Nylon Tubing

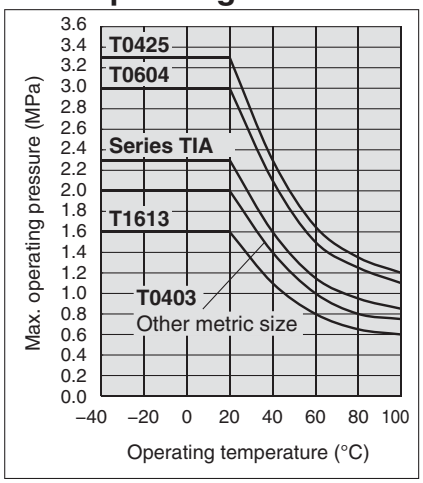
Series T/TIA



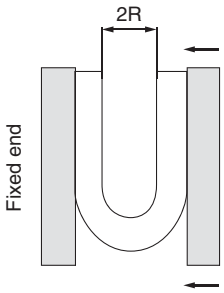
RoHS

For general pneumatic tubing, Nylon tubing

Max. Operating Pressure



How to measure the minimum bending radius.



At a temperature of 20°C, bend the tubing into a U shape. Fix one end and gradually move the other end closer. Measure 2R at the point where the outside diameter's rate of change is 10%.

Model

● — 20 m roll □ — 100 m roll (T1613 is reel.)

	Tubing size												
	Metric size (Series T)								Inch size (Series TIA)				
Model	T0425	T0403	T0604	T0645	T0806	T1075	T1209	T1613	TIA01	TIA05	TIA07	TIA11	TIA13
Tubing O.D. (mm)	4	4	6	6	8	10	12	16	3.18	4.76	6.35	9.53	12.7
Tubing I.D. (mm)	2.5	3	4	4.5	6	7.5	9	13	2.18	3.48	4.57	6.99	9.56
Black (B)	●	●	●	●	●	●	●	●	●	●	●	●	●
White (W)	●	●	●	●	●	●	●	●	●	●	●	●	●
Red (R)	●		●		●	●	●						
Blue (BU)	●		●		●	●	●						
Yellow (Y)	●		●		●	●	●						
Green (G)	●		●		●	●	●						
	5⁄32"				5⁄16"				Nominal size (inch)				
									1⁄8"	3⁄16"	1⁄4"	3⁄8"	1⁄2"
									Nominal size (mm)				
									3.2				

Specifications

Fluid		Air/Water												
Max. operating pressure (MPa) Note 1)	20°C or less	3.3	2.0	3.0	2.0	2.0	2.0	2.0	1.6	2.3	2.3	2.3	2.3	2.3
	40°C	2.3	1.4	2.1	1.4	1.4	1.4	1.4	1.1	1.6	1.6	1.6	1.6	1.6
	60°C	1.65	1.0	1.5	1.0	1.0	1.0	1.0	0.8	1.15	1.15	1.15	1.15	1.15
	80°C	1.35	0.8	1.25	0.8	0.8	0.8	0.8	0.65	0.95	0.95	0.95	0.95	0.95
	100°C	1.2	0.75	1.1	0.75	0.75	0.75	0.75	0.6	0.85	0.85	0.85	0.85	0.85
Applicable fittings Note 1) Note 2)		One-touch fittings, Insert fittings, Self-align fittings, Miniature fittings												
Min. bending radius (mm) Note 3)	Min. bending radius	13	20	24	30	40	50	60	100	15	25	30	50	65
	Bending value (Reference)	10	15	18	23	30	40	45	75	12	20	23	40	48
Operating temperature Note 1)		–40 to +100°C, Water: 0 to +70°C (No freezing)												
Material		Nylon 12												

Note 1) Be sure to operate under the maximum operating pressure conditions using the lower maximum operating specification of either the tubing or fittings.

Note 2) Mount an inner sleeve when using metal One-touch fittings in high-temperature environments of 60°C or more. Use self-align fittings at a temperature of 60°C or less.

Note 3) The minimum bending radius is the representative value measured as shown in the left figure.
- Use a tube above the recommended minimum bending radius.
- The tubing may be bent if used under the recommended minimum bending radius. Therefore, refer to the refraction value and make sure that the tubing is not bent or flattened.
- Please note that the refraction value is not warranted because of the value when 2R is measured by the method in the left figure if the tubing is bent or flattened, etc.

⚠ Precautions

⚠Caution

1. Applicable for general industrial water. Please consult with SMC if using other kinds of fluid. Surge pressure must be under the max. operating pressure. If the surge pressure exceeds the maximum operating pressure, it will result in damage to fittings and tubes.
2. Please exercise caution when using this item in a clean room. There is a possibility of plasticizer and other materials precipitating on the tube surface and detracting from the cleanliness level of the room.

How to Order

T0425 **B** – **20**

Tubing model

Color

Symbol	Color
B	Black (Translucent)
W	White (Material color)
R	Red (Translucent)
BU	Blue (Translucent)
Y	Yellow (Translucent)
G	Green (Translucent)

Length per roll

Symbol	Length
20	20 m roll
100	100 m roll

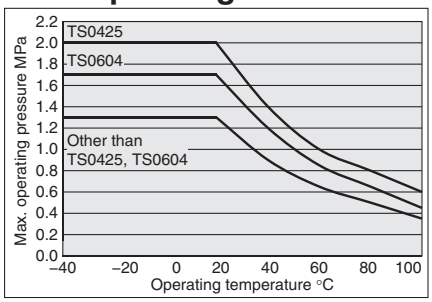
Soft Nylon Tubing
Series TS/TISA



RoHS

For general pneumatic tubing
Pliable soft nylon tubing

Max. Operating Pressure



Model

● — 20 m roll □ — 100 m roll (TS1612 is reel.)

	Tubing size										
	Metric size (Series TS)						Inch size (Series TISA)				
Model	TS0425	TS0604	TS0806	TS1075	TS1209	TS1612	TISA01	TISA05	TISA07	TISA11	TISA13
Tubing O.D. (mm)	4	6	8	10	12	16	3.18	4.76	6.35	9.53	12.7
Tubing I.D. (mm)	2.5	4	6	7.5	9	12	2.18	3.48	4.57	6.99	9.56
Black (B)	●	●	●	●	●	●	●	●	●	●	●
White (W)	●	●	●	●	●	●	●	●	●	●	●
Red (R)	●	●	●	●	●		●	●	●	●	●
Blue (BU)	●	●	●	●	●		●	●	●	●	●
Yellow (Y)	●	●	●	●	●		●	●	●	●	●
Green (G)	●	●	●	●	●		●	●	●	●	●
Nominal size (inch)	5/32"	5/16"					1/8"	3/16"	1/4"	3/8"	1/2"
Nominal size (mm)							3.2				

Specifications

Fluid		Air/Water Note 1)										
Max. operating pressure MPa Note 2)	20°C or less	2.0	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	40°C	1.4	1.2	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
	60°C	1.0	0.85	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
	80°C	0.8	0.65	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	100°C	0.6	0.45	0.35	0.35	0.35	0.4	0.35	0.35	0.35	0.35	0.35
Applicable fittings Note 2) 3)		One-touch fittings, Insert fittings, Self-align fittings, Miniature fittings										
Min. bending radius mm Note 4)	Min. bending radius	15	23	45	55	65	90	18	27	30	55	65
	Bending value (Reference)	12	17	34	42	50	70	12	15	23	42	50
Operating temperature Note 2)		–40 to +100°C, Water: 0 to +50°C (No freezing)										
Material		Nylon 12										

Note 1) Refer to the "Printing/Fluid".
Note 2) Be sure to operate under the maximum operating pressure and operating temperature conditions using the lower specifications of either the tubing or fittings.
Note 3) Mount an inner sleeve when using metal One-touch fittings in high-temperature environments of 60°C or more. Use self-align fittings at a temperature of 60°C or less.
Note 4) The minimum bending radius is the representative value measured as shown in the left figure.
- Use a tube above the minimum bending radius.
- The tubing may be bent if used under the minimum bending radius. Therefore, refer to the bending value and make sure that the tubing is not bent or flattened.
- Please note that the bending value is not warranted because of the representative value when 2R is measured by the method in the left figure if the tubing is bent or flattened, etc.

Printing/Fluid

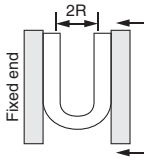
Print code		Fluid
Previous	SMC TS 0604 SOFTNYLON 6 x 4	Air
NEW	● SMC TS 0604 SOFTNYLON 6 x 4	Air/Water

⚠ Precautions

⚠ Caution

1. Compatible with water due to a change in materials. Compatible fluid types are printed on the tube body for differentiation, so please be sure to check this. Note) If using the previous TS/TISA series with "water", the tube may shrink and cause air leakage or the tube may fall out.
2. The products which changed the material are applicable for general industrial water. Please contact SMC if using other kinds of fluid. Surge pressure must be under the max. operating pressure. If the surge pressure exceeds the maximum operating pressure, it will result in damage to fittings and tubes.
3. Please exercise caution when using this item in a clean room. There is a possibility of plasticizer and other materials precipitating on the tube surface and detracting from the cleanliness level of the room.

How to measure the minimum bending radius



At a temperature of 20°C, bend the tubing into a U shape. Fix one end and gradually move the other end closer. Measure 2R at the point where the outside diameter's rate of change is 10%.

How to Order

TS0604 W – 100

- **TS0604**: Tubing model
- **W**: Color
- **100**: Length per roll

Length per roll

Symbol	Length
20	20 m roll
100	100 m roll (Black and white only)

Color

Symbol	Color
B	Black (Translucent)
W	White (Material color)
R	Red (Translucent)
BU	Blue (Translucent)
Y	Yellow (Translucent)
G	Green (Translucent)

Made to Order

(Please contact SMC for specifications in detail, dimensions, delivery and specifications other than those mentioned above.)

100 m reel	Metric size and Inch size except ø16: Suffix "-X3" to the end of part number. Ex.) TS0425R-100-X3
Longer length reel	Metric size: Suffix "-X3" to the end of part number. Ex.) TS0425G-500-X3
20 m roll	Inch size: Suffix "-X4" to the end of part number. Ex.) TISA01BU-20-X4

Made to Order Availability

Part no.	Length \ Model	TS0425*	TS0604*	TS0806*	TS1075*	TS1209*	TISA01*	TISA05*	TISA07*	TISA11*	TISA13*	Color
X3	100 m reel	○	○	○	○	○	○	○	○	○	○	Black, White, Red, Blue, Yellow, Green
	150 m reel				○							
	200 m reel			○								
	500 m reel	○	○									
X4	20 m roll						○	○	○	○	○	Red, Blue, Yellow, Green

SMC

Soft Polyurethane Tubing

Series TUS

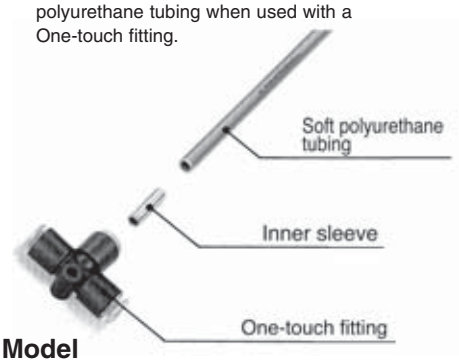


RoHS

Suitable for piping in confined spaces
Extremely flexible
Soft Polyurethane Tubing

TUS related accessories
Inner Sleeve
Series TJ

Reinforces soft polyurethane tubing.
Insert an inner sleeve into soft polyurethane tubing when used with a One-touch fitting.



Model

Part No.	Applicable tube model	Length
TJ-0425	TUS0425	18
TJ-0604	TUS0604	19
TJ-0805	TUS0805	20.5
TJ-1065	TUS1065	23
TJ-1208	TUS1208	24

Specifications

Material	C2700T (Nickel plated)
Wall thickness	0.2mm

⚠ Precautions

⚠ Caution

①Use nylon or polyurethane tubing for general industry water to prevent the tubing from coming out or bursting due to possibility of surge pressure generation.

②The value of the max. operating pressure is at a temperature of 20°C. Refer to the burst pressure characteristics curve for other temperatures. Avoid abnormal temperature rise which may burst the tubing.

③The value of the min. bending radius is at a temperature of 20°C. Higher temperatures allows the tubing to bend more.

④Use inner sleeve taking the removing force into consideration when used with One-touch fittings.

Series Table

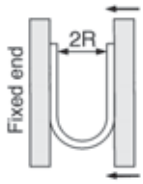
● : 20m roll ☐ : 100m roll

Model	TUS0425	TUS0604	TUS0805	TUS1065	TUS1208
Tube O.D. (mm)	4	6	8	10	12
Tube I.D. (mm)	2.5	4	5	6.5	8
Black (B)	●	●	●	●	●
White (W)	●	●	●	●	●
Red (R)	●	●	●	●	●
Blue (BU)	●	●	●	●	●
Yellow (Y)	●	●	●	●	●
Green (G)	●	●	●	●	●
Opaque (N) (1)	●	●	●	●	●
Yellow brown (YB)	●	●	●	●	●

Specifications

Fluid		Air				
Max. operating pressure		0.6MPa at 20°C				
Burst pressure		Refer to burst pressure characteristics curve.				
Applicable tube fitting		One-touch fitting, Insert tube fitting, Hose nipple (3)				
Min. bending radius (mm) (2)		8	15	15	22	29
Operating temperature		–20 to +60°C (No freezing)				
Material		Polyurethane				
Tube drawing strenght N (Using One-touch fitting)	Without inner sleeve	15	60	60	85	110
	With inner sleeve	80	230	250	300	480

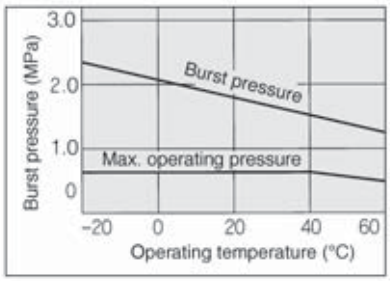
Note1) Not clear but opaque due to material.
Note2) Min. bending radius is measured as shown in the figure below.



Bend the tube into U-form at a temperature of 20°C.
Fix one end and close loop gradually. Measure 2R when the tube breaks or is crushed.

Note3) Always use inner sleeve (Series TJ) in safety circuit or critical area.

Burst Pressure Characteristics Curve



How to Order

TUS1065 | B | — | 100

Indication of tube model

Colour indication

Symbol	Colour
B	Black
W	White
R	Red
BU	Blue
Y	Yellow
G	Green
N	Opaque
YB	Yellow brown

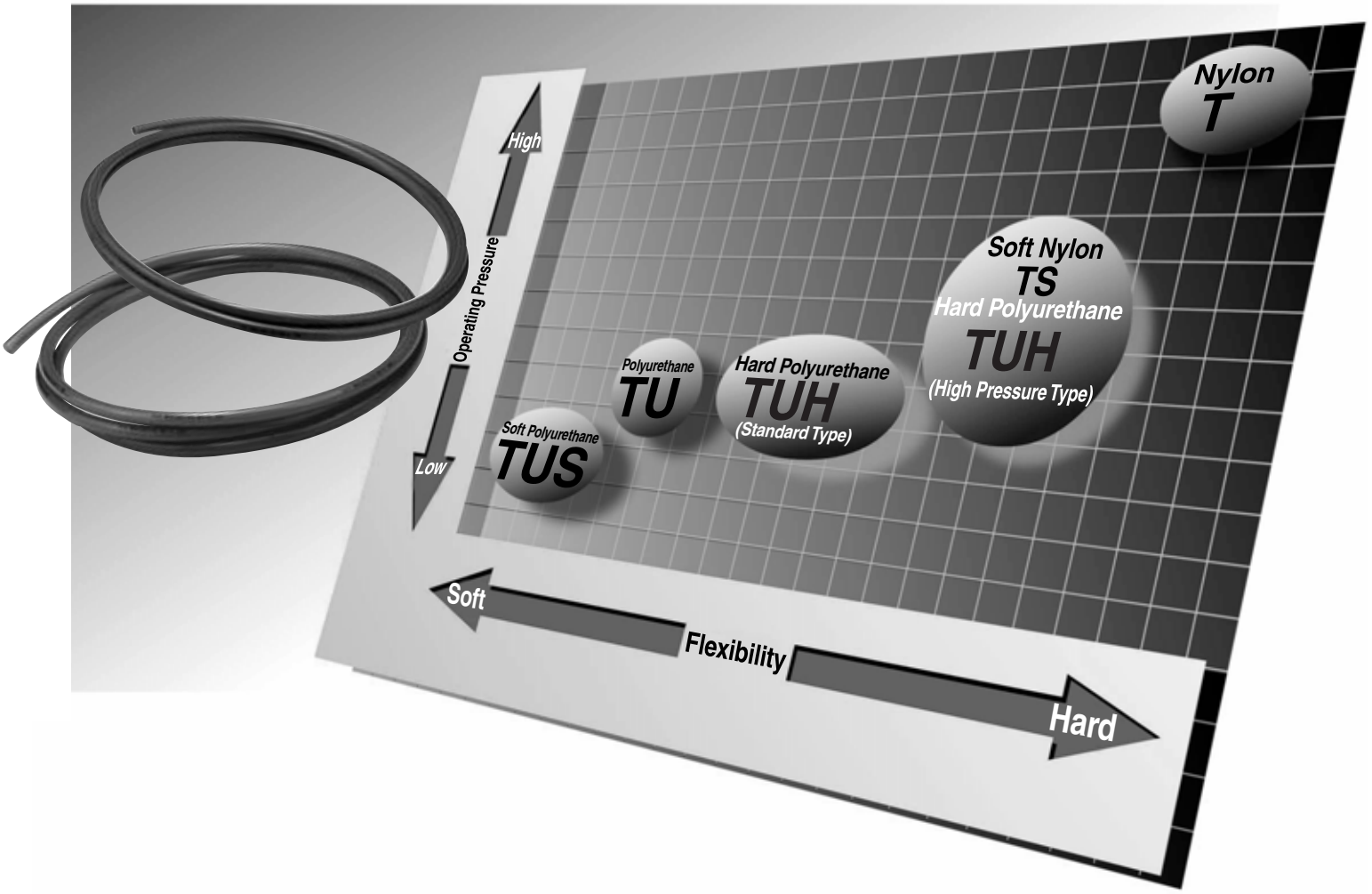
Length per roll

Symbol	Roll size
20	20m roll
100	100m roll (Black, Blue only)

Hard Polyurethane Tubing

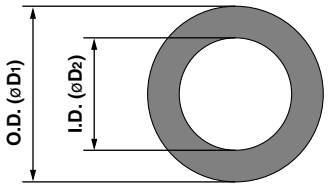
Series TUH

RoHS



Maximum effective area increased nearly 44%
TUH/Standard Type

(Compared to polyurethane tubing TU0805: O.D. 8mm, length 1m)



Tubing inside diameter comparison (mm)

Tubing O.D. (øD1)		4	6	8	10	12
Tubing I.D. (øD2)	TUH/Standard type	2.8	4.4	5.8	7.3	8.8
	TUH/High pressure type	2.5	4	5	6.5	8
	TU					

Operating pressure 1.0MPa (at 20°C)
TUH/High Pressure Type

Has the same operating pressure as series TS soft nylon tubing, and a bending radius equivalent to series TU polyurethane tubing.

Can be restored even after folding

Restoration is outstanding compared to nylon tubing, leaving no creases from folding.

Hard Polyurethane Tubing/Standard Type

Series TUH

RoHS



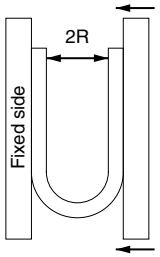
Series

● – 20m bundle □ – 100m bundle

Model	TUH0428	TUH0644	TUH0858	TUH1073	TUH1288
O.D. mm	4	6	8	10	12
I.D. mm	2.8	4.4	5.8	7.3	8.8
Black (B)	●	●	●	●	●
White (W)	●	●	●	●	●
Blue (BU)	●	●	●	●	●
Translucent (N)	●	●	●	●	●

Specifications

Fluid	Air Note 1)				
Max. operating pressure (at 20°C)	0.8MPa Note 2)				
Min. bending radius mm	10	18	24	30	36
Burst pressure	Refer to the burst pressure characteristics curve.				
Operating temperature	–20 to 60°C				
Material	Polyurethane				



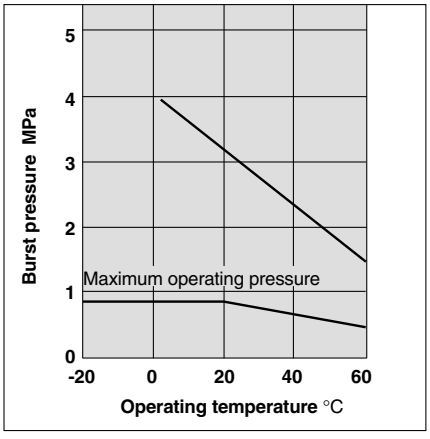
At a temperature of 20°C bend the tubing into a U shape. Then with one side fixed, gradually close the other side and measure 2R at the point where the tubing folds or flattens, etc.

Note 1) Consult SMC regarding other fluids.
Water cannot be used due to the occurrence of hydrolysis.

Note 2) The maximum operating pressure is the value at 20°C. Refer to the burst pressure characteristic curve for other temperatures.
Furthermore, an abnormal temperature increase due to adiabatic compression can cause tubing to burst.

Note 3) The minimum bending radius is measured at 20°C using the method shown in the figure at the left. At higher temperatures, breakage or flattening, etc., may occur at more than the minimum bending radius.

Burst Pressure Characteristic Curve and Operating Pressure



How to Order

TUH0644 **B** – **20**

Tubing model

Bundle length

Symbol	Length
20	20m bundle
100	100m bundle

Color

Symbol	Color
B	Black
W	White
BU	Blue
N	Translucent

Hard Polyurethane Tubing/High Pressure Type

Series TUH

RoHS



Series

● – 20m bundle □ – 100m bundle

Model	TUH0425	TUH0604	TUH0805	TUH1065	TUH1208
O.D. mm	4	6	8	10	12
I.D. mm	2.5	4	5	6.5	8
Black (B)	●	●	●	●	●
White (W)	●	●	●	●	●
Blue (BU)	●	●	●	●	●
Translucent (N)	●	●	●	●	●

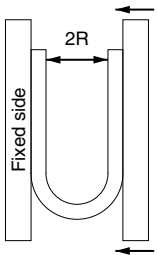
Specifications

Fluid	Air Note 1)				
Max. operating pressure (at 20°C)	1.0MPa Note 2)				
Min. bending radius mm	10	15	20	27	35
Burst pressure	Refer to the burst pressure characteristics curve.				
Operating temperature	–20 to 60°C				
Material	Polyurethane				

Note 1) Consult SMC regarding other fluids.
Water cannot be used due to the occurrence of hydrolysis.

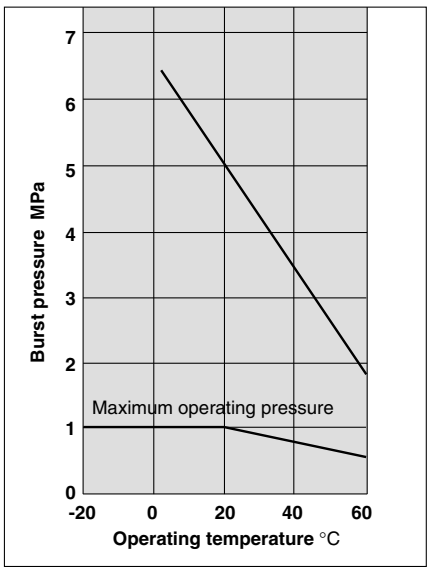
Note 2) The maximum operating pressure is the value at 20°C. Refer to the burst pressure characteristic curve for other temperatures.
Furthermore, an abnormal temperature increase due to adiabatic compression can cause tubing to burst.

Note 3) The minimum bending radius is measured at 20°C using the method shown in the figure at the left. At higher temperatures, breakage or flattening, etc., may occur at more than the minimum bending radius.



At a temperature of 20°C bend the tubing into a U shape. Then with one side fixed, gradually close the other side and measure 2R at the point where the tubing folds or flattens, etc.

Burst Pressure Characteristic Curve and Operating Pressure



How to Order

TUH0604 **B** – **20**

Tubing Model

Bundle length

Symbol	Length
20	20m bundle
100	100m bundle

Color

Symbol	Color
B	Black
W	White
BU	Blue
N	Translucent

SMC

*Series TUH/*Specific Product Precautions 1

Be sure to read before handling.

Precautions on Usage

⚠ Caution

1. Water cannot be used due to the occurance of hydrolysis.

   Use nylon or polyurethane tubing for general industrial water.

   Furthermore, consult SMC regarding use with any fluids other than air.

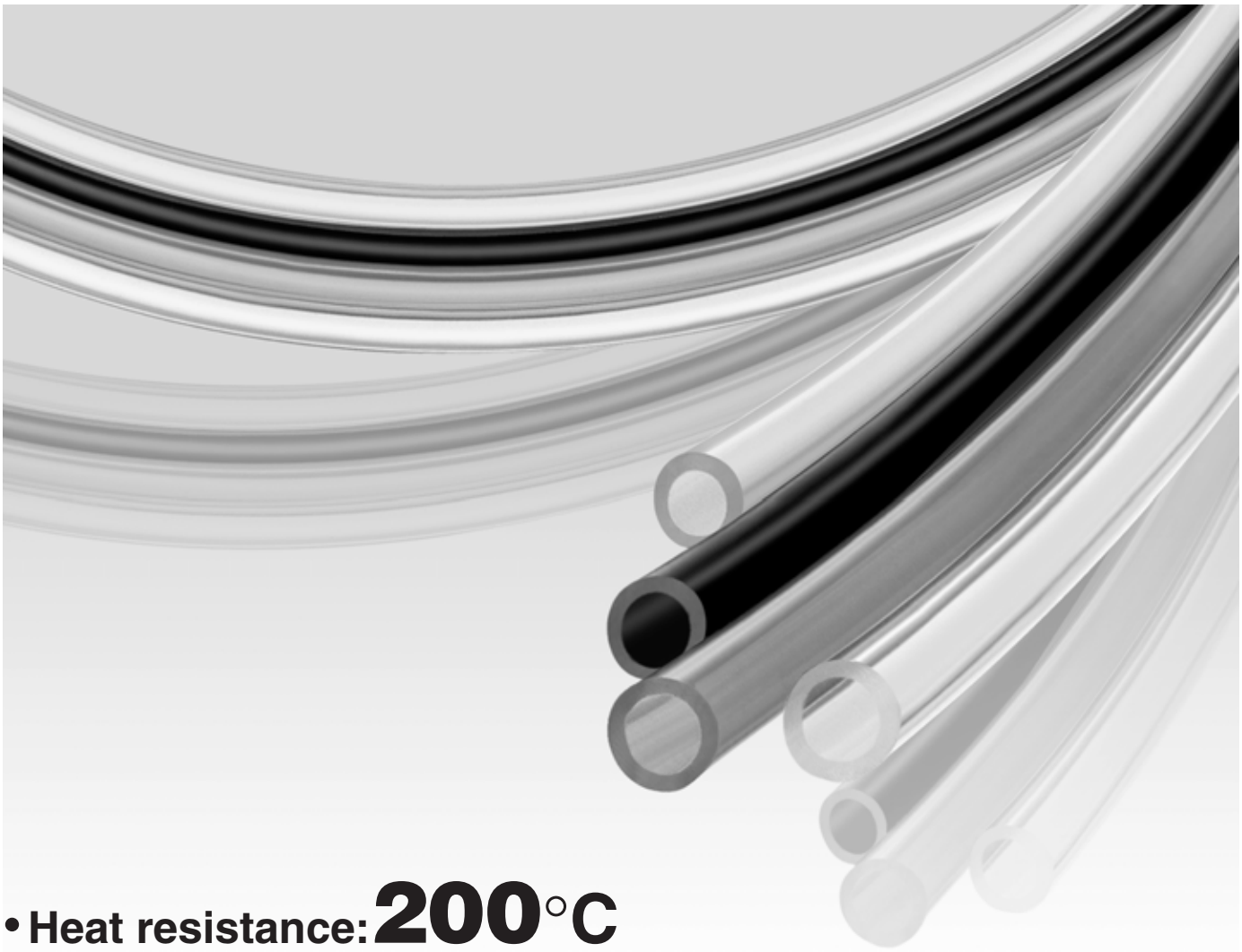
2. The maximum operating pressure is the value at 20°C. Refer to the burst pressure characteristic curve for other temperatures.

   Furthermore, an abnormal temperature increase due to adiabatic compression can cause tubing to burst.

3. The minimum bending radius indicates the value at which the tubing will fold at a temperature of 20°C. At higher temperatures, the tubing may fold at more than the minimum bending radius.

4. Store away from direct sunlight in a location at no more than 40°C.

FEP Tubing (Fluoropolymer)



Series TH

- **Heat resistance: 200°C**
  It changes according to the operating pressure.
  Refer to the graph of the max. operating pressures on page 1.

- **4 Colour variations**



- **8 Size variations**
  Metric size: ø4 to ø12

- **Applicable fittings**
  One-touch fittings (Series KQ2,KJ)
  Miniature fittings (Series M,MS) (Hose nipple type)
  Insert fittings (Series KF)
  High Purity Fluoropolymer fittings (Series LQ)

- **Applications**
  General pneumatic piping
  (Food, Semiconductor, Medical care, Automobile)

- **Certified to current Food Sanitation Legislation**
  (Ministry of Japanese Health and Safety, directive #370,1959)

FEP Tubing (Fluoropolymer)

Series TH RoHS



Series

●-20m roll □-100m roll

	Metric size							
Model	TH0402	TH0425	TH0604	TH0806	TH1075	TH1008	TH1209	TH1210
Tubing O.D. (mm)	4	4	6	8	10	10	12	12
Tubing I.D. (mm)	2	2.5	4	6	7.5	8	9	10

Colour	Symbol
Translucent	N
Red (Translucent)	R
Blue (Translucent)	BU
Black (Opaque)	B

Inch nominal size	Inch nominal size
5/32"	5/16"

Specifications

Fluid Note 4)	Air, Water Note 1), Inert gas						
Applicable fittings Note 2)	One-touch fittings: Series KQ, KJ Insert fittings: Series KF Fluoropolymer fittings: Series LQ Miniature fittings: Series M, MS (Hose nipple type)						
Max. operating pressure	Refer to below "Max. Operating Pressure."						
Min. bending radius (mm) Note 3)	15	20	35	60	95	100	130
Operating temperature Note 4)	Air, Inert gas: -20 to 200°C Water: 0 to 100°C (No freezing)						
Material	FEP (Fluorinated Ethylene Propylene Resin)						

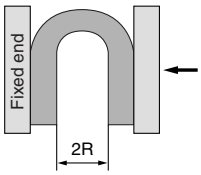
Note 1) When using a fluid in liquid form, the surge pressure must not exceed the maximum operating pressure. A surge pressure higher than the maximum operating pressure can cause breakage of the fittings, or rupture of the tubing. Furthermore, an abnormal temperature increase due to adiabatic compression can also result in ruptured tubing.

Note 2) Do not use in locations where the FEP tubing will move.
Be sure to operate under the maximum operating pressure conditions using the lower maximum operating specification of either the tubing or fittings.
After long term use or under high temperatures, some fittings leakage may occur due to material deterioration with age. Perform periodic inspections, and if any leakage is detected, replace with a new product immediately.
(Refer to maintenance part of "Tubing Precautions 1" on the page 7-156.)
Refer to Best Pneumatics 4 in "Fittings and Tubing" for all other precautions.
For High Purity Fluoropolymer, refer to the precautions of CAT.ES70-17, "High Purity Fluoropolymer Fittings & Tubing."

Note 3) Minimum bending radius is measured as shown left as representative values.
Allow extra length when piping since the tubing may crush if bent more than the min. bending radius.

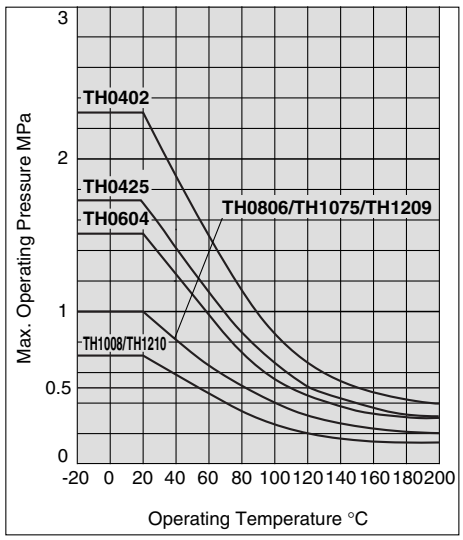
Note 4) Consult SMC if using any other fluids.

How to measure the minimum bending radius.



At a temperature of 20°C, bend the tubing into a U shape. Fix one end and gradually move the other end closer. Measure 2R at the point where the outside diameter's rate of change is 5%.

Max. Operating Pressure



Note) The maximum operating pressure varies dependant on the I.D. bore size even if the O.D. is the same.

How to Order

Metric size

TH0604 **N** — **20**

Indication of tubing model

Colour indication

Symbol	Colour
N	Translucent
R	Red (Translucent)
BU	Blue (Translucent)
B	Black (Opaque)

Length per roll

Symbol	Roll size
20	20m roll
100	100m roll 1)

1) The 100m roll is only in the colour natural as standard available

Chemical Resistance of the Fluoropolymer FEP Material

Chemicals in this table are inactive against FEP material Note 1), however physical properties may be effected by temperature or pressure change.
Please make sure that operating conditions do not cause problems since the use of FEP tubing under chemical environment is unsecured.

2-nitro-2-methyl propanol	Sodium hypochlorite	Dimethyl phthalate
2-nitrobutanol	Carbon tetrachloride	Hydrofluoric acid
Pentabasic benzamide	Dioxane	Naphthalene fluoride
N-butylamine	Cyclohexanone	Nitrobenzene fluoride
N-octadecanol	Cyclohexane	Furan
N-butyl acetate	Dimethyl ether	Hexachlorethane
O-cresol	Dimethylsulfoxide	Hexane
Di-isobutyl adipate	Dimethylformamide	Ethyl hexanoate
Acetophenone	Bromine	Phenylcarbinol
Acetone	Deionized water	Benzaldehyde
Alniline	Nitric acid	Benzonitrile
Abietic acid	Mercury	Borax
Sulphuric chloride	Ammonium hydroxide	Boric acid
Isooctane	Potassium hydroxide	Formic aldehyde (Formalin)
Liquid ammonia	Sodium hydroxide	Acrylic anhydride
Ethyl alcohol	Cetane	Acetic anhydride
Ethyl ether	Soap, detergent	Methacrylic acid
Ethylene glycol	Dibutyl sebacate	Allyl methacrylate
Ethylenediamine	Diethyl carbonate	Vinyl methacrylate
Zinc chloride	Tetrachloroethylene	Methyl alcohol
Aluminum chloride	Tetrahydrofuran	Methyl ethyl ketone
Ammonium chloride	Tetrabromoethane	Methylene chloride
Calcium chloride	Triethanolamine	Sulphuric acid
Sulphuric chloride	Trichloroethylene	Phosphoric acid
Iron chloride (III)	Trichloroacetic acid	Iron phosphate (III)
Benzoyl chloride	Toluene	Tri-n-butyl phosphate
Magnesium chloride	Naphtha	Tricresyl phosphate
Hydrochloric acid	Naphthalene	
Chlorine (absolute)	Naphthol	
Aqua regia	Lead	
Ozone	Carbon dioxide	
Hydrogen peroxide	Nitrogen dioxide	
Natrium peroxide	Nitrobenzene	
Gasoline	Nitromethane	
Permanganate	Perchloroethylene	
Formic acid	Perphloroxylene	
Xylene	Unsymmetrical dimethylhydrazine	
Chromic acid	Hydrazine	
Chlorosulfonic acid	Pinene	
Chloroform	Piperidine	
Paraffinum liquidum	Glacial acetic acid (Acetic acid)	
Allyl acetate	Pyridine	
Ethyl acetate	Phenol	
Potassium	Phthalic acid	
Butyl acetate	Dybutyl phthalate	

Note 1) “Inactive in chemistry terminology” means - not to cause any chemical reaction.
Reference cited: Teflon®, the fluoropolymer handbook, Manual for the chemical applications of Teflon®. Du Pond-Mitsui Fluorochemicals Co., Ltd.

Teflon® is a registered trademark for the fluoropolymer produced by E.I du Pond de Nemours & Company (Inc.) and Du Pond-Mitsui Fluorochemicals Co., Ltd.

Series TH
Tubing Precautions

Be sure to read before handling.

Selection

⚠ Warning

1. Confirm the specifications.

The products appearing in this catalogue are designed for use only in compressed air systems (including vacuum).

Do not use outside the specified ranges of pressure, temperature, etc., as this may cause damage or malfunction. (Refer to specifications.)

SMC cannot assure the product quality when fluids other than air, water and inert gas are used.

Consult with SMC for details.

2. In case of using the product for medical care

This product is designed for use with compressed air system applications for medical care purposes. Do not use in contact with human bodily fluids, body tissues or transfer applications to a human living body.

⚠ Caution

1. Do not use in locations where the connecting threads and tubing connection will slide or rotate. The connecting theads and tubing connection will come apart under these conditions.

   Use rotary type one-touch fittings (Series KS, KX) in cases where sliding or rotation will occur. Only air can be used as the operating fluid, when using rotary type one-touch fittings.
2. Use tubing at or above the minimum bending radius. Using below the minimum bending radius can cause breakage or flattening of the tubing.
3. Never use the tubing for anything flammable, explosive or toxic such as, gas, fuel gas, or cooling mediums, since the contents can penetrate outward.

Mounting

⚠ Caution

1. Before mounting confirm the model and size, etc. Also, confirm that there are no blemishes, nicks or cracks in the product.
2. When tubing is connected, consider factors such as changes in the tubing length due to pressure, and allow sufficient leeway.
3. Mount so that fittings and tubing are not subjected to twisting, pulling or moment loads. This can cause damage to fittings and flattening, bursting or disconnection of tubing, etc.
4. Mount so that tubing is not damaged due to tangling and abrasion. This can cause flattening, bursting or disconnection of tubing, etc.

Piping

⚠ Caution

1. Preparation before piping

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe. Do not allow chips of the piping thread or the seal material to go in.

Air Supply

⚠ Warning

1. Types of fluid

This product is designed for use with compressed air. Consult SMC if a different fluid is to be used.

Consult SMC regarding products for use with general purpose fluids, to confirm which fluids can be used.

2. When there is a large amount of drainage.

Compressed air containing a large amount of drainage can cause the malfunction of pneumatic equipment. An air dryer or Drain Catch should be installed upstream from filters.

3. Drain management

If air filter drains are not flushed regularly, the drainage will flow downstream leading to the malfunction of pneumatic equipment.

In cases where the management of drain flushing will be difficult, the use of filters with automatic drains is recommended.

For details on the quality of compressed air mentioned above, refer to SMC's "Best Pneumatics" catalogue vol. 4.

Operating Environment

⚠ Warning

1. Do not operate in locations in an explosive atmosphere.
2. Do not operate in locations where vibration or impact occurs.
3. In locations near heat resources, block off radiant heat.

Maintenance

⚠ Caution

1. Check for the following during regular maintenance, and replace components as necessary.

   a) Scratches, gouges, abrasion, corrosion

   b) Leakage

   c) Twisting, flattening or distortion of tubing

   d) Hardening, deterioration or softness of tubing
2. Do not repair or patch the replaced tubing or fittings for reuse.
3. When using insert or miniature fittings over a long period, some leakage may occur due to age deterioration of the materials. Perform periodic inspections, and if any leakage is detected, correct the problem by additional tightening. If tightening becomes ineffective, replace the fittings with a new product immediately.

Polyurethane Coil Tubing

Series TCU



RoHS

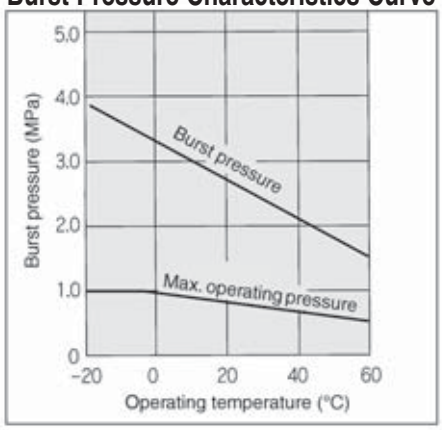
For flexible tubing
Compact piping possible

Specifications

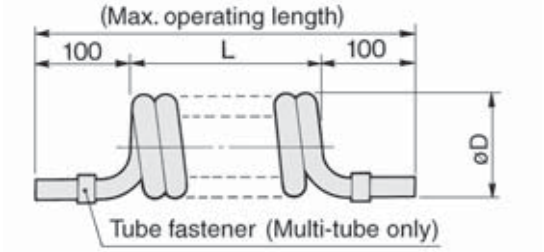
Model	TCU 0425B-1	TCU 0425B-2	TCU 0425B-3	TCU 0604B-1	TCU 0604B-2	TCU 0604B-3	TCU 0805B-1
Number of tubes	1	2	3	1	2	3	1
Tube O.D. (mm)	4			6			8
Tube I.D. (mm)	2.5			4			5
Fluid	Air (1)						
Max. operating pressure (2)	0.8MPa at 20°C						
Burst prssure	Refer to pressure characteristics curve.						
Operating temperature	–20 to +60°C						
Material	Polyurethane						
Colour	Black						

Note 1) Consult SMC if using for other fluids than air.
Note 2) Refer to burst pressure characteristics curve for other temperatures.
Avoid abnormal temperature rises.

Burst Pressure Characteristics Curve



Dimensions



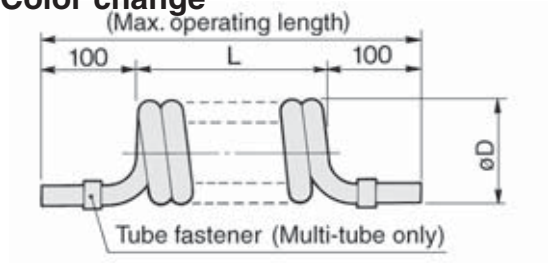
Part No. \ Spec.	Tube size (mm) O.D.	Tube size (mm) I.D.	Dimension of coil (mm) L	Dimension of coil (mm) øD	No. of tubes	No. coil windings per tube length	Max. operating length (m)	Standard unit of packing
TCU0425B-1	4	2.5	210	18	1	52	1.5	5 tubes/ case
TCU0425B-2			280	28	2	35		
TCU0425B-3			265		3	22	1	
TCU0604B-1	6	4	325	24	1	54	2	
TCU0604B-2				37	2	27	1.5	
TCU0604B-3			305		3	17	1	
TCU0805B-1	8	5	330	31	1	41	2	

∗ Dimensions are changeable due to material.

Made to Order

(Consult SMC for detailed specifications, dimensions and delivery.)

Change of coil turns, Color change



Part No. \ Spec.	Tube size (mm) O.D.	Tube size (mm) I.D.	Coil (mm) L	Coil (mm) øD	No. of tubes	No. coil windings per tube length	Max. operating length (mm)
TCU0425□-1-[N]-X6	4	2.5	N X 4	18	1	3 to 90	L X 5.9 + 200
TCU0425□-2-[N]-X6			N X 8	28	2	3 to 90	L X 4.4 + 200
TCU0425□-3-[N]-X6			N X 12	28	3	3 to 63	L X 2.9 + 200
TCU0604□-1-[N]-X6	6	4	N X 6	24	1	3 to 90	L X 5.3 + 200
TCU0604□-2-[N]-X6			N X 12	37	2	3 to 66	L X 3.8 + 200
TCU0604□-3-[N]-X6			N X 18	37	3	3 to 44	L X 2.5 + 200

Part No. \ Spec.	Tube size (mm) O.D.	Tube size (mm) I.D.	Coil (mm) L	Coil (mm) øD	No. of tubes	No. coil windings per tube length	Max. operating length (mm)
TCU0805□-1-[N]-X6	8	5	N X 8	31	1	3 to 90	L X 5.2 + 200
TCU0805□-2-[N]-X6			N X 16	42	2	3 to 40	L X 3 + 200
TCU1065□-1-[N]-X6	10	6.5	N X 10	52	1	3 to 45	L X 5 + 200
TCU1065□-2-[N]-X6			N X 20	52	2	3 to 35	L X 3 + 200
TCU1208□-1-[N]-X6	12	8	N X 12	67	1	3 to 35	L X 5 + 200
TCU1208□-2-[N]-X6			N X 24	67	2	3 to 30	L X 3 + 200

□ → B (Black), W (White), R (Red), BU (Blue), Y (Yellow), G (Green), C (Clear), YR (Orange)
[N] → Coil turns

Polyurethane Flat Tubing

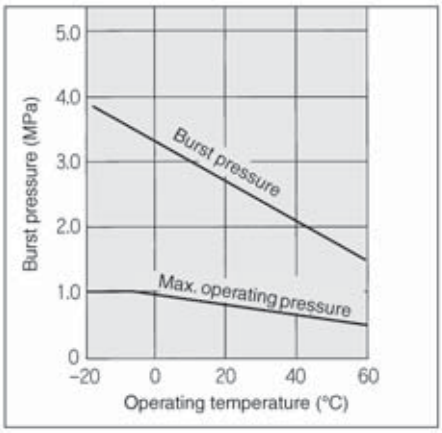
Series TFU



RoHS

Compact piping possible

Burst Pressure Characteristics Curve



Specifications

Part No.	TFU 0425B-2	TFU 0425B-3	TFU 0604B-2	TFU 0604B-3	TFU 0805B-2	TFU 0805B-3
Number of tubes	2	3	2	3	2	3
Tube O.D. (mm)	4		6		8	
Tube I.D. (mm)	2.5		4		5	
Fluid	Air (1)					
Max. operating pressure (2)	0.8MPa at 20°C					
Burst prssure	Refer to burst pressure characteristics curve					
Operating temprature	–20 to +60°C (No freezing)					
Material	Polyurethane					
Colour	Black					
Min. bending radius (mm)	10		15		20	
Tube length per roll (m)	10					

Note1) Consult SMC if using for other fluids than air.
Note2) Refer to burst pressure characteristics curve for other temperatures. Avoid abnormal temperature rises.

How to Order

TFU0425 B — 2

Indication of tube model

Colour indication

Symbol	Colour
B	Black

Number of tubes

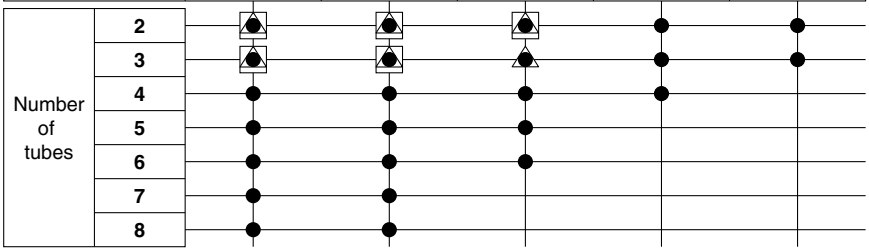
Symbol	Number
2	2
3	3

Made to Order

(Consult SMC for detailed specifications, dimensions and delivery.)

●: 10m roll △: 50m roll □: 100m roll

Model	TFU0425□	TFU0604□	TFU0805□	TFU1065□	TFU1208□
Tube O.D. (mm)	4	6	8	10	12
Tube I.D. (mm)	2.5	4	5	6.5	8



① Colour change (10m roll)

Suffix "X4" to the end of part number.
Ex.) TFU0604BU-2-10-X4
● W: White, R: Red, BU: Blue, Y: Yellow, G: Green, C: Clear, YR: Orange (All tubes are same colour.)

② Longer roll length (50m or 100m roll)

Suffix "X3" to the end of part number.
Ex.) TFU0425B-2-50-X3

③ Number of tubes (10m roll)

Suffix "X4" to the end of part number.
Ex.) TFU0604B-4-10-X4

Flame Resistance (Equivalent to UL-94 Standard V-0)

FR Soft Nylon Tubing

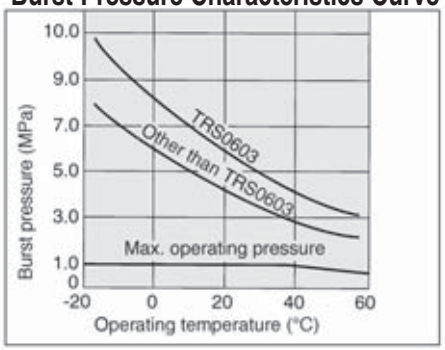
Series TRS



RoHS

Applicable for general air pressure and water in a spark atomosphere such as spot welding.
Flame resistance tube

Burst Pressure Characteristics Curve



Series Table

● : 20m roll □ : 100m roll

Model	TRS0603	TRS0805	TRS1065	TRS1208
Tube O.D. (mm)	6	8	10	12
Tube I.D. (mm)	3	5	6.5	8
Black (B)	●	●	●	●
White (W)	●	●	●	●
Red (R)	●	●	●	●
Blue (BU)	●	●	●	●
Green (G)	●	●	●	●

Specifications

Fluid	Air, Water			
Max. operating pressure	1.2MPa at 20°C			
Burst pressure	Refer to burst pressure characteristics curve.			
Min. bending radius (mm)	17	19	27	32
Operating temperature	–20 to +60°C (Water: 0 to 60°C)(No freezing)			
Material	Flame resistance nylon (UL-94 Standard V-0)			

⚠ Precautions

⚠ Caution

①Applicable for general industry water. Consult SMC if using for other kinds of fluid. Surge pressure must be under the max. operating pressure. If exceeding that value, fitting may be damaged and tubing may be burst.

②The value of the max. operating pressure is at a temperature of 20°C. Refer to the burst pressure characteristics curve for other temperatures. Avoid abnormal temperature rises which may burst the tubing.

③The value of the min. bending radius is at a temperature of 20°C and O.D. variable rate 10% max. In case that operating temperature is higher than 20°C, O.D. variable rate may be over 10% even if bending radius is within the specified range.

How to Order

TRS1065 | B | 100

Indication of tube model

Length per roll

Symbol	Roll size
20	20m roll
100	100m roll

Colour indication

Symbol	Colour
B	Black
W	White
R	Red
BU	Blue
G	Green

Flame Resistance (Equivalent to UL-94 Standard V-0)

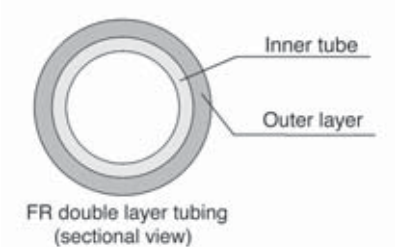
FR Double Layer Tubing

Series TRB

RoHS

Suitable for air and water piping in environments where sparks from spot welders, etc., may be a problem.
Double layer design using flame resistant resin (equivalent to UL-94 Standard V-0) for outer layer.





FR double layer tubing
(sectional view)

Series Table

●: 20m roll □: 100m roll

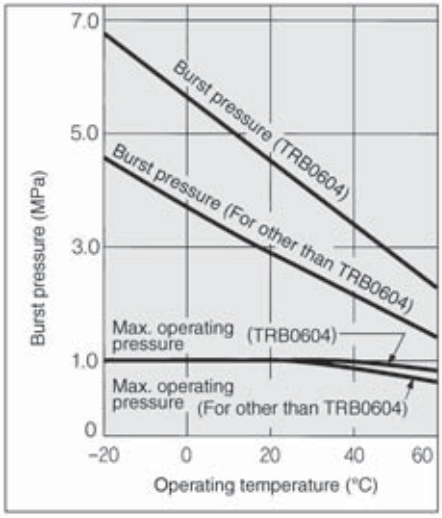
Model		TRB0604	TRB0806	TRB1075	TRB1209
Inner tube O.D. (mm)		6	8	10	12
Inner tube I.D. (mm)		4	6	7.5	9
Outer layer thickness (mm)		1	1	1	1
Outer layer colour (1)	Black (B)	●	●	●	●
	White (W)	●	●	●	●
	Red (R)	●	●	●	●
	Blue (BU)	●	●	●	●
	Yellow (Y)	●	●	●	●
	Green (G)	●	●	●	●
Minimum bending radius (mm) (4)		15	28	35	45

Specifications

Fluid		Air, Water (2)
Max. operating pressure (3)		1.0MPa at 20°C
Burst pressure		Refer to burst pressure characteristics curve.
Ambient and fluid temperature		–20 to +60°C (Water: 0 to 60°C) (No freezing)
Material	Inner tube	Nylon 12
	Outer layer	PVC (Equivalent to UL-94 Standard V-0)

Note1) The colour of all inner tube is black.
Note2) Applicable for general industry water. Consult SMC if using for other kinds of fluid. Surge pressure must be under the max. operating pressure.
Note3) Refer to burst pressure characteristics curve for other temperatures. Avoid abnormal temperature rises.
Note4) The value for a temperature of 20°C and O.D.variable rate 10% max.

Burst Pressure Characteristics Curve



How to Order

TRB1075 | B | — | 100

Indication of tube model

Colour indication

Symbol	Colour	Symbol	Colour
B	Black	**BU**	Blue
W	White	**Y**	Yellow
R	Red	**G**	Green

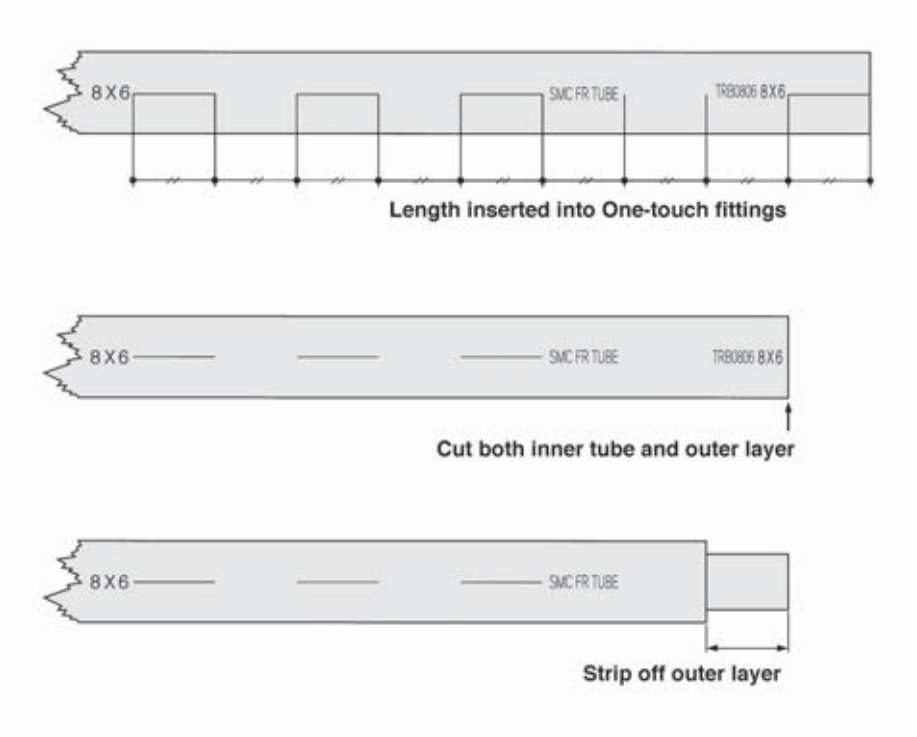
Length per roll

Symbol	Roll size
20	20m roll
100	100m roll

How to Install to One-touch Fitting

⚠ Caution

Length of tube to be inserted into One-touch fitting is indicated on the outer layer of TRB tubing.
Cut the tube according to this indication. (Procedure①) and then strip off the outer layer. (Procedure②) for installing tube.



⚠ Precautions

⚠ Caution

①Applicable for general industrial water. Consult SMC if using for other kinds of fluid. Surge pressure must be under the max. operating pressure. If exceeding that value, fitting may be damaged and tubing may be burst.

②The value of the max. operating pressure is at a temperature of 20°C. Refer to the burst pressure characteristics curve for other temperatures. Avoid abnormal temperature rises which may burst the tubing.

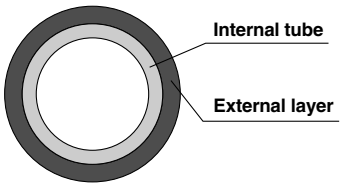
③The value of the min. bending radius is at a temperature of 20°C and O.D. variable rate 10% max. In case that operating temperature is higher than 20°C, O.D. variable rate may be over 10% even if bending radius is within the specified range.

Flame Resistant
(Equivalent to UL-94 Standard V-0)
FR Double Layer Polyurethane tubing

Series TRBU

RoHS





Sectional view of FR double layer tube

Series Table

● - 20m bundle □ - 100m reel

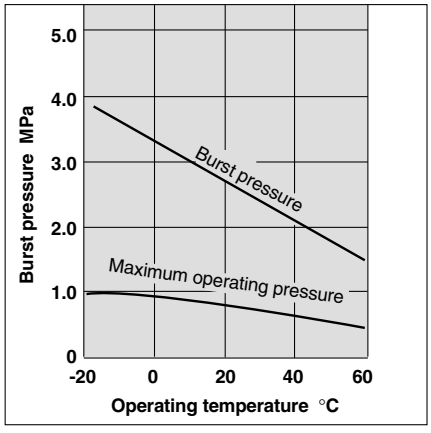
Model		TRBU0604	TRBU0805	TRBU1065	TRBU1208
Internal tube O.D. mm		6	8	10	12
Internal tube I.D. mm		4	5	6.5	8
External layer thickness mm		1	1	1	1
External layer colour Note 1)	Black (B)	●	●	●	●
	White (W)	●	●	●	●
	Red (R)	●	●	●	●
	Blue (BU)	●	●	●	●
	Yellow (Y)	●	●	●	●
	Green (G)	●	●	●	●
Minimum bend radius mm Note 4)		15	20	27	35

Specifications

Fluid		Air, Water Note 2)
Maximum operating pressure (at 20°C) Note 3)		0.8MPa {8.2kgf/cm^2}
Burst pressure		Refer to burst pressure characteristics curve
Ambient and fluid temperature		–20 to 60°C For water 0 to 40°C (without freezing)
Materials	Internal tube	Polyurethane
	External layer	PVC (equivalent to UL-94 standard V-0)

Note 1) The colour of all internal tubes is black.
Note 2) Can be used with general industrial water. Contact SMC if used with other fluids. Also keep surge pressure at or below the maximum operating pressure.
Note 3) In case of other temperatures, refer to the burst pressure characteristics curve. In addition, operate so that abnormal temperature rise due to adiabatic compression does not occur.
Note 4) Indicates the bending value of the tubing at a temperature of 20°C.

Burst Pressure Characteristics Curve and Operating Pressure



How to Order

TRBU1065 B – 100

Tube model

Roll length

Symbol	Length
20	20m bundle
100	100m reel

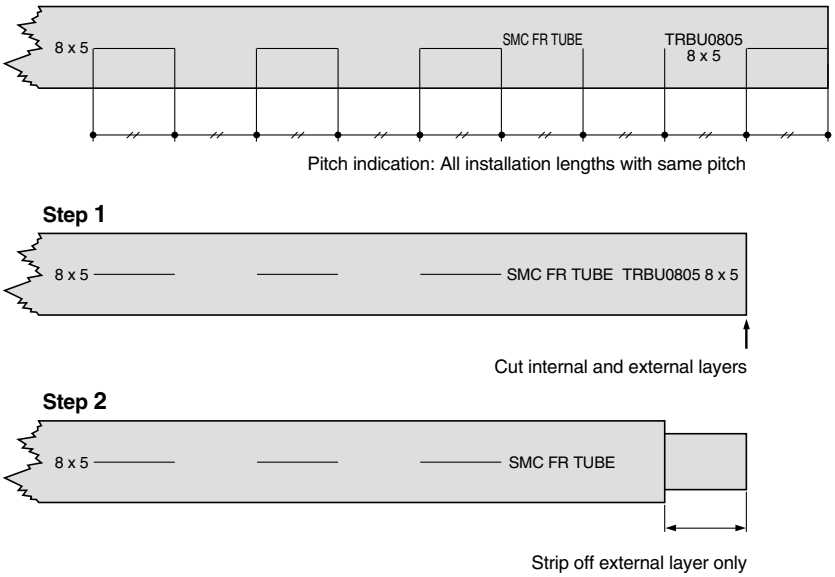
Colour

Symbol	Colour	Symbol	Colour
B	Black	BU	Blue
W	White	Y	Yellow
R	Red	G	Green

Installation on One-touch Fittings

⚠ Caution

Since the pitch length for installation on a One-touch fitting is indicated on the external layer of TRBU tubing, cut the tubing according to this indication (Step 1), strip off the external layer only (Step 2), and then install on the One-touch fitting.



Precautions on Useage

⚠ Caution

1. Useage is possible with general industrial water. Contact SMC if product will be used with other fluids. Also, keep surge pressure at or below the maximum operating pressure. If surge pressure exceeds the maximum operating pressure, this can cause damage to fittings or bursting of the tubing.
2. The maximum operating pressure is the value when at 20°C. In case of other temperatures, refer to the burst pressure characteristics curve. Furthermore, bursting of the tubing can be caused by an abnormal temperature rise due to adiabatic compression.
3. The minimum bend radius indicates the bending value of the tubing at a temperature of 20°C. The tubing may bend beyond the minimum bend radius at higher temperatures.
4. Tubing should be stored in a location out of direct sunlight and at 40°C or below.

Antistatic Tubing

Series TA□ RoHS

Conductive tubing prevents troubles caused by static electricity.

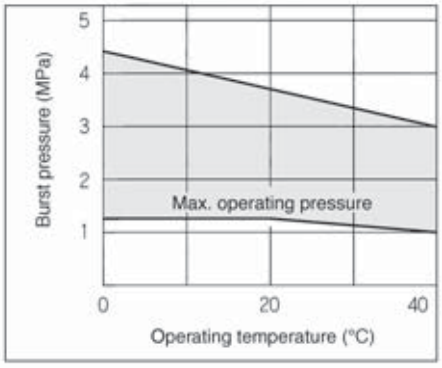
Antistatic soft nylon tubing/Series TAS

For air pressure piping to product or assembly while preventing static electricity.

Flame resistant tube (UL-standard, V-0)



Burst Pressure Characteristics Curve



Series Table

●: 20m roll □: 100m roll

Model	TAS3222	TAS0425	TAS0604	TAS0805	TAS1065	TAS1208
Tube O.D. (mm)	3.2	4	6	8	10	12
Tube I.D. (mm)	2.2	2.5	4	5	6.5	8
Black (B)	●	●	●	●	●	●

Specifications

Max. operating pressure(1)	1.2MPa at 20°C					
Burst pressure	Refer to burst pressure characteristics curve.					
Min. bending radius (mm)(2)	12	12	15	19	27	32
Operating temperature	0 to 40°C					
Material	Conductive nylon + Flame resistant nylon (UL-94standard, V-0)					
Surface resistance	10^4 to $10^7\,\Omega$					

Note1) Refer to burst pressure characteristics curve for other temperatures. Avoid abnormal temperature rises.
Note2) The value at temperature of 20°C and O.D. variable rate 10% max.

How to Order

TAS1065 B — 100

- TAS1065: Indication of tube model
- B: Colour indication

Symbol	Colour
B	Black

- 100: Length per roll

Symbol	Roll size
20	20m roll
100	100m roll

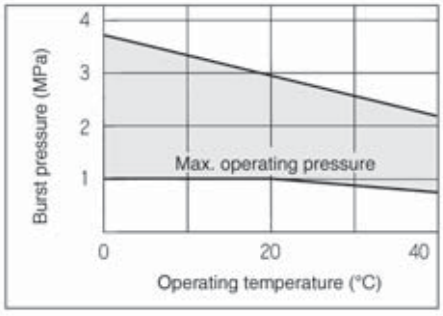
Antistatic polyurethane tubing/Series TAU

For air pressure piping to product or assembly while preventing static electricity.

Flexible tube



Burst Pressure Characteristics Curve



Series Table

●: 20m roll □: 100m roll

Model	TAU3220	TAU0425	TAU0604	TAU0805	TAU1065	TAU1208
Tube O.D. (mm)	3.2	4	6	8	10	12
Tube I.D. (mm)	2	2.5	4	5	6.5	8
Black (B)	●	●	●	●	●	●

Specifications

Max. operating pressure(1)	0.9MPa at 20°C					
Burst pressure	Refer to burst pressure characteristics curve.					
Min. bending radius (mm)(2)	10	10	15	20	27	35
Operating temperature	0 to 40°C					
Material	Conductive polyurethane					
Surface resistance	10^4 to $10^7\,\Omega$					

Note1) Refer to burst pressure characteristics curve for other temperatures. Avoid abnormal temperature rises.
Note2) The value at temperature of 20°C.

How to Order

TAU1065 B — 100

- TAU1065: Indication of tube model
- B: Colour indication

Symbol	Colour
B	Black

- 100: Length per roll

Symbol	Roll size
20	20m roll
100	100m roll