

# 2-Layer Soft Fluoropolymer Tubing

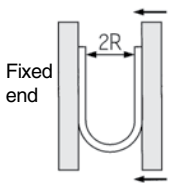
## Series TQ

RoHS

### Specifications



#### How to measure the minimum bending radius



Bend the tube into a U shape at a temperature of 68°F (20°C). Fix one end and bend the loop gradually at 100 mm/min. Measure 2R when the tube breaks or is crushed.

#### How to Order

**TQ0425** - **20**

Tubing designation

Length per roll

Symbol	Length
20	20 m
100	100 m

Designation		TQ0425	TQ0604	TQ0806	TQ1008	TQ1209
O.D. (mm)		4	6	8	10	12
I.D. (mm)		2.5	4	6	8	9
Roll	20 m	●	●	●	●	●
	100 m	●	●	●	●	●
Color <sup>Note 1)</sup>		Translucent (Material color)				
Fluid <sup>Note 2)</sup>		Air, Water, Inert gas, Solvent				
Applicable fittings <sup>Note 3)</sup>		Insert fittings KF, KFG2, VCK series Miniature fittings M, MS series (Hose nipple type) Fluoropolymer fittings LQ1, LQ3 series <sup>Note 6)</sup>				
Max. operating pressure <sup>Note 4)</sup>	68°F (20°C)	290 (2.0)	276 (1.9)	218 (1.5)	160 (1.1)	174 (1.2)
Min. bending radius (refraction value) <sup>Note 5)</sup> (mm)		4	9	26	42	37
Fluid temperature (fixed usage)		Air, Inert gas: -4 to 212°F (-20 to 100°C), Water, Solvent: 32 to 158°F (0 to 70°C) (No freezing)				
Material		Inner layer: Special fluoropolymer, Outer layer: Special nylon resin				

Note 1) There may be plasticizer (white powder) deposits on the external surface of the tube. Please be careful when the tube is used in clean rooms. Otherwise, the clean level may decrease.

Note 2) When solvent is used, make sure to test in the same environment as the actual operating environment, and confirm that no problem will occur in the operating conditions. The standard value of the Applicable Fluid List below is the reference value based on the test result performed under specific conditions.

The product can be physically affected by temperature, pressure, chemical density, etc. causing permeation or swelling, and this may cause some problems.

Note 3) Perform periodic maintenance inspections. If leakage continues to occur after tightening, replace the tube with a new one. (Refer to Maintenance in the Specific Product Precautions on page 2.)

When the tube rotates, perform a test to make sure no problem occur in the actual operating conditions.

When the product is used with motion for a long time, or at a high temperature, the tubes may have leakage due to deterioration of the materials.

Note 4) Observe the lesser value of the maximum operating pressure between the tubing and fitting. The surge pressure must not exceed the maximum operating pressure. If the surge pressure exceeds the maximum operating pressure, it will result in damage to tubes and fittings. Furthermore, abnormal temperature rise caused by adiabatic compression may result in the tube bursting.

Note 5) Minimum bend radius (refraction value) is not guaranteed. The value of 2R in the left figure is measured with a bent or flattened tube.

Note 6) For the installation of fluoropolymer fitting LQ1 and LQ3, please contact SMC.

### Applicable Fluid List

Fluid in the list below are chemically inert <sup>Note 1)</sup>, to tubing material. Possible physical effects may occur such as penetration and swelling due to temperature, pressure and chemical density. To use tubing in a solvent environment, tests should be performed with the same environment to ensure no problem occurs with operating environment.

Chemical	Inner layer	Outer layer	Chemical	Inner layer	Outer layer
	Special fluoropolymer	Special nylon resin		Special fluoropolymer	Special nylon resin
Hydrochloric acid	○	△	Citric acid	○	△
Sulfuric acid	○	△	Stearic acid	○	△
Nitric acid	○	×	Formic acid	○	△
Caustic soda	○	△	Ethyl acetate	○	○
Caustic potash	○	△	Butyl acetate	○	△
Ammonium hydroxide	○	○	Methyl alcohol	○	○
Hydrogen peroxide	○	△	Ethyl alcohol	○	○
Water	○	○	Butyl alcohol	○	○
Phenol	○	×	Isopropyl alcohol	○	○
Benzene	○	△	Cellosolve	△	△
Toluene	○	△	Hexane	○	△
Xylene	○	△	Cyclohexane	○	△
Carbon tetrachloride	○	×	Mineral oil ASTM No.3	○	○
Acetone	○	△	Naphtha	○	○
Methyl ethyl ketone	○	△			

Note 1) "Chemically inert" means - not to cause any chemical reaction.

Note 2) Criteria: ○ Applicable, △ Not recommended, × Inapplicable

Note 3) Applicable Fluid List shows the reference value based on test results performed under specific conditions. Application for products is not guaranteed.

Note 4) Applicable Fluid List is for tube materials. For use in environments containing solvents, please contact SMC.

### Max. Operating Pressure

Unit: psi (MPa)

Temperature °F (°C)	TQ0425	TQ0604	TQ0806	TQ1008	TQ1209
-4 to 68 (-20 to 20)	290 (2.0)	276 (1.9)	218 (1.5)	160 (1.1)	174 (1.2)
86 (30)	247 (1.7)	232 (1.6)	174 (1.2)	131 (0.9)	145 (1.0)
104 (40)	203 (1.4)	203 (1.4)	145 (1.0)	116 (0.8)	131 (0.9)
122 (50)	174 (1.2)	160 (1.1)	116 (0.8)	87 (0.6)	116 (0.8)
144 (60)	160 (1.1)	145 (1.0)	102 (0.7)	73 (0.5)	102 (0.7)
158 (70)	145 (1.0)	131 (0.9)	87 (0.6)	58 (0.4)	87 (0.6)
158 (80)	131 (0.9)	116 (0.8)	73 (0.5)	58 (0.4)	73 (0.5)
194 (90)	116 (0.8)	102 (0.7)	58 (0.4)	44 (0.3)	58 (0.4)
212 (100)	102 (0.7)	87 (0.6)	58 (0.4)	44 (0.3)	44 (0.3)