	1.7
	-3T10-C	●	●	44.2	10.2	2.4
	-3T20-C	●	●	53.2	20.2	2.4
	-4T10-C	●	●	44.2	10.2	3.4
	-4T20-C	●	●	54.2	20.2	3.4
	-4T25-C	●	●	59.2	25.2	3.4
	-5T10-C	●	●	44.2	10.2	4.4
	-5T25-C	●	●	59.2	25.2	4.4

● Spare Parts (Common with separate types)

* The parts are included in the toolholder.

Unit Description	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Bolt (for Blade)	Wrench
			
KGDS [®] /L.....S KGDS [®] /L.....S	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 bolt 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)
Insert clamp bolt	Recommended tightening torque : 6.5N·m (Width 2~6mm) 8.0N·m (Width 8mm)

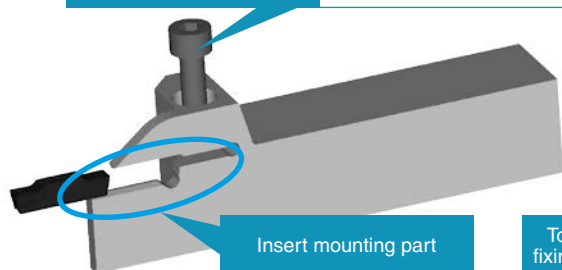


Fig.1

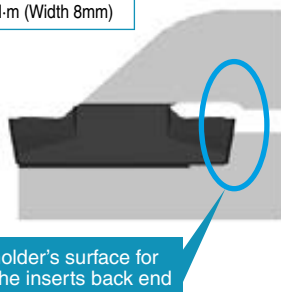


Fig.2

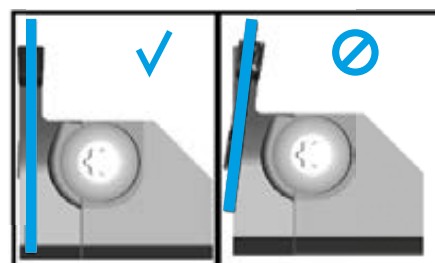


Fig.3

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.

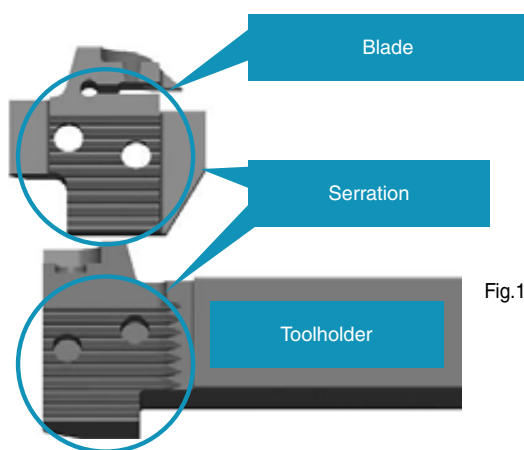


Fig.1

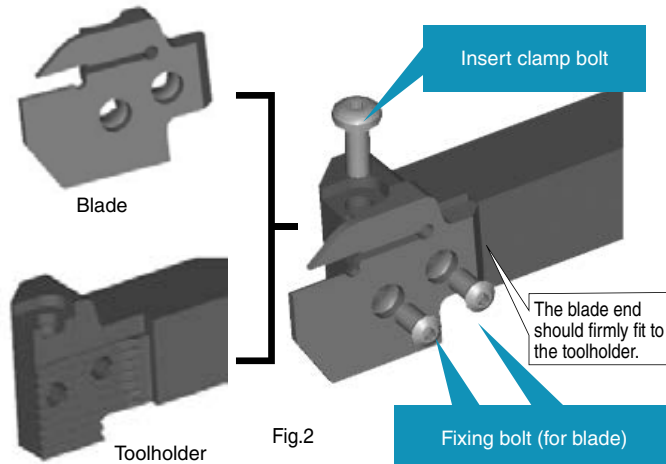
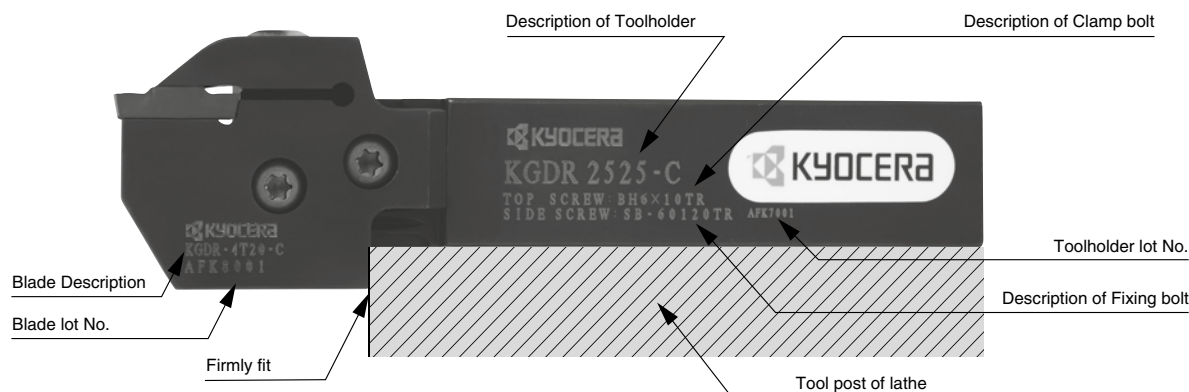


Fig.2

Separate type Toolholder Identification System and Their Setting to Lathe

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



Recommended Cutting Conditions

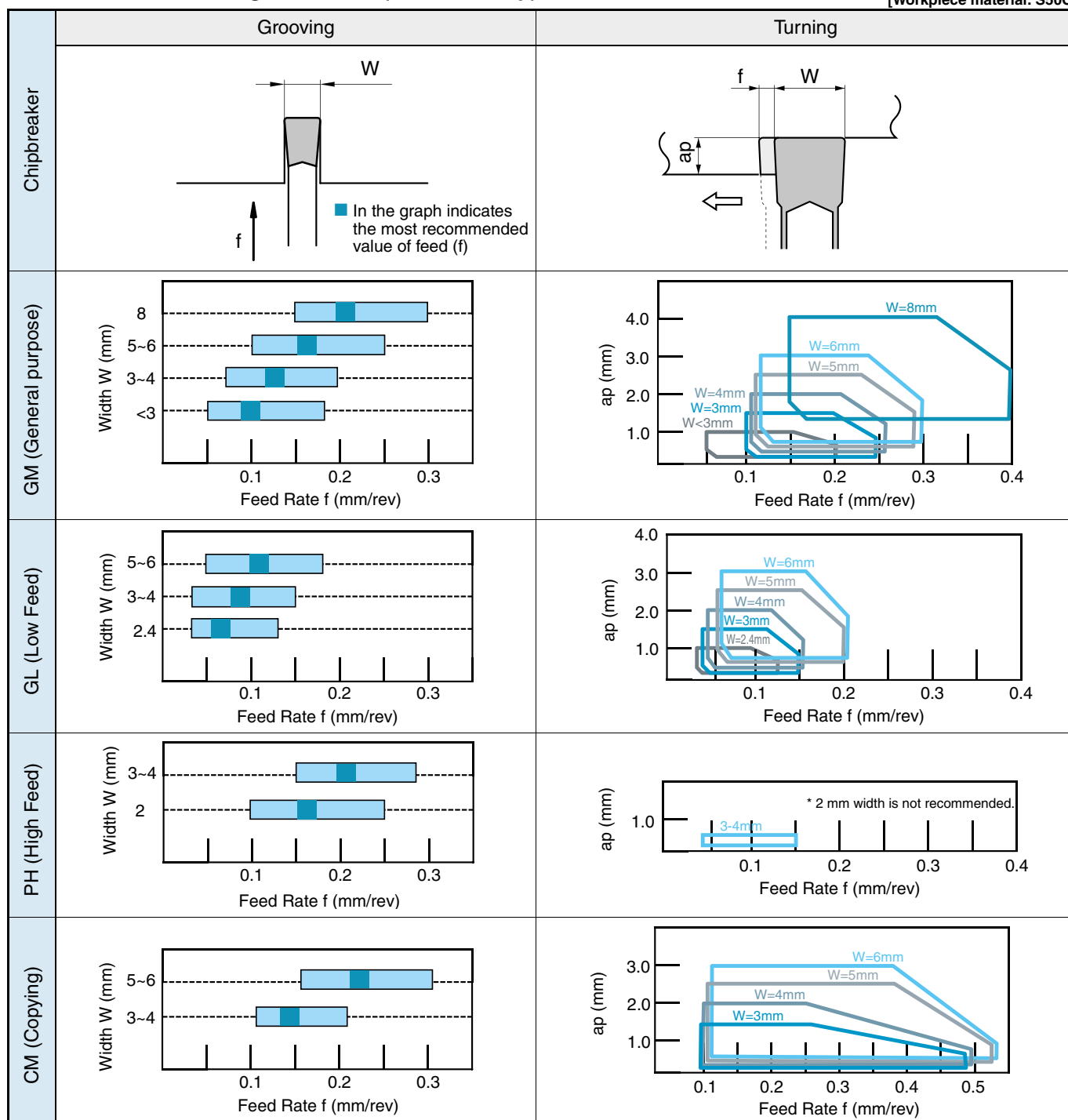
◆ Recommended Cutting Conditions (Vc)

Workpiece Material	Chipbreaker	Recommended Insert Grades (Cutting Speed Vc: m/min)								Remarks
		Cermet	MEGACOAT NANO	MEGACOAT		Carbide	MEGACOAT CBN	CBN	PCD	
		TN90	PR1535	PR1225	PR1215	GW15	KBN05M	KBN570	KPD001	
Carbon Steel	GM GL CM PH GS	☆ 100~220	☆ 80~200	★ 80~200	☆ 100~200	-	-	-	-	Coolant
Alloy Steel		☆ 80~200	☆ 70~180	★ 70~180	☆ 80~180	-	-	-	-	
Stainless Steel		☆ 70~180	★(PH) 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

◆ Recommended Cutting Conditions (Feed Rate / ap)

[Workpiece material: S50C]

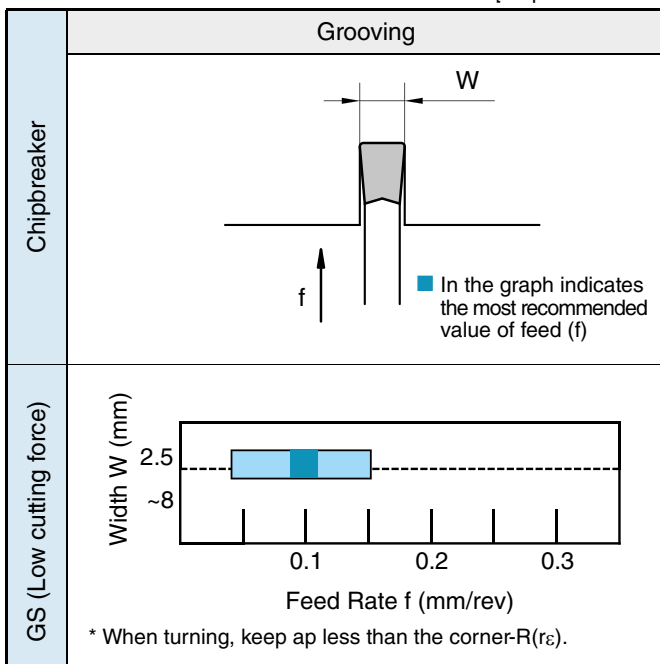


Note) 1. The above values are based on the condition that the dimension T of toolholder is 17 mm or less.

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.

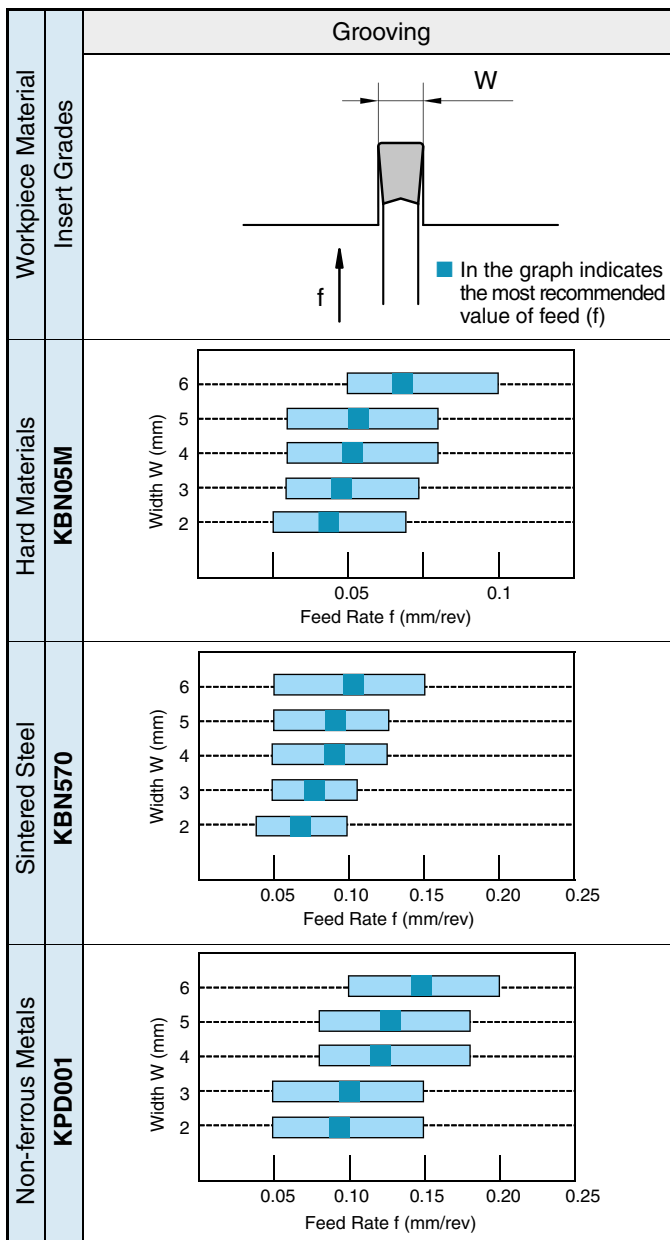
Recommended Cutting Conditions

◆ 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.

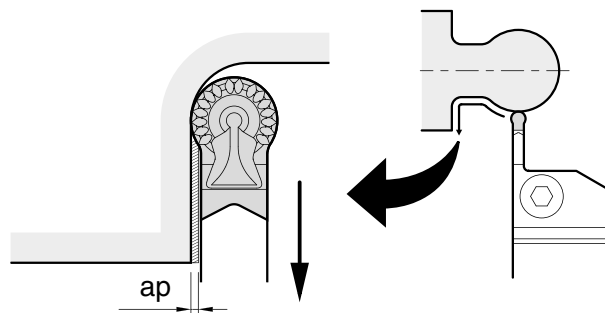
◆ Recommended Cutting Conditions (Feed Rate)



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

● Estimated maximum cutting amount (ap) in back copying

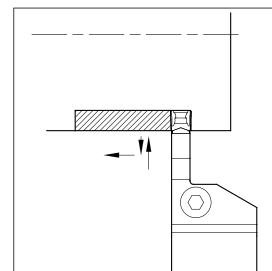
Description	Max. ap (ap:mm)				
	Toolholder part Description				
	KGD---2T---	KGD---3T---	KGD---4T---	KGD---5T---	KGD---6T---
GDM 3020N-150R-CM	0.24	0.20	-	-	-
4020N-200R-CM	-	0.24	0.20	-	-
5020N-250R-CM	-	-	0.30	0.20	-
6020N-300R-CM	-	-	-	0.30	0.25



Guide for External Grooving

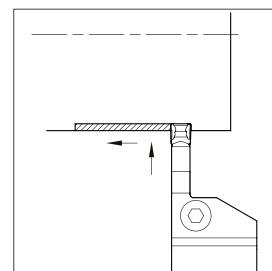
● Point (I) (Turning after Grooving)

- 1) Grooving Depth 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.

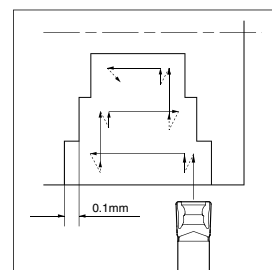


Fig.3

G



Grooving

Case Studies

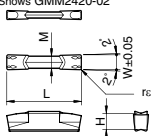
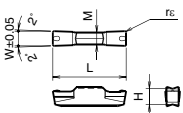
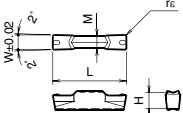
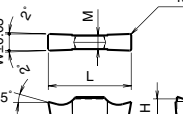
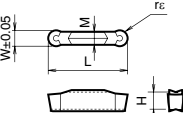
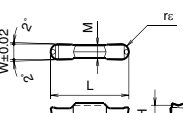
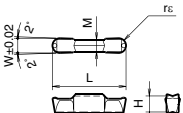
SCr420H (Grooving)	
· Gear · $V_c=113\sim164$ m/min · $f=0.06$ mm/rev · Wet · GDM4020N-040GM (PR1225) · KGDL2525X-3T10S	
GM Chipbreaker (PR1225)	1,500 pcs/C
Competitor K (PVD Coated Carbide)	250 pcs/C
· KGD type grooving toolholder + GM chipbreaker (PR1225) showed 6 times longer tool life than that of Competitor K. · Good chip control without burned chips.	
(Evaluation by the user)	

SCM420 (Grooving Turning)	
· Gear · $V_c=170$ m/min · $f=0.15$ mm/rev(Roughing) · 0.10 mm/rev(Finishing) · $a_p=0.2$ mm(Finishing) · Wet · GDM4020N-040GM (PR1215) · KGDR2525X-4T20S	
GM Chipbreaker (PR1215)	250 pcs/C
Competitor L (Roughing: PVD Coated Carbide) (Finishing: Cermet)	200 pcs/C
· GM chipbreaker reduced occurrence rate of tangle of chips (occurrence rate 80% $\Rightarrow$ 10%). The problem was persistent with Competitor L. Machining productivity is improved.	
(Evaluation by the user)	

Multi-Function / Grooving (Cut-Off)

GMM / GMG

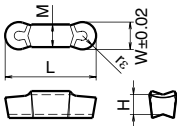
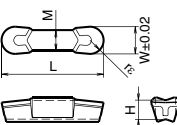
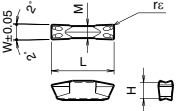
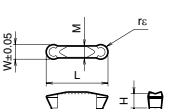
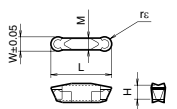
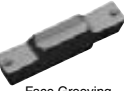
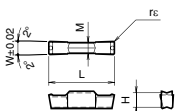
Classification of usage	P	Carbon steel / Alloy steel							
	M	Stainless Steel							
●: Continuous-Light Interruption / 1st Choice ○: Continuous-Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice	K	Cast Iron							
	N	Non-ferrous Metals							
	S	Titanium Alloys		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

Insert	Description	(Previous Description)	Dimension (mm)					Cermat	CVD Coated Carbide	PVD Coated Carbide	Carbide	Ref. to Page for Applicable Toolholders
			W	r _ε	M	L	H					
 Chip Control Oriented / M Class	 Shows GMM2420-02	GMM 2420-02MW	2.4	0.2	1.9			●	●	●	●	G32 G33
		GMM 3020-02MW	3.0	0.2	2.3			●	●	●	●	
		GMM 3020-04MW		0.4				●	●	●	●	
		GMM 4020-02MW		0.2				●	●	●	●	
		GMM 4020-04MW	4.0	0.4	3.3	20	4.3	●	●	●	●	
		GMM 4020-08MW		0.8				●	●	●	●	
		GMM 5020-04MW		0.4				●	●	●	●	
		GMM 5020-08MW	5.0	0.8	4.2			●	●	●	●	
		GMM 6020-04MW		0.4				●	●	●	●	
		GMM 6020-08MW	6.0	0.8	5.2			●	●	●	●	
 Sharp-Cutting Oriented / M Class		GMM 3020-02MS	3.0	0.2	2.3			●	●	●	●	G32 G33
		GMM 3020-04MS		0.4				●	●	●	●	
		GMM 4020-04MS	4.0		3.3	20	4.3	●	●	●	●	
		GMM 5020-04MS	5.0	0.4	4.2			●	●	●	●	
		GMM 6020-04MS	6.0		5.2			●	●	●	●	
 Sharp-Cutting Oriented / Precision Class		GMG 3020-00MS		0.0				●	●	●	●	G32 G33
		GMG 3020-02MS	3.0	0.2	2.3	20	4.3	●	●	●	●	
		GMG 3020-04MS		0.4				●	●	●	●	
		GMG 4020-02MS		0.2				●	●	●	●	
		GMG 4020-04MS	4.0	0.4	3.3	20	4.3	●	●	●	●	
		GMG 4020-08MS		0.8				●	●	●	●	
		GMG 5020-04MS		0.4				●	●	●	●	
		GMG 5020-08MS	5.0	0.8	4.2	20	4.3	●	●	●	●	
 Sharp-Cutting Oriented / Precision Class Ground Chipbreaker		GMG 2520-03MG	2.5		2.0			●	●	●	●	G32 G33
		GMG 3020-03MG	3.0	0.3	2.3			●	●	●	●	
		GMG 3520-03MG	3.5		2.8			●	●	●	●	
		GMG 4020-04MG	4.0		3.3			●	●	●	●	
		GMG 5020-04MG	5.0	0.4	4.2			●	●	●	●	
		GMG 6020-04MG	6.0		5.2			●	●	●	●	
		GMG 8030-05MG	8.0	0.5	6.0	30	5.5	●	●	●	●	
 Chip Control Oriented / M Class Full-R / Copying		GMM 3020-150R	3.0	1.5	2.3			●	●	●	●	G32 G33
		GMM 4020-200R	4.0	2.0	3.3			●	●	●	●	
		GMM 5020-250R	5.0	2.5	4.2			●	●	●	●	
		GMM 6020-300R	6.0	3.0	5.2			●	●	●	●	
 Sharp-Cutting Oriented / Precision Class Full-R / Copying		GMG 3020-150R	3.0	1.5	2.3			●	●	●	●	G32 G33
		GMG 4020-200R	4.0	2.0	3.3			●	●	●	●	
		GMG 5020-250R	5.0	2.5	4.2			●	●	●	●	
		GMG 6020-300R	6.0	3.0	5.2			●	●	●	●	
 Undercutting Chip Control Oriented		GMG 3020-150RU	3.0	1.5	2.3			●	●	●	●	G32 G33 G35
		GMG 4020-200RU	4.0	2.0	3.3			●	●	●	●	
		GMG 5020-250RU	5.0	2.5	4.2			●	●	●	●	

Recommended Cutting Conditions ➡ G101

● : Std. Item

GMM / GMGA / FGG

				Classification of usage		P		Carbon steel / Alloy steel							Ref. to Page for Applicable Toolholders
				M		Stainless Steel					●	☺			
				K		Cast Iron							●		
				N		Non-ferrous Metals							●		
				S		Titanium Alloys								●	
				H		Hard materials (~40HRC)					○	●			
				H		Hard materials (40HRC~)									
Insert Handed Insert shows Right-hand		Description	(Previous Description)	Dimension (mm)					Cermet	PVD Coated Carbide	PVD Coated Carbide	Carbide			
				W	rε	M	L	H	TN90	CR9025	PR915	PR930		KW10	
 Sharp-Cutting Oriented / Precision Class Full-R / Copying		 GMGA 6020-300R	GMGA 6020-30R	6.0	3.0	4.3	20	4.3						●	G32 G33
 Sharp-Cutting Oriented / Precision Class Full-R / Copying		 GMGA 8030-400R	GMGA 8030-40R	8.0	4.0	6.0	30	5.5						●	G32 G58
 Chip Control Oriented / M Class		 GMM 3014-04	-	3.0	0.4	2.3	14	4.3	●	●	●	●	●		G34
 Chip Control Oriented / M Class Full-R / Copying		 GMM 3014-15R	-	3.0	1.5	2.3	14	4.3	●	●		●	●		
 Undercutting Chip Control Oriented		 GMM 3014-15RU	-	3.0	1.5	2.3	14	4.3					●		
 Face Grooving Chip Control Oriented Precision Class		 FGG ^{R/L} 3020-02 4020-04 5020-04	-	3.0 4.0 5.0	0.2 0.4 0.4	2.3 3.3 4.2	20	4.3	● ● ●	● ● ●		● ● ●	● ● ●		G34

Recommended Cutting Conditions ➔ G101

Chipbreakers

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

Edge Preparation

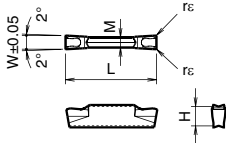
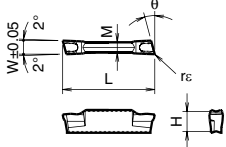
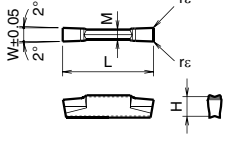
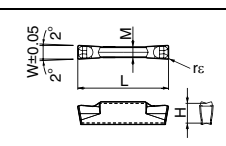
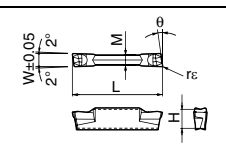
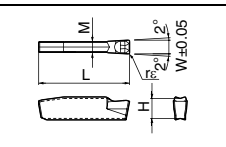
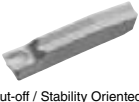
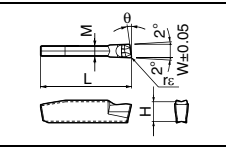
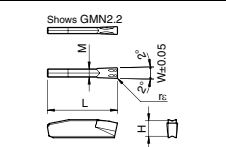
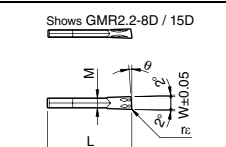
Edge Prep.	Chamfer + Honed Corner-R(r _ε)= 0.05	Chamfer + Honed Sharp Corner
		
MT-Chipbreaker	CR9025 / PR915	PR930 / KW10
Edge Prep.	Chamfer + Honed Corner-R(r _ε)= 0.2-0.3	Sharp Edge Corner-R(r _ε)= 0.2-0.3
		
TK-Chipbreaker	CR9025 / PR915	PR930 / KW10
Edge Prep.	Honed Corner-R(r _ε)= 0.05	Sharp Edge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

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

● : Std. Item

Grooving / Cut-Off (Multi-Function)

GMM / GMN

Insert		Description	Dimension (mm)					Angle (°)	CVD Coated Carbide				Ref. to Page for Applicable Toolholders
			W	r _ε	M	L	H		TN90	CR9025	PR915	PR930	
Handed Insert shows Right-hand													
 Deep Grooving / Cut-off Sharp Cutting Oriented	 $W \pm 0.05$ 2° 2° L M r_ϵ H	GMM 1520-MT	1.5	0.0 0.05	1.2	20	4.3	-					G32 G33
		2020-MT	2.0	0.0 0.05	1.5								
		2520-MT	2.5	0.0 0.05	1.9								
		3020-MT	3.0	0.0 0.05	2.3								
 Cut-off Sharp Cutting Oriented With lead angle	 $W \pm 0.05$ 2° 2° L M r_ϵ H θ	GMM 1520 ^L -MT-15D	1.5	0.0 0.05	1.2	20	4.3	15°			R		
		2020 ^L -MT-15D	2.0	0.0 0.05	1.5			15°			R		
		2520 ^L -MT-15D	2.5	0.0 0.05	1.9			15°			R		
		3020 ^L -MT-15D	3.0	0.0 0.05	2.3			15°			R		
 Deep Grooving / Cut-off Sharp Cutting Oriented Without Chipbreaker	 $W \pm 0.05$ 2° 2° L M r_ϵ H	GMM 1520-NB	1.5	0.0 0.05	1.2	20	4.3	-					
		2020-NB	2.0	0.0 0.05	1.5								
		2520-NB	2.5	0.0 0.05	1.9								
		3020-NB	3.0	0.0 0.05	2.3								
 Deep Grooving / Cut-off Stability Oriented	 $W \pm 0.05$ 2° 2° L M r_ϵ H	GMM 2020-TK	2.0	0.20	1.5	20	4.3	-					
		2520-TK	2.5	0.20	1.9								
		3020-TK	3.0	0.25	2.3								
 Cut-off Stability Oriented With lead angle	 $W \pm 0.05$ 2° 2° L M r_ϵ H θ	GMM 2020R-TK-8D	2.0	0.20	1.5	20	4.3	8°		R	R	R	
		2520R-TK-8D	2.5	0.20	1.9					R	R	R	
		3020R-TK-8D	3.0	0.25	2.3					R	R	R	
 Cut-off / Stability Oriented 1-edge	 $W \pm 0.05$ 2° 2° L M r_ϵ H	GMN 2-TK	2.0	0.20	1.5	20	4.3	-					
		3-TK	3.0	0.25	2.3								
		4-TK	4.0	0.30	3.3								
 Cut-off / Stability Oriented 1-edge / Lead Angle	 $W \pm 0.05$ 2° 2° L M r_ϵ H θ	GMR 2-TK-8D	2.0	0.20	1.5	20	4.3	8°		R	R	R	
		3-TK-8D	3.0	0.25	2.3					R	R	R	
		4-TK-8D	4.0	0.30	3.3					R	R	R	
 Deep Grooving / Cut-off 1-edge	 $W \pm 0.05$ 2° 2° L M r_ϵ H	GMN 2.2	2.2	0.17	1.8	20	4.3	-					
		3	3.0	0.20	2.3								
		4	4.0	0.25	3.3								
		5	5.0	0.8	4.2								
		6	6.0	0.8	5.2								
 Cut-off / Sharp Cutting Oriented 1-edge / Lead Angle	 $W \pm 0.05$ 2° 2° L M r_ϵ H θ	GMN 2.2-8D	2.2	0.17	1.8	20	4.3	8°	R	R			
		2.2-15D	2.2	0.00	1.8			15°	R	R			
		3-4D	3.0	0.20	2.3			4°					
		4-4D	4.0	0.25	3.3			4°					

Recommended Cutting Conditions  G101

Inserts are
sold in 10 piece boxes.

● : Std. Item
R : Std. Item (Right-hand Only)

GMN

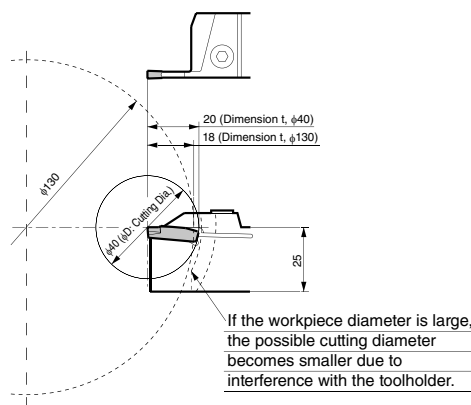
Classification of usage		P	Carbon steel / Alloy steel							Ref. to Page for Applicable Toolholders
		M	Stainless Steel							
●: Continuous-Light Interruption / 1st Choice ○: Continuous-Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice	K	Cast Iron								
	N	Non-ferrous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

Insert	Description	Dimension (mm)					Angle (°)	CBN		PCD		Ref. to Page for Applicable Toolholders
		W	r _ε	M	L	H	θ	KBN510	KBN525	KPD001	KPD010	
 Deep Grooving 1-edge	GMN 2	2.0	0.2 0.4	1.8				●	●	●	●	G32 G33
	3	3.0	0.2 0.4	2.3				●	●	●	●	
	4	4.0	0.2 0.4	3.3	20	4.3	-	●	●	●	●	
	5	5.0	0.2 0.4	4.2				●	●	●	●	
	6	6.0	0.2 0.4	5.2				●	●	●	●	
								●	●	●	●	

Recommended Cutting Conditions ● G100

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

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



◆ KGM Possible Cutting Diameter and Available Grooving Depth Table

e.g.) KGMR2525M-3T20+GMN3

Toolholder Description		φD (Cutting Dia.)																
KGM [®] /L	0810K-1.5-125	-	-	-	-	-	-	-	-	-	-	-	10	14	16	32	∞	
	1010□-1.5...	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞		∞
	1212□-1.5...	-	-	-	-	25	26	28	32	36	40	60	100					
	0810K-2-125	-	-	-	-	-	-	-	-	-	-	-	10	14	16	32		
	1010□-2...	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞		∞
	1212□-2...	-	-	-	-	25	26	28	50	∞	∞	∞	∞					
	1616□-2...	32	40	50	60	80	100	∞	∞									
	1010□-2.5...	-	-	-	-	-	-	-	20	25	32	40	60					
	1212□-2.5...	-	-	-	-	25	26	28	32	36	40	60	100					
	1616□-2.5...	32	40	50	60	80	100	∞	∞	∞	∞	∞	∞					
1616□-3...	32	40	50	60	80	100												
Available Grooving Depth 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[®]/L when using 1-edge insert)

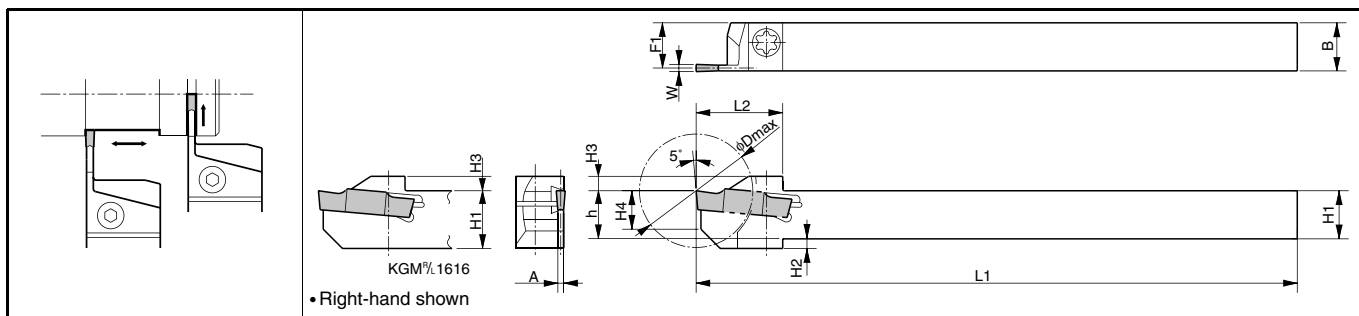
Toolholder Description		φD (Cutting Dia.)												
KGM [®] /L	2012K-2T17	-	-	-	-	-	-	-	-	66	80	130	260	∞
	2020K-2T17	-	-	-	-	-	-	-	-	66	80	130	260	
	2525M-2T17	-	-	-	-	-	-	-	-	66	80	130	260	
	1616H-3T20	-	-	-	-	-	40	54	70	100	180			
	2012K-3T20	-	-	-	-	-	-	-	-	-	-	-	-	
	2020K-3T20	-	-	-	-	-	-	-	-	-	-	-	-	
	2525M-3T20	-	-	-	-	-	40	90	130	240				
	2020K-4T20	-	-	-	-	-	-	-	-	-	-	-	-	
	2525M-4T20	-	-	-	-	-	-	-	-	-	-	-	-	
	2525M-4T25	-	-	50	140	240	∞	∞	∞	∞	∞	∞	∞	
	2525M-5T25	-	-	50	280	600								
	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

External Grooving Toolholders

KGM (For automatic lathe)

Width: 1.5~4.0mm

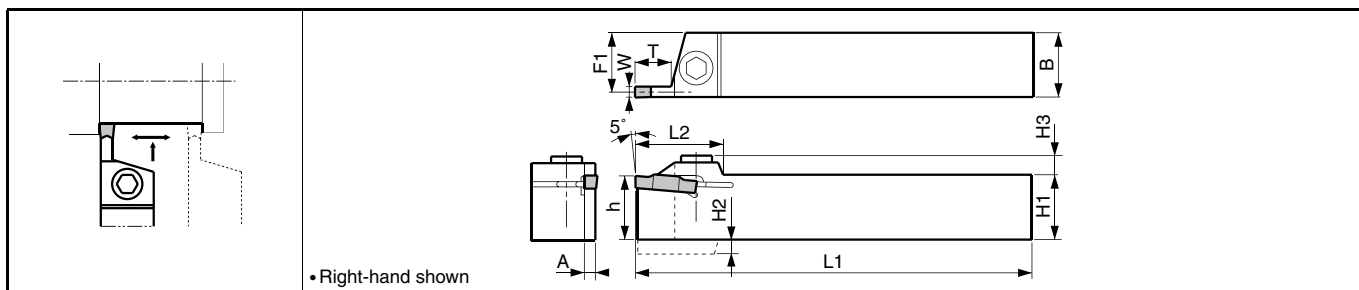


Toolholder Dimensions

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

KGM

Width: 3.0~8.0mm



Toolholder Dimensions

Description	Std.		Dimension (mm)										Width W(mm)		Spare Parts			
	R	L	H1=h	H2	H3	B	L1	L2	F1	A	T		MIN.	MAX.	Screw		Wrench	
KGM^{R/L} 1212H-3	●	●	12	4	6	12	100	27	10.8	2.4	9		3.0	3.0	SB-5TR	-	LTW-20	-
1616H-3	●	●	16		7	16			14.8									
2020K-3	●	●	20	-	7	20	125	27	18.8	3.4	10		3.0	4.0	-	HH5X16	-	LW-4
2525M-3	●	●	25			25	150		23.8									
KGM^{R/L} 2020K-4	●	●	20	-	7	20	125	27	18.3	4.4	10		4.0	5.0	-	HH5X16	-	LW-4
2525M-4	●	●	25			25	150		23.3									
KGM^{R/L} 2020K-5	●	●	20	-	7	20	125	27	17.8	6.0	25		5.0	6.0	-	HH5X16	-	LW-4
2525M-5	●	●	25			25	150		22.8									
3232P-5	●	●	32	-	10.5	32	170	40	29.8							HH5X25	-	LW-4
KGM^{R/L} 2525M-8	●	●	25			25	150		22.0				8.0	8.0	-	HH6X25	-	LW-5
3232P-8	●	●	32			32	170		29.0									

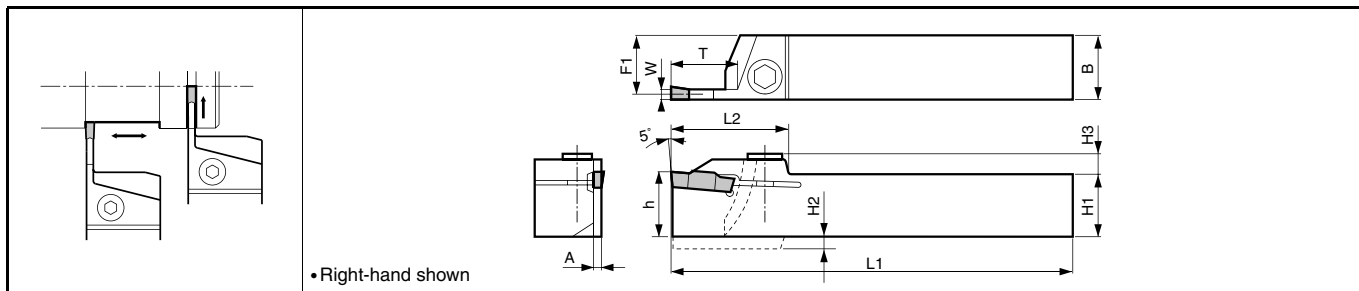
- Dimension T shows available grooving depth.

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

● : Std. Item

KGM-T (Deep Grooving Type)

Width: 2.0~6.0mm



Toolholder Dimensions

Description		Std.		Dimension (mm)										Width W(mm)		Spare Parts					
				H1=h	H2	H3	B	L1	L2	F1	A	T		MIN.	MAX.	Screw		Wrench			
																					
KGM ^{R/L}	2012K-2T17	●	●	20	-	7	12	125	33	11.15	1.7	17		2.0	3.0	SB-5TR	-	LTW-20	-		
	2020K-2T17	●	●				20			19.15						HH5X16	-	LW-4			
	2525M-2T17	●	●				25			24.15						HH5X25	-	LW-4			
KGM ^{R/L}	1616H-3T20	●	●	16	4	7	16	100	36	14.8	2.4	20		3.0	4.0	-	HH5X16	-	LW-4		
	2012K-3T20	●	●	20	-		12			10.8						SB-5TR	-	LTW-20	-		
	2020K-3T20	●	●				20			18.8						-	HH5X16	-	LW-4		
	2525M-3T20	●	●				25			23.8											
KGM ^{R/L}	2020K-4T20	●	●	20	-	7.5	20	125	36	18.3	3.4	20		4.0	5.0	-	HH5X16	-	LW-4		
	2525M-4T20	●	●	25			150			36							23.3			25	HH5X25
	2525M-4T25	●	●																		
KGM ^{R/L}	2525M-5T25	●	●	25	-	8.5	25	150	42	22.8	4.4	25		5.0	6.0	-	HH5X25	-	LW-4		
	3232P-5T25	●	●	32			29.8														
KGM ^{R/L}	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. Refer to the Table (G31) 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

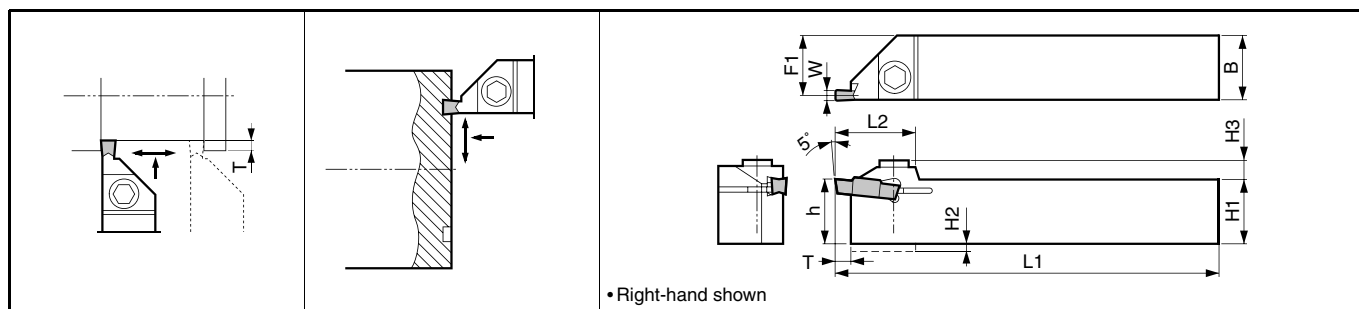
Applications	G28	G28	G28	G28	G29	G30	G30	G30	G30	G30	G30	G31
Ref. to Page	G28	G28	G28	G28	G29	G30	G30	G30	G30	G30	G30	G31
Insert	MW	MS	MG			MT	NB	TK	TK			CBN PCD
Toolholder Description												
KGM ^{R/L} ...1.5	-	-	-	-	-	GMM1520..MT GMM2020..MT GMM1520%..MT GMM2020%..MT	GMM1520..NB GMM2020..NB	GMM2020..TK GMM2020%..TK	GMN2..TK GMN2%..TK	-	-	-
KGM ^{R/L} ...2(T)	GMM2420..MW GMM3020..MW	GMM3020..MS GMM3020%..MS	GMM2520..MG GMM3020%..MG	GMM3020..R GMM3020%..R	-	GMM2020..MT GMM2520..MT GMM3020..MT GMM2020%..MT GMM2520%..MT GMM3020%..MT	GMM2020..NB GMM2520..NB GMM3020..NB	GMM2020..TK GMM2520..TK GMM3020..TK GMM2020%..TK GMM2520%..TK GMM3020%..TK	GMN2..TK GMN3..TK GMN2%..TK GMN3%..TK	GMN2.2 GMN3 GMN2%..2.2 GMN3%..3	GMN2 GMN3	GMN2 GMN3
KGM ^{R/L} ...2.5	GMM2420..MW GMM3020..MW	GMM3020..MS GMM3020%..MS	GMM2520..MG GMM3020%..MG	GMM3020..R GMM3020%..R	-	GMM2520..MT GMM3020..MT GMM2520%..MT GMM3020%..MT	GMM2520..NB GMM3020..NB	GMM2520..TK GMM3020..TK GMM2520%..TK GMM3020%..TK	GMN3..TK GMN4..TK GMN3%..3 GMN4%..4	GMN3 GMN3%..3	GMN3 GMN4	GMN3 GMN4
KGM ^{R/L} ...3(T)	GMM3020..MW GMM4020..MW	GMM3020..MS GMM4020..MS GMM4020%..MS	GMM3020..MG GMM3520..MG GMM4020%..MG	GMM3020..R GMM3520..R GMM4020%..R	-	GMM3020..MT GMM3020%..MT	GMM3020..NB	GMM3020..TK GMM3020%..TK	GMN3..TK GMN4..TK GMN3%..3 GMN4%..4	GMN3 GMN4 GMN3%..3 GMN4%..4	GMN3 GMN4	GMN3 GMN4
KGM ^{R/L} ...4(T)	GMM4020..MW GMM5020..MW	GMM4020..MS GMM5020..MS GMM5020%..MS	GMM4020..MG GMM5020..MG	GMM4020..R GMM5020..R GMM5020%..R	-	-	-	-	GMN4..TK GMN5%..4	GMN4 GMN5 GMN4%..4	GMN4 GMN5	GMN4 GMN5
KGM ^{R/L} ...5(T)	GMM5020..MW GMM6020..MW	GMM5020..MS GMM6020..MS GMM6020%..MS	GMM5020..MG GMM6020..MG	GMM5020..R GMM6020..R GMM6020%..R	GMGA6020..R	-	-	-	-	GMN5 GMN6	GMN5 GMN6	GMN5 GMN6
KGM ^{R/L} ...6T	GMM6020..MW	GMM6020..MS GMM6020%..MS	GMM6020..MG	GMM6020..R GMM6020%..R	GMGA6020..R	-	-	-	-	GMN6	GMN6	GMN6
KGM ^{R/L} ...8	GMM8030..MW	-	GMM8030..MG	-	GMGA8030..R	-	-	-	-	-	-	-

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

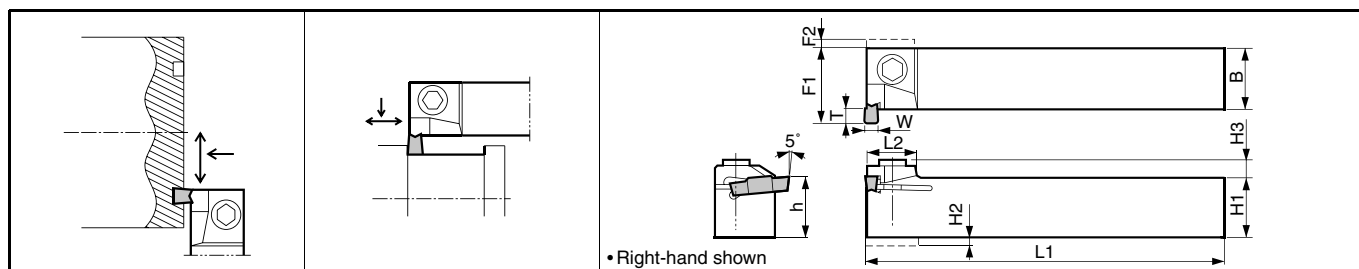
Recommended Cutting Conditions G101
Recommended Cutting Conditions of CBN/PCD G100

External Grooving (External / Face Grooving) Toolholders

KGMM



KGMS



Toolholder Dimensions

Description	Std.		Dimension (mm)										Width W(mm)		Spare Parts			
	R	L	H1=h	H2	H3	B	L1	L2	F1	F2	T		MIN.	MAX.	Screw		Wrench	
KGMM^{R/L} 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	-	5	16	100	25	14.8	-	4.8		3.0	5.0	-	HH5X16	-	LW-4
	●	●	20	-	6	20	125	17	18.8	-	4.8		3.0	5.0	-	HH5X16	-	LW-4
	●	●	25	-	6	25	150	17	23.8	-	4.8		3.0	5.0	-	HH5X25	-	LW-4
KGMS^{R/L} 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	-	5	16	100	17	21.5	-	4.8		3.0	3.0	GS-50	-	-	LW-3
	●	●	20	-	6	20	125	17	25	-	4.8		3.0	5.0	-	HH5X16	-	LW-4
	●	●	25	-	6	25	150	17	30	-	4.8		3.0	5.0	-	HH5X25	-	LW-4

• Dimension T shows available grooving depth. (Ref. to the table **G35** 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	G28, G29	G28	G28	G28, G29	G30	G30	G30	G30	G30	G31
Insert										
Toolholder Description										
KGMS^{R/L} 1212H-3	GMM3014..	-	-	GMM3014..R	-	-	-	-	-	-
KGMM^{R/L...3} KGMS^{R/L...3}	GMM3020..MW GMM4020..MW GMM5020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG3020..MG GMG3520..MG GMG4020..MG GMG5020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R GMG5020..R GMM5020..R	GMM3020..MT	GMM3020..NB	GMM3020..TK	GMN3..TK GMN4..TK	GMN3 GMN4 GMN5	GMN3 GMN4 GMN5

Applicable Inserts [Face Grooving]

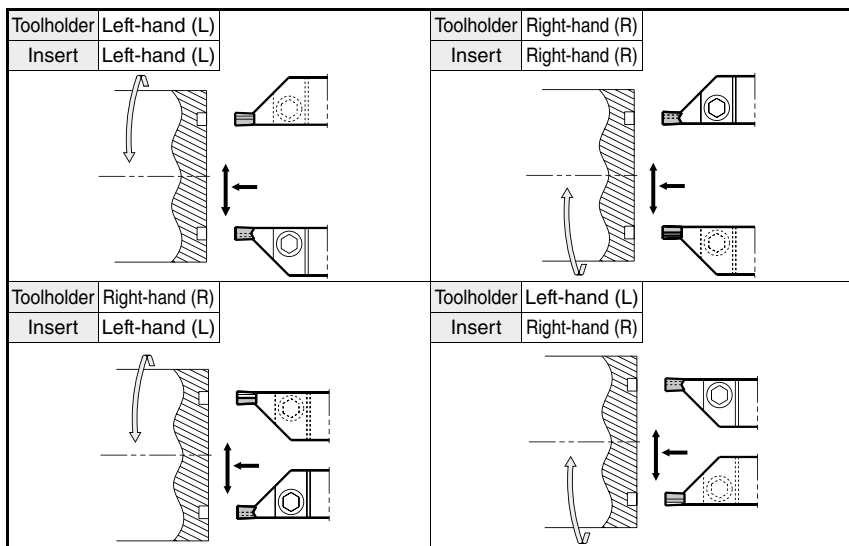
Applications	Grooving / Turning	Undercutting	Grooving / Turning	Grooving / Turning	Grooving	Full-R / Copying	Grooving	Grooving	Grooving	Grooving
Ref. to Page	G29	G28, G29	G28	G28	G28	G28	G30	G30	G30	G30
Insert										
Toolholder Description										
KGMS^{R/L} 1212H-3	-	GMM3014..RU	-	-	-	-	-	-	-	-
KGMM^{R/L...3} KGMS^{R/L...3}	FGG ^{R/L} 3020.. FGG ^{R/L} 4020.. FGG ^{R/L} 5020..	GMG3020..RU GMM3020..RU GMG4020..RU GMM4020..RU GMG5020..RU GMM5020..RU	GMG3020..MW GMM3020..MW GMG4020..MW GMM4020..MW GMG5020..MW GMM5020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG3020..MG GMM3020..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 **G101**
Recommended Cutting Conditions of CBN/PCD **G100**

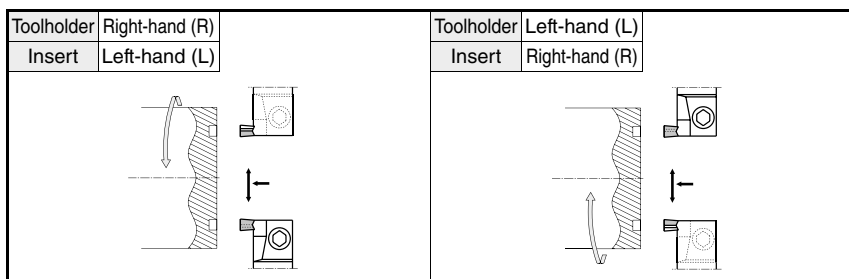
● : Std. Item
○ : Check Availability

◆ Selection of Insert & Toolholder (Face Grooving)

● Case of KGMM



● Case of KGMS

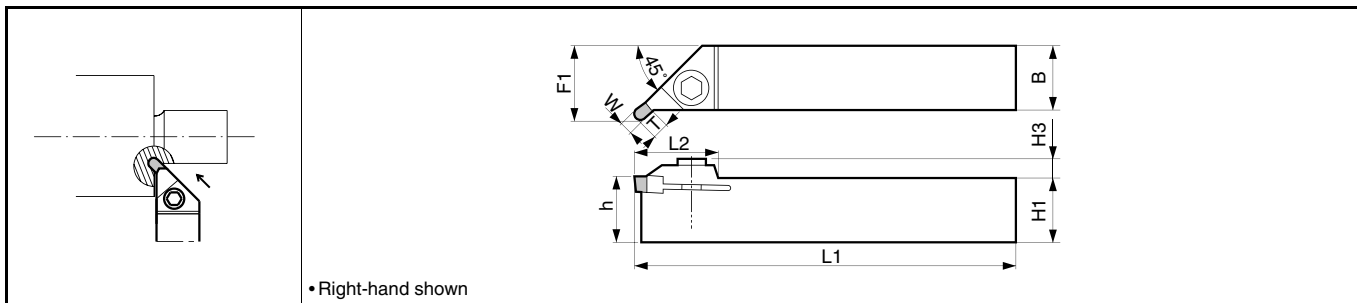


◆ Min. Cutting Dia. & Grooving Depth (Face Grooving)

● KGMM / KGMS (Common)

Description	φD _{min}	t
GMG/GMM3020-○○□□	φ100	4.8
GMG/GMM4020-○○□□		
GMG/GMM5020-○○□□		
FGG [®] /L 3020-02	φ22	4.3
FGG [®] /L 4020-04	φ28	4.8
FGG [®] /L 5020-04	φ30	
GMG3020-150RU	φ22	4.3
GMG4020-200RU	φ28	4.8
GMG5020-250RU	φ30	

■ KGMU (External Undercutting Toolholder)



● Toolholder Dimensions

Description	Std.	Dimension (mm)										Width W(mm)		Spare Parts	
		R	L	H1=h	H3	B	L1	L2	F1	T		MIN.	MAX.	Clamp Bolt	Wrench
KGMU [®] /L 2020K 2525M	●	●	20	6	20	125	28.5	23.6	4.8			3.0	5.0	HH5X16	LW-4
	●	●	25		25	150	28.5	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	G28	
Insert		
Toolholder Description		
KGMU [®] /L 2020K 2525M	GMG3020..RU GMG4020..RU GMG5020..RU	

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

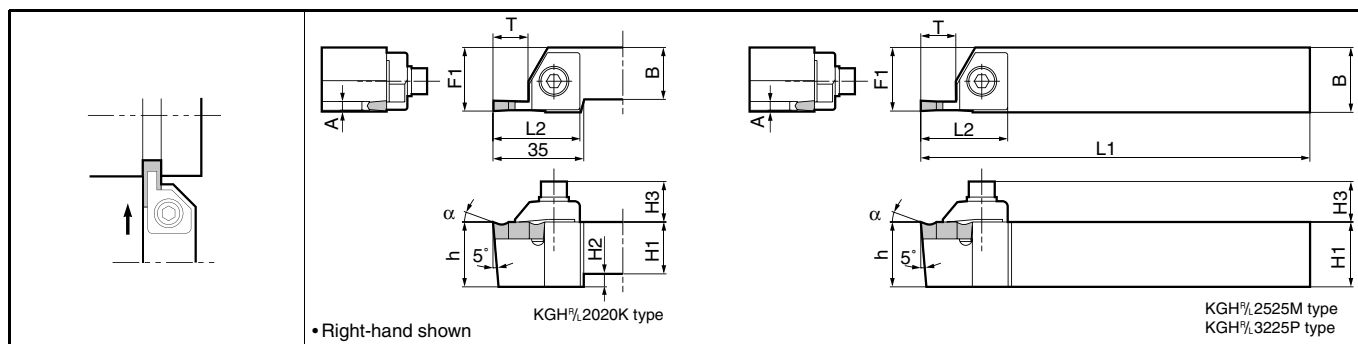
◆ Undercut Depth t

Description	Undercut Depth	
	t (mm)	ap (mm)
GMG3020-150RU	3.5	1.8
GMG4020-200RU	4.0	1.9
GMG5020-250RU	4.5	2.1

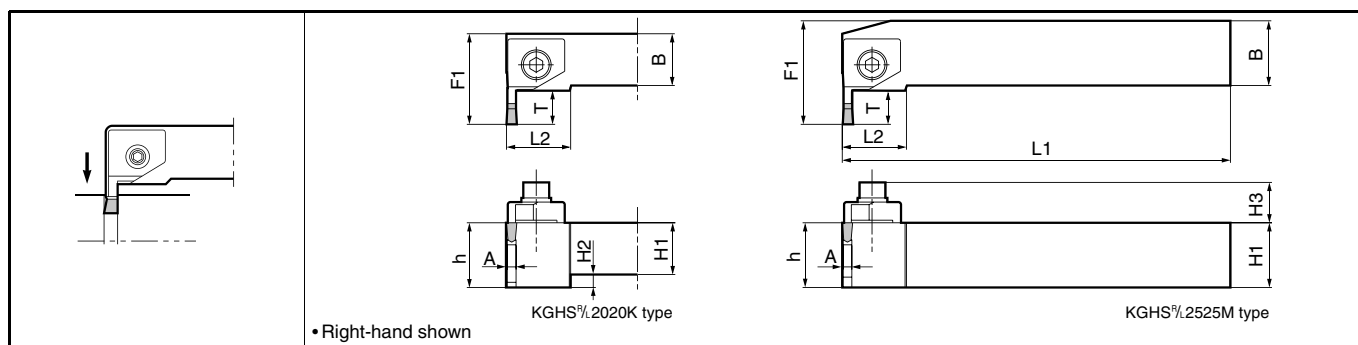
*In case of undercutting for the diameter over 100mm, external grooving inserts GMG○○20-○○□□, GMM○○20-○○□□, GMNO are also available.

● : Std. Item

KGH



KGHS



Toolholder Dimensions

Description		Std.		Dimension (mm)									Spare Parts				
													Clamp	Clamp Bolt	Washer	Spring	Wrench
		R	L	H1-h	H2	H3	B	L1	L2	F1	A	T					
KGH ^{R/L}	2020K-4	●	●	20	5	15.6	20	125	33.5	24.5-24.8	3.4	13	CGH-1 ^{R/L}				
	2525M-4	●	●	25	-	15.6	25	150	33.5	24.5-24.8	3.4	13	CGH-1 ^{R/L}				
	2020K-5	●	●	20	5	15.6	20	125	33.5	25.0-25.8	4.2	13	CGH-1 ^{R/L}				
	2525M-5	●	●	25	-	15.6	25	150	33.5	25.0-25.8	4.2	13	CGH-1 ^{R/L}				
	3225P-5	●	●	32	-	15.6	25	170	33.5	25.0-25.8	4.2	13	CGH-1 ^{R/L}				
	2020K-7	●	●	20	5	15.6	20	125	33.5	24.5-25.0	5.8	13	CGH-2 ^{R/L}				
	2525M-7	●	●	25	-	15.6	25	150	33.5	24.5-25.0	5.8	13	CGH-2 ^{R/L}				
	2525M-10	●	●	25	-	16.1	25	150	41	25.5-26.5	9.0	17	CGH-3 ^{R/L}				
3225P-10	●	●	32	-	16.1	25	170	41	25.5-26.5	9.0	17	CGH-3 ^{R/L}					
KGHS ^{R/L}	2020K-4	●	●	20	5	15.6	20	125	25	35	3.4	13	CGH-1 ^{1/8}				
	2525M-4	●	●	25	-	15.6	25	150	25	40	4.2	13	CGH-1 ^{1/8}				
	2020K-5	●	●	20	5	15.6	20	125	25	35	4.2	13	CGH-1 ^{1/8}				
2525M-5	●	●	25	-	15.6	25	150	25	40	4.2	13	CGH-1 ^{1/8}					

Dimension T shows available grooving depth.

Dimension F1 of KGH%. Toolholder depends on the insert's edge width.

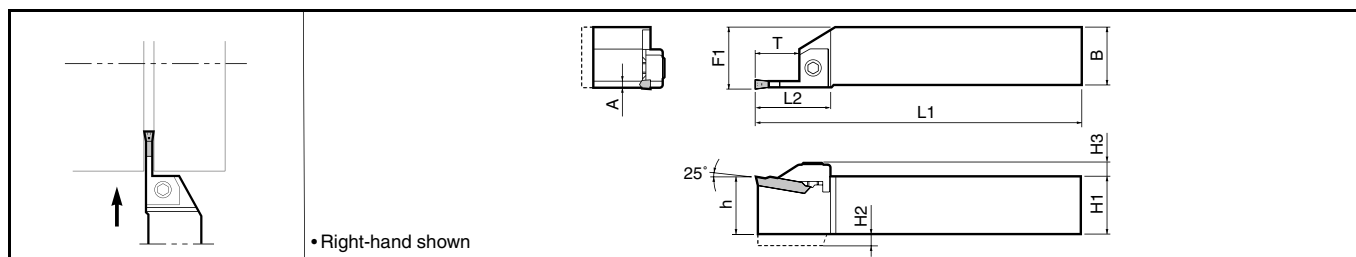
Clamp KGH% ... CGH-OR for Right-hand Toolholder, and CGH-OL for Left-hand Toolholder.

KGHS% ... CGH-OL for Right-hand Toolholder, and CGH-OR for Left-hand Toolholder.

Rake Angle (α) after Installment of GH / GHU

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

KGA



Toolholder Dimensions

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

- Dimension T shows available grooving depth.

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

Applicable Inserts

Description					L	H																Classification of usage				
GH4020-○○~GH8020-○○					20	7.5																●: Continuous-Light Interruption / 1st Choice				
GH10025-05~GH12025-05					25																	○: Continuous-Light Interruption / 2nd Choice				
GHU○○-○○					20																	●: Continuous / 1st Choice				
GA30 , GA40					25	5.0																○: Continuous / 2nd Choice				
GA50					30																					

Insert	Description	Dimension (mm)		Cermet				PVD Coated Carbide	PVD Coated Carbide	Carbide	Ceramic			Applicable Toolholders	Ref. to Page for Applicable Toolholders
		W	rε	TN60	TN90	TC40N	TC60M				CR9025	PR930	KW10		

 Ground Chipbreaker	 Ceramic Ceramic insert is above shape.	GH	4020-02	4.0	0.2	●	●	○	●	●	●	●	●	KGH $\frac{R}{L}$...4 KGHS $\frac{R}{L}$...4	G36	
			4020-05	4.0	0.5	●	●	○	●	●	●	●	●			●
		4520-02	4.5	0.2	●	●	○	●	●	●	●	●	●			
			4520-05	4.5	0.5	●	●	○	●	●	●	●	●			●
		5020-02	5.0	0.2	●	●	○	●	●	●	●	●	●			
			5020-05	5.0	0.5	●	●	○	●	●	●	●	●			●
		5520-02	5.5	0.2	●	●	○	●	●	●	●	●	●			●
			5520-05	5.5	0.5	●	●	○	●	●	●	●	●			●
		6020-02	6.0	0.2	●	●	○	●	●	●	●	●	●			●
			6020-05	6.0	0.5	●	●	○	●	●	●	●	●			●
		6520-02	6.5	0.2	●	●	○	●	●	●	●	●	●			●
			6520-05	6.5	0.5	●	●	○	●	●	●	●	●			●
 Molded Chipbreaker	 Ceramic Ceramic insert is above shape.	GH	7020-02	7.0	0.2	●	●	○	●	●	●	●	●	KGH $\frac{R}{L}$...7 KGHS $\frac{R}{L}$...7	G36	
			7020-05	7.0	0.5	●	●	○	●	●	●	●	●			
		7520-02	7.5	0.2	●	●	○	●	●	●	●	●	●			
			7520-05	7.5	0.5	●	●	○	●	●	●	●	●			
		8020-02	8.0	0.2	●	●	○	●	●	●	●	●	●			
			8020-05	8.0	0.5	●	●	○	●	●	●	●	●	●		
10025-05	10.0	0.5	●	●	○	●	●	●	●	●	●	●				
	12025-05	12.0	0.5	●	●	○	●	●	●	●	●	●				

 Molded Chipbreaker	 Ceramic Ceramic insert is above shape.	GHU	40-20	4.0	0.25	●	●	●	●	●	●	●	●	KGH $\frac{R}{L}$...4 KGHS $\frac{R}{L}$...4	G36
			50-20	5.0	0.30	●	●	●	●	●	●	●	●	KGH $\frac{R}{L}$...5 KGHS $\frac{R}{L}$...5	
			60-20	6.0	0.30	●	●	●	●	●	●	●	●	KGH $\frac{R}{L}$...5 KGHS $\frac{R}{L}$...5	

 Molded Chipbreaker	 Ceramic Ceramic insert is above shape.	GA	30	3.0	0.20	●	●	●	●	●	●	●	KGH $\frac{R}{L}$...3	G37
			40	4.0	0.25	●	●	●	●	●	●	●	KGH $\frac{R}{L}$...4	
			50	5.0	0.30	●	●	●	●	●	●	●	KGH $\frac{R}{L}$...5	

Recommended Cutting Conditions $\rightarrow$ G98~G99

● : Std. Item
○ : Check Availability

Заказ инструмента: <http://steelcam.org>
8 (343) 382-52-03 | sales@sverla-ekb.ru

Inserts are
sold in 10 piece boxes.

G37

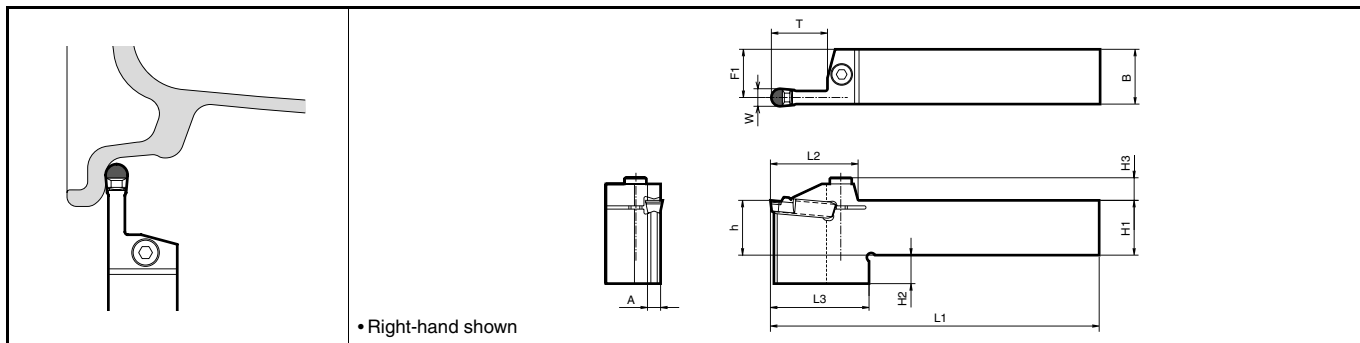
G



Grooving

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^{R/L} 2525M-6	●	●	25	13	10.3	25	150	40	55	22.8	4.4	25	HH6X25	LW-5	GMGW6030-30R
2525M-8	●	●								22	6				GMGW8030-40R GMGW8030-40R-HR

Applicable Inserts

Insert	Description	Dimension (mm)							No. of Edge	PCD	
		W	r _c	L	H	M	S			KPD001	
	GMGW 6030-30R	6	3	30	5.5	5	4.5	1	1	●	
	8030-40R	8	4			6	6	1		●	
	GMGW 8030-40R-HR	8	4	30	5.5	6	5	1	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 V _c : m/min)	
	PCD	(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)
	KPD001	
Aluminum	★ 150~2,700	(1) 0.05~0.3 mm/rev (2) 0.2~0.8 mm/rev (3) MAX. 3 mm

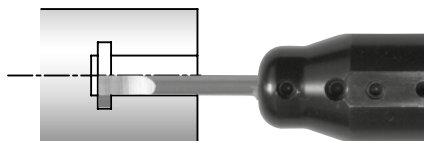
★: 1st Recommendation

●: Std. Item

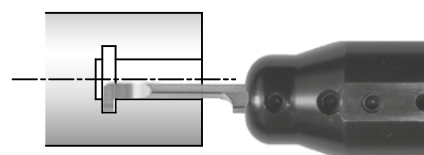
Summary of Internal Grooving

Small Dia. Internal Grooving $\phi 3 \sim (\text{G41} \sim \text{G44})$

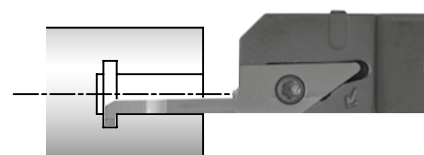
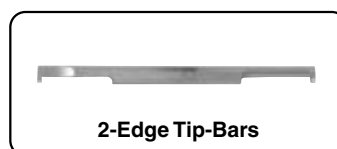
EZ Bars, 2-Edge Tip-Bars & System Tip-Bars



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	G41



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	G44

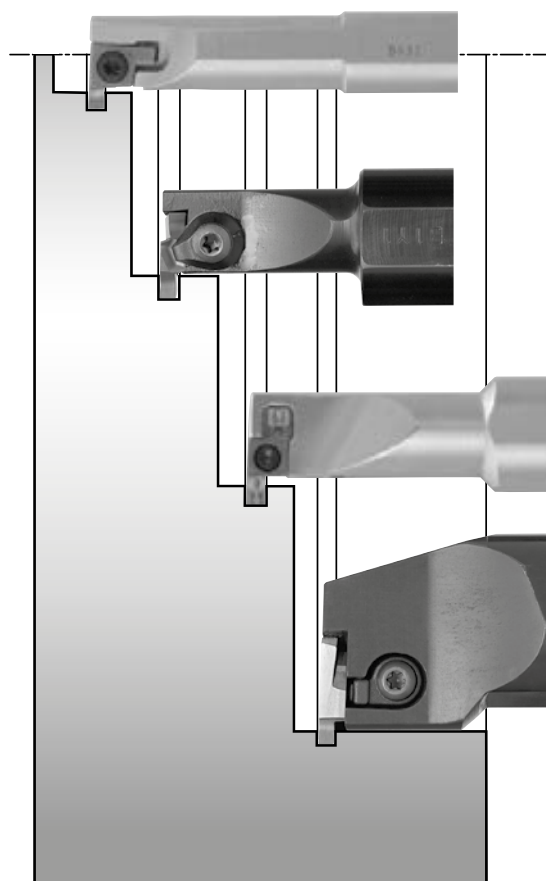


Type	VNG
Min. Bore Dia.	$\phi 4 \sim \phi 7$
Edge Width (mm)	1.0~2.0
Grooving Depth (mm)	0.8~2.0
Ref. to Page	G43

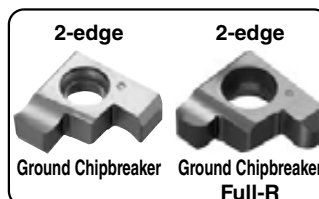


Internal Grooving $\phi 8 \sim (\text{G45} \sim \text{G55})$

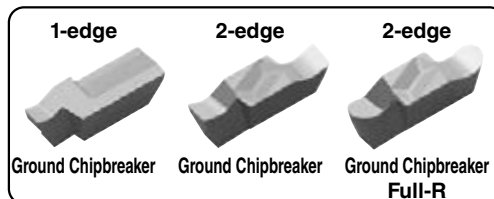
Shallow Grooving



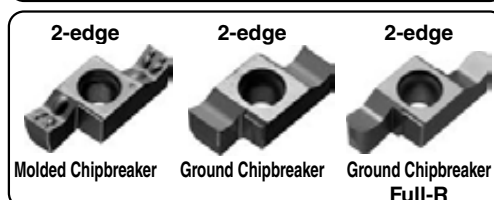
Type	SIGE
Min. Bore Dia.	$\phi 8 \sim \phi 12$
Edge Width (mm)	1.0~3.0
Grooving Depth (mm)	1.5~2.2
Ref. to Page	G47



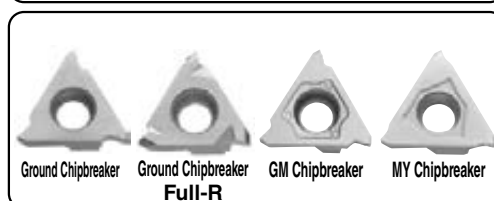
Type	GIV
Min. Bore Dia.	$\phi 12 \sim \phi 40$
Edge Width (mm)	1.0~5.0
Grooving Depth (mm)	1.7~6.3
Ref. to Page	G52



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	G47



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	G54



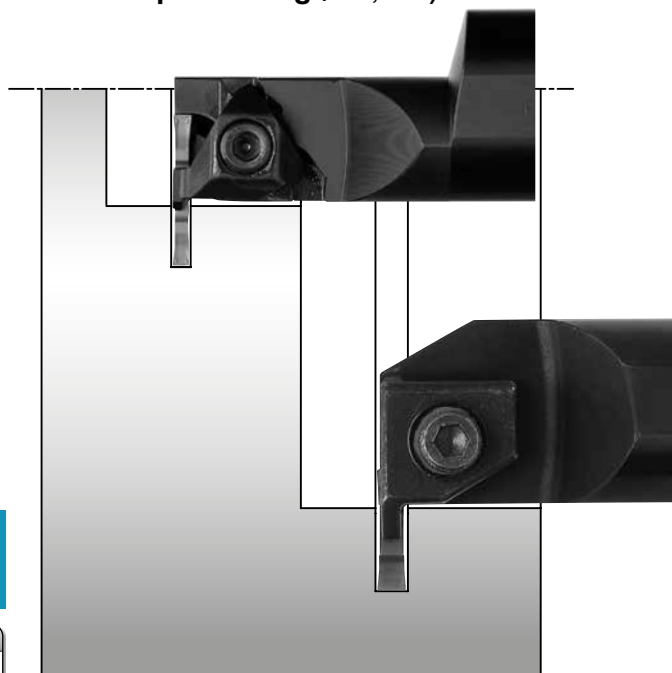
Type	KITG
Min. Bore Dia.	$\phi 35 \sim \phi 45$
Edge Width (mm)	0.75~4.5
Grooving Depth (mm)	2.0~2.5
Ref. to Page	G55



*KITG will be switched to KIGBA.

Summary of Internal Grooving

● Deep Grooving (G56, G59)



Type	KGIA
Min. Bore Dia.	φ32~φ66
Edge Width (mm)	3.0~5.0
Grooving Depth (mm)	10~15
Ref. to Page	G59

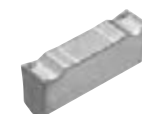
Type	KIGH
Min. Bore Dia.	φ45~φ65
Edge Width (mm)	4.0~8.0
Grooving Depth (mm)	12
Ref. to Page	G56



Molded Chipbreaker



Ground Chipbreaker

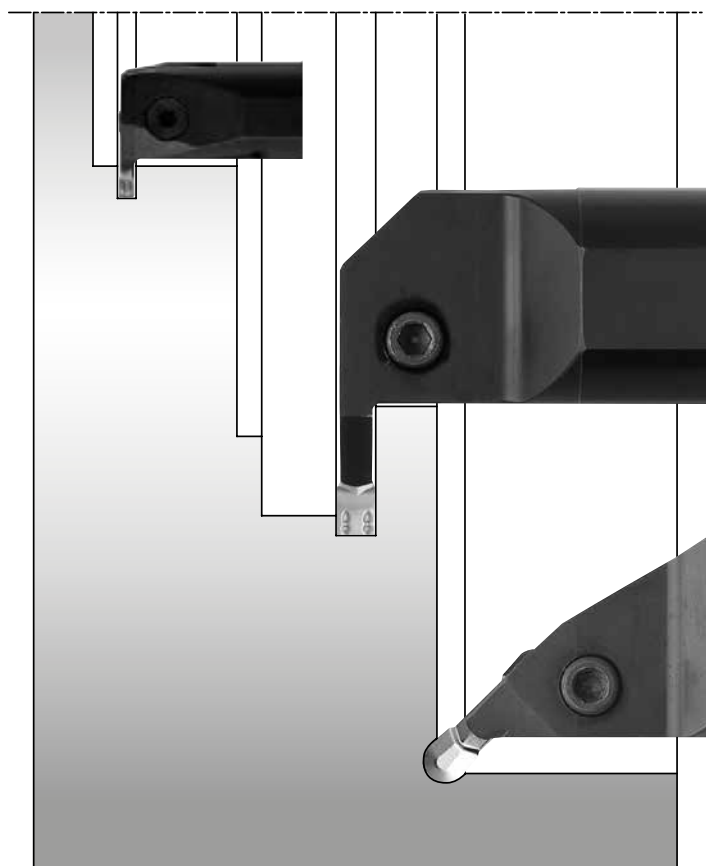


Molded Chipbreaker

G

Grooving

■ Internal Grooving & Turning φ20~ (G57, 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	G57

Type	KIGM-8
Min. Bore Dia.	φ65
Edge Width (mm)	8.0
Grooving Depth (mm)	20
Ref. to Page	G58

Type	KIGMU-8
Min. Bore Dia.	φ65
Edge Width (mm)	8.0
Grooving Depth (mm)	2.2
Ref. to Page	G58



Molded Chipbreaker



Molded Chipbreaker Full-R



Molded Chipbreaker



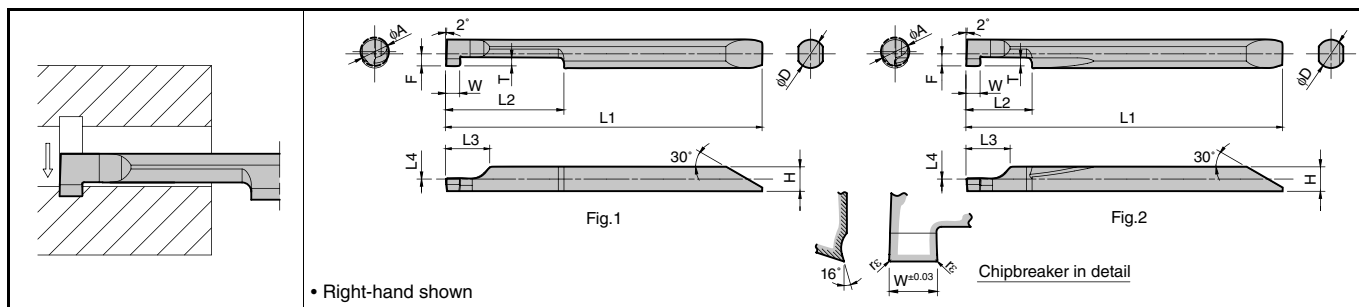
Ground Chipbreaker



Molded Chipbreaker Full-R

Small Dia. Internal Grooving EZ Bars

EZG (Small Dia. Internal Grooving) NEW

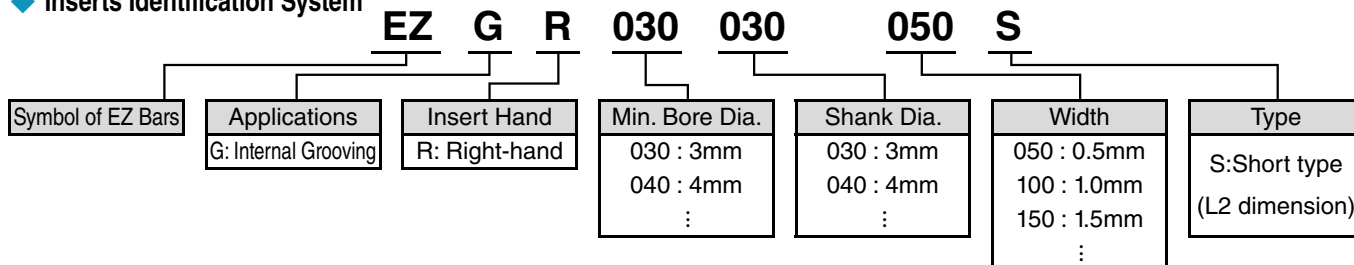


Dimensions

Description	Min. Bore Dia.	Dimension (mm)										Drawing	MEGACOAT	Applicable Sleeves EZH F20~F25			
	φA	W ^{±0.03}	rε	φD	H	L1	L2	L3	L4	F	T		PR1225				
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		2.15	1.5	Fig.1	●	EZH050..			
		1.5											●				
		2.0											●				
	1.0	6											5.15	60.7	7.6	3.05	2
	1.5			●													
	2.0			●													
	1.0			7	6.2	63.7	25	3.45		2	●						
	1.5	●															
	2.0	●															
	1.0	8									1.5		2.0	3.05	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													●		
		0.5													●		
	4	1.0			4	3.45	44.7	8		6.2		1.7	1		Fig.2	●	EZH040..
		1.5														●	
		2.0														●	
	1.0	5														4.3	52.8
	1.5				●												
	2.0				●												
	1.0				6	5.15	60.7	7.6		3.05		2	●				
	1.5	●															
	2.0	●															
	1.0	7											6.2	63.7		7.6	3.05
	1.5				●												
	2.0				●												
	1.0				8	1.5	2.0	3.45		2		●			EZH070..		
	1.5	●															
	2.0	●															
2.0	●																

• Dimension T shows available grooving depth.

Inserts 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

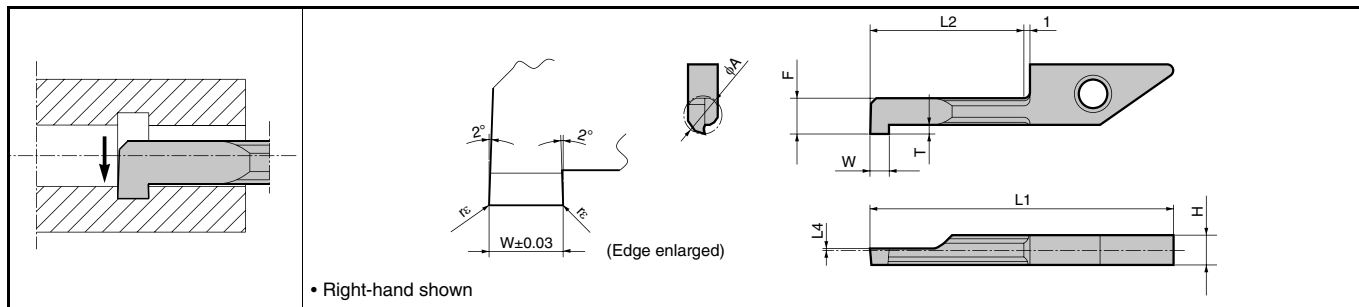
Applicable Sleeves for Internal Grooving Inserts

● Applicable Sleeve

Sleeve				Applicable Insert for Small Dia. Internal Grooving			Applicable Machine Manufacturer
EZH-CT (Adjustable overhang length / with coolant hole) F20	EZH-HP (Adjustable overhang length) F22	EZH-ST F24	Sleeve Shank Dia. φD1(mm)	EZG	HPG	Shank Dia. φD(mm)	
-	-	EZH 03012ST-80	12	EZGR ...030-...	-	3	(General purpose)
		04012ST-80		EZGR ...040-...	HPG ^{R/L} 0404-...	4	
		05012ST-80		EZGR ...050-...	HPG ^{R/L} 0505-...	5	
		06012ST-80		EZGR ...060-...	HPG ^{R/L} 0606-...	6	
		07012ST-80		EZGR ...070-...	HPG ^{R/L} 0707-...	7	
-	EZH 03016HP-100	EZH 03016ST-100	16	EZGR ...030-...	-	3	(General purpose)
	04016HP-100	04016ST-100		EZGR ...040-...	HPG ^{R/L} 0404-...	4	
	05016HP-100	05016ST-100		EZGR ...050-...	HPG ^{R/L} 0505-...	5	
	06016HP-100	06016ST-100		EZGR ...060-...	HPG ^{R/L} 0606-...	6	
	07016HP-100	07016ST-100		EZGR ...070-...	HPG ^{R/L} 0707-...	7	
EZH 03019CT-120	EZH 03019HP-120	EZH 03019ST-120	19.05	EZGR ...030-...	-	3	Citizen Machinery
04019CT-120	04019HP-120	04019ST-120		EZGR ...040-...	HPG ^{R/L} 0404-...	4	
05019CT-120	05019HP-120	05019ST-120		EZGR ...050-...	HPG ^{R/L} 0505-...	5	
06019CT-120	06019HP-120	06019ST-120		EZGR ...060-...	HPG ^{R/L} 0606-...	6	
07019CT-120	07019HP-120	07019ST-120		EZGR ...070-...	HPG ^{R/L} 0707-...	7	
EZH 03020CT-120	EZH 03020HP-120	EZH 03020ST-120	20	EZGR ...030-...	-	3	Amada Machine Tools Eguro Tsugami Citizen Machinery (General purpose)
04020CT-120	04020HP-120	04020ST-120		EZGR ...040-...	HPG ^{R/L} 0404-...	4	
05020CT-120	05020HP-120	05020ST-120		EZGR ...050-...	HPG ^{R/L} 0505-...	5	
06020CT-120	06020HP-120	06020ST-120		EZGR ...060-...	HPG ^{R/L} 0606-...	6	
07020CT-120	07020HP-120	07020ST-120		EZGR ...070-...	HPG ^{R/L} 0707-...	7	
EZH 03022CT-135	EZH 03022HP-135	EZH 03022ST-135	22	EZGR ...030-...	-	3	Star Micronics Nomura DS Tsugami
04022CT-135	04022HP-135	04022ST-135		EZGR ...040-...	HPG ^{R/L} 0404-...	4	
05022CT-135	05022HP-135	05022ST-135		EZGR ...050-...	HPG ^{R/L} 0505-...	5	
06022CT-135	06022HP-135	06022ST-135		EZGR ...060-...	HPG ^{R/L} 0606-...	6	
07022CT-135	07022HP-135	07022ST-135		EZGR ...070-...	HPG ^{R/L} 0707-...	7	
EZH 03025.0CT-135	EZH 03025.0HP-135	EZH 03025.0ST-135	25	EZGR ...030-...	-	3	Amada Machine Tools Eguro Tsugami Citizen Machinery (General purpose)
04025.0CT-135	04025.0HP-135	04025.0ST-135		EZGR ...040-...	HPG ^{R/L} 0404-...	4	
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZGR ...050-...	HPG ^{R/L} 0505-...	5	
06025.0CT-135	06025.0HP-135	06025.0ST-135		EZGR ...060-...	HPG ^{R/L} 0606-...	6	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZGR ...070-...	HPG ^{R/L} 0707-...	7	
EZH 03025.4CT-120	EZH 03025.4HP-120	EZH 03025.4ST-120	25.4	EZGR ...030-...	-	3	Citizen Machinery
04025.4CT-120	04025.4HP-120	04025.4ST-120		EZGR ...040-...	HPG ^{R/L} 0404-...	4	
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZGR ...050-...	HPG ^{R/L} 0505-...	5	
06025.4CT-120	06025.4HP-120	06025.4ST-120		EZGR ...060-...	HPG ^{R/L} 0606-...	6	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZGR ...070-...	HPG ^{R/L} 0707-...	7	

- 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~)							

●: Continuous / 1st Choice
○: Continuous / 2nd Choice

Dimensions

Description	Min. Bore Dia.	Dimension (mm)										MEGA COAT		PVD	Carbide	PCD		Ref. to Page for Applicable Toolholders
		φA	W	rε	φD	H	L1	L2	L3	L4	F	T	PR1225	PR930	KW10	KPD001	KPD010	
VNGR 0410-11 0420-11 0510-11 0520-11 0610-20 0620-20 0710-20 0720-20	4		1.0 2.0	0.05			30.8	11		0.1	3.5	0.8	●	●	●			F28 F29
	5		1.0 2.0	0.05		3.9					4.4	1.0	●	●	●			
	6		1.0 2.0	0.05			39.8	20		0.3	5.2	1.8	●	●	●			
	7		1.0 2.0	0.05							6.2	2.0	●	●	●			
VNGR 0410-11NB 0420-11NB 0510-11NB 0520-11NB 0610-20NB 0620-20NB 0710-20NB 0720-20NB	4		1.0 2.0	0.05			30.8	11		0.1	3.5	0.8				MT0	MT0	
	5		1.0 2.0	0.05		3.9					4.4	1.0				MT0	MT0	
	6		1.0 2.0	0.05			39.8	20		0.3	5.2	1.8				MT0	MT0	
	7		1.0 2.0	0.05							6.2	2.0				MT0	MT0	
																MT0	MT0	
																MT0	MT0	
																MT0	MT0	

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 COAT	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

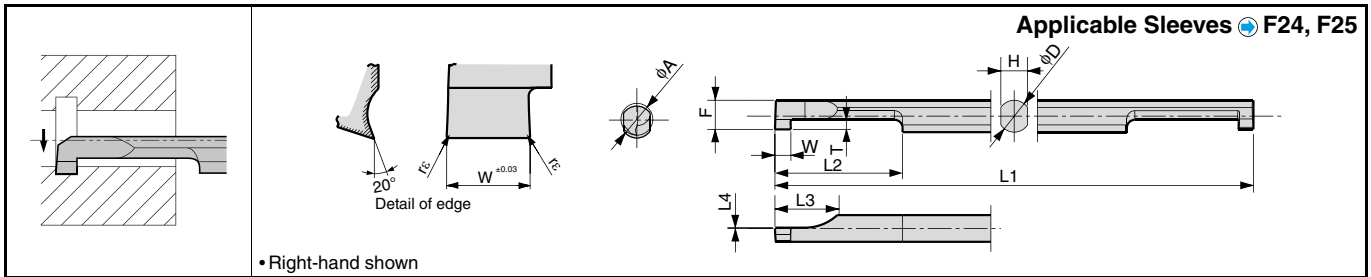
●: Std. Item
MTO: Made to order

Заказ инструмента: <http://steelbar.org>
8 (343) 382-52-03 | sales@sverla-ekb.ru

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
HPG ^{R/L} 0404-10 0404-20 0505-10 0505-20 0606-10 0606-20 0707-10 0707-20	4	1	0.05 ^{+0 -0.02}	4	3.35	60	15	8	0	3.65	1	●	●	●	
		2										●	●	●	
	5	1		5	4.3	70	20	10		4.55	1.5	●	●	●	
		2										●	●	●	
	6	1		6	5.2	5.5	2			●	●	●			
		2								●	●	●			
	7	1		7	6.2	80		25		6.45	●	●	●		
		2									●	●	●		

• Dimension T shows available grooving depth.

Description Table for Tip-Bars and Applicable Sleeves

Tip-Bars Description	Applicable Sleeves F24, F25
HPG ^{R/L} 0404---	EZH 04....
0505---	05....
0606---	06....
0707---	07....

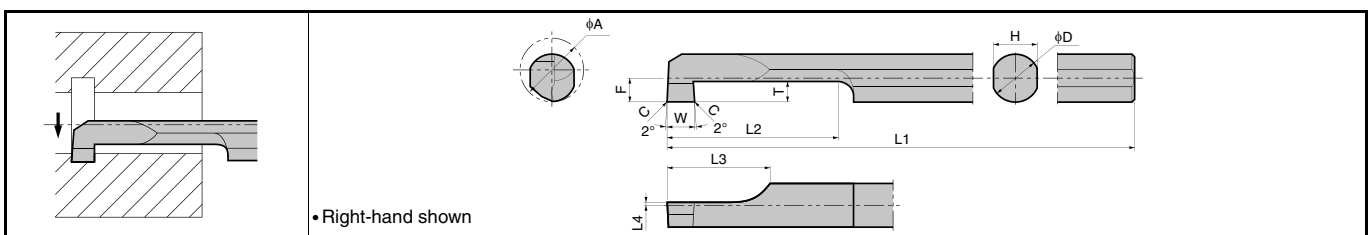
Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)		HPG ^{R/L} 04 HPG ^{R/L} 05	HPG ^{R/L} 06 HPG ^{R/L} 07	Remarks
	PVD Coated Carbide	Carbide			
	PR930	KW10			
Carbon Steel / Alloy 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

PSG-S (Tip-Bars)

This insert will be switched to EZG.



Dimensions

Description	Min. Bore Dia. ϕA	Dimension (mm)										PVD Coated Carbide	Carbide	Ref. to Page for Applicable Sleeves
		$W_{\pm 0.03}$	C	ϕD	H	L1	L2	L3	L4	F	T	PR930	KW10	
PSG ^{R/L} 0510-60S	5	1.0	0.05	3.8	3.6	60	15	8	0.1	1.86	1.5		△	F82
0520-60S		2.0	0.1										△	
0610-70S	6	1.0	0.05	4.8	4.4	70	20	10	0.3	2.36		△	△	
0620-70S		2.0	0.1									△	△	
0710-70S	7	1.0	0.05	5.8	5.2	70	20			2.86	2.0	△	△	
0720-70S		2.0	0.1									△	△	
0810-80S	8	1.0	0.05	6.8	6.2	80	25			3.38		△	△	
0820-80S		2.0	0.1									△	△	

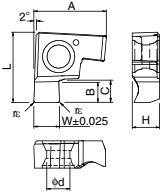
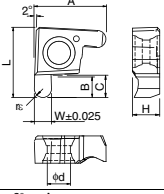
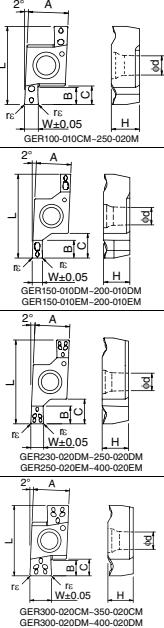
• Dimension T shows available grooving depth.

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

Recommended Cutting Conditions G99

Internal Grooving SIGE

■ Applicable Inserts

Applicable Inserts					(mm)										Classification of usage ●: Continuous-Light ○: Continuous-Light ●: Continuous / 1st Choice ○: Continuous / 2nd Choice	Ref. to Page for Applicable Toolholders			
Description	A	L	H	φd	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~)
GE ^{R/L} ...-A	6.69	6.5	2.58	2.5															
GER...-AR																			
GE ^{R/L} ...-B	8.46	8.2	3.18	2.7															
GER...-BR																			
GER...-CM	5.8	11.48	4.05	2.8															
GER...-DM	6.8	16.44	5.05	3.4															
GER...-EM	9.54	21.66	5.55	4.4															
Insert		Description		Dimension (mm)				Cermet	MEGA COAT	PVD Coated Carbide	Carbide		Applicable Toolholders						
				W	B	C	rε	TN6020	PR1225	PR1025	GW15	KW10							
Handed Insert shows Right-hand																			
 2-edge				GE ^{R/L}	100-005A	1.00	1.5	1.8	0.05	●	●	●		●	SIGE ^{R/L} ...A-EH SIGE ^{R/L} ...A-WH	G47 G48			
					120-005A	1.20				●	●	●		●					
					125-005A	1.25				●	●	●		●					
					150-010A	1.50				●	●	●		●					
					200-010A	2.00				●	●	●		●					
				GE ^{R/L}	100-005B	1.00	2.2	2.6	0.05	●	●	●		●	SIGE ^{R/L} ...B-EH SIGE ^{R/L} ...B-WH SIGER...B-WH-90	G47 G48 G49			
					120-005B	1.20				●	●	●		●					
					125-005B	1.25				●	●	●		●					
					145-010B	1.45				●	●	●		●					
					150-010B	1.50				●	●	●		●					
	200-010B	2.00	0.1	●	●	●		●		●									
	250-020B	2.50		●	●	●		●											
	300-020B	3.00		●	●	●		●											
 2-edge Full-R				GER	100-050AR	1.00	1.5	1.8	0.5		R	R		R	SIGER...A-EH SIGER...A-WH	G47 G48			
					200-100AR	2.00					R	R		R					
				GER	100-050BR	1.00	2.2	2.6	0.5		R	R		R	SIGER...B-EH SIGER...B-WH SIGER...B-WH-90	G47 G48 G49			
					200-100BR	2.00					R	R		R					
 2-edge Molded Chipbreaker				GER	150-010CM	1.50	2.5	2.7	0.1		R	R			SIGER...C-EH SIGER...C-WH SIGER...C-WH-90	G47 G48 G49			
					200-010CM	2.00					R	R							
					250-020CM	2.50					R								
					300-020CM	3.00					R								
					350-020CM	3.50					R								
				GER	150-010DM	1.50	3.0	4.8	0.1		R	R			SIGER...D-EH				
					200-010DM	2.00					R	R							
					230-020DM	2.30				3.2		R	R						
					250-020DM	2.50						R	R						
					300-020DM	3.00						R	R						
				GER	350-020DM	3.50	4.5		R	R									
					400-020DM	4.00			R	R									
					GER	150-010EM	1.50	3.0	6.8	0.1		R	R			SIGER...E-EH	G47		
						200-010EM	2.00				3.2		R	R					
						250-020EM	2.50						R	R					
				300-020EM		3.00	4.5						R	R					
				350-020EM		3.50						R	R						
				400-020EM	4.00	5.5			R	R									
450-020EM	4.50		R	R															
500-020EM	5.00	6.5		R	R														

· Dimension B shows available grooving depth.

Recommended Cutting Conditions **G50**

- **Comparison of Chip Control (Molded Chipbreaker)**

f (mm/rev)	SCM415 (Min. Bore Dia.φ16)			Evaluation
Description	0.05	0.07	0.1	
SIGER1612C-EH GER300-020CM(PR1025)				Good Chip Control
Competitor A Width: 3mm			Insert cracks	Unstable Chip Control and biting
Competitor B Width: 3mm				Unstable Chip Control and biting

[Vc = 100m/min, ap=2.0mm, Wet]

● : Std. Item

R : Std. Item (Right-hand Only)

(Internal evaluation)

- **Comparison of Chip Control (Min. Bore Dia.: $\phi 8$)**

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

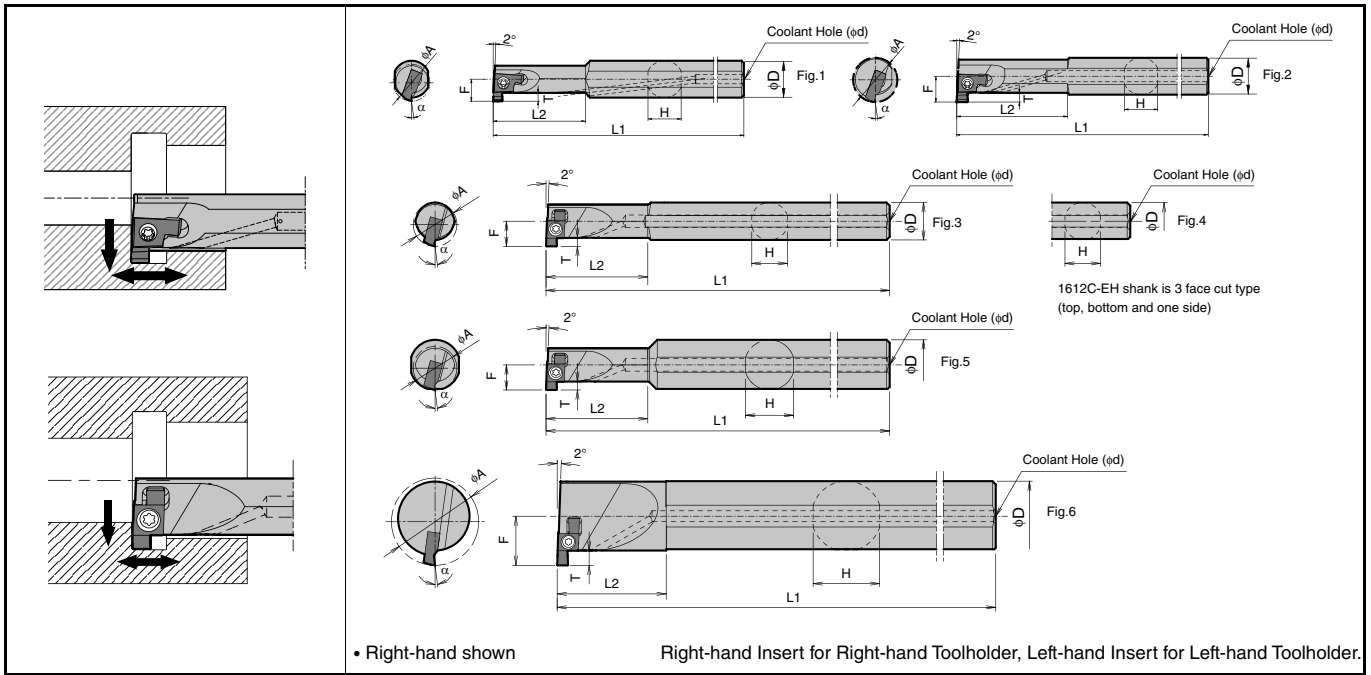
[Vc=50m/min, ap=1.25mm, Wet]

(Internal evaluation)

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

G45

■ SIGE-EH Excellent Bar (with Coolant Hole)



● Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)							Drawing	Spare Parts			Applicable Inserts 🌀G45, G46	
	R	L		φA	φD	H	L1	L2	F	T		φd	Clamp Screw	Wrench		
														 FT		 DT
SIGE% 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			Fig.2					
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~GER350-020CM GER200-100CR~GER300-150CR	
1612C-EH	●	●	16				20	8.5			Fig.4					
1616C-EH	●	●			16	15	160	36	9	5	Fig.5	SB-3080TR	FT-10	-	GE%100-005D~GE%400-020D GER150-010DM~GER400-020DM GER200-100DR~GER300-150DR	
2020D-EH	●	●	20	20	19	180	40	12.1	4.5	5						
2525E-EH	●	●	25	25	24	200	45	15.6	6.5	5						SB-4085TR
3232E-EH	●	●	32	32	30.4	220	55	19								
4032E-EH	●	●	40			250	45	23				Fig.6				

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

■ Features

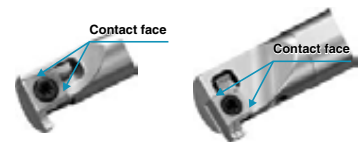
- Large chip pocket screw clamp toolholder design enables excellent chip evacuation



- Cost effective chip control from a molded chipbreaker



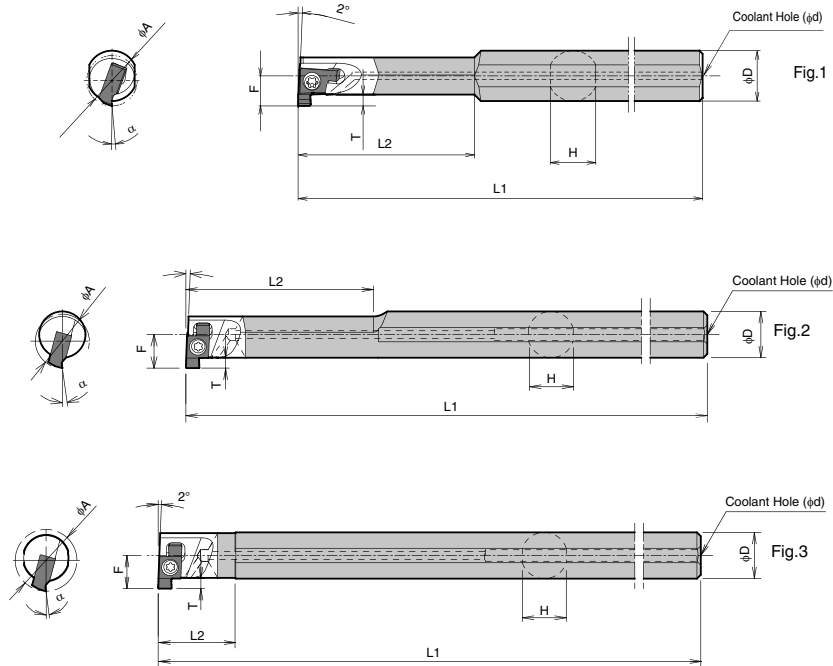
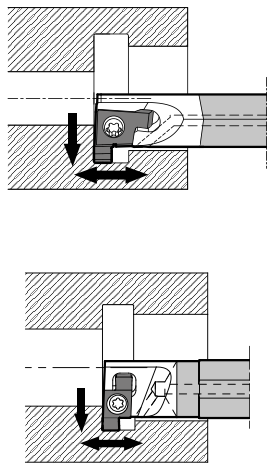
- Cutting edge is free from contact face



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

Internal Grooving SIGE

SIGE-WH Carbide Shank Bar (with Coolant Hole)



• Right-hand shown

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

Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)							Drawing	Spare Parts			Applicable Inserts  G45, G46	
	R	L		φA	φD	H	L1	L2	F	T		φd	Clamp Screw	Wrench		
														 FT		 DT
SIGE[®]/L 0808A-WH	●	●	8	8	7.2	125	28	4.8	1.5	3	Fig.1	SB-2045TRN	FT-6	-	GE [®] /L 100-005A~GE [®] /200-010A GER100-050AR~GER200-100AR	
1010B-WH	●	●	10	10	9	125	35	6.2	2.2	3		SB-2255TR	-	DT-7	GE [®] /L 100-005B~GE [®] /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
1612C-WH	●	●	16			180	20	8.5			Fig.3					

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

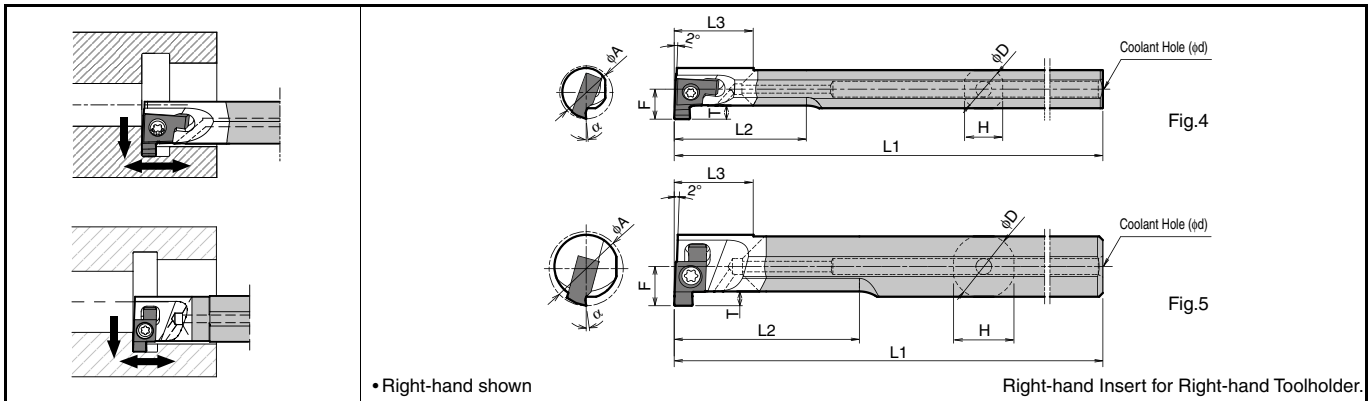
Applicable Insert & Rake Angle (α) after Installment of Insert

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

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

● : Std. Item

SIGE-WH-90 (For automatic lathe) Carbide Shank Bar (with Coolant Hole)



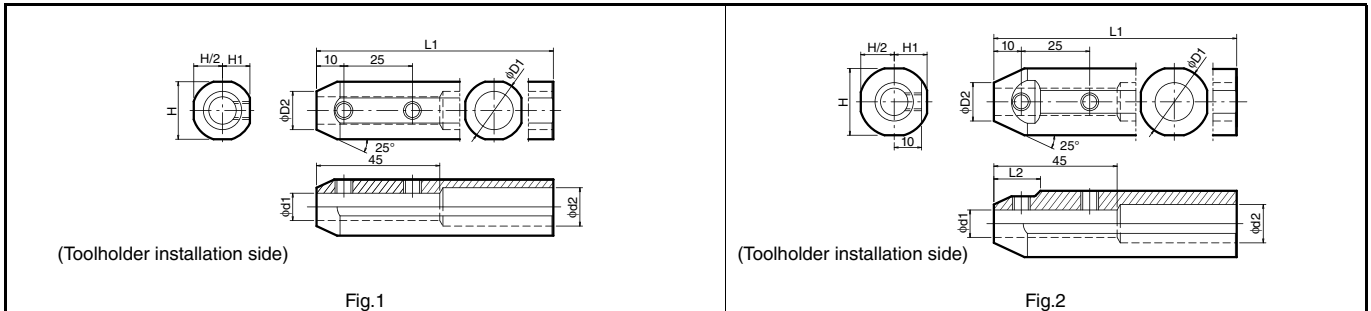
Toolholder Dimensions

Description	Std.	Min. Bore Dia.	Dimension (mm)									Drawing	Spare Parts		Applicable Inserts G45, G46
			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									
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 G48 for applicable Insert & Rake Angle (α) after Installment of Insert.

Applicable Sleeves



Description	Std.	Dimension (mm)									Drawing	Spare Parts		Applicable Machine Manufacturer
												Screw	Wrench	
		φd1	φD1	φD2	φd2	H	H1	L1	L2					
SHA 0820-120	●	8	20	14	12	19	9.25	120	-	Fig.1	HS6x4P	LW-3	Amada Machine Tools Eguro Tsugami Citizen Machinery	
1020-120	●	10												
SHA 0825.0-135	●	8	25	14	24	11.5	135	17	Fig.2					
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				
1020-120	●	10												
SHA 0825.4-120	●	8	25.4	14	14	24.4	12	120	17	Fig.2				
1025.4-120	●	10												
1225.4-120	●	12												
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.

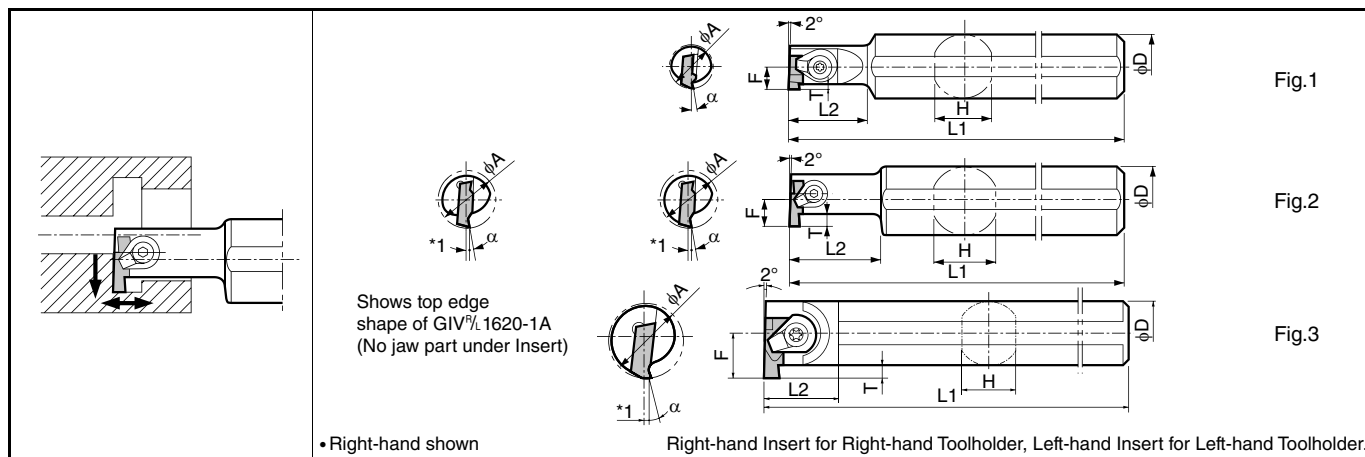
● : Std. Item

(mm)

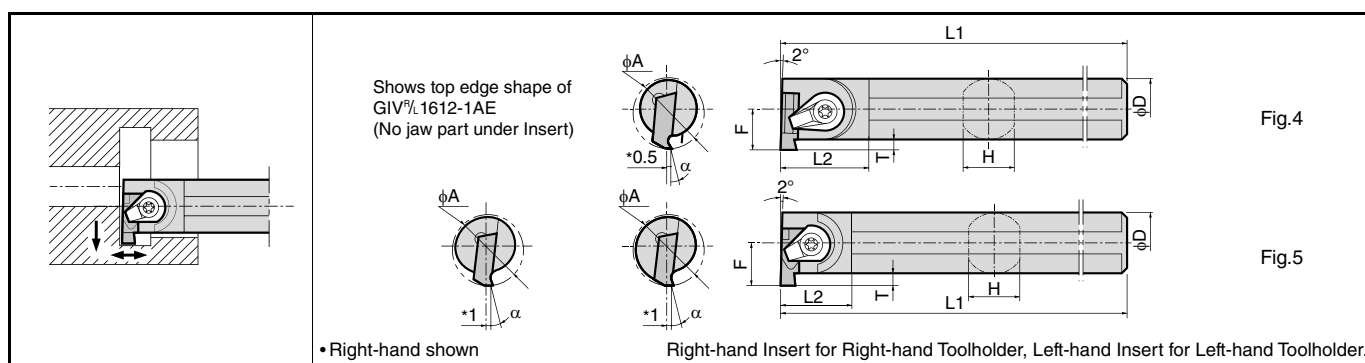
· Dimension B: shows available grooving depth.

G51

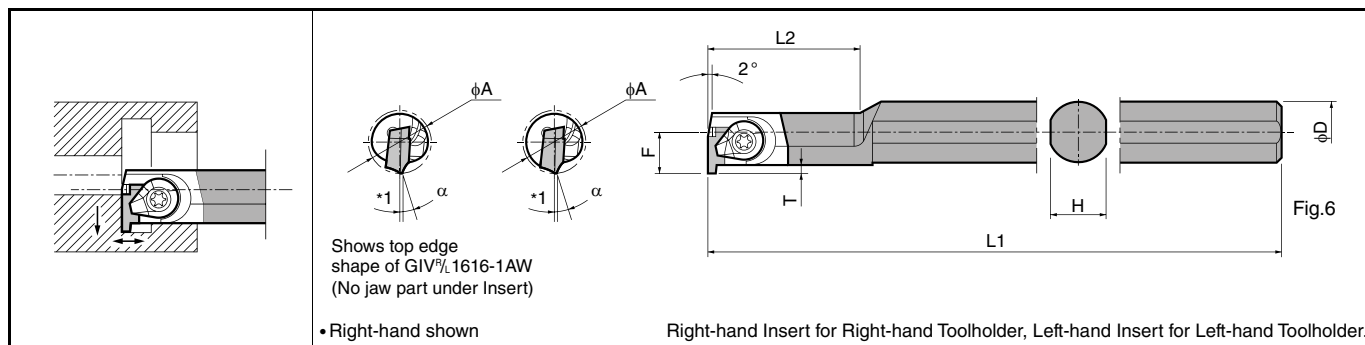
GIV



GIV-E Excellent Bar



GIV-W Carbide Shank Bar



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

Toolholder Description	Insert Description G51		Rake Angle (α)	
	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 ^{R/L}	1216-1SS	●	●	12	16	15	150	20	6.0	2.2		Fig.1	CPS-4V	-	FT-10	-	G51
	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	Note1) 2.8	Fig.2	CPS-5V	-	FT-15	-		
	2025-2B	●	●							Note2) 3.2							
	2532-1C	●	●	25	32	30	200	43	12.5	Note3) 4.5	Fig.2	-	CPS-6V	-	LW-3		
	3232-1C	●	●	32			220	52	16.0		Fig.3						
	4032-1C	●	●	40			250	43	21.0								
	2532-2C	●	●	25	32	30	200	43	12.5	Note4) 5.5	Fig.2						
	3232-2C	●	●	32			220	52	16.0		Fig.3						
4032-2C	●	●	40	250			43	22.2									
GIV ^{R/L}	1412-1SE	●	●	14	12	11.4	150	18	7.7	1.7		Fig.4	CPS-5F	-	FT-15	-	
	1612-1AE	●	●	16	12	11.4	150	19	8.2	2.2		Fig.5	CPS-5V	-	FT-15	-	
	2016-1BE	●	●	20	16	15.2	180	20	11.2	Note1) 2.8	Fig.5	CPS-5V	-	FT-15	-		
	2016-2BE	●	●					19	11.7	Note5) 3.2							
	2520-1CE	●	●	25	20	19	200	25	14.5	Note6) 4.5	Fig.5	-	CPS-6V	-	LW-3		
	3225-1CE	●	●	32	25	24	220	24	17.5	Note7) 4.5							
	4032-1CE	●	●	40	32	31	240	29	21.0	Note7) 4.5							
	2720-2CE	●	●	27	20	19	200	25	16.2	Note4) 5.5							
	3225-2CE	●	●	32	25	24	220	24	18.7								
4032-2CE	●	●	40	32	31	240	29	22.2									
GIV ^{R/L}	1616-1AW	●	●	16	16	15	175	48	10.6	2.2		Fig.6	CPS-5V	-	FT-15	-	
	2020-1BW	●	●	20	20	19	220	60	14.6	Note1) 2.8	Fig.6	CPS-5V	-	FT-15	-		
	2020-2BW	●	●							Note2) 3.2							
	2525-1CW	●	●	25	25	24	260	70	19.1	Note3) 4.5	Fig.6	-	CPS-6V	-	LW-3		
2525-2CW	●	●	Note4) 5.5														

• Dimension T shows available grooving depth.

Note 1: GV^{R/L}200~250-020B Insert can be used up to a Groove Depth 3.2mm.

Note 2: GV^{R/L}300~400-020B Insert can be used up to a Groove Depth 4.2mm.

Note 3: GV^{R/L}340-020C Insert can be used up to a Groove Depth 5.5mm.

Note 4: GV^{R/L}430~500-020C Insert can be used up to a Groove Depth 6.3mm.

Note 5: GV^{R/L}300~400-020B Insert can be used up to a Groove Depth 3.8mm. (When using GIV^{R/L}2016-2BE)

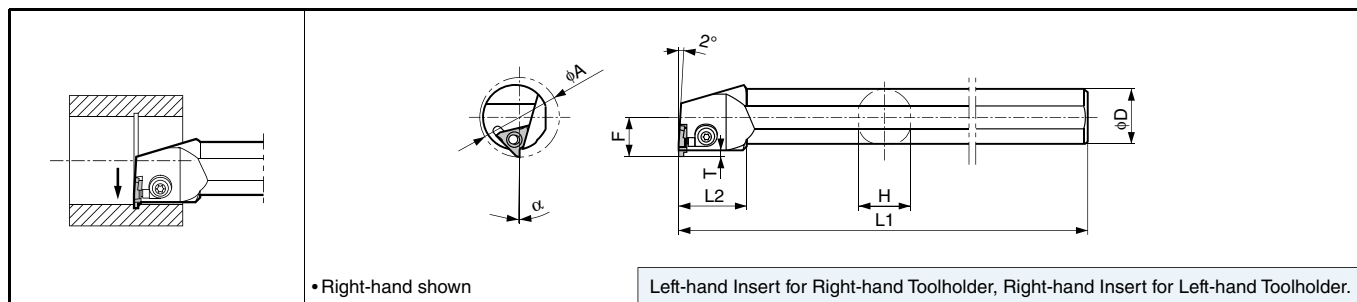
Note 6: GV^{R/L}340-020C Insert can be used up to a Groove Depth 4.7mm. (When using GIV^{R/L}2520-1CE)

Note 7: GV^{R/L}340-020C Insert can be used up to a Groove Depth 5.3mm. (When using GIV^{R/L}3225-1CE, GIV^{R/L}4032-1CE)

If you need any of insert groove depth specified in notes 1 to 7, modify the dimension T of toolholder.

Internal Large Diameter Shallow Grooving Toolholders

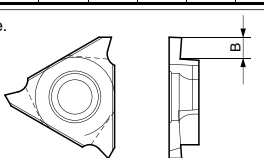
KIGBA



Toolholder Dimensions

Description	Std.		Min. Bore Dia.	Dimension (mm)										Spare Parts		Applicable Inserts 
	R	L		φA	φD	H	L1	L2	F	T						
KIGBA^{R/L} 3525-16	●	●	35	25	23	220	30	17.5	2.8				LGBA-16 ^{1/8} S	FT-15	GBA32 ^{1/8} type	
4032-22	●	●	40	32	30	250	30	23.0	3.0				LGBA-22 ^{1/2} S	FT-15	GBA43 ^{1/2} type	

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



• Clamp Set : LGBA-00LS for Right-hand Toolholder, and LGBA-00RS for Left-hand Toolholder.

Rake Angle (α) after Installment of GBA type

GBA32 ^{R/L} 0000-000		GBA43 ^{R/L} 0000-000		GBA43 ^{R/L} 0000-000R (Full-R)		
α	Insert Grades	α	Insert Grades	α	Insert Grades	Full-R Description
+1°	TN90, PV7040, PR930 PR1115, PR1215, PR905 KPD001, KPD010	-9°	KBN510, KBN525	+1°	TN90, PV7040, PR930 PR1115, PR1215, PR905	050R~150R
		+1°	TC40N, TN90, PV7040, PR930 PR1115, PR1215, PR905 KPD001, KPD010	+5°	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 ^{R/L} 150-020GM
	GBA43 ^{R/L} 175-020GM
+6°	GBA43 ^{R/L} 265-030GM
	GBA43 ^{R/L} 300-030GM
+3°	GBA43 ^{R/L} 400-040GM

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

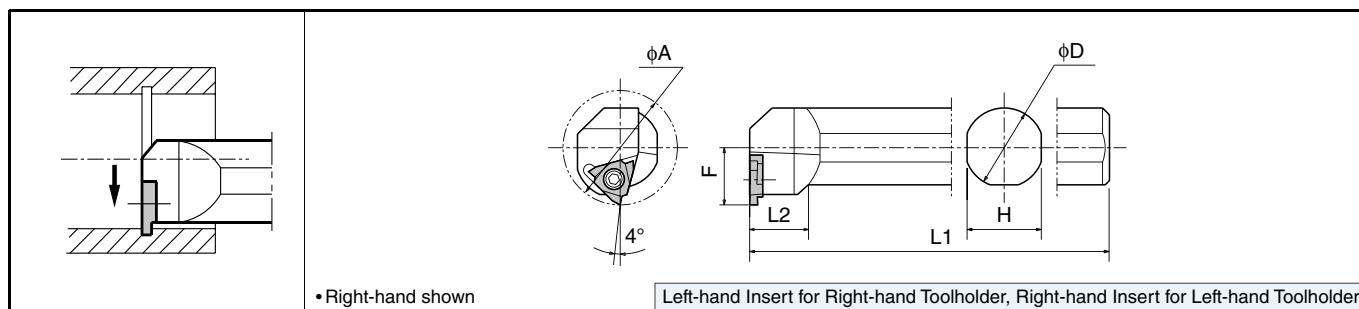
Rake Angle (α) after Installment of GBA-MY type

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

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

● : Std. Item

KITG (Will be switched to KIGBA ➡ G54)



- **Toolholder Dimensions**

Description		Std.		Min. Bore Dia.	Dimension (mm)								Spare Parts					
		R L			φA	φD	H	L1	L2	F				Clamp Screw		Wrench		
																		
KITG [®] /L	3525T-16	●	●	35	25	23	220	18	17.5					SB-4TR	-	FT-15	-	
	4532T-22	●	●	45	32	30	250	20	22.5					-	GS-50	-	LW-3	

· Available Grooving Depth: KITG[®]/3525T-16=2.0mm, KITG[®]/4532T-22=2.5mm

* KITG will be switched to KIGBA as an Internal Large Diameter Shallow Grooving Toolholder; however, it will continue to be sold as Internal Threading Toolholder (➡ J23).

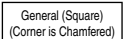
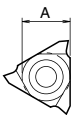
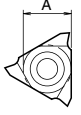
- GBA Insert cannot be installed to this toolholder.

■ Applicable Inserts

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

	(mm)		
Description	A	T	ød
TG32_	9.525	3.18	4.5
TG43_	12.70	4.76	5.5

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

Insert		Description	Dimension (mm)			Cermet				Applicable Toolholders	Ref. to Page for Applicable Toolholders
			W	B	C or r _c	TN60	TN90	TC40N	TC60M		
Handed Insert shows Right-hand											
 General (Square) (Corner is Chamfered)  TG32 type	 (Corner is Chamfered)	TG32^{R/L}	075	0.75	2.0	C0.1				KITG^{R/L} ...16	G55
			095	0.95							
			125	1.25							
			145	1.45							
			150	1.50							
			175	1.75							
			200	2.00							
 General (Square) (Corner is R shape)  TG43 type		TG43^{R/L}	150	1.50	3.5	0.2				KITG^{R/L} ...22	G55
			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.

* 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 type of GBA insert grades available dependent on the user's cutting condition requirements.

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

Recommended Cutting Conditions  **G98**

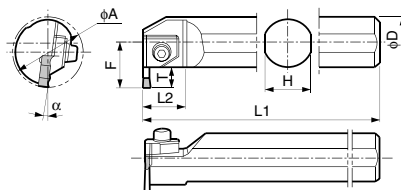
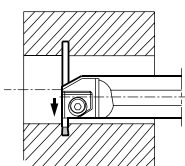
● : Std. Item
○ : Check Availability

Заказ инструмента: <http://steelcam.org>
8 (343) 382-52-03 | sales@sverla-ekb.ru

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

G55

KIGH



- Right-hand shown

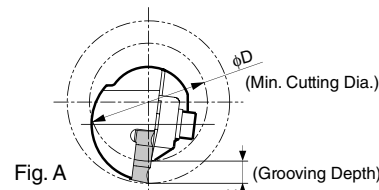


Fig. A

- **Toolholder Dimensions**

Description		Std.	Min. Bore Dia.	Dimension (mm)								Spare Parts					
												Clamp	Clamp Bolt	Washer	Spring	Wrench	
																	
KIGHR	4532B-4	●	45	32	30	200		28.2				CGH-1L	HH6X25	W-6	SP-6	LW-5	
	5540B-4	●	55	40	38	250	27	32.3	12								
	6550B-4	●	65	50	48	300		37.3									
	4532B-5	●	45	32	30	200		28.2				CGH-2L	HH6X25	W-6	SP-6	LW-5	
	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				CGH-2L	HH6X25	W-6	SP-6	LW-5
	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 width of the installed Insert.

- **Rake Angle (α) after Installment of GH / GHU**

GH0000-00		GHU00-00	
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.)					
KIGHR	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

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

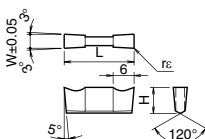
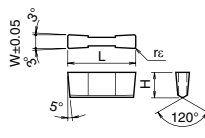
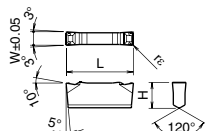
P	Carbon steel / Alloy steel					●						Classification of usage
M	Stainless Steel					●						
K	Cast Iron							●	○		●	
N	Non-ferrous Metals							●				
S	Titanium Alloys							●				
H	Hard materials (~40HRC)					●						
	Hard materials (40HRC~)									○	●	

●: Continuous-Light Interruption / 1st Choice

○: Continuous-Light Interruption / 2nd Choice

●: Continuous / 1st Choice

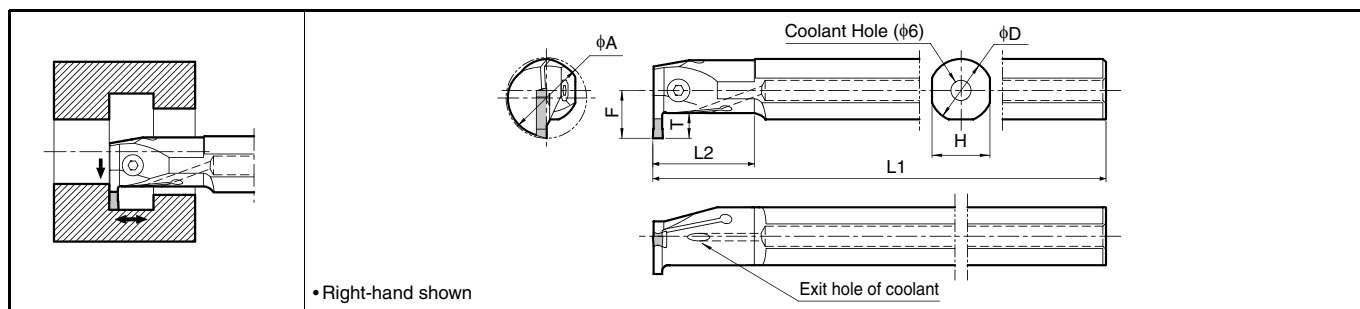
○: Continuous / 2nd Choice

Insert		Description	Dimension (mm)		Cermet				PVD Coated Cermet	Coated Cermet	Ceramic	Applicable Toolholders					
			W	rε	TN60	TN90	TC40N	TC60M	CR9025	PR930	KW10		A65	A66N	PT600M		
 Ground Chipbreaker  Ceramic	  Ceramic insert is above shape.	GH 4020-02	4.0	0.2		●	●	○	●		●				KIGHR4532B-4 5540B-4 6550B-4		
				4020-05	0.5		●	●	○	●		●	●	●		●	
		4520-02	4.5	0.2			●										
				4520-05	0.5			●									
		5020-02	5.0	0.2		●	●	○		●		●					
				5020-05	0.5		●	●	○		●		●	●	●		●
		5520-02	5.5	0.2			●									KIGHR4532B-5 5540B-5 6550B-5	
				5520-05	0.5			●									
		6020-02	6.0	0.2		●	●	○		●		●					
				6020-05	0.5		●	●	○		●		●	●			●
		6520-02	6.5	0.2			●										
				6520-05	0.5			●									
		7020-02	7.0	0.2		●	●	○		●		●				KIGHR5540B-7 6550B-7	
				7020-05	0.5		●	●	○		●		●	●			●
7520-02	7.5	0.2			●												
		7520-05	0.5			●											
8020-02	8.0	0.2		●	●	○		●		●							
		8020-05	0.5		●	●	○		●		●						
 Molded Chipbreaker		GHU 40-20	4.0	0.25	●				●						KIGHR...○○○○B-4		
				50-20	5.0	0.30	●				●						KIGHR...○○○○B-5
				60-20	6.0	0.30	●				●						

Recommended Cutting Conditions **G98**

Internal Grooving Toolholders

KIGM-V

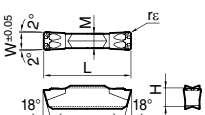
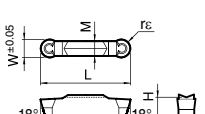


Toolholder Dimensions

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

• Dimension T shows available grooving depth.

Applicable Inserts

Description (mm)			M	Stainless Steel									Classification of usage	
Description	L	H	K	Cast Iron									☛	Continuous-Light Interruption / 1st Choice
GMM3015...V	15.5 <td rowspan="3">4.3</td> <th>N</th> <th>Non-ferrous Metals</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>☉</th> <th>Continuous-Light Interruption / 2nd Choice</th>	4.3	N	Non-ferrous Metals									☉	Continuous-Light Interruption / 2nd Choice
GMM4020...V	20		S	Titanium Alloys									●	Continuous / 1st Choice
GMM5020...V			H	Hard materials (~40HRC) Hard materials (40HRC~)										○
Insert		Description	(Previous Description)	Dimension (mm)			Cermet CVD Coated Carbide	PVD Coated Carbide	Carbide	Applicable Toolholders				
				W	rc	M	TN90	CR9025	PR915	PR930	PR905	KW10		
 Chip Control Oriented M Class		GMM 3015-040V	GMM 3015-04V	3.0	0.4	2.3	●	●	●	●	●	●	KIGM ^{R/L} 2016B-3V 2520B-3V 3225B-3V	
		4020-040V	4020-04V	4.0	0.4	3.3	●	●	●	●	●	●	KIGM ^{R/L} 3225B-4V 4032B-4V	
		5020-080V	5020-08V	5.0	0.8	4.2	●	●	●	●	●	●		
 Chip Control Oriented M Class Full-R / Copying		GMM 3015-150VR	GMM 3015-15VR	3.0	1.5	2.3	●	●	●	●	●	●	KIGM ^{R/L} 2016B-3V 2520B-3V 3225B-3V	
		4020-200VR	4020-20VR	4.0	2.0	3.3	●	●	●	●	●	●	KIGM ^{R/L} 3225B-4V 4032B-4V	
		5020-250VR	5020-25VR	5.0	2.5	4.2	●	●	●	●	●	●		

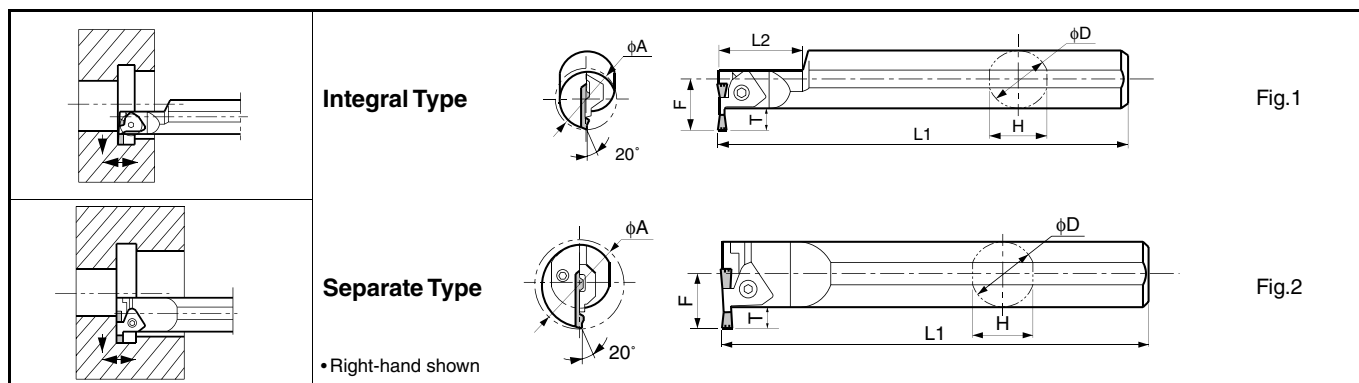
• It is not recommended to use this for KIGM-V Internal Grooving Toolholders against GMM...V / GMM...VR which the front relief angle is 18°, because the relief angle of the insert used for GMM4020-04 toolholder is 10°.

Recommended Cutting Conditions **G101**

● : Std. Item

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								
																									
KGIAR	3232B-3	●	32	32	30.4	200	45	26.5				Fig.1	CGIA-3R	HH5X15	SP-5	LW-4									
	4332B-3	●	43	32	30	200	-	26.3	10			Fig.2													
	5140B-3	●	51	40	38	250	-	30.3																	
	3232B-4	●	32	32	30.4	200	45	26.5				Fig.1	CGIA-4R					HH5X15	SP-5	LW-4					
	4332B-4	●	43	32	30	200	-	26.3	10			Fig.2													
	5140B-4	●	51	40	38	250	-	30.3																	
	5640B-5	●	56	40	38	250	-	35.3	15			Fig.2	CGIA-5R									HH5X15	SP-5	LW-4	
	6650B-5	●	66	50	48	250	-	40.3																	

· Dimension T shows available grooving depth.

Composition

Type	Spare Parts		Toolholder	Blade	Clamp Screw	Wrench
	Toolholder Description					
Integral Type	KGIA	3232B-3	-	-	-	-
Separate Type		4332B-3	KGIA32H	BGIA43-3	SB-40140TR	FT-15
		5140B-3	KGIA40H	BGIA51-3		
Integral Type		3232B-4	-	-	-	-
Separate Type		4332B-4	KGIA32H	BGIA43-4	SB-40140TR	FT-15
		5140B-4	KGIA40H	BGIA51-4		
Separate Type		5640B-5	KGIA40H	BGIA56-5	SB-40140TR	FT-15
		6650B-5	KGIA50H	BGIA66-5		

Applicable Inserts

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

Recommended Cutting Conditions G99

● : Std. Item

Заказ инструмента: <http://steelcam.org>
8 (343) 382-52-03 | sales@sverla-ekb.ru

Inserts are
sold in 10 piece boxes.

G59

Summary of Face Grooving

Face Grooving Dia. ϕD

Face grooving diameter (ϕD) is the suitable value for the initial grooving on the unprocessed workpiece (Ref. to Fig.1).

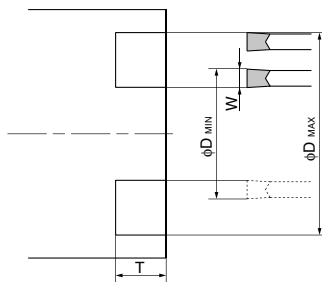
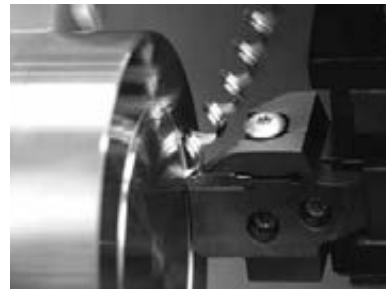
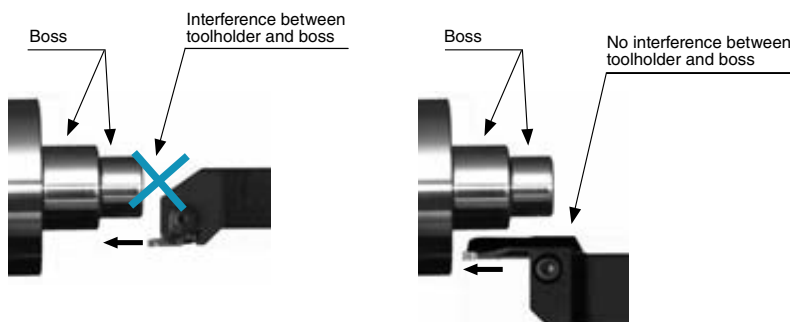


Fig.1

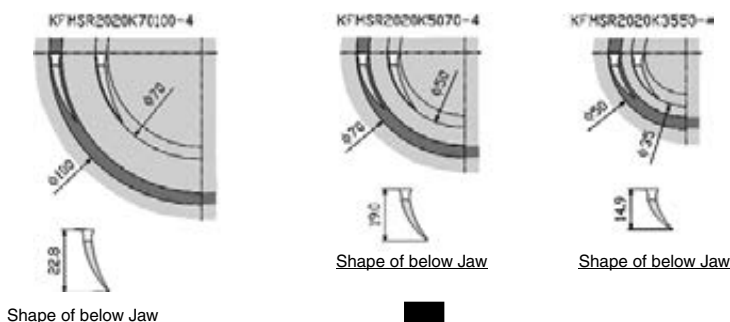


Caution for Face Grooving

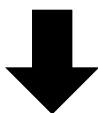
1) When face grooving, the suitable toolholder depends on the length of the boss



2) Selection of Face Grooving Toolholder



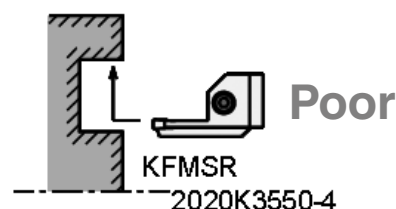
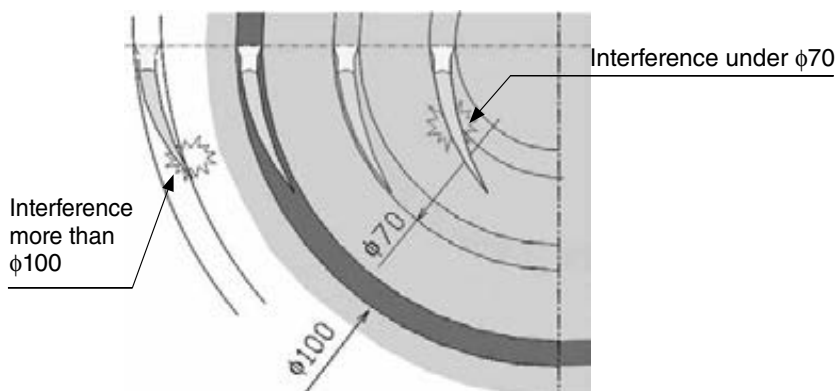
Shape of below Jaw



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

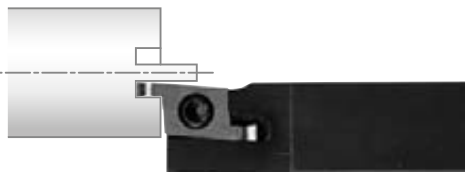
3) Interference of Face Grooving Toolholder

e.g.) KFMSR2525M70100-4

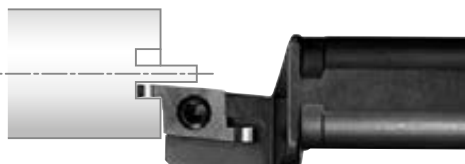


Example of usage for the face grooving toolholder. When face grooving, KFMSR2525M70100-4 should be between $\phi 70 \sim \phi 100$ for grooving the outer diameter at first. If the workpiece is machined at a diameter $\phi 100$ or $\phi 70$, the jaw of toolholder interferes with the workpiece.

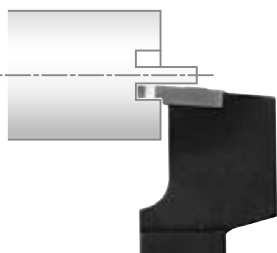
■ Small Dia. Face Grooving $\phi 6\sim$



Type	STW
Min. Face Groove Dia.	$\phi 6$
Edge Width (mm)	0.5~2.0
Grooving Depth (mm)	1.0~3.0
Ref. to Page	G68



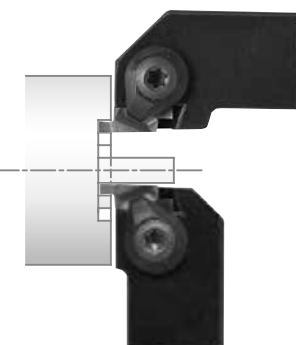
Type	S..-STW
Min. Face Groove Dia.	$\phi 6$
Edge Width (mm)	0.5~2.0
Grooving Depth (mm)	1.0~3.0
Ref. to Page	G68



Type	STWS
Min. Face Groove Dia.	$\phi 6$
Edge Width (mm)	0.5~2.0
Grooving Depth (mm)	1.0~3.0
Ref. to Page	G69



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

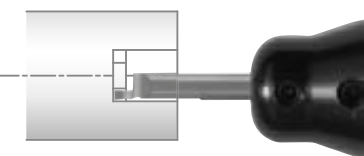


Type	GFVS-AA
Min. Face Groove Dia.	$\phi 8$
Edge Width (mm)	1.0~3.0
Grooving Depth (mm)	2.2
Ref. to Page	G84

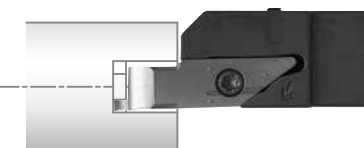
Type	GFVT-AA
Min. Face Groove Dia.	$\phi 8$
Edge Width (mm)	1.0~3.0
Grooving Depth (mm)	2.2
Ref. to Page	G84



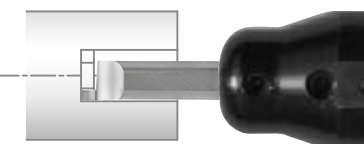
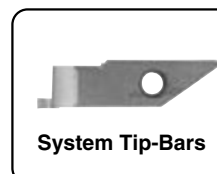
■ Small Dia. Face Grooving $\phi 5\sim, \phi 8\sim$



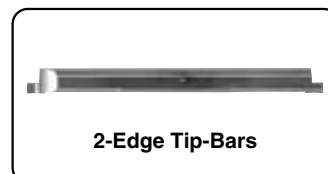
Type	EZFG
Min. Face Groove Dia.	$\phi 5, \phi 6, \phi 8$
Edge Width (mm)	1.0~3.0
Grooving Depth (mm)	1.5~3.0
Ref. to Page	G64



Type	VNFG
Min. Face Groove Dia.	$\phi 8$
Edge Width (mm)	1.0~3.0
Grooving Depth (mm)	2.0~3.0
Ref. to Page	G66



Type	HPFG
Min. Face Groove Dia.	$\phi 8$
Edge Width (mm)	1.0~3.0
Grooving Depth (mm)	2.0~3.0
Ref. to Page	G67



G



Grooving

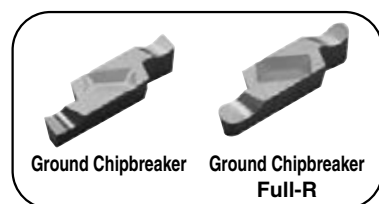
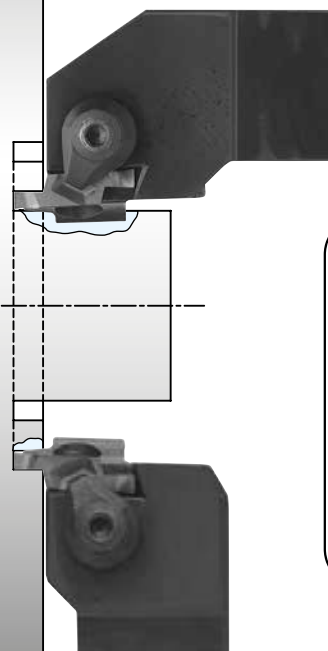
Summary of Face Grooving

Face Grooving $\phi 20\sim$

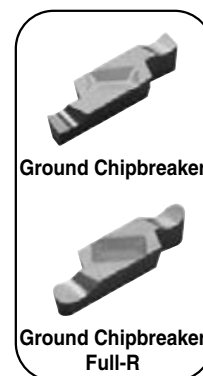


Type	KFTB
Min. Face Groove Dia.	$\phi 65\sim\phi 250$
Edge Width (mm)	4.0~5.0
Grooving Depth (mm)	25~38
Ref. to Page	G95

Type	GFVS
Min. 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	G88

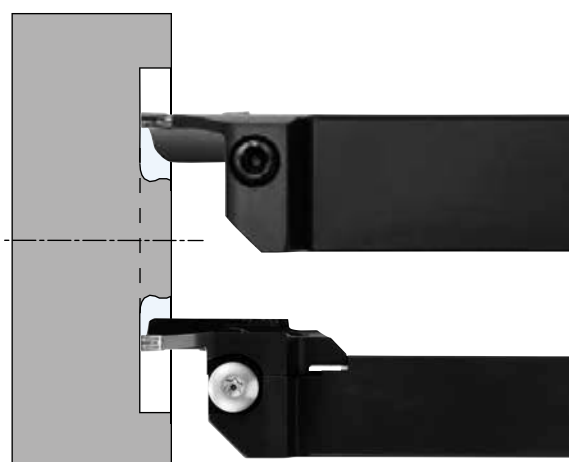


Type	GFV
Min. Face Groove Dia.	$\phi 20\sim\phi 150$
Edge Width (mm)	2.0~6.0
Grooving Depth (mm)	2.2~8.1
Ref. to Page	G86



Type	GFVT
Min. 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	G88

KGDF Face Grooving $\phi 25\sim$ (G70~G83)



Type	KGDF-Z
Min. Face Groove Dia.	$\phi 50$
Edge Width (mm)	3.0~5.0
Grooving Depth (mm)	15
Ref. to Page	G78

Type	*KGDF
Min. Face Groove Dia.	$\phi 25$
Edge Width (mm)	2.0~6.0
Grooving Depth (mm)	6~32
Ref. to Page	G74

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

Grooving and Turning

GM



Deep grooving and Turning

DM

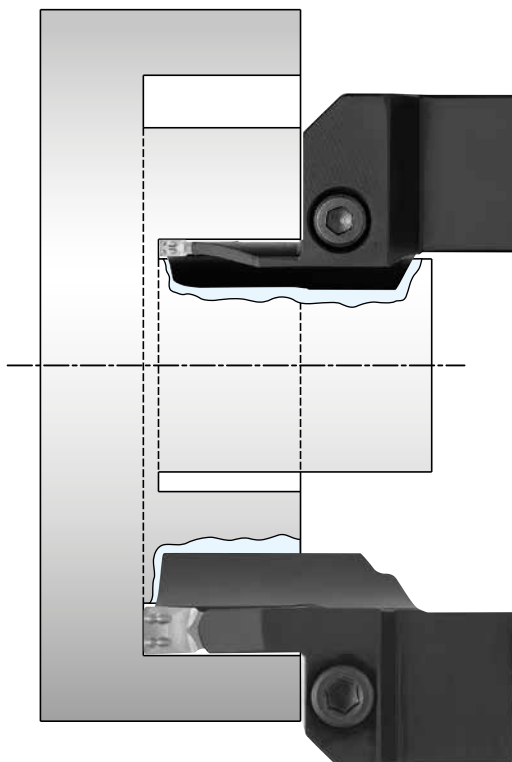


High Feed Rate

GH



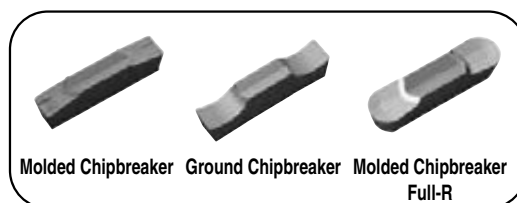
■ Face Grooving & Turning $\phi 25\sim$



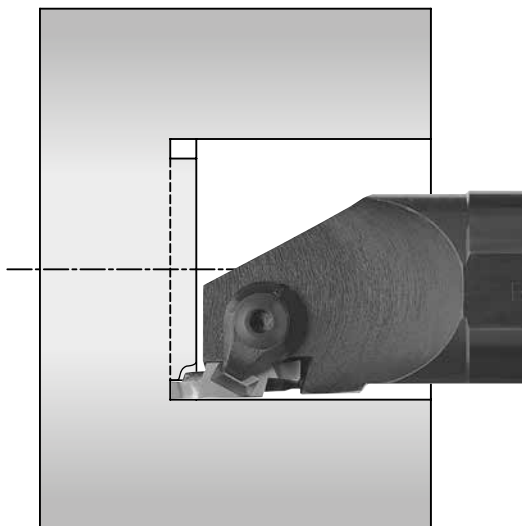
Type	KFMS
Min. Face Groove Dia.	$\phi 25\sim\phi 235$
Edge Width (mm)	3.0~6.0
Grooving Depth (mm)	13~32
Ref. to Page	G92



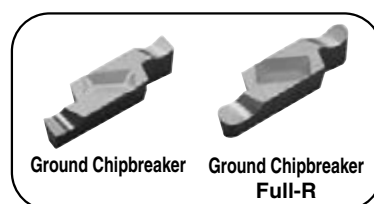
Type	KFMS-8
Min. Face Groove Dia.	$\phi 54\sim\phi 155$
Edge Width (mm)	8.0
Grooving Depth (mm)	25
Ref. to Page	G94



■ Face Grooving $\phi 35\sim$



Type	GIFV
Min. 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	G96



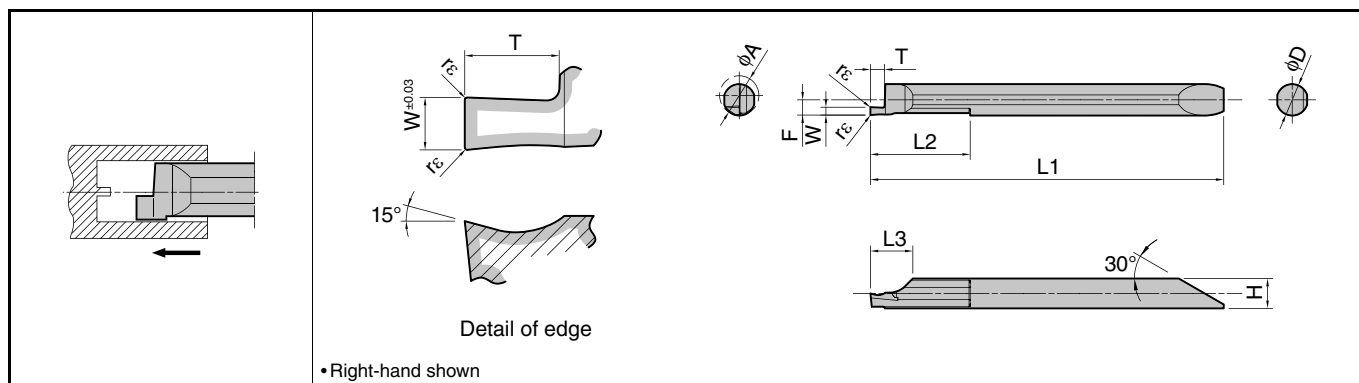
G



Grooving

Small Diameter Face Grooving EZ Bars

EZFG



Dimensions

Description	Min. Face Groove Dia.	Dimension (mm)									MEGACOAT	Applicable Sleeves
	φA	W ^{±0.03}	rε	φD	H	L1	L2	L3	F	T	PR1225	
EZFG R 050040-100	5	1.0	±0.013 0.05	4	3.8	45.0	12	5.4	1.9	1.5	●	EZH040..
050040-150		1.5								2.0	●	
EZFG R 060050-100	6	1.0	±0.013 0.05	5	4.8	53.2	15	6.9	2.4	1.5	●	EZH050..
060050-150		1.5								2.5	●	
060050-200		2.0								3.0	●	
EZFG R 080070-100	8	1.0	±0.013 0.05	7	6.8	64.2	25	7.9	3.4	2.0	●	EZH070..
080070-150		1.5								2.5	●	
080070-200		2.0								3.0	●	
080070-300		3.0								3.0	●	

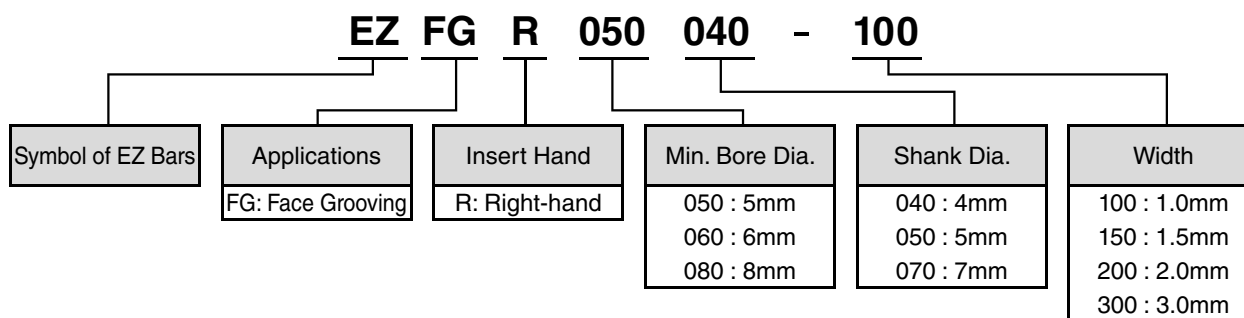
• Dimension T shows available grooving depth.

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)	EZFG R050040-100 EZFG R060050-100 EZFG R080070-100	EZFG R050040-150 EZFG R060050-150 EZFG R080070-150	EZFG R060050-200 EZFG R080070-200	EZFG R080070-300	Remarks
	MEGACOAT					
	PR1225	f (mm/rev)				
Carbon steel / Alloy steel	★ 30~100	~0.02	~0.03	~0.04	~0.05	Coolant
Stainless Steel	★ 30~80	~0.01	~0.02	~0.02	~0.03	

★: 1st Recommendation

Inserts Identification System



EZ Bars are sold in 1 piece boxes.

● : Std. Item

● Applicable Sleeve

Sleeve				Applicable Insert for Internal Face Grooving			Applicable Machine Manufacturer
EZH-CT (Adjustable overhang length / with coolant hole) F20	EZH-HP (Adjustable overhang length) F22	EZH-ST F24	Sleeve Shank Dia. φD1(mm)	EZFG	HPFG [®] _L	Shank Dia. φD(mm)	
-	-	EZH 04012ST-80 05012ST-80 07012ST-80	12	EZFG ...040-... EZFG ...050-... EZFG ...070-...	- - HPFG [®] _L 0807-...	4 5 7	(General purpose)
-	EZH 04016HP-100 05016HP-100 07016HP-100	EZH 04016ST-100 05016ST-100 07016ST-100	16	EZFG ...040-... EZFG ...050-... EZFG ...070-...	- - HPFG [®] _L 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	EZFG ...040-... EZFG ...050-... EZFG ...070-...	- - HPFG [®] _L 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	EZFG ...040-... EZFG ...050-... EZFG ...070-...	- - HPFG [®] _L 0807-...	4 5 7	Amada Machine Tools / 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	EZFG ...040-... EZFG ...050-... EZFG ...070-...	- - HPFG [®] _L 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	EZFG ...040-... EZFG ...050-... EZFG ...070-...	- - HPFG [®] _L 0807-...	4 5 7	Amada Machine Tools / 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	EZFG ...040-... EZFG ...050-... EZFG ...070-...	- - HPFG [®] _L 0807-...	4 5 7	Citizen Machinery

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

· Adjustment Pin cannot be installed to **EZH-ST** Sleeves. To adjust overhang of the bar, please use **EZH-CT/HP** sleeves.

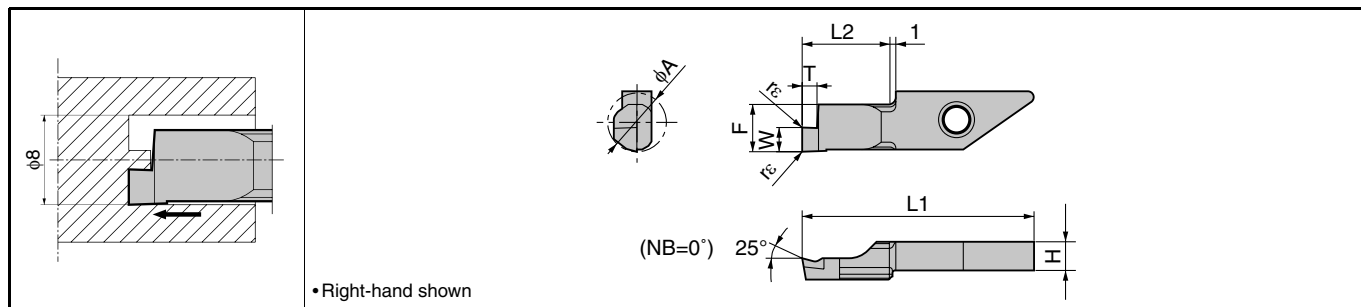
G



Grooving

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 ○: Continuous / 2nd Choice	K	Cast Iron				●			
	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.	$W_{\pm 0.03}$	r_{ϵ}	H	L1	L2	F	T	PR1225		PR930	KW10	KPD001	KPD010	
VNFGR 0810-10	8 (0)	∞ (∞)	1.0	0.05	3.9	29.6	10	7.3	2.0	●		●	●			F28 F29
0820-10			2.0						3.0	●		●	●			
0830-10			3.0						3.0	●		●	●			
VNFGR 0820-10NB			2.0						2.0					MTO	MTO	
0830-10NB			3.0						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	Carbide				
	PR1225	PR930	KW10				
	f (mm/rev)						
Carbon steel / Alloy steel	★ 30~100	☆ 30~100		~0.02	~0.04	~0.05	Coolant
Stainless Steel	★ 30~80	☆ 30~80		~0.01	~0.02	~0.03	
Non-ferrous Metals			★ ~300	~0.04	~0.06	~0.08	

★: 1st Recommendation ☆: 2nd Recommendation

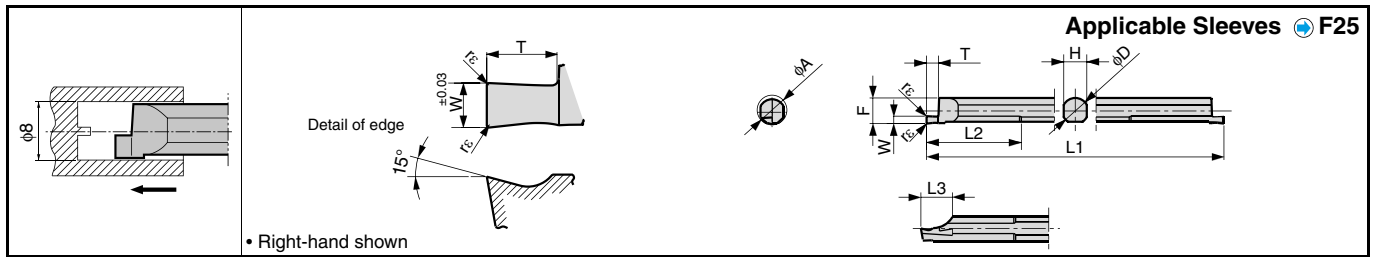
System Tip-Bars are sold in 5 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

●: Std. Item
MTO: Made to order

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

HPFG Face Grooving (Small Dia.)



Dimensions

Description	Face Grooving Dia. φA		Dimension (mm)									Insert Grades			
	MIN.	MAX.	W±0.03	rε	φD	H	L1	L2	L3	F	T	PVD Coated Carbide		Carbide	
												PR930		KW10	
												R	L	R	L
HPFG ^{R/L} 0807-10	8 (0)	∞ (∞)	1	⁺⁰ _{-0.02} 0.05	7	6.2	80	25	8.5	6.9	2	●	●	●	
0807-20			3								●	●	●		
0807-30			3								●	●	●		

• 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.

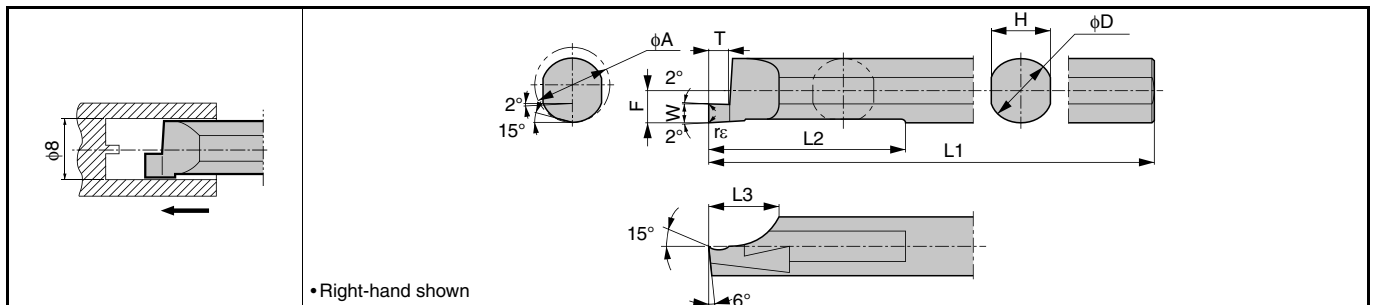
Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed V_c : m/min)		HPFG ^{R/L} 0807-10	HPFG ^{R/L} 0807-20	HPFG ^{R/L} 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. φA		Dimension (mm)									PVD Coated Carbide		Carbide	Ref. to Page for Applicable Sleeves	
	MIN.	MAX.	W±0.03	rε	φD	H	L1	L2	L3	F	T	PR930				
PSFG ^{R/L} 0810-20S	8 (0)	∞ (∞)	1.0	0.05	6.8	6.2	80	25.5	7	3.4	2.0	△			△	F82
0820-20S			2.0									△			△	
0830-20S			3.0									△			△	

• 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 V_c : m/min)		PSFG ^{R/L} 0810	PSFG ^{R/L} 0820	PSFG ^{R/L} 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

△ : Will be switched to new item (Check Availability)

Small Dia. Face Grooving (Twin-Bars)

TWFG (Horizontal type)

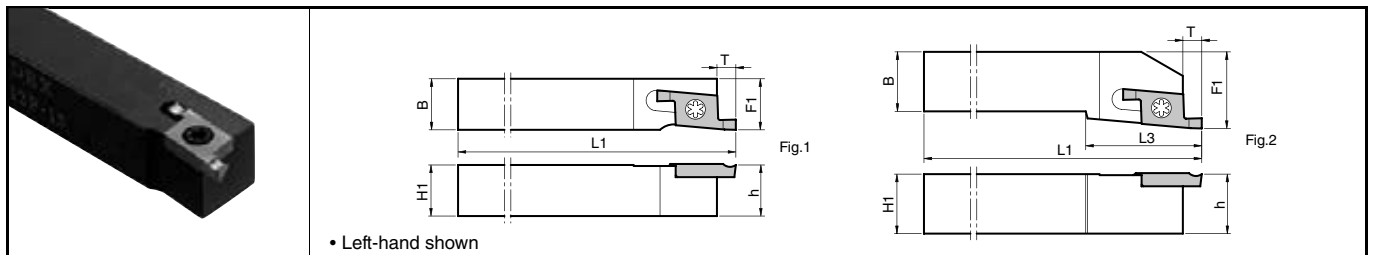
Description	Face Grooving Dia. ϕA		Dimension (mm)			Angle ($^{\circ}$)	Insert Grades	
	MIN.	MAX.	W	r_{ϵ}	B		PVD Coated Carbide	Carbide
							PR1025	KW10
TWFG L 050 080 100 125 150 180 200	6 (0)	∞ (∞)	0.5	0.05	1.0	1.5 $^{\circ}$	●	●
			0.8		1.5		●	●
			1.0				●	●
			1.25		2.2	2 $^{\circ}$	●	●
			1.5				●	●
			1.8				●	●
			2.0		3.0		●	●

• 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 F32.)



• Left-hand shown

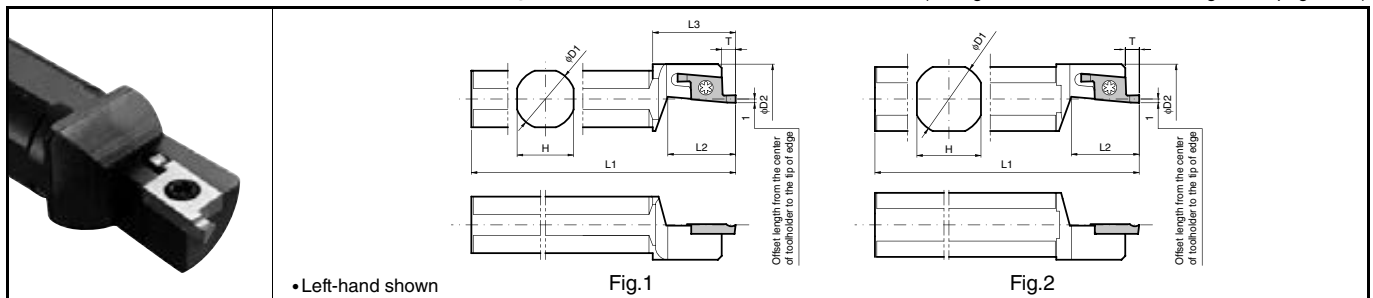
Toolholder Dimensions

Description		Std.	Dimension (mm)									Drawing	Spare Parts		Applicable Inserts 🔄 G68
			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	TWFGLOOO
	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		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 F32.)



• Left-hand shown

Toolholder Dimensions

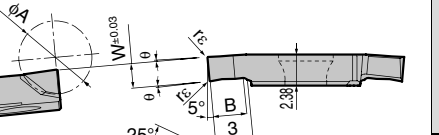
Description	Std.	Dimension (mm)										Drawing	Spare Parts		Applicable Inserts ➡ G68
		φD1	φD2	H	L1	L2	L3	T					Clamp Screw	Wrench	
															
S12F- STWL15	●	12	20	11	80	18	22	3			Fig.1	SB-3080TR	LTW-10S	TWFGLOOO	
S14H- STWL15	●	14		13	100										
S15F- STWL15	●	15.875		15	85										
S16F- STWL15	●	16	19.05	18.5	17	90					Fig.2				
S19G- STWL15	●	19.05													120
S19K- STWL15	●	20													120
S20G- STWL15	●	20	19.5	18	90	-	3								
S20K- STWL15	●	22	21.5	20	125										
S22K- STWL15	●	25	24.5	23	110										
S25.0J- STWL15	●	25	24.5	23	110	22									
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.

Twin-Bars are sold in 5 piece boxes.

● : Std. Item

TWFGT (Vertical type)

		• Right-hand shown

Description	Face Grooving Dia. ϕA		Dimension (mm)			Angle (°)	Insert Grades	
	MIN.	MAX.	W	r_ϵ	B		PVD Coated Carbide	Carbide
	TWFGTR 050 080 100 125 150 180 200	6 (0)	∞ (∞)	0.5 0.8 1.0 1.25 1.5 1.8 2.0	0.05	1.0 1.5 2.2 3.0	1.5° 2°	PR1025

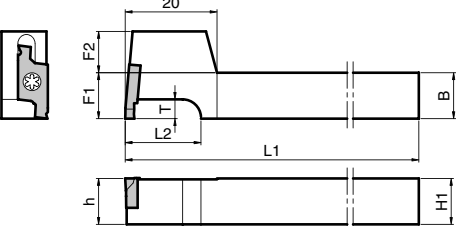
- Dimension B: shows available grooving depth.

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

• 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 ➡ G69
			H1=h	B	L1	L2	L3	F1	F2	T	F3	Clamp Screw		Wrench		
																
STWSR	1010JX-15T	●	10	10	120	16		10	9	3	-	-	SB-3080TR	LTW-10S	TWFGTRO○○	
	1212JX-15T	●	12	12			12	7								
	1616JX-15T	●	16	16		20	-	16	3							
STWSR	1010F-15T	●	10	10	85	16		10	9	3	-	-				
	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 Vc: m/min)		TWFGLO50 TWFGLO80 TWFGLO100 TWFGTR050 TWFGTR080 TWFGTR100	TWFGLO125 TWFGLO150 TWFGTR125 TWFGTR150	TWFGLO180 TWFGLO200 TWFGTR180 TWFGTR200	Remarks
	PVD Coated Carbide	Carbide				
	PR1025	KW10	f (mm/rev)			
Carbon steel / Alloy steel	★ 30~100		~0.02	~0.03	~0.04	Coolant
Stainless Steel	★ 30~80		~0.01	~0.02	~0.02	
Non-ferrous Metals		★ ~300	~0.03	~0.04	~0.06	

★ : 1st Recommendation

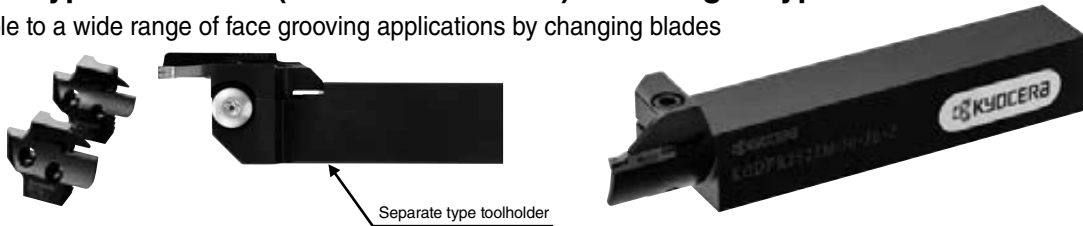
● : Std. Item

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

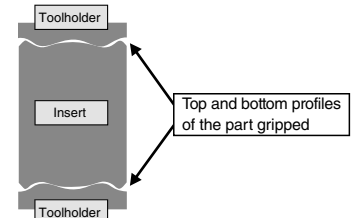


- New insert clamping system "W Grip"

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

- Prevents abnormal machining surface and / or insert breakage resulting from slip of insert.
- Improves repetitive installation accuracy of insert

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

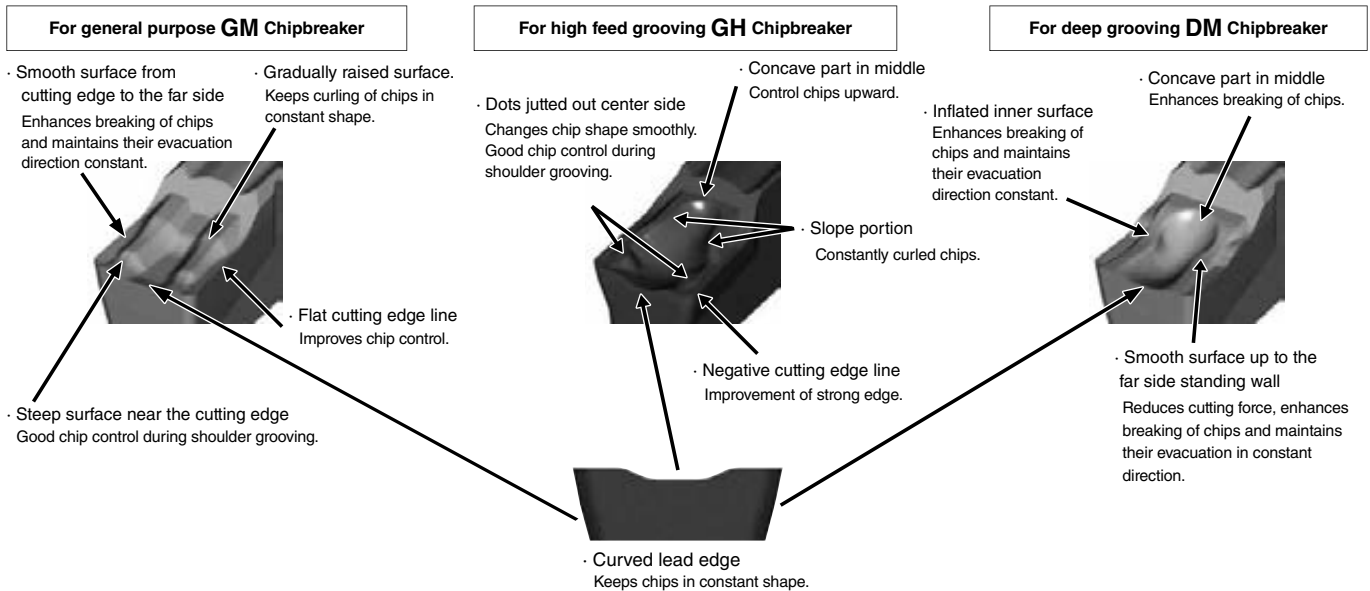


W Grip technology

- Smooth chip control

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

Advantages of Chipbreaker

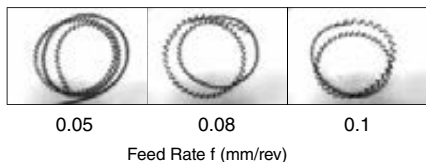


Chip Control of GM Chipbreaker

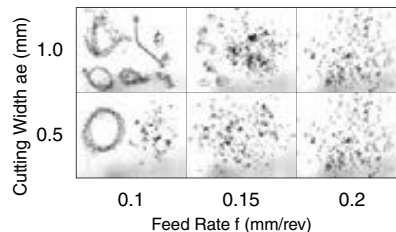
<Cutting Conditions>

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

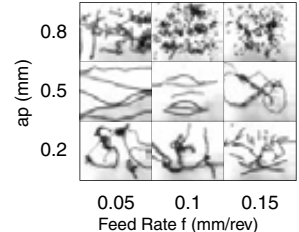
- Face Grooving($\phi 62$)



- Side Grooving



- Turning



High precision edge preparation

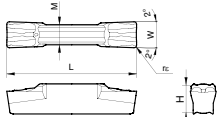
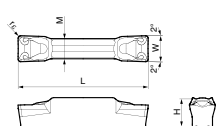
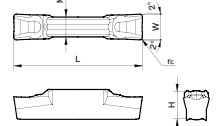
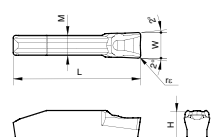
- High precision molding technology with tolerance $\pm 0.03\text{mm}$ (Edge width 2, 3, 4mm types)

Highly-reputed MEGACOAT technology

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

GDFM / GDFMS

Classification of usage	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~)			

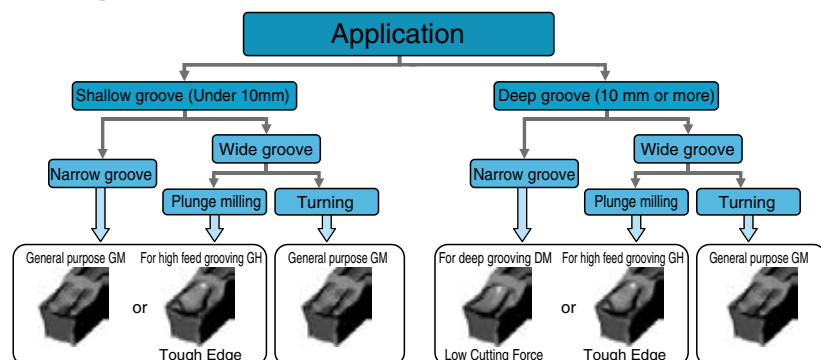
Insert			Description	Dimension (mm)					Cermet			MEGACOAT		Ref. to Page for
				W	rε	M	L	H	TN90	PR1225	PR1215			
												Tolerance		
Grooving and Turning			GDFM 2020N-020GM	2.0	±0.03	0.2	1.5	20	4.3	●	●	●	G74 G80	
			3020N-030GM	3.0		0.3	2.3			●	●	●		
			4020N-040GM	4.0		0.4	3.3			●	●	●		
			NEW 5020N-040GM	5.0	±0.04		4.2			●	●	●		
			NEW 5020N-080GM	5.0		0.8	●			●	●			
			6020N-040GM	6.0	0.4	5.2	●			●	●			
			NEW 6020N-080GM	6.0	0.8	●	●			●				
Grooving and Turning (High feed)			GDFM 4020N-040GH	4.0	±0.03	0.4	3.3	20	4.3		●	●		
			5020N-040GH	5.0	±0.04	4.2				●	●			
			5020N-080GH	5.0		0.8				●	●			
			6020N-040GH	6.0		0.4	5.2				●	●		
			6020N-080GH	6.0	0.8					●	●			
Deep grooving and Turning			GDFM 3020N-030DM	3.0	±0.03	0.3	2.3	20	4.3	●	●	●		
			4020N-040DM	4.0	0.4	3.3	●			●	●			
			5020N-040DM	5.0		4.2	●			●	●			
			6020N-040DM	6.0	±0.04	5.2	●			●	●			
			GDFMS 3020N-030DM	3.0	±0.03	0.3	2.3	20	4.3	●	●	●		
			4020N-040DM	4.0	0.4	3.3	●			●	●			
			5020N-040DM	5.0		4.2	●			●	●			
			6020N-040DM	6.0	±0.04	5.2	●			●	●			

Recommended Cutting Conditions ● G82

Inserts Identification System

G D F	M	S	30	20	N	-	030	DM
Series	Tolerance Symbol M: Class M	No. of edge (Without Indication): 2-edge S: 1-edge	Width 20 : 2mm 30 : 3mm :	Insert Length 20 : 20mm	Hand of Tool N: Neutral		Corner-R (rε) 020 : 0.2mm 030 : 0.3mm 040 : 0.4mm	Chipbreaker Symbol GM : Grooving and Turning DM : Grooving GH : High feed grooving

Chipbreaker Selection



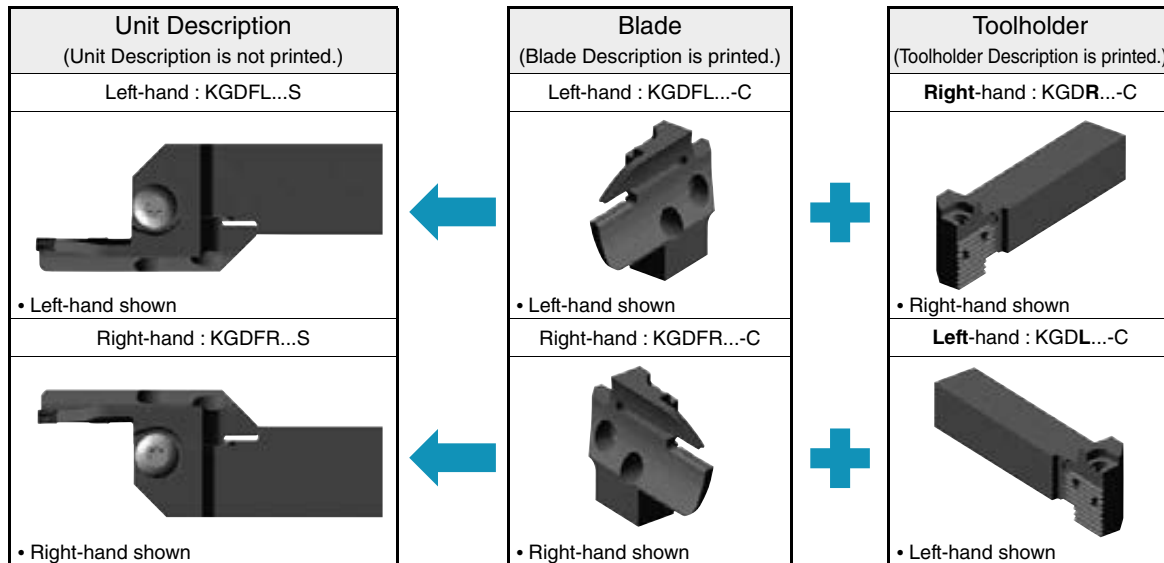
* If chip control is not stable when using the general GM chipbreaker for grooving, change the chipbreaker to the DM chipbreaker for deep grooving or GH chipbreaker for high feed grooving.

● : Std. Item

Face Grooving Toolholders (Separate type)

KGDF

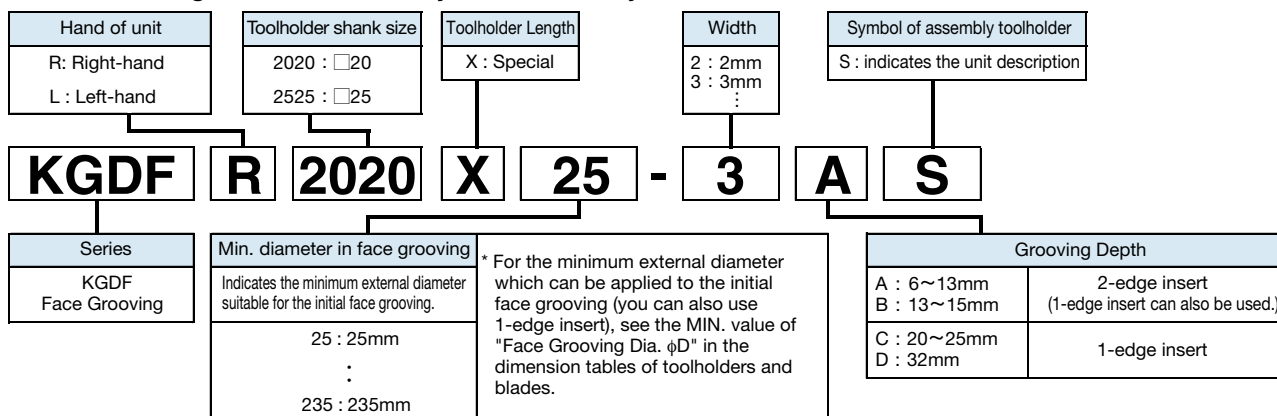
Toolholder Assembly Identification



- 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 bolt (BH6x10TR), blade fixing bolt (SB-60120TR) and wrench (LTW-25) which are included in the toolholder can be used.

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

Face Grooving Toolholder Assembly Identification System



◆ Face Grooving Dia. ϕD

Face grooving diameter (ϕD) 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.

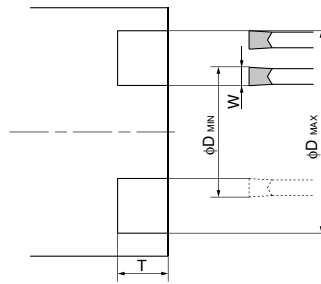
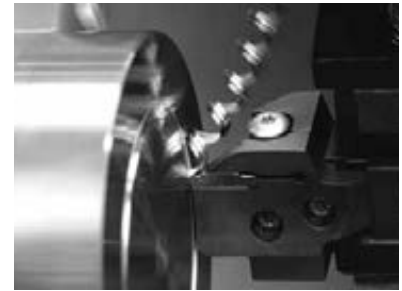
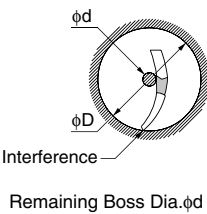


Fig.1



◆ 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	φD	25	26	27	28 and over
		φd				
	KGDF ^{R/L} 2020X25-3AS 2525X25-3AS	4	2	0		
	KGDF ^{R/L} 2020X25-4AS 2525X25-4AS	6	3	0		
	KGDF ^{R/L} 2020X25-5AS 2525X25-5AS	7	4	1		
	KGDF ^{R/L} 2020X25-6AS 2525X25-6AS	9	4	1		

e.g.)

If a groove of external diameter $\phi 25$ is created using KGDFR2020X25-3AS and turning is made toward the inside, a $\phi 4$ portion will be left in middle due to interference of toolholder.

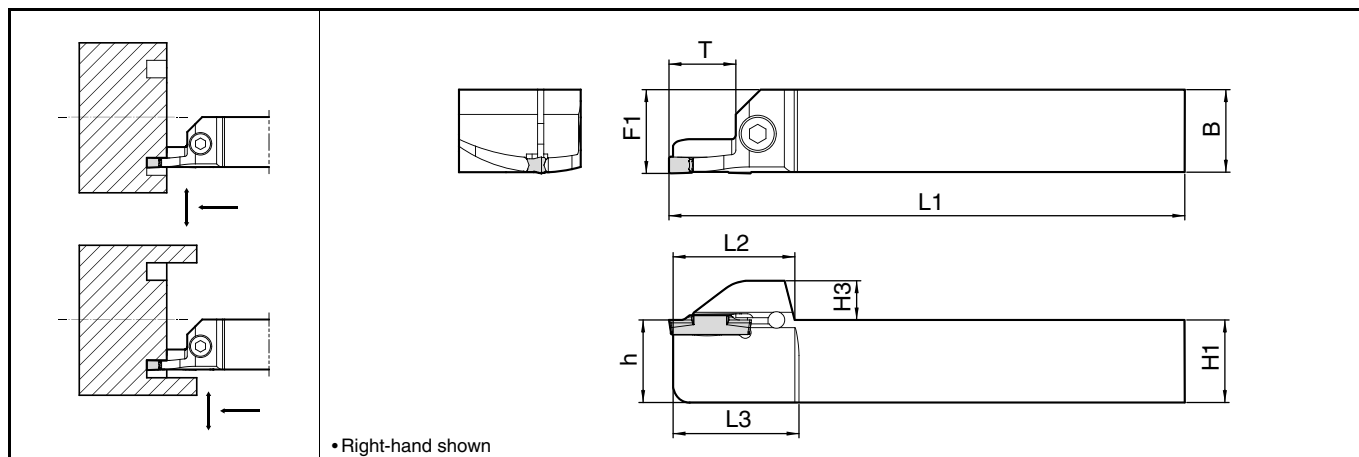
G



Grooving

Face Grooving Toolholders (Integral Type)

KGDF-Z NEW



Toolholder Dimensions

Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. ϕ 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 ^{R/L} 2020K50-3B-Z	●	●	20	9.5	20	125	30.5	31	20.3	15
			65	85		●	●								
			85	110		●	●								
			110	145		●	●								
	□25		50	65	KGDF ^{R/L} 2525M50-3B-Z	●	●	25		25	150		25.3		
			65	85		●	●								
			85	110		●	●								
			110	145		●	●								
4	□20	15	50	70	KGDF ^{R/L} 2020K50-4B-Z	●	●	20	9.5	20	125	30.5	31	20.3	15
			70	100		●	●								
			100	150		●	●								
			50	70		KGDF ^{R/L} 2525M50-4B-Z	●								
	70		100	●	●										
	100		150	●	●										
	100		150	●	●										
	5		□20	15	50	75	KGDF ^{R/L} 2020K50-5B-Z	●		●	20		9.5	20	
75		115			●	●									
115		180			●	●									
50		75			KGDF ^{R/L} 2525M50-5B-Z	●		●	25	25		150			25.3
75		115	●			●									
115		180	●			●									
115		180	●			●									

Applicable Inserts G71

Spare Parts

Description	Spare Parts	
	Clamp Bolt	Wrench
KGDF ^{R/L} ---Z	HH5 X 16	LW-4

Toolholder Identification System (Integral Type)

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

● : Std. Item

Recommended Cutting Conditions

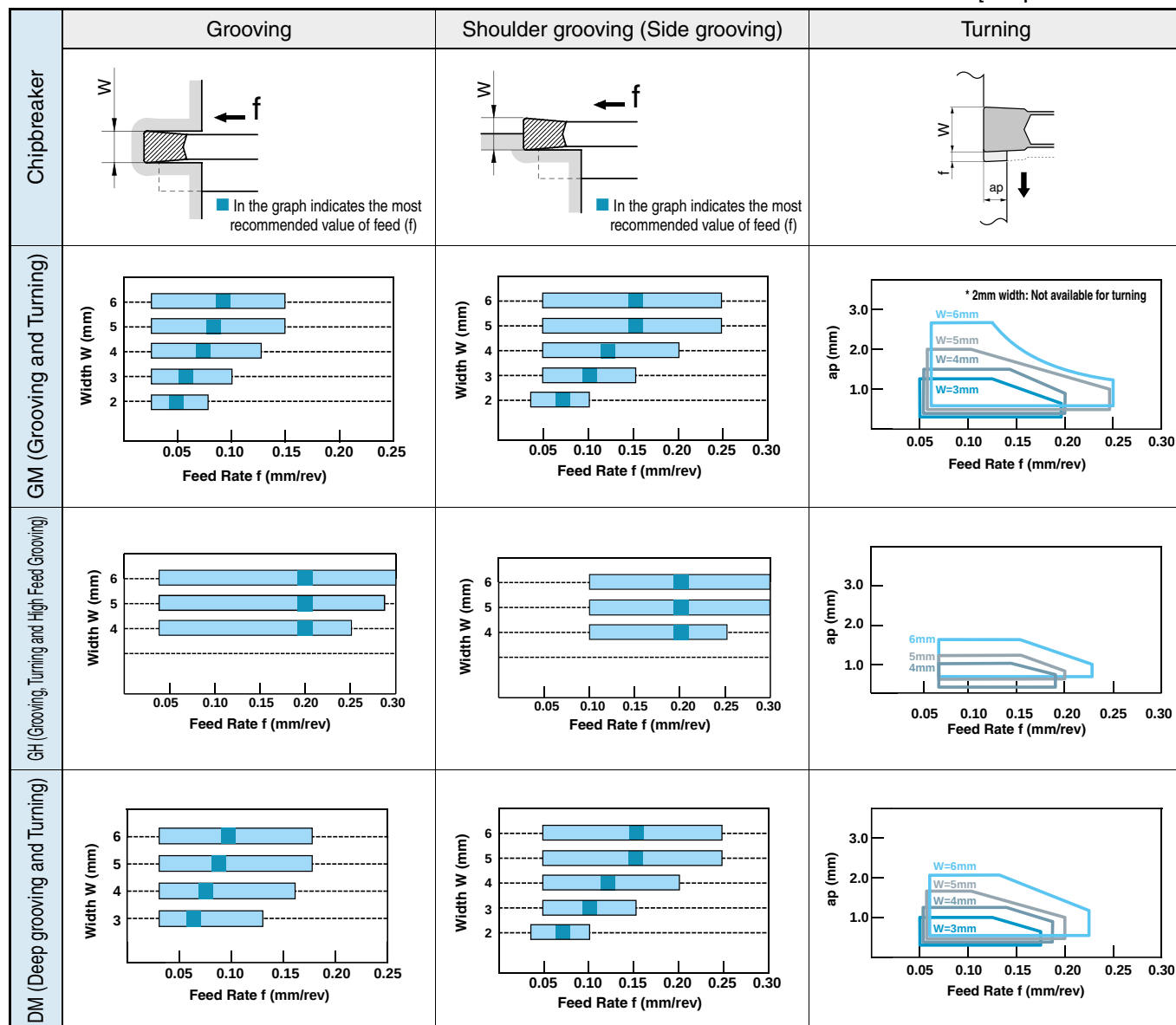
◆ Recommended Cutting Conditions (Vc)

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

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ Recommended Cutting Conditions (Feed Rate / ap)

[Workpiece material: S50C]



- When shouldnering,
 - 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.

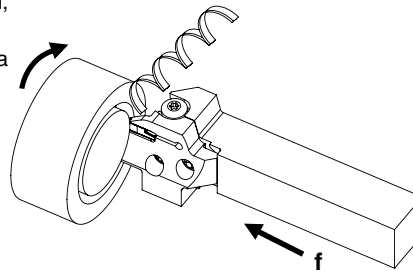
Points to be checked for face grooving

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 machining and Turning)

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

Plunge milling (Grooving + Side grooving)	Turning

4) Guide for turning

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

- (1) Perform Plunge milling.
- (2) Return the cutting by 0.1 mm.
- (3) Perform turning.(Ref. to Fig.1)

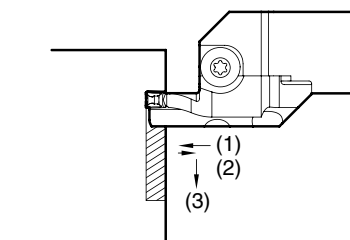
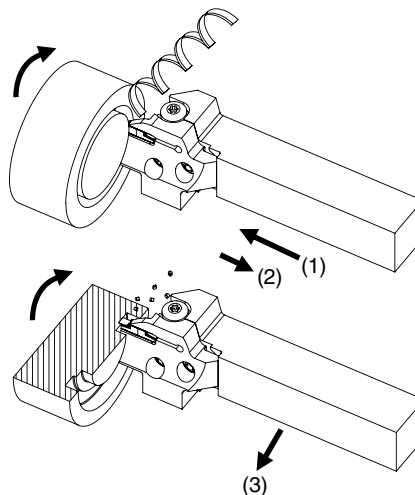


Fig.1

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

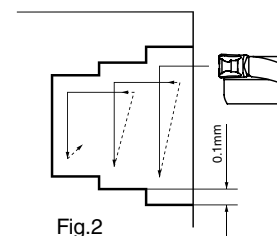


Fig.2

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)

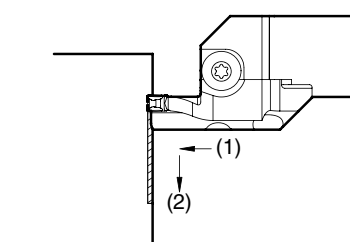
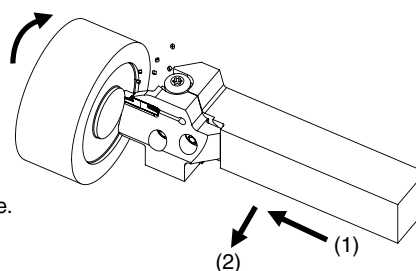
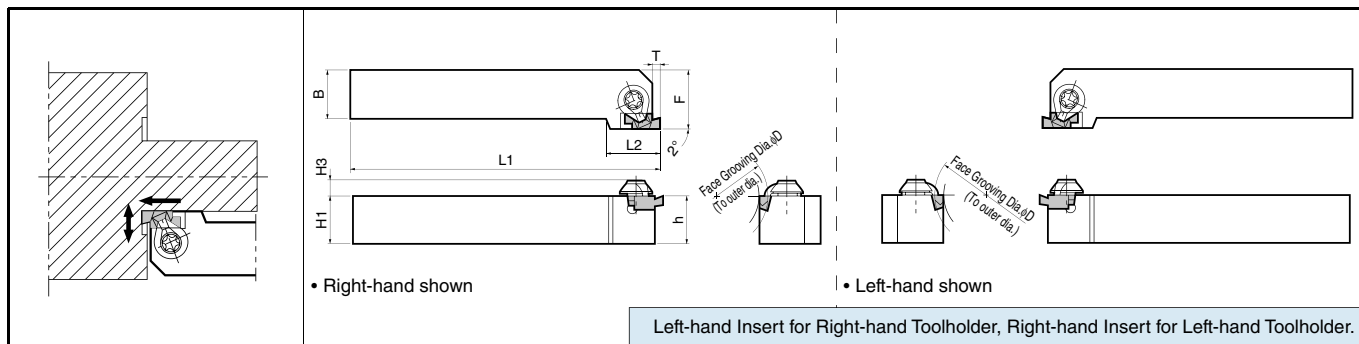


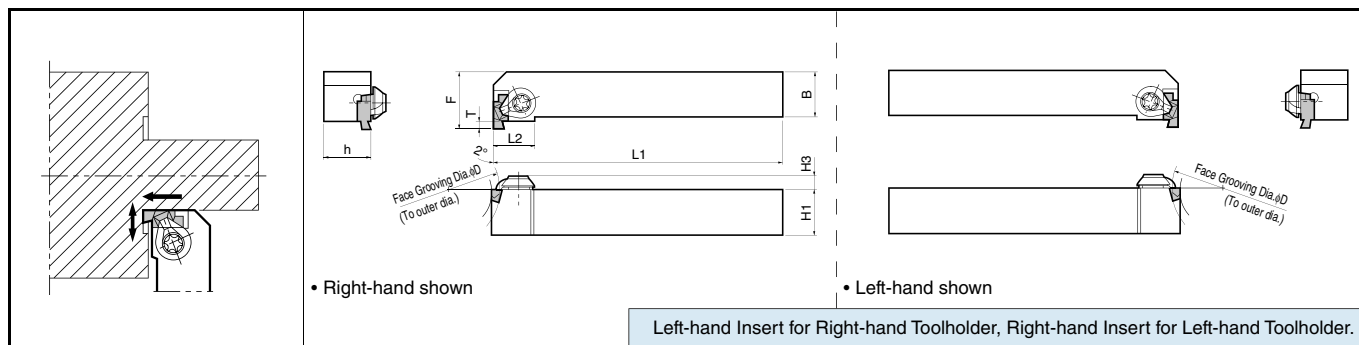
Fig.3

Small Diameter Face Grooving Toolholders [GVF-AA Insert]

GFVS-AA



GFVT-AA



Toolholder Dimensions

Description	Std.	Dimension (mm)											Face Grooving Dia. ϕD		Spare Parts		Applicable Inserts
		R	L	H1	h	H3	B	L1	L2	F	T	MIN.	MAX.				
GFVS ^{R/L}	2020K-08AA	●	●	20	20	5.5	20	125	18	25	2.2	8	∞				GVF ^R 100-005AA GVF ^R 300-005AA
	2525M-08AA	●	●	25	25	5.5	25	150	32	2.2		(0)	(∞)	CPS-5V	FT-15		
GFVT ^{R/L}	2020K-08AA	●	●	20	20	5.5	20	125	14	25	2.2	8	∞				GVF ^R 100-005AA GVF ^R 300-005AA
	2525M-08AA	●	●	25	25	5.5	25	150	32	2.2		(0)	(∞)	CPS-5V	FT-15		

Note 1. Dimension T shows available grooving depth.

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.

● : Std. Item

Grooving Inserts

■ Applicable Inserts

		(mm)		
Description		A	L	H
GVF ^R /L	100-...AA	4.3	12	4.5
	200-...AA			
	300-...AA			

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	Description	(Previous Description)	Dimension (mm)			Cermet			MEGACOAT	PVD	Carbide	PCD		Applicable Toolholders	Ref. to Page for Applicable Toolholders
			W	B	r _ε	TN90	TC40N	TC60M	PR1225	PR930	KW10	KPD001	KPD010		
 Handed Insert shows Right-hand		GVF ^{R/L} 100-005AA	1.00	2.2	0.05				●	●	●			GFVS ^{1/8} ...-08AA	G84
		200-005AA	2.00						●	●	●			GFVT ^{1/8} ...-08AA	
		300-005AA	3.00						●	●	●				

· Dimension B: shows available grooving depth.

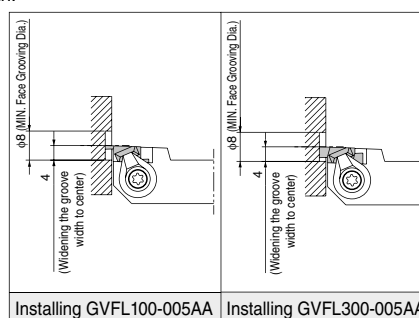
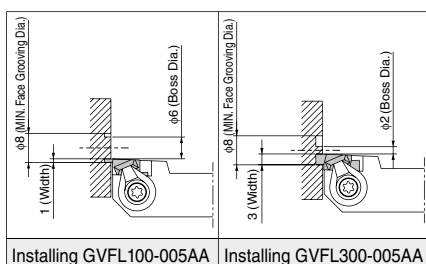
• GVF^R/...005AA inserts are not compatible with GVF^R/...—○○○ A (Ref. to Page **G91**) inserts because their Side Relief Angle is 10°.

◆ **Face Grooving Diameter of GFVS-AA (also GFVT-AA)**

Description	Face Grooving Dia. φD		Applicable Inserts
	MIN.	MAX.	
GFVS^{R/L} 2020K-08AA 2525M-08AA	8	∞	GVF ^{L/R} 100-005AA
GFVT^{R/L} 2020K-08AA 2525M-08AA	(0)	(∞)	GVF ^{L/R} 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.

- Refer to the machining of the initial groove with 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	Carbide		ap (mm)	f (mm/rev)	
	PR1225	PR930	KW10	f (mm/rev)			
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 (rε)

when turning of edge width 1.0 mm (GVF^R/L100-005AA).

★: 1st Recommendation ☆: 2nd Recommendation

● : Std. Item

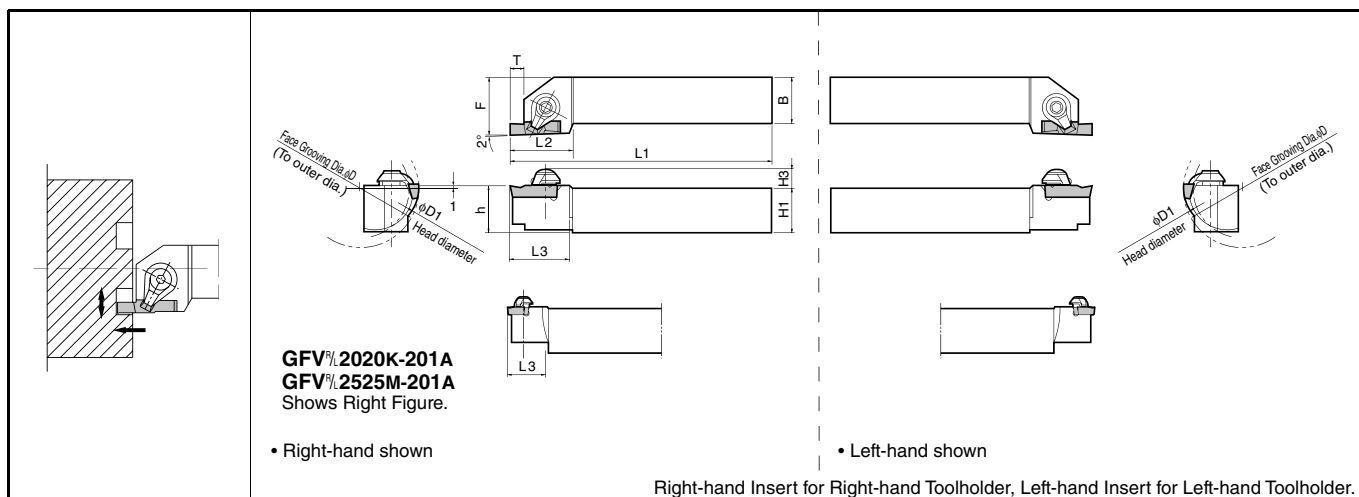
Заказ инструмента: <http://steelcam.org>
8 (343) 382-52-03 | sales@sverla-ekb.ru

**Inserts are
sold in 10 piece boxes**

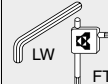
G85

Face Grooving Toolholders [GVF Insert]

GVF



Toolholder Dimensions

Description	Std.		Dimension (mm)										Face Grooving Dia. φD		Spare Parts			Applicable Inserts ➔ G91
	R	L	H1	h	H3	B	L1	L2	L3	F	T	φD1	MIN.	MAX.	Clamp Set		Wrench	
																		
GVF ^{R/L} 2020K-201A 2525M-201A	●	●	20	21	6.5	20	125	20	19	25	2.2	40	20 (12)	∞	CPS-5V	-	FT-15	GVF ^{R/L} 200~340-020A GVF ^{R/L} 200~...~300~...AR
GVF ^{R/L} 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	28	26	25	4.6	35	35 (25)	50 (∞)	-	CPS-6V	LW-3	GVF ^{R/L} 250~350-020B
	●	●	25	26		25	150	30	28	32	5.1		50 (25)	70 (∞)				GVF ^{R/L} 300-150BR
	●	●	20	21		20	125	28	26	25	5.1	50 (25)	70 (∞)	GVF ^{R/L} 400~490-020B				
	●	●	25	26		25	150	30	28	32	5.1	50 (25)	70 (∞)	GVF ^{R/L} 400-200BR				
	●	●	20	21		20	125	28	26	25	4.6	50	50 (25)	70 (∞)				GVF ^{R/L} 250~350-020B
	●	●	25	26		25	150	30	28	32	5.1		50 (25)	70 (∞)				GVF ^{R/L} 300-150BR
	●	●	20	21		20	125	28	26	25	5.1	70	70 (25)	100 (∞)				GVF ^{R/L} 400~490-020B
	●	●	25	26		25	150	30	28	32	5.1		70 (25)	100 (∞)				GVF ^{R/L} 400-200BR
	●	●	20	21		20	125	28	26	25	4.6	70	70 (25)	100 (∞)				GVF ^{R/L} 250~350-020B
	●	●	25	26		25	150	30	28	32	5.1		70 (25)	100 (∞)				GVF ^{R/L} 300-150BR
	●	●	20	21		20	125	28	26	25	5.1	70	70 (25)	100 (∞)				GVF ^{R/L} 400~490-020B
●	●	25	26	25	150	30	28	32	5.1	70 (25)	100 (∞)		GVF ^{R/L} 400-200BR					
GVF ^{R/L} 2525M-501C 2525M-502C 2525M-701C 2525M-702C 2525M-1001C 2525M-1002C 2525M-1501C 2525M-1502C	●	●	25	26	9.5	25	150	35	33	6.6	50	50	70	-	CPS-8V	LW-4	GVF ^{R/L} 350~450-040C	
	●	8.1								70	70	100	GVF ^{R/L} 500~600-040C					
	●	6.6								70	70	100	GVF ^{R/L} 350~450-040C					
	●	8.1								70	70	100	GVF ^{R/L} 500~600-040C					
	●	6.6							100	100	150	GVF ^{R/L} 350~450-040C						
	●	8.1							100	100	150	GVF ^{R/L} 500~600-040C						
	●	6.6							150	150	250	GVF ^{R/L} 350~450-040C						
	●	8.1							150	150	250	GVF ^{R/L} 500~600-040C						

Note 1. Dimension T shows available grooving depth.

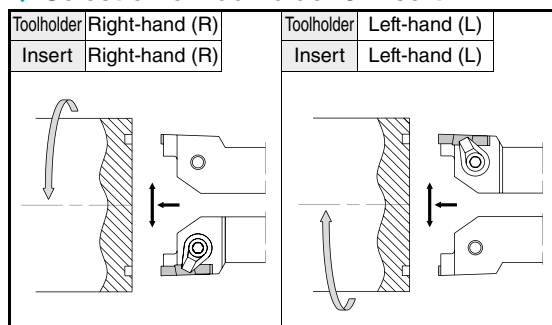
2. $\phi D1$ shows toolholder head diameter to L3.

3. The value () of Face Grooving Dia. (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.

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^{R/L}....-201A

Description	Face Grooving Dia. ϕD		Applicable Inserts
	MIN.	MAX.	
GFV ^{R/L} 2020K-201A 2525M-201A	20 (12)	∞ (∞)	GVF ^{R/L} 200~340-020A GVF ^{R/L} 200~...~300~...AR

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

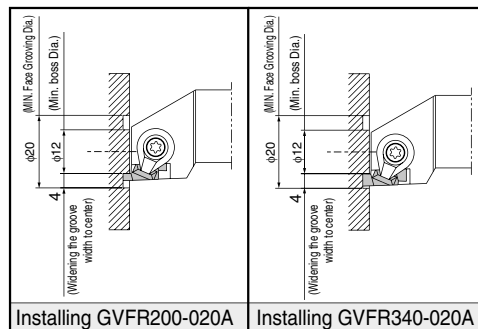
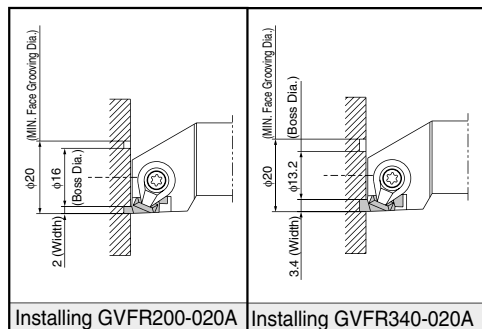
• When machining towards the outer diameter then there is no MAX. limit to the further groove machining.

• When widening the groove width to inner diameter.

Face groove diameter ϕD 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.

• When machining the initial groove on the face at MIN. $\phi 20$

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



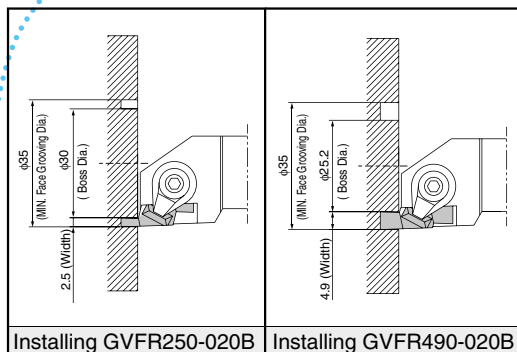
(2) e.g.) GFV^{R/L}....-351B/352B (same as GFV^{R/L}....-000B or GFVR/L....-000C)

Description	Face Grooving Dia. ϕD		Applicable Inserts
	MIN.	MAX.	
GFV ^{R/L} 2020K-351B 2525M-351B 2020K-352B 2525M-352B	35 (25)	50 (∞)	GVF ^{R/L} 250~350-020B GVF ^{R/L} 300-150BR GVF ^{R/L} 400~490-020B GVF ^{R/L} 400-200BR

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

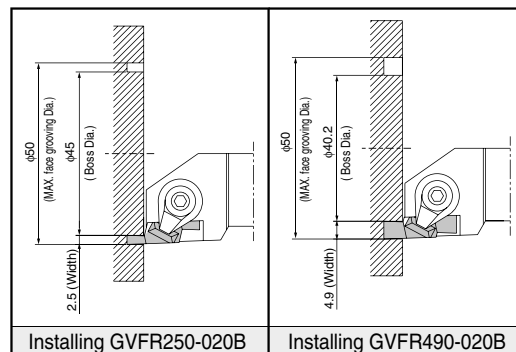
• When machining the initial groove on the face at MIN. $\phi 35$

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



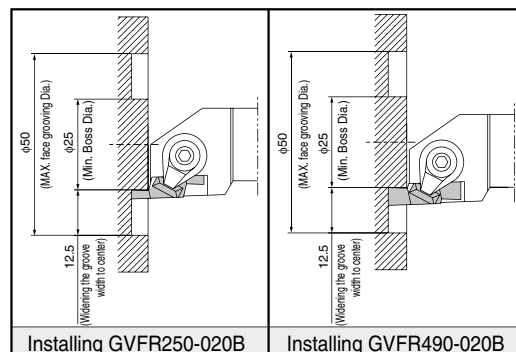
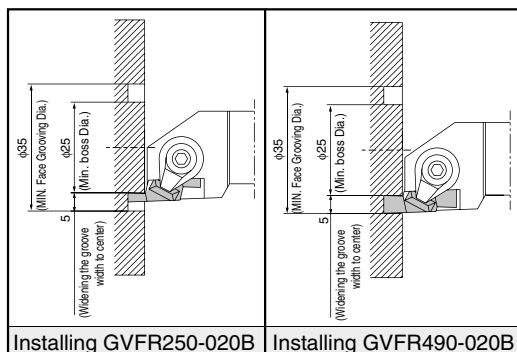
• When machining the initial groove on the face at MAX. $\phi 50$.

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



• When widening the groove width to inner diameter.

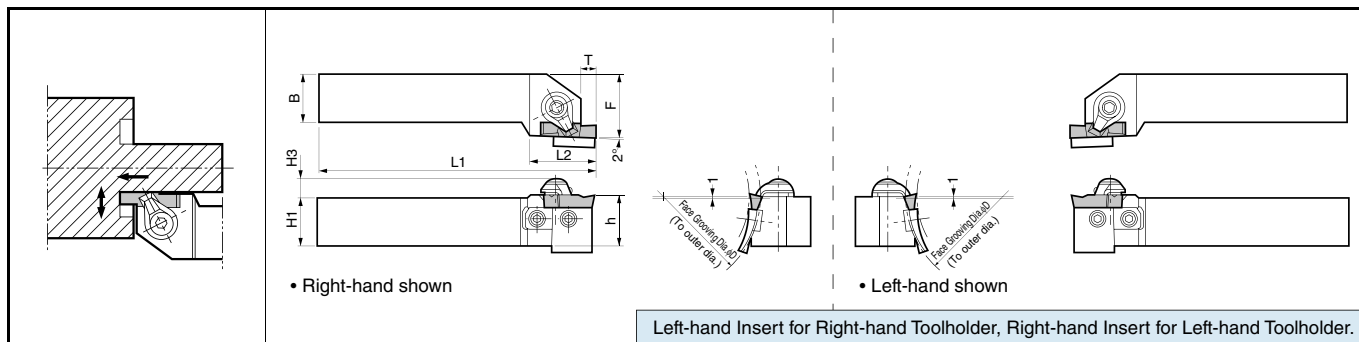
Face Grooving Dia. ϕD MIN. ($\phi 25$ Boss Dia.) is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at ϕD MIN. ($\phi 35$) or ϕD MAX. ($\phi 50$). The toolholder interferes with the workpiece when closer to the center.



Face Grooving Toolholders [GVF Insert]

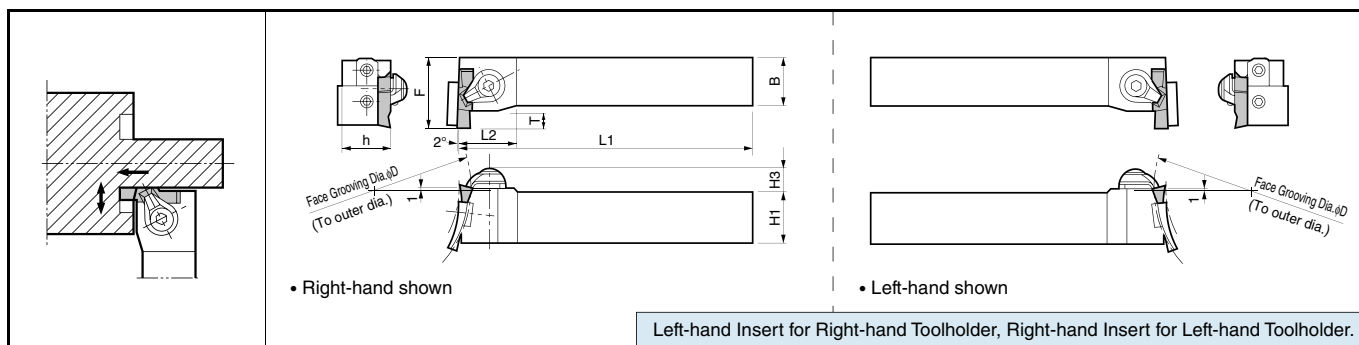
GFVS

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

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

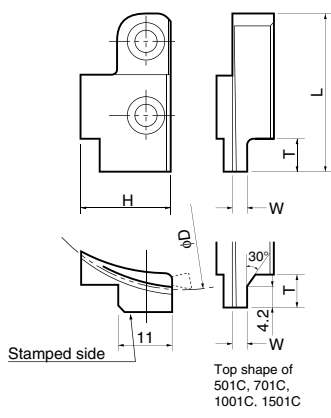
• Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.

• Installation of GFVT type is also pursuing example of installation of GFVS type.

● : Std. Item

Face Grooving Toolholders

Blade Dimensions

Shape	Description	Std.		Dimension (mm)				Face Grooving Dia. ϕ D		Applicable Inserts	Applicable Toolholders	
		R	L	L	H	T	W	MIN.	MAX.			
 Stamped side Top shape of 501C, 701C, 1001C, 1501C	SF ^{R/L} -351B	●	●	30.5	11	4.7	2.0	35	50	GVF ^L 250~350-020B GVF ^R 300-150BR	GFV(S/T) ^{R/L} ○○○○□ -○○○B (Toolholder Stamp GFV(S/T) ^{R/L} ○○○○□-HB)	
	-352B	●	●				3.4			GVF ^L 400~490-020B GVF ^R 400-200BR		
	SF ^{R/L} -501B	●	●				2.0	50	70	GVF ^L 250~350-020B GVF ^R 300-150BR		
	-502B	●	●				3.4			GVF ^L 400~490-020B GVF ^R 400-200BR		
	SF ^{R/L} -701B	●	●	17			2.0	70	100	GVF ^L 250~350-020B GVF ^R 300-150BR		
	-702B	●	●				3.4			GVF ^L 400~490-020B GVF ^R 400-200BR		
	SF ^{R/L} -501C	●	●	35	15	7.5	2.8	50	70	GVF ^L 350~450-040C GVF ^R 500~600-040C	GFV(S/T) ^{R/L} ○○○○□ -○○○C (Toolholder Stamp GFV(S/T) ^{R/L} ○○○○□-HC)	
	-502C	●	●				4.3					
	SF ^{R/L} -701C	●	●		20		2.8	70	100	GVF ^L 350~450-040C GVF ^R 500~600-040C		
	-702C	●	●				4.3					
	SF ^{R/L} -1001C	●	●		23		2.8	100	150	GVF ^L 350~450-040C GVF ^R 500~600-040C		
	-1002C	●	●				4.3					
	SF ^{R/L} -1501C	●	●		23		2.8	150	250	GVF ^L 350~450-040C GVF ^R 500~600-040C		
	-1502C	●	●				4.3					

• Right-hand shown

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

• Right-hand shown

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

Face Groove Diameter of GFVS / GFVT

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

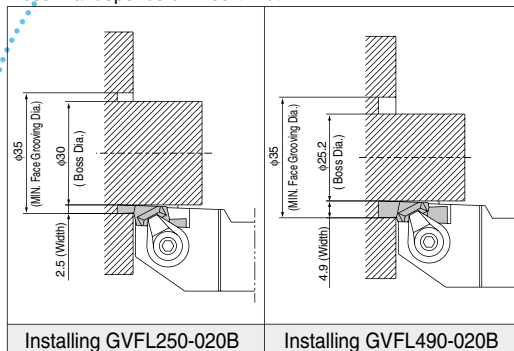
(same as GFVS^{R/L} ----000B, ----000C  G89

GFVT^{R/L} ----000B, ----000C  G89)

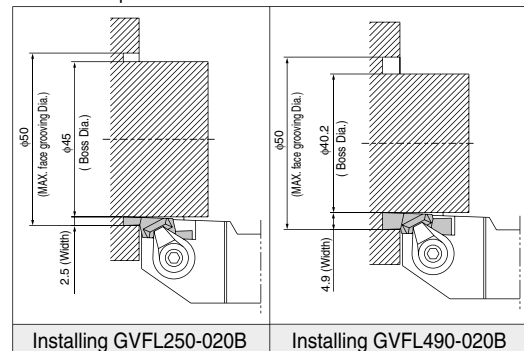
Description	Face Grooving Dia. ϕD		Applicable Inserts
	MIN.	MAX.	
GFVS^{R/L} 2020K-351B	35 (25)	50 (∞)	GVF ^{L/R} 250~350-020B
2525M-351B			GVF ^{L/R} 300-150BR
2020K-352B			GVF ^{L/R} 400~490-020B
2525M-352B			GVF ^{L/R} 400-200BR

- It is possible to widen the groove to infinity ∞ 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.

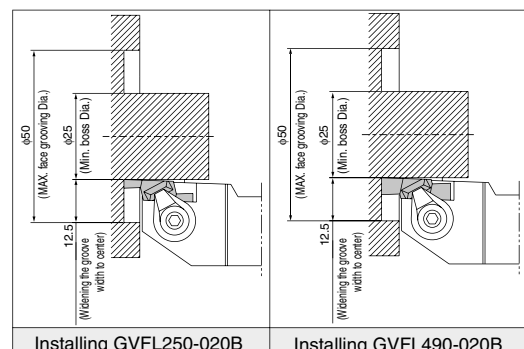
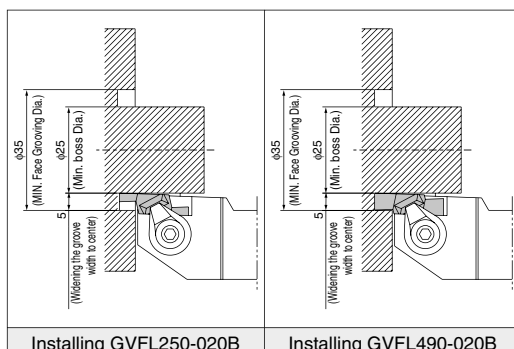


- When machining the initial groove on the face at MAX. $\phi 50$.
If the first groove is bigger than this, the toolholder interferes with the workpiece.
Boss Dia. depends on insert width.



- When widening the groove width to inner diameter.

Face Grooving Dia. ϕD 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 ϕD MIN. ($\phi 35$) or ϕD MAX. ($\phi 50$).
The toolholder interferes with the workpiece when closer to the center.



● : Std. Item

Grooving Inserts

Applicable Inserts

(mm)

Description	A	L	H
GVF^{R/L} ...○○○A	4.3	12	4.5
...○○○ B	5.8	20	5.0
...○○○ C	7.0	27	7.0
...○○○ AR	4.3	12	4.5
...○○○ BR	5.8	20	5.0

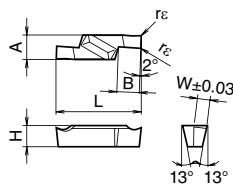
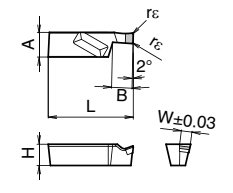
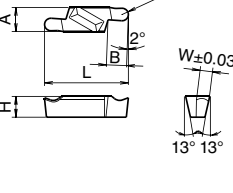
P	Carbon steel / Alloy steel			☛	☺				Classification of usage
M	Stainless Steel			☛	☺				
K	Cast Iron					☛			
N	Non-ferrous Metals					☛		●	
S	Titanium Alloys					☛		●	
H	Hard materials (~40HRC) Hard materials (40HRC~)			●	○				

☛: Continuous-Light Interruption / 1st Choice

☺: Continuous-Light Interruption / 2nd Choice

●: Continuous / 1st Choice

○: Continuous / 2nd Choice

Insert		Description	(Previous Description)	Dimension (mm)			Cermet		MEGA	PVD	Carbide	PCD	Applicable Toolholders	Ref. to Page for Applicable Toolholders				
				W	B	r _ε	TN90	TC40N	PR1225	PR930	KW10	KPD001			KPD010			
Handed Insert shows Right-hand																		
		GVF ^R / _L 200-020A 230-020A 250-020A 270-020A 290-020A 340-020A	GVF ^R / _L 200A 230A 250A 270A 290A 340A	2.00	2.3	0.2	●	○	●	●	●		GFV ^R / _L201A GIFV ^R / _L201A	G86 G96				
				2.30				●	○	●	●	●						
				2.50			R	●	R	●	●	●						
				2.70				●	R	●	●	●						
				2.90				●	R	●	●	●						
				3.40				●	R	●	●	●						
		GVF ^R / _L 250-020B 300-020B 350-020B 400-020B 430-020B 460-020B 490-020B	GVF ^R / _L 250B 300B 350B 400B 430B 460B 490B	2.50	4.8	0.2	●	○	●	●	●			GFV ^R / _L○01B GFVS ¹ / _R○01B GFVT ¹ / _R○01B GIFV ^R / _L○01B				
				3.00			●	○	●	●	●							
				3.50			●	○	●	●	●							
				4.00	5.3		●	○	●	●	●			GFV ^R / _L○02B GFVS ¹ / _R○02B GFVT ¹ / _R○02B GIFV ^R / _L○02B				
				4.30			●	○	●	●	●							
				4.60			●	○	●	●	●							
		4.90	6.8		●		○	●	●	●			GFV ^R / _L○01C GFVS ¹ / _R○01C GFVT ¹ / _R○01C GIFV ^R / _L○01C					
		3.50			●		○	●	●	●								
		4.00			●		○	●	●	●								
		4.50			●		○	●	●	●								
		5.00			8.3		●	○	●	●	●					GFV ^R / _L○02C GFVS ¹ / _R○02C GFVT ¹ / _R○02C GIFV ^R / _L○02C		
		5.50					●	○	●	●	●							
		6.00	●	○	●		●	●										
				GVF ^R / _L 250-020B 300-020B 400-020B	GVF ^R / _L 250B 300B 400B		2.50	4.8	0.2							● GFV ^R / _L○01B ● GFVS ¹ / _R○01B ● GFVT ¹ / _R○01B ● GIFV ^R / _L○01B		
							3.00											
							4.00			5.3								
GVF ^R / _L 350-020C 400-020C	-			3.50	6.8	0.2									MTO GFV ^R / _L○02B MTO GFVS ¹ / _R○02B MTO GFVT ¹ / _R○02B MTO GIFV ^R / _L○02B			
				4.00														
GVF ^R / _L 350-040C 400-040C	GVF ^R / _L 350C 400C			3.50	6.8	0.4									MTO GFV ^R / _L○01C MTO GFVS ¹ / _R○01C MTO GFVT ¹ / _R○01C MTO GIFV ^R / _L○01C			
				4.00														
				GVF ^R / _L 200-100AR 250-125AR 300-150AR	GVF ^R / _L 100AR 125AR 150AR	2.00	2.3	1.25			●	●	●		GFV ^R / _L201A GIFV ^R / _L201A	G86 G96		
						2.50												
						3.00												
				GVF ^R / _L 300-150BR 400-200BR	GVF ^R / _L 150BR 200BR	3.00	4.8	1.50			●	●	●		GFV ^R / _L○01B GFVS ¹ / _R○01B GFVT ¹ / _R○01B GIFV ^R / _L○01B	G86 G89 G96		
						4.00			5.3	2.00			●	●			●	

- Dimension B: shows available grooving depth.
- MEGA indicates MEGAQAT

Recommended Cutting Conditions G100

● : Std. Item
 ○ : Check Availability
 R : Std. Item (Right-hand Only)
 MTO : Made to order

Inserts are sold in 10 piece boxes.

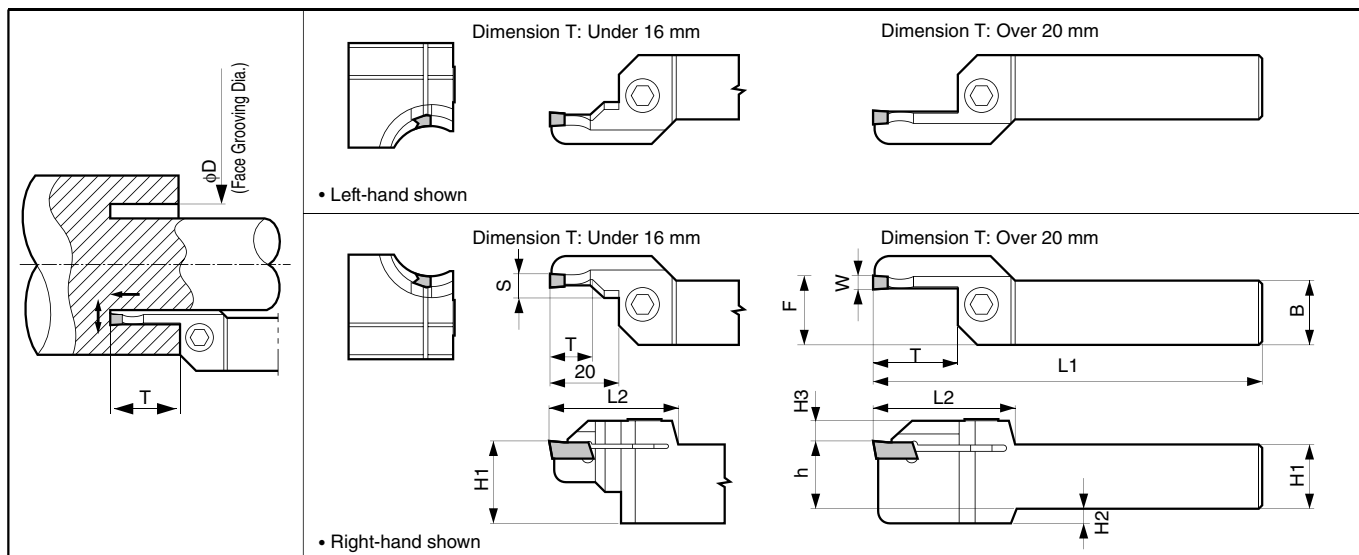
CBN & PCD Inserts are sold in 1 piece boxes.

Заказ инструмента: <http://steelcall.ru> | sales@sverla-ekb.ru

G91

Face Grooving Toolholders

KFMS



Toolholder Dimensions

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

● : Std. Item

● Toolholder Dimensions

Description	Std.		Dimension (mm)									Width (mm)	Face Grooving Dia. ϕ D		Spare Parts					
	R	L	H1=h	H2	H3	B	L1	L2	F	S	T	W	MIN.	MAX.						
KFMS ^{R/L} 2020K2535-5 2020K3550-5 2020K5075-5 2020K75115-5 2020K115180-5 2020K180235-5 2020K235800-5 2525M2535-5 2525M3550-5 2525M5075-5 2525M75115-5 2525M115180-5 2525M180235-5 2525M235800-5	●		20	-	10	20	125	39	20.7 (21.2)	-	20	5 (6)	25	35	HH5X20	LW-4				
	●													35					50	
	●													50					75	
	●			5	10			44			25		75	115						
	●												115	180						
	●												180	235						
	●												235	∞						
	●	●	25	-	10	25	150	39	25.7 (26.2)	-	20		25	25	35	50	HH5X25	LW-4		
	●	●													35	50				
	●	●													50	75				
	●	●											51	32	75	115				
	●	●													115	180				
	●	●													180	235				
	●	●													235	∞				

· Dimension T shows available grooving depth.

· Face Grooving Dia. ϕD : The diameter range of the initial groove.

• For KFMS[®] L....-5 toolholder can hold a 6mm width insert. () value shows the dimension of a 6mm width insert.

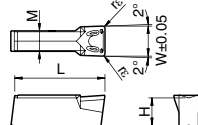
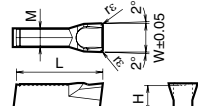
◆ Selection of Toolholder & Insert

Toolholder	Right-hand (R)	Toolholder	Left-hand (L)
Insert	(No Hand)	Insert	(No Hand)

■ Applicable Inserts

Description	L	H
FMM30-03 } FMM60-04	12	3.5
FMN3 } FMN6	12	3.5

P	Carbon steel / Alloy steel			●			Classification of usage
M	Stainless Steel			●			
K	Cast Iron				●	☹	
N	Non-ferrous Metals					●	
S	Titanium Alloys					☹	
H	Hard materials (~40HRC)			○			●: Continuous / 1st Choice
	Hard materials (40HRC~)						☹: 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	r _ε	M	TN90	CR9025	PR915	PR930	PR905	KW10		
 Face Grooving Chip Control Oriented / M Class		FMM	30-03	3.0	0.4	2.0	●	●	●	●	●	●	KFMS[®]/L... 3
			40-04	4.0		2.6	●	●	●	●	●	●	KFMS[®]/L... 4
			50-04	5.0		3.4	●	●	●	●	●	●	KFMS[®]/L... 5
			60-04	6.0		4.0	●	●		●	●	●	KFMS[®]/L... 5
 Face Grooving Sharp-Cutting Oriented / M Class		FMN	3	3.0	0.25	2.0	●	●		●		●	KFMS[®]/L... 3
			4	4.0		2.6	●	●		●		●	KFMS[®]/L... 4
			5	5.0		3.4	●	●		●		●	KFMS[®]/L... 5
			6	6.0		4.0		●		●		●	KFMS[®]/L... 5

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

Recommended Cutting Conditions G99

◆ **Limit of Turning toward Center** It causes the toolholder to interfere with the groove wall depending on the initial cut's diameter.

 Remaining Boss Dia. ϕd	ϕD Description		25	26	27	28 and over
			ϕd			
	KFMS ^{R/L}	2020K2530-3	4	2	0	(No remaining Boss)
	KFMS ^{R/L}	2525M2530-3				
	KFMS ^{R/L}	2020K2535-4	6	3	0	
	KFMS ^{R/L}	2525M2535-4				
	KFMS ^{R/L}	2020K2535-5	7	4	1	
	KFMS ^{R/L}	2525M2535-5	(5)	(2)	(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 ϕd is 4.0mm.

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

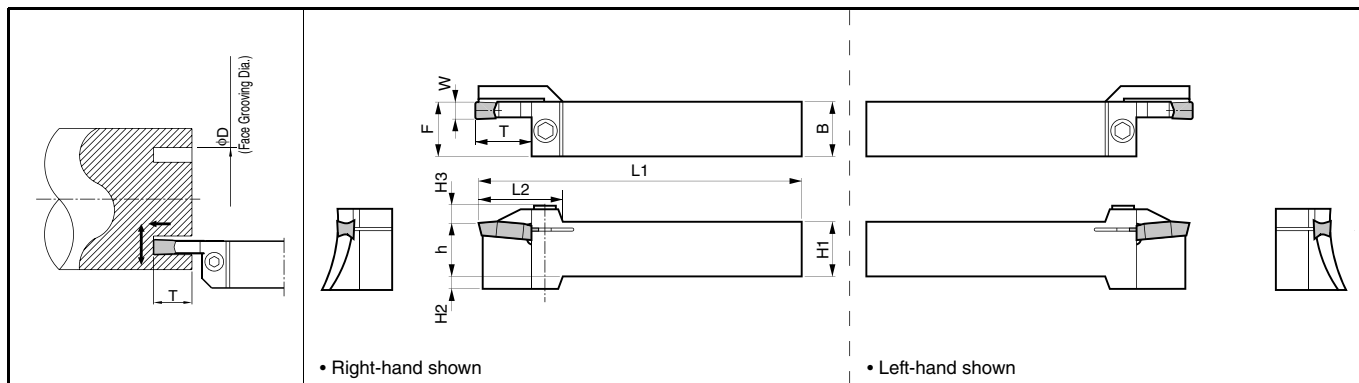
● : Std. Item

Заказ инструмента: <http://steelcam.org>
8 (343) 382-52-03 | sales@sverla-ekb.ru

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

Face Grooving Toolholders

KFMS-8



Toolholder Dimensions

Description	Std.		Dimension (mm)									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							
																							
KFMS^{R/L} 2525M5464-8	●	●	25	-	9	25	150	41	26	25		8	54 (0)	64 (∞)	HH6X25	LW-5							
2525M6382-8	●	●		2.4									63 (0)	82 (∞)									
2525M80115-8	●	●		6	8			40					80 (0)	115 (∞)									
2525M105160-8	●	●											105 (0)	160 (∞)									
2525M155510-8	●	●	25	6	8	25	150	43	26	25		8	155 (0)	510 (∞)									
3232P155510-8	●		32	-														32	170	33			

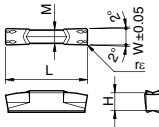
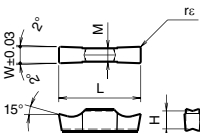
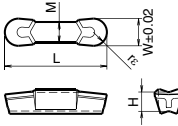
Dimension T shows available grooving depth.

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

(mm)			M	K	N	S	H												
Description			L	H															
GMM 8030-080MW			30	5.5															
GMG 8030-050MG																			
GMGA 8030-400R																			

Insert	Description	(Previous Description)	Dimension (mm)			Cermat	CVD Coated Carbide	PVD Coated Carbide			Carbide	Applicable Toolholders							
			W	r _ε	M	TN90	CR9025	PR915	PR930	PR905	KW10								
 Chip Control Oriented / M Class		GMM 8030-080MW GMM 8030-08	8.0	0.8	6.0		●	●	●	●	●								
 Sharp-Cutting Oriented / Precision Class Ground Chipbreaker		GMG 8030-050MG GMG 8030-05MG	8.0	0.5	6.0	●	●			●	●	●							
 Sharp-Cutting Oriented / Precision Class Full-R / Copying		GMGA 8030-400R GMGA 8030-40R	8.0	4.0	6.0													●	

●: Continuous-Light Interruption / 1st Choice

⦿: Continuous-Light Interruption / 2nd Choice

●: Continuous / 1st Choice

○: Continuous / 2nd Choice

●: Continuous-Light Interruption / 1st Choice

⦿: Continuous-Light Interruption / 2nd Choice

●: Continuous / 1st Choice

○: Continuous / 2nd Choice

●: Continuous-Light Interruption / 1st Choice

⦿: Continuous-Light Interruption / 2nd Choice

●: Continuous / 1st Choice

○: Continuous / 2nd Choice

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

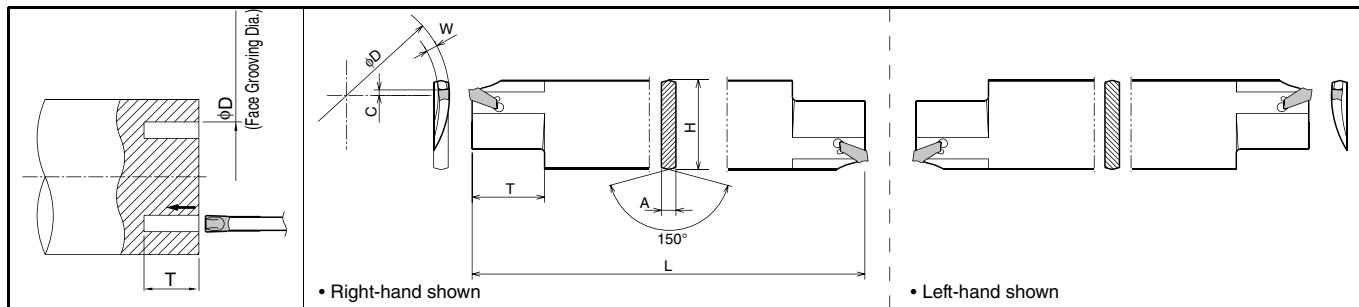
Recommended Cutting Conditions **G101**

Inserts are sold in 10 piece boxes.

● : Std. Item

Face Grooving Blade

KFTB-S



Blade Dimensions

Description	Std.	Dimension (mm)							Width W	Face Grooving Dia. ϕD		Spare Parts Releasing Wrench	Applicable Inserts	Applicable Blocks H27
		R	L	H	L	A	T	C		MIN.	MAX.			
KFTB ^{R/L} 65100-4S 90150-4S 150250-4S 250800-4S	●	●					25	4		65	100	LTK-5	FTK4	KTKTB20-32 25-32 32-32
	●	●					30	0	4.0	90	150			
	●	●					30	0	4.0	140	250			
	●	●					3.2	0	4.0	230	∞			
KFTB ^{R/L} 90150-5S 150250-5S 250800-5S	●	●					30	0	5.0	90	150	LTK-5	FTK5	KTKTBF25-32 32-32
	●	●					32	0	5.0	150	250			
	●	●					32	0	5.0	150	250			
	●	●					4.0	38	5.0	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 ± 0.05 mm).

KFTB^{R/L} 65100-4S toolholder is designed with the edge position 4mm above the Center.

* Dimension H shows the length between virtual tops.

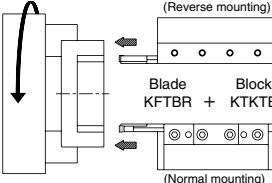
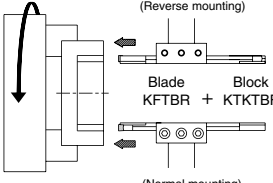
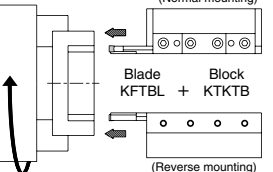
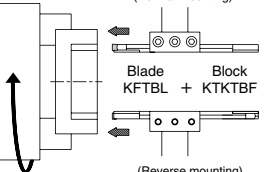
Applicable Inserts

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

Insert	Description	Dimension (mm)		Cermat CVD Coated Carbide	PVD Coated Carbide	Carbide	Applicable Toolholders
		W	r_E				
	FTK 4	4.0	0.25	●	●	●	KFTB ^{R/L} 65100-4S 90150-4S 150250-4S 250800-4S
	5	5.0	0.25	●	●	●	KFTB ^{R/L} 90150-5S 150250-5S 250800-5S

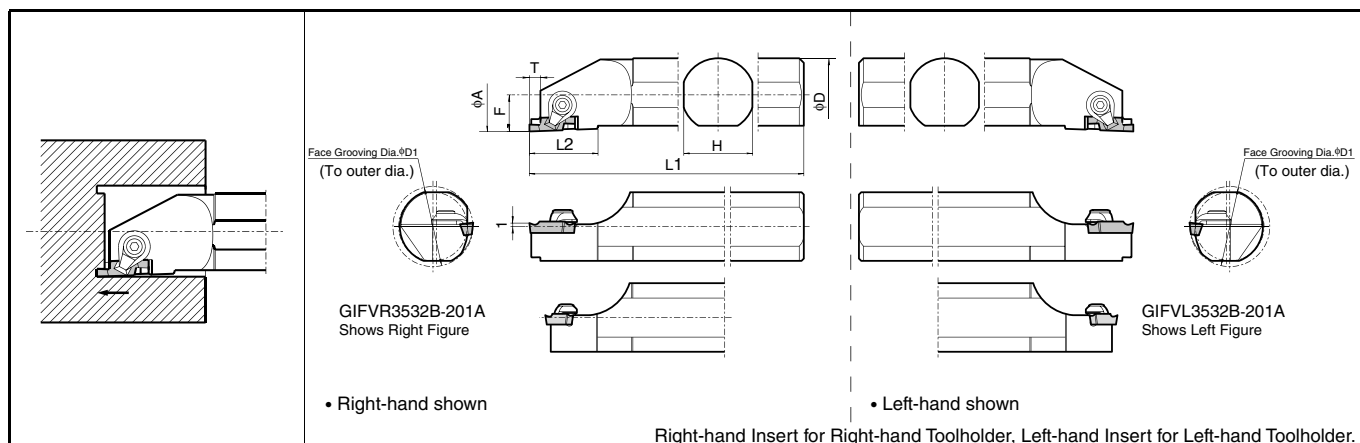
Recommended Cutting Conditions ● G100

Selection of Blade and Insert

Combination of Blade + KTKTB				Combination of Blade + KTKTBF			
Blade	Right-hand (R)	Insert	Neutral	Blade	Right-hand (R)	Insert	Neutral
Insert	Neutral			Insert	Neutral		
							
(Reverse mounting) Blade KFTBR + Block KTKTB (Normal mounting)				(Reverse mounting) Blade KFTBR + Block KTKTBF (Normal mounting)			
							
(Normal mounting) Blade KFTBL + Block KTKTB (Reverse mounting)				(Normal mounting) Blade KFTBL + Block KTKTBF (Reverse mounting)			

● : Std. Item

GIFV



Toolholder Dimensions

Description	Std.		Dimension (mm)								Face Grooving Dia. φD1		Spare Parts				Applicable Inserts ➔ G91
	R	L	φA	φD	H	L1	L2	F	T	MIN.	MAX.		Clamp Set		Wrench		
GIFV^{R/L} 3532B-201A	●	●	35				23		2.2	35 (12)	∞		CPS-5V	-	FT-15	-	GVF ^{R/L} ...-...A GVF ^{R/L} ...-...AR
GIFV^{R/L} 3532B-351B	●	●	35						4.6	35 (25)	50 (∞)						GVF ^{R/L} 250~350-020B GVF ^{R/L} 300-150BR
3532B-352B	●	●							5.1	35 (25)	50 (∞)						GVF ^{R/L} 400~490-020B GVF ^{R/L} 400-200BR
5032B-501B	●	●		32	30	250		16	4.6	50 (25)	70 (∞)			CPS-6V		LW-3	GVF ^{R/L} 250~350-020B GVF ^{R/L} 300-150BR GVF ^{R/L} 400~490-020B GVF ^{R/L} 400-200BR
5032B-502B	●	●		50					5.1	50 (25)	70 (∞)						
GIFV^{R/L} 5032B-501C	●	●							6.6	50 (25)	70 (∞)					LW-4	GVF ^{R/L} 350~450-040C
5032B-502C	●	●					35		8.1	50 (25)	70 (∞)			CPS-8V			GVF ^{R/L} 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. φD1 depends on the application.

Applications	Description	Face Grooving Dia. φd1		Face Grooving Dia. φD1		Remarks
		(MIN.)	MIN.	MAX.	(MAX.)	
	GIFV^{R/L} 3532B-201A			∞		
	GIFV^{R/L} 3532B-351B		35	50		
	3532B-352B					
	5032B-501B				∞	
	5032B-502B					
	GIFV^{R/L} 5032B-501C		50	70		
	GIFV^{R/L} 3532B-201A	12		∞		If φD2 ≥ 58-2W, the Face Grooving Dia. can be expanded to φd1 (MIN.) toward the Center. W = Edge Width
	GIFV^{R/L} 3532B-351B		35	50		
	3532B-352B					
	5032B-501B	25			∞	
	5032B-502B		50	70		
	GIFV^{R/L} 5032B-501C					
	GIFV^{R/L} 3532B-201A	12		∞		If φD2 ≥ 75-2W, the Face Grooving Dia. can be expanded to φd1 (MIN.) toward the Center. W = Edge Width
	GIFV^{R/L} 3532B-351B		35	50		
	3532B-352B					
	5032B-501B	25			∞	
	5032B-502B		50	70		
	GIFV^{R/L} 5032B-501C					

• The value () of Face Grooving Dia. (φD1 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. (φd1 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

◆ TGF inserts (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)							(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)				Remarks
	Cermet	MEGA	PVD Coated Carbide		Carbide	CBN	PCD					
	TC40N	PR1215	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)	TGF32 ^{R/L} 033-050-005	TGF32 ^{R/L} 075-095-010	TGF32 ^{R/L} 100-145-010	TGF32 ^{R/L} 150-250-010	
Carbon Steel	☆ 150-220	★ 80-180	☆ 80-180	☆ 80-180	-	-	-	(1) 0.01-0.05 (2) Not reo m. (3) Not reo m.	(1) 0.02-0.07 (2) Not reo m. (3) Not reo m.	(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 reo m. (3) Not reo m.	(1) 0.02-0.06 (2) Not reo m. (3) Not reo m.	(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 reo m. (3) Not reo m.	(1) 0.02-0.06 (2) Not reo m. (3) Not reo m.	(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 reo m. (3) Not reo m.	(1) 0.02-0.07 (2) Not reo m. (3) Not reo m.	(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 reo m. (3) Not reo m.	(1) 0.02-0.07 (2) Not reo m. (3) Not reo m.	(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 reo m. (3) Not reo m.	(1) 0.02-0.06 (2) Not reo m. (3) Not reo m.	(1) 0.03-0.07 (2) 0.02-0.05 (3) Max 0.2	(1) 0.03-0.07 (2) 0.02-0.05 (3) Max 0.2	

☆ MEGA indicates MEGACOAT

★ 1st Recommendation ☆ 2nd Recommendation

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

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)								f (mm/rev)					Remarks
	Cermet			PVD Coated Carbide		Carbide	CBN	PCD						
	TN60	TC40N	TC60M	PR630	PR930	KW10	KBN510	KPD001 (KPD010)	TG00 ¹ / _L 075~095	TG00 ¹ / _L 125~200	TG00 ¹ / _L 230~300	TG00 ¹ / _L 330~400	TG00 ¹ / _L 430~450	
Carbon Steel	★ 150~220	-	-	-	-	-	-	-	0.03-0.07	0.03-0.08	0.05-0.1	0.05-0.12	0.05-0.12	Coolant
Alloy Steel	★ 130~200	-	-	-	-	-	-	-	0.02-0.06	0.03-0.07	0.05-0.09	0.05-0.1	0.05-0.1	

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

★ 1st Recommendation ☆ 2nd Recommendation

◆ GH inserts (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)								(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)					Remarks
	Cermet		PVD Coated Carbide	Carbide	Ceramic			GH 40~50...	GH 55~70...	GH 75~80...	GH 100~120...			
	TN90	TC40N	TC60M	PR930	KW10	A65	A66N					PT600M		
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 reo m. (3) Not reo m.	KW10 (1) 0.07~0.2 (2) 0.07~0.15 (3) Max 1.0 A65 / A66N (1) 0.03~0.07 (2) Not reo m. (3) Not reo m.	KW10 (1) 0.1~0.25 (2) 0.1~0.2 (3) Max 1.5 A65 / A66N (1) 0.05~0.09 (2) Not reo m. (3) Not reo m.	KW10 (1) 0.15~0.3 (2) 0.15~0.25 (3) Max 2.0 A65 / A66N (1) 0.05~0.09 (2) Not reo m. (3) Not reo m.		
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 Chipbreakers)

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

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

★ 1st Recommendation ☆ 2nd Recommendation

◆ GA Inserts (Molded Chipbreakers)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)								(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)				Remarks
	Cermet				CVD Coated Carbide	PVD Coated Carbide		Carbide					
	TN60	TN90	TC40N	TC60M	CR9025	PR630	PR930	KW10	GA 30	GA 40	GA 50		
Carbon Steel	☆ 130~200	-	-	-	★ 80~180	-	-	-	(1) 0.06~0.18 (2) 0.05~0.15 (3) Max 0.8	(1) 0.06~0.21 (2) 0.05~0.17 (3) Max 1.0	(1) 0.06~0.25 (2) 0.05~0.2 (3) Max 1.3		Coolant
Alloy Steel	☆ 100~180	-	-	-	★ 80~160	-	-	-	(1) 0.06~0.15 (2) 0.05~0.12 (3) Max 0.3	(1) 0.06~0.18 (2) 0.05~0.15 (3) Max 0.5	(1) 0.06~0.22 (2) 0.05~0.18 (3) Max 0.8		
Stainless Steel	-	-	-	-	★ 60~130	-	-	-	(1) 0.06~0.1 (2) 0.05~0.08 (3) Max 0.8	(1) 0.06~0.1 (2) 0.05~0.08 (3) Max 0.8	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max 1.2		

★: 1st Recommendation ☆: 2nd Recommendation

◆ GIA Inserts (Molded Chipbreakers)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)								(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)				Remarks
	Cermet				CVD Coated Carbide	PVD Coated Carbide	Carbide						
	TN60	TN90	TC40N	TC60M	CR9025	PR630	PR930	KW10	GIA 30	GIA 40	GIA 50		
Carbon Steel	☆ 60~120	-	-	-	★ 60~120	-	-	-	(1) 0.04~0.08 (2) 0.02~0.08 (3) Max 0.3	(1) 0.04~0.09 (2) 0.02~0.08 (3) Max 0.4	(1) 0.05~0.1 (2) 0.05~0.08 (3) Max 0.5		Coolant
Alloy Steel	☆ 60~100	-	-	-	★ 60~100	-	-	-	(1) 0.04~0.07 (2) 0.02~0.07 (3) Max 0.3	(1) 0.04~0.07 (2) 0.02~0.07 (3) Max 0.4	(1) 0.05~0.08 (2) 0.05~0.08 (3) Max 0.5		
Stainless Steel	-	-	-	-	★ 60~80	-	-	-	(1) 0.04~0.07 (2) 0.02~0.07 (3) Max 0.3	(1) 0.04~0.07 (2) 0.02~0.07 (3) Max 0.4	(1) 0.05~0.08 (2) 0.05~0.08 (3) Max 0.5		

★: 1st Recommendation ☆: 2nd Recommendation

◆ 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

Internal small dia. 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)

■ FMM·FMN

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)						Face Grooving (FMM / FMN)			Turning (FMM)			Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide		Carbide		Edge Width (mm)			Edge Width (mm)			
	TN90	CR9025	PR915	PR930	PR905	KW10	3.0	4.0	5.0/6.0	3.0	4.0	5.0/6.0	
							f (mm/rev)			f (mm/rev)			
Carbon Steel	☆ 100-220	☆ 80-200	☆ 80-200	★ 80-200	-	-	0.03-0.05	0.03-0.08	0.05-0.10	0.05-0.10	0.05-0.25	0.10-0.30	Coolant
Alloy Steel	☆ 80-200	☆ 70-180	☆ 70-180	★ 70-180	-	-	0.03-0.05	0.03-0.08	0.05-0.10	0.05-0.10	0.05-0.25	0.10-0.30	
Stainless Steel	☆ 70-160	☆ 60-150	★ 60-150	☆ 60-150	-	-	0.03-0.05	0.03-0.08	0.05-0.10	0.05-0.10	0.05-0.25	0.10-0.30	
Cast Iron	-	-	-	-	★ 80-180	☆ 70-150	0.03-0.05	0.03-0.08	0.05-0.10	0.05-0.10	0.05-0.25	0.10-0.30	
Aluminum	-	-	-	-	-	★ 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
f (MAX.) (mm)	under 3~5% of Edge Width

· ap ≤ 0.5w

· 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 ≤ 0.01w²

Recommended Cutting Conditions

GMG·GMM·GMN·GMGA

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

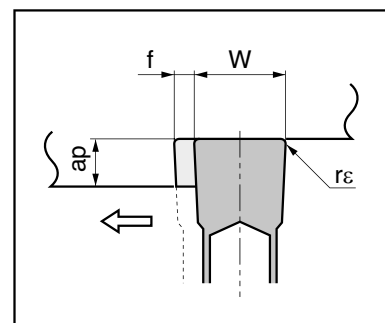
(1) When using KGM Toolholder

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

Load(mm ²) \ Edge Width(mm)	2.0~2.5	3.0	4.0	5.0	6.0	8.0
ap x f	~0.20	~0.36	~0.64	~1.00	~1.44	~2.56

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



(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 ²) \ Edge Width(mm)	2.0~2.5	3.0	4.0	5.0	6.0	8.0
ap x f	~0.10	~0.18	~0.32	~0.50	~0.72	~1.28

$$ap \times f \leq 0.02w^2$$

(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 ²) \ Edge Width(mm)	3.0	4.0	5.0
ap x f	~0.25	~0.44	~0.70

$$ap \times f \leq 0.04w^2$$

GMG / GMM / GMGA 8030 (Face Grooving)

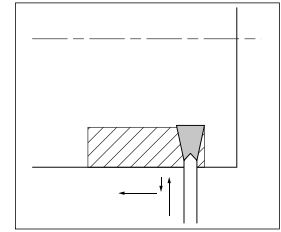
Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)						Face Grooving			Turning			Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide		Carbide		Edge Width (mm)			Edge Width (mm)			
	TN90	CR9025	PR915	PR930	PR905	KW10	8.0			8.0			
							f (mm/rev)			f (mm/rev)			
Carbon Steel	☆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

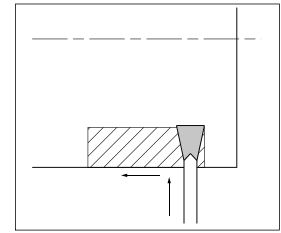
Guide for External Grooving

Point (I) (Turning after Grooving)

- 1) Grooving Depth Over 0.5mm: At 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: At 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 is possible because there is only a small force on the cutting edge.
(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" as shown in Fig.3.
- 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.

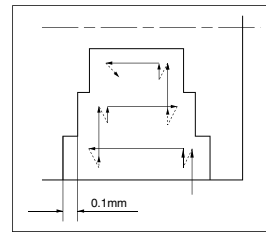


Fig.3

Guide for Face Grooving

<Toolholder Selection>

- (1) Choose the best tool depending on the groove width.
The Cutting Dia. ϕD 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.

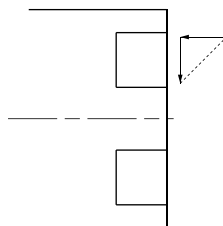


Fig.3

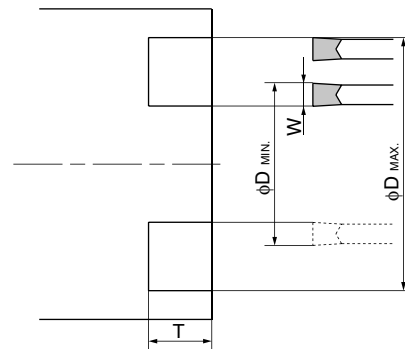


Fig.1

Toolholder	Right-hand (R)	Toolholder	Left-hand (L)
Insert	(No Hand)	Insert	(No Hand)

Fig.2 Toolholder's Hand and Rotation

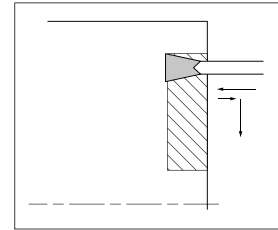
■ Guide for Face Grooving (Continued)

● Point (I) (Turning after Grooving)

1) Grooving Depth Over 0.5mm: At 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.)



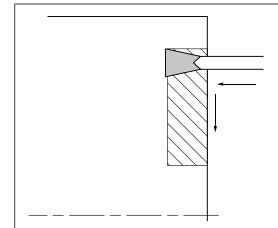
Before turning, pull the tool back about 0.1mm after grooving.
(Grooving Depth Over 0.5mm: At roughing)

Fig.4

2) Grooving Depth under 0.5mm: At 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 is possible because there is only a small force on the cutting edge.
(Grooving Depth under 0.5mm: At finishing)

Fig.5

● Point (II)

1) When widening the groove width, apply the “Step Turning” as shown in Fig. 6.

2) The widened groove and side walls should be finished last.

(For better chip control, ap over 0.5mm is recommended.)

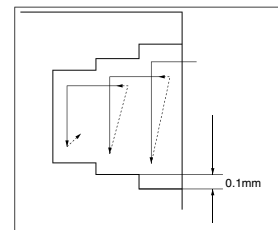
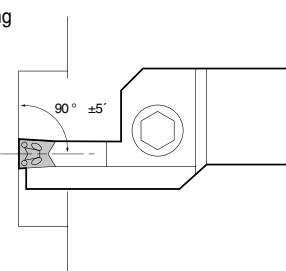


Fig.6

● Trouble shooting

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

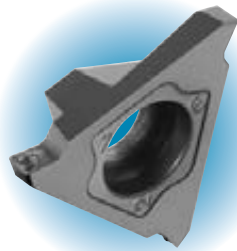
● Guide for Grooving with Cermet Insert (Steel)

1. Set the f under 0.12mm/rev (0.05~0.10mm/rev normally).
2. Coolant is recommended.
3. Set the cutting speed $V_c=150\sim220\text{m/min}$.
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.

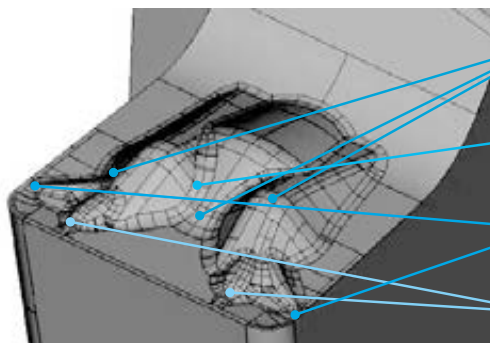
● Chip Control of Grooving Insert with Molded Chipbreaker



GBA type 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)

Multi Bump Design



Center bump and dent squeeze and control chips

Helps modifying chip shape

Stable chip control at shouldering 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	Overall length (mm)	Conventional Toolholder			Alternative Toolholder			
		Spare Parts			Description	Overall length (mm)	Remarks	Ref. to Page
		Clamp Screw	Wrench	Wrench				
KTGF ^{R/L} 1010K-16F	125				KTGF ^{R/L} 1010JX-16F	120		G12
1212M-16F	150				1212JX-16F	120		
1616M-16F	150				1616JX-16F	120		
KGM ^{R/L} 0810K-1.5-125	125	SE-40120TR	-	LTW-15S	-	-	No replacement	G32
1010K-1.5-125	125				KGM ^{R/L} 1010JX-1.5	120		
1212M-1.5-150	150				1212JX-1.5	120		
KGM ^{R/L} 0810K-2-125	125	SE-40120TR	-	LTW-15S	-	-	No replacement	
1010K-2-125	125				KGM ^{R/L} 1010JX-2	120		
1212M-2-150	150				1212JX-2	120		
1616M-2-150	150	SE-50125TR	-	LTW-20	1616JX-2	120		
KGM ^{R/L} 1010K-2.5-125	125	SE-40120TR	-	LTW-15S	KGM ^{R/L} 1010JX-2.5	120		
1212M-2.5-150	150				1212JX-2.5	120		
1616M-2.5-150	150	SE-50125TR	-	LTW-20	1616JX-2.5	120		
KGM ^{R/L} 1616M-3-150	150	SE-50125TR	-	LTW-20	KGM ^{R/L} 1616JX-3	120		

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