

# 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**



P-04-EU1Aa-UK

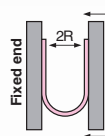
# Model/Specifications

● — 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.)

| Model            |                    | Tubing size             |        |        |        |        |        |                         |                     |        |        |        |        |
|------------------|--------------------|-------------------------|--------|--------|--------|--------|--------|-------------------------|---------------------|--------|--------|--------|--------|
|                  |                    | Metric size (TU series) |        |        |        |        |        | Inch size (TIUB series) |                     |        |        |        |        |
|                  |                    | 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)  | ■                       | ■      | ■      | ■      | ■      | ■      | ■                       | ■                   | ■      | ■      | ■      | ■      |
|                  |                    |                         | 5/32"  |        | 5/16"  |        |        |                         | Nominal size [inch] |        |        |        |        |
|                  |                    |                         |        |        |        |        |        |                         | 1/8"                | 3/16"  | 1/4"   | 3/8"   | 1/2"   |
|                  |                    |                         |        |        |        |        |        |                         | Nominal size [mm]   |        |        |        |        |
|                  |                    |                         |        |        |        |        |        |                         | 3.2                 |        |        |        |        |

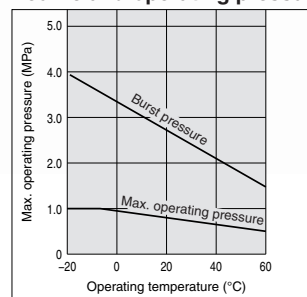
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|----------------------------------|------|------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|----|----|
| Fluid                            |      | Air/Water                                                                    |    |    |    |    |    |    |    |    |    |    |    |
| Max. operating pressure<br>[MPa] | 20°C | 0.8                                                                          |    |    |    |    |    |    |    |    |    |    |    |
|                                  | 40°C | 0.65                                                                         |    |    |    |    |    |    |    |    |    |    |    |
|                                  | 60°C | 0.5                                                                          |    |    |    |    |    |    |    |    |    |    |    |
| 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                                                                 |    |    |    |    |    |    |    |    |    |    |    |

## • 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.

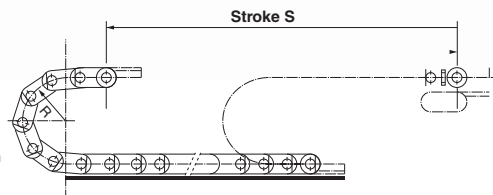
## • Burst pressure characteristics curve and operating pressure



## • 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     |
|------------|------------|
| <b>20</b>  | 20 m roll  |
| <b>100</b> | 100 m roll |
| <b>200</b> | 200 m roll |

Colour

| Symbol     | Colour                    | Symbol     | Colour                     |
|------------|---------------------------|------------|----------------------------|
| <b>B</b>   | Black (Opaque)            | <b>GR1</b> | Grey (Opaque)              |
| <b>W</b>   | White (Translucent)       | <b>GR2</b> | Light grey (Opaque)        |
| <b>R</b>   | Red (Translucent)         | <b>P1</b>  | Neon pink (Opaque)         |
| <b>BU</b>  | Blue (Translucent)        | <b>PU1</b> | Solid purple (Opaque)      |
| <b>Y</b>   | Yellow (Opaque)           | <b>PU2</b> | Clear purple (Translucent) |
| <b>G</b>   | Green (Opaque)            | <b>R1</b>  | Solid red (Opaque)         |
| <b>C</b>   | Clear (Material colour)   | <b>R2</b>  | Clear red (Translucent)    |
| <b>YR</b>  | Orange (Opaque)           | <b>S1</b>  | Silver (Opaque)            |
| <b>BU1</b> | Solid blue (Opaque)       | <b>Y1</b>  | Solid yellow (Opaque)      |
| <b>BU2</b> | Clear blue (Translucent)  | <b>Y2</b>  | Clear yellow (Translucent) |
| <b>BU3</b> | Medium blue (Opaque)      | <b>Y3</b>  | Neon yellow (Opaque)       |
| <b>BR1</b> | Brown (Opaque)            | <b>YR1</b> | Clear orange (Translucent) |
| <b>G1</b>  | Solid green (Opaque)      | <b>YR2</b> | Neon orange (Opaque)       |
| <b>G2</b>  | Clear green (Translucent) |            |                            |
| <b>G3</b>  | Neon green (Opaque)       |            |                            |
| <b>G4</b>  | Dark green (Opaque)       |            |                            |

## Made to Order

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

|                                                |                                                                                        |
|------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>100 m reel</b>                              | Metric size and Inch size: Suffix "-X3" to the end of part number. Ex.) TU0425R-100-X3 |
| <b>Longer length reel</b>                      | Metric size: Suffix "-X3" to the end of part number. Ex.) TU0425G-500-X3               |
| <b>20 m roll</b>                               | Inch size: Suffix "-X4" to the end of part number. Ex.) TIUB07W-20-X4                  |
| <b>Compatible with the Food Sanitation Law</b> | Metric size: Suffix "-X217" to the end of part number. Ex.) TU0425BU-20-X217           |
| <b>FDA (Food and Drug Administration)</b>      | 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                                                |
|---------------|------------|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------------------------------------------------------|
| <b>X3</b>     | 100 m reel |       | ○        | ○        | ○        | ○        | ○        | ○        | ○        | ○        | ○        | ○        | Black, White, Red, Blue, Yellow, Green, Clear, Orange |
|               | 200 m reel |       |          |          | ○        |          |          |          |          |          |          |          |                                                       |
|               | 400 m reel |       |          | ○        |          |          |          |          |          |          |          |          |                                                       |
|               | 500 m reel |       | ○        |          |          |          |          |          |          |          |          |          |                                                       |
| <b>X4</b>     | 20 m roll  |       |          |          |          |          |          |          | ○        | ○        | ○        | ○        | Red, White, Yellow, Green, Clear, Orange              |
| <b>X217 *</b> | 20 m roll  |       | ○        | ○        | ○        | ○        | ○        |          |          |          |          |          | Black, White, Blue, Clear                             |
| <b>X214 *</b> | 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.

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

\*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.  
ISO 4413: Hydraulic fluid power – General rules relating to systems.  
IEC 60204-1: Safety of machinery – Electrical equipment of machines.  
(Part 1: General requirements)  
ISO 10218-1: Manipulating industrial robots - Safety.  
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. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalogue.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

## 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.

### Caution

#### 1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.

If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.

If anything is unclear, contact your nearest sales branch.

### Caution

#### SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

## Safety Instructions

Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.

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