Series variation

Fiber tube

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)	ø1.8×ø1.0	●	●	●	●	●	▲	▲		PTN*2 Series (Note)	Barbed fitting with retainer collar	878
	UP-9402-F1 Series (Note: Only for push-in fitting)	ø1.8×ø1.2	●	●	●	●	●	▲	▲		PG Series (Note)	Push-in fitting	886
Clean-room	EH Series	ø1.8×ø1.2	●		●						CG Series	Push-in fitting	890
Flame-resistant	UP-SR Series	ø1.8×ø1.0							●	●	RG Series	Push-in fitting	899

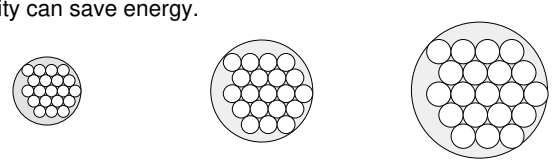
(Note) As for the antistatic, use a fitting specified for each series. ▲: Made-to-order product
A different fitting cannot be used. (Since the fiber tube may come off or leakage may occur.)

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. ø1.0 ultra thin size.
Can considerably save piping space. In addition, the small tube capacity can save energy.



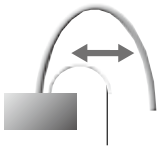
Fiber tube
ø**1.8** x **20** tubes:**80 mm²**

Conventional products
ø**3.2** x **20** tubes:**253mm²**

Conventional products
ø**4.0** x **20** tubes:**396mm²**

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.



Pipe stress is 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 cleanness (semiconductor manufacturing, medical and food fields, etc.)

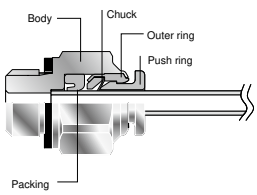
Flame-resistant (UP-SR Series)

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

Dedicated fittings

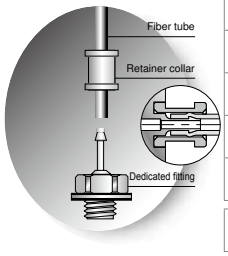
Push-in (PG/CG/RG Series)

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)



Series variation

Antistatic fiber tube

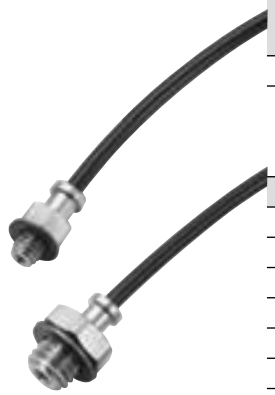
Tube size ø1.8 x ø1.0

Dedicated fitting

● Port size: M3, M5, R1/8, ø4, ø6

CAD

Antistatic fiber tube



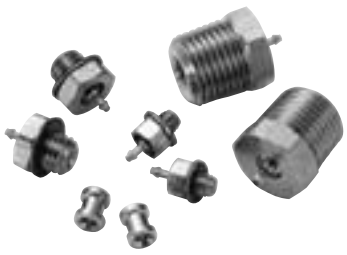
O.D. x I.D. (mm)
ø1.8×ø1.0

Color
Black
White
Transparent
Transparent blue
Transparent green
Red (made to order)
Yellow (made to order)

Dedicated fitting

■ Straight

Compatible tube O.D. ø
1.8



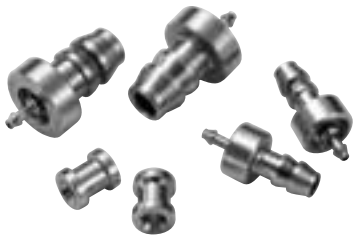
■ Elbow

Compatible tube O.D. ø
1.8



■ Barbed nipple

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



Fiber tube

Specifications

● Tube

Item	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

Item	PTN*
Port size	M3, M5, R 1/8, ø3.2 (*4), ø4 (*4), ø6 (*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: Made-to-order product.
*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

UP-91 02 - 20 - W - F1

- 02: Tube size ø1.8×ø1.0 (O.D. x I.D.)
- 20: Length per roll 20 m
- 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: Made-to-order product.

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

[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 (Ⓐ)

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

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

Clean-room specifications

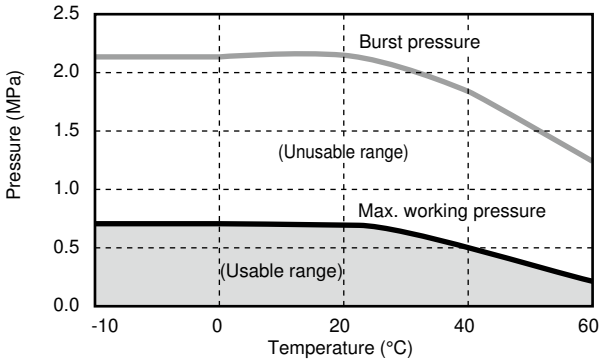
(Catalog No. CB-033SA)

PTN2 -.....- P80

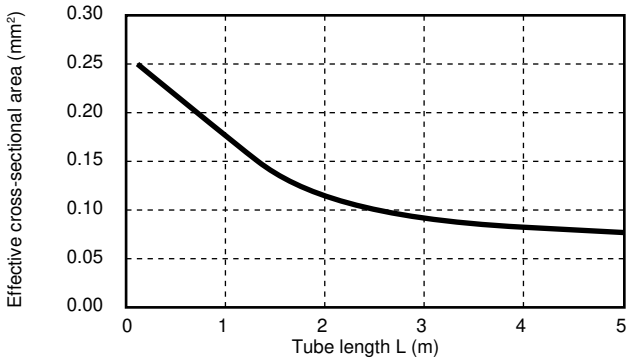
UP-9102 -.....- P80

Characteristics graph

● Ambient temperature and pressure (use/burst)

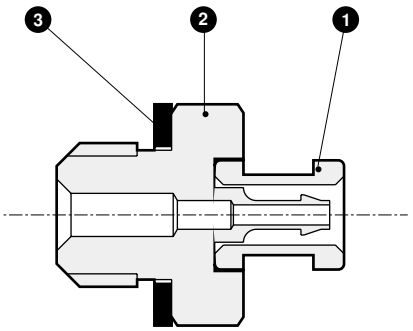


● Tube length and effective cross-sectional area

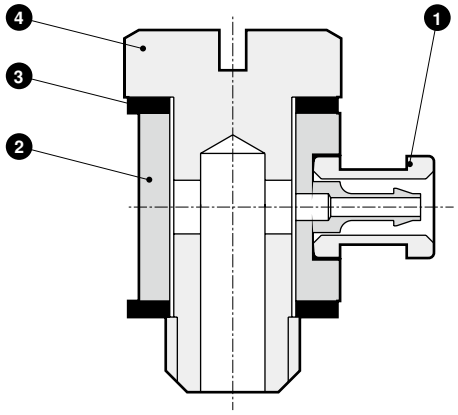


Internal structure and parts list

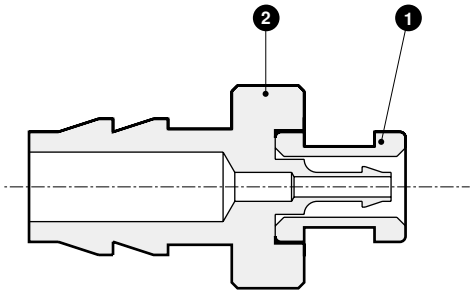
● Straight



● Elbow



● Barbed nipple



● Parts list

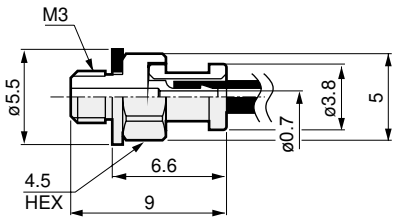
No.	Name	Material
1	Collar	Copper alloy (with electroless nickeling)
2	Body	Copper alloy (with electroless nickeling)
3	Gasket	Stainless steel + nitrile rubber
4	Shaft	Copper alloy (with electroless nickeling)

Dimensions CAD

[Sales unit is 10 pcs./bag]

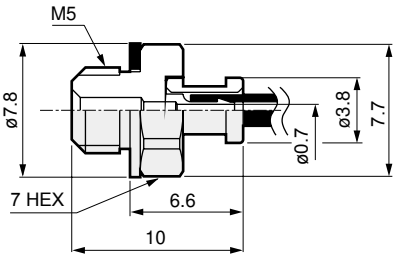
● Straight

[PTN2-M3]



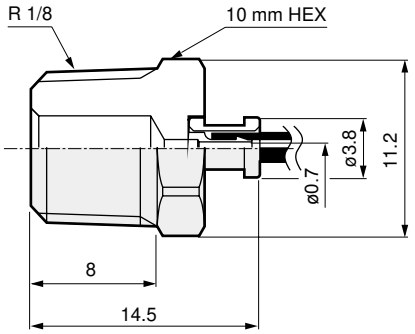
Weight/0.7 g

[PTN2-M5]



Weight/1.6g

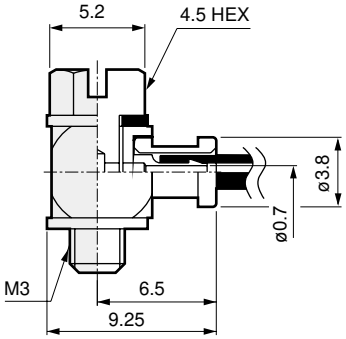
[PTN2-6]

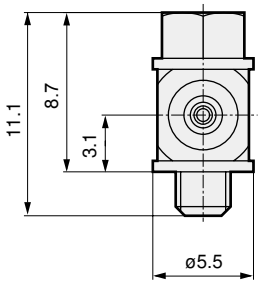


Weight/5.8g

● Elbow

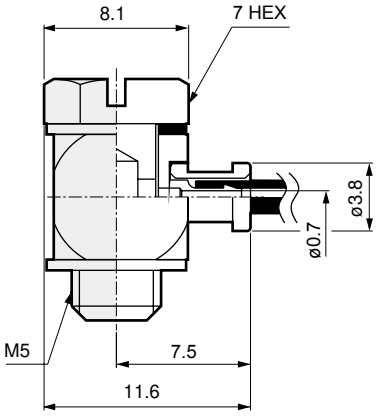
[PTNL2-M3]

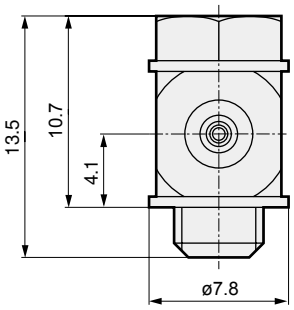




Weight/1.7g

[PTNL2-M5]

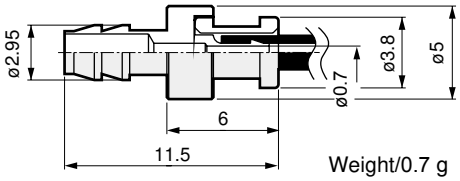




Weight/4.2g

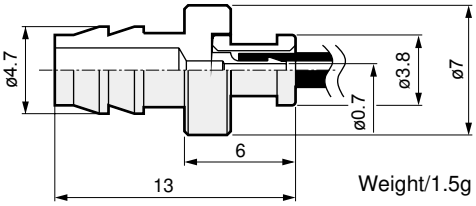
● Barbed nipple

[PTN24-0]



Weight/0.7 g

[PTN26-0]



Weight/1.5g