How to Order Manifold

**Series VQ2000**

**Base Mounted Plug-in Unit**

### Simple specials are available with SMC Simple Specials System.
For details about applicable models, Contact SMC.

### Kit/Electrical entry/Cable length

#### F kit (D-sub connector)
- **Top entry**
- **Side entry**

#### P kit (Flat ribbon cable connector)
- **Top entry**

#### J kit (Flat ribbon cable connector (20P))
- **Top entry**

#### G kit (Flat ribbon cable connector with power supply terminal block)
- **Top entry**

For details about certified products conforming to international standards, visit us at www.smcworld.com.

**Note 1)** When two or more symbols are specified, indicate them alphabetically. (Example) -DNR.
**Note 2)** Models with a suffix “-D” have check valves for prevention of back pressure at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by manifold specification sheet.
**Note 3)** Specify the wiring specifications in the manifold specification sheet. (Except L kit)
**Note 4)** Indicate “R” for the valve with external pilot.
**Type of actuation** (IP65) available

- Dust tight/Low jetproof type

**Kit**

- 2 position single
- 2 position double
- 3 position pressure center
- 3 position exhaust center
- 3 position closed center

**Specifications**

- Pressure type
- Low wattage type

**Terminal Box Kit**

- With cable (1.5 m) - 2 sets
- With cable (3 m) - 2 sets
- With cable (0.6 m) - 2 sets

**Enclosure**

- Dusttight/Low jetproof type (IP65)
- Dust-protected type (IP65)

**Coil Voltage**

- 100 VAC (50/60 Hz)
- 200 VAC (50/60 Hz)
- 220 VAC (50/60 Hz)

**Function**

- Manual override

**How to Order Valves**

- With general type SI unit (Series EX300)
- Without SI unit
- With SI unit

**How to Order Manifold Assembly**

- Base Mounted
- Station Mounted

**How to Order Units Series VQ2000**

- VQ2000-00-10A-1 (1 set)
- VQ2000-00-10A (1 set)
- VQ2000-00-10 (1 set)

**Note**

- Refer to page 2-4-125 for details.
### Manifold Option

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blanking plate assembly</td>
<td>VVQ2000-10A-1</td>
</tr>
<tr>
<td>Individual SUP spacer</td>
<td>VVQ2000-P-1-C8</td>
</tr>
<tr>
<td>Individual EXH spacer</td>
<td>VVQ2000-R-1-C8</td>
</tr>
<tr>
<td>Back pressure check valve assembly</td>
<td>VVQ2000-19A</td>
</tr>
<tr>
<td>SUP block plate</td>
<td>VVQ2000-16A</td>
</tr>
<tr>
<td>EXH block plate</td>
<td>VVQ2000-19A</td>
</tr>
<tr>
<td>Name plate [-N]</td>
<td>VVQ2000-N-Station (1 to Max. stations)</td>
</tr>
<tr>
<td>Silencer (For EXH port)</td>
<td>AN200-KM10</td>
</tr>
<tr>
<td>Port plug</td>
<td>VVQ1000-58A</td>
</tr>
<tr>
<td>Blanking plug</td>
<td>KQ2P-</td>
</tr>
<tr>
<td>Double check block</td>
<td>VQ2000-FPG</td>
</tr>
</tbody>
</table>

*For cylinder port fittings part no., refer to page 2-4-175.*
*For replacement parts, refer to page 2-4-227.*
### Standard Specifications

<table>
<thead>
<tr>
<th>Valve specifications</th>
<th>Fluid</th>
<th>Maximum operating pressure</th>
<th>Minimum operating pressure</th>
<th>Ambient and fluid temperature</th>
<th>Lubrication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Single</td>
<td>–10 to 50°C</td>
<td>No lubrication</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Double</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 position</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **F, P kits**
  - 2 to 24 stations
- **J, G, S kit**
  - 2 to 16 stations
- **L kit**
  - 1 to 8 stations
- **T kit**
  - 2 to 20 stations

- **F, P, T kits**
  - 2 to 24 stations
- **J, G, S kit**
  - 2 to 16 stations
- **L kit**
  - 1 to 8 stations

### Solenoid

<table>
<thead>
<tr>
<th>Power consumption (Current)</th>
<th>24 VDC</th>
<th>1 W DC (42 mA), 1.5 W DC (63 mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12 VDC</td>
<td>1 W DC (83 mA), 1.5 W DC (125 mA)</td>
</tr>
<tr>
<td></td>
<td>100 VAC</td>
<td>1 W DC (125 mA), 1.5 W DC (21 mA)</td>
</tr>
<tr>
<td></td>
<td>110 VAC</td>
<td>1 W DC (125 mA), 1.5 W DC (21 mA)</td>
</tr>
<tr>
<td></td>
<td>200 VAC</td>
<td>1 W DC (125 mA), 1.5 W DC (21 mA)</td>
</tr>
<tr>
<td></td>
<td>220 VAC</td>
<td>1 W DC (125 mA), 1.5 W DC (21 mA)</td>
</tr>
</tbody>
</table>

### Manifold Specifications

#### Series VQ1000

<table>
<thead>
<tr>
<th>Base model</th>
<th>Type of connection</th>
<th>Porting specifications</th>
<th>Port size (1)(2)</th>
<th>Applicable stations</th>
<th>Applicable solenoid valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>VQ1000</td>
<td></td>
<td>Side</td>
<td>C8 (ø8)</td>
<td>F, P, T kits (2 to 24 stations)</td>
<td>VQ1:100 (Single)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Option</td>
<td>J, G, S kit (2 to 16 stations)</td>
<td>VQ1:101 (Double, 3 position)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C3 (ø3.2)</td>
<td>L kit (1 to 8 stations)</td>
<td></td>
</tr>
<tr>
<td>VQ1000</td>
<td></td>
<td></td>
<td>Option</td>
<td>J, G, S kit (2 to 16 stations)</td>
<td>VQ2:100 (Single)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C4 (ø4)</td>
<td>L kit (1 to 8 stations)</td>
<td>VQ2:101 (Double, 3 position)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C6 (ø6)</td>
<td>T kit (2 to 20 stations)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Option</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C8 (ø8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Series VQ2000

<table>
<thead>
<tr>
<th>Base model</th>
<th>Type of connection</th>
<th>Porting specifications</th>
<th>Port size (1)(2)</th>
<th>Applicable stations</th>
<th>Applicable solenoid valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>VQ2000</td>
<td></td>
<td>Side</td>
<td>C10 (ø10)</td>
<td>F, P, T kits (2 to 24 stations)</td>
<td>VQ1:100 (Single)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Option</td>
<td>J, G, S kit (2 to 16 stations)</td>
<td>VQ1:101 (Double, 3 position)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C4 (ø4)</td>
<td>L kit (1 to 8 stations)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Option</td>
<td>J, G, S kit (2 to 16 stations)</td>
<td>VQ2:100 (Single)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C6 (ø6)</td>
<td>T kit (2 to 20 stations)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Option</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C8 (ø8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes
- **Note 1)** Use dry air to prevent condensation when operating at low temperatures.
- **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. (Values at the initial period)
- **Note 3)** No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)
- **Note 4)** Value for low voltage type (0.5 W)
- **Note 5)** Dusttight/Low jetproof type (IP65) is available on T, L, S and M kits of VQ2000.
Circular Connector (26 pins)

### Electric Characteristics

<table>
<thead>
<tr>
<th>Terminal no.</th>
<th>Lead wire color</th>
<th>Dot marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>2</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>4</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>5</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>6</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>7</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Black</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Black</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Black</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Purple</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Orange</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Orange</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Purple</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>White</td>
<td></td>
</tr>
</tbody>
</table>

### Cable assembly

- **Circular Connector Cable Assembly (Option)**
  - **Cable length (L)**
    - 1.5 m: AXT100-MC26-015
    - 3 m: AXT100-MC26-030
    - 5 m: AXT100-MC26-050
  - **Assembly part no.**: Cable 25 core x 24AWG
  - **Note**: The minimum bending radius of circular connector cable is 20 mm.

### Manifold Specifications

<table>
<thead>
<tr>
<th>Series</th>
<th>Port location</th>
<th>Port size</th>
<th>Applicable stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>VQ2000</td>
<td>Side</td>
<td>C10</td>
<td>C4, C6, M8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Max. 24 stations</td>
<td></td>
</tr>
</tbody>
</table>

### How to Order Manifold

- **VQ2000 Kit (Flat ribbon cable connector)**
  - MIL flat cable connector reduces installation labor for electrical connection.
  - Manifold and connectors, both compliant with the IP65 rating (dusttight, low jetproof), provide a high degree of protection for the electrical parts.
  - Maximum stations are 24.
  
- **Circular Connector (26 pins)**
  
- **Manifold Specifications**
  
- **Cable assembly**
  
- **How to Order Manifold**
  
- **Enclosure**
  - IP65 (Dust tight/Low jetproof type)
  
- **Option**
  - **Symbol**: N, R
  - **Option**: With name plate, External pilot
  - **Note**: Refer to How to Order Manifold and the manifold specification sheet.

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**Note**: For details, refer to page 2-4-178.
Plug-in Unit Series VQ1000/2000

How to Order Valves

**VQ 2 1 0 0 Y 5 W**

- **Series**: VQ2000
- **Type of actuation**
  - 1: 2 position single
  - 2: 2 position double
  - 3: 3 position closed center
  - 4: 3 position exhaust center
  - 5: 3 position pressure center
- **Seal**
  - 0: Metal seal
  - 1: Rubber seal

**Function**

- **Symbol**
  - N: nil
  - L: locking type (Manual)
  - 
  - 
- **Specifications**
  - Standard type
  - Pressure type
  - Low wattage type
- **Symbol (AC)**
  - 1: 100 VAC (50/60 Hz)
  - 3: 110 VAC (50/60 Hz)
  - 5: 24 VDC
  - 6: 12 VDC

**Coil voltage**

- **Symbol (DC)**
  - 1: (1.0 W)
  - 3: (1.5 W)
  - 5: (0.5 W)

**Enclosure**

- IP (Dusttight/ Low jetproof type)

**Manual override**

- Nil
- Non-locking push type
- Locking type (Manual)

**Light/Surge voltage suppressor**

- Nil
- Yes

**How to Order Manifold Assembly**

Specify the part numbers for valves and options together beneath the manifold base part number.

**Example**

- Flat ribbon cable kit with 3 m cable
- VQ521N-09C06-0W—1 set—Manifold base no.
- VQ521D-09C16-0W—2 sets—Valve part no. (Stations 1 to 2)
- VQ2200-5W—4 sets—Valve part no. (Stations 3 to 6)
- VQ2300-5W—2 sets—Valve part no. (Stations 7 to 8)
- VQ2400-10A-1—1 set—Blanking plate part no. (Station 9)

Prefix the asterisk to the part nos. in order from the 1st station in the D side. When part nos. written collectively are complicated, specify by using the manifold specification sheet.
The broken lines indicate the DIN rail mounting style [-D] and the side entry connection [-FS].

Dimensions

<table>
<thead>
<tr>
<th>Station</th>
<th>L1</th>
<th>L2</th>
<th>(L3)</th>
<th>(L4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>109.5</td>
<td>132.5</td>
<td>162.5</td>
<td>173</td>
</tr>
<tr>
<td>3</td>
<td>125.5</td>
<td>148.5</td>
<td>175</td>
<td>185.5</td>
</tr>
<tr>
<td>4</td>
<td>141.5</td>
<td>164.5</td>
<td>187.5</td>
<td>195.5</td>
</tr>
<tr>
<td>5</td>
<td>157.5</td>
<td>180.5</td>
<td>200</td>
<td>210.5</td>
</tr>
<tr>
<td>6</td>
<td>173.5</td>
<td>196.5</td>
<td>225</td>
<td>235.5</td>
</tr>
<tr>
<td>7</td>
<td>189.5</td>
<td>212.5</td>
<td>237.5</td>
<td>248</td>
</tr>
<tr>
<td>8</td>
<td>205.5</td>
<td>228.5</td>
<td>260</td>
<td>260.5</td>
</tr>
<tr>
<td>9</td>
<td>221.5</td>
<td>244.5</td>
<td>275</td>
<td>285.5</td>
</tr>
<tr>
<td>10</td>
<td>237.5</td>
<td>260.5</td>
<td>287.5</td>
<td>298</td>
</tr>
<tr>
<td>11</td>
<td>253.5</td>
<td>276.5</td>
<td>300</td>
<td>310.5</td>
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<tr>
<td>12</td>
<td>269.5</td>
<td>292.5</td>
<td>312.5</td>
<td>323</td>
</tr>
</tbody>
</table>

Formula:

- \( L1 = 16n + 77.5 \)
- \( L2 = 16n + 100.5 \)

\( n \): Station (Maximum 12 stations)
Blanking plate assembly
VQ2000-10A-1
It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.

Individual SUP spacer
VQ2000-P-1-C8
When the same manifold is to be used for different pressures, individual SUP spacers are used as SUP ports for different pressures. (One station space is occupied.)
Block both sides of the station, for which the supply pressure from the individual SUP spacer is used, with SUP block plates. (Refer to the application ex.)
- Specify the spacer mounting position and SUP block plate position on the manifold specification sheet.
The block plate are used in two places for one set. (Two SUP block plates for blocking SUP station are attached to the individual SUP spacer.)
- Electric wiring is connected to the position of the manifold station where the individual SUP spacer is mounted.

Individual EXH spacer
VQ2000-R-1-C8
When valve exhaust affects other stations due to the circuit configuration, this spacer is used for individual valve exhaust. (One station space is occupied.)
Block both sides of the station, where the individual valve EXH station. (See example)
- Specify the mounting position, as well as the EXH block base or EXH block plate position on the manifold specification sheet.
The block plates are used in two places for one set. (Two EXH block plates for blocking EXH station are attached to the individual EXH spacer.)
- Electric wiring is connected to the position of the manifold station where the individual EXH spacer is mounted.

SUP block plate
VQ2000-16A
When different pressures, high and low, are supplied to one manifold, a SUP block plate is inserted between the stations under different pressures.
- Specify the number of stations on the manifold specification sheet.

EXH block plate
VQ2000-19A
The EXH block plate is used between stations for which exhaust is desired to be divided when valve exhaust affects other stations due to the circuit configuration. It is also used in combination with an individual EXH spacer for individual exhaust.
- Specify the number of stations on the manifold specification sheet.

<Blocking indication label>
When using block plates for SUP passage, indication label for confirmation of the blocking position from outside is attached. (One label of each)

<Blocking indication label>
When blocking the EXH passage with an EXH block plate, an indication label for confirmation of the blocking position from outside is attached. (One label for each)
Back pressure check valve assembly [-B]  
**VQ2000-18A**  
It prevents cylinder malfunction caused by other valve exhaust. Insert it into R (EXH) port on the manifold side of a valve which is affected. It is effective when a single action cylinder is used or an exhaust center type solenoid valve is used.  
*Note:* When a check valve for back pressure prevention is desired, and is to be installed only in certain manifold stations, write clearly the part no. and specify the number of stations by using the manifold specification sheet.

Name plate [-N]  
**VQ2000-N-Station (1 to Max. stations)**  
It is a transparent resin plate for placing a label that indicates solenoid valve function, etc. Insert it into the groove on the side of the end plate and bend it as shown in the figure.  
*Suffix “N” to the manifold part no.*

Blanking plug (For One-touch fittings)  
**KQ2P-04**  
It is inserted into an unused cylinder port and SUP/EXH ports. Purchasing order is available in units of 10 pieces.

Port plug  
**VQ1000-58A**  
The plug is used to block the cylinder port when using a 4 port valve as a 3 port valve.

DIN rail mounting bracket  
**VQ2000-57A**  
It is used for mounting a manifold on a DIN rail. The DIN rail mounted bracket is fixed to the manifold end plate. (The specification is the same as that for the option “-D.”) 1 set of DIN rail mounting bracket is used for 1 manifold (2 DIN rail mounting brackets).

Built-in silencer, Direct exhaust [-S]  
This is a type with an exhaust port atop the manifold end plate. The built-in silencer exhibits an excellent noise suppression effect. (Silencing effect: 30 dB)  
*Note:* A large quantity of drainage generated in the air source results in exhaust of air together with drainage.  
For maintenance, refer to page 2-4-176.

Silencer (For EXH port)  
This silencer is to be inserted into the EXH port (One-touch fittings) of the common exhaust type.

Elbow fitting assembly  
**VQ2000-F-L (C4, C6, C8)**  
It is used for piping that extends upward or downward from the manifold. When installing it in part of the manifold stations, specify the assembly no., and the mounting position and number of stations by using the manifold specification sheet.

2 stations matching fitting assembly  
**VQ2000-52A-C10**  
For driving a cylinder with a large bore, valves for two stations are operated to double the flow rate. This assembly for the cylinder port is used in that case.

---

**Dimensions**

<table>
<thead>
<tr>
<th>Applicable fittings size</th>
<th>Model</th>
<th>A (mm)</th>
<th>L (mm)</th>
<th>D (mm)</th>
<th>Effective area (mm²)</th>
<th>Noise reduction (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>KQ2P-04</td>
<td>16</td>
<td>32</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>KQ2P-06</td>
<td>18</td>
<td>35</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>KQ2P-08</td>
<td>20.5</td>
<td>39</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Effective area (Cv factor)**

<table>
<thead>
<tr>
<th>Series</th>
<th>VQ2000</th>
<th>Model</th>
<th>A</th>
<th>L</th>
<th>D</th>
<th>26 (1.4)</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>AN200-KM10</td>
<td>59.6</td>
<td>80.8</td>
<td>22</td>
<td>26</td>
<td>(1.4)</td>
<td>30</td>
</tr>
</tbody>
</table>

---

**Base Mounted**

**Plug-in Unit Series VQ2000**

---

**Precautions**

1. The back pressure check valve assembly is assembly parts with a check valve structure. However, as slight air leakage is allowed for the back pressure, take care the exhaust air will not be throttled at the exhaust port.  
2. When a back pressure check valve is mounted, the effective area of the valve will decrease, by about 20%.

---

**Notes**

*When ordering assemblies incorporated with a manifold, add suffix “-B” to the manifold no.*

*When ordering assemblies incorporated with a manifold, add suffix “-N” to the manifold no.*

*When ordering assemblies incorporated with a manifold, add suffix “-D” to the manifold no.*

*When ordering a plug incorporated with a manifold, indicate “CM” for the port size in the manifold no., as well as, the mounting position and number of stations and cylinder port mounting positions, A and B, in the manifold specification sheet.*

---

**Effective area**

<table>
<thead>
<tr>
<th>Series</th>
<th>VQ2000</th>
<th>Model</th>
<th>A</th>
<th>L</th>
<th>D</th>
<th>26 (1.4)</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>AN200-KM10</td>
<td>59.6</td>
<td>80.8</td>
<td>22</td>
<td>26</td>
<td>(1.4)</td>
<td>30</td>
</tr>
</tbody>
</table>

---

**Silencer (For EXH port)**

This silencer is to be inserted into the EXH port (One-touch fittings) of the common exhaust type.

---

**Elbow fitting assembly**

**VQ2000-F-L (C4, C6, C8)**

It is used for piping that extends upward or downward from the manifold. When installing it in part of the manifold stations, specify the assembly no., and the mounting position and number of stations by using the manifold specification sheet.

---

**2 stations matching fitting assembly**

**VQ2000-52A-C10**

For driving a cylinder with a large bore, valves for two stations are operated to double the flow rate. This assembly for the cylinder port is used in that case.

---

**Notes**

*When ordering assemblies incorporated with a manifold, add suffix “-B” to the manifold no.*

*When ordering assemblies incorporated with a manifold, add suffix “-N” to the manifold no.*

*When ordering assemblies incorporated with a manifold, add suffix “-D” to the manifold no.*

*When ordering a plug incorporated with a manifold, indicate “CM” for the port size in the manifold no., as well as, the mounting position and number of stations and cylinder port mounting positions, A and B, in the manifold specification sheet.*

---

**Silencer (For EXH port)**

This silencer is to be inserted into the EXH port (One-touch fittings) of the common exhaust type.

---

**Elbow fitting assembly**

**VQ2000-F-L (C4, C6, C8)**

It is used for piping that extends upward or downward from the manifold. When installing it in part of the manifold stations, specify the assembly no., and the mounting position and number of stations by using the manifold specification sheet.

---

**2 stations matching fitting assembly**

**VQ2000-52A-C10**

For driving a cylinder with a large bore, valves for two stations are operated to double the flow rate. This assembly for the cylinder port is used in that case.
**Manifold Option**

**Double check block (Separated type)**

**VQ2000-FPG-D□-□**

It is used on the outlet side piping to keep the cylinder in the intermediate position for a long time. Combining the double check block with a built-in pilot type double check valve and a 3 position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for a long time.

The combination with a 2 position single/double solenoid valve will prevent the dropping at the cylinder stroke end when the SUP residual pressure is released.

### Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. operating pressure</td>
<td>0.8 MPa</td>
</tr>
<tr>
<td>Min. operating pressure</td>
<td>0.15 MPa</td>
</tr>
<tr>
<td>Ambient and fluid temp.</td>
<td>-5 to 50°C</td>
</tr>
<tr>
<td>Flow characteristics: C</td>
<td>~3.0 dm³/re-cbar</td>
</tr>
<tr>
<td>Max. operating frequency</td>
<td>180 c.p.m.</td>
</tr>
</tbody>
</table>

### Dimensions

#### Single unit

#### Manifold

- **IN side port size**
- **OUT side port size**

#### How to Order

**Double check block**

**VQ2000-FPG-□□-□□**

### Option

- **N:** None
- **D:** DIN rail mounting style
- **F:** With bracket
- **N:** Name plate

**Note:** When two or more symbols are specified, indicate them alphabetically.

**Example:**

- **Drop prevention:** L1
- **Intermediate stops:** L2

### Caution

- Air leakage from the pipe between the valve and cylinder or from the fittings will prevent the cylinder from stopping for a long time. Check the leakage using neutral household detergent, such as dishwashing soap.
- Also check the cylinder’s tube gasket, piston packing and rod packing for air leakage.
- Since One-touch fittings allow slight air leakage, screw piping (with M5 thread) is recommended when stopping the cylinder in the middle for a long time.
- Combining double check block with 3 position closed center or pressure center solenoid valve will not work.
- If the exhaust of the double check block is throttled too much, the cylinder may not operate properly and may not stop immediately.
- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.
**Precautions 1**

**Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 2-9-2.**

---

### Light/Surge Voltage Suppressor

**Caution**

The lighting positions are concentrated on one side for both single solenoid type and double solenoid type. In the double solenoid type, A side and B side energization are indicated by two colors which match the colors of the manual overrides.

(DWG shows a VQ1000 case.)

---

### DC circuit diagram

**Single solenoid**

- Manual override: Orange
- Indicator light: Orange
- Single solenoid

**Double solenoid**

- Manual override: Orange
- Indicator light: A-Orange B-Green
- Stop diode
- Surge absorption diode
- Single solenoid
- Double solenoid

---

### Manual Override

**Warning**

Without an electric signal for the solenoid valve the manual override is used for switching the main valve.

Push type is standard. (Tool required)

Option: Locking type (Tool required/Manual)

- **Push type (Tool required)**
  - Push down on the manual override button with a small screwdriver until it stops. Release the screwdriver and the manual override will return.

- **Locking type (Tool required) <Option>**
  - Push down on the manual override button with a small screwdriver or with your fingers until it stops. Turn clockwise by 90° to lock it. Turn it counterclockwise to release it.

- **Locking type (Manual) <Option>**
  - Push down on the manual override button with a small screwdriver or with your fingers until it stops. Turn clockwise by 90° to lock it. Turn it counterclockwise to release it.

**Caution**

Do not apply excessive torque when turning the locking type manual override. (0.1 N·m or less)

---

### How to Mount/Remove Solenoid Valve

**Caution**

1. Loosen the clamp screw until it turns freely. (The screw is captive.)
2. Lift the coil side of the valve body while pressing down slightly on the screw head and remove it from the clamp bracket B. When the screw head cannot be pressed easily, gently press the area near the manual override of the valve.

**Mounting**

1. Press down on the clamp screw. → Clamp bracket A opens. Diagonally insert the hook on the valve end plate side into clamp B.
2. Press the valve body downward. (When the screw is released, it will be locked by clamp bracket A.)
3. Tighten the clamp screw. (Proper tightening torque: VQ1000, 0.25 to 0.35 N·m; VQ2000, 0.5 to 0.7 N·m.)

**Caution**

Dust on the sealing surface of the gasket or solenoid valve can cause air leakage.

---

### Replacement of Cylinder Port Fittings

**Caution**

The cylinder port fittings are a cassette for easy replacement.

The fittings are blocked by a clip inserted from the top of manifold. Remove the clip with a screwdriver to remove fittings.

For replacement, insert the fitting assembly until it strikes against the inside wall and then reinsert the clip to the specified position.

---

### Fitting assembly

**Applicable tubing O.D.**

<table>
<thead>
<tr>
<th></th>
<th>VQ1000</th>
<th>VQ2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable tubing ø3.2</td>
<td>VQ1000-50A-C3</td>
<td>—</td>
</tr>
<tr>
<td>Applicable tubing ø4</td>
<td>VQ1000-50A-C4</td>
<td>VQ1000-51A-C4</td>
</tr>
<tr>
<td>Applicable tubing ø6</td>
<td>VQ1000-50A-C6</td>
<td>VQ1000-51A-C6</td>
</tr>
<tr>
<td>Applicable tubing ø8</td>
<td>—</td>
<td>VQ1000-51A-C8</td>
</tr>
<tr>
<td>M5</td>
<td>VQ2000-50A-M5</td>
<td>—</td>
</tr>
</tbody>
</table>

*Refer to “Option” on pages 2-4-172 to 2-4-173 for other types of fittings.*

**Caution**

1. Use caution that O-rings must be free from scratches and dust. Otherwise, air leakage may result.
2. After screwing in the fittings, mount the M5 fitting assembly on the manifold base. (Tightening torque: 0.8 to 1.2 N·m)
3. Purchasing order is available in units of 10 pieces.
Precautions 2

Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 2-9-2.

Mounting/Removing from the DIN Rail

**Caution**

Removing
1. Loosen the clamp screw on side (a) of the end plate on both sides.
2. Lift side (a) of the manifold base and slide the end plate in the direction of (2) 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 side (a) of the end plate.
   The proper tightening torque for screws is 0.4 to 0.6 N·m.
```

Built-in Silencer Replacement Element

**Caution**

A silencer element is incorporated in the end plate on both sides of the A dirty and choked element may reduce cylinder speed or cause malfunction. Clean or replace the dirty element.

**Element Part No.**

<table>
<thead>
<tr>
<th>Type</th>
<th>Element part no.</th>
<th>VQ1000</th>
<th>VQ2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Built-in silencer, direct exhaust</td>
<td>VVQ1000-82A-1</td>
<td>VQ1000-82A-1</td>
<td>VVQ2000-82A-1</td>
</tr>
</tbody>
</table>

*The minimum order quantity is 10 pcs.*

Wires, cables, connectors, etc. used for models conforming to IP65 should also have enclosures equivalent to or of stricter than IP65.

Enclosure IP65

**Caution**

How to Calculate the Flow Rate

For obtaining the flow rate, refer to pages 2-1-8 to 2-1-11.
Option

Special Wiring Specifications

In the internal wiring of F kit, P kit, J kit, G kit, T kit and S kit, double wiring (connected to SOL. A and SOL. B) is adopted for each station regardless of the valve and option types. Mixed single and double wiring is available as an option.

1. How to Order
Indicate an option symbol “-K”, for the manifold no. and be sure to specify the mounting position and number of stations of the single and double wiring by means of the manifold specification sheet.

Example) VV5Q11-08C6FU1-DK S

Others, option symbols: to be indicated alphabetically.

2. Wiring specifications
With the A side solenoid of the 1st station as no.1 (meaning, to be connected to no.1 terminal), without making any terminals vacant.

3. Max. number of stations
The maximum number of stations depends upon the number of solenoids. Assuming one for a single and two for a double, determine the number of stations so that the total number is not more than the max. number given in the following table.

<table>
<thead>
<tr>
<th>Kit</th>
<th>F kit (D-sub connector)</th>
<th>P kit (Flat ribbon cable connector)</th>
<th>J kit (Flat ribbon cable connector)</th>
<th>G kit (Flat ribbon cable with terminal block)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>F Y/2 25P</td>
<td>P Y/2 B 26P</td>
<td>P Y/2 C 20P</td>
<td>P Y/2 A 16P</td>
</tr>
<tr>
<td>Max. points</td>
<td>24</td>
<td>14</td>
<td>24</td>
<td>18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Kit</th>
<th>T kit (Terminal block)</th>
<th>S kit (Serial transmission)</th>
<th>M kit (Circular connector)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>2 rows of terminal blocks</td>
<td>3 rows of terminal blocks</td>
<td>S</td>
</tr>
<tr>
<td>Max. points</td>
<td>16</td>
<td>24</td>
<td>M</td>
</tr>
</tbody>
</table>

Negative Common Specifications

Specify the valve model no. as shown below for negative COM specification. The manifold no. shown below is for the T and L kits. For other kits the standard manifold can be used. For negative COM S or G kit, please contact SMC.

VQ1100 N — 5

How to order negative COM manifold
T kit: VV5Q11 06 C6 T N N

L kit: VV5Q11 06 C6 L N 1 N

Electrical entry
Cable length
0 With cable (0.6 m)
1 With cable (1.5 m)
2 With cable (3 m)
External Pilot Specifications

When the supply air pressure is lower than the required minimum operating pressure (0.1 to 0.2 MPa) for the solenoid valve (or when the valve is used for vacuum), specify an external pilot model. Order a manifold or valve by suffixing the external pilot specification, “R”.

The X-port of the manifold base is equipped with One-touch fittings for external pilot.

VQ1000: C4 (One-touch fitting for ø4)
VQ2000: C6 (One-touch fitting for ø6)

How to order manifold

VV5Q11-08C6FU1-R S

Others, option symbols: to be indicated alphabetically.

How to order valves

VQ1100 R – 5

External pilot specifications

Note 1) When low wattage type is also desired, specify as “RY”.

Note 2) In this valve pilot exhaust is connected to the EA passage of the manifold. Therefore, it is not possible to supply air from EXH port, nor vacuum from ports other than SUP port.

Inch-size One-touch Fittings

The valve with inch-size One-touch fittings is shown below.

VV5Q11-06 N7 PS0 N

Stations

Option

Kit/Electrical entry

<table>
<thead>
<tr>
<th>Cylinder port</th>
<th>Symbol</th>
<th>N1</th>
<th>N3</th>
<th>N7</th>
<th>N9</th>
<th>MST</th>
<th>NM</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1/8&quot;</td>
<td>ø1/8&quot;</td>
<td>ø5/32&quot;</td>
<td>ø1/4&quot;</td>
<td>ø5/16&quot;</td>
<td>M5 thread</td>
<td>Mixed</td>
<td></td>
</tr>
<tr>
<td>VQ1000</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>—</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>VQ2000</td>
<td>—</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>—</td>
<td>●</td>
<td></td>
</tr>
</tbody>
</table>

Note: When inch-size fittings are selected for the cylinder port, use inch size fittings for both P and R port.

1) (P), 3) (R) port size

VQ1000 ....... ø5/16" (N9)
VQ2000 ....... ø3/8" (N11)
Option

DIN Rail Mounting

Each manifold can be mounted on a DIN rail. Order it by indicating a DIN rail mounting option symbol, "-D". In this case, a DIN rail which is approx. 30 mm longer than the manifold with the specified number of stations is attached.

- When DIN rail is unnecessary
  (DIN rail mounting brackets only are attached.)
  Indicate the option symbol, -DO, for the manifold no.

  Example)
  VV5Q11-08C6FU1-D0S
  Others, option symbols: to be indicated alphabetically.

- When using DIN rail longer than the manifold with specified number of stations
  Clearly indicate the necessary number of stations next to the option symbol "-D" for the manifold no.

  Example)
  VV5Q11-08C6FU1-D09S
  DIN rail for 9 stations
  Others, option symbols: to be indicated alphabetically.

- When changing the manifold style into a DIN rail mounting style.
  Order brackets for mounting a DIN rail. (Refer to "Option" on pages 2-4-168 and 2-4-173.)

  No. VVQ1000-57A (For VQ1000)
  VVQ2000-57A (For VQ2000)
  2 pcs. per one set.

- When ordering DIN rail only
  DIN rail no.: AXT100-DR-
  As for , specify the number from the DIN rail table.
  For L dimension, refer to the dimensions of each kit.

<table>
<thead>
<tr>
<th>No.</th>
<th>L dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12.5 x n + 10.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>L Dimension</th>
<th>L = 12.5 x n + 10.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>35.5</td>
</tr>
<tr>
<td>35.5</td>
<td>60.5</td>
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<td>510.5</td>
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