# 5 Port Solenoid Valve

## *VQ1000/2000 Series*

Metal Seal | Rubber Seal

CE [Option]



**Power saving**

**Standard: 0.4 W**
(Reduced by **60%** compared to current model)

**High-pressure** (1 MPa, Metal seal): **0.95 W**

## Space-saving profile

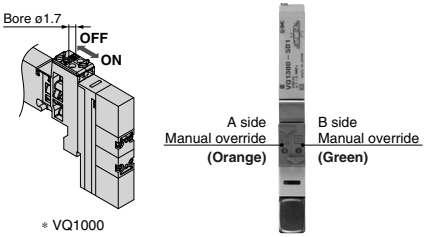
**All pilot valves are compactly mounted on one side. The space-saving design of mounting all fittings on one side permits mounting in three directions.**

## The non-bias, one-clamp structure permits easy valve replacement.

## Built-in One-touch fittings for easy piping

## Slide locking type manual override provided

**ON/OFF operation and locking can be made by sliding the manual override.**




∗ VQ1000

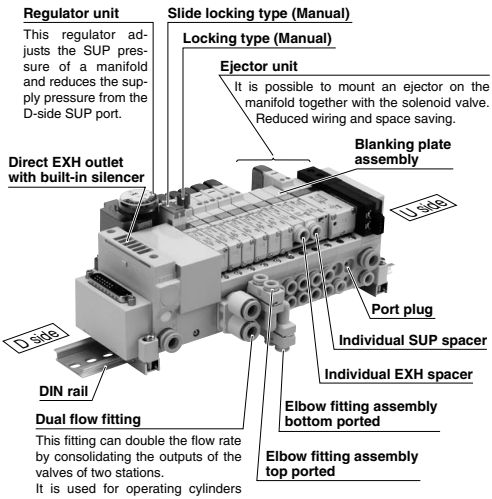
## Thin compact design with high flow capacity

| Model | Manifold pitch (mm) | Flow rate characteristics | | Applicable cylinder bore size |
|---|---|---|---|---|
| | | Metal seal | Rubber seal | |
| | | C [dm³/(s·bar)] | C [dm³/(s·bar)] | |
| **VQ1000** | 10.5 | 0.72 | 1.0 | Up to ø50 |
| **VQ2000** | 16 | 2.6 | 3.2 | Up to ø80 |

∗ Flow rate characteristics: 4/2 → 5/3 (A/B → R1/R2)

### A wide variety of optinal parts

∗ The photo does not show an actual use example.




## Valve Specifications

| | | | Sonic conductance C [dm³/(s·bar)] 4/2 → 5/3 (A/B → R1/R2) | | Type of actuation | | | | | Voltage | | | Electrical entry | | | | Manual override | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Double Single | 3-position (Closed center) | Single | Double | Closed center | Exhaust center | Pressure center | 12 VDC 24 VDC | 100 VAC 110 VAC (50/60 Hz) | 200 VAC 220 VAC (50/60 Hz) | Plug-in | Grommet | L-type plug connector | M-type plug connector | Non-locking push type (Tool required) | Locking type (Tool required) | Locking type (Manual) | Slide locking type (Manual) |
| Base Mounted | Plug-in | *VQ1000 Series* | Metal seal VQ1□00 | 0.72 | 0.72 | ● | ● | ● | ● | ● | ● | ● | (F/L kit only) | ● | | | | ● | ● | ● | ● |
| | | P. 372 | Rubber seal VQ1□01 | 1.0 | 0.65 | P. 380 | | | | | | | | | | | | | | | |
| | | *VQ2000 Series* | Metal seal VQ2□00 | 2.6 | 2.0 | ● | ● | ● | ● | ● | ● | ● | (F/L kit only) | ● | | | | ● | ● | ● | ● |
| | | P. 376 | Rubber seal VQ2□01 | 3.2 | 2.2 | P. 380 | | | | | | | | | | | | | | | |


VQ1000 Series


VQ2000 Series

## A variety of common wiring methods are standardized.

**F kit (D-sub connector)**
Number of pins: 15/25


Top entry


Side entry

**P kit (Flat ribbon cable)**
Number of pins: 10/16/20/26


Top entry

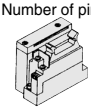

Side entry

**J kit (PC Wiring System compliant Flat ribbon cable)**
Number of pins: 20

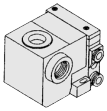

Top entry


Side entry

**G kit (Flat ribbon cable with terminal block)**
Number of pins: 20



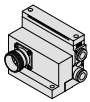
**T kit (Terminal block box)**



**L kit (Lead wire)**

**S kit (Serial transmission)**

**M kit (Circular connector)**

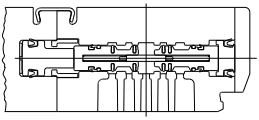

(VQ2000 only)

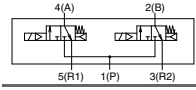
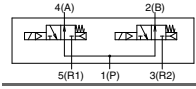
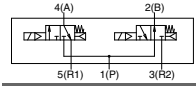
## Dual 3-port valves, 4 positions

Rubber seal only

- Two 3-port valves built into one body.
- The 3-port valves on the A and B sides can operate independently.
- When used as 3 port valves, only half the number of stations is required.
- Can also be used as a 4-position, 5-port type valve.

Exhaust center : **VQ1A01**
: **VQ2A01**
Pressure center : **VQ1B01**
: **VQ2B01**



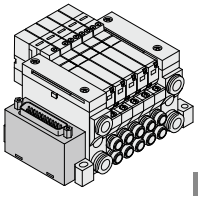
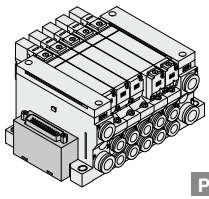
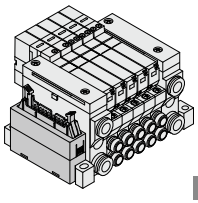
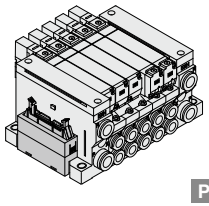
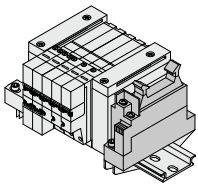
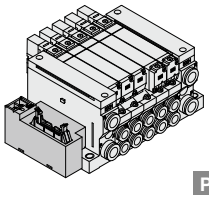
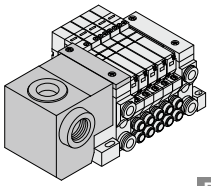
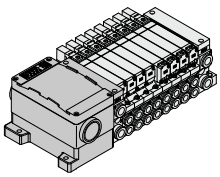
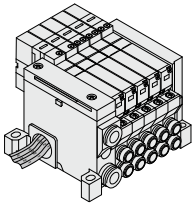
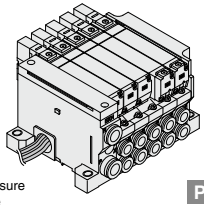

| Model | A side | B side | Symbol |
|---|---|---|---|
| VQ1A01<br>VQ2A01 | N.C. valve | N.C. valve |  |
| VQ1B01<br>VQ2B01 | N.O. valve | N.O. valve |  |
| VQ1C01<br>VQ2C01 | N.C. valve | N.O. valve |  |



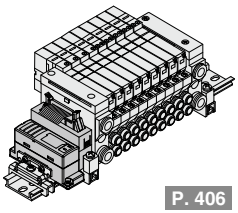
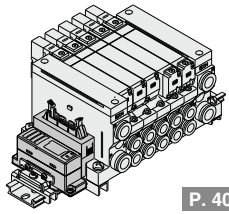
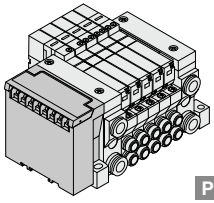
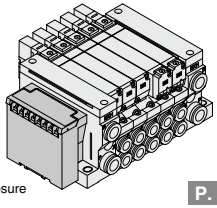
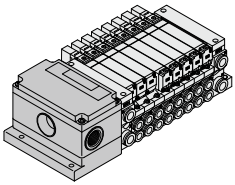
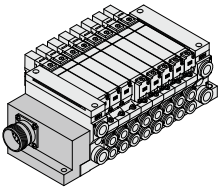
### Semi-standard / Options

| Semi-standard | | | | | | Options | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| External pilot | D-sub connector 15P | Flat ribbon cable 10P/16P/20P | Negative COM specifications | Inch-size One-touch fittings | Special wiring specifications | Blanking plate | Individual SUP/EXH spacer | SUP/EXH block plate | Name plate | Back pressure check valve | DIN rail mounting | Built-in silencer | Silencer for EXH port | Elbow fitting for cylinder port | Dual flow fitting | Plug for cylinder port | Regulator unit | Ejector unit | Double check block (Separated) |
| ● | ● | ● | Except S/G kit | ● | Except L kit | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| P. 418 | | | | | | P. 428 | | | | | | | | | | | | | |
| ● | ● | ● | Except S/G kit | ● | Except L kit | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | ● |
| P. 418 | | | | | | P. 434 | | | | | | | | | | | | | |

## Manifold Variations

| | Plug-in | |
|---|---|---|
| | ***VQ1000 Series*** | ***VQ2000 Series*** |
| **F kit** **D-sub connector**<br>Conforming to with MIL D-sub connector |  <br>P. 382 |  <br>P. 382 |
| **P kit** **Flat ribbon cable (26/20/16/10 pins)**<br>Conforming to MIL flat ribbon cable connector |  <br>P. 386 |  <br>P. 386 |
| **J kit** **Flat ribbon cable (20 pins)**<br>Conforming to MIL flat ribbon cable connector<br>PC Wiring System compatible | | |
| **G kit** **Flat ribbon cable with terminal block**<br>Conforming to MIL flat ribbon cable connector<br>Applicable to OMRON's serial transmission unit<br>PC Wiring System compatible |  <br>P. 394 |  <br>P. 394 |
| **T kit** **Terminal block box (Terminal block)**<br>Terminal block is compactly arranged on one side. |  <br>P. 398 |  <br>IP65 enclosure compatible<br>P. 398 |
| **L kit** **Lead wire**<br>Direct electrical entry type |  <br>P. 402 |  <br>IP65 enclosure compatible<br>P. 402 |

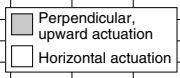
## Manifold Variations

| | Plug-in | |
|---|---|---|
| | ***VQ1000* Series** | ***VQ2000* Series** |
| **Gateway-type serial transmission system**<br>Serial unit: EX510 |  <br>IP20 enclosure compliant<br>P. 406 |  <br>IP20 enclosure compliant<br>P. 406 |
| **S kit** **Integrated-type serial transmission system (for Output)**<br>Serial unit: EX120/123/124 |  <br>P. 410 |  <br>IP20 enclosure compliant<br>P. 410 |
| | — |  <br>Dust-tight, Water-jet-proof (-W) IP65 enclosure compliant<br>P. 410 |
| **M kit** **Circular connector**<br>IP65 (Dust-tight, Water-jet-proof "-W") | — |  <br>Dust-tight, Water-jet-proof (-W) IP65 enclosure compliant<br>P. 414 |

# Cylinder Speed Chart

This chart is provided as guidelines only.
For performance under various conditions, use SMC's Model Selection Program before making a judgment.

| Series | Average speed (mm/s) | Bore size | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CJ2 series Pressure 0.5 MPa Load factor 50% Stroke 60 mm | | | CM2 series Pressure 0.5 MPa Load factor 50% Stroke 300 mm | | | | MB, CA2 series Pressure 0.5 MPa Load factor 50% Stroke 500 mm | | | | |
| | | ø6 | ø10 | ø16 | ø20 | ø25 | ø32 | ø40 | ø40 | ø50 | ø63 | ø80 | ø100 |
| **VQ1101** Port size: ø6 One-touch fitting | 800 700 600 500 400 300 200 100 0 | | | | | | | | | | | | |
| **VQ2101** Port size: ø8 One-touch fitting | 800 700 600 500 400 300 200 100 0 | | | | | | | | | | | | |




∗ It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
∗ The average velocity of the cylinder is what the stroke is divided by the total stroke time.
∗ Load factor: ((Load mass x 9.8)/Theoretical force) x 100%

### Conditions

| Series | Conditions | CJ2 series | CM2 series | MB, CA2 series |
|---|---|---|---|---|
| **VQ1101** | Tube bore x Length | T0604 (O.D. ø6/I.D. ø4) x 1 m | | |
| | Speed controller | AS3002F-06 | | |
| | Silencer | AN15-C08 | | |
| **VQ2101** | Tube bore x Length | T0806 (O.D. ø8/I.D. ø6) x 1 m | | |
| | Speed controller | AS3002F-08 | | |
| | Silencer | AN20-C10 | | |

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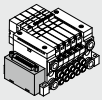
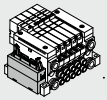
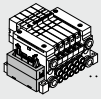
**VQ1000/2000** Model, Standard/Manifold Specifications ..... P. 380

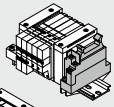

**VQ1000/2000**
**F** kit (D-sub connector) ..... P. 382

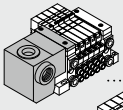

**VQ1000/2000**
**P** kit (Flat ribbon cable) ..... P. 386

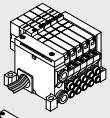

**VQ1000/2000**
**J** kit (Flat ribbon cable) ..... P. 390

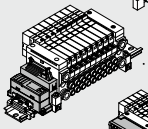

**VQ1000/2000**
**G** kit (Flat ribbon cable with terminal block) ..... P. 394


**VQ1000/2000**
**T** kit (Terminal block box) ..... P. 398


**VQ1000/2000**
**L** kit (Lead wire) ..... P. 402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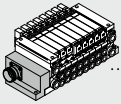
**S** kit (Serial transmission) EX510 ..... P. 406



**VQ1000/2000**
**S** kit (Serial transmission) EX120/123/124 ..... P. 410


**VQ2000**
**M** kit (Circular connector) ..... P. 414

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**VQ1000/2000** Exploded View of Manifold ..... P. 424
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# Plug-in Unit
## Base Mounted
# VQ1000 Series

**[Option]**
Note) For CE-compliant models, DC-type only.

## How to Order Manifold

**VV5Q 1 1 – 08 C6 F U1 – □ – □**

**Series**

| | |
|---|---|
| 1 | VQ1000 |

**Manifold**

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

**Stations**

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

The number of max. stations differs from kit to kit. (Refer to the below table.)

**Kit type**

**CE-compliant**

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

Note) For CE-compliant models, DC-type only.

**Option**

| Symbol | Option |
|---|---|
| Nil | None |
| 2 | 200/220 VAC models (F/L kit only) |
| B Note 2) | With back pressure check valve |
| D | DIN rail mounting |
| D0 | With DIN rail bracket (Without DIN rail) |
| D□ Note 7) | DIN rail length specified |
| G1 Note 3) Note 8) | 1 set of regulator unit |
| G2 Note 3) Note 8) | 2 sets of regulator unit |
| G3 Note 3) Note 8) | 3 sets of regulator unit |
| J□ Note 4) | With ejector unit |
| K Note 5) | Special wiring spec. (Except double wiring) |
| N Note 9) | With name plate |
| R Note 6) | External pilot |
| S | Direct EXH outlet with built-in silencer |

Note 1) When two or more symbols are specified, indicate them alphabetically. Example: -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. When a back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position by means of the manifold specification sheet.
Note 3) Specify the mounting position by means of the manifold specification sheet.
Note 4) Refer to page 432 for details on with vacuum ejector unit. A combination of "J" and "N" is not available.
Note 5) Specify the wiring specifications by means of the manifold specification sheet. (Except L kit)
Note 6) Indicate "R" for the valve with external pilot.
Note 7) □: Station. Example: D08: The number of stations that may be displayed is longer than the manifold number of stations.
Note 8) G1, G2, or G3 cannot be combined with N.
Note 9) When mounting the blanking plate with connector and the slide locking manual type valve by ordering only the manifold, order the name plate separately. For details, refer to page 429.

**Cylinder port**

| Symbol | Port size |
|---|---|
| C3 | With ø3.2 One-touch fitting |
| C4 | With ø4 One-touch fitting |
| C6 | With ø6 One-touch fitting |
| M5 | M5 thread |
| CM Note 1) | Mixed sizes and with port plug |
| L3 | Top ported elbow with ø3.2 One-touch fitting |
| L4 | Top ported elbow with ø4 One-touch fitting |
| L6 | Top ported elbow with ø6 One-touch fitting |

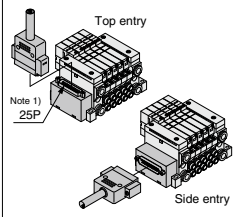
| Symbol | Port size |
|---|---|
| L5 | Top ported elbow M5 thread |
| B3 | Bottom ported elbow with ø3.2 One-touch fitting |
| B4 | Bottom ported elbow with ø4 One-touch fitting |
| B6 | Bottom ported elbow with ø6 One-touch fitting |
| B5 | Bottom ported elbow M5 thread |
| LM Note 1) | Elbow port, mixed sizes(Including upward, downward piping and mixed) |
| MM Note 2) | Mixed size for different types of piping, option installed |

Note 1) Indicate "Mixed sizes and with port plug" by means of the manifold specification sheet.
Note 2) When selecting the mixed size for different types of piping or dual flow fitting assembly, enter "MM" and give instructions in the manifold specification sheet.
Note 3) Inch-size One-touch fittings are also available. Refer to page 420 for details.
Note 4) M5 fittings for M5 thread are attached without being incorporated.

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

**Kit type/Electrical entry/Cable length**

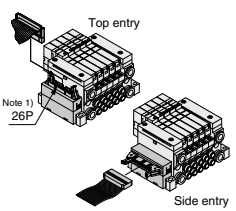
### F kit (D-sub connector)




Connector entry direction: Top entry / Side entry P. 382

| | | | | | |
|---|---|---|---|---|---|
| F kit | U0 | F kit | S0 | Without cable | Note 2) 2 to 24 stations |
| | U1 | | S1 | With cable (1.5 m) | |
| | U2 | | S2 | With cable (3 m) | |
| | U3 | | S3 | With cable (5 m) | |

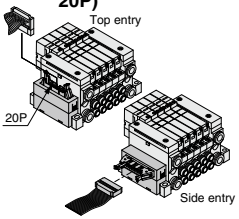
### P kit (Flat ribbon cable)




Connector entry direction: Top entry / Side entry P. 386

| | | | | | |
|---|---|---|---|---|---|
| P kit | U0 | P kit | S0 | Without cable | Note 2) 2 to 24 stations |
| | U1 | | S1 | With cable (1.5 m) | |
| | U2 | | S2 | With cable (3 m) | |
| | U3 | | S3 | With cable (5 m) | |

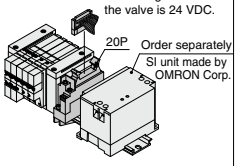
### J kit (Flat ribbon cable 20P)




Connector entry direction: Top entry / Side entry P. 390

| | | | | | |
|---|---|---|---|---|---|
| J kit | U0 | J kit | S0 | Without cable | Note 2) 2 to 16 stations |
| | U1 | | S1 | With cable (1.5 m) | |
| | U2 | | S2 | With cable (3 m) | |
| | U3 | | S3 | With cable (5 m) | |

### G kit (Flat ribbon cable with terminal block)




P. 394

| | | | | Note 2) |
|---|---|---|---|---|
| G kit | 0 | Without cable | | 2 to 16 stations |
| | 1 | With cable (1.5 m) | | |
| | 2 | With cable (3 m) | | |
| | 3 | With cable (5 m) | | |

Note 1) Besides the above, F/P kit with different number of pins are available. Refer to page 418 for details.
Note 2) Refer to page 419 for details.

## How to Order Valves

Note) For CE-compliant models, DC-type only. CE [Option]

**VQ 1 1 0 0 □ – 5 □ □ 1 – □**

### Series

| | |
|---|---|
| 1 | VQ1000 |

### Type of actuation

| | | |
|---|---|---|
| 1 | | 2-position single |
| 2 | Metal | 2-position double |
| | Rubber | 2-position double |
| 3 | | 3-position closed center |
| 4 | | 3-position exhaust center |
| 5 | | 3-position pressure center |
| A Note) | | 4-position dual 3-port valve (A) |
| B Note) | | 4-position dual 3-port valve (B) |
| C Note) | | 4-position dual 3-port valve (C) |

Note) Rubber seal only

### Seal

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

### Function

| Symbol | Specifications | DC | AC |
|---|---|---|---|
| Nil | Standard | (0.4 W) ○ | ○ Note 1) |
| B | High-speed response type | (0.95 W) ○ | — |
| K Note 2) | High-pressure type (1.0 MPa) | (0.95 W) ○ | — |
| N Note 3) | Negative common | ○ | — |
| R Note 3) Note 5) | External pilot | ○ | ○ |

Note 1) Refer to page 381 for power consumption of AC type.
Note 2) Metal seal only
Note 3) For external pilot and negative common specifications, refer to "Semi-standard" on pages 419 and 420.
Note 4) When two or more symbols are specified, indicate them alphabetically. Combination of [B] and [K] is not possible.
Note 5) Dual 3-port valve is not applicable.

### Manual override

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

### Light/surge voltage suppressor

| | |
|---|---|
| Nil | Yes |
| E Note1, 2) | None (Non-polar) |

Note 1) Not applicable to the S kit.
Note 2) A combination of "Function [N] (Negative common)" and [E] is unavailable.
Since [E] has no polarity, it can also be used as a negative common. Selection of "Function [N]" is not required.

### Coil voltage

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

Note) 200 and 220 VAC: F/L kit only

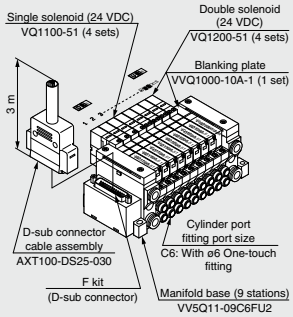
### CE-compliant

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

Note) For CE-compliant models, DC-type only.

## How to Order Manifold Assembly

**Example**



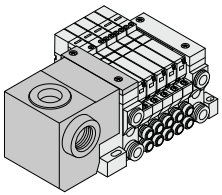

**VV5Q11-09C6FU2** ··· **1 set** (F kit 9-station manifold base part no.)
✻**VQ1100-51** ··· **4 sets (Single solenoid part no.)**
✻**VQ1200-51** ··· **4 sets (Double solenoid part no.)**
✻**VVQ1000-10A-1** ··· **1 set (Blanking plate part no.)**
→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

Specify the part numbers for valves and options together beneath the manifold base part number. Besides, when the arrangement will be complicated, specify them by means of the manifold specification sheet.

## ⚠Caution

Use the standard (DC) specification when continuously energizing for long periods of time.

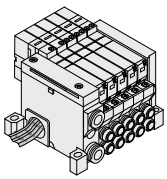
## T kit (Terminal block box)



P. 398

| | | | |
|---|---|---|---|
| T kit | 0 | Terminal block box | 2 to 24 stations Note 2) |

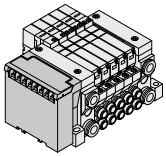
## L kit (Lead wire)



P. 402

| | | | |
|---|---|---|---|
| L kit | 0 | With cable (0.6 m) | 1 to 8 stations |
| | 1 | With cable (1.5 m) | |
| | 2 | With cable (3 m) | |

## S kit (Serial transmission)



The valve is equipped with an indicator light and surge voltage suppressor, and the voltage is 24 VDC.

Note) Refer to "SI Unit Part No." on page 410 when ordering the CE-compliant SI unit

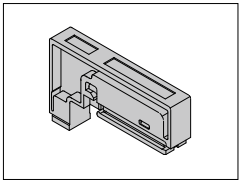
P. 410

| | | | |
|---|---|---|---|
| S Kit | 0 | Without SI unit | Note 2) Max.16 stations |
| | H | NKE Corp.: Fieldbus H System | |
| | Q | DeviceNet™ | Max.16 stations |
| | R1 | OMRON Corp.: CompoBus/S (16 outputs) | |
| | R2 | OMRON Corp.: CompoBus/S (8 outputs) | Max. 8 stations |
| | V | CC-LINK | Max. 16 stations |
| | ZB | CompoNet™(Positive common) | |
| | ZBN | CompoNet™(Negative common) | |

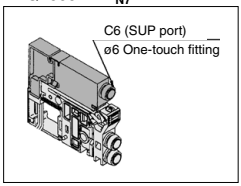
## VQ1000: Manifold Options

P. 428 to 432

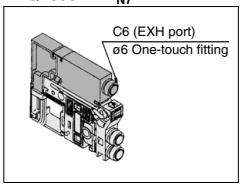
**Blanking plate assembly**
**VVQ1000-10A-1**



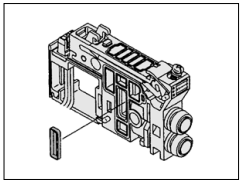
**Individual SUP spacer**
**VVQ1000-P-1-C6/N7**



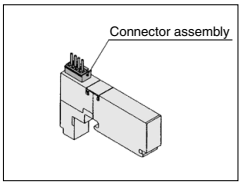

**Individual EXH spacer**
**VVQ1000-R-1-C6/N7**



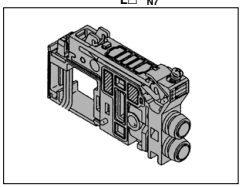

**SUP block plate**
**VVQ1000-16A**



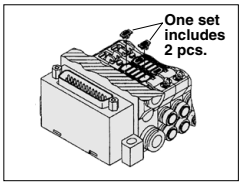
**Blanking plate with connector**
**VVQ1000-1C□-□**



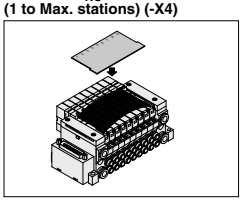

**EXH block base assembly**
**VVQ1000-19A-P□-F□/L□ C3, C4, C5, M5, N1, N3, N7**



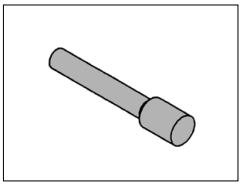
**Back pressure check valve assembly [-B]**
**VVQ1000-18A**



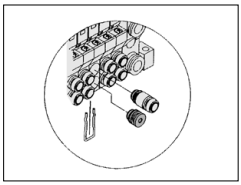

**Name plate [-N]**
**VVQ1000-N/NC-Station**
**(1 to Max. stations) (-X4)**



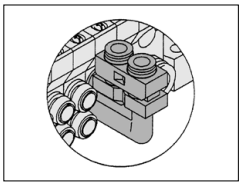
**Blanking plug**
**KQ2P-□**



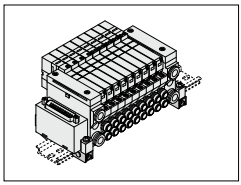
**Port plug**
**VVQ0000-58A**



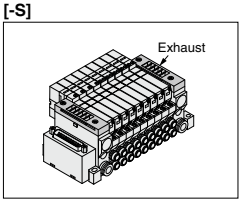
**Elbow fitting assembly**
**VVQ1000-F-L□**



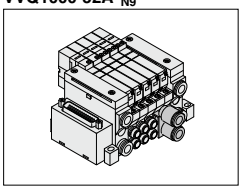
**DIN rail mounting bracket**
**[-D/-D0/-D□]**
**VVQ1000-57A**



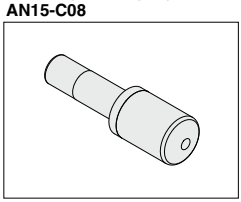
**Direct EXH outlet with built-in silencer**
**[-S]**




**Dual flow fitting assembly**
**VVQ1000-52A-C8/N9**

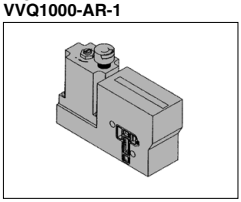


**Silencer (For EXH port)**
**AN15-C08**

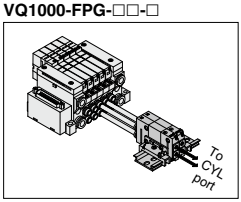


- Refer to page 442 for cylinder port fittings part number.
- Refer to page 425 for replacement parts.

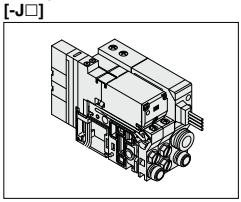
**Regulator unit**
**VVQ1000-AR-1**



**Double check block**
**VQ1000-FPG-□□-□**




**With ejector unit**
**[-J□]**



# Plug-in Unit
## Base Mounted
# VQ2000 Series

[Option]
Note) For CE-compliant models, DC-type only.

## How to Order Manifold

**VV5Q 2 1 – 08 C6 F U1 – □ – □**

**Series**

| | |
|---|---|
| 2 | VQ2000 |

**Manifold**

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

**CE-compliant**

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

Note) For CE-compliant models, DC-type only.

**Stations**

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

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

**Cylinder port**

| Symbol | Port size |
|---|---|
| C4 | With ø4 One-touch fitting |
| C6 | With ø6 One-touch fitting |
| C8 | With ø8 One-touch fitting |
| CM Note 1) | Mixed sizes and with port plug |
| L4 | Top ported elbow with ø4 One-touch fitting |
| L6 | Top ported elbow with ø6 One-touch fitting |

**Kit type**

| Symbol | Port size |
|---|---|
| L8 | Top ported elbow with ø8 One-touch fitting |
| B4 | Bottom ported elbow with ø4 One-touch fitting |
| B6 | Bottom ported elbow with ø6 One-touch fitting |
| B8 | Bottom ported elbow with ø8 One-touch fitting |
| LM Note 1) | Elbow port, mixed sizes (Including upward, downward piping and mixed) |
| MM Note 2) | Mixed size for different types of piping, option installed |

Note 1) Indicate "Mixed size and with port plug" by means of the manifold specification sheet.
Note 2) When selecting the mixed size for different types of piping, dual flow fitting assembly, or double check block (direct mounting), enter "MM" and give instructions in the manifold specification sheet.
Note 3) Inch-size One-touch fittings are also available. Refer to page 420 for details.

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

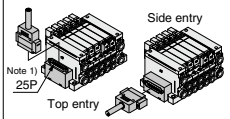
**Option**

| Symbol | Option |
|---|---|
| Nil | None |
| 2 | 200/220 VAC models (F/L kit only) |
| B Note 2) | With back pressure check valve |
| D | DIN rail mounting |
| D0 | With DIN rail bracket (Without DIN rail) |
| D□ Note 5) | DIN rail length specified |
| K Note 3) | Special wiring spec. (Except double wiring) |
| N Note 6) | With name plate |
| R Note 4) | External pilot |
| S | Direct EXH outlet with built-in silencer |
| W | Enclosure: Dust-tight, Water-jet-proof (IP65) (T/L/S/M kit only) |

Note 1) When two or more symbols are specified, indicate them alphabetically. Example: -DNR
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. When a back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position by means of the manifold specification sheet.
Note 3) Specify the wiring specifications by means of the manifold specification sheet. (Except L kit)
Note 4) Indicate "R" for the valve with external pilot.
Note 5) □: Station. Example: D08: The number of stations that may be displayed is longer than the manifold number of stations.
Note 6) When mounting the slide locking manual type valve by ordering only the manifold, order the name plate separately. For details, refer to page 435.

## Kit type/Electrical entry/Cable length

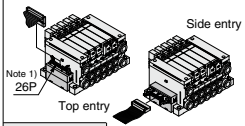
### F kit (D-sub connector)




Connector entry direction: Top entry / Side entry P. 382

| | | | | | |
|---|---|---|---|---|---|
| F kit | U0 | F kit | S0 | Without cable | Note 2) 2 to 24 stations |
| | U1 | | S1 | With cable (1.5 m) | |
| | U2 | | S2 | With cable (3 m) | |
| | U3 | | S3 | With cable (5 m) | |

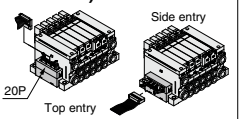
### P kit (Flat ribbon cable)




Connector entry direction: Top entry / Side entry P. 386

| | | | | | |
|---|---|---|---|---|---|
| P kit | U0 | P kit | S0 | Without cable | Note 2) 2 to 24 stations |
| | U1 | | S1 | With cable (1.5 m) | |
| | U2 | | S2 | With cable (3 m) | |
| | U3 | | S3 | With cable (5 m) | |

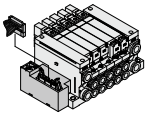
### J kit (Flat ribbon cable 20P)




Connector entry direction: Top entry / Side entry P. 390

| | | | | | |
|---|---|---|---|---|---|
| J kit | U0 | J kit | S0 | Without cable | Note 2) 2 to 16 stations |
| | U1 | | S1 | With cable (1.5 m) | |
| | U2 | | S2 | With cable (3 m) | |
| | U3 | | S3 | With cable (5 m) | |

### G kit (Flat ribbon cable with terminal block)

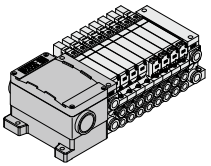


The voltage used for the valve is 24 VDC.

P. 394

| | | | | |
|---|---|---|---|---|
| G kit | U0 | Without cable | Note 2) 2 to 16 stations | |
| | U1 | With cable (1.5 m) | | |
| | U2 | With cable (3 m) | | |
| | U3 | With cable (5 m) | | |

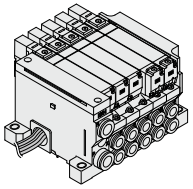
### T kit (Terminal block box)



Dust-tight/Water-jet-proof (IP65) compatible Note 3) P. 398

| | | | | |
|---|---|---|---|---|
| T kit | 0 | Terminal block box | 2 to 20 stations Note 2) | |

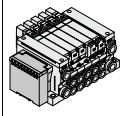
### L kit (Lead wire)



Dust-tight/Water-jet-proof (IP65) compatible Note 3) P. 402

| | | | |
|---|---|---|---|
| L kit | 0 | With cable (0.6 m) | 1 to 8 stations |
| | 1 | With cable (1.5 m) | |
| | 2 | With cable (3 m) | |

### S kit (Serial transmission)

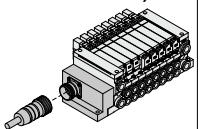


The valve is equipped with an indicator light and surge voltage suppressor, and the voltage is 24 VDC. Dust-tight, Water-jet-proof (IP65) is available. Note 3)

Note) Refer to "SI Unit Part No." on page 410 when ordering the CE-compliant SI unit P. 410

| | | | | |
|---|---|---|---|---|
| S kit | 0 | Without SI unit | Note 2) Max.16 stations | |
| | H | NKE Corp.: Fieldbus H System | | |
| | Q | DeviceNet™ | Max.16 stations | |
| | R1 | OMRON Corp.: CompoBus/S (16 outputs) | | |
| | R2 | OMRON Corp.: CompoBus/S (8 outputs) | Max. 8 stations | |
| | V | CC-LINK | Max.16 stations | |
| | ZB | CompoNet™(Positive common) | | |
| | ZBN | CompoNet™(Negative common) | | |

### M kit (Circular-connector)



Dust-tight/Water-jet-proof (IP65) compatible Note 3) P. 414

| | | | | |
|---|---|---|---|---|
| M kit | 0 | Without cable | Note 2) 2 to 24 stations | |
| | 1 | With cable (1.5 m) | | |
| | 2 | With cable (3 m) | | |
| | 3 | With cable (5 m) | | |

Note 1) Besides the above, F/P kit with different number of pins are available. Refer to page 418 for details.
Note 2) Refer to page 419 for details.
Note 3) Refer to the pages on respective kits for IP65 type. (T/L/S/M kit)

## How to Order Valves

Note) For CE-compliant models, DC-type only. [Option]

## How to Order Manifold Assembly

**VQ 2 1 0 0 – 5 1 –**

**Series**

| | |
|---|---|
| 2 | VQ2000 |

**Seal**

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

**CE-compliant**

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

Note) For CE-compliant models, DC-type only.

**Enclosure**

| | |
|---|---|
| Nil | — |
| W Note) | Dust-tight, Water-jet-proof (IP65) |

Note) T/L/S/M kit only.

**Type of actuation**

| | | | |
|---|---|---|---|
| 1 | | 2-position single | A Note) 4-position dual 3-port valve (A) |
| 2 | Metal | 2-position double | B Note) 4-position dual 3-port valve (B) |
| | Rubber | 2-position double | C Note) 4-position dual 3-port valve (C) |
| 3 | | 3-position closed center | |
| 4 | | 3-position exhaust center | |
| 5 | | 3-position pressure center | |

Note) Rubber seal only

Note) For sub-plate single unit type, refer to page 417.

**Light/Surge voltage suppressor**

| | |
|---|---|
| Nil | Yes |
| E Note1, 2) | None (Non-polar) |

Note 1) Not applicable to the S kit.
Note 2) A combination of "Function [N] (Negative common)" and [E] is unavailable.
Since [E] has no polarity, it can also be used as a negative common. Selection of "Function [N]" is not required.

**Coil voltage**

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

Note) 200 and 220 VAC: F/L kit only

**Function**

| Symbol | Specifications | DC | AC |
|---|---|---|---|
| Nil | Standard | (0.4 W) ○ | ○ Note 1) |
| B | High-speed response type | (0.95 W) ○ | — |
| K Note 2) | High-pressure type (1.0 MPa) | (0.95 W) ○ | — |
| N Note 3) | Negative common | ○ | — |
| R Note 3) Note 5) | External pilot | ○ | ○ |

Note 1) For power consumption of AC type, refer to page 381.
Note 2) Metal seal only
Note 3) For external pilot and negative common specifications, refer to "Semi-standard" on pages 419 and 420.
Note 4) When two or more symbols are specified, indicate them alphabetically. Combination of [B] and [K] is not possible.
Note 5) Dual 3-port valve is not applicable.

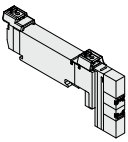
**Manual override**

**Nil**: Non-locking push type (Tool required)

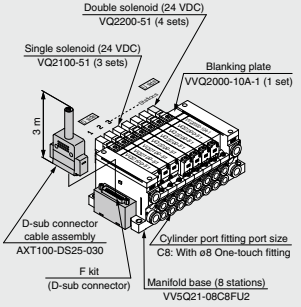
**B**: Push-locking slotted type (Tool required)

**C**: Locking type (Manual)

**D**: Slide locking type (Manual)



**Example**




**VV5Q21-08C8FU2** **1 set** (F kit 8-station manifold base part no.)
∗**VQ2100-51** ····· **3 sets (Single solenoid part no.)**
∗**VQ2200-51** ····· **4 sets (Double solenoid part no.)**
∗**VVQ2000-10A-1** ···· **1 set (Blanking plate part no.)**
→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

Specify the part numbers for valves and options together beneath the manifold base part number. Besides, when the arrangement will be complicated, specify them by means of the manifold specification sheet.

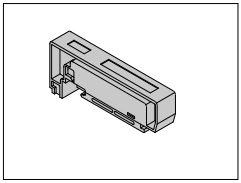
## ⚠Caution

Use the standard (DC) specification when continuously energizing for long periods of time.

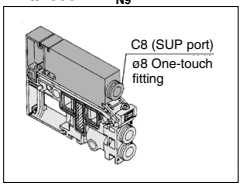
## VQ2000: Manifold Options

P. 434 to 438

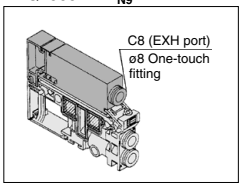
**Blanking plate assembly**
**VVQ2000-10A-1**



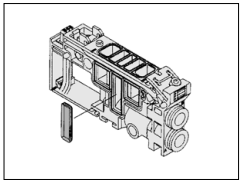
**Individual SUP spacer**
**VVQ2000-P-1-$^{C8}_{N9}$**



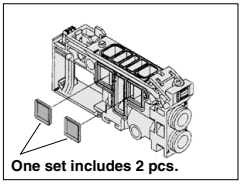

**Individual EXH spacer**
**VVQ2000-R-1-$^{C8}_{N9}$**



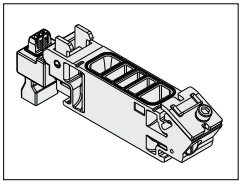

**SUP block plate**
**VVQ2000-16A**



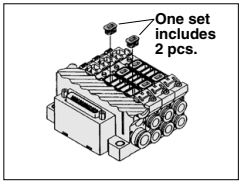
**EXH block plate**
**VVQ2000-19A**



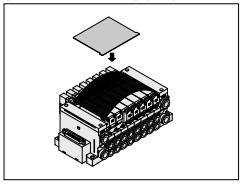

**SUP stop valve spacer**
**VVQ2000-24A-1**



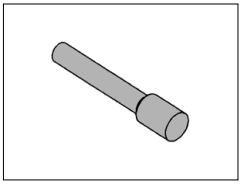
**Back pressure check valve assembly [-B]**
**VVQ2000-18A**



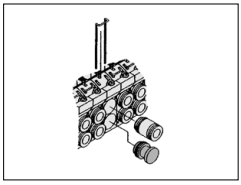

**Name plate [-N]**
**VVQ2000-N-Station**
**(1 to Max. stations) (-X4)**



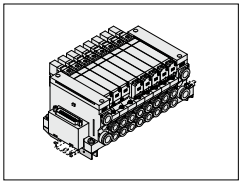
**Blanking plug**
**KQ2P-□**



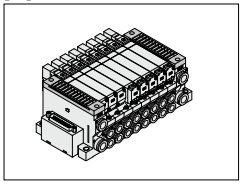
**Port plug**
**VVQ1000-58A**



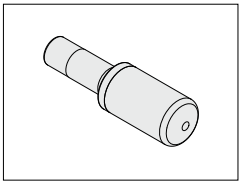
**DIN rail mounting bracket [-D/-D0/-D□]**
**VVQ2000-57A**



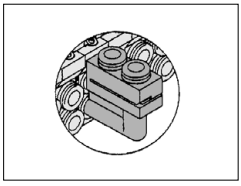
**Direct EXH outlet with built-in silencer [-S]**



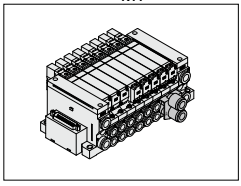
**Silencer (For EXH port)**
**AN20-C10**



**Elbow fitting assembly**
**VVQ2000-F-L□**

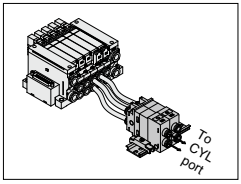


**Dual flow fitting assembly**
**VVQ2000-52A-$^{C10}_{N11}$**

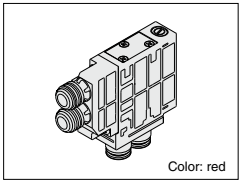


- Refer to page 442 for cylinder port fittings part number.
- Refer to page 427 for replacement parts.

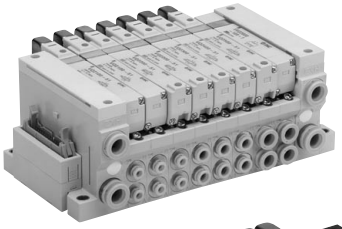
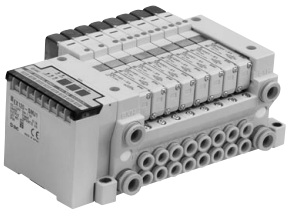
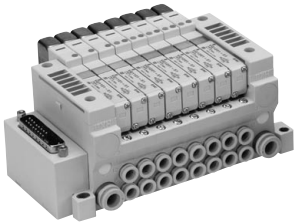
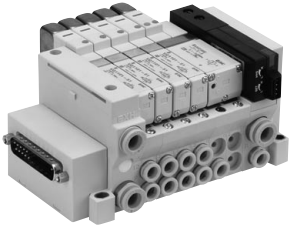
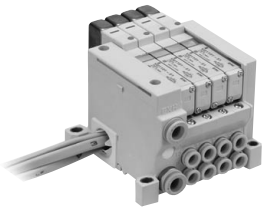
**Double check block (Separated)**
**VQ2000-FPG-□□-□**




**Double check block (Direct mounting)**
**VVQ2000-23A-□**



# Plug-in Unit
## Base Mounted
# *VQ1000/2000* Series

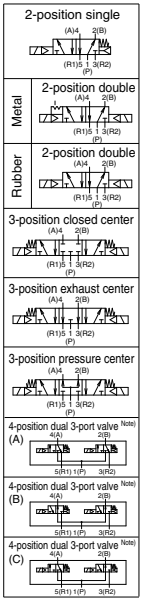
**Model**

| Series | Type of actuation | | Model | | Flow rate characteristics Note 1) | | | | | | Response time (ms) Note 2) | | | Weight (g) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 → 2/4 (P → A/B) | | | 2/4 → 3/5 (A/B → R1/R2) | | | Standard: 0.4 W | High-speed response: 0.95 W | AC | |
| | | | | | C [dm³/(s·bar)] | b | Cv | C [dm³/(s·bar)] | b | Cv | | | | |
| VQ1000 | 2-position | Single | Metal seal | VQ1100 | 0.70 | 0.15 | 0.16 | 0.72 | 0.25 | 0.18 | 15 or less | 12 or less | 29 or less | 67 |
| | | | Rubber seal | VQ1101 | 0.85 | 0.20 | 0.21 | 1.0 | 0.30 | 0.25 | 20 or less | 15 or less | 34 or less | |
| | | Double | Metal seal | VQ1200 | 0.70 | 0.15 | 0.16 | 0.72 | 0.25 | 0.18 | 13 or less | 10 or less | 13 or less | 77 |
| | | | Rubber seal | VQ1201 | 0.85 | 0.20 | 0.21 | 1.0 | 0.30 | 0.25 | 20 or less | 15 or less | 20 or less | |
| | 3-position | Closed center | Metal seal | VQ1300 | 0.68 | 0.15 | 0.16 | 0.72 | 0.25 | 0.18 | 26 or less | 20 or less | 40 or less | |
| | | | Rubber seal | VQ1301 | 0.70 | 0.20 | 0.16 | 0.65 | 0.42 | 0.18 | 33 or less | 25 or less | 47 or less | |
| | | Exhaust center | Metal seal | VQ1400 | 0.68 | 0.15 | 0.16 | 0.72 | 0.25 | 0.18 | 26 or less | 20 or less | 40 or less | |
| | | | Rubber seal | VQ1401 | 0.70 | 0.20 | 0.16 | 1.0 | 0.30 | 0.25 | 33 or less | 25 or less | 47 or less | |
| | | Pressure center | Metal seal | VQ1500 | 0.70 | 0.15 | 0.16 | 0.72 | 0.25 | 0.18 | 26 or less | 20 or less | 40 or less | |
| | | | Rubber seal | VQ1501 | 0.85 | 0.20 | 0.21 | 0.65 | 0.42 | 0.18 | 33 or less | 25 or less | 47 or less | |
| | 4-position | Dual 3-port valve | Rubber seal | VQ1$^{A}_{C}$01 | 0.70 | 0.20 | 0.16 | 0.70 | 0.20 | 0.16 | 33 or less | 25 or less | 47 or less | |
| VQ2000 | 2-position | Single | Metal seal | VQ2100 | 2.0 | 0.15 | 0.46 | 2.6 | 0.15 | 0.60 | 29 or less | 22 or less | 49 or less | 95 |
| | | | Rubber seal | VQ2101 | 2.2 | 0.28 | 0.55 | 3.2 | 0.30 | 0.80 | 31 or less | 24 or less | 51 or less | |
| | | Double | Metal seal | VQ2200 | 2.0 | 0.15 | 0.46 | 2.6 | 0.15 | 0.60 | 20 or less | 15 or less | 20 or less | 105 |
| | | | Rubber seal | VQ2201 | 2.2 | 0.28 | 0.55 | 3.2 | 0.30 | 0.80 | 26 or less | 20 or less | 26 or less | |
| | 3-position | Closed center | Metal seal | VQ2300 | 2.0 | 0.15 | 0.46 | 2.0 | 0.18 | 0.46 | 38 or less | 29 or less | 58 or less | |
| | | | Rubber seal | VQ2301 | 2.0 | 0.28 | 0.49 | 2.2 | 0.31 | 0.60 | 44 or less | 34 or less | 64 or less | |
| | | Exhaust center | Metal seal | VQ2400 | 2.0 | 0.15 | 0.46 | 2.6 | 0.15 | 0.60 | 38 or less | 29 or less | 58 or less | |
| | | | Rubber seal | VQ2401 | 2.0 | 0.28 | 0.49 | 3.2 | 0.30 | 0.80 | 44 or less | 34 or less | 64 or less | |
| | | Pressure center | Metal seal | VQ2500 | 2.4 | 0.17 | 0.57 | 2.0 | 0.18 | 0.46 | 38 or less | 29 or less | 58 or less | |
| | | | Rubber seal | VQ2501 | 3.2 | 0.28 | 0.80 | 2.2 | 0.31 | 0.60 | 44 or less | 34 or less | 64 or less | |
| | 4-position | Dual 3-port valve | Rubber seal | VQ2$^{A}_{C}$01 | 1.8 | 0.28 | 0.46 | 1.8 | 0.28 | 0.46 | 44 or less | 34 or less | 64 or less | |

Note 1) The values are given for port size C6: (VQ1000), C8: (VQ2000) without back pressure check valve.

Note 2) As per JIS B 8419: 2010 (Supply pressure 0.5 MPa; with indicator light/surge voltage suppressor; clean air
The response time is subject to the pressure and quality of the air.) The values at the time of ON are given for double types.

## Symbol




## Standard Specifications

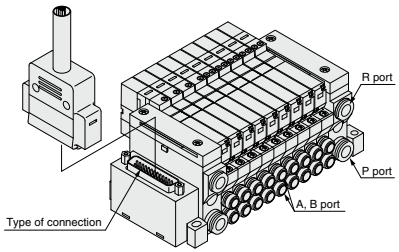
| | | | Metal seal | Rubber seal |
|---|---|---|---|---|
| Valve specifications | Valve type | | Air | Air |
| | Fluid | | 0.7 MPa (High-pressure type: 1.0 MPa) | 0.7 MPa |
| | Maximum operating pressure | | 0.1 MPa | 0.15 MPa |
| | Minimum operating pressure | Single | 0.1 MPa | 0.15 MPa |
| | | Double | 0.1 MPa | 0.2 MPa |
| | | 3-position | 0.1 MPa | 0.15 MPa |
| | | 4-position | ——— | |
| | Ambient and fluid temperature | | –10 to 50°C Note 1) | |
| | Lubrication | | Not required | |
| | Manual override | | Push type, Locking type (Tool required, Manual) semi-standard | |
| | Impact/Vibration resistance Note 2) | | 150/30 m/s² | |
| | Enclosure | | Dust-protected; Dust-tight, Water-jet-proof (IP65) Note 4) | |
| Electrical specifications | Coil rated voltage | | 12 , 24 VDC, 100, 110, 200, 220 VAC (50/60 Hz) | |
| | Allowable voltage fluctuation | | ±10% of rated voltage | |
| | Coil insulation type | | Equivalent to Class B | |
| | Power consumption (Current) | 24 VDC | 0.4 W DC (17 mA), 0.95 W DC (40 mA) Note 3) | |
| | | 12 VDC | 0.4 W DC (34 mA), 0.95 W DC (80 mA) Note 3) | |
| | | 100 VAC | Inrush 0.96 VA (10 mA), Holding 0.96 VA (10 mA) | |
| | | 110 VAC | Inrush 1.0 VA (9 mA), Holding 1.0 VA (9 mA) | |
| | | 200 VAC | Inrush 1.26 VA (6 mA), Holding 1.26 VA (6 mA) | |
| | | 220 VAC | Inrush 1.38 VA (6 mA), Holding 1.38 VA (6 mA) | |

Note 1) Use dry air to prevent condensation when operating at low temperatures.
Note 2) Impact resistance ····· No malfunction occurred when it is tested 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) Value for high-speed response, high-voltage type (0.95 W)
Note 4) Dust-tight, water-jet-proof (IP65) is available on T/L/S/M kit of the VQ2000.

## Manifold Specifications

| Series | Base model | Connection type | Piping specifications: Piping direction | Piping specifications: Port size Note 1) 1(P), 3(R) | Piping specifications: Port size Note 1) 4(A), 2(B) | Applicable stations Note 2) | Applicable solenoid valve | 5-station weight (g) |
|---|---|---|---|---|---|---|---|---|
| VQ1000 | VV5Q11-□□□ | F kit–D-sub connector<br>P kit–Flat ribbon cable<br>J kit–Flat ribbon cable (20P)<br>G kit–Flat ribbon cable with terminal block<br>T kit–Terminal block box<br>L kit–Lead wire<br>S kit–Serial transmission | Side | C8 (ø8)<br>Option: Direct EXH outlet with built-in silencer | C3 (ø3.2)<br>C4(ø4)<br>C6 (ø6)<br>M5 (M5 thread) | F/P/T kit (2 to 24 stations)<br>J/G/S kit (2 to 16 stations)<br>L kit (1 to 8 stations) | VQ1□00<br>VQ1□01 | 643 (Single)<br>754 (Double, 3-position) |
| VQ2000 | VV5Q21-□□□ | F kit–D-sub connector<br>P kit–Flat ribbon cable<br>J kit–Flat ribbon cable (20P)<br>G kit–Flat ribbon cable with terminal block<br>T kit–Terminal block box<br>L kit–Lead wire<br>S kit–Serial transmission<br>M kit–Circular connector | Side | C10 (ø10)<br>Option: Direct EXH outlet with built-in silencer | C4 (ø4)<br>C6 (ø6)<br>C8 (ø8) | F/P kit (2 to 24 stations)<br>J/G/S kit (2 to 16 stations)<br>L kit (1 to 8 stations)<br>T kit (2 to 20 stations) | VQ2□00<br>VQ2□01 | 1076 (Single)<br>1119 (Double, 3-position) |

Note 1) Inch-size One-touch fittings are also available. Refer to page 420 for details.
Note 2) Refer to page 419 for details.

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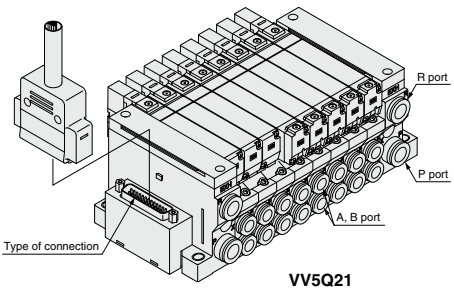
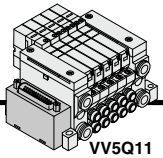
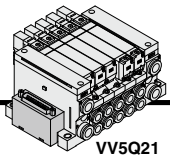



VV5Q21

# F VQ1000/2000 Series
## Kit (D-sub connector)


VV5Q11


VV5Q21

- **D-sub connector reduces installation labor for electrical connections.**
- **Using the D-sub connector (25P), (15P as semi-standard) conforming to MIL standard permits the use of connectors put on the market and gives a wide interchangeability.**
- **Top or side receptacle position can be selected in accordance with the available mounting space.**
- **Maximum stations are 24.**

### Manifold Specifications

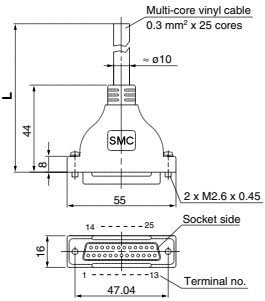
| Series | Piping specifications | | | Applicable stations |
|---|---|---|---|---|
| | Piping direction | Port size | | |
| | | 1(P), 3(R) | 4(A), 2(B) | |
| **VQ1000** | Side | C8 | C3, C4, C6, M5 | Max. 24 stations |
| **VQ2000** | Side | C10 | C4, C6, C8 | Max. 24 stations |

## D-sub Connector (25 Pins)

### Cable Assembly ●

**AXT100-DS25-** 015 / 030 / 050

(The D-sub connector cable assembly can be ordered individually or included in a specific manifold model no. 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 25 cores x 24AWG |
| 3 m | AXT100-DS25-030 | |
| 5 m | AXT100-DS25-050 | |

- For other commercial connectors, use a 25 pins type with 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.

**Electrical characteristics**

| Item | Property |
|---|---|
| Conductor resistance Ω/km, 20°C | 65 or less |
| Voltage limit V, 1 min, AC | 1000 |
| Insulation resistance MΩ/km, 20°C | 5 or more |

Note) The min. bending radius of the D-sub connector cable assembly is 20 mm.

**Wire color by terminal no. of D-sub connector cable assembly**

| 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 1) Types with 15 pins are also available. Refer to page 418 for details.
Note 2) Lengths other than the above are also available. Please contact SMC for details.

## How to Order Manifold

Note) For CE-compliant models, DC-type only. CE [Option]

**VV5Q** [1] [1] – [08] [C6] **F** [U] [1] – [ ] – [ ]

**Series ●**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Manifold ●**

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

**Stations ●**

| | |
|---|---|
| 02 | 2 stations |
| ⋮ | ⋮ |
| 24 | 24 stations |

Note) Refer to page 419 for details.

**Connector entry direction**

| | |
|---|---|
| U | Top entry |
| S | Side entry |

**Cylinder port ●**

| Symbol | Port size | VQ1000 | VQ2000 |
|---|---|---|---|
| **C3** Note 1) | With ø3.2 One-touch fitting | ● | — |
| **C4** Note 1) | With ø4 One-touch fitting | ● | ● |
| **C6** Note 1) | With ø6 One-touch fitting | ● | ● |
| **C8** Note 1) | With ø8 One-touch fitting | — | ● |
| **M5** | M5 thread | ● | — |
| **CM** Note 2) Note 3) | Mixed sizes and with port plug | ● | ● |
| **MM** Note 4) | Mixed size for different types of piping, option installed | ● | ● |

Note 1) Insert "L" (Top ported) or "B" (Bottom ported) for elbow type.
Example) B6 (Bottom ported elbow with ø6 One-touch fitting)
Note 2) Indicate "LM" (Including upward, downward piping and mixed) for models with elbow fittings and mixed cylinder port sizes.
Note 3) Indicate "Mixed sizes and with port plug" by means of the manifold specification sheet.
Note 4) When selecting the mixed size for different types of piping, dual flow fitting assembly, or double check block (direct mounting), enter "MM" and give instructions in the manifold specification sheet.
Note 5) Inch-size One-touch fittings are available. Refer to "Semi-standard" on page 420 for details.

**Cable (Length)**

| | |
|---|---|
| 0 | Without cable |
| 1 | With cable (1.5 m) |
| 2 | With cable (3 m) |
| 3 | With cable (5 m) |

**CE-compliant**

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

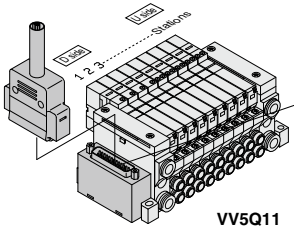
Note) For CE-compliant models, DC-type only.

**Option ●**

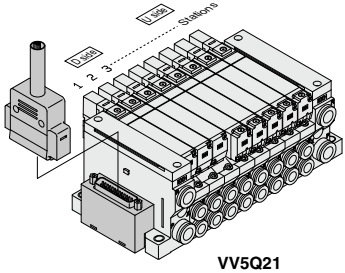
| Symbol | Option | VQ1000 | VQ2000 |
|---|---|---|---|
| **Nil** | None | ● | ● |
| **2** | 200/220 VAC models (F/L kit only) | ● | ● |
| **B** Note 2) | With back pressure check valve | ● | ● |
| **D** | DIN rail mounting | ● | ● |
| **D0** | With DIN rail bracket (Without DIN rail) | ● | ● |
| **D□** Note 3) | DIN rail length specified (□: Stations 02 to 24) | ● | ● |
| **G1** Note 4) Note 8) | 1 set of regulator unit | ● | — |
| **G2** Note 4) Note 8) | 2 sets of regulator unit | | |
| **G3** Note 4) Note 8) | 3 sets of regulator unit | | |
| **J□** Note 5) | With ejector unit | ● | — |
| **K** Note 6) | Special wiring specifications (Except double wiring) | ● | ● |
| **N** | With name plate | ● | ● |
| **R** Note 7) | External pilot | ● | ● |
| **S** | Direct EXH outlet with built-in silencer | ● | ● |

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. When a back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position by means of the manifold specification sheet.
Note 3) The number of stations that may be displayed is longer than the manifold number of stations.
Note 4) Specify the mounting position by means of the manifold specification sheet.
Note 5) Refer to page 432 for the details on with ejector unit. A combination of "J" and "N" is not available.
Note 6) Specify the wiring specifications by means of the manifold specification sheet.
Note 7) Indicate "R" for the valve with external pilot.
Note 8) G1, G2, or G3 cannot be combined with N.


SMC



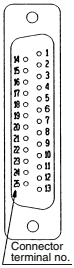

VV5Q11




VV5Q21

The total number of stations is tabulated starting from station one on the D-side.

## Electrical Wiring Specifications




As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 12 stations or less, regardless of valve and option types. Mixed single and double wiring is available as semi-standard. Refer to page 419 for details.

**D-sub connector assembly**
**AXT100-DS25- 015 / 030 / 050** Wire color

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

Note) When using the negative common specifications, use valves for negative common. (Refer to page 419.) Refer to "Semi-standard" on page 419 for details.

## How to Order Valves

Note) For CE-compliant models, DC-type only. CE [Option]

**VQ 1 1 0 0 – 5 1 –**

**Series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Type of actuation**

| | |
|---|---|
| 1 | 2-position single |
| 2 | 2-position double |
| 3 | 3-position closed center |
| 4 | 3-position exhaust center |
| 5 | 3-position pressure center |
| A | 4-position dual port (N.C. +N.C.) |
| B | 4-position dual port (N.O. +N.O.) |
| C | 4-position dual port (N.C. +N.O.) |

**Seal**

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

**Function**

| Symbol | Specifications | DC | AC |
|---|---|---|---|
| Nil | Standard | (0.4 W) ○ | ○ Note 1) |
| B | High-speed response type | (0.95 W) ○ | — |
| K Note 2) | High-pressure type (1.0 MPa) | (0.95 W) ○ | — |
| N Note 3) | Negative common | ○ | — |
| R Note 3) Note 5) | External pilot | ○ | ○ |

Note 1) Refer to page 381 for power consumption of AC type.
Note 2) Metal seal only
Note 3) For external pilot and negative common specifications, refer to "Semi-standard" on pages 419 and 420.
Note 4) When two or more symbols are specified, indicate them alphabetically. Combination of [B] and [K] is not possible.
Note 5) Dual 3-port valve is not applicable.

**Manual override**

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

**Light/surge voltage suppressor**

| | |
|---|---|
| Nil | Yes |
| E Note) | None (Non-polar) |

Note) A combination of "Function [N] (Negative common)" and [E] is unavailable.
Since [E] has no polarity, it can also be used as a negative common. Selection of "Function [N]" is not required.

**Coil voltage**

| | | CE-compliant |
|---|---|---|
| 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**

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

Note) For CE-compliant models, DC-type only.

### ⚠Caution

Use the standard (DC) specification when continuously energizing for long periods of time.

## How to Order Manifold Assembly

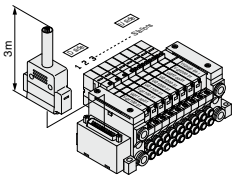
Specify the part numbers for valves and options together beneath the manifold base part number.

**<Example>**

D-sub connector kit with cable (3 m)
**VV5Q11-09C6FU2 ···1 set–Manifold base part no.**
✻**VQ1100-51** ·····**2 sets–Valve part no. (Stations 1 to 2)**
✻**VQ1200-51** ·····**4 sets–Valve part no. (Stations 3 to 6)**
✻**VQ1300-51** ·····**2 sets–Valve part no. (Stations 7 to 8)**
✻**VVQ1000-10A-1** ····**1 set–Blanking plate part no. (Station 9)**

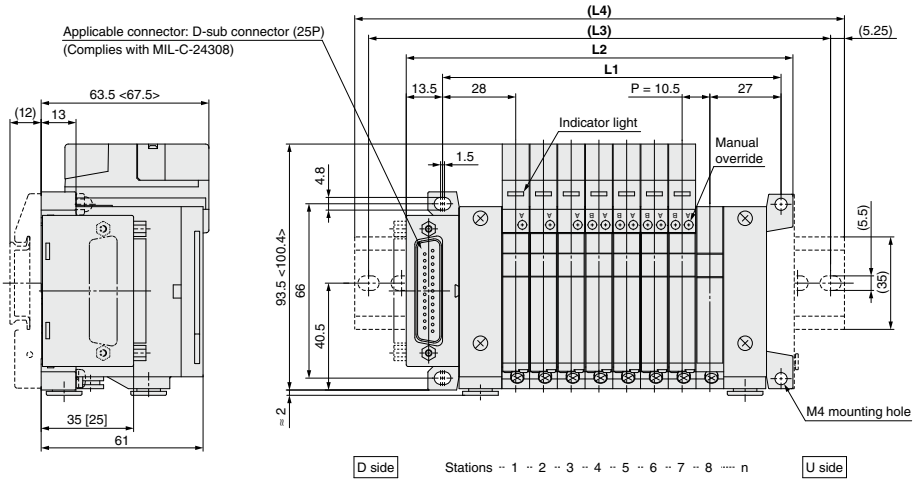
Prefix the asterisk to the part nos. of the solenoid valve, etc.

Write sequentially from the 1st station on the D-side. When part nos. written collectively are complicated, specify them by means of the manifold specification sheet.

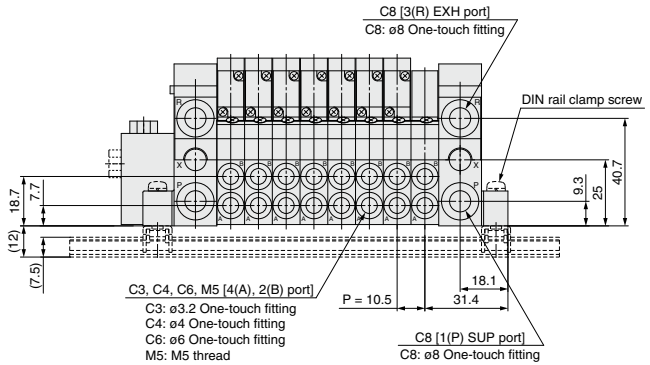


# VV5Q11

< >: AC
The dashed lines indicate the DIN rail mounting [-D] and the side entry connection [-FS].




[ ]: 25 pins (top entry)




**Dimensions**

Formula L1 = 10.5n + 44.5, L2 = 10.5n + 62.5 n: Station (Maximum 24 stations)

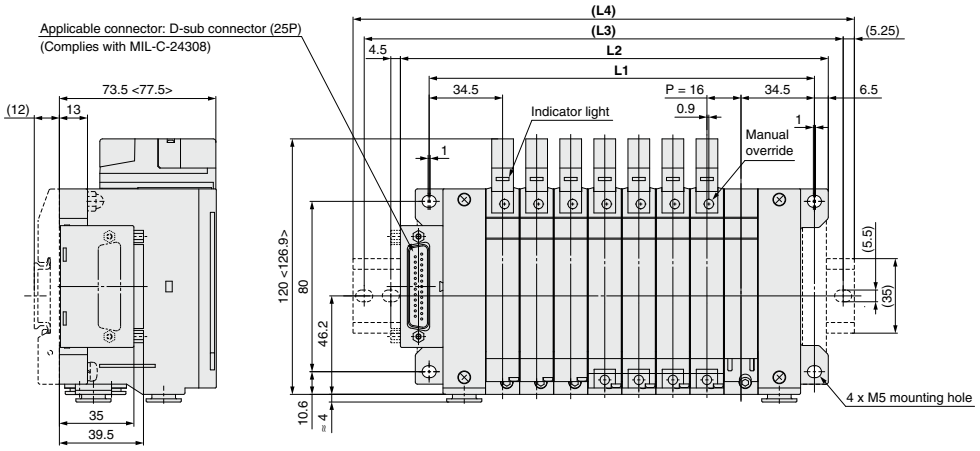
| L \ n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 65.5 | 76 | 86.5 | 97 | 107.5 | 118 | 128.5 | 139 | 149.5 | 160 | 170.5 | 181 | 191.5 | 202 | 212.5 | 223 | 233.5 | 244 | 254.5 | 265 | 275.5 | 286 | 296.5 |
| **L2** | 83.5 | 94 | 104.5 | 115 | 125.5 | 136 | 146.5 | 157 | 167.5 | 178 | 188.5 | 199 | 209.5 | 220 | 230.5 | 241 | 251.5 | 262 | 272.5 | 283 | 293.5 | 304 | 314.5 |
| **(L3)** | 112.5 | 125 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 250 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 325 | 337.5 |
| **(L4)** | 123 | 135.5 | 135.5 | 148 | 160.5 | 173 | 185.5 | 198 | 198 | 210.5 | 223 | 235.5 | 248 | 260.5 | 260.5 | 273 | 285.5 | 298 | 310.5 | 323 | 335.5 | 335.5 | 348 |

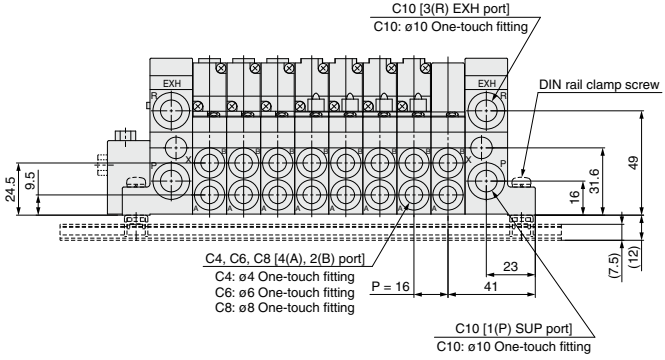
With ejector unit: Formula L1 = 10.5n + 28.7 + (Number of ejector units x 26.7)
L2 = 10.5n + 46.3 + (Number of ejector units x 26.7)
L4 is L2 plus about 30.

# VV5Q21

< >: AC
The dashed lines indicate the DIN rail mounting [-D] and the side entry connection [-FS].





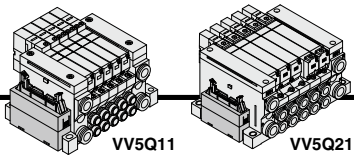




**Dimensions**

Formula L1 = 16n + 53, L2 = 16n + 73 n: Station (Maximum 24 stations)

| L \ n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L1 | 85 | 101 | 117 | 133 | 149 | 165 | 181 | 197 | 213 | 229 | 245 | 261 | 277 | 293 | 309 | 325 | 341 | 357 | 373 | 389 | 405 | 421 | 437 |
| L2 | 105 | 121 | 137 | 153 | 169 | 185 | 201 | 217 | 233 | 249 | 265 | 281 | 297 | 313 | 329 | 345 | 361 | 377 | 393 | 409 | 425 | 441 | 457 |
| (L3) | 137.5 | 150 | 162.5 | 187.5 | 200 | 212.5 | 225 | 250 | 262.5 | 275 | 300 | 312.5 | 325 | 337.5 | 350 | 375 | 387.5 | 400 | 412.5 | 437.5 | 450 | 462.5 | 487.5 |
| (L4) | 148 | 160.5 | 173 | 198 | 210.5 | 223 | 235.5 | 260.5 | 273 | 285.5 | 310.5 | 323 | 335.5 | 348 | 360.5 | 385.5 | 398 | 410.5 | 423 | 448 | 460.5 | 473 | 498 |

# P VQ1000/2000 Series
## Kit (Flat ribbon cable)




- **MIL flat ribbon cable connector reduces installation labor for electrical connection.**
- **Using the connector for flat ribbon cable (26P) conforming to MIL standard permits the use of connectors put on the market and gives a wide interchangeability.**
- **Top or side receptacle position can be selected in accordance with the available mounting space.**
- **Maximum stations are 24.**

### Manifold Specifications

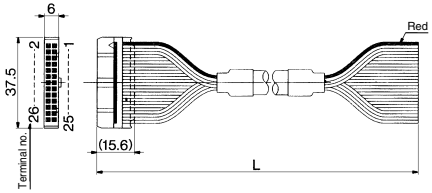
| Series | Piping specifications | | | Applicable stations |
|---|---|---|---|---|
| | Piping direction | Port size | | |
| | | 1(P), 3(R) | 4(A), 2(B) | |
| **VQ1000** | Side | C8 | C3, C4, C6, M5 | Max. 24 stations |
| **VQ2000** | Side | C10 | C4, C6, C8 | Max. 24 stations |

## Flat Ribbon Cable (26 Pins)

### Cable Assembly

**AXT100-FC26-** $\begin{matrix}1\\ \text{to}\\ 3\end{matrix}$

(Flat ribbon cable connector assembly can be ordered individually or included in a specific manifold model no. Refer to "How to Order Manifold.")




**Flat Ribbon Cable Connector Assembly**

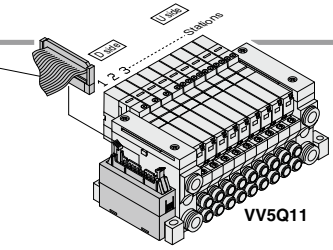
| Cable length (**L**) | Assembly part no. | Note |
|---|---|---|
| 1.5 m | AXT100-FC26-1 | Cable 26 cores x 28AWG |
| 3 m | AXT100-FC26-2 | |
| 5 m | AXT100-FC26-3 | |

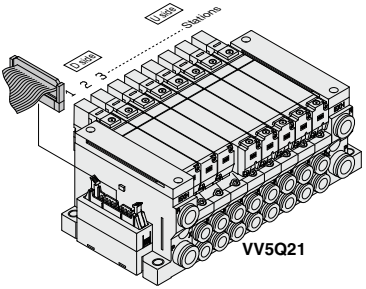
∗ For other commercial connectors, use a 26 pins type with strain relief conforming to MIL-C-83503.
∗ Cannot be used for transfer wiring.

**Connector manufacturers' example**

- HIROSE ELECTRIC CO., LTD.
- Fujitsu Limited
- J.S.T. Mfg. Co., Ltd.
- 3M Japan Limited
- Japan Aviation Electronics Industry, Limited
- Oki Electric Cable Co., Ltd.

Note 1) Other than the above model, 10P, 16P, 20P are also available. Refer to page 418 for details.
Note 2) Lengths other than the above are also available. Please contact SMC for details.




The total number of stations is tabulated starting from one on the D-side.

Note) For CE-compliant models, DC-type only. CE [Option]

## How to Order Manifold

**VV5Q 1 1 – 08 C6 P U 1 – □ – □**

### Series

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

### Manifold

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

### Stations

| | |
|---|---|
| 02 | 2 stations |
| ⋮ | ⋮ |
| 24 | 24 stations |

Note) Refer to page 419 for details.

### Cylinder port

| Symbol | Port size | VQ1000 | VQ2000 |
|---|---|---|---|
| C3 Note 1) | With ø3.2 One-touch fitting | ● | — |
| C4 Note 1) | With ø4 One-touch fitting | ● | ● |
| C6 Note 1) | With ø6 One-touch fitting | ● | ● |
| C8 Note 1) | With ø8 One-touch fitting | — | ● |
| M5 | M5 thread | ● | — |
| CM Note 2) Note 3) | Mixed sizes and with port plug | ● | ● |
| MM Note 4) | Mixed size for different types of piping, option installed | ● | ● |

### Connector entry direction

| | |
|---|---|
| U | Top entry |
| S | Side entry |

### CE-compliant

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

Note) For CE-compliant models, DC-type only.

### Cable (Length)

| | |
|---|---|
| 0 | Without cable |
| 1 | With cable (1.5 m) |
| 2 | With cable (3 m) |
| 3 | With cable (5 m) |

### Option

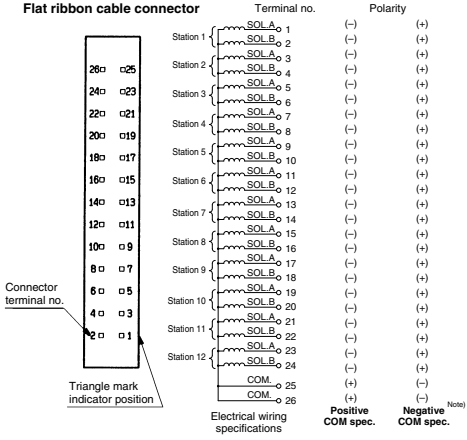
| Symbol | Option | VQ1000 | VQ2000 |
|---|---|---|---|
| Nil | None | ● | ● |
| B Note 2) | With back pressure check valve | ● | ● |
| D | DIN rail mounting | ● | ● |
| D0 | With DIN rail bracket (Without DIN rail) | ● | ● |
| D□ Note 3) | DIN rail length specified (□: Stations 02 to 24) | ● | ● |
| G1 Note 4) Note 8) | 1 set of regulator unit | ● | — |
| G2 Note 4) Note 8) | 2 sets of regulator unit | | |
| G3 Note 4) Note 8) | 3 sets of regulator unit | | |
| J□ Note 5) | With ejector unit | ● | — |
| K Note 6) | Special wiring specifications (Except double wiring) | ● | ● |
| N | With name plate | ● | ● |
| R Note 7) | External pilot | ● | ● |
| S | Direct EXH outlet with built-in silencer | ● | ● |

Note 1) Insert "L" (Top ported) or "B" (Bottom ported) for elbow type.
Example) B6 (Bottom ported elbow with ø6 One-touch fitting)
Note 2) Indicate "LM" (Including upward, downward piping and mixed) for models with elbow fittings and mixed cylinder port sizes.
Note 3) Indicate "Mixed sizes and with port plug" by means of the manifold specification sheet.
Note 4) When selecting the mixed size for different types of piping, dual flow fitting assembly, or double check block (direct mounting), enter "MM" and give instructions in the manifold specification sheet.
Note 5) Inch-size One-touch fittings are available. Refer to "Semi-standard" on page 420 for details.

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. When a back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position by means of the manifold specification sheet.
Note 3) The number of stations that may be displayed is longer than the manifold number of stations.
Note 4) Specify the mounting position by means of the manifold specification sheet.
Note 5) Refer to page 432 for details on with ejector unit. A combination of "J" and "N" is not available.
Note 6) Specify the wiring specifications by means of the manifold specification sheet.
Note 7) Indicate "R" for the valve with external pilot.
Note 8) G1, G2, or G3 cannot be combined with N.


SMC

## ● Electrical Wiring Specifications




As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 12 stations or less, regardless of valve and option types.
Mixed single and double wiring is available as semi-standard. Refer to page 419 for details.

Note) When using the negative common specifications, use valves for negative common. (Refer to page 419)
Refer to "Semi-standard" on page 419 for details.

## How to Order Valves

Note) For CE-compliant models, DC-type only. CE [Option]

**VQ 1 1 0 0 □ – 5 □ □ 1 – □**

**Series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Seal**

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

**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 |
| A | 4-position dual port (N.C. +N.C.) |
| B | 4-position dual port (N.O. +N.O.) |
| C | 4-position dual port (N.C. +N.O.) |

**Function**

| Symbol | Specifications | DC | AC |
|---|---|---|---|
| Nil | Standard | (0.4 W) ○ | ○ Note 1) |
| B | High-speed response type | (0.95 W) ○ | — |
| K Note 2) | High-pressure type (1.0 MPa) | (0.95 W) ○ | — |
| N Note 3) | Negative common | ○ | — |
| R Note 3) Note 5) | External pilot | ○ | ○ |

**CE-compliant**

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

Note) For CE-compliant models, DC-type only.

**Manual override**

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

**Light/Surge voltage suppressor**

| | |
|---|---|
| Nil | Yes |
| E Note) | None (Non-polar) |

Note) A combination of "Function [N] (Negative common)" and [E] is unavailable. Since [E] has no polarity, it can also be used as a negative common. Selection of "Function [N]" is not required.

**Coil voltage**

| | | CE-compliant |
|---|---|---|
| 1 | 100 VAC (50/60 Hz) | — |
| 3 | 110 VAC (50/60 Hz) | — |
| 5 | 24 VDC | ● |
| 6 | 12 VDC | ● |

## ⚠Caution

Use the standard (DC) specification when continuously energizing for long periods of time.

## How to Order Manifold Assembly

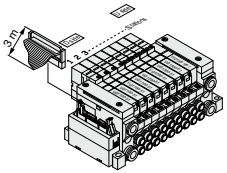
Specify the part numbers for valves and options together beneath the manifold base part number.

**<Example>**

Flat ribbon cable kit with cable (3 m)
**VV5Q11-09C6PU2 ··· 1 set–Manifold base part no.**
∗**VQ1100-51** ····· **2 sets–Valve part no. (Stations 1 to 2)**
∗**VQ1200-51** ····· **4 sets–Valve part no. (Stations 3 to 6)**
∗**VQ1300-51** ····· **2 sets–Valve part no. (Stations 7 to 8)**
∗**VVQ1000-10A-1** ···· **1 set–Blanking plate part no. (Station 9)**

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

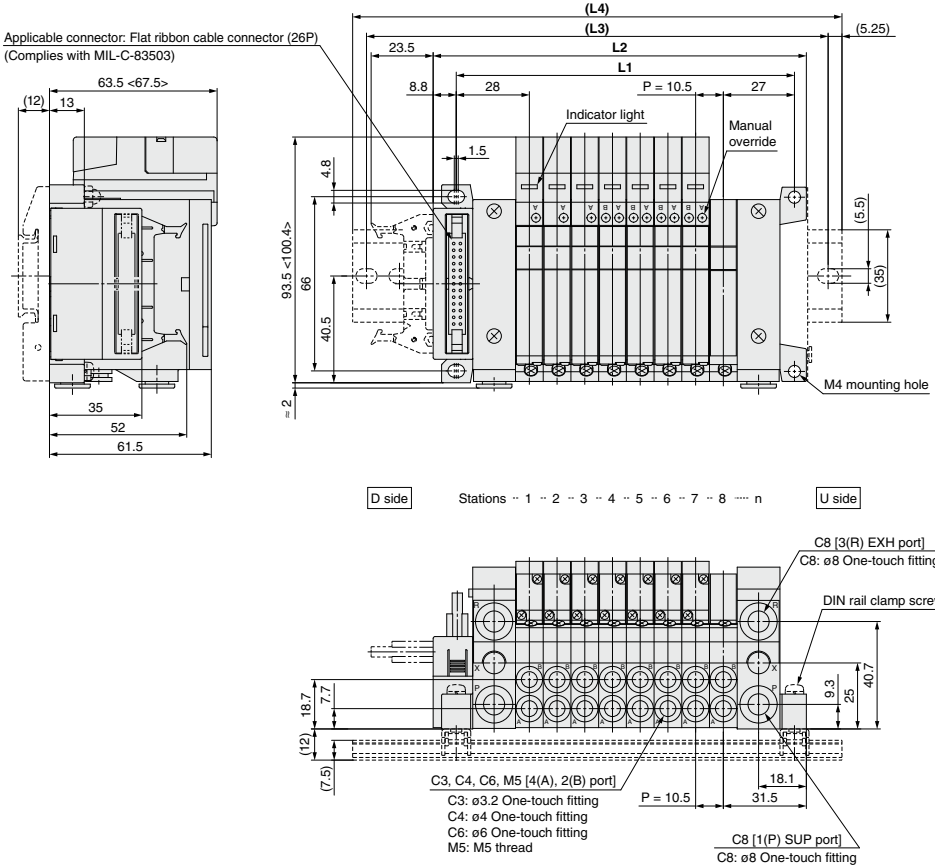
Write sequentially from the 1st station on the D-side.
When part nos. written collectively are complicated, specify them by means of the manifold specification sheet.




Note 1) Refer to page 381 for power consumption of AC type.
Note 2) Metal seal only
Note 3) Refer to "Semi-standard" on pages 419 and 420 for external pilot and negative common specifications.
Note 4) When two or more symbols are specified, indicate them alphabetically. Combination of [B] and [K] is not possible.
Note 5) Dual 3-port valve is not applicable.

# VV5Q11

< >: AC
The dashed lines indicate the DIN rail mounting [-D] and the side entry connection [-PS].




**Dimensions**

Formula L1 = 10.5n + 44.5, L2 = 10.5n + 57.5 n: Station (Maximum 24 stations)

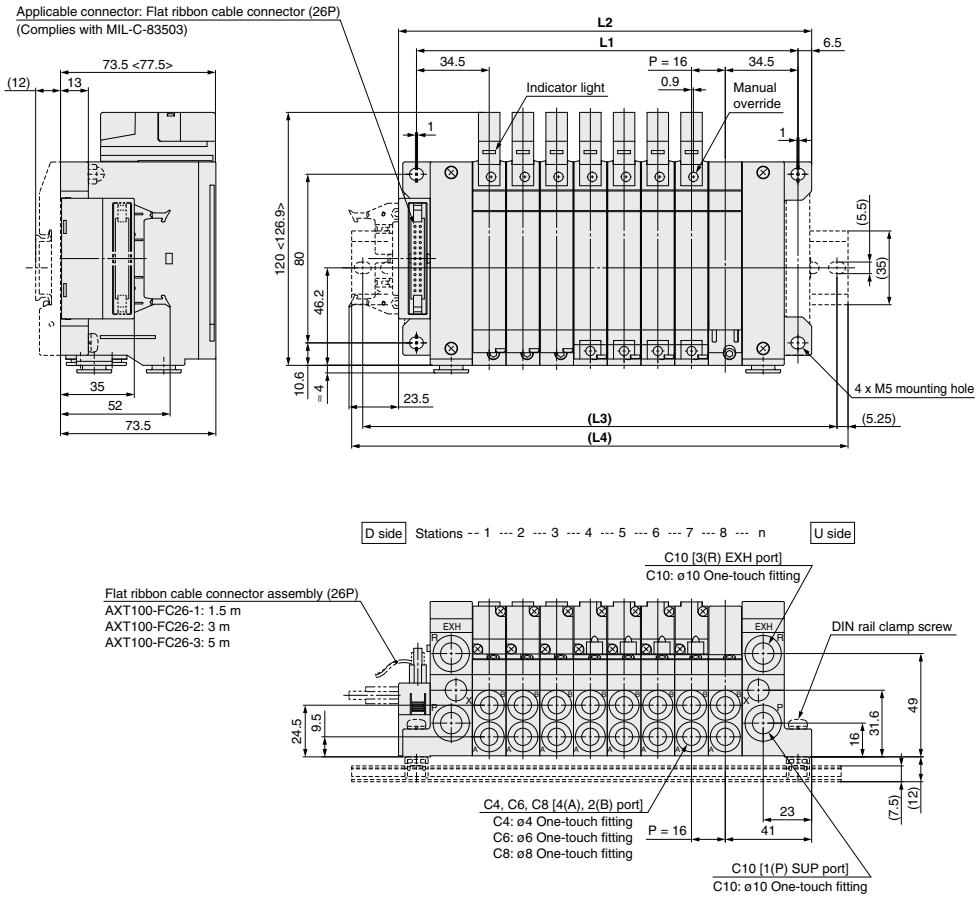
| L \ n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 65.5 | 76 | 86.5 | 97 | 107.5 | 118 | 128.5 | 139 | 149.5 | 160 | 170.5 | 181 | 191.5 | 202 | 212.5 | 223 | 233.5 | 244 | 254.5 | 265 | 275.5 | 286 | 296.5 |
| **L2** | 78.5 | 89 | 99.5 | 110 | 120.5 | 131 | 141.5 | 152 | 162.5 | 173 | 183.5 | 194 | 204.5 | 215 | 225.5 | 236 | 246.5 | 257 | 267.5 | 278 | 288.5 | 299 | 309.5 |
| **(L3)** | 112.5 | 125 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 187.5 | 200 | 212.5 | 225 | 225 | 237.5 | 250 | 262.5 | 275 | 287.5 | 287.5 | 300 | 312.5 | 325 | 337.5 |
| **(L4)** | 123 | 135.5 | 135.5 | 148 | 160.5 | 173 | 185.5 | 198 | 198 | 210.5 | 223 | 235.5 | 235.5 | 248 | 260.5 | 273 | 285.5 | 298 | 298 | 310.5 | 323 | 335.5 | 348 |

With ejector unit: Formula L1 = 10.5n + 28.7 + (Number of ejector units x 26.7)
L2 = 10.5n + 41.3 + (Number of ejector units x 26.7)
L4 is L2 plus about 30.

# VV5Q21

< >: AC
The dashed lines indicate the DIN rail mounting [-D] and the side entry connection [-PS].



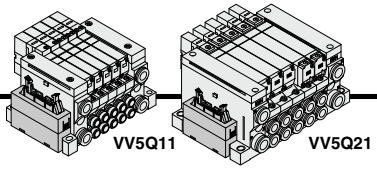



**Dimensions**

Formula L1 = 16n + 53, L2 = 16n + 68 n: Station (Maximum 24 stations)

| L \ n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 85 | 101 | 117 | 133 | 149 | 165 | 181 | 197 | 213 | 229 | 245 | 261 | 277 | 293 | 309 | 325 | 341 | 357 | 373 | 389 | 405 | 421 | 437 |
| **L2** | 100 | 116 | 132 | 148 | 164 | 180 | 196 | 212 | 228 | 244 | 260 | 276 | 292 | 308 | 324 | 340 | 356 | 372 | 388 | 404 | 420 | 436 | 452 |
| **(L3)** | 125 | 150 | 162.5 | 175 | 187.5 | 212.5 | 225 | 237.5 | 262.5 | 275 | 287.5 | 300 | 312.5 | 337.5 | 350 | 362.5 | 387.5 | 400 | 412.5 | 425 | 450 | 462.5 | 475 |
| **(L4)** | 135.5 | 160.5 | 173 | 185.5 | 198 | 223 | 235.5 | 248 | 273 | 285.5 | 298 | 310.5 | 323 | 348 | 360.5 | 373 | 398 | 410.5 | 423 | 435.5 | 460.5 | 473 | 485.5 |

# J *VQ1000/2000 Series*
## Kit (Flat ribbon cable)




- **MIL flat ribbon cable connector reduces installation labor for electrical connection.**
- **Using the connector for flat ribbon cable connectors (20P) conforming to MIL standard permits the use of connector put on the market and gives a wide interchangeability.**
- **Top or side receptacle position can be selected in accordance with the available mounting space.**
- **Maximum stations are 16.**

### Manifold Specifications

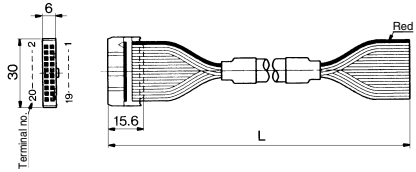
| Series | Piping specifications | | | Applicable stations |
|---|---|---|---|---|
| | Piping direction | Port size | | |
| | | 1(P), 3(R) | 4(A), 2(B) | |
| **VQ1000** | Side | C8 | C3, C4, C6, M5 | Max. 16 stations |
| **VQ2000** | Side | C10 | C4, C6, C8 | Max. 16 stations |

## Flat Ribbon Cable (20 Pins)

**Cable Assembly**

**AXT100-FC20-** $\overset{1}{\underset{3}{\text{to}}}$

(Flat ribbon cable connector assembly can be ordered individually or included in a specific manifold model no. Refer to "How to Order Manifold.")




**Flat Ribbon Cable Connector Assembly**

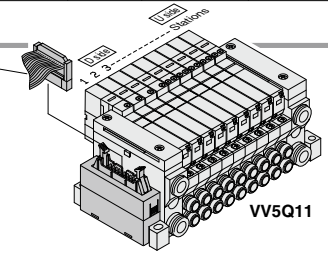
| Cable length (**L**) | Assembly part no. | Note |
|---|---|---|
| 1.5 m | AXT100-FC20-1 | Cable 20 cores x 28AWG |
| 3 m | AXT100-FC20-2 | |
| 5 m | AXT100-FC20-3 | |

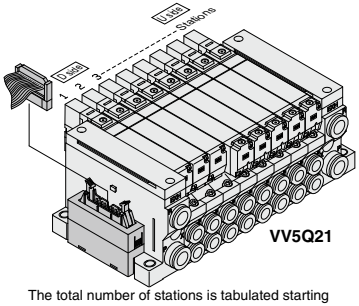
∗ For other commercial connectors, use a 20 pins with strain relief conforming to MIL-C-83503.
∗ Cannot be used for transfer wiring.

**Connector manufacturers' example**

- HIROSE ELECTRIC CO., LTD.
- 3M Japan Limited
- Fujitsu Limited
- Japan Aviation Electronics Industry, Limited
- J.S.T. Mfg. Co., Ltd.
- Oki Electric Cable Co., Ltd.

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




The total number of stations is tabulated starting from one on the D-side.

CE [Option]

## How to Order Manifold

**VV5Q 1 1 – 08 C6 J U 1 – □ – □**

**Series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Manifold**

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

**Stations**

| | |
|---|---|
| 02 | 2 stations |
| ⋮ | ⋮ |
| 16 | 16 stations |

Note) Refer to page 419 for details.

**Cylinder port**

| Symbol | Port size | VQ1000 | VQ2000 |
|---|---|---|---|
| **C3** Note 1) | With ø3.2 One-touch fitting | ● | — |
| **C4** Note 1) | With ø4 One-touch fitting | ● | ● |
| **C6** Note 1) | With ø6 One-touch fitting | ● | ● |
| **C8** Note 1) | With ø8 One-touch fitting | — | ● |
| **M5** | M5 thread | ● | — |
| **CM** Note 2) Note 3) | Mixed sizes and with port plug | ● | ● |
| **MM** Note 4) | Mixed size for different types of piping, option installed | ● | ● |

Note 1) Insert "L" (Top ported) or "B" (Bottom ported) for elbow type.
Example) B6 (Bottom ported elbow with ø6 One-touch fitting)
Note 2) Indicate "LM" (Including upward, downward piping and mixed) for models with elbow fittings and mixed cylinder port sizes.
Note 3) Indicate "Mixed sizes and with port plug" by means of the manifold specification sheet.
Note 4) When selecting the mixed size for different types of piping, dual flow fitting assembly, or double check block (direct mounting), enter "MM" and give instructions in the manifold specification sheet.
Note 5) Inch-size One-touch fittings are available. Refer to "Semi-standard" on page 420 for details.

**Connector entry direction**

| | |
|---|---|
| U | Top entry |
| S | Side entry |

**Cable (Length)**

| | |
|---|---|
| 0 | Without cable |
| 1 | With cable (1.5 m) |
| 2 | With cable (3 m) |
| 3 | With cable (5 m) |

**CE-compliant**

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

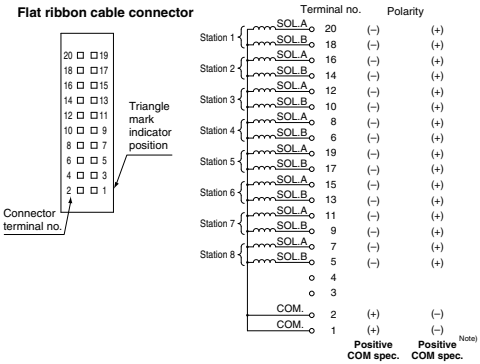
**Option**

| Symbol | Option | VQ1000 | VQ2000 |
|---|---|---|---|
| **Nil** | None | ● | ● |
| **B** Note 2) | With back pressure check valve | ● | ● |
| **D** | DIN rail mounting | ● | ● |
| **D0** | With DIN rail bracket (Without DIN rail) | ● | ● |
| **D□** Note 3) | DIN rail length specified (□: Stations 02 to 24) | ● | ● |
| **G1** Note 4) Note 8) | 1 set of regulator unit | ● | — |
| **G2** Note 4) Note 8) | 2 sets of regulator unit | | |
| **G3** Note 4) Note 8) | 3 sets of regulator unit | | |
| **J□** Note 5) | With ejector unit | ● | — |
| **K** Note 6) | Special wiring specifications (Except double wiring) | ● | ● |
| **N** | With name plate | ● | ● |
| **R** Note 7) | External pilot | ● | ● |
| **S** | Direct EXH outlet with built-in silencer | ● | ● |

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. When a back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position by means of the manifold specification sheet.
Note 3) The number of stations that may be displayed is longer than the manifold number of stations.
Note 4) Specify the mounting position by means of the manifold specification sheet.
Note 5) Refer to page 432 for details on with ejector unit. A combination of "J" and "N" is not available.
Note 6) Specify the wiring specifications by means of the manifold specification sheet.
Note 7) Indicate "R" for the valve with external pilot.
Note 8) G1, G2, or G3 cannot be combined with N.

## ● Electrical Wiring Specifications

**Flat ribbon cable connector**




As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 8 stations or less, regardless of valve and option types.
Mixed single and double wiring is available as semi-standard. Refer to "Semi-standard" on page 419 for details.

Note) When using the negative common specifications, use valves for negative common. (Refer to page 419)
Refer to "Semi-standard" on page 419 for details.

## How to Order Valves

CE [Option]

**VQ 1 1 0 □ – 5 □ □ 1 – □**

**Series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Type of actuation**

| | |
|---|---|
| 1 | 2-position single |
| 2 | 2-position double |
| 3 | 3-position closed center |
| 4 | 3-position exhaust center |
| 5 | 3-position pressure center |
| A | 4-position dual port (N.C. +N.C.) |
| B | 4-position dual port (N.O. +N.O.) |
| C | 4-position dual port (N.C. +N.O.) |

**Seal**

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

**Function**

| Symbol | Specifications | DC |
|---|---|---|
| Nil | Standard | (0.4 W) ○ |
| B | High-speed response type | (0.95 W) ○ |
| K Note 1) | High-pressure type (1.0 MPa) | (0.95 W) ○ |
| N Note 2) | Negative common | ○ |
| R Note 2) Note 4) | External pilot | ○ |

**Manual override**

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

**Light/Surge voltage suppressor**

| | |
|---|---|
| Nil | Yes |
| E Note) | None (Non-polar) |

Note) A combination of "Function [N] (Negative common)" and [E] is unavailable.
Since [E] has no polarity, it can also be used as a negative common. Selection of "Function [N]" is not required.

**Coil voltage**

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

**CE-compliant**

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

Note 1) Metal seal only
Note 2) Refer to "Semi-standard" on pages 419 and 420 for external pilot and negative common specifications.
Note 3) When two or more symbols are specified, indicate them alphabetically. Combination of [B] and [K] is not possible.
Note 4) Dual 3-port valve is not applicable.

## How to Order Manifold Assembly

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

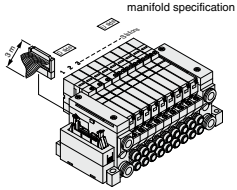
**<Example>**

Flat ribbon cable kit with cable (3 m)

**VV5Q11-08C6JU2 ···1 set–Manifold base part no.**
∗**VQ1100-51** ·····**2 sets–Valve part no. (Stations 1 to 2)**
∗**VQ1200-51** ·····**4 sets–Valve part no. (Stations 3 to 6)**
∗**VQ1300-51** ·····**1 set–Valve part no. (Station 7)**
∗**VVQ1000-10A-1** ····**1 set–Blanking plate part no. (Station 8)**

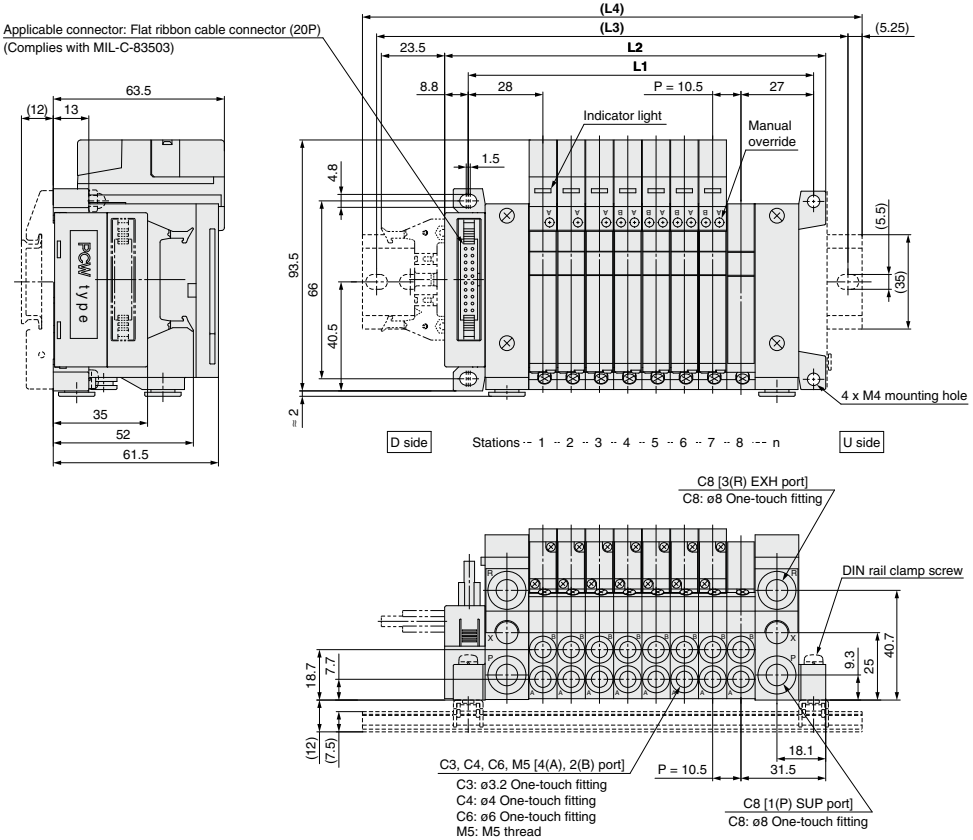
Prefix the asterisk to the part nos. of the solenoid valve, etc.

Write sequentially from the 1st station on the D-side. When part nos. written collectively are complicated, specify them by means of the manifold specification sheet.



# VV5Q11

The dashed lines indicate the DIN rail mounting [-D] and the side entry connection [-JS].




**Dimensions**

Formula L1 = 10.5n + 44.5, L2 = 10.5n + 57.5 n: Station (Maximum 16 stations)

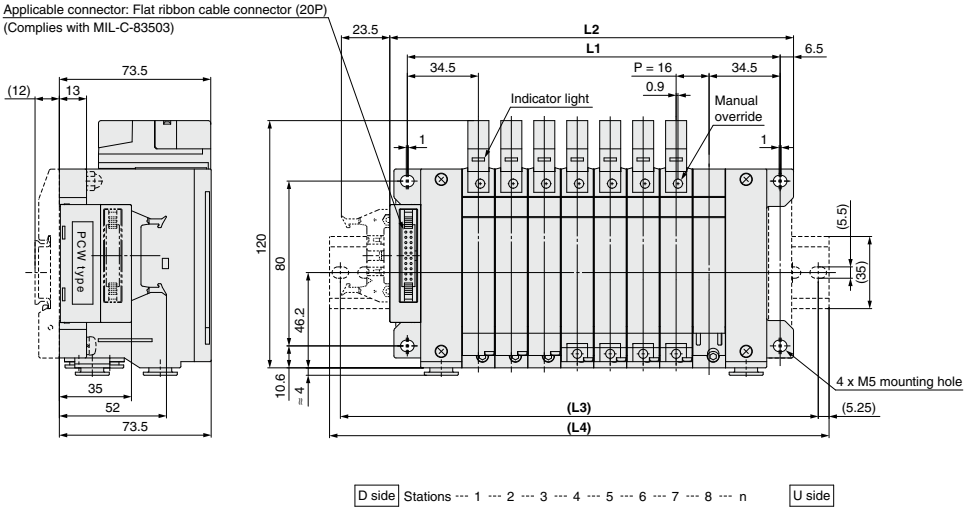
| L \ n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 65.5 | 76 | 86.5 | 97 | 107.5 | 118 | 128.5 | 139 | 149.5 | 160 | 170.5 | 181 | 191.5 | 202 | 212.5 |
| **L2** | 78.5 | 89 | 99.5 | 110 | 120.5 | 131 | 141.5 | 152 | 162.5 | 173 | 183.5 | 194 | 204.5 | 215 | 225.5 |
| **(L3)** | 112.5 | 125 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 187.5 | 200 | 212.5 | 225 | 225 | 237.5 | 250 |
| **(L4)** | 123 | 135.5 | 135.5 | 148 | 160.5 | 173 | 185.5 | 198 | 198 | 210.5 | 223 | 235.5 | 235.5 | 248 | 260.5 |

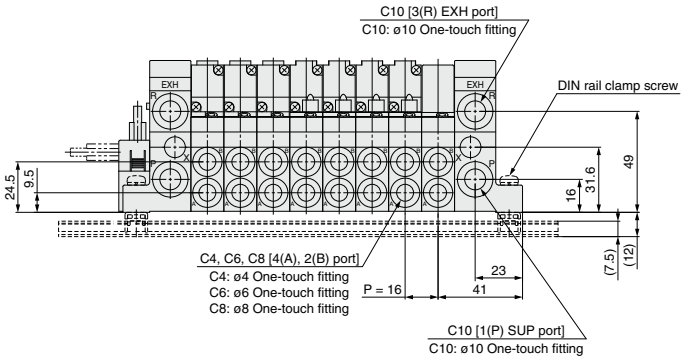
With ejector unit: Formula L1 = 10.5n + 28.7 + (Number of ejector units x 26.7)
L2 = 10.5n + 41.3 + (Number of ejector units x 26.7)
L4 is L2 plus about 30.

# VV5Q21

The dashed lines indicate the DIN rail mounting [-D] and the side entry connection [-JS].





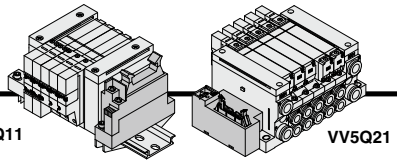




**Dimensions**

Formula L1 = 16n + 53, L2 = 16n + 68 n: Station (Maximum 16 stations)

| L \ n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 85 | 101 | 117 | 133 | 149 | 165 | 181 | 197 | 213 | 229 | 245 | 261 | 277 | 293 | 309 |
| **L2** | 100 | 116 | 132 | 148 | 164 | 180 | 196 | 212 | 228 | 244 | 260 | 276 | 292 | 308 | 324 |
| **(L3)** | 125 | 150 | 162.5 | 175 | 187.5 | 212.5 | 225 | 237.5 | 262.5 | 275 | 287.5 | 300 | 312.5 | 337.5 | 350 |
| **(L4)** | 135.5 | 160.5 | 173 | 185.5 | 198 | 223 | 235.5 | 248 | 273 | 285.5 | 298 | 310.5 | 323 | 348 | 360.5 |

# G VQ1000/2000 Series
## Kit (Flat ribbon cable with terminal block)




- **Terminal block for power supply equipped with a 20 pins flat ribbon cable connection for rationalized connection of valves.**
- **Solenoid valves and power supply can be connected by the same cable to a specific output unit that requires power supply from the output section to the internal circuit.**
- **Maximum stations are 16.**

### Manifold Specifications

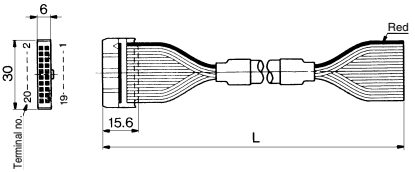
| Series | Piping specifications | | | Applicable stations |
|---|---|---|---|---|
| | Piping direction | Port size | | |
| | | 1(P), 3(R) | 4(A), 2(B) | |
| **VQ1000** | Side | C8 | C3, C4, C6, M5 | Max. 16 stations |
| **VQ2000** | Side | C10 | C4, C6, C8 | Max. 16 stations |

## Flat Ribbon Cable (20 Pins)

### Cable Assembly

**AXT100-FC20-$^{1}_{3}$**

(Flat ribbon cable connector assembly can be ordered individually or included in a specific manifold model no. Refer to "How to Order Manifold.")




**Flat Ribbon Cable Connector Assembly**

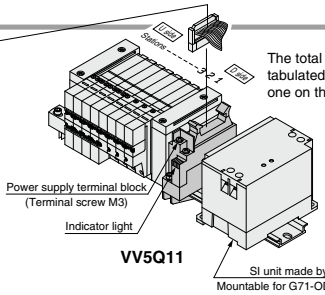
| Cable length (**L**) | Assembly part no. | Note |
|---|---|---|
| 1.5 m | AXT100-FC20-1 | Cable 20 cores x 28AWG |
| 3 m | AXT100-FC20-2 | |
| 5 m | AXT100-FC20-3 | |

∗ For other commercial connectors, use a 20 pins type with strain relief conforming to MIL-C-83503.
∗ Cannot be used for transfer wiring.

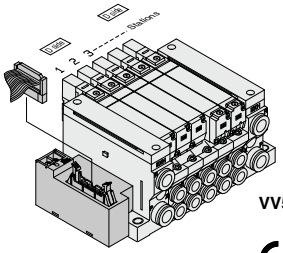
**Connector manufacturers' example**

- HIROSE ELECTRIC CO., LTD.
- 3M Japan Limited
- Japan Aviation Electronics Industry, Limited
- J.S.T. Mfg. Co., Ltd.
- Oki Electric Cable Co., Ltd.
- Fujitsu Limited

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




The total number of stations is tabulated starting from station one on the D-side.




CE [Option]

## How to Order Manifold

**VV5Q 1 1 – 08 C6 G □ □ – □ – □**

**Series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Manifold**

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

**Stations**

| | |
|---|---|
| 02 | 2 stations |
| ⋮ | ⋮ |
| 16 Note) | 16 stations |

Note) Refer to page 419 for details.

**Connector entry direction, Top entry**

| | |
|---|---|
| Nil | VQ1000 |
| U | VQ2000 |

**Cylinder port**

| Symbol | Port size | VQ1000 | VQ2000 |
|---|---|---|---|
| C3 Note 1) | With ø3.2 One-touch fitting | ● | — |
| C4 Note 1) | With ø4 One-touch fitting | ● | ● |
| C6 Note 1) | With ø6 One-touch fitting | ● | ● |
| C8 Note 1) | With ø8 One-touch fitting | — | ● |
| M5 | M5 thread | ● | — |
| CM Note 2) Note 3) | Mixed sizes and with port plug | ● | ● |
| MM Note 4) | Mixed size for different types of piping, option installed | ● | ● |

Note 1) Insert "L" (Top ported) or "B" (Bottom ported) for elbow type.
Example) B6 (Bottom ported elbow with ø6 One-touch fitting)
Note 2) Indicate "LM" (Including upward, downward piping and mixed) for models with elbow fittings and mixed cylinder port sizes.
Note 3) Indicate "Mixed sizes and with port plug" by means of the manifold specification sheet.
Note 4) When selecting the mixed size for different types of piping, dual flow fitting assembly, or double check block (direct mounting), enter "MM" and give instructions in the manifold specification sheet.
Note 5) Inch-size One-touch fittings are available. Refer to "Semi-standard" on page 420 for details.

**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 | VQ1000 | VQ2000 |
|---|---|---|---|
| Nil | None | ● | ● |
| B Note 2) | With back pressure check valve | ● | ● |
| D | DIN rail mounting | ● | ● |
| D0 | With DIN rail bracket (Without DIN rail) | ● | ● |
| D□ Note 3) | DIN rail length specified (□: Stations 02 to 24) | ● | ● |
| G1 Note 4) Note 8) | 1 set of regulator unit | ● | — |
| G2 Note 4) Note 8) | 2 sets of regulator unit | | |
| G3 Note 4) Note 8) | 3 sets of regulator unit | | |
| J□ Note 5) | With ejector unit | ● | — |
| K Note 6) | Special wiring specifications (Except double wiring) | ● | ● |
| N | With name plate | ● | ● |
| R Note 7) | External pilot | ● | ● |
| S | Direct EXH outlet with built-in silencer | ● | ● |

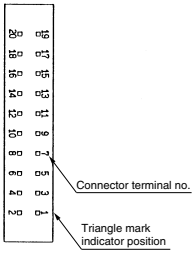
Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. When a back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position by means of the manifold specification sheet.
Note 3) The number of stations that may be displayed is longer than the manifold number of stations.
Note 4) Specify the mounting position by means of the manifold specification sheet.
Note 5) Refer to page 432 for details on with ejector unit. A combination of "J" and "N" is not available.
Note 6) Specify the wiring specifications by means of the manifold specification sheet.
Note 7) Indicate "R" for the valve with external pilot.
Note 8) G1, G2, or G3 cannot be combined with N.

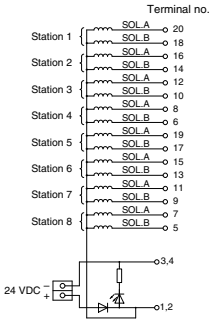

SMC

## ● Connector Assembly

Electric circuit diagram (Below wiring is the case of all double solenoid connections.)

**Flat ribbon cable connector**




As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 8 stations or less, regardless of valve and option types. Mixed single and double wiring is available as semi-standard. Refer to page 419 for details.

## How to Order Valves

CE [Option]

VQ 1 1 0 0 – 5 1 –

**Series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Seal**

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

**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 |
| A | 4-position dual port (N.C. +N.C.) |
| B | 4-position dual port (N.O. +N.O.) |
| C | 4-position dual port (N.C. +N.O.) |

**Coil voltage**

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

**Function**

| Symbol | Specifications | DC |
|---|---|---|
| Nil | Standard | (0.4 W) ○ |
| B | High-speed response type | (0.95 W) ○ |
| K Note 1) | High- pressure type (1.0 MPa) | (0.95 W) ○ |
| R Note 2) Note 4) | External pilot | ○ |

**Manual override**

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

**Light/Surge voltage suppressor**

| | |
|---|---|
| Nil | Yes |
| E | None (Non-polar) |

**CE-compliant**

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

Note 1) Metal seal only
Note 2) Refer to "Semi-standard" on page 420 for external pilot specifications.
Note 3) When two or more symbols are specified, indicate them alphabetically. Combination of [B] and [K] is not possible.
Note 4) Dual 3-port valve is not applicable.

## How to Order Manifold Assembly

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

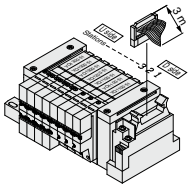
**<Example>**

Flat ribbon cable kit with terminal block with cable (3 m)

**VV5Q11-08C6G2 ···1 set–Manifold base part no.**
**∗VQ1100-51 ·····4 sets–Valve part no. (Stations 1 to 4)**
**∗VQ1200-51 ·····1 set–Valve part no. (Station 5)**
**∗VQ1300-51 ·····3 sets–Valve part no. (Stations 6 to 8)**

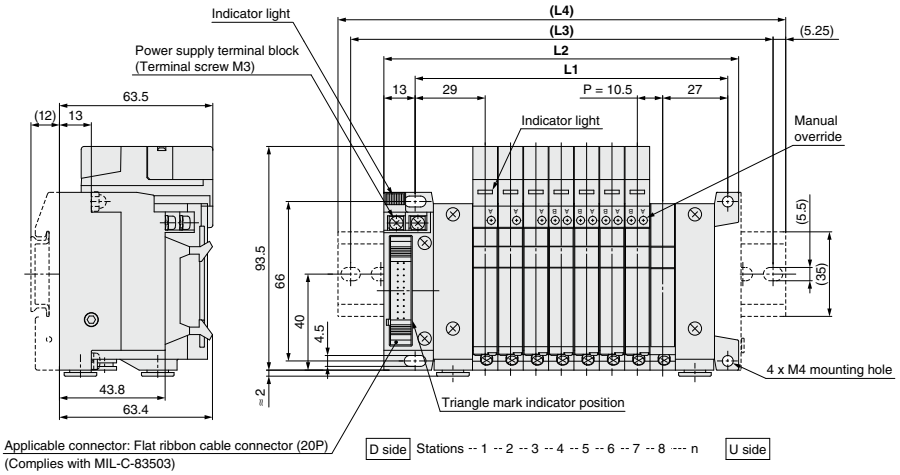
Prefix the asterisk to the part nos. of the solenoid valve, etc.

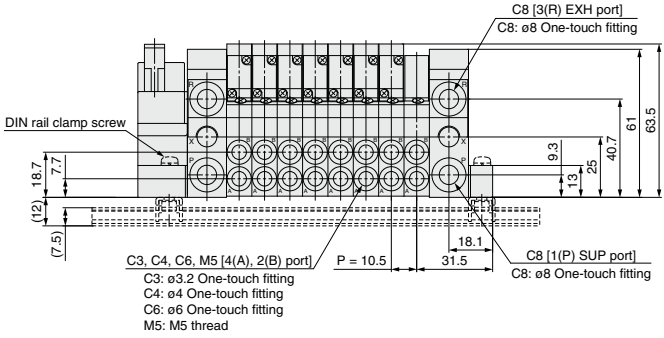
Write sequentially from the 1st station on the D-side. When part nos. written collectively are complicated, specify them by means of the manifold specification sheet.



# VV5Q11

The dashed lines and dimensions in parentheses indicate DIN rail mounting [-D].




**Dimensions**

Formula L1 = 10.5n + 45.5, L2 = 10.5n + 63 n: Station (Maximum 16 stations)

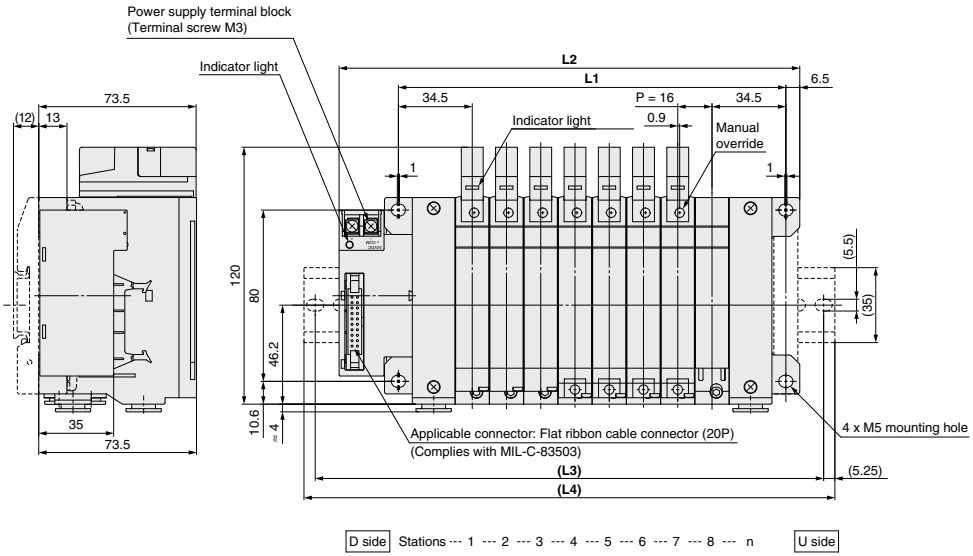
| L \ n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 66.5 | 77 | 87.5 | 98 | 108.5 | 119 | 129.5 | 140 | 150.5 | 161 | 171.5 | 182 | 192.5 | 203 | 213.5 |
| **L2** | 84 | 94.5 | 105 | 115.5 | 126 | 136.5 | 147 | 157.5 | 168 | 178.5 | 189 | 199.5 | 210 | 220.5 | 231 |
| **(L3)** | 112.5 | 125 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 |
| **(L4)** | 123 | 135.5 | 135.5 | 148 | 160.5 | 173 | 185.5 | 198 | 198 | 210.5 | 223 | 235.5 | 248 | 260.5 | 273 |

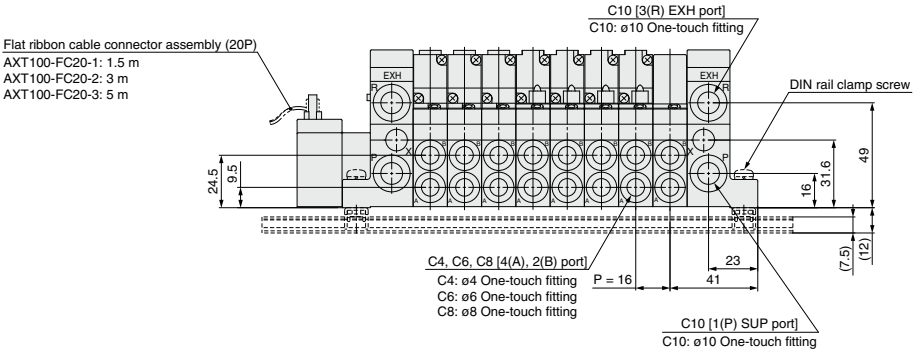
With ejector unit: Formula L1 = 10.5n + 29.7 + (Number of ejector units x 26.7)
L2 = 10.5n + 46.8 + (Number of ejector units x 26.7)
L4 is L2 plus about 30.

# VV5Q21

The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).





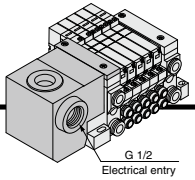




**Dimensions**

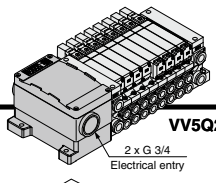
Formula L1 = 16n + 53, L2 = 16n + 87 n: Station (Maximum 16 stations)

| L \ n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 85 | 101 | 117 | 133 | 149 | 165 | 181 | 197 | 213 | 229 | 245 | 261 | 277 | 293 | 309 |
| **L2** | 119 | 135 | 151 | 167 | 183 | 199 | 215 | 231 | 247 | 263 | 279 | 295 | 311 | 327 | 343 |
| **(L3)** | 150 | 162.5 | 175 | 187.5 | 212.5 | 225 | 237.5 | 262.5 | 275 | 287.5 | 300 | 325 | 337.5 | 350 | 362.5 |
| **(L4)** | 160.5 | 173 | 185.5 | 198 | 223 | 235.5 | 248 | 273 | 285.5 | 298 | 310.5 | 335.5 | 348 | 360.5 | 373 |

# T VQ1000/2000 Series
## Kit (Terminal block box)




VV5Q11



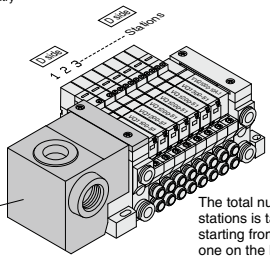

VV5Q21

**IP65 compliant**

- **This kit has a small terminal block inside a junction box. The electrical entry port {VQ1000: G 1/2, VQ2000: G 3/4} permits connection of conduit fittings.**
- **Maximum stations: 24 (VQ1000), 20 (VQ2000)**
- **Enclosure: Dust-tight, Water-jet-proof (IP65) compatible (VQ2000 series)**

### Manifold Specifications

| Series | Piping direction | Piping specifications: Port size 1(P), 3(R) | Piping specifications: Port size 4(A), 2(B) | Applicable stations |
|---|---|---|---|---|
| **VQ1000** | Side | C8 | C3,C4,C6,M5 | Max. 24 stations |
| **VQ2000** | Side | C10 | C4,C6,C8 | Max. 20 stations |



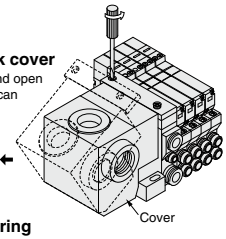

The total number of stations is tabulated starting from station one on the D-side.

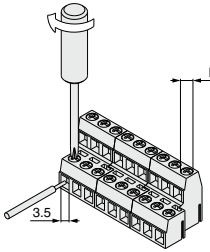
### Terminal Block Connection (VQ1000)

Open the terminal block cover to connect the wires to the terminal block.

**Step 1. Removing the terminal block cover**

Loosen the screws on the terminal block cover and open it in the direction shown by the arrow. The cover can then be removed from the terminal block.



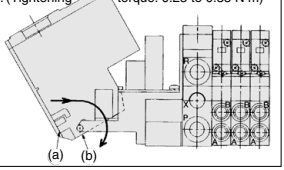

**Step 2. Wiring**

The diagram on the left shows the terminal block wiring schematic. All stations are provided with double solenoid wiring. Insert each lead wire into the terminal opening and tighten the screw directly above.

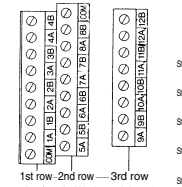
How to connect is inserting the lead wire into the terminal window, then tighten the screw on the top. (Tightening torque: 0.25 to 0.35 N·m)

**Step 3. Mounting the terminal block cover**

Hook groove (a) on shaft (b) and close the cover. Then tighten the screws.

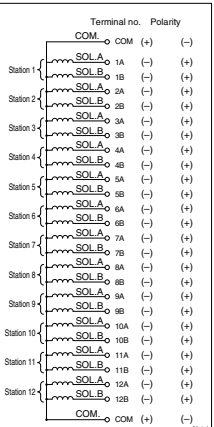



### Electrical Wiring Specifications: VQ1000




The quantity of terminal blocks used depends on the number of manifold stations:

| Manifold | Terminal block |
|---|---|
| 2 to 8 stations | 2 rows |
| 9 to 12 stations | 3 rows |




As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 12 stations or less, regardless of valve and option types.

Mixed single and double wiring is available as semi-standard. Refer to page 419 for details.

Note) When using the negative common specifications, use valves for negative common. Refer to "Semi-standard" on page 419 for details.

Note) For CE-compliant models, DC-type only.

CE [Option]

## How to Order Manifold

**VV5Q 1 1 – 08 C6 T 0 – □ – □**

**Series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Manifold**

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

**Stations**

| | |
|---|---|
| 02 | 2 stations |
| ⋮ | ⋮ |
| 24 Note 1) | 24 stations |

Note 1) VQ2000: Max. 20 stations Refer to page 419 for details.

∗ For negative common specifications of VQ1000 series, refer to "Semi-standard" on page 419. For VQ2000 series the standard manifold can be used.

**Cylinder port**

| Symbol | Port size | VQ1000 | VQ2000 |
|---|---|---|---|
| C3 Note 1) | With ø3.2 One-touch fitting | ● | — |
| C4 Note 1) | With ø4 One-touch fitting | ● | ● |
| C6 Note 1) | With ø6 One-touch fitting | ● | ● |
| C8 Note 1) | With ø8 One-touch fitting | — | ● |
| M5 | M5 thread | ● | — |
| CM Note 2) Note 3) | Mixed sizes and with port plug | ● | ● |
| MM Note 4) | Mixed size for different types of piping, option installed | ● | ● |

Note 1) Insert "L" (Top ported) or "B" (Bottom ported) for elbow type.
Example) B6 (Bottom ported elbow with ø6 One-touch fitting)
Note 2) Indicate "LM" (Including upward, downward piping and mixed) for models with elbow fittings and mixed cylinder port sizes.
Note 3) Indicate "Mixed sizes and with port plug" by means of the manifold specification sheet.
Note 4) When selecting the mixed size for different types of piping, dual flow fitting assembly, or double check block (direct mounting), enter "MM" and give instructions in the manifold specification sheet.
Note 5) Inch-size One-touch fittings are available. Refer to "Semi-standard" on page 420 for details.

**CE-compliant**

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

Note) For CE-compliant models, DC-type only.

**Option**

| Symbol | Option | VQ1000 | VQ2000 |
|---|---|---|---|
| Nil | None | ● | ● |
| B Note 2) | With back pressure check valve | ● | ● |
| D | DIN rail mounting | ● | ● |
| D0 | With DIN rail bracket (Without DIN rail) | ● | ● |
| D□ Note 6) | DIN rail length specified (□: Stations 02 to 24) | ● | ● |
| G1 Note 4) Note 8) | 1 set of regulator unit | ● | — |
| G2 Note 4) Note 8) | 2 sets of regulator unit | | |
| G3 Note 4) Note 8) | 3 sets of regulator unit | | |
| J□ Note 5) | With ejector unit | ● | — |
| K Note 6) | Special wiring spec. (Except double wiring) | ● | ● |
| N | With name plate | ● | ● |
| R Note 7) | External pilot | ● | ● |
| S | Direct EXH outlet with built-in silencer | ● | ● |
| W | Enclosure: Dust-tight, Water-jet-proof (IP65) | — | ● |

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. When a back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position by means of the manifold specification sheet.
Note 3) The number of stations that may be displayed is longer than the manifold number of stations.
Note 4) Specify the mounting position by means of the manifold specification sheet.
Note 5) Refer to page 432 for details on with ejector unit. A combination of "J" and "N" is not available.
Note 6) Specify the wiring specifications by means of the manifold specification sheet.
Note 7) Indicate "R" for the valve with external pilot.
Note 8) G1, G2, or G3 cannot be combined with N.



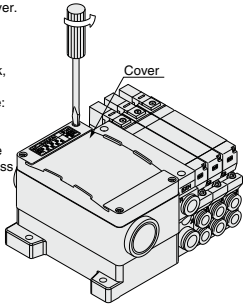
SMC

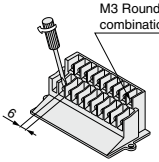
### ● Terminal Block Wiring (VQ2000)

Open the terminal block cover to connect the wires to the terminal block.

**Step 1. Removing the terminal block cover**
Loosen mounting screws (4 pcs.) on the terminal block cover and remove the cover.

**Step 2. Wiring**
Loosen screws on the terminal block, connect wiring and complete it by tightening screws.(Tightening torque: 0.5 to 0.7 N·m)
The diagram on the right shows the terminal block wiring. All stations are provided with double wiring regardless of the valves which are mounted.

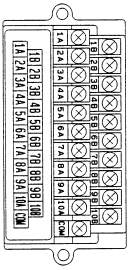


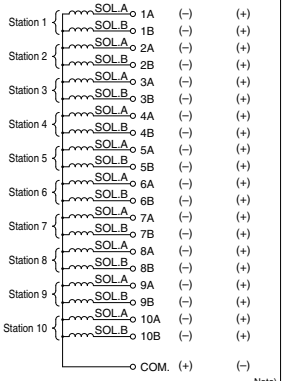




Applicable crimped terminal:
1.25-3S, 1.25Y-3,
1.25Y-3N, 1.25Y-3.5

**Step 3. Mounting the terminal block cover**
Securely tighten the screws after confirming that the gasket is installed correctly.
(Tightening torque: 0.7 to 1.2 N·m)

### ● Special Wiring Specifications: VQ2000




As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 10 stations or less, regardless of valve and option types.
Mixed single and double wiring is available as semi-standard.
Refer to page 419 for details.

Note) When using the negative common specifications, use valves for negative common.

Refer to "Semi-standard" on page 419 for details.

## How to Order Valves

Note) For CE-compliant models, DC-type only. CE [Option]

**VQ 1 1 0 0 □ – 5 □ □ □ 1 – □**

**Series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Type of actuation**

| | |
|---|---|
| 1 | 2-position single |
| 2 | 2-position double |
| 3 | 3-position closed center |
| 4 | 3-position exhaust center |
| 5 | 3-position pressure center |
| A | 4-position dual port (N.C. +N.C.) |
| B | 4-position dual port (N.O. +N.O.) |
| C | 4-position dual port (N.C. +N.O.) |

**Seal**

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

**Function**

| Symbol | Specifications | DC | AC |
|---|---|---|---|
| Nil | Standard | (0.4 W) ○ | ○ Note 1) |
| B | High-speed response type | (0.95 W) ○ | — |
| K Note 2) | High-pressure type (1.0 MPa) | (0.95 W) ○ | — |
| N Note 3) | Negative common | ○ | — |
| R Note 3) Note 5) | External pilot | ○ | ○ |

**Coil voltage**

| | | CE-compliant |
|---|---|---|
| 1 | 100 VAC (50/60 Hz) | — |
| 3 | 110 VAC (50/60 Hz) | — |
| 5 | 24 VDC | ● |
| 6 | 12 VDC | ● |

**CE-compliant**

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

Note) For CE-compliant models, DC-type only.

**Enclosure**

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

Note) VQ2000 only

**Manual override**

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

**Light/Surge voltage suppressor**

| | |
|---|---|
| Nil | Yes |
| E Note) | None |

Note) A combination of "Function [N] (Negative common)" and [E] is unavailable. Since [E] has no polarity, it can also be used as a negative common. Selection of "Function [N]" is not required.

Note 1) Refer to page 381 for power consumption of AC type.
Note 2) Metal seal only
Note 3) Refer to "Semi-standard" on pages 419 and 420 for external pilot and negative common specifications.
Note 4) When two or more symbols are specified, indicate them alphabetically. Combination of [B] and [K] is not possible.
Note 5) Dual 3-port valve is not applicable.

## ⚠Caution

Use the standard (DC) specification when continuously energizing for long periods of time.

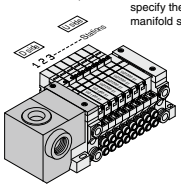
## How to Order Manifold Assembly

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

**<Example>**
Terminal block box kit
**VV5Q11-08C6T0 ···1 set–Manifold base part no.**
***VQ1100-51 ·····2 sets–Valve part no. (Stations 1 to 2)**
***VQ1200-51 ·····4 sets–Valve part no. (Stations 3 to 6)**
***VQ1300-51 ·····1 set–Valve part no. (Station 7)**
***VVQ1000-10A-1 ··1 set–Blanking plate part no. (Station 8)**

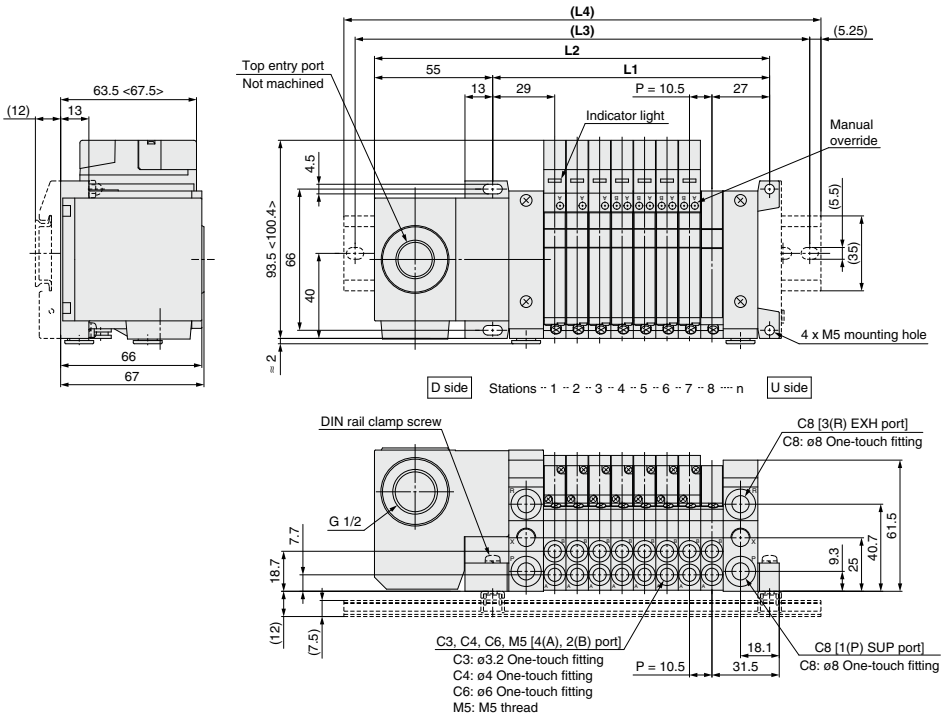
Prefix the asterisk to the part nos. of the solenoid valve, etc.

Write sequentially from the 1st station on the D-side. When part nos. written collectively are complicated, specify them by means of the manifold specification sheet.



# VV5Q11

< >: AC
The dashed lines and dimensions in parentheses indicate DIN rail mounting [-D].




**Dimensions**

Formula L1 = 10.5n + 45.5, L2 = 10.5n + 105 n: Station (Maximum 24 stations)

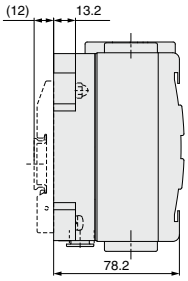
| L \ n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 66.5 | 77 | 87.5 | 98 | 108.5 | 119 | 129.5 | 140 | 150.5 | 161 | 171.5 | 182 | 192.5 | 203 | 213.5 | 224 | 234.5 | 245 | 255.5 | 266 | 276.5 | 287 | 297.5 |
| **L2** | 126 | 136.5 | 147 | 157.5 | 168 | 178.5 | 189 | 199.5 | 210 | 220.5 | 231 | 241.5 | 252 | 262.5 | 273 | 283.5 | 294 | 304.5 | 315 | 325.5 | 336 | 346.5 | 357 |
| **(L3)** | 150 | 162.5 | 175 | 187.5 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 262.5 | 262.5 | 275 | 287.5 | 300 | 312.5 | 325 | 325 | 337.5 | 350 | 362.5 | 375 | 387.5 |
| **(L4)** | 160.5 | 173 | 185.5 | 198 | 198 | 210.5 | 223 | 235.5 | 248 | 260.5 | 273 | 273 | 285.5 | 298 | 310.5 | 323 | 335.5 | 335.5 | 348 | 360.5 | 373 | 385.5 | 398 |

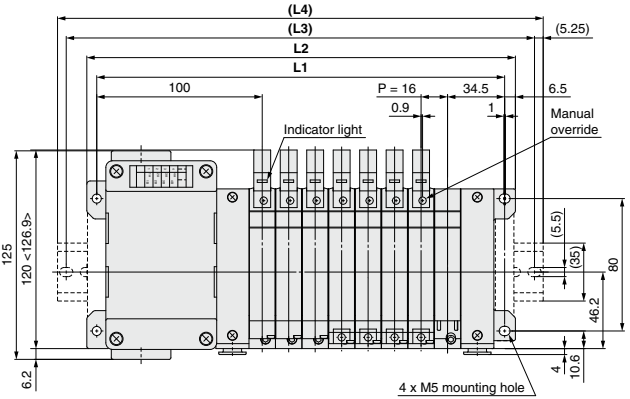
With ejector unit: Formula L1 = 10.5n + 29.7 + (Number of ejector units x 26.7)
L2 = 10.5n + 88.8 + (Number of ejector units x 26.7)
L4 is L2 plus about 30.

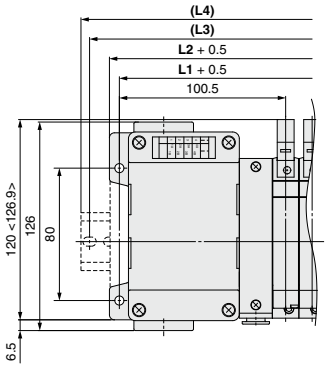
# VV5Q21

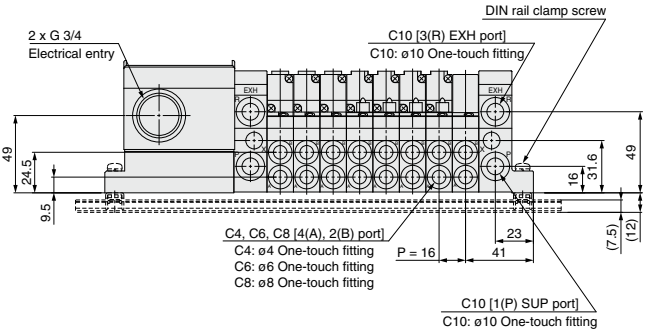
< >: AC
The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).





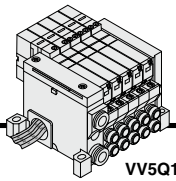

**Dust-tight, Water-jet-proof**

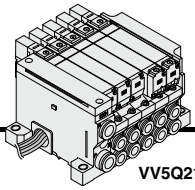
**Dimensions**

Formula L1 = 16n + 118.5, L2 = 16n + 131 n: Station (Maximum 20 stations)

| L \ n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 150.5 | 166.5 | 182.5 | 198.5 | 214.5 | 230.5 | 246.5 | 262.5 | 278.5 | 294.5 | 310.5 | 326.5 | 342.5 | 358.5 | 374.5 | 390.5 | 406.5 | 422.5 | 438.5 |
| **L2** | 163 | 179 | 195 | 211 | 227 | 243 | 259 | 275 | 291 | 307 | 323 | 339 | 355 | 371 | 387 | 403 | 419 | 435 | 451 |
| **(L3)** | 187.5 | 200 | 225 | 237.5 | 250 | 262.5 | 287.5 | 300 | 312.5 | 337.5 | 350 | 362.5 | 375 | 400 | 412.5 | 425 | 450 | 462.5 | 475 |
| **(L4)** | 198 | 210.5 | 235.5 | 248 | 260.5 | 273 | 298 | 310.5 | 323 | 348 | 360.5 | 373 | 385.5 | 410.5 | 423 | 435.5 | 460.5 | 473 | 485.5 |

# L VQ1000/2000 Series
## Kit (Lead wire)


VV5Q11

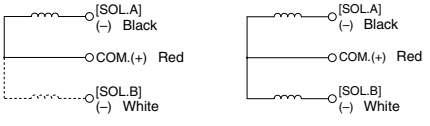

VV5Q21

**IP65 compliant**

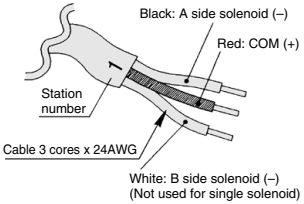
- **Direct electrical entry. Models with one or more stations are available.**
- **(SUP) and (EXH) ports are provided on one side for further space savings.**
- **Maximum stations are 8.**
- **Enclosure: Dust-tight, Water-jet-proof (IP65) compatible (VQ2000 series)**

### Wiring Specifications: Positive COM ●

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




**Single solenoid** **Double solenoid**




Use any of the below cable lead wire assembly to change the lead wire length:

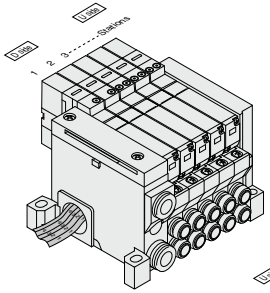
**Lead wire assembly with connector**

| Lead wire length | Part no. |
|---|---|
| 0.6 m | VVQ1000-84A-6-✻ |
| 1.5 m | VVQ1000-84A-15-✻ |
| 3 m | VVQ1000-84A-30-✻ |

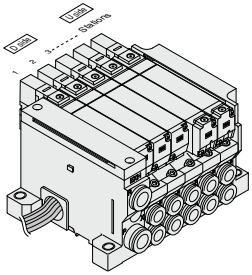
✻ Station number 1 to 8

### Manifold Specifications

| Series | Piping specifications | | | Applicable stations |
|---|---|---|---|---|
| | Piping direction | Port size | | |
| | | 1(P), 3(R) | 4(A), 2(B) | |
| **VQ1000** | Side | C8 | C3, C4, C6, M5 | Max. 8 stations |
| **VQ2000** | Side | C10 | C6, C8 | Max. 8 stations |



VV5Q11



VV5Q21

The total number of stations is tabulated on the D-side.

## How to Order Manifold

Note) For CE-compliant models, DC-type only. CE [Option]

**VV5Q 1 1 – 06 C6 L 1 – □ – □**

**Series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Manifold**

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

**Stations**

| | |
|---|---|
| 01 | 1 station |
| ⋮ | ⋮ |
| 08 | 8 stations |

Note) For negative common specifications, refer to "Semi-standard" on page 419.

**Cylinder port**

| Symbol | Port size | VQ1000 | VQ2000 |
|---|---|---|---|
| C3 Note 1) | With ø3.2 One-touch fitting | ● | — |
| C4 Note 1) | With ø4 One-touch fitting | ● | ● |
| C6 Note 1) | With ø6 One-touch fitting | ● | ● |
| C8 Note 1) | With ø8 One-touch fitting | — | ● |
| M5 | M5 thread | ● | — |
| CM Note 2) Note 3) | Mixed sizes and with port plug | ● | ● |
| MM Note 4) | Mixed size for different types of piping, option installed | ● | ● |

**Cable (Length)**

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

**CE-compliant**

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

Note) For CE- compliant models, DC-type only.

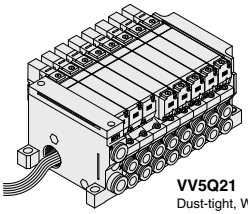
**Option**

| Symbol | Option | VQ1000 | VQ2000 |
|---|---|---|---|
| Nil | None | ● | ● |
| 2 Note 8) | 200/220 VAC models (F/L kit only) | ● | ● |
| B Note 2) | With back pressure check valve | ● | ● |
| D | DIN rail mounting | ● | ● |
| D0 | With DIN rail bracket (Without DIN rail) | ● | ● |
| D□ Note 3) | DIN rail length specified (□: Stations 02 to 24) | ● | ● |
| G1 Note 4) Note 7) | 1 set of regulator unit | ● | — |
| G2 Note 4) Note 7) | 2 sets of regulator unit | ● | — |
| G3 Note 4) Note 7) | 3 sets of regulator unit | ● | — |
| J□ Note 5) | With ejector unit | ● | — |
| N | With name plate | ● | ● |
| R Note 6) | External pilot | ● | ● |
| S | Direct EXH outlet with built-in silencer | ● | ● |
| W Note 8) | Enclosure: Dust-tight, Water-jet-proof (IP65) | ● | ● |

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. When a back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position by means of the manifold specification sheet.
Note 3) The number of stations that may be displayed is longer than the manifold number of stations.
Note 4) Specify the mounting position by means of the manifold specification sheet.
Note 5) Refer to page 432 for details on with ejector unit. A combination of "J" and "N" is not available.
Note 6) Indicate "R" for the valve with external pilot.
Note 7) G1, G2, or G3 cannot be combined with N.
Note 8) A combination of "2" and "W" is unavailable. When the compatibility with IP65 of the 200 and 220 VAC specifications is required, select only "W".

Note 1) Insert "L" (Top ported) or "B" (Bottom ported) for elbow type.
Example) B6 (Bottom ported elbow with ø6 One-touch fitting)
Note 2) Indicate "LM" (Including upward, downward piping and mixed) for models with elbow fittings and mixed cylinder port sizes.
Note 3) Indicate "Mixed sizes and with port plug" by means of the manifold specification sheet.
Note 4) When selecting the mixed size for different types of piping, dual flow fitting assembly, or double check block (direct mounting), enter "MM" and give instructions in the manifold specification sheet.
Note 5) Inch-size One-touch fittings are available. Refer to "Semi-standard" on page 420 for details.

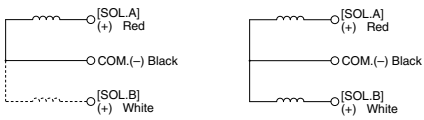

SMC



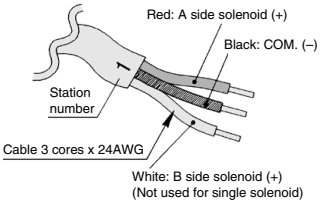
**VV5Q21**
Dust-tight, Water-jet-proof

## ● Wiring Specifications: Negative COM (Semi-standard)

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




**Single solenoid** **Double solenoid**




**Lead wire assembly with connector**

| Lead wire length | Part no. |
|---|---|
| 0.6 m | VVQ1000-84AN-6-✻ |
| 1.5 m | VVQ1000-84AN-15-✻ |
| 3 m | VVQ1000-84AN-30-✻ |

✻ Station number 1 to 8

Note) When using the negative common specifications, use valves for negative common. For negative common specifications, refer to "Semi-standard" on page 419.

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

## How to Order Valves

Note) For CE-compliant models, DC-type only. CE [Option]

**VQ 1 1 0 0 □ – 5 □ □ □ 1 – □**

**Series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Seal**

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

**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 |
| A | 4-position dual port (N.C. +N.C.) |
| B | 4-position dual port (N.O. +N.O.) |
| C | 4-position dual port (N.C. +N.O.) |

**Function**

| Symbol | Specifications | DC | AC |
|---|---|---|---|
| Nil | Standard | (0.4 W) ○ | ○ Note 1) |
| B | High-speed response type | (0.95 W) ○ | — |
| K Note 2) | High-pressure type (1.0 MPa) | (0.95 W) ○ | — |
| N Note 3) | Negative common | ○ | — |
| R Note 3) Note 5) | External pilot | ○ | ○ |

**CE-compliant**

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

Note) For CE-compliant models, DC-type only.

**Enclosure**

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

Note) VQ2000 only

**Manual override**

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

**Light/Surge voltage suppressor**

| | |
|---|---|
| Nil | Yes |
| E Note) | None (Non-polar) |

Note) A combination of "Function [N] (Negative common)" and [E] is unavailable.
Since [E] has no polarity, it can also be used as a negative common. Selection of "Function [N]" is not required.

**Coil voltage**

| | | CE-compliant |
|---|---|---|
| 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 | ● |

Note 1) Refer to page 381 for power consumption of AC type.
Note 2) Metal seal only
Note 3) For external pilot and negative common specifications, refer to "Semi-standard" on pages 419 and 420.
Note 4) When two or more symbols are specified, indicate them alphabetically. Combination of [B] and [K] is not possible.
Note 5) Dual 3-port valve is not applicable.

## How to Order Manifold Assembly

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

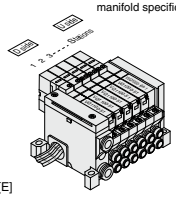
**<Example>**

Lead wire kit with cable (3 m)

**VV5Q11-06C6L2 ···1 set–Manifold base part no.**
✻**VQ1100-51** ·····**2 sets–Valve part no. (Stations 1 to 2)**
✻**VQ1200-51** ·····**2 sets–Valve part no. (Stations 3 to 4)**
✻**VQ1300-51** ·····**1 set–Valve part no. (Station 5)**
✻**VVQ1000-10A-1** ··**1 set–Blanking plate part no. (Station 6)**

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

Write sequentially from the 1st station on the D-side. When part nos. written collectively are complicated, specify them by means of the manifold specification sheet.

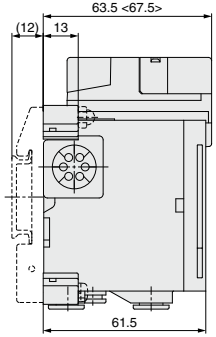


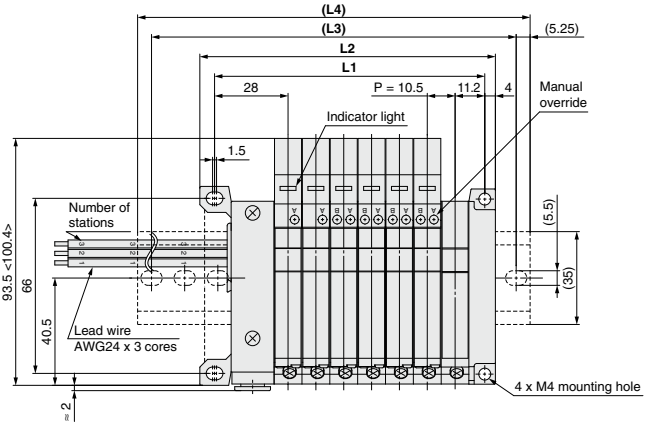

## ⚠Caution

Use the standard (DC) specification when continuously energizing for long periods of time.

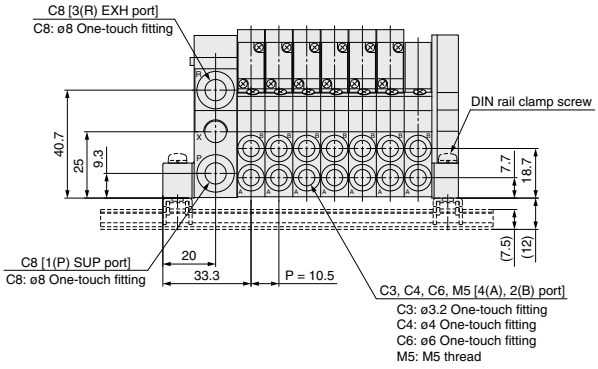
# VV5Q11

< >: AC
The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).




D side  Stations -- 1 -- 2 -- 3 -- 4 -- 5 -- 6 -- 7 -- n  U side




Formula L1 = 10.5n + 28.5, L2 = 10.5n + 38
n: Station (Maximum 8 stations)

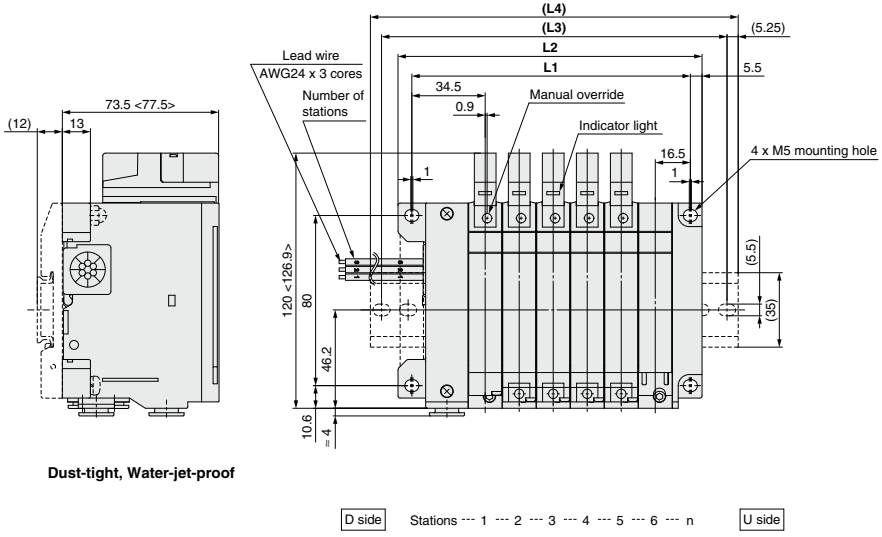
**Dimensions**

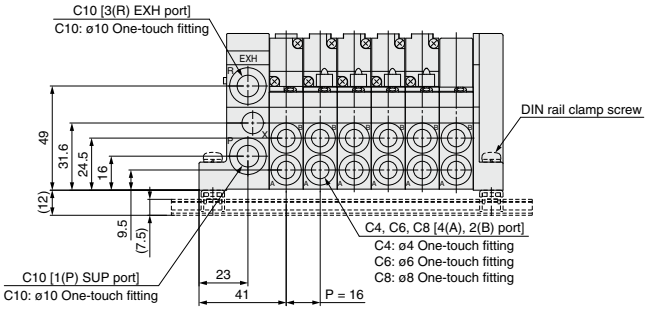
| L \ n | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| **L1** | 39 | 49.5 | 60 | 70.5 | 81 | 91.5 | 102 | 112.5 |
| **L2** | 48.5 | 59 | 69.5 | 80 | 90.5 | 101 | 111.5 | 122 |
| **(L3)** | 75 | 87.5 | 87.5 | 100 | 112.5 | 125 | 137.5 | 150 |
| **(L4)** | 85.5 | 98 | 98 | 110.5 | 123 | 135.5 | 148 | 160.5 |

With ejector unit: Formula L1 = 10.5n + 28.5 + (Number of ejector units x 26.7)
L2 = 10.5n + 38 + (Number of ejector units x 26.7)
L4 is L2 plus about 30.

# VV5Q21

< >: AC
The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).



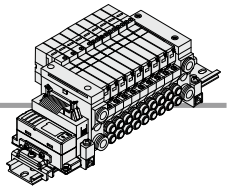

Formula L1 = 16n + 35, L2 = 16n + 47
n: Station (Maximum 8 stations)

**Dimensions**

| L \ n | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| **L1** | 51 | 67 | 83 | 99 | 115 | 131 | 147 | 163 |
| **L2** | 63 | 79 | 95 | 111 | 127 | 143 | 159 | 175 |
| **(L3)** | 87.5 | 100 | 125 | 137.5 | 150 | 162.5 | 184.5 | 200 |
| **(L4)** | 98 | 110.5 | 135.5 | 148 | 160.5 | 173 | 198 | 210.5 |

# S VQ1000/2000 Series

## Kit (Serial transmission) Base Mounted Plug-in Manifold: For EX510 Gateway-type Serial Transmission System



## How to Order Manifold

CE [Option]

**VV5Q 1 1 – SB □ 08 □ – D – □**

**Manifold series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**SI unit specifications**

| | |
|---|---|
| Nil | NPN output (+COM.) |
| N | PNP output (–COM.) |

**Valve stations**

| Symbol | Stations |
|---|---|
| 01 | 1 station |
| ⋮ | ⋮ |
| 08 | 8 stations |

Note) Max. 16 stations. (Special wiring specifications)

**SI unit part no.**

| Symbol | SI unit specifications | SI unit part no. |
|---|---|---|
| Nil | NPN output (+COM.) | EX510-S002A |
| N | PNP output (–COM.) | EX510-S102A |

**CE-compliant**

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

**Option**

| | |
|---|---|
| B Note 3) | With back pressure check valve |
| D Note 1) | DIN rail mounting |
| D□ Note 9) | DIN rail length specified (□: Stations 02 to 16) |
| G1 Note 4) Note 8) Note 10) | 1 set of regulator unit |
| G2 Note 4) Note 8) Note 10) | 2 sets of regulator unit |
| G3 Note 4) Note 8) Note 10) | 3 sets of regulator unit |
| J□ Note 5) Note 8) | With ejector unit |
| K Note 6) | Special wiring spec. (Except double wiring) |
| N | With name plate |
| R Note 7) | with external pilot |
| S | Direct EXH outlet with built-in silencer |

**Cylinder port**

| Symbol | | Port size | VQ1000 | VQ2000 |
|---|---|---|---|---|
| Metric size | C3 | With ø3.2 One-touch fitting | ● | — |
| | C4 | With ø4 One-touch fitting | ● | ● |
| | C6 | With ø6 One-touch fitting | ● | ● |
| | C8 | With ø8 One-touch fitting | — | ● |
| | M5 | M5 thread | ● | — |
| | CM Note 1) | With mixed sizes and with port plug | ● | ● |
| | L3 | Top ported elbow with ø3.2 One-touch fitting | ● | — |
| | L4 | Top ported elbow with ø4 One-touch fitting | ● | ● |
| | L6 | Top ported elbow with ø6 One-touch fitting | ● | ● |
| | L8 | Top ported elbow with ø8 One-touch fitting | — | ● |
| | L5 | Top ported elbow M5 thread | ● | — |
| | B3 | Bottom ported elbow with ø3.2 One-touch fitting | ● | — |
| | B4 | Bottom ported elbow with ø4 One-touch fitting | ● | ● |
| | B6 | Bottom ported elbow with ø6 One-touch fitting | ● | ● |
| | B8 | Bottom ported elbow with ø8 One-touch fitting | — | ● |
| | B5 | Bottom ported elbow M5 thread | ● | — |
| | LM Note 1) | Elbow port, mixed sizes (Including upward, downward piping and mixed) | ● | ● |
| Inch size | N1 | ø1/8" with One-touch fitting | ● | — |
| | N3 | ø5/32" with One-touch fitting | ● | ● |
| | N7 | ø1/4" with One-touch fitting | ● | ● |
| | N9 | ø5/16" with One-touch fitting | — | ● |
| | M5T | UNF10-32 thread | ● | — |
| | NM Note 1) | With mixed sizes and with port plug | ● | ● |
| | LN1 | Top ported elbow with ø1/8" One-touch fitting | ● | — |
| | LN3 | Top ported elbow with ø5/32" One-touch fitting | ● | ● |
| | LN7 | Top ported elbow with ø1/4" One-touch fitting | ● | ● |
| | LN9 | Top ported elbow with ø5/16" One-touch fitting | — | ● |
| | L5T | Top ported elbow UNF10-32 thread | ● | — |
| | BN1 | Bottom ported elbow with ø1/8" One-touch fitting | ● | — |
| | BN3 | Bottom ported elbow with ø5/32" One-touch fitting | ● | ● |
| | BN7 | Bottom ported elbow with ø1/4" One-touch fitting | ● | ● |
| | BN9 | Bottom ported elbow with ø5/16" One-touch fitting | — | ● |
| | B5T | Bottom ported elbow UNF10-32 thread | ● | — |
| | LNM Note 1) | Elbow port, mixed sizes (Including upward, downward piping and mixed) | ● | ● |
| MM Note 2) | | Mixed size for different types of piping, option installed | ● | ● |

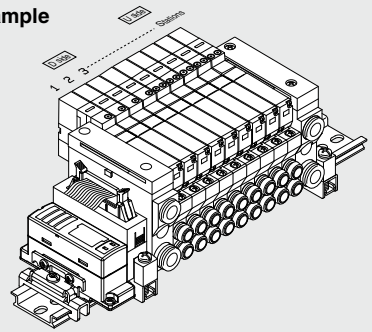
Note 1) Indicate "Mixed sizes and with port plug" in the manifold specification sheet.
Note 2) When selecting the mixed size for different types of piping, dual flow fitting assembly, or double check block (direct mounting), enter "MM" and give instructions in the manifold specification sheet.

Refer to Best Pneumatics No. 1-1 and the Operation Manual for the details of EX510 Gateway-type Serial Transmission System. Please download the Operation Manual via our website, http://www.smcworld.com

Note 1) Be sure to select "D" or "D□".
Note 2) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 3) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. When a back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position by means of the manifold specification sheet.
Note 4) Specify the mounting position by means of the manifold specification sheet.
Note 5) Refer to page 432 for details on with ejector unit. A combination of "J" and "N" is not available.
Note 6) Specify the wiring specifications by means of the manifold specification sheet.
Note 7) Indicate "R" for the valve with external pilot.
Note 8) VQ1000 only
Note 9) The number of stations that may be displayed is longer than the manifold number of stations.
Note 10) G1, G2, or G3 cannot be combined with N.

## How to Order Manifold Assembly

**Example**




**VV5Q11-SB08C6-D ··· 1 set (SB kit, 8-station manifold part no.)**
***VQ1100-51 ····· 4 sets (Single type part no.)**
***VQ1200-51 ····· 3 sets (Double type part no.)**
***VQ1300-51 ····· 1 set (3 position type part no.)**
**→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.**
**→ Enter in order starting from the first station on the D-side.**

Add the valve and option part numbers under the manifold base part number. In the case of complex arrangement, specify them by means of the manifold specification sheet.

CE [Option]

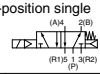
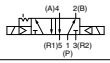
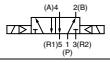
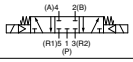
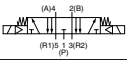
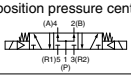
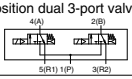
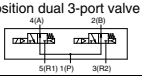
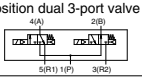
## How to Order Valves

**VQ 1 1 0 0 ☐ – 5 ☐ 1 – ☐**

**Series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Type of actuation**

| | | |
|---|---|---|
| 1 | 2-position single |  |
| 2 | Metal: 2-position double |  |
| | Rubber: 2-position double |  |
| 3 | 3-position closed center |  |
| 4 | 3-position exhaust center |  |
| 5 | 3-position pressure center |  |
| A Note) | 4-position dual 3-port valve (A) |  |
| B Note) | 4-position dual 3-port valve (B) |  |
| C Note) | 4-position dual 3-port valve (C) |  |

Note) Rubber seal only

**CE-compliant**

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

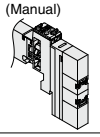
**Manual override**

**Nil**: Non-locking push type (Tool required)

**B**: Locking type (Tool reguired)

**C**: Locking type (Manual)

**D**: Slide locking type (Manual)



**Rated voltage**

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

**Function**

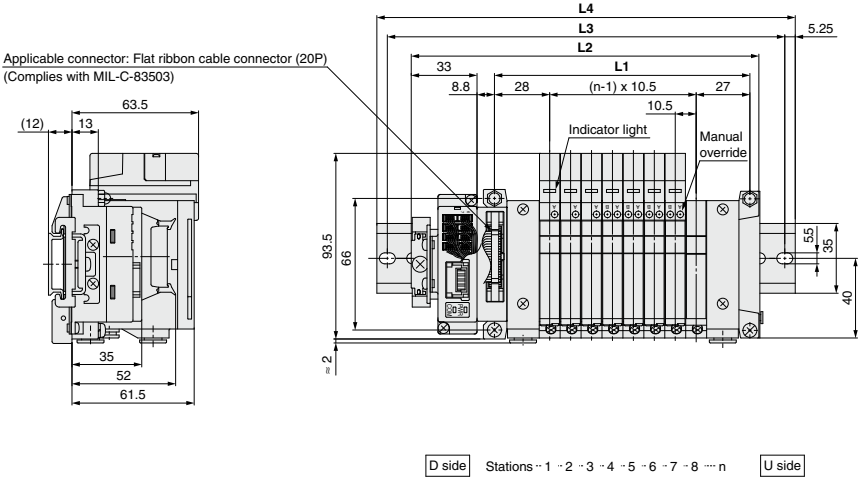
| Symbol | Specifications |
|---|---|
| Nil | Standard (0.4 W) |
| B | High-speed response type (0.95 W) |
| K Note 1) | High-pressure type (1.0 MPa) [0.95 W] |
| N Note 2) | Negative common |
| R Note 2) Note 4) | External pilot |

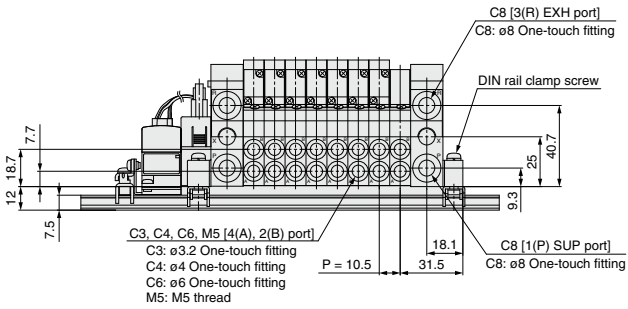
Note 1) Metal seal only
Note 2) For external pilot and negative common specifications, refer to "Semi-standard" on pages 419 and 420.
Note 3) When two or more symbols are specified, indicate them alphabetically. Combination of [B] and [K] is not possible.
Note 4) Dual 3-port valve is not applicable.

**Seal**

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

# VV5Q11



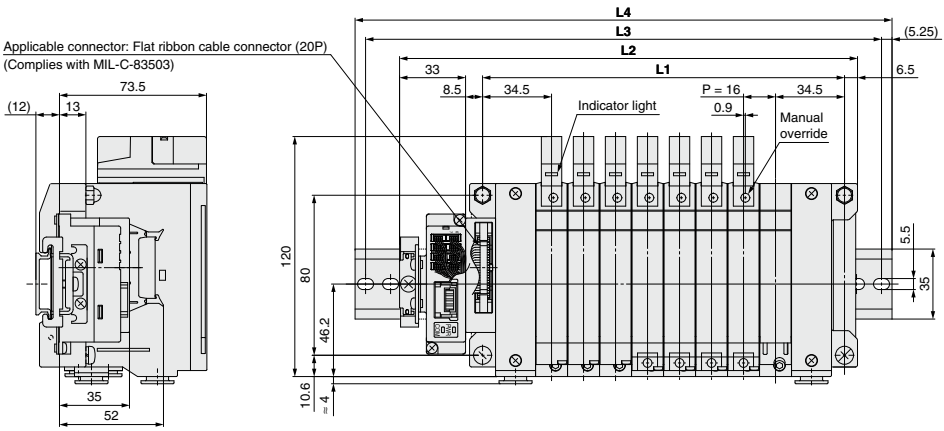



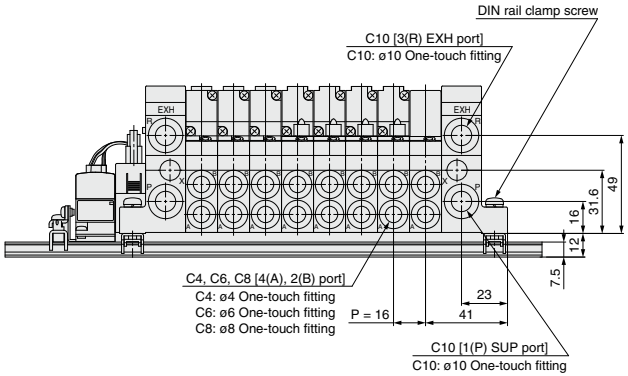

**Dimensions**

Formula L1 = 10.5n + 44.5, L2 = 10.5n + 91 n: Station (Maximum 16 stations)

| L \ n | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 55 | 65.5 | 76 | 86.5 | 97 | 107.5 | 118 | 128.5 | 139 | 149.5 | 160 | 170.5 | 181 | 191.5 | 202 | 212.5 |
| **L2** | 101.5 | 112 | 122.5 | 133 | 143.5 | 154 | 164.5 | 175 | 185.5 | 196 | 206.5 | 217 | 227.5 | 238 | 248.5 | 259 |
| **L3** | 125 | 137.5 | 150 | 162.5 | 175 | 175 | 187.5 | 200 | 212.5 | 225 | 237.5 | 237.5 | 250 | 262.5 | 275 | 287.5 |
| **L4** | 135.5 | 148 | 160.5 | 173 | 185.5 | 185.5 | 198 | 210.5 | 223 | 235.5 | 248 | 248 | 260.5 | 273 | 285.5 | 298 |

# VV5Q21




**Dimensions**

Formula L1 = 16n + 53, L2 = 16n + 101 n: Station (Maximum 16 stations)

| L \ n | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 69 | 85 | 101 | 117 | 133 | 149 | 165 | 181 | 197 | 213 | 229 | 245 | 261 | 277 | 293 | 309 |
| **L2** | 117 | 133 | 149 | 165 | 181 | 197 | 213 | 229 | 245 | 261 | 277 | 293 | 309 | 325 | 341 | 357 |
| **L3** | 137.5 | 162.5 | 175 | 187.5 | 212.5 | 225 | 237.5 | 250 | 275 | 287.5 | 300 | 312.5 | 337.5 | 350 | 362.5 | 387.5 |
| **L4** | 148 | 173 | 185.5 | 198 | 223 | 235.5 | 248 | 260.5 | 285.5 | 298 | 310.5 | 323 | 348 | 360.5 | 373 | 398 |

# S VQ1000/2000 Series

## Kit (Serial transmission): For EX120/123/124 Integrated-type (For Output) Serial Transmission System

**IP65 compliant**

- **The serial transmission system reduces wiring work, while minimizing wiring and saving space.**
- **Enclosure: Dust-tight, Water-jet-proof (IP65) compatible (VQ2000 series)**

### Manifold Specifications

| Series | Piping specifications | | | Applicable stations |
|---|---|---|---|---|
| | Piping direction | Port size | | |
| | | 1(P), 3(R) | 4(A), 2(B) | |
| **VQ1000** | Side | C8 | C3, C4, C6, M5 | Max. 16 stations |
| **VQ2000** | Side | C10 | C4, C6, C8 | Max. 16 stations |

## How to Order Manifold

∗ Refer to "SI Unit Part No." when ordering the CE-compliant SI unit. CE [Option]

**VV5Q 1 1 – 08 C6 S V – □ – □**

**Series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Manifold**

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

**Stations**

| | |
|---|---|
| 02 | 2 stations |
| ⋮ | ⋮ |
| 16 Note) | 16 stations |

Note 1) Refer to page 419 for details.
Note 2) Max. 16 stations. (Specify a model with 9 to 16 stations by means of the manifold specification sheet.)

**SI unit specifications**

| Symbol | Protocol | Stations |
|---|---|---|
| 0 | Without SI unit | Max.16 stations |
| H | NKE Corp.: Fieldbus H System (16 outputs) | |
| Q | DeviceNet™ System (16 outputs) | |
| R1 | OMRON Corp.: CompoBus/S (16 outputs) | |
| R2 | OMRON Corp.: CompoBus/S (8 outputs) | Max. 8 stations |
| V | CC-LINK (16 outputs) | Max.16 stations |
| ZB Note) | CompoNet™ (16 outputs) (Positive common) | |
| ZBN Note) | CompoNet™ (16 outputs) (Negative common) | |

Note) Communication connector (for the opposite side) is not provided, order it separately.

**CE-compliant**

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

∗ Refer to "SI Unit Part No." when ordering the CE-compliant SI unit.

**Option**

| Symbol | Option | VQ1000 | VQ2000 |
|---|---|---|---|
| Nil | None | ● | ● |
| B Note 2) | With back pressure check valve | ● | ● |
| D | DIN rail mounting | ● | ● |
| D□ Note 3) | DIN rail mounting (□: Stations 02 to 24) | ● | ● |
| G1 Note 4) Note 10) | 1 set of regulator unit | ● | — |
| G2 Note 4) Note 10) | 2 sets of regulator unit | | |
| G3 Note 4) Note 10) | 3 sets of regulator unit | | |
| J□ Note 5) | With ejector unit | ● | — |
| K Note 6) | Special wiring specifications (Except double wiring) | ● | ● |
| N | With name plate | ● | ● |
| R Note 7) | With external pilot | ● | ● |
| S | Direct EXH outlet with built-in silencer | ● | ● |
| W Note 8) | Enclosure: Dust-tight, Water-jet-proof (IP65) | — | ● |

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS.
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. When a back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position by means of the manifold specification sheet.
Note 3) The number of stations that may be displayed is longer than the manifold number of stations.
Note 4) Specify the mounting position by means of the manifold specification sheet.
Note 5) Refer to page 432 for details on with vacuum ejector unit. A combination of "J" and "N" is not available.
Note 6) Specify the wiring specifications by means of the manifold specification sheet.
Note 7) Indicate "R" for the valve with external pilot.
Note 8) Refer to "Dimensions" on page 413 for SI unit and valve, in case of W (Dust-tight, Water-jet-proof).
Note 9) G1, G2, or G3 cannot be combined with N.

**Cylinder port**

| Symbol | Port size | VQ1000 | VQ2000 |
|---|---|---|---|
| C3 Note 1) | With ø3.2 One-touch fitting | ● | — |
| C4 Note 1) | With ø4 One-touch fitting | ● | ● |
| C6 Note 1) | With ø6 One-touch fitting | ● | ● |
| C8 Note 1) | With ø8 One-touch fitting | — | ● |
| M5 | M5 thread | ● | — |
| CM Note 2) Note 3) | Mixed sizes and with port plug | ● | ● |
| MM Note 4) | Mixed size for different types of piping, option installed | ● | ● |

Note 1) Insert "L" (Top ported) or "B" (Bottom ported) for elbow type.
Example) B6 (Bottom ported elbow with ø6 One-touch fitting)
Note 2) Indicate as "LM" (Including upward, downward piping and mixed) for models with elbow fittings and mixed cylinder port sizes.
Note 3) Indicate "Mixed sizes and with port plug" by means of the manifold specification sheet.
Note 4) When selecting the mixed size for different types of piping, dual flow fitting assembly, or double check block (direct mounting), enter "MM" and give instructions in the manifold specification sheet.
Note 5) Inch-size One-touch fittings are available. Refer to "Semi-standard" on page 420 for details.

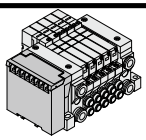
### SI Unit Part No. (Without option W)

| Symbol | Protocol | SI unit part no. | CE-compliant |
|---|---|---|---|
| H | NKE Corp.: Fieldbus H System (16 outputs) | Standard: EX120-SUH1 | — |
| Q | DeviceNet™ (16 outputs) | Standard: EX120-SDN1<br>Dust-protected: No part no. | ● |
| R1 | OMRON Corp.: CompoBus/S (16 outputs) | Standard: EX120-SCS1 | ● |
| R2 | OMRON Corp.: CompoBus/S (8 outputs) | Standard: EX120-SCS2 | ● |
| V | CC-LINK (16 outputs) | Standard: EX120-SMJ1 | ● |
| ZB | CompoNet™ (16 outputs) (Positive common) | Standard: EX120-SCM1<br>Dust-protected: No part no. | ● |
| ZBN | CompoNet™ (16 outputs) (Negative common) | Standard: EX120-SCM3<br>Dust-protected: No part no. | ● |

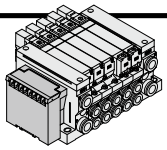
### SI Unit Part No. (With option W)

| Symbol | Protocol | SI unit part no. | CE-compliant |
|---|---|---|---|
| H | NKE Corp.: Fieldbus H System (16 outputs) | EX123D-SUH1 | — |
| Q | DeviceNet™ System (16 outputs) | EX124D-SDN1 | ● |
| R1 | OMRON Corp.: CompoBus/S (16 outputs) | EX124D-SCS1 | ● |
| R2 | OMRON Corp.: CompoBus/S (8 outputs) | EX124D-SCS2 | ● |
| V | CC-LINK (16 outputs) | EX124D-SMJ1 | ● |

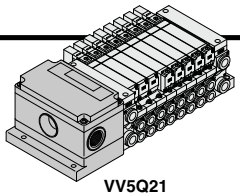
Refer to Best Pneumatics No. 1-1 and the Operation Manual for the details of EX120/123/124 Integrated-type (for Output) Serial Transmission System. Please download the Operation Manual via our website, http://www.smcworld.com



VV5Q11



VV5Q21



**VV5Q21**
Dust-tight, Water-jet-proof (**-W**)

[Option]

## How to Order Valves

**VQ 1 1 0 0 – 5 1 –**

**Series**

| | |
|---|---|
| 1 | VQ1000 |
| 2 | VQ2000 |

**Type of actuation**

| | |
|---|---|
| 1 | 2-position single |
| 2 | 2-position double |
| 3 | 3-position closed center |
| 4 | 3-position exhaust center |
| 5 | 3-position pressure center |
| A | 4-position dual port (N.C. +N.C.) |
| B | 4-position dual port (N.O. +N.O.) |
| C | 4-position dual port (N.C. +N.O.) |

**Seal**

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

**Function**

| Symbol | Specifications | DC |
|---|---|---|
| Nil | Standard | (0.4 W) ○ |
| B | High-speed response type | (0.95 W) ○ |
| K Note 1) | High-pressure type (1.0 MPa) | (0.95 W) ○ |
| N Note 2) | Negative common | ○ |
| R Note 2) Note 4) | External pilot | ○ |

Note 1) Metal seal only
Note 2) For external pilot and negative common specifications, refer to "Semi-standard" on pages 419 and 420.
Note 3) When two or more symbols are specified, indicate them alphabetically. Combination of [B] and [K] is not possible.
Note 4) Dual 3-port valve is not applicable.

**Coil voltage**

| | |
|---|---|
| 5 | 24 VDC; With indicator light/ surge voltage suppressor |

**Manual override**

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

**Enclosure**

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

Note) VQ2000 only

**CE-compliant**

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

## How to Order Manifold Assembly

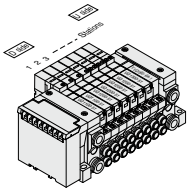
Specify the part numbers for valves and options together beneath the manifold base part number.

**<Example>**

**VV5Q11-08C6SV ··· 1 set–Manifold base part no.**
***VQ1100-51 ····· 2 sets–Valve part no. (Stations 1 to 2)**
***VQ1200-51 ····· 4 sets–Valve part no. (Stations 3 to 6)**
***VQ1300-51 ····· 1 set–Valve part no. (Station 7)**
***VVQ1000-10A-1 ·· 1 set–Blanking plate part no. (Station 8)**

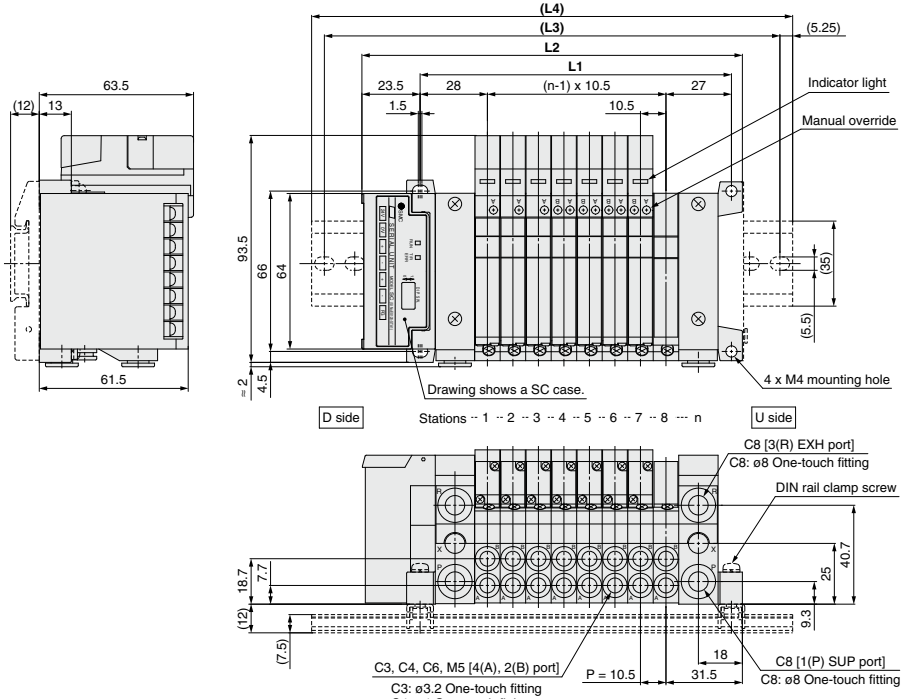
Prefix the asterisk to the part nos. of the solenoid valve, etc.

Write sequentially from the 1st station on the D-side. When part nos. written collectively are complicated, specify them by means of the manifold specification sheet.



# VV5Q11

The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).




With ejector unit: Formula
L1 = 10.5n + 28.7 + (Number of ejector units x 26.7)
L2 = 10.5n + 56.3 + (Number of ejector units x 26.7)
L4 is L2 plus about 30.

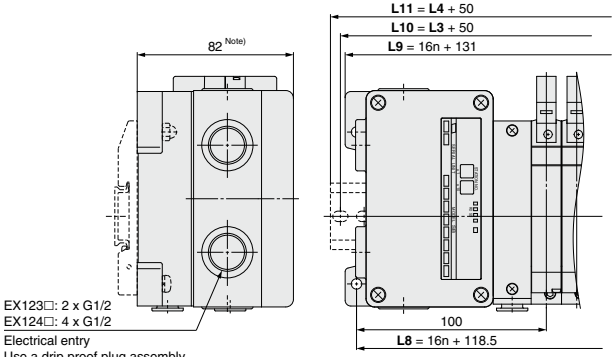
**Dimensions**

Formula L1 = 10.5n + 44.5, L2 = 10.5n + 72.5 n: Station (Maximum 16 stations)

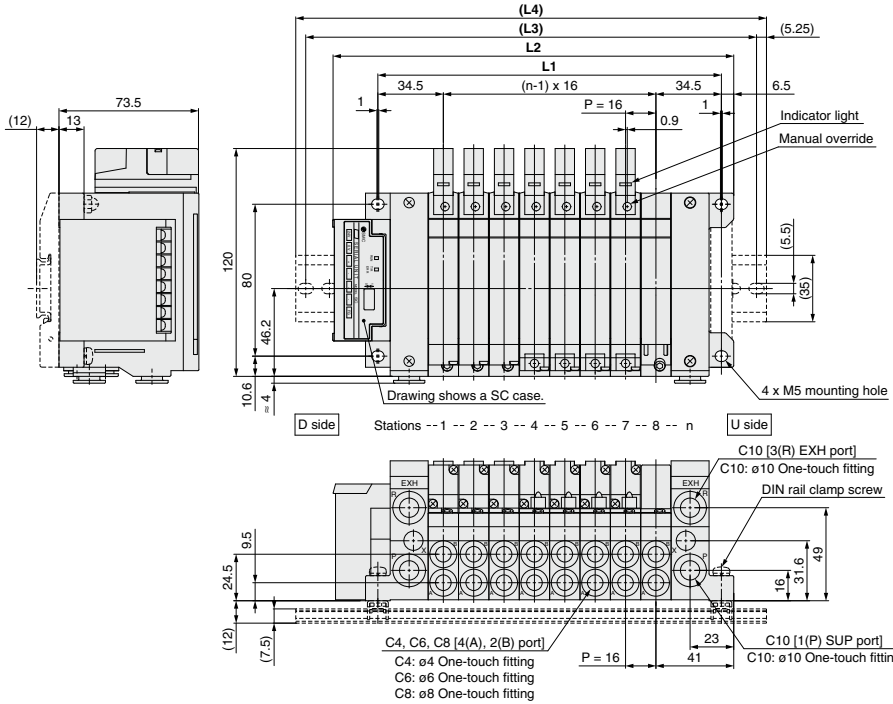
| L \ n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 65.5 | 76 | 86.5 | 97 | 107.5 | 118 | 128.5 | 139 | 149.5 | 160 | 170.5 | 181 | 191.5 | 202 | 212.5 |
| **L2** | 93.5 | 104 | 114.5 | 125 | 135.5 | 146 | 156.5 | 167 | 177.5 | 188 | 198.5 | 209 | 219.5 | 230 | 240.5 |
| **(L3)** | 125 | 125 | 137.5 | 150 | 162.5 | 175 | 187.5 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 250 | 262.5 |
| **(L4)** | 135.5 | 135.5 | 148 | 160.5 | 173 | 185.5 | 198 | 198 | 210.5 | 223 | 235.5 | 248 | 260.5 | 260.5 | 273 |

# VV5Q21

The dashed lines indicate DIN rail mounting [-D] (with DIN rail mounting bracket).
Note) In the case of EX124D-SMJ1, this dimension becomes 85.




**Dust-tight, Water-jet-proof (IP65) SI unit**
**(EX123/124 Integrated-type (output) serial transmission system)**



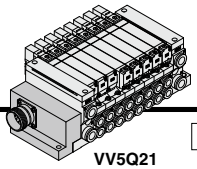

Dust-tight, Water-jet-proof SI unit: L8 = 16n + 118.5, L9 = 16n + 131
L10 = L3 + 50, L11 = L4 + 50

**Dimensions**

Formula L1 = 16n + 53, L2 = 16n + 83 n: Station (Maximum 16 stations)

| L \ n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 85 | 101 | 117 | 133 | 149 | 165 | 181 | 197 | 213 | 229 | 245 | 261 | 277 | 293 | 309 |
| **L2** | 115 | 131 | 147 | 163 | 179 | 195 | 211 | 227 | 243 | 259 | 275 | 291 | 307 | 323 | 339 |
| **(L3)** | 137.5 | 162.5 | 175 | 187.5 | 200 | 225 | 237.5 | 250 | 262.5 | 287.5 | 300 | 312.5 | 337.5 | 350 | 362.5 |
| **(L4)** | 148 | 173 | 185.5 | 198 | 210.5 | 235.5 | 248 | 260.5 | 273 | 298 | 310.5 | 323 | 348 | 360.5 | 373 |

# M VQ2000 Series
## Kit (Circular connector)


VV5Q21

**VQ2000 only**

- **MIL flat cable connector reduces installation labor for electrical connection.**
- **Manifold and connectors, both compliant with the IP65 rating (Dust-tight, Water-jet-proof), provide a high-degree of protection for the electrical parts. (When selecting option W)**
- **Maximum stations are 24.**

### Manifold Specifications

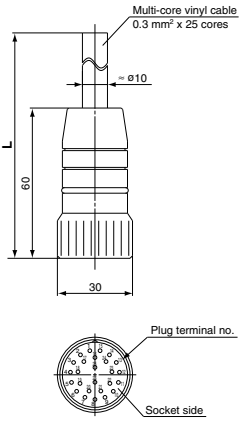
| Series | Piping specifications | | | Applicable stations |
|---|---|---|---|---|
| | Piping direction | Port size | | |
| | | 1(P), 3(R) | 4(A), 2(B) | |
| **VQ2000** | Side | C10 | C4, C6, M8 | Max. 24 stations |

## Circular Connector (26 Pins)

### Cable Assembly ●

**AXT100-MC26-** 015 / 030 / 050

(Circular connector cable assembly included in a specific manifold model no. Refer to "How to Order Manifold.")




**Circular connector cable assembly**

| Cable length (L) | Assembly part no. | Note |
|---|---|---|
| 1.5 m | AXT100-MC26-015 | Cable 25-core x 24AWG |
| 3 m | AXT100-MC26-030 | |
| 5 m | AXT100-MC26-050 | |

∗ Cannot be used for transfer wiring.

**Electrical characteristics**

| Item | Property |
|---|---|
| Conductor resistance Ω/km, 20°C | 65 or less |
| Voltage limit V, 1 min, AC | 1000 |
| Insulation resistance MΩ/km, 20°C | 5 or more |

Note) The minimum bending radius of the circular connector cable is 20 mm.

**Circular 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 |
| 26 | White | None |

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

## How to Order Manifold

Note) For CE-compliant models, DC-type only. CE [Option]

**VV5Q 2 1 – 08 C6 M 1 – N – □**

**Series**

| | |
|---|---|
| 2 | VQ2000 |

**Manifold**

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

**Stations**

| | |
|---|---|
| 02 | 2 stations |
| ⋮ | ⋮ |
| 24 | 24 stations |

Note) Refer to page 419 for details.

**Cylinder port**

| Symbol | Port size |
|---|---|
| C4 Note 1) | With ø4 One-touch fitting |
| C6 Note 1) | With ø6 One-touch fitting |
| C8 Note 1) | With ø8 One-touch fitting |
| CM Note 2) Note 3) | Mixed sizes and with port plug |
| MM Note 4) | Mixed size for different types of piping, option installed |

**Cable (Length)**

| | |
|---|---|
| 0 | Without cable |
| 1 | With cable (1.5 m) |
| 2 | With cable (3 m) |
| 3 | With cable (5 m) |

**CE-compliant**

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

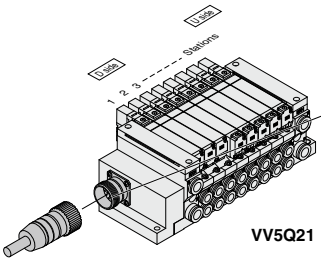
Note) For CE-compliant models, DC-type only.

**Option**

| Symbol | Option |
|---|---|
| Nil | None |
| B Note 2) | With back pressure check valve |
| D | DIN rail mounting |
| D0 | With DIN rail bracket (Without DIN rail) |
| D□ Note 3) | DIN rail mounting (□: Stations 02 to 24) |
| K Note 4) | Special wiring spec. (Except double wiring) |
| N | With name plate |
| R Note 5) | External pilot |
| S | Direct EXH outlet with built-in silencer |
| W Note 6) | Enclosure: Dust-tight, Water-jet-proof (IP65) |

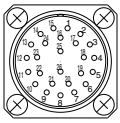
Note 1) Insert "L" (Top ported) or "B" (Bottom ported) for elbow type. Example) B6 (Bottom ported elbow with ø6 One-touch fitting)
Note 2) Indicate "LM" (Including upward, downward piping and mixed) for models with elbow fittings and mixed cylinder port sizes.
Note 3) Indicate "Mixed sizes and with port plug" by means of the manifold specification sheet.
Note 4) When selecting the mixed size for different types of piping, dual flow fitting assembly, or double check block (direct mounting), enter "MM" and give instructions in the manifold specification sheet.
Note 5) Inch-size One-touch fittings are available. Refer to "Semi-standard" on page 420 for details.

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BKR
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. When a back pressure check valve is desired, and is to be installed only in certain manifold stations, specify the mounting position by means of the manifold specification sheet.
Note 3) The number of stations that may be displayed is longer than the manifold number of stations.
Note 4) Specify the wiring specifications by means of the manifold specification sheet.
Note 5) Indicate "R" for the valve with external pilot.
Note 6) A combination of "S" and "W" is not available.




The total number of stations is tabulated starting from station one on the D-side.

## Electrical Wiring Specifications



As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 12 stations or less, regardless of valve and option types. Mixed single and double wiring is available as semi-standard. Refer to page 419 for details.

Note) When using the negative common specifications, use valves for negative common. (Refer to page 419.)
Refer to "Semi-standard" on page 419 for details.

**Circular connector cable assembly**
**015**
**AXT100-MC26-030**
**050**

| Terminal no. | | Polarity | | Lead wire color | Dot marking |
|---|---|---|---|---|---|
| Station 1 SOL.A | 1 | (–) | (+) | Black | None |
| Station 1 SOL.B | 2 | (–) | (+) | Brown | None |
| Station 2 SOL.A | 3 | (–) | (+) | Red | None |
| Station 2 SOL.B | 4 | (–) | (+) | Orange | None |
| Station 3 SOL.A | 5 | (–) | (+) | Yellow | None |
| Station 3 SOL.B | 6 | (–) | (+) | Pink | None |
| Station 4 SOL.A | 7 | (–) | (+) | Blue | None |
| Station 4 SOL.B | 8 | (–) | (+) | Purple | White |
| Station 5 SOL.A | 9 | (–) | (+) | Gray | Black |
| Station 5 SOL.B | 10 | (–) | (+) | White | Black |
| Station 6 SOL.A | 11 | (–) | (+) | White | Red |
| Station 6 SOL.B | 12 | (–) | (+) | Yellow | Red |
| Station 7 SOL.A | 13 | (–) | (+) | Orange | Red |
| Station 7 SOL.B | 14 | (–) | (+) | Yellow | Black |
| Station 8 SOL.A | 15 | (–) | (+) | Pink | Black |
| Station 8 SOL.B | 16 | (–) | (+) | Blue | White |
| Station 9 SOL.A | 17 | (–) | (+) | Purple | None |
| Station 9 SOL.B | 18 | (–) | (+) | Gray | None |
| Station 10 SOL.A | 19 | (–) | (+) | Orange | Black |
| Station 10 SOL.B | 20 | (–) | (+) | Red | White |
| Station 11 SOL.A | 21 | (–) | (+) | Brown | White |
| Station 11 SOL.B | 22 | (–) | (+) | Pink | Red |
| Station 12 SOL.A | 23 | (–) | (+) | Gray | Red |
| Station 12 SOL.B | 24 | (–) | (+) | Black | White |
| COM. | 25 | (+) | Note) (–) | White | None |
| COM. | 26 | (+) | (–) | White | None |
| | | **Positive COM spec.** | **Negative COM spec.** | | |



## How to Order Valves

Note) For CE-compliant models, DC-type only. CE [Option]

**VQ 2 1 0 0 □ – 5 □ □ □ 1 – □**

**Series**

| | |
|---|---|
| 2 | VQ2000 |

**Type of actuation**

| | |
|---|---|
| 1 | 2-position single |
| 2 | 2-position double |
| 3 | 3-position closed center |
| 4 | 3-position exhaust center |
| 5 | 3-position pressure center |
| A | 4-position dual port (N.C. +N.C.) |
| B | 4-position dual port (N.O. +N.O.) |
| C | 4-position dual port (N.C. +N.O.) |

**Seal**

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

**Function**

| Symbol | Specifications | DC | AC |
|---|---|---|---|
| Nil | Standard | (0.4 W) ○ | ○ Note 1) |
| B | High-speed response type | (0.95 W) ○ | — |
| K Note 2) | High-pressure type (1.0 MPa) | (0.95 W) ○ | — |
| N Note 3) | Negative common | ○ | — |
| R Note 3) Note 5) | External pilot | ○ | ○ |

Note 1) For power consumption of AC type, refer to page 381.
Note 2) Metal seal only
Note 3) For external pilot and negative common specifications, refer to "Semi-standard" on pages 419 and 420.
Note 4) When two or more symbols are specified, indicate them alphabetically. Combination of [B] and [K] is not possible.
Note 5) Dual 3-port valve is not applicable.

**CE-compliant**

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

Note) For CE-compliant models, DC-type 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) |
| D | Slide locking type (Manual) |

**Light/surge voltage suppressor**

| | |
|---|---|
| Nil | Yes |
| E Note) | None (Non-polar) |

Note) A combination of "Function [N] (Negative common)" and [E] is unavailable.
Since [E] has no polarity, it can also be used as a negative common.
Selection of "Function [N]" is not required.

**Coil voltage**

| | | CE-compliant |
|---|---|---|
| 1 | 100 VAC (50/60 Hz) | — |
| 3 | 110 VAC (50/60 Hz) | — |
| 5 | 24 VDC | ● |
| 6 | 12 VDC | ● |

## ⚠Caution

Use the standard (DC) specification when continuously energizing for long periods of time.

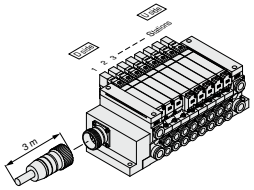
## How to Order Manifold Assembly

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

**<Example>**
Circular connector kit with cable (3 m)
**VV5Q21-09C6M2-W ··· 1 set–Manifold base part no.**
※**VQ2100-51** ····· **3 sets–Valve part no. (Stations 1 to 3)**
※**VQ2200-51** ····· **3 sets–Valve part no. (Stations 4 to 6)**
※**VQ2300-51** ····· **2 sets–Valve part no. (Stations 7 to 8)**
※**VVQ2000-10A-1** ·· **1 set–Blanking plate part no. (Station 9)**

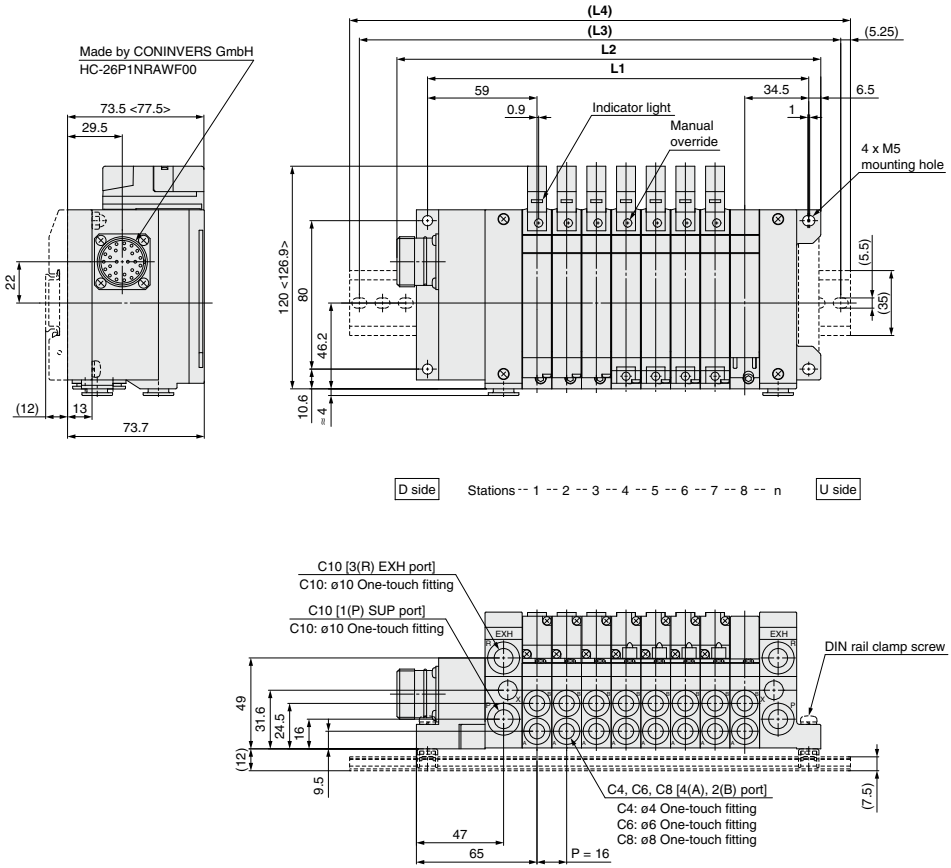
Prefix the asterisk to the part nos. of the solenoid valve, etc.

Write sequentially from the 1st station on the D-side. When part nos. written collectively are complicated, specify them by means of the manifold specification sheet.



# VV5Q21

< >: AC
The dashed lines and dimensions in parentheses indicate DIN rail mounting [-D].




**Dimensions**

Formula L1 = 16n + 77.5, L2 = 16n + 100.5 n: Station (Maximum 12 stations)

| L \ n | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 109.5 | 125.5 | 141.5 | 157.5 | 173.5 | 189.5 | 205.5 | 221.5 | 237.5 | 253.5 | 269.5 | 285.5 | 301.5 | 317.5 | 333.5 | 349.5 | 365.5 | 381.5 | 397.5 | 413.5 | 429.5 | 445.5 | 461.5 |
| **L2** | 132.5 | 148.5 | 164.5 | 180.5 | 196.5 | 212.5 | 228.5 | 244.5 | 260.5 | 276.5 | 292.5 | 308.5 | 324.5 | 340.5 | 356.5 | 372.5 | 388.5 | 404.5 | 420.5 | 436.5 | 452.5 | 468.5 | 484.5 |
| **(L3)** | 162.5 | 175 | 187.5 | 200 | 225 | 237.5 | 250 | 275 | 287.5 | 300 | 312.5 | 337.5 | 350 | 362.5 | 375 | 400 | 412.5 | 425 | 450 | 462.5 | 475 | 500 | 512.5 |
| **(L4)** | 173 | 185.5 | 198 | 210.5 | 235.5 | 248 | 260.5 | 285.5 | 298 | 310.5 | 323 | 348 | 360.5 | 373 | 385.5 | 410.5 | 423 | 435.5 | 460.5 | 473 | 485.5 | 510.5 | 523 |

# Sub-plate Single Unit

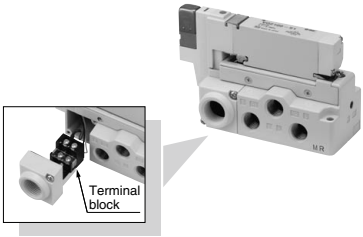
## VQ2000 Only

# *VQ2000 Series*



**IP65 enclosure in standard specifications**

**Easy-to-use terminal block**




## How to Order

Note) For CE-compliant models, DC-type only. **[Option]**

In the case of (Valve) + (Sub-plate)

**VQ2 1 0 0 – 5 W 1 – 02 □ – □**

**Entry is the same as standard products.**

**Enclosure**

| | |
|---|---|
| Nil | Dust-protected |
| W Note 1) | IP65 (Dust-tight, Water-jet-proof) |

Note 1) Valves are IP65 specifications.
Note 2) When the valve is a standard (dust-protected) specification, it is not compatible with 200 or 220 VAC.

**CE-compliant**

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

Note) For CE-compliant models, DC-type only.

**Thread type**

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

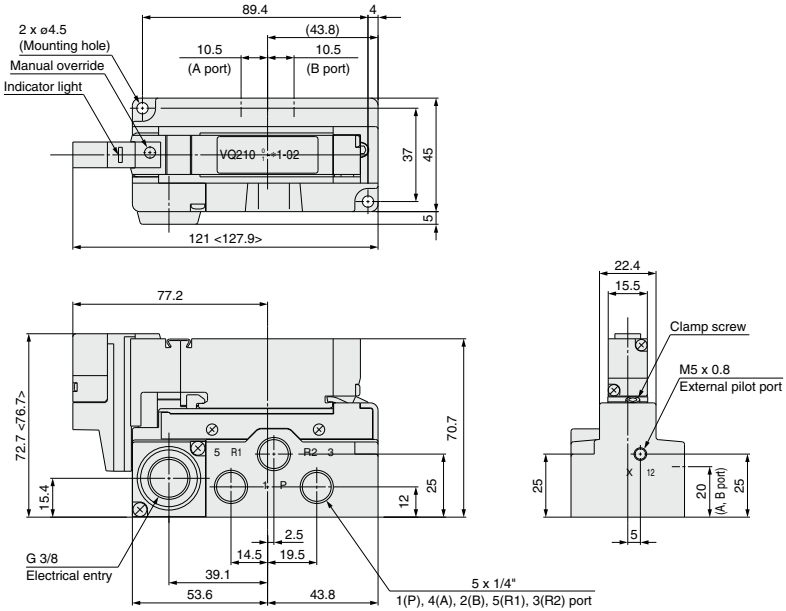
**Port size**

| | |
|---|---|
| 02 | 1/4 |

In the case of (Sub-plate) alone

**VQ2000 – PW – 02**

## Dimensions



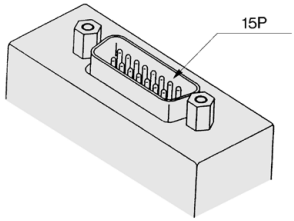

< >: AC
Note) When using this valve for IP65, mount a seal connector to the electrical entry.

**Semi-standard**

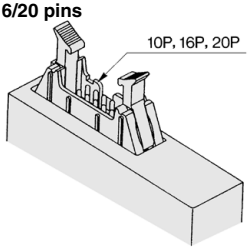
## Different Number of Connector Pins

F and P kits with the following number of pins are available besides the standard number (F = 25P; P = 26P). Select the desired number of pins and cable length from the cable assembly list. Place an order for the cable assembly separately.

### F kit (D-sub connector) 15 pins




### P kit (Flat ribbon cable) 10/16/20 pins



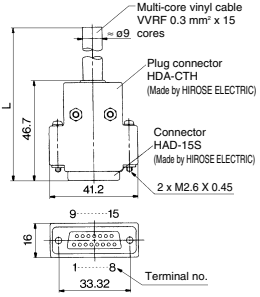

### How to Order Manifold

**VV5Q11 − 06 C6 F SA − □**

- 06: Stations
- C6: Cylinder port
- F: How to Order — D-sub connector, 15 pins; Connector location–Side; Without cable
- SA: Kit type/Electrical entry
- □: Option

| Pins \ Location | Top entry | | Side entry | |
|---|---|---|---|---|
| 15P (Max. 7 stations) | **F** kit | **UA** | **F** kit | **SA** |

∗ In the same way as the 25-pin models (standard), the terminal no. 1 is for SOL.A at the 1st station, the terminal no. 9 for SOL.B at the 1st station, and the terminal no. 8 for COM.




**Wire Color Table by Terminal No. of D-sub Connector Cable Assembly**

| 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 |

### D-sub Connector Cable Assembly

| Cable length (L) \ Pins | 15P |
|---|---|
| 1.5 m | AXT100-DS15-1 |
| 3 m | AXT100-DS15-2 |
| 5 m | AXT100-DS15-3 |

∗ For other commercial connectors, use a type conforming to MIL-C-24308.

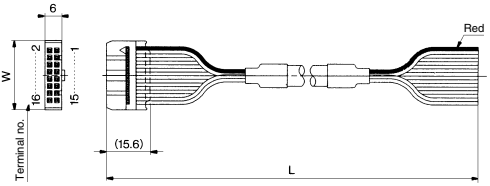
### How to Order Manifold

**VV5Q11 − 06 C6 P SC − □**

- 06: Stations
- C6: Cylinder port
- P: How to Order — Flat ribbon cable, 20 pins; Connector location–Side; Without cable
- SC: Kit type/Electrical entry
- □: Option

| Pins \ Location | Top entry | | Side entry | |
|---|---|---|---|---|
| 10P (Max. 4 stations) | **P** kit | **UA** | **P** kit | **SA** |
| 16P (Max. 7 stations) | | **UB** | | **SB** |
| 20P (Max. 9 stations) | | **UC** | | **SC** |

∗ In the same way as the 26-pin models (standard), the terminal no. 1 is for SOL.A at the 1st station, the terminal no. 2 for SOL.B at the 1st station, and two pins from the max. terminal numbers are for COM.




### Flat Ribbon Cable Assembly

| Cable length (L) \ Pins | 10P | 16P | 20P |
|---|---|---|---|
| 1.5 m | AXT100-FC10-1 | AXT100-FC16-1 | AXT100-FC20-1 |
| 3 m | AXT100-FC10-2 | AXT100-FC16-2 | AXT100-FC20-2 |
| 5 m | AXT100-FC10-3 | AXT100-FC16-3 | AXT100-FC20-3 |
| Connector width (**W**) | 17.2 | 24.8 | 30 |

∗ For other commercial connectors, use a type with strain relief conforming to MIL-C-83503.

## Special Wiring Specifications

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

**1. How to Order**

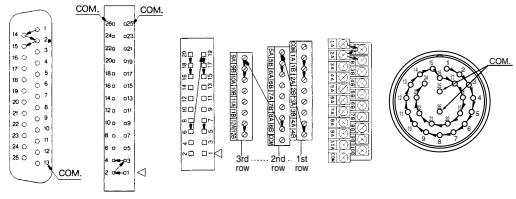
Indicate an option symbol "-K", for the manifold no. and be sure to specify the mounting position and number of stations of the single and double wiring by means of the manifold specification sheet.

**Example)** **VV5Q11-08C6FU1-D K S**

**Others, option symbols: to be indicated alphabetically.**

**2. Wiring specifications**

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




**F kit** D-sub connector (25P) | **P kit** Flat ribbon cable connector (26P) | **J/G kit** | **T kit** Terminal block (VQ1000, 24 terminals) | **T kit** Terminal block (VQ2000) | **M kit**

**3. Max. number of stations**

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

| Kit | F kit (D-sub connector) | | P kit (Flat ribbon cable) | | | | J kit (Flat ribbon cable) | G kit (Flat ribbon cable with terminal block) |
|---|---|---|---|---|---|---|---|---|
| Type | FUS□ 25P | FUSA 15P | PUS□ 26P | PUSC 20P | PUSB 16P | PUSA 10P | JUS□ 20P | G□ |
| Max. points | 24 | 14 | 24 | 18 | 14 | 8 | 16 | 16 |

| Kit | | T kit (Terminal block box) | | S kit (Serial transmission) | M kit (Circular connector) |
|---|---|---|---|---|---|
| Type | VQ1000 | 2 rows of terminal blocks | 3 rows of terminal blocks | S□ | M□ |
| | | 16 | 24 | | |
| Max. points | VQ2000 | 20 | | 16 | 24 |

## Negative Common Specifications

Specify the valve model no. as shown below for negative common specification.

The manifold no. shown below is for the T (VQ1000) and L (VQ1000/2000) kits. For other kits the standard manifold can be used. However, negative common is not compatible with S (except EX510 Gateway-type, EX240 integrated-type and EX120/121/122 integrated-type (CompoNet™)) and G kits.

**How to Order Valves**

**VQ1100 N -51**

**Negative common specifications**

**How to Order Manifold**

**T kit (VQ1000):**

**VV5Q11- 06 C6 T N - □**

- **Option**
- **Negative common specifications**
- **Cylinder port**
- **Stations**

**L kit (VQ1000/2000):**

**VV5Q11- 06 C6 L N 1 - □**

- **Stations**
- **Cylinder port**
- **Negative common specifications**
- **Electrical entry / Cable length**

| | |
|---|---|
| 0 | With cable (0.6 m) |
| 1 | With cable (1.5 m) |
| 2 | With cable (3 m) |

- **Option**

**Semi-standard**

## External Pilot Specifications

When the supply air pressure is lower than the required minimum operating pressure (0.1 to 0.2 MPa) for the solenoid valve (or when the valve is used for vacuum), specify an external pilot model. Order a manifold or valve by suffixing the external pilot specification, "R". The X-port of the manifold base is equipped with One-touch fittings for external pilot.
VQ1000: C4 (ø4 One-touch fitting)
VQ2000: C6 (ø6 One-touch fitting)

### How to Order Manifold

**VV5Q11−08C6FU1−R S**

**External pilot specifications**

**Others, option symbols: to be indicated alphabetically.**

### How to Order Valves

**VQ1100 R − 51**

**External pilot specifications**

Note 1) When two or more functions are specified, indicate them alphabetically.
Note 2) Since the pilot EXH of this valve is released from the R1 passage, it is not possible to vacuum from a part other than EXH pressure and SUP ports.

## Inch-size One-touch Fittings

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

**VV5Q11− 06 N7 PS0 − □**

**Stations**

**Option**

**Kit type/Electrical entry**

**Cylinder port**

| Symbol | | N1 | N3 | N7 | N9 | M5T | NM |
|---|---|---|---|---|---|---|---|
| Applicable tubing O.D. (Inch) | | ø1/8" | ø5/32" | ø1/4" | ø5/16" | 10-32UNF (M5 thread) | Mixed |
| 4(A), 2(B) port | VQ1000 | ● | ● | ● | — | ● | ● |
| | VQ2000 | — | ● | ● | ● | — | ● |

Note) When inch-size fittings are selected for the cylinder port, inch-size fittings are selected on 1(P), 3(R) port, too.

1(P), 3(R) port size
VQ1000 ····· ø5/16" (N9)
VQ2000 ····· ø3/8" (N11)

## DIN Rail Mounting

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

● **When DIN rail is unnecessary**
**(DIN rail mounting brackets only are attached.)**
Indicate the option symbol, -D0, for the manifold part number.

**Example)**

**VV5Q11−08C6FU1−D0S**

**Others, option symbols: to be indicated alphabetically.**

●**When using DIN rail longer than the manifold with specified number of stations**
Clearly indicate the necessary number of stations next to the option symbol "-D" for the manifold part number.

**Example)**

**VV5Q11−08C6FU1−D09S**

**DIN rail for 9 stations**

**Others, option symbols: to be indicated alphabetically.**

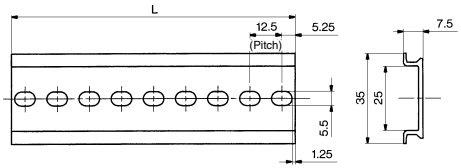
∗The number of stations that may be displayed is longer than the manifold number of stations.

● **When changing to a DIN rail mounting.**
Order brackets for mounting a DIN rail. (Refer to "Manifold Optional Parts" on pages 430 and 436.)

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

● **When ordering DIN rail only**
**DIN rail no.: AXT100-DR-□**

∗ As for □, specify the number from the DIN rail table. Refer to the dimensions of each kit for L dimension.



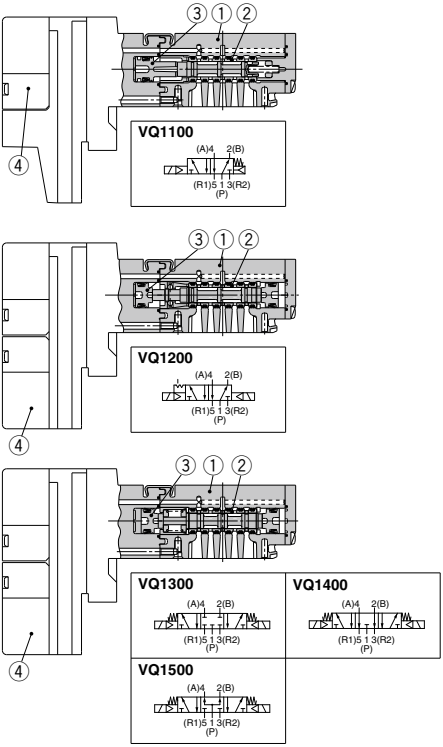

**L Dimension** L = 12.5 x n + 10.5

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

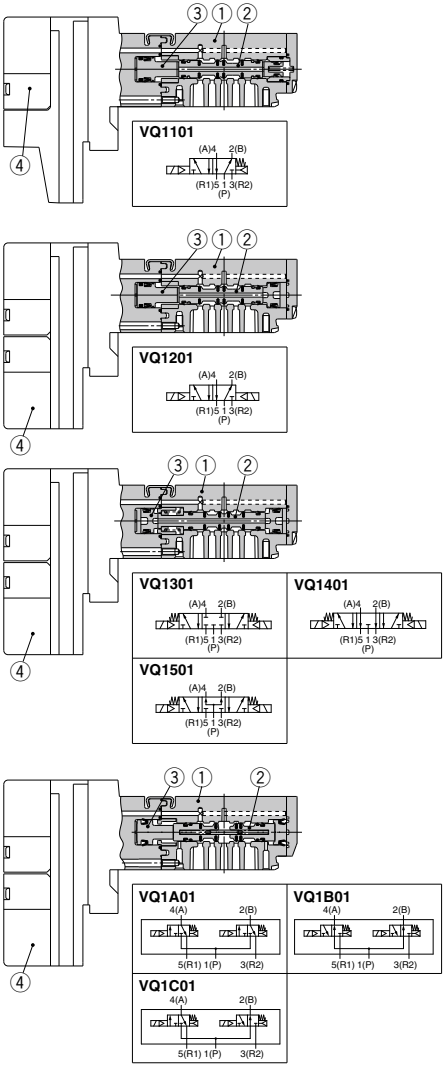
# Construction

## VQ1000 Plug-in Unit: Main Parts/Replacement Parts

### Metal seal




### Rubber seal




**Component Parts**

| No. | Description | Material | Note |
|---|---|---|---|
| 1 | **Body** | Zinc die-casted | |
| 2 | **Spool/Sleeve** | Stainless steel | |
| 3 | **Piston** | Resin | |
| 4 | **Pilot valve assembly** | — | |

Note) Refer to page 425 for “How to Order Pilot Valve Assembly”.

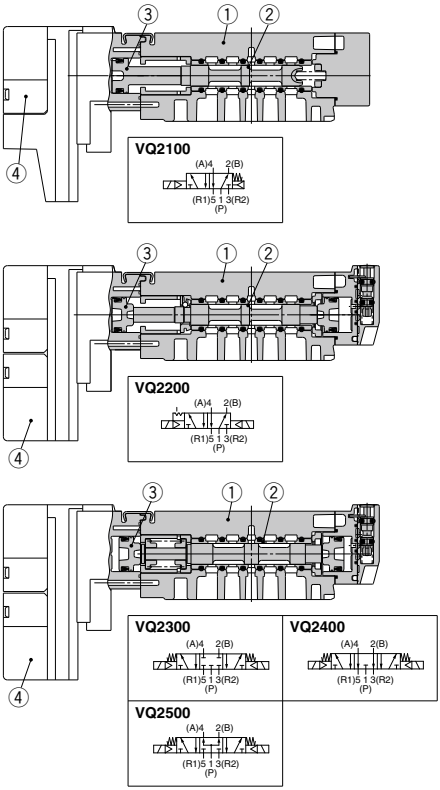
**Component Parts**

| No. | Description | Material | Note |
|---|---|---|---|
| 1 | **Body** | Zinc die-casted | |
| 2 | **Spool valve** | Aluminum, HNBR | |
| 3 | **Piston** | Resin | |
| 4 | **Pilot valve assembly** | — | |

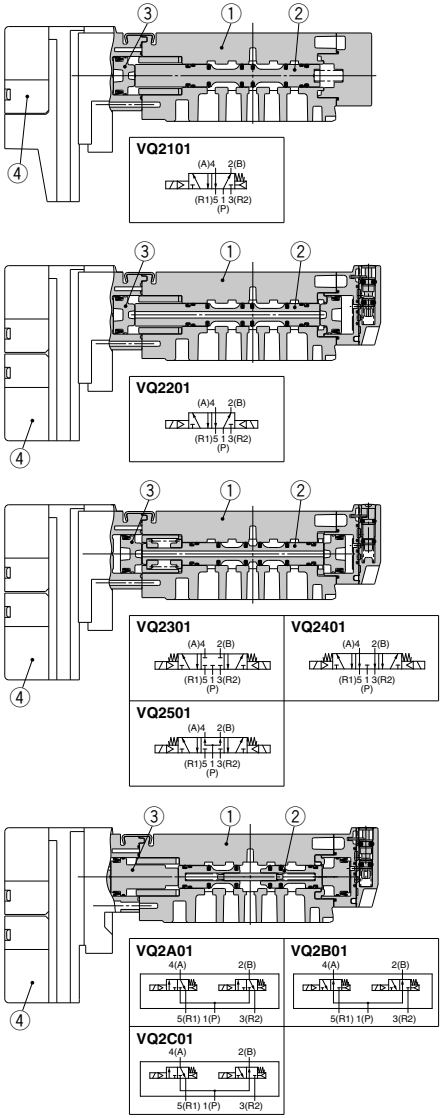
Note) Refer to page 425 for “How to Order Pilot Valve Assembly”.

## VQ2000 Plug-in Unit: Main Parts/Replacement Parts

### Metal seal




### Rubber seal




### Component Parts

| No. | Description | Material | Note |
|---|---|---|---|
| 1 | **Body** | Zinc die-casted | |
| 2 | **Spool/Sleeve** | Stainless steel | |
| 3 | **Piston** | Resin | |
| 4 | **Pilot valve assembly** | — | |

Note) Refer to page 425 for “How to Order Pilot Valve Assembly”.

### Component Parts

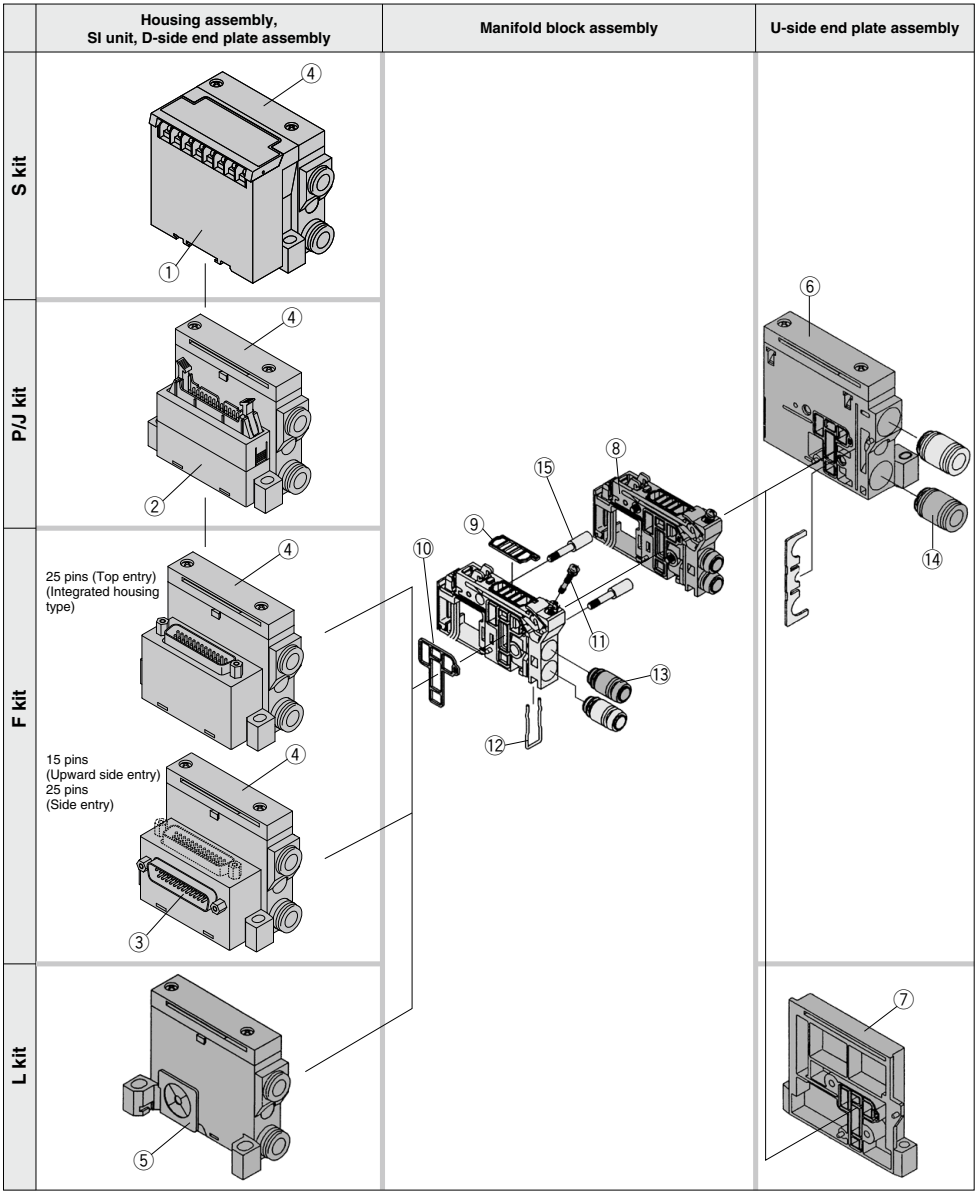
| No. | Description | Material | Note |
|---|---|---|---|
| 1 | **Body** | Zinc die-casted | |
| 2 | **Spool valve** | Aluminum, HNBR | |
| 3 | **Piston** | Resin | |
| 4 | **Pilot valve assembly** | — | |

Note) Refer to page 425 for “How to Order Pilot Valve Assembly”.

# Exploded View of Manifold

## VQ1000 Plug-in Unit: Exploded View

**(F/P/J/L/S kit)**






SMC

## <Housing Assembly and SI Unit>

**Housing assembly and SI unit no.**

| No. | Manifold | Part no. | Description |
|---|---|---|---|
| ① | (SH kit) | **EX120-SUH1** | NKE Corp.: Fieldbus H System (16 outputs) |
| | (SQ kit) | **EX120-SDN1** | DeviceNet™ |
| | (SR1 kit) | **EX120-SCS1** | OMRON Corp.: CompoBus/S (16 outputs) |
| | (SR2 kit) | **EX120-SCS2** | OMRON Corp.: CompoBus/S (8 outputs) |
| | (SV kit) | **EX120-SMJ1** | CC-LINK |
| ② | $P_S^U$ kit | **AXT100-1-$P_S^U$**□ Note) | Flat ribbon cable housing assembly □ = Number of pins: 26/20/16/10 |
| | $J_S^U$ kit | **AXT100-1-$J_S^U$20** Note) | Flat ribbon cable housing assembly |
| ③ | FU kit | **AXT100-1-FU15** | D-sub connector housing assembly (Top entry) Number of pins: 15 |
| | FS kit | **AXT100-1-FS**□ | D-sub connector housing assembly (Side entry) □ Number of pins: 25/15 |

Note) Top entry connector for FU, PU, JU while side entry connector for FS, JS, PS.

## <D-Side End Plate Assembly>

**④⑤ D-side end plate assembly no.**

**VVQ1000-3A-1-□-□**

**Electrical entry**

| | |
|---|---|
| **FU25** | For F kit top entry 25 pins |
| **F** | For F kit |
| **P** | For J/P kit |
| **L** | For L kit |
| **S** | For S kit |

**Option**

| | |
|---|---|
| **Nil** | Common EXH |
| **R** Note 1) | External pilot |
| **S** Note 1) | Direct EXH outlet with built-in silencer |

Note 1) When both options are specified, indicate as RS.
Note 2) The housing assembly and SI unit of F/P/J/S kit are not included. Separately place an order for ①, ②, ③.

## <U-Side End Plate Assembly>

**⑥ U-side end plate assembly no. (For F/P/J/S kit)**

**VVQ1000-2A-1-□**

**Option**

| | |
|---|---|
| **Nil** | Common EXH |
| **R** | External pilot |
| **S** | Direct EXH outlet with built-in silencer |

Note) The ⑭'s fitting assembly is included.

**⑦ U-side end plate assembly no. (For L kit)**

**VVQ1000-2A-1-L**

## <Manifold Block Assembly>

**⑧ Manifold block assembly no.**

Tie-rod (2 pcs.) and lead wire assembly for extensions are attached.

**VVQ1000-1A-□-□**

**Electrical entry**

| | |
|---|---|
| **F0** | Without lead wire |
| **F1** | F kit for 2 to 12 stations/Double wiring |
| **F2** | F kit for 13 to 24 stations/Double wiring |
| **F3** | F kit for 2 to 24 stations/Single wiring |
| **P1** | P/J/S kit for 2 to 12 stations/Double wiring |
| **P2** | P/J/S kit for 13 to 24 stations/Double wiring |
| **P3** | P/J/S kit for 2 to 24 stations/Single wiring |
| **L0**□ | L0 kit □: Stations (1 to 8) |
| **L1**□ | L1 kit □: Stations (1 to 8) |
| **L2**□ | L2 kit □: Stations (1 to 8) |

**Port size**

| | |
|---|---|
| **C3** | With ø3.2 One-touch fitting |
| **C4** | With ø4 One-touch fitting |
| **C6** | With ø6 One-touch fitting |
| **M5** | M5 thread |
| **C0** | Without One-touch fitting (With clip) |

## <Fitting Assembly>

**⑬ Fitting assembly part no. (For cylinder port)**

**VVQ1000-50A-□**

**Port size**

| | |
|---|---|
| **C3** | Applicable tubing ø3.2 |
| **C4** | Applicable tubing ø4 |
| **C6** | Applicable tubing ø6 |
| **M5** | M5 thread |

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

**⑭ Fitting assembly part no. (For 1(P), 3(R) port)**

**VVQ1000-51A-C8**

**Applicable tubing ø8**

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

**⑮ Tie-rod assembly part no. (2 pcs./set)**

**VVQ1000-TR-□**

Note 1) Please order when eliminating manifold stations. When adding stations, tie-rods are attached to the manifold block assembly. Therefore, it is not necessary to order.
Note 2) □: Stations 02 to 24
Note 3) For S/P/J/F/L kit

## <Replacement Parts for Manifold Block>

**Replacement Parts**

| No. | Part no. | Description | Material | Quantity |
|---|---|---|---|---|
| ⑨ | **VVQ1000-80A-1** | Gasket | HNBR | 12 |
| ⑩ | **VVQ1000-80A-2** | Packing | HNBR | 12 |
| ⑪ | **VVQ1000-80A-3** | Clamp screw | Carbon steel | 12 |
| ⑫ | **VVQ1000-80A-4** | Clip | Stainless steel | 12 |

Note) A set of parts containing 12 pcs. each is enclosed.

**Pilot valve assembly**

**V112□-□A**

**Function**

| Symbol | Specifications | DC | AC |
|---|---|---|---|
| **Nil** | Standard | (0.4 W) ○ | Note 1) ○ |
| **B** | High-speed response type | (0.95 W) ○ | — |
| **K** | High-pressure type (1.0 MPa) | (0.95 W) ○ | — |

**Coil voltage**

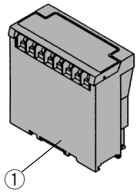
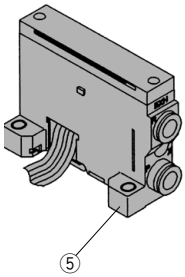
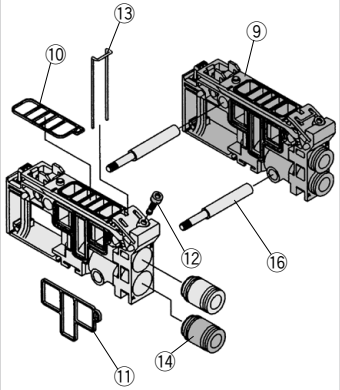
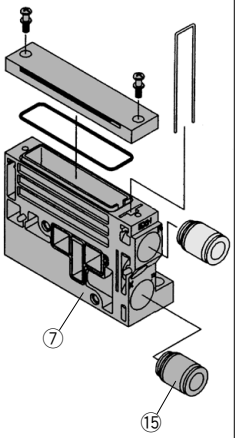
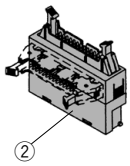
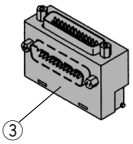
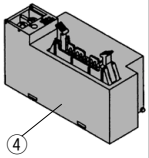
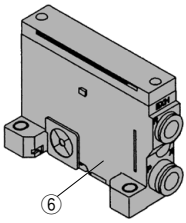
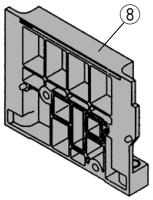
| | |
|---|---|
| **1** | 100 VAC (50/60 Hz) |
| **2** | 200 VAC (50/60 Hz) |
| **3** | 110 VAC (50/60 Hz) |
| **4** | 220 VAC (50/60 Hz) |
| **5** | 24 VDC |
| **6** | 12 VDC |

Note 1) Refer to page 381 for power consumption of AC type.
Note 2) Common to single solenoid and double solenoid
Note 3) The voltage (including light/surge voltage suppressor), positive common and negative common cannot be changed by changing the pilot valve assembly.

# Exploded View of Manifold

## VQ2000 Plug-in Unit: Exploded View

**(F/P/J/L/G/S kit)**

| | Housing assembly and SI unit | D-side end plate assembly | Manifold block assembly | U-side end plate assembly |
|---|---|---|---|---|
| S kit |  |  |  |  |
| P/J kit |  | | | |
| F kit |  | | | |
| G kit |  | | | |
| L kit | |  | |  |

## <Housing Assembly and SI Unit>

**Housing assembly and SI unit no.**

| No. | Manifold | Part no. | Description |
|---|---|---|---|
| ① | (SH kit) | **EX120-SUH1 [EX123D-SUH1]** Note 1) | NKE Corp.: Fieldbus H System (16 outputs) |
| | (SQ kit) | **EX120-SDN1 [EX124D-SDN1]** Note 1) | DeviceNet™ |
| | (SR1 kit) | **EX120-SCS1 [EX124D-SCS1]** Note 1) | OMRON Corp.: CompoBus/S (16 outputs) |
| | (SR2 kit) | **EX120-SCS2 [EX124D-SCS2]** Note 1) | OMRON Corp.: CompoBus/S (8 outputs) |
| | (SV kit) | **EX120-SMJ1 [EX124D-SMJ1]** Note 1) | CC-LINK |
| ② | $P^U_S$ kit | **AXT100-1-$P^U_S$□** Note 2) | Flat ribbon cable housing assembly □: Number of pins: 26/20/16/10 |
| | $J^U_S$ kit | **AXT100-1-$J^U_S$20** Note 2) | Flat ribbon cable housing assembly |
| ③ | $F^U_S$ kit | **AXT100-1-$F^U_S$□** Note 2) | D-sub connector housing assembly □: Number of pins: 25/15 |
| ④ | G kit | **AXT100-1-GU20** | Flat ribbon cable housing assembly with terminal block |

Note 1) Dust-tight, Water-jet-proof (IP65)
Note 2) Top entry connector for FU, PU, JU while side entry connector for FS, PS, JS.

## <D-Side End Plate Assembly>

**⑤⑥ D-side end plate assembly no.**

**VVQ2000-3A-1-□-□□**

**Electrical entry**

| | |
|---|---|
| **F** | For F kit |
| **P** | For G/J/P kit |
| **L** | For L kit |
| **S** | For S kit |

**Enclosure**

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

Note) F/P/J/G kit are available with "Nil" only.
M kit is available with [W] only.
S/L/T kit are selectable depending on the manifold type.

**Option**

| | |
|---|---|
| **Nil** | Common EXH |
| **R** Note 1) | External pilot |
| **S** Note 1) | Direct EXH outlet with built-in silencer |

Note 1) When both options are specified, indicate as RS.
Note 2) The housing assembly and SI unit of F/P/J/G/S kit are not included.
Separately place an order for ①, ②, ③, ④.
Note 3) "S" (Built-in silencer) and "W" (IP65) cannot be combined.

## <U-Side End Plate Assembly>

**⑦ U-side end plate assembly no. (For F/P/J/G/T/S/M kit)**

**VVQ2000-2A-1-□□**

**Option**

| | |
|---|---|
| **Nil** | Common EXH |
| **R** | External pilot |
| **S** | Direct EXH outlet with built-in silencer |

**Enclosure**

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

Note) F/P/J/G kit are available with "Nil" only.
S/T/M kit are selectable depending on the manifold type.

Note 1) The ⑮'s fitting assembly is included.
Note 2) The housing assembly and SI unit of F/P/J/G/S kit are not included.
Separately place an order for ①, ②, ③, ④.
Note 3) "S" (Built-in silencer) and "W" (IP65) cannot be combined.

**⑧ U-side end plate assembly no. (For L kit)**

**VVQ2000-2A-1-L-□**

**Enclosure**

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

Note) Select it depending on the manifold type.

## <Manifold Block Assembly>

**⑨ Manifold block assembly no.**

Tie-rod (2 pcs.) and lead wire assembly for extensions are attached.

**VVQ2000-1A-□-□-□**

**Electrical entry**

| | |
|---|---|
| **F0** | Without lead wire |
| **F1** | F kit for 2 to 12 stations/Double wiring |
| **F2** | F kit for 13 to 24 stations/Double wiring |
| **F3** | F kit for 2 to 24 stations/Single wiring |
| **P1** | P/J/G/S kit for 2 to 12 stations/Double wiring |
| **P2** | P/J/G/S kit for 13 to 24 stations/Double wiring |
| **P3** | P/J/G/S kit for 2 to 24 stations/Single wiring |
| **L0□** | L0 kit □: Stations (1 to 8) |
| **L1□** | L1 kit □: Stations (1 to 8) |
| **L2□** | L2 kit □: Stations (1 to 8) |
| **T1** | T kit for 2 to 20 stations/Double wiring |
| **T3** | T kit for 2 to 20 stations/Single wiring |
| **M1** | M kit for 2 to 12 stations/Double wiring |
| **M2** | M kit for 13 to 24 stations/Double wiring |
| **M3** | M kit for 2 to 24 stations/Single wiring |

**Port size**

| | |
|---|---|
| **C4** | With ø4 One-touch fitting |
| **C6** | With ø6 One-touch fitting |
| **C8** | With ø8 One-touch fitting |
| **C0** | Without One-touch fitting (With clip) |

**Enclosure**

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

Note) F/P/J/G kit are available with "Nil" only.
S/L/T/M kit are selectable depending on the manifold type.

## <Fitting Assembly>

**⑭ Fitting assembly part no. (For cylinder port)**

**VVQ1000-51A-□**

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

**Port size**

| | |
|---|---|
| **C4** | Applicable tubing ø4 |
| **C6** | Applicable tubing ø6 |
| **C8** | Applicable tubing ø8 |

**⑮ Fitting assembly part no. (For 1(P), 3(R) port)**

**VVQ2000-51A-C10**

**Applicable tubing ø10**

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

**⑯ Tie-rod assembly part no. (2 pcs./set)**

**VVQ2000-TR-□** Note 1) Please order when eliminating manifold stations.
When adding stations, tie-rods are attached to the manifold block assembly. Therefore, it is not necessary to order.
Note 2) □: Stations 02 to 24
Note 3) For S/P/J/F/L kit

## <Replacement Parts for Manifold Block>

**Replacement Parts**

| No. | Part no. | Description | Material | Quantity |
|---|---|---|---|---|
| ⑩ | **VVQ2000-80A-1** | Gasket | HNBR | 12 |
| ⑪ | **VVQ2000-80A-2** | Seal | HNBR | 12 |
| ⑫ | **VVQ2000-80A-3** | Clamp screw | Carbon steel | 12 |
| ⑬ | **VVQ2000-80A-4** | Clip | Stainless steel | 12 |

Note) A set of parts containing 12 pcs. each is enclosed.

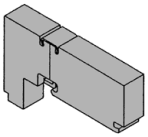
## VQ1000: Manifold Optional Parts

### Blanking plate assembly
**VVQ1000-10A-1**

Symbol



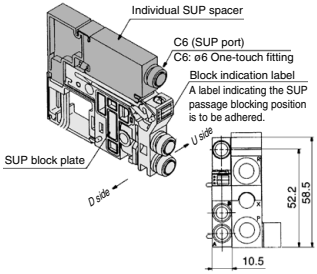
It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.

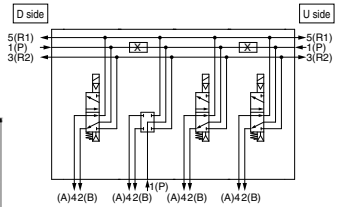



### Individual SUP spacer
**VVQ1000-P-1-** C6 / N7

When the same manifold is to be used for different pressures, individual SUP spacers are used as SUP ports for different pressures. (One station space is occupied.)
Block both sides of the station, for which the supply pressure from the individual SUP spacer is used, with SUP block plates. (Refer to the application example.)

- Specify the spacer mounting position and SUP block plate position by means of the manifold specification sheet.
  The block plate is used in one or two places for one set.
  (Two SUP block plates for blocking SUP station are attached to the individual SUP spacer.)
- As a standard, electric wiring is connected to the position of the manifold station where the individual SUP spacer is mounted.
- If wiring is not required for stations equipped with spacers, enter "X" in the special wiring specifications column in the manifold specification sheet.

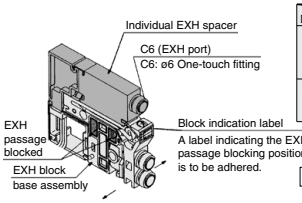



### Individual EXH spacer
**VVQ1000-R-1-** C6 / N7

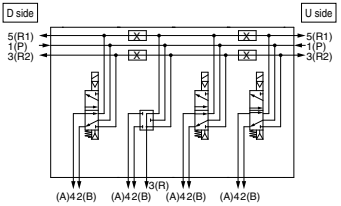
When valve exhaust affects other stations due to the circuit configuration, this spacer is used for individual valve exhaust. (One station space is occupied.)
Block both sides of the individual valve EXH station. (Refer to the application example.)

- Specify the mounting position, as well as the EXH block base or EXH block plate position by means of the manifold specification sheet. The block plate is used in one or two places for one set.
- An EXH block base assembly is used in the blocking position when ordering an EXH spacer incorporated with a manifold no. However, do not order an EXH block base assembly because it is attached to the spacer.
  When separately ordering an individual EXH spacer, separately order an EXH block base assembly because it is not attached to the spacer.
- As a standard, electric wiring is connected to the position of the manifold station where the individual EXH spacer is mounted.
- If wiring is not required for stations equipped with spacers, enter "X" in the special wiring specifications column in the manifold specification sheet.
- Do not install any back pressure check valve on the manifold station, on which the spacer is to be mounted. When installing the back pressure check valve on other manifold station, be sure to specify the manifold station position on the manifold specification sheet instead of ordering by specifying the manifold option symbol "B".




| Description/Model | Stations | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Valve | Single | ● | | ● | ● | | | |
| | ⋮ | | | | | | | |
| Option | Individual EXH spacer VVQ1000-R-1-C6 | | ● | | | | | |
| | EXH blocking position: Specify 2 places. | ● | | ● | | | | |

**Individual EXH spacer** + **EXH block base assembly** — **Valve** + **EXH block base assembly**



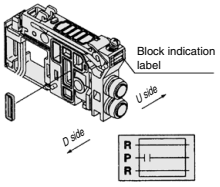

### SUP block plate
**VVQ1000-16A**

When different pressures are supplied to a manifold, a SUP block plate is used to block the stations under different pressures.

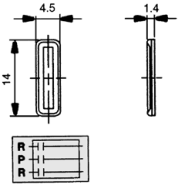
- Specify the mounting position by means of the manifold specification sheet.

**<Block indication label>**
Indication labels to confirm the blocking position are attached (Each for SUP passage and SUP/EXH passage blocking positions).

- When ordering a block plate incorporated with a manifold, a block indication label is attached to the manifold.




**SUP passage blocked**




**SUP/EXH passage blocked**

### Blanking plate with connector
**VVQ1000-1C□-□**

Symbol

**Connector**

| | |
|---|---|
| Nil | Without connector |
| 1 | With connector/2-wire |
| 2 | With connector/4-wire |

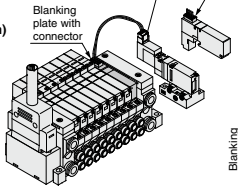
**Connector lead wire length (mm)**

| | | | |
|---|---|---|---|
| Nil | 300 | 20 | 2000 |
| 6 | 600 | 25 | 2500 |
| 10 | 1000 | 30 | 3000 |
| 15 | 1500 | | |

Blanking plate with a connector for individually outputting electricity to drive a single valve or equipment that are not on the manifold base.

- When "N" is suffixed to the end of the name plate, the plate will be different from a standard shape.

Note) Electric current should be 1A or less (including the mounted valves).

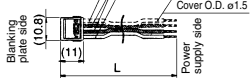



### Connector assembly part no.
**AXT661-** 43 / 44 **A-** 6

| | |
|---|---|
| 43 | 4-wire |
| 44 | 2-wire |

**Lead wire length (mm)**

| | |
|---|---|
| Nil | 300 |
| 6 | 600 |
| 10 | 1000 |
| 20 | 2000 |
| 30 | 3000 |



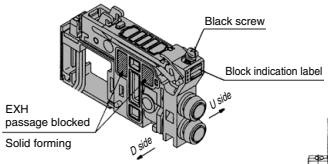
## EXH block base assembly
## VVQ1000-19A-[P][L]-(C3/C4/C6/M5/N1/N3/N7)

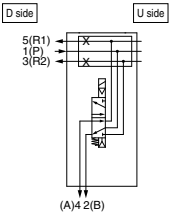
**Manifold block assembly**
**Electrical entry**

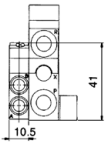
| | |
|---|---|
| F0 | Without lead wire |
| F1 | For F kit (2 to 12 stations)/Double wiring |
| F2 | For F kit (13 to 24 stations)/Double wiring |
| F3 | For F kit (2 to 24 stations)/Single wiring |
| P1 | For P, G, T, S kit (2 to 12 stations)/Double wiring |
| P2 | For P, G, T, S kit (13 to 24 stations)/Double wiring |
| P3 | For P, G, T, S kit (2 to 24 stations)/Single wiring |
| L0* | L0 kit |
| L1* | L1 kit (* 1 to 8 stations) |
| L2* | L2 kit |

The manifold block assembly is used between stations for which exhaust is desired to be divided when valve exhaust affects other stations due to the circuit configuration. The EXH passage on the D-side is blocked in the EXH block base assembly. It is also used in combination with an individual EXH spacer for individual exhaust.

**<Block indication label>**
Indication labels to confirm the blocking position are attached. (Each for EXH passage and SUP/EXH passage blocking positions)
* When ordering a EXH block base incorporated with a manifold, a block indication label is attached to the manifold.




* Specify the mounting station by means of the manifold specification sheet.
* When ordering this option incorporated with a manifold, specify the EXH block base assembly part number with "*" in front of it beneath the manifold part number.

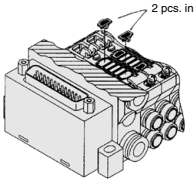

**EXH passage blocked**

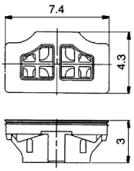

**SUP/EXH passage blocked**

## Back pressure check valve assembly [-B]
## VVQ1000-18A

It prevents cylinder malfunction caused by other valve exhaust entry. Insert it into R (EXH) port on the manifold side of a valve which is affected. It is effective when a single-acting cylinder is used or an exhaust center type solenoid valve is used.
* When ordering it being mounted on all manifold stations, suffix "-B" to the end of the manifold part number.

Note) When a back pressure check valve is desired, and is to be installed only in certain manifold stations, clearly indicate the part number and specify the mounting station by means of the manifold specification sheet.



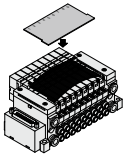



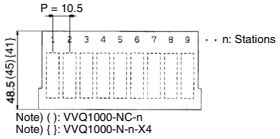

(Precautions)
1. The manifold installed type back pressure check valve assembly is assembly parts with a check valve structure. However, since slight air leakage against the back pressure is allowed due to its structure, adverse effects of the back pressure due to increase in exhaust resistance cannot be prevented if the manifold exhaust port and other exhaust ports are put together for piping or if the piping diameter is narrowed. As a result, this may cause the actuator and air operated equipment to malfunction. So, be careful not to restrict the exhaust air.
2. When a back pressure check valve is mounted, the effective area of the valve will decrease by about 20%.

## Name plate [-N]
## VVQ1000-[N][NC]-N-Station (1 to Max. stations) (-X4)

**N: Standard**
**NC: For mounting blanking plate with connector**
**-X4: For mounting slide locking type manual valve**

It is a transparent resin plate for placing a label that indicates solenoid valve function, etc.
Insert it into the groove on the side of the end plate and bend it as shown in the figure.
* When the blanking plate with connector is mounted, it automatically will be "VVQ1000-NC-n"
* When the slide locking type manual valve is mounted, it automatically will be "VVQ1000-N-n-X4"
* When ordering this option incorporated with a manifold, suffix "-N" to the end of the manifold part number.

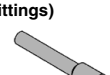


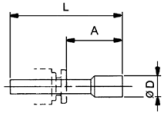



Note) ( ): VVQ1000-NC-n
Note) { }: VVQ1000-N-n-X4

## Blanking plug (For One-touch fittings)
## KQ2P-□

It is inserted into an unused cylinder port and SUP/EXH ports.
Purchasing order is available in units of 10 pieces.



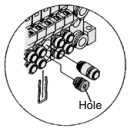


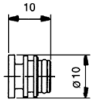

### Dimensions

| Applicable fitting size ød | Model | A | L | D | Applicable fitting size ød | Model | A | L | D |
|---|---|---|---|---|---|---|---|---|---|
| 3.2 | KQ2P-23 | 16 | 31.5 | 3.2 | 1/8" | KQ2P-01 | 16 | 31.5 | 5 |
| 4 | KQ2P-04 | 16 | 32 | 6 | 5/32" | KQ2P-03 | 16 | 32 | 6 |
| 6 | KQ2P-06 | 18 | 35 | 8 | 1/4" | KQ2P-07 | 18 | 35 | 8.5 |
| 8 | KQ2P-08 | 20.5 | 39 | 10 | 5/16" | KQ2P-09 | 20.5 | 39 | 10 |

## Port plug
## VVQ0000-58A

The plug is used to block the cylinder port.
* When ordering this option incorporated with a manifold, indicate "CM" for the port size of the manifold part number, as well as, the mounting station and cylinder port mounting positions 4(A) and 2(B) by means of the manifold specification sheet.
* Gently screw in an M3 screw in the port plug hole and pull it for removal.

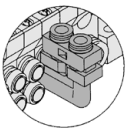


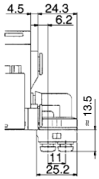




## Elbow fitting assembly
## VVQ1000-F-L(C3/C4/C6/M5/N1/N3/N7)

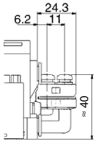
It is used for piping that extends upward or downward from the manifold.
* When ordering this option incorporated with a manifold, indicate "L□" or "B□" for the manifold port size (when installed in all stations.)

When installing it in part of the manifold stations, specify the elbow fitting assembly part number and the mounting station by means of the manifold specification sheet.
* When mounting elbow fitting assembly on the edge of manifold station and a silencer on EXH port, select a silencer, AN203-KM8. A silencer (AN200-KM8) is interfered with fittings.






Downward



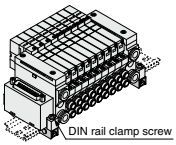

Upward

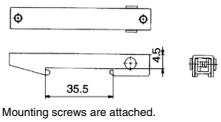
## VQ1000: Manifold Optional Parts

### DIN rail mounting bracket [-D/-D0/-D□]
**VVQ1000-57A**

It is used for mounting a manifold on a DIN rail.
* When ordering this option incorporated with a manifold, suffix "D" to the end of the manifold part number.

1 set of DIN rail mounting bracket is used for 1 manifold (2 DIN rail mounting brackets).



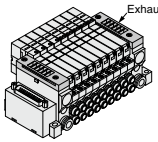
Mounting screws are attached.

### Direct EXH outlet with built-in silencer [-S]

This is a type with an exhaust port a top the manifold end plate. The built-in silencer exhibits an excellent noise suppression effect. (Noise reduction: 30 dB)
* When ordering this option incorporated with a manifold, suffix "S" to the end of the manifold part number.

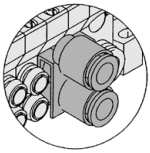
Note) A large quantity of drainage generated in the air source results in exhaust of air together with drainage.

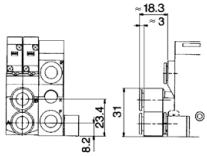
● Refer to page 443 for maintenance.




### Dual flow fitting assembly
**VVQ1000-52A-** $\begin{matrix}C8\\N9\end{matrix}$

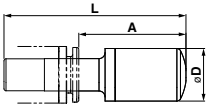
This is a fitting to multiply the flow rate by combining the outputs of 2 valve stations. It is used for driving a large bore cylinder. This is a One-touch fitting for a port size of ø8 or ø5/16".
* The port size for the manifold part number is "MM". Clearly indicate the dual flow fitting assembly part number and specify the mounting station by means of the manifold specifications.
* In dual flow fitting assembly, a special clip which is combined in one-piece of 2 stations is attached as a holding clip.






### Silencer (For EXH port)

This silencer is to be inserted into the EXH port (One-touch fittings) of the common exhaust type.
* When mounting elbow fitting assembly (VVQ1000-F-L□) on the edge of manifold station, select a silencer, AN15-C08.




### Dimensions

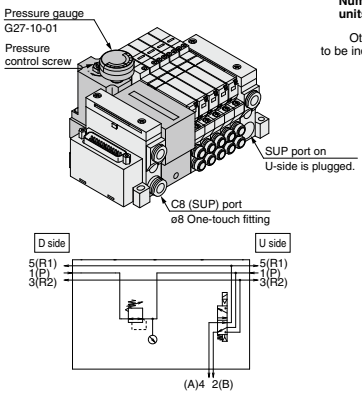
| Series | Applicable fitting size ød | Model | A | L | D | Effective area (mm²) | Noise reduction (dB) |
|---|---|---|---|---|---|---|---|
| **VQ1000** | 8 | AN15-C08 | 26.5 | 45 | 13 | 20 | 30 |

### Regulator unit
**VVQ1000-AR-1**

The regulator controls the SUP pressure in a manifold. Supply air from D-side SUP port is regulated. SUP port on U-side is plugged.
When a regulator unit is mounted, the SUP port on the U-side of the manifold will be plugged. A maximum of 3 units can be mounted on a manifold.

### Specifications

| | |
|---|---|
| **Maximum operating pressure (MPa)** | 0.8 |
| **Set pressure range (MPa)** | 0.05 to 0.7 |
| **Ambient and fluid temp. (°C)** | 5 to 50 |
| **Fluid** | Air |
| **Cracking pressure valve (MPa)** | 0.02 |
| **Structure** | Relieving type |




### • How to Order

Indicate an option symbol "-G*" for the manifold no. and be sure to specify the mounting position and number of stations by means of the manifold specification sheet. One unit is counted as one station and occupies a space for three stations, therefore, pay attention to the manifold size. The regulator valve unit, to which no wire is connected, valves can be mounted up to the standard max. number of stations of each kit.

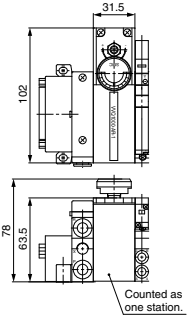
### How to Order Manifold
**VV5Q11-14C6FUO-D G 2**

**Number of manifold stations**
**Number of mounted valves ··· 12 sets**
**+**
**Number of regulator units ··· 2 sets**

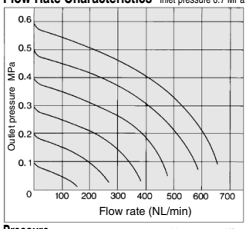
**Number of regulator units ··· 2 sets**

**With regulator unit**

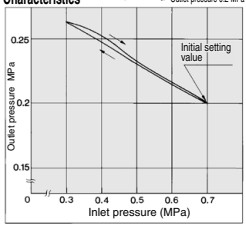
Others, option symbols: to be indicated alphabetically.




### Flow Rate Characteristics
Conditions: Inlet pressure 0.7 MPa




### Pressure Characteristics
Conditions (Initial setting) Inlet pressure 0.7 MPa Outlet pressure 0.2 MPa




## ⚠ Caution

**• Pressure setting**

Check the inlet pressure and then turn the pressure control screw to set the outlet pressure. Turning the screw clockwise will increase the outlet pressure while turning it counterclockwise decrease the pressure. (Set the pressure by turning the screw in the increase direction.)

**• Installation**

Since some level of the actuator's operational frequency may lead to a sharp pressure change, pay attention to the pressure gauge durability.

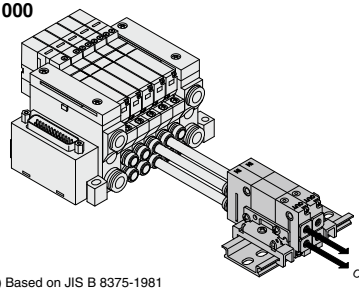
## Double check block (Separated) for VQ1000
## VQ1000-FPG-□□-□

It is used on the outlet side piping to keep the cylinder in the intermediate position for a long time. Combining the double check block with a built-in pilot type double check valve and a 3-position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for long periods of time.
The combination with a 2-position single/double solenoid valve will permit this block to be used for preventing the dropping at the cylinder stroke end when the SUP residual pressure is released.

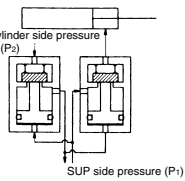
### Specifications

| | |
|---|---|
| **Max. operating pressure** | 0.8 MPa |
| **Min. operating pressure** | 0.15 MPa |
| **Ambient and fluid temp.** | –5 to 50°C |
| **Flow rate characteristics: C** | 0.60 dm³/(s·bar) |
| **Max. operating frequency** | 180 c.p.m |

Note) Based on JIS B 8375-1981 (Supply pressure: 0.5 MPa)



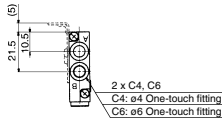

<Circuit diagram>

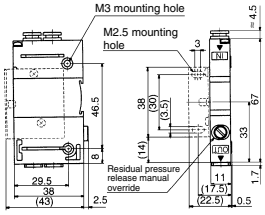


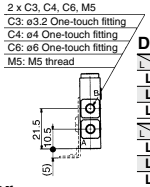

VVQ1000-FPG-02 1 set
∗ VQ1000-FPG-C6M5-D 2 pcs.

## Dimensions

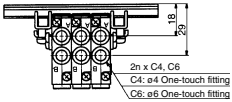
### Single unit

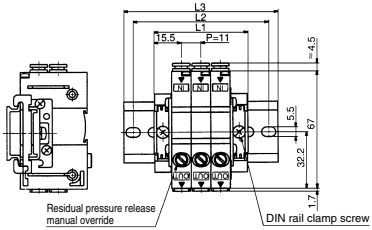


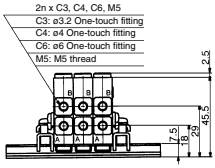




### Manifold




### Dimensions

Formula L1 = 11n + 20 n: Station (Maximum 24)

| n | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L1 | 31 | 42 | 53 | 64 | 75 | 86 | 97 | 108 | 119 | 130 | 141 | 152 |
| L2 | 50 | 62.5 | 75 | 87.5 | 100 | 112.5 | 125 | 125 | 137.5 | 150 | 162.5 | 175 |
| L3 | 60.5 | 73 | 85.5 | 98 | 110.5 | 123 | 135.5 | 135.5 | 148 | 160.5 | 173 | 185.5 |

| n | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L1 | 163 | 174 | 185 | 196 | 207 | 218 | 229 | 240 | 251 | 262 | 273 | 284 |
| L2 | 187.5 | 187.5 | 200 | 212.5 | 225 | 237.5 | 250 | 250 | 262.5 | 275 | 287.5 | 300 |
| L3 | 198 | 198 | 210.5 | 223 | 235.5 | 248 | 260.5 | 260.5 | 273 | 285.5 | 298 | 310.5 |

## How to Order

### Double check block

**VQ1000 − FPG − C4 M5 − F**

**IN side port size**

| | |
|---|---|
| **M5** | M5 thread |
| **C3** | ø3.2 One-touch fitting |
| **C4** | ø4 One-touch fitting |
| **C6** | ø6 One-touch fitting |
| **N3** | ø5/32" One-touch fitting |
| **N7** | ø1/4" One-touch fitting |

**OUT side port size**

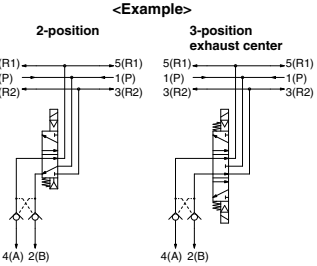
| | |
|---|---|
| **M5** | M5 thread |
| **C3** | ø3.2 One-touch fitting |
| **C4** | ø4 One-touch fitting |
| **C6** | ø6 One-touch fitting |
| **N3** | ø5/32" One-touch fitting |
| **N7** | ø1/4" One-touch fitting |

**Option**

| | |
|---|---|
| **Nil** | None |
| **F** | With bracket |
| **D** | DIN rail mounting (For manifold) |
| **N** | Name plate |

Note) When two or more symbols are specified, indicate them alphabetically.
Example) -DN

<Example>




### Manifold (DIN rail mounting)

**VVQ1000 − FPG − 06**

When ordering a double check block, order the DIN rail mounting [-D].

**Stations**

| | |
|---|---|
| **01** | 1 station |
| ⋮ | ⋮ |
| **16** | 16 stations |

<Ordering example>
**VVQ1000-FPG-06···6-station manifold**
∗**VQ1000-FPG-C4M5-D, 3 sets**
∗**VQ1000-FPG-C6M5-D, 3 sets**
} **Double check block**

### Bracket Assembly

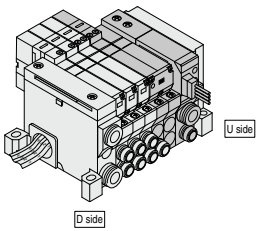
| Part no. | Tightening torque |
|---|---|
| **VQ1000-FPG-FB** | 0.22 to 0.25 N·m |

## ⚠ Caution

- Air leakage from the pipe between the valve and cylinder or from the fittings will prevent the cylinder from stopping for long periods of time. Check the leakage using neutral household detergent, such as dish washing soap. Also check the cylinder's tube gasket, piston packing and rod packing for air leakage.
- Since One-touch fittings allow slight air leakage, screw piping (with M5 thread) is recommended when stopping the cylinder in the middle for long periods of time.
- Combining double check block with 3-position closed center or pressure center solenoid valve will not work.
- M5 fitting assembly is attached, not incorporated into the double check block. After screwing in the M5 fittings, mount the assembly on the double check block. {Tightening torque: 0.8 to 1.2 N·m}
- If the exhaust of the double check block is restricted too much, the cylinder may not operate properly and may not stop intermediately.
- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.

## VQ1000: Manifold Option/With Ejector Unit

**An ejector unit can be mounted on the manifold base for a solenoid valve. Instead of mounting the valve and ejector unit separately, this option reduces piping, wiring and creates additional space savings.**




Note 1) SUP and EXH ports on the ejector unit manifold base are arranged on D-side alone. The end plate on the U-side is the same as that used in the L kit.
Note 2) Individual piping is provided for the supply and exhaust ports of the ejector unit.
Note 3) The manifold with an ejector unit is mounted from the U-side.
Note 4) One vacuum ejector unit corresponds to one station.
∗ Specify the mounting station by means of the manifold specification sheet.

### Specifications

| Ejector valve model | VVQ1000□-J□-□□1-A | VVQ1000□-J□-□□1-B |
|---|---|---|
| Nozzle diameter (mm) | 0.7 | 1.0 |
| Max. suction flow rate N (NL/min) | 11 | 20 |
| Max. vacuum pressure (mmHg) | –630 | |
| Max. operating pressure (MPa) | 0.7 (High-pressure type 0.8) | |
| Standard supply pressure (MPa) | 0.5 | |
| Operating temperature (°C) | 5 to 50 | |

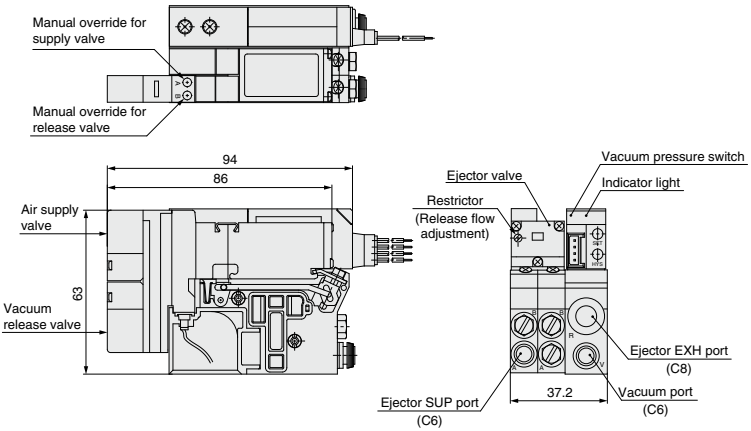
### Maximum Number of Ejector Units

(Max. number of ejector units is subject to the number of valve stations.)

| Max. number of ejector units | Max. number of mounted valves | | |
|---|---|---|---|
| | F, P, T kit | S, G, J kit | L kit |
| 1 | 11 (20) | 7 (14) | 7 |
| 2 | 10 (16) | 6 (12) | 6 |
| 3 | 9 (12) | 5 (10) | 5 |
| 4 | 8 (8) | 4 (8) | — |
| 5 | 4 (4) | 3 (4) | — |

Note) The max. number of mounted valves applies to double wiring. Parenthesized numbers apply to single wiring. Please contact SMC for conditions other than the above or mixed wiring.

## Dimensions




## How to Order

**VV5Q11−05C6FU0 −J P 1 S**

**Vacuum switch**

| | |
|---|---|
| Nil | None |
| P | With |

**Number of ejectors**

**1** to **5**

**Others, option symbols: to be indicated alphabetically.**

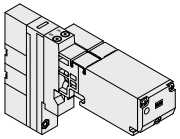
**Example)**

**VV5Q11-05C6FU0-JP1** ····· **1 set–Manifold part no.**
- ∗**VQ1100-51** ····· **2 sets–Valve part no. (Stations 1 to 2)**
- ∗**VQ1200-51** ····· **2 sets–Valve part no. (Stations 3 to 4)**
- ∗**VVQ1000-J1-51-A** ····· **1 set–Ejector valve part no.**
- ∗**ZSE1-00-15CL** ····· **1 set–Vacuum switch part no.**

Note 1) Count one ejector unit as one manifold station.
Note 2) The ejector unit is mounted next to the U-side end plate.
Note 3) The U-side end plate is used exclusively for ejector units. (Without P and R port)
Note 4) The dimension of manifold with an ejector unit is different from the standard dimension. See the formula for calculating the dimensions for each kit.

## How to Order Ejector Valves

**VVQ1000 □ – J 1 – 5 C 1 – A**



**Function**

| Symbol | Specifications | DC | AC |
|---|---|---|---|
| Nil | Standard | (0.4 W) ○ | ○ Note 1) |
| B | High-speed response type | (0.95 W) ○ | — |
| K | High-pressure type (0.8 MPa) | (0.95 W) ○ | — |
| N | Negative common | ○ | — |

Note 1) For power consumption of AC type, refer to page 381.
Note 2) When two or more symbols are specified, indicate them alphabetically. Combination of [B] and [K] is not possible.

**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 |

**Manifold**

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

**Specifications**

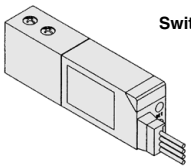
| Symbol | Nozzle diameter | Vacuum release valve |
|---|---|---|
| A | 0.7 | With |
| B | 1.0 | |

**Manual override**

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

## How to Order Vacuum Pressure Switches

**ZSE1 – 00 – 15 CL**



**Switch spec./Voltage (Solid state: 12 to 24 VDC)**

| | |
|---|---|
| 14 | 1 setting, Without analog output, 3 revolution adjustment |
| 15 | 1 setting, Without analog output, 200° adjustment |
| 16 | 2 setting, Without analog output, 3 revolution adjustment |
| 17 | 2 setting, Without analog output, 200° adjustment |
| 18 | 1 setting, With analog output, 3 revolution adjustment |
| 19 | 1 setting, With analog output, 200° adjustment |

**Wiring specifications**

| | |
|---|---|
| Nil | Grommet type, Lead wire length 0.6 m |
| L | Grommet type, Lead wire length 3 m |
| C | Connector type, Lead wire length 0.6 m |
| CL | Connector type, Lead wire length 3 m |
| CN | Without connector Note) |

Note) When ordering the switch with 5 m lead wire length, order separately the switch without connector and the connector. (Refer to the below.) Besides, refer to the Vacuum Equipment (SMC website) for details.

**How to Order Connectors**

- Without lead wire (Connector 1 pc., Socket 4 pcs.) ····· ZS-20-A
- With lead wire ····· ZS-20-5A-□

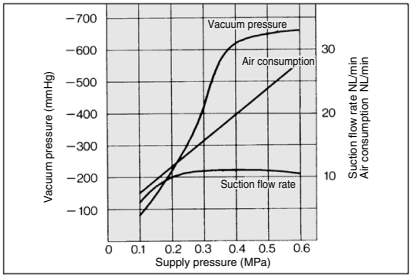
**Lead wire length (m)**

| | |
|---|---|
| Nil | 0.6 |
| 30 | 3 |
| 50 | 5 |

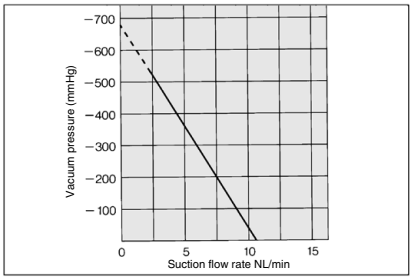
## Flow/Exhaust Characteristics of Ejector Unit

(The flow rate characteristics are for the supply pressure of 0.5 MPa.)

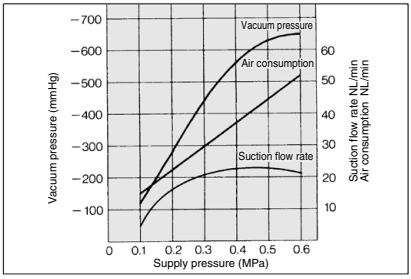
**Nozzle Diameter ø0.7**
**Exhaust Characteristics**



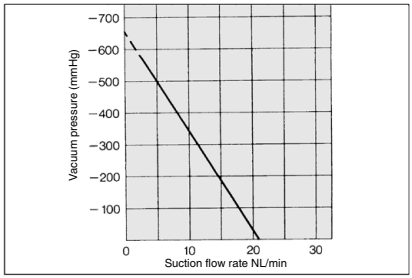

**Flow Rate Characteristics**




**Nozzle iameter ø1.0**
**Exhaust Characteristics**




**Flow Rate Characteristics**

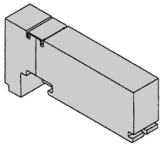


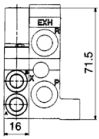
## VQ2000: Manifold Optional Parts

### Blanking plate assembly
### VVQ2000-10A-1

**Symbol**

It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.

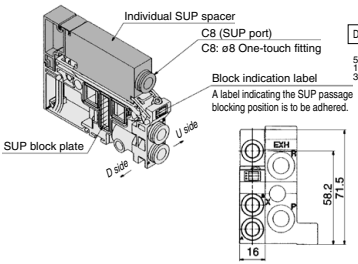





### Individual SUP spacer
### VVQ2000-P-1-$^{C8}_{N9}$

When the same manifold is to be used for different pressures, individual SUP spacers are used as SUP ports for different pressures. (One station space is occupied.)
Block both sides of the station, for which the supply pressure from the individual SUP spacer is used, with SUP block plates. (Refer to the application example.)

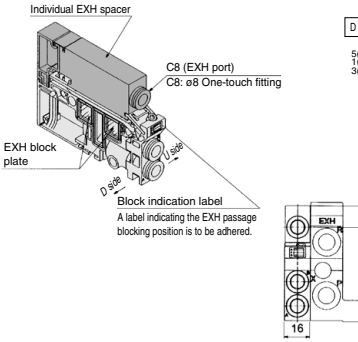
- Specify the spacer mounting position and SUP block plate position by means of the manifold specification sheet. The block plate is used in one or two places for one set. (Two SUP block plates for blocking SUP station are attached to the individual SUP spacer.)
- As a standard, electric wiring is connected to the position of the manifold station where the individual SUP spacer is mounted.
- If wiring is not required for stations equipped with spacers, enter "X" in the special wiring specifications column in the manifold specification sheet.




### Individual EXH spacer
### VVQ2000-R-1-$^{C8}_{N9}$

When valve exhaust affects other stations due to the circuit configuration, this spacer is used for individual valve exhaust. (One station space is occupied.)
Block both sides of the individual valve EXH station. (Refer to the application example.)

- Specify the mounting position, as well as the EXH block base or EXH block plate position by means of the manifold specification sheet.
  The block plate is used in one or two places for one set. (Two EXH block plates for blocking EXH station are attached to the individual EXH spacer.)
- As a standard, electric wiring is connected to the position of the manifold station where the individual EXH spacer is mounted.
- If wiring is not required for stations equipped with spacers, enter "X" in the special wiring specifications column in the manifold specification sheet.
- Do not install any back pressure check valve on the manifold station, on which the spacer is to be mounted. When installing the back pressure check valve on other manifold station, be sure to specify the manifold station position on the manifold specification sheet instead of ordering by specifying the manifold option symbol "B".



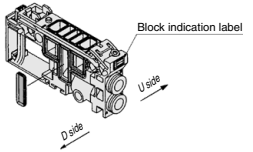

### SUP block plate
### VVQ2000-16A

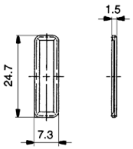
When different pressures are supplied to a manifold, a SUP block plate is used to block the stations under different pressures.

- Specify the mounting position by means of the manifold specification sheet.

**<Block indication label>**

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




- When ordering a block plate incorporated with a manifold, a block indication label is attached to the manifold.

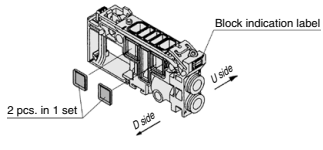
### EXH block plate
### VVQ2000-19A

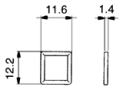
The EXH block plate is used between stations for which exhaust is desired to be divided when valve exhaust affects other stations configuration. It is also used in combination with an individual EXH spacer for individual exhaust.

- Specify the mounting position by means of the manifold specification sheet.

**<Block indication label>**

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

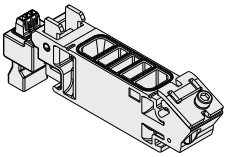


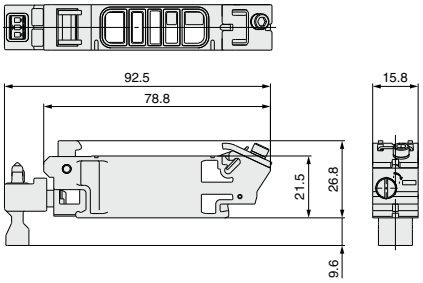



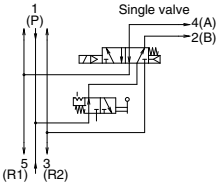

- When ordering a block plate incorporated with a manifold, a block indication label is attached to the manifold.

## SUP stop valve spacer
## VVQ2000-24A-1

A SUP stop valve spacer is mounted on a manifold block, making it possible to individually shut off supply air to each valve.
Enclosure: Dust-tight, Water-jet-proof (IP65) compliant





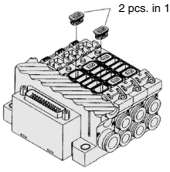

**<Circuit diagram>**
(Example of a spacer with a built-in single valve)

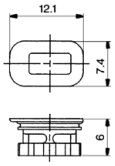
## Back pressure check valve assembly [-B]
## VVQ2000-18A

It prevents cylinder malfunction caused by other valve exhaust entry. Insert it into R (EXH) port on the manifold side of a valve which is affected. It is effective when a single-acting cylinder is used or an exhaust center type solenoid valve is used.

* When ordering assemblies incorporated with a manifold, add suffix "-B" to the end of the manifold part number.

Note) When a check valve for back pressure prevention is desired and is to be installed only in certain manifold stations, clearly indicate the part number and specify the mounting position by means of the manifold specification sheet.




(Precautions)

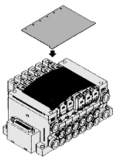
1. The manifold installed type back pressure check valve assembly is assembly parts with a check valve structure. However, since slight air leakage against the back pressure is allowed due to its structure, adverse effects of the back pressure due to increase in exhaust resistance cannot be prevented if the manifold exhaust port and other exhaust ports are put together for piping or if the piping diameter is narrowed. As a result, this may cause the actuator and air operated equipment to malfunction. So, be careful not to restrict the exhaust air.
2. When a back pressure check valve is mounted, the effective area of the valve will decrease by about 20%.

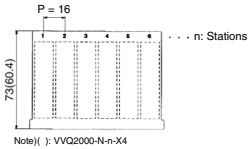
## Name plate [-N]
## VVQ2000-N-Station (1 to Max. stations) (-X4)

**-X4: For mounting slide locking type manual valve**

It is a transparent resin plate for placing a label that indicates solenoid valve function, etc. Insert it into the groove on the side of the end plate and bend it as shown in the figure.

* When the slide locking type manual valve is mounted, it automatically will be "VVQ2000-N-n-X4"
* When ordering this option incorporated with a manifold, suffix "-N" to the end of the manifold part number.

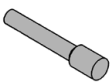


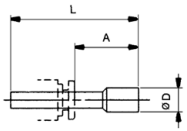



Note)( ): VVQ2000-N-n-X4

## Blanking plug (For One-touch fittings)
## KQ2P-□

It is inserted into an unused cylinder port and SUP/EXH ports. Purchasing order is available in units of 10 pieces.





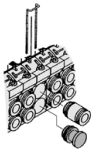

### Dimensions

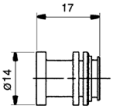
| Applicable fitting size ød | Model | A | L | D | Applicable fitting size ød | Model | A | L | D |
|---|---|---|---|---|---|---|---|---|---|
| 4 | **KQ2P-04** | 16 | 32 | 6 | 5/32" | **KQ2P-03** | 16 | 32 | 6 |
| 6 | **KQ2P-06** | 18 | 35 | 8 | 1/4" | **KQ2P-07** | 18 | 35 | 8.5 |
| 8 | **KQ2P-08** | 20.5 | 39 | 10 | 5/16" | **KQ2P-09** | 20.5 | 39 | 10 |
| 10 | **KQ2P-10** | 22 | 43 | 12 | 3/8" | **KQ2P-11** | 22 | 43 | 11.5 |

## Port plug
## VVQ1000-58A

The plug is used to block the cylinder port.

* When ordering a plug incorporated with a manifold, indicate "CM" for the port size of the manifold part number, as well as, the mounting position and number of stations and cylinder port mounting positions, A and B by means of the manifold specification sheet.



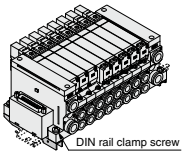


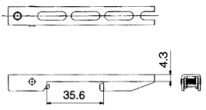
## VQ2000: Manifold Optional Parts

### DIN rail mounting bracket [-D/-D0/-D□]
**VVQ2000-57A**

It is used for mounting a manifold on a DIN rail.
* When ordering this option incorporated with a manifold, suffix "-D" to the end of the manifold part number.

1 set of DIN rail mounting bracket is used for 1 manifold (2 DIN rail mounting brackets).



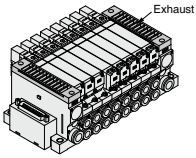




### Direct EXH outlet with built-in silencer [-S]

This is a type with an exhaust port atop the manifold end plate. The built-in silencer exhibits an excellent noise suppression effect. (Noise reduction: 30 dB)
* When ordering this option incorporated with a manifold, suffix "-S" to the end of the manifold part number.

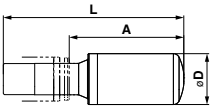
Note) A large quantity of drainage generated in the air source results in exhaust of air together with drainage.

● Refer to page 443 for maintenance.




### Silencer (For EXH port)

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

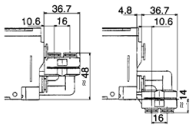



**Dimensions**

| Series | Applicable fitting size ød | Model | A | L | D | Effective area (mm²) (Cv factor) | Noise reduction (dB) |
|---|---|---|---|---|---|---|---|
| **VQ2000** | 10 | AN20-C10 | 36.5 | 57.5 | 16.5 | 30 | 30 |

### Elbow fitting assembly
**VVQ2000-F-L(C4/C6/C8/N3/N7/N9)**

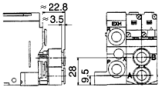
It is used for piping that extends upward or downward from the manifold.
When not installed in the manifold stations, specify the assembly part number and the mounting position by means of the manifold specification sheet.




### Dual flow fitting assembly
**VVQ2000-52A-$^{C10}_{N11}$**

This is a fitting to multiply the flow rate by combining the outputs of 2-valve stations. It is used for driving a large bore cylinder. This is a One-touch fitting for a port size of ø10 or ø3/8".

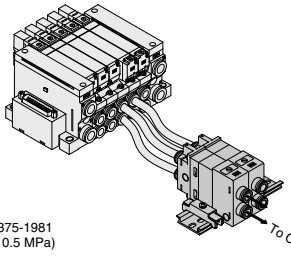
* The port size for the manifold part number is "MM".
Clearly indicate the dual flow fitting assembly part number and specify the mounting position by means of the manifold specifications.



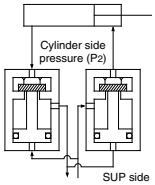
## Manifold Option

### Double check block (Separated) for VQ2000
### VQ2000-FPG-□□-□

It is mounted on the outlet side piping to keep the cylinder in the intermediate position for a long time. Combining the double check block with a 3-position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for long periods of time.
The combination with a 2-position single/double solenoid valve will prevent the dropping at the cylinder stroke end when the SUP residual pressure is released.




<Circuit diagram>



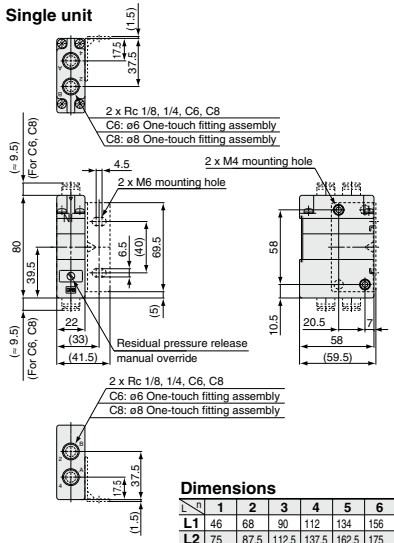

### Specifications

| | |
|---|---|
| **Max. operating pressure** | 0.8 MPa |
| **Min. operating pressure** | 0.15 MPa |
| **Ambient and fluid temp.** | –5 to 50°C |
| **Flow rate characteristics: C** | 3.0 dm³/(s·bar) |
| **Max. operating frequency** | 180 c.p.m |

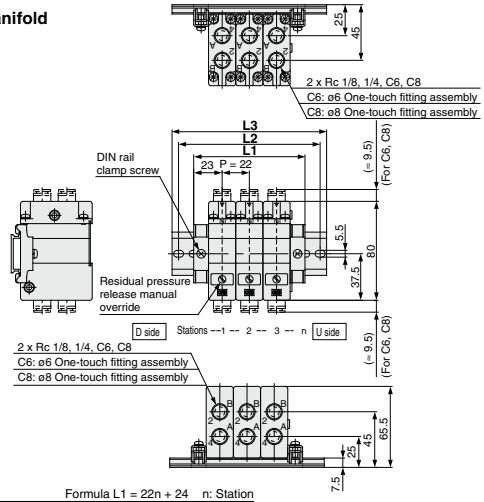
Note) Based on JIS B 8375-1981
(Supply pressure: 0.5 MPa)

## Dimensions

**Single unit**




**Manifold**




**Dimensions** Formula L1 = 22n + 24 n: Station

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | 46 | 68 | 90 | 112 | 134 | 156 | 178 | 200 | 222 | 244 | 266 | 288 | 310 | 332 | 354 | 376 |
| **L2** | 75 | 87.5 | 112.5 | 137.5 | 162.5 | 175 | 200 | 225 | 250 | 262.5 | 287.5 | 312.5 | 337.5 | 362.5 | 375 | 400 |
| **L3** | 85.5 | 98 | 123 | 148 | 173 | 185.5 | 210.5 | 235.5 | 260.5 | 273 | 298 | 323 | 348 | 373 | 385.5 | 410.5 |

## How to Order

### Double check block

**VQ2000-FPG-** [01] [01] **-** [F]

**IN side port size**

| | |
|---|---|
| **01** | Rc 1/8 |
| **02** | Rc 1/4 |
| **C6** | ø6 One-touch fitting |
| **C8** | ø8 One-touch fitting |
| **N7** | ø1/4" One-touch fitting |
| **N9** | ø5/16" One-touch fitting |

**OUT side port size**

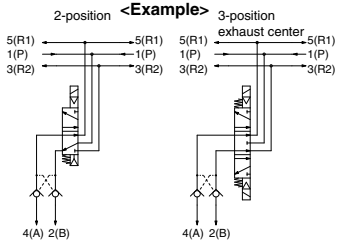
| | |
|---|---|
| **01** | Rc 1/8 |
| **02** | Rc 1/4 |
| **C6** | ø6 One-touch fitting |
| **C8** | ø8 One-touch fitting |
| **N7** | ø1/4" One-touch fitting |
| **N9** | ø5/16" One-touch fitting |

**Option**

| | |
|---|---|
| **Nil** | None |
| **D** | DIN rail mounting (For manifold) |
| **F** | With bracket |
| **N** | Name plate |

Note) When two or more symbols are specified, indicate them alphabetically.
Example) -DN

<Example>




### Manifold (DIN rail mounting)

**VVQ2000-FPG-** [06]

**Stations**

| | |
|---|---|
| **01** | 1 station |
| ⋮ | ⋮ |
| **16** | 16 stations |

When ordering a double check block, order the DIN rail mounting [-D].

**<Ordering Example>**
**VVQ2000-FPG-06···6-station manifold**

- ✻**VQ2000-FPG-C6C6-D, 3 sets**
- ✻**VQ2000-FPG-C8C8-D, 3 sets**

} **Double check block**

### Bracket Assembly

| Part no. | Tightening torque |
|---|---|
| **VQ2000-FPG-FB** | 0.8 to 1.0 N·m |

### ⚠ Caution

- Air leakage from the pipe between the valve and cylinder or from the fittings will prevent the cylinder from stopping for long periods of time. Check the leakage using neutral household detergent, such as dish washing soap. Also check the cylinder's tube gasket, piston packing and rod packing for air leakage.
- Since One-touch fittings allow slight air leakage, screw piping is recommended when stopping the cylinder in the middle for long periods of time.
- Combining double check block with 3-position closed center or pressure center solenoid valve will not work.
- When fittings, etc. are being screwed to the double check block, tighten them with the torque below.

| Connection threads | Proper tightening torque (N·m) |
|---|---|
| Rc 1/8 | 7 to 9 |
| Rc 1/4 | 12 to 14 |

- If the exhaust of the double check block is restricted too much, the cylinder may not operate properly and may not stop intermediately.
- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.

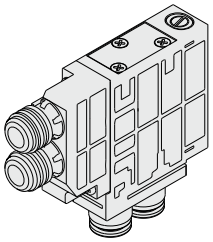
## Manifold Option

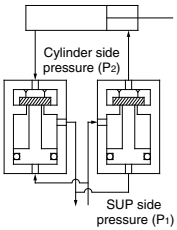
**Double check block (Direct mounting)**
**VVQ2000-23A-C4**

| Symbol | Port size | Piping direction |
|---|---|---|
| **C3** | With One-touch fitting for ø 3.2 | Top |
| **C4** | With One-touch fitting for ø 4 | Top |
| **C6** | With One-touch fitting for ø 6 | Top |
| **C8** | With One-touch fitting for ø 8 | Top |
| **B3** | With One-touch fitting for ø 3.2 | Bottom |
| **B4** | With One-touch fitting for ø 4 | Bottom |
| **B6** | With One-touch fitting for ø 6 | Bottom |
| **B8** | With One-touch fitting for ø 8 | Bottom |

It is mounted directly on the manifold to keep the cylinder in the intermediate position for a long time. Combining the double check block with a built-in pilot type double check valve and a 3-position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for long periods of time.
The combination with a 2-position single/double solenoid valve will permit this block to be used for preventing the dropping at the cylinder stroke end when the SUP residual pressure is released.

**<Check valve operation principle>**



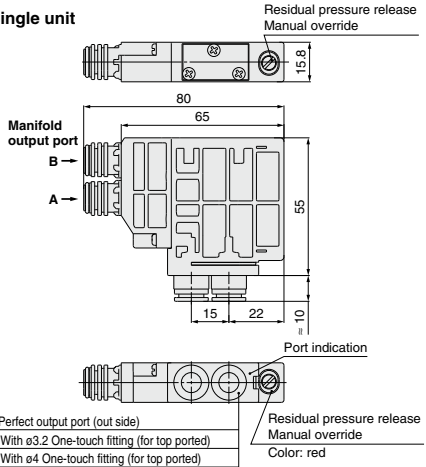



### Specifications

| | |
|---|---|
| **Max. operating pressure** | 0.7 MPa |
| **Min. operating pressure** | 0.15 MPa |
| **Ambient and fluid temperature** | –5 to 50°C |
| **Flow rate characteristics: C** | 1.8 dm³/(s·bar) |
| **Max. operating frequency** | 180 c.p.m |

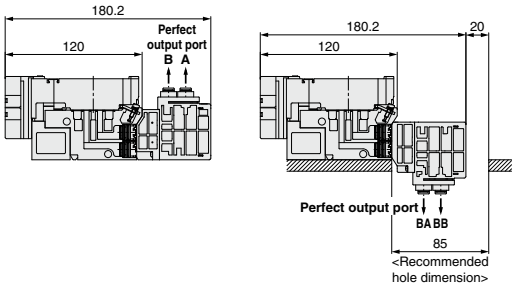
## Dimensions

**Single unit**




2 x Perfect output port (out side)
C3: With ø3.2 One-touch fitting (for top ported)
C4: With ø4 One-touch fitting (for top ported)
C6: With ø6 One-touch fitting (for top ported)
C8: With ø8 One-touch fitting (for top ported)
B3: With ø3.2 One-touch fitting (for bottom ported)
B4: With ø4 One-touch fitting (for bottom ported)
B6: With ø6 One-touch fitting (for bottom ported)
B8: With ø8 One-touch fitting (for bottom ported)

**When the manifold is mounted.**

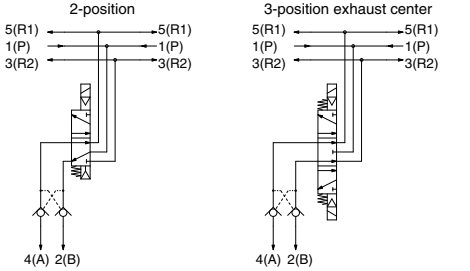



**Top ported (VVQ2000-23A-C□)** **Bottom ported (VVQ2000-23A-B□)**

**<Port indication>**

| Piping direction | Manifold output port | Perfect output port |
|---|---|---|
| **Top** | **A** | **A** |
| | **B** | **B** |
| **Bottom** | **A** | **BA** |
| | **B** | **BB** |

**<Example>**




### ⚠Caution

- Air leakage from the pipe between the valve and cylinder or from the fittings will prevent the cylinder from stopping for long periods of time. Check the leakage using neutral household detergent, such as dish washing soap.
  Also check the cylinder's tube gasket, piston packing and rod packing for air leakage.
- Since zero air leakage is not guaranteed, it is sometimes not possible to hold a stop position for long periods of time.
- Combining double check block with 3-position closed center or pressure center solenoid valve will not work.
- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.
- If the exhaust of the double check block is restricted too much, the cylinder may not operate properly and may not stop intermediately.
- The perfect output port may vary depending on the piping direction. Perform the piping work after checking the port indication.

# Plug-in Unit
## Base Mounted
# VQ1000 Series

[Option]



## How to Order Valves

**30 – VQ 1 [1] 0 [0] [ ] – [5] [ ] [ ] 1 – [ ]**

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ Ⓖ

- **30**: Conforming to UL standard
- **VQ1**: VQ1000 series

### Ⓐ Type of actuation

| | | | |
|---|---|---|---|
| **1** | 2-position single<br>(A)4 2(B)<br>(R1)5 1 3(R2)<br>(P) | Note) **A** | 4-position dual 3-port valve<br>(A) 4(A) 2(B)<br>5(R1) 1(P) 3(R2)<br>N.C. N.C. |
| **2** | 2-position double (Metal)<br>(A)4 2(B)<br>(R1)5 1 3(R2)<br>(P) | Note) **B** | 4-position dual 3-port valve<br>(B) 4(A) 2(B)<br>5(R1) 1(P) 3(R2)<br>N.O. N.O. |
| | 2-position double (Rubber)<br>(A)4 2(B)<br>(R1)5 1 3(R2)<br>(P) | Note) **C** | 4-position dual 3-port valve<br>(C) 4(A) 2(B)<br>5(R1) 1(P) 3(R2)<br>N.C. N.O. |
| **3** | 3-position closed center<br>(A)4 2(B)<br>(R1)5 1 3(R2)<br>(P) | Note) Rubber seal only | |
| **4** | 3-position exhaust center<br>(A)4 2(B)<br>(R1)5 1 3(R2)<br>(P) | | |
| **5** | 3-position pressure center<br>(A)4 2(B)<br>(R1)5 1 3(R2)<br>(P) | | |

### Ⓑ Seal

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

### Ⓒ Function

| | |
|---|---|
| **Nil** | Standard (0.4 W) |
| **B** | High-speed response type (0.95 W) |
| **K** Note 2) | High-pressure type (1.0 MPa, 0.95 W) |
| **N** Note 3) | Negative common |
| **R** Note 4) | External pilot |

Note 1) When two or more symbols are specified, indicate them alphabetically. However, combination of "B" and "K" is not possible.
Note 2) Metal seal only
Note 3) When "-COM." is specified for the SI unit, select and mount the valve of negative common.
Note 4) Dual 3-port is not applicable.

### Ⓓ Coil voltage

| | |
|---|---|
| **5** Note) | 24 VDC |
| **6** | 12 VDC |

Note) Only 24 VDC is available with the S kit.

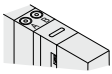
### Ⓔ Light/surge voltage suppressor

| | |
|---|---|
| **Nil** | Yes |
| **E** Note1, 2) | None (Non-polar) |

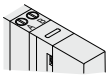
Note 1) Not applicable to the S kit.
Note 2) A combination of "Function N (Negative common)" and "E" is unavailable.
Since "E" has no polarity, it can also be used as a negative common. Selection of "Function N" is not required.

### Ⓕ Manual override

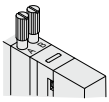
**Nil**: Non-locking push type (Tool required)



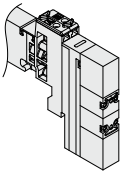
**B**: Locking type (Tool required)



**C**: Locking type (Manual)



**D**: Slide locking type (Manual)



### Ⓖ CE-compliant

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

Refar to the standard product for specifications and dimensions.

# Plug-in Unit
## Base Mounted
# VQ2000 Series

[Option]

## How to Order Valves

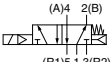
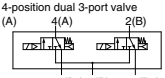
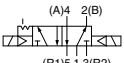
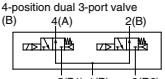
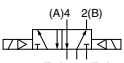
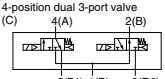
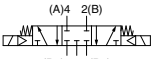
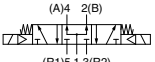
**30 – VQ 2 1 0 0 – 5 1 –**

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ Ⓖ

**Conforming to UL standard**

**VQ2000 series**

### Ⓐ Type of actuation

| | | | |
|---|---|---|---|
| **1** | 2-position single<br>  <br> | Note) **A** | 4-position dual 3-port valve<br>  <br> |
| **2** | 2-position double (Metal)<br>  <br> | Note) **B** | 4-position dual 3-port valve<br>  <br> |
| | 2-position double (Rubber)<br>  <br> | Note) **C** | 4-position dual 3-port valve<br>  <br> |
| **3** | 3-position closed center<br>  <br> | Note) Rubber seal only | |
| **4** | 3-position exhaust center<br>  <br> | | |
| **5** | 3-position pressure center<br>  <br> | | |

### Ⓑ Seal

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

### Ⓒ Function

| | |
|---|---|
| **Nil** | Standard (0.4 W) |
| **B** | High-speed response type (0.95 W) |
| **K** Note 2) | High-pressure type (1.0 MPa, 0.95 W) |
| **N** Note 3) | Negative common |
| **R** Note 4) | External pilot |

Note 1) When two or more symbols are specified, indicate them alphabetically. However, combination of "B" and "K" is not possible.
Note 2) Metal seal only
Note 3) When "-COM." is specified for the SI unit, select and mount the valve of negative common.
Note 4) Dual 3-port type is not applicable.

### Ⓓ Coil voltage

| | |
|---|---|
| **5** Note) | 24 VDC |
| **6** | 12 VDC |

Note) Only 24 VDC is available with the S kit.

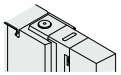
### Ⓔ Light/surge voltage suppressor

| | |
|---|---|
| **Nil** | Yes |
| **E** Note1, 2) | None (Non-polar) |

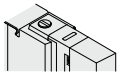
Note 1) Not applicable to the S kit.
Note 2) A combination of "Function N (Negative common)" and "E" is unavailable.
Since "E" has no polarity, it can also be used as a negative common. Selection of "Function N" is not required.

### Ⓕ Manual override

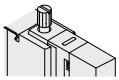
**Nil**: Non-locking push type (Tool required)



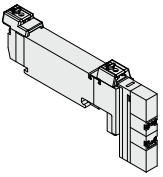
**B**: Locking type (Tool required)



**C**: Locking type (Manual)



**D**: Slide locking type (Manual)



### Ⓖ CE-compliant

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

Refar to the standard product for specifications and dimensions.

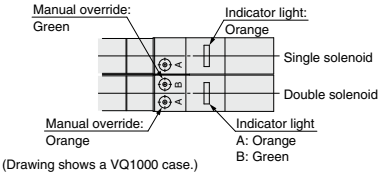
# Specific Product Precautions 1

**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.**

## Light/Surge Voltage Suppressor

### ⚠Caution

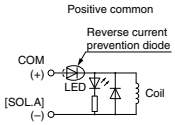
**The lighting positions are concentrated on one side for both single solenoid type and double solenoid type. In the double solenoid type, A side and B side energization are indicated by two colors which match the colors of the manual overrides.**



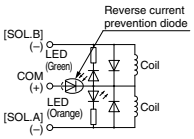

(Drawing shows a VQ1000 case.)

**DC circuit diagram**

**Single solenoid**




**Double solenoid**



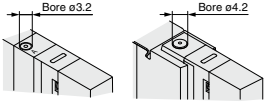

Note) A-side energization: A light (Orange) illuminates.
B-side energization: B light (Green) illuminates.
With wrong wiring prevention (stop diode) mechanism
With a surge absorption (surge absorption diode) mechanism

## Manual Override

### ⚠Warning

**Without an electric signal for the solenoid valve the manual override is used for switching the main valve. Push type is standard. (Tool required) Locking type is semi-standard. (Tool required/Manual)**

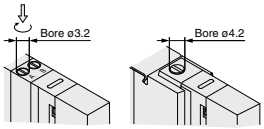
**■ Push type (Tool required)**




**VQ1000** **VQ2000**

Push down on the manual override with a small screwdriver, etc. until it stops. Release the screwdriver and the manual override will return.

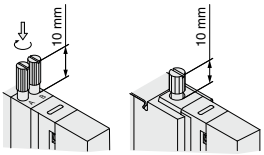
**■ Locking type (Tool required) <Semi-standard>**




**VQ1000** **VQ2000**

Push down on the manual override with a flat head screwdriver until it stops. Turn it clockwise by 90° to lock it. Turn it counterclockwise to release it.

**■ Locking type (Manual) <Semi-standard>**




**VQ1000** **VQ2000**

Push down on the manual override with a small flat head screwdriver or with your fingers 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)

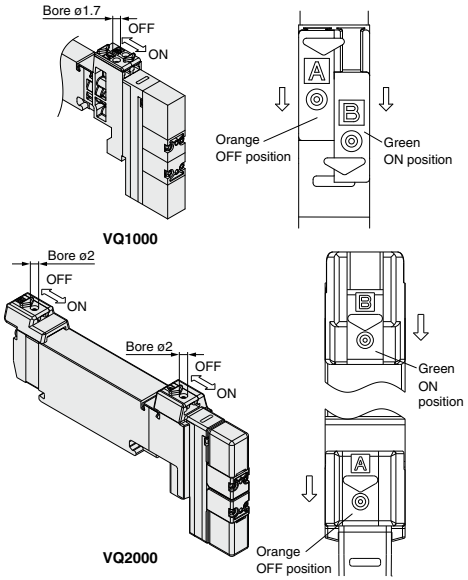
# *VQ1000/2000 Series*
# Specific Product Precautions 2

**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.**

## Manual Override

## ⚠Warning

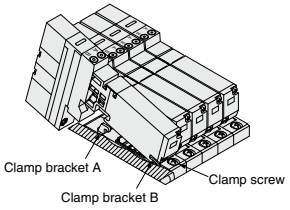
■ **Slide locking type (Manual) <Semi-standard>**




The manual override is locked by sliding it all the way to the pilot valve side (ON side) with a small flat head screwdriver or finger. Slide it to the fitting side (OFF side) to release it. In addition, it can also be used as a push type by using a screwdriver, etc., of ø1.7 or less. (ø2 or less for VQ2000).

## How to Mount/Remove Solenoid Valves

## ⚠Caution




**Removing**

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

## How to Mount/Remove Solenoid Valves

## ⚠Caution

**Mounting**

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

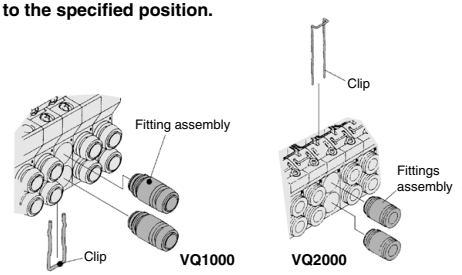
**⚠Caution**

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

## Replacement of Cylinder Port Fittings

## ⚠Caution

**The cylinder port fittings are a cassette for easy replacement. The fittings are blocked by a clip. Take out the clip with a flat head screwdrier, etc., then replace the fittings.**
**For mounting, insert the fitting assembly until it strikes against the inside wall and then insert the clip to the specified position.**




| Applicable tubing O.D. | Fitting assembly part no. | |
|---|---|---|
| | **VQ1000** | **VQ2000** |
| Applicable tubing ø3.2 | VVQ1000-50A-C3 | — |
| Applicable tubing ø4 | VVQ1000-50A-C4 | VVQ1000-51A-C4 |
| Applicable tubing ø6 | VVQ1000-50A-C6 | VVQ1000-51A-C6 |
| Applicable tubing ø8 | — | VVQ1000-51A-C8 |
| M5 | VVQ1000-50A-M5 | — |
| Applicable tubing ø1/8" | VVQ1000-50A-N1 | — |
| Applicable tubing ø5/32" | VVQ1000-50A-N3 | VVQ1000-51A-N3 |
| Applicable tubing ø1/4" | VVQ1000-50A-N7 | VVQ1000-51A-N7 |
| Applicable tubing ø5/16" | — | VVQ1000-51A-N9 |

∗ Refer to "Manifold Optional Parts" on pages 429, 430, 436 for other types of fittings.

**⚠Caution**

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

# *VQ1000/2000 Series*
# Specific Product Precautions 3

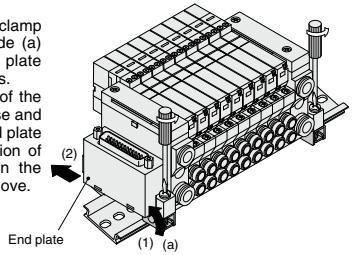
**Be sure to read this before handling the products.**
**Refer to back page 50 for Safety Instructions and pages 3 to 9 for 3/4/5 Port Solenoid Valve Precautions.**

## How to Mount/Remove DIN Rail

### ⚠Caution

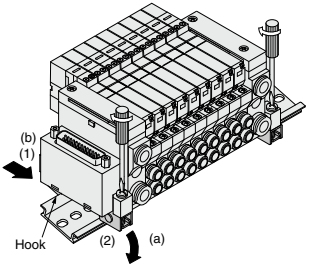
**Removing**

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




**Mounting**

1. Hook side (b) of the manifold base on the DIN rail.
2. Press down side (a) and mount the end plate on the DIN rail. Tighten the clamp screw on side (a) of the end plate. (Proper tightening torque: VQ1000, 1.1 to 1.3 N·m; VQ2000, 1.4 to 1.6 N·m.)




## IP65 Enclosure

### ⚠Caution

Wiring connection for models conforming to IP65 should also have enclosures equivalent to or of stricter than IP65.

## Built-in Silencer Element

### ⚠Caution

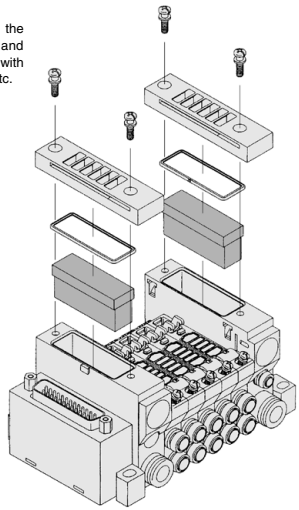
A filter element is incorporated in the end plate on both sides of the maifold base. A dirty and choked element may reduce cylinder speed or cause malfunction. Clean or replace the dirty element.

**Element Part No.**

| Type | Element part no. | |
|---|---|---|
| | **VQ1000** | **VQ2000** |
| Built-in silencer, direct exhaust | VVQ1000-82A-1 | VVQ2000-82A-1 |

The minimum order quantity is 10 pcs.

Remove the cover from the top of the end plate and remove the old element with a flat head screwdriver, etc.



## How to Calculate Flow Rate

Refer to front matters for obtaining the flow rate.