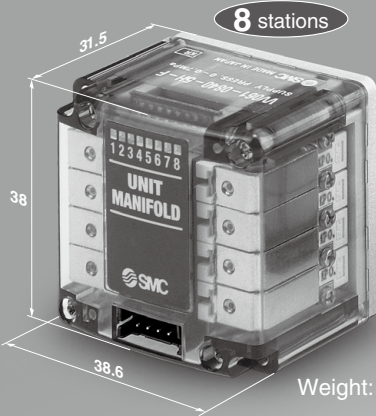


3 Port Solenoid Valve

VV061 Series

Rubber Seal Unit Manifold Valve



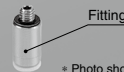
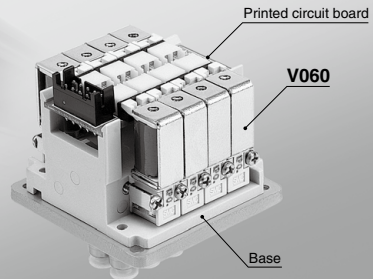
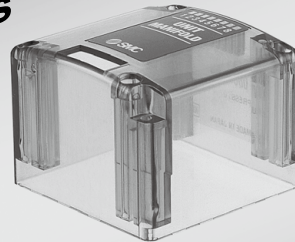
Weight: 75 g



Weight: 47 g

* When a bracket is not included, barb fittings are included.

6 mm width valve
Mounting the V060 series



* Photo shown depicts an 8-station unit manifold.

Valve, PCB, base and fittings are fully integrated, forming a single compact unit. New concept unit manifold

VV061

VV100

V100

S070

VQD

VQD-V

VK

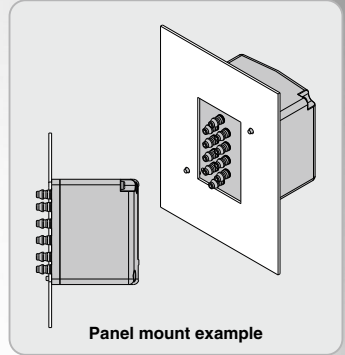
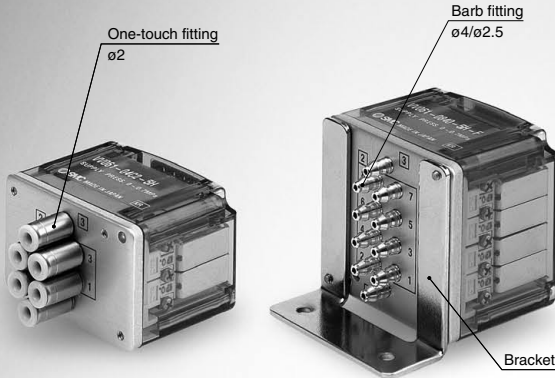
VT

Unit Manifold

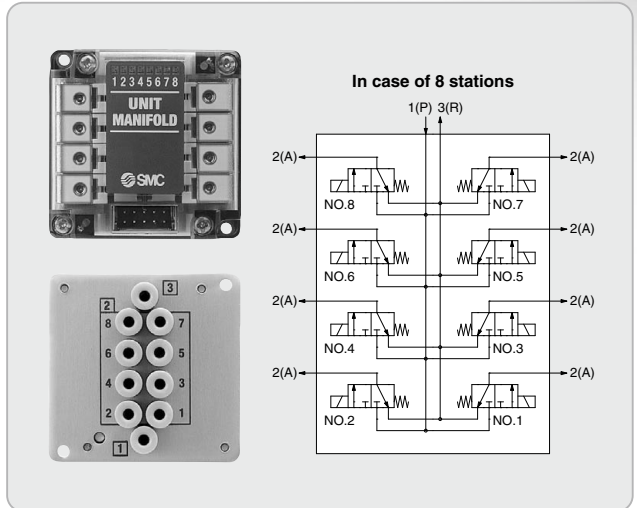
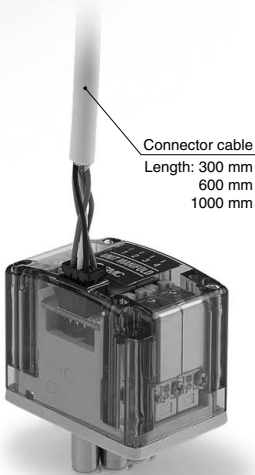
One-touch fitting and barb fitting can be selected.

Mounting

- Bracket mount
- Panel mount



Lead wire length



Reduced environmental impact substance RoHS compliant

3 Port Solenoid Valve Unit Manifold Valve

VV061 Series



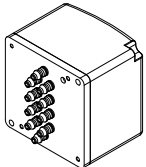
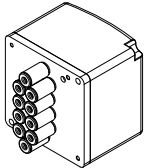
How to Order

VV061-08 40-5 [] [] H-[] []

Valve stations

| Symbol | Stations |
|--------|------------|
| 04 | 4 stations |
| 08 | 8 stations |

1/2/3 port size

| Symbol | Port size |
|--------|---|
| 40 | Barb fitting (Applicable tubing $\phi 4/\phi 2.5$)  |
| C2 | $\phi 2$ One-touch fitting  |

Note) The applicable tube of the barb fitting shows the tube outside diameter/inside diameter.

Rated voltage

| | |
|---|--------|
| 5 | 24 VDC |
| 6 | 12 VDC |

Common specifications

| | |
|-----|-----------------|
| NII | Positive common |
| N | Negative common |

Coil specifications

| | |
|-----|--|
| NII | Standard (With light/surge voltage suppressor) |
| T | With power-saving circuit (Continuous duty type) |

If the coil will be continuously energized for a long period, be sure to choose the coil with power-saving circuit. (See page 1328 for details.)

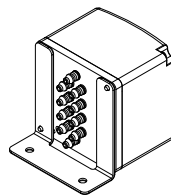
Note 1) Both the standard coil and the coil with power-saving circuit have light/surge voltage suppressor.

Note 2) The wiring specification is positive common only.

Bracket

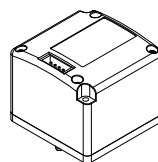
NII: Without bracket
(2 mounting screws M2 x 27 are included.)

F: With bracket



Connector cable

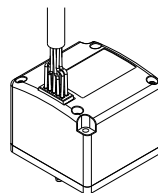
NII: Without connector cable



C1: With connector cable (Length 300 mm)

C2: With connector cable (Length 600 mm)

C3: With connector cable (Length 1000 mm)



Operating pressure range

| | |
|---|-------------------------------|
| H | Standard (0 to 0.7 MPa) |
| L | High flow type (0 to 0.3 MPa) |

VV061

VV100

V100

S070

VQD

VQD-V

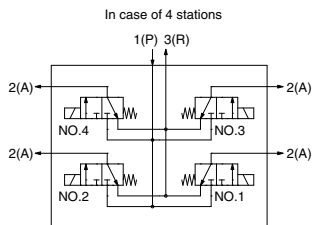
VK

VT

VV061 Series



Symbol



Unit Manifold Specifications

| | | | |
|---|-----------------------|-------------------------|---------------|
| Fluid | | Air | |
| Operating pressure range (MPa) | Standard | 0 to 0.7 | |
| | High flow type | 0 to 0.3 | |
| Vacuum specification (MPa) | | 1(P) port | 3(R) port |
| | Standard | -100 kPa to 0.6 | -100 kPa to 0 |
| | High flow type | -100 kPa to 0.2 | -100 kPa to 0 |
| Ambient and fluid temperature (°C) | | -10 to 50 (No freezing) | |
| Response speed (ms) ^{Note 1)} | | 10 ms or less | |
| Max. operating frequency (Hz) | | 20 | |
| Lubrication | | Not required | |
| Mounting orientation | | Unrestricted | |
| Impact/Vibration resistance (m/s²) ^{Note 2)} | | 150/30 | |
| Enclosure | | Dustproof | |

Note 1) Based on dynamic performance test, JIS B8419: 2010. (Standard type: Coil temperature 20°C, at rated voltage.

Note 2) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Value in the initial state)

Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz. Test was performed to axis and right angle directions of the main valve and armature when pilot signal is ON and OFF. (Value in the initial state)

The impact/vibration resistance is 50/10 [m/s²] for the manifold with a power-saving circuit (0.23 W).

Solenoid Specifications

| | | | |
|---|--------------------------|--|-------------|
| Coil rated voltage | | 12, 24 VDC | |
| Allowable voltage fluctuation ^{Note 1)} | Standard | 24 VDC | 12 VDC |
| | Power-saving type | -7% to +10% | -4% to +10% |
| | | -5% to +10% | -6% to +10% |
| Power consumption (W) | | Standard: 0.55 | |
| | | With power-saving circuit (Continuous duty type): 0.23 ^{Note 2)} [Starting 0.55, Holding 0.23] | |
| Surge voltage suppressor | | Diode | |
| Indicator light | | LED | |

Note 1) The voltage fluctuation should be within the above range because the internal circuit can cause voltage drop.

Note 2) Refer to page 1329 for details.

Flow Rate Characteristics

| Type | Effective area (mm ²) | |
|----------------|-----------------------------------|-----------|
| | 1(P)→2(A) | 2(A)→3(R) |
| Standard | 0.07 | 0.11 |
| High flow type | 0.16 | 0.21 |

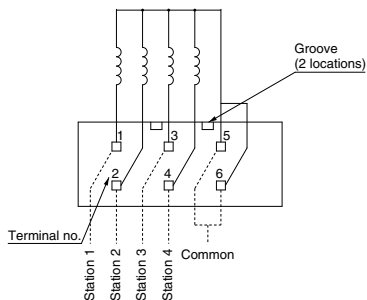
Weight

| Stations | Port size | Weight (g) ^{Note)} |
|------------|----------------------|-----------------------------|
| 4 stations | Barb fitting | 47 (56) |
| | ø2 One-touch fitting | 53 (62) |
| 8 stations | Barb fitting | 75 (85) |
| | ø2 One-touch fitting | 84 (94) |

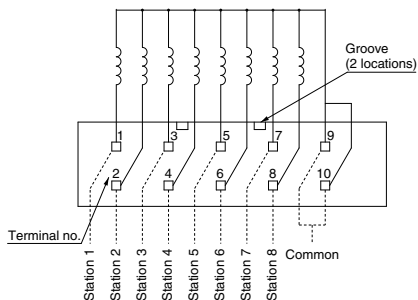
Note) () : values with bracket

Unit Manifold Internal Wiring

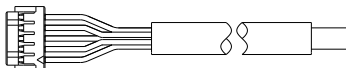
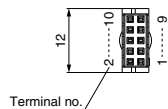
In case of 4 stations



In case of 8 stations



Connector Cable Specifications



Connector Cable Color List of Each Terminal No.

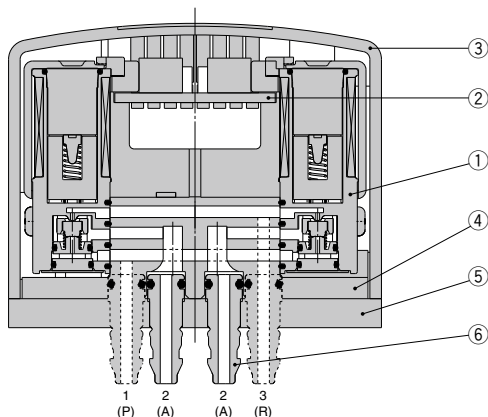
In case of 4 stations

| Terminal no. | Lead wire color |
|--------------|-----------------|
| 1 | Brown |
| 2 | Red |
| 3 | Orange |
| 4 | Yellow |
| 5 | Green |
| 6 | Blue |

In case of 8 stations

| Terminal no. | Lead wire color |
|--------------|-----------------|
| 1 | Brown |
| 2 | Red |
| 3 | Orange |
| 4 | Yellow |
| 5 | Green |
| 6 | Blue |
| 7 | Purple |
| 8 | Gray |
| 9 | White |
| 10 | Black |

Construction



Component Parts

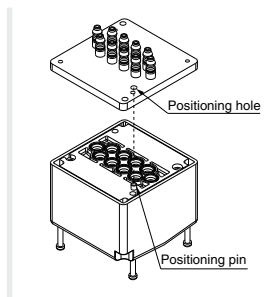
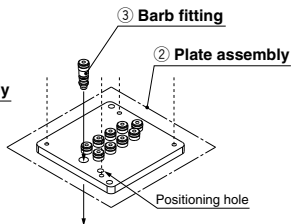
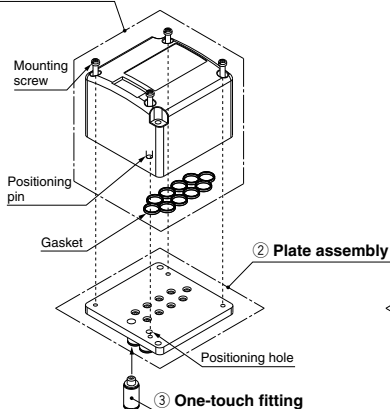
| No. | Description | Material | Note |
|-----|----------------|----------|--|
| 1 | Solenoid valve | — | Unit assembly (4 mounting screws M2 x 27 L are included.) |
| 2 | PCB assembly | — | |
| 3 | Cover | Resin | |
| 4 | Base | Resin | |
| 5 | Plate | Aluminum | Plate assembly |
| 6 | Barb fitting | Aluminum | |

Note) As this drawing shows the internal construction, it is different from the actual product.

VV061 Series

Replacement Parts

① Unit assembly



How to Mount Unit Assembly

Fit the positioning pin on the unit assembly to the positioning hole on the plate, and assemble them.

⚠ Caution

Tightening torque: 0.12 N·m

① Unit Assembly Part No.

VV061-0800-5 H

Valve stations

| Symbol | Stations |
|--------|------------|
| 04 | 4 stations |
| 08 | 8 stations |

1/2/3 port size

| Symbol | Port size |
|--------|------------------------|
| 00 | Without plate assembly |

Rated voltage

| | |
|---|--------|
| 5 | 24 VDC |
| 6 | 12 VDC |

Coil specifications

| | |
|-----|--|
| NII | Standard (With light/surge voltage suppressor) |
| T | With power-saving circuit (Continuous duty type) |

* If the coil will be continuously energized for a long period, be sure to choose the coil with power-saving circuit.

Operating pressure range

| | |
|---|-------------------------------|
| H | Standard (0 to 0.7 MPa) |
| L | High flow type (0 to 0.3 MPa) |

* 4 mounting screws (M2 x 27 L) and one gasket are included.

② Plate Assembly Part No.

| Stations | Fitting | Barb fitting | One-touch fitting |
|------------|---------|---------------------------|--|
| 4 stations | | PV060-72-8A | PV060-72-10A |
| 8 stations | | PV060-72-7A | PV060-72-9A |
| Note | | Barb fitting is included. | One-touch fitting is mounted on the plate. |

③ Fitting Part No.

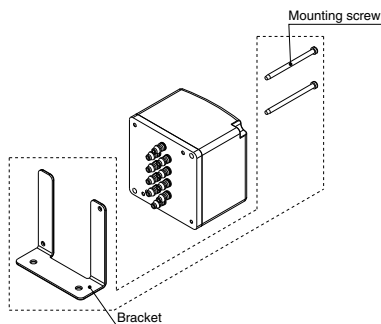
If only the fitting is needed, order with one of the part numbers below.

| Description | Barb fitting | One-touch fitting |
|-------------|--------------|-------------------|
| Part no. | PV060-73-1A | KJS02-M3 |

* The minimum ordering quantity is 10 pcs.

④ Bracket Assembly Part No.

| Description | Part no. |
|--------------------------|---------------------------------------|
| Bracket (for 4 stations) | PV060-80-2A (Mounting screw included) |
| Bracket (for 8 stations) | PV060-80-1A (Mounting screw included) |



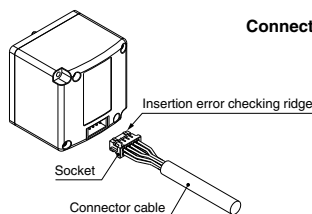
⑤ Connector Cable Part No.

For 4 stations PV060-40-4A-

For 8 stations PV060-40-3A-

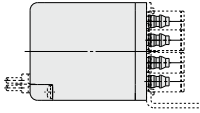
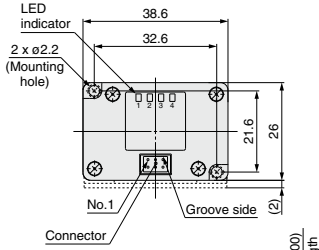
Connector cable length

| | |
|-----|---------|
| NII | 300 mm |
| 6 | 600 mm |
| 10 | 1000 mm |

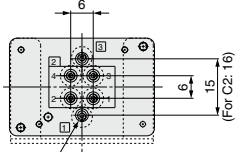


Dimensions

VV061-04



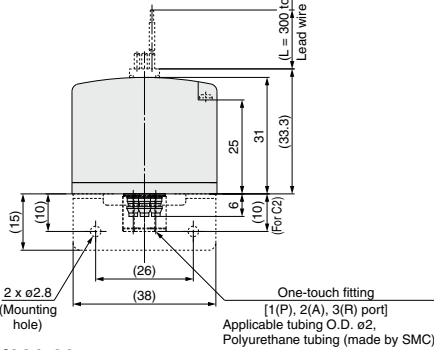
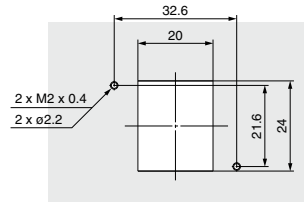
Solenoid valve No. No. 4 No. 2



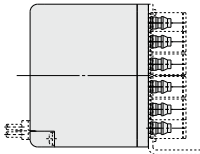
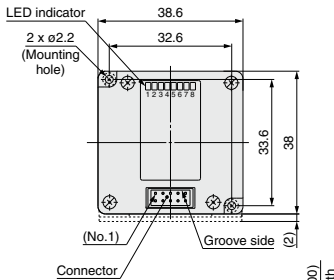
Solenoid valve No. No. 3 No. 1

Barb fitting
[1(P), 2(A), 3(R) port]
Applicable tubing O.D. ø4, I.D. ø2.5,
Polyurethane tubing (made by SMC)
Soft nylon tubing (made by SMC)

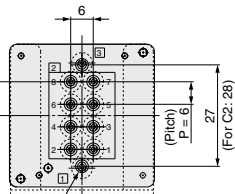
Cut dimension for panel mount (mounting surface)



VV061-08



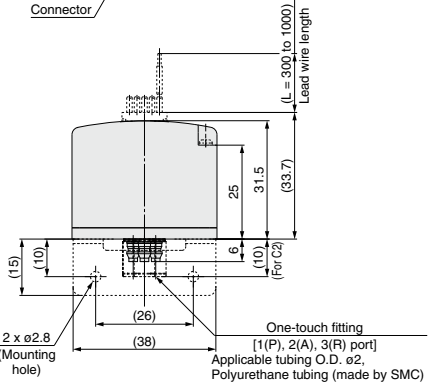
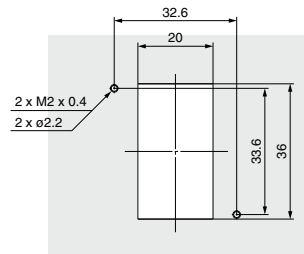
Solenoid valve No. No. 8 No. 6 No. 4 No. 2



Solenoid valve No. No. 7 No. 5 No. 3 No. 1

Barb fitting
[1(P), 2(A), 3(R) port]
Applicable tubing O.D. ø4, I.D. ø2.5,
Polyurethane tubing (made by SMC)
Soft nylon tubing (made by SMC)

Cut dimension for panel mount (mounting surface)



VV061

VV100

V100

S070

VQD

VQD-V

VK

VT



VV061 Series

Specific Product Precautions 1

Be sure to read this before handling the products.

Refer to back page 50 for Safety Instructions and pages 3 to 9 for 3/4/5 Port Solenoid Valve Precautions.

Selection

Warning

1. Extended period of continuous energization

- If a valve will be continuously energized for an extended period of time, the temperature of the valve will increase due to the heat generated by the coil. This will likely adversely affect the performance of the solenoid valve and any nearby peripheral equipment. Therefore, when it is continuously energized or the energized period per day is longer than the de-energized period, use the valves with power-saving circuit.
- For applications such as mounting a valve on a control panel, incorporate measure to limit the heat radiation so that it is within the operating temperature range.

How to Use Plug Connector

Caution

1. Attaching and detaching connectors

- 1) To attach a connector
Insert the connector cable to the end of the socket with the insertion error checking ridge facing upward. Then gently pull the connector cable and check that it does not come out.
- 2) To detach a connector
Remove the socket from the unit manifold by gripping the socket of the connector cable.
If excessive force is applied to the connector cable, the connector may come off. Do not apply a force of 20 N or more to the lead wire.

Connector Cable Length

Caution

1. Standard length is 300 mm, but the following lengths are also available.

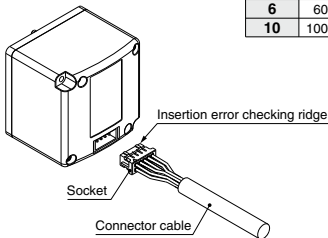
How to Order Connector Assembly

For 4 stations PV060-40-4A-

For 8 stations PV060-40-3A-

Connector cable length

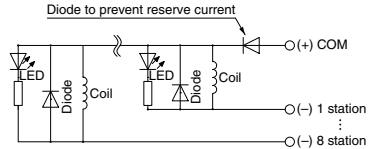
| | |
|----|---------|
| NH | 300 mm |
| 6 | 600 mm |
| 10 | 1000 mm |



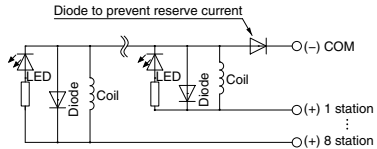
Surge Voltage Suppressor

Caution

<Positive common>



<Negative common>

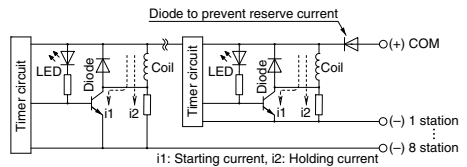


- Since 12 VDC voltage specification does not have diodes for polarity protection, be careful not to make errors in the polarity.
- Please use caution regarding the allowable voltage fluctuation because there is about a 1 volt drop for a valve with polarity protection. (For details, refer to the solenoid specifications for the individual valve.)

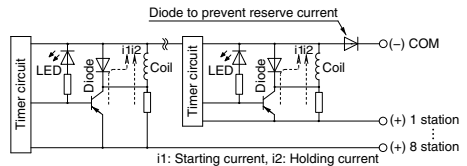
■ With power-saving circuit

Power consumption is decreased by approx. 1/2 by reducing the wattage required to hold the valve in an energized state. (Effective energizing time is over 62 ms.)

<Positive common>



<Negative common>



- 1) Impact and vibration should not be more than 50/10 [m/s²].
- 2) Voltage fluctuation for 24 VDC should be within the range of -5% to +10% of the rated voltage, and for 12 VDC should be within the range of -6% to +10% of the rated voltage.



VV061 Series

Specific Product Precautions 2

Be sure to read this before handling the products.

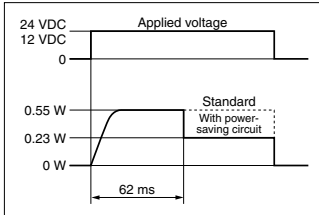
Refer to back page 50 for Safety Instructions and pages 3 to 9 for 3/4/5 Port Solenoid Valve Precautions.

Working Principle

⚠ Caution

1. With the above circuit, the current consumption when holding is reduced to save energy. Please refer to the electric wave data below.

(In case of VV061-□□□□-□T, the electric wave form of power-saving type)



- Please be careful not to reverse the polarity, since a diode to prevent the reversed current is not provided for the 12 VDC specification.
- Please use caution regarding the allowable voltage fluctuation because there is about a 0.5 volt drop due to the transistor.

Mounting

⚠ Caution

1. Tightening the threaded portion of an M3 fitting

For KJS02-M3 (One-touch fitting), tighten it with a tightening tool by approx. 1/6 rotation after screwing it in by hand.

Screwing the fitting in too far will cause air leakage due to thread breakage and gasket deformation. Screwing the fitting not far enough will also cause air leakage due to the loose screw.

One-touch Fittings Precautions

⚠ Caution

1. Tubing insertion and removal from One-touch fittings

1) Attaching of tubing

- (1) Cut the tubing perpendicularly, being careful not to damage the outside surface. Use an SMC tubing cutter "TK-1", "TK-2" or "TK-3". Do not cut the tube with pliers, nippers, scissors, etc. If cutting is done with tools other than tube cutters, there is the danger that the tube may be cut diagonally or become flattened, etc., making a secure installation impossible, and causing problems such as the tube pulling out after installation or air leakage. Also allow some extra length in the tube.

- (2) Grasp the tube, slowly push it into the One-touch fittings until it comes to a stop.

- (3) Pull the tubing back gently to make sure it has a positive seal. Insufficient installation may cause air to leak or the tube to release.

2) Removing of tubing

- (1) Push flange evenly and push the release bushing sufficiently.

- (2) Pull out the tube while keeping the release button depressed. If the release bushing is not held down sufficiently, the tube cannot be withdrawn.

- (3) To reuse the tubing, remove the previously lodged portion of the tube. If the lodged portion is left on without being removed, it may result in air leakage and difficulty in removal of the tube.

Other Tubing Brands

⚠ Caution

1. When using other than SMC brand tubing, confirm that the following specifications are satisfied with respect to the outside diameter tolerance of the tubing.

- 1) Soft nylon tubing within ± 0.1 mm
- 2) Polyurethane tubing within $+0.15$ mm,
 within -0.2 mm.

Do not use tubing which does not meet these outside diameter tolerances. It may not be possible to connect them, or they may cause other trouble, such as air leakage or the tubing pulling out after connection.

VV061

VV100

V100

S070

VQD

VQD-V

VK

VT