

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

FR Three-layer Polyurethane Tubing **New**

RoHS

Improved spatter resistance

Spatter resistance is **twice** that of FR double layer polyurethane tubing TRBU series. * In SMC conditions

For general pneumatic and water piping in environments exposed to sparks from arc welding, etc.

Spatter resistance is improved by installing an aluminium layer between the outer layer and inner tube.

Three-layer design

Outer layer: Flame resistant polyolefin (Equivalent to UL-94 standard V-0)

Middle layer: Aluminium laminated film

Inner tube: Polyurethane

6-colour variations



Model

● — 20 m roll □ — 100 m reel

Model	TRTU0604	TRTU0805	TRTU1065	TRTU1208	
Inner tube O.D. (mm)	6	8	10	12	
Inner tube I.D. (mm)	4	5	6.5	8	
Outer layer thickness (mm)	1	1	1	1	
Outer layer colour	Black (B)	●	●	●	
	White (W)	●	●	●	
	Red (R)	●	●	●	●
	Blue (BU)	●	●	●	●
	Yellow (Y)	●	●	●	●
	Green (G)	●	●	●	●

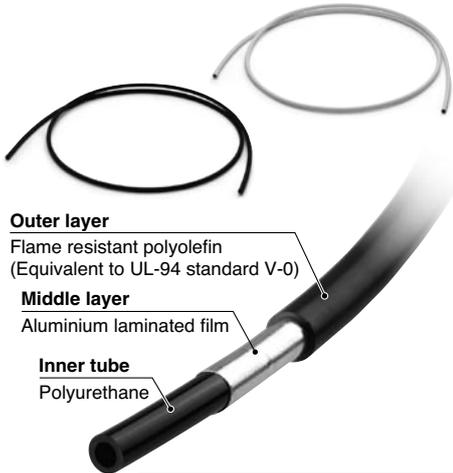
Series **TRTU**



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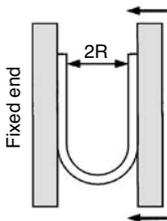
Flame Resistant (Equivalent to UL-94 Standard V-0) FR Three-layer Polyurethane Tubing

Series TRTU



For general pneumatic and water piping in environments exposed to sparks from arc welding, etc.

How to measure the minimum bending radius



Bend the tube into the U-form at a temperature of 20°C. Fix one end and close loop gradually. Measure 2R when the deformed ratio of the tube diameter at bending reaches 5%.

Model

● — 20 m roll □ — 100 m reel

Model	TRTU0604	TRTU0805	TRTU1065	TRTU1208
Inner tube O.D. (mm)	6	8	10	12
Inner tube I.D. (mm)	4	5	6.5	8
Outer layer thickness (mm)	1	1	1	1

Note 3) Outer layer colour	Black (B)	●	□	●	□
	White (W)	●	□	●	□
	Red (R)	●	□	●	□
	Blue (BU)	●	□	●	□
	Yellow (Y)	●	□	●	□
	Green (G)	●	□	●	□

Specifications

Fluid ^{Note 1)}	Air, Water			
Applicable fittings	FR one-touch fittings: Series KR-W2 Metal one-touch fittings: Series KQB2			
Max. operating pressure	At 20°C	0.8 MPa		
	At 40°C	0.65 MPa		
	At 60°C	0.5 MPa		
Burst pressure	Refer to the burst pressure characteristics curve.			
Min. bending radius (mm) ^{Note 2)}	50	60	70	80
Ambient and fluid temperature	-20 to +60°C Water: 0 to 40°C (No freezing)			
Material	Inner tube	Polyurethane		
	Middle layer	Aluminium laminated film		
	Outer layer	Polyolefin (Equivalent to UL-94 standard V-0)		

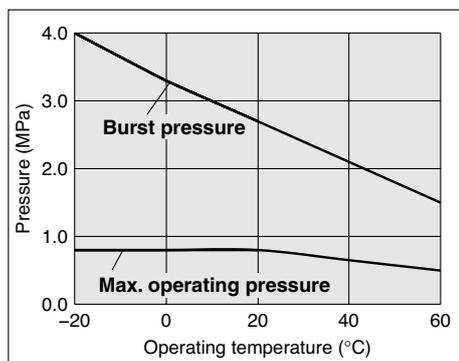
Note 1) Applicable for general industrial water. Please consult with SMC if using for the other kind of fluid. Also, the surge pressure must be under the maximum operating pressure.

If the surge pressure exceeds the maximum operating pressure, it will result in damage to fittings and tubes.

Note 2) The minimum bending radius is the representative value measured as shown in the left figure. Allow extra length when piping since the tube may be bent if used under the minimum bending radius.

Note 3) The colour of all inner tubes is black.

Burst Pressure Characteristics Curve and Operating Pressure



How to Order

TRTU1065 B - 20

Tubing model

Model	Inner tube O.D. x I.D. (mm)
TRTU0604	6 x 4
TRTU0805	8 x 5
TRTU1065	10 x 6.5
TRTU1208	12 x 8

Colour

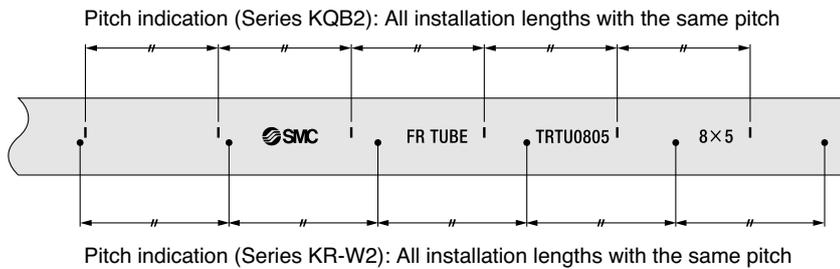
Symbol	Colour
B	Black
W	White
R	Red
BU	Blue
Y	Yellow
G	Green

Length per roll

Symbol	Length
20	20 m roll
100	100 m reel

Installation on One-touch Fittings

Pitch length for installation on a one-touch fitting is indicated on the outer layer of the TRTU tubing.
(There are two types of applicable fittings, so two types of pitch length for installation are available.)
Cut the tube according to this indication (Step 1) and strip off the outer layer (Step 2) using a special tool.
Strip off the aluminium laminated film to prevent the inner tube from being damaged (Step 3) and install it on the one-touch fitting.
Refer to the Operation Manual for details of installation on the one-touch fitting.



Identification of the pitch length for installation
 “//”: Series KQB2
 “•”: Series KR-W2

**Metal one-touch fittings
Series KQB2**

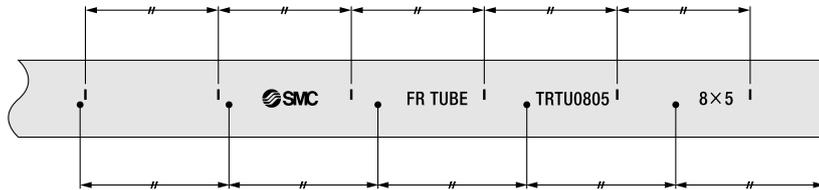


**Flame resistant
(equivalent to UL-94 standard V-0)
FR one-touch fittings
Series KR-W2**



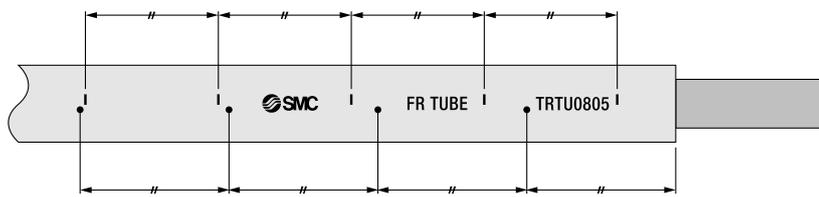
Installation on the KR-W2 series

Step 1



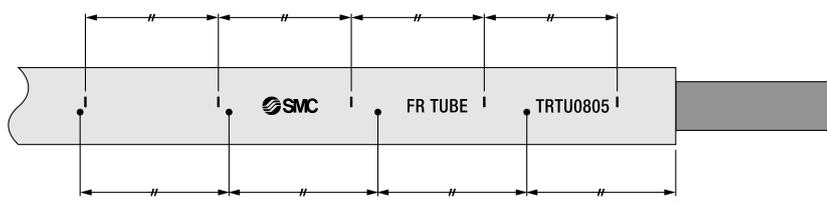
Outer layer, aluminium laminated film and inner tube are cut at the “•” mark.

Step 2



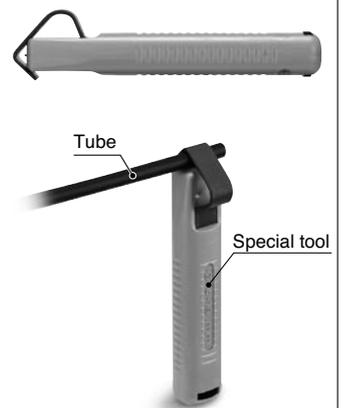
Strip off the outer layer.

Step 3



Strip off the aluminium laminated film to prevent the inner tube from being damaged.

Use a special tool for stripping off the outer layer.
Part no.: YS-100
* Refer to the Operation Manual for details of how to use the special tool.



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.

- 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.
- 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.
- 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.

- Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
- 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.
- An application which could have negative effects on people, property, or animals requiring special safety analysis.
- 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.



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.

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

- The warranty period of the product is 1 year in service or 1.5 years after the product is delivered.*2)
 Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
- 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.
- 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

- The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
- 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.



Safety Instructions

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

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