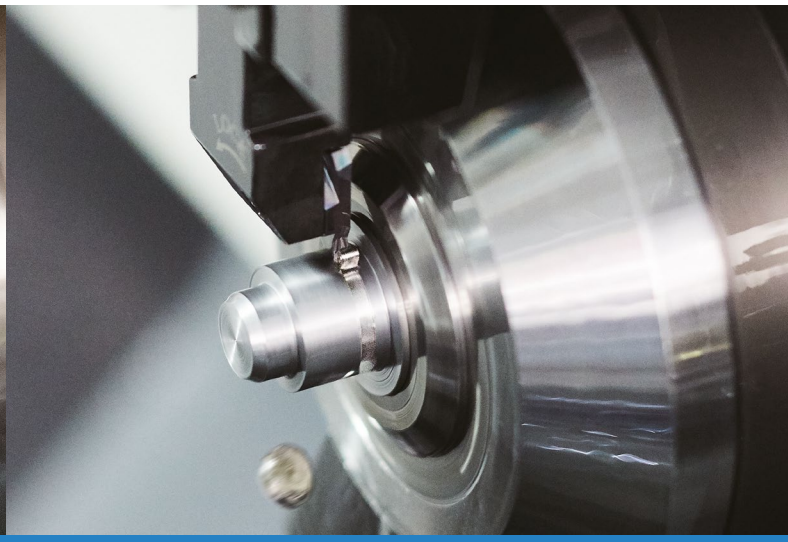
GBF



High precision grooving tools for small parts machining

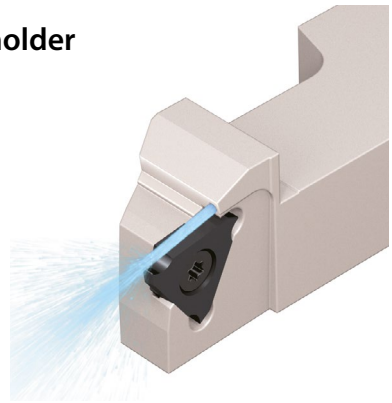
Groove widths from 0.25 mm to 3.00 mm and maximum groove depths up to 3 mm

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**



Grooving tools for small parts machining

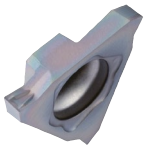
GBF

High precision, the edge width tolerance: ±0.02mm
Long tool life and high efficiency machining achieved by MEGACOAT technology

1 Large lineup allows to satisfy various user needs

Insert

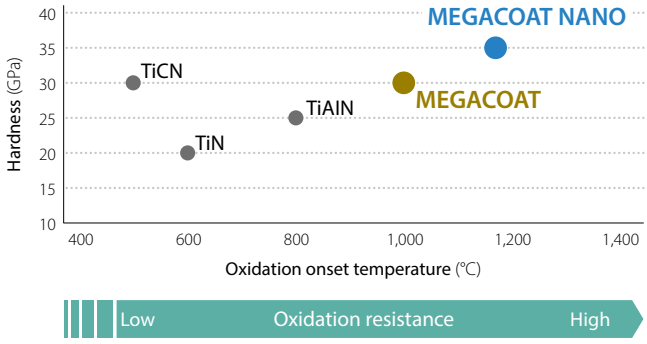
NEW **Lineup expansion: Ground chipbreaker**
Corner-R 0.10 mm is available for groove widths 0.75, 0.80, 0.95, 1.00, 1.10, and 1.20 mm

	Lineup		Features
 Ground chipbreaker	Width of groove CW (mm) 0.25 ~ 0.65 0.75 ~ 2.0 2.25 ~ 3.0	Corner-R [rε] (mm) 0.00/0.05 0.00/0.05/0.10 0.05/0.10	• Sharp cutting performance • Large lineup
	Each width of groove has both R-hand and L-hand		
 Molded GL chipbreaker	Width of groove CW (mm) 0.75 ~ 1.0 1.5 ~ 3.0 R-hand only	Corner-R [rε] (mm) 0.05 0.10	• Excellent chip control • Stable machining

1st Recommendation

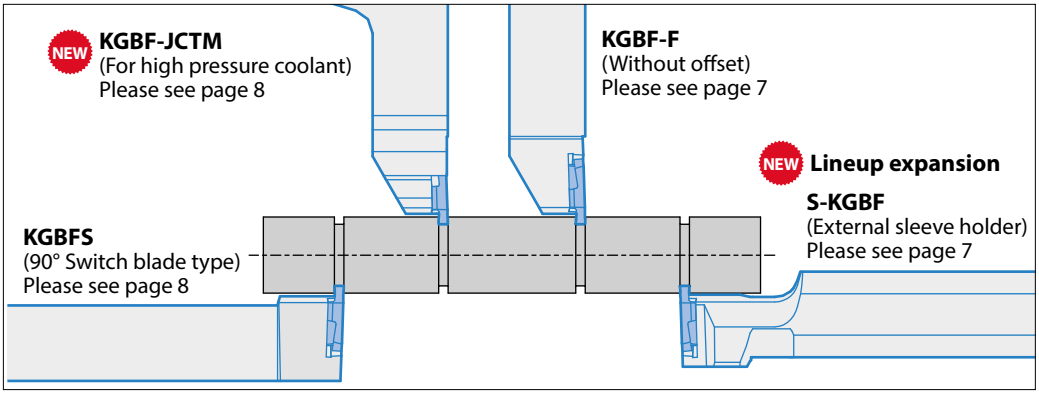
Steel	MEGACOAT PR1215
Stainless steel	MEGACOAT NANO PR1535
Non-ferrous material and cast iron	GW15

Coating poperties

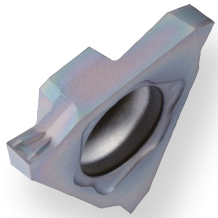


Toolholder

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

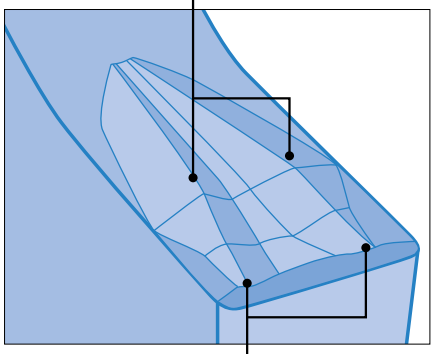


2 Stable chip control with GL chipbreaker



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)

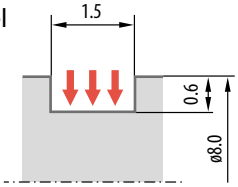
	GL chipbreaker	Competitor A
Grooving d = 1.5 mm f = 0.05 mm/rev		
Traversing ap = 0.2 mm f = 0.04 mm/rev		

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

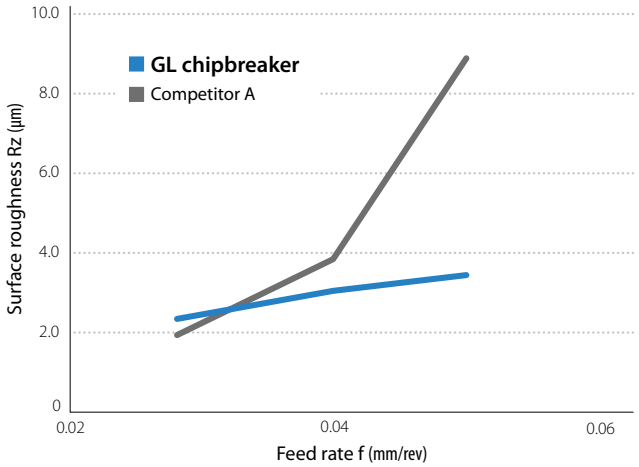
Competitor A

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)

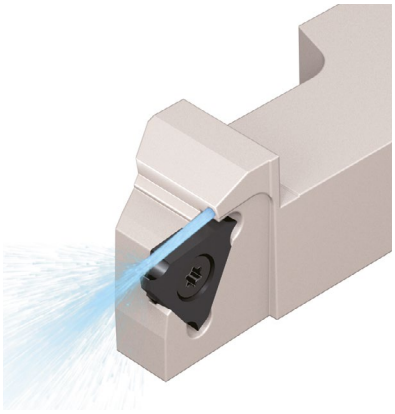
Feed rate f (mm/rev)	0.03	0.04	0.05
GL chipbreaker			
Competitor A (Molded chipbreaker)			

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

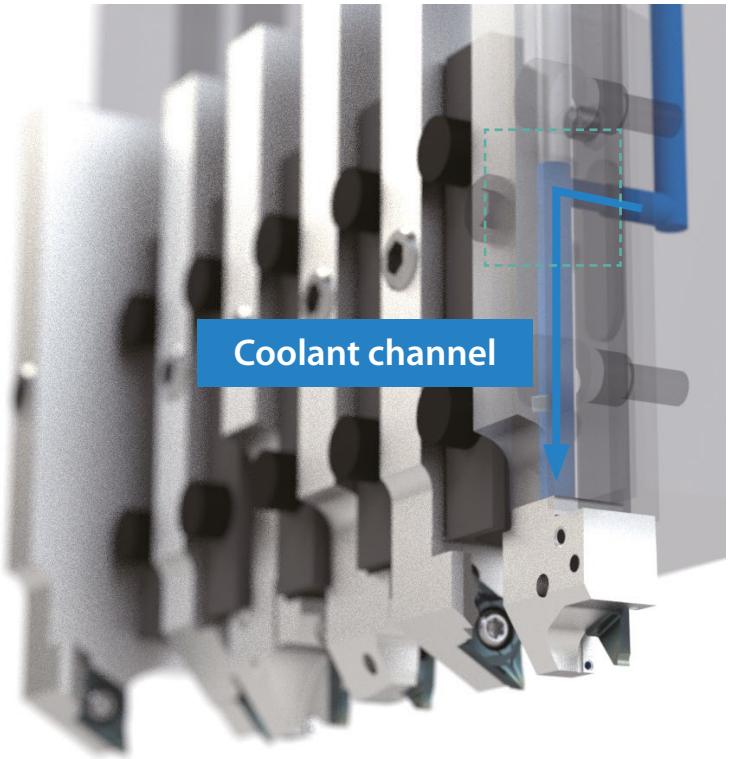
NEW

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.

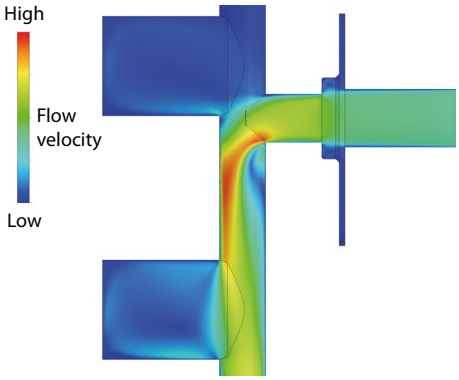
(Random order)
Based on Kyocera survey in January 2021



Point

Appropriate hole design to reduce energy loss based on deep analysis

Analysis image (Internal evaluation)

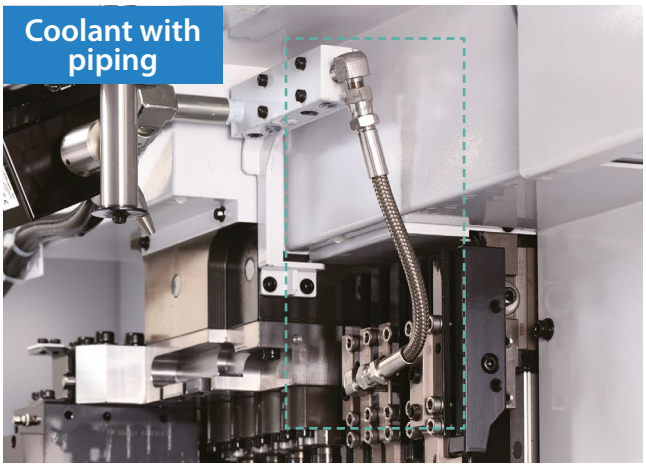


Internal coolant with piping

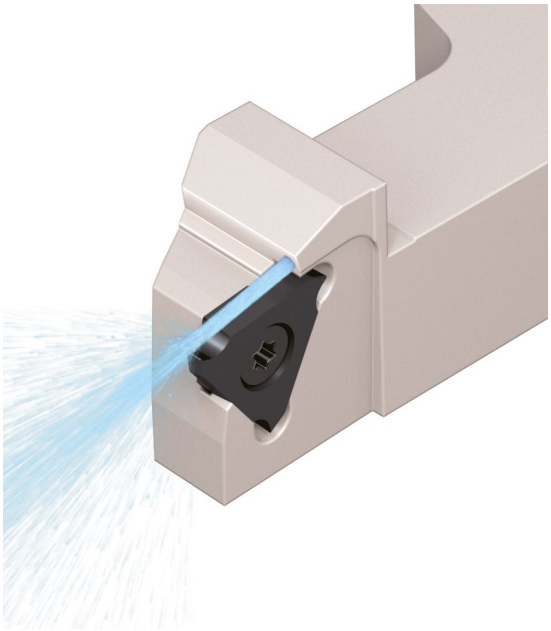
*Piping parts: See pages 9 and 10

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

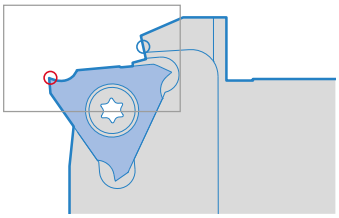
Ground chipbreaker/Molded GL chipbreaker

Maximum groove depth: 3 mm

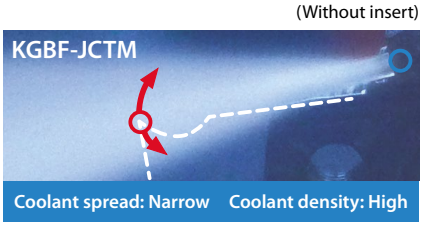
Coolant discharging comparison (Internal evaluation)

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

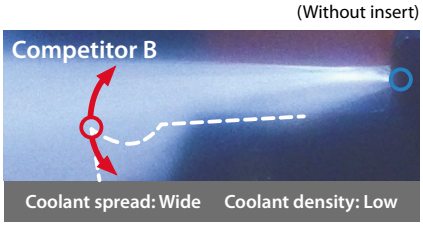
○ Cutting edge
○ Coolant hole



(Without insert)



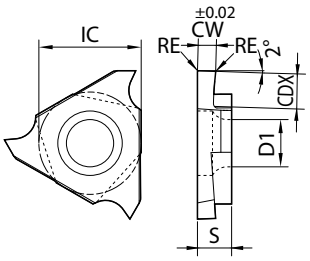
(Without insert)



Applicable insert

(mm)

Description	IC	S	D1
GBF32	9.525	3.18	4.4



Description		Dimensions (mm)			MEGACOAT	MEGACOAT NANO	Carbide
		CW	CDX	RE	PR1215	PR1535	GW15
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.

●: Available

*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 $^{+0.015}_{-0.025}$

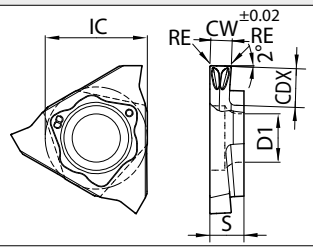
*3…Edge width tolerance of GBF32 R/L 053-000F/005: 0.53 $^{+0.015}_{-0.025}$

GBF-GL

Applicable insert

(mm)

Description	IC	S	D1
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.

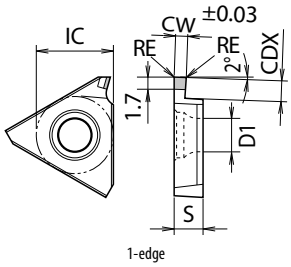
R: R-hand only

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

Applicable insert

(mm)

Description	IC	S	D1
GBA32	9.525	3.18	4.4

Shape	Description		Dimensions (mm)			PCD			
			CW	CDX	RE	KPD001		KPD010	
						R	L	R	L
 1-edge	GBA32R	125-010	1.25	2.0	0.1	NEW ●		●	
		150-010	1.50			●		●	
	NEW	200-010	2.00	2.5		●			

CDX shows available grooving depth.

●: Available

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.

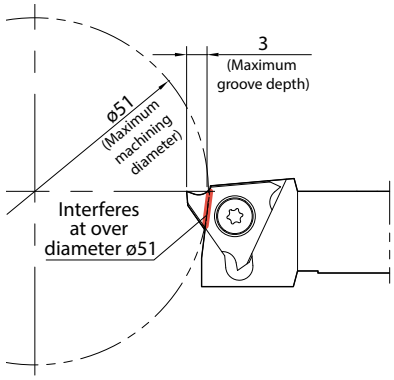
Precautions

GBF and GBA compatibility

1 GBF will fit KGBA/KGBAS holders.
Caution: The maximum groove depth for KGBA/KGBAS holders is 2.5 mm.

2 GBA inserts will also fit KGBF/KGBFS holders.
Caution: The rake angle after installation in the toolholder is 11°.

Grooving depth: 3 mm



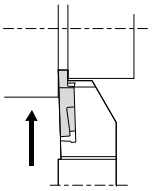
KGBF/KGBFS holder with GBF insert haximum hachining diameter

3 mm groove depth is available on workpiece diameters up to ø51 mm.

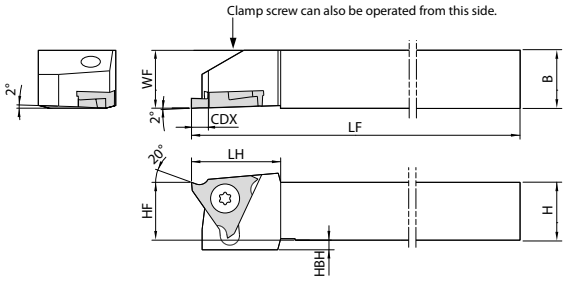
2.7 mm groove depth is available on workpiece diameters up to ø100 mm,
2.5 mm groove depth is available on workpiece diameters up to ø200 mm.

The workpiece interferes with the holder at maximum cutting diameter or larger.

KGBF-F (Without offset)



Right-hand shown



Right-hand (R) insert for right-hand (R) toolholder. Left-hand (L) insert for left-hand (L) toolholder.

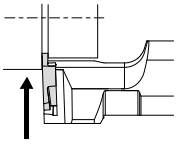
Toolholder dimensions

Description		Availability		Dimensions (mm)						Spare parts	
										Clamp screw	Wrench
		R	L	H = HF	HBH	B = WF	LF	LH	CDX *1		
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					

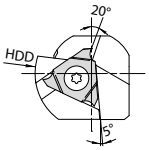
*1. CDX shows the distance from the toolholder to the cutting edge. Available groove depth: "CDX" of insert.
Please check cautions on page 6 for the maximum machining diameter.

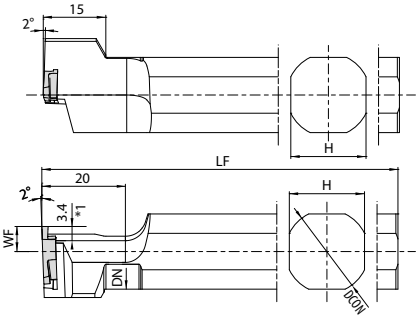
● : Available

S-KGBF (Sleeve holder)



Left-hand shown





Right-hand (R) insert for left-hand (L) toolholder.

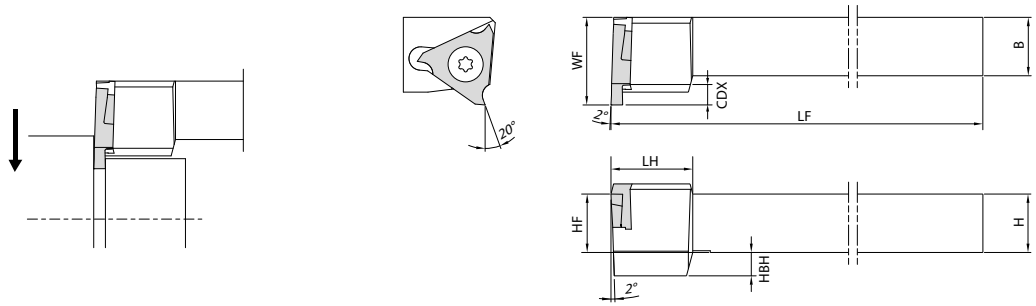
*1. CDX shows available grooving depth.

Toolholder dimensions

Description	Availability	Dimensions (mm)						Spare parts	
								Clamp screw	Wrench
	L	DCON	LF	WF	DN	HDD	H		
NEW S12F -KGBFL16	●	12	80	6	11	27	11	SB-4070TRW	FT-8
NEW S14H -KGBFL16	●	14	100		13		13		
NEW S15F -KGBFL16	●	15.875	85		15		15		
S16F -KGBFL16	●	16							
S19G -KGBFL16	●	19.05	90		18		17		
S19K -KGBFL16	●		120						
S20G -KGBFL16	●	20	90		19		18		
S20K -KGBFL16	●		120						
S22K -KGBFL16	●	22			21		20		
S25.0H-KGBFL16	●	25	100	10	24	32	23		
S25K -KGBFL16	●	25.4	120						

● : Available

KGBFS



Right-hand shown

Right-hand (R) insert for left-hand (L) toolholder. Left-hand (L) insert for right-hand (R) toolholder.

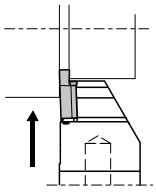
Toolholder dimensions

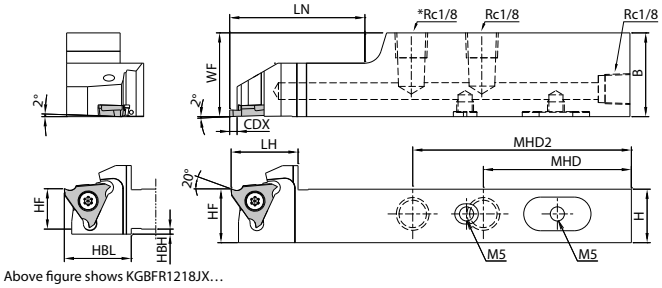
Description		Availability		Dimensions (mm)							Spare parts	
											Clamp Screw	Wrench
		R	L	H = HF	HBH	B	LF	LH	WF	CDX *1		
KGBFS R/L	1010JX-16	●	●	10	4	10	120	14	15	3	SB-4070TRW	FT-8
	1212JX-16	●	●	12	2	12			16			
	1616JX-16	●	●	16	–	16			20			

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

●: Available

KGBF-JCTM





Above figure shows KGBFR1218JX…

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

Right-hand shown

Right-hand insert for right-hand toolholder.

Toolholder dimensions

Description		Availability		Dimensions (mm)										Spare parts			
														Clamp screw	Wrench	Plug 1	Plug 2
		R	L	H=HF	HBH	B	LF	HBL	LH	LN	WF	CDX *1	MHD	MHD2				
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							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.
*2. For coolant holder piping parts, see pages 9 and 10.

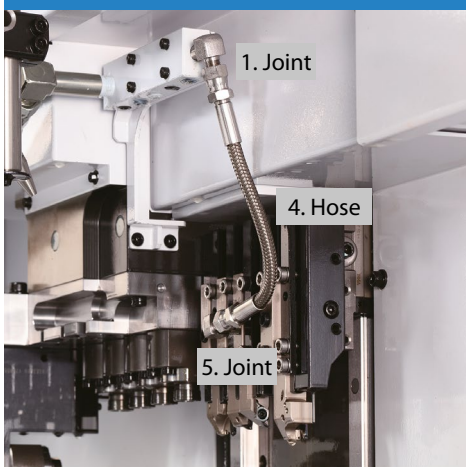
●: Available

Coolant pipe parts

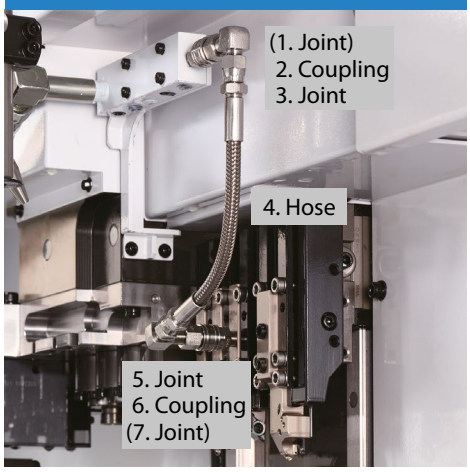
Pipe parts will be required separately if internal coolant is used.

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

Without coupling (Pump pressure: Up to 20 MPa)



With coupling (Pump pressure: Up to 7.5 MPa)



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.

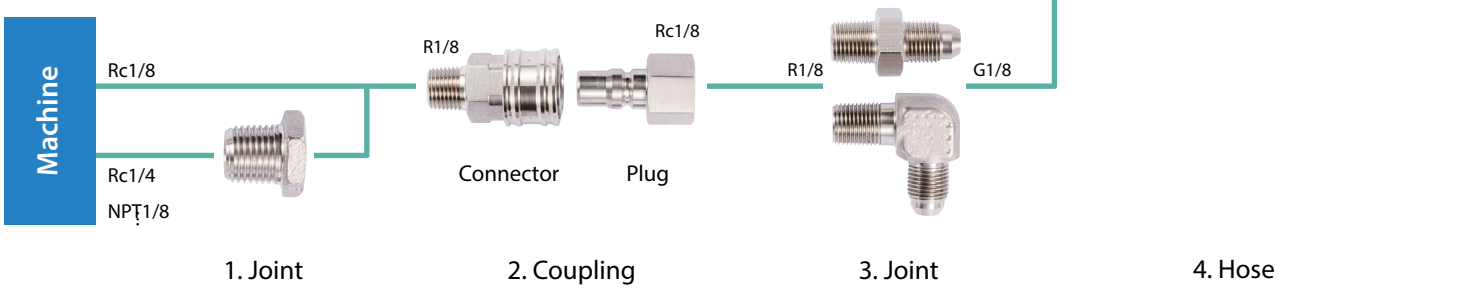
Combination part description (Example)

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)

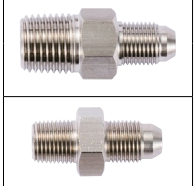
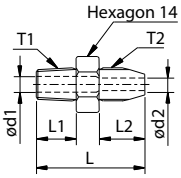
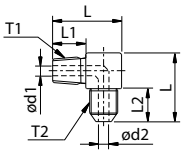
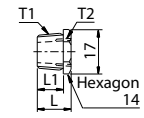
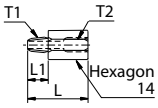


1. Joint 2. Coupling 3. Joint 4. Hose

Piping part dimensions

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

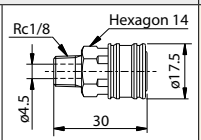
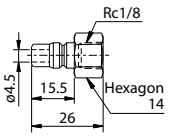
(Unit: mm)

Shape		Description	Availability	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

●: Available

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

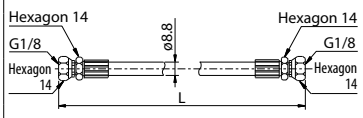
(Unit: mm)

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

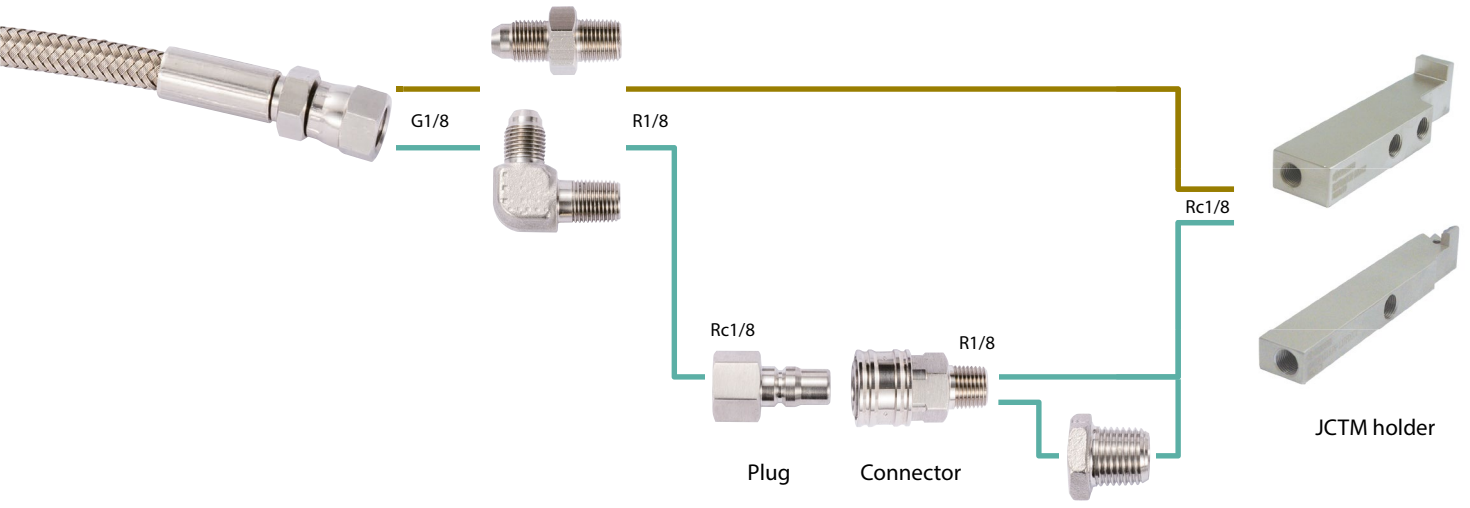
●: Available

Hose (4) Pressure resistance: Up to 20.0 MPa

(Unit: mm)

Shape		Description	Availability	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

●: Available



4. Hose 5. Joint 6. Coupling 7. Joint (Extension joint)

Recommended cutting conditions ★ 1st Recommendation ☆ 2nd Recommendation

GBF

Workpiece	Recommended insert grade (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				
	PR1215	PR1535	GW15	GBF32 R/L 025 ~ 053	GBF32 R/L 065 ~ 095	GBF32 R/L 100 ~ 145	GBF32 R/L 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 (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				
	PR1215	PR1535	GW15	GBF32 R/L 025 ~ 053 - 000F	GBF32 R/L 065 ~ 095 - 000F	GBF32 R/L 100 ~ 145 - 000F	GBF32 R/L 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 (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				
	PR1215	PR1535	GBF32R 075 - 005GL	GBF32R 095 ~ 100 - 005GL	GBF32R 150 ~ 200 - 010GL	GBF32R 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 (Vc : m/min)	[1] Grooving feed rate (mm/rev) [2] Traversing feed rate (mm/rev) [3] Max D.O.C. for traversing (mm)
	PCD	
	KPD001 (KPD010)	GBA32R 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