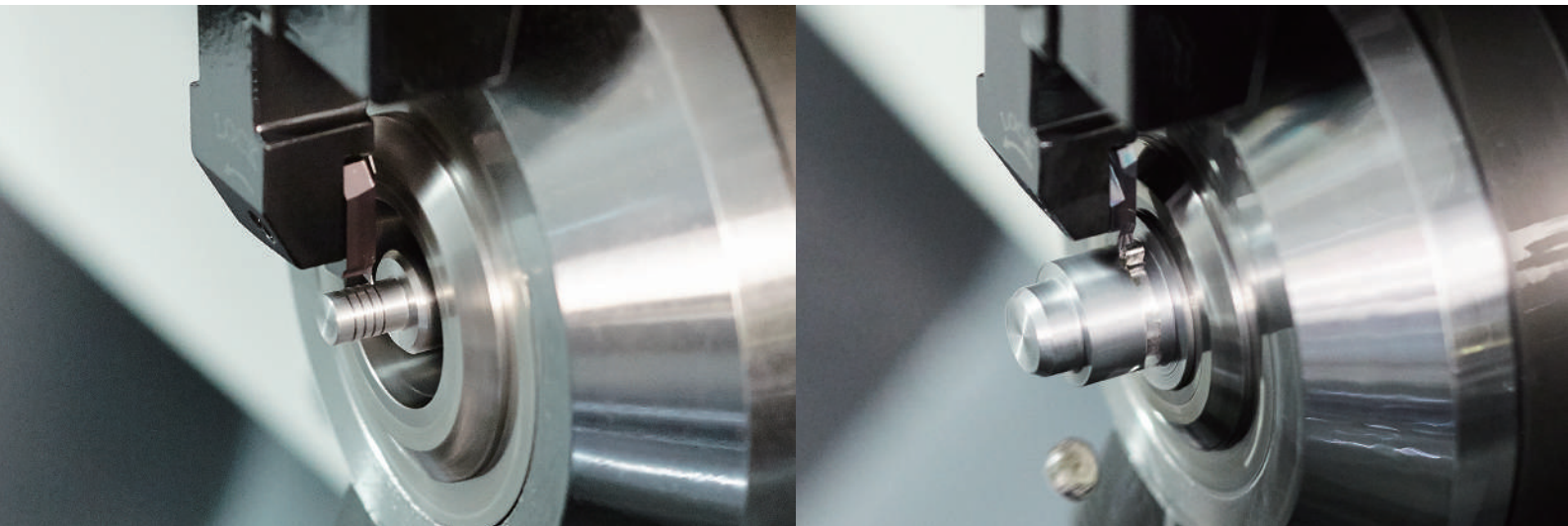


Grooving Tools for Small Parts Machining

GBF



High Precision Grooving Tools for Small Parts Machining

Offers a Wide Lineup

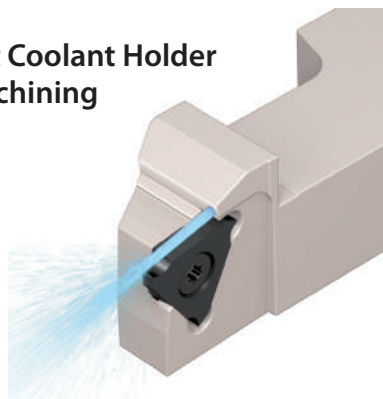
Groove Widths from 0.25 mm to 3.00 mm and Maximum Groove Depths up to 3 mm

Available Corner-R : 0.00/0.05/0.10 mm

Stable Chip Control with GL Chipbreaker

NEW Lineup Expansion : Ground Chipbreaker (Corner-R 0.10) and External Sleeve Holder

NEW JCTM Series Direct Coolant Holder for Small Parts Machining



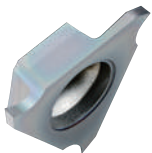
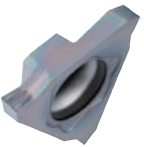
GBF

High Precision, the Edge Width Tolerance : $\pm 0.02\text{mm}$

Long Tool Life and High Efficiency Machining Achieved by MEGACOAT Technology

1 Large Lineup Allows to Satisfy Various User Needs

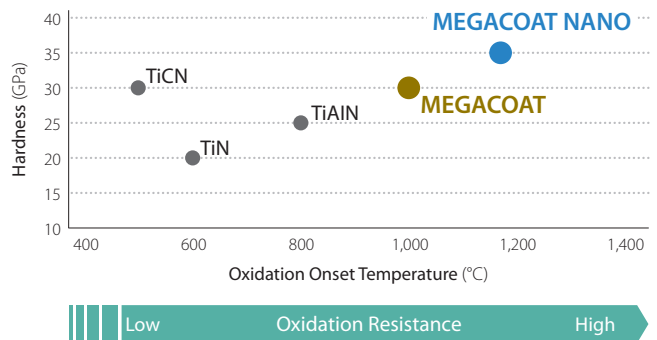
Insert **NEW** Lineup expansion : Ground chipbreaker
 Corner-R 0.10 mm is available for groove widths 0.75, 0.80, 0.95, 1.00, 1.10, and 1.20 mm

	Lineup	Features
 Ground Chipbreaker	Width of Groove CW (mm) Corner-R [r ϵ] (mm) 0.25~0.65 0.00/0.05 0.75~2.0 0.00/0.05/0.10 2.25~3.0 0.05/0.10 Each width of groove has both R-hand and L-hand	<ul style="list-style-type: none"> · Sharp Cutting Performance · Large Lineup
 Molded GL Chipbreaker	Width of Groove CW (mm) Corner-R [r ϵ] (mm) 0.75~1.0 0.05 1.5~3.0 0.10 R-hand Only	<ul style="list-style-type: none"> · Excellent Chip Control · Stable Machining

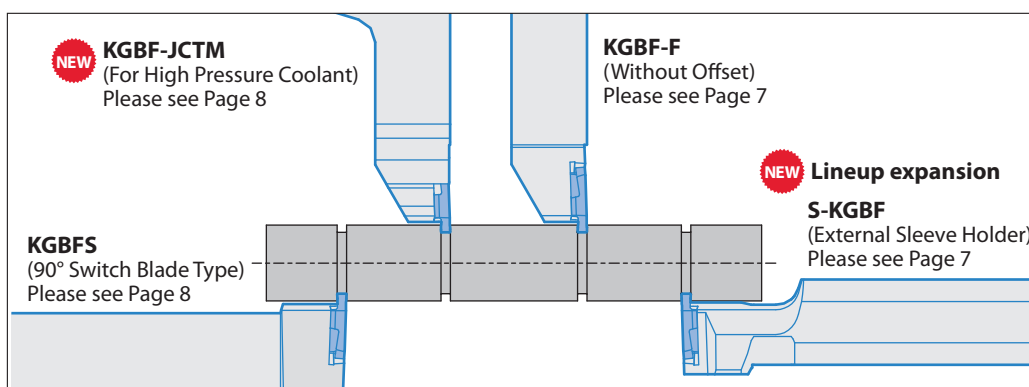
1st Recommendation

Steel	MEGACOAT PR1215
Stainless Steel	MEGACOAT NANO PR1535
Non-ferrous Material and Cast Iron	GW15

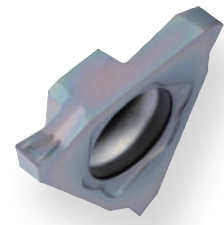
Coating Properties



Toolholder **NEW** KGBF-JCT holder for high pressure coolant added to lineup

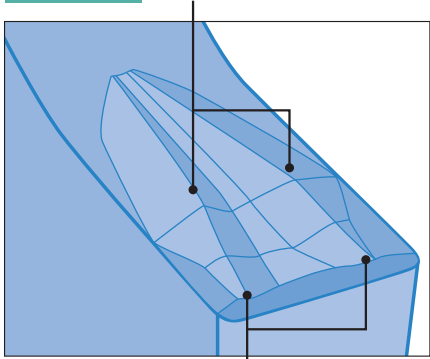


2 Stable Chip Control with GL Chipbreaker



GL Chipbreaker control chips stable at both grooving and traversing
(Traversing is not recommended for GBF32R075-005GL)

Twin Dots Stable Chip Control



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

Comparison of Chip Control (Internal evaluation)

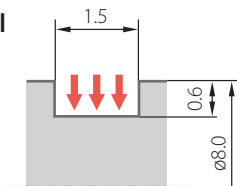
	GL Chipbreaker	Competitor A
Grooving d = 1.5 mm f = 0.05 mm/rev		
Traversing ap = 0.2 mm f = 0.04 mm/rev		

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

Case Studies

Nozzle Parts Stainless Steel

Vc = 45 m/min
f = 0.05 mm/rev
Groove depth 0.6 mm, Wet
KGBFR1212JX-16F
GBF32R100-005GL PR1535



GL Chipbreaker PR1535



Competitor A



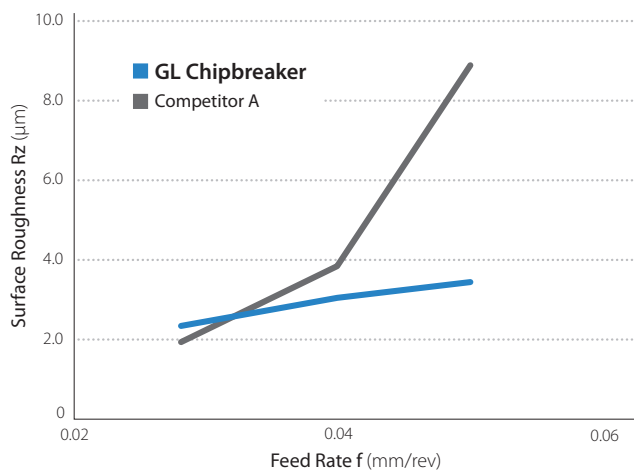
Competitor A entangled chips with workpiece due to unstable chip control.
GL Chipbreaker controlled chips stable without chips entangled.

(User evaluation)

3 Good Surface Finish

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

Surface Roughness Comparison (Internal evaluation)



Comparison of Chip Control (Internal evaluation)

Feed Rate f (mm/rev)	0.03	0.04	0.05
GL Chipbreaker			
Competitor A (Molded Chipbreaker)			

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

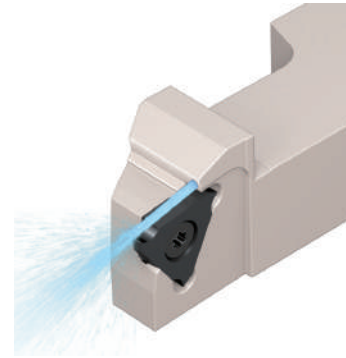
4

JCTM Series Direct Coolant Holder for Small Parts Machining Added to Lineup

Applicable to Different Supply Styles

Supports internal coolant with/without piping system

Internal coolant delivers improved chip control and longer tool life while grooving



Internal Coolant without Piping

*When the tool turret supports direct coolant

NEW

Coolant is supplied directly from tool turret into the holder. No need for piping just by installing tools

Applicable to Wide Range of Machines

The tool turret is optional. Please contact our company sales representative for details.

CITIZEN MACHINERY CO., LTD. (L20, D25, M32)

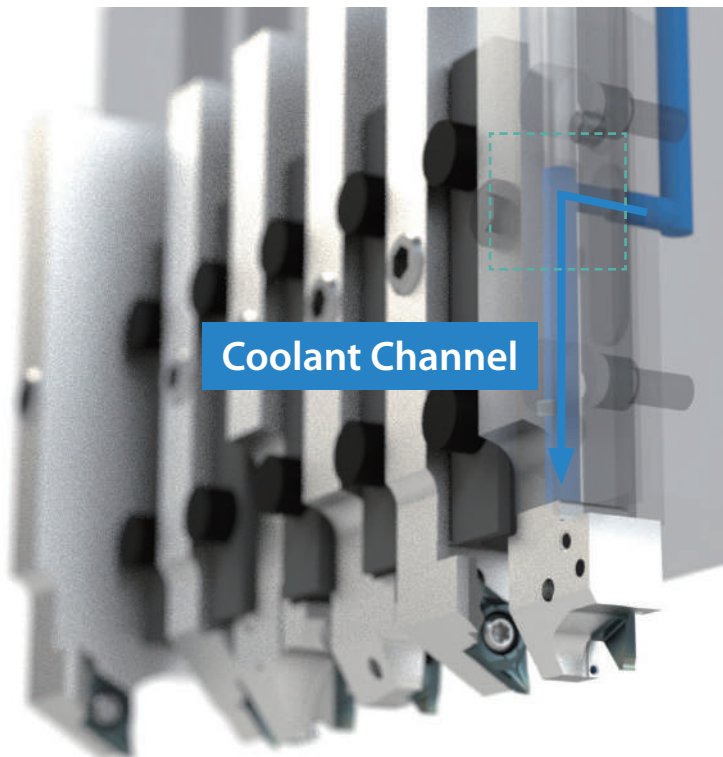
STAR MICRONICS CO., LTD. (SB-R series, SR series, SV series)

TSUGAMI CORPORATION (S205/206- II □ 16 type, S205A/206A-II □ 16 type)

Compatible with various machine including the above. Toolholders can be customized as well.

(Random order)

Based on Kyocera Survey in January 2021

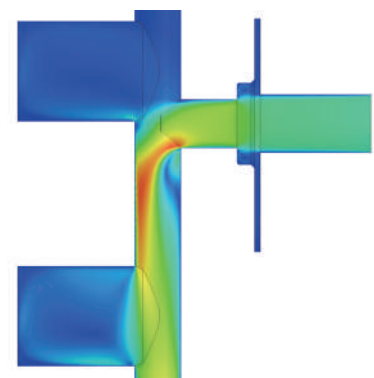


Point

Appropriate hole design to reduce energy loss based on deep analysis

Analysis Image (Internal evaluation)

High
Flow velocity
Low

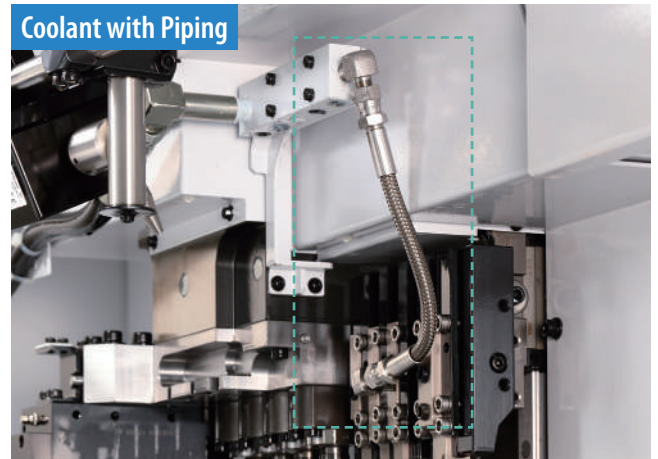


Internal Coolant with Piping

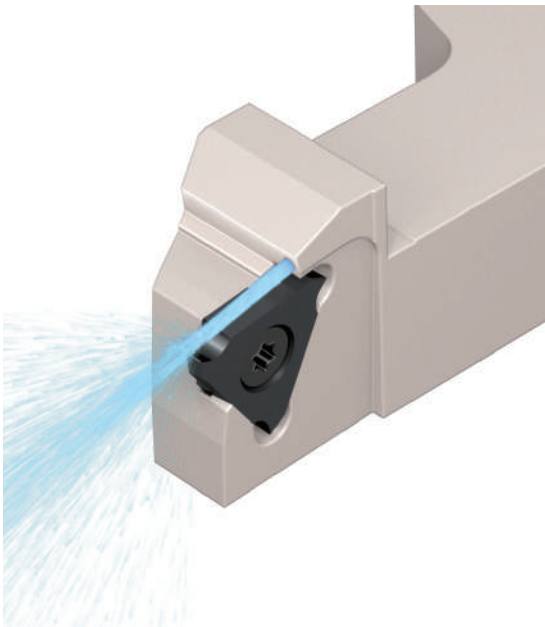
*Piping parts : See pages 9 and 10

Compatible with internal coolant on any machine with standard piping parts

Commercial piping parts are available when using at normal pressure



External Grooving KGBF-JCTM

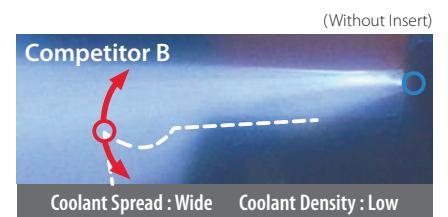
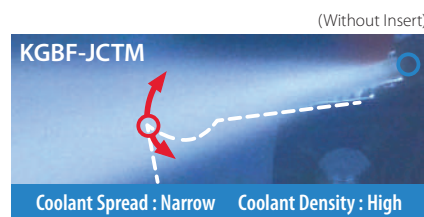
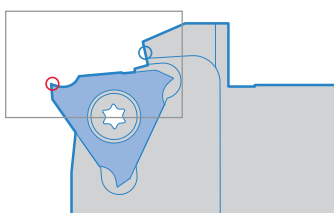


- Provides Coolant toward the Rake Surface of Insert
- Specification
 - Edge Width : 0.25 -3 mm
 - Ground Chipbreaker/Molded GL Chipbreaker
 - Maximum groove depth : 3 mm

Coolant Discharging Comparison (Internal evaluation)

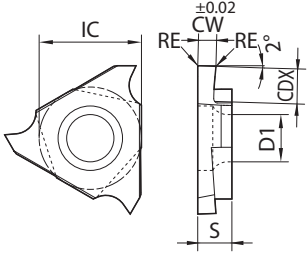
Small chips and better cooling of the insert leads to longer tool life

- Cutting Edge
- Coolant Hole



Applicable Insert

(mm)

Description	IC	S	D1	Dimensions (mm)			MEGACOAT	MEGACOAT NANO	Carbide
GBF32	9.525	3.18	4.4	CW	CDX	RE	PR1215	PR1535	GW15
Shape	Description								
	GBF32 ^R / _L 025-000F	0.25	0.6	0.00	●	●	●		
	025-005			0.05	●	●	●		
	030-000F	0.30	0.8	0.00	●	●	●		
	030-005			0.05	●	●	●		
	033-000F ^{*1}	0.33	0.8	0.00	●	●	●		
	033-005 ^{*1}			0.05	●	●	●		
	043-000F ^{*2}	0.43	1.0	0.00	●	●	●		
	043-005 ^{*2}			0.05	●	●	●		
	050-000F	0.50	1.2	0.00	●	●	●		
	050-005			0.05	●	●	●		
	053-000F ^{*3}	0.53	1.2	0.00	●	●	●		
	053-005 ^{*3}			0.05	●	●	●		
	065-000F	0.65	1.2	0.00	●	●	●		
	065-005			0.05	●	●	●		
	075-000F	0.75	2.0	0.00	●	●	●		
	075-005			0.05	●	●	●		
	NEW 075-010			0.10	●	●	●		
	080-000F	0.80	2.0	0.00	●	●	●		
	080-005			0.05	●	●	●		
	NEW 080-010			0.10	●	●	●		
	095-000F	0.95	2.0	0.00	●	●	●		
	095-005			0.05	●	●	●		
	NEW 095-010			0.10	●	●	●		
	100-000F	1.00	2.0	0.00	●	●	●		
	100-005			0.05	●	●	●		
	NEW 100-010			0.10	●	●	●		
	110-000F	1.10	2.0	0.00	●	●	●		
	110-005			0.05	●	●	●		
	NEW 110-010			0.10	●	●	●		
	120-000F	1.20	2.0	0.00	●	●	●		
	120-005			0.05	●	●	●		
	NEW 120-010			0.10	●	●	●		
	125-000F	1.25	2.0	0.00	●	●	●		
	125-005			0.05	●	●	●		
	125-010			0.10	●	●	●		
	130-000F	1.30	2.0	0.00	●	●	●		
	130-005			0.05	●	●	●		
	130-010			0.10	●	●	●		
	140-000F	1.40	2.7	0.00	●	●	●		
	140-005			0.05	●	●	●		
	140-010			0.10	●	●	●		
	145-000F	1.45	2.7	0.00	●	●	●		
	145-005			0.05	●	●	●		
	145-010			0.10	●	●	●		
	150-000F	1.50	2.7	0.00	●	●	●		
	150-005			0.05	●	●	●		
	150-010			0.10	●	●	●		
	165-000F	1.65	2.7	0.00	●	●	●		
	165-005			0.05	●	●	●		
	165-010			0.10	●	●	●		
170-000F	1.70	3.0	0.00	●	●	●			
170-005			0.05	●	●	●			
170-010			0.10	●	●	●			
175-000F	1.75	3.0	0.00	●	●	●			
175-005			0.05	●	●	●			
175-010			0.10	●	●	●			
200-000F	2.00	3.0	0.00	●	●	●			
200-005			0.05	●	●	●			
200-010			0.10	●	●	●			
225-005	2.25	3.0	0.05	●	●	●			
225-010			0.10	●	●	●			
250-005	2.50	3.0	0.05	●	●	●			
250-010			0.10	●	●	●			
300-005	3.00	3.0	0.05	●	●	●			
300-010			0.10	●	●	●			

Please check cautions on page 6 for the maximum machining diameter.

*1...Edge width tolerance of GBF32 ^R/_L 033-000F/005 : 0.33 ^{+0.015}/_{-0.025}

*2...Edge width tolerance of GBF32 ^R/_L 043-000F/005 : 0.43 ^{+0.015}/_{-0.025}

*3...Edge width tolerance of GBF32 ^R/_L 053-000F/005 : 0.53 ^{+0.015}/_{-0.025}

● : Standard Stock

GBF-GL

Applicable Insert

Description		IC	S	(mm)			
GBF32		9.525	3.18	4.4			
Shape	Description	Dimensions (mm)			MEGACOAT	MEGACOAT NANO	
		CW	CDX	RE	PR1215	PR1535	
	GBF32R 075-005GL	0.75	2.0	0.05	R	R	
	095-005GL	0.95	2.0	0.05	R	R	
	100-005GL	1.00	2.0	0.05	R	R	
	150-010GL	1.50	2.7	0.10	R	R	
	200-010GL	2.00	3.0	0.10	R	R	
	300-010GL	3.00	3.0	0.10	R	R	

Please check precautions below for the maximum machining diameter.

R: R-hand Only

When using a KGBF/KGBFS holder to machining non-ferrous metals, etc.

GBA

Applicable Insert

Description		IC	S	(mm)				
GBA32		9.525	3.18	4.4				
Shape	Description	Dimensions (mm)			PCD			
		CW	CDX	RE	KPD001		KPD010	
					R	L	R	L
	GBA32R 125-010	1.25	2.0	0.1	●		●	
	150-010	1.50			●		●	
	NEW 200-010	2.00	2.5		●			

· CDX shows available grooving depth.

● : Standard Stock

When using a KGBF/KGBFS holder for non-ferrous metal machining, use a GBA PCD tool.
*See above for details of description. Also, please refer to the precautions below when using.

Precautions

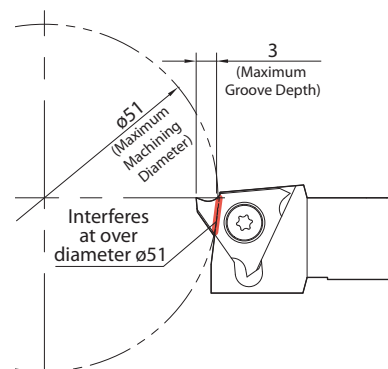
· GBF and GBA Compatibility

- GBF will fit KGBA/KGBAS holders.
Caution : The maximum groove depth for KGBA/KGBAS holders is 2.5 mm.
- GBA inserts will also fit KGBF/KGBFS holders.
Caution : The rake angle after installation in the toolholder is 11°.

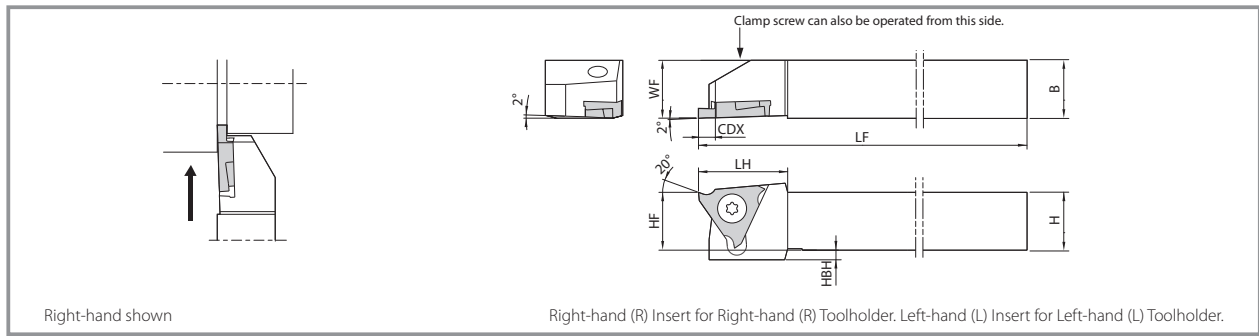
· KGBF/KGBFS Holder with GBF Insert Maximum Machining Diameter

3 mm groove depth is available on workpiece diameters up to $\phi 51$ mm.
2.7 mm groove depth is available on workpiece diameters up to $\phi 100$ mm, 2.5 mm groove depth is available on workpiece diameters up to $\phi 200$ mm.
The workpiece interferes with the holder at maximum cutting diameter or larger.

· Grooving depth : 3 mm



KGBF-F (Without offset)



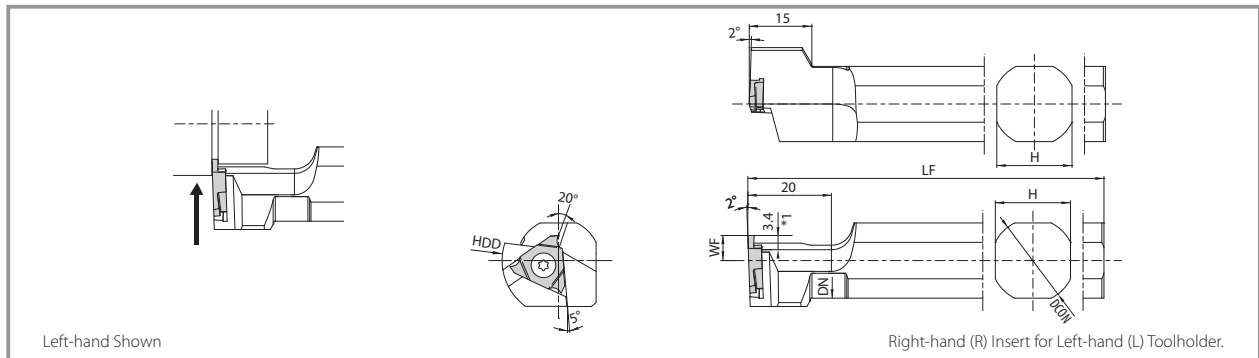
Toolholder Dimensions

Description	Stock		Dimensions (mm)						Spare Parts	
	R	L	H = HF	HBH	B = WF	LF	LH	CDX*1	Clamp Screw	Wrench
KGBF R/L 1010JX-16F	●	●	10	4	10	120	18.5	3	SB-4070TRW	FT-8
1212JX-16F	●	●	12	2	12					
1616JX-16F	●	●	16	-	16					
2020JX-16F	●	●	20	-	20					

*1. CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.
Please check cautions on page 6 for the maximum machining diameter.

● : Standard Stock

S-KGBF (Sleeve Holder)



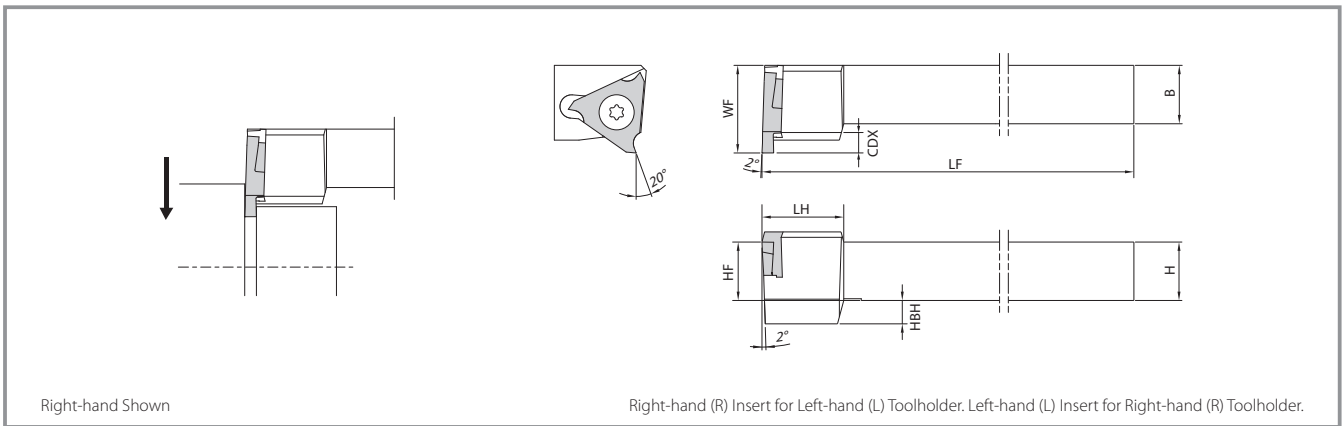
*1. CDX shows available grooving depth.

Toolholder Dimensions

Description	Stock	Dimensions (mm)						Spare Parts	
	L	DCON	LF	WF	DN	HDD	H	Clamp Screw	Wrench
S12F -KGBFL16	●	12	80	6	11	27	11	SB-4070TRW	FT-8
S14H -KGBFL16	●	14	100		13		13		
S15F -KGBFL16	●	15.875	85		15		15		
S16F -KGBFL16	●	16			18		17		
S19G -KGBFL16	●	19.05	90		19		18		
S19K -KGBFL16	●		120		21		20		
S20G -KGBFL16	●	20	120		19		18		
S20K -KGBFL16	●	22			21		20		
S25.0H -KGBFL16	●	25	100	10	24	32	23		
S25K -KGBFL16	●	25.4	120						

● : Standard Stock

KGBFS



Right-hand Shown

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

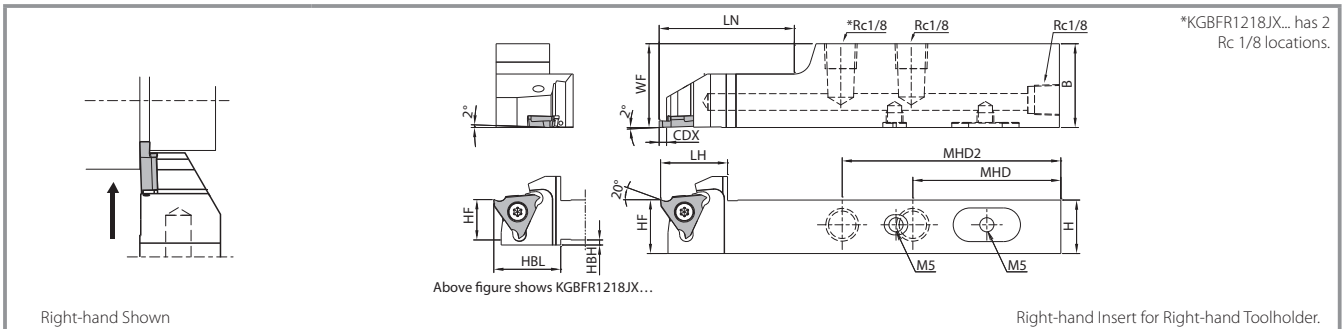
Toolholder Dimensions

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

*1. CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.
Please check cautions on page 6 for the maximum machining diameter.

● : Standard Stock

KGBF-JCTM



Right-hand Shown

Above figure shows KGBFR1218JX...

Right-hand Insert for Right-hand Toolholder.

*KGBFR1218JX... has 2 Rc 1/8 locations.

Toolholder Dimensions

Description	Stock		Dimensions (mm)										Spare Parts					
	R	L	H=HF	HBH	B	LF	HBL	LH	LN	WF	CDX ^{*1}	MHD	MHD2	Clamp Screw	Wrench	Plug 1	Plug 2	
KGBFR	1218JX-16FJCTM	●	●	12	1.5	18	120	20	20	28	12	3	54	-	SB-4070TRW	FT-8	GP-1	HS5X4LP
	1625JX-16FJCTM	●	●	16	-	25				40	16		44	65				-
	2025JX-16FJCTM	●	●	20	-	25				40	20		44	65				-

*1. CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : "CDX" of Insert.
Please check cautions on page 6 for the maximum machining diameter.

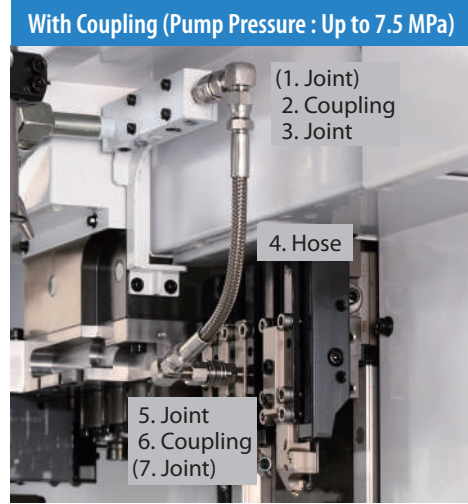
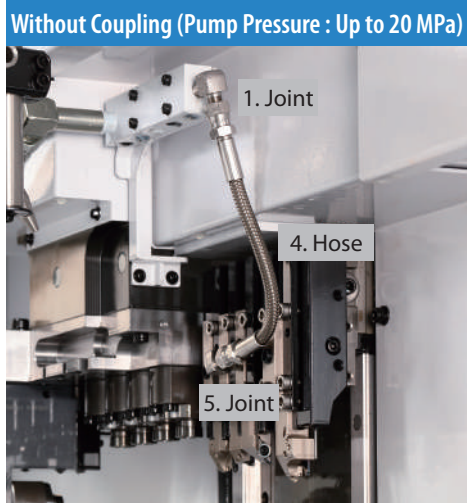
● : Standard Stock

*2. For coolant holder piping parts, see pages 9 and 10.

Coolant Pipe Parts

Pipe parts will be required separately if internal coolant is used.

Pump Pressure : Up to 20 MPa. Pump Pressure : Up to 7.5 MPa if coupling are used.



Combination Part Description (Example)

Part	Description
1. Joint	J-AN-R1/8-G1/8
4. Hose	HS-G1/8-G1/8-200
5. Joint	J-AN-R1/8-G1/8

Convert the thread standards on the machine's side (Rc1/4, Rc1/8, NPT1/8, etc.) to the thread standard on the hose side (G1/8) for use.
Use sealing agents such as seal tapes when installing piping parts.

Combination Part Description (Example)

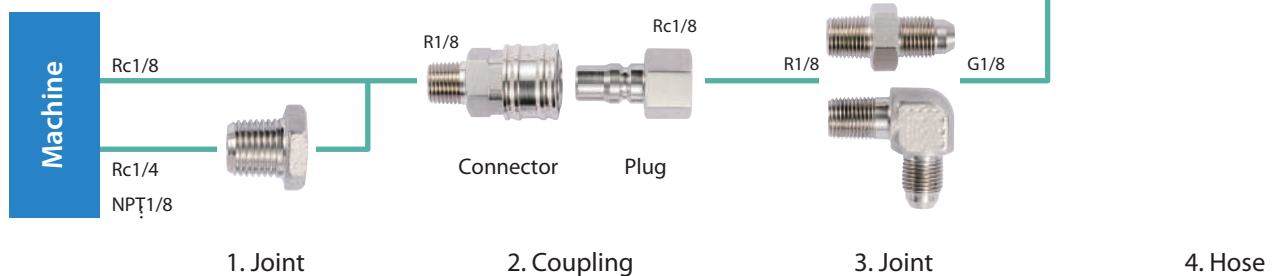
Part	Description
(1. Joint)	-
2. Coupling	CP-ST-R1/8, P-ST-RC1/8
3. Joint	J-AN-R1/8-G1/8
4. Hose	HS-G1/8-G1/8-200
5. Joint	J-AN-R1/8-G1/8
6. Coupling	P-ST-RC1/8, CP-ST-R1/8
(7. Joint)	-

Convert the thread standards on the machine's side (Rc1/4, Rc1/8, NPT1/8, etc.) to thread standards of the coupling (Rc1/8, etc.) or hose (G1/8) for use.
Use sealing agents such as seal tapes when installing piping parts.

Without Coupling (Pump Pressure : Up to 20 MPa)



With Coupling (Pump Pressure : Up to 7.5 MPa)



Piping Part Dimensions

Joint (1, 3, 5, 7) Pressure Resistance : Up to 20.0 MPa

(Unit : mm)

Shape	Description	Stock	ød1	ød2	L	L1	L2	T1	T2
	J-ST-R1/4-G1/8	●	5.5	4.0	34	13	13	R1/4	G1/8
	J-ST-NPT1/8-G1/8	●	3.5	3.5	29	10	13	NPT1/8	G1/8
	J-ST-R1/8-G1/8	●	4.0	4.0	29	10	13	R1/8	G1/8
	J-AN-R1/8-G1/8	●	4.0	4.0	27	14	13	R1/8	G1/8
	J-ST-R1/4-RC1/8	●	-	-	17	12	-	R1/4	Rc1/8
	J-ST-NPT1/8-RC1/8	●	3.5	-	30	10	-	NPT1/8	Rc1/8
	J-ST-R1/8-RC1/8	●	3.5	-	33	13	-	R1/8	Rc1/8

● : Standard Stock

Coupling (2, 6) Pressure Resistance : Up to 7.5 MPa

(Unit : mm)

Shape	Description	Stock
	CP-ST-R1/8	●
	P-ST-RC1/8	●

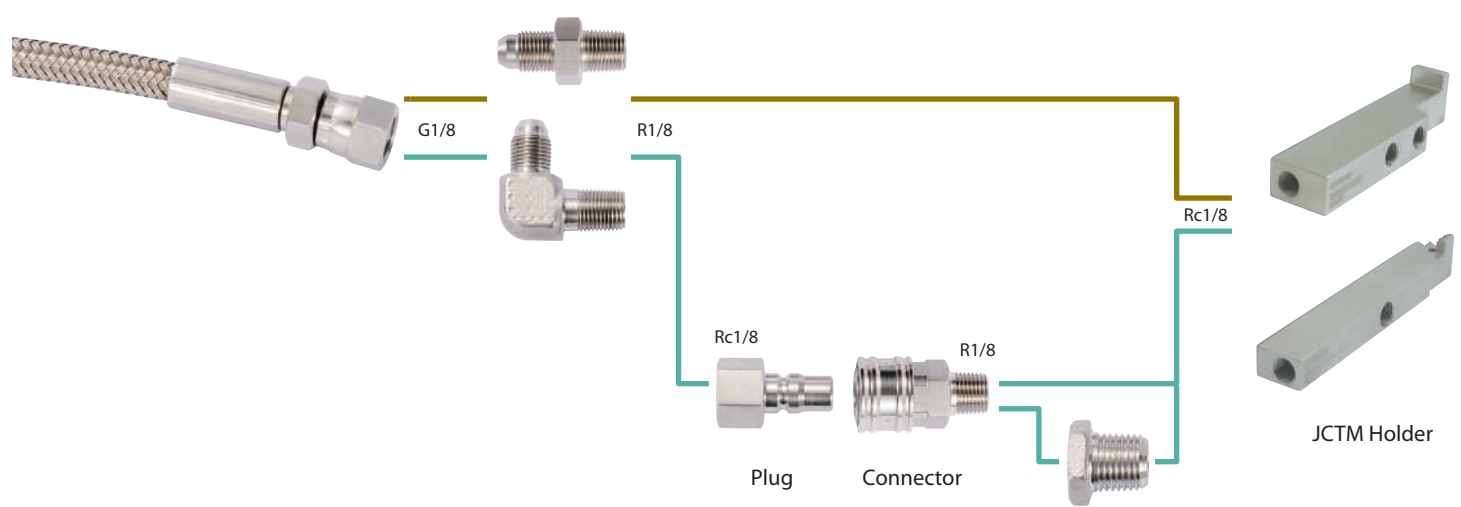
● : Standard Stock

Hose (4) Pressure Resistance : Up to 20.0 MPa

(Unit : mm)

Shape	Description	Stock	L
	HS-G1/8-G1/8-200	●	200
	HS-G1/8-G1/8-300	●	300
	HS-G1/8-G1/8-400	●	400
	HS-G1/8-G1/8-500	●	500
	HS-G1/8-G1/8-600	●	600
	HS-G1/8-G1/8-800	●	800

● : Standard Stock



4. Hose

5. Joint

6. Coupling

7. Joint (Extension Joint)

Recommended Cutting Conditions ★ 1st Recommendation ☆ 2nd Recommendation

GBF

Workpiece	Recommended Insert Grade (Cutting Speed Vc : m/min)			[1] Grooving Feed Rate (mm/rev) [2] Traversing Feed Rate (mm/rev) [3] Max D.O.C. for Traversing (mm)			
	MEGACOAT	MEGACOAT NANO	Carbide	GBF32 ^{R/L}		GBF32 ^{R/L}	GBF32 ^{R/L}
	PR1215	PR1535	GW15	025 ~ 053	065 ~ 095	100 ~ 145	150 ~ 300
Carbon Steel	★ 80 ~ 180	☆ 70 ~ 160	-	[1] 0.01~0.05 [2] Not Recommended [3] Not Recommended	[1] 0.02~0.07 [2] Not Recommended [3] Not Recommended	[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
Alloy Steel	★ 80 ~ 180	☆ 70 ~ 160	-	[1] 0.01~0.04 [2] Not Recommended [3] Not Recommended	[1] 0.02~0.06 [2] Not Recommended [3] Not Recommended	[1] 0.03~0.07 [2] 0.02~0.05 [3] MAX. 0.2	[1] 0.03~0.07 [2] 0.02~0.05 [3] MAX. 0.2
Stainless Steel	☆ 60 ~ 130	★ 50 ~ 120	-	[1] 0.01~0.04 [2] Not Recommended [3] Not Recommended	[1] 0.02~0.06 [2] Not Recommended [3] Not Recommended	[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 Recommended [3] Not Recommended	[1] 0.02~0.07 [2] Not Recommended [3] Not Recommended	[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 Alloy	-	-	★ 150 ~ 400	[1] 0.01~0.05 [2] Not Recommended [3] Not Recommended	[1] 0.02~0.07 [2] Not Recommended [3] Not Recommended	[1] 0.03~0.08 [2] 0.03~0.06 [3] MAX. 0.2	[1] 0.03~0.08 [2] 0.03~0.06 [3] MAX. 0.2
Brass	-	-	★ 150 ~ 300	[1] 0.01~0.04 [2] Not Recommended [3] Not Recommended	[1] 0.02~0.06 [2] Not Recommended [3] Not Recommended	[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

GBF-000F (rε=0.00)

Workpiece	Recommended Insert Grade (Cutting Speed Vc : m/min)			[1] Grooving Feed Rate (mm/rev) [2] Traversing Feed Rate (mm/rev) [3] Max D.O.C. for Traversing (mm)			
	MEGACOAT	MEGACOAT NANO	Carbide	GBF32 ^{R/L}		GBF32 ^{R/L}	GBF32 ^{R/L}
	PR1215	PR1535	GW15	025 ~ 053 - 000F	065 ~ 095 - 000F	100 ~ 145 - 000F	150 ~ 200 - 000F
Carbon Steel	★ 80 ~ 180	☆ 70 ~ 160	-	[1] 0.005~0.03 [2] Not Recommended [3] Not Recommended	[1] 0.01~0.04 [2] Not Recommended [3] Not Recommended	[1] 0.01~0.05 [2] 0.01~0.04 [3] MAX. 0.2	[1] 0.01~0.05 [2] 0.01~0.04 [3] MAX. 0.2
Alloy Steel	★ 80 ~ 180	☆ 70 ~ 160	-	[1] 0.005~0.025 [2] Not Recommended [3] Not Recommended	[1] 0.01~0.03 [2] Not Recommended [3] Not Recommended	[1] 0.01~0.04 [2] 0.01~0.03 [3] MAX. 0.2	[1] 0.01~0.04 [2] 0.01~0.03 [3] MAX. 0.2
Stainless Steel	☆ 60 ~ 130	★ 50 ~ 120	-	[1] 0.005~0.02 [2] Not Recommended [3] Not Recommended	[1] 0.01~0.025 [2] Not Recommended [3] Not Recommended	[1] 0.01~0.03 [2] 0.01~0.025 [3] MAX. 0.2	[1] 0.01~0.03 [2] 0.01~0.025 [3] MAX. 0.2
Cast Iron	-	-	★ 60 ~ 100	[1] 0.005~0.03 [2] Not Recommended [3] Not Recommended	[1] 0.01~0.04 [2] Not Recommended [3] Not Recommended	[1] 0.01~0.05 [2] 0.01~0.04 [3] MAX. 0.2	[1] 0.01~0.05 [2] 0.01~0.04 [3] MAX. 0.2
Aluminum Alloy	-	-	★ 150 ~ 400	[1] 0.005~0.03 [2] Not Recommended [3] Not Recommended	[1] 0.01~0.04 [2] Not Recommended [3] Not Recommended	[1] 0.01~0.05 [2] 0.01~0.04 [3] MAX. 0.2	[1] 0.01~0.05 [2] 0.01~0.04 [3] MAX. 0.2
Brass	-	-	★ 150 ~ 300	[1] 0.01~0.03 [2] Not Recommended [3] Not Recommended	[1] 0.01~0.04 [2] Not Recommended [3] Not Recommended	[1] 0.01~0.05 [2] 0.01~0.04 [3] MAX. 0.2	[1] 0.01~0.05 [2] 0.01~0.04 [3] MAX. 0.2

GBF-GL

Workpiece	Recommended Insert Grade (Cutting Speed Vc : m/min)		[1] Grooving Feed Rate (mm/rev) [2] Traversing Feed Rate (mm/rev) [3] Max D.O.C. for Traversing (mm)			
	MEGACOAT	MEGACOAT NANO	GBF32R		GBF32R	GBF32R
	PR1215	PR1535	075 - 005GL	095 ~ 100 - 005GL	150 ~ 200 - 010GL	300 - 010GL
Carbon Steel	★ 80 ~ 180	☆ 70 ~ 160	[1] 0.02~0.07 [2] Not Recommended [3] Not Recommended	[1] 0.03~0.08 [2] 0.03~0.06 [3] MAX. 0.2	[1] 0.03~0.08 [2] 0.03~0.06 [3] MAX. 0.3	[1] 0.04~0.1 [2] 0.04~0.08 [3] MAX. 0.5
Alloy Steel	★ 80 ~ 180	☆ 70 ~ 160	[1] 0.02~0.06 [2] Not Recommended [3] Not Recommended	[1] 0.03~0.07 [2] 0.03~0.06 [3] MAX. 0.2	[1] 0.03~0.07 [2] 0.03~0.06 [3] MAX. 0.3	[1] 0.04~0.09 [2] 0.04~0.08 [3] MAX. 0.5
Stainless Steel	☆ 60 ~ 130	★ 50 ~ 120	[1] 0.02~0.06 [2] Not Recommended [3] Not Recommended	[1] 0.03~0.07 [2] 0.03~0.06 [3] MAX. 0.2	[1] 0.03~0.07 [2] 0.03~0.06 [3] MAX. 0.3	[1] 0.04~0.09 [2] 0.04~0.08 [3] MAX. 0.5

GBA32 (PCD)

Workpiece	Recommended Insert Grade (Cutting Speed Vc : m/min)	[1] Grooving Feed Rate (mm/rev) [2] Traversing Feed Rate (mm/rev) [3] Max D.O.C. for Traversing (mm)
	PCD	GBA32R
	KPD001 (KPD010)	125 ~ 200 - 010
Aluminum Alloy	★ 150 ~ 2,000	[1] 0.05~0.15 [2] 0.05~0.15 [3] Max. 0.5
Brass	★ 200 ~ 800	[1] 0.05~0.15 [2] 0.05~0.15 [3] Max. 0.5