KYOCERA

GBF

Grooving Tools for Small Parts Machining

Low Cutting Force with a Large Rake Angle and High Precision Grooving

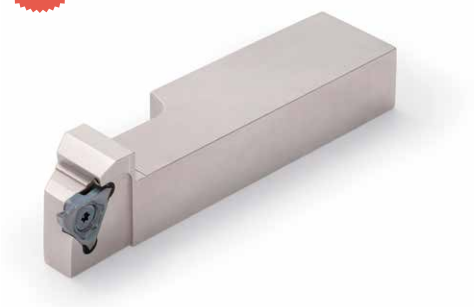
Large Tooling Lineup

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

JCT-Series Jet Coolant Through Holders Available

Stable Chip Control with GL Chipbreaker

NEW **JCT-Series Jet Coolant Through Holders**

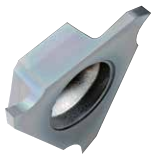
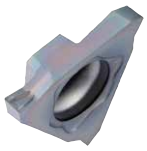


GBF

Low Cutting Force with a Large Rake Angle
High-precision Grooving with Insert Width Tolerance of ±0.02 mm

1 Large Lineup Allows to Satisfy Various User Needs

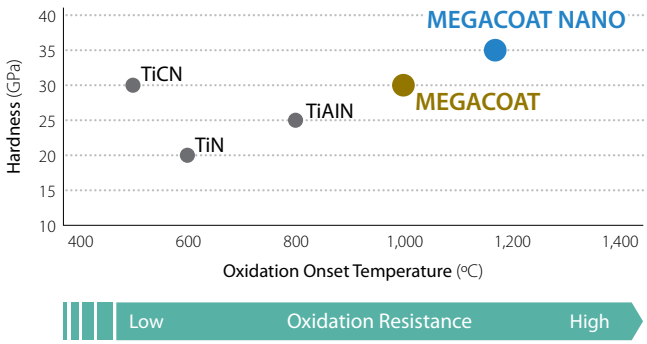
Inserts

	Lineup		Features
 **Ground Chipbreaker**	Width of Groove W (mm) 0.25~1.2 1.25~2.0 2.25~3.0 Each width of groove has both R-hand and L-hand	CornerR [rε] (mm) 0.00/0.05 0.00/0.05/0.10 0.05/0.10	· Sharp Cutting Performance · Large Lineup
 **Molded GL Chipbreaker**	Width of Groove W (mm) 0.75~3.0 R-hand Only	CornerR [rε] (mm) 0.05/0.10	· Excellent Chip Control · Stable Machining

1st Recommendation

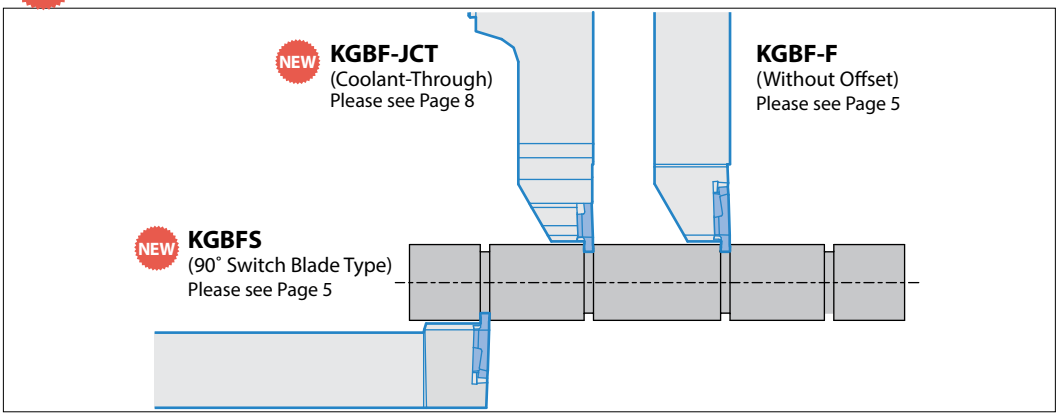
Steel	**PR1215** MEGACOAT
Stainless Steel	**PR1535** MEGACOAT NANO
Non-Ferrous	**GW15**
Cast Iron	**GW15**

Coating Properties

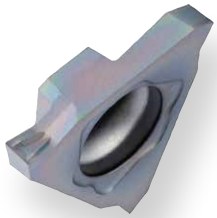


Toolholders

NEW **KGBF-JCT** Holder for High-Pressure Coolant and 90˚ Switch Blade Type **KGBFS** Holder Added to Lineup

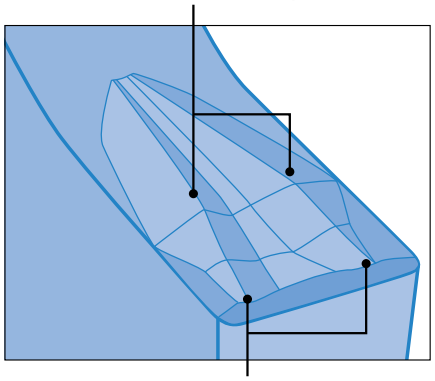


2 Stable Chip Control with GL Chipbreaker



GL Chipbreaker maintains stable chip control while 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)

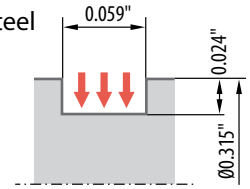
	GL Chipbreaker	Competitor A
Grooving f = 0.05 mm/rev d = 1.5 mm		
Traversing f = 0.04 mm/rev ap = 0.2 mm		

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

Case Studies

Nozzle Parts - Stainless Steel

Vc = 150 sfm
f = 0.002 ipr
Groove Depth 0.024", Wet
KGBFR1212JX-16F
GBF32R100-005GL PR1535



GL Chipbreaker PR1535

Competitor A

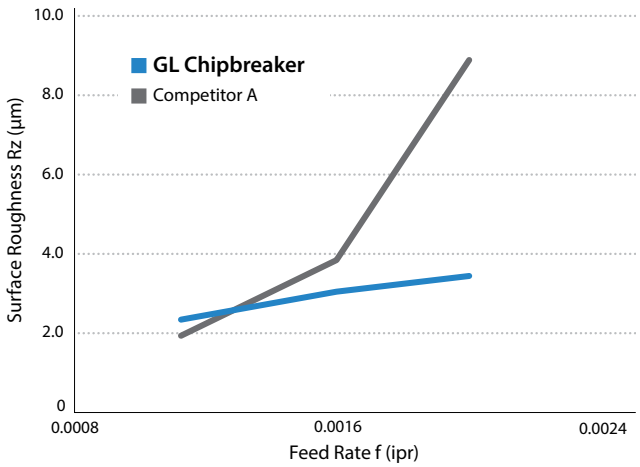
Competitor A's chips became entangled with workpiece due to unstable chip control.
GL Chipbreaker maintained stable chip control without entanglement.

(User Evaluation)

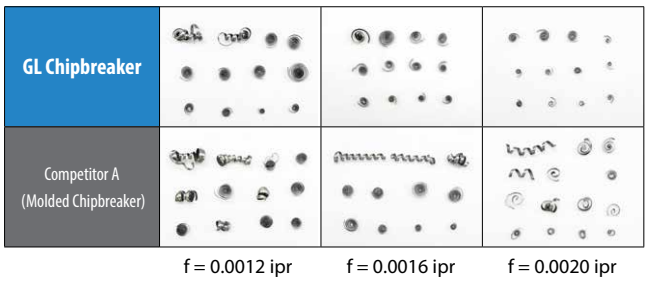
3 Good Surface Finish

GL Chipbreaker maintains stable chip control at high feed rates
Good surface finish of side wall

Surface Roughness Comparison (Internal Evaluation)



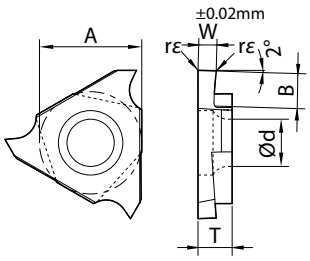
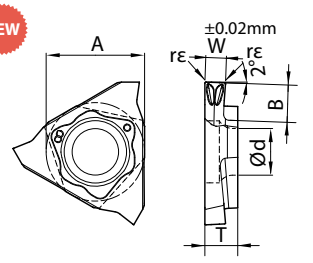
Comparison of Chip Control (Internal Evaluation)



Cutting Conditions: Vc = 260 sfm, d = 0.059", f = 0.0012~0.0020 ipr, Insert width 1 mm
Workpiece: 4140

GBF / GBF-GL Inserts

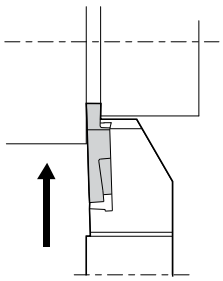
Part Number	A	T	Ød
GBF32	9.525	3.18	4.4

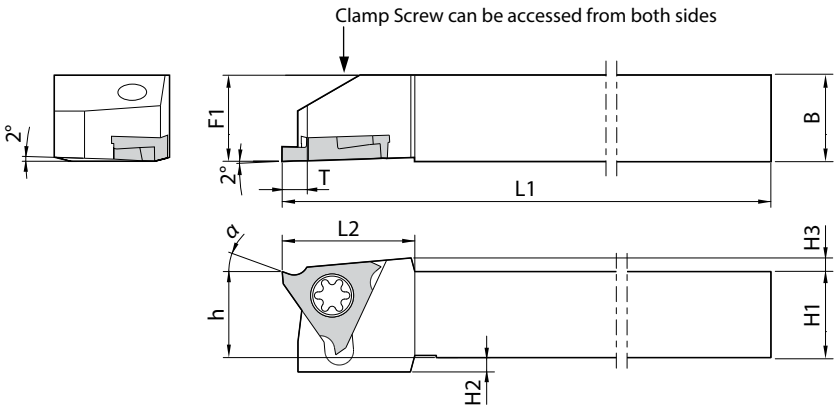
Shape	Part Number		Dimensions (mm)			MEGACOAT	MEGACOAT NANO	Carbide
			W	B	rε	PR1215	PR1535	GW15
	GBF32R	025-005	0.25	0.60	0.05	○	○	○
		030-005	0.30	0.80		○	○	○
		033-005	0.33			○	○	○
		043-005	0.43	1.00		○	○	○
		050-005	0.50	1.20		○	●	○
		053-005	0.53			○	○	○
		065-005	0.65			○	○	○
		075-005	0.75	2.00		○	○	○
		080-005	0.80			○	●	○
		095-005	0.95			○	○	○
		100-005	1.00			○	○	○
		110-005	1.10			○	○	○
		120-005	1.20			○	○	○
		125-010	1.25		0.10	○	○	○
		130-010	1.30			○	○	○
		140-010	1.40	2.70		○	○	○
		145-010	1.45			○	○	○
		150-010	1.50			○	○	○
		165-010	1.65			○	○	○
		170-010	1.70	3.00		○	○	○
		175-010	1.75			○	○	○
		200-010	2.00			○	○	○
		225-010	2.25			○	○	○
		250-010	2.50			○	○	○
		300-010	3.00			○	○	○
NEW 	GBF32R	075-005GL	0.75	2.00	0.05	●	●	
		095-005GL	0.95			●	●	
		100-005GL	1.00			●	●	
		150-010GL	1.50	2.70	0.10	●	●	
		200-010GL	2.00	3.00		●	●	
		300-010GL	3.00			●	●	

Please see cautions on Page 6 for maximum machining diameter

● : U.S. Stock ○ : World Express (Shipping: 7-10 Business Days)

KGBF-F (No Offset)





Right-hand (R) Insert Shown

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

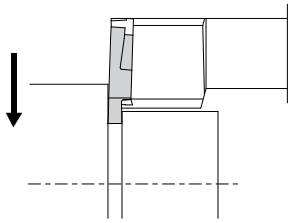
Toolholder Dimensions

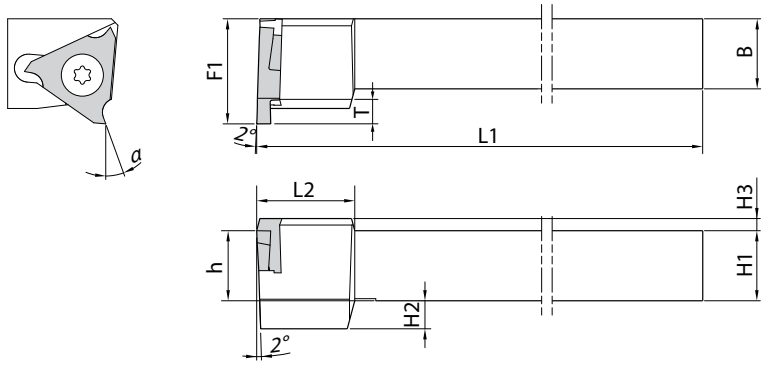
Part Number		Stock		Dimensions (mm)							Parts	
											Clamp Screw	Wrench
		R	L	H1 = h	H2	H3	B	L1	L2	T *1		
KGBF R/L	1010JX-16F	○	○	10	4	2.1	10	120	18.5	3	SB-4070TRW	FT-8
	1212JX-16F	○	○	12	2		12					
	1616JX-16F	○	○	16	-		16					
	2020JX-16F	○	○	20	-		20					

*1 Dimension T shows the distance from the toolholder to the cutting edge. Dimension B shows available grooving depth
Please see cautions on **Page 6** for maximum machining diameter

○ : World Express (Shipping: 7-10 Business Days)

KGBFS (90° Type)





Right-hand (R) Insert Shown

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

Toolholder Dimensions

Part Number		Stock		Dimensions (mm)								Rake Angle	Parts	
													Clamp Screw	Wrench
		R	L	H1 = h	H2	H3	B	L1	L2	F1	T *1	α		
KGBFS R/L	1010JX-16	○	○	10	4	1.7	10	120	14	15	3	20°	SB-4070TRW	FT-8
	1212JX-16	○	○	12	2	1.9	12			16				
	1616JX-16	○	○	16	-	2.3	16			20				

*1 Dimension T shows the distance from the toolholder to the cutting edge. Dimension B shows available grooving depth
Please see cautions on **Page 6** for maximum machining diameter

○ : World Express (Shipping: 7-10 Business Days)

KGBF-JCT NEW

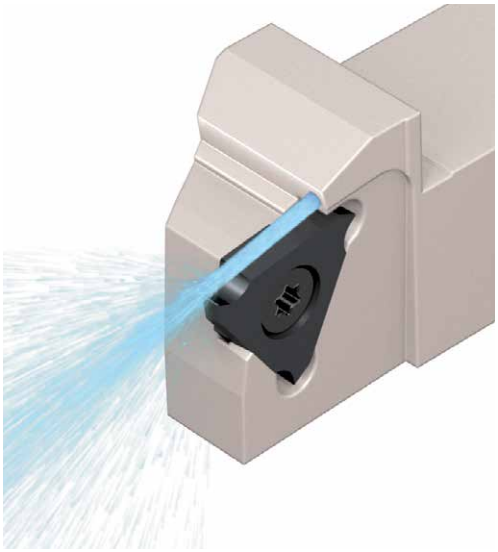
Coolant-Through Grooving Holders for Small Parts Machining

KGBF-JCT can Direct Coolant Closer to the Cutting Edge from the Top of the Insert Delivers Improved Chip Control and Longer Tool Life while Grooving

1 Excellent Chip Control

2 Superior Cooling Action Improves Tool Life

Discharges coolant from the top of the insert to deliver superior chip control and longer tool life

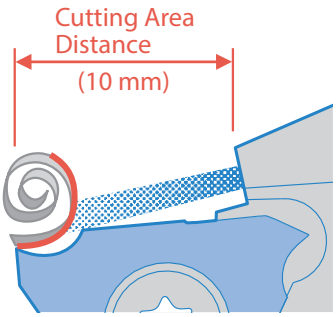


Coolant Hole

Coolant hole discharges coolant to the cutting edge and prevents coolant stream spreading which slows the coolant flow

Coolant Direction

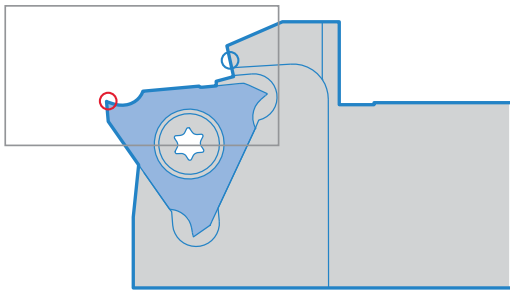
Sufficient coolant between the chipbreaker and the chips to provide stable chip curls and sufficient cooling of the insert



Coolant Discharge Comparison (Internal Evaluation)

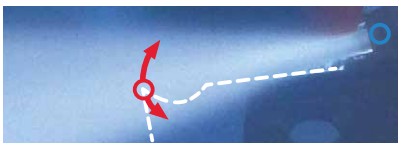
KGBF-JCT can direct coolant closer to the cutting edge than competitor C

○ Cutting Edge
○ Coolant Hole



KGBF-JCT

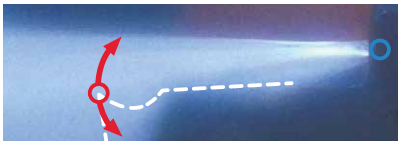
Coolant Spread: Narrow
Coolant Density: High



(Without Insert)

Competitor C

Coolant Spread: Wide
Coolant Density: Low



(Without Insert)

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

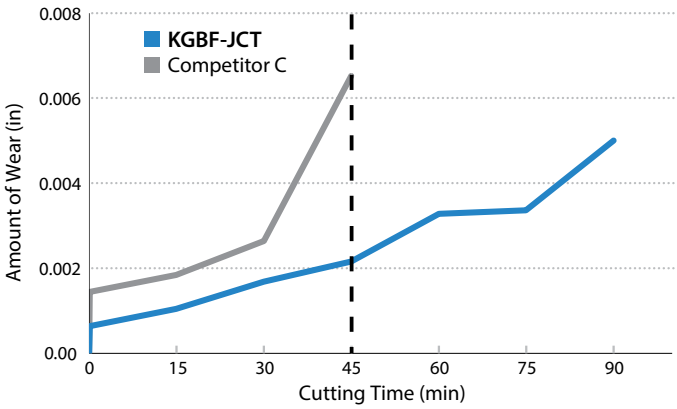
Chip Control Comparison (Internal Evaluation)

KGBF-JCT provided much better chip control

Cutting Conditions: Vc = 330 sfm, D.O.C. = 0.098", GBF32R200-010 PR1535, KGBFR1625H-16FJCT
Workpiece: Ti-6Al-4V External and Internal Coolant (218 psi) External Grooving

Wear Resistance Comparison (Internal Evaluation)

KGBF-JCT Showed Superior Wear Resistance



Cutting Edge

KGBF-JCT

Competitor C

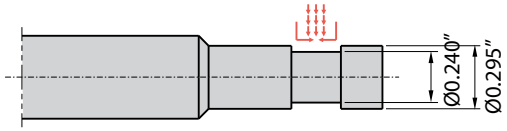
Cutting Conditions: Vc = 490 sfm, D.O.C. = 0.071", f = 0.0024 ipr, GBF32R100-005GL PR1535, KGBFR1625H-16FJCT
Workpiece: 304 External and Internal Coolant (218 psi) External Grooving

Case Studies

Nozzle Parts - Stainless Steel

Vc = 180 sfm
D.O.C. = 0.010"
f = 0.0012 ipr
Wet (Internal Coolant: 218 psi)

KGBFR1220H-16FJCT
GBF32R100-005GL PR1535



Tool Life

KGBF-JCT (Internal Coolant) — **1,200 pcs/edge**

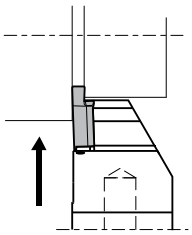
Tool Life x1.6

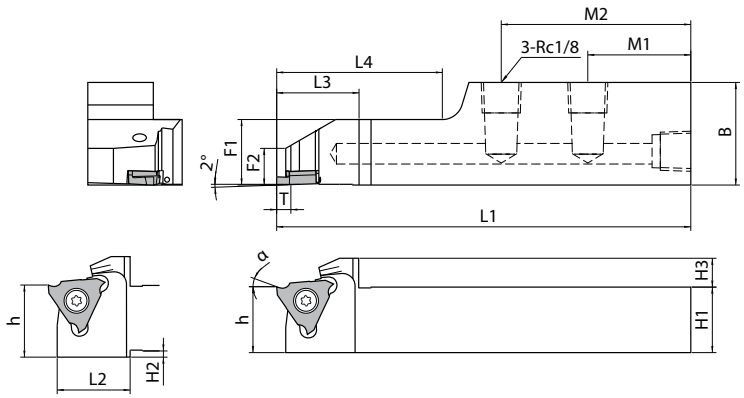
Competitor D (Internal Coolant) — **750 pcs/edge**

KGBF-JCT provided much better chip control than competitor with internal coolant and a molded chipbreaker.
The KGBF-JCT lengthened tool life by 66%

(User Evaluation)

KGBF-JCT (Small Parts Grooving)





Right-hand (R) Insert Shown

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

Toolholder Dimensions (Metric Size)

Part Number		Stock		Dimensions (mm)													Rake Angle	Spare Parts		
																		Insert Screw	Wrench	Plug
		R	L	H1=h	H2	H3	B	L1	L2	L3	L4	F1	F2	T*	M1	M2	α			
KGBFR	**1220H-16FJCT**	○		12	1.5	7	20	100	20	20	28	12	7	3	35	-	20°	SB-4070TRW	FT-8	GP-1
	1625H-16FJCT	○		16	-	7	25	100	-	20	40	16	9	3	25	46				
	2025H-16FJCT	○		20	-	7	25	100	-	20	40	20	11	3	25	46				

* Dimension T shows the distance from the toolholder to the cutting edge. Dimension B shows available grooving depth.

○ : World Express (Shipping: 7-10 Business Days)

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-F holders

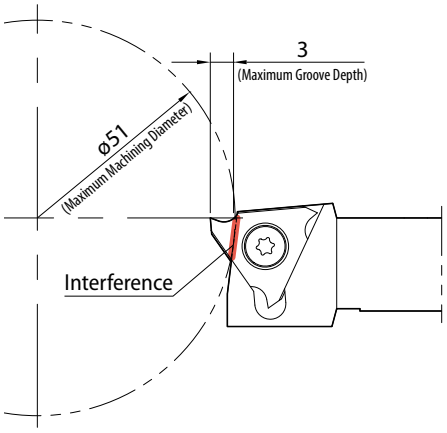
Caution: The rake angle after installation in the toolholder is 11°

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

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

KGBF-F Holder with GBF Insert Maximum Machining Diameter

The maximum machining diameter is Ø51 mm.
The workpiece interferes with the holder at Ø51 mm workpiece diameter or larger.



Recommended Cutting Conditions ★ 1st Recommendation ☆ 2nd Recommendation

GBF

Workpiece	Recommended Insert Grade (Cutting Speed Vc: sfm)			**[1]** Grooving Feed Rate (ipr) **[2]** Traversing Feed Rate (ipr) **[3]** Max D.O.C. for Traversing (in)			
	MEGACOAT	MEGACOAT NANO	Carbide				
	PR1215	PR1535	GW15	GBF32R 025 – 053	GBF32R 065 – 095	GBF32R 100 – 145	GBF32R 150 – 300
Carbon Steel	★ 260 - 590	☆ 230 - 530	-	[1] 0.0004 – 0.0020 [2] Not Recommended [3] Not Recommended	[1] 0.0008 – 0.0028 [2] Not Recommended [3] Not Recommended	[1] 0.0012 – 0.0031 [2] 0.0012 – 0.0024 [3] MAX. 0.0079	[1] 0.0012 – 0.0031 [2] 0.0012 – 0.0024 [3] MAX. 0.0079
Alloy Steel	★ 260 - 590	☆ 230 - 530	-	[1] 0.0004 – 0.0016 [2] Not Recommended [3] Not Recommended	[1] 0.0008 – 0.0024 [2] Not Recommended [3] Not Recommended	[1] 0.0012 – 0.0028 [2] 0.0008 – 0.0020 [3] MAX. 0.0079	[1] 0.0012 – 0.0028 [2] 0.0008 – 0.0020 [3] MAX. 0.0079
Stainless Steel	☆ 200 - 430	★ 160 - 390	-	[1] 0.0004 – 0.0016 [2] Not Recommended [3] Not Recommended	[1] 0.0008 – 0.0024 [2] Not Recommended [3] Not Recommended	[1] 0.0012 – 0.0028 [2] 0.0008 – 0.0020 [3] MAX. 0.0079	[1] 0.0012 – 0.0028 [2] 0.0008 – 0.0020 [3] MAX. 0.0079
Cast Iron	-	-	★ 200 - 330	[1] 0.0004 – 0.0020 [2] Not Recommended [3] Not Recommended	[1] 0.0008 – 0.0028 [2] Not Recommended [3] Not Recommended	[1] 0.0012 – 0.0031 [2] 0.0012 – 0.0024 [3] MAX. 0.0079	[1] 0.0012 – 0.0031 [2] 0.0012 – 0.0024 [3] MAX. 0.0079
Aluminum Alloy	-	-	★ 490 - 1,310	[1] 0.0004 – 0.0020 [2] Not Recommended [3] Not Recommended	[1] 0.0008 – 0.0028 [2] Not Recommended [3] Not Recommended	[1] 0.0012 – 0.0031 [2] 0.0012 – 0.0024 [3] MAX. 0.0079	[1] 0.0012 – 0.0031 [2] 0.0012 – 0.0024 [3] MAX. 0.0079
Brass	-	-	★ 490 - 980	[1] 0.0004 – 0.0016 [2] Not Recommended [3] Not Recommended	[1] 0.0008 – 0.0028 [2] Not Recommended [3] Not Recommended	[1] 0.0012 – 0.0028 [2] 0.0008 – 0.0020 [3] MAX. 0.0079	[1] 0.0012 – 0.0028 [2] 0.0008 – 0.0020 [3] MAX. 0.0079

GBF-GL

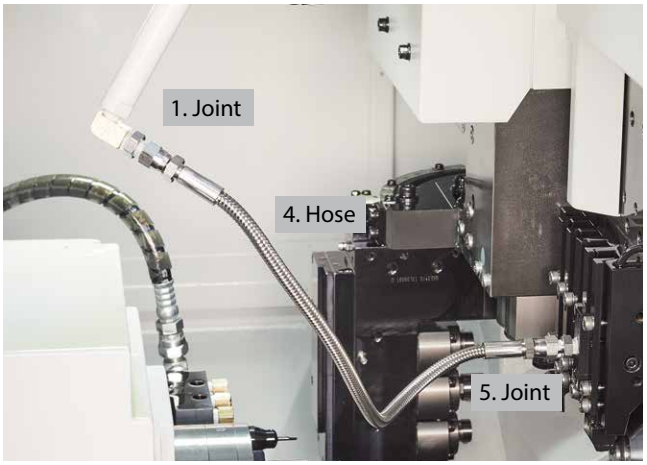
Workpiece	Recommended Insert Grade (Cutting Speed Vc: sfm)		**[1]** Grooving Feed Rate (ipr) **[2]** Traversing Feed Rate (ipr) **[3]** Max D.O.C. for Traversing (in)			
	MEGACOAT	MEGACOAT NANO				
	PR1215	PR1535	GBF32R 075 (GL)	GBF32R 095 – 100 (GL)	GBF32R 150 – 200 (GL)	GBF32R 300 (GL)
Carbon Steel	★ 260 - 590	☆ 230 - 530	[1] 0.0008 – 0.0028 [2] Not Recommended [3] Not Recommended	[1] 0.0012 – 0.0031 [2] 0.0012 – 0.0024 [3] MAX. 0.0079	[1] 0.0012 – 0.0031 [2] 0.0012 – 0.0024 [3] MAX. 0.0079	[1] 0.0016 – 0.0039 [2] 0.0016 – 0.0031 [3] MAX. 0.0197
Alloy Steel	★ 260 - 590	☆ 230 - 530	[1] 0.0008 – 0.0024 [2] Not Recommended [3] Not Recommended	[1] 0.0012 – 0.0028 [2] 0.0012 – 0.0024 [3] MAX. 0.0079	[1] 0.0012 – 0.0028 [2] 0.0012 – 0.0024 [3] MAX. 0.0079	[1] 0.0016 – 0.0035 [2] 0.0016 – 0.0031 [3] MAX. 0.0197
Stainless Steel	☆ 200 - 430	★ 160 - 390	[1] 0.0008 – 0.0024 [2] Not Recommended [3] Not Recommended	[1] 0.0012 – 0.0028 [2] 0.0012 – 0.0024 [3] MAX. 0.0079	[1] 0.0012 – 0.0028 [2] 0.0012 – 0.0024 [3] MAX. 0.0079	[1] 0.0016 – 0.0035 [2] 0.0016 – 0.0031 [3] MAX. 0.0197

Easy Coolant Connections

Pipe parts will be required separately if internal coolant is used

Pump Pressure: up to 2,900 psi
Pump Pressure: up to 1,090 psi if couplers are used

Without Coupler (Pump Pressure: up to 2,900 psi)

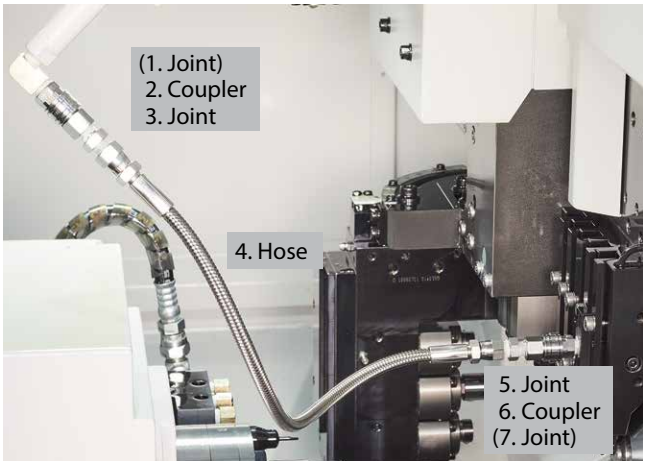


Combination Part Number (Example)

Part	Part Number
1. Joint	J-ST-R1/8-G1/8
4. Hose	HS-G1/8-G1/8-500
5. Joint	J-ST-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.

With Coupler (Pump Pressure: Up to 1,090 psi)



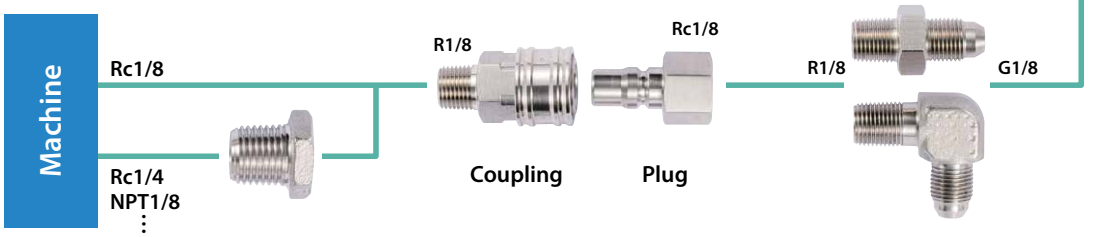
Combination Part Number (Example)

Part	Part Number
(1. Joint)	–
2. Coupler	CP-ST-R1/8, P-ST-RC1/8
3. Joint	J-ST-R1/8-G1/8
4. Hose	HS-G1/8-G1/8-500
5. Joint	J-ST-R1/8-G1/8
6. Coupler	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 coupler (Rc1/8, etc.) or hose (G1/8) for use.
Use sealing agents such as seal tapes when installing piping parts.

Without Coupler (Pump Pressure: up to 2,900 psi)

With Coupler (Pump Pressure: up to 1,090 psi)



1. Joint 2. Coupler 3. Joint 4. Hose

Piping Installation Parts Description

Joint (1, 3, 5, 7) Pressure Resistance: up to 2,900 psi

(Unit: mm)

Shape	Part Number	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

Coupler (2, 6) Pressure Resistance: up to 1,090 psi (Unit: mm)

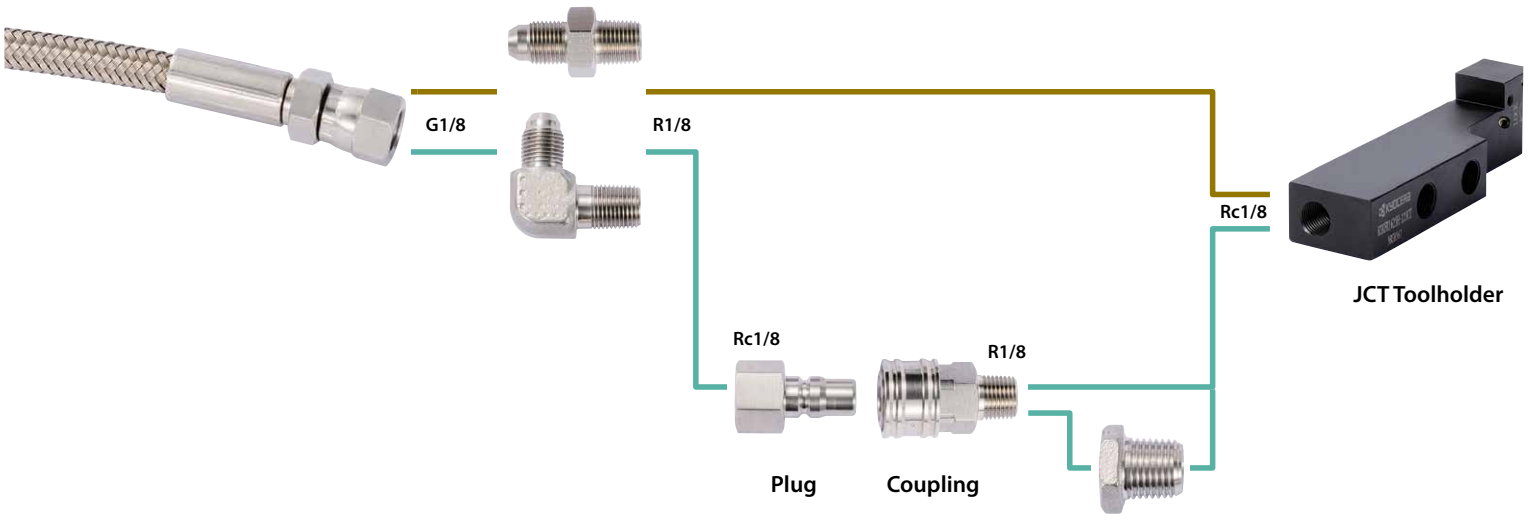
Shape	Part Number	Stock
	CP-ST-R1/8	●
	P-ST-RC1/8	●

Hose (4) Pressure Resistance: up to 2,900 psi

(Unit: mm)

Shape	Part Number	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

● : U.S. Stock



4. Hose 5. Joint 6. Coupler 7. Joint (Extension Joint)

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