3 Port Solenoid Valve Series VQ100

Unprecedented high speed, stable response, and extra-long service life.

ON: 3.5ms, OFF: 2ms, Dispersion accuracy ±1ms (With indicator light and surge voltage suppressor; supply pressure 0.5MPa)
200million cycles or more (clean and dry air) (Factors determined in a life test by SMC)

Compact with large flow capacity.

Body width: 9.8mm,
N/min: 19.63 (Standard, high pressure style)
N/min: 39.26 (Option, large flow style)

Copper-free specifications

The fluid contacting section is copper-free and the standard style can be used as it is.

Options

External non-leak
Latching style
Negative COM specifications
AC voltage
Normally open
Vacuum (1)

Note 1) Consult SMC for vacuum specifications.

A wide variation of wiring

Manifold
- Plug-in unit manifold
- Plug lead unit manifold

Single unit
- L plug connector
- M plug connector
- Grommet

Options

SY
SYJ
VK
VZ
VT
VT
VP
VG
VQ
VQZ
**Precautions**

Be sure to read before handling. Refer to p.0-33 to 0-36 for Safety Instructions and common precautions.

**Warning**

**Manual Override**
The connected equipment will be operated when manual override is used. Check carefully before handling to make sure that there is no danger.

- **Non-locking push flush style**
  - It is turned ON by pushing the button in the direction indicated by the arrow until it hits the end and turned OFF by releasing the button.

- **Locking slotted style (Option)**
  - It can be locked in the ON state by turning the manual override to the right, setting the ▶ mark to 1 and pushing it.
  - It can be unlocked by turning the manual override to the left, setting the ▶ mark to 0 and pushing it, and the manual returns.
  Note) Make sure the locking style manual override is unlocked before use.

- **Push locking slotted style (Latching style)**
  - It can be locked in the set state (flow: P → A) by turning the manual override to the right, setting the ▲ mark to 1 and pushing it.
  - It can be turned back to the reset state (flow: A → R) by turning the manual override to the left, setting the ▲ mark to 0 and pushing it. (It is set in reset state when shipped.)

**Caution**

When operating the lock style with a screwdriver, turn it softly using only small screwdrivers.
(Torque: Less than 0.1Nm)

**Caution**

How to Use a Plug Connector

**Connection/Disconnection of connector**
- Push the connector straight onto the pins of the solenoid, making sure the lip of the lever is securely positioned in the groove on the solenoid cover.
- Press the lever against the connector and pull the connector away from the solenoid.
Note) GENTLY pull the lead wire, otherwise it may cause contact failure or disconnection.

**Crimping connection of lead wire and socket**
Remove the insulation on the lead wire at the end from 3.2 to 3.7mm and insert the wires into the socket crimping area. Crimp the socket onto the wire using a crimping tool. Be careful not to let the insulation of the lead wire get into the wire crimping part. (Crimping tool: Part No. DXT170-75-1)

**Connection/Disconnection of socket with lead wire**
- **Installation**
  Insert socket into the square hole (indicated as A, C and B) on the connector, hold the lead wire and push until it locks in place. Ensure that it is locked by pulling the lead wire a little.
- **Removal**
  Pull and detach the lead wire, pressing in on the end of the hook of the socket through the side hole using a stick with thin end (about 1mm). To reuse the socket, extend the hook outward.

---

**Warning**

**Non-locking push flush style**

**Locking slotted style (Option)**

**Push locking slotted style (Latching style)**

**Caution**

**How to Use a Plug Connector**

**Connection/Disconnection of connector**

**Crimping connection of lead wire and socket**

**Connection/Disconnection of socket with lead wire**

---

**Precautions**

Be sure to read before handling. Refer to p.0-33 to 0-36 for Safety Instructions and common precautions.

**Warning**

**Manual Override**
The connected equipment will be operated when manual override is used. Check carefully before handling to make sure that there is no danger.

- **Non-locking push flush style**
  - It is turned ON by pushing the button in the direction indicated by the arrow until it hits the end and turned OFF by releasing the button.

- **Locking slotted style (Option)**
  - It can be locked in the ON state by turning the manual override to the right, setting the ▶ mark to 1 and pushing it.
  - It can be unlocked by turning the manual override to the left, setting the ▶ mark to 0 and pushing it, and the manual returns.
  Note) Make sure the locking style manual override is unlocked before use.

- **Push locking slotted style (Latching style)**
  - It can be locked in the set state (flow: P → A) by turning the manual override to the right, setting the ▲ mark to 1 and pushing it.
  - It can be turned back to the reset state (flow: A → R) by turning the manual override to the left, setting the ▲ mark to 0 and pushing it. (It is set in reset state when shipped.)

**Caution**

When operating the lock style with a screwdriver, turn it softly using only small screwdrivers.
(Torque: Less than 0.1Nm)

---

**Warning**

**Non-locking push flush style**

**Locking slotted style (Option)**

**Push locking slotted style (Latching style)**

**Caution**

**How to Use a Plug Connector**

**Connection/Disconnection of connector**

**Crimping connection of lead wire and socket**

**Connection/Disconnection of socket with lead wire**

---

**Precautions**

Be sure to read before handling. Refer to p.0-33 to 0-36 for Safety Instructions and common precautions.

**Warning**

**Manual Override**
The connected equipment will be operated when manual override is used. Check carefully before handling to make sure that there is no danger.

- **Non-locking push flush style**
  - It is turned ON by pushing the button in the direction indicated by the arrow until it hits the end and turned OFF by releasing the button.

- **Locking slotted style (Option)**
  - It can be locked in the ON state by turning the manual override to the right, setting the ▶ mark to 1 and pushing it.
  - It can be unlocked by turning the manual override to the left, setting the ▶ mark to 0 and pushing it, and the manual returns.
  Note) Make sure the locking style manual override is unlocked before use.

- **Push locking slotted style (Latching style)**
  - It can be locked in the set state (flow: P → A) by turning the manual override to the right, setting the ▲ mark to 1 and pushing it.
  - It can be turned back to the reset state (flow: A → R) by turning the manual override to the left, setting the ▲ mark to 0 and pushing it. (It is set in reset state when shipped.)

**Caution**

When operating the lock style with a screwdriver, turn it softly using only small screwdrivers.
(Torque: Less than 0.1Nm)
Caution

How to Use Plug Connector

Wiring
- Lead wires are connected as follows. Connect them to the power supply side.

DC Positive COM

- Lead wire colour
  - SOL: A (-) Black (Single)
  - Set: (-) Black
  - COM: (+) Red
  - Reset: (-) White

DC Negative COM

- Lead wire colour
  - SOL: A (-) Black (Single)
  - Set: (-) Black
  - COM: (+) Red
  - Reset: (-) White

Note: Single style: No polarity

How to Order Connector Assembly

DC Positive COM
  - Single: AXT661-14A-
  - Latching: AXT661-13A-

DC Negative COM
  - Latching: AXT661-13AN-

Plug connector lead wire length

The lead wire length of the valve with lead wire is 300mm. When ordering a valve with lead wire of 600mm or more, order the valve without lead wire and order the lead wire separately.

Precautions

Be sure to read before handling. Refer to p.0-33 to 0-36 for Safety Instructions and common precautions.

Light and Surge Voltage Suppressor

For latching style, set energizing side and reset the energizing side are indicated with orange and green respectively.

- ( ) and the broken line: Large flow capacity style

Indicator light

- ON (Set): Orange
- (Reset: Green)

M plug connector

L plug connector

Single solenoid (DC) Latching solenoid (DC)

- A (-) Set
- C (+) COM
- B (-) Reset

Note 1: Single: No polarity
ON: Orange light lights.
Note 2: Setting side energizing: Orange light lights.
Resetting side energizing: Green light lights.
With wrong wiring preventing ability (stop diode)
With surge voltage suppresser (2N5475 Surge absorbing diode)

Note 3: A (set) side energizing: P → A
B (set) side energizing: A → R
Note 4: Negative COM specification is applicable.

Latching Style

The latching solenoid is equipped with a self-holding mechanism, which permits a movable iron core in the solenoid to hold the "set" position. Therefore there is no need to energize continuously.

<Special Cautions for Latching Solenoid>
1. Make sure ON and OFF signals are not energized simultaneously.
2. 10ms energizing time is necessary for self-holding.
3. Consult SMC if using in a place with high vibrations (10G or more) or high magnetic fields.
4. This valve is shipped in the "reset" position (passage: A → R).
   However, it may move to the "set" position during transportation or due to impacts during mounting. Therefore, check the initial position before use by means of a power supply or manual override.

<table>
<thead>
<tr>
<th>Latching</th>
<th>Passage</th>
<th>Indicator light</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-C ON (Set)</td>
<td>→ A</td>
<td>Orange</td>
</tr>
<tr>
<td>B-C ON (Reset)</td>
<td>→ R</td>
<td>Green</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Single</th>
<th>Passage</th>
<th>Indicator light</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-C ON</td>
<td>→ A</td>
<td>Orange</td>
</tr>
<tr>
<td>A-R OFF</td>
<td></td>
<td>Orange</td>
</tr>
</tbody>
</table>
**Caution**

**How to Use of Multi-connector** *(For plug-in manifold: For VV3Q11)*

1. **Connection/Disconnection of Plug**
   - When mounting a connector: Align the positioning key grooves of the body to the key, and it is locked.
   - When removing the connector: Pull the ring section straight back, and it is unlocked and then take it off.

2. **Wiring Specifications**

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>1 station</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>2 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>3 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>4 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>5 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>6 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>7 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>8 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>9 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>10 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>11 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>12 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>13 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>14 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>15 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>16 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>17 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>18 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>19 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
<tr>
<td>20 stations</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
<td>SOL</td>
</tr>
</tbody>
</table>

**Electrical wiring specifications**

**Caution**

**How to Connect/Disconnect DIN Rail**

**Removing**
1) Loosen the clamp screw of the end plate on both sides.
2) Lift side A of the manifold base and slide the end plate in the direction of the shown in the figure to remove.

**Mounting**
1) Hook side B of the manifold base on the DIN rail.
2) Press down side A and mount the end plate on the DIN rail. Tighten the clamp screw on the side.
Proper tightening torque of thread: 0.8 to 1.2Nm
3 Port Solenoid Valve
Series VQ100

How to Order Valve

VQ1 1 0 5 F -Q

Series VQ
Compact 3 port valve

Actuation
1 Normally closed

Functions
- Standard style (1W)
H High pressure style (1.5W)
Y (1) Low wattage style (0.5W)
L* Latching style
L* Latching style
Positive COM
Negative COM
U* Large flow capacity style
- Option
Note 1) Except for latching and large flow capacity style.

Manual override
- Non-locking push flush style
Latching style: Push locking slotted style
B* Locking slotted style
- Option
Note) Latching manual override: Push locking style only.

Electrical entry

| F | Plug-in style
|   | With indicator light and surge voltage suppressor (only for plug-in manifold) |
|   |   |
| L | L plug connector, With lead wire and light and surge voltage suppressor. |
| LO | L plug connector, Without connector, With indicator light and surge voltage suppressor |
| M | M plug connector, With lead wire and light and surge voltage suppressor. |
| MO | M plug connector, Without connector, With indicator light and surge voltage suppressor |
| G | Grommet |

- Option
Note) Grommet: No latching, AC and large flow capacity.

Coil Rated Voltage

F | 5 | 24V DC |
L | 6 | 12V DC |
M | 9 | 50V or less |

Contact SMC for other voltages (9)

L plug connector
M plug connector
Grommet

Note) Grommet: No latching, AC and large flow capacity.

Protective class
class III (Mark: ));
### Standard Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Style</th>
<th>Standard (1W)</th>
<th>High pressure (1.5W)</th>
<th>Low wattage (0.5W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve structure</td>
<td>3 port direct operated poppet (NC)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluid</td>
<td>Air, Inert gas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>0.7MPa</td>
<td>0.8MPa</td>
<td>0.7MPa</td>
<td></td>
</tr>
<tr>
<td>Min. operating pressure</td>
<td>0MPa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective area</td>
<td>1→2 0.28mm² (Nl/min 15.7)</td>
<td>0.14mm² (Nl/min 7.85)</td>
<td>0.6MPa</td>
<td></td>
</tr>
<tr>
<td>Response time (1)</td>
<td>ON: 3.5ms, OFF: 2ms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient and fluid temperature</td>
<td>-10 to 50°C (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual override</td>
<td>Non-locking push/Locking slotted (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting operation</td>
<td>Free</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock/Vibration resistance</td>
<td>150/30m/s²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection structure</td>
<td>Dust proof</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>12.6g (L/M connector, Without subplate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coil rated voltage</td>
<td>DC</td>
<td>24V DC, 12V DC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allowable voltage</td>
<td>±10% of rated voltage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coil insulation</td>
<td>Class B or equivalent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power consumption (Current)</td>
<td>DC 1W (42mA)</td>
<td>1.5W (63mA)</td>
<td>0.5W (21mA)</td>
<td></td>
</tr>
<tr>
<td>Electrical entry</td>
<td>Grommet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plug-in, L plug connector, M plug connector (With indicator light and surge voltage suppressor)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note 1)** As per JISB8374-1993. With light/surge voltage suppressor (clean air). Dispersion accuracy ±1ms

**Note 2)** Use dry air to prevent condensation when operating at low temperatures.

**Note 3)** Locking style: Option

**Note 4)** Shock resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle directions of the main valve and armature, for both energized and de-energized states. Vibration resistance: No malfunction occurred in a one-sweep test between 8.3 and 2000Hz. Test was performed at both energized and de-energized states to the axis and right angle directions of the main valve and armature. (Value in the initial stage.)

### Option Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Type</th>
<th>Latching</th>
<th>AC</th>
<th>Large flow capacity</th>
<th>Normally open</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>VQ110-□-□-Q</td>
<td>VQ110-□□-Q</td>
<td>VQ110□□-□□-Q</td>
<td>VQ120-□□-Q</td>
<td></td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>0.7MPa</td>
<td>0.6MPa</td>
<td>0.5MPa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective area</td>
<td>1→2 0.14mm² (Nl/min 15.7)</td>
<td>0.68mm² (Nl/min 7.85)</td>
<td>0.20mm² (Nl/min 10.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response time (2)</td>
<td>5ms or less</td>
<td>6.5 or less</td>
<td>5ms or less</td>
<td>5ms or less</td>
<td></td>
</tr>
<tr>
<td>Power consumption (Current)</td>
<td>24V DC 1W (42mA)</td>
<td>—</td>
<td>0.7W (29mA) (3)</td>
<td>1W (42mA)</td>
<td></td>
</tr>
<tr>
<td>Solenoid</td>
<td>12V DC 1W (83mA)</td>
<td>—</td>
<td>0.7W (29mA) (3)</td>
<td>1W (83mA)</td>
<td></td>
</tr>
<tr>
<td>Electrical entry (1)</td>
<td>Plug-in, L plug connector, M plug connector (With indicator light and surge voltage suppressor)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note 1)** Grommet is available only for normally open style (without light/surge voltage suppressor).

**Note 2)** With light/surge voltage suppressor based on JISB8374-1993 (clean air).

**Note 3)** Inrush: 3.1W (10ms after energized.), Holding: 0.7W
**How to Order Valve**

**Series VQ**

Compact 3 port valve

**Actuation**

1. Normally closed
2. Normally open

**Functions**

- Standard (1W)
- High pressure (1.5W)
- Energy saver (0.5W)
- Latching Positive COM.
- Latching Negative COM
- Large flow capacity

**Coil rated voltage**

- 5: 24V DC
- 6: 12V DC
- 9: 50V or less

Contact SMC for other voltages (9)

**Manual override**

- Non-locking push flush style
- Latching style: Locking-push tool style
- Locking slotted style

(Latching style manual override: Locking-push slotted style only.)

**Electrical entry**

- L: L plug connector, With lead wire and light/surge voltage suppressor
- LO: L plug connector, Without connector, With indicator light and surge voltage suppressor
- M: M plug connector, With lead wire and light/surge voltage suppressor
- MO: M plug connector, Without connector, With indicator light and surge voltage suppressor.
- G: Grommet

(Note) Grommet: No latching style, AC and large flow capacity style

**Dimensions**

**Grommet**

VQ1□□□□-□□□□M5 (M3)-□-

**Dimensions Diagram:**

- Locking style manual override
- Manual override
- 2-ø2.7 Mounting hole
- 29.2
- 6.1
- 4.9
- 3.7
- 12
- 18.1
- 30.7

(Note) M3
Broken line: locking style manual override
Dimensions

L plug connector

VQ1□0□-□L□M5 (M3)-Q

- Broken line: Latching and large flow capacity
- Dashed line: Locking style manual override and locking push style manual override (latching)

M plug connector

VQ1□0□-□M□M5 (M3)-Q

- Broken line: Latching and large flow capacity
- Dashed line: Locking style manual override and push locking style manual override (latching)
**How to Order Manifold**

**Plug-in Unit Manifold**

**Applicable Solenoid Valve (Plug-in style)**

<table>
<thead>
<tr>
<th>Series</th>
<th>Valve part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VQ100</td>
<td>VV3Q 11-08CU1-D-Q</td>
</tr>
</tbody>
</table>

**Manifold base**

- **Stations**
  - 02: 2 stations
  - 18: 18 stations

**Electrical entry**

- **Cable length**
  - 0: Without cable
  - 1: With cable (1.5m)
  - 2: With cable (3m)
  - 3: With cable (5m)

**Connector location**

- **U**: Top entry
- **S**: Side entry

**Option**

- **D**: DIN rail mounted (With standard length of DIN rail)
- **DO**: DIN rail mounted (Without DIN rail)

**Note**

- Normally closed and normally open style cannot be mounted on the same manifold.
- Protective class class III (Mark: )

**How to Order Valve**

**Series VQ**

- **Actuation**
  - 1: Normally closed
  - 2: Normally open

**Functions**

- **Standard (1W)**
- **H**: High pressure (1.5W)
- **Y**
  - Low wattage (0.5W)
- **U**: Large flow capacity

**Coil rated voltage**

- **5**: 24V DC
- **6**: 12V DC
- **9**: 50V or less

**Manual override**

- **Non-locking push flush style**
- **B**: Locking slotted style

**Electrical entry**

- **F**: Plug-in style
  - With indicator light and surge voltage suppressor (Only for plug-in manifold)

**Contact SMC**

- For other voltages (9)
Plug-in Unit (VV3Q11) Manifold with Multi-connector

The broken line indicates DIN rail mounted style (-D) and side entry connector (S).

Dimensions

<table>
<thead>
<tr>
<th>Station</th>
<th>L1 (mm)</th>
<th>L2 (mm)</th>
<th>L3 (mm)</th>
<th>L4 (mm)</th>
<th>L5 (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>52</td>
<td>63</td>
<td>83</td>
<td>112.5</td>
<td>123</td>
</tr>
<tr>
<td>2</td>
<td>62</td>
<td>73</td>
<td>93</td>
<td>112.5</td>
<td>123</td>
</tr>
<tr>
<td>3</td>
<td>72</td>
<td>83</td>
<td>103</td>
<td>113</td>
<td>123</td>
</tr>
<tr>
<td>4</td>
<td>82</td>
<td>93</td>
<td>113</td>
<td>123</td>
<td>133</td>
</tr>
<tr>
<td>5</td>
<td>92</td>
<td>103</td>
<td>113</td>
<td>123</td>
<td>133</td>
</tr>
<tr>
<td>6</td>
<td>102</td>
<td>113</td>
<td>123</td>
<td>133</td>
<td>143</td>
</tr>
<tr>
<td>7</td>
<td>112</td>
<td>123</td>
<td>133</td>
<td>143</td>
<td>153</td>
</tr>
<tr>
<td>8</td>
<td>122</td>
<td>133</td>
<td>143</td>
<td>153</td>
<td>163</td>
</tr>
<tr>
<td>9</td>
<td>132</td>
<td>143</td>
<td>153</td>
<td>163</td>
<td>173</td>
</tr>
<tr>
<td>10</td>
<td>142</td>
<td>153</td>
<td>163</td>
<td>173</td>
<td>183</td>
</tr>
<tr>
<td>11</td>
<td>152</td>
<td>163</td>
<td>173</td>
<td>183</td>
<td>193</td>
</tr>
<tr>
<td>12</td>
<td>162</td>
<td>173</td>
<td>183</td>
<td>193</td>
<td>203</td>
</tr>
<tr>
<td>13</td>
<td>172</td>
<td>183</td>
<td>193</td>
<td>203</td>
<td>213</td>
</tr>
<tr>
<td>14</td>
<td>182</td>
<td>193</td>
<td>203</td>
<td>213</td>
<td>223</td>
</tr>
<tr>
<td>15</td>
<td>192</td>
<td>203</td>
<td>213</td>
<td>223</td>
<td>233</td>
</tr>
<tr>
<td>16</td>
<td>202</td>
<td>213</td>
<td>223</td>
<td>233</td>
<td>243</td>
</tr>
<tr>
<td>17</td>
<td>212</td>
<td>223</td>
<td>233</td>
<td>243</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>222</td>
<td>233</td>
<td>243</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Equation: L1=10n+32  L2=10n+43  n: Station (Max. 18)
How to Order Manifold

**Applicable Solenoid Valve (Plug lead style)**
- VQ100 Series

**Manifold base**

<table>
<thead>
<tr>
<th>Stations</th>
<th>2</th>
<th>2U</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>2 stations</td>
<td>Plug lead unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plug lead unit U type (large flow capacity) mounting base</td>
</tr>
<tr>
<td>20</td>
<td>20 stations</td>
<td></td>
</tr>
</tbody>
</table>

**Port size and thread**
- Only thread port size 1/8 style (2U type, P/E port) has choice of thread.

**Suffix valve and option numbers for the manifold base No.**

(Example)
- Plug lead unit manifold with cable (3m)
  - VQ3012-05-Q ....... 1 set Manifold base No.
  - VQ110-5L-Q ....... 4 sets Valve No. (1st to 4th stations)
  - VQ100-10A-2 ....... 1 set Blank plate part No. (5th station)

Write sequentially from the 1st station on the D side.

How to Order Valve

**Series VQ Compact 3port valve**

**Function**
- Normally close
- Normally open

**Actuation**

- 1: Normaly close
- 2: Normally open

**Coil rated voltage**
- 5: 24V DC
- 6: 12V DC
- 9: 50V or less

Contact SMC for other voltages (9)

**Manifold override**
- Non-locking push flush style
- Latching type: Looking-push slotted style
  - Locking slotted style

**Electrical entry**
- L: L plug connector, With lead wire and light/surge voltage suppressor
- LO: L plug connector, Without connector, With indicator light and surge voltage suppressor
- M: M plug connector, With lead wire and light/surge voltage suppressor
- MO: M plug connector, Without connector, With light/surge voltage suppressor
- G: Grommet

Note: Grommet: No AC and large flow capacity style.
Plug Lead Unit Manifold (VV3Q12)

### Dimensions

<table>
<thead>
<tr>
<th>L type</th>
<th>M type</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>H</td>
</tr>
<tr>
<td>Latching</td>
<td>35.1</td>
</tr>
<tr>
<td>100V AC or more</td>
<td>32.4</td>
</tr>
</tbody>
</table>

### Equation

\[ L1 = 10n + 13 \]
\[ L2 = 10n + 7 \]

\( n \): Station (Max. 20 stations)

---

Plug Lead Unit U Type (Large Flow Capacity) Mounted Manifold (VV3Q12U)

### Dimensions

\[ L1 = 10n + 13 \]
\[ L2 = 10n + 7 \]

\( n \): Station (Max. 20 stations)

---

Equation: \( L1=10n+13 \)  \( L2=10n+7 \)  \( n \): Station (Max. 20 stations)
Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Solenoid coil</td>
<td>—</td>
</tr>
<tr>
<td>2</td>
<td>Body</td>
<td>Resin</td>
</tr>
<tr>
<td>3</td>
<td>Fixed iron core</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>4</td>
<td>Movable iron core assembly</td>
<td>Stainless steel, Resin</td>
</tr>
<tr>
<td>5</td>
<td>Return spring</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>6</td>
<td>Poppet</td>
<td>NBR</td>
</tr>
<tr>
<td>7</td>
<td>Phillips/ordinary round head screw</td>
<td>Carbon steel</td>
</tr>
<tr>
<td>8</td>
<td>Interface gasket</td>
<td>NBR</td>
</tr>
</tbody>
</table>

Replacement Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Part</th>
<th>Material</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Sub-plate</td>
<td>ZDC</td>
<td>AXT662-1-(\ Tmall, 2: M3)</td>
</tr>
</tbody>
</table>

Optional Parts

- Gasket, screw: VQ100-GS-5

Note) 1 set includes: 1 gasket and 2 screws. Please order 10 sets at a time.
Series VQ100

Manifold Option

Plug Assembly

VVQ100-12A-1

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Plug</td>
<td>RP13A-12PS-20SC (Made by Hirose Electric)</td>
</tr>
<tr>
<td>2</td>
<td>Female contact</td>
<td>RP19-SC-222 (Made by Hirose Electric)</td>
</tr>
<tr>
<td>3</td>
<td>Vinyl multi-core cable</td>
<td>VVRF 0.2mm² 20-core</td>
</tr>
</tbody>
</table>

Cable Length

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>VVQ100-12A-1</td>
<td>1.5m</td>
</tr>
<tr>
<td>VVQ100-12A-2</td>
<td>3m</td>
</tr>
<tr>
<td>VVQ100-12A-3</td>
<td>5m</td>
</tr>
</tbody>
</table>

Blank Plate Assembly

VVQ100-10A-1

Plug-in unit (VV3Q11) for manifold with multiple connectors

Blank plate with 2 screws and gasket

VVQ100-10A-2

Plug lead unit (VV3Q12) for manifold

Blank plate with 2 screws and gasket

VV3Q11 For Manifold With Multi-connector

(D Side End Plate Assembly)

VVQ100-3A-

Option

1. Standard
2. DIN rail mounting

(U Side End Plate Assembly)

VVQ100-2A-

Option

1. Standard type
2. DIN rail mounting

(DIN Rail Mounting Bracket Assembly)

AXT802-1A-

Mounting direction
D D side mounting
U U side mounting

Note: The number of manifold stations cannot be changed.

How to Order Only DIN Rail

DIN rail part number: AXT100-DR-

Refer to DIN rail dimension table below and put number into /L50132 to order DIN rail. Refer to the manifold dimensions on p.28-11 to know L size.

L Size Dimensions

<table>
<thead>
<tr>
<th>No.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>L size</td>
<td>23</td>
<td>35.5</td>
<td>48</td>
<td>60.5</td>
<td>73</td>
<td>85.5</td>
<td>98</td>
<td>110.5</td>
<td>123</td>
<td>135.5</td>
</tr>
<tr>
<td>No.</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>L size</td>
<td>148</td>
<td>160.5</td>
<td>173</td>
<td>185.5</td>
<td>198</td>
<td>210.5</td>
<td>223</td>
<td>235.5</td>
<td>248</td>
<td>260.5</td>
</tr>
<tr>
<td>No.</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>L size</td>
<td>273</td>
<td>285.5</td>
<td>298</td>
<td>310.5</td>
<td>323</td>
<td>335.5</td>
<td>348</td>
<td>360.5</td>
<td>373</td>
<td>385.5</td>
</tr>
<tr>
<td>No.</td>
<td>31</td>
<td>32</td>
<td>33</td>
<td>34</td>
<td>35</td>
<td>36</td>
<td>37</td>
<td>38</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>L size</td>
<td>398</td>
<td>410.5</td>
<td>423</td>
<td>435.5</td>
<td>448</td>
<td>460.5</td>
<td>473</td>
<td>485.5</td>
<td>498</td>
<td>510.5</td>
</tr>
</tbody>
</table>