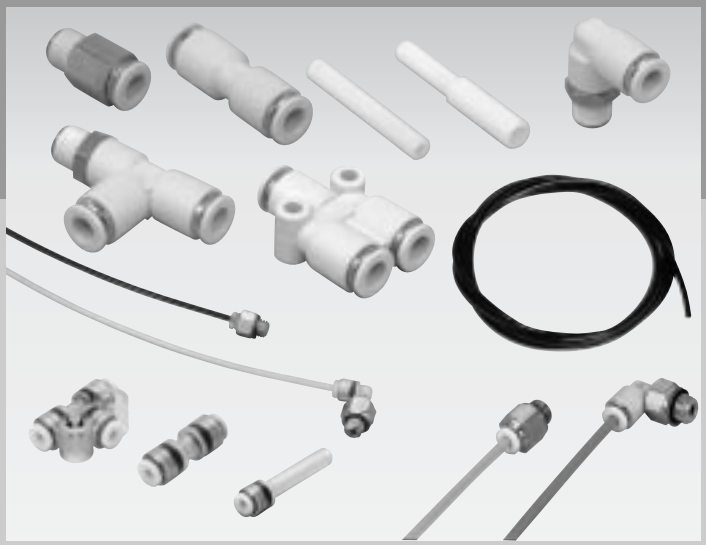
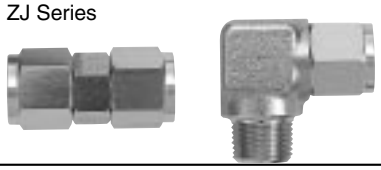
Joint / tube

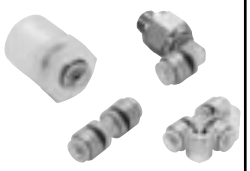
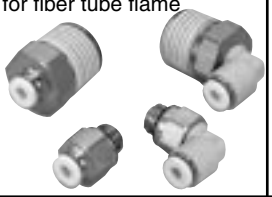
■ Pneumatics auxiliary components



CONTENTS

Joint

Model / product appearance	Feature	Applicable bore size	Port size						Page
			M3	M5	1/8	1/4	3/8	1/2	
● Miniature joint F Series 	Miniature type Barbed, clamp joint	ø3.2	●	●	●				922
		ø4	●	●	●				
		ø6		●	●				
● Joint GW Series 	Push-in joint For R screw, standard sealant is applied. Flame resistance resin is provided as standard.	ø3.2	●	●					930
		ø4	●	●	●	●			
		ø6		●	●	●	●		
		ø8			●	●	●		
		ø10			●	●	●	●	
		ø12				●	●	●	
		ø16					●	●	
● Joint mini-type GWJ Series 	Push-in joint Compact type For R screw, standard sealant is applied.	ø3.2	●	●	●				944
		ø4		●	●				
		ø6		●	●				
● Joint stainless steel type ZSP Series 	Push-in joint SUS303 or equivalent is used for body metal For R screw, standard sealant is applied.	ø4		●	●	●			950
		ø6		●	●	●	●		
		ø8			●	●	●		
		ø10			●	●	●	●	
		ø12				●	●	●	
● Joint stainless steel type ZW Series 	Push-in joint Flame resistance resin is provided as standard. SUS304 is used for body metal For R screw, standard sealant is applied.	ø4		●	●	●			959
		ø6		●	●	●	●		
		ø8			●	●	●		
		ø10				●	●	●	
		ø12					●	●	
● Female joint stainless steel type ZJ Series 	Easy Fit mechanism, tightening joint SUS316 is used for body metal	ø4			●	●			963
		ø6			●	●	●		
		ø8			●	●	●		
		ø10				●	●	●	
		ø12				●	●	●	
● Female joint MJ/JL Series 	Tightening joint Can be used for copper tube.	ø4			●	●	●		969
		ø6			●	●	●		
		ø8			●	●	●		
		ø10				●	●	●	
		ø12				●	●	●	
		ø15					●	●	
● Rotary joint RJF Series 	High rigidity and low sliding resistance achieved with built-in bearing Ample lineup includes 4, 6, 8, 12 or 16 circuits	—		●	●				976

Model / product appearance	Feature	Applicable bore size	Port size						Page
			M3	M5	1/8	1/4	3/8	1/2	
● Push-in joints for fiber tube standard type PG Series 	Push-in joint PP resin incorporated as standard to increase corrosion resistance For R screw, standard sealant is applied.	ø1.8	●	●	●				981
● Push-in joints for fiber tube clean type CG Series 	Push-in joint PP resin incorporated as standard to increase corrosion resistance SUS304 is used for body metal	ø1.8	●	●	●				981
● Push-in joints for fiber tube flame resistant type RG Series 	Push-in joint Flame resistance resin is provided. For R screw, standard sealant is applied.	ø1.8		●	●				996
● Dedicated joint for fiber tube PTN* Series 	With retainer collar For R screw, standard sealant is applied.	ø1.8	●	●	●				1002

Tube

Model	Feature	Tube outer diameter									Page
		ø1.8	ø3.2	ø4	ø6	ø8	ø10	ø12	ø15	ø16	
Fiber tube antistatic type (Push-in joint)	Extremely fine air tube as fine and flexible as lead wire. Appropriate where difficult to pipe or short piping such as narrow and tiny space, etc.	●									982
Fiber tube clean type (Push-in joint)	High corrosion resistant materials (special polyolefin) incorporated for use in cleanrooms. Ideal for fields a requiring clean environment, including semiconductor manufacturing, medicine, and foodstuff manufacturers.	●									982
Fiber tube flame resistant type (Push-in joint)	Push-in joint tubing using flame-resistant materials. Suitable for piping in narrow space while maintaining flexibility.	●									997
Fiber tube antistatic type	Extremely fine air tube as fine and flexible as lead wire. Outstanding flexibility and high piping freedom enable piping in difficult places such as small spaces.	●									1003
Antistatic tube	This tubing prevents electrostatic discharge and dust from accumulating. Outstanding flexibility and high piping freedom enable piping in difficult places such as small spaces.		●	●	●	●	●	●			1009
Soft nylon tube	Very flexible comparing to conventional nylon tube. Appropriate for piping in limited space or complicated piping.		●	●	●	●	●	●	●	●	1012
Urethane tube	Due to new manufacturing process, as same outer diameter as it was, while larger inner diameter and increased strength are realized. This piping tube is also used for larger than flow rate.			●	●	●	●	●			1013
Urethane tube	Durable and flexible due to high mechanical strength.		●	●	●	●	●	●			1014
Coiling tube	This is a coiling extensible tube.				●	●	●	●			1014
Flame resistant tube	Flame retardant material used epoch-making tube. When welding spark, etc., contact, tube does not last burning.			●	●	●	●	●			1015

Pneumatic components (joint / tube)

Safety precautions

Always read this section before starting use.
Refer to Intro 67 for general precautions, and to "⚠ Safety precautions" in this section for details on each series.

Design & Selection

⚠WARNING

■ Use the product within specifications.
Using this product with fluid other than compressed air or at a pressure or temperature exceeding the specifications could result in rupture, the tube coming off, or leakage.

■ Avoid installing this product outdoors or where it is exposed to direct sunlight.

■ Do not use the normal joint if electrostatic discharge could build up. Otherwise system faults or failure could occur. An antistatic joint and antistatic tubing should be used in such a case.

■ Do not constantly push down or apply a load onto the push-ring for the push-in joint.
- The tube may lose its ability to hold.
- When transporting an assembled product, avoid positions which constantly press down on the push ring.

⚠CAUTION

■ Confirm that the product will withstand the working environment.
- This product cannot be used in an environment where it could be functional damage could occur.
For example, a special environment reaching high temperatures, having a chemical atmosphere, or where vibration, humidity, moisture or gas are present. An environment where ozone is generated. Outdoors or where the product could be subject to direct sunlight. Where cutting oil, coolant or spatter could come in contact. Where static electricity is a problem.

■ Confirm that PTFE can be used.
- The sealant contains PTFE (polytetrafluoroethylene resin) powder. Check that this poses no problem during use.

■ Consult with CKD if ozone could occur in supplied air. (An ozone-resistant series is available.)

■ Avoid using this product in hot or humid places, or where it could be subject to direct sunlight. Install this product where the temperature is 40˚C or less.

■ Flame-resistant resin (equivalent to UL94 Standard V-O) is provided for GW Series' push ring, but not for GWJ Series. Check specifications when selecting the product.

ZSP Series

■ The chemical resistance is SUS440 or equivalent. Use is not possible if higher chemical resistance is required.

■ Consult with CKD when using in a corrode environment. The joint body could be damaged under some conditions.

Installation & Adjustment

⚠WARNING

■ Securely insert the tube until it contacts the joint's tube end, and check that it does not come off the joint.

■ Stop air and confirm that there is no residual pressure before replacing the tube.

Piping

⚠CAUTION

■ Observe the following precautions when using nylon tubes or urethane tubes for piping material.
- Use the designated tube and CKD plastic plug (GWP Series). Do not use metal plugs.
Tube outer diameter precision
  - Polyamide tube : Within ±0.1mm
  - Polyurethane tube (up to ø6) : Within ±0.1mm
  (ø8 to) : Within $^{+0.1}_{-0.15}$mm

Use a tube with a hardness of 92˚ or more. If a tube that does not satisfy diameter accuracy or hardness is used, chucking force may drop or the tube may come off or be difficult to insert.
Consult with CKD when using a nondesignated tube or plug.
- Use a flame resistant tube or metal pipe where spatter could occur.
- When using the standard push-in joint on the spiral tube, fix the base of the tube with a hose band. Rotation occurs, and holding performance is decrease.
- Cut the tube at right angles using a dedicated cutting tool
- Do not use a worn or damaged tube. That could be crushed or rupture.
- Do not reuse a tube that could be deteriorated and deformed.
- Do not let the tube directly contact other surfaces, it could wear and break.

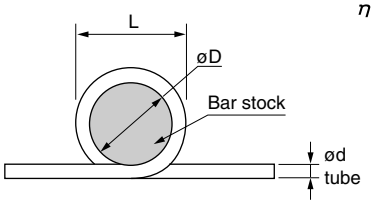
■ Do not use this product for applications that constantly rotate, vibrate or which have a tube that moves vigorously.
- The elbow type can be mounted by turning it, but must not be used for constant rotating or oscillating applications. Otherwise the joint could be damaged.
- Provide sufficient allowance in the tube so that it does not bent suddenly.

■ Use tubing within the minimum bending radius but long enough to avoid sharp bends.

- Consider changes in tubing length caused by pressure when tubing is connected, and provide sufficient length within the minimum tube bending radius.
- Measuring method

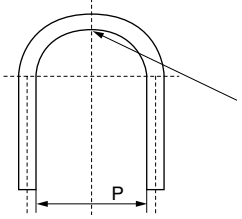
(1) Minimum bending radius (JIS B8381)
The values are based on JIS B8381.
If tubing is tightly wound around a round rod, indicate the rod radius when variation η reaches 25%.

$$\eta = \left(1 - \frac{L-D}{2d}\right) \times 100$$



η : Deforming ratio (%)
d : Tube outer diameter(mm)
L : Measuring volume (mm)
D : Round rod diameter (mm) (Minimum bending radius of 2 time)

(2) Minimum installation radius
To measure, simply bend the tube and confirm the radius when tube diameter deformation is 10%.



Shall be the minimum mounting pitch when the deformation rate is 10%. Min. installation radius = P/2

■ Always flush just before piping pneumatic component.

- Any foreign matter that has entered during piping must be removed so it does not enter the pneumatic component. Remove all swarf and foreign debris generated during piping and tube insertion before starting use.

■ When supplying compressed air for the first time after connecting pipes, do not apply high pressure suddenly.

- Piping connection could be dislocated or the piping tube fly off, leading to accidents.

■ After connecting piping, check pipe connections for air leaks before supplying compressed air.

- Apply a leakage detection agent on pipe connections with a brush, and check for air leaks.

■ Apply adequate torque when connecting pipes.

- To prevent air leakage and screw damage. First tighten the screw by hand to prevent threads, then use a tool. Check that the tool's hexagon face and wrench are the correct size.

(Reference value)

Port thread	Tightening torque N·m
M3	0.3 to 0.6
M5	1.0 to 1.5
Rc1/8	3 to 5
Rc1/4	6 to 8
Rc3/8	13 to 15
Rc1/2	16 to 18

* The above values apply when the mating screw is a JISB 0203 tapered female thread for piping (material: C3604BD).

■ Connect piping so that connections are not dislocated by system movement, vibration, or tension.

- Control of actuator speed will be disabled if piping on the exhaust side of the pneumatic circuit is disengaged.
- When using the chuck holding mechanism, the chuck will be released creating a hazardous state.
- Confirm that the tube has been inserted properly, and make sure that there is no tension during use. The tube could be dislocated or damaged if there is any tension.

■ Make sure that the joint and tube are not twisted or pulled, and that moment load is not applied.

■ Do not tighten while pressure is applied.

■ Observe the following precautions when using nylon tubes or urethane tubes for piping material.

- Use a flame resistant tube or metal pipe where spatter could occur.
- Use a hydraulic hose for common piping for hydraulic and pneumatic specifications.
- When using the standard push-in joint on the spiral tube, fix the base of the tube with a hose band. Rotation occurs, and holding performance is decrease.
- When using for hot liquids, use a soldered screw joint. The push-in join cannot be used.

■ Check that tubing is not worn or damaged.

- Tubing could be crushed, break, or be dislocated.

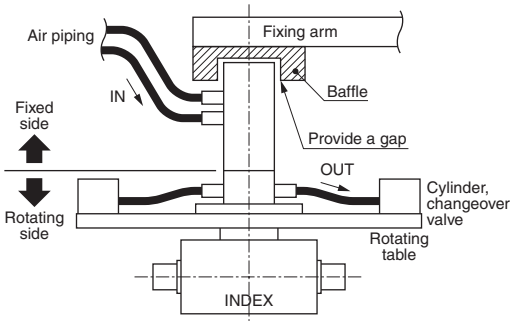
■ Use the designated tube.

■ Securely insert the tube to the tube end, and make sure that the tube cannot be pulled off.

RJF Series

⚠WARNING

■ Fixing method (fixed side)
Always provide a gap at the connection of the product (fixed side) and baffle to allow a slight axis deviation. Applying an excessive load on the rotating side axis could result in damage or air leaks.



■ Fixing method (rotating side)
When using this product (rotating side) in a place with a particularly high movement frequency, always use an accurate tightening method. If the product's moving sections could pose a risk to humans, devices or systems, provide a structure so that those sections cannot be directly touched.

■ Provide sufficient space for maintenance and inspection.

Safety precautions

Always read this section before starting use.
Refer to Intro 67 for general precautions, and to "⚠ Safety precautions" in this section for details on each series.

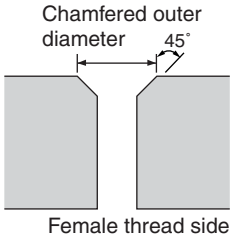
Installation & Adjustment

⚠CAUTION

■ Cut the tube with a dedicated cutter, and cut at a right angle.

■ If the set screw is M3 or M5 screw, the chamfered outer diameter of the female thread side must be within the following values.

Port thread	Chamfered outer diameter (mm)
M3	ø3.3 to 3.9
M5	ø5.4 to 5.8

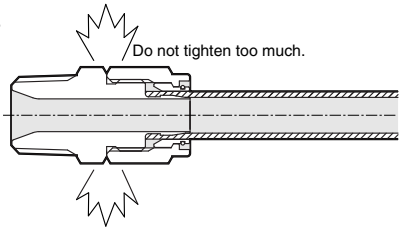


■ The effective sectional area of the turn elbow (GWL*-*-T, GWL*-*-2T) varies based on the direction.

ZJ Series

■ Except for separating the main body and nut, do not disassemble or modify joint components. Otherwise functions cannot be guaranteed.

■ This product and nuts are made of the same material (SUS316).
When tightening, stop as soon as the body and nut come in contact.
Tightening tubing too much could cause seizure at threads, making it difficult to remove tubing.



ZSP Series

■ When using a non-CKD tube, make sure that the tube's outer diameter tolerance satisfies the specifications given in Table 1.

Table 1 Tube outer diameter tolerance

Tube type	Outer diameter dimension tolerance
Urethane tube	Nominal diameter ±0.15
Nylon tube	Nominal diameter ±0.1

■ Use within the recommended tightening torque range given in Table 2.

Table 2 Recommended tightening torque

Port thread	Tightening torque N·m
M5	1.0 to 1.5
R1/8	7 to 9
R1/4	12 to 14
R3/8	22 to 24
R1/2	28 to 30

■ The joint can be rotated to a random direction and mounted. However, this product must not be used for constantly rotating or swaying applications.

Keeping

■ The joint is made of highly corrosion-resistant material, but rust could spread from another point. Avoid storing this part with products made of other materials, and store in a clean, dry place.

ZJ Series

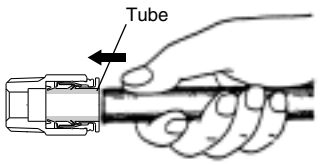
■ Store this product with nuts as a set. If parts are stored separately, the body and nut threads or body protrusions (seals) could be damaged or connection faults or leaks occur.

During Use & Maintenance

⚠CAUTION

Mounting and removal

Installation



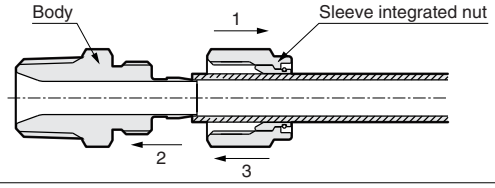
Push the tube in until it contacts the tube end.
Check that the tube is not dislocated from the joint. Tube goes in 15 to 21mm into the end of the joint body. The end of the mounted tube must be cut at a right angle.

Removal

While pushing the push ring with a finger, pull the tube to remove it.

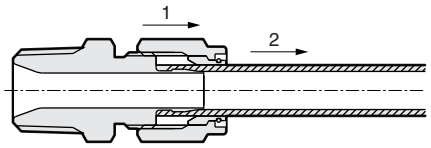
ZJ Series

Installation



Pass tubing through the sleeve integrated with the nut.
Insert tubing into the main body, and tighten the sleeve integrated with the nut until it contacts the body.
Stop tightening the sleeve integrated with the nut when the body and nut come in contact.
Tightening tubing too much could cause seizure at threads, making it difficult to remove tubing.

Removal



Loosen the sleeve integrated with the nut and pull out tubing.
The sleeve integrated with the nut can be reused.

F Miniature joint

Port sizeM3 to 1/8(Rc or R)

RoHS CAD

● 44 types of miniature joints are available with port size M3, M5, bore size ø3.2, ø4, ø6

■ Barbed joint

Straight/FTS

• Applicable tube O.D. : ø3.2 to ø6
• Page : 924

Elbow/FTL

• Applicable tube O.D. : ø3.2 to ø6
• Page : 924

Branch/FTT

• Applicable tube O.D. : ø3.2 to ø6
• Page : 924

Barbed nipple/FTS-0

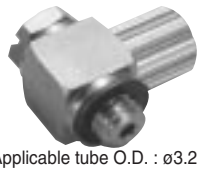
• Applicable tube O.D. : ø3.2 to ø6
• Page : 924

■ Clamp joint

Straight/FCS

• Applicable tube O.D. : ø3.2 to ø6
• Page : 925

Elbow/FCL



• Applicable tube O.D. : ø3.2 to ø6
• Page : 925

■ Double screw nipe

Straight/FNS

• Page : 925

■ Socket

Straight/FSS

• Page : 925

Elbow/FSL

• Page : 926

Branch/FST

• Page : 926

■ AdjustableSocket

Elbow/FAL

• Page : 926

Branch/FAT

• Page : 926

Cross/FAX

• Page : 927

Deforming union Tee/FAY

• Page : 927

■ Bush

FBS

• Page : 927

■ Bulk head

FWS sales unit : 5 pieces

• Page : 927

■ Plug

FPL

• Page : 928

■ Extension

FLS

• Page : 928

■ Manifold

FMB sales unit : 1 piece

• Page : 928

FMH sales unit : 1 piece

• Page : 928

■ Gasket

FGS sales unit : 100 pieces

• Page : 928

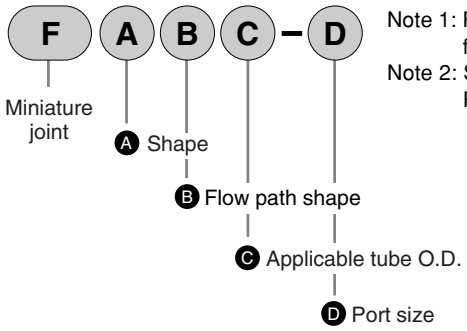
● If sales unit is not specified, the product is packed 10 pcs/1 bag.

Specifications

Descriptions	F
Working fluid	Compressed air
Max. working pressure MPa	0.7 or less
Ambient / fluid temperature ˚C	-5 to 60 (no freezing)
Applicable tube	Soft nylon tube (model no. FH-3224, F-1504, F-1506) Urethane tube (model no. U-9504, U-9506) Note

Note: Use urethane tube within 0 to 60˚C range.
(Refer to page 1008 for the dimensions of tube and working pressure.)

How to order



Note 1: Refer to model no. sections in dimensions (pages 924 to 928) for detailed combination of model no.
Note 2: Sales unit is 10 pieces/1 bag.
Refer to the system table on page 922 for model sales units.

Ozone specifications (Ending 5)

F –·····– P11

Clean room specifications (catalog No. CB-033SA)

F –·····– P80

Internal structure and parts list

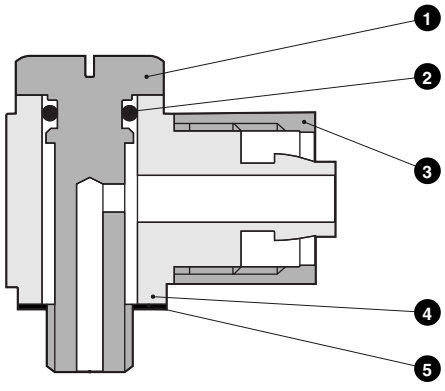


Figure shows FCL type.

No.	Parts name	Material	Treatment
1	Bolt	Brass	Electroless nickeling
2	O ring	Nitrile rubber	—
3	Clamp ring	Brass	Electroless nickeling
4	Body	Brass	Electroless nickeling
5	Gasket	Nitrile rubber, Steel	—

Safety Precautions

(1) If urethane tube is used with 40˚ and over, use a clamp joint.
(2) Use a nylon tube with tolerance of diameter within ±0.1, while urethane rubber tube within $^{+0.1}_{-0.15}$.
(3) Type with slit on clamp ring of clamp joint is for tube O.D. 3.2mm.
(4) If elbow, branch, cross, deforming branch or barbed joint is used at frequently moving tube section, trouble may occur. So please avoid use in such place.
(5) Bending radius of tube is to be the right value and over near a joint.

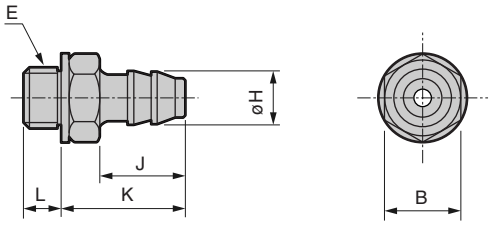
Minimum bending radius mm		Barbed joint	Clamp joint
ø3.2	Soft nylon	20	10
ø4	Soft nylon	20	10
	Urethane	20	10
ø6	Soft nylon	40	20
	Urethane	40	20

Dimensions: Barbed joint (straight, elbow, branch, barbed nipple)

CAD

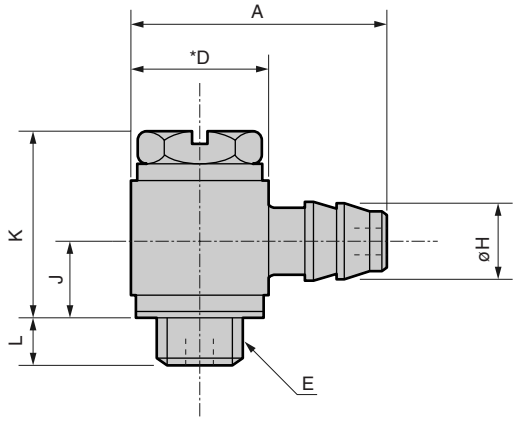
Barbed joint

● Straight/FTS



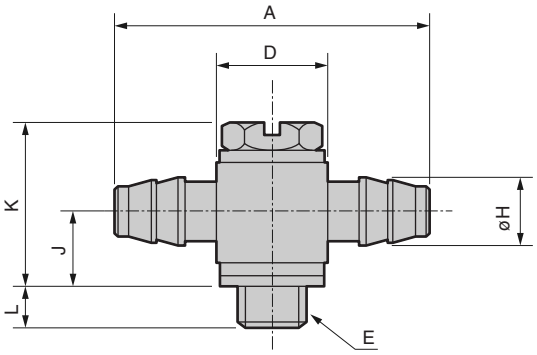
Model no.	Applicable tube O.D.ø	B	E	Min. bore size	H	J	K	L	Effective sectional area (mm²)
FTS4-M3	ø3.2, ø4	4.5	M3×0.5	0.8	2.9	5.5	7.9	2.6	0.4
FTS4-M5	ø3.2, ø4	7	M5×0.8	1.8	2.9	5.5	8.6	2.9	2.1
FTS4-6	ø3.2, ø4	10	R1/8	1.8	2.9	5.5	9.5	8	2.1
FTS6-M5	ø6	7	M5×0.8	2.5	4.7	7	10.1	2.9	4.1
FTS6-6	ø6	10	R1/8	2.5	4.7	7	11	8	4.1

● Elbow/FTL



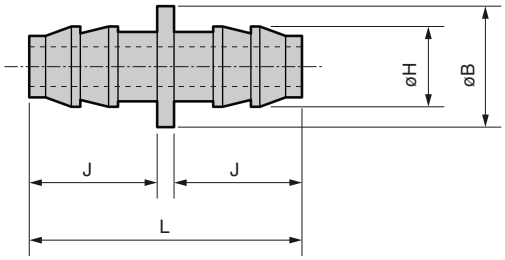
Model no.	Applicable tube O.D.ø	A	D	E	Min. bore size	H	J	K	L	Effective sectional area (mm²)
FTL4-M3	ø3.2, ø4	10.5	5	M3×0.5	1	2.9	2.9	6.8	2.6	0.4
FTL4-M5	ø3.2, ø4	13.5	8	M5×0.8	1.8	2.9	5.1	11.6	2.9	1.3
FTL6-M5	ø6	15	8	M5×0.8	1.8	4.7	5.1	11.6	2.9	1.5

● Branch/FTT



Model no.	Applicable tube O.D.ø	A	D	E	Min. bore size	H	J	K	L	Effective sectional area (mm²)
FTT4-M3	ø3.2, ø4	16	5	M3×0.5	1	2.9	2.9	6.8	2.6	0.4
FTT4-M5	ø3.2, ø4	19	8	M5×0.8	1.8	2.9	5.1	11.6	2.9	1.3
FTT6-M5	ø6	22	8	M5×0.8	1.8	4.7	5.1	11.6	2.9	1.5

● Barbed nipple/FTS* –0

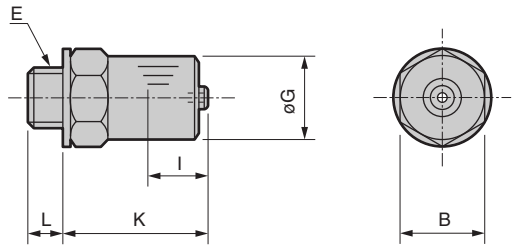


Model no.	Applicable tube O.D.ø	B	Min. bore size	H	J	L	Effective sectional area (mm²)
FTS4-0	ø3.2, ø4	5	1.8	2.9	5.5	12	2.1
FTS6-0	ø6	7	2.5	4.7	7	15	4.1

Dimensions: Clamp joint (straight, elbow), double screw nipple (straight), socket (straight)

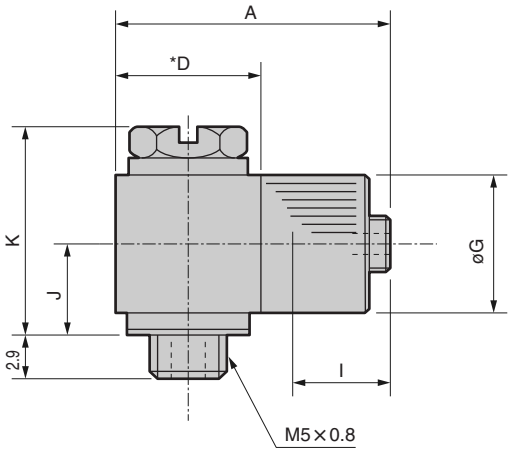
Clamp joint

● Straight/FCS



Model no.	Applicable tube O.D.ø	B	E	Min. bore size	G	I	K	L	Effective sectional area (mm²)
FCS3-M5	ø3.2	7	M5×0.8	1.8	7	4.3	11.7	2.9	2.1
FCS3-6	ø3.2	10	R1/8	1.8	7	4.3	12.1	8	2.1
FCS4-M5	ø4	7	M5×0.8	1.8	7	4.3	11.7	2.9	2.1
FCS4-6	ø4	10	R1/8	1.8	7	4.3	12.1	8	2.1
FCS6-M5	ø6	8	M5×0.8	2.5	9	5	12.4	2.9	4.1
FCS6-6	ø6	10	R1/8	2.5	9	5	12.8	8	4.1

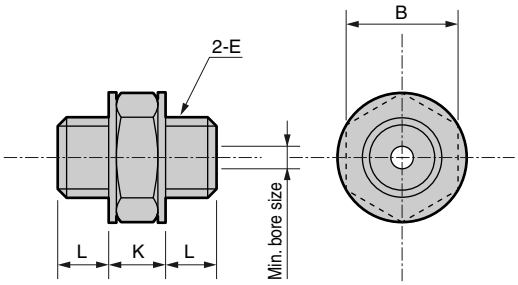
● Elbow/FCL



Model no.	Applicable tube O.D.ø	A	D	Min. bore size	G	I	K	L	Effective sectional area (mm²)
FCL3-M5	ø3.2	16.1	8	1.8	7	4.3	5.1	11.6	1.3
FCL4-M5	ø4	16.1	8	1.8	7	4.3	5.1	11.6	1.3
FCL6-M5	ø6	17.8	9	1.8	9	5	6.1	13.6	1.5

Double screw nipple

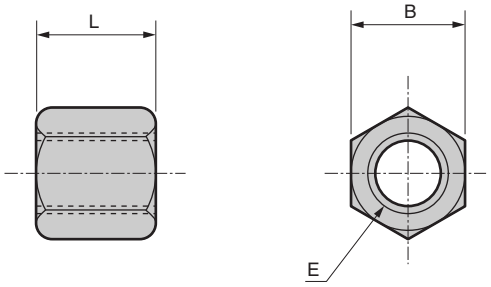
● Straight/FNS



Model no.	B	E	Min. bore size	K	L	Effective sectional area (mm²)
FNS-M3	4.5	M3×0.5	0.8	2.8	2.6	0.4
FNS-M5	7	M5×0.8	1.8	3.7	2.9	2.1

Socket

● Straight/FSS

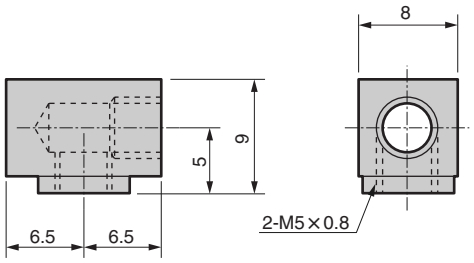


Model no.	B	E	L	Effective sectional area (mm²)
FSS-M3	4.5	M3×0.5	7	4
FSS-M5	7	M5×0.8	8	9

Dimensions: Double screw nipple (elbow), Socket (branch), Adjustable socket (elbow, branch)

Double screw nipple

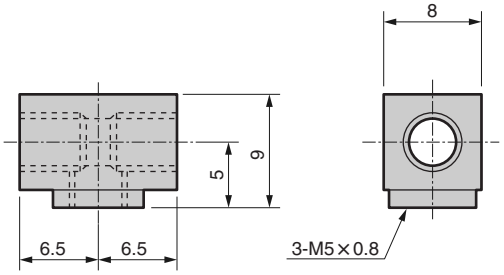
● Elbow/FSL-M5



Effective sectional area 8mm²

Socket

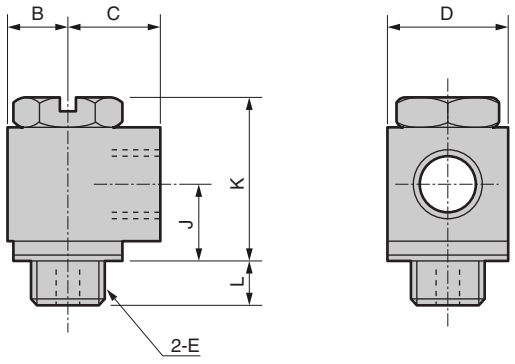
● Branch/FST-M5



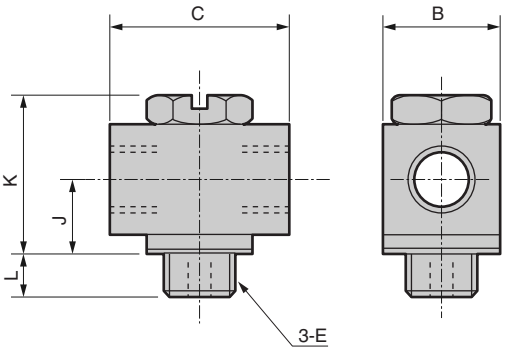
Effective sectional area 8mm²

Adjustable socket

● Elbow/FAL



● Branch/FST



Model no.	B	C	D	E	Min. bore size	J	K	L	Effective sectional area (mm²)
FAL-M3	2.5	4.5	5	M3×0.5	1	2.9	6.8	2.6	0.5
FAL-M5	4	6.5	8	M5×0.8	1.8	5.6	11.6	2.9	1.7

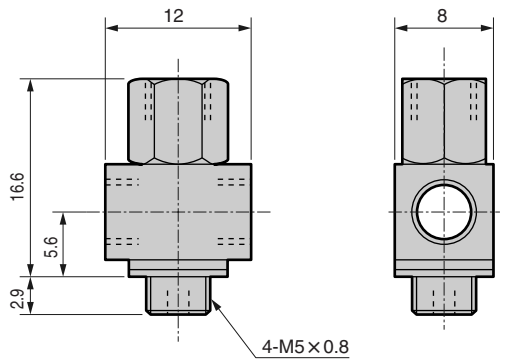
Model no.	B	C	E	Min. bore size	J	K	L	Effective sectional area (mm²)
FAT-M3	5	9	M3×0.5	1	2.9	6.8	2.6	0.5
FAT-M5	8	12	M5×0.8	1.8	5.6	11.6	2.9	1.7

Dimensions: Adjustable socket (cross, deforming tee union), bush, bulk head

CAD

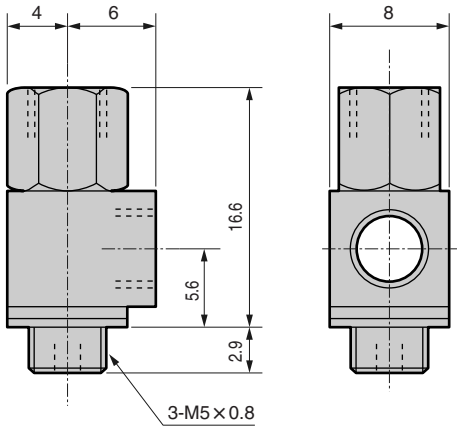
Adjustable socket

● Cross/FAX-M5



Min. bore size 1.8mm
Effective sectional area 1.7mm²

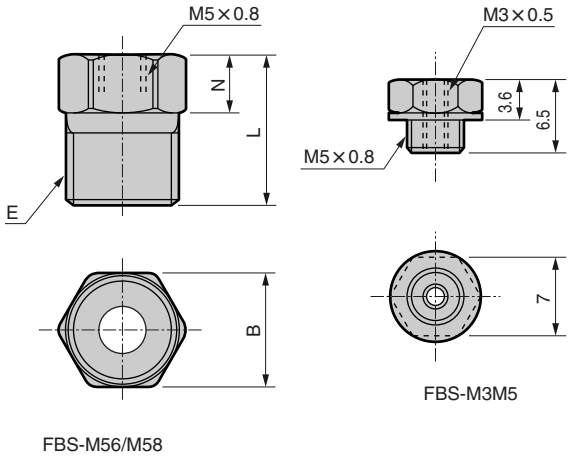
● Deforming tee union/FAY-M5



Min. bore size 1.8mm
Effective sectional area 1.7mm²

Bush

● FBS



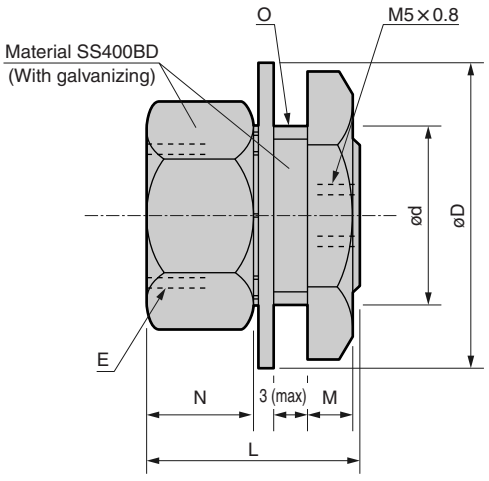
FBS-M56/M58

FBS-M3M5

Effective sectional area 4mm²

Bulk head

● FWS



Model no.	B	E	L	N	Effective sectional area (mm²)
FBS-M56	10	R1/8	12	4	9
FBS-M58	14	R1/4	16	5	9

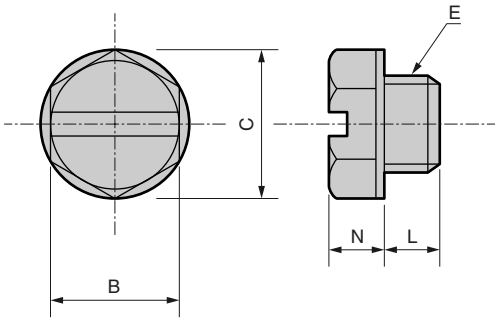
Model no.	D	d	E	L	M	N	O	Effective sectional area (mm²)
FWS-M5	14.7	8	M5×0.8	11	3	4	M8×1	9
FWS-M56	15.2	12	Rc1/8	16	5	7	M12×1	9

Dimensions: Plug, extension, manifold, gasket

CAD

Plug

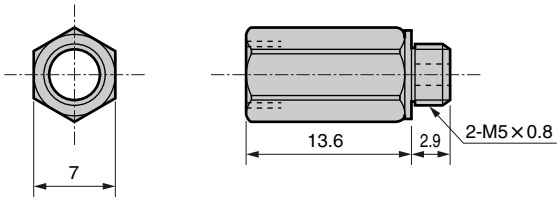
● FPL



Model no.	B	C	E	N	L
FPL-M3	4.5	4.9	M3×0.5	2.4	2.6
FPL-M5	7	7.8	M5×0.8	3.1	2.9

Extension

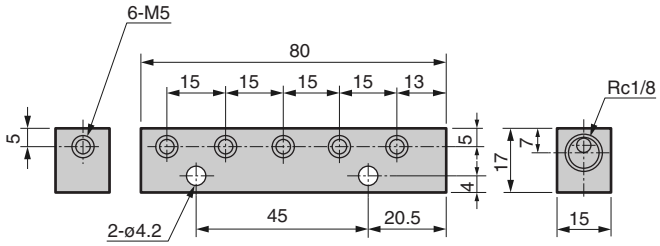
● FLS-M5



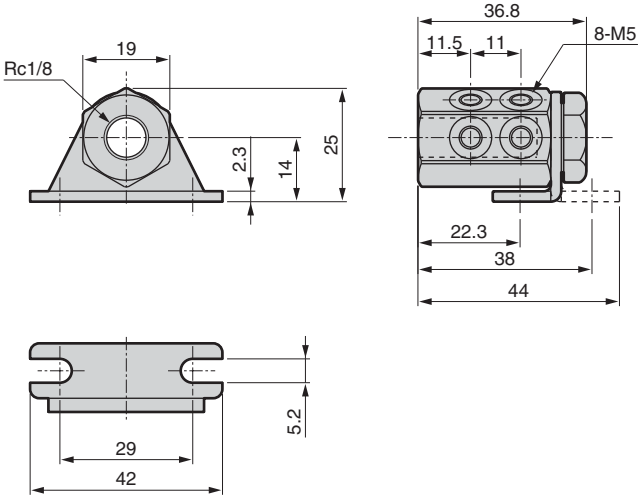
Effective sectional area 2.1mm²

Manifold

● FMB-M56

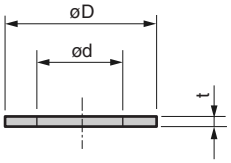


● FMH-M56



Gasket

● FGS



Model no.	D	d	t
FGS-M3	4.8	2.8	0.4
FGS-M5	7.8	4.8	0.6

MEMO

GW Joint

Port size M3 to 1/2 (Rc or R)

● Wide connection joints and models

CAD

■ Straight type

Single straight GWS*-*

Applicable tube O.D.ø
4
6
8
10
12
16

• Page : 934

Single straight GWS*-*-S

Applicable tube O.D.ø
3.2
4
6
8
10
12

• Page : 934

Female, straight GWS*-*-M

Applicable tube O.D.ø
4
6
8
10
12

• Page : 934

Bulk head female GWS*-*-E

Applicable tube O.D.ø
4
6
8
10
12

• Page : 934

Bulk head GWS*-*-X

Applicable tube O.D.ø
4
6
8
10
12

• Page : 935

Bulk head female connector GWM*-*-X

Applicable tube O.D.ø
4
6
8
10
12

• Page : 935

Straight GWS*-0

Applicable tube O.D.ø
4
6
8
10
12
16

• Page : 935

Different diameter straight GWS*-0

Applicable tube O.D.ø
4 / 6
6 /8
8 / 10
10 /12

• Page : 935

Plug reducer GWS*-*P

Applicable tube O.D.ø
4
6
8
10

• Page : 936

Plug GWP*-0

Connecting joint diameter ø
4
6
8
10
12

• Page : 936

■ Elbow type

Plug reducer GWP*-0

Connecting joint diameter ø
4 / 6
6 / 8
8 / 10
10 / 12

• Page : 936

Single elbow GWL*-*

Applicable tube O.D.ø
4
6
8
10
12
16

• Page : 936

Long elbow GWL*-*-L

Applicable tube O.D.ø
4
6
8
10
12

• Page : 937

Single 45˚ elbow GWL*-*-45

Applicable tube O.D.ø
4
6
8
10
12

• Page : 937

Turn elbow GWL*-*-T

Applicable tube O.D.ø
4
6
8
10
12

• Page : 937

■ Tee union type

Elbow GWL*-0

Applicable tube O.D.ø
4
6
8
10
12
16

• Page : 937

Both push-in branch GWT*-*

Applicable tube O.D.ø
4
6
8
10
12

• Page : 938

D type union Tee GWT*-*-D

Applicable tube O.D.ø
4
6
8
10
12

• Page : 938

Union Tee GWT-0

Applicable tube O.D.ø
4
6
8
10
12

• Page : 938

Y type union Tee GWY*-0

Applicable tube O.D.ø
4 / 4
6 / 6
8 / 8
10 / 10
12 / 12
6 / 4
8 / 6
10 / 8
12 / 10

• Page : 938

● Sales unit is 10 pieces/1 box.

Refrigerating type dryer
Desiccant type dryer
High polymer membrane type dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
F.R.L. (Separate)
Compact F.R.
Precise regulator
F.R.L. (Related products)
Clean F.R.
Electro pneumatic regulator
Air booster
Speed control valve
Silencer
Check valve / others
Joint / tube
Vacuum filter
Vacuum regulator
Suction plate
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
Contact / close contact conf. SW
Air sensor
Pressure SW for coolant
Small flow sensor
Small flow controller
Flow sensor for air
Flow sensor for water
Total air system
Total air system (Gamma)
Ending

Product introduction: Page 932
Specifications, model no., internal structure: Page 933

Both ports Y tee union GWY*-*

Applicable tube O.D.ø
4
6
8
10
12

• Page : 939

Cross shaped GWCR*-0

Applicable tube O.D.ø
8
10
12

• Page : 939

2 port turn elbow GWL*-*-2T

Applicable tube O.D.ø
4
6
8
10
12

• Page : 939

Tetrapod shaped (with R) GWTR*-*

Applicable tube O.D.ø
4
6
8
10
12

• Page : 939

FY type (with R) GWFY*-*

Applicable tube O.D.ø
4
6
8
10
12

• Page : 940

Double Y type (with R) GWWY*-*

Applicable tube O.D.ø
4
6

• Page : 940

Tetrapod shaped GWTR*-0

Applicable tube O.D.ø
4
6
8
10
12

• Page : 940

FY type GWFY*-0

Applicable tube O.D.ø
4
6
8
10
12

• Page : 940

Double Y type GWWY*-0

Applicable tube O.D.ø
6 / 4
8 / 6

• Page : 941

Blanking plug GWP*-B

Connecting joint diameter ø
4
6
8
10
12
16

• Page : 941

L type plug GWP*-L

Applicable tube O.D.ø
4
6
8
10
12

• Page : 941

C type plug GWP*-C

Applicable tube O.D.ø
4
6
8
10
12

• Page : 941

Y type plug GWP*-Y

Applicable tube O.D.ø
4
6
8
10
12

• Page : 942

Cap GWC*

Applicable tube O.D.ø
4
6
8
10
12

• Page : 942

Manifold (single/with R) GWMF*-*

Applicable tube O.D.ø
4 / 6
4 / 8
6 / 8
6 / 10
8 / 10

• Page : 942

Manifold (single solenoid) GWMF*-0

Applicable tube O.D.ø
4 / 6
4 / 8
6 / 8
6 / 10
8 / 10

• Page : 942

Manifold (double/with R) GWMF*-*-W

Applicable tube O.D.ø
4 / 8
6 / 10
8 / 12

• Page : 943

Manifold (double solenoid) GWMF*-0-W

Applicable tube O.D.ø
4 / 8
6 / 10
8 / 12

• Page : 943

Insert ring Custom order

Applicable tube O.D.ø
4
6
8
10
12

• Page : 943

● Sales unit is 10 pieces/1 box.

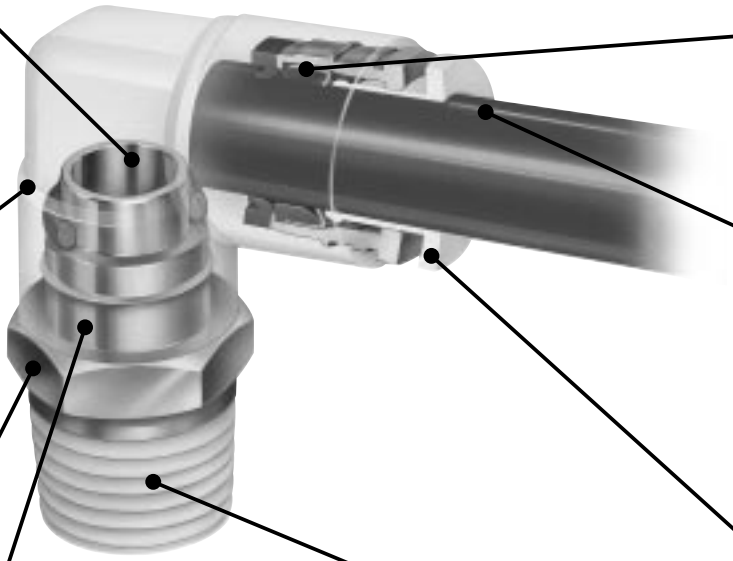
GW Joint

Port size M3 to 1/2 (Rc or R)

Work environment and device-friendly flame-resistant white body

Joint series for greatly reducing piping space

1. Push in joint for pneumatic piping.
2. Compact size for space saving.
3. V shaped packing seal to realize smooth insertion and accurate seal.
4. Freely rotating elbow union to make piping and removal work easier.
5. White body blends into working environment. Electroless nickel used for brass sections.
6. Flame resistant resin (equivalent to UL94 Standards V-0) used for GW Series body and push ring.



Full flow within bore size

- There are no sections narrower than the bore size.
- A flow equivalent to the bore size can be run.

White color Flame resistance resin (GW series)

- White body blends into the work environment.
- Flame resistance PBT (Equivalent to UL94 standards V-O) is provided as standard.

Electroless nickel used for brass sections

- Electroless nickel is used as standard for all brass parts to improve corrosion resistance and appearance.

Easy piping work

- The section of the pipe connected with the main unit rotates freely, so the piping removal direction can be set as needed.

Accurate tube holding

- The chuck bracket acts in the direction in which the tube is dislocated, ensuring highly reliable holding.

Push-in installation

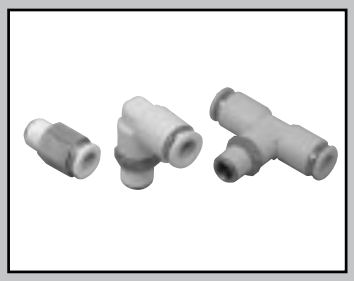
- The tube can be connected to the piping joint by pushing the tube in.
- V shaped packing is used for the seal between the tube and joint. The tube can be inserted with light force while obtaining a sure seal.

Easy tube removal

- The push evenly pushes and opens the chuck, so the tube is completely released from the chuck and can be removed smoothly.

Sealant applied on threads as standard

- Teflon resin is coated on threads.
- Sealing tape is not needed, reducing work hours.
- An even seal is attached and there is no worry of leakage, etc.



Joint

GW Series

- Port size M3 to R1/2
- Applicable tube ø3.2 to ø12

RoHS

Specifications

Descriptions		GW
Working fluid		Compressed air
Max. working pressure	MPa	1.0
Negative pressure	KPa	-100 Note2
Working temperature	˚C	-10 to 60 (no freezing)
Applicable tube		Soft nylon tube (F-15**)
		Urethane tube (U-95**, NU-**) Note1

Note 1: Refer to page 1008 for tube dimensions, ambient temperature and working pressure.
Note 2: Use a urethane tube (U95-* */NU-* *) and an insert ring together.

Ozone specifications (Ending 5)

GW –·····– P11

Clean room specifications

(catalog No. CB-033SA)

GW –·····– P7*

GW –·····– P80

How to order

* Refer to model no. sections on dimensions page (pages 934 to 943) for combination of model no.

GW L 6 - 8 - 45 - ( )
A B C D E

A Shape	
S	Straight
L	Elbow
T	Union Tee
TR	Tetrapod shaped
Y	Y type union Tee
FY	FY type
WY	Double Y types
CR	Cross shaped
P	Plug
C	Cap
M	Bulkhead female connector
MF	Manifold

B Applicable tube O.D.	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12
16	ø16
44	ø4, ø4
46	ø4, ø6
48	ø4, ø8
64	ø6, ø4
66	ø6, ø6
68	ø6, ø8
610	ø6, ø10
86	ø8, ø6
88	ø8, ø8
810	ø8, ø10
812	ø8, ø12
108	ø10, ø8
1010	ø10, ø10
1012	ø10, ø12
1210	ø12, ø10
1212	ø12, ø12

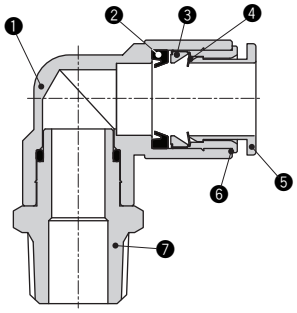
C Port size	
M3	M3×0.5
M5	M5×0.8
6	R1/8
8	R1/4
10	R3/8
15	R1/2
0	No thread
4P	Plug for ø4
6P	Plug for ø6
8P	Plug for ø8
10P	Plug for ø10
12P	Plug for ø12
B	Blanking plug
C	C type plug
L	L type plug
Y	Y type plug

D Other combinations	
L	Long
T	Turn
D	D type
X	Bulk head
S	Round
M	Female type
E	Bulk head female
W	Double solenoid
2T	2-port turn
45	Single 45˚

E Option	
Blank	None
P6	Copper and PTFE free

Note: Sales unit is 10 pcs. /1 bag.

Internal structure and parts list



No.	Parts name	Material
1	Body *1	Brass (electroless nickeling treatment)
		PBT (flame resistance resin *2)
2	Packing seal	Nitrile rubber
3	Chuck holder	Polyetherimide
4	Chuck	Stainless steel
5	Push ring	PBT (flame resistance resin *2)
6	Outer ring	Brass (electroless nickeling treatment)
7	Drive nipple	Brass (electroless nickeling treatment)

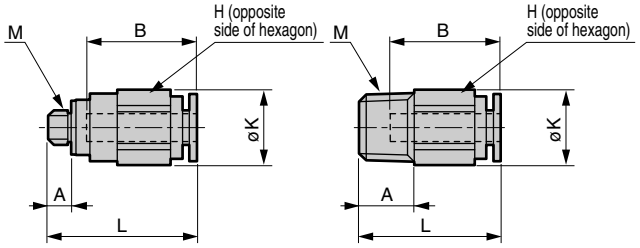
*1: The body of the single-ended straight, single-ended straight (round), female straight, bulkhead female, bulkhead, and bulkhead female connector is brass (electroless nickel plated).
*2: Equivalent to UL94 standards V-0

Dimensions: Single straight, single straight (round), female straight, bulk head female

CAD

Single straight

● GWS*-*

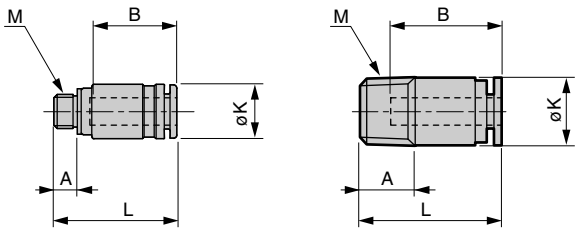


M5 type

Model no.	Applicable tube O.D.ø	M	H	K	L	A	B	Min. bore size	Effective sectional area mm²
GWS 4-M5	4	M5×0.8	10	11	21.5	3.4	16	2.5	4
GWS 4- 6		R1/8	10	11	20.5	8	16	2.5	4
GWS 4- 8		R1/4	14	15.8	19.5	11	16	2.5	4
GWS 6-M5	6	M5×0.8	12	13.5	23	3.4	17.5	2.5	4.4
GWS 6- 6		R1/8	12	13.5	23	8	17.5	4	10.3
GWS 6- 8		R1/4	14	15.8	23.5	11	17.5	4	10.3
GWS 6-10		R3/8	17	19.1	21.5	12	17.5	4	10.3
GWS 8- 6	8	R1/8	14	15.8	28	8	19	5	17.5
GWS 8- 8		R1/4	14	15.8	27	11	19	6	22.4
GWS 8-10		R3/8	17	19.1	22.5	12	19	6	22.4
GWS10- 6	10	R1/8	17	19.1	31	8	21.5	5	17.5
GWS10- 8		R1/4	17	19.1	32.5	11	21.5	8	30.5
GWS10-10		R3/8	17	19.1	28.5	12	21.5	8	30.5
GWS10-15		R1/2	22	24	26.5	15	21.5	8	30.5
GWS12- 8	12	R1/4	19	21.4	35.5	11	23	8	35.5
GWS12-10		R3/8	19	21.4	30.5	12	23	10	40
GWS12-15		R1/2	22	24	29.5	15	23	10	40
GWS16-10	16	R3/8	24	26.5	42	12	28	12	90
GWS16-15		R1/2	24	26.5	37.5	15	28	13	90

Single straight (round)

● GWS*-*-S

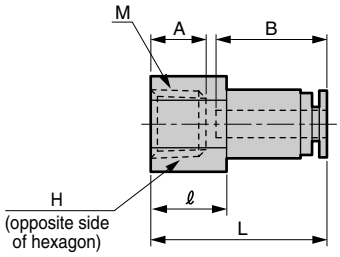


M3,M5 type

Model no.	Applicable tube O.D.ø	M	K	L	A	B	Hexagon head hole diameter	Effective sectional area mm²
GWS 3-M3-S	3.2	M3×0.5	6.9	15.7	2.4	11.7	1.5	1.4
GWS 3-M5-S		M5×0.8	6.9	16.7	3.4	11.7	2	2.7
GWS 4-M3-S	4	M3×0.5	7.9	16.9	2.4	12.9	1.5	1.6
GWS 4-M5-S		M5×0.8	7.9	17.9	3.4	12.9	2	2.7
GWS 4- 6-S		R1/8	9.8	20.5	8	16	2.5	4.1
GWS 6-M5-S	6	M5×0.8	9.9	19.2	3.4	14.2	2.5	4.4
GWS 6- 6-S		R1/8	11.8	23	8	17.5	4	10.6
GWS 6- 8-S		R1/4	13.8	23	11	17.5	4	10.6
GWS 8- 6-S	8	R1/8	14	28	8	19	5	20.4
GWS 8- 8-S		R1/4	14	27	11	19	6	22
GWS 8-10-S		R3/8	17	22.5	12	19	6	22
GWS10- 6-S	10	R1/8	17.5	30.5	8	21.5	5	20.1
GWS10- 8-S		R1/4	17.5	28.5	11	21.5	6	26.3
GWS10-10-S		R3/8	17.5	28.5	12	21.5	8	30.1
GWS10-15-S		R1/2	22	26.5	15	21.5	8	30.1
GWS12- 8-S	12	R1/4	19.5	34	11	23	6	26.3
GWS12-10-S		R3/8	19.5	29.5	12	23	8	37.9
GWS12-15-S		R1/2	22	28.5	15	23	8	37.9

Female straight

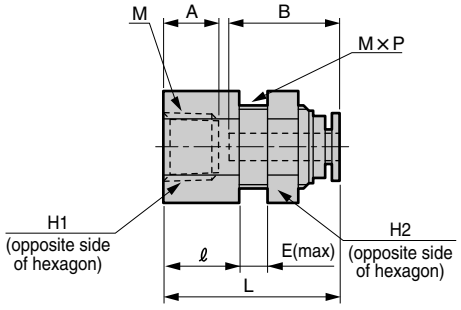
● GWS*-*-M



Model no.	Applicable tube O.D.ø	M	H	L	ℓ	A	B	Min. bore size	Effective sectional area mm²
GWS 4- 6-M	4	Rc1/8	12	25.5	11	8	16	2.5	4
GWS 4- 8-M		Rc1/4	17	28.5	14	11	16	2.5	4
GWS 6- 6-M	6	Rc1/8	14	27	11	8	17.5	4	10.3
GWS 6- 8-M		Rc1/4	17	30	14	11	17.5	4	10.3
GWS 6-10-M		Rc3/8	19	31	15	12	17.5	4	10.3
GWS 8- 6-M	8	Rc1/8	17	28.5	11	8	19	6	22.4
GWS 8- 8-M		Rc1/4	17	31.5	14	11	19	6	22.4
GWS 8-10-M		Rc3/8	19	32.5	15	12	19	6	22.4
GWS10- 8-M	10	Rc1/4	19	34.5	14	11	21.5	8	30.5
GWS10-10-M		Rc3/8	19	35.5	15	12	21.5	8	30.5
GWS12- 8-M	12	Rc1/4	22	36	14	11	23	10	35.5
GWS12-10-M		Rc3/8	22	37	15	12	23	10	35.5
GWS12-15-M		Rc1/2	24	40	18	15	23	10	35.5

Bulk head female

● GWS*-*-E



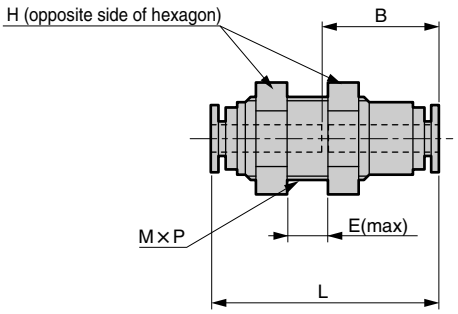
Model no.	Applicable tube O.D.ø	M	H1	H2	L	ℓ	A	B	E	M×P	Hexagon head hole dia.	Min. hole dia.	Effective sectional area mm²
GWS 4- 6-E	4	Rc1/8	14	14	25.5	11	8	16	5	M12x1	13	2.5	4
GWS 4- 8-E		Rc1/4	17	14	28.5	14	11	16	5	M12x1	13	2.5	4
GWS 6- 6-E	6	Rc1/8	17	17	27	11	8	17.5	5	M14x1	15	4	10.3
GWS 6- 8-E		Rc1/4	17	17	30	14	11	17.5	5	M14x1	15	4	10.3
GWS 6-10-E		Rc3/8	19	17	31.5	15	12	17.5	5	M14x1	15	4	10.3
GWS 8- 6-E	8	Rc1/8	19	19	28.5	11	8	19	6	M16x1	17	6	22.4
GWS 8- 8-E		Rc1/4	19	19	31.5	14	11	19	6	M16x1	17	6	22.4
GWS 8-10-E		Rc3/8	19	19	32.5	15	12	19	6	M16x1	17	6	22.4
GWS10- 8-E	10	Rc1/4	22	23	34.5	14	11	21.5	9	M20x1	21	8	30.5
GWS10-10-E		Rc3/8	22	23	35.5	15	12	21.5	9	M20x1	21	8	30.5
GWS12-10-E	12	Rc3/8	24	26	37.5	15	12	23	10	M22x1	23	9	35.5
GWS12-15-E		Rc1/2	24	26	40.5	18	15	23	10	M22x1	23	9	35.5

Dimensions: Bulk head, bulk head female connector, straight, different diameter straight

CAD

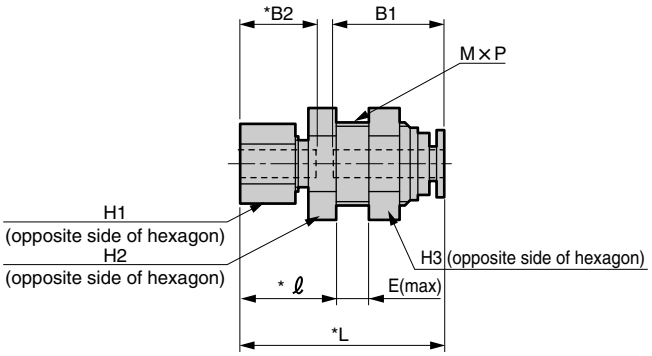
Bulk head

● GWS*-*-X



Bulk head female connector

● GWM*-*-X



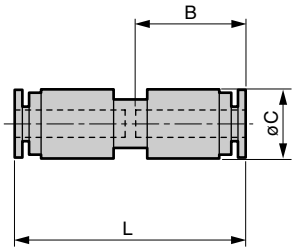
Model no.	Applicable tube O.D.ø	H	L	B	E	M×P	Installation hole dia.	Min. bore size	Effective sectional area mm²
GWS 4-0-X	4	14	33	16	7.5	M12×1	13	2.5	4
GWS 6-0-X	6	17	36	17.5	9.5	M14×1	15	4	10
GWS 8-0-X	8	19	39	19	12.5	M16×1	17	6	22
GWS10-0-X	10	23	44.5	21.5	18	M20×1	21	8	30
GWS12-0-X	12	26	47	23	20.5	M22×1	23	9	35

Note: An insert ring (MJU) is required for urethane tube on tightening joint side.
* dimension shows a rough dimension before tightening a nut.

Model no.	Applicable tube O.D.ø	H1	H2	H3	L	ℓ	B1	B2	E	M×P	Installation hole dia.	Min. hole dia.	Effective sectional area mm²
GWM 4-0-X	4	10	14	14	29.5	15	16	11	5	M12×1	13	2.5	4
GWM 6-0-X	6	12	17	17	33	16	17.5	11.5	5	M14×1	15	4	10
GWM 8-0-X	8	14	19	19	35	17.5	19	13	6	M16×1	17	6	22
GWM10-0-X	10	17	22	23	40	19.5	21.5	14.5	9	M20×1	21	8	30
GWM12-0-X	12	19	24	26	43.5	21	23	16	10	M22×1	23	9	35

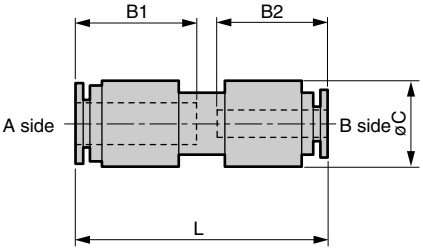
Straight

● GWS*-0



Different diameter straight

● GWS*-0



Model no.	Applicable tube O.D.ø	L	B	C	Min. bore size	Effective sectional area mm²
GWS 4-0	4	33.5	16	10	2.5	4
GWS 6-0	6	36.5	17.5	12.5	4	10
GWS 8-0	8	39.5	19	14.5	6	22
GWS10-0	10	45	21.5	17.5	8	30
GWS12-0	12	47.5	23	20	10	35
GWS16-0	16	58	28	26.5	13.2	90

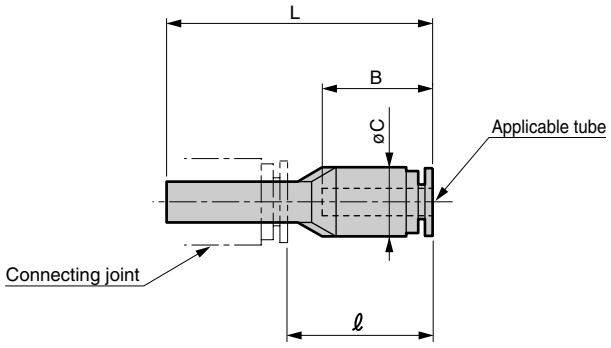
Model no.	Applicable tube O.D.ø		L	B1	B2	C	Min. bore size	Effective sectional area mm²
	A side	B side						
GWS 46-0	6	4	36.5	17.5	16	12.5	2.5	4
GWS 68-0	8	6	39.5	19	17.5	14.5	4	10
GWS 810-0	10	8	45	21.5	19	17.5	6	22
GWS1012-0	12	10	47.5	23	21.5	20	8	30

Dimensions: Plug reducer, plug, plug reducer, single elbow

CAD

Plug reducer

● GWS*-*-P

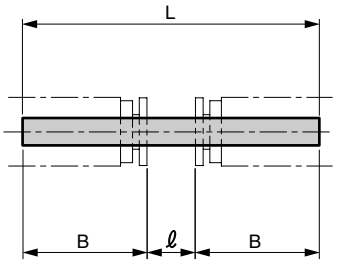


Model no.	Applicable tube O.D. ø	Connecting joint diameter ø	L	ℓ *	B	C	Min. bore size	Effective sectional area mm²
GWS 4- 6P	4	6	38.5	21	16	10	2.3	3.5
GWS 6- 4P	6	4	42	26	17.5	12.5	2.3	3.5
GWS 6- 8P		8	41	22	17.5	12.5	4	10
GWS 6-10P		10	42	20	17.5	12.5	4	10
GWS 8-10P	8	10	44.5	22.5	19	14.5	6	22
GWS 8-12P		12	44	21	19	14.5	6	22
GWS10-12P	10	12	48	25	21.5	17.5	8	30

* For connecting joint, dimension of CKD (GW Series) are shown.

Plug

● GWP*-0



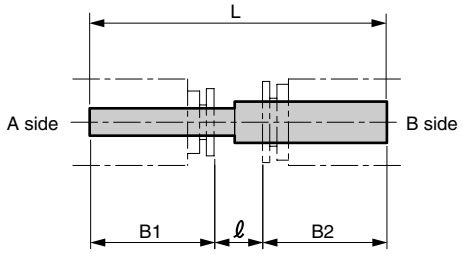
Material: Polyamide resin

Model no.	Connecting joint diameter ø	L	B *	ℓ *	Min. bore size	Effective sectional area mm²
GWP 4-0	4	43	16	11	2.5	4
GWP 6-0	6	43	17.5	8	4	10.3
GWP 8-0	8	47	19	9	6	22.4
GWP10-0	10	56	21.5	13	7.5	30
GWP12-0	12	61	23	15	9.2	35.5

* For connecting joint, dimension of CKD (GW Series) are shown.

Plug reducer

● GWP*-0



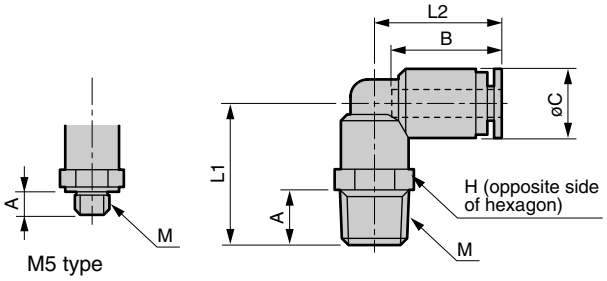
Material: Polyamide resin

Model no.	Joint port size ø		L	ℓ *	B1 *	B2 *	Min. bore size	Effective sectional area mm²
	A side	B side						
GWP 46-0	4	6	43	9.5	16	17.5	2.3	4
GWP 68-0	6	8	45	8.5	17.5	19	4	10.3
GWP 810-0	8	10	50.5	10	19	21.5	6	22.4
GWP1012-0	10	12	58	13.5	21.5	23	7.5	30

* For connecting joint, dimension of CKD (GW Series) are shown.

Single elbow

● GWL*-*



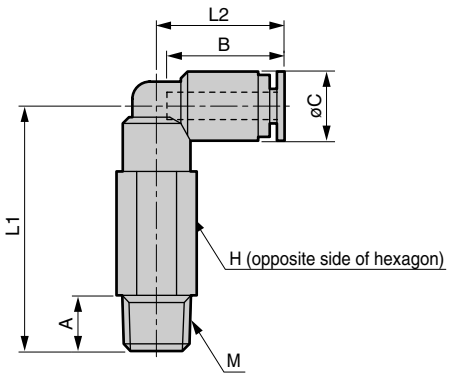
Model no.	Applicable tube O.D. ø	M	H	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
GWL 4-M5	4	M5×0.8	8	15	18	3.4	16	10	2.5	3.2
GWL 4- 6		R1/8	10	20.5	18.5	8	16	10	2.5	3.2
GWL 4- 8		R1/4	14	24	18.5	11	16	10	2.5	3.2
GWL 6-M5	6	M5×0.8	10	15	20	3.4	17.5	12.5	2.5	4.2
GWL 6- 6		R1/8	12	24	21	8	17.5	12.5	4	8
GWL 6- 8		R1/4	14	27.5	21	11	17.5	12.5	4	8
GWL 6-10		R3/8	17	29	21	12	17.5	12.5	4	8
GWL 8- 6	8	R1/8	14	25.5	23.5	8	19	14.5	6	18
GWL 8- 8		R1/4	14	28.5	23.5	11	19	14.5	6	18
GWL 8-10		R3/8	17	30	23.5	12	19	14.5	6	18
GWL10- 6	10	R1/8	17	28	27	8	21.5	17.5	6.5	24.3
GWL10- 8		R1/4	17	31	27	11	21.5	17.5	8	27
GWL10-10		R3/8	17	32.5	27	12	21.5	17.5	8	27
GWL10-15		R1/2	22	35.5	27	15	21.5	17.5	8	27
GWL12- 8	12	R1/4	19	33	29.5	11	23	20	8.5	33
GWL12-10		R3/8	19	34.5	29.5	12	23	20	9	35
GWL12-15		R1/2	22	37.5	29.5	15	23	20	9	35.5
GWL16-10	16	R3/8	22	41	35.5	12	28	26.5	12	80
GWL16-15		R1/2	22	44	35.5	15	28	26.5	12	80

Dimensions:Long elbow, single 45˚ elbow, turn elbow, elbow

CAD

Long elbow

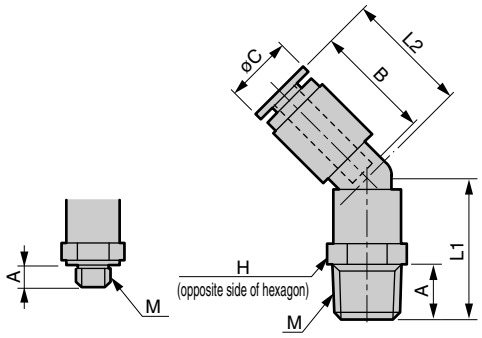
● GWL*-*-L



Model no.	Applicable tube O.D. ø	M	H	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
GWL 4- 6-L	4	R1/8	10	35.5	18.5	8	16	10	2.5	3.2
GWL 4- 8-L		R1/4	14	39	18.5	11	16	10	2.5	3.2
GWL 6- 6-L	6	R1/8	12	40	21	8	17.5	12.5	4	8
GWL 6- 8-L		R1/4	14	43.5	21	11	17.5	12.5	4	8
GWL 8- 6-L	8	R1/8	14	44.5	23.5	8	19	14.5	6	18
GWL 8- 8-L		R1/4	14	47.5	23.5	11	19	14.5	6	18
GWL 8-10-L		R3/8	17	49	23.5	12	19	14.5	6	18
GWL10- 8-L	10	R1/4	17	56	27	11	21.5	17.5	8	27
GWL10-10-L		R3/8	17	57.5	27	12	21.5	17.5	8	27
GWL10-15-L		R1/2	22	60.5	27	15	21.5	17.5	8	27
GWL12- 8-L	12	R1/4	19	60	29.5	11	23	20	8.5	33
GWL12-10-L		R3/8	19	61.5	29.5	12	23	20	9	34.5
GWL12-15-L		R1/2	22	64.5	29.5	15	23	20	9	34.5

Single 45˚ Elbow

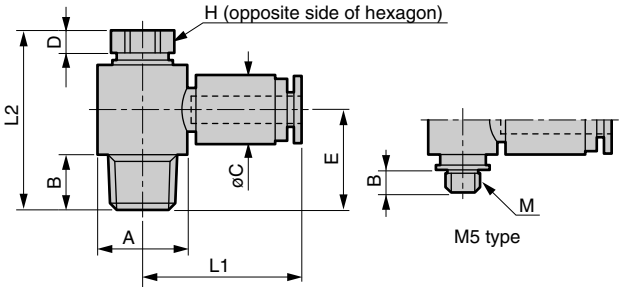
● GWL*-*-45



Model no.	Applicable tube O.D. ø	M	H	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
GWL 4-M5-45	4	M5×0.8	8	14.5	18	3.4	16	10	2.5	3.6
GWL 4- 6-45		R1/8	10	20.5	18	8	16	10	2.5	3.6
GWL 4- 8-45		R1/4	14	24	18	11	16	10	2.5	3.6
GWL 6-M5-45	6	M5×0.8	10	15	18.5	3.4	17.5	12.5	2.5	4.3
GWL 6- 6-45		R1/8	12	23.5	20	8	17.5	12.5	4	9.2
GWL 6- 8-45		R1/4	14	27	20	11	17.5	12.5	4	9.2
GWL 6-10-45		R3/8	17	28.5	20	12	17.5	12.5	4	9.2
GWL 8- 6-45	8	R1/8	14	25	22	8	19	14.5	6	20
GWL 8- 8-45		R1/4	14	28	22	11	19	14.5	6	20
GWL 8-10-45		R3/8	17	29.5	22	12	19	14.5	6	20
GWL10- 6-45	10	R1/8	17	26	25	8	21.5	17.5	6.5	25.5
GWL10- 8-45		R1/4	17	29	25	11	21.5	17.5	8	29
GWL10-10-45		R3/8	17	30.5	25	12	21.5	17.5	8	29
GWL10-15-45		R1/2	22	33.5	25	15	21.5	17.5	8	29
GWL12- 8-45	12	R1/4	19	30.5	27	11	23	20	8.5	35.5
GWL12-10-45		R3/8	19	32	27	12	23	20	9	39
GWL12-15-45		R1/2	22	35	27	15	23	20	9	39

Turn elbow

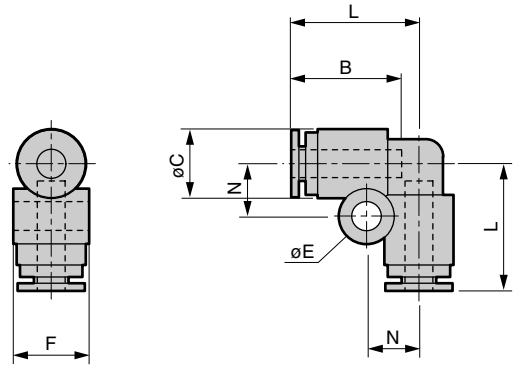
● GWL*-*-T



Model no.	Applicable tube O.D. ø	M	H	L1	L2	A	B	C	D	E	Effective sectional area mm²
GWL 4-M5-T	4	M5×0.8	8	21.5	18.5	10	3.4	10	3	10.5	2.8
GWL 4- 6-T		R1/8	8	23	26	13	8	10	3	15	3.7
GWL 4- 8-T		R1/4	10	24	30	15	11	10	3.5	18	3.7
GWL 6-M5-T	6	M5×0.8	8	22.5	18.5	10	3.4	12.5	3	10.5	3.4
GWL 6- 6-T		R1/8	8	24	26	13	8	12.5	3	15	7.5
GWL 6- 8-T		R1/4	10	25	30	15	11	12.5	3.5	18	8
GWL 6-10-T		R3/8	14	27.5	36.5	20	12	12.5	4	21.5	9
GWL 8- 6-T	8	R1/8	10	26.5	29	15	8	14.5	4	16	16.5
GWL 8- 8-T		R1/4	12	28	32	17.6	11	14.5	4	19	17
GWL 8-10-T		R3/8	14	29	36.5	20	12	14.5	4	21.5	19
GWL10- 8-T	10	R1/4	14	31.5	35.5	20	11	17.5	4	20.5	24
GWL10-10-T		R3/8	14	31.5	36.5	20	12	17.5	4	21.5	24
GWL10-15-T		R1/2	17	34	42.5	25	15	17.5	4	25.7	27
GWL12- 8-T	12	R1/4	17	35.5	38.5	25	11	20	4	21.7	32
GWL12-10-T		R3/8	17	35.5	39.5	25	12	20	4	22.7	32
GWL12-15-T		R1/2	17	35.5	42.5	25	15	20	4	25.7	32

Elbow

● GWL*-0

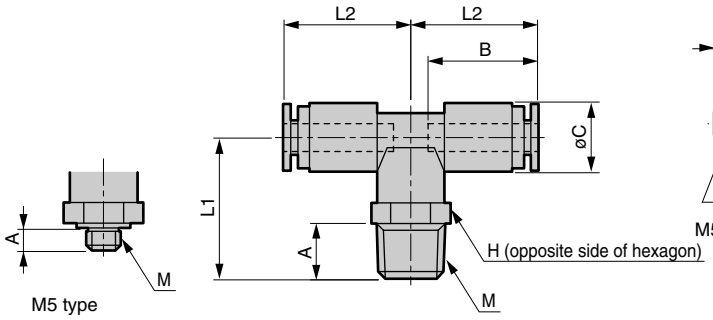


Model no.	Applicable tube O.D. ø	L	B	C	N	E	F	Min. bore size	Effective sectional area mm²
GWL 4-0	4	18.5	16	10	7.5	4.2	11	2.5	3
GWL 6-0	6	21	17.5	12.5	8.5	4.2	13.5	4	7.5
GWL 8-0	8	23.5	19	14.5	9.5	4.2	15.5	6	17
GWL10-0	10	27	21.5	17.5	11	4.2	18.5	8	25.5
GWL12-0	12	29.5	23	20	12	4.2	21	10	34
GWL16-0	16	37	28	26.5	12.5	4.2	28	13.2	80

Dimensions: Both push-in branch, D type union Tee, Union Tee, Y type union Tee CAD

Both push-in branch

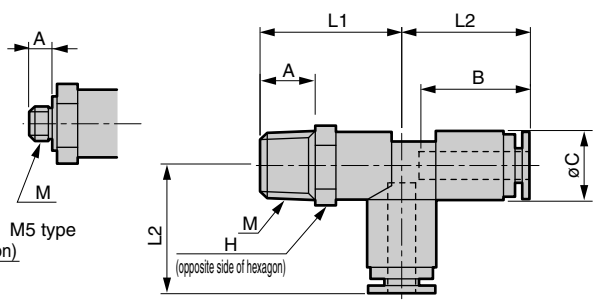
● GWT*-*



Model no.	Applicable tube O.D. ø	M	H	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
GWT 4-M5	4	M5×0.8	10	16.5	18.5	3.4	16	10	2.5	4.3
GWT 4- 6		R1/8	10	20.5	18.5	8	16	10	2.5	4.3
GWT 4- 8		R1/4	14	24	18.5	11	16	10	2.5	4.3
GWT 6-M5	6	M5×0.8	12	20	21	3.4	17.5	12.5	2.5	4.3
GWT 6- 6		R1/8	12	24	21	8	17.5	12.5	4	10.5
GWT 6- 8		R1/4	14	27.5	21	11	17.5	12.5	4	10.5
GWT 6-10		R3/8	17	29	21	12	17.5	12.5	4	10.5
GWT 8- 6	8	R1/8	14	25.5	23.5	8	19	14.5	6	23.5
GWT 8- 8		R1/4	14	28.5	23.5	11	19	14.5	6	23.5
GWT 8-10		R3/8	17	30	23.5	12	19	14.5	6	23.5
GWT10- 8	10	R1/4	17	31	27	11	21.5	17.5	8	33.5
GWT10-10		R3/8	17	32.5	27	12	21.5	17.5	8	33.5
GWT10-15		R1/2	22	35.5	27	15	21.5	17.5	8	33.5
GWT12- 8	12	R1/4	19	33	29.5	11	23	20	8.5	37
GWT12-10		R3/8	19	34.5	29.5	12	23	20	9	41
GWT12-15		R1/2	22	37.5	29.5	15	23	20	9	41

D type union Tee

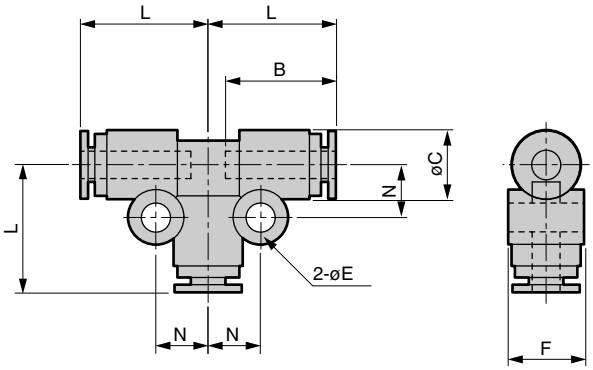
● GWT*-*-D



Model no.	Applicable tube O.D. ø	M	H	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
GWT 4-M5-D	4	M5×0.8	10	16.5	18.5	3.4	16	10	2.5	4.3
GWT 4- 6-D		R1/8	10	20.5	18.5	8	16	10	2.5	4.3
GWT 4- 8-D		R1/4	14	24	18.5	11	16	10	2.5	4.3
GWT 6-M5-D	6	M5×0.8	12	19.5	21	3.4	17.5	12.5	2.5	4.3
GWT 6- 6-D		R1/8	12	24	21	8	17.5	12.5	4	10.5
GWT 6- 8-D		R1/4	14	27.5	21	11	17.5	12.5	4	10.5
GWT 6-10-D		R3/8	17	29	21	12	17.5	12.5	4	10.5
GWT 8- 6-D	8	R1/8	14	25.5	23.5	8	19	14.5	6	23.5
GWT 8- 8-D		R1/4	14	28.5	23.5	11	19	14.5	6	23.5
GWT 8-10-D		R3/8	17	30	23.5	12	19	14.5	6	23.5
GWT10- 8-D	10	R1/4	17	31	27	11	21.5	17.5	8	33.5
GWT10-10-D		R3/8	17	32.5	27	12	21.5	17.5	8	33.5
GWT10-15-D		R1/2	22	35.5	27	15	21.5	17.5	8	33.5
GWT12- 8-D	12	R1/4	19	33	29.5	11	23	20	8.5	37
GWT12-10-D		R3/8	19	34.5	29.5	12	23	20	9	41
GWT12-15-D		R1/2	22	37.5	29.5	15	23	20	9	41

Union Tee

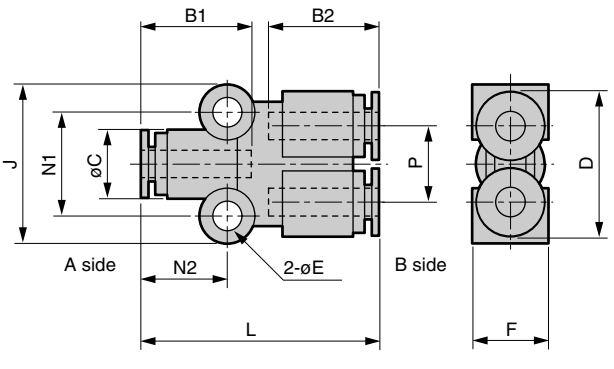
● GWT*-0



Model no.	Applicable tube O.D. ø	L	B	C	E	F	N	Min. bore size	Effective sectional area mm²
GWT 4-0	4	18.5	16	10	4.2	11	7.5	2.5	3.6
GWT 6-0	6	21	17.5	12.5	4.2	13.5	8.5	4	9.7
GWT 8-0	8	23.5	19	14.5	4.2	15.5	9.5	6	22
GWT10-0	10	27	21.5	17.5	4.2	18.5	11	8	30
GWT12-0	12	29.5	23	20	4.2	21	12	10	35.5

Y type union Tee

● GWY*-0

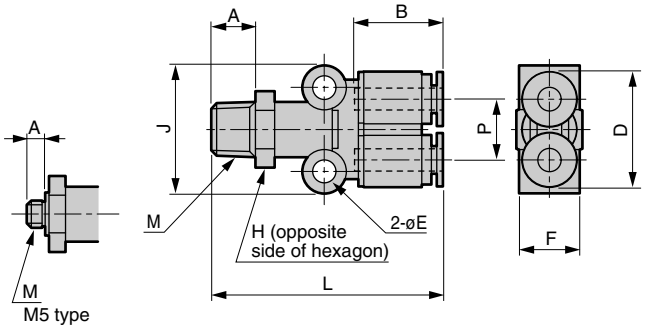


Model no.	Applicable tube O.D. ø		L	B1	B2	C	D	E	F	J	N1	N2	P	Effective sectional area mm²
	A side	B side												
GWY 44-0	4	4	34.5	16	16	10	21	4.2	11	23	15	12.5	11	3.6
GWY 66-0	6	6	37.5	17.5	17.5	12.5	26	4.2	13.5	25.5	17.5	14	13.5	10.5
GWY 88-0	8	8	40.5	19	19	14.5	30	4.2	15.5	27	19	15	15.5	23
GWY1010-0	10	10	48	21.5	21.5	17.5	36	4.2	18.5	30	22	18	18.5	38
GWY1212-0	12	12	53	23	23	20	41	4.2	21	32	24	19.5	21	50
GWY 64-0	6	4	37.5	17.5	16	12.5	26	4.2	13.5	25.5	17.5	14	13.5	5.4
GWY 86-0	8	6	40.5	19	17.5	14.5	30	4.2	15.5	27	19	15	15.5	14.3
GWY 108-0	10	8	48	21.5	19	17.5	36	4.2	18.5	30	22	18	18.5	21.1
GWY1210-0	12	10	53	23	21.5	20	41	4.2	21	32	24	19.5	21	35.5

Dimensions: Both ports Y union Tee, cross shaped, 2 port turn elbow, tetrapod shaped (with R)

Both ports Y union Tee

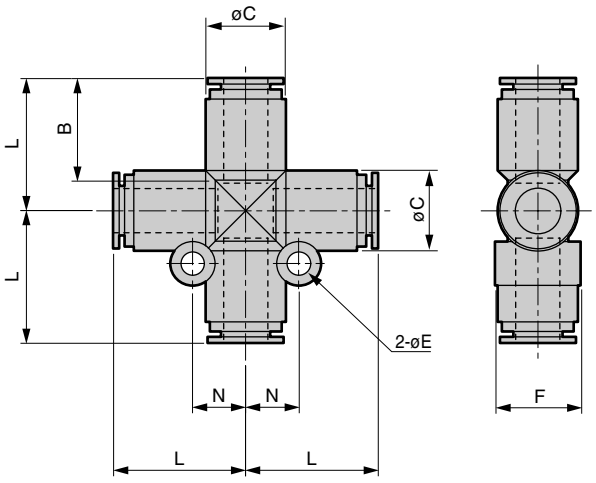
● GWY*-*



Model no.	Applicable tube O.D. ø	M	H	L	A	B	D	E	F	J	P	Effective sectional area mm²
GWY 4-M5	4	M5×0.8	12	38	3.4	16	21	4.2	11	23	11	4.5
GWY 4- 6		R1/8	12	42	8	16	21	4.2	11	23	11	5.5
GWY 4- 8		R1/4	14	45.5	11	16	21	4.2	11	23	11	5.5
GWY 6-M5	6	M5×0.8	14	41	3.4	17.5	26	4.2	13.5	25.5	13.5	4.5
GWY 6- 6		R1/8	14	46	8	17.5	26	4.2	13.5	25.5	13.5	17.5
GWY 6- 8		R1/4	14	49	11	17.5	26	4.2	13.5	25.5	13.5	17.5
GWY 6-10		R3/8	17	50.5	12	17.5	26	4.2	13.5	25.5	13.5	17.5
GWY 8- 6	8	R1/8	17	49	8	19	30	4.2	15.5	27	15.5	25.5
GWY 8- 8		R1/4	17	52	11	19	30	4.2	15.5	27	15.5	25.5
GWY 8-10		R3/8	17	53.5	12	19	30	4.2	15.5	27	15.5	25.5
GWY10- 8	10	R1/4	19	59.5	11	21.5	36	4.2	18.5	30	18.5	35
GWY10-10		R3/8	19	61	12	21.5	36	4.2	18.5	30	18.5	38.5
GWY10-15		R1/2	22	64	15	21.5	36	4.2	18.5	30	18.5	38
GWY12- 8	12	R1/4	22	64.5	11	23	41	4.2	21	32	21	37
GWY12-10		R3/8	22	66	12	23	41	4.2	21	32	21	37
GWY12-15		R1/2	22	69	15	23	41	4.2	21	32	21	40.5

Cross shaped

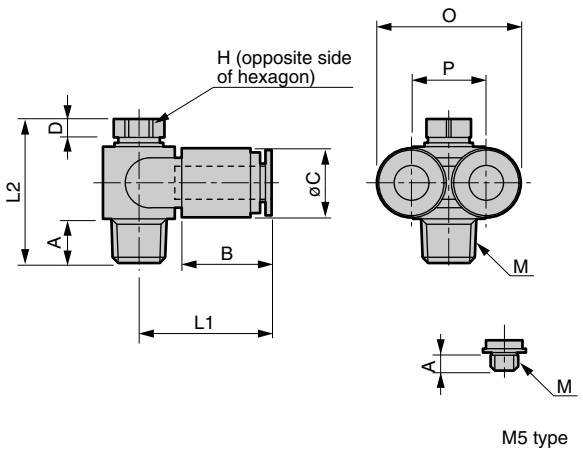
● GWCR*-0



Model no.	Applicable tube O.D. ø	L	B	C	E	F	N	Min. bore size	Effective sectional area mm²
GWCR 8-0	8	24	19	14.5	4.2	15.5	9.5	6	22
GWCR10-0	10	27.5	21.5	17.5	4.2	18.5	11	8	30.5
GWCR12-0	12	30	23	20	4.2	21	12	10	35.9

2 port turn elbow

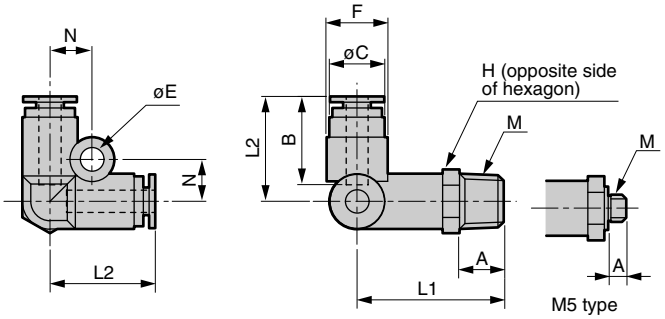
● GWL*-*-2T



Model no.	Applicable tube O.D. ø	M	H	L1	L2	A	B	C	D	O	P	Effective sectional area mm²
GWL 4-M5-2T	4	M5×0.8	8	21.5	18.5	3.4	16	10	3	21	11	3.6
GWL 6- 6-2T	6	R1/8	8	24	26	8	17.5	12.5	3	26	13.5	8.5
GWL 8- 8-2T	8	R1/4	12	28	32	11	19	14.5	4	30	15.5	19
GWL10-10-2T	10	R3/8	14	31.5	36.5	12	21.5	17.5	4	36	18.5	26
GWL12-15-2T	12	R1/2	17	35.5	42.5	15	23	20	4	41	21	34

Tetrapod shaped (with R)

● GWTR*-*



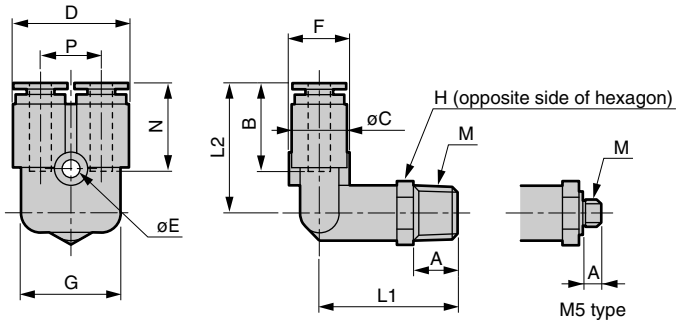
Model no.	Applicable tube O.D. ø	M	H	L1	L2	A	B	C	E	F	N	Min. bore size	Effective sectional area mm²
GWTR 4-M5	4	M5×0.8	10	22.5	19	3.4	16	10	4.2	11	7.5	2.5	4.3
GWTR 4- 6		R1/8	10	26.5	19	8	16	10	4.2	11	7.5	2.5	4.5
GWTR 4- 8		R1/4	14	30	19	11	16	10	4.2	11	7.5	2.5	4.5
GWTR 6-M5	6	M5×0.8	14	25	21.5	3.4	17.5	12.5	4.2	13.5	8.5	2.5	4.3
GWTR 6- 6		R1/8	14	30	21.5	8	17.5	12.5	4.2	13.5	8.5	4	10.5
GWTR 6- 8		R1/4	14	33	21.5	11	17.5	12.5	4.2	13.5	8.5	4	10.5
GWTR 6-10		R3/8	17	34.5	21.5	12	17.5	12.5	4.2	13.5	8.5	4	10.5
GWTR 8- 6	8	R1/8	17	32.5	24	8	19	14.5	4.2	15.5	9.5	6	23.5
GWTR 8- 8		R1/4	17	35.5	24	11	19	14.5	4.2	15.5	9.5	6	23.5
GWTR 8-10		R3/8	17	37	24	12	19	14.5	4.2	15.5	9.5	6	23.5
GWTR10- 8	10	R1/4	19	39.5	27.5	11	21.5	17.5	4.2	18.5	13	8	35.5
GWTR10-10		R3/8	19	41	27.5	12	21.5	17.5	4.2	18.5	13	8	35.5
GWTR10-15		R1/2	22	44	27.5	15	21.5	17.5	4.2	18.5	13	8	35.5
GWTR12- 8	12	R1/4	22	41.5	30	11	23	20	4.2	21	14	8.5	37.5
GWTR12-10		R3/8	22	43	30	12	23	20	4.2	21	14	8.5	37.5
GWTR12-15		R1/2	22	46	30	15	23	20	4.2	21	14	8.5	37.5

Dimensions: FY type (with R), double Y type (with R), terapod shaped, FY type

CAD

FY type(with R)

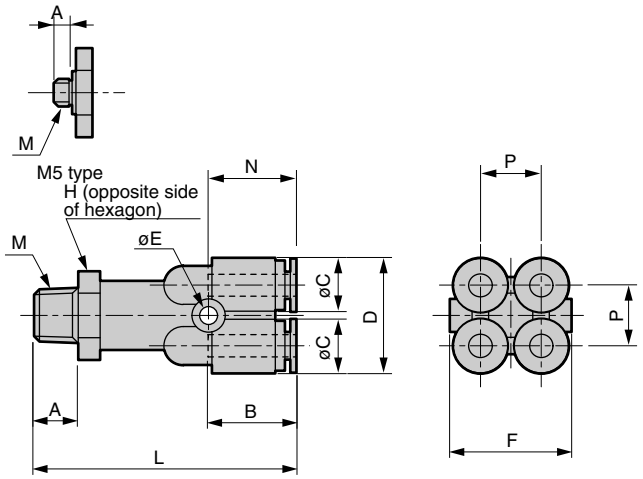
● GWFY*-*



Model no.	Applicable tube O.D. ø	M	H	L1	L2	A	B	C	D	E	F	G	N	P	Min. bore size	Effective sectional area mm²
GWFY 4-M5	4	M5×0.8	10	21	23.5	3.4	16	10	21	3.2	11	18	15.5	11	2.5	4.5
GWFY 4- 6		R1/8	10	25	23.5	8	16	10	21	3.2	11	18	15.5	11	2.5	4.6
GWFY 4- 8		R1/4	14	28.5	23.5	11	16	10	21	3.2	11	18	15.5	11	2.5	4.6
GWFY 6-M5	6	M5×0.8	14	23	27	3.4	17.5	12.5	26	4.2	13.5	22.5	17	13.5	2.5	4.5
GWFY 6- 6		R1/8	14	28	27	8	17.5	12.5	26	4.2	13.5	22.5	17	13.5	4	10.5
GWFY 6- 8		R1/4	14	31	27	11	17.5	12.5	26	4.2	13.5	22.5	17	13.5	4	10.5
GWFY 6-10		R3/8	17	32.5	27	12	17.5	12.5	26	4.2	13.5	22.5	17	13.5	4	10.5
GWFY 8- 6	8	R1/8	17	30.5	29	8	19	14.5	30	4.2	15.5	26.5	18	15.5	6	23
GWFY 8- 8		R1/4	17	33.5	29	11	19	14.5	30	4.2	15.5	26.5	18	15.5	6	23
GWFY 8-10		R3/8	17	35	29	12	19	14.5	30	4.2	15.5	26.5	18	15.5	6	23
GWFY10- 8	10	R1/4	19	37.5	33	11	21.5	17.5	36	4.2	18.5	31.5	20	18.5	8	34.4
GWFY10-10		R3/8	19	39	33	12	21.5	17.5	36	4.2	18.5	31.5	20	18.5	8	34.4
GWFY10-15		R1/2	22	42	33	15	21.5	17.5	36	4.2	18.5	32.5	20	18.5	8	34.4
GWFY12- 8	12	R1/4	22	39.5	35.5	11	23	20	41	4.2	21	37	21.5	21	8.5	37.5
GWFY12-10		R3/8	22	41	35.5	12	23	20	41	4.2	21	37	21.5	21	8.5	37.5
GWFY12-15		R1/2	22	44	35.5	15	23	20	41	4.2	21	37	21.5	21	8.5	37.5

Double Y types(with R)

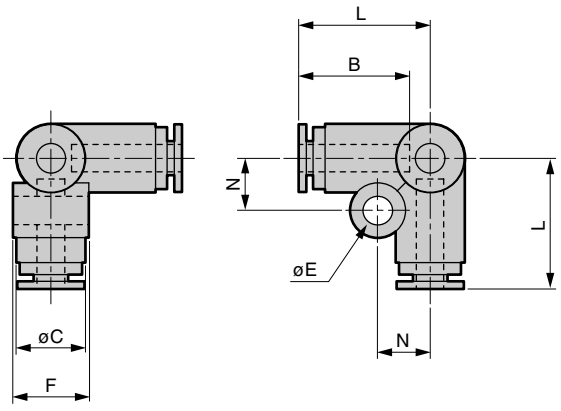
● GWWY*-*



Model no.	Applicable tube O.D. ø	M	H	L	A	B	C	D	E	F	N	P	Effective sectional area mm²
GWWY4-M5	4	M5×0.8	14	42.5	3.4	16	10	21	3.2	22	15.5	11	4.3
GWWY4- 6		R1/8	14	47.5	8	16	10	21	3.2	22	15.5	11	9.7
GWWY4- 8		R1/4	14	50.5	11	16	10	21	3.2	22	15.5	11	9.7
GWWY6-M5	6	M5×0.8	17	46.5	3.4	17.5	12.5	26	3.2	27	17	13.5	4.3
GWWY6- 6		R1/8	17	51.5	8	17.5	12.5	26	3.2	27	17	13.5	23
GWWY6- 8		R1/4	17	54.5	11	17.5	12.5	26	3.2	27	17	13.5	23
GWWY6-10		R3/8	17	56	12	17.5	12.5	26	3.2	27	17	13.5	23

Tetrapod shaped

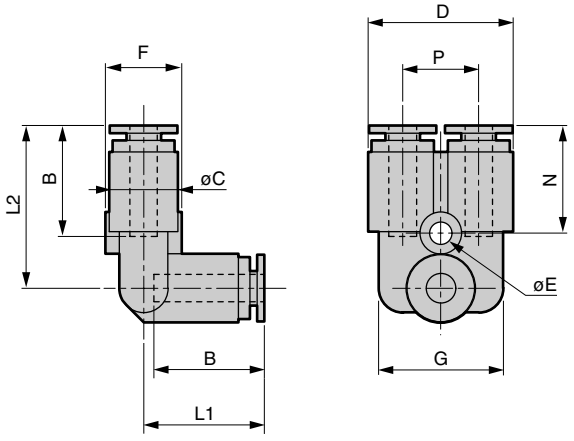
● GWTR*-0



Model no.	Applicable tube O.D. ø	L	B	C	E	F	N	Min. bore size	Effective sectional area mm²
GWTR 4-0	4	19	16	10	4.2	11	7.5	2.5	4
GWTR 6-0	6	21.5	17.5	12.5	4.2	13.5	8.5	4	9.5
GWTR 8-0	8	24	19	14.5	4.2	15.5	9.5	6	12.5
GWTR10-0	10	27.5	21.5	17.5	4.2	18.5	13	8	29.5
GWTR12-0	12	30	23	20	4.2	21	14	10	35.5

FY type

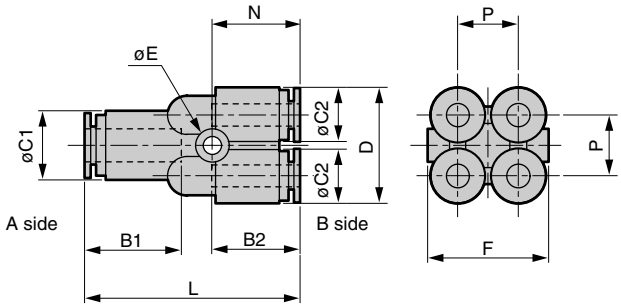
● GWFY*-0



Model no.	Applicable tube O.D. ø	L1	L2	B	C	D	E	F	G	N	P	Min. bore size	Effective sectional area mm²
GWFY 4-0	4	17.5	23.5	16	10	21	3.2	11	18	15.5	11	2.5	4
GWFY 6-0	6	19.5	27	17.5	12.5	26	4.2	13.5	22.5	17	13.5	4	10
GWFY 8-0	8	22	29	19	14.5	30	4.2	15.5	26.5	18	15.5	6	21
GWFY10-0	10	25.5	33	21.5	17.5	36	4.2	18.5	31.5	20	18.5	8	29
GWFY12-0	12	28	35.5	23	20	41	4.2	21	37	21.5	21	10	35.5

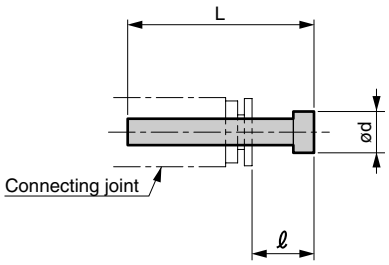
Dimensions: Double Y, blanking plug, L plug, C types plug

Double Y types
● GWWY*-0



Model no.	Applicable tube O.D. ø		L	B1	B2	C1	C2	D	E	F	N	P	Effective sectional area mm²
	A side	B side											
GWWY64-0	6	4	39	17.5	16	12.5	10	21	3.2	22	15.5	11	9
GWWY86-0	8	6	43	19	17.5	14.5	12.5	26	3.2	27	17	13.5	22

Blanking plug
● GWP*-B

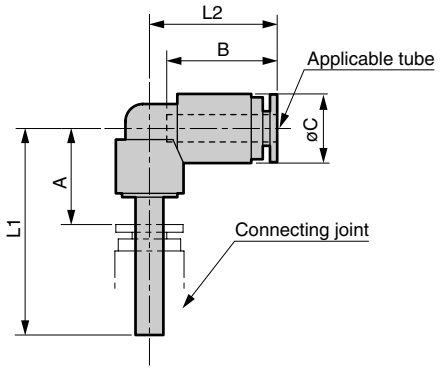


Material: Polyamide resin

Model no.	Joint port size ø	L	ℓ*	d
GWJP 3-B	3.2	23.5	11	5
GWP 4-B	4	27	11	6
GWP 6-B	6	29	11.5	8
GWP 8-B	8	33	14	10
GWP10-B	10	40	18.5	12
GWP12-B	12	43	20	14
GWP16-B	16	51	23	21

* For connecting joint, dimension of CKD (GW Series) are shown.

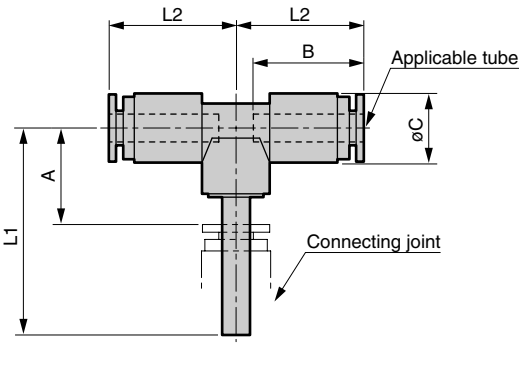
L type plug
● GWP*-L



Model no.	Applicable tube O.D. ø	Connecting joint diameter ø	L1	L2	A*	B	C	Min. bore size	Effective sectional area mm²
GWP 44-L	4	4	30	18.5	14	16	10	1.7	2.1
GWP 46-L		6	31	18.5	13.5	16	10	1.7	2.1
GWP 48-L		8	32.5	18.5	13.5	16	10	1.7	2.1
GWP 66-L	6	6	34	21	16.5	17.5	12.5	3.4	6.7
GWP 68-L		8	35.5	21	16.5	17.5	12.5	3.4	6.7
GWP 610-L		10	38	21	16.5	17.5	12.5	3.4	6.7
GWP 88-L	8	8	36.5	23.5	17.5	19	14.5	5.4	16.6
GWP 810-L		10	39	23.5	17.5	19	14.5	5.4	16.6
GWP 812-L		12	40	23.5	17	19	14.5	5.4	16.6
GWP1010-L	10	10	41.5	27	20	21.5	17.5	6.8	24.7
GWP1012-L		12	42.5	27	19.5	21.5	17.5	6.8	24.7
GWP1212-L	12	12	44.5	29.5	21.5	23	20	8.8	34

* For connecting joint, dimension of CKD (GW Series) are shown.

C type plug
● GWP*-C



Model no.	Applicable tube O.D. ø	Connecting joint diameter ø	L1	L2	A*	B	C	Min. bore size	Effective sectional area mm²
GWP 44-C	4	4	30	18.5	14	16	10	1.7	2.4
GWP 46-C		6	31	18.5	13.5	16	10	1.7	2.4
GWP 48-C		8	32.5	18.5	13.5	16	10	1.7	2.4
GWP 66-C	6	6	34	21	16.5	17.5	12.5	3.4	7.3
GWP 68-C		8	35.5	21	16.5	17.5	12.5	3.4	7.3
GWP 610-C		10	38	21	16.5	17.5	12.5	3.4	7.3
GWP 88-C	8	8	36.5	23.5	17.5	19	14.5	5.4	19.3
GWP 810-C		10	39	23.5	17.5	19	14.5	5.4	19.3
GWP 812-C		12	40	23.5	17	19	14.5	5.4	19.3
GWP1010-C	10	10	41.5	27	20	21.5	17.5	6.8	28.6
GWP1012-C		12	42.5	27	19.5	21.5	17.5	6.8	28.6
GWP1212-C	12	12	44.5	29.5	21.5	23	20	8.8	35.5

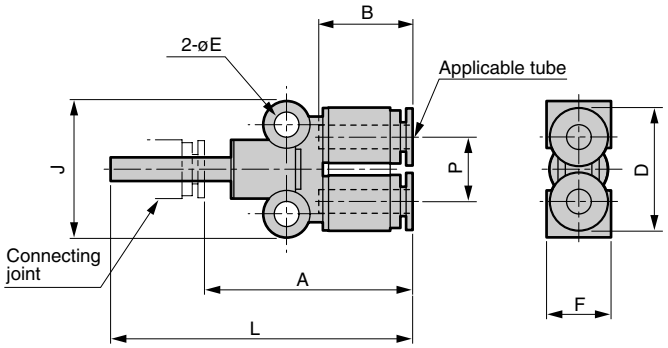
* For connecting joint, dimension of CKD (GW Series) are shown.

Dimensions: Y type plug, cap, manifold (single with R), manifold (single)

CAD

Y type plug

● GWP*-Y

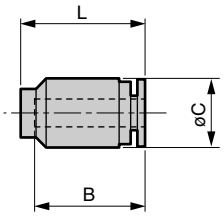


Model no.	Applicable tube O.D. ø	Connecting joint diameter ø	L	A*	B	D	E	F	J	P	Min. bore size	Effective sectional area mm²
GWP 44-Y	4	4	51.5	35.5	16	21	4.2	11	23	11	1.7	2.1
GWP 46-Y		6	52.5	35	16	21	4.2	11	23	11	2.5	5.8
GWP 48-Y		8	54	35	16	21	4.2	11	23	11	2.5	5.8
GWP 66-Y	6	6	55.5	38	17.5	26	4.2	13.5	25.5	13.5	3.9	9.1
GWP 68-Y		8	57	38	17.5	26	4.2	13.5	25.5	13.5	4	15.9
GWP 610-Y		10	59.5	38	17.5	26	4.2	13.5	25.5	13.5	4	15.9
GWP 88-Y	8	8	60	41	19	30	4.2	15.5	27	15.5	5.9	22.2
GWP 810-Y		10	62.5	41	19	30	4.2	15.5	27	15.5	6	24.9
GWP 812-Y		12	63.5	40.5	19	30	4.2	15.5	27	15.5	6	24.9
GWP1010-Y	10	10	70	48.5	21.5	36	4.2	18.5	30	18.5	6.8	28.2
GWP1012-Y		12	71	48	21.5	36	4.2	18.5	30	18.5	8	35.5
GWP1212-Y	12	12	76	53	23	41	4.2	21	32	21	8.8	36.3

* For connecting joint, dimension of CKD (GW Series) are shown.

Cap

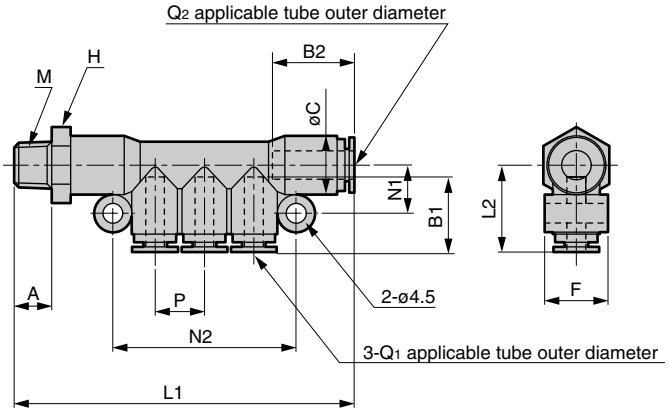
● GWC*



Model no.	Applicable tube O.D. ø	B	øC	L
GWC 4	4	16	10	18
GWC 6	6	17.5	12.5	19.5
GWC 8	8	19	14.5	21
GWC10	10	21.5	17.5	24
GWC12	12	23	20	26

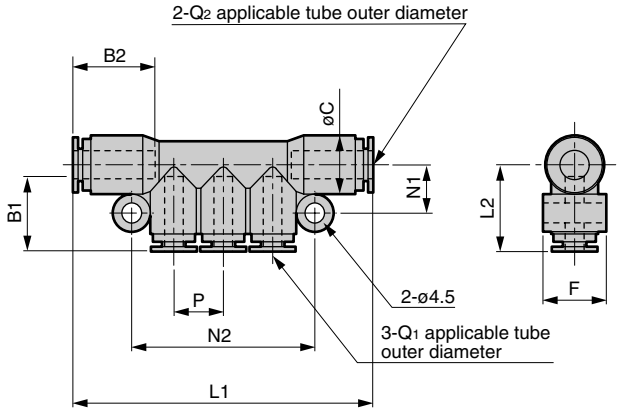
Manifold (single with R)

● GWMF*-*



Manifold (single solenoid)

● GWMF*-0

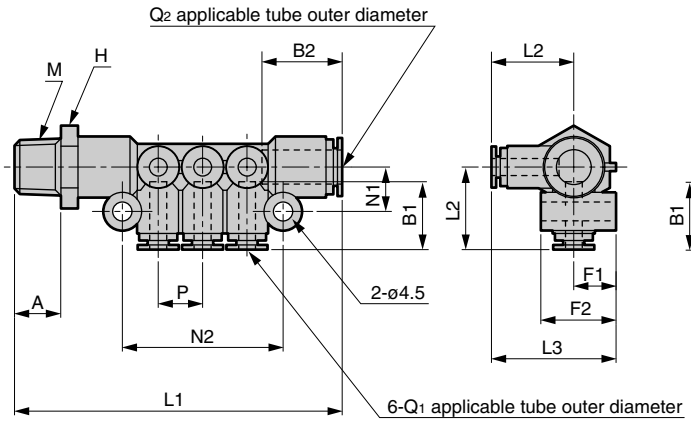


Model no.	Applicable tube O.D.ø		M	H	L1	L2	A	B1	B2	C	F	N1	N2	P	Effective sectional area mm²
	Q1	Q2													
GWMF 46- 6	4	6	R1/8	14	72.5	18.5	8	16	17.5	12.5	13.5	10.5	39	10.5	8.3
GWMF 48- 8	4	8	R1/4	17	77.5	19.5	11	16	19	14.5	15.5	11.5	39	10.5	24.2
GWMF 68- 8	6	8	R1/4	17	84.5	21	11	17.5	19	14.5	15.5	11.5	46.5	13	24.2
GWMF610-10	6	10	R3/8	19	91.5	22	12	17.5	21.5	17.5	18.5	13	46.5	13	35.5
GWMF810-10	8	10	R3/8	19	97.5	23.5	12	19	21.5	17.5	18.5	13	52.5	15	35.5

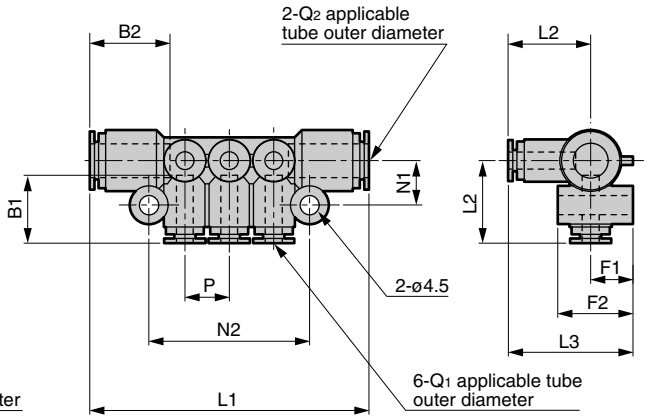
Model no.	Applicable tube O.D.ø		L1	L2	B1	B2	C	F	N1	N2	P	Effective sectional area mm²
	Q1	Q2										
GWMF 46-0	4	6	64	18.5	16	18.5	12.5	13.5	10.5	39	10.5	7.9
GWMF 48-0	4	8	66	19.5	16	19.5	14.5	15.5	11.5	39	10.5	22
GWMF 68-0	6	8	73	21	17.5	21	14.5	15.5	11.5	46.5	13	22
GWMF610-0	6	10	78.5	22	17.5	22	17.5	18.5	13	46.5	13	30
GWMF810-0	8	10	84.5	23.5	19	23.5	17.5	18.5	13	52.5	15	30

Dimensions: Manifold (double with R), manifold (double), insert ring

Manifold (double with R)
● GWMF*-*-W



Manifold (double solenoid)
● GWMF*-0-W

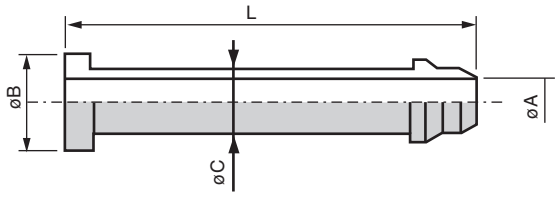


Model no.	Applicable tube O.D.ø		M	H	L1	L2	L3	A	B1	B2	F1	F2	N1	N2	P	Effective sectional area mm²
	Q1	Q2														
GWMF 48- 8-W	4	8	R1/4	17	77.5	19.5	29.5	11	16	19	10	17.5	10.5	38	10.5	24.3
GWMF 48-10-W	4	8	R3/8	17	79	19.5	29.5	12	16	19	10	17.5	10.5	38	10.5	23.5
GWMF610-10-W	6	10	R3/8	19	91.5	22	32	12	17.5	21.5	10	19.5	12	45	13	35.8
GWMF610-15-W	6	10	R1/2	19	94.5	22	32	15	17.5	21.5	10	19.5	12	45	13	35.8
GWMF812-10-W	8	12	R3/8	22	100	24.5	36	12	19	23	11.5	22	13	51	15	38.2
GWMF812-15-W	8	12	R1/2	22	103	24.5	36	15	19	23	11.5	22	13	51	15	38.2

Model no.	Applicable tube O.D.ø		L1	L2	L3	B1	B2	F1	F2	N1	N2	P	Effective sectional area mm²
	Q1	Q2											
GWMF4 8-0-W	4	8	66	19.5	29.5	16	19	10	17.5	10.5	38	10.5	22
GWMF610-0-W	6	10	78.5	22	32	17.5	21.5	10	19.5	12	45	13	30.4
GWMF812-0-W	8	12	87	24.5	36	19	23	11.5	22	13	51	15	36

Insert ring (tube U-92* / U-95*) (custom order)
● INS-U*-1

Material: Brass + electroless nickeling



● Tube U-92* / U-95*

Model no.	øA	øB	øC	L
INS-U32-1	1.1	2.2	1.7	12.7
INS-U04-1	1.1	3	1.8	17
INS-U06-1	3	5	3.8	18
INS-U08-1	4	7	4.8	21
INS-U10-1	5.5	9	6.3	23.5
INS-U12-1	7	11	7.8	25

* Tube for NU is available as custom-order.
* Use insert ring if tube U-92*, U-95* or NU is used for a vacuum circuit.

GWJ Joint (mini-type)

Port size M3 to 1/8 (Rc or R)

RoHS CAD

● Small push-in joint with wide variation

Space saving type with smaller body. Dead space of pipe can be decreased dramatically.

■ Straight type

Single straight GWJS*-*

Applicable tube O.D.ø
3.2
4
6

• Page : 946

Female, straight GWJS3-*-M

Applicable tube O.D.ø
3.2

• Page : 946

Bulk head GWJS3-0-X

Applicable tube O.D.ø
3.2

• Page : 946

Straight GWJS3-0

Applicable tube O.D.ø
3.2

• Page : 946

■ Elbow type

Different diameter straight GWJS*-0

Applicable tube O.D.ø
3.2 / 4
3.2 / 6

• Page : 946

Single elbow GWJL*-*

Applicable tube O.D.ø
3.2
4
6

• Page : 946

Long elbow GWJL*-*-L

Applicable tube O.D.ø
3.2
4
6

• Page : 947

Elbow GWJL3-0

Applicable tube O.D.ø
3.2

• Page : 947

■ Union Tee type

Both push-in branch GWJT3-*

Applicable tube O.D.ø
3.2

• Page : 947

D type union Tee GWJT3-*-D

Applicable tube O.D.ø
3.2

• Page : 947

Union Tee GWJT3-0

Applicable tube O.D.ø
3.2

• Page : 947

Y type union Tee GWJY*-0

Applicable tube O.D.ø
3.2 / 3.2
3.2 / 4

• Page : 947

■ Plug

Blanking plug GWJP3-B

Applicable tube O.D.ø
3.2

• Page : 948

●Sales unit is 10 pieces/1 box.

Specifications

Descriptions	GWJ
Working fluid	Compressed air
Max. working pressure MPa	1.0
Working temperature ˚C	-10 to 60 (no freezing)
Applicable tube	Soft nylon tube (Model no. F-1532, F-1504, F-1506) Urethane tube (Model no. U-9532, U-9504, U-9506, NU-04, NU-06) Note

Note: Refer to page 1008 for tube dimensions, ambient temperature and working pressure.

How to order

* Refer to model no. selections in dimensions (pages 946 to 948) for combination of model no.

GWJ S 3 - 6 - M
A B C D

A Shape	
S	Straight
L	Elbow
Y	Y type union Tee
T	Union Tee
P	Plug

B Applicable tube O.D.	
3	ø3.2
4	ø4
6	ø6

C Port size	
M3	M3×0.5
M5	M5×0.8
6	R1/8
0	No thread
4P	Plug for ø4
6P	Plug for ø6
B	Blanking plug

D Other combinations	
L	Long
D	D type
X	Bulk head
M	Female type

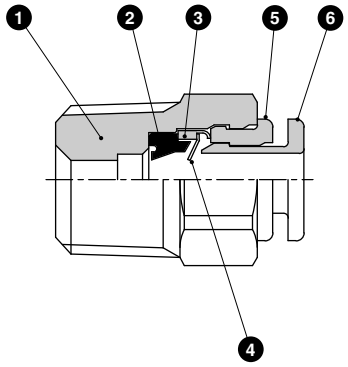
Note:Sales unit is 10 pieces/1 box.

Clean room specifications (catalog No. CB-033SA)

GWJ –·····– P7*

GWJ –·····– P80

Internal structure and main parts list



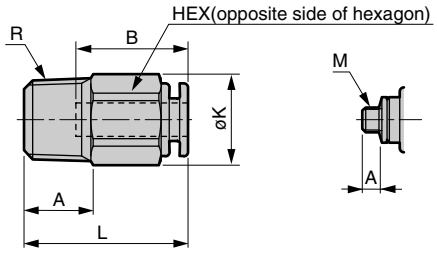
No.	Name	Material
1	Body *1	Brass (electroless nickeling treatment)
		PBT
2	Packing seal	Nitrile rubber
3	Holder	Brass (electroless nickeling treatment)
4	Chuck	Stainless steel
5	Outer ring	Metal type ¦ polyacetal
		Resin type ¦ brass (electroless nickeling treatment)
6	Push ring	Polyacetal

*1: The body of the single-ended straight, female straight, and bulkhead is brass (electroless nickel plated).

Dimensions: Single straight, female straight, bulk head, straight, different diameter straight, single elbow

Single straight

● GWJS*-*

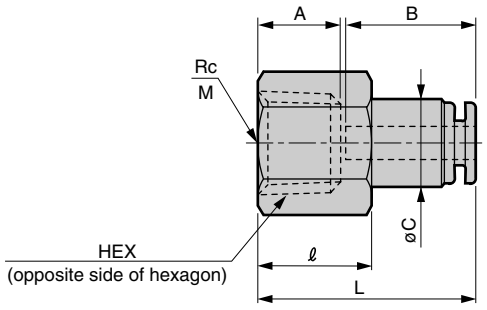


* dimension is for model with punched hexagon hole.

Model no.	Applicable tube O.D. ø	R M	HEX	K	L	A	B	Min. bore size	Effective sectional area mm²
GWJS3-M3	3.2	M3×0.5	8	8.8	17	2.4	12.5	1.2	0.9
GWJS3-M5		M5×0.8	8	8.8	18	3.4	12.5	2.5	2.5
GWJS3- 6		1/8	10	11	16.5	8	12.5	2.5 *	2.5
GWJS4-M3	4	M3×0.5	10	11	18	2.4	13.5	1.2	0.9
GWJS4-M5		M5×0.8	10	11	19	3.4	13.5	2.5	4
GWJS4- 6		1/8	10	11	20	8	13.5	2.5 *	4
GWJS6-M5	6	M5×0.8	11	12.1	20	3.4	14.5	2.5	4
GWJS6- 6		1/8	11	12.1	21.5	8	14.5	4 *	11

Female, straight

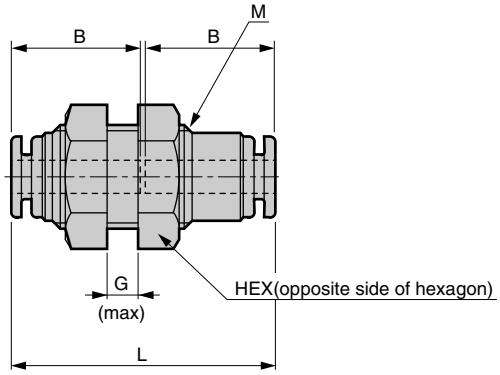
● GWJS3-*-M



Model no.	Applicable tube O.D. ø	Rc M	HEX	L	A	B	C	ℓ	Min. bore size	Effective sectional area mm²
GWJS3-M3-M	3.2	M3×0.5	8	17.5	4	12.5	7.8	7.0	2.5	2.5
GWJS3-M5-M		M5×0.8	8	18.5	5	12.5	7.8	8.0	2.5	2.5
GWJS3-6-M		1/8	12	21.5	8	12.5	8.5	11.0	2.5	2.5

Bulk head

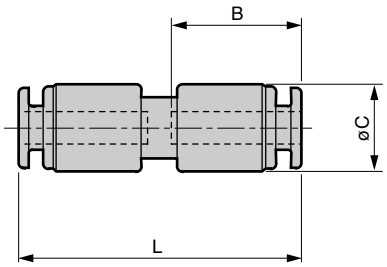
● GWJS3-0-X



Model no.	Applicable tube O.D. ø	L	B	HEX	Min. bore size	M	Panel thickness / G	Panel Hole diameter	Effective sectional area mm²
GWJS3-0-X	3.2	26.5	12.5	12	2.5	M10×1.0	5	10.5	2.5

Straight

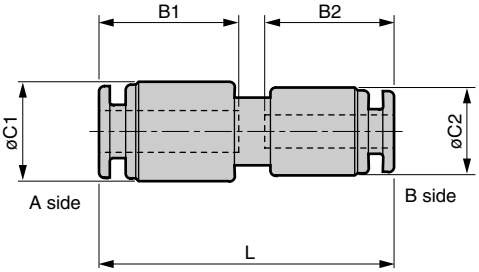
● GWJS3-0



Model no.	Applicable tube O.D. ø	L	B	C	Min. bore size	Effective sectional area mm²
GWJS3-0	3.2	27.5	12.5	8.5	2.2	2.5

Different diameter straight

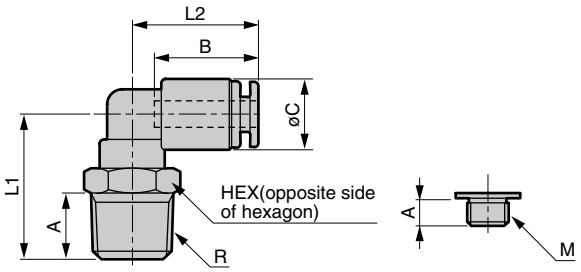
● GWJS*-0



Model no.	Applicable tube O.D.ø		L	B1	B2	C1	C2	Panel Hole diameter	Effective sectional area mm²
	A side	B side							
GWJS34-0	4	3.2	28.5	13.5	12.5	9.6	8.5	2.2	2.5
GWJS36-0	6	3.2	28.5	14.5	12.5	11.8	8.8	2.2	2.5

Single elbow

● GWJL*-*

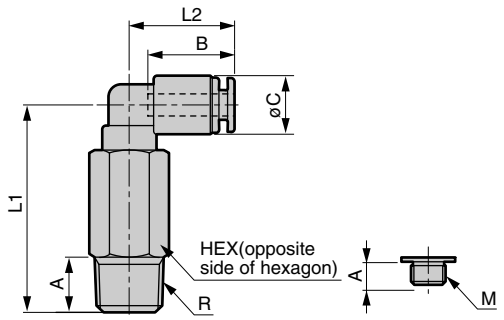


Model no.	Applicable tube O.D. ø	R M	HEX	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
GWJL3-M3	3.2	M3×0.5	8	13	15.5	2.4	12.5	8.5	1.2	0.8
GWJL3-M5		M5×0.8	8	13	15.5	3.4	12.5	8.5	2.2	2.5
GWJL3- 6		1/8	10	17.5	15.5	8	12.5	8.5	2.2	2.3
GWJL4-M3	4	M3×0.5	8	13	16.5	2.4	13.5	9.6	1.2	0.8
GWJL4-M5		M5×0.8	8	13	16.5	3.4	13.5	9.6	2.5	3
GWJL4- 6		1/8	10	17.5	16.5	8	13.5	9.6	2.5	3
GWJL6-M5	6	M5×0.8	10	15.5	18.5	3.4	14.5	11.8	2.5	3.5
GWJL6- 6		1/8	10	18.5	18.5	8	14.5	11.8	4	9.5

Dimensions: Long elbow, elbow, both push-in branch, D type union Tee, Union Tee, Y type union Tee

Long elbow

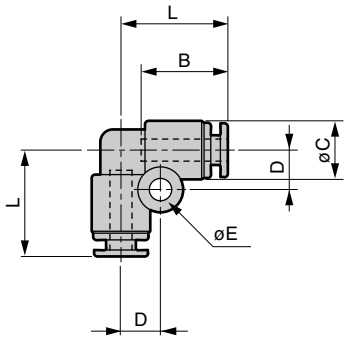
● GWJL*-*-L



Model no.	Applicable tube O.D. ø	R M	HEX	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
GWJL3-M3-L	3.2	M3×0.5	8	25.5	15.5	2.4	12.5	8.5	1.2	0.8
GWJL3-M5-L		M5×0.8	8	25.5	15.5	3.4	12.5	8.5	2.2	2.3
GWJL3- 6-L		1/8	10	30	15.5	8	12.5	8.5	2.2	2.3
GWJL4-M5-L	4	M5×0.8	8	25.5	16.5	3.4	13.5	9.6	2.5	3
GWJL4- 6-L		1/8	10	30	16.5	8	13.5	9.6	2.5	3
GWJL6-M5-L	6	M5×0.8	10	30.5	18.5	3.4	14.5	11.8	2.5	3.5
GWJL6- 6-L		1/8	10	33.5	18.5	8	14.5	11.8	4	8.5

Elbow

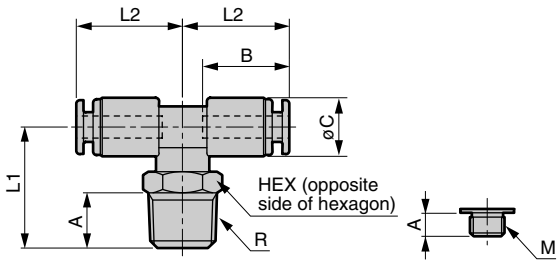
● GWJL3-0



Model no.	Applicable tube O.D. ø	L	B	C	D	E	Min. bore size	Effective sectional area mm²
GWJL3-0	3.2	15.5	12.5	8.5	5.7	3.2	2.2	2.3

Both push-in branch

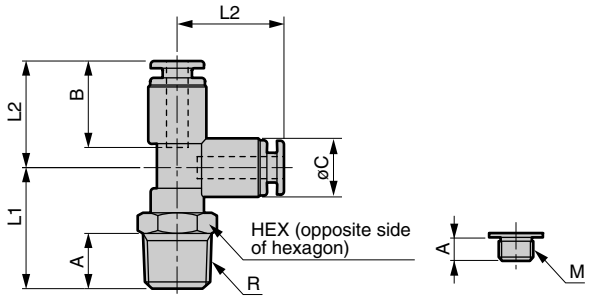
● GWJT3-*



Model no.	Applicable tube O.D. ø	R M	HEX	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
GWJT3-M3	3.2	M3×0.5	8	13	15.5	2.4	12.5	8.5	1.2	0.9
GWJT3-M5		M5×0.8	8	13	15.5	3.4	12.5	8.5	2.2	2.7
GWJT3-6		1/8	10	17.5	15.5	8	12.5	8.5	2.2	2.7

D type union Tee

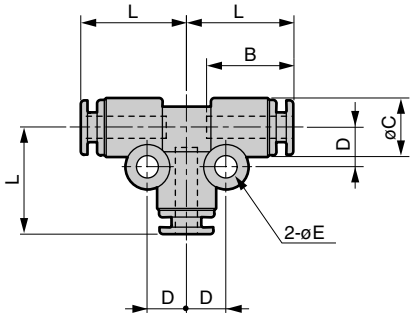
● GWJT3-*-D



Model no.	Applicable tube O.D. ø	R M	HEX	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
GWJT3-M3-D	3.2	M3×0.5	8	13	15.5	2.4	12.5	8.5	1.2	0.9
GWJT3-M5-D		M5×0.8	8	13	15.5	3.4	12.5	8.5	2.2	2.7
GWJT3-6-D		1/8	10	17.5	15.5	8	12.5	8.5	2.2	2.7

Union Tee

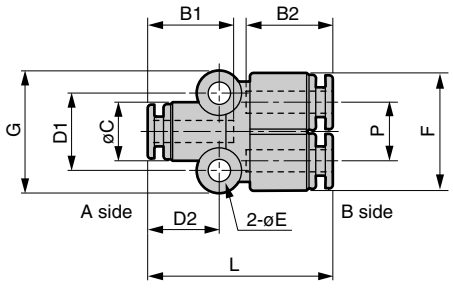
● GWJT3-0



Model no.	Applicable tube O.D. ø	L	B	C	D	E	Min. bore size	Effective sectional area mm²
GWJT3-0	3.2	15.5	12.5	8.5	5.7	3.2	2.2	2.7

Y type union Tee

● GWJY*-0



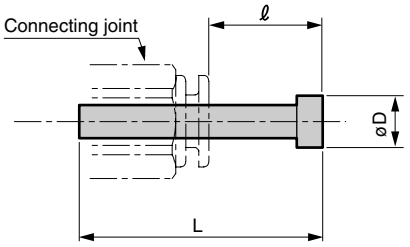
Model no.	Applicable tube O.D.ø		L	B1	B2	C	D1	D2	E	F	P	G	Effective sectional area mm²
	A side	B side											
GWJY33-0	3.2	3.2	27	12.5	12.5	8.5	11.2	10.5	3.2	17	8.5	17.7	2.7
GWJY43-0	4	3.2	28.5	13.5	12.5	9.6	12.2	12	3.2	17	8.5	18.7	2.7

Dimensions: Blanking plug

CAD

Blanking plug

- GWJP3-B
- GWP*-B



Material: Polyamide

Model no.	Connecting joint diameter ø	L	ℓ *	D
GWJP3-B	3.2	23.5	11	5
GWP 4-B	4	27	11	6
GWP 6-B	6	29	11.5	8

* Dimension of CKD connecting joints (GW and GWJ series) are shown.

MEMO

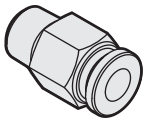
ZSP

Joint Stainless steel type

Port size M5, R1/8 to R1/2

CAD

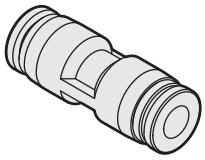
Straight
ZSP-C*-*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 953

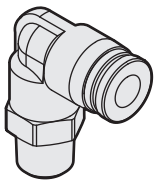
Straight union
ZSP-U*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 953

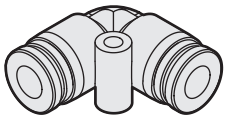
Elbow
ZSP-L*-*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 953

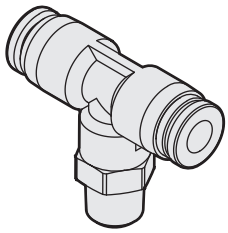
Union elbow
ZSP-V*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 953

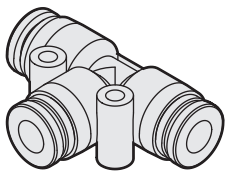
Tee
ZSP-B*-*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 954

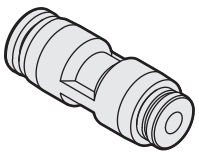
Union tee
ZSP-E*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 954

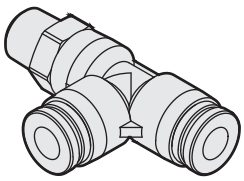
Irregular diameter straight union
ZSP-G*-*



Applicable tube O.D.ø
6 / 4
8 / 6
10 / 8
12 / 10

• Page : 954

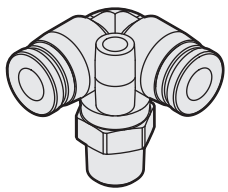
Branch Tee
ZSP-D*-*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 954

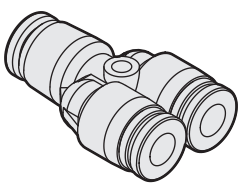
Tripod elbow
ZSP-VX*-*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 954

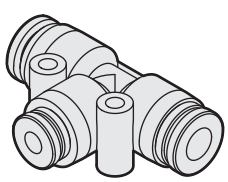
Union Y
ZSP-Y*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 955

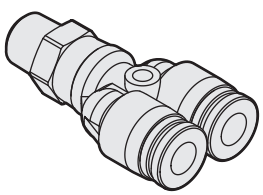
Irregular diameter union Tee
ZSP-EG*-*



Applicable tube O.D.ø
6 / 4
8 / 6
10 / 8
12 / 10

• Page : 955

Branch Y
ZSP-X*-*

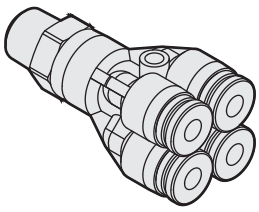


Applicable tube O.D.ø
4
6
8
10
12

• Page : 955

• Sales unit is 10 pieces per bag.

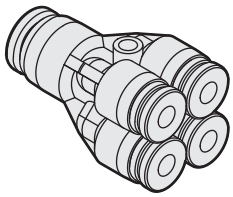
Branch double Y
ZSP-RX*-*



Applicable tube O.D.ø
4
6

• Page : 956

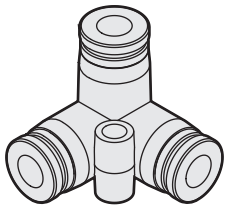
Irregular diameter double Y
ZSP-RG*-*



Applicable tube O.D.ø
6 / 4
8 / 6

• Page : 956

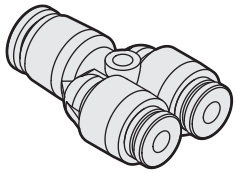
Tripod union
ZSP-VU*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 956

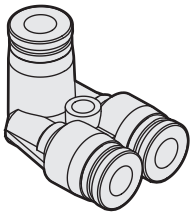
Irregular diameter union Y
ZSP-W*-*



Applicable tube O.D.ø
6 / 4
8 / 6
10 / 8
12 / 10

• Page : 956

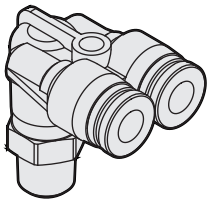
Union A
ZSP-AU*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 957

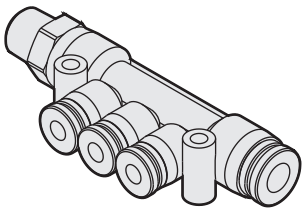
Branch elbow
ZSP-AX*-*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 957

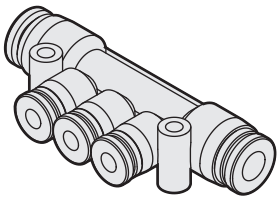
Branch triple
ZSP-KD*-*-*



Applicable tube O.D.ø
6 / 4
8 / 4
8 / 6
10 / 8

• Page : 957

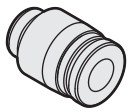
Irregular diameter triple
ZSP-KG*-*



Applicable tube O.D.ø
6 / 4
8 / 4
8 / 6
10 / 6
10 / 8

• Page : 957

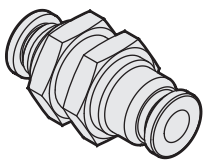
Cap
ZSP-RF*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 958

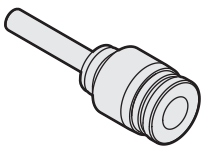
Barrier union
ZSP-M*



Applicable tube O.D.ø
4
6
8
10
12

• Page : 958

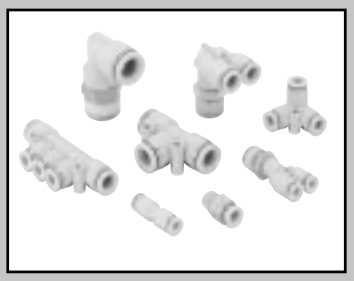
Reducer
ZSP-J*-*



Applicable tube O.D.ø
6 / 4
4 / 6
4 / 8
6 / 8
4 / 10
6 / 10
8 / 10
6 / 12
8 / 12
10 / 12

• Page : 958

•Sales unit is 10 pieces per bag.



Joint stainless steel type

ZSP Series

- Port size: M5, R1/8 to R1/2
- Applicable tube: ø4 to ø12

RoHS CAD

Features

- Stainless steel (SUS303 or equivalent) metal body
  Perfect for use in corrosive environments, or places susceptible to copper ion
- Diverse range of model variations
  A diverse range of variations support various pneumatic piping
- Environment compatible products
  With this RoHS Directive compatible product, all substances which adversely affect the global environment have been eliminated from the materials

Specifications

Descriptions	ZSP
Working fluid	Air
Max. working pressure MPa	1.0
Use vacuum kPa	-100
Ambient temperature range ˚C	0 to 60 (no freezing Note 1)

Note1: Freezing could occur by adiabatic expansion depending on air quality (dew point).

How to order

* Refer to model no. selections in dimensions (pages 953 to 958) for combination of model no.

ZSP - C 4 - 6
(A) (B) (C)

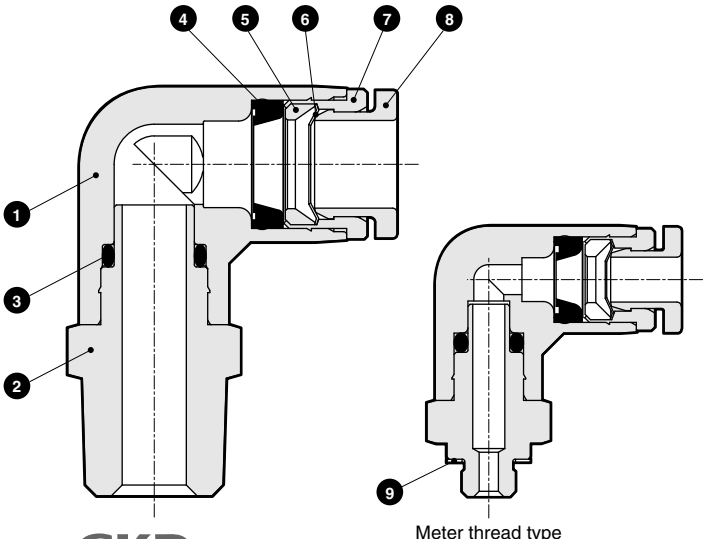
(A) Shape			
C	Straight	RX	Branch double Y
U	Straight union	RG	Irregular diameter double Y
L	Elbow	VU	Tripod union
V	Union elbow	W	Irregular diameter union Y
B	Tee	AU	Union A
E	Union Tee	AX	Branch elbow
G	Irregular diameter straight union	KD	Branch triple
D	Branch Tee	KG	Irregular diameter triple
VX	Tripod elbow	PF	Cap
Y	Union Y	M	Barrier union
EG	Irregular diameter union tee	J	Reducer
X	Branch Y		

(B) Applicable tube O.D.	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12

(C) Port sizeNote1	
M5	M5×0.8
M5S	M5×0.5 (fine outline type)
6	R1/8
8	R1/4
10	R3/8
15	R1/2

Note 1: If “C” is the tube size, select from the table for “B”.

Internal structure and parts list

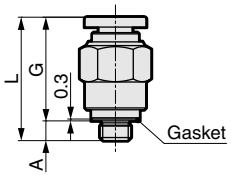


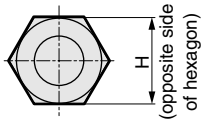
Meter thread type

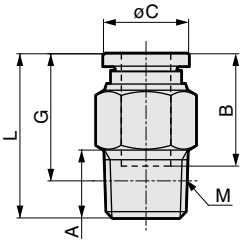
No.	Parts name	Material
1	Resin body	PBT
2	Metal body	Stainless steel (SUS303 or equivalent)
3	O ring	Hydrogen nitrile rubber
4	Rubber sleeve	Hydrogen nitrile rubber
5	Lock ring	Stainless steel (SUS303 or equivalent)
6	Lock jaw	Stainless steel (SUS301)
7	Guide ring	Stainless steel (SUS303 or equivalent)
8	Release ring	Polyacetal
9	Gasket	Polyacetal

Dimensions

Straight
● ZSP-C*-*



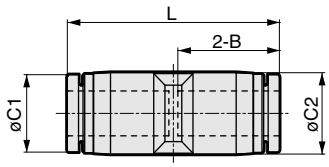




Model no.	Applicable tube O.D. ø	M	A	L	G	B	C	H	Effective sectional area mm²	Weight g
ZSP-C4-M5	4	M5×0.8	3.2	20	16.8	14.9	9.9	10	1.9	5.6
ZSP-C4-M5S		M5×0.8	3.2	22.9	19.7	14.9	9.9	8	1.9	5.9
ZSP-C4-6		R1/8	8	21	17	14.9	9.9	10	5.3	7.5
ZSP-C4-8		R1/4	11	21	15	14.9	9.9	14	5.3	15
ZSP-C6-M5	6	M5×0.8	3.2	22.1	18.9	17	11.8	12	1.9	8.1
ZSP-C6-6		R1/8	8	22.6	18.6	17	11.8	12	12.5	8.3
ZSP-C6-8		R1/4	11	24.6	18.5	17	11.8	14	12.5	16
ZSP-C6-10		R3/8	12	23.6	17.2	17	11.8	17	12.5	25
ZSP-C8-6	8	R1/8	8	27.9	23.9	18.2	13.8	14	20	14
ZSP-C8-8		R1/4	11	26.6	20.6	18.2	13.8	14	20	14
ZSP-C8-10		R3/8	12	23.9	17.6	18.2	13.8	17	20	21
ZSP-C10-6	10	R1/8	8	30.3	26.3	20.7	16.8	17	22.9	21
ZSP-C10-8		R1/4	11	29.8	23.8	20.7	16.8	17	35	19
ZSP-C10-10		R3/8	12	29.3	23	20.7	16.8	17	35	24
ZSP-C10-15		R1/2	15	30.3	22.1	20.7	16.8	21	35	46
ZSP-C12-8	12	R1/4	11	35.9	29.9	23.3	19.8	21	35	40
ZSP-C12-10		R3/8	12	31.9	25.6	23.3	19.8	21	59	32
ZSP-C12-15		R1/2	15	33.9	25.7	23.3	19.8	21	59	45

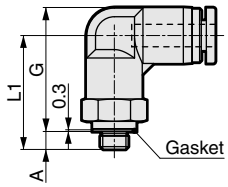
Note) The L dimensions for the taper screw type are reference dimensions after tightening.

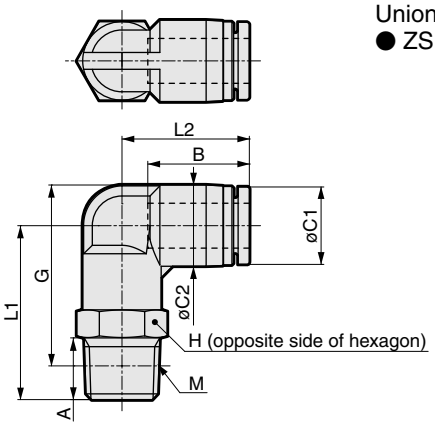
Straight union
● ZSP-U*-*



Model no.	Applicable tube O.D. ø	L	C1	C2	B	Effective sectional area mm²	Weight g
ZSP-U4	4	30.8	9.9	10	14.9	5.3	4.4
ZSP-U6	6	34.9	11.8	12.5	17	12.5	6.2
ZSP-U8	8	37.8	13.8	14.5	18.1	20	8.8
ZSP-U10	10	43.4	16.8	17.5	20.2	35	15
ZSP-U12	12	47.8	19.8	21	23.4	59	21

Elbow
● ZSP-L*-*

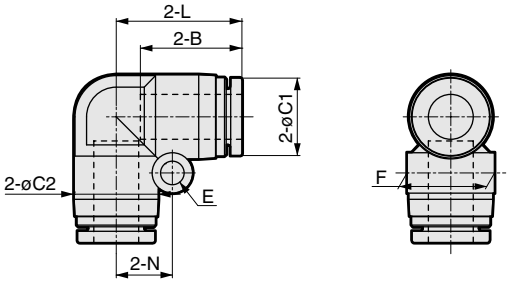




Model no.	Applicable tube O.D. ø	M	A	L1	G	C1	C2	B	L2	H	Effective sectional area mm²	Weight g
ZSP-L4-M5	4	M5×0.8	3.2	20.3	22.1	9.9	10	14.9	18	10	1.5	7.3
ZSP-L4-6		R1/8	8	23.3	24.3	9.9	10	14.9	18	10	4.2	10
ZSP-L4-8		R1/4	11	26.3	25.3	9.9	10	14.9	18	14	4.2	19
ZSP-L6-M5	6	M5×0.8	3.2	22	25.1	11.8	12.5	16.8	19.8	12	1.5	11
ZSP-L6-6		R1/8	8	25	27.3	11.8	12.5	16.8	19.8	12	10	13
ZSP-L6-8		R1/4	11	28	28.2	11.8	12.5	16.8	19.8	14	10	20
ZSP-L6-10		R3/8	12	29.8	29.7	11.8	12.5	16.8	19.8	17	10	32
ZSP-L8-6	8	R1/8	8	28	31.3	13.8	14.5	18.1	22.7	14	16.5	17
ZSP-L8-8		R1/4	11	31	32.2	13.8	14.5	18.1	22.7	14	16.5	22
ZSP-L8-10		R3/8	12	32.8	33.7	13.8	14.5	18.1	22.7	17	16.5	34
ZSP-L10-6	10	R1/8	8	33	37.8	16.8	17.5	20.2	26.2	17	22.4	29
ZSP-L10-8		R1/4	11	36	38.7	16.8	17.5	20.2	26.2	17	30	31
ZSP-L10-10		R3/8	12	37	39.4	16.8	17.5	20.2	26.2	17	30	39
ZSP-L10-15		R1/2	15	40	40.6	16.8	17.5	20.2	26.2	21	30	59
ZSP-L12-8	12	R1/4	11	38	42.5	19.8	21	23.4	29.4	21	30	47
ZSP-L12-10		R3/8	12	39	43.2	19.8	21	23.4	29.4	21	47	48
ZSP-L12-15		R1/2	15	42	44.3	19.8	21	23.4	29.4	21	47	63

Note) The L dimensions for the taper screw type are reference dimensions after tightening.

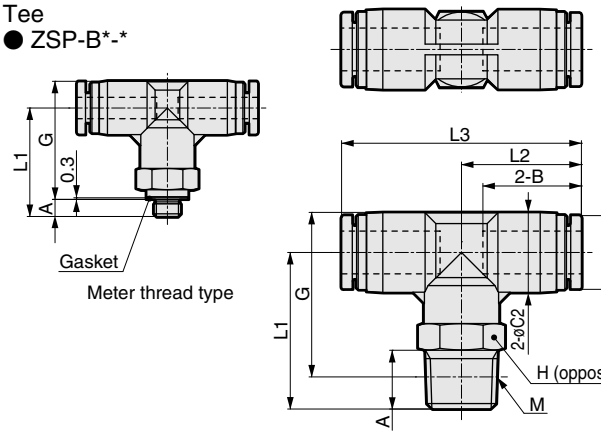
Union elbow
● ZSP-V*



Model no.	Applicable tube O.D. ø	C1	C2	B	L	E	N	F	Effective sectional area mm²	Weight g
ZSP-V4	4	9.9	10	14.9	16.9	3.2	6.5	10	4.2	4.7
ZSP-V6	6	11.8	12.5	16.9	20.1	3.2	8	12.5	10	6.9
ZSP-V8	8	13.8	15	18.1	22.4	4.2	10	15.6	16.5	11
ZSP-V10	10	16.8	17.5	20.7	26.2	4.2	12	18.2	30	16
ZSP-V12	12	19.8	21	23.4	29.4	4.2	14	21.7	47	24

Dimensions CAD

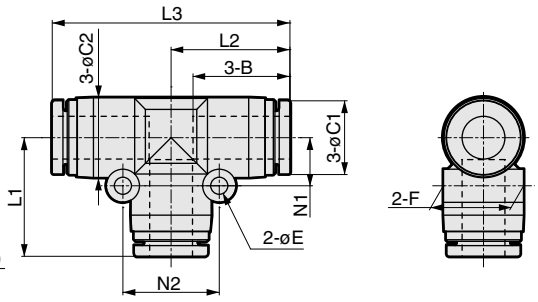
Tee
● ZSP-B*-*



Model no.	Applicable tube O.D.ø	M	A	L1	G	C1	C2	B	L2	L3	H	Effective sectional area mm²	Weight g
ZSP-B4-M5	4	M5×0.8	3.2	20.2	22	9.9	10	14.9	16.9	33.8	10	1.5	9.4
ZSP-B4-6		R1/8	8	23.2	24.2	9.9	10	14.9	16.9	33.8	10	4.1	13
ZSP-B4-8		R1/4	11	26.2	25.2	9.9	10	14.9	16.9	33.8	14	4.1	21
ZSP-B6-M5	6	M5×0.8	3.2	23	26.3	11.8	13	17	20.15	40.3	12	1.5	15
ZSP-B6-6		R1/8	8	26	28.5	11.8	13	17	20.15	40.3	12	10	17
ZSP-B6-8		R1/4	11	29	29.5	11.8	13	17	20.15	40.3	14	10	24
ZSP-B6-10		R3/8	12	30.8	31	11.8	13	17	20.15	40.3	17	10	36
ZSP-B8-6	8	R1/8	8	26.3	29.8	13.8	15	18.4	22.4	44.8	14	16.5	21
ZSP-B8-8		R1/4	11	29.3	30.8	13.8	15	18.4	22.4	44.8	14	16.5	26
ZSP-B8-10		R3/8	12	31.1	32.3	13.8	15	18.4	22.4	44.8	17	16.5	38
ZSP-B10-6	10	R1/8	8	33	37.8	16.8	17.5	20.2	25.2	50.4	17	30	36
ZSP-B10-8		R1/4	11	36	38.7	16.8	17.5	20.2	25.2	50.4	17	30	38
ZSP-B10-10		R3/8	12	37	39.4	16.8	17.5	20.2	25.2	50.4	17	30	46
ZSP-B10-15		R1/2	15	40	40.6	16.8	17.5	20.2	25.2	50.4	21	30	65
ZSP-B12-8	12	R1/4	11	38	42.5	19.8	21	22.9	28.4	56.8	21	30	56
ZSP-B12-10		R3/8	12	39	43.2	19.8	21	22.9	28.4	56.8	21	47	58
ZSP-B12-15		R1/2	15	42	44.3	19.8	21	22.9	28.4	56.8	21	47	73

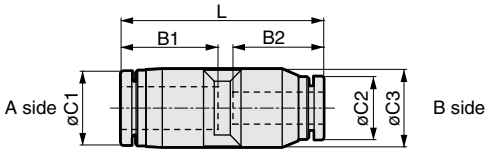
Note) The L dimensions for the taper screw type are reference dimensions after tightening.

Union Tee
● ZSP-E*



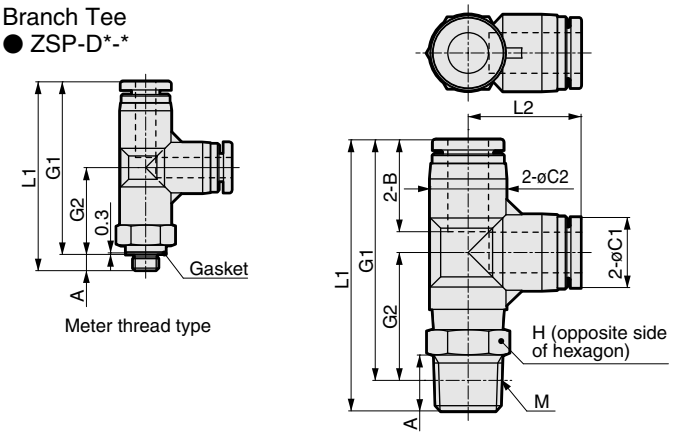
Model no.	Applicable tube O.D.ø	C1	C2	B	L2	L3	E	N1	N2	L1	F	Effective sectional area mm²	Weight g
ZSP-E4	4	9.9	10	14.9	16.9	33.8	3.2	6.5	13	16.9	10	5.3	7.1
ZSP-E6	6	11.8	13	17	20.05	40.1	3.2	8	16	20.1	13.5	12.5	11
ZSP-E8	8	13.8	15.6	18.1	22.2	44.4	3.2	9	18	22.2	15	20	15
ZSP-E10	10	16.8	18.2	19.6	25.2	50.4	4.2	12	24	25.2	17.5	35	24
ZSP-E12	12	19.8	21	22.9	28.4	56.8	4.2	14	28	28.2	21.7	59	34

Irregular diameter straight union
● ZSP-G*-*



Model no.	Applicable tube O.D.ø		L	C1	C2	C3	B1	B2	Effective sectional area mm²	Weight g
	A side	B side								
ZSP-G6-4	6	4	34.4	11.8	9.9	12.5	17	14.9	5.3	6
ZSP-G8-6	8	6	37.9	13.8	11.8	14.5	18.1	17	12.5	8.3
ZSP-G10-8	10	8	43.1	16.8	13.8	17.5	20.2	18.4	20	14
ZSP-G12-10	12	10	47.6	19.8	16.8	21	23.4	20.2	35	20

Branch Tee
● ZSP-D*-*

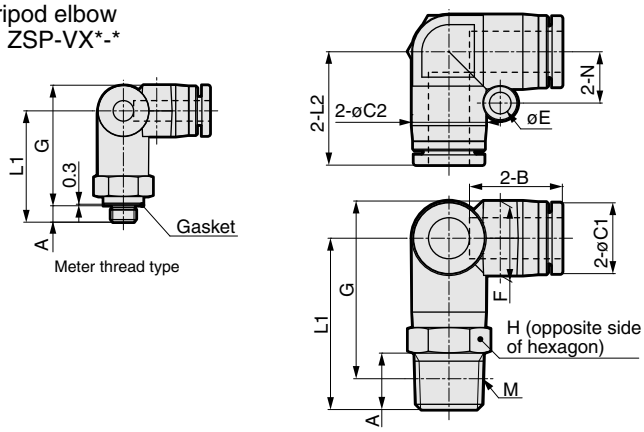


Model no.	Applicable tube O.D.ø	M	A	L1	G1	G2	C1	C2	B	L2	H	Effective sectional area mm²	Weight g
ZSP-D4-M5	4	M5×0.8	3.2	37.1	33.9	17	9.9	10	14.9	16.9	10	1.9	9.4
ZSP-D4-6		R1/8	8	40.1	36.1	19.2	9.9	10	14.9	16.9	10	5.3	13
ZSP-D4-8		R1/4	11	43.1	37.1	20.2	9.9	10	14.9	16.9	14	5.3	21
ZSP-D6-M5	6	M5×0.8	3.2	43.2	40	19.8	11.8	13	17	20.1	12	1.9	15
ZSP-D6-6		R1/8	8	46.2	42.2	22	11.8	13	17	20.1	12	12.5	17
ZSP-D6-8		R1/4	11	49.2	43.1	23	11.8	13	17	20.1	14	12.5	24
ZSP-D6-10		R3/8	12	51	44.6	24.5	11.8	13	17	20.1	17	12.5	35
ZSP-D8-6	8	R1/8	8	50.4	46.4	24.2	13.8	15	18.1	22.2	14	20	21
ZSP-D8-8		R1/4	11	53.4	47.4	25.2	13.8	15	18.1	22.2	14	20	27
ZSP-D8-10		R3/8	12	55.2	48.9	26.7	13.8	15	18.1	22.2	17	20	38
ZSP-D10-6	10	R1/8	8	58.2	54.2	29	16.8	17.5	20.2	25.2	17	35	36
ZSP-D10-8		R1/4	11	61.2	55.2	30	16.8	17.5	20.2	25.2	17	35	38
ZSP-D10-10		R3/8	12	62.2	55.9	30.7	16.8	17.5	20.2	25.2	17	35	46
ZSP-D10-15		R1/2	15	65.2	57	31.8	16.8	17.5	20.2	25.2	21	35	65
ZSP-D12-8	12	R1/4	11	66.6	60.6	32.2	19.8	21	22.9	28.2	21	35	57
ZSP-D12-10		R3/8	12	67.6	61.3	32.9	19.8	21	22.9	28.2	21	59	58
ZSP-D12-15		R1/2	15	70.6	62.4	34	19.8	21	22.9	28.2	21	59	72

Note) The L1 and L2 dimensions for the taper screw type are reference dimensions after tightening.

Dimensions CAD

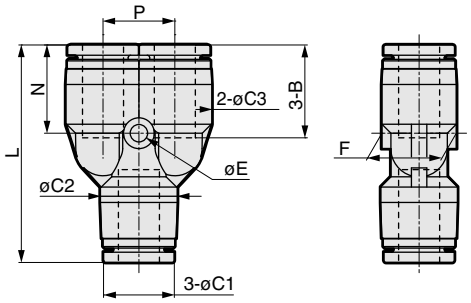
Tripod elbow
● ZSP-VX*-*



Model no.	Applicable tube O.D. ø	M	A	L1	G	C1	C2	B	L2	H	E	N	F	Effective sectional area mm²	Weight g
ZSP-VX4-M5	4	M5×0.8	3.2	21.7	23.5	9.9	10	14.9	16.9	10	3.2	6.5	10	2.3	11
ZSP-VX4-6		R1/8	8	24.7	25.7	9.9	10	14.9	16.9	10	3.2	6.5	10	4	14
ZSP-VX4-8		R1/4	11	27.7	26.7	9.9	10	14.9	16.9	14	3.2	6.5	10	3.5	23
ZSP-VX6-M5	6	M5×0.8	3.2	25.3	28.4	11.8	12.5	17	20.1	12	4.2	8	12.5	2.3	17
ZSP-VX6-6		R1/8	8	28.3	30.6	11.8	12.5	17	20.1	12	4.2	8	12.5	8.5	18
ZSP-VX6-8		R1/4	11	31.3	31.5	11.8	12.5	17	20.1	14	4.2	8	12.5	8	26
ZSP-VX6-10		R3/8	12	33.1	33	11.8	12.5	17	20.1	17	4.2	8	12.5	8.4	39
ZSP-VX8-6	8	R1/8	8	30.4	33.7	13.8	14.5	18.1	22.1	14	4.2	10	14.5	17.1	24
ZSP-VX8-8		R1/4	11	33.4	34.6	13.8	14.5	18.1	22.1	14	4.2	10	14.5	17.5	30
ZSP-VX8-10		R3/8	12	35.2	36.1	13.8	14.5	18.1	22.1	17	4.2	10	14.5	17.4	42
ZSP-VX10-6	10	R1/8	8	35.2	40	16.8	17.5	20.2	26.2	17	4.2	12	17.5	17.4	38
ZSP-VX10-8		R1/4	11	38.2	40.9	16.8	17.5	20.2	26.2	17	4.2	12	17.5	31.5	44
ZSP-VX10-10		R3/8	12	39.2	41.6	16.8	17.5	20.2	26.2	17	4.2	12	17.5	28.1	52
ZSP-VX10-15		R1/2	15	42.2	42.8	16.8	17.5	20.2	26.2	21	4.2	12	17.5	24.3	74
ZSP-VX12-8	12	R1/4	11	41.2	45.7	19.8	21	23.4	29.4	21	4.2	14	21	40.9	64
ZSP-VX12-10		R3/8	12	42.2	46.4	19.8	21	23.4	29.4	21	4.2	14	21	45	65
ZSP-VX12-15		R1/2	15	45.2	47.5	19.8	21	23.4	29.4	21	4.2	14	21	44.8	81

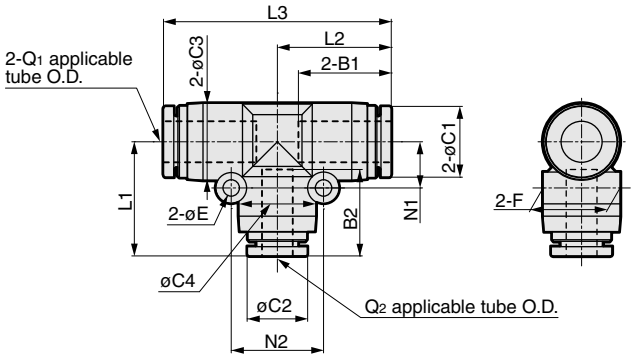
Note) The L dimensions for the taper screw type are reference dimensions after tightening.

Union Y
● ZSP-Y*



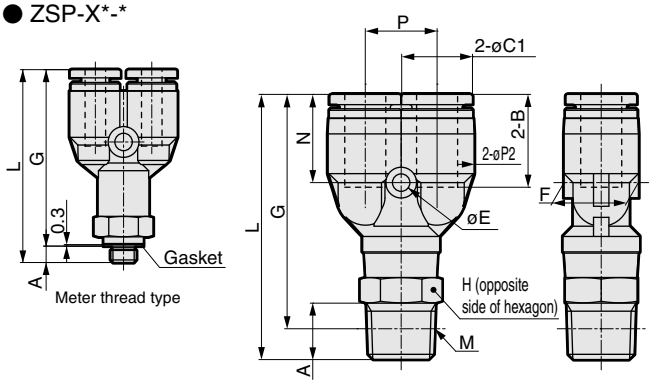
Model no.	Applicable tube O.D. ø	L	C1	C2	C3	B	P	E	N	F	Effective sectional area mm²	Weight g
ZSP-Y4	4	32.8	9.9	10	10	14.9	11	3.4	14.1	10.4	4.2	7.6
ZSP-Y6	6	37.7	11.8	13	12.5	17	12	3.4	15.8	13.5	10	10
ZSP-Y8	8	42.4	13.8	15	14.5	18.1	14	3.4	17.2	15.1	16.5	15
ZSP-Y10	10	48.4	16.8	18	18	20.7	18	4.5	19.5	18	27	25
ZSP-Y12	12	54.8	19.8	21.5	21	23.4	20	4.2	22.2	21	38	35

Irregular diameter union Tee
● ZSP-EG*-*



Model no.	Applicable tube O.D. ø		C1	C2	C3	C4	B1	B2	L2	L3	E	N1	N2	L1	F	Effective sectional area mm²	Weight g
	Q1	Q2															
ZSP-EG6-4	6	4	11.8	9.9	13	13	17	14.9	20.05	40.1	3.2	8	16	19.5	13.5	4.1	11
ZSP-EG8-6	8	6	13.8	11.8	14.5	12.5	18.1	17	22.2	44.4	3.2	9	18	22.3	15.1	9.5	14
ZSP-EG10-8	10	8	16.8	13.8	17.5	14.5	20.2	18.1	25.2	50.4	4.2	12	24	24.9	18.2	18.5	23
ZSP-EG12-10	12	10	19.8	16.8	21	17.5	23.4	20.2	28.4	56.8	4.2	14	28	28	21.7	29.5	34

Branch Y
● ZSP-X*-*

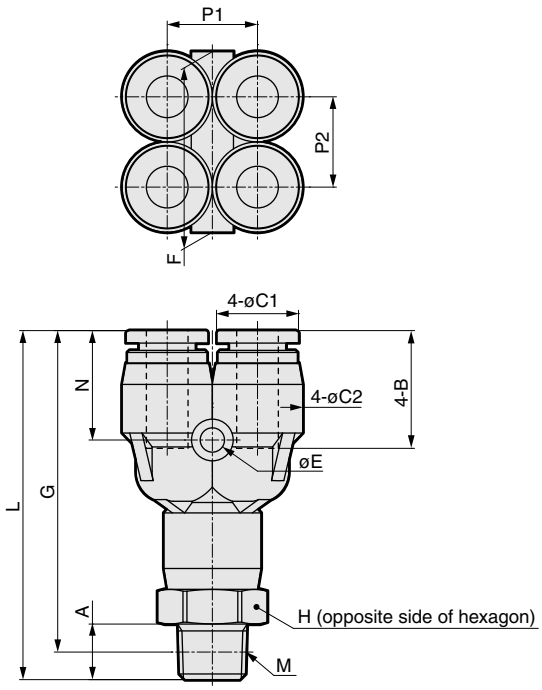


Model no.	Applicable tube O.D. ø	M	A	L	G	C1	C2	B	P	E	N	H	F	Effective sectional area mm²	Weight g
ZSP-X4-M5	4	M5×0.8	3.2	37.6	34.4	9.9	10	14.9	11	3.4	14.1	10	10.4	1.5	9.9
ZSP-X4-6		R1/8	8	40.6	36.6	9.9	10	14.9	11	3.4	14.1	10	10.4	4.2	13
ZSP-X4-8		R1/4	11	43.6	37.6	9.9	10	14.9	11	3.4	14.1	14	10.4	4.2	21
ZSP-X6-M5	6	M5×0.8	3.2	41.4	38.2	11.8	12.5	17	12	3.4	15.8	12	13.5	1.5	15
ZSP-X6-6		R1/8	8	44.4	40.4	11.8	12.5	17	12	3.4	15.8	12	13.5	10	17
ZSP-X6-8		R1/4	11	47.4	41.3	11.8	12.5	17	12	3.4	15.8	14	13.5	10	24
ZSP-X6-10		R3/8	12	49.2	42.8	11.8	12.5	17	12	3.4	15.8	17	13.5	10	36
ZSP-X8-6	8	R1/8	8	48.7	44.7	13.8	14.5	18.1	14	3.4	17.2	14	15.1	16.5	22
ZSP-X8-8		R1/4	11	51.7	45.7	13.8	14.5	18.1	14	3.4	17.2	14	15.1	16.5	27
ZSP-X8-10		R3/8	12	53.5	47.2	13.8	14.5	18.1	14	3.4	17.2	17	15.1	16.5	39
ZSP-X10-6	10	R1/8	8	55.3	51.3	16.8	18	20.7	18	4.5	19.5	17	18	30	38
ZSP-X10-8		R1/4	11	58.3	52.3	16.8	18	20.7	18	4.5	19.5	17	18	30	40
ZSP-X10-10		R3/8	12	59.3	53	16.8	18	20.7	18	4.5	19.5	17	18	30	48
ZSP-X10-15		R1/2	15	62.3	54.1	16.8	18	20.7	18	4.5	19.5	21	18	30	67
ZSP-X12-8	12	R1/4	11	63.5	57.5	19.8	21	23.4	20	4.2	22.2	21	21	37	59
ZSP-X12-10		R3/8	12	64.5	58.2	19.8	21	23.4	20	4.2	22.2	21	21	37	61
ZSP-X12-15		R1/2	15	67.5	59.3	19.8	21	23.4	20	4.2	22.2	21	21	37	75

Note) The L dimensions for the taper screw type are reference dimensions after tightening.

Dimensions CAD

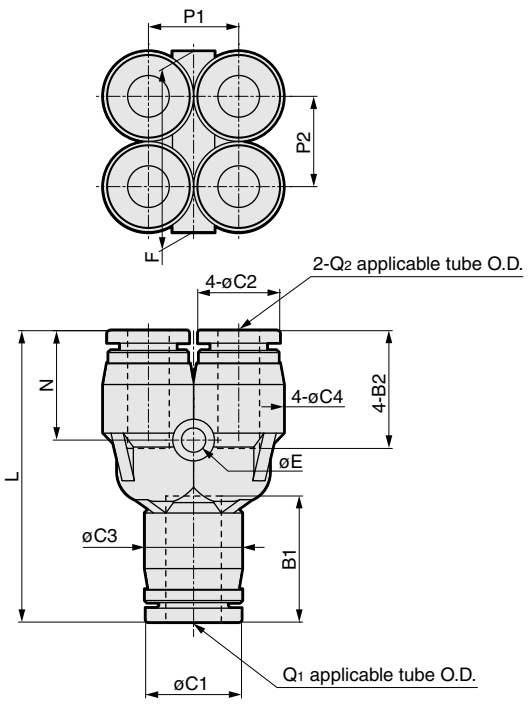
Branch double Y
● ZSP-RX*-*



Model no.	Applicable tube O.D. ø	M	A	L	G	C1	C2	B	P1	P2	H	E	N	F	Effective sectional area mm²	Weight g
ZSP-RX4-6	4	R1/8	8	45.7	41.7	9.9	10.5	14.9	10	10	12	3.2	14.2	20.5	1.5	20
ZSP-RX4-8	4	R1/4	11	48.7	42.7	9.9	10.5	14.9	10	10	14	3.2	14.2	20.5	1.4	27
ZSP-RX6-6	6	R1/8	8	50.3	46.3	11.8	13	17	13	13	14	3.2	15.8	26	9	27

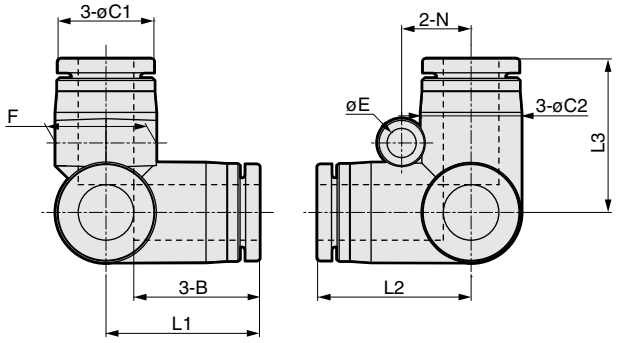
Note) The L1 dimensions are reference dimensions after tightening.

Irregular diameter double Y
● ZSP-RG*-*



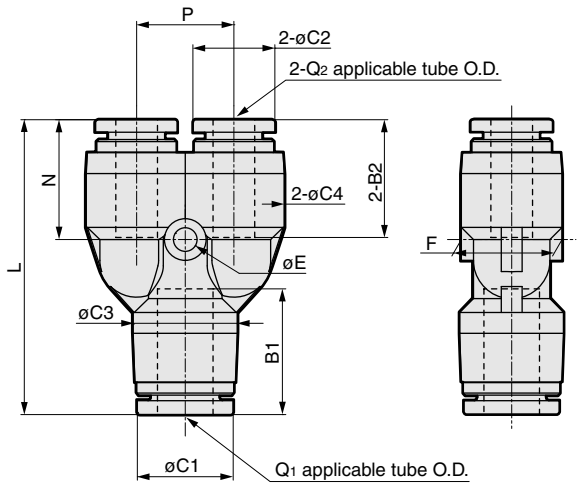
Model no.	Applicable tube O.D. ø		L	C1	C2	C3	C4	B1	B2	P1	P2	E	N	F	Effective sectional area mm²	Weight g
	Q1	Q2														
ZSP-RG6-4	6	4	37.5	11.8	9.9	13	10.5	17	14.9	10	10	3.2	14.2	20.5	1.5	13
ZSP-RG8-6	8	6	42	13.8	11.8	14	13	18.2	17	13	13	3.5	15.8	26	8.2	20

Tripod union
● ZSP-VU*



Model no.	Applicable tube O.D. ø	C1	C2	B	L1	L2	L3	E	N	F	Effective sectional area mm²	Weight g
ZSP-VU4	4	9.9	10	14.9	16.9	16.9	16.9	3.2	6.5	10	3.7	7
ZSP-VU6	6	11.8	12.5	17	20.1	20.1	20.1	4.2	8	12.5	8.3	9.8
ZSP-VU8	8	13.8	14.5	18.1	22.1	22.1	22.1	4.2	10	14.5	16	15
ZSP-VU10	10	16.8	17.5	20.2	26.2	26.2	26.2	4.2	12	17.5	30.2	24
ZSP-VU12	12	19.8	21	23.4	29.4	29.4	29.4	4.2	14	21	40.2	34

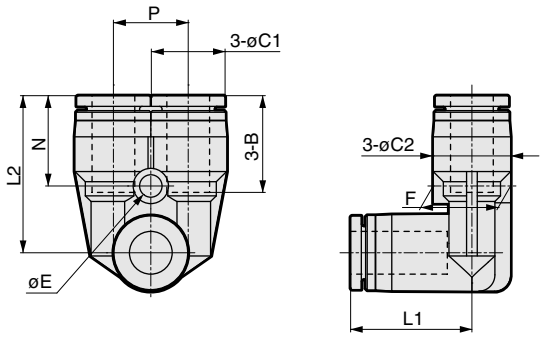
Irregular diameter union Y
● ZSP-W*-*



Model no.	Applicable tube O.D. ø		L	C1	C2	C3	C4	B1	B2	P	E	N	F	Effective sectional area mm²	Weight g
	Q1	Q2													
ZSP-W6-4	6	4	37.2	11.8	9.9	13	12.5	17	14.9	12	3.4	15.2	13.5	4.2	9.7
ZSP-W8-6	8	6	42.5	13.8	11.8	14.5	12.5	18.1	17	14	3.4	17.3	15.1	10	13
ZSP-W10-8	10	8	48.1	16.8	13.8	17.5	14.5	20.7	18.2	18	4.5	19.2	18.2	17	20
ZSP-W12-10	12	10	54.6	19.8	16.8	21	17.5	23.4	20.2	20	4.5	22	21.7	27	30

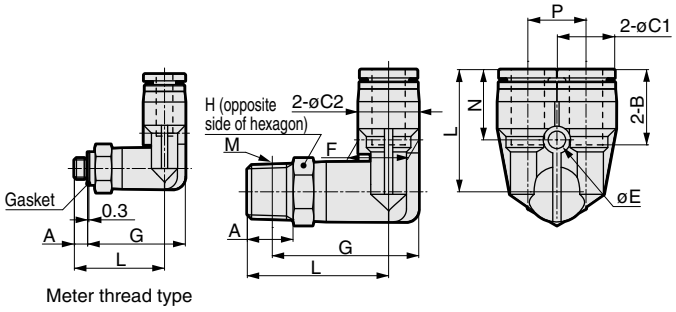
Dimensions CAD

Union A
● ZSP-AU*



Model no.	Applicable tube O.D.ø	L1	C1	C2	B	P	L2	E	N	F	Effective sectional area mm²	Weight g
ZSP-AU4	4	16.9	9.9	10	14.9	11	22.7	3.2	14.2	10	2.5	7.8
ZSP-AU6	6	19.8	11.8	12.5	17	12	26.2	4.2	15.5	12.5	7.2	11
ZSP-AU8	8	22.7	13.8	14.5	18.1	14	29.4	4.2	16.9	14.5	16.3	16
ZSP-AU10	10	25	16.8	17.5	20.2	18	33.5	4.2	18.5	17.5	27.9	26
ZSP-AU12	12	29.4	19.8	21	23.4	20	35.2	4.2	20.4	21	40	37

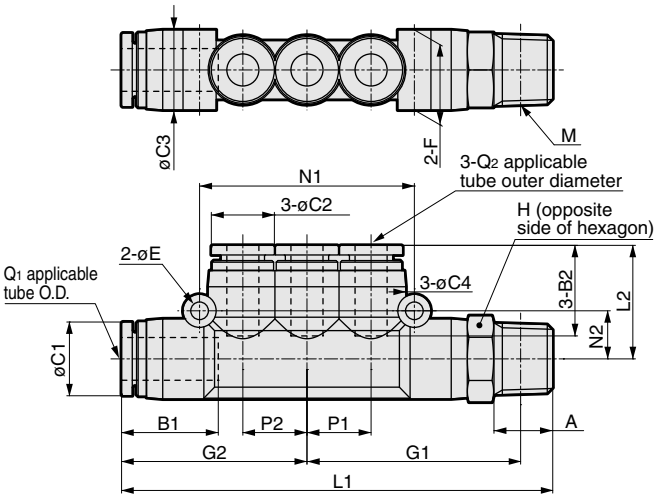
Branch elbow
● ZSP-AX*-*



Model no.	Applicable tube O.D.ø	M	A	L	G	C1	C2	B	P	L	H	E	N	F	Effective sectional area mm²	Weight g
ZSP-AX4-M5	4	M5×0.8	3.2	21.7	23.5	9.9	10	14.9	11	22.7	10	3.2	14.2	10	2.2	11
ZSP-AX4-6		R1/8	8	24.7	25.7	9.9	10	14.9	11	22.7	10	3.2	14.2	10	2.7	14
ZSP-AX4-8		R1/4	11	27.7	26.7	9.9	10	14.9	11	22.7	14	3.2	14.2	10	2.5	22
ZSP-AX6-M5	6	M5×0.8	3.2	25	28.1	11.8	12.5	17	12	26.2	12	4.2	15.5	12.5	2.2	16
ZSP-AX6-6		R1/8	8	28	30.3	11.8	12.5	17	12	26.2	12	4.2	15.5	12.5	6.9	18
ZSP-AX6-8		R1/4	11	31	31.2	11.8	12.5	17	12	26.2	14	4.2	15.5	12.5	6.6	25
ZSP-AX6-10		R3/8	12	32.8	32.7	11.8	12.5	17	12	26.2	17	4.2	15.5	12.5	6.8	37
ZSP-AX8-6	8	R1/8	8	31	34.3	13.8	14.5	18.1	14	29.4	14	4.2	16.9	14.5	14.6	23
ZSP-AX8-8		R1/4	11	34	35.2	13.8	14.5	18.1	14	29.4	14	4.2	16.9	14.5	14.5	29
ZSP-AX8-10		R3/8	12	35.8	36.7	13.8	14.5	18.1	14	29.4	17	4.2	16.9	14.5	15	40
ZSP-AX10-6	10	R1/8	8	34	38.8	16.8	17.5	20.2	18	33.5	17	4.2	18.5	17.5	15	40
ZSP-AX10-8		R1/4	11	37	39.7	16.8	17.5	20.2	18	33.5	17	4.2	18.5	17.5	26.1	42
ZSP-AX10-10		R3/8	12	38	40.4	16.8	17.5	20.2	18	33.5	17	4.2	18.5	17.5	27.2	49
ZSP-AX10-15		R1/2	15	41	41.6	16.8	17.5	20.2	18	33.5	21	4.2	18.5	17.5	29.9	69
ZSP-AX12-8	12	R1/4	11	41.2	45.7	19.8	21	23.4	20	35.2	21	4.2	20.4	21	38.2	62
ZSP-AX12-10		R3/8	12	42.2	46.4	19.8	21	23.4	20	35.2	21	4.2	20.4	21	43.1	63
ZSP-AX12-15		R1/2	15	45.2	47.5	19.8	21	23.4	20	35.2	21	4.2	20.4	21	42.1	78

Note) The L dimensions for the taper screw type are reference dimensions after tightening.

Branch triple
● ZSP-KD*-*-*

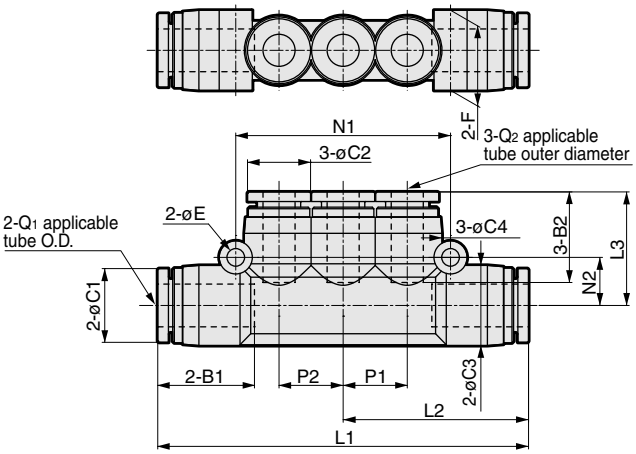


Model no.	Applicable tube O.D.ø		M	A	L1	L2	G1	G2	P1	P2	C1	C2
	Q1	Q2										
ZSP-KD6-4-6	6	4	R1/8	8	68.4	18.4	34.3	30.1	10	10	11.8	9.9
ZSP-KD8-4-8	8	4	R1/4	11	73.7	19.2	36.5	31.2	10	10	13.8	9.9
ZSP-KD8-6-8	8	6	R1/4	11	80.7	21.3	40	34.7	12	12	13.8	11.8
ZSP-KD10-8-10	10	8	R3/8	12	93	23.7	46.7	40	14	14	16.8	13.8

Model no.	C3	C4	B1	B2	N1	N2	E	H	F	Effective sectional area mm²	Weight g
ZSP-KD6-4-6	13	10	17	14.9	34	8	3.3	12	13	5	22
ZSP-KD8-4-8	15	10	18.1	14.9	34	9.2	3.3	14	15	5.2	31
ZSP-KD8-6-8	15	13	18.1	17	40.2	9	3.3	14	15	9.6	34
ZSP-KD10-8-10	17.5	15	20.7	18.1	46.2	10.5	3.3	17	17.5	19.1	55

Note) The L1 dimensions are reference dimensions after tightening.

Irregular diameter triple
● ZSP-KG*-*

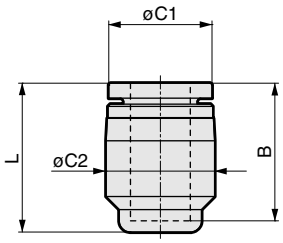


Model no.	Applicable tube O.D.ø		L1	L2	L3	P1	P2	C1	C2	C3
	Q1	Q2								
ZSP-KG6-4	6	4	60.1	30.05	18.4	10	10	11.8	9.9	13
ZSP-KG8-4	8	4	62.4	31.2	19.2	10	10	13.8	9.9	15
ZSP-KG8-6	8	6	69.4	34.7	21.3	12	12	13.8	11.8	15
ZSP-KG10-6	10	6	80	40	23.8	14	14	16.8	11.8	17.5
ZSP-KG10-8	10	8	80	40	23.7	14	14	16.8	13.8	17.5

Model no.	C4	B1	B2	N1	N2	E	2-F	Effective sectional area mm²	Weight g
ZSP-KG6-4	10	17	14.9	34	8	3.3	13	5	15
ZSP-KG8-4	10	18.1	14.9	34	9.2	3.3	15	6	19
ZSP-KG8-6	13	18.1	17	40.2	9	3.3	15	10.1	22
ZSP-KG10-6	15	20.7	17	46.2	10.5	3.3	17.5	11.2	30
ZSP-KG10-8	15	20.7	18.1	46.2	10.5	3.3	17.5	19.1	32

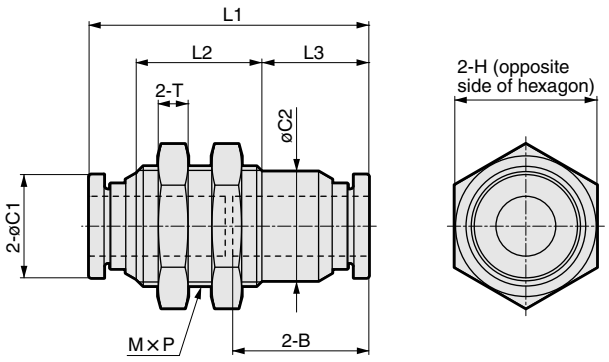
Dimensions CAD

Cap
● ZSP-PF*



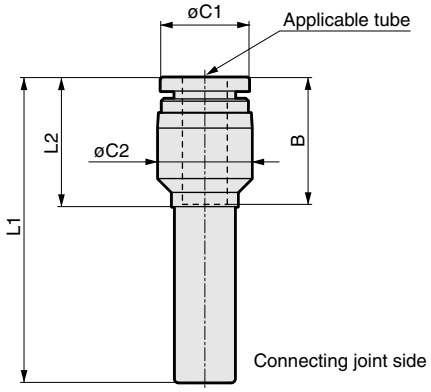
Model no.	Applicable tube O.D.ø	L	C1	C2	B	Weight g
ZSP-PF4	4	16.4	9.9	10	14.9	2.2
ZSP-PF6	6	18.5	11.8	12.5	17	3.1
ZSP-PF8	8	19.9	13.8	14.5	18.4	4.4
ZSP-PF10	10	22.3	16.8	17.5	20.7	7.3
ZSP-PF12	12	24.9	19.8	21	22.9	11

Barrier union
● ZSP-M*



Model no.	Applicable tube O.D.ø	M×P	L1	L3	L2	C1	C2	B	H	T	Effective sectional area mm²	Weight g
ZSP-M4	4	M12x1	30.8	10.4	15	9.9	10.8	14.9	14	4	5.3	16
ZSP-M6	6	M14x1	34.9	11	18	11.8	12.5	17	17	4	12.5	24
ZSP-M8	8	M16x1	37.4	14.3	16.8	13.8	14.6	18.2	19	4	20	30
ZSP-M10	10	M20x1	42.4	12.7	23	16.8	18.5	20.7	24	5	35	56
ZSP-M12	12	M22x1	47.6	12.3	29	19.8	20.4	23.3	27	6	71	81

Reducer
● ZSP-J*-*



Model no.	Applicable tube O.D.ø	Connecting joint diameter ø	L1	L2	C1	C2	B	Effective sectional area mm²	Weight g
ZSP-J4-6	6	4	38.8	19.8	11.8	12.5	17	4	3.5
ZSP-J6-4	4	6	37.7	15.2	9.9	10	14.9	5	2.9
ZSP-J8-4	4	8	40.2	16.7	9.9	12.5	14.9	4.5	3.8
ZSP-J8-6	6	8	40.8	17.3	11.8	12.5	17	11.5	4
ZSP-J10-4	4	10	42.2	17.2	9.9	12.5	14.9	4.5	4.3
ZSP-J10-6	6	10	43.8	18.8	11.8	12.5	17	11.5	4.5
ZSP-J10-8	8	10	43.7	18.7	13.8	14.5	18.1	22.5	5.8
ZSP-J12-6	6	12	48.8	19.8	11.8	14.5	17	10.5	6
ZSP-J12-8	8	12	49.7	20.7	13.8	14.5	18.1	23	6.7
ZSP-J12-10	10	12	50	21	16.8	17.5	20.2	31.5	9.6

ZW Joint Stainless steel Series

Port size M5 to R1/2

Single straight
ZW-S*-*

Applicable tube O.D.ø
4
6
8
10
12

• Page : 962

Single elbow
ZW-L*-*

Applicable tube O.D.ø
4
6
8
10
12

• Page : 962

Elbow
ZW-L*-0

Applicable tube O.D.ø
4
6
8
10
12

• Page : 962

Union Tee
ZW-T*-0

Applicable tube O.D.ø
4
6
8
10
12

• Page : 962

Straight
ZW-S*-0

Applicable tube O.D.ø
4
6
8
10
12

• Page : 962

• Sales unit is 1 piece per bag.

Frame resistant resin & stainless steel Joint ZW series

High efficient, clean-feeling white body

Port size: M5 to R1/2

Applicable bore size: ø4 to ø12

- Compact size saves space.
- Smooth insertion and accurate sealing.
- Flame-resistant resin incorporated for white body and push ring. (Equivalent to UL94 standards V-O)
- Stainless steel incorporated for all metal parts.

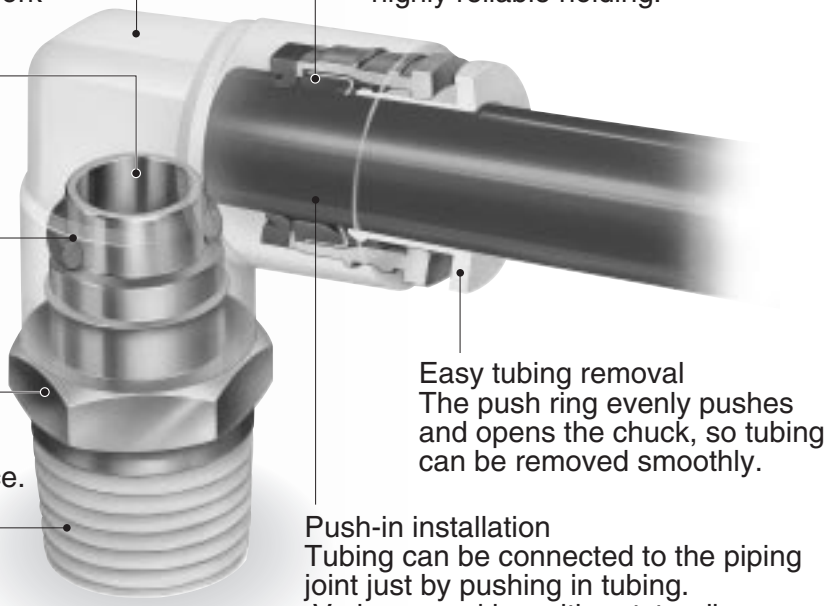
White flame-resistant resin body
Flame-resistant PBT (UL94 Standards V-0 or equivalent) used as standard for a white body blending in with any work environment.

Full flow rate
By eliminating sections narrower than the tubing's bore, a flow equivalent to the tubing's bore can be passed.

Easy piping work
The section of the pipe connected with the body rotates freely, so piping removal can be set freely.

Standard stainless steel
As a standard, all metal parts are made of stainless steel to increase corrosion resistance and appearance.

Sealing agent applied on threads
Teflon resin is coated on threads, eliminating the need to wind sealing tape.
The even seal prevents leaks, etc.



Secure tubing holding
Chuck fitting acts in the direction that the tubing dislocates, ensuring highly reliable holding.

Easy tubing removal
The push ring evenly pushes and opens the chuck, so tubing can be removed smoothly.

Push-in installation
Tubing can be connected to the piping joint just by pushing in tubing.
V-shape packing with outstanding accuracy is used for the seal.

ZW Series

Flame resistant resin & stainless steel Joint

CKD

Joint Stainless steel series

ZW Series

- Port size: M5 to R1/2
- Applicable tube: ø4 to ø12

RoHS

Specifications

Descriptions	ZW
Working fluid	Compressed air
Max. working pressure MPa	1.0
Negative pressure kPa	-100 Note2
Working temperature ˚C	-10 to 60 (no freezing)
Applicable tube	Soft nylon tube (F-15**)
	Urethane tube (U-92**,U-95**,NU-**)Note1

Note 1: Refer to page 1008 for tube dimensions, ambient temperature and working pressure.
Note 2: Use an insert ring when using urethane tubing (U-92**, U-95**, NU-**) under vacuum pressure.
(This is a customized order. Contact CKD for details.)

How to order

* Refer to model no. sections on dimensions page (page 962) for combination of model no.

ZW - L 6 - 8 - ( )
A B C D

A Shape	
S	Straight
L	Elbow
T	Union Tee

B Applicable tube O.D.	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12

C Port size	
M5	M5×0.8
6	R1/8
8	R1/4
10	R3/8
15	R1/2
0	No thread

D Option	
Blank	None
P11	Ozone proof

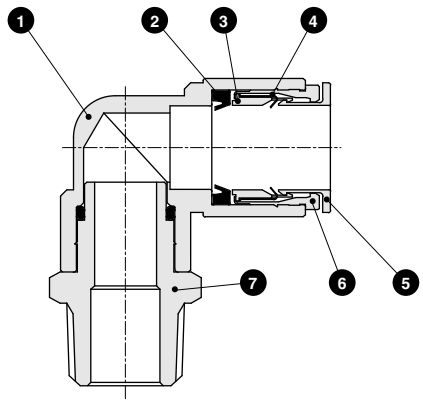
* Consult with CKD for other models.

Note: Sales unit is 1 piece per bag.

Clean room specifications (catalog No. CB-033SA)

ZW–·····–P80

Internal structure and main parts list



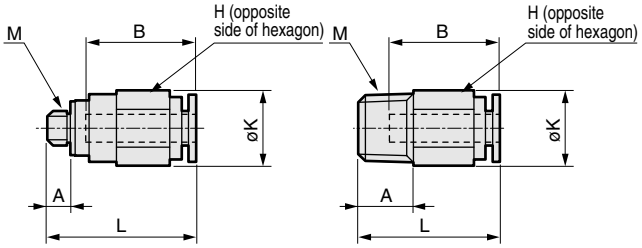
No.	Parts name	Material
1	Body *1	Stainless steel (SUS304)
		PBT (flame resistance resin *2)
2	Packing seal	Nitrile rubber
3	Chuck holder	Polyacetal
4	Chuck	Stainless steel (SUS301)
5	Push ring	PBT (flame resistance resin *2)
6	Outer ring	Stainless steel (SUS304)
7	Drive nipple	Stainless steel (SUS304)

*1: The single-ended straight body is stainless steel (SUS304).
*2: Equivalent to UL94 standards V-O
Note: For the stainless steel series, the (5) push ring color is identified with pure white.

Dimensions

Single straight

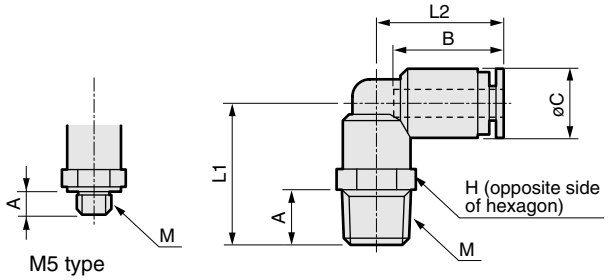
● ZW-S*-*



Model no.	Applicable tube O.D.ø	M	H	K	L	A	B	Min. bore size	Effective sectional area mm²
ZW-S 4-M5	4	M5×0.8	10	11	21.5	4	16	2.5	4
ZW-S 4- 6		R1/8	10	11	20.5	8	16	2.5	4
ZW-S 4- 8		R1/4	14	15	19.5	11	16	2.5	4
ZW-S 6-M5	6	M5×0.8	12	13	23	4	17.5	2.5	4.4
ZW-S 6- 6		R1/8	12	13	23	8	17.5	4	10.3
ZW-S 6- 8		R1/4	14	15	23.5	11	17.5	4	10.3
ZW-S 6-10		R3/8	17	19.6	21.5	12	17.5	4	10.3
ZW-S 8- 6	8	R1/8	14	15.8	28	8	19	5	17.5
ZW-S 8- 8		R1/4	14	15.8	27	11	19	6	22.4
ZW-S 8-10		R3/8	17	19.6	22.5	12	19	6	22.4
ZW-S10- 8	10	R1/4	17	19.6	32.5	11	21.5	8	30.5
ZW-S10-10		R3/8	17	19.6	28.5	12	21.5	8	30.5
ZW-S10-15		R1/2	22	24	26.5	15	21.5	8	30.5
ZW-S12-10	12	R3/8	19	21	30.5	12	23	10	40
ZW-S12-15		R1/2	22	24	29.5	15	23	10	40

Single elbow

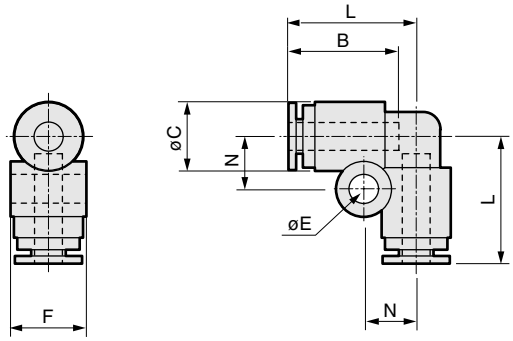
● ZW-L*-*



Model no.	Applicable tube O.D.ø	M	H	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
ZW-L 4-M5	4	M5×0.8	8	15	18	4	16	10	2.5	3.2
ZW-L 4- 6		R1/8	10	20.5	18.5	8	16	10	2.5	3.2
ZW-L 4- 8		R1/4	14	24	18.5	11	16	10	2.5	3.2
ZW-L 6-M5	6	M5×0.8	10	15	20	4	17.5	12.5	2.5	4.2
ZW-L 6- 6		R1/8	12	24	21	8	17.5	12.5	4	8
ZW-L 6- 8		R1/4	14	27.5	21	11	17.5	12.5	4	8
ZW-L 6-10		R3/8	17	29	21	12	17.5	12.5	4	8
ZW-L 8- 6	8	R1/8	14	25.5	23.5	8	19	14.5	6	18
ZW-L 8- 8		R1/4	14	28.5	23.5	11	19	14.5	6	18
ZW-L 8-10		R3/8	17	30	23.5	12	19	14.5	6	18
ZW-L10- 8	10	R1/4	17	31	27	11	21.5	17.5	8	27
ZW-L10-10		R3/8	17	32.5	27	12	21.5	17.5	8	27
ZW-L10-15		R1/2	22	35.5	27	15	21.5	17.5	8	27
ZW-L12-10	12	R3/8	19	34.5	29.5	12	23	20	9	35
ZW-L12-15		R1/2	22	37.5	29.5	15	23	20	9	35.5

Elbow

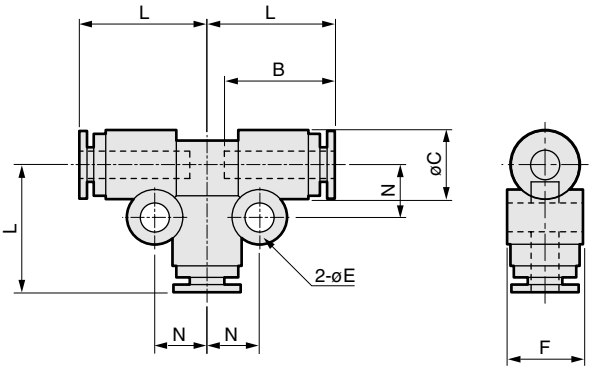
● ZW-L*-*-0



Model no.	Applicable tube O.D.ø	L	B	C	N	E	F	Min. bore size	Effective sectional area mm²
ZW-L 4-0	4	18.5	16	10	7.5	4.2	11	2.5	3
ZW-L 6-0	6	21	17.5	12.5	8.5	4.2	13.5	4	7.5
ZW-L 8-0	8	23.5	19	14.5	9.5	4.2	15.5	6	17
ZW-L10-0	10	27	21.5	17.5	11	4.2	18.5	8	25.5
ZW-L12-0	12	29.5	23	20	12	4.2	21	10	34

Union Tee

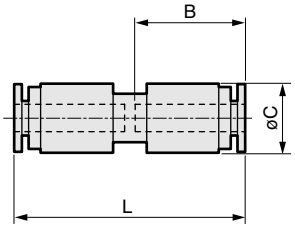
● ZW-T*-0



Model no.	Applicable tube O.D.ø	L	B	C	E	F	N	Min. bore size	Effective sectional area mm²
ZW-T 4-0	4	18.5	16	10	4.2	11	7.5	2.5	3.6
ZW-T 6-0	6	21	17.5	12.5	4.2	13.5	8.5	4	9.7
ZW-T 8-0	8	23.5	19	14.5	4.2	15.5	9.5	6	22
ZW-T10-0	10	27	21.5	17.5	4.2	18.5	11	8	30
ZW-T12-0	12	29.5	23	20	4.2	21	12	10	35.5

Straight

● ZW-S*-0



Model no.	Applicable tube O.D.ø	L	B	C	Min. bore size	Effective sectional area mm²
ZW-S 4-0	4	33.5	16	10	2.5	4
ZW-S 6-0	6	36.5	17.5	12.5	4	10
ZW-S 8-0	8	39.5	19	14.5	6	22
ZW-S10-0	10	45	21.5	17.5	8	30
ZW-S12-0	12	47.5	23	20	10	35

ZJ

Female joint Stainless steel Series

Port size R1/8 to R1/2

Single straight
ZJ-S*-*

Applicable tube O.D.ø
4
6
8
10
12

• Page : 966

Single elbow
ZJ-L*-*

Applicable tube O.D.ø
4
6
8
10
12

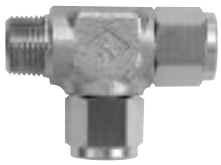
• Page : 966

Both push-in branch
ZJ-T*-*

Applicable tube O.D.ø
4
6
8
10
12

• Page : 967

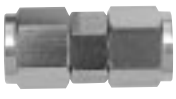
D type union Tee
ZJ-T*-*-D



Applicable tube O.D.ø
4
6
8
10
12

• Page : 967

Straight
ZJ-S*-0



Applicable tube O.D.ø
4
6
8
10
12

• Page : 968

Union Tee
ZJ-T*-0

Applicable tube O.D.ø
4
6
8
10
12

• Page : 968

Sleeve integrated nut
ZJ-N*

Applicable tube O.D.ø
4
6
8
10
12

• Page : 968

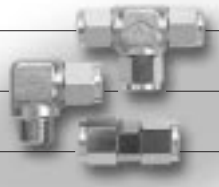
• Sales unit is 1 piece per bag.

Stainless steel, tightening type Female joint ZJ Series

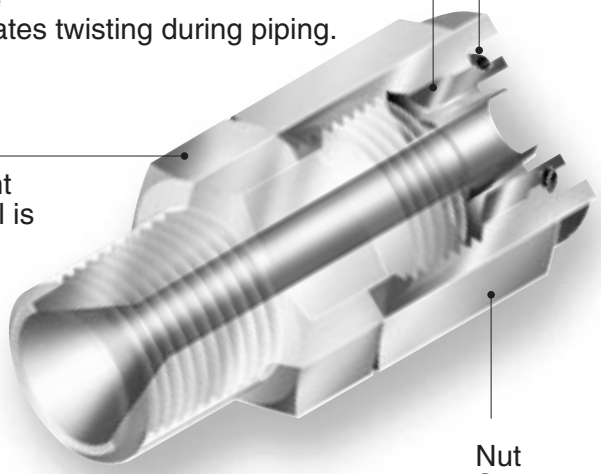
High sealing performance; repeated use possible.

Port size: R1/8 to R1/2

Applicable bore size: ø4 to ø12



- Easy Fit mechanism (integrated nut and sleeve) improves work efficiency.
- Original sleeve eliminates tubing twisting during piping.
- Sleeve need not be replaced even when using repeatedly.
- Smooth inner bore surface.
- Ample size variations fit various tubing.
- All oil is washed and removed.



Stainless steel, tightening type female joint

ZJ Series

CKD

Female joint Stainless steel series

ZJ Series

- Port size: R1/8 to R1/2
- Applicable tube: ø4 to ø12

RoHS

Specifications

Descriptions	Descriptions
Working fluid	Compressed air, inert gas
Working pressure MPa	1.0 or less
Negative pressure kPa	-100
Working temperature ˚C	-10 to 60
Applicable tube Note1	Urethane tube (U-92**,U-95**,NU-**)
	Eco-flex tube (ecos-*×*,ecoh-*×*)

Note1: Refer to page 1008 for details on tube.

How to order

* Refer to model no. sections on dimensions page for combination of model no.

ZJ - T 06 04 - O - D
(A) (B) (C) (D) (E)

A Shape	
S	Straight
L	Elbow
T	Union Tee
N	Sleeve integrated nut

B Applicable tube O.D.	
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

C Applicable tube bore size	
25	ø2.5
04	ø4
05	ø5
06	ø6
65	ø6.5
75	ø7.5
08	ø8
09	ø9
10	ø10

D Port size	
6	R1/8
8	R1/4
10	R3/8
15	R1/2
0	Without screw

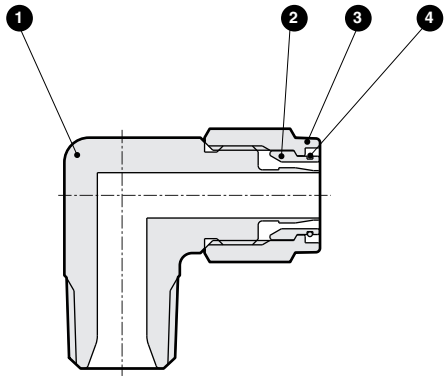
E Other combinations	
D	D type

Note:Sales unit is 1 piece per bag.

Clean room specifications (catalog No. CB-033SA)

ZJ—·····— P90

Internal structure and main parts list

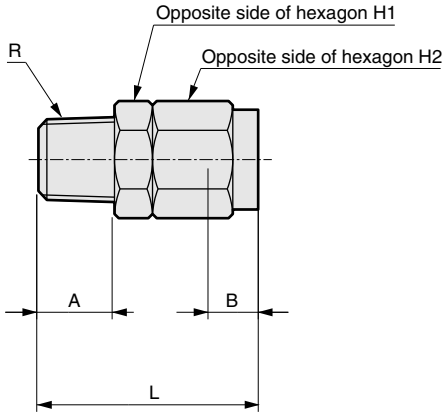


No.	Parts name	Material
1	Body	Stainless steel (SUS316)
2	Sleeve	Stainless steel (SUS316)
3	Nut	Stainless steel (SUS316) (electroless nickeling treatment)
4	Stop ring	Stainless steel (SUS304)

Dimensions

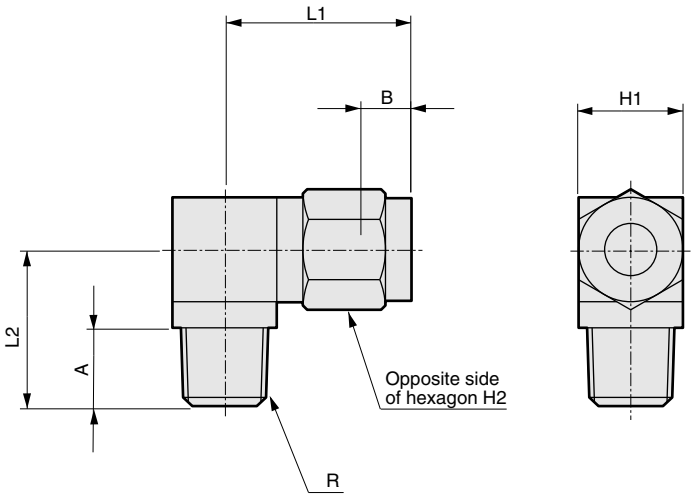
Single straight

● ZJ-S**-*



Single elbow

● ZJ-L**-*



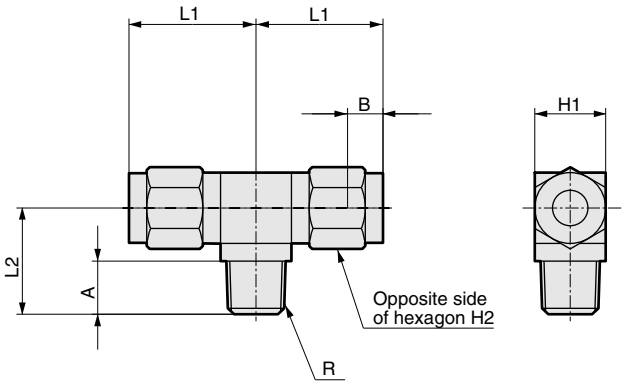
Model no.	Applicable tube O.D.ø	R	L	A	B	Min. bore size	H1	H2
ZJ-S0425- 6	4	1/8	24	9	6	1.9	10	10
ZJ-S0425- 8		1/4	26	11	6	1.9	14	10
ZJ-S0604- 6	6	1/8	26	9	7	3.4	12	12
ZJ-S0604- 8		1/4	28.5	11	7	3.4	14	12
ZJ-S0604-10		3/8	30	12	7	3.4	17	12
ZJ-S0805- 6	8	1/8	28	9	7.5	4.4	14	14
ZJ-S0806- 6		1/8	28	9	7.5	5.4	14	14
ZJ-S0805- 8		1/4	30	11	7.5	4.4	14	14
ZJ-S0806- 8		1/4	30	11	7.5	5.4	14	14
ZJ-S0805-10		3/8	31	12	7.5	4.4	17	14
ZJ-S0806-10		3/8	31	12	7.5	5.4	17	14
ZJ-S1065- 8	10	1/4	32	11	8	5.9	17	17
ZJ-S1075- 8		1/4	32	11	8	6.9	17	17
ZJ-S1008- 8		1/4	32	11	8	7.4	17	17
ZJ-S1065-10		3/8	33	12	8	5.9	17	17
ZJ-S1075-10		3/8	33	12	8	6.9	17	17
ZJ-S1008-10		3/8	33	12	8	7.4	17	17
ZJ-S1065-15		1/2	36	15	8	5.9	22	17
ZJ-S1075-15		1/2	36	15	8	6.9	22	17
ZJ-S1008-15		1/2	36	15	8	7.4	22	17
ZJ-S1208- 8	12	1/4	34	11	9.5	7.2	17	19
ZJ-S1209- 8		1/4	34	11	9.5	7.9	17	19
ZJ-S1210- 8		1/4	34	11	9.5	7.9	17	19
ZJ-S1208-10		3/8	35	12	9.5	7.2	17	19
ZJ-S1209-10		3/8	35	12	9.5	8.2	17	19
ZJ-S1210-10		3/8	35	12	9.5	9.2	17	19
ZJ-S1208-15		1/2	38	15	9.5	7.2	22	19
ZJ-S1209-15		1/2	38	15	9.5	8.2	22	19
ZJ-S1210-15		1/2	38	15	9.5	9.2	22	19

Model no.	Applicable tube O.D.ø	R	L1	L2	A	B	Min. bore size	H1	H2
ZJ-L0425- 6	4	1/8	20	18	9	6	1.9	12	10
ZJ-L0425- 8		1/4	21	21	11	6	1.9	14	10
ZJ-L0604- 6	6	1/8	21.5	18	9	7	3.4	12	12
ZJ-L0604- 8		1/4	22.5	21	11	7	3.4	14	12
ZJ-L0604-10		3/8	23.5	23	12	7	3.4	17	12
ZJ-L0805- 6	8	1/8	24	19	9	7.5	4.4	14	14
ZJ-L0806- 6		1/8	24	19	9	7.5	5.4	14	14
ZJ-L0805- 8		1/4	24	21	11	7.5	4.4	14	14
ZJ-L0806- 8		1/4	24	21	11	7.5	5.4	14	14
ZJ-L0805-10		3/8	25	23	12	7.5	4.4	17	14
ZJ-L0806-10		3/8	25	23	12	7.5	5.4	17	14
ZJ-L1065- 8	10	1/4	26.5	22	11	8	5.9	17	17
ZJ-L1075- 8		1/4	26.5	22	11	8	6.9	17	17
ZJ-L1008- 8		1/4	26.5	22	11	8	7.4	17	17
ZJ-L1065-10		3/8	26.5	23	12	8	5.9	17	17
ZJ-L1075-10		3/8	26.5	23	12	8	6.9	17	17
ZJ-L1008-10		3/8	26.5	23	12	8	7.4	17	17
ZJ-L1065-15		1/2	28.5	29	15	8	5.9	22	17
ZJ-L1075-15		1/2	28.5	29	15	8	6.9	22	17
ZJ-L1008-15		1/2	28.5	29	15	8	7.4	22	17
ZJ-L1208- 8	12	1/4	27.5	23	11	9.5	7.2	17	19
ZJ-L1209- 8		1/4	27.5	23	11	9.5	7.9	17	19
ZJ-S1210- 8		1/4	27.5	23	11	9.5	7.9	17	19
ZJ-L1208-10		3/8	30	27	12	9.5	7.2	22	19
ZJ-L1209-10		3/8	30	27	12	9.5	8.2	22	19
ZJ-L1210-10		3/8	30	27	12	9.5	9.2	22	19
ZJ-L1208-15		1/2	30	30	15	9.5	7.2	22	19
ZJ-L1209-15		1/2	30	30	15	9.5	8.2	22	19
ZJ-L1210-15		1/2	30	30	15	9.5	9.2	22	19

Dimensions

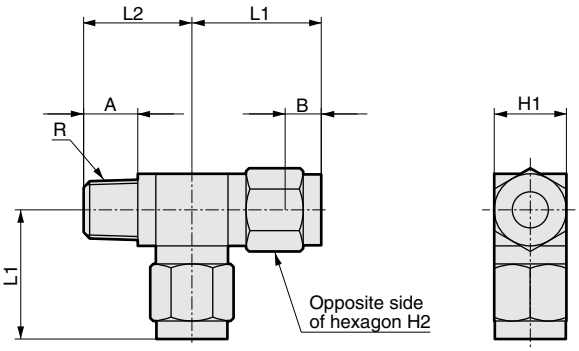
Both push-in branch

● ZJ-T**-*



D type union Tee

● ZJ-T**-*-D



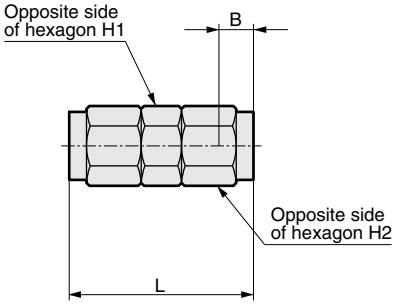
Model no.	Applicable tube O.D.ø	R	L1	L2	A	B	Min. bore size	H1	H2
ZJ-T0425- 6	4	1/8	20	18	9	6	1.9	12	10
ZJ-T0425- 8		1/4	21	21	11	6	1.9	14	10
ZJ-T0604- 6	6	1/8	21.5	18	9	7	3.4	12	12
ZJ-T0604- 8		1/4	22.5	21	11	7	3.4	14	12
ZJ-T0604-10		3/8	23.5	23	12	7	3.4	17	12
ZJ-T0805- 6	8	1/8	23.5	19	9	7.5	4.4	14	14
ZJ-T0806- 6		1/8	23.5	19	9	7.5	5.4	14	14
ZJ-T0805- 8		1/4	23.5	21	11	7.5	4.4	14	14
ZJ-T0806- 8		1/4	23.5	21	11	7.5	5.4	14	14
ZJ-T0805-10		3/8	25	23	12	7.5	4.4	17	14
ZJ-T0806-10		3/8	25	23	12	7.5	5.4	17	14
ZJ-T1065- 8	10	1/4	28.5	25	11	8	5.9	22	17
ZJ-T1075- 8		1/4	28.5	25	11	8	6.9	22	17
ZJ-T1008- 8		1/4	28.5	25	11	8	7.4	22	17
ZJ-T1065-10		3/8	28.5	26	12	8	5.9	22	17
ZJ-T1075-10		3/8	28.5	26	12	8	6.9	22	17
ZJ-T1008-10		3/8	28.5	26	12	8	7.4	22	17
ZJ-T1065-15		1/2	28.5	29	15	8	5.9	22	17
ZJ-T1075-15		1/2	28.5	29	15	8	6.9	22	17
ZJ-T1008-15		1/2	28.5	29	15	8	7.4	22	17
ZJ-T1208- 8	12	1/4	30	26	11	9.5	7.2	22	19
ZJ-T1209- 8		1/4	30	26	11	9.5	7.9	22	19
ZJ-T1210- 8		1/4	30	26	11	9.5	7.9	22	19
ZJ-T1208-10		3/8	30	27	12	9.5	7.2	22	19
ZJ-T1209-10		3/8	30	27	12	9.5	8.2	22	19
ZJ-T1210-10		3/8	30	27	12	9.5	9.2	22	19
ZJ-T1208-15		1/2	30	30	15	9.5	7.2	22	19
ZJ-T1209-15		1/2	30	30	15	9.5	8.2	22	19
ZJ-T1210-15		1/2	30	30	15	9.5	9.2	22	19

Model no.	Applicable tube O.D.ø	R	L1	L2	A	B	Min. bore size	H1	H2
ZJ-T0425- 6-D	4	1/8	20	18	9	6	1.9	12	10
ZJ-T0425- 8-D		1/4	21	21	11	6	1.9	14	10
ZJ-T0604- 6-D	6	1/8	21.5	18	9	7	3.4	12	12
ZJ-T0604- 8-D		1/4	22.5	21	11	7	3.4	14	12
ZJ-T0604-10-D		3/8	23.5	23	12	7	3.4	17	12
ZJ-T0805- 6-D	8	1/8	23.5	19	9	7.5	4.4	14	14
ZJ-T0806- 6-D		1/8	23.5	19	9	7.5	5.4	14	14
ZJ-T0805- 8-D		1/4	23.5	21	11	7.5	4.4	14	14
ZJ-T0806- 8-D		1/4	23.5	21	11	7.5	5.4	14	14
ZJ-T0805-10-D		3/8	25	23	12	7.5	4.4	17	14
ZJ-T0806-10-D		3/8	25	23	12	7.5	5.4	17	14
ZJ-T1065- 8-D	10	1/4	28.5	25	11	8	5.9	22	17
ZJ-T1075- 8-D		1/4	28.5	25	11	8	6.9	22	17
ZJ-T1008- 8-D		1/4	28.5	25	11	8	7.4	22	17
ZJ-T1065-10-D		3/8	28.5	26	12	8	5.9	22	17
ZJ-T1075-10-D		3/8	28.5	26	12	8	6.9	22	17
ZJ-T1008-10-D		3/8	28.5	26	12	8	7.4	22	17
ZJ-T1065-15-D		1/2	28.5	29	15	8	5.9	22	17
ZJ-T1075-15-D		1/2	28.5	29	15	8	6.9	22	17
ZJ-T1008-15-D		1/2	28.5	29	15	8	7.4	22	17
ZJ-T1208- 8-D	12	1/4	30	26	11	9.5	7.2	22	19
ZJ-T1209- 8-D		1/4	30	26	11	9.5	7.9	22	19
ZJ-T1210- 8-D		1/4	30	26	11	9.5	7.9	22	19
ZJ-T1208-10-D		3/8	30	27	12	9.5	7.2	22	19
ZJ-T1209-10-D		3/8	30	27	12	9.5	8.2	22	19
ZJ-T1210-10-D		3/8	30	27	12	9.5	9.2	22	19
ZJ-T1208-15-D		1/2	30	30	15	9.5	7.2	22	19
ZJ-T1209-15-D		1/2	30	30	15	9.5	8.2	22	19
ZJ-T1210-15-D		1/2	30	30	15	9.5	9.2	22	19

Dimensions

Straight

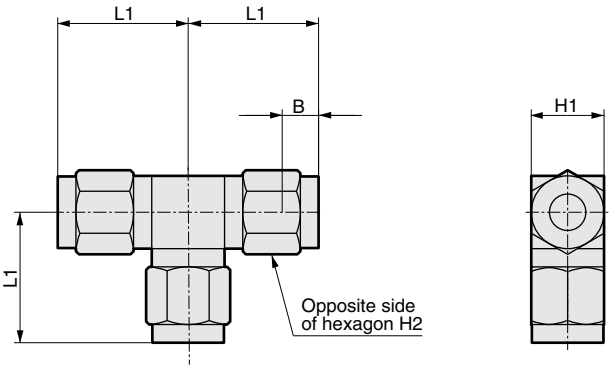
● ZJ-S**-0



Model no.	Applicable tube O.D.ø	L	B	Min. bore size	H1	H2
ZJ-S0425-0	4	28	6	1.9	10	10
ZJ-S0604-0	6	32	7	3.2	12	12
ZJ-S0805-0	8	36	7.5	4.2	14	14
ZJ-S0806-0		36	7.5	5.2	14	14
ZJ-S1065-0	10	40	8	5.9	17	17
ZJ-S1075-0		40	8	6.9	17	17
ZJ-S1008-0		40	8	7.4	17	17
ZJ-S1208-0	12	44	9.5	7.2	17	19
ZJ-S1209-0		44	9.5	8.2	17	19
ZJ-S1210-0		44	9.5	9.2	17	19

Union Tee

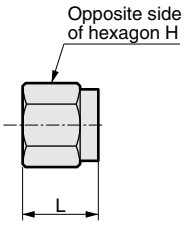
● ZJ-T**-0



Model no.	Applicable tube O.D.ø	L1	B	Min. bore size	H1	H2
ZJ-T0425-0	4	20	6	1.9	12	10
ZJ-T0604-0	6	21.5	7	3.4	12	12
ZJ-T0805-0	8	23.5	7.5	4.4	14	14
ZJ-T0806-0		28.5	7.5	5.4	14	14
ZJ-T1065-0	10	28.5	8	5.9	22	17
ZJ-T1075-0		28.5	8	6.9	22	17
ZJ-T1008-0		28.5	8	7.4	22	17
ZJ-T1208-0	12	30	9.5	7.2	22	19
ZJ-T1209-0		30	9.5	8.2	22	19
ZJ-T1210-0		30	9.5	9.2	22	19

Sleeve integrated nut

● ZJ-N*



Model no.	Applicable tube O.D.ø	L	H2
ZJ-N04	ø4	11	10
ZJ-N06	ø6	12.5	12
ZJ-N08	ø8	14	14
ZJ-N10	ø10	15.5	17
ZJ-N12	ø12	17	19

MJ.JL

Female joint / joint

Port size 1/8 to 1/2 (Rc or R)

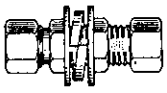
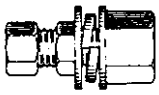
CAD

● Stable and secure piping due to double chuck. This is an excellent tightening joint with high reliability.

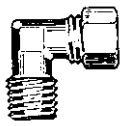
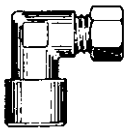
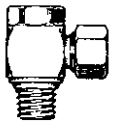
AOI Co, Ltd.

Female joint MJ Series

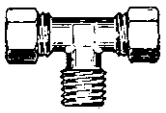
■ Straight type

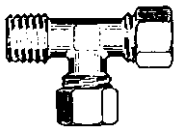
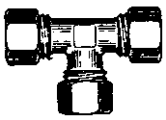
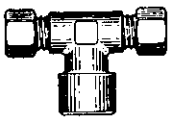
Single straight MJS*-*	Straight MJS*-0	Female, straight MJS*-*-M	Bulk head MJS*-0-X	Bulk head female MJS*-*-E
				
Applicable tube O.D.ø: 4, 6, 8, 10, 12, 15	Applicable tube O.D.ø: 4, 6, 8, 10, 12, 15	Applicable tube O.D.ø: 4, 6, 8, 10, 12, 15	Applicable tube O.D.ø: 4, 6, 8, 10, 12, 15	Applicable tube O.D.ø: 4, 6, 8, 10
• Page : 971	• Page : 971	• Page : 971	• Page : 971	• Page : 972

■ Elbow type

Single elbow MJL*-*	Elbow MJL*-0	Female, elbow MJL*-*-M	Turn elbow MJL*-*-T
			
Applicable tube O.D.ø: 4, 6, 8, 10, 12, 15	Applicable tube O.D.ø: 4, 6, 8, 10, 12, 15	Applicable tube O.D.ø: 4, 6, 8, 10, 12	Applicable tube O.D.ø: 4, 6, 8, 10, 12, 15
• Page : 972	• Page : 972	• Page : 972	• Page : 973

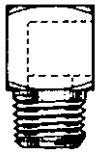
■ Tee union type

Both push-in branch MJT*-*

Applicable tube O.D.ø: 4, 6, 8, 10, 12, 15
• Page : 973

D type union Tee MJT*-*-D	Union Tee MJT*-0	Female, union Tee MJT*-*-M	Sleeve MJN*-0	Insert ring MJU*-0
				
Applicable tube O.D.ø: 4, 6, 8, 10, 12, 15	Applicable tube O.D.ø: 4, 6, 8, 10, 12, 15	Applicable tube O.D.ø: 4, 6, 8, 10, 12	Applicable tube O.D.ø: 4, 6, 8, 10, 12, 15	Applicable tube O.D.ø: 4, 6, 8, 10, 12
• Page : 973	• Page : 973	• Page : 974	• Page : 974	• Page : 974

Joint

Elbow/JL



Port size R,Rc
1/8
1/4
3/8
1/2

• Page : 975

●Sales unit is 10 pieces/1 bag.

Specifications

Descriptions	MJ
Working fluid	Compressed air
Max. working pressure MPa	1.0
Working temperature °C	-10 to 60 (no freezing)
Applicable tube	Soft nylon tube (F-15**), Urethane tube (U-95**) Note Coiling tube (KX-12**)

Note: Refer to page 1008 for tube dimensions, ambient temperature and working pressure.

How to order

MJ S 4 – 6 – M

* Refer to model no. sections on dimensions page (pages 971 to 974) for combination of model no.

Ⓐ Shape

Ⓐ Shape	
S	Straight
L	Elbow
T	Union Tee
N	Sleep
U	Insert ring

Ⓑ Applicable tube O.D.

Ⓑ Applicable tube O.D.	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12
15	ø15

Ⓒ Port size

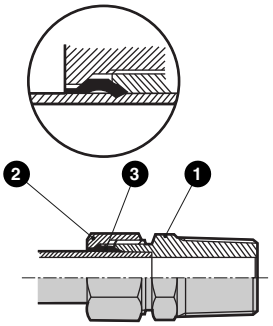
Ⓒ Port size	
6	R1/8
8	R1/4
10	R3/8
15	R1/2
0	Without screw

Ⓓ Other combinations

Ⓓ Other combinations	
D	D type
E	Bulk head female
M	Female
T	Turn
X	Bulk head

Note: Sales unit is 10 pieces /1 bag.

Internal structure and parts list

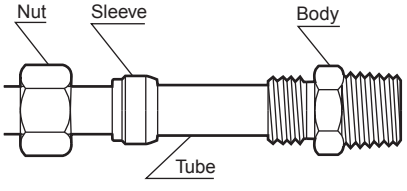


No.	Parts name	Material
1	Body	Brass
2	Nut	Brass
3	Sleep	Brass

Safety Precautions

- If urethane or soft nylon tube is used in high working temperature, use insert ring (Refer to page 974). If an insert ring is not used, tube may come off from a joint.
- For copper tube, use a tube with class 1/2H (heat treatment) or less and tube wall thickness 1mm or less.
- If a tube is used where a tube mo ves frequently, troubles may occur. So, avoid use in such place.

Mounting and removal



(1) Couple the nut and sleeve plastic tube or cupper tube as shown in the figure, insert the tube until hitting the joint (tube end), then tighten the nut by hand.

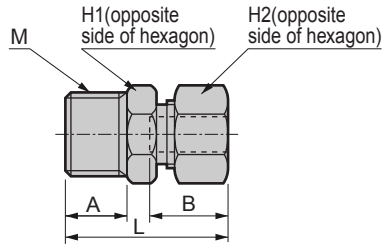
(2) Tighten the nut by spanner, etc. Applicable tightening turn is 1 3/4 for plastic tube, while 1 1/4 to 1 1/2 for copper tube (1/2H and wall thickness 1mm).

(3) Cut tube as right angle as possible, please eliminate burr and foreign matter, etc.

(4) For temporally tightening, turn should be 1/4 turn less than applicable tightening turn, while to tighten securely, tighten 1/4 turn more. For retightening, also 1/4 turn more.

Dimensions: Single straight, straight, female straight, bulk head

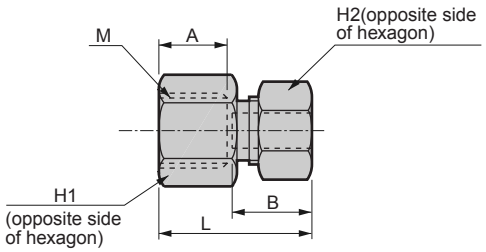
● Single straight MJS*-*



* L and B dimensions show rough dimensions before fixing nut.

Model no.	Applicable tube O.D.ø	M	H1	H2	L	A	B	Min. bore size	Effective sectional area (mm²)
MJS4-6	4	R1/8	10	10	22.5	8	11	3	4.1
MJS4-8	4	R1/4	14	10	26	11	11	3	3.9
MJS6-6	6	R1/8	10	12	23.5	8	11.5	4.5	7.9
MJS6-8	6	R1/4	14	12	27	11	11.5	4.5	7.8
MJS6-10	6	R3/8	17	12	28.5	12	11.5	4.5	7.9
MJS8-6	8	R1/8	12	14	25.5	8	13	6	19.5
MJS8-8	8	R1/4	14	14	28.5	11	13	6	20.1
MJS8-10	8	R3/8	17	14	30	12	13	6	19.5
MJS10-8	10	R1/4	14	17	30.5	11	14.5	8	36.1
MJS10-10	10	R3/8	17	17	31.5	12	14.5	8	36.1
MJS10-15	10	R1/2	22	17	34.5	15	14.5	8	36.1
MJS12-8	12	R1/4	16	19	32	11	16	9	57.8
MJS12-10	12	R3/8	17	19	33	12	16	10	55.5
MJS12-15	12	R1/2	22	19	36	15	16	10	57.8
MJS15-10	15	R3/8	20	23	37	12	19	12	113.3
MJS15-15	15	R1/2	23	23	40	15	19	12	115.2

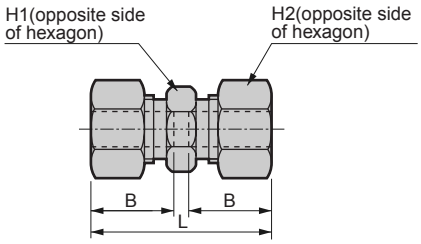
● Female, straight MJS*-*-M



* L and B dimensions show rough dimensions before fixing nut.

Model no.	Applicable tube O.D.ø	M	H1	H2	L	A	B	Min. bore size	Effective sectional area (mm²)
MJS4-6-M	4	Rc1/8	13	10	20	8	11	3	4.0
MJS4-8-M	4	Rc1/4	17	10	23	11	11	3	4.8
MJS6-6-M	6	Rc1/8	13	12	21	8	11.5	4.5	8.1
MJS6-8-M	6	Rc1/4	17	12	24	11	11.5	4.5	8.6
MJS6-10-M	6	Rc3/8	20	12	25	12	11.5	4.5	14.4
MJS8-6-M	8	Rc1/8	13	14	22.5	8	13	6	15.1
MJS8-8-M	8	Rc1/4	17	14	25.5	11	13	6	20.1
MJS8-10-M	8	Rc3/8	20	14	26.5	12	13	6	25.1
MJS10-8-M	10	Rc1/4	17	17	27	11	14.5	8	36.1
MJS10-10-M	10	Rc3/8	20	17	28	12	14.5	8	34.4
MJS10-15-M	10	Rc1/2	26	17	31	15	14.5	8	34.4
MJS12-8-M	12	Rc1/4	17	19	28.5	11	16	10	55.2
MJS12-10-M	12	Rc3/8	20	19	29.5	12	16	10	55.5
MJS12-15-M	12	Rc1/2	26	19	33	15	16	10	55.5
MJS15-10-M	15	Rc3/8	20	23	33	12	19	12	73.7
MJS15-15-M	15	Rc1/2	26	23	36	15	19	12	103.3

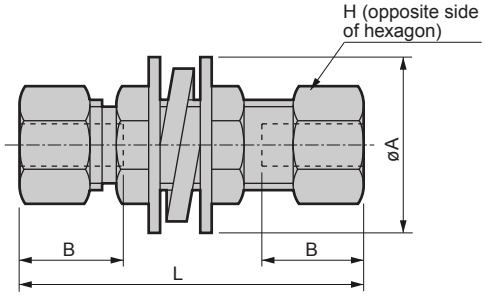
● Straight MJS*-0



* L and B dimensions show rough dimensions before fixing nut.

Model no.	Applicable tube O.D.ø	H1	H2	L	B	Min. bore size	Effective sectional area (mm²)
MJS4-0	4	8	10	25.5	11	3	4.3
MJS6-0	6	10	12	27.5	11.5	4.5	8.1
MJS8-0	8	12	14	31	13	6	25.2
MJS10-0	10	14	17	34	14.5	8	43.2
MJS12-0	12	16	19	37	16	10	68.6
MJS15-0	15	20	23	44	19	12	106.0

● Bulk head MJS*-0 X

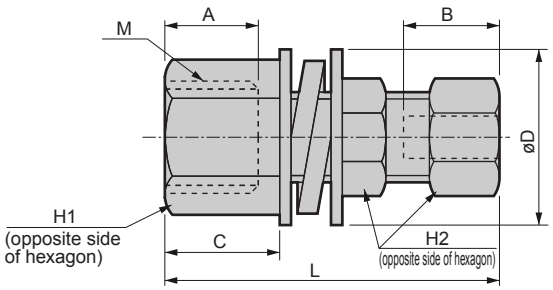


* L and B dimensions show rough dimensions before fixing nut. Mounting plate thickness 4mm or less

Model no.	Applicable tube O.D.ø	H	L	B	Installation hole diameter	Min. bore size	Effective sectional area (mm²)	A
MJS4-0-X	4	10	39	11	9	3	3.9	18
MJS6-0-X	6	12	43	11.5	11	4.5	7.7	22
MJS8-0-X	8	14	47	13	13	6	25.9	24
MJS10-0-X	10	17	51	14.5	15	8	41.1	28
MJS12-0-X	12	19	54	16	17	10	67.6	32
MJS15-0-X	15	23	63	19	21	12	97.0	40

Dimensions: Bulk head female, single elbow, female, elbow, elbow

● Bulk head female MJS*-*-E

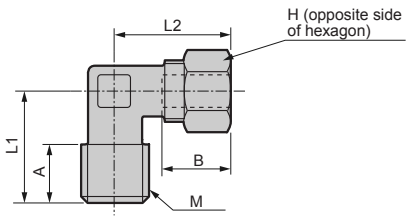


* L and B dimensions show rough dimensions before fixing nut. Mounting plate thickness 4mm or less

	Model no.	Applicable tube O.D.ø	M	H11	H2	L	A	B	C	Installation hole diameter	Min. bore size	Effective sectional area (mm²)	D
★	MJS4-6-E	4	Rc1/8	12	10	34	8	11	9.5	9	3	5.2	18
	MJS6-8-E	6	Rc1/4	17	12	40	11	11.5	13	11	4.5	13.2	22
	MJS8-8-E	8	Rc1/4	17	14	42.5	11	13	13	13	6	25.6	24
★	MJS10-10-E	10	Rc3/8	20	17	45.5	12	14.5	14	15	8	40.1	28

Model No. with "*" is available as custom order. Consult with CKD.

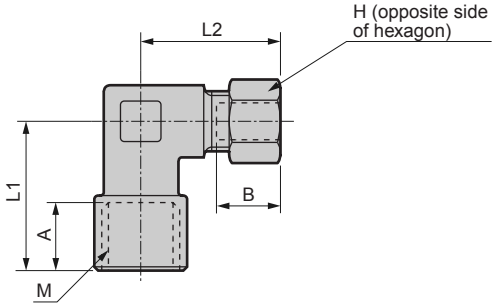
● Single elbow MJL*-*



* L2 and B dimensions show rough dimensions before fixing nut.

Model no.	Applicable tube O.D.ø	M	H	L1	L2	A	B	Min. bore size	Effective sectional area (mm²)
MJL4-6	4	R1/8	10	17	20	8	11	3	3.7
MJL4-8	4	R1/4	10	20	20	11	11	3	4.0
MJL6-6	6	R1/8	12	17	20.5	8	11.5	4.5	7.8
MJL6-8	6	R1/4	12	20	20.5	11	11.5	4.5	7.8
MJL6-10	6	R3/8	12	24	23.5	12	11.5	4.5	8.1
MJL8-6	8	R1/8	14	18	23	8	13	6	18.1
MJL8-8	8	R1/4	14	21	23	11	13	6	16.8
MJL8-10	8	R3/8	14	24	25	12	13	6	18.5
MJL10-8	10	R1/4	17	23	26.5	11	14.5	8	31.4
MJL10-10	10	R3/8	17	24	26.5	12	14.5	8	31.4
MJL10-15	10	R1/2	17	28	28.5	15	14.5	8	32.8
MJL12-8	12	R1/4	19	24	29	11	16	9	46.6
MJL12-10	12	R3/8	19	25	29	12	16	10	48.1
MJL12-15	12	R1/2	19	28	29	15	16	10	49.8
MJL15-10	15	R3/8	23	26	34	12	19	12	88.3
MJL15-15	15	R1/2	23	29	34	15	19	12	92.2

● Female, elbow MJL*-*-M

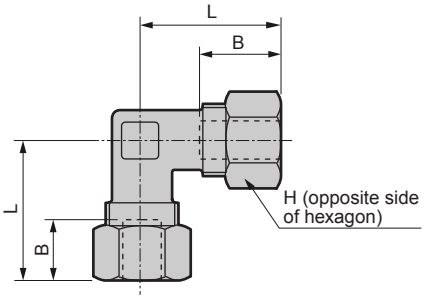


* L2 and B dimensions show rough dimensions before fixing nut.

	Model no.	Applicable tube O.D.ø	M	H	L1	L2	A	B	Min. bore size	Effective sectional area (mm²)
★	MJL4-6-M	4	Rc1/8	10	18.5	20	8	11	3	4.1
★	MJL4-8-M	4	Rc1/4	10	24	22.5	11	11	3	4.7
	MJL6-6-M	6	Rc1/8	12	18.5	20.5	8	11.5	4.5	9.4
	MJL6-8-M	6	Rc1/4	12	24	23.5	11	11.5	4.5	12.8
★	MJL6-10-M	6	Rc3/8	12	27	25.5	12	11.5	4.5	13.6
★	MJL8-6-M	8	Rc1/8	14	19.5	23	8	13	6	13.6
	MJL8-8-M	8	Rc1/4	14	24	25	11	13	6	21.0
★	MJL8-10-M	8	Rc3/8	14	27	27	12	13	6	22.8
★	MJL10-8-M	10	Rc1/4	17	24	26.5	11	14.5	8	29.3
★	MJL10-10-M	10	Rc3/8	17	27	28.5	12	14.5	8	35.7
★	MJL12-8-M	12	Rc1/4	19	25	29	11	16	10	29.3
★	MJL12-10-M	12	Rc3/8	19	27	29	12	16	10	51.4

Model No. with "*" is available as custom order. Consult with CKD.

● Elbow MJL*-0

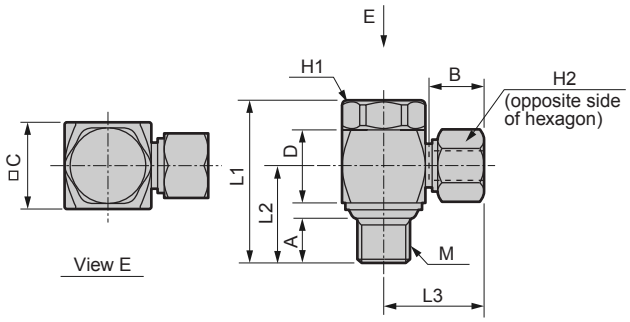


* L and B dimensions show rough dimensions before fixing nut.

Model no.	Applicable tube O.D.ø	H	L	B	Min. bore size	Effective sectional area (mm²)
MJL4-0	4	10	20	11	3	3.6
MJL6-0	6	12	20.5	11.5	4.5	9.4
MJL8-0	8	14	23	13	6	20.7
MJL10-0	10	17	26.5	14.5	8	33.1
MJL12-0	12	19	29	16	10	49.5
MJL15-0	15	23	34	19	12	85.4

Dimensions: Turn elbow, both push-in branch, D type union Tee, Union Tee

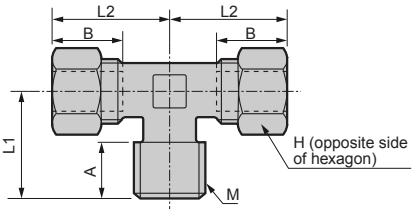
● Turn elbow MJL*-*-T



* L3 and B dimensions show rough dimensions before fixing nut.

Model no.	Applicable tube O.D.ø	M	H1	H2	L1	L2	L3	A	B	C	D	Effective sectional area (mm²)
MJL4-6-T	4	R1/8	14	10	29.5	17.6	18	8	11	15	13.5	3.9
MJL6-6-T	6	R1/8	14	12	29.5	17.6	19	8	11.5	15	13.5	8.3
MJL6-8-T	6	R1/4	19	12	36.5	22.1	21.5	11	11.5	20	16.5	9.7
MJL8-6-T	8	R1/8	14	14	29.5	17.6	20.5	8	13	15	13.5	13.7
MJL8-8-T	8	R1/4	19	14	36.5	22.1	23	11	13	20	16.5	18.0
MJL10-8-T	10	R1/4	19	17	36.5	22.1	24.5	11	14.5	20	16.5	27.4
MJL10-10-T	10	R3/8	22	17	42	25	26.5	12	14.5	24	20	33.9
MJL12-10-T	12	R3/8	22	19	42	25	28	12	16	24	20	42.4
MJL12-15-T	12	R1/2	24	19	52.5	32	29.5	15	16	27	27	45.5
MJL15-15-T	15	R1/2	24	23	52.5	32	32.5	15	19	27	27	64.5

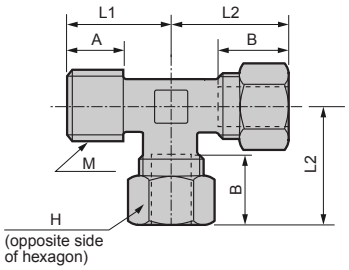
● Both push-in branch MJT*-*



* L2 and B dimensions show rough dimensions before fixing nut.

Model no.	Applicable tube O.D.ø	M	H	L1	L2	A	B	Min. bore size	Effective sectional area (mm²)
MJT4-6	4	R1/8	10	17	20	8	11	3	6.7
MJT4-8	4	R1/4	10	20	20	11	11	3	6.6
MJT6-6	6	R1/8	12	17	20.5	8	11.5	4.5	12.4
MJT6-8	6	R1/4	12	20	20.5	11	11.5	4.5	14.4
MJT6-10	6	R3/8	12	24	23.5	12	11.5	4.5	15.0
MJT8-6	8	R1/8	14	18	23	8	13	6	27.8
MJT8-8	8	R1/4	14	21	23	11	13	6	28.9
MJT8-10	8	R3/8	14	24	25	12	13	6	32.8
MJT10-8	10	R1/4	17	23	26.5	11	14.5	8	46.6
MJT10-10	10	R3/8	17	24	26.5	12	14.5	8	46.6
MJT10-15	10	R1/2	17	28	28.5	15	14.5	8	66.2
MJT12-8	12	R1/4	19	24	29	11	16	10	61.1
MJT12-10	12	R3/8	19	25	29	12	16	10	80.5
MJT12-15	12	R1/2	19	28	29	15	16	10	76.0
MJT15-10	15	R3/8	23	26	34	12	19	12	105.4
MJT15-15	15	R1/2	23	29	34	15	19	12	105.4

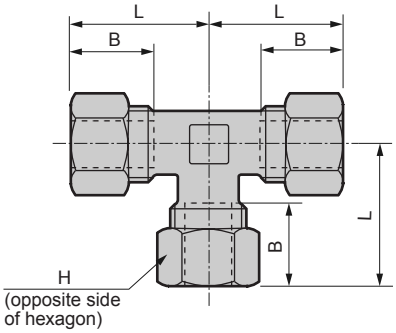
● D type union Tee MJT*-*-D



* L2 and B dimensions show rough dimensions before fixing nut.

Model no.	Applicable tube O.D.ø	M	H	L1	L2	A	B	Min. bore size	Effective sectional area (mm²)
MJT4-6-D	4	R1/8	10	17	20	8	11	3	7.6
MJT4-8-D	4	R1/4	10	20	20	11	11	3	7.8
MJT6-6-D	6	R1/8	12	17	20.5	8	11.5	4.5	13.1
MJT6-8-D	6	R1/4	12	20	20.5	11	11.5	4.5	15.7
MJT6-10-D	6	R3/8	12	24	23.5	12	11.5	4.5	14.4
MJT8-6-D	8	R1/8	14	18	23	8	13	6	27.3
MJT8-8-D	8	R1/4	14	21	23	11	13	6	28.9
MJT8-10-D	8	R3/8	14	24	25	12	13	6	36.1
MJT10-8-D	10	R1/4	17	23	26.5	11	14.5	8	48.1
MJT10-10-D	10	R3/8	17	24	26.5	12	14.5	8	49.8
MJT10-15-D	10	R1/2	17	28	28.5	15	14.5	8	68.1
MJT12-8-D	12	R1/4	19	24	29	11	16	10	65.6
MJT12-10-D	12	R3/8	19	25	29	12	16	10	76.0
MJT12-15-D	12	R1/2	19	28	29	15	16	10	80.3
MJT15-10-D	15	R3/8	23	26	34	12	19	12	110.4
MJT15-15-D	15	R1/2	23	29	34	15	19	12	110.4

● Union Tee MJT*-0

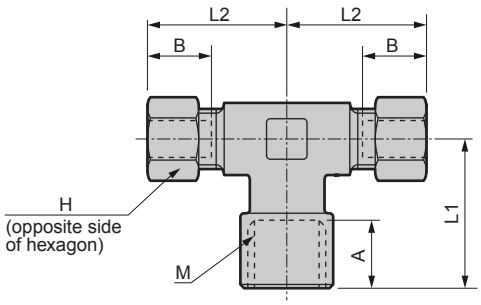


* L and B dimensions show rough dimensions before fixing nut.

Model no.	Applicable tube O.D.ø	H	L	B	Min. bore size	Effective sectional area (mm²)
MJT4-0	4	10	20	11	3	4.4
MJT6-0	6	12	20.5	11.5	4.5	7.2
MJT8-0	8	14	23	13	6	19.0
MJT10-0	10	17	26.5	14.5	8	36.1
MJT12-0	12	19	29	16	10	52.6
MJT15-0	15	23	34	19	12	100.8

Dimensions: Female union Tee, sleeve, insert ring

● Female, union Tee MJT*-*-M

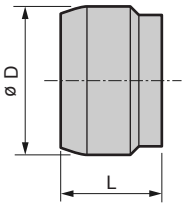


* L2 and B dimensions show rough dimensions before fixing nut.

	Model no.	Applicable tube O.D.ø	M	H	L1	L2	A	B	Min. bore size	Effective sectional area (mm²)
★	MJT4-6-M	4	Rc1/8	10	18.5	20	8	11	3	7.6
★	MJT4-8-M	4	Rc1/4	10	24	22.5	11	11	3	8.6
	MJT6-6-M	6	Rc1/8	12	18.5	20.5	8	11.5	4.5	13.9
	MJT6-8-M	6	Rc1/4	12	24	23.5	11	11.5	4.5	22.9
★	MJT6-10-M	6	Rc3/8	12	27	25.5	12	11.5	4.5	24.3
★	MJT8-6-M	8	Rc1/8	14	19.5	23	8	13	6	14.3
	MJT8-8-M	8	Rc1/4	14	24	25	11	13	6	29.2
★	MJT8-10-M	8	Rc3/8	14	27	27	12	13	6	40.0
★	MJT10-8-M	10	Rc1/4	17	24	26.5	11	14.5	8	29.2
★	MJT10-10-M	10	Rc3/8	17	27	28.5	12	14.5	8	53.7
★	MJT12-8-M	12	Rc1/4	19	26	29	11	16	10	29.5
★	MJT12-10-M	12	Rc3/8	19	27	29	12	16	10	63.8

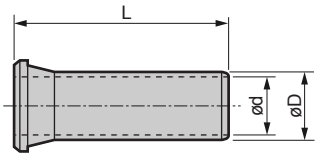
Model No. with "*" is available as custom order. Consult with CKD.

● Sleeve MJN*-0
Material C3604BD



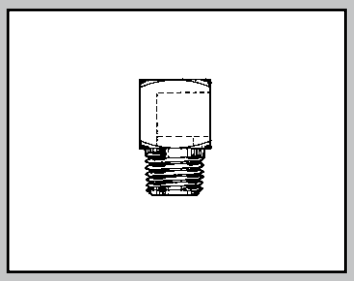
Model no.	Applicable tube O.D.ø	øD	L
MJN4-0	4	6	6
MJN6-0	6	8	6
MJN8-0	8	10	7
MJN10-0	10	12	8
MJN12-0	12	14	8.5
MJN15-0	15	18	10.5

● Insert ring MJ**-O
Material C3604BD



Installation procedures
Insert the tube into the cap nut and the sleeve in this turn, then insert the insert ring into the root of tube. Insert the tube into the joint until it stops, then couple the cap nut and the joint.

Model no.	L	øD	ød (Bore size)	Comformity tube
MJU4-0	12	1.8	1.1	U-9504
MJU6-0	15	3.6	2.8	U-9506
MJU8-0	16	4.8	4	U-9508
MJU10-0	17	6.3	5.5	U-9510
MJU12-0	18	7.8	7	U-9512
MJF4-0	12	2.3	1.5	F-1504
MJF6-0	15	3.8	3	F-1506
MJF8-0	16	5.6	4.5	F-1508
MJF10-0	17	7.1	6.2	F-1510
MJF12-0	18	8.8	8	F-1512
MJF15-0	20	11.3	10.3	F-1515



Joint

JL Series

● Port size: 1/8 to 1/2

CAD

AOI Co, Ltd.

How to order

JL – 8 – 6

Elbow joint

Ⓐ Male port size

Ⓐ Male port size	
6	R1/8
8	R1/4
10	R3/8
15	R1/2

Ⓑ Female port size

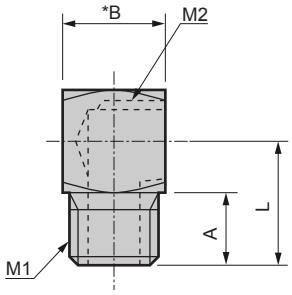
Ⓑ Female port size	
6	Rc1/8

No symbol when male and female have the same diameter.

Note: Sales unit is 10 pieces /1 bag.

Dimensions CAD

● Elbow joint/JL



Material C3604BD

For model with * mark, consult with CKD for delivery lead time.

Model no.	M1	M2	L	A	B	Min. bore size
JL-6	R1/8	Rc1/8	15	8	14	6
JL-8-6	R1/4	Rc1/8	18	11	14	8
JL-8	R1/4	Rc1/4	19	11	16	8
JL-10	R3/8	Rc3/8	22	12	20	10
JL-15 *	R1/2	Rc1/2	27.5	15	25	13

Rotary Joint

RJF Series

● Port size: M5, Rc1/8

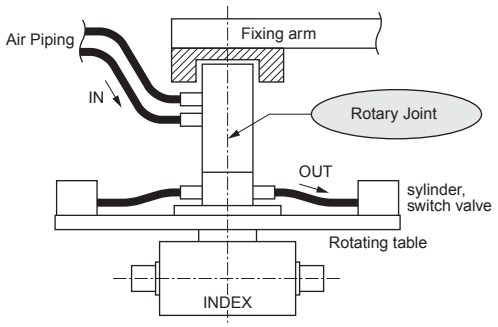
RoHS

Features

- High rigidity and low sliding resistance achieved with built-in bearing
- Ample lineup includes 4, 6, 8, 12 or 16 circuits
- Space saving type is also available for 12 and 16 circuits
- M5 and Rc1/8 port sizes available (4, 6, 8 circuits)

Applications

This joint supplies compressed air to the air cylinder for rotating members such as an indexing table, rotary table or rotary drum, and for air blowing or changeover valves.



Specifications

Descriptions	RJF-M5-04	RJF-6A-04	RJF-M5-06	RJF-6A-06	RJF-M5-08	RJF-6A-08	RJF-M5-12	RJF-M5-16	RJF-M5-12-S	RJF-M5-16-S
Working fluid	Compressed air									
Working pressure range	-100kPa (Note 1) to 0.7MPa									
Working temperature range	5 to 60									
Number of circuits	4		6		8		12	16	12	16
Port size	M5	Rc 1/8	M5	Rc 1/8	M5	Rc 1/8	M5	M5	M5	M5
Tolerable revolutions (Note 2)	350	240	240	170	200	140	175	155	100	90
Rotation resistance	0.05	0.07	0.12	0.17	0.2	0.4	0.85	1.5	0.85	1.3
Air port minimum sectional-area	4.9	12.5	4.9	12.5	4.9	12.5	4.9	4.9	4.9	4.9
Product weight	0.11	0.28	0.16	0.50	0.38	0.90	0.70	1.30	0.93	1.23

Note 1: The vacuum cannot be held.
Note 2: Revolutions per minute.

How to order

RJF - M5 - 04 - ( )

Model no.

Ⓐ Port size

Ⓑ Number of circuits

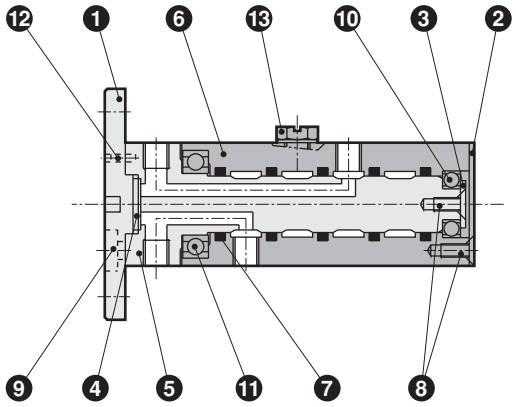
Ⓒ Shape

Symbol	Description
Ⓐ Port size	
M5	M5
6A Note 1	Rc 1/8
Ⓑ Number of circuits	
04	4 circuits
06	6 circuits
08	8 circuits
12	12 circuits
16	16 circuits
Ⓒ Shape	
Blank	Basic type
S Note 2	Space saving type

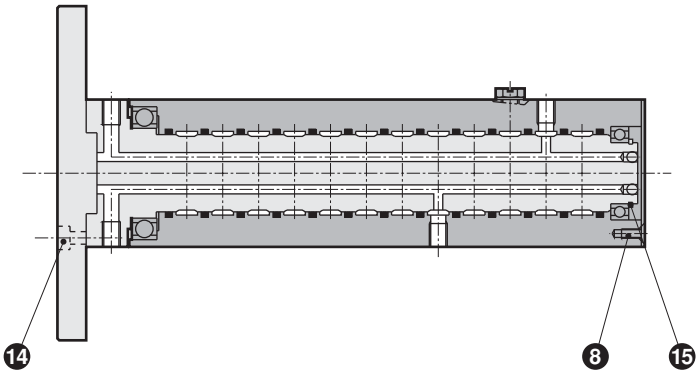
Note 1: Supported with number of circuits 04, 06 and 08.
Note 2: Supported with number of circuits 12 and 16.

Internal structure and parts list

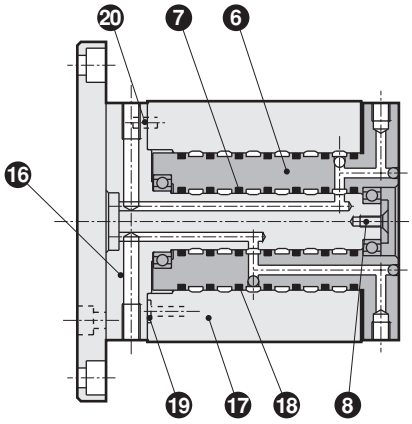
● RJF-M5-04
06
08
6A-04
06
08



● RJF-M5-12
16



● RJF-M5-12-S
16-S

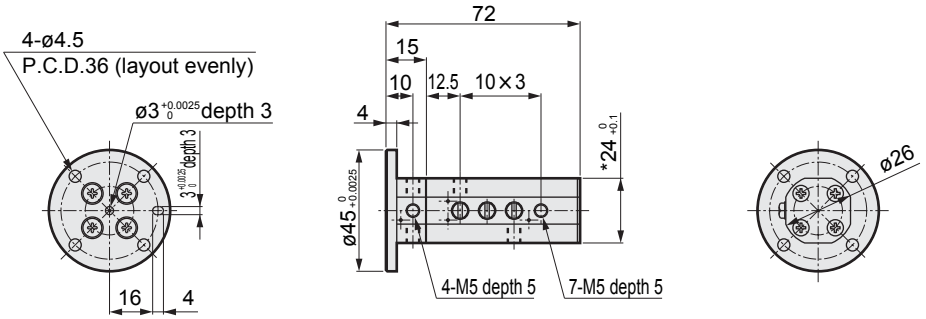


Parts list

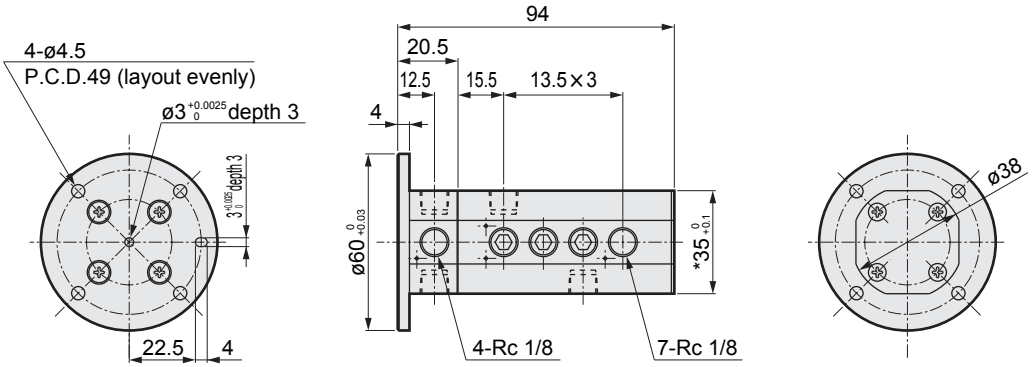
No.	Parts name	Material	No.	Parts name	Material
1	Mounting flange	Aluminum alloy	11	Single row deep groove ball bearing	Bearing steel
2	Fixed side body cover	Stainless steel	12	Parallel pin	Bearing steel
3	Bearing retainer	Stainless steel	13	Plug	Brass, Stainless steel
4	Gasket	Nitrile rubber	14	Hexagon socket bolt	Stainless steel
5	Rotation side body	Aluminum alloy	15	C type snap ring	Stainless steel
6	Fixed side body	Aluminum alloy	16	Rotation side body 1	Aluminum alloy
7	Packing seal	Nitrile rubber	17	Rotation side body 2	Aluminum alloy
8	Small cross headed pan screw	Stainless steel	18	Packing seal	Nitrile rubber
9	Small truss screw	Stainless steel	19	Gasket	Nitrile rubber
10	Single row deep groove ball bearing	Bearing steel	20	Parallel pin	Bearing steel

Dimensions (basic type)

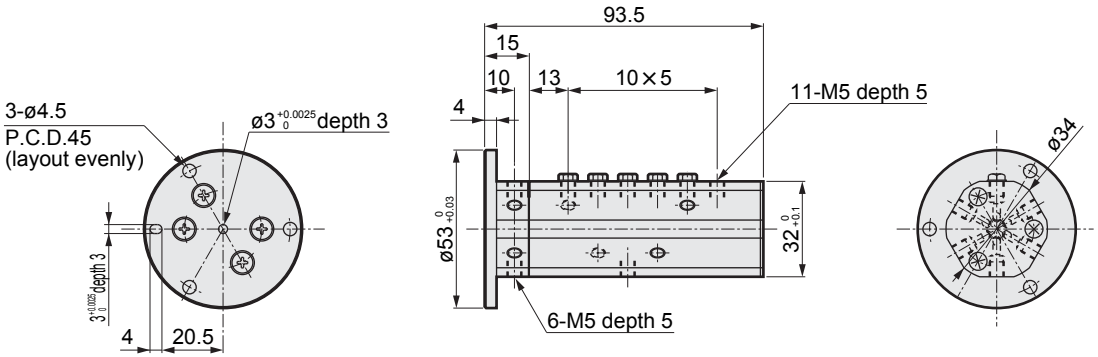
● RJF-M5-04



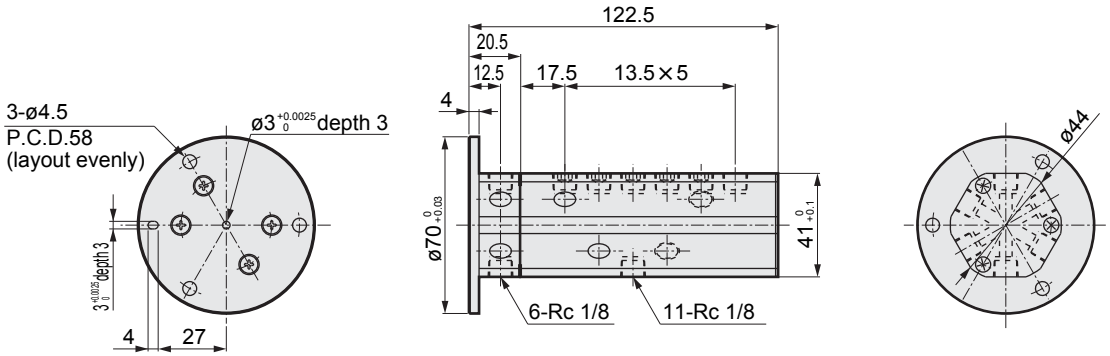
● RJF-6A-04



● RJF-M5-06

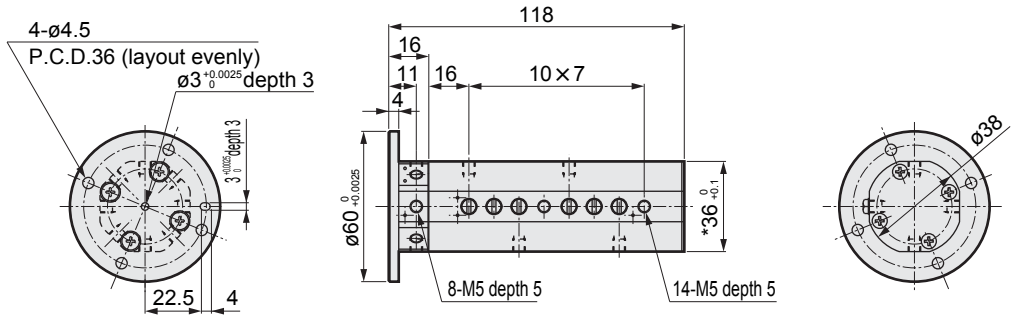


● RJF-6A-06

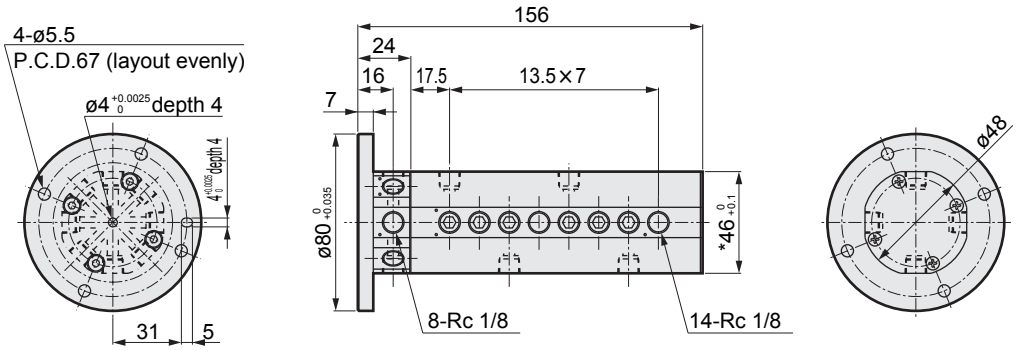


Dimensions (basic type)

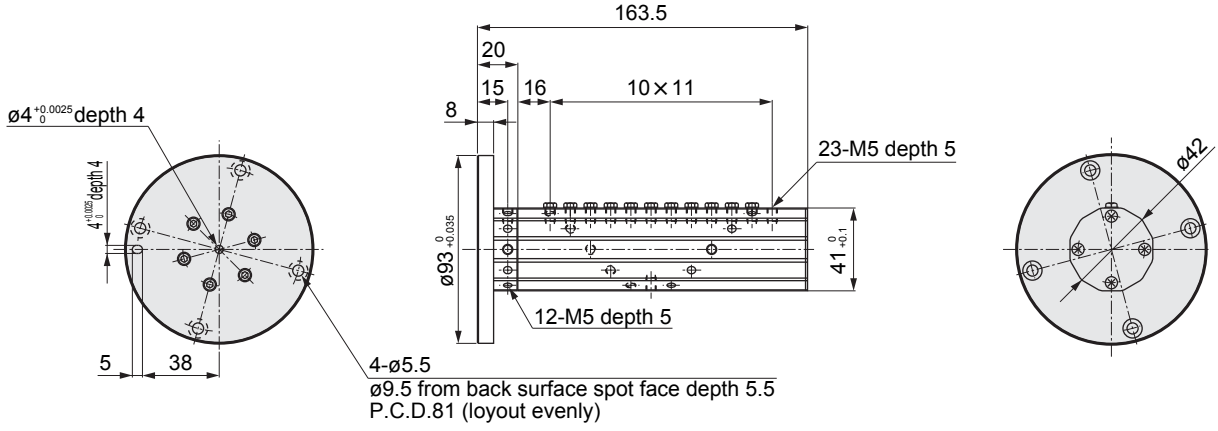
● RJF-M5-08



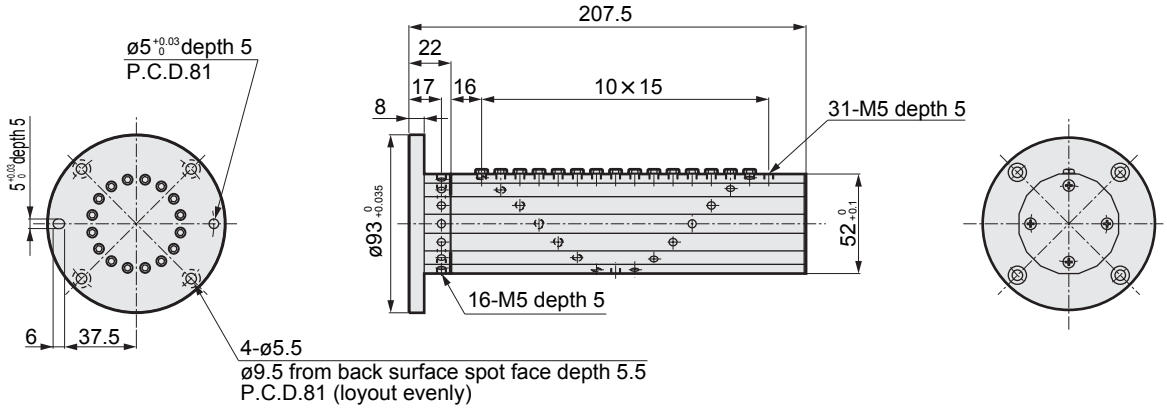
● RJF-6A-08



● RJF-M5-12

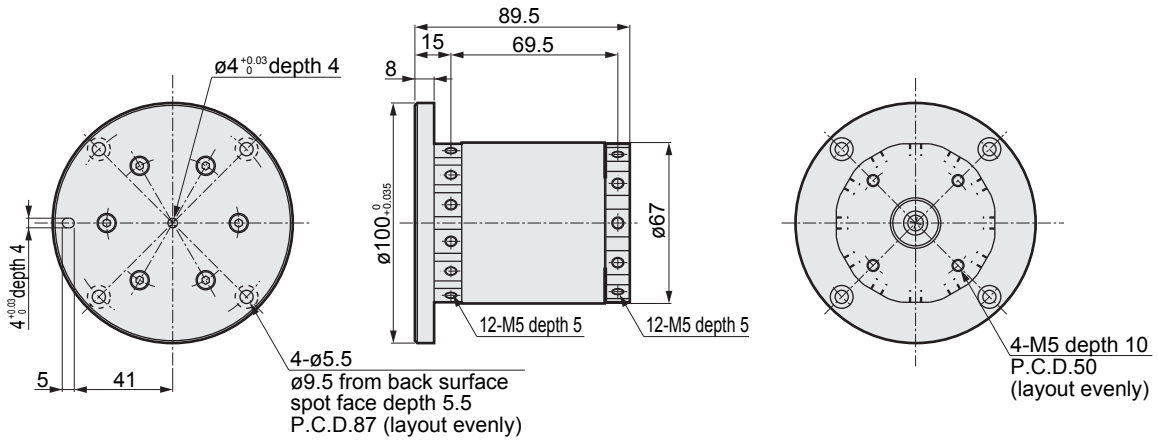


● RJF-M5-16

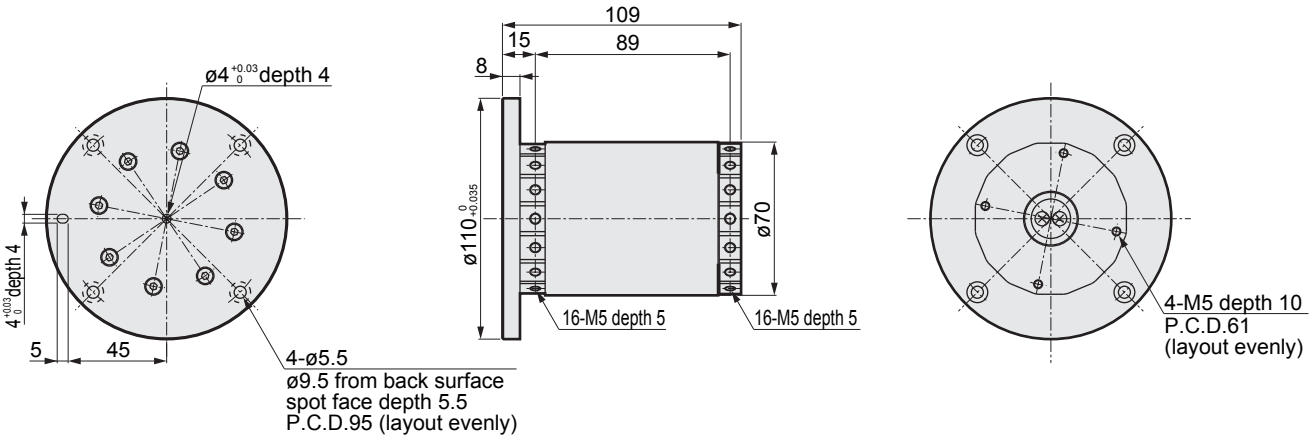


Dimensions (space saving type)

● RJF-M5-12-S



● RJF-M5-16-S



Series variation

Fiber tube antistatic type, clean type (push-in joint)

bore size ø1.8×ø1.2

Push-in joints for fiber

Port size M3, M5, R1/8, ø4

Fiber tube antistatic type (push-in joint) UP		Fiber tube clean type (push-in joint) EH	
	O.D. x I.D. (mm)		O.D. x I.D. (mm)
	ø1.8×ø1.2		ø1.8×ø1.2
	Color		Color
	Black		Black
	White		Transparent
	Transparent		
	Transparent blue		
	Transparent green		
	Yellow (custom order)		
	Red (custom order)		

Push-in joints for fiber tube (standard type)

■ Straight type

Single straight PG-S2-*	Single straight (round) PG-S2-M3-S	Straight PG-S2-0	Bulk head PG-S2-0-X	■ Elbow type: Single elbow PG-L2-*
 Port size: M3, M5, R1/8	 Port size: M3			 Port size: M3, M5, R1/8
• Page : 987	• Page : 987	• Page : 987	• Page : 987	• Page : 988

■ Union Tee type / ■ Plug type

Both push-in branch PG-T2-*	Union Tee PG-T2-0	D type union Tee PG-T2-*-D	Plug reducer PG-S2-4P	Blanking plug PG-P2-B
 Port size: M3, M5		 Port size: M3, M5	 Port size: ø4	
• Page : 988	• Page : 988	• Page : 989	• Page : 989	• Page : 989

●Sales unit of standard type is 10 pieces/1 box.

Push-in joints for fiber tube (clean type)

■ Straight type / ■ Elbow type / ■Tee union type

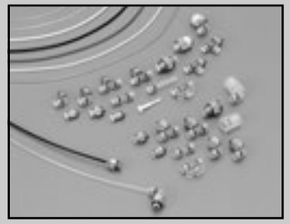
Single straight CG-S2-*	Straight CG-S2-0	Bulk head CG-S2-0-X	Single elbow CG-L2-*	Both push-in branch CG-T2-*
 Port size: M3, M5, R1/8			 Port size: M3, M5, R1/8	 Port size: M3, M5
• Page : 991	• Page : 991	• Page : 991	• Page : 992	• Page : 992

■ Union Tee type

Union Tee CG-T2-0

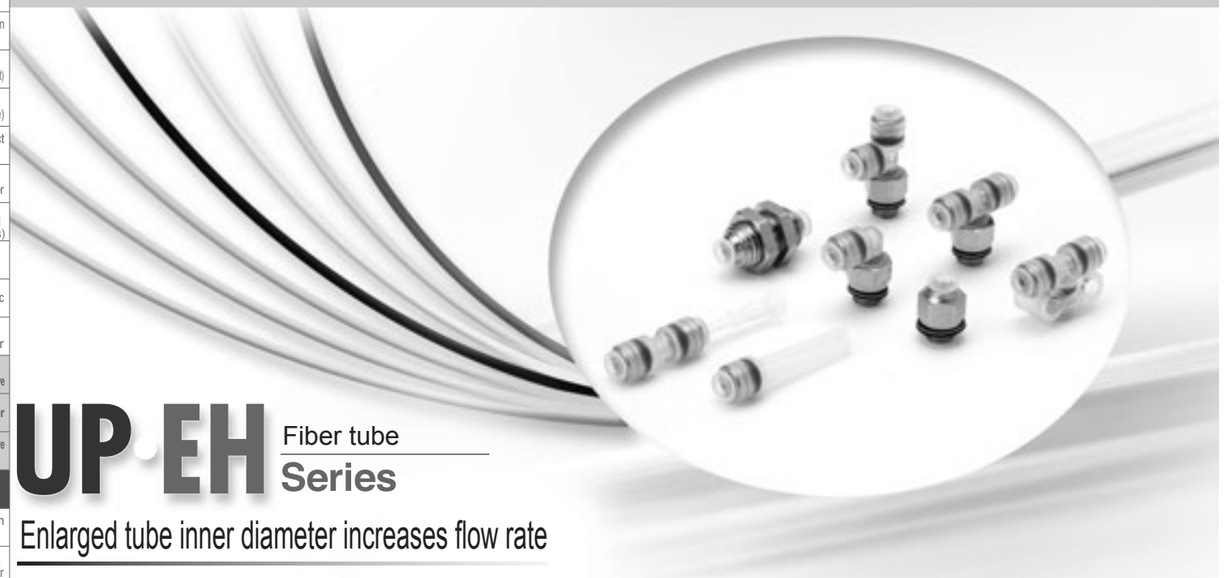
• Page : 992

● Sales unit of a clean type is 1 piece/unit.



Fiber tube push-in joint

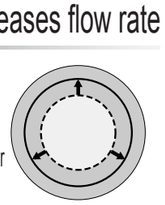
- Antistatic type **UP Series**
- Clean type **EH Series**
- Outer diameter: ø1.8



UP·EH Fiber tube Series

Enlarged tube inner diameter increases flow rate

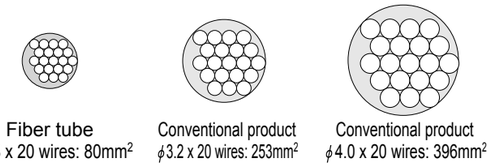
"A new structure with outer diameter holding method has been incorporated.
The inner diameter has been increased from the conventional ϕ1.0 to ϕ1.2 while maintaining the original tube outer diameter ϕ1.8, thus increasing the flow rate by approx. three-fold."



Enlarged from conventional ϕ1.0 to ϕ1.2

Energy and space saving

This O.D. ϕ1.8 x I.D. ϕ1.2 tube is extremely thin, making it possible to greatly reduce piping space.
The tube piping volume is also small, thereby saving energy.



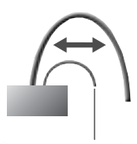
Fiber tube
ϕ1.8 x 20 wires: 80mm²

Conventional product
ϕ3.2 x 20 wires: 253mm²

Conventional product
ϕ4.0 x 20 wires: 396mm²

Eliminate adverse effect onto device accuracy

Stress applied to the tube by piping is greatly reduced. The bounce is equivalent to a lead wire, so adverse effects on device accuracy are minimized.



Small piping stress

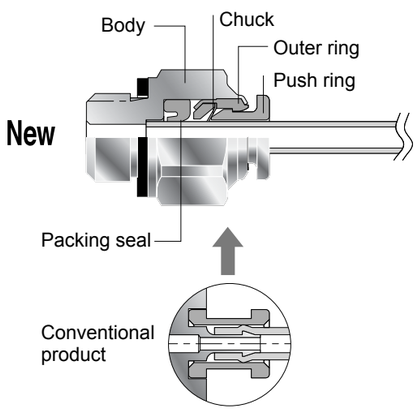
Clean models available

Clean models (tube: special polyolefin, joint: stainless steel, etc.) using highly corrosion resistant materials have been added to the series for use in clean rooms. These models are perfect in fields which require a high cleanliness, such as semiconductor manufacturing, pharmaceutical and food handling systems.

PG·CG Push-in joints for fiber tube Series

One-touch attachment

Attachment is easier than before, and can be completed just by holding down the joint's push ring and inserting or removing the tube.
Polypropylene (PP) resin is incorporated as a standard for the resin parts, thus enhancing the corrosion-resistance.



Eco-friendly products

All substances which can adversely affect the global environment, have been eliminated from the materials.

CKD Green Technology

Free piping

Outstanding flexibility and extremely high piping freedom makes it easy to pipe difficult areas such as small spaces and short distances of approx. 200 to 300mm.

Resistant to static electricity and dust build-up

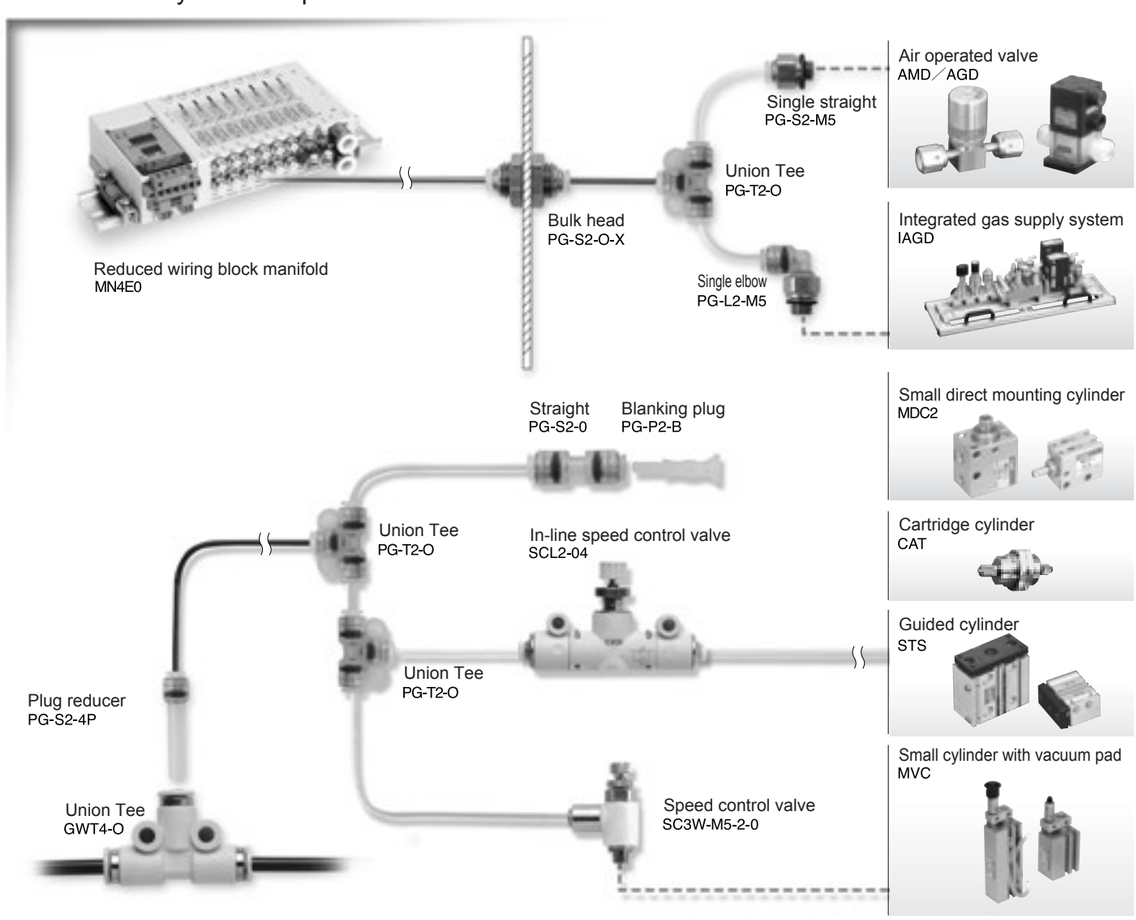
The fiber tube (UP Series) is provided with static-preventing measures, and can prevent the static electricity and the adherence of dust.

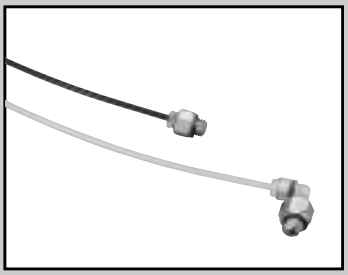
Series variation

Model	Variation	Series	Tube material	Color
Fiber tube	Standard specifications	**UP** Series	Urethane (antistatic)	7 colors ●○○○○○●
	Clean room specifications	**EH** Series	Special polyolefin	2 colors ●○

Model	Variation	Series	Material	Variation
Push-in joint	Standard specifications	**PG** Series	Brass + electroless nickeling, PP	10 types, 16 models
	Clean room specifications	**CG** Series	Stainless steel (oil-prohibited), PP	6 types, 11 models

Miniature air system components connected with fiber tubes





Fiber tube (push-in joint)

- Outer diameter: ø1.8 × Inner diameter: ø1.2
- Antistatic type (UP-9402-F1)
- Clean type (EH-5802)

RoHS

Specifications

Model no.		Antistatic type UP-9402-F1	Clean type EH-5802
Working fluid		Compressed air (Note 1)	
Working pressure range (20°C) (Note 2)		-100kPa to 0.8MPa	-100kPa to 1.0MPa
Ambient temperature range	°C	-10 to 60 (no freezing)	
O.D. × I.D.	mm	ø1.8×ø1.2	
Bore size precision	mm	±0.1	
Outer diameter precision	mm	±0.1	
Durometer hardness		HDA 94	HDD 58
Min. bending radius (JIS B 8381)	mm	4	5
Min. installation radius	mm	4	7
Burst pressure (20°C)	MPa	2.5	3.8
Volume resistance ratio	Ω·cm	10^{10} to 10^{12}	–
Material		Antistatic urethane	Special polyolefin
Color		Black, white, clear, clear blue, clear green, yellow (Note 3), red (Note 3)	Black, transparent
Applicable joint		PG, CG Series (push-in type) Note4	

Note 1: Consult with CKD when using other working fluids.
Note 2: Refer to the graph of "Relevant of working temperature and pressure (constant vacuum break)" for details on working pressure range.
Note 3: Yellow and red are custom-ordered parts.
Note 4: This cannot be used with a barbed joint (PTN*).

How to order

● Antistatic type

UP-94 **02** - **20** - **W** - **F1**

- **02**: Tube size ø1.8×ø1.2 (O.D. × I.D.)
- **20**: Length per roll 20m roll
- **W**: Tube color
- **F1**: Antistatic

Tube color	
Blank	Black
W	White
C	Transparent
CB	Transparent blue
CG	Transparent green
Y	Yellow (Note)
R	Red (Note)

Note: Custom order.

● Clean type

EH-58 **02** - **20** - **C**

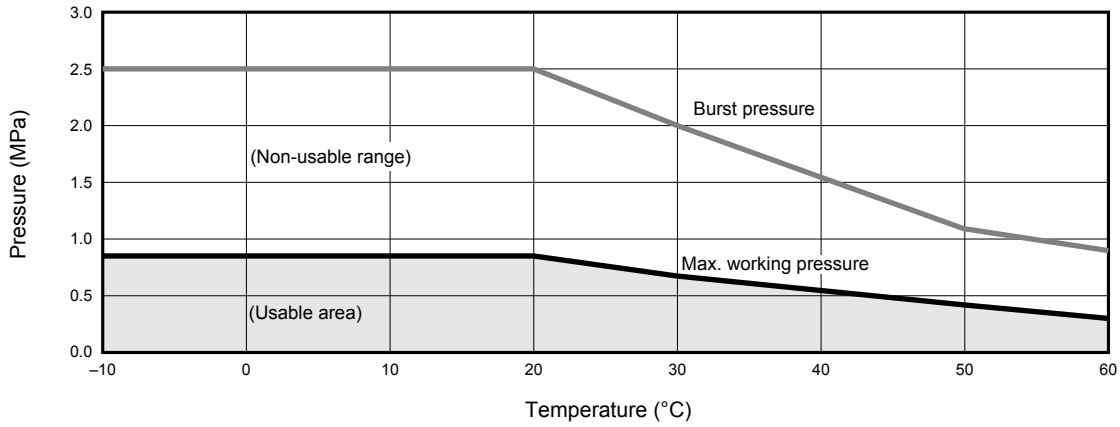
- **02**: Tube size ø1.8×ø1.2 (O.D. × I.D.)
- **20**: Length per roll 20m roll
- **C**: Tube color

Tube color	
Blank	Black
C	Transparent

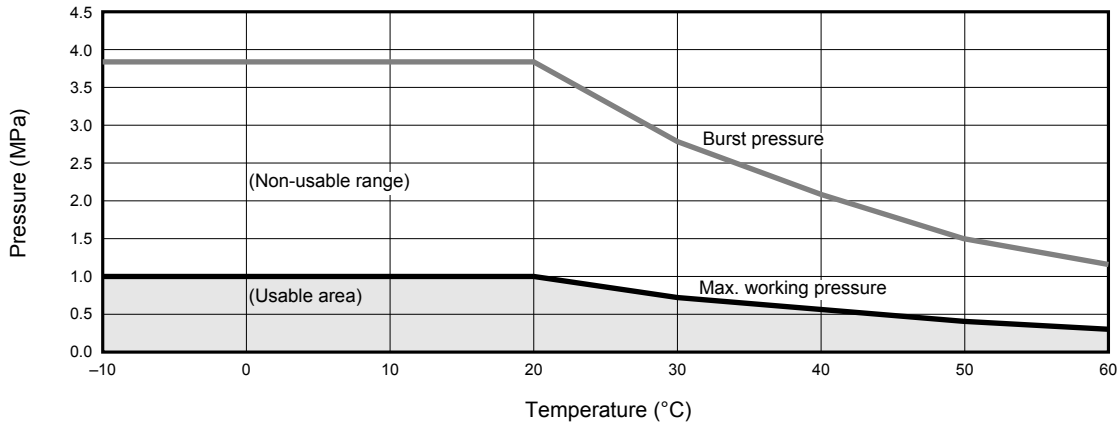
Characteristics graph

● Relevant of working temperature and pressure (normal destruction)

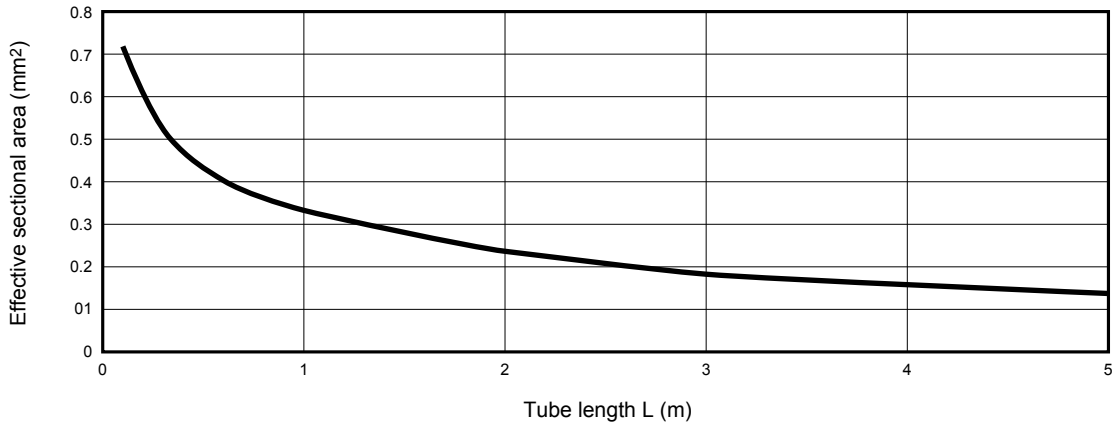
UP-9402-F1



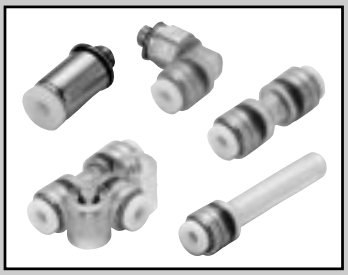
EH-5802



● Relevant of tube length and effective sectional area



The tubing inlet and outlet are measured with a single-ended straight (PG-S2-M5) attached.



Push-in joints for fiber tube

Standard type PG Series

- Applicable tube outer diameter: ø1.8
- Port size: M3 to R1/8

RoHS CAD

Specifications

Model no.	PG Series
Working fluid	Compressed air (Note 1)
Working pressure range	-100kPa to 1.0MPa
Ambient temperature range °C	-10 to 60 (no freezing)
Applicable tube	Fiber tube (UP-9402-F1, EH-5802) Note 2

Note 1: Consult with CKD when using other working fluids.
Note 2: Fiber tube for barbed joint (UP-9102-F1) is not available.
Note 3: Sales unit is 1 set (10 pieces).

How to order

* Refer to the model no. on the dimensions page (pages 987 to 989) for the model no. combination.

● Standard type

PG - S 2 - M3 - S

Ⓓ Other combinations
Ⓐ Shape
Ⓒ Port size
Ⓑ Applicable tube O.D. ø1.8

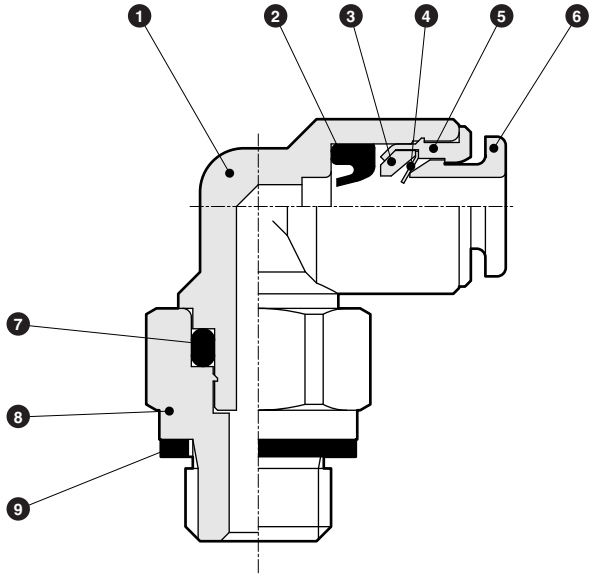
Ⓐ Shape	
S	Straight
L	Elbow
T	Union Tee
P	Plug

Ⓒ Port size	
M3	M3×0.5
M5	M5×0.8
6	R1/8
0	No thread
4P	Plug for ø4
B	Blanking plug

Ⓓ Other combinations	
S	Round
D	D type
X	Bulk head

Note: Sales unit is 10 pcs./box.

Internal structure and parts list



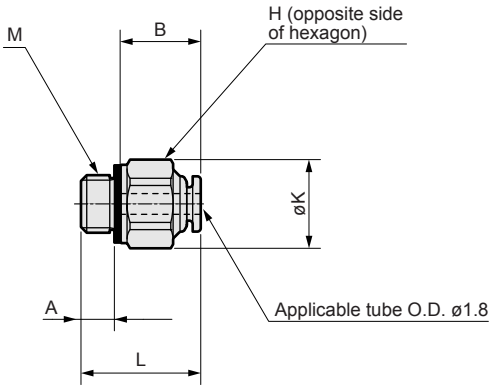
No.	Parts name	Material
1	Body *1	Polypropylene (semitransparent)
		Brass (electroless nickeling)
2	Packing seal	Hydrogen nitrile rubber
3	Chuck holder	Polypropylene (semitransparent)
4	Chuck	Stainless steel
5	Outer ring	Brass (electroless nickeling)
6	Push ring *2	Polypropylene (white)
7	O ring	Nitrile rubber
8	Nipple	Brass (electroless nickeling) (R1/8 is with sealant)
9	Gasket	Stainless steel + Nitrile rubber

*1: The body of the single-ended straight, single-ended straight (round), and bulkhead is brass (electroless nickel-plated).
*2: The PG Series is white.

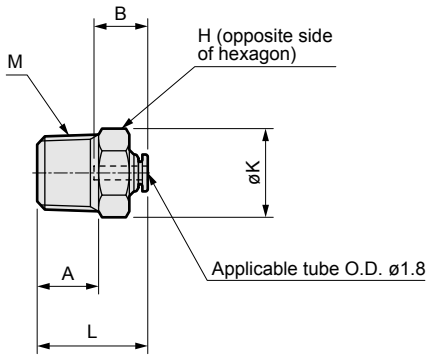
Dimensions: Single straight, single straight (round), bulk head

Single straight

● PG-S2-*



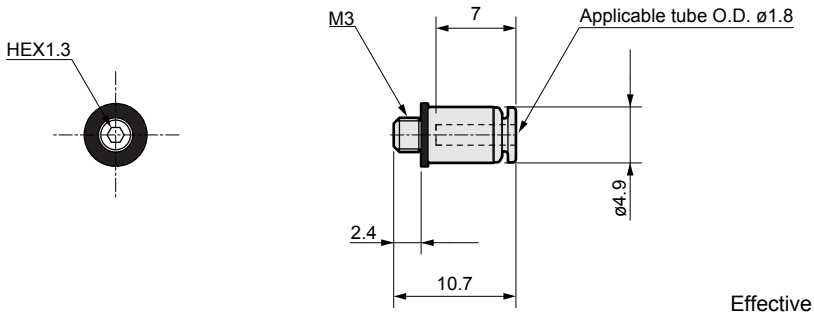
● PG-S2-6



Model no.	M	H	K	L	A	B	Min. bore size	Effective sectional area mm²
PG-S2-M3	M3×0.5	5.5	6	10.7	2.4	7	1.5	0.92
PG-S2-M5	M5×0.8	7	7.7	10.4	2.9	7	1.5	0.92
PG-S2-6	R1/8	10	11.6	14.4	8	7	1.5	0.97

Single straight (round)

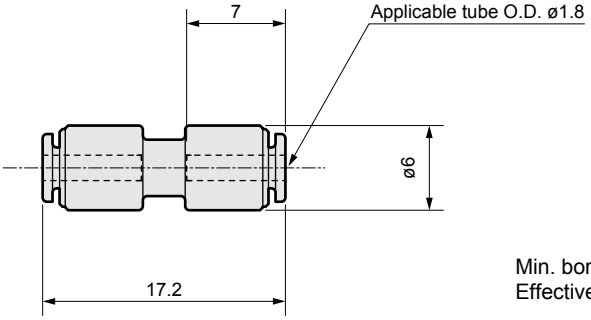
● PG-S2-M3-S



Effective sectional area: 0.92mm²

Straight

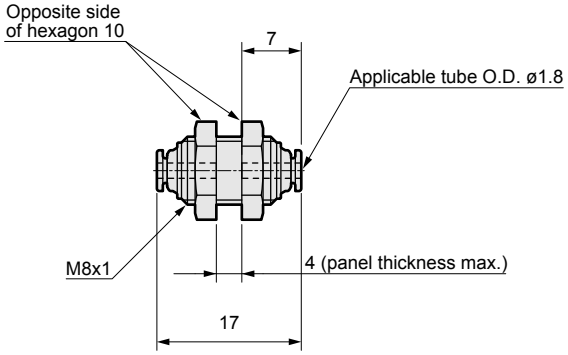
● PG-S2-0



Min. bore size: ø1.5
Effective sectional area: 0.82mm²

Bulk head

● PG-S2-0-X

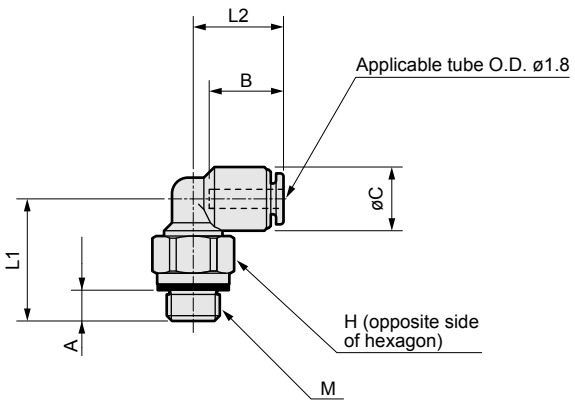


Min. bore size: ø1.5
Effective sectional area: 0.85mm²

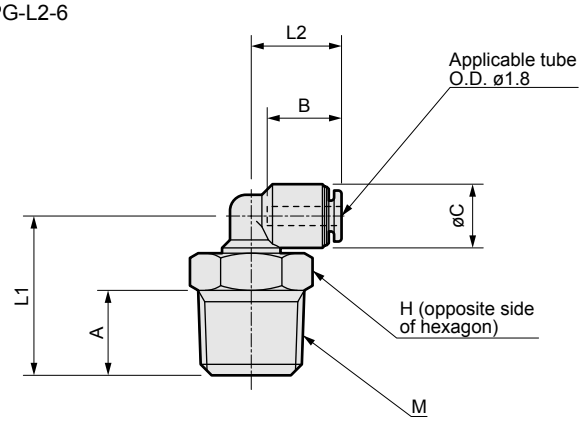
Dimensions: Single elbow, both push-in branch, Union Tee CAD

Single elbow

● PG-L2-*



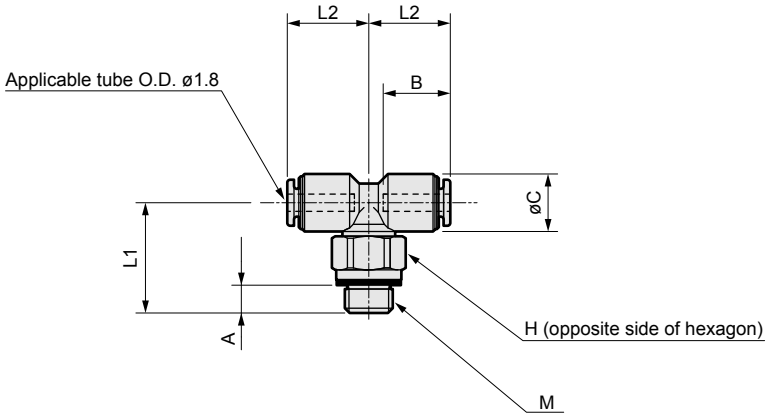
● PG-L2-6



Model no.	M	H	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
PG-L2-M3	M3×0.5	5.5	11	8.5	2.4	7	6	1.5	0.83
PG-L2-M5	M5×0.8	7	11.5	8.5	2.9	7	6	1.5	0.83
PG-L2-6	R1/8	10	15	8.5	8	7	6	1.5	0.70

Both push-in branch

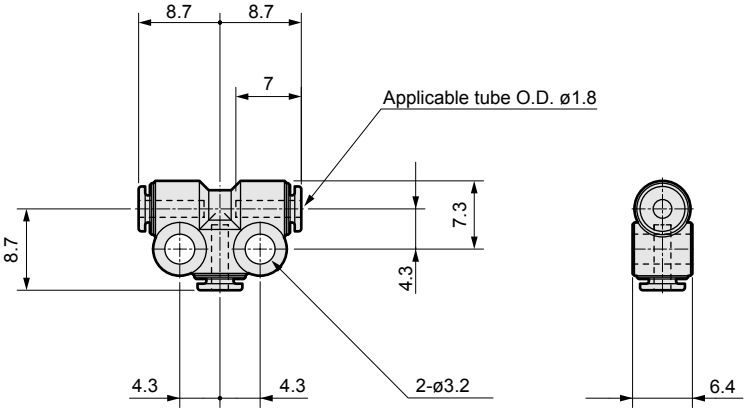
● PG-T2-*



Model no.	M	H	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
PG-T2-M3	M3×0.5	5.5	11	8.5	2.4	7	6	1.5	1.10
PG-T2-M5	M5×0.8	7	11.5	8.5	2.9	7	6	1.5	1.25

Union Tee

● PG-T2-0



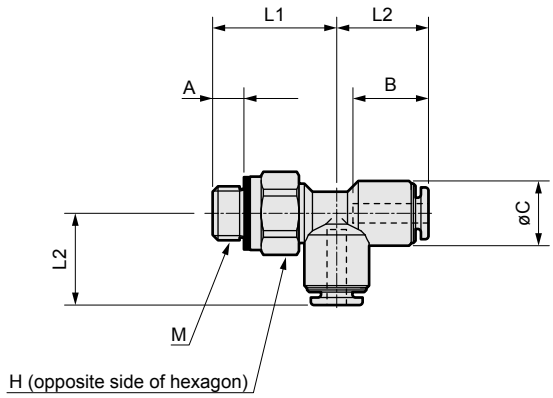
Min. bore size: ø1.5

Effective sectional area: 0.90mm²

Dimensions: D type tee union, plug reducer, blanking plug

D type tee union

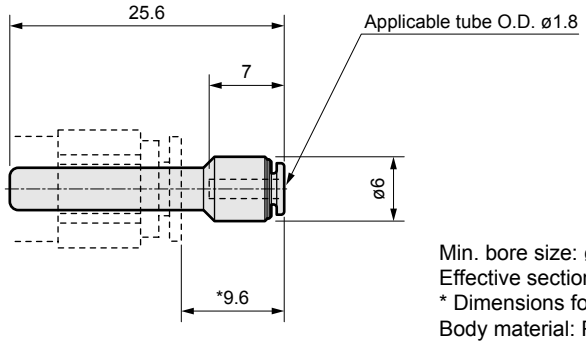
● PG-T2-*-D



Model no.	M	H	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
PG-T2-M3-D	M3×0.5	5.5	11	8.5	2.4	7	6	1.5	1.05
PG-T2-M5-D	M5×0.8	7	11.5	8.5	2.9	7	6	1.5	1.40

Plug reducer

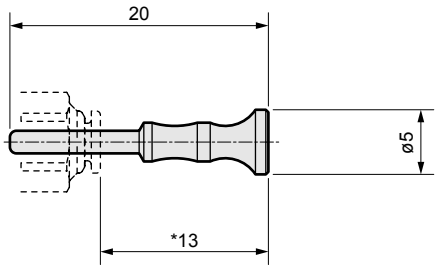
● PG-S2-4P



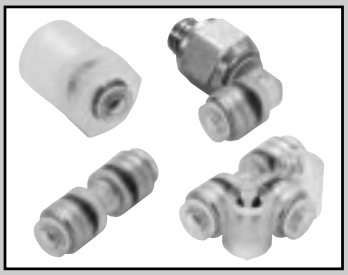
Min. bore size: ø1.5
Effective sectional area: 0.97mm²
* Dimensions for GWS4-M5 connection joint
Body material: Polyamide (PA)
* Body material: Polyamide (PA)

Blanking plug

● PG-P2-B



Material: Polypropylene (PP)
* Dimensions for PG or CG Series connection joint



Push-in joints for fiber tube

Clean type CG Series

- Applicable tube outer diameter: ø1.8
- Port size: M3 to R1/8

RoHS CAD

Overview

CG Series is the joint for clean environment to semiconductor manufacturing, medical equipment, and foods.
P.P. resin, stainless steel and EPDM rubber are provided for improving corrosion resistance.
This product is assembled with oil-prohibited specifications and shipped in clean packaging.

Specifications

Model no.	CG Series
Working fluid	Clean air (Note 1)
Working pressure range	-100kPa to 1.0MPa
Ambient temperature range ℃	-10 to 60 (no freezing)
Lubricant	Oil-prohibition
Applicable tube	Fiber tube (UP-9402-F1, EH-5802) Note 2

Note 1: Rubber EPDM material is used, so this product cannot be used with fluids that contain mineral oil. Consult with CKD when using other working fluids.
Note 2: Fiber tube for barbed joint (UP-9102-F1) is not available.
Note 3: Sales unit is each.

How to order

* Refer to the model no. on the dimensions page (pages 991 to 992) for the model no. combination.

● Clean type

CG - S 2 - 0 - X

Ⓓ Other combinations
Ⓐ Shape
Ⓒ Port size
Ⓑ Applicable tube O.D. ø1.8

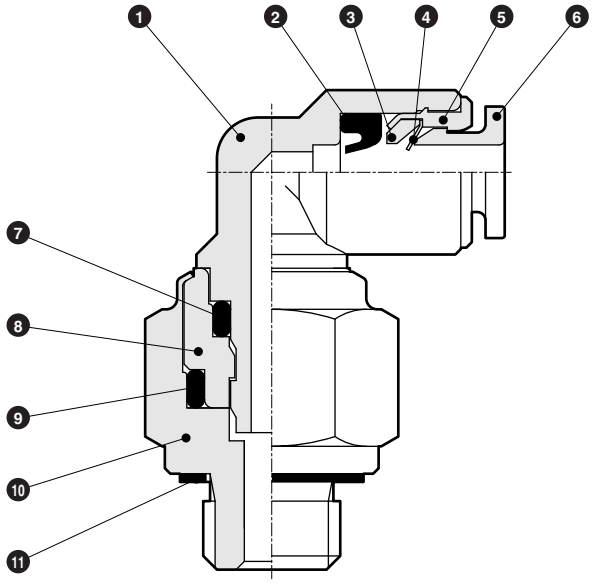
Ⓐ Shape	
S	Straight
L	Elbow
T	Union Tee

Note:Sales unit is 1 piece per bag.

Ⓒ Port size	
M3	M3×0.5
M5	M5×0.8
6	R1/8
0	No thread

Ⓓ Other combinations	
X	Bulk head

Internal structure and parts list



No.	Parts name		Material
1	Body *1		Polypropylene (semitransparent)
			Stainless steel (SUS304)
2	Packing seal		Ethylene propylene diene rubber
3	Chuck holder		Polypropylene (semitransparent)
4	Chuck		Stainless steel (SUS301)
5	Outer ring		Stainless steel (SUS304)
6	Push ring		Polypropylene (semitransparent)
7	O ring		Ethylene propylene diene rubber
8	Stopper		Stainless steel (SUS304)
9	O ring		Ethylene propylene diene rubber
10	Nipple	M3,M5	Stainless steel (SUS304)
		R1/8	Polypropylene (semitransparent)
11	Gasket		Stainless steel + fluoro rubber

*1: The body of the single-ended straight (M3, M5) and bulkhead is stainless steel.

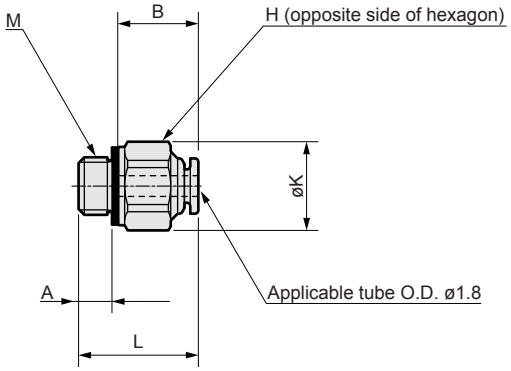
⚠ CAUTION

The durability of the CG Series packing (material: EPDM) is susceptible to mineral oil, so it cannot be used to pipe general pneumatic components.
The R1/8 thread does not have a sealing agent on the threads.
Use the PG Series for piping to general pneumatic components.

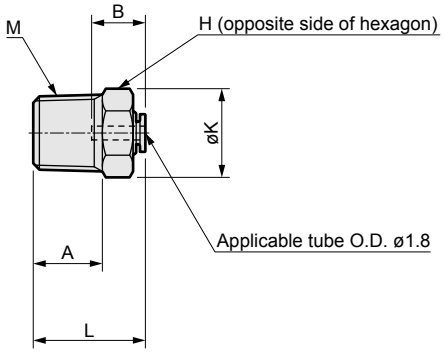
Dimensions: Single-straight, straight, bulk head

Single straight

● CG-S2-*



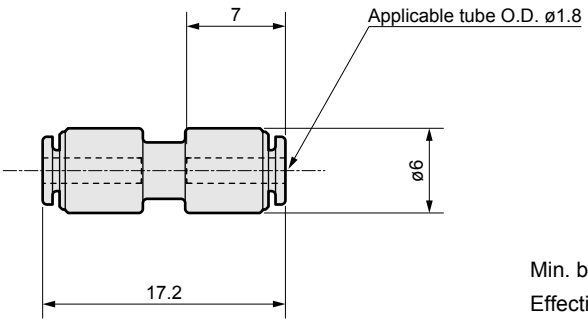
● CG-S2-6



Model no.	M	H	K	L	A	B	Min. bore size	Effective sectional area mm²
CG-S2-M3	M3×0.5	5.5	6	10.7	2.7	7	1.5	0.92
CG-S2-M5	M5×0.8	7	7.7	10.4	3.2	7	1.5	0.92
CG-S2-6	R1/8	10	11.6	14.6	9	7	1.5	0.97

Straight

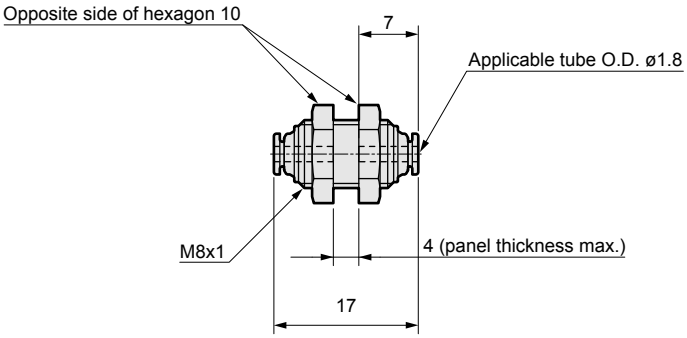
● CG-S2-0



Min. bore size: ø1.5
Effective sectional area: 0.82mm²

Bulk head

● CG-S2-0-X

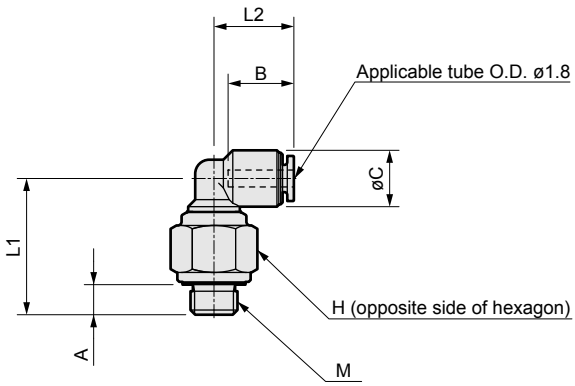


Min. bore size: ø1.5
Effective sectional area: 0.85mm²

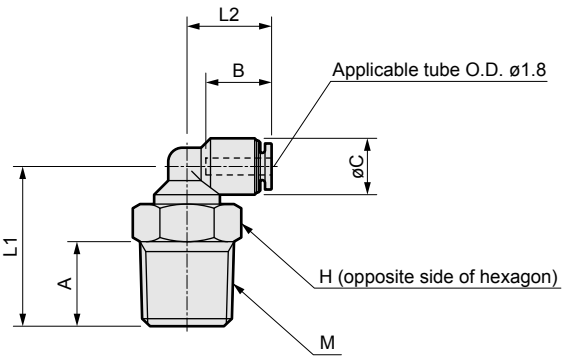
Dimensions: Single elbow, both push-in branch, tee union

Single elbow

● CG-L2-*



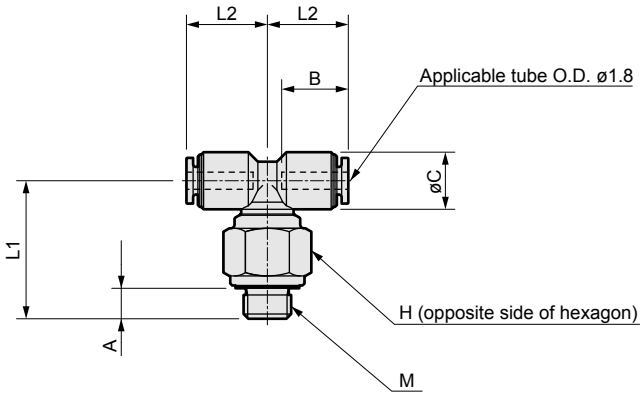
● CG-L2-6



Model no.	M	H	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
CG-L2-M3	M3×0.5	8	14	8.5	2.7	7	6	1.5	0.81
CG-L2-M5	M5×0.8	8	14.5	8.5	3.2	7	6	1.5	0.81
CG-L2-6	R1/8	10	17	9	9	7	6	1.5	0.84

Both push-in branch

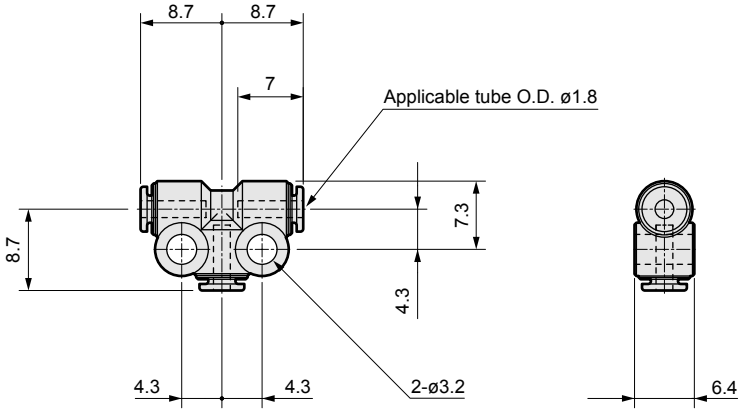
● CG-T2-*



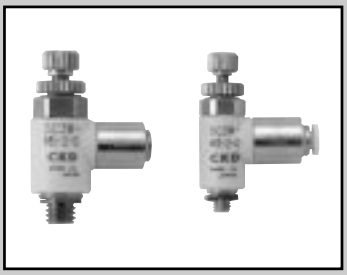
Model no.	M	H	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
CG-T2-M3	M3×0.5	8	14	8.5	2.7	7	6	1.5	0.96
CG-T2-M5	M5×0.8	8	14.5	8.5	3.2	7	6	1.5	1.25

Union Tee

● CG-T2-0



Min. bore size: ø1.5
Effective sectional area: 0.90mm²



Speed control valve Elbow type with push-in joint

SC3W Series (Low speed type fiber tube push-in specifications)

- Applicable tube outer diameter: ø1.8
- Port size: M3, M5

JIS symbol 

RoHS **Custom order**

Specifications

Model no.			SC3W	
Applicable tube outer diameter			ø1.8	
Working fluid			Compressed air	
Max. working pressure		MPa	1.0	
Min. working pressure		MPa	0.05	
Withstanding pressure		MPa	1.5	
Fluid temperature		°C	5 to 60 (no freezing)	
Ambient temperature		°C	0 to 60 (no freezing)	
Port size			M3	M5
Number of needle turn		time	14 and over	16 and over
Free flow	Flow	ℓ/min. (ANR)	20	54
	Effective sectional area	mm²	0.3	0.8
Controlled flow	Flow	ℓ/min. (ANR)	5.9	6.7
	Effective sectional area	mm²	0.08	0.1
Applicable tube			Fiber tube (UP-9402-F1, EH-5802)	Note1

Note1: Fiber tube for barbed joint (UP-9102-F1) is not available.

How to order

● Port size:M3

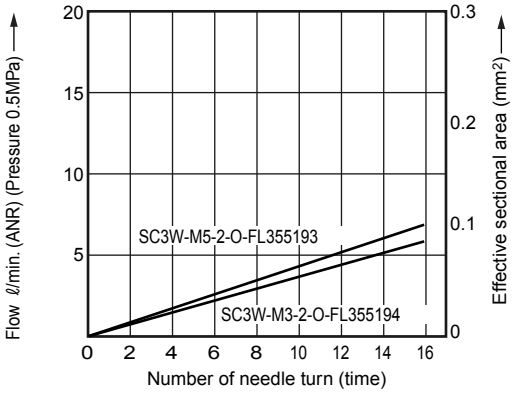
SC3W-M3-2-O-FL355193

● Port size:M5

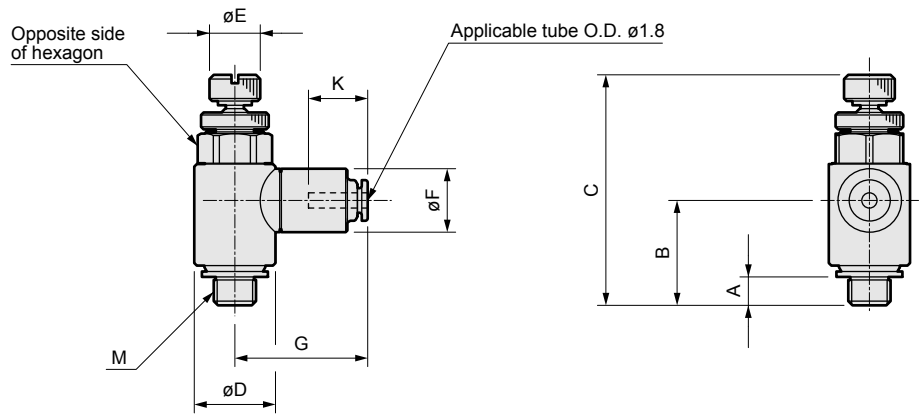
SC3W-M5-2-O-FL355194

Flow characteristics

● Low speed type



Dimensions



Model no.	M	A	B	C		D	E	F	G	K	Opposite side of hexagon
				MIN	MAX						
SC3W-M3-2-O-FL355193	M3×0.5	2.4	11.4	25.1	27.6	7.4	5	7.5	15.3	7	7
SC3W-M5-2-O-FL355194	M5×0.8	3.4	12.4	27.2	30.2	9.6	6	7.5	15.5	7	8

Speed control valve Line type with push-in joint

SCL2 Series (Fine speed type fiber tube push-in specifications)

● Applicable tube outer diameter: ø1.8, ø4

JIS symbol 

RoHS **Custom order**

Specifications

Model no.		SCL2	
Applicable tube outer diameter		ø1.8	
Working fluid		Compressed air	
Max. working pressure	MPa	1.0	
Min. working pressure	MPa	0.1	
Withstanding pressure	MPa	1.5	
Fluid temperature	°C	5 to 60 (no freezing)	
Ambient temperature	°C	0 to 60 (no freezing)	
Number of needle turn	time	15 and over	
Free flow	Flow ℓ/min.(ANR)	50	
	Effective sectional area mm²	0.7	
Controlled flow	Flow ℓ/min.(ANR)	13	
	Effective sectional area mm²	0.2	
Applicable tube		Fiber tube (UP-9402-F1, EH-5802)	Note1

Note1:Fiber tube for barbed joint (UP-9102-F1) is not available.

How to order

● Port size: ø1.8

SCL2-04-H22-F-FL355195

● Port size: A side ø4, B side ø1.8

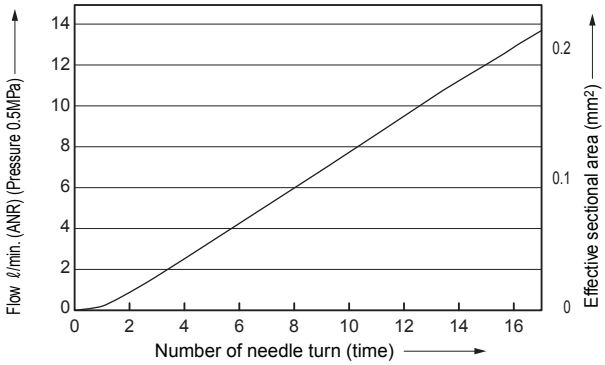
SCL2-04-H42-F-FL355196

● Port size: A side ø1.8, B side ø4

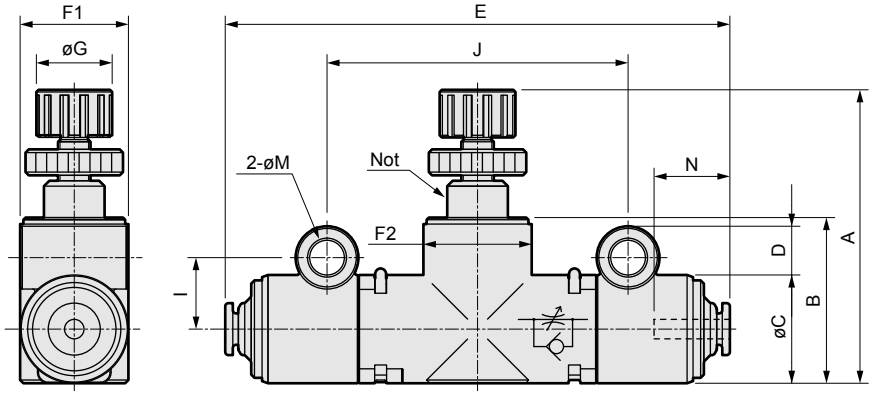
SCL2-04-H24-F-FL355197

Flow characteristics

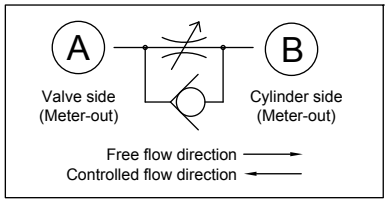
● Fine speed type



Dimensions



Explanatory drawing of applicable outer tubing (Only H24/H42)



Model no.	Piping tube outer diameter		A		B	C	D	E	F1	F2	G	I	J	M (installation hole diameter)	N (tube insertion length)	
	A side	B side	MAX	MIN											A side	B side
SCL2-04-H22-F-FL355195	ø1.8	ø1.8	27	32	15	10	4.5	47	10	11	7	6.6	28	3.3	7	7
SCL2-04-H42-F-FL355196	ø4	ø1.8						46							12.9	7
SCL2-04-H24-F-FL355197	ø1.8	ø4													7	12.9

Note: F1 and F2 dimensions are oval.

⚠ Safety Precautions

■ Design & Selection

⚠ CAUTION

- The PG and CG Series are not made of flame-resistant resin so use care in selection.
- This is an extremely fine tube, so the effective sectional area is extremely small. Use with a standard cylinder may cause problems such as failure to obtain set speed, delayed response, or knocking.
  The piping length should be at 1m or less and fine speed cylinder (catalog no. CC-N-360) used.
- Fiber tubing is thin, so vacuum in the vacuum device increases and delays the response of the vacuum switch during vacuum break
- The CG Series is for clean blow and washing lines.
  Check with CKD for use in other applications.
  The CG Series packing (material: EPDM) is susceptible to mineral oil, so it is not suitable for piping general pneumatic components.
  Use the PG Series for piping to general pneumatic components.

■ Installation & Adjustment

⚠ CAUTION

- Use fiber tubing for push in joints (UP-9402-F1, EH-5802) with the push in joint f or fiber tubing (PG, CG Series). Tubing could dislocate if fiber tubing for CKD barbed joint (UP-9102-F1), barbed joint for fiber tubing (PTN Series), or other brands of tubing and joints are used.
- Cut tubing with a dedicated cutter at a right angle. Do not use worn or damaged tubing. Tubing could be crushed or break. If cut with a dull knife, tubing could be crushed and block the flow path.
- Do not reuse a tube that could be deteriorated and deformed.
- Inspect CG-*2-6 regularly.
  Threads on CG-*2-6 are made of PP, so leaks could occur if threads come loose.
  Inspect regularly and tighten to stop any leaks.
  If leaks do not stop after tightening, replace the joint with a new one.
- Use of oil is prohibited with the CG Series, so force required to insert tubing increases.
  Hold tubing at the base and securely insert until contact is felt - 7 mm.
- Apply adequate torque when connecting pipes.
  - To prevent air leakage or damage of screw. First tighten the screw by hand to prevent threads, then use a tool.
    Check that the tool's hexagon face and wrench are the correct size.
- CG-*2-6 threads are made of PP. Tighten as follows: Leave 1.5 to 2 threads at the end of tapered threads open, and wrap 2 to 2.5 times with sealing tape.
  Tighten lightly by hand, then tighten two to three turns with a tightening tool.
  The part is made of resin so it could deform or break if tightened too much.

(Reference value)

Port thread	Tightening torque N·m
M3	0.3 to 0.6
M5	1.0 to 1.5
Rc1/8 *	3 to 5

The above values apply when partner threads are JIS B 0203 piping tapered female threads (material C3604DB).
* Applies only when joint threads are metal.

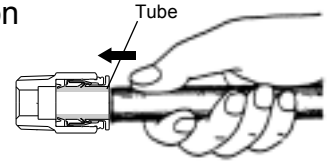
- Check that tubing is not worn or damaged.
  - Tubing could be crushed, break, or be dislocated.
  - Do not let the tube directly contact other surfaces, it could wear and break.
- On devices requiring antistatic measures, ground the member to which the joint is connected.
  Electrostatic discharge could build up in tubing if the member is not grounded.
- CG-*2-6 (R1/8) does not have sealing agent. Prepare sealing tape, etc., separately.

■ During Use & Maintenance

⚠ CAUTION

Mounting and removal

Installation



Push the tube in until it contacts the tube end.
Check that the tube is not dislocated from the joint. Tubing fits 7 mm from the end of the joint. The end of the mounted tube must be cut at a right angle.

Removal

While pushing the push ring with a finger, pull the tube to remove it. Tubing could deform (stretch) if pulled too hard. Correctly press the push ring while removing tubing. Replace deformed tubing with new tubing.

Series variation

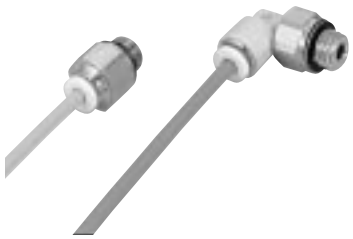
Fiber tube flame resistant type (Push-in joint)

bore size ø1.8×ø1.0

Push-in joints for fiber tube

Port size M5, R1/8

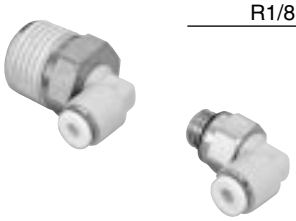
Fiber tube flame resistant type (Push-in joint)

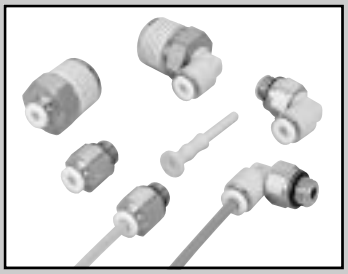


O.D. x I.D.
ø1.8×ø1.0

Color
Red
Green

Push-in joints for fiber tube

■ Straight	■ Elbow	■ Plug type
Single straight RG-S2-*	Single elbow RG-L2-*	Blanking plug PG-P2-B
		
Port size: M5, R1/8	Port size: M5, R1/8	
• Page: 1000	• Page: 1000	• Page: 1000



Fiber tube flame resistant type

(Push-in joint)

● Outer diameter: ø1.8 × Inner diameter: ø1.0

RoHS

Features

● Flame-resistant
Flame-resistant resin is used for fiber tubing and pushin joints.

● Flexibility retained
Fiber tubing remains flexible even with flame-resistant resin. (Minimum installation radius: 4 mm)

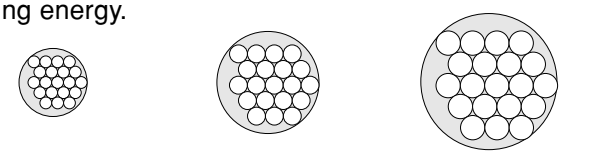
● Protection against naturally occurring ozone
Ozone-resistant material (HNBR) is used for pushin joint packing adversely affected by ozone.

Flame-resistant

Flame-resistant resin (UL94 Standards V-0 or equivalent) is used for fiber tubing and joints (push ring and elbow).

Energy saving and space saving

Ultra thin size is just ø1.8 in outer diameter × ø1.0 in inner diameter.
Piping space is greatly reduced. Tubing piping is small, saving energy.



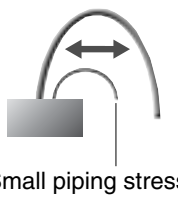
Fiber tube
ø1.8×20 wires: 80mm²

Conventional products
ø3.2×20 wires: 253mm²

Conventional products
ø4.0×20 wires: 396mm²

Eliminate adverse effect onto device accuracy

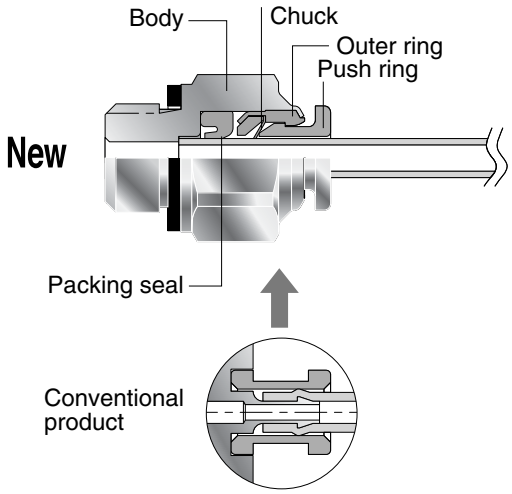
Tubing reaction after piping is similar to leads, greatly reducing the effect on device accuracy.

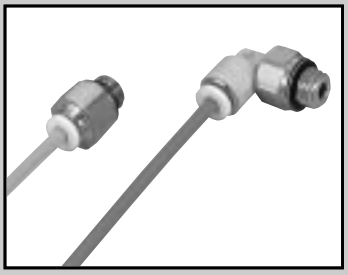


Small piping stress

Push-in mounting and removal

Tubing is easily inserted or removed by pressing down on the joint push ring. Operations are simpler than for conventional models.





Flame-resistant fiber tube (push-in joint)

- Outer diameter: ø1.8 × Inner diameter: ø1.0
- Flame resistance type (UP-9102-SR)

RoHS

Specifications

Model no.		Flame resistance type UP-9102-SR
Working fluid		Compressed air (Note 1)
Working pressure range (20˚C) (Note 2)		-100kPa to 0.7MPa
Ambient temperature range	˚C	-10 to 60 (no freezing)
O.D. × I.D.	mm	ø1.8×ø1.0
Bore size precision	mm	±0.1
Outer diameter precision	mm	±0.1
Durometer hardness		HDA 90
Min. bending radius (JIS B 8381)	mm	3
Min. installation radius	mm	4
Burst pressure (20˚C)	MPa	2.1
Material		Flame resistance polyurethane rubber
Color		Green/red (Note3)
Applicable joint		RG Series (Push-in type)

Note1: Consult with CKD when using other working fluids.
Note2: Refer to the graph of "Relevant of working temperature and pressure (constant vacuum break)" for details on working pressure range.
Note3: When flame retardant is added, the hue will be lighter instead of bright red or green.

How to order

● Antistatic type

UP-91 **02** - **20** - **R** - **SR**

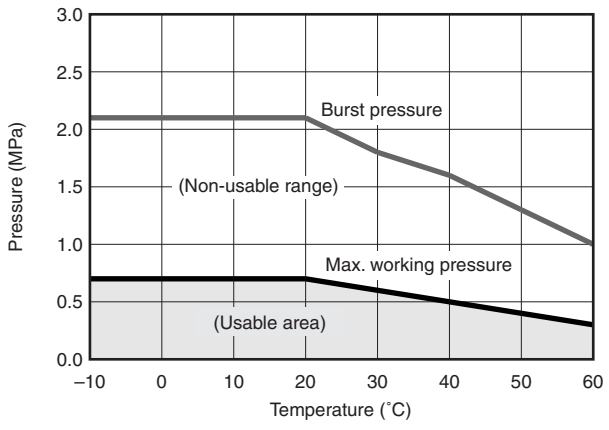
- **02**: Tube size ø1.8×ø1.0 (O.D. × I.D.)
- **20**: Length per roll 20m roll
- **R**: Tube color*
- **SR**: Flame resistance type

Tube color*	
R	Red
G	Green

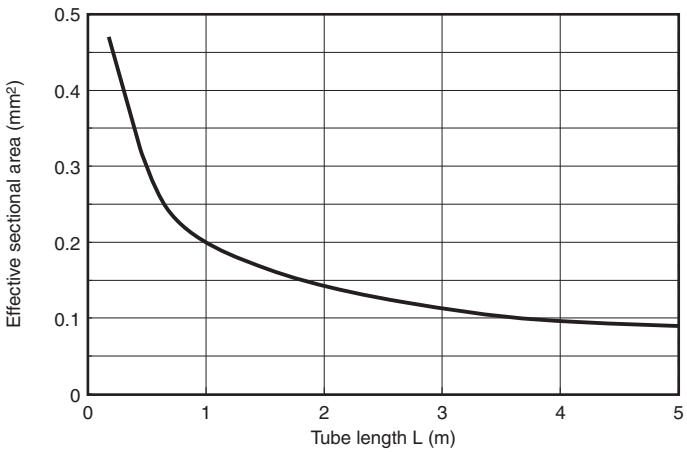
* When flame retardant is added, the hue will be lighter instead of bright red or green.

Characteristics graph

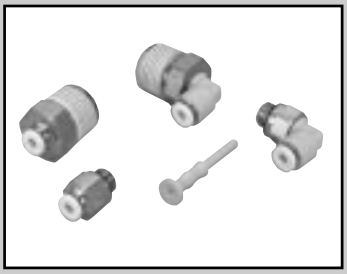
● Relevant of working temperature and pressure (normal destruction)



● Relevant of tube length and effective sectional area



The tubing inlet and outlet are measured with a single-ended straight (RG-S2-M5) attached.



Push-in joints for fiber tube
Flame resistance type **RG Series**

- Applicable tube outer diameter ø1.8
- Port size M5 to R1/8

RoHS CAD

Specifications

Model no.	RG Series
Working fluid	Compressed air (Note 1)
Working pressure range	-100kPa to 1.0MPa
Ambient temperature range ˚C	-10 to 60 (no freezing)
Applicable tube	Flame resistant fiber tube (UP-9102-SR) (Note2)

Note1: Consult with CKD when using other working fluids.
Note2: Fiber tube for barbed joint (UP-9102-F1) is not available.
Note3: Sales unit is 1 set (10 pieces).

How to order

Refer to the model no. on the dimensions page for the model no. combination.

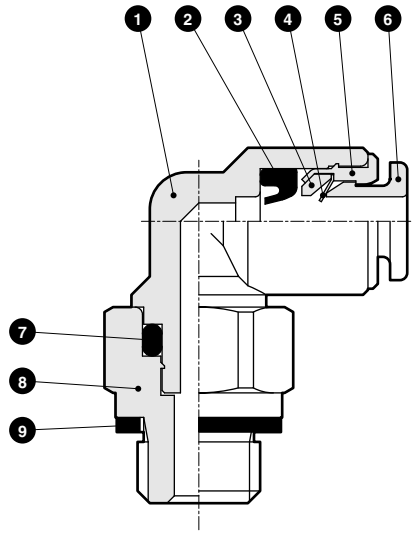
RG - S 2 - M5

Ⓐ Shape
Ⓒ Port size
Ⓑ Applicable tube O.D.:ø1.8

Ⓐ Shape	
S	Straight
L	Elbow
P	Plug

Ⓒ Port size	
M5	M5×0.8
6	R1/8
B	Blanking plug

Internal structure and parts list



No.	Parts name	Material
1	Body *1 (Single elbow)	PBT (flame resistance resin *2)
	(Single straight)	Brass (electroless nickeling)
2	Packing seal	Hydrogen nitrile rubber
3	Chuck holder	Polypropylene
4	Chuck	Stainless steel
5	Outer ring	Brass (electroless nickeling)
6	Push ring *1	Polyamide (flame resistance resin *2)
7	O ring	Nitrile rubber
8	Nipple	Brass (electroless nickeling) (R1/8 is with sealant)
9	Gasket	Stainless steel + nitrile rubber

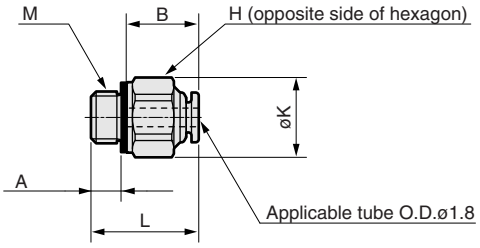
*1: The RG Series push ring and body (single-ended elbow) is light gray (CKD standard color).
*2: Equivalent to UL94 standards V-0

Dimensions:Single straight, single elbow, blanking plug

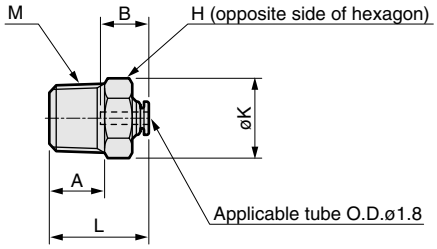
CAD

Single straight

● RG-S2-M5



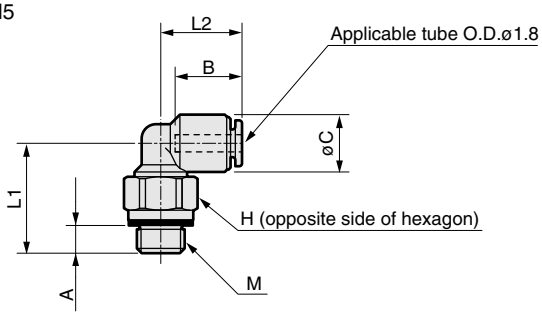
● RG-S2-6



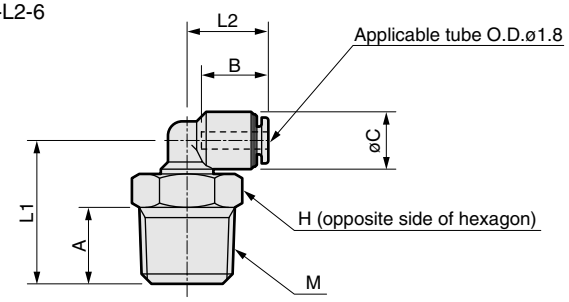
Model no.	M	H	K	L	A	B	Min. bore size	Effective sectional area mm²
RG-S2-M5	M5×0.8	7	7.7	10.4	2.9	7	1.5	0.56
RG-S2-6	R1/8	10	11.6	14.4	8	7	1.5	0.56

Single elbow

● RG-L2-M5



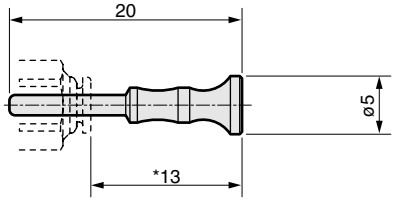
● RG-L2-6



Model no.	M	H	L1	L2	A	B	C	Min. bore size	Effective sectional area mm²
RG-L2-M5	M5×0.8	7	11.5	8.5	2.9	7	6	1.5	0.54
RG-L2-6	R1/8	10	15	8.5	8	7	6	1.5	0.54

Blanking plug

● RG-P2-B



Material: PBT/light gray (CKD standard)
(Equivalent to UL94 standards V-0)
* Dimensions for RG Series connection joint

Safety precautions

CAUTION

■ Use flame resistant fiber tubing (UP-9102-SR) with a flame resistant push-in joint for fiber tubing (RG Series).

■ Do not use in an atmosphere with possible contact with welding sparks, etc.
This product is made of flame resistant resin, but is not resistant to spatter.

■ Tubing is soft and thin and could be dislocated if too much force is applied.

MEMO

Series variation

Fiber tube antistatic type

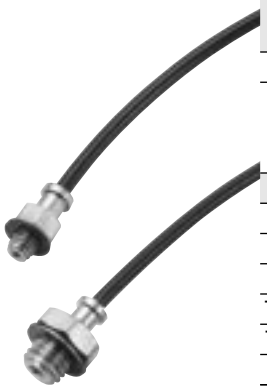
tubediameter ø1.8×ø1.0

Dedicated joint

Port siz M3, M5, R1/8, ø4, ø6

CAD

Fiber tube antistatic type



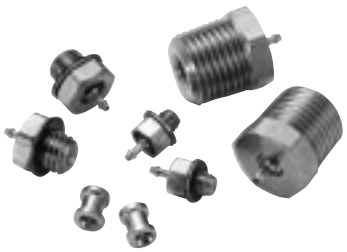
O.D. × I.D. (mm)
ø1.8×ø1.0

Color
Black
White
Transparent
Transparent blue
Transparent green
Red (custom order)
Yellow (custom order)

Dedicated joint

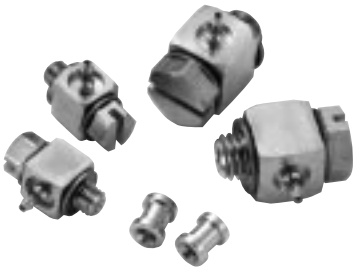
■ Straight

Applicable tube O.D.ø
1.8



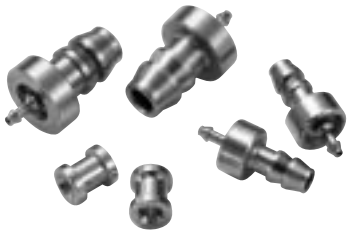
■ Elbow

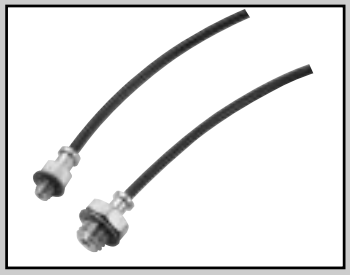
Applicable tube O.D.ø
1.8



■ Barbed nipple

Applicable tube O.D.ø
1.8/3.2
1.8/4
1.8/6

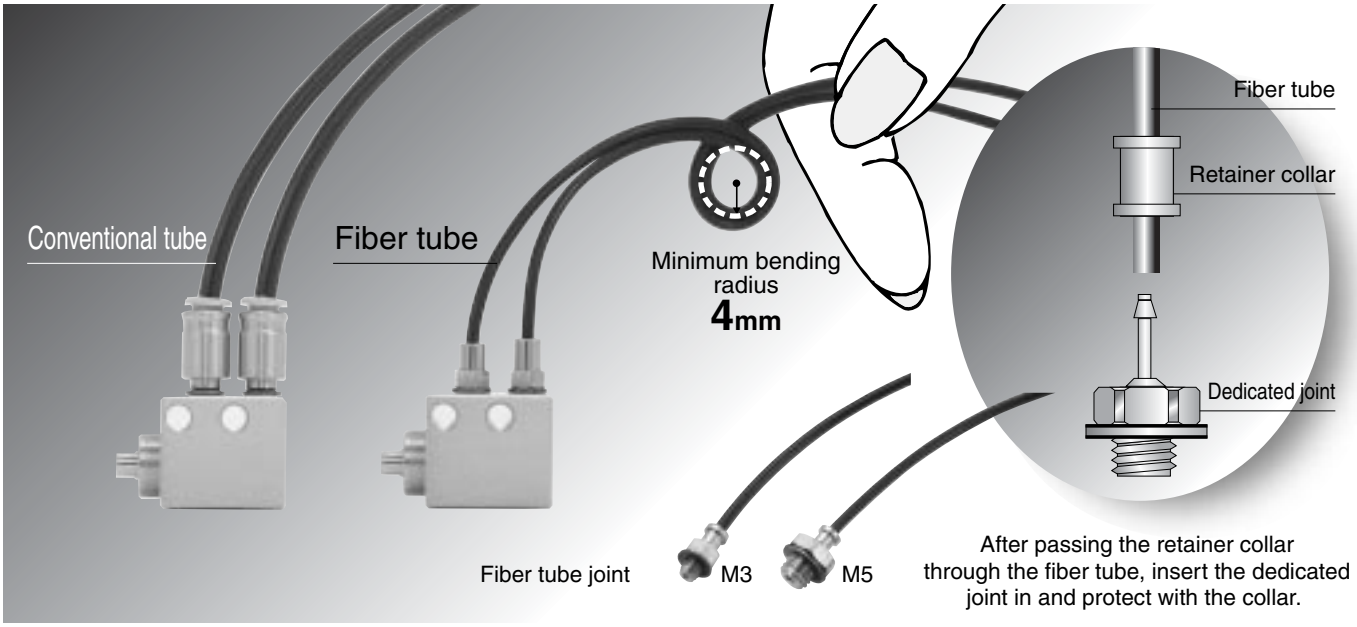




Fiber tube antistatic type

● Outer diameter: 1.8mm

RoHS



Introducing an easy-to-pipe ultra-thin tube.

An ultra-thin fiber tube with a ø1.8mm outer diameter and 4mm minimum bending radius is now available. Short distances are laid easily and stress applied on the laid tube greatly reduced.

The fiber tube is an extremely fine air tube as thin and flexible as a lead wire. This tube is laid easily in difficult areas such as narrow spaces and for short distance. The resistance applied on the laid tube (tube stress) is extremely small compared to conventional types, so adverse effects on the device accuracy can be eliminated. This fiber tube is suitable for small bore air cylinder piping, and contributes to device downsizing.

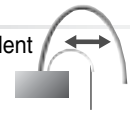
■ Main features

Appropriate for air cylinder piping of small bore size

- Semiconductor related small part transfer unit
- Suitable for stable control of fine speed cylinder speed
  (Since there is little piping loss, the fine speed cylinder's speed is stable.
- Piping tube to small part vacuum pad

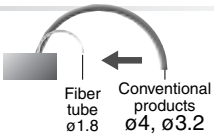
● Eliminate adverse effect onto device accuracy

Stress applied to the tube by piping is greatly reduced. The bounce is equivalent to a lead wire, so adverse effects on device accuracy are minimized.



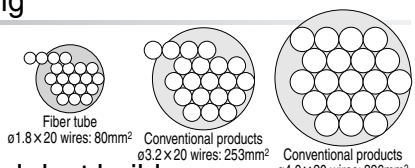
● Easy piping

The fiber tube is extremely flexible, and the minimum bending radius is a mere 4mm. In piping, the tube is easily laid in difficult areas such as small spaces and for short distances of only 200 to 300mm.



● Energy saving and space saving

This 1.8 x 1.0 diameter tube is extremely thin, making it possible to greatly reduce piping space. The tube piping volume is also small, thereby saving energy.



● Resistant to static electricity and dust build-up

The fiber tube's volume resistivity is approx. 1 x $10^8\Omega$·cm. (Black) Superior antistatic measures are taken to prevent static electricity and dust gathering.

● Dedicated joint available

The dedicated joint is provided with a retainer collar, and is available in three screw sizes: M3, M5, and R1/8 (only straight).
This joint is available in the straight, elbow, or barbed nipple type.

● Seven tube colors

Tubing is available in black, white, clear, clear blue, clear green, yellow, or red.

Fiber tube

Specifications

● Tube

Descriptions	UP-9102-20-*-F1
Working fluid	Compressed air
Working pressure range (20˚C) (Note1)	-100kPa to 0.7MPa
Ambient temperature range ˚C	-10 to 60 (no freezing)
O.D. × I.D. mm	1.8×1.0
Bore size precision	±0.1
Outer diameter precision	±0.1
Min. bending radius (JIS B 8381) mm	2
Min. installation radius mm	4
Burst pressure (20˚C) MPa	2.1(reference value)
Volume resistance ratio Ω·cm	1 × 10^8 or less (black) 1 × 10^{12} or less (other than black)
Material	Conductive urethane
Color	Black, white, clear, clear blue, clear green, yellow (Note2), red (Note2)
Applicable joint	PTN* Series (barbed type) (Note5)

● Dedicated joint

Descriptions	PTN*
Port size	M3, M5, R 1/8, ø3.2(Note 4), ø4(Note 4), ø6(Note 4)
Working fluid	Compressed air
Working pressure range	-100kPa to 0.7MPa
Ambient temperature range ˚C	-10 to 60 (no freezing)
Applicable tube	UP-9102-20-*-F1 (Note 6)
Effective sectional area mm²	Straight, Barbed nipple:0.3 elbow: 0.2
Flow (Note 3) ℓ/min. (ANR)	Straight, Barbed nipple:20 elbow: 13

Note 1 Refer to the graph of "Relevant of working temperature and pressure (constant vacuum break)" for details on working pressure range.
Note 2 Custom order.
Note 3 Flow rate is the atmospheric pressure conversion value at pressure 0.5MPa.
Note 4 Applicable tube:Soft nylon tube (Model no. FH-3224,F-1504,F-1506)
Urethane tube (Model no. U-9504,U-9506)
Note 5 Not available for PG, CG, RG Series (push-in type).
Note 6 Fiber tube for push-in joint (UP-9402, EH-5802) is not available.

How to order

● Tube

UP-91 | 02 | - | 20 | - | W | - | F1

- 02: Tube size ø1.8×ø1.0 (O.D. × I.D.)
- 20: Length per roll 20m roll
- W: Ⓐ Tube color
- F1: Antistatic

Ⓐ Tube color	
Blank	Black
W	White
C	Clear
CB	Clear blue
CG	Clear green
Y	Yellow (Note)
R	Red (Note)

Note: Custom order.

● Dedicated joint Sales unit 10 pcs./set

<Straight>

PTN2 - M3 (Ⓐ)

Ⓐ Port size	
M3	M3×0.5
M5	M5×0.8
6	R 1/8

<Elbow>

PTNL2 - M3 (Ⓐ)

Ⓐ Port size	
M3	M3×0.5
M5	M5×0.8

<Barbed nipple>

PTN2 | 4 | - | 0 (Ⓐ)

Ⓐ Applicable tube O.D. (Note)	
4	ø3.2, ø4
6	ø6

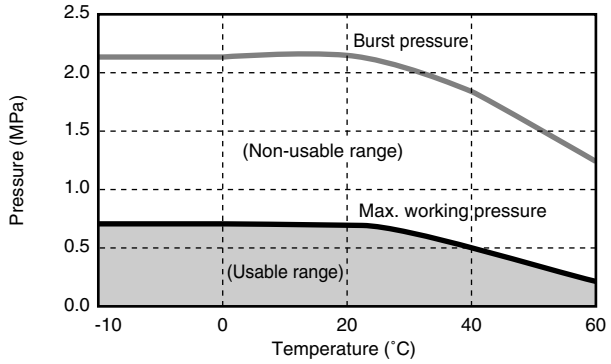
Note: Applicable tube
Soft nylon tube (Model no. FH-3224, F-1504, F-1506)
Urethane tube (Model no. U-9504,U-9506)

Clean room specifications (catalog No. CB-033SA)

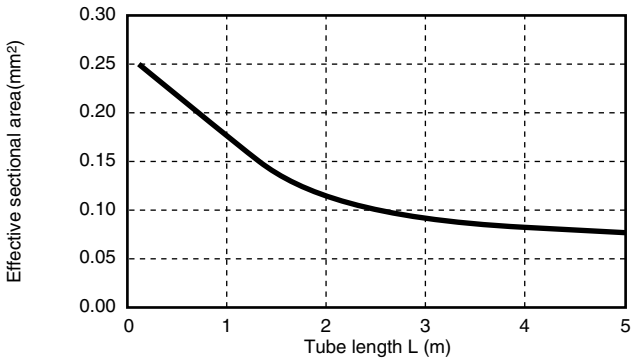
PTN2 ····· P80
UP-91 ····· P80

Characteristics graph

● Relevant of working temperature and pressure (normal destruction)

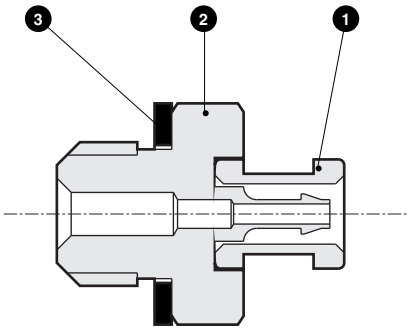


● Relevant of tube length and effective sectional area

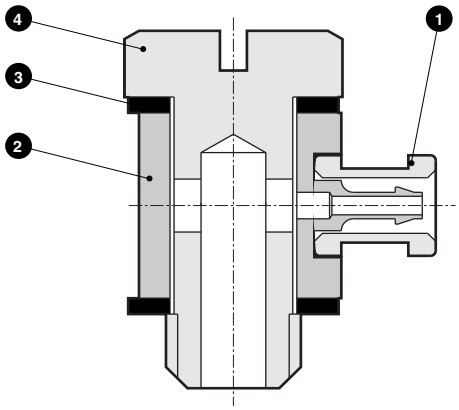


Internal structure and parts list

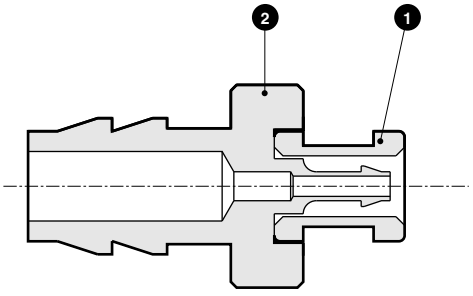
● Straight



● Elbow



● Barbed nipple



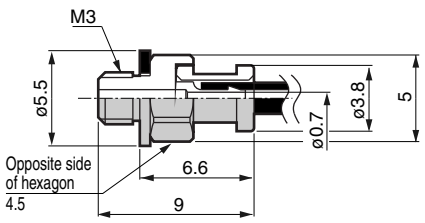
● Parts list

No.	Name	Material
1	Collar	Brass (with electroless nickeling)
2	Body	Brass (with electroless nickeling)
3	Gasket	Stainless steel + Nitrile rubber
4	Shaft	Brass (with electroless nickeling)

Dimensions CAD

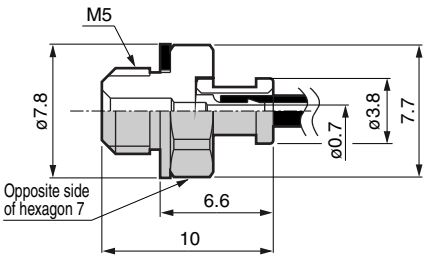
● Straight

<PTN2-M3>



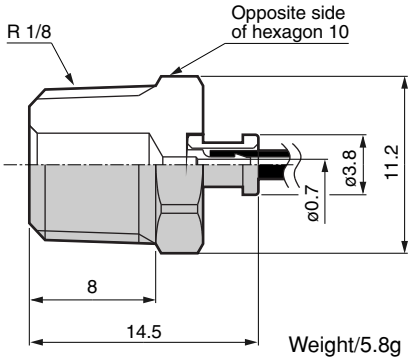
Weight/0.7g

<PTN2-M5>



Weight/1.6g

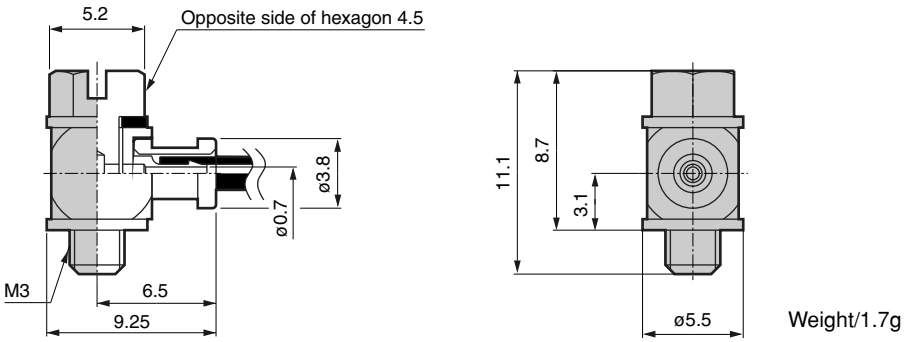
<PTN2-6>



Weight/5.8g

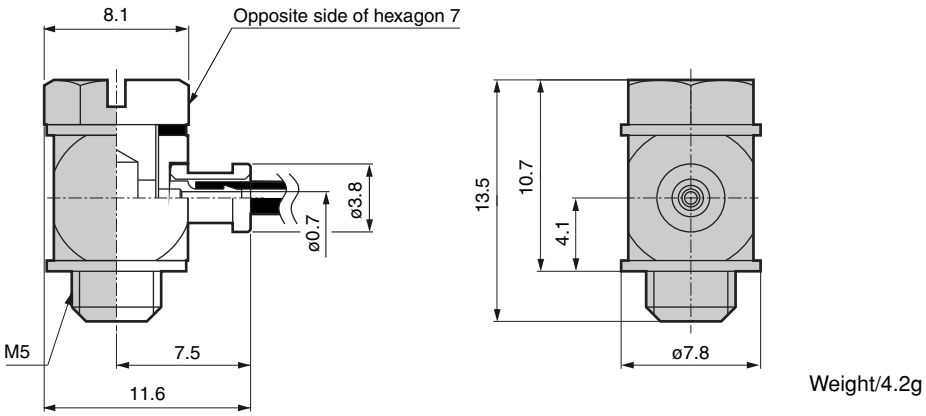
● Elbow

<PTNL2-M3>



Weight/1.7g

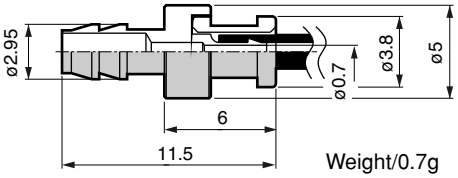
<PTNL2-M5>



Weight/4.2g

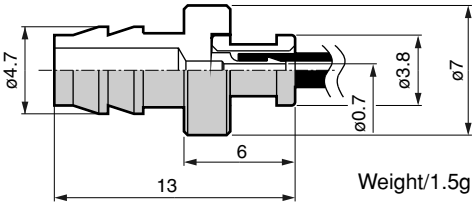
● Barbed nipple

<PTN24-0>



Weight/0.7g

<PTN26-0>



Weight/1.5g

Safety precautions

■ Design & Selection

- This is an extremely fine tube, so the effective sectional area is extremely small. Use with a standard cylinder may cause problems such as failure to obtain set speed, delayed response, or knocking.
  The piping length should be at 1m or less and fine speed cylinder (catalog no. CC-N-360) used.
- Fiber tubing is thin, so vacuum in the vacuum device increases and delays the response of the vacuum switch during vacuum break.

■ Installation & Adjustment (piping)

- Apply adequate torque when connecting pipes.
  To prevent air leak and to protect thread. Tighten by hand at first so that threads are not damaged, then use a tool. Use a tool with a suitable hexagon face and wrench size.
  (Reference value)

Port thread	Tightening torque N·m
M3	0.3 to 0.5
M5	1 to 1.5
R 1/8	3 to 5

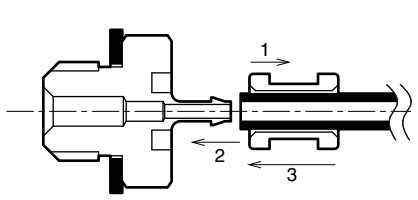
* The M3 screw could be damaged by excessive tightening torque.

- On devices requiring antistatic measures, ground the member to which the joint is connected.
  Electrostatic discharge could build up in tubing if the member is not grounded.
- The elbow can be rotated randomly and installed, but cannot be rotated after assembly.
- R1/8 does not have sealing material. Prepare sealing tape, etc., separately.

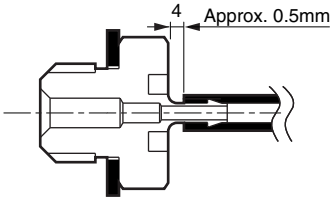
■ During Use & Maintenance

- Mounting and removal

Installation



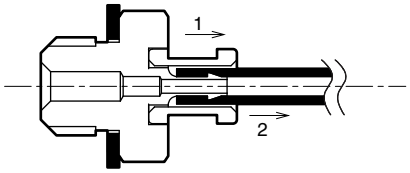
<Fig. 1>



<Fig. 2>

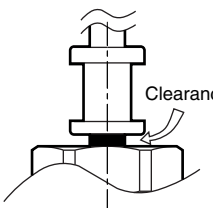
(1) Insert the collar into the tube. (Fig. 1)
(2) Insert the tube to position 4. (Fig. 2)
(3) Insert the collar into the joint. (Fig. 1)
(4) Check that the tube is not dislocated from the joint.
Note: Do not incline the tube when inserting it into the bottom of the joint. The barbed joint is thin, and could be damaged by a lateral load.

Removal

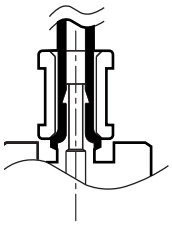


(1) Pull the collar out with a pair of needle-nosed pliers, etc.
(2) Pull out the tube.
(3) When reusing the tube, cut the end off 10mm and over.
Note: If the tube is pulled forcefully while the collar is attached, the tube could be deformed, the flow obstructed, or the tube dislocated during use.

- Precautions after mounting



(1) Check that there is no gap between the collar and joint.
(The joint could break or the tube could be dislocated.)



(2) If the collar does not go in, the tube may rid up on it as shown above. Follow mounting and removal procedures and assemble the collar at a position 0.5mm from the tube.

UP.F.U.NU.KX.SR Tube

O.D. 1.8, 3.2, 4, 6, 8, 10, 12, 15mm

● Wide tube variation
A great variety of tube is available according to purpose and applications.
High reliable, and meeting needs of space saving and complex piping etc.

■ Antistatic tube

O.D. x I.D. (mm)
3.2×1.8
4×2.5
6×4
8×5
10×6.5
12×8

• Page : 1009

■ Soft nylon tube

Manufacturer of colors other than white: Aoi Co., Ltd.

O.D. x I.D. (mm)
3.2×2.0
3.2×2.4
4×2.5
6×4
8×5.7
10×7.2
12×8.9
15×11.5
16×12

• Page : 1012

■ Urethane tube

O.D. x I.D. (mm)
4×2.5
6×4.5
8×6
10×7.5
12×9

• Page : 1013

■ Urethane tube

AOI Co., Ltd.

O.D. x I.D. (mm)
3.2×1.8
4×2
6×4
8×5
10×6.5
12×8

• Page : 1014

■ Coiling tube

AOI Co., Ltd.

O.D. x I.D. (mm)
6×4
8×6
10×7.5
12×9.2

• Page : 1014

■ Flame resistant tube

AOI Co., Ltd.

O.D. x I.D. (mm)
4×2.3
6×3.8
8×5.5
10×7
12×8.5

• Page : 1015

■ Tube knife

AOI Co., Ltd.

Tube knife

AOI Co., Ltd.
AZ-1200

Feature
(1) Preventing cutting plane from air trouble by right angle cut.
(2) Extremely light weight and compact.
(3) Easy edge replacing.

Applicable material
● Nylon tube
● Urethane tube
● PTFE tube
● Other plastic tubes

Shape knife

Antistatic tube

● Outer diameter: 3.2mm, 4mm, 6mm, 8mm, 10mm, 12mm

RoHS

Features

● Resistant to static electricity and dust build-up

● Variety of colors
Tubing is available in black, white, clear, clear blue, or clear green.
Colors can be used for the application.

● Standard clean specifications (F2 Series)

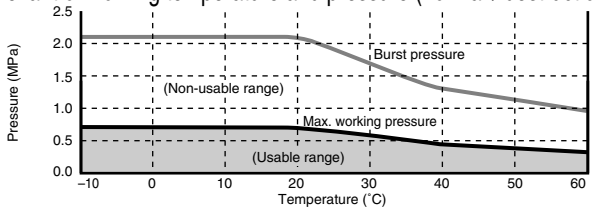
● Diverse lineup
• Six diameters are available: 3.2, 4, 6, 8, 10, and 12.

UP-F2 Series(ø3.2 to ø6)

Specifications

Descriptions	UP-91**-F2-P80		
O.D. × I.D. mm×mm	ø3.2×ø1.8 (Note)	ø4×ø2.5	ø6×ø4
Working fluid	Compressed air		
Max. working pressure MPa	0.7 (20˚C)		
Ambient temperature range ˚C	0 to 60 (no freezing)		
Durometer hardness (JIS K 7215)	HDA94 (reference)		
Mini. bending radius (JIS B 8381) mm	4	6	12
Min. installation radius mm	8	11	18
Burst pressure MPa	2.1 (20˚C)		
Volume resistance ratio (JIS K 6911) Ω·cm	Black: 10^4 to 10^5, other colors: 10^{10} to 10^{11} (referential value)		
Material	Antistatic urethane		
Color	Black, white, clear, clear blue, clear green, clear red (Note)		

Relevant of working temperature and pressure (normal / destruction)



How to order

UP - 91 32 - 20 - W - F2 - P80 — Clean room specifications

Antistatic

- A Tube hardness
- B Tube size
- C Length per roll
- D Tube color

Symbol	Descriptions
A Tube hardness	
91	94˚
B Tube size	
32	ø3.2 (Note)
04	ø4
06	ø6
C Length per roll	
20	20m
D Tube color	
Blank	Black
W	White
C	Clear
CB	Clear blue
CG	Clear green
CR	Clear red (Note)

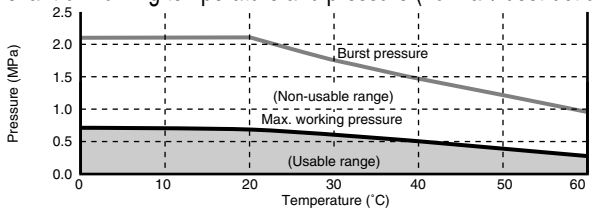
Note: All outer diameter ø3.2 tubes and the clear red ø4 and ø6 tubes are available as custom orders.

UP-F1 Series (ø8 to ø12)

Specifications

Descriptions	UP-92**-F1		
O.D. × I.D. mm×mm	ø8×ø5	ø10×ø6.5	ø12×ø8
Working fluid	Compressed air		
Max. working pressure MPa	0.7 (20˚C)		
Ambient temperature range ˚C	0 to 60 (no freezing)		
Durometer hardness (JIS K 7215)	HDA92 (reference)		
Mini. bending radius (JIS B 8381) mm	10	13	16.5
Min. installation radius mm	25	30	36
Burst pressure MPa	2.1(20˚C)		
Volume resistance ratio (JIS K 6911) Ω·cm	Black: 10^4 to 10^8, other colors: 10^8 to 10^{12} (referential value)		
Material	Antistatic urethane		
Color	Black, white, clear, clear blue, clear green		

Relevant of working temperature and pressure (normal / destruction)



How to order

UP - 92 08 - 20 - W - F1

Antistatic

- A Tube hardness
- B Tube size
- C Length per roll
- D Tube color

Symbol	Descriptions
A Tube hardness	
92	92˚
B Tube size	
08	ø8
10	ø10
12	ø12
C Length per roll	
20	20m
D Tube color	
Blank	Black
W	White
C	Clear
CB	Clear blue
CG	Clear green

Clean room specifications (catalog No. CB-033SA)

● Dust generation preventing structure for use in cleanrooms

UP - 92** - F1 - P80

Dedicated joint / speed control valve (Custom order)

Specifications

Descriptions		Descriptions
Volume resistance ratio	Ω·cm	10^4 to 10^6 or less (reference value)
Resin		Antistatic PBT (black)
Lubricant		Oil-prohibited

Note: Other specifications are the same as the standard products. Refer to the specifications of joint GW Series or speed control valve SC3W Series.

How to order

● Dedicated joint

GW S 6 - 8 - S - F1

Antistatic + Oil-prohibited

Ⓐ Shape

Ⓐ Shape	
S	Straight
M	Bulkhead female connector

Ⓑ Applicable tube outer diameter

Ⓑ Applicable tube outer diameter
Same as standard products

Ⓒ Port size

Ⓒ Port size
Same as standard products

Ⓓ Other combinations

Ⓓ Other combinations	
X	Bulk head
S	Round
M	Female type
E	Bulk head female

* "-F1" is selected for the end of the new joint GW series model.
Refer to How to order for joint GW Series for model details.
* Consult with CKD for models other than above.

● Speed control valve

SC3W - M5 - 4 - I - F1

Antistatic + Oil-prohibited

Ⓐ Port size

Ⓐ Port size
M5×0.8

Ⓑ Applicable tube outer diameter

Ⓑ Applicable tube outer diameter	
4	ø4
6	ø6

Ⓒ Option

Ⓒ Option
Same as standard products

* "-F1" is selected for the end of the speed control valve SC3W series model.
Refer to How to order for speed control valve SC3W Series for model details.
* Consult with CKD for models other than above.

● Insert ring

INS - UP 32 - 1

Ⓐ

Ⓐ Applicable tube	
32	UP-9132
04	UP-9104
06	UP-9106

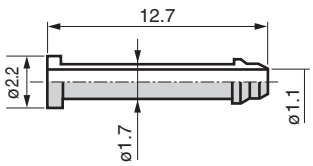
Sales unit is 10 pieces/1 bag.

Dimensions

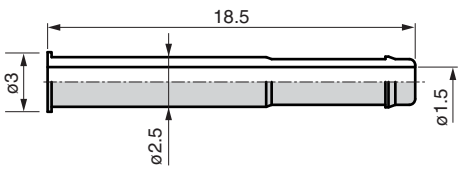
● Dedicated joint / speed control valve
Refer to the dimensions for joint GW Series (pages 930 to 943) and speed control valve SC3W Series (pages 842 to 845).

● Insert ring <custom order>

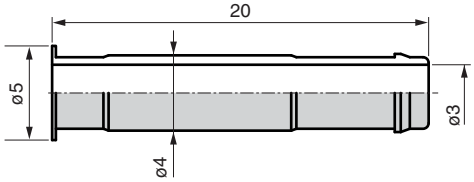
• INS-UP32-1



• INS-UP04-1



• INS-UP06-1



Material: Brass + electroless nickeling

Safety precautions

⚠ CAUTION

■ Design & Selection

- Be sure to ground the member connected to the joint. Otherwise electrostatic discharge could build up in tubing.
- When using tubing where electrostatic discharge must be prevented, select “black” tubing.
- Use the same size of urethane tubing, pushin joint, and insertion ring.
- When using with vacuum pressure with a push-in joint, use the insert ring.
- Use CKD brand joints and tubes.
- Do not apply a pulling force exceeding the values given on the right onto the joint or tube.

(N)

Tube outer diameter	Pulling force
ø3.2	30
ø4	30
ø6	55
ø8	110
ø10	150
ø12	180

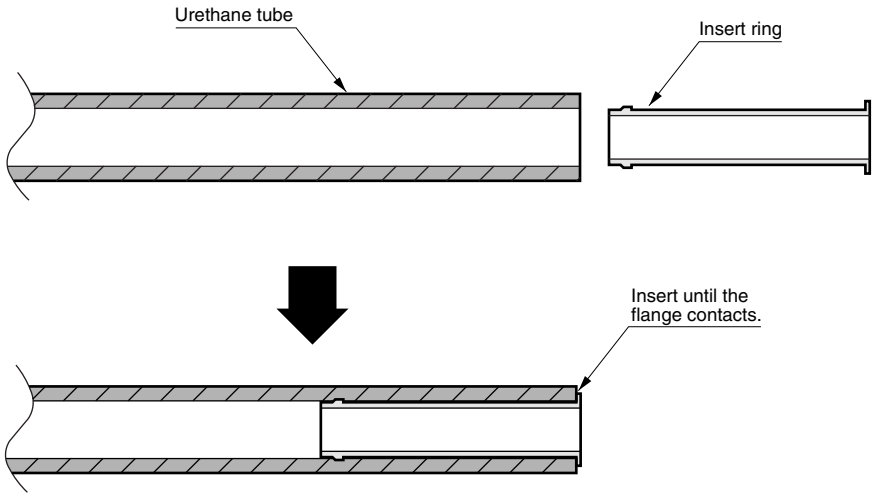
■ Installation & Adjustment

- The insertion ring is pulled out of urethane tubing with a finger when changing or modifying after piping is connected. The insertion ring need not be discarded.

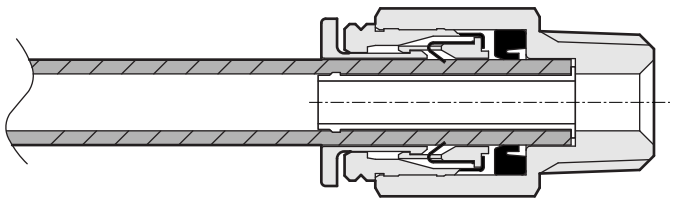
■ During Use & Maintenance

- Insert the insertion ring by hand. Otherwise it could deform or break and cause vacuum leakage if inserted with a tool.
- How to install the product

1. Insert the insertion ring into urethane tubing with a finger.



2. Insert into the pushin joint (GW Series).



Tube

F.U.NU.KX.SR Series

Wide bore size available according to purposes and applications.
High reliable piping tubes
● Outer diameter: 3.2, 4, 6, 8, 10, 12, 15mm

Soft nylon tube

Manufacturer of colors other than white: Aoi Co., Ltd.

Soft nylon tube is very flexible comparing to conventional nylon tube, and optimum for piping in the limited space. The tube also has sufficient characteristics such as cold resistance, weather ability, oil resistance and chemical resistance, etc.

How to order

FH-3224 – W

- FH-3224: Soft nylon tube, Tube size ø3.2×ø2.4
- W: Ⓐ Tube color

For miniature joint (F) (page 940)

Ⓐ Tube color	
Blank	Black
W	White

F-15 04 – 20 – W

- F-15: Soft nylon tube
- 04: Ⓐ Tube size (O.D.)
- 20: Ⓑ Length per roll
- W: Ⓒ Tube color

Ⓐ Tube size (O.D.)				Ⓑ Length per roll		Ⓒ Tube color	
32	ø3.2	10	ø10	20	20m	Blank	Black (Standard)
04	ø4	12	ø12	100	100m	W	White (standard)
06	ø6	15	ø15			R	Red
08	ø8	16	ø16			BU	Blue
						Y	Yellow
						G	Green
						O	Orange

Note: If tube color is white "W", length per roll 100m is not available.
Note: Use the FH-3224 for miniature joint. F-1532 can not be used.

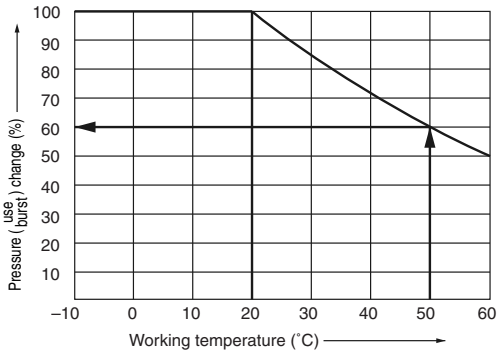
Specifications

This table indicates the value at 20˚C.

Descriptions	FH-3224	F-1532	F-1504	F-1506	F-1508	F-1510	F-1512	F-1515	F-1516
Working fluid	Compressed air								
O.D. × I.D. mm×mm	3.2×2.4	3.2×2.0	4×2.5	6×4	8×6	10×7.5	12×9	15×11.5	16×12
Ambient temperature range ˚C	–10 to 60 (no freezing)								
Burst pressure MPa	5.39			4.9	3.9	3.43		2.94	3.3
Max. working pressure MPa	1.76			1.67	1.27	1.18		1	1.1
Durometer hardness	HDD 63	HDD 52							
Min. bending radius (JIS B 8381) mm	13	4.5	5	8	15	20	26	43	46
Min. installation radius mm	21	7	10	20	30	40	55	80	90
Standard color	White, black		White (20m only), black, red, blue, yellow, green, orange			White, black			Black
Standard length per roll m	20		20/100			20/100 (only black)			20/100

* Outer diameter dimension tolerance may vary within ±0.1 mm.

Relevant of working temperature and pressure (use / burst)



Working pressure = burst pressure × $\frac{1}{3}$

(Example) Tube F-1504 (ø4×ø2.5)

If temperature is 50˚C, working pressure is 60% of working pressure of 20˚C.

$1.76 \times \frac{60}{100} \fallingdotseq 1.06$ (MPa)

Urethane tube

RoHS

Realizing magnified bore size and strength increases but still same outer diameter due to new manufacturing process. Meeting needs of large flow rate. Also economical.

Common specifications

Descriptions	Descriptions
Working fluid	Air
Ambient temperature range ˚C	0 to 60
Burst pressure MPa	4 (20˚C)
Working pressure MPa	1.0 (20˚C)
Use vacuum kPa	-100

How to order

NU – 04 – 20 – W
(A) (B) (C)

(A) Tube size (O.D.)		(B) Length per roll		(C) Tube color	
04	ø4	20	20m	Blank	Black (standard)
06	ø6	100	100m	W	White (standard)
08	ø8				
10	ø10				
12	ø12				

Note: If tube color is white "W", length per roll 100m is not available.

Note: Consult with CKD of other color.

Clean room specifications (catalog No. CB-033SA)

● Dust generation preventing structure for use in cleanrooms

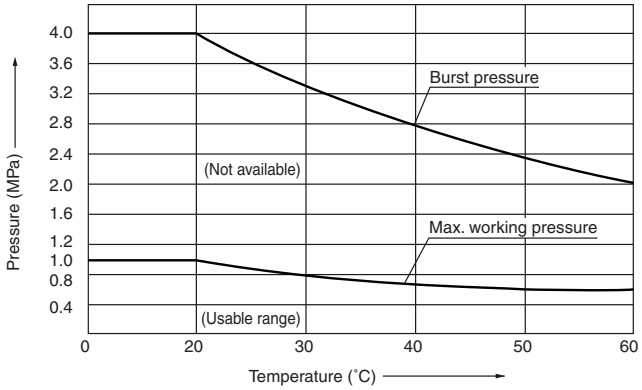
NU–·····– P80

Specifications

Descriptions	NU-04	NU-06	NU-08	NU-10	NU-12
O.D. × I.D. mm×mm	4×2.5	6×4.5	8×6	10×7.5	12×9
Burst pressure MPa	4 to 2.4				
Ambient temperature range ˚C	0 to 60 (no freezing)				
Durometer hardness (JIS K 7215)	HDD 64				
Min. bending radius (JIS B 8381) mm	8	16	24	30	36
Min. installation radius mm	12	26	36	42	52
Outer diameter precision mm	+0.1 −0.1			+0.1 −0.15	
Weight g/m	10	15	28	42	62
Tube color	Black, white				
Length per roll m	20/100 (only black)				

Note: Refer to Intro 63 for relation of tube length and effective sectional area.

Relevant of working temperature and pressure (use / burst)



Soft urethane tube

AOI Co., Ltd.

How to order

U-92 06 – 20 – N
Soft urethane tube
(A) (B) (C)

(A) Applicable tube O.D. size		(B) Length per roll		(C) Tube color	
04	ø4	20	20m	Blank	Black
06	ø6	100	100m	N	Clear
08	ø8			PW	White pure
10	ø10			R	Red
12	ø12			BU	Blue
				Y	Yellow
				G	Green
				O	Orange

Clean room specifications
(catalog No. CB-033SA)

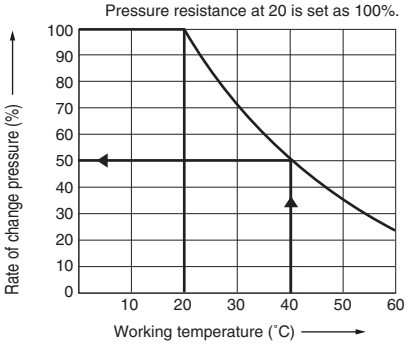
U-92–·····– P80

Specifications

This table indicates the value at 20˚C.

Descriptions	U-9204	U-9206	U-9208	U-9210	U-9212
Working fluid	Compressed air				
O.D. x I.D. mm×mm	4×2	6×3.7	8×5	10×6.5	12×8
Burst pressure MPa	4.1	2.9	2.8	2.6	2.6
Working pressure MPa	1.3	0.9	0.9	0.8	0.8
Durometer hardness JIS K7215	HDA 92				
Min. bending radius mm	4	10	11	13	16.5
Min. installation radius mm	8	17	25	30	36
Standard color	Black, clear, red, blue, yellow, green, orange, white pure				
Standard length per roll m	20/100				

■ Relevant of working temperature and working pressure



Working pressure = Vacuum breaker pressure × variation rate × 1/3 at 20˚C

When the temperature rises, the constant pressure gradually drops. Special care must be taken for temperature in use.

Example) U-9208, working temperature 40˚C
Working pressure = Vacuum breaker pressure × variation rate × 1/3

$$=2.0\times\frac{50}{100}\times 1/3$$
$$=0.33\text{MPa}$$

Urethane tube

AOI Co., Ltd.

Since urethane tube has high mechanical strength, the tube strongly endures external force, and also has flexibility. This is widely used in general pneumatic lines, etc.

How to order

U-95 04 – N

- U-95: Urethane tube
- Ⓐ 04: Applicable tube O.D. size
- Ⓑ N: Tube color

Ⓐ Applicable tube O.D. size		Ⓑ Tube color	
32	ø3.2	Blank	Black
04	ø4	N	Clear
06	ø6		
08	ø8		
10	ø10		
12	ø12		

Note: Indicate tube color in the remarks on the order slip.

Clean room specifications (catalog No. CB-033SA)

U-95–·····–P80

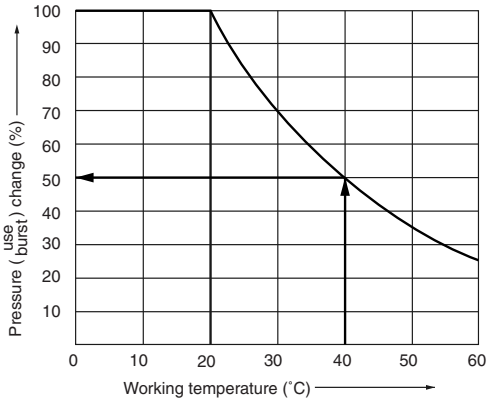
Specifications

This table indicates the value at 20˚C.

Descriptions	U-9532	U-9504	U-9506	U-9508	U-9510	U-9512
Working fluid	Compressed air					
O.D. × I.D. mm×mm	3.2×1.8	4×2	6×4	8×5	10×6.5	12×8
Ambient temperature range ˚C	0 to 60 (no freezing)					
Burst pressure MPa	6.1	5.2	3.2	3.6	3.4	3.2
Max. working pressure MPa	2.0	1.7	1.0	1.2	1.1	1.0
Durometer hardness JIS K 7215	HDA 97					
Min. bending radius (JIS B 8381) mm	4	5	13	14	16	20
Min. installation radius mm	7	10	20	30	40	50
Standard color	Clear and black					
Standard length per roll m	20	20/100			20	

* IF U-9506 or less, tolerance of outer diameter may vary within $^{+0.1}_{-0.15}$ mm, U-9508 over, may vary within $^{+0.1}_{-0.2}$ mm.

Relevant of working temperature and pressure (use / burst)



Working pressure =Vacuum breaker pressure × variation rate × 1/3 at 20˚C

When the temperature rises, the constant pressure gradually drops. Special care must be taken for temperature in use.

Example)
U-9506, working temperature 40˚C

Working pressure = Vacuum breaker pressure × variation rate × 1/3

$=3.2\times\frac{50}{100}\times 1/3$

=0.53MPa

Coiling tube

AOI Co., Ltd.

A coiling tube is a coil-like manufactured extensible tube. Differing from the conventional way, a joint is easily installed, since a straight section is provided with the specified length to the extensible direction from end of the coil, and the coil shrinks and extends very smoothly. Durability of coil end is also excellent.

How to order

KX-12 06

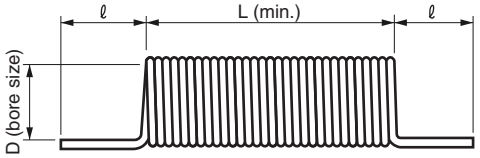
- KX-12: Coiling tube
- Ⓐ 06: O.D. size

Ⓐ O.D. size	
06	ø6
08	ø8
10	ø10
12	ø12

Specifications

Descriptions	KX-1206	KX-1208	KX-1210	KX-1212
O.D. × I.D. mm×mm	6×4	8×6	10×7.5	12×9.2
Ambient temperature range ˚C	-10 to 60 (no freezing)			
Use extension m	2.5			
D mm	50	70		90
L mm	250	240	290	275
ℓ	100			
Color	Orange			

* Tolerance of outer diameter may vary within $^{+0.07}_{-0.1}$ mm.
* Tubing is made of hard nylon. Consult with CKD for urethane tubing.



Flame resistant tube

AOI Co., Ltd.

Flame retardant material used epoch-making tube. If welding spatter, etc. contact, the tube is not burning.
(Equivalent to UL standards 94V-0: Self extinguish)

How to order

SR – 04 – 100 – (A) (B)

Flame resistant tube

Ⓐ Applicable tube O.D. size		Ⓑ Tube color	
04	ø4	Blank	Black
06	ø6	R	Red
08	ø8	BU	Blue
10	ø10	G	Green
12	ø12		

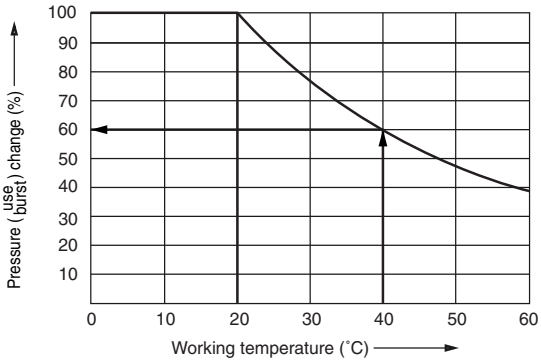
Note: Indicate tube color in the remarks on the order slip.

Specifications

Descriptions	SR-04	SR-06	SR-08	SR-10	SR-12
O.D. × I.D. mm×mm	4×2	6×3.8	8×5.5	10×7	12×8.5
Ambient temperature range ˚C	0 to 60 (no freezing)				
Burst pressure MPa	4.8	4.3	3.4	3.3	3.3
Max. working pressure MPa	1.6	1.4	1.1	1.1	1.1
Min. bending radius mm	15	22	30	40	50
Standard color	Black, red, blue, green				
Standard length per roll m	100				

This table indicates the value at 20˚C.

Relevant of working temperature and pressure (use / burst)



Working pressure = Vacuum breaker pressure × variation rate × 1/3 at 20˚C

When the temperature rises, the constant pressure gradually drops. Special care must be taken for temperature in use.

Example)

SR-06, working temperature 40˚C

Working pressure = Vacuum breaker pressure × variation rate × 1/3

$=4.3 \times \frac{60}{100} \times 1/3$

=0.86MPa