

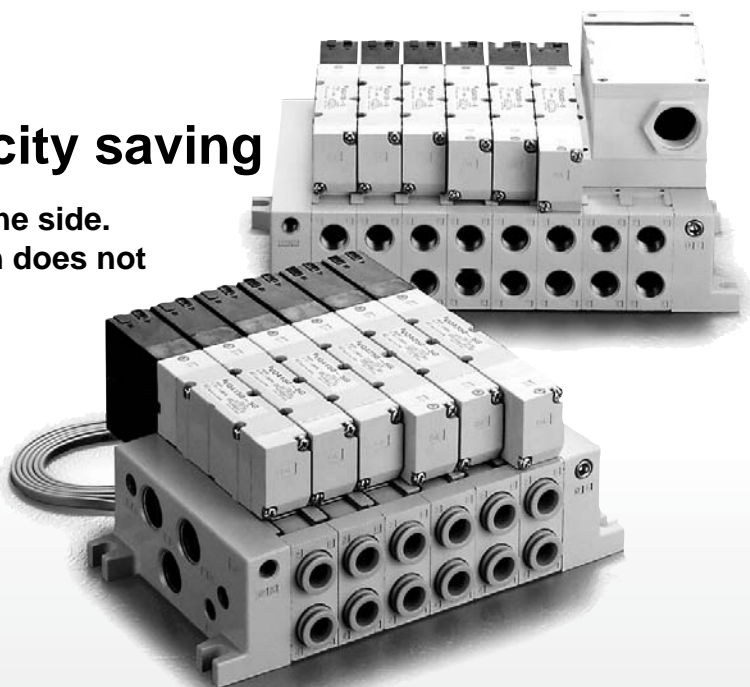
5 Port Solenoid Valve: Base Mounted Metal Seal/Rubber Seal

Series VQ4000

Space and capacity saving

Pilot valve is gathered at one side.
Space saving design which does not
have any protrusions.

Space saving ——— 40% less
Capacity saving ——— 50% less
(In house comparison)



Compact design with

Large flow capacity

(Suitable for cylinders up to $\varnothing 140$)

Built-in One-touch fitting for easier piping

High speed & Long life

(Metal seal, with light and surge
suppressor)

VQ4100 17mS (Single)
VQ4200 12mS (Double)
100 million cycles
* According to SMC life
test conditions
Dispersion accuracy $\pm 3\text{mS}$

Various centralized wiring options <Plug-in>

F kit (D-sub connector) 	T kit (Terminal box)
L kit (Lead wire) 	S kit (Serial transmission)

Enclosure: Optional IP65 rating

Optional IP65 is available. Dust-tight, Jet-proof

Cylinder operation speed

Valve width mm	N ₂ /min Rubber seal (Metal seal)	Cylinder speed mm/s	Cylinder bore size mm					
			40	50	63	80	100	125
24.5	2160 (1963)	150						
		300						
		450						
		600						
		750						

Pressure: 0.5MPa, Load rate: 50%

Note) Cylinder speed varies according to piping construction equipment.
So this Table is for your reference only.

Performance value shown on catalogue is typical value, this is not for
performance guarantee.

Individual wiring style <Plug lead>

C kit
(Connector)

Enclosure: Optional IP65 rating
Grommet

SV
SY
SYJ
SX
VK
VZ
VF
VFR
VP7

VQC
SQ
VQ
VQ4
VQ5
VQZ
VQD
VFS
VS
VS7

⚠ Caution 1: Series VQ4000

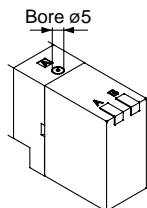
Be sure to read before use. Refer to p. 0-33 to 0-36 for Safety Instruction and common precautions.

⚠ Warning

Manual Override

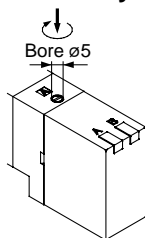
When manual override is used, the connected equipment starts operating. Make sure that there is no danger. Non-locking style (push style) is available as standard, locking slotted style is optional style.

Non-locking push style

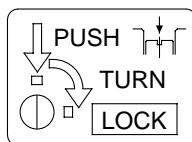


Push down on the manual override button with a small screwdriver until it stops. Release the screwdriver and the manual override will return.

Locking slotted style



Push down on the manual override button with a small screwdriver until it stops. While down, turn clockwise by 90° to lock it. Turn it counter-clockwise to release it.

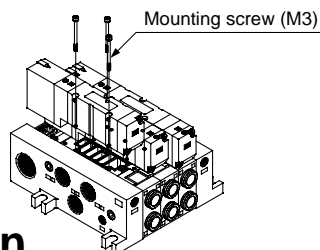


⚠ Caution

Valve Mounting

After confirming the gasket is correctly placed under the valve, tighten the mounting screws with the appropriate torque listed below.

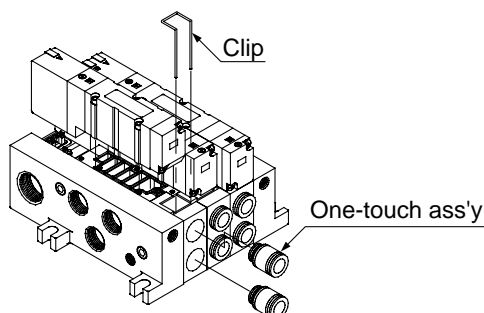
Suitable tightening torque Nm
0.8 to 1.2



⚠ Caution

Changing the One-touch Fittings

The built-in fittings on the manifold can be changed easily. Simply remove the corresponding valve and take out the fitting clip underneath. Then remove the affected fitting and replace with a new one. Finally, replace the fitting clip and remount the valve.

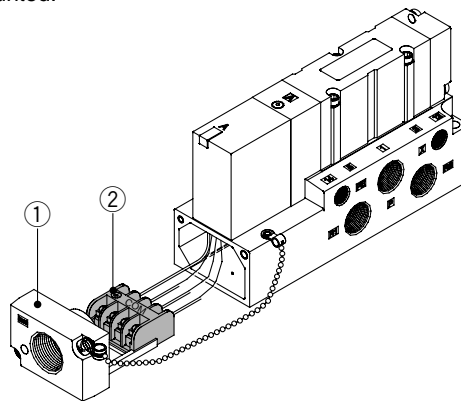


⚠ Caution

Connection of Lead Wire

Plug-in sub-plate (With terminal block)

- Remove junction cover ① of sub-plate where terminal block box ② is mounted.



- Markings shown below are on terminal block box, connect each power supply.

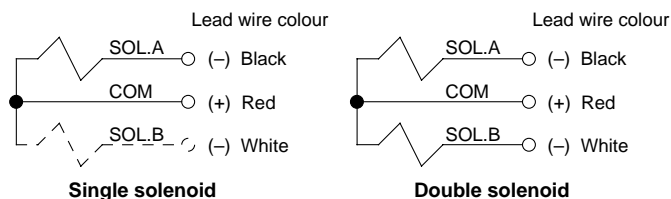
Terminal block marking	A	COM	B	T
Model				
VQ410 ⁰ ₁	A side	COM	—	—
VQ420 ⁰ ₁	A side	COM	B side	—
VQ4 ³ ₅ 0 ⁰ ₁	A side	COM	B side	—

Note 1) Not polar, possible to use as -COM.

Note 2) Double wiring is used on sub-plate VQ410⁰₁.

Plug lead: Grommet

Connect each corresponding wire.



	Single solenoid	Double solenoid
Standard		
Enclosure (IP65)		

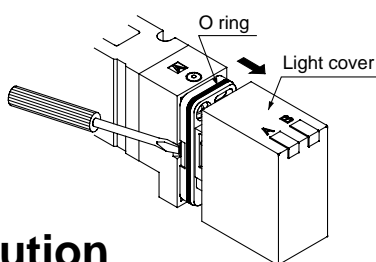
Note) No polarity. Possible to use as -COM.

⚠ Caution**Installation/Removal of Light Cover****Removal of light cover****• Removal**

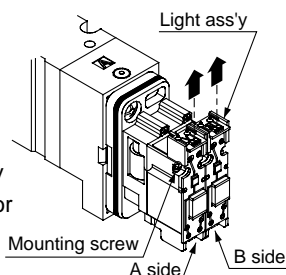
Open the cover by inserting a small flat head screw driver into the slot on the side of the pilot assembly(see drawing below), lift the cover out about 1 mm and then pull off. (If the cover is pulled off at a angle, damage could be done to the O ring and/or the pilot valve.)

• Installation

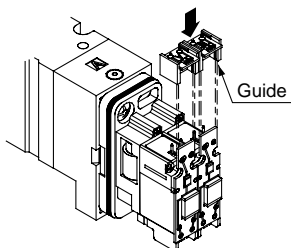
Insert the cover straight onto the pilot assembly making sure not to contact the pilot valve and lock into place.

**⚠ Caution****Changing the Pilot Valve****• Removal of Pilot Valve**

1. Remove the light cover. (See above) Then remove the mounting screws that attach the valve to the pilot assembly.
2. Remove the light circuit board by pulling it straight off the connector pins.

**• Installing Pilot Valve**

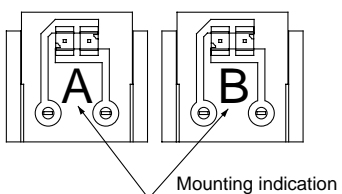
1. Insert the light circuit board onto the connector pins on the pilot valve.
2. Confirm that the gasket is on the pilot valve and tighten the mounting screws with the torque listed below.



Suitable tightening torque Nm

0.1 to 0.13

Note) Pilot valves can be mounted on either direction. Make sure that the light circuit board is mounted correctly on the pilot valve. It is marked with an "A" or "B". (A side is orange and B side is green.) If mounted on the wrong side, the light will be darker.

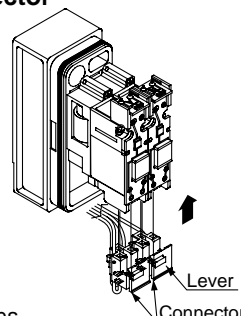
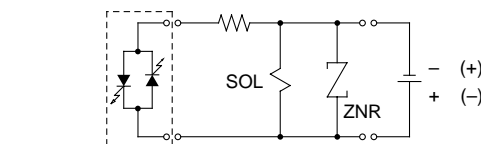
**Light circuit No.**

SOL. A	VQZ100-47-A
SOL. B	VQZ100-47-B

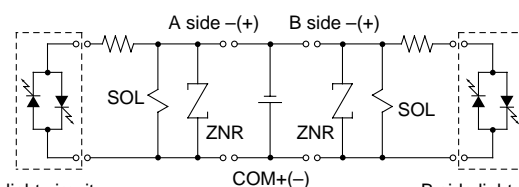
Plug Lead**Installation/Removal Plug connector with lead wires**

- To install the connector simply insert it onto the pins, push the lever hook into the groove and lock into place.
- To remove the connector, push down on the lever and remove the hook from the groove.

Note) Do not use excessive force to remove the connector as this might loosen the wire connections inside the connector.

**⚠ Caution****Internal Wiring Specifications**

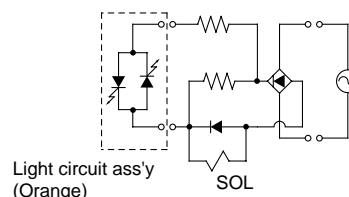
Light circuit ass'y (Orange)

DC: Single

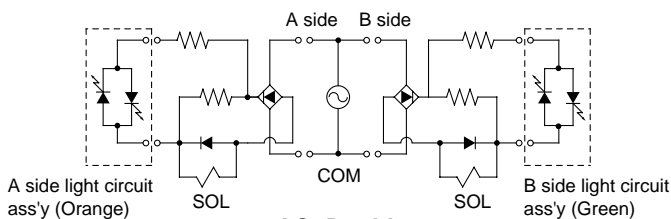
A side light circuit ass'y (Orange)

DC: Double

B side light circuit ass'y (Green)



Light circuit ass'y (Orange)

AC: Single

A side light circuit ass'y (Orange)

AC: Double

B side light circuit ass'y (Green)

⚠ Caution**Enclosure IP65**

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

SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

VFS

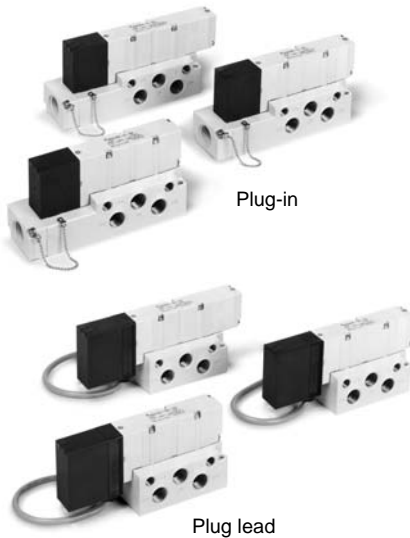
VS

VS7

Series VQ4000

Base Mounted Valve

Plug-in, Plug Lead/Single Unit



Model

Series	Configuration	Model	Effective area ⁽¹⁾ (mm ²) (N _L /min)	Response time ms ⁽²⁾		Weight ⁽³⁾ (kg)
				Standard: 1W	Low wattage and AC	
VQ4000	2 position	Single	Metal seal VQ41 ⁰ ₅₀	36.0 (1963)	20 or less	0.23 (0.29)
			Rubber seal VQ41 ⁰ ₅₁	39.6 (2159)	25 or less	
		Double	Metal seal VQ42 ⁰ ₅₀	36.0 (1963)	12 or less	0.26 (0.32)
			Rubber seal VQ42 ⁰ ₅₁	39.6 (2159)	15 or less	
	3 position	Closed centre	Metal seal VQ43 ⁰ ₅₀	32.4 (1766)	45 or less	0.28 (0.34)
			Rubber seal VQ43 ⁰ ₅₁	36.0 (1963)	50 or less	
		Exhaust centre	Metal seal VQ44 ⁰ ₅₀	36.0 (1963)	45 or less	0.28 (0.34)
			Rubber seal VQ44 ⁰ ₅₁	39.6 (2159)	50 or less	
		Pressure centre	Metal seal VQ45 ⁰ ₅₀	36.0 (1963)	45 or less	0.28 (0.34)
			Rubber seal VQ45 ⁰ ₅₁	39.6 (2159)	50 or less	
		Double check	Metal seal VQ46 ⁰ ₅₀	19.8 (1079)	55 or less	0.50 (0.56)
			Rubber seal VQ46 ⁰ ₅₁	21.6 (1177)	62 or less	



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

Note 2) As per JISB8375-1981 (Supply pressure: 0.5MPa, with indicator light and surge suppressor, clean air).

Note 3) (): Weight of plug lead unit

Table: Without sub-plate

With sub-plate: Add 0.41kgf for plug-in style, 0.30kgf for plug lead style.

Standard Specifications

Valve specifications	Seal		Metal seal	Rubber seal
	Fluid		Air, Inert gas	Air, Inert gas
	Max. operating pressure ⁽³⁾		1.0MPa	
	Min. operating pressure	Single	0.15MPa	0.20MPa
		Double	0.15MPa	0.15MPa
		3 position	0.15MPa	0.20MPa
	Ambient and fluid temperature		-10 to 50°C ⁽¹⁾	-5 to 50°C ⁽¹⁾
	Lubrication		Not required	
	Manual override		Non-locking push style/Locking slotted style (Option)	
	Shock/Vibration resistance		150/30 m/s ² ⁽²⁾	
Enclosure		Dust proof (Available IP65 style)		
Coil rated voltage		12, 24V DCand100, 110, 200, 220V AC (50/60Hz)		
Solenoid specifications	Allowable voltage		±10% of rated voltage	
	Coil insulation		Class B or equivalent	
	Power cnsumption (Current value)	24V DC	1W DC (42mA), 0.5W DC (21mA) ⁽³⁾	
		12V DC	1W DC (83mA), 0.5W DC (42mA) ⁽³⁾	
		100V AC	Inrush 1.2VA (12mA), Holding 1.2VA (12mA)	
		110V AC	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)	
		200V AC	Inrush 2.4VA (12mA), Holding 2.4VA (12mA)	
		220V AC	Inrush 2.6VA (11.7mA). Holding 2.6VA (11.7mA)	



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

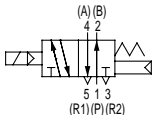
Note 2) Shock resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle direction of the main valve and armature, for both energized and de-energized states. (Value in the initial stage.)

Vibration resistance: No malfunction occurred in a one-sweep test between 8.3 and 2,000 Hz. Test was performed at both energize and de-energized states to the axis and right angle direction of the main valve and armature. (Value in the initial stage.)

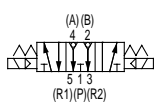
Note 3) Values in case of low power consumption model (0.5W).

Symbol

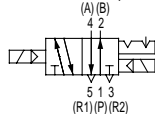
2 position single



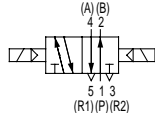
3 position double check



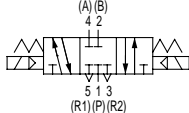
2 position double (Metal)



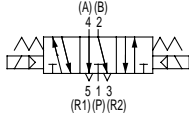
2 position double (Rubber)



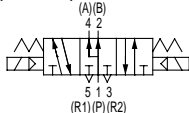
3 position closed centre



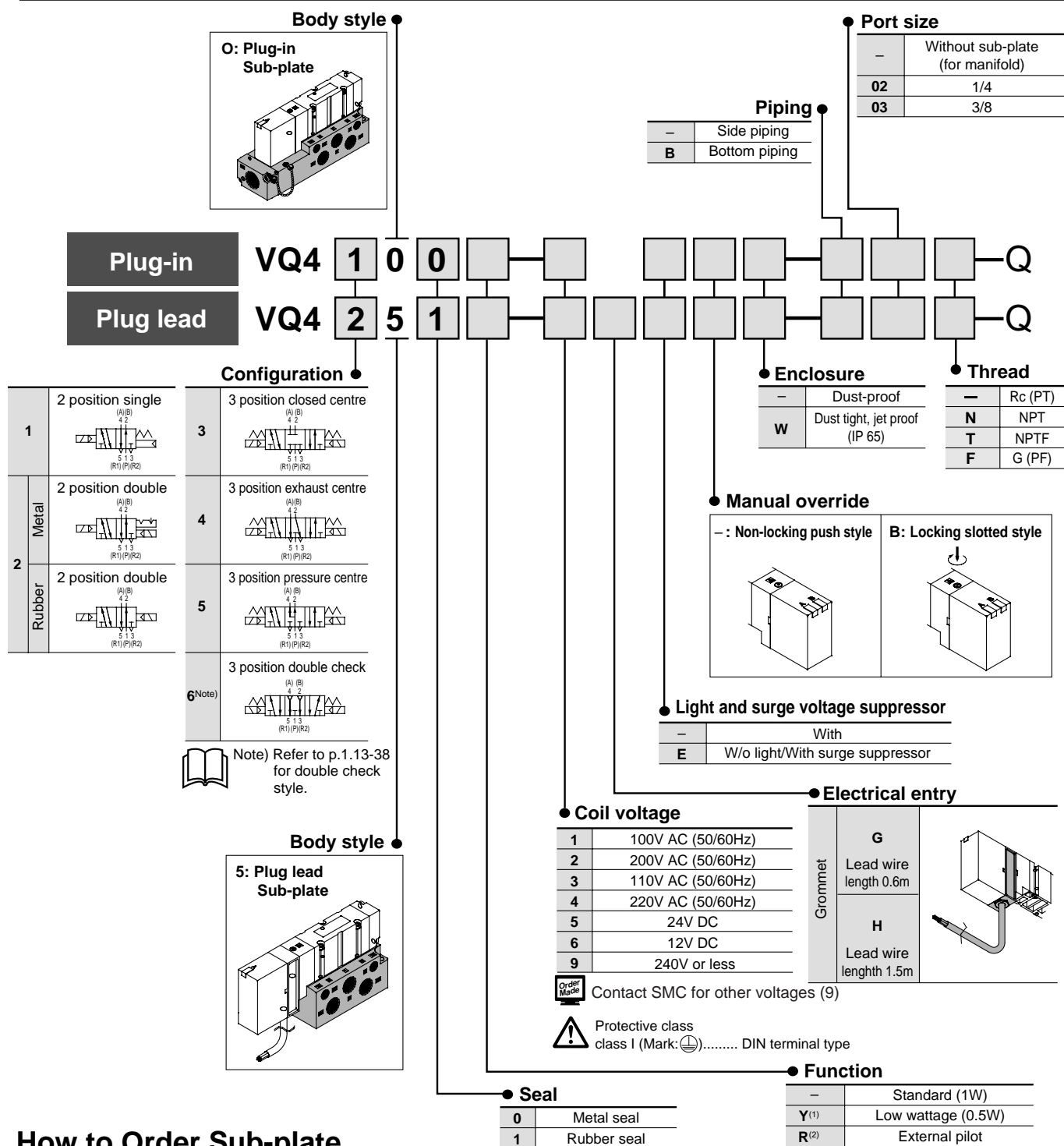
3 position exhaust centre



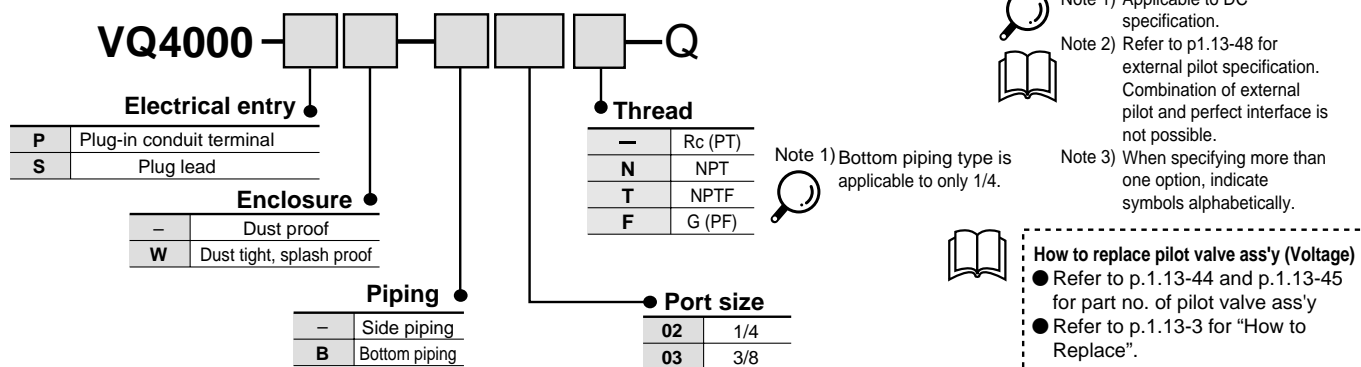
3 position pressure centre



How to Order Valve



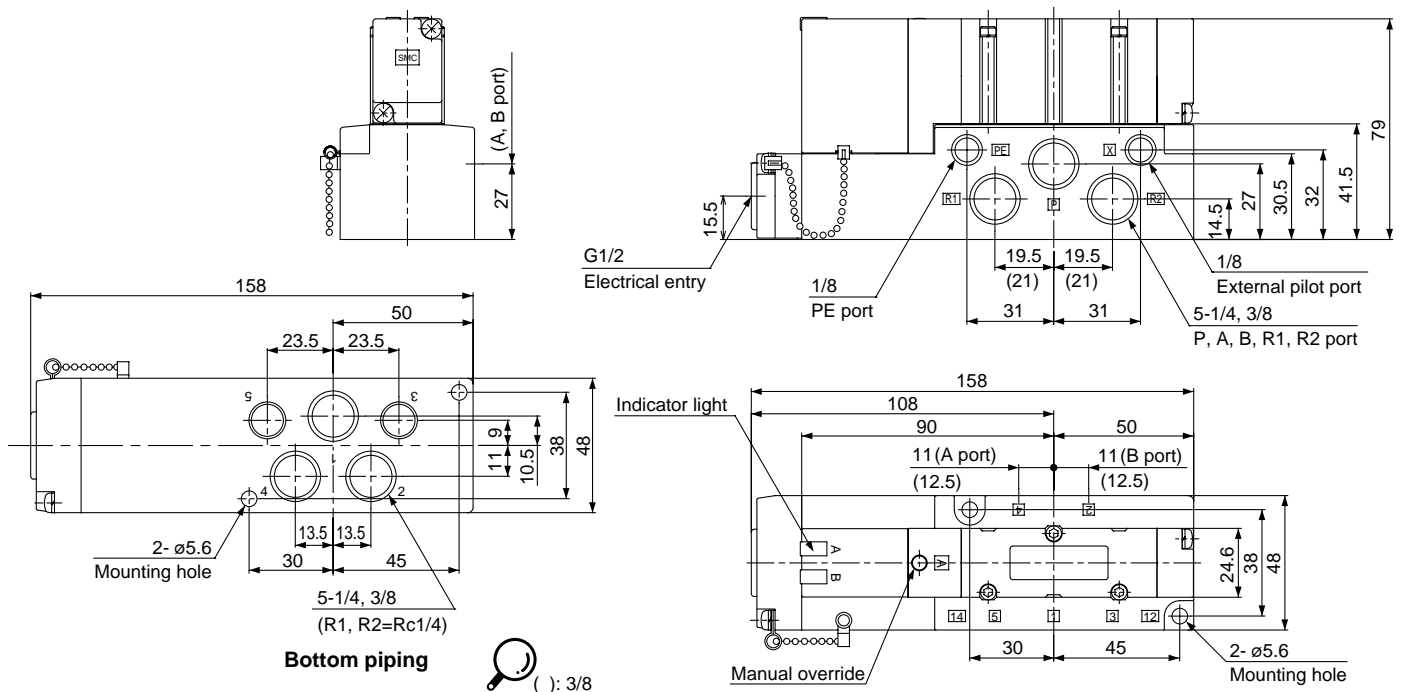
How to Order Sub-plate



Plug-in

Conduit terminal

2 position single: VQ410⁰—□

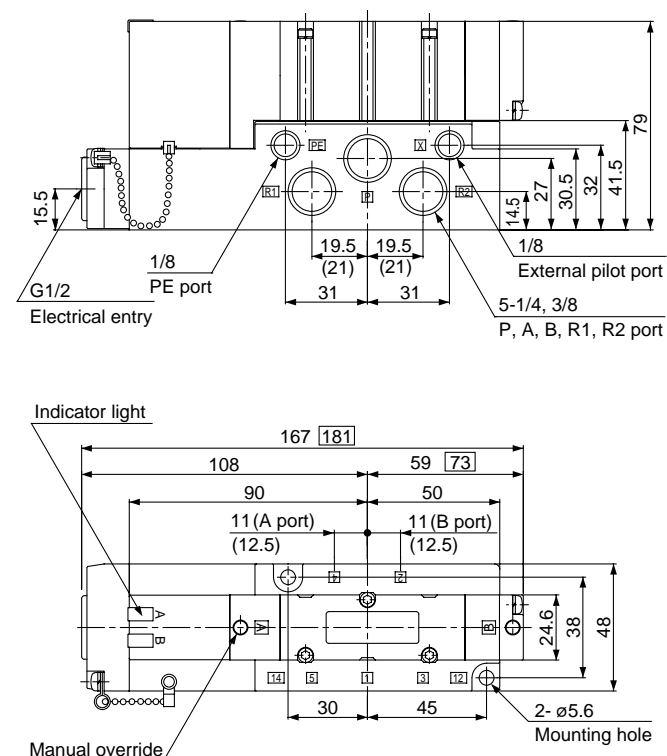


2 position double: VQ420⁰—□

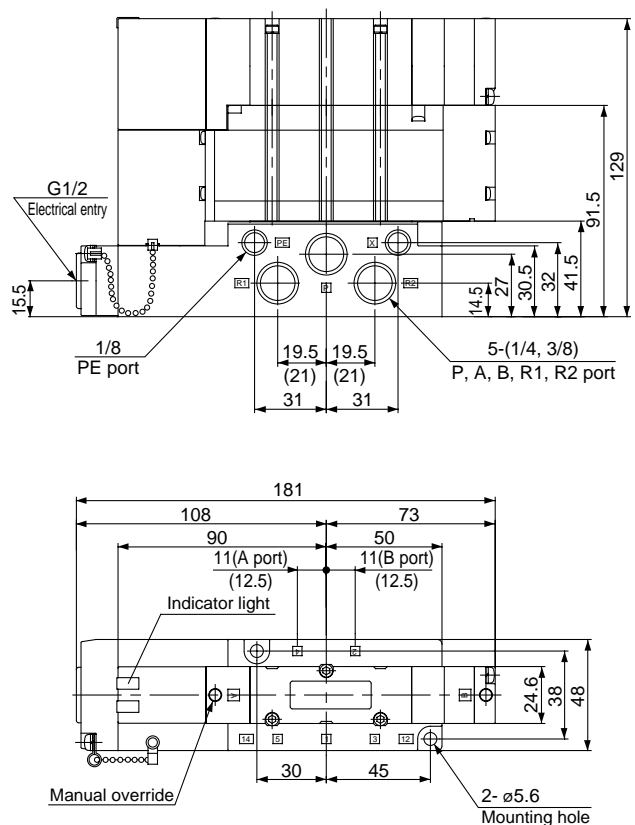
3 position closed centre: VQ430⁰—□

3 position exhaust centre: VQ440⁰—□

3 position pressure centre: VQ450⁰—□



3 position double check: VQ460⁰—□

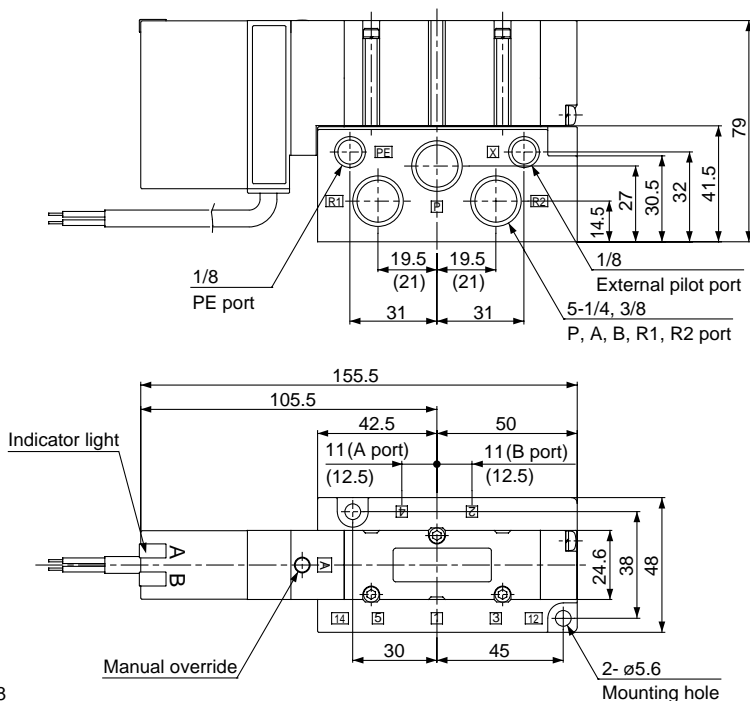
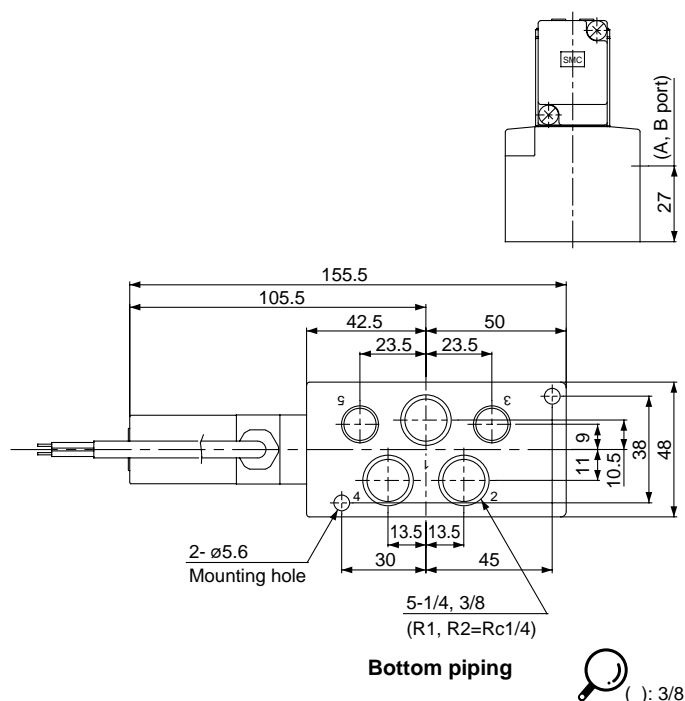


□ : 3 position
() : 3/8

Plug Lead

Grommet

2 position single: VQ415⁰–□_H^G

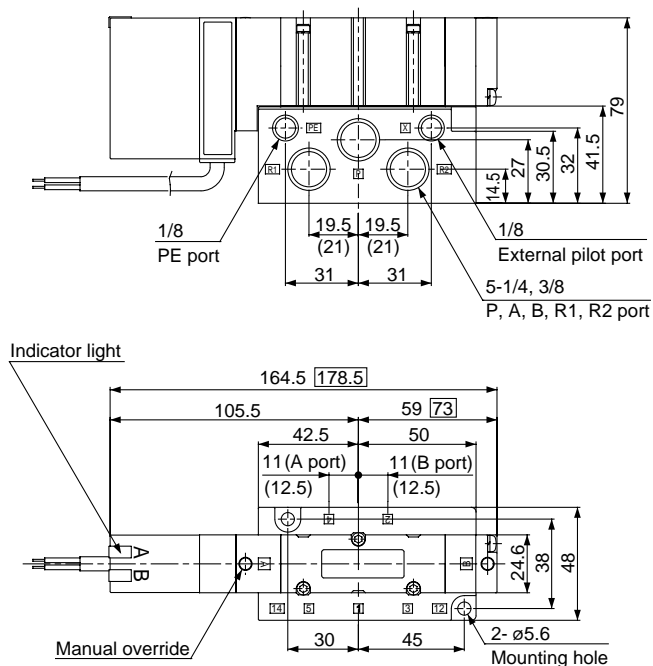


2 position double: VQ425⁰₁–□^G_H

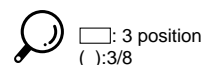
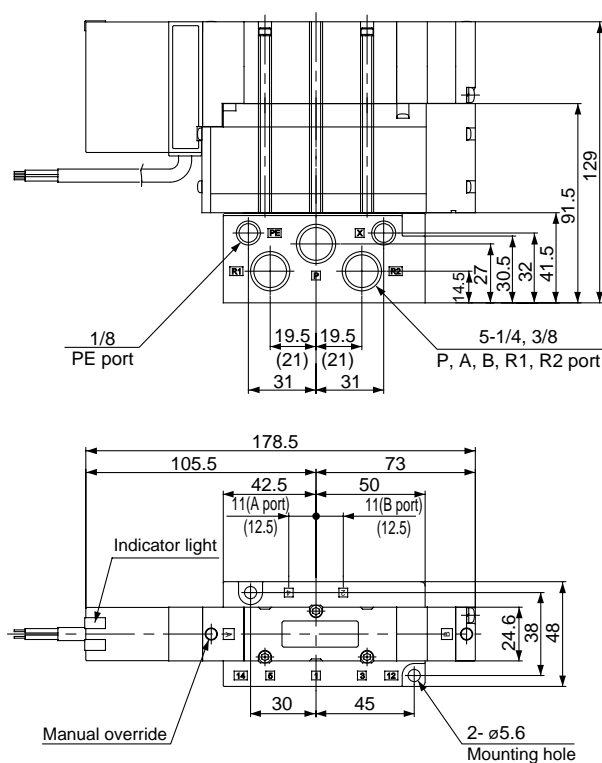
3 position closed centre: VQ435⁰₁ - □^G_H

3 position exhaust centre: VQ445⁰₁—□^G_H

3 position pressure centre: VQ455⁰₁—□^G_H



3 position double check: VQ465⁰₁



Series VQ4000

Base Mounted

Plug-in Manifold

How to Order Manifold



VV5Q 4 1 - 08 C8 [] F U1 [] K - Q

Series	
4	VQ4000

Manifold	
1	Plug-in unit

Stations	
02	2 stations
⋮	⋮

Max. and Min. number of stations depends on kit. (Refer to table below.)

Thread	
—	Rc (PT)
N	NPT
T	NPTF
F	G (PF)

Kit

Control unit
Refer to p.1.13-40 to p.1.13-43

Option

Symbol	Option
—	None
CD ⁽²⁾	Exhaust cleaner: For D side mounting
CU ^(2,3)	Exhaust cleaner: For U side mounting
K ⁽⁴⁾	Special wiring specification (Other than double wiring)
N	Name plate (T kit only)
SB	Built-in silencer (Direct exhaust from both sides) F/L kits only
SD	Built-in silencer (Direct exhaust from D side)
SU	Built-in silencer (Direct exhaust from U side)
W	IP65 (except F kit)

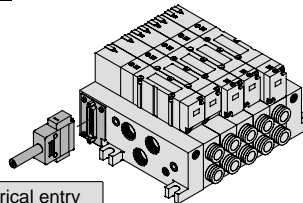


- Note 1) When specifying more than one option, combine symbols in alphabetical order. Example)-CDK
 Note 2) Combination of [C_D^U] and [S_U^D] is not possible.
 Note 3) Combination of T and S kit is not available.
 Note 4) Specify the wiring specifications by means of the manifold specification form. (except L kit)

Kit/Electrical entry/Cable length

Port size	
C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
02	1/4
03	3/8
B	Bottom piping 1/4
CM	Mixed size
N7	One-touch fitting for ø1/4"
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"
NM	Mixed size

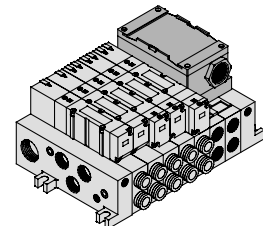
F Kit (D-sub connector)



Electrical entry		
D side	U side	
Kit D0	Kit U0	Without cable
F D1	F U1	Cable length 1.5m
F D2	F U2	Cable length 3m
F D3	F U3	Cable length 5m

2 to 16 stations

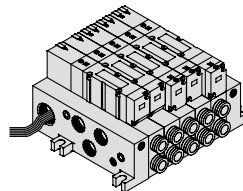
T Kit (Terminal box kit)



Applicable to IP65

Kit T	0	Terminal box	3 to 18 stations
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L Kit (Lead wire kit)

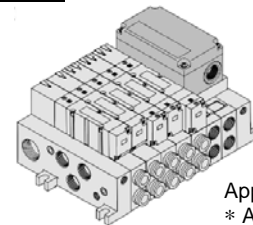


Electrical entry		
D side	U side	
Kit D0	Kit U0	Cable length 0.6m
L D1	L U1	Cable length 1.5m
L D2	L U2	Cable length 3m

Applicable to IP65

2 to 16 stations

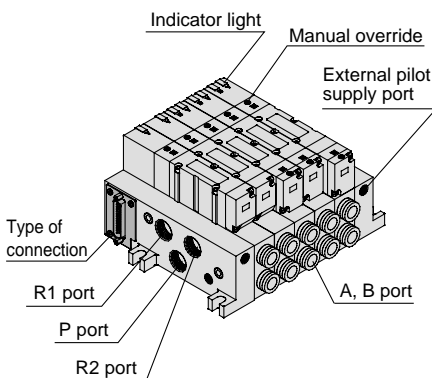
S Kit (Serial interface kit)



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

Applicable to IP65
* Applicable to INPUT and OUTPUT styles.

Kit B	SI for MELSECNET/MINI-S3 Data Link System (Mitsubishi Electric)	3 to 18 stations
Kit BB	SI for MELSECNET/MINI-S3 Data Link System (2 power supply systems)(Mitsubishi Electric)	
C	SI for SYSBUS Wire System (OMRON)	



Note) Shown VV5Q41-05C12FD0-Q

Manifold Specifications

Series	Base No.	Connection	Porting specifications			Applicable max stations	Applicable valve	Weight 5 stations (kg)
			Port location	Port size (1)				
				P, R	A, B			
VQ4000	VV5Q41-□□□	■ F kit-D-sub connector ■ T kit-Terminal box ■ L kit-Lead wire ■ S kit-Serial transmission	Side	1/2 Option <div>(Built-in silencer Direct exhaust)</div>	C8 (For ø8) C10 (For ø10) C12 (For ø12) 1/4 3/8	F, T kit 12 stations L kit 16 stations	VQ4□00 VQ4□01	2.24 ・ L kit ・ Except solenoid valve weight
			Bottom		1/4	S kit 10 stations		



Note 1) Refer to P.1.13-48 for further information on One-touch fittings for inch sizes and thread standards.

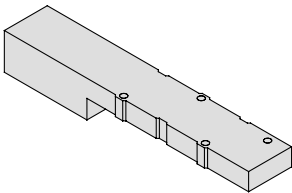
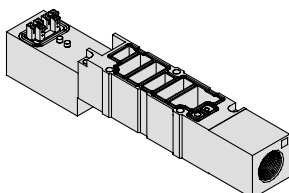
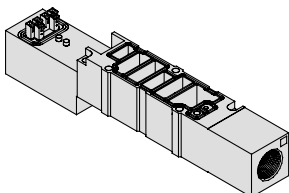

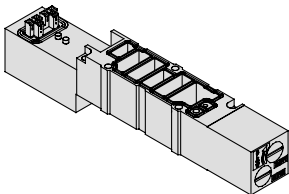
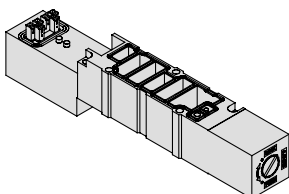
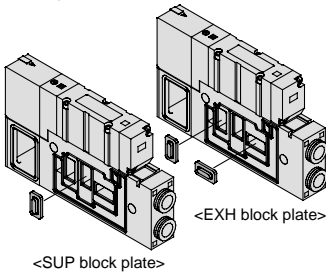
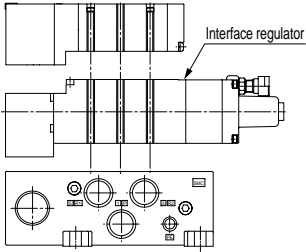
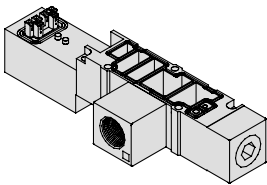
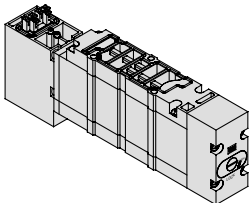
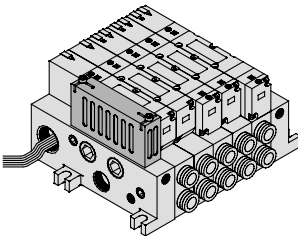
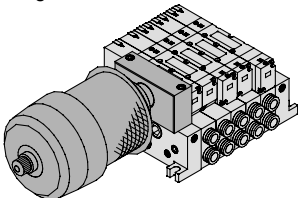
Number of Manifold Stations/Effective Area (mm² (Nl/min)) at Individual Operation

Model	Passage/Stations	1 station	5 stations	10 stations	15 stations
2 position metal seal VQ4¹/₂00	P→A or B	28.8 (1570)	28.8 (1570)	28.8 (1570)	28.8 (1570)
	A→R1, B→R2	32.4 (1766)	32.4 (1766)	32.4 (1766)	32.4 (1766)
2 position rubber seal VQ4¹/₂01	P→A or B	36.0 (1963)	36.0 (1963)	36.0 (1963)	36.0 (1963)
	A→R1, B→R2	37.8 (2061)	37.8 (2061)	37.8 (2061)	37.8 (2061)



Note) Port size. 3/8

Manifold Options

Blank plate assembly VVQ4000-10A-1 	Individual SUP spacer VVQ4000-P-1-03 	Individual EXH spacer VVQ4000-R-1-03 	 <ul style="list-style-type: none"> Refer to p.1.13-34 to p.1.13-39 for detail dimensions of each option. Refer to p.1.11-47 for spare parts no. Refer to p.1.13-40 to p.1.13-43 for control unit.
Interface speed control VVQ4000-20A-1 	SUP stop valve spacer VVQ4000-37A-1 	SUP EXH block plate VVQ4000-16A 	Interface regulator ARBQ4000 
Release valve spacer VVQ4000-24A-1D^(1,2) 	Double check spacer with residual pressure exhaust VVQ4000-25A-1⁽¹⁾ 	Built-in silencer (Direct exhaust) [-S_U^D]⁽¹⁾ 	For exhaust cleaner mounting [-S_U^D]⁽¹⁾ 



Note 1) Release valve spacer, built-in silencer (direct exhaust), exhaust cleaner mounting and double check spacer for residual pressure exhaust cannot be combined with external pilot.

Note 2) Can be mounted on L kit only. For other kits, order E type control unit. (Refer to p.1.13-40 to 1.13-43)



SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

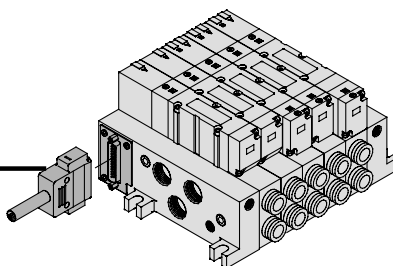
VFS

VS

VS7

Series VQ4000

F Kit (D-sub connector)



- The D-sub connector permits simple rationalization and installation labour saving for electrical connection.
- The D-sub connector (25 pin std.) conforms with MIL permitting use of commercial connectors with wide interchangeability.
- U side or D side receptacle position can be selected in accordance with the available mounting space.
- Max. 18 stations

Manifold specifications

Series	Porting specifications		Applicable Max. stations
	Port location	Port size	
VQ4000	Side	P, R 1/2	16 stations
	Bottom	A, B C8, 10, 12 1/4, 3/8 1/4	

D-sub Connector (25 pin)

Cable Assembly

GVVZS3000-21A-¹/₂-²/₃-³/₄-⁴/₅-⁵/₆₀

(The D-sub connector cable ass'y can be ordered individually or included in a specific manifold model no. Refer to "How to Order Manifold".)

Type 60°

Type Standard

D-sub connector cable ass'y

Cable length (L)	Ass'y No.
1m	GVVZS3000-21A-1□
3m	GVVZS3000-21A-2□
5m	GVVZS3000-21A-3□
8m	GVVZS3000-21A-4□
20m	GVVZS3000-21A-5S

Model

Model	Standard	60°
	S	60

Electric characteristics

Item	Characteristics
Conductor resistance Ω/km, 20 °C	57 or less
Voltage limit V, 5min, AC	1500
Insulation resistance MΩ/km	20

Wire colour table by terminal number of D-sub connector cable assembly

Terminal No.	Lead wire colour	Dot marking
1	White	—
2	Brown	—
3	Green	—
4	Yellow	—
5	Grey	—
6	Pink	—
7	Blue	—
8	Red	—
9	Black	—
10	Violet	—
11	Grey	Pink
12	Red	Blue
13	White	Green
14	Brown	Green
15	White	Yellow
16	Yellow	Brown
17	White	Grey
18	Grey	Brown
19	White	Pink
20	Pink	Brown
21	White	Blue
22	Brown	Blue
23	White	Red
24	Brown	Red
25	White	Black

* Connector made in conformity with DIN47100.

How to Order Manifold

VV5Q 4 1 -08 C8 [] F U 1 -K -Q

Series

4 VQ4000

Manifold

1 Plug-in

Stations

02	2 stations
18	18 stations

Cylinder ports

C8	With One-touch fitting for ø8
C10	With One-touch fitting for ø10
C12	With One-touch fitting for ø12
02	1/4
03	3/8
B	Bottom piping 1/4
CM	Mixed size

Cable (length)

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

Connector location

D	D side
U	U side

Thread

—	Rc(PT)
N	NPT
T	NPTF
F	G (PF)

Options

Symbol	Option
—	None
CD ⁽²⁾	Exhaust cleaner: For D side mountig
CU ⁽²⁾	Exhaust cleaner: For U side mountig
K ⁽³⁾	Special wiring specification (Other than double wiring)
SB	Built-in silencer (Direct exhaust from both sides) F/L kits only
SD	Built-in silencer (Direct exhaust from D side)
SU	Built-in silencer (Direct exhaust from U side)

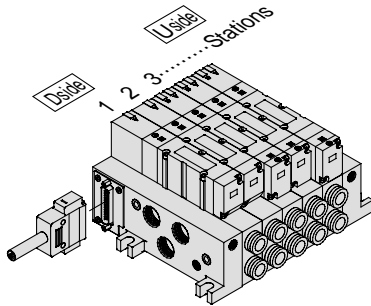
Note 1) When specifying more than one option, combine symbols in alphabetical order. Example)-CDK

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

Note 3) Specify the wiring specifications by means of the manifold specification form.

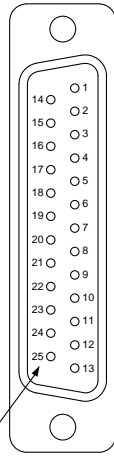
Note 4) Refer to P.1.13-40 to p.1.13-43 for with control unit.

Electrical Wiring Specifications



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

D-sub connector



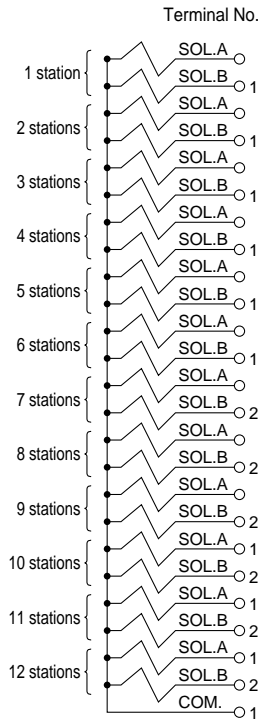
Connector terminal No.

Regardless of the valves or options, the internal wiring is made double (connected to SOL.A and SOL.B) for respective stations of the manifold. The standard specification permits mixture of single and double wiring. Refer to below.

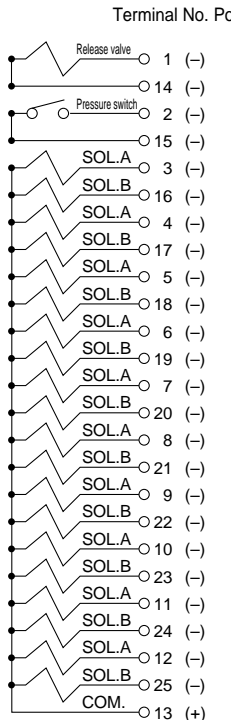


Note 1) No polarity. Possible to use as negative common.

Standard wiring



Wiring with control unit



D-sub connector ass'y

AXT100-DS25-030 Wire color table

Terminal No.	Polarity	Lead wire colour	Dot marking
1 (-)	(+)	White	—
14 (-)	(+)	Brown	Green
2 (-)	(+)	Brown	—
15 (-)	(+)	White	Yellow
3 (-)	(+)	Green	—
16 (-)	(+)	Yellow	Brown
4 (-)	(+)	Yellow	—
17 (-)	(+)	White	Grey
5 (-)	(+)	Grey	—
18 (-)	(+)	Grey	Brown
6 (-)	(+)	Pink	—
19 (-)	(+)	White	Pink
7 (-)	(+)	Blue	—
20 (-)	(+)	Pink	Brown
8 (-)	(+)	Red	—
21 (-)	(+)	White	Blue
9 (-)	(+)	Black	—
22 (-)	(+)	Brown	Blue
10 (-)	(+)	Violet	—
23 (-)	(+)	White	Red
11 (-)	(+)	Grey	Pink
24 (-)	(+)	Brown	Red
12 (-)	(+)	Red	Blue
25 (-)	(+)	White	Black
COM.	(-)	White ⁽¹⁾	Green

Positive common

Negative common

Special Wiring Specifications

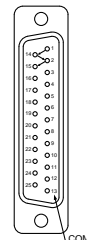
Regardless of the valve or option, the standard internal wiring for double solenoid capability is provided to each station. As option specifications, single and double wiring (connected to SOL.A, B) is available.

1. Special wiring specification

Suffix option symbol "K" added to manifold part number and indicate single/double wiring of each station on "Manifold Specification Form".

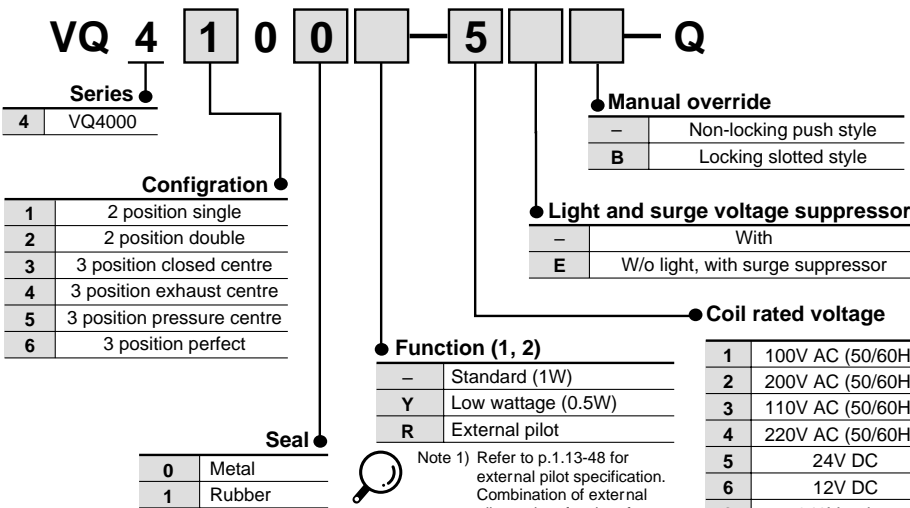
2. Wiring specifications

When the A side solenoid of the 1st station as No.1 (meaning, to be connected to No.1 terminal), wires are connected in the order indicated by the arrow in the DWG without making any terminal vacant. Max. station No. is 18 stations.



D-sub connector

How to Order Valve




Note 1) Refer to p.1.13-48 for external pilot specification. Combination of external pilot and perfect interface is not possible.

Note 2) When specifying more than one option, indicate symbols alphabetically.



Contact SMC for other voltages (9)



Protective class class I (Mark: )
..... DIN terminal type

How to Order Manifold Ass'y

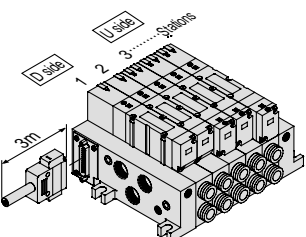
Add suffix valve and option numbers to the manifold base number.

<Example>

With D-sub connector kit and cable (3m)

VV5Q41-05C8FD2-Q...1 set Manifold base part number
VQ4100-5-Q.....2 set Valve part No. (Station 1 to 2)
VQ4200-5-Q.....2 set Valve part No. (Station 3 to 4)
VQ4300-5-Q.....1 set Valve part No. (Station 5)

Write sequentially from the 1st station on the D side. When part numbers written collectively are complicated, specify by using a manifold specification form.



SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

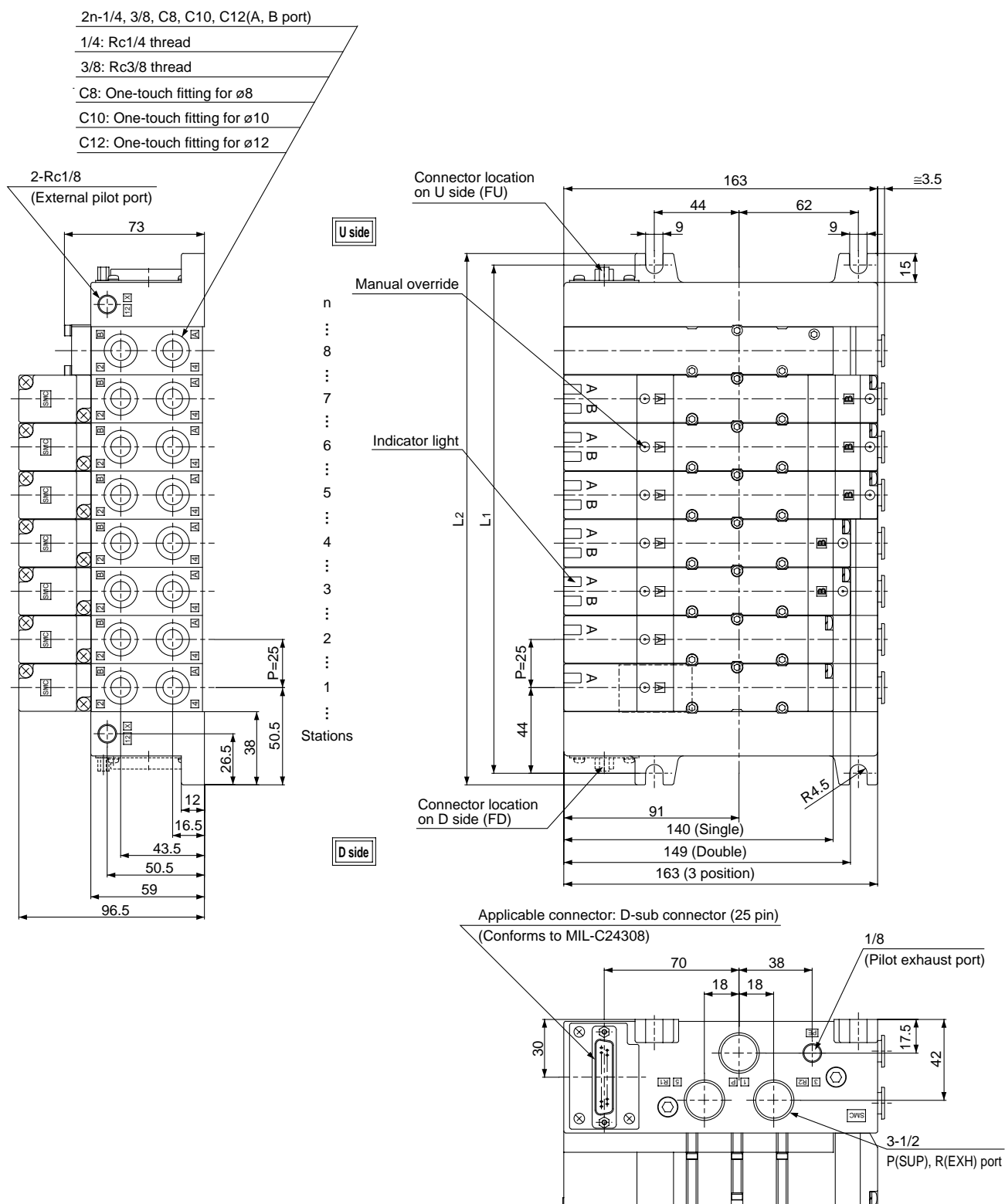
VFS

VS

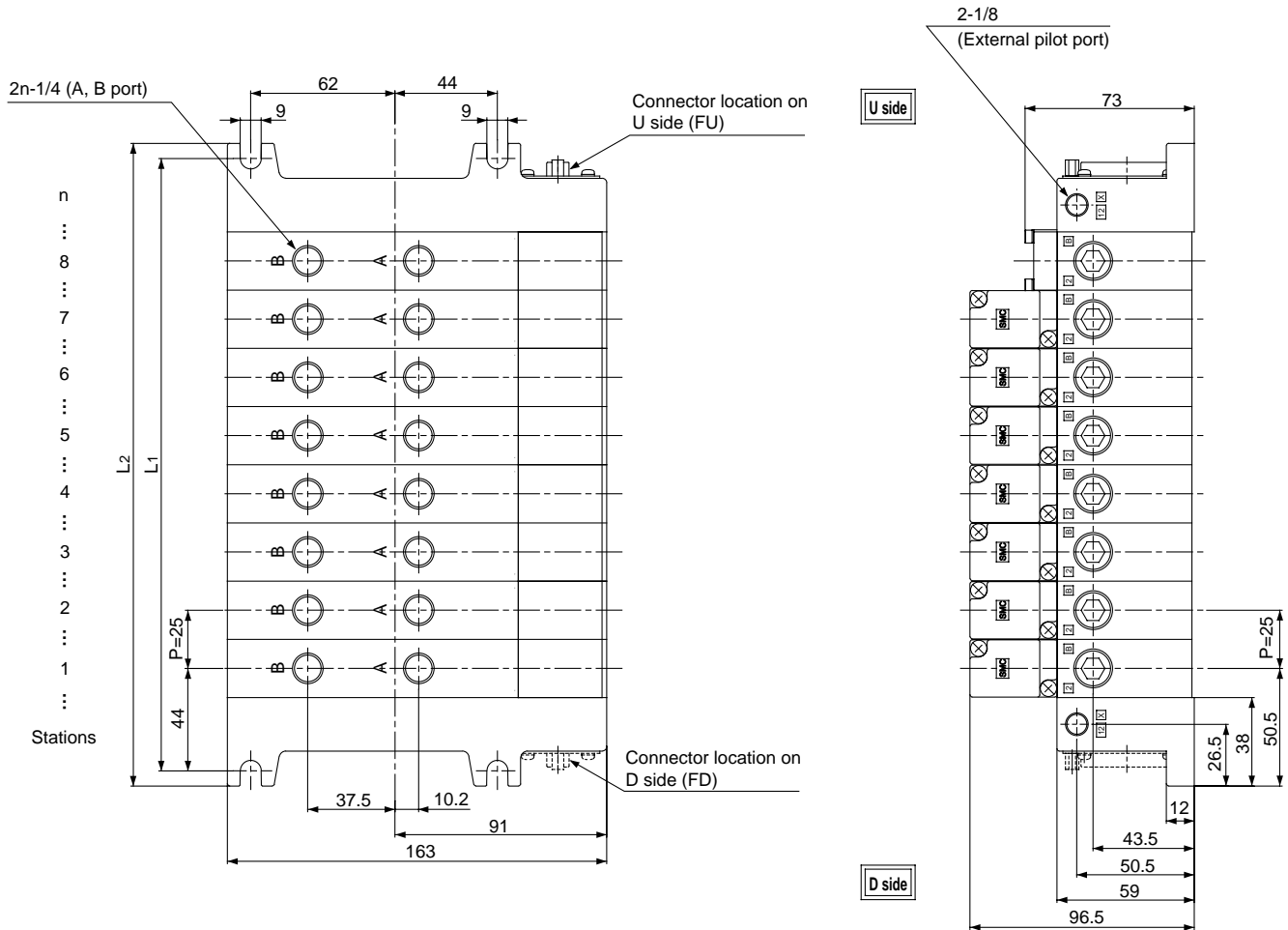
VS7

Series VQ4000

F Kit (D-Sub Connector)



Bottom piping



SV
SY
SYJ
SX
VK
VZ
VF
VFR
VP7
VQC
SQ
VQ
VQ4
VQ5
VQZ
VQD
VFS
VS
VS7

Dimensions Equation $L1=25n+63$ $L2=25n+76$

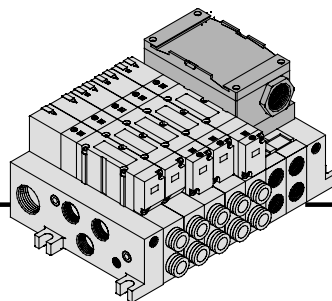
n: Station (Max. standard 18 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L1	88	113	138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513
L2	101	126	151	176	201	226	251	276	301	326	351	376	401	426	451	476	501	526

Series VQ4000

T Kit (Terminal box)

IP65 is possible.



- Enclosure: Possible to be IP65
- This kit has a small terminal block inside a junction box. The electrical entry port G3/4 permits connection of bracket of electrical wire pipe.
- Max. 18 stations
- 2 stations are used for terminal box mounting.

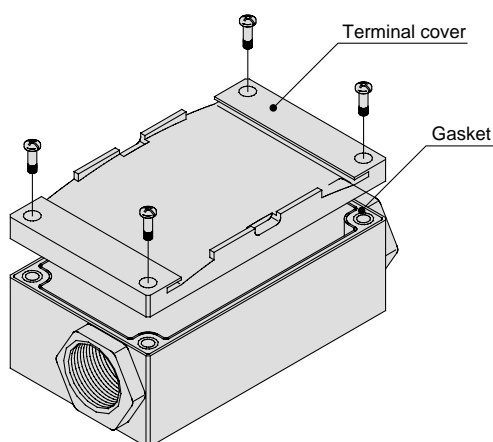
Manifold specifications

Series	Port location	Porting specifications		Applicable Max. stations
		P, R	A, B	
VQ4000	Side	1/2	C8, 10, 12 1/4, 3/8	18 stations
	Bottom		1/4	

Terminal Block Connection

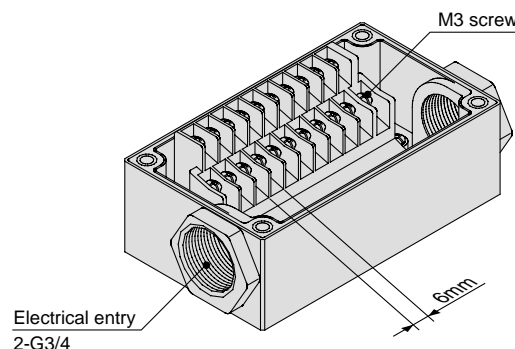
Sequence 1. How to remove terminal block cover

Loosen the screw (M3) 4 pcs. on the terminal block cover and open it. The cover can then be removed from the terminal block.



Sequence 2. Wire connection

The diagram on the right shows the terminal block wiring schematic. All stations are provided with double solenoid wiring. Since marking is available in terminal, each wire should be connected to power supply side.



Sequence 3. How to mount terminal block cover

Tighten the screws according to below table after check the gasket installing condition.

Applicable tightening torque Nm

0.6 to 1.0

How to Order Manifold

VV5Q 4 1 - 08 C8 T 0 - K - Q

Series	
4	VQ4000

Manifold	
1	Plug-in unit

Stations	
03	3 stations
...	...
18	18 stations

Note) Add 2 stations for terminal block box mounting.

Thread	
-	Rc(PT)
N	NPT
T	NPTF
F	G (PF)

Cylinder ports	
C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
02	1/4
03	3/8
B	Bottom piping 1/4
CM	Mixed size

Note) As optional specifications, the maximum number of stations can be increased based on special wiring specifications. Refer to p.1.13-15 for further information.

Options

Symbol	Option
-	None
CD	Exhaust cleaner for D side mounting
K ⁽²⁾	Special wiring specification (Other than double wiring)
N	With name plate
SD	Built-in silencer (Direct-exhaust from D side)
W	Enclosure IP65



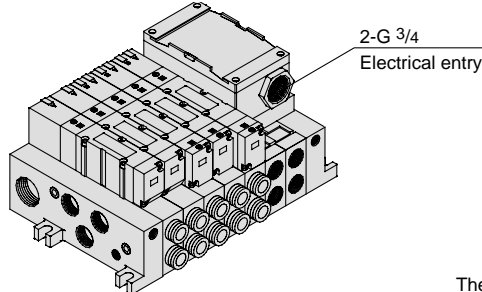
Note 1) When specifying more than one option, list alphabetical order. Example) -CDK



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

Note 3) Specify the wiring specifications by means of the manifold specification form.

Note 4) Refer to p.1.13-40 to p.1.13-43 for with control unit.



Base Mounted Plug-in Manifold Series VQ4000

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

Electrical Wiring Specifications

Regardless of the type of valves or options, the internal wiring is made double (connected to SOL.A and SOL.B) for respective stations of the manifold. The standard specification permits mixture of single and double wiring. Refer to below.

	Standard wiring	Wiring with control unit		Polarity
	Terminal No.	Terminal No.		
1 station	SOL.A 1A	Release valve 1A	(-) (+)	(+) (+)
	SOL.B 1B	Pressure switch 1B	(-) (+)	(+) (+)
2 stations	SOL.A 2A		(-) (+)	(+) (+)
	SOL.B 2B		(-) (+)	(+) (+)
3 stations	SOL.A 3A	SOL.A 3A	(-) (+)	(+) (+)
	SOL.B 3B	SOL.B 3B	(-) (+)	(+) (+)
4 stations	SOL.A 4A	SOL.A 4A	(-) (+)	(+) (+)
	SOL.B 4B	SOL.B 4B	(-) (+)	(+) (+)
5 stations	SOL.A 5A	SOL.A 5A	(-) (+)	(+) (+)
	SOL.B 5B	SOL.B 5B	(-) (+)	(+) (+)
6 stations	SOL.A 6A	SOL.A 6A	(-) (+)	(+) (+)
	SOL.B 6B	SOL.B 6B	(-) (+)	(+) (+)
7 stations	SOL.A 7A	SOL.A 7A	(-) (+)	(+) (+)
	SOL.B 7B	SOL.B 7B	(-) (+)	(+) (+)
8 stations	SOL.A 8A	SOL.A 8A	(-) (+)	(+) (+)
	SOL.B 8B	SOL.B 8B	(-) (+)	(+) (+)
9 stations	SOL.A 9A	SOL.A 9A	(-) (+)	(+) (+)
	SOL.B 9B	SOL.B 9B	(-) (+)	(+) (+)
10 stations	SOL.A 10A	SOL.A 10A	(-) (+)	(+) (+)
	SOL.B 10B	SOL.B 10B	(-) (+)	(+) (+)
	COM	COM	(+) (-)	(-) (-)

Positive Negative
common common

Special Wiring Specifications

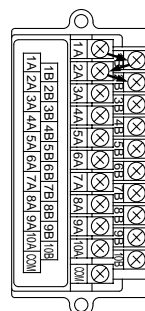
Regardless of the valve or option, the standard internal wiring for double solenoid capability is provided to each station. As option specifications type of single and double wiring (connected to SOL.A, B) is available.

1.Special wiring specification

Suffix option symbol "K" to manifold part number. Indicate single/double wiring of each station on "Manifold Specification Form".

2.Wiring specifications

When the A side solenoid of the 1st station as no.1 (meaning, to be connected to no.1 terminal), wires are connected in the order indicated by the arrow in the DWG without making any terminal vacant. Max. station no. is 16 stations.



How to Order Valve

VQ 4 1 0 0 5 Q

Series
4 VQ4000

Configuration

1	2 position single
2	2 position double
3	3 position closed centre
4	3 position exhaust centre
5	3 position pressure centre
6	3 position perfect

Seal

0	Metal
1	Rubber

Function (1, 2)

-	Standard (1W)
Y	Low wattage (0.5W)
R	External pilot

Note 1) Refer to p.1.13-48 for external pilot specification. Combination of external pilot and perfect interface is not possible.
Note 2) When specifying more than one option, indicate symbols alphabetically.

Enclosure

-	Dust proof
W	Dust tight/Jet proof (IP65)

Manual override

-	Non-locking push style
B	Locking slotted style

Light and surge voltage suppressor

-	With
E	Without light, with surge suppressor

Coil rated voltage

1	100V AC (50/60Hz)
2	200V AC (50/60Hz)
3	110V AC (50/60Hz)
4	220V AC (50/60Hz)
5	24V DC
6	12V DC
9	240V or less

Order Made Contact SMC for other voltages (9)

Protective class class I (Mark: ⊕)
..... DIN terminal type

How to Order Manifold Ass'y

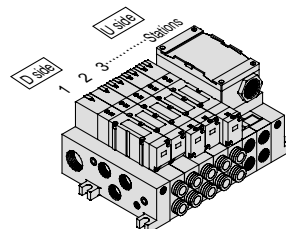
Add suffix valve and option numbers to the manifold base number.

<Example>

With D sub-conductor kit and cable (3m)

VV5Q41-07C8TO-Q.....1 set - Manifold base part number
VQ4100-5-Q.....2 set - Valve part No. (Station 1 to 2)
VQ4200-5-Q.....2 set - Valve part No. (Station 3 to 4)
VQ4300-5-Q.....1 set - Valve part No. (Station 5)

Write sequentially from the 1st station on the D side. When part numbers written collectively are complicated, specify by using a manifold specification form.



SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

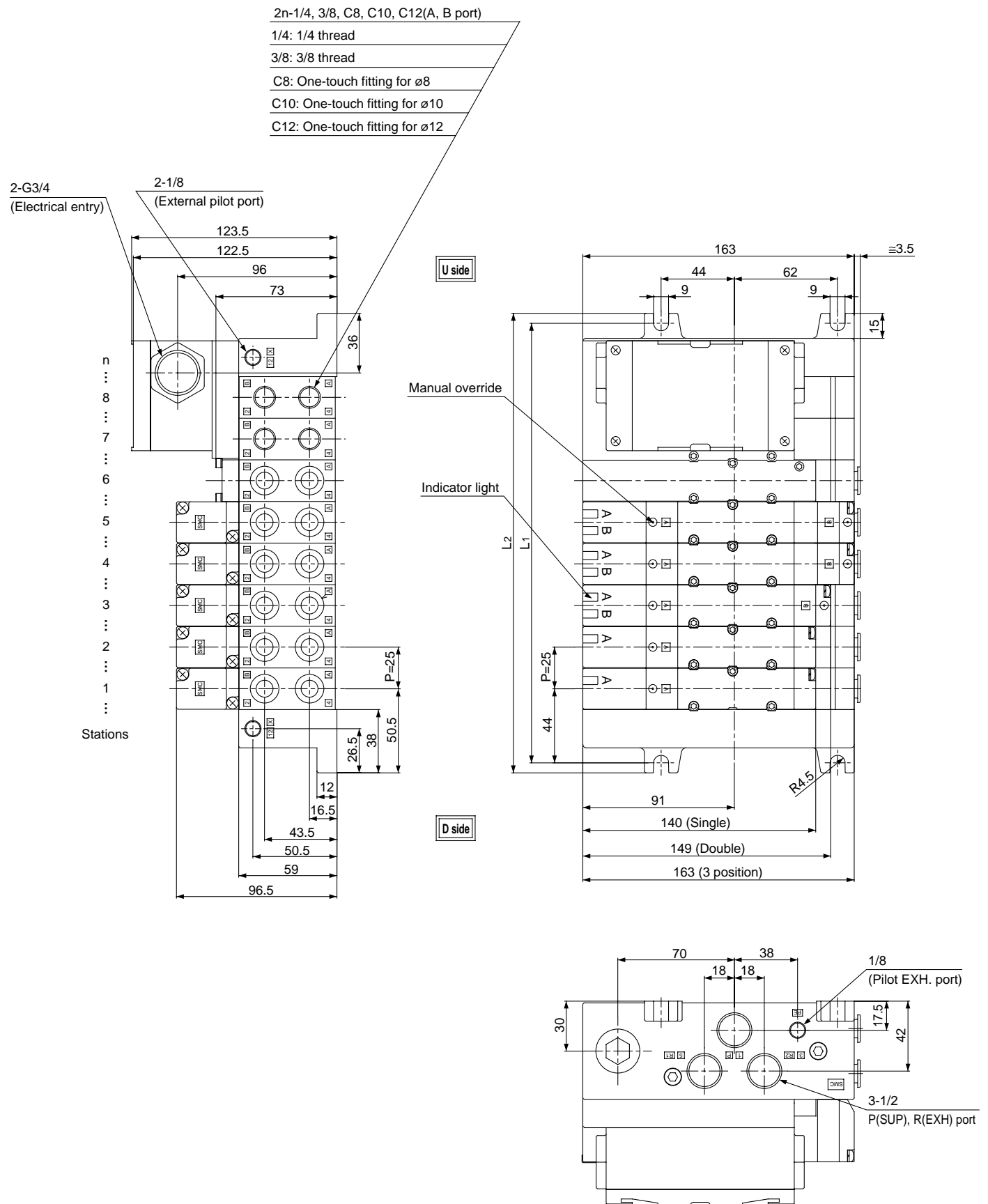
VFS

VS

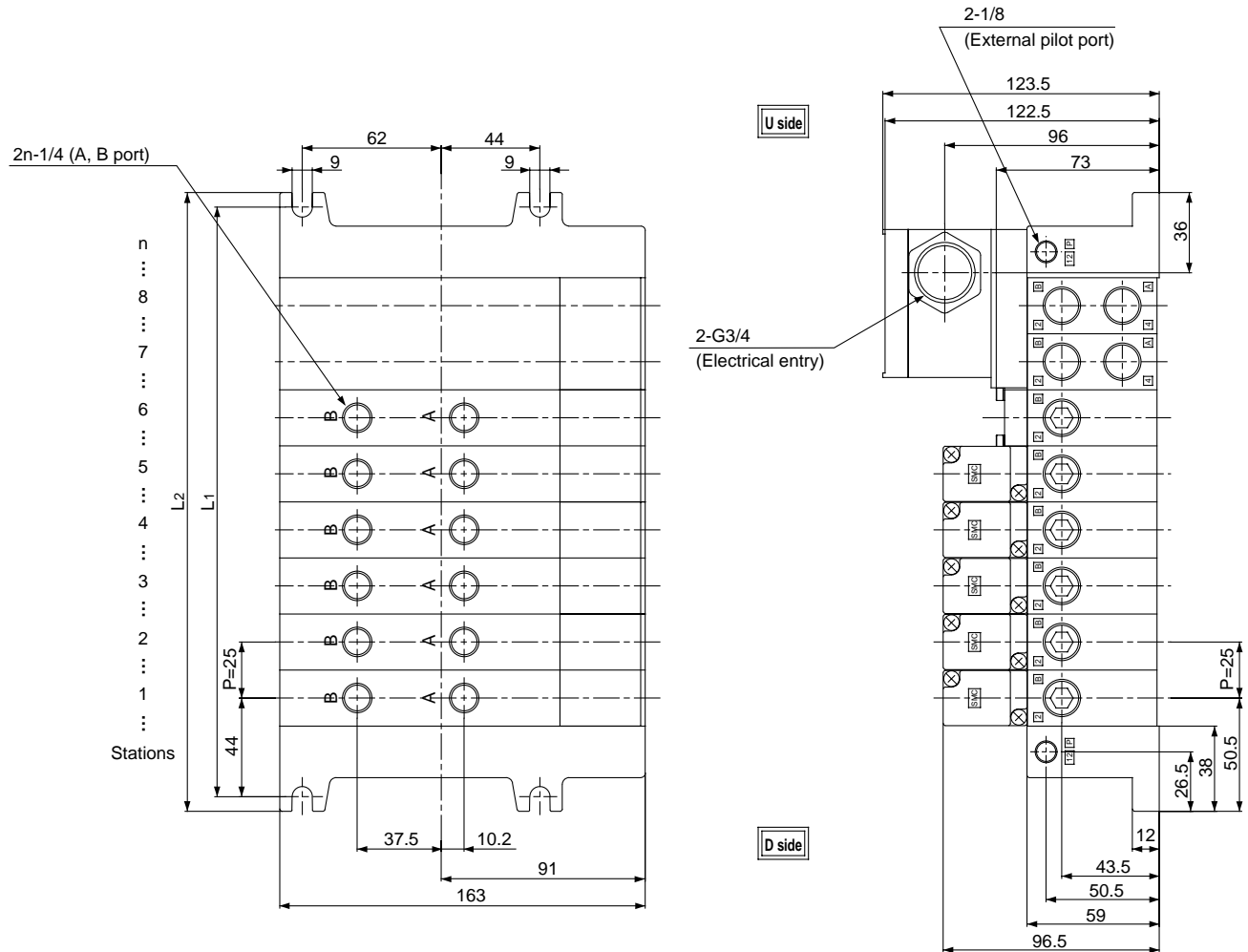
VS7

Series VQ4000

T Kit (Terminal box)



Bottom piping



Dimensions Equation $L1=25n+63$ $L2=25n+76$

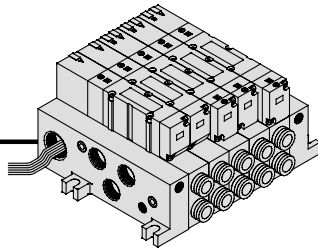
n: Station (Max. standard 18 stations)
* Including 2 stations for terminal box.

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L1	88	113	138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513
L2	101	126	151	176	201	226	251	276	301	326	351	376	401	426	451	476	501	526

- SV
- SY
- SYJ
- SX
- VK
- VZ
- VF
- VFR
- VP7
- VQC
- SQ
- VQ
- VQ4
- VQ5**
- VQZ
- VQD
- VFS
- VS
- VS7

Series VQ4000

L Kit (Lead wire cable)



IP65 is possible.

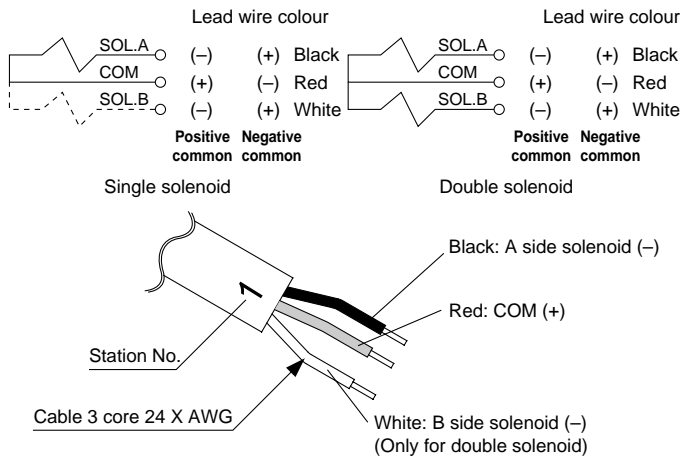
- Possible to be IP65.
- Direct electrical entry. Models with two or more stations are available.
- Electrical entry is provided on D and U sides.
- Max. 16 stations.

Manifold specification

Series	Porting location		Applicable stations
	Port location	Port size	
VQ4000	Side	P, R 1/2	Max. 16 stations
	Bottom	A, B C8, 10, 12 1/4, 3/8 1/4	

Wiring Specifications

Regardless of the valve mounted, three lead wires are attached to each station. The red wire is for COM connection.



Cable lead wire ass'y with connector

Lead wire length	Part No.
0.6m	VVQ4000-44A-8-□
1.5m	VVQ4000-44A-15-□
3m	VVQ4000-44A-30-□

□: Number of stations 1 to 16.



Use a lead wire with connector ass'y shown in the right table to change the lead wire length.

Note 1) There is no polarity. It can be also used as negative COM.

Note 2) Connect the release valve and the pressure switch to SOL. A side on the manifold with control unit.

How to Order Manifold

VV5Q 4 1 - 08 C8 L U Q

Series
4 VQ4000

Manifold
1 Plug-in

Stations
02 2 stations
16 16 stations

Connector locations
D D side
U U side

Thread
- Rc(PT)
N NPT
T NPTF
F G (PF)

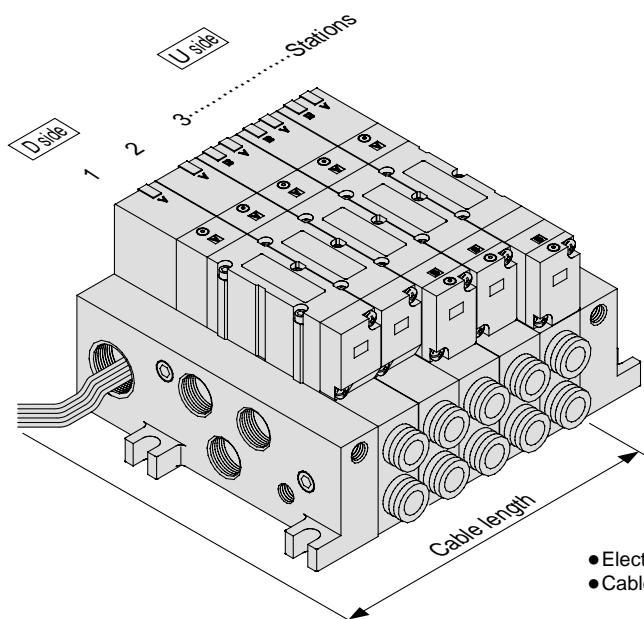
Cylinder ports
C8 One-touch fitting for ø8
C10 One-touch fitting for ø10
C12 One-touch fitting for ø12
02 1/4
03 3/8
B Bottom piping 1/4
CM Mixed size

Cable (length)
0 With cable (0.6m)
1 With cable (1.5m)
2 With cable (3m)

Options

Symbol	Option
-	None
CD	Exhaust cleaner for D side mounting
CU	Exhaust cleaner for U side mounting
SB	Built-in silencer (Direct exhaust from both sides)
SD	Built-in silencer (Direct exhaust from D side)
SU	Built-in silencer (Direct exhaust from U side)
W	Enclosure: IP65

* When specifying more than one option, please list in alphabetical order. Example) -CDW



- Electrical entry is on D side.
- Cable length is from solenoid valve body.

How to Order Valve

VQ 4 1 0 0 [] 5 [] [] [] - Q

Series
4 VQ4000

Configuration

1	2 position single
2	2 position double
3	3 position closed centre
4	3 position exhaust centre
5	3 position pressure centre
6	3 position perfect

Seal

0	Metal
1	Rubber

Enclosure

-	Dust proof
W	Dust tight, jet proof (IP65)

Manual override

-	Non-locking push style
B	Locking slotted style

Light and surge voltage suppressor

-	With
E	Without light, with surge suppressor

Coil voltage

1	100V AC (50/60Hz)
2	200V AC (50/60Hz)
3	110V AC (50/60Hz)
4	220V AC (50/60Hz)
5	24V DC
6	12V DC
9	240V or less

Function (1, 2)

-	Standard (1W)
Y	Low wattage (0.5W)
R	External pilot



Note 1) Refer to p.1.13-48 for external pilot specification. Combination of external pilot and perfect interface is not possible.



Note 2) When specifying more than one option, indicate symbols alphabetically.



Contact SMC for other voltages (9)



Protective class class I (Mark: ⊕)

..... DIN terminal type

How to Order Manifold Ass'y

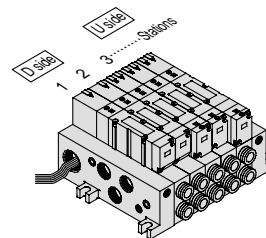
Add suffix valve and option numbers to the manifold base number.

<Example>

With lead wire kit, cable (3m)

VV5Q41-05C8LDZ-Q...1 set – Manifold base part number
VQ4100-5-Q.....2 set – Valve part No. (Station 1 to 2)
VQ4200-5-Q.....2 set – Valve part No. (Station 3 to 4)
VQ4300-5-Q.....1 set – Valve part No. (Station 5)

Write sequentially from the 1st station on the D side. When part numbers written collectively are complicated, specify by using the manifold specification form.

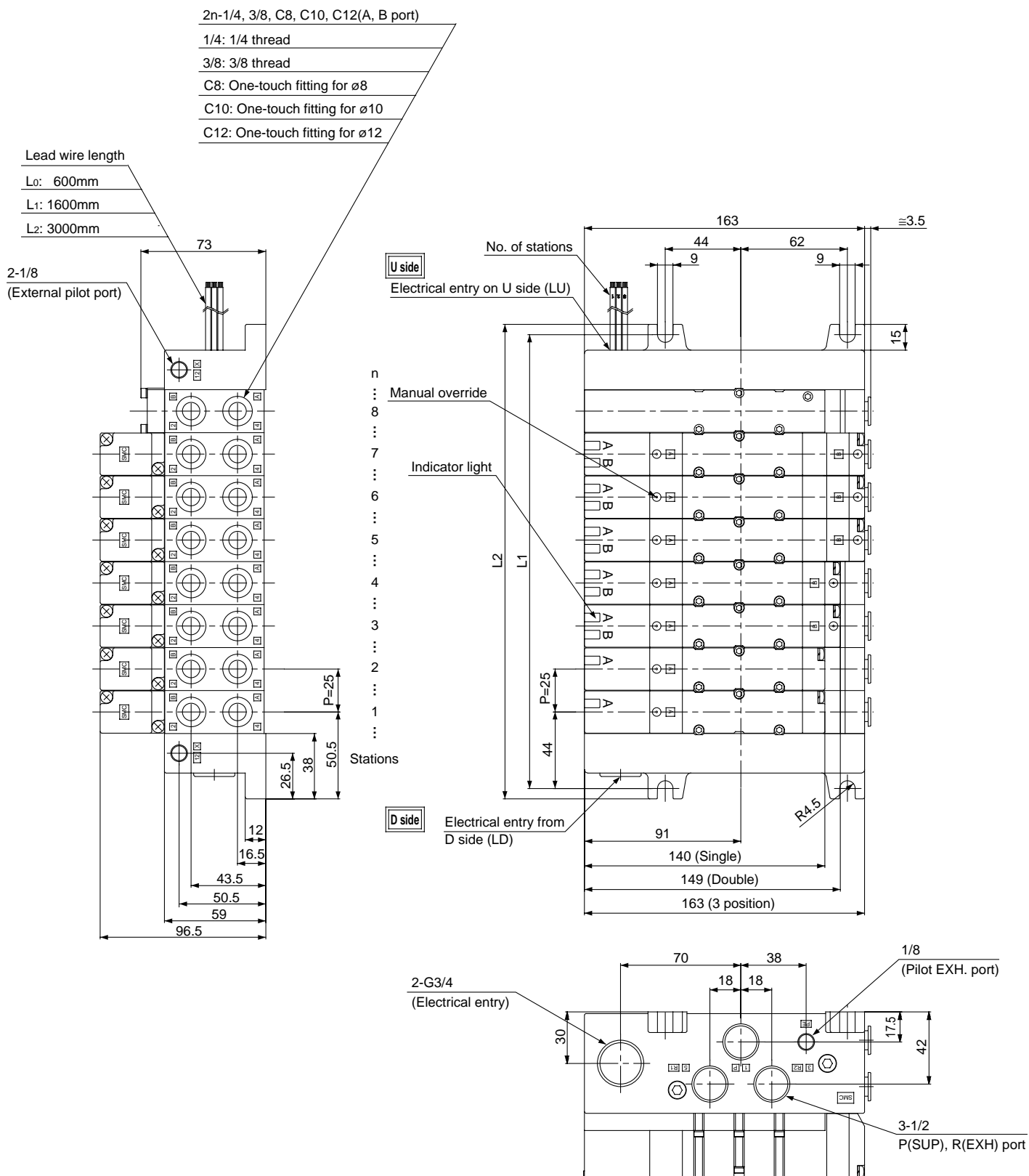


SV
SY
SYJ
SX
VK
VZ
VF
VFR
VP7

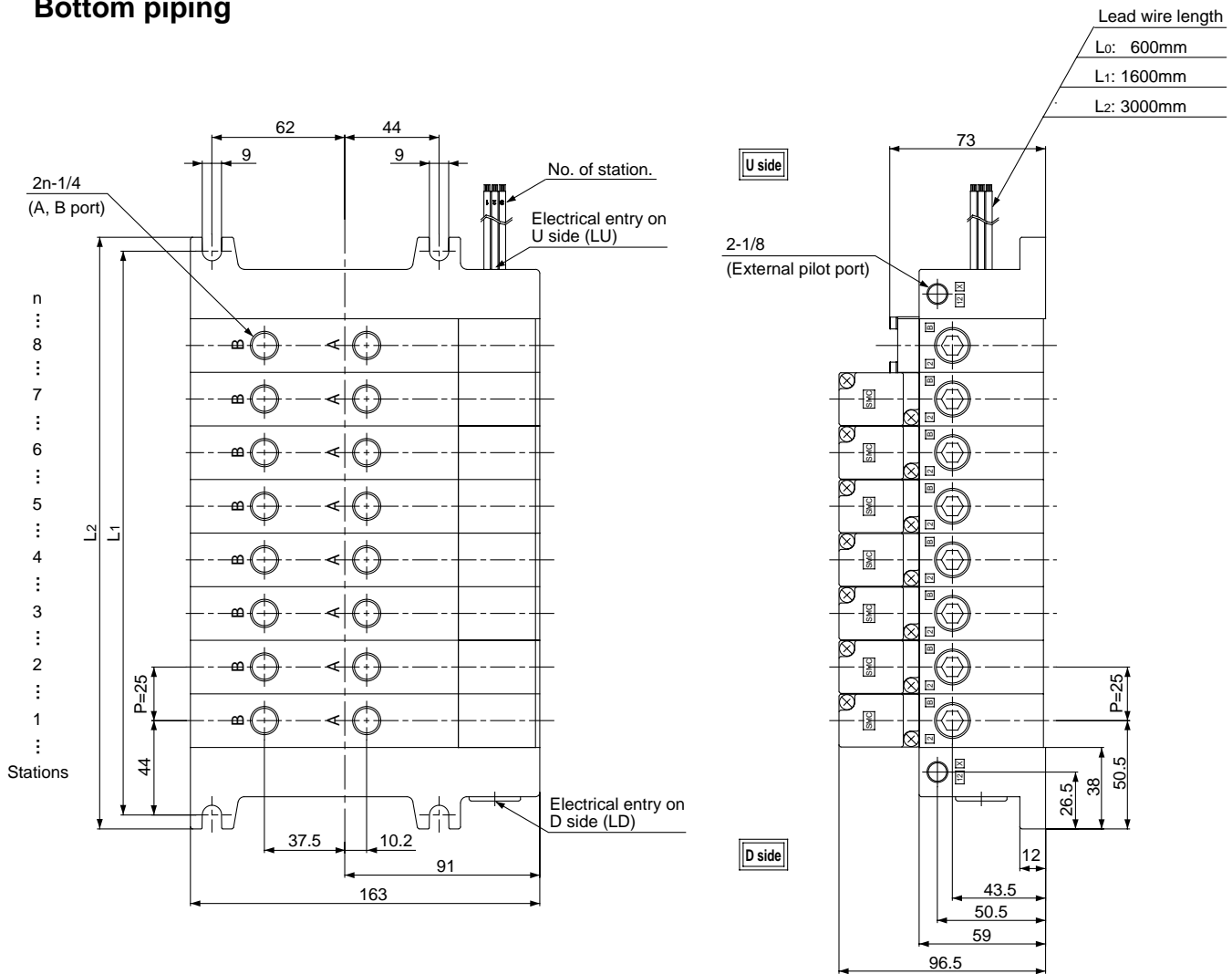
VQC
SQ
VQ
VQ4
VQ5
VQZ
VQD
VFS
VS
VS7

Series VQ4000

L Kit (Lead wire cable)



Bottom piping



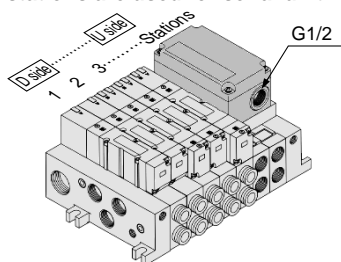
SV
SY
SYJ
SX
VK
VZ
VF
VFR
VP7
VQC
SQ
VQ
VQ4
VQ5
VQZ
VQD
VFS
VS
VS7

Dimensions Equation $L_1=25n+63$ $L_2=25n+76$

n: Station (Max. 16 stations)

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

- The serial interface system minimizes wire mass and wire connection labour and promotes space savings.
- The system comes in an SA type (generic for small scale systems) for equipment with a small number of I/O points, or 32 points max., SB type (applicable to Mitsubishi Electric models) for controlling 512 I/O points max., SC type (applicable to OMRON models), SD type (applicable to Sharp models; 504 points max.), and SF type (applicable to NKE uni-wire system; 128 points max.), SJ type (applicable to Sanks models), SK type (applicable to Fuji electric models), SQ type (applicable to OMRON Compo Bus/D), SR type (Compo Bus/S).
- 18 stations max.
- 2 stations are used for serial unit mounting.



- Stations are sequentially numbered from the D side.
- Regardless of the valve or option, the internal wiring is made double (connected to SOL.A and SOL.B) for respective stations of the manifold. The standard specification permits mixture of single and double wiring.

Item	Specification
External power supply	24V DC +10%, -5%
Current consumption (Internal unit)	SA, SB, SBB, SD, SF, SH, SJ, SK, SQ, SR, SV: 01A 0.3A

Manifold specifications

Series	Porting specifications			Applicable Max. stations
	A, B port location	Port size		
		P, R	A, B	
VQ4000	Side	1/2	C8,10,12 1/4, 3/8	18 stations
	Bottom		1/4	

SB type applicable to MELSECNET/MINI-S3 Data Link (Mitsubishi Electric)												
Name of terminal block (LED)												
	<table border="1"> <thead> <tr> <th>LED name</th><th>Details</th></tr> </thead> <tbody> <tr> <td>POWER</td><td>Lighting when power is turned ON.</td></tr> <tr> <td>RUN</td><td>Lighting when data transmission is normal.</td></tr> <tr> <td>RD</td><td>Lighting during data reception.</td></tr> <tr> <td>SD</td><td>Lighting during data transmission</td></tr> <tr> <td>ERR.</td><td>Lighting when reception error occurs. Light turns off when corrected.</td></tr> </tbody> </table>	LED name	Details	POWER	Lighting when power is turned ON.	RUN	Lighting when data transmission is normal.	RD	Lighting during data reception.	SD	Lighting during data transmission	ERR.
LED name	Details											
POWER	Lighting when power is turned ON.											
RUN	Lighting when data transmission is normal.											
RD	Lighting during data reception.											
SD	Lighting during data transmission											
ERR.	Lighting when reception error occurs. Light turns off when corrected.											
Note	<ul style="list-style-type: none"> • Master station: Sequencer made by Mitsubishi Electric Corp. Series MELSEC-A AJ71PT32-S3, AJ71T32-S3 A1SJ71PT32-S3 * Max. 64 stations, connected to remote I/O stations (Max. 512 points). • 16 outputs, 2 stations occupied. 											

* Refer to Operation Manual for further details of specifications and handling.

How to Order Manifold

VV5Q 4 1 - 08 C8 S A - Q

Series	
4	VQ4000

Manifold	
1	Plug-in unit

Stations	
03	3 stations
...	...
18	18 stations

Note) Add 2 stations for serial unit mounting.

Cylinder ports	
C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
02	1/4
03	3/8
B	Bottom piping 1/4
CM	Mixed size

Style	
B	Without SI units
BB	SI for MELSECNET/MINI Data Link System (2 power supply systems)(Mitsubishi Electric)
C	SI for SYSBUS Wire System (OMRON)

Options

Symbol	Option
-	None
CD	Exhaust cleaner: For D side mounting
K ⁽²⁾	Special wiring specification (Except double wiring)
SD	Built-in silencer (Direct exhaust from D side)
W	Enclosure: IP65



Note 1) When specifying more than one option, combine symbols in alphabetical order. Example)-CDK



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

Note 3) Specify by using manifold specification from on wiring specification.

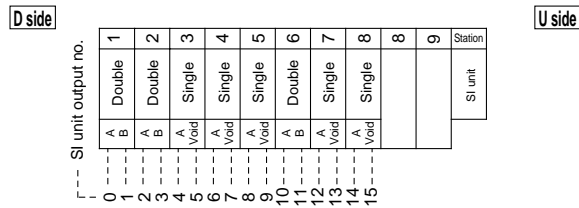
Note 4) Refer to p.1.13-40 to p.1.13-43 for with control unit.

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

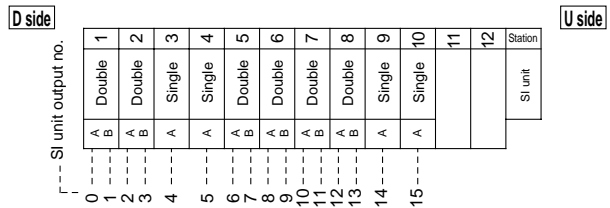
• SI unit output and coil numbering

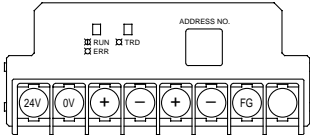
Mixed wiring is optional. Use the manifold specification form to specify.

<Wiring example 1> Double wiring (Standard)

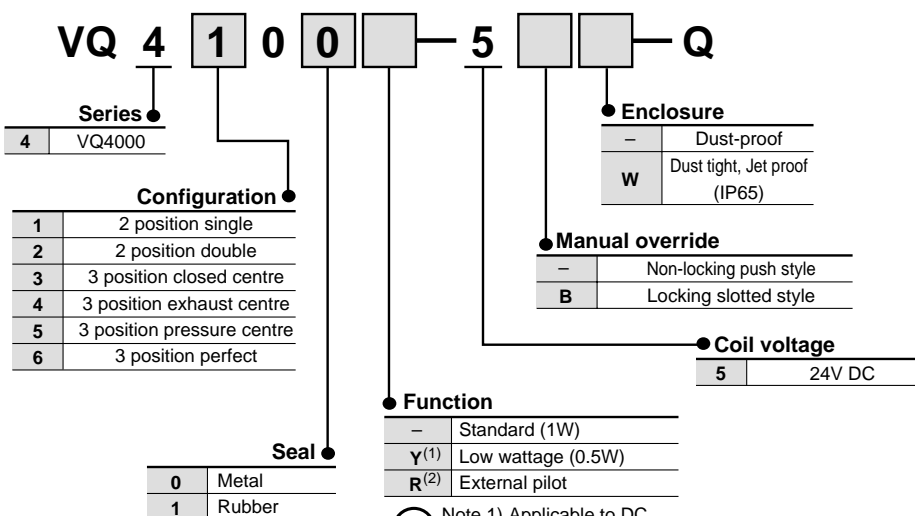


<Wiring example 2> Single/Double mixed wiring (Option)



	SC type applicable to SYSBUS Wire System (OMRON)						
Name of terminal block (LED)	<div></div> <table><tr><th>LED name</th><th>Details</th></tr><tr><td>RUN</td><td>It lights when transmission is normal and PLC is in the operation mode.</td></tr><tr><td>T/R ERR</td><td>It blinks when transmission is normal. It lights when transmission is abnormal.</td></tr></table>	LED name	Details	RUN	It lights when transmission is normal and PLC is in the operation mode.	T/R ERR	It blinks when transmission is normal. It lights when transmission is abnormal.
LED name	Details						
RUN	It lights when transmission is normal and PLC is in the operation mode.						
T/R ERR	It blinks when transmission is normal. It lights when transmission is abnormal.						
Note	<ul style="list-style-type: none">● Master station unit: OMRON's PLC SYSMAC Series C(CV) C500-RM201, C200H-RM201* Max. 32 units, transmission terminal connected (Max. 512 points)● 16 outputs						

How to Order Valve



- Note 1) Applicable to DC specification.
- Note 2) Refer to p.1.13-48 for external pilot specification. Combination of external pilot and perfect interface is not possible.
- Note 3) When specifying more than one option, indicate symbols alphabetically.

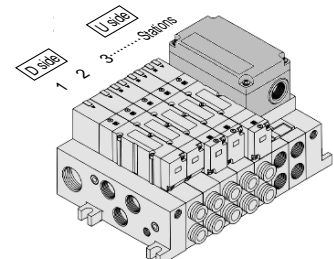
How to Order Manifold Ass'y

Add suffix valve and option number to the manifold base number.

<Example> Serial transmission unit

VV5Q41-07C8SA-Q...1 set - Manifold base part number
 VQ4100-5-Q.....2 set - Valve part No. (Station 1 to 2)
 VQ4200-5-Q.....2 set - Valve part No. (Station 3 to 4)
 VQ4300-5-Q.....1 set - Valve part No. (Station 5)

Write sequentially from the 1st station on the D side. When part numbers written collectively are complicated, specify by using a manifold specification form.



SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

VFS

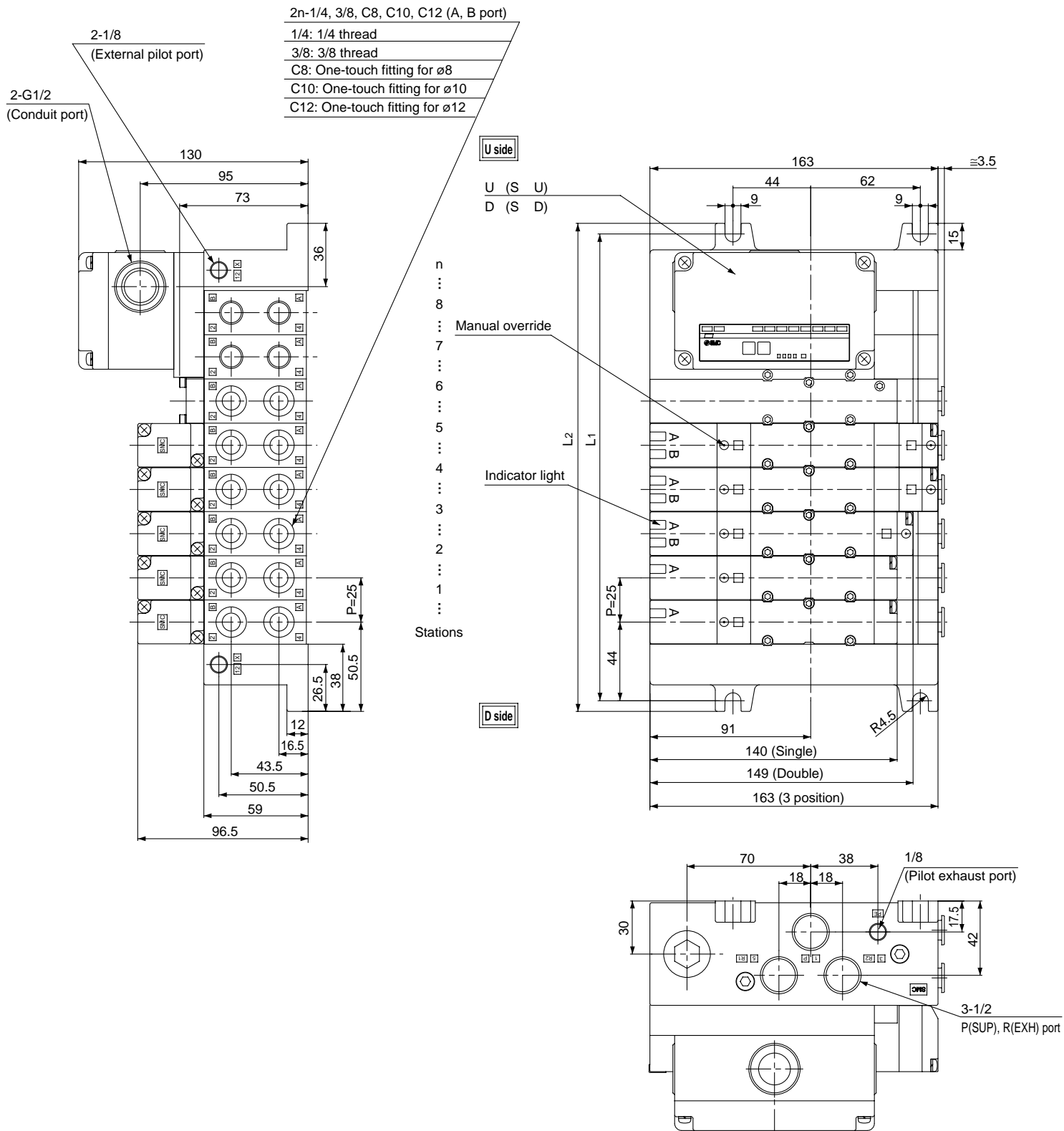
VS

VS7

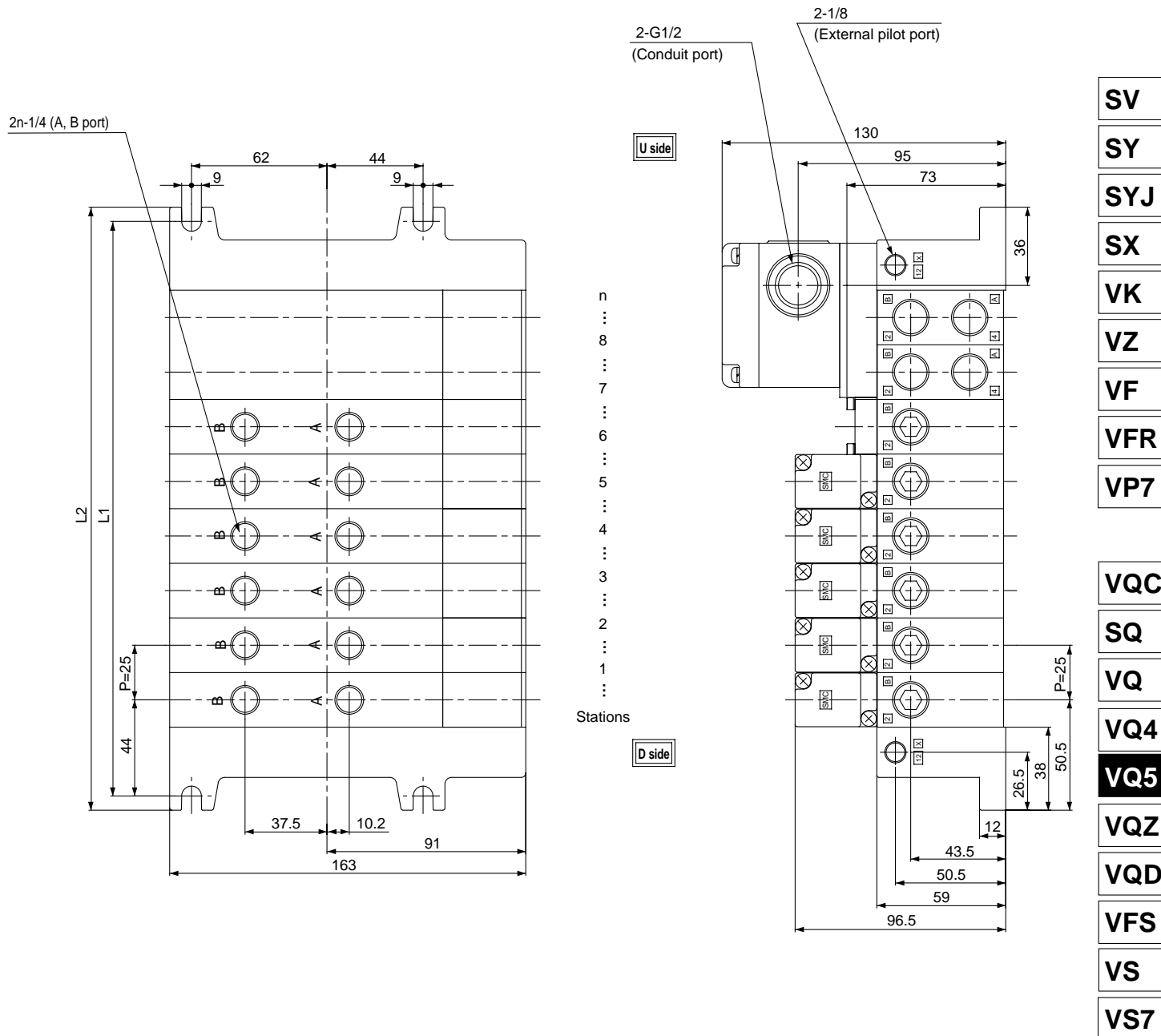
Series VQ4000

S

Kit (Serial interface)



Bottom piping



Dimensions Equation $L1=25n+63$ $L2=25n+76$

n: Station (Max. standard 18 stations)
* Including 2 stations for SI unit box mouning

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L1	88	113	138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513
L2	101	126	151	176	201	226	251	276	301	326	351	376	401	426	451	476	501	526

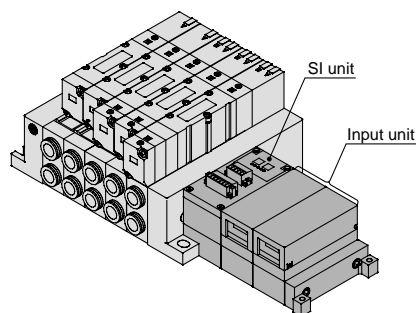
Series VQ4000

S Kit (Applicable to input/output, Serial interface)

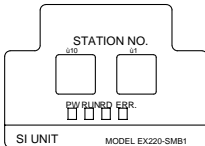
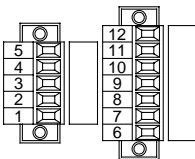
- Input signal such as auto switch is possible to connect. Connector for supply voltage and signal wiring promotes wire connection labour.
- This SBM type can be applicable to Mitsubishi MELSECNET/MINI-S3 data link system.
- 16 stations max.

Manifold specification

Series	Porting specification			Applicable max. stations
	Port location	Port size		
		P, R	A, B	
VQ4000	Side	1/2	C8, 10, 12 1/4, 3/8	16 stations
	Bottom		1/4	



Item	Specifications
External power supply (2 system)	For valve operation: +10% and -5% of 24V DC SI unit: ±10% of 24V DC
Current consumption (Internal unit)	SB: 0.2A

	SBM type applicable to MELSECNET/MINI-S3 Data Link System (Mitsubishi Electric)																																		
Name of indication	 <p>Diagram of the SBM type unit. It shows a rectangular unit with a label 'STATION NO.' at the top, followed by two boxes labeled 'A02' and 'A1'. Below these are four LED indicators labeled 'PW', 'RUN', 'RD', and 'ERR.'. At the bottom, it is labeled 'SI UNIT' and 'MODEL EX220-SMB1'.</p>	<table><tr><th>LED name</th><th>Details</th></tr><tr><td>PW</td><td>Lighting when power is turned ON.</td></tr><tr><td>RUN</td><td>Lighting when data transmission with the master station is normal.</td></tr><tr><td>RD</td><td>Lighting during data reception</td></tr><tr><td>ERR.</td><td>Blinking when transmission is normal.</td></tr></table>	LED name	Details	PW	Lighting when power is turned ON.	RUN	Lighting when data transmission with the master station is normal.	RD	Lighting during data reception	ERR.	Blinking when transmission is normal.																							
LED name	Details																																		
PW	Lighting when power is turned ON.																																		
RUN	Lighting when data transmission with the master station is normal.																																		
RD	Lighting during data reception																																		
ERR.	Blinking when transmission is normal.																																		
Name of connector terminal	 <p>Diagram of the connector terminal. It shows a 12-pin connector with pins numbered 1 through 12. The connector is labeled 'Connector name' and 'Details'.</p>	<table><tr><th></th><th>Connector name</th><th>Details</th></tr><tr><td>1</td><td>24V</td><td rowspan="2">SI unit, Input unit power voltage connection terminal</td></tr><tr><td>2</td><td>0V</td></tr><tr><td>3</td><td>24V</td><td rowspan="2">Power voltage connection terminal for solenoid valve</td></tr><tr><td>4</td><td>0V</td></tr><tr><td>5</td><td>FG</td><td>Frame ground</td></tr><tr><td>6</td><td>RDA</td><td rowspan="3">Signal connection terminal from before terminal</td></tr><tr><td>7</td><td>RDB</td></tr><tr><td>8</td><td>SG</td></tr><tr><td>9</td><td>FG</td><td>Frame ground</td></tr><tr><td>10</td><td>SDA</td><td rowspan="3">Signal connection terminal from next terminal</td></tr><tr><td>11</td><td>SDB</td></tr><tr><td>12</td><td>SG</td></tr></table>		Connector name	Details	1	24V	SI unit, Input unit power voltage connection terminal	2	0V	3	24V	Power voltage connection terminal for solenoid valve	4	0V	5	FG	Frame ground	6	RDA	Signal connection terminal from before terminal	7	RDB	8	SG	9	FG	Frame ground	10	SDA	Signal connection terminal from next terminal	11	SDB	12	SG
	Connector name	Details																																	
1	24V	SI unit, Input unit power voltage connection terminal																																	
2	0V																																		
3	24V	Power voltage connection terminal for solenoid valve																																	
4	0V																																		
5	FG	Frame ground																																	
6	RDA	Signal connection terminal from before terminal																																	
7	RDB																																		
8	SG																																		
9	FG	Frame ground																																	
10	SDA	Signal connection terminal from next terminal																																	
11	SDB																																		
12	SG																																		
Note	<ul style="list-style-type: none">● MELSECNET-MINI-S3 data link system● Master unit: AJ71PT32-S3 AJ71T32-S3 A1SJ71PT32-S3● SI unit Output points 16 points, Input points 16 points, 4 occupation stations * If signal from external input equipment should be needed, I unit is necessary.● I unit Interface unit for transmission of the signal from external input equipment to SI unit. Connecting points is 8. 2 I units can connect to SI unit.																																		

How to Order Manifold

VV5Q 4 1 - 08 C8 S BM Q

Series
4 VQ4000

Manifold
1 Plug-in

Stations
02 2 stations
...
08 8 stations

Used model
(Applicable to Input/Output)
BM BM MELSECNET/MINI-S3 data link system

Cylinder ports

C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
02	1/4
03	3/8
B	Bottom piping 1/4
CM	Mixed size

Number of input units

0	Without unit
1	1
2	2

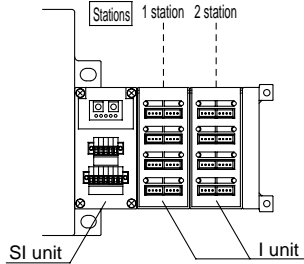
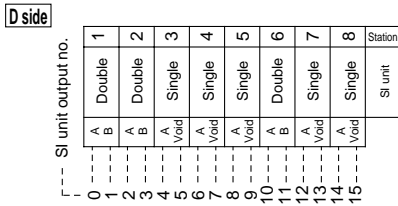
Options

Symbol	Option
-	None
CD	Exhaust cleaner: For D side mountig
K ⁽²⁾	Special wiring specification (Except double wiring)
SD	Built-in silencer (Direct exhaust from D side)

- Note 1) When specifying more than one option, combine symbols in alphabetical order. Example)-CDK
 Note 2) Combination of [CD] and [SD] is not available.
 Note 3) Specify wiring by using manifold specification form.
 Note 4) Refer to p.1.13-40 to p.1.13-43 for with control unit.
 Note 5) The release valve and the pressure switch on the manifold with control unit are connected to another power supply. Cable length is 0.6m for L kit.

• SI unit output and coil numbering

<Wiring example 1> Double wiring (Standard)



I unit specifications

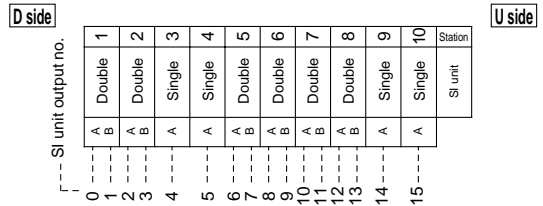
Input style	DC Input (Sink type)	
Number of input points	16 points	
Insurance	Photo coupler insurance	
Rated input voltage	24V DC	
Input current	10mA	
Operating voltage	ON voltage	15V DC or more
	OFF voltage	6V DC or less
Input response time	OFF-ON	10ms or less
	ON-OFF	10ms or less
Input indication	LED indication (Red)	
Common connection	16 points/1 common	

Input I unit (Input unit)

Input numbers are fallen on the terminal numbers 0, 1.....in order.

Stations	No. of connector terminals	No. of inputs
1	0	0
	1	1
	2	2
	3	3
	4	4
	5	5
	6	6
2	7	7
	0	8
	1	9
	2	A
	3	B
	4	C
	5	D
	6	E
	7	F

<Wiring example 2> Single/Double mixed wiring (Option)



I unit: How to connect input terminal

Terminal	Details
1	24V Power supply for external input equipment
2	None
3	0V Power supply for external input equipment
4	Input signal External input equipment signal

Wiring of external input wiring

• 3 wire

• 2 wire

How to connect attached pressed plug

1. Pass electrical wire into insertion hole of plug wire.
2. Do pressure welding with pliers. When pressure welding, press the cover till it is locked.
3. Cut the rest of electric wire. When cutting the wire, hold up the rest such as figure and cut into V form groove. Cut it at slant position.

* External connection specification
Connector applicable wire : Conductor $\phi 0.4\text{mm}$, $\phi 0.5\text{mm}$, $\phi 0.65\text{mm}$, Each cover $\leq \phi 2.0\text{mm}$.

How to Order Valve

VQ 4 1 0 0 5 Q

- Series**: VQ4000
- Configuration**:

1	2 position single
2	2 position double
3	3 position closed centre
4	3 position exhaust centre
5	3 position pressure centre
6	3 position perfect
- Coil voltage**: 5 24V DC
- Function (1, 2)**:

-	Standard (1W)
Y	Low wattage (0.5W)
R	External pilot
- Seal**:

0	Metal
1	Rubber
- Manual override**:

-	Non-locking push style
B	Locking slotted style

Note 1) Refer to p.1.13-48 for external pilot specification.
Note 2) Combination of external pilot and perfect interface is not possible. When specifying more than one option, indicate symbols alphabetically.

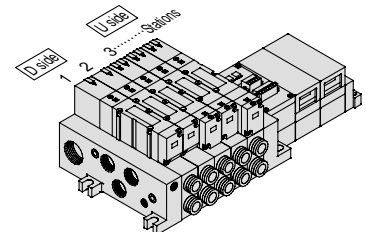
How to Order Manifold Ass'y

Add suffix valve and option number to the manifold base number.

<Example> Serial transmission unit

V5Q41-05C8SBMZ-Q...1 set – Manifold base part number
VQ4100-5-Q.....2 set – Valve part No. (Station 1 to 2)
VQ4200-5-Q.....2 set – Valve part No. (Station 3 to 4)
VQ4300-5-Q.....1 set – Valve part No. (Station 5)

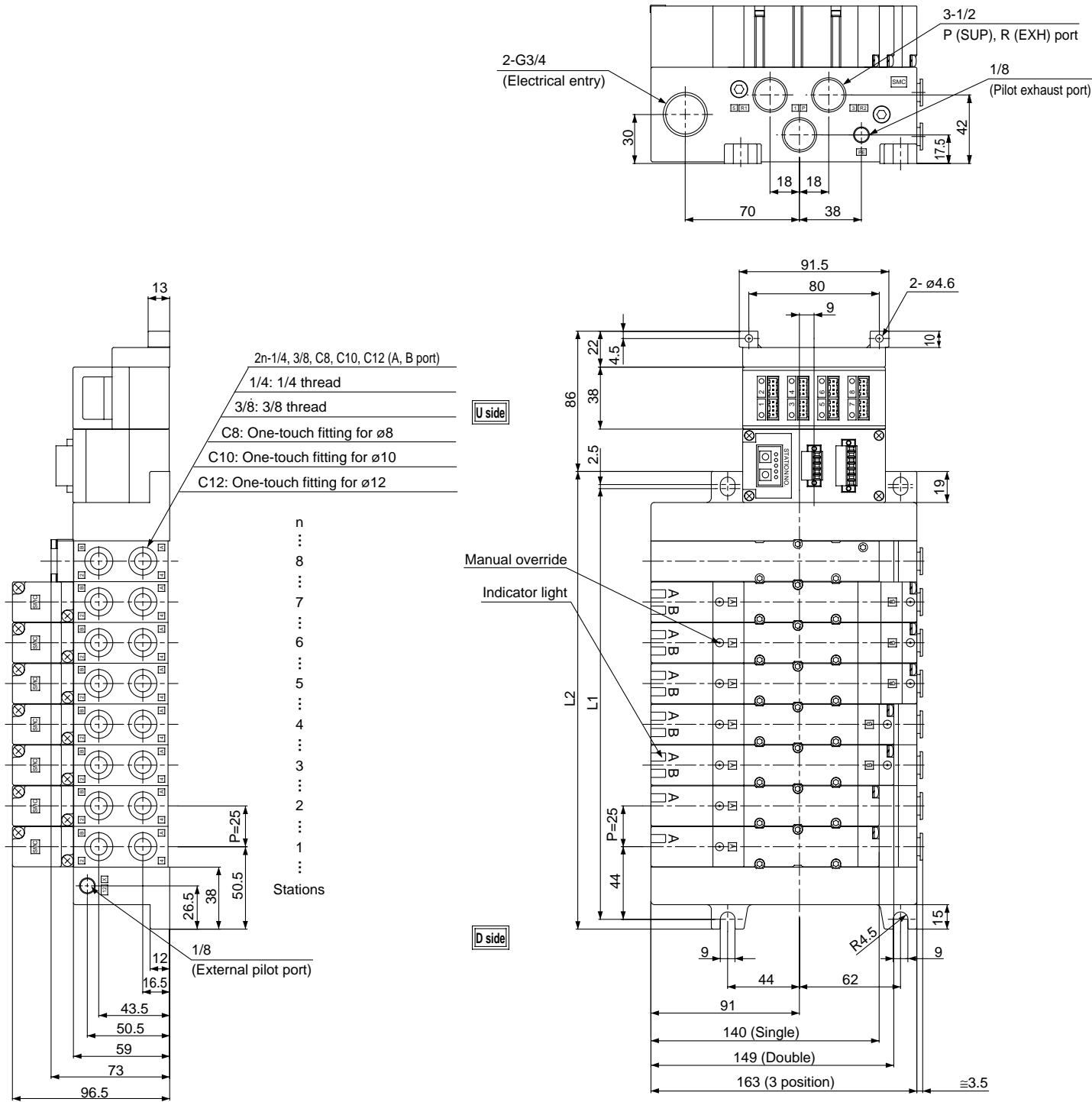
Write sequentially from the 1st station on the D side. When part numbers written collectively are complicated, specify by using a manifold specification form.



Series **VQ4000**

S Kit (Applicable to input/output, Serial interface)

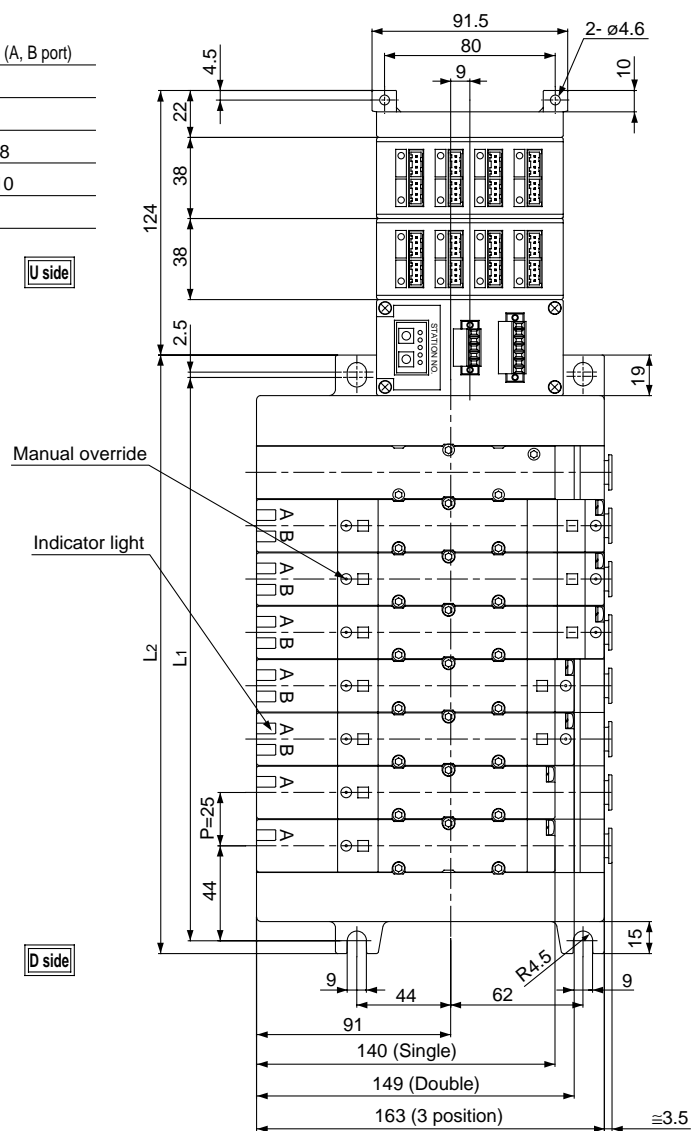
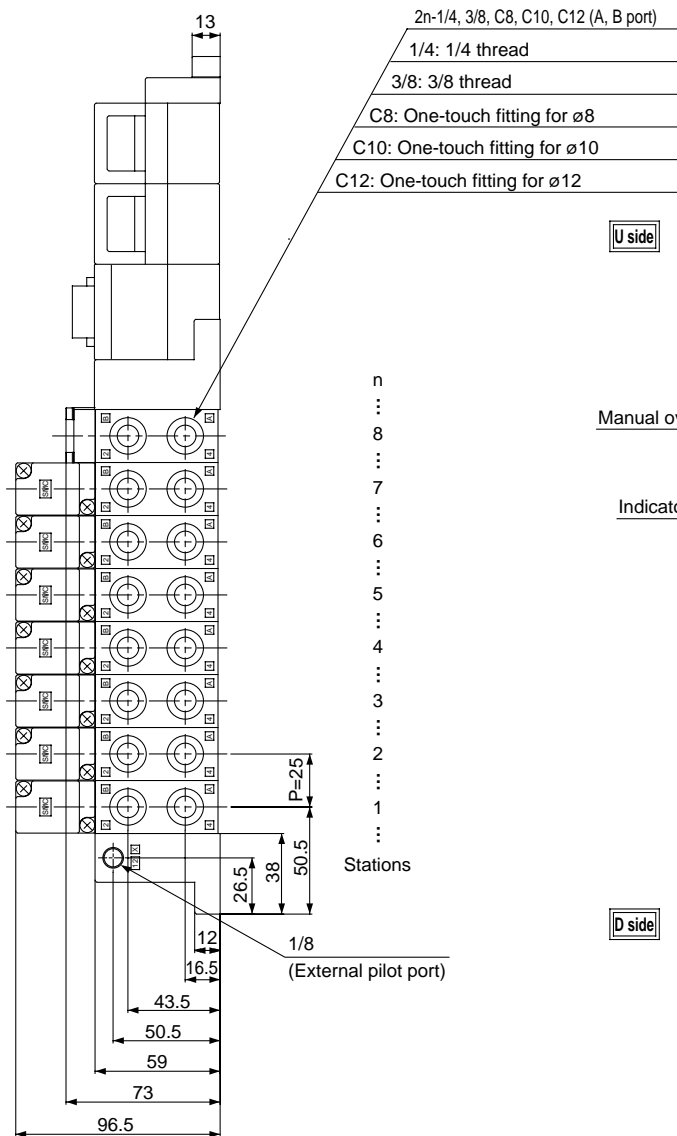
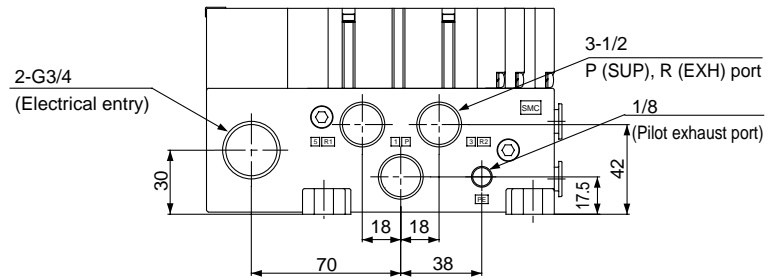
One input unit



Dimensions Equation $L_1=25n+63.5$ $L_2=25n+80.5$ n: Station (Max. standard 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	88.5	113.5	138.5	163.5	188.5	213.5	238.5	263.5	288.5	313.5	338.5	363.5	388.5	413.5	438.5	463.5
L2	105.5	130.5	155.5	180.5	205.5	230.5	255.5	280.5	305.5	330.5	355.5	380.5	405.5	430.5	455.5	480.5

Two input units



Dimensions Equation $L_1=25n+63.5$ $L_2=25n+80.5$ n: Station (Max. standard 16 stations)

L	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1		88.5	113.5	138.5	163.5	188.5	213.5	238.5	263.5	288.5	313.5	338.5	363.5	388.5	413.5	438.5	463.5
L2		105.5	130.5	155.5	180.5	205.5	230.5	255.5	280.5	305.5	330.5	355.5	380.5	405.5	430.5	455.5	480.5

Series VQ4000

Base Mounted

Plug Lead Manifold: C Kit (Connector)

How to Order Manifold

VV5Q 4 5 08 C8 C W Q

Series	
4	VQ4000

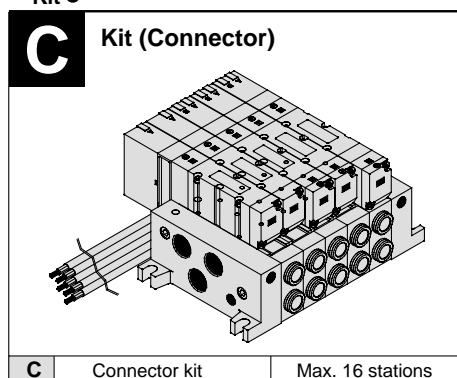
Manifold	
5	Plug lead unit

Stations	
02	2 stations
...	...
16	16 stations

Port size	
C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
02	1/4
03	3/8
B	Bottom piping 1/4
CM	Mixed size
N7	One-touch fitting for ø1/4"
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"
NM	Mixed size

Thread	
—	Rc (PT)
N	NPT
T	NPTF
F	G (PF)

Kit (Connector)



C Connector kit Max. 16 stations

Options

Symbol	Option
—	None
CD ⁽²⁾	Exhaust cleaner: D side mounting
CU ⁽²⁾	Exhaust cleaner: U side mounting
SB	Built-in silencer (Direct-exhaust from both sides)
SD	Built-in silencer (Direct-exhaust from D side)
SU	Built-in silencer (Direct-exhaust from U side)
W	IP65



Note 1) When specifying more than one option, combine symbols in alphabetical order. Example) -CDW
Note 2) Combination of [CU/D] and [SU/D] is not available.



Refer to p.1.13-2 (Grommet style) for wiring specification.

How to Order Valve

VQ 4 1 5 0 5 G Q

Series	
4	VQ4000

Configuration	
1	2 position single
2	2 position double
3	3 position closed centre
4	3 position exhaust centre
5	3 position pressure centre
6	3 position perfect

Seal	
0	Metal
1	Rubber

Function	
—	Standard (1W)
Y ⁽¹⁾	Low wattage (0.5W)
R ⁽²⁾	External pilot

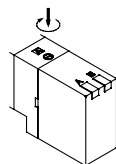
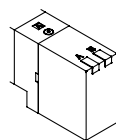


Note 1) Applicable to DC specification.
Note 2) Refer to p.1.13-48 for external pilot specification. Combination of external pilot and perfect interface is not possible.
Note 3) When specifying more than one option, indicate symbols alphabetically.

Enclosure	
—	Dust proof
W	Dust tight, Jet proof (IP65)

Manual override

—: Non-locking push style B: Locking slotted style



Light and surge voltage suppressor

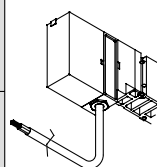
	With
—	Without light, with surge suppressor
E	

Coil voltage

1	100V AC (50/60Hz)
2	200V AC (50/60Hz)
3	110V AC (50/60Hz)
4	220V AC (50/60Hz)
5	24V DC
6	12V DC
9	240V or less

Electrical entry

Grommet	
G	Lead wire length 0.6m
H	Lead wire length 1.5m



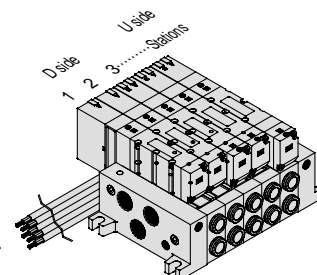
How to Order Manifold Ass'y

Add suffix valve and option number to the manifold base number.

<Example> Connector kit

VV5Q45-05C12C-Q...1 set Manifold base part number
VQ4150-5G-Q...2 set Valve part No. (Station 1 to 2)
VQ4250-5G-Q...2 set Valve part No. (Station 3 to 4)
VQ4350-5G-Q...1 set Valve part No. (Station 5)

Write sequentially from the 1st station on the D side. When part numbers written collectively are complicated, specify by using a manifold specification form.



Contact SMC for other voltages (9)



Protective class class I (Mark: ⚡)
..... DIN terminal type

Manifold Specifications

Series	Base No.	Connection	Porting specifications			Applicable stations	Applicable valve	Weights 5 station (kg)
			Port location	Port size ⁽¹⁾				
				P, R	A, B			
VQ4000	VV5Q45-□□□	■ C kit-Grommet	Side	1/2 Optional (Built-in silencer, direct exhaust)	C8 (For ø8) C10 (For ø10) C12 (For ø12) 1/4 3/8	2 to 16 stations	VQ4□50 VQ4□51	2.0 · Except solenoid valve weight
			Bottom		1/4			

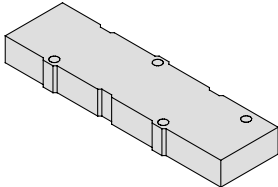
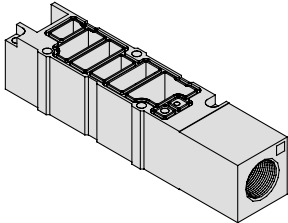
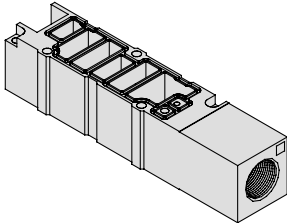
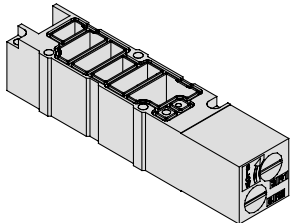
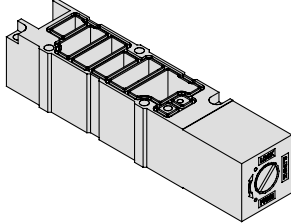
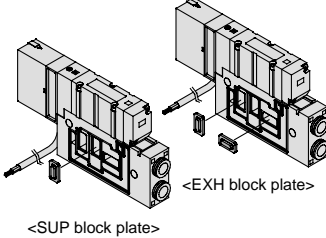
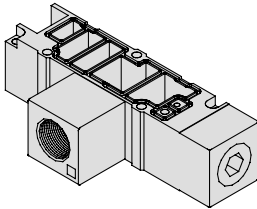
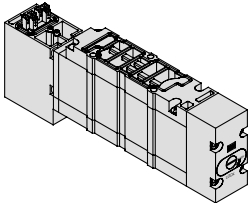
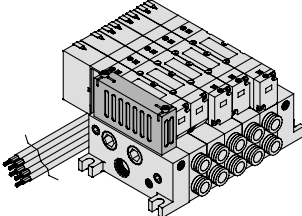
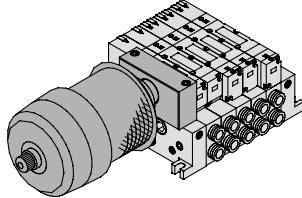
Note 1) Refer to p.1.13-48 for One-touch fittings for inch sizes and other thread standards.

Number of Manifold Stations/Effective Area (mm² (Nl/min)) at Individual Operation

Model	Passage/Stations	1 station	5 stations	10 stations	15 stations
2 position metal seal VQ4150/VQ4250	P→A or B	28.8 (1570)	28.8 (1570)	28.8 (1570)	28.8 (1570)
	A→R1, B→R2	32.4 (1766)	32.4 (1766)	32.4 (1766)	32.4 (1766)
2 position rubber seal VQ4151/4251	P→A or B	36.0 (1963)	36.0 (1963)	36.0 (1963)	36.0 (1963)
	A→R1, B→R2	37.8 (2061)	37.8 (2061)	37.8 (2061)	37.8 (2061)

Note) Port size: 3/8

Manifold Options

Blank plate assembly VVQ4000-10A-5 	Individual SUP spacer VVQ4000-P-5-03 	Individual EXH spacer VVQ4000-R-5-03 	<ul style="list-style-type: none"> Refer to p.1.13-34 to p.1.13-39 for detail dimensions of each option. Refer to p.1.13-47 for spare parts no. Refer to p.1.13-40 to p.1.13-43 for control unit.
Interface speed control VVQ4000-20A-5 	SUP stop valve spacer VVQ4000-37A-5 	SUP/EXH block plate VVQ4000-16A  <p><EXH block plate></p> <p><SUP block plate></p>	
Release valve spacer VVQ4000-24A-5D (1) 	Double check spacer with residual pressure exhaust VVQ4000-25A-5 (1) 	Built-in silencer direct exhaust [-SD, -SU] (1) 	For exhaust cleaner mounting [-CD, -CU] (1) 

Note 1) Release valve spacer, built-in silencer (direct exhaust), exhaust cleaner mounting style and perfect double check spacer for residual pressure exhaust cannot be combined with external pilot.

SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

VFS

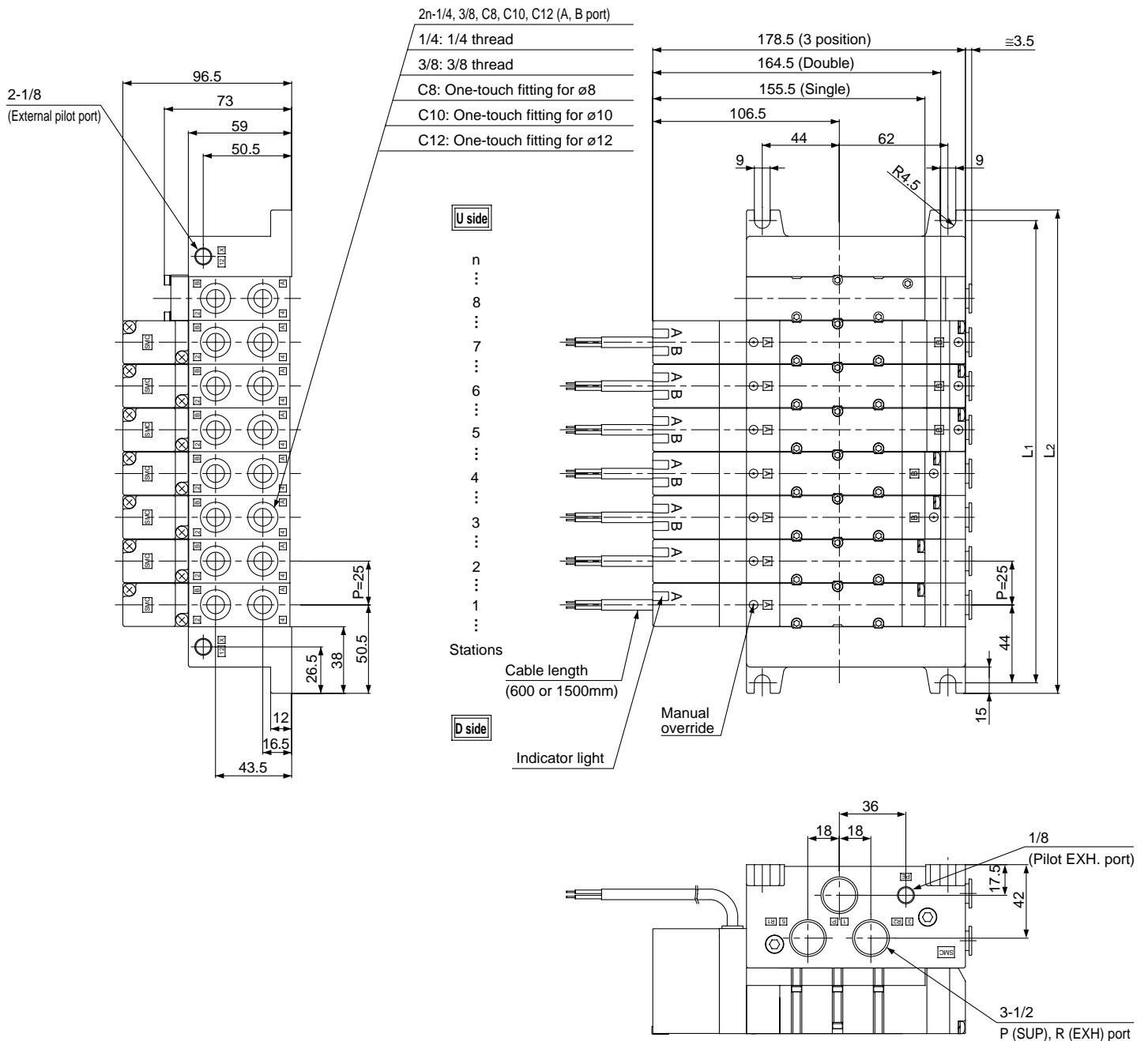
VS

VS7

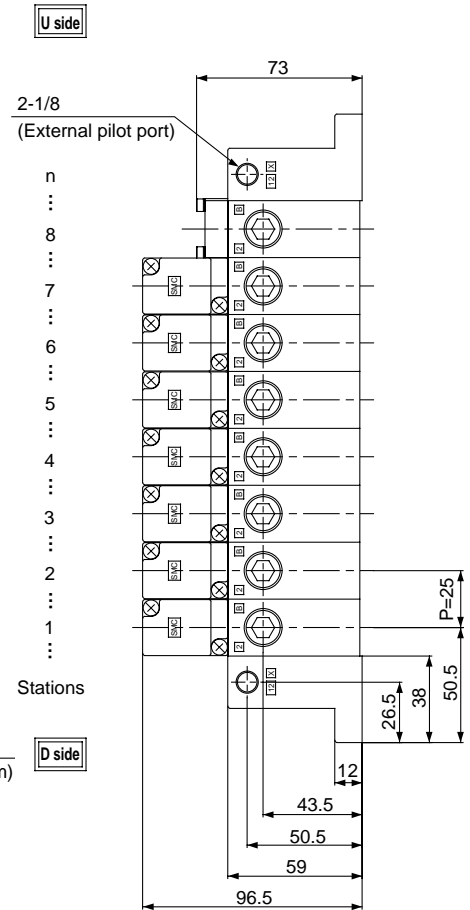
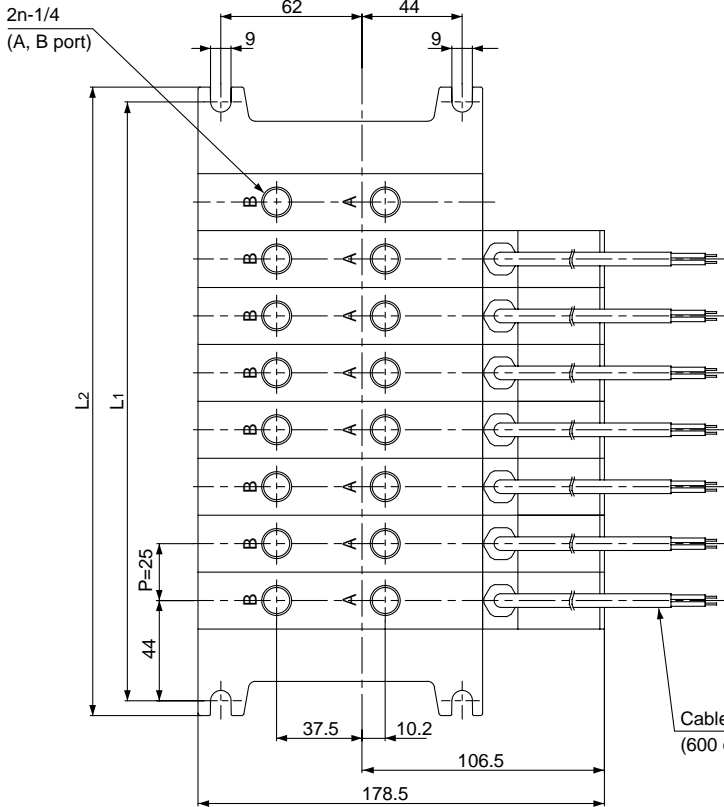
Series VQ4000

C

Kit (Connector)



Bottom piping



SV
SY
SYJ
SX
VK
VZ
VF
VFR
VP7
VQC
SQ
VQ
VQ4
VQ5
VQZ
VQD
VFS
VS
VS7

Dimensions Equation $L1=25n+63$ $L2=25n+76$

n: Station (Max. 16 stations)

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

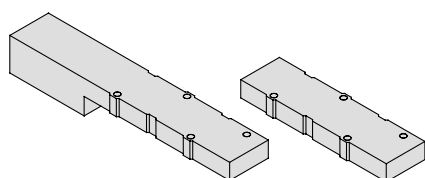
Manifold Options

Blank plate assembly

VVQ4000-10A-1 (Plug-in)

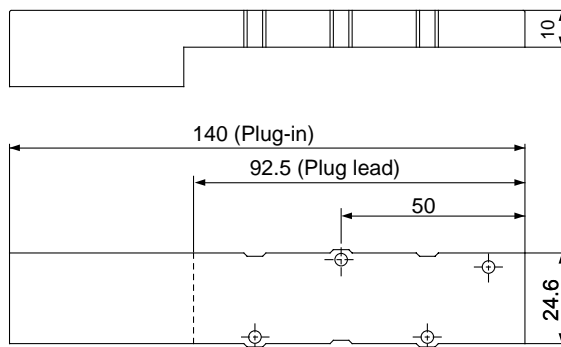
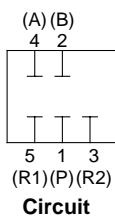
VVQ4000-10A-5 (Plug lead)

This is mounted on the manifold block when removing the valve for maintenance or reserving space for future use.



Plug-in

Plug lead

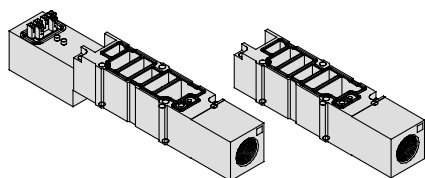


Individual SUP spacer

VVQ4000-P-1-03 (Plug-in)

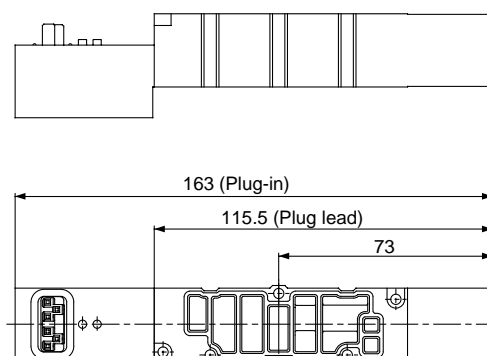
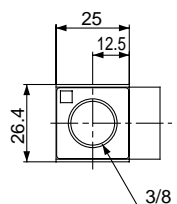
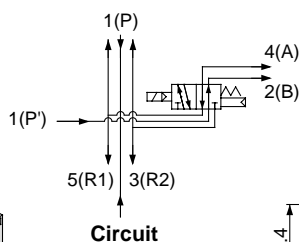
VVQ4000-P-5-03 (Plug lead)

Individual SUP spacer is mounted on the manifold block to provide individual supply port for each valve.



Plug-in

Plug lead

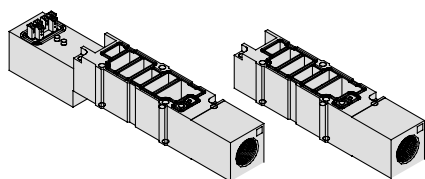


Individual EXH spacer

VVQ4000-R-1-03 (Plug-in)

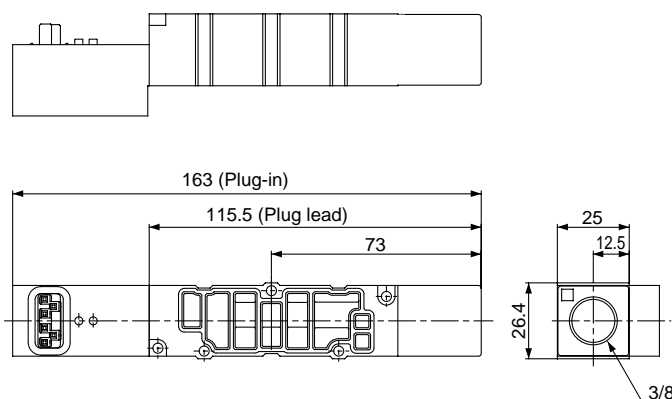
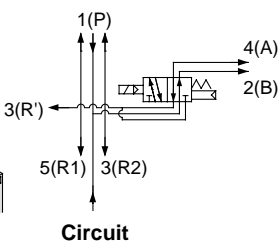
VVQ4000-R-5-03 (Plug lead)

Individual EXH spacer is mounted on the manifold block to provide individual exhaust port for each valve. (Common EXH)



Plug-in

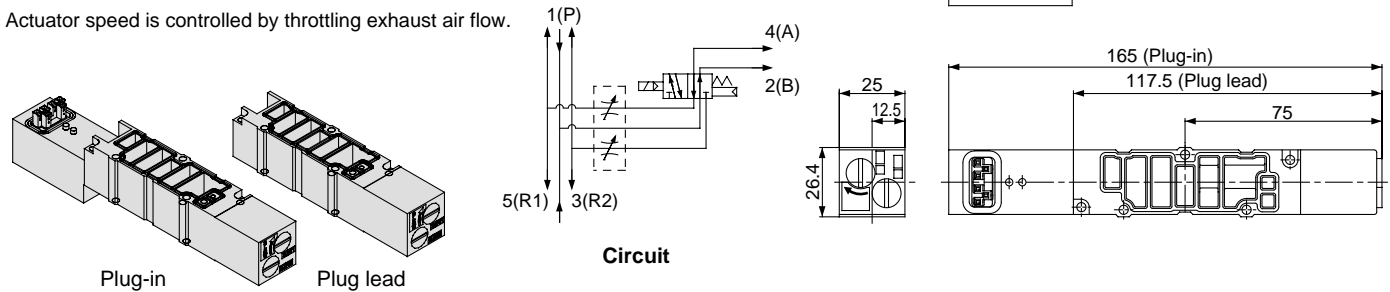
Plug lead



Interface speed control

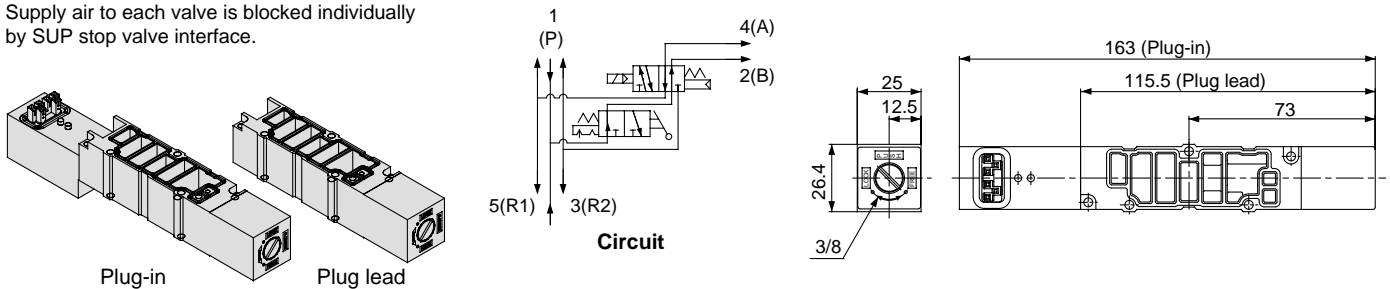
VVQ4000-20A-1 (Plug-in)
VVQ4000-20A-5 (Plug lead)

Actuator speed is controlled by throttling exhaust air flow.

**SUP stop valve spacer**

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

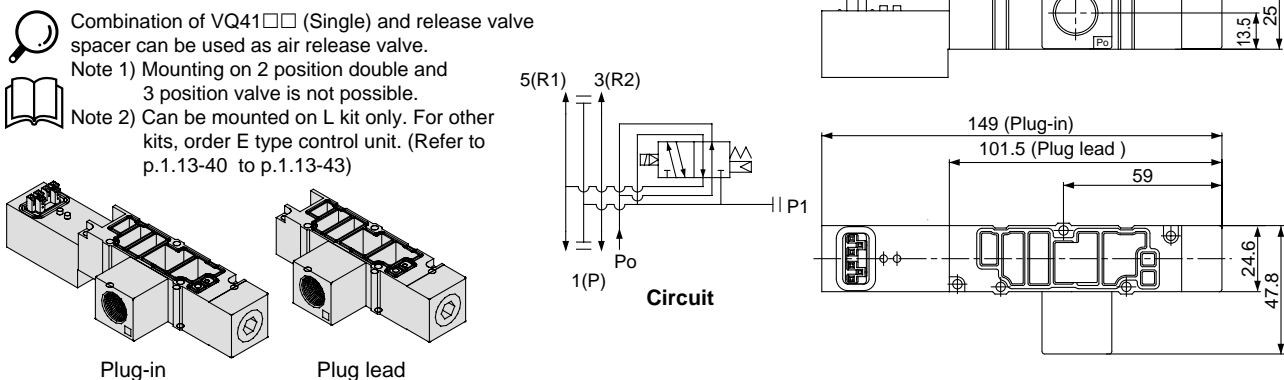
Supply air to each valve is blocked individually by SUP stop valve interface.

**Release valve spacer: For D side mounting**

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

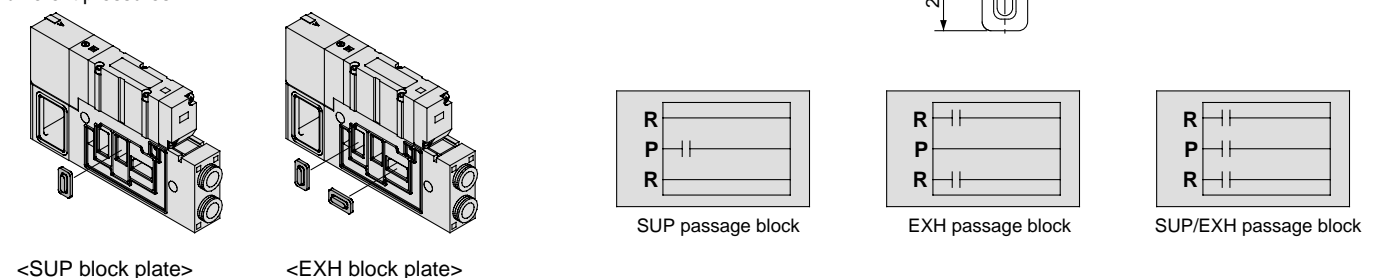
Combination of VQ41□□ (Single) and release valve spacer can be used as air release valve.

Note 1) Mounting on 2 position double and 3 position valve is not possible.
 Note 2) Can be mounted on L kit only. For other kits, order E type control unit. (Refer to p.1.13-40 to p.1.13-43)

**SUP/EXH block station**

VVQ4000-16A

When high and low pressures are simultaneously supplied to one manifold, a block plate is inserted between stations under different pressures.



<SUP block plate>

<EXH block plate>

SUP passage block

EXH passage block

SUP/EXH passage block

SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

VFS

VS

VS7

Series VQ4000

Manifold Options

Interface regulator for VQ4000 series 5 port solenoid valve: Series ARBQ

Piping work is unnecessary

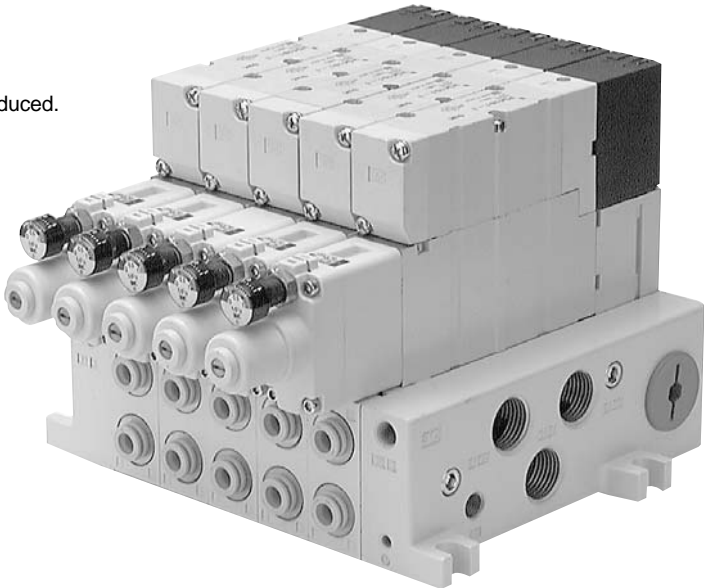
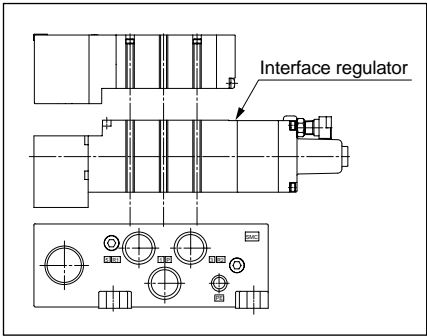
Ideal pressures can be supplied by simply installing interface regulators on a manifold base.

Space savings

The space required to mount regulators in circuits can be reduced.

Two pressure control simplified

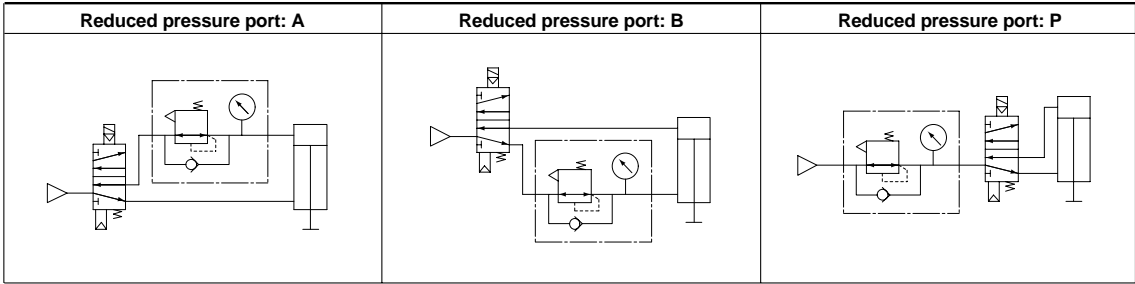
Two pressure actuator control can be easily performed.



How to Order

Solenoid valve model	Applicable interface regulator model	Reduced pressure port
VQ4□0□ (plug-in type)	ARBQ4000-00-A-1	A
	ARBQ4000-00-B-1	B
	ARBQ4000-00-P-1	P
VQ4□5□ (plug lead type)	ARBQ4000-00-A-5	A
	ARBQ4000-00-B-5	B
	ARBQ4000-00-P-5	P

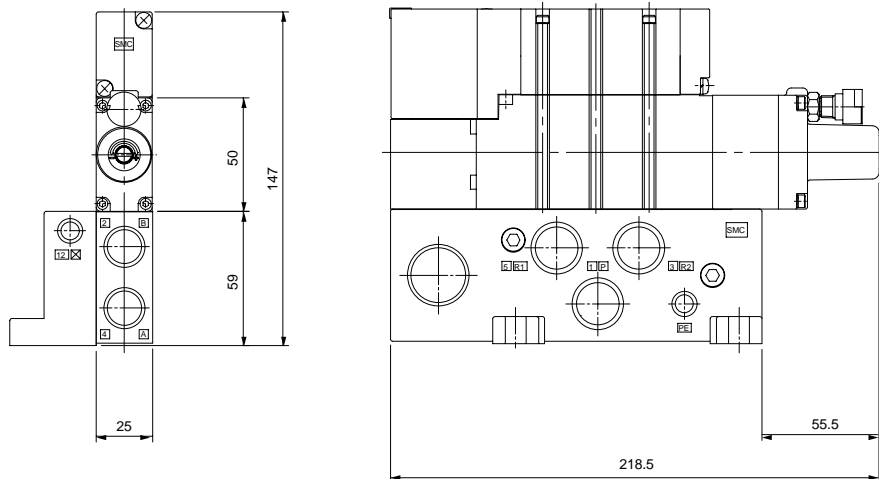
Circuit Diagrams



Specifications

Interface regulator model		ARBQ4000					
Reduced pressure port		A		B		P	
Applicable solenoid valve		Plug-in	Plug lead	Plug-in	Plug lead	Plug-in	Plug lead
Maximum operating pressure		1.0MPa					
Regulating pressure range		0.05 to 0.85MPa					
Fluid		Air					
Proof pressure		1.5MPa					
Ambient and fluid temperature		-5 to 60°C (with no freezing)					
Pressure gauge port size		M5					
Weight (kg)		0.33	0.30	0.33	0.30	0.33	0.30
Supply side effective area (mm ²) when P ₁ = 0.7MPa, P ₂ = 0.5MPa	P→A	15		31		14	
	P→B	35		16		15	
Exhaust side effective area (mm ²) when P ₂ = 0.5MPa	A→EA	18		40		40	
	B→EB	37		19		37	

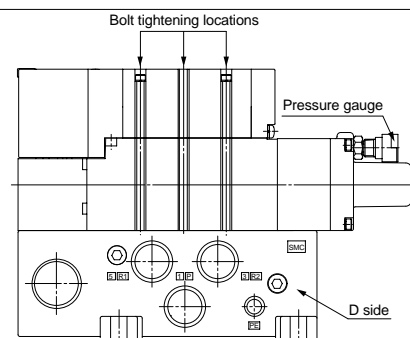
Dimensions



Mounting

⚠ Caution

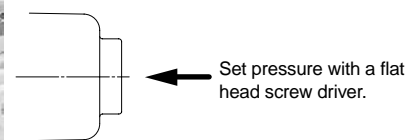
1. With the P port on the manifold's D side in front, mount the interface regulator so that the position of its pressure gauge is as shown in the figure to the right.
2. When mounting an interface regulator, tighten the bolts with a torque of 0.9N·m.



Pressure Setting

⚠ Caution

1. Set the pressure of an interface regulator using a flat head screw driver.
2. The pressure adjustment is increased by turning to the right and decreased by turning to the left. Perform pressure setting by increasing from low pressure to the desired setting.
3. Perform the setting after carefully confirming the upstream pressure.
4. Set the downstream pressure to no more than 85% of the upstream pressure.



SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

VFS

VS

VS7

Manifold Options

Built-in silencer, Direct exhaust

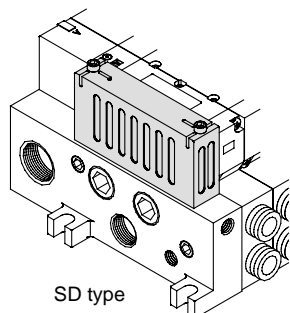
VV5Q4 $\frac{1}{5}$ -□□□-SB (Both sides exhaust)

VV5Q4 $\frac{1}{5}$ -□□□-SD (D side exhaust)

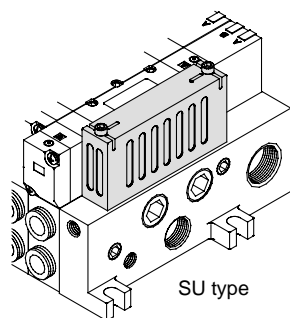
VV5Q4 $\frac{1}{5}$ -□□□-SU (U side exhaust)

Exhaust port is located on top side of end plate of manifold. Silencer is built-in, it is effective for fine noise reduction. (Noise reduction 35dB or more).

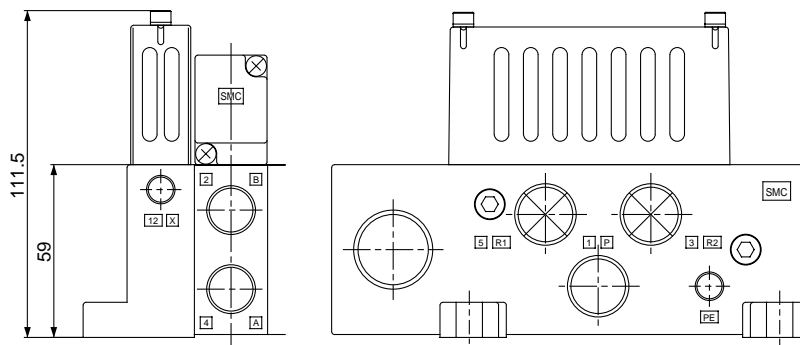
Note) If a lot of drainage is generated at air supply source, both of exhaust air and drainage are exhausted.



SD type



SU type



Note) Figure shows VV5Q41-□□□-SD.

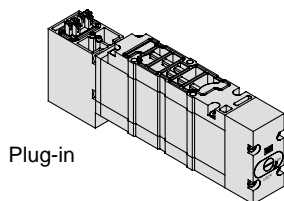
Double check spacer with residual pressure exhaust

VVQ4000-25A-1 (Plug-in)

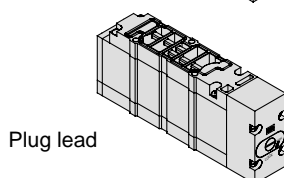
VVQ4000-25A-5 (Plug lead)

Keeping the cylinder in the middle position for a long time

Using the double check spacer with a built-in double check valve will enable the cylinder to stop and maintain its position in the middle for a long time, regardless of air leakage between spools. Combination with a two-position single/double solenoid valve will prevent the dropping at the cylinder stroke end.



Plug-in

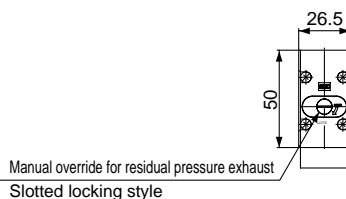


Plug lead

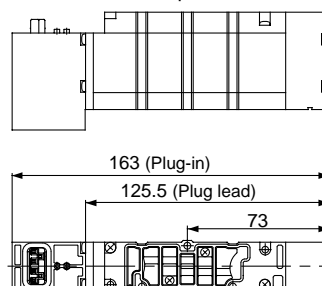
Specifications

Double check spacer part no.	VVQ4000-25A-1			
	Stop in the middle	Drop prevention		
Applicable solenoid valve	VQ44□□	VQ4 $\frac{1}{2}$ □□		
Leakage * Ncm ³ /min	Solenoid on one side energized	P	EA	230 or less
			EB	
	Solenoids on both sides de-energized	P	EA	230 or less
		A	EA	0
		B	EB	

* Supply pressure: 0.5MPa



Manual override for residual pressure exhaust
Slotted locking style



Caution

- Air leakage from the pipe between the valve and cylinder or from the fittings will prevent the cylinder from stopping in the middle for a long time. Check for the leakage using neutral household detergent, such as dish washing soap. Also, check the cylinder sealing and piston seal for leakage.
- Since One-touch fittings allow slight air leakage, screw piping is recommended when stopping the cylinder in the middle for a long time.
- If exhaust side of double check spacer is narrowed down, this causes a decrease in intermediate stop accuracy and may malfunction.
- Combining perfect interface with 3 position valves "VQ4 3/5□□" will not work.
- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.
- Combining double check spacer with external pilot will not work.

Manifold mounted exhaust cleaner

VV5Q4 $\frac{1}{5}$ -□□□-CD (D side mounting)VV5Q4 $\frac{1}{5}$ -□□□-CU (U side mounting)

Adapter plate for exhaust cleaner mounting is attached on end plate of manifold. Drainage and mist are collected (99.9% or more), it has high reduction effect. (Noise reduction: 35dB or more).

Applicable exhaust cleaner

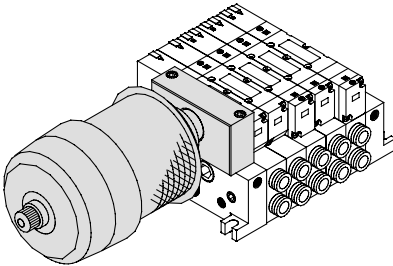
AMC610-10 (Port size Rc1)



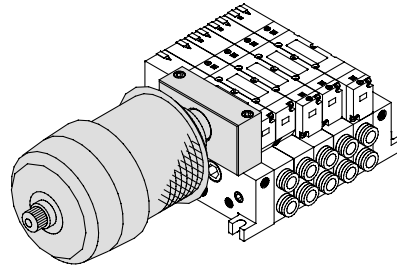
Note 1) Exhaust cleaner AMC610-10 is not attached. (Order it separately.)

Note 2) Mount the exhaust cleaner underneath.

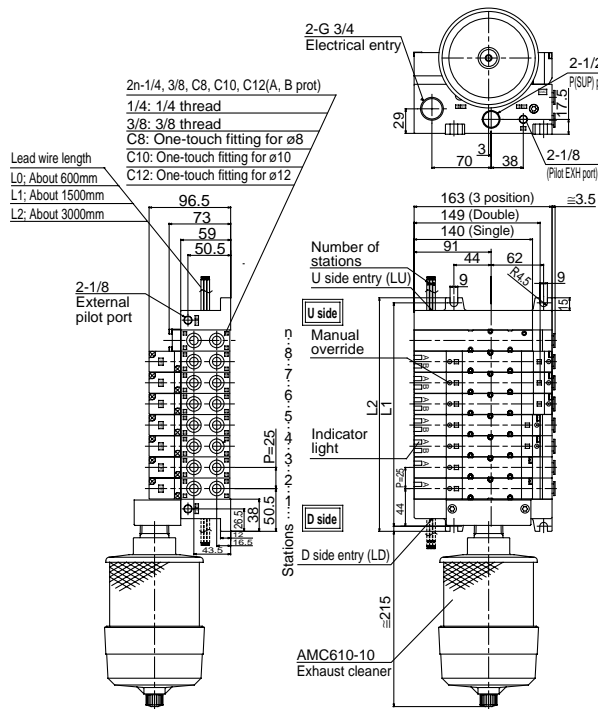
Note 3) Refer to p.5.3-1 and 5.3-2 for details of exhaust cleaner.



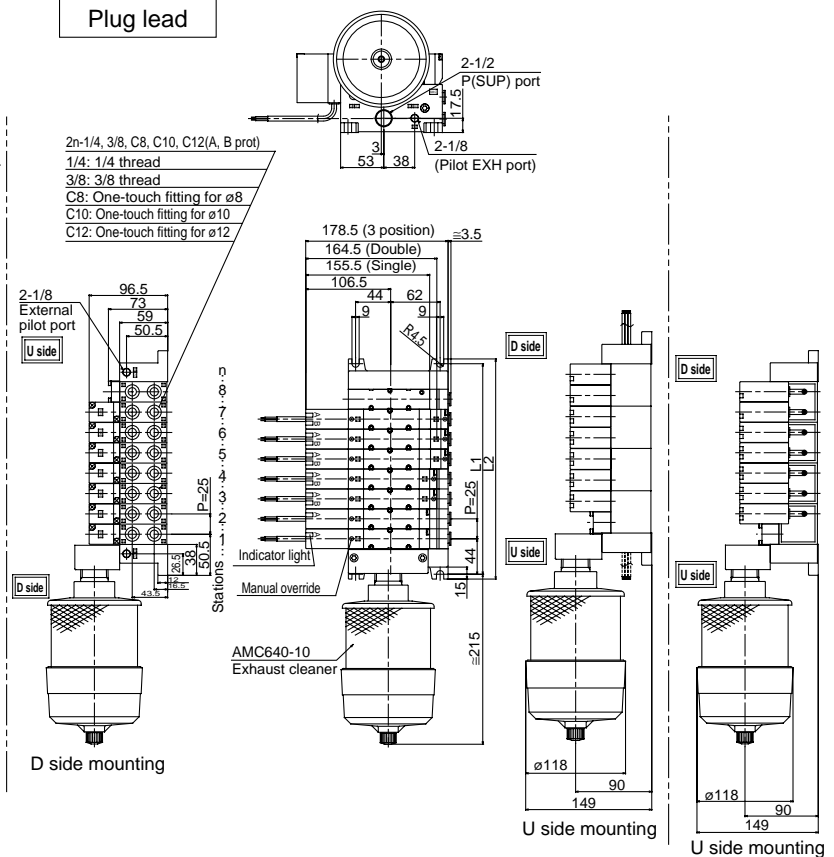
Plug-in



Plug lead



D side mounting



D side mounting

U side mounting

U side mounting

Dimensions		Equation L1=25n+63 L2=25n+76 (Max. 16 stations)							
		n: Station							
L	n	1	2	3	4	5	6	7	8
L1		88	113	138	163	188	213	238	263
L2		101	126	151	176	201	226	251	276

		n: Station							
		Equation L1=25n+63 L2=25n+76 (Max. 16 stations)							
L	n	9	10	11	12	13	14	15	16
L1		288	313	338	363	388	413	463	463
L2		301	326	351	376	401	426	476	476

Dimensions		Equation L1=25n+63 L2=25n+76 (Max. 16 stations)							
		n: Station							
L	n	1	2	3	4	5	6	7	8
L1		88	113	138	163	188	213	238	263
L2		101	126	151	176	201	226	251	276

		n: Station							
		Equation L1=25n+63 L2=25n+76 (Max. 16 stations)							
L	n	9	10	11	12	13	14	15	16
L1		288	313	338	363	388	413	463	463
L2		301	326	351	376	401	426	476	476

SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

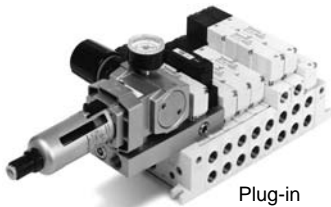
VFS

VS

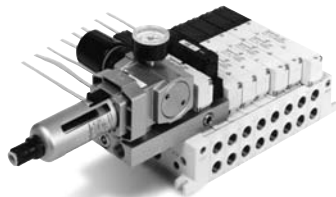
VS7

Manifold with Control Unit

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



Plug-in



Plug lead

Caution

When installing air filter with auto drain /manual override drain, air filter should be mounted underneath.

Manifold specifications

Manifold base type	Connection	Port location	Porting specification		Applicable max. stations ⁽¹⁾	Applicable valve
			P, R	A, B		
VV5Q41 -□□□	F kit - D-sub connector T kit - Terminal block box L kit - Lead wire	Side	1/2	C8 (For ø8) C10 (For ø10) C12 (For ø12) 1/4, Rc3/8	F, T kit 14 stations (13 stations)	VQ4□00 VQ4□01
VV5Q45 -□□□	C kit - Connector	Bottom	Option (Built-in silencer (Direct eject))	1/4	L, C kit 18 stations (17 stations)	VQ4□50 VQ4□51

Note 1) Manifold for mounting is included. () : E type

Control unit specification

Air filter (With auto drain/With manual override drain)	
Filtration	5µm
Regulator	
Set pressure (Secondary pressure)	0.05 to 0.85MPa
Pressure switch ⁽¹⁾	
Set press range (OFF)	0.1 to 0.6MPa
Hysteresis	0.08MPa or less
Contact	1a
Light	LED light red
Max. contact capacity	2VA AC, 2W DC
Max. operating current	50mA at 24V AC, DC or less 20mA at 100V AC, DC
Air release valve (Single only)	
Operating pressure range	0.15 to 1MPa (0.15 to 0.7MPa)

Note 1) () : Low wattage

Control unit option

Spacer for release valve ⁽²⁾	<Plug-in> VVQ4000-24A-1D		
	<Plug lead> VVQ4000-24A-5D		
Pressure switch	IS1000P-2-1		
Blank plate ⁽³⁾	Regulator with filter	MP2-3	
	Pressure switch	MP3-2	
	Release valve	Plug-in	VVQ4000-24A-10
		Plug lead	VVQ4000-24A-15
Filter element	11104-5B		

- Note 1) Rated voltage: 24V DC to 100V AC
Internal voltage drop: 4V
- Note 2) Combination of VQ41□□ (Single) and release valve spacer can be used as air release valve.
- Note 3) Plug lead type can not be mounted later.

How to Order

VV5Q 4 1 - 08 - C8 F U1 - Q

Series	
4	VQ4000

Manifold	
1	Plug-in
5	Plug lead

Stations	
02	2 stations
...	...

Min. or Max. number of stations depend on the kit.

Thread

—	Rc (PT)
N	NPT
T	NPTF
F	G (PF)

Cylinder ports

C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
02	1/4
03	3/8
B	Bottom piping 1/4
CM	Mixed size
N7	One-touch fitting for ø1/4"
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"
NM	Mixed size

Kit⁽⁵⁾

—	Without air release valve (only F.G type)
1	100V AC 50/60Hz
5	24V DC
9	240V or less



Contact SMC for other voltages (9)



Protective class class I (Mark: ⚡)..... DIN terminal type

Style of control unit

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

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

How to Use Control Unit

<Construction, Piping>

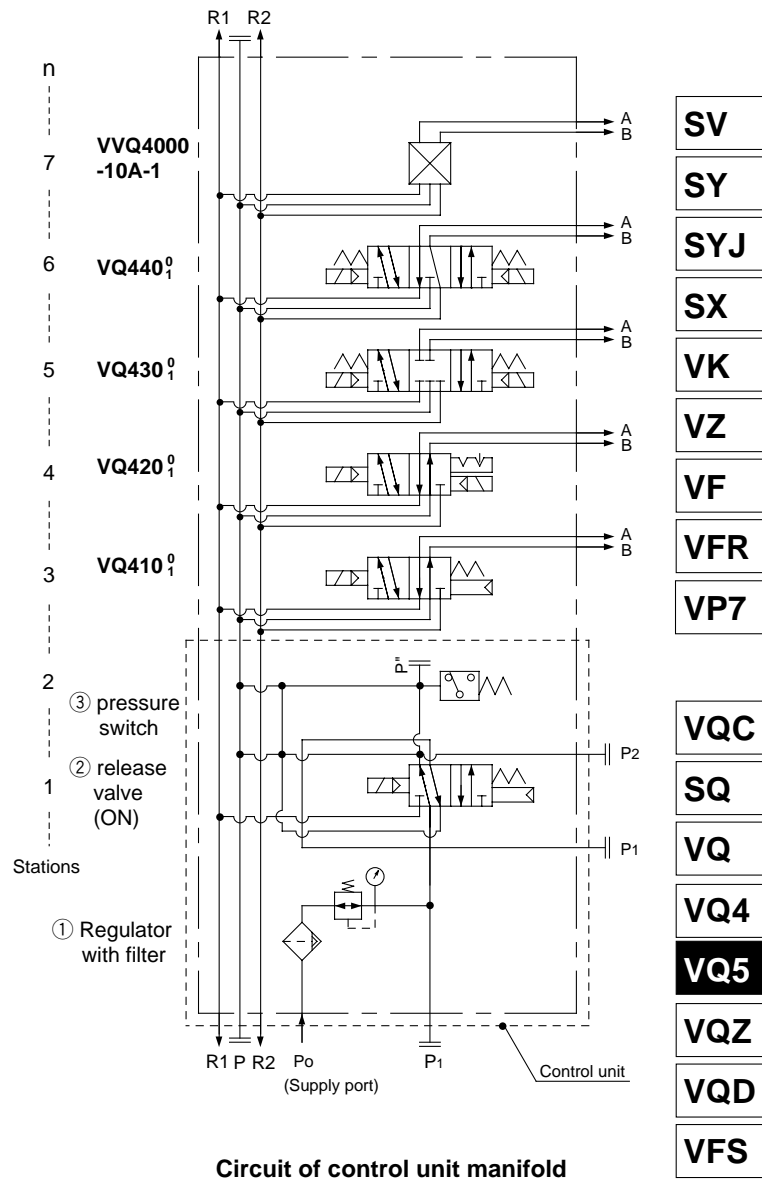
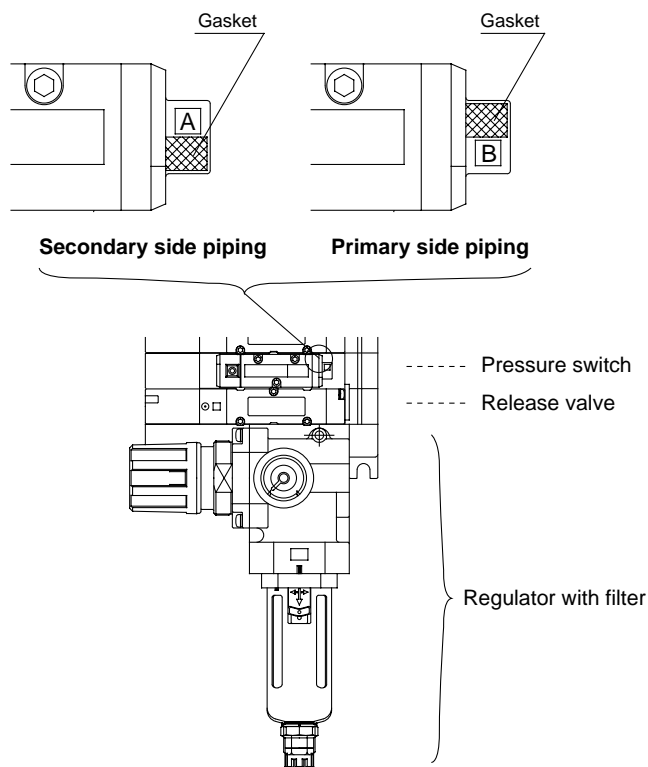
- 1) Supply pressure (Po) is adjusted through regulator with filter, it is supplied to manifold base side through release valve 2 (Normally ON, this is for release secondary side residual pressure).
- 2) Supply pressure from Po port is blocked when release valve 2 is OFF. Air supplied to manifold side P port is exhausted to R1 port through release valve 2.
- 3) Pressure switch is piped at secondary side of release valve 2. (Release valve 2 is operated at energizing.)
Since there are 4V internal voltage drop, confirmation of ON, OFF by tester, etc. may not be done.

<Wiring>

- 1) Electrical entry of manifold (Except L and C kit) is individual wiring. Refer to internal wiring figure of each kit for details.

<Change of pressure switch piping>

- 1) Pressure switch 3 is changed to piping on primary side of release valve 2, remove the pressure switch, reverse the gasket up and down, and fix 1 mark.
- 2) When pressure switch is mounted, tightening torque of bolt is 0.8 to 1.2Nm.



Manifold with Control Unit

Plug-in

2n-1/4, 3/8, C8, C10, C12 (A, B port)

1/4: 1/4 thread

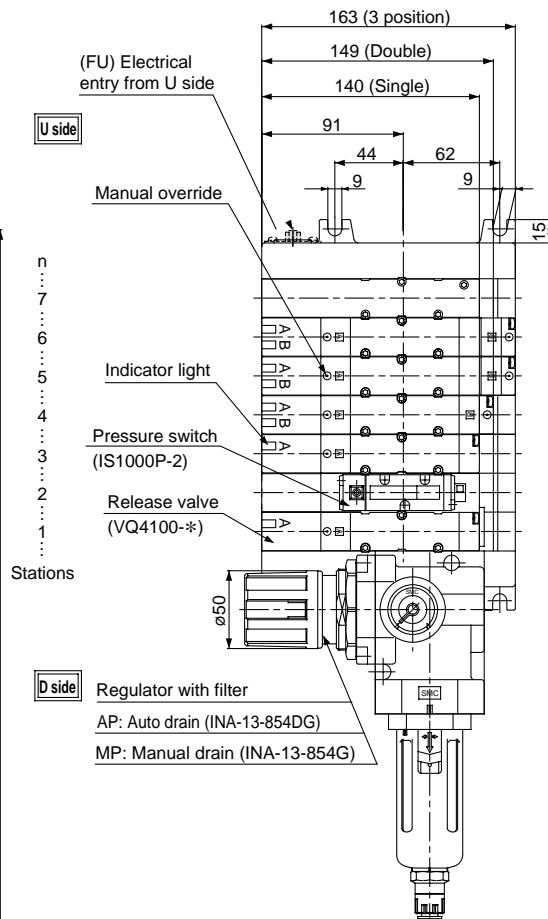
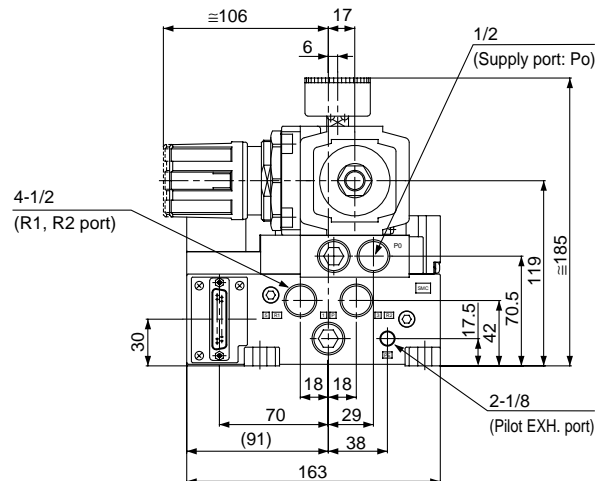
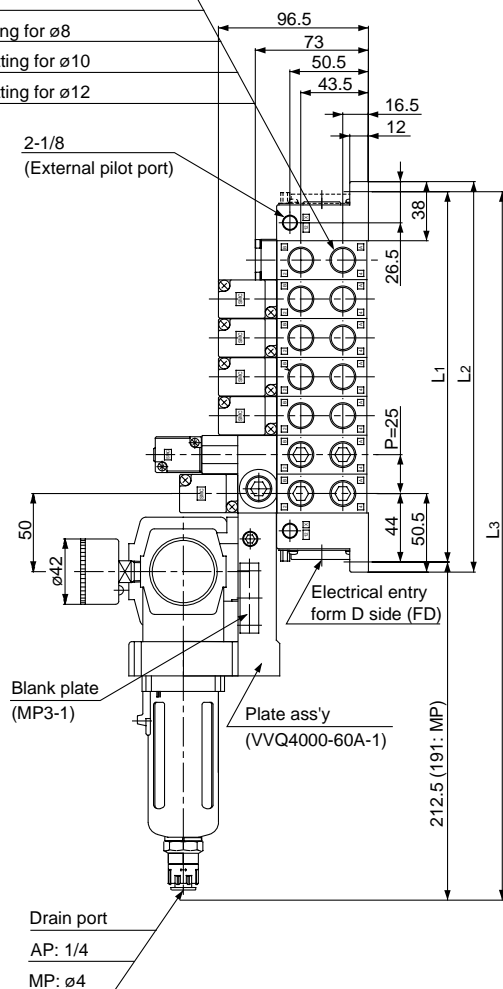
3/8: 3/8 thread

C8: One-touch fitting for ø8

C10: One-touch fitting for ø10

C12: One-touch fitting for ø12

2-1/8
(External pilot port)



Dimensions Equation $L1=25n+63$ $L2=25n+76$ $L3=25n+269.5$ (262.5)

n: Station

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	88	113	138	163	188	213	238	263	288	313	338	363
L2	101	126	151	176	201	226	251	276	301	326	351	376
L3	307 (285.5)	332 (310.5)	357 (335.5)	382 (360.5)	407 (385.5)	432 (410.5)	457 (435.5)	482 (460.5)	507 (485.5)	532 (510.5)	557 (535.5)	582 (560.5)

* L3 (): MP type

Plug lead

2n-1/4, 3/8, C8, C10, C12 (A, B port)

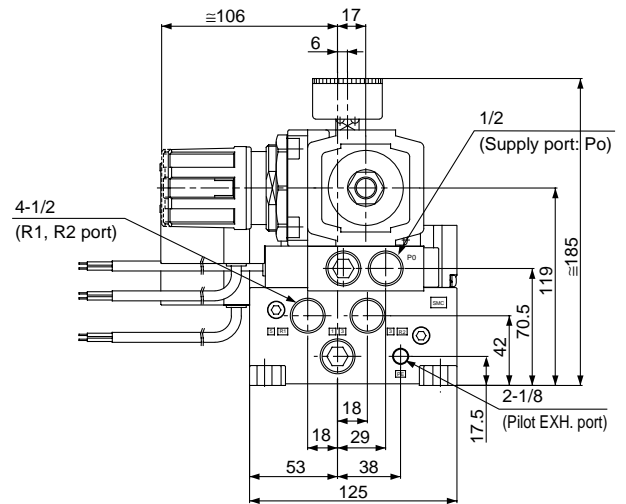
1/4: 1/4 thread

3/8: 3/8 thread

C8: One-touch fitting for ø8

C10: One-touch fitting for ø10

C12: One-touch fitting for ø12

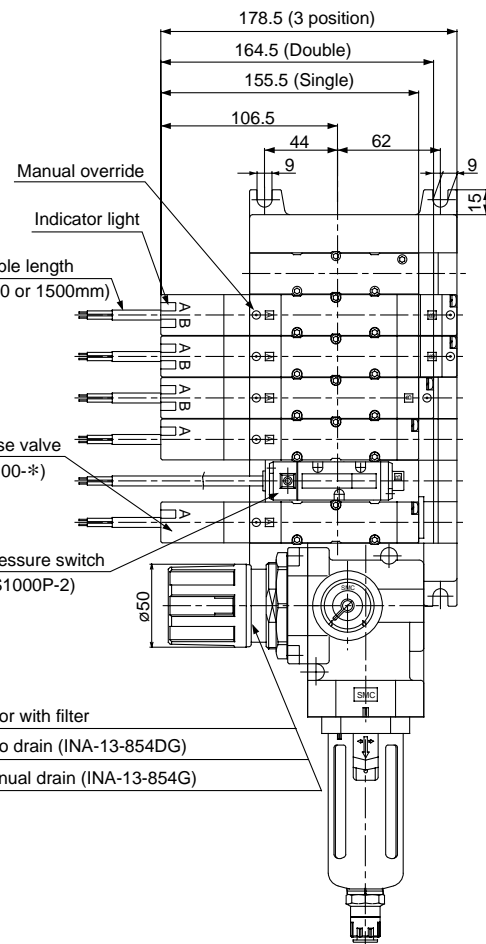
2-1/8
(External pilot port)Blank plate
(MP3-1)Plate ass'y
(VVQ4000-60A-1)Drain port
AP: 1/4
MP: ø4

U side

Stations
n
7
6
5
4
3
2
1

D side

Regulator with filter
AP: Auto drain (INA-13-854DG)
MP: Manual drain (INA-13-854G)



SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

VFS

VS

VS7

Dimensions Equation $L1=25n+63$ $L2=25n+76$ $L3=25n+269.5$ (262.5)

n: Station

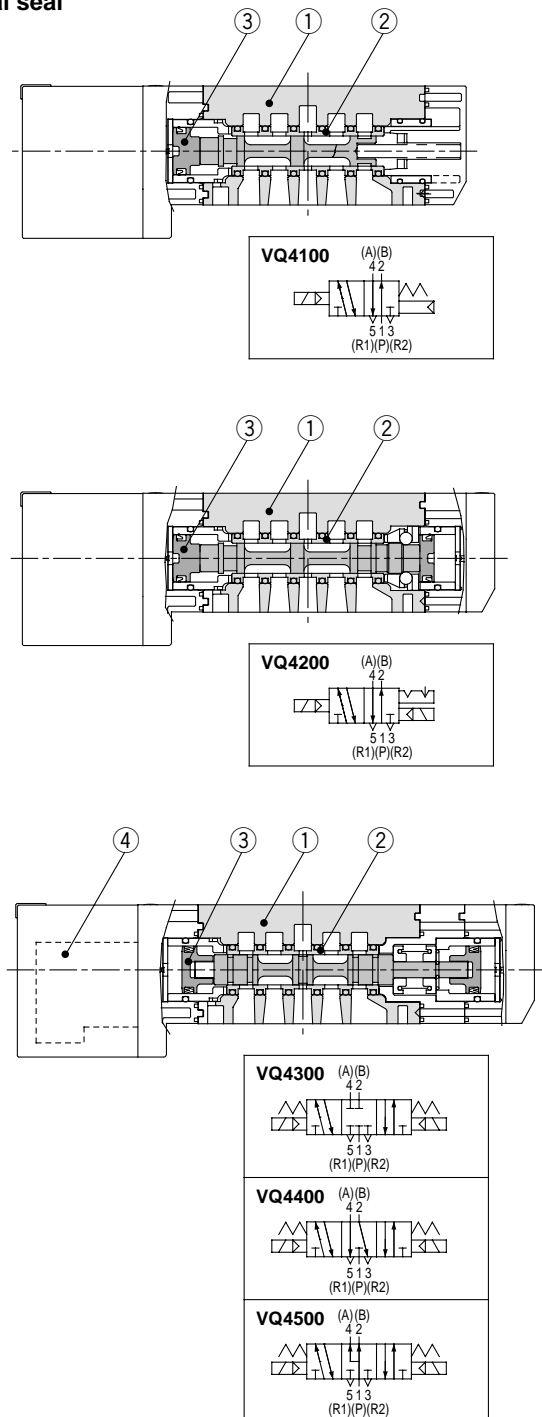
L	n	1	2	3	4	5	6	7	8	9	10	11	12
L1		88	113	138	163	188	213	238	263	288	313	338	363
L2		101	126	151	176	201	226	251	276	301	326	351	376
L3		307	332	357	382	407	432	457	482	507	532	557	582
		(285.5)	(310.5)	(335.5)	(360.5)	(385.5)	(410.5)	(435.5)	(460.5)	(485.5)	(510.5)	(535.5)	(560.5)

* L3(): MP type

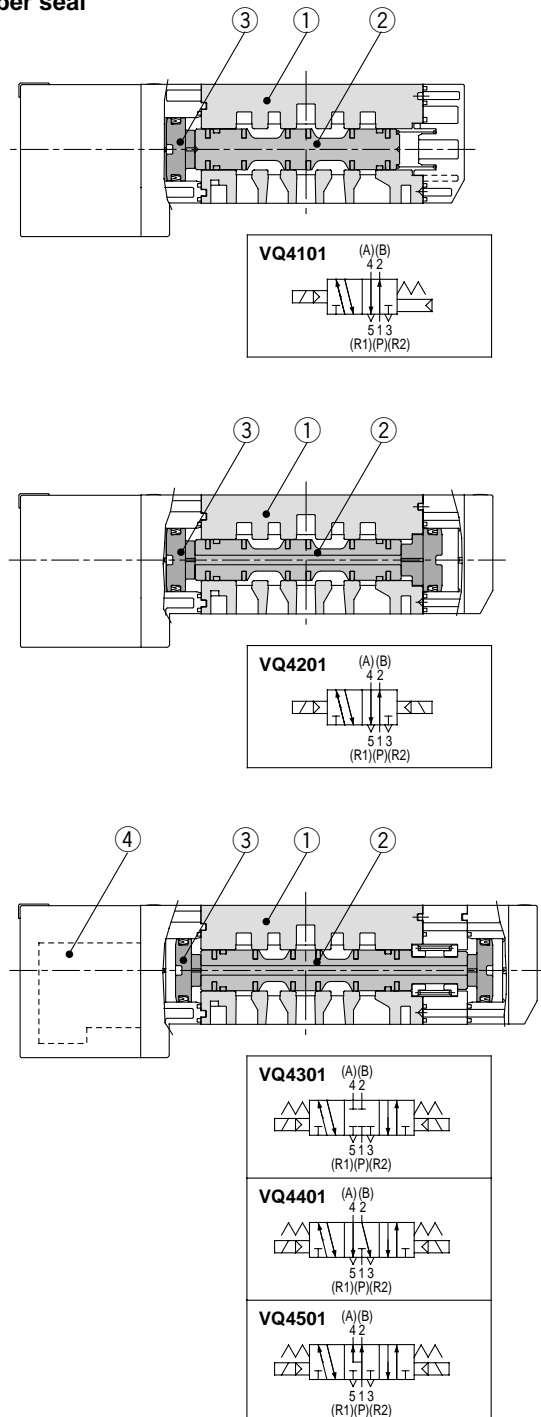
Series VQ4000 Construction

Plug-in Unit

Metal seal



Rubber seal



Component Part

No.	Description	Material	Note
①	Body	Aluminium die-cast	
②	Spool/Sleeve	Stainless steel	
③	Piston	Resin	

Replacement Parts

④	Pilot valve ass'y	VQZ111P-□-Q	*: Coil rated voltage Example) 24V DC: 5
---	-------------------	-------------	---

Component Parts

No.	Description	Material	Note
①	Body	Aluminium die-cast	
②	Spool valve	Aluminium, NBR	
③	Piston	Resin	

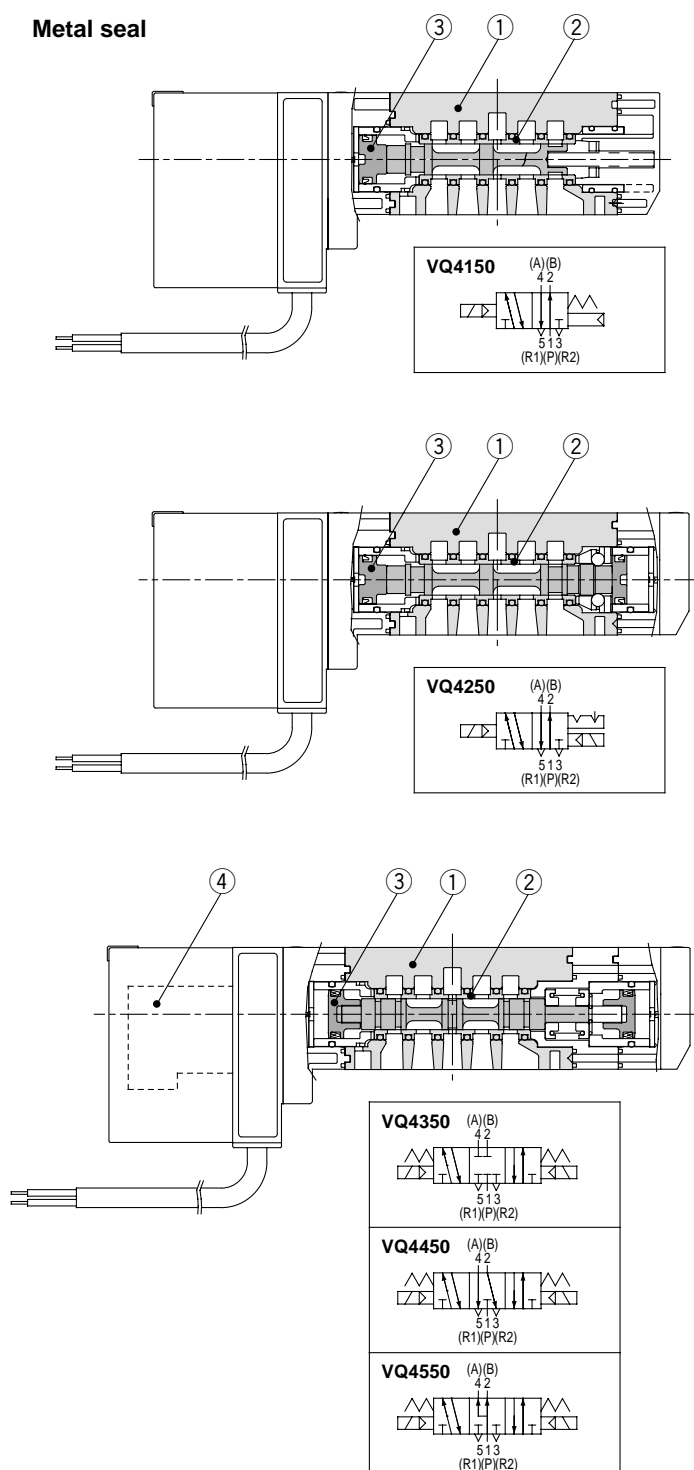
Replacement Parts

④	Pilot valve ass'y	VQZ111P-□-Q	*: Coil rated voltage Example) 24V DC: 5
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Series VQ4000 Construction

Plug Lead Unit

Metal seal



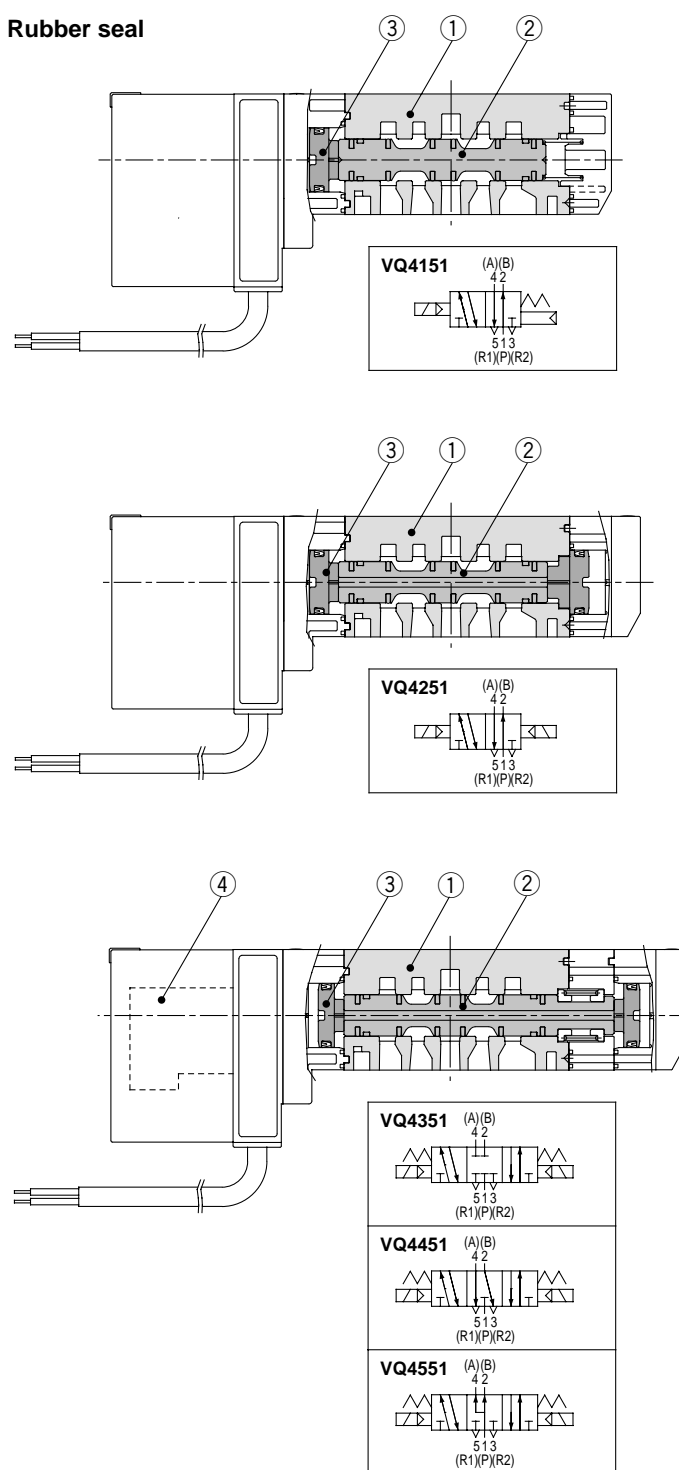
Component Parts

No.	Description	Material	Note
①	Body	Aluminium die-cast	
②	Spool/Sleeve	Stainless steel	
③	Piston	Resin	

Replacement Parts

④	Pilot valve ass'y	VQZ111P-□-Q	*: Coil rated voltage Example) 24V DC: 5
---	-------------------	-------------	---

Rubber seal



Component Parts

No.	Description	Material	Note
①	Body	Aluminium die-cast	
②	Spool valve	Aluminium, NBR	
③	Piston	Resin	

Replacement Parts

④	Pilot valve ass'y	VQZ111P-□-Q	*: Coil rated voltage Example) 24V DC: 5
---	-------------------	-------------	---

SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

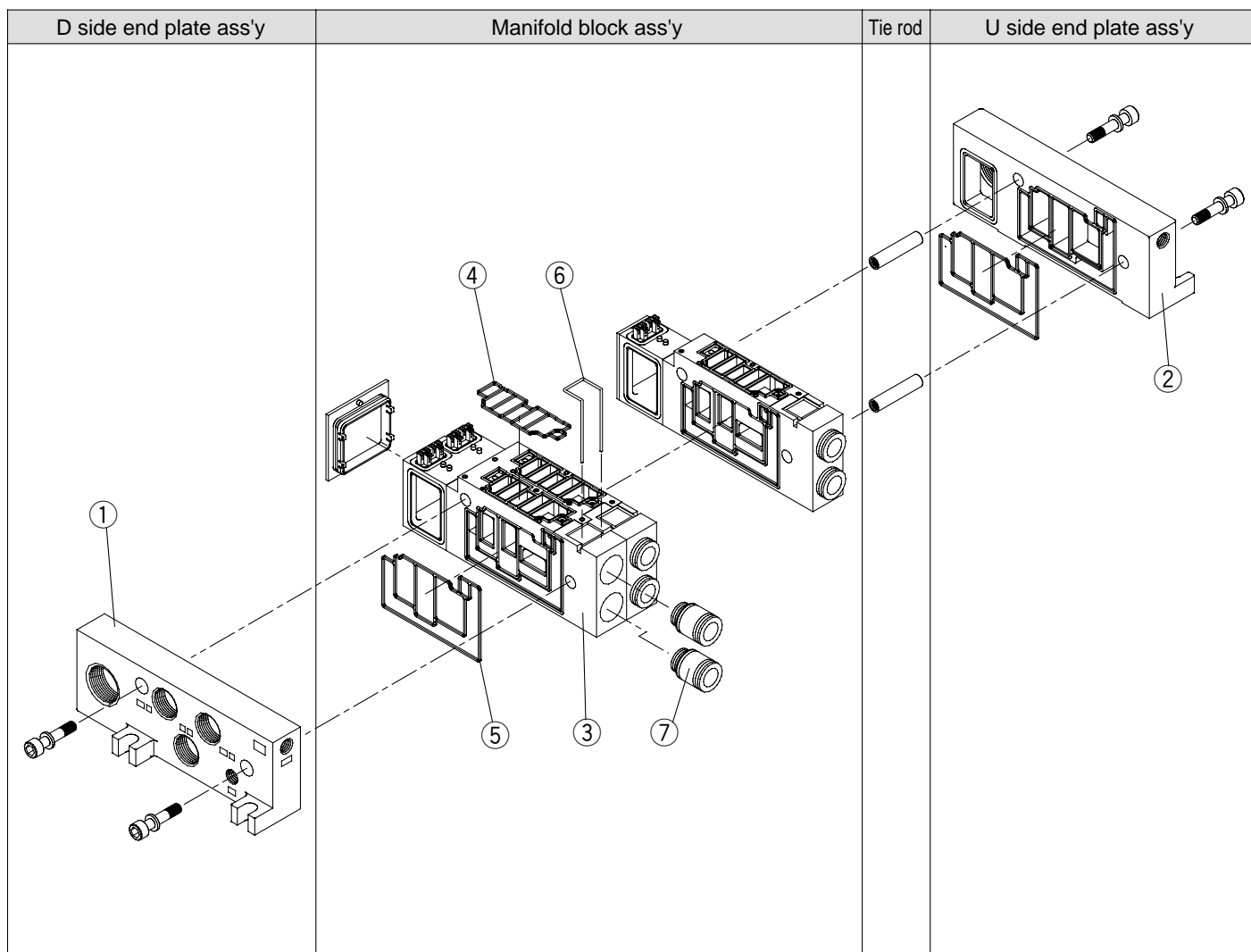
VQD

VFS

VS

VS7

Exploded View of Manifold



Shown plug-in style

- ⦿ Note 1) Electrical entry can not be changed.
 ⦿ Note 2) Manifold block used is 2-station integrated style. For odd number of stations, 1 pc. of one-station manifold block is combined at U side; for even number of stations, 2 pcs. are combined, therefore making the increase/decrease of stations possible.

D side

U side

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

5 stations (Odd number) 2 stations 2 stations 1 station

6 stations (Even number) 2 stations 2 stations 1 station 1 station

<D side end plate ass'y>

① D side end plate ass'y No. (For F, L, S, T kit)

VVQ4000 — 3A — 1 —

L	F, L, T, S kit
F (1)	F kit (Connector side)
C	C kit (Plug lead)

—	Standard
W (2)	Enclosure IP65
CD	For exhaust cleaner mounting
SD	Built-in silencer, Direct exhaust

Note 1) D-sub connector is not attached.
Note 2) Drip proof specification of F kit is not available.

<U side end plate ass'y>

② U side end plate ass'y No. (For F, L, S, T kit)

VVQ4000 — 2A — 1 —

L	F, L, T, S kit
F (1)	F kit (Connector side)
C	C kit (Plug lead)

—	Standard
W (2)	Enclosure: IP65
CU	For mounting exhaust cleaner
SU	Built-in silencer box (Direct exhaust)

Note 1) D-sub connector is not attached.
Note 2) Drip proof specification of F kit is not available.

<Manifold block ass'y>

③ Manifold block ass'y No.

VVQ4000 — 1 —

A	One station manifold block
C	Two station manifold block

—	Standard
W (2)	Enclosure IP65

Electrical entry		Port size	
F1	F kit Double wiring	02	1/4
F2	F kit Single wiring	03	3/8
T1	T kit Double wiring	B	Bottom piping 1/4
T2	T kit Single wiring	C8	One-touch fitting for ø8
S1	S kit Double wiring	C10	One-touch fitting for ø10
S2	S kit Single wiring	C12	One-touch fitting for ø12
L0□	L0 kit □: Stations (1 to 16)	N7	One-touch fitting 1/4
L1□	L1 kit □: Stations (1 to 16)	N9	One-touch fitting 5/16
L2□	L2 kit □: Stations (1 to 16)	N11	One-touch fitting 3/8
C	C kit (Plug lead)		

Note 1) Attached tie-rod for additional stations (2 pcs.) and lead wire ass'y
Note 2) Drip proof F kit is not available.

<Replacement parts for manifold block>

Replacement parts

No.	Part No.	Description	Material	Qty.
④	VVQ4000-80A-1	Gasket	NBR	10
⑤	VVQ4000-80A-2	Gasket	NBR	10
⑥	VVQ4000-80A-4	Clip	Stainless steel	10

Note) A set of parts containing 10 pcs. each are enclosed.

<Fitting ass'y>

⑦ Fitting ass'y No. (For cylinder port)

VVQ4000 — 50A —

Port size	
C8	Applicable tube ø8
C10	Applicable tube ø10
C12	Applicable tube ø12
N7	Applicable tube ø1/4
N9	Applicable tube ø5/16
N11	Applicable tube ø3/8

Note) 10 pcs. per set.

<SI unit>

SI unit part number

Style	Used model symbol	SI unit model	Description	Note
For output	B	EX123-SMB1	SI unit for MELSECNET/MINI-S3 Data Link System (Mitsubishi Electric)	
	BB	EX124-SMB1	SI unit for MELSECNET/MINI-S3 Data Link System (2 power supply systems)(Mitsubishi Electric)	
	C	EX123-STA1	SI unit for SYSBUS Wire System (OMRON)	
For in/output	BM□	EX220-SMB1	SI unit for MELSECNET/MINI-S3 Data Link System (Mitsubishi Electric)	For input/output
		EX220-IE1	Input unit (□: 0 to 2 stations)	

SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

VFS

VS

VS7

Optional Specifications

External Pilot Specifications

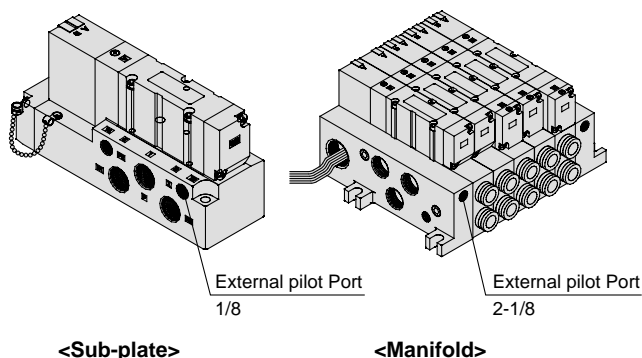
When the supply air pressure is:

- lower than the required minimum operating pressure 0.15 to 0.2MPa
- Opposite air supply (R port supply), cylinder supply (A and B port supply)
- Vacuum specification (In this case, contact SMC.) for the solenoid valve, specify an external pilot model. Order a manifold or valve by suffixing the external pilot specification, "R". For manifold and option, external pilot specification is standard.

How to Order Valve

VQ4100 **R**—5—03—Q

● External pilot specification



Pressure Specifications

Note) Possible to mix mounting of internal and external pilot

Valve construction		Metal seal	Rubber seal
Operating pressure range		Vacuum to 1.0MPa	
External pilot pressure range (1)	Single		0.2 to 1.0MPa (0.2 to 0.7MPa)
	Double	0.15 to 1.0MPa (0.15 to 0.7MPa)	0.15 to 1.0MPa (0.15 to 0.7MPa)
	3 position		0.2 to 1.0MPa (0.2 to 0.7MPa)

Note 1) (): Value for low wattage style (0.5W)

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

Release valve spacer	VVQ4000-24A-□D
Built-in silencer, direct exhaust	VV5Q4□-□□□-S _D ^U
For exhaust cleaner mounting	VV5Q4□-□□□-C _D ^U
Manifold with control unit	VV5Q4□-□□□ (Control unit model No.)
Double check spacer with residual pressure exhaust	VVQ4000-25A- ¹ / ₅

Inch-size One-touch Fittings

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

How to Order Manifold

VV5Q41—06 **N11** SA—K—Q

● Cylinder portsize

N7	ø1/4"
N9	ø5/16"
N11	ø3/8"

Thread other than Rc

NPT, NPTF, G threads are available.

Suffix each symbol after model No.

How to Order Valve

VQ4100—5—03 **T**—Q

Cylinder port size ●

Type of thread
● (P, R and A, B port)

—	Rc
N	NPT
T	NPTF
F	G

How to Order Manifold

VV5Q41—08 03 **T** FU1—Q

Cylinder port size ●

Type of thread
● (P, R and A, B port)

—	Rc
N	NPT
T	NPTF
F	G

How to Order Sub-plate and Option

VQ4000—P— B02 **N** (Sub-plate)

VVQ4000—P—1—03 **T** (Option)

Port size ●

● Type of thread

—	Rc
N	NPT
T	NPTF
F	G