



Operation Manual

PRODUCT NAME

Flame Resistant (Equivalent to UL-94 Standard V-0)
FR One-touch Fittings
FR One-touch Fittings Manifold

MODEL/ Series/ Product Number

KR-W2 Series
KRM Series

SMC Corporation

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Flame Resistant (Equivalent to UL-94 Standard V-0) FR One-touch Fittings/ FR One-touch Fittings Manifold KR-W2 Series/ KRM Series

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)^{*)}, and other safety regulations.

*1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components
ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components
IEC 60204-1: Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots
etc.



Danger

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



Warning

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



Caution

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



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. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.



Flame Resistant (Equivalent to UL-94 Standard V-0)
FR One-touch Fittings/ FR One-touch Fittings Manifold
KR-W2 Series/ KRM Series

Safety Instructions

Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing business.

Use in non-manufacturing business is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

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.

2. Specific Product Precautions (1)

Design/Selection

Warning

(1) Check the specifications.

The product in this catalog is designed to be used in compressed air systems (including vacuum) only.

If the product is used in an environment where pressure or temperature is out of the specified range, damage and/or malfunction may result. (Refer to the specifications.)

Please consult with SMC when using a fluid other than compressed air (including vacuum). We do not guarantee against any damage if the product is used outside of the specification range.

(2) Do not disassemble the product or make any modifications, including additional machining.

It may cause human injury and/or an accident.

(3) Check if PTFE can be used in application.

PTFE powder (Polytetrafluoroethylene resin) is included in the sealant. Confirm that the use of it will not cause any adverse affect on the system.

(4) When operating at a high temperature, the fittings and tubing will also become very hot.

Touching the product may result in burns, so be sure to take safety measures before coming into direct contact with the product.

Caution

(1) Keep the connection part of fittings and tubing from rotating or oscillating movement. Use Rotary One-touch Fittings (KS or KX Series) in these cases.

The fittings may be damaged if they are used in the above manner.

(2) The tubing bending radius in the vicinity of the fitting should be at least the minimum bending radius of the tubing.

If the bending radius is less than the minimum value, fittings may damage, or tubing may crack or be crushed. The minimum bending radius of the FR soft nylon tubing (TRS series), FR double layer tubing (TRB series), antistatic soft nylon tubing (TAS series), polyolefin tubing (TPH series), soft polyolefin tubing (TPS series) is measured as following in accordance with JIS B8381. Tubing deformation ratio at the minimum bending radius is obtained through the following formula, based on tubing diameter and mandrel diameter by wrapping the same radius mandrel tube.

Design/Selection

Caution

Tube deformation ratio at the minimum bending radius

$$\eta = \left(1 - \frac{L - D}{2d}\right) \times 100$$

Here, η : Deformation ratio (%)

d: Tubing diameter (mm)

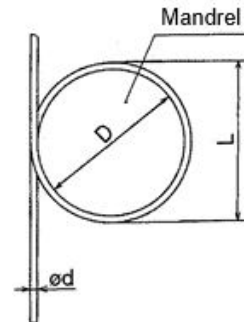
L: Measured length (mm)

D: Mandrel diameter (mm)

(Twice against the minimum bending radius)

Test temperature: 20±5°C

Relative humidity: 65±5 (%)



(3) Do not use fluids other than listed on the specifications.

Applicable fluids are air and water. Please consult with SMC if using other fluids.

(4) When it is used with water, the fittings or tubing may be damaged depending on the surge pressure.

(5) Depending on the storage or operating environment and the period of storage or use, the surface of the brass (C3604) may blacken. If the discoloration of the brass is a problem, we recommend selecting electroless nickel-plated brass instead.

Example) KRH06-01SW2-~~X2~~

(6) The dimensions shown in the dimension drawings are merely reference dimensions. The actual dimensions will vary depending on the tolerance. Be sure to provide sufficient clearance around the fitting for piping. Please contact SMC if you are planning to mount the product in a narrow space.

Mounting/ Piping

Warning

(1) Operation Manual

Install the products and operate them only after reading the operation manual carefully and understanding its contents. Also, keep the manual where it can be referred to as necessary.

(2) Ensure sufficient space for maintenance activities.

When installing the products, allow access for maintenance.

(3) Adhere to the thread tightening method.

When installing the products, refer to "Connection Thread Tightening Method".

(4) There may be cases of the tubing detaching from the fitting and thrashing around uncontrollably due to tubing degradation or fitting breakage.

To prevent the situation from becoming uncontrollable, fit the tubing with a protective cover or fix it in place.

2. Specific Product Precautions (2)

Mounting/ Piping

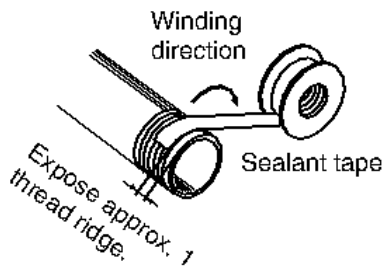
Caution

(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.

(2) Winding of sealant tape

When screwing together pipes and fittings, etc., be certain that chips from the pipe threads and sealant does not get inside the pipe. Also, when the sealant tape is used, leave approximately 1 thread ridge exposed at the end of the threads.



(3) Check the model, type and size before installation.

Also, confirm that there are no scratches, gouges or cracks on the product.

(4) When connecting the tubing, take pressure or possible changes to the tubing length into account, and allow a sufficient margin.

Failure to do so may result in fitting breakage or detachment of the tubing. Refer to the recommended piping conditions.

(5) Do not apply unnecessary forces such as twisting, pulling, moment loads, vibration and impact, etc. on fittings or tubing.

This will cause damage to fittings and will crush, burst or release tubing.

(6) Tubing, with the exception of coiled tubing, requires stationary installation. Do not use standard tubing (non-coiled) in applications where tubing is required to travel inside the flexible protection tube. Tubing that travels may sustain abrasion, extension, or severance due to tensile force, or may result in removal of tubing from fitting. Use caution prior to use for proper application.

(7) To install the fitting, screw the fitting into the hexagonal face of the body, and tighten with an appropriate wrench.

Affix the wrench at the base of the thread. If the size of hexagonal face and wrench do not match, or tightening takes place near the tube side, it may cause collapse or deformation of the hexagonal face, or damage to the equipment. After installing, confirm that there is no damage to the fitting, etc.

Air Supply

Warning

(1) Type of fluids

Please consult with SMC when using the product in applications other than compressed air. Regarding products for general fluids, please contact SMC concerning applicable fluids.

(2) When there is a large amount of drainage.

Compressed air that contains a large amount of drainage can cause malfunction of pneumatic equipment. An air dryer or water droplet separator should be installed upstream from filters.

(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 equipment. If the drain bowl is difficult to check and remove, installation of a drain bowl with an auto drain option is recommended.

For details on the above compressed air quality, refer to SMC's Best Pneumatics catalog.

(4) Use clean air.

Do not use compressed air that contains chemicals, synthetic oils including organic solvents, salt or corrosive gases, etc., as it can cause damage or malfunction.

Caution

(1) Install an air filter.

Install an air filter at the upstream side of valve. Select an air filter with a filtration degree of 5µm or finer.

(2) Install an after cooler, air dryer or water droplet separator, etc.

Compressed air that contains a large amount of drainage can cause malfunction of pneumatic equipment. Therefore, take appropriate measures to ensure air quality, such as by providing an aftercooler, air dryer or water droplet separator.

(3) Ensure that the fluid and ambient temperature are within the specified range.

If the fluid temperature is 5°C or less, the moisture in the circuit could freeze, causing damage to the seals and leading to equipment malfunction. Therefore, take appropriate measures to prevent freezing.

For details on the above compressed air quality, refer to SMC's Best Pneumatics catalog.

Operating Environment

Warning

- (1) Do not use in an atmosphere having corrosive gases, chemicals, sea water, water, water steam, or where there is direct contact with any of these. Refer to each construction drawing on the fittings and tubing material.

2. Specific Product Precautions (3)

Operating Environment

Warning

- (2) Do not expose the product to direct sunlight for an extended period of time.
- (3) Do not use in a place subject to heavy vibration and/or shock.
- (4) Do not mount the product in locations where it is exposed to radiant heat.
- (5) Do not use the ordinary fittings and tubing in locations where static electricity would be problematic.
It may result in the system failure and trouble. In such places, use of antistatic fittings (KA series) and antistatic tubing (TA series) are recommended.
- (6) Do not use the ordinary fittings and tubing in locations where spatter is generated.
Spattering may result in a fire hazard. In such a place, use of flame resistant fittings (KR-W2/KRM series) and flame resistant tubing (TRS/TRB/TRBU/TRTU series) are recommended.
- (7) Do not use in an environment where the product is directly exposed to cutting oil, lubricant, coolant oil, etc.
- (8) Take note that if nylon tubing, soft nylon tubing and antistatic tubing are used in a clean room.
The antioxidant on the surface of the soft nylon tubing may come off, thereby lowering the cleanness level.
- (9) Do not use in environments where foreign matter may stick to the product or get mixed in the product's interior.
This may cause leakage or disconnection of the tubing.

Maintenance

Warning

- (1) Perform maintenance inspection according to the procedures indicated in the operation manual.
If handled improperly, malfunction and damage of machinery or equipment may occur.
- (2) Maintenance work
If handled improperly, compressed air can be dangerous. Assembly, handling, repair and element replacement of pneumatic systems should be performed by a knowledgeable and experienced person.
- (3) Drain flushing
Remove drainage from air filters regularly.

Maintenance

Warning

- (4) Removal of equipment, and supply/exhaust of compressed air
When components are removed, first confirm that measures are in place to prevent workpiece from dropping, run-away equipment, etc. Then, cut the supply pressure and electric power, and exhaust all compressed air from the system using the residual pressure release function. When machinery is restarted, proceed with caution after confirming that appropriate measures are in place to prevent cylinders from sudden movement.

Caution

- (1) Be certain to wear safety glasses at all times during periodical inspections.
- (2) Replace fittings or tubing having the following problems.
 - a) Cracks, gouges, wearing, corrosion
 - b) Air leakage
 - c) Twists or crushing of tubing
 - d) Hardening, deterioration or softening of tubing
- (3) When replacing tubes or fittings, do not try to mend or repair and then reuse them.

One-touch Fitting

Mounting/Piping

Caution

- (1) Installation and removal of tubing for One-touch fittings
 - a) Installation of tubing
 1. Cut the tubing perpendicularly, being careful not to damage the outside surface. Use an SMC tube cutter TK-1, 2, 3, 5 or 6. Do not cut the tubing with pliers, nippers, scissors, etc., otherwise, the tubing will be deformed and trouble may result.
 2. The outside diameter of the polyurethane tubing swells when internal pressure is applied to it. Therefore, it may be possible that the tubing cannot be re-inserted into the One-touch fitting. Check the tubing outside diameter, and when the accuracy of the outside diameter is +0.07mm or larger for $\varnothing 2$, +0.15mm or larger for other sizes, insert into the One-touch fitting again, without cutting the tubing to use it. When the tubing is re-inserted into the One-touch fitting, confirm that the tubing goes through the release button smoothly.

2. Specific Product Precautions (4)

One-touch Fitting
Mounting/Piping

Caution

- Grasp the tubing, slowly push it straight (0 to 5°) into the One-touch fitting until it comes to a stop. Refer to the table below for the length for inserting the tube.

Tubing size	Insertion length [mm]
ø 6	17
ø 8	18.5
ø 10	21
ø 12	22

- Pull the tubing back gently to make sure it has a positive seal. Insufficient installation may cause air to leak or the tubing to release. As a guide for checking the tubing is not pulled out, refer to the following table.

Tubing size	Tensile force of tubing [N]
ø 6	12
ø 8	20
ø 10	30
ø 12	35

b) Removal of tubing

- Press the release button flange evenly and sufficiently to release the tube. Do not push in the tubing before pressing the release button.
- Pull out the tubing while keeping the release button depressed. If the release button is not held down sufficiently, the tubing cannot be withdrawn.
- To reuse the tubing, remove the previously lodged portion of the tubing. If the lodged portion is left on without being removed, it may result in air leakage and removal of the tubing difficult.

(2) Connecting products with metal rods

Products with metal rods (special products for KQ2 series) cannot be connected to KR-W2/KRM series One-touch fittings. If connected, the metal rod cannot be retained by the chuck of the One-touch fitting and products with metal rods may project during pressurization, causing serious personal injury or accident. Even when products with metal rods can be connected to other One-touch fittings, do not use any tube, resin plug, or reducer after connection. This may cause releasing.

For details about One-touch fittings that can connect products with metal rods, contact SMC.

Connection Thread Tightening Method

Caution

(1) Connection thread: M3

First, tighten by hand, then use a wrench appropriate for the hexagon flats of the body to tighten an additional 1/4 turn. A reference value for the tightening torque is 0.4 to 0.5 N · m.

(2) Connection thread: M5 and 10-32UNF

First, tighten by hand, then use a wrench appropriate for the hexagon flats of the body to tighten an additional 1/6 to 1/4 turn. A reference value for the tightening torque is 1 to 1.5 N · m.

(3) M6

First, tighten by hand, then use a wrench appropriate for the hexagon flats of the body to tighten an additional 1/6 to 1/4 turn.

Note) Excessive tightening may damage the thread portion or deform the gasket and cause air leakage. Insufficient tightening may loosen the thread, or cause air leakage.

(4) Fittings with sealant: R, NPT

- First, tighten the fitting by hand, then use a wrench appropriate for the hexagon flats of the body to tighten it a further two or three turns. For a tightening torque guide, see the table below.

Connection thread size (R, NPT)	Tightening torque [N · m]
1/16, 1/8	3 to 5
1/4	8 to 12
3/8	15 to 20
1/2	20 to 25

- If the fitting is tightened with excessive torque, a large amount of sealant will seep out. Remove the excess sealant.
- Insufficient tightening may cause seal failure, or loosen the threads.
- Reuse
 - Normally, fittings with a sealant can be reused 2 to 3 times.
 - To prevent air leakage through the sealant, remove any loose sealant stuck to the fitting by blowing air over the threaded portion.
 - If the sealant no longer provides effective sealing, wind sealing tape over the sealant before reusing. Do not use the sealant in any form other than a tape type.
 - Once the fitting has been tightened, backing it out to its original position often causes the sealant to become defective. Air leakage will occur.

2. Specific Product Precautions (5)

Connection Thread Tightening Method

Caution

(5) Uni thread fittings

- a) First, tighten the threaded portion by hand, then use a proper wrench, which could be suitable for the width across flats of the hexagon body, to tighten it further at a wrench tightening angle shown below. As a reference value for the tightening torque, refer to the table below.

Connection Female Thread: Rc, NPT, NPTF

Uni thread size	Wrench tightening angle after hand-tightening [deg]	Tightening torque [N·m]
1/8	30 to 60	3 to 5
1/4	30 to 60	8 to 12
3/8	15 to 45	14 to 16
1/2	15 to 30	20 to 22

Connection Female Thread: G

Uni thread size	Wrench tightening angle after hand-tightening [deg]	Tightening torque [N·m]
1/8	30 to 45	3 to 4
1/4	15 to 30	4 to 5
3/8	15 to 30	8 to 9
1/2	15 to 30	14 to 15

- b) The gasket can be reused up to 6 to 10 times. It can be replaced easily when it has sustained damage. A broken gasket can be removed by holding it and then turning it in the same direction as loosening the thread. If gasket is difficult to remove, cut it with nippers, etc. In such a case, use caution not to scratch the seat face because the seat face of 45° gasket of fitting is the sealing face.

(6) G thread fittings

Tighten fittings with sealant using the proper tightening torques in the table below. If tightened using a torque exceeding the proper torque level, this may cause the fitting to break.

Connection thread size	Tightening torque [N·m]
G1/8	2 to 4
G1/4	5 to 7
G3/8	9 to 11
G1/2	14 to 16

Tightening tool

Caution

Use a wrench appropriate for the hexagon flats of the body to tighten the fitting. Affix the wrench at the base of the thread. If the size of hexagonal face and wrench do not match, or tightening takes place near the tube side, it may cause collapse or deformation of the hexagonal face, or damage to the equipment. After installing, confirm that there is no damage to the fitting, etc.

Recommended



NG



Recommended



NG



NG



2. Specific Product Precautions (6)

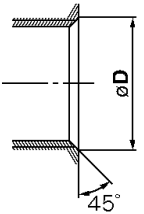
Chamfer Dimension for Female Thread

⚠ Caution

(1) Chamfer dimension for female thread of the connection thread M3, M5, 10-32UNF

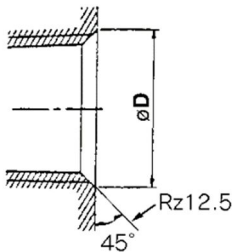
Confirming to ISO 16030 (air pressure fluid dynamics - connection - ports and stud ends), the chamfer dimensions shown below are recommended.

By chamfering as shown in the following table, machining of threads is easier and effective for burr prevention.



Connection thread size	Chamfer dimension ϕD (Recommended value) [mm]
M3	3.1 to 3.4
M5	5.1 to 5.4
10-32UNF	5.0 to 5.3

(2) Chamfer dimension of R and NPT thread with sealant, and Uni thread



Connection thread size	Chamfer dimension ϕD (Recommended value) [mm]		
	G	Rc	NPT, NPTF
1/16	-	-	8.2 to 8.4
1/8	10.2 to 10.6	10.2 to 10.4	10.5 to 10.7
1/4	13.6 to 14.0	13.6 to 13.8	14.1 to 14.3
3/8	17.1 to 17.5	17.1 to 17.3	17.4 to 17.6
1/2	21.4 to 21.8	21.4 to 21.6	21.7 to 21.9

* For Uni thread, Rz12.5 is necessary for sealing at the chamfered part.

Recommended Piping Conditions

⚠ Caution

When connecting piping to the One-touch fitting, use pipe length with sufficient margin, in accordance with the piping conditions shown in Fig. 1.

Also, when using a tying band, etc., to bind the piping together, make sure that external force does not come to bear on the fitting (See Fig.2).

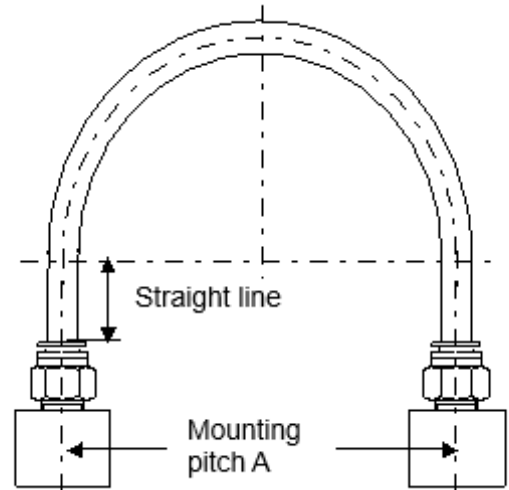


Fig.1 Recommended piping

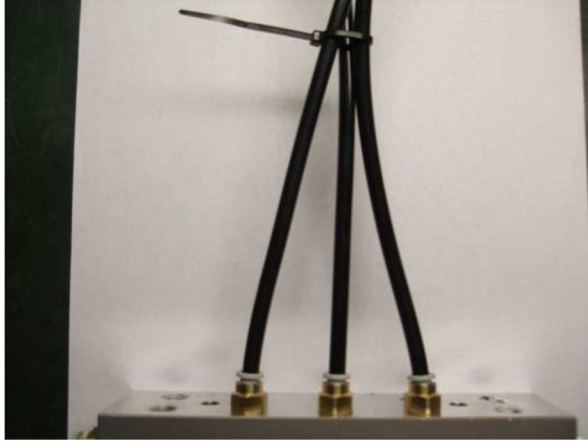
Tubing size	Mounting pitch A			Straight line length
	Nylon tubing	Soft nylon tubing	Polyurethane tubing	
$\phi 6$	84 or more	66 or more	39 or more	30 or more
$\phi 8$	112 or more	88 or more	52 or more	40 or more
$\phi 10$	140 or more	110 or more	69 or more	50 or more
$\phi 12$	168 or more	132 or more	88 or more	60 or more

Unit: mm

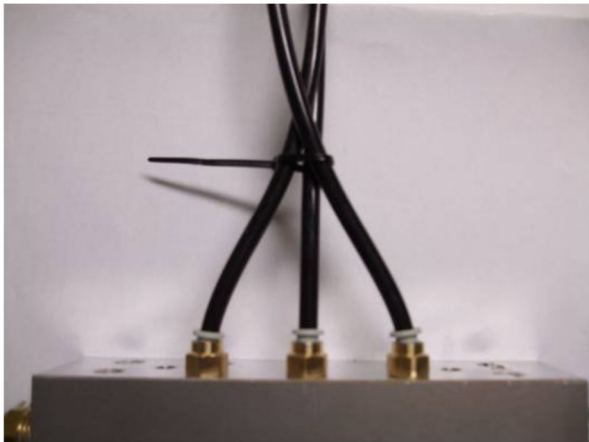
2. Specific Product Precautions (7)

Recommended piping conditions

Caution



OK



NG

Fig. 2

When using a tying band to bind the piping together

Tubing

Design/Selection

Caution

(1) When using a tubing other than from SMC, be careful of the tolerance of the tubing O.D. and tubing material.

- | | |
|------------------------|------------------------------------|
| a) Nylon tubing | Within +/-0.1 mm |
| b) Soft nylon tubing | Within +/-0.1 mm |
| c) Polyurethane tubing | Within +0.15 mm,
Within -0.2 mm |

Do not use the tubing which does not satisfy the specified tubing O.D. accuracy, or if the tubing has a different I.D., material, hardness, or surface roughness from those of SMC's tubing. Please consult with SMC if there is anything unclear. It may cause difficulty in connecting the tubing, leakage, disconnection of the tubing, or fitting damage.

(2) When using fittings other than those from SMC, be certain to confirm that operating conditions are such that no problems will arise.

3. Specifications

Applicable tubing

Tubing material	FR soft nylon, FR double layer polyurethane, FR double layer soft nylon, FR three-layer polyurethane
Tubing O.D.	ø 6 , ø 8 , ø 10 , ø 12

Specifications

Fluid	Air , Water ^{Note 1,2)}
Operating pressure range ^{Note 3,4)}	-100kPa to 1MPa
Proof pressure (at 23 °C)	3MPa
Ambient and fluid temperature	-5 to 60°C, Water : 0 to 60°C (No freezing)
Seal on the threads	With sealant , Gasket seal
Flame resistance	The external resin parts are equivalent to UL-94 standard V-0.

Note 1) The surge pressure must be under the maximum operating pressure.

Note 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.

Note 3) Check the operating pressure range of the tubing.

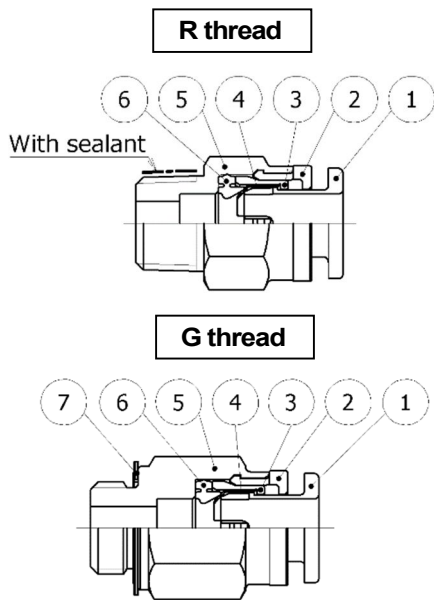
Note 4) Do not use the fittings with a leak tester or for vacuum retention because they are not guaranteed for zero leakage.

4. Troubleshooting

Flame Resistant (Equivalent to UL-94 Standard V-0) FR One-touch Fittings, FR One-touch Fittings Manifold / KR-W2,KRM Series cannot be disassembled or repaired in order to quality maintenance. When failure such as "Non-removable tubing" occurs, please replace the whole product.

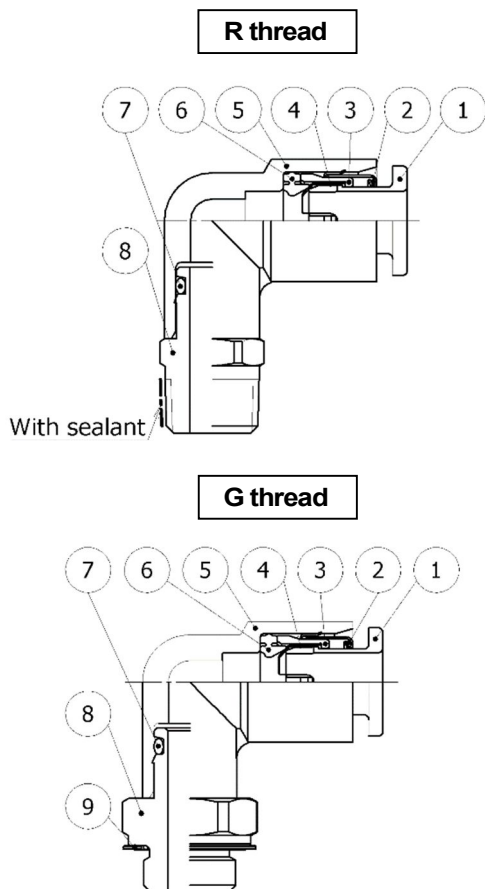
5. Construction

Male connector



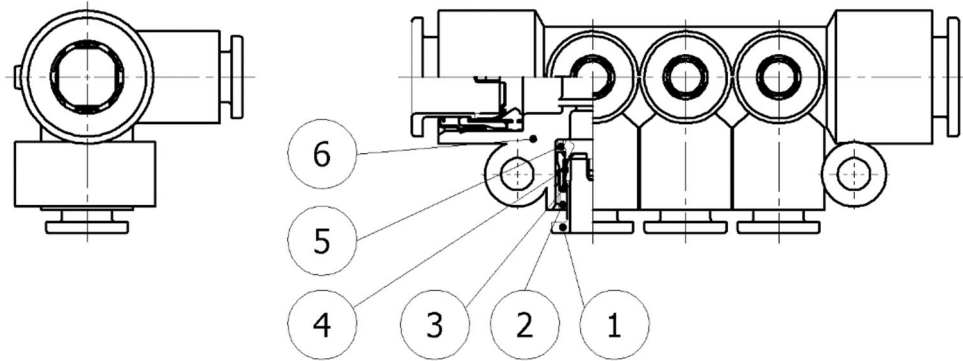
No.	Part name	Material
1	Release button	Flame resistant PBT (UL-94 standard V-0)
2	Guide	Flame resistant PBT (UL-94 standard V-0)
3	Collet	POM
4	Chuck	SUS304
5	Body	C3604
6	Seal	NBR
7	Gasket	SUS304·NBR

Male elbow



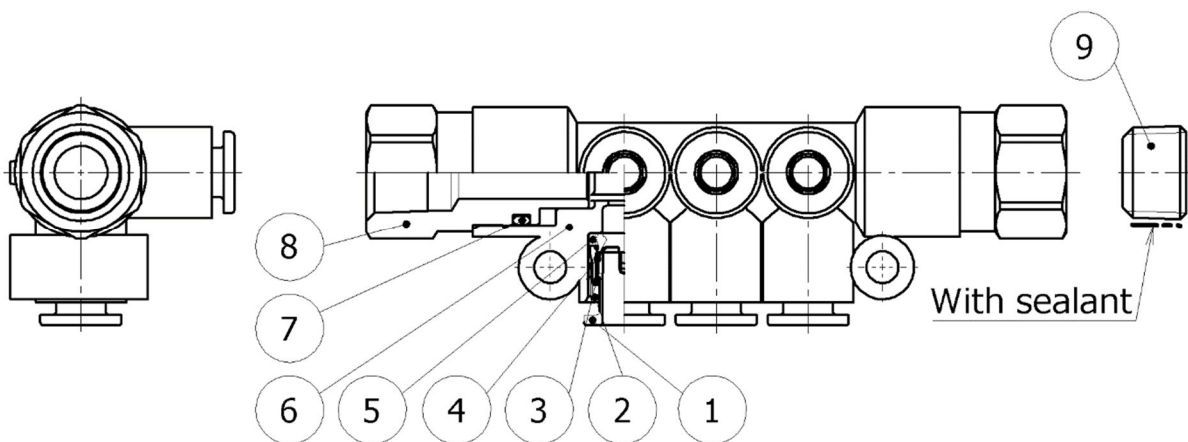
No.	Part name	Material
1	Release button	Flame resistant PBT (UL-94 standard V-0)
2	Guide	SUS304
3	Chuck	SUS304
4	Collet	POM
5	Seal	NBR
6	Body	Flame resistant PBT (UL-94 standard V-0)
7	O-ring	NBR
8	Stud	C3604
9	Gasket	SUS304·NBR

KRM11



No.	Part name	Material
1	Release button	Flame resistant PBT (UL-94 standard V-0)
2	Guide	SUS304
3	Collet	POM
4	Chuck	SUS304
5	Seal	NBR
6	Body	Flame resistant PBT (UL-94 standard V-0)

KRM12



No.	Part name	Material
1	Release button	Flame resistant PBT (UL-94 standard V-0)
2	Guide	SUS304
3	Collet	POM
4	Chuck	SUS304
5	Seal	NBR
6	Body	Flame resistant PBT (UL-94 standard V-0)
7	O-ring	NBR
8	Stud	C3604
9	Hexagon socket head blank plug (Accessory)	Steel , Zinc chromated

Revision history

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Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.
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