

# 5 Port Solenoid Valve

## VQ4000/5000 Series

Metal Seal

Rubber Seal

Installation volume

**42%** Reduction

Installation area

**26%** Reduction

- Compact and large flow capacity

**VQ4000** Possible to drive cylinders up to  $\varnothing 160^*$

**VQ5000** Possible to drive cylinders up to  $\varnothing 180^*$

\* When the average speed is 200 mm/s.  
Refer to page 448 for actual conditions.

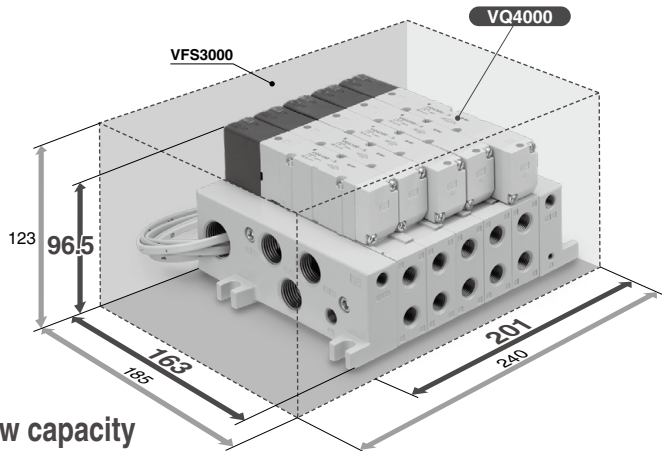
**VQ4000: 25 mm pitch**

$C[dm^3/(s\text{-bar})]: 7.3^*$

**VQ5000: 41 mm pitch**

$C[dm^3/(s\text{-bar})]: 17^*$

\* 2-position single, rubber seal, 4/2  $\rightarrow$  5/3 (A/B  $\rightarrow$  R1/R2)



- Power saving

|                 | Power consumption [W] | Maximum operating pressure [MPa] |
|-----------------|-----------------------|----------------------------------|
| <b>VQ</b>       | <b>0.4</b> (0.95)     | <b>1.0</b>                       |
| Current product | <b>0.5</b> (1.0)      | <b>0.7</b>                       |

\* Low wattage type ( ) : Standard

- Long service life

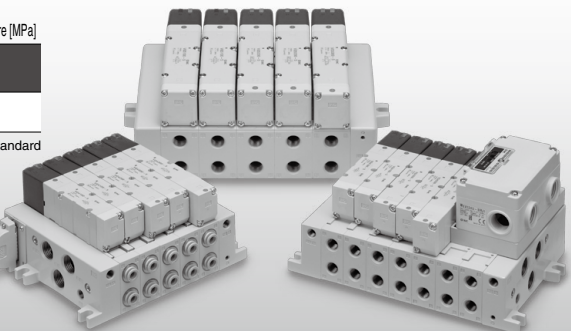
**100 million cycles**

\* According to SMC life test conditions

- Enclosure IP65 compliant  
Dust-tight/Water-jet-proof

\* When manifold is IP65 compliant.

\* Except F and T1 kits



SV  
SYJ  
SZ  
VF  
VP4  
VQ 1/2  
VQ 4/5  
VQC 1/2  
VQC 4/5  
VQZ  
SQ  
VFS  
VFR  
VQ7

# Base Mounted Type Variations



|                   |                           |                            |             | Valve Specifications  |     |                 |                    |           |                     |                                 |                   |        |        |               |                |                 |              |   |   |
|-------------------|---------------------------|----------------------------|-------------|---|-----|-----------------|--------------------|-----------|---------------------|---------------------------------|-------------------|--------|--------|---------------|----------------|-----------------|--------------|---|---|
|                   |                           |                            |             | Sonic conductance<br>C[dm³/(s·bar)]<br>{4/2 → 5/3<br>(A/B → EA/EB)} |     | Wiring          |                    |           |                     |                                 | Type of actuation |        |        |               |                |                 |              |   |   |
|                   |                           |                            |             |   |     | Plug-in         |                    |           |                     | Plug lead                       |                   |        |        |               |                |                 |              |   |   |
|                   |                           |                            |             |   |     | D-sub connector | Terminal block box | Lead wire | Serial transmission | With individual terminal blocks | Connector         | Single | Double | Closed center | Exhaust center | Pressure center | Double check |   |   |
| Single Double     |                           | 3-position (Closed center) |             |   |     |                 |                    |           | EX123/124           |                                 |                   |        |        |               |                |                 |              |   |   |
| Plug-in/Plug Lead | Series VQ4000<br>Page 450 |                            | Metal Seal  | VQ4□00  | 6.9 | 6.3             |                    |           |                     |                                 |                   |        |        |               |                |                 |              |   |   |
|                   |                           |                            | Rubber Seal | VQ4□01  | 7.3 | 6.4             | ●                  | ●         | ●                   | ●                               | —                 | ●      | ●      | ●             | ●              | ●               | ●            | ● | ● |
|                   | Series VQ5000<br>Page 492 |                            | Metal Seal  | VQ5□00  | 14  | 11              | ●                  | ●         | ●                   | ●                               | ●                 | ●      | ●      | ●             | ●              | ●               | ●            | ● |   |
|                   |                           |                            | Rubber Seal | VQ5□01  | 17  | 13              | ●                  | ●         | ●                   | ●                               | ●                 | ●      | ●      | ●             | ●              | ●               | ●            | ● | ● |

## Wiring

| Common wiring/Plug-in          |  |                             |
|--------------------------------|--|-----------------------------|
| <b>D-sub connector</b><br>     | <b>Terminal block box</b><br>                        | <b>Lead wire</b><br>        |
| IP65                           |  | IP65                        |
| Common wiring/Plug-in          |  | Individual wiring/Plug lead |
| <b>Serial transmission</b><br> | <b>With individual terminal blocks (VQ5000 only)</b> | <b>Connector</b><br>        |
| IP65                           |  | IP65                        |

|            |
|------------|
| SV         |
| SYJ        |
| SZ         |
| VF         |
| VP4        |
| VQ<br>1/2  |
| VQ<br>4/5  |
| VQC<br>1/2 |
| VQC<br>4/5 |
| VQZ        |
| SQ         |
| VFS        |
| VFR        |
| VQ7        |

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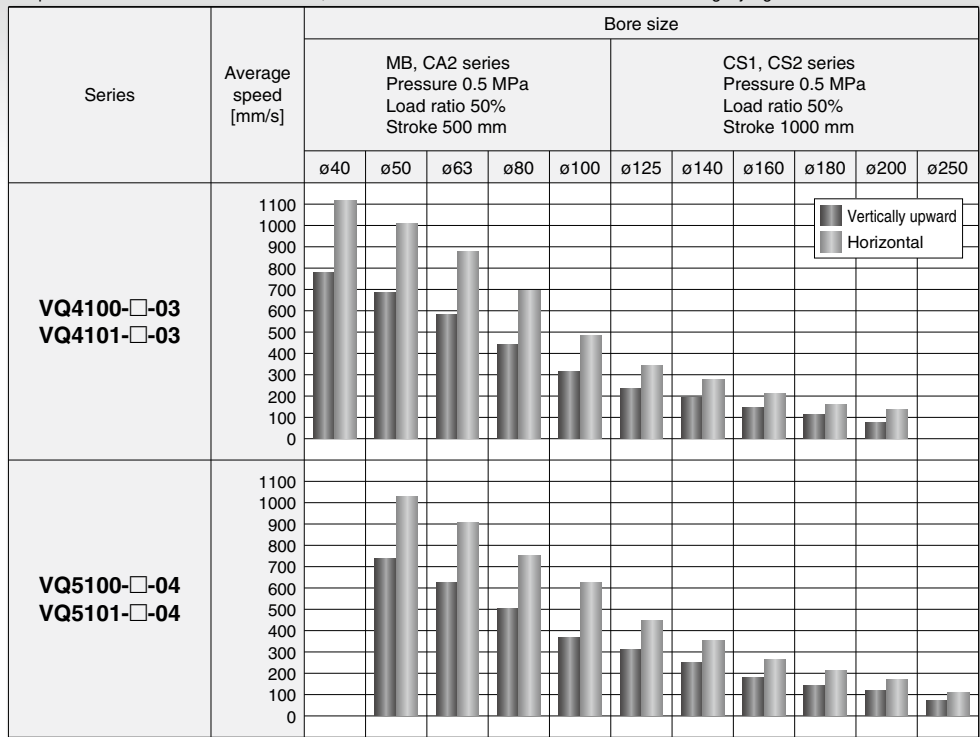
## Blanking plate

<Individual EXH spacer>

## Cylinder Speed Chart

This chart is provided as guidelines only.

For performance under various conditions, use SMC's Model Selection Software before making a judgment.



\* Values at extension of a directly coupled cylinder when meter-out speed controllers are used with the needle full open.

\* The average speed of the cylinder is obtained by dividing the stroke by the total stroke time.

\* The load ratio is obtained by the following formula:  $((\text{Load mass} \times 9.8) / \text{Theoretical output}) \times 100\%$

## Conditions

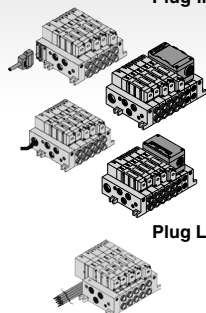
| Series                                   | Condition                      | MB, CA2 series | CS1, CS2 series |
|--|--------------------------------|----------------|-----------------|
| <b>VQ4100-□-03</b><br><b>VQ4101-□-03</b> | SGP (Steel pipe) dia. x Length | 10A x 1 m      |                 |
|  | Speed controller               | AS420-03       |                 |
|  | Silencer                       | AN30-03        |                 |
| <b>VQ5100-□-04</b><br><b>VQ5101-□-04</b> | SGP (Steel pipe) dia. x Length | 10A x 1 m      |                 |
|  | Speed controller               | AS420-04       |                 |
|  | Silencer                       | AN40-04        |                 |

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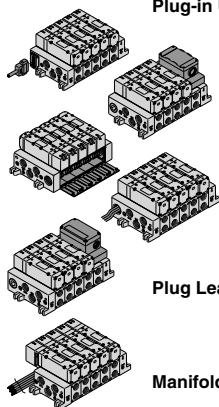
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|--|----------|

|         |
|---------|
| SV      |
| SYJ     |
| SZ      |
| VF      |
| VP4     |
| VQ 1/2  |
| VQ 4/5  |
| VQC 1/2 |
| VQC 4/5 |
| VQZ     |
| SQ      |
| VFS     |
| VFR     |
| VQ7     |

# Base Mounted

## Plug-in/Plug Lead: Single Unit

# VQ4000 Series



[Option]  
Note) CE-compliant:  
For DC only.

### Model

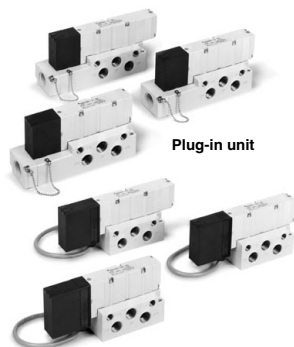
| Series | Configuration |                 | Model       |                                | Port size | Flow rate characteristics    |      |     |                              |      |     | Response time [ms]  |                            |    | Weight [kg]    |
|--------|---------------|-----------------|-------------|--------------------------------|-----------|------------------------------|------|-----|------------------------------|------|-----|---------------------|----------------------------|----|----------------|
|        |               |                 |             |                                |           | 1 → 4/2 (P → A/B)            |      |     | 4/2 → 5/3 (A/B → EA/EB)      |      |     | Standard:<br>0.95 W | Low wattage type:<br>0.4 W | AC |                |
|        |               |                 |             |                                |           | C [dm <sup>3</sup> /(s·bar)] | b    | Cv  | C [dm <sup>3</sup> /(s·bar)] | b    | Cv  |                     |                            |    |                |
| VQ4000 | 2-position    | Single          | Metal seal  | VQ41 <sup>0</sup> <sub>5</sub> | 3/8       | 6.2                          | 0.19 | 1.5 | 6.9                          | 0.17 | 1.7 | 20                  | 22                         | 22 | 0.23<br>(0.29) |
|        |               |                 | Rubber seal | VQ41 <sup>0</sup> <sub>1</sub> |           | 7.2                          | 0.43 | 2.1 | 7.3                          | 0.38 | 2.0 | 25                  | 27                         | 27 |                |
|        |               | Double          | Metal seal  | VQ42 <sup>0</sup> <sub>5</sub> |           | 6.2                          | 0.19 | 1.5 | 6.9                          | 0.17 | 1.7 | 12                  | 16                         | 14 | 0.26<br>(0.32) |
|        |               |                 | Rubber seal | VQ42 <sup>0</sup> <sub>1</sub> |           | 7.2                          | 0.43 | 2.1 | 7.3                          | 0.38 | 2.0 | 15                  | 17                         | 17 |                |
|        | 3-position    | Closed center   | Metal seal  | VQ43 <sup>0</sup> <sub>5</sub> |           | 5.9                          | 0.23 | 1.5 | 6.3                          | 0.18 | 1.6 | 45                  | 47                         | 47 | 0.28<br>(0.34) |
|        |               |                 | Rubber seal | VQ43 <sup>0</sup> <sub>1</sub> |           | 7.0                          | 0.34 | 1.9 | 6.4                          | 0.42 | 1.9 | 50                  | 52                         | 52 |                |
|        |               | Exhaust center  | Metal seal  | VQ44 <sup>0</sup> <sub>5</sub> |           | 6.2                          | 0.18 | 1.5 | 6.9                          | 0.17 | 1.7 | 45                  | 47                         | 47 | 0.28<br>(0.34) |
|        |               |                 | Rubber seal | VQ44 <sup>0</sup> <sub>1</sub> |           | 7.0                          | 0.38 | 1.9 | 7.3                          | 0.38 | 2.0 | 50                  | 52                         | 52 |                |
|        |               | Pressure center | Metal seal  | VQ45 <sup>0</sup> <sub>5</sub> |           | 6.2                          | 0.18 | 1.6 | 6.4                          | 0.18 | 1.6 | 45                  | 47                         | 47 | 0.28<br>(0.34) |
|        |               |                 | Rubber seal | VQ45 <sup>0</sup> <sub>1</sub> |           | 7.0                          | 0.38 | 1.9 | 7.1                          | 0.38 | 2.0 | 50                  | 52                         | 52 |                |
|        |               | Double check    | Metal seal  | VQ46 <sup>0</sup> <sub>5</sub> |           | 2.7                          | —    | —   | 3.7                          | —    | —   | 55                  | 57                         | 57 | 0.50<br>(0.56) |
|        |               |                 | Rubber seal | VQ46 <sup>0</sup> <sub>1</sub> |           | 2.8                          | —    | —   | 3.9                          | —    | —   | 62                  | 64                         | 64 |                |

Note 1) Value for valve on sub-plate and cylinder port 3/8

Note 2) Based on JIS B 8419: 2010. (Supply pressure: 0.5 MPa, with indicator light and surge voltage suppressor, clean air. This will change depending on pressure and air quality.) The value when ON for the double type.

Note 3) Values inside ( ) indicate the weight of plug lead units.

Table: Without sub-plate, With sub-plate: Add 0.41 kg for plug-in type, 0.30 kg for plug lead type.

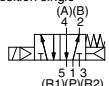


Plug-in unit

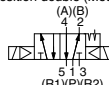
Plug lead unit

### Symbol

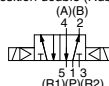
2-position single



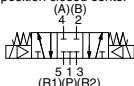
2-position double (Metal)



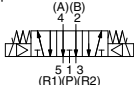
2-position double (Rubber)



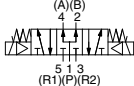
3-position closed center



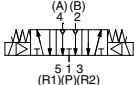
3-position exhaust center



3-position pressure center



3-position double check



### Standard Specifications

| Valve specifications      | Valve construction            |                       | Metal seal                                      | Rubber seal |
|---------------------------|-------------------------------|-----------------------|---|-------------|
|                           | Fluid                         |                       | Air/Inert gas                                   |             |
|                           | Max. operating pressure       | Standard (DC and AC)  | 1.0 MPa   |             |
|                           |                               | Low wattage type (DC) |   |             |
|                           | Min. operating pressure       | Single                | 0.15 MPa  | 0.20 MPa    |
|                           |                               | Double                | 0.15 MPa  | 0.15 MPa    |
|                           |                               | 3-position            | 0.15 MPa  | 0.20 MPa    |
|                           | Proof pressure                |                       | 1.5 MPa   |             |
|                           | Ambient and fluid temperature |                       | -10 to 50°C <sup>Note 1)</sup>                  |             |
|                           | Lubrication                   |                       | Not required                                    |             |
| Electrical specifications | Manual override               |                       | Push type/Locking type (Tool required)          |             |
|                           | Impact/Vibration resistance   |                       | 150/30 m/s <sup>2</sup> <sup>Note 2)</sup>      |             |
|                           | Enclosure                     |                       | Dust-tight (IP65 compatible) <sup>Note 3)</sup> |             |
|                           | Coil rated voltage            |                       | 12, 24 VDC, 100, 110, 200, 220 VAC (50/60 Hz)   |             |
|                           | Allowable voltage fluctuation |                       | ±10% of rated voltage                           |             |
|                           | Coil insulation type          |                       | Class B or equivalent                           |             |
| Electrical specifications | Power consumption [W]         | DC                    | Standard  | 0.95        |
|                           |                               |                       | Low wattage type                                | 0.4         |
|                           | Apparent power [VA]           | AC                    | 100 V   | 1.19        |
|                           |                               |                       | 110 V   | 1.32        |
|                           |                               |                       | 200 V   | 1.90        |
|                           |                               |                       | 220 V   | 2.08        |

Note 1) Use dry air to prevent condensation when operating at low temperatures.

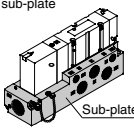
Note 2) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)

Vibration resistance: 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 3) Available only with T, L, S and C.

## How to Order Valves (Single Unit)

**0: Plug-in sub-plate**



Sub-plate

**Body**

**Port size**

|     |                                  |
|-----|----------------------------------|
| Nil | Without sub-plate (For manifold) |
| 02  | 1/4                              |
| 03  | 3/8                              |

**Enclosure**

|     |                                    |
|-----|------------------------------------|
| Nil | Dust-protected                     |
| W   | Dust-tight/ Water-jet-proof (IP65) |

**Thread type**

|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |

**CE-compliant**

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

(Note) CE-compliant: For DC only.

**Type of actuation**

|   |   |   |  |
|---|---|---|--|
| 1 | 2-position single<br>(A)(B)<br>           | 3 | 3-position closed center<br>(A)(B)<br>   |
|   | 2-position double<br>(A)(B)<br>           |   | 3-position exhaust center<br>(A)(B)<br>  |
| 2 | Metal<br>2-position double<br>(A)(B)<br>  | 4 | 3-position pressure center<br>(A)(B)<br> |
|   | Rubber<br>2-position double<br>(A)(B)<br> |   | 3-position double check<br>(A)(B)<br>    |
|   |   | 5 | 3-position double check<br>(A)(B)<br>    |

(Note) For double check type, refer to page 478.

**Porting specifications**

|     |               |
|-----|---------------|
| Nil | Side ported   |
| B   | Bottom ported |

**Manual override**

|  |                                     |                              |
|--|-------------------------------------|------------------------------|
| Nil: Non-locking push type (Tool required)<br> | B: Locking type (Tool required)<br> | C: Locking type (Manual)<br> |
|--|-------------------------------------|------------------------------|

**Light/Surge voltage suppressor**

|     |  |
|-----|--|
| Nil | Yes  |
| E   | Without light, with surge voltage suppressor |

**Electrical entry**

|         |                                 |
|---------|---------------------------------|
| Grommet | G<br>Lead wire length 0.6 m<br> |
|         | H<br>Lead wire length 1.5 m<br> |

**Coil voltage**

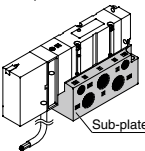
|   |                    |
|---|--------------------|
| 1 | 100 VAC (50/60 Hz) |
| 2 | 200 VAC (50/60 Hz) |
| 3 | 110 VAC (50/60 Hz) |
| 4 | 220 VAC (50/60 Hz) |
| 5 | 24 VDC             |
| 6 | 12 VDC             |

**Seal**

|   |             |
|---|-------------|
| 0 | Metal seal  |
| 1 | Rubber seal |

**Body**

**5: Plug lead sub-plate**



Sub-plate

## How to Order Sub-plates

**Electrical entry**

|   |                          |
|---|--------------------------|
| P | Plug-in conduit terminal |
| S | Plug lead                |

**CE-compliant**

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

**Enclosure**

|          |                            |
|----------|----------------------------|
| Nil      | Dust-protected             |
| W (Note) | Dust-tight/Water-jet-proof |

(Note) Not required for plug lead type.

**Thread type**

|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |

**Porting specifications**

|          |               |
|----------|---------------|
| Nil      | Side ported   |
| B (Note) | Bottom ported |

(Note) For bottom ported, port size is 1/4 only.

**Port size**

|    |     |
|----|-----|
| 02 | 1/4 |
| 03 | 3/8 |

**Replacement of pilot valve assembly (Voltage)**

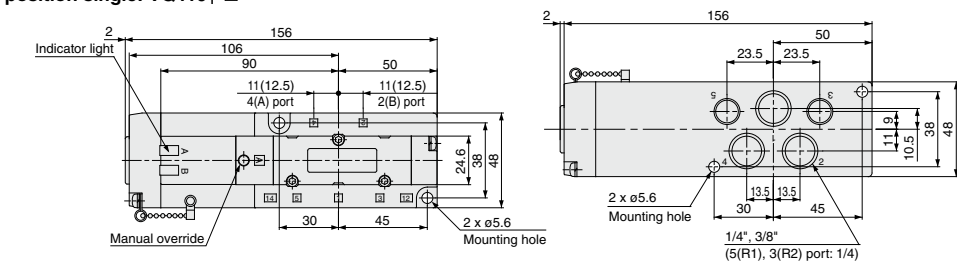
- Refer to pages 486 and 487 for pilot valve assembly part numbers.
- Refer to page 534 for replacement method.

# VQ4000 Series

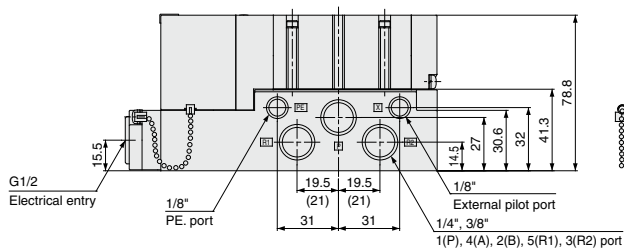
## Dimensions: Plug-in Type

### Conduit terminal

#### 2-position single: VQ410<sup>0</sup>-□



Bottom ported drawing



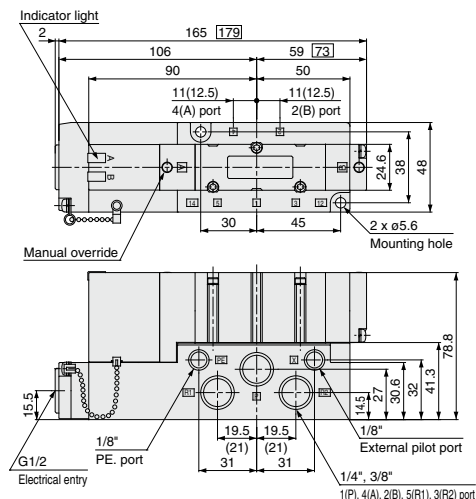
( ): Values for 3/8"

#### 2-position double: VQ420<sup>0</sup>-□

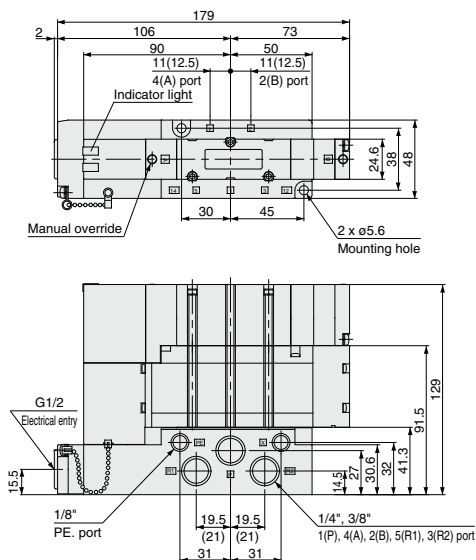
#### 3-position closed center: VQ430<sup>0</sup>-□

#### 3-position exhaust center: VQ440<sup>0</sup>-□

#### 3-position pressure center: VQ450<sup>0</sup>-□



#### 3-position double check: VQ460<sup>0</sup>-□

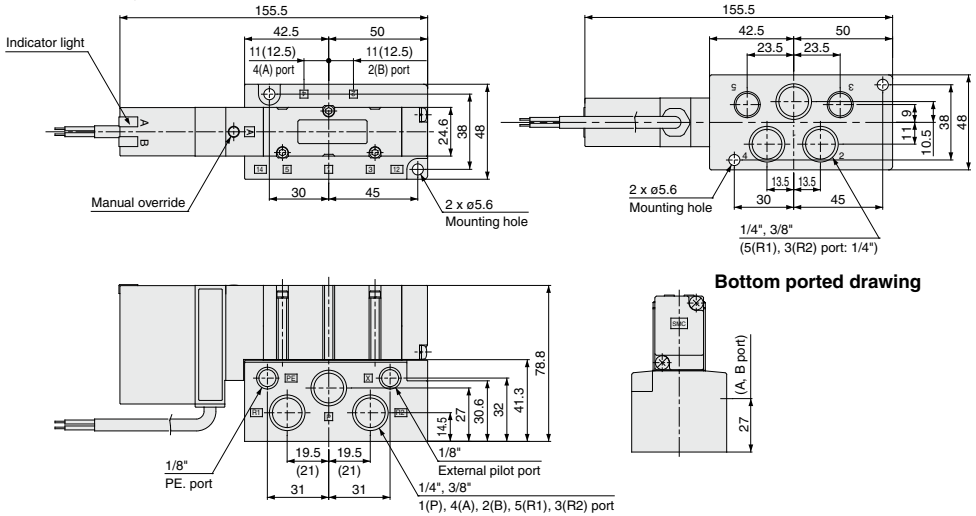


□: Values for 3-position  
( ): Values for 3/8"

## Dimensions: Plug Lead Type

### Grommet

#### 2-position single: VQ415<sup>0</sup>-□<sub>G</sub><sup>H</sup>

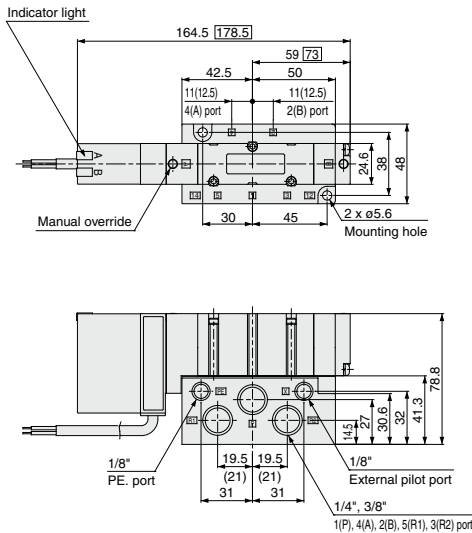


#### 2-position double: VQ425<sup>0</sup>-□<sub>G</sub><sup>H</sup>

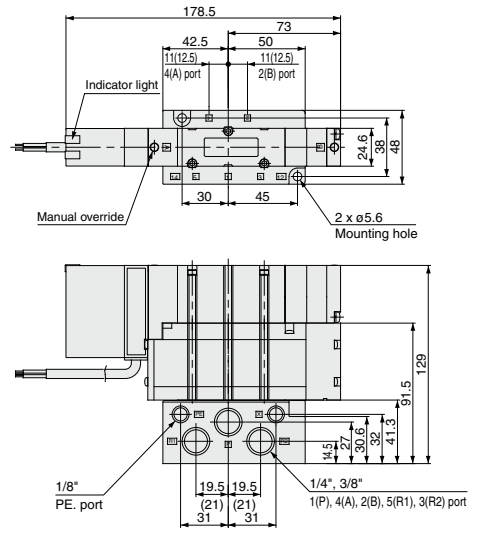
#### 3-position closed center: VQ435<sup>0</sup>-□<sub>G</sub><sup>H</sup>

#### 3-position exhaust center: VQ445<sup>0</sup>-□<sub>G</sub><sup>H</sup>

#### 3-position pressure center: VQ455<sup>1</sup>-□<sub>G</sub><sup>H</sup>



#### 3-position double check: VQ465<sup>0</sup>-□<sub>G</sub><sup>H</sup>



|         |
|---------|
| SV      |
| SYJ     |
| SZ      |
| VF      |
| VP4     |
| VQ 1/2  |
| VQ 4/5  |
| VQC 1/2 |
| VQC 4/5 |
| VQZ     |
| SQ      |
| VFS     |
| VFR     |
| VQ7     |

# Base Mounted Plug-in Unit VQ4000 Series



[Option]  
Note) CE-compliant:  
For DC only.

## How to Order Manifold

VV5Q 4 1 - 08 C8 F U1

Series  
4 VQ4000

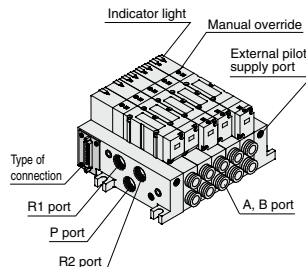
Manifold  
1 Plug-in unit

Stations  
01 1 station

The maximum and minimum number of stations are varied depending on kit. (Refer to the table below.)

### Cylinder port

|     |                          |
|-----|--------------------------|
| C6  | ø6 One-touch fitting     |
| C8  | ø8 One-touch fitting     |
| C10 | ø10 One-touch fitting    |
| C12 | ø12 One-touch fitting    |
| 02  | 1/4                      |
| 03  | 3/8                      |
| B   | Bottom ported 1/4        |
| CM  | Mixed                    |
| N7  | ø1/4" One-touch fitting  |
| N9  | ø5/16" One-touch fitting |
| N11 | ø3/8" One-touch fitting  |



Note) Figure shows VV5Q41-05C12FD0.

Thread type

|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |

### Kit type

Control unit  
Refer to pages 482 to 485.

CE-compliant

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

### Option

| Symbol     | Option  |
|------------|---|
| Nil        | None  |
| CD Note 2) | Exhaust cleaner: For D side mounting                                      |
| CU Note 2) | Exhaust cleaner: For U side mounting                                      |
| K Note 3)  | Special wiring specifications (Except double wiring)                      |
| N          | Name plate (T kit only)   |
| SB         | Direct exhaust with silencer box: Exhaust from both sides (F/L kits only) |
| SD Note 2) | Direct exhaust with silencer box: D side exhaust                          |
| SU Note 2) | Direct exhaust with silencer box: U side exhaust                          |
| W          | Enclosure IP65 (Except F kit)   |

Note 1) When multiple symbols are specified, indicate them alphabetically.  
Example) -CDK

Note 2) Combination of [C] and [S] is not possible. Also, exhaust cleaner is not attached. Please order it separately.

Note 3) Specify the wiring specifications on the manifold specification sheet. (Except L kit)

### Kit type/Electrical entry/Cable length

**F**

**Kit (D-sub connector)**

Connector entry direction

| D side        | U side        |                    |                  |
|---------------|---------------|--------------------|------------------|
| Kit <b>D0</b> | Kit <b>U0</b> | Without cable      |                  |
| <b>D1</b>     | <b>U1</b>     | Cable length 1.5 m | 1 to 16 stations |
| <b>D2</b>     | <b>U2</b>     | Cable length 3 m   |                  |
| <b>D3</b>     | <b>U3</b>     | Cable length 5 m   |                  |

**T**

**Kit (Terminal block box kit)**

Terminal block mounting position

D side U side

IP65 compatible

TD T0 Terminal block box 3 to 18 stations Note 1)

**L**

**Kit (Lead wire cable)**

Electrical entry

| D side        | U side        |                    |                  |
|---------------|---------------|--------------------|------------------|
| Kit <b>D0</b> | Kit <b>U0</b> | Cable length 0.6 m | 1 to 16 stations |
| <b>D1</b>     | <b>U1</b>     | Cable length 1.5 m |                  |
| <b>D2</b>     | <b>U2</b>     | Cable length 3 m   |                  |

IP65 compatible

**S**

**Kit (Serial transmission unit)**

The valve is equipped with a lamp/surge suppressor, and the voltage is 24 VDC.

IP65 compatible  
\* Applicable to INPUT and OUTPUT type.

Unit mounting position

D side U side

|    |    |  |                             |
|----|----|--|-----------------------------|
| SD | S  | 0 Without SI Unit                                | Note 1)<br>3 to 18 stations |
|    | H  | NKE Corp.: Fieldbus H System                     |                             |
|    | O  | DeviceNet  |                             |
|    | R1 | OMRON Corp.: CompoBusS System (16 output points) |                             |
|    | R2 | OMRON Corp.: CompoBusS System (16 output points) |                             |
|    | V  | CC-Link  |                             |

Simple specials are available with SMC Simple Special System.  
Please contact your local sales representative for more details.

Note 1) For the T kit and S kit, 2 stations are required to mount the terminal block box or SI Unit, so the minimum number of stations is 3 stations.  
Note 2) Refer to "SI Unit Part No." on page 468 when ordering the CE-compliant SI Unit.

## Manifold Specifications

| Series | Base model | Type of connection  | Porting specifications   |  |  | Maximum applicable stations   | Applicable valve | Weight [kg] (Formula)  |
|--------|------------|---|--------------------------|--|--|---|------------------|--|
|        |            |   | 4(A), 2(B) port location | Port size  |  |   |                  |  |
|        |            |   |                          | 1(P), 5(R1), 3(R2)                                   | 4(A), 2(B)   |   |                  |  |
| VQ4000 | VV5Q41-□□□ | ■ F kit–D-sub connector<br>■ T kit–Terminal block box<br>■ L kit–Lead wire<br>■ S kit–Serial transmission | Side                     | 1/2 Option<br><br>(Direct exhaust with silencer box) | C6 (For ø6)<br>C8 (For ø8)<br>C10 (For ø10)<br>C12 (For ø12)<br>1/4<br>3/8<br>N7 (For ø1/4")<br>N9 (For ø5/16")<br>N11 (For ø3/8") | F, T kit<br>18 stations<br><br>L kit<br>16 stations<br><br>S kit<br>18 stations | VQ4□00<br>VQ4□01 | F, L kit:<br>0.32n + 0.75<br>S, T kit:<br>0.32(n-2) + 1.8<br><br>• Not including valve weight. |
|        |            |   |                          |  | Bottom   |   |                  |  |

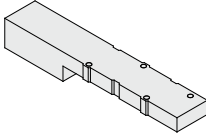
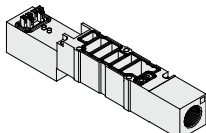
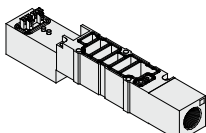
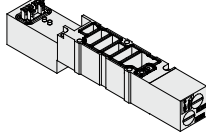
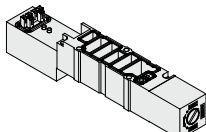
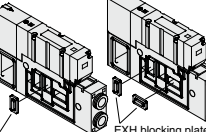
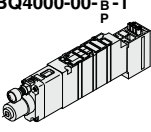
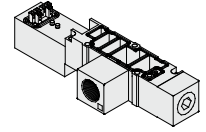
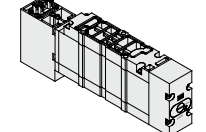
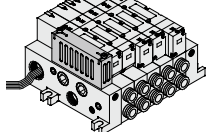
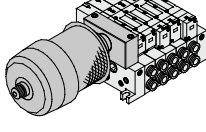
n: Stations

## Flow Rate Characteristics at the Number of Manifold Stations (Operated individually)

| Model   | Passage/Stations        |                              | Station 1 | Station 5 | Station 10 | Station 15 |
|---|-------------------------|------------------------------|-----------|-----------|------------|------------|
| 2-position metal seal<br>VQ4 <sub>2</sub> 00  | 1 → 4/2 (P → A/B)       | C [dm <sup>3</sup> /(s·bar)] | 5.9       | 5.9       | 5.9        | 5.9        |
|   |                         | b                            | 0.23      | 0.23      | 0.23       | 0.23       |
|   |                         | Cv                           | 1.5       | 1.5       | 1.5        | 1.5        |
|   | 4/2 → 5/3 (A/B → EA/EB) | C [dm <sup>3</sup> /(s·bar)] | 6.2       | 6.2       | 6.2        | 6.2        |
|   |                         | b                            | 0.19      | 0.19      | 0.19       | 0.19       |
|   |                         | Cv                           | 1.5       | 1.5       | 1.5        | 1.5        |
| 2-position rubber seal<br>VQ4 <sub>2</sub> 01 | 1 → 4/2 (P → A/B)       | C [dm <sup>3</sup> /(s·bar)] | 6.8       | 6.8       | 6.8        | 6.8        |
|   |                         | b                            | 0.31      | 0.31      | 0.31       | 0.31       |
|   |                         | Cv                           | 1.8       | 1.8       | 1.8        | 1.8        |
|   | 4/2 → 5/3 (A/B → EA/EB) | C [dm <sup>3</sup> /(s·bar)] | 7.0       | 7.0       | 7.0        | 7.0        |
|   |                         | b                            | 0.38      | 0.38      | 0.38       | 0.38       |
|   |                         | Cv                           | 1.9       | 1.9       | 1.9        | 1.9        |

Note) Port size: 3/8

## Manifold Options

|   |   |   |   |
|---|---|---|---|
| <b>Blanking plate assembly</b><br><b>VVQ4000-10A-1</b><br>   | <b>Individual SUP spacer</b><br><b>VVQ4000-P-1-<sup>02</sup><sub>03</sub></b><br>               | <b>Individual EXH spacer</b><br><b>VVQ4000-R-1-<sup>02</sup><sub>03</sub></b><br> | <ul style="list-style-type: none"> <li>• Refer to pages 476 to 480 for detailed dimensions of each option.</li> <li>• For replacement parts, refer to page 489.</li> <li>• Refer to pages 482 to 485 for control unit.</li> </ul> |
| <b>Restrictor spacer</b><br><b>VVQ4000-20A-1</b><br>  | <b>SUP stop valve spacer</b><br><b>VVQ4000-37A-1</b><br>                                       | <b>SUP/EXH block plate</b><br><b>VVQ4000-16A (1 pc./set)</b><br>                 | <b>Interface regulator</b><br><b>(P, A, B port regulation)</b><br><b>ARBQ4000-00-<sup>A</sup><sub>B-1</sub><sub>P</sub></b><br>                |
| <b>Release valve spacer:</b><br><b>For D side mounting</b><br><b>VVQ4000-24A-1D</b> (Note 1) 2)<br> | <b>Double check spacer with residual pressure exhaust</b><br><b>VVQ4000-25A-1</b> (Note 1)<br> | <b>Direct exhaust with silencer box</b><br><b>[S-D<sub>U</sub>]</b><br>          | <b>Manifold mounted exhaust cleaner</b><br><b>[C-D<sub>U</sub>]</b><br>   |

Note 1) Release valve spacer and double check spacer with residual pressure exhaust cannot be combined with external pilot.

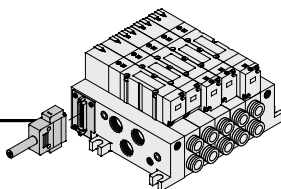
Note 2) Can be mounted on L kit only. For other kits, order E type control unit.

(Refer to pages 482 to 485.)

# VQ4000 Series

**F**

Kit (D-sub connector kit)



- Simplification and labor savings for wiring work can be achieved by using a D-sub connector for the electrical connection.
- Using connector for flat ribbon cable (25P) conforming to MIL standard permits the use of connectors put on the market and gives a wide interchangeability.
- Connector entry can be selected on either the U side or the D side according to the mounting orientation.
- Maximum stations are 18.

## Manifold Specifications

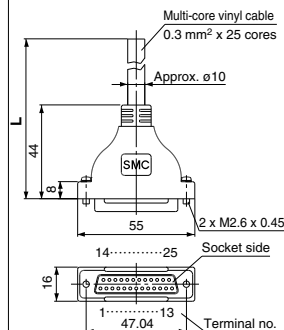
| Series |        | Porting specifications      |  | Applicable stations |
|--------|--------|-----------------------------|--|---------------------|
|        |        | 4(A), 2(B)<br>port location | Port size  |                     |
|        |        | 1(P), 5(R1), 3(R2)          | 4(A), 2(B)                                       |                     |
| VQ4000 | Side   | 1/2                         | C6, C8,<br>C10, C12,<br>1/4, 3/8, N7,<br>N9, N11 | Max. 18<br>stations |
|        | Bottom |                             | 1/4  |                     |

## D-Sub Connector Kit (25 pins)

Cable assembly ●

015  
AXT100-DS25-030  
050

(D-sub connector cable assemblies can be ordered by with manifolds.)  
(Refer to How to Order Manifold.)



### D-sub Connector Cable Assembly

| Cable length [L] | Assembly part no. | Note          |
|------------------|-------------------|---------------|
| 1.5 m            | AXT100-DS25-015   | Cable 0.3 mm² |
| 3 m              | AXT100-DS25-030   | x 25 cores    |
| 5 m              | AXT100-DS25-050   |               |

\* For other commercial connectors, use a 25-pin type female connector conforming to MIL-C-24308.  
\* Cannot be used for transfer wiring.

### Connector Manufacturers Example

- Fujitsu, Limited
- Japan Aviation Electronics Industry, Limited
- J.S.T. Mfg. Co., Ltd.
- HIROSE ELECTRIC CO., LTD.

### Electric Characteristics

| Item                  | Characteristics          |
|-----------------------|--------------------------|
| Conductor resistance  | 65 or less<br>Ω/km, 20°C |
| Voltage limit         | 1000<br>VAC, 1 min.      |
| Insulation resistance | 5 or more<br>MΩ/km, 20°C |

Note) The minimum bending radius for D-sub connector cables is 20 mm.

### D-sub Connector Cable Assembly Terminal No.

| Terminal no. | Lead wire color | Dot marking |
|--------------|-----------------|-------------|
| 1            | Black           | None        |
| 2            | Brown           | None        |
| 3            | Red             | None        |
| 4            | Orange          | None        |
| 5            | Yellow          | None        |
| 6            | Pink            | None        |
| 7            | Blue            | None        |
| 8            | Purple          | White       |
| 9            | Gray            | Black       |
| 10           | White           | Black       |
| 11           | White           | Red         |
| 12           | Yellow          | Red         |
| 13           | Orange          | Red         |
| 14           | Yellow          | Black       |
| 15           | Pink            | Black       |
| 16           | Blue            | White       |
| 17           | Purple          | None        |
| 18           | Gray            | None        |
| 19           | Orange          | Black       |
| 20           | Red             | White       |
| 21           | Brown           | White       |
| 22           | Pink            | Red         |
| 23           | Gray            | Red         |
| 24           | Black           | White       |
| 25           | White           | None        |

Note) Lengths other than the above are also available. Please contact SMC for details.

## How to Order Manifold

CE  
(Option)

**VV5Q 4 1 - 08 C8 F U 1 - -**

**Series**  
4 VQ4000

**Manifold**  
1 Plug-in unit

**Stations**  
01 1 station  
18 18 stations

**Cylinder port**  
C6 ø6 One-touch fitting  
C8 ø8 One-touch fitting  
C10 ø10 One-touch fitting  
C12 ø12 One-touch fitting  
02 1/4  
03 3/8  
B Bottom ported 1/4  
CM Mixed  
N7 ø1/4" One-touch fitting  
N9 ø5/16" One-touch fitting  
N11 ø3/8" One-touch fitting

**Thread type**  
Nil Rc  
F G  
N NPT  
T NPTF

**Connector entry direction**  
D D side entry  
U U side entry

**Cable (Length)**  
0 Without cable  
1 Cable length 1.5 m  
2 Cable length 3 m  
3 Cable length 5 m

**CE-compliant**  
Nil —  
Q CE-compliant

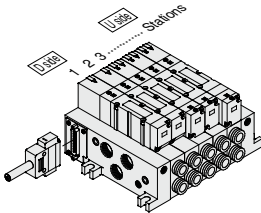
**Option**

| Symbol      | Option  |
|-------------|---|
| Nil         | None  |
| CD (Note 2) | Exhaust cleaner: For D side mounting                      |
| CU (Note 2) | Exhaust cleaner: For U side mounting                      |
| K (Note 3)  | Special wiring specifications (Except double wiring)      |
| SB          | Direct exhaust with silencer box: Exhaust from both sides |
| SD (Note 2) | Direct exhaust with silencer box: D side exhaust          |
| SU (Note 2) | Direct exhaust with silencer box: U side exhaust          |

Note 1) When multiple symbols are specified, indicate them alphabetically.  
Example) -CDK  
Note 2) Combination of [CD] and [SU] is not possible.  
Note 3) Specify the wiring specifications on the manifold specification sheet.  
Note 4) Refer to pages 482 to 485 for with control unit.

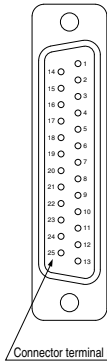
Note) As a semi-standard specification, the maximum number of stations can be increased by special wiring specifications. For details, refer to page 457.

## ● Electrical wiring specifications



Stations are counted starting from the first station on the D side.

### D-sub connector



Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types. Mixed single and double wiring is available as a semi-standard specification. For details, refer to below.

Note) There is no polarity.  
It can also be used as a negative common.

### Standard wiring

| Terminal no.            | Terminal no.           |
|-------------------------|------------------------|
| 1 station { SOL.A 1     | Release valve 1 (-)    |
| SOL.B -14               | Pressure switch 14 (+) |
| 2 stations { SOL.A 2    | 2 (-)                  |
| SOL.B -15               | 15 (+)                 |
| 3 stations { SOL.A 3    | 3 (-)                  |
| SOL.A -16               | 16 (+)                 |
| 4 stations { SOL.A 4    | 4 (-)                  |
| SOL.B -17               | 17 (+)                 |
| 5 stations { SOL.A 5    | 5 (-)                  |
| SOL.B -18               | 18 (+)                 |
| 6 stations { SOL.A 6    | 6 (-)                  |
| SOL.B -19               | 19 (+)                 |
| 7 stations { SOL.A 7    | 7 (-)                  |
| SOL.B -20               | 20 (+)                 |
| 8 stations { SOL.A 8    | 8 (-)                  |
| SOL.A -21               | 21 (+)                 |
| 9 stations { SOL.A 9    | 9 (-)                  |
| SOL.B -22               | 22 (+)                 |
| 10 stations { SOL.A -10 | 10 (-)                 |
| SOL.B -23               | 23 (+)                 |
| 11 stations { SOL.A -11 | 11 (-)                 |
| SOL.B -24               | 24 (+)                 |
| 12 stations { SOL.A -12 | 12 (-)                 |
| SOL.B -25               | 25 (+)                 |
| COM. -13                | 13 (+)                 |

### D-sub connector assembly

| Terminal no. | Polarity | Lead wire color | Dot marking |
|--------------|----------|-----------------|-------------|
| 1 (-)        | (+)      | Black           | None        |
| 14 (+)       | (-)      | Yellow          | Black       |
| 2 (-)        | (+)      | Brown           | None        |
| 15 (+)       | (-)      | Pink            | Black       |
| 3 (-)        | (+)      | Red             | None        |
| 16 (+)       | (+)      | Blue            | White       |
| 4 (-)        | (+)      | Orange          | None        |
| 17 (+)       | (+)      | Purple          | None        |
| 5 (-)        | (+)      | Yellow          | None        |
| 18 (+)       | (+)      | Gray            | None        |
| 6 (-)        | (+)      | Pink            | None        |
| 19 (+)       | (+)      | Orange          | Black       |
| 7 (-)        | (+)      | Blue            | None        |
| 20 (+)       | (+)      | Red             | White       |
| 8 (-)        | (+)      | Purple          | White       |
| 21 (+)       | (+)      | Brown           | White       |
| 9 (-)        | (+)      | Gray            | Black       |
| 22 (+)       | (+)      | Pink            | Red         |
| 10 (-)       | (+)      | White           | Black       |
| 23 (+)       | (+)      | Gray            | Red         |
| 11 (-)       | (+)      | White           | Red         |
| 24 (+)       | (+)      | Black           | White       |
| 12 (-)       | (+)      | Yellow          | Red         |
| 25 (+)       | (+)      | White           | None        |
| 13 (+)       | (-)      | Orange          | Red         |

Positive common specifications

Negative common specifications

## Special Wiring Specifications

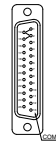
Double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types. Mixed single and double wiring is available as a semi-standard specification.

### 1. How to Order

Indicate option symbol "K" in the manifold part number and be sure to specify station positions for single or double wiring on the manifold specification sheet.

### 2. Wiring specifications

Connections begin with the A side solenoid of the first station being connected to terminal no. 1, and continue in the order indicated by the arrows in the drawing without skipping any terminals. Maximum stations are 18.



D-sub connector

## How to Order Valves

VQ 4 1 0 0 - 5 1 -

**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 |
| 6 | 3-position double check    |

**Seal**

|   |             |
|---|-------------|
| 0 | Metal seal  |
| 1 | Rubber seal |

**Series**

|   |        |
|---|--------|
| 4 | VQ4000 |
|---|--------|

**Manual override**

|     |                                       |
|-----|---------------------------------------|
| NII | Non-locking push type (Tool required) |
| B   | Locking type (Tool required)          |
| C   | Locking type (Manual)                 |

**Light/Surge voltage suppressor**

|     |  |
|-----|--|
| NII | Yes  |
| E   | Without light, with surge voltage suppressor |

**Coil voltage**

|   |                    |
|---|--------------------|
| 1 | 100 VAC (50/60 Hz) |
| 2 | 200 VAC (50/60 Hz) |
| 3 | 110 VAC (50/60 Hz) |
| 4 | 220 VAC (50/60 Hz) |
| 5 | 24 VDC             |
| 6 | 12 VDC             |

**CE-compliant**

|     |              |
|-----|--------------|
| NII | —            |
| Q   | CE-compliant |

Note) CE-compliant: For DC only.

Note 1) When the unit is energized continuously, refer to "Specific Product Precautions 1" on page 533.  
Note 2) In addition, only DC is available with Y.  
Note 3) For external pilot specifications, refer to page 481. Combination of external pilot and perfect interface is not possible.  
Note 4) When multiple symbols are specified, indicate them alphabetically.

## How to Order Manifold Assembly

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

### <Example>

D-sub connector kit with cable (3 m)

VV5Q41-05C8FD2(-Q)-1 set—Manifold base part no.

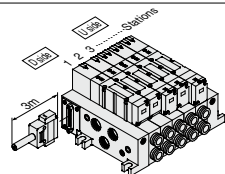
\*VQ4100-51(-Q).....2 sets—Valve part no. (Stations 1 and 2)

\*VQ4200-51(-Q).....2 sets—Valve part no. (Stations 3 and 4)

\*VQ4300-51(-Q).....1 set—Valve part no. (Station 5)

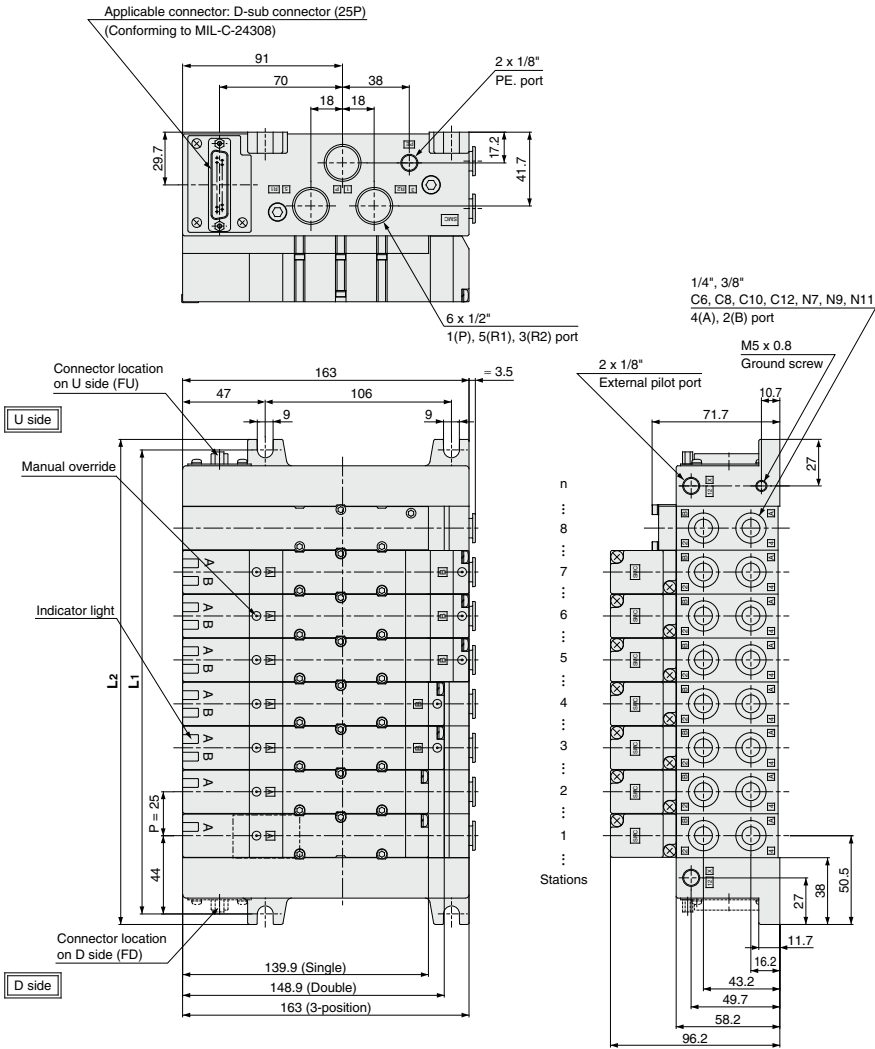
Prefix the asterisk to the part nos. of the valve etc.

Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.

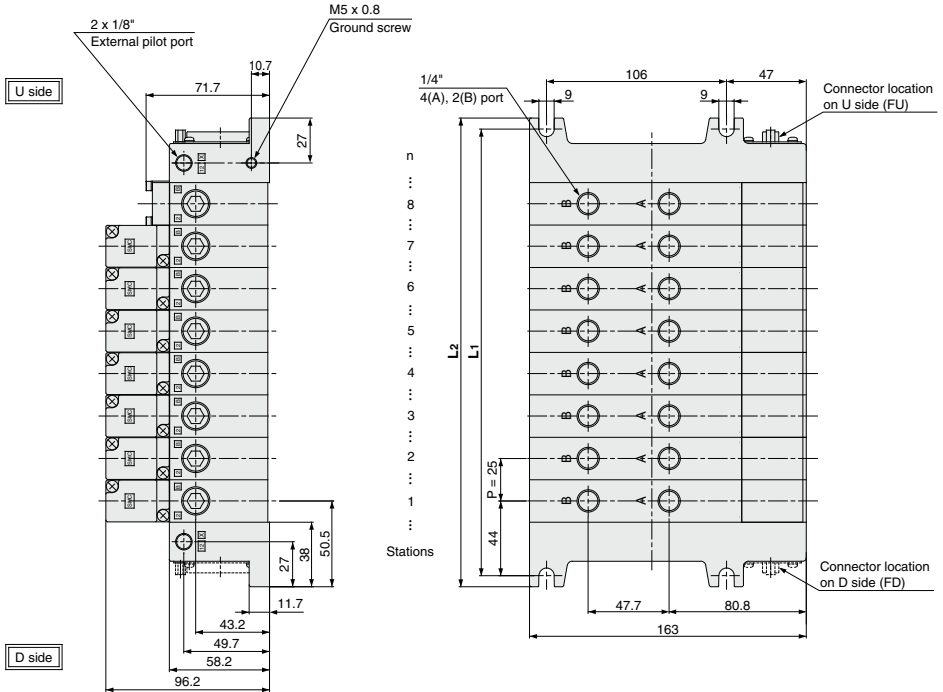


# VQ4000 Series

## F Kit (D-sub connector kit)



Bottom ported drawing



Dimensions

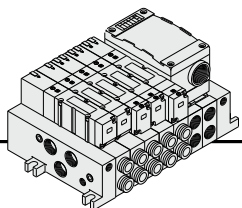
Formula:  $L_1 = 25n + 63$ ,  $L_2 = 25n + 76$  n: Stations (Maximum standard 18 stations)

| n              | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L <sub>1</sub> | 88  | 113 | 138 | 163 | 188 | 213 | 238 | 263 | 288 | 313 | 338 | 363 | 388 | 413 | 438 | 463 | 488 | 513 |
| L <sub>2</sub> | 101 | 126 | 151 | 176 | 201 | 226 | 251 | 276 | 301 | 326 | 351 | 376 | 401 | 426 | 451 | 476 | 501 | 526 |

# VQ4000 Series

**T** Kit (Terminal block box kit)

IP65 compliant



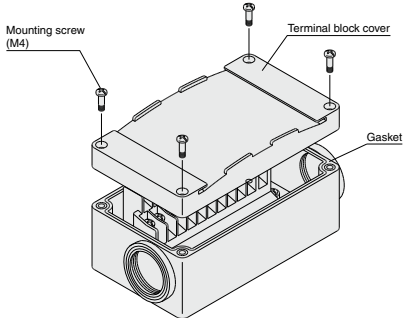
- Enclosure IP65 compliant
- This type has a small terminal block inside a junction box. The provision of a G3/4 electrical entry allows connection of conduit fittings.
- Maximum stations are 18.
- 2 stations are used for terminal box mounting.

## Manifold Specifications

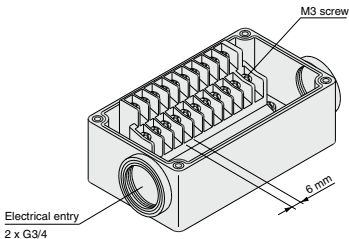
| Series | 4(A), 2(B)<br>port location | Porting specifications |  | Applicable<br>stations |
|--------|-----------------------------|------------------------|--|------------------------|
|        |                             | 1(P), 5(R1), 3(R2)     | Port size<br>4(A), 2(B)                          |                        |
| VQ4000 | Side                        | 1/2                    | C6, C8,<br>C10, C12,<br>1/4, 3/8, N7,<br>N9, N11 | Max. 18<br>stations    |
|        | Bottom                      |                        | 1/4  |                        |

## Terminal Block Connections

**Step 1. How to remove terminal block cover**  
Loosen the 4 mounting screws (M4) and open the terminal block cover.



**Step 2. The diagram on the right shows the terminal block wiring. All stations are provided with double wiring regardless of the valves which are mounted.**  
Connect each wire to the power supply side, according to the markings provided inside the terminal block.



**Step 3. How to attach the terminal block cover**  
Securely tighten the screws with the torque shown in the table below, after confirming that the gasket is installed correctly.

| Proper tightening torque [N·m] |
|--------------------------------|
| 0.7 to 1.2                     |

- Applicable terminal: 1.25-3S, 1.25Y-3, 1.25Y-3N, 1.25Y-3.5
- Name plate: VVQ5000-N-T
- Drip proof plug assembly (for G3/4): AXT100-B06A



## How to Order Manifold

**VV5Q 4 1 - 08 C8 T 0 - -**

**Series**  
4 VQ4000

**Manifold**  
1 Plug-in unit

**Stations**  
03 3 stations  
18 18 stations

**Cylinder port**  
C6 ø6 One-touch fitting  
C8 ø8 One-touch fitting  
C10 ø10 One-touch fitting  
C12 ø12 One-touch fitting  
02 1/4  
03 3/8  
B Bottom ported 1/4  
CM Mixed  
N7 ø1/4" One-touch fitting  
N9 ø5/16" One-touch fitting  
N11 ø3/8" One-touch fitting

**Box mounting position**  
0 U side mounting  
D D side mounting

**Thread type**  
Nil Rc  
F G  
N NPT  
T NPTF

**CE-compliant**  
Nil —  
Q CE-compliant

**Option**

| Symbol     | Option  |
|------------|---|
| Nil        | None  |
| CD Note 2) | Exhaust cleaner: D side exhaust   |
| CU Note 2) | Exhaust cleaner: U side exhaust   |
| K Note 3)  | Special wiring specifications (Except double wiring, 13 stations or more) |
| N Note 4)  | Name plate  |
| SD Note 2) | Direct exhaust with silencer box: D side exhaust                          |
| SU Note 2) | Direct exhaust with silencer box: U side exhaust                          |
| W          | IP65 enclosure  |

Note) 1) When multiple symbols are specified, indicate them alphabetically.  
Example) -CDK

Note 2) Combination of [CD] and [SD] is not possible.

Note 3) Specify the wiring specifications on the manifold specification sheet.

Note 4) Name plate is inlaid in the terminal block cover.

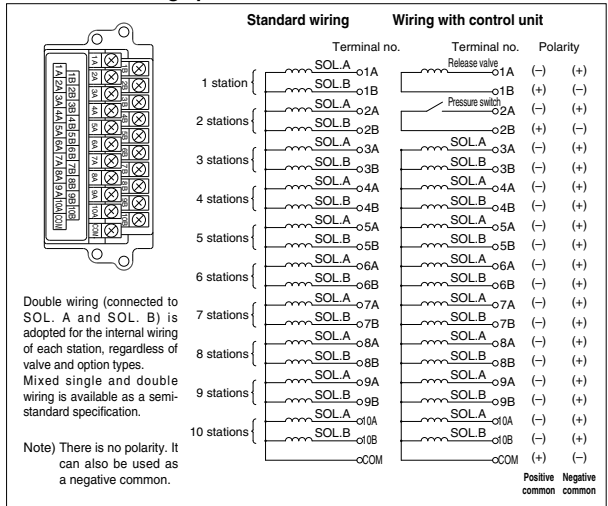
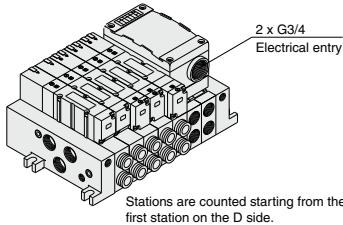
Note 5) Refer to pages 482 to 485 for with control unit.

Note) 2 stations are used for mounting the terminal block box. The number of stations is the number of manifold valves plus 2 stations for the terminal block box. For 13 stations or more, specify the wiring specifications by means of the manifold specification sheet.

Note) As a semi-standard specification, the maximum number of stations can be increased by special wiring specifications. For details, refer to page 461.



## Electrical wiring specifications



## Special Wiring Specifications

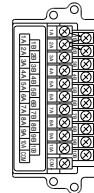
Double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types. Mixed single and double wiring is available as a semi-standard specification. However, the maximum number of stations is 16.

### 1. How to Order

Indicate option symbol "K" in the manifold part number and be sure to specify station positions for single or double wiring on the manifold specification sheet.

### 2. Wiring specifications

Connections begin with the A side solenoid of the first station being connected to terminal no. 1, and continue in the order indicated by the arrows in the drawing without skipping any terminals.



## How to Order Valves

VQ 4 1 0 0 - 5 1 -

**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 |
| 6 | 3-position double check    |

**Seal**

|   |             |
|---|-------------|
| 0 | Metal seal  |
| 1 | Rubber seal |

**Series**

|   |        |
|---|--------|
| 4 | VQ4000 |
|---|--------|

**Function**

|     |                          |
|-----|--------------------------|
| Nil | Standard (0.95 W)        |
| Y   | Low wattage type (0.4 W) |
| R   | External pilot           |

**CE-compliant**

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

Note) CE-compliant: For DC only.

**Enclosure**

|     |                                    |
|-----|------------------------------------|
| Nil | Dust-protected                     |
| W   | Dust-tight/ Water-jet-proof (IP65) |

**Manual override**

|     |                                       |
|-----|---------------------------------------|
| Nil | Non-locking push type (Tool required) |
| B   | Locking type (Tool required)          |
| C   | Locking type (Manual)                 |

**Light/Surge voltage suppressor**

|     |  |
|-----|--|
| Nil | Yes  |
| E   | Without light, with surge voltage suppressor |

Note 1) When the unit is energized continuously, refer to "Specific Product Precautions 1" on page 533.

Note 2) In addition, only DC is available with Y.

Note 3) For external pilot specifications, refer to page 481. Combination of external pilot and perfect interface is not possible.

Note 4) When multiple symbols are specified, indicate them alphabetically.

### Coil voltage

|   |                    |
|---|--------------------|
| 1 | 100 VAC (50/60 Hz) |
| 2 | 200 VAC (50/60 Hz) |
| 3 | 110 VAC (50/60 Hz) |
| 4 | 220 VAC (50/60 Hz) |
| 5 | 24 VDC             |
| 6 | 12 VDC             |



[Option]

## How to Order Manifold Assembly

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

### <Example>

Terminal block box kit

VV5Q41-07C8T0(-Q)-1 set—Manifold base part no.

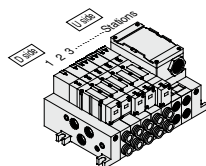
\*VQ4100-51(-Q).....2 sets—Valve part no. (Stations 1 and 2)

\*VQ4200-51(-Q).....2 sets—Valve part no. (Stations 3 and 4)

\*VQ4300-51(-Q).....1 set—Valve part no. (Station 5)

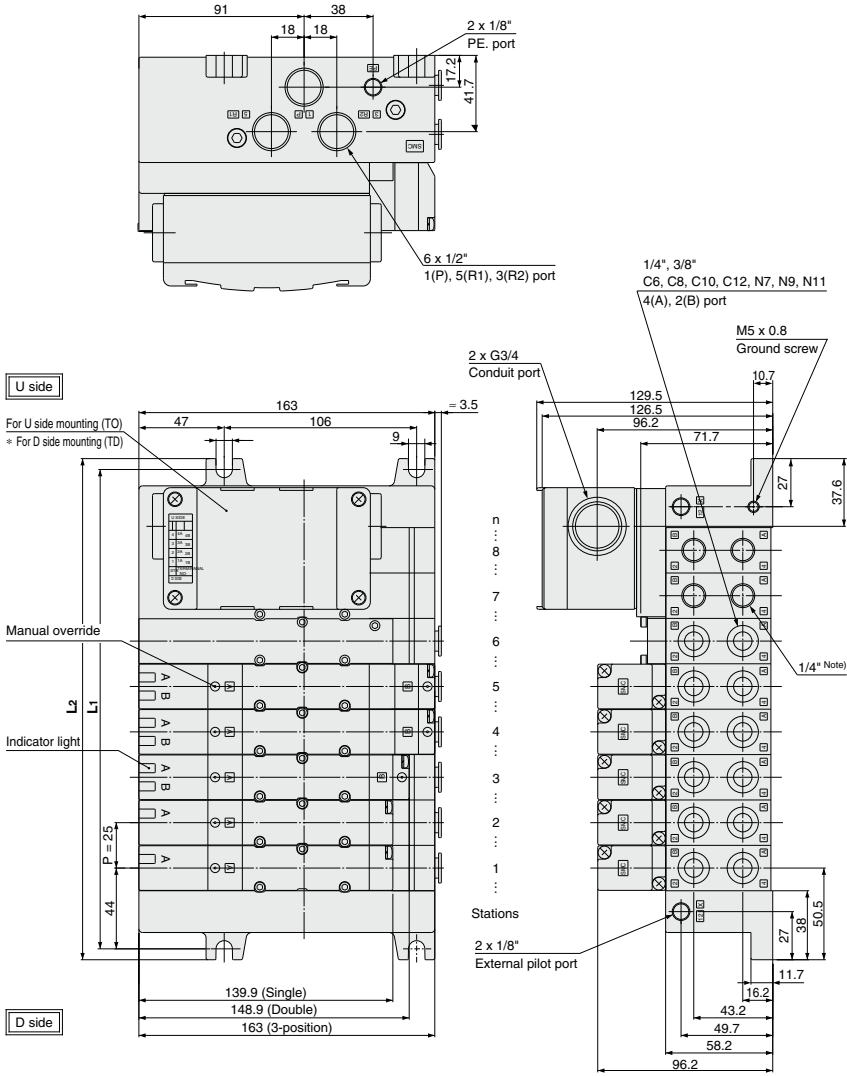
Prefix the asterisk to the part nos. of the valve etc.

Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



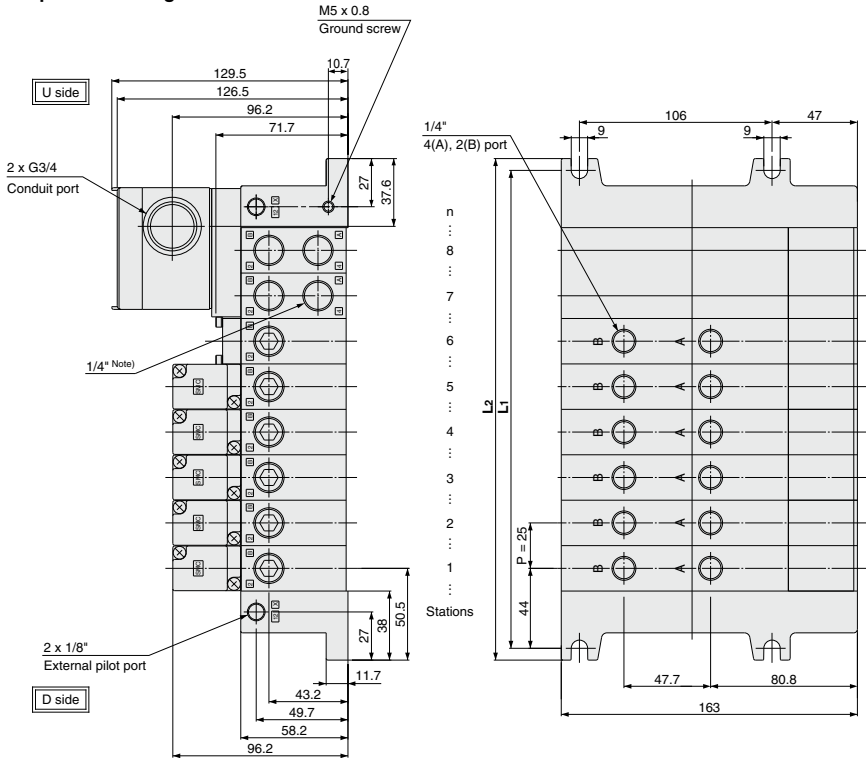
# VQ4000 Series

## T Kit (Terminal block box kit)



Shown VV5Q41-08C12TO-W.  
 Note) 4(A) and 2(B) port at the bottom of the terminal block box are 1/4".

**Bottom ported drawing**



Note) 4(A) and 2(B) port at the bottom of the terminal block box are 1/4\".

|         |
|---------|
| SV      |
| SYJ     |
| SZ      |
| VF      |
| VP4     |
| VQ 1/2  |
| VQ 4/5  |
| VQC 1/2 |
| VQC 4/5 |
| VQZ     |
| SQ      |
| VFS     |
| VFR     |
| VQ7     |

**Dimensions**

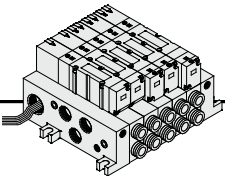
Formula:  $L_1 = 25n + 63$ ,  $L_2 = 25n + 76$  n: Stations (Maximum standard 18 stations)  
\* Including 2 stations for mounting terminal box.

| n              | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L <sub>1</sub> | 138 | 163 | 188 | 213 | 238 | 263 | 288 | 313 | 338 | 363 | 388 | 413 | 438 | 463 | 488 | 513 |
| L <sub>2</sub> | 151 | 176 | 201 | 226 | 251 | 276 | 301 | 326 | 351 | 376 | 401 | 426 | 451 | 476 | 501 | 526 |

# VQ4000 Series

**L** Kit (Lead wire cable)

**IP65 compliant**



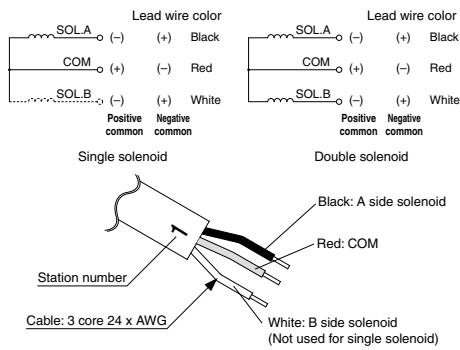
- Enclosure IP65 compliant
- Direct electrical entry. Models with two or more stations are available.
- Electrical entry can be selected on either the U side or the D side according to the mounting orientation.
- Maximum stations are 16.

## Manifold Specifications

| Series        | 4(A), 2(B)<br>port location | Porting specifications |   | Applicable<br>stations |
|---------------|-----------------------------|------------------------|---|------------------------|
|               |                             | 1(P), 5(R1), 3(R2)     | Port size<br>4(A), 2(B)   |                        |
| <b>VQ4000</b> | Side                        | 1/2                    | C6 (for ø6), C8 (for ø8),<br>C10 (for ø10), C12 (for ø12),<br>1/4, 3/8, N7 (for ø1/4"),<br>N9 (for ø5/16"), N11 (for ø3/8") | Max. 16<br>stations    |
|               | Bottom                      |                        | 1/4   |                        |

## Wiring Specifications

Three lead wires are attached to each station regardless of the type of valve which is mounted. The red wire is for COM connection.



## Lead Wire Assembly with Connector

| Lead wire length | Part no.         |
|------------------|------------------|
| 0.6 m            | VVQ5000-44A-8-□  |
| 1.5 m            | VVQ5000-44A-15-□ |
| 3 m              | VVQ5000-44A-30-□ |

□: Number of stations 1 to 16.

For different lead wire lengths, order a lead wire assembly with connector shown in the table on the right.  
Note 1) There is no polarity. It can also be used as a negative common.  
Note 2) Connect the release valve and the pressure switch to SOL. A side on the manifold with control unit.



## How to Order Manifold

**VV5Q 4 1 - 08 C8 L U - -**

**Series**

4 VQ4000

**Manifold**

1 Plug-in unit

**Stations**

|     |             |
|-----|-------------|
| 01  | 1 station   |
| ... | ...         |
| 16  | 16 stations |

**Cylinder port**

|     |                          |
|-----|--------------------------|
| C6  | ø6 One-touch fitting     |
| C8  | ø8 One-touch fitting     |
| C10 | ø10 One-touch fitting    |
| C12 | ø12 One-touch fitting    |
| 02  | 1/4                      |
| 03  | 3/8                      |
| B   | Bottom ported 1/4        |
| CM  | Mixed                    |
| N7  | ø1/4" One-touch fitting  |
| N9  | ø5/16" One-touch fitting |
| N11 | ø3/8" One-touch fitting  |

**Connector locations**

|   |              |
|---|--------------|
| D | D side entry |
| U | U side entry |

**Cable (Length)**

|   |                    |
|---|--------------------|
| 0 | Cable length 0.6 m |
| 1 | Cable length 1.5 m |
| 2 | Cable length 3 m   |

**Thread type**

|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |

**CE-compliant**

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

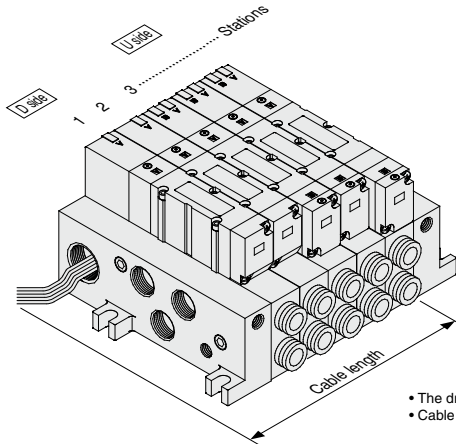
**Option**

| Symbol      | Option  |
|-------------|---|
| Nil         | None  |
| CD (Note 2) | Exhaust cleaner: For D side mounting                      |
| CU (Note 2) | Exhaust cleaner: For U side mounting                      |
| SB          | Direct exhaust with silencer box: Exhaust from both sides |
| SD (Note 2) | Direct exhaust with silencer box: D side exhaust          |
| SU (Note 2) | Direct exhaust with silencer box: U side exhaust          |
| W           | IP65 enclosure  |

Note 1) When multiple symbols are specified, indicate them alphabetically.  
Example) -CDW

Note 2) Combination of [C<sub>D</sub>] and [S<sub>D</sub>] is not possible.





[Option]

## How to Order Valves

VQ 4 1 0 0 - 5 - 1 -

## Series

4 VQ4000

## 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 |
| 6 | 3-position double check    |

## Seal

|   |             |
|---|-------------|
| 0 | Metal seal  |
| 1 | Rubber seal |

## Function

|              |                          |
|--------------|--------------------------|
| Nil (Note 1) | Standard (0.95 W)        |
| Y (Note 2)   | Low wattage type (0.4 W) |
| R (Note 3)   | External pilot           |

Note 1) When the unit is energized continuously, refer to "Specific Product Precautions 1" on page 533.

Note 2) In addition, only DC is available with Y.

Note 3) For external pilot specifications, refer to page 481.

Combination of external pilot and perfect interface is not possible.

Note 4) When multiple symbols are specified, indicate them alphabetically.

## CE-compliant

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

Note) CE-compliant:  
For DC only.

## Enclosure

|     |                                       |
|-----|---------------------------------------|
| Nil | Dust-protected                        |
| W   | Dust-tight/<br>Water-jet-tight (IP65) |

## Manual override

|     |                                       |
|-----|---------------------------------------|
| Nil | Non-locking push type (Tool required) |
| B   | Locking type (Tool required)          |
| C   | Locking type (Manual)                 |

## Light/Surge voltage suppressor

|     |  |
|-----|--|
| Nil | Yes  |
| E   | Without light, with surge voltage suppressor |

## Coil voltage

|   |                    |
|---|--------------------|
| 1 | 100 VAC (50/60 Hz) |
| 2 | 200 VAC (50/60 Hz) |
| 3 | 110 VAC (50/60 Hz) |
| 4 | 220 VAC (50/60 Hz) |
| 5 | 24 VDC             |
| 6 | 12 VDC             |

## How to Order Manifold Assembly

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

## &lt;Example&gt;

Lead wire kit with cable (3 m)

VV5Q41-05C8LD2(-Q)-1 set—Manifold base part no.

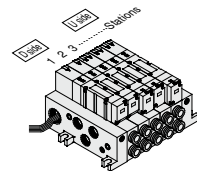
\*VQ4100-51(-Q).....2 sets—Valve part no. (Stations 1 and 2)

\*VQ4200-51(-Q).....2 sets—Valve part no. (Stations 3 and 4)

\*VQ4300-51(-Q).....1 set—Valve part no. (Station 5)

Prefix the asterisk to the part nos. of the valve etc.

Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



SV

SYJ

SZ

VF

VP4

VQ  
1/2VQ  
4/5VQC  
1/2VQC  
4/5

VQZ

SQ

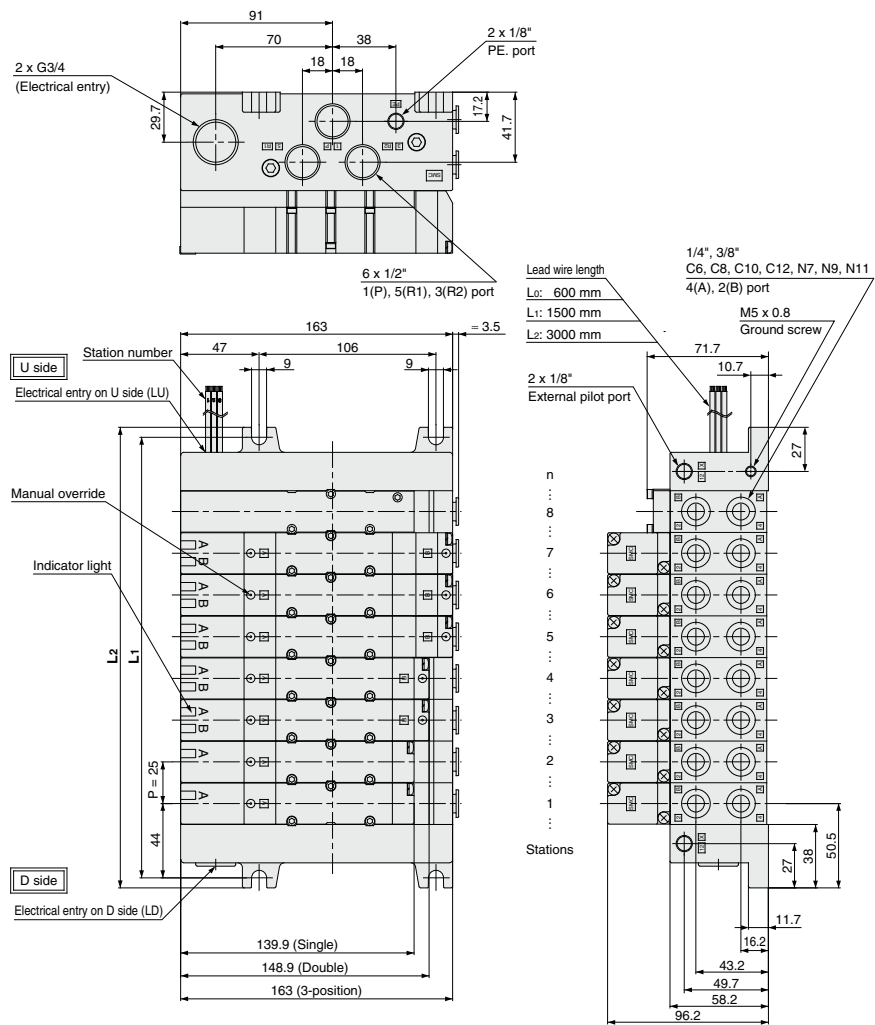
VFS

VFR

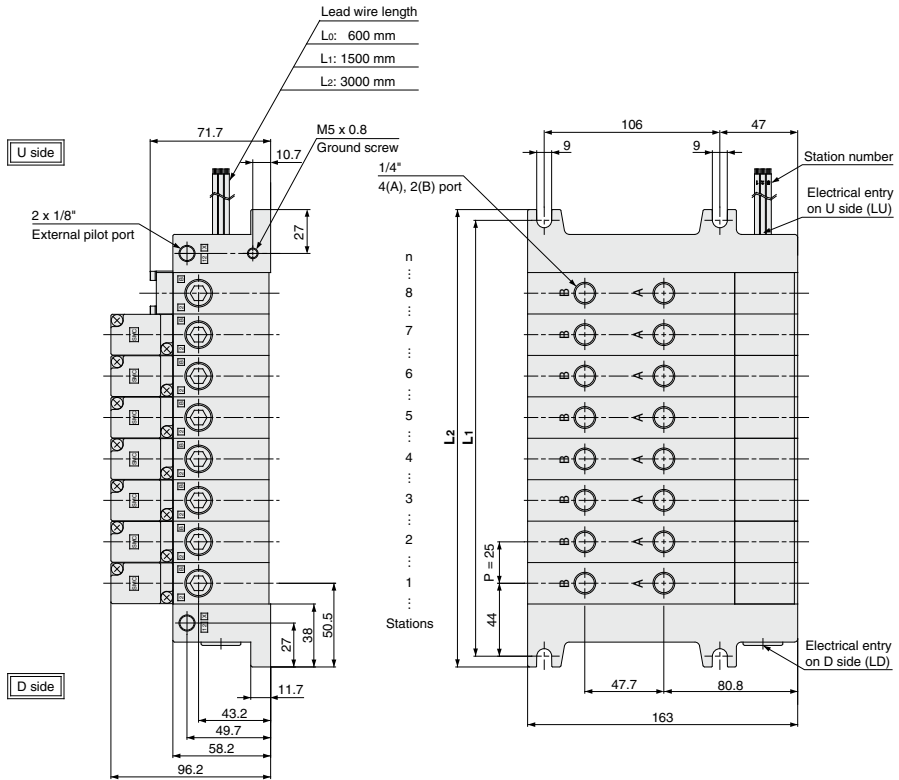
VQ7

# VQ4000 Series

## L Kit (Lead wire cable)



Bottom ported drawing



Dimensions

Formula:  $L_1 = 25n + 63$ ,  $L_2 = 25n + 76$  n: Stations (Maximum 16 stations)

| L  | n | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
|----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L1 |   | 88  | 113 | 138 | 163 | 188 | 213 | 238 | 263 | 288 | 313 | 338 | 363 | 388 | 413 | 438 | 463 |
| L2 |   | 101 | 126 | 151 | 176 | 201 | 226 | 251 | 276 | 301 | 326 | 351 | 376 | 401 | 426 | 451 | 476 |

# VQ4000 Series

**S**

Kit (Serial transmission unit): EX123/124 (For Output) Serial Transmission System **IP65 compliant**

- The serial transmission system reduces wiring work, while minimizing wiring and saving space.

- Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types. Mixed single and double wiring is available as a semi-standard specification.

## Manifold Specifications

| Porting specifications |                          |                    |  |  | Applicable stations |
|------------------------|--------------------------|--------------------|--|--|---------------------|
| Series                 | 4(A), 2(B) port location | Port size          |  |  |                     |
|                        |                          | 1(P), 5(R1), 3(R2) | 4(A), 2(B)   |  |                     |
| VQ4000                 | Side                     | 1/2                | C6 (for ø6), C8 (for ø8), C10 (for ø10), C12 (for ø12), 1/4, 3/8, N7 (for ø1/4"), N9 (for ø5/16"), N11 (for ø3/8") |  | Max. 18 stations    |
|                        | Bottom                   |                    | 1/4  |  |                     |
|                        |                          |                    |  |  |                     |

| Item                                | Specifications   |
|-------------------------------------|------------------|
| External power supply               | 24 VDC +10%, -5% |
| Current consumption (Internal unit) | 0.1 A            |

- Drip proof plug assembly (for G1/2): AXT100-B04A

Note) Refer to "SI Unit Part No." when ordering the CE-compliant SI Unit. **[Option]**



## How to Order Manifold

**VV5Q 4 1 - 08 C8 S V - -**

Series

4 VQ4000

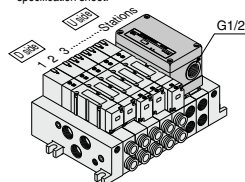
Manifold

1 Plug-in unit

Stations

|    |             |
|----|-------------|
| 03 | 3 stations  |
| 18 | 18 stations |

Note) 2 stations are used for mounting SI Unit. The number of stations is the number of manifold valves plus 2 stations for SI Unit. For 11 stations or more, specify the wiring specifications by means of the manifold specification sheet.



Stations are counted starting from the first station on the D side.

### Cylinder port

|     |                          |
|-----|--------------------------|
| C6  | ø6 One-touch fitting     |
| C8  | ø8 One-touch fitting     |
| C10 | ø10 One-touch fitting    |
| C12 | ø12 One-touch fitting    |
| 02  | 1/4                      |
| 03  | 3/8                      |
| B   | Bottom ported 1/4        |
| CM  | Mixed                    |
| N7  | ø1/4" One-touch fitting  |
| N9  | ø5/16" One-touch fitting |
| N11 | ø3/8" One-touch fitting  |

### Thread type

|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |

### SI Unit mounting position

|     |                 |
|-----|-----------------|
| Nil | U side mounting |
| D   | D side mounting |

### CE-compliant

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

Note) Refer to "SI Unit Part No." when ordering the CE-compliant SI Unit.

### Option

| Symbol     | Option  |
|------------|---|
| Nil        | None  |
| CD Note 2) | Exhaust cleaner: D side exhaust   |
| CU Note 2) | Exhaust cleaner 1: U side exhaust   |
| K Note 3)  | Special wiring specifications (Except double wiring, 11 stations or more) |
| SD Note 2) | Direct exhaust with silencer box: D side exhaust                          |
| SU Note 2) | Direct exhaust with silencer box: U side exhaust                          |
| W Note 2)  | IP65 enclosure  |

Note 1) When multiple symbols are specified, indicate them alphabetically. Example) -CDK

Note 2) Combination of [CD] and [SD] is not possible.

Note 3) Specify the wiring specifications in the manifold specification sheet.

Note 4) Refer to pages 482 to 485 for with control unit.

Note 5) The release valve and the pressure switch on the manifold with control unit are connected to another power supply. Cable length is 0.6 m for L kit.

### SI Unit

|    |   |
|----|---|
| 0  | Without SI Unit                                   |
| H  | NKE Corp.: Fieldbus H System (16 output points)   |
| Q  | DeviceNet™ (16 output points)                     |
| R1 | OMRON Corp.: CompoBus/S System (16 output points) |
| R2 | OMRON Corp.: CompoBus/S System (8 output points)  |
| V  | CC-Link (16 output points)                        |

### SI Unit Part No.

| Symbol | Protocol type                                     | SI Unit part no.                           | CE-compliant | Page |
|--------|---|--|--------------|------|
| H      | NKE Corp.: Fieldbus H System (16 output points)   | D side: EX123D-SUH1<br>U side: EX123U-SUH1 | —            | 489  |
| Q      | DeviceNet™ (16 output points)                     | D side: EX124D-SDN1<br>U side: EX124U-SDN1 | ●            |      |
| R1     | OMRON Corp.: CompoBus/S System (16 output points) | D side: EX124D-SCS1<br>U side: EX124U-SCS1 | ●            |      |
| R2     | OMRON Corp.: CompoBus/S System (8 output points)  | D side: EX124D-SCS2<br>U side: EX124U-SCS2 | ●            |      |
| V      | CC-Link (16 output points)                        | D side: EX124D-SMJ1<br>U side: EX124U-SMJ1 | ●            |      |

Refer to Best Pneumatics No. 1-1 and the Operation Manual for the details of EX123/124 Integrated-type (For Output) Serial Transmission System. Please download the Operation Manual via SMC website, <http://www.smcworld.com>



## How to Order Valves

VQ 4 1 0 0 - 5 - 1 -

**Series**  
4 VQ4000

### 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 |
| 6 | 3-position double check    |

### Seal

|   |             |
|---|-------------|
| 0 | Metal seal  |
| 1 | Rubber seal |

### Coil voltage

|   |        |
|---|--------|
| 5 | 24 VDC |
|---|--------|

### Function

|     |         |                          |
|-----|---------|--------------------------|
| Nij | Note 1) | Standard (0.95 W)        |
| Y   | Note 2) | Low wattage type (0.4 W) |
| R   | Note 3) | External pilot           |

Note 1) When the unit is energized continuously, refer to "Specific Product Precautions 1" on page 533.

Note 2) In addition, only DC is available with Y.

Note 3) For external pilot specifications, refer to page 481. Combination of the external pilot and perfect interface is not possible.

Note 4) When multiple symbols are specified, indicate them alphabetically.

### CE-compliant

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

### Enclosure

|     |                                       |
|-----|---------------------------------------|
| Nil | Dust-protected                        |
| W   | Dust-tight/<br>Water-jet-proof (IP65) |

### Manual override

|     |                                       |
|-----|---------------------------------------|
| Nil | Non-locking push type (Tool required) |
| B   | Locking type (Tool required)          |
| C   | Locking type (Manual)                 |

### Light/Surge voltage suppressor

|     |  |
|-----|--|
| Nil | Yes  |
| E   | Without light, with surge voltage suppressor |

## How to Order Manifold Assembly

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

### <Example>

VV5Q41-07C8SV(-Q)-...1 set—Manifold base part no.

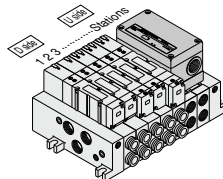
\*VQ4100-51(-Q).....2 sets—Valve part no. (Stations 1 and 2)

\*VQ4200-51(-Q).....2 sets—Valve part no. (Stations 3 and 4)

\*VQ4300-51(-Q).....1 set—Valve part no. (Station 5)

Prefix the asterisk to the part nos. of the valve etc.

Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



SV

SYJ

SZ

VF

VP4

VQ

1/2

VQ

4/5

VQC

1/2

VQC

4/5

VQZ

SQ

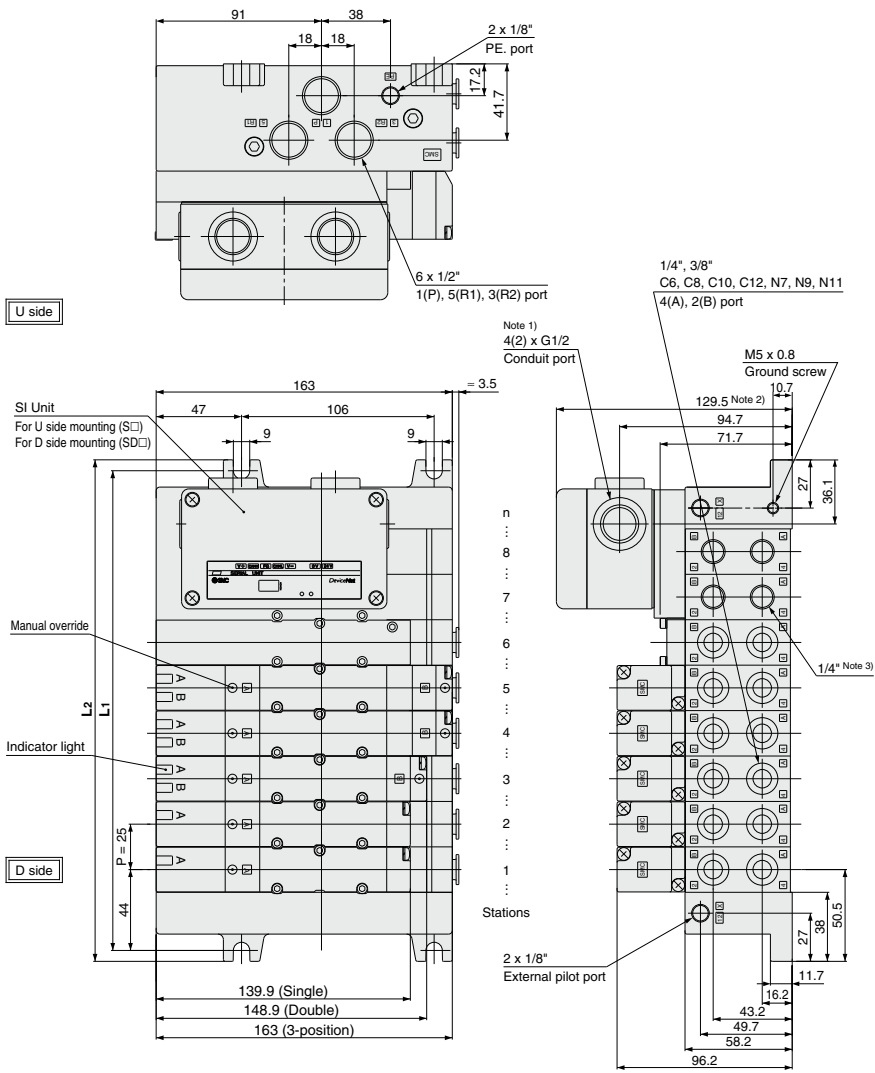
VFS

VFR

VQ7

# VQ4000 Series

## S Kit (Serial transmission unit): EX123/124 (For Output) Serial Transmission System



Note 1) In the case of EX124 for SI Unit, conduit port (G1/2) will be 4 locations. In the case of EX123D(U), conduit port will be 2 locations.  
Note 2) In the case of EX124D(U)-SMJ1, this dimension becomes 133.  
Note 3) 4(A) and 2(B) port at the bottom of the SI Unit are 1/4".

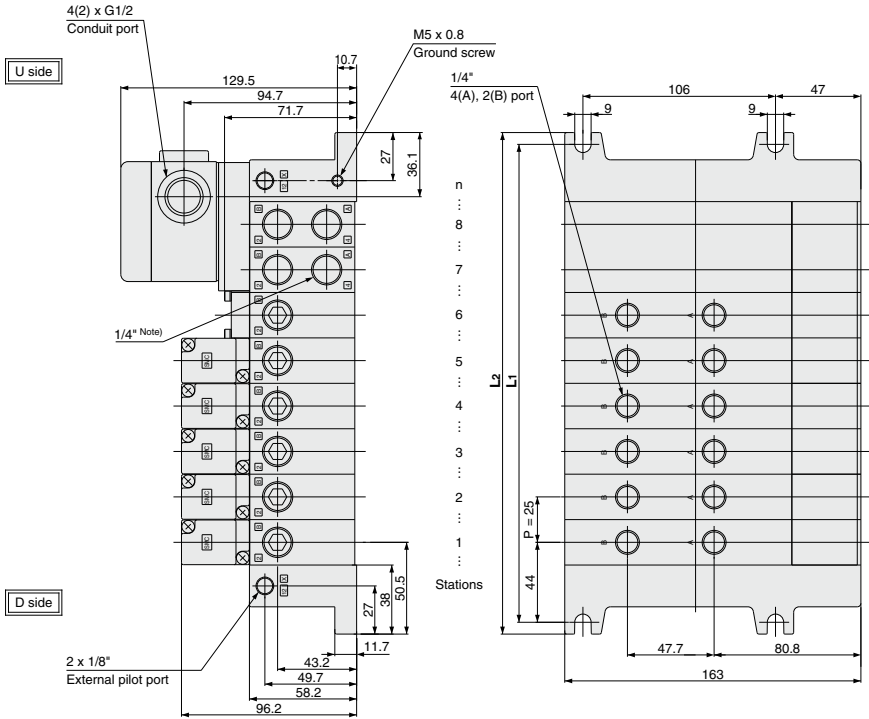
Figure shows VV5Q41-08C12SQ-W.

**Dimensions**

Formula:  $L_1 = 25n + 63$ ,  $L_2 = 25n + 76$      $n$ : Stations (Maximum standard 18 stations)  
\* Including 2 stations for mounting SI Unit box.

| L              | n | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  |
|----------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L <sub>1</sub> |   | 138 | 163 | 188 | 213 | 238 | 263 | 288 | 313 | 338 | 363 | 388 | 413 | 438 | 463 | 488 | 513 |
| L <sub>2</sub> |   | 151 | 176 | 201 | 226 | 251 | 276 | 301 | 326 | 351 | 376 | 401 | 426 | 451 | 476 | 501 | 526 |

**Bottom ported drawing**



Note) 4(A) and 2(B) port at the bottom of the terminal block box are 1/4\".

|         |
|---------|
| SV      |
| SYJ     |
| SZ      |
| VF      |
| VP4     |
| VQ 1/2  |
| VQ 4/5  |
| VQC 1/2 |
| VQC 4/5 |
| VQZ     |
| SQ      |
| VFS     |
| VFR     |
| VQ7     |

**Dimensions**

Formula:  $L_1 = 25n + 63$ ,  $L_2 = 25n + 76$  n: Stations (Maximum standard 18 stations)  
\* Including 2 stations for mounting SI Unit.

| n              | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L <sub>1</sub> | 138 | 163 | 188 | 213 | 238 | 263 | 288 | 313 | 338 | 363 | 388 | 413 | 438 | 463 | 488 | 513 |
| L <sub>2</sub> | 151 | 176 | 201 | 226 | 251 | 276 | 301 | 326 | 351 | 376 | 401 | 426 | 451 | 476 | 501 | 526 |

# Base Mounted

## Plug Lead Unit: C Kit (Connector Kit)

# VQ4000 Series



[Option]  
Note) CE-compliant:  
For DC only.

### How to Order Manifold

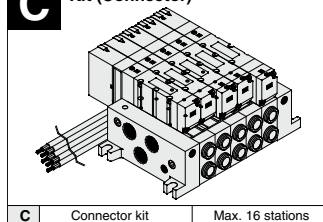
VV5Q 4 5 - 08 C8 C - - -

|                      |                          |
|----------------------|--------------------------|
| <b>Series</b>        |                          |
| 4                    | VQ4000                   |
| <b>Manifold</b>      |                          |
| 5                    | Plug lead unit           |
| <b>Stations</b>      |                          |
| 01                   | 1 station                |
| ...                  | ...                      |
| 16                   | 16 stations              |
| <b>Cylinder port</b> |                          |
| C6                   | ø6 One-touch fitting     |
| C8                   | ø8 One-touch fitting     |
| C10                  | ø10 One-touch fitting    |
| C12                  | ø12 One-touch fitting    |
| O2                   | 1/4                      |
| O3                   | 3/8                      |
| B                    | Bottom ported 1/4        |
| CM                   | Mixed                    |
| N7                   | ø1/4" One-touch fitting  |
| N9                   | ø5/16" One-touch fitting |
| N11                  | ø3/8" One-touch fitting  |

#### Kit type

**C**

Kit (Connector)



#### Thread type

|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |

#### CE-compliant

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

#### Option

| Symbol                | Option  |
|-----------------------|---|
| Nil                   | None  |
| CD <sup>Note 2)</sup> | Exhaust cleaner: For D side mounting                      |
| CU <sup>Note 2)</sup> | Exhaust cleaner: For U side mounting                      |
| SB                    | Direct exhaust with silencer box: Exhaust from both sides |
| SD <sup>Note 2)</sup> | Direct exhaust with silencer box: D side exhaust          |
| SU <sup>Note 2)</sup> | Direct exhaust with silencer box: U side exhaust          |
| W                     | IP65 enclosure  |

Note 1) When multiple symbols are specified, indicate them alphabetically.  
Example) -CDW

Note 2) Combination of [C<sub>D</sub>] and [S<sub>U</sub>] is not available. Also, exhaust cleaner is not attached. Please order it separately.

Refer to page 534 (Grommet type) for wiring specifications.

#### Control unit

Refer to pages 482 to 485.

### How to Order Valves

VQ 4 1 5 0 - 5 G - - - 1 -

#### 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 |
| 6 | 3-position double check    |

#### Seal

|               |             |
|---------------|-------------|
| <b>Series</b> |             |
| 4             | VQ4000      |
| <b>Seal</b>   |             |
| 0             | Metal seal  |
| 1             | Rubber seal |

#### Function

|                        |                          |
|------------------------|--------------------------|
| Nil <sup>Note 1)</sup> | Standard (0.95 W)        |
| Y <sup>Note 2)</sup>   | Low wattage type (0.4 W) |
| R <sup>Note 3)</sup>   | External pilot           |

Note 1) When the unit is energized continuously, refer to "Specific Product Precautions 1" on page 533.

Note 2) In addition, only DC is available with Y.

Note 3) For external pilot specifications, refer to page 481. Combination of the external pilot and perfect interface is not possible.

Note 4) When multiple symbols are specified, indicate them alphabetically.

#### Coil voltage

|   |                    |   |                    |
|---|--------------------|---|--------------------|
| 1 | 100 VAC (50/60 Hz) | 4 | 220 VAC (50/60 Hz) |
| 2 | 200 VAC (50/60 Hz) | 5 | 24 VDC             |
| 3 | 110 VAC (50/60 Hz) | 6 | 12 VDC             |

#### CE-compliant

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

Note) CE-compliant:  
For DC only.

#### Enclosure

|     |                                    |
|-----|------------------------------------|
| Nil | Dust-protected                     |
| W   | Dust-tight/ Water-jet-proof (IP65) |

#### Manual override

|   |  |                                       |
|---|--|---------------------------------------|
| <b>Nil:</b><br>Non-locking push type<br>(Tool required) | <b>B:</b><br>Locking type<br>(Tool required) | <b>C:</b><br>Locking type<br>(Manual) |
|   |  |                                       |

#### Light/Surge voltage suppressor

|     |  |
|-----|--|
| Nil | Yes  |
| E   | Without light, with surge voltage suppressor |

#### Electrical entry

|                                       |  |
|---------------------------------------|--|
| <b>G</b><br>Lead wire length<br>0.6 m |  |
| <b>H</b><br>Lead wire length<br>1.5 m |  |

### How to Order Manifold Assembly

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

<Example>  
Connector kit

VV5Q45-05C12C(-Q)-1 set—Manifold base part no.

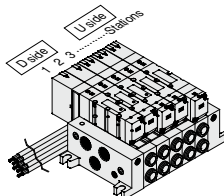
\*VQ4150-5G1(-Q)-----2 sets—Valve part no. (Stations 1 and 2)

\*VQ4250-5G1(-Q)-----2 sets—Valve part no. (Stations 3 and 4)

\*VQ4350-5G1(-Q)-----1 set—Valve part no. (Station 5)

Prefix the asterisk to the part nos. of the valve etc.

Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



## Manifold Specifications

| Series | Base model | Type of connection | Porting specifications   |   |   | Maximum applicable stations | Applicable valve | Weight [kg] (Formula)                         |
|--------|------------|--------------------|--------------------------|---|---|-----------------------------|------------------|---|
|        |            |                    | 4(A), 2(B) port location | Port size   |   |                             |                  |   |
|        |            |                    |                          | 1(P), 5(R1), 3(R2)                                  | 4(A), 2(B)  |                             |                  |   |
| VQ4000 | VV5Q45-□□□ | ■ C kit—Grommet    | Side                     | 1/2<br>Option<br>(Direct exhaust with silencer box) | C6<br>C8<br>C10<br>C12<br>1/4<br>3/8<br>N7<br>N9<br>N11 | 2 to 16 stations            | VQ4□50<br>VQ4□51 | 0.31n + 0.55<br>• Not including valve weight. |
|        |            |                    | Bottom                   |   | 1/4   |                             |                  |   |

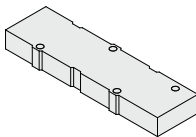
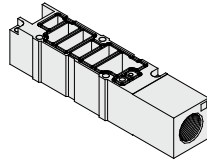
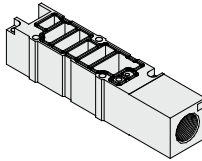
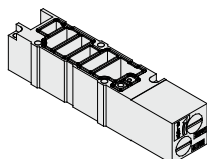
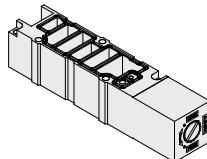
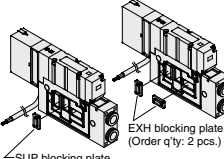
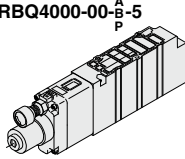
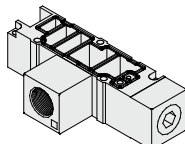
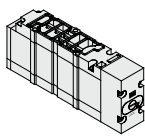
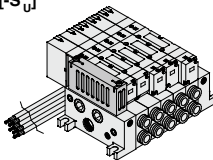
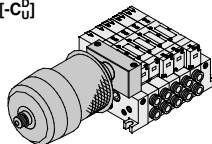
n: Stations

## Flow Rate Characteristics at the Number of Manifold Stations (Operated individually)

| Model  | Passage/Stations        |                              | Station 1 | Station 5 | Station 10 | Station 15 |
|--|-------------------------|------------------------------|-----------|-----------|------------|------------|
| 2-position metal seal<br>VQ4 $\frac{1}{2}$ 50  | 1 → 4/2 (P → A/B)       | C [dm <sup>3</sup> /(s·bar)] | 5.9       | 5.9       | 5.9        | 5.9        |
|  |                         | b                            | 0.23      | 0.23      | 0.23       | 0.23       |
|  |                         | Cv                           | 1.5       | 1.5       | 1.5        | 1.5        |
|  | 4/2 → 5/3 (A/B → EA/EB) | C [dm <sup>3</sup> /(s·bar)] | 6.2       | 6.2       | 6.2        | 6.2        |
|  |                         | b                            | 0.19      | 0.19      | 0.19       | 0.19       |
|  |                         | Cv                           | 1.5       | 1.5       | 1.5        | 1.5        |
| 2-position rubber seal<br>VQ4 $\frac{1}{2}$ 51 | 1 → 4/2 (P → A/B)       | C [dm <sup>3</sup> /(s·bar)] | 6.8       | 6.8       | 6.8        | 6.8        |
|  |                         | b                            | 0.31      | 0.31      | 0.31       | 0.31       |
|  |                         | Cv                           | 1.8       | 1.8       | 1.8        | 1.8        |
|  | 4/2 → 5/3 (A/B → EA/EB) | C [dm <sup>3</sup> /(s·bar)] | 7.0       | 7.0       | 7.0        | 7.0        |
|  |                         | b                            | 0.38      | 0.38      | 0.38       | 0.38       |
|  |                         | Cv                           | 1.9       | 1.9       | 1.9        | 1.9        |

Note) Port size: 3/8

## Manifold Options

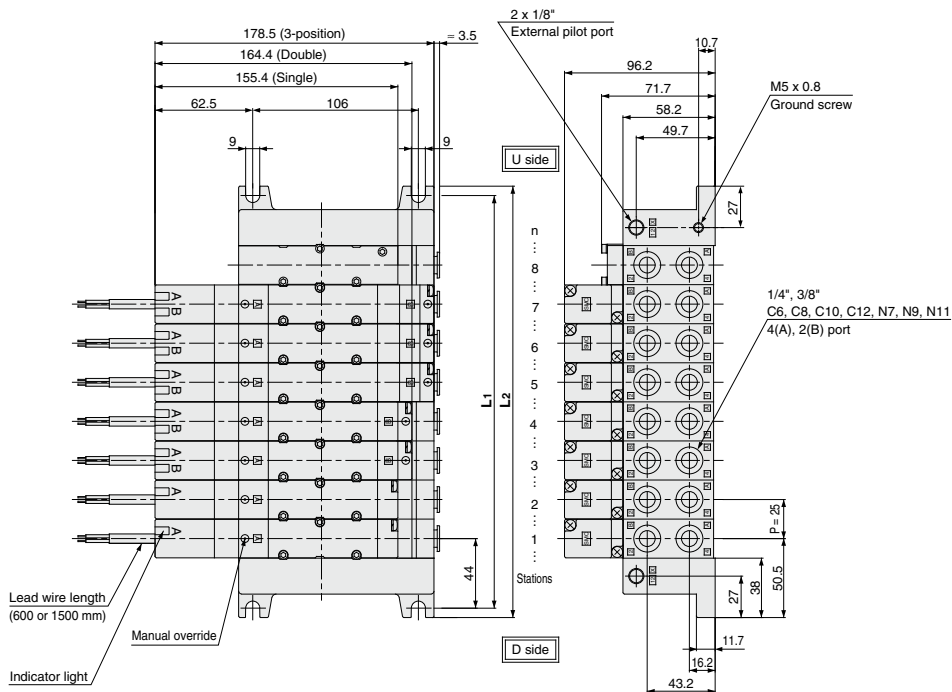
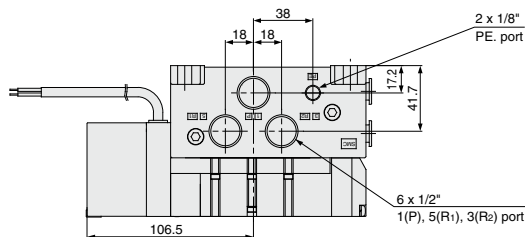
|   |  |  |   |
|---|--|--|---|
| <b>Blanking plate assembly</b><br>VVQ4000-10A-5<br>   | <b>Individual SUP spacer</b><br>VVQ4000-P-5- $\frac{02}{03}$<br>                                     | <b>Individual EXH spacer</b><br>VVQ4000-R-5- $\frac{02}{03}$<br> | <ul style="list-style-type: none"> <li>Refer to pages 476 to 480 for detailed dimensions of each option.</li> <li>For replacement parts, refer to page 489.</li> <li>Refer to pages 482 to 485 for control unit.</li> </ul> |
| <b>Restrictor spacer</b><br>VVQ4000-20A-5<br>   | <b>SUP stop valve spacer</b><br>VVQ4000-37A-5<br>   | <b>SUP/EXH block plate</b><br>VVQ4000-16A (1 pc./set)<br>       | <b>Interface regulator</b><br>(P, A, B port regulation)<br>ARBQ4000-00-B-5<br>  |
| <b>Release valve spacer:</b><br>For D side mounting<br>VVQ4000-24A-5D <small>Note)</small><br> | <b>Double check spacer with residual pressure exhaust</b><br>VVQ4000-25A-5 <small>Note)</small><br> | <b>Direct exhaust with silencer box</b><br>[-S□]<br>            | <b>Manifold mounted exhaust cleaner</b><br>[-C□]<br>  |

Note) Release valve spacer and double check spacer with residual pressure exhaust cannot be combined with external pilot.

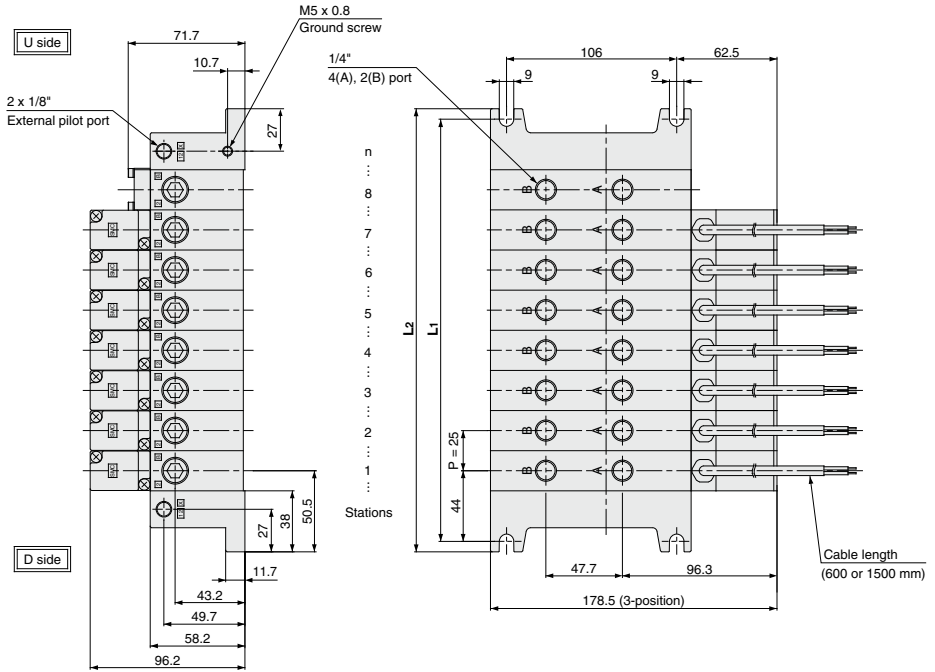
# VQ4000 Series

**C**

Kit (Connector kit)



Bottom ported drawing



|         |
|---------|
| SV      |
| SYJ     |
| SZ      |
| VF      |
| VP4     |
| VQ 1/2  |
| VQ 4/5  |
| VQC 1/2 |
| VQC 4/5 |
| VQZ     |
| SQ      |
| VFS     |
| VFR     |
| VQ7     |

Dimensions

Formula:  $L_1 = 25n + 63$ ,  $L_2 = 25n + 76$  n: Stations (Maximum 16 stations)

| L \ n          | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L <sub>1</sub> | 88  | 113 | 138 | 163 | 188 | 213 | 238 | 263 | 288 | 313 | 338 | 363 | 388 | 413 | 438 | 463 |
| L <sub>2</sub> | 101 | 126 | 151 | 176 | 201 | 226 | 251 | 276 | 301 | 326 | 351 | 376 | 401 | 426 | 451 | 476 |

# VQ4000 Series Manifold Options

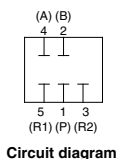
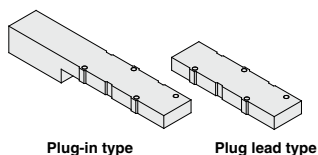
## Manifold Option Parts

### Blanking plate assembly

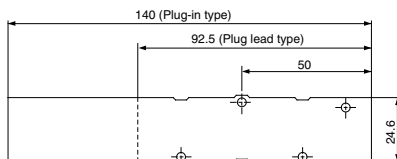
#### VVQ4000-10A-1 (Plug-in type)

#### VVQ4000-10A-5 (Plug lead type)

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.



Circuit diagram



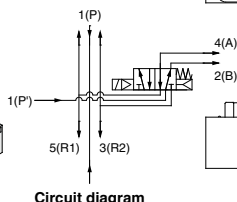
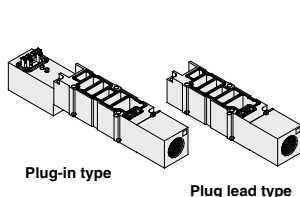
### Individual SUP spacer

#### VVQ4000 - P - 1 - 02

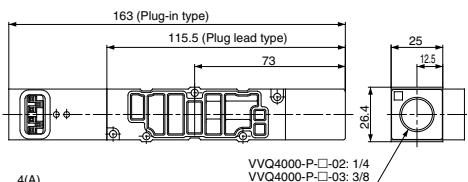
| Manifold |                |
|----------|----------------|
| 1        | Plug-in type   |
| 5        | Plug lead type |

| Port size |     |
|-----------|-----|
| 02        | 1/4 |
| 03        | 3/8 |

| Thread type |      |
|-------------|------|
| Nil         | Rc   |
| F           | G    |
| N           | NPT  |
| T           | NPTF |



Circuit diagram



VVQ4000-P-□-02: 1/4  
VVQ4000-P-□-03: 3/8

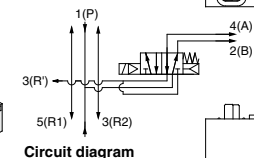
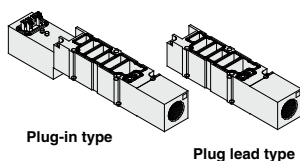
### Individual EXH spacer

#### VVQ4000 - R - 1 - 02

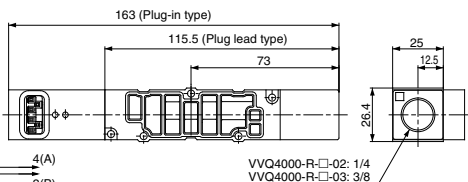
| Manifold |                |
|----------|----------------|
| 1        | Plug-in type   |
| 5        | Plug lead type |

| Port size |     |
|-----------|-----|
| 02        | 1/4 |
| 03        | 3/8 |

| Thread type |      |
|-------------|------|
| Nil         | Rc   |
| F           | G    |
| N           | NPT  |
| T           | NPTF |



Circuit diagram

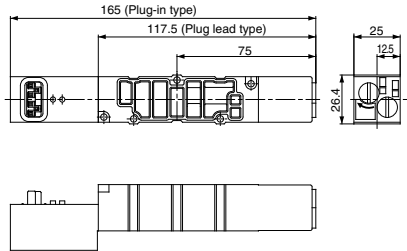
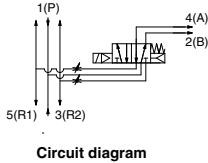
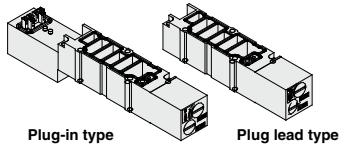


VVQ4000-R-□-02: 1/4  
VVQ4000-R-□-03: 3/8

### Restrictor spacer

**VVQ4000-20A-1 (Plug-in type)**  
**VVQ4000-20A-5 (Plug lead type)**

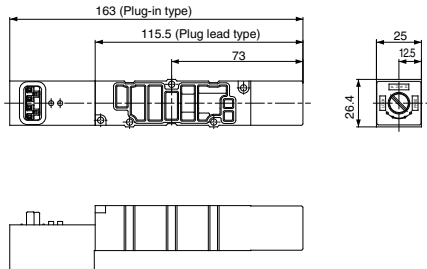
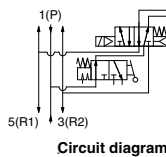
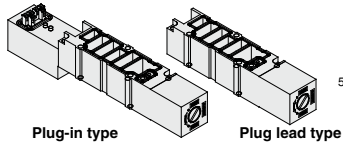
A restrictor spacer is mounted on a manifold block to control cylinder speed by throttling exhaust air flow.



### SUP stop valve spacer

**VVQ4000-37A-1 (Plug-in type)**  
**VVQ4000-37A-5 (Plug lead type)**

A SUP stop valve spacer is mounted on a manifold block, making it possible to individually shut off supply air to each valve.



### Release valve spacer: For D side mounting

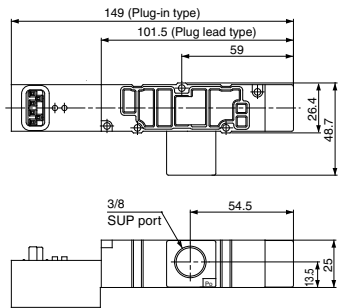
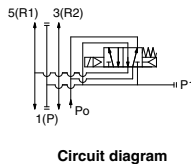
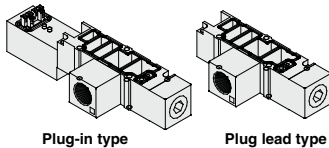
**VVQ4000-24A-1D (Plug-in type)**  
**VVQ4000-24A-5D (Plug lead type)**

Combination of VQ41□□ (Single) and release valve spacer can be used as air release valve.

Note 1) Mounting on 2-position double and

3-position valve is not possible.

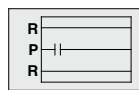
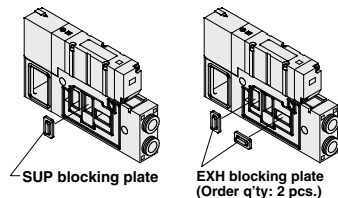
Note 2) Can be mounted on L kit only. For other kits, order E type control unit.  
 (Refer to pages 482 to 485.)



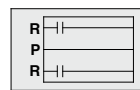
### SUP/EXH block plate

**VVQ4000-16A (1 pc./set)**

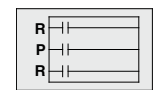
When supplying two different pressures to one manifold, this is used to shut off between stations with different pressures.



SUP passage blocked



EXH passage blocked



SUP/EXH passage blocked

#### <Passage blocked label>

Indication labels to confirm the blocking position are attached.  
 (Each for SUP passage, EXH passage, and SUP/EXH passage blocking positions)

SV  
 SYJ  
 SZ  
 VF  
 VP4  
 VQ 1/2  
 VQ 4/5  
 VQC 1/2  
 VQC 4/5  
 VQZ  
 SQ  
 VFS  
 VFR  
 VQ7

# VQ4000 Series

## Manifold Option Parts

### Direct exhaust with silencer box

VV5Q4  $\frac{1}{2}$  -□□□-SB (Exhaust from both sides)

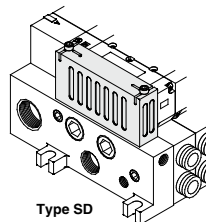
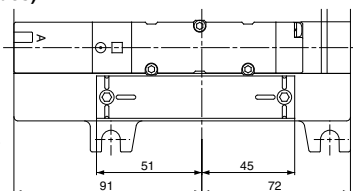
VV5Q4  $\frac{1}{2}$  -□□□-SD (D side exhaust)

VV5Q4  $\frac{1}{2}$  -□□□-SU (U side exhaust)

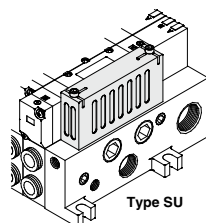
The EXH outlet is placed on the top side of the manifold end plate. The built-in silencer provides highly effective noise reduction. (Noise reduction of 35 dB(A) or more)

Effective area: 60.2 mm<sup>2</sup>

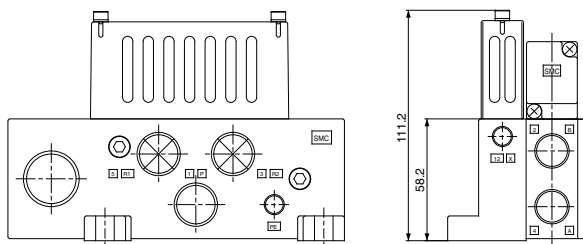
Note) Note that when excessive drainage occurs in the air supply, the drainage will be released along with the exhaust.



Type SD



Type SU



Note) Figure shows VV5Q41-□□□-SD.

• Silencer box assembly: VVQ4000-33A (With gasket, screw)

### Double check spacer with residual pressure exhaust

VVQ4000-25A-1 (Plug-in type)

VVQ4000-25A-5 (Plug lead type)

Can hold an intermediate cylinder position for an extended time.

When combined with a double check spacer with built-in double check valve, it is unaffected by air leakage between the spool valves, making it possible to hold a cylinder at an intermediate stopping position for an extended time.

Besides, combination between 2-position solenoid valve (VQ4 $\frac{1}{2}$ □□) and double check spacer cannot hold an intermediate position, but can be used for drop prevention at the cylinder stroke end.

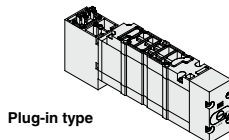
### Specifications

| Double check spacer part no. | VVQ4000-25A- $\frac{1}{2}$ |                      |
|------------------------------|----------------------------|----------------------|
|                              | Intermediate stop          | Drop prevention      |
| Applicable solenoid valve    | VQ44□□                     | VQ4 $\frac{1}{2}$ □□ |

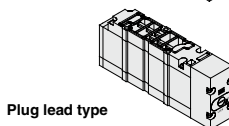
### Caution

#### Handling Precautions

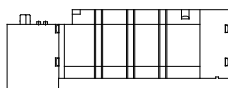
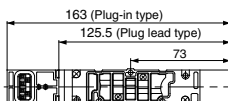
- In the case of 3-position double check (VQ46 $\frac{1}{2}$ □), check the leakage from piping and fittings in between valve and cylinder by means of synthetic detergent solutions, and ensure that there is no such leakage found there. Also, check the leakage from cylinder seal and piston seal. If there is any leakage, sometimes the cylinder, when valve is de-energized, can move without stopping at intermediate position.
- Since One-touch fittings allow slight air leakage, screw piping is recommended when stopping the cylinder in the middle for a long time.
- If exhaust side of double check spacer is narrowed down, this causes a decrease in intermediate stop accuracy and may malfunction.
- Combining with 3-position valves "VQ4 $\frac{3}{4}$ □□" is not possible.
- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.
- Combining double check spacer with external pilot is not possible.



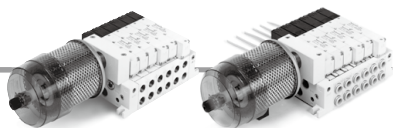
Plug-in type



Plug lead type



Manual override for residual pressure exhaust  
Slotted locking type (Tool required)

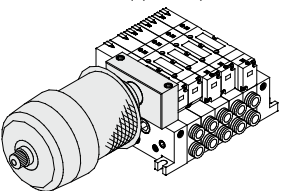


### Manifold mounted exhaust cleaner

**VV5Q4 1/2 - □□□-CD (D side mounting)**

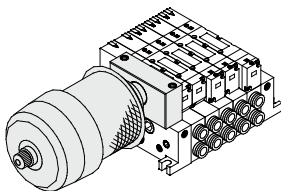
**VV5Q4 1/2 - □□□-CU (U side mounting)**

An adapter plate for exhaust cleaner mounting is provided on the top of the manifold end plate. The exhaust cleaner collects drainage and oil mist (99.9% or more) and is highly effective for noise reduction.  
(Noise reduction of 35 dB(A) or more)

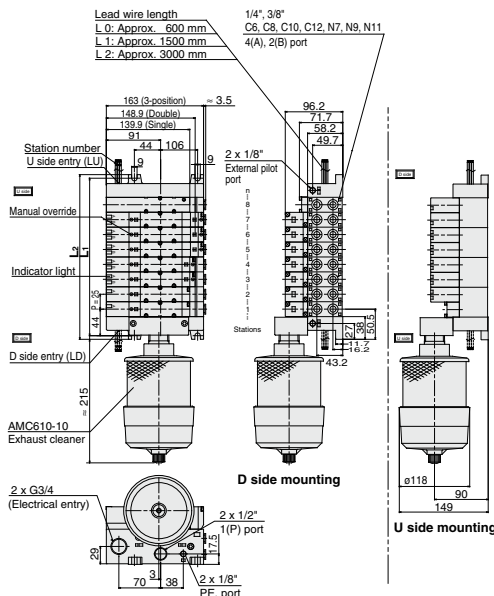


| Applicable exhaust cleaner |
|----------------------------|
| AMC610-10 (Port size Rc 1) |

- Note 1) Exhaust cleaner AMC610-10 is not attached.  
Please order it separately.  
Note 2) Mount so that the exhaust cleaner is at the lower side.  
Note 3) For details about the exhaust cleaner, refer to Best Pneumatics No. 7.



### Plug-in type



### Dimensions

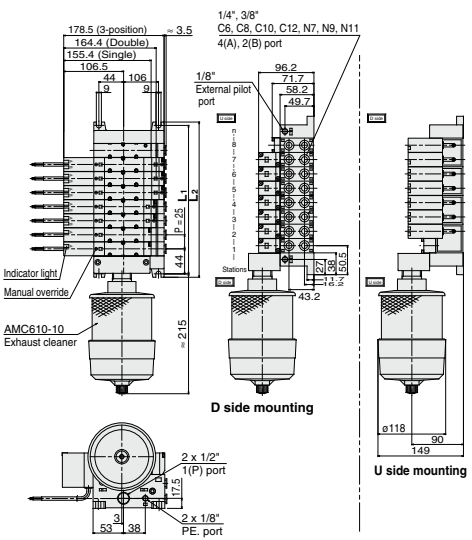
Formula: L1 = 25n + 63, L2 = 25n + 76  
n: Stations (Maximum 16 stations)

| L  | n | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |
|----|---|-----|-----|-----|-----|-----|-----|-----|-----|
| L1 |   | 88  | 113 | 138 | 163 | 188 | 213 | 238 | 263 |
| L2 |   | 101 | 126 | 151 | 176 | 201 | 226 | 251 | 276 |

| L  | n | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
|----|---|-----|-----|-----|-----|-----|-----|-----|-----|
| L1 |   | 288 | 313 | 338 | 363 | 388 | 413 | 463 | 463 |
| L2 |   | 301 | 326 | 351 | 376 | 401 | 426 | 476 | 476 |

### Plug lead type



### Dimensions

Formula: L1 = 25n + 63, L2 = 25n + 76  
n: Stations (Maximum 16 stations)

| L  | n | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |
|----|---|-----|-----|-----|-----|-----|-----|-----|-----|
| L1 |   | 88  | 113 | 138 | 163 | 188 | 213 | 238 | 263 |
| L2 |   | 101 | 126 | 151 | 176 | 201 | 226 | 251 | 276 |

| L  | n | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
|----|---|-----|-----|-----|-----|-----|-----|-----|-----|
| L1 |   | 288 | 313 | 338 | 363 | 388 | 413 | 463 | 463 |
| L2 |   | 301 | 326 | 351 | 376 | 401 | 426 | 476 | 476 |

- SV
- SYJ
- SZ
- VF
- VP4
- VQ 1/2
- VQ 4/5
- VQC 1/2
- VQC 4/5
- VQZ
- SQ
- VFS
- VFR
- VQ7

# VQ4000 Series

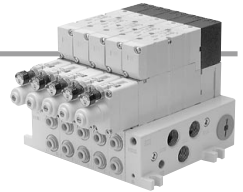
## Manifold Option Parts

### Interface regulator (P, A, B port regulation)

ARBQ4000-00-□-1 (Plug-in type)

ARBQ4000-00-□-5 (Plug lead type)

Spacer Interface regulators can be placed on top of the manifold block to reduce the pressure of each of the valves.



### Specifications

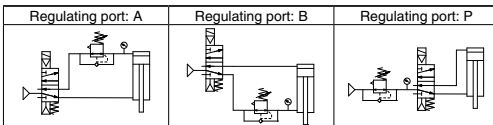
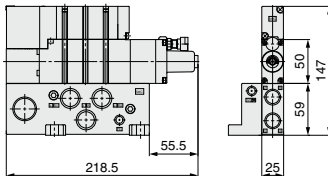
| Interface regulator                                    | ARBQ4000                 |           |         |           |         |           |
|--|--------------------------|-----------|---------|-----------|---------|-----------|
| Regulating port  | A                        |           | B       |           | P       |           |
| Applicable valve                                       | Plug-in                  | Plug lead | Plug-in | Plug lead | Plug-in | Plug lead |
| Maximum operating pressure                             | 1.0 MPa                  |           |         |           |         |           |
| Set pressure range                                     | 0.05 to 0.85 MPa         |           |         |           |         |           |
| Fluid  | Air                      |           |         |           |         |           |
| Ambient and fluid temperature                          | -5 to 60°C (No freezing) |           |         |           |         |           |
| Port size for connection of pressure gauge             | M5 x 0.8                 |           |         |           |         |           |
| Weight [kg]  | 0.33                     | 0.30      | 0.33    | 0.30      | 0.33    | 0.30      |
| Effective area at supply side [mm <sup>2</sup> ]       | P → A                    |           | P → B   |           | P → P   |           |
| S at P <sub>1</sub> = 0.7 MPa/P <sub>2</sub> = 0.5 MPa | 15                       |           | 31      |           | 14      |           |
|  | P → B                    |           | P → A   |           | P → P   |           |
|  | 35                       |           | 16      |           | 15      |           |
| Effective area at exhaust side [mm <sup>2</sup> ]      | A → EA                   |           | B → EB  |           | P → PP  |           |
| S at P <sub>2</sub> = 0.5 MPa                          | 18                       |           | 40      |           | 40      |           |
|  | B → EB                   |           | A → EA  |           | P → PP  |           |
|  | 37                       |           | 19      |           | 37      |           |

- Note 1) Set the pressure within the operating pressure range of the valve.
- Note 2) Operate an interface regulator only by applying pressure from the P port of the base, except when using it as a reverse pressure valve. When using it as a reverse pressure valve, P port regulation is not allowed to use.
- Note 3) When using a perfect spacer, assemble a valve, a spacer regulator and a perfect spacer in this order to use it.
- Note 4) When using in A port regulation, B port regulation by closed center, since there is a problem in its operation, please contact SMC.
- Note 5) Dust-tight/Water-jet-proof (IP65) is not available with interface regulator.

### How to Order

| Valve model            | Interface regulator | Regulating port |
|------------------------|---------------------|-----------------|
| VQ4□□ (Plug-in type)   | ARBQ4000-00-A-1     | A               |
|                        | ARBQ4000-00-B-1     | B               |
|                        | ARBQ4000-00-P-1     | P               |
| VQ4□□ (Plug lead type) | ARBQ4000-00-A-5     | A               |
|                        | ARBQ4000-00-B-5     | B               |
|                        | ARBQ4000-00-P-5     | P               |

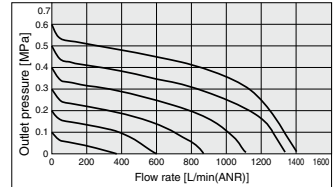
### Dimensions



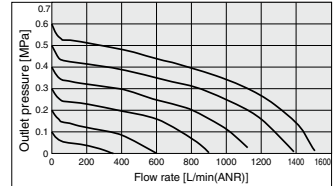
### Flow Rate Characteristics

Conditions Inlet pressure: 0.7 MPa

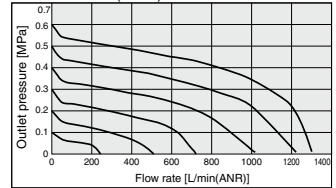
ARBQ4000-00-A



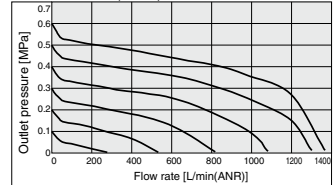
ARBQ4000-00-B



ARBQ4000-00-P (P → A)



ARBQ4000-00-P (P → B)



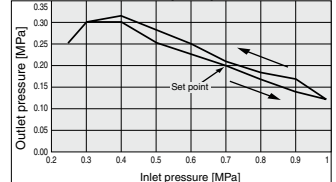
### Pressure Characteristics

Conditions

Inlet pressure: 0.7 MPa

Outlet pressure: 0.2 MPa

Flow rate: 20 L/min (ANR)



# VQ4000 Series

## Semi-standard Specifications

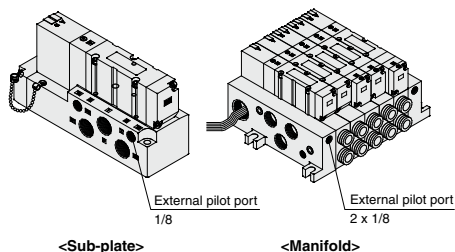
### External Pilot Specifications

- When the supply air pressure is:
  - lower than the required minimum operating pressure 0.15 to 0.2 MPa,
  - opposite air supply (R port supply), cylinder supply (A and B port supply),
  - used for vacuum specification, it can be used for external pilot specification.
- Order a valve by adding the external pilot specification [R] to the part number.  
External pilot is available as standard for manifolds and options.
- Internal/external pilot can be mounted in a manifold.
- Compatibility with universal porting is possible for the single, double and 3-position (excluding double check) types.

### How to Order Valves

VQ4100 **R** - 5 - 03

● External pilot



Note) Possible to mix mounting of internal and external pilot

### Pressure Specifications

| Valve construction            | Metal seal          | Rubber seal     |
|-------------------------------|---------------------|-----------------|
| Operating pressure range      | -100 kPa to 1.0 MPa |                 |
| External pilot pressure range | Single              | 0.2 to 1.0 MPa  |
|                               | Double              | 0.15 to 1.0 MPa |
|                               | 3-position          | 0.2 to 1.0 MPa  |

Combination of manifold options shown below and external pilot specification is not possible.

|  |  |
|--|--|
| Release valve spacer                               | VVQ4000-24A-□D                           |
| Manifold with control unit                         | VV5Q4□-□□□ □ Control unit model no.      |
| Double check spacer with residual pressure exhaust | VVQ4000-25A- <sup>1</sup> / <sub>5</sub> |

SV

SYJ

SZ

VF

VP4

VQ

1/2

VQ

4/5

VQC

1/2

VQC

4/5

VQZ

SQ

VFS

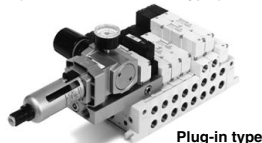
VFR

VQ7

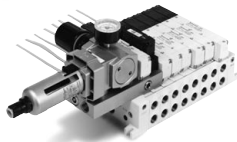
# VQ4000 Series

## Manifold with Control Unit

- Mounting air filter, regulator, pressure switch for air release valve on manifold as unit is possible and permits piping labor savings.
- Maximum number of stations depends on each kit.  
Refer to manifold specifications.
- 2 stations are used for control unit mounting.  
(1 station is used for E type.)



Plug-in type



Plug lead type

### Caution

In the case of air filters with auto-drain or manual drain, mount so that the air filter is at the bottom.

### Manifold Specifications

| Base model    | Type of connection   | 4(A), 2(B)<br>port location | Porting specifications  |  | Applicable<br>max. stations  | Applicable<br>valve |
|---------------|--|-----------------------------|---|--|--|---------------------|
|               |  |                             | 4(A), 2(B)<br>1(P), 5(R1), 3(R2)                                  | Port size<br>4(A), 2(B)  |  |                     |
| VV5Q41<br>□□□ | F kit – D-sub connector<br>T kit – Terminal block box<br>L kit – Lead wire | Side                        | 1/2<br><br>Option<br><br>(Direct exhaust<br>with<br>silencer box) | C6 (for ø6)<br>C8 (for ø8)<br>C10 (for ø10)<br>C12 (for ø12)<br>1/4, 3/8<br>N7 (for ø1/4")<br>N9 (for ø5/16")<br>N11 (for ø3/8") | F, T kit<br>14 stations<br>(13 stations)<br>L, C kit<br>18 stations<br>(17 stations) | VQ4□00<br>VQ4□01    |
|               |  |                             |   | 1/4  |  |                     |
| VV5Q45<br>□□□ | C kit – Connector  | Bottom                      |   | 1/4  |  | VQ4□50<br>VQ4□51    |

Note) Manifold for mounting is included. ( ) : E type

### Control Unit Specifications

|  |   |
|--|---|
| Air filter (With auto-drain/With manual drain) |   |
| Filtration                                     | 5 μm  |
| Regulator                                      |   |
| Set pressure (Outlet pressure)                 | 0.05 to 0.85 MPa                                    |
| Pressure switch Note 1)                        |   |
| Set pressure range: OFF                        | 0.1 to 0.6 MPa                                      |
| Differential                                   | 0.08 MPa or less                                    |
| Contact  | 1a  |
| Light  | LED (RED)   |
| Max. switch capacity                           | 2 VA (AC), 2 W (DC)                                 |
| Max. operating current                         | 50 mA at 24 VAC, DC or less<br>20 mA at 100 VAC, DC |
| Air release valve (Single only)                |   |
| Operating pressure range                       | 0.15 to 1 MPa                                       |

### Control Unit/Option

|                          |  |                |
|--------------------------|--|----------------|
| Air release valve        | VQ4 <sup>00</sup> <sub>5</sub> Y-5 <sup>(G)</sup> <sub>(H)</sub> 1(-Q) |                |
| Air release valve spacer | <Plug-in type><br>VVQ4000-24A-1D                                       |                |
|                          | <Plug lead type><br>VVQ4000-24A-5D                                     |                |
| Pressure switch          | IS1000P-2-1  |                |
| Blanking plate           | Regulator with filter  | MP2-3          |
|                          | Pressure switch  | MP3-2          |
| Filter element           | Release valve  | VVQ4000-24A-10 |
|                          | Plug lead  | VVQ4000-24A-15 |
| INA-13-854-12-5B         |  |                |

Note 1) Rated voltage: 24 VDC to 100 VAC  
Internal voltage drop: 4 V

Note 2) Combination of VQ41□□ (Single) and release valve spacer can be used as air release valve.

Note 3) Plug lead type can not be mounted later.

### How to Order

**VV5Q 4 1 - 08 C8 F U1**

**Series**  
4 VQ4000

**Manifold**  
1 Plug-in unit  
5 Plug lead unit

**Stations**  
02 2 stations

**Cylinder port**  
C6 ø6 One-touch fitting  
C8 ø8 One-touch fitting  
C10 ø10 One-touch fitting  
C12 ø12 One-touch fitting  
02 1/4  
03 3/8  
B Bottom ported 1/4  
CM Mixed  
N7 ø1/4" One-touch fitting  
N9 ø5/16" One-touch fitting  
N11 ø3/8" One-touch fitting

**Thread type**  
Nil Rc  
F G  
N NPT  
T NPTF

**Kit**  
Note 5)

**Air release valve coil rating**  
Nil Without air release valve (Only F, G type)  
51 24 VDC

**Control unit type**

| Symbol  | Nil        | A          | AP         | M          | MP         | F          | G          | C          | E         |
|---|------------|------------|------------|------------|------------|------------|------------|------------|-----------|
| Control equipment   |            |            |            |            |            |            |            |            |           |
| Air filter with auto-drain                                  |            | ●          | ●          |            |            |            |            |            |           |
| Air filter with manual drain                                |            |            |            | ●          | ●          |            | ●          |            |           |
| Regulator   |            | ●          | ●          |            |            | ●          | ●          |            |           |
| Air release valve   |            | ●          | ●          | ●          | ●          |            |            | ●          | ●         |
| Pressure switch   |            |            | ●          |            | ●          |            |            |            |           |
| Blanking plate (Air release valve)                          |            |            |            |            |            | ●          | ●          |            |           |
| Blanking plate (Filter, Regulator)                          |            |            |            |            |            |            |            | ●          |           |
| Blanking plate (Pressure switch)                            |            |            |            |            |            |            |            |            | ●         |
| Necessary number of manifold blocks for mounting (Stations) | 2 stations | 2 stations | 2 stations | 2 stations | 2 stations | 2 stations | 2 stations | 2 stations | 1 station |

**CE-compliant**  
Nil CE-compliant  
Q CE-compliant

Note) CE-compliant: For DC only.

**Option**

| Symbol     | Option   |
|------------|--|
| Nil        | None   |
| K Note 2)  | Special wiring specifications (Except double wiring) |
| N          | Name plate (Applicable to T kit)                     |
| SU Note 3) | Direct exhaust with silencer box: U side exhaust     |
| W Note 4)  | IP65 enclosure                                       |

Note 1) When multiple symbols are specified, indicate them alphabetically. Example: -KN  
Note 2) Specify wiring on the manifold specification sheet.  
Note 3) Mounting on S and T kits is not possible.  
Note 4) Combination with pressure switch (AP and MP type) is not possible.  
Note 5) The release valve and the pressure switch on S kit are connected to another power supply. Cable length is 0.6 m.

Note) Electrical entry: Control unit can not be removed except L and C kits.

## Use of Control Unit

### <Construction and piping>

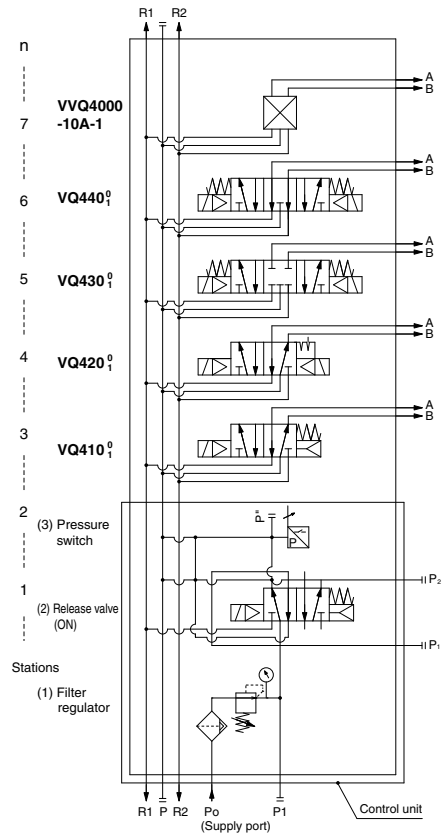
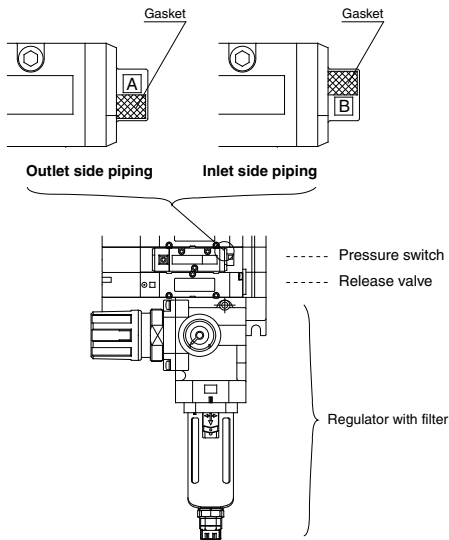
1. The supply pressure ( $P_o$ ) passes through the filter regulator (1) and is adjusted to the prescribed pressure. Next, it goes through the release valve (2) (outlet residual pressure switching function used as normally ON) and is supplied to the manifold base side (P).
2. Supply pressure from  $P_o$  port is blocked when release valve (2) is OFF. Air supplied to manifold side P port is exhausted to R1 port through release valve (2).
3. Pressure switch is piped at outlet side of release valve (2). (Release valve (2) is operated at energizing.) Also, since there is an internal voltage drop of 4 V, it may not be possible to confirm the OFF and ON states with a tester, etc.

### <Wiring>

1. Electrical entry of manifold (except L and C kit) is individual wiring. For details, refer to internal wiring figure of each kit. Cable length is 0.6 m for L kit.

### <Change of pressure switch piping>

1. Pressure switch (3) is changed to piping on inlet side of release valve (2), remove the pressure switch, reverse the gasket up and down, and fix **[B]** mark.
2. When pressure switch is mounted, tightening torque of bolt is 0.8 to 1.2 N·m.

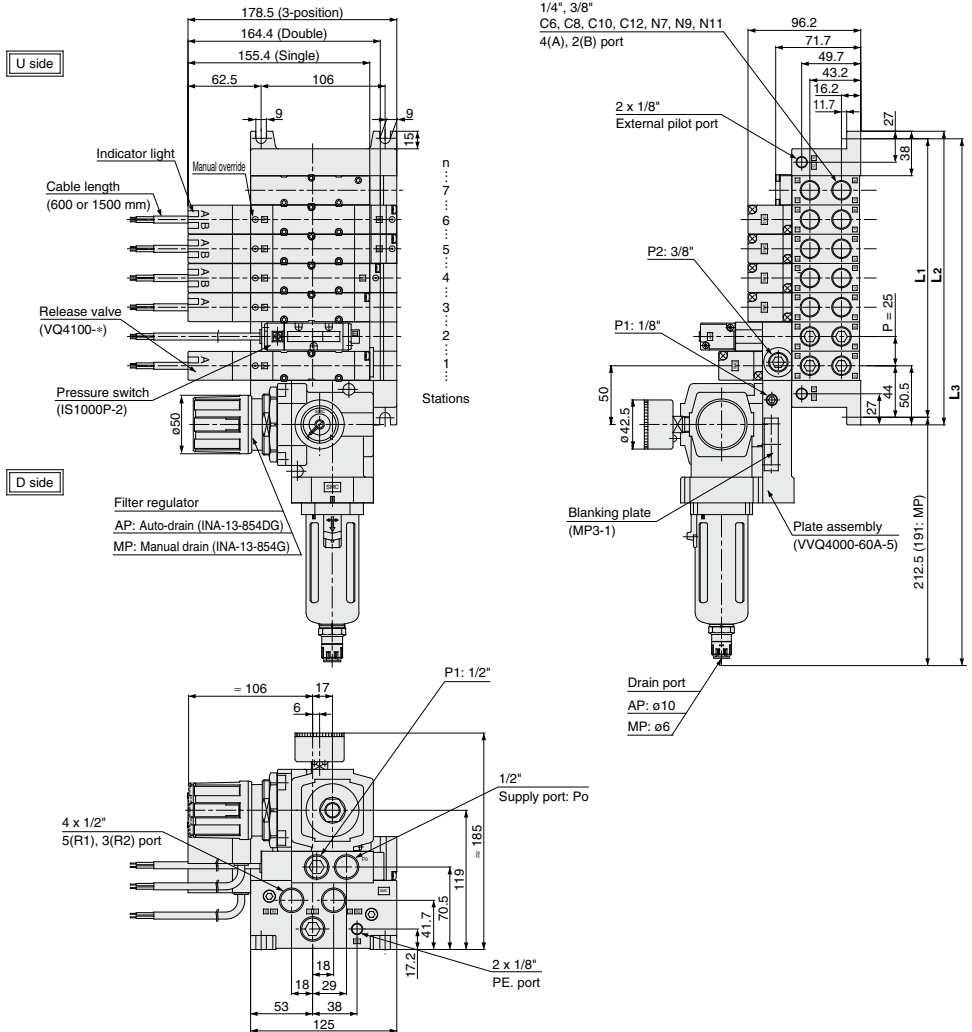


**Circuit of control unit manifold**

|         |
|---------|
| SV      |
| SYJ     |
| SZ      |
| VF      |
| VP4     |
| VQ 1/2  |
| VQ 4/5  |
| VQC 1/2 |
| VQC 4/5 |
| VQZ     |
| SQ      |
| VFS     |
| VFR     |
| VQ7     |



# Plug lead type



## Dimensions

Formula:  $L_1 = 25n + 63$ ,  $L_2 = 25n + 76$ ,  $L_3 = 25n + 282$  (260.5)  $n$ : Stations

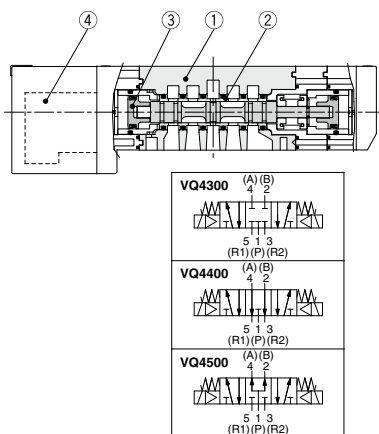
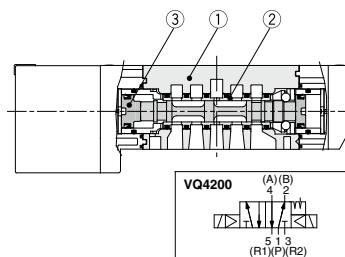
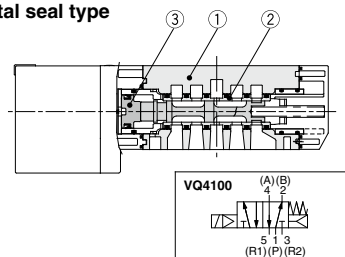
| L              | n | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      | 11      | 12      |
|----------------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| L <sub>1</sub> |   | 113     | 138     | 163     | 188     | 213     | 238     | 263     | 288     | 313     | 338     | 363     |
| L <sub>2</sub> |   | 126     | 151     | 176     | 201     | 226     | 251     | 276     | 301     | 326     | 351     | 376     |
| L <sub>3</sub> |   | 332     | 357     | 382     | 407     | 432     | 457     | 482     | 507     | 532     | 557     | 582     |
|                |   | (310.5) | (335.5) | (360.5) | (385.5) | (410.5) | (435.5) | (460.5) | (485.5) | (510.5) | (535.5) | (560.5) |

\* L<sub>3</sub> ( ): Type MP

# VQ4000 Series Construction

## Plug-in Unit

### Metal seal type



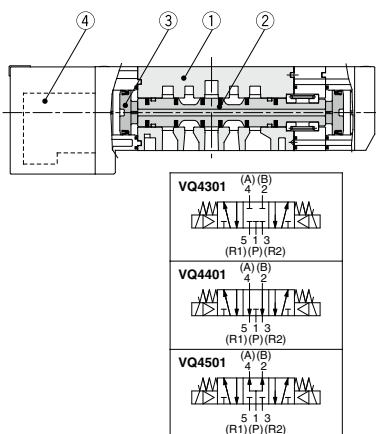
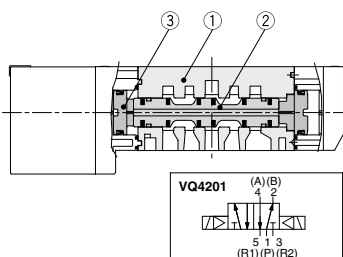
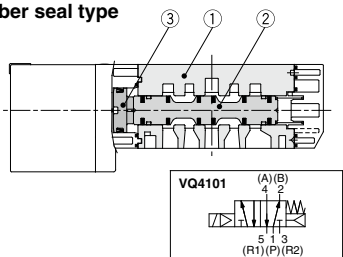
### Component Parts

| Number | Description  | Material            | Note |
|--------|--------------|---------------------|------|
| 1      | Body         | Aluminum die-casted |      |
| 2      | Spool/Sleeve | Stainless steel     |      |
| 3      | Piston       | Resin               |      |

### Replacement Parts

|     |                          |  |     |                   |   |                          |   |
|-----|--------------------------|--|-----|-------------------|---|--------------------------|---|
| 4   | Pilot valve assembly     | <div><div><div>V118□□□</div><div>A<br/>□<br/>B<br/>E</div></div><div><div>●Coil type</div><table><tr><td>Nil</td><td>Standard (0.95 W)</td></tr><tr><td>Y</td><td>Low wattage type (0.4 W)</td></tr></table></div></div> | Nil | Standard (0.95 W) | Y | Low wattage type (0.4 W) | <div><div>□: Coil rated voltage<br/>Example) 24 VDC: 5</div><div>A: With light (For A side)</div><div>B: With light (For B side)</div><div>E: Without light<br/>(A/B side common)</div></div> |
| Nil | Standard (0.95 W)        |  |     |                   |   |                          |   |
| Y   | Low wattage type (0.4 W) |  |     |                   |   |                          |   |

### Rubber seal type



### Component Parts

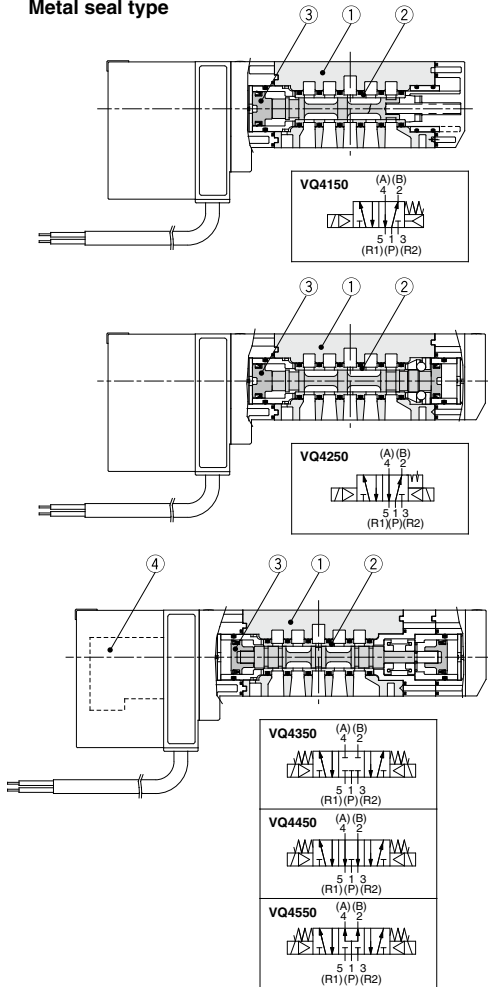
| Number | Description | Material            | Note |
|--------|-------------|---------------------|------|
| 1      | Body        | Aluminum die-casted |      |
| 2      | Spool valve | Aluminum, HNBR      |      |
| 3      | Piston      | Resin               |      |

### Replacement Parts

|   |                      |   |
|---|----------------------|---|
| 4 | Pilot valve assembly | <div><div><div>V118□□□<div>A<br/>□<br/>B<br/>E</div></div><div>● <b>Coil type</b><div><div>NilStandard (0.95 W)</div><div>YLow wattage type (0.4 W)</div></div></div></div></div> <div><div><input type="checkbox"/> Coil rated voltage<br/>Example) 24 VDC: 5</div><div>A: With light (For A side)</div><div>B: With light (For B side)</div><div>E: Without light<br/>(A/B side common)</div></div> |
|---|----------------------|---|

## Plug Lead Unit

### Metal seal type



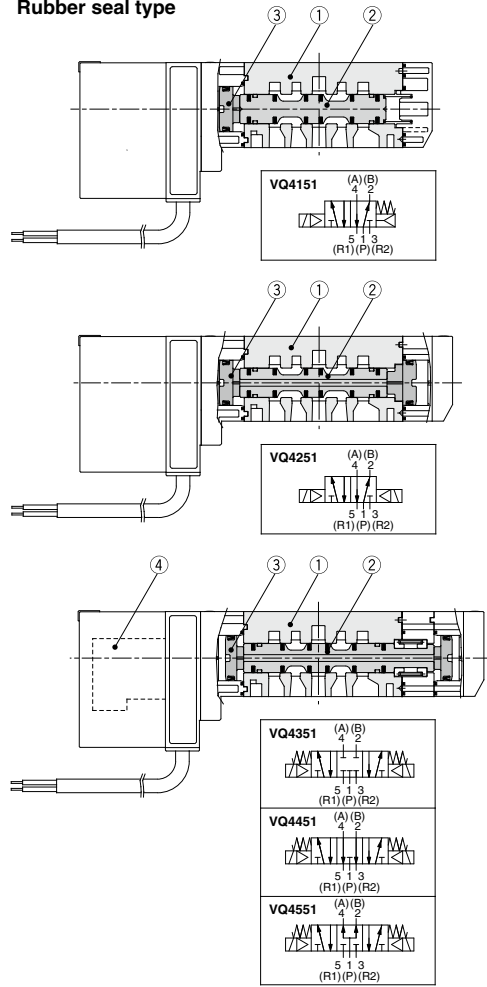
### Component Parts

| Number | Description  | Material            | Note |
|--------|--------------|---------------------|------|
| 1      | Body         | Aluminum die-casted |      |
| 2      | Spool/Sleeve | Stainless steel     |      |
| 3      | Piston       | Resin               |      |

### Replacement Parts

|     |                         |  |     |                  |   |                         |   |
|-----|-------------------------|--|-----|------------------|---|-------------------------|---|
| 4   | Pilot valve assembly    | <div><div><div>V118□□</div><div>A</div><div>B</div><div>E</div></div><div>●Coil type</div><table><tr><td>Nil</td><td>Standard (0.95W)</td></tr><tr><td>Y</td><td>Low wattage type (0.4W)</td></tr></table></div> | Nil | Standard (0.95W) | Y | Low wattage type (0.4W) | <div>□: Coil rated voltage<br/>Example) 24 VDC: 5</div> <div>A: With light (For A side)</div> <div>B: With light (For B side)</div> <div>E: Without light<br/>(A/B side common)</div> |
| Nil | Standard (0.95W)        |  |     |                  |   |                         |   |
| Y   | Low wattage type (0.4W) |  |     |                  |   |                         |   |

### Rubber seal type



### Component Parts

| Number | Description | Material            | Note |
|--------|-------------|---------------------|------|
| 1      | Body        | Aluminum die-casted |      |
| 2      | Spool valve | Aluminum, HNBR      |      |
| 3      | Piston      | Resin               |      |

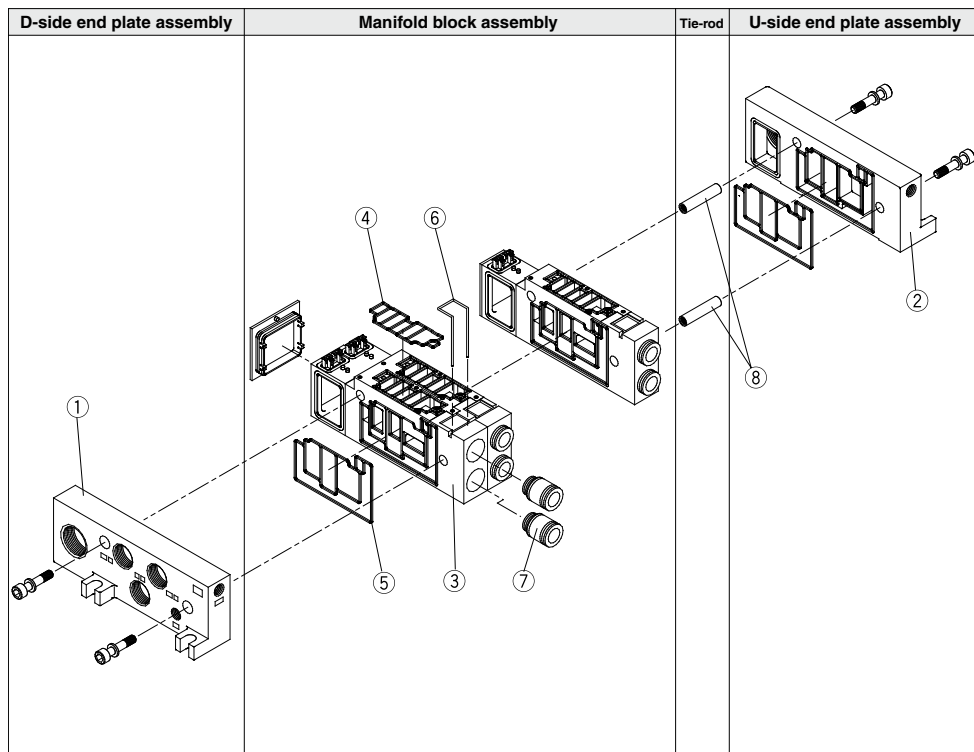
### Replacement Parts

|     |                         |   |     |                  |   |                         |   |
|-----|-------------------------|---|-----|------------------|---|-------------------------|---|
| 4   | Pilot valve assembly    | <div><div><div>V118□□A<br/>B<br/>E</div><div>●Coil type</div><table><tr><td>Nil</td><td>Standard (0.95W)</td></tr><tr><td>Y</td><td>Low wattage type (0.4W)</td></tr></table></div></div> | Nil | Standard (0.95W) | Y | Low wattage type (0.4W) | <div><div>□: Coil rated voltage<br/>Example) 24 VDC: 5</div><div>A: With light (For A side)</div><div>B: With light (For B side)</div><div>E: Without light<br/>(A/B side common)</div></div> |
| Nil | Standard (0.95W)        |   |     |                  |   |                         |   |
| Y   | Low wattage type (0.4W) |   |     |                  |   |                         |   |

SV  
SYJ  
SZ  
VF  
VP4  
VQ 1/2  
VQ 4/5  
VQC 1/2  
VQC 4/5  
VQZ  
SQ  
VFS  
VFR  
VQ7

# VQ4000 Series

## Exploded View of Manifold



Note) The electrical entry cannot be changed.

Figure shows a plug-in type.

D side

U side

Example) 1.....2.....3.....4.....5.....6.....Stations

5 stations (Odd number)

2 stations | 2 stations | 1 station

6 stations (Even number)

2 stations | 2 stations | 2 stations

## D-Side End Plate Assembly

### 1. D-side end plate assembly part no. (For F, L, S, T kit)

**VVQ4000-3A-1**

#### Thread type

|     |      |
|-----|------|
| Nil | Rc   |
| N   | NPT  |
| T   | NPTF |
| F   | G    |

#### Option 1

|     |                                  |
|-----|----------------------------------|
| Nil | Standard                         |
| CD  | For exhaust cleaner mounting     |
| SD  | Direct exhaust with silencer box |

#### Electrical entry

|            |                                      |
|------------|--------------------------------------|
| L          | F, L, S, T kit                       |
| F (Note 1) | F kit (Connector location on D side) |
| C          | C kit (Plug lead type)               |

Note 1) D-sub connector assembly for D side: VVQ4000-19A-D is not included. (Order separately)

#### Option 2

|            |                |
|------------|----------------|
| Nil        | Standard       |
| W (Note 2) | IP65 enclosure |

Note 2) Drip proof type for F kit is not available.

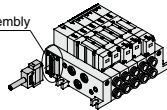
### D-side end plate assembly part no. (For input/output type for S kit)

**VVQ4000-3A-12**

\* With connector on the SI Unit

### D-sub connector assembly

D-sub connector assembly



## U-Side End Plate Assembly

### 2. U-side end plate assembly part no. (For F, L, S, T kit)

**VVQ4000-2A-1**

#### Thread type

|     |      |
|-----|------|
| Nil | Rc   |
| N   | NPT  |
| T   | NPTF |
| F   | G    |

#### Option 1

|     |                                  |
|-----|----------------------------------|
| Nil | Standard                         |
| CU  | For exhaust cleaner mounting     |
| SU  | Direct exhaust with silencer box |

#### Electrical entry

|            |                                      |
|------------|--------------------------------------|
| L          | F, L, S, T kit                       |
| F (Note 1) | F kit (Connector location on U side) |
| C          | C kit (Plug lead type)               |

Note 1) D-sub connector assembly for U side: VVQ4000-19A-U is not included. (Order separately)

#### Option 2

|            |                |
|------------|----------------|
| Nil        | Standard       |
| W (Note 2) | IP65 enclosure |

Note 2) Drip proof type for F kit is not available.

### U-side end plate assembly part no. (For input/output type for S kit)

**VVQ4000-2A-12**

\* With connector on the SI Unit

**VVQ4000-19A-**

|   |              |
|---|--------------|
| D | D side entry |
| U | U side entry |

## Manifold Block Assembly

### 3. Manifold block assembly part no. (Including ④, ⑤ and ⑥)

**VVQ4000-1**

#### Type

|   |                         |
|---|-------------------------|
| A | For 1 station           |
| C | For 2 stations (Note 3) |

#### Port thread type

|     |      |
|-----|------|
| Nil | Rc   |
| N   | NPT  |
| T   | NPTF |
| F   | G    |

#### Option

|            |                |
|------------|----------------|
| Nil        | Standard       |
| W (Note 2) | IP65 enclosure |

#### Electrical entry

|    |                              |
|----|------------------------------|
| F1 | F kit Double wiring          |
| F2 | F kit Single wiring          |
| T1 | T kit Double wiring          |
| T2 | T kit Single wiring          |
| S1 | S kit Double wiring          |
| S2 | S kit Single wiring          |
| L0 | L0 kit □: Stations (1 to 16) |
| L1 | L1 kit □: Stations (1 to 16) |
| L2 | L2 kit □: Stations (1 to 16) |
| C  | C kit (Plug lead type)       |

#### Port size

|     |                                  |
|-----|----------------------------------|
| 02  | 1/4                              |
| 03  | 3/8                              |
| B   | Bottom ported 1/4 (Note 4)       |
| C6  | With One-touch fitting for ø6    |
| C8  | With One-touch fitting for ø8    |
| C10 | With One-touch fitting for ø10   |
| C12 | With One-touch fitting for ø12   |
| N7  | With One-touch fitting for ø1/4  |
| N9  | With One-touch fitting for ø5/16 |
| N11 | With One-touch fitting for ø3/8  |

Note 1) Tie-rods (2 pcs.) and lead wire assembly for station addition included.  
 Note 2) Drip-proof F kit is not available.  
 Note 3) When ordering block assembly for L kit 2 stations, the lead wire should be ordered by the smaller numbers of the D side (no. of station).  
 Note 4) Bottom ported type: For 1-station type only.

## Manifold Block Replacement Parts

### Replacement Parts

| No. | Part no.      | Description | Material        | Q'ty |
|-----|---------------|-------------|-----------------|------|
| ④   | VVQ4000-80A-1 | Gasket      | HNBR            | 10   |
| ⑤   | VVQ4000-80A-2 | Gasket      | HNBR            | 10   |
| ⑥   | VVQ4000-80A-4 | Clip        | Stainless steel | 10   |

Note) Spare parts consist of sets containing 10 pcs. each.

## Fitting Assembly

### 7. Fitting assembly part no. (For cylinder port)

**VVQ4000-50B-**

#### Port size

|     |                         |
|-----|-------------------------|
| C6  | Applicable tubing ø6    |
| C8  | Applicable tubing ø8    |
| C10 | Applicable tubing ø10   |
| C12 | Applicable tubing ø12   |
| N7  | Applicable tubing ø1/4  |
| N9  | Applicable tubing ø5/16 |
| N11 | Applicable tubing ø3/8  |

Note) Purchasing order is available in units of 10 pieces.

### 8. Tie-rods part no. (2 pcs.)

**VVQ4000-TR-**

#### Stations: 02 to 18

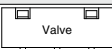

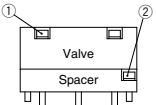
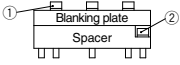
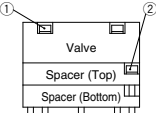
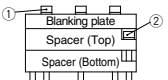
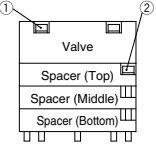
Note) When eliminating manifold stations, order this separately. When increasing manifold stations, it is not necessary to order since tie-rods are included in the manifold block assembly.

## Housing Assembly and SI Unit

| Kit type                        | Model symbol | Part no.                        | Description  |
|---------------------------------|--------------|---------------------------------|--|
| S<br>(Serial transmission unit) | 0            | —                               | Without SI Unit  |
|                                 | H            | EX123 $\frac{1}{2}$ -SUH1       | NKE Corp.: Fieldbus H System (16 output points)                    |
|                                 | Q            | EX124 $\frac{1}{2}$ -SDN1       | DeviceNet (2 power supply systems)                                 |
|                                 | R1           | EX124 $\frac{1}{2}$ -SCS1       | OMRON Corp.: CompoBus/S (16 output points, 2 power supply systems) |
|                                 | R2           | EX124 $\frac{1}{2}$ -SCS2       | OMRON Corp.: CompoBus/S (8 output points, 2 power supply systems)  |
|                                 | V            | EX124 $\frac{1}{2}$ -SMJ1       | CC-Link (2 power supply systems)                                   |
| T (Terminal block box kit)      | —            | VVQ5000-70A- $\frac{1}{2}$ -(W) | —  |

# VQ4000 Series

## List of Valves, Options, and Mounting Bolts

| Number of options | Valve and options   | Bolt part no.   | Qty (pcs) | Note   | Option mounting diagram  |
|-------------------|---|---|-----------|--|--|
| 0                 | Single valve  | AXT632-17-4 (M3 x 37)                                 | 3         |  |    |
|                   | Blanking plate (VVQ4000-10A- $\frac{1}{5}$ )  | AXT632-38-1 (M3 x 14)                                 | 4         | For manifold   |    |
| 1                 | Valve + Individual SUP spacer (VVQ4000-P- $\frac{1}{5}$ $\frac{02}{5}$ )  | ① AXT632-17-10 (M3 x 62)<br>② AXT632-17-19 (M3 x 26)  | 3<br>2    | For manifold   |    |
|                   | Valve + Individual EXH spacer (VVQ4000-R- $\frac{1}{5}$ $\frac{02}{5}$ )  | ① AXT632-17-10 (M3 x 62)<br>② AXT632-17-19 (M3 x 26)  | 3<br>2    | For manifold   |  |
|                   | Valve + Restrictor spacer (VVQ4000-20A- $\frac{1}{5}$ )   | ① AXT632-17-10 (M3 x 62)<br>② AXT632-17-19 (M3 x 26)  | 3<br>2    | Not necessary when mounting the sub-plate.                                   |  |
|                   | Valve + Release valve spacer (VVQ4000-24A- $\frac{1}{5}$ D)   | ① AXT632-17-10 (M3 x 62)<br>② AXT632-17-19 (M3 x 26)  | 3<br>2    | For manifold   |  |
|                   | Valve + SUP stop valve spacer (VVQ4000-37A- $\frac{1}{5}$ )   | ① AXT632-17-10 (M3 x 62)<br>② AXT632-17-19 (M3 x 26)  | 3<br>2    | Not necessary when mounting the sub-plate.                                   |    |
|                   | Valve + Double check spacer with residual pressure exhaust (VVQ4000-25A- $\frac{1}{5}$ )  | ① AXT632-17-11 (M3 x 87)<br>② AXT632-41-1 (M3 x 54)   | 3<br>2    | Not necessary when mounting the sub-plate.                                   |  |
|                   | Valve + Interface regulator (ARBQ4000-00B- $\frac{1}{5}$ )  | ① AXT632-17-11 (M3 x 87)<br>② AXT632-17-8 (M3 x 52)   | 3<br>2    | Not necessary when mounting the sub-plate.                                   |  |
|                   | Blanking plate + SUP stop valve (Top) (Bottom)  | ① AXT632-41-4 (M3 x 42)<br>② AXT632-17-19 (M3 x 26)   | 3<br>2    | For manifold   |  |
| 2                 | Valve + Individual SUP + Individual EXH (Top) (Bottom) (Top)  | ① AXT632-17-11 (M3 x 87)<br>② AXT632-17-8 (M3 x 52)   | 3<br>2    | For manifold   |    |
|                   | Valve + Restrictor + Individual SUP or Individual EXH (Top) (Bottom) (Top)  | ① AXT632-17-11 (M3 x 87)<br>② AXT632-17-8 (M3 x 52)   | 3<br>2    | For manifold<br>The individual EXH cannot be mounted on the top.             |  |
|                   | Valve + SUP stop valve + Individual SUP, Individual EXH or Restrictor (Top) (Bottom)  | ① AXT632-17-11 (M3 x 87)<br>② AXT632-17-8 (M3 x 52)   | 3<br>2    | For manifold   |  |
|                   | Valve + Double check spacer with + Individual SUP or residual pressure exhaust (Top) (Bottom)   | ① AXT632-17-14 (M3 x 112)<br>② AXT632-41-2 (M3 x 78)  | 3<br>2    | For manifold   |  |
|                   | Valve + Interface regulator + Individual SUP, Individual EXH or Restrictor (Top) (Bottom)   | ① AXT632-17-14 (M3 x 112)<br>② AXT632-41-2 (M3 x 78)  | 3<br>2    | For manifold<br>The individual EXH and restrictor can be mounted on the top. |  |
|                   | Valve + Restrictor + Double check spacer with residual pressure exhaust (Top) (Bottom)  | ① AXT632-17-14 (M3 x 112)<br>② AXT632-41-2 (M3 x 78)  | 3<br>2    | For manifold   |  |
|                   | Valve + Double check spacer with + Interface regulator residual pressure exhaust (Bottom) (Top)   | ① AXT632-17-16 (M3 x 137)<br>② AXT632-41-3 (M3 x 103) | 3<br>2    | For manifold   |  |
|                   | Blanking plate + SUP stop valve + Individual SUP (Top) (Bottom)   | ① AXT632-17-17 (M3 x 66)<br>② AXT632-17-8 (M3 x 52)   | 3<br>2    | For manifold   |  |
| 3                 | Valve + SUP stop valve (Top) + Individual SUP (Middle, Bottom) + Individual EXH (Middle, Bottom)  | ① AXT632-17-14 (M3 x 112)<br>② AXT632-17-13 (M3 x 77) | 3<br>2    | For manifold   |  |
|                   | Valve + Double check spacer with residual pressure exhaust (Top) + Individual SUP (Middle, Bottom) + Individual EXH (Middle, Bottom)                                | ① AXT632-17-16 (M3 x 137)<br>② AXT632-41-3 (M3 x 103) | 3<br>2    | For manifold   |  |
|                   | Valve + Spacer (Top); Interface regulator Spacer (Middle); Individual SUP or Individual EXH/Restrictor Spacer (Bottom); Restrictor/Individual SUP or Individual EXH | ① AXT632-17-16 (M3 x 137)<br>② AXT632-41-3 (M3 x 103) | 3<br>2    | For manifold<br>The individual EXH and restrictor can be mounted on the top. |  |
|                   | Valve + Double check spacer with residual pressure exhaust (Top) + SUP stop valve (Middle) + Individual SUP (EXH) (Bottom)  | ① AXT632-17-16 (M3 x 137)<br>② AXT632-41-3 (M3 x 103) | 3<br>2    | For manifold   |  |
|                   | Valve + Interface regulator (TOP) + Double check spacer with residual pressure exhaust (Middle) + Individual SUP (EXH) (Bottom)                                     | ① AXT632-17-20 (M3 x 162)<br>② AXT632-41-5 (M3 x 128) | 3<br>2    | For manifold<br>available as special order                                   |  |

Note 1) When the SUP stop valve and individual SUP are mounted, the stop valve is mounted on the top of the individual SUP.

# Base Mounted

## Plug-in/Plug Lead: Single Unit

# VQ5000 Series



[Option]  
Note) CE-compliant:  
For DC only.

## Model

| Series | Configuration | Model           | Port size   | Flow rate characteristics   |     |      |                             |     |      | Response time [ms]  |                            |    | Weight [kg] |
|--------|---------------|-----------------|-------------|-----------------------------|-----|------|-----------------------------|-----|------|---------------------|----------------------------|----|-------------|
|        |               |                 |             | 1 → 4/2 (P → A/B)           |     |      | 4/2 → 5/3 (A/B → EA/EB)     |     |      | Standard:<br>0.95 W | Low wattage type:<br>0.4 W | AC |             |
|        |               |                 |             | C [dm <sup>3</sup> /s/bar]] | b   | Cv   | C [dm <sup>3</sup> /s/bar]] | b   | Cv   |                     |                            |    |             |
| VQ5000 | 2-position    | Single          | Metal seal  | VQ5100                      | 12  | 0.14 | 2.9                         | 14  | 0.18 | 3.4                 | 35                         | 38 | 0.59 (0.67) |
|        |               |                 | Rubber seal | VQ5101                      | 16  | 0.33 | 4.4                         | 17  | 0.31 | 4.7                 | 40                         | 43 | 0.58 (0.66) |
|        |               | Double          | Metal seal  | VQ5200                      | 12  | 0.14 | 2.9                         | 14  | 0.18 | 3.4                 | 20                         | 23 | 0.62 (0.70) |
|        |               |                 | Rubber seal | VQ5201                      | 16  | 0.33 | 4.4                         | 17  | 0.31 | 4.7                 | 25                         | 28 | 0.60 (0.68) |
|        | 3-position    | Closed center   | Metal seal  | VQ5300                      | 11  | 0.24 | 2.6                         | 11  | 0.23 | 2.8                 | 50                         | 53 | 0.70 (0.65) |
|        |               |                 | Rubber seal | VQ5301                      | 12  | 0.33 | 3.4                         | 13  | 0.37 | 3.7                 | 60                         | 63 | 0.58 (0.66) |
|        |               | Exhaust center  | Metal seal  | VQ5400                      | 12  | 0.13 | 2.9                         | 14  | 0.18 | 3.4                 | 50                         | 53 | 0.70 (0.65) |
|        |               |                 | Rubber seal | VQ5401                      | 14  | 0.39 | 3.9                         | 16  | 0.35 | 4.5                 | 60                         | 63 | 0.58 (0.66) |
|        |               | Pressure center | Metal seal  | VQ5500                      | 12  | 0.23 | 2.9                         | 13  | 0.24 | 3.3                 | 50                         | 53 | 0.70 (0.65) |
|        |               |                 | Rubber seal | VQ5501                      | 13  | 0.32 | 3.4                         | 14  | 0.40 | 3.9                 | 60                         | 63 | 0.58 (0.66) |
|        |               | Double check    | Metal seal  | VQ5600                      | 8.0 | —    | —                           | 8.5 | —    | —                   | 62                         | 65 | 1.17 (1.25) |
|        |               |                 | Rubber seal | VQ5601                      | 8.3 | —    | —                           | 9.0 | —    | —                   | 75                         | 78 | 1.10 (1.18) |

Note 1) Value for valve on sub-plate.

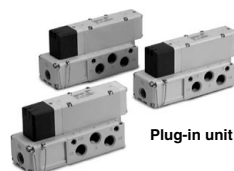
Note 2) Cylinder port 1/2: Value for valve on sub-plate.

Note 3) Based on JIS B 8419: 2010. (Supply pressure: 0.5 MPa, with indicator light and surge voltage suppressor, clean air.

This will change depending on pressure and air quality.) The value when ON for the double type.

Note 4) Values inside ( ) indicate the weight of plug lead units.

Table: Without sub-plate, With sub-plate; Add 0.65 kg for plug-in type, 0.55 kg for plug lead type.



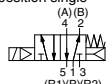
Plug-in unit



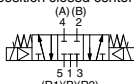
Plug lead unit

## Symbol

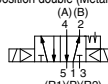
2-position single



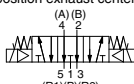
3-position closed center



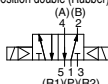
2-position double (Metal)



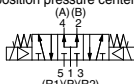
3-position exhaust center



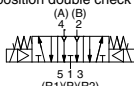
2-position double (Rubber)



3-position pressure center



3-position double check



## Standard Specifications

| Valve specifications      | Valve construction            |   | Metal seal                       | Rubber seal                      |
|---------------------------|-------------------------------|---|----------------------------------|----------------------------------|
|                           | Fluid                         |   | Air/Inert gas                    |                                  |
| Valve specifications      | Max. operating pressure       | Standard (DC and AC)<br>Low wattage type (DC) | 1.0 MPa                          |                                  |
|                           | Min. operating pressure       | Single<br>Double<br>3-position                | 0.10 MPa<br>0.10 MPa<br>0.15 MPa | 0.20 MPa<br>0.15 MPa<br>0.20 MPa |
|                           | Proof pressure                | 1.5 MPa                                       |                                  |                                  |
|                           | Ambient and fluid temperature | -10 to 50°C Note 1)                           |                                  |                                  |
| Electrical specifications | Lubrication                   | Not required                                  |                                  |                                  |
|                           | Manual override               | Push type/Locking type (Tool required)        |                                  |                                  |
|                           | Impact/Vibration resistance   | 150/30 m/s <sup>2</sup> Note 2)               |                                  |                                  |
|                           | Enclosure                     | Dust-tight (IP65 compatible) Note 3)          |                                  |                                  |
|                           | Coil rated voltage            | 12, 24 VDC, 100, 110, 200, 220 VAC (50/60 Hz) |                                  |                                  |
|                           | Allowable voltage fluctuation | ±10% of rated voltage                         |                                  |                                  |
|                           | Coil insulation type          | Class B or equivalent                         |                                  |                                  |
|                           | Power consumption [W]         | DC  | Standard                         | 0.95                             |
|                           |                               |   | Low wattage type                 | 0.4                              |
|                           | Apparent power [VA]           | AC  | 100 V                            | 1.19                             |
|                           |                               |   | 110 V                            | 1.32                             |
|                           |                               |   | 200 V                            | 1.90                             |
|                           |                               |   | 220 V                            | 2.08                             |

Note 1) Use dry air to prevent condensation when operating at low temperatures.

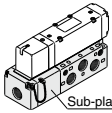
Note 2) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)

Vibration resistance: 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 3) Available only with T, L, S and C.

## How to Order Valves (Single Unit)

**Body**

0: Plug-in sub-plate  


**Port size**

|     |                                  |
|-----|----------------------------------|
| Nil | Without sub-plate (For manifold) |
| 04  | 1/2                              |

**Enclosure**

|     |                                    |
|-----|------------------------------------|
| Nil | Dust-protected                     |
| W   | Dust-tight/ Water-jet-proof (IP65) |

**Thread type**

|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |

**Plug-in** VQ5 1 0 0 - 5

**Plug lead** VQ5 2 5 1 - 5 G

**Type of actuation**

1 2-position single (A)(B) 4 2 5 1 3 (R1)(P)(R2)

2 2-position double (A)(B) 4 2 5 1 3 (R1)(P)(R2)

3 3-position closed center (A)(B) 4 2 5 1 3 (R1)(P)(R2)

4 3-position exhaust center (A)(B) 4 2 5 1 3 (R1)(P)(R2)

5 3-position pressure center (A)(B) 4 2 5 1 3 (R1)(P)(R2)

6 3-position double check (A)(B) 4 2 5 1 3 (R1)(P)(R2)

Note) For details about double check type, refer to page 524.

**Porting specifications**

|     |               |
|-----|---------------|
| Nil | Side ported   |
| B   | Bottom ported |

**CE-compliant**

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

Note) CE-compliant: For DC only.

**Manual override**

Nil: Non-locking push type (Tool required)

B: Locking type (Tool required)

C: Locking type (Manual)

**Light/Surge voltage suppressor**

|     |  |
|-----|--|
| Nil | Yes  |
| E   | Without light, with surge voltage suppressor |

**Coil voltage**

|   |                    |
|---|--------------------|
| 1 | 100 VAC (50/60 Hz) |
| 2 | 200 VAC (50/60 Hz) |
| 3 | 110 VAC (50/60 Hz) |
| 4 | 220 VAC (50/60 Hz) |
| 5 | 24 VDC             |
| 6 | 12 VDC             |

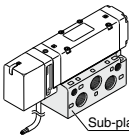
**Electrical entry**

|   |                        |
|---|------------------------|
| G | Lead wire length 0.6 m |
| H | Lead wire length 1.5 m |

**Seal**

|   |             |
|---|-------------|
| 0 | Metal seal  |
| 1 | Rubber seal |

**Body**

5: Plug lead sub-plate  


## How to Order Sub-plates

VQ5000 - P - 04 -

**Electrical entry**

|   |                          |
|---|--------------------------|
| P | Plug-in conduit terminal |
| S | Plug lead                |

**Enclosure**

|          |                            |
|----------|----------------------------|
| Nil      | Dust-protected             |
| W (Note) | Dust-tight/Water-jet-proof |

Note) Not required for plug lead type.

**Thread type**

|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |

**CE-compliant**

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

**Porting specifications**

|     |               |
|-----|---------------|
| Nil | Side ported   |
| B   | Bottom ported |

**Port size**

|    |     |
|----|-----|
| 04 | 1/2 |
|----|-----|

Note) For bottom ported, port size is 1/2.

### Replacement of pilot valve assembly (Voltage)

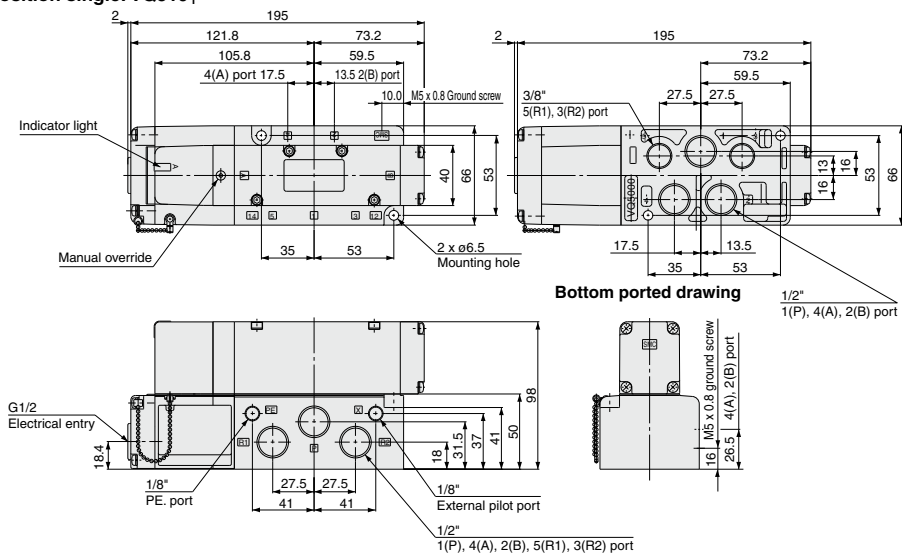
- Refer to pages 528 and 529 for pilot valve assembly part numbers.
- Refer to page 534 for replacement method.

# VQ5000 Series

## Dimensions: Plug-in Type

### Conduit terminal

#### 2-position single: VQ510<sup>0</sup>

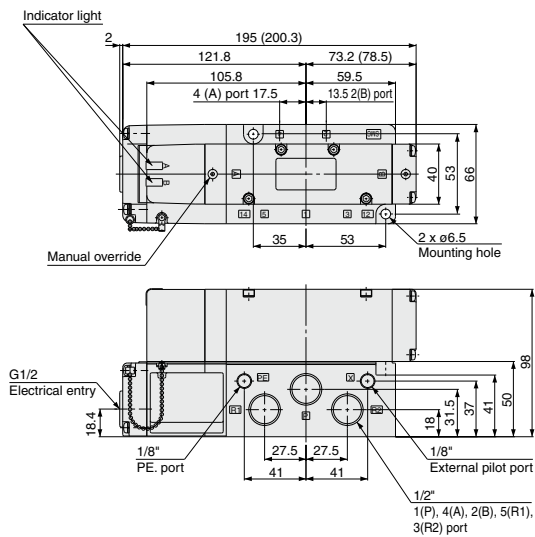


#### 2-position double: VQ520<sup>0</sup>

#### 3-position closed center: VQ530<sup>0</sup>

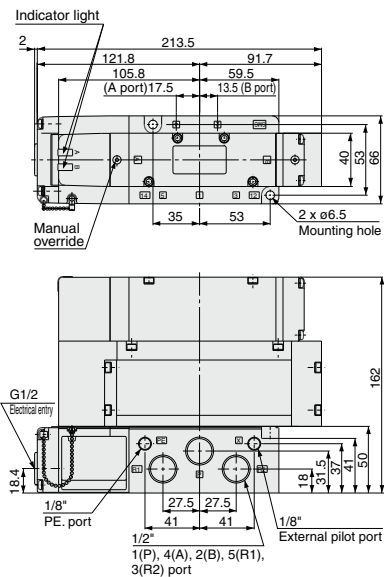
#### 3-position exhaust center: VQ540<sup>0</sup>

#### 3-position pressure center: VQ550<sup>0</sup>



Numbers inside ( ) are for metal seal 3-position type.

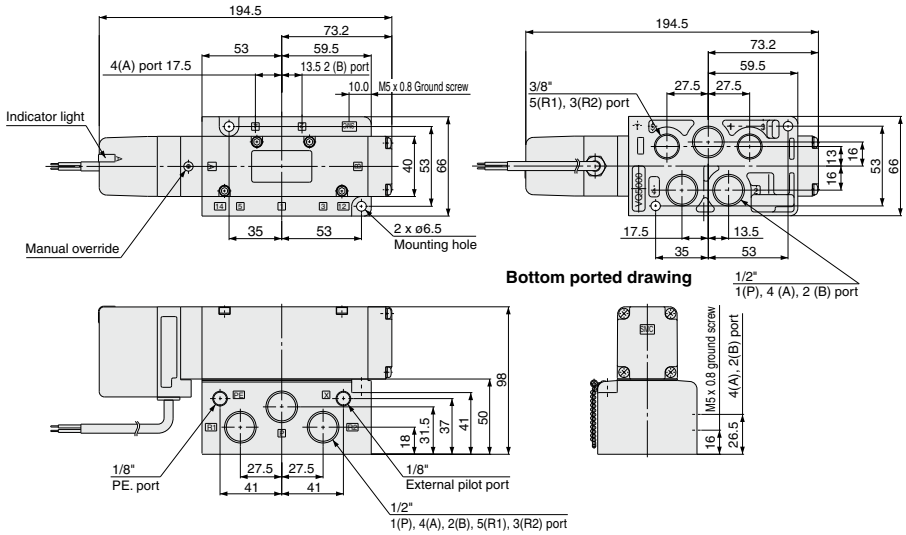
#### 3-position double check: VQ560<sup>0</sup>



## Dimensions: Plug Lead Type

### Grommet

#### 2-position single: VQ515<sup>0</sup>-□<sup>G</sup><sub>H</sub>

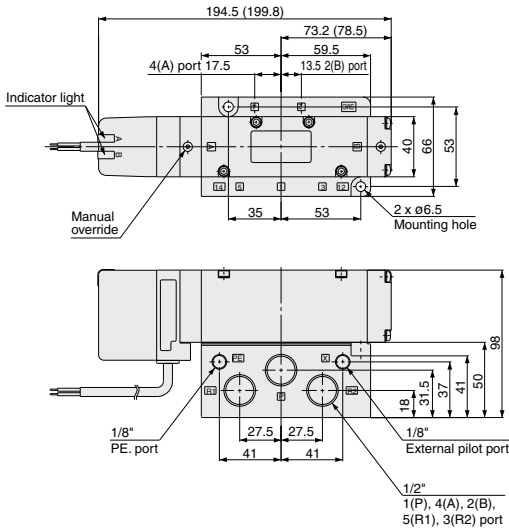


#### 2-position double: VQ525<sup>0</sup>-□<sup>G</sup><sub>H</sub>

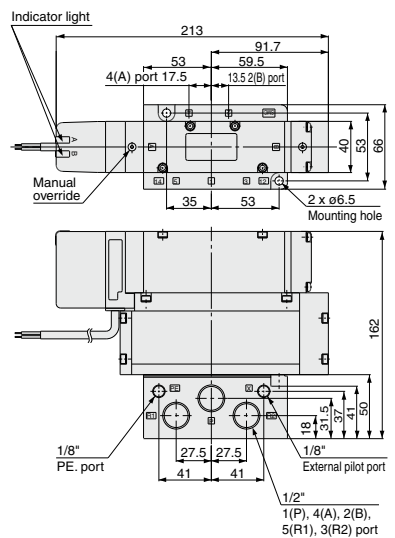
#### 3-position closed center: VQ535<sup>0</sup>-□<sup>G</sup><sub>H</sub>

#### 3-position exhaust center: VQ545<sup>0</sup>-□<sup>G</sup><sub>H</sub>

#### 3-position pressure center: VQ555<sup>0</sup>-□<sup>G</sup><sub>H</sub>



#### 3-position double check: VQ565<sup>0</sup>-□<sup>G</sup><sub>H</sub>



Numbers inside ( ) are for metal seal 3-position type.

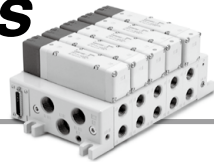
# Base Mounted

## Plug-in Unit

# VQ5000 Series



[Option]  
Note) CE-compliant:  
For DC only.



### How to Order Manifold

VV5Q 5 1 - 08 03 [ ] F U1 - [ ] - [ ]

| Series |        |
|--------|--------|
| 5      | VQ5000 |

| Manifold |              |
|----------|--------------|
| 1        | Plug-in unit |

| Station |           |
|---------|-----------|
| 01      | 1 station |
| ⋮       | ⋮         |

Minimum number of stations depends on the kit.  
(Refer to the table below.)

#### Cylinder port

|    |                   |
|----|-------------------|
| 03 | 3/8               |
| 04 | 1/2               |
| B  | Bottom ported 1/2 |
| CM | Mixed (Note)      |

Note) In case of mixed specification, indicate on the manifold specification sheet.

| Thread type |      |
|-------------|------|
| Nil         | Rc   |
| F           | G    |
| N           | NPT  |
| T           | NPTF |

#### Kit type

#### Option

| Symbol       | Option  |
|--------------|---|
| Nil          | None  |
| CD1 (Note 2) | Exhaust cleaner for Rc 1: D side exhaust                          |
| CD2 (Note 2) | Exhaust cleaner for Rc 1 1/2: D side exhaust                      |
| CU1 (Note 2) | Exhaust cleaner for Rc 1: U side exhaust                          |
| CU2 (Note 2) | Exhaust cleaner for Rc 1 1/2: U side exhaust                      |
| K (Note 4)   | Special wiring specifications (Except double wiring)              |
| N            | Name plate (T kit only)   |
| SB (Note 3)  | Direct exhaust with silencer box: Exhaust from both D and U sides |
| SD (Note 2)  | Direct exhaust with silencer box: D side exhaust                  |
| SU (Note 2)  | Direct exhaust with silencer box: U side exhaust                  |
| W            | IP65 enclosure (Except F and T1 kits)                             |

Note 1) When multiple symbols are specified, indicate them alphabetically.

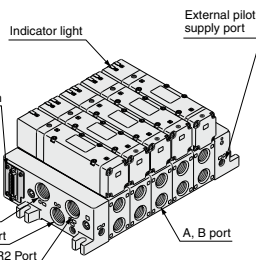
Example) -CD1K

Note 2) Combination of [C□□] and [S□] is not possible. Also, exhaust cleaner is not attached. Please order it separately.

Note 3) Available only with F, L and T1 kits.

Note 4) Specify the wiring specifications on the manifold specification sheet. (Except L kit)

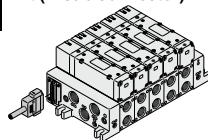
| Option |              |
|--------|--------------|
| Nil    | —            |
| Q      | CE-compliant |



Note) Figure shows VV5Q51-0504FD0.

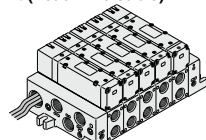
#### Kit/Electrical entry/Cable length

#### F Kit (D-sub connector)



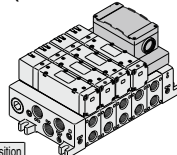
| Connector entry direction |        |                    |                  |
|---------------------------|--------|--------------------|------------------|
| D side                    | U side |                    |                  |
| D0                        | U0     | Without cable      | 1 to 12 stations |
| D1                        | U1     | Cable length 1.5 m |                  |
| D2                        | U2     | Cable length 3 m   |                  |
| D3                        | U3     | Cable length 5 m   |                  |

#### L Kit (Lead wire cable)



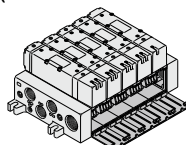
| Connector entry direction |        |                    |                  |
|---------------------------|--------|--------------------|------------------|
| D side                    | U side |                    |                  |
| D0                        | U0     | Cable length 0.6 m | 1 to 12 stations |
| D1                        | U1     | Cable length 1.5 m |                  |
| D2                        | U2     | Cable length 3 m   |                  |

#### T Kit (Terminal block box kit)



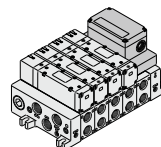
| Box mounting position |        |  |
|-----------------------|--------|--|
| D side                | U side |  |
| TD                    | TU     | Terminal block box 2 to 12 stations (Note) |

#### T1 Kit (Individual terminal block kit)



|        |                      |                  |
|--------|----------------------|------------------|
| T1 Kit | With terminal blocks | 1 to 12 stations |
|--------|----------------------|------------------|

#### S Kit (Serial transmission unit)



The valve voltage is 24 VDC and it is equipped with light/surge voltage suppressor.

#### Unit mounting position

| Unit mounting position |        |  |   |
|------------------------|--------|--|---|
| D side                 | U side |  |   |
| SD                     | 0      | Without SI Unit                            | ● |
|                        | H      | NKE Corp.: Fieldbus H System               | — |
|                        | Q      | DeviceNet                                  | ● |
|                        | R1     | OMRON Corp.: CompoBus/S (16 output points) | ● |
|                        | R2     | OMRON Corp.: CompoBus/S (8 output points)  | ● |
|                        | V      | CC-LINK System                             | ● |

2 to 12 stations (Note)

Note) For the T kit and S kit, one station is required to mount the terminal block box or SI Unit, so the minimum number of stations is 2 stations.

## Manifold Specifications

| Series | Base model | Type of connection  | Porting specifications   |  |            | Maximum applicable stations  | Applicable valve | Weight [kg] (Formula)   |
|--------|------------|---|--------------------------|--|------------|--|------------------|---|
|        |            |   | 4(A), 2(B) port location | Port size  |            |  |                  |   |
|        |            |   |                          | 1(P), 5(R1), 3(R2)                               | 4(A), 2(B) |  |                  |   |
| VQ5000 | VV5Q51-□□□ | ■ F kit—D-sub connector<br>■ T kit—Terminal block box<br>■ T1 kit—Individual terminal block kit<br>■ L kit—Lead wire<br>■ S kit—Serial transmission | Side                     | 3/4 Option<br>(Direct exhaust with silencer box) | 3/8<br>1/2 | F, L, T1 kits<br>12 stations<br>T kit<br>12 stations<br>S kit<br>12 stations | VQ5□00<br>VQ5□01 | F, L kit:<br>0.62n + 1.4<br>S, T kit:<br>0.62(n-1) + 2.6<br><br>• Not including valve weight. |
|        |            |   | Bottom                   |  | 1/2        |  |                  |   |

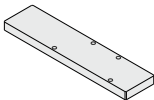
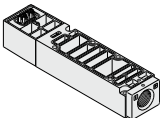
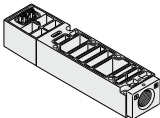
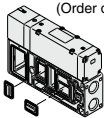
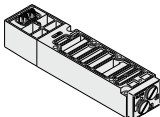
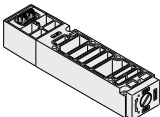
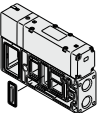
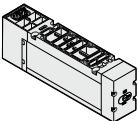
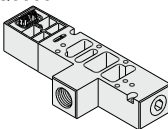
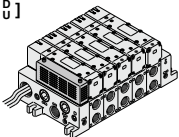
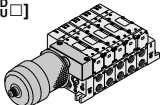
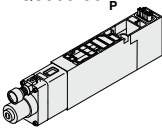
n: Stations

## Flow Rate Characteristics at the Number of Manifold Stations (Operated individually)

| Model   | Passage/Stations        |                              | Station 1 | Station 5 | Station 10 |
|---|-------------------------|------------------------------|-----------|-----------|------------|
| 2-position metal seal<br>VQ5 <sub>2</sub> 00  | 1 → 4/2 (P → A/B)       | C [dm <sup>3</sup> /(s·bar)] | 11        | 11        | 11         |
|   |                         | b                            | 0.24      | 0.24      | 0.24       |
|   |                         | Cv                           | 2.7       | 2.7       | 2.7        |
|   | 4/2 → 5/3 (A/B → EA/EB) | C [dm <sup>3</sup> /(s·bar)] | 12        | 12        | 12         |
|   |                         | b                            | 0.14      | 0.14      | 0.14       |
|   |                         | Cv                           | 2.9       | 2.9       | 2.9        |
| 2-position rubber seal<br>VQ5 <sub>2</sub> 01 | 1 → 4/2 (P → A/B)       | C [dm <sup>3</sup> /(s·bar)] | 12        | 12        | 12         |
|   |                         | b                            | 0.33      | 0.33      | 0.33       |
|   |                         | Cv                           | 3.4       | 3.4       | 3.4        |
|   | 4/2 → 5/3 (A/B → EA/EB) | C [dm <sup>3</sup> /(s·bar)] | 16        | 16        | 16         |
|   |                         | b                            | 0.33      | 0.33      | 0.33       |
|   |                         | Cv                           | 4.4       | 4.4       | 4.4        |

Note) For port size 1/2

## Manifold Options

|  |  |  |  |
|--|--|--|--|
| <b>Blanking plate assembly</b><br><b>VVQ5000-10A-1</b><br>                                | <b>Individual SUP spacer</b><br><b>VVQ5000-P-1-<sup>03</sup><sub>04</sub></b><br> | <b>Individual EXH spacer</b><br><b>VVQ5000-R-1-<sup>03</sup><sub>04</sub></b><br> | <b>EXH block plate</b><br><b>VVQ5000-16A-2 (1 pc./set)</b><br>(Order q'ty: 2 pcs.)<br>                                |
| <b>Restrictor spacer</b><br><b>VVQ5000-20A-1</b><br>                                    | <b>SUP stop valve spacer</b><br><b>VVQ5000-37A-1</b><br>                        | <b>SUP block plate</b><br><b>VVQ5000-16A-1</b><br>                              | <b>Double check spacer with residual pressure exhaust</b><br><b>VVQ5000-25A-1</b><br>                               |
| <b>Release valve spacer:</b><br><b>For D side mounting</b><br><b>VVQ5000-24A-1D</b><br> | <b>Direct exhaust with silencer box</b><br><b>[-S<sub>0</sub>□]</b><br>         | <b>Manifold mounted exhaust cleaner</b><br><b>[-C<sub>0</sub>□]</b><br>         | <b>Interface regulator</b><br><b>(P, A, B port regulation)</b><br><b>ARBQ5000-00-<sup>A</sup><sub>B</sub>-1</b><br> |

- Refer to pages 522 to 526 for detailed dimensions of each option.
- For replacement parts, refer to page 531.

SV

SYJ

SZ

VF

VP4

VQ

1/2

VQ

4/5

VQC

1/2

VQC

4/5

VQZ

SQ

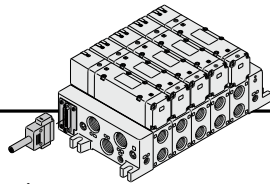
VFS

VFR

VQ7

# VQ5000 Series

## F Kit (D-sub connector kit)



- Simplification and labor savings for wiring work can be achieved by using a D-sub connector for the electrical connection.
- Using connector for flat ribbon cable (25P) conforming to MIL standard permits the use of connectors put on the market and gives a wide interchangeability.
- Connector entry can be selected on either the U side or the D side according to the mounting orientation.
- Maximum stations are 12.

### Manifold Specifications

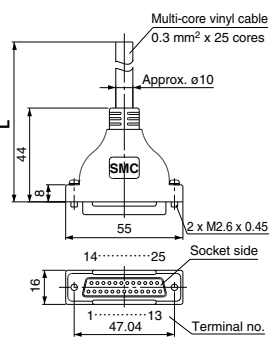
| Series | Porting specifications      |                    |            | Applicable stations |
|--------|-----------------------------|--------------------|------------|---------------------|
|        | 4(A), 2(B)<br>port location | Port size          |            |                     |
|        |                             | 1(P), 5(R1), 3(R2) | 4(A), 2(B) |                     |
| VQ5000 | Side                        | 3/4                | 3/8<br>1/2 | Max. 12 stations    |
|        | Bottom                      |                    | 1/2        |                     |

### D-Sub Connector Kit (25 pins)

### Cable assembly ●

AXT100-DS25-015  
030  
050

(D-sub connector cable assemblies can be ordered with manifolds.)  
(Refer to How to Order Manifold.)



### D-sub Connector Cable Assembly

| Cable length [L] | Assembly part no. | Note                                 |
|------------------|-------------------|--------------------------------------|
| 1.5 m            | AXT100-DS25-015   | Cable 0.3 mm <sup>2</sup> x 25 cores |
| 3 m              | AXT100-DS25-030   |                                      |
| 5 m              | AXT100-DS25-050   |                                      |

- \* For other commercial connectors, use a 25-pin type female connector conforming to MIL-C-24308.
- \* Cannot be used for transfer wiring.

### Connector Manufacturers Example

- Fujitsu, Limited
- Japan Aviation Electronics Industry, Limited
- J.S.T. Mfg. Co., Ltd.
- HIROSE ELECTRIC CO., LTD.

### Electric Characteristics

| Item                                 | Characteristics |
|--------------------------------------|-----------------|
| Conductor resistance<br>Ω/km, 20°C   | 65 or less      |
| Voltage limit<br>VAC, 1 min.         | 1000            |
| Insulation resistance<br>MΩ/km, 20°C | 5 or more       |

(Note) The minimum bending radius for D-sub connector cables is 20 mm.

### D-sub Connector Cable Assembly Terminal No.

| Terminal no. | Lead wire color | Dot marking |
|--------------|-----------------|-------------|
| 1            | Black           | None        |
| 2            | Brown           | None        |
| 3            | Red             | None        |
| 4            | Orange          | None        |
| 5            | Yellow          | None        |
| 6            | Pink            | None        |
| 7            | Blue            | None        |
| 8            | Purple          | White       |
| 9            | Gray            | Black       |
| 10           | White           | Black       |
| 11           | White           | Red         |
| 12           | Yellow          | Red         |
| 13           | Orange          | Red         |
| 14           | Yellow          | Black       |
| 15           | Pink            | Black       |
| 16           | Blue            | White       |
| 17           | Purple          | None        |
| 18           | Gray            | None        |
| 19           | Orange          | Black       |
| 20           | Red             | White       |
| 21           | Brown           | White       |
| 22           | Pink            | Red         |
| 23           | Gray            | Red         |
| 24           | Black           | White       |
| 25           | White           | None        |

(Note) Lengths other than the above are also available. Please contact SMC for details.

### How to Order Manifold



**VV5Q 5 1 - 08 03 F U 1 - -**

**Series**  
5 VQ5000

**Manifold**  
1 Plug-in unit

**Stations**  
01 1 station  
12 12 stations

**Cylinder port**  
03 3/8  
04 1/2  
B Bottom ported 1/2  
CM Mixed

**Thread type**  
Nil Rc  
F G  
N NPT  
T NPTF

**Connector entry direction**  
D D side entry  
U U side entry

**Cable (Length)**  
0 Without cable  
1 Cable length 1.5 m  
2 Cable length 3 m  
3 Cable length 5 m

**CE-compliant**  
Nil —  
Q CE-compliant

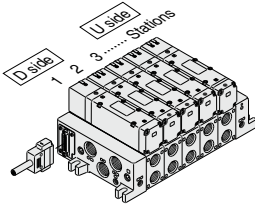
**Option**

| Symbol     | Option   |
|------------|--|
| Nil        | None   |
| CD1        | Exhaust cleaner for Rc 1 D side exhaust                              |
| CD2        | Exhaust cleaner for Rc 1 1/2 D side exhaust                          |
| CU1        | Exhaust cleaner for Rc 1 U side exhaust                              |
| CU2        | Exhaust cleaner for Rc 1 1/2 U side exhaust                          |
| K (Note 3) | Special wiring specifications (Except double wiring)                 |
| SB         | Direct exhaust with silencer box. For mounting on both D and U sides |
| SD         | Direct exhaust with silencer box: D side exhaust                     |
| SU         | Direct exhaust with silencer box: U side exhaust                     |

Note 1) When multiple symbols are specified, indicate them alphabetically. Example) -CD1K.  
Note 2) Combination of [C□□] and [S□] is not possible.  
Note 3) Specify the wiring specifications on the manifold specification sheet.

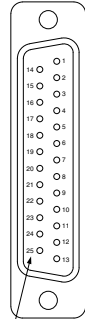


## Electrical wiring specifications



























Stations are counted starting from the first station on the D side.

### D-sub connector



Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types. Mixed single and double wiring is available as a semi-standard specification. For details, refer to below.

### Standard wiring

|             | Terminal no.  | Polarity                       | Lead wire color                | Dot marking |       |
|-------------|---|--------------------------------|--------------------------------|-------------|-------|
| 1 station   |  SOLA 1  | (-)                            | (+)                            | Black       | None  |
|             |  SOLB 14 | (-)                            | (+)                            | Yellow      | Black |
| 2 stations  |  SOLA 2  | (-)                            | (+)                            | Brown       | None  |
|             |  SOLB 15 | (-)                            | (+)                            | Pink        | Black |
| 3 stations  |  SOLA 3  | (-)                            | (+)                            | Red         | None  |
|             |  SOLB 16 | (-)                            | (+)                            | Blue        | White |
| 4 stations  |  SOLA 4  | (-)                            | (+)                            | Orange      | None  |
|             |  SOLB 17 | (-)                            | (+)                            | Purple      | None  |
| 5 stations  |  SOLA 5  | (-)                            | (+)                            | Yellow      | None  |
|             |  SOLB 18 | (-)                            | (+)                            | Gray        | None  |
| 6 stations  |  SOLA 6  | (-)                            | (+)                            | Pink        | None  |
|             |  SOLB 19 | (-)                            | (+)                            | Orange      | Black |
| 7 stations  |  SOLA 7  | (-)                            | (+)                            | Blue        | None  |
|             |  SOLB 20 | (-)                            | (+)                            | Red         | White |
| 8 stations  |  SOLA 8  | (-)                            | (+)                            | Purple      | White |
|             |  SOLB 21 | (-)                            | (+)                            | Brown       | White |
| 9 stations  |  SOLA 9  | (-)                            | (+)                            | Gray        | Black |
|             |  SOLB 22 | (-)                            | (+)                            | Pink        | Red   |
| 10 stations |  SOLA 10 | (-)                            | (+)                            | White       | Black |
|             |  SOLB 23 | (-)                            | (+)                            | Gray        | Red   |
| 11 stations |  SOLA 11 | (-)                            | (+)                            | White       | Red   |
|             |  SOLB 24 | (-)                            | (+)                            | Black       | White |
| 12 stations |  SOLA 12 | (-)                            | (+)                            | Yellow      | Red   |
|             |  SOLB 25 | (-)                            | (+)                            | White       | None  |
|             | COM. 13   | (+)                            | (-) <sup>Note</sup>            | Orange      | Red   |
|             |   | Positive common specifications | Negative common specifications |             |       |

Positive common specifications  
Negative common specifications

### D-sub connector assembly (AXT100-DS25-015 050) Wire colors

## Special Wiring Specifications

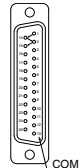
Double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types. Mixed single and double wiring is available as a semi-standard specification.

### 1. How to Order

Indicate option symbol "K" in the manifold part number and be sure to specify station positions for single or double wiring on the manifold specification sheet.

### 2. Wiring specifications

Connections begin with the A side solenoid of the first station being connected to terminal no. 1, and continue in the order indicated by the arrows in the drawing without skipping any terminals. However, the maximum number of stations is 12.



D-sub connector

## How to Order Valves

VQ 5 1 0 0 - 5 1 -

### 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 |
| 6 | 3-position double check    |

### Seal

|   |             |
|---|-------------|
| 0 | Metal seal  |
| 1 | Rubber seal |

### Series

|   |        |
|---|--------|
| 5 | VQ5000 |
|---|--------|

### Function

|             |                          |
|-------------|--------------------------|
| NH (Note 1) | Standard (0.95 W)        |
| Y (Note 2)  | Low wattage type (0.4 W) |
| R (Note 3)  | External pilot           |

### Manual override

|    |                                       |
|----|---------------------------------------|
| NH | Non-locking push type (Tool required) |
| B  | Locking type (Tool required)          |
| C  | Locking type (Manual)                 |

### Light/Surge voltage suppressor

|    |  |
|----|--|
| NH | Yes  |
| E  | Without light, with surge voltage suppressor |

### Coil voltage

|   |                    |
|---|--------------------|
| 1 | 100 VAC (50/60 Hz) |
| 2 | 200 VAC (50/60 Hz) |
| 3 | 110 VAC (50/60 Hz) |
| 4 | 220 VAC (50/60 Hz) |
| 5 | 24 VDC             |
| 6 | 12 VDC             |

### CE-compliant

|    |              |
|----|--------------|
| NH | —            |
| Q  | CE-compliant |

Note) CE-compliant: For DC only.



[Option]

## How to Order Manifold Assembly

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

### <Example>

D-sub connector kit with cable (3 m)

VV5Q51-0503FD2(-Q)-1 set—Manifold base part no.

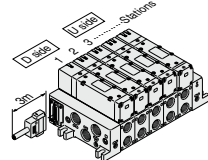
\*VQ5100-51(-Q).....2 sets—Valve part no. (Stations 1 and 2)

\*VQ5200-51(-Q).....2 sets—Valve part no. (Stations 3 and 4)

\*VQ5300-51(-Q).....1 set—Valve part no. (Station 5)

Prefix the asterisk to the part nos. of the valve etc.

Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



Note 1) When the unit is energized continuously, refer to "Specific Product Precautions 1" on page 533.

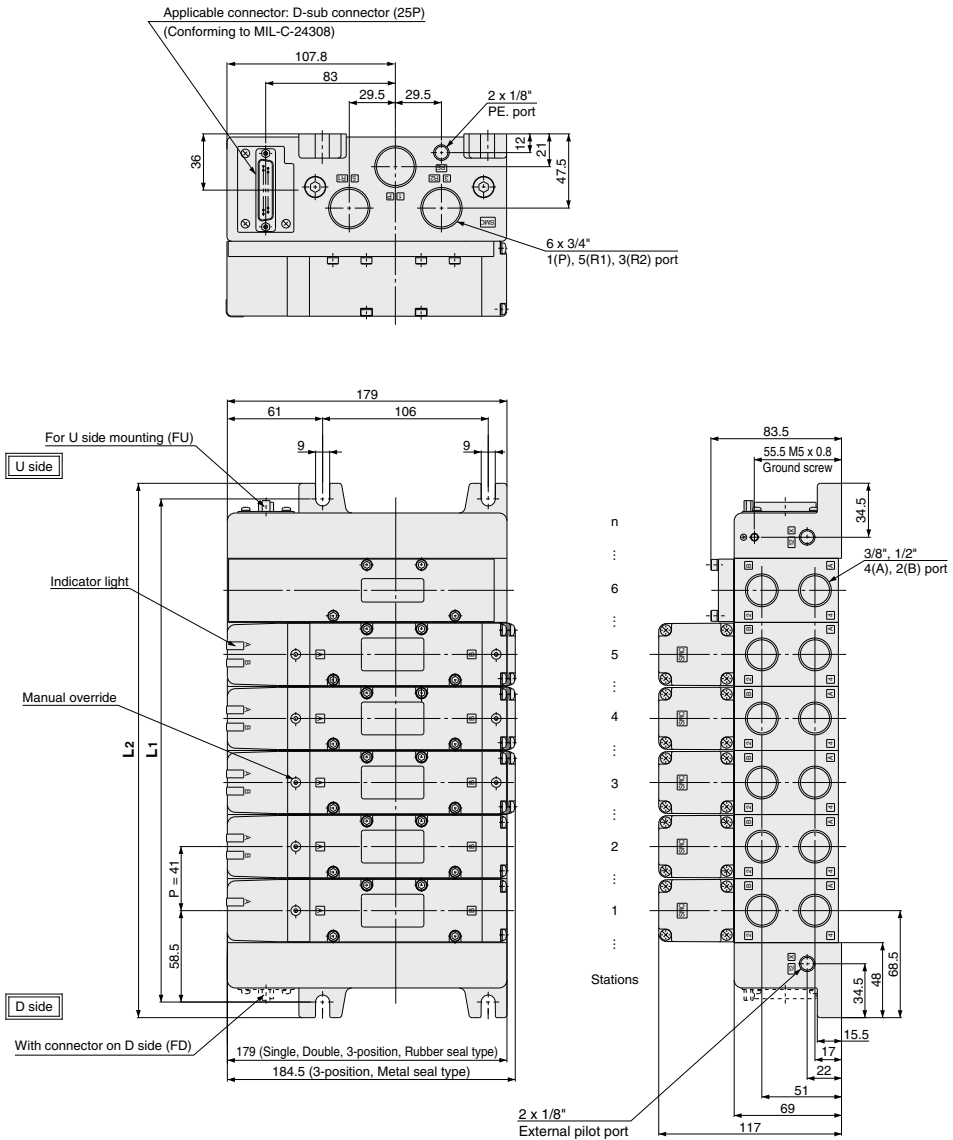
Note 2) In addition, only DC is available with Y.

Note 3) For details about external pilot specifications, refer to page 527.

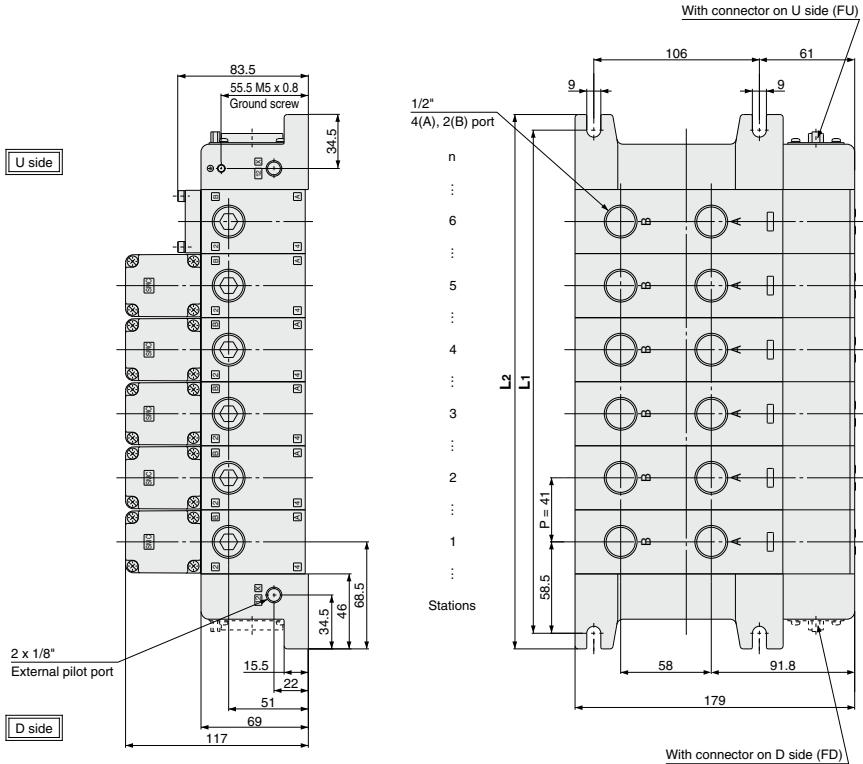
Note 4) When multiple symbols are specified, indicate them alphabetically.

# VQ5000 Series

## F Kit (D-sub connector kit)



Bottom ported drawing



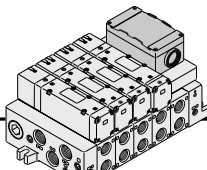
|         |
|---------|
| SV      |
| SYJ     |
| SZ      |
| VF      |
| VP4     |
| VQ 1/2  |
| VQ 4/5  |
| VQC 1/2 |
| VQC 4/5 |
| VQZ     |
| SQ      |
| VFS     |
| VFR     |
| VQ7     |

| Dimensions     |     | Formula: $L_1 = 41n + 76$ , $L_2 = 41n + 96$ n: Stations (Maximum 12 stations) |     |     |     |     |     |     |     |     |     |     |    |
|----------------|-----|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| L              | n   | 1  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12 |
| L <sub>1</sub> | 117 | 158  | 199 | 240 | 281 | 322 | 363 | 404 | 445 | 486 | 527 | 568 |    |
| L <sub>2</sub> | 137 | 178  | 219 | 260 | 301 | 342 | 383 | 424 | 465 | 506 | 547 | 588 |    |

# VQ5000 Series

## T Kit (Terminal block box kit)

IP65 compliant



- Enclosure IP65 compliant
- This type has a small terminal block inside a junction box. The provision of a G3/4 electrical entry allows connection of conduit fittings.
- Maximum stations are 11. (12 stations as a semi-standard specification)
- 1 station is used for terminal block box mounting.

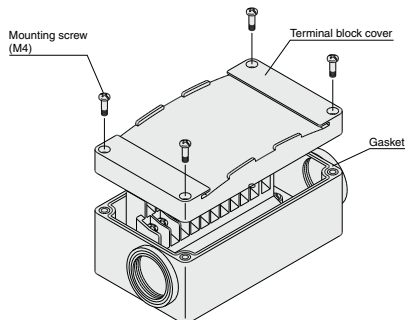
### Manifold Specifications

| Series | Porting specifications      |                    |            | Applicable stations |
|--------|-----------------------------|--------------------|------------|---------------------|
|        | 4(A), 2(B)<br>port location | Port size          |            |                     |
|        |                             | 1(P), 5(R1), 3(R2) | 4(A), 2(B) |                     |
| VQ5000 | Side                        | 3/4                | 3/8<br>1/2 | Max. 12 stations    |
|        | Bottom                      |                    | 1/2        |                     |

### Terminal Block Connections

#### Step 1. How to remove terminal block cover

Loosen the 4 mounting screws (M4) and open the terminal block cover.



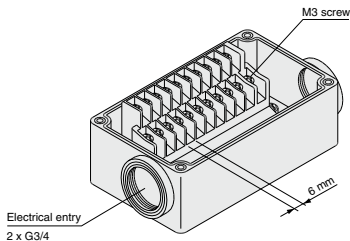
#### Step 3. How to attach the terminal block cover

Securely tighten the screws with the torque shown in the table below, after confirming that the gasket is installed correctly.

| Proper tightening torque [N·m] |
|--------------------------------|
| 0.7 to 1.2                     |

#### Step 2. The diagram on the right shows the terminal block wiring. All stations are provided with double wiring regardless of the valves which are mounted.

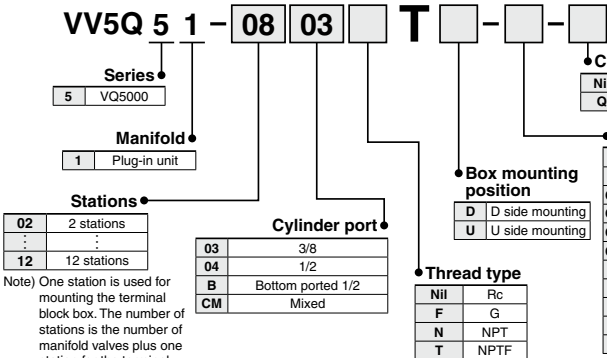
Connect each wire to the power supply side, according to the markings provided inside the terminal block.



- Applicable terminal: 1.25-3S, 1.25Y-3, 1.25Y-3N, 1.25Y-3.5
- Name plate: VVQ5000-N-T
- Drip-proof plug assembly (for G3/4): AXT100-B06A



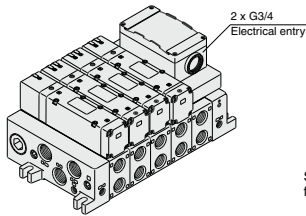
### How to Order Manifold



Note) One station is used for mounting the terminal block box. The number of stations is the number of manifold valves plus one station for the terminal block box. For 12 stations, specify the wiring specifications by means of the manifold specification sheet.

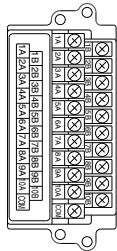
| Symbol       | Option  |
|--------------|---|
| Nil          | None  |
| CD1 (Note 2) | Exhaust cleaner for Rc 1: D side exhaust                          |
| CD2 (Note 2) | Exhaust cleaner for Rc 1 1/2: D side exhaust                      |
| CU1 (Note 2) | Exhaust cleaner for Rc 1: U side exhaust                          |
| CU2 (Note 2) | Exhaust cleaner for Rc 1 1/2: U side exhaust                      |
| K (Note 3)   | Special wiring specifications (Except double wiring, 12 stations) |
| N            | Name plate  |
| SD (Note 2)  | Direct exhaust with silencer box: D side exhaust                  |
| SU (Note 2)  | Direct exhaust with silencer box: U side exhaust                  |
| W            | IP65 enclosure  |

Note 1) When multiple symbols are specified, indicate them alphabetically.  
Example) -CD1K  
Note 2) Combination of [C] and [S] is not possible.  
Note 3) Specify the wiring specifications on the manifold specification sheet.



Stations are counted starting from the first station on the D side.

## Electrical wiring specifications (IP65 available)



Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types. Mixed single and double wiring is available as a semi-standard specification.

| Standard wiring |        | Terminal no. | Polarity                           |
|-----------------|--------|--------------|------------------------------------|
| 1 station       | SOL. A | 1A           | (-) (+)                            |
|                 | SOL. B | 1B           | (-) (+)                            |
| 2 stations      | SOL. A | 2A           | (-) (+)                            |
|                 | SOL. B | 2B           | (-) (+)                            |
| 3 stations      | SOL. A | 3A           | (-) (+)                            |
|                 | SOL. B | 3B           | (-) (+)                            |
| 4 stations      | SOL. A | 4A           | (-) (+)                            |
|                 | SOL. B | 4B           | (-) (+)                            |
| 5 stations      | SOL. A | 5A           | (-) (+)                            |
|                 | SOL. B | 5B           | (-) (+)                            |
| 6 stations      | SOL. A | 6A           | (-) (+)                            |
|                 | SOL. B | 6B           | (-) (+)                            |
| 7 stations      | SOL. A | 7A           | (-) (+)                            |
|                 | SOL. B | 7B           | (-) (+)                            |
| 8 stations      | SOL. A | 8A           | (-) (+)                            |
|                 | SOL. B | 8B           | (-) (+)                            |
| 9 stations      | SOL. A | 9A           | (-) (+)                            |
|                 | SOL. B | 9B           | (-) (+)                            |
| 10 stations     | SOL. A | 10A          | (-) (+)                            |
|                 | SOL. B | 10B          | (-) (+)                            |
|                 | SOL. A | COM          | (+) (-)                            |
|                 |        |              | Positive Negative<br>common common |

## Special Wiring Specifications

Double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types. The optional specification permits mixture of single and double wiring. However, the maximum number of stations is 12.

### 1. How to Order

Indicate option symbol ("K") in the manifold part number and be sure to specify station positions for single or double wiring on the manifold specification sheet.

### 2. Wiring specifications

Connections begin with the A side solenoid of the first station being connected to terminal no. 1, and continue in the order indicated by the arrows in the drawing without skipping any terminals.



## How to Order Valves

[Option]

VQ 5 1 0 0 - 5 1 -

### 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 |
| 6 | 3-position double check    |

### Seal

|        |   |             |
|--------|---|-------------|
| Series | 0 | Metal seal  |
|        | 1 | Rubber seal |

### Function

|     |         |                          |
|-----|---------|--------------------------|
| Nil | Note 1) | Standard (0.95 W)        |
| Y   | Note 2) | Low wattage type (0.4 W) |
| R   | Note 3) | External pilot           |

Note 1) When the unit is energized continuously, refer to "Specific Product Precautions 1" on page 533.

Note 2) In addition, only DC is available with Y.

Note 3) For details about external pilot specifications, refer to page 527.

Note 4) When multiple symbols are specified, indicate them alphabetically.

### Enclosure

|     |                                    |
|-----|------------------------------------|
| Nil | Dust-protected                     |
| W   | Dust-tight/ Water-jet-proof (IP65) |

### Manual override

|     |                                       |
|-----|---------------------------------------|
| Nil | Non-locking push type (Tool required) |
| B   | Locking type (Tool required)          |
| C   | Locking type (Manual)                 |

### Light/Surge voltage suppressor

|     |  |
|-----|--|
| Nil | Yes  |
| E   | Without light, with surge voltage suppressor |

### Coil voltage

|   |                    |
|---|--------------------|
| 1 | 100 VAC (50/60 Hz) |
| 2 | 200 VAC (50/60 Hz) |
| 3 | 110 VAC (50/60 Hz) |
| 4 | 220 VAC (50/60 Hz) |
| 5 | 24 VDC             |
| 6 | 12 VDC             |



## How to Order Manifold Assembly

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

### <Example>

Terminal block box kit

VV5Q51-0603TU(-Q)-1 set—Manifold base part no.

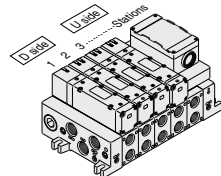
\*VQ5100-51(-Q).....2 sets—Valve part no. (Stations 1 and 2)

\*VQ5200-51(-Q).....2 sets—Valve part no. (Stations 3 and 4)

\*VQ5300-51(-Q).....1 set—Valve part no. (Station 5)

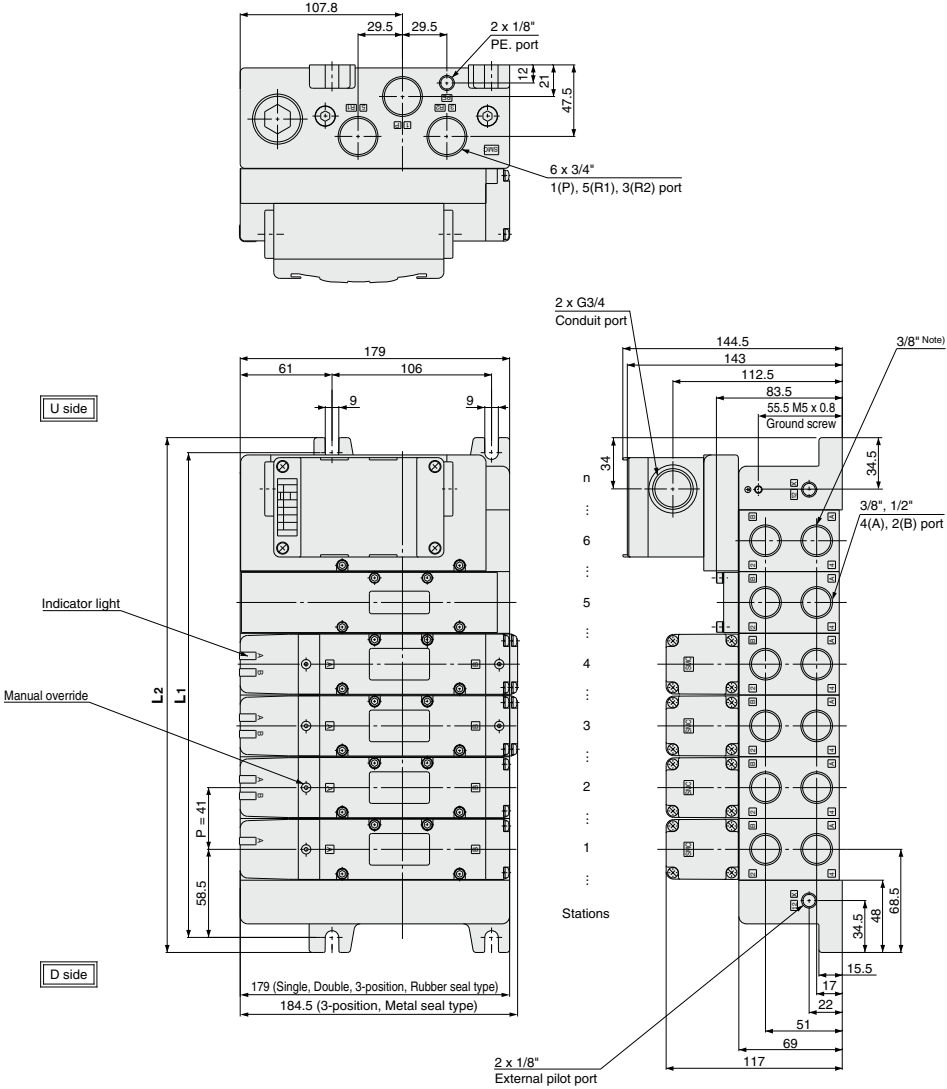
Prefix the asterisk to the part nos. of the valve etc.

Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



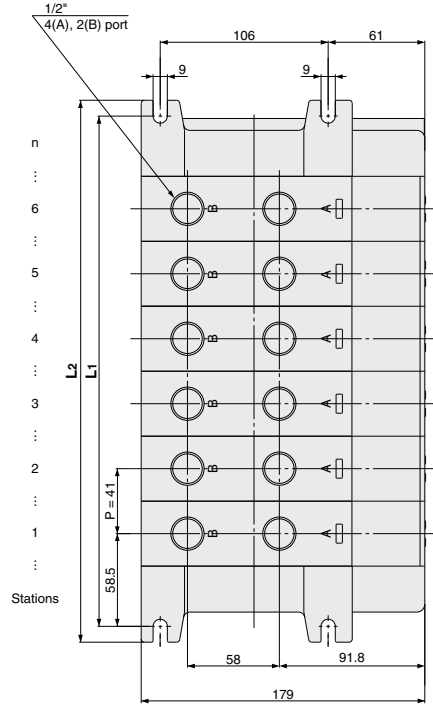
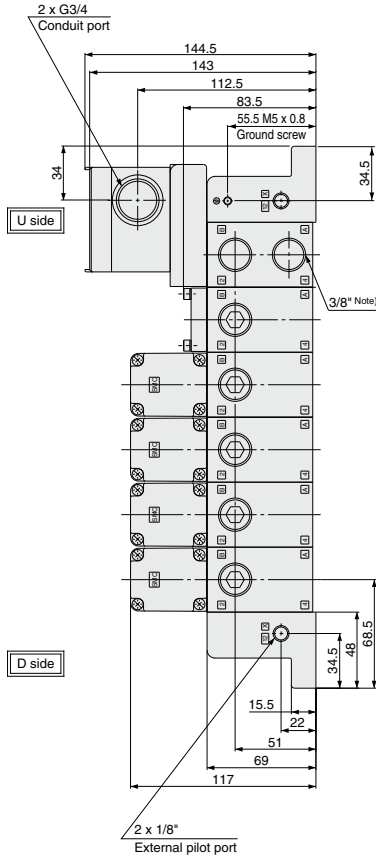
# VQ5000 Series

## T Kit (Terminal block box kit)



Note) 4(A) and 2(B) port at the bottom of the terminal block box are 3/8".

**Bottom ported drawing**



|         |
|---------|
| SV      |
| SYJ     |
| SZ      |
| VF      |
| VP4     |
| VQ 1/2  |
| VQ 4/5  |
| VQC 1/2 |
| VQC 4/5 |
| VQZ     |
| SQ      |
| VFS     |
| VFR     |
| VQ7     |

Note) 4(A) and 2(B) port at the bottom of the terminal block box are 3/8".

**Dimensions**

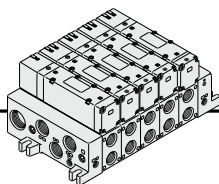
| L  | n | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 |
|----|---|----|----|----|----|----|----|----|----|----|----|----|
|    |   | L1 | L1 | L1 | L1 | L1 | L1 | L1 | L1 | L1 | L1 | L1 |
| L2 | n | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 |
|    |   | L2 | L2 | L2 | L2 | L2 | L2 | L2 | L2 | L2 | L2 | L2 |

Formula:  $L1 = 41n + 76$ ,  $L2 = 41n + 96$   
n: Stations (Maximum 12 stations)

\* Including 1 station for mounting terminal box.

# VQ5000 Series

## T1 Kit (Individual terminal block kit)



- When the junction cover on the manifold is opened, terminal box is installed in the manifold block. Lead wire from a solenoid is connected with the terminals on the terminal box in the bottom side. (The terminal box is connected with lead wire for both SOL. A and SOL. B and they correspond with the marking 1, 2, 3, 4 on the terminal box. Refer to how to connect with the terminal box.)
- Maximum stations are 12.

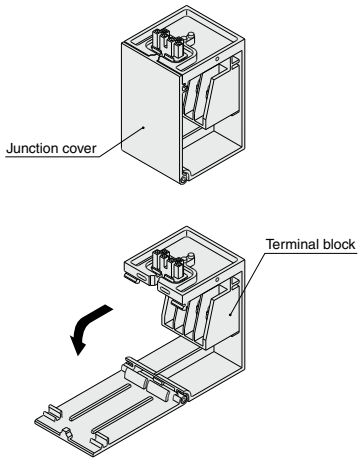
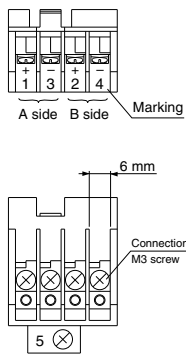
### Manifold Specifications

| Series | Porting specifications      |                    |            | Applicable stations |
|--------|-----------------------------|--------------------|------------|---------------------|
|        | 4(A), 2(B)<br>port location | Port size          |            |                     |
|        |                             | 1(P), 5(R1), 3(R2) | 4(A), 2(B) |                     |
| VQ5000 | Side                        | 3/4                | 3/8, 1/2   | Max. 12 stations    |
|        | Bottom                      |                    | 1/2        |                     |

### Terminal Block Connections

| Terminal block marking          | 1        | 3        | 2        | 4        |
|---------------------------------|----------|----------|----------|----------|
| VQ510 <sup>0</sup> <sub>1</sub> | A side + | A side - |          |          |
| VQ520 <sup>0</sup> <sub>1</sub> | A side + | A side - | B side + | B side - |
| VQ540 <sup>0</sup> <sub>1</sub> | A side + | A side - | B side + | B side - |

- Compatible crimp terminals: 1.25-3S, 1.25Y-3, 1.25Y-3N, 1.25Y-3.5
- There is no polarity (+, -).



### How to Order Manifold



VV5Q 5 1 - 08 03 T1 - -

**Series**  
5 VQ5000

**Manifold**  
1 Plug-in unit

**Stations**  
1 1 station  
...  
12 12 stations

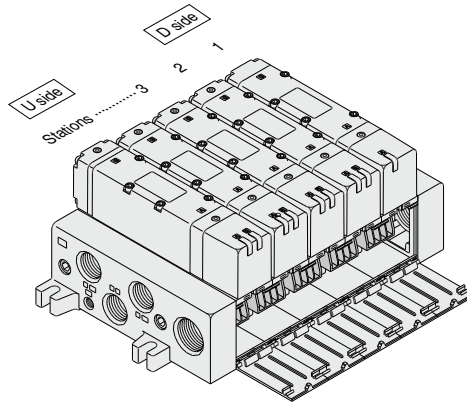
**Thread type**  
Nil Rc  
F G  
N NPT  
T NPTF

**Cylinder port**  
03 3/8  
04 1/2  
B Bottom ported 1/2  
CM Mixed

**CE-compliant**  
Nil —  
Q CE-compliant

| Symbol               | Option  |
|----------------------|---|
| Nil                  | None  |
| CD1 <sup>Note)</sup> | Exhaust cleaner for Rc 1: D side exhaust                          |
| CD2 <sup>Note)</sup> | Exhaust cleaner for Rc 1 1/2: D side exhaust                      |
| CU1 <sup>Note)</sup> | Exhaust cleaner for Rc 1: U side exhaust                          |
| CU2 <sup>Note)</sup> | Exhaust cleaner for Rc 1 1/2: U side exhaust                      |
| SB                   | Direct exhaust with silencer box: Exhaust from both U and D sides |
| SD <sup>Note)</sup>  | Direct exhaust with silencer box: D side exhaust                  |
| SU <sup>Note)</sup>  | Direct exhaust with silencer box: U side exhaust                  |

Note) Combination of [C<sub>D</sub>] and [S<sub>D</sub>] is not possible.



[Option]

## How to Order Valves

VQ 5 1 0 0 - 5 - 1 -

## Series

|   |        |
|---|--------|
| 5 | VQ5000 |
|---|--------|

## 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 |
| 6 | 3-position double check    |

## Seal

|   |             |
|---|-------------|
| 0 | Metal seal  |
| 1 | Rubber seal |

## CE-compliant

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

Note) CE-compliant:  
For DC only.

## Manual override

|     |                                       |
|-----|---------------------------------------|
| Nil | Non-locking push type (Tool required) |
| B   | Locking type (Tool required)          |
| C   | Locking type (Manual)                 |

## Light/Surge voltage suppressor

|     |  |
|-----|--|
| Nil | Yes  |
| E   | Without light, with surge voltage suppressor |

## Coil voltage

|   |                    |
|---|--------------------|
| 1 | 100 VAC (50/60 Hz) |
| 2 | 200 VAC (50/60 Hz) |
| 3 | 110 VAC (50/60 Hz) |
| 4 | 220 VAC (50/60 Hz) |
| 5 | 24 VDC             |
| 6 | 12 VDC             |

## Function

|     |                                  |
|-----|----------------------------------|
| Nil | Note 1) Standard (0.95 W)        |
| Y   | Note 2) Low wattage type (0.4 W) |
| R   | Note 3) External pilot           |

Note 1) When the unit is energized continuously, refer to "Specific Product Precautions 1" on page 533.

Note 2) In addition, only DC is available with Y.

Note 3) For details about external pilot specifications, refer to page 527.

Note 4) When multiple symbols are specified, indicate them alphabetically.

## How to Order Manifold Assembly

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

## &lt;Example&gt;

Individual terminal block kit

VV5Q51-0503T1(-Q).....1 set—Manifold base part no.

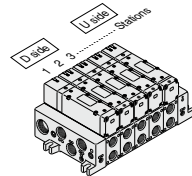
\*VQ5100-51(-Q).....2 sets—Valve part no. (Stations 1 and 2)

\*VQ5200-51(-Q).....2 sets—Valve part no. (Stations 3 and 4)

\*VQ5300-51(-Q).....1 set—Valve part no. (Station 5)

Prefix the asterisk to the part nos. of the valve etc.

Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



SV

SYJ

SZ

VF

VP4

VQ  
1/2VQ  
4/5VQC  
1/2VQC  
4/5

VQZ

SQ

VFS

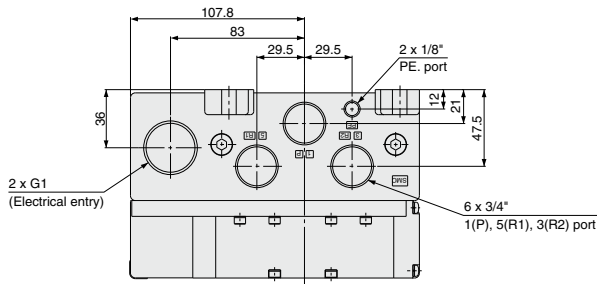
VFR

VQ7

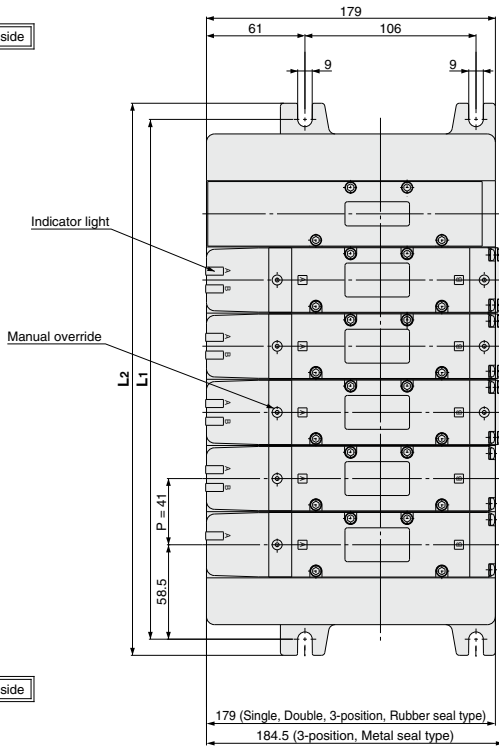
# VQ5000 Series

**T1**

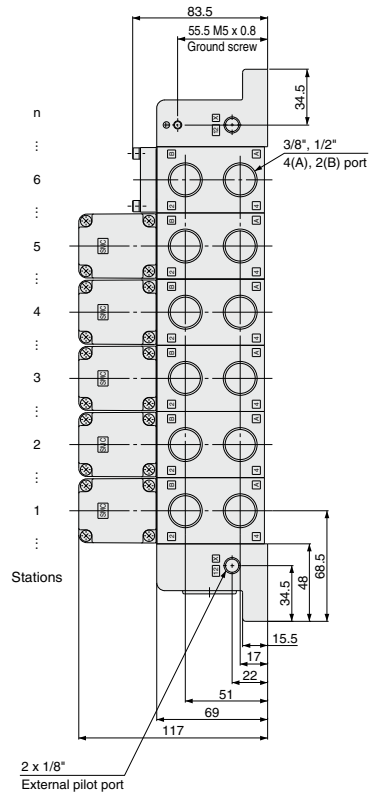
Kit (Individual terminal block kit)



U side



D side

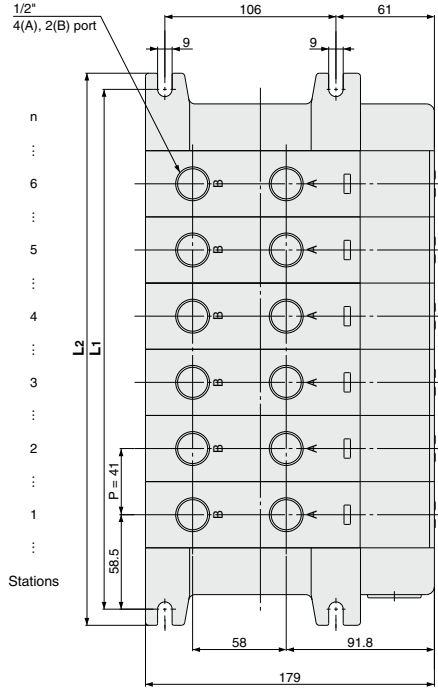
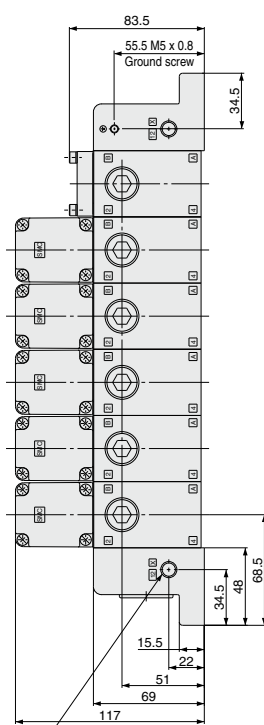


Bottom ported drawing

U side

D side

2 x 1/8"  
External pilot port



**Dimensions**

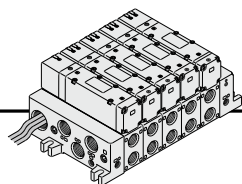
Formula:  $L_1 = 41n + 76$ ,  $L_2 = 41n + 96$  n: Stations (Maximum 12 stations)

| n              | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L <sub>1</sub> | 117 | 158 | 199 | 240 | 281 | 322 | 363 | 404 | 445 | 486 | 527 | 568 |
| L <sub>2</sub> | 137 | 178 | 219 | 260 | 301 | 342 | 383 | 424 | 465 | 506 | 547 | 588 |

|         |
|---------|
| SV      |
| SYJ     |
| SZ      |
| VF      |
| VP4     |
| VQ 1/2  |
| VQ 4/5  |
| VQC 1/2 |
| VQC 4/5 |
| VQZ     |
| SQ      |
| VFS     |
| VFR     |
| VQ7     |

# VQ5000 Series

## L Kit (Lead wire cable)



**IP65 compliant**

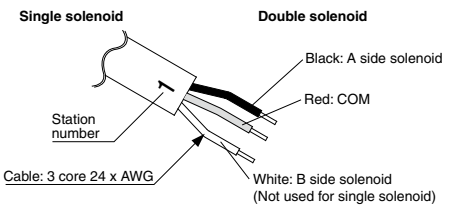
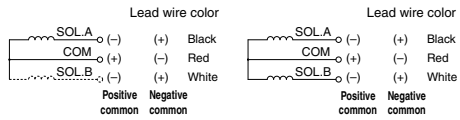
- Enclosure IP65 compliant
- Direct electrical entry type available with two or more stations.
- Electrical entry can be selected on either the U side or the D side according to the mounting orientation.
- Maximum stations are 12.

### Manifold Specifications

| Series | Porting specifications      |                    |            | Applicable stations |
|--------|-----------------------------|--------------------|------------|---------------------|
|        | 4(A), 2(B)<br>port location | Port size          |            |                     |
|        |                             | 1(P), 5(R1), 3(R2) | 4(A), 2(B) |                     |
| VQ5000 | Side                        | 3/4                | 3/8<br>1/2 | Max. 12 stations    |
|        | Bottom                      |                    | 1/2        |                     |

### Wiring Specifications

Three lead wires are attached to each station regardless of the type of valve which is mounted. The red wire is for COM connection.



### Lead Wire Assembly with Connector

| Lead wire length | Part no.         |
|------------------|------------------|
| 0.6 m            | VVQ5000-44A-8-□  |
| 1.5 m            | VVQ5000-44A-15-□ |
| 3 m              | VVQ5000-44A-30-□ |

□: Number of stations 1 to 12

For different lead wire lengths, order a lead wire assembly with connector shown in the table on the right.

### How to Order Manifold



**VV5Q 5 1 - 08 03 L U - - -**

**Series**  
5 VQ5000

**Manifold**  
1 Plug-in unit

**Stations**  
01 1 station  
12 12 stations

**Cylinder port**  
03 3/8  
04 1/2  
B Bottom ported 1/2  
CM Mixed

**Cable (Length)**  
0 Cable length 0.6 m  
1 Cable length 1.5 m  
2 Cable length 3 m

**Electrical entry**  
D D side entry  
U U side entry

**Thread type**  
Nil Rc  
F G  
N NPT  
T NPTF

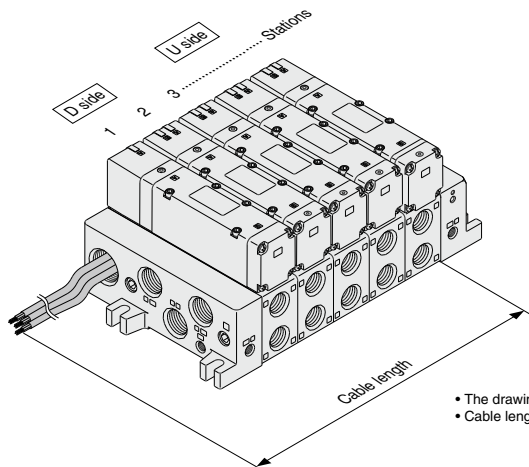
**CE-compliant**  
Nil —  
Q CE-compliant

#### Option

| Symbol                 | Option  |
|------------------------|---|
| Nil                    | None  |
| CD1 <sup>Note 1)</sup> | Exhaust cleaner for Rc 1: D side exhaust                          |
| CD2 <sup>Note 1)</sup> | Exhaust cleaner for Rc 1 1/2: D side exhaust                      |
| CU1 <sup>Note 1)</sup> | Exhaust cleaner for Rc 1: U side exhaust                          |
| CU2 <sup>Note 1)</sup> | Exhaust cleaner for Rc 1 1/2: U side exhaust                      |
| SB                     | Direct exhaust with silencer box: Exhaust from both U and D sides |
| SD <sup>Note 1)</sup>  | Direct exhaust with silencer box: D side exhaust                  |
| SU <sup>Note 1)</sup>  | Direct exhaust with silencer box: U side exhaust                  |
| W                      | IP65 enclosure  |

Note 1) Combination of [C□□] and [S□] is not possible.  
Note 2) When multiple symbols are specified, indicate them alphabetically.  
Example) -CD1W.





- The drawing shows the electrical entry on the D side.
- Cable length is measured from the valve body.



## How to Order Valves

[Option]

**VQ 5 1 0 0 - 5 - 1 -**

**Series**  
5 VQ5000

### 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 |
| 6 | 3-position double check    |

### Seal

|   |             |
|---|-------------|
| 0 | Metal seal  |
| 1 | Rubber seal |

### Function

|                     |                          |
|---------------------|--------------------------|
| <b>Nil</b> (Note 1) | Standard type (0.95 W)   |
| <b>Y</b> (Note 2)   | Low wattage type (0.4 W) |
| <b>R</b> (Note 3)   | External pilot           |

Note 1) When the unit is energized continuously, refer to "Specific Product Precautions 1" on page 533.

Note 2) In addition, only DC is available with Y.

Note 3) For details about external pilot specifications, refer to page 527.

Note 4) When multiple symbols are specified, indicate them alphabetically.

### CE-compliant

|            |              |
|------------|--------------|
| <b>Nil</b> | —            |
| <b>Q</b>   | CE-compliant |

Note) CE-compliant:  
For DC only.

### Enclosure

|            |                                       |
|------------|---------------------------------------|
| <b>Nil</b> | Dust-protected                        |
| <b>W</b>   | Dust-tight/<br>Water-jet-proof (IP65) |

### Manual override

|            |                                       |
|------------|---------------------------------------|
| <b>Nil</b> | Non-locking push type (Tool required) |
| <b>B</b>   | Locking type (Tool required)          |
| <b>C</b>   | Locking type (Manual)                 |

### Light/Surge voltage suppressor

|            |  |
|------------|--|
| <b>Nil</b> | Yes  |
| <b>E</b>   | Without light, with surge voltage suppressor |

### Coil voltage

|   |                    |
|---|--------------------|
| 1 | 100 VAC (50/60 Hz) |
| 2 | 200 VAC (50/60 Hz) |
| 3 | 110 VAC (50/60 Hz) |
| 4 | 220 VAC (50/60 Hz) |
| 5 | 24 VDC             |
| 6 | 12 VDC             |

## How to Order Manifold Assembly

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

### <Example>

Lead wire kit with cable (3 m)

VV5Q51-0503LD2(-Q)-1 set—Manifold base part no.

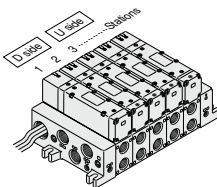
\*VQ5100-51(-Q).....2 sets—Valve part no. (Stations 1 and 2)

\*VQ5200-51(-Q).....2 sets—Valve part no. (Stations 3 and 4)

\*VQ5300-51(-Q).....1 set—Valve part no. (Station 5)

Prefix the asterisk to the part nos. of the valve etc.

Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



SV

SYJ

SZ

VF

VP4

VQ

1/2

VQ

4/5

VQC

1/2

VQC

4/5

VQZ

SQ

VFS

VFR

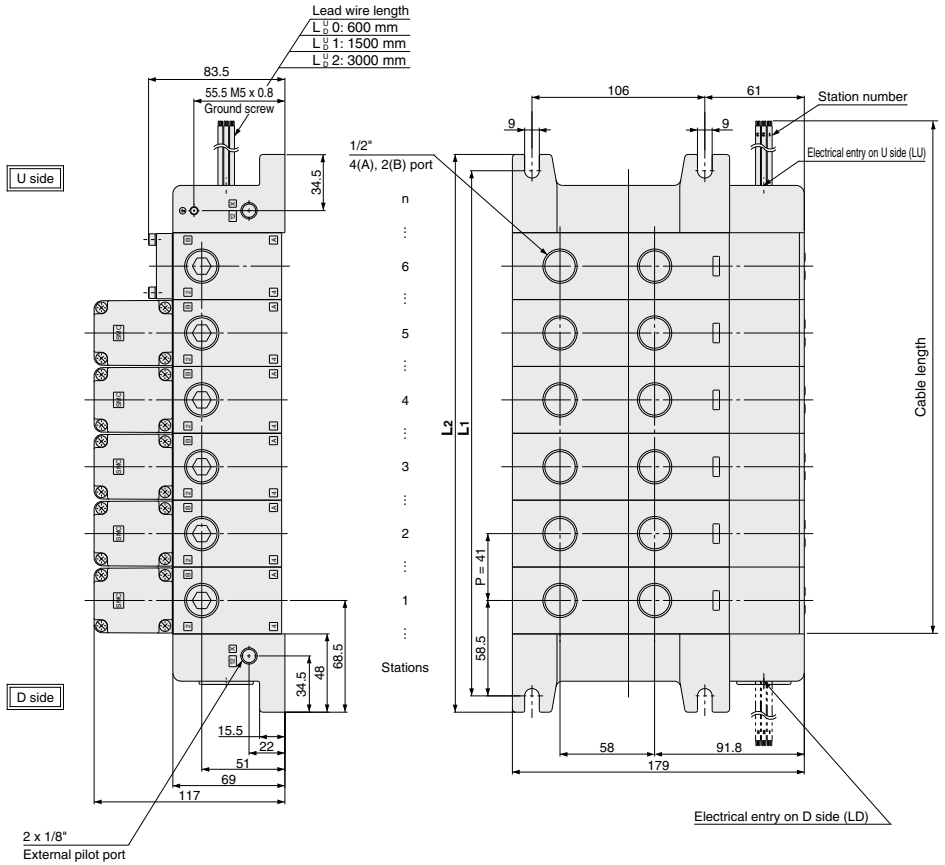
VQ7

**L**

### Kit (Lead wire cable)



Bottom ported drawing



|         |
|---------|
| SV      |
| SYJ     |
| SZ      |
| VF      |
| VP4     |
| VQ 1/2  |
| VQ 4/5  |
| VQC 1/2 |
| VQC 4/5 |
| VQZ     |
| SQ      |
| VFS     |
| VFR     |
| VQ7     |

Dimensions

Formula:  $L_1 = 41n + 76$ ,  $L_2 = 41n + 96$  n: Stations (Maximum 12 stations)

| n              | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L <sub>1</sub> | 117 | 158 | 199 | 240 | 281 | 322 | 363 | 404 | 445 | 486 | 527 | 568 |
| L <sub>2</sub> | 137 | 178 | 219 | 260 | 301 | 342 | 383 | 424 | 465 | 506 | 547 | 588 |

# VQ5000 Series

**S**

Kit (Serial transmission unit): EX123/124 (For Output) Serial Transmission System **IP65 compliant**

- The serial transmission system reduces wiring work, while minimizing wiring and saving space.

## Manifold Specifications

| Series | Porting specifications   |                    |            | Applicable stations |
|--------|--------------------------|--------------------|------------|---------------------|
|        | 4(A), 2(B) port location | Port size          |            |                     |
|        |                          | 1(P), 5(R1), 3(R2) | 4(A), 2(B) |                     |
| VQ5000 | Side                     | 3/4                | 3/8        | Max. 12 stations    |
|        | Bottom                   |                    | 1/2        |                     |

- Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types. Mixed single and double wiring is available as a semi-standard specification.

| Item                                | Specifications   |
|-------------------------------------|------------------|
| External power supply               | 24 VDC +10%, -5% |
| Current consumption (Internal unit) | 0.1 A            |



[Option]

## How to Order Manifold

**VV5Q 5 1 - 08 03 S U Q - -**

### Series

|   |        |
|---|--------|
| 5 | VQ5000 |
|---|--------|

### Manifold

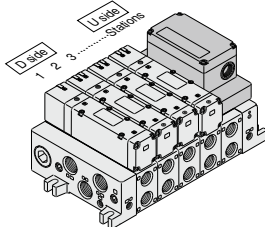
|   |              |
|---|--------------|
| 1 | Plug-in unit |
|---|--------------|

### Stations

|     |             |
|-----|-------------|
| 02  | 2 stations  |
| ... | ...         |
| 12  | 12 stations |

Note) One station is used for mounting SI Unit.

The number of stations is the number of manifold valves plus one station for SI Unit. For 10 stations or more, specify the wiring specifications by means of the manifold specification sheet.



\* Stations are counted starting from the first station on the D side.

### Cylinder port

|    |                   |
|----|-------------------|
| 03 | 3/8               |
| 04 | 1/2               |
| B  | Bottom ported 1/2 |
| CM | Mixed             |

### Thread type

|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |

### SI Unit mounting position

|   |                 |
|---|-----------------|
| D | D side mounting |
| U | U side mounting |

### CE-compliant

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

### Option

| Symbol | Option  |
|--------|---|
| Nil    | None  |
| CD1    | Exhaust cleaner for Rc 1: D side exhaust  |
| CD2    | Exhaust cleaner for Rc 1 1/2: D side exhaust  |
| CU1    | Exhaust cleaner for Rc 1: U side exhaust  |
| CU2    | Exhaust cleaner for Rc 1 1/2: U side exhaust  |
| K      | Special wiring specifications (except double wiring specification, 10 stations or more) |
| SD     | Direct exhaust with silencer box: D side exhaust  |
| SU     | Direct exhaust with silencer box: U side exhaust  |
| W      | IP65 enclosure  |

Note 1) When multiple symbols are specified, indicate them alphabetically.

Example) -CD1K

Note 2) Combination of [C] and [S] is not possible.

Note 3) Specify the wiring specifications on the manifold specification sheet.

### SI Unit

|    | Without SI Unit                                   | CE-compliant |
|----|---|--------------|
| 0  |   | ●            |
| H  | NKE Corp.: Fieldbus H System (16 output points)   | —            |
| Q  | DeviceNet™ (16 output points)                     | ●            |
| R1 | OMRON Corp.: CompoBus/S System (16 output points) | ●            |
| R2 | OMRON Corp.: CompoBus/S System (8 output points)  | ●            |
| V  | CC-LINK (16 output points)                        | ●            |

### SI Unit Part No.

| Symbol | Protocol type                                     | SI Unit part no.                           | Page |
|--------|---|--|------|
| H      | NKE Corp.: Fieldbus H System (16 output points)   | D side: EX123D-SUH1<br>U side: EX123U-SUH1 | 531  |
| Q      | DeviceNet™ (16 output points)                     | D side: EX124D-SDN1<br>U side: EX124U-SDN1 |      |
| R1     | OMRON Corp.: CompoBus/S System (16 output points) | D side: EX124D-SCS1<br>U side: EX124U-SCS1 |      |
| R2     | OMRON Corp.: CompoBus/S System (8 output points)  | D side: EX124D-SCS2<br>U side: EX124U-SCS2 |      |
| V      | CC-Link (16 output points)                        | D side: EX124D-SMJ1<br>U side: EX124U-SMJ1 |      |
|        |   |  |      |

Refer to Best Pneumatics No. 1-1 and the Operation Manual for the details of EX123/124 Integrated-type (For Output) Serial Transmission System. Please download the Operation Manual via SMC website, <http://www.smcworld.com>



## How to Order Valves

**VQ 5 1 0 0 - 5 - - - 1 -**

**Series**

|   |        |
|---|--------|
| 5 | VQ5000 |
|---|--------|

**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 |
| 6 | 3-position double check    |

**Seal**

|   |             |
|---|-------------|
| 0 | Metal seal  |
| 1 | Rubber seal |

**Function**

|     |         |                          |
|-----|---------|--------------------------|
| Nil | Note 1) | Standard (0.95 W)        |
| Y   | Note 2) | Low wattage type (0.4 W) |
| R   | Note 3) | External pilot           |

**CE-compliant**

|     |              |
|-----|--------------|
| Nil | —            |
| Q   | CE-compliant |

**Enclosure**

|     |                                       |
|-----|---------------------------------------|
| Nil | Dust-protected                        |
| W   | Dust-tight/<br>Water-jet-proof (IP65) |

**Manual override**

|     |                                       |
|-----|---------------------------------------|
| Nil | Non-locking push type (Tool required) |
| B   | Locking type (Tool required)          |
| C   | Locking type (Manual)                 |

**Light/Surge voltage suppressor**

|     |  |
|-----|--|
| Nil | Yes  |
| E   | Without light, with surge voltage suppressor |

**Coil voltage**

|   |        |
|---|--------|
| 5 | 24 VDC |
|---|--------|

Note 1) When the unit is energized continuously, refer to "Specific Product Precautions 1" on page 533.  
 Note 2) In addition, only DC is available with Y.  
 Note 3) For details about external pilot specifications, refer to page 527.  
 Note 4) When multiple symbols are specified, indicate them alphabetically.

## How to Order Manifold Assembly

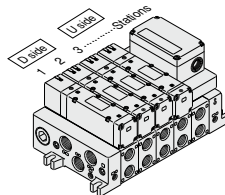
Specify the part numbers for valves and options together beneath the manifold base part number.

### <Example>

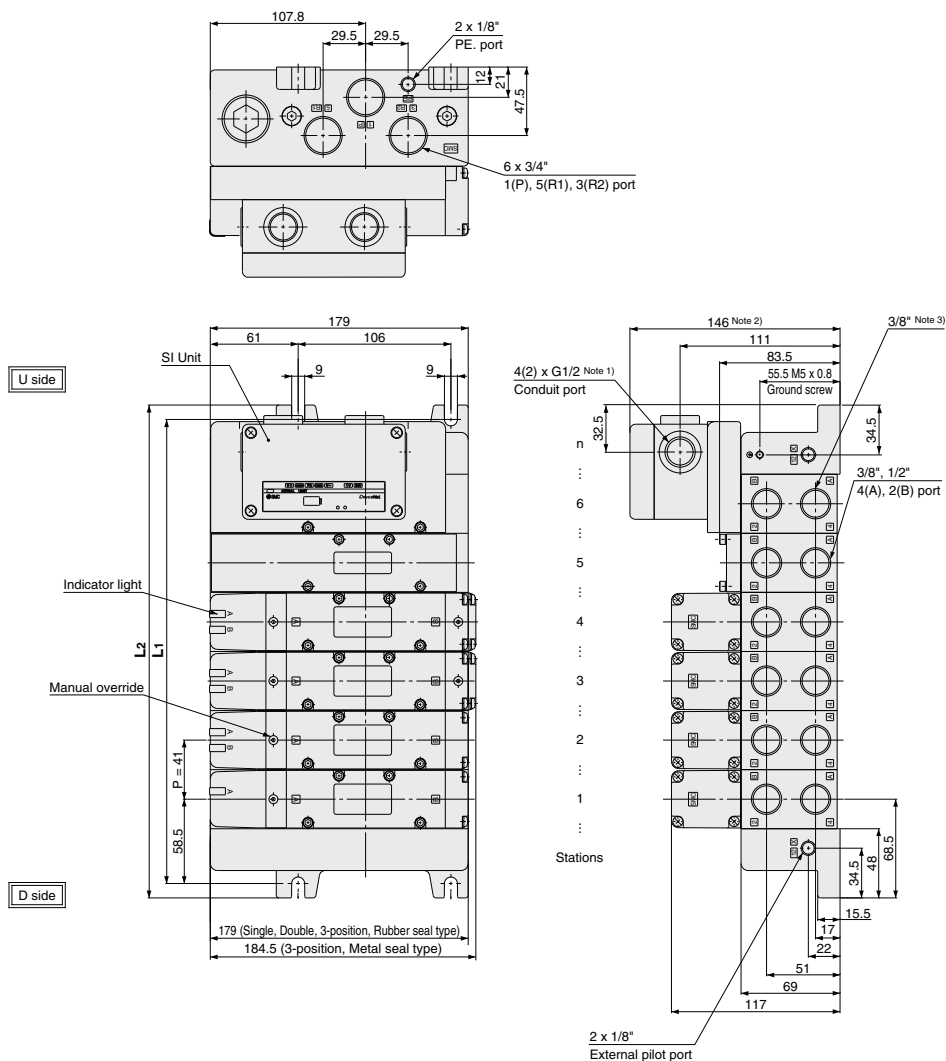
VV5Q51-0603SUQ(-Q)-1 set—Manifold base part no.  
 \*VQ5100-51(-Q).....2 sets—Valve part no. (Stations 1 and 2)  
 \*VQ5200-51(-Q).....2 sets—Valve part no. (Stations 3 and 4)  
 \*VQ5300-51(-Q).....1 set—Valve part no. (Station 5)

Prefix the asterisk to the part nos. of the valve etc.

Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



SV  
 SYJ  
 SZ  
 VF  
 VP4  
 VQ  
 1/2  
 VQ  
 4/5  
 VQC  
 1/2  
 VQC  
 4/5  
 VQZ  
 SQ  
 VFS  
 VFR  
 VQ7

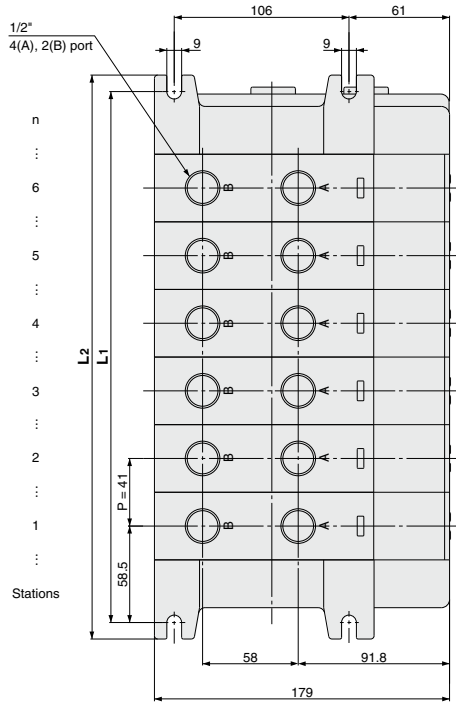
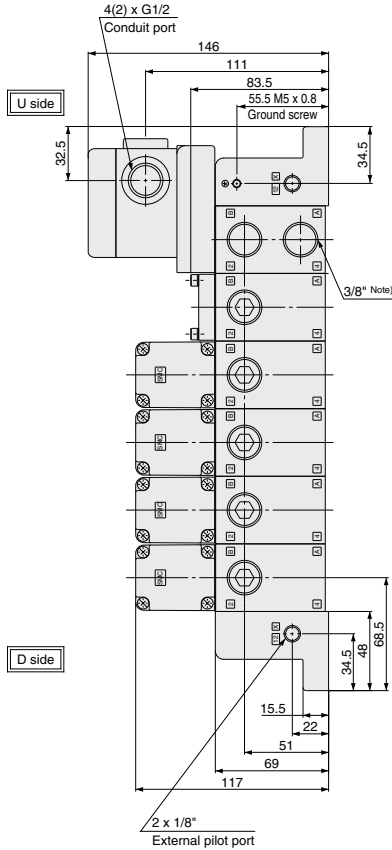


Note 1) When the SI Unit is EX124D(U), conduit port (G1/2) will be 4 locations. In the case of EX123D(U), conduit port will be 2 locations.

Note 2) In the case of EX124D(U)-SMJ1, this dimension becomes 149.

Note 3) 4(A) and 2(B) port at the bottom of the SI Unit are 3/8".

### Bottom port drawing



Formula:  $L_1 = 41n + 76$ ,  $L_2 = 41n + 96$   
 n: Stations (Maximum 12 stations)  
 \* Including 1 station for mounting SI Unit.

### Dimensions

|    | n   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12 |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| L1 | 158 | 199 | 240 | 281 | 322 | 363 | 404 | 445 | 486 | 527 | 568 |    |
| L2 | 178 | 219 | 260 | 301 | 342 | 383 | 424 | 465 | 506 | 547 | 588 |    |

Note) 4(A) and 2(B) port at the bottom of the SI Unit are 3/8".

|         |
|---------|
| SV      |
| SYJ     |
| SZ      |
| VF      |
| VP4     |
| VQ 1/2  |
| VQ 4/5  |
| VQC 1/2 |
| VQC 4/5 |
| VQZ     |
| SQ      |
| VFS     |
| VFR     |
| VQ7     |

# Base Mounted

## Plug Lead Unit: C Kit (Connector Kit)

# VQ5000 Series



[Option]  
Note) CE-compliant:  
For DC only.

### How to Order Manifold

**Series**  
5 VQ5000

**Manifold**  
5 Plug lead unit

**Stations**  
01 1 station  
12 12 stations

**Cylinder port**  
03 3/8  
04 1/2  
B Bottom ported 1/2  
CM Mixed

**Thread type**  
Nil Rc  
F G  
N NPT  
T NPTF

**Kit type**  
**C** Kit (Connector)

**CE-compliant**  
Nil —  
Q CE-compliant

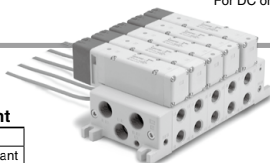
**Option**

| Symbol      | Option  |
|-------------|---|
| Nil         | None  |
| CD1 Note 1) | Exhaust cleaner for Rc 1: D side exhaust                          |
| CD2 Note 1) | Exhaust cleaner for Rc 1 1/2: D side exhaust                      |
| CU1 Note 1) | Exhaust cleaner for Rc 1: U side exhaust                          |
| CU2 Note 1) | Exhaust cleaner for Rc 1 1/2: U side exhaust                      |
| SB          | Direct exhaust with silencer box: Exhaust from both U and D sides |
| SD Note 1)  | Direct exhaust with silencer box: D side exhaust                  |
| SU Note 1)  | Direct exhaust with silencer box: U side exhaust                  |
| W           | IP65 enclosure  |

Note 1) Combination of [C] and [S] is not possible. Also, exhaust cleaner is not attached. Please order it separately.

Refer to page 534 (Grommet type) for wiring specifications.

**C** Connector kit Max. 12 stations



### How to Order Valves

**Series**  
5 VQ5000

**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  
6 3-position double check

**Seal**  
0 Metal seal  
1 Rubber seal

**Function**  
Nil Note 1) Standard (0.95 W)  
Y Note 2) Low wattage type (0.4 W)  
R Note 3) External pilot

**CE-compliant**  
Nil —  
Q CE-compliant

Note) CE-compliant: For DC only.

**Enclosure**  
Nil Dust-protected  
W Dust-tight/ Water-jet-proof (IP65)

**Manual override**  
Nil: Non-locking push type (Tool required)  
B: Locking type (Tool required)  
C: Locking type (Manual)

**Light/Surge voltage suppressor**  
Nil Yes  
E Without light, with surge voltage suppressor

**Electrical entry**  
G Lead wire length 0.6 m  
H Lead wire length 1.5 m

**Coil voltage**  
1 100 VAC (50/60 Hz)  
2 200 VAC (50/60 Hz)  
3 110 VAC (50/60 Hz)  
4 220 VAC (50/60 Hz)  
5 24 VDC  
6 12 VDC

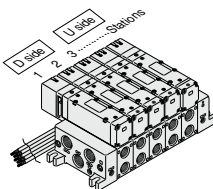
### How to Order Manifold Assembly

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

**<Example>**  
Connector kit  
VQ5055-05042C(-Q)-...1 set—Manifold base part no.  
\*VQ5150-5G1(-Q)....2 sets—Valve part no. (Stations 1 and 2)  
\*VQ5250-5G1(-Q)....2 sets—Valve part no. (Stations 3 and 4)  
\*VQ5350-5G1(-Q).....1 set—Valve part no. (Station 5)

Prefix the asterisk to the part nos. of the valve etc.

Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



## Manifold Specifications

| Series | Base model | Type of connection | Porting specifications      |   |            | Maximum applicable stations | Applicable valve | Weight [kg]<br>(Formula)                        |
|--------|------------|--------------------|-----------------------------|---|------------|-----------------------------|------------------|---|
|        |            |                    | 4(A), 2(B)<br>port location | Port size   |            |                             |                  |   |
|        |            |                    |                             | 1(P), 5(R1), 3(R2)                                      | 4(A), 2(B) |                             |                  |   |
| VQ5000 | VV5Q55-□□□ | ■ C kit-Grommet    | Side                        | 3/4<br>Option<br>Direct exhaust<br>with<br>silencer box | 3/8<br>1/2 | 2 to 12<br>stations         | VQ5□50<br>VQ5□51 | 0.58n + 0.9<br>• Not including<br>valve weight. |
|        |            |                    | Bottom                      |   | 1/2        |                             |                  |   |
|        |            |                    |                             |   |            |                             |                  |   |

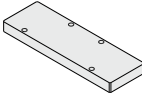
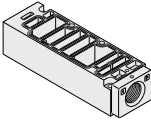
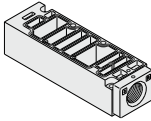
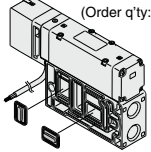
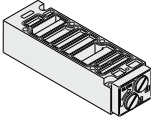
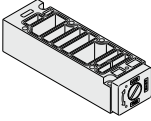
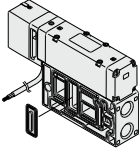
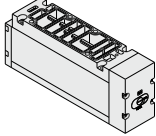
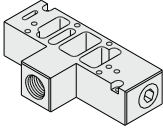
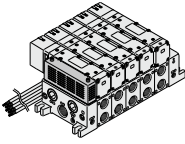
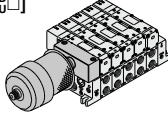
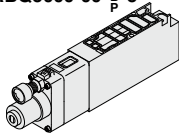
n: Stations

## Flow Rate Characteristics at the Number of Manifold Stations (Operated individually)

| Model                            | Passage/Stations        |                              | Station 1 | Station 5 | Station 10 |
|----------------------------------|-------------------------|------------------------------|-----------|-----------|------------|
| 2-position metal seal<br>VQ5□00  | 1 → 4/2 (P → A/B)       | C [dm <sup>3</sup> /(s·bar)] | 11        | 11        | 11         |
|                                  |                         | b                            | 0.24      | 0.24      | 0.24       |
|                                  |                         | Cv                           | 2.7       | 2.7       | 2.7        |
|                                  | 4/2 → 5/3 (A/B → EA/EB) | C [dm <sup>3</sup> /(s·bar)] | 12        | 12        | 12         |
|                                  |                         | b                            | 0.14      | 0.14      | 0.14       |
|                                  |                         | Cv                           | 2.9       | 2.9       | 2.9        |
| 2-position rubber seal<br>VQ5□01 | 1 → 4/2 (P → A/B)       | C [dm <sup>3</sup> /(s·bar)] | 12        | 12        | 12         |
|                                  |                         | b                            | 0.33      | 0.33      | 0.33       |
|                                  |                         | Cv                           | 3.4       | 3.4       | 3.4        |
|                                  | 4/2 → 5/3 (A/B → EA/EB) | C [dm <sup>3</sup> /(s·bar)] | 16        | 16        | 16         |
|                                  |                         | b                            | 0.33      | 0.33      | 0.33       |
|                                  |                         | Cv                           | 4.4       | 4.4       | 4.4        |

(Note) For port size 1/2

## Manifold Options

|  |   |   |   |
|--|---|---|---|
| <b>Blanking plate assembly</b><br><b>VVQ5000-10A-5</b><br>                                | <b>Individual SUP spacer</b><br><b>VVQ5000-P-5<sup>03</sup><sub>04</sub></b><br> | <b>Individual EXH spacer</b><br><b>VVQ5000-R-5<sup>03</sup><sub>04</sub></b><br> | <b>EXH block plate</b><br><b>VVQ5000-16A-2 (1 pc./set)</b><br>(Order q'ty: 2 pcs.)<br>                                |
| <b>Restrictor spacer</b><br><b>VVQ5000-20A-5</b><br>                                    | <b>SUP stop valve spacer</b><br><b>VVQ5000-37A-5</b><br>                       | <b>SUP block plate</b><br><b>VVQ5000-16A-1</b><br>                             | <b>Double check spacer with residual pressure exhaust</b><br><b>VVQ5000-25A-5</b><br>                                |
| <b>Release valve spacer:</b><br><b>For D side mounting</b><br><b>VVQ5000-24A-5D</b><br> | <b>Direct exhaust with silencer box</b><br><b>[-S□]</b><br>                    | <b>Manifold mounted exhaust cleaner</b><br><b>[-C□□]</b><br>                   | <b>Interface regulator</b><br><b>(P, A, B port regulation)</b><br><b>ARBQ5000-00-<sup>A</sup><sub>P</sub>-5</b><br> |

- Refer to pages 522 to 526 for detailed dimensions of each option.
- For replacement parts, refer to page 531.

SV

SYJ

SZ

VF

VP4

VQ 1/2

VQ 4/5

VQC 1/2

VQC 4/5

VQZ

SQ

VFS

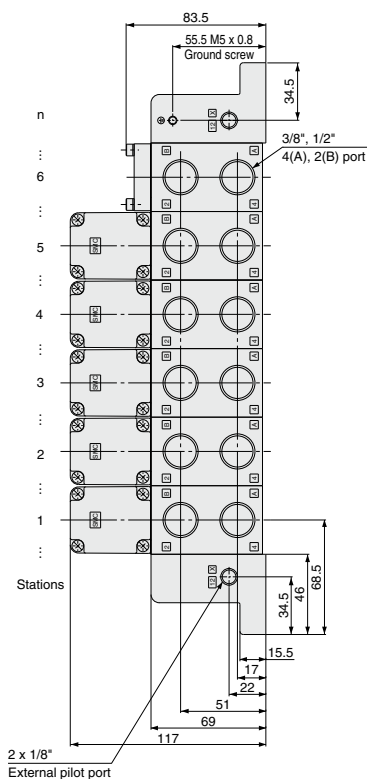
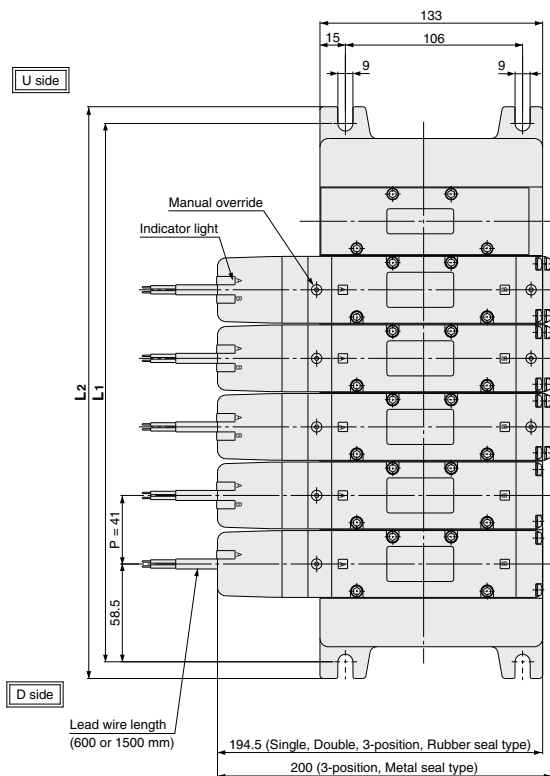
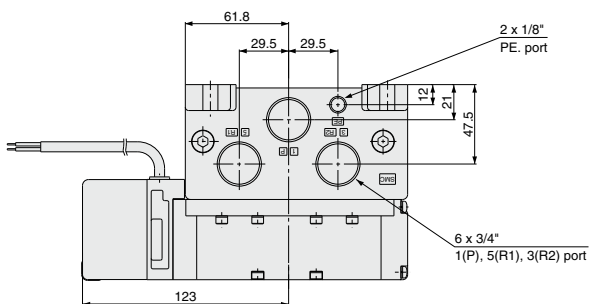
VFR

VQ7

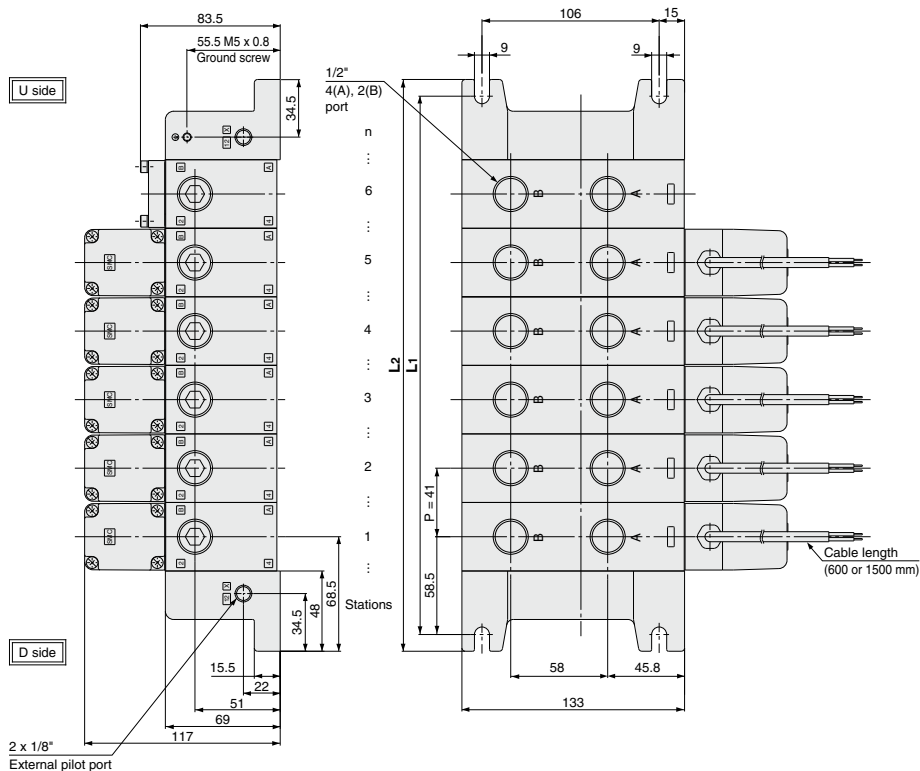
# VQ5000 Series

**C**

Kit (Connector kit)



Bottom ported drawing



|         |
|---------|
| SV      |
| SYJ     |
| SZ      |
| VF      |
| VP4     |
| VQ 1/2  |
| VQ 4/5  |
| VQC 1/2 |
| VQC 4/5 |
| VQZ     |
| SQ      |
| VFS     |
| VFR     |
| VQ7     |

**Dimensions** Formula:  $L_1 = 41n + 76$ ,  $L_2 = 41n + 96$  n: Stations (Maximum 12 stations)

| L              | n | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  |
|----------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L <sub>1</sub> |   | 117 | 158 | 199 | 240 | 281 | 322 | 363 | 404 | 445 | 486 | 527 | 568 |
| L <sub>2</sub> |   | 137 | 178 | 219 | 260 | 301 | 342 | 383 | 424 | 465 | 506 | 547 | 588 |

# VQ5000 Series Manifold Options

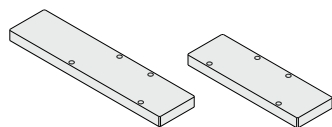
## Manifold Option Parts

### Blanking plate assembly

#### VVQ5000-10A-1 (Plug-in type)

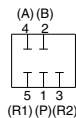
#### VVQ5000-10A-5 (Plug lead type)

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.

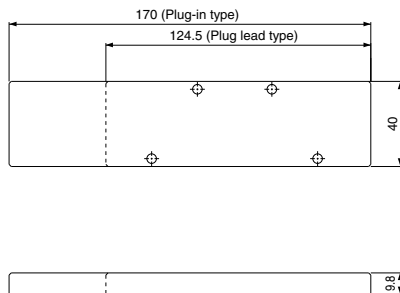


Plug-in type

Plug lead type



Circuit diagram



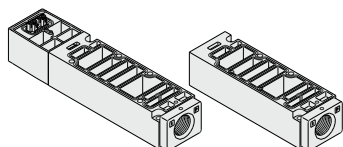
### Individual SUP spacer

#### VVQ5000 - P - 1 - 03

| Manifold |                |
|----------|----------------|
| 1        | Plug-in type   |
| 5        | Plug lead type |

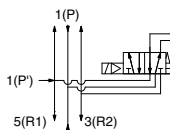
| Port size |     |
|-----------|-----|
| 03        | 3/8 |
| 04        | 1/2 |

| Thread type |      |
|-------------|------|
| Nil         | Rc   |
| F           | G    |
| N           | NPT  |
| T           | NPTF |

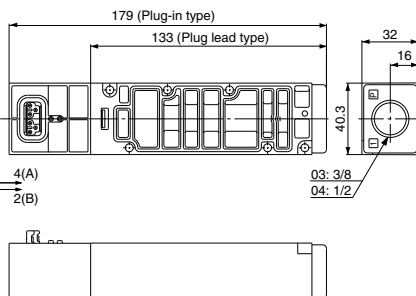


Plug-in type

Plug lead type



Circuit diagram



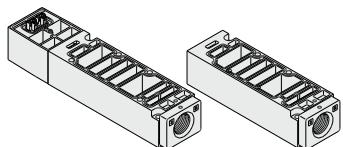
### Individual EXH spacer

#### VVQ5000 - R - 1 - 03

| Manifold |                |
|----------|----------------|
| 1        | Plug-in type   |
| 5        | Plug lead type |

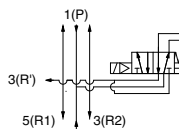
| Port size |     |
|-----------|-----|
| 03        | 3/8 |
| 04        | 1/2 |

| Thread type |      |
|-------------|------|
| Nil         | Rc   |
| F           | G    |
| N           | NPT  |
| T           | NPTF |

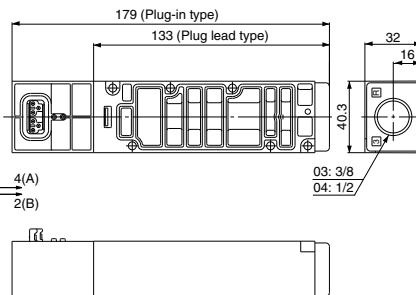


Plug-in type

Plug lead type



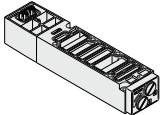
Circuit diagram



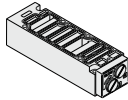
### Restrictor spacer

#### VVQ5000-20A-1 (Plug-in type) VVQ5000-20A-5 (Plug lead type)

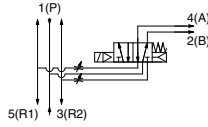
A restrictor spacer is mounted on a manifold block to control cylinder speed by throttling exhaust air flow.



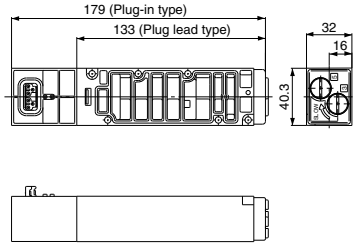
Plug-in type



Plug lead type



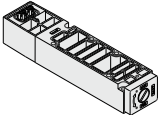
Circuit diagram



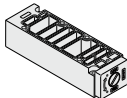
### SUP stop valve spacer

#### VVQ5000-37A-1 (Plug-in type) VVQ5000-37A-5 (Plug lead type)

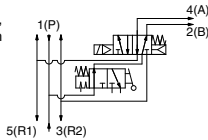
A SUP stop valve spacer is mounted on a manifold block, making it possible to individually shut off supply air to each valve.



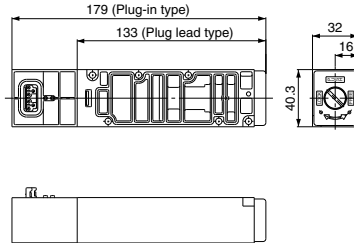
Plug-in type



Plug lead type



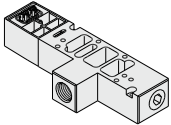
Circuit diagram



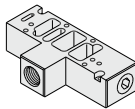
### Release valve spacer: For D side mounting

#### VVQ5000-24A-1D (Plug-in type) VVQ5000-24A-5D (Plug lead type)

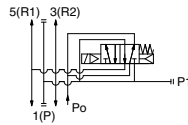
A VQ51□□ (single) valve can be used as an air release valve by combining it with a release valve spacer.  
Note) 2-position double and 3-position cannot be mounted.



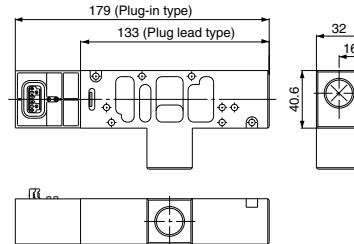
Plug-in type



Plug lead type



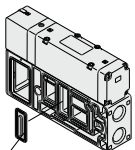
Circuit diagram



### SUP block plate

#### VVQ5000-16A-1

When supplying two different pressures to one manifold, this is used to shut off between stations with different pressures.

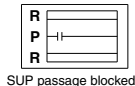
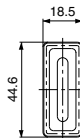
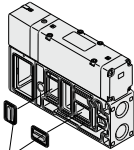


SUP blocking plate

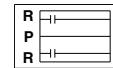
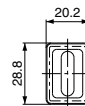
### EXH block plate

#### VVQ5000-16A-2

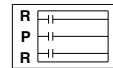
EXH blocking plate  
(Order q'ty: 2 pcs.)



SUP passage blocked



EXH passage blocked



SUP/EXH passage blocked

#### <Passage blocked label>

Indication labels to confirm the blocking position are attached.  
(Each for SUP passage and SUP/EXH passage blocking positions)  
(Each for EXH passage and SUP/EXH passage blocking positions)

|         |
|---------|
| SV      |
| SYJ     |
| SZ      |
| VF      |
| VP4     |
| VQ 1/2  |
| VQ 4/5  |
| VQC 1/2 |
| VQC 4/5 |
| VQZ     |
| SQ      |
| VFS     |
| VFR     |
| VQ7     |

## Manifold Option Parts

### Direct exhaust with silencer box

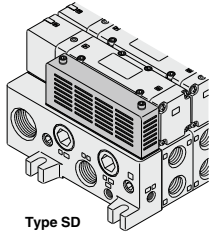
VV5Q5 ½ -□□□-SD (D side exhaust)

VV5Q5 ½ -□□□-SU (U side exhaust)

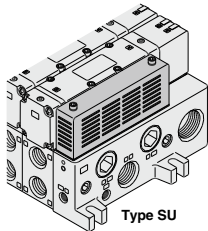
VV5Q5 ½ -□□□-SB (Exhaust from both sides)

The EXH outlet is placed on the top side of the manifold end plate. The built-in silencer provides highly effective noise reduction. (Noise reduction of 35 dB(A) or more)

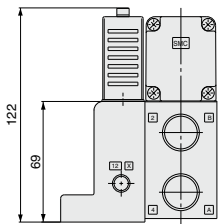
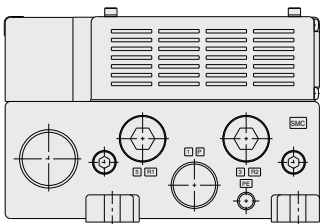
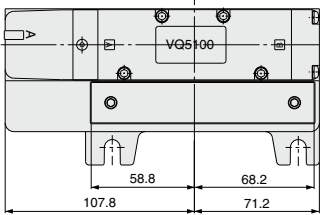
Note) Note that when excessive drainage occurs in the air supply, the drainage will be released along with the exhaust.



Type SD



Type SU



Note) Figure shows VV5Q51-□□□-SD.

• Silencer box assembly: VVQ5000-75A (With gasket, screw)

### Double check spacer with residual pressure exhaust

VVQ5000-25A-1 (Plug-in type)

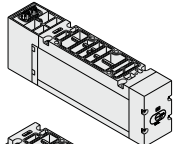
VVQ5000-25A-5 (Plug lead type)

Can hold an intermediate cylinder position for an extended time.

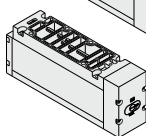
When combined with a double check spacer with built-in double check valve, it is unaffected by air leakage between the spool valves, making it possible to hold a cylinder at an intermediate stopping position for an extended time.

Besides, combination between 2-position solenoid valve (VQ5 ½ □□) and double check spacer can be used for drop prevention.

#### Plug-in type



#### Plug lead type



#### Specifications

| Double check spacer part no. | VVQ5000-25A-½     |                 |
|------------------------------|-------------------|-----------------|
|                              | Intermediate stop | Drop prevention |
| Applicable solenoid valve    | VQ54□□            | VQ5 ½ □□        |

## ⚠ Caution

### Handling Precautions

- In the case of 3-position double check (VQ56 2/3 0), check the leakage from piping and fittings in between valve and cylinder by means of synthetic detergent solutions, and ensure that there is no such leakage found there. Also, check the leakage from cylinder seal and piston seal. If there is any leakage, sometimes the cylinder, when valve is de-energized, can move without stopping at intermediate position.
- If exhaust side of double check spacer is narrowed down, this causes a decrease in intermediate stop accuracy and may malfunction.
- Combination with 3-position valves "VQ5 3/4 □□" is not possible.
- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.

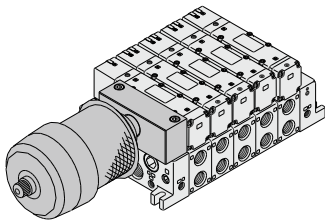
## Manifold mounted exhaust cleaner

**VV5Q5  $\frac{1}{5}$  -□□□-CD  $\frac{1}{2}$  (D side mounting)**

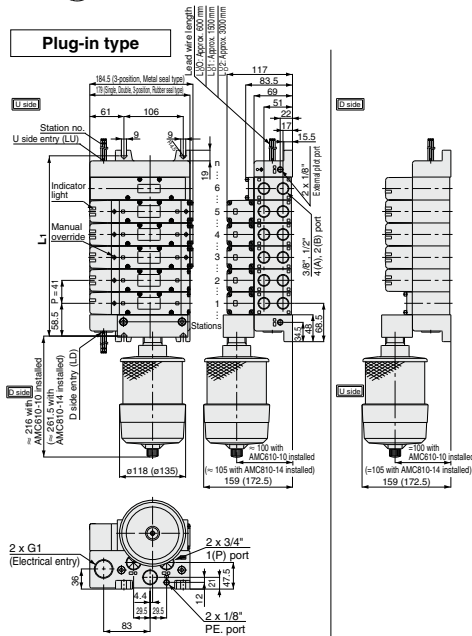
**VV5Q5  $\frac{1}{5}$  -□□□-CU  $\frac{1}{2}$  (U side mounting)**

An adapter plate for exhaust cleaner mounting is provided on the top of the manifold end plate. The exhaust cleaner collects drainage and oil mist (99.9% or more) and is highly effective for noise reduction.

(Noise reduction of 35 dB(A) or more)



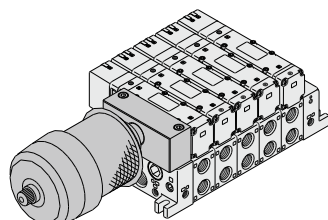
### Plug-in type



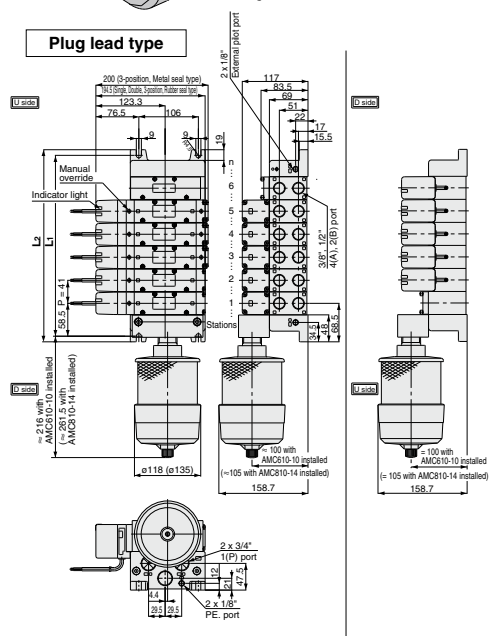
## Dimensions

| L \ n | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L1    | 158 | 199 | 240 | 281 | 322 | 363 | 404 | 445 | 486 | 527 | 568 |
| L2    | 178 | 219 | 260 | 301 | 342 | 383 | 424 | 465 | 506 | 547 | 588 |

Formula:  $L1 = 41n + 76$ ,  $L2 = 41n + 96$   
n: Stations (Maximum 12 stations)



### Plug lead type



## Dimensions

| L \ n          | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L <sub>1</sub> | 158 | 199 | 240 | 281 | 322 | 363 | 404 | 445 | 486 | 527 | 568 |
| L <sub>2</sub> | 178 | 219 | 260 | 301 | 342 | 383 | 424 | 465 | 506 | 547 | 588 |

Formula:  $L1 = 41n + 76$ ,  $L2 = 41n + 96$   
n: Stations (Maximum 12 stations)

| Applicable exhaust cleaners   |
|---|
| <p>1. <b>Exhaust gas cleaning</b></p> <p>2. <b>Exhaust gas cleaning</b></p> <p>3. <b>Exhaust gas cleaning</b></p> <p>4. <b>Exhaust gas cleaning</b></p> <p>5. <b>Exhaust gas cleaning</b></p> <p>6. <b>Exhaust gas cleaning</b></p> <p>7. <b>Exhaust gas cleaning</b></p> <p>8. <b>Exhaust gas cleaning</b></p> <p>9. <b>Exhaust gas cleaning</b></p> <p>10. <b>Exhaust gas cleaning</b></p> <p>11. <b>Exhaust gas cleaning</b></p> <p>12. <b>Exhaust gas cleaning</b></p> <p>13. <b>Exhaust gas cleaning</b></p> <p>14. <b>Exhaust gas cleaning</b></p> <p>15. <b>Exhaust gas cleaning</b></p> <p>16. <b>Exhaust gas cleaning</b></p> <p>17. <b>Exhaust gas cleaning</b></p> <p>18. <b>Exhaust gas cleaning</b></p> <p>19. <b>Exhaust gas cleaning</b></p> <p>20. <b>Exhaust gas cleaning</b></p> <p>21. <b>Exhaust gas cleaning</b></p> <p>22. <b>Exhaust gas cleaning</b></p> <p>23. <b>Exhaust gas cleaning</b></p> <p>24. <b>Exhaust gas cleaning</b></p> <p>25. <b>Exhaust gas cleaning</b></p> <p>26. <b>Exhaust gas cleaning</b></p> <p>27. <b>Exhaust gas cleaning</b></p> <p>28. <b>Exhaust gas cleaning</b></p> <p>29. <b>Exhaust gas cleaning</b></p> <p>30. <b>Exhaust gas cleaning</b></p> <p>31. <b>Exhaust gas cleaning</b></p> <p>32. <b>Exhaust gas cleaning</b></p> <p>33. <b>Exhaust gas cleaning</b></p> <p>34. <b>Exhaust gas cleaning</b></p> <p>35. <b>Exhaust gas cleaning</b></p> <p>36. <b>Exhaust gas cleaning</b></p> <p>37. <b>Exhaust gas cleaning</b></p> <p>38. <b>Exhaust gas cleaning</b></p> <p>39. <b>Exhaust gas cleaning</b></p> <p>40. <b>Exhaust gas cleaning</b></p> <p>41. <b>Exhaust gas cleaning</b></p> <p>42. <b>Exhaust gas cleaning</b></p> <p>43. <b>Exhaust gas cleaning</b></p> <p>44. <b>Exhaust gas cleaning</b></p> <p>45. <b>Exhaust gas cleaning</b></p> <p>46. <b>Exhaust gas cleaning</b></p> <p>47. <b>Exhaust gas cleaning</b></p> <p>48. <b>Exhaust gas cleaning</b></p> <p>49. <b>Exhaust gas cleaning</b></p> <p>50. <b>Exhaust gas cleaning</b></p> <p>51. <b>Exhaust gas cleaning</b></p> <p>52. <b>Exhaust gas cleaning</b></p> <p>53. <b>Exhaust gas cleaning</b></p> <p>54. <b>Exhaust gas cleaning</b></p> <p>55. <b>Exhaust gas cleaning</b></p> <p>56. <b>Exhaust gas cleaning</b></p> <p>57. <b>Exhaust gas cleaning</b></p> <p>58. <b>Exhaust gas cleaning</b></p> <p>59. <b>Exhaust gas cleaning</b></p> <p>60. <b>Exhaust gas cleaning</b></p> <p>61. <b>Exhaust gas cleaning</b></p> <p>62. <b>Exhaust gas cleaning</b></p> <p>63. <b>Exhaust gas cleaning</b></p> <p>64. <b>Exhaust gas cleaning</b></p> <p>65. <b>Exhaust gas cleaning</b></p> <p>66. <b>Exhaust gas cleaning</b></p> <p>67. <b>Exhaust gas cleaning</b></p> <p>68. <b>Exhaust gas cleaning</b></p> <p>69. <b>Exhaust gas cleaning</b></p> <p>70. <b>Exhaust gas cleaning</b></p> <p>71. <b>Exhaust gas cleaning</b></p> <p>72. <b>Exhaust gas cleaning</b></p> <p>73. <b>Exhaust gas cleaning</b></p> <p>74. <b>Exhaust gas cleaning</b></p> <p>75. <b>Exhaust gas cleaning</b></p> <p>76. <b>Exhaust gas cleaning</b></p> <p>77. <b>Exhaust gas cleaning</b></p> <p>78. <b>Exhaust gas cleaning</b></p> <p>79. <b>Exhaust gas cleaning</b></p> <p>80. <b>Exhaust gas cleaning</b></p> <p>81. <b>Exhaust gas cleaning</b></p> <p>82. <b>Exhaust gas cleaning</b></p> <p>83. <b>Exhaust gas cleaning</b></p> <p>84. <b>Exhaust gas cleaning</b></p> <p>85. <b>Exhaust gas cleaning</b></p> <p>86. <b>Exhaust gas cleaning</b></p> <p>87. <b>Exhaust gas cleaning</b></p> <p>88. <b>Exhaust gas cleaning</b></p> <p>89. <b>Exhaust gas cleaning</b></p> <p>90. <b>Exhaust gas cleaning</b></p> <p>91. <b>Exhaust gas cleaning</b></p> <p>92. <b>Exhaust gas cleaning</b></p> <p>93. <b>Exhaust gas cleaning</b></p> <p>94. <b>Exhaust gas cleaning</b></p> <p>95. <b>Exhaust gas cleaning</b></p> <p>96. <b>Exhaust gas cleaning</b></p> <p>97. <b>Exhaust gas cleaning</b></p> <p>98. <b>Exhaust gas cleaning</b></p> <p>99. <b>Exhaust gas cleaning</b></p> <p>100. <b>Exhaust gas cleaning</b></p> |

**AMC610-10 (Port size Rc 1), AMC810-14 (Port size Rc 1 1/2)**

Note 1) Exhaust cleaner: AMC610-10 and AMC810-14 are not included.

Please order it separately.

Note 2) Mount so that the exhaust cleaner is at the lower side.

Note 3) For details about the exhaust cleaner, refer to Best Pneumatics No. 7.

SV

SYJ

SZ

VF

## VP4

VQ  
1/2

VQ

VQC

**VQC**

4/8  
V07

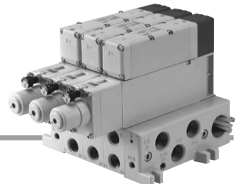
22

|    |  |
|----|--|
| 64 |  |
|    |  |

VI

VFR

VQ7



## Manifold Option Parts

### Interface regulator (P, A, B port regulation)

ARBQ5000-00-□-1 (Plug-in type)

ARBQ5000-00-□-5 (Plug lead type)

By mounting a spacer regulator on the manifold block, it enables to regulate pressure per every valve.

### Specifications

| Interface regulator  |        | ARBQ5000                 |           |         |           |         |           |
|--|--------|--------------------------|-----------|---------|-----------|---------|-----------|
| Regulating port  |        | A                        |           | B       |           | P       |           |
| Applicable valve   |        | Plug-in                  | Plug lead | Plug-in | Plug lead | Plug-in | Plug lead |
| Maximum operating pressure   |        | 1.0 MPa                  |           |         |           |         |           |
| Set pressure range   |        | 0.05 to 0.85 MPa         |           |         |           |         |           |
| Fluid  |        | Air                      |           |         |           |         |           |
| Ambient and fluid temperature  |        | -5 to 60°C (No freezing) |           |         |           |         |           |
| Port size for connection of pressure gauge   |        | M5 x 0.8                 |           |         |           |         |           |
| Weight [kg]  |        | 0.79                     | 0.74      | 0.78    | 0.73      | 0.79    | 0.74      |
| Effective area at supply side [mm <sup>2</sup> ]<br>S at P <sub>1</sub> = 0.7 MPa/P <sub>2</sub> = 0.5 MPa | P → A  | 33                       |           | 75      |           | 29      |           |
|  | P → B  | 64                       |           | 33      |           | 28      |           |
| Effective area at exhaust side [mm <sup>2</sup> ]<br>S at P <sub>2</sub> = 0.5 MPa                         | A → EA | 36                       |           | 75      |           | 78      |           |
|  | B → EB | 68                       |           | 38      |           | 69      |           |

Note 1) Set the pressure within the operating pressure range of the valve.

Note 2) Operate an interface regulator only by applying pressure from the P port of the base, except when using it as a reverse pressure valve. When using it as a reverse pressure valve, P port regulation is not allowed to use.

Note 3) When using a perfect spacer, assemble a valve, a spacer regulator and a perfect spacer in this order to use it.

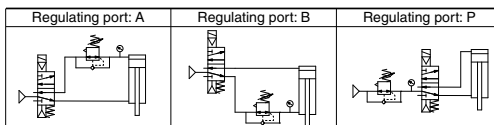
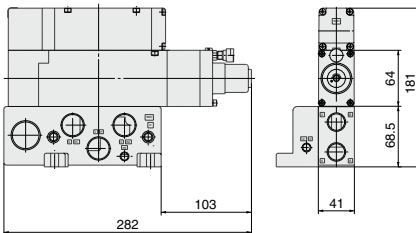
Note 4) When using in A port regulation, B port regulation by closed center, since there is a problem in its operation, please contact SMC.

Note 5) Dust-tight/Water-jet-proof (IP65) is not available with interface regulator.

### How to Order

| Solenoid valve         | Interface regulator | Regulating port |
|------------------------|---------------------|-----------------|
| VQ5□□ (Plug-in type)   | ARBQ5000-00-A-1     | A               |
|                        | ARBQ5000-00-B-1     | B               |
|                        | ARBQ5000-00-P-1     | P               |
| VQ5□□ (Plug lead type) | ARBQ5000-00-A-5     | A               |
|                        | ARBQ5000-00-B-5     | B               |
|                        | ARBQ5000-00-P-5     | P               |

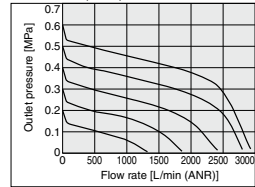
### Dimensions



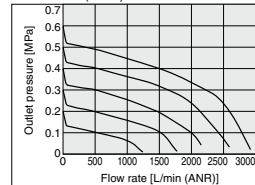
### Flow Rate Characteristics

Conditions Inlet pressure: 0.7 MPa

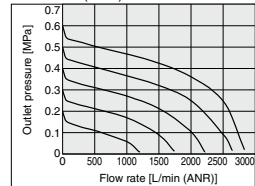
ARBQ5000-00-A (P → A)



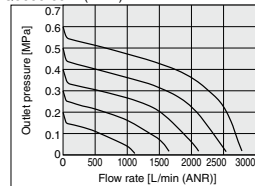
ARBQ5000-00-B (P → B)



ARBQ5000-00-P (P → A)



ARBQ5000-00-P (P → B)



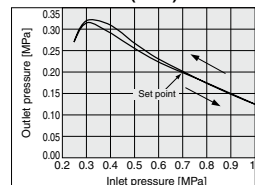
### Pressure Characteristics

Conditions

Inlet pressure: 0.7 MPa

Outlet pressure: 0.2 MPa

Flow rate: 20 L/min (ANR)



# VQ5000 Series

## Semi-standard Specifications

### External Pilot Specifications

- When the supply pressure is:
  - lower than the minimum valve operating pressure of 0.1 to 0.2 MPa, or when it drops below this level,
  - used for reverse pressure (R port pressure) or cylinder pressure (A, B port pressure),
  - used for vacuum specification, it can be used for external pilot specification. Order a valve by adding the external pilot specification [R] to the part number. External pilot is available as standard for manifolds and options.
- Compatibility with universal porting is possible for the single, double and 3-position (excluding double check) types.

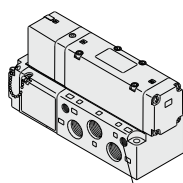
### Pressure Specifications

| Valve construction            |            | Metal seal          | Rubber seal     |
|-------------------------------|------------|---------------------|-----------------|
| Operating pressure range      |            | -100 kPa to 1.0 MPa |                 |
| External pilot pressure range | Single     | 0.1 to 1.0 MPa      | 0.2 to 1.0 MPa  |
|                               | Double     | 0.15 to 1.0 MPa     | 0.15 to 1.0 MPa |
|                               | 3-position | 0.15 to 1.0 MPa     | 0.2 to 1.0 MPa  |

### How to Order Valves

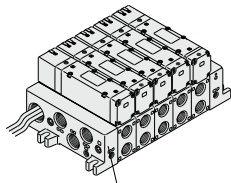
VQ5100 **R** - 5 - 04

● External pilot



External pilot port  
1/8

<Sub-plate>



External pilot port  
2 x 1/8

<Manifold>

Note) Possible to mix mounting of internal and external pilot

SV

SYJ

SZ

VF

VP4

VQ

1/2

VQ

4/5

VQC

1/2

VQC

4/5

VQZ

SQ

VFS

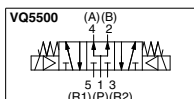
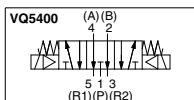
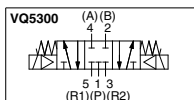
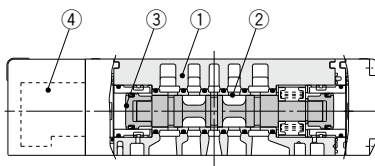
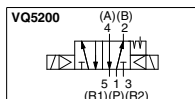
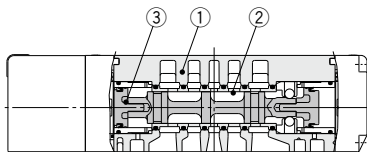
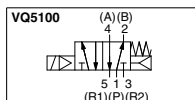
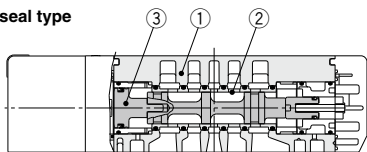
VFR

VQ7

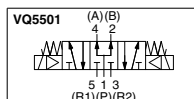
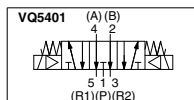
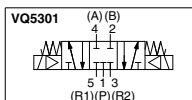
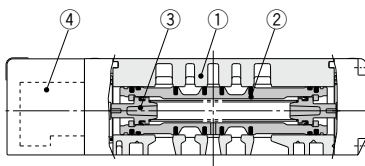
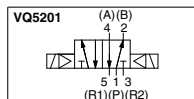
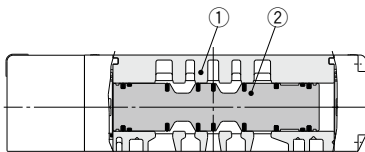
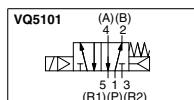
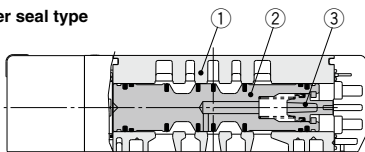
# VQ5000 Series Construction

## Plug-in Unit

### Metal seal type




### Rubber seal type



### Component Parts

| No. | Description  | Material            | Note |
|-----|--------------|---------------------|------|
| 1   | Body         | Aluminum die-casted |      |
| 2   | Spool/Sleeve | Stainless steel     |      |
| 3   | Piston       | Resin               |      |

### Replacement Parts

|     |                          |  |     |                   |   |                          |
|-----|--------------------------|--|-----|-------------------|---|--------------------------|
| 4   | Pilot valve assembly     |  <p> <input type="checkbox"/> Coil rated voltage<br/>           Example) 24 VDC: 5<br/>           A: With light (For A side)<br/>           B: With light (For B side)<br/>           E: Without light<br/>           (A/B side common)         </p> <p> <b>Coil type</b> </p> <table border="1" data-bbox="207 1420 296 1422"> <tr> <td>NII</td> <td>Standard (0.95 W)</td> </tr> <tr> <td>Y</td> <td>Low wattage type (0.4 W)</td> </tr> </table> | NII | Standard (0.95 W) | Y | Low wattage type (0.4 W) |
| NII | Standard (0.95 W)        |  |     |                   |   |                          |
| Y   | Low wattage type (0.4 W) |  |     |                   |   |                          |

### Component Parts

| No. | Description | Material            | Note |
|-----|-------------|---------------------|------|
| 1   | Body        | Aluminum die-casted |      |
| 2   | Spool valve | Aluminum, HNBR      |      |
| 3   | Piston      | Resin               |      |

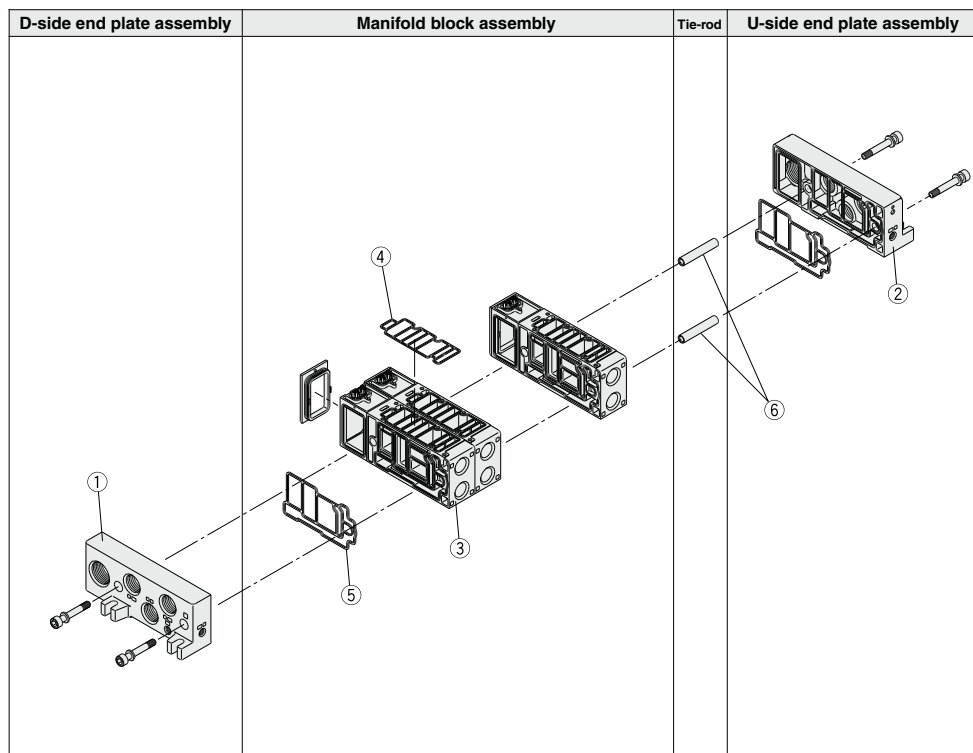
### Replacement Parts

|     |                          |   |     |                   |   |                          |  |
|-----|--------------------------|---|-----|-------------------|---|--------------------------|--|
| 4   | Pilot valve assembly     | <p>V118□□□<br/>A<br/>B<br/>E</p> <p>•Coil type</p> <table border="1"> <tr> <td>NII</td> <td>Standard (0.95 W)</td> </tr> <tr> <td>Y</td> <td>Low wattage type (0.4 W)</td> </tr> </table> | NII | Standard (0.95 W) | Y | Low wattage type (0.4 W) | <p>□: Coil rated voltage<br/>Example) 24 VDC: 5<br/>A: With light (For A side)<br/>B: With light (For B side)<br/>E: Without light<br/>(A/B side common)</p> |
| NII | Standard (0.95 W)        |   |     |                   |   |                          |  |
| Y   | Low wattage type (0.4 W) |   |     |                   |   |                          |  |



# VQ5000 Series

## Exploded View of Manifold

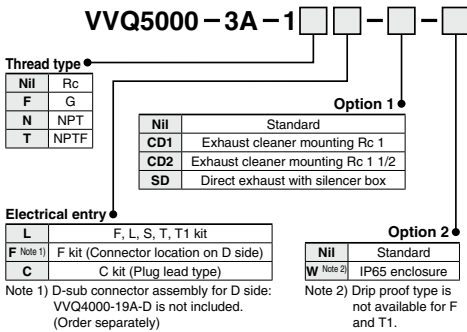


Note) The electrical entry cannot be changed.

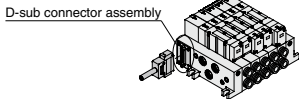
Figure shows a plug-in type.

## D-Side End Plate Assembly

1. D-side end plate assembly part no. (For F, L, S, T & T1 kits)

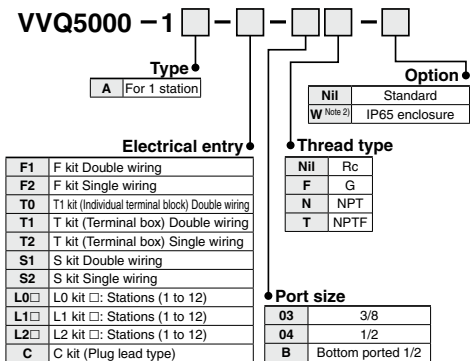


## D-sub connector assembly



## Manifold Block Assembly

3. Manifold block assembly part no. (Including ④ and ⑤)

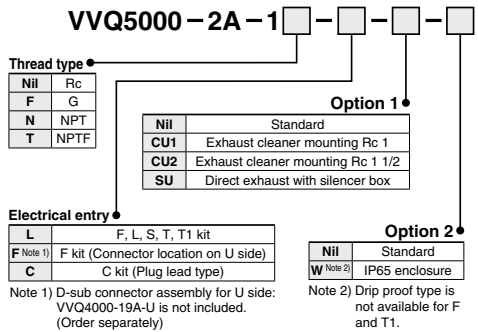


Note 1) Tie-rods (2 pcs.) and lead wire assembly for station addition included.

Note 2) Drip proof type is not available for F and T1.

## U-Side End Plate Assembly

2. U-side end plate assembly part no. (For F, L, S, T & T1 kits)



## VVQ4000 - 19A -

|                         |              |
|-------------------------|--------------|
| <b>Electrical entry</b> |              |
| D                       | D side entry |
| U                       | U side entry |

## Manifold Block Replacement Parts

### Replacement Parts

| No. | Part no.      | Description | Material | Qty |
|-----|---------------|-------------|----------|-----|
| ④   | VVQ5000-80A-1 | Gasket      | HNBR     | 10  |
| ⑤   | VVQ5000-80A-2 | Gasket      | HNBR     | 10  |

Note) Spare parts consist of sets containing 10 pcs. each.

6. Tie-rods part no. (2 pcs.)

## VVQ5000 - TR -

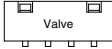
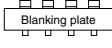
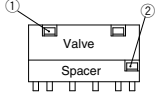
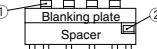
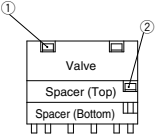
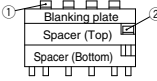
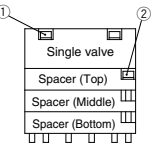
Stations: 02 to 12

Note) When eliminating manifold stations, order this separately. When increasing manifold stations, it is not necessary to order since tie-rods are included in the manifold block assembly.

## Housing Assembly and SI Unit

| Kit type                        | Model symbol | Part no.            |                     | Description  |
|---------------------------------|--------------|---------------------|---------------------|--|
|                                 |              | For U side mounting | For D side mounting |  |
| S<br>(Serial transmission unit) | H            | EX123U-SUH1         | EX123D-SUH1         | NKE Corp.: Fieldbus H System   |
|                                 | Q            | EX124U-SDN1         | EX124D-SDN1         | DeviceNet™   |
|                                 | R1           | EX124U-SCS1         | EX124D-SCS1         | OMRON Corp.: CompoBus/S (16 output points, 2 power supply systems)       |
|                                 | R2           | EX124U-SCS2         | EX124D-SCS2         | OMRON Corp.: CompoBus/S (8 output points, 2 power supply systems)        |
|                                 | V            | EX124U-SMJ1         | EX124D-SMJ1         | Mitsubishi Electric Corporation: CC-Link System (2 power supply systems) |
| T (Terminal block box kit)      | —            | VVQ5000-70A-U (-W)  | VVQ5000-70A-D (-W)  | —  |

## List of Valves, Options, and Mounting Bolts

| Number of options | Valve and options   | Bolt part no.   | Qty (pcs) | Note   | Option mounting diagram  |
|-------------------|---|---|-----------|--|--|
| 0                 | Single valve  | AXT632-25-4 (M4 x 50)                                 | 4         |  |     |
|                   | Blanking plate (VVQ5000-10A- $\frac{1}{5}$ $\frac{03}{04}$ )  | AXT632-25-8 (M4 x 17)                                 | 4         | For manifold   |     |
| 1                 | Valve + Individual SUP spacer (VVQ5000-P- $\frac{1}{5}$ $\frac{03}{04}$ )   | ① AXT632-25-5 (M4 x 82)<br>② AXT632-25-10 (M4 x 34)   | 4<br>2    | For manifold   |    |
|                   | Valve + Individual EXH spacer (VVQ5000-R- $\frac{1}{5}$ $\frac{03}{04}$ )   | ① AXT632-25-5 (M4 x 82)<br>② AXT632-25-10 (M4 x 34)   | 4<br>2    | For manifold   |  |
|                   | Valve + Restrictor spacer (VVQ5000-20A- $\frac{1}{5}$ )   | ① AXT632-25-5 (M4 x 82)<br>② AXT632-25-10 (M4 x 34)   | 4<br>2    | Not necessary when mounting the sub-plate.   |  |
|                   | Valve + Release valve spacer (VVQ5000-24A- $\frac{1}{5}$ D)   | ① AXT632-25-5 (M4 x 82)<br>② AXT632-25-10 (M4 x 34)   | 4<br>2    | For manifold   |  |
|                   | Valve + Double check spacer with residual pressure exhaust (VVQ5000-25A- $\frac{1}{5}$ )  | ① AXT632-25-6 (M4 x 114)<br>② AXT632-66-1 (M4 x 64)   | 4<br>2    | Not necessary when mounting the sub-plate.   |    |
|                   | Valve + SUP stop valve spacer (VVQ5000-37A- $\frac{1}{5}$ )   | ① AXT632-25-5 (M4 x 82)<br>② AXT632-25-10 (M4 x 34)   | 4<br>2    | Not necessary when mounting the sub-plate.   |  |
|                   | Valve + Interface regulator (ARBQ5000-00- $\frac{1}{5}$ $\frac{03}{04}$ )   | ① AXT632-25-6 (M4 x 114)<br>② AXT632-66-1 (M4 x 64)   | 4<br>2    | Not necessary when mounting the sub-plate.   |  |
|                   | Blanking plate + SUP stop valve (Top) (Bottom)  | ① AXT632-25-4 (M4 x 50)<br>② AXT632-25-10 (M4 x 34)   | 4<br>2    | For manifold   |  |
|                   | Valve + Individual SUP + Individual EXH (Top) (Bottom) (Top)  | ① AXT632-25-6 (M4 x 114)<br>② AXT632-25-11 (M4 x 66)  | 4<br>2    | For manifold   |   |
|                   | Valve + Restrictor + Individual SUP or Individual EXH (Top) (Bottom) (Top) (Bottom)   | ① AXT632-25-6 (M4 x 114)<br>② AXT632-25-11 (M4 x 66)  | 4<br>2    | For manifold<br>* The individual EXH cannot be mounted on the top.                 |  |
| 2                 | Valve + SUP stop valve + Individual SUP, Individual EXH or Restrictor (Top) (Bottom)  | ① AXT632-25-6 (M4 x 114)<br>② AXT632-25-11 (M4 x 66)  | 4<br>2    | For manifold   |  |
|                   | Valve + Double check spacer with + Individual SUP or residual pressure exhaust (Top) (Bottom)   | ① AXT632-25-7 (M4 x 146)<br>② AXT632-66-2 (M4 x 96)   | 4<br>2    | For manifold   |  |
|                   | Valve + Interface regulator + Double check spacer with residual pressure exhaust (Top) (Bottom)   | ① AXT632-25-14 (M4 x 178)<br>② AXT632-66-3 (M4 x 128) | 4<br>2    | For manifold   |  |
|                   | Valve + Interface regulator + Individual SUP, Individual EXH or Restrictor (Top) (Bottom)   | ① AXT632-25-7 (M4 x 146)<br>② AXT632-66-2 (M4 x 96)   | 4<br>2    | For manifold<br>* The individual EXH and throttle valve can be mounted on the top. |  |
|                   | Blanking + SUP stop + Individual valve valve SUP (Top) (Bottom)   | ① AXT632-25-5 (M4 x 82)<br>② AXT632-25-11 (M4 x 66)   | 4<br>2    | For manifold   |  |
|                   | Valve + SUP stop valve (Top) + Individual SUP (Middle, Bottom) + Individual EXH (Middle, Bottom)  | ① AXT632-25-7 (M4 x 146)<br>② AXT632-25-12 (M4 x 98)  | 4<br>2    | For manifold   |  |
| 3                 | Valve + Double check spacer with residual pressure exhaust (Top) + Individual SUP (Middle, Bottom) + Individual EXH (Middle, Bottom)  | ① AXT632-25-14 (M4 x 178)<br>② AXT632-66-3 (M4 x 128) | 4<br>2    | For manifold   |  |
|                   | Valve + Spacer (Top): Interface regulator<br>Spacer (Middle): "Individual SUP or Individual EXH"/Restrictor<br>Spacer (Bottom): "Restrictor"/Individual SUP or Individual EXH | ① AXT632-25-14 (M4 x 178)<br>② AXT632-66-3 (M4 x 128) | 4<br>2    | For manifold<br>* The individual EXH and throttle valve can be mounted on the top. |  |

Note 1) When the SUP stop valve and individual SUP are mounted, the stop valve is mounted on the top of the individual SUP.



# VQ4000/5000 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.

### Continuous Duty

#### Warning

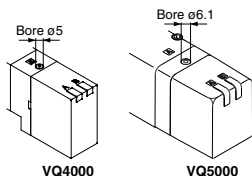
When the product is continuously energized for a long period of time (10 minutes or longer), select the low wattage type (DC specification). The AC type cannot be continuously energized for 10 minutes or longer. If anything is unclear, please contact SMC.

### Manual Override

#### Warning

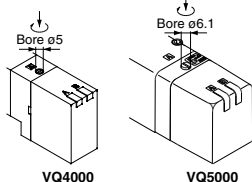
Since connected equipment will operate when the manual override is activated, confirm that conditions are safe prior to activation.

##### Push type (Tool required)

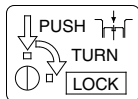


Push down the manual override button with a small screwdriver, etc., until it stops. The manual override will return when released.

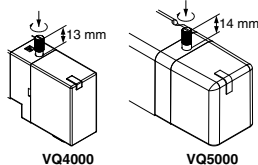
##### Locking type (Tool required)



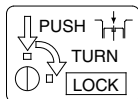
Push down the manual override button with a small flat head screwdriver until it stops, and turn it clockwise 90° to lock it. Turn it counterclockwise to release it.



##### Locking type (Manual)



Push down the manual override button with a small flat head screwdriver until it stops. Turn it 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)

### Valve Mounting

#### Caution

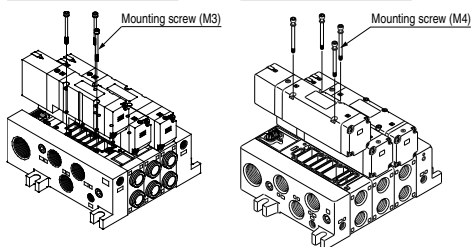
After confirming that the gasket is installed correctly, securely tighten the mounting screws according to the tightening torque shown below.

##### VQ4000

Proper tightening torque [N·m]  
0.8 to 1.2

##### VQ5000

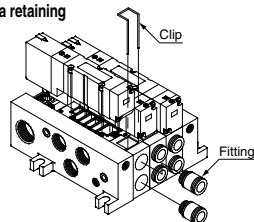
Proper tightening torque [N·m]  
1 to 1.8



### Replacement of One-touch Fittings/VQ4000

#### Caution

Cylinder port fittings are available in cassette type and can be replaced easily. Fittings are secured with a retaining clip that is inserted from the top side of the valve. After removing the valve, remove the clip with a flat head screwdriver to replace the fittings. To mount a fitting, insert the fitting assembly until it stops and reinsert the retaining clip to its designated position.

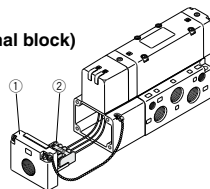


### Lead Wire Connection

#### Caution

##### Plug-in sub-plate (With terminal block)

- If the junction cover ① of the sub-plate is removed, you can see the plug-in type terminal block ② mounted inside the sub-plate.
- The terminal block is marked as follows. Connect wiring to each of the power supply terminals.



| Model   | Terminal block marking | A      | COM | B      | T |
|---|------------------------|--------|-----|--------|---|
| VQ $\frac{4}{5}$ 10 <sup>0</sup> <sub>1</sub> |                        | A side | COM | —      | — |
| VQ $\frac{4}{5}$ 20 <sup>0</sup> <sub>1</sub> |                        | A side | COM | B side | — |
| VQ $\frac{4}{5}$ 30 <sup>0</sup> <sub>1</sub> |                        | A side | COM | B side | — |

Note 1) There is no polarity. It can also be used as -COM.

Note 2) The sub-plate is double wired even for the VQ $\frac{4}{5}$ 10<sup>0</sup>.

- Applicable terminal: 1.25-3s, 1.25Y-3, 1.25Y-3N, 1.25Y-3.5



# VQ4000/5000 Series

## Specific Product Precautions 2

Be sure to read this before handling the products.

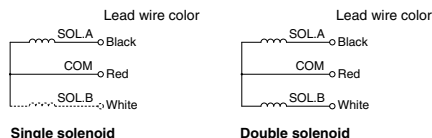
Refer to back page 50 for Safety Instructions and pages 3 to 9 for 3/4/5 Port Solenoid Valve Precautions.

### Lead Wire Connection

#### ⚠ Caution

##### Plug lead: Grommet type

Make connections to each corresponding wire.



|                | Single solenoid  | Double solenoid  |
|----------------|--|--|
| Standard       | Black: A side solenoid<br>Red: COM   | Black: A side solenoid<br>Red: COM<br>White: B side solenoid |
| IP65 enclosure | Black: A side solenoid<br>Red: COM<br>White: B side solenoid (Not used for single solenoid)<br>Green: (Not used for single or double.) |  |

Note) There is no polarity. It can also be used as -COM.

### Installation and Removal of Light Cover

#### ⚠ Caution

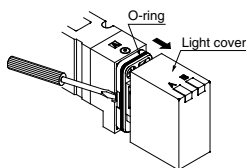
##### Installation/Removal of light cover (VQ4000)

###### • Removal

Open the cover by inserting a small flat head screwdriver into the slot on the side of the pilot assembly (see drawing below), lift the cover out about 1 mm and then pull off. If it is pulled off at an angle, the pilot valve may be damaged or the protective O-ring may be scratched.

###### • Installation

Place the cover straight over the pilot assembly so that the pilot valve is not touched, and push it until the cover hook locks without twisting the protective O-ring. (When pushed in, the hook opens and locks automatically.)



### Installation and Removal of Light Cover

#### ⚠ Caution

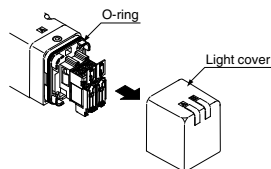
##### Installation/Removal of light cover (VQ5000)

###### • Removal

To remove the pilot cover pull it straight off. If it is pulled off at an angle, the pilot valve may be damaged or the protective O-ring may be scratched.

###### • Installation

Place the cover straight over the pilot assembly so that the pilot valve is not touched, and push it until the cover hook locks without twisting the protective O-ring. (When pushed in, the hook opens and locks automatically.)



### Replacement of Pilot Valve

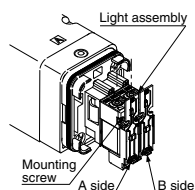
#### ⚠ Caution

###### • Removal

Remove the mounting screw that holds the pilot valve using a small screwdriver.

###### • Installation

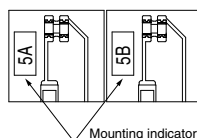
After confirming the gasket is correctly placed under the valve, securely tighten the bolts with the proper torque shown in the table below.



#### Proper tightening torque [N·m]

0.1 to 0.13

Note) The light circuit boards: A side is orange and the B side is green. It must be mounted on the pilot valve in accordance with the mounting indicators.





# VQ4000/5000 Series

## Specific Product Precautions 3

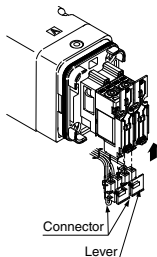
Be sure to read this before handling the products.

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

### Plug Lead Type

#### Attaching and detaching connectors

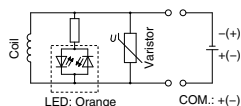
- To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.
- To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb, and pull the connector straight out.



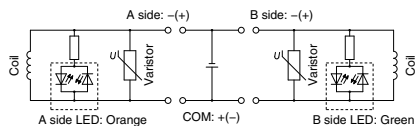
Note) Do not pull on the lead wires with excessive force. This can cause faulty and/or broken contacts.

### Internal Wiring Specifications

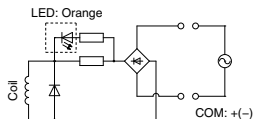
#### Caution



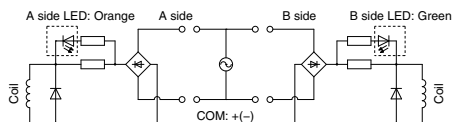
DC: Single



DC: Double



AC: Single



AC: Double

Note) For DC, coil surge voltage generated when OFF is about -60 V. Please contact SMC separately for further suppression of the coil surge voltage.

### Enclosure IP65

#### Caution

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

### How to Calculate the Flow Rate

For obtaining the flow rate, refer to flont matter.

SV

SYJ

SZ

VF

VP4

VQ

1/2

VQ

4/5

VQC

1/2

VQC

4/5

VQZ

SQ

VFS

VFR

VQ7