

Fiber tube series name		Fiber tube size O.D. x I.D.	Fiber tube color								Dedicated fitting		Page
			Black	White	Clear	Clear blue	Clear green	Yel.	Red	Green			
Antistatic	UP-9102-F1 Series (Note: Only for barbed fitting)	φ1.8×φ1.0	●	●	●	●	●	▲	▲		PTN*2 Series (Note)	Barbed fitting with retainer collar	790
	UP-9402-F1 Series (Note: Only for push-in fitting)	φ1.8×φ1.2	●	●	●	●	●	▲	▲		PG Series (Note)	Push-in fitting	798
Clean-room	EH Series	φ1.8×φ1.2	●		●						CG Series	Push-in fitting	802
Flame-resistant	UP-SR Series	φ1.8×φ1.0							●	●	RG Series	Push-in fitting	811

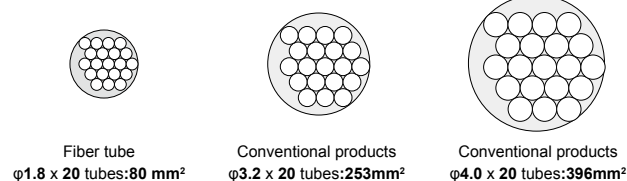
(Note) As for the antistatic, use a fitting specified for each series. ▲: Custom order product
A different fitting cannot be used. (Since the fiber tube may come off or leakage may occur.)

Features

The fiber tube is an extremely thin, flexible air tube comparable to the lead wire. It enables easy piping in narrow spaces or short distances. In addition, the tube resistance (tube stress) after piping is much smaller than those of conventional products and has almost no effect on the device accuracy. The fiber tube is suitable for small bore size air cylinder piping and saves system space.

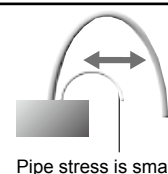
Energy saving/space saving

O.D. φ1.0 ultra thin size.
Can considerably save piping space. In addition, the small tube capacity can save energy.



No effect on device accuracy

As the tube stress after piping is only the same level as that of lead wire, the effect on device accuracy is extremely small.



Flexible piping

Highly bendable and flexible in mounting, enabling piping in narrow spaces or short distances from 200 to 300 mm.

Various types are available

Antistatic and dust-proof tube (UP-F1 Series)

Antistatic treated to prevent accumulation of static electricity and dust.

Clean room (EH Series)

Clean-room specifications with highly corrosion-resistant materials (tube: special polyolefin, fitting: stainless steel).
Ideal for environments that require cleanliness (semiconductor manufacturing, medical and food fields, etc.)

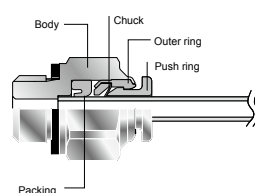
Flame-resistant (UP-SR Series)

Flame-resistant resin fiber tube and fitting (push ring and elbow body) (UL94 standard V-0 or equivalent).

Dedicated fittings

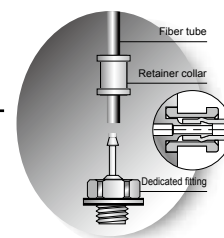
Push-in (PG/CG/RG Series)

Push and hold the push ring of the fitting and attach or detach the tube. (UP-9402-F1 Series, EH Series, UP-SR Series)



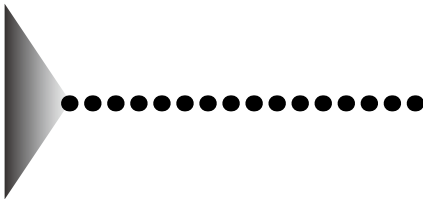
With retainer collar (PTN*2 Series)

Put the retainer collar on the fiber tube, connect the fiber tube to the dedicated fitting and protect with the retainer collar. (UP-9102-F1 Series)



F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FImResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

Series variation



Antistatic fiber tube

Tube size $\phi 1.8 \times \phi 1.0$

Dedicated fitting

● Port size: M3, M5, R1/8, $\phi 4$, $\phi 6$



Antistatic fiber tube	
	O.D. x I.D. (mm)
	$\phi 1.8 \times \phi 1.0$
	Color
	Black
	White
	Transparent
	Transparent blue
	Transparent green
	Red (custom order)
	Yellow (custom order)

Dedicated fitting	■ Straight	■ Elbow	■ Barbed nipple
	Compatible tube O.D. ϕ	Compatible tube O.D. ϕ	Compatible tube O.D. ϕ
	1.8	1.8	1.8/3.2

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CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRISens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

Fiber tube

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LgFRL
PrecsR
VacF/R
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ElecPneur
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PresCompn
Mech/ ElecPresSw
ContactSW
AirSens
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AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

Specifications

● Tube

Descriptions	UP-9102-20-*-F1	
Working fluid	Compressed air	
Working pressure (20°C (68°F)) (*1)	-100 kPa (≈15 psi, -1 bar) to 0.7 MPa (≈100 psi, 7 bar)	
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)	
O.D. x I.D. mm	1.8×1.0	
Inside diameter accuracy	±0.1	
Diametral accuracy	±0.1	
Min. bending radius (JIS B 8381) mm	2	
Min. installation radius mm	4	
Burst pressure (20°C (68°F)) MPa	2.1 (≈300 psi, 21 bar) (reference value)	
Volume resistance ratio Ω·cm	1 x 10 ⁸ or less (black) 1 x 10 ¹² or less (other than black)	
Material	Conductive urethane	
Color	Black, white, transparent (clear / blue / green), yellow ^{(*)2} , red ^{(*)2}	
Applicable fitting	PTN* Series (barbed) ^{(*)5}	

● Dedicated fitting

Descriptions	PTN*	
Port size	M3, M5, R 1/8, φ3.2 ^{(*)4} , φ4 ^{(*)4} , φ6 ^{(*)4}	
Working fluid	Compressed air	
Working pressure	-100 kPa (≈15 psi, -1 bar) to 0.7 MPa (≈100 psi, 7 bar)	
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)	
Tube used	UP-9102-20-*-F1 ^{(*)6}	
Effective cross-sectional area mm ²	Straight, barbed nipple: 0.3 elbow: 0.2	
Flow rate (*3) l/min(ANR)	Straight, barbed nipple: 20 elbow: 13	

*1: For the working pressure, refer to the figure of "Ambient temperature and pressure (use/burst)".

*2: Custom order.

*3: Flow rate is the atmospheric pressure conversion at 0.5 MPa.

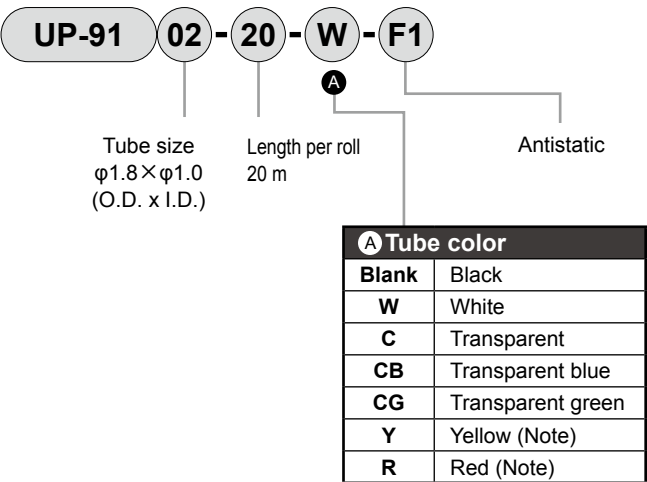
*4: Compatible tube: Soft nylon tube (model No. FH-3224, F-1504, F-1506)
Urethane tube (model No. U-9504, U-9506)

*5: Not available for PG, CG, RG Series (push-in).

*6: Fiber tube for push-in fitting (UP-9402, EH-5802) is not available.

How to order

● Tube



Note: Custom order product.

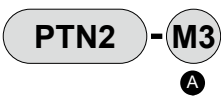
Clean-room specifications (Catalog No. CB-033SA)

PTN2 - - P80

UP-9102 - - P80

● Dedicated fitting Sales unit is 1 set (10 pcs.)

[Straight]



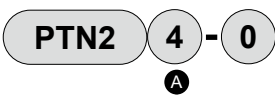
A Port size	
M3	M3×0.5
M5	M5×0.8
6	R 1/8

[Elbow]



A Port size	
M3	M3×0.5
M5	M5×0.8

[Barbed nipple]



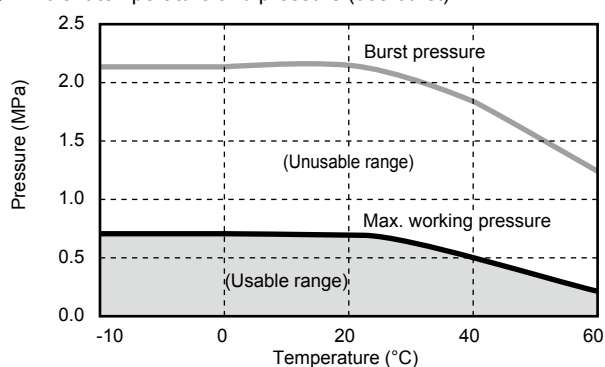
A Compatible tube O.D. (Note)	
4	φ3.2, φ4
6	φ6

Note: Compatible tube

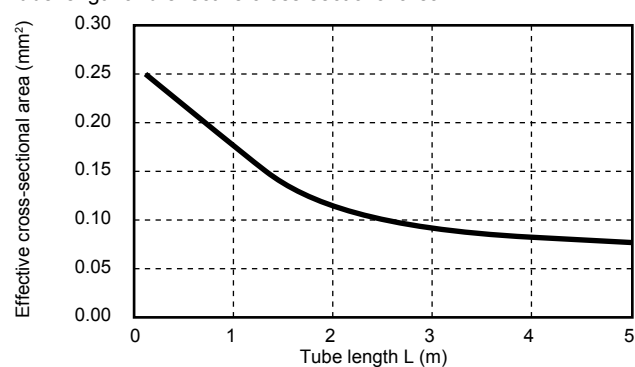
Soft nylon tube (model No. FH-3224, F-1504, F-1506)
Urethane tube (model No. U-9504, U-9506)

Characteristics graph

● Ambient temperature and pressure (use/burst)

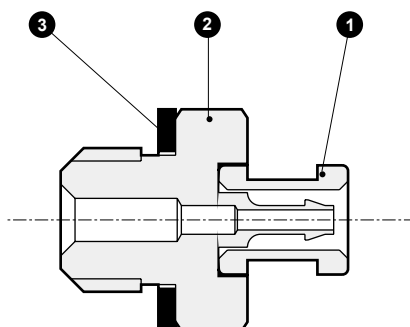


● Tube length and effective cross-sectional area

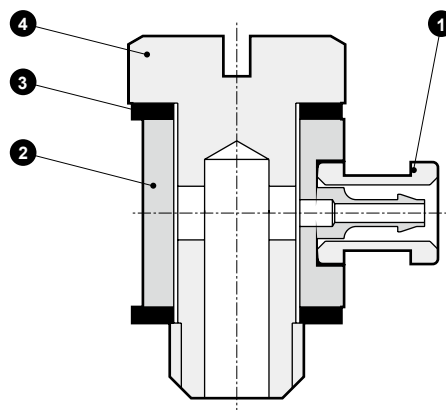


Internal structure and parts list

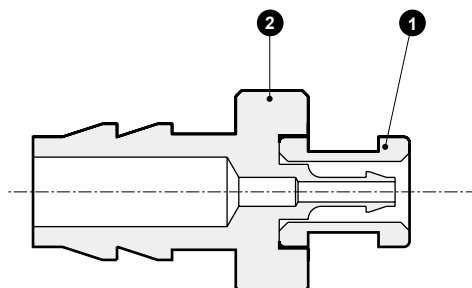
● Straight



● Elbow



● Barbed nipple



● Parts list

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

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Outdrs FR
F.R.L (Related)
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LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRISens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

Fiber tube

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F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStar
FImResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneur
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

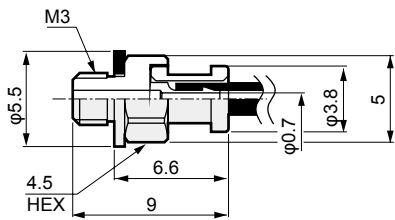
Dimensions



[Sales unit is 10 pcs./bag]

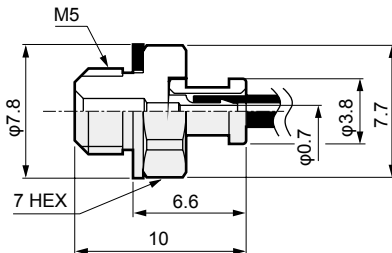
- Straight

[PTN2-M3]



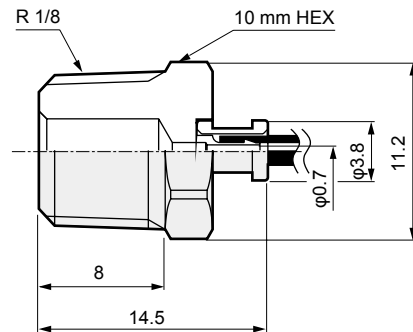
Weight/0.7 g

[PTN2-M5]



Weight/1.6g

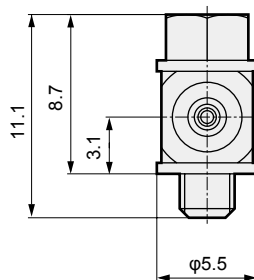
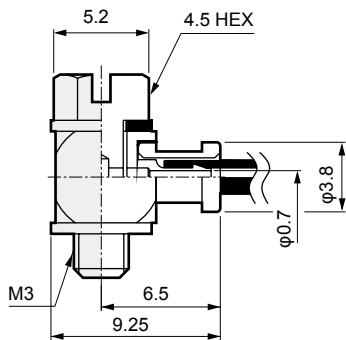
[PTN2-6]



Weight/5.8g

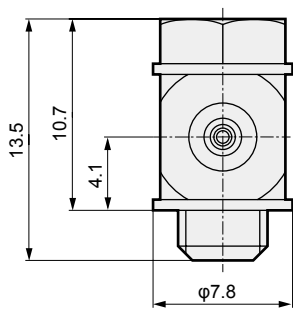
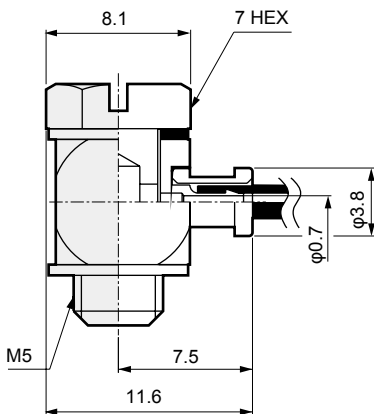
- Elbow

[PTNL2-M3]



Weight/1.7g

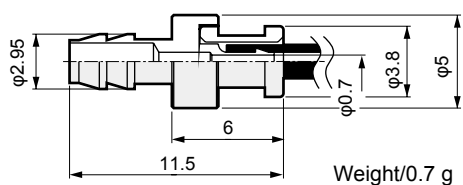
[PTNL2-M5]



Weight/4.2g

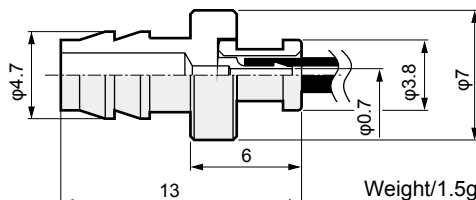
- Barbed nipple

[PTN24-0]



Weight/0.7 g

[PTN26-0]



Weight/1.5g

Safety precautions

■ Design/selection

- This is an extremely fine tube, so the effective cross-sectional area is extremely small. Use with a standard cylinder may cause failure to obtain set speed, delayed response, or knocking.
The pipe length should be 1 m or less, and the fine speed cylinder (catalog No. CC-N-360A) be used.
- Because the fiber tube is thin, the vacuum in the vacuum device increases and delays the response of the vacuum switch during vacuum burst when used with an ejector.

■ Installation/adjustment (piping)

- Tighten pipes with the appropriate torque.
The purpose is to prevent air leakage and damage to bolts. First tighten the bolts by hand to ensure that the threads are not damaged, then use a tool. Check that the tool's hexagon face and wrench are the correct size.
[reference value]

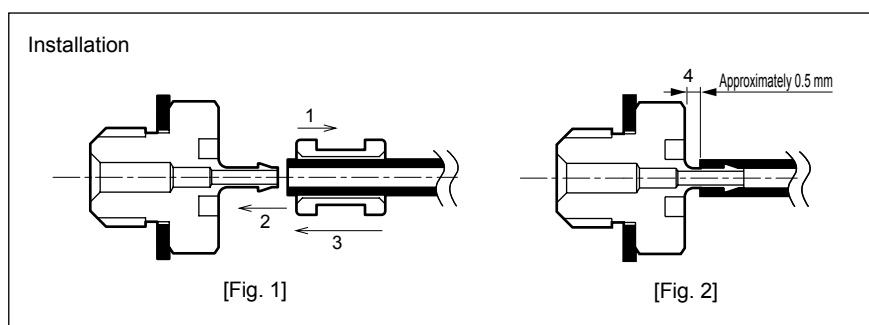
Port size	Tightening torque N·m
M3	0.3 to 0.5
M5	1 to 1.5
R 1/8	3 to 5

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

- On equipment that requires antistatic measures, ground the part where the fitting has been connected.
Electrostatic discharge could build up in the tubing if the part is not grounded.
- The elbow be rotated randomly and installed, but it cannot be rotated after assembly.
- R 1/8 does not have sealant. Separately prepare sealing tape, etc.

■ Use/maintenance

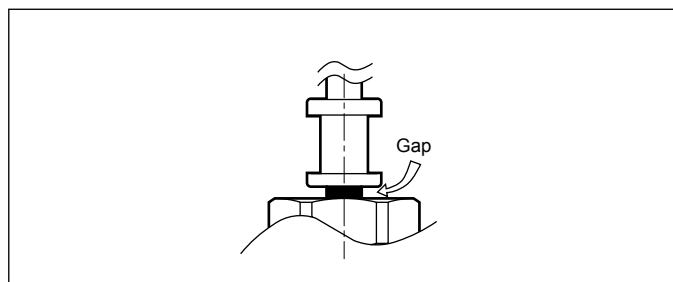
- Mounting and removal



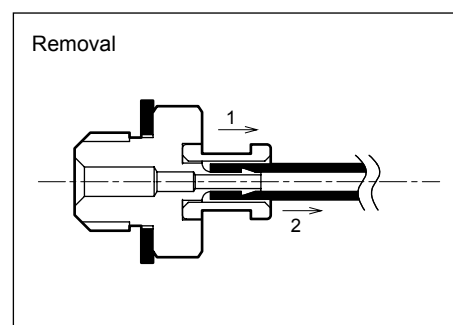
- (1) Insert the collar into the tube. (Fig. 1)
- (2) Insert the tube to position 4. (Fig. 2)
- (3) Insert the collar into the fitting. (Fig. 1)
- (4) Check that the tube is not dislocated from the fitting.

Note: Do not tilt the tube when inserting it into the far end of the fitting. The barbed fitting is thin and could be damaged by a lateral load.

- Precautions after mounting

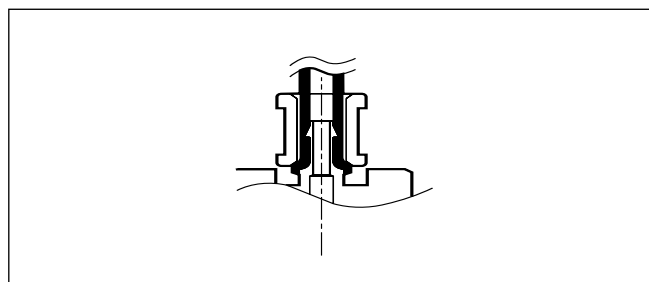


- (1) Check that there is no gap between the collar and fitting.
(The fitting could break or the tube could be dislocated.)



- (1) Pull the collar out with a pair of needle-nosed pliers, etc.
- (2) Pull out the tube.
- (3) When reusing the tube, cut 10 mm or more off the end.

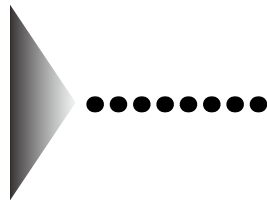
Note: If the tube is pulled forcefully while the collar is attached, the tube could be deformed, the flow obstructed, or the tube dislocated during use.



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

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
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AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

Series variation















Antistatic and clean-room fiber tube (for push-in fitting)

Tube size I.D. $\phi 1.8 \times \phi 1.2$







Push-in fitting for fiber tube

Port size M3, M5, R1/8, $\phi 4$

Antistatic fiber tube (for push-in fitting) UP	Fiber tube for clean-room (for push-in fitting) EH
	
O.D. x I.D. (mm) $\phi 1.8 \times \phi 1.2$	O.D. x I.D. (mm) $\phi 1.8 \times \phi 1.2$
Color	Color
Black	Black
White	Transparent
Transparent	
Transparent blue	
Transparent green	
Yellow (custom order)	
Red (custom order)	

Push-in fitting for fiber tube (standard)				
Straight			Elbow	
Single straight PG-S2-□	Single straight (round) PG-S2-M3-S	Straight PG-S2-0	Bulkhead PG-S2-0-X	Single elbow PG-L2-□
 Port size M3 M5 R1/8 ·Refer to page: 799	 Port size M3 ·Refer to page: 799	 ·Refer to page: 799	 ·Refer to page: 799	 Port size M3 M5 R1/8 ·Refer to page: 800
Tee			Plug	
Double tee PG-T2-□	Tee PG-T2-0	D tee PG-T2-□-D	Plug reducer PG-S2-4P	Blanking plug PG-P2-B
 Port size M3 M5 ·Refer to page: 800	 ·Refer to page: 800	 Port size M3 M5 ·Refer to page: 801	 Port size $\phi 4$ ·Refer to page: 801	 ·Refer to page: 801

● Sales unit of standard is 10 pcs./bag.

Push-in fitting for fiber tube (clean-room)				
Straight			Elbow	Tee
Single straight CG-S2-□	Straight CG-S2-0	Bulkhead CG-S2-0-X	Single elbow CG-L2-□	Double tee CG-T2-□
 Port size M3 M5 R1/8 ·Refer to page: 803	 ·Refer to page: 803	 ·Refer to page: 803	 Port size M3 M5 R1/8 ·Refer to page: 804	 Port size M3 M5 ·Refer to page: 804
Tee				
Tee CG-T2-0	● Sales unit of clean-room is 1 pc./1 bag.			
 ·Refer to page: 804				



Fiber tube (for push-in fitting)

- O.D.: $\varnothing 1.8$ x I.D.: $\varnothing 1.2$
- Antistatic (UP-9402-F1)
- Clean-room (EH-5802)



Specifications

Model No.	Antistatic UP-9402-F1		Clean-room EH-5802
Working fluid	Compressed air		
Working pressure (20°C (68°F)) (*1)	-100 kPa (≈-15 psi, -1 bar) to 0.8 MPa (≈120 psi, 8 bar)		-100 kPa (≈-15 psi, -1 bar) to 1.0 MPa (≈150 psi, 10 bar)
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)		
O.D. x I.D.	$\varnothing 1.8 \times \varnothing 1.2$		
Inside diameter accuracy mm	±0.1		
Diametral accuracy 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 (68°F)) MPa	2.5 (≈360 psi, 25 bar)		3.8 (≈550 psi, 38 bar)
Volume resistance ratio $\Omega \cdot \text{cm}$	10^{10} to 10^{12}		-
Material	Antistatic urethane		Special polyolefin
Color	Black/white/transparent (clear/blue/green), yellow/red (*2)		Black/transparent
Applicable fitting	PG/CG Series (push-in) *3		

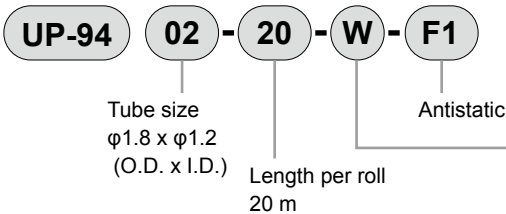
*1: For the working pressure, refer to the graph of "Ambient temperature and pressure (use/burst)".

*2: Yellow and red are custom-ordered parts.

3: This cannot be used with a barbed fitting (PTN).

How to order

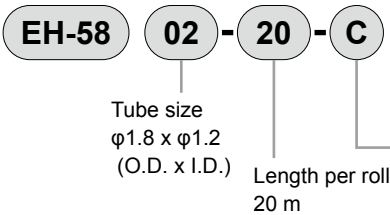
● Antistatic



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

Note: Custom order product.

● Clean-room



Tube color	
Blank	Black
C	Transparent

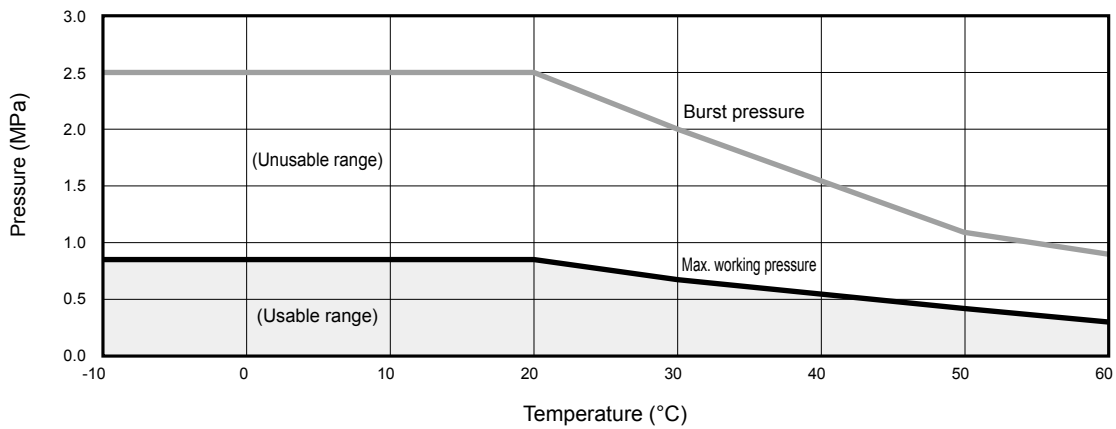
Fiber tube (for push-in fitting)

Characteristics graph

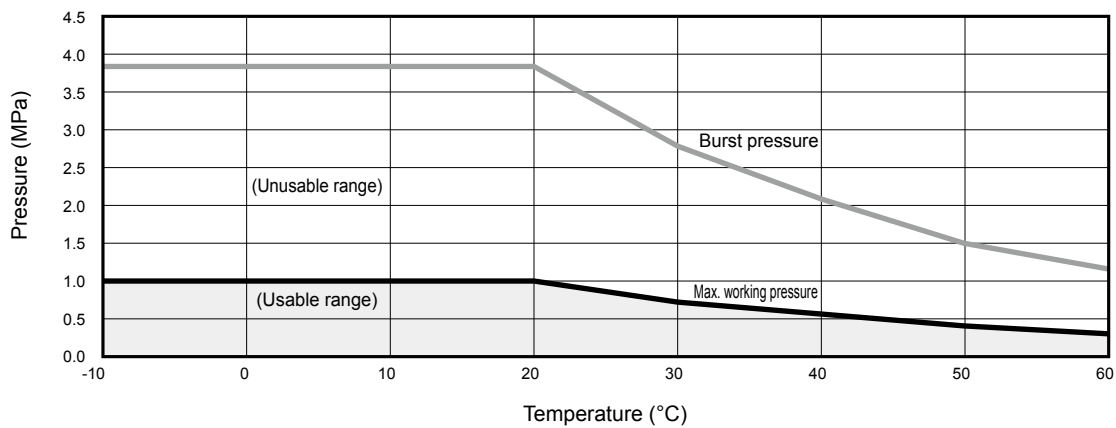
Characteristics graph

- Ambient temperature and pressure (use/burst)

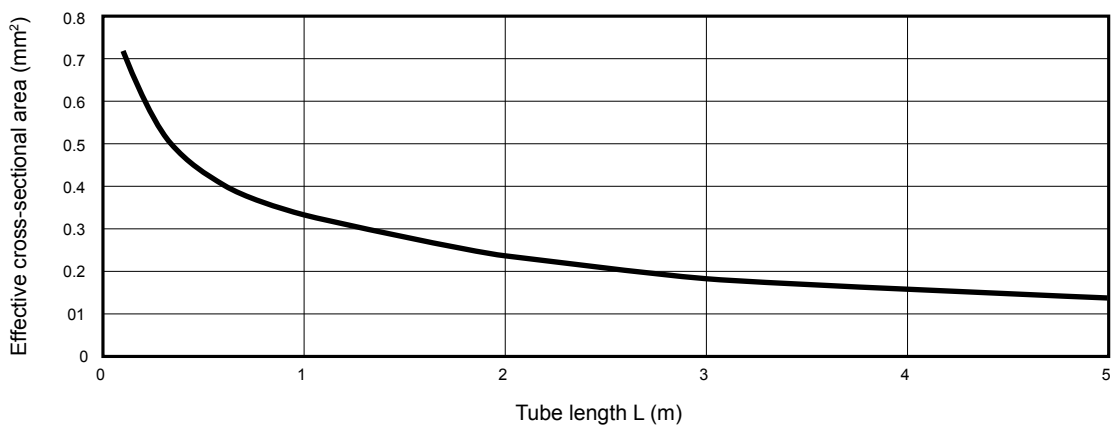
UP-9402-F1



EH-5802

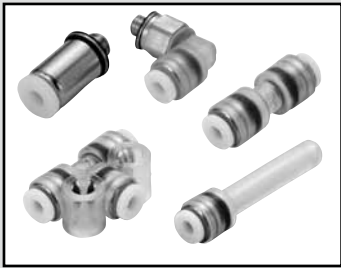


- Tube length and effective cross-sectional area



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

F.R.L
F (Filtr
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FimResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending



Push-in fitting for fiber tube

Standard **PG Series**

- Compatible tube O.D.: $\phi 1.8$
- Port size: M3 to R1/8



Specifications

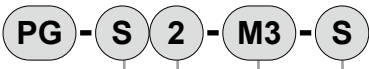
Model No.	PG Series	
Working fluid	Compressed air	
Working pressure	-100kPa (\approx -15 psi, -1 bar) to 1.0 MPa (\approx 150 psi, 10 bar)	
Ambient temperature	$^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$) (no freezing)
Tube used	Fiber tube (UP-9402-F1, EH-5802)	*1

*1: Fiber tube for barbed fitting (UP-9102-F1) is not available.
*2: Sales unit is 1 set (10 pieces).

How to order

* Refer to the model No. on the dimensions page (pages 799 to 801) for the model No. combination.

● Standard



D Other combinations

A Shape

C Port size

B Compatible tube O.D.
 $\phi 1.8$

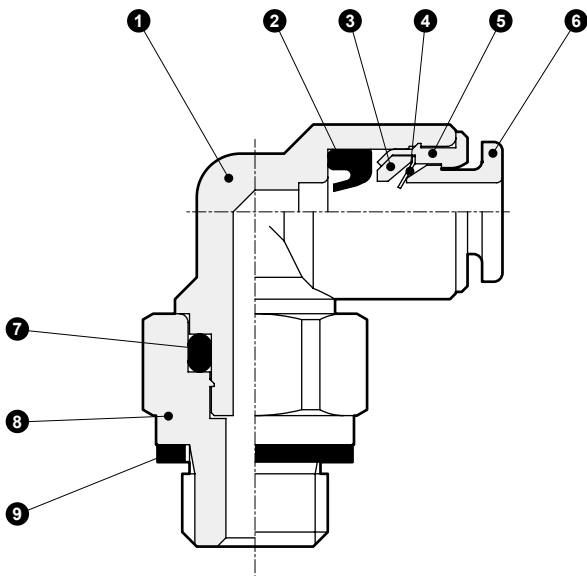
A Shape	
S	Straight
L	Elbow
T	Tee
P	Plug

C Port size	
M3	M3 \times 0.5
M5	M5 \times 0.8
6	R1/8
0	No thread
4P	Plug for $\phi 4$
B	Blanking plug

D Other combinations	
S	Round shape
D	D type
X	Bulkhead

Note: Sales unit is 10 pcs./bag.

Internal structure and parts list



No.	Part name	Material
1	Body *1	Polypropylene (translucent) Copper alloy (electroless nickeling)
2	Packing	Hydrogenated nitrile rubber
3	Chuck holder	Polypropylene (translucent)
4	Chuck	Stainless steel
5	Outer ring	Copper alloy (electroless nickeling)
6	Push ring *2	Polypropylene (white)
7	O-ring	Nitrile rubber
8	Nipple	Copper alloy (electroless nickeling) (R1/8 includes sealant.)
9	Gasket	Stainless steel + nitrile rubber

*1: The body of the single straight, single straight (round) and bulkhead is copper alloy (electroless nickeling).
*2: The PG Series is white.

Dimensions: Single straight/single straight (round)/straight/bulkhead

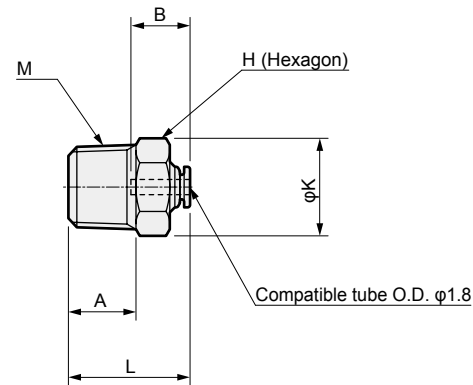
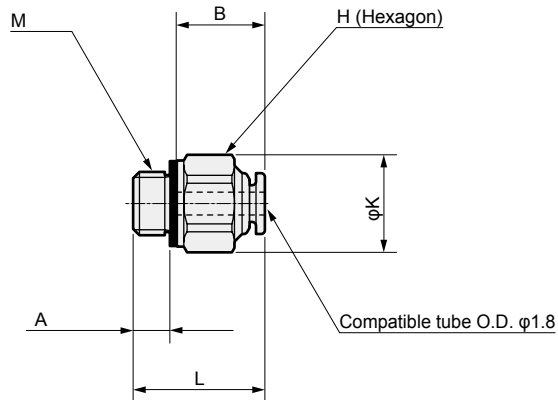


[Sales unit is 10 pcs./bag]

Single straight

● PG-S2-□

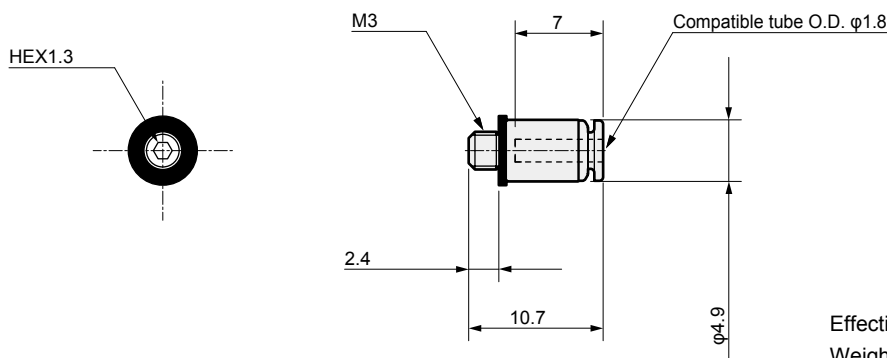
● PG-S2-6



Model No.	M	H	K	L	A	B	Min. bore size	Eff. X-sectional area mm ²	Weight g
PG-S2-M3	M3×0.5	5.5	6	10.7	2.4	7	1.5	0.92	1.1
PG-S2-M5	M5×0.8	7	7.7	10.4	2.9	7	1.5	0.92	1.8
PG-S2-6	R1/8	10	11.6	14.4	8	7	1.5	0.97	5.6

Single straight (round)

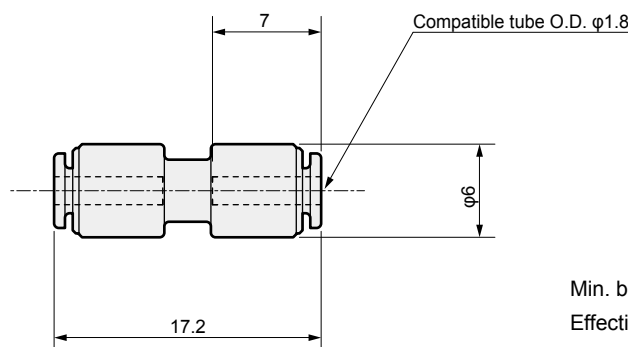
● PG-S2-M3-S



Effective cross-sectional area: 0.92 mm²
Weight: 0.7g

Straight

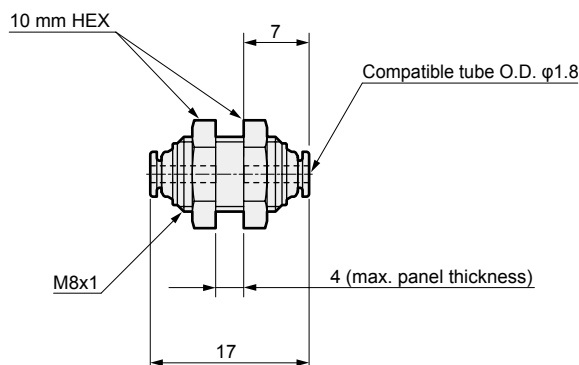
● PG-S2-0



Min. bore size: φ1.5
Effective cross-sectional area: 0.82mm²
Weight: 0.7g

Bulkhead

● PG-S2-0-X



Min. bore size: φ1.5
Effective cross-sectional area: 0.85mm²
Weight: 5.3g

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FimResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRISens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FImResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PresCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

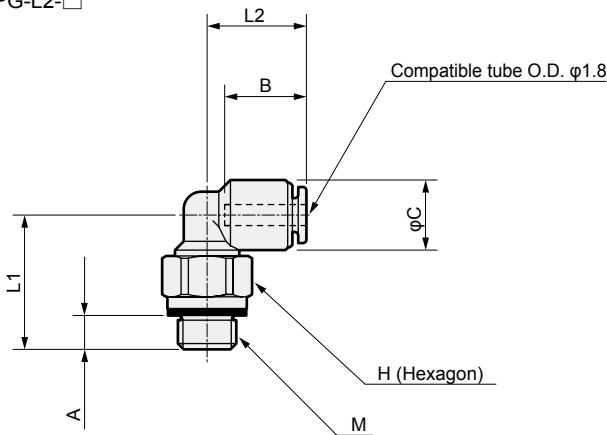
Dimensions: Single elbow/double tee/tee



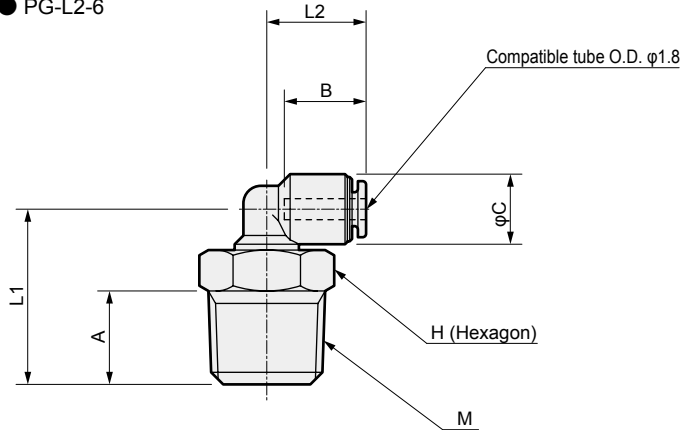
[Sales unit is 10 pcs./bag]

Single elbow

● PG-L2-□



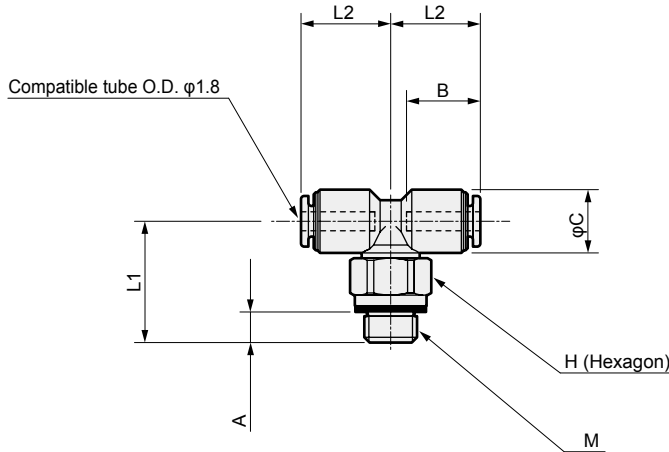
● PG-L2-6



Model No.	M	H	L1	L2	A	B	C	Min. bore size	Eff. X-sectional area mm ²	Weight g
PG-L2-M3	M3×0.5	5.5	11	8.5	2.4	7	6	1.5	0.83	4
PG-L2-M5	M5×0.8	7	11.5	8.5	2.9	7	6	1.5	0.83	4.8
PG-L2-6	R1/8	10	15	8.5	8	7	6	1.5	0.70	8.6

Double tee

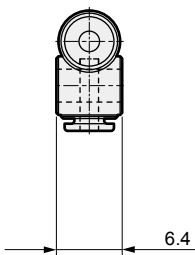
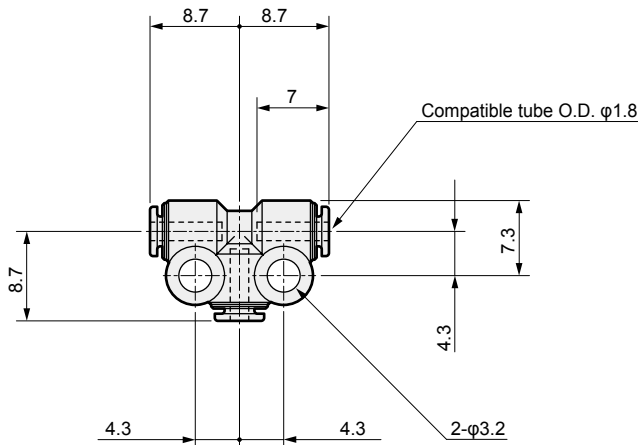
● PG-T2-□



Model No.	M	H	L1	L2	A	B	C	Min. bore size	Eff. X-sectional area mm ²	Weight g
PG-T2-M3	M3×0.5	5.5	11	8.5	2.4	7	6	1.5	1.10	1.4
PG-T2-M5	M5×0.8	7	11.5	8.5	2.9	7	6	1.5	1.25	3.1

Tee

● PG-T2-0



Min. bore size: φ1.5
Effective cross-sectional area: 0.90mm²
Weight: 3.9g

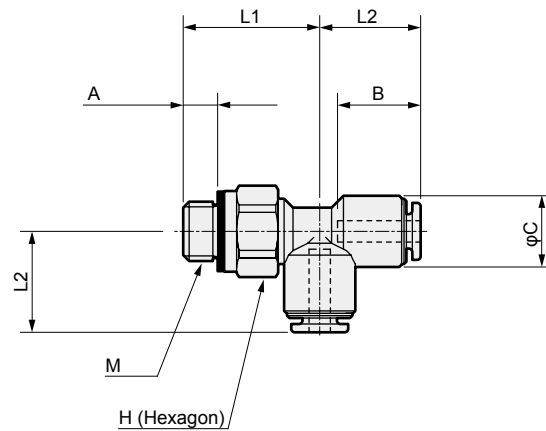
Dimensions: D tee/plug reducer/blanking plug



[Sales unit is 10 pcs./bag]

D tee

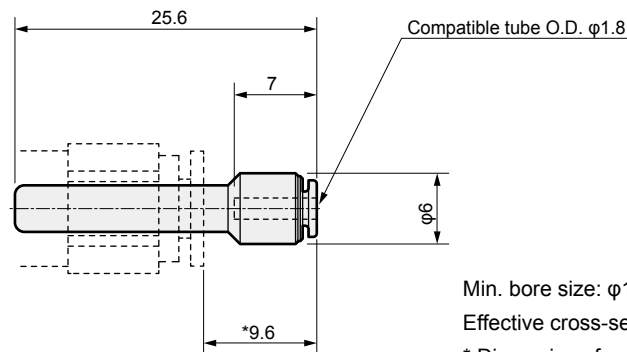
● PG-T2-□-D



Model No.	M	H	L1	L2	A	B	C	Min. bore size	Eff. X-sectional area mm ²	Weight g
PG-T2-M3-D	M3×0.5	5.5	11	8.5	2.4	7	6	1.5	1.05	2.1
PG-T2-M5-D	M5×0.8	7	11.5	8.5	2.9	7	6	1.5	1.40	2.2

Plug reducer

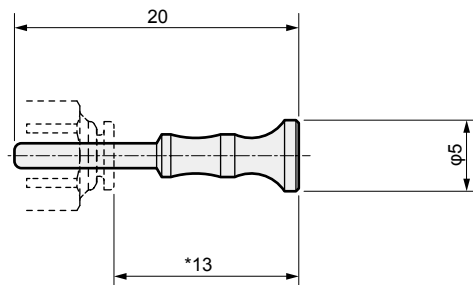
● PG-S2-4P



Min. bore size: $\phi 1.5$
 Effective cross-sectional area: 0.97mm²
 * Dimensions for GWS4-M5 fitting.
 Weight: 0.5g

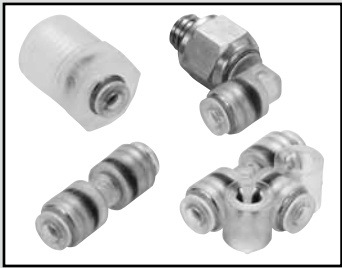
Blanking plug

● PG-P2-B



Material: Polypropylene (PP)
 * Dimensions for PG/CG Series fittings.
 Weight: 0.1g

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FimResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending



Push-in fitting for fiber tube

Clean-room CG Series

- Compatible tube O.D.: $\phi 1.8$
- Port size: M3 to R1/8



Overview

The CG Series includes fittings for clean environments for semiconductor manufacturing, medical equipment and foodstuffs. P.P. resin, stainless steel and EPDM rubber are provided to improve corrosion resistance. This product is assembled with oil-prohibited specifications and shipped in clean packaging.

Specifications

Model No.	CG Series	
Working fluid	Clean air (*1)	
Working pressure	-100kPa (\approx -15 psi, -1 bar) to 1.0 MPa (\approx 150 psi, 10 bar)	
Ambient temperature	$^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$) (no freezing)
Lubricant	Oil free	
Tube used	Fiber tube (UP-9402-F1, EH-5802)	*2

*1: Rubber EPDM material is used, so this product cannot be used with fluids that contain mineral oil.

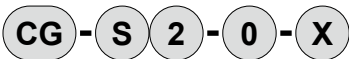
*2: Fiber tube for barbed fitting (UP-9102-F1) is not available.

*3: Sales unit is one piece.

How to order

* Refer to the model No. on the dimensions page (pages 803 to 804) for the model No. combination.

- Clean-room



D Other combinations

A Shape

C Port size

B Compatible tube
O.D. $\phi 1.8$

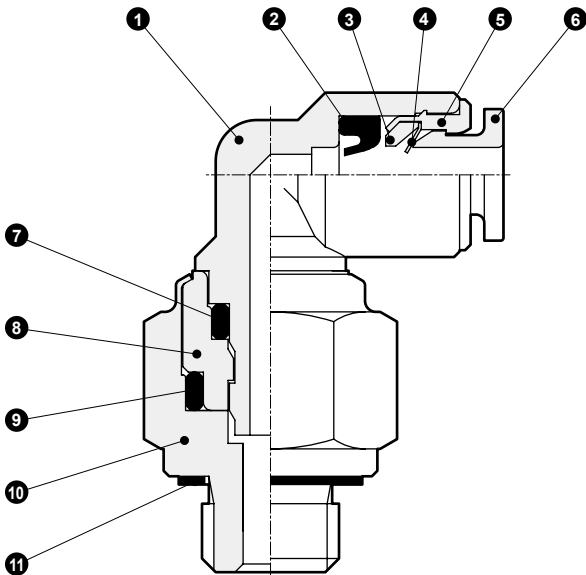
A Shape	
S	Straight
L	Elbow
T	Tee

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

D Other combinations	
X	Bulkhead

Note: Sales unit is 1 pc.

Internal structure and parts list



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

*1: The body of the single 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 sealant on the threads.

Use the PG Series for piping to general pneumatic components.

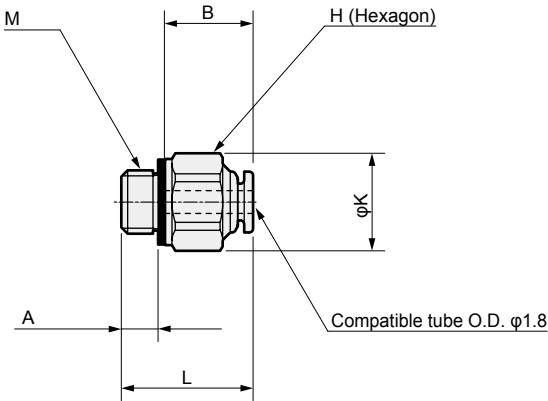
Dimensions: Single straight/straight/bulkhead



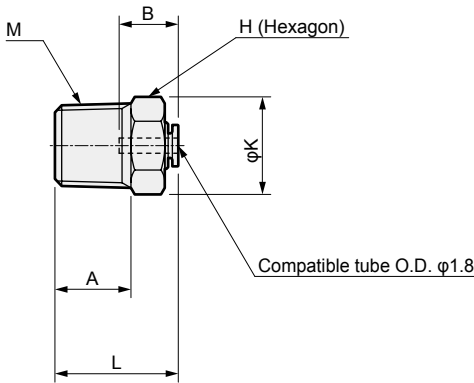
[Sales unit is 1 pc./bag]

Single straight

● CG-S2-□



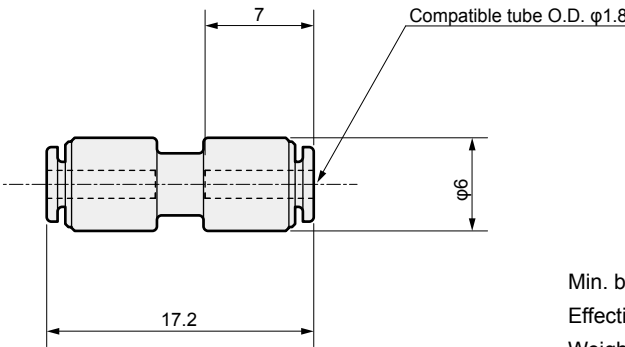
● CG-S2-6



Model No.	M	H	K	L	A	B	Min. bore size	Eff. X-sectional area mm ²	Weight g
CG-S2-M3	M3×0.5	5.5	6	10.7	2.7	7	1.5	0.92	0.8
CG-S2-M5	M5×0.8	7	7.7	10.4	3.2	7	1.5	0.92	1.2
CG-S2-6	R1/8	10	11.6	14.6	9	7	1.5	0.97	1.1

Straight

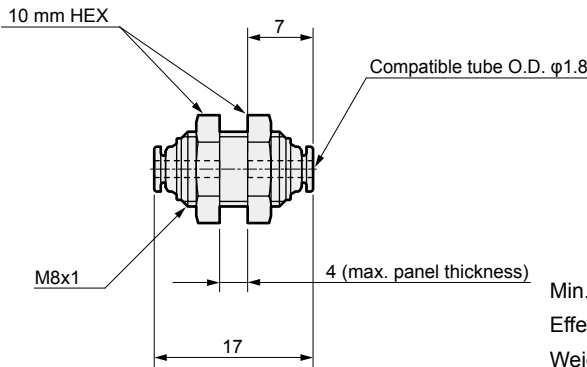
● CG-S2-0



Min. bore size: φ1.5
Effective cross-sectional area: 0.82mm²
Weight: 0.5g

Bulkhead

● CG-S2-0-X



Min. bore size: φ1.5
Effective cross-sectional area: 0.85mm²
Weight: 5.8g

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FimResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRISens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FimResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PresCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

Dimensions: Single elbow/double tee/tee

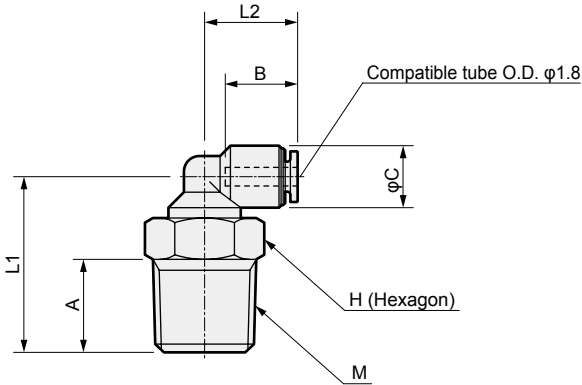
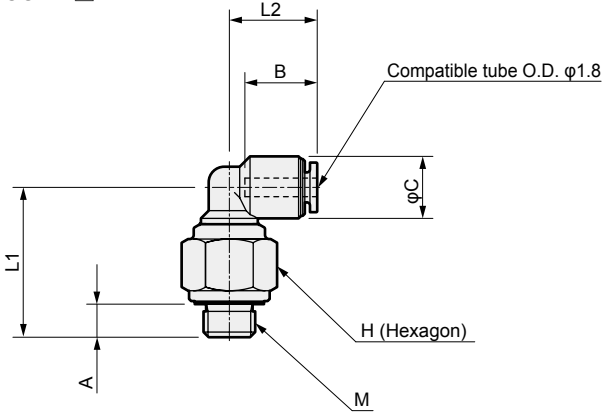


[Sales unit is 1 pc./bag]

Single elbow

● CG-L2-□

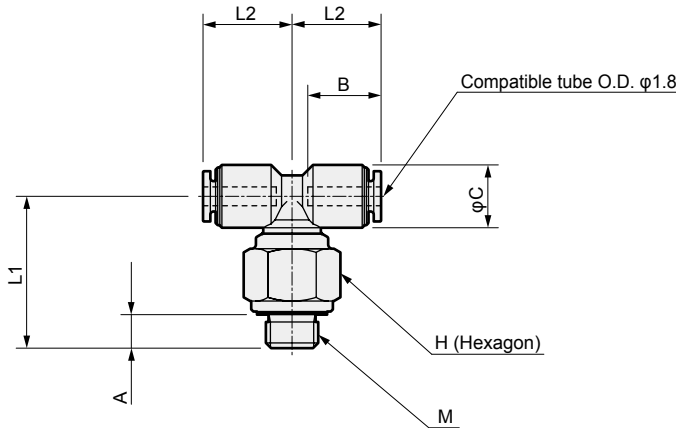
● CG-L2-6



Model No.	M	H	L1	L2	A	B	C	Min. bore size	Eff. X-sectional area mm ²	Weight g
CG-L2-M3	M3×0.5	8	14	8.5	2.7	7	6	1.5	0.81	2.7
CG-L2-M5	M5×0.8	8	14.5	8.5	3.2	7	6	1.5	0.81	3.1
CG-L2-6	R1/8	10	17	9	9	7	6	1.5	0.84	1.2

Double tee

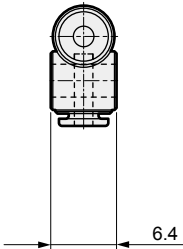
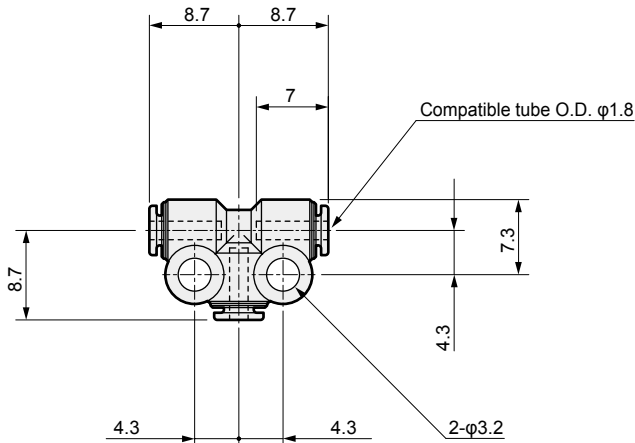
● CG-T2-□



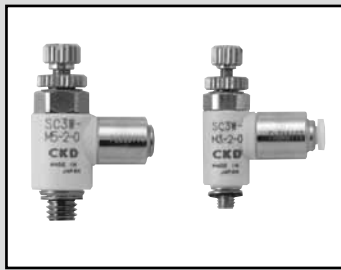
Model No.	M	H	L1	L2	A	B	C	Min. bore size	Eff. X-sectional area mm ²	Weight g
CG-T2-M3	M3×0.5	8	14	8.5	2.7	7	6	1.5	0.96	2.8
CG-T2-M5	M5×0.8	8	14.5	8.5	3.2	7	6	1.5	1.25	3.7

Tee

● CG-T2-0



Min. bore size: φ1.5
Effective cross-sectional area: 0.90mm²
Weight: 1.1g



Speed controller, elbow with push-in fitting

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

- Compatible tube O.D.: $\phi 1.8$
- Port size: M3, M5

JIS symbol



Custom order product

Specifications

Model No.		SC3W	
Compatible tube O.D.		$\phi 1.8$	
Working fluid		Compressed air	
Max. working pressure	MPa	1.0 (≈ 150 psi, 10 bar)	
Min. working pressure	MPa	0.05 (≈ 7.3 psi, 0.5 bar)	
Proof pressure	MPa	1.5 (≈ 220 psi, 15 bar)	
Fluid temperature	$^{\circ}\text{C}$	5 (41°F) to 60 (140°F) (no freezing)	
Ambient temperature	$^{\circ}\text{C}$	0 (32°F) to 60 (140°F) (no freezing)	
Port size		M3	M5
Knob value (times)		14 or more	16 or more
Free flow	Flow rate ℓ/min	20	54
	Effective cross-sectional area mm^2	0.3	0.8
Controlled flow	Flow rate ℓ/min	5.9	6.7
	Effective cross-sectional area mm^2	0.08	0.1
Tube used		Fiber tube (UP-9402-F1, EH-5802) *1	
Weight	g	6.1	9.4

*1: Fiber tube for barbed fitting (UP-9102-F1) is not available.

How to order

- Port size: M3

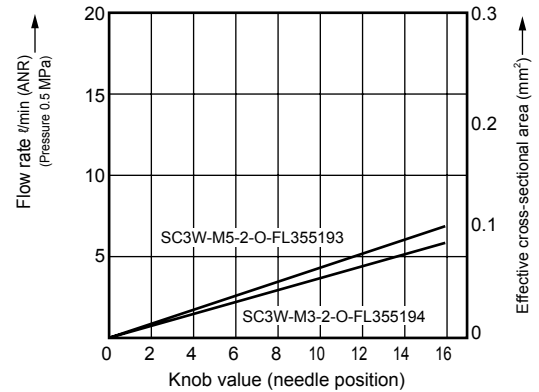
SC3W-M3-2-O-FL355193

- Port size: M5

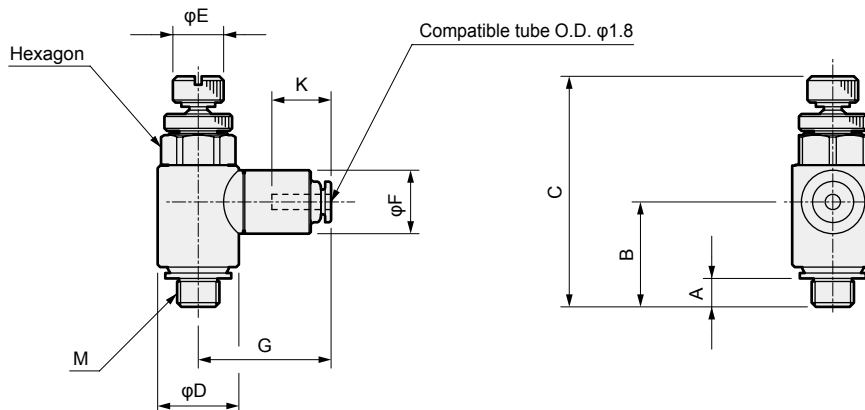
SC3W-M5-2-O-FL355194

Flow characteristics

- Low speed



Dimensions



Model No.	M	A	B	C		D	E	F	G	K	Hexagon
				MIN	MAX						
SC3W-M3-2-O-FL355193	M3 \times 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 \times 0.8	3.4	12.4	27.2	30.2	9.6	6	7.5	15.3	7	8

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FimResistFR
Oil-ProhR
MedPresFR
No Cu/
PTFE FRL
Outdrs FR
F.R.L
(Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneur
AirBoost
SpdContr
Silncr
CheckV/
other
Jnt/tube
AirUnt
PresCompn
Mech/
ElecPresSw
ContactSW
AirSens
PresSW
Cool
AirFloSens/
Contr
WaterRtSens
TotAirSys
(Total Air)
TotAirSys
(Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg
etc
Ending

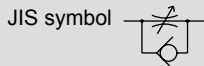


Speed controller Line type with push-in fitting

SCL2 Series

(Fine speed fiber tube, push-in specifications)

- Compatible tube O.D.: $\phi 1.8$, $\phi 4$



Custom order product

Specifications

Model No.		SCL2	
Compatible tube O.D.		$\phi 1.8$	
Working fluid		Compressed air	
Max. working pressure	MPa	1.0 (≈ 150 psi, 10 bar)	
Min. working pressure	MPa	0.1 (≈ 15 psi, 1 bar)	
Proof pressure	MPa	1.5 (≈ 220 psi, 15 bar)	
Fluid temperature	$^{\circ}\text{C}$	5 (41°F) to 60 (140°F) (no freezing)	
Ambient temperature	$^{\circ}\text{C}$	0 (32°F) to 60 (140°F) (no freezing)	
Knob value (times)		15 or more	
Free flow	Flow rate ℓ/min	50	
	Effective cross-sectional area mm^2	0.7	
Controlled flow	Flow rate ℓ/min	13	
	Effective cross-sectional area mm^2	0.2	
Tube used		Fiber tube (UP-9402-F1, EH-5802)	
Weight g		12	

*1: Fiber tube for barbed fitting (UP-9102-F1) is not available.

How to order

- Compatible tube O.D.: $\phi 1.8$

SCL2-04-H22-F-FL355195

- Compatible tube O.D.: A side $\phi 4$, B side $\phi 1.8$

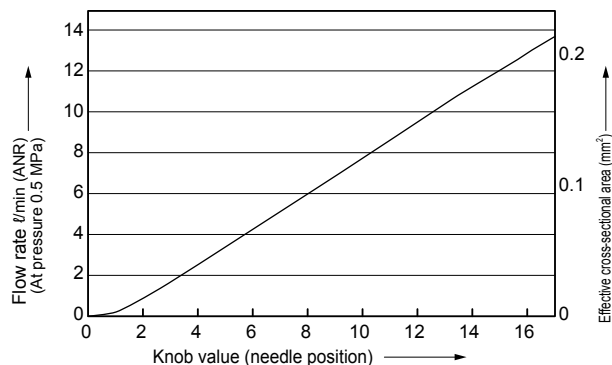
SCL2-04-H42-F-FL355196

- Compatible tube O.D.: A side $\phi 1.8$, B side $\phi 4$

SCL2-04-H24-F-FL355197

Flow characteristics

- Fine speed



Dimensions

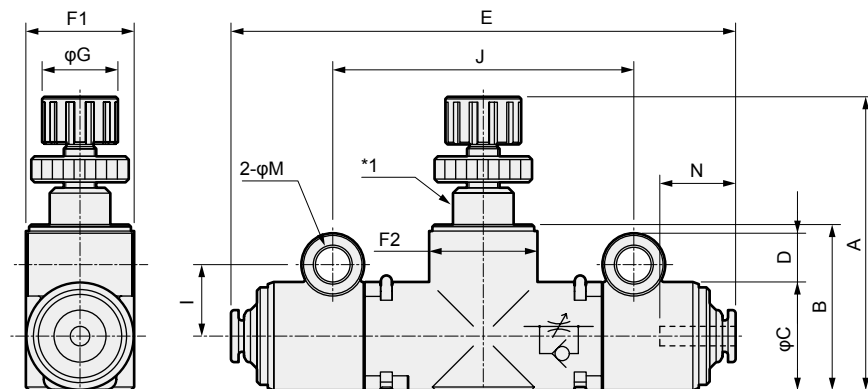
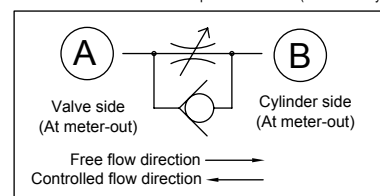


Illustration of combination of compatible tube O.D. (H24/H42 only)



Model No.	Compatible tube O.D.		A		B	C	D	E	F1	F2	G	I	J	M (Mounting hole ϕ)	N (tube insert length)	
	A side	B side	MAX	MIN											A side	B side
SCL2-04-H22-F-FL355195	$\phi 1.8$	$\phi 1.8$						47							7	7
SCL2-04-H42-F-FL355196	$\phi 4$	$\phi 1.8$	27	32	15	10	4.5		10	11	7	6.6	28	3.3	12.9	7
SCL2-04-H24-F-FL355197	$\phi 1.8$	$\phi 4$						46							7	12.9

Note: F1 and F2 are oval.

⚠ Safety precautions

■ Design/selection

⚠ CAUTION

- Note when making a selection that the PG and CG Series do not use flame-resistant resins.
- This is an extremely fine tube, so the effective cross-sectional area is extremely small. Use with a standard cylinder may cause failure to obtain set speed, delayed response, or knocking.
The pipe length should be 1 m or less and the fine speed cylinder (catalog No. CC-N-360A) be used.
- Because the fiber tube is thin, the vacuum in the vacuum device increases and delays the response of the vacuum switch during vacuum burst when used with an ejector.
- The CG Series is for clean blow and washing lines.
Check with CKD for use in other applications.
The durability of the CG Series packing (material: EPDM) is susceptible to mineral oil, so it cannot be used to pipe general pneumatic components. Use the PG Series for piping general pneumatic components.

■ Mounting, installation and adjustment

⚠ CAUTION

- Use the fiber tubes for push-in fitting (UP-9402-F1, EH-5802) with push-in fittings for fiber tube (PG/CG Series). Tubing could dislocate if fiber tube for CKD barbed fitting (UP-9102-F1), barbed fitting for fiber tubing (PTN Series), or other brands of tubing and fittings are used.
- Cut tubing with a dedicated cutter at a right angle. Do not use worn or damaged tubing. Tubing could be crushed or broken.
If cut with a dull knife, tubing could be crushed and block the flow path.
- A used tube could be deteriorated or deformed and so always use a new tube.
- Inspect CG-*2-6 regularly.
The threaded part on CG-*2-6 is made of PP, so leakage could occur if the threaded part comes loose.
Inspect regularly and tighten to stop any leakage.
If leakage does not stop after tightening, replace the fitting with a new one.
- The use of oil is prohibited with the CG Series, so the force required to insert the tubing will increase.
Hold tubing at the base and securely insert until contact is felt depth of 7 mm.
- Tighten pipes with the appropriate torque.
 - The purpose is to prevent air leakage and damage to bolts. First tighten the bolts by hand to ensure that threads are not damaged, then use a tool.
Check that the tool's hexagon face and wrench are the correct size.
- As the screw of CG-*2-6 is PP, it should be tightened using the following procedure. Tighten as follows: Leave 1.5 to 2 threads at the end of the 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 excessively.
- Check that tubing is not worn or damaged.
 - Tubing could collapse, rupture, or become dislocated.
 - Do not let the tube directly contact other surfaces, as there is a risk of wear or damage.
- On equipment that requires antistatic measures, ground the part where the fitting has been connected. Electrostatic discharge could build up in tubing if the part is not grounded.
- CG-*2-6 (R1/8) does not have sealant. Separately prepare sealing tape, etc.

[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

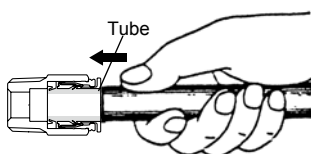
The above values apply when partner threads are JIS B 0203 piping tapered female threads (material C3604BD).
* Applies only when fitting thread parts are metal.

■ Use/maintenance

⚠ CAUTION

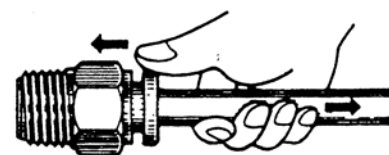
Mounting and removal

Mounting



Push the tube in until it contacts the tube end.
Check that the tube does not come off the fitting. Tube fits 7 mm from the end of the fitting body. The end of the mounted tube must be cut at a right angle.

Removal



While pressing down on the push ring with your fingers, the tube can be removed by pulling on it.
Tubing could deform (stretch) if pulled too hard.
Firmly push and hold the push ring and detach the tube. Replace the deformed tubing with a new tubing.

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FImResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

Series variation



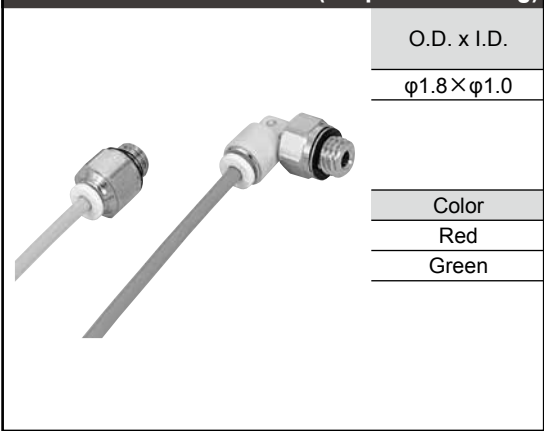
Flame-resistant fiber tube (for push-in fitting)

Tube size I.D. $\phi 1.8 \times \phi 1.0$

Push-in fitting for fiber tube

Port size M5, R1/8

Flame-resistant fiber tube (for push-in fitting)



O.D. x I.D.

$\phi 1.8 \times \phi 1.0$

Color

Red

Green

Push-in fitting for fiber tube

■ Straight

Single straight RG-S2-□

Port size

M5

R1/8



·Refer to page: 812

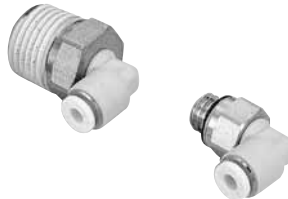
■ Elbow

Single elbow RG-L2-□

Port size

M5

R1/8



·Refer to page: 812

■ Plug

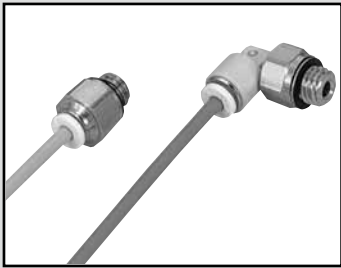
Blanking plug PG-P2-B



·Refer to page: 812

● Sales unit is 10 pcs./bag.

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FimResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending



Flame-resistant fiber tube (for push-in fitting)

- O.D.: $\phi 1.8$ x I.D.: $\phi 1.0$
- Flame-resistant (UP-9102-SR)



Specifications

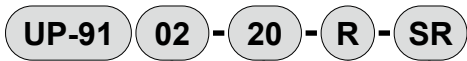
Model No.	Flame-resistant UP-9102-SR	
Working fluid	Compressed air	
Working pressure (20°C (68°F)) (*1)	-100 kPa (\approx -15 psi, -1 bar) to 0.7 MPa (\approx 100 psi, 7 bar)	
Ambient temperature	°C	-10 (14°F) to 60 (140°F) (no freezing)
O.D. x I.D.	mm	$\phi 1.8 \times \phi 1.0$
Inside diameter accuracy	mm	± 0.1
Diametral accuracy	mm	± 0.1
Durometer hardness		HDA 90
Min. bending radius (JIS B 8381)	mm	3
Min. installation radius	mm	4
Burst pressure (20°C (68°F))	MPa	2.1 (\approx 300 psi, 21 bar)
Material	Flame-resistant polyurethane	
Color	Green/red (*2)	
Applicable fitting	RG Series (push-in)	

*1: For the working pressure, refer to the graph of "Ambient temperature and pressure (use/burst)".

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

How to order

- Antistatic



Tube size
 $\phi 1.8 \times \phi 1.0$
(O.D. x I.D.)

Length per
roll 20 m

Flame-resistant

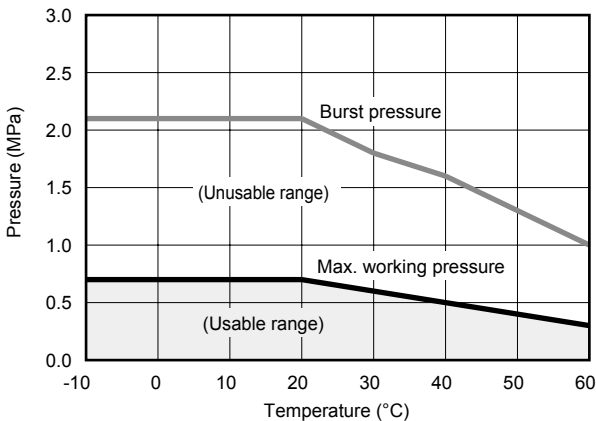
Tube color*

R	Red
G	Green

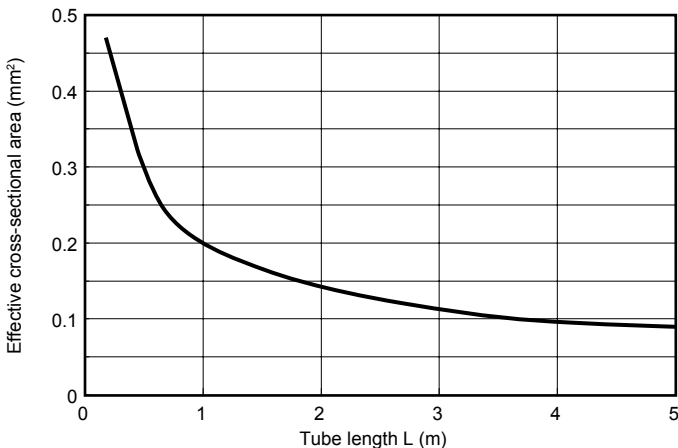
* When flame retardant is added,
the hue will be lighter instead of
bright red or green.

Characteristics graph

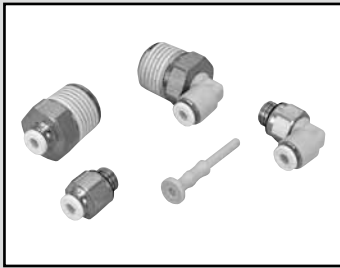
- Ambient temperature and pressure (use/burst)



- Tube length and effective cross-sectional area



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



Push-in fitting for fiber tube

Flame-resistant **RG Series**

- Compatible tube O.D. $\phi 1.8$
- Port size M5, R1/8



Specifications

Model No.	RG Series
Working fluid	Compressed air
Working pressure	-100kPa (≈ 15 psi, -1 bar) to 1.0 MPa (≈ 150 psi, 10 bar)
Ambient temperature $^{\circ}\text{C}$	-10 (14°F) to 60 (140°F) (no freezing)
Tube used	Flame-resistant fiber tube (UP-9102-SR) (*1)

*1: Fiber tube for barbed fitting (UP-9102-F1) is not available.

How to order

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



A Shape

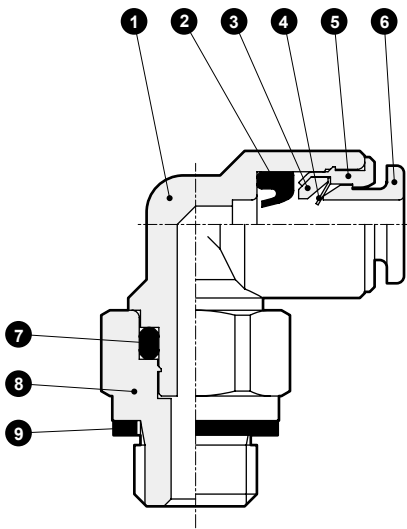
B Compatible tube O.D.: $\phi 1.8$

C Port size

A Shape	
S	Straight
L	Elbow
P	Plug
C Port size	
M5	M5 \times 0.8
6	R1/8
B	Blanking plug

Note: Sales unit is 10 pcs./bag.

Internal structure and parts list



No.	Part name	Material
1	Body *1 (single elbow)	Polybutylene terephthalate (flame-resistant resin *2)
	(single straight)	Copper alloy (electroless nickeling)
2	Packing	Hydrogenated nitrile rubber
3	Chuck holder	Polypropylene
4	Chuck	Stainless steel
5	Outer ring	Copper alloy (electroless nickeling)
6	Push ring *1	Polyamide (flame-resistant resin *2)
7	O-ring	Nitrile rubber
8	Nipple	Copper alloy (electroless nickeling) (R1/8 includes sealant)
9	Gasket	Stainless steel + nitrile rubber

*1: The RG Series push ring and body (single elbow) is light gray (CKD standard color).

*2: UL94 Standards V-0 equivalent

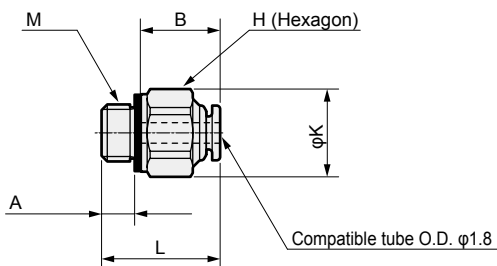


Dimensions: Single straight/single elbow/blanking plug

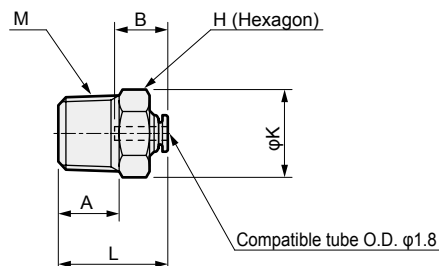
[Sales unit is 10 pcs./bag]

Single straight

● RG-S2-M5



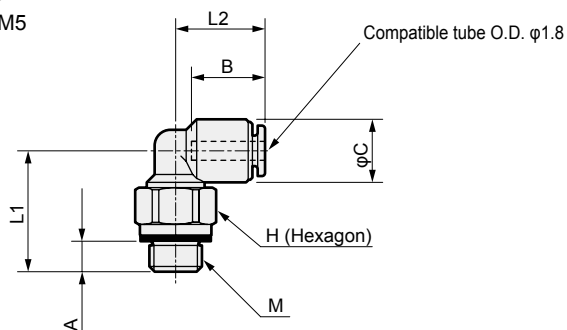
● RG-S2-6



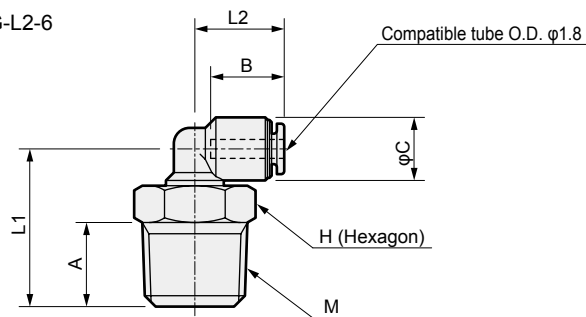
Model No.	M	H	K	L	A	B	Min. bore size	Eff. X-sectional area mm ²	Weight g
RG-S2-M5	M5×0.8	7	7.7	10.4	2.9	7	1.5	0.56	1.8
RG-S2-6	R1/8	10	11.6	14.4	8	7	1.5	0.56	5.6

Single elbow

● RG-L2-M5



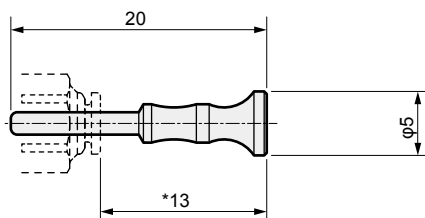
● RG-L2-6



Model No.	M	H	L1	L2	A	B	C	Min. bore size	Eff. X-sectional area mm ²	Weight g
RG-L2-M5	M5×0.8	7	11.5	8.5	2.9	7	6	1.5	0.54	2
RG-L2-6	R1/8	10	15	8.5	8	7	6	1.5	0.54	5.8

Blanking plug

● RG-P2-B



Material: PBT/light gray (CKD standard color) (UL94 standard V-0 or equivalent)

* Dimensions for RG Series fitting.

Weight: 0.2g

⚠ Safety precautions

⚠ CAUTION

- Use flame-resistant fiber tube (UP-9102-SR) with a flame-resistant push-in fitting 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.
- The tube is soft and thin and could be dislocated if too much force is applied.