

UP.F.U.NU.KX.SR2 Tube

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

- Tubes can be selected according to applications
A great variety of tubes are available according to the purpose and applications. Furthermore, they are highly reliable, meeting needs of space saving and complex piping, etc.

Antistatic Tubing	Soft Nylon Tubing	New Urethane Tubing	Urethane Tubing	Coiling Tube
 O.D. x I.D. (mm) 3.2 x 1.8 4 x 2.5 6 x 4 8 x 5 10 x 6.5 12 x 8 • Page: 1093	Manufacturer of colors other than white: Aoi Co., Ltd.  O.D. x I.D. (mm) 3.2 x 2.0 3.2 x 2.4 4 x 2.5 6 x 4 8 x 6 10 x 7.5 12 x 9 15 x 11.5 16 x 12 • Page: 1096	 O.D. x I.D. (mm) 4 x 2.5 6 x 4.5 8 x 6 10 x 7.5 12 x 9 • Page: 1097	Aoi Co., Ltd.  O.D. x I.D. (mm) 3.2 x 1.8 4 x 2 6 x 4 8 x 5 10 x 6.5 12 x 8 • Page: 1098	 Aoi Co., Ltd. O.D. x I.D. (mm) 6 x 4 8 x 6 10 x 7.5 12 x 9.2 • Page: 1098

Flame Resistant Tubing	Tube Cutter
Aoi Co., Ltd.  O.D. x I.D. (mm) 4 x 2 6 x 3.8 8 x 5.5 10 x 7 12 x 8.5 • Page: 1099	Aoi Co., Ltd. 

Tube Cutter

Aoi Co., Ltd.
AZ-1200

Features

- ① sharp cut with a right-angle cut
Prevents air problems.
- ② Extremely lightweight and compact.
- ③ Easy blade replacement.

Applicable material

- Nylon tube
- Urethane Tubing
- PTFE tube
- Other plastic tubes

Sharp edge



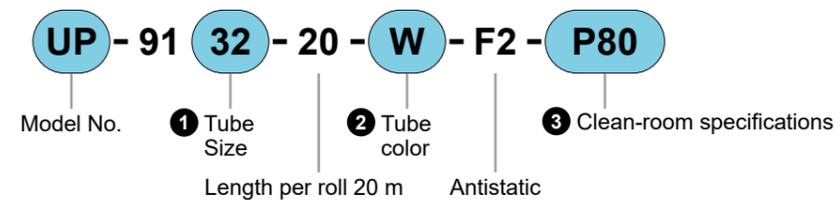
Antistatic Tubing

- Outer Diameter: 3.2 mm, 4 mm, 6 mm, 8 mm, 10 mm, 12 mm



- Resistant to static electricity and dust build-up
- Variety of colors
 - Six colors are available: black, white, transparent, transparent blue, transparent green, and transparent red. Applications can be distinguished by color.
- Diverse lineup
 - Six diameters are available: $\phi 3.2$, $\phi 4$, $\phi 6$, $\phi 8$, $\phi 10$, and $\phi 12$.

Model No. Notation Method



① Tube Size

Code	Content
32	$\phi 3.2$
04	$\phi 4$
06	$\phi 6$
08	$\phi 8$
10	$\phi 10$
12	$\phi 12$

② Tube color

Code	Content
Blank	Black
W	White
C	Transparent
CB	Transparent blue
CG	Transparent green
CR	Transparent red

③ Clean-room specifications

Code	Content
Blank	None
P80	Clean Specification

Clean Specification (Catalog No. CB-033SAA)

- Dust prevention structure usable in cleanrooms

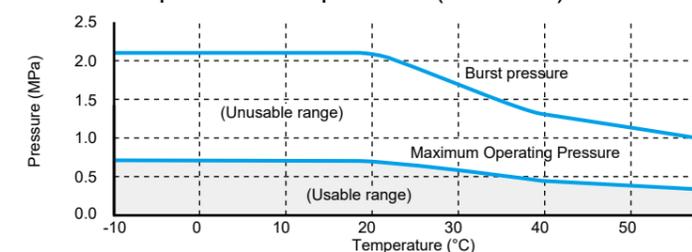
UP-91□□ . . . -F2- P80

*1: The transparent red of all colors in the outer diameter $\phi 3.2$ and other outer diameters is Custom Product.

Specifications

Item	UP-91□□ -F2						
	mm x mm		$\phi 3.2 \times \phi 1.8$ (*1)	$\phi 4 \times \phi 2.5$	$\phi 6 \times \phi 4$	$\phi 8 \times \phi 5$	$\phi 10 \times \phi 6.5$
Operating Fluid	Compressed Air						
Max. working pressure	MPa	0.7(20°C)					
Ambient Temperature	°C	0 to 60 (provided there is no freezing)					
Durometer hardness (ISO/DIS 868)		HDA94 (reference)					
Min. bending radius (JIS B 8381:2008)	mm	4	6	12	10	13	16.5
Min. mounting radius	mm	8	11	18	25	30	36
Burst pressure	MPa	2.1(20°C)					
Volume resistance ratio (JIS K 6911) $\Omega \cdot \text{cm}$		Black: 10^4 to 10^5 , other colors: 10^{10} to 10^{11} (reference value)					
Material		Antistatic urethane					
Color		Black, white, transparent, transparent blue, transparent green, transparent red (*1)					

Ambient temperature and pressure (use/burst)



Insert ring (Special Specification Product)

Model No. Notation Method

● Insert ring

INS - **UP** **32** - **1**

Model No. ① Compatible tube

① Compatible tube

Code	Content
32	For UP-9132
04	For UP-9104
06	For UP-9106

* Sales unit is 10 pcs./bag.

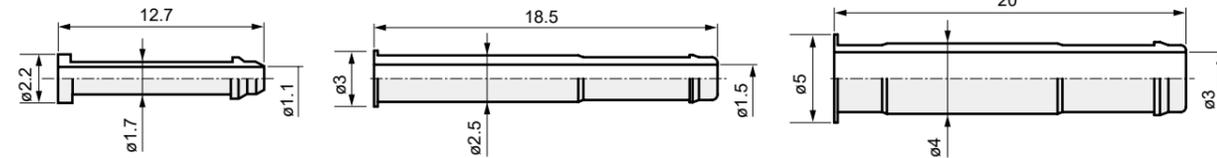
External Dimension Drawings

● Insert ring [Special Specification Product]

• INS-UP32-1

• INS-UP04-1

• INS-UP06-1



Material: Brass + electroless nickeling

⚠ Precautions for Use

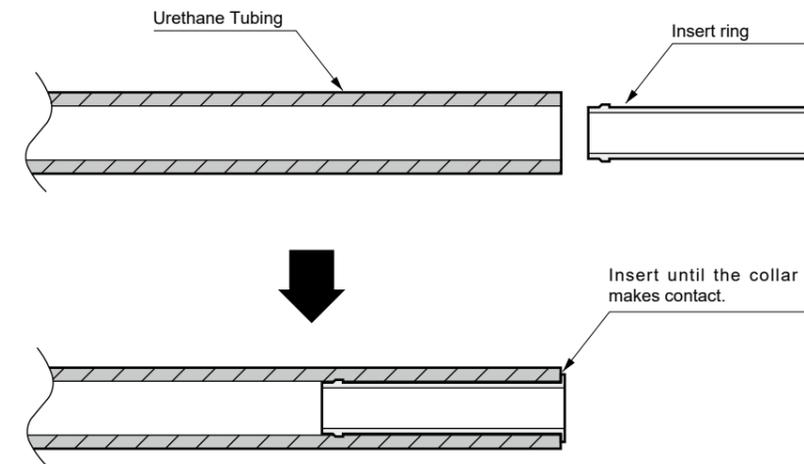
■ Design/selection

⚠ Caution

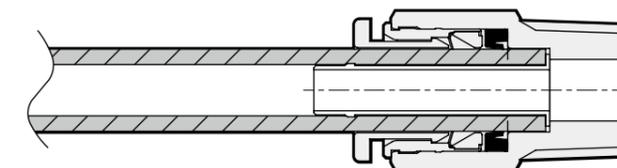
- Fittings Be sure to ground the part where the yoke is connected. Electrostatic discharge could build up in the tubing if the part is not grounded.
- When using tubing where antistatic performance is essential, select "black" tubing.
- Use the same size of urethane tube, push-in fitting, and insertion ring.
- When using with vacuum pressure with a push-in fitting, use the insert ring.
- Fittings Use CKD brand fittings and tubes.
- Fittings Do not apply a pulling force exceeding the values given on the right onto the tube or the tube.

Tube O.D.	Pull-out force (N)
ø3.2	30
ø4	30
ø6	55
ø8	110
ø10	150
ø12	180

- The insert ring can be pulled out of the Urethane Tubing by hand when remodeling or restructuring the piping connections. Therefore the insert ring need not be discarded.
- Insert the insert ring by hand. If inserted with a tool, it could deform or break and cause vacuum leakage.
- Mounting method
 1. Insert the insert ring into the urethane tube with a finger.



2. Insert into the push-in fitting (GW Series).





Tube F.U.NU.KX.SR2 Series

Wide bore size available according to purposes and applications.
Highly reliable piping tubes.

- Outer Diameter: 3.2, 4, 6, 8, 10, 12, 15, 16 mm

F.U.NU.KX.SR2 Series

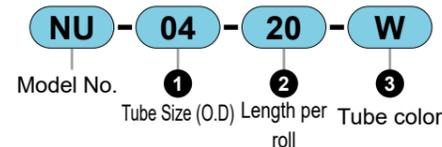
Model No. Notation Method



●New Urethane Tubing

Due to the adoption of a new manufacturing process, larger inner diameter and increased strength are realized simultaneously with the same outer diameter. This piping tube is also used for larger flow rates. Also economical.

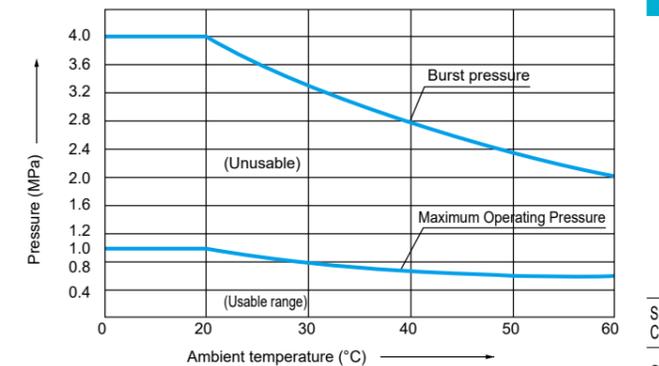
Model No. Notation Method



1 Tube size (O.D.)		2 Length per roll		3 Tube color	
Code	Content	Code	Content	Code	Content
04	ø4	20	20 m	Blank	Black (standard)
06	ø6	100	100 m	W	White (standard)
08	ø8				
10	ø10				
12	ø12				

* If 3 tube color is "W", length per roll 100m is not available.

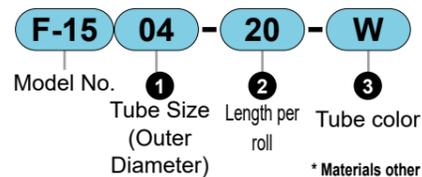
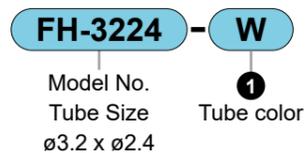
Ambient temperature and pressure (use/burst)



●Soft Nylon Tubing

The soft nylon tube is very flexible compared to the conventional nylon tubes, and optimal for piping in small or complicated spaces. The tube also has sufficient characteristics such as cold resistance, weather resistance, oil resistance and chemical resistance, etc.

Model No. Notation Method



* Materials other than tube color "W" are manufactured by Aoi Co., Ltd.

1 Tube color

Code	Content
Blank	Black
W	White

Miniature fitting (F)
(page 1004).

1 Tube size (O.D.)

Code	Content
32	ø3.2
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12
15	ø15
16	ø16

2 Length per roll

Code	Content
20	20 m
100	100 m

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

3 Tube color

Code	Content
Blank	Black (standard)
W	White (standard)
R	Red
BU	Blue
Y	Yellow
G	Green
O	Orange

* Use the FH-3224 for
miniature fittings. F-1532
cannot be used.

Ozone-proof specifications

Ozone-proof specifications are available
as standard.
(F.U.KX only)

Specifications

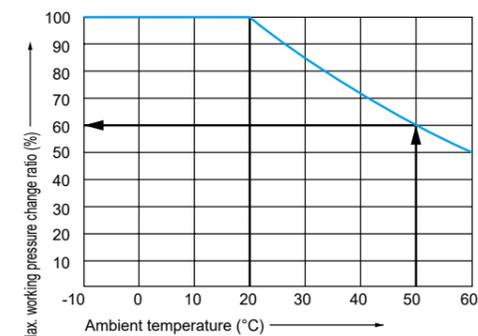
This table indicates the value at 20°C.

Item	FH-3224	F-1532	F-1504	F-1506	F-1508	F-1510	F-1512	F-1515	F-1516
Operating Fluid	Compressed Air								
O.D. x I.D. mm x mm	3.2 x 2.4	3.2 x 2.0	4 x 2.5	6 x 4	8 x 6	10 x 7.5	12 x 9	15 x 11.5	16 x 12
Ambient Temperature °C	-10 to 60 (Provided that freezing does not occur)								
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. mounting radius mm	21	7	10	20	30	40	55	80	90
Tube color	White/black	White (20 m only)/black/red/ Blue/yellow/green/orange			White/black			White/ black *1	
Standard length per roll m	20	20, 100		20/100 (only black)					

*1: Aoi Co., Ltd., for both white and black

*2: Outer diameter dimension tolerance is manufactured within ±0.1mm.

Relation of ambient temperature and max. working pressure



(Example) Tube F-1504 (ø4 x ø2.5) If ambient temperature
is 50°C, max. working pressure is 60% of max. working
pressure at 20°C.

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

Clean Specification (Catalog No. CB-033SAA)

●Dust prevention structure usable in cleanrooms

NU - - P80

Common Specifications

Item	Content
Operating Fluid	Air
Ambient Temperature °C	0 to 60
Burst pressure MPa	4 (at 20°C)
Max. Operating Pressure MPa	1.0 (at 20°C)
Working vacuum pressure kPa	-100

Specifications

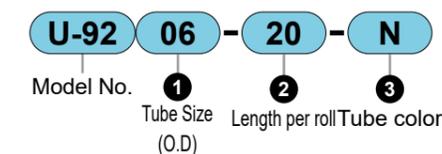
Item	NU-04	NU-06	NU-08	NU-10	NU-12
O.D. x I.D. mm x mm	4 x 2.5	6 x 4.5	8 x 6	10 x 7.5	12 x 9
Burst pressure MPa	4 to 2.4				
Ambient Temperature °C	0 to 60 (provided there is no freezing)				
Durometer hardness (ISO/DIN 868)	HDD 64				
Min. bending radius (JIS B 8381) mm	8	16	24	30	36
Min. installation radius mm	12	26	36	42	52
Outer diameter accuracy mm	+0.1 -0.1		+0.1 -0.15		
Weight g/m	10	15	28	42	62
Tube color	Black/white				
Standard length per roll m	20/100 (only black)				

* Refer to Intro Page 24 for relation of the tube length to the effective cross-sectional area.

●Soft urethane tube

Aoi Co., Ltd.

Model No. Notation Method



Clean Specification (Catalog No. CB-033SAA)

●Dust prevention structure usable in cleanrooms

U-92 - - P80

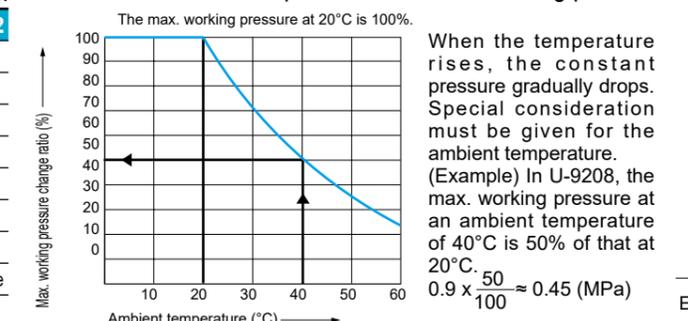
1 Tube size (O.D.)		2 Length per roll		3 Tube color	
Code	Content	Code	Content	Code	Content
04	ø4	20	20 m	Blank	Black
06	ø6	100	100 m	N	Transparent
08	ø8			PW	Pure white
10	ø10			R	Red
12	ø12			BU	Blue
				Y	Yellow
				G	Green
				O	Orange

Specifications

This table indicates the value at 20°C.

Item	U-9204	U-9206	U-9208	U-9210	U-9212
Operating Fluid	Compressed Air				
O.D. x I.D. mm x mm	4 x 2	6 x 3.7	8 x 5	10 x 6.5	12 x 8
Burst pressure MPa	4.1	2.9	2.8	2.6	2.6
Max. working pressure MPa	1.3	0.9	0.9	0.8	0.8
Durometer hardness ISO/DIN 868	HDA 92				
Min. bending radius mm	4	10	11	13	16.5
Min. mounting radius mm	8	17	25	30	36
Tube color	Black/transparent/red/blue/yellow/green/orange/pure white				
Standard length per roll m	20, 100				

Relation of ambient temperature and max. working pressure

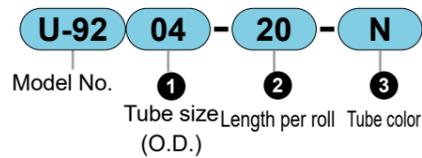


●Urethane Tubing

Aoi Co., Ltd.

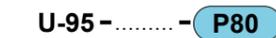
Since urethane tube has high mechanical strength, the tube strongly endures external force, and also has flexibility. This is widely used in general pneumatic lines, etc.

Model No. Notation Method



Clean Specification (Catalog No. CB-033SAA)

●Dust prevention structure usable in cleanrooms



① Tube size (O.D.)

Code	Content
32	ø3.2
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12

② Length per roll

Code	Content
20	20 m
100	100 m

* Indicate tube color in the message area on the Slip.

③ Tube color

Code	Content
Blank	Black
N	Transparent

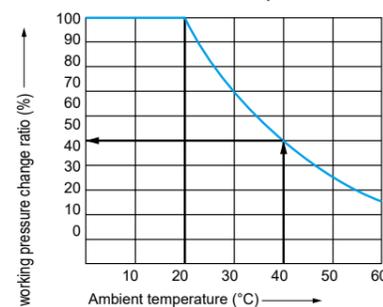
Specifications

This table indicates the value at 20°C.

Item	U-9532	U-9504	U-9506	U-9508	U-9510	U-9512
Operating Fluid	Compressed Air					
O.D. x I.D. mm x mm	3.2 x 1.8	4 x 2	6 x 4	8 x 5	10 x 6.5	12 x 8
Ambient Temperature °C	0 to 60 (provided there is no freezing)					
Burst pressure MPa	6.1	5.2	3.2	3.6	3.4	3.2
Max. working pressure MPa	1.5	1.7	1.0	1.2	1.1	1.0
Durometer hardness ISO/DIN 868	HDA 97					
Min. bending radius (JIS B 8381)mm	4	5	13	14	16	20
Min. mounting radius mm	7	10	20	30	40	50
Tube color	Transparent/black					
Standard length per roll m	20	20, 100		20		

* Tolerance of outer diameter is manufactured within $+0.1^{+0.10}$ mm for U-9506 or less, and within -0.2 mm for U-9508 and over.

Relation of ambient temperature and max. working pressure



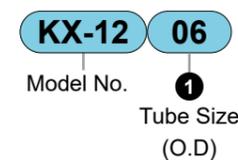
When the temperature rises, the constant pressure gradually drops. Special consideration must be given for the ambient temperature. (Example) In U-9506, the max. working pressure at an ambient temperature of 40°C is 50% of that at 20°C. $1.0 \times \frac{50}{100} \approx 0.5$ (MPa)

●Coiling Tube

Aoi Co., Ltd.

A coiling tube is a coil-like manufactured extensible tube. Fittings Unlike conventional products, the straight section is provided in the direction of expansion and contraction of the coil's length, making it easy to install the tube and to expand and contract the tube very smoothly. Durability of coil end is also excellent.

Model No. Notation Method



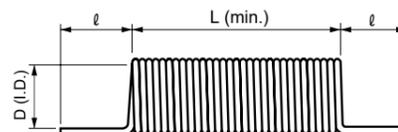
① Tube size (O.D.)

Code	Content
06	ø6
08	ø8
10	ø10
12	ø12

Specifications

Item	KX-1206	KX-1208	KX-1210	KX-1212
O.D. x I.D. mm x mm	6 x 4	8 x 6	10 x 7.5	12 x 9.2
Ambient Temperature °C	-10 to 60 (No freezing)			
Working extension m	2.5			
D mm	50	70		90
L mm	250	240	290	275
ℓ	100			
Tube color	Orange			

*1: Tolerance of outer diameter is manufactured within $+0.07$ mm. *2: Tube material is hard nylon.



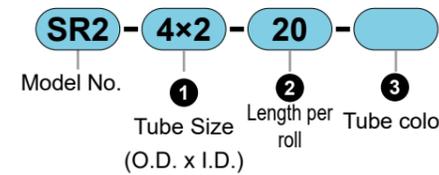
Model No. Notation Method

Aoi Co., Ltd.

●Flame Resistant Tubing

Single-core flame-resistant tube using flame-resistant materials. Even if welding sparks, etc., come into contact, the tube will not continue to burn. (UL standard 94V-0 or equivalent:self-extinguishing)

Model No. Notation Method



① Tube size (O.D. x I.D.)

Code	Content
4 x 2	ø4 x ø2
6 x 3.8	ø6 x ø3.8
8 x 5.5	ø8 x ø5.5
10x7	ø10 x ø7
12 x 8.5	ø12 x ø8.5

② Length per roll

Code	Content
20	20 m
100	100 m

③ Tube color

Code	Content
Blank	Black
R	Red
BU	Blue
G	Green

* Indicate tube color in the message area on the Slip.

Specifications

Item	SR2-4x2	SR2-6x3.8	SR2-8x5.5	SR2-10x7	SR2-12x8.5
O.D. x I.D. mm x mm	4 x 2	6 x 3.8	8 x 5.5	10x7	12 x 8.5
Ambient Temperature °C	0 to 60 (provided there is 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	8	14	24	32	35
Tube color	Black/red/blue/green				
Standard length per roll m	20, 100				

* This table indicates the value at 23°C.

Max. working pressure change ratio by working and ambient temperature

Working and ambient temperature	23°C or less	30°C	40°C	60°C	80°C	100°C	120°C
Change ratio	100%	80%	70%	55%	35%	20%	10%

Reference example: Max. working pressure at 60°C of SR2-8x5.5

1.1 MPa (max. working pressure at conditions below 23°C) x 55% (change ratio for 60°C) = 0.6 MPa

Pneumatic Auxiliary Components

Speed Controller

Silencer

Check valves/ others

Fitting/ Tubing

Nozzle

Pneumatic Auxiliary Components

Speed Controller

Silencer

Check valves/ others

Fitting/ Tubing

Nozzle

Ending

Ending