Improved weather resistance in outdoor environments *1

*1 Various tests for weather resistance have been passed, including the accelerated weathering test, combined cycle test, and ozone-proof exposure test. When using the product, refer to “Product Usage Precautions” on page 5.

One-touch Fittings/Tubing

Passed 1000 hours
Accelerated weathering test
ISO 4892-3 (JIS K 7350-3) compliant

Passed 960 hours
Combined cycle test
ISO 14993 (JIS H 8502: 1999) compliant

Passed 1000 hours
Ozone-proof exposure test
ISO 1431 (JIS K 6259) compliant

One-touch Fittings

Improved weather resistance KQ-X1744

<Variations>

Type	5 models
Male connector, Straight union, Male elbow, Union elbow, Union tee	

Tubing O.D.	5 types
ø4, ø6, ø8, ø10, ø12	

Tubing

<Variations>

Series	4 models
Nylon, Soft nylon, FR soft nylon, FR double layer	

Tubing O.D.
Nylon, Soft nylon: ø4, ø6, ø8, ø10, ø12, ø16 FR soft nylon, FR double layer: ø6, ø8, ø10, ø12

Test details

Accelerated weathering test
- UV exposure: 8 hours (Type 1A: UVA-340)
- UV exposure and water spray: 0.25 hours (Type 1A: UVA-340)
- Condensation/Dark: 3.75 hours

Combined cycle test
- Salt water spray: 2 hours (Ambient temperature 35°C, Salinity 5%)
- Drying: 4 hours (Ambient temperature 60°C, Relative humidity 20 to 30%)
- Humidity: 2 hours (Ambient temperature 50°C, Relative humidity 95% or more)

Ozone-proof exposure test
- Exposure time: 1000 hours (Ozone-proof concentration 1 ppm, Ambient temperature 40°C)

SMC

Fittings

Specifications

Applicable tubing material	FEP, PFA, Nylon, Soft nylon, Polyurethane
Fluid	Air, Water*1 *2
Operating pressure range	−100 kPa to 1 MPa*3
Ambient and fluid temperatures	−5 to 60°C, Water: 0 to 40°C (No freezing)

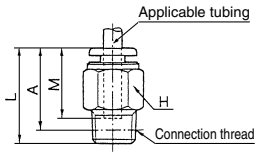
*1 The surge pressure must be kept below the max. operating pressure.
*2 Deionized water is not recommended for use as it may affect the material used in the fittings. In addition, it is known to degrade the water quality.
*3 Check the operating pressure range of the tubing.
* Specifications not listed are the same as those of the KQ2 series. For details, refer to the **Web Catalog**.
* Please contact your local sales representative for more details.

One-touch Fitting with Improved Weather Resistance *KQ-X1744*

Male Connector

Applicable tubing O.D.	Connection thread	Model	H (Width across flats)	L	A*1	M	Min. port size
ø4	R1/8	**KQH04-01□-X1744**	10	21.1	18	16	3
	R1/4	**KQH04-02□-X1744**	14	19	13.5		
ø6	R1/8	**KQH06-01□-X1744**	12	21.6	18.5	17	4.5
	R1/4	**KQH06-02□-X1744**	14	22.5	17		
	R3/8	**KQH06-03□-X1744**	17	20.9	15.5		
ø8	R1/8	**KQH08-01□-X1744**	14	27.1	24	18.5	6
	R1/4	**KQH08-02□-X1744**	14	26	20.5		
	R3/8	**KQH08-03□-X1744**	17	20.9	15.5		
ø10	R1/8	**KQH10-01□-X1744**	17	29.1	26	21	
	R1/4	**KQH10-02□-X1744**	17	33	27.5		7.5
	R3/8	**KQH10-03□-X1744**	17	27.9	22.5		
	R1/2	**KQH10-04□-X1744**	22	26.1	19		
ø12	R1/4	**KQH12-02□-X1744**	19	34	28.5	22	9
	R3/8	**KQH12-03□-X1744**	19	28.9	23.5		
	R1/2	**KQH12-04□-X1744**	22	29.1	22		

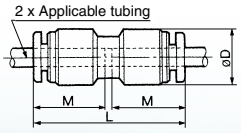
□: Nil : No sealant for the threaded portion
S : Threaded portion with sealant



*1 Reference dimensions after the installation of the R thread

Straight Union

Applicable tubing O.D.	Model	øD	L	M	Min. port size
ø4	**KQH04-00-X1744**	10.4	32.5	16	3
ø6	**KQH06-00-X1744**	12.8	34.5	17	4.5
ø8	**KQH08-00-X1744**	15.2	38.5	18.5	6
ø10	**KQH10-00-X1744**	18.5	42.5	21	7.5
ø12	**KQH12-00-X1744**	20.9	44.5	22	9

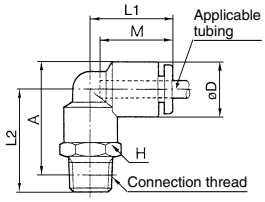


One-touch Fitting with Improved Weather Resistance *KQ-X1744*

Male Elbow

Applicable tubing O.D.	Connection thread	Model	H (Width across flats)	øD	L1	L2	A*1	M	Min. port size
ø4	R1/8	**KQL04-01□-X1744**	10	10.4	18	21.1	23	16	3
	R1/4	**KQL04-02□-X1744**	14	10.4	18	25.5	25		
ø6	R1/8	**KQL06-01□-X1744**	10	12.8	20	22.1	25.5	17	4.5
	R1/4	**KQL06-02□-X1744**	14	12.8	20	26.5	27.5		
	R3/8	**KQL06-03□-X1744**	17	12.8	20	27.9	29		
ø8	R1/8	**KQL08-01□-X1744**	12	15.2	23	23.6	28	18.5	6
	R1/4	**KQL08-02□-X1744**	14	15.2	23	28	30		
	R3/8	**KQL08-03□-X1744**	17	15.2	23	29.4	31.5		
ø10	R1/8	**KQL10-01□-X1744**	17	18.5	26.5	26.1	32	21	7.5
	R1/4	**KQL10-02□-X1744**	17	18.5	26.5	29.5	33		
	R3/8	**KQL10-03□-X1744**	17	18.5	26.5	30.9	34.5		
	R1/2	**KQL10-04□-X1744**	22	18.5	26.5	35.1	37		
ø12	R1/4	**KQL12-02□-X1744**	17	20.9	28.5	30.5	35.5	22	9
	R3/8	**KQL12-03□-X1744**	17	20.9	28.5	31.9	37		
	R1/2	**KQL12-04□-X1744**	22	20.9	28.5	36.1	39.5		

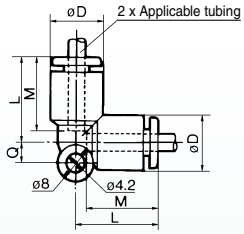
□: Nil : No sealant for the threaded portion
S : Threaded portion with sealant



*1 Reference dimensions after the installation of the R thread

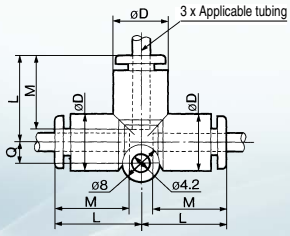
Union Elbow

Applicable tubing O.D.	Model	øD	L	Q	M	Min. port size
ø4	**KQL04-00-X1744**	10.4	18	4.5	16	3
ø6	**KQL06-00-X1744**	12.8	20	5.3	17	4.5
ø8	**KQL08-00-X1744**	15.2	23	6	18.5	6
ø10	**KQL10-00-X1744**	18.5	26.5	6.8	21	7.5
ø12	**KQL12-00-X1744**	20.9	28.5	7.5	22	9



Union Tee

Applicable tubing O.D.	Model	øD	L	Q	M	Min. port size
ø4	**KQT04-00-X1744**	10.4	18	4.5	16	3
ø6	**KQT06-00-X1744**	12.8	20	5.3	17	4.5
ø8	**KQT08-00-X1744**	15.2	23	6	18.5	6
ø10	**KQT10-00-X1744**	18.5	26.5	6.8	21	7.5
ø12	**KQT12-00-X1744**	20.9	28.5	7.5	22	9



Tubing

Catalog PDF

Nylon Tubing *T Series*

Tubing size: Metric size

20 m roll

O.D.	I.D.	Length	Color	Model	Operating temperature [°C] Air/Oil	Operating temperature [°C] Water
4	2.5	20 m	Black	T0425B-20	–40 to 100	0 to 70 (No freezing)
	3			T0403B-20		
6	4			T0604B-20		
	4.5			T0645B-20		
8	6			T0806B-20		
10	7.5			T1075B-20		
12	9			T1209B-20		
16	13			T1613B-20		

100 m roll

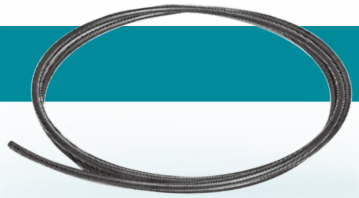
O.D.	I.D.	Length	Color	Model	Operating temperature [°C] Air/Oil	Operating temperature [°C] Water
4	2.5	100 m	Black	T0425B-100	–40 to 100	0 to 70 (No freezing)
6	4			T0604B-100		
	4.5			T0645B-100		
8	6			T0806B-100		
10	7.5			T1075B-100		
12	9			T1209B-100		
16	13			T1613B-100*1		

*1 T1613 is reel.

Longer Length Reel Tubing (500/300 m)

O.D.	I.D.	Length	Color	Model	Operating temperature [°C] Air/Oil	Operating temperature [°C] Water
6	4	500 m	Black	T0604B-500-X64	–40 to 100	0 to 70 (No freezing)
8	6	300 m		T0806B-300-X64		

Soft Nylon Tubing *TS Series*



Tubing size: Metric size

Slightly flexible tubing

20 m roll

O.D.	I.D.	Length	Color	Model	Operating temperature [°C] Air/Oil	Operating temperature [°C] Water
4	2.5	20 m	Black	TS0425B-20	–40 to 100	0 to 50 (No freezing)
6	4			TS0604B-20		
8	6			TS0806B-20		
10	7.5			TS1075B-20		
12	9			TS1209B-20		
16	12			TS1612B-20		

100 m roll

O.D.	I.D.	Length	Color	Model	Operating temperature [°C] Air/Oil	Operating temperature [°C] Water
4	2.5	100 m	Black	TS0425B-100	–40 to 100	0 to 50 (No freezing)
6	4			TS0604B-100		
8	6			TS0806B-100		
10	7.5			TS1075B-100		
12	9			TS1209B-100		
16	12			TS1612B-100*1		

*1 TS1612 is reel.

Catalog PDF

Flame Resistant (Equivalent to UL-94 Standard V-0)
FR Soft Nylon Tubing *TRS Series*

Tubing size: Metric size

Suitable for air and water piping in environments where sparks from spot welders, etc., may be a problem.
Flame resistant tubing

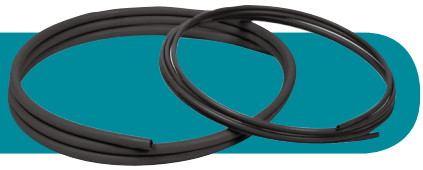
20 m roll

O.D.	I.D.	Length	Color	Model	Operating temperature [°C]	
					Air	Water
6	3	20 m	Black	TRS0603B-20	–20 to 60	0 to 60 (No freezing)
8	5			TRS0805B-20		
10	6.5			TRS1065B-20		
12	8			TRS1208B-20		

100 m reel

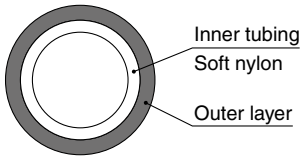
O.D.	I.D.	Length	Color	Model	Operating temperature [°C]	
					Air	Water
6	3	100 m	Black	TRS0603B-100	–20 to 60	0 to 60 (No freezing)
	4			TRS0604B-100-X3		
8	5			TRS0805B-100		
10	6.5			TRS1065B-100		
12	8			TRS1208B-100		

Flame Resistant (Equivalent to UL-94 Standard V-0)
FR Double Layer Tubing *TRB Series*



Tubing size: Metric size

Suitable for air and water piping in environments where sparks from spot welders, etc., may be a problem. Double layer design using flame resistant resin (equivalent to UL-94 Standard V-0) for outer layer.



Sectional view of FR 2-layer tubing

20 m roll

Inner tubing O.D.	Inner tubing I.D.	Length	Color	Model	Operating temperature [°C]	
					Air	Water
6	4	20 m	Black	TRB0604B-20	–20 to 60	0 to 60 (No freezing)
8	6			TRB0806B-20		
10	7.5			TRB1075B-20		
12	9			TRB1209B-20		

100 m reel

Inner tubing O.D.	Inner tubing I.D.	Length	Color	Model	Operating temperature [°C]	
					Air	Water
6	4	100 m	Black	TRB0604B-100	–20 to 60	0 to 60 (No freezing)
8	6			TRB0806B-100		
10	7.5			TRB1075B-100		
12	9			TRB1209B-100		

Related Products

Tube Cutter/TK-6

- Perpendicular cutting
  Air leakage due to cutting failure reduced
- Replaceable blade
- Safety lock contained

∗ Do not use it to cut metallic materials such as electric wires.

Model	TK-6
Applicable tubing material	Nylon, Soft nylon, Polyurethane, and other soft plastic tubing
Max. tubing O.D. that can be cut	16 mm or less
Weight	130 g
Replacement blade part no.	TK6KAEHA (5 replacement blades + 2 mounting screws)

⚠ One-touch Fitting & Tubing with Improved Weather Resistance Safety Instructions

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

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots – Safety.
etc.

■ Product Usage Precautions

1. **Although this product features improved weather resistance in outdoor environments, outdoor use is not covered by the warranty.**
2. **This product should be used within the specifications and should not be exposed to direct sunlight, rain, snow, etc.**
3. **This product does not provide any corrosion resistance (anti-rust or antidiscoloration).**
4. **Although the black-pigmented resin used on these products helps reduce the speed of degradation caused by sunlight, periodic replacement is recommended because there is a possibility of degradation and damage due to long-term use, the effects of direct sunlight, etc.**
5. **This product must be used in accordance with the specifications.**

⚠ Warning

1. **The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.**
   Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.
2. **Only personnel with appropriate training should operate machinery and equipment.**
   The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.
3. **Do not service or attempt to remove product and machinery/equipment until safety is confirmed.**
   1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
   2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
   3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.
4. **Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.**
   1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
   2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
   3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
   4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

⚠ Caution

1. **The product is provided for use in manufacturing industries.**
   The product herein described is basically provided for peaceful use in manufacturing industries.
   If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
   If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/ Compliance Requirements

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

Limited warranty and Disclaimer

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

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

Compliance Requirements

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

⚠ Caution

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

Improved weather resistance in outdoor environments

One-touch Fittings/Tubing