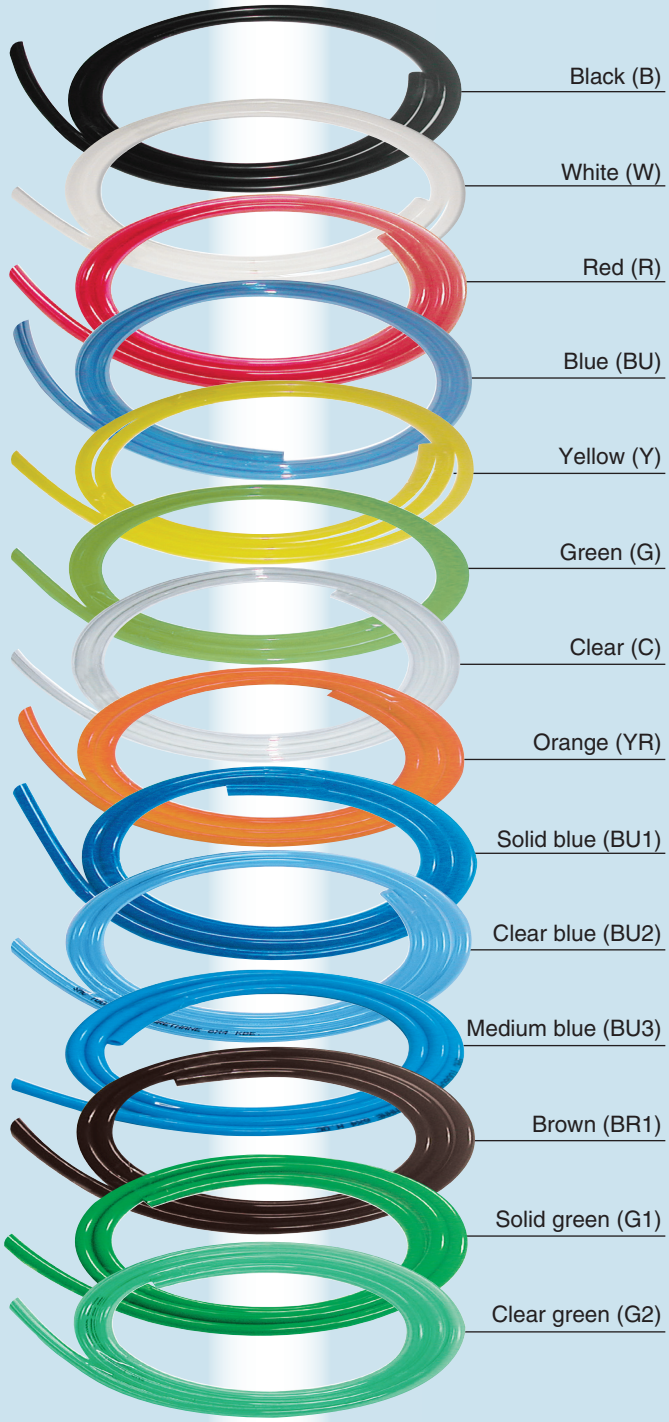
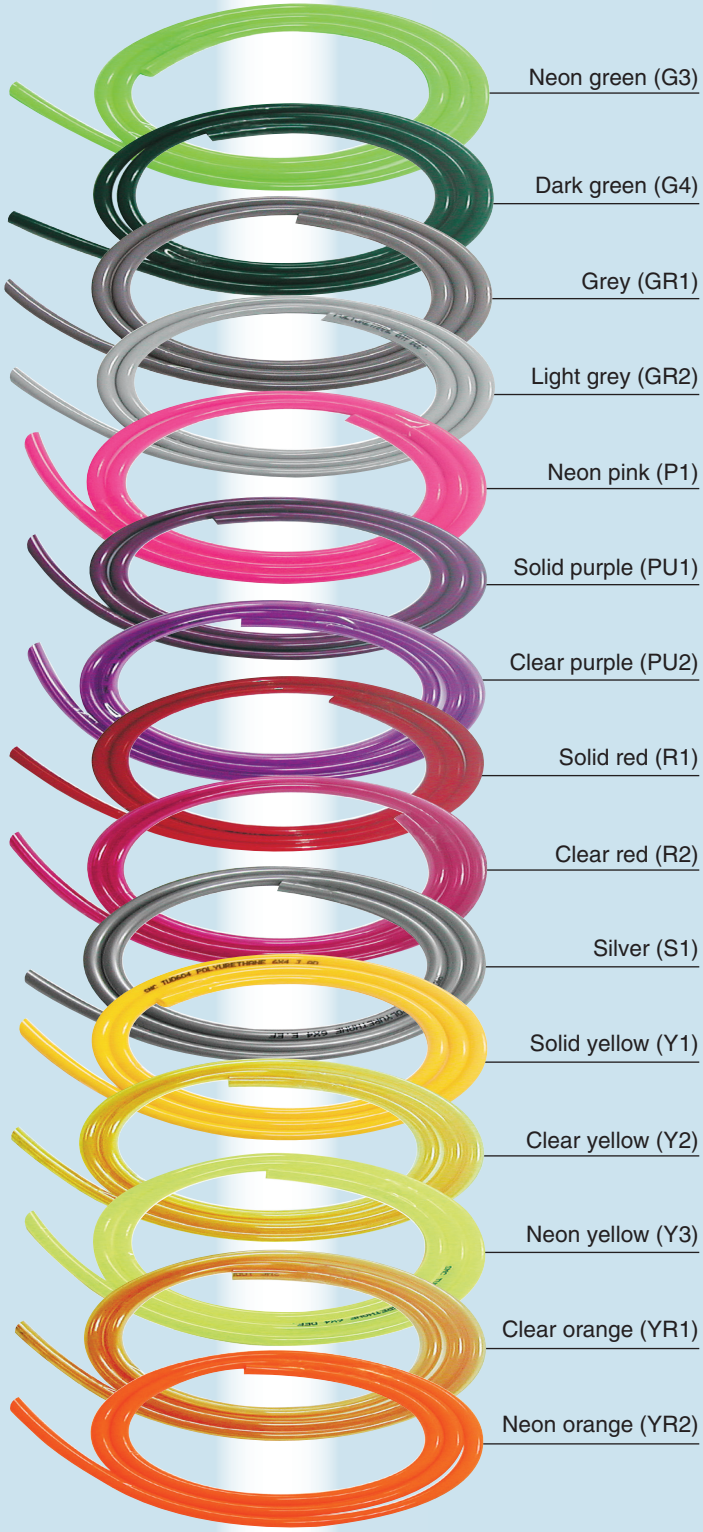
Polyurethane Tubing

29 Colour Variations

RoHS

- ø2 to ø16 (Metric size)
- 1/8” to 1/2” (Inch size)
- For general pneumatic tubing
- Flexible





Series TU/TIUB

SMC

Model/Specifications

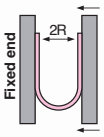
● — 20 m roll □ — 100 m roll (TU1610 is reel.) ◇ — 100 m roll, 200 m roll
△— Option ■ — Manufactured upon receipt of order (Please consult with SMC.)

	Tubing size											
	Metric size (TU series)							Inch size (TIUB series)				
Model	TU0212	TU0425	TU0604	TU0805	TU1065	TU1208	TU1610	TIUB01	TIUB05	TIUB07	TIUB11	TIUB13
Tubing O.D. [mm]	2	4	6	8	10	12	16	3.18	4.76	6.35	9.53	12.7
Tubing I.D. [mm]	1.2	2.5	4	5	6.5	8	10	2	3.18	4.23	6.35	8.46
B Black (B)	●	◇	◇	●	●	●	●	●	●	●	●	●
W White (W)	●	◇	◇	●	●	●	●	●	△	△	△	△
R Red (R)	●	◇	◇	●	●	●	■	●	△	△	△	△
BU Blue (BU)	●	◇	◇	●	●	●	●	●	●	●	●	●
Y Yellow (Y)	●	◇	◇	●	●	●	■	●	△	△	△	△
G Green (G)	●	◇	◇	●	●	●	■	●	△	△	△	△
C Clear (C)	●	◇	◇	●	●	●	●	●	△	△	△	△
YR Orange (YR)	●	◇	◇	●	●	●	■	●	△	△	△	△
BU1 Solid blue (BU1)	■	●	●	●	●	●	■	●	■	■	■	■
BU2 Clear blue (BU2)	■	●	●	●	●	●	■	●	■	■	■	■
BU3 Medium blue (BU3)	■	●	●	●	●	●	■	●	■	■	■	■
BR1 Brown (BR1)	■	●	●	●	●	●	■	●	■	■	■	■
G1 Solid green (G1)	■	●	●	●	●	●	■	●	■	■	■	■
G2 Clear green (G2)	■	●	●	●	●	●	■	●	■	■	■	■
G3 Neon green (G3)	■	●	●	●	●	●	■	●	■	■	■	■
G4 Dark green (G4)	■	●	●	●	●	●	■	●	■	■	■	■
GR1 Grey (GR1)	■	●	●	●	●	●	■	●	■	■	■	■
GR2 Light grey (GR2)	■	●	●	●	●	●	■	●	■	■	■	■
P1 Neon pink (P1)	■	●	●	●	●	●	■	●	■	■	■	■
PU1 Solid purple (PU1)	■	●	●	●	●	●	■	●	■	■	■	■
PU2 Clear purple (PU2)	■	●	●	●	●	●	■	●	■	■	■	■
R1 Solid red (R1)	■	●	●	●	●	●	■	●	■	■	■	■
R2 Clear red (R2)	■	●	●	●	●	●	■	●	■	■	■	■
S1 Silver (S1)	■	●	●	●	●	●	■	●	■	■	■	■
Y1 Solid yellow (Y1)	■	●	●	●	●	●	■	●	■	■	■	■
Y2 Clear yellow (Y2)	■	●	●	●	●	●	■	●	■	■	■	■
Y3 Neon yellow (Y3)	■	●	●	●	●	●	■	●	■	■	■	■
YR1 Clear orange (YR1)	■	●	●	●	●	●	■	●	■	■	■	■
YR2 Neon orange (YR2)	■	●	●	●	●	●	■	●	■	■	■	■
Nominal size [inch]		5/32"		5/16"				1/8"	3/16"	1/4"	3/8"	1/2"
Nominal size [mm]								3.2				

Fluid		Air/Water											
Max. operating pressure [MPa]	20°C	0.8											
	40°C	0.65											
	60°C	0.5											
Operating vacuum pressure [kPa] Note 1)		–101.3											
Applicable fittings		One-touch fittings, Insert fittings, Self-align fittings, Miniature fittings											
Min. bending radius [mm]		4	10	15	20	27	35	45	10	15	23	27	35
Operating temperature		–20 to +60 °C (Water: 0 to 40 °C) (No freezing)											
Material		Polyurethane											

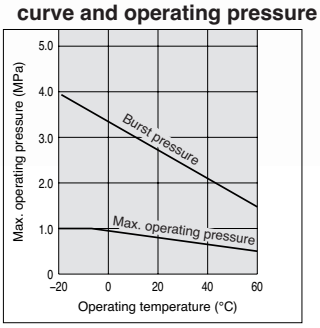
Note 1) The operating vacuum pressure varies depending on the applicable fitting, so refer to the fitting specifications for details.

• Min. bending radius



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

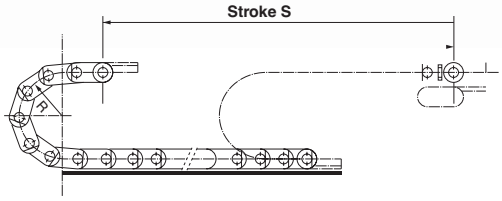
• Burst pressure characteristics curve and operating pressure



• Tubing durability (Reference value)

This value is a representative one from measurement and is not the guaranteed tube durability.
The value of tubing durability under the conditions below is **10 million times** (Condition: With grease on tubing surface)

Tubing : TU0425/TU0604
Pressure : 0.5 MPa
Frequency : 25 c.p.m.
Move speed : 750 mm/s
Stroke : 500 mm
Bending radius R : 28 mm



How to Order

TU0425 BU – 20

Tubing model

Length per roll

Symbol	Length
20	20 m roll
100	100 m roll

Colour

Symbol	Colour
B	Black (Opaque)
W	White (Opaque)
R	Red (Translucent)
BU	Blue (Translucent)
Y	Yellow (Opaque)
G	Green (Opaque)
C	Clear (Material colour)
YR	Orange (Opaque)
BU1	Solid blue (Opaque)
BU2	Clear blue (Translucent)
BU3	Medium blue (Opaque)
BR1	Brown (Opaque)
G1	Solid green (Opaque)
G2	Clear green (Translucent)
G3	Neon green (Opaque)
G4	Dark green (Opaque)

Symbol	Colour
GR1	Grey (Opaque)
GR2	Light grey (Opaque)
P1	Neon pink (Opaque)
PU1	Solid purple (Opaque)
PU2	Clear purple (Translucent)
R1	Solid red (Opaque)
R2	Clear red (Translucent)
S1	Silver (Opaque)
Y1	Solid yellow (Opaque)
Y2	Clear yellow (Translucent)
Y3	Neon yellow (Opaque)
YR1	Clear orange (Translucent)
YR2	Neon orange (Opaque)

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: Suffix “-X3” to the end of part number. Ex.) TU0425R-100-X3
Longer length reel	Metric size: Suffix “-X3” to the end of part number. Ex.) TU0425G-500-X3
20 m roll	Inch size: Suffix “-X4” to the end of part number. Ex.) TIUB07W-20-X4
Compatible with the Food Sanitation Law	Metric size: Suffix “-X217” to the end of part number. Ex.) TU0425BU-20-X217
FDA (Food and Drug Administration)	Metric size: Suffix “-X214” to the end of part number. Ex.) TU0425BU-20-X214

Made to Order Availability

Part no.	Length \ Model	TU0425 *	TU0604 *	TU0805 *	TU1065 *	TU1208 *	TIUB01 *	TIUB05 *	TIUB07 *	TIUB11 *	TIUB13 *	Colour
X3	100 m reel	○	○	○	○	○	○	○	○	○	○	Black, White, Red, Blue, Yellow, Green, Clear, Orange
	200 m reel			○								
	400 m reel		○									
	500 m reel	○										
X4	20 m roll							○	○	○	○	Red, White, Yellow, Green, Clear, Orange
X217 *	20 m roll	○	○	○	○	○						Black, White, Blue, Clear
X214 *	20 m roll	○	○	○	○	○						Black, White, Red, Blue, Yellow, Green, Clear, Orange

* Note that the model number is not printed on the tube body.

⚠ Precautions

⚠ Caution

1. Applicable for general industrial water. Please consult with SMC if using for the other kind of fluid. Also, the surge voltage pressure must be under the maximum operating pressure. If the surge pressure exceeds the maximum operating pressure, it will result in damage to fittings and tubes.
2. The value of the max. operating pressure is at a temperature of 20 °C. Refer to the burst pressure characteristics curve for other temperatures. Furthermore, abnormal temperature rises caused by adiabatic compression may result in the burst of the tube.
3. The value of the minimum bending radius is measured at the temperature of 20 °C as shown in the figure below.

⚠ Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC) [1], and other safety regulations.

⚠ **Danger:**	**Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
⚠ **Warning:**	**Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
⚠ **Caution:**	**Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

1) ISO 4414: Pneumatic fluid power – General rules and safety requirements for systems and their components.
ISO 4413: Hydraulic fluid power – General rules and safety requirements for systems and their components.
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots.
etc.

⚠ Warning

1. **The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.**
   Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.
2. **Only personnel with appropriate training should operate machinery and equipment.**
   The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.
3. **Do not service or attempt to remove product and machinery/equipment until safety is confirmed.**
   1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
   2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
   3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.
4. **Our products cannot be used beyond their specifications.**
   Our products are not developed, designed, and manufactured to be used under the following conditions or environments.
   Use under such conditions or environments is not covered.
   1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
   2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogues and operation manuals.
   3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

⚠ Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.
Use in non-manufacturing industries is not covered.
Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.
The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first. [2]
   Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.

2) Vacuum pads are excluded from this 1 year warranty.
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

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