

- SCPD3
- SCM
- SSD2
- MDC2
- SMG
- LCM
- LCR
- LCG
- LCX
- STM
- STG
- STR2
- MRL2
- GRC
- Cylinder switch
- MN3E
MN4E
- 4GA/B
- M4GA/B
- MN4GA/B
- F.R (module unit)
- Clean F.R
- Precision R
- Press gauge
Diff. press gauge
- Electro-pneumatic R
- Speed controller
- Auxiliary valve
- Fitting/
tube
- Clean air unit
- Pressure sensor
- Flow rate sensor
- Valve for air blow
- Ending

Fiber tube series name		Port size O.D. × I.D.	Color							Specific fitting		Page	
			Black	White	Transparent	Transparent blue	Transparent green	Yellow	Red				Green
Antistatic	UP-9102-F1 Series (Note: Barbed fitting-specific)	ø1.8 × ø1.0	●	●	●	●	●	▲	▲		PTN*2 Series (Note)	Barbed fitting with retaining collar	978
Clean room	EH Series	ø1.8 × ø1.2	●		●						CG Series	Push-in fitting	982

(Note) For antistatic types, the fittings dedicated to individual tubes should be used. ▲: Custom order product
 Never use a combination of mismatched parts. (Disconnection of fiber tubes or leakage may happen.)

Features

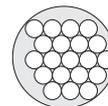
Fiber tube is extremely thin, flexible air tube comparable to lead wire that enables easy piping in a narrow space or short distance. In addition, the tube resistance (tube stress) after piping is much smaller than those of conventional products and gives almost no effect on the device accuracy. Fiber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

Energy saving/space saving

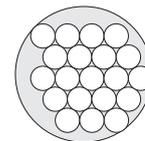
Ultrafine tube with O.D. ø1.0. Can save the piping space considerably. And the small tube capacity can save more energy.



Fiber tube
ø1.8 × 20: 80 mm²



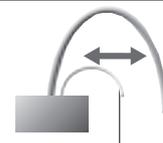
Conventional products
ø3.2 × 20: 253 mm²



Conventional products
ø4.0 × 20: 396 mm²

No effect on device accuracy

Repelling force of the tube after piping is reduced to be equivalent to a lead wire, so adverse effects on device accuracy are greatly minimized.



Pipe stress is small

Flexible piping

Excellent flexibility and flexible in mounting, enabling difficult piping in a narrow space or a short distance from 200 to 300 mm.

Variety of product lineups

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

Antistatic measures are installed to protect from static and dust.

Clean model (EH series)

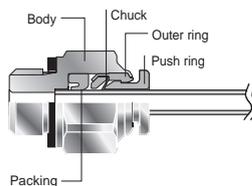
To meet the clean room specifications, clean models made of high corrosion resistance materials (special polyolefin for tubes, stainless materials for fittings, etc.) are introduced to the series.

These are suitable in the fields requiring clean environment, such as semiconductor manufacturing, medical or food industry.

Dedicated fittings

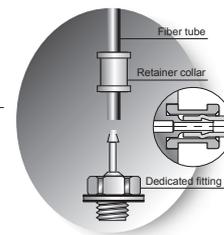
One-touch detachable (CG Series)

With the fitting push-ring held down, the tube can be detached just by inserting/removing it. (EH Series)



Retaining collar (PTN*2 Series)

The retaining collar for protection can be installed by drawing the fiber tube through the retaining collar to insert into the specific fitting. (UP-9102-F1 Series)



Series variation

Antistatic Fiber Tube

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

Dedicated fitting

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

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

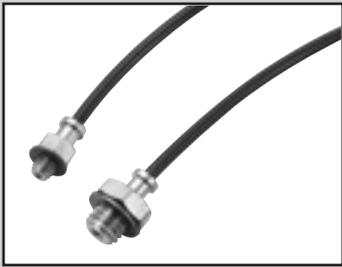
• page: 978

Dedicated fitting	Straight	Elbow	Barbed nipple
	Applicable tube O.D. ϕ	Applicable tube O.D. ϕ	Applicable tube O.D. ϕ
	1.3	1.8	1.8/3.2
			1.8/4
			1.8/6
			
	• page: 980	• page: 980	• page: 980

- SCPD3
- SCM
- SSD2
- MDC2
- SMG
- LCM
- LCR
- LCG
- LCX
- STM
- STG
- STR2
- MRL2
- GRC
- Cylinder Switch
- MN3E
MN4E
- 4GA/B
- M4GA/B
- MN4GA/B
- F.R.(module unit)
- Clean F.R
- Precision R
- Press gauge
Diff. press gauge
- Electro-pneumatic R
- Speed controller
- Auxiliary valve
- Fitting/tube**
- Clean air unit
- Pressure sensor
- Flow rate sensor
- Valve for air blow
- Ending

⚠ Always read the "Safety precautions" before use.

SCPD3
SCM
SSD2
MDC2
SMG
LCM
LCR
LCG
LCX
STM
STG
STR2
MRL2
GRC
Cylinder switch
MN3E
MN4E
4GA/B
M4GA/B
MN4GA/B
F.R (module unit)
Clean F.R
Precision R
Press gauge
Diff. press gauge
Electro-pneumatic R
Speed controller
Auxiliary valve
Fitting/tube
Clean air unit
Pressure sensor
Flow rate sensor
Valve for air blow
Ending



Fiber tube

● O.D.: 1.8 mm



Specifications

● Tube

Descriptions	UP-9102-20-*F1-P80	
Working fluid	Compressed air	
Working pressure (20°C) (*1)	-100 kPa to 0.7 MPa	
Ambient temperature °C	-10 to 60 (no freezing)	
O.D. x I.D. mm	1.8 x 1.0	
Inner diametral accuracy	±0.1	
Outer diametral accuracy	±0.1	
Min. installation radius mm	4	
Burst pressure (20°C) MPa	2.1 (reference value)	
Volume resistance ratio Ω·cm	1 × 10 ⁹ or less (black) 1 × 10 ¹² or less (other than black)	
Material	Conductive urethane	
Color	Black, white, transparent, transparent blue, transparent green, yellow (*2), red (*2)	

● Dedicated fitting

Descriptions	PTN*	
Port size	M3, M5, R ¹ / ₈ , ø3.2 (*4), ø4 (*4), ø6 (*4)	
Working fluid	Compressed air	
Working pressure	-100 kPa to 0.7 MPa	
Ambient temperature °C	-10 to 60 (no freezing)	
Applicable tube	UP-9102-20-*F1	
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.

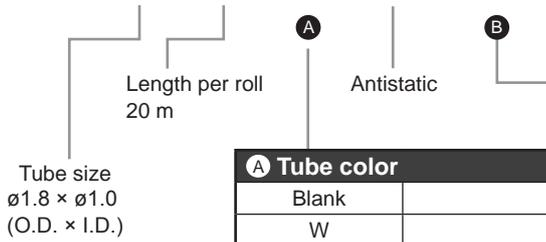
*3 Flow rate is the atmospheric pressure conversion at 0.5 MPa.

*4 Applicable tube: Urethane tube (Model No. U-9504, U-9506)

How to order

● Tube

UP-91 **02** - **20** - **W** - **F1** - **P80**



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

B Clean room specifications	
Treatment	
P80	Oil-prohibited

Note: Custom order product

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

[Straight]

PTN2 - **M3** - **P80**

A Piping size		B Clean room specifications (Note 1)	
M3	M3 × 0.5		Treatment
M5	M5 × 0.8	P80	Oil-prohibited
6	R ¹ / ₈		

[Elbow]

PTNL2 - **M3** - **P80**

A Piping size		B Clean room specifications (Note 1)	
M3	M3 × 0.5		Treatment
M5	M5 × 0.8	P80	Oil-prohibited

[Barbed nipple]

PTN2 **4** - **0** - **P80**

A Applicable tube O.D. (Note 2)		B Clean room specifications (Note 1)	
4	ø3.2, ø4		Treatment
6	ø6	P80	Oil-prohibited

Note 2: Applicable tube (model No. U-92**) Urethane tube (model No. U-9504, U-9506)

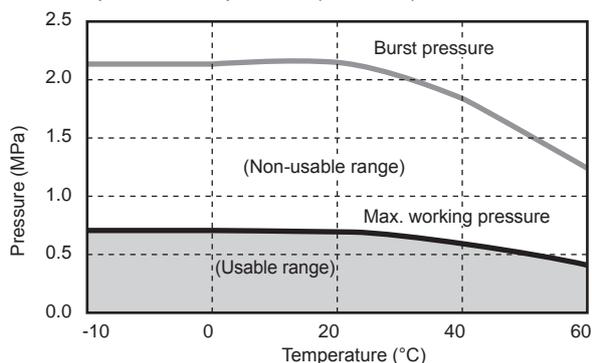
Note 1: P80 Series

- Metal material: Brass + electroless nickeling
- Sealant material: Nitrile rubber (NBR)
- Without grease: Grease is not used as this is oil-prohibited specifications.
- No sealant for screw parts: PTFE resin coating is not applied.

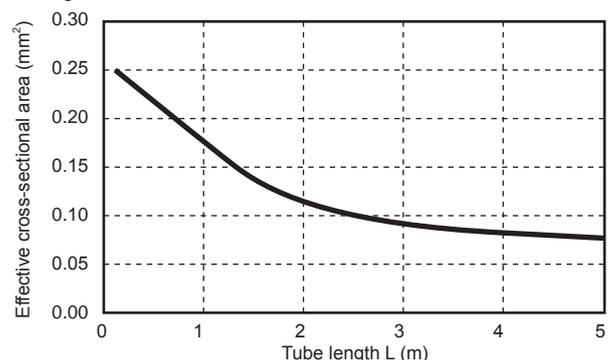
Specify as P80 Series when placing an order, as P70, P74, and P84 are same products.

Characteristics graph

● Ambient temperature and pressure (use/burst)



● Tube length and effective cross-sectional area



SCPD3
SCM
SSD2
MDC2
SMG
LCM
LCR
LCG
LCX
STM
STG
STR2
MRL2
GRC
Cylinder Switch
MN3E
MN4E
4GA/B
M4GA/B
MN4GA/B
F.R. (module unit)
Clean F.R
Precision R
Press gauge
Diff. press gauge
Electro-pneumatic R
Speed controller
Auxiliary valve
Fitting/tube
Clean air unit
Pressure sensor
Flow rate sensor
Valve for air blow
Ending

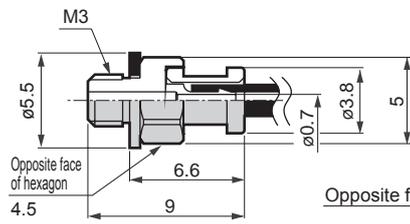
Fiber tube

Dimensions

(Sales unit is 10 pcs./1 bag)

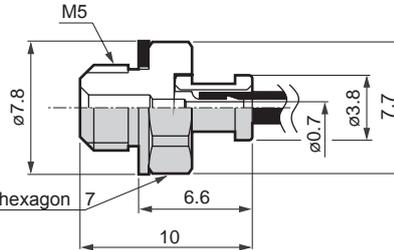
● Straight

[PTN2-M3-P80]



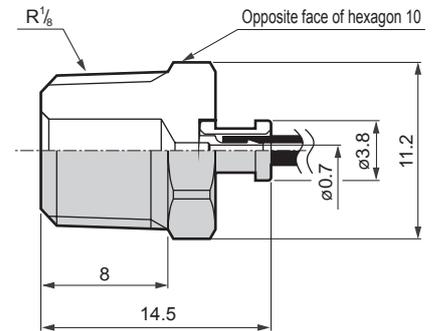
Weight/0.7 g

[PTN2-M5-P80]



Weight/1.6 g

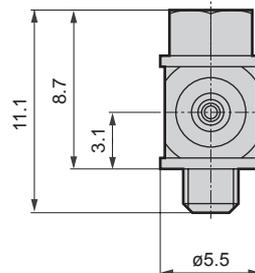
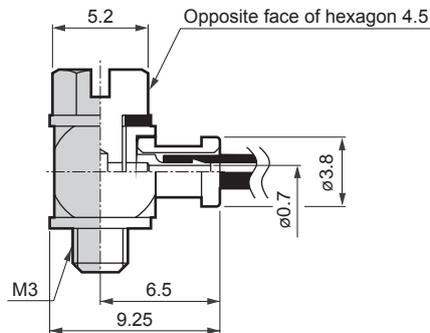
[PTN2-6-P80]



Weight/5.8 g

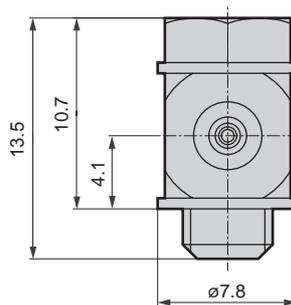
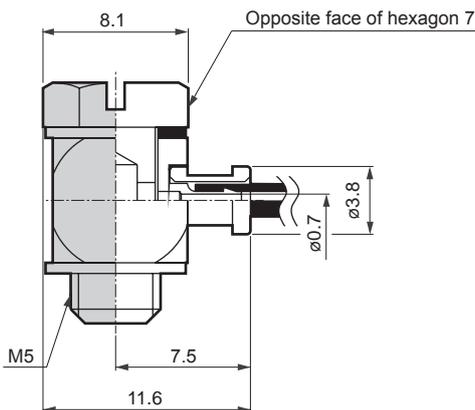
● Elbow

[PTNL2-M3-P80]



Weight/1.7 g

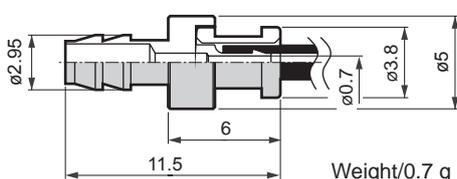
[PTNL2-M5-P80]



Weight/4.2 g

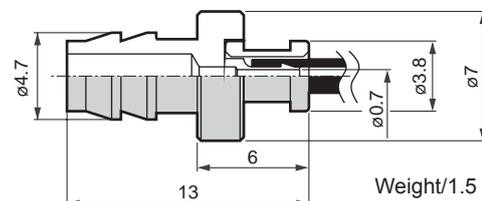
● Barbed nipple

[PTN24-0-P80]



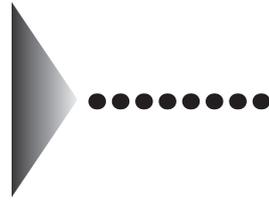
Weight/0.7 g

[PTN26-0-P80]



Weight/1.5 g

Series variation

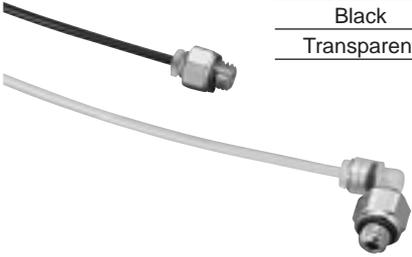


Fiber tube clean (for push-in fitting)

Tube size $\phi 1.8 \times \phi 1.2$

Push-in fitting for fiber tube

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

Fiber tube clean (for push-in fitting) EH	
	O.D. × I.D. (mm)
	$\phi 1.8 \times \phi 1.2$
	Color
	Black Transparent

Push-in fitting for fiber tube (clean)					
■ Straight					
Single straight CG-S2-□		Straight CG-S2-0		Bulk head CG-S2-0-X	
					
Port size					
M3					
M5					
R1/8					
• page: 985		• page: 985		• page: 985	
■ Elbow			■ Tee		
Single elbow CG-L2-□		Both ports tee CG-T2-□		Tee CG-T2-0	
					
Port size		Port size			
M3		M3			
M5		M5			
R1/8					
• page: 986		• page: 986		• page: 986	

• Sales unit for a clean type is 1 pcs./1 bag

SCPD3

SCM

SSD2

MDC2

SMG

LCM

LCR

LCG

LCX

STM

STG

STR2

MRL2

GRC

Cylinder
Switch

MN3E
MN4E

4GA/B

M4GA/B

MN4GA/B

F.R.(module
unit)

Clean
F.R

Precision
R

Press gauge
Diff. press gauge

Electro-
pneumatic R

Speed
controller

Auxiliary
valve

Fitting/
tube

Clean
air unit

Pressure
sensor

Flow rate
sensor

Valve for
air blow

Ending

SCPD3
SCM
SSD2
MDC2
SMG
LCM
LCR
LCG
LCX
STM
STG
STR2
MRL2
GRC
Cylinder switch
MN3E
MN4E
4GA/B
M4GA/B
MN4GA/B
F.R (module unit)
Clean F.R
Precision R
Press gauge
Diff. press gauge
Electro-pneumatic R
Speed controller
Auxiliary valve
Fitting/tube
Clean air unit
Pressure sensor
Flow rate sensor
Valve for air blow
Ending



Fiber tube (for push-in fitting)

● O.D.: $\varnothing 1.8 \times$ I.D.: $\varnothing 1.2$



Specifications

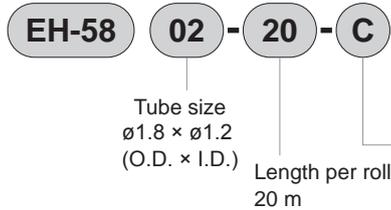
Descriptions	Clean EH-5802
Working fluid	Compressed air
Working pressure (20°C) (*1)	-100 kPa to 1.0 MPa
Ambient temperature °C	-10 to 60 (no freezing)
O.D. × I.D. mm	$\varnothing 1.8 \times \varnothing 1.2$
Inner diametral accuracy mm	± 0.1
Outer diametral accuracy mm	± 0.1
Durometer hardness	HDD 58
Min. bending radius (JIS B 8381) mm	5
Min. installation radius mm	7
Burst pressure (20°C) MPa	3.8
Volume resistance ratio $\Omega \cdot \text{cm}$	-
Material	Special polyolefin
Color	Black, transparent
Applicable fittings	CG Series (push-in) *2

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

2: It cannot be used with a barbed fitting (PTN).

How to order

● Clean



Tube color	
Blank	Black
C	Transparent

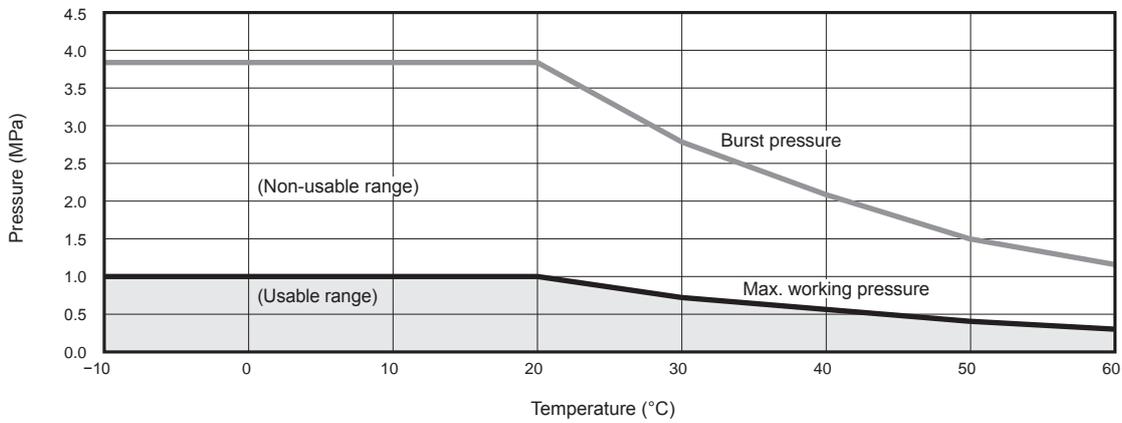
Fiber tube (for push-in fitting)

Characteristics graph

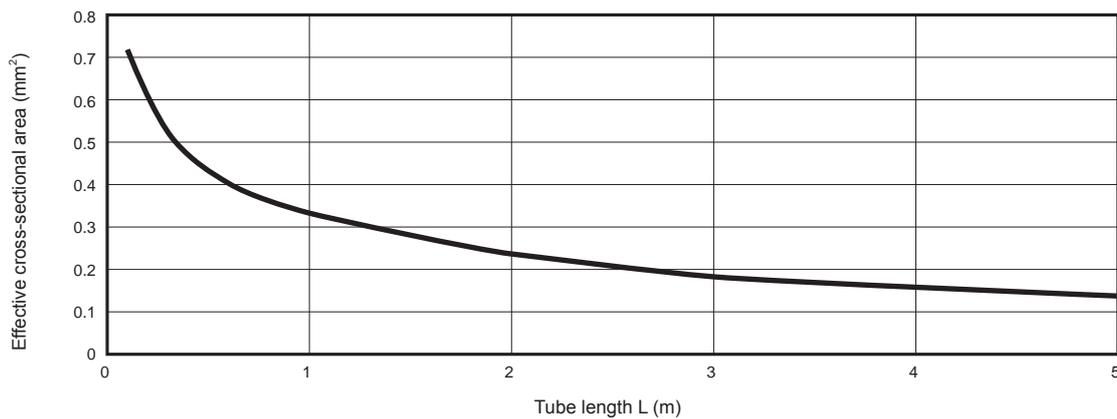
Characteristics graph

- Ambient temperature and pressure (use/burst)

EH-5802



- Tube length and effective cross-sectional area



SCPD3

SCM

SSD2

MDC2

SMG

LCM

LCR

LCG

LCX

STM

STG

STR2

MRL2

GRC

Cylinder
Switch

MN3E
MN4E

4GA/B

M4GA/B

MN4GA/B

F.R.(module
unit)

Clean
F.R

Precision
R

Press gauge
Diff. press gauge

Electro-
pneumatic R

Speed
controller

Auxiliary
valve

**Fitting/
tube**

Clean
air unit

Pressure
sensor

Flow rate
sensor

Valve for
air blow

Ending

SCPD3
SCM
SSD2
MDC2
SMG
LCM
LCR
LCG
LCX
STM
STG
STR2
MRL2
GRC
Cylinder switch
MN3E
MN4E
4GA/B
M4GA/B
MN4GA/B
F.R (module unit)
Clean F.R
Precision R
Press gauge
Diff. press gauge
Electro-pneumatic R
Speed controller
Auxiliary valve
Fitting/tube
Clean air unit
Pressure sensor
Flow rate sensor
Valve for air blow
Ending



Push-in fitting for fiber tube

Clean CG Series

- Applicable tube outer diameter: $\varnothing 1.8$
- Port size: M3 to R1/8



Overview

CG Series fittings are designed for clean environment, such as semiconductor manufacturing, medical or food industry. P.P. resin, stainless steel and EPDM rubber are used to improve corrosion resistance. This product is assembled in accordance with oil-prohibited specifications and shipped in clean packaging.

Specifications

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

*1: Containing a rubber EPDM material, this product is not suitable for use with fluids containing a mineral oil.

*2: Using with a fiber tube for barbed fitting (UP-9102-F1) is not allowed.

*3: It is sold by a piece.

How to order

* For combinations of model No., refer to the model No. described in dimensions (pages 985 to 986).

- Clean



A Shape

S	Straight
L	Elbow
T	Tee

B Applicable tube outer diameter $\varnothing 1.8$

C Port size

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

D Other combination

X	Bulk head
----------	-----------

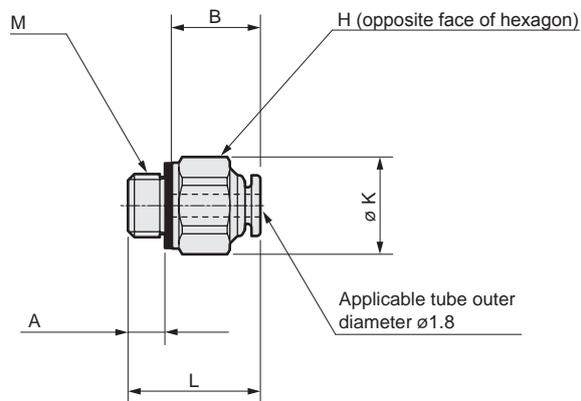
Note: It is sold by a piece.

Dimensions: Single straight, Straight, Bulk head

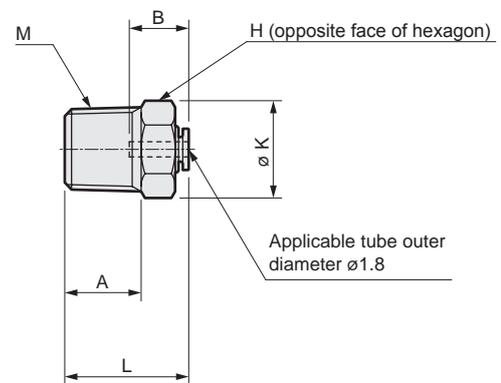
[Sales unit is 1 pcs./1 bag]

Single straight

- CG-S2-□



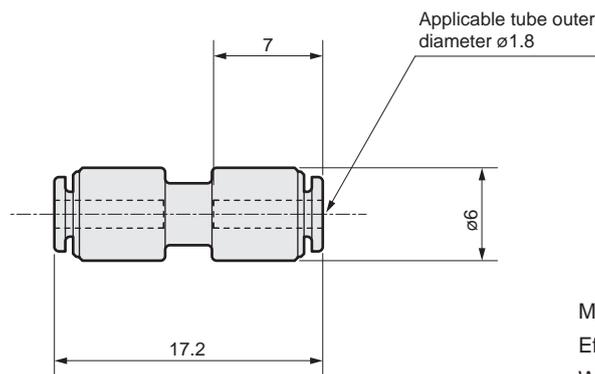
- CG-S2-6



Model No.	M	H	K	L	A	B	Min. bore size	Effective cross-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

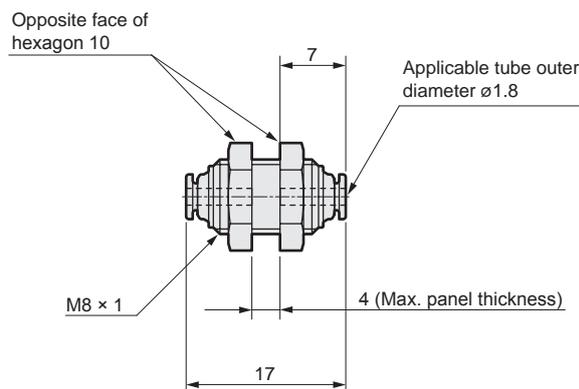
- CG-S2-0



Min. bore size: ø1.5
 Effective cross-sectional area: 0.82 mm²
 Weight: 0.5 g

Bulk head

- CG-S2-0-X



Min. bore size: ø1.5
 Effective cross-sectional area: 0.85 mm²
 Weight: 5.8 g

SCPD3

SCM

SSD2

MDC2

SMG

LCM

LCR

LCG

LCX

STM

STG

STR2

MRL2

GRC

Cylinder
Switch

MN3E
MN4E

4GA/B

M4GA/B

MN4GA/B

F.R. (module
unit)

Clean
F.R

Precision
R

Press gauge
Diff. press gauge

Electro-
pneumatic R

Speed
controller

Auxiliary
valve

Fitting/
tube

Clean
air unit

Pressure
sensor

Flow rate
sensor

Valve for
air blow

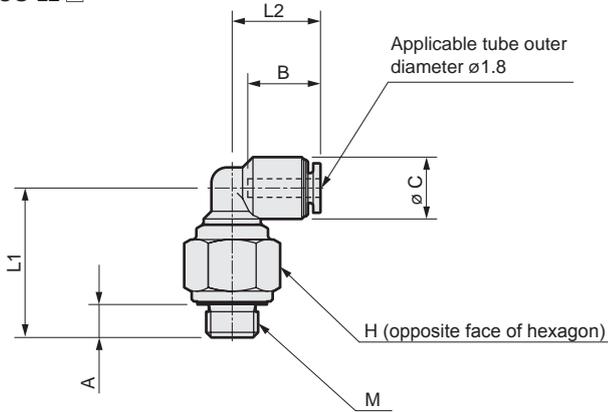
Ending

Dimensions: Single elbow, Both ports tee, Tee

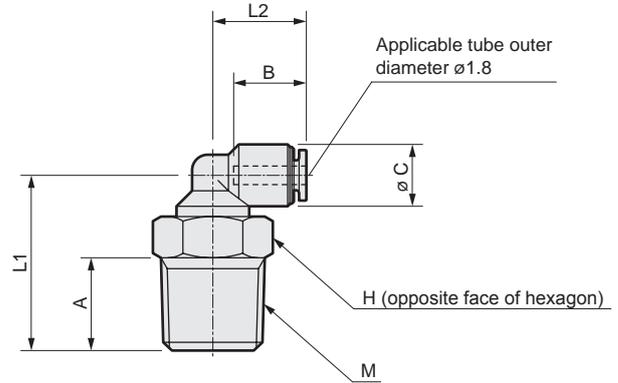
[Sales unit is 1 pcs./1 bag]

Single elbow

• CG-L2 □



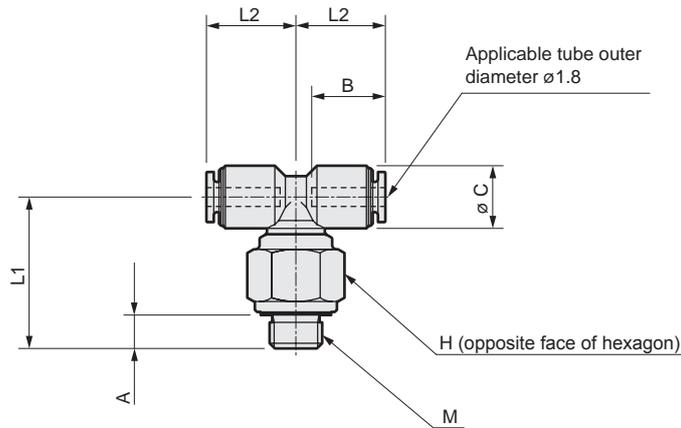
• CG-L2-6



Model No.	M	H	L1	L2	A	B	C	Min. bore size	Effective cross-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

Both ports tee

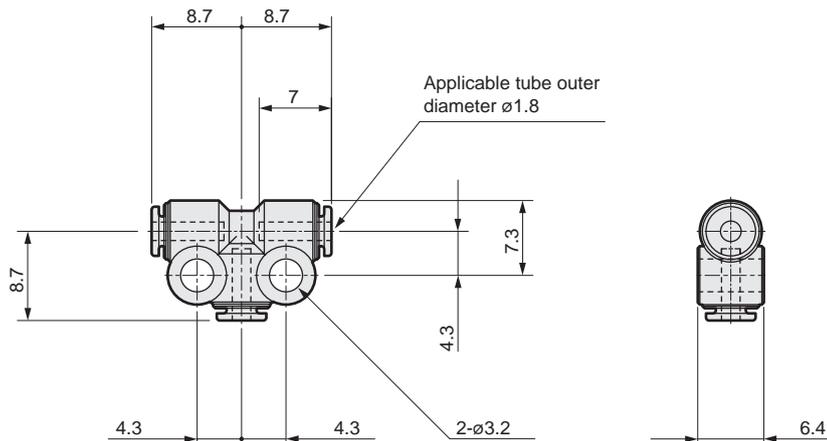
• CG-T2- □



Model No.	M	H	L1	L2	A	B	C	Min. bore size	Effective cross-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: ø1.5
 Effective cross-sectional area:
 0.90 mm²
 Weight: 1.1 g

Safety precautions

■ Design & selection

- This is an extremely fine tube, so the effective cross-sectional area is extremely small. With a standard cylinder may cause problems such as failure to obtain set speed, delayed response, or knocking.
The pipe length should be 1 m or less and combination with fine speed cylinder (catalog No. CC-N-360A) is recommended.
- 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.

■ Mounting / Installation / Adjustment (piping)

- Use proper torque to tighten the pipes when connecting them.
Using an appropriate torque can prevent air leakage and screw damage. First tighten the screw by hand and then use a tool so that threads are not damaged.

Check that the tool's hexagon face and wrench are the correct size.

(Reference value)

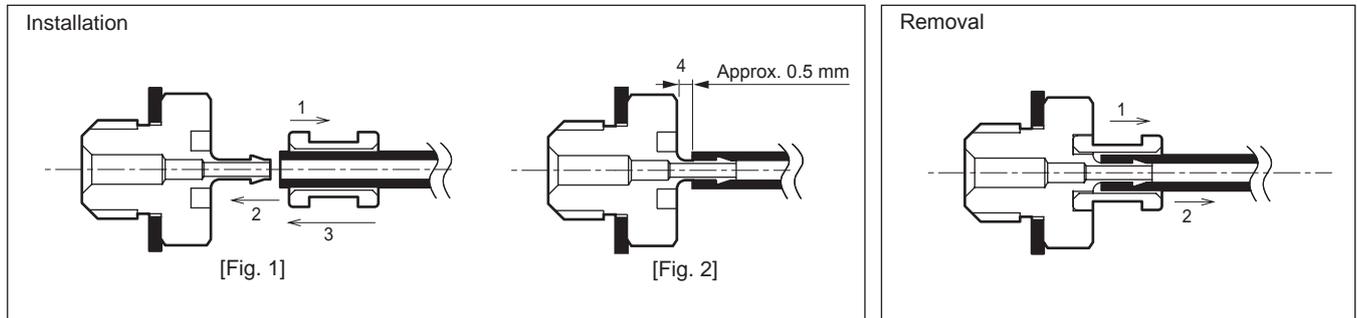
Port size	Tightening torque N·m
M3	0.3 to 0.5
M5	1 to 1.5
R 1/8	3 to 5

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

- On devices requiring an antistatic measure, ground the part to which the fitting is connected.
Electrostatic discharge could build up in tubing if the part is not grounded.
- The elbow can be installed while being rotated in any direction, but cannot be rotated after assembly.
- R 1/8 does not have sealing material. Prepare sealing tape, etc., separately.

■ During use & maintenance

- Mounting and removal



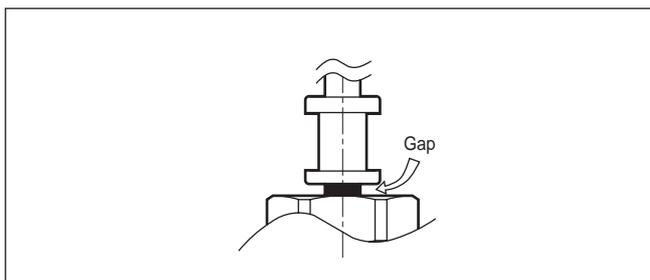
- (1) Insert the collar into the tube. (Fig. 1)
- (2) Insert the tube to position 4. (Fig. 2)
- (3) Insert the collar into the fitting. (Fig. 1)
- (4) Check that the tube is not dislocated from the fitting.

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.

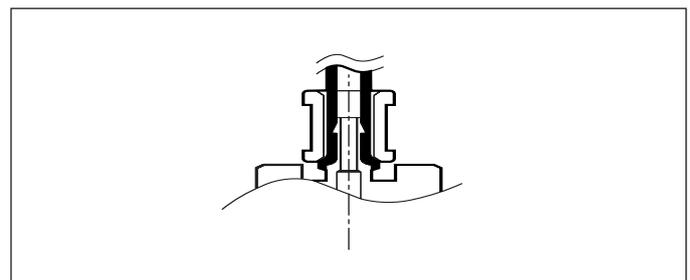
- (1) Pull the collar out with a pair of needle-nose pliers, etc.
- (2) Pull out the tube.
- (3) When reusing the tube, cut the end at 10 mm and over.

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 fitting.
(The fitting could break or the tube could be dislocated.)



- (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 of 0.5 mm from the tube.

SCPD3

SCM

SSD2

MDC2

SMG

LCM

LCR

LCG

LCX

STM

STG

STR2

MRL2

GRC

Cylinder Switch

MN3E
MN4E

4GA/B

M4GA/B

MN4GA/B

F.R.(module unit)

Clean F.R

Precision R

Press gauge
Diff. press gauge

Electro-pneumatic R

Speed controller

Auxiliary valve

Fitting/
tube

Clean air unit

Pressure sensor

Flow rate sensor

Valve for air blow

Ending