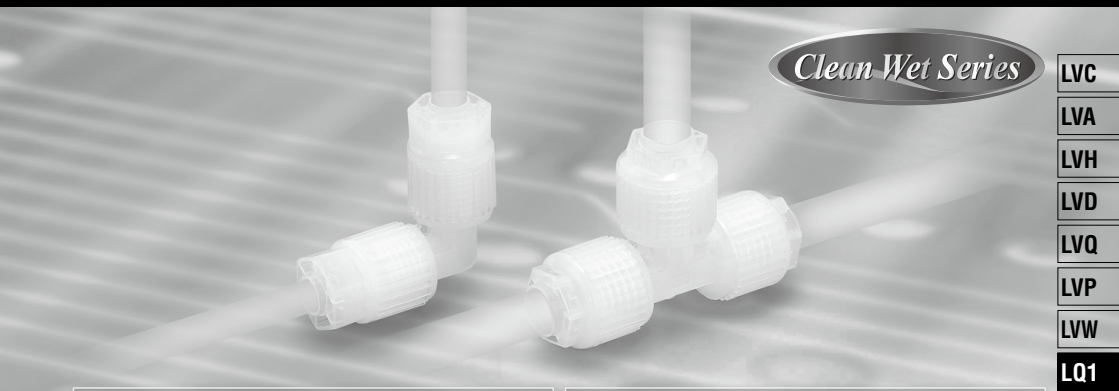
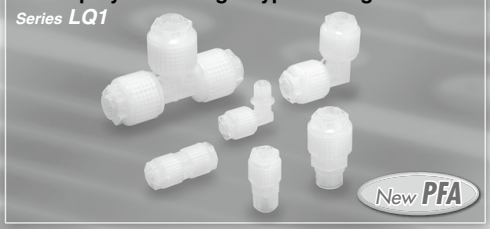
Fluoropolymer Piping Equipment

Series LQ1/LQ3/LVN/LQHB/T□



Fluoropolymer Fittings Hyper Fittings
Series LQ1

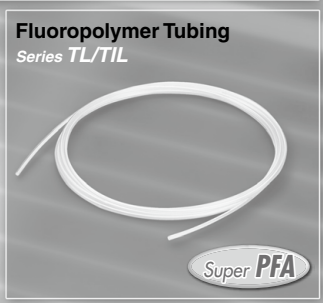


Fluoropolymer Fittings Hyper Fittings/ Flare Type
Series LQ3

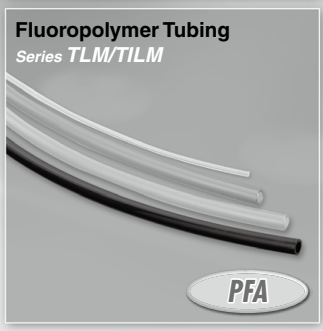
Needle Valve
Series LVN

Bore Through Connector
Series LQHB

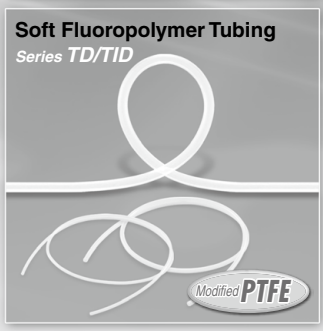
Fluoropolymer Tubing
Series TL/TIL



Fluoropolymer Tubing
Series TLM/TILM



Soft Fluoropolymer Tubing
Series TD/TID



FEP Tubing (Fluoropolymer)
Series TH/TIH

Fluoropolymer Fittings Hyper Fittings

◉ Quadruple sealing construction

The quadruple sealing construction (PAT.) based on SMC's original idea results in highly reliable sealing characteristics with outstanding leakage prevention effect.

◉ Flow-through characteristics

Excellent flow-through characteristics are achieved by minimizing liquid deposit.

◉ 200°C compatible

◉ Locking

- Locking mechanism utilizes sealing lock by the nut.
- Trapezoidal thread allows application of high torque.
- 2 stage pressing by the tubing holder of the nut ensures secure tube holding.

Basic

2 stage pressing construction ensures sealing and tubing locking to absorb differences in the tube outside diameter.

D side sealing

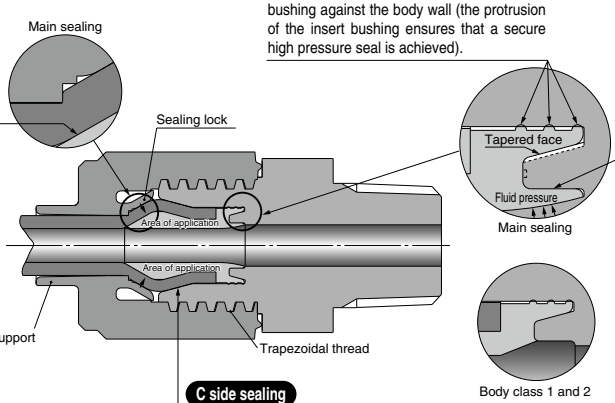
A seal is formed when the tubing is inserted, with its insert bushing, and its compression against the internal nut.

B side sealing

By tapering the face of the body, perfect sealing is achieved by the pressure of the bushing against the body wall (the protrusion of the insert bushing ensures that a secure high pressure seal is achieved).

A side sealing

The fluid pressure pushes the seal face to get effective sealing.



C side sealing

Sealed by the pressure exerted on the tubing by the internal nut.

◉ Strong resistance to tube bending and deformation.

Able to withstand lateral loads with the tubing support.

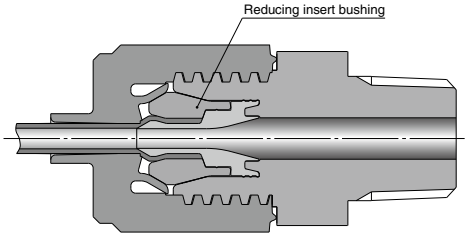
◉ Easy tightening of nuts.

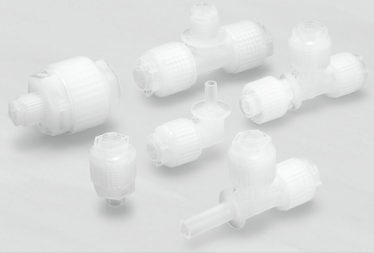
- No positioning guide is required, simply tighten up the tubing to the end of the fitting body.
- The trapezoidal thread prevents oblique nut insertion.

◉ Tubing sizes are interchangeable.

- The reducer method allows tubing size changes without replacing the body.
- Helps standardize fitting items resulting in less stock requirements.

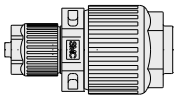
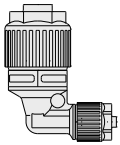
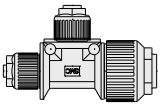
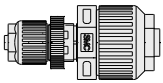
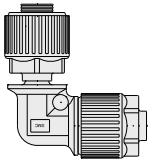
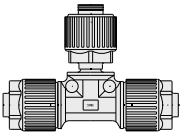
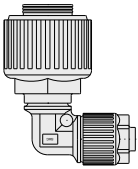
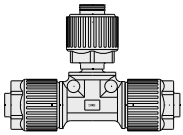
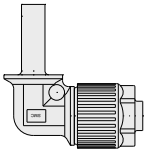
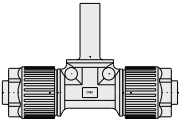
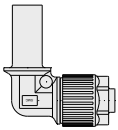
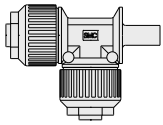
Reducing type





Series LQ1
Addition of variations

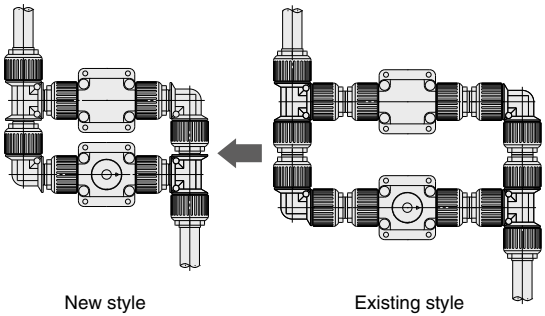
Newly introduced shape

Union reducing 	Union elbow reducing 	Union tee reducing 	Panel mount union reducing 
Space saving union elbow 	Space saving union tee 	Space saving union elbow reducing 	Space saving union tee reducing 
Tubing extension union elbow 	Tubing extension union tee 	Tubing extension union elbow reducing 	Tubing extension union tee reducing 

Space-saving, piping work-saving

- Cut down on the fittings use by a variation upgrade on the different diameter connection(s).

Cut down on longitudinal dimension

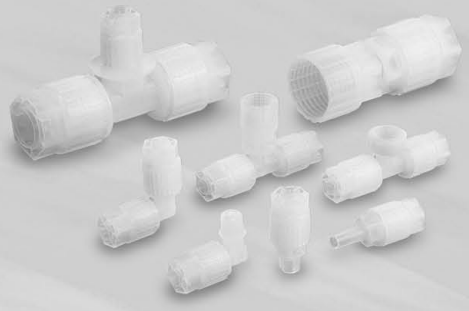


New style Existing style

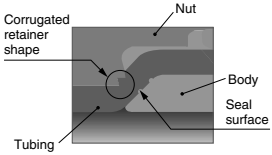
Fluoropolymer Fittings
Hyper Fittings / Flare Type

Series LQ3 P.790

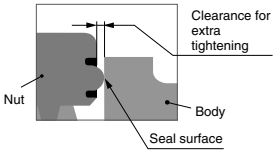
- Flare type collet construction
- Triple-seal construction
- Ease of installation
- Excellent flow-through characteristics
- Excellent heat resistance
- 200°C compatible

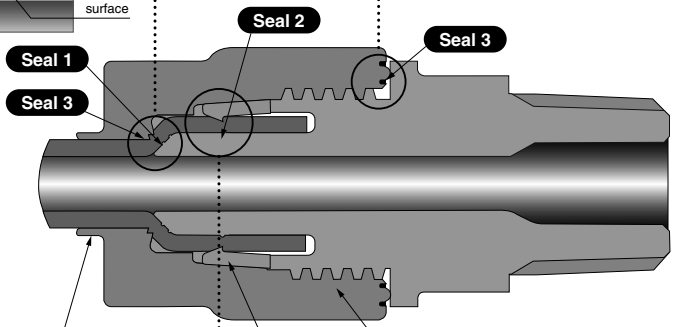


- Tubing retainer of the nut is made from a two-stage structure, enabling it to hold the tubing firmly.
- Fitting's seal surface to the tubing adopts a unique design to the area's pressure, resulting in improved sealing performance.



- To establish the tightening position, a gauge control is not required as the nut is designed to be tightened until the end surface of the fitting's main body.





Tubing support

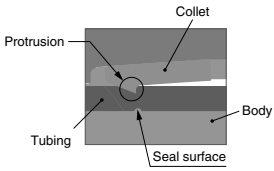
Providing additional strength against possible tube bending or deformation.

Collet

Trapezoidal thread

Prevents the nut from loosening at a high tightening torque, and from installing in a tilted position.
Heat resistant.

- Strengthening the prevention of the tubing release by means of the collet structure.
- Sealing performance is highly maintained in a circumferential seal surface having a unique shape even under thermal stress conditions.



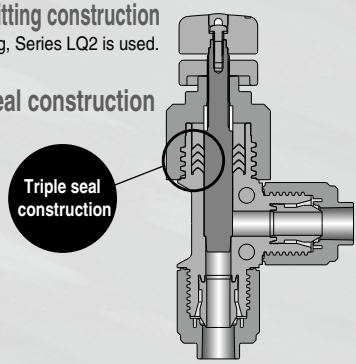
Fluoropolymer Needle Valve *Series LVN* P.816

◉ Fluid adjustment range 0 to 12 L/min

◉ Integral fitting construction
Hyper fitting, Series LQ2 is used.

◉ Triple seal construction

Integral fitting construction
(Hyper fitting, Series LQ2 is used.)
- Quadruple sealing method
- Nut locking mechanism
- High flexural strength
- Different tubing sizes can be selected.

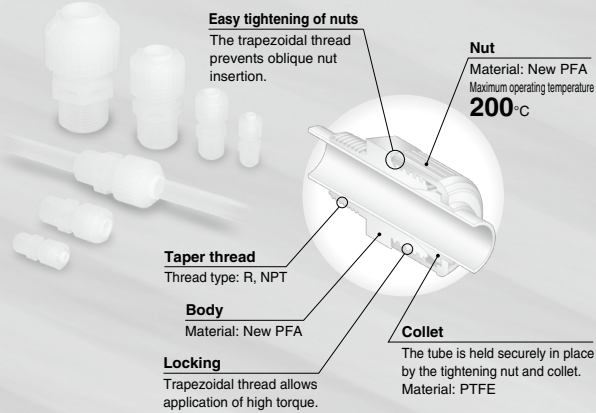


Fluoropolymer Bore Through Connector *Series LQHB* P.819

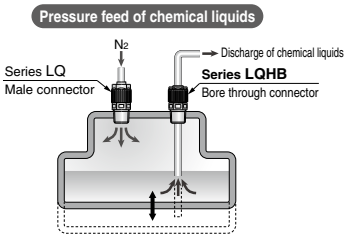
◉ Freely choose tube positioning

Can be used in pressure feed of chemical liquids, etc., during the production process of semiconductors. Applicable to chemical liquids such as acid, alkali and deionized water.

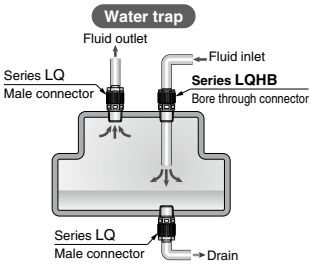
As the tube runs through the fitting itself, a setting is available for any optional position.

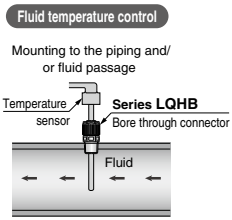


Applications



A changing of the tube position is available in accordance with the depth of the container.





Fluoropolymer Tubing *Series TL/TIL* P.826

◉ **Operating Temperature** Note) **Max. 260°C**

Note) It varies depending on the conditions.
For details, refer to page 826.

◉ **Materials: Super PFA**

◉ **14 Size Variations**

- Metric Sizes: ø4 to ø19 [6 size]
- Inch Sizes: 1/8" to 1" [8 size]

Fluoropolymer Tubing (PFA) *Series TLM/TILM* P.827

◉ **Operating Temperature** Note) **Max. 260°C**

Note) It varies depending on the conditions.
For details, refer to pages 828 and 829.

◉ **Applications: Photovoltaic cell manufacturing, LCD manufacturing, HDD manufacturing, Medical, Food**

◉ **Compatible with the Food Sanitation Law**

- Compatible with the test conforming to Japan's the Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.
- Complies with FDA (Food and Drug Administration) §177-1550 dissolution test.

◉ **4 Color Variations**

◉ **22 Size Variations**

- Metric Sizes: ø2 to ø25 [13 size]
- Inch Sizes: 1/8" to 1 1/4" [9 size]

Soft Fluoropolymer Tubing *Series TD/TID* From page 830

◉ **Flexibility: Improved by approx. 20%**

∗ SMC comparison (Fluoropolymer tubing, Series TL/TIL)

◉ **Applications: Food, Semi-conductor, Medical, Automobile and Machine tools fields**

◉ **Compatible with the Food Sanitation Law**

- Compatible with the test conforming to Japan's the Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.
- Complies with FDA (Food and Drug Administration) §177-1550 dissolution test.

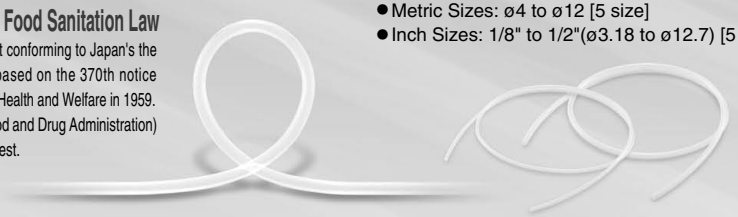
◉ **Material: Modified PTFE**

◉ **Operating Temperature** Note) **Max. 260°C**

Note) It varies depending on the operating pressure.
Refer to the graph for maximum operating pressure (pages 830 and 831).

◉ **10 Size Variations**

- Metric Sizes: ø4 to ø12 [5 size]
- Inch Sizes: 1/8" to 1/2"(ø3.18 to ø12.7) [5 size]



FEP Tubing (Fluoropolymer) Series TH/TIH

From page 832

◎ Operating Temperature Note) 200°C

Note) It varies depending on the operating pressure.
Refer to the graph for maximum operating pressure (pages 832 and 833).

◎ Material: FEP

◎ 4 Color Variations: Translucent, Black, Red, Blue

◎ 19 Size Variations

- Metric Sizes: ø4 to ø12
- Inch Sizes: 1/8" to 3/4"

◎ Applications: For general pneumatic piping, Food, Semi-conductor, Medical, Automobile fields

◎ Compatible with the Food Sanitation Law

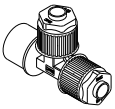
Compatible with the test conforming to the Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.

Fluoropolymer Tubing Variations

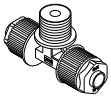
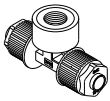
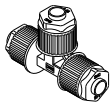
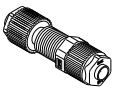
Series		TL/TIL	TLM/TILM	TD/TID	TH/TIH
Features		It is suitable for applications which require a highly smooth internal surface and small amount of elution of fluorine ions. ※ It has heat and chemical resistance equivalent to PFA.	The material consists of a good chemical resistant fluoropolymer. This also has good heat resistance, and it is suitable for a wide range of applications.	Flexibility improved by approx. 20% (Compared with SMC TL/TIL Series) Suitable for applications which require flexibility.	This has better resistance in chemical liquids environments.
Material		Super PFA	PFA	Modified PTFE	FEP
Chemical resistance		◎	◎	◎	○
Heat resistance		260°C	260°C	260°C	200°C
Flexibility		△	△	○	△
Ion elution		◎	○	○	○
Internal smoothness		○	△	○	◎
Fluid		Chemical liquids, Deionized water	Chemical liquids, Deionized water	Air, Water, Inert gas	
Tubing O.D.	Metric	ø4 to ø19	ø2 to ø25	ø4 to ø12	ø4 to ø12
	Inch	1/8" to 1"	1/8" to 1 1/4"	1/8" to 1/2"	1/8" to 3/4"
Color		Translucent	Translucent, Red, Blue, Black	Translucent	Translucent, Red, Blue, Black
Applicable fitting series	One-touch fittings	—	**KQ2, KQG2, KP, KP□**	—	**KQ2, KQG2, KP, KP□**
	Miniature fittings	—	**M, MS (Hose nipple type)**	**M, MS (Hose nipple type)**	**M, MS (Hose nipple type)**
	Insert fittings	—	**KF, KFG2**	**KF, KFG2**	**KF, KFG2**
	Fluoropolymer fittings	**LQ1, LQ2, LQ3**	**LQ1, LQ2, LQ3**	**LQ1, LQ2, LQ3**	**LQ1, LQ2, LQ3**

◎: Very good ○: Good △: Moderate
The comparison table shown above was prepared based on a relative comparison taking the characteristics of each fluoropolymer tubing into consideration.

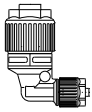
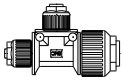
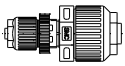
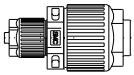
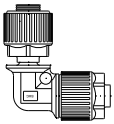
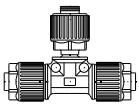
Series LQ1 P.752

Series		Appearance	Class	Port size							Tubing O.D.														
											Metric size								Inch size						
				None	1/8"	1/4"	3/8"	1/2"	3/4"	1"	ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"
Connector LQ1H	Male	P.755	1	–	○	–	–	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
			2	–	○	○	–	–	–	–	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
			3	–	○	○	○	–	–	–	●	●	●	●	○	–	–	–	●	–	●	○	–	–	–
			4	–	–	○	○	○	–	–	●	–	●	●	●	○	–	–	●	–	●	●	○	–	–
			5	–	–	○	○	○	○	–	–	–	●	–	○	●	○	–	–	–	●	○	●	○	–
			6	–	–	–	–	○	○	○	–	–	–	–	–	●	●	○	–	–	–	–	●	●	○
	Female	P.756	1	–	○	–	–	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
			2	–	○	○	–	–	–	–	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
			3	–	○	○	○	–	–	–	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
			4	–	○	○	○	○	–	–	–	–	●	●	●	○	–	–	–	–	○	●	○	–	–
			5	–	–	○	○	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
			6	–	–	–	–	–	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
Elbow LQ1L	Male	P.757	1	–	○	–	–	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
			2	–	○	○	–	–	–	–	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
			3	–	○	○	○	–	–	–	●	●	●	●	○	–	–	–	●	–	●	○	–	–	–
			4	–	–	○	○	○	–	–	●	●	●	●	●	○	–	–	●	–	●	●	○	–	–
			5	–	–	–	○	○	○	–	–	–	●	●	○	●	○	–	–	–	●	○	●	○	–
			6	–	–	–	○	–	○	○	–	–	–	–	–	●	●	○	–	–	–	–	●	●	○
	Female	P.758	1	–	○	–	–	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
			2	–	○	○	–	–	–	–	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
			3	–	○	○	○	–	–	–	●	–	●	●	○	–	–	–	●	–	●	○	–	–	–
			4	–	○	○	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
			5	–	–	–	○	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
			6	–	–	–	–	–	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
Run tee LQ1R	Male	P.759	1	–	○	–	–	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
			2	–	○	○	–	–	–	–	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
			3	–	○	○	○	–	–	–	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
			4	–	–	○	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
			5	–	–	○	○	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
			6	–	–	–	–	–	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
	Female	 P.760	1	–	○	–	–	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
			2	–	○	○	–	–	–	–	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
			3	–	○	○	○	–	–	–	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
			4	–	–	○	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
			5	–	–	–	○	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
			6	–	–	–	–	○	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○

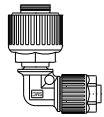
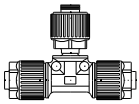
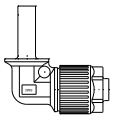
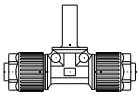
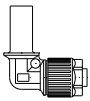
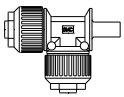
Note) ○Basic size ●With reducer

Series		Appearance	Class	Port size							Tubing O.D.														
											Metric size								Inch size						
				None	1/8"	1/4"	3/8"	1/2"	3/4"	1"	ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"
Branch tee LQ1B	Male	 P.761	1	–	○	–	–	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
			2	–	○	○	–	–	–	–	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
			3	–	○	○	○	–	–	–	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
			4	–	–	○	○	○	–	–	–	–	–	●	●	○	–	–	–	–	–	●	○	–	–
			5	–	–	○	○	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
			6	–	–	–	–	○	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
	Female	 P.762	1	–	○	–	–	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
			2	–	○	○	–	–	–	–	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
			3	–	○	○	○	–	–	–	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
			4	–	–	○	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
			5	–	–	○	○	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
			6	–	–	–	–	○	○	○	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
Union elbow LQ1E		P.763	1	○	–	–	–	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
			2	○	–	–	–	–	–	–	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
			3	○	–	–	–	–	–	–	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
			4	○	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
			5	○	–	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
			6	○	–	–	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
Union tee LQ1T		 P.764	1	○	–	–	–	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
			2	○	–	–	–	–	–	–	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
			3	○	–	–	–	–	–	–	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
			4	○	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
			5	○	–	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
			6	○	–	–	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
Panel mount union LQ1P		 P.765	1	○	–	–	–	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
			2	○	–	–	–	–	–	–	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
			3	○	–	–	–	–	–	–	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
			4	○	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
			5	○	–	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
			6	○	–	–	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
Union LQ1U		P.766	1	○	–	–	–	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
			2	○	–	–	–	–	–	–	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
			3	○	–	–	–	–	–	–	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
			4	○	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
			5	○	–	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
			6	○	–	–	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
Union flange LQ1F		P.766	4	○	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
			5	○	–	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
			6	○	–	–	–	–	–	–	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○

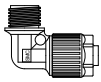
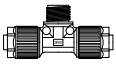
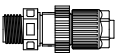
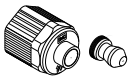
Note) ○Basic size ●With reducer

Series	Appearance	Class	Tubing O.D.														
			Metric size								Inch size						
			ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"
Union elbow reducing **LQ1E-R**	 P.767	2	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
		3	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
		4	●	–	●	●	●	○	–	–	●	●	●	●	○	–	–
		5	–	●	●	●	●	●	○	–	–	●	●	●	●	○	–
		6	–	–	●	●	●	●	●	○	–	●	●	●	●	●	○
Union tee reducing **LQ1T-R**	 P.769	2	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
		3	●	–	●	●	○	–	–	–	–	–	●	○	–	–	–
		4	●	–	●	●	●	○	–	–	●	–	●	●	○	–	–
		5	●	●	●	●	●	●	○	–	●	–	●	●	●	○	–
		6	–	–	●	●	●	●	●	○	–	–	●	●	●	●	○
Panel mount union reducing **LQ1P-R**	 P.774	2	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
		3	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
		4	–	–	●	–	●	○	–	–	–	–	●	●	○	–	–
		5	–	–	–	–	●	●	○	–	–	–	–	●	●	○	–
		6	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
Union reducing **LQ1U-R**	 P.775	2	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
		3	●	●	●	●	○	–	–	–	●	●	●	○	–	–	–
		4	●	●	●	●	●	○	–	–	●	●	●	●	○	–	–
		5	●	●	●	●	●	●	○	–	●	●	●	●	●	○	–
		6	–	–	●	–	●	●	●	○	–	–	●	●	●	●	○
Space saving union elbow **LQ1E-SS**	 P.776	2	–	–	○	–	–	–	–	–	–	–	○	–	–	–	–
		3	–	–	–	●	○	–	–	–	–	–	–	○	–	–	–
		4	–	–	–	–	–	○	–	–	–	–	–	–	○	–	–
		5	–	–	–	–	–	–	○	–	–	–	–	–	–	○	–
		6	–	–	–	–	–	–	–	○	–	–	–	–	–	–	○
Space saving union tee **LQ1T-S**	 P.778	2	–	–	○	–	–	–	–	–	–	–	○	–	–	–	–
		3	–	–	–	●	○	–	–	–	–	–	–	○	–	–	–
		4	–	–	–	–	–	○	–	–	–	–	–	–	○	–	–
		5	–	–	–	–	–	–	○	–	–	–	–	–	–	○	–
		6	–	–	–	–	–	–	–	○	–	–	–	–	–	–	○

Note) ○Basic size ●With reducer

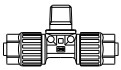
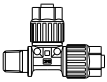
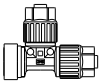
Series	Appearance	Class	Tubing O.D. Metric size ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	Inch size 1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"	Can be connected body class 2	3	4	5	6
Space saving union elbow reducing **LQ1E-SS-R**	 P.777	2	–	–	○	–	–	–	–	–	–	–	○	–	–	–	–	–	○	○	–	–
		3	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–	○	○	○	–	–
		4	–	–	–	–	–	○	–	–	–	–	–	–	○	–	–	○	○	–	○	–
		5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
		6	–	–	–	–	–	–	–	○	–	–	–	–	–	–	○	–	–	–	○	–
Space saving union tee reducing **LQ1T-S-R**	 P.779	2	–	–	○	–	–	–	–	–	–	–	–	–	–	–	–	–	○	–	–	–
		3	–	–	–	●	–	–	–	–	–	–	●	○	–	–	–	–	○	–	–	–
		4	–	–	–	–	–	○	–	–	–	–	–	●	○	–	–	–	○	–	○	–
		5	–	–	○	–	–	●	○	–	–	–	●	–	●	○	–	–	○	○	○	○
		6	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–	○	○	○	○
Tubing extension union elbow **LQ1E-T**	 P.781	2	–	–	○	–	–	–	–	–	–	–	○	–	–	–	–		–	–	–	–
		3	–	–	–	●	○	–	–	–	–	–	–	○	–	–	–	–		–	–	–
		4	–	–	–	–	–	○	–	–	–	–	–	–	○	–	–	–	–		–	–
		5	–	–	–	–	–	–	○	–	–	–	–	–	–	○	–	–	–	–		–
		6	–	–	–	–	–	–	–	○	–	–	–	–	–	–	○	–	–	–	–	
Tubing extension union tee **LQ1T-T**	 P.782	2	–	–	○	–	–	–	–	–	–	–	○	–	–	–	–		–	–	–	–
		3	–	–	–	●	○	–	–	–	–	–	–	○	–	–	–	–		–	–	–
		4	–	–	–	–	–	○	–	–	–	–	–	–	○	–	–	–	–		–	–
		5	–	–	–	–	–	–	○	–	–	–	–	–	–	○	–	–	–	–		–
		6	–	–	–	–	–	–	–	○	–	–	–	–	–	–	○	–	–	–	–	
Tubing extension union elbow reducing **LQ1E-T-R**	 P.783	2	–	–	○	○	○	○	–	–	–	–	–	○	○	–	–		○	○	–	–
		3	–	–	○	○	○	○	○	–	–	–	–	–	○	○	–	○		○	○	–
		4	–	–	○	○	○	○	○	○	–	–	–	○	–	○	○	○	○		○	○
		5	–	–	–	–	–	–	–	○	–	–	–	–	–	–	○	–	–	–		–
		6	–	–	–	–	–	–	○	–	–	–	–	–	–	○	–	–	–	–	○	
Tubing extension union tee reducing **LQ1T-T-R**	 P.784	2	–	–	–	–	–	–	–	–	–	–	–	○	–	–	–		○	–	–	–
		3	–	–	–	–	–	–	–	–	–	–	–	–	○	–	–	–		–	–	–
		4	–	–	–	–	–	○	–	–	–	–	–	●	○	–	–	–	○		○	–
		5	–	–	–	–	–	–	○	–	–	–	–	–	○	○	○	–	○	○		–
		6	–	–	–	–	–	–	○	–	–	–	–	○	○	○	–	–	○	○	○	

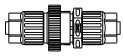
Note) ○Basic size ●With reducer

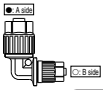
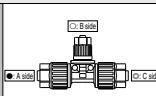
Series	Appearance	Class	Tubing O.D.														
			Metric size								Inch size						
			ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"
Space saving union elbow **LQ1E-S**	 P.786	1	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
		2	–	●	○	–	–	–	–	–	●	●	○	–	–	–	–
		3	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
		4	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
		5	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
		6	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
Space saving union tee **LQ1T-S**	 P.786	1	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
		2	–	●	○	–	–	–	–	–	●	●	○	–	–	–	–
		3	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
		4	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
		5	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
		6	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
Space saving panel mount union **LQ1P-S**	 P.786	1	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
		2	–	●	○	–	–	–	–	–	●	●	○	–	–	–	–
		3	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
		4	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
		5	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
		6	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
Space saving union **LQ1U-S**	P.786	1	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
		2	–	●	○	–	–	–	–	–	●	●	○	–	–	–	–
		3	–	–	●	●	○	–	–	–	–	–	●	○	–	–	–
		4	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
		5	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
		6	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
Panel mounting nut **LQNP**	P.786	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
		2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
		3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
		4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
		5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
		6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nut insert bush **LQ1-U B N**	 P.787	1	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
		2	○	○	○	–	–	–	–	–	○	○	○	–	–	–	–
		3	–	–	○	○	○	–	–	–	–	–	○	○	–	–	–
		4	–	–	–	–	○	○	–	–	–	–	–	○	○	–	–
		5	–	–	–	–	–	○	○	–	–	–	–	–	○	○	–
		6	–	–	–	–	–	–	○	○	–	–	–	–	–	○	○
Blanking plug **LQ-P**	P.787	1	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
		2	●	●	○	–	–	–	–	–	●	●	○	–	–	–	–
		3	–	●	●	●	○	–	–	–	–	–	●	○	–	–	–
		4	–	–	–	–	●	○	–	–	–	–	–	●	○	–	–
		5	–	–	–	–	–	●	○	–	–	–	–	–	●	○	–
		6	–	–	–	–	–	–	●	○	–	–	–	–	–	●	○
Tubing plug **LQ1-CP**	P.787	1	○	○	–	–	–	–	–	–	○	–	–	–	–	–	–
		2	–	–	○	–	–	–	–	–	–	–	○	–	–	–	–
		3	–	–	–	○	○	–	–	–	–	–	–	○	–	–	–
		4	–	–	–	–	–	○	–	–	–	–	–	–	○	–	–
		5	–	–	–	–	–	–	○	–	–	–	–	–	–	○	–
		6	–	–	–	–	–	–	–	○	–	–	–	–	–	–	○

Note) ○Basic size ●With reducer

Series LQ3 P.790

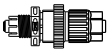
Series		Appearance	Class	Port size								Tubing O.D.														
												Metric size								Inch size						
				None	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"
Connector LQ3H	Male	P.793	1	–	●	–	–	–	–	–	–	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
			2	–	●	●	–	–	–	–	–	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
			3	–	●	●	●	●	–	–	–	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
			4	–	–	●	●	●	●	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
			5	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
			6	–	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
			7	–	–	–	–	–	●	●	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●
	Female	P.794	1	–	●	–	–	–	–	–	–	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
			2	–	●	●	–	–	–	–	–	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
			3	–	●	●	●	–	–	–	–	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
			4	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
			5	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
			6	–	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
Elbow LQ3L	Male	P.795	1	–	●	–	–	–	–	–	–	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
			2	–	●	●	–	–	–	–	–	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
			3	–	●	●	●	●	–	–	–	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
			4	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
			5	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
			6	–	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
	Female	P.796	1	–	●	–	–	–	–	–	–	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
			2	–	●	●	–	–	–	–	–	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
			3	–	●	●	●	–	–	–	–	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
			4	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
			5	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
			6	–	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
Branch tee LQ3B	Male	 P.797	1	–	●	–	–	–	–	–	–	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
			2	–	●	●	–	–	–	–	–	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
			3	–	●	●	●	–	–	–	–	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
			4	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
			5	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
			6	–	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
	Female	P.798	1	–	●	–	–	–	–	–	–	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
			2	–	●	●	–	–	–	–	–	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
			3	–	●	●	●	–	–	–	–	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
			4	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
			5	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
			6	–	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
Run tee LQ3R	Male	 P.799	1	–	●	–	–	–	–	–	–	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
			2	–	●	●	–	–	–	–	–	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
			3	–	●	●	●	–	–	–	–	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
			4	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
			5	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
			6	–	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
	Female	 P.800	1	–	●	–	–	–	–	–	–	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
			2	–	●	●	–	–	–	–	–	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
			3	–	●	●	●	–	–	–	–	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
			4	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
			5	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
			6	–	–	–	–	●	●	●	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
Union elbow LQ3E		P.801	1	●	–	–	–	–	–	–	–	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
			2	●	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
			3	●	–	–	–	–	–	–	–	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
			4	●	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
			5	●	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
			6	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
			7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●
Union tee LQ3T		P.801	1	●	–	–	–	–	–	–	–	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
			2	●	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
			3	●	–	–	–	–	–	–	–	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
			4	●	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
			5	●	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
			6	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–

Series	Appearance	Class	Port size								Tubing O.D.														
											Metric size								Inch size						
			None	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"
Panel mount union **LQ3P** P.802		1	●	–	–	–	–	–	–	–	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
		2	●	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	●	–	–	–	–	–	–	–	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	●	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	●	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
Union **LQ3U** P.802		1	●	–	–	–	–	–	–	–	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
		2	●	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	●	–	–	–	–	–	–	–	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	●	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	●	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
		7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●

Series	Appearance	Class	Tubing O.D.														
			Metric size								Inch size						
			ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"
Union reducing **LQ3U-R** P.803		1	○	●	–	–	–	–	–	–	–	–	–	–	–	–	–
		2	○	○	●	–	–	–	–	–	○	●	–	–	–	–	–
		3	–	○	○	●/○	●	–	–	–	○	○	●	–	–	–	–
		4	–	–	–	○	○	●	–	–	–	○	○	●	–	–	–
		5	–	–	–	–	–	○	●	–	–	○	○	○	●	–	–
		6	–	–	–	–	–	●	○	●	–	–	–	○	○	●	–
		7	–	–	–	–	–	–	–	–	–	–	–	–	–	○	●
Union elbow reducing **LQ3E-R** P.804		1	○	●	–	–	–	–	–	–	–	–	–	–	–	–	–
		2	○	○	●	–	–	–	–	–	○	●	–	–	–	–	–
		3	–	○	○	●/○	●	–	–	–	○	○	●	–	–	–	–
		4	–	–	–	○	○	●	–	–	–	○	○	●	–	–	–
		5	–	–	–	–	–	○	●	–	–	○	○	○	●	–	–
		6	–	–	–	–	–	●	○	●	–	–	–	○	○	●	–
Union tee reducing **LQ3T-R** P.805		1	○/◎	●/○/◎	–	–	–	–	–	–	–	–	–	–	–	–	–
		2	○/◎	○/◎	●/○/◎	–	–	–	–	–	○/◎	●/○/◎	–	–	–	–	–
		3	–	–	○/◎	●/○/◎	●/○/◎	–	–	–	○	●/○/◎	●/○/◎	–	–	–	–
		4	–	–	–	–	○/◎	●/○/◎	–	–	–	○/◎	●/○/◎	●/○/◎	–	–	–
		5	–	–	–	–	–	○/◎	●/○/◎	–	–	○/◎	●/○/◎	●/○/◎	●/○/◎	–	–
		6	–	–	–	–	–	–	○/◎	●/○/◎	–	○/◎	○/◎	●/○/◎	●/○/◎	●/○/◎	–

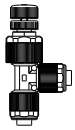
Note) ● : A side tubing O.D. ○ : B side tubing O.D. ◎ : C side tubing O.D.

Series	Appearance	Class	Tubing O.D.														
			Metric size								Inch size						
			ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"
Space saving union elbow **LQ3E-S** P.807		2	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
		7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●
Space saving branch tee **LQ3T-SB** P.808		2	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
Space saving run tee **LQ3T-SR** P.809		2	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
Tubing extension straight connector **LQ3H-T** P.810		2	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
		7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●

Series	Appearance	Class	Tubing O.D.														
			Metric size								Inch size						
			ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"
Straight adapter **LQ3A**	P.811	2	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
		7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●
Union flange **LQ3F**	P.813	2	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
Space saving union elbow **LQ3E-SN**	P.814	2	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
Space saving union tee **LQ3T-S**	P.814	2	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
Space saving panel mount union **LQ3P-S**	 P.814	2	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
Space saving union **LQ3U-S**	P.814	2	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
Blanking plug **LQ3-P-1**	P.815	1	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
		2	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
		7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●
Tubing plug **LQ3-P-2**	P.815	1	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
		2	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
		7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●
Nut **LQ3-N**	P.815	1	●	●	–	–	–	–	–	–	●	–	–	–	–	–	–
		2	–	–	●	–	–	–	–	–	–	●	–	–	–	–	–
		3	–	–	–	●	●	–	–	–	–	–	●	–	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●	–
		7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●

Series LVN/LQHB/TL TIL/TD TID/TH TIH

Needle Valve P.816

Series	Appearance	Size	Tubing O.D.									
			Metric Size					Inch Size				
			ø4	ø6	ø8	ø10	ø12	1/8"	3/16"	1/4"	3/8"	1/2"
Needle valve **LVN**		2	●	○	–	–	–	●	●	○	–	–
		3	–	●	●	○	–	–	–	●	○	–
		4	–	–	–	●	○	–	–	–	●	○

Note) ○Basic size ●With reducer

Bore Through Connector P.819

Series	Appearance	Size	Tubing O.D.													
			Metric Size								Inch Size					
			ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Bore through connector **LQHB**		1	●	●	–	–	–	–	–	–	●	–	–	–	–	–
		2	–	–	●	–	–	–	–	–	–	●	–	–	–	–
		3	–	–	–	●	●	–	–	–	–	–	●	–	–	–
		4	–	–	–	–	–	●	–	–	–	–	–	●	–	–
		5	–	–	–	–	–	–	●	–	–	–	–	–	●	–
		6	–	–	–	–	–	–	–	●	–	–	–	–	–	●

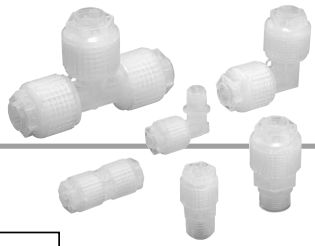
High Purity Fluoropolymer Tubing P.825

Series		Tubing O.D.		Page
TL	**Material: Super PFA**	Metric Size	ø4	P.826
			ø6	
			ø8	
			ø10	
			ø12	
			ø19	
TIL		Inch Size	1/8"	
			3/16"	
			1/4"	
			3/8"	
			1/2"	
TLM	**Material: PFA**	Metric Size	ø2, ø3, ø4, ø6, ø8, ø10, ø12, ø16, ø19, ø25	From page 827
TILM		Inch Size	1/8", 3/16", 1/4", 3/8", 1/2", 3/4" 1", 1 1/4"	
TD	**Material: Modified PTFE (Polytetrafluoroethylene resin)**	Metric Size	ø4	From page 830
			ø6	
			ø8	
			ø10	
			ø12	
TID		Inch Size	1/8"	
			3/16"	
			1/4"	
			3/8"	
			1/2"	
TH	**Material: FEP**	Metric Size	ø4	From page 832
			ø6	
			ø8	
			ø10	
			ø12	
TIH		Inch Size	1/8"	
			3/16"	
			1/4"	
			3/8"	
			1/2"	
			3/4"	

Fluoropolymer Fittings
Hyper Fittings

RoHS

Series LQ1



How to Order

Threaded connection

LQ1 H 11 ☐ – M ☐ – ☐

Fitting type

Symbol	Type
H	Connector
L	Elbow
R	Run tee
B	Branch tee

Thread type

Symbol	Type
Nil	R, Rc
N	NPT

Piping type

Symbol	Type
M	Male
F	Female

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Size combination

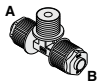
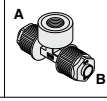
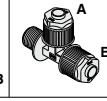
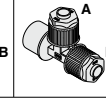
Symbol Class	Symbol No.	Applicable tubing size (mm)	Port size
1	1	4 x 3	1/8"
1	2	3 x 2	
2	1	6 x 4	1/8"
2	2	4 x 3	
2	C	3 x 2	
2	3	6 x 4	1/4"
2	4	4 x 3	
2	F	3 x 2	
3	1	10 x 8	1/4"
3	2	8 x 6	
3	3	6 x 4	
3	4	10 x 8	3/8"
3	5	8 x 6	
3	6	6 x 4	
3	7	4 x 3	
3	E	3 x 2	
3	9	10 x 8	1/8"
3	10	8 x 6	
4	1	12 x 10	3/8"
4	2	10 x 8	
4	3	12 x 10	1/2"
4	4	10 x 8	
4	5	8 x 6	
4	6	6 x 4	
4	F	3 x 2	
4	9	12 x 10	1/4"
5	1	19 x 16	1/2"
5	2	12 x 10	
5	3	19 x 16	3/4"
5	4	12 x 10	
5	5	10 x 8	
5	7	6 x 4	
5	8	19 x 16	1/4"
5	9	19 x 16	3/8"
6	1	25 x 22	3/4"
6	2	19 x 16	
6	3	25 x 22	1"
6	4	19 x 16	
6	5	12 x 10	
6	6	25 x 22	1/2"

Symbol Class	Symbol No.	Applicable tubing size (inch)	Port size
1	A	1/8" x 0.086"	1/8"
2	A	1/4" x 5/32"	1/8"
2	B	3/16" x 1/8"	
2	C	1/8" x 0.086"	
2	D	1/4" x 5/32"	1/4"
2	E	3/16" x 1/8"	
2	F	1/8" x 0.086"	
3	A	3/8" x 1/4"	1/4"
3	B	1/4" x 5/32"	
3	C	3/8" x 1/4"	3/8"
3	D	1/4" x 5/32"	
3	E	1/8" x 0.086"	
3	F	3/8" x 1/4"	1/8"
4	A	1/2" x 3/8"	3/8"
4	B	3/8" x 1/4"	
4	C	1/2" x 3/8"	1/2"
4	D	3/8" x 1/4"	
4	E	1/4" x 5/32"	
4	F	1/8" x 0.086"	
4	G	1/2" x 3/8"	1/4"
5	A	3/4" x 5/8"	1/2"
5	B	1/2" x 3/8"	
5	C	3/4" x 5/8"	3/4"
5	D	1/2" x 3/8"	
5	E	3/8" x 1/4"	
5	F	1/4" x 5/32"	
5	G	3/4" x 5/8"	1/4"
5	H	3/4" x 5/8"	3/8"
6	A	1" x 7/8"	3/4"
6	B	3/4" x 5/8"	
6	C	1" x 7/8"	1"
6	D	3/4" x 5/8"	
6	E	1/2" x 3/8"	
6	F	1" x 7/8"	1/2"

Note 1) For each body class, the second and later numbers or symbols indicate reducing.
However, in case of size 1, the tubing cannot be changed by reducing.
Note 2) Combinations will differ depending on the type of each fitting.
For the availability of combinations, refer to pages 755 to 762.
These are produced upon receipt of order by part number.
Note 3) For details of the applicable tubing sizes, refer to page 823.

For different diameter (on B side)

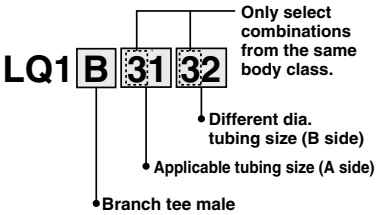
Symbol	Application
Nil	Same tubing size
Refer to the applicable tubing table.	Different diameter tubing can be selected within the same body class.

LQ1B		LQ1R	
Branch tee male	Branch tee female	Run tee male	Run tee female
			

The table of combination is the same as that for A side.
Note 1) Only branch tees and run tees can take different diameters.
Note 2) Use of different diameters is not available with size 1.

Different diameter tubing order example

Different diameter tubing (with plug-in reducer) can be selected within the same body class.
(Example) Union elbow
Body class 3
A side: ø10 x ø8
B side: ø8 x ø6
Order as shown below.



Tubing in inches can be combined with that in mm in the same body size. Example) LQ1B313A

How to Order

Tubing connection **LQ1 E 11 □ – □**

Fitting type

Symbol	Type
E	Union elbow
T	Union tee
P	Panel mount union
U	Union
F	Union flange

Combination of different diameter (on B side)

Symbol Class	Symbol No.	Applicable tubing size (mm)
1	1	4 x 3
1	2	3 x 2
2	1	6 x 4
2	2	4 x 3
2	C	3 x 2
3	1	10 x 8
3	2	8 x 6
3	3	6 x 4
4	1	12 x 10
4	2	10 x 8
5	1	19 x 16
5	2	12 x 10
6	1	25 x 22
6	2	19 x 16

Symbol Class	Symbol No.	Applicable tubing size (inch)
1	A	1/8" x 0.086"
—	—	—
2	A	1/4" x 5/32"
2	B	3/16" x 1/8"
2	C	1/8" x 0.086"
3	A	3/8" x 1/4"
3	B	1/4" x 5/32"
4	A	1/2" x 3/8"
4	B	3/8" x 1/4"
5	A	3/4" x 5/8"
5	B	1/2" x 3/8"
6	A	1" x 7/8"
6	B	3/4" x 5/8"

Note 1) For each body class, the second and later numbers or symbols indicate reducing. However, use of different diameters is not available with size 1.
Note 2) For details of the applicable tubing sizes, refer to page 823.

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Size combination

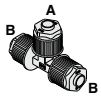
Symbol Class	Symbol No.	Applicable tubing size (mm)
1	1	4 x 3
1	2	3 x 2
2	1	6 x 4
2	2	4 x 3
2	C	3 x 2
3	1	10 x 8
3	2	8 x 6
3	3	6 x 4
4	1	12 x 10
4	2	10 x 8
5	1	19 x 16
5	2	12 x 10
6	1	25 x 22
6	2	19 x 16

Symbol Class	Symbol No.	Applicable tubing size (inch)	Applicable flange
1	A	1/8" x 0.086"	—
—	—	—	
2	A	1/4" x 5/32"	—
2	B	3/16" x 1/8"	
2	C	1/8" x 0.086"	—
3	A	3/8" x 1/4"	
3	B	1/4" x 5/32"	
4	A	1/2" x 3/8"	15A
4	B	3/8" x 1/4"	
5	A	3/4" x 5/8"	20A
5	B	1/2" x 3/8"	
6	A	1" x 7/8"	25A
6	B	3/4" x 5/8"	

Symbol	Application
Nil	Same tubing size
Refer to the applicable tubing table.	Different diameter tubing can be selected within the same body class.

Union elbow **LQ1E**

Union tee **LQ1T**



Panel mount union **LQ1P**

Union **LQ1U**

Note 1) For each body class, the second and later numbers or symbols indicate reducing. However, in case of size 1, the tubing cannot be changed by reducing.
Note 2) Sizes 1 to 3 are not available for the union flange.
Note 3) For Union flange, nut sizes 4 and 5 are as shown below.
LQ1F4□: LQ-4N□□
LQ1F5□: LQ-5N□□
Note 4) Combinations will differ depending on the type of each fitting. For the availability of combinations, refer to pages 763 to 766.
Note 5) For details of the applicable tubing sizes, refer to page 823.

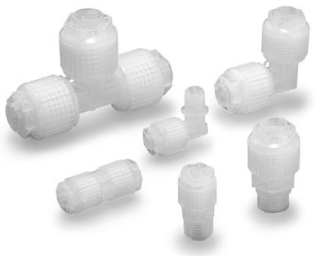
Different diameter tubing order example

Different diameter tubing (with plug-in reducer) can be selected within the same body class.
(Example) Union elbow
Body class 3
A side: ø10 x ø8
B side: ø8 x ø6
Order as shown below.

LQ1 E 31 32

- **Only select combinations from the same body class.**
- **Different dia. tubing size (B side)**
- **Applicable tubing size (A side)**
- **Union elbow**

Tubing in inches can be combined with that in mm in the same body size. Example) LQ1E313A

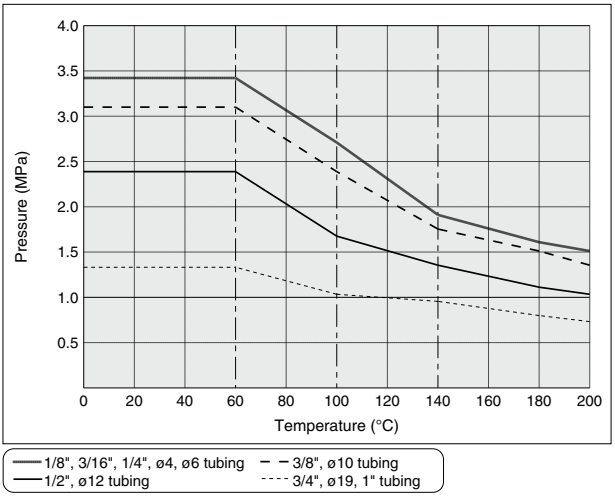


Specifications

Feature \ Model	LQ1□10	LQ1□20	LQ1□30	LQ1□40	LQ1□50	LQ1□60
Material	NEW PFA Note)					
Maximum operating pressure (at 20°C)	1.0 MPa					
Proof pressure	Refer to the withstand pressure and heat resistance performance curves.					
Operating temperature	0 to 200°C					

Note) For products produced upon receipt of order, the fitting body is made of PTFE.

Burst Pressure and Heat Resistance Performance

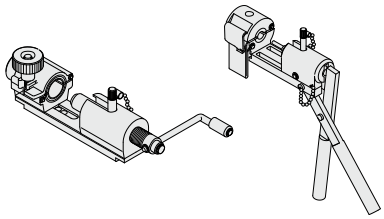


Piping

⚠ Caution

1. Connect tubing with special tools

Refer to the pamphlet "High-Purity Fluoropolymer Fittings Hyper fitting/Series LQ1, 2 Work Procedure Instructions" (M-E05-1) for connecting tubing and special tools. (Downloadable from our web site.)



2. Tighten the nut to the end surface of the body. As a guide, refer to the proper tightening torque shown below.

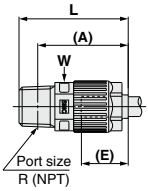
Tightening torque for piping

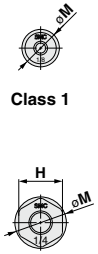
Body class	Torque (N·m)
2	0.3 to 0.4
3	0.8 to 1.0
4	1.0 to 1.2
5	2.5 to 3.0
6	5.5 to 6.0

Note) In the case of body class 1, the nut should be tightened manually.

Dimensions

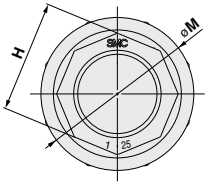
Male Connector: LQ1H-M





Class 1

Class 2 to 5



Class 6

(A) shows the reference dimension after connection.
(E) shows the approximate dimension of the inserted tubing from the end of the nut.
"W" is width across flats dimension.

Metric sizes

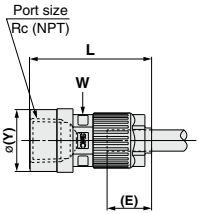
Model	Applicable tubing O.D.	Connection threads R/NPT	A	E	H	L	M	W
LQ1H11-M□	ø4	1/8"	21	10	—	25	11.5	10
LQ1H12-M□	ø3							
LQ1H21-M□	ø6	1/8"	31.5	15	14	35	16.5	14
LQ1H22-M□	ø4							
LQ1H2C-M□	ø3							
LQ1H23-M□	ø6	1/4"	29					
LQ1H24-M□	ø4							
LQ1H2F-M□	ø3							
LQ1H31-M□	ø10	1/4"	36.5	20	17	42.5	23	19
LQ1H32-M□	ø8							
LQ1H33-M□	ø6							
LQ1H34-M□	ø10	3/8"	36					
LQ1H35-M□	ø8							
LQ1H36-M□	ø6							
LQ1H37-M□	ø4		31.5	15	14	37.6	16.5	
LQ1H3E-M□	ø3							
LQ1H39-M□	ø10	1/8"	34.5	20	17	38	23	
LQ1H310-M□	ø8							
LQ1H41-M□	ø12	3/8"	46	24	21	52	28	23
LQ1H42-M□	ø10							
LQ1H43-M□	ø12	1/2"	44					
LQ1H44-M□	ø10							
LQ1H45-M□	ø8		39.5	20	17	47.5	23	
LQ1H46-M□	ø6							
LQ1H4F-M□	ø3		34	15	14	42	16.5	
LQ1H49-M□	ø12	1/4"	42	24	21	48	28	
LQ1H51-M□	ø19	1/2"	55	29	26	62.5	39	32
LQ1H52-M□	ø12							
LQ1H53-M□	ø19	3/4"	53.5					
LQ1H54-M□	ø12							
LQ1H55-M□	ø10		43.5	20	17	52.5	23	
LQ1H57-M□	ø6							
LQ1H58-M□	ø19	1/4"	52	29	26	58	39	
LQ1H59-M□	ø19	3/8"						
LQ1H61-M□	ø25	3/4"	72	39.5	36	81	49	46
LQ1H62-M□	ø19							
LQ1H63-M□	ø25	1"	71					
LQ1H64-M□	ø19							
LQ1H65-M□	ø12		61	29	26	71	39	
LQ1H66-M□	ø25	1/2"	69.5	39.5	36	77.5	49	

Inch sizes

Model	Applicable tubing O.D.	Connection threads R/NPT	A	E	H	L	M	W
LQ1H1A-M□	1/8"	1/8"	21	10	—	25	11.5	10
LQ1H2A-M□	1/4"	1/8"	31.5	15	14	35	16.5	14
LQ1H2B-M□	3/16"							
LQ1H2C-M□	1/8"							
LQ1H2D-M□	1/4"	1/4"	29					
LQ1H2E-M□	3/16"							
LQ1H2F-M□	1/8"							
LQ1H3A-M□	3/8"	1/4"	36.5	20	17	42.5	23	19
LQ1H3B-M□	1/4"							
LQ1H3C-M□	3/8"	3/8"	36					
LQ1H3D-M□	1/4"							
LQ1H3E-M□	1/8"		31.5	15	14	37.6	16.5	
LQ1H3F-M□	3/8"	1/8"	34.5	20	17	38	23	
LQ1H4A-M□	1/2"	3/8"	46	24	21	52	28	23
LQ1H4B-M□	3/8"							
LQ1H4C-M□	1/2"	1/2"	44					
LQ1H4D-M□	3/8"							
LQ1H4E-M□	1/4"		39.5	20	17	47.5	23	
LQ1H4F-M□	1/8"		34	15	14	42	16.5	
LQ1H4G-M□	1/2"	1/4"	42	24	21	48	28	
LQ1H5A-M□	3/4"	1/2"	55	29	26	62.5	39	32
LQ1H5B-M□	1/2"							
LQ1H5C-M□	3/4"	3/4"	53.5					
LQ1H5D-M□	1/2"							
LQ1H5E-M□	3/8"		43.5	20	17	52.5	23	
LQ1H5F-M□	1/4"							
LQ1H5G-M□	3/4"	1/4"	52	29	26	58	39	
LQ1H5H-M□		3/8"						
LQ1H6A-M□	1"	3/4"	72	39.5	36	81	49	46
LQ1H6B-M□	3/4"							
LQ1H6C-M□	1"	1"	71					
LQ1H6D-M□	3/4"							
LQ1H6E-M□	1/2"		61	29	26	71	39	
LQ1H6F-M□	1"	1/2"	69.5	39.5	36	77.5	49	

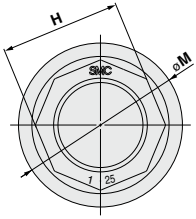
Dimensions

Female Connector: LQ1H-F



Class 1

Class 2 to 5



Class 6

(E) shows the reference of the inserted tubing from the end of the nut.
"W" is width across flats dimension.

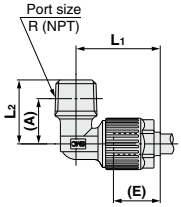
Metric sizes

Model	Applicable tubing O.D.	Connection threads Rc/NPT	E	H	L	M	W	Y
LQ1H11-F□	ø4	1/8"	10	—	26.5	11.5	10	18.5
LQ1H12-F□	ø3							
LQ1H21-F□	ø6	1/8"	15	14	35	16.5	14	18.5
LQ1H22-F□	ø4							
LQ1H2C-F□	ø3							
LQ1H23-F□	ø6	1/4"			36.5			21.5
LQ1H24-F□	ø4							
LQ1H2F-F□	ø3							
LQ1H31-F□	ø10	1/4"	20	17	42.5	23	19	21.5
LQ1H32-F□	ø8							
LQ1H33-F□	ø6							
LQ1H34-F□	ø10	3/8"						25
LQ1H35-F□	ø8							
LQ1H36-F□	ø6							
LQ1H39-F□	ø10	1/8"						18.5
LQ1H310-F□	ø8							
LQ1H41-F□	ø12	3/8"	24	21	47.5	28	23	25
LQ1H42-F□	ø10							
LQ1H43-F□	ø12	1/2"			50			29.5
LQ1H44-F□	ø10							
LQ1H45-F□	ø8		20	17	45.5	23		
LQ1H46-F□	ø6							
LQ1H49-F□	ø12	1/4"	29	26	56.5	39	32	21.5
LQ1H410-F□	ø12	1/8"	24	21	46.5	28	23	18.5
LQ1H51-F□	ø19	1/2"	29	26	58.5	39	32	29.5
LQ1H52-F□	ø12							
LQ1H53-F□	ø19	3/4"			60			36
LQ1H54-F□	ø12							
LQ1H58-F□	ø19	1/4"			56.5			21.5
LQ1H59-F□	ø19	3/8"			56			25
LQ1H61-F□	ø25	3/4"	39.5	36	75	49	46	36
LQ1H62-F□	ø19							
LQ1H63-F□	ø25	1"			78.5			44.5
LQ1H64-F□	ø19							

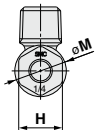
Inch sizes

Model	Applicable tubing O.D.	Connection threads Rc/NPT	E	H	L	M	W	Y
LQ1H1A-F□	1/8"	1/8"	10	—	26.5	11.5	10	18.5
LQ1H2A-F□	1/4"	1/8"	15	14	35	16.5	14	18.5
LQ1H2B-F□	3/16"							
LQ1H2C-F□	1/8"							
LQ1H2D-F□	1/4"	1/4"			36.5			21.5
LQ1H2E-F□	3/16"							
LQ1H2F-F□	1/8"							
LQ1H3A-F□	3/8"	1/4"	20	17	42.5	23	19	21.5
LQ1H3B-F□	1/4"							
LQ1H3C-F□	3/8"	3/8"						25
LQ1H3D-F□	1/4"							
LQ1H3F-F□	3/8"	1/8"						18.5
LQ1H4A-F□	1/2"	3/8"	24	21	47.5	28	23	25
LQ1H4B-F□	3/8"							
LQ1H4C-F□	1/2"	1/2"			50			29.5
LQ1H4D-F□	3/8"							
LQ1H4E-F□	1/4"	1/2"	20	17	45.5	23		
LQ1H4G-F□	1/2"	1/4"	29	26	56.5	39	32	21.5
LQ1H4H-F□	1/2"	1/8"	24	21	46.5	28	23	18.5
LQ1H5A-F□	3/4"	1/2"	29	26	58.5	39	32	29.5
LQ1H5B-F□	1/2"							
LQ1H5C-F□	3/4"	3/4"			60			36
LQ1H5D-F□	1/2"							
LQ1H5G-F□	3/4"	1/4"			56.5			21.5
LQ1H5H-F□	3/4"	3/8"			56			25
LQ1H6A-F□	1"	3/4"	39.5	36	75	49	46	36
LQ1H6B-F□	3/4"							
LQ1H6C-F□	1"	1"			78.5			44.5
LQ1H6D-F□	3/4"							

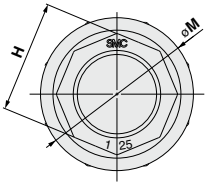
Male Elbow: LQ1L-M



Class 1



Class 2 to 5



Class 6

(A) shows the reference dimension after connection.
(E) shows the approximate dimension of the inserted tubing from the end of the nut.

Metric sizes

Model	Applicable tubing O.D.	Connection threads R/NPT	A	E	H	L1	L2	M
LQ1L11-M□	ø4	1/8"	11.5	10	—	18	15	11.5
LQ1L12-M□	ø3							
LQ1L21-M□	ø6	1/8"	14.5	15	14	27	20.5	16.5
LQ1L22-M□	ø4							
LQ1L2C-M□	ø3							
LQ1L23-M□	ø6	1/4"						
LQ1L24-M□	ø4							
LQ1L2F-M□	ø3							
LQ1L31-M□	ø10	1/4"	20	20	17	35	26.5	23
LQ1L32-M□	ø8							
LQ1L33-M□	ø6							
LQ1L34-M□	ø10	3/8"						
LQ1L35-M□	ø8							
LQ1L36-M□	ø6							
LQ1L37-M□	ø4		21.1	15	14	31.6	27.1	16.5
LQ1L3E-M□	ø3							
LQ1L39-M□	ø10	1/8"	20.6	20	17	36.6	24.1	23
LQ1L310-M□	ø8							
LQ1L41-M□	ø12	3/8"	25	24	21	45	33	28
LQ1L42-M□	ø10							
LQ1L43-M□	ø12	1/2"						
LQ1L44-M□	ø10							
LQ1L45-M□	ø8		24.1	20	17	38.5	32.1	23
LQ1L46-M□	ø6							
* LQ1L47-M□	ø4		17.5	15	14	30	25.5	16.5
* LQ1L4F-M□	ø3							
LQ1L49-M□	ø12	1/4"	22.6	24	21	43	28.6	28
LQ1L51-M□	ø19	1/2"	30.5	29	26	54	40	39
LQ1L52-M□	ø12							
LQ1L53-M□	ø19	3/4"						
LQ1L54-M□	ø12							
LQ1L55-M□	ø10			20	17	44	39.5	23
LQ1L56-M□	ø8							
LQ1L57-M□	ø6							
* LQ1L59-M□	ø19	3/8"	34	39.5	36	53	40	49
LQ1L61-M□	ø25	3/4"	35	39.5	36	68.5	46	49
LQ1L62-M□	ø19							
LQ1L63-M□	ø25	1"						
LQ1L64-M□	ø19							
LQ1L65-M□	ø12		37	29	26	60	47	39
* LQ1L67-M□	ø25	3/8"	34	39.5	36	53	40	49

Note) Products marked "*" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

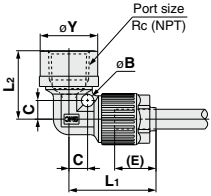
Inch sizes

Model	Applicable tubing O.D.	Connection threads R/NPT	A	E	H	L1	L2	M
LQ1L1A-M□	1/8"	1/8"	11.5	10	—	18	15	11.5
LQ1L2A-M□	1/4"	1/8"	14.5	15	14	27	20.5	16.5
LQ1L2B-M□	3/16"							
LQ1L2C-M□	1/8"							
LQ1L2D-M□	1/4"	1/4"						
LQ1L2E-M□	3/16"							
LQ1L2F-M□	1/8"							
LQ1L3A-M□	3/8"	1/4"	20	20	17	35	26.5	23
LQ1L3B-M□	1/4"							
LQ1L3C-M□	3/8"	3/8"						
LQ1L3D-M□	1/4"							
LQ1L3E-M□	1/8"		21.1	15	14	31.6	27.1	16.5
LQ1L3F-M□	3/8"	1/8"	20.6	20	17	36.6	24.1	23
LQ1L4A-M□	1/2"	3/8"	25	24	21	45	33	28
LQ1L4B-M□	3/8"							
LQ1L4C-M□	1/2"	1/2"						
LQ1L4D-M□	3/8"							
LQ1L4E-M□	1/4"		24.1	20	17	38.5	32.1	23
* LQ1L4F-M□	1/8"		17.5	15	14	30	25.5	16.5
LQ1L4G-M□	1/2"	1/4"	22.6	24	21	43	28.6	28
LQ1L5A-M□	3/4"	1/2"	30.5	29	26	54	40	39
LQ1L5B-M□	1/2"							
LQ1L5C-M□	3/4"	3/4"						
LQ1L5D-M□	1/2"							
LQ1L5E-M□	3/8"			20	17	44	39.5	23
LQ1L5F-M□	1/4"							
* LQ1L5H-M□	3/4"	3/8"	34	39.5	36	53	40	49
LQ1L6A-M□	1"	3/4"	35	39.5	36	68.5	46	49
LQ1L6B-M□	3/4"							
LQ1L6C-M□	1"	1"						
LQ1L6D-M□	3/4"							
LQ1L6E-M□	1/2"		37	29	26	60	47	39
* LQ1L6G-M□	1"	3/8"	34	39.5	36	53	40	49

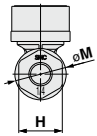
Note) Products marked "*" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

Dimensions

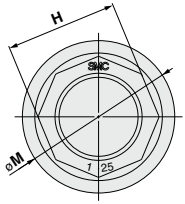
Female Elbow: LQ1L-F



Class 1



Class 2 to 5



Class 6

(E) shows the reference dimension of the inserted tubing from the end of the nut.

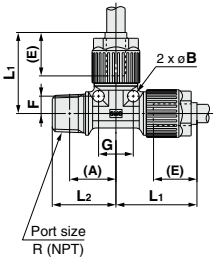
Metric sizes

Model	Applicable tubing O.D.	Connection threads Rc/NPT	B	C	E	H	L1	L2	M	Y
LQ1L11-F□	ø4	1/8"	2	4	10	—	18.5	16	11.5	18.5
LQ1L12-F□	ø3									
LQ1L21-F□	ø6	1/8"	4	6	15	14	28	19.5	16.5	18.5
LQ1L22-F□	ø4									
LQ1L2C-F□	ø3									
LQ1L23-F□	ø6	1/4"						22		21.5
LQ1L24-F□	ø4									
LQ1L2F-F□	ø3									
LQ1L31-F□	ø10	1/4"	5	9	20	17	36.5	22	23	21.5
LQ1L32-F□	ø8									
LQ1L33-F□	ø6									
LQ1L34-F□	ø10	3/8"						24.5		25
LQ1L35-F□	ø8									
LQ1L36-F□	ø6									
LQ1L3E-F□	ø3				15	14	31.6	24.5	16.5	
LQ1L39-F□	ø10	1/8"			20	17	36.6	21.8	23	18.5
LQ1L310-F□	ø8									
LQ1L41-F□	ø12	3/8"	6	9	24	21	43	25.5	28	25
LQ1L42-F□	ø10									
LQ1L43-F□	ø12	1/2"						30.5		29.5
LQ1L44-F□	ø10									
LQ1L49-F□	ø12	1/4"						23.8		21.5
LQ1L410-F□	ø12	1/8"								18.5
LQ1L51-F□	ø19	1/2"	7	14	29	26	54	35.5	39	29.5
LQ1L52-F□	ø12									
LQ1L53-F□	ø19	3/4"						37		36
LQ1L54-F□	ø12									
LQ1L59-F□	ø19	3/8"						30.5		25
LQ1L61-F□	ø25	3/4"	8	18	39.5	36	69.5	42.5	49	36
LQ1L62-F□	ø19									
LQ1L63-F□	ø25	1"						46		44.5
LQ1L64-F□	ø19									

Inch sizes

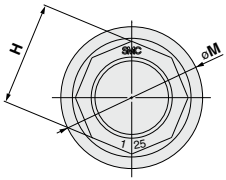
Model	Applicable tubing O.D.	Connection threads Rc/NPT	B	C	E	H	L1	L2	M	Y
LQ1L1A-F□	1/8"	1/8"	2	4	10	—	18.5	16	11.5	18.5
LQ1L2A-F□	1/4"	1/8"	4	6	15	14	28	19.5	16.5	18.5
LQ1L2B-F□	3/16"									
LQ1L2C-F□	1/8"									
LQ1L2D-F□	1/4"	1/4"						22		21.5
LQ1L2E-F□	3/16"									
LQ1L2F-F□	1/8"									
LQ1L3A-F□	3/8"	1/4"	5	9	20	17	36.5	22	23	21.5
LQ1L3B-F□	1/4"									
LQ1L3C-F□	3/8"	3/8"						24.5		25
LQ1L3D-F□	1/4"									
LQ1L3E-F□	1/8"				15	14	31.6		16.5	
LQ1L3F-F□	3/8"	1/8"					36.6	21.8	23	18.5
LQ1L4A-F□	1/2"	3/8"	6	9	24	21	43	25.5	28	25
LQ1L4B-F□	3/8"									
LQ1L4C-F□	1/2"	1/2"						30.5		29.5
LQ1L4D-F□	3/8"									
LQ1L4G-F□	1/2"	1/4"						23.8		21.5
LQ1L4H-F□	1/2"	1/8"								18.5
LQ1L5A-F□	3/4"	1/2"	7	14	29	26	54	35.5	39	29.5
LQ1L5B-F□	1/2"									
LQ1L5C-F□	3/4"	3/4"						37		36
LQ1L5D-F□	1/2"									
LQ1L5H-F□	3/4"	3/8"						30.5		25
LQ1L6A-F□	1"	3/4"	8	18	39.5	36	69.5	42.5	49	36
LQ1L6B-F□	3/4"									
LQ1L6C-F□	1"	1"						46		44.5
LQ1L6D-F□	3/4"									

Male Run Tee: LQ1R-M



Class 1

Class 2 to 5



Class 6

(A) shows the reference dimension after connection.
(E) shows the approximate dimension of the inserted tubing from the end of the nut.

Metric sizes

Model	Applicable tubing O.D.	Connection threads R/NPT	A	B	E	F	G	H	L_1	L_2	M
LQ1R11-M□	ø4	1/8"	12	2	10	4	8	—	18.5	15.5	11.5
LQ1R12-M□	ø3										
LQ1R21-M□	ø6	1/8"	16	4	15	6	12	14	28	19.5	16.5
LQ1R22-M□	ø4										
LQ1R2C-M□	ø3										
LQ1R23-M□	ø6	1/4"								22	
LQ1R24-M□	ø4										
LQ1R2F-M□	ø3										
LQ1R31-M□	ø10	1/4"	19	5	20	9	18	17	36.5	25	23
LQ1R32-M□	ø8										
LQ1R33-M□	ø6										
LQ1R34-M□	ø10	3/8"	21							27	
LQ1R35-M□	ø8										
LQ1R36-M□	ø6										
＊ LQ1R39-M□	ø10	1/8"	17	—		—	—		34.5	20.5	
＊ LQ1R310-M□	ø8										
LQ1R41-M□	ø12	3/8"	23	6	24	9	18	21	43	29	28
LQ1R42-M□	ø10										
LQ1R43-M□	ø12	1/2"	24.5							32	
LQ1R44-M□	ø10										
LQ1R49-M□	ø12	1/4"	27.5	7	29	14	28	26	54	33.5	39
LQ1R51-M□	ø19	1/2"	30.5	7	29	14	28	26	54	38	39
LQ1R52-M□	ø12										
LQ1R53-M□	ø19	3/4"	30							39	
LQ1R54-M□	ø12										
LQ1R58-M□	ø19	1/4"	27.5							33.5	
LQ1R59-M□	ø19	3/8"	29							35	
LQ1R61-M□	ø25	3/4"	36	8	39.5	18	36	36	69.5	45	49
LQ1R62-M□	ø19										
LQ1R63-M□	ø25	1"	35								
LQ1R64-M□	ø19										

Note) Products marked "＊" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

Inch sizes

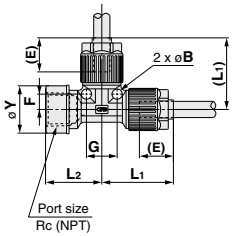
Model	Applicable tubing O.D.	Connection threads R/NPT	A	B	E	F	G	H	L_1	L_2	M
LQ1R1A-M□	1/8"	1/8"	12	2	10	4	8	—	18.5	15.5	11.5
LQ1R2A-M□	1/4"	1/8"	16	4	15	6	12	14	28	19.5	16.5
LQ1R2B-M□	3/16"										
LQ1R2C-M□	1/8"										
LQ1R2D-M□	1/4"	1/4"								22	
LQ1R2E-M□	3/16"										
LQ1R2F-M□	1/8"										
LQ1R3A-M□	3/8"	1/4"	19	5	20	9	18	17	36.5	25	23
LQ1R3B-M□	1/4"										
LQ1R3C-M□	3/8"	3/8"	21							27	
LQ1R3D-M□	1/4"										
＊ LQ1R3F-M□	3/8"	1/8"	17	—		—	—		34.5	20.5	
LQ1R4A-M□	1/2"	3/8"	23	6	24	9	18	21	43	29	28
LQ1R4B-M□	3/8"										
LQ1R4C-M□	1/2"	1/2"	24.5							32	
LQ1R4D-M□	3/8"										
LQ1R4G-M□	1/2"	1/4"	27.5	7	29	14	28	26	54	33.5	39
LQ1R5A-M□	3/4"	1/2"	30.5	7	29	14	28	26	54	38	39
LQ1R5B-M□	1/2"										
LQ1R5C-M□	3/4"	3/4"	30							39	
LQ1R5D-M□	1/2"										
LQ1R5G-M□	3/4"	1/4"	27.5							33.5	
LQ1R5H-M□	3/4"	3/8"	29							35	
LQ1R6A-M□	1"	3/4"	36	8	39.5	18	36	36	69.5	45	49
LQ1R6B-M□	3/4"										
LQ1R6C-M□	1"	1"	35								
LQ1R6D-M□	3/4"										

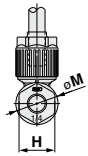
Note) Products marked "＊" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

Dimensions

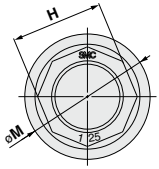
Female Run Tee: LQ1R-F

Class 1





Class 2 to 5



Class 6

(E) shows the approximate dimension of the inserted tubing from the end of the nut.

Metric sizes

Model	Applicable tubing O.D.	Connection threads Rc/NPT	B	E	F	G	H	L_1	L_2	M	Y
LQ1R11-F□	ø4	1/8"	2	10	4	8	—	18.5	16	11.5	18.5
LQ1R12-F□	ø3										
LQ1R21-F□	ø6	1/8"	4	15	6	12	14	28	19.5	16.5	18.5
LQ1R22-F□	ø4										
LQ1R2C-F□	ø3										
LQ1R23-F□	ø6	1/4"							22		21.5
LQ1R24-F□	ø4										
LQ1R2F-F□	ø3										
LQ1R31-F□	ø10	1/4"	5	20	9	18	17	36.5	24	23	21.5
LQ1R32-F□	ø8										
LQ1R33-F□	ø6										
LQ1R34-F□	ø10	3/8"							25.5		25
LQ1R35-F□	ø8										
LQ1R36-F□	ø6										
* LQ1R39-F□	ø10	1/8"	—		—	—		34.5	19.7		18.5
* LQ1R310-F□	ø8										
LQ1R41-F□	ø12	3/8"	6	24	9	18	21	43	25	28	25
LQ1R42-F□	ø10										
LQ1R43-F□	ø12	1/2"							31.5		29.5
LQ1R44-F□	ø10										
* LQ1R49-F□	ø12	1/4"	—		—	—		41.5	21.2		21.5
LQ1R51-F□	ø19	1/2"	7	29	14	28	26	54	35.5	39	29.5
LQ1R52-F□	ø12										
LQ1R53-F□	ø19	3/4"							37		36
LQ1R54-F□	ø12										
LQ1R59-F□	ø19	3/8"							30.5		25
LQ1R61-F□	ø25	3/4"	8	39.5	18	36	36	69.5	42.5	49	36
LQ1R62-F□	ø19										
LQ1R63-F□	ø25	1"							46		44.5
LQ1R64-F□	ø19										
LQ1R66-F□	ø25	1/2"							41		29.5

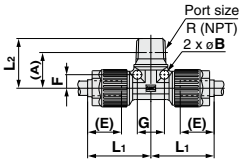
Note) Products marked "*" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

Inch sizes

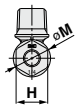
Model	Applicable tubing O.D.	Connection threads Rc/NPT	B	E	F	G	H	L_1	L_2	M	Y
LQ1R1A-F□	1/8"	1/8"	2	10	4	8	—	18.5	16	11.5	18.5
LQ1R2A-F□	1/4"	1/8"	4	15	6	12	14	28	19.5	16.5	18.5
LQ1R2B-F□	3/16"										
LQ1R2C-F□	1/8"										
LQ1R2D-F□	1/4"	1/4"							22		21.5
LQ1R2E-F□	3/16"										
LQ1R2F-F□	1/8"										
LQ1R3A-F□	3/8"	1/4"	5	20	9	18	17	36.5	24	23	21.5
LQ1R3B-F□	1/4"										
LQ1R3C-F□	3/8"	3/8"							25.5		25
LQ1R3D-F□	1/4"										
* LQ1R3F-F□	3/8"	1/8"	—		—	—		34.5	19.7		18.5
LQ1R4A-F□	1/2"	3/8"	6	24	9	18	21	43	25	28	25
LQ1R4B-F□	3/8"										
LQ1R4C-F□	1/2"	1/2"							31.5		29.5
LQ1R4D-F□	3/8"										
* LQ1R4G-F□	1/2"	1/4"	—		—	—		41.5	21.2		21.5
LQ1R5A-F□	3/4"	1/2"	7	29	14	28	26	54	35.5	39	29.5
LQ1R5B-F□	1/2"										
LQ1R5C-F□	3/4"	3/4"							37		36
LQ1R5D-F□	1/2"										
LQ1R5H-F□	3/4"	3/8"							30.5		25
LQ1R6A-F□	1"	3/4"	8	39.5	18	36	36	69.5	42.5	49	36
LQ1R6B-F□	3/4"										
LQ1R6C-F□	1"	1"							46		44.5
LQ1R6D-F□	3/4"										

Note) Products marked "*" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

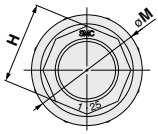
Male Branch Tee: LQ1B-M



Class 1



Class 2 to 5



Class 6

(A) shows the reference dimension after connection.
(E) shows the approximate dimension of the inserted tubing from the end of the nut.

Metric sizes

Model	Applicable tubing O.D.	Connection threads R/NPT	A	B	E	F	G	H	L_1	L_2	M
LQ1B11-M□	ø4	1/8"	12	2	10	4	8	—	18.5	15.5	11.5
LQ1B12-M□	ø3										
LQ1B21-M□	ø6	1/8"	16	4	15	6	12	14	28	19.5	16.5
LQ1B22-M□	ø4										
LQ1B2C-M□	ø3										
LQ1B23-M□	ø6	1/4"								22	
LQ1B24-M□	ø4										
LQ1B2F-M□	ø3										
LQ1B31-M□	ø10	1/4"	19	5	20	9	18	17	36.5	25	23
LQ1B32-M□	ø8										
LQ1B33-M□	ø6										
LQ1B34-M□	ø10	3/8"	21							27	
LQ1B35-M□	ø8										
LQ1B36-M□	ø6										
＊LQ1B39-M□	ø10	1/8"	18.4	—		—	—		29	21.9	
＊LQ1B310-M□	ø8										
LQ1B41-M□	ø12	3/8"	23	6	24	9	18	21	43	29	28
LQ1B42-M□	ø10										
LQ1B43-M□	ø12	1/2"	24.5							32	
LQ1B44-M□	ø10										
＊LQ1B45-M□	ø8		21.5	—	20	—	—	17	34	29.5	23
LQ1B49-M□	ø12	1/4"	27.5	7	29	14	28	26	54	33.5	39
LQ1B51-M□	ø19	1/2"	30.5	7	29	14	28	26	54	38	39
LQ1B52-M□	ø12										
LQ1B53-M□	ø19	3/4"	30							39	
LQ1B54-M□	ø12										
LQ1B58-M□	ø19	1/4"	27.5							33.5	
LQ1B59-M□	ø19	3/8"	29							35	
LQ1B61-M□	ø25	3/4"	36	8	39.5	18	36	36	69.5	45	49
LQ1B62-M□	ø19										
LQ1B63-M□	ø25	1"	35								
LQ1B64-M□	ø19										
LQ1B66-M□	ø25	1/2"	37								

Note) Products marked "＊" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

Inch sizes

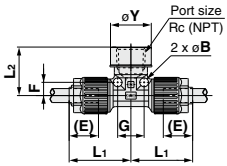
Model	Applicable tubing O.D.	Connection threads R/NPT	A	B	E	F	G	H	L_1	L_2	M
LQ1B1A-M□	1/8"	1/8"	12	2	10	4	8	—	18.5	15.5	11.5
LQ1B2A-M□	1/4"	1/8"	16	4	15	6	12	14	28	19.5	16.5
LQ1B2B-M□	3/16"										
LQ1B2C-M□	1/8"										
LQ1B2D-M□	1/4"	1/4"								22	
LQ1B2E-M□	3/16"										
LQ1B2F-M□	1/8"										
LQ1B3A-M□	3/8"	1/4"	19	5	20	9	18	17	36.5	25	23
LQ1B3B-M□	1/4"										
LQ1B3C-M□	3/8"	3/8"	21							27	
LQ1B3D-M□	1/4"										
＊LQ1B3F-M□	3/8"	1/8"	18.4	—		—	—		29	21.9	
LQ1B4A-M□	1/2"	3/8"	23	6	24	9	18	21	43	29	28
LQ1B4B-M□	3/8"										
LQ1B4C-M□	1/2"	1/2"	24.5							32	
LQ1B4D-M□	3/8"										
LQ1B4G-M□	1/2"	1/4"	27.5	7	29	14	28	26	54	33.5	39
LQ1B5A-M□	3/4"	1/2"	30.5	7	29	14	28	26	54	38	39
LQ1B5B-M□	1/2"										
LQ1B5C-M□	3/4"	3/4"	30							39	
LQ1B5D-M□	1/2"										
LQ1B5G-M□	3/4"	1/4"	27.5							33.5	
LQ1B5H-M□	3/4"	3/8"	29							35	
LQ1B6A-M□	1"	3/4"	36	8	39.5	18	36	36	69.5	45	49
LQ1B6B-M□	3/4"										
LQ1B6C-M□	1"	1"	35								
LQ1B6D-M□	3/4"										
LQ1B6F-M□	1"	1/2"	37								

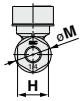
Note) Products marked "＊" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

Dimensions

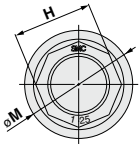
Female Branch Tee: LQ1B-F

Class 1





Class 2 to 5



Class 6

(E) shows the approximate dimension of the inserted tubing from the end of the nut.

Metric sizes

Model	Applicable tubing O.D.	Connection threads Rc/NPT	B	E	F	G	H	L1	L2	M	Y
LQ1B11-F□	ø4	1/8"	2	10	4	8	—	18.5	16	11.5	18.5
LQ1B12-F□	ø3										
LQ1B21-F□	ø6	1/8"	4	15	6	12	14	28	19.5	16.5	18.5
LQ1B22-F□	ø4										
LQ1B2C-F□	ø3										
LQ1B23-F□	ø6	1/4"							22		21.5
LQ1B24-F□	ø4										
LQ1B2F-F□	ø3										
LQ1B31-F□	ø10	1/4"	5	20	9	18	17	36.5	23.7	23	21.5
LQ1B32-F□	ø8										
LQ1B33-F□	ø6										
LQ1B34-F□	ø10	3/8"							25.5		25
LQ1B35-F□	ø8										
LQ1B36-F□	ø6										
* LQ1B39-F□	ø10	1/8"	—		—	—		32.3	18.7		18.5
* LQ1B310-F□	ø8										
LQ1B41-F□	ø12	3/8"	6	24	9	18	21	43	25	28	25
LQ1B42-F□	ø10										
LQ1B43-F□	ø12	1/2"							31.5		29.5
LQ1B44-F□	ø10										
* LQ1B49-F□	ø12	1/4"	—	29	—	—	26	44.3	27.5	39	21.5
LQ1B51-F□	ø19	1/2"	7	29	14	28	26	54	35.5	39	29.5
LQ1B52-F□	ø12										
LQ1B53-F□	ø19	3/4"							37		36
LQ1B54-F□	ø12										
* LQ1B58-F□	ø19	1/4"	—		—	—		44.3	27.5		21.5
* LQ1B59-F□	ø19	3/8"						46	29.5		25
LQ1B61-F□	ø25	3/4"	8	39.5	18	36	36	69.5	42.5	49	36
LQ1B62-F□	ø19										
LQ1B63-F□	ø25	1"							46		44.5
LQ1B64-F□	ø19										
LQ1B66-F□	ø25	1/2"							41		29.5

Note) Products marked "*" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

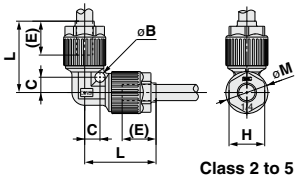
Inch sizes

Model	Applicable tubing O.D.	Connection threads Rc/NPT	B	E	F	G	H	L1	L2	M	Y
LQ1B1A-F□	1/8"	1/8"	2	10	4	8	—	18.5	16	11.5	18.5
LQ1B2A-F□	1/4"	1/8"	4	15	6	12	14	28	19.5	16.5	18.5
LQ1B2B-F□	3/16"										
LQ1B2C-F□	1/8"										
LQ1B2D-F□	1/4"	1/4"							22		21.5
LQ1B2E-F□	3/16"										
LQ1B2F-F□	1/8"										
LQ1B3A-F□	3/8"	1/4"	5	20	9	18	17	36.5	23.7	23	21.5
LQ1B3B-F□	1/4"										
LQ1B3C-F□	3/8"	3/8"							25.5		25
LQ1B3D-F□	1/4"										
* LQ1B3F-F□	3/8"	1/8"	—		—	—		32.3	18.7		18.5
LQ1B4A-F□	1/2"	3/8"	6	24	9	18	21	43	25	28	25
LQ1B4B-F□	3/8"										
LQ1B4C-F□	1/2"	1/2"							31.5		29.5
LQ1B4D-F□	3/8"										
* LQ1B4G-F□	1/2"	1/4"	—	29	—	—	26	44.3	27.5	39	21.5
LQ1B5A-F□	3/4"	1/2"	7	29	14	28	26	54	35.5	39	29.5
LQ1B5B-F□	1/2"										
LQ1B5C-F□	3/4"	3/4"							37		36
LQ1B5D-F□	1/2"										
* LQ1B5G-F□	3/4"	1/4"	—		—	—		44.3	27.5		21.5
* LQ1B5H-F□	3/4"	3/8"						46	29.5		25
LQ1B6A-F□	1"	3/4"	8	39.5	18	36	36	69.5	42.5	49	36
LQ1B6B-F□	3/4"										
LQ1B6C-F□	1"	1"							46		44.5
LQ1B6D-F□	3/4"										
LQ1B6F-F□	1"	1/2"							41		29.5

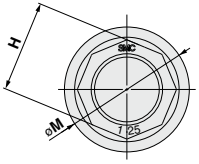
Note) Products marked "*" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

Union Elbow: LQ1E

Class 1



Class 2 to 5



Class 6

(E) shows the approximate dimension of the inserted tubing from the end of the nut.

Metric sizes

Model	Applicable tubing O.D.	B	C	E	H	L	M
LQ1E11	**ø4**	2	4	10	—	18.5	11.5
LQ1E12	**ø3**						
LQ1E21□□	**ø6**	4	6	15	14	28	16.5
LQ1E22□□	**ø4**						
LQ1E2C□□	**ø3**						
LQ1E31□□	**ø10**	5	9	20	17	36.5	23
LQ1E32□□	**ø8**						
LQ1E33□□	**ø6**						
LQ1E41□□	**ø12**	6	9	24	21	43	28
LQ1E42□□	**ø10**						
LQ1E51□□	**ø19**	7	14	29	26	54	39
LQ1E52□□	**ø12**						
LQ1E61□□	**ø25**	8	18	39.5	36	69.5	49
LQ1E62□□	**ø19**						

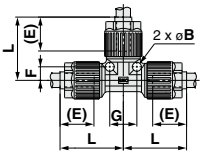
Inch sizes

Model	Applicable tubing O.D.	B	C	E	H	L	M
LQ1E1A	1/8"	2	4	10	—	18.5	11.5
LQ1E2A□□	1/4"	4	6	15	14	28	16.5
LQ1E2B□□	3/16"						
LQ1E2C□□	1/8"						
LQ1E3A□□	3/8"	5	9	20	17	36.5	23
LQ1E3B□□	1/4"						
LQ1E4A□□	1/2"	6	9	24	21	43	28
LQ1E4B□□	3/8"						
LQ1E5A□□	3/4"	7	14	29	26	54	39
LQ1E5B□□	1/2"						
LQ1E6A□□	1"	8	18	39.5	36	69.5	49
LQ1E6B□□	3/4"						

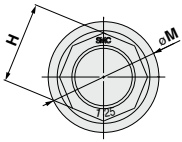
Dimensions

Union Tee: LQ1T

Class 1



Class 2 to 5



Class 6

(E) shows the approximate dimension of the inserted tubing from the end of the nut.

Metric sizes

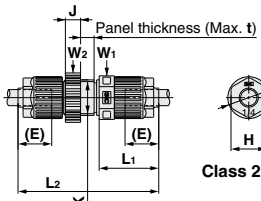
Model	Applicable tubing O.D.	B	E	F	G	H	L	M
LQ1T11	ø4	2	10	4	8	—	18.5	11.5
LQ1T12	ø3							
LQ1T21□□	ø6	4	15	6	12	14	28	16.5
LQ1T22□□	ø4							
LQ1T2C□□	ø3							
LQ1T31□□	ø10	5	20	9	18	17	36.5	23
LQ1T32□□	ø8							
LQ1T33□□	ø6							
LQ1T41□□	ø12	6	24	9	18	21	43	28
LQ1T42□□	ø10							
LQ1T51□□	ø19	7	29	14	28	26	54	39
LQ1T52□□	ø12							
LQ1T61□□	ø25	8	39.5	18	36	36	69.5	49
LQ1T62□□	ø19							

Inch sizes

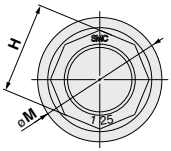
Model	Applicable tubing O.D.	B	E	F	G	H	L	M
LQ1T1A	1/8"	2	10	4	8	—	18.5	11.5
LQ1T2A□□	1/4"	4	15	6	12	14	28	16.5
LQ1T2B□□	3/16"							
LQ1T2C□□	1/8"							
LQ1T3A□□	3/8"	5	20	9	18	17	36.5	23
LQ1T3B□□	1/4"							
LQ1T4A□□	1/2"	6	24	9	18	21	43	28
LQ1T4B□□	3/8"							
LQ1T5A□□	3/4"	7	29	14	28	26	54	39
LQ1T5B□□	1/2"							
LQ1T6A□□	1"	8	39.5	18	36	36	69.5	49
LQ1T6B□□	3/4"							

Panel Mount Union: LQ1P

Class 1



Class 2 to 5



Class 6

(E) shows the approximate dimension of the inserted tubing from the end of the nut.
"W" is width across flats dimension.

Metric sizes

Model	Applicable tubing O.D.	E	H	J	K	L_1	L_2	M	t	W_1	W_2
LQ1P11	ø4	10	—	6	10.5	17	44	11.5	8	11	13
LQ1P12	ø3										
LQ1P21□□	ø6	15	14	6	14.5	23.5	55.5	16.5	8	15	17
LQ1P22□□	ø4										
LQ1P2C□□	ø3										
LQ1P31□□	ø10	20	17	7	20.5	30	69	23	8	21	24
LQ1P32□□	ø8										
LQ1P33□□	ø6										
LQ1P41□□	ø12	24	21	7	24.5	35	78.5	28	8	26	28
LQ1P42□□	ø10										
LQ1P51□□	ø19	29	26	9	36.5	43.5	100	39	9	39	43
LQ1P52□□	ø12										
LQ1P61□□	ø25	39.5	36	10	48.5	58.5	133	49	10	51	55
LQ1P62□□	ø19										

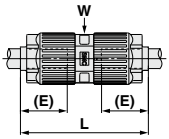
Inch sizes

Model	Applicable tubing O.D.	E	H	J	K	L_1	L_2	M	t	W_1	W_2
LQ1P1A	1/8"	10	—	6	10.5	17	44	11.5	8	11	13
LQ1P2A□□	1/4"	15	14	6	14.5	23.5	55.5	16.5	8	15	17
LQ1P2B□□	3/16"										
LQ1P2C□□	1/8"										
LQ1P3A□□	3/8"	20	17	7	20.5	30	69	23	8	21	24
LQ1P3B□□	1/4"										
LQ1P4A□□	1/2"	24	21	7	24.5	35	78.5	28	8	26	28
LQ1P4B□□	3/8"										
LQ1P5A□□	3/4"	29	26	9	36.5	43.5	100	39	9	39	43
LQ1P5B□□	1/2"										
LQ1P6A□□	1"	39.5	36	10	48.5	58.5	133	49	10	51	55
LQ1P6B□□	3/4"										

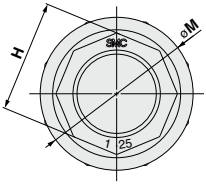
Dimensions

Union: LQ1U

Class 1



Class 2 to 5



Class 6

(E) shows the approximate dimension of the inserted tubing from the end of the nut.
"W" is width across flats dimension.

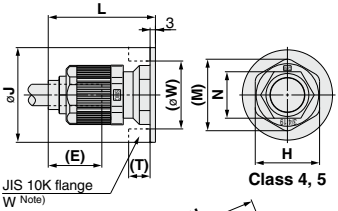
Metric sizes

Model	Applicable tubing O.D.	E	H	L	M	W
LQ1U11	**ø4**	10	—	29	11.5	10
LQ1U12	**ø3**					
LQ1U21□□	**ø6**	15	14	41	16.5	14
LQ1U22□□	**ø4**					
LQ1U2C□□	**ø3**					
LQ1U31□□	**ø10**	20	17	54	23	19
LQ1U32□□	**ø8**					
LQ1U33□□	**ø6**					
LQ1U41□□	**ø12**	24	21	63	28	23
LQ1U42□□	**ø10**					
LQ1U51□□	**ø19**	29	26	77	39	32
LQ1U52□□	**ø12**					
LQ1U61□□	**ø25**	39.5	36	102	49	46
LQ1U62□□	**ø19**					

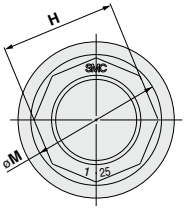
Inch sizes

Model	Applicable tubing O.D.	E	H	L	M	W
LQ1U1A	1/8"	10	—	29	11.5	10
LQ1U2A□□	1/4"	15	14	41	16.5	14
LQ1U2B□□	3/16"					
LQ1U2C□□	1/8"					
LQ1U3A□□	3/8"	20	17	54	23	19
LQ1U3B□□	1/4"					
LQ1U4A□□	1/2"	24	21	63	28	23
LQ1U4B□□	3/8"					
LQ1U5A□□	3/4"	29	26	77	39	32
LQ1U5B□□	1/2"					
LQ1U6A□□	1"	39.5	36	102	49	46
LQ1U6B□□	3/4"					

Union Flange: LQ1F



Class 4, 5



Class 6

Metric sizes

Model	Applicable tubing O.D.	E	H	J	L	N	M	W	(T)
LQ1F41	**ø12**	28	30	53	60	21	33.1	34	12
LQ1F42	**ø10**				58				
LQ1F51	**ø19**	32	36	58	65.2	26	40	41	14
LQ1F52	**ø12**				63.2				
LQ1F61	**ø25**	39.5	36	69	81.5	—	49	51	14
LQ1F62	**ø19**								

Inch sizes

Model	Applicable tubing O.D.	E	H	J	L	N	M	W	(T)
LQ1F4A	1/2"	28	30	53	60	21	33.1	34	12
LQ1F4B	3/8"				58				
LQ1F5A	3/4"	32	36	58	65.2	26	40	41	14
LQ1F5B	1/2"				63.2				
LQ1F6A	1"	39.5	36	69	81.5	—	49	51	14
LQ1F6B	3/4"								

(E) shows the approximate dimension of the inserted tubing from the end of the nut.
(W) is the bore size of the JIS flange required for mounting. This flange is sold separately.
When ordering nuts as spare parts, size 4 and 5 are as shown below.
LQ1F4□: LQ-4N□□
LQ1F5□: LQ-5N□□

Union Elbow Reducing

How to Order

Tubing connection

LQ1 E 2 1 – R1 – □

Fitting type

Symbol	Type
E	Union elbow

Body size (according to the combination table)

Tubing type

Symbol	Type
1, 2	Metric
A, B	Inch

Type of piping (according to the combination table)

Symbol	Type
R□	Reducing

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Size combination (Metric)

Class		Model	A side	B side
			Applicable tubing size (mm)	
4		**LQ1E41-R2**	12 x 10	8 x 6
	∗	**LQ1E41-R3**		6 x 4
	∗	**LQ1E41-R4**		4 x 2
5	∗	**LQ1E51-R2**	19 x 16	10 x 8
	∗	**LQ1E51-R3**		8 x 6
	∗	**LQ1E51-R4**		6 x 4
	∗	**LQ1E51-R5**		4 x 3
6	∗	**LQ1E61-R2**	25 x 22	12 x 10
	∗	**LQ1E61-R3**		10 x 8
	∗	**LQ1E61-R4**		8 x 6
	∗	**LQ1E61-R5**		6 x 4

Note 1) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

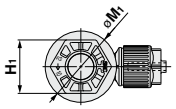
Size combination (Inch)

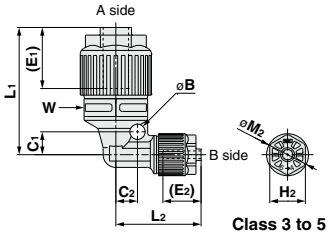
Class		Model	A side	B side
			Applicable tubing size (inch)	
3	∗	**LQ1E3A-R3**	3/8" x 1/4"	1/8" x 0.086"
4		**LQ1E4A-R2**	1/2" x 3/8"	1/4" x 5/32"
	∗	**LQ1E4A-R3**		3/16" x 0.127"
	∗	**LQ1E4A-R4**		1/8" x 0.086"
5	∗	**LQ1E5A-R2**	3/4" x 5/8"	3/8" x 1/4"
	∗	**LQ1E5A-R3**		1/4" x 5/32"
	∗	**LQ1E5A-R4**		3/16" x 0.127"
6	∗	**LQ1E6A-R2**	1"×7/8"	1/2" x 3/8"
	∗	**LQ1E6A-R3**		3/8" x 1/4"
	∗	**LQ1E6A-R4**		1/4" x 5/32"
	∗	**LQ1E6A-R5**		3/16" x 0.127"

Note 1) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Union Elbow Reducing: LQ1E-R





Class 3 to 5

Class 6

Metric Size

Model	A side / Applicable tubing O.D.	B side / Applicable tubing O.D.	B	C_1	C_2	E_1	E_2	H_1	H_2	L_1	L_2	M_1	M_2	W
LQ1E41-R2	ø12	ø8	6	9	9	24	20	21	17	43	38.5	28	23	—
∗ **LQ1E41-R3**	ø12	ø6	—	—	—		15		14	35.5	31.5		16.5	25
∗ **LQ1E41-R4**	ø12	ø4												
∗ **LQ1E51-R2**	ø19	ø10	—	—	—	39.5	20	36	17	56.5	52.5	49	23	46
∗ **LQ1E51-R3**	ø19	ø8								54	47.5			
∗ **LQ1E51-R4**	ø19	ø6	—	—	—	39.5	15	36	14	51	42	39	16.5	32
∗ **LQ1E51-R5**	ø19	ø4												
∗ **LQ1E61-R2**	ø25	ø12	—	—	—	39.5	24	36	21	56.5	52.5	49	28	46
∗ **LQ1E61-R3**	ø25	ø10					20		17	54	47.5		23	
∗ **LQ1E61-R4**	ø25	ø8												
∗ **LQ1E61-R5**	ø25	ø6					15		15	51	42		16.5	

Note) Products marked "∗" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

Inch Size

Model	A side / Applicable tubing O.D.	B side / Applicable tubing O.D.	B	C_1	C_2	E_1	E_2	H_1	H_2	L_1	L_2	M_1	M_2	W
∗ **LQ1E3A-R3**	3/8"	1/8"	—	—	—	24	15	21	14	35.5	31.5	28	16.5	—
LQ1E4A-R2	1/2"	1/4"	6	9	9	24	20	21	17	43	38.5	28	23	—
∗ **LQ1E4A-R3**	1/2"	3/16"	—	—	—		15		14	35.5	31.5		16.5	—
∗ **LQ1E4A-R4**	1/2"	1/8"												
∗ **LQ1E5A-R2**	3/4"	3/8"	—	—	—	39.5	20	36	17	54	47.5	49	23	46
∗ **LQ1E5A-R3**	3/4"	1/4"												
∗ **LQ1E5A-R4**	3/4"	3/16"					15		14	51	42		16.5	
∗ **LQ1E6A-R2**	1"	1/2"	—	—	—	39.5	24	36	21	56.5	52.5	49	28	46
∗ **LQ1E6A-R3**	1"	3/8"					20		17	54	47.5		23	
∗ **LQ1E6A-R4**	1"	1/4"												
∗ **LQ1E6A-R5**	1"	3/16"					15		14	51	42		16.5	

Note) Products marked "∗" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

Union Tee Reducing

How to Order

Tubing connection

LQ1 T 2 1 – R1 – ☐

Fitting type

Symbol	Type
T	Union tee

Body size (according to the combination table)

Tubing type

Symbol	Type
1, 2	Metric
A, B	Inch

Type of piping (according to the combination table)

Symbol	Type
R☐	Reducing

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Size combination (Metric)

Class		Model	A side (Left)	B side (Center)	C side (Right)
			Applicable tubing size (mm)		
3		LQ1T31-R4	10 x 8	3 x 2	10 x 8
		LQ1T31-R7	8 x 6	8 x 6	10 x 8
		LQ1T31-R8	6 x 4	6 x 4	10 x 8
		LQ1T32-R5		8 x 6	8 x 6
		LQ1T32-R6		10 x 8	10 x 8
		LQ1T32-R7		6 x 4	8 x 6
4		LQ1T41-R2	12 x 10	8 x 6	12 x 10
		LQ1T41-R3		6 x 4	12 x 10
		LQ1T41-R5	10 x 8	12 x 10	12 x 10
		LQ1T41-R7		10 x 8	12 x 10
		LQ1T41-R11	6 x 4	10 x 8	12 x 10
		LQ1T41-R12		12 x 10	12 x 10
		LQ1T41-R22	10 x 8	6 x 4	12 x 10
		LQ1T41-R23	6 x 4	6 x 4	12 x 10
		LQ1T41-R26	12 x 10	3 x 2	12 x 10
		LQ1T41-R32	6 x 4	12 x 10	6 x 4
		LQ1T41-R34	3 x 2	12 x 10	3 x 2
5		LQ1T51-R2	19 x 16	10 x 8	19 x 16
		LQ1T51-R3		8 x 6	19 x 16
		LQ1T51-R4		6 x 4	19 x 16
		LQ1T51-R5	12 x 10	19 x 16	19 x 16
		LQ1T51-R6	10 x 8	19 x 16	19 x 16
	*	LQ1T51-R7	12 x 10	12 x 10	19 x 16
	*	LQ1T51-R8	10 x 8	10 x 8	19 x 16
		LQ1T51-R10	10 x 8	19 x 16	10 x 8
		LQ1T51-R12	8 x 6	19 x 16	19 x 16
		LQ1T51-R13	6 x 4	19 x 16	19 x 16
	*	LQ1T51-R17	10 x 8	12 x 10	19 x 16
		LQ1T51-R24	12 x 10	6 x 4	19 x 16
		LQ1T51-R26	19 x 16	4 x 3	19 x 16
		LQ1T51-R28		3 x 2	19 x 16
		LQ1T51-R31	10 x 8	19 x 16	12 x 10
6		LQ1T61-R2	25 x 22	12 x 10	25 x 22
		LQ1T61-R3		10 x 8	25 x 22
	*	LQ1T61-R4		8 x 6	25 x 22
		LQ1T61-R5	19 x 16	25 x 22	25 x 22
		LQ1T61-R6	12 x 10	25 x 22	25 x 22
		LQ1T61-R7	19 x 16	19 x 16	25 x 22
	*	LQ1T61-R8	12 x 10	12 x 10	25 x 22
		LQ1T61-R10	12 x 10	25 x 22	12 x 10
		LQ1T61-R11		19 x 16	25 x 22
		LQ1T61-R12	10 x 8	25 x 22	25 x 22
	*	LQ1T61-R13	8 x 6	25 x 22	25 x 22
		LQ1T61-R15	6 x 4	25 x 22	25 x 22
		LQ1T61-R18	10 x 8	19 x 16	25 x 22
		LQ1T61-R19	6 x 4	19 x 16	25 x 22
		LQ1T61-R20	19 x 16	12 x 10	25 x 22
	*	LQ1T61-R26	25 x 22	6 x 4	25 x 22
		LQ1T61-R30	10 x 8	25 x 22	19 x 16
		LQ1T61-R31	12 x 10	25 x 22	19 x 16
	*	LQ1T61-R34	6 x 4	25 x 22	6 x 4

Note 1) Products marked "*" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

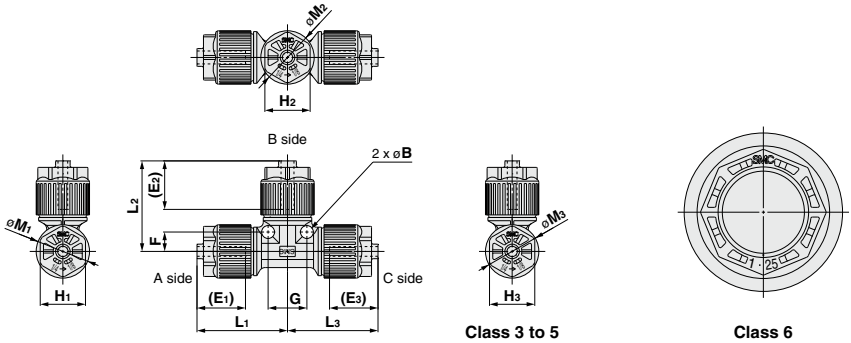
Size combination (Inch)

Class		Model	A side (Left)	B side (Center)	C side (Right)
			Applicable tubing size (inch)		
3		LQ1T3A-R5	1/4" x 5/32"	3/8" x 1/4"	3/8" x 1/4"
		LQ1T3A-R7	1/4" x 5/32"	1/4" x 5/32"	3/8" x 1/4"
4		LQ1T4A-R2	1/2" x 3/8"	1/4" x 5/32"	1/2" x 3/8"
		LQ1T4A-R4	1/2" x 3/8"	1/8" x 0.086"	1/2" x 3/8"
		LQ1T4A-R5	3/8" x 1/4"	1/2" x 3/8"	1/2" x 3/8"
		LQ1T4A-R6	1/4" x 5/32"		1/2" x 3/8"
		LQ1T4A-R7	3/8" x 1/4"	3/8" x 1/4"	1/2" x 3/8"
		LQ1T4A-R8	1/4" x 5/32"	1/4" x 5/32"	1/2" x 3/8"
		LQ1T4A-R10	1/4" x 5/32"	1/2" x 3/8"	1/4" x 5/32"
		LQ1T4A-R17	1/4" x 5/32"	3/8" x 1/4"	1/2" x 3/8"
		LQ1T4A-R20	3/8" x 1/4"	1/4" x 5/32"	1/2" x 3/8"
		LQ1T4A-R33	1/8" x 0.086"	1/2" x 3/8"	1/8" x 0.086"
5		LQ1T5A-R2	3/4" x 5/8"	3/8" x 1/4"	3/4" x 5/8"
		LQ1T5A-R5	1/2" x 3/8"	3/4" x 5/8"	3/4" x 5/8"
		LQ1T5A-R6	3/8" x 1/4"	3/4" x 5/8"	3/4" x 5/8"
	*	LQ1T5A-R7	1/2" x 3/8"	1/2" x 3/8"	3/4" x 5/8"
		LQ1T5A-R8	3/8" x 1/4"	3/8" x 1/4"	3/4" x 5/8"
	*	LQ1T5A-R10	3/8" x 1/4"	3/4" x 5/8"	3/8" x 1/4"
		LQ1T5A-R12	1/4" x 5/32"		3/4" x 5/8"
	*	LQ1T5A-R17	1/2" x 3/8"	3/8" x 1/4"	3/4" x 5/8"
		LQ1T5A-R21	3/8" x 1/4"	1/4" x 5/32"	3/4" x 5/8"
		LQ1T5A-R22	1/2" x 3/8"	1/4" x 5/32"	3/4" x 5/8"
		LQ1T5A-R26	3/4" x 5/8"	1/8" x 0.086"	3/4" x 5/8"
		LQ1T5A-R31	3/8" x 1/4"	3/4" x 5/8"	1/2" x 3/8"
	*	LQ1T5A-R32	1/4" x 5/32"		1/4" x 5/32"
6		LQ1T6A-R2	1" x 7/8"	1/2" x 3/8"	1" x 7/8"
		LQ1T6A-R3	1" x 7/8"	3/8" x 1/4"	1" x 7/8"
	*	LQ1T6A-R4	1" x 7/8"	1/4" x 5/32"	1" x 7/8"
		LQ1T6A-R5	3/4" x 5/8"	1" x 7/8"	1" x 7/8"
		LQ1T6A-R6	1/2" x 3/8"		1" x 7/8"
		LQ1T6A-R7	3/4" x 5/8"	3/4" x 5/8"	1" x 7/8"
	*	LQ1T6A-R8	1/2" x 3/8"	1/2" x 3/8"	1" x 7/8"
		LQ1T6A-R10	1/2" x 3/8"	1" x 7/8"	1/2" x 3/8"
		LQ1T6A-R11	3/8" x 1/4"	3/4" x 5/8"	1" x 7/8"
		LQ1T6A-R12	3/8" x 1/4"	1" x 7/8"	1" x 7/8"
	*	LQ1T6A-R13	1/4" x 5/32"		1" x 7/8"
		LQ1T6A-R17	1/2" x 3/8"	3/4" x 5/8"	1" x 7/8"
	*	LQ1T6A-R18	1/4" x 5/32"		1" x 7/8"
		LQ1T6A-R20	3/4" x 5/8"	1/2" x 3/8"	1" x 7/8"
		LQ1T6A-R30	3/8" x 1/4"	1" x 7/8"	3/4" x 5/8"
		LQ1T6A-R31	1/2" x 3/8"		3/4" x 5/8"
	*	LQ1T6A-R33	1/4" x 5/32"		1/4" x 5/32"

Note 1) Products marked "*" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Union tee reducing: LQ1T-R



Metric Size

Model	A side	B side	C side	B	E1	E2	E3	F	G	H1	H2	H3	L1	L2	L3	M1	M2	M3
	Applicable tubing O.D.																	
LQ1T31-R4	ø10	ø3	ø10	6	24	15	24	9	18	21	14	21	43	33	43	28	16.5	28
LQ1T31-R7	ø8	ø8	ø10	5	20	20	20	9	18	17	17	17	36.5	36.5	36.5	23	23	23
LQ1T31-R8	ø6	ø6	ø10															
LQ1T32-R5	ø6	ø8	ø8															
LQ1T32-R6	ø6	ø10	ø10															
LQ1T32-R7	ø6	ø6	ø8															
LQ1T41-R2	ø12	ø8	ø12	6	24	20	24	9	18	21	17	21	43	38.5	43	28	23	28
LQ1T41-R3	ø12	ø6	ø12			15					14			33			16.5	
LQ1T41-R5	ø10	ø12	ø12			24					21			43			28	
LQ1T41-R7	ø10	ø10	ø12															
LQ1T41-R11	ø6	ø10	ø12	7	20	20	29	14	28	17	17	26	44	44	54	23	23	39
LQ1T41-R12	ø6	ø12	ø12			29				26				54			39	
LQ1T41-R22	ø10	ø6	ø12	6	24	20	24	9	18	21		21	43	38.5	43	28	23	28
LQ1T41-R23	ø6	ø6	ø12	7	20		29	14	28	17		26	44	44	54	23		39
LQ1T41-R26	ø12	ø3	ø12	6	24	15	24	9	18	21	14	21	43	33	43	28	16.5	28
LQ1T41-R32	ø6	ø12	ø6		15	24	15			14	21	14	33	43	33	16.5	28	16.5
LQ1T41-R34	ø3	ø12	ø3															
LQ1T51-R2	ø19	ø10	ø19	7	29	20	29	14	28	26	17	26	54	44	54	39	23	39
LQ1T51-R3	ø19	ø8	ø19															

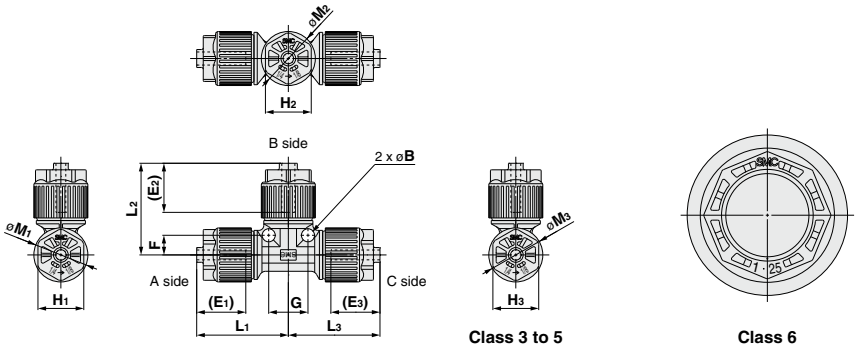
Metric Size

Model	A side	B side	C side	B	E_1	E_2	E_3	F	G	H_1	H_2	H_3	L_1	L_2	L_3	M_1	M_2	M_3
	Applicable tubing O.D.																	
LQ1T51-R4	ø19	ø6	ø19	7	29	15	29	14	28	26	14	26	54	38.5	54	39	16.5	39
LQ1T51-R5	ø12	ø19	ø19			29					26			54			39	
LQ1T51-R6	ø10	ø19	ø19		20					17			44			23		
∗ **LQ1T51-R7**	ø12	ø12	ø19	—	24	24	39.5	—	—	21	21	36	42	52.5	57.5	28	28	49
∗ **LQ1T51-R8**	ø10	ø10	ø19															
LQ1T51-R10	ø10	ø19	ø10	7	20	29	24	14	28	17	26	21	44	54	49	23	39	28
LQ1T51-R12	ø8	ø19	ø19		20	29	29			17	26	26			54			39
LQ1T51-R13	ø6	ø19	ø19															
∗ **LQ1T51-R17**	ø10	ø12	ø19	—	24	24	39.5	18	36	21	21	36	42	52.5	57.5	28	28	49
LQ1T51-R24	ø12	ø6	ø19	7	29	15	29	14	28	26	14	26	54	38.5	54	39	16.5	39
LQ1T51-R26	ø19	ø4	ø19															
LQ1T51-R28	ø19	ø3	ø19															
LQ1T51-R31	ø10	ø19	ø12		20	29	24			17	26	21	44	54	49	23	39	28
LQ1T61-R2	ø25	ø12	ø25	8	39.5	24	39.5	18	36	36	21	36	69.5	54.5	69.5	49	28	49
LQ1T61-R3	ø25	ø10	ø25															
∗ **LQ1T61-R4**	ø25	ø8	ø25	—		20		—	—		17		55	47.5	55		23	
LQ1T61-R5	ø19	ø25	ø25	8		39.5	39.5	18	36		36	36	69.5	69.5	69.5	28	49	49
LQ1T61-R6	ø12	ø25	ø25		24					21			54.5					
LQ1T61-R7	ø19	ø19	ø25		39.5					36			69.5			49		
∗ **LQ1T61-R8**	ø12	ø12	ø19	—	24	24		—	—	21	21		47	52.5	57.5	28	28	
LQ1T61-R10	ø12	ø25	ø12	8	24	39.5	24	18	36	21	36	21	54.5	69.5	54.5	28	49	28
LQ1T61-R11	ø12	ø19	ø25	8	24	39.5	39.5	18	36	21	36	36	54.5	69.5	68.5	28	49	49
LQ1T61-R12	ø10	ø25	ø25															
∗ **LQ1T61-R13**	ø8	ø25	ø25	—	20			—	—	17			46.5	68	68	23		
LQ1T61-R15	ø6	ø25	ø25	8	15			18	36	14			44	69.5	69.5	16.5		
LQ1T61-R18	ø10	ø19	ø25		24					21			54.5			28		
LQ1T61-R19	ø6	ø19	ø25	8	15	39.5	39.5	18	36	14	36	36	44	69.5	69.5	16.5	49	49
LQ1T61-R20	ø19	ø12	ø25		39.5	24				36	21		69.5	54.5		49	28	
∗ **LQ1T61-R26**	ø25	ø6	ø25	—		20		—	—		17		55	47.5	55		23	
LQ1T61-R30	ø10	ø25	ø19	8	24	39.5		18	36	21	36		54.5	69.5	49.5	28	49	
LQ1T61-R31	ø12	ø25	ø19															
∗ **LQ1T61-R34**	ø6	ø25	ø6	—	20		20	—	—	17		17	46.5	55	46.5	23		23

Note) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)

Dimensions

Union tee reducing: LQ1T-R



Inch Size

Model	A side	B side	C side	B	E_1	E_2	E_3	F	G	H_1	H_2	H_3	L_1	L_2	L_3	M_1	M_2	M_3
	Applicable tubing O.D.																	
LQ1T3A-R5	1/4"	3/8"	3/8"	5	20	20	20	9	18	17	17	17	36.5	36.5	36.5	23	23	23
LQ1T3A-R7	1/4"	1/4"	3/8"															
LQ1T4A-R2	1/2"	1/4"	1/2"	6	24	15	24	9	18	21	14	21	43	33	43	28	16.5	28
LQ1T4A-R4	1/2"	1/8"	1/2"															
LQ1T4A-R5	3/8"	1/2"	1/2"			24					21			43			28	
LQ1T4A-R6	1/4"	1/2"	1/2"	7	20	29	29	14	28	17	26	26	44	54	54	23	39	39
LQ1T4A-R7	3/8"	3/8"	1/2"	6	24	24	24	9	18	21	21	21	43	43	43	28	28	28
LQ1T4A-R8	1/4"	1/4"	1/2"	7	20	20	29	14	28	17	17	26	44	44	54	23	23	39
LQ1T4A-R10	1/4"	1/2"	1/4"	6	15	24	15	9	18	14	21	14	33	43	33	16.5	28	16.5
LQ1T4A-R17	1/4"	3/8"	1/2"	7	20	20	29	14	28	17	17	26	44	44	54	23	23	39
LQ1T4A-R20	3/8"	1/4"	1/2"	6	24		24	9	18	21		21	43	38.5	43	28		28
LQ1T4A-R33	1/8"	1/2"	1/8"		15	24	15			14	21	14	33	43	33	16.5	28	16.5
LQ1T5A-R2	3/4"	3/8"	3/4"	7	29	20	29	14	28	26	17	26	54	44	54	39	23	39
LQ1T5A-R5	1/2"	3/4"	3/4"			29					26			54			39	
LQ1T5A-R6	3/8"	3/4"	3/4"		20					17			44			23		
＊ **LQ1T5A-R7**	1/2"	1/2"	3/4"	—	24	24	39.5	—	—	21	21	36	42	52.5	57.5	28	28	49
LQ1T5A-R8	3/8"	3/8"	3/8"	7	20	20	29	14	28	17	17	26	44	44	54	23	23	39

Note) Products marked "＊" are produced upon receipt of order. (The body of the fitting is PTFE machined.)

Inch Size

Model	A side	B side	C side	B	E_1	E_2	E_3	F	G	H_1	H_2	H_3	L_1	L_2	L_3	M_1	M_2	M_3
	Applicable tubing O.D.																	
∗ **LQ1T5A-R10**	3/8"	3/4"	3/8"	—	20	39.5	20	—	—	17	36	17	46.5	55	46.5	23	49	23
LQ1T5A-R12	1/4"	3/4"	3/4"	7	15	29	29	14	28	14	26	26	38.5	54	54	16.5	39	39
∗ **LQ1T5A-R17**	1/2"	3/8"	3/4"	—	24	24	39.5	—	—	21	21	36	42	52.5	57.5	28	28	49
LQ1T5A-R21	3/8"	1/4"	3/4"	7	20	20	29	14	28	17	17	26	44	44	54	23	23	39
LQ1T5A-R22	1/2"	1/4"	3/4"		29	15				26	14		54	38.5		39	16.5	
LQ1T5A-R26	3/4"	1/8"	3/4"															
LQ1T5A-R31	3/8"	3/4"	1/2"		20	29	24			17	26	21	44	54	49	23	39	28
∗ **LQ1T5A-R32**	1/4"	3/4"	1/4"	—		39.5	20	—	—		36	17	46.5	55	46.5		49	23
LQ1T6A-R2	1"	1/2"	1"	8	39.5	24	39.5	18	36	36	21	36	69.5	54.5	69.5	49	28	49
LQ1T6A-R3	1"	3/8"	1"															
∗ **LQ1T6A-R4**	1"	1/4"	1"	—		20		—	—		17		55	47.5	55		23	
LQ1T6A-R5	3/4"	1"	1"	8		39.5		18	36		36		69.5	69.5	69.5		49	
LQ1T6A-R6	1/2"	1"	1"		24					21			54.5			28		
LQ1T6A-R7	3/4"	3/4"	1"		39.5					36			69.5			49		
∗ **LQ1T6A-R8**	1/2"	1/2"	1"	—	24	24		—	—	21	21		42	52.5	57.5	28	28	
LQ1T6A-R10	1/2"	1"	1/2"	8	24	39.5	24	18	36	21	36	21	54.5	69.5	54.5	28	49	28
LQ1T6A-R11	3/8"	3/4"	1"				39.5					36			69.5			49
LQ1T6A-R12	3/8"	1"	1"															
∗ **LQ1T6A-R13**	1/4"	1"	1"	—	20			—	—	17			46.5	68	68	23		
LQ1T6A-R17	1/2"	3/4"	1"	8	24			18	36	21			54.5	69.5	69.5	28		
∗ **LQ1T6A-R18**	1/4"	3/4"	1"	—	20	39.5	39.5	—	—	17	36	36	46.5	68	68	23	49	49
LQ1T6A-R20	3/4"	1/2"	1"	8	39.5	24		18	36	36	21		69.5	54.5	69.5	49	28	
LQ1T6A-R30	3/8"	1"	3/4"		24	39.5				21	36		54.5	69.5		28	49	
LQ1T6A-R31	1/2"	1"	3/4"															
∗ **LQ1T6A-R33**	1/4"	1"	1/4"	—	20		20	—	—	17		17	46.5	55	46.5	23		23

Note) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)

Panel Mount Union Reducing

How to Order

Tubing connection

LQ1 P 2 1 – R1 – □

Fitting type

Symbol	Type
P	Panel mount union

Body size (according to the combination table)

Tubing type

Symbol	Type
1, 2	Metric
A, B	Inch

Piping type (according to the combination table)

Symbol	Type
R□	Reducing

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Size combination (Metric)

Class	Model		A side	B side
			Applicable tubing size (mm)	
4	∗	LQ1P41-R3	12 x 10	6 x 4
5	∗	LQ1P51-R2	19 x 16	10 x 8

Note 1) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

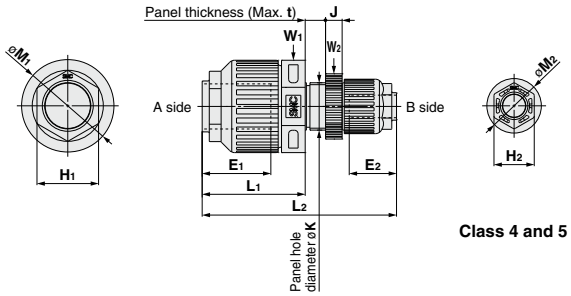
Size combination (Inch)

Class	Model		A side	B side
			Applicable tubing size (inch)	
4	∗	LQ1P4A-R2	1/2" x 3/8"	1/4" x 5/32"
5	∗	LQ1P5A-R2	3/4" x 5/8"	3/8" x 1/4"

Note 1) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Panel mount union reducing: LQ1P-R



Metric Size

Model	A side	B side	E1	E2	H1	H2	J	K	L1	L2	M1	M2	t	W1	W2
	Applicable tubing O.D.														
∗ LQ1P41-R3	ø12	ø6	29	20	26	17	7	20.5	43.5	82.1	39	23	8	39	24
∗ LQ1P51-R2	ø19	ø10	29	20	26	17	7	20.5	43.5	82.1	39	23	8	39	24

Inch Size

Model	A side	B side	E1	E2	H1	H2	J	K	L1	L2	M1	M2	t	W1	W2
	Applicable tubing O.D.														
∗ LQ1P4A-R2	1/2"	1/4"	29	20	26	17	7	20.5	43.5	82.1	39	23	8	39	24
∗ LQ1P5A-R2	3/4"	3/8"	29	20	26	17	7	20.5	43.5	82.1	39	23	8	39	24

Note) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)

Union Reducing

How to Order

Tubing connection **LQ1 U 2 1 – R1 – □**

Fitting type

Symbol	Type
U	Union

Body size (according to the combination table)

Tubing type

Symbol	Type
1, 2	Metric
A, B	Inch

Piping type (according to the combination table)

Symbol	Type
R□	Reducing

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Size combination (Metric)

Class		Model	A side	B side
			Applicable tubing size (mm)	
3		LQ1U31-R3	10 x 8	4 x 3
		LQ1U31-R4		3 x 2
4		LQ1U41-R2	12 x 10	8 x 6
		LQ1U41-R3		6 x 4
		LQ1U41-R4		4 x 3
		LQ1U41-R5		3 x 2
5	*	LQ1U51-R2	19 x 16	10 x 8
	*	LQ1U51-R3		8 x 6
		LQ1U51-R4		6 x 4
		LQ1U51-R5		4 x 3
		LQ1U51-R6		3 x 2
6		LQ1U61-R2	25 x 22	12 x 10
		LQ1U61-R3		10 x 8
	*	LQ1U61-R5		6 x 4

Note 1) Products marked "*" are produced upon receipt of order. (The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

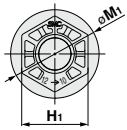
Size combination (Inch)

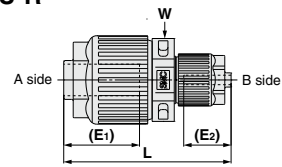
Class		Model	A side	B side
			Applicable tubing size (inch)	
4		LQ1U4A-R2	1/2" x 3/8"	1/4" x 5/32"
		LQ1U4A-R3		3/16" x 0.127"
		LQ1U4A-R4		1/8" x 0.086"
5	*	LQ1U5A-R2	3/4" x 5/8"	3/8" x 1/4"
		LQ1U5A-R3		1/4" x 5/32"
		LQ1U5A-R4		3/16" x 0.127"
		LQ1U5A-R5		1/8" x 0.086"
6		LQ1U6A-R2	1" x 7/8"	1/2" x 3/8"
		LQ1U6A-R3		3/8" x 1/4"
	*	LQ1U6A-R4		1/4" x 5/32"

Note 1) Products marked "*" are produced upon receipt of order. (The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

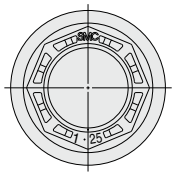
Dimensions

Union reducing: LQ1U-R





Class 3 to 5



Class 6

Metric Size

Model	A side	B side	E1	E2	H1	H2	L	M1	M2	W
	Applicable tubing O.D.									
LQ1U31-R3	ø10	ø4	24	15	21	14	53	28	16.5	23
LQ1U31-R4	ø10	ø3								
LQ1U41-R2	ø12	ø8	24	15	21	17	58.5	28	16.5	23
LQ1U41-R3	ø12	ø6				14	53			
LQ1U41-R4	ø12	ø4								
LQ1U41-R5	ø12	ø3								
*LQ1U51-R2	ø19	ø10	29	15	26	17	66.5	39	16.5	32
*LQ1U51-R3	ø19	ø8								
LQ1U51-R4	ø19	ø6				14	61.5			
LQ1U51-R5	ø19	ø4								
LQ1U51-R6	ø19	ø3								
LQ1U61-R2	ø25	ø12	39.5	24	36	21	87	49	28	46
LQ1U61-R3	ø25	ø10								
*LQ1U61-R5	ø25	ø6		20		17	82		23	36

Note) Products marked "*" are produced upon receipt of order. (The body of the fitting is PTFE machined.)

Inch Size

Model	A side	B side	E1	E2	H1	H2	L	M1	M2	W
	Applicable tubing O.D.									
LQ1U4A-R2	1/2"	1/4"	24	15	21	14	53	28	16.5	23
LQ1U4A-R3	1/2"	3/16"								
LQ1U4A-R4	1/2"	1/8"								
*LQ1U5A-R2	3/4"	3/8"	29	15	26	17	66.5	39	16.5	32
LQ1U5A-R3	3/4"	1/4"				14	61.5			
LQ1U5A-R4	3/4"	3/16"								
LQ1U5A-R5	3/4"	1/8"								
LQ1U6A-R2	1"	1/2"	39.5	24	36	21	87	49	28	46
LQ1U6A-R3	1"	3/8"								
*LQ1U6A-R4	1"	1/4"		20		17	82		23	36

Note) Products marked "*" are produced upon receipt of order. (The body of the fitting is PTFE machined.)

Space Saving Union Elbow

How to Order

Tubing connection

LQ1 E 21 – SS – ☐

Fitting type

Symbol	Type
E	Union elbow

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Piping type

Symbol	Type
SS	Space saving

Size combination

Symbol Class	Symbol No.		Model	Applicable tubing size (mm)
2	1		LQ1E21-SS	6 x 4
3	1		LQ1E31-SS	10 x 8
3	2		LQ1E32-SS	8 x 6
4	1		LQ1E41-SS	12 x 10
5	1	∗	LQ1E51-SS	19 x 16
6	1		LQ1E61-SS	25 x 22

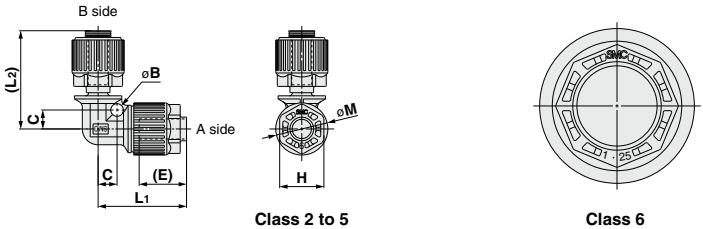
Note 1) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

Symbol Class	Symbol No.		Model	Applicable tubing size (inch)
2	A		LQ1E2A-SS	1/4" x 5/32"
3	A		LQ1E3A-SS	3/8" x 1/4"
4	A		LQ1E4A-SS	1/2" x 3/8"
5	A	∗	LQ1E5A-SS	3/4" x 5/8"
6	A		LQ1E6A-SS	1" x 7/8"

Note 1) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Space saving union elbow: LQ1E-SS



Class 2 to 5

Class 6

Metric Size

Model	A side Applicable tubing O.D.	B side Applicable body size	B	C	E	H	L_1	L_2	M
LQ1E21-SS	ø6	2	4	6	15	14	28	31.1	16.5
LQ1E31-SS	ø10	3	5	9	20	17	36.6	41.1	23
LQ1E32-SS	ø8	3							
LQ1E41-SS	ø12	4	6	9	24	21	43	47.5	28
∗LQ1E51-SS	ø19	5	—	—	29	26	45.5	59	39
LQ1E61-SS	ø25	6	8	18	39.5	36	69.5	75.5	49

Note) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)

Inch Size

Model	A side Applicable tubing O.D.	B side Applicable body size	B	C	E	H	L_1	L_2	M
LQ1E2A-SS	1/4"	2	4	6	15	14	28	31.1	16.5
LQ1E3A-SS	3/8"	3	5	9	20	17	36.6	41.1	23
LQ1E4A-SS	1/2"	4	6	9	24	21	43	47.5	28
∗LQ1E5A-SS	3/4"	5	—	—	29	26	45.5	59	39
LQ1E6A-SS	1"	6	8	18	39.5	36	69.5	75.5	49

Note) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)

Space Saving Union Elbow Reducing

How to Order

Tubing connection

LQ1 E 2 1 – SS – R9 – □

Fitting type

Symbol	Type
E	Union elbow

Body size (according to the combination table)

Tubing type

Symbol	Type
1, 2	Metric
A	Inch

Piping type (according to the combination table)

Symbol	Type
SS	Space saving

Piping type

Symbol	Type
R□	Reducing

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Size combination (Metric)

Class	Model		A side Applicable tubing size (mm)	B side Applicable body size
2	∗	LQ1E21-SS-R9	6 x 4	3
	∗	LQ1E21-SS-R10		4
3	∗	LQ1E31-SS-R2	10 x 8	2
	∗	LQ1E31-SS-R8		4
	∗	LQ1E32-SS-R1	8 x 6	2
		LQ1E32-SS-R8		3
4	∗	LQ1E41-SS-R1	12 x 10	3
		LQ1E41-SS-R3		2
	∗	LQ1E41-SS-R8		5
6		LQ1E61-SS-R1	25 x 22	5

Note 1) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

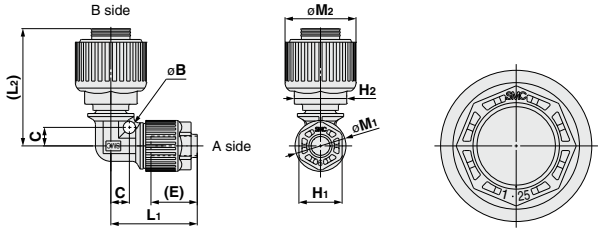
Size combination (Inch)

Class	Model		A side Applicable tubing size (inch)	B side Applicable body size
2	∗	LQ1E2A-SS-R8	1/4" x 5/32"	3
	∗	LQ1E2A-SS-R9		4
3	∗	LQ1E3A-SS-R1	3/8" x 1/4"	2
	∗	LQ1E3A-SS-R8		4
4	∗	LQ1E4A-SS-R1	1/2" x 3/8"	3
		LQ1E4A-SS-R2		2
	∗	LQ1E4A-SS-R8		5
6		LQ1E6A-SS-R1	1" x 7/8"	5

Note 1) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Space saving union elbow reducing: LQ1E-SS-R



Class 2 to 5 Class 6

Metric Size

Model	A side Applicable tubing O.D.	B side Applicable body size	B	C	E	H1	H2	L1	L2	M1	M2
∗ LQ1E21-SS-R9	ø6	3	—	—	15	14	17	23.5	35.8	16.5	23
∗ LQ1E21-SS-R10		4					21	25	40.8		28
∗ LQ1E31-SS-R2	ø10	2	—	—	20	17	14	27.2	32.1	23	16.5
∗ LQ1E31-SS-R8		4					21	30.4	44		28
∗ LQ1E32-SS-R1	ø8	2					14	27.2	32.1		16.5
LQ1E32-SS-R8		3	5	9			17	36.6	41.1		23
∗ LQ1E41-SS-R1	ø12	3	—	—	24	21	17	34.8	41.5	28	23
LQ1E41-SS-R3		2	6	9			14	43	35.6		16.5
∗ LQ1E41-SS-R8		5	—	—			26	39.6	49		39
LQ1E61-SS-R1	ø25	5	8	18	39.5	36	26	69.5	64.5	49	39

Note) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)

Inch Size

Model	A side Applicable tubing O.D.	B side Applicable body size	B	C	E	H1	H2	L1	L2	M1	M2
∗ LQ1E2A-SS-R8	1/4"	3	—	—	15	14	17	23.5	35.8	16.5	23
∗ LQ1E2A-SS-R9		4					21	25	40.8		28
∗ LQ1E3A-SS-R1	3/8"	2	—	—	20	17	14	27.2	32.1	23	16.5
∗ LQ1E3A-SS-R8		4					21	30.4	44		28
∗ LQ1E4A-SS-R1	1/2"	3	—	—	24	21	17	34.8	41.5	28	23
LQ1E4A-SS-R2		2					14	43	35.6		16.5
∗ LQ1E4A-SS-R8		5					26	39.6	49		39
LQ1E6A-SS-R1	1"	5	8	18	39.5	36	26	69.5	64.5	49	39

Note) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)

Space Saving Union Tee

How to Order

Tubing connection

LQ1 T 21 – S T1 – ☐

Fitting type

Symbol	Type
T	Union tee

Size combination

Symbol		Applicable tubing size (mm)
Class	No.	
2	**1**	6 x 4
3	**1**	10 x 8
3	**2**	8 x 6
4	**1**	12 x 10
5	**1**	19 x 16
6	**1**	25 x 22

Note) For details of the applicable tubing sizes, refer to page 823.

Symbol		Applicable tubing size (inch)
Class	No.	
2	**A**	1/4" x 5/32"
3	**A**	3/8" x 1/4"
4	**A**	1/2" x 3/8"
5	**A**	3/4" x 5/8"
6	**A**	1" x 7/8"

Note) For details of the applicable tubing sizes, refer to page 823.

Piping type

Symbol	Type
S	Space saving

Fitting type

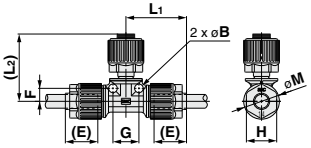
Symbol	Type
T1	Type 1
T2	Type 2
T3	Type 3
T4	Type 4

Packaging

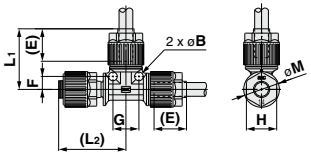
Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Dimensions

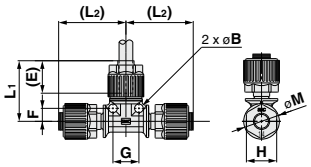
Space saving union tee: LQ1T-ST



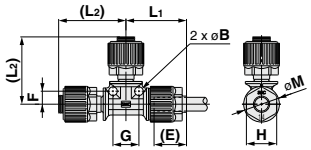
Type T1 **Class 2 to 5**



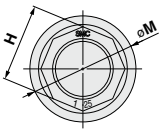
Type T2 **Class 2 to 5**



Type T3 **Class 2 to 5**



Type T4 **Class 2 to 5**



Class 6

Metric Size

Model	Applicable tubing O.D.	B	E	F	G	H	L_1	L_2	M
LQ1T21-ST1	**ø6**	4	15	6	12	14	28	31.1	16.5
LQ1T21-ST2									
LQ1T21-ST3									
LQ1T21-ST4									
LQ1T31-ST1	**ø10**	5	20	9	18	17	36.5	41.1	23
LQ1T31-ST2									
LQ1T31-ST3									
LQ1T31-ST4									
LQ1T32-ST1	**ø8**	5	20	9	18	17	36.5	41.1	23
LQ1T32-ST2									
LQ1T32-ST3									
LQ1T32-ST4									
LQ1T41-ST1	**ø12**	6	24	9	18	21	43	47.5	28
LQ1T41-ST2									
LQ1T41-ST3									
LQ1T41-ST4									
LQ1T51-ST1	**ø19**	7	29	14	28	26	54	59	39
LQ1T51-ST2									
LQ1T51-ST3									
LQ1T51-ST4									
LQ1T61-ST1	**ø25**	8	39.5	18	36	36	69.5	75.5	49
LQ1T61-ST2									
LQ1T61-ST3									
LQ1T61-ST4									

Inch Size

Model	Applicable tubing O.D.	B	E	F	G	H	L_1	L_2	M
LQ1T2A-ST1	1/4"	4	15	6	12	14	28	31.1	16.5
LQ1T2A-ST2									
LQ1T2A-ST3									
LQ1T2A-ST4									
LQ1T3A-ST1	3/8"	5	20	9	18	17	36.5	41.1	23
LQ1T3A-ST2									
LQ1T3A-ST3									
LQ1T3A-ST4									
LQ1T4A-ST1	1/2"	6	24	9	18	21	43	47.5	28
LQ1T4A-ST2									
LQ1T4A-ST3									
LQ1T4A-ST4									
LQ1T5A-ST1	3/4"	7	29	14	28	26	54	59	39
LQ1T5A-ST2									
LQ1T5A-ST3									
LQ1T5A-ST4									
LQ1T6A-ST1	1"	8	39.5	18	36	36	69.5	75.5	49
LQ1T6A-ST2									
LQ1T6A-ST3									
LQ1T6A-ST4									

Space Saving Union Tee Reducing

How to Order

Tubing connection

LQ1 T 2 1 - S T1 - R39 - □

Fitting type

Symbol	Type
T	Union tee

Body size (according to the combination table)

Tubing type

Symbol	Type
1, 2	Metric
A	Inch

Piping type

Symbol	Type
S	Space saving

Fitting type

Symbol	Type
T1	Type 1
T2	Type 2
T3	Type 3
T4	Type 4

Piping type

Symbol	Type
R□	Reducing

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Size combination (Metric)

Class		Model	A side (Left)	B side (Center)	C side (Right)
			Applicable tubing size (O.D. x I.D.) / Applicable body size		
2		LQ1T21-ST1-R39	6 x 4	Body size 3	6 x 4
		LQ1T21-ST2-R41	Body size 3	6 x 4	
3		LQ1T32-ST1-R37	8 x 6	Body size 3	8 x 6
		LQ1T32-ST2-R40	Body size 3	8 x 6	
4	*	LQ1T41-ST1-R1	12 x 10	Body size 3	12 x 10
	*	LQ1T41-ST1-R37		Body size 5	
5	*	LQ1T51-ST1-R1	19 x 16	Body size 4	19 x 16
	*	LQ1T51-ST1-R2		Body size 3	
		LQ1T51-ST1-R5	12 x 10	Body size 5	
	*	LQ1T51-ST1-R13	6 x 4		
	*	LQ1T51-ST1-R36	12 x 10	Body size 6	
	*	LQ1T51-ST1-R37	19 x 16		12 x 10
		LQ1T51-ST2-R4	Body size 5	6 x 4	19 x 16
6	*	LQ1T61-ST1-R1	25 x 22	Body size 5	25 x 22
	*	LQ1T61-ST1-R2		Body size 4	
		LQ1T61-ST2-R1	Body size 6	19 x 16	

Note 1) Products marked "*" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

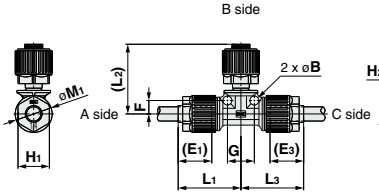
Size combination (Inch)

Class		Model	A side (Left)	B side (Center)	C side (Right)
			Applicable tubing size (O.D. x I.D.) / Applicable body size		
3		LQ1T3A-ST2-R5	Body size 3	3/8" x 1/4"	1/4" x 5/32"
4	*	LQ1T4A-ST1-R1	1/2" x 3/8"	Body size 3	1/2" x 3/8"
	*	LQ1T4A-ST1-R7	3/8" x 1/4"		
	*	LQ1T4A-ST1-R37	1/2" x 3/8"	Body size 5	
5	*	LQ1T5A-ST1-R1	3/4" x 5/8"	Body size 4	3/4" x 5/8"
	*	LQ1T5A-ST1-R2		Body size 3	
		LQ1T5A-ST1-R5	1/2" x 3/8"	Body size 5	
		LQ1T5A-ST1-R7		Body size 4	
	*	LQ1T5A-ST1-R12	1/4" x 5/32"	Body size 5	
	*	LQ1T5A-ST2-R1	Body size 4	3/4" x 5/8"	
		LQ1T5A-ST2-R3	Body size 5	1/4" x 5/32"	
	*	LQ1T5A-ST3-R5	Body size 4	3/4" x 5/8"	Body size 4
6	*	LQ1T6A-ST1-R1	1" x 7/8"	Body size 5	1" x 7/8"
	*	LQ1T6A-ST1-R2		Body size 4	
	*	LQ1T6A-ST1-R3		Body size 3	
		LQ1T6A-ST2-R1	Body size 6	3/4" x 5/8"	
		LQ1T6A-ST2-R2			3/4" x 5/8"

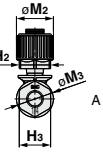
Note 1) Products marked "*" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

Dimensions

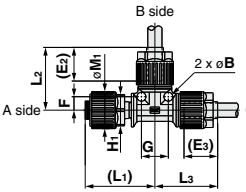
Space saving union tee reducing: LQ1T-S-R



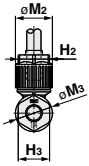
Type T1



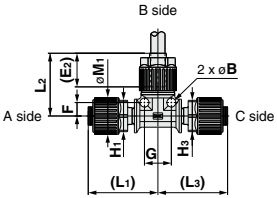
Class 2 to 5



Type T2



Class 2 to 5



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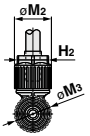
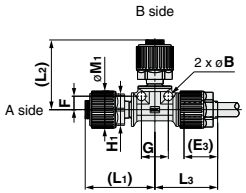
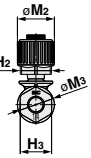


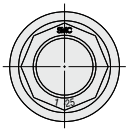
Class 2 to 5



Type T4



Class 2 to 5



Class 6

Metric Size

Model	A side (Left)	B side (Center)	C side (Right)	B	E_1	E_2	E_3	F	G	H_1	H_2	H_3	L_1	L_2	L_3	M_1	M_2	M_3
	Applicable tubing O.D.																	
LQ1T21-ST1-R39	ø6	Body size 3	ø6	5	20	—	20	9	18	17	17	17	36.5	41.1	36.5	23	23	23
LQ1T21-ST2-R41	Body size 3	ø6	ø6		—	20							41.1	36.5				
LQ1T32-ST1-R37	ø8	Body size 3	ø8	5	20	—	20	9	18	17	17	17	36.5	41.1	36.5	23	23	23
LQ1T32-ST2-R40	Body size 3	ø8	ø8		—	20							41.1	36.5				
∗ **LQ1T41-ST1-R1**	ø12	Body size 3	ø12	—	24	—	24	—	—	21	17	21	34	41.5	34	28	23	28
∗ **LQ1T41-ST1-R37**	ø12	Body size 5	ø12	—	24	—	24	—	—	21	26	21	39.5	52.5	39.5	28	39	28
∗ **LQ1T51-ST1-R1**	ø19	Body size 4	ø19	—	29	—	29	—	—	26	21	26	41.9	53	41.9	39	28	39
∗ **LQ1T51-ST1-R2**	ø19	Body size 3	ø19								17		41	48	41		23	
LQ1T51-ST1-R5	ø12	Body size 5	ø19	7				14	28		26		54	59	54		39	
∗ **LQ1T51-ST1-R13**	ø6	Body size 5	ø19	—	15	—	29	—	—	14	26	26	29	53	49	16.5	39	39
∗ **LQ1T51-ST1-R36**	ø12	Body size 6	ø19	—	24	—	39.5	—	—	36	36	36	42.7	71	58.2	49	49	49
∗ **LQ1T51-ST1-R37**	ø19	Body size 6	ø12		39.5		24	—	—	14		26	58.2	71	42.7	16.5		39
LQ1T51-ST2-R4	Body size 5	ø6	ø19	7	—	15		14	28	26	14	26	54	54	54	39	16.5	39
∗ **LQ1T61-ST1-R1**	ø25	Body size 5	ø25	—	39.5	—	39.5	—	—	36	26	36	58.2	63.5	58.2	49	39	49
∗ **LQ1T61-ST1-R2**	ø25	Body size 4	ø25								21			57			28	
LQ1T61-ST2-R1	Body size 6	ø19	ø25	8	—	39.5		18	36		36		72	69.5	69.5		49	

Inch Size

Model	A side (Left)	B side (Center)	C side (Right)	B	E_1	E_2	E_3	F	G	H_1	H_2	H_3	L_1	L_2	L_3	M_1	M_2	M_3
	Applicable tubing O.D.																	
LQ1T3A-ST2-R5	Body size 3	3/8	1/4	5	—	15	20	9	18	17	14	17	37.6	31.6	36.5	23	16.5	23
∗ **LQ1T4A-ST1-R1**	1/2	Body size 3	1/2	—	24	—	24	—	—	21	17	21	34	41.5	34	28	23	28
∗ **LQ1T4A-ST1-R7**	3/8	Body size 3	1/2		20					17			38.5	41.5	34	23		
∗ **LQ1T4A-ST1-R37**	1/2	Body size 5	1/2		24					21	26		39.5	52.5	39.5	28	39	
∗ **LQ1T5A-ST1-R1**	3/4	Body size 4	3/4	—	29	—	29	—	—	26	21	26	41.9	53	41.9	39	28	39
∗ **LQ1T5A-ST1-R2**	3/4	Body size 3	3/4								17		41	48	41		23	
LQ1T5A-ST1-R5	1/2	Body size 5	3/4	7	15			14	28		26		38.5	55.5	54	16.5	39	
LQ1T5A-ST1-R7	1/2	Body size 4	3/4		29	—				21	21		54	55.5		28	28	
∗ **LQ1T5A-ST1-R12**	1/4	Body size 5	3/4	—		—		—	—	14	26		29	53	49	16.5	39	
∗ **LQ1T5A-ST2-R1**	Body size 4	3/4	3/4			29	—			21			50.5	51.5	52.5	28		
LQ1T5A-ST2-R3	Body size 5	1/4	3/4	7	—	15	29	14	28	26	14		59	38	54	39	16.5	
∗ **LQ1T5A-ST3-R5**	Body size 4	3/4	Body size 4	—		29	—	—	—	21	26	21	50.5	44.5	50.5	28	39	28
∗ **LQ1T6A-ST1-R1**	1	Body size 5	1	—	39.5	—	39.5	—	—	36	26	36	58.2	63.5	58.2	49	39	49
∗ **LQ1T6A-ST1-R2**	1	Body size 4	1								21			57			28	
∗ **LQ1T6A-ST1-R3**	1	Body size 3	1								17			52			23	
LQ1T6A-ST2-R1	Body size 6	3/4	1	8	—	39.5		18	36		36		75.5	69.5	69.5		49	
LQ1T6A-ST2-R2	Body size 6	3/4	3/4															

Note) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)

Tubing Extension Union Elbow

How to Order

Tubing connection

LQ1 E 21 – T –

Fitting type

Symbol	Type
E	Union elbow

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Piping type

Symbol	Type
T	Tubing extension

Size combination

Symbol		Applicable tubing size (mm)
Class	No.	
2	1	6 x 4
3	1	10 x 8
3	2	8 x 6
4	1	12 x 10
5	1	19 x 16
6	1	25 x 22

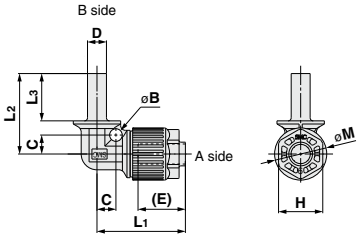
Note) For details of the applicable tubing sizes, refer to page 823.

Symbol		Applicable tubing size (inch)
Class	No.	
2	A	1/4" x 5/32"
3	A	3/8" x 1/4"
4	A	1/2" x 3/8"
5	A	3/4" x 5/8"
6	A	1" x 7/8"

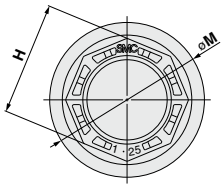
Note) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Tubing extension union elbow: LQ1E-T



Class 2 to 5



Class 6

Metric Size

Model	A side Applicable tubing O.D.	B side Tubing size (D)	B	C	E	H	L_1	L_2	L_3	M
LQ1E21-T	ø6	6 x 4	4	6	15	14	28	25.5	15	16.5
LQ1E31-T	ø10	10 x 8	5	9	20	17	36.6	33.6	20	23
LQ1E32-T	ø8	8 x 6								
LQ1E41-T	ø12	12 x 10	6	9	24	21	43	39	24	28
* LQ1E51-T	ø19	19 x 16	—	—	29	26	45.5	55.5	35	39
LQ1E61-T	ø25	25 x 22	8	18	39.5	36	69.5	72	46	49

Note) Products marked "*" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

Inch Size

Model	A side Applicable tubing O.D.	B side Tubing size (D)	B	C	E	H	L_1	L_2	L_3	M
LQ1E2A-T	1/4"	1/4" x 5/32"	4	6	15	14	28	25.5	15	16.5
LQ1E3A-T	3/8"	3/8" x 1/4"	5	9	20	17	36.6	33.6	20	23
LQ1E4A-T	1/2"	1/2" x 3/8"	6	9	24	21	43	40	25	28
* LQ1E5A-T	3/4"	3/4" x 5/8"	—	—	29	26	45.5	55.5	35	39
LQ1E6A-T	1"	1" x 7/8"	8	18	39.5	36	69.5	72	46	49

Note) Products marked "*" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

Tubing Extension Union Tee

How to Order

Tubing connection

LQ1 T 21 – T T1 – ☐

Fitting type

Symbol	Type
T	Union tee

Size combination

Symbol		Applicable tubing size (mm)
Class	No.	
2	1	6 x 4
3	1	10 x 8
3	2	8 x 6
4	1	12 x 10
5	1	19 x 16
6	1	25 x 22

Note) For details of the applicable tubing sizes, refer to page 823.

Symbol		Applicable tubing size (inch)
Class	No.	
2	A	1/4" x 5/32"
3	A	3/8" x 1/4"
4	A	1/2" x 3/8"
5	A	3/4" x 5/8"
6	A	1" x 7/8"

Note) For details of the applicable tubing sizes, refer to page 823.

Piping type

Symbol	Type
T	Tubing extension

Fitting type

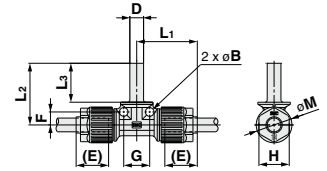
Symbol	Type
T1	Type 1
T2	Type 2
T3	Type 3
T4	Type 4

Packaging

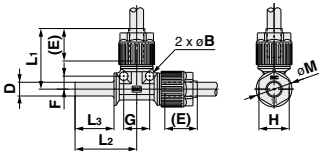
Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Dimensions

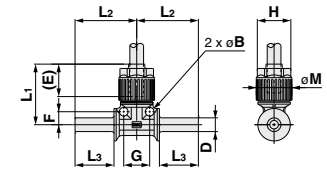
Tubing extension union tee: LQ1T-TT



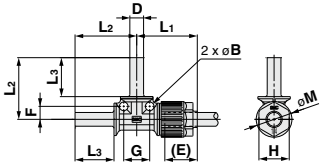
Type T1 Class 2 to 5



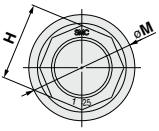
Type T2 Class 2 to 5



Type T3 Class 2 to 5



Type T4 Class 2 to 5



Class 6

Metric Size

Model	Applicable tubing O.D.	B	D	E	F	G	H	L_1	L_2	L_3	M
∗ LQ1T21-TT1	ø6	—	6 x 4	15	—	—	14	21.5	26.5	18	16.5
∗ LQ1T21-TT2								25.5			
∗ LQ1T31-TT1	ø10	—	10 x 8	20	—	—	17	30.6	35.5	24	23
∗ LQ1T31-TT2								34.5			
∗ LQ1T32-TT1	ø8	—	8 x 6	20	—	—	17	29.6	35.5	24	23
∗ LQ1T32-TT2								34.5			
∗ LQ1T32-TT3								29			
∗ LQ1T41-TT1	ø12	—	10 x 8	24	—	—	21	36	42	28	28
∗ LQ1T41-TT2								41.5	41		
∗ LQ1T41-TT3								36	42		
LQ1T51-TT1	ø19	7	19 x 16	29	14	28	26	54	55.5	35	39
LQ1T51-TT2											
LQ1T51-TT3											
LQ1T51-TT4											
LQ1T61-TT1	ø25	8	25 x 22	39.5	18	36	36	69.5	65.5	39.5	49
LQ1T61-TT2											
LQ1T61-TT3											
LQ1T61-TT4											

Inch Size

Model	Applicable tubing O.D.	B	D	E	F	G	H	L_1	L_2	L_3	M
LQ1T2A-TT1	1/4"	4	1/4" x 5/32"	15	6	12	14	28	28.5	18	16.5
LQ1T2A-TT2											
LQ1T2A-TT3											
LQ1T2A-TT4											
LQ1T3A-TT1	3/8"	5	3/8" x 1/4"	20	9	18	17	36.5	37.6	24	23
LQ1T3A-TT2											
LQ1T3A-TT3											
LQ1T3A-TT4											
LQ1T4A-TT1	1/2"	6	1/2" x 3/8"	24	9	18	21	43	43	28	28
LQ1T4A-TT2											
LQ1T4A-TT3											
LQ1T4A-TT4											
LQ1T5A-TT1	3/4"	7	3/4" x 5/8"	29	14	28	26	54	55.5	35	39
LQ1T5A-TT2											
LQ1T5A-TT3											
LQ1T5A-TT4											
LQ1T6A-TT1	1"	8	1" x 7/8"	39.5	18	36	36	69.5	65.5	39.5	49
LQ1T6A-TT2											
LQ1T6A-TT3											
LQ1T6A-TT4											

Note) Products marked "∗" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)

Tubing Extension Union Elbow Reducing

How to Order

Tubing connection

LQ1 E 2 1 – T – R8 – □

Fitting type

Symbol	Type
E	Union elbow

Body size
(according to the combination table)

Tubing type

Symbol	Type
1, 2	Metric
A	Inch

Piping type

Symbol	Type
R□	Reducing

Piping type

Symbol	Type
T	Tubing extension

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Size combination (Metric)

Class		Model	A side Applicable tubing size (mm)	B side Tubing size (mm)
2		LQ1E21-T-R8	6 x 4	8 x 6
		LQ1E21-T-R9		10 x 8
		LQ1E21-T-R10		12 x 10
		LQ1E22-T-R8	4 x 3	6 x 4
		LQ1E22-T-R9		8 x 6
		LQ1E22-T-R10		10 x 8
		LQ1E22-T-R11		12 x 10
3		LQ1E31-T-R1	10 x 8	8 x 6
		LQ1E31-T-R2		6 x 4
		LQ1E31-T-R8		12 x 10
	∗	LQ1E31-T-R9		19 x 16
		LQ1E32-T-R1	8 x 6	6 x 4
		LQ1E32-T-R8		10 x 8
		LQ1E32-T-R9		12 x 10
	∗	LQ1E32-T-R10		19 x 16
4		LQ1E41-T-R1	12 x 10	10 x 8
		LQ1E41-T-R2		8 x 6
		LQ1E41-T-R3		6 x 4
	∗	LQ1E41-T-R8		19 x 16
	∗	LQ1E41-T-R9		25 x 22
5	∗	LQ1E51-T-R8	19 x 16	25 x 22
6		LQ1E61-T-R1	25 x 22	19 x 16

Note 1) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

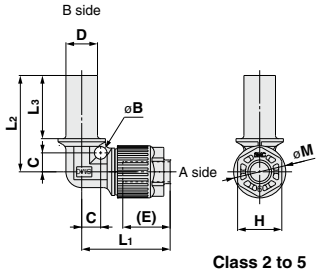
Size combination (Inch)

Class		Model	A side Applicable tubing size (inch)	B side Tubing size (inch)
2	∗	LQ1E2A-T-R8	1/4" x 5/32"	3/8" x 1/4"
	∗	LQ1E2A-T-R9		1/2" x 3/8"
3	∗	LQ1E3A-T-R1	3/8" x 1/4"	1/4" x 5/32"
	∗	LQ1E3A-T-R8		1/2" x 3/8"
	∗	LQ1E3A-T-R9		3/4" x 5/8"
4	∗	LQ1E4A-T-R1	1/2" x 3/8"	3/8" x 1/2"
	∗	LQ1E4A-T-R8		3/4" x 5/8"
	∗	LQ1E4A-T-R9		1" x 7/8"
5	∗	LQ1E5A-T-R8	3/4" x 5/8"	1" x 7/8"
6		LQ1E6A-T-R1	1" x 7/8"	3/4" x 5/8"

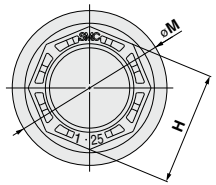
Note 1) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Tubing extension union elbow reducing: LQ1E-T-R



Class 2 to 5



Class 6

Note) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)

Metric Size

Model	A side Applicable tubing O.D.	B side Tubing size (D)	B	C	D	E	H	L1	L2	L3	M
LQ1E21-T-R8	ø6	8 x 6	4	6	8	15	14	28	30.5	20	16.5
LQ1E21-T-R9		10 x 8			10						
LQ1E21-T-R10		12 x 10			12				34.5	24	
LQ1E22-T-R8	ø4	6 x 4			6				25.5	15	
LQ1E22-T-R9		8 x 6			8				30.5	20	
LQ1E22-T-R10		10 x 8			10						
LQ1E22-T-R11		12 x 10			12				34.5	24	
LQ1E31-T-R1	ø10	8 x 6	5	9	8	20	17	36.6	33.6	20	23
LQ1E31-T-R2		6 x 4			6				28.6	15	
LQ1E31-T-R8		12 x 10			12				37.6	24	
∗ LQ1E31-T-R9		19 x 16	—	—	19			33.5	46.5	35	
LQ1E32-T-R1	ø8	6 x 4	5	9	6			36.6	28.6	15	
LQ1E32-T-R8		10 x 8			10				33.6	20	
LQ1E32-T-R9		12 x 10			12				37.6	24	
∗ LQ1E32-T-R10		19 x 16	—	—	19			33.5	46.5	35	
LQ1E41-T-R1	ø12	10 x 8	6	9	10	24	21	43	35	20	28
LQ1E41-T-R2		8 x 6			8						
LQ1E41-T-R3		6 x 4			6				30	15	
∗ LQ1E41-T-R8		19 x 16	—	—	19			39.6	49	35	
∗ LQ1E41-T-R9		25 x 22			25			41	60	46	
∗ LQ1E51-T-R8	ø19	25 x 22	—	—	25	29	26	48.5	66.5	46	39
LQ1E61-T-R1	ø25	19 x 16	8	18	19	39.5	36	69.5	61	35	49

Inch Size

Model	A side Applicable tubing O.D.	B side Tubing size (D)	B	C	D	E	H	L1	L2	L3	M
∗ LQ1E2A-T-R8	1/4"	3/8" x 1/4"	—	—	3/8"	15	14	23.5	32.3	24	16.5
∗ LQ1E2A-T-R9		1/2" x 3/8"			1/2"			25	36.3	28	
∗ LQ1E3A-T-R1	3/8"	1/4" x 5/32"	—	—	1/4"	20	17	27.2	29.5	18	23
∗ LQ1E3A-T-R8		1/2" x 3/8"			1/2"			30.4	39.5	28	
∗ LQ1E3A-T-R9		3/4" x 5/8"			3/4"			33.5	46.5	35	
∗ LQ1E4A-T-R1	1/2"	3/8" x 1/4"	—	—	3/8"	24	21	34.8	38	24	28
∗ LQ1E4A-T-R8		3/4" x 5/8"			3/4"			39.6	49	35	
∗ LQ1E4A-T-R9		1" x 7/8"			1"			41	60	46	
∗ LQ1E5A-T-R8	3/4"	1" x 7/8"	—	—	1"	29	26	48.5	66.5	46	39
LQ1E6A-T-R1	1"	3/4" x 5/8"	8	18	3/4"	39.5	36	69.5	61	35	49

Tubing Extension Union Tee Reducing

How to Order

Tubing connection

LQ1 T 2 1 – T T1 – R39 – □

Fitting type

Symbol	Type
T	Union tee

Body size (according to the combination table)

Tubing type

Symbol	Type
1, 2	Metric
A	Inch

Piping type

Symbol	Type
T	Tubing extension

Fitting type

Symbol	Type
T1	Type 1
T2	Type 2
T3	Type 3

Piping type (according to the combination table)

Symbol	Type
R□	Reducing

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Size combination (Metric)

Class		Model	A side (Left)	B side (Center)	C side (Right)
			Applicable tubing size (O.D. x I.D.) / Tubing extensions (O.D. x I.D.)		
2	∗	LQ1T21-TT1-R39	6 x 4	Tube 10 x 8	6 x 4
	∗	LQ1T21-TT2-R41	Tube 10 x 8	6 x 4	
3	∗	LQ1T32-TT1-R37	8 x 6	Tube 10 x 8	8 x 6
	∗	LQ1T32-TT2-R40	Tube 10 x 8	8 x 6	
4	∗	LQ1T41-TT1-R1	12 x 10	Tube 10 x 8	12 x 10
	∗	LQ1T41-TT1-R37		Tube 19 x 16	
5	∗	LQ1T51-TT1-R1	19 x 16	Tube 12 x 10	19 x 16
	∗	LQ1T51-TT1-R2		Tube 10 x 8	
		LQ1T51-TT1-R5	12 x 10	Tube 19 x 16	
	∗	LQ1T51-TT1-R13	6 x 4		
		LQ1T51-TT1-R37	19 x 16	Tube 25 x 22	
	∗	LQ1T51-TT1-R38	6 x 4		
		LQ1T51-TT2-R4	Tube 19 x 16	6 x 4	
6	∗	LQ1T61-TT1-R1	25 x 22	Tube 19 x 16	25 x 22
	∗	LQ1T61-TT1-R2		Tube 1/2" x 3/8"	
		LQ1T61-TT2-R1	Tube 25 x 22	19 x 16	

Note 1) Products marked "∗" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

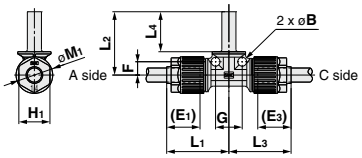
Size combination (Inch)

Class		Model	A side (Left)	B side (Center)	C side (Right)
			Applicable tubing size (O.D. x I.D.) / Tubing extensions (O.D. x I.D.)		
3		LQ1T3A-TT2-R5	Tube 3/8" x 1/4"	3/8" x 1/4"	1/4" x 5/32"
4	∗	LQ1T4A-TT1-R1	1/2" x 3/8"	Tube 3/8" x 1/4"	1/2" x 3/8"
	∗	LQ1T4A-TT1-R7	3/8" x 1/4"		
	∗	LQ1T4A-TT1-R37	1/2" x 3/8"	Tube 3/4" x 5/8"	
5	∗	LQ1T5A-TT1-R1	3/4" x 5/8"	Tube 1/2" x 3/8"	3/4" x 5/8"
	∗	LQ1T5A-TT1-R2		Tube 3/8" x 1/4"	
	∗	LQ1T5A-TT1-R3	1/4" x 5/32"	Tube 3/4" x 5/8"	
		LQ1T5A-TT1-R5	1/2" x 3/8"		
		LQ1T5A-TT1-R7		Tube 1/2" x 3/8"	
		LQ1T5A-TT2-R4	Tube 3/4" x 5/8"	1/4" x 5/32"	
	∗	LQ1T5A-TT2-R40	Tube 1" x 7/8"	3/4" x 5/8"	
		LQ1T5A-TT3-R5	Tube 3/4" x 5/8"		Tube 1/2" x 3/8"
	∗	LQ1T5A-TT3-R7	Tube 1/2" x 3/8"		
6	∗	LQ1T6A-TT1-R1	1" x 7/8"	Tube 3/4" x 5/8"	1" x 7/8"
	∗	LQ1T6A-TT1-R2		Tube 1/2" x 3/8"	
	∗	LQ1T6A-TT1-R3		Tube 3/8" x 1/4"	
		LQ1T6A-TT2-R1	Tube 3/4" x 5/8"	3/4" x 5/8"	

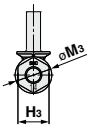
Note 1) Products marked "∗" are produced upon receipt of order.
(The body of the fitting is PTFE machined.)
Note 2) For details of the applicable tubing sizes, refer to page 823.

Dimensions

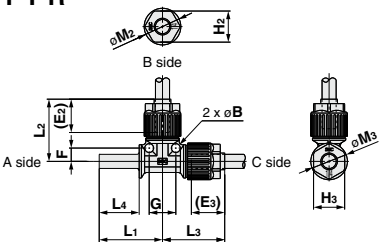
Tubing extension union tee reducing: LQ1T-T-R



Type T1

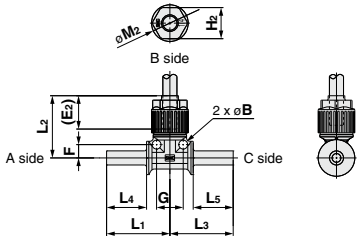


Class 2 to 5



Type T2

Class 2 to 5



Type T3

Class 2 to 5

Metric Size

Model	A side (Left)	B side (Center)	C side (Right)	B	E_1	E_2	E_3	F	G	H_1	H_2	H_3	L_1	L_2	L_3	L_4	M_1	M_2	M_3
	Applicable tubing O.D.																		
∗ **LQ1T21-TT1-R39**	ø**6**	Tube ø**10**	ø**6**	—	20	—	20	—	—	17	—	17	30.6	35.5	30.6	24	23	—	23
∗ **LQ1T21-TT2-R41**	Tube ø**10**	ø**6**	ø**6**		—	20					17	—	35.5	34.5	34.5	24		23	—
∗ **LQ1T32-TT1-R37**	ø**8**	Tube ø**10**	ø**8**	—	20	—	20	—	—	17	—	17	30.6	35.5	30.6	24	23	—	23
∗ **LQ1T32-TT2-R40**	Tube ø**10**	ø**8**	ø**8**		—	20				—	17		35.5	34.5	34.5	24	—	23	
∗ **LQ1T41-TT1-R1**	ø**12**	Tube ø**10**	ø**12**	—	24	—	24	—	—	21	—	21	35	38	35	24	28	—	28
∗ **LQ1T41-TT1-R37**	ø**12**	Tube ø**19**	ø**12**										39.5	49	39.5	35			
∗ **LQ1T51-TT1-R1**	ø**19**	Tube ø**12**	ø**19**	—	29	—	29	—	—	26	—	26	41.5	47.5	41.5	28	39	—	39
∗ **LQ1T51-TT1-R2**	ø**19**	Tube ø**10**	ø**19**										41	44.5	41	25			
LQ1T51-TT1-R5	ø**12**	Tube ø**19**	ø**19**	7				14	28				54	55.5	54	35			
∗ **LQ1T51-TT1-R13**	ø**6**	Tube ø**19**	ø**19**	—	15	—	29	—	—	14	—	26	29	54.5	45	35	16.5	—	39
LQ1T51-TT1-R37	ø**19**	Tube ø**25**	ø**19**	8	39.5	—	39.5	18	36	36	—	36	69.5	65.5	69.5	39.5	49	—	49
∗ **LQ1T51-TT1-R38**	ø**6**	Tube ø**25**	ø**19**	—	15	—	29	—	—	14	—	26	32.2	64	48.2	46	16.5	—	39
LQ1T51-TT2-R4	Tube ø**19**	ø**6**	ø**19**	7	—	15	29	14	28	—	14	26	55.5	38.5	54	35	—	16.5	39
∗ **LQ1T61-TT1-R1**	ø**25**	Tube ø**19**	ø**25**	—	39.5	—	39.5	—	—	36	26	36	55.1	59.5	55.1	35	49	—	49
∗ **LQ1T61-TT1-R2**	ø**25**	Tube **1/2**	ø**25**								21		53.5	52.5	53.5	28			
LQ1T61-TT2-R1	Tube ø**25**	ø**19**	ø**25**	8	—	39.5		18	36	—	36		65.5	69.5	69.5	39.5	—	49	

Inch Size

Model	A side (Left)	B side (Center)	C side (Right)	B	E_1	E_2	E_3	F	G	H_1	H_2	H_3	L_1	L_2	L_3	L_4	L_5	M_1	M_2	M_3
	Applicable tubing O.D.																			
LQ1T3A-TT2-R5	Tube **3/8**	**3/8**	**1/4**	5	—	20	15	9	18	—	17	14	37.6	36.6	36.6	24	—	—	23	16.5
∗ **LQ1T4A-TT1-R1**	**1/2**	Tube **3/8**	**1/2**	—	24	—	24	—	—	21	—	21	34	38	34	24	—	28	—	28
∗ **LQ1T4A-TT1-R7**	**3/8**	Tube **3/8**	**1/2**	—	20	—	24	—	—	17	—	21	34	38	34	24	—	23	—	28
∗ **LQ1T4A-TT1-R37**	**1/2**	Tube **3/4**	**1/2**	—	24	—	24	—	—	21	—	21	39.5	49	39.5	35	—	28	—	28
∗ **LQ1T5A-TT1-R1**	**3/4**	Tube **1/2**	**3/4**	—	29	—	29	—	—	26	—	26	41.9	47.5	41.9	28	—	39	—	39
∗ **LQ1T5A-TT1-R2**	**3/4**	Tube **3/8**	**3/4**	—	29	—	29	—	—	26	—	26	41	44.5	41	24	—	39	—	39
∗ **LQ1T5A-TT1-R3**	**1/4**	Tube **3/4**	**3/4**	—	15	—	29	—	—	14	—	26	29	54.5	45	35	—	16.5	—	39
LQ1T5A-TT1-R5	**1/2**	Tube **3/4**	**3/4**	7	29	—	29	14	28	26	—	26	54	55.5	54	35	—	39	—	39
LQ1T5A-TT1-R7	**1/2**	Tube **1/2**	**3/4**	7	29	—	29	14	28	26	—	26	49	44.5	54	24	—	39	—	39
LQ1T5A-TT2-R4	Tube **3/4**	**1/4**	**3/4**	7	—	15	29	14	28	—	14	26	55.5	38.5	54	35	—	—	16.5	39
∗ **LQ1T5A-TT2-R40**	Tube **1**	**3/4**	**3/4**	—	—	29	29	—	—	—	26	26	64	54	51.5	46	—	—	39	39
LQ1T5A-TT3-R5	Tube **3/4**	**3/4**	Tube **1/2**	7	—	29	—	14	28	—	26	—	48.5	54	55.5	35	28	—	39	—
∗ **LQ1T5A-TT3-R7**	Tube **1/2**	**3/4**	Tube **1/2**	—	—	29	—	—	—	—	26	—	46	44.5	46	28	28	—	39	—
∗ **LQ1T6A-TT1-R1**	ø**25**	Tube **3/4**	ø**25**	—	39.5	—	39.5	—	—	36	—	36	55.1	59.5	55.1	35	—	49	—	49
∗ **LQ1T6A-TT1-R2**	ø**25**	Tube **1/2**	ø**25**										53.5	52.5	53.5	28	—			
∗ **LQ1T6A-TT1-R3**	ø**25**	Tube **3/8**	ø**25**											48.5		24	—			
LQ1T6A-TT2-R1	Tube **1**	ø**19**	ø**25**	8	—	39.5		18	36	—	36		65.5	69.5	69.5	39.5	—	—	49	

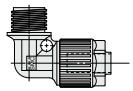
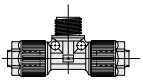
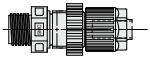
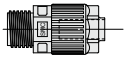
Note) Products marked "∗" are produced upon receipt of order. (The body of the fitting is PTFE machined.)

How to Order Space Saving Type Fittings

This product, for use with products with one nut attached (insert bushing) has one nut removed.

LQ1 E 21 – SN – □

Fitting type

E	T
Union Elbow 	Union Tee 
P	**U**
Panel Mount Union 	Union 

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Without a nut (including insert bushing) in one part

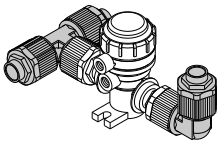
Combination of different diameter (on B side)

Symbol Size	Symbol No.	Applicable tubing size (mm)
1	**1**	4 x 3
1	**2**	3 x 2
2	**1**	6 x 4
2	**2**	4 x 3
3	**1**	10 x 8
3	**2**	8 x 6
3	**3**	6 x 4
4	**1**	12 x 10
4	**2**	10 x 8
5	**1**	19 x 16
5	**2**	12 x 10
6	**1**	25 x 22
6	**2**	19 x 16

Symbol Size	Symbol No.	Applicable tubing size (inch)
1	**A**	1/8" x 0.086"
—	—	—
2	**A**	1/4" x 5/32"
2	**B**	3/16" x 1/8"
2	**C**	1/8" x 0.086"
3	**A**	3/8" x 1/4"
3	**B**	1/4" x 5/32"
4	**A**	1/2" x 3/8"
4	**B**	3/8" x 1/4"
5	**A**	3/4" x 5/8"
5	**B**	1/2" x 3/8"
6	**A**	1" x 7/8"
6	**B**	3/4" x 5/8"

Note 1) For each body class, the second and later numbers or symbols indicate reducing. However, use of different diameters is not available with size 1.
Note 2) Please choose the same size fitting as the fitting of the connecting product.
Note 3) For details of applicable tubing sizes, refer to page 823.

Connection example



Options

Panel mounting nut

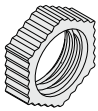
LQN P 11 – □

Applicable fitting

Symbol	Size
11	1
12	2
13	3
14	4
15	5
16	6

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5



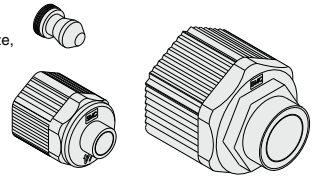
It is used to mount panels with a panel mount union.

Options

Nut insert bush

LQ 1 – 2 U 03 – ☐

In cases where exchanging the tubing size, we recommend the U type.



Applicable fitting

Symbol	Applicable fitting
1	LQ1

Size

Symbol	Size
1	1
2	2
3	3
4	4
5	5
6	6

Type of part

Symbol	Type of part
U	Nut insert bush
B	Insert bush
N	Nut

Applicable tubing size

Metric Size

Symbol	Applicable tubing size	Size 1	2	3	4	5	6
03	ø3 x ø2	○	○				
04	ø4 x ø3	○	○				
06	ø6 x ø4		○	○			
08	ø8 x ø6			○			
10	ø10 x ø8			○	○		
12	ø12 x ø10				○	○	
19	ø19 x ø16					○	○
25	ø25 x ø22.5						○

Inch Size

Symbol	Applicable tubing size	Size 1	2	3	4	5	6
03	1/8" x 0.086"	○	○				
05	3/16" x 1/8"		○				
07	1/4" x 5/32"		○	○			
11	3/8" x 1/4"			○	○		
13	1/2" x 3/8"				○	○	
19	3/4" x 5/8"					○	○
25	1" x 7/8"						○

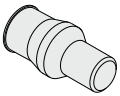
Note 1) In the case of size 1, changing the tubing by reducing is not available.
Note 2) For details of applicable tubing sizes, refer to page 823.

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Blanking plug

LQ – 11 P 04 – ☐



Used to block fittings which are not being used.

Applicable fitting

Symbol	Size
11	1
12	2
13	3
14	4
15	5
16	6

Applicable tubing size

Metric Size

Symbol	Applicable tubing size	Size 1	2	3	4	5	6
03	ø3 x ø2	○	●				
04	ø4 x ø3	○	●				
06	ø6 x ø4		○	●			
08	ø8 x ø6			●			
10	ø10 x ø8			○	●		
12	ø12 x ø10				○	●	
19	ø19 x ø16					○	●
25	ø25 x ø22.5						○

○Basic size ●With reducer

Inch Size

Symbol	Applicable tubing size	Size 1	2	3	4	5	6
03	1/8" x 0.086"	○	●				
05	3/16" x 1/8"		●				
07	1/4" x 5/32"		○	●			
11	3/8" x 1/4"			○	●		
13	1/2" x 3/8"				○	●	
19	3/4" x 5/8"					○	●
25	1" x 7/8"						○

○Basic size ●With reducer

Note) For details of the applicable tubing sizes, refer to page 823.

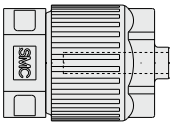
Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Tubing plug

LQ1 – 2 CP ☐ – ☐

Tubing plug will be a made-to-order product.



Used to block fittings which are not being used.

Size

Symbol	Size
1	1
2	2
3	3
4	4
5	5
6	6

Fitting type

Symbol	Type
CP	Tubing caps

Size

Nil	Without an insert bush
1	With an insert bush

Applicable tubing size

Metric Size

Symbol	Applicable tubing size	Size
03	ø3 x ø2	1
04	ø4 x ø3	
06	ø6 x ø4	2
08	ø8 x ø6	3
10	ø10 x ø8	3
12	ø12 x ø10	4
19	ø19 x ø16	5
25	ø25 x ø22	6

Inch Size

Symbol	Applicable tubing size	Size
03	1/8" x 0.086"	1
07	1/4" x 5/32"	2
11	3/8" x 1/4"	3
13	1/2" x 3/8"	4
19	3/4" x 5/8"	5
25	1" x 7/8"	6

Note) For details of the applicable tubing sizes, refer to page 823.

Insertion Tool

Fittings

Changing tubing sizes

The tubing size can be changed within the same body class (body size) by replacing the nut and insert bushing. However, in case of class 1, the tubing cannot be changed by reducing.

Body class	Tubing O.D.														
	Metric sizes								Inch sizes						
	ø3	ø4	ø6	ø8	ø10	ø12	ø19	ø25	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"
1	○	○	—	—	—	—	—	—	○	—	—	—	—	—	—
2	●	●	○	—	—	—	—	—	●	●	○	—	—	—	—
3	—	—	●	●	○	—	—	—	—	—	●	○	—	—	—
4	—	—	—	—	●	○	—	—	—	—	—	●	○	—	—
5	—	—	—	—	—	●	○	—	—	—	—	—	●	○	—
6	—	—	—	—	—	—	●	○	—	—	—	—	—	●	○

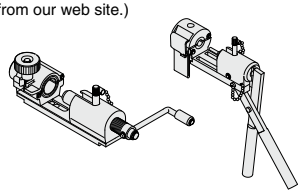
Parts composition

	Component parts		
	Nut	Insert	Collar (Insert assembly)
○Basic size	Yes	Yes	No
●Reducer type	Yes	Yes	Yes

⚠ Caution

1. Connect tubing with special tools

Refer to the pamphlet "High-Purity Fluoropolymer Fittings Hyper fitting/Series LQ1, 2 Work Procedure Instructions" (M-E05-1) for connecting tubing and special tools. (Downloadable from our web site.)

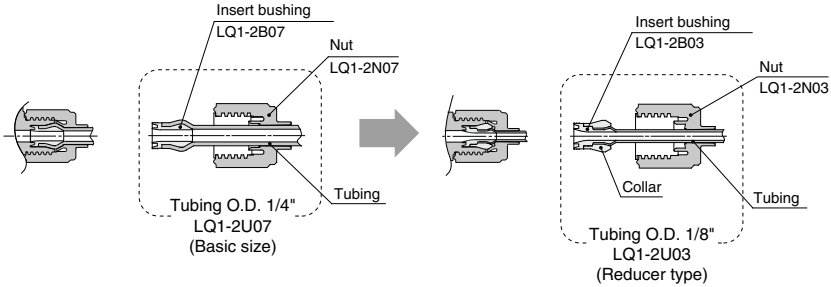


Changing the tubing size

Example) Changing the tubing from an O.D. 1/4" to O.D. 1/8" in LQ1 body class 2.

Prepare an insert bushing and nut for 1/8" O.D. tubing (LQ1-2U03) and change the tubing size.
(Refer to the section on how to order fitting parts.)

Note) Tubing is sold separately.



Fluoropolymer Fittings
Hyper Fittings / Flare Type
Series LQ3

RoHS

How to Order

Threaded connection

LQ3 H 11 – M □ – □

Fitting type

Symbol	Type
H	Connector
L	Elbow
B	Branch tee
R	Run tee

Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5
2	PVDF	Clean packaging equivalent to Class M3.5
3	PVDF	Standard packaging equivalent to Class M5.5

∗ LQ3H8□: Nut material PVDF is not available.

Thread type

Symbol	Type
Nil	R, Rc
N	NPT

Piping type

Symbol	Type
M	Male
F	Female

Size combination

Size	No.	Applicable tubing size (mm)	Port size
1	**1**	4 x 3	1/8"
1	**2**	3 x 2	
2	**1**	6 x 4	1/8"
2	**2**		1/4"
3	**1**	10 x 8	1/8"
3	**2**	8 x 6	
3	**3**	10 x 8	1/4"
3	**4**	8 x 6	
3	**5**	10 x 8	3/8"
3	**6**	8 x 6	
3	**8**		1/2"
4	**1**	12 x 10	1/4"
4	**2**		3/8"
4	**3**		1/2"
4	**4**		3/4"
5	**1**	19 x 16	3/8"
5	**2**		1/2"
5	**3**		3/4"
6	**1**	25 x 22	1/2"
6	**2**		3/4"
6	**3**		1"

Note) For details of the applicable tubing sizes, refer to page 823.

Size	No.	Applicable tubing size (mm)	Port size
1	**A**	1/8" x 0.086"	1/8"
2	**A**	1/4" x 5/32"	1/8"
2	**B**		1/4"
3	**A**	3/8" x 1/4"	1/8"
3	**B**		1/4"
3	**C**		3/8"
3	**D**		1/2"
4	**A**	1/2" x 3/8"	1/4"
4	**B**		3/8"
4	**C**		1/2"
4	**D**		3/4"
5	**A**	3/4" x 5/8"	3/8"
5	**B**		1/2"
5	**C**		3/4"
6	**A**	1" x 7/8"	1/2"
6	**B**		3/4"
6	**C**		1"
7∗	**A∗**	1 1/4" x 1.1"	3/4"
7∗	**B∗**		1"
7∗	**C∗**		1 1/4"
8∗	**A∗**	1 1/2" x 1.33"	1"
8∗	**B∗**		1 1/4"
8∗	**C∗**		1 1/2"

∗ Fitting type H, piping type M: Male connector only.

How to Order

Tubing connection

LQ3 E 11 – □

Fitting type

Symbol	Type
E	Union elbow
T	Union tee
P	Panel mount union
U	Union

Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5
2	PVDF	Clean packaging equivalent to Class M3.5
3	PVDF	Standard packaging equivalent to Class M5.5

∗ LQ3□8A: Nut material PVDF is not available.

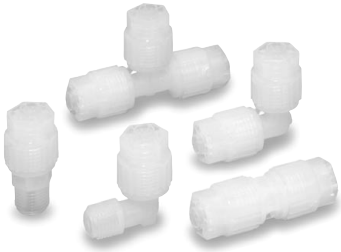
Size combination

Size	No.	Applicable tubing size (mm)
1	**1**	4 x 3
1	**2**	3 x 2
2	**1**	6 x 4
3	**1**	10 x 8
3	**2**	8 x 6
4	**1**	12 x 10
5	**1**	19 x 16
6	**1**	25 x 22

Note) For details of the applicable tubing sizes, refer to page 823.

Size	Symbol	Applicable tubing size (inch)
1	**A**	1/8" x 0.086"
2	**A**	1/4" x 5/32"
3	**A**	3/8" x 1/4"
4	**A**	1/2" x 3/8"
5	**A**	3/4" x 5/8"
6	**A**	1" x 7/8"
7∗	**A**∗	1 1/4" x 1.1"
8∗	**A**∗	1 1/2" x 1.33"

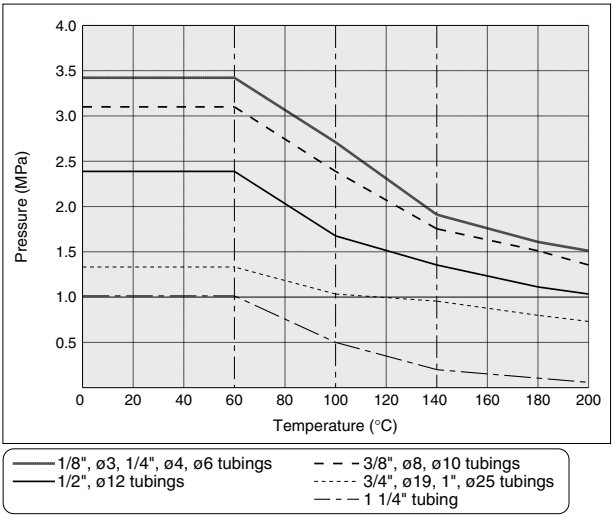
∗ P: Without panel mounting



Specifications

Feature \ Model		LQ3□10	LQ3□20	LQ3□30	LQ3□40	LQ3□50	LQ3□60	LQ3□70
Material		New PFA						
Maximum operating pressure (at 20°C)		1.0 MPa						
Proof pressure		Refer to the withstand pressure and heat resistance performance data.						
Operating temperature	**Nut material PVDF**	0 to 150°C						
	Nut material PFA	0 to 200°C						

Withstand Pressure and Heat Resistance Performance



⚠ Specific Product Precautions

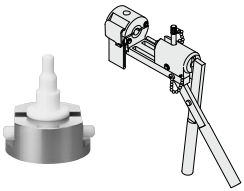
Be sure to read before handling. Refer to front matter 41 for Safety Instructions.

Piping

⚠ Caution

1. Connect tubing with special tools

Please refer to the LQ3 series mounting method in "High Purity Fluoropolymer Fittings: Hyper Fitting/Flare Type" (M-E06-4) for tubing connection and special tools. (Downloadable from our web site.)



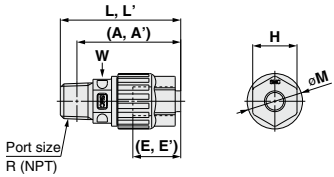
2. Tighten the nut to the end surface of the body. As a guide, refer to the proper tightening torque shown below.

Tightening torque for piping

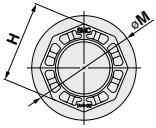
Body class	Torque (N·m)
1	0.7 to 0.9
2	1.6 to 1.8
3	3.2 to 3.5
4	5.0 to 5.3
5	10.0 to 10.5
6	22.5 to 23.0
7	23.0 to 26.5

Dimensions

Male connector: LQ3H-M



(A,A'): Reference dimension after installation
(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(A'),L',E': Nut material PVDF dimensions
W: Width across flats dimension



Class 7, 8

Metric Size

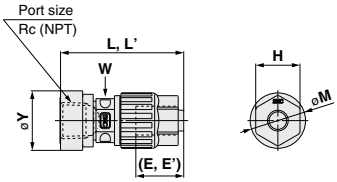
Model	Applicable tubing O.D.	Connection threads R/NPT	A	A'	E	E'	H	L	L'	M	W
LQ3H11-M□	**ø4**	1/8"	29.5	28.5	10	9	11	33.5	32.5	14	10
LQ3H12-M□	**ø3**										
LQ3H21-M□	**ø6**	1/8"	39.5	38.5	17	16	16	43.5	42.5	20	14
LQ3H22-M□		1/4"	37.5	36.5							
LQ3H31-M□	**ø10**	1/8"	51	48	22.5	19.5	21	55	52	25	18
LQ3H32-M□	**ø8**										
LQ3H33-M□	**ø10**	1/4"	49	46							
LQ3H34-M□	**ø8**										
LQ3H35-M□	**ø10**	3/8"	48.5	45.5							
LQ3H36-M□	**ø8**										
LQ3H38-M□		1/2"	54	51				62	59		
LQ3H41-M□	**ø12**	1/4"	58	56	24	22	24	64	62	29	22
LQ3H42-M□		3/8"	57.5	55.5							
LQ3H43-M□		1/2"	56	54							
LQ3H44-M□		3/4"	59.8	57.6				69.3	67.1		
LQ3H51-M□	**ø19**	3/8"	69.5	67	26.5	24	32	76	73.5	37	30
LQ3H52-M□		1/2"	68	65.5							
LQ3H53-M□		3/4"	66.5	64							
LQ3H61-M□	**ø25**	1/2"	80	76	30	26	41	88	84	49	36
LQ3H62-M□		3/4"	78.5	74.5							
LQ3H63-M□		1"	77.5	73.5							

Inch Size

Model	Applicable tubing O.D.	Connection threads R/NPT	A	A'	E	E'	H	L	L'	M	W
LQ3H1A-M□	1/8"	1/8"	29.5	28.5	10	9	11	33.5	32.5	14	10
LQ3H2A-M□	1/4"	1/8"	39.5	38.5	17	16	16	43.5	42.5	20	14
LQ3H2B-M□		1/4"	37.5	36.5							
LQ3H3A-M□	3/8"	1/8"	51	48	22.5	19.5	21	55	52	25	18
LQ3H3B-M□		1/4"	49	46							
LQ3H3C-M□		3/8"	48.5	45.5							
LQ3H3D-M□		1/2"	54	51				62	59		
LQ3H4A-M□	1/2"	1/4"	58	56	24.5	22.5	24	64	62	29	22
LQ3H4B-M□		3/8"	57.5	55.5							
LQ3H4C-M□		1/2"	56	54							
LQ3H4D-M□		3/4"	59.8	57.6				69.3	67.1		
LQ3H5A-M□	3/4"	3/8"	69.5	67	26.5	24	32	76	73.5	37	30
LQ3H5B-M□		1/2"	68	65.5							
LQ3H5C-M□		3/4"	66.5	64							
LQ3H6A-M□	1"	1/2"	80	76	30	26	41	88	84	49	36
LQ3H6B-M□		3/4"	78.5	74.5							
LQ3H6C-M□		1"	77.5	73.5							
LQ3H7A-M□	1 1/4"	3/4"	96.5	96.5	35	35	50	106	106	64	46
LQ3H7B-M□		1"	95.5	95.5							
LQ3H7C-M□		1 1/4"	93.3	93.3							
LQ3H8A-M□	1 1/2"	1"	103.5	—	39	—	60	114	—	77	55
LQ3H8B-M□		1 1/4"	101.3								
LQ3H8C-M□		1 1/2"	101.3								

Dimensions

Female connector: LQ3H-F



(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L': Nut material PVDF dimensions
W: Width across flats dimension

Metric Size

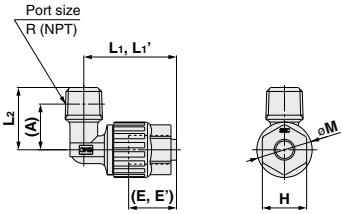
Model	Applicable tubing O.D.	Connection threads Rc/NPT	E	E'	H	L	L'	M	W	Y
LQ3H11-F□	ø4	1/8"	10	9	11	35	34	14	10	18.5
LQ3H12-F□	ø3									
LQ3H21-F□	ø6	1/8"	17	16	16	40	39	20	14	18.5
LQ3H22-F□		1/4"				45	44			21.5
LQ3H31-F□	ø10	1/8"	22.5	19.5	21	50.5	47.5	25	18	18.5
LQ3H32-F□	ø8									
LQ3H33-F□	ø10	1/4"				55	52			21.5
LQ3H34-F□	ø8									
LQ3H35-F□	ø10	3/8"				55.5	52.5			25
LQ3H36-F□	ø8									
LQ3H41-F□	ø12	1/4"	24	22	24	55.5	53	29	22	21.5
LQ3H42-F□		3/8"				58	56			25
LQ3H43-F□		1/2"				66	64			29.5
LQ3H51-F□	ø19	3/8"	26.5	24	32	67	64.5	37	30	25
LQ3H52-F□		1/2"				72	69.5			29.5
LQ3H53-F□		3/4"				73.5	71			36
LQ3H61-F□	ø25	1/2"	30	26	41	81.5	77.5	49	36	29.5
LQ3H62-F□		3/4"				83	79			36
LQ3H63-F□		1"				90.5	86.5			44.5

Inch Size

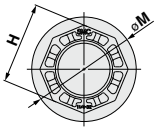
Model	Applicable tubing O.D.	Connection threads Rc/NPT	E	E'	H	L	L'	M	W	Y
LQ3H1A-F□	1/8"	1/8"	10	9	11	35	34	14	10	18.5
LQ3H2A-F□	1/4"	1/8"	17	16	16	40	39	20	14	18.5
LQ3H2B-F□		1/4"				45	44			21.5
LQ3H3A-F□	3/8"	1/8"	22.5	19.5	21	50.5	47.5	25	18	18.5
LQ3H3B-F□		1/4"				55	52			21.5
LQ3H3C-F□		3/8"				55.5	52.5			25
LQ3H4A-F□	1/2"	1/4"	24.5	22.5	24	55.5	53	29	22	21.5
LQ3H4B-F□		3/8"				58	56			25
LQ3H4C-F□		1/2"				66	64			29.5
LQ3H5A-F□	3/4"	3/8"	26.5	24	32	67	64.5	37	30	25
LQ3H5B-F□		1/2"				72	69.5			29.5
LQ3H5C-F□		3/4"				73.5	71			36
LQ3H6A-F□	1"	1/2"	30	26	41	81.5	77.5	49	36	29.5
LQ3H6B-F□		3/4"				83	79			36
LQ3H6C-F□		1"				90.5	86.5			44.5

Dimensions

Male elbow: LQ3L-M



(A): Reference dimension after installation
(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L1': Nut material PVDF dimensions



Class 7

Metric Size

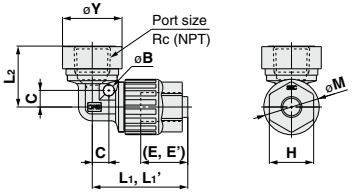
Model	Applicable tubing O.D.	Connection threads R/NPT	A	E	E'	H	L_1	L_1'	L_2	M
LQ3L11-M□	**ø4**	1/8"	12.5	10	9	11	26	25	16.5	14
LQ3L12-M□	**ø3**									
LQ3L21-M□	**ø6**	1/8"	18.5	17	16	16	33.5	32.5	22.5	20
LQ3L22-M□		1/4"	16.5							
LQ3L31-M□	**ø10**	1/8"	24	22.5	19.5	21	46	43	28	25
LQ3L32-M□	**ø8**									
LQ3L33-M□	**ø10**	1/4"	22							
LQ3L34-M□	**ø8**									
LQ3L35-M□	**ø10**	3/8"	21.5							
LQ3L36-M□	**ø8**									
LQ3L38-M□		1/2"	24.5				47.5	44.5	32.5	
LQ3L41-M□	**ø12**	1/4"	27	24	22	24	54.5	52.5	33	29
LQ3L42-M□		3/8"	26.5							
LQ3L43-M□		1/2"	25							
LQ3L51-M□	**ø19**	3/8"	33.5	26.5	24	32	64	61.5	40	37
LQ3L52-M□		1/2"	32							
LQ3L53-M□		3/4"	30.5							
LQ3L61-M□	**ø25**	1/2"	38	30	26	41	77	73	46	49
LQ3L62-M□		3/4"	36.5							
LQ3L63-M□		1"	35.5							

Inch Size

Model	Applicable tubing O.D.	Connection threads R/NPT	A	E	E'	H	L_1	L_1'	L_2	M
LQ3L1A-M□	1/8"	1/8"	12.5	10	9	11	26	25	16.5	14
LQ3L2A-M□	1/4"	1/8"	18.5	17	16	16	33.5	32.5	22.5	20
LQ3L2B-M□		1/4"	16.5							
LQ3L3A-M□	3/8"	1/8"	24	22.5	19.5	21	46	43	28	25
LQ3L3B-M□		1/4"	22							
LQ3L3C-M□		3/8"	21.5							
LQ3L3D-M□		1/2"	24.5				47.5	44.5	32.5	
LQ3L4A-M□	1/2"	1/4"	27	24.5	22.5	24	54.5	52.5	33	29
LQ3L4B-M□		3/8"	26.5							
LQ3L4C-M□		1/2"	25							
LQ3L5A-M□	3/4"	3/8"	33.5	26.5	24	32	64	61.5	40	37
LQ3L5B-M□		1/2"	32							
LQ3L5C-M□		3/4"	30.5							
LQ3L6A-M□	1"	1/2"	38	30	26	41	77	73	46	49
LQ3L6B-M□		3/4"	36.5							
LQ3L6C-M□		1"	35.5							

Dimensions

Female elbow: LQ3L-F



(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L1': Nut material PVDF dimensions

Metric Size

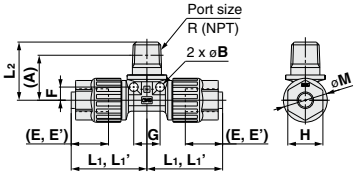
Model	Applicable tubing O.D.	Connection threads Rc/NPT	B	C	E	E'	H	L_1	L_1'	L_2	M	Y
LQ3L11-F□	**ø4**	1/8"	3.5	4.8	10	9	11	28.5	27.5	19.5	14	18.5
LQ3L12-F□	**ø3**											
LQ3L21-F□	**ø6**	1/8"	4	6	17	16	16	34.5	33.5	20	20	18.5
LQ3L22-F□		1/4"								22		21.5
LQ3L31-F□	**ø10**	1/8"	5	9	22.5	19.5	21	47.5	44.5	23	25	18.5
LQ3L32-F□	**ø8**											
LQ3L33-F□	**ø10**	1/4"								24		21.5
LQ3L34-F□	**ø8**											
LQ3L35-F□	**ø10**	3/8"								25.5		25
LQ3L36-F□	**ø8**											
LQ3L41-F□	**ø12**	1/4"	6	10	24	22	24	52.5	50.5	23.5	29	21.5
LQ3L42-F□		3/8"								26		25
LQ3L43-F□		1/2"								30		29.5
LQ3L51-F□	**ø19**	3/8"	7	14	26.5	24	32	64	61.5	30.5	37	25
LQ3L52-F□		1/2"								35.5		29.5
LQ3L53-F□		3/4"								37		36
LQ3L61-F□	**ø25**	1/2"	8	18	30	26	41	78	74	41	49	29.5
LQ3L62-F□		3/4"								42.5		36
LQ3L63-F□		1"								46		44.5

Inch Size

Model	Applicable tubing O.D.	Connection threads Rc/NPT	B	C	E	E'	H	L_1	L_1'	L_2	M	Y
LQ3L1A-F□	1/8"	1/8"	3.5	4.8	10	9	11	28.5	27.5	19.5	14	18.5
LQ3L2A-F□	1/4"	1/8"	4	6	17	16	16	34.5	33.5	20	20	18.5
LQ3L2B-F□		1/4"								22		21.5
LQ3L3A-F□	3/8"	1/8"	5	9	22.5	19.5	21	47.5	44.5	23	25	18.5
LQ3L3B-F□		1/4"								24		21.5
LQ3L3C-F□		3/8"								25.5		25
LQ3L4A-F□	1/2"	1/4"	6	10	24.5	22.5	24	52.5	50.5	23.5	29	21.5
LQ3L4B-F□		3/8"								26		25
LQ3L4C-F□		1/2"								30		29.5
LQ3L5A-F□	3/4"	3/8"	7	14	26.5	24	32	64	61.5	30.5	37	25
LQ3L5B-F□		1/2"								35.5		29.5
LQ3L5C-F□		3/4"								37		36
LQ3L6A-F□	1"	1/2"	8	18	30	26	41	78	74	41	49	29.5
LQ3L6B-F□		3/4"								42.5		36
LQ3L6C-F□		1"								46		44.5

Dimensions

Male branch tee: LQ3B-M



(A): Reference dimension after installation
(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
E',L_1': Nut material PVDF dimensions

Metric Size

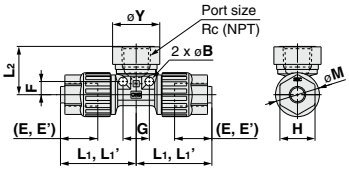
Model	Applicable tubing O.D.	Connection threads R/NPT	A	B	E	E'	F	G	H	L_1	L_1'	L_2	M
LQ3B11-M□	**ø4**	1/8"	15	3.5	10	9	4.8	9.5	11	28.5	27.5	19	14
LQ3B12-M□	**ø3**												
LQ3B21-M□	**ø6**	1/8"	19.5	4	17	16	6	12	16	34.5	33.5	23.5	20
LQ3B22-M□		1/4"	20.5									26.5	
LQ3B31-M□	**ø10**	1/8"	22.5	5	22.5	19.5	9	18	21	47.5	44.5	26.5	25
LQ3B32-M□	**ø8**												
LQ3B33-M□	**ø10**	1/4"	23.5									29.5	
LQ3B34-M□	**ø8**												
LQ3B35-M□	**ø10**	3/8"	24									30.5	
LQ3B36-M□	**ø8**												
LQ3B41-M□	**ø12**	1/4"	27	6	24	22	10	20	24	52.5	50.5	33	29
LQ3B42-M□		3/8"	27.5									34	
LQ3B43-M□		1/2"	29									37	
LQ3B51-M□	**ø19**	3/8"	32.5	7	26.5	24	14	28	32	64	61.5	39	37
LQ3B52-M□		1/2"	34									42	
LQ3B53-M□		3/4"	34.5									44	
LQ3B61-M□	**ø25**	1/2"	42	8	30	26	18	36	41	78	74	50	49
LQ3B62-M□		3/4"	42.5									52	
LQ3B63-M□		1"										53	

Inch Size

Model	Applicable tubing O.D.	Connection threads R/NPT	A	B	E	E'	F	G	H	L_1	L_1'	L_2	M
LQ3B1A-M□	1/8"	1/8"	15	3.5	10	9	4.8	9.5	11	28.5	27.5	19	14
LQ3B2A-M□	1/4"	1/8"	19.5	4	17	16	6	12	16	34.5	33.5	23.5	20
LQ3B2B-M□		1/4"	20.5									26.5	
LQ3B3A-M□	3/8"	1/8"	22.5	5	22.5	19.5	9	18	21	47.5	44.5	26.5	25
LQ3B3B-M□		1/4"	23.5									29.5	
LQ3B3C-M□		3/8"	24									30.5	
LQ3B4A-M□	1/2"	1/4"	27	6	24.5	22.5	10	20	24	52.5	50.5	33	29
LQ3B4B-M□		3/8"	27.5									34	
LQ3B4C-M□		1/2"	29									37	
LQ3B5A-M□	3/4"	3/8"	32.5	7	26.5	24	14	28	32	64	61.5	39	37
LQ3B5B-M□		1/2"	34									42	
LQ3B5C-M□		3/4"	34.5									44	
LQ3B6A-M□	1"	1/2"	42	8	30	26	18	36	41	78	74	50	49
LQ3B6B-M□		3/4"	42.5									52	
LQ3B6C-M□		1"										53	

Dimensions

Female branch tee: LQ3B-F



(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L1': Nut material PVDF dimensions

Metric Size

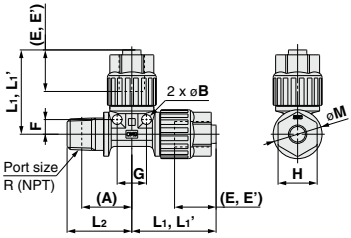
Model	Applicable tubing O.D.	Connection threads Rc/NPT	B	E	E'	F	G	H	L_1	L_1'	L_2	M	Y
LQ3B11-F□	**ø4**	1/8"	3.5	10	9	4.8	9.5	11	28.5	27.5	19.5	14	18.5
LQ3B12-F□	**ø3**												
LQ3B21-F□	**ø6**	1/8"	4	17	16	6	12	16	34.5	33.5	20	20	18.5
LQ3B22-F□		1/4"									22		21.5
LQ3B31-F□	**ø10**	1/8"	5	22.5	19.5	9	18	21	47.5	44.5	23	25	18.5
LQ3B32-F□	**ø8**												
LQ3B33-F□	**ø10**	1/4"									24		21.5
LQ3B34-F□	**ø8**												
LQ3B35-F□	**ø10**	3/8"									25.5		25
LQ3B36-F□	**ø8**												
LQ3B41-F□	**ø12**	1/4"	6	24	22	10	20	24	52.5	50.5	23.5	29	21.5
LQ3B42-F□		3/8"									26		25
LQ3B43-F□		1/2"									30		29.5
LQ3B51-F□	**ø19**	3/8"	7	26.5	24	14	28	32	64	61.5	30.5	37	25
LQ3B52-F□		1/2"									35.5		29.5
LQ3B53-F□		3/4"									37		36
LQ3B61-F□	**ø25**	1/2"	8	30	26	18	36	41	78	74	41	49	29.5
LQ3B62-F□		3/4"									42.5		36
LQ3B63-F□		1"									46		44.5

Inch Size

Model	Applicable tubing O.D.	Connection threads Rc/NPT	B	E	E'	F	G	H	L_1	L_1'	L_2	M	Y
LQ3B1A-F□	1/8"	1/8"	3.5	10	9	4.8	9.5	11	28.5	27.5	19.5	14	18.5
LQ3B2A-F□	1/4"	1/8"	4	17	16	6	12	16	34.5	33.5	20	20	18.5
LQ3B2B-F□		1/4"									22		21.5
LQ3B3A-F□	3/8"	1/8"	5	22.5	19.5	9	18	21	47.5	44.5	23	25	18.5
LQ3B3B-F□		1/4"									24		21.5
LQ3B3C-F□		3/8"									25.5		25
LQ3B4A-F□	1/2"	1/4"	6	24.5	22.5	10	20	24	52.5	50.5	23.5	29	21.5
LQ3B4B-F□		3/8"									26		25
LQ3B4C-F□		1/2"									30		29.5
LQ3B5A-F□	3/4"	3/8"	7	26.5	24	14	28	32	64	61.5	30.5	37	25
LQ3B5B-F□		1/2"									35.5		29.5
LQ3B5C-F□		3/4"									37		36
LQ3B6A-F□	1"	1/2"	8	30	26	18	36	41	78	74	41	49	29.5
LQ3B6B-F□		3/4"									42.5		36
LQ3B6C-F□		1"									46		44.5

Dimensions

Male run tee: LQ3R-M



(A): Reference dimension after installation
(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L': Nut material PVDF dimensions

Metric Size

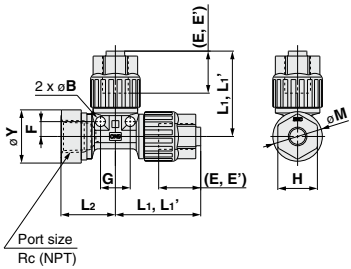
Model	Applicable tubing O.D.	Connection threads R/NPT	A	B	E	E'	F	G	H	L_1	L_1'	L_2	M
LQ3R11-M□	**ø4**	1/8"	15	3.5	10	9	4.8	9.5	11	28.5	27.5	19	14
LQ3R12-M□	**ø3**												
LQ3R21-M□	**ø6**	1/8"	19.5	4	17	16	6	12	16	34.5	33.5	23.5	20
LQ3R22-M□		1/4"	20.5									26.5	
LQ3R31-M□	**ø10**	1/8"	22.5	5	22.5	19.5	9	18	21	47.5	44.5	26.5	25
LQ3R32-M□	**ø8**												
LQ3R33-M□	**ø10**	1/4"	23.5									29.5	
LQ3R34-M□	**ø8**												
LQ3R35-M□	**ø10**	3/8"	24									30.5	
LQ3R36-M□	**ø8**												
LQ3R41-M□	**ø12**	1/4"	27	6	24	22	10	20	24	52.5	50.5	33	29
LQ3R42-M□		3/8"	27.5									34	
LQ3R43-M□		1/2"	29									37	
LQ3R51-M□	**ø19**	3/8"	32.5	7	26.5	24	14	28	32	64	61.5	39	37
LQ3R52-M□		1/2"	34									42	
LQ3R53-M□		3/4"	34.5									44	
LQ3R61-M□	**ø25**	1/2"	42	8	30	26	18	36	41	78	74	50	49
LQ3R62-M□		3/4"	42.5									52	
LQ3R63-M□		1"										53	

Inch Size

Model	Applicable tubing O.D.	Connection threads R/NPT	A	B	E	E'	F	G	H	L_1	L_1'	L_2	M
LQ3R1A-M□	1/8"	1/8"	15	3.5	10	9	4.8	9.5	11	28.5	27.5	19	14
LQ3R2A-M□	1/4"	1/8"	19.5	4	17	16	6	12	16	34.5	33.5	23.5	20
LQ3R2B-M□		1/4"	20.5									26.5	
LQ3R3A-M□	3/8"	1/8"	22.5	5	22.5	19.5	9	18	21	47.5	44.5	26.5	25
LQ3R3B-M□		1/4"	23.5									29.5	
LQ3R3C-M□		3/8"	24									30.5	
LQ3R4A-M□	1/2"	1/4"	27	6	24.5	22.5	10	20	24	52.5	50.5	33	29
LQ3R4B-M□		3/8"	27.5									34	
LQ3R4C-M□		1/2"	29									37	
LQ3R5A-M□	3/4"	3/8"	32.5	7	26.5	24	14	28	32	64	61.5	39	37
LQ3R5B-M□		1/2"	34									42	
LQ3R5C-M□		3/4"	34.5									44	
LQ3R6A-M□	1"	1/2"	42	8	30	26	18	36	41	78	74	50	49
LQ3R6B-M□		3/4"	42.5									52	
LQ3R6C-M□		1"										53	

Dimensions

Female run tee: LQ3R-F



(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L1': Nut material PVDF dimensions

Metric Size

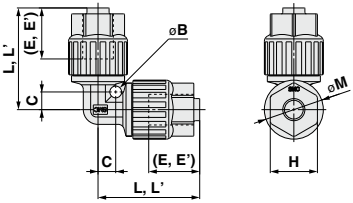
Model	Applicable tubing O.D.	Connection threads Rc/NPT	B	E	E'	F	G	H	L_1	L_1'	L_2	M	Y
LQ3R11-F□	ø4	1/8"	3.5	10	9	4.8	9.5	11	28.5	27.5	19.5	14	18.5
LQ3R12-F□	ø3												
LQ3R21-F□	ø6	1/8"	4	17	16	6	12	16	34.5	33.5	20	20	18.5
LQ3R22-F□		1/4"									22		21.5
LQ3R31-F□	ø10	1/8"	5	22.5	19.5	9	18	21	47.5	44.5	23	25	18.5
LQ3R32-F□	ø8												
LQ3R33-F□	ø10	1/4"									24		21.5
LQ3R34-F□	ø8												
LQ3R35-F□	ø10	3/8"									25.5		25
LQ3R36-F□	ø8												
LQ3R41-F□	ø12	1/4"	6	24	22	10	20	24	52.5	50.5	23.5	29	21.5
LQ3R42-F□		3/8"									26		25
LQ3R43-F□		1/2"									30		29.5
LQ3R51-F□	ø19	3/8"	7	26.5	24	14	28	32	64	61.5	30.5	37	25
LQ3R52-F□		1/2"									35.5		29.5
LQ3R53-F□		3/4"									37		36
LQ3R61-F□	ø25	1/2"	8	30	26	18	36	41	78	74	41	49	29.5
LQ3R62-F□		3/4"									42.5		36
LQ3R63-F□		1"									46		44.5

Inch Size

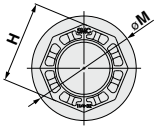
Model	Applicable tubing O.D.	Connection threads Rc/NPT	B	E	E'	F	G	H	L_1	L_1'	L_2	M	Y
LQ3R1A-F□	1/8"	1/8"	3.5	10	9	4.8	9.5	11	28.5	27.5	19.5	14	18.5
LQ3R2A-F□	1/4"	1/8"	4	17	16	6	12	16	34.5	33.5	20	20	18.5
LQ3R2B-F□		1/4"									22		21.5
LQ3R3A-F□	3/8"	1/8"	5	22.5	19.5	9	18	21	47.5	44.5	23	25	18.5
LQ3R3B-F□		1/4"									24		21.5
LQ3R3C-F□		3/8"									25.5		25
LQ3R4A-F□	1/2"	1/4"	6	24.5	22.5	10	20	24	52.5	50.5	23.5	29	21.5
LQ3R4B-F□		3/8"									26		25
LQ3R4C-F□		1/2"									30		29.5
LQ3R5A-F□	3/4"	3/8"	7	26.5	24	14	28	32	64	61.5	30.5	37	25
LQ3R5B-F□		1/2"									35.5		29.5
LQ3R5C-F□		3/4"									37		36
LQ3R6A-F□	1"	1/2"	8	30	26	18	36	41	78	74	41	49	29.5
LQ3R6B-F□		3/4"									42.5		36
LQ3R6C-F□		1"									46		44.5

Dimensions

Union elbow: LQ3E



(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L': Nut material PVDF dimensions



Class 7, 8

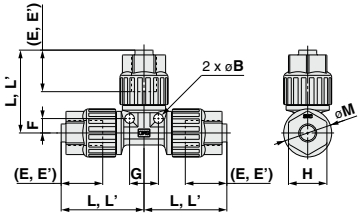
Metric Size

Model	Applicable tubing O.D.	B	C	E	E'	H	L	L'	M
LQ3E11	**ø4**	3.5	4.8	10	9	11	28.5	27.5	14
LQ3E12	**ø3**								
LQ3E21	**ø6**	4	6	17	16	16	34.5	33.5	20
LQ3E31	**ø10**	5	9	22.5	19.5	21	47.5	44.5	25
LQ3E32	**ø8**								
LQ3E41	**ø12**	6	10	24	22	24	52.5	50.5	29
LQ3E51	**ø19**	7	14	26.5	24	32	64	61.5	37
LQ3E61	**ø25**	8	18	30	26	41	78	74	49

Inch Size

Model	Applicable tubing O.D.	B	C	E	E'	H	L	L'	M
LQ3E1A	1/8"	3.5	4.8	10	9	11	28.5	27.5	14
LQ3E2A	1/4"	4	6	17	16	16	34.5	33.5	20
LQ3E3A	3/8"	5	9	22.5	19.5	21	47.5	44.5	25
LQ3E4A	1/2"	6	10	24.5	22.5	24	52.5	50.5	29
LQ3E5A	3/4"	7	14	26.5	24	32	64	61.5	37
LQ3E6A	1"	8	18	30	26	41	78	74	49
LQ3E7A	1 1/4"	9	22	35	35	50	92.5	92.5	64
LQ3E8A	1 1/2"	11	28.5	39	—	60	100.5	—	77

Union tee: LQ3T



(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L': Nut material PVDF dimensions

Metric Size

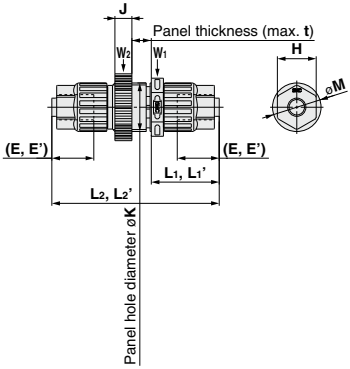
Model	Applicable tubing O.D.	B	E	E'	F	G	H	L	L'	M
LQ3T11	**ø4**	3.5	10	9	4.8	9.5	11	28.5	27.5	14
LQ3T12	**ø3**									
LQ3T21	**ø6**	4	17	16	6	12	16	34.5	33.5	20
LQ3T31	**ø10**	5	22.5	19.5	9	18	21	47.5	44.5	25
LQ3T32	**ø8**									
LQ3T41	**ø12**	6	24	22	10	20	24	52.5	50.5	29
LQ3T51	**ø19**	7	26.5	24	14	28	32	64	61.5	37
LQ3T61	**ø25**	8	30	26	18	36	41	78	74	49

Inch Size

Model	Applicable tubing O.D.	B	E	E'	F	G	H	L	L'	M
LQ3T1A	1/8"	3.5	10	9	4.8	9.5	11	28.5	27.5	14
LQ3T2A	1/4"	4	17	16	6	12	16	34.5	33.5	20
LQ3T3A	3/8"	5	22.5	19.5	9	18	21	47.5	44.5	25
LQ3T4A	1/2"	6	24.5	22.5	10	20	24	52.5	50.5	29
LQ3T5A	3/4"	7	26.5	24	14	28	32	64	61.5	37
LQ3T6A	1"	8	30	26	18	36	41	78	74	49
LQ3T7A	1 1/4"	9	35	35	22	44	50	92.5	92.5	64
LQ3T8A	1 1/2"	11	39	—	28.5	57	60	100.5	—	77

Dimensions

Panel mount union: LQ3P



(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L1',L2': Nut material PVDF dimensions
W: Width across flats dimension

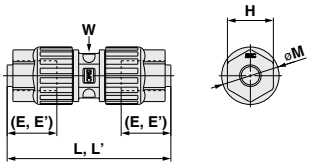
Metric Size

Model	Applicable tubing O.D.	E	E'	H	J	K	L_1	L_1'	L_2	L_2'	M	t	W_1	W_2
LQ3P11	ø4	10	9	11	6	14.5	23.5	22.5	58	56	14	8	16	17
LQ3P12	ø3													
LQ3P21	ø6	17	16	16	7	20.5	28	27	69	67	20	8	21	24
LQ3P31	ø10	22.5	19.5	21	7	24.5	39	36	89	83	25	8	26	28
LQ3P32	ø8													
LQ3P41	ø12	24	22	24	9	30.5	44.5	42.5	100	96	29	8	32	36
LQ3P51	ø19	26.5	24	32	9	36.5	50.5	48	117	112	37	13	41	43
LQ3P61	ø25	30	26	41	10	48.5	60	56	136	127.5	49	13	50	55

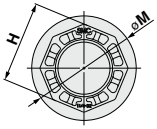
Inch Size

Model	Applicable tubing O.D.	E	E'	H	J	K	L_1	L_1'	L_2	L_2'	M	t	W_1	W_2
LQ3P1A	1/8"	10	9	11	6	14.5	23.5	22.5	58	56	14	8	16	17
LQ3P2A	1/4"	17	16	16	7	20.5	28	27	69	67	20	8	21	24
LQ3P3A	3/8"	22.5	19.5	21	7	24.5	39	36	89	83	25	8	26	28
LQ3P4A	1/2"	24.5	22.5	24	9	30.5	44.5	42.5	100	96	29	8	32	36
LQ3P5A	3/4"	26.5	24	32	9	36.5	50.5	48	117	112	37	13	41	43
LQ3P6A	1"	30	26	41	10	48.5	60	56	136	127.5	49	13	50	55

Union: LQ3U



(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L': Nut material PVDF dimensions
W: Width across flats dimension



Class 7, 8

Metric Size

Model	Applicable tubing O.D.	E	E'	H	L	L'	M	W
LQ3U11	ø4	10	9	11	46.5	44.5	14	10
LQ3U12	ø3							
LQ3U21	ø6	17	16	16	57	55	20	14
LQ3U31	ø10	22.5	19.5	21	79	73	25	18
LQ3U32	ø8							
LQ3U41	ø12	24	22	24	88	84	29	22
LQ3U51	ø19	26.5	24	32	103	98	37	30
LQ3U61	ø25	30	26	41	122	113.5	49	36

Inch Size

Model	Applicable tubing O.D.	E	E'	H	L	L'	M	W
LQ3U1A	1/8"	10	9	11	46.5	44.5	14	10
LQ3U2A	1/4"	17	16	16	57	55	20	14
LQ3U3A	3/8"	22.5	19.5	21	79	73	25	18
LQ3U4A	1/2"	24.5	22.5	24	88	84	29	22
LQ3U5A	3/4"	26.5	24	32	103	98	37	30
LQ3U6A	1"	30	26	41	122	113.5	49	36
LQ3U7A	1 1/4"	35	35	50	142	142	64	46
LQ3U8A	1 1/2"	39	—	60	152	—	77	55

Union Reducing

How to Order

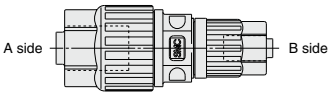
Tubing connection

LQ3 U 2 1 – R1 – □

Fitting type

Symbol	Type
U	Union

Body size (according to the combination table)



Tubing type

Symbol	Type
A	Inch
1, 2	Metric

Type of piping (according to the combination table)

Symbol	Type
R□	Reducing

Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5
2	PVDF	Clean packaging equivalent to Class M3.5
3	PVDF	Standard packaging equivalent to Class M5.5

Size combination (Metric)

Size	Model	A side	B side
		Applicable tubing size (mm)	
1	LQ3U11-R1	4 x 3	3 x 2
2	LQ3U21-R1	6 x 4	4 x 3
	LQ3U21-R2		3 x 2
3	LQ3U31-R1	10 x 8	8 x 6
	LQ3U31-R2		6 x 4
	LQ3U32-R1	8 x 6	6 x 4
	LQ3U32-R2		4 x 3
4	LQ3U41-R1	12 x 10	10 x 8
	LQ3U41-R2		8 x 6
5	LQ3U51-R1	19 x 16	12 x 10
	LQ3U51-R2		10 x 8
6	LQ3U61-R1	25 x 22	19 x 16
	LQ3U61-R2		12 x 10

Note) For details of the applicable tubing sizes, refer to page 823.

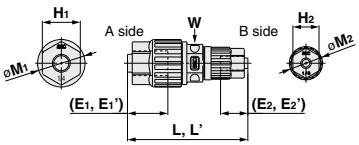
Size combination (Inch)

Size	Model	A side	B side
		Applicable tubing size (inch)	
2	LQ3U2A-R1	1/4" x 5/32"	1/8" x 0.086"
3	LQ3U3A-R1	3/8" x 1/4"	1/4" x 5/32"
	LQ3U3A-R2		1/8" x 0.086"
4	LQ3U4A-R1	1/2" x 3/8"	3/8" x 1/4"
	LQ3U4A-R2		1/4" x 5/32"
5	LQ3U5A-R1	3/4" x 5/8"	1/2" x 3/8"
	LQ3U5A-R2		3/8" x 1/4"
	LQ3U5A-R3		1/4" x 5/32"
6	LQ3U6A-R1	1" x 7/8"	3/4" x 5/8"
	LQ3U6A-R2		1/2" x 3/8"
7	LQ3U7A-R1	1 1/4" x 1.1"	1" x 7/8"

Note) For details of the applicable tubing sizes, refer to page 823.

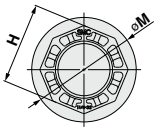
Dimensions

Union reducing: LQ3U-R



(E1,E1',E2,E2'): Reference dimension for the inserted tubing from the end surface of the nut

(E1',E2'),L': Nut material PVDF dimensions



Class 7

Metric Size

Model	A side	B side	E1	E1'	E2	E2'	H1	H2	L	L'	M1	M2	W
	Applicable tubing O.D.												
LQ3U11-R1	ø4	ø3	10	9	10	9	11	11	46.5	44.5	14	14	10
LQ3U21-R1	ø6	ø4	17	16	10	9	16	11	51	48.5	20	14	14
LQ3U21-R2		ø3											
LQ3U31-R1	ø10	ø8	22.5	19.5	22.5	19.5	21	21	79	73	25	25	18
LQ3U31-R2		ø6			17	16		16	66.5	62		20	
LQ3U32-R1	ø8	ø6	22.5	19.5	17	16	21	16	66.5	62	25	20	18
LQ3U32-R2		ø4			10	9		11	62	58		14	
LQ3U41-R1	ø12	ø10	24	22	22.5	19.5	24	21	82.5	77	29	25	22
LQ3U41-R2		ø8											
LQ3U51-R1	ø19	ø12	26.5	24	24	22	32	24	95.5	91	37	29	30
LQ3U51-R2		ø10			22.5	19.5		21	91	85.5		25	
LQ3U61-R1	ø25	ø19	30	26	26.5	24	41	32	112.5	105.5	49	37	36
LQ3U61-R2		ø12			24	22		24	106.5	100		29	

Inch Size

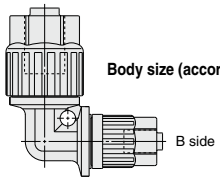
Model	A side	B side	E1	E1'	E2	E2'	H1	H2	L	L'	M1	M2	W
	Applicable tubing O.D.												
LQ3U2A-R1	1/4"	1/8"	17	16	10	9	16	11	51	48.5	20	14	14
LQ3U3A-R1	3/8"	1/4"	22.5	19.5	17	16	21	16	66.5	62	25	20	18
LQ3U3A-R2		1/8"			10	9		11	62	58		14	
LQ3U4A-R1	1/2"	3/8"	24.5	22.5	22.5	19.5	24	21	82.5	77	29	25	22
LQ3U4A-R2		1/4"			17	16		16	72.5	69		20	
LQ3U5A-R1	3/4"	1/2"	26.5	24	24.5	22.5	32	24	95.5	91	37	29	30
LQ3U5A-R2		3/8"			22.5	19.5		21	91	85.5		25	
LQ3U5A-R3		1/4"			17	16		16	81	77		20	
LQ3U6A-R1	1"	3/4"	30	26	26.5	24	41	32	112.5	105.5	49	37	36
LQ3U6A-R2		1/2"			24.5	22.5		24	106.5	100		29	
LQ3U7A-R1	1 1/4"	1"	35	35	30	26	50	41	132.5	128.2	64	49	46

Series LQ3
Union Elbow Reducing

How to Order

Tubing connection

LQ3 E 2 1 – R1 – □



Fitting type

Symbol	Type
E	Union elbow

Body size (according to the combination table)

Tubing type

Symbol	Type
A	Inch
1, 2	Metric

Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5
2	PVDF	Clean packaging equivalent to Class M3.5
3	PVDF	Standard packaging equivalent to Class M5.5

Type of piping (according to the combination table)

Symbol	Type
R□	Reducing

Size combination (Metric)

Size	Model	A side	B side
		Applicable tubing size (mm)	
1	**LQ3E11-R1**	4 x 3	3 x 2
2	**LQ3E21-R1**	6 x 4	4 x 3
	LQ3E21-R2		3 x 2
3	**LQ3E31-R1**	10 x 8	8 x 6
	LQ3E31-R2		6 x 4
	LQ3E32-R1	8 x 6	6 x 4
	LQ3E32-R2		4 x 3
4	**LQ3E41-R1**	12 x 10	10 x 8
	LQ3E41-R2		8 x 6
5	**LQ3E51-R1**	19 x 16	12 x 10
	LQ3E51-R2		10 x 8
6	**LQ3E61-R1**	25 x 22	19 x 16
	LQ3E61-R2		12 x 10

Note) For details of the applicable tubing sizes, refer to page 823.

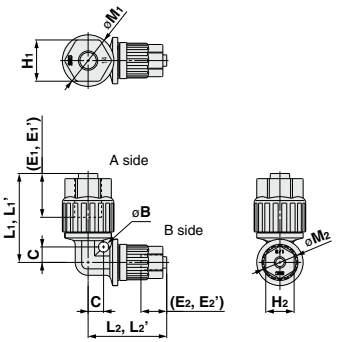
Size combination (Inch)

Size	Model	A side	B side
		Applicable tubing size (inch)	
2	**LQ3E2A-R1**	1/4" x 5/32"	1/8" x 0.086"
3	**LQ3E3A-R1**	3/8" x 1/4"	1/4" x 5/32"
	LQ3E3A-R2		1/8" x 0.086"
4	**LQ3E4A-R1**	1/2" x 3/8"	3/8" x 1/4"
	LQ3E4A-R2		1/4" x 5/32"
5	**LQ3E5A-R1**	3/4" x 5/8"	1/2" x 3/8"
	LQ3E5A-R2		3/8" x 1/4"
	LQ3E5A-R3		1/4" x 5/32"
6	**LQ3E6A-R1**	1" x 7/8"	3/4" x 5/8"
	LQ3E6A-R2		1/2" x 3/8"

Note) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Union elbow reducing: LQ3E-R



(E_1,E_1',E_2,E_2'): Reference dimension for the inserted tubing from the end surface of the nut

(E_1',E_2'),L_1',L_2': Nut material PVDF dimensions

Metric Size

Model	A side	B side	B	C	E_1	E_1'	E_2	E_2'	H_1	H_2	L_1	L_1'	L_2	L_2'	M_1	M_2
	Applicable tubing O.D.															
LQ3E11-R1	ø4	ø3	3.5	4.8	10	9	10	9	11	11	28.5	27.5	28.5	27.5	14	14
LQ3E21-R1	ø6	ø4	4	6	17	16	10	9	16	11	34.5	33.5	30.5	29.5	20	14
LQ3E21-R2		ø3														
LQ3E31-R1	ø10	ø8	5	9	22.5	19.5	22.5	19.5	21	21	47.5	44.5	47.5	44.5	25	25
LQ3E31-R2		ø6					17	16		16			38	37		20
LQ3E32-R1	ø8	ø6	5	9	22.5	19.5	17	16	21	16	47.5	44.5	38	37	25	20
LQ3E32-R2		ø4					10	9		11			33.5	32.5		14
LQ3E41-R1	ø12	ø10	6	10	24	22	22.5	19.5	24	21	52.5	50.5	48.5	45.5	29	25
LQ3E41-R2		ø8														
LQ3E51-R1	ø19	ø12	7	14	26.5	24	24	22	32	24	64	61.5	58.5	56.5	37	29
LQ3E51-R2		ø10					22.5	19.5		21		61.5	53.5	50.5		25
LQ3E61-R1	ø25	ø19	8	18	30	26	26.5	24	41	32	78	74	70	67.5	49	37
LQ3E61-R2		ø12					24	22		24		74	64.5	62.5		29

Inch Size

Model	A side	B side	B	C	E_1	E_1'	E_2	E_2'	H_1	H_2	L_1	L_1'	L_2	L_2'	M_1	M_2
	Applicable tubing O.D.															
LQ3E2A-R1	1/4"	1/8"	4	6	17	16	10	9	16	11	34.5	33.5	30.5	29.5	20	14
LQ3E3A-R1	3/8"	1/4"	5	9	22.5	19.5	17	16	21	16	47.5	44.5	38	37	25	20
LQ3E3A-R2		1/8"					10	9		11			33.5	32.5		14
LQ3E4A-R1	1/2"	3/8"	6	10	24.5	22.5	22.5	19.5	24	21	52.5	50.5	48.5	45.5	29	25
LQ3E4A-R2		1/4"					17	16		16			39	38		20
LQ3E5A-R1	3/4"	1/2"	7	14	26.5	24	24.5	22.5	32	24	64	61.5	58.5	56.5	37	29
LQ3E5A-R2		3/8"					22.5	19.5		21			53.5	50.5		25
LQ3E5A-R3		1/4"					17	16		16			43.5	42.5		20
LQ3E6A-R1	1"	3/4"	8	18	30	26	26.5	24	41	32	78	74	70	67.5	49	37
LQ3E6A-R2		1/2"					24.5	22.5		24			64.5	62.5		29

Union Tee Reducing

How to Order

Tubing connection

LQ3 T 2 A – R1 – □

Fitting type

Symbol	Type
T	Union tee

Body size (according to the combination table)

Tubing type

Symbol	Type
A	Inch
1, 2	Metric

Type of piping (according to the combination table)

Symbol	Type
R□	Reducing

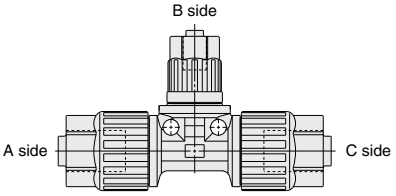
Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5
2	PVDF	Clean packaging equivalent to Class M3.5
3	PVDF	Standard packaging equivalent to Class M5.5

Size combination (Metric)

Size	Model	A side (Left)	B side (Center)	C side (Right)
		Applicable tubing size (mm)		
1	LQ3T11-R1	4 x 3	3 x 2	4 x 3
	LQ3T11-R5		4 x 3	3 x 2
2	LQ3T21-R1	6 x 4	4 x 3	6 x 4
	LQ3T21-R2		3 x 2	6 x 4
	LQ3T21-R5		6 x 4	4 x 3
	LQ3T21-R6		6 x 4	3 x 2
3	LQ3T31-R1	10 x 8	8 x 6	10 x 8
	LQ3T31-R2		6 x 4	10 x 8
	LQ3T31-R5		10 x 8	8 x 6
	LQ3T31-R6		10 x 8	6 x 4
	LQ3T32-R1	8 x 6	6 x 4	8 x 6
	LQ3T32-R5		8 x 6	6 x 4
4	LQ3T41-R1	12 x 10	10 x 8	12 x 10
	LQ3T41-R5		12 x 10	10 x 8
5	LQ3T51-R1	19 x 16	12 x 10	19 x 16
	LQ3T51-R5		19 x 16	12 x 10
6	LQ3T61-R1	25 x 22	19 x 16	25 x 22
	LQ3T61-R5		25 x 22	19 x 16

Note) For details of the applicable tubing sizes, refer to page 823.



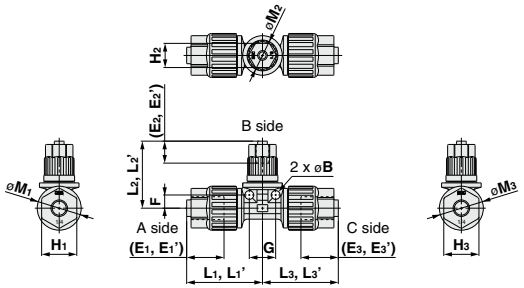
Size combination (Inch)

Size	Model	A side (Left)	B side (Center)	C side (Right)
		Applicable tubing size (inch)		
2	LQ3T2A-R1	1/4" x 5/32"	1/8" x 0.086"	1/4" x 5/32"
	LQ3T2A-R5		1/4" x 5/32"	1/8" x 0.086"
3	LQ3T3A-R1	3/8" x 1/4"	1/4" x 5/32"	3/8" x 1/4"
	LQ3T3A-R2		1/8" x 0.086"	3/8" x 1/4"
	LQ3T3A-R5		3/8" x 1/4"	1/4" x 5/32"
	LQ3T3A-R7		1/4" x 5/32"	1/4" x 5/32"
	LQ3T3A-R9	1/4" x 5/32"	3/8" x 1/4"	1/4" x 5/32"
4	LQ3T4A-R1	1/2" x 3/8"	3/8" x 1/4"	1/2" x 3/8"
	LQ3T4A-R2		1/4" x 5/32"	1/2" x 3/8"
	LQ3T4A-R5		1/2" x 3/8"	3/8" x 1/4"
	LQ3T4A-R6		1/2" x 3/8"	1/4" x 5/32"
	LQ3T4A-R7		3/8" x 1/4"	3/8" x 1/4"
	LQ3T4A-R8		1/4" x 5/32"	1/4" x 5/32"
	LQ3T4A-R9	3/8" x 1/4"	1/2" x 3/8"	3/8" x 1/4"
5	LQ3T5A-R1	3/4" x 5/8"	1/2" x 3/8"	3/4" x 5/8"
	LQ3T5A-R2		3/8" x 1/4"	3/4" x 5/8"
	LQ3T5A-R3		1/4" x 5/32"	3/4" x 5/8"
	LQ3T5A-R5		3/4" x 5/8"	1/2" x 3/8"
	LQ3T5A-R6		3/4" x 5/8"	3/8" x 1/4"
	LQ3T5A-R7		1/2" x 3/8"	1/2" x 3/8"
	LQ3T5A-R9	1/2" x 3/8"	3/4" x 5/8"	1/2" x 3/8"
	LQ3T5A-R10	3/8" x 1/4"	3/4" x 5/8"	3/8" x 1/4"
	LQ3T5A-R11	3/4" x 5/8"	1/2" x 3/8"	1/4" x 5/32"
	LQ3T5A-R12		3/4" x 5/8"	1/4" x 5/32"
6	LQ3T6A-R1	1" x 7/8"	3/4" x 5/8"	1" x 7/8"
	LQ3T6A-R2		1/2" x 3/8"	1" x 7/8"
	LQ3T6A-R3		3/8" x 1/4"	1" x 7/8"
	LQ3T6A-R4		1/4" x 5/32"	1" x 7/8"
	LQ3T6A-R5		1" x 7/8"	3/4" x 5/8"
	LQ3T6A-R6		1" x 7/8"	1/2" x 3/8"
	LQ3T6A-R7		3/4" x 5/8"	3/4" x 5/8"
	LQ3T6A-R9	3/4" x 5/8"	1" x 7/8"	3/4" x 5/8"
	LQ3T6A-R10	1/2" x 3/8"	1" x 7/8"	1/2" x 3/8"
	LQ3T6A-R12	1" x 7/8"	1" x 7/8"	3/8" x 1/4"
	LQ3T6A-R13		1" x 7/8"	1/4" x 5/32"
	LQ3T6A-R14	3/4" x 5/8"	1" x 7/8"	1/4" x 5/32"

Note) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Union tee reducing: LQ3T-R



(E1,E1',E2,E2',E3,E3'): Reference dimension for the inserted tubing from the end surface of the nut
(E1',E2',E3'),L1',L2',L3': Nut material PVDF dimensions

Metric Size

Model	A side (Left)	B side (Center)	C side (Right)	B	E1	E1'	E2	E2'	E3	E3'	F	G	H1	H2	H3	L1	L1'	L2	L2'	L3	L3'	M1	M2	M3
	Applicable tubing O.D.																							
LQ3T11-R1	ø4	ø3	ø4	3.5	10	9	10	9	10	9	4.8	9.5	11	11	11	28.5	27.5	28.5	27.5	28.5	27.5	14	14	14
LQ3T11-R5		ø4	ø3																					
LQ3T21-R1	ø6	ø4	ø6	4	17	16	10	9	17	16	6	12	16	11	16	34.5	33.5	30.5	29.5	34.5	33.5	20	14	20
LQ3T21-R2		ø3	ø6																					
LQ3T21-R5		ø6	ø4				17	16	10	9				16	11			34.5	33.5	30.5	29.5		20	14
LQ3T21-R6		ø6	ø3																					
LQ3T31-R1	ø10	ø8	ø10	5	22.5	19.5	22.5	19.5	22.5	19.5	9	18	21	21	21	47.5	44.5	47.5	44.5	47.5	44.5	25	25	25
LQ3T31-R2		ø6	ø10				17	16						16				38	37				20	
LQ3T31-R5		ø10	ø8				22.5	19.5						21	21			47.5	44.5				25	25
LQ3T31-R6		ø10	ø6						17	16					16					38	37			20
LQ3T32-R1	ø8	ø6	ø8	5	22.5	19.5	17	16	22.5	19.5	9	18	21	16	21	47.5	44.5	38	37	47.5	44.5	25	20	25
LQ3T32-R5		ø8	ø6				22.5	19.5	17	16				21	16			47.5	44.5	38	37		25	20
LQ3T41-R1	ø12	ø10	ø12	6	24	22	22.5	19.5	24	22	10	20	24	21	24	52.5	50.5	48.5	45.5	52.5	50.5	29	25	29
LQ3T41-R5		ø12	ø10				24	22	22.5	19.5				24	21			52.5	50.5	48.5	45.5		29	25
LQ3T51-R1	ø19	ø12	ø19	7	26.5	24	24	22	26.5	24	14	28	32	24	32	64	61.5	58.5	56.5	64	61.5	37	29	37
LQ3T51-R5		ø19	ø12				26.5	24	24	22				32	24			64	61.5	58.5	56.5		37	29
LQ3T61-R1	ø25	ø19	ø25	8	30	26	26.5	24	30	26	18	36	41	32	41	78	74	70	67.5	78	74	49	37	49
LQ3T61-R5		ø25	ø19				30	26	26.5	24				41	32			78	74	70	67.5		49	37

Inch Size

Model	A side (Left)	B side (Center)	C side (Right)	B	E1	E1'	E2	E2'	E3	E3'	F	G	H1	H2	H3	L1	L1'	L2	L2'	L3	L3'	M1	M2	M3
	Applicable tubing O.D.																							
LQ3T2A-R1	1/4"	1/8"	1/4"	4	17	16	10	9	17	16	6	12	16	11	16	34.5	33.5	30.5	29.5	34.5	33.5	20	14	20
LQ3T2A-R5		1/4"	1/8"				17	16	10	9				16	11			34.5	33.5	30.5	29.5		20	14
LQ3T3A-R1	3/8"	1/4"	3/8"	5	22.5	19.5	17	16	22.5	19.5	9	18	21	16	21	47.5	44.5	38	37	47.5	44.5	25	20	25
LQ3T3A-R2		1/8"	3/8"				10	9						11				33.5	32.5				14	
LQ3T3A-R5		3/8"	1/4"				22.5	19.5	17	16				21	16			47.5	44.5	38	37		25	20
LQ3T3A-R7		1/4"	1/4"				17	16						16				38	37				20	
LQ3T3A-R9	1/4"	3/8"	1/4"		17	16	22.5	19.5					16	21		38	37	47.5	44.5			20	25	
LQ3T4A-R1	1/2"	3/8"	1/2"	6	24.5	22.5	22.5	19.5	24.5	22.5	10	20	24	21	24	52.5	50.5	48.5	45.5	52.5	50.5	29	25	29
LQ3T4A-R2		1/4"	1/2"				17	16						16				39	38				20	
LQ3T4A-R5		1/2"	3/8"				24.5	22.5	22.5	19.5				24	21			52.5	50.5	48.5	45.5		29	25
LQ3T4A-R6		1/2"	1/4"						17	16					16					39	38			20
LQ3T4A-R7		3/8"	3/8"				22.5	19.5	22.5	19.5				21	21			48.5	45.5	48.5	45.5		25	25
LQ3T4A-R8		1/4"	1/4"				17	16	17	16				16	16			39	38	39	38		20	20
LQ3T4A-R9	3/8"	1/2"	3/8"		22.5	19.5	24.5	22.5	22.5	19.5			21	24	21	48.5	45.5	52.5	50.5	48.5	45.5	25	29	25
LQ3T5A-R1	3/4"	1/2"	3/4"	7	26.5	24	24.5	22.5	26.5	24	14	28	32	24	32	64	61.5	58.5	56.5	64	61.5	37	29	37
LQ3T5A-R2		3/8"	3/4"				22.5	19.5						21				54.5	51.5				25	
LQ3T5A-R3		1/4"	3/4"				17	16						16				44.5	43.5				20	
LQ3T5A-R5		3/4"	1/2"				26.5	24	24.5	22.5				32	24			64	61.5	58.5	56.5		37	29
LQ3T5A-R6		3/4"	3/8"						22.5	19.5					21					54.5	51.5			25
LQ3T5A-R7		1/2"	1/2"				24.5	22.5	24.5	22.5				24	24			58.5	56.5	58.5	56.5		29	29
LQ3T5A-R9	1/2"	3/4"	1/2"		24.5	22.5	26.5	24					24	32		58.5	56.5	64	61.5			29	37	
LQ3T5A-R10	3/8"	3/4"	3/8"		22.5	19.5			22.5	19.5			21		21	54.5	51.5			54.5	51.5	25		25
LQ3T5A-R11	3/4"	1/2"	1/4"		26.5	24	24.5	22.5	17	16			32	24	16	64	61.5	58.5	56.5	44.5	43.5	37	29	20
LQ3T5A-R12		3/4"	1/4"				26.5	24						32				64	61.5				37	
LQ3T6A-R1	1"	3/4"	1"	8	30	26	26.5	24	30	26	18	36	41	32	41	78	74	70	67.5	78	74	49	37	49
LQ3T6A-R2		1/2"	1"				24.5	22.5						24				64.5	62.5				29	
LQ3T6A-R3		3/8"	1"				22.5	19.5						21				60	57				25	
LQ3T6A-R4		1/4"	1"				17	16						16				50	49				20	
LQ3T6A-R5		1"	3/4"				30	26	26.5	24				41	32			78	74	70	67.5		49	37
LQ3T6A-R6		1"	1/2"				30	26	24.5	22.5					24					64.5	62.5			29
LQ3T6A-R7		3/4"	3/4"				26.5	24	26.5	24				32	32			70	67.5	70	67.5		37	37
LQ3T6A-R9	3/4"	1"	3/4"		26.5	24	30	26					32	41		70	67.5	78	74			37	49	
LQ3T6A-R10	1/2"	1"	1/2"		24.5	22.5			24.5	22.5			24		24	64.5	62.5			64.5	62.5	29		29
LQ3T6A-R12	1"	1"	3/8"		30	26			22.5	19.5			41		21	78	74			60	57	49		25
LQ3T6A-R13		1"	1/4"						17	16					16					50	49			20
LQ3T6A-R14	3/4"	1"	1/4"		26.5	24							32			70	67.5					37		

Space Saving Union Elbow

How to Order

Tubing connection

LQ3 E 21 – S – ☐

Fitting type

Symbol	Type
E	Union elbow

Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5
2	PVDF	Clean packaging equivalent to Class M3.5
3	PVDF	Standard packaging equivalent to Class M5.5

Thread type

Symbol	Type
S	Space saving

Size combination

Size	No.	Applicable tubing size (mm)
2	1	6 x 4
3	1	10 x 8
3	2	8 x 6
4	1	12 x 10
5	1	19 x 16
6	1	25 x 22

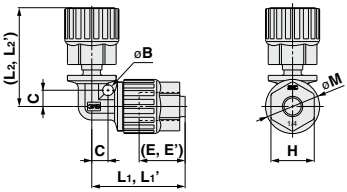
Note) For details of the applicable tubing sizes, refer to page 823.

Size	Symbol	Applicable tubing size (inch)
2	A	1/4" x 5/32"
3	A	3/8" x 1/4"
4	A	1/2" x 3/8"
5	A	3/4" x 5/8"
6	A	1" x 7/8"
7	A	1 1/4" x 1.1"

Note) For details of the applicable tubing sizes, refer to page 823.

Dimensions

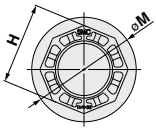
Space saving union elbow: LQ3E-S



Metric Size

Model	Applicable tubing O.D.	B	C	E	E'	H	L_1	L_1'	L_2	L_2'	M
LQ3E21-S	ø6	4	6	17	16	16	34.5	33.5	39.5	38.5	20
LQ3E31-S	ø10	5	9	22.5	19.5	21	47.5	44.5	52.5	49.5	25
LQ3E32-S	ø8								49.5	46.5	
LQ3E41-S	ø12	6	10	24	22	24	52.5	50.5	54.5	52.5	29
LQ3E51-S	ø19	7	14	26.5	24	32	64	61.5	66	63.5	37
LQ3E61-S	ø25	8	18	30	26	41	78	74	80	76	49

(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L_1',L_2': Nut material PVDF dimensions



Class 7

Inch Size

Model	Applicable tubing O.D.	B	C	E	E'	H	L_1	L_1'	L_2	L_2'	M
LQ3E2A-S	1/4"	4	6	17	16	16	34.5	33.5	39.5	38.5	20
LQ3E3A-S	3/8"	5	9	22.5	19.5	21	47.5	44.5	49.5	46.5	25
LQ3E4A-S	1/2"	6	10	24.5	22.5	24	52.5	50.5	54.5	52.5	29
LQ3E5A-S	3/4"	7	14	26.5	24	32	64	61.5	66	63.5	37
LQ3E6A-S	1"	8	18	30	26	41	78	74	80	76	49
LQ3E7A-S	1 1/4"	9	22	35	35	50	92.5	92.5	97.5	97.5	64

Space Saving Branch Tee

How to Order

Tubing connection

LQ3 T 21 – S B – ☐

Fitting type

Symbol	Type
T	Union tee

Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5
2	PVDF	Clean packaging equivalent to Class M3.5
3	PVDF	Standard packaging equivalent to Class M5.5

Thread type

Symbol	Type
B	Branch tee

Tubing type

Symbol	Type
S	Space saving

Size combination

Size	No.	Applicable tubing size (mm)
2	1	6 x 4
3	1	10 x 8
3	2	8 x 6
4	1	12 x 10
5	1	19 x 16
6	1	25 x 22

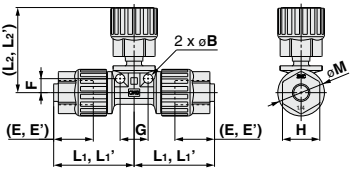
Note) For details of the applicable tubing sizes, refer to page 823.

Size	Symbol	Applicable tubing size (inch)
2	A	1/4" x 5/32"
3	A	3/8" x 1/4"
4	A	1/2" x 3/8"
5	A	3/4" x 5/8"
6	A	1" x 7/8"

Note) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Space saving branch tee: LQ3T-SB



(E,E'): Reference dimension for the inserted tubing from the end surface of the nut

(E'),L1',L2': Nut material PVDF dimensions

Metric Size

Model	Applicable tubing O.D.	B	E	E'	F	G	H	L_1	L_1'	L_2	L_2'	M
LQ3T21-SB	ø6	4	17	16	6	12	16	34.5	33.5	39.5	38.5	20
LQ3T31-SB	ø10	5	22.5	19.5	9	18	21	47.5	44.5	52.5	49.5	25
LQ3T32-SB	ø8									49.5	46.5	
LQ3T41-SB	ø12	6	24	22	10	20	24	52.5	50.5	54.5	52.5	29
LQ3T51-SB	ø19	7	26.5	24	14	28	32	64	61.5	66	63.5	37
LQ3T61-SB	ø25	8	30	26	18	36	41	78	74	80	76	49

Inch Size

Model	Applicable tubing O.D.	B	E	E'	F	G	H	L_1	L_1'	L_2	L_2'	M
LQ3T2A-SB	1/4"	4	17	16	6	12	16	34.5	33.5	39.5	38.5	20
LQ3T3A-SB	3/8"	5	22.5	19.5	9	18	21	47.5	44.5	49.5	46.5	25
LQ3T4A-SB	1/2"	6	24.5	22.5	10	20	24	52.5	50.5	54.5	52.5	29
LQ3T5A-SB	3/4"	7	26.5	24	14	28	32	64	61.5	66	63.5	37
LQ3T6A-SB	1"	8	30	26	18	36	41	78	74	80	76	49

Space Saving Run Tee

How to Order

Tubing connection

LQ3 T 21 – S R – ☐

Fitting type

Symbol	Type
T	Union tee

Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5
2	PVDF	Clean packaging equivalent to Class M3.5
3	PVDF	Standard packaging equivalent to Class M5.5

Thread type

Symbol	Type
R	Run tee

Tubing type

Symbol	Type
S	Space saving

Size combination

Size	No.	Applicable tubing size (mm)
2	1	6 x 4
3	1	10 x 8
3	2	8 x 6
4	1	12 x 10
5	1	19 x 16
6	1	25 x 22

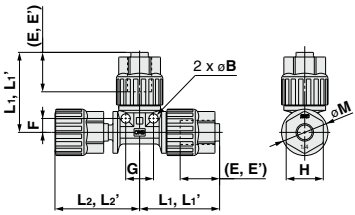
Note) For details of the applicable tubing sizes, refer to page 823.

Size	Symbol	Applicable tubing size (inch)
2	A	1/4" x 5/32"
3	A	3/8" x 1/4"
4	A	1/2" x 3/8"
5	A	3/4" x 5/8"
6	A	1" x 7/8"

Note) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Space saving run tee: LQ3T-SR



(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L1',L2': Nut material PVDF dimensions

Metric Size

Model	Applicable tubing O.D.	B	E	E'	F	G	H	L_1	L_1'	L_2	L_2'	M
LQ3T21-SR	ø6	4	17	16	6	12	16	34.5	33.5	39.5	38.5	20
LQ3T31-SR	ø10	5	22.5	19.5	9	18	21	47.5	44.5	52.5	49.5	25
LQ3T32-SR	ø8									49.5	46.5	
LQ3T41-SR	ø12	6	24	22	10	20	24	52.5	50.5	54.5	52.5	29
LQ3T51-SR	ø19	7	26.5	24	14	28	32	64	61.5	66	63.5	37
LQ3T61-SR	ø25	8	30	26	18	36	41	78	74	80	76	49

Inch Size

Model	Applicable tubing O.D.	B	E	E'	F	G	H	L_1	L_1'	L_2	L_2'	M
LQ3T2A-SR	1/4"	4	17	16	6	12	16	34.5	33.5	39.5	38.5	20
LQ3T3A-SR	3/8"	5	22.5	19.5	9	18	21	47.5	44.5	49.5	46.5	25
LQ3T4A-SR	1/2"	6	24.5	22.5	10	20	24	52.5	50.5	54.5	52.5	29
LQ3T5A-SR	3/4"	7	26.5	24	14	28	32	64	61.5	66	63.5	37
LQ3T6A-SR	1"	8	30	26	18	36	41	78	74	80	76	49

Tubing Extension Straight Connector

How to Order

Tubing connection

LQ3 H 2A – T – ☐

Fitting type

Symbol	Type
H	Connector

Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5
2	PVDF	Clean packaging equivalent to Class M3.5
3	PVDF	Standard packaging equivalent to Class M5.5

Thread type

Symbol	Type
T	Tubing extension

Size combination

Size	No.	Applicable tubing size (mm)
2	**1**	6 x 4
3	**1**	10 x 8
3	**2**	8 x 6
4	**1**	12 x 10
5	**1**	19 x 16
6	**1**	25 x 22

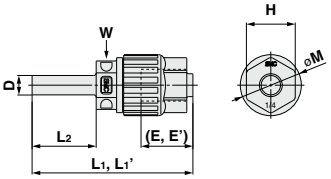
Note) For details of the applicable tubing sizes, refer to page 823.

Size	Symbol	Applicable tubing size (inch)
2	**A**	1/4" x 5/32"
3	**A**	3/8" x 1/4"
4	**A**	1/2" x 3/8"
5	**A**	3/4" x 5/8"
6	**A**	1" x 7/8"
7	**A**	1 1/4" x 1.1"

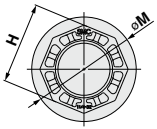
Note) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Tubing extension straight connector: LQ3H-T



(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L': Nut material PVDF dimensions
W: Width across flats dimension



Class 7

Metric Size

Model	Applicable tubing O.D.	D	E	E'	H	L_1	L_1'	L_2	M	W
LQ3H21-T	ø**6**	ø6	17	16	16	53	51.5	18	20	14
LQ3H31-T	ø**10**	ø10	22.5	19.5	21	67.5	64.5	22.5	25	18
LQ3H32-T	ø**8**	ø8								
LQ3H41-T	ø**12**	ø12	24	22	24	74	72	24	29	22
LQ3H51-T	ø**19**	ø19	26.5	24	32	83.5	81	26.5	37	30
LQ3H61-T	ø**25**	ø25	30	26	41	97.5	93.5	31	49	36

Inch Size

Model	Applicable tubing O.D.	D	E	E'	H	L_1	L_1'	L_2	M	W
LQ3H2A-T	1/4"	1/4"	17	16	16	53	51.5	18	20	14
LQ3H3A-T	3/8"	3/8"	22.5	19.5	21	65.5	62.5	23.5	25	18
LQ3H4A-T	1/2"	1/2"	24.5	22.5	24	72	70	25	29	22
LQ3H5A-T	3/4"	3/4"	26.5	24	32	83.5	81	26.5	37	30
LQ3H6A-T	1"	1"	30	26	41	97.5	93.5	31	49	36
LQ3H7A-T	1 1/4"	1 1/4"	35	35	50	120.5	120.5	41.5	64	46

Straight Adapter

How to Order

Tubing connection

LQ3 A 21 – ☐

Fitting type

Symbol	Type
A	Straight adapter

Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5
2	PVDF	Clean packaging equivalent to Class M3.5
3	PVDF	Standard packaging equivalent to Class M5.5

Size combination

Size	No.	Applicable tubing size (mm)	Applicable piping size
2	**1**	6 x 4	ø13.7 x ø9
2	**2**		ø21.3 x ø15.4
2	**3**		ø26.7 x ø20.5
2	**4**		ø33.4 x ø26.3
2	**5**		ø60.3 x ø52.5
3	**2**	8 x 6	ø13.7 x ø9
3	**4**		ø21.3 x ø15.4
3	**6**		ø26.7 x ø20.5
3	**7**	10 x 8	ø33.4 x ø26.3
3	**8**	8 x 6	
4	**1**	12 x 10	ø21.3 x ø15.4
4	**2**		ø26.7 x ø20.5
4	**3**		ø33.4 x ø26.3
4	**4**		ø60.3 x ø52.5
5	**1**	19 x 16	ø21.3 x ø15.4
5	**2**		ø26.7 x ø20.5
5	**3**		ø33.4 x ø26.3
6	**1**	25 x 22	ø26.7 x ø20.5
6	**2**		ø33.4 x ø26.3
6	**3**		ø60.3 x ø52.5

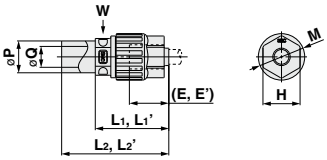
Note) For details of the applicable tubing sizes, refer to page 823.

Size	Symbol	Applicable tubing size (inch)	Applicable piping size
2	**A**	1/4" x 5/32"	ø13.7 x ø9
2	**B**		ø21.3 x ø15.4
2	**C**		ø26.7 x ø20.5
2	**D**		ø33.4 x ø26.3
2	**E**		ø60.3 x ø52.5
3	**A**	3/8" x 1/4"	ø13.7 x ø9
3	**B**		ø21.3 x ø15.4
3	**C**		ø26.7 x ø20.5
4	**A**	1/2" x 3/8"	ø21.3 x ø15.4
4	**B**		ø26.7 x ø20.5
4	**C**		ø33.4 x ø26.3
4	**D**		ø60.3 x ø52.5
5	**A**	3/4" x 5/8"	ø21.3 x ø15.4
5	**B**		ø26.7 x ø20.5
5	**C**		ø33.4 x ø26.3
6	**A**	1" x 3/4"	ø26.7 x ø20.5
6	**B**		ø33.4 x ø26.3
6	**C**		ø60.3 x ø52.5
7	**A**	1 1/4" x 1.1"	ø33.4 x ø26.3

Note) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Straight Adapter: LQ3A



(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L_1',L_2': Nut material PVDF dimensions
W: Width across flats dimension

Metric Size

Model	E	E'	H	L_1	L_1'	L_2	L_2'	M	P	Q	W
LQ3A21	17	16	16	32	30.5	46	44.5	20	13.7	9	14
LQ3A22						58	56.5		21.3	15.4	
LQ3A23									26.7	20.5	
LQ3A24				32.5	31	70.5	69		33.4	26.3	
LQ3A25						74.5	73		60.3	52.5	
LQ3A32	22.5	19.5	21	40	39	54	53	25	13.7	9	18
LQ3A34						66	65		21.3	15.4	
LQ3A36						66			26.7	20.5	
LQ3A37				44	41	82	79		33.4	26.3	
LQ3A38				42		80					
LQ3A41	24	22	24	47	45	80	78	29	21.3	15.4	22
LQ3A42									26.7	20.5	
LQ3A43									33.4	26.3	
LQ3A44				49	47	88	86		60.3	52.5	
LQ3A51	26.5	24	32	57	54.5	95	92.5	37	21.3	15.4	30
LQ3A52									26.7	20.5	
LQ3A53									33.4	26.3	
LQ3A61	30	26	41	66.5	62.5	104.5	100.5	49	26.7	20.5	36
LQ3A62									33.4	26.3	
LQ3A63				68.5	64.5	107.5	103.5		60.3	52.5	

Inch Size

Model	E	E'	H	L_1	L_1'	L_2	L_2'	M	P	Q	W
LQ3A2A	17	16	16	32	30.5	46	44.5	20	13.7	9	14
LQ3A2B						58	56.5		21.3	15.4	
LQ3A2C									26.7	20.5	
LQ3A2D				32.5	31	70.5	69		33.4	26.3	
LQ3A2E						74.5	73		60.3	52.5	
LQ3A3A	22.5	19.5	21	40	39	56	53	25	13.7	9	18
LQ3A3B						66	65		21.3	15.4	
LQ3A3C									26.7	20.5	
LQ3A4A	24.5	22.5	24	47	45	80	78	29	21.3	15.4	22
LQ3A4B									26.7	20.5	
LQ3A4C									33.4	26.3	
LQ3A4D				49	47	88	86		60.3	52.5	
LQ3A5A	26.5	24	32	57	54.5	95	92.5	37	21.3	15.4	30
LQ3A5B									26.7	20.5	
LQ3A5C									33.4	26.3	
LQ3A6A	30	26	41	66.5	62.5	104.5	100.5	49	26.7	20.5	36
LQ3A6B									33.4	26.3	
LQ3A6C				68.5	64.5	107.5	103.5		60.3	52.5	
LQ3A7A	35	35	50	79	79	117	117	64	33.4	26.3	46

Series LQ3
Union Flange

How to Order

Tubing connection

LQ3 F 22 – ☐

Fitting type

Symbol	Type
F	Union flange

Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5
2	PVDF	Clean packaging equivalent to Class M3.5
3	PVDF	Standard packaging equivalent to Class M5.5

Size combination

Size	No.	Applicable tubing size (mm)	Applicable flange size
2	2	6 x 4	10K-20A
4	2	12 x 10	10K-20A
4	3		10K-25A
5	1	19 x 16	10K-15A
5	2		10K-20A
5	3		10K-25A
6	2	25 x 22	10K-20A
6	3		10K-25A
6	4		10K-40A

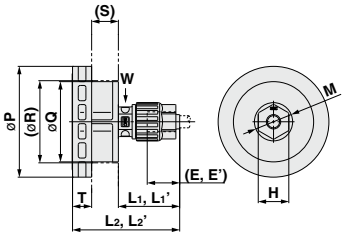
Note) For details of the applicable tubing sizes, refer to page 823.

Size	Symbol	Applicable tubing size (inch)	Applicable flange size
2	B	1/4" x 5/32"	10K-20A
4	B	1/2" x 3/8"	10K-20A
4	C		10K-25A
5	A	3/4" x 5/8"	10K-15A
5	B		10K-20A
5	C		10K-25A
6	B	1" x 7/8"	10K-20A
6	C		10K-25A
6	D		10K-40A

Note) For details of the applicable tubing sizes, refer to page 823.

Dimensions

Union Flange: LQ3F



(E,E'): Reference dimension for the inserted tubing from the end surface of the nut
(E'),L_1',L_2': Nut material PVDF dimensions
W: Width across flats dimension
(R): I.D. of JIS flange necessary to mount this product. (Additional modification is needed.)
JIS flange is not included in the product.

Metric Size

Model	E	E'	H	L_1	L_1'	L_2	L_2'	M	P	Q	R	S	T	W
LQ3F22	17	16	16	32.1	30.9	56.1	54.9	20	58	42	43	14	10	14
LQ3F42	24	22	24	49	46.8	73	70.8	29	58	42	43	14	10	22
LQ3F43									69					
LQ3F51	26.5	24	32	58	55.3	80	77.3	37	53	42	43	12	10	30
LQ3F52						82	79.3		58			14		
LQ3F53									69					
LQ3F62	30	26	41	68.5	64.2	92.5	88.2	49	58	47	48	16	10	36
LQ3F63									69	55	56			
LQ3F64						94.5	90.2		84					

Inch Size

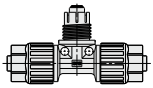
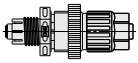
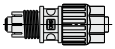
Model	E	E'	H	L_1	L_1'	L_2	L_2'	M	P	Q	R	S	T	W
LQ3F2B	17	16	16	32.1	30.9	56.1	54.9	20	58	42	43	14	10	14
LQ3F4B	24.5	22.5	24	49	46.8	73	70.8	29	58	42	43	14	10	22
LQ3F4C									69					
LQ3F5A	26.5	24	32	58	55.3	80	77.3	37	53	42	43	12	10	30
LQ3F5B						82	79.3		58			14		
LQ3F5C									69					
LQ3F6B	30	26	41	68.5	64.2	92.5	88.2	49	58	47	48	16	10	36
LQ3F6C									69	55	56			
LQ3F6D						94.5	90.2		84					

How to Order Space Saving Type Fittings

This product, for use with products with one nut attached (insert bushing) has one nut removed.

LQ3 E 6A – SN – □

Fitting type

E	T
Union Elbow	**Union Tee** 
P	**U**
Panel Mount Union 	**Union** 

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Without a nut (including insert bushing) in one part

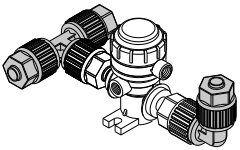
Applicable tubing size

Symbol		Applicable tubing size (mm)
Size	No.	
2	**1**	6 x 4
3	**1**	10 x 8
3	**2**	8 x 6
4	**1**	12 x 10
5	**1**	19 x 16
6	**1**	25 x 22

Symbol		Applicable tubing size (inch)
Size	No.	
2	**A**	1/4" x 5/32"
3	**A**	3/8" x 1/4"
4	**A**	1/2" x 3/8"
5	**A**	3/4" x 5/8"
6	**A**	1" x 7/8"

Note 1) Please choose the same size fitting as the fitting of the connecting product.
Note 2) For details of applicable tubing sizes, refer to page 823.

Connection example



Options

Blanking plug

LQ3 – 1 P 03 – 1 – □

Used to block fittings which are not being used.

Size

Symbol	Size
1	1
2	2
3	3
4	4
5	5
6	6
7	7

Fitting type

Symbol	Type
P	Plug

Thread type

Symbol	Type
1	Male

Packaging

Symbol	Packaging
Nil	Clean packaging equivalent to Class M3.5
1	Standard packaging equivalent to Class M5.5

Applicable tubing size

Metric Size

Symbol	Applicable tubing size	Size
03	ø3 x ø2	1
04	ø4 x ø3	
06	ø6 x ø4	2
08	ø8 x ø6	3
10	ø10 x ø8	
12	ø12 x ø10	4
19	ø19 x ø16	5
25	ø25 x ø22	6

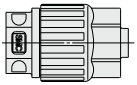
Inch Size

Symbol	Applicable tubing size	Size
03	1/8" x 0.086"	1
07	1/4" x 5/32"	2
11	3/8" x 1/4"	3
13	1/2" x 3/8"	4
19	3/4" x 5/8"	5
25	1" x 7/8"	6
32	1 1/4" x 1.1"	7

Note) For details of the applicable tubing sizes, refer to page 823.

Tubing plug

LQ3 – 1 P 03 – 2 – □



Used to block tubing which are not being used.

Size

Symbol	Size
1	1
2	2
3	3
4	4
5	5
6	6

Fitting type

Symbol	Type
P	Plug

Type of piping

Symbol	Type
2	Tubing

Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5
2	PVDF	Clean packaging equivalent to Class M3.5
3	PVDF	Standard packaging equivalent to Class M5.5

Applicable tubing size

Metric Size

Symbol	Applicable tubing size	Size
03	ø3 x ø2	1
04	ø4 x ø3	
06	ø6 x ø4	2
08	ø8 x ø6	3
10	ø10 x ø8	
12	ø12 x ø10	4
19	ø19 x ø16	5
25	ø25 x ø22	6

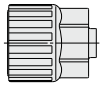
Inch Size

Symbol	Applicable tubing size	Size
03	1/8" x 0.086"	1
07	1/4" x 5/32"	2
11	3/8" x 1/4"	3
13	1/2" x 3/8"	4
19	3/4" x 5/8"	5
25	1" x 7/8"	6

Note) For details of the applicable tubing sizes, refer to page 823.

Nut

LQ3 – 1 N 03 – □



Size

Symbol	Size
1	1
2	2
3	3
4	4
5	5
6	6
7	7

Fitting type

Symbol	Type
N	Nut

Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5
2	PVDF	Clean packaging equivalent to Class M3.5
3	PVDF	Standard packaging equivalent to Class M5.5

Applicable tubing size

Metric Size

Symbol	Applicable tubing size	Size
03	ø3 x ø2	1
04	ø4 x ø3	
06	ø6 x ø4	2
08	ø8 x ø6	3
10	ø10 x ø8	
12	ø12 x ø10	4
19	ø19 x ø16	5
25	ø25 x ø22	6

Inch Size

Symbol	Applicable tubing size	Size
03	1/8" x 0.086"	1
07	1/4" x 5/32"	2
11	3/8" x 1/4"	3
13	1/2" x 3/8"	4
19	3/4" x 5/8"	5
25	1" x 7/8"	6
32	1 1/4" x 1.1"	7

Note) For details of the applicable tubing sizes, refer to page 823.

High Purity Fluoropolymer Needle Valve

Series LVN

RoHS

How to Order

LVN 2 0 – S 07 [ ]

Body class

Symbol	Body class	Orifice dia.
2	2	ø4.4
3	3	ø8
4	4	ø10

LQ2 fittings

A port (IN) Applicable tubing size

Symbol	Connecting tubing O.D.	Body class 2	Body class 3	Body class 4
Metric sizes				
04	4 x 3	●		
06	6 x 4	○	●	
08	8 x 6		●	
10	10 x 8		○	●
12	12 x 10			○
Inch sizes				
03	1/8" x 0.086"	●		
05	3/16" x 1/8"	●		
07	1/4" x 5/32"	○	●	
11	3/8" x 1/4"		○	●
13	1/2" x 3/8"			○

○ Basic size ● With reducer

Note 1) Applicable fittings: LQ2

Note 2) For details of the applicable tubing sizes, refer to page 823.

Port B (OUT) different dia. size

Symbol	Application
Nil	Port A & B same size
Refer to the applicable tubing table to the left.	Different diameter tubing can be selected within the same body class.

Different diameter tubing order example

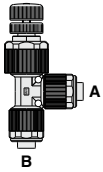
Different diameter tubing (with plug-in reducer) can be selected within the same body class.

(Example) Body class 3

A side: ø10 x ø8

B side: ø8 x ø6

Order as shown below.



LVN30 – S 10 08

Different dia. tubing size (B side)

Applicable tubing size (A side)

Standard Specifications

Model		LVN20	LVN30	LVN40
Tubing O.D. Note)	Metric size	4, 6	6, 8, 10	10, 12
	Inch size	1/8", 3/16", 1/4"	1/4", 3/8"	3/8", 1/2"
Orifice diameter		ø4.4	ø8	ø10
Flow characteristics	Av x 10^{-6}m²	12	33.6	52.8
	Cv	0.5	1.4	2.2
Withstand pressure (MPa)		1		
Operating pressure (MPa)		0 to 0.5		
Fluid temperature (°C)		5 to 90		
Ambient temperature (°C)		0 to 60		
Weight (kg)		0.055	0.115	0.185

Note) For details of the applicable tubing sizes, refer to page 823.

Different Diameter Tubing Applicable with Reducer

Different diameter tubing can be selected (within a body class) by using a nut and insert bushing (reducer). Applicable fitting: LQ2

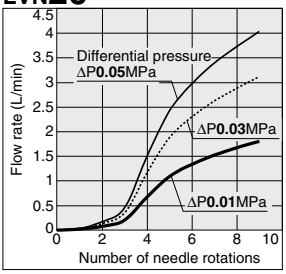
Body class	Tubing O.D.									
	Metric sizes					Inch sizes				
	4	6	8	10	12	1/8"	3/16"	1/4"	3/8"	1/2"
2	●	○				●	●	○		
3		●	●	○				●	○	
4				●	○				●	○

Note) Refer to page 788 for information on changing tubing sizes.

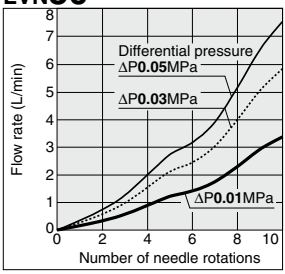
○ Basic size ● With reducer

Flow Characteristics (Fluid: Water)

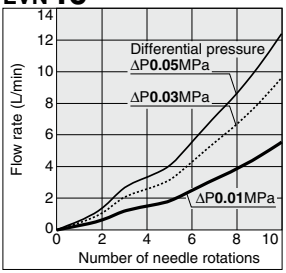
LVN20



LVN30



LVN40



⚠Specific Product Precautions

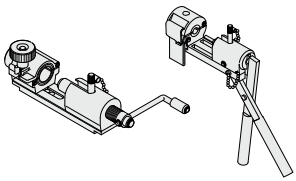
Be sure to read before handlings. Refer to front matter 41 for Safety Instructions.

Piping

⚠Caution

1. Connect tubing with special tools.

Refer to the pamphlet "High-Purity Fluoropolymer Fittings Hyper fitting/Series LQ1, 2 Work Procedure Instructions" (M-E05-1) for connecting tubing and special tools. (Downloadable from our web site.)

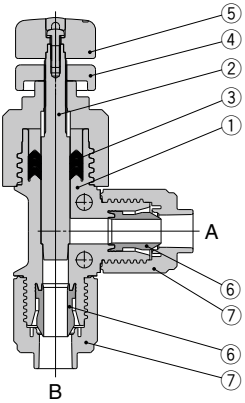


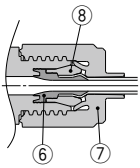
2. Tighten the nut to the end surface of the body. As a guide, refer to the proper tightening torques shown below.

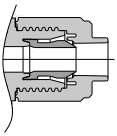
Tightening torque for piping

Body class	Torque (N·m)
2	1.5 to 2.0
3	3.0 to 3.5
4	7.5 to 9.0

Construction



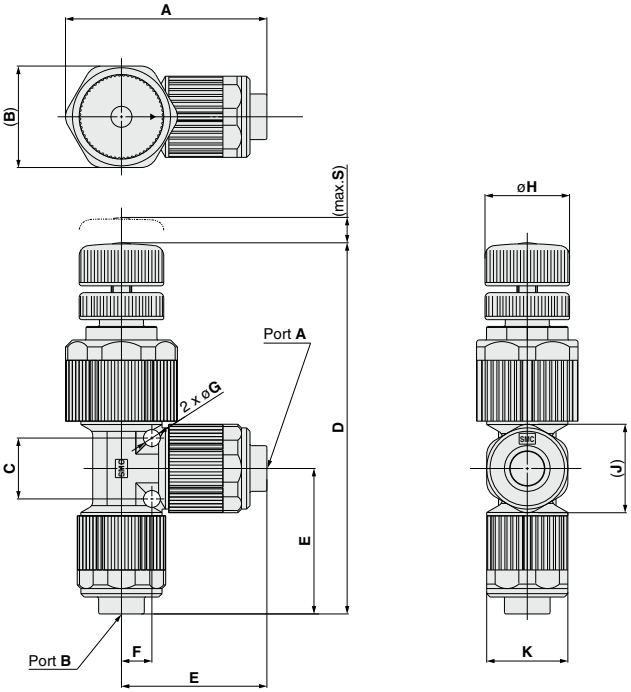




Part lists

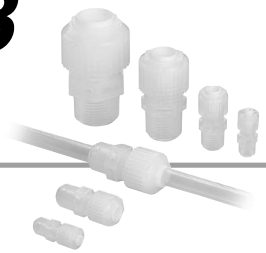
No.	Description	Material
1	**Body**	PFA
2	**Needle**	PCTFE
3	**V seal**	PTFE
4	**Lock nut**	PVDF
5	**Adjustment handle**	PVDF
6	**Insert bushing**	PFA
7	**Nut**	PFA
8	**Collar**	PFA

Dimensions



Model	A	B	C	D	E	F	G	H	J	K	S
LVN20	48	24	12	88	34.5	6	4	14	20	18	2.4
LVN30	60	30	18	110	43	9	5	25	26	24	7.5
LVN40	72	36	22	124	52	11	6	25	33	30	8

Fluoropolymer Bore Through Connector
Series LQHB



How to Order

Tubing connection

LQHB 07 – □ – □

Fitting type

Symbol	Type
HB	Bore through connector

Nut material, packaging

Symbol	Nut material	Packaging
Nil	PFA	Clean packaging equivalent to Class M3.5
1	PFA	Standard packaging equivalent to Class M5.5

Thread type

Symbol	Type
Nil	R
N	NPT

Size combination

Symbol	Size	Applicable tubing size (mm)	Tubing O.D.
03	**1**	3 x 2	1/8"
04		4 x 3	
06	**2**	6 x 4	1/4"
08	**3**	8 x 6	3/8"
10		10 x 8	
12	**4**	12 x 10	1/2"
19	**5**	19 x 16	3/4"
25	**6**	25 x 22	1"

Symbol	Size	Applicable tubing size (inch)	Tubing O.D.
03	**1**	1/8" x 0.086"	1/8"
07	**2**	1/4" x 5/32"	1/4"
11	**3**	3/8" x 1/4"	3/8"
13	**4**	1/2" x 3/8"	1/2"
19	**5**	3/4" x 5/8"	3/4"
25	**6**	1" x 7/8"	1"

Note) For details of the applicable tubing sizes, refer to page 823.

Specifications

Maximum operating pressure (at 20°C)	1.0 MPa (Refer to Note 1)
Operating temperature	0 to 200°C (Refer to Note 1)
Applicable tube diameter	Please refer to the Combination Chart.

Precautions

1. The operating pressure or operating temperature range for each tubing size differs depending on the usage conditions. Keep the supplied fluid pressure and temperature within the range of each specification.
2. The piping should be arranged in such a way that no extraction force other than the fluid pressure should be added to the tubing.
3. Avoid using in instances where the nut is soaked in the fluid.
4. Screw in the R or NPT screw after inserting the tubing. (If the screw is screwed in first, the tubing may be hard to insert.)

Piping

⚠ Caution

1. As with the nut tightening, refer to the tightening torques below as a guide.

Tightening torque for piping

Body size	Torque (N·m)
1	0.7 to 0.9
2	1.6 to 1.8
3	3.2 to 3.5
4	5.0 to 5.3
5	10.0 to 10.5
6	22.5 to 23.0

2. Tightening
   After tightening the nut by hand, use the nut tightening wrench dedicated to the LQ1 to tighten the nut securely. The tightening is enough when the clearance between the end face of the nut and the body is 2 mm or less (Refer to figure 1).

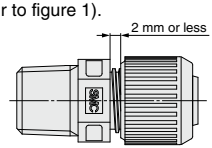
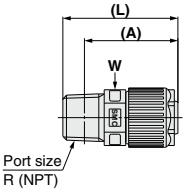
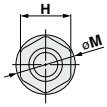


Fig. 1

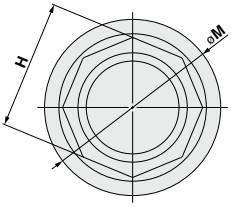
Dimensions



Class 1



Class 2 to 5



Class 6

Metric Size

Model	Size	A	H	L	M	W
LQHB03-□	1	22.5	—	27	11.5	10
LQHB04-□						
LQHB06-□	2	27.5	14	34	16.5	14
LQHB08-□	3	34.5	17	42.1	23	19
LQHB10-□						
LQHB12-□	4	40	21	49	28	23
LQHB19-□	5	50	26	61.1	39	32
LQHB25-□	6	66	36	77	49	46

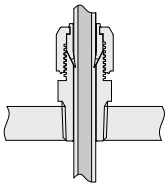
Inch Size

Model	Size	A	H	L	M	W
LQHB03-□	1	22.5	—	27	11.5	10
LQHB07-□	2	27.5	14	34	16.5	14
LQHB11-□	3	34.5	17	42.1	23	19
LQHB13-□	4	40	21	49	28	23
LQHB19-□	5	50	26	61.1	39	32
LQHB25-□	6	66	36	77	49	46

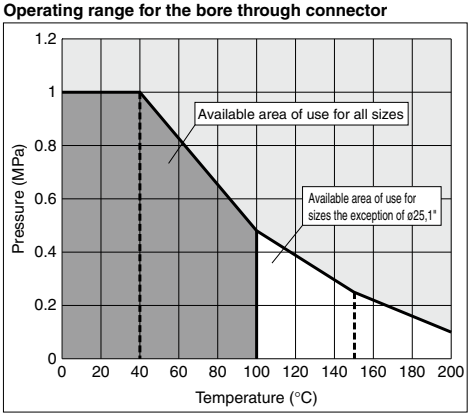
Types of Use

There are presumably two different types of use for the bore through connector as indicated in conditions A and B, and the specifications will differ according to the type of use.

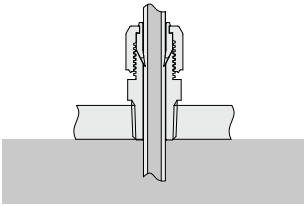
Condition A
- For applications including boring through panels or walls, etc.
- Atmospheric release.



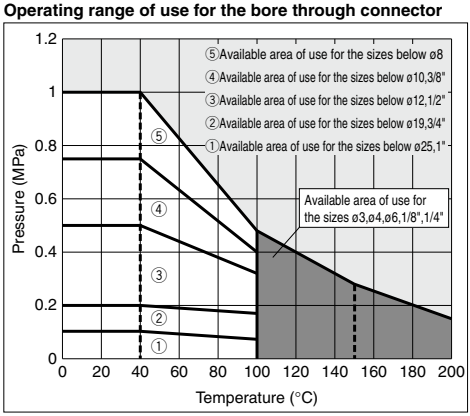
Operating range for the bore through connector



Condition B
- For applying sustained pressure to the female thread.
- Using the same pressure and temperature as that of the inside of the tube.



Operating range of use for the bore through connector



Applicable Fluids

Material and fluid compatibility check list for high purity fluoropolymer fittings

Chemical		Compatibility
Acetic acid	100%	○
Acetone	100%	○ Note 1,2)
Ammonium fluoride	40%	○
Ammonium hydroxide	30%	○
Butyl acetate	100%	○
Methylne chloride	100%	○
Hydrochloric acid	38%	○
Hydrofluoric acid	50%	○
Hydrogen peroxide	60%	○
Methanol	100%	○
Methyl ethyl Ketone	—	○ Note 2)
Nitric acid	70%	○ Note 2)
Phosphoric acid	86%	○
Caustic potash	85%	○
Sulfuric acid	100%	○ Note 2)
Toluene	—	○ Note 1,2)
Xylene	—	○ Note 2)
Sodium hydroxide (caustic soda)	100%	○ Note 2)
1.1.1-Trichloroethane	100%	○ Note 2)
Rhosphorus pentachloride	—	○
Isobutyl alcohol	—	○ Note 1)
Isopropyl alcohol	—	○ Note 1)
Ozone	—	○
Ethyl acetate	—	○ Note 1,2)
DI water (Pure water)	—	○
Nitrogen	—	○
Ultrapure water	—	○
Tmah	—	○ Note 2)

Table symbol ○ : can be used.

The material and fluid compatibility check list provides reference values as a guide only.
Note 1) Since static electricity may be generated, implement suitable countermeasures.
Note 2) In the case of nut with PVDF material, it cannot be used due to atmosphere or temperature. Use the nut with PFA material.

- Fluid temperature indicates compatibility below 200°C (below 150°C in the case of a nut with PVDF material).
- The material and fluid compatibility check list provides reference values as a guide only, therefore we do not guarantee the application to our product.
- The data above is based on the information presented by the material manufacturers.
- SMC is not responsible for its accuracy and any damage happened because of this data.

Series LQ1/LQ3/LVN/LQHB
Fluoropolymer Fittings/Needle Valve/ Bore Through Connector/ Precautions 1

Be sure to read before handling.
Refer to front matter 41 for Safety Instructions.

Design and Selection

⚠ Warning

1. Confirm the specifications.

Give careful consideration to operating conditions such as the application, fluid and environment, and use within the operating ranges specified in this catalog.

2. Fluid

Operate within the indicated fluid temperature range.

3. Maintenance space

Ensure the necessary space for maintenance and inspections.

4. Fluid pressure range

Keep the supplied fluid pressure within the operating pressure range shown in the catalog.

5. Countermeasures for static electricity

Since static electricity may be generated depending on the fluid being used, implement suitable countermeasures.

Mounting

⚠ Warning

1. After mounting, perform suitable function and leak tests to confirm that the mounting is correct.

2. Instruction manual

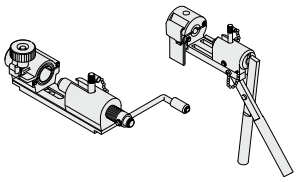
Mount and operate the product after reading the manual carefully and understanding its contents. Also keep the manual where it can be referred to as necessary.

Piping

⚠ Caution

1. Connect tubing with special tools.

Refer to the pamphlet "High-Purity Fluoropolymer Fittings Hyper fitting/Series LQ1, 2 Work Procedure Instructions" (M-E05-1) for connecting tubing and special tools. (Downloadable from our web site.)



Piping

⚠ Caution

2. Tighten the nut until it touches the end surface of the body, and then tighten it an additional 1/8 turn. If the nut won't turn any further, then it means a sufficient tightening has occurred. Refer to the proper tightening torques shown below.

Nut tightening torque for piping

Body class	Torque (N·m)		
	LQ1	**LQ3**	**LVN**
1	— Note 1)	0.7 to 0.9	—
2	0.3 to 0.4	1.6 to 1.8	1.5 to 2.0
3	0.8 to 1.0	3.2 to 3.5	3.0 to 3.5
4	1.0 to 1.2	5.0 to 5.3	7.5 to 9.0
5	2.5 to 3.0	10.0 to 10.5	—
6	5.5 to 6.0	22.5 to 23.0	—
7	—	23.0 to 26.5	—

Note 1) The LQ1 Body class 1 must be tightened manually.
Note 2) Refer to page 819 for Series LQHB.

3. Use sealant tape for the piping of taper thread parts such as LQ□H and LQ□L.

Tape the ridges tightly with the sealant tape, starting one ridge width left from thread end side. 3 to 4 sealant tapes are required.

Taper thread mounting torque

Bore size	Torque (N·m)
1/8	0.6 to 0.9
1/4	0.8 to 1.2
3/8	1.0 to 1.6
1/2	1.5 to 2.0
3/4	2.0 to 2.7
1	2.5 to 3.6
1 1/4	5.5 to 7.5

4. Nut tightening torque for the panel mount union.

Nut tightening torque for the panel mount union

Body class	Torque (N·m)
1	0.5 to 0.6
2	0.6 to 0.7
3	1.2 to 1.3
4	4.5 to 4.6
5	6.8 to 6.9
6	12.4 to 12.5

Fluoropolymer Fittings/Needle Valve/ Bore Through Connector/ Precautions 2

Be sure to read before handling.
Refer to front matter 41 for Safety Instructions.

Operating Environment

⚠ Warning

1. **Do not use in locations having an explosive atmosphere.**
2. **Do not operate in locations where vibration or impact occurs.**
3. **In locations near heat sources, block off radiated heat.**

Maintenance

⚠ Warning

1. **Perform maintenance in accordance with the procedures in the instruction manual.**
   Improper handling can cause damage.
2. **When removing or reinstalling fittings, remove any remaining chemicals and carefully replace them with DI water (pure water) or air, etc., before beginning work activities.**
3. **Tightening of taper threads for piping**
   Because the taper threads are made of resin, minute leakage may gradually occur due to stress relaxation. Perform periodic inspections, and if leakage is detected correct the problem by additional tightening. If additional tightening becomes ineffective, replace the fitting with a new product.
4. **Check the following during regular maintenance, and replace components as necessary.**
   a) Scratches, gouges, abrasion, corrosion
   b) Twisting, flattening or distortion of tubing
   c) Hardening, deterioration or softening of tubing
5. **Do not repair or patch the replaced tubing or fittings for reuse.**

Operating Precautions

⚠ Warning

1. **Operate within the range of the maximum operating pressure.**

⚠ Caution

1. **After a long period of non-use, perform inspections before beginning operation.**
2. **Use sufficient care in the handling of series LQ clean packaging types when their packaging is opened.**
3. **Series LVN cannot be used as a stop valve. Be careful not to apply any excessive force to the stroke end, which fully opens and closes, to avoid accidental damage or changes in flow characteristics.**

Installation of Tubing

⚠ Caution

1. **Cut the end of the tubing at a right angle and pass it through the fitting nut. After placing the tubing in the holder, push it onto the insert bushing until it stops and clamp it with the knob.**
   As a guide when tightening the tubing with the knob, maintain a uniform gap (approx. 2 mm) on both sides of the holder.
   - When the tubing is curved, straighten it out before using it.
   - The tubing may slip if there is oil or dust, etc., on the holder. Remove the contamination using alcohol or another suitable cleaner.

Use of Tubing

⚠ Caution

1. **Refer to the applicable tubing sizes shown below for tubing to be used.**

Applicable tubing sizes

	Connection tubing size	O.D. (mm)		Internal thickness (mm)	
		Standard size	Tolerance	Standard size	Tolerance
Metric sizes	ø3 x ø2	3.0	+0.2 −0.1	0.5	±0.06
	ø4 x ø3	4.0			
	ø6 x ø4	6.0		1.0	±0.1
	ø8 x ø6	8.0			
	ø10 x ø8	10.0			
	ø12 x ø10	12.0			
	ø19 x ø16	19.0	+0.3 −0.1	1.5	±0.15
	ø25 x ø22	25.0			
Inch sizes	1/8" x 0.086"	3.18	+0.2 −0.1	0.5	±0.1
	3/16" x 1/8"	4.75		0.8	
	1/4" x 5/32"	6.35		1.2	±0.12
	3/8" x 1/4"	9.53		1.6	±0.15
	1/2" x 3/8"	12.7			
	3/4" x 5/8"	19.0	+0.3 −0.1		
	1" x 7/8"	25.4			
	1 1/4" x 1.1"	31.75	±0.25	1.9	±0.2
	1 1/2" x 1.33"	38.1	±0.2	2.2	±0.2

Fluoropolymer Tubing Variations

Series TL/TIL/TLM/TILM/TD/TID/TH/TIH

RoHS

Fluoropolymer Tubing
Series TL/TIL — Material: Super PFA

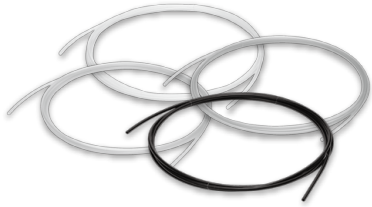
It is suitable for applications which require a highly smooth internal surface and small amount of elution of fluorine ions.
* It has heat and chemical resistance equivalent to PFA.

P.826

Fluoropolymer Tubing (PFA)
Series TLM/TILM — Material: PFA

The material consists of a good chemical resistant fluoropolymer. This also has good heat resistance, and it is suitable for a wide range of applications.

P.827



Soft Fluoropolymer Tubing
Series TD/TID — Material: Modified PTFE

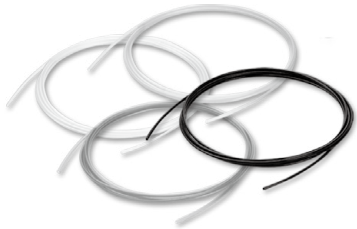
Flexibility improved by approx. 20%
(Compared with SMC TL/TIL Series)
Suitable for applications which require flexibility.

P.830

FEP Tubing (Fluoropolymer)
Series TH/TIH — Material: FEP

This has better resistance in chemical liquids environments.

P.832



Series		TL/TIL	TLM/TILM	TD/TID	TH/TIH
Material		Super PFA	PFA	Modified PTFE	FEP
Chemical resistance		◎	◎	◎	○
Heat resistance		260°C	260°C	260°C	200°C
Flexibility		△	△	○	△
Ion elution		◎	○	○	○
Internal smoothness		○	△	○	◎
Fluid		Chemical liquids, Deionized water	Chemical liquids, Deionized water	Air, Water, Inert gas	
Tubing O.D.	Metric	ø4 to ø19	ø2 to ø25	ø4 to ø12	ø4 to ø12
	Inch	1/8" to 1"	1/8" to 1 1/4"	1/8" to 1/2"	1/8" to 3/4"
Color		Translucent	Translucent, Red, Blue, Black	Translucent	Translucent, Red, Blue, Black
Applicable fitting series	One-touch fittings	—	**KQ2, KQG2, KP, KP□**	—	**KQ2, KQG2, KP, KP□**
	Miniature fittings	—	**M, MS (Hose nipple type)**	**M, MS (Hose nipple type)**	**M, MS (Hose nipple type)**
	Insert fittings	—	**KF, KFG2**	**KF, KFG2**	**KF, KFG2**
	Fluoropolymer fittings	**LQ1, LQ2, LQ3**	**LQ1, LQ2, LQ3**	**LQ1, LQ2, LQ3**	**LQ1, LQ2, LQ3**

◎: Very good ○: Good △: Moderate
The comparison table shown above was prepared based on a relative comparison taking the characteristics of each fluoropolymer tubing into consideration.

RoHS

High Purity Fluoropolymer Tubing

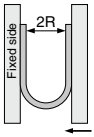
Series TL/TIL

Material: Super PFA

Series and Specifications

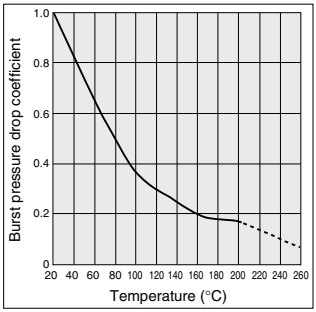
		Metric sizes (Series TL)						Inch sizes (Series TIL)							
Tubing model		TL0403	TL0604	TL0806	TL1008	TL1210	TL1916	TIL01	TILB01	TIL05	TIL07	TIL11	TIL13	TIL19	TIL25
Nominal diameter		—	—	—	—	—	—	1/8"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"
Tubing size		ø4 x ø3	ø6 x ø4	ø8 x ø6	ø10 x ø8	ø12 x ø10	ø19 x ø16	1/8" x 0.086"	1/8" x 1/16"	3/16" x 1/8"	1/4" x 5/32"	3/8" x 1/4"	1/2" x 3/8"	3/4" x 5/8"	1" x 7/8"
O.D. (mm)	Basic diameter	4	6	8	10	12	19	3.18	3.18	4.75	6.35	9.53	12.7	19.05	25.4
	Tolerance	±0.1				+0.2 −0.1		±0.1					+0.2 −0.1		
Thickness (mm)	Basic diameter	0.5	1				1.5	0.5	0.8	0.8	1.2	1.6			
	Tolerance	±0.05	±0.1				±0.15	±0.05	±0.08	±0.08	±0.12	±0.15			
Bundle	10 m	—	—	—	●	●	●	—	—	—	—	●	●	—	—
	20 m	●	●	●	●	●	●	●	—	●	●	●	●	●	●
	50 m	●	●	●	●	●	●	●	—	●	●	●	●	●	●
	100 m	●	●	●	●	●	●	●	—	●	●	●	●	●	—
	50 Ft (16 m)	—	—	—	—	—	—	●	●	●	●	●	●	●	●
	100 Ft (33 m)	—	—	—	—	—	—	●	●	●	●	●	●	●	●
Straight pipe	2 m	●	●	●	●	●	●	●	—	●	●	●	●	●	●
Color		Translucent (color of material)													
Applicable fluid		Refer to the applicable fluid in page 834.													
Max. operating pressure (at 20°C) Note 1)		1 MPa			0.9 MPa	0.7 MPa	0.6 MPa	1 MPa						0.7 MPa	0.5 MPa
Burst pressure (at 20°C)		4.9 MPa	6.9 MPa	4.7 MPa	3.6 MPa	2.9 MPa	2.6 MPa	6.4 MPa	9.9 MPa	6.7 MPa	7.9 MPa	6.7 MPa	4.6 MPa	2.8 MPa	2.0 MPa
Min. bending radius (mm) Note 2)		20		40	65	110	160	12	6	20		30	60	160	290
Max. operating temperature (Fixed use)		260°C													
Material		Super PFA													

Note 1) • The maximum operating pressure is the value at 20°C. For other temperatures, calculate from the burst pressure drop coefficient.
Furthermore, an abnormal temperature increase due to adiabatic compression can cause tubing to burst.To operate at a temperature other than 20°C, the operating pressure must be no more than the value calculated using the equation below: When the value (calculated using the formula below) exceeds 1 MPa, the Max. operating pressure is 1 MPa.
(Max. operating pressure) = 1/4 x (burst pressure drop coefficient) x (burst pressure at 20°C)
• When using a fluid in liquid form, the surge pressure must be no more than the maximum operating pressure.
A surge pressure higher than the maximum operating pressure can cause breakage of the fitting or bursting of the tubing.
Note 2) The minimum bending radius is measured using the method shown in the figure at the right.
Note 3) As for other commercial items, there are some cases it is not able to connect due to tolerance of dimensions.



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 drop curve



How to Order

Metric sizes TL0604 – 20

Inch sizes TIL01 – 20

Tubing Model

Length — Applicable to both metric and inch size

Symbol	Type	Length
10	Roll	10 m
20		20 m
50		50 m
100		100 m
2S	Straight	2 m

Length — Applicable to inch size only

Symbol	Type	Length
16	Roll	50 Ft (16 m)
33		100 Ft (33 m)

Please refer to the "Series and Specifications" above, as the tubing length differs depending on each size.

Eluting fluorine ion amount Note 4) (μg/g)

Type	Fluorine ion
Eluting amount	0.1 or less

A 15 g piece of fluororesin tubing is cut off, washed in DI water (puer water) and immersed in 15 mL of 25% methyl alcohol extract at room temperature for 24 hours. Then the extract is diluted with DI water (puer water) to be subjected to a quantitative analysis of fluorine ions.

Eluting metal ion amount Note 4) (ng/cm²)

Type	Al	Fe	Ni	Na	Ca
Eluting amount	4.5	0.3	0.2	7.1	1.3

The interior of the fluororesin tubing is washed with super deionized water. Approximately 20 g of super high purity hydrofluoric acid (48%) is measured and injected into the tubing. The interior wall of the tubing is immersed at normal temperature for one week with both ends of the tubing plugged. Then the extract was diluted with super deionized water to be subjected to a quantitative analysis on Al, Fe, Ni, Na and Ca by the stripping method.

Note 4) Figures shown in tables are representative values, not guaranteed values.

Fluoropolymer Tubing PFA

Series TLM/TILM

RoHS

Max. operating temperature: 260°C

22 size variations

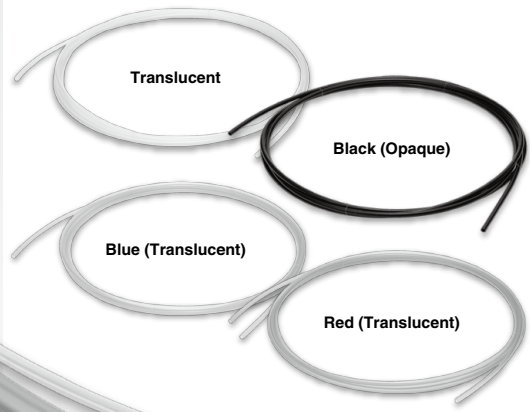
Metric size ø2 to ø25 (13 sizes)

Length per roll	10 m, 20 m, 50 m, 100 m
Straight	2 m

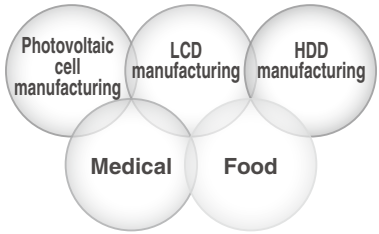
Inch size 1/8" to 1 1/4" (9 sizes)

Length per roll	10 m, 20 m, 50 m, 100 m 16 m (50 ft), 33 m (100 ft)
Straight	2 m

4 color variations

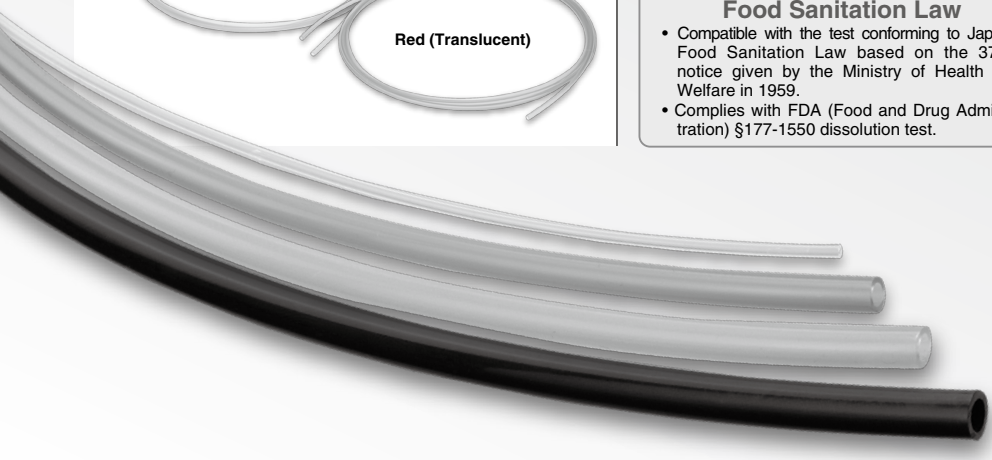


Applications



Compatible with Food Sanitation Law

- Compatible with the test conforming to Japan's Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.
- Complies with FDA (Food and Drug Administration) §177-1550 dissolution test.



Fluoropolymer Tubing (PFA)
Metric Size
Series TLM

RoHS

Series

Size				Metric size												
Model				TLM0201	TLM0302	TLM0425	TLM0403	TLM0604	TLM0806	TLM1075	TLM1008	TLM1209	TLM1210	TLM1613	TLM1916	TLM2522
Tubing size				ø2 x ø1	ø3 x ø2	ø4 x ø2.5	ø4 x ø3	ø6 x ø4	ø8 x ø6	ø10 x ø7.5	ø10 x ø8	ø12 x ø9	ø12 x ø10	ø16 x ø13	ø19 x ø16	ø25 x ø22
O.D. (mm)				2	3	4	4	6	8	10	10	12	12	16	19	25
I.D. (mm)				1	2	2.5	3	4	6	7.5	8	9	10	13	16	22
Length per roll		Color	Symbol													
Roll	10 m	Translucent	N							●	●	●	●	●	●	
	20 m	Translucent	N	●	●	●	●	●	●	●	●	●	●	●	●	●
		Red (Translucent)	R	●	●	●	●	●	●	●	●	●	●	●	●	●
		Blue (Translucent)	BU	●	●	●	●	●	●	●	●	●	●	●	●	●
		Black (Opaque)	B	●	●	●	●	●	●	●	●	●	●	●	●	●
	50 m	Translucent	N	●	●	●	●	●	●	●	●	●	●	●	●	●
	100 m	Translucent	N	●	●	●	●	●	●	●	●	●	●	●	●	
Straight	2 m	Translucent	N	●	●	●	●	●	●	●	●	●	●	●	●	●

Inch O.D. size: 5/32"

Inch O.D. size: 5/16"

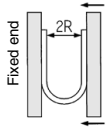
O.D. 3.2 mm is available in ø 1/8 inch (3.18 mm) tubing. For details, refer to the table "Series" on page 829.

Specifications

Fluid Note 1) 2) 3) **and applicable fittings** Note 1) 2) 3)		Fluid: Refer to "Applicable Fluid List" on page 835. Fittings: Fluoropolymer fittings series LQ Fluid: Air, Water, Inert gas Fittings: One-touch fittings KQ2, KQG2, Clean One-touch fittings KP, KP□ Insert fittings KF, KFG2, Miniature fittings M, MS (Hose nipple type)											
Max. operating pressure (MPa)		Refer to the max. operating pressure curve.											
Min. bending radius (mm) Note 4)	Recommended radius	10	20	20	35	35	60	95	100	100	130	160	220	400
	Tube close bent radius	7	15	15	20	20	40	60	65	65	110	130	160	290
Max. operating temperature		260°C												
Material		PFA (Tetrafluoroethylene perfluoroalkoxy vinyl ether copolymer)												

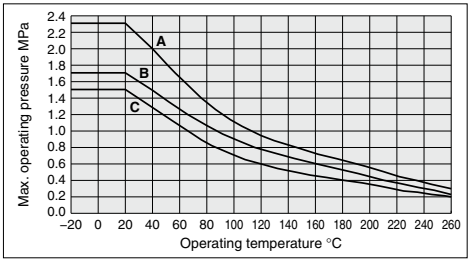
Note 1) Fluid varies depending on the applicable fittings.
Note 2) When using a liquid fluid, the surge pressure must not exceed the maximum operating pressure. If the surge pressure exceeds the maximum operating pressure, it will result in damage to fittings and tubes. Furthermore, abnormal temperature rise caused by adiabatic compression may result in the tube bursting.
Note 3) Do not use this product in a manner in which the tube is not fixed. Observe the lesser value of the maximum operating pressure between the tubing and fitting. A material change over a long duration or due to high-temperature may cause leakage. Perform periodic maintenance and replace with a new product immediately when abnormalities are detected. (Refer to "Maintenance" of the tubing precautions on page 837.)
For other precautions, refer to "Fittings & Tubing Precautions" in Best Pneumatics No. 6. When using the fluoropolymer fittings, refer to the precautions on pages 822 and 823.
Note 4) Minimum bending radius is measured as shown left as representative values.
- Use a tube above the recommended minimum bending radius.
- The tube may be bent if used under the recommended minimum bending radius. Therefore, refer to the tube close bent radius and make sure that the tube is not bent or flattened.
- Please note that the tube close bent radius is not warranted because of the value when 2R is measured by the method in the right figure if the tube is bent or flattened, etc.

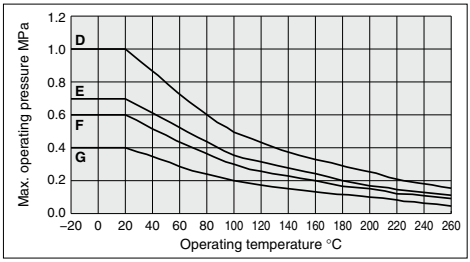
How to measure the minimum bending radius



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





Group	Model	Max. operating pressure (MPa)			
		20°C	100°C	200°C	260°C
A	TLM0201	2.3	1.1	0.55	0.3
B	TLM0425	1.7	0.9	0.45	0.23
C	TLM0302 TLM0604	1.5	0.7	0.35	0.2
D	TLM0403 TLM0806 TLM1075 TLM1209	1	0.5	0.25	0.15
E	TLM1008 TLM1613	0.7	0.35	0.17	0.11
F	TLM1210 TLM1916	0.6	0.3	0.15	0.1
G	TLM2522	0.4	0.2	0.1	0.05

How to Order

Metric size

TLM0425 N – 20

Tubing designation

Color indication

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

Length per roll

Symbol	Type	Length
10	Roll	10 m
20		20 m
50		50 m
100		100 m
2S	Straight	2 m

Note) Refer to the table "Series" above, as the tubing length differs depending on each size.

Fluoropolymer Tubing (PFA)
Inch Size
Series TILM

RoHS

Series

Size			Inch size								
Model			TILM01	TILMB01	TILM05	TILM07	TILM11	TILM13	TILM19	TILM25	TILM32
Tubing size			1/8" x 0.086"	1/8" x 1/16"	3/16" x 1/8"	1/4" x 5/32"	3/8" x 1/4"	1/2" x 3/8"	3/4" x 5/8"	1" x 7/8"	$1\frac{1}{4}$" x $1\frac{1}{10}$"
O.D.	inch		1/8"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"	$1\frac{1}{4}$"
	mm		3.18		4.75	6.35	9.53	12.7	19.05	25.4	31.75
I.D.	inch		0.086"	1/16"	1/8"	5/32"	1/4"	3/8"	5/8"	7/8"	$1\frac{1}{10}$"
	mm		2.18	1.58	3.15	3.95	6.33	9.5	15.85	22.2	27.95
Length per roll		Color	Symbol								
Roll	10 m	Translucent	N					●	●			
	20 m	Translucent	N	●	●	●	●	●	●	●	●	●
		Red (Translucent)	R	●	●	●	●	●	●	●	●	●
		Blue (Translucent)	BU	●	●	●	●	●	●	●	●	●
		Black (Opaque)	B	●	●	●	●	●	●	●	●	●
	50 m	Translucent	N	●		●	●	●	●	●	●	●
	100 m	Translucent	N	●		●	●	●	●	●		
	16 m (50 ft)	Translucent	N	●	●	●	●	●	●	●	●	●
	33 m (100 ft)	Translucent	N	●	●	●	●	●	●	●	●	●
Straight	2 m	Translucent	N	●		●	●	●	●	●	●	●
			Metric O.D. size									
			3.2									

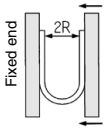
O.D. 5/32" is available in ø4 metric tubing, and O.D. 5/16" is available in ø8 metric tubing. For details, refer to the table "Series" on page 828.

Specifications

Fluid Note 1) 2) 3) and applicable fittings Note 1) 2) 3)		Fluid: Refer to "Applicable Fluid List" on page 835. Fittings: Fluoropolymer fittings series LQ								
		Fluid: Air, Water, Inert gas Fittings: One-touch fittings KQ2, KQG2, Insert fittings KFG2								
Max. operating pressure (MPa)		Refer to the max. operating pressure curve.								
Min. bending radius (mm) Note 4)	Recommended radius	20	10	25	35	60	95	220	400	500
	Tube close bent radius	12	6	20	20	30	60	160	290	360
Max. operating temperature		260°C								
Material		PFA (Tetrafluoroethylene perfluoroalkoxy vinyl ether copolymer)								

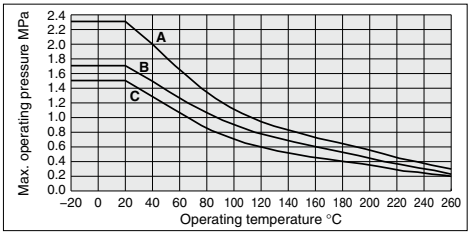
Note 1) Fluid varies depending on the applicable fittings.
Note 2) When using a liquid fluid, the surge pressure must not exceed the maximum operating pressure. If the surge pressure exceeds the maximum operating pressure, it will result in damage to fittings and tubes. Furthermore, abnormal temperature rise caused by adiabatic compression may result in the tube bursting.
Note 3) Do not use this product in a manner in which the tube is not fixed. Observe the lesser value of the maximum operating pressure between the tube and fitting. A material change over a long duration or due to high-temperature may cause leakage. Perform periodic maintenance and replace with a new product immediately when abnormalities are detected. (Refer to "Maintenance" of the tubing precautions on page 837.)
For other precautions, refer to "Fittings & Tubing Precautions" in Best Pneumatics No. 6. When using the fluoropolymer fittings, refer to the precautions on pages 822 and 823.
Note 4) Minimum bending radius is measured as shown left as representative values.
- Use a tube above the recommended minimum bending radius.
- The tube may be bent if used under the recommended minimum bending radius. Therefore, refer to the tube close bent radius and make sure that the tube is not bent or flattened.
- Please note that the tube close bent radius is not warranted because of the value when 2R is measured by the method in the right figure if the tube is bent or flattened, etc.

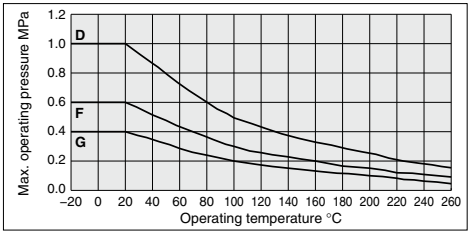
How to measure the minimum bending radius



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





Group	Model	Max. operating pressure (MPa)			
		20°C	100°C	200°C	260°C
A	TILMB01	2.3	1.1	0.55	0.3
B	TILM07	1.7	0.9	0.45	0.23
C	TILM05 TILM11	1.5	0.7	0.35	0.2
D	TILM01 TILM13	1	0.5	0.25	0.15
F	TILM19	0.6	0.3	0.15	0.1
G	TILM25 TILM32	0.4	0.2	0.1	0.05

How to Order

Inch size

TILM01 N – 20

Tubing designation

Color indication

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

Length per roll

Symbol	Type	Length
10	Roll	10 m
20		20 m
50		50 m
100		100 m
16		16 m (50 ft)
33		33 m (100 ft)
2S	Straight	2 m

Note) Refer to the table "Series" above, as the tubing length differs depending on each size.

Soft Fluoropolymer Tubing
Metric Size
Series TD

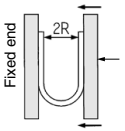
RoHS

Flexibility: Improved by approx. 20%
* SMC comparison (Fluoropolymer tubing, Series TL/TIL)

Compatible with the Food Sanitation Law
- Compatible with the test conforming to the Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.
- Complies with FDA (Food and Drug Administration) §177-1550 dissolution test.

Operating Temperature: Max. 260°C
It varies depending on the operating pressure. Refer to the graph for the maximum operating pressure.

How to measure the minimum bending radius



Bend the tubing 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 tubing diameter at bending reaches 5%.

Model/Specifications

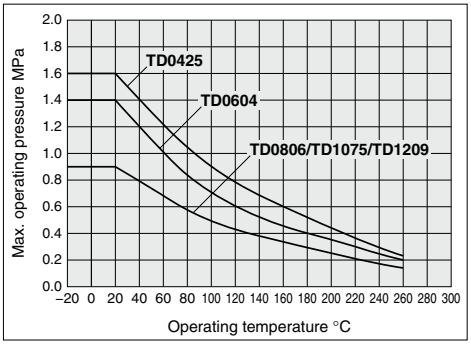
Size		Metric size				
Model		TD0425	TD0604	TD0806	TD1075	TD1209
Tubing O.D. (mm)		4	6	8	10	12
Tubing I.D. (mm)		2.5	4	6	7.5	9
Roll	10 m	●	●	●	●	●
	20 m	●	●	●	●	●
Color		Translucent (material color)				
Applicable fluid		Refer to the applicable fluid in page 834.				
Fluid Note 1)		Air, Water Note 1), Inert gas				
Applicable fittings Note 2)		Insert Fittings KF series Stainless Steel 316 Insert Fittings KFG series Miniature fittings M, MS series (Hose nipple type) Fluoropolymer fitting series LQ				
Max. operating pressure (MPa)	20°C	1.6	1.4	0.9	0.9	0.9
	100°C	0.9	0.7	0.5	0.5	0.5
	200°C	0.45	0.35	0.25	0.25	0.25
	260°C	0.23	0.2	0.15	0.15	0.15
Min. bending radius (mm) Note 3)	Recommended radius	15	25	45	55	75
	Tube close bent radius	8	16	31	35	41
Max. operating temperature (fixed usage)		260°C				
Material		Modified PTFE (Polytetrafluoroethylene resin)				

Note 1) When using a liquid fluid, 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 tubing. Furthermore, abnormal temperature rise caused by adiabatic compression may result in the tubing bursting.

Note 2) Do not use this product in a manner in which the tubing is not fixed.
Observe the lesser value of the maximum operating pressure between the tubing and fittings.
A material change over a long duration or due to high-temperature may cause leakage.
Perform periodic maintenance and replace with a new product immediately when abnormalities are detected.
(Refer to "Maintenance" of the tubing precautions on page 837.)
For other precautions, refer to "Fittings & Tubing Precautions" in Best Pneumatics No. 6. When using the fluoropolymer fittings, refer to the precautions on pages 822 and 823.

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 tube close bent radius and make sure that the tubing is not bent or flattened.
- Please note that the tube close bent radius 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.

Maximum Operating Pressure



How to Order

Metric size

TD0425 − 10

- **Length per roll**

Symbol	Length
10	10 m roll
20	20 m roll

- **Tubing model**

Soft Fluoropolymer Tubing
Inch Size
Series TID

RoHS

Flexibility: Improved by approx. 20%

* SMC comparison (Fluoropolymer tubing, Series TL/TIL)

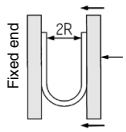
Compatible with the Food Sanitation Law

- Compatible with the test conforming to the Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.
- Complies with FDA (Food and Drug Administration) §177-1550 dissolution test.

Operating Temperature: Max. 260°C

It varies depending on the operating pressure. Refer to the graph for the maximum operating pressure.

How to measure the minimum bending radius



Bend the tubing 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 tubing diameter at bending reaches 5%.

Model/Specifications

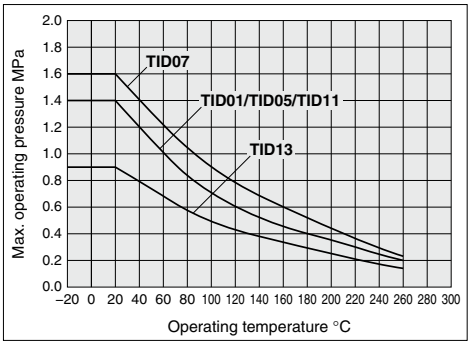
Size		Inch size				
Model		TID01	TID05	TID07	TID11	TID13
Tubing O.D.	inch	1/8"	3/16"	1/4"	3/8"	1/2"
	mm	3.18	4.75	6.35	9.53	12.7
Tubing I.D.	inch	0.086"	0.124" (1/8")	0.156" (5/32")	0.25" (1/4")	0.374" (3/8")
	mm	2.18	3.15	3.95	6.33	9.5
Roll	8 m	●	●	●	●	●
	16 m	●	●	●	●	●
Color		Translucent (material color)				
Applicable fluid		Refer to the applicable fluid in page 834.				
Fluid Note 1)		Air, Water Note 1), Inert gas				
Applicable fittings Note 2)		Fluoropolymer fitting series LQ				
Max. operating pressure (MPa)	20°C	1.4	1.4	1.6	1.4	0.9
	100°C	0.7	0.7	0.9	0.7	0.5
	200°C	0.35	0.35	0.45	0.35	0.25
	260°C	0.2	0.2	0.23	0.2	0.15
Min. bending radius (mm) Note 3)	Recommended radius	15	20	25	40	75
	Tube close bent radius	9	10	15	23	42
Max. operating temperature (fixed usage)		260°C				
Material		Modified PTFE (Polytetrafluoroethylene resin)				

Note 1) When using a liquid fluid, 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 tubing. Furthermore, abnormal temperature rise caused by adiabatic compression may result in the tubing bursting.

Note 2) Do not use this product in a matter in which the modified PTFE tubing is not fixed.
Observe the lesser value of the maximum operating pressure between the tubing and fittings.
A material change over a long duration or due to high-temperature may cause leakage.
Perform periodic maintenance and replace with a new product immediately when abnormalities are detected.
(Refer to "Maintenance" of the tubing precautions on page 837.)
For other precautions, refer to "Fittings & Tubing Precautions" in Best Pneumatics No. 6. When using the fluoropolymer fittings, refer to the precautions on pages 822 and 823.

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 tube close bent radius and make sure that the tubing is not bent or flattened.
- Please note that the tube close bent radius 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.

Maximum Operating Pressure



How to Order

Inch size

TID01 – 8

- **Length per roll**

Symbol	Length
8	25 ft (8 m) roll
16	50 ft (16 m) roll

- **Tubing model**

FEP Tubing (Fluoropolymer)
Metric Size
Series TH

RoHS

Series

●-20 m roll □-100 m roll

Model	TH0402	TH0425	TH0604	TH0806	TH1075	TH1008	TH1209	TH1210
	Metric size							
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

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

Inch nominal size: 5/32"

Inch nominal size: 5/16"

Specifications

Fluid		Air, Water Note 1), Inert gas						
Applicable fittings Note 2)		One-touch fittings, Insert fittings Fluoropolymer fittings: Series LQ Note 3) Miniature fittings: Series M, MS (Hose nipple type)						
Max. operating pressure (MPa)	20°C	2.3	1.7	1.5	1	0.7	1	0.7
	100°C	0.85	0.6	0.55	0.4	0.25	0.4	0.25
	200°C	0.4	0.3	0.3	0.2	0.1	0.2	0.1
		Refer to below "Max. Operating Pressure."						
Min. bending radius (mm) Note 4)	Recommended radius	15	20	35	60	95	100	130
	Tube close bent radius	10	15	20	40	60	65	110
Operating temperature		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.
When the insert and miniature fittings are used over extended periods of time, it may cause leakage due to the material deterioration of age. In such a case, give an additional tightening to the tube connection part. If leakage still occurs after giving an additional tightening, replace the fitting with a new product. For other precautions, refer to "Fittings & Tubing Precautions". When using the fluoropolymer fittings, refer to the precautions on pages 822 and 823. Select the size after confirming O.D. and I.D.

Note 3) TH0402, TH0425, TH1075 and TH1209 are not available because of different internal diameters.

Note 4) 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 tube close bent radius and make sure that the tubing is not bent or flattened.
- Please note that the tube close bent radius 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.

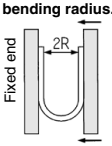
Operating Temperature: Max. 200°C

It varies depending on the operating pressure. Refer to the graph for the maximum operating pressure.

Compatible with the Food Sanitation Law

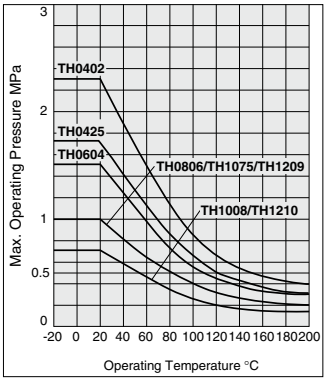
- Compatible with the test conforming to the Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.
- Complies with FDA (Food and Drug Administration) §177-1550 dissolution test.

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

Color indication

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

Length per roll

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

Note) 100 m roll is available with translucent (color indication: N) only.

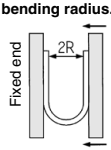
FEP Tubing (Fluoropolymer)
Inch Size
Series TIH

RoHS

Operating Temperature: Max. 200°C
It varies depending on the operating pressure. Refer to the graph for the maximum operating pressure.

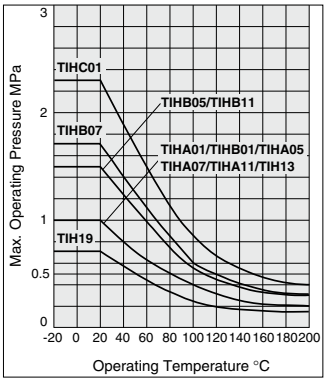
Compatible with the Food Sanitation Law
- Compatible with the test conforming to the Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.
- Complies with FDA (Food and Drug Administration) §177-1550 dissolution test.

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.

Series

●-50 ft (16 m) roll □-100 ft (33 m) roll

Model		Inch size										
		TIHA01	TIHB01	TIHC01	TIHA05	TIHB05	TIHA07	TIHB07	TIHA11	TIHB11	TIH13	TIH19
Tubing O.D.	inch	1/8"			3/16"		1/4"		3/8"		1/2"	3/4"
	mm	3.18			4.75		6.35		9.53		12.7	19.05
Tubing I.D.	inch	0.093"	0.086"	0.065"	0.137"	0.124" (1/8")	0.18"	0.156" (5/32")	0.275"	0.25" (1/4")	0.374" (3/8")	0.624" (5/8")
	mm	2.36	2.18	1.65	3.48	3.15	4.57	3.95	6.99	6.33	9.5	15.85

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

Specifications

Fluid		Air, Water Note 1), Inert gas									
Applicable fittings Note 2)		One-touch fittings, Fluoropolymer fittings: Series LQ Note 3)									
Max. operating pressure (MPa)	20°C	1	2.3	1	1.5	1	1.7	1	1.5	1	0.7
	100°C	0.4	0.85	0.4	0.55	0.4	0.6	0.4	0.55	0.4	0.25
	200°C	0.2	0.4	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.1
		Refer to below "Max. Operating Pressure."									
Min. bending radius (mm) Note 4)	Recommended radius	25	20	10	35	25	55	35	85	60	95	220
	Tube close bent radius	20	12	7	25	20	35	20	55	30	60	160
Operating temperature		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.
When the insert and miniature fittings are used over extended periods of time, it may cause leakage due to the material deterioration of age. In such a case, give an additional tightening to the tube connection part. If leakage still occurs after giving an additional tightening, replace the fitting with a new product. For other precautions, refer to "Fittings & Tubing Precautions". When using the fluoropolymer fittings, refer to the precautions on pages 822 and 823. Select the size after confirming O.D. and I.D.

Note 3) TIHA01, TIHC01, TIHA05, TIHA07 and TIHA11 are not available because of different internal diameters.

Note 4) 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 tube close bent radius and make sure that the tubing is not bent or flattened.
- Please note that the tube close bent radius 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.

How to Order

Inch size

TIHA01 N – 16

Indication of tubing model

Color indication

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

Length per roll

Symbol	Roll size
16	50 ft (16 m) roll
33 Note)	100 ft (33 m) roll

Note) 100 ft (33 m) roll is available with translucent (color indication: N) only.

Applicable Fluid List

Chemical resistance of Fluoropolymer Super PFA, modified PTFE material

Chemicals in the list below are chemically inert Note) to Super PFA, modified PTFE material. Possible physical effects may occur such as penetration and swelling due to temperature, pressure and chemical concentration.
To use Super PFA, modified PTFE tube in a chemical environment, tests should be performed with the same environment to ensure no problem occurs with operating environment.

1,1,1-Trichloroethane	Formic acid	Trichloroethylene
1,1,2-Trichloroethane	Ethyl formate	Trichloroacetic acid
1,2,3-Trichloropropane	Propyl formate	Toluene
1,2-Dichlorobutane	Methyl formate	Naphtha
2,4-Dichlorotoluene	Xylene	Carbon dioxide
2-chloropropane	Glycol	Nitrogen dioxide
2-nitro-2-methylpropane	Glycerine	Nitrobenzene
2-nitrobutanol	Cresol	Nitromethane
Pentabasic benzamide	Chromic acid	Carbon disulfide
Hydrochlorofluorocarbon-22	Chloracetic acid	Piperidine
N-octadecanol	Chlorosulfonic acid	Pyridine
N-butylamine	Chloroform	Pyrogallol
o-chlorotoluene	Paraffinum liquidum	Phenol
Isobutyl adipate	Acetate	Butanol
Acetyl chloride	Amyl acetate	Phthalic acid
Acetophenone	Ethyl acetate	Hydrofluoric acid
Acetone	Potassium	Furan
Aniline	Butyl acetate	Ethyl propionate
Sulfurous acid gas	Propyl acetate	Propyl propionate
Allyl chloride	Methyl acetate	Methylpropionate
Benzoic acid	Salicylic acid	Propylene chloride
Ammonium	Sodium hypochlorite	Bromobenzene
Sulfur	Diisobutyl ketone	Hexachlorethane
Isoamyl alcohol	Diethylamine	Hexane
Isooctane	Carbon tetrachloride	Heptane
Ethanol	Dioxane	Benzyl alcohol
Ethyl ether	Cyclohexanone	Benzaldehyde
Ethylene glycol	Cyclohexane	Benzine
Ethylene chloride	Dichloroethylene	Benzoyl chloride
Ethylenediamine	Dichloropropylene	Benzonitrile
Zinc chloride	Dibutyl phthalate	Pentachloroethane
Aluminum chloride	Dimethyl ether	Boric acid
Ammonium chloride	Dimethylsulfoxide	Sodium boric acid
Calcium chloride	Dimethylformamide	Formaldehyde
Ferrous chloride	Hydrobromic acid	Acetic anhydride
Mercuric chloride	Potassium dichromate	Methanol
Stannous chloride	Bromine	Methyl ether
Ferric chloride	DI water (Pure water)	Methyl ethyl ketone
Cupric chloride	Nitric acid	Methylene chloride
Sodium chloride	Ammonium hydroxide	Ethyl butyrate
Magnesium chloride	Potassium hydroxide	Methyl butyrate
Hydrochloric acid	Sodium hydroxide	Hydrogen sulfide
Chlorine	Soap, detergent	Sulphuric acid
Aqua regia	Diethyl carbonate	Zinc sulfate
Ozone	Sodium carbonate	Ammonium sulfate
Oleic acid	Tetrachloroethane	Ferrous sulfate
Perchlorate	Tetrachloroethylene	Copper sulfate
Hydrogen peroxide	Tetrahydrofuran	Phosphoric acid
Natrium peroxide	Tetrabromoethane	Sodium phosphate
Gasoline	Triethanolamine	
Potassium permanganate	Triethylamine	

Note) “Chemically inert” means – not to cause any chemical reaction.

Applicable Fluid List

Chemical resistance of Fluoropolymer PFA material

Chemicals in the list below are chemically inert [Note)], to PFA material. Possible physical effects may occur such as penetration and swelling due to temperature, pressure and chemical concentration.
To use PFA tube in a chemical environment, tests should be performed with the same environment to ensure no problem occurs with operating environment.

Acetate	Butyl stearate	Ethylene dicloride	Malic acid	Salicylic acid
Acetic anhydride	Calcium acetate	Ethylene glycol	Mercaptan	Silicate ester
Acetone	Calcium bisulfite	Ethylene oxide	Mercuric chloride	Silicone grease
Acetylene	Calcium chloride	Ethylenediamine	Mercury	Silicone oil
Acrylonitrile	Calcium hydroxide	Fatty acid	Methyl acetate	Silver nitrate
Aluminum acetate	Calcium hypochlorite	Ferric chloride	Methyl alcohol	Sodium bicarbonate
Aluminum nitrate	Calcium nitrate	Ferric nitrate	Methyl chloride	Sodium bisulfate
Aluminum bromide	Calcium sulfide	Ferric sulfate	Methyl ethyl ketone	Sodium bisulfite
Aluminum chloride	Carbon dioxide	Fluorboric acid	Methyl isobutyl ketone	Sodium hypochlorite (5%)
Aluminum fluoride	Carbon disulfide	Fluorobenzene	Methyl methacrylate	Sodium metaphosphate
Aluminum sulfate	Carbonic acid	Fluosilicic acid	Methylene dichloride	Sodium nitrate
Ammonia gas	Castor oil	Formaldehyde	Mineral oil	Sodium perborate
Ammonium carbonate	Caustic soda (30%)	Formic acid	Monochloroacetic acid	Sodium phosphate
Ammonium chloride	Cellosolve	Furfural	Monochlorobenzene	Sodium sulfite
Ammonium hydroxide	Chlorosulfonic acid	Gasoline	Monoethanolamine	Sodium thiosulfate
Ammonium nitrate	Chlorotoluene	Gelatine	Naphtha	Soybean oil
Ammonium nitrite	Chromic acid	Glauber's salt	Naphthalene	Stannic chloride
Ammonium persulfate	Citric acid	Glucose	Naphthenic acid	Stearic acid
Ammonium phosphate	Coconut oil	Glue	Natrium peroxide	Styrene
Ammonium sulfate	Copper cyanide	Glycerine	Natural gas	Sucrose solution
Amyl acetate	Copper sulfate	Grease	Nickel acetate	Sulfur
Amyl alcohol	Corn oil	Hexaldehyde	Nickel chloride	Sulfur chloride
Amyl borate	Cottonseed oil	Hexane	Nickel sulfate	Sulfuric acid (98%)
Amyl naphthalene	Creosote oil	Hexyl alcohol	Nitric acid (60%)	Sulfurous acid gas
Aniline	Cresol	Hydrobromic acid	Nitrobenzene	Tannic acid
Aniline dye	Cupric chloride	Hydrochloric acid	Nitroethane	Tartaric acid
Animal oil (Lard oil)	Cyclohexane	Hydrocyanic acid	Nitromethane	Terpineol
Aqua regia	Cyclohexanol	Hydrofluoric acid (49%)	Nitropropane	Tetrachloroethane
Arsenic acid	Cyclohexanone (Anon)	Hydrofluoric acid anhydrous	Octyl alcohol	Tetraethyl lead
Asphalt	Dibutyl phthalate	Hydrogen peroxide (30%)	Oxalic acid	Tetrahydrofuran
Barium chloride	Dichlorobenzene	Hydrogen sulfide	Oxygen	Tetralin
Barium hydroxide	Diethyl sebacate	Hydroquinone	Ozone	Thionyl chloride
Barium sulfate	Diethylene glycol	Hypochlorous acid	Palmitic acid	Triacetin
Barium sulfide	Diisopropyl keton	Isobutyl alcohol	Perchlorate	Tributoxy ethyl phosphate
Beer	Dioctyl phthalate	Isooctane	Perchloroethylene	Tributyl phosphate
Beet sugar liquors	Dioctyl sebacate	Isopropyl acetate	Petroleum	Trichloroethylene
Benzaldehyde	Dipentene (Limonene)	Isopropyl alcohol	Phenol	Tricresyl phosphate
Benzine	Diphenyl	Isopropyl ether	Phosphoric acid (75%)	Triethanolamine
Benzene (Benzol)	Diphenyl oxide	Kerosene	Picric acid	Tung oil
Benzyl alcohol	Epichlorohydrin	Lead acetate	Piperidine	Turpentine oil
Benzyl benzoate	Ethanolamine	Lead nitrate	Potassium chloride	Vegetable oil
Benzyl chloride	Ethyl acetate	Lead sulfamate	Potassium dichromate	Vinegar
Borax	Ethyl acetoacetate	Linolenic acid	Potassium hydroxide	Water
Boric acid	Ethyl acrylate	Linseed oil	Potassium nitrate	Whiskey
Bromine	Ethyl alcohol	Liquid ammonia	Potassium permanganate	Xylene
Bunker oil	Ethyl benzene	LPG (Liquefied petroleum gas)	Potassium sulfate	Zeolite
Butane	Ethyl cellulose	Lubricating oil	Propyl acetate	Zinc acetate
Butter	Ethyl chloride	Magnesium chloride	Propyl alcohol	Zinc chloride
Butyl acetate	Ethyl oxalate	Magnesium hydroxide	Propylene	Zinc sulfide
Butyl acrylate	Ethyl silicate	Magnesium sulfate	Pyridine	
Butyl alcohol (Butanol)	Ethylene chlorohydrin	Maleic acid	Pyrrole	

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

Applicable Fluid List

Chemical Resistance of Fluoropolymer FEP Material

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

Note) “Chemically inert” 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 TL/TIL/TLM/TILM/TD/TID/TH/TIH
Tubing/Precautions

Be sure to read before handling.

Selection

⚠ Warning

1. **Confirm the specifications.**
   Products represented in this catalog are designed only for use in compressed air systems (including vacuum).
   Do not operate at pressures or temperatures, etc., beyond the range of specifications, as this can cause damage or malfunction. (Refer to the specifications.)
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 threads and tubing connection will come apart under these conditions.
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 etc.**
   Because the contents may penetrate outward.
4. **Use the fittings applicable to the tubing size.**

Mounting

⚠ Caution

1. **Confirm model no., size, etc. before installing.**
   Check tubing for damage, gouges, cracks, etc.
   [TLM/TILM]
   The TLM and TILM series do not have the model number displayed on the product due to the resin material used. If tubing without a model label is mixed with other tubing which also does not have a model label, it is impossible to identify the model. Please avoid mixing the products with other models while it is being used and/or stored.
2. **When tubing is connected, consider factors such as changes in the tubing length due to pressure, and allow sufficient leeway.**
3. **Do not apply unnecessary forces such as twisting, pulling, moment loads, etc. on fittings or tubing.**
   This will cause damage to fittings and will crush, burst or release tubing.
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. Not allowing 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.
2. **In case of excessive condensation**
   Excessive condensation in a compressed air system may cause pneumatic equipment to malfunction. Installation of an air dryer, water separator before filter is recommended.
3. **Drain flushing**
   If condensation in the drain bowl is not emptied on a regular basis, the bowl will overflow and allow the condensation to enter the compressed air lines. It causes malfunction of pneumatic devices.
   If the drain bowl is difficult to check and remove, installation of a drain bowl with an auto drain option is recommended.
   For compressed air quality, refer to SMC's "Air Cleaning Equipment" catalog.

Operating Environment

⚠ Warning

1. **Do not use in locations having an explosive atmosphere.**
2. **Do not operate in locations where vibration or impact occurs.**
3. **In locations near heat sources, block off radiated heat.**

Maintenance

⚠ Caution

1. **Reform periodic inspections to check the following problems and replace tubing, if necessary.**
   1) Cracks, gouges, wearing, corrosion
   2) Air leakage
   3) Twists or crushing of tubing
   4) Hardening, deterioration, softening 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. If any leakage is detected, correct the problem by additional tightening.**
   If tightening becomes ineffective, replace the fittings with a new product immediately.