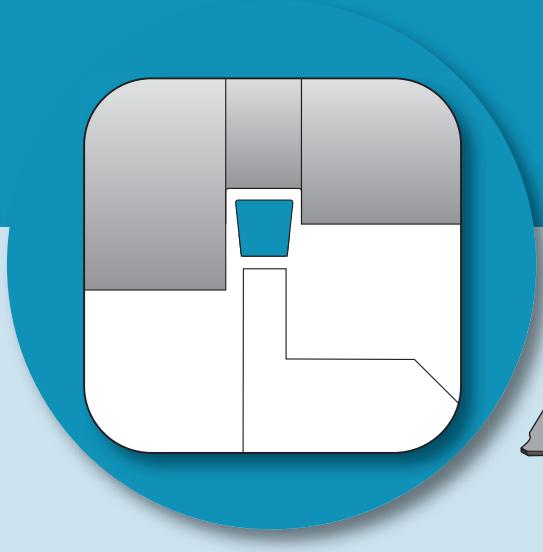
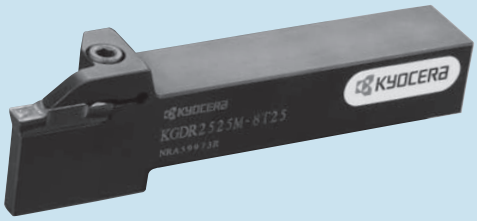
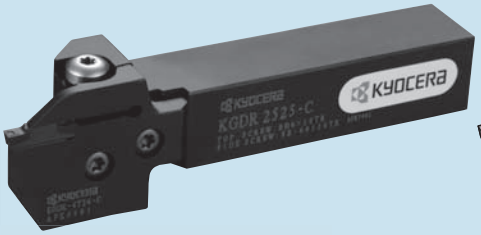
Grooving



G1~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**

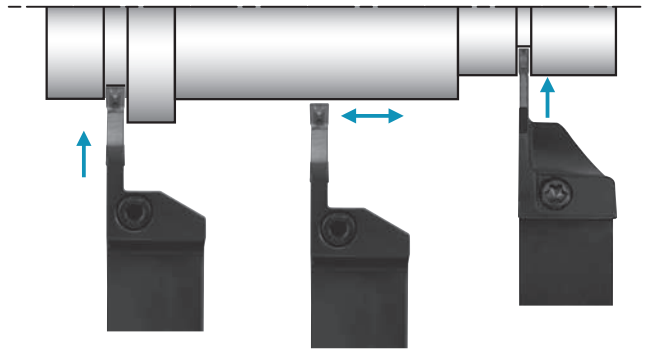
· **Integral Type for Automatic Lathe**

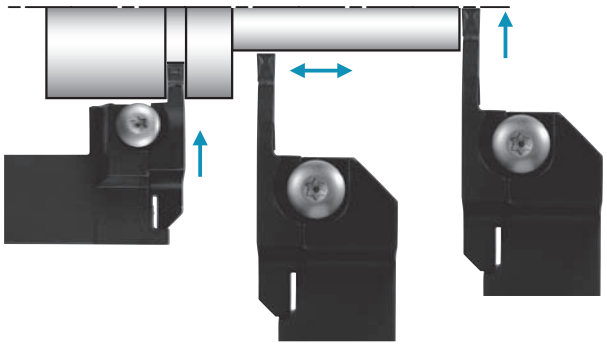
Type	KGD
Edge Width (mm)	2.0~4.0
Grooving Depth (mm)	10~21
Ref. to Page	**G19**

· **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.



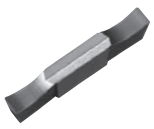


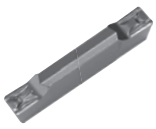
· **Separate Type**

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.

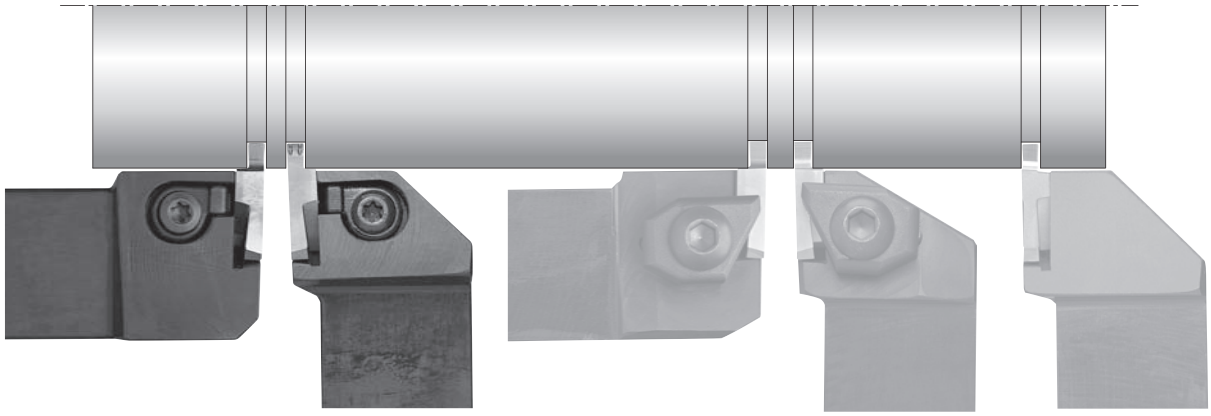
Low Cutting Force	Low Feed	General purpose	High Feed	Copying
GS	**GL**	**GM**	**PH**	**CM**



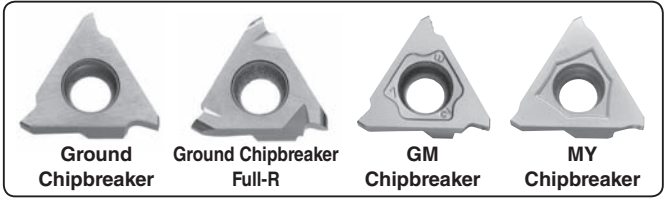


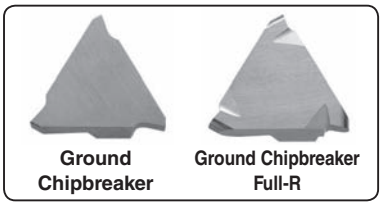
External Grooving(G6~G14, G36, G37)

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



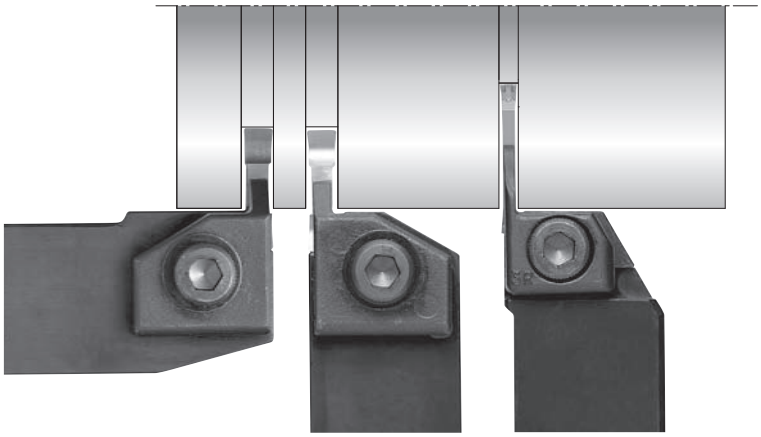


Edge Shape	General (Square)	Full-R (Round)	GM Chipbreaker	MY Chipbreaker
				

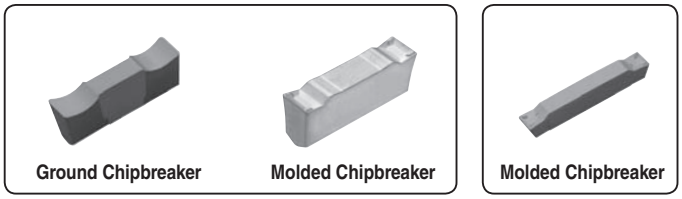
* These shallow groove types of the previous system will be switched to the system on the left.

KGBS → KGBAS
KGB, KTG → KGBA

Deep Grooving (Grooving Depth: ~25mm)



Type	KGHS	KGH	KGA
Edge Width (mm)	4.0~8.0	4.0~12.0	3.0~5.0
Grooving Depth (mm)	13	13~17	20~25
Ref. to Page	G36	G36	G37

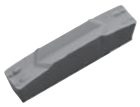


Summary of External Grooving

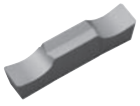
KGM Grooving (External Grooving & Turning) (G28~G35)

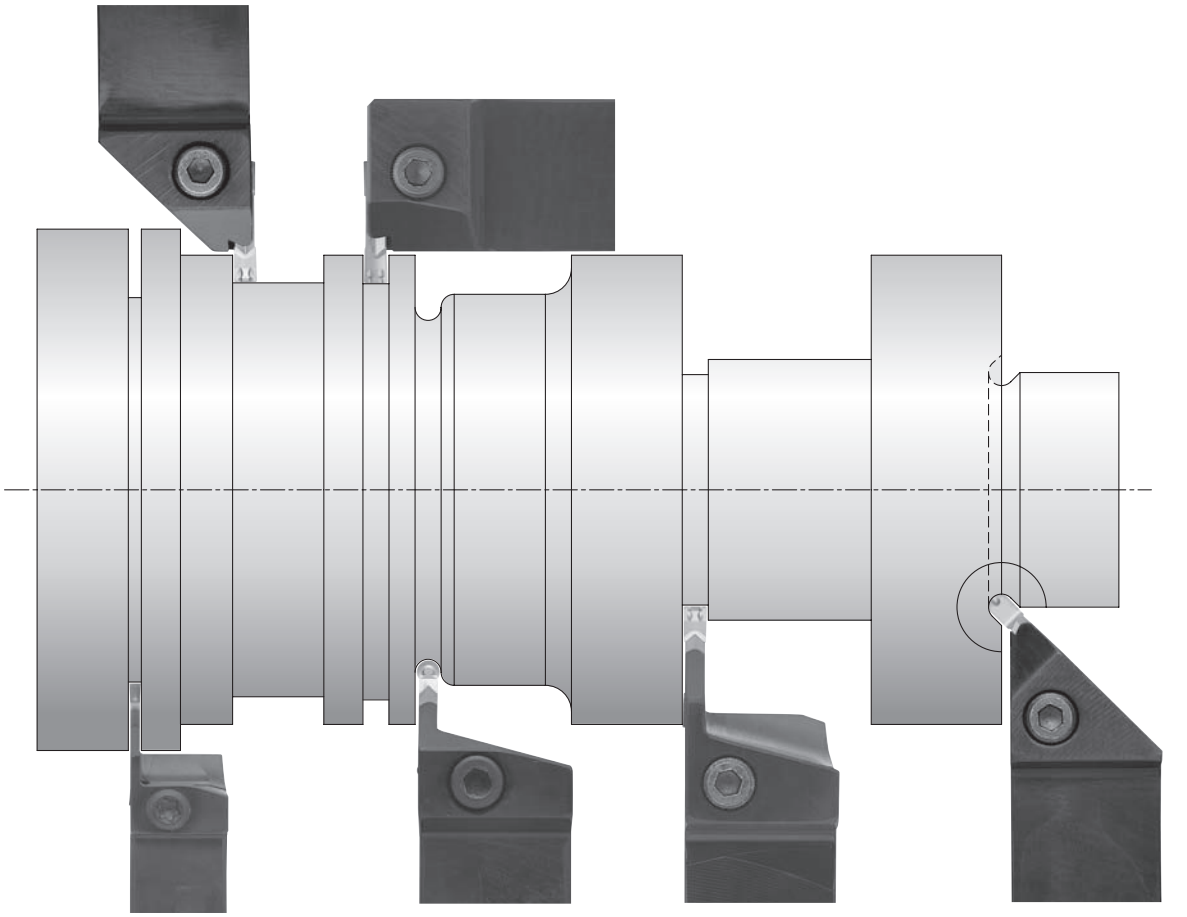
Type	KGMM
Edge Width (mm)	3.0~5.0
Grooving Depth (mm)	4.8
Ref. to Page	**G34**

KGMS
3.0~5.0
4.8
G34


Molded Chipbreaker


Molded Chipbreaker Full-R


Ground Chipbreaker

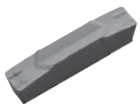


Type	KGM
Edge Width (mm)	1.5~4.0
Grooving Depth (mm)	10~16
Ref. to Page	**G32**

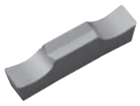
KGM
3.0~8.0
9~25
G32

KGM-T
2.0~6.0
17~30
G33

KGMU
3.0~5.0
3.5~4.5
G35


Molded Chipbreaker


Molded Chipbreaker Full-R


Ground Chipbreaker


Deep Grooving / Cut-off


Molded Chipbreaker Full-R

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

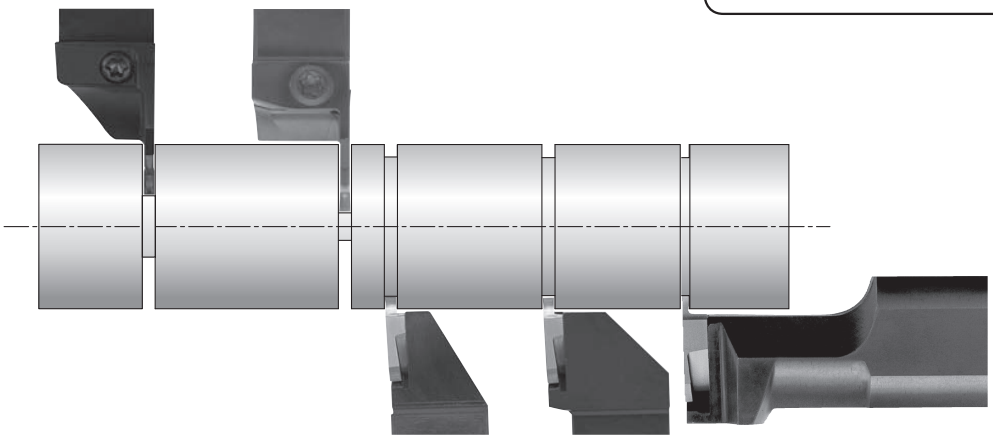
For Automatic Lathe

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

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

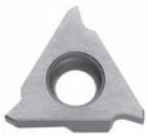
Molded Chipbreaker

Ground Chipbreaker



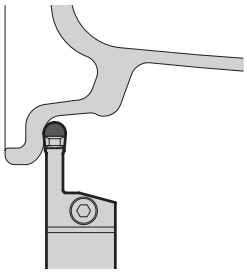
Type	KTGF-F	KTGF
Edge Width (mm)	0.33~2.5	
Grooving Depth (mm)	0.8~2.5	
Ref. to Page	G12	

S-KTGF
0.33~2.5
0.8~2.5
G13



Ground Chipbreaker

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

1-edge
PCD

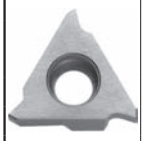
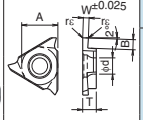
Applicable Inserts

(mm)

Description	A	T	φd
GBA32_	9.525	3.18	4.4
GBA43_	12.70	4.76	5.5
GBA43R/L480	12.70	5.00	5.5

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

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

Insert (Handed Insert shows Right-hand)	Description	(Previous Description)	Dimension (mm) W	B	rε	*MC PV7040	Cermet TC40N	TN6020	TN90	MEGA COAT PR1215	PVD Coated Carbide PR1115	PR905	PR930	Carbide KW10	Applicable Toolholders	Ref. to Page for Applicable Toolholders
 	GBA32R/L 033-005 *1	-	0.33	0.8	0.05						●	●				G9 G11 G54 (Internal)
	050-005 *2	GBA32R/L 050 *2	0.50	1.0					●					●		
	050-005 *2	-	0.50	1.2						●	●	●	●			
	075-005	GBA32R/L 075	0.75			●			●	●	●	●	●	●		
	095-005	095	0.95						●	●	●	●	●	●		
	100-005	100	1.00			●			●	●	●	●	●	●		
	110-005	110	1.10	2.0							●	●				
	120-005	120	1.20							●	●	●				
	125-020	125	1.25		0.2	●			●	●	●	●	●	●		
	130-020	130	1.30							●	●	●				
	140-020	140	1.40	2.5						●	●	●			KGBAR/L···16 KGBASL/R···16 KIGBAL/R···16 (Internal)	
	145-020	145	1.45	2.0					●					●		
	145-020	-	1.45	2.5						●	●	●	●			
	150-020	GBA32R/L 150	1.50	2.0		●			●					●		
	150-020	-	1.50							●	●	●	●			
	160-020	GBA32R/L 160	1.60	2.5						●	●	●				
	170-020	170	1.70							●	●	●				
	175-020	GBA32R/L 175	1.75	2.0					●					●		
	175-020	-	1.75							●	●	●	●			
	200-020	GBA32R/L 200	2.00			●			●	●	●	●	●	●		
	225-020	225	2.25	2.5						●	●	●				
	250-020	250	2.50						●	●	●	●	●	●		
	300-020	300	3.00							●	●	●				
	GBA43R/L 125-010	-	1.25	2.0	0.1					●	●					
	125-020	GBA43R/L 125	1.25		0.2	●	●		●	●	●	●	●	●		
	140-020	140	1.40	3.5						●	●	●				
	145-020	145	1.45	2.0			●		●					●		
	145-020	-	1.45		0.2					●	●	●	●			
	150-010	-	1.50		0.1					●	●					
	150-020	GBA43R/L 150	1.50		0.2	●	●		●	●	●	●	●	●	KGBAR/L···22-15 KGBASL/R···22-15 KIGBAL/R···22 (Internal)	
	170-020	170	1.70							●	●	●				
	175-020	175	1.75				●		●	●	●	●	●	●		
	185-020	185	1.85	3.5			●		●	●	●	●	●	●		
	195-020	195	1.95								●	●				
	200-010	-	2.00		0.1					●	●					
	200-020	GBA43R/L 200	2.00		0.2	●	●		●	●	●	●	●	●		
	225-020	225	2.25							●	●	●				
	230-020	230	2.30				●		●	●	●	●	●	●		
	250-010	-	2.50	5.0	0.1					●	●				*1	
	250-030	GBA43R/L 250	2.50	4.0	0.3	●	●		●					●	*2	
	250-030	-	2.50	5.0						●	●	●	●		*1	
	265-030	GBA43R/L 265	2.65	4.0			●		●					●	*2	
	265-030	-	2.65	5.0						●	●	●	●		*1	
	280-030	GBA43R/L 280	2.80	4.0			●		●					●	*2	
	280-030	-	2.80	5.0						●	●	●	●		*1	
	300-010	-	3.00		0.1					●	●					
	300-030	GBA43R/L 300	3.00	4.0	0.3	●	●		●					●	*2	
	300-030	-	3.00	5.0						●	●	●	●		*1	
	325-030	GBA43R/L 325	3.25								R	R			*2	
	330-030	330	3.30	4.0			●		●					●		
	330-030	-	3.30	5.0						●	●	●	●		*1	

· Dimension B shows available grooving depth.

Recommended Cutting Conditions ⇒ G97

*1. The edge width tolerance of GBA32R/L 033-005 : 0.33 +0.02 −0.03
*2. The edge width tolerance of GBA32R/L 050-005 : 0.50 +0.05 −0
***MC** indicates **MEGACOAT Cermet.**

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

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

Inserts are sold in 10 piece boxes.

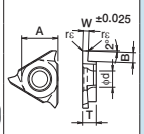
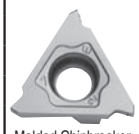
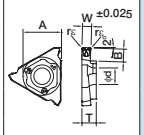
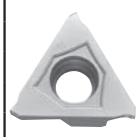
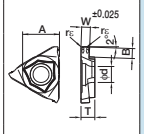
Applicable Inserts

(mm)

Description	A	T	φd
GBA32_	9.525	3.18	4.4
GBA43_	12.70	4.76	5.5
GBA43R/L480	12.70	5.00	5.5

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

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

Insert (Handed Insert shows Right-hand)	Description	(Previous Description)	Dimension (mm) W	B	rε	*MC PV7040	Cermet TC40N	Cermet TN6020	Cermet TN90	MEGA COAT PR1215	PVD Coated Carbide PR1115	PVD Coated Carbide PR905	PVD Coated Carbide PR930	Carbide KW10	Applicable Toolholders	Ref. to Page for Applicable Toolholders
 	GBA43R/L 350-010	-	3.50	5.0	0.1					●	●				KGBAR/L...22-35 KGBASL/R...22-35 KIGBAL/R...22 (Internal)	G9 G11 G54 (Internal)
	350-030	GBA43R/L 350	3.50		0.3		●		●	●	●	●	●	●		
	400-010	-	4.00		0.1					●	●					
	400-040	GBA43R/L 400	4.00			●	●		●	●	●	●	●	●		
	430-040	430	4.30		0.4		●		R	●	●	●	●	●		
	450-040	450	4.50				●		R	●	●	●	●	●		
	480-040	480	4.80				●		R	●	●	●	●	●		
NEW  Molded Chipbreaker GM Chipbreaker  	GBA43R/L 140-010GM	-	1.40	3.5	0.1					●					KGBAR/L...22-15 KGBASL/R...22-15 KIGBAL/R...22 (Internal)	
	150-020GM		1.50		0.2					●						
	175-020GM		1.75							●						
	185-020GM		1.85							●						
	200-020GM		2.00							●						
	230-020GM		2.30							●						
	250-030GM	-	2.50	5.0	0.3					●					KGBAR/L...22-25T5 KGBASL/R...22-25T5 KIGBAL/R...22 (Internal)	
	265-030GM		2.65							●						
	300-030GM		3.00							●						
	330-030GM		3.30							●						
	350-030GM		3.50							●					KGBAR/L...22-35 KGBASL/R...22-35 KIGBAL/R...22 (Internal)	
	400-040GM		4.00		0.4					●						
 Molded Chipbreaker MY Chipbreaker  	GBA43R/L 175-020MY	GBA43R/L 175MY	1.75	3.5	0.2			●		●	●		●		KGBAR/L...22-15 KGBASL/R...22-15 KIGBAL/R...22 (Internal)	
	185-020MY	185MY	1.85					●		●	●		●			
	200-020MY	200MY	2.00					●		●	●		●			
	230-020MY	230MY	2.30					●		●	●		●			
	250-030MY	GBA43R/L 250MY	2.50	4.0	0.3			●							*2	
	250-030MY	-	2.50	5.0						●	●		●		*1	
	265-030MY	GBA43R/L 265MY	2.65	4.0				●							*2	
	265-030MY	-	2.65	5.0						●	●		●		*1	
	300-030MY	GBA43R/L 300MY	3.00	4.0				●							*2	
	300-030MY	-	3.00	5.0						●	●		●		*1	
	330-030MY	GBA43R/L 330MY	3.30	4.0				R							*2	
	330-030MY	-	3.30	5.0						●	●		R		*1	
	350-030MY	GBA43R/L 350MY	3.50	5.0				●		●	●		●		KGBAR/L...22-35 KGBASL/R...22-35 KIGBAL/R...22 (Internal)	
	400-040MY	400MY	4.00		0.4			●		●	●		●			

· Dimension B shows available grooving depth.

* **MC** indicates **MEGACOAT Cermet.**

Recommended Cutting Conditions ➔ **G97**

✻ Applicable Toolholders

1:KGBAR/L...22-25T5, KGBASL/R ...22-25T5, KIGBAL/R...22
2:KGBAR/L...22-25T5, KGBASL/R ...22-25T5, KGBAR/L...22-25, KGBASL/R ...22-25, KIGBAL/R...22

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

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

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

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

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

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

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

Inserts are sold in 10 piece boxes.

Grooving Inserts

Applicable Inserts

NEW

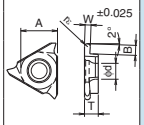
(mm)

Description	A	T	φd
GBA32_	9.525	3.18	4.4
GBA43_	12.70	4.76	5.5
GBA43R/L480	12.70	5.00	5.5

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

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

Ref. to Page for Applicable Toolholders

Insert (Handed Insert shows Right-hand)	Description	(Previous Description)	Dimension (mm) W	B	rε	*MC PV7040	Cermet TC40N	TN6020	TN90	MEGA COAT PR1215		PVD Coated Carbide PR1115	PR905	PR930	Carbide KW10	Applicable Toolholders	Ref. to Page for Applicable Toolholders
 Full-R	GBA32R 200-100R	-	2.00	2.5	1.00					R		R				KGBAR...16 KGBASL...16 KIGBAL...16 (Internal)	G9 G11 G54 (Internal)
	300-150R		3.00		1.50					R		R					
Full-R (Round)  	GBA43R/L 100-050R	GBA43R/L 050R	1.00	2.0	0.50	●			●	●		●	●	●	●	KGBAR/L...22-15 KGBASL/R...22-15 KIGBAL/R...22 (Internal)	
	150-075R	075R	1.50	3.5	0.75	●			●	●		●	●	●	●		
	200-100R	100R	2.00		1.00	●			●	●		●	●	●	●		
	250-125R	125R	2.50	4.0	1.25				●	●		●	●	●	●	KGBAR/L...22-25 KGBASL/R...22-25 KGBAR/L...22-25T5 KGBASL/R...22-25T5 KIGBAL/R...22 (Internal)	
	300-150R	150R	3.00		1.50				●	●		●	●	●	●		
	400-200R	200R	4.00	5.0	2.00				R	●		●	●	●	●	KGBAR/L...22-35 KGBASL/R...22-35 KIGBAL/R...22(Internal)	

· Dimension B shows available grooving depth.
*MC indicates MEGACOAT Cermet.

Recommended Cutting Conditions ➡ G97

Applicable Inserts

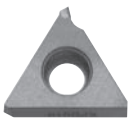
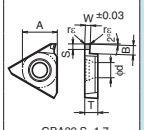
(mm)

Description	A	T	φd
GBA32_	9.525	3.18	4.4
GBA43_	12.70	4.76	5.5
GBA43R/L480	12.70	5.00	5.5

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

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

Ref. to Page for Applicable Toolholders

Insert (Handed Insert shows Right-hand)	Description	(Previous Description)	Dimension (mm) W	B	rε	CBN KBN510	KBN525	PCD KPD001	KPD010	Applicable Toolholders	Ref. to Page for Applicable Toolholders
 1-edge	GBA32R 125-010	GBA32R 125	1.25	2.0	0.1				R	KGBAR...16 KGBASL...16 KIGBAL...16 (Internal)	G9 G11 G54 (Internal)
 GBA32 S=1.7 GBA43 S=1.9	150-010	150	1.50					R	R		
	GBA43R/L 125-010	GBA43R/L 125	1.25	2.0	0.1				●	KGBAR/L...22-15 KGBASL/R...22-15 KIGBAL/R...22 (Internal)	
	125-020	125			0.2	●	●				
	150-010	150	1.50	3.5	0.1			●	●		
	150-020	150			0.2	●	●				
	200-010	200	2.00		0.1			●	●		
	200-020	200			0.2	●	●				
	250-010	250	2.50	4.0	0.1			●	●	KGBAR/L...22-25 KGBASL/R...22-25 KGBAR/L...22-25T5 KGBASL/R...22-25T5 KIGBAL/R...22 (Internal)	
	250-020	250			0.2	●	●				
	300-010	300	3.00		0.1			●	●		
	300-020	300			0.2	●	●				

· Dimension B shows available grooving depth.

Recommended Cutting Conditions ➡ G97

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

● Rake Angle (α) after Installment of GBA type

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

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

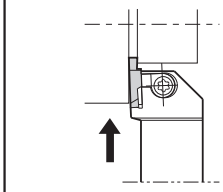
Inserts are sold in 10 piece boxes.

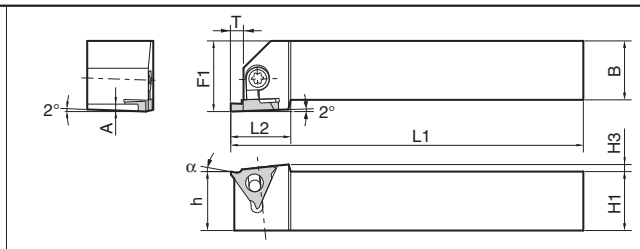
CBN & PCD Inserts are sold in 1 piece boxes.

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

External Shallow Grooving Toolholders

KGBA





• Right-hand shown

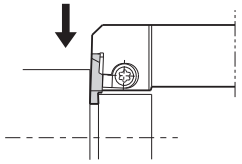
Right-hand Insert for Right-hand Toolholder,
Left-hand Insert for Left-hand Toolholder.

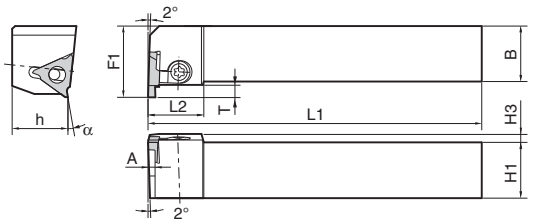
● **Alternative Toolholder Reference Table**

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

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

KGBAS





• Right-hand shown

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

● **Alternative Toolholder Reference Table**

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

● **Toolholder Dimensions**

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

· 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-○○RS for Right-hand Toolholder, and LGBA-○○LS for Left-hand Toolholder.
KGBAS$^{R}_{L}$...LGBA-○○LS for Right-hand Toolholder, and LGBA-○○RS for Left-hand Toolholder.

External Grooving Toolholders KGBA Short Shank types are available

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

● : Std. Item

Grooving Inserts

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

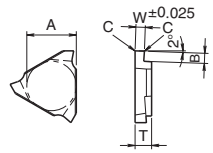
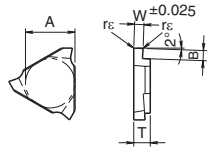
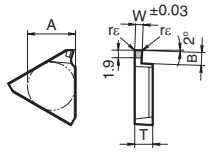
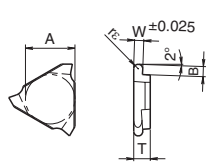
Applicable Inserts

(mm)

Description	A	T
GB32_	9.525	3.18
GB43_	12.70	4.76
GB43R/L480	12.70	5.00

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

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

Insert (Handed Insert shows Right-hand)	Description		Dimension (mm) W	B	C or rε	Cermet TC40N	Cermet TC60M	PVD Coated Carbide PR630	PVD Coated Carbide PR930	Carbide KW10	PCD KPD001	PCD KPD010	Applicable Toolholders	Ref. to Page for Applicable Toolholders
General (Square) (Corner is Chamfered) GB32 type	 (Corner is Chamfered)	GB32R/L 050 *	0.50	1.0	C0.05		△	R					KGBR/L ···16 KGBSL/R ···16	G11
		075	0.75	2.0	C0.05		△	R						
		095	0.95				R	R						
		100	1.00				△	△						
		125	1.25		C0.10		△	R						
		145	1.45				R	R						
		150	1.50				△	R						
		200	2.00	2.5			△	R						
		250	2.50				R	R						
General (Square) (Corner is R shape) GB43 type	 GB insert changes to GBA type. Check the corner-R(rε)of the insert when changing	GB43R/L 125	1.25	2.0	0.1	△	△	△	△				KGBR/L ···22-15 KGBSL/R ···22-15	
		125			0.2									
		145	1.45	2.0	0.2	△	R	R						
		150	1.50	3.5	0.1				△					
		150			0.2	△	△	△						
		175	1.75		0.2	△	△	R						
		185	1.85		0.2	△	△	R						
		200	2.00		0.1				△					
		200			0.2	△	△	△						
		230	2.30		0.2	△	△	R						
		250	2.50	4.0	0.1				△				KGBR/L ···22-25 KGBSL/R ···22-25	
		250			0.3	△	△	△						
		265	2.65		0.3	△	R	R						
		280	2.80		0.3	△	△	R						
		300	3.00		0.1				△					
		300			0.3	△	△	△						
		330	3.30		0.3	△	△	R						
		350	3.50	5.0	0.1				△				KGBR/L ···22-35 KGBSL/R ···22-35	
		350			0.3	△	△	△						
		400	4.00		0.1				△					
		400			0.4	△	△	△						
		430	4.30		0.4	△	R	R						
		450	4.50		0.4	△	R	△						
		480	4.80		0.4	R	R	△						
1-edge		GB43R/L 125	1.25	2.0								R	KGBR/L ···22-15 KGBSL/R ···22-15	
		150	1.50	3.5	0.1							R		
		200	2.00									R		
		250	2.50	4.0								R	KGBR/L ···22-25 KGBSL/R ···22-25	
		300	3.00									△		
Full-R		GB43R/L 050R	1.00	2.0	0.50		△	△					KGBR/L ···22-15 KGBSL/R ···22-15	
		075R	1.50	3.5	0.75		△	△						
		100R	2.00		1.00		△	△						
		125R	2.50	4.0	1.25		△	△					KGBR/L ···22-25 KGBSL/R ···22-25	
		150R	3.00		1.50		△	△						
		200R	4.00	5.0	2.00		△	△					KGBR/L ···22-35 KGBSL/R ···22-35	

· Dimension B: shows available grooving depth.
· The edge width tolerance of GB32R/L050 is different $0.50^{+0.05}_{-0}$ (*)

Recommended Cutting Conditions ➡ G97

* Material selection standard when changing to GBA.

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

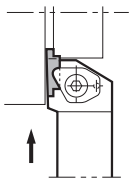
* Check the corner-R(rε)of the insert when changing.

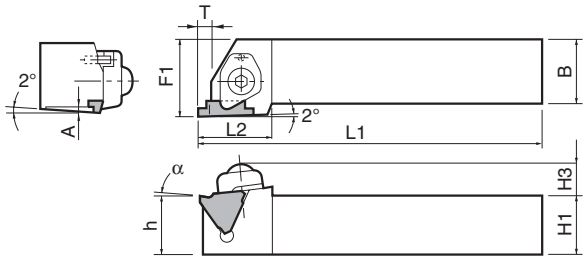
△ : Will be switched to new item(Check Availability)
R : Std. Item (Right-hand Only)
Will be switched to new item (Check Availability)

Inserts are sold in 10 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

KGB (Will be switched to KGBA ➡ G9)

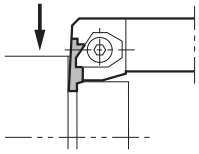


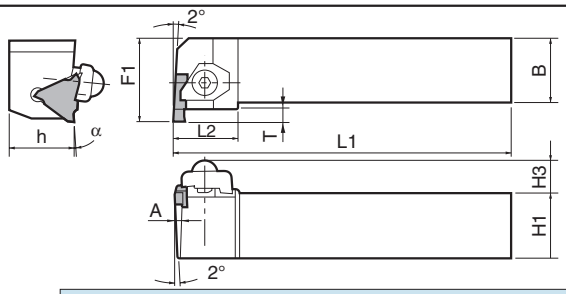


• Right-hand shown

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

KGBS (Will be switched to KGBAS ➡ G9)





• Right-hand shown

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

Toolholder Dimensions

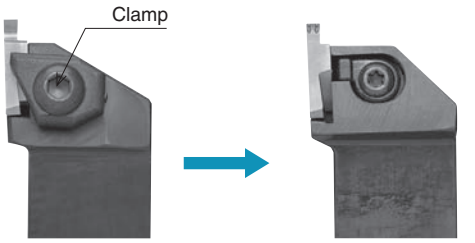
Description		Std. R	Std. L	Dimension (mm) H1=h	H3	B	L1	L2	F1	A	T	Spare Parts: Clamp	Spare Parts: Clamp Bolt	Spare Parts: Spring	Spare Parts: Wrench	Applicable Inserts ➡ G6~G8 ➡ G10
KGB$^{R}_{L}$	2020K-16	○	○	20	11	20	125	24	25	-	2.5	CGB $^{R}_{L}$	BH6X25	SP-6	LW-4	GB32$^{R}_{L}$ type GBA32$^{R}_{L}$ type
	2525M-16	○	○	25		25	150		30							
	2020K22-15	○	○	20	11.5	20	125	25.5	25	1.0	4.0					GB43$^{R}_{L}$ type GBA43$^{R}_{L}$ type
	2525M22-15	○	○	25		25	150		30							
	2020K22-25	○	○	20	11.5	20	125	25.5	25	2.0	4.5					
	2525M22-25	○	○	25		25	150		30							
	2020K22-35	○	○	20	11.5	20	125	25.5	25	3.0	5.5					
	2525M22-35	○	○	25		25	150		30							
KGBS$^{R}_{L}$	2020K-16	○	○	20	11	20	125	25	25	-	2.5	CGB$^{L}_{R}$	BH6X25	SP-6	LW-4	GB32$^{L}_{R}$ type GBA32$^{L}_{R}$ type
	2525M-16	○	○	25		25	150		30							
	2020K22-15	○	○	20	11.5	20	125	25	27	1.0	4.0					GB43$^{L}_{R}$ type GBA43$^{L}_{R}$ type
	2525M22-15	○	○	25		25	150		32							
	2020K22-25	○	○	20	11.5	20	125	25	27	2.0	4.5					
	2525M22-25	○	○	25		25	150		32							
	2020K22-35	○	○	20	11.5	20	125	25	27	3.0	5.5					
	2525M22-35	○	○	25		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 PR630 } 050R~150R
20°	KW10	10°	KPD010	14°	TC60M PR630 } 200R KW10···050R~200R
		20°	KW10		



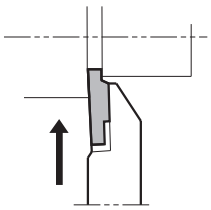
KGB Toolholder → KGBA Toolholder

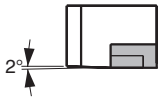
* KGB / KGBS toolholder will be switched to KGBA / KGBAS. Better Chip flow.
* For applicable insert, GB insert will be switched to GBA. There are various type of GBA insert materials available dependent on the user's cutting condition requirements.

○ : Check Availability

External Shallow Grooving Toolholders [for TGF Insert]

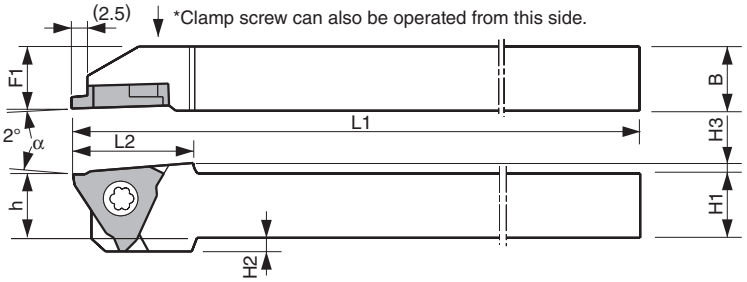
KTGF-F (without offset)





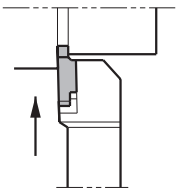
α	Insert Grades
20°	PR1115, PR1215 PR930, KW10
11°	KPD001
6°	TC40N

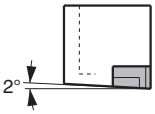
• Right-hand shown



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

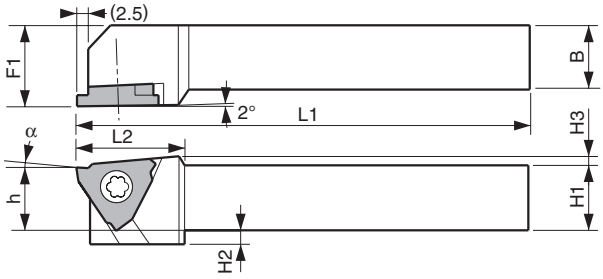
KTGF (with offset)





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

• Right-hand shown



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

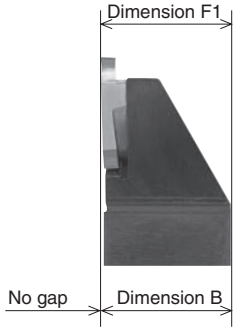
● Toolholder Dimensions

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

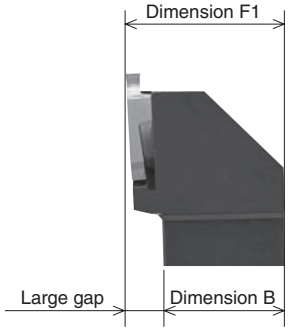
● Usage difference between KTGF-F and KTGF toolholders

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.



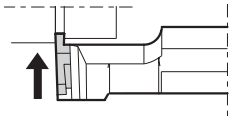
KTGF-F (without offset type)

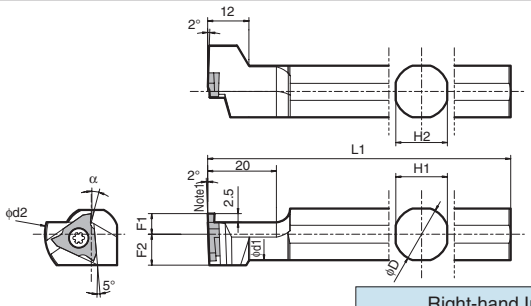


KTGF (with offset type)

● : Std. Item

S-KTGF (Sleeve Holder)





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

• Left-hand shown

Right-hand Insert for Left-hand Toolholder.

Note1) Dimension B shows available grooving depth.

Toolholder Dimensions

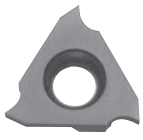
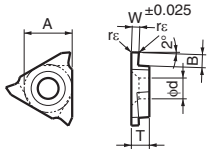
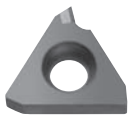
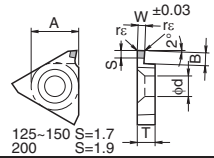
Description	Std.	Dimension (mm)							Spare Parts	
									Clamp Screw	Wrench
		ϕD	L1	F1	F2	ϕd1	ϕd2	H1=H2		
S12F-KTGFL16	●	12	80	6	9.0	11.0	27	11	SB-4070TRS	FT-10
S14H-KTGFL16	●	14	100			13.0		13		
S15F-KTGFL16	●	15.875	85			14.6		15		
S16F-KTGFL16	●	16								
S19G-KTGFL16	●	19.05	90		10.5	17.6		17		
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

(mm)

Description	A	T	ϕd
TGF32_	9.525	3.18	4.5

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

Insert (Handed Insert shows Right-hand)		Description	Dimension (mm)			Cermet	MEGA COAT	PVD Coated Carbide		Carbide	PCD	Applicable Toolholders	Ref. to Page for Applicable Toolholders
			W	B	rε	TC40N	PR1215	PR930	PR1115	KW10	KPD001		
		TGF32R/L 033-005	0.33	0.8	0.05		R	R	R	R		KTGFR/L…16F KTGFR/L…16 S…KTGFL/R16	G12 G13
		050-005	0.50	1.2		R	●	●	●	R			
		075-010	0.75	2.0	0.1	R	●	●	●	R			
		095-010	0.95			R	●	●	●	R			
		100-010	1.00			R	●	●	●	R			
		120-010	1.20				●		●				
		125-010	1.25			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	2.5		R	●	●	●	R			
		250-010	2.50			R	●	●	●	R			
 1-edge	 125~150 S=1.7 200 S=1.9	TGF32R/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.

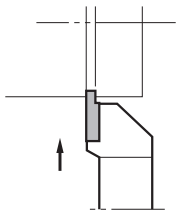
Recommended Cutting Conditions G98

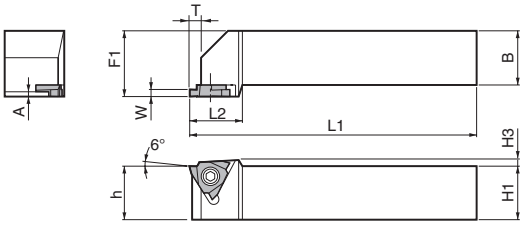
● : Std. Item
R : Std. Item (Right-hand Only)

Inserts are sold in 10 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

KTG (Will be switched to KGBA ➔ G9)





• Right-hand shown

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

● Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H3	B	L1	L2	F1	A	T	Spare Parts: Clamp Screw		Wrench		
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	-	GS-50	-	LW-3	
	2525M22-15	○	○	25		25	150		30							
	2020K22-25	○	○	20	3.0	20	125	25	25	2.0	4.5					
	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							

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

* GBA Insert cannot be installed to this toolholder.

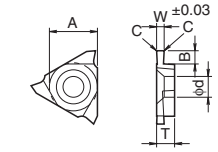
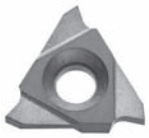
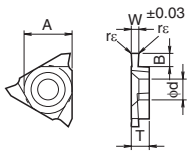
Applicable Inserts

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

(mm)

Description	A	T	φd
TG32_	9.525	3.18	4.5
TG43_	12.70	4.76	5.5

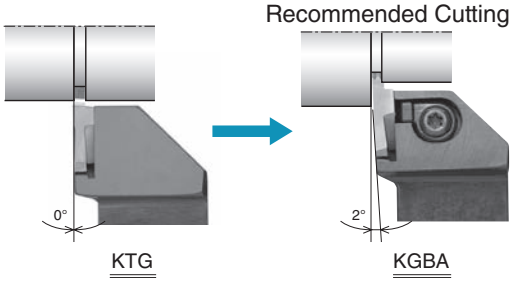
P	Carbon steel / Alloy steel					Classification of usage
M	Stainless Steel					●: Continuous-Light Interruption / 1st Choice
K	Cast Iron					◌: Continuous-Light Interruption / 2nd Choice
N	Non-ferrous Metals					●: Continuous / 1st Choice
S	Titanium Alloys					○: Continuous / 2nd Choice
H	Hard materials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

Insert (Handed Insert shows Right-hand)		Description		Dimension (mm) W	B	C or rε	Cermet TN60	TN90	TC40N	TC60M	Applicable Toolholders	Ref. to Page for Applicable Toolholders
General (Square) (Corner is Chamfered) TG32 type	 (Corner is Chamfered)	TG32$^{R}_{L}$	075	0.75	2.0	C0.1	○				KTG$^{R}_{L}$…16	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	4.0	0.3	○				KTG$^{R}_{L}$…22-25	
			265	2.65			○					
			280	2.80			○					
			300	3.00			○					
			330	3.30			○					
			350	3.50	5.0	0.3	○				KTG$^{R}_{L}$…22-35	
			400	4.00		0.4	○					
			430	4.30			○					
			450	4.50			○					

· Dimension B: shows available grooving depth.

Recommended Cutting Conditions ➔G98

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



○ : Check Availability

Inserts are sold in 10 piece boxes.

Features

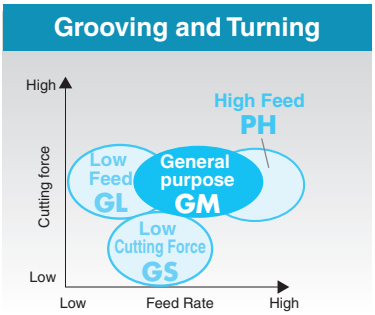
1 Various insert lineup

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

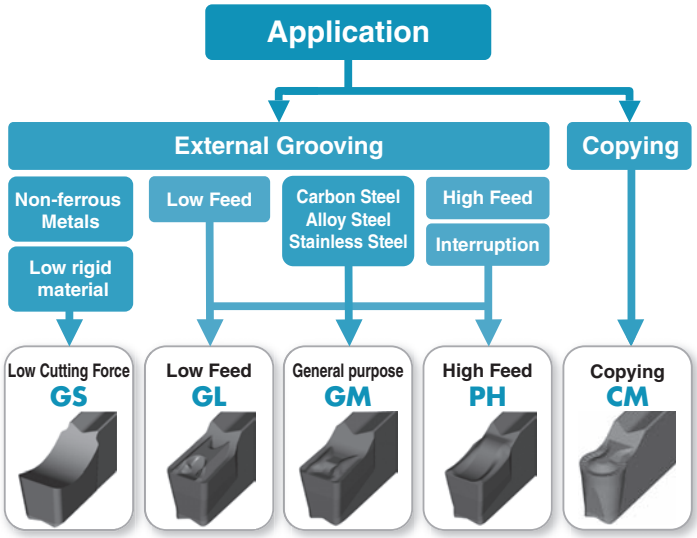
● High precision edge preparation
➡High precision molding technology with tolerance ±0.03 mm (Edge width 2, 3, 4 mm types)

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

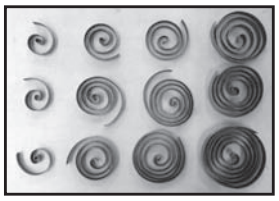
● Application Map



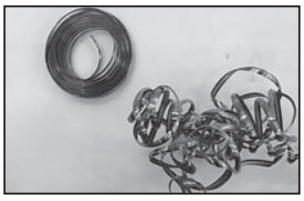
● Chipbreaker Selection



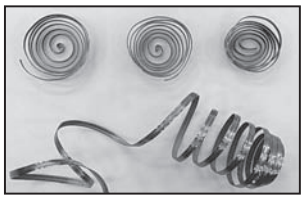
● Comparison of Chip Control (SCM415 Vc=150m/min, f=0.15mm/rev)



GM Chipbreaker



Competitor A

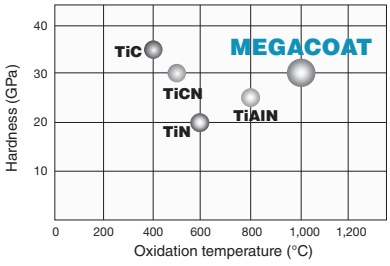


Competitor B

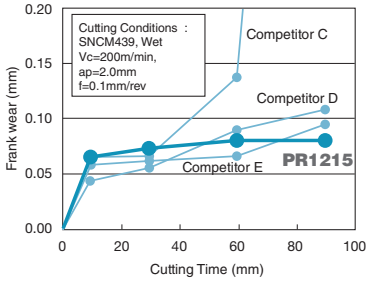
Smooth chip control

Less chip biting troubles

● Features of MEGACOAT



● Comparison of Wear Resistance

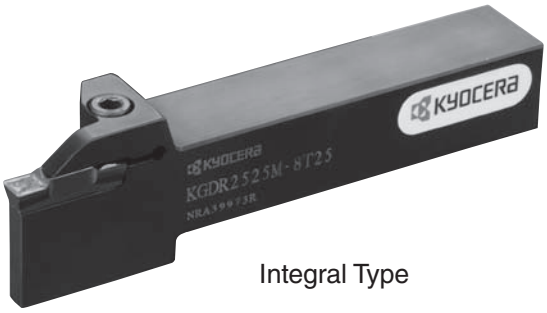


PR1225:
1st choice for cut-off, grooving and turning.

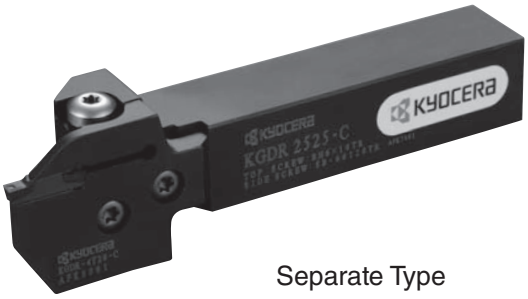
PR1215:
With superior wear resistance, recommended for grooving and cut-off under the stable conditions as well as machining of cast iron.

2 Toolholder

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



Integral Type

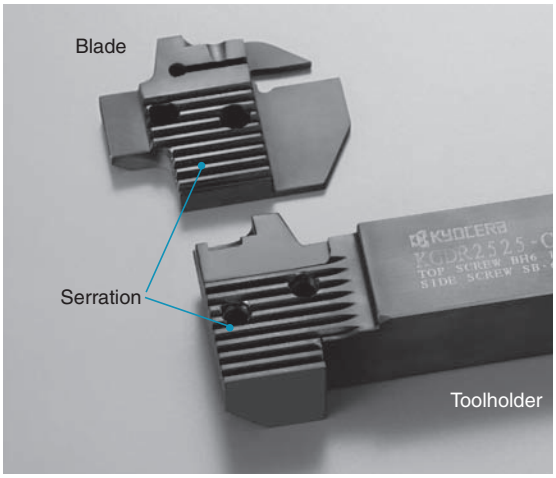


Separate Type

● High rigidity separate type toolholder

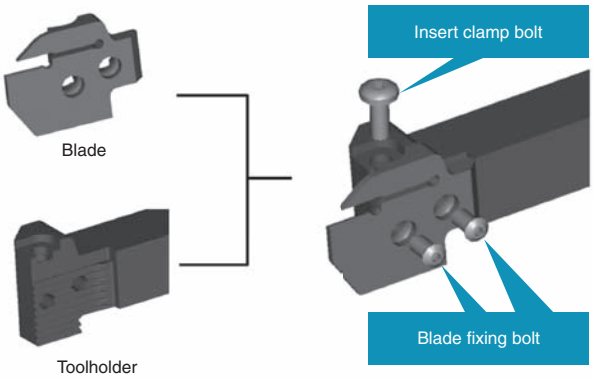
➡ Adaptable to wide applications by changing blades

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)

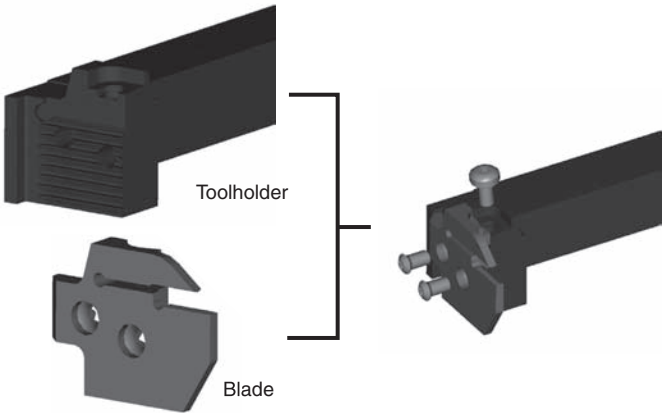


***Note for the toolholder and blade combination of 0˚ Separate Type**

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$^{L}_{R}$-○T○○-C)

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

Inserts for Grooving and Cut-off

GDM / GDMS / GDG

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

Insert			Description		Dimension (mm) W	Tolerance	rε	M	L	H	Cermet TN90	MEGACOAT NANO PR1535	MEGACOAT PR1225	MEGACOAT PR1215	Carbide GW15	Ref. to Page for Applicable Toolholders
Grooving and Turning	General purpose 2-edge		GDM	2420N-020GM	2.4	±0.03	0.2	1.95	20	4.3	●		●	●		G19
				3020N-020GM	3.0			2.3			●		●	●		
				3020N-040GM			0.4				●		●	●		G20
				4020N-020GM	4.0		0.2	3.3			●		●	●		G21
				4020N-040GM			0.4				●		●	●		G22
				4020N-080GM			0.8				●		●	●		
				5020N-040GM	5.0	±0.04	0.4	4.2			●		●	●		G20
				5020N-080GM			0.8				●		●	●		G21
				6020N-040GM	6.0		0.4	5.2			●		●	●		G22
				6020N-080GM			0.8				●		●	●		
				8030N-080GM	8.0	±0.05		6.0	30	5.5			●	●		G20
	General purpose 1-edge		GDMS	2220N-020GM	2.2	±0.03	0.2	1.75	20	4.3	●		●	●		G19
				3020N-040GM	3.0		0.4	2.3			●		●	●		G20 G21
				4020N-040GM	4.0			3.3			●		●	●		G22
				5020N-080GM	5.0	±0.04	0.8	4.2			●		●	●		G20
				6020N-080GM	6.0			5.2			●		●	●		G21 G22
	Low Feed 2-edge		GDM	2420N-020GL	2.4	±0.03	0.2	1.95	20	4.3	●		●	●		G19
				3020N-020GL	3.0			2.3			●		●	●		G20
				3020N-040GL			0.4				●		●	●		G21
				4020N-020GL	4.0		0.2	3.3			●		●	●		G22
				4020N-040GL			0.4				●		●	●		
				5020N-040GL	5.0	±0.04		4.2			●		●	●		G20
				6020N-040GL	6.0			5.2			●		●	●		G21 G22
Grooving	Low Cutting Force 2-edge		GDG	2520N-020GS	2.5	±0.02	0.2	2.0	20	4.3	●		●	●	●	G19
				3020N-020GS	3.0			2.3			●		●	●	●	G20
				3520N-020GS	3.5			2.8			●		●	●	●	G21
				4020N-040GS	4.0		0.4	3.3			●		●	●	●	G22
				5020N-040GS	5.0			4.2			●		●	●	●	G20
				6020N-040GS	6.0			5.2			●		●	●	●	G21 G22
				8030N-040GS	8.0			6.0	30	5.5	●		●	●	●	G20
Full-R / Copying	2-edge		GDM	3020N-150R-CM	3.0	±0.03	1.5	2.3	20	4.3	●		●	●		G19 G20
				4020N-200R-CM	4.0		2.0	3.3			●		●	●		G21 G22
				5020N-250R-CM	5.0	±0.04	2.5	4.2	*21		●		●	●		G20
				6020N-300R-CM	6.0		3.0	5.2			●		●	●		G21 G22
Grooving and Cut-off	High Feed 2-edge		GDM	2020N-020PH	2.0	±0.03	0.2	1.5	20	4.3		●	●	●		G19 G20 G21 G22
				3020N-030PH	3.0		0.3	2.3				●	●	●		
				4020N-030PH	4.0		0.3	3.3				●	●	●		
	High Feed 1-edge		GDMS	2020N-020PH	2.0	±0.03	0.2	1.5	20			●	●	●		
				3020N-030PH	3.0		0.3	2.3				●	●	●		
				4020N-030PH	4.0		0.3	3.3				●	●	●		

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

Recommended Cutting Conditions ➔ G25, G26

Inserts Identification System

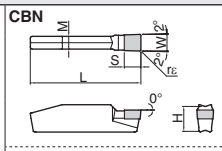
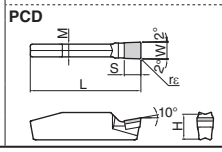
(1) Series	(2) Tolerance Symbol	(3) No. of edge	(4) Width	(5) Insert Length	(6) Hand of Tool	(7) Corner-R (rε)	(8) Chipbreaker Symbol
G D	M: M Class G: G Class	(Without Indication) : 2-edge S : 1-edge	20: 2mm 30: 3mm 40: 4mm	20: 20mm 30: 30mm	N: Neutral	020:0.2mm 040:0.4mm 150R: 1.5mm (Full-R)	GM : Grooving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

Example: G D M S 30 20 N – 040 GM

● : Std. Item

GDGS (CBN / PCD)

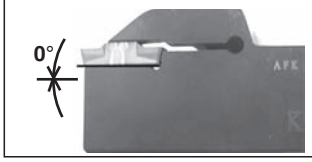
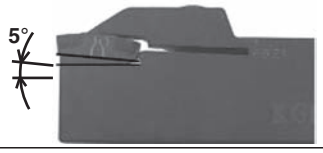
Classification of usage					
◕: Continuous-Light Interruption / 1st Choice ◔: Continuous-Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice	P	Carbon steel / Alloy steel			
	M	Stainless Steel			
	K	Cast Iron			
	N	Non-ferrous Metals			●
	S	Titanium Alloys			●
	H	Hard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

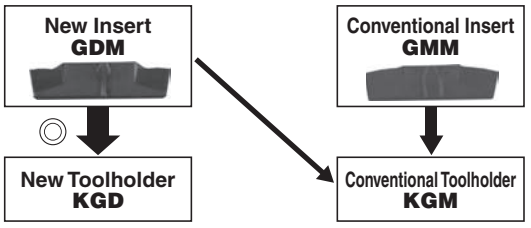
Insert			Description	Dimension (mm)								Angle (°)	MEGA COAT CBN	CBN	PCD	Ref. to Page for Applicable Toolholders
				W	Tolerance	rε	M	L	H	S		θ	KBN05M	KBN570	KPD001	
Grooving	 1-edge	CBN  PCD 	GDGS 2020N-020NB	2.0	±0.03	0.2	1.8	20	4.3	2.9		-	●	●	●	G19
			3020N-020NB	3.0		0.2	2.3								●	G20
			3020N-040NB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

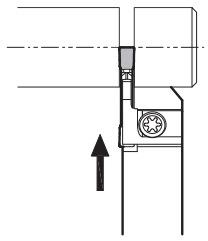


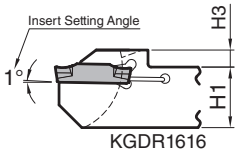
Installing conventional inserts to the new toolholder is not recommended.

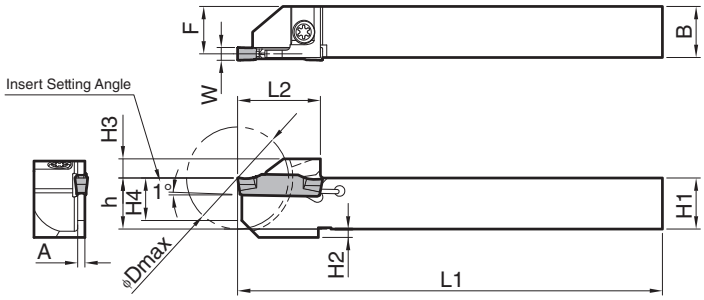
● : Std. Item

KGD (Integral Type for Automatic Lathe)

Width: 2.0~4.0mm







• Right-hand shown

Toolholder Dimensions

Description		Std. R	Std. L	Cutting Dia. ϕDmax	Dimension (mm) H1=h	H2	H3	H4	B	L1	L2	F	A	Width W(mm) MIN.	MAX.	Spare Parts: Clamp Screw	Spare Parts: Wrench
KGDR/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
	1212JX-2	●	●	24	12	2		10	12		19.5	11.15					
	1616JX-2	●	●	32	16	-		10	16		24.5	15.15					
KGDR/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
	1212JX-2.4	●	●	24	12	2		10	12		19.5	11					
	1616JX-2.4	●	●	32	16	-		10	16		24.5	15					
KGDR/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
	1616JX-3	●	●	32	16	-		10	16		24.5	14.8			4.0		
KGDR/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
	1212F-2.4	●	●	24	12	2		10	12		19.5	11	2.0	2.4	3.0		
KGDR/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
	2012JX-3D42	●	●	42	20	-		14	12		31	10.8					
	2020JX-3D42	●	●						20			18.8					

Note) 1. 4mm width Insert can be installed in KGDR/L1212JX-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 ϕ36mm 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	Shank Size	Toolholder Length	Applicable Inserts	Cutting Dia.
R: Right-hand L: Left-hand	16×16mm	120mm	GDM/GDMS 3~4mm	ϕDmax 38mm

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

Toolholder Hand	Shank Size	Toolholder Length	Applicable Inserts	Max. depth of cut
R: Right-hand L: Left-hand	16×16mm	100mm	GDM/GDMS 2~3mm	06 : 6mm

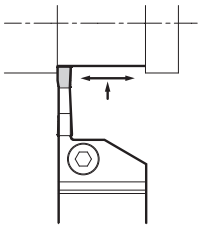
K G D R 2020 X - 3 T 10 S (Separate Type / Unit Description)

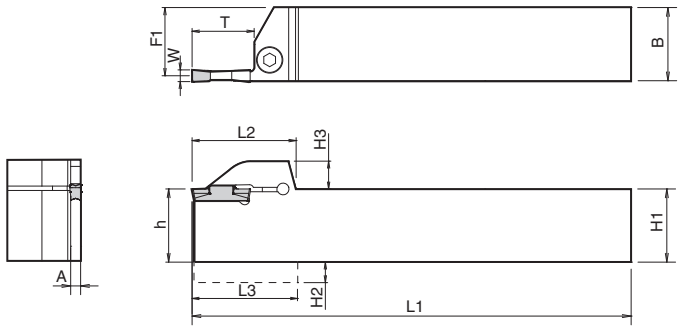
KGDS

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

● : Std. Item

KGD (Integral Type)





• Right-hand shown

Toolholder Dimensions

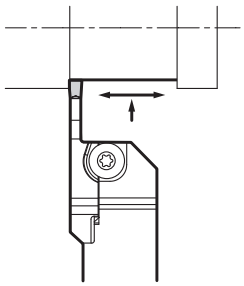
Width (mm)	Max. depth of cut (mm)	Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	L3	F1	A	T	Width W (mm) MIN.	Width W (mm) MAX.	Spare Parts: Clamp Bolt	Spare Parts: Wrench
2	6	KGDR/L	1616H-2T06	●	●	16	4.0	9.5	16	100	27.7	28.0	15.2	1.7	6	2.0	3.0	HH5X16	LW-4
			2020K-2T06	●	●	20	-		20	125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

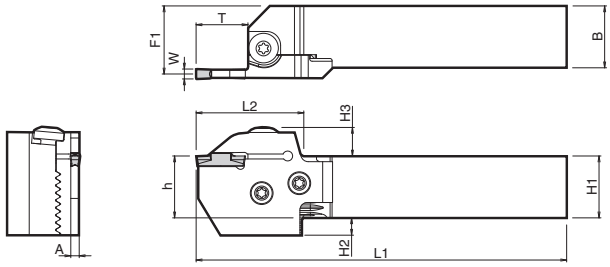
Note) 1. Dimension T shows the distance from the Toolholder to the cutting edge.
(If the dimension T is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.)

Applicable Inserts ➔ G17, G18

● : Std. Item

KGD-S (0° separate type)





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

● Toolholder Dimensions (Toolholder + Blade)

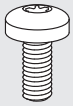
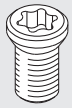
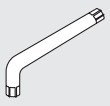
Shank Angle	Width (mm)	Max. depth of cut (mm)	Shank Size (mm)	Unit Description (Standard Stock Description)	Std. R	Std. L	Blade Description ➔ G23	Toolholder Description ➔ G23	Dimension (mm) H1=h	H2	H3	B	L1	L2	L3	F1	A	T	Width W(mm) MIN.	Width W(mm) MAX.
0°	2	17	□20	KGD[R/L] 2020X-2T17S	●	●	KGD[R/L]-2T17-C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

Applicable Inserts ➔ **G17, G18**

● Spare Parts
(Common with separate types)

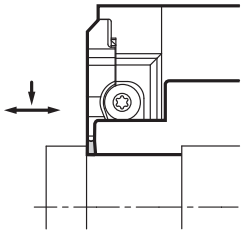
* The parts are included in the toolholder and unit.

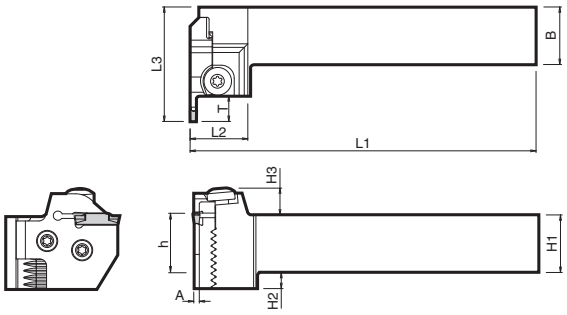
Unit Description	Spare Parts: Clamp Bolt (for Insert Clamp)	Spare Parts: Clamp Bolt (for Blade)	Spare Parts: Wrench
			
KGD[R/L]·····S	BH6X10TR	SB-60120TR	LTW-25

● : Std. Item

Toolholder for Grooving

KGDS-S (90° separate type)





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

● Toolholder Dimensions (Toolholder + Blade)

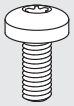
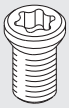
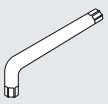
Shank Angle	Width (mm)	Max. depth of cut (mm)	Shank Size (mm)	Blade Description ⇒G23	Toolholder Description ⇒G23	Unit Description (Standard Stock Description)	Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	L3	F1	A	T	Width W(mm) MIN.	MAX.
90°	2	17	□20	KGD$^{L}_{R}$-2T17-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	12	11.6	20	125	27.7	56.7	-	1.7	17	2.0	3.0
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	7		25	150							
	3	10	□20	KGD$^{L}_{R}$-3T10-C	KGDS$^{R}_{L}$2020-C	KGDS$^{R}_{L}$ 2020X-3T10S	●	●	20	12		20	125		49.7		2.4	10	3.0	4.0
			□25		KGDS$^{R}_{L}$2525-C	2525X-3T10S	●	●	25	7		25	150							
		20	□20	KGD$^{L}_{R}$-3T20-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	12		20	125		59.7			20		
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	7		25	150							
	4	10	□20	KGD$^{L}_{R}$-4T10-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	12		20	125		49.7		3.4	10	4.0	5.0
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	7		25	150							
		20	□20	KGD$^{L}_{R}$-4T20-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	12		20	125		59.7			20		
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	7		25	150							
		25	□20	KGD$^{L}_{R}$-4T25-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	12		20	125		64.7			25		
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	7		25	150							
	5	10	□20	KGD$^{L}_{R}$-5T10-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	12		20	125		49.7		4.4	10	5.0	6.0
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	7		25	150							
		25	□20	KGD$^{L}_{R}$-5T25-C	KGDS$^{R}_{L}$2020-C	-	-	-	20	12		20	125		64.7			25		
			□25		KGDS$^{R}_{L}$2525-C	-	-	-	25	7		25	150							

Applicable Inserts ⇒G17, G18

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

● Spare Parts (Common with separate types)

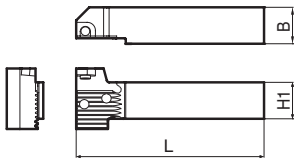
* The parts are included in the toolholder and unit.

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

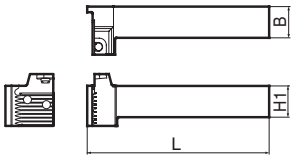
● : Std. Item

● Toolholder

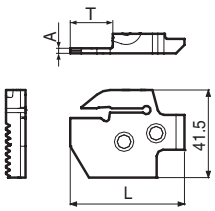
KGD-S (0˚ separate type)

Shape of 0˚ type Right-hand shown	Toolholder Description		Std.		Dimension		
			R	L	L	B	H1
	KGD$^{R}_{L}$	2020-C	●	●	104	20	20
		2525-C	●	●	129	25	25
		3232-C	●	●	149	32	32

KGDS-S (90˚ separate type)

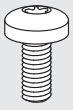
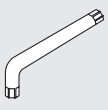
Shape of 90˚ type Right-hand shown	Toolholder Description		Std.		Dimension		
			R	L	L	B	H1
	KGDS$^{R}_{L}$	2020-C	●	●	122	20	20
		2525-C	●	●	147	25	25

● Blade

Shape of Blade Right-hand shown	Blade Description		Std.		Dimension		
			R	L	L	T	A
	KGD$^{R}_{L}$	-2T17-C	●	●	51.2	17.2	1.7
		-3T10-C	●	●	44.2	10.2	2.4
		-3T20-C	●	●	53.2	20.2	
		-4T10-C	●	●	44.2	10.2	3.4
		-4T20-C	●	●	54.2	20.2	
		-4T25-C	●	●	59.2	25.2	
		-5T10-C	●	●	44.2	10.2	4.4
		-5T25-C	●	●	59.2	25.2	

● Spare Parts (Common with separate types)

* The parts are included in the toolholder.

Unit Description	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Bolt (for Blade)	Wrench
			
KGD$^{R}_{L}$·····S KGDS$^{R}_{L}$·····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)

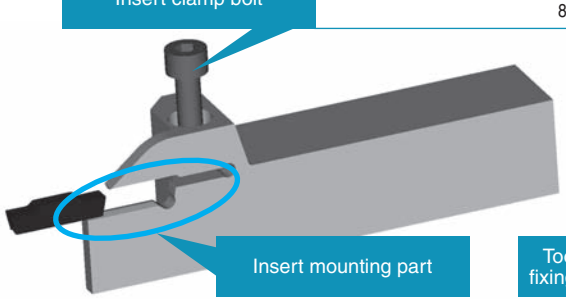


Fig.1

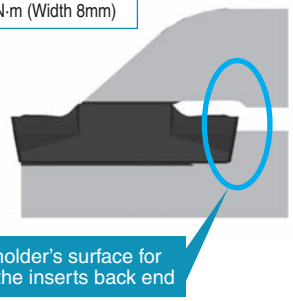


Fig.2

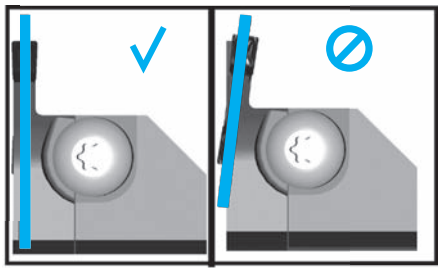


Fig.3

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.

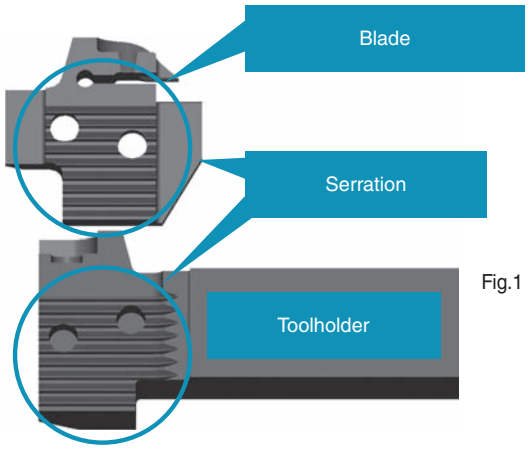


Fig.1

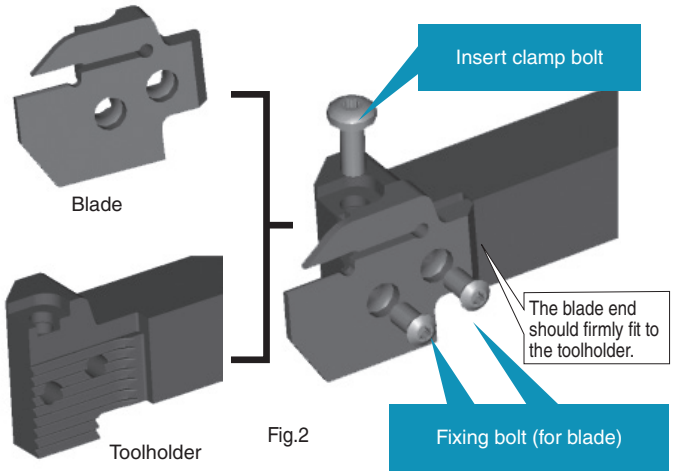
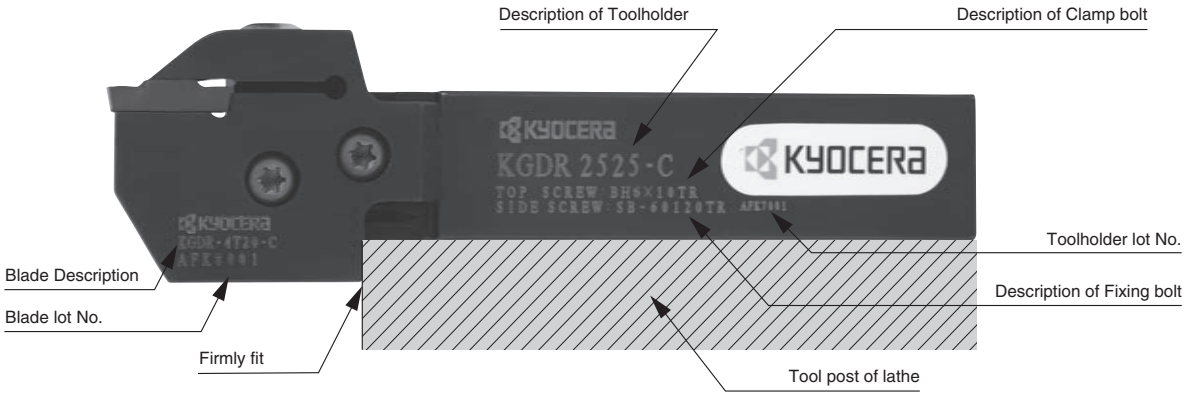


Fig.2

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

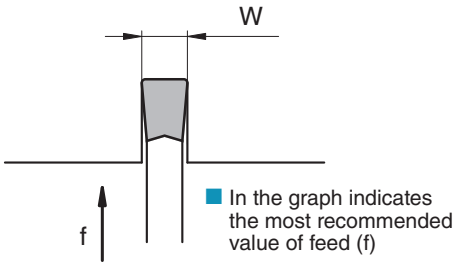
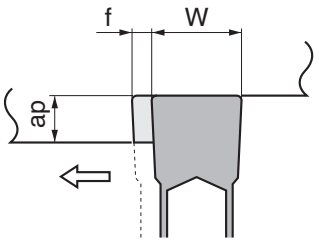
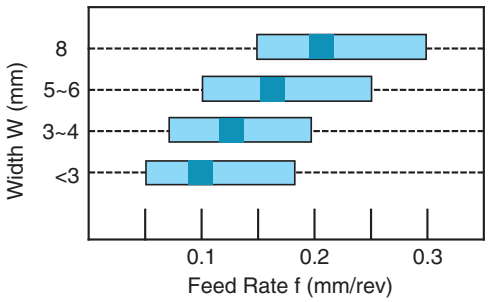
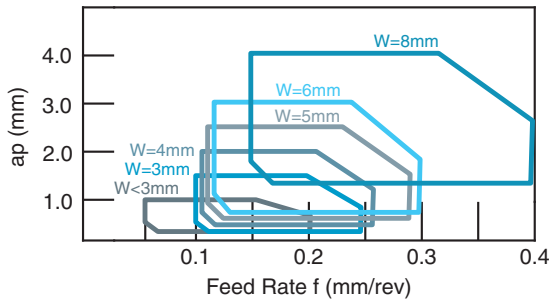
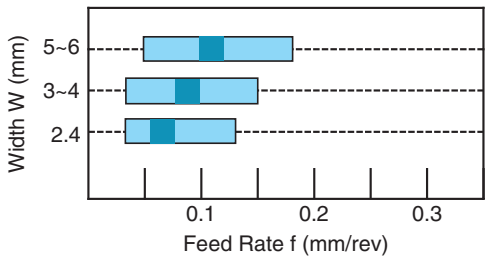
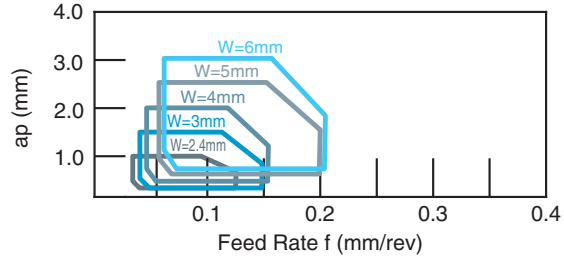
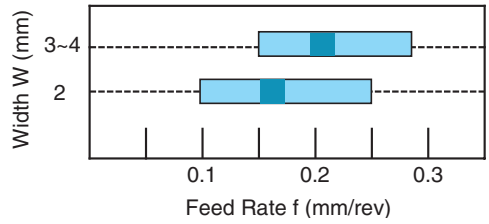
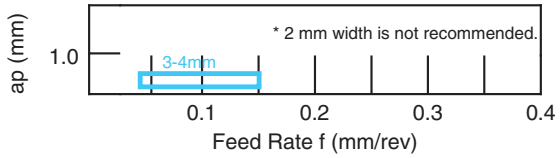
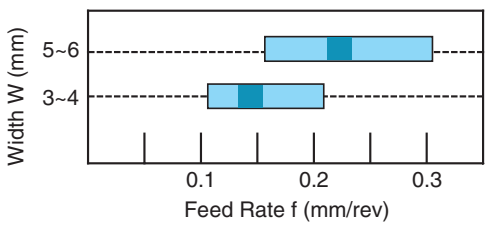
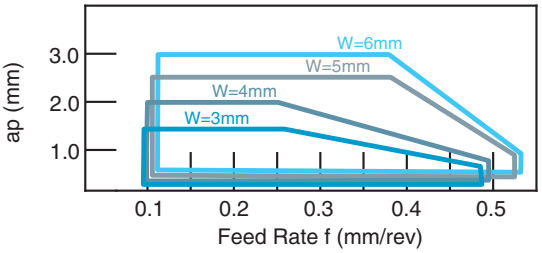
◆ Recommended Cutting Conditions (Vc)

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]

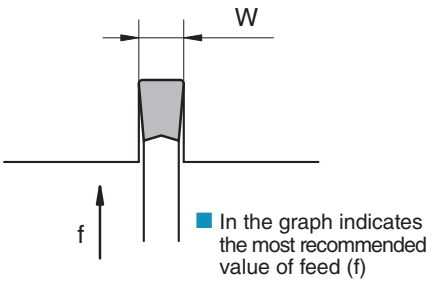
Chipbreaker	Grooving	Turning
		
GM (General purpose)		
GL (Low Feed)		
PH (High Feed)		
CM (Copying)		

Note) 1. The above values are based on the condition that 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.

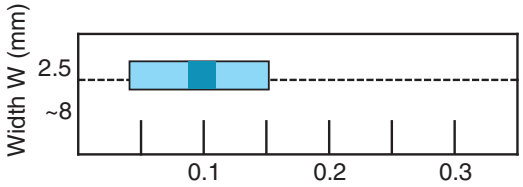
Recommended Cutting Conditions

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

Chipbreaker: Grooving



GS (Low cutting force)

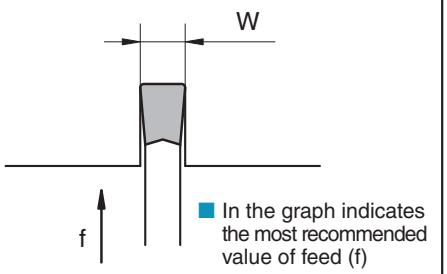


* When turning, keep ap less than the corner-R(r_ε).

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)

Grooving

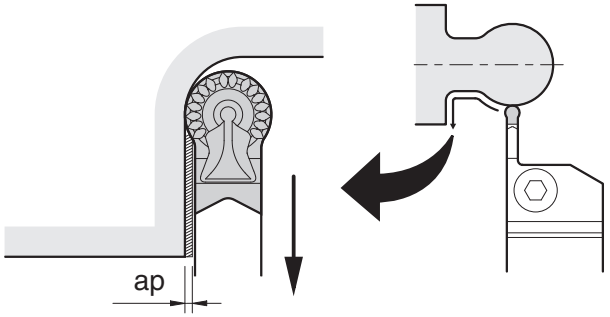


Workpiece Material	Insert Grades	Width W (mm)	Feed Rate f (mm/rev)
Hard Materials	**KBN05M**	2 – 6	0.05 – 0.1
Sintered Steel	**KBN570**	2 – 6	0.05 – 0.10 – 0.15 – 0.20 – 0.25
Non-ferrous Metals	**KPD001**	2 – 6	0.05 – 0.10 – 0.15 – 0.20 – 0.25

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

● Estimated maximum cutting amount (ap) in back copying

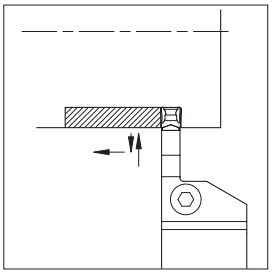
Description		Max. ap (ap:mm)				
		Toolholder part Description				
		KGD···-2T···	KGD···-3T···	KGD···-4T···	KGD···-5T···	KGD···-6T···
GDM	3020N-150R-CM	0.24	0.20	-	-	-
	4020N-200R-CM	-	0.24	0.20	-	-
	5020N-250R-CM	-	-	0.30	0.20	-
	6020N-300R-CM	-	-	-	0.30	0.25



Guide for External Grooving

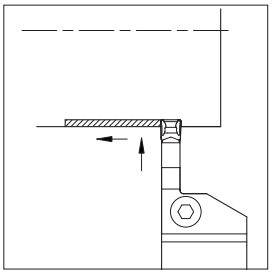
Point (I) (Turning after Grooving)

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, ap over 0.5mm is recommended.)

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

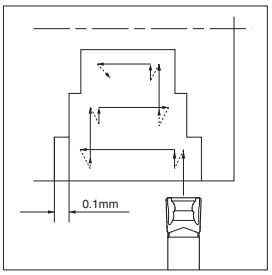
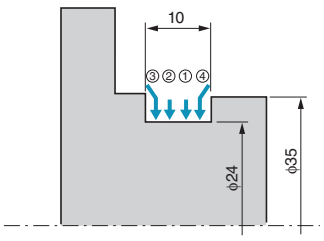


Fig.3

Case Studies

SCr420H (Grooving)

- Gear
- Vc=113~164 m/min
- f=0.06 mm/rev
- Wet
- GDM4020N-040GM (PR1225)
- KGDL2525X-3T10S



GM Chipbreaker (PR1225)	1,500 pcs/C
Competitor K (PVD Coated Carbide)	250 pcs/C

x6 longer life

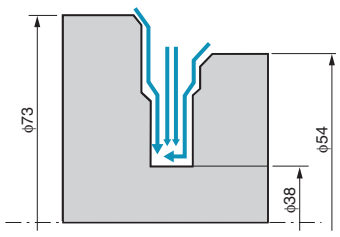
- KGD type grooving toolholder + GM chipbreaker (PR1225) showed 6 times longer tool life than that of Competitor K.
- Good chip control without burned chips.

Competitor K | GM Chipbreaker

(Evaluation by the user)

SCM420 (Grooving Turning)

- Gear
- Vc=170m/min
- f=0.15 mm/rev(Roughing)
  0.10 mm/rev(Finishing)
- ap=0.2mm(Finishing)
- Wet
- GDM4020N-040GM (PR1215)
- KGDR2525X-4T20S



GM Chipbreaker (PR1215)	250 pcs/C
Competitor L (Roughing: PVD Coated Carbide) (Finishing: Cermet)	200 pcs/C

- GM chipbreaker reduced occurrence rate of tangle of chips (occurrence rate 80% ⇨ 10%). The problem was persistent with Competitor L. Machining productivity is improved.

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

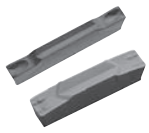
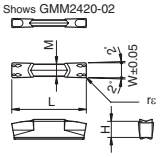
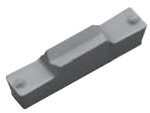
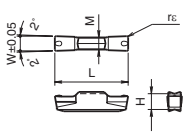
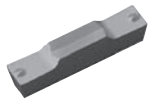
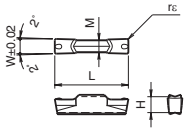
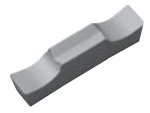
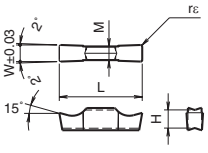
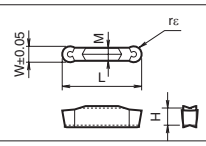
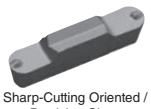
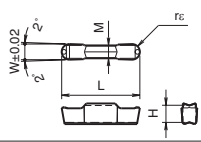
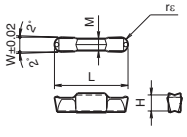
(Evaluation by the user)

GMM / GMG

Classification of usage

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

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

Insert		Description	(Previous Description)	Dimension (mm)					Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Ref. to Page for Applicable Toolholders
				W	rε	M	L	H	TN90	CR9025	PR915	PR930	PR905	KW10	
 Chip Control Oriented / M Class	 Shows GMM2420-02	GMM 2420-020MW	GMM 2420-02	2.4	0.2	1.9	20	4.3	●	●	●	●	●	●	G32 G33
		3020-020MW	3020-02	3.0	0.2	2.3			●	●	●	●	●	●	
		3020-040MW	3020-04		0.4				●	●	●	●	●	●	
		4020-020MW	4020-02	4.0	0.2	3.3			●	●	●	●	●	●	
		4020-040MW	4020-04		0.4				●	●	●	●	●	●	
		4020-080MW	4020-08		0.8				●	●	●	●	●	●	
		5020-040MW	5020-04	5.0	0.4	4.2			●	●	●	●	●	●	
		5020-080MW	5020-08		0.8				●	●	●	●	●	●	
		6020-040MW	6020-04	6.0	0.4	5.2			●	●	●	●	●	●	
		6020-080MW	6020-08		0.8				●	●	●	●	●	●	
		8030-080MW	8030-08	8.0	0.8	6.0	30	5.5		●	●	●	●	●	G32,G58
 Sharp-Cutting Oriented / M Class		GMM 3020-020MS	GMM 3020-02MS	3.0	0.2	2.3	20	4.3	●	●	●	●		●	G32 G33
		3020-040MS	3020-04MS		0.4				●	●	●	●		●	
		4020-040MS	4020-04MS	4.0	0.4	3.3			●	●	●	●		●	
		5020-040MS	5020-04MS	5.0		4.2			●	●	●	●		●	
		6020-040MS	6020-04MS	6.0		5.2				●		●		●	
 Sharp-Cutting Oriented / Precision Class		GMG 3020-000MS	GMG 3020-00	3.0	0.0	2.3	20	4.3		●	●	●		●	G32 G33
		3020-020MS	3020-02		0.2				●	●	●	●		●	
		3020-040MS	3020-04		0.4				●	●	●	●		●	
		4020-020MS	4020-02	4.0	0.2	3.3			●	●	●	●		●	
		4020-040MS	4020-04		0.4				●	●	●	●		●	
		4020-080MS	4020-08		0.8				●	●	●	●		●	
		5020-040MS	5020-04	5.0	0.4	4.2	20	4.3	●	●	●	●		●	
		5020-080MS	5020-08		0.8					●	●	●		●	
		6020-040MS	6020-04	6.0	0.4	5.2	20	4.3		●		●		●	
		6020-080MS	6020-08		0.8					●		●		●	
 Sharp-Cutting Oriented / Precision Class Ground Chipbreaker		GMG 2520-030MG	GMG 2520-03MG	2.5	0.3	2.0	20	4.3	●	●	●	●	●	●	G32 G33
		3020-030MG	3020-03MG	3.0		2.3			●	●	●	●	●	●	
		3520-030MG	3520-03MG	3.5		2.8			●	●	●	●	●	●	
		4020-040MG	4020-04MG	4.0	0.4	3.3			●	●	●	●	●	●	
		5020-040MG	5020-04MG	5.0		4.2			●	●	●	●	●	●	
		6020-040MG	6020-04MG	6.0		5.2			●	●		●	●	●	
		8030-050MG	8030-05MG	8.0	0.5	6.0	30	5.5	●	●		●	●	●	G32,G58
 Chip Control Oriented / M Class Full-R / Copying		GMM 3020-150R	GMM 3020-15R	3.0	1.5	2.3	20	4.3	●	●	●	●	●	●	G32 G33
		4020-200R	4020-20R	4.0	2.0	3.3			●	●	●	●	●	●	
		5020-250R	5020-25R	5.0	2.5	4.2			●	●	●	●	●	●	
		6020-300R	6020-30R	6.0	3.0	5.2			●	●	●	●	●	●	
 Sharp-Cutting Oriented / Precision Class Full-R / Copying		GMG 3020-150R	GMG 3020-15R	3.0	1.5	2.3	20	4.3	●	●		●		●	G32 G33
		4020-200R	4020-20R	4.0	2.0	3.3			●	●		●		●	
		5020-250R	5020-25R	5.0	2.5	4.2				●		●		●	
		6020-300R	6020-30R	6.0	3.0	5.2				●		●		●	
 Undercutting Chip Control Oriented		GMG 3020-150RU	GMG 3020-15RU	3.0	1.5	2.3	20	4.3		●		●		●	G32 G33 G35
		4020-200RU	4020-20RU	4.0	2.0	3.3				●		●		●	
		5020-250RU	5020-25RU	5.0	2.5	4.2				●		●		●	

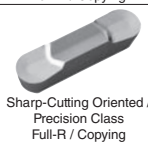
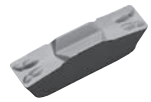
Recommended Cutting Conditions ➡ G101

Inserts are sold in 10 piece boxes.

● : Std. Item

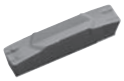
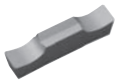
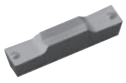
GMM / GMGA / FGG

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

Insert (Handed Insert shows Right-hand)	Description	(Previous Description)	Dimension (mm)					Cermet	CVD Coated Carbide	PVD Coated Carbide		Carbide	Ref. to Page for Applicable Toolholders
			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	●	●	●	●	●	
 Chip Control Oriented / M Class Full-R / Copying	**GMM 3014-15R**	-	3.0	1.5	2.3	14	4.3	●	●		●	●	**G34**
 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(rε) and minimize the core which remains in the center of the face.
GMM-TK		Large corner-R(rε) 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(rε)= 0.05	Chamfer + Honed Sharp Corner
		
MT-Chipbreaker	**CR9025 / PR915**	**PR930 / KW10**
Edge Prep.	Chamfer + Honed Corner-R(rε)= 0.2-0.3	Sharp Edge Corner-R(rε)= 0.2-0.3
		
TK-Chipbreaker	**CR9025 / PR915**	**PR930 / KW10**
Edge Prep.	Honed Corner-R(rε)= 0.05	Sharp Edge Sharp Corner
		
Without Chipbreaker (-NB)	**CR9025**	**PR930 / KW10**

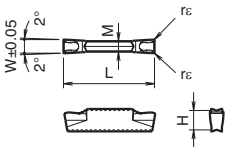
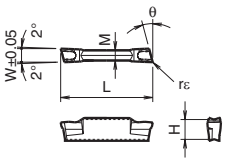
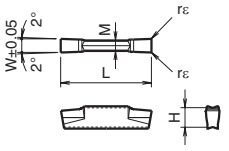
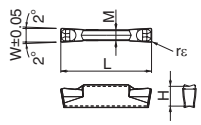
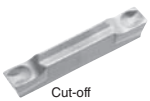
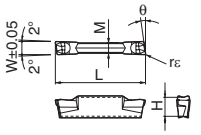
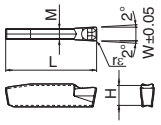
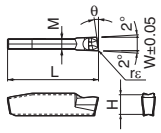
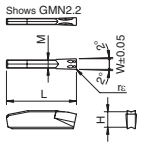
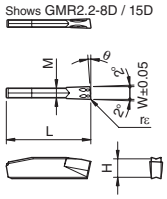
· Sharp Edge Spec. can reduce cutting force by 40% less than that of chamfer edge.

● : Std. Item

Inserts are sold in 10 piece boxes.

GMM / GMN

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

Insert (Handed Insert shows Right-hand)		Description	Dimension (mm) W	rε	M	L	H	Angle (°) θ	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	Carbide KW10	Ref. to Page for Applicable Toolholders
 Deep Grooving / Cut-off Sharp Cutting Oriented		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		GMM 1520R/L-MT-15D	1.5	0.0 0.05	1.2	20	4.3	15°			R	●	●	
		2020R/L-MT-15D	2.0	0.0 0.05	1.5			15°		●	R	●	●	
		2520R/L-MT-15D	2.5	0.0 0.05	1.9			15°		●	R	●	●	
		3020R/L-MT-15D	3.0	0.0 0.05	2.3			15°		●	R	●	●	
 Deep Grooving / Cut-off Sharp Cutting Oriented Without Chipbreaker		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		GMM 2020-TK 2520-TK 3020-TK	2.0 2.5 3.0	0.20 0.20 0.25	1.5 1.9 2.3	20	4.3	-		● ● ●	● ● ●	● ● ●	● ● ●	
 Cut-off Stability Oriented With lead angle		GMM 2020R-TK-8D 2520R-TK-8D 3020R-TK-8D	2.0 2.5 3.0	0.20 0.20 0.25	1.5 1.9 2.3	20	4.3	8°		R R R	R R R	R R R	R R R	
 Cut-off / Stability Oriented 1-edge		GMN 2-TK 3-TK 4-TK	2.0 3.0 4.0	0.20 0.25 0.30	1.5 2.3 3.3	20	4.3	-		● ● ●	● ● ●	● ● ●	● ● ●	
 Cut-off / Stability Oriented 1-edge / Lead Angle		GMR 2-TK-8D 3-TK-8D 4-TK-8D	2.0 3.0 4.0	0.20 0.25 0.30	1.5 2.3 3.3	20	4.3	8°		R R R	R R R	R R R	R R R	
 Deep Grooving / Cut-off 1-edge	 Shows GMN2.2	GMN 2.2 3 4 5 6	2.2 3.0 4.0 5.0 6.0	0.17 0.20 0.25 0.8 0.8	1.8 2.3 3.3 4.2 5.2	20	4.3	-	● ● ●	● ● ● ● ●		● ● ● ● ●	● ● ● ● ●	
 Cut-off / Sharp Cutting Oriented 1-edge / Lead Angle	 Shows GMR2.2-8D / 15D	GM R/L 2.2-8D 2.2-15D 3-4D 4-4D	2.2 2.2 3.0 4.0	0.17 0.00 0.20 0.25	1.8 1.8 2.3 3.3	20	4.3	8° 15° 4° 4°	R R R	R R ● ●		● R ● R	● ● ●	

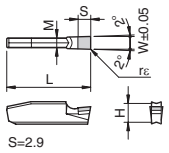
Recommended Cutting Conditions ◉ G101

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

Inserts are sold in 10 piece boxes.

GMN

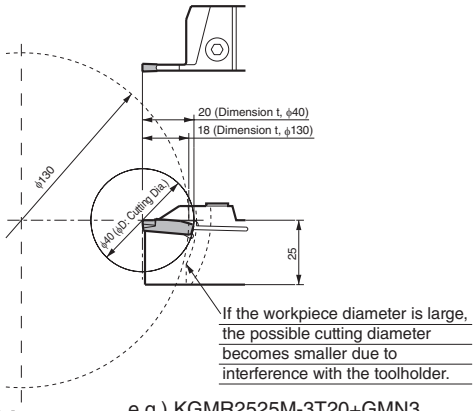
Classification of usage						
●: Continuous-Light Interruption / 1st Choice ◔: Continuous-Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice	P	Carbon steel / Alloy steel				
	M	Stainless Steel				
	K	Cast Iron				
	N	Non-ferrous Metals			●	
	S	Titanium Alloys			●	
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

Insert		Description	Dimension (mm)					Angle (°)	CBN		PCD		Ref. to Page for Applicable Toolholders
			W	rε	M	L	H	θ	KBN510	KBN525	KPD001	KPD010	
 Deep Grooving 1-edge	 S=2.9	GMN 2	2.0	0.2	1.8	20	4.3	-	●	●	●	●	G32 G33
				0.4									
		3	3.0	0.2	2.3						●	●	
				0.4					●	●			
		4	4.0	0.2	3.3						●	●	
				0.4					●	●			
		5	5.0	0.2	4.2						●	●	
				0.4					●	●			
		6	6.0	0.2	5.2							●	
				0.4					●	●			

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.



e.g.) KGMR2525M-3T20+GMN3

◆ KGM Possible Cutting Diameter and Available Grooving Depth Table

Toolholder Description		ϕD (Cutting Dia.)																
KGM$^{R}_{L}$	0810K-1.5-125	-	-	-	-	-	-	-	-	-	-	-	-	10	14	16	32	∞
	1010□-1.5···	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞	
	1212□-1.5···	-	-	-	-	25	26	28	32	36	40	60	100					
	0810K-2-125	-	-	-	-	-	-	-	-	-	-	-	-	10	14	16	32	
	1010□-2···	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞	
	1212□-2···	-	-	-	-	25	26	28	50	∞	∞	∞	∞					
	1616□-2···	32	40	50	60	80	100	∞	∞									
	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$^{R}_{L}$ when using 1-edge insert)

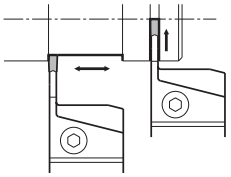
Toolholder Description		ϕD (Cutting Dia.)												
KGM$^{R}_{L}$	2012K-2T17	-	-	-	-	-	-	-	-	66	80	130	260	∞
	2020K-2T17													
	2525M-2T17													
	1616H-3T20	-	-	-	-	-	40	54	70	100	180	∞	∞	
	2012K-3T20	-	-	-	-	-	40	90	130	240	∞			
	2020K-3T20													
	2525M-3T20													
	2020K-4T20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

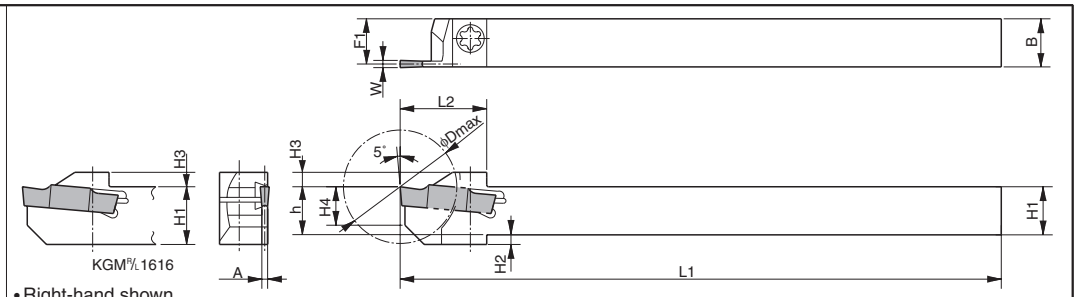
● : Std. Item

CBN & PCD Inserts are sold in 1 piece boxes.

KGM (For automatic lathe)

Width: 1.5~4.0mm





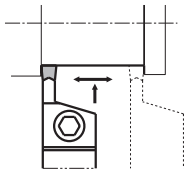
• Right-hand shown

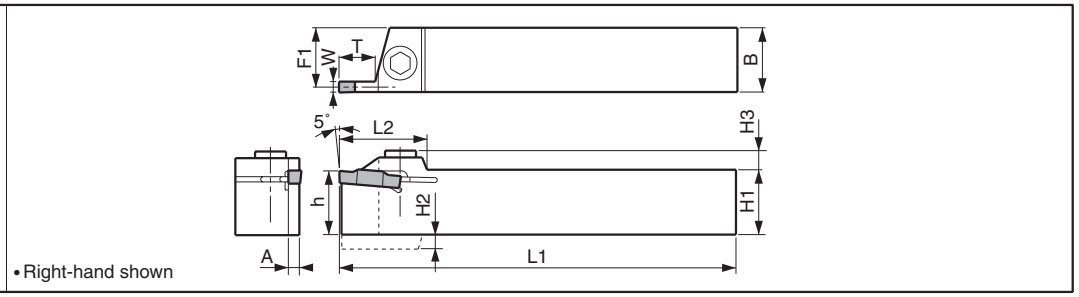
Toolholder Dimensions

Description		Std. R	Std. L	Cutting Dia. φDmax	Dimension (mm) H1=h	H2	H3	H4	B	L1	L2	F1	A	Width W(mm) MIN.	Width W(mm) MAX.	Spare Parts: Clamp Screw	Spare Parts: Wrench
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	15.15				SE-50125TR	LTW-20
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	15				SE-50125TR	LTW-20
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





• Right-hand shown

Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F1	A	T		Width W(mm) MIN.	Width W(mm) MAX.	Spare Parts: Screw		Spare Parts: 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				3.0	4.0	-	HH5X16	-	LW-4
	2020K-3	●	●	20	-	7	20	125		18.8									
	2525M-3	●	●	25			25	150		23.8							HH5X25		
KGM R/L	2020K-4	●	●	20	-	7	20	125	27	18.3	3.4	10		4.0	5.0	-	HH5X16	-	LW-4
	2525M-4	●	●	25			25	150		23.3							HH5X25		
KGM R/L	2020K-5	●	●	20	-	7	20	125	27	17.8	4.4	10		5.0	6.0	-	HH5X16	-	LW-4
	2525M-5	●	●	25			25	150		22.8							HH5X25		
	3232P-5	●	●	32			32	170		29.8									
KGM R/L	2525M-8	●	●	25	7.5	10.5	25	150	40	22.0	6.0	25		8.0	8.0	-	HH6X25	-	LW-5
	3232P-8	●	●	32	-		32	170		29.0									

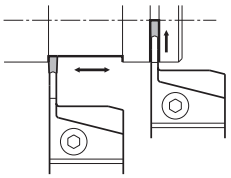
· Dimension T shows available grooving depth.

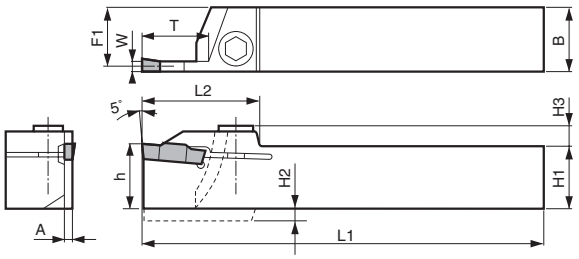
· 4mm width Insert can be installed in KGM R/L 1212H-3, but is not recommended due to the toolholder's rigidity.

● : Std. Item

KGM-T (Deep Grooving Type)

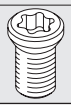
Width: 2.0~6.0mm





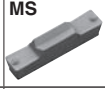
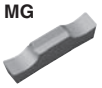
• Right-hand shown

Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F1	A	T		Width W(mm) MIN.	MAX.	Spare Parts 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			25	150		24.15							HH5X25		
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	125		10.8						SB-5TR	-	LTW-20	-
	2020K-3T20	●	●				20			18.8						-	HH5X16	-	LW-4
	2525M-3T20	●	●	25			25	150		23.8							HH5X25		
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			25	150	36	23.3		25					HH5X25		
	2525M-4T25	●	●						41										
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			32	170		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

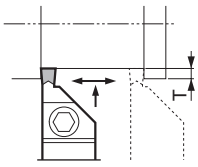
Applications	Grooving / Turning	Grooving / Turning	Grooving	Full-R / Copying	Full-R / Copying	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving
Ref. to Page	G28	G28	G28	G28	G29	G30	G30	G30	G30	G30	G31
Insert / Toolholder Description	**MW** 	**MS** 	**MG** 			**MT** 	**NB** 	**TK** 	**TK** 		**CBN PCD** 
KGM[R/L]...1.5	-	-	-	-	-	GMM1520..MT GMM2020..MT GMM1520[R/L]..MT GMM2020[R/L]..MT	GMM1520..NB GMM2020..NB	GMM2020..TK GMM2020[R/L]..TK	GMN2..TK GM[R/L]2..TK	-	-
KGM[R/L]...2(T)	GMM2420..MW GMM3020..MW	GMG3020..MS GMM3020..MS	GMG2520..MG GMG3020..MG	GMG3020..R GMM3020..R	-	GMM2020..MT GMM2520..MT GMM3020..MT GMM2020[R/L]..MT GMM2520[R/L]..MT GMM3020[R/L]..MT	GMM2020..NB GMM2520..NB GMM3020..NB	GMM2020..TK GMM2520..TK GMM3020..TK GMM2020[R/L]..TK GMM2520[R/L]..TK GMM3020[R/L]..TK	GMN2..TK GMN3..TK GM[R/L]2..TK GM[R/L]3..TK	GMN2.2 GMN3 GM[R/L]2.2 GM[R/L]3	GMN2 GMN3
KGM[R/L]...2.5	GMM2420..MW GMM3020..MW	GMG3020..MS GMM3020..MS	GMG2520..MG GMG3020..MG	GMG3020..R GMM3020..R	-	GMM2520..MT GMM3020..MT GMM2520[R/L]..MT GMM3020[R/L]..MT	GMM2520..NB GMM3020..NB	GMM2520..TK GMM3020..TK GMM2520[R/L]..TK GMM3020[R/L]..TK	GMN3..TK GM[R/L]3..TK	GMN3 GM[R/L]3	GMN3
KGM[R/L]...3(T)	GMM3020..MW GMM4020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS	GMG3020..MG GMG3520..MG GMG4020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R	-	GMM3020..MT GMM3020[R/L]..MT	GMM3020..NB	GMM3020..TK GMM3020[R/L]..TK	GMN3..TK GMN4..TK GM[R/L]3..TK GM[R/L]4..TK	GMN3 GMN4 GM[R/L]3 GM[R/L]4	GMN3 GMN4
KGM[R/L]...4(T)	GMM4020..MW GMM5020..MW	GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG4020..MG GMG5020..MG	GMG4020..R GMM4020..R GMG5020..R GMM5020..R	-	-	-	-	GMN4..TK GM[R/L]4..TK	GMN4 GMN5 GM[R/L]4	GMN4 GMN5
KGM[R/L]...5(T)	GMM5020..MW GMM6020..MW	GMG5020..MS GMM5020..MS GMG6020..MS GMM6020..MS	GMG5020..MG GMG6020..MG	GMG5020..R GMM5020..R GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN5 GMN6	GMN5 GMN6
KGM[R/L]...6T	GMM6020..MW	GMG6020..MS GMM6020..MS	GMG6020..MG	GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN6	GMN6
KGM[R/L]...8	GMM8030..MW	-	GMG8030..MG	-	GMGA8030..R	-	-	-	-	-	-

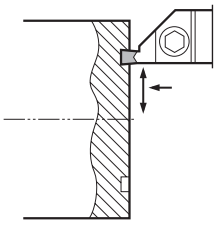
· If using a full-R insert, you need to modify the corner of insert adapter part (dimension A) of toolholder.

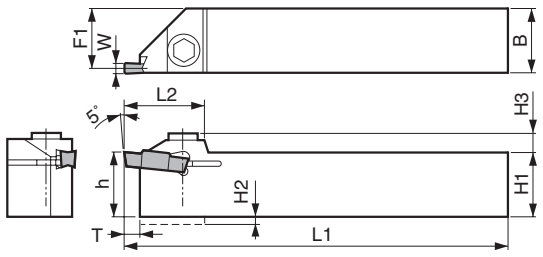
Recommended Cutting Conditions ➡ **G101**
Recommended Cutting Conditions of CBN/PCD ➡ **G100**

● : Std. Item

KGMM

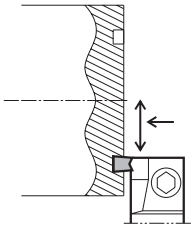


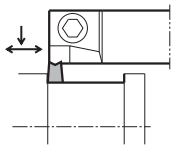


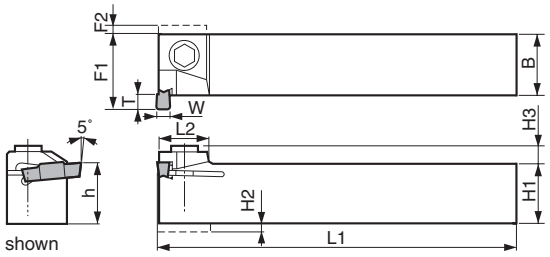


• Right-hand shown

KGMS







• Right-hand shown

Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F1	F2	T		Width W(mm) MIN.	MAX.	Spare Parts: Screw	Screw	Wrench	Wrench
KGMM R/L	1212H-3	○	○	12	4	5	12	100	25	10.8	-	4.8		3.0	5.0	SB-5TR	-	LTW-20	-
	1616H-3	○	○	16	-		16			14.8						-	HH5X16	-	LW-4
	2020K-3	●	●	20		6	20	125		18.8						-		-	
	2525M-3	●	●	25			25	150		23.8						-	HH5X25	-	
KGMS R/L	1212H-3	○	○	12	4	5	12	100	17	17	1.5	4.8		3.0	3.0	SB-5TR	-	LTW-20	-
	1616H-3	○	○	16	-		16			21.5				3.0	5.0	GS-50	-	-	LW-3
	2020K-3	●	●	20		6	20	125		25	-					-	HH5X16	-	LW-4
	2525M-3	●	●	25			25	150		30						-	HH5X25	-	

· 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	(MW)	MS	MG		MT	NB	TK	TK		CBN PCD
KGMS R/L 1212H-3	GMM3014..	-	-	GMM3014..R	-	-	-	-	-	-
KGMM R/L ···3 KGMS R/L ···3	GMM3020..MW GMM4020..MW GMM5020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG3020..MG GMG3520..MG GMG4020..MG GMG5020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R GMG5020..R GMM5020..R	GMM3020..MT	GMM3020..NB	GMM3020..TK	GMN3..TK GMN4..TK	GMN3 GMN4 GMN5	GMN3 GMN4 GMN5

Applicable Inserts [Face Grooving]

Applications	Grooving / Turning	Undercutting	Grooving / Turning	Grooving / Turning	Grooving	Full-R / Copying	Grooving	Grooving	Grooving	Grooving
Ref. to Page	G29	G28, G29	G28	G28	G28	G28	G30	G30	G30	G30
Insert / Toolholder Description			MW	MS	MG		MT	NB	TK	
KGMS R/L 1212H-3	-	GMM3014..RU	-	-	-	-	-	-	-	-
KGMM R/L ···3 KGMS R/L ···3	FGG R/L 3020.. FGG R/L 4020.. FGG R/L 5020..	GMG3020..RU GMG4020..RU GMG5020..RU	GMM3020..MW GMM4020..MW GMM5020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG3020..MG GMG3520..MG GMG4020..MG GMG5020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R GMG5020..R GMM5020..R	GMM3020..MT	GMM3020..NB	GMM3020..TK	GMN3 GMN4 GMN5 GMN3..TK GMN4..TK

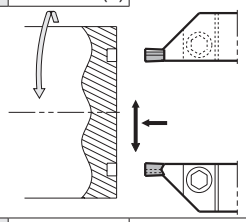
Recommended Cutting Conditions ➔ G101
Recommended Cutting Conditions of CBN/PCD ➔ G100

● : Std. Item
○ : Check Availability

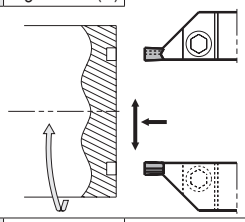
◆ Selection of Insert & Toolholder (Face Grooving)

● Case of KGMM

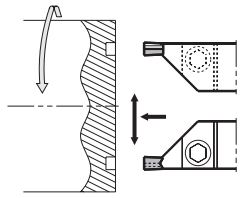
Toolholder	Left-hand (L)
Insert	Left-hand (L)



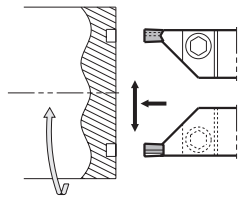
Toolholder	Right-hand (R)
Insert	Right-hand (R)



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

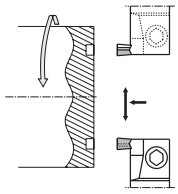


Toolholder	Left-hand (L)
Insert	Right-hand (R)

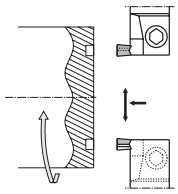


● Case of KGMS

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

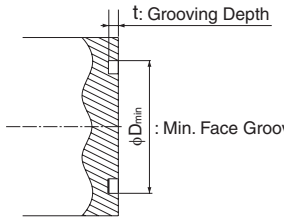


Toolholder	Left-hand (L)
Insert	Right-hand (R)



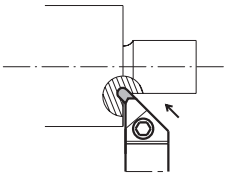
◆ Min. Cutting Dia. & Grooving Depth (Face Grooving)

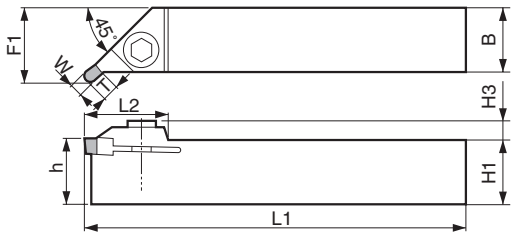
● KGMM / KGMS (Common)



Description	ϕDmin	t
GMG/GMM3020-○○□□	ϕ100	4.8
GMG/GMM4020-○○□□		
GMG/GMM5020-○○□□		
FGGR/L3020-02	ϕ22	4.3
FGGR/L4020-04	ϕ28	4.8
FGGR/L5020-04	ϕ30	
GMG3020-150RU	ϕ22	4.3
GMG4020-200RU	ϕ28	4.8
GMG5020-250RU	ϕ30	

■ KGMU (External Undercutting Toolholder)





• Right-hand shown

● Toolholder Dimensions

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

· Dimension T shows the distance from the Toolholder to the cutting edge. Ref. to the table below for the available Grooving Depth.

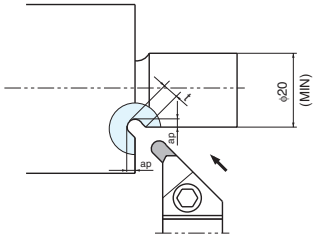
Dimension F1 shows at GMM5020-RU. ( ) indicates external grooving inserts when installed.

● Applicable Inserts

Applications	Undercutting
Ref. to Page	G28
Insert / Toolholder Description	
KGMUR/L 2020K 2525M	GMG3020..RU GMG4020..RU GMG5020..RU

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

◆ Undercut Depth t

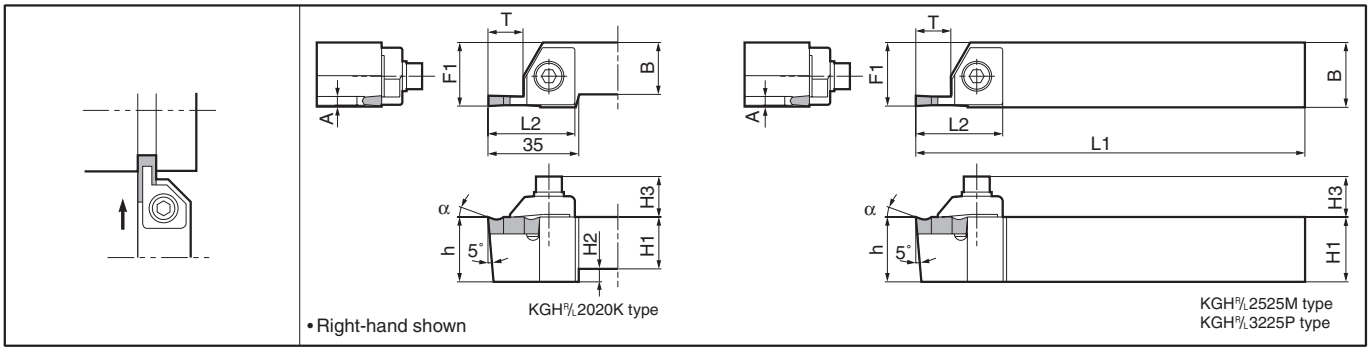


Description	Undercut Depth t (mm)	Distance from the face of the workpiece. ap (mm)
GMG3020-150RU	3.5	1.8
GMG4020-200RU	4.0	1.9
GMG5020-250RU	4.5	2.1

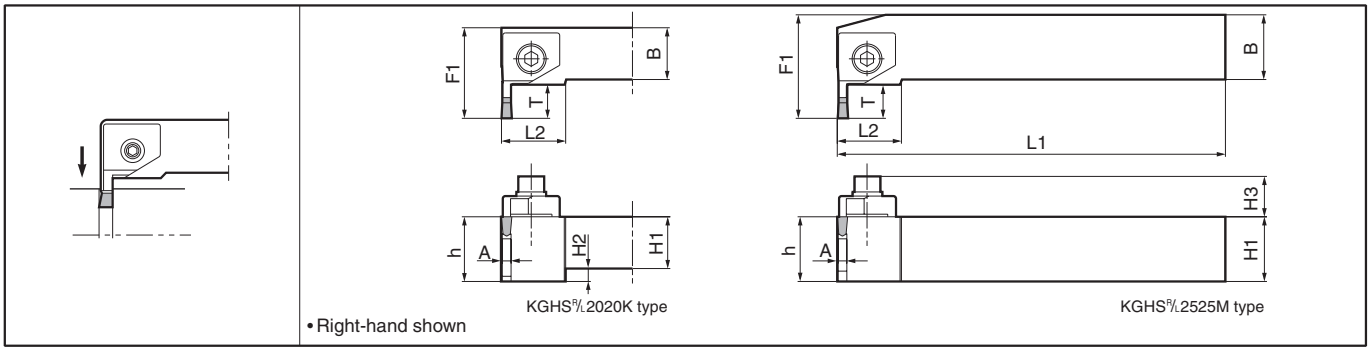
*In case of undercutting for the diameter over 100mm, external grooving inserts GMG○○20-○○○□□,GMM○○20-○○○□□,GMN○ are also available.

● : Std. Item

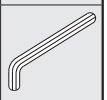
KGH



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					
KGHR/L	2020K-4	●	●	20	5	15.6	20	125	33.5	24.5-24.8	3.4	13	CGH-1R/L	HH6X25	W-6	SP-6	LW-5
	2525M-4	●	●	25	-		25	150		24.5-24.8							
	2020K-5	●	●	20	5	15.6	20	125	33.5	25.0-25.8	4.2	13	CGH-1R/L				
	2525M-5	●	●	25	-		25	150		25.0-25.8							
	3225P-5	●	●	32	-		25	170		25.0-25.8							
	2020K-7	●	●	20	5	15.6	20	125	33.5	24.5-25.0	5.8	13	CGH-2R/L				
	2525M-7	●	●	25	-		25	150		24.5-25.0							
	2525M-10	●	●	25	-	16.1	25	150	41	25.5-26.5	9.0	17	CGH-3R/L				
	3225P-10	●		32	-		25	170		25.5-26.5							
KGHSR/L	2020K-4	●	●	20	5	15.6	20	125	25	35	3.4	13	CGH-1L/R	HH6X25	W-6	SP-6	LW-5
	2525M-4	●	●	25	-		25	150		40							
	2020K-5	●	●	20	5	15.6	20	125	25	35	4.2	13	CGH-1L/R				
	2525M-5	●	●	25	-		25	150		40							

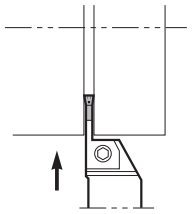
- Dimension T shows available grooving depth.
· Dimension F1 of KGHR/L Toolholder depends on the insert's edge width.
· Clamp KGHR/L ... CGH-OR for Right-hand Toolholder, and CGH-OL for Left-hand Toolholder.
KGHSR/L ... CGH-OL for Right-hand Toolholder, and CGH-OR for Left-hand Toolholder.

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

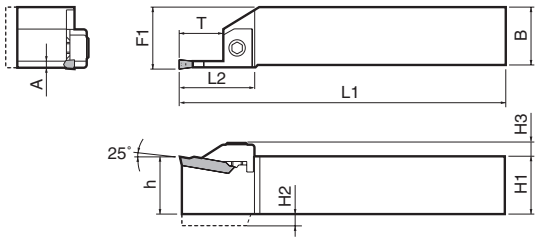
When using GH-OOOO-OO		When using GHUOO-OO	
α	Insert Grades	α	Insert Grades
0°	A65, A66N, PT600M	10°	TN60 CR9025
10°	TC40N		
20°	TN90, TC60M PR930 KW10		

● : Std. Item

KGA



• Right-hand shown



Toolholder Dimensions

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

· Dimension T shows available grooving depth.

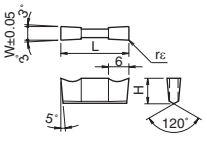
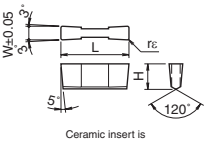
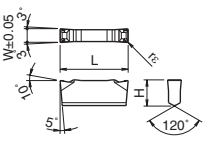
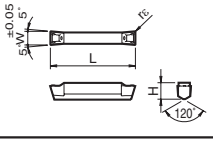
· Clamp: CGA-OR for Right-hand Toolholder, and CGA-OL for Left-hand Toolholder.

Applicable Inserts

(mm)

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

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

Insert		Description		Dimension (mm) W	rε	Cermet TN60	Cermet TN90	Cermet TC40N	Cermet TC60M	CVD Coated Carbide CR9025	PVD Coated Carbide PR930	Carbide KW10	Ceramic A65	Ceramic A66N	Ceramic PT600M	Applicable Toolholders	Ref. to Page for Applicable Toolholders
Ground Chipbreaker		GH	4020-02	4.0	0.2		●	●	○		●	●					G36
			4020-05		0.5		●	●	○		●	●	●	●	●	KGH R/L…4	
			4520-02	4.5	0.2			●								KGHS R/L…4	
			4520-05		0.5			●									
			5020-02	5.0	0.2		●	●	○		●	●					
			5020-05		0.5		●	●	○		●	●	●	●	●		
			5520-02	5.5	0.2			●									
			5520-05		0.5			●								KGH R/L…5	
			6020-02	6.0	0.2		●	●	○		●	●				KGHS R/L…5	
			6020-05		0.5		●	●	○		●	●	●		●		
			6520-02	6.5	0.2			●									
			6520-05		0.5			●									
Ceramic			7020-02	7.0	0.2		●	●	○		●	●					
			7020-05		0.5		●	●	○		●	●	●		●		
			7520-02	7.5	0.2			●								KGH R/L…7	
			7520-05		0.5			●								KGHS R/L…7	
			8020-02	8.0	0.2		●	●	○		●	●					
			8020-05		0.5		●	●	○		●	●					
			10025-05	10.0	0.5				○		●	●				KGH R/L…10	
			12025-05	12.0	0.5				○		●	●					
Molded Chipbreaker		GHU	40-20	4.0	0.25	●				●						KGH R/L…4 KGHS R/L…4	G36
			50-20	5.0	0.30	●				●						KGH R/L…5 KGHS R/L…5	
			60-20	6.0	0.30	●				●							
		GA	30	3.0	0.20	●				●						KGA R/L…3	G37
			40	4.0	0.25	●				●						KGA R/L…4	
			50	5.0	0.30	●				●						KGA R/L…5	

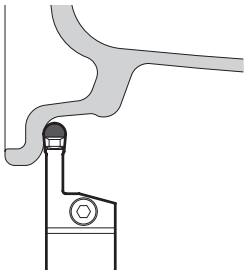
Recommended Cutting Conditions G98~G99

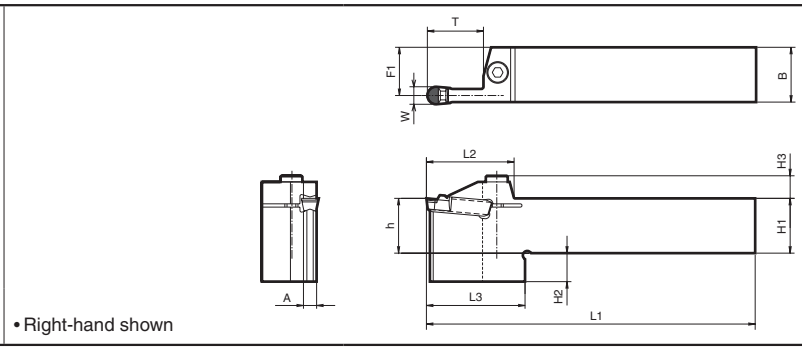
● : Std. Item
○ : Check Availability

Inserts are sold in 10 piece boxes.

For Aluminum Wheel External Grooving

KGMW (External / Facing / Copying)



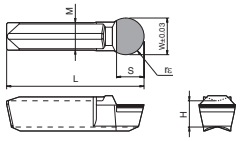
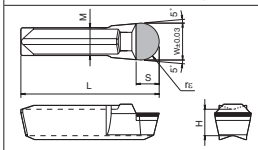


• Right-hand shown

Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	L3	F1	A	T	Spare Parts: Clamp Bolt	Spare Parts: Wrench	Applicable Inserts
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) W	rε	L	H	M	S	No. of Edge	PCD KPD001
		GMGW	6030-30R	6	3	30	5.5	5	4.5	1	●
			8030-40R	8	4			6	6	1	●
		GMGW	8030-40R-HR	8	4	30	5.5	6	5	1	●

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

Recommended Cutting Conditions

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

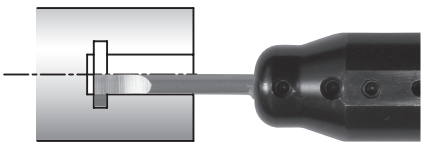
★: 1st Recommendation

● : Std. Item

Summary of Internal Grooving

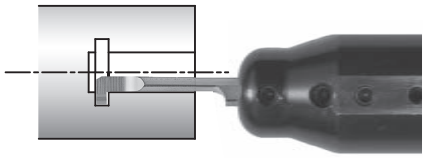
Small Dia. Internal Grooving ϕ3~(G41~G44)

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



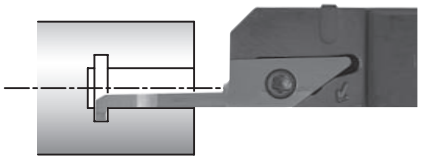
Type	EZG
Min. Bore Dia.	ϕ3~ϕ8
Edge Width (mm)	0.5~2.0
Grooving Depth (mm)	1.0~2.0
Ref. to Page	G41

EZ Bars



Type	HPG
Min. Bore Dia.	ϕ4~ϕ7
Edge Width (mm)	1.0~2.0
Grooving Depth (mm)	1.0~2.0
Ref. to Page	G44

2-Edge Tip-Bars

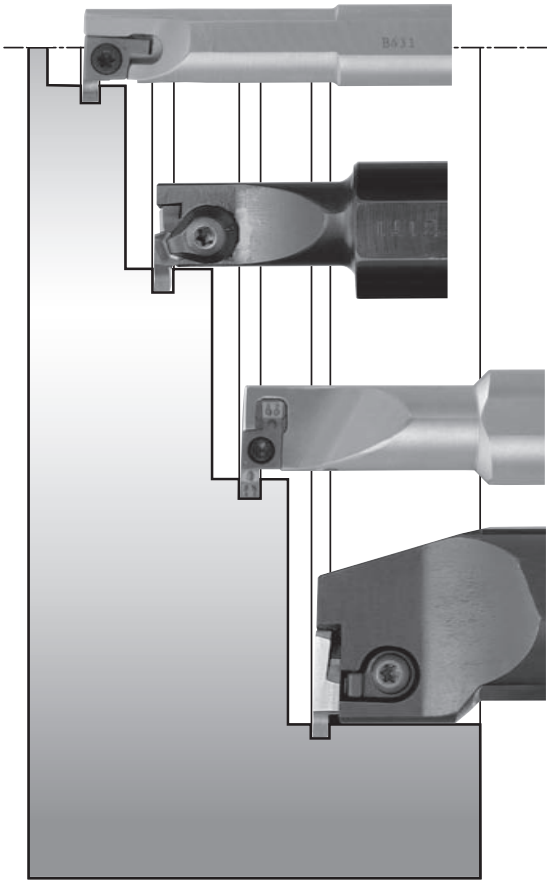


Type	VNG
Min. Bore Dia.	ϕ4~ϕ7
Edge Width (mm)	1.0~2.0
Grooving Depth (mm)	0.8~2.0
Ref. to Page	G43

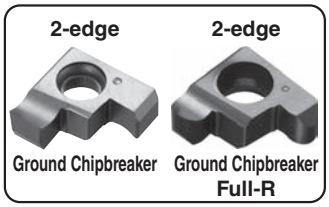
System Tip-Bars

Internal Grooving ϕ8~ (G45~G55)

● Shallow Grooving



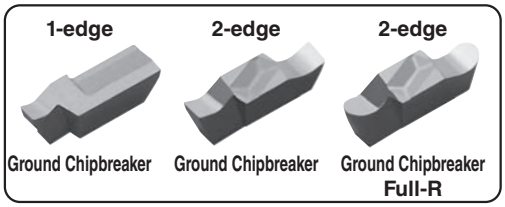
Type	SIGE
Min. Bore Dia.	ϕ8~ϕ12
Edge Width (mm)	1.0~3.0
Grooving Depth (mm)	1.5~2.2
Ref. to Page	G47



2-edge Ground Chipbreaker

2-edge Ground Chipbreaker Full-R

Type	GIV
Min. Bore Dia.	ϕ12~ϕ40
Edge Width (mm)	1.0~5.0
Grooving Depth (mm)	1.7~6.3
Ref. to Page	G52

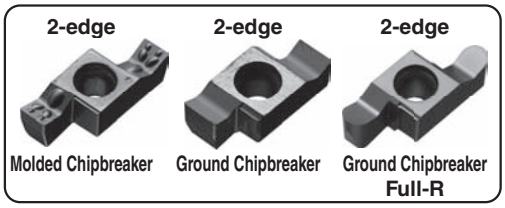


1-edge Ground Chipbreaker

2-edge Ground Chipbreaker

2-edge Ground Chipbreaker Full-R

Type	SIGE
Min. Bore Dia.	ϕ14~ϕ40
Edge Width (mm)	1.0~5.0
Grooving Depth (mm)	2.5~6.5
Ref. to Page	G47

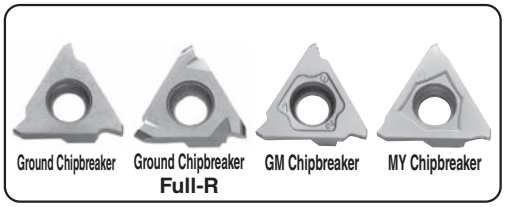


2-edge Molded Chipbreaker

2-edge Ground Chipbreaker

2-edge Ground Chipbreaker Full-R

Type	KIGBA
Min. Bore Dia.	ϕ35~ϕ40
Edge Width (mm)	0.33~4.8
Grooving Depth (mm)	0.8~2.8
Ref. to Page	G54



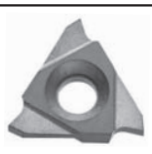
Ground Chipbreaker

Ground Chipbreaker Full-R

GM Chipbreaker

MY Chipbreaker

Type	KITG
Min. Bore Dia.	ϕ35~ϕ45
Edge Width (mm)	0.75~4.5
Grooving Depth (mm)	2.0~2.5
Ref. to Page	G55

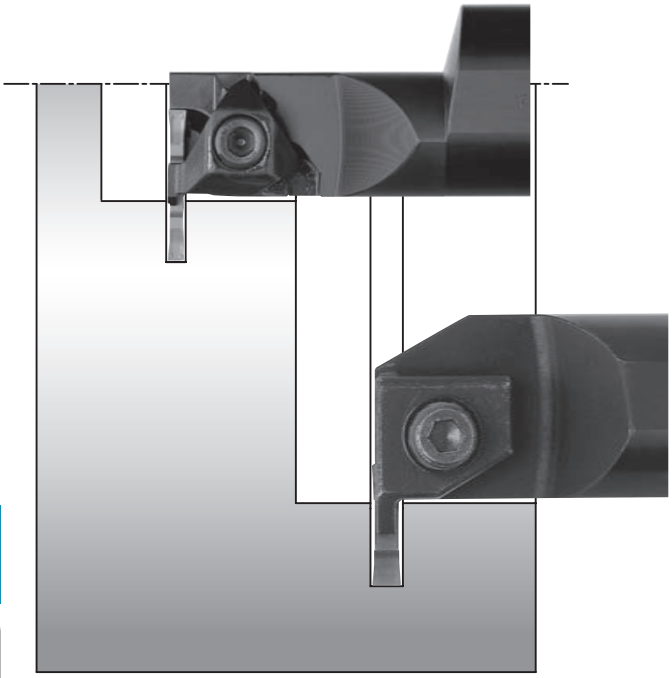


Ground Chipbreaker

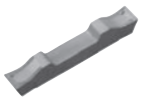
*KITG will be switched to KIGBA.

Summary of Internal Grooving

● Deep Grooving (G56, G59)

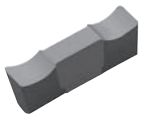


Type	KGIA
Min. Bore Dia.	ϕ32~ϕ66
Edge Width (mm)	3.0~5.0
Grooving Depth (mm)	10~15
Ref. to Page	**G59**



Molded Chipbreaker

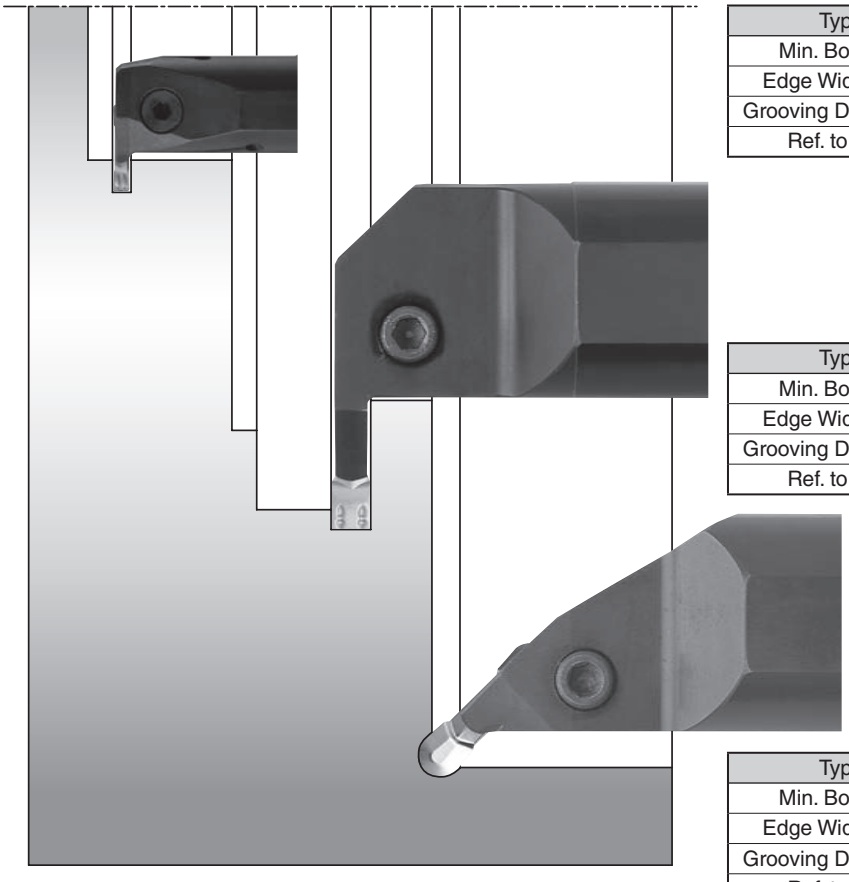
Type	KIGH
Min. Bore Dia.	ϕ45~ϕ65
Edge Width (mm)	4.0~8.0
Grooving Depth (mm)	12
Ref. to Page	**G56**



Ground Chipbreaker

Molded Chipbreaker

■ Internal Grooving & Turning ϕ20~ (G57, G58)

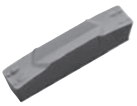


Type	KIGM-V
Min. Bore Dia.	ϕ20~ϕ40
Edge Width (mm)	3.0~5.0
Grooving Depth (mm)	5.5~11.0
Ref. to Page	**G57**

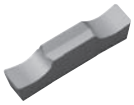
Molded Chipbreaker

Molded Chipbreaker Full-R

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



Molded Chipbreaker



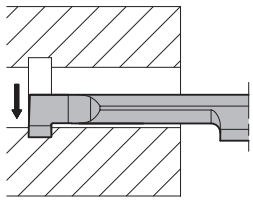
Ground Chipbreaker

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

Molded Chipbreaker Full-R

Small Dia. Internal Grooving EZ Bars

EZG (Small Dia. Internal Grooving) NEW



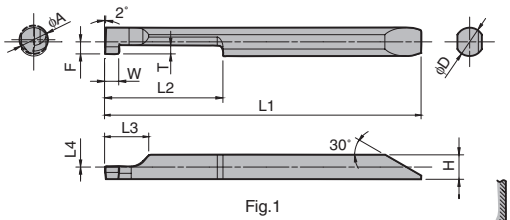


Fig.1

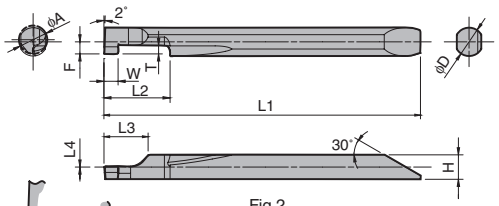
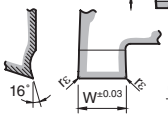


Fig.2



Chipbreaker in detail

• Right-hand shown

Dimensions

Description		Min. Bore Dia.	Dimension (mm)										Drawing	MEGACOAT	Applicable Sleeves
		φA	W ±0.03	rε	φD	H	L1	L2	L3	L4	F	T		PR1225	EZH F20~F25
EZGR	040040-050	4	0.5	±0.013 0.05	4	3.45	44.7	12	6.2	0	1.7	1	Fig.2	●	EZH040..
	040040-100		1.0											●	
	040040-150		1.5											●	
	040040-200		2.0											●	
	050050-100	5	1.0		5	4.3	52.8	20	6.7		2.15	1.5	Fig.1	●	EZH050..
	050050-150		1.5											●	
	050050-200		2.0											●	
	060060-100	6	1.0		6	5.15	60.7		7.6		2.65	2		●	EZH060..
	060060-150		1.5											●	
	060060-200		2.0											●	
	070070-100	7	1.0		7	6.2	63.7	25			3.05	2		●	EZH070..
	070070-150		1.5											●	
	070070-200		2.0											●	
	080070-100	8	1.0								3.45	2		●	
	080070-150		1.5											●	
	080070-200		2.0											●	
EZGR	030030-050S	3	0.5	±0.013 0.05	3	2.5	38.7	5	4.8	0	1.25	0.8	Fig.2	●	EZH030..
	030030-100S		1.0											●	
	040040-050S	4	0.5		4	3.45	44.7	8	6.2		1.7	1		●	EZH040..
	040040-100S		1.0											●	
	040040-150S		1.5											●	
	040040-200S		2.0											●	
	050050-100S	5	1.0		5	4.3	52.8	10	6.7		2.15	1.5		●	EZH050..
	050050-150S		1.5											●	
	050050-200S		2.0											●	
	060060-100S	6	1.0		6	5.15	60.7		7.6		2.65	2		●	EZH060..
	060060-150S		1.5											●	
	060060-200S		2.0											●	
	070070-100S	7	1.0		7	6.2	63.7				3.05			●	EZH070..
	070070-150S		1.5											●	
	070070-200S		2.0											●	
	080070-100S	8	1.0								3.45			●	
	080070-150S		1.5											●	
	080070-200S		2.0											●	

· Dimension T shows available grooving depth.

Inserts Identification System

EZ G R 030 030 050 S

Symbol of EZ Bars	Applications	Insert Hand	Min. Bore Dia.	Shank Dia.	Width	Type
	G: Internal Grooving	R: Right-hand	030 : 3mm 040 : 4mm ⋮	030 : 3mm 040 : 4mm ⋮	050 : 0.5mm 100 : 1.0mm 150 : 1.5mm ⋮	S:Short type (L2 dimension)

Recommended Cutting Conditions

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

★: 1st Recommendation

● : Std. Item

EZ Bars are sold in 1 piece boxes.

Applicable Sleeves for Internal Grooving Inserts

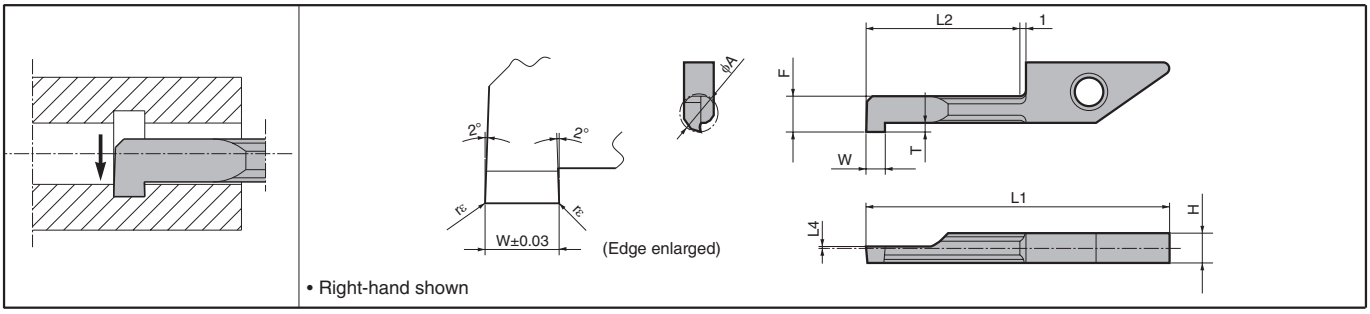
● Applicable Sleeve

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.

Small Dia. Internal Grooving System Tip-Bars

VNG



• Right-hand shown

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

● 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	4	1.0	0.05	-	3.9	30.8	11	-	0.1	3.5	0.8	●		●	●			F28 F29
	0420-11		2.0										●		●	●			
	0510-11	5	1.0	0.05							4.4	1.0	●		●	●			
	0520-11		2.0										●		●	●			
	0610-20	6	1.0	0.05			39.8	20		0.3	5.2	1.8	●		●	●			
	0620-20		2.0										●		●	●			
	0710-20	7	1.0	0.05							6.2	2.0	●		●	●			
	0720-20		2.0										●		●	●			
VNGR	0410-11NB	4	1.0	0.05	-	3.9	30.8	11	-	0.1	3.5	0.8					MTO	MTO	
	0420-11NB		2.0														MTO	MTO	
	0510-11NB	5	1.0	0.05							4.4	1.0					MTO	MTO	
	0520-11NB		2.0														MTO	MTO	
	0610-20NB	6	1.0	0.05			39.8	20		0.3	5.2	1.8					MTO	MTO	
	0620-20NB		2.0														MTO	MTO	
	0710-20NB	7	1.0	0.05							6.2	2.0					MTO	MTO	
	0720-20NB		2.0														MTO	MTO	

· 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	f (mm/rev)		
Carbon steel / Alloy steel	★ 30~100	☆ 30~100		~0.03	~0.05	Coolant
Stainless Steel	★ 30~80	☆ 30~80		~0.02	~0.03	
Non-ferrous Metals			★ ~300	~0.05	~0.08	

★: 1st Recommendation ☆: 2nd Recommendation

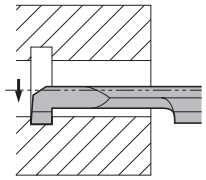
● : Std. Item
MTO : Made to order

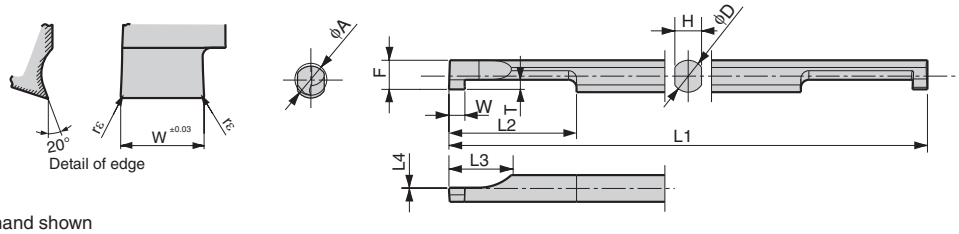
System Tip-Bars (VNG) are sold in 5 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

Tip-Bars for Micro Internal Grooving HPG / PSG-S

HPG (Small Dia. Internal Grooving)





Applicable Sleeves ➡ F24, F25

• Right-hand shown

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

· Dimension T shows available grooving depth.

● Description Table for Tip-Bars and Applicable Sleeves

Tip-Bars Description		Applicable Sleeves ➡F24, F25	
HPGR/L	0404-···	EZH	04·····
	0505-···		05·····
	0606-···		06·····
	0707-···		07·····

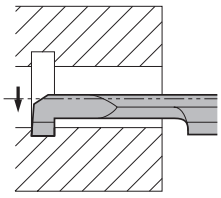
◆ Recommended Cutting Conditions

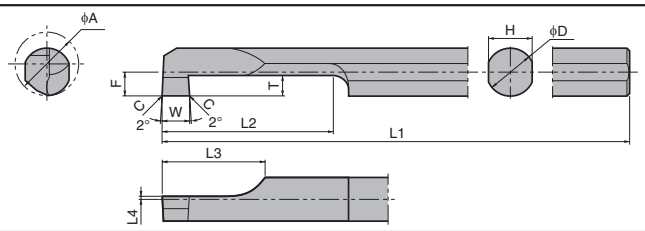
Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)		HPGR/L04 HPGR/L05	HPGR/L06 HPGR/L07	Remarks
	PVD Coated Carbide	Carbide			
	PR930	KW10	f (mm/rev)		
Carbon Steel / Alloy Steel	★ 30-100	-	-0.03	-0.05	Coolant
Stainless Steel	★ 30-80	-	-0.02	-0.03	
Non-ferrous Metals	-	★ -300	-0.05	-0.08	

★: 1st Recommendation

PSG-S (Tip-Bars)

This insert will be switched to EZG.





• Right-hand shown

● Dimensions

Description		Min. Bore Dia.	Dimension (mm)										PVD Coated Carbide	Carbide	Ref. to Page for Applicable Sleeves
		ϕA	W±0.03	C	ϕD	H	L1	L2	L3	L4	F	T	PR930	KW10	
PSGR/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		0.3	2.36	2.0	△	△	
	0620-70S		2.0	0.1									△	△	
	0710-70S	7	1.0	0.05	5.8	5.2	70	20	10		2.86		△	△	
	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

● : Std. Item
△ : Will be switched to new item (Check Availability)

Tip-Bars are sold in 1 piece boxes.

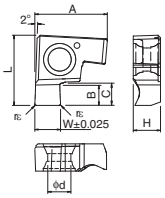
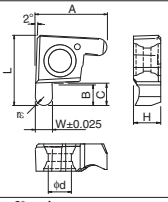
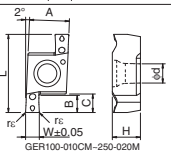
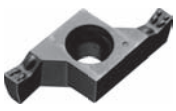
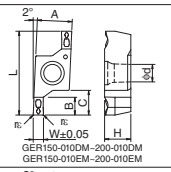
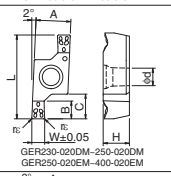
Applicable Inserts

(mm)

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

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

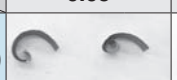
Classification of usage
●: Continuous-Light Interruption / 1st Choice
◔: Continuous-Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

Insert (Handed Insert shows Right-hand)		Description		Dimension (mm) W	B	C	rε	Cermet TN6020	MEGA COAT PR1225	PVD Coated Carbide PR1025	Carbide GW15	Carbide KW10	Applicable Toolholders	Ref. to Page for Applicable Toolholders
 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			0.1	●	●	●		●		
			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			0.1	●	●	●		●		
			150-010B	1.50				●	●	●		●		
			200-010B	2.00				●	●	●		●		
			250-020B	2.50			0.2	●	●	●		●		
			300-020B	3.00				●	●	●		●		
 2-edge Full-R		GER	100-050AR	1.00	1.5	1.8	0.5		R	R		R	SIGER...A-EH SIGER...A-WH	G47 G48
			200-100AR	2.00			1.0		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			1.0		R	R		R		
	 GER100-010CM–250-020M	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			0.2		R	R				
			300-020CM	3.00					R	R				
			350-020CM	3.50					R	R				
	 GER150-010DM–200-010DM GER150-010EM–200-010EM	GER	150-010DM	1.50	3.0	4.8	0.1		R	R			SIGER...D-EH	G47
			200-010DM	2.00	3.2				R	R				
			230-020DM	2.30			0.2		R	R				
			250-020DM	2.50					R	R				
			300-020DM	3.00	4.5				R	R				
			350-020DM	3.50					R	R				
			400-020DM	4.00					R	R				
	 GER230-020DM–250-020DM GER250-020EM–400-020EM	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	4.5		0.2		R	R				
			300-020EM	3.00					R	R				
			350-020EM	3.50	5.5				R	R				
			400-020EM	4.00					R	R				
			450-020EM	4.50	6.5				R	R				
2-edge Molded Chipbreaker			500-020EM	5.00					R	R				

· Dimension B shows available grooving depth.

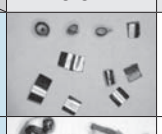
Recommended Cutting Conditions ➡ G50

● Comparison of Chip Control (Molded Chipbreaker)

Description \ f (mm/rev)	SCM415 (Min. Bore Dia.ϕ16) 0.05	0.07	0.1	Evaluation
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] (Internal evaluation)

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

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

[Vc=50m/min, ap=1.25mm, Wet] (Internal evaluation)

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

Inserts are sold in 10 piece boxes.

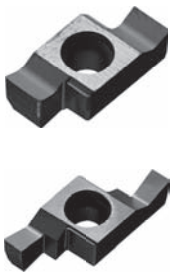
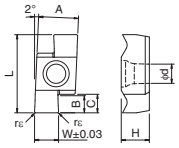
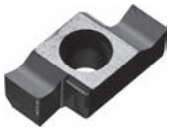
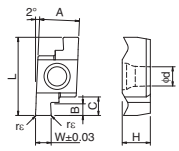
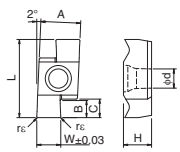
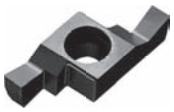
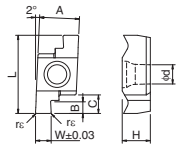
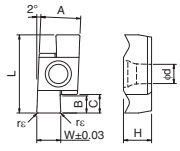
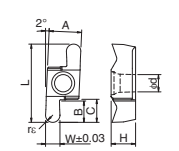
Applicable Inserts

(mm)

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

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

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

Insert (Handed Insert shows Right-hand)		Description		Dimension (mm) W	B	C	rε	Cermet TN6020	MEGA COAT PR1225	PVD Coated Carbide PR1025	Carbide GW15	Carbide KW10	Applicable Toolholders	Ref. to Page for Applicable Toolholders
 2-edge		GE$^{R}/_{L}$	100-005C	1.00	2.5	2.7	0.05	●	●	●	●		SIGE$^{R}/_{L}$...C-EH SIGE$^{R}/_{L}$...C-WH SIGER...C-WH-90	G47 G48 G49
			120-005C	1.20				R	●	●	R			
			125-005C	1.25				●	R	●	●			
			140-005C	1.40				R	R	●	R			
			145-010C	1.45			0.1	●	R	●	●			
			150-010C	1.50				●	●	●	●			
			170-010C	1.70				R	R	●	R			
			185-010C	1.85				R	R	●	R			
			195-010C	1.95				R	R	●	R			
			200-010C	2.00				●	●	●	●			
			250-020C	2.50			0.2	●	●	●	●			
			300-020C	3.00				●	●	●	●			
			350-020C	3.50				●	R	●	●			
	 GER100-005D–280-020D  GER300-020D–400-020D	GE$^{R}/_{L}$	100-005D	1.00	2.5	4.8	0.05	●	●	●	●		SIGE$^{R}/_{L}$...D-EH	
			140-005D	1.40				R	●	●	R			
			145-010D	1.45			0.10	●	R	●	●			
			150-010D	1.50	3.0			●	●	●	●			
			170-010D	1.70				R	●	●	R			
			185-010D	1.85				R		●	R			
			195-010D	1.95				R		●	R			
			200-010D	2.00	3.2			●	●	●	●			
			225-010D	2.25				R	●	●	R			
			230-020D	2.30			0.20	●	●	●	●			
			250-020D	2.50				●	●	●	●			
			275-020D	2.75				R		●	R			
			280-020D	2.80				R		●	R			
			300-020D	3.00	4.5			●	●	●	●			
			330-020D	3.30				R		●	R			
			350-020D	3.50				●	R	●	●			
			400-020D	4.00				●	●	●	●			
 2-edge	 GER100-005E–430-020E  GER450-020E–500-020E	GE$^{R}/_{L}$	100-005E	1.00	2.5	6.8	0.05	●	●	●	●		SIGE$^{R}/_{L}$...E-EH	G47
			150-010E	1.50	3.0			●	●	●	●			
			170-010E	1.70				R	●	●	R			
			185-010E	1.85			0.1	R		●	R			
			195-010E	1.95				R		●	R			
			200-010E	2.00	3.2			●	R	●	●			
			225-010E	2.25				R	R	●	R			
			230-020E	2.30			0.2	●	R	●	●			
			250-020E	2.50	4.5			●	●	●	●			
			275-020E	2.75				R	R	●	R			
			280-020E	2.80				R	●	●	R			
			300-020E	3.00				●	●	●	●			
			330-020E	3.30				R	R	●	R			
			350-020E	3.50	5.5			●	R	●	●			
			400-020E	4.00				●	R	●	●			
			430-020E	4.30				R	R	●	R			
			450-020E	4.50	6.5			●	R	●	●			
			460-020E	4.60				R	R	●	R			
			500-020E	5.00				●	R	●	●			
 2-edge Full-R		GER	200-100CR	2.00	2.5	2.7	1.0		R	R	R		SIGER...C-EH SIGER...C-WH SIGER...C-WH-90	G47 G48 G49
			250-125CR	2.50			1.25		R	R	R			
			300-150CR	3.00			1.5		R	R	R			
		GER	200-100DR	2.00	3.2	4.8	1.0		R	R	R		SIGER...D-EH	G47
			300-150DR	3.00	4.5		1.5		R	R	R			

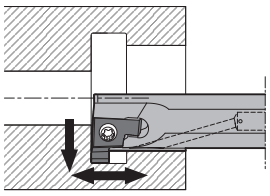
· Dimension B shows available grooving depth.

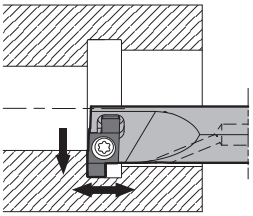
Recommended Cutting Conditions ➡G50

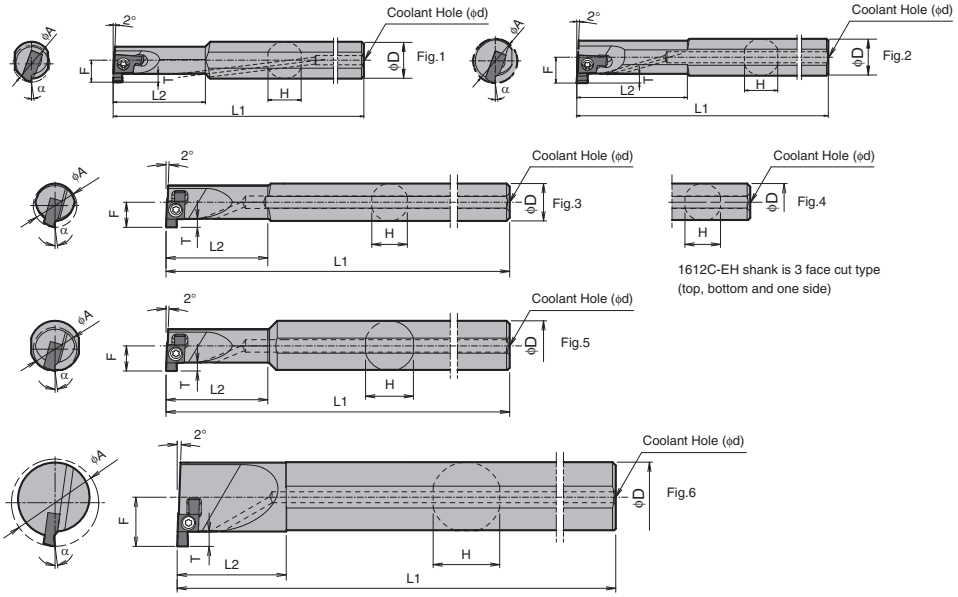
● : Std. Item
R : Std. Item (Right-hand Only)

Inserts are sold in 10 piece boxes.

SIGE-EH Excellent Bar (with Coolant Hole)







• Right-hand shown

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

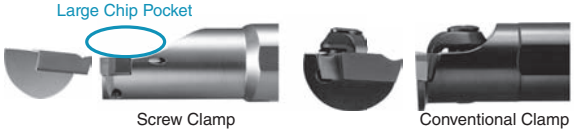
Toolholder Dimensions

Description		Std. R	Std. L	Min. Bore Dia. ϕA	Dimension (mm) ϕD	H	L1	L2	F	T	ϕd	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench		Applicable Inserts ➡G45, G46
SIGE$^{R/L}$	0808A-EH	●	●	8	8	7.2	100	20	4.8	1.5	3	Fig.1	SB-2045TRN	FT-6	-	GE$^{R/L}$100-005A~GE$^{R/L}$200-010A GER100-050AR~GER200-100AR
	1010B-EH	●	●	10	10	9	125	25	6.2	2.2	3	Fig.1	SB-2255TR	-	DT-7	GE$^{R/L}$100-005B~GE$^{R/L}$300-020B GER100-050BR~GER200-100BR
	1210B-EH	●	●	12				30	7			Fig.2				
	1412C-EH	●	●	14	12	11.4	150	33	8	2.5	4	Fig.3	SB-2570TR	FT-8	-	GE$^{R/L}$100-005C~GE$^{R/L}$350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR
	1612C-EH	●	●	16				20	8.5			Fig.4				
	1616C-EH	●	●		16	15	160	36	9		5	Fig.5				
	2020D-EH	●	●	20	20	19	180	40	12.1	4.5	5		SB-3080TR	FT-10	-	GE$^{R/L}$100-005D~GE$^{R/L}$400-020D GER150-010DM~GER400-020DM GER200-100DR~GER300-150DR
	2525E-EH	●	●	25	25	24	200	45	15.6	6.5	5		SB-4085TR	FT-15	-	GE$^{R/L}$100-005E~GE$^{R/L}$500-020E GER150-010EM~GER500-020EM
	3232E-EH	●	●	32	32	30.4	220	55	19							
	4032E-EH	●	●	40			250	45	23			Fig.6				

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

Features

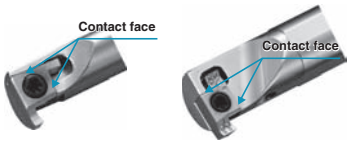
- **Large chip pocket screw clamp toolholder design enables excellent chip evacuation**



- **Cost effective chip control from a molded chipbreaker**

GER···M type

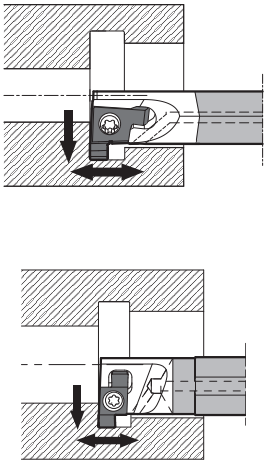
- **Cutting edge is free from contact face**

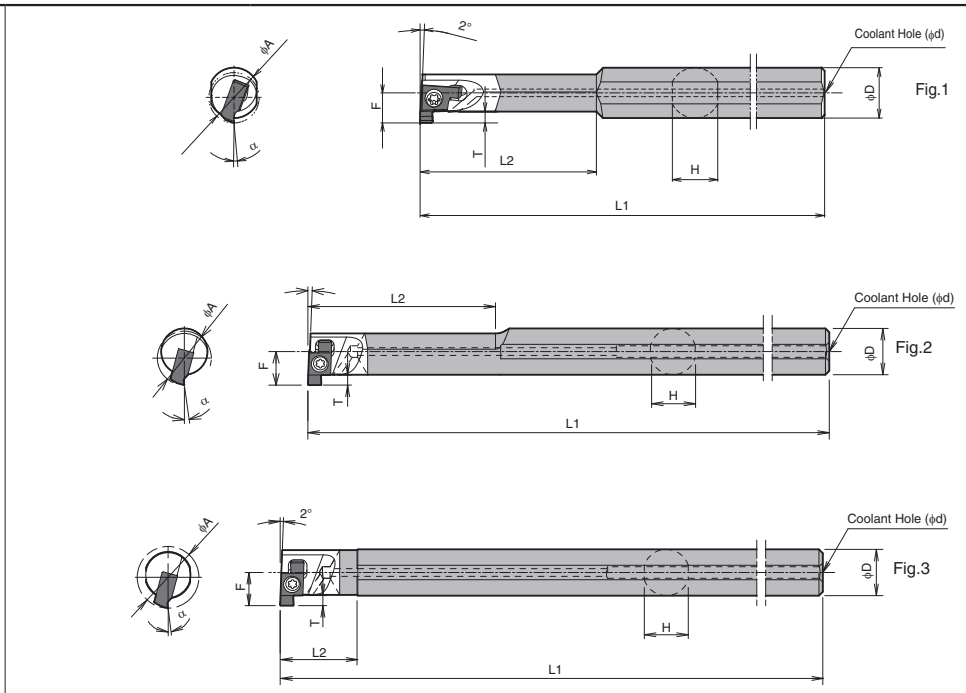


- **An 8mm minimum cutting diameter with a 2-edge design**

● : Std. Item

SIGE-WH Carbide Shank Bar (with Coolant Hole)





• Right-hand shown

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

Toolholder Dimensions

Description		Std. R	Std. L	Min. Bore Dia. ϕA	Dimension (mm) ϕD	H	L1	L2	F	T	ϕd	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench		Applicable Inserts ➡G45, G46
SIGE$^{R/L}$	0808A-WH	●	●	8	8	7.2	125	28	4.8	1.5	3	Fig.1	SB-2045TRN	FT-6	-	GE$^{R/L}$100-005A~GE$^{R/L}$200-010A GER100-050AR~GER200-100AR
	1010B-WH	●	●	10	10	9	125	35	6.2	2.2	3		SB-2255TR	-	DT-7	GE$^{R/L}$100-005B~GE$^{R/L}$300-020B GER100-050BR~GER200-100BR
	1210B-WH	●	●	12			140	45	7							
	1412C-WH	●	●	14	12	11.4	150	50	8.7	2.5	4	Fig.2	SB-2570TR	FT-8	-	GE$^{R/L}$100-005C~GE$^{R/L}$350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR
	1612C-WH	●	●	16			180	20	8.5			Fig.3				

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

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

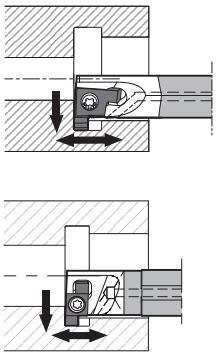
Toolholder Description		Applicable Insert & Rake Angle (α) after Installment of Insert: Ground Chipbreaker	α(°)	Molded Chipbreaker	α(°)
SIGE$^{R/L}$	0808A-EH	GE$^{R/L}$100-005A~GE$^{R/L}$200-010A GER100-050AR~GER200-100AR	5°	-	-
	1010B-EH	GE$^{R/L}$100-005B~GE$^{R/L}$300-020B GER100-050BR~GER200-100BR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

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

● : Std. Item

Internal Grooving SIGE

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



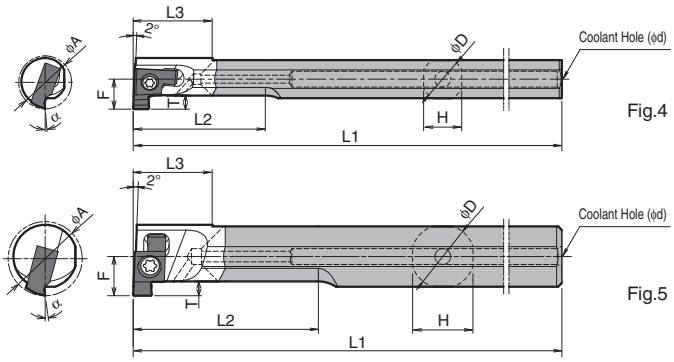


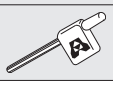
Fig.4

Fig.5

• Right-hand shown

Right-hand Insert for Right-hand Toolholder.

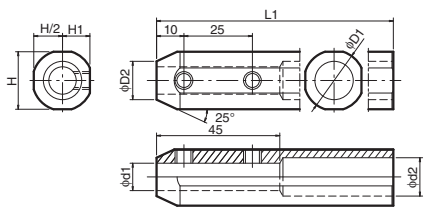
Toolholder Dimensions

Description		Std.	Min. Bore Dia.	Dimension (mm)								Drawing	Spare Parts		Applicable Inserts G45, G46
													Clamp Screw	Wrench	
			φA	φD	H	L1	L2	*L3	F	T	φd				
SIGER	1008B-WH-90	●	10	8	7.2	90	25	15	5.6	2.2	3	Fig.4	SB-2255TR	FT-7	GER100-005B~GER300-020B GER100-050BR~GER200-100BR
	1210B-WH-90	●	12	10	9.4		30		6.6						
	1412C-WH-90	●	14	12	11.4	90	35	15	7.4	2.5	3	Fig.5	SB-2570TR	FT-8	GER100-005C~GER350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR

*Dimension L3 shows minimum overhang length.

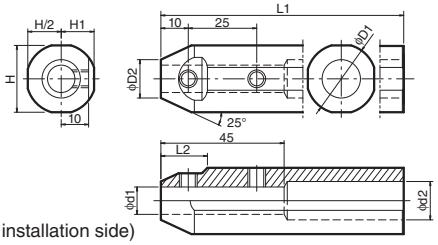
· Ref. to Page G48 for applicable Insert & Rake Angle (α) after Installment of Insert.

Applicable Sleeves



(Toolholder installation side)

Fig.1



(Toolholder installation side)

Fig.2

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	14	24	11.5	135	17	Fig.2			
	1025.0-135	●	10											
	1225.0-135	●	12		16									
SHA	0819-120	●	8	19.05	14	12	18	8.75	120	-	Fig.1	HS6x4P	LW-3	Citizen Machinery
	1019-120	●	10											
SHA	0820-120	●	8	20	14	12	19	9.25	120	-	Fig.1			
	1020-120	●	10											
SHA	0825.4-120	●	8	25.4	14	14	24.4	12	120	17	Fig.2			
	1025.4-120	●	10											
	1225.4-120	●	12		16									
SHA	0822-125	●	8	22	14	14	21	10	125	-	Fig.1	HS6x4P	LW-3	Star Micronics Nomura DS
	1022-125	●	10											
	1222-125	●	12		16									
SHA	0823-120	●	8	23	14	14	22	10.5	120	16	Fig.2	HS6x4P	LW-3	Nomura DS
	1023-120	●	10											
	1223-120	●	12		16									

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

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

· Machine manufacturers in random order.

● : Std. Item

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

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

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

★: 1st Recommendation ☆: 2nd Recommendation

Recommended Cutting Conditions (Ground Chipbreaker: GE$^{R}_{L}$···C(R),GE$^{R}_{L}$··D(R),GE$^{R}_{L}$···E)

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

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

★: 1st Recommendation ☆: 2nd Recommendation

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

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

★: 1st Recommendation ☆: 2nd Recommendation

Insert for Small Internal Grooving

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

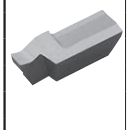
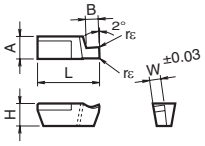
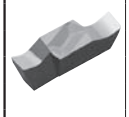
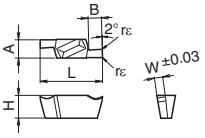
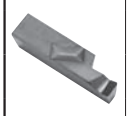
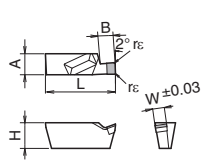
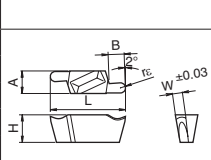
(mm)

Description	A	L	H
GV$^{R}_{L}$...SS	3.6	9	3.0
GV$^{R}_{L}$...S	4.0	11	4.0
GV$^{R}_{L}$...A	4.0	12	5.0
GV$^{R}_{L}$...B	4.5	15	5.5
GV$^{R}_{L}$...C	5.8	21	6.5

Classification of usage

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

		Cermet			MEGA COAT		PVD Coated Carbide		Carbide	PCD	
		TN90	TC40N	TC60M	PR1225		PR930		KW10	KPD001	KPD010
P	Carbon steel / Alloy steel				●		◔				
M	Stainless Steel				●		◔				
K	Cast Iron								●		
N	Non-ferrous Metals								●		●
S	Titanium Alloys								●		●
H	Hard materials (~40HRC)				○		○				
	Hard materials (40HRC~)										

Insert (Handed Insert shows Right-hand)	Description	(Previous Description)	W	B	rε	Applicable Toolholders
  1-edge	GV$^{R}_{L}$ 100-020SS	GV$^{R}_{L}$ 100SS	1.00	2.3	0.2	GIV$^{R}_{L}$...1SS
	GV$^{R}_{L}$ 125-020SS	GV$^{R}_{L}$ 125SS	1.25			
	GV$^{R}_{L}$ 145-020SS	GV$^{R}_{L}$ 145SS	1.45			
	GV$^{R}_{L}$ 200-020SS	GV$^{R}_{L}$ 200SS	2.00			
	GV$^{R}_{L}$ 250-020SS	GV$^{R}_{L}$ 250SS	2.50			
	GV$^{R}_{L}$ 300-020SS	GV$^{R}_{L}$ 300SS	3.00			
	GV$^{R}_{L}$ 100-020S	GV$^{R}_{L}$ 100S	1.00	2.3	0.2	GIV$^{R}_{L}$...1S GIV$^{R}_{L}$...1SE
	GV$^{R}_{L}$ 125-020S	GV$^{R}_{L}$ 125S	1.25			
	GV$^{R}_{L}$ 145-020S	GV$^{R}_{L}$ 145S	1.45			
	GV$^{R}_{L}$ 185-020S	GV$^{R}_{L}$ 185S	1.85			
	GV$^{R}_{L}$ 200-020S	GV$^{R}_{L}$ 200S	2.00			
	GV$^{R}_{L}$ 250-020S	GV$^{R}_{L}$ 250S	2.50			
	GV$^{R}_{L}$ 340-020S	GV$^{R}_{L}$ 340S	3.40			
  2-edge	GV$^{R}_{L}$ 100-020A	GV$^{R}_{L}$ 100A	1.00	2.3	0.2	GIV$^{R}_{L}$...1A GIV$^{R}_{L}$...1AE GIV$^{R}_{L}$...1AW
	GV$^{R}_{L}$ 125-020A	GV$^{R}_{L}$ 125A	1.25			
	GV$^{R}_{L}$ 145-020A	GV$^{R}_{L}$ 145A	1.45			
	GV$^{R}_{L}$ 185-020A	GV$^{R}_{L}$ 185A	1.85			
	GV$^{R}_{L}$ 200-020A	GV$^{R}_{L}$ 200A	2.00			
	GV$^{R}_{L}$ 250-020A	GV$^{R}_{L}$ 250A	2.50			
	GV$^{R}_{L}$ 300-020A	GV$^{R}_{L}$ 300A	3.00			
	GV$^{R}_{L}$ 340-020A	GV$^{R}_{L}$ 340A	3.40			
	GV$^{R}_{L}$ 145-020B	GV$^{R}_{L}$ 145B	1.45	2.8	0.2	GIV$^{R}_{L}$...1B GIV$^{R}_{L}$...1BE GIV$^{R}_{L}$...1BW
	GV$^{R}_{L}$ 185-020B	GV$^{R}_{L}$ 185B	1.85			
	GV$^{R}_{L}$ 200-020B	GV$^{R}_{L}$ 200B	2.00	3.2		
	GV$^{R}_{L}$ 230-020B	GV$^{R}_{L}$ 230B	2.30			
	GV$^{R}_{L}$ 250-020B	GV$^{R}_{L}$ 250B	2.50			
	GV$^{R}_{L}$ 280-020B	GV$^{R}_{L}$ 280B	2.80			GIV$^{R}_{L}$...2B GIV$^{R}_{L}$...2BE GIV$^{R}_{L}$...2BW
	GV$^{R}_{L}$ 300-020B	GV$^{R}_{L}$ 300B	3.00			
	GV$^{R}_{L}$ 340-020B	GV$^{R}_{L}$ 340B	3.40	4.2		
	GV$^{R}_{L}$ 400-020B	GV$^{R}_{L}$ 400B	4.00			
	GV$^{R}_{L}$ 280-020C	GV$^{R}_{L}$ 280C	2.80	4.5	0.2	GIV$^{R}_{L}$...1C GIV$^{R}_{L}$...1CE GIV$^{R}_{L}$...1CW
	GV$^{R}_{L}$ 300-020C	GV$^{R}_{L}$ 300C	3.00			
	GV$^{R}_{L}$ 340-020C	GV$^{R}_{L}$ 340C	3.40	5.5		
	GV$^{R}_{L}$ 400-020C	GV$^{R}_{L}$ 400C	4.00			GIV$^{R}_{L}$...2C GIV$^{R}_{L}$...2CE GIV$^{R}_{L}$...2CW
	GV$^{R}_{L}$ 430-020C	GV$^{R}_{L}$ 430C	4.30			
	GV$^{R}_{L}$ 460-020C	GV$^{R}_{L}$ 460C	4.60	6.3		
	GV$^{R}_{L}$ 500-020C	GV$^{R}_{L}$ 500C	5.00			
  1-edge	GV$^{R}_{L}$ 145-020A	GV$^{R}_{L}$ 145A	1.45	2.3	0.2	GIV$^{R}_{L}$...1A GIV$^{R}_{L}$...1AE GIV$^{R}_{L}$...1AW
	GV$^{R}_{L}$ 200-020A	GV$^{R}_{L}$ 200A	2.00			
	GV$^{R}_{L}$ 300-020A	GV$^{R}_{L}$ 300A	3.00			
	GV$^{R}_{L}$ 200-020B	GV$^{R}_{L}$ 200B	2.00	3.2	0.2	GIV$^{R}_{L}$...1B GIV$^{R}_{L}$...1BE GIV$^{R}_{L}$...1BW
	GV$^{R}_{L}$ 250-020B	GV$^{R}_{L}$ 250B	2.50			
	GV$^{R}_{L}$ 300-020B	GV$^{R}_{L}$ 300B	3.00	4.2		GIV$^{R}_{L}$...2B□
	GV$^{R}_{L}$ 300-020C	GV$^{R}_{L}$ 300C	3.00	4.5	0.2	GIV$^{R}_{L}$...1C□
	GV$^{R}_{L}$ 400-020C	GV$^{R}_{L}$ 400C	4.00	5.5		GIV$^{R}_{L}$...2C□
  2-edge Full-R	GV$^{R}_{L}$ 200-100AR	GV$^{R}_{L}$ 100AR	2.00	2.3	1.00	GIV$^{R}_{L}$...1A
	GV$^{R}_{L}$ 250-125AR	GV$^{R}_{L}$ 125AR	2.50		1.25	GIV$^{R}_{L}$...1AE
	GV$^{R}_{L}$ 300-150AR	GV$^{R}_{L}$ 150AR	3.00		1.50	GIV$^{R}_{L}$...1AW
	GVR 200-100BR	GVR 100BR	2.00	3.2	1.00	GIV$^{R}_{L}$...1B□
	GVR 300-150BR	GVR 150BR	3.00	4.2	1.50	GIV$^{R}_{L}$...2B□

· Dimension B: shows available grooving depth.

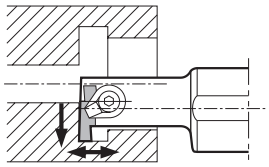
Recommended Cutting Conditions ➡G100
Ref. to Page for Applicable Toolholders ➡G53

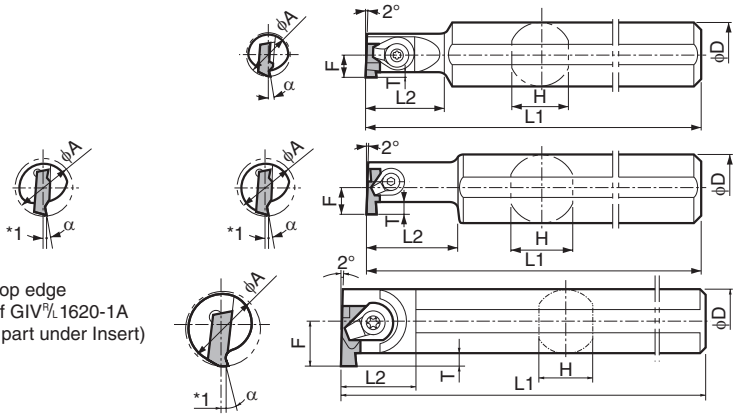
● : Std. Item
○ : Check Availability
R : Std. Item (Right-hand Only)
MTO : Made to order

Inserts are sold in 10 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

GIV



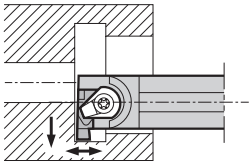


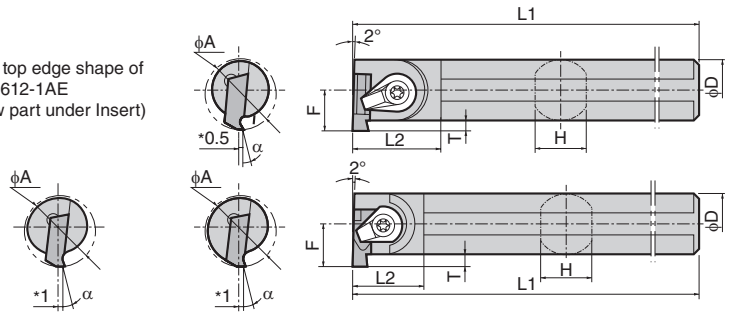
Shows top edge shape of GIV$^{R}_{L}$1620-1A (No jaw part under Insert)

• Right-hand shown

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

GIV-E Excellent Bar



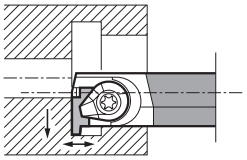


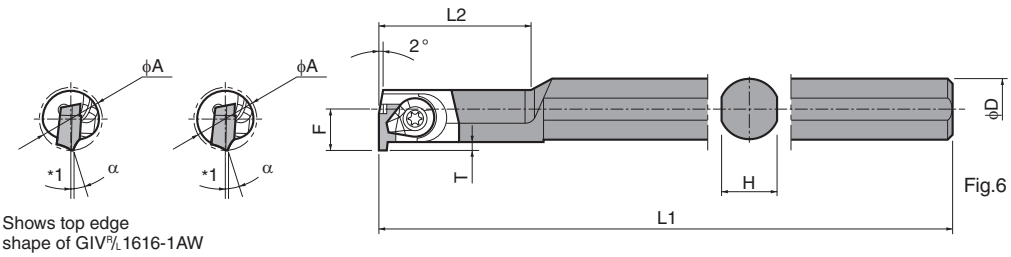
Shows top edge shape of GIV$^{R}_{L}$1612-1AE (No jaw part under Insert)

• Right-hand shown

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

GIV-W Carbide Shank Bar





Shows top edge shape of GIV$^{R}_{L}$1616-1AW (No jaw part under Insert)

• Right-hand shown

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

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

Toolholder Description	Insert Description ⇒G51		Rake Angle (α)	
	General Grooving (Square)	Full-R Grooving (Round)	TC40N	TN90,TC60M PR930,PR1225 KW10
GIV$^{R}_{L}$···1SS	GV$^{R}_{L}$100~300-020SS	-	10°	15°
GIV$^{R}_{L}$···1S	GV$^{R}_{L}$100~340-020S	-	10°	15°
GIV$^{R}_{L}$···1SE	GV$^{R}_{L}$100~340-020S	-	3°	8°
GIV$^{R}_{L}$···1A(□)	GV$^{R}_{L}$100~340-020A	GV$^{R}_{L}$200-100AR~300-150AR	3°	8°
GIV$^{R}_{L}$···1B(□)	GV$^{R}_{L}$145~250-020B	GV$^{R}_{L}$200-100BR	4°	9°
GIV$^{R}_{L}$···2B(□)	GV$^{R}_{L}$280~400-020B	GV$^{R}_{L}$300-150BR		
GIV$^{R}_{L}$···1C(□)	GV$^{R}_{L}$280~340-020C	-	5°	10°
GIV$^{R}_{L}$···2C(□)	GV$^{R}_{L}$400~500-020C	-		

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

● Toolholder Dimensions

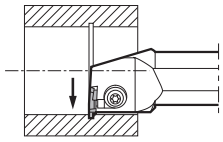
Description		Std. R	Std. L	Min. Bore Dia. φA	Dimension (mm) φD	H	L1	L2	F	T		Drawing	Spare Parts: Clamp Set		Wrench	Wrench	Ref. to Page for Applicable Inserts
GIV$^{R}_{L}$	1216-1SS	●	●	12	16	15	150	20	6.0	2.2		Fig.1	CPS-4V	-	FT-10	-	G51
	1420-1S	●	●	14	20	19	150	24	7.0	2.2		Fig.1	CPS-5F	-	FT-15	-	
	1620-1A	●	●	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								
	4032-1C	●	●	40			250	43	21.0			Fig.3					
	2532-2C	●	●	25	32	30	200	43	12.5	Note4) 5.5		Fig.2					
	3232-2C	●	●	32			220	52	16.0								
	4032-2C	●	●	40			250	43	22.2			Fig.3					
GIV$^{R}_{L}$	1412-1SE	●	●	14	12	11.4	150	18	7.7	1.7		Fig.4	CPS-5F	-	FT-15	-	
	1612-1AE	●	●	16	12	11.4	150	19	8.2	2.2		Fig.5	CPS-5V	-	FT-15	-	
	2016-1BE	●	●	20	16	15.2	180	20	11.2	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							

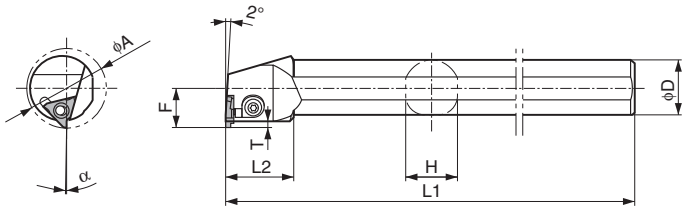
· Dimension T shows available grooving depth.

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.

● : Std. Item

KIGBA





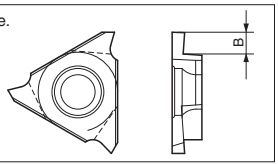
• Right-hand shown

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

● Toolholder Dimensions

Description		Std. R	Std. L	Min. Bore Dia. φA	Dimension (mm) φD	H	L1	L2	F	*T	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts ➡G6~G8
KIGBA R/L	3525-16	●	●	35	25	23	220	30	17.5	2.8	LGBA-16L/RS	FT-15	GBA32L/R type
	4032-22	●	●	40	32	30	250	30	23.0	3.0	LGBA-22L/RS	FT-15	GBA43L/R type

*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-OOLS for Right-hand Toolholder, and LGBA-OORS for Left-hand Toolholder.

● Rake Angle (α) after Installment of GBA type

GBA32R/LOOO-OOO		GBA43R/LOOO-OOO		GBA43R/LOOO-OOOR (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°	GBA43R/L150-020GM
+6°	GBA43R/L175-020GM ≀ GBA43R/L265-030GM
+3°	GBA43R/L300-030GM ≀ GBA43R/L400-040GM

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

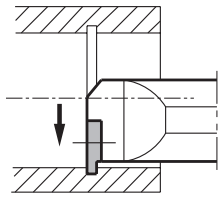
● Rake Angle (α) after Installment of GBA-MY type

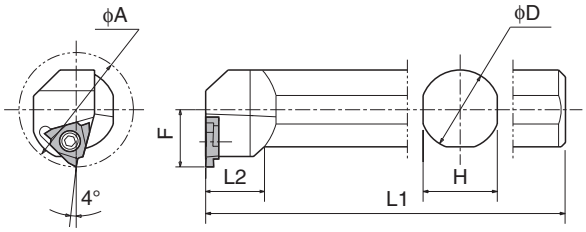
α	Insert Description
+6°	GBA43R/L175-020MY ≀ GBA43R/L350-030MY
+5°	GBA43R/L400-040MY

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

● : Std. Item

KITG (Will be switched to KIGBA G54)





• Right-hand shown

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

Toolholder Dimensions

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

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

* KITG will be switched to KIGBA as an Internal 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

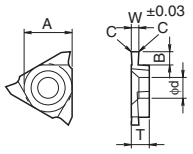
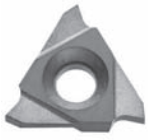
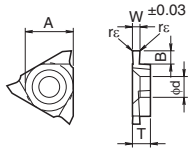
(TG insert will be switched to GBA G6~G8)

(mm)

Description	A	T	ϕd
TG32_	9.525	3.18	4.5
TG43_	12.70	4.76	5.5

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

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

Insert (Handed Insert shows Right-hand)		Description		Dimension (mm) W	B	C or rε	Cermet TN60	TN90	TC40N	TC60M	Applicable Toolholders	Ref. to Page for Applicable Toolholders
General (Square) (Corner is Chamfered) TG32 type	 (Corner is Chamfered)	TG32R/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		TG43R/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			○					
			350	3.50	5.0		○					
			400	4.00		0.4	○					
			430	4.30			○					
			450	4.50			○					

· Dimension B: shows available grooving depth.

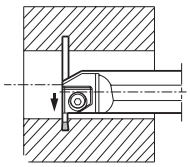
Recommended Cutting Conditions G98

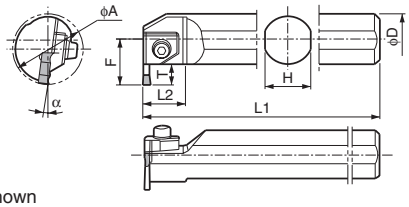
* KITG will be switched to KIGBA.
* For applicable insert, TG insert will be switched to GBA.
Change Insert Grade TN60 for TN90.
There are various type of GBA insert grades available dependent on the user's cutting condition requirements.
* Check the corner-R(rε) of the insert when changing.

● : Std. Item
○ : Check Availability

Inserts are sold in 10 piece boxes.

KIGH





• Right-hand shown

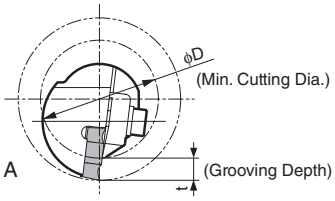


Fig. A

Toolholder Dimensions

Description		Std.	Min. Bore Dia. φA	φD	H	L1	L2	F	T	Clamp	Clamp Bolt	Washer	Spring	Wrench
KIGHR	4532B-4	●	45	32	30	200	27	28.2	12	CGH-1L	HH6X25	W-6	SP-6	LW-5
	5540B-4	●	55	40	38	250		32.3						
	6550B-4	●	65	50	48	300		37.3						
	4532B-5	●	45	32	30	200	27	28.2	12					
	5540B-5	●	55	40	38	250		32.3						
	6550B-5	●	65	50	48	300		37.3						
	5540B-7	●	55	40	38	250	27	32.3	12	CGH-2L				
	6550B-7	●	65	50	48	300		37.3						

· 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

GHOOOO-OO		GHUOO-OO	
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

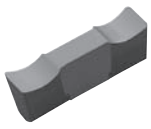
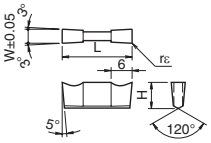
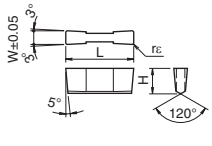
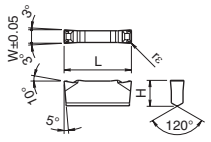
Applicable Inserts

(mm)

Description	L	H
GH4020-○○~GH8020-○○	20	7.5
GHU○○-○○	20	

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

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

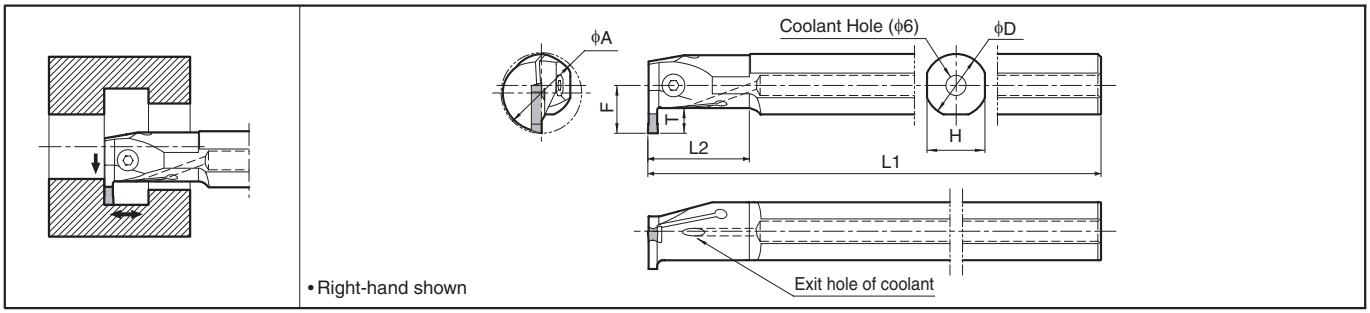
Insert		Description		Dimension (mm) W	Dimension (mm) rε	Cermet TN60	Cermet TN90	Cermet TC40N	Cermet TC60M	CVD Coated Carbide CR9025	PVD Coated Carbide PR930	Carbide KW10	Ceramic A65	Ceramic A66N	Ceramic PT600M	Applicable Toolholders
 Ground Chipbreaker		GH	4020-02	4.0	0.2		●	●	○		●	●				KIGHR4532B-4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

Recommended Cutting Conditions ➔ G98

● : Std. Item
○ : Check Availability

Inserts are sold in 10 piece boxes.

KIGM-V



Toolholder Dimensions

Description		Std. R	Std. L	Min. Bore Dia. ϕA	Dimension (mm) ϕD	H	L1	L2	F	T	Width W(mm) MIN.	MAX.	Spare Parts: Clamp Screw		Wrench	
KIGM R/L	2016B-3V	●	●	20	16	15	150	25	11.5	5.5						
	2520B-3V	●	●	25	20	18	180	32	14.5	6.0	3.0	3.0	GS-50	-	LW-3	-
	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.

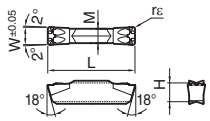
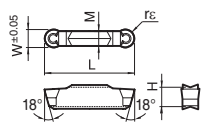
Applicable Inserts

(mm)

Description	L	H
GMM3015…V□	15.5	4.3
GMM4020…V□	20	
GMM5020…V□		

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

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

Insert		Description	(Previous Description)	Dimension (mm) W	rε	M	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PR930	PR905	Carbide KW10	Applicable Toolholders
 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
		GMM 4020-040V	GMM 4020-04V	4.0	0.4	3.3	●	●	●	●	●	●	KIGM R/L 3225B-4V 4032B-4V
		GMM 5020-080V	GMM 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
		GMM 4020-200VR	GMM 4020-20VR	4.0	2.0	3.3		●		●	●	●	KIGM R/L 3225B-4V 4032B-4V
		GMM 5020-250VR	GMM 5020-25VR	5.0	2.5	4.2		●		●	●	●	

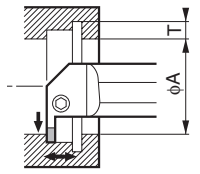
· It is not recommended to use this for KIGM-V Internal Grooving Toolholders against GMM...V / GMM...VR which the front relief angle is 18°, because the relief angle of the insert used for GMM4020-04 toolholder is 10°.

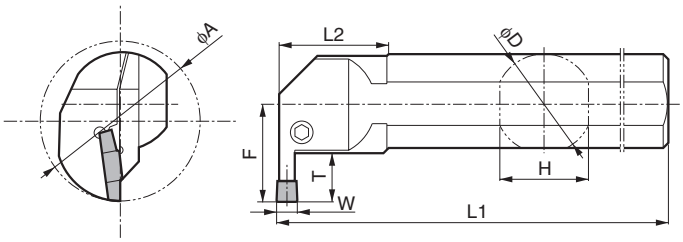
Recommended Cutting Conditions ➡ G101

● : Std. Item

Inserts are sold in 10 piece boxes.

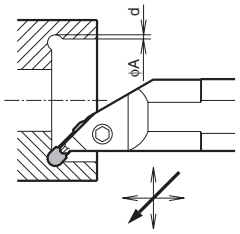
KIGM-8 (8mm-Width Insert / Large Internal Diameter Deep Grooving)

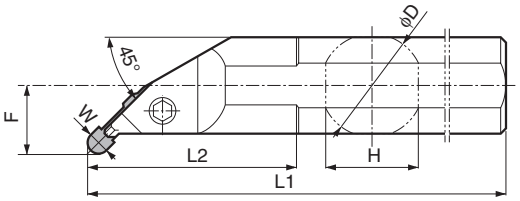




• Right-hand shown

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





• Right-hand shown

Toolholder Dimensions

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

· Dimension T shows available grooving depth.

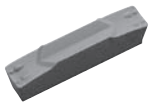
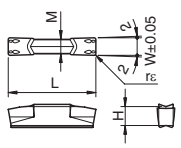
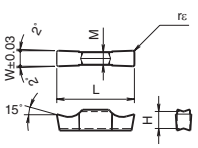
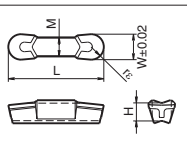
· Dimension d shows the distance from the Internal face of the workpiece.

Applicable Inserts (mm)

Description	L	H
GMM8030-080MW	30	5.5
GMG8030-050MG		
GMGA8030-400R		

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

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

Insert		Description	(Previous Description)	Dimension (mm) W	rε	M	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PR930	PR905	Carbide KW10	Applicable Toolholders	Ref. to Page for Applicable Toolholders
 Chip Control Oriented M Class		GMM 8030-080MW	GMM 8030-08	8.0	0.8	6.0		●	●	●	●	●	KIGM R/L ···8 KIGMUR···8	G58
 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						●		

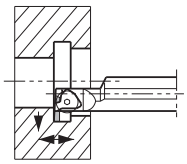
· If using a full-R insert with KIGM-8 type toolholder, you need to modify the corner of insert adapter of toolholder.

Recommended Cutting Conditions ➡ G101

● : Std. Item

Inserts are sold in 10 piece boxes.

KGIA



Integral Type

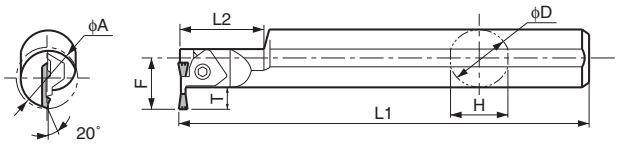
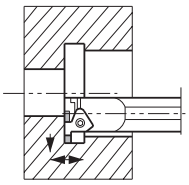


Fig.1



Separate Type

• Right-hand shown

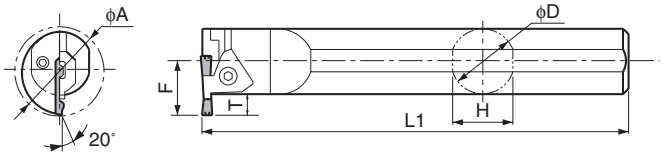


Fig.2

● Toolholder Dimensions

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

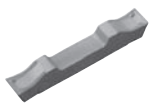
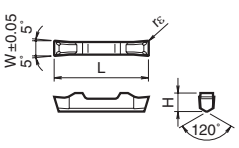
· Dimension T shows available grooving depth.

● Composition

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

Applicable Inserts

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

Insert		Description		Dimension (mm) W	rε	L	H	Cermet TN60	CVD Coated Carbide CR9025	Applicable Toolholders
 Molded Chipbreaker		GIA	30	3.0	0.20	25	5.0	●	●	KGIAR ···3
			40	4.0	0.25			●	●	KGIAR ···4
			50	5.0	0.30	30		●	●	KGIAR ···5

Recommended Cutting Conditions ➔ G99

● : Std. Item

Inserts are sold in 10 piece boxes.

Face Grooving Dia. ϕD

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

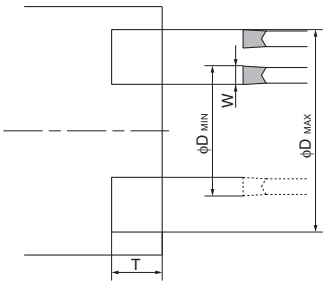
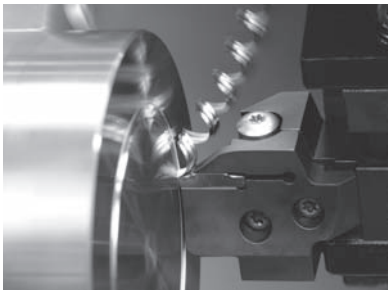
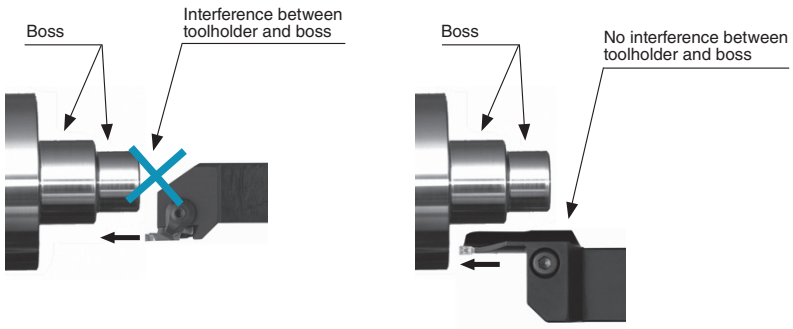


Fig.1

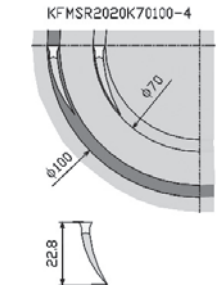


Caution for Face Grooving

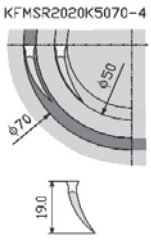
1) When face grooving, the suitable toolholder depends on the length of the boss



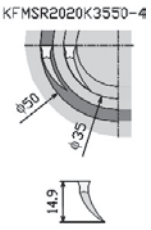
2) Selection of Face Grooving Toolholder



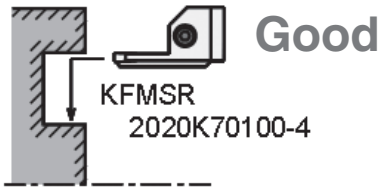
Shape of below Jaw

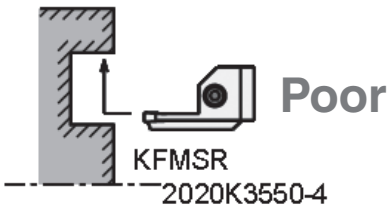


Shape of below Jaw



Shape of below Jaw

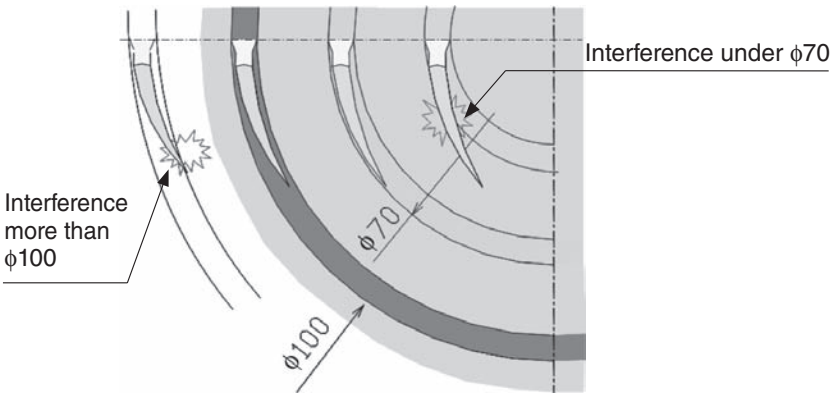




Wider grooving (turning) should be performed from the outside inwards

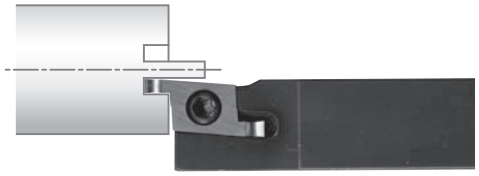
3) Interference of Face Grooving Toolholder

e.g.) KFMSR2525M70100-4

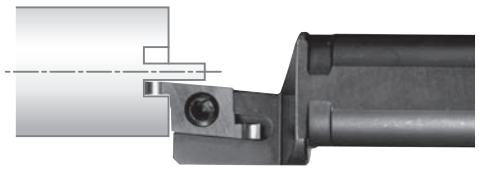


· Example of usage for the face grooving toolholder. When face grooving, KFMSR2525M70100-4 should be between ϕ70~ϕ100 for grooving the outer diameter at first. If the workpiece is machined at a diameter ϕ100 or ϕ70, the jaw of toolholder interferes with the workpiece.

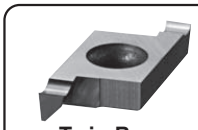
Small Dia. Face Grooving ϕ6~



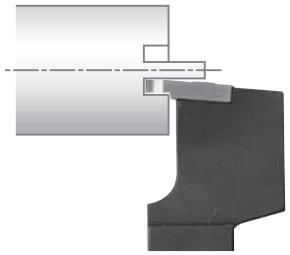
Type	STW
Min. Face Groove Dia.	ϕ6
Edge Width (mm)	0.5~2.0
Grooving Depth (mm)	1.0~3.0
Ref. to Page	**G68**



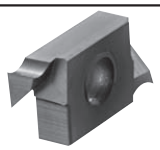
Type	S..-STW
Min. Face Groove Dia.	ϕ6
Edge Width (mm)	0.5~2.0
Grooving Depth (mm)	1.0~3.0
Ref. to Page	**G68**



Twin-Bars
for Horizontal type

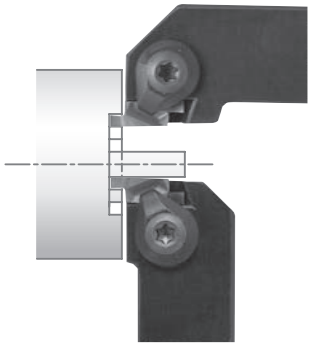


Type	STWS
Min. Face Groove Dia.	ϕ6
Edge Width (mm)	0.5~2.0
Grooving Depth (mm)	1.0~3.0
Ref. to Page	**G69**



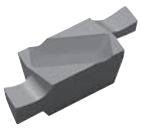
Twin-Bars
for vertical type

Small Dia. Face Grooving ϕ8~



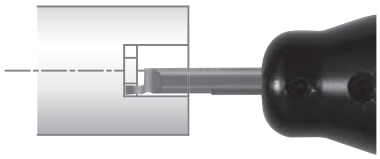
Type	GFVS-AA
Min. Face Groove Dia.	ϕ8
Edge Width (mm)	1.0~3.0
Grooving Depth (mm)	2.2
Ref. to Page	**G84**

Type	GFVT-AA
Min. Face Groove Dia.	ϕ8
Edge Width (mm)	1.0~3.0
Grooving Depth (mm)	2.2
Ref. to Page	**G84**



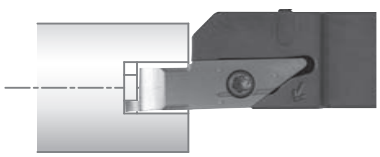
Ground Chipbreaker

Small Dia. Face Grooving ϕ5~, ϕ8~



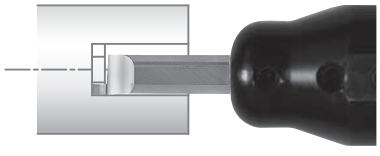
Type	EZFG
Min. Face Groove Dia.	ϕ5,ϕ6,ϕ8
Edge Width (mm)	1.0~3.0
Grooving Depth (mm)	1.5~3.0
Ref. to Page	**G64**

EZ Bars



Type	VNFG
Min. Face Groove Dia.	ϕ8
Edge Width (mm)	1.0~3.0
Grooving Depth (mm)	2.0~3.0
Ref. to Page	**G66**

System Tip-Bars

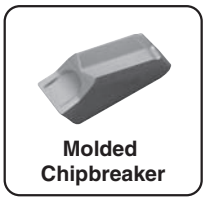


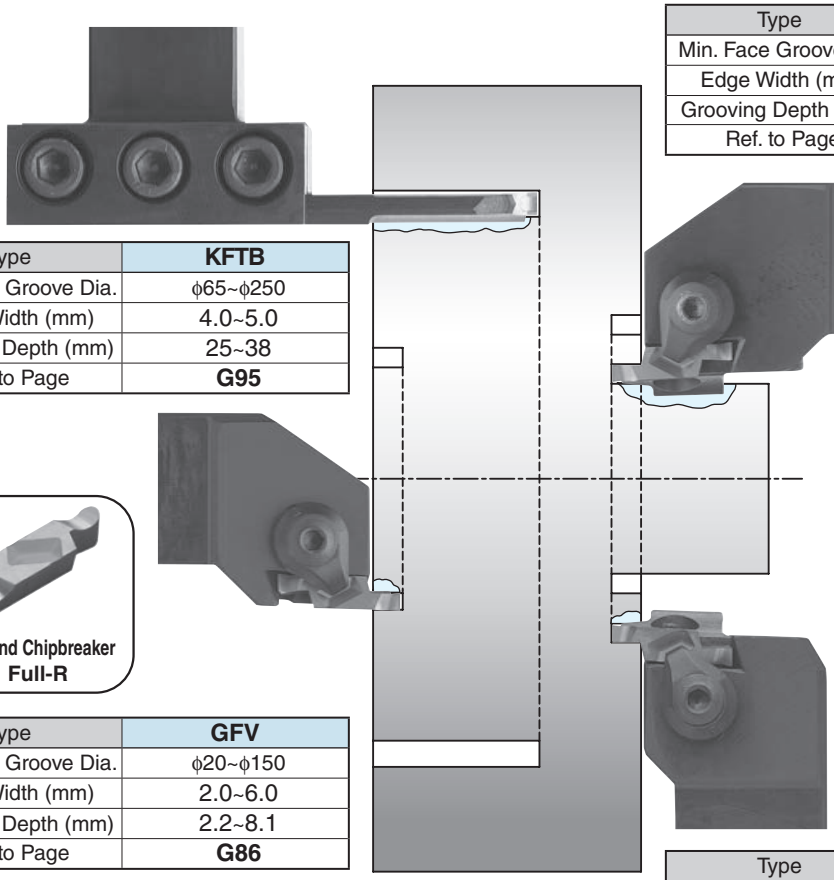
Type	HPFG
Min. Face Groove Dia.	ϕ8
Edge Width (mm)	1.0~3.0
Grooving Depth (mm)	2.0~3.0
Ref. to Page	**G67**

2-Edge Tip-Bars

Summary of Face Grooving

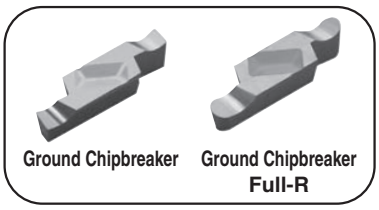
Face Grooving ϕ20~

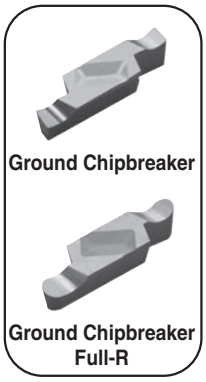




Type	GFVS
Min. Face Groove Dia.	ϕ35~ϕ150
Edge Width (mm)	2.5~6.0
Grooving Depth (mm)	4.6~8.1
Ref. to Page	**G88**

Type	KFTB
Min. Face Groove Dia.	ϕ65~ϕ250
Edge Width (mm)	4.0~5.0
Grooving Depth (mm)	25~38
Ref. to Page	**G95**

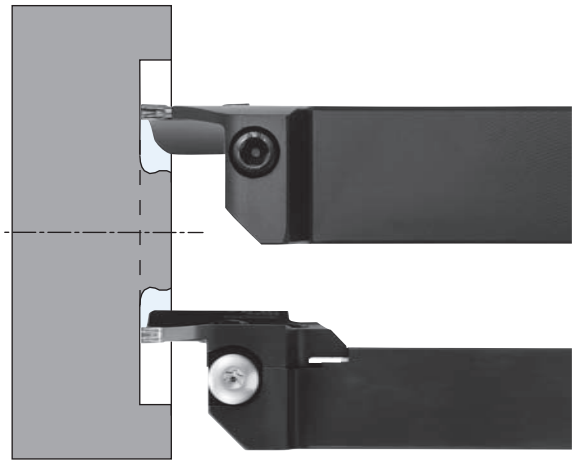




Type	GFV
Min. Face Groove Dia.	ϕ20~ϕ150
Edge Width (mm)	2.0~6.0
Grooving Depth (mm)	2.2~8.1
Ref. to Page	**G86**

Type	GFVT
Min. Face Groove Dia.	ϕ35~ϕ150
Edge Width (mm)	2.5~6.0
Grooving Depth (mm)	4.6~8.1
Ref. to Page	**G88**

KGDF Face Grooving ϕ25~(G70~G83)



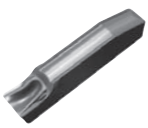
Type	KGDF-Z
Min. Face Groove Dia.	ϕ50
Edge Width (mm)	3.0~5.0
Grooving Depth (mm)	15
Ref. to Page	**G78**

Type	*KGDF
Min. Face Groove Dia.	ϕ25
Edge Width (mm)	2.0~6.0
Grooving Depth (mm)	6~32
Ref. to Page	**G74**

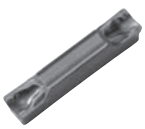
*The separate type toolholders can accept all the blades if their hand is matching.

Grooving and Turning **GM**

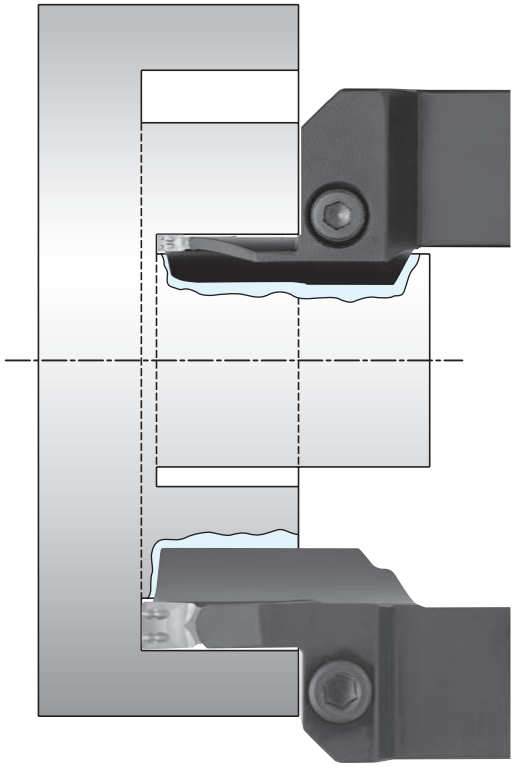
Deep grooving and Turning **DM**



High Feed Rate **GH**



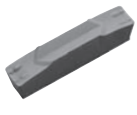
Face Grooving & Turning ϕ25~



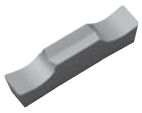
Type	KFMS
Min. Face Groove Dia.	ϕ25~ϕ235
Edge Width (mm)	3.0~6.0
Grooving Depth (mm)	13~32
Ref. to Page	**G92**

Molded Chipbreaker

Type	KFMS-8
Min. Face Groove Dia.	ϕ54~ϕ155
Edge Width (mm)	8.0
Grooving Depth (mm)	25
Ref. to Page	**G94**



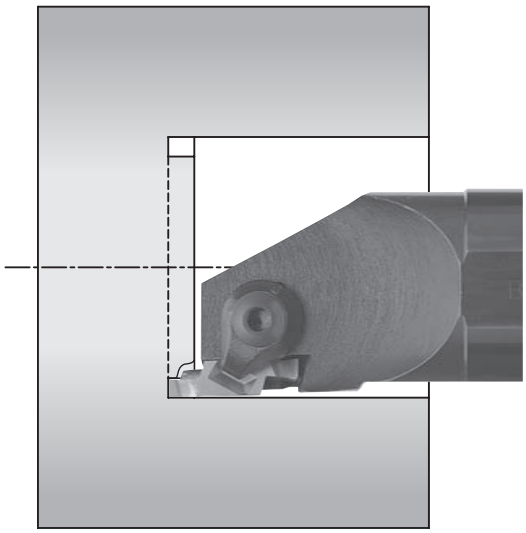
Molded Chipbreaker



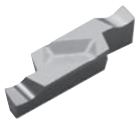
Ground Chipbreaker

Molded Chipbreaker Full-R

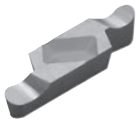
Face Grooving ϕ35~



Type	GIFV
Min. Face Groove Dia.	ϕ35~ϕ50
Edge Width (mm)	2.0~6.0
Grooving Depth (mm)	2.2~8.1
Ref. to Page	**G96**

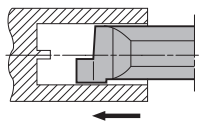


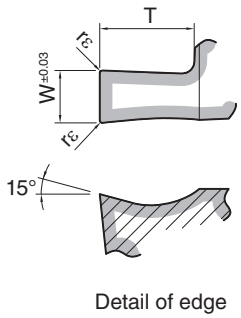
Ground Chipbreaker



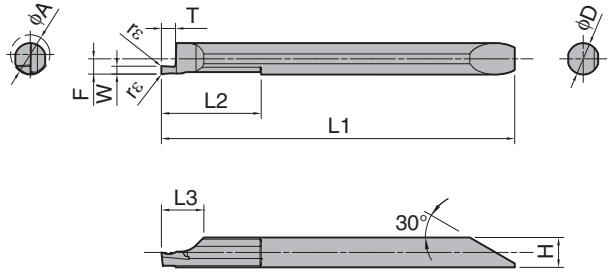
Ground Chipbreaker Full-R

EZFG





Detail of edge



• Right-hand shown

● Dimensions

Description	Min. Face Groove Dia.	Dimension (mm)									MEGACOAT	Applicable Sleeves
	φA	W±0.03	rε	φD	H	L1	L2	L3	F	T	PR1225	
EZFGR 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	●	
EZFGR 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	●	
EZFGR 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									●	

· Dimension T shows available grooving depth.

◆ Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)	EZFGR050040-100 EZFGR060050-100 EZFGR080070-100	EZFGR050040-150 EZFGR060050-150 EZFGR080070-150	EZFGR060050-200 EZFGR080070-200	EZFGR080070-300	Remarks
	MEGACOAT					
	PR1225	f (mm/rev)				
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 FG R 050 040 - 100

Symbol of EZ Bars	Applications	Insert Hand	Min. Bore Dia.	Shank Dia.	Width
	FG: Face Grooving	R: Right-hand	050 : 5mm 060 : 6mm 080 : 8mm	040 : 4mm 050 : 5mm 070 : 7mm	100 : 1.0mm 150 : 1.5mm 200 : 2.0mm 300 : 3.0mm

EZ Bars are sold in 1 piece boxes.

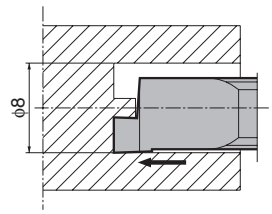
● : Std. Item

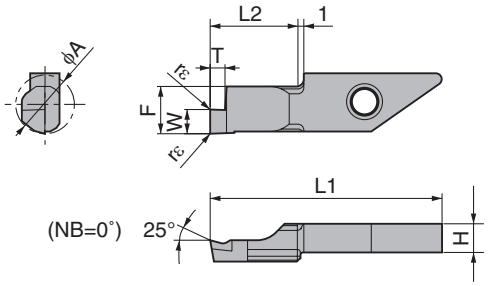
● Applicable Sleeve

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	Shank Dia. ϕD(mm)	
-	-	EZH 04012ST-80	12	EZFGR ...040-...	-	4	(General purpose)
		05012ST-80		EZFGR ...050-...	-	5	
		07012ST-80		EZFGR ...070-...	HPFGR/L 0807-...	7	
-	EZH 04016HP-100	EZH 04016ST-100	16	EZFGR ...040-...	-	4	(General purpose)
	05016HP-100	05016ST-100		EZFGR ...050-...	-	5	
	07016HP-100	07016ST-100		EZFGR ...070-...	HPFGR/L 0807-...	7	
EZH 04019CT-120	EZH 04019HP-120	EZH 04019ST-120	19.05	EZFGR ...040-...	-	4	Citizen Machinery
05019CT-120	05019HP-120	05019ST-120		EZFGR ...050-...	-	5	
07019CT-120	07019HP-120	07019ST-120		EZFGR ...070-...	HPFGR/L 0807-...	7	
EZH 04020CT-120	EZH 04020HP-120	EZH 04020ST-120	20	EZFGR ...040-...	-	4	Amada Machine Tools / Eguro / Tsugami / Citizen Machinery / (General purpose)
05020CT-120	05020HP-120	05020ST-120		EZFGR ...050-...	-	5	
07020CT-120	07020HP-120	07020ST-120		EZFGR ...070-...	HPFGR/L 0807-...	7	
EZH 04022CT-135	EZH 04022HP-135	EZH 04022ST-135	22	EZFGR ...040-...	-	4	Star Micronics / Nomura DS / Tsugami
05022CT-135	05022HP-135	05022ST-135		EZFGR ...050-...	-	5	
07022CT-135	07022HP-135	07022ST-135		EZFGR ...070-...	HPFGR/L 0807-...	7	
EZH 04025.0CT-135	EZH 04025.0HP-135	EZH 04025.0ST-135	25	EZFGR ...040-...	-	4	Amada Machine Tools / Eguro / Tsugami / Citizen Machinery / (General purpose)
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZFGR ...050-...	-	5	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZFGR ...070-...	HPFGR/L 0807-...	7	
EZH 04025.4CT-120	EZH 04025.4HP-120	EZH 04025.4ST-120	25.4	EZFGR ...040-...	-	4	Citizen Machinery
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZFGR ...050-...	-	5	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZFGR ...070-...	HPFGR/L 0807-...	7	

· 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.

VNFG (System Tip-Bars)





• Right-hand shown

Dimensions

Classification of usage									
●: Continuous / 1st Choice	P	Carbon steel / Alloy steel	●		○			
○: Continuous / 2nd Choice	M	Stainless Steel	●		○			
	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±0.03	rε	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							●		●	●			
	0830-10			3.0						3.0	●		●	●			
VNFGR	0820-10NB			2.0	0.05	3.9	29.6	10	7.3	2.0					MTO	MTO	
	0830-10NB			3.0						3.0					MTO	MTO	

· 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

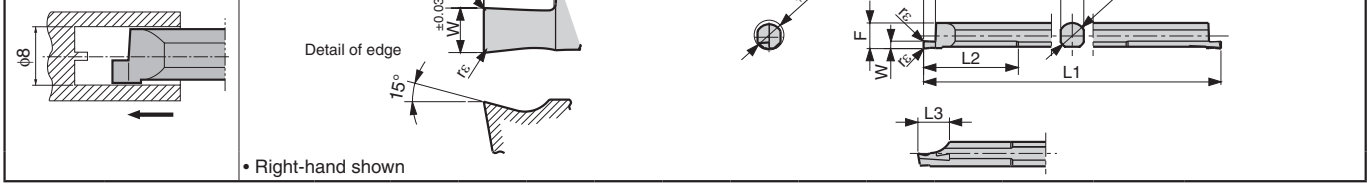
System Tip-Bars are sold in 5 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Item
MTO : Made to order

HPFG Face Grooving (Small Dia.)

Applicable Sleeves F25



• Right-hand shown

Dimensions

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

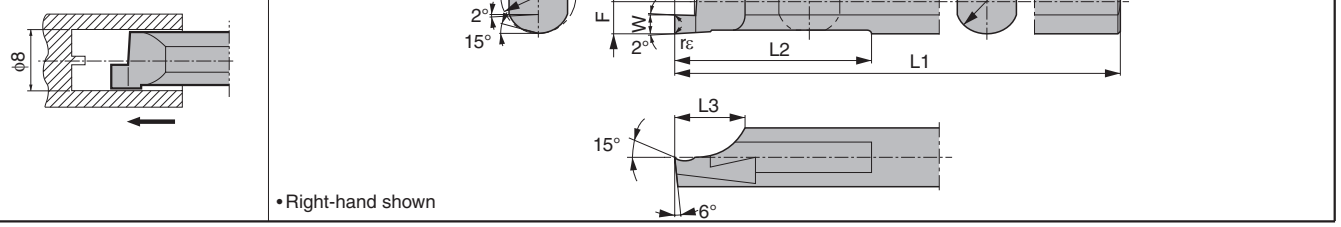
Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)		HPFGR/L 0807-10	HPFGR/L 0807-20	HPFGR/L 0807-30	Remarks
	PVD Coated Carbide	Carbide				
	PR930	KW10	f (mm/rev)			
Carbon steel / Alloy steel	★ 30~100	-	~0.02	~0.04	~0.05	Coolant
Stainless Steel	★ 30~80	-	~0.01	~0.02	~0.03	
Non-ferrous Metals	-	★ ~300	~0.04	~0.06	~0.08	

★: 1st Recommendation

PSFG-S (Tip-Bars)

This insert will be switched to EZFG.



• Right-hand shown

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		KW10	
PSFGR/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 Vc: m/min)			PSFGR/L0810	PSFGR/L0820	PSFGR/L0830	Remarks
	PVD Coated Carbide		Carbide				
	PR930		KW10	f (mm/rev)			
Carbon steel / Alloy steel	★ 30~100			~0.02	~0.04	~0.05	Coolant
Stainless Steel	★ 30~80			~0.01	~0.02	~0.03	
Non-ferrous Metals			★ ~300	~0.04	~0.06	~0.08	

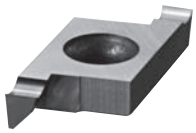
★: 1st Recommendation

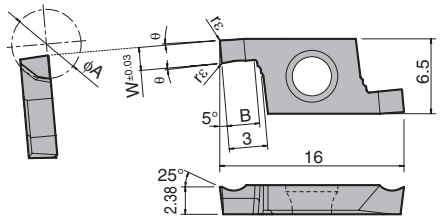
● : Std. Item
△ : Will be switched to new item (Check Availability)

Tip-Bars are sold in 1 piece boxes.

Small Dia. Face Grooving (Twin-Bars)

TWFG (Horizontal type)





• Left-hand shown

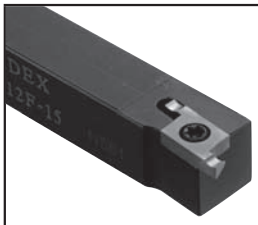
Description		Face Grooving Dia. φA MIN.	Face Grooving Dia. φA MAX.	Dimension (mm) W	Dimension (mm) rε	Dimension (mm) B	Angle (°) θ	Insert Grades PVD Coated Carbide PR1025	Insert Grades Carbide KW10
TWFGL	050	6 (0)	∞ (∞)	0.5	0.05	1.0	1.5°	●	●
	080			0.8		1.5		●	●
	100			1.0		2.2	2°	●	●
	125			1.25				●	●
	150			1.5				●	●
	180			1.8		3.0		●	●
	200			2.0				●	●

· 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**.)



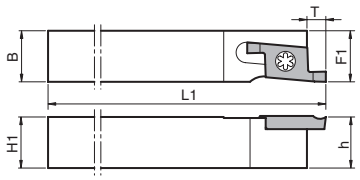


Fig.1

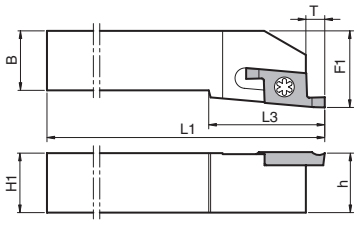


Fig.2

• Left-hand shown

Toolholder Dimensions

Description		Std.	Dimension (mm) H1=h	B	L1	L2	L3	F1	F2	T	F3	Drawing	Spare Parts Clamp Screw	Spare Parts Wrench	Applicable Inserts G68
STWL	1010F-15	●	10	10	85	-	-	10	-	3	-	Fig.1	SB-3080TR	LTW-10S	TWFGLOOO
	1212F-15	●	12	12				12							
	1212K-15	●	12	12	125			12							
	1616K-15	●	16	16				16							
	2020K-15	●	20	20			25	25				Fig.2			
	2525M-15	●	25	25	150			32							

· 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**.)

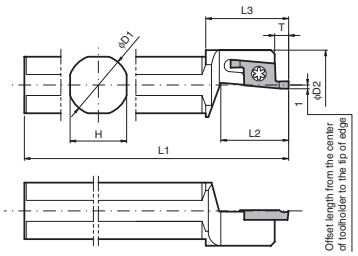


Fig.1

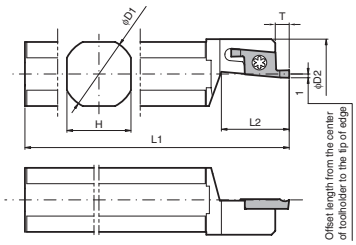


Fig.2

• Left-hand shown

Toolholder Dimensions

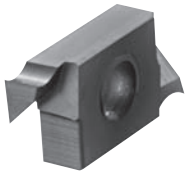
Description		Std.	Dimension (mm) φD1	φD2	H	L1	L2	L3	T	Drawing	Spare Parts Clamp Screw	Spare Parts Wrench	Applicable Inserts G68
S12F-	STWL15	●	12	20	11	80	18	22	3	Fig.1	SB-3080TR	LTW-10S	TWFGLOOO
S14H-	STWL15	●	14		13	100							
S15F-	STWL15	●	15.875		15	85							
S16F-	STWL15	●	16										
S19G-	STWL15	●	19.05	18.5	17	90		-	3	Fig.2			
S19K-	STWL15	●				120							
S20G-	STWL15	●	20	19.5	18	90							
S20K-	STWL15	●				120							
S22K-	STWL15	●	22	21.5	20	125	22						
S25.0J-	STWL15	●	25	24.5	23	110							
S25K-	STWL15	●	25.4	25	23	120							

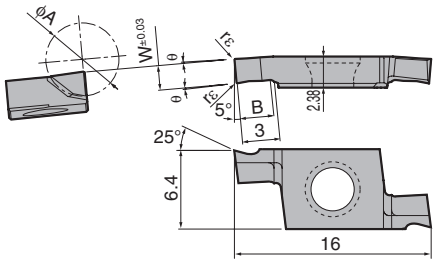
· Dimension T shows the distance from the Toolholder to the cutting edge. Available Groove Depth: "B" Dimension of Insert.

Twin-Bars are sold in 5 piece boxes.

● : Std. Item

TWFGT (Vertical type)





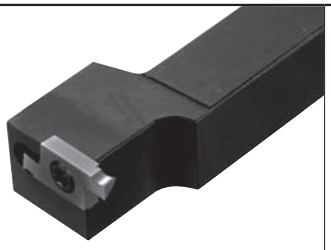
• Right-hand shown

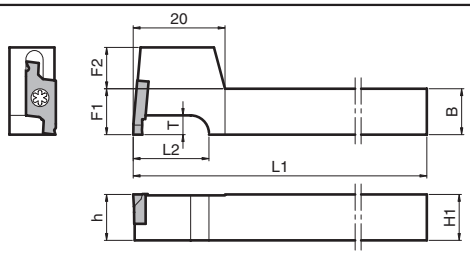
Description		Face Grooving Dia. ϕA MIN.	Face Grooving Dia. ϕA MAX.	Dimension (mm) W	Dimension (mm) rε	Dimension (mm) B	Angle (°) θ	Insert Grades PVD Coated Carbide PR1025	Insert Grades PVD Coated Carbide	Insert Grades Carbide KW10
TWFGTR	050	6 (0)	∞ (∞)	0.5	0.05	1.0	1.5°	●		●
	080			0.8		1.5		●		●
	100			1.0		2.2	2°	●		●
	125			1.25				●		●
	150			1.5				●		●
	180			1.8		3.0		●		●
	200			2.0				●		●

· 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) H1=h	B	L1	L2	L3	F1	F2	T	F3	Drawing	Spare Parts Clamp Screw	Spare Parts Wrench	Applicable Inserts G69
STWSR	1010JX-15T	●	10	10	120	16	-	10	9	3	-	-	SB-3080TR	LTW-10S	TWFGTR○○○
	1212JX-15T	●	12	12				12	7						
	1616JX-15T	●	16	16		20		16	3						
STWSR	1010F-15T	●	10	10	85	16		10	9						
	1212F-15T	●	12	12				12	7						

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

◆ Recommended Cutting Conditions (TWFG / TWFGT)

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

★: 1st Recommendation

● : Std. Item

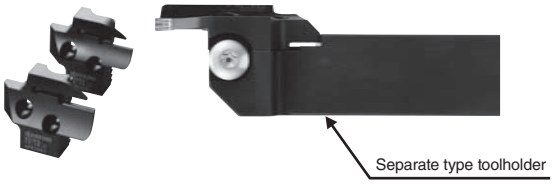
Twin-Bars are sold in 5 piece boxes.

KGDF Face Grooving

Features

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

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

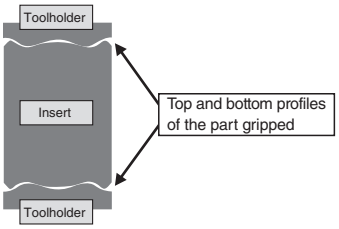


New insert clamping system "W Grip"

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

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

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



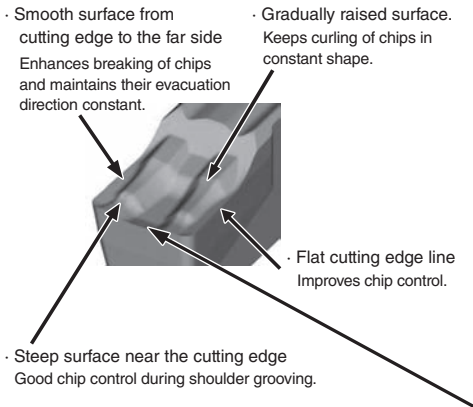
W Grip technology

Smooth chip control

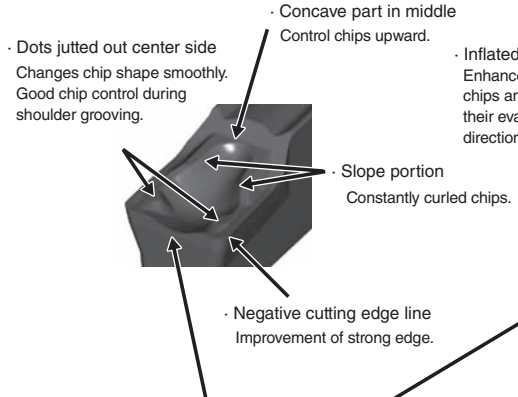
For general purpose GM Chipbreaker, For high feed grooving GH Chipbreaker, For deep grooving DM Chipbreaker

Advantages of Chipbreaker

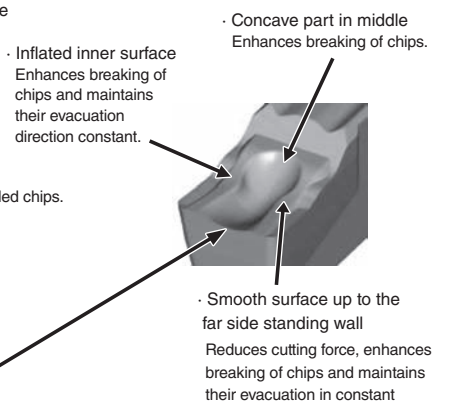
For general purpose GM Chipbreaker



For high feed grooving GH Chipbreaker



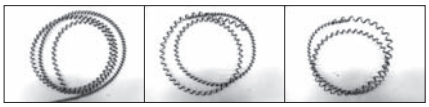
For deep grooving DM Chipbreaker



Chip Control of GM Chipbreaker

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

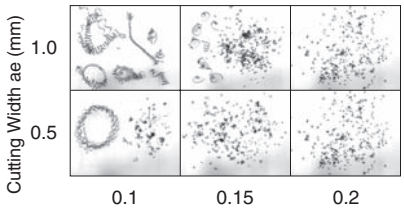
Face Grooving(ϕ62)



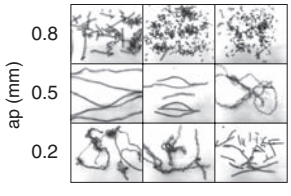
0.05 0.08 0.1

Feed Rate f (mm/rev)

Side Grooving



Turning



High precision edge preparation

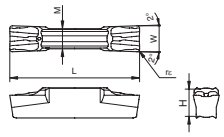
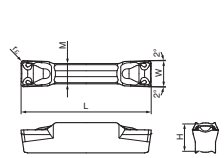
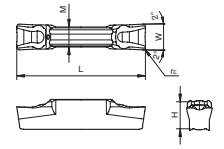
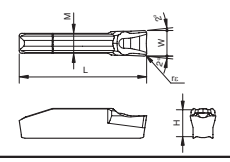
➡ **High precision molding technology with tolerance ±0.03mm (Edge width 2, 3, 4mm types)**

Highly-reputed MEGACOAT technology

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

GDFM / GDFMS

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

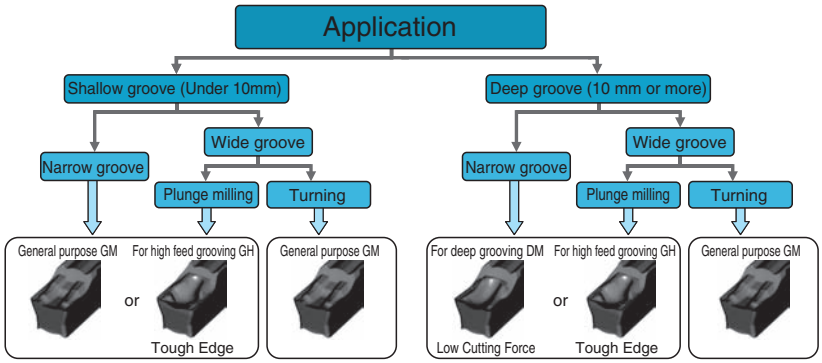
Insert			Description		Dimension (mm)						Cermet	MEGACOAT		Ref. to Page for Applicable Toolholders
					W	Tolerance	rε	M	L	H	TN90	PR1225	PR1215	
Grooving and Turning	2-edge		GDFM	2020N-020GM	2.0	±0.03	0.2	1.5	20	3.9	●	●	●	G74 ~ G80
				3020N-030GM	3.0		0.3	2.3		4.3	●	●	●	
				4020N-040GM	4.0		0.4	3.3			●	●	●	
				5020N-040GM	5.0	±0.04		4.2			●	●	●	
				NEW 5020N-080GM			0.8				●	●	●	
				6020N-040GM	6.0		0.4	5.2			●	●	●	
				NEW 6020N-080GM			0.8				●	●	●	
Grooving and Turning (High feed)	NEW 2-edge		GDFM	4020N-040GH	4.0	±0.03	0.4	3.3	20	4.3		●	●	
				5020N-040GH	5.0	±0.04		4.2				●	●	
				5020N-080GH			0.8					●	●	
				6020N-040GH	6.0		0.4	5.2				●	●	
				6020N-080GH			0.8					●	●	
Deep grooving and Turning	2-edge		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	±0.04		4.2			●	●	●	
				6020N-040DM	6.0			5.2			●	●	●	
	1-edge		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	±0.04		4.2			●	●	●	
				6020N-040DM	6.0			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



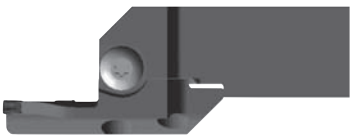
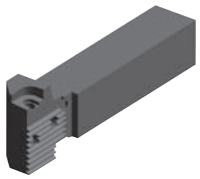
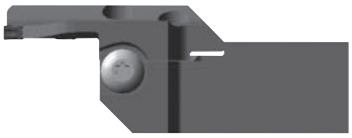
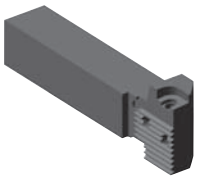
* If chip control is not stable when using the general GM chipbreaker for grooving, change the chipbreaker to the DM chipbreaker for deep grooving or GH chipbreaker for high feed grooving.

● : Std. Item

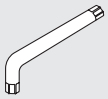
Inserts are sold in 10 piece boxes.

KGDF

◆ Toolholder Assembly Identification

Unit Description (Unit Description is not printed.)	Blade (Blade Description is printed.)	Toolholder (Toolholder Description is printed.)
Left-hand : KGDFL...S	Left-hand : KGDFL...-C	**Right**-hand : KGD**R**...-C
 • Left-hand shown	 • Left-hand shown	 • Right-hand shown
Right-hand : KGDFR...S	Right-hand : KGDFR...-C	**Left**-hand : KGD**L**...-C
 • Right-hand shown	 • Right-hand shown	 • Left-hand shown

· Right-hand Blade for **Left-hand** Toolholder, Left-hand Blade for **Right-hand** Toolholder.
· The Unit Description is not printed on the product. It is printed on the box label.
· Combination of the toolholder and blade (both separately sold) can make up the corresponding assembly.
· The insert clamping 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

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

KGDF	R	2020	X	25	-	3	A	S

Series	Min. diameter in face grooving	
KGDF Face Grooving	Indicates the minimum external diameter suitable for the initial face grooving. 25 : 25mm ⋮ 235 : 235mm	* For the minimum external diameter which can be applied to the initial face grooving (you can also use 1-edge insert), see the MIN. value of "Face Grooving Dia. ϕD" in the dimension tables of toolholders and blades.

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

◆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.

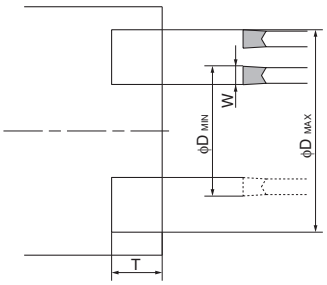
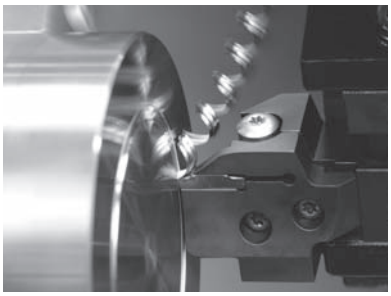
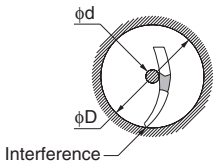


Fig.1



◆ 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.

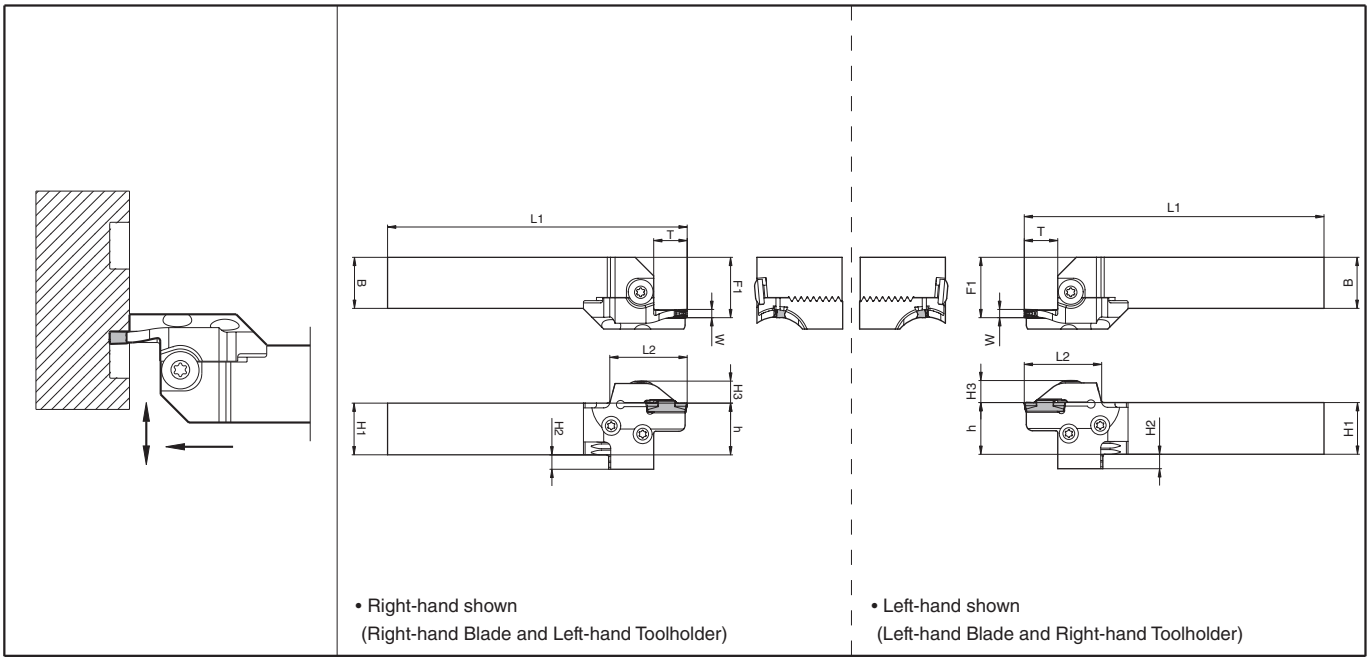


Remaining Boss Dia.ϕd

Description ＼ ϕD	25	26	27	28 and over
	ϕd			
KGDF$^{R}_{L}$ 2020X25-3AS 2525X25-3AS	4	2	0	0 (No remaining Boss)
KGDF$^{R}_{L}$ 2020X25-4AS 2525X25-4AS	6	3	0	
KGDF$^{R}_{L}$ 2020X25-5AS 2525X25-5AS	7	4	1	
KGDF$^{R}_{L}$ 2020X25-6AS 2525X25-6AS	9	4	1	

e.g.)
If a groove of external diameter ϕ25 is created using KGDFR2020X25-3AS and turning is made toward the inside, a ϕ4 portion will be left in middle due to interference of toolholder.

KGDF



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

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

● Toolholder Dimensions

Shank Angle	Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. ϕD (mm) MIN.	MAX.	Unit Description (Standard Stock Description)	Std. R	Std. L	Blade Description ➡G81	Toolholder Description ➡G23	H1=h	H2	H3	B	L1	L2	F1	T
0°	2	□20	6	25	30	KGDFR 2020X25-2AS	●	-	KGDFR -25-2A-C	KGDL2020-C	20	12	11.6	20	115	33	24.5	6
				30	35	2020X30-2AS	●	-	-30-2A-C									
				35	45	2020X35-2AS	●	-	-35-2A-C									
				45	60	2020X45-2AS	●	-	-45-2A-C									
				60	80	2020X60-2AS	●	-	-60-2A-C									
				80	100	2020X80-2AS	●	-	-80-2A-C									
				100	130	2020X100-2AS	●	-	-100-2A-C									
			13	25	30	No unit description ➡			-25-2B-C						118	36		13
			15	30	35				-30-2B-C						120	38		15
				35	45				-35-2B-C									
				45	60				-45-2B-C									
				60	80				-60-2B-C									
				80	100				-80-2B-C									
				100	130				-100-2B-C									
		□25	6	25	30	KGDFR 2525X25-2AS	●	-	KGDFR -25-2A-C	KGDL2525-C	25	7	11.6	25	140	33	29.5	6
				30	35	2525X30-2AS	●	-	-30-2A-C									
				35	45	2525X35-2AS	●	-	-35-2A-C									
				45	60	2525X45-2AS	●	-	-45-2A-C									
				60	80	2525X60-2AS	●	-	-60-2A-C									
				80	100	2525X80-2AS	●	-	-80-2A-C									
				100	130	2525X100-2AS	●	-	-100-2A-C									
			13	25	30	No unit description ➡			-25-2B-C						143	36		13
			15	30	35				-30-2B-C						145	38		15
				35	45				-35-2B-C									
				45	60				-45-2B-C									
				60	80				-60-2B-C									
				80	100				-80-2B-C									
				100	130				-100-2B-C									
		□32	6	25	30	No unit description ➡			KGDFR -25-2A-C	KGDL3232-C	32	-	11.6	32	160	33	36.5	6
				30	35				-30-2A-C									
				35	45				-35-2A-C									
				45	60				-45-2A-C									
				60	80				-60-2A-C									
				80	100				-80-2A-C									
				100	130				-100-2A-C									
			13	25	30				-25-2B-C						163	36		13
			15	30	35				-30-2B-C						165	38		15
				35	45				-35-2B-C									
				45	60				-45-2B-C									
				60	80				-60-2B-C									
				80	100				-80-2B-C									
				100	130				-100-2B-C									

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

Applicable Inserts ➡G71

● : Std. Item

● Toolholder Dimensions

Shank Angle	Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. ϕD (mm) MIN.	Face Grooving Dia. ϕD (mm) MAX.	Unit Description (Standard Stock Description)	Std. R	Std. L	Blade Description ➡G81	Toolholder Description ➡G23	Dimension (mm) H1=h	H2	H3	B	L1	L2	F1	T
0°	3	□20	13	25	30	KGDF$^{R}_{L}$ 2020X25-3AS	●	●	KGDF$^{R}_{L}$ -25-3A-C	KGD$^{L}_{R}$2020-C	20	12	11.6	20	118	36	24.5	13
				30	40	2020X30-3AS	●	●	-30-3A-C									
				40	50	2020X40-3AS	●	●	-40-3A-C									
			15	50	65	2020X50-3BS	●	●	-50-3B-C						120	38		15
				65	85	2020X65-3BS	●	●	-65-3B-C									
				85	110	2020X85-3BS	●	●	-85-3B-C									
				110	145	2020X110-3BS	●	●	-110-3B-C									
			22	50	65	2020X50-3CS	●	●	-50-3C-C						127	45		22
				65	85	2020X65-3CS	●	●	-65-3C-C									
			25	85	110	2020X85-3CS	●	●	-85-3C-C						130	48		25
				110	145	2020X110-3CS	●	●	-110-3C-C									
		□25	13	25	30	KGDF$^{R}_{L}$ 2525X25-3AS	●	●	KGDF$^{R}_{L}$ -25-3A-C	KGD$^{L}_{R}$2525-C	25	7	11.6	25	143	36	29.5	13
				30	40	2525X30-3AS	●	●	-30-3A-C									
				40	50	2525X40-3AS	●	●	-40-3A-C									
			15	50	65	2525X50-3BS	●	●	-50-3B-C						145	38		15
				65	85	2525X65-3BS	●	●	-65-3B-C									
				85	110	2525X85-3BS	●	●	-85-3B-C									
				110	145	2525X110-3BS	●	●	-110-3B-C									
			22	50	65	2525X50-3CS	●	●	-50-3C-C						152	45		22
				65	85	2525X65-3CS	●	●	-65-3C-C									
			25	85	110	2525X85-3CS	●	●	-85-3C-C						155	48		25
				110	145	2525X110-3CS	●	●	-110-3C-C									
		□32	13	25	30	No unit description ➡			KGDF$^{R}_{L}$ -25-3A-C	KGD$^{L}_{R}$3232-C	32	-	11.6	32	163	36	36.5	13
				30	40				-30-3A-C									
				40	50				-40-3A-C									
			15	50	65				-50-3B-C						165	38		15
				65	85				-65-3B-C									
				85	110				-85-3B-C									
				110	145				-110-3B-C									
			22	50	65				-50-3C-C						172	45		22
				65	85				-65-3C-C									
			25	85	110				-85-3C-C						175	48		25
				110	145				-110-3C-C									
0°	4	□20	13	25	35	KGDF$^{R}_{L}$ 2020X25-4AS	●	●	KGDF$^{R}_{L}$ -25-4A-C	KGD$^{L}_{R}$2020-C	20	12	11.6	20	118	36	24.5	13
			15	35	50	2020X35-4BS	●	●	-35-4B-C						120	38		15
				50	70	2020X50-4BS	●	●	-50-4B-C									
				70	100	2020X70-4BS	●	●	-70-4B-C									
				100	150	2020X100-4BS	●	●	-100-4B-C									
				150	220	2020X150-4BS	●	●	-150-4B-C									
				220	∞	2020X220-4BS	●	●	-220-4B-C									
			25	35	50	2020X35-4CS	●	●	-35-4C-C						130	48		25
				50	70	2020X50-4CS	●	●	-50-4C-C									
				70	100	2020X70-4CS	●	●	-70-4C-C									
				100	150	2020X100-4CS	●	●	-100-4C-C									
				150	220	2020X150-4CS	●	●	-150-4C-C									
				220	∞	2020X220-4CS	●	●	-220-4C-C									
		□25	13	25	35	KGDF$^{R}_{L}$ 2525X25-4AS	●	●	KGDF$^{R}_{L}$ -25-4A-C	KGD$^{L}_{R}$2525-C	25	7	11.6	25	143	36	29.5	13
			15	35	50	2525X35-4BS	●	●	-35-4B-C						145	38		15
				50	70	2525X50-4BS	●	●	-50-4B-C									
				70	100	2525X70-4BS	●	●	-70-4B-C									
				100	150	2525X100-4BS	●	●	-100-4B-C									
				150	220	2525X150-4BS	●	●	-150-4B-C									
				220	∞	2525X220-4BS	●	●	-220-4B-C									
			25	35	50	2525X35-4CS	●	●	-35-4C-C						155	48		25
				50	70	2525X50-4CS	●	●	-50-4C-C									
				70	100	2525X70-4CS	●	●	-70-4C-C									
				100	150	2525X100-4CS	●	●	-100-4C-C									
				150	220	2525X150-4CS	●	●	-150-4C-C									
				220	∞	2525X220-4CS	●	●	-220-4C-C									
		□32	13	25	35	No unit description ➡			KGDF$^{R}_{L}$ -25-4A-C	KGD$^{L}_{R}$3232-C	32	-	11.6	32	163	36	36.5	13
			15	35	50				-35-4B-C						165	38		15
				50	70				-50-4B-C									
				70	100				-70-4B-C									
				100	150				-100-4B-C									
				150	220				-150-4B-C									
				220	∞				-220-4B-C									
			25	35	50				-35-4C-C						175	48		25
				50	70				-50-4C-C									
				70	100				-70-4C-C									
				100	150				-100-4C-C									
				150	220				-150-4C-C									
				220	∞				-220-4C-C									

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

Applicable Inserts ➡G71

● : Std. Item

Face Grooving Toolholders (Separate type)

● Toolholder Dimensions

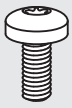
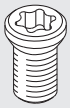
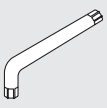
Shank Angle	Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. φD (mm) MIN.	Face Grooving Dia. φD (mm) MAX.	Unit Description (Standard Stock Description)	Std. R	Std. L	Blade Description ➡G81	Toolholder Description ➡G23	H1=h	H2	H3	B	L1	L2	F1	T
0°	5	□20	15	25	35	KGDF$^{R}_{L}$ 2020X25-5BS	●	●	KGDF$^{R}_{L}$ -25-5B-C	KGD$^{L}_{R}$2020-C	20	12	11.6	20	120	38	24.5	15
				35	50	2020X35-5BS	●	●	-35-5B-C									
				50	75	2020X50-5BS	●	●	-50-5B-C									
				75	115	2020X75-5BS	●	●	-75-5B-C									
				115	180	2020X115-5BS	●	●	-115-5B-C									
				180	235	2020X180-5BS	●	●	-180-5B-C									
				235	∞	2020X235-5BS	●	●	-235-5B-C									
			20	25	35	2020X25-5CS	●	●	-25-5C-C						125	43		20
			25	35	50	2020X35-5CS	●	●	-35-5C-C									
				50	75	2020X50-5CS	●	●	-50-5C-C									
				75	115	2020X75-5CS	●	●	-75-5C-C									
				115	180	2020X115-5CS	●	●	-115-5C-C						130	48		25
				180	235	2020X180-5CS	●	●	-180-5C-C									
				235	∞	2020X235-5CS	●	●	-235-5C-C									
			32	75	115	No unit description ➡			-75-5D-C						137	55		32
				115	180				-115-5D-C									
				180	235				-180-5D-C									
				235	∞				-235-5D-C									
		□25	15	25	35	KGDF$^{R}_{L}$ 2525X25-5BS	●	●	KGDF$^{R}_{L}$ -25-5B-C	KGD$^{L}_{R}$2525-C	25	7	11.6	25	145	38	29.5	15
				35	50	2525X35-5BS	●	●	-35-5B-C									
				50	75	2525X50-5BS	●	●	-50-5B-C									
				75	115	2525X75-5BS	●	●	-75-5B-C									
				115	180	2525X115-5BS	●	●	-115-5B-C									
				180	235	2525X180-5BS	●	●	-180-5B-C									
				235	∞	2525X235-5BS	●	●	-235-5B-C									
			20	25	35	2525X25-5CS	●	●	-25-5C-C						150	43		20
			25	35	50	2525X35-5CS	●	●	-35-5C-C									
				50	75	2525X50-5CS	●	●	-50-5C-C									
				75	115	No unit description ➡			-75-5C-C						155	48		25
				115	180				-115-5C-C									
				180	235				-180-5C-C									
				235	∞				-235-5C-C									
			32	75	115	KGDF$^{R}_{L}$ 2525X75-5DS	●	●	-75-5D-C						162	55		32
				115	180	2525X115-5DS	●	●	-115-5D-C									
				180	235	2525X180-5DS	●	●	-180-5D-C									
				235	∞	2525X235-5DS	●	●	-235-5D-C									
		□32	15	25	35	No unit description ➡			KGDF$^{R}_{L}$ -25-5B-C	KGD$^{L}_{R}$3232-C	32	-	11.6	32	165	38	36.5	15
				35	50				-35-5B-C									
				50	75				-50-5B-C									
				75	115				-75-5B-C									
				115	180				-115-5B-C									
				180	235				-180-5B-C									
				235	∞				-235-5B-C									
			20	25	35				-25-5C-C						170	43		20
			25	35	50				-35-5C-C									
				50	75				-50-5C-C									
				75	115				-75-5C-C									
				115	180				-115-5C-C						175	48		25
				180	235				-180-5C-C									
				235	∞				-235-5C-C									
			32	75	115				-75-5D-C						182	55		32
				115	180				-115-5D-C									
				180	235				-180-5D-C									
				235	∞				-235-5D-C									

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

Applicable Inserts ➡G71

● Spare Parts (Common with separate types)

* The parts are included in the toolholder and unit.

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

● : Std. Item

KGDF

● Toolholder Dimensions

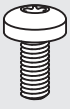
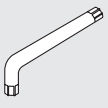
Shank Angle	Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. φD (mm) MIN.	Face Grooving Dia. φD (mm) MAX.	Unit Description (Standard Stock Description)	Std. R	Std. L	Blade Description G81	Toolholder Description G23	H1=h	H2	H3	B	L1	L2	F1	T
0°	6	□20	15	25	35	KGDF R/L 2020X25-6BS	●	●	KGDF R/L -25-6B-C	KGD L/R 2020-C	20	12	11.6	20	120	38	24.5	15
				35	50	2020X35-6BS	●	●	-35-6B-C									
				50	75	2020X50-6BS	●	●	-50-6B-C									
				75	115	2020X75-6BS	●	●	-75-6B-C									
				115	180	2020X115-6BS	●	●	-115-6B-C									
				180	235	2020X180-6BS	●	●	-180-6B-C									
				235	∞	2020X235-6BS	●	●	-235-6B-C									
			20	25	35	2020X25-6CS	●	●	-25-6C-C						125	43		20
			25	35	50	2020X35-6CS	●	●	-35-6C-C						130	48		25
				50	75	2020X50-6CS	●	●	-50-6C-C									
				75	115	2020X75-6CS	●	●	-75-6C-C									
				115	180	2020X115-6CS	●	●	-115-6C-C									
				180	235	2020X180-6CS	●	●	-180-6C-C									
				235	∞	2020X235-6CS	●	●	-235-6C-C									
			32	75	115	No unit description ➡			-75-6D-C						137	55		32
				115	180				-115-6D-C									
				180	235				-180-6D-C									
				235	∞				-235-6D-C									
		□25	15	25	35	KGDF R/L 2525X25-6BS	●	●	KGDF R/L -25-6B-C	KGD L/R 2525-C	25	7	11.6	25	145	38	29.5	15
				35	50	2525X35-6BS	●	●	-35-6B-C									
				50	75	2525X50-6BS	●	●	-50-6B-C									
				75	115	2525X75-6BS	●	●	-75-6B-C									
				115	180	2525X115-6BS	●	●	-115-6B-C									
				180	235	2525X180-6BS	●	●	-180-6B-C									
				235	∞	2525X235-6BS	●	●	-235-6B-C									
			20	25	35	2525X25-6CS	●	●	-25-6C-C						150	43		20
			25	35	50	2525X35-6CS	●	●	-35-6C-C						155	48		25
				50	75	2525X50-6CS	●	●	-50-6C-C									
				75	115	No unit description ➡			-75-6C-C									
				115	180				-115-6C-C									
				180	235				-180-6C-C									
				235	∞				-235-6C-C									
			32	75	115	KGDF R/L 2525X75-6DS	●	●	-75-6D-C						162	55		32
				115	180	2525X115-6DS	●	●	-115-6D-C									
				180	235	2525X180-6DS	●	●	-180-6D-C									
				235	∞	2525X235-6DS	●	●	-235-6D-C									
		□32	15	25	35	No unit description ➡			KGDF R/L -25-6B-C	KGD L/R 3232-C	32	-	11.6	32	165	38	36.5	15
				35	50				-35-6B-C									
				50	75				-50-6B-C									
				75	115				-75-6B-C									
				115	180				-115-6B-C									
				180	235				-180-6B-C									
				235	∞				-235-6B-C									
			20	25	35				-25-6C-C						170	43		20
			25	35	50				-35-6C-C						175	48		25
				50	75				-50-6C-C									
				75	115				-75-6C-C									
				115	180				-115-6C-C									
				180	235				-180-6C-C									
				235	∞				-235-6C-C									
			32	75	115				-75-6D-C						182	55		32
				115	180				-115-6D-C									
				180	235				-180-6D-C									
				235	∞				-235-6D-C									

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

Applicable Inserts ➡ G71

● Spare Parts (Common with separate types)

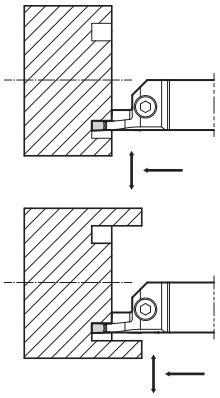
* The parts are included in the toolholder and unit.

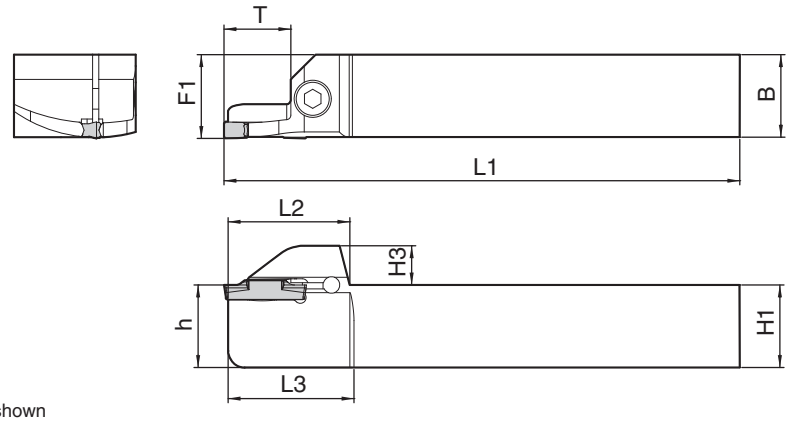
Unit Description	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Bolt (for Blade)	Wrench
			
KGDF R/L·····S	BH6X10TR	SB-60120TR	LTW-25

● : Std. Item

Face Grooving Toolholders (Integral Type)

KGDF-Z NEW





• Right-hand shown

G

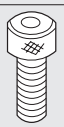
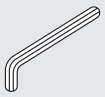
Grooving

● Toolholder Dimensions

Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. ϕD (mm) MIN.	MAX.	Description	Std. R	Std. L	Dimension (mm) 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	2020K65-3B-Z	●	●								
			85	110	2020K85-3B-Z	●	●								
			110	145	2020K110-3B-Z	●	●								
	□25		50	65	KGDF R/L 2525M50-3B-Z	●	●	25		25	150			25.3	
			65	85	2525M65-3B-Z	●	●								
			85	110	2525M85-3B-Z	●	●								
			110	145	2525M110-3B-Z	●	●								
4	□20	15	50	70	KGDF R/L 2020K50-4B-Z	●	●	20	9.5	20	125	30.5	31	20.3	15
			70	100	2020K70-4B-Z	●	●								
			100	150	2020K100-4B-Z	●	●								
	□25		50	70	KGDF R/L 2525M50-4B-Z	●	●	25		25	150			25.3	
			70	100	2525M70-4B-Z	●	●								
			100	150	2525M100-4B-Z	●	●								
5	□20	15	50	75	KGDF R/L 2020K50-5B-Z	●	●	20	9.5	20	125	30.5	31	20.3	15
			75	115	2020K75-5B-Z	●	●								
			115	180	2020K115-5B-Z	●	●								
	□25		50	75	KGDF R/L 2525M50-5B-Z	●	●	25		25	150			25.3	
			75	115	2525M75-5B-Z	●	●								
			115	180	2525M115-5B-Z	●	●								

Applicable Inserts ➡ G71

● Spare Parts

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

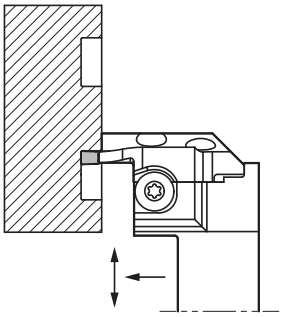
◆ Toolholder Identification System (Integral Type)

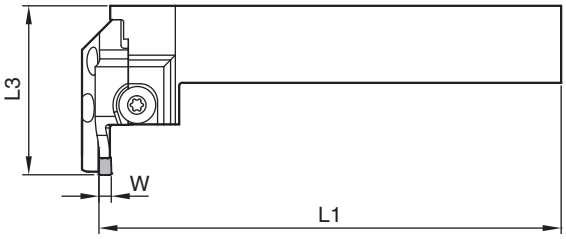
KGDF	R	2525	M	50	3	B	Z
Series	Hand of Tool	Shank Size	Toolholder Length	Min. Face Groove Dia.	Width	Grooving Depth	Toolholder Type
KGDF Face Grooving	R: Right-hand L : Left-hand	2020 : □20mm 2525 : □25mm	K : 125mm M : 150mm	50 : 50mm ⋮ 115 : 115mm	3 : 3mm 4 : 4mm 5 : 5mm	B : 15mm	Z : Integral Type

● : Std. Item

Face Grooving Toolholders (90°Separate type)

KGDF





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

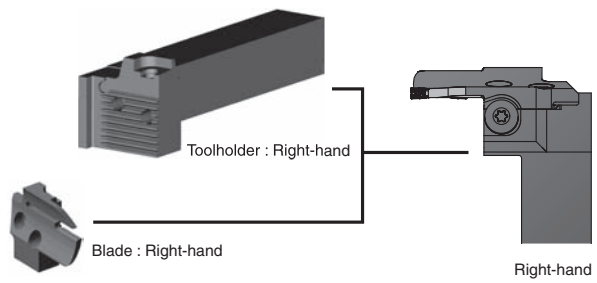
● Combination of Toolholder & Blade

Shank Angle	Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. φD (mm) MIN.	MAX.	Blade Description ➡G81	Toolholder Description ➡G23	Dimension (mm) L1	L3
90°	2	□20	6	25	30	KGDFR -25-2A-C	KGDSR2020-C	125	49.7
				30	35	-30-2A-C			
				35	45	-35-2A-C			
				45	60	-45-2A-C			
				60	80	-60-2A-C			
				80	100	-80-2A-C			
				100	130	-100-2A-C			
			13	25	30	-25-2B-C			52.7
			15	30	35	-30-2B-C			54.7
				35	45	-35-2B-C			
				45	60	-45-2B-C			
				60	80	-60-2B-C			
				80	100	-80-2B-C			
				100	130	-100-2B-C			
		□25	6	25	30	KGDFR -25-2A-C	KGDSR2525-C	150	49.7
				30	35	-30-2A-C			
				35	45	-35-2A-C			
				45	60	-45-2A-C			
				60	80	-60-2A-C			
				80	100	-80-2A-C			
				100	130	-100-2A-C			
			13	25	30	-25-2B-C			52.7
			15	30	35	-30-2B-C			54.7
				35	45	-35-2B-C			
				45	60	-45-2B-C			
				60	80	-60-2B-C			
				80	100	-80-2B-C			
				100	130	-100-2B-C			
90°	3	□20	13	25	30	KGDF$^{R}_{L}$ -25-3A-C	KGDS$^{R}_{L}$2020-C	125	52.7
				30	40	-30-3A-C			
				40	50	-40-3A-C			
			15	50	65	-50-3B-C			54.7
				65	85	-65-3B-C			
				85	110	-85-3B-C			
				110	145	-110-3B-C			
			22	50	65	-50-3C-C			59.7
				65	85	-65-3C-C			
			25	85	110	-85-3C-C			61.7
				110	145	-110-3C-C			
		□25	13	25	30	KGDF$^{R}_{L}$ -25-3A-C	KGDS$^{R}_{L}$2525-C	150	52.7
				30	40	-30-3A-C			
				40	50	-40-3A-C			
			15	50	65	-50-3B-C			54.7
				65	85	-65-3B-C			
				85	110	-85-3B-C			
				110	145	-110-3B-C			
			22	50	65	-50-3C-C			59.7
				65	85	-65-3C-C			
			25	85	110	-85-3C-C			61.7
				110	145	-110-3C-C			

Applicable Inserts ➡ **G71**

Shank Angle	Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. φD (mm) MIN.	MAX.	Blade Description ➡G81	Toolholder Description ➡G23	Dimension (mm) L1	L3
90°	4	□20	13	25	35	KGDF$^{R}_{L}$ -25-4A-C	KGDS$^{R}_{L}$2020-C	125	52.7
			15	35	50	-35-4B-C			54.7
				50	70	-50-4B-C			
				70	100	-70-4B-C			
				100	150	-100-4B-C			
				150	220	-150-4B-C			
				220	∞	-220-4B-C			
			25	35	50	-35-4C-C			64.7
				50	70	-50-4C-C			
				70	100	-70-4C-C			
				100	150	-100-4C-C			
				150	220	-150-4C-C			
				220	∞	-220-4C-C			
		□25	13	25	35	KGDF$^{R}_{L}$ -25-4A-C	KGDS$^{R}_{L}$2525-C	150	52.7
			15	35	50	-35-4B-C			54.7
				50	70	-50-4B-C			
				70	100	-70-4B-C			
				100	150	-100-4B-C			
				150	220	-150-4B-C			
				220	∞	-220-4B-C			
			25	35	50	-35-4C-C			64.7
				50	70	-50-4C-C			
				70	100	-70-4C-C			
				100	150	-100-4C-C			
				150	220	-150-4C-C			
				220	∞	-220-4C-C			

Applicable Inserts ➡ **G71**



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

Face Grooving Toolholders(90°Separate type)

● Combination of Toolholder & Blade

Shank Angle	Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. φD (mm) MIN.	Face Grooving Dia. φD (mm) MAX.	Blade Description ➡G81	Toolholder Description ➡G23	Dimension (mm) L1	Dimension (mm) L3
90°	5	□20	15	25	35	KGDF$^{R}_{L}$ -25-5B-C	KGDS$^{R}_{L}$2020-C	125	54.7
				35	50	-35-5B-C			
				50	75	-50-5B-C			
				75	115	-75-5B-C			
				115	180	-115-5B-C			
				180	235	-180-5B-C			
				235	∞	-235-5B-C			
			20	25	35	-25-5C-C			59.7
			25	35	50	-35-5C-C			64.7
				50	75	-50-5C-C			
				75	115	-75-5C-C			
				115	180	-115-5C-C			
				180	235	-180-5C-C			
				235	∞	-235-5C-C			
			32	75	115	-75-5D-C			71.7
				115	180	-115-5D-C			
				180	235	-180-5D-C			
				235	∞	-235-5D-C			
		□25	15	25	35	KGDF$^{R}_{L}$ -25-5B-C	KGDS$^{R}_{L}$2525-C	150	54.7
				35	50	-35-5B-C			
				50	75	-50-5B-C			
				75	115	-75-5B-C			
				115	180	-115-5B-C			
				180	235	-180-5B-C			
				235	∞	-235-5B-C			
			20	25	35	-25-5C-C			59.7
			25	35	50	-35-5C-C			64.7
				50	75	-50-5C-C			
				75	115	-75-5C-C			
				115	180	-115-5C-C			
				180	235	-180-5C-C			
				235	∞	-235-5C-C			
			32	75	115	-75-5D-C			71.7
				115	180	-115-5D-C			
				180	235	-180-5D-C			
				235	∞	-235-5D-C			

Applicable Inserts ➡ **G71**

Shank Angle	Width W (mm)	Shank Size (mm)	Max. depth of cut (mm)	Face Grooving Dia. φD (mm) MIN.	Face Grooving Dia. φD (mm) MAX.	Blade Description ➡G81	Toolholder Description ➡G23	Dimension (mm) L1	Dimension (mm) L3
90°	6	□20	15	25	35	KGDF$^{R}_{L}$ -25-6B-C	KGDS$^{R}_{L}$2020-C	125	54.7
				35	50	-35-6B-C			
				50	75	-50-6B-C			
				75	115	-75-6B-C			
				115	180	-115-6B-C			
				180	235	-180-6B-C			
				235	∞	-235-6B-C			
			20	25	35	-25-6C-C			59.7
			25	35	50	-35-6C-C			64.7
				50	75	-50-6C-C			
				75	115	-75-6C-C			
				115	180	-115-6C-C			
				180	235	-180-6C-C			
				235	∞	-235-6C-C			
			32	75	115	-75-6D-C			71.7
				115	180	-115-6D-C			
				180	235	-180-6D-C			
				235	∞	-235-6D-C			
		□25	15	25	35	KGDF$^{R}_{L}$ -25-6B-C	KGDS$^{R}_{L}$2525-C	150	54.7
				35	50	-35-6B-C			
				50	75	-50-6B-C			
				75	115	-75-6B-C			
				115	180	-115-6B-C			
				180	235	-180-6B-C			
				235	∞	-235-6B-C			
			20	25	35	-25-6C-C			59.7
			25	35	50	-35-6C-C			64.7
				50	75	-50-6C-C			
				75	115	-75-6C-C			
				115	180	-115-6C-C			
				180	235	-180-6C-C			
				235	∞	-235-6C-C			
			32	75	115	-75-6D-C			71.7
				115	180	-115-6D-C			
				180	235	-180-6D-C			
				235	∞	-235-6D-C			

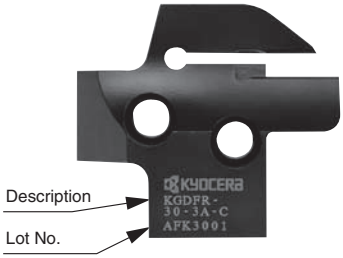
Applicable Inserts ➡ **G71**

◆ Face Grooving Blade Identification System

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

KGDF **R** – **25** – **3** **A** – **C**

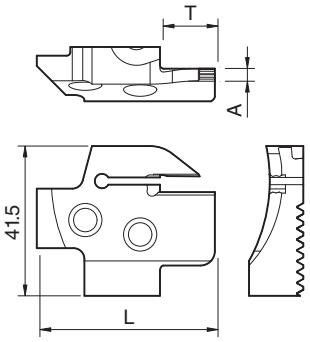
Series	Min. diameter in face grooving	Grooving Depth	
KGDF Face Grooving	Indicates the minimum external diameter suitable for the initial face grooving. 25 : 25mm : 235 : 235mm	A : 13mm B : 15mm	2-edge insert (1-edge insert can also be used.)
		C : 20mm~25mm D : 32mm	1-edge insert



Example of printing of blade number

Face Grooving Blade

● Blade Dimensions

Shape	Blade Description	Std. R	Std. L	Dimension (mm) L	Dimension (mm) T	Dimension (mm) A	Face Grooving Dia. ϕD (mm) MIN.	Face Grooving Dia. ϕD (mm) MAX.	Width (mm) W	Applicable Inserts ➡G71	Description of Toolholder ➡G23
 Right-hand shown	**KGDFR** -25-2A-C	●	-	44.35	6	1.5	25	30	2	GDFM 2020N-020GM	KGD$^{L}_{R}$····-C KGDS$^{R}_{L}$····-C
	-30-2A-C	●	-				30	35			
	-35-2A-C	●	-				35	45			
	-45-2A-C	●	-				45	60			
	-60-2A-C	●	-				60	80			
	-80-2A-C	●	-				80	100			
	-100-2A-C	●	-				100	130			
	-25-2B-C	●	-	47.35	13		25	30			
	-30-2B-C	●	-	49.35	15		30	35			
	-35-2B-C	●	-				35	45			
	-45-2B-C	●	-				45	60			
	-60-2B-C	●	-				60	80			
	-80-2B-C	●	-				80	100			
	-100-2B-C	●	-				100	130			
	KGDF$^{R}_{L}$ -25-3A-C	●	●	47.35	13	2	25	30	3	GDFM 3020N-030GM GDFM 3020N-030DM GDFMS 3020N-030DM	
	-30-3A-C	●	●				30	40			
	-40-3A-C	●	●				40	50			
	-50-3B-C	●	●	49.35	15		50	65			
	-65-3B-C	●	●				65	85			
	-85-3B-C	●	●				85	110			
	-110-3B-C	●	●				110	145			
	-50-3C-C	●	●	56.35	22		50	65			
	-65-3C-C	●	●				65	85			
	-85-3C-C	●	●	59.35	25		85	110			
	-110-3C-C	●	●				110	145			
	KGDF$^{R}_{L}$ -25-4A-C	●	●	47.35	13	3	25	35	4	GDFM 4020N-040GM GDFM 4020N-040GH GDFM 4020N-040DM GDFMS 4020N-040DM	
	-35-4B-C	●	●	49.35	15		35	50			
	-50-4B-C	●	●				50	70			
	-70-4B-C	●	●				70	100			
	-100-4B-C	●	●				100	150			
	-150-4B-C	●	●				150	220			
	-220-4B-C	●	●				220	∞			
	-35-4C-C	●	●	59.35	25		35	50			
	-50-4C-C	●	●				50	70			
	-70-4C-C	●	●				70	100			
	-100-4C-C	●	●				100	150			
	-150-4C-C	●	●				150	220			
	-220-4C-C	●	●				220	∞			
	KGDF$^{R}_{L}$ -25-5B-C	●	●	49.35	15	4	25	35	5	GDFM 5020N-040GM GDFM 5020N-080GM GDFM 5020N-040GH GDFM 5020N-080GH GDFM 5020N-040DM GDFMS 5020N-040DM	
	-35-5B-C	●	●				35	50			
	-50-5B-C	●	●				50	75			
	-75-5B-C	●	●				75	115			
	-115-5B-C	●	●				115	180			
	-180-5B-C	●	●				180	235			
	-235-5B-C	●	●				235	∞			
	-25-5C-C	●	●	54.35	20		25	35			
	-35-5C-C	●	●	59.35	25		35	50			
	-50-5C-C	●	●				50	75			
	-75-5C-C	●	●				75	115			
	-115-5C-C	●	●				115	180			
	-180-5C-C	●	●				180	235			
	-235-5C-C	●	●				235	∞			
	-75-5D-C	●	●	66.35	32		75	115			
	-115-5D-C	●	●				115	180			
	-180-5D-C	●	●				180	235			
	-235-5D-C	●	●				235	∞			
	KGDF$^{R}_{L}$ -25-6B-C	●	●	49.35	15	5	25	35	6	GDFM 6020N-040GM GDFM 6020N-080GM GDFM 6020N-040GH GDFM 6020N-080GH GDFM 6020N-040DM GDFMS 6020N-040DM	
	-35-6B-C	●	●				35	50			
	-50-6B-C	●	●				50	75			
	-75-6B-C	●	●				75	115			
	-115-6B-C	●	●				115	180			
	-180-6B-C	●	●				180	235			
	-235-6B-C	●	●				235	∞			
	-25-6C-C	●	●	54.35	20		25	35			
	-35-6C-C	●	●	59.35	25		35	50			
	-50-6C-C	●	●				50	75			
	-75-6C-C	●	●				75	115			
	-115-6C-C	●	●				115	180			
	-180-6C-C	●	●				180	235			
	-235-6C-C	●	●				235	∞			
	-75-6D-C	●	●	66.35	32		75	115			
	-115-6D-C	●	●				115	180			
	-180-6D-C	●	●				180	235			
	-235-6D-C	●	●				235	∞			

● : Std. Item

Recommended Cutting Conditions

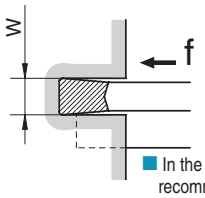
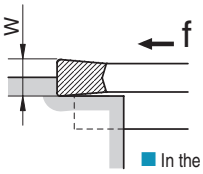
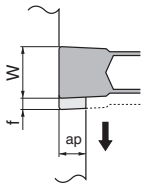
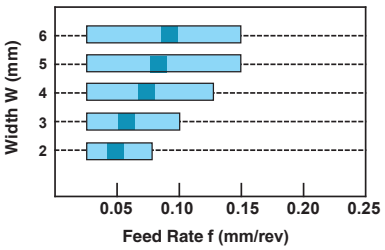
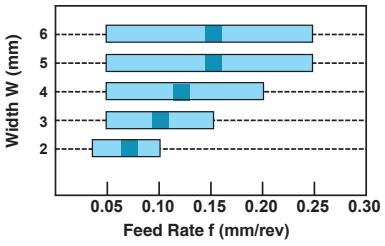
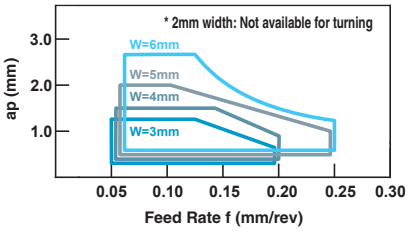
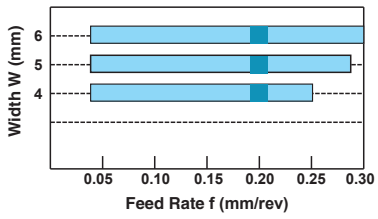
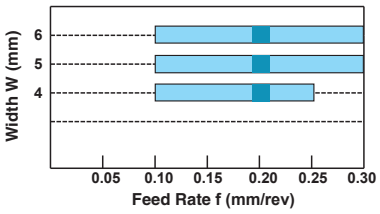
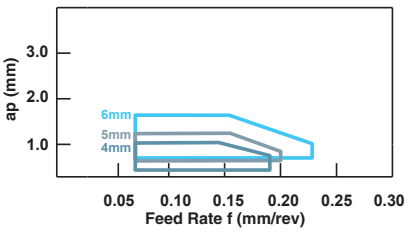
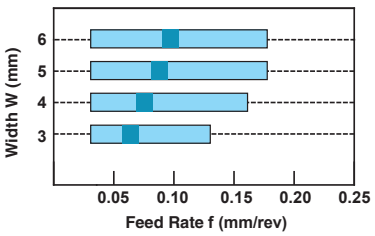
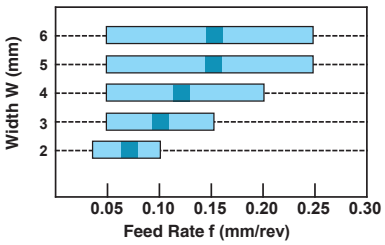
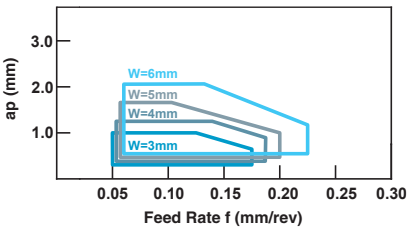
◆ Recommended Cutting Conditions (Vc)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)			Remarks
	Cermet	MEGACOAT		
	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]

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

● 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.

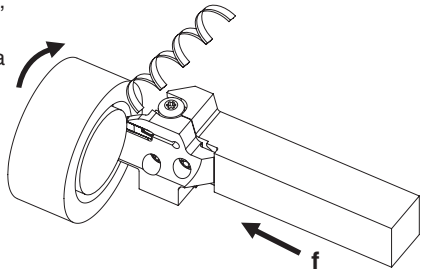
Points to be checked for face grooving

1) Toolholder Selection

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

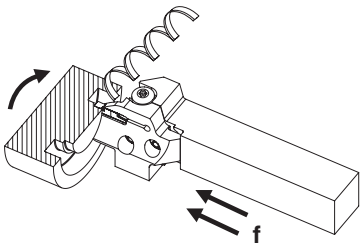
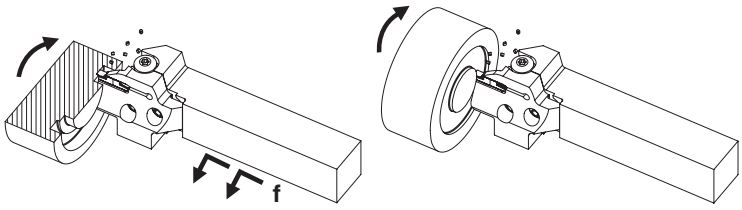
2) Cutting conditions (Feed rate : f)

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
	

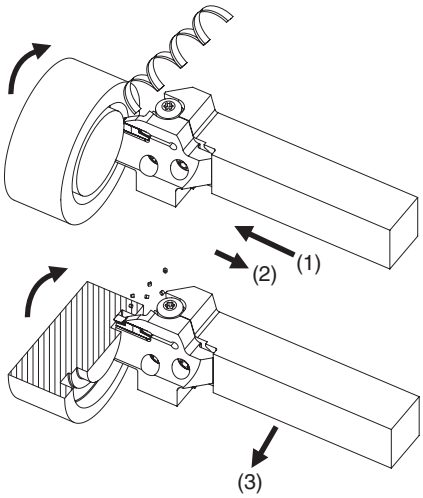
4) Guide for turning

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)



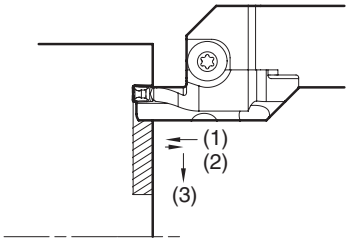


Fig.1

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

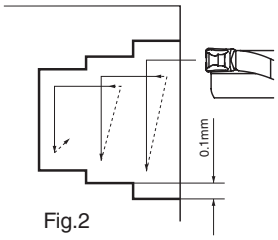


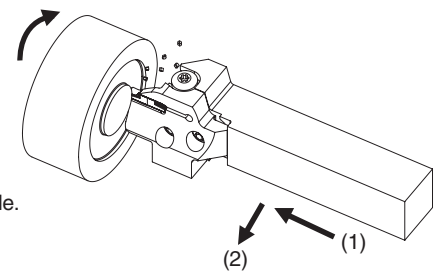
Fig.2

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)



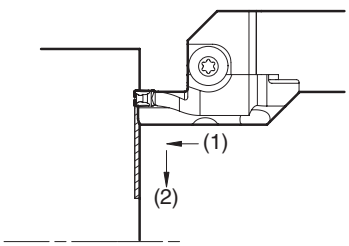
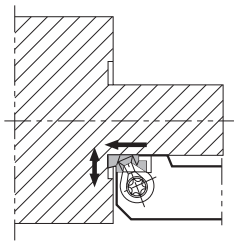
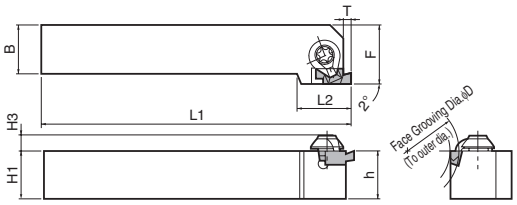


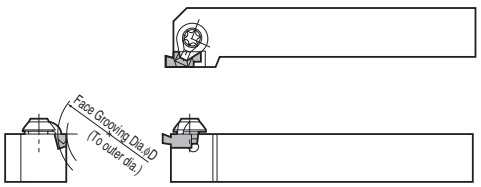
Fig.3

GFVS-AA





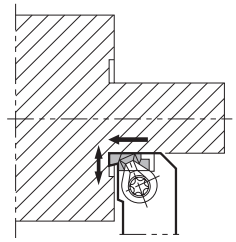
• Right-hand shown

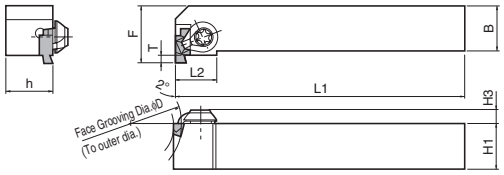


• Left-hand shown

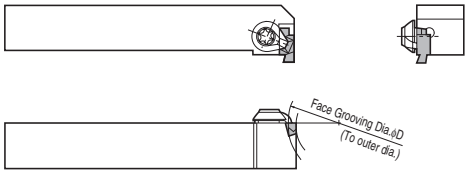
Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

GFVT-AA





• Right-hand shown



• Left-hand shown

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

● Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1	h	H3	B	L1	L2	F	T	Face Grooving Dia. φD MIN.	Face Grooving Dia. φD MAX.	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts (→ G85)
GFVS R/L	2020K-08AA	●	●	20	20	5.5	20	125	18	25	2.2	8 (0)	∞ (∞)	CPS-5V	FT-15	GVF L/R 100-005AA ⟆ GVF L/R 300-005AA
	2525M-08AA	●	●	25	25		25	150		32						
GFVT R/L	2020K-08AA	●	●	20	20	5.5	20	125	14	25	2.2	8 (0)	∞ (∞)	CPS-5V	FT-15	GVF L/R 100-005AA ⟆ GVF L/R 300-005AA
	2525M-08AA	●	●	25	25		25	150		32						

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

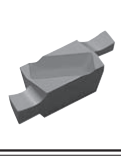
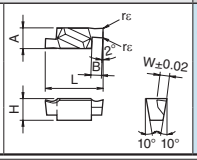
Grooving Inserts

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

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

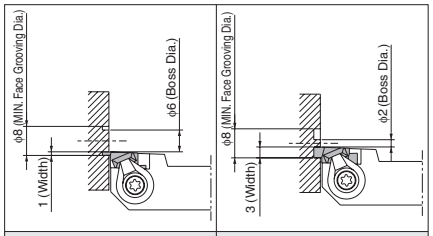
· Dimension B: shows available grooving depth.

· GVF$^{R}_{L}$···005AA inserts are not compatible with GVF$^{R}_{L}$····–○○○ A (Ref. to Page **G91**) inserts because their Side Relief Angle is 10°.

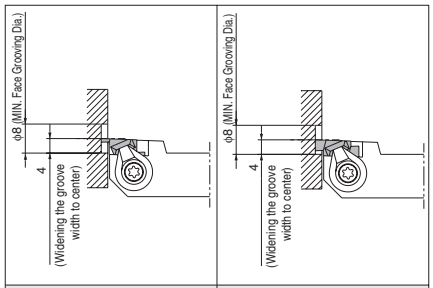
◆ Face Grooving Diameter of GFVS-AA (also GFVT-AA)

Description		Face Grooving Dia. ϕD MIN.	MAX.	Applicable Inserts
GFVS$^{R}_{L}$	2020K-08AA	8	∞	GVF$^{L}_{R}$100-005AA ≀ GVF$^{L}_{R}$300-005AA
	2525M-08AA			
GFVT$^{R}_{L}$	2020K-08AA	(0)	(∞)	
	2525M-08AA			

- It is available to infinity in case of machining the first groove bigger than 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.



Installing GVFL100-005AA | Installing GVFL300-005AA



Installing GVFL100-005AA | Installing GVFL300-005AA

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

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

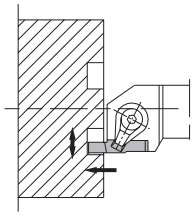
* ap has to be set for less than corner-R (rε) when turning of edge width 1.0 mm (GVF$^{R}_{L}$100-005AA).

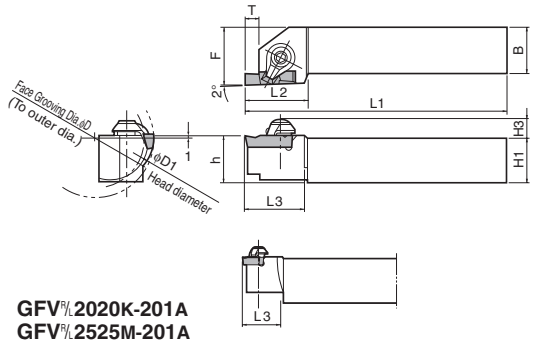
★: 1st Recommendation ☆: 2nd Recommendation

● : Std. Item

Inserts are sold in 10 piece boxes

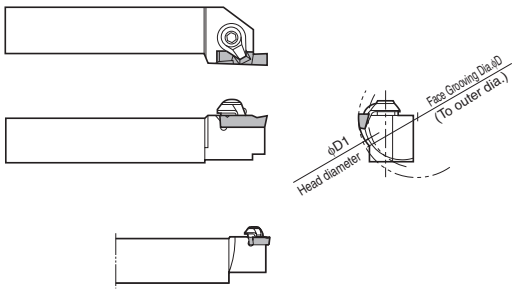
GFV





GFV$^{R}_{L}$2020K-201A
GFV$^{R}_{L}$2525M-201A
Shows Right Figure.

• Right-hand shown



• Left-hand shown

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

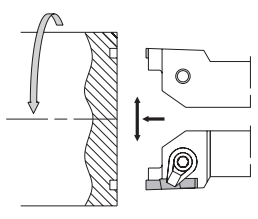
● Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1	h	H3	B	L1	L2	L3	F	T	φD1	Face Grooving Dia. φD MIN.	φD MAX.	Spare Parts: Clamp Set		Spare Parts: Wrench	Applicable Inserts (G91)
GFV$^{R}_{L}$	2020K-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}$200-…~300-…AR
	2525M-201A	●	●	25	26		25	150	23	22	32								
GFV$^{R}_{L}$	2020K-351B	●	●	20	21	8.0	20	125	28	26	25	4.6	35	35 (25)	50 (∞)	-	CPS-6V	LW-3	GVF$^{R}_{L}$250~350-020B GVF$^{R}_{L}$300-150BR
	2525M-351B	●	●	25	26		25	150	30	28	32								
	2020K-352B	●	●	20	21		20	125	28	26	25	5.1							GVF$^{R}_{L}$400~490-020B GVF$^{R}_{L}$400-200BR
	2525M-352B	●	●	25	26		25	150	30	28	32								
	2020K-501B	●	●	20	21		20	125	28	26	25	4.6	50	50 (25)	70 (∞)				GVF$^{R}_{L}$250~350-020B GVF$^{R}_{L}$300-150BR
	2525M-501B	●	●	25	26		25	150	30	28	32								
	2020K-502B	●	●	20	21		20	125	28	26	25	5.1							GVF$^{R}_{L}$400~490-020B GVF$^{R}_{L}$400-200BR
	2525M-502B	●	●	25	26		25	150	30	28	32								
	2020K-701B	●	●	20	21		20	125	28	26	25	4.6	70	70 (25)	100 (∞)				GVF$^{R}_{L}$250~350-020B GVF$^{R}_{L}$300-150BR
	2525M-701B	●	●	25	26		25	150	30	28	32								
	2020K-702B	●	●	20	21		20	125	28	26	25	5.1							GVF$^{R}_{L}$400~490-020B GVF$^{R}_{L}$400-200BR
	2525M-702B	●	●	25	26		25	150	30	28	32								
GFV$^{R}_{L}$	2525M-501C	●	●	25	26	9.5	25	150	35	33	32	6.6	50	50 (25)	70 (∞)	-	CPS-8V	LW-4	GVF$^{R}_{L}$350~450-040C
	2525M-502C	●	●									8.1							GVF$^{R}_{L}$500~600-040C
	2525M-701C	●	●									6.6	70	70 (25)	100 (∞)				GVF$^{R}_{L}$350~450-040C
	2525M-702C	●	●									8.1							GVF$^{R}_{L}$500~600-040C
	2525M-1001C	●	●							35		6.6	100	100 (25)	150 (∞)				GVF$^{R}_{L}$350~450-040C
	2525M-1002C	●	●									8.1							GVF$^{R}_{L}$500~600-040C
	2525M-1501C	●	●									6.6	150	150 (25)	250 (∞)				GVF$^{R}_{L}$350~450-040C
	2525M-1502C	●	●									8.1							GVF$^{R}_{L}$500~600-040C

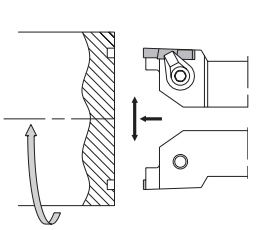
Note 1. · Dimension T shows available grooving depth.
2. φD1 shows toolholder head diameter to L3.
3. The value ( ) of Face Grooving Dia. (φD MAX.) is the maximum outer diameter value after the initial groove between MIN.~MAX. (It is possible to widen the groove to infinity ∞).
The value ( ) of Face 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

Toolholder	Right-hand (R)
Insert	Right-hand (R)



Toolholder	Left-hand (L)
Insert	Left-hand (L)



● : Std. Item

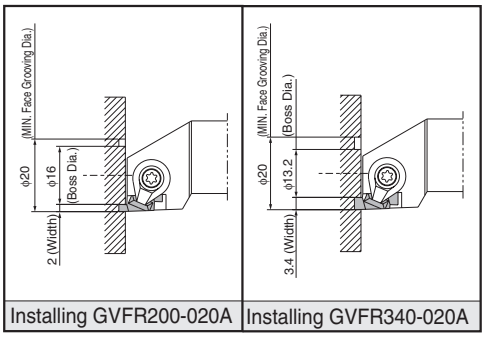
◆ Face Grooving Diameter of GFV

(1) e.g.) GFV$^{R}_{L}$····201A

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

- It is available to infinity ∞ in case of machining the first groove bigger than MIN.
- When machining towards the outer diameter then there is no MAX. limit to the further groove machining.
- When machining the initial groove on the face at MIN.ϕ20

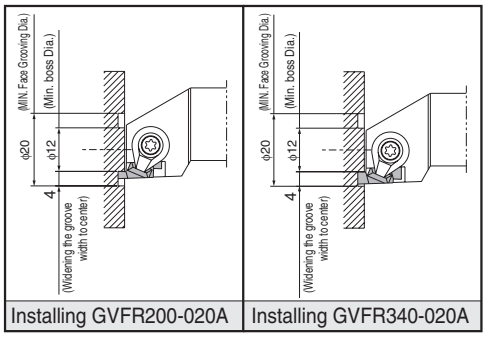
  If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
  Boss Dia. depends on insert width.



Installing GVFR200-020A | Installing GVFR340-020A

- When widening the groove width to inner diameter.

  Face groove diameter ϕD MIN. (12) is the limit; the toolholder interferes with the workpiece in case of smaller than ϕ12.
  The toolholder interferes with the workpiece when closer to the center.



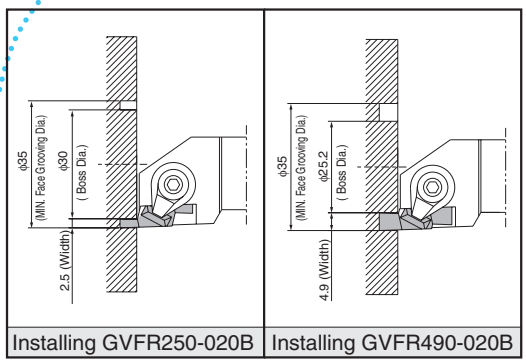
Installing GVFR200-020A | Installing GVFR340-020A

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

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

- It is possible to widen the groove to infinity ∞ when machining the initial groove within MIN.-MAX. and then widening to outer diameter.
- When machining the initial groove on the face at MIN. ϕ35

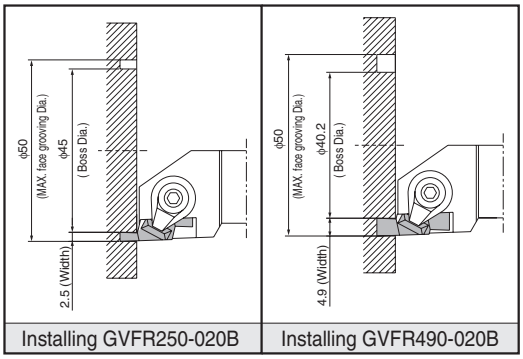
  If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
  Boss Dia. depends on insert width.



Installing GVFR250-020B | Installing GVFR490-020B

- When machining the initial groove on the face at MAX. ϕ50.

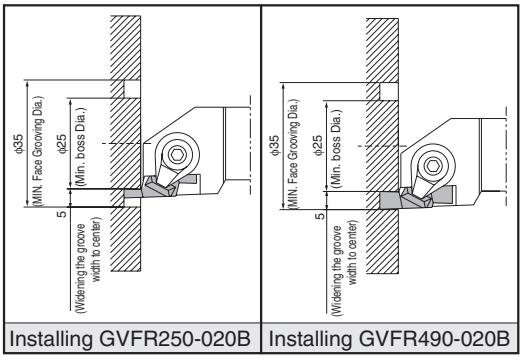
  If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
  Boss Dia. depends on insert width.



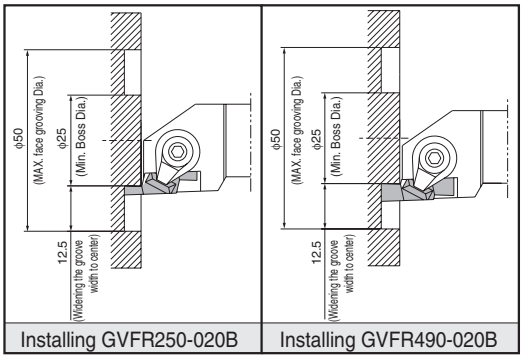
Installing GVFR250-020B | Installing GVFR490-020B

- When widening the groove width to inner diameter.

  Face Grooving Dia.ϕD MIN.(ϕ25 Boss Dia.) is the limitation regardless of insert width,
  even widening the groove width to the center from the initial groove at ϕD MIN.(ϕ35) or ϕD MAX.(ϕ50).
  The toolholder interferes with the workpiece when closer to the center.



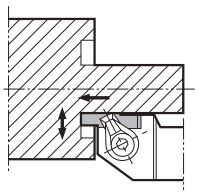
Installing GVFR250-020B | Installing GVFR490-020B

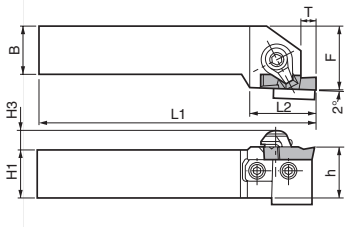


Installing GVFR250-020B | Installing GVFR490-020B

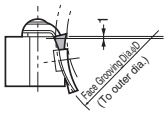
GFVS

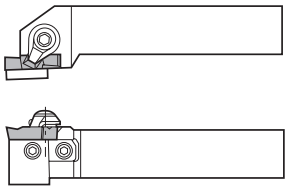
This toolholder can machine various face grooving diameters by replacing the Blade.





• Right-hand shown



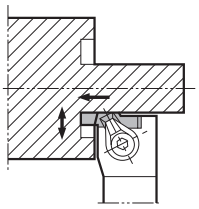


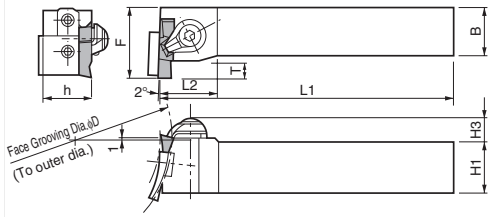
• Left-hand shown

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

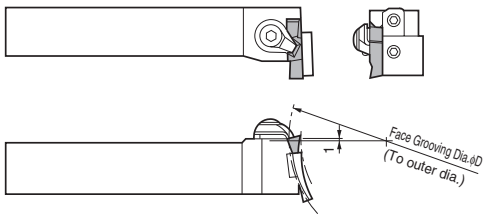
GFVT

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





• Right-hand shown

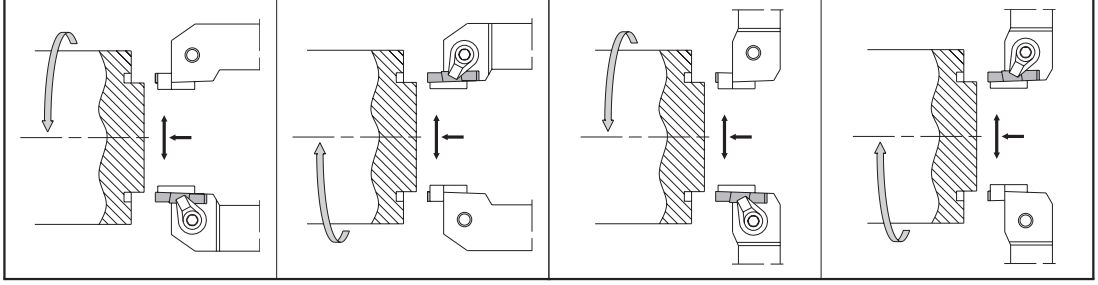


• Left-hand shown

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

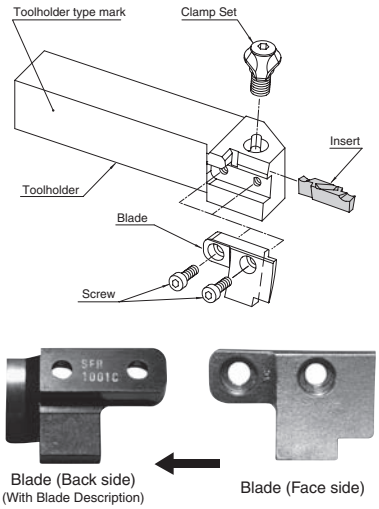
◆ Selection of Toolholder & Insert

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



● Combination of Base-Holder & Blade

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



How to refer to the face grooving toolholder and blade

Q: Though "GFVSR2525M-HC" is marked on the face grooving toolholder, the size of cutting dia. is unknown. How could it be found out?

A: Take off the blade. Description of the blade is listed on the back of the blade. Using the description, check the description of the toolholder in the catalog. If "SFR-1001C" is integrated to "GFVSR2525M-HC", the description of the toolholder is "GVFSR2525M-1001C"

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

● : Std. Item

● Toolholder Dimensions

Description	Std. R	Std. L	Dimension (mm) H1	h	H3	B	L1	L2	F	T	Face Grooving Dia. φD MIN.	φD MAX.	Spare Parts: Clamp Set	Wrench	Blade	Screw	Applicable Inserts → G91
GFVS R/L 2020K-351B	●	●	20	21	8.0	20	125	30	25	5.1 (4.6)	35 (25)	50 (∞)	CPS-6V	LW-3	SF R/L-351B	HH4X12	GVF R/L 250~350-020B
2525M-351B	●	●	25	26		25	150	32	32								GVF R/L 300-150BR
2020K-352B	●	●	20	21		20	125	30	25	5.1 (5.1)					SF R/L-352B		GVF R/L 400~490-020B
2525M-352B	●	●	25	26		25	150	32	32								GVF R/L 400-200BR
2020K-501B	●	●	20	21		20	125	30	25	5.1 (4.6)	50 (25)	70 (∞)			SF R/L-501B		GVF R/L 250~350-020B
2525M-501B	●	●	25	26		25	150	32	32								GVF R/L 300-150BR
2020K-502B	●	●	20	21		20	125	30	25	5.1 (5.1)					SF R/L-502B		GVF R/L 400~490-020B
2525M-502B	●	●	25	26		25	150	32	32								GVF R/L 400-200BR
2020K-701B	●	●	20	21		20	125	30	25	5.1 (4.6)	70 (25)	100 (∞)			SF R/L-701B		GVF R/L 250~350-020B
2525M-701B	●	●	25	26		25	150	32	32								GVF R/L 300-150BR
2020K-702B	●	●	20	21		20	125	30	25	5.1 (5.1)					SF R/L-702B		GVF R/L 400~490-020B
2525M-702B	●	●	25	26		25	150	32	32								GVF R/L 400-200BR
GFVS R/L 2525M-501C	●	●	25	26	9.5	25	150	32	32	8.1(6.6)	50 (25)	70 (∞)	CPS-8V	LW-4	SF R/L-501C	HH4X12	GVF R/L 350~450-040C
2525M-502C	●	●								8.1(8.1)					SF R/L-502C		GVF R/L 500~600-040C
2525M-701C	●	●								8.1(6.6)	70 (25)	100 (∞)			SF R/L-701C		GVF R/L 350~450-040C
2525M-702C	●	●								8.1(8.1)					SF R/L-702C		GVF R/L 500~600-040C
2525M-1001C	●	●								8.1(6.6)	100 (25)	150 (∞)			SF R/L-1001C		GVF R/L 350~450-040C
2525M-1002C	●	●								8.1(8.1)					SF R/L-1002C		GVF R/L 500~600-040C
2525M-1501C	●	●								8.1(6.6)	150 (25)	250 (∞)			SF R/L-1501C		GVF R/L 350~450-040C
2525M-1502C	●	●								8.1(8.1)					SF R/L-1502C		GVF R/L 500~600-040C
GFVT R/L 2020K-351B	●	●	20	21	8.0	20	125	22	30	5.1 (4.6)	35 (25)	50 (∞)	CPS-6V	LW-3	SF R/L-351B	HH4X12	GVF R/L 250~350-020B
2525M-351B	●	●	25	26		25	150	25	35								GVF R/L 300-150BR
2020K-352B	●	●	20	21		20	125	22	30	5.1 (5.1)					SF R/L-352B		GVF R/L 400~490-020B
2525M-352B	●	●	25	26		25	150	25	35								GVF R/L 400-200BR
2020K-501B	●	●	20	21		20	125	22	30	5.1 (4.6)	50 (25)	70 (∞)			SF R/L-501B		GVF R/L 250~350-020B
2525M-501B	●	●	25	26		25	150	25	35								GVF R/L 300-150BR
2020K-502B	●	●	20	21		20	125	22	30	5.1 (5.1)					SF R/L-502B		GVF R/L 400~490-020B
2525M-502B	●	●	25	26		25	150	25	35								GVF R/L 400-200BR
2020K-701B	●	●	20	21		20	125	22	30	5.1 (4.6)	70 (25)	100 (∞)			SF R/L-701B		GVF R/L 250~350-020B
2525M-701B	●	●	25	26		25	150	25	35								GVF R/L 300-150BR
2020K-702B	●	●	20	21		20	125	22	30	5.1 (5.1)					SF R/L-702B		GVF R/L 400~490-020B
2525M-702B	●	●	25	26		25	150	25	35								GVF R/L 400-200BR
GFVT R/L 2525M-501C	●	●	25	26	9.5	25	150	27	38	8.1(6.6)	50 (25)	70 (∞)	CPS-8V	LW-4	SF R/L-501C	HH4X12	GVF R/L 350~450-040C
2525M-502C	●	●								8.1(8.1)					SF R/L-502C		GVF R/L 500~600-040C
2525M-701C	●	●								8.1(6.6)	70 (25)	100 (∞)			SF R/L-701C		GVF R/L 350~450-040C
2525M-702C	●	●								8.1(8.1)					SF R/L-702C		GVF R/L 500~600-040C
2525M-1001C	●	●								8.1(6.6)	100 (25)	150 (∞)			SF R/L-1001C		GVF R/L 350~450-040C
2525M-1002C	●	●								8.1(8.1)					SF R/L-1002C		GVF R/L 500~600-040C
2525M-1501C	●	●								8.1(6.6)	150 (25)	250 (∞)			SF R/L-1501C		GVF R/L 350~450-040C
2525M-1502C	●	●								8.1(8.1)					SF R/L-1502C		GVF R/L 500~600-040C

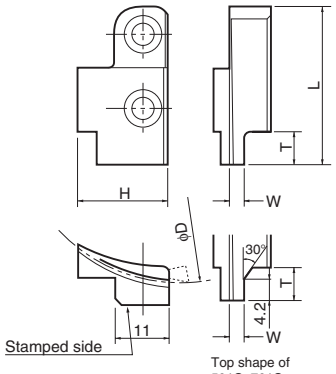
Note 1. Dimension T shows the distance from the Toolholder to the cutting edge. The grooving depth is the mentioned in ( ).

2. The value ( ) of Face Grooving diameter. (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 diameter. (φD MIN.) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between MIN.~MAX.
3. Standard toolholders are designed with the edge position 1.0mm above the center.
   When using non-standard Toolholders, set the Edge position 1.0mm above the center.
4. GFVS and GFVT are composed of a base body and a blade.
   If the blade should be damaged, replace it with a new blade as listed in the left table.
   (e.g.) GFVSR2020K-HB+SFR-351B = GFVSR2020K-351B
   (e.g.) GFVTR2020K-HB+SFR-351B = GFVTR2020K-351B

● : Std. Item

Face Grooving Toolholders

● Blade Dimensions

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

◆ Face Groove Diameter of GFVS / GFVT

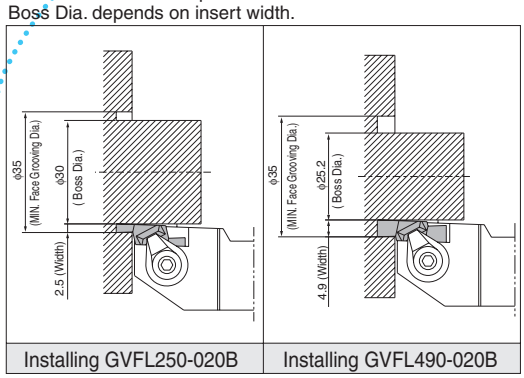
e.g.) GFVS$^{R}_{L}$····-351B/352B

(same as **GFVS$^{R}_{L}$**····○○○B, ····○○○C ➡ **G89**
GFVT$^{R}_{L}$····○○○B, ····○○○C ➡ **G89**)

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

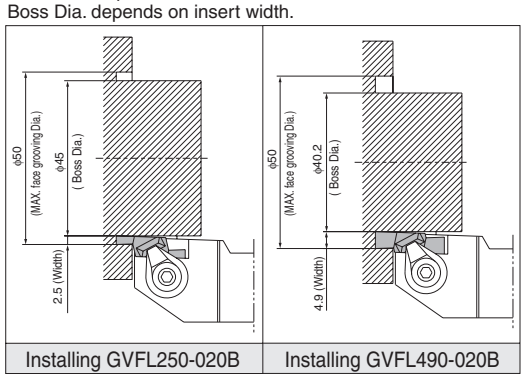
• It is possible to widen the groove to infinity ∞ when machining the initial groove within MIN.-MAX. and then widening to outer diameter.

• When machining the initial groove on the face at MIN. φ35
If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
Boss Dia. depends on insert width.



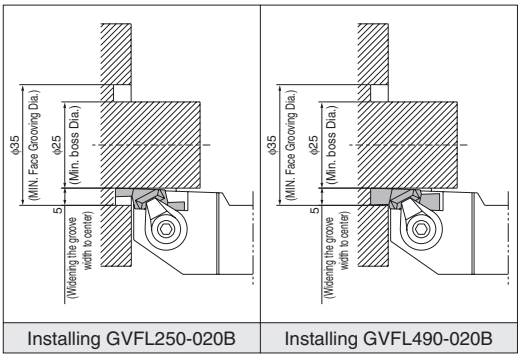
Installing GVFL250-020B | Installing GVFL490-020B

• When machining the initial groove on the face at MAX. φ50.
If the first groove is bigger than this, the toolholder interferes with the workpiece.
Boss Dia. depends on insert width.

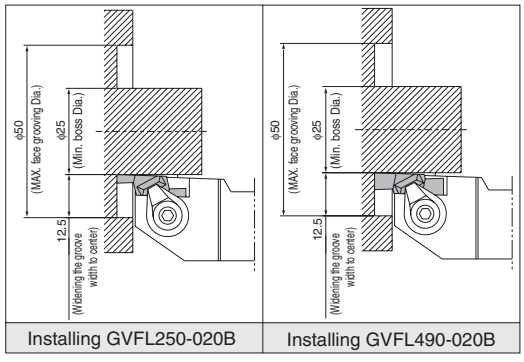


Installing GVFL250-020B | Installing GVFL490-020B

• When widening the groove width to inner diameter.
Face Grooving Dia.φD MIN.(φ25 Boss Dia.) is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at φD MIN.(φ35) or φD MAX.(φ50). The toolholder interferes with the workpiece when closer to the center.



Installing GVFL250-020B | Installing GVFL490-020B



Installing GVFL250-020B | Installing GVFL490-020B

● : Std. Item

Applicable Inserts

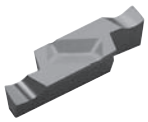
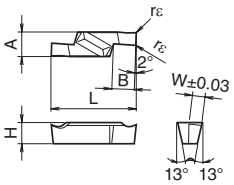
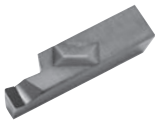
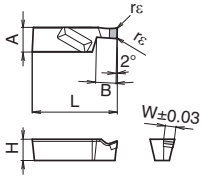
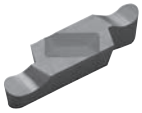
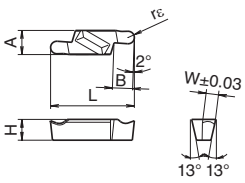
(mm)

Description	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

		Cermet			MEGA	PVD	Carbide	PCD	
		TN90	TC40N	TC60M	PR1225	PR930	KW10	KPD001	KPD010
P	Carbon steel / Alloy steel				●	◔			
M	Stainless Steel				●	◔			
K	Cast Iron						●		
N	Non-ferrous Metals						●		●
S	Titanium Alloys						●		●
H	Hard materials (~40HRC)				●	○			
	Hard materials (40HRC~)								

Classification of usage

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

Insert (Handed Insert shows Right-hand)	Description	(Previous Description)	W	B	rε	Cermet TN90	Cermet TC40N	Cermet TC60M	MEGA PR1225	PVD PR930	Carbide KW10	PCD KPD001	PCD KPD010	Applicable Toolholders	Ref. to Page for Applicable Toolholders
 	GVF$^{R}_{L}$ **200-020A**	GVF$^{R}_{L}$ **200A**	2.00	2.3	0.2	●	●	○	●	●	●			**GFV$^{R}_{L}$ ····201A** **GIFV$^{R}_{L}$ ····201A**	**G86 G96**
	230-020A	**230A**	2.30				●	○	●	●	●				
	250-020A	**250A**	2.50			R	●	R	●	●	●				
	270-020A	**270A**	2.70				●	R	●	●	●				
	290-020A	**290A**	2.90				●	R	●	●	●				
	340-020A	**340A**	3.40				●	R	●	●	●				
	GVF$^{R}_{L}$ **250-020B**	GVF$^{R}_{L}$ **250B**	2.50	4.8	0.2	●	●	○	●	●	●			**GFV$^{R}_{L}$ ····○○1B** **GFVS$^{L}_{R}$····○○1B** **GFVT$^{L}_{R}$····○○1B** **GIFV$^{R}_{L}$ ····○○1B**	**G86 G89 G96**
	300-020B	**300B**	3.00			●	●	○	●	●	●				
	350-020B	**350B**	3.50			●	●	○	●	●	●				
	400-020B	**400B**	4.00	5.3		●	●	○	●	●	●			**GFV$^{R}_{L}$ ····○○2B** **GFVS$^{L}_{R}$····○○2B** **GFVT$^{L}_{R}$····○○2B** **GIFV$^{R}_{L}$ ····○○2B**	
	430-020B	**430B**	4.30				●	○	●	●	●				
	460-020B	**460B**	4.60				●	○	●	●	●				
	490-020B	**490B**	4.90				●	○	●	●	●				
	GVF$^{R}_{L}$ **350-040C**	GVF$^{R}_{L}$ **350C**	3.50	6.8	0.4	●	●	○	●	●	●			**GFV$^{R}_{L}$ ····○○1C** **GFVS$^{L}_{R}$····○○1C** **GFVT$^{L}_{R}$····○○1C** **GIFV$^{R}_{L}$ ····○○1C**	
	400-040C	**400C**	4.00			●	●	○	●	●	●				
	450-040C	**450C**	4.50				●	○	●	●	●				
	500-040C	**500C**	5.00	8.3		●	●	○	●	●	●			**GFV$^{R}_{L}$ ····○○2C** **GFVS$^{L}_{R}$····○○2C** **GFVT$^{L}_{R}$····○○2C** **GIFV$^{R}_{L}$ ····○○2C**	
	550-040C	**550C**	5.50				●	○	●	●	●				
	600-040C	**600C**	6.00				●	○	●	●	●				
  1-edge	GVF$^{R}_{L}$ **250-020B**	GVF$^{R}_{L}$ **250B**	2.50	4.8	0.2								●	**GFV$^{R}_{L}$ ····○○1B** **GFVS$^{L}_{R}$····○○1B** **GFVT$^{L}_{R}$····○○1B** **GIFV$^{R}_{L}$ ····○○1B**	**G86 G89 G96**
	300-020B	**300B**	3.00										●		
	400-020B	**400B**	4.00	5.3									MTO	**GFV$^{R}_{L}$ ····○○2B** **GFVS$^{L}_{R}$····○○2B** **GFVT$^{L}_{R}$····○○2B** **GIFV$^{R}_{L}$ ····○○2B**	
	GVF$^{R}_{L}$ **350-020C**	**-**	3.50	6.8	0.2								MTO	**GFV$^{R}_{L}$ ····○○1C** **GFVS$^{L}_{R}$····○○1C** **GFVT$^{L}_{R}$····○○1C** **GIFV$^{R}_{L}$ ····○○1C**	
	400-020C	**-**	4.00										MTO		
	GVF$^{R}_{L}$ **350-040C**	GVF$^{R}_{L}$ **350C**	3.50	6.8	0.4								MTO		
	400-040C	**400C**	4.00										MTO		
  Full-R	GVF$^{R}_{L}$ **200-100AR**	GVF$^{R}_{L}$ **100AR**	2.00	2.3	1.00				●	●	●			**GFV$^{R}_{L}$ ····201A** **GIFV$^{R}_{L}$ ····201A**	**G86 G96**
	250-125AR	**125AR**	2.50		1.25				●	●	●				
	300-150AR	**150AR**	3.00		1.50				●	●	●				
	GVF$^{R}_{L}$ **300-150BR**	GVF$^{R}_{L}$ **150BR**	3.00	4.8	1.50				●	●	●			**GFV$^{R}_{L}$ ····○○1B** **GFVS$^{L}_{R}$····○○1B** **GFVT$^{L}_{R}$····○○1B** **GIFV$^{R}_{L}$ ····○○1B**	**G86 G89 G96**
	400-200BR	**200BR**	4.00	5.3	2.00				●	●	●			**GFV$^{R}_{L}$ ····○○2B** **GFVS$^{L}_{R}$····○○2B** **GFVT$^{L}_{R}$····○○2B** **GIFV$^{R}_{L}$ ····○○2B**	

· Dimension B: shows available grooving depth.
· MEGA indicates MEGACOAT

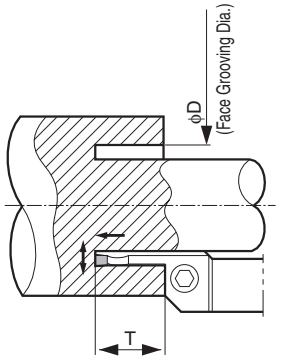
Recommended Cutting Conditions ➡ G100

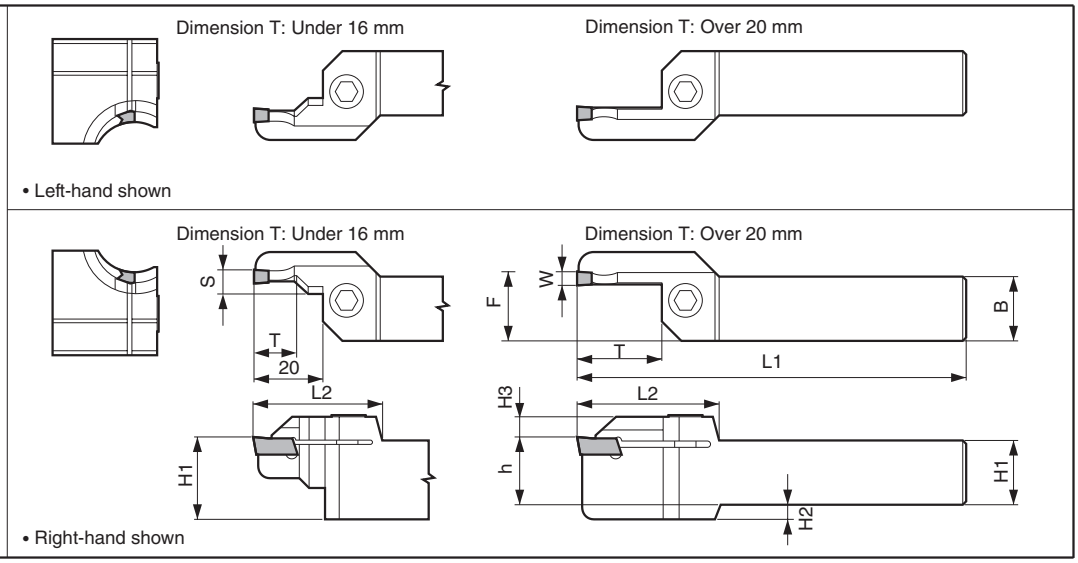
● : Std. Item
○ : Check Availability
R : Std. Item (Right-hand Only)
MTO : Made to order

Inserts are sold in 10 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

KFMS





Toolholder Dimensions

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

● : Std. Item

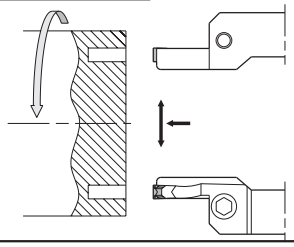
● Toolholder Dimensions

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

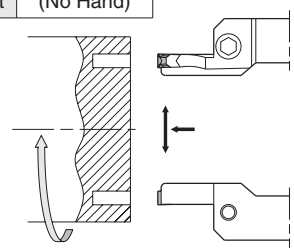
· Dimension T shows available grooving depth.
· Face Grooving Dia. ϕD: The diameter range of the initial groove.
· For KFMS$^{R}_{L}$····5 toolholder can hold a 6mm width insert. ( ) value shows the dimension of a 6mm width insert.

◆ Selection of Toolholder & Insert

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



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

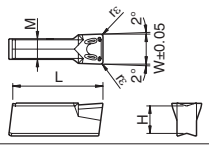
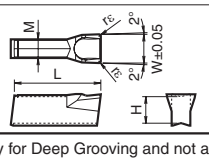


■ Applicable Inserts

(mm)

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

		Classification of usage
P	Carbon steel / Alloy steel	●: Continuous-Light Interruption / 1st Choice ◔: 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~)	

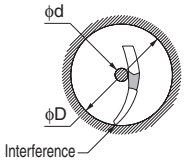
Insert		Description		Dimension (mm) W	rε	M	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	PVD Coated Carbide PR905	Carbide KW10	Applicable Toolholders
 Face Grooving Chip Control Oriented / M Class		FMM	30-03	3.0	0.3	2.0	●	●	●	●	●	●	KFMS$^{R}_{L}$··· 3
			40-04	4.0	0.4	2.6	●	●	●	●	●	●	KFMS$^{R}_{L}$··· 4
			50-04	5.0		3.4	●	●	●	●	●	●	KFMS$^{R}_{L}$··· 5
			60-04	6.0		4.0	●	●		●	●	●	
 Face Grooving Sharp-Cutting Oriented / M Class		FMN	3	3.0	0.25	2.0	●	●		●		●	KFMS$^{R}_{L}$··· 3
			4	4.0		2.6	●	●		●		●	KFMS$^{R}_{L}$··· 4
			5	5.0		3.4	●	●		●		●	KFMS$^{R}_{L}$··· 5
			6	6.0		4.0		●		●		●	

· 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

Description \ ϕD	25	26	27	28 and over
	ϕd			
KFMS$^{R}_{L}$ 2020K2530-3 KFMS$^{R}_{L}$ 2525M2530-3	4	2	0	0
KFMS$^{R}_{L}$ 2020K2535-4 KFMS$^{R}_{L}$ 2525M2535-4	6	3	0	(No remaining Boss)
KFMS$^{R}_{L}$ 2020K2535-5 KFMS$^{R}_{L}$ 2525M2535-5	7 *(5)	4 *(2)	1 *(0)	

e.g.) KFMSR 2525M2530-3 with ϕ25 as first cut towards the center, it will cause a rubbing with the toolholder cartridge if ϕd is 4.0mm.

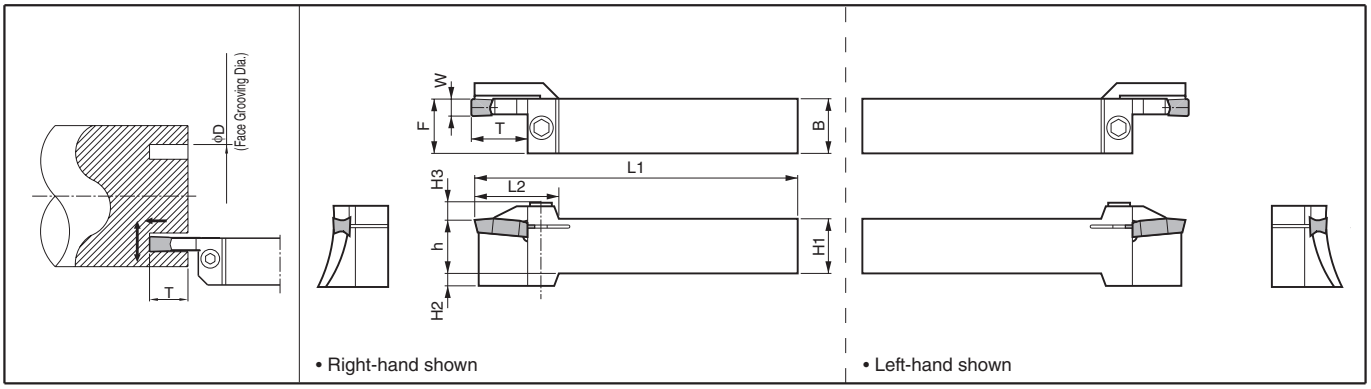
*( ) value shows the Dimension using FMM60-04 Insert.

● : Std. Item

Inserts are sold in 10 piece boxes.

Face Grooving Toolholders

KFMS-8



Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F	T	Width (mm) W	Face Grooving Dia. φD MIN.	φD MAX.	Spare Parts: Clamp Bolt	Spare Parts: 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.

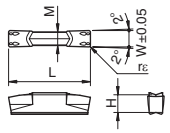
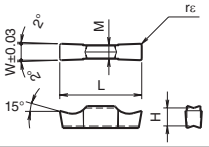
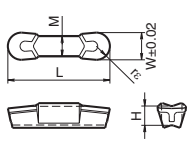
· The value ( ) of Face Grooving Dia. (φD MAX.) is the maximum outer diameter value after the initial groove between MIN.~MAX. (It is possible to widen the groove to infinity ∞).
The value ( ) of Face Grooving Dia. (φD MIN.) is the minimum diameter of the boss which remains in the center when widening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

Applicable Inserts

(mm)

Description	L	H
GMM 8030-080MW	30	5.5
GMG 8030-050MG		
GMGA 8030-400R		

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

Insert		Description	(Previous Description)	Dimension (mm) W	rε	M	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PR930	PR905	Carbide KW10	Applicable Toolholders
Chip Control Oriented / M Class		GMM 8030-080MW	GMM 8030-08	8.0	0.8	6.0		●	●	●	●	●	KFMS$^{R/L}$ ···8
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						●	

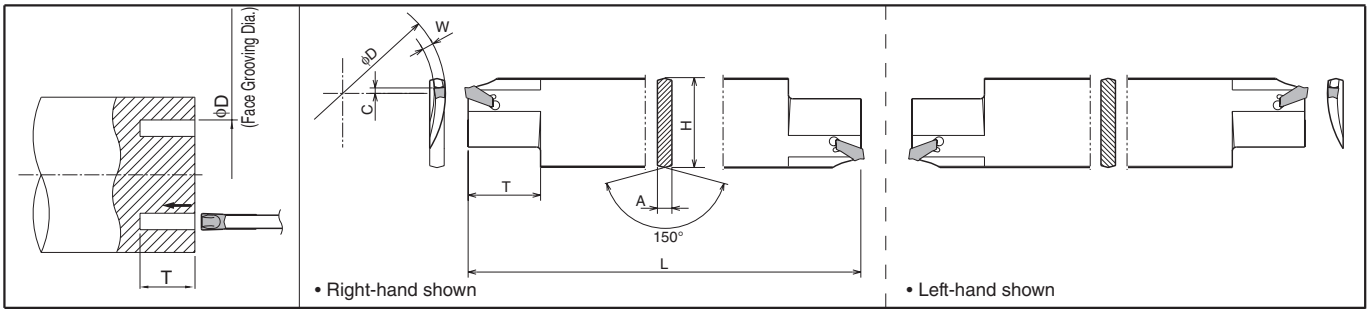
· If using a full-R insert with KIGM-8 type toolholder, you need to modify the corner of insert adapter of toolholder.

Recommended Cutting Conditions ➔ G101

Inserts are sold in 10 piece boxes.

● : Std. Item

KFTB-S



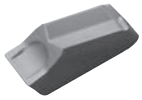
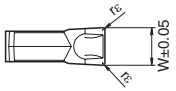
Blade Dimensions

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

· Dimension T shows available grooving depth.
· Face Grooving Dia.φD: The diameter range of the initial groove.
· The insert has Self-Clamping system and it is not suitable for tight tolerance grooves (tolerance±0.05mm).
· KFTB 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				●		Classification of usage
M	Stainless Steel				●		
K	Cast Iron					●	●: Continuous-Light Interruption / 1st Choice
N	Non-ferrous Metals					●	◔: Continuous-Light Interruption / 2nd Choice
S	Titanium Alloys					●	●: Continuous / 1st Choice
H	Hard materials (~40HRC)				○		○: Continuous / 2nd Choice
	Hard materials (40HRC~)						

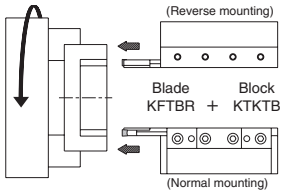
Insert		Description		Dimension (mm) W	Dimension (mm) rε	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR660	PVD Coated Carbide PR930	Carbide KW10	Applicable Toolholders
		FTK	4	4.0	0.25	●	●	●	●	●	KFTB R/L 65100-4S 90150-4S 150250-4S 250800-4S
			5	5.0		●	●	●	●	●	KFTB R/L 90150-5S 150250-5S 250800-5S

Recommended Cutting Conditions ➔ G100

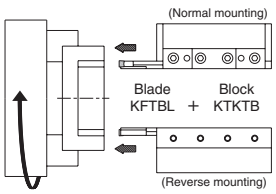
Selection of Blade and Insert

Combination of Blade + KTKTB

Blade	Right-hand (R)
Insert	Neutral

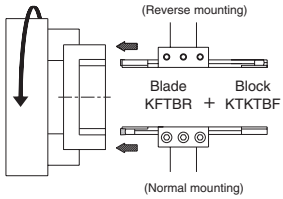


Blade	Left-hand (L)
Insert	Neutral

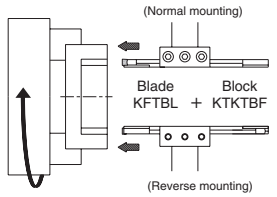


Combination of Blade + KTKTBF

Blade	Right-hand (R)
Insert	Neutral

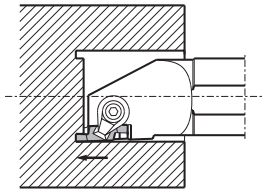


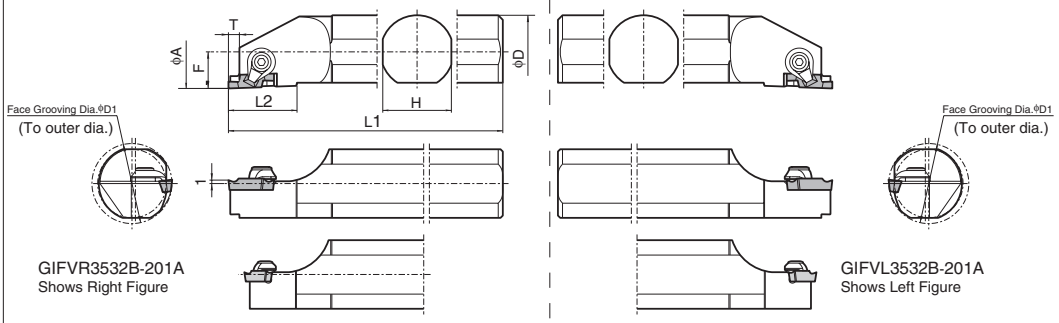
Blade	Left-hand (L)
Insert	Neutral



● : Std. Item

GIFV



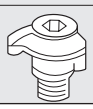
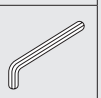


• Right-hand shown

• Left-hand shown

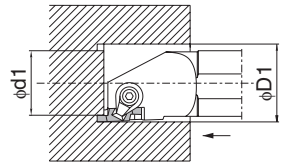
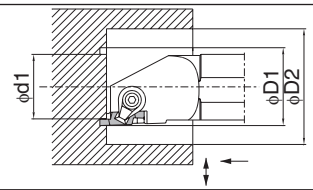
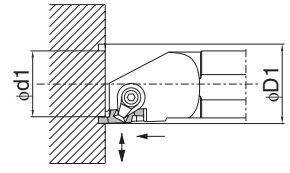
Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

● Toolholder Dimensions

Description		Std.		Dimension (mm)							Face Grooving Dia. φD1		Spare Parts				Applicable Inserts ➔ G91
													Clamp Set		Wrench		
		R	L	φA	φD	H	L1	L2	F	T	MIN.	MAX.					
GIFV R/L	3532B-201A	●	●	35	32	30	250	23	16	2.2	35 (12)	∞	CPS-5V	-	FT-15	-	GVF R/L...-...A GVF R/L...-...AR
GIFV R/L	3532B-351B	●	●	35				30		4.6	35 (25)	50 (∞)	-	CPS-6V	-	LW-3	GVF R/L250~350-020B GVF R/L300-150BR
	3532B-352B	●	●							5.1	35 (25)	50 (∞)					GVF R/L400~490-020B GVF R/L400-200BR
	5032B-501B	●	●	50						4.6	50 (25)	70 (∞)					GVF R/L250~350-020B GVF R/L300-150BR
	5032B-502B	●	●							5.1	50 (25)	70 (∞)					GVF R/L400~490-020B GVF R/L400-200BR
GIFV R/L	5032B-501C	●	●	50				35		6.6	50 (25)	70 (∞)		CPS-8V		LW-4	GVF R/L350~450-040C
	5032B-502C	●	●							8.1	50 (25)	70 (∞)					GVF R/L500~600-040C

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

· 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

◆ GBA type inserts (Ground Chipbreaker)

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

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

★: 1st Recommendation ☆: 2nd Recommendation

◆ GBA type inserts (GM Chipbreaker)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)	(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)				Remarks
	MEGACOAT PR1215	GBA43R/L 150-020GM	GBA43R/L 175-020GM~ 230-020GM	GBA43R/L 250-030GM~ 350-030GM	GBA43R/L 400-040GM	
Carbon Steel	80~220	(1) 0.03~0.12 (2) 0.03~0.08 (3) Max0.3	(1) 0.03~0.12 (2) 0.03~0.09 (3) Max0.3	(1) 0.04~0.15 (2) 0.05~0.1 (3) Max0.5	(1) 0.05~0.15 (2) 0.05~0.1 (3) Max0.8	Coolant
Alloy Steel	80~200	(1) 0.03~0.12 (2) 0.03~0.08 (3) Max0.3	(1) 0.03~0.12 (2) 0.03~0.09 (3) Max0.3	(1) 0.04~0.15 (2) 0.05~0.1 (3) Max0.5	(1) 0.05~0.15 (2) 0.05~0.1 (3) Max0.8	
Stainless Steel	60~150	(1) 0.03~0.1 (2) 0.03~0.08 (3) Max0.3	(1) 0.03~0.1 (2) 0.03~0.09 (3) Max0.3	(1) 0.04~0.12 (2) 0.05~0.1 (3) Max0.5	(1) 0.04~0.12 (2) 0.05~0.1 (3) Max0.8	

* Above cutting condition is for external grooving. Set both cutting speed and feed 20% lower for internal grooving.

◆ GBA type inserts (MY Chipbreaker)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)								(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)					Remarks
	Cermet		MEGA	PVD Coated Carbide		Carbide	CBN	PCD						
	TN6020	TC40N	PR1215	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)	GBA43R/L 175-020MY~ 200-020MY	GBA43R/L 230-020MY~ 265-030MY	GBA43R/L 300-030MY	GBA43R/L 330-030MY~ 350-030MY	GBA43R/L 400-040MY	
Carbon Steel	☆ 150~220	-	★ 80~200	☆ 80~200	☆ 80~200	-	-	-	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.8	Coolant
Alloy Steel	☆ 130~200	-	★ 80~180	☆ 80~180	☆ 80~180	-	-	-	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.09 (2) 0.05~0.09 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.8	
Stainless Steel	☆ 70~150	-	☆ 60~150	☆ 60~150	★ 60~150	-	-	-	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.09 (2) 0.05~0.09 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.8	

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

★: 1st Recommendation ☆: 2nd Recommendation

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

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)								(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)					Remarks
	Cermet			PVD Coated Carbide		Carbide	CBN	PCD						
	TN90	TC40N	TC60M	PR630	PR930	KW10	KBN510	KPD001 (KPD010)	GBO○R/L 050~100	GBO○R/L 125~200	GBO○R/L 230~300	GBO○R/L 330~400	GBO○R/L 400~480	
Carbon Steel	-	☆ 150~220	☆ 100~150	☆ 80~200	★ 80~180	-	-	-	(1) 0.03~0.08 (2) Not recom. (3) Not recom.	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.8	Coolant
Alloy Steel	-	☆ 130~200	☆ 80~130	☆ 80~180	★ 80~160	-	-	-	(1) 0.03~0.07 (2) Not recom. (3) Not recom.	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.09 (2) 0.05~0.09 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.8	
Stainless Steel	-	-	☆ 60~100	☆ 60~150	★ 60~130	-	-	-	(1) 0.03~0.07 (2) Not recom. (3) Not recom.	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.09 (2) 0.05~0.09 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.8	
Cast Iron	-	-	-	-	-	★ 60~100	-	-	(1) 0.03~0.08 (2) Not recom. (3) Not recom.	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.8	
Aluminum	-	-	-	-	-	★ 150~400	-	★ 150~2000	(1) 0.05~0.12 (2) Not recom. (3) Not recom.	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	
Brass	-	-	-	-	-	★ 150~300	-	★ 200~800	(1) 0.05~0.12 (2) Not recom. (3) Not recom.	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	

★: 1st Recommendation ☆: 2nd Recommendation

Recommended Cutting Conditions

◆ TGF inserts (Ground Chipbreaker)

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

· MEGA indicates MEGACOAT

★: 1st Recommendation ☆: 2nd Recommendation

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

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

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

★: 1st Recommendation ☆: 2nd Recommendation

◆ GH inserts (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)								(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)					Remarks
	Cermet			PVD Coated Carbide	Carbide	Ceramic								
	TN90	TC40N	TC60M	PR930	KW10	A65	A66N	PT600M	GH 40~50...	GH 55~70...	GH 75~80...	GH 100~120...		
Carbon Steel	☆ 150~220	☆ 150~220	☆ 100~150	★ 80~180	-	-	-	-	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.1~0.25 (2) 0.1~0.2 (3) Max. 1.5	(1) 0.15~0.3 (2) 0.15~0.25 (3) Max. 2.0		Coolant
Alloy Steel	☆ 130~200	☆ 130~200	☆ 80~130	★ 80~160	-	-	-	-	(1) 0.07~0.18 (2) 0.07~0.13 (3) Max. 1.0	(1) 0.07~0.18 (2) 0.07~0.13 (3) Max. 1.0	(1) 0.1~0.23 (2) 0.1~0.18 (3) Max. 1.5	(1) 0.15~0.27 (2) 0.15~0.22 (3) Max. 2.0		
Stainless Steel	☆ 70~150	-	☆ 60~100	★ 60~130	-	-	-	-	(1) 0.07~0.16 (2) 0.07~0.13 (3) Max. 1.0	(1) 0.07~0.16 (2) 0.07~0.13 (3) Max. 1.0	(1) 0.1~0.21 (2) 0.1~0.18 (3) Max. 1.5	(1) 0.15~0.25 (2) 0.15~0.22 (3) Max. 2.0		
Cast Iron	-	-	-	-	★ 60~100	☆ 150~300	☆ 150~300	☆ 150~300	KW10 (1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0 A65 / A66N (1) 0.03~0.07 (2) Not recom. (3) Not recom.	KW10 (1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0 A65 / A66N (1) 0.03~0.07 (2) Not recom. (3) Not recom.	KW10 (1) 0.1~0.25 (2) 0.1~0.2 (3) Max. 1.5 A65 / A66N (1) 0.05~0.09 (2) Not recom. (3) Not recom.	KW10 (1) 0.15~0.3 (2) 0.15~0.25 (3) Max. 2.0 A65 / A66N (1) 0.05~0.09 (2) Not recom. (3) Not recom.		
Aluminum	-	-	-	-	★ 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						
	TN60	TC40N	TC60M	CR9025	PR630	PR930	A65	A66N	GHU 40-20	GHU 50-20	GHU 60-20			
Carbon Steel	☆ 130~200	-	-	☆ 80~180	-	-	-	-	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.0	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.0	(1) 0.06~0.15 (2) 0.05~0.12 (3) Max. 1.5			Coolant
Alloy Steel	☆ 100~180	-	-	☆ 80~160	-	-	-	-	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.0	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.0	(1) 0.06~0.15 (2) 0.05~0.12 (3) Max. 1.5			
Stainless Steel	-	-	-	☆ 60~130	-	-	-	-	(1) 0.06~0.1 (2) 0.05~0.08 (3) Max. 0.8	(1) 0.06~0.1 (2) 0.05~0.08 (3) Max. 0.8	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.2			

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

★: 1st Recommendation ☆: 2nd Recommendation

◆ GA Inserts (Molded 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	f (mm/rev)		
Carbon Steel	★ 30~100			~0.03	~0.05	Coolant
Stainless Steel	★ 30~80			~0.02	~0.03	
Non-ferrous Metals			★ ~300	~0.05	~0.08	

★: 1st Recommendation

Note for using the grooving tip-bars PSG-S 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) Edge Width (mm)			Turning (FMM) Edge Width (mm)			Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide							
	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.

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

★: 1st Recommendation ☆: 2nd Recommendation

◆ Ref. to the notes below for turning conditions.

ap and f of FMM

	Recommended Cutting Conditions	
ap (MAX.) (mm)	under 50% of Edge Width	· ap ≤ 0.5w
f (MAX.) (mm)	under 3~5% of Edge Width	· f ≤ [0.03(Min.) ~ 0.05(Max.)] w

ap x f should be as follows.

Load(mm^2) \ Edge Width(mm)	3.0	4.0	5.0	6.0	
ap × f	~0.09	~0.14	~0.25	~0.36	· ap×f ≤ $0.01w^2$

Recommended Cutting Conditions

◆ GV Inserts (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)						(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)							Remarks
	Cermet			MEGA COAT	PVD Coated Carbide	Carbide	GVR/L 100~300-...SS 100~300-...S	GVR/L 145~185-...B	GVR/L 200~280-...B	GVR/L 300~400-...B				
	TN90	TC40N	TC60M	PR1225	PR930	KW10	GVR/L 100~340-...A 200~300-...AR		GVR/L 200-100BR	GVR/L 300-150BR	GVR/L 280~300-...C	GVR/L 340~400-...C	GVR/L 430~500-...C	
Carbon Steel	☆ 120~180	☆ 120~180	☆ 80~120	★ 80~160	☆ 80~140	-	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	Coolant
Alloy Steel	☆ 100~160	☆ 100~160	☆ 80~100	★ 80~140	☆ 80~120	-	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	
Stainless Steel	☆ 70~130	-	☆ 60~100	★ 60~130	☆ 60~110	-	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	
Cast Iron	-	-	-	-	-	★ 60~100	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	
Aluminum	-	-	-	-	-	★ 150~300	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	
Brass	-	-	-	-	-	★ 100~250	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	

* Use MEGACOAT, PVD coated grade or carbide for turning with edge width 1mm (GVR/L100SS/100S/100A)

★: 1st Recommendation ☆: 2nd Recommendation

◆ GVF Inserts (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)							(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)					Remarks
	Cermet				MEGA COAT	PVD Coated Carbide	Carbide	GVFR/L 200~340...A	GVFR/L 250~350...B	GVFR/L 400~490...B	GVFR/L 350~450...C	GVFR/L 500~600...C	
	TN60	TN90	TC40N	TC60M	PR1225	PR930	KW10	GVFR/L 200-100AR ~300-150AR	GVFR/L 300-150BR	GVFR/L 400-200BR			
Carbon Steel	-	☆ 150~220	☆ 150~220	☆ 100~150	★ 80~200	☆ 80~180	-	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.8	Coolant
Alloy Steel	-	☆ 130~200	☆ 130~200	☆ 80~130	★ 80~180	☆ 80~160	-	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.09 (2) 0.05~0.09 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.8	
Stainless Steel	-	☆ 70~150	-	☆ 60~100	★ 80~150	☆ 60~130	-	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.09 (2) 0.05~0.09 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.8	
Cast Iron	-	-	-	-	-	-	★ 60~100	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.8	
Aluminum	-	-	-	-	-	-	★ 150~400	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	
Brass	-	-	-	-	-	-	★ 150~300	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	

· Apply a sufficient amount of coolant.

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

★: 1st Recommendation ☆: 2nd Recommendation

◆ FTK Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)					Edge Width (mm)					Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide		Carbide	4.0	5.0				
	TN90	CR9025	PR660	PR930	KW10	f (mm/rev)					
Carbon Steel	☆ 120~200	★ 80~180	☆ 60~130	☆ 60~130	-	0.05~0.15	0.05~0.15				Coolant
Alloy Steel	☆ 100~160	★ 70~150	☆ 60~130	☆ 60~130	-	0.05~0.15	0.05~0.15				
Stainless Steel	☆ 80~150	☆ 60~140	★ 50~120	☆ 50~120	-	0.05~0.15	0.05~0.15				
Cast Iron	-	-	-	-	★ 50~100	0.10~0.30	0.10~0.30				
Aluminum	-	-	-	-	★ 200~450	0.05~0.25	0.05~0.25				
Brass	-	-	-	-	★ 100~200	0.05~0.25	0.05~0.25				

★: 1st Recommendation ☆: 2nd Recommendation

◆ GMN Inserts (CBN / PCD)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: m/min)		(1) f for Grooving (mm/rev) (2) f for Turning (mm/rev) (3) ap for Turning (mm)				Remarks
	CBN	PCD					
	KBN510 KBN525	KPD001 (KPD010)	GMN2	GMN3	GMN4 GMN5	GMN6	
Aluminum	-	★ 150~2,000	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.08~0.18 (2) 0.08~0.18 (3) Max. 0.8	(1) 0.10~0.20 (2) 0.10~0.20 (3) Max. 0.8	Coolant
Brass	-	★ 200~800	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.08~0.18 (2) 0.08~0.18 (3) Max. 0.8	(1) 0.10~0.20 (2) 0.10~0.20 (3) Max. 0.8	
Cast Iron	★ 150~400	-	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	
Hard Materials	★ 80~120	-	(1) 0.02~0.05 (2) 0.01~0.03 (3) Max. 0.1	(1) 0.03~0.07 (2) 0.01~0.05 (3) Max. 0.2	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.4	

★: 1st Recommendation

Recommended Cutting Conditions

GMG·GMM·GMN·GMGA

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

★: 1st Recommendation ☆: 2nd Recommendation

◆ **Ref. to the notes below for turning conditions.**

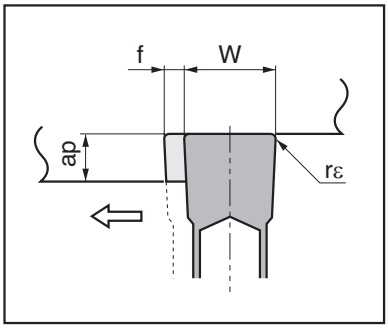
(1) When using KGM Toolholder

	Recommended Cutting Conditions	
ap (MAX.) mm	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(mm²) \ Edge Width(mm)	2.0~2.5	3.0	4.0	5.0	6.0	8.0
ap × f	~0.20	~0.36	~0.64	~1.00	~1.44	~2.56

· ap×f ≤ $\frac{1}{2}$×0.8w × 0.1w=0.04w²



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

· ap×f ≤ 0.02w²

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

· ap×f ≤ 0.04w²

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			

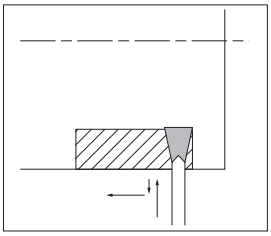
★: 1st Recommendation ☆: 2nd Recommendation

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.)



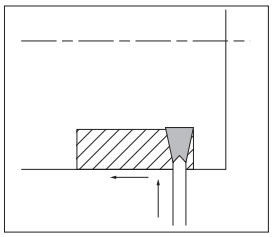
Before turning, pull the tool back about 0.1mm after grooving.
(Grooving Depth Over 0.5mm: At roughing)
Fig.1

- 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.



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

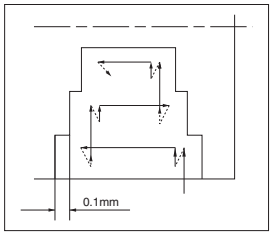


Fig.3

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)

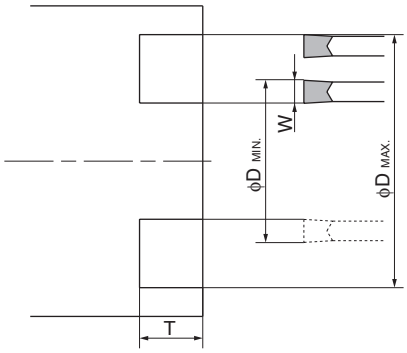


Fig.1

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

<Guide for turning>

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

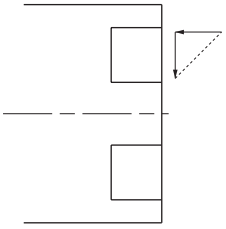
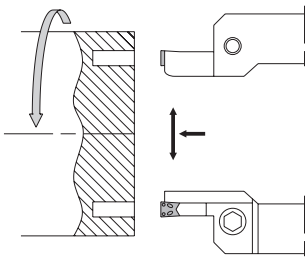


Fig.3

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



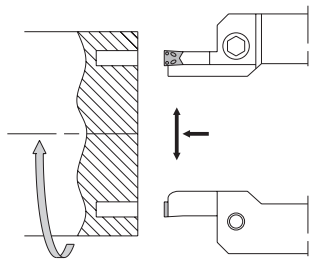
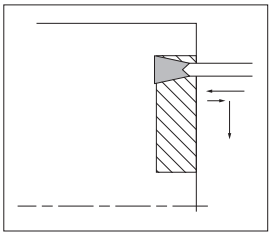


Fig.2 Toolholder's Hand and Rotation

Guide for Face Grooving (Continued)

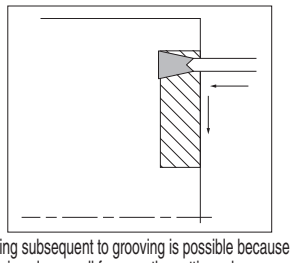
Point (I) (Turning after Grooving)

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.)

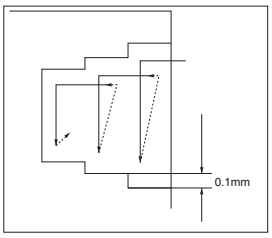
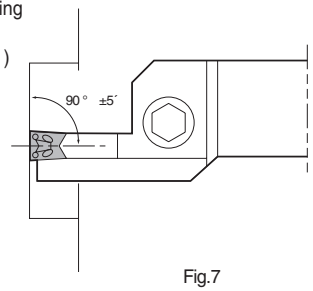


Fig.6

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 ±5'. (Fig.7)]  Fig.7
Chips are entangled.	(1) Install the toolholder in the reverse position. Adjust the coolant flow to the cutting edge. (2) When widening the groove, do not machine one deep groove. Instead, repeat shallow grooving and turning.
Insert cracks when turning.	Reverse the facing direction.
Groove is not straight.	Check the edge's parallelness. Decrease the feed rate.

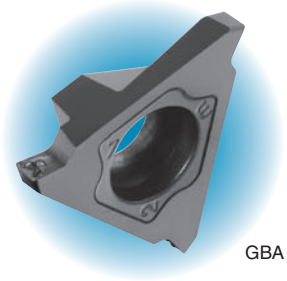
Guide for Grooving with Cermet Insert (Steel)

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

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

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

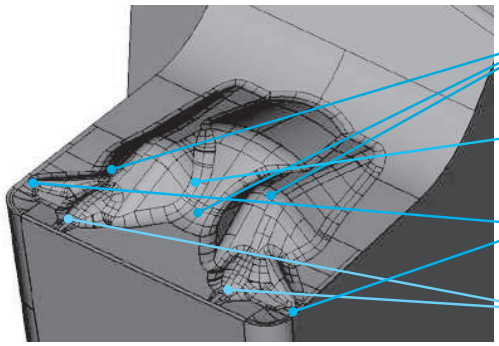
Chip Control of Grooving Insert with Molded Chipbreaker



GBA 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



Smooth chip control due to optimum bump layout on the chipbreaker

Alternative Toolholder Reference Table for Grooving Toolholder

Conventional Toolholder						Alternative Toolholder				
Description		Overall length (mm)	Spare Parts: Clamp Screw	Spare Parts: Wrench	Spare Parts: Wrench	Description		Overall length (mm)	Remarks	Ref. to Page
KTGF R/L	1010K-16F	125	SB-4070TRW	FT-8	-	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.