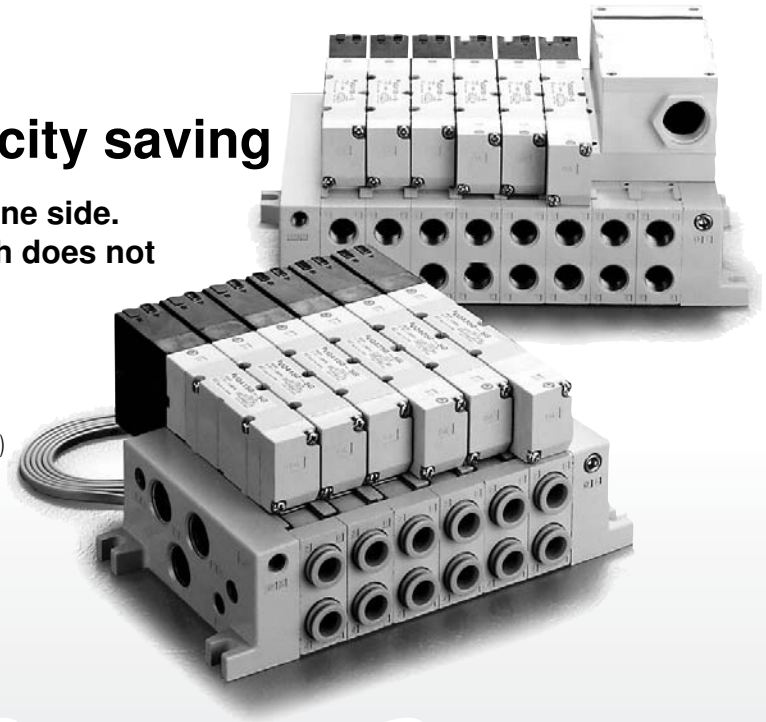
5 Port Solenoid Valve: Base Mounted
Metal Seal/Rubber Seal
Series VQ4000



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 ø140)

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

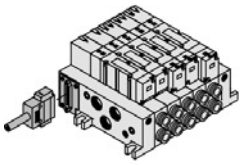
Dispersion accuracy ±3mS

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

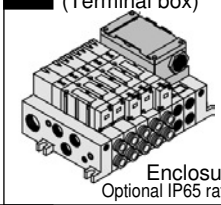
Various centralized wiring options

<Plug-in>

F kit (D-sub connector)



T kit (Terminal box)

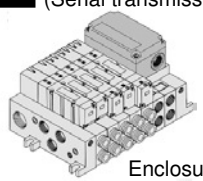


Enclosure: Optional IP65 rating

L kit (Lead wire)

Enclosure: Optional IP65 rating

S kit (Serial transmission)



Enclosure: Optional IP65 rating

Cylinder operation speed

Valve width mm	Nℓ/min Rubber seal (Metal seal)	Cylinder speed mm/s	Cylinder bore size mm						
			40	50	63	80	100	125	140
24.5	2160 (1963)	150							
		300							
		450							
		600							
		750							

Pressure: 0.5MPa, Load rate: 50%

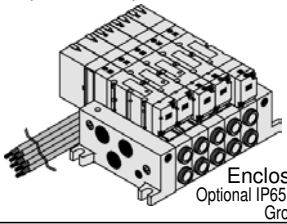
Note) Cylinder speed varies according to piping construction equipment. So this Table is for your reference only.

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

⚠Caution 1: Series VQ4000

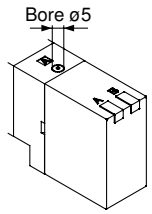
Be sure to read before use. Refer to p. 0-33 to 0-36 for Safety Instruction and common precautions.

⚠Warning

Manual Override

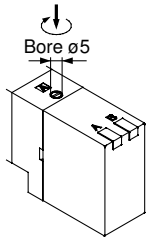
When manual override is used, the connected equipment starts operating. Make sure that there is no danger. Non-locking style (push style) is available as standard, locking slotted style is optional style.

Non-locking push style

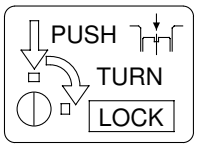


Push down on the manual override button with a small screwdriver until it stops.
Release the screwdriver and the manual override will return.

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 counterclockwise to release it.

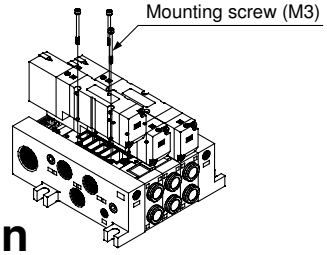


⚠Caution

Valve Mounting

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

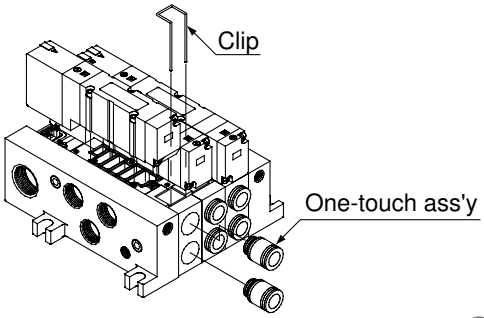
Suitable tightening torque Nm
0.8 to 1.2



⚠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.

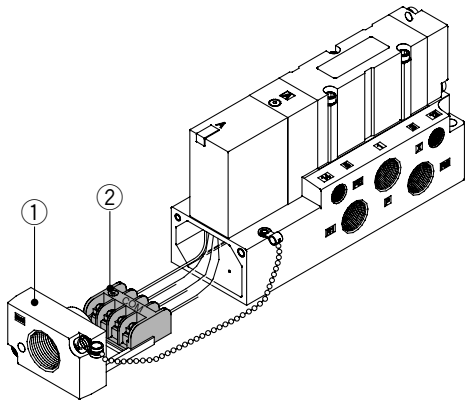


⚠Caution

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.



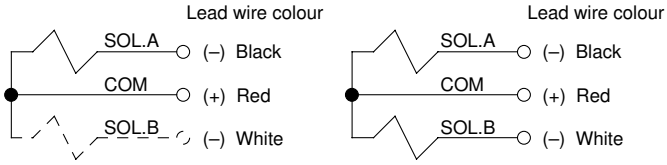
- Markings shown below are on terminal block box, connect each power supply.

Model \ Terminal block marking	A	COM	B	⏚
VQ410$^{0}_{1}$	A side	COM	—	—
VQ420$^{0}_{1}$	A side	COM	B side	—
VQ4$^{3}_{4}_{5}_{6}$0$^{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 VQ410$^{0}_{1}$.

Plug lead: Grommet

Connect each corresponding wire.



	Single solenoid	Double solenoid
Standard	Black: A side solenoid (–) Red: COM (+)	Black: A side solenoid (–) Red: COM (+) White: B side solenoid (–)
Enclosure (IP65)	Black: A side solenoid (–) Red: COM (+) White: B side solenoid (–) (It is not used in case of single.) Green: (It is not used in case of either single or double.)	

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

⚠Caution

Installation/Removal of Light Cover

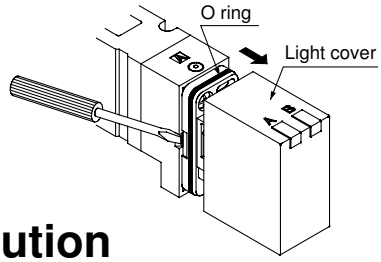
Removal of light cover

- **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

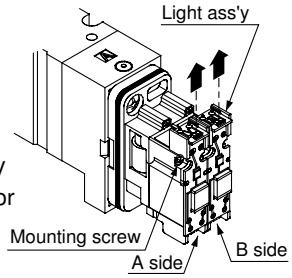
Changing the Pilot Valve

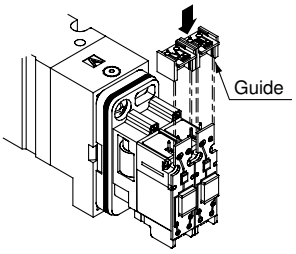
- **Removal of Pilot Valve**

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**

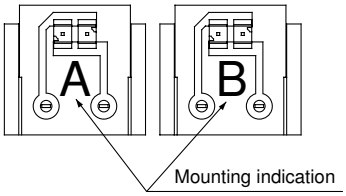
1. Insert the light circiut board onto the connector pins on the pilot valve.
2. Confirm that the gasket is on the pilot valve and tighten the mounting screws with the torque listed below.





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.

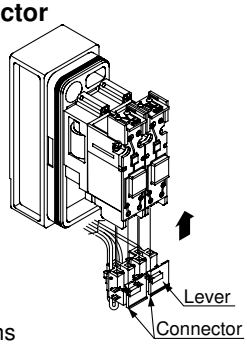
SOL. A	VQZ100-47-A
SOL. B	VQZ100-47-B

Plug Lead

Installation/Removal Plug connector with lead wires

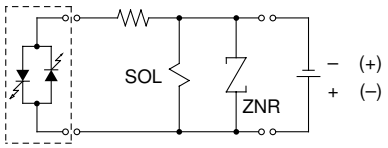
- To install the connector simply insert it onto the pins, push the lever hook into the groove and lock into place.
- To remove the connector, push down on the lever and remove the hook from the groove.

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



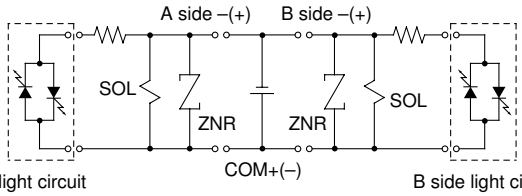
⚠Caution

Internal Wiring Specifications



Light circuit ass'y (Orange)

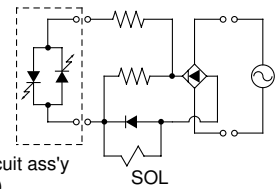
DC: Single



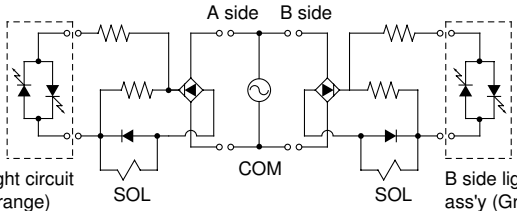
A side light circuit ass'y (Orange)

DC: Double

B side light circuit ass'y (Green)



AC: Single



A side light circuit ass'y (Orange)

B side light circuit ass'y (Green)

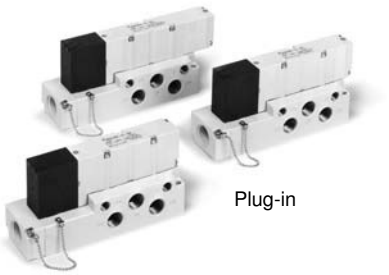
AC: Double

⚠Caution

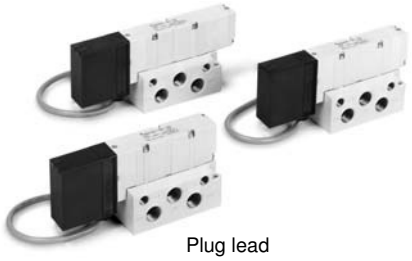
Enclosure IP65

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

Series VQ4000
Base Mounted Valve
Plug-in, Plug Lead/Single Unit



Plug-in



Plug lead

Model

Series	Configuration		Model		Effective area[1] (mm²) (Nℓ/min)	Response time ms[2] Standard: 1W	Response time ms[2] Low wattage and AC	Weight[3] (kg)
VQ4000	2 position	Single	Metal seal	VQ41$^{0}_{5}$0	36.0 (1963)	20 or less	22 or less	0.23 (0.29)
			Rubber seal	VQ41$^{0}_{5}$1	39.6 (2159)	25 or less	27 or less	
		Double	Metal seal	VQ42$^{0}_{5}$0	36.0 (1963)	12 or less	12 or less	0.26 (0.32)
			Rubber seal	VQ42$^{0}_{5}$1	39.6 (2159)	15 or less	15 or less	
	3 position	Closed centre	Metal seal	VQ43$^{0}_{5}$0	32.4 (1766)	45 or less	47 or less	0.28 (0.34)
			Rubber seal	VQ43$^{0}_{5}$1	36.0 (1963)	50 or less	52 or less	
		Exhaust centre	Metal seal	VQ44$^{0}_{5}$0	36.0 (1963)	45 or less	47 or less	0.28 (0.34)
			Rubber seal	VQ44$^{0}_{5}$1	39.6 (2159)	50 or less	52 or less	
		Pressure centre	Metal seal	VQ45$^{0}_{5}$0	36.0 (1963)	45 or less	47 or less	0.28 (0.34)
			Rubber seal	VQ45$^{0}_{5}$1	39.6 (2159)	50 or less	52 or less	
		Double check	Metal seal	VQ46$^{0}_{5}$0	19.8 (1079)	55 or less	57 or less	0.50 (0.56)
			Rubber seal	VQ46$^{0}_{5}$1	21.6 (1177)	62 or less	64 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.

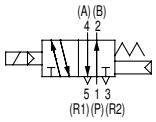
Standard Specifications

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/s² [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 (Curent 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)	

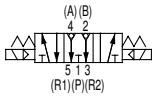
Note 1) Use dry air to prevent condensation when operating at low temperatures.
Note 2) Shock resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle direction of the main valve and armature, for both energized and de-energized 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

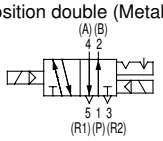
2 position single



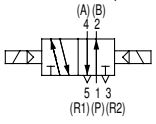
3 position double check



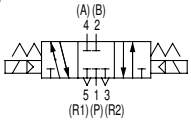
2 position double (Metal)



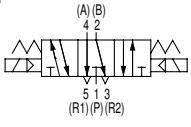
2 position double (Rubber)



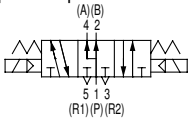
3 position closed centre



3 position exhaust centre



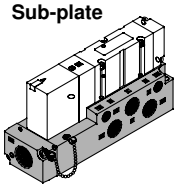
3 position pressure centre



How to Order Valve

Body style

O: Plug-in Sub-plate



Port size

–	Without sub-plate (for manifold)
02	1/4
03	3/8

Piping

–	Side piping
B	Bottom piping

Plug-in	VQ4	1	0	0								Q
Plug lead	VQ4	2	5	1								Q

Configuration

1		2 position single	
2	Metal	2 position double	
2	Rubber	2 position double	
3		3 position closed centre	
4		3 position exhaust centre	
5		3 position pressure centre	
6 Note)		3 position double check	

Note) Refer to p.1.13-38 for double check style.

Enclosure

–	Dust-proof
W	Dust tight, jet proof (IP 65)

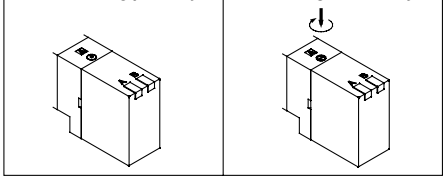
Thread

—	Rc (PT)
N	NPT
T	NPTF
F	G (PF)

Manual override

– : Non-locking push style

B: Locking slotted style

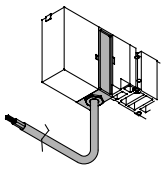


Light and surge voltage suppressor

–	With
E	W/o light/With surge suppressor

Electrical entry

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



Coil voltage

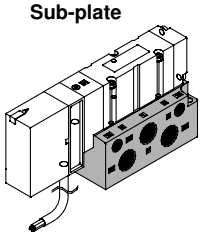
1	100V AC (50/60Hz)
2	200V AC (50/60Hz)
3	110V AC (50/60Hz)
4	220V AC (50/60Hz)
5	24V DC
6	12V DC
9	240V or less

Order Made Contact SMC for other voltages (9)

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

Body style

5: Plug lead Sub-plate



Seal

0	Metal seal
1	Rubber seal

Function

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

Note 1) Applicable to DC specification.
Note 2) Refer to p1.13-48 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 Sub-plate

VQ4000 □ □ — □ □ □ — Q

Electrical entry

P	Plug-in conduit terminal
S	Plug lead

Enclosure

–	Dust proof
W	Dust tight, splash proof

Piping

–	Side piping
B	Bottom piping

Thread

—	Rc (PT)
N	NPT
T	NPTF
F	G (PF)

Note 1) Bottom piping type is applicable to only 1/4.

Port size

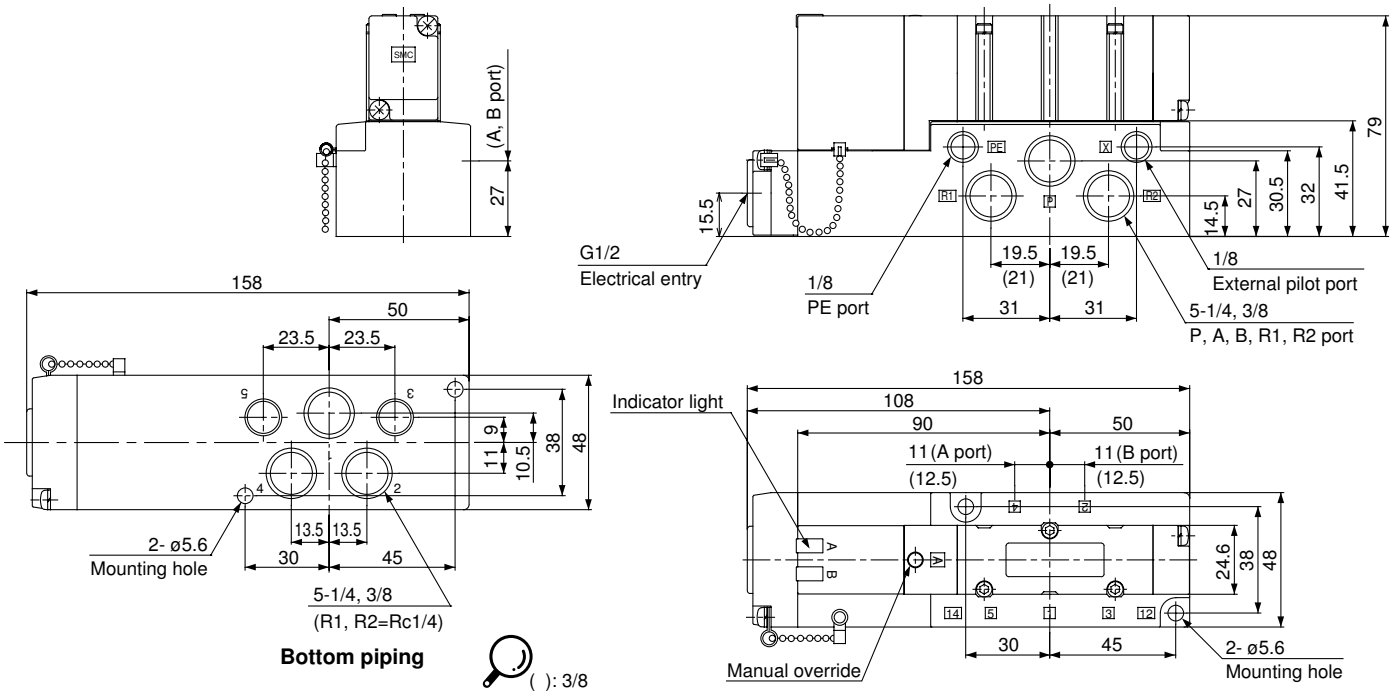
02	1/4
03	3/8

How to replace pilot valve ass'y (Voltage)
- Refer to p.1.13-44 and p.1.13-45 for part no. of pilot valve ass'y
- Refer to p.1.13-3 for "How to Replace".

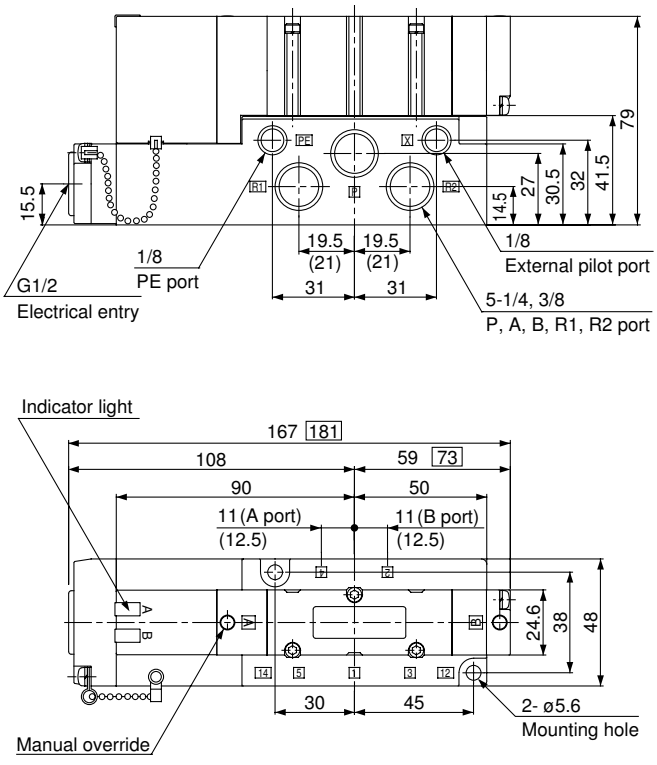
Plug-in

Conduit terminal

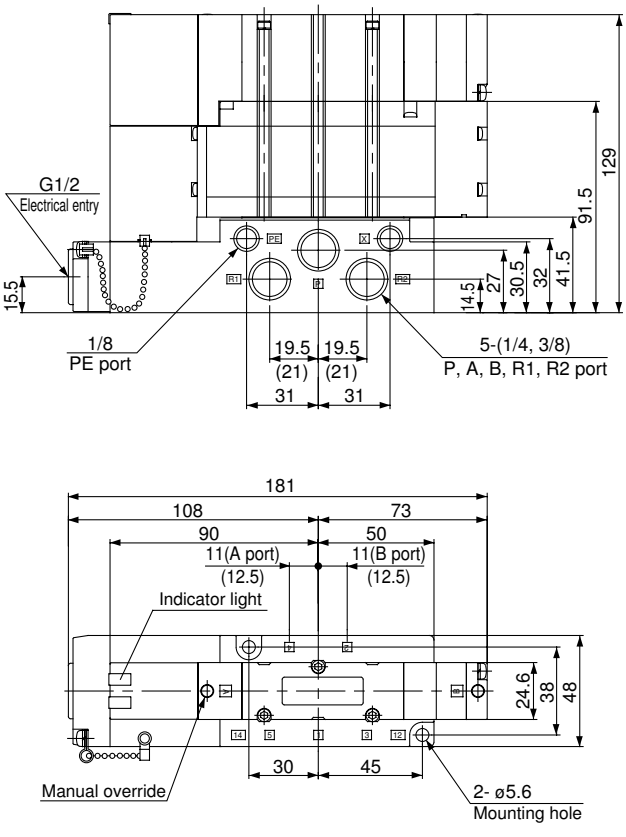
2 position single: VQ410$^{0}_{1}$–□



2 position double: VQ420$^{0}_{1}$–□
3 position closed centre: VQ430$^{0}_{1}$–□
3 position exhaust centre: VQ440$^{0}_{1}$–□
3 position pressure centre: VQ450$^{0}_{1}$–□



3 position double check: VQ460$^{0}_{1}$–□

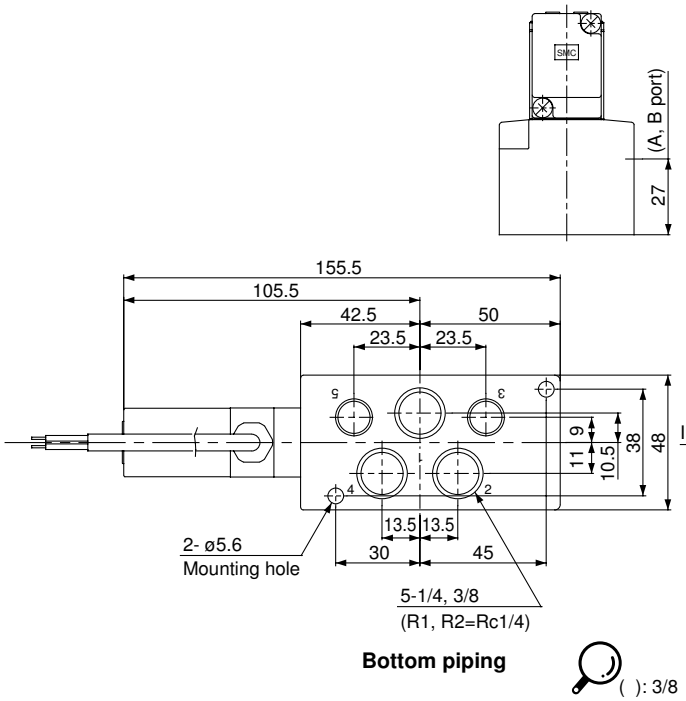


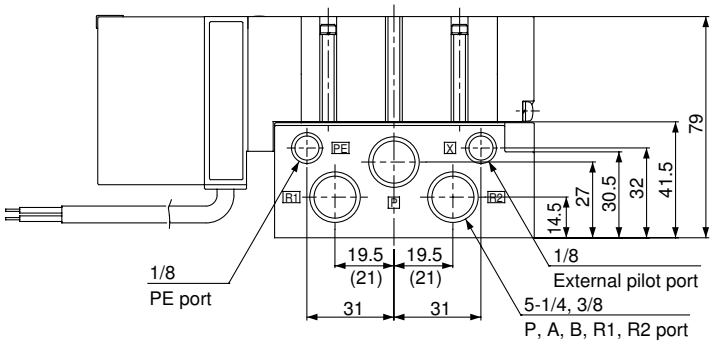
□: 3 position
( ): 3/8

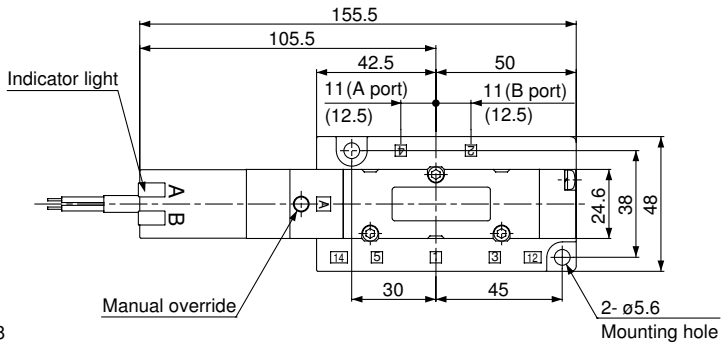
Plug Lead

Grommet

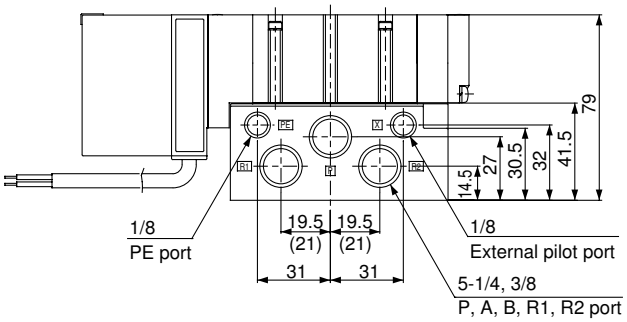
2 position single: VQ415$^{0}_{1}$–□ $^{G}_{H}$

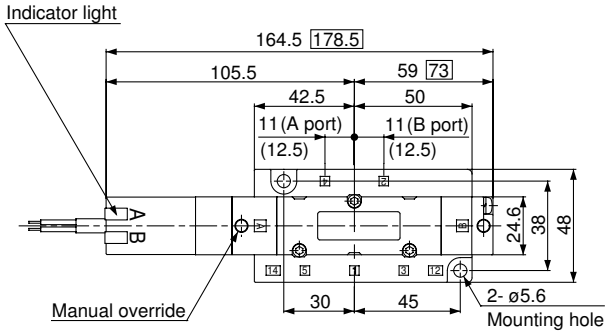




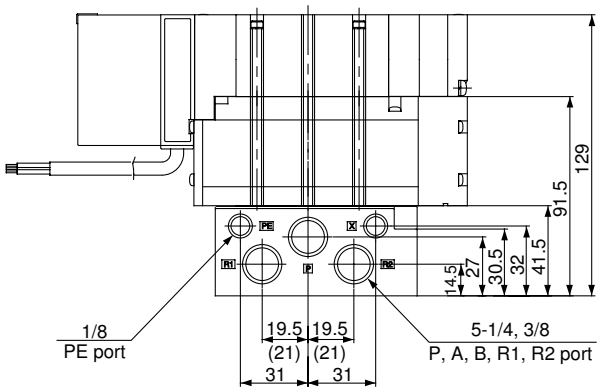


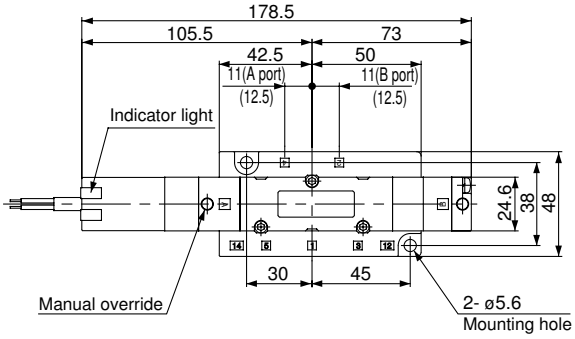
2 position double: VQ425$^{0}_{1}$–□ $^{G}_{H}$
3 position closed centre: VQ435$^{0}_{1}$–□ $^{G}_{H}$
3 position exhaust centre: VQ445$^{0}_{1}$–□ $^{G}_{H}$
3 position pressure centre: VQ455$^{0}_{1}$–□ $^{G}_{H}$





3 position double check: VQ465$^{0}_{1}$





□: 3 position
( ):3/8

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

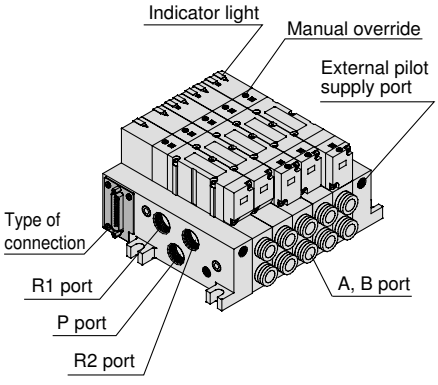
Note 2) Combination of [C $\frac{U}{D}$] and [S $\frac{U}{D}$] is not possible.

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)

Port size

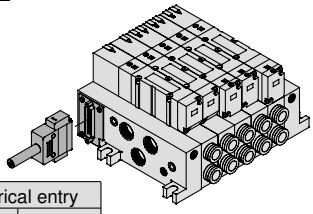
C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
02	1/4
03	3/8
B	Bottom piping 1/4
CM	Mixed size
N7	One-touch fitting for ø1/4"
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"
NM	Mixed size



Note) Shown VV5Q41-05C12FD0-Q

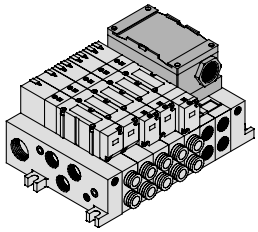
Kit/Electrical entry/Cable length

F Kit (D-sub connector)



Electrical entry					
D side		U side			
Kit F	D0	Kit F	U0	Without cable	2 to 16 stations
	D1		U1	Cable length 1.5m	
	D2		U2	Cable length 3m	
	D3		U3	Cable length 5m	

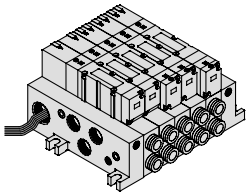
T Kit (Terminal box kit)



Applicable to IP65

Kit T	0	Terminal box	3 to 18 stations

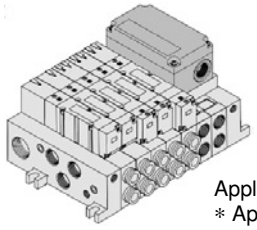
L Kit (Lead wire kit)



Electrical entry					
D side		U side			
Kit L	D0	Kit L	U0	Cable length 0.6m	2 to 16 stations
	D1		U1	Cable length 1.5m	
	D2		U2	Cable length 3m	

Applicable to IP65

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

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 Built-in silencer (Direct exhaust)	C8 (For ø8) C10 (For ø10) C12 (For ø12) 1/4 3/8	F, T kit 12 stations L kit 16 stations S kit 10 stations	VQ4□00 VQ4□01	2.24 · L kit · Except solenoid valve weight
			Bottom		1/4			

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

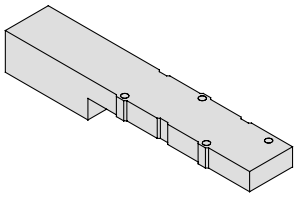
Number of Manifold Stations/Effective Area (mm² (N*ℓ*/min)) at Individual Operation

Model	Passage/Stations	1 station	5 stations	10 stations	15 stations
2 position metal seal **VQ4$\frac{1}{2}$00**	P→A or B	28.8 (1570)	28.8 (1570)	28.8 (1570)	28.8 (1570)
	A→R1, B→R2	32.4 (1766)	32.4 (1766)	32.4 (1766)	32.4 (1766)
2 position rubber seal **VQ4$\frac{1}{2}$01**	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)

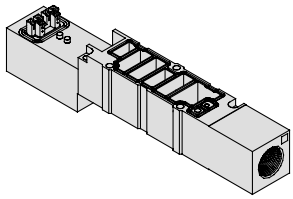
Note) Port size. 3/8

Manifold Options

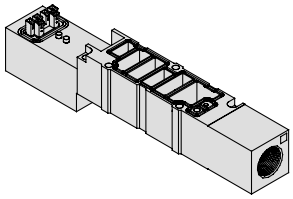
Blank plate assembly
VVQ4000–10A–1



Individual SUP spacer
VVQ4000–P–1–03

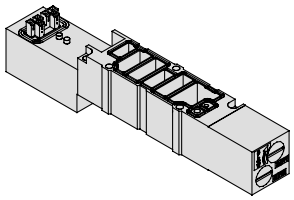


Individual EXH spacer
VVQ4000–R–1–03

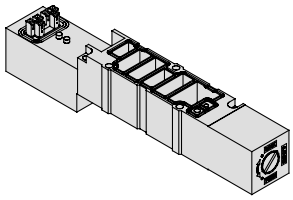


- Refer to p.1.13-34 to p.1.13-39 for detail dimensions of each option.
- Refer to p.1.11-47 for spare parts no.
- Refer to p.1.13-40 to p.1.13-43 for control unit.

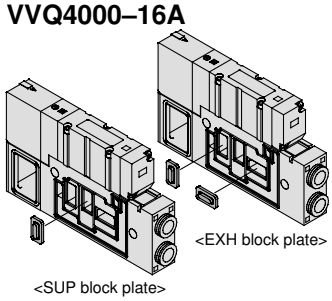
Interface speed control
VVQ4000–20A–1



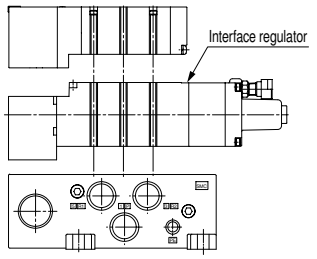
SUP stop valve spacer
VVQ4000–37A–1



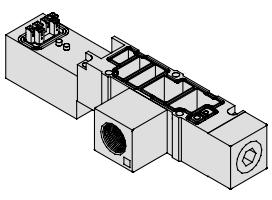
SUP EXH block plate
VVQ4000–16A



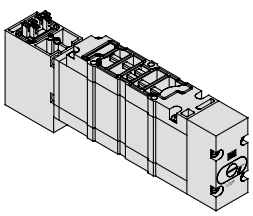
Interface regulator
ARBQ4000



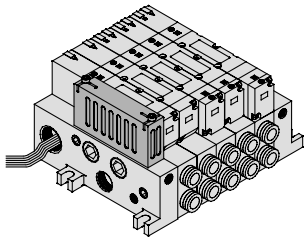
Release valve spacer
VVQ4000–24A–1D (1, 2)



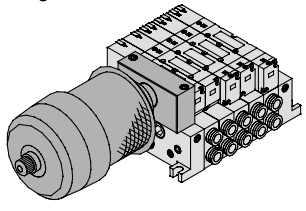
Double check spacer with residual pressure exhaust
VVQ4000–25A–1 (1)



Built-in silencer (Direct exhaust)
[–S$^{D}_{U}$] (1)



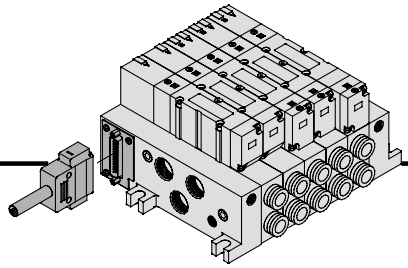
For exhaust cleaner mounting
[–S$^{D}_{U}$] (1)



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)

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

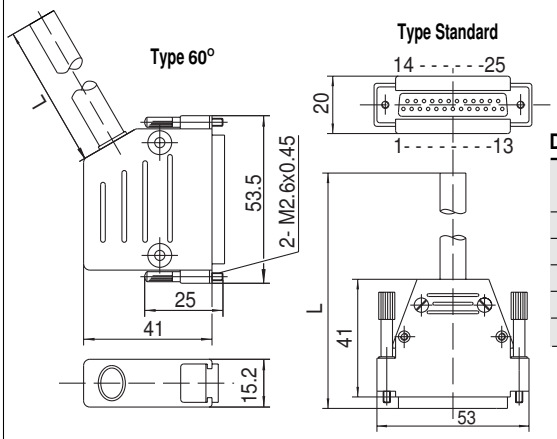
Series	Porting specifications			Applicable Max. stations
	Port location	Port size		
		P, R	A, B	
VQ4000	Side	1/2	C8, 10, 12 1/4, 3/8	16 stations
	Bottom		1/4	

D-sub Connector (25 pin)

Cable Assembly●

GVVZS3000-21A- 1 2 3 4 5 - S 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".)



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●

Standard	**S**
60°	**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	Yelow
16	Yelow	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

∗ As optional specifications, the maximum number of stations can be increased based on special wiring specifications. See p.1.13-11 for details.

Thread●

—	Rc(PT)
N	NPT
T	NPTF
F	G (PF)

Connector location●

D	D side
U	U side

Cable (length)●

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

Options●

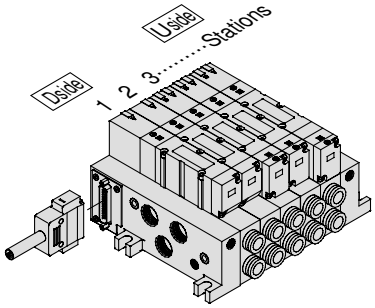
Symbol	Option
–	None
CD (2)	Exhaust cleaner: For D side mountig
CU (2)	Exhaust cleaner: For U side mountig
K (3)	Special wiring specification (Other than double wiring)
SB	Built-in silencer (Direct exhaust from both sides) F/L kits only
SD	Built-in silencer (Direct exhaust from D side)
SU	Built-in silencer (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 $^{U}_{D}$] and [S $^{U}_{D}$] is not possible.

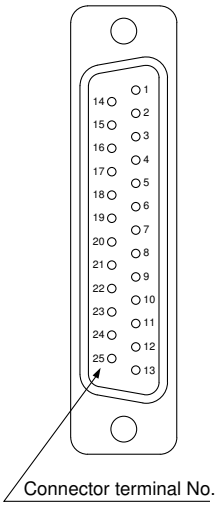
Note 3) Specify the wiring specifications by means of the manifold specification form.

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



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

● Electrical Wiring Specifications



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.

	Standard wiring Terminal No.		Wiring with control unit Terminal No.	Polarity	D–sub connector ass'y AXT100-DS25-015/030/050 Lead wire colour	Dot marking
1 station	SOL.A	1	Release valve 1	(–)	(+) White	—
	SOL.B	14	14	(–)	(+) Brown	Green
2 stations	SOL.A	2	Pressure switch 2	(–)	(+) Brown	—
	SOL.B	15	15	(–)	(+) White	Yellow
3 stations	SOL.A	3	SOL.A 3	(–)	(+) Green	—
	SOL.B	16	SOL.B 16	(–)	(+) Yellow	Brown
4 stations	SOL.A	4	SOL.A 4	(–)	(+) Yellow	—
	SOL.B	17	SOL.B 17	(–)	(+) White	Grey
5 stations	SOL.A	5	SOL.A 5	(–)	(+) Grey	—
	SOL.B	18	SOL.B 18	(–)	(+) Grey	Brown
6 stations	SOL.A	6	SOL.A 6	(–)	(+) Pink	—
	SOL.B	19	SOL.B 19	(–)	(+) White	Pink
7 stations	SOL.A	7	SOL.A 7	(–)	(+) Blue	—
	SOL.B	20	SOL.B 20	(–)	(+) Pink	Brown
8 stations	SOL.A	8	SOL.A 8	(–)	(+) Red	—
	SOL.B	21	SOL.B 21	(–)	(+) White	Blue
9 stations	SOL.A	9	SOL.A 9	(–)	(+) Black	—
	SOL.B	22	SOL.B 22	(–)	(+) Brown	Blue
10 stations	SOL.A	10	SOL.A 10	(–)	(+) Violet	—
	SOL.B	23	SOL.B 23	(–)	(+) White	Red
11 stations	SOL.A	11	SOL.A 11	(–)	(+) Grey	Pink
	SOL.B	24	SOL.B 24	(–)	(+) Brown	Red
12 stations	SOL.A	12	SOL.A 12	(–)	(+) Red	Blue
	SOL.B	25	SOL.B 25	(–)	(+) White	Black
	COM.	13	COM. 13	(+)	(–) White(1)	Green
					Positive common	Negative common

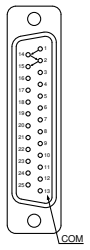
Note 1) No polarity. Possible to use as negative common.

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

VQ 4 1 0 0 — 5 — Q

Series

4	VQ4000

Configration

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.

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

Light and surge voltage suppressor

–	With
E	W/o light, with surge suppressor

Manual override

–	Non-locking push style
B	Locking slotted style

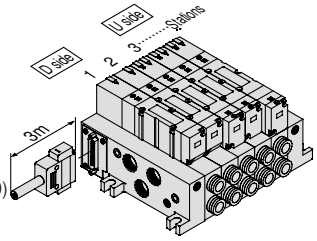
How to Order Manifold Ass'y

Addsuffix valve and option numbers to the manifold base number.

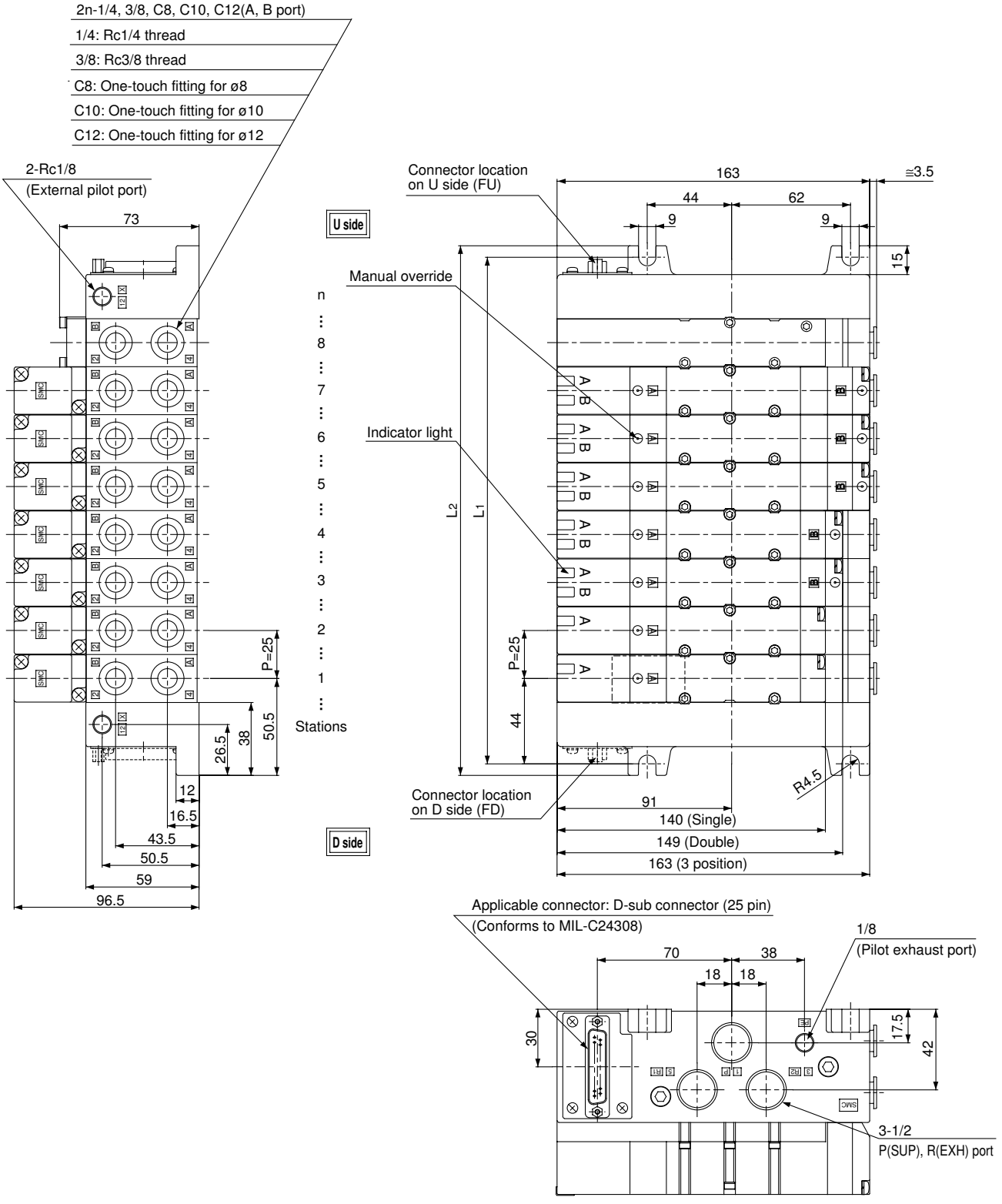
<Example>
With D-sub connector kit and cable (3m)

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)

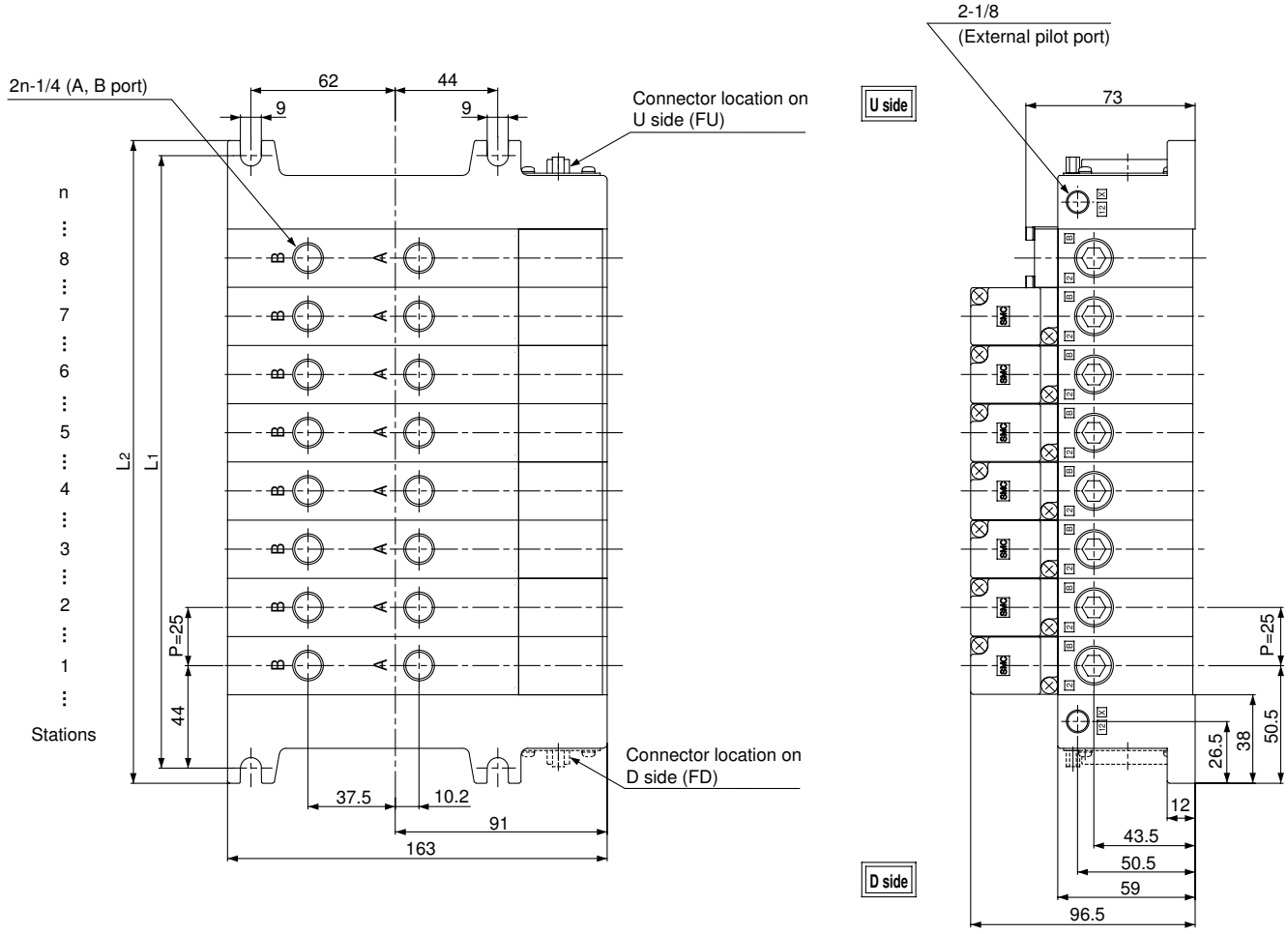
Write sequentially from the 1st station on the D side. When part numbers written collectively are complicated, specify by using a manifold specification form.



F Kit (D-Sub Connector)



Bottom piping

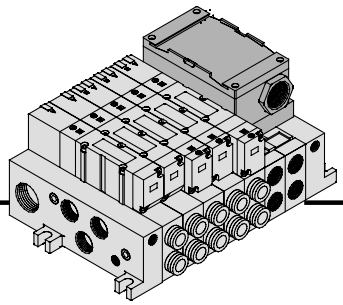


Dimensions Equation L1=25n+63 L2=25n+76 n: Station (Max. standard 18 stations)

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.

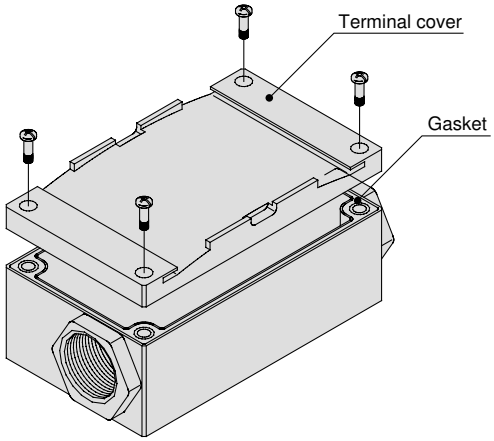
- **Enclosure: Possible to be IP65**
- **This kit has a small terminal block inside a junction box. The electrical entry port G3/4 permits connection of bracket of electrical wire pipe.**
- **Max. 18 stations**
- **2 stations are used for terminal box mounting.**

Manifold specifications

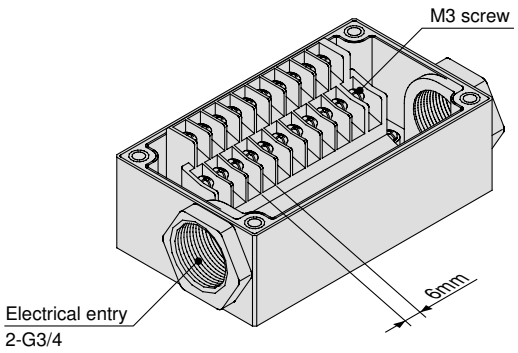
Series	Porting specifications			Applicable Max. stations
	Port location	Port size		
		P, R	A, B	
VQ4000	Side	1/2	C8, 10, 12 1/4, 3/8	18 stations
	Bottom		1/4	

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 connnected 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

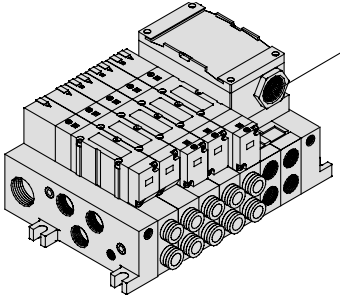
C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
02	1/4
03	3/8
B	Bottom piping 1/4
CM	Mixed size

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

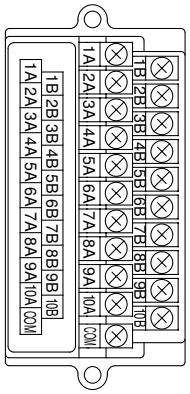
Note 1) When specifying more than one option, list alphabetical order. Example) -CDK
Note 2) Combination of [CD] and [SD] is not possible.
Note 3) Specify the wiring specifications by means of the manifold specification form.
Note 4) Refer to p.1.13-40 to p.1.13-43 for with control unit.



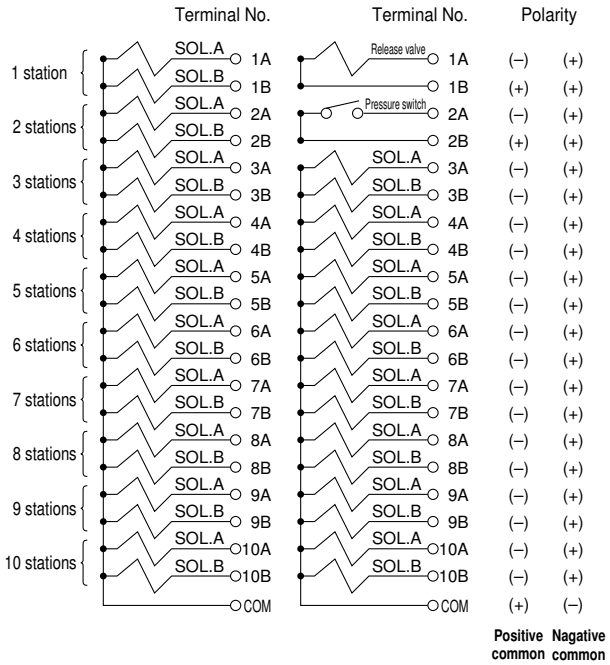
Base Mounted Plug-in Manifold *Series* VQ4000

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.



Special Wiring Specifications

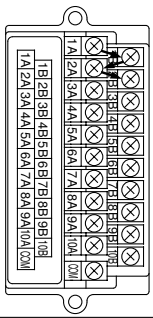
Regardless of the valve or option, the standard internal wiring for double solenoid capability is provided to each station. As option specifications type of single and double wiring (connected to SOL.A, B) is available.

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.

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

Light and surge voltage suppressor

–	With
E	Without light, with surge suppressor

Manual override

–	Non-locking push style
B	Locking slotted style

Enclosure

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

How to Order Manifold Ass'y

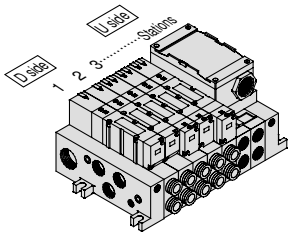
Add suffix valve and option numbers to the manifold base number.

<Example>

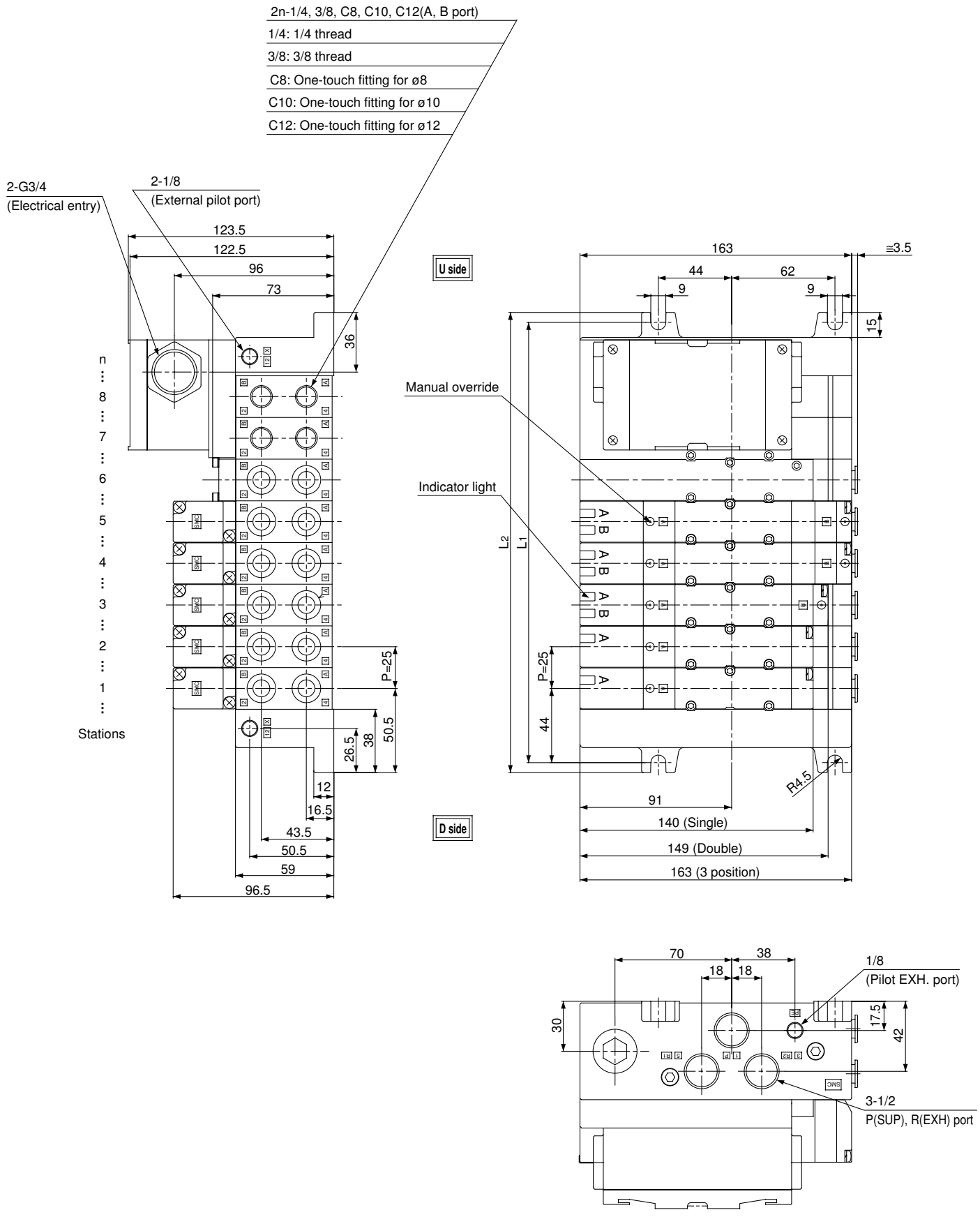
With D sub–connector kit and cable (3m)

VV5Q41-07C8TO-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)

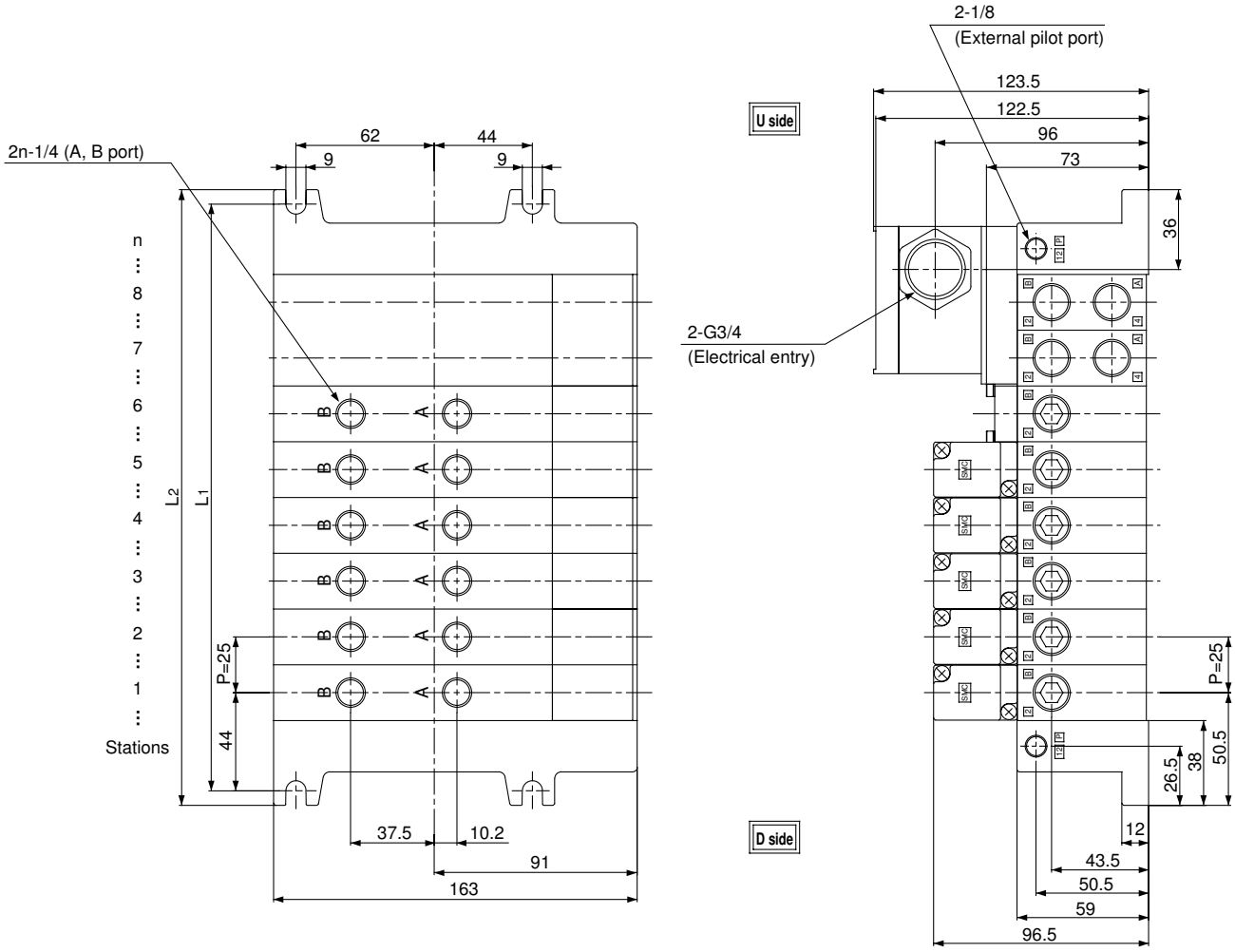
Write sequentially from the 1st station on the D side. When part numbers written collectively are complicated, specify by using a manifold specification form.



T Kit (Terminal box)



Bottom piping

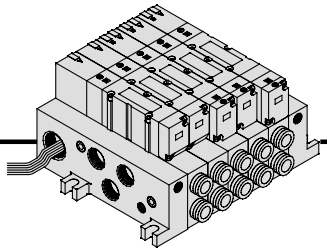


Dimensions Equation L1=25n+63 L2=25n+76

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

L Kit (Lead wire cable)



IP65 is possible.

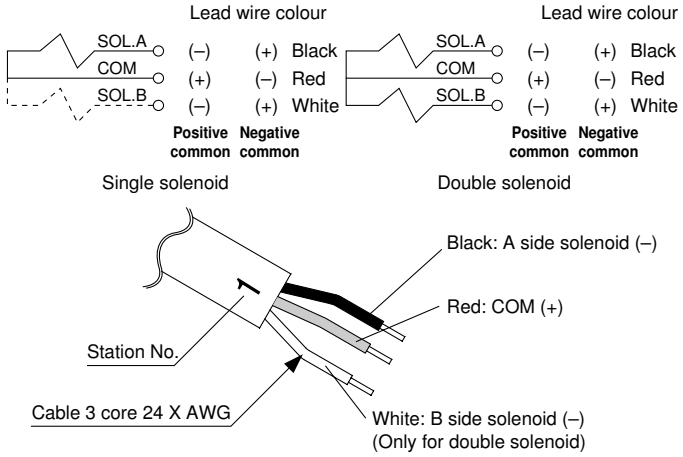
- **Possible to be IP65.**
- **Direct electrical entry. Models with two or more stations are available.**
- **Electrical entry is provided on D and U sides.**
- **Max. 16 stations.**

Manifold specification

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

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

Thread

—	Rc(PT)
N	NPT
T	NPTF
F	G (PF)

Connector locations

D	D side
U	U side

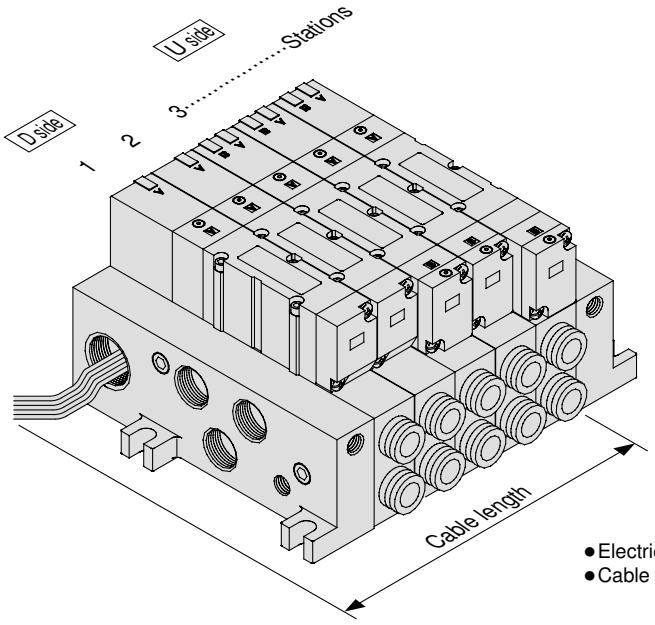
Cable (length)

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

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.

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

Order Made Contact SMC for other voltages (9)

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

Light and surge voltage suppressor

–	With
E	Without light, with surge suppressor

Manual override

–	Non-locking push style
B	Locking slotted style

Enclosure

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

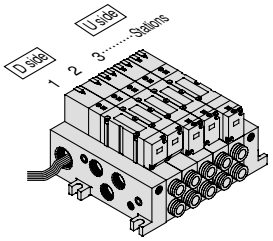
How to Order Manifold Ass'y

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

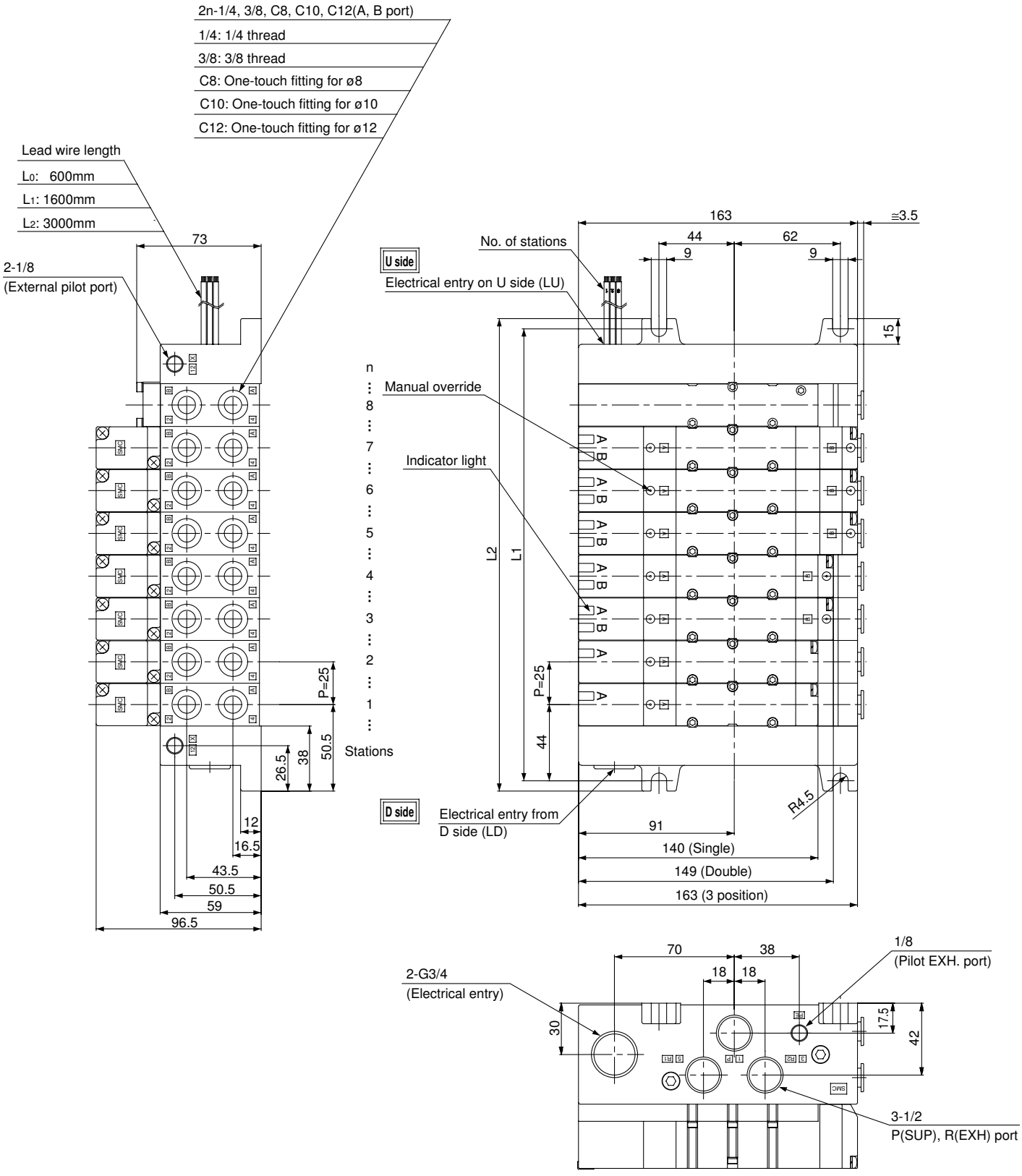
<Example>
With lead wire kit, cable (3m)

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)

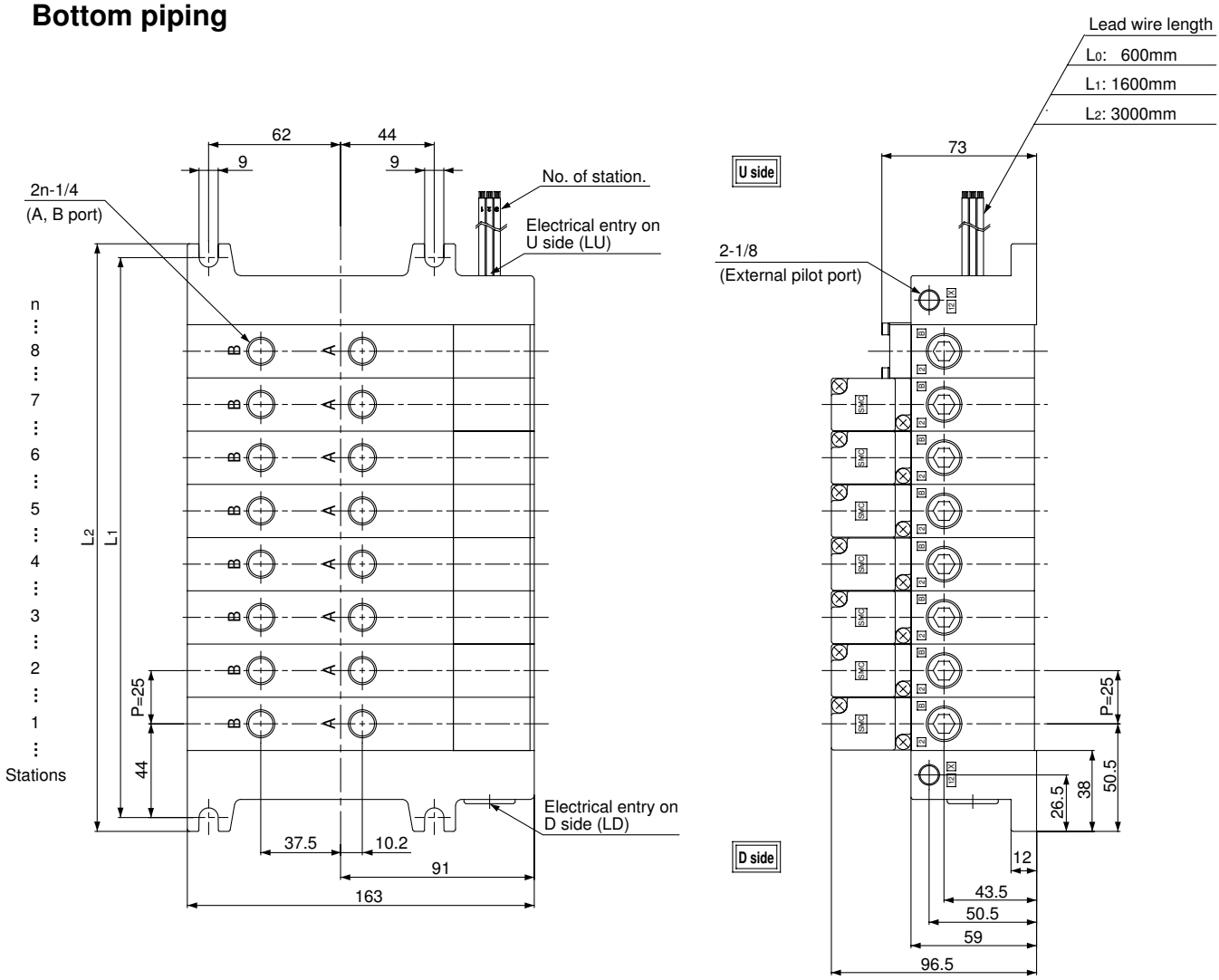
Write sequentially from the 1st station on the D side. When part numbers written collectively are complicated, specify by using the manifold specification form.



L Kit (Lead wire cable)



Bottom piping



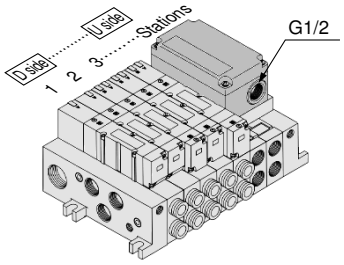
Dimensions Equation L_1=25n+63 L_2=25n+76 n: Station (Max. 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L_1	88	113	138	163	188	213	238	263	288	313	338	363	388	413	438	463
L_2	101	126	151	176	201	226	251	276	301	326	351	376	401	426	451	476

S Kit (Serial interface)

IP65 is possible.

- **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.**

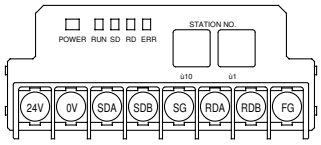


- **Stations are sequentially numbered from the D side.**
- **Regardless of the valve or option, the internal wiring is made double (connected to SOL.A and SOL.B) for respective stations of the manifold. The standard specification permits mixture of single and double wiring.**

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)	 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	● 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.

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)

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

Options

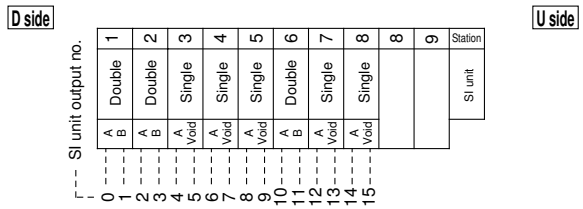
Symbol	Option
–	None
CD	Exhaust cleaner: For D side mounting
K (2)	Special wiring specification (Except double wiring)
SD	Built-in silencer (Direct exhaust from D side)
W	Enclosure: IP65

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.

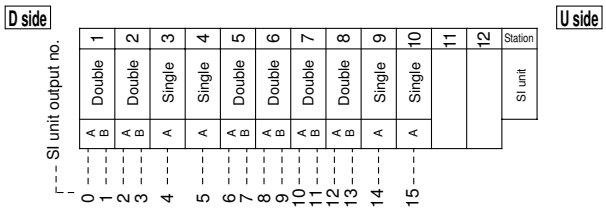
• SI unit output and coil numbering

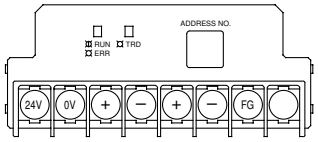
Mixed wiring is optional. Use the manifold specification form to specify.

<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)	 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	• 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

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

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

Enclosure

–	Dust-proof
W	Dust tight, Jet proof (IP65)

Manual override

–	Non-locking push style
B	Locking slotted style

Coil voltage

5	24V DC

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.

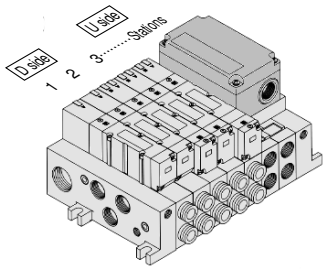
How to Order Manifold Ass'y

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

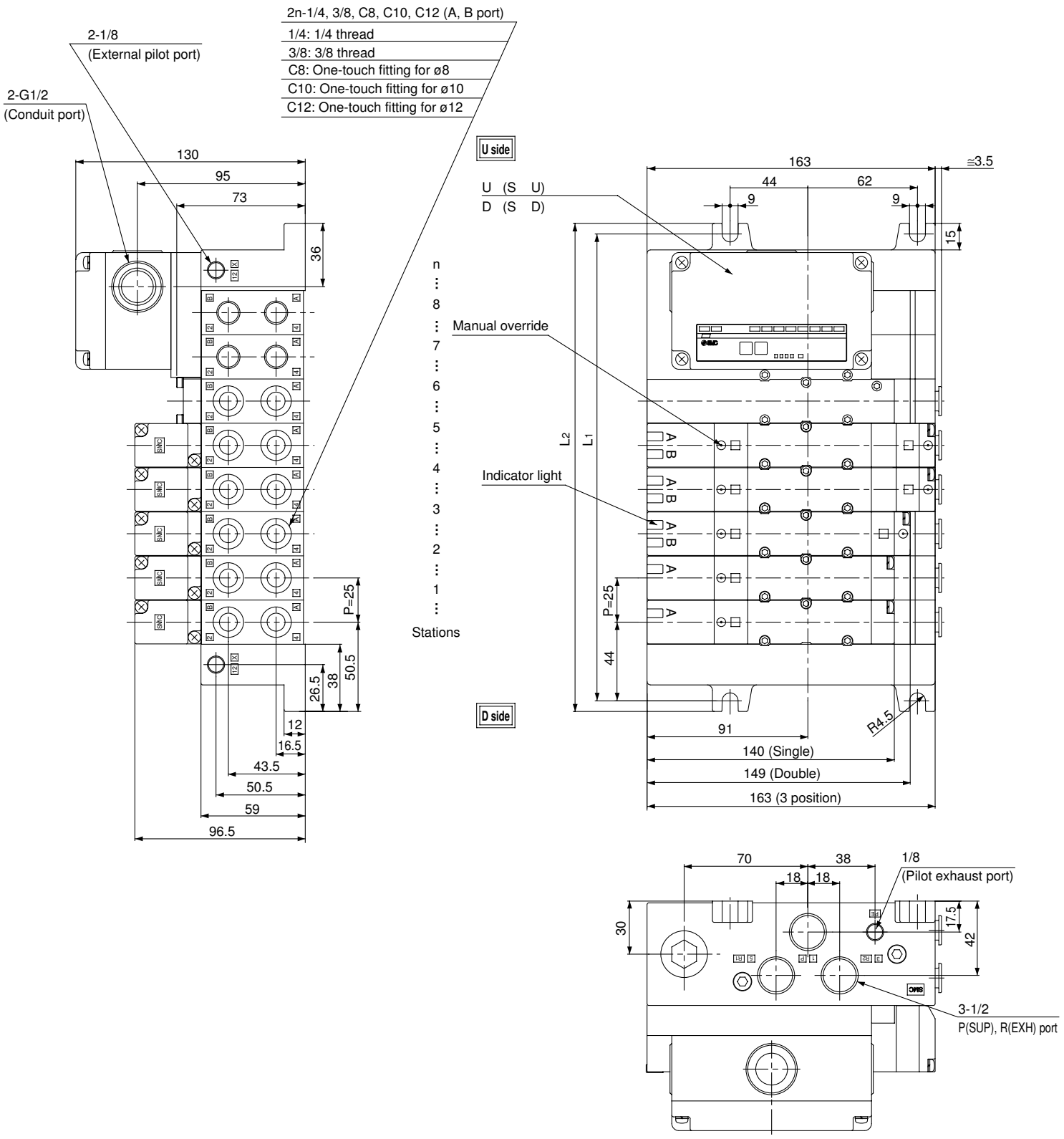
<Example>
Serial transmission unit

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)

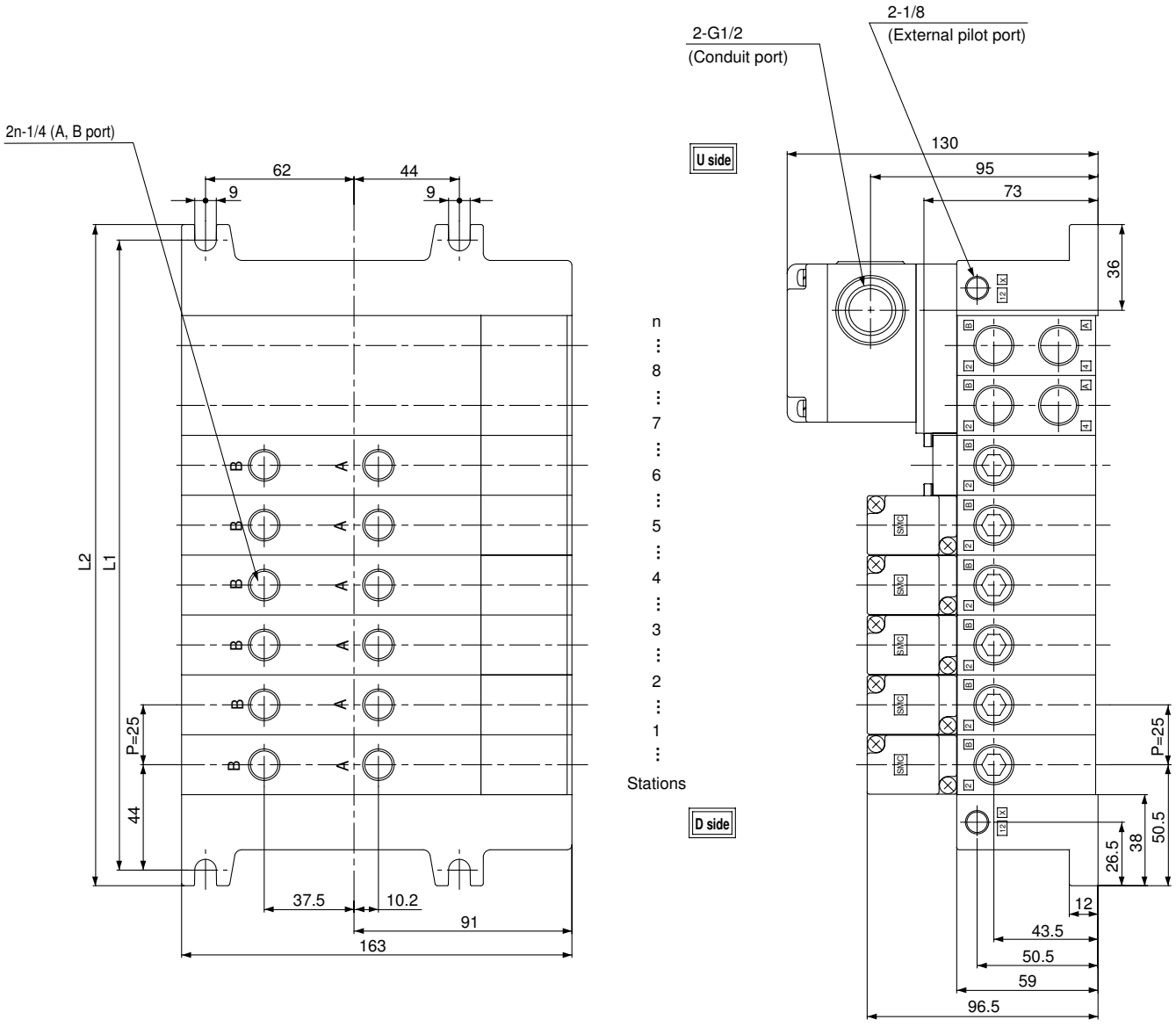
Write sequentially from the 1st station on the D side. When part numbers written collectively are complicated, specify by using a manifold specification form.



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

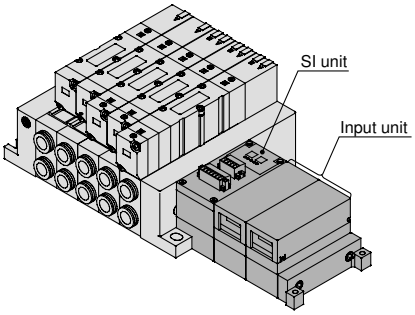
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L1	88	113	138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513
L2	101	126	151	176	201	226	251	276	301	326	351	376	401	426	451	476	501	526

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

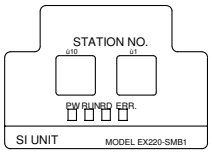
Series	Porting specification			Applicable max. stations
	Port location	Port size		
		P, R	A, B	
VQ4000	Side	1/2	C8, 10, 12 1/4, 3/8	16 stations
	Bottom		1/4	



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

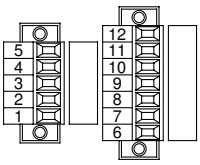
SBM type applicable to MELSECNET/MINI-S3 Data Link System (Mitsubishi Electric)

Name of indication



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



	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

- 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

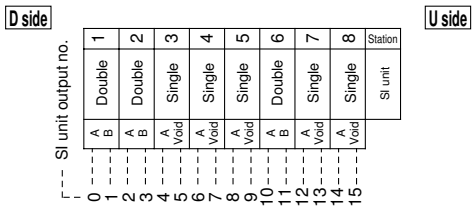
Symbol	Option
–	None
CD	Exhaust cleaner: For D side mountig
K(2)	Special wiring specification (Except double wiring)
SD	Built-in silencer (Direct exhaust from D side)

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.

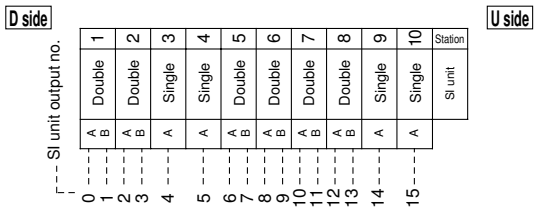
• SI unit output and coil numbering

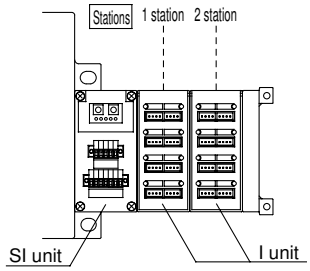
Mixed wiring is optional. Use the manifold specification form.

<Wiring example 1> Double wiring (Standard)



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





Input I unit (Input unit)

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

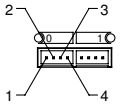
Stations	No. connector terminals	No. of inputs
1	0	0
	1	1
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
2	0	8
	1	9
	2	A
	3	B
	4	C
	5	D
	6	E
	7	F

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 responce time	OFF-ON	10ms or less
	ON-OFF	10ms or less
Input indication		LED indication (Red)
Common connection		16 points/1 common

I unit: How to connect input terminal

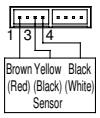
External input terminal

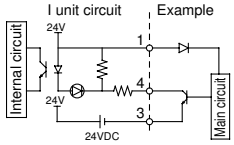


	Terminal	Details
1	24V	Power supply for external input equipment
2	—	None
3	0V	Power supply for external input equipment
4	Input signal	External input equipment signal

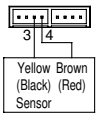
Wiring of external input wiring

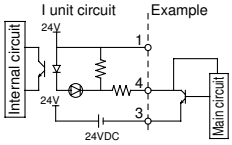
• 3 wire





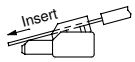
• 2 wire



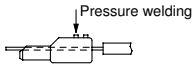


How to connect attached pressed plug

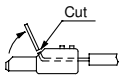
1.Pass electrical wire into insertion hole of plug wire.



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 ø0.4mm, ø0.5mm, ø0.65mm, Each cover≤ø2.0mm.**

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.
Note 2) Combination of external pilot and perfect interface is not possible. When specifying more than one option, indicate symbols alphabetically.

Coil voltage

5	24V DC

Manual override

–	Non-locking push style
B	Locking slotted style

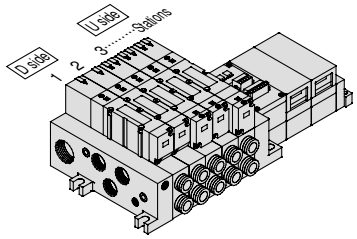
How to Order Manifold Ass'y

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

<Example>
Serial transmission unit

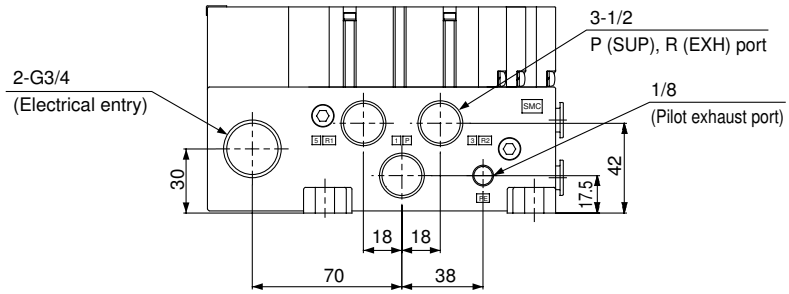
VV5Q41-05C8SBMZ-Q···1 set — Manifold base part number
VQ4100-5-Q·····2 set – Valve part No. (Station 1 to 2)
VQ4200-5-Q·····2 set – Valve part No. (Station 3 to 4)
VQ4300-5-Q·····1 set – Valve part No. (Station 5)

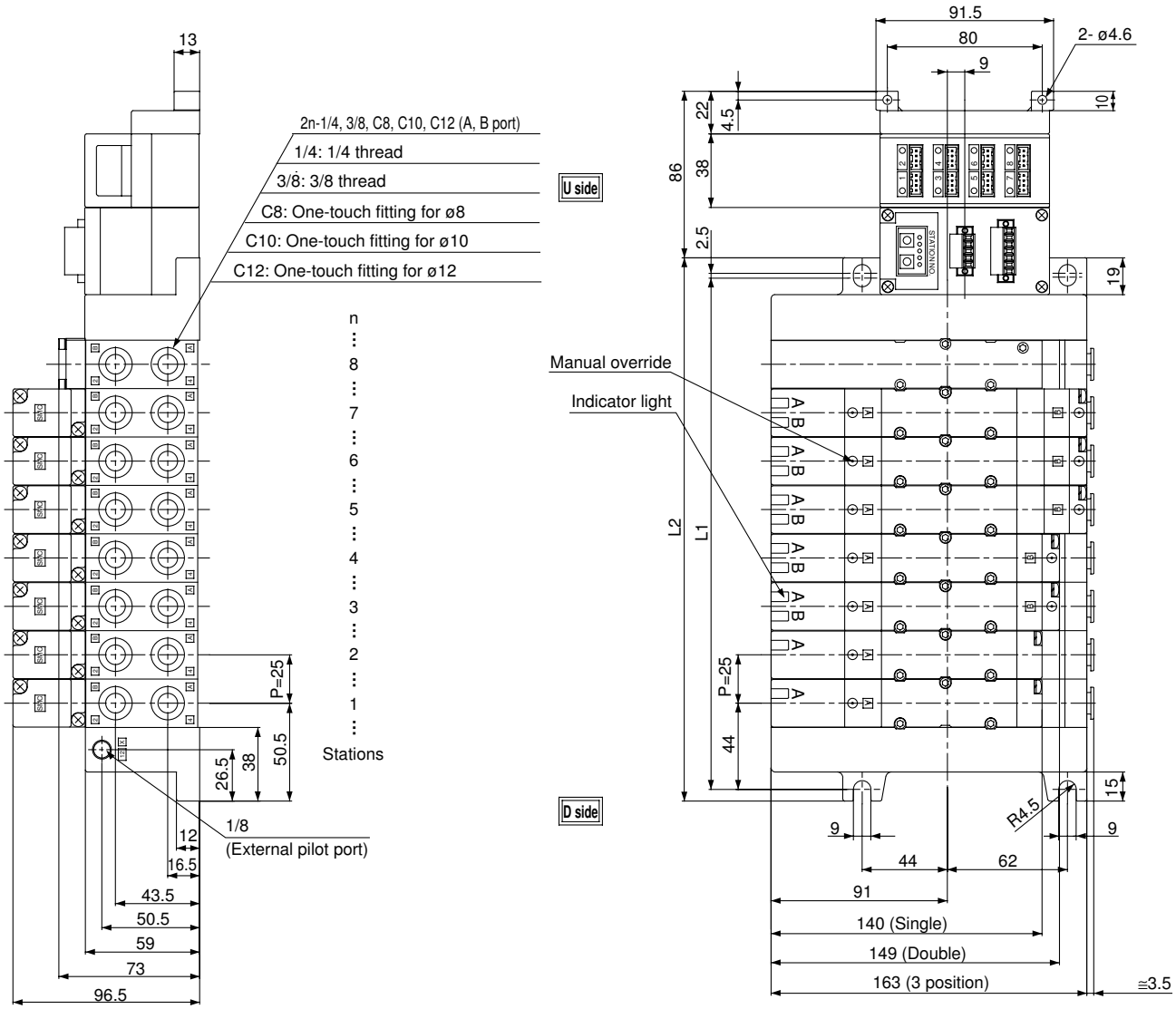
Write sequentially from the 1st station on the D side. When part numbers written collectively are complicated, specify by using a manifold specification form.



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

One input unit

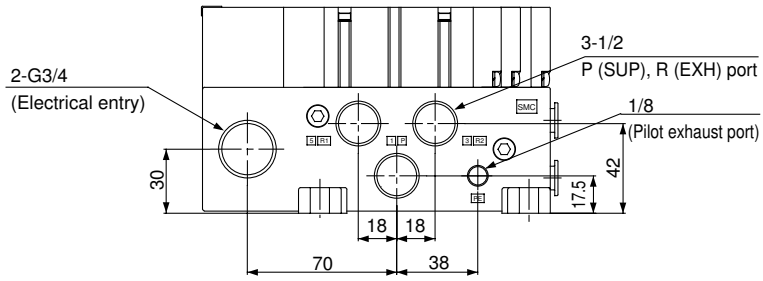


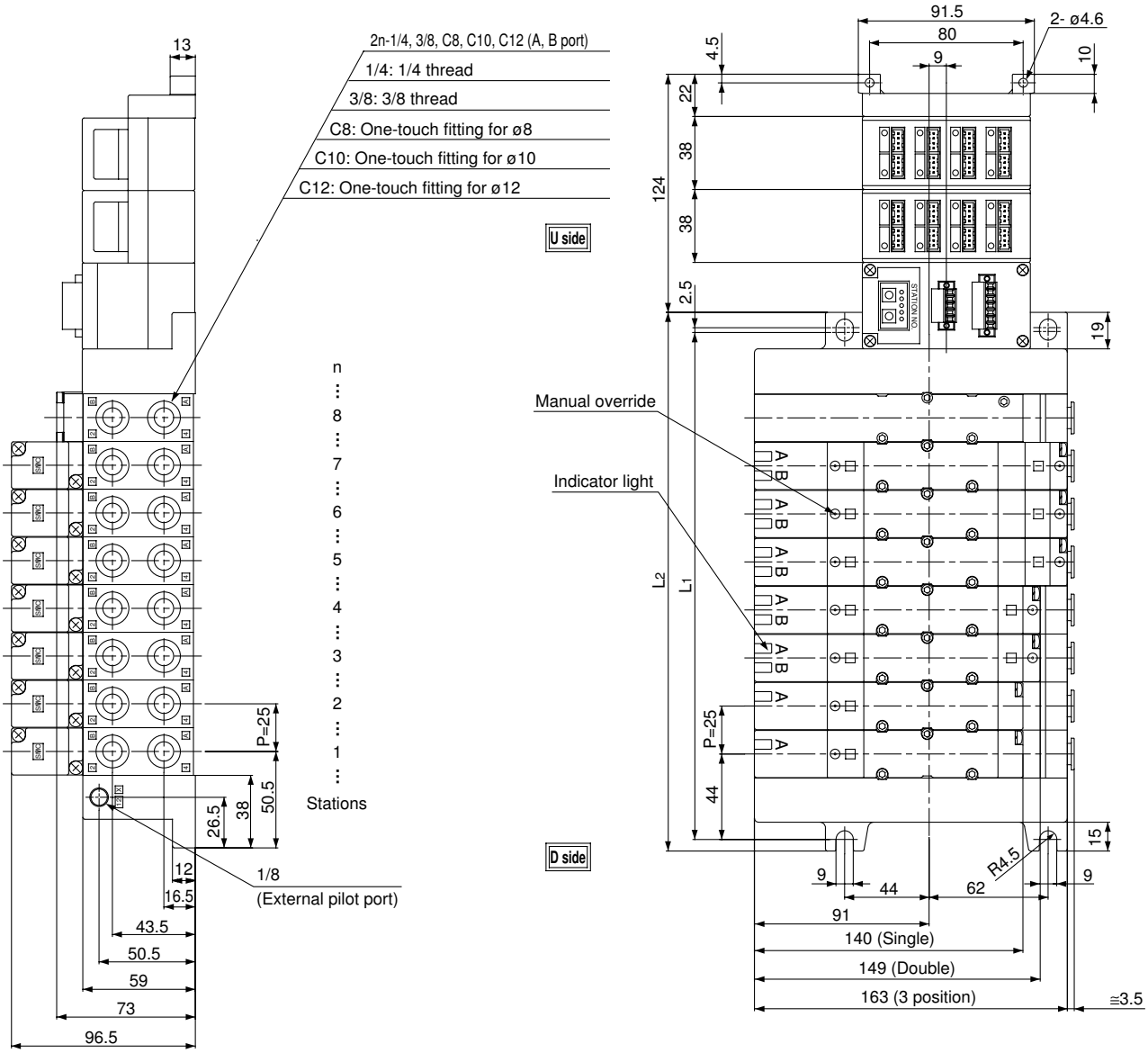


Dimensions Equation $L_1=25n+63.5$ $L_2=25n+80.5$ n: Station (Max. standard 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L_1	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
L_2	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

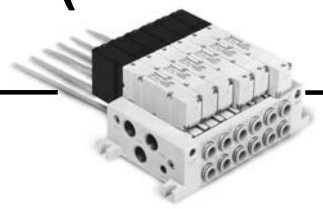




Dimensions Equation L_1=25n+63.5 L_2=25n+80.5 n: Station (Max. standard 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L_1	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
L_2	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

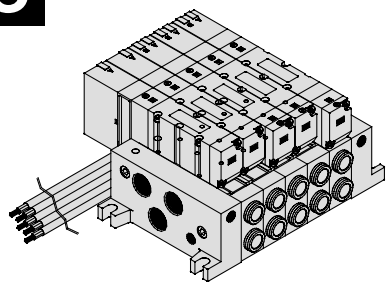
C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
02	1/4
03	3/8
B	Bottom piping 1/4
CM	Mixed size
N7	One-touch fitting for ø1/4"
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"
NM	Mixed size

Thread

—	Rc (PT)
N	NPT
T	NPTF
F	G (PF)

Kit

C Kit (Connector)



C	Connector kit	Max. 16 stations

Control unit

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

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. Examlpe) -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.

Coil voltage

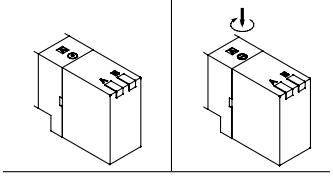
1	100V AC (50/60Hz)
2	200V AC (50/60Hz)
3	110V AC (50/60Hz)
4	220V AC (50/60Hz)
5	24V DC
6	12V DC
9	240V or less

Light and surge voltage suppressor

–	With
E	Without light, with suge suppressor

Manual override

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

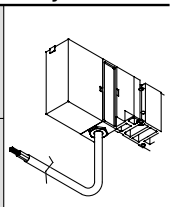


Enclosure

–	Dust proof
W	Dust tight, Jet proof (IP65)

Electrical entry

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



Order Made Contact SMC for other voltages (9)

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

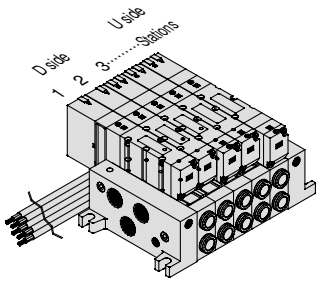
How to Order Manifold Ass'y

Add suffix valve and option 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.



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

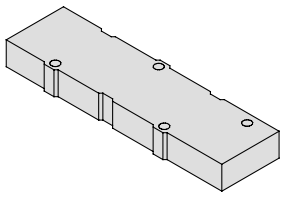
Model	Passage/Stations	1 station	5 stations	10 stations	15 stations
2 position metal seal **VQ4150/VQ4250**	P→A or B	28.8 (1570)	28.8 (1570)	28.8 (1570)	28.8 (1570)
	A→R1, B→R2	32.4 (1766)	32.4 (1766)	32.4 (1766)	32.4 (1766)
2 position rubber seal **VQ4151/4251**	P→A or B	36.0 (1963)	36.0 (1963)	36.0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

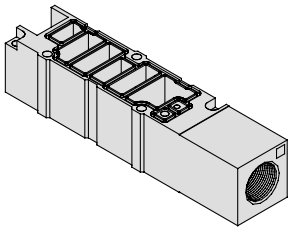
Manifold Options

- 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.

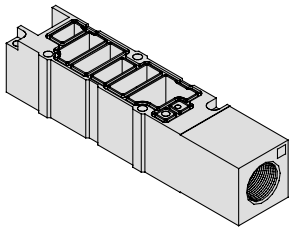
Blank plate assembly
VVQ4000–10A–5



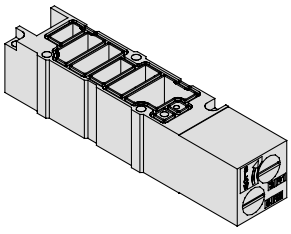
Individual SUP spacer
VVQ4000–P–5–03



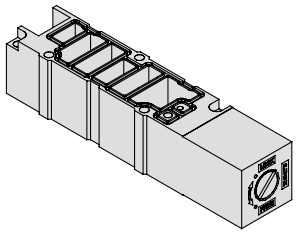
Individual EXH spacer
VVQ4000–R–5–03



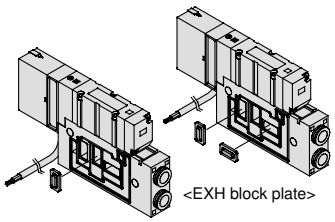
Interface speed control
VVQ4000–20A–5



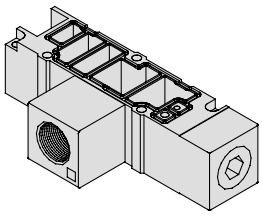
SUP stop valve spacer
VVQ4000–37A–5



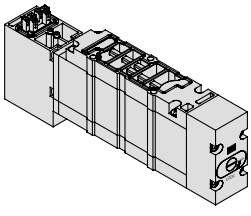
SUP/EXH block plate
VVQ4000–16A



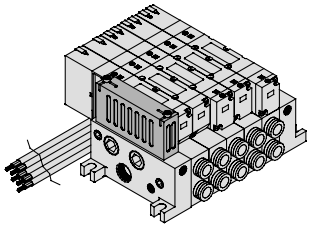
Release valve spacer
VVQ4000–24A–5D (1)



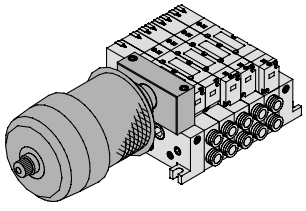
Double check spacer with residual pressure exhaust
VVQ4000–25A–5 (1)



Built-in silencer direct exhaust [–SD, –SU] (1)

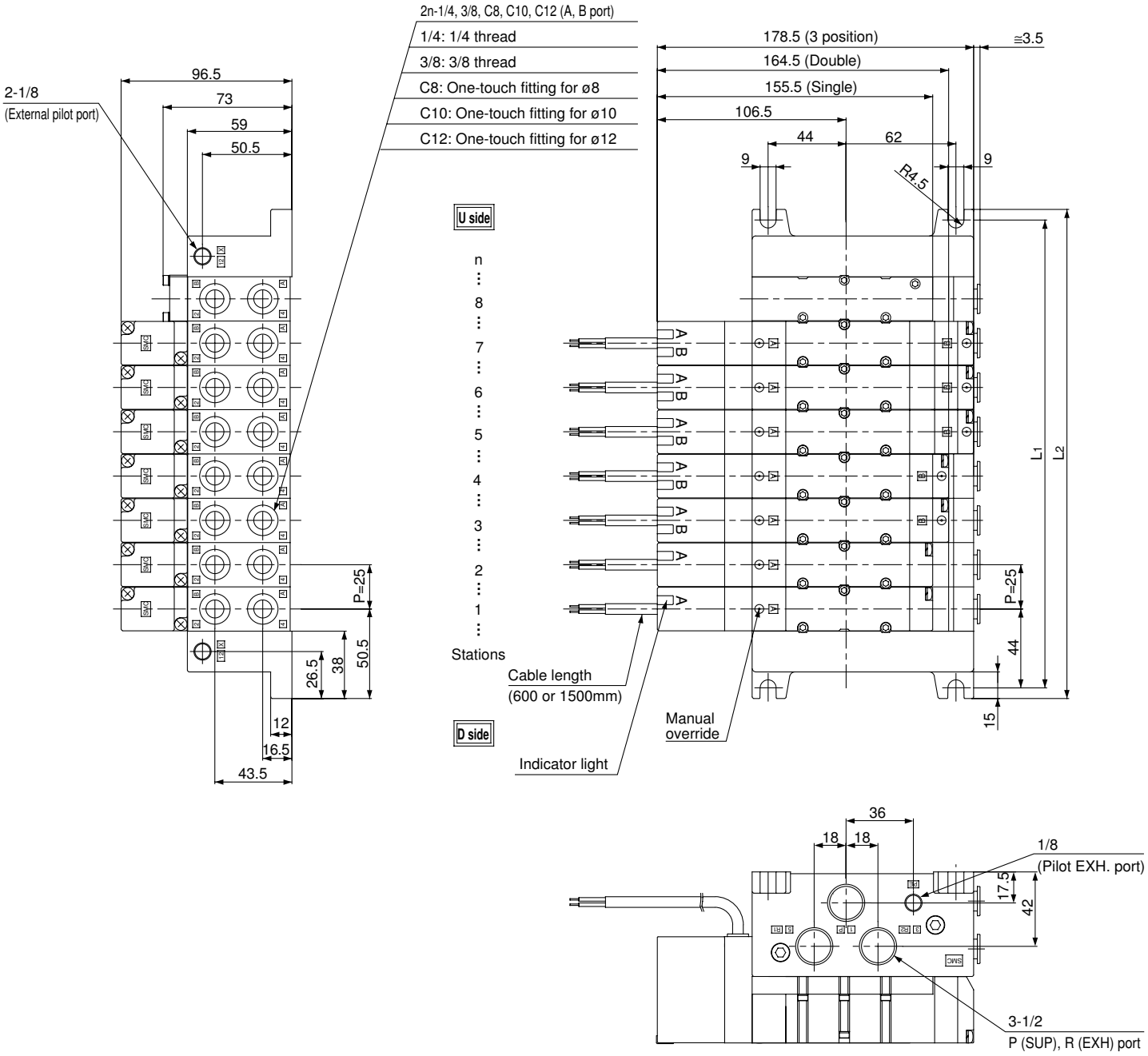


For exhaust cleaner mounting [–CD, –CU] (1)

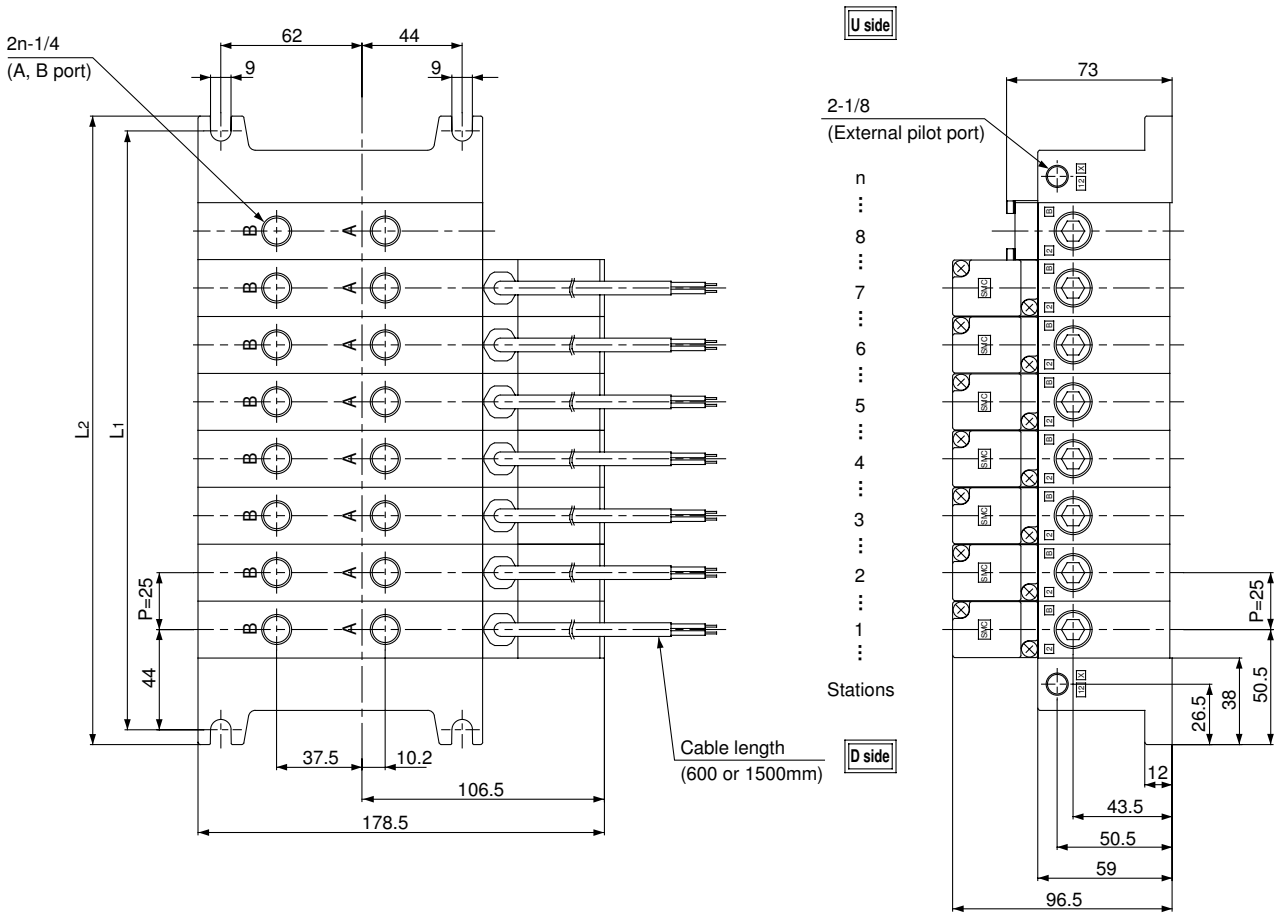


Note 1) Release valve spacer, built-in silencer (direct exhaust), exhaust cleaner mounting style and perfect double check spacer for residual pressure exhaust cannot be combined with external pilot.

C Kit (Connector)



Bottom piping



Dimensions Equation L1=25n+63 L2=25n+76 n: Station (Max. 16 stations)

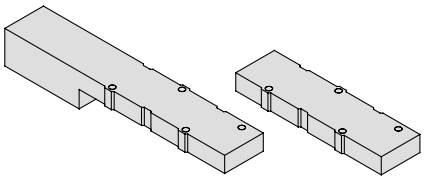
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	88	113	138	163	188	213	238	263	288	313	338	363	388	413	438	463
L2	101	126	151	176	201	226	251	276	301	326	351	376	401	426	451	476

Manifold Options

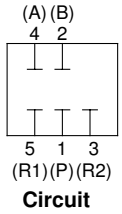
Blank plate assembly

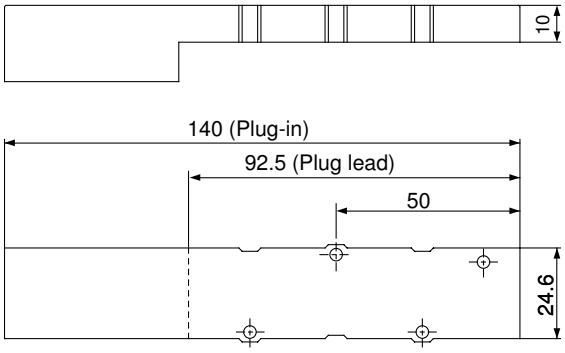
VVQ4000–10A–1 (Plug-in)
VVQ4000–10A–5 (Plug lead)

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



Plug-in Plug lead

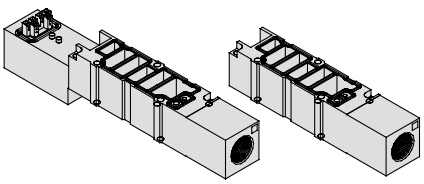




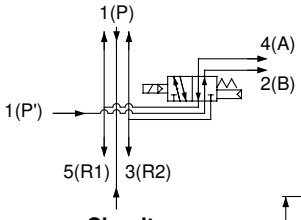
Individual SUP spacer

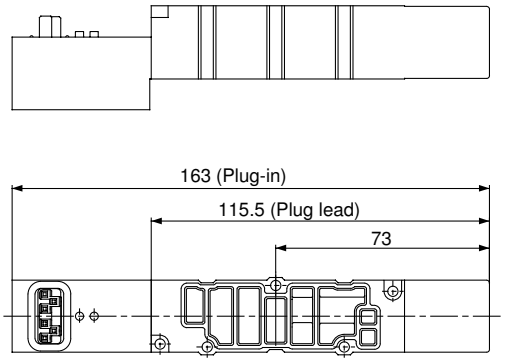
VVQ4000–P–1–03 (Plug-in)
VVQ4000–P–5–03 (Plug lead)

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



Plug-in Plug lead

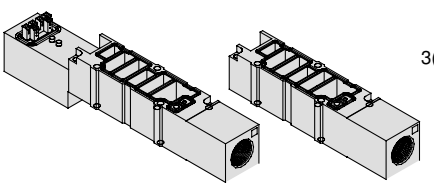




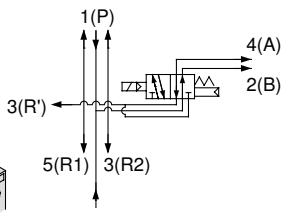
Individual EXH spacer

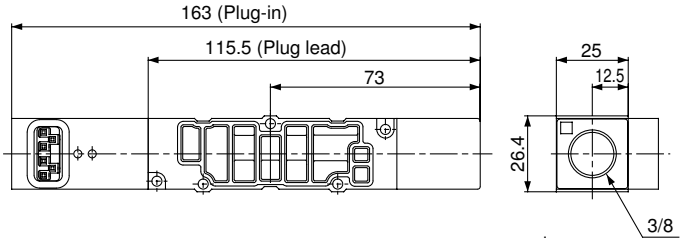
VVQ4000–R–1–03 (Plug-in)
VVQ4000–R–5–03 (Plug lead)

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



Plug-in Plug lead

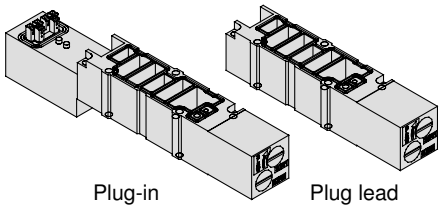




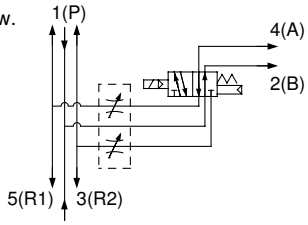
Interface speed control

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

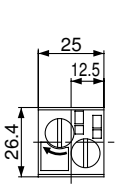
Actuator speed is controlled by throttling exhaust air flow.

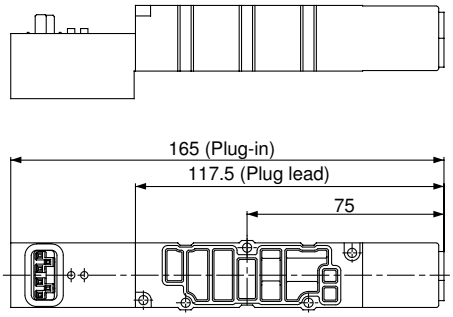


Plug-in Plug lead



Circuit

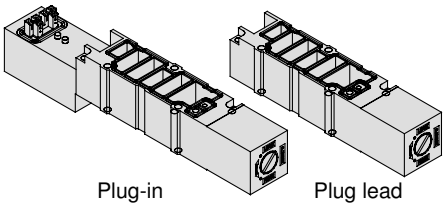




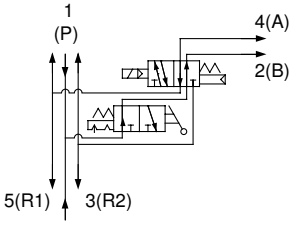
SUP stop valve spacer

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

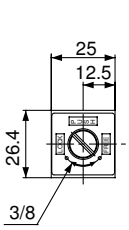
Supply air to each valve is blocked individually by SUP stop valve interface.

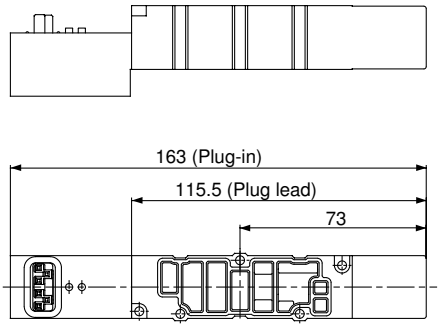


Plug-in Plug lead



Circuit

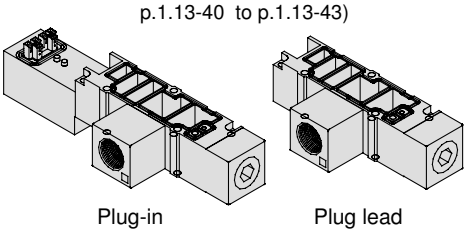




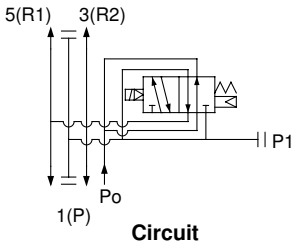
Release valve spacer: For D side mounting

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

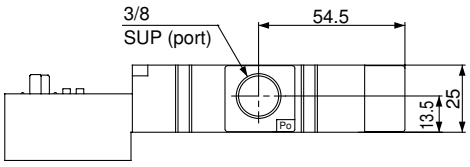
Combination of VQ41□□ (Single) and release valve spacer can be used as air release valve.
Note 1) Mounting on 2 position double and 3 position valve is not possible.
Note 2) Can be mounted on L kit only. For other kits, order E type control unit. (Refer to p.1.13-40 to p.1.13-43)

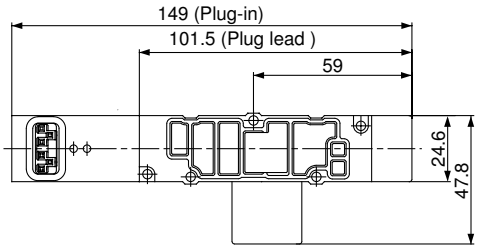


Plug-in Plug lead



Circuit

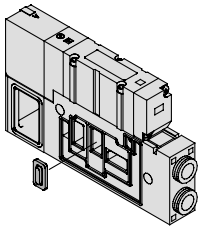




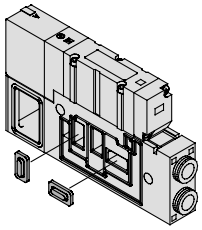
SUP/EXH block station

VVQ4000–16A

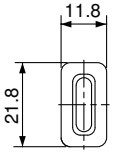
When high and low pressures are simultaneously supplied to one manifold, a block plate is inserted between stations under different pressures.

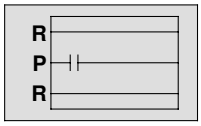


<SUP block plate>

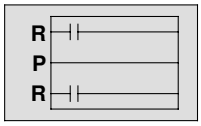


<EXH block plate>

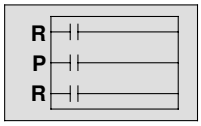




SUP passage block



EXH passage block



SUP/EXH passage block

Manifold Options

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

Piping work is unnecessary

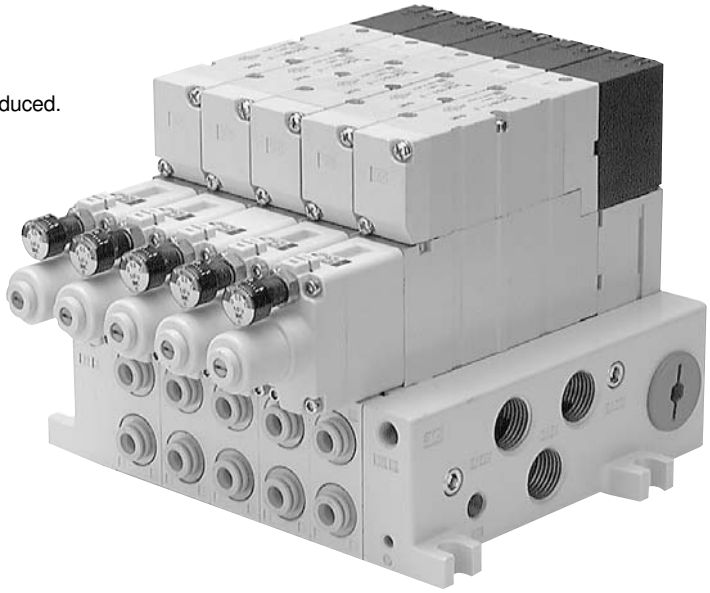
Ideal pressures can be supplied by simply installing interface regulators on a manifold base.

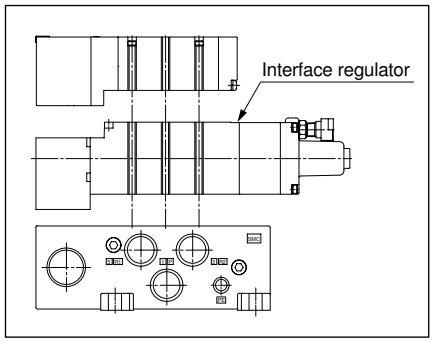
Space savings

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

Two pressure control simplified

Two pressure actuator control can be easily performed.

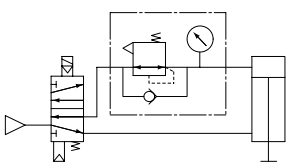
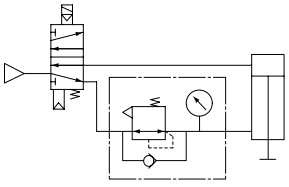
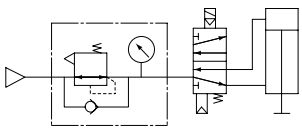




How to Order

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

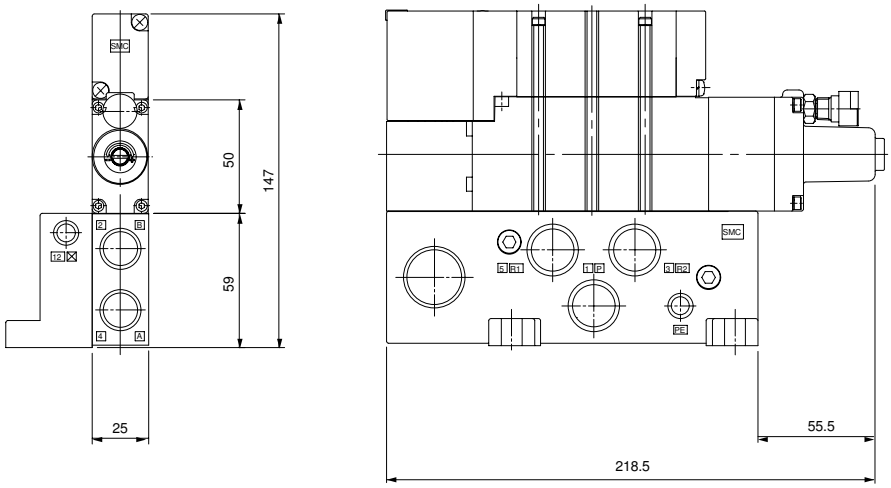
Circuit Diagrams

Reduced pressure port: A	Reduced pressure port: B	Reduced pressure port: P
		

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		

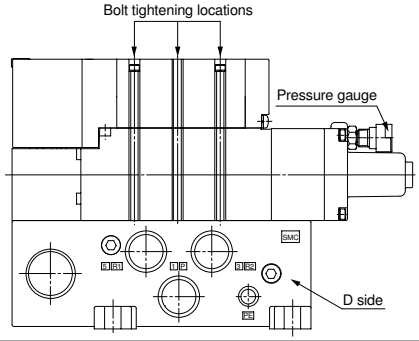
Dimensions



Mounting

⚠ Caution

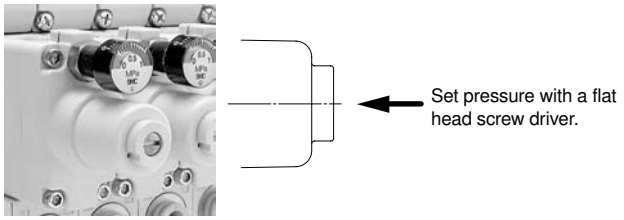
1. With the P port on the manifold's D side in front, mount the interface regulator so that the position of its pressure gauge is as shown in the figure to the right.
2. When mounting an interface regulator, tighten the bolts with a torque of 0.9N·m.

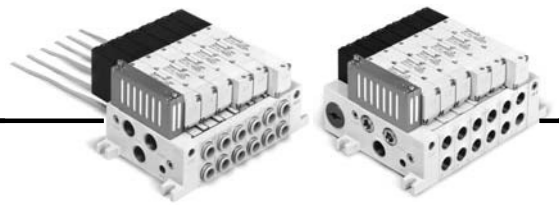


Pressure Setting

⚠ 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.





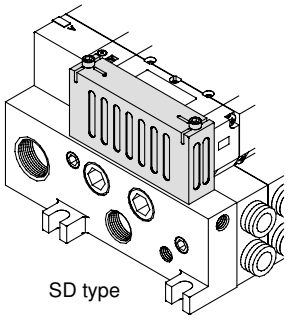
Manifold Options

Built-in silencer, Direct exhaust

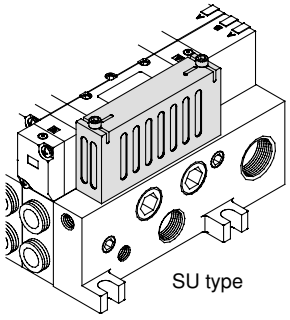
VV5Q4 1/5 –□□□–SB (Both sides exhaust)
VV5Q4 1/5 –□□□–SD (D side exhaust)
VV5Q4 1/5 –□□□–SU (U side exhaust)

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).

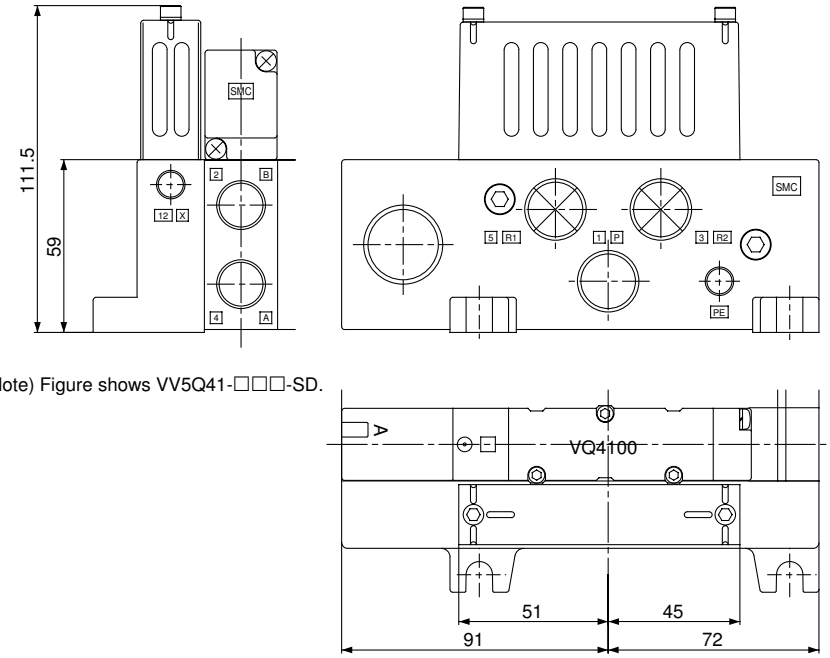
Note) If a lot of drainage is generated at air supply source, both of exhaust air and drainage are exhausted.



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.

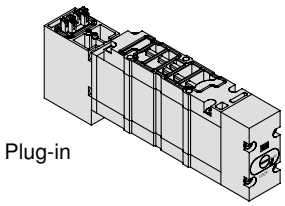
Specifications

Double check spacer part no.	VVQ4000-25A-1			
	Stop in the middle	Drop prevention		
Applicable solenoid valve	VQ44□□	VQ4 1/2 □□		
Leakage * Ncm³/min	Solenoid on one side energized	P	EA	230 or less
			EB	
	Solenoids on both sides de-energized	P	EA	230 or less
			EB	
		A	EA	0
		B	EB	

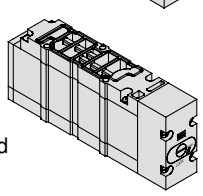
* Supply pressure: 0.5MPa

⚠ Caution

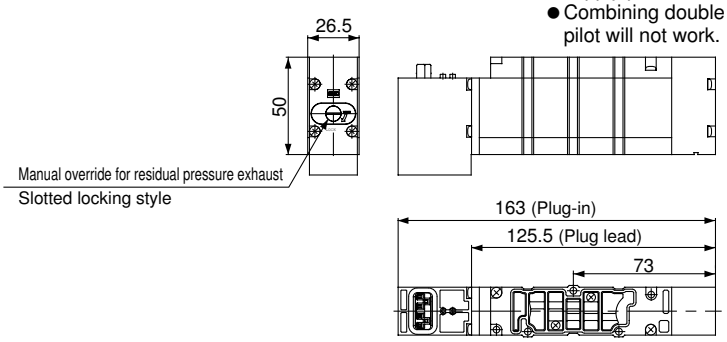
- Air leakage from the pipe between the valve and cylinder or from the fittings will prevent the cylinder from stopping in the middle for a long time. Check for the leakage using neutral household detergent, such as dish washing soap. Also, check the cylinder sealing and piston seal for leakage.
- Since 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.

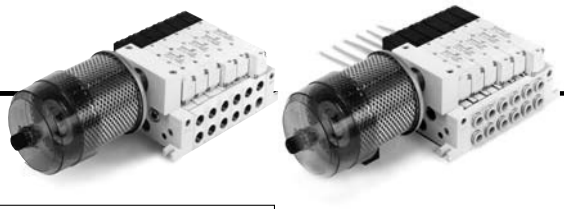


Plug-in



Plug lead





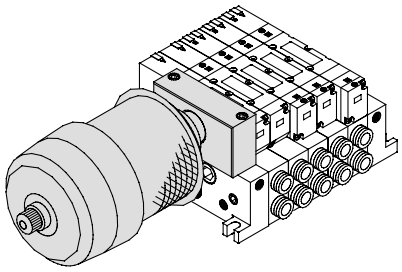
Manifold mounted exhaust cleaner

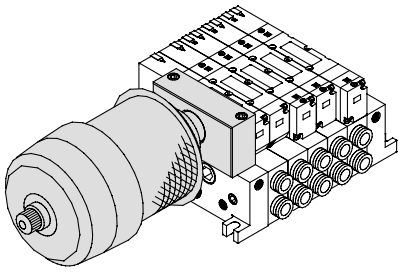
VV5Q4 $\frac{1}{5}$–□□□–CD (D side mounting)
VV5Q4 $\frac{1}{5}$–□□□–CU (U side mounting)

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).

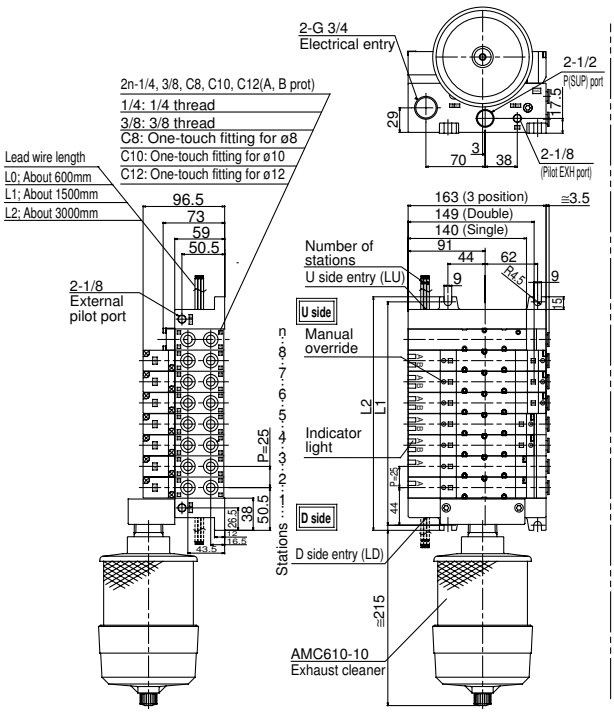
Applicable exhaust cleaner
AMC610–10 (Port size Rc1)

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.



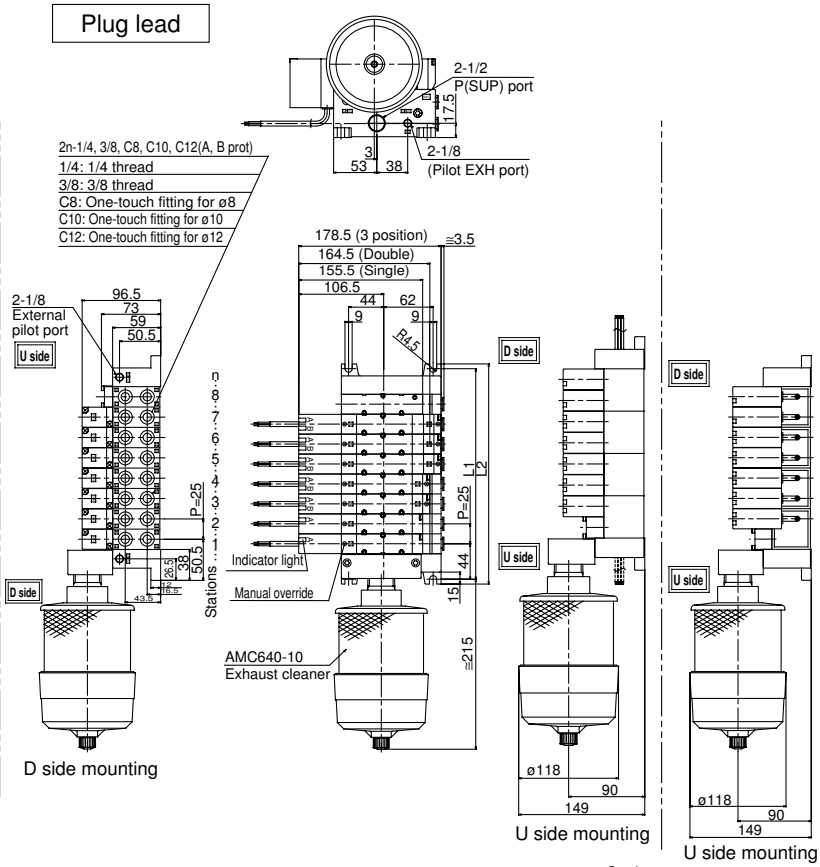


Plug-in



D side mounting

Plug lead



D side mounting

U side mounting

U side mounting

n: Station

Dimensions Equation L1=25n+63 L2=25n+76 (Max. 16 stations)

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

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

n: Station

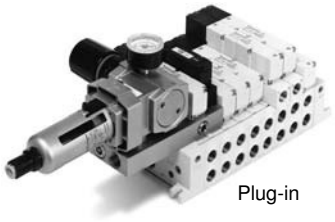
Dimensions Equation L1=25n+63 L2=25n+76 (Max. 16 stations)

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

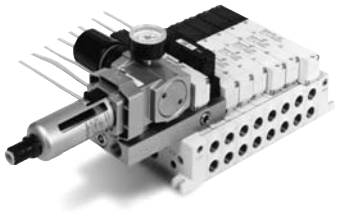
L \ n	9	10	11	12	13	14	15	16
L1	288	313	338	363	388	413	463	463
L2	301	326	351	376	401	426	476	476

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	Porting specification			Applicable[1] max. stations	Applicable valve
		Port location	Port size			
			P, R	A, B		
VV5Q41 -□□□	F kit - D-sub connector T kit - Terminal block box L kit - Lead wire	Side	1/2 Option Built-in silencer (Direct eject)	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		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)

Coil rated voltage of air release valve

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

Order Made Contact SMC for other voltages (9)

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

Options

Symbol	Option
–	None
K (2)	Special wiring specification (Except double wiring)
N	Name plate (Applicable to T kit)
SU (3)	Built-in silencer (Direct exhaust from U side)
W (4)	IP65

Note 1) When specifying more than one option, indicate symbols alphabetically. Ex.) -KN
Note 2) Specify wiring on manifold specification form.
Note 3) Mounting on S and T kits is not possible.
Note 4) Combination with pressure switch (AP and MP type) is not possible.
Note 5) The release valve and the pressure switch on S kit are connected to another power supply. Cable length is 0.6m.

Style of control unit

Control equipment \ Symbol	–	A	AP	M	MP	F	G	C	E
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>

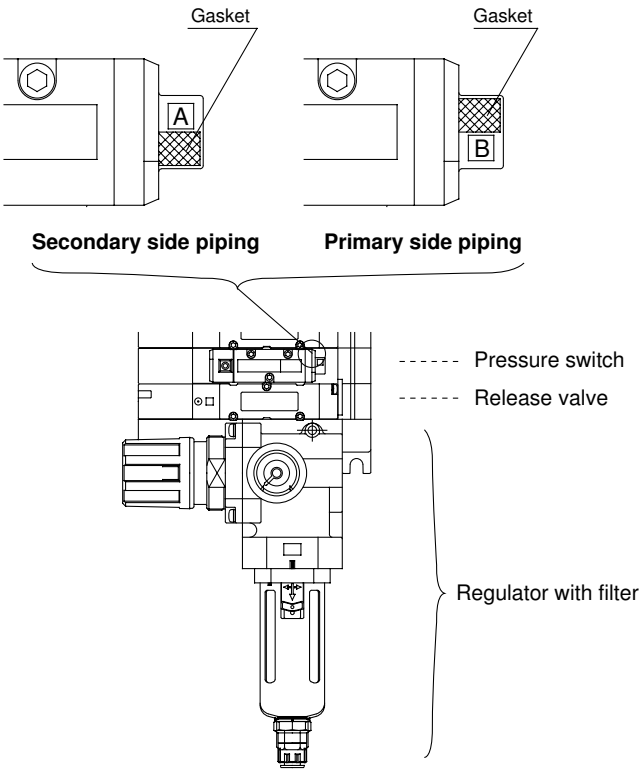
1) Supply pressure (Po) is adjusted through regulator with filter, it is supplied to manifold base side through release valve 2 (Normally ON, this is for release secondary side residual pressure).
2) Supply pressure from Po port is blocked when release valve 2 is OFF. Air supplied to manifold side P port is exhausted to R1 port through release valve 2.
3) Pressure switch is pipied 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.

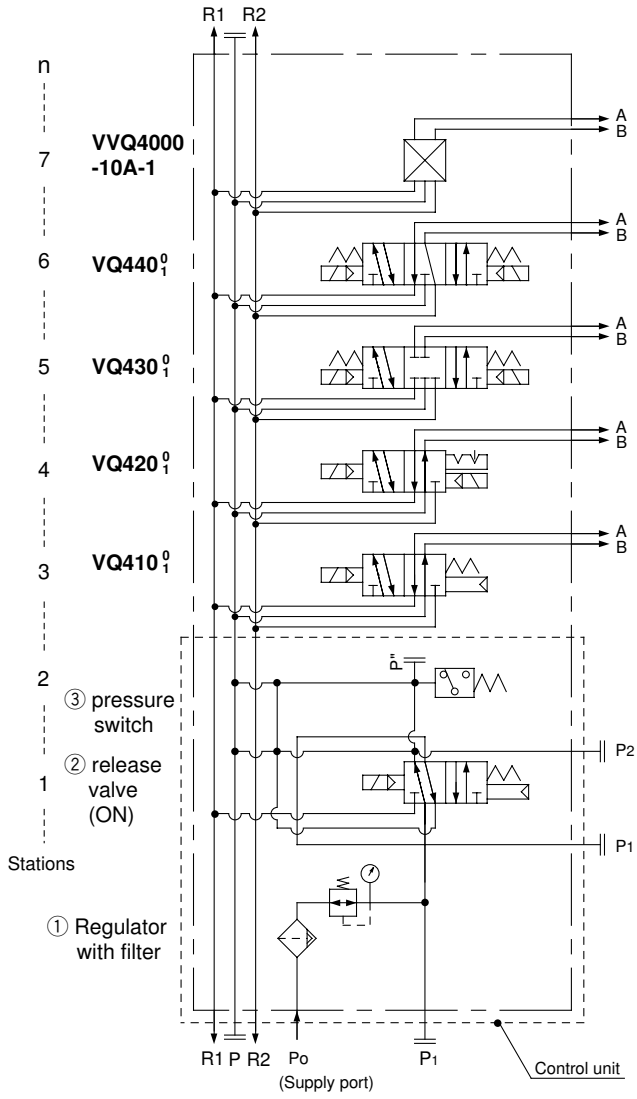
<Wiring>

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.

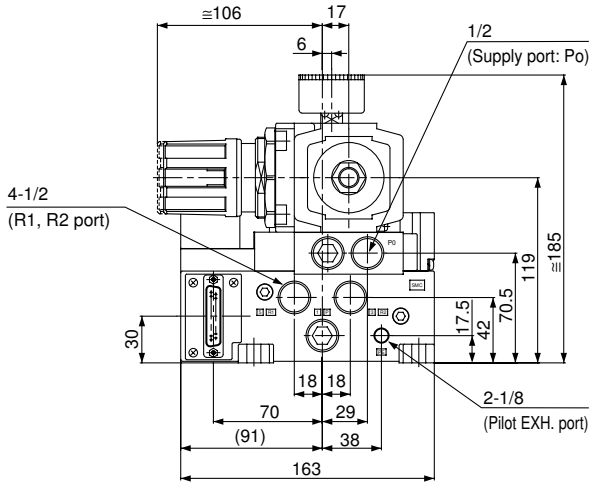


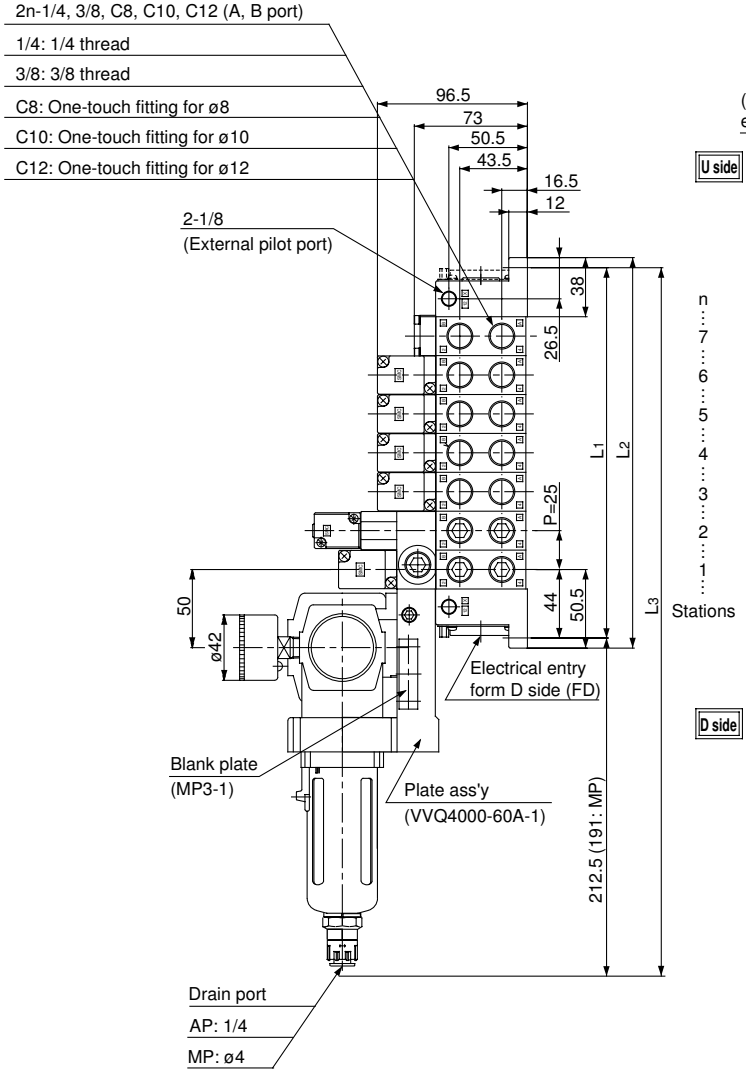


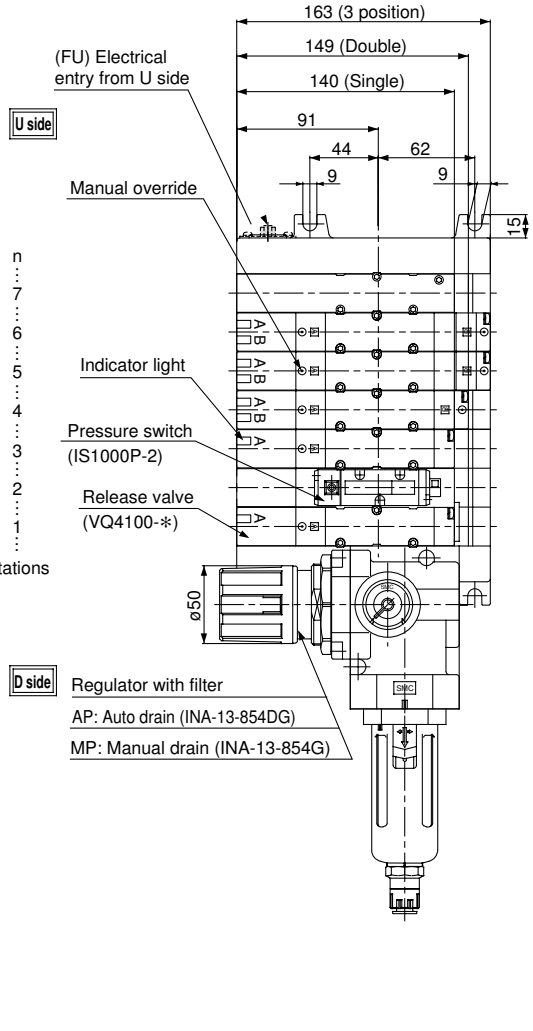
Circuit of control unit manifold

Manifold with Control Unit

Plug-in





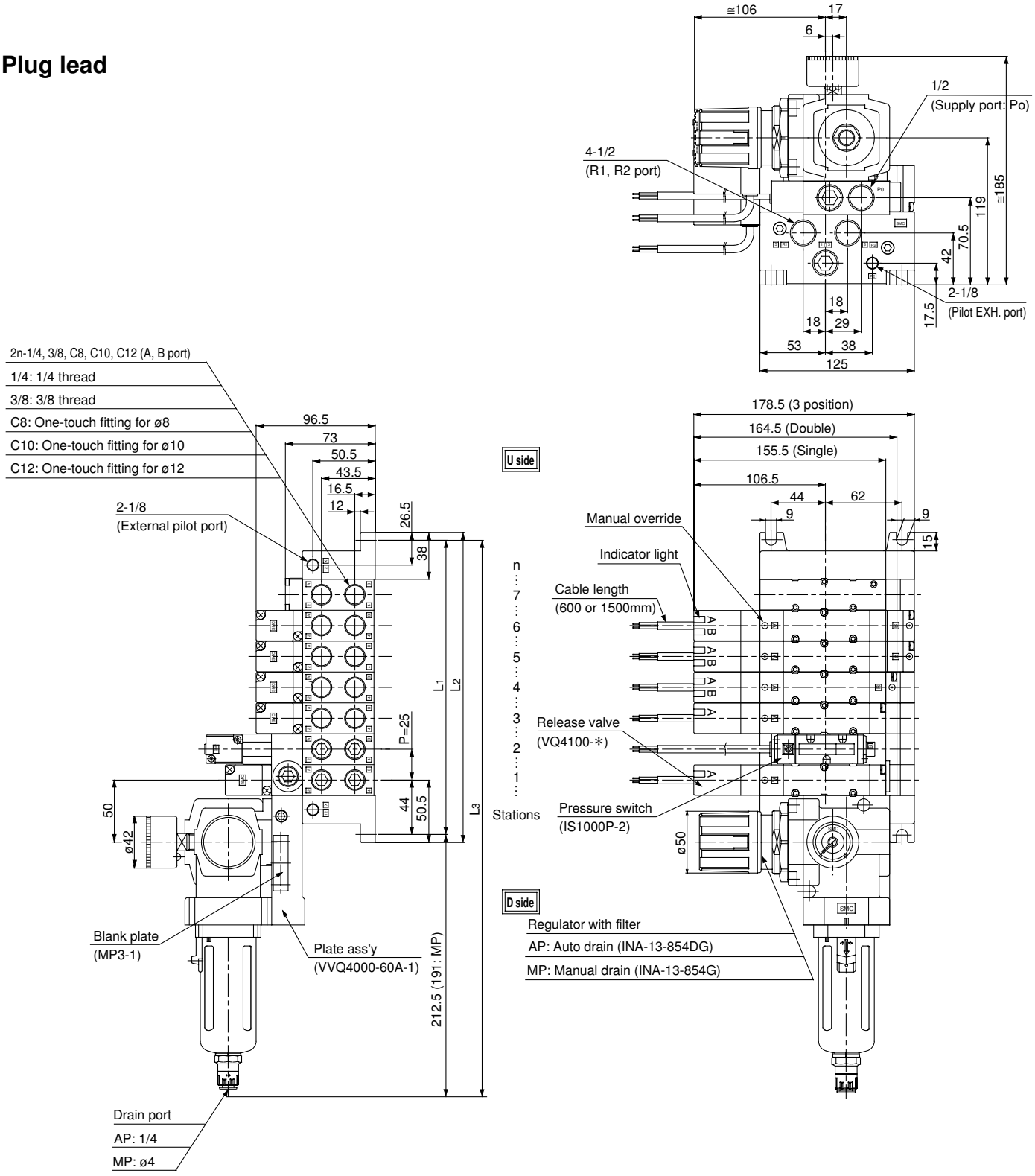


Dimensions Equation L1=25n+63 L2=25n+76 L3=25n+269.5 (262.5) n: Station

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

Plug lead



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
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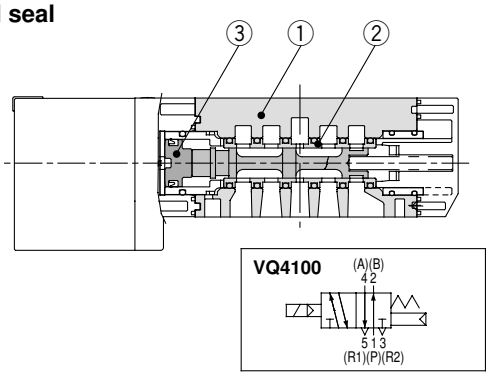
L3	307	332	357	382	407	432	457	482	507	532	557	582
	(285.5)	(310.5)	(335.5)	(360.5)	(385.5)	(410.5)	(435.5)	(460.5)	(485.5)	(510.5)	(535.5)	(560.5)

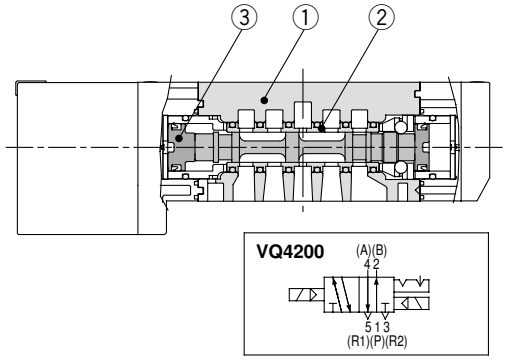
∗ L3( ): MP type

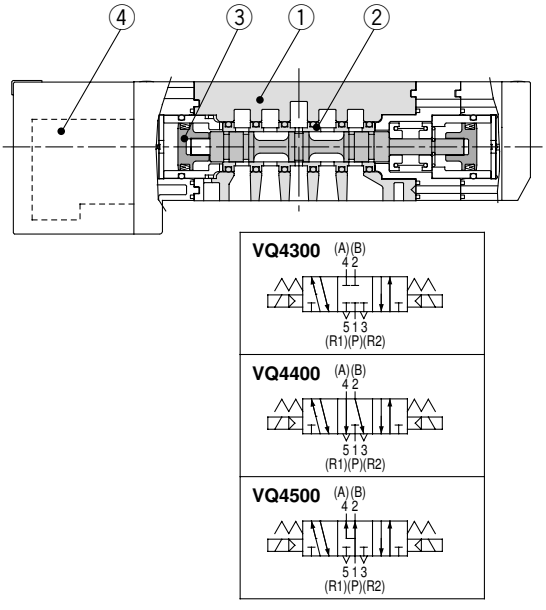
Series VQ4000
Construction

Plug-in Unit

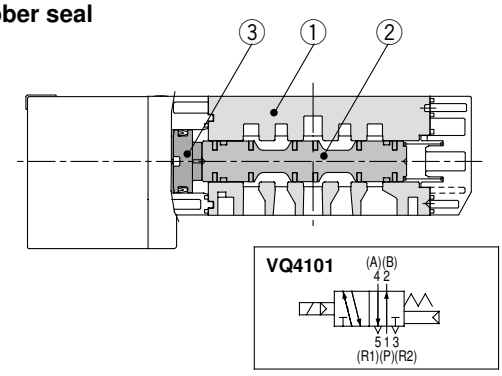
Metal seal

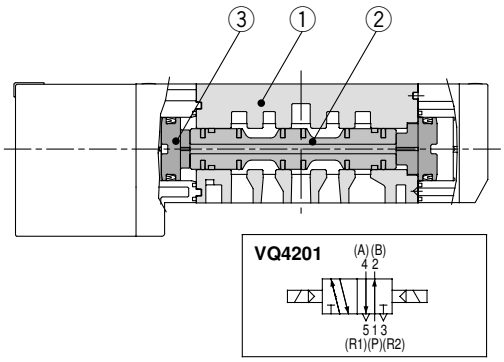


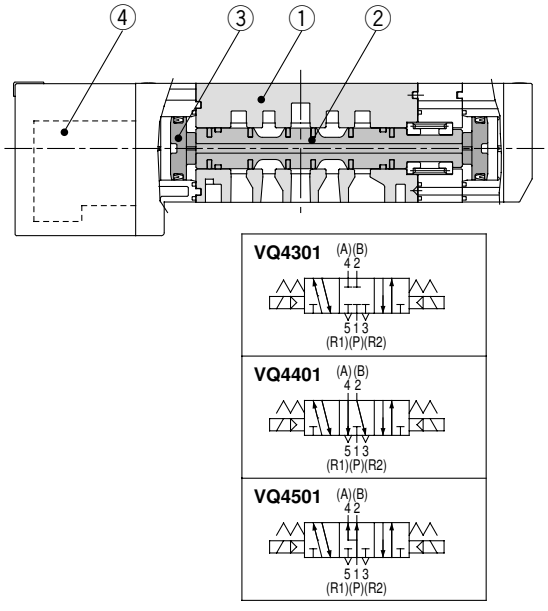




Rubber seal







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	

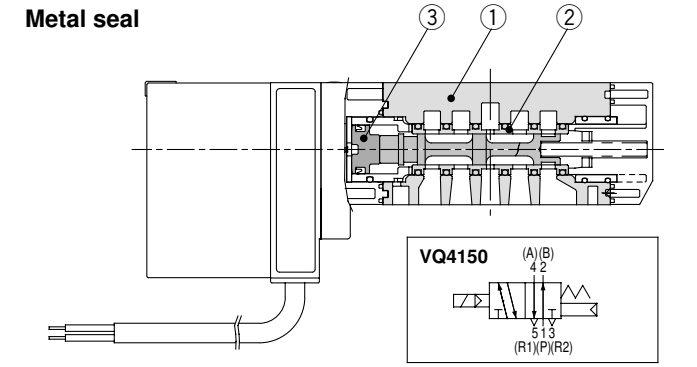
Replacement Parts

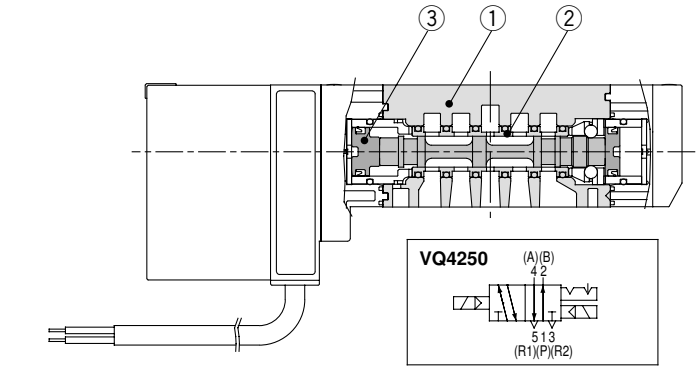
④	Pilot valve ass'y	VQZ111P-□-Q	∗: Coil rated voltage Example) 24V DC: 5

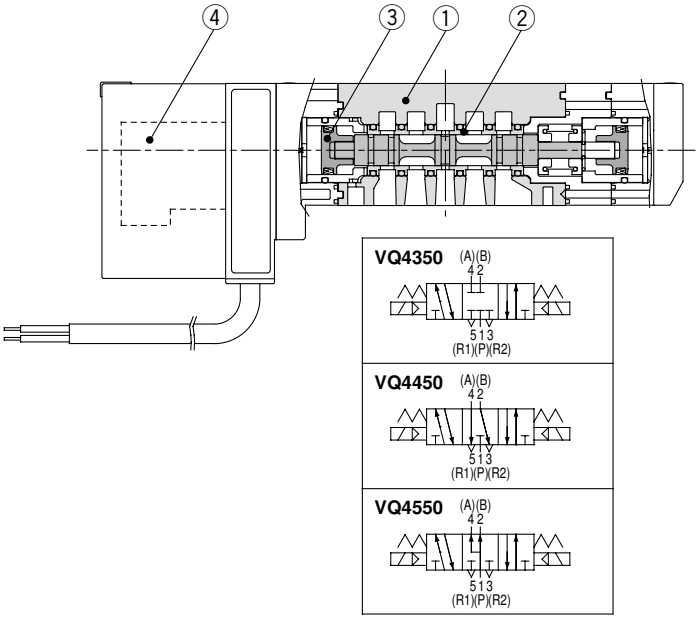
Series VQ4000
Construction

Plug Lead Unit

Metal seal







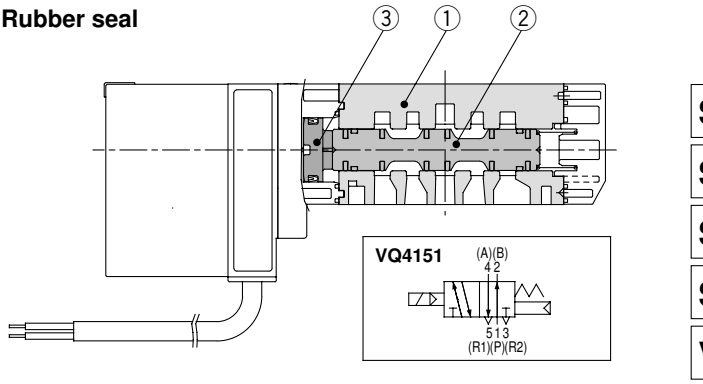
Component Parts

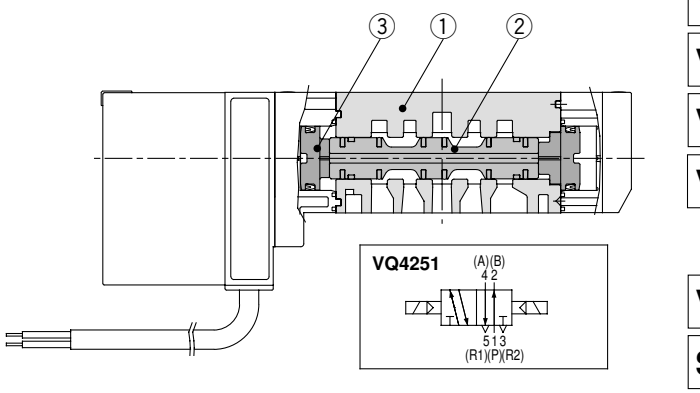
No.	Description	Material	Note
①	Body	Aluminium die-cast	
②	Spool/Sleeve	Stainless steel	
③	Piston	Resin	

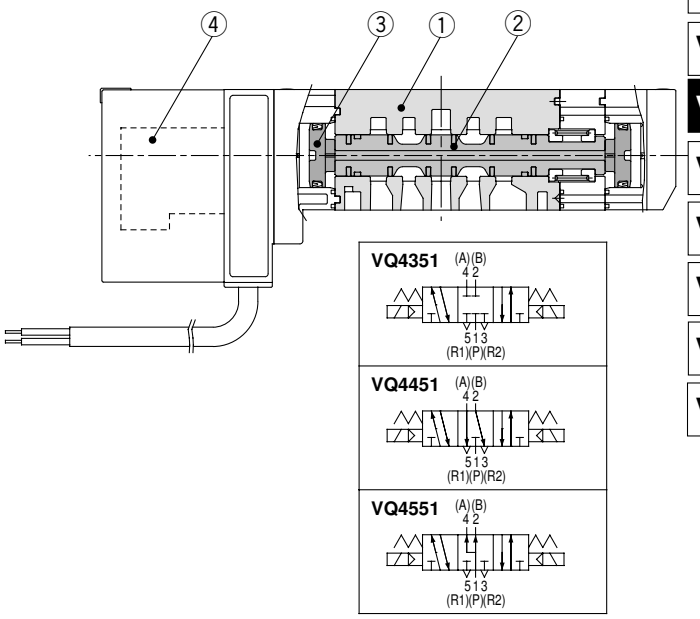
Replacement Parts

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

Rubber seal







Component Parts

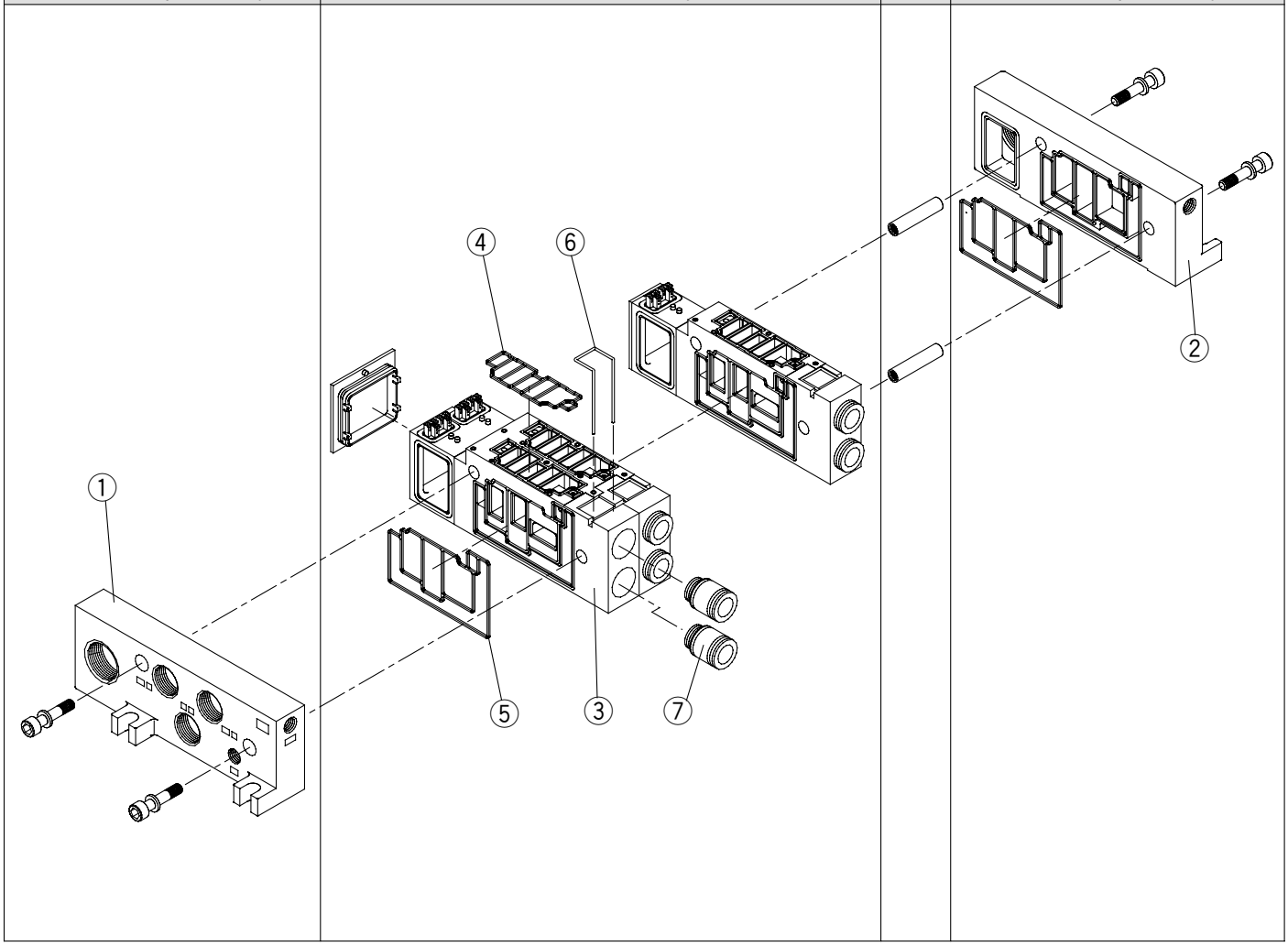
No.	Description	Material	Note
①	Body	Aluminium die-cast	
②	Spool valve	Aluminium, NBR	
③	Piston	Resin	

Replacement Parts

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

Exploded View of Manifold

D side end plate ass'y	Manifold block ass'y	Tie rod	U side end plate ass'y



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>

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

VVQ4000 — 3A — 1 □ □

Electrical entry

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

Option

—	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>

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

VVQ4000 — 2A — 1 □ □

Electrical entry

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

Option

—	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>

③Manifold block ass'y No.

VVQ4000 — 1 □ □ □ □

STyle

A	One station manifold block
C	Two station manifold block

Option

—	Standard
W (2)	Enclosure IP65

Electrical entry

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

Port size

02	1/4
03	3/8
B	Bottom piping 1/4
C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
N7	One-touch fitting 1/4
N9	One-touch fitting 5/16
N11	One-touch fitting 3/8

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>

⑦Fitting 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)	

Optional Specifications

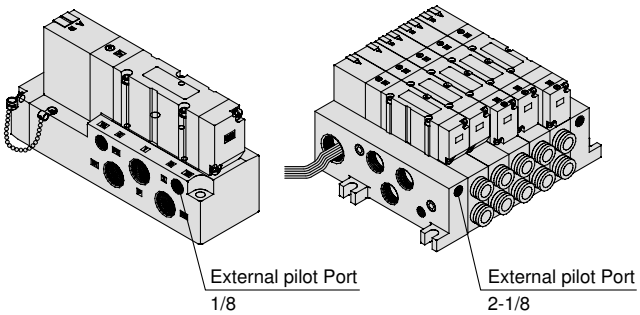
External Pilot Specifications

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



<Sub-plate> **<Manifold>**

Note) Possible to mix mounting of internal and external pilot

Pressure Specifications

Valve construction		Metal seal	Rubber seal
Operating pressure range		Vacuum to 1.0MPa	
External pilot pressure range (1)	Single	0.15 to 1.0MPa (0.15 to 0.7MPa)	0.2 to 1.0MPa (0.2 to 0.7MPa)
	Double		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$^{U}_{D}$
For exhaust cleaner mounting	VV5Q4□-□□□-C$^{U}_{D}$
Manifold with control unit	VV5Q4□-□□□ Control unit model No.
Double check spacer with residual pressure exhaust	VVQ4000-25A-$\frac{1}{5}$

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 — B 02 N (Sub-plate)

VVQ4000 — P — 1 — 03 T (Option)

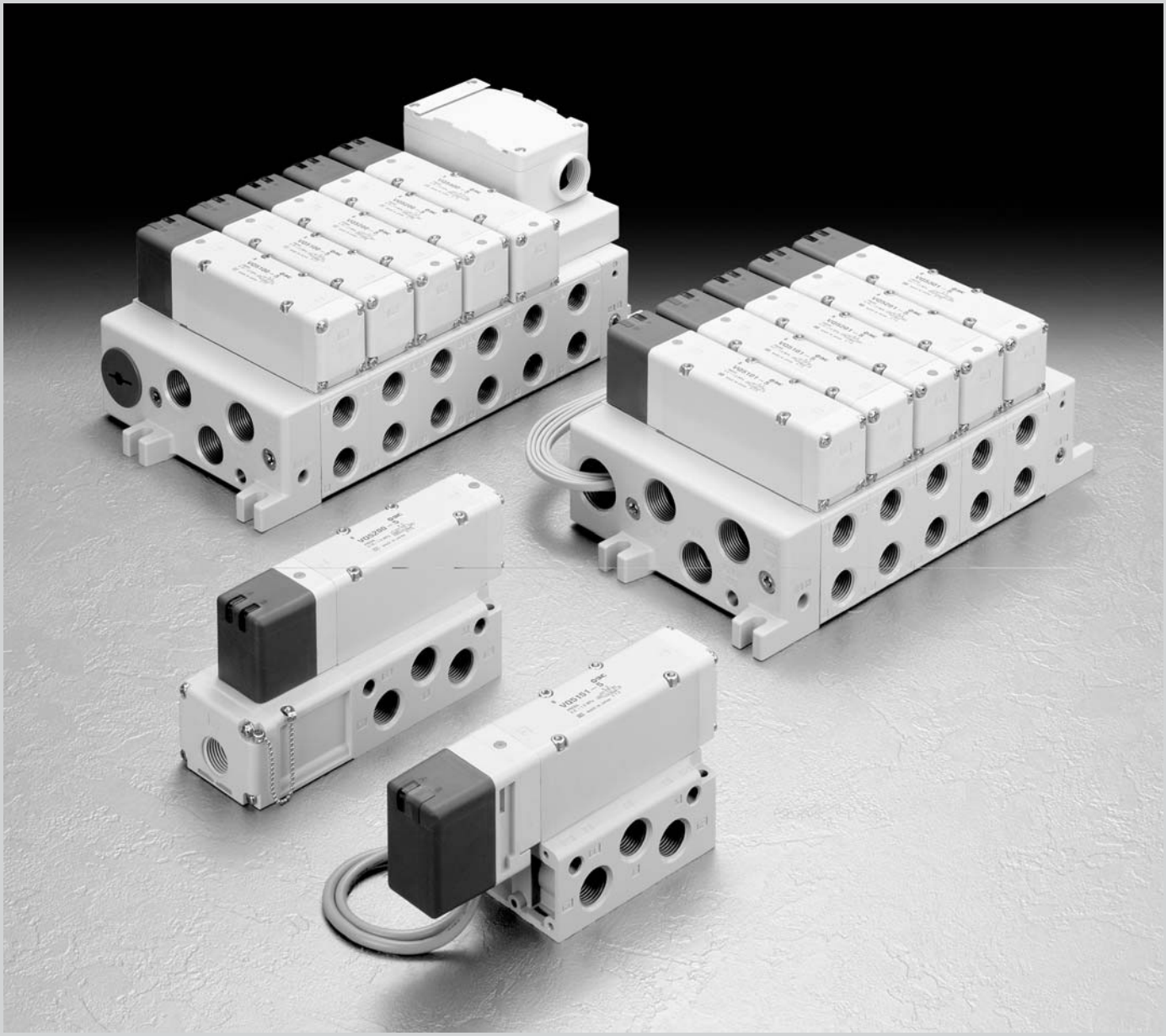
Port size **Type of thread**

–	Rc
N	NPT
T	NPTF
F	G

Base Mounted Type

Series VQ5000

5 Port Metal Seal/Rubber Seal Solenoid Valve



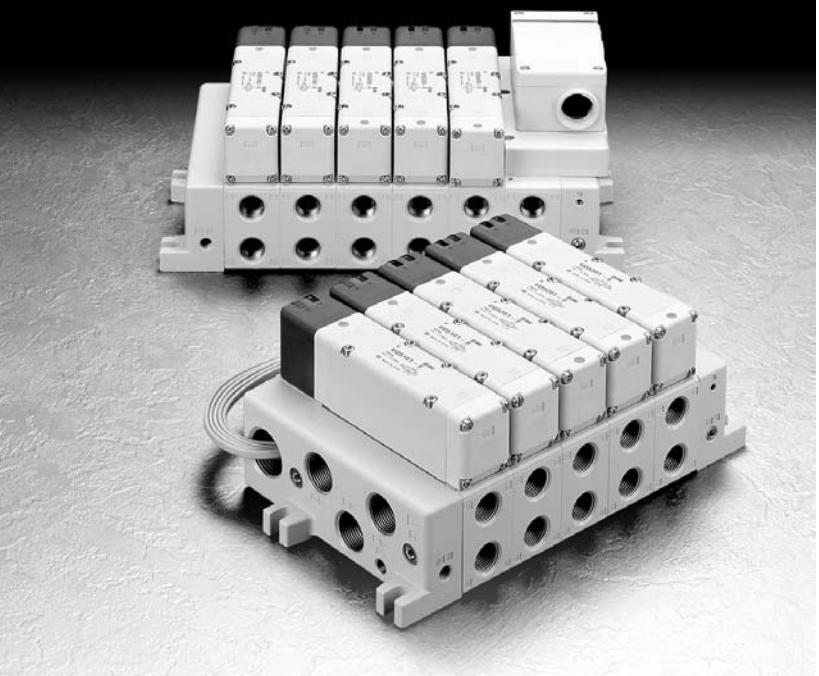
Advanced manifo
the new age of facto

Base Mounted Type *Series VQ5000*

Space saving profile

Clean space saving design with all pilot valves concentrated to one side with no protrusions in any direction

Installation space ..... 40% less
Installation volume ... 50% less
(compared to previous series)



Compact with large flow capacity

(Ideal for driving cylinders up to ø180)

Body width: 40mm
Nℓ/min: 4318
(rubber seal, single unit)

High speed response and long life

(Metal seal type with light/surge voltage suppressor)

VQ5100 (single) 32mS
VQ5200 (double) 17mS
100 million cycles
∗ Based on SMC life test conditions

Accuracy ±3mS

For applications which demand high speed, high frequency, long life and accurate response time

Optional IP65 enclosure is dust tight and splash proof

Cylinder speed chart

Valve width mm	Nℓ/min Rubber seal (Metal seal)	Cylinder speed mm/s	Cylinder bore size mm								
			40	50	63	80	100	125	140	160	180
40	**4318 (3926)**	**250**									
		500									
		750									

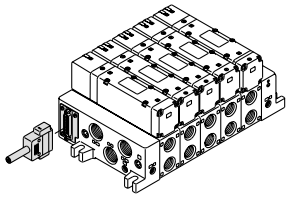
Pressure: 0.5MPa, Load factor: 50%

Note) Use as a guide for selection, as cylinder speeds will vary depending on the piping equipment.
Characteristic values given in this catalog are typical values and not guarantees of performance.

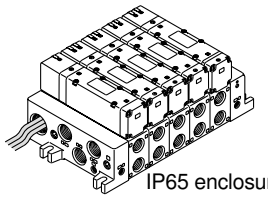
ld valve for
ry automation!

A variety of centralized wiring options <Plug-in type>

F Kit
(D sub connector)

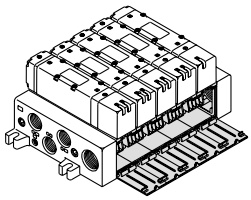


L Kit
(Lead wires)

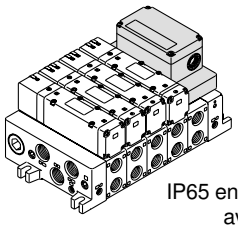


IP65 enclosure available

T1 Kit
(With individual terminal blocks)

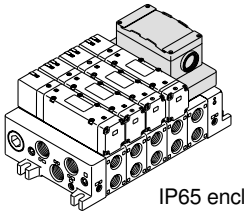


S Kit
(Serial transmission)



IP65 enclosure available

T Kit
(Terminal block box)

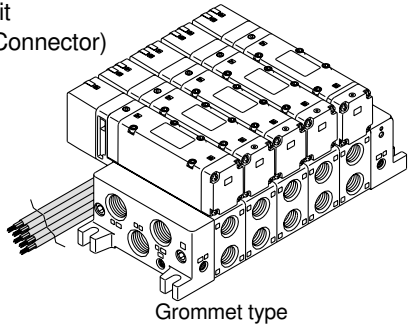


IP65 enclosure available

• 5 wiring types have been standardized to facilitate easy wiring work and maintenance. In addition, 3 of the wiring types are available with IP65 enclosures.

Individual wiring type
<Plug lead type>

C Kit
(Connector)



Grommet type

IP65 enclosure available

Series VQ5000

Base Mounted Type

Plug-in, Plug Lead/Single Unit

Plug-in unit

Plug lead unit

Models

Series	Number of solenoids		Model		Effective area mm² (Nℓ/min) Note 1)	Response time ms Note 2)		Weight kg Note 3)
						Standard: 1W	Energy saving and AC	
VQ5000	2 position	Single	Metal seal	VQ51$^{0}_{5}$0	72.0 (3926)	35 or less	38 or less	0.59 (0.67)
			Rubber seal	VQ51$^{0}_{5}$1	79.2 (4318)	40 or less	43 or less	0.58 (0.66)
		Double	Metal seal	VQ52$^{0}_{5}$0	72.0 (3926)	20 or less	23 or less	0.62 (0.70)
			Rubber seal	VQ52$^{0}_{5}$1	79.2 (4318)	25 or less	28 or less	0.60 (0.68)
	3 position	Closed centre	Metal seal	VQ53$^{0}_{5}$0	61.2 (3337)	50 or less	53 or less	0.65 (0.73)
			Rubber seal	VQ53$^{0}_{5}$1	63.0 (3435)	60 or less	63 or less	0.58 (0.66)
		Exhaust centre	Metal seal	VQ54$^{0}_{5}$0	72.0 (3926)	50 or less	53 or less	0.65 (0.73)
			Rubber seal	VQ54$^{0}_{5}$1	79.2 (4318)	60 or less	63 or less	0.58 (0.66)
		Pressure centre	Metal seal	VQ55$^{0}_{5}$0	61.2 (3327)	50 or less	53 or less	0.65 (0.73)
			Rubber seal	VQ55$^{0}_{5}$1	63.0 (3435)	60 or less	63 or less	0.58 (0.66)
		Perfect	Metal seal	VQ56$^{0}_{5}$0	41.4 (2257)	62 or less	65 or less	1.17 (1.25)
			Rubber seal	VQ56$^{0}_{5}$1	45.0 (2453)	75 or less	78 or less	1.10 (1.18)

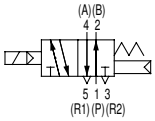
Note 1) Cylinder port size 1/2: Value for valve on sub plate

Note 2) As per JISB8375-1981 (Value for supply pressure of 0.5MPa, with light and surge voltage suppressor, using clean air. This will change depending on pressure and air quality.) The value when ON for the double type.

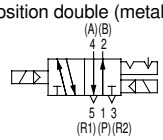
Note 3) Values inside ( ) indicate the weight of plug lead units.
The table weights are without sub plate. With sub plate, add 0.65kg for plug-in type and 0.55kg for plug lead type.

Symbols

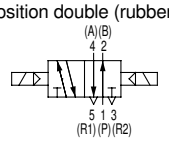
2 position single



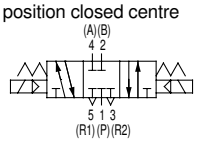
2 position double (metal)



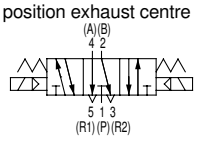
2 position double (rubber)



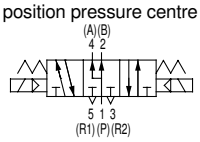
3 position closed centre



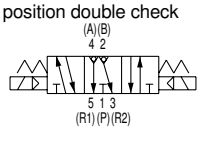
3 position exhaust centre



3 position pressure centre



3 position double check



Standard Specifications

Valve specifications	Valve construction		**Metal seal**	**Rubber seal**
	Fluid		Air, Inert gas	Air, Inert gas
	Max. operating pressure Note 3)		1.0MPa (0.7MPa)	
	Minimum operating pressure	Single	0.10MPa	0.20MPa
		Double	0.10MPa	0.15MPa
		3 position	0.15MPa	0.20MPa
	Proof pressure		1.5MPa	
	Ambient and fluid temperature		–10 to 50°C Note 1)	–5 to 50°C Note 1)
	Lubrication		Not required	
	Manual override		Non-locking push type/Slotted locking type (tool required) optional	
	Impact/Vibration resistance		150/30 m/s² Note2)	
	Enclosure		Dust proof (IP65 type available)	
Solenoid specifications	Rated coil voltage		12VDC, 24VDC, 100VAC, 110VAC, 200VAC, 220VAC (50/60Hz)	
	Allowable voltage fluctuation		±10% of rated voltage	
	Coil insulation type		Class B equivalent	
	Power consumption (current value)	24VDC	DC1W (42mA), Note 3) DC0.5W (21mA)	
		12VDC	DC1W (83mA), Note 3) DC0.5W (42mA)	
		100VAC	Inrush 1.2VA (12mA), Holding 1.2VA (12mA)	
		110VAC	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)	
		200VAC	Inrush 2.4VA (12mA), Holding 2.4VA (12mA)	
		220VAC	Inrush 2.6VA (11.7mA), Holding 2.6VA (11.7mA)	

Note 1) At low temperatures, use dry air with no condensation.

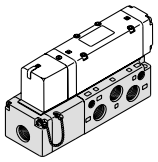
Note 2) Impact resistance ..... No malfunction when tested with a drop tester in the axial direction and at a right angle to the main valve and armature, one time each in both energized and denergized states. (initial value)
Vibration resistance ... No malfunction when tested with one sweep of 8.3 to 2000Hz in the axial direction and at a right angle to the main valve and armature, one time each in both energized and denergized states. (initial value)

Note 3) Values inside ( ) are for energy saving (0.5W) specifications.

How to Order Valves

Body type

0: Plug-in sub plate



Port size

Nil	Without sub plate (for manifold)
04	1/2

Note) See page 1.14-40 for thread standards.

Piping specifications

Nil	Side ported
B	Bottom ported

Plug-in VQ5 1 0 0 □ — 5 □ □ □ □ □ □ — Q

Plug lead VQ5 2 5 1 □ — 5 G □ □ □ □ □ □ — Q

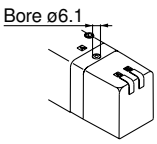
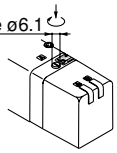
Thread

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Enclosure

Nil	Dust proof
W	Dust tight, Splash proof (IP65)

Manual override

Nil: Non-locking push type (tool required)	B: Slotted locking type (tool required)
Bore ø6.1 	Bore ø6.1 

Light/Surge voltage suppressor

Nil	With
E	Without light/With surge voltage suppressor

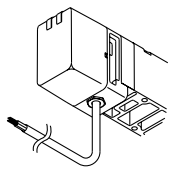
Type of actuation

1		2 position single
2	Metal	2 position double
2	Rubber	2 position double
3		3 position closed centre
4		3 position exhaust centre
5		3 position pressure centre
6		3 position double check

Note) See page 1.14-38 for details on the double check type.

Electrical entry

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



Coil voltage

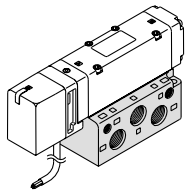
1	100VAC (50/60Hz)
2	200VAC (50/60Hz)
3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC
9	Other, 240V or less

Order Made Contact SMC for other voltages (9)

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

Body type

5: Plug lead sub plate



Function

Nil	Standard type (1W)
Y Note 1)	Energy saving type (0.5W)
R Note 2)	External pilot

Note 1) Applicable to DC specifications.

Note 2) See page 1.14-40 for details on external pilot specifications.

Note 3) When specifying more than one option, enter the symbols in alphabetical order.

Seal type

0	Metal seal
1	Rubber seal

How to Order Sub Plates

VQ5000 — P □ □ 04 □ — Q

Electrical entry

P	Plug-in conduit terminal
S	Plug lead

Enclosure

Nil	Dust proof
W	Dust tight, Splash proof

Piping specifications

Nil	Side ported
B	Bottom ported

Port size

04	1/2

Note 1) Bottom ports are 1/2.

Note 2) See page 1.14-40 for thread standards.

Thread

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

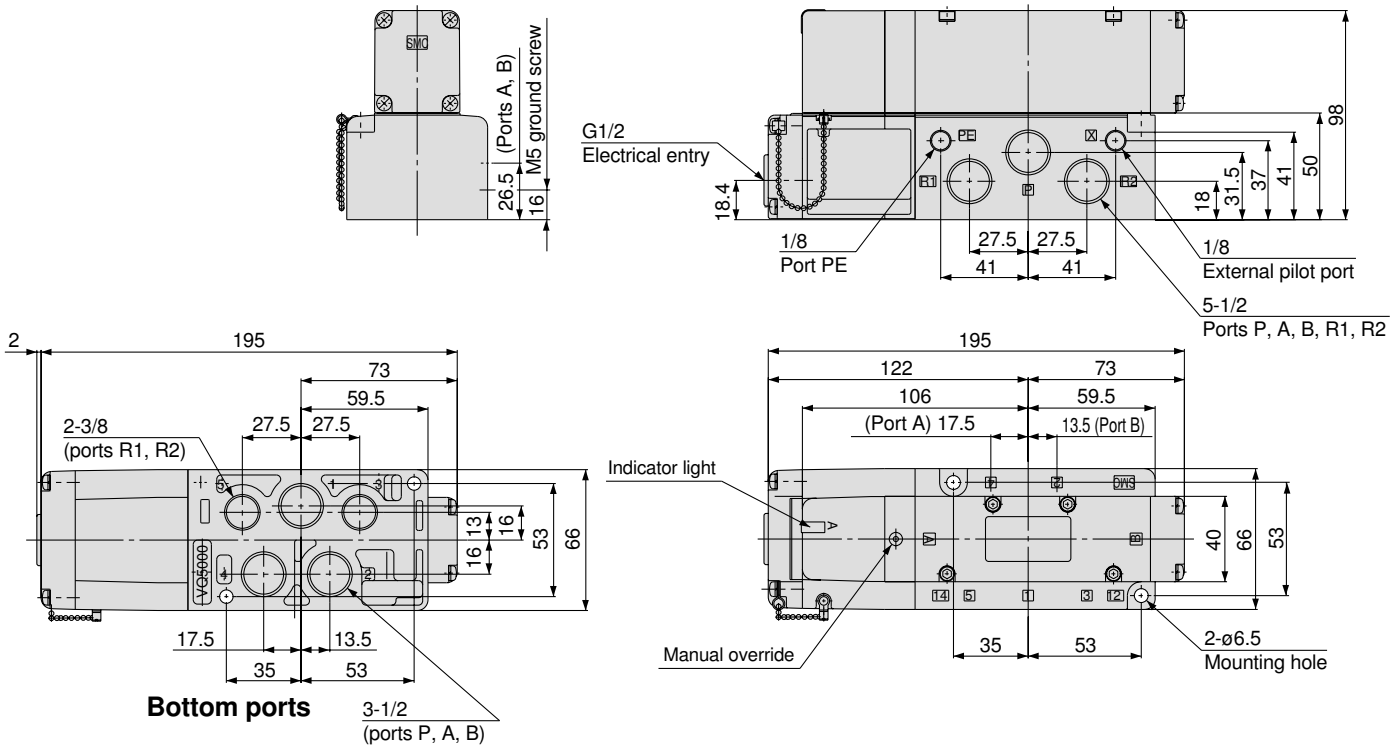
Replacement of pilot valve assembly (Voltage)

- See pages 1.14-41 and 1.14-42 for pilot valve assembly part numbers.
- See page 1.14-47 for the replacement method.

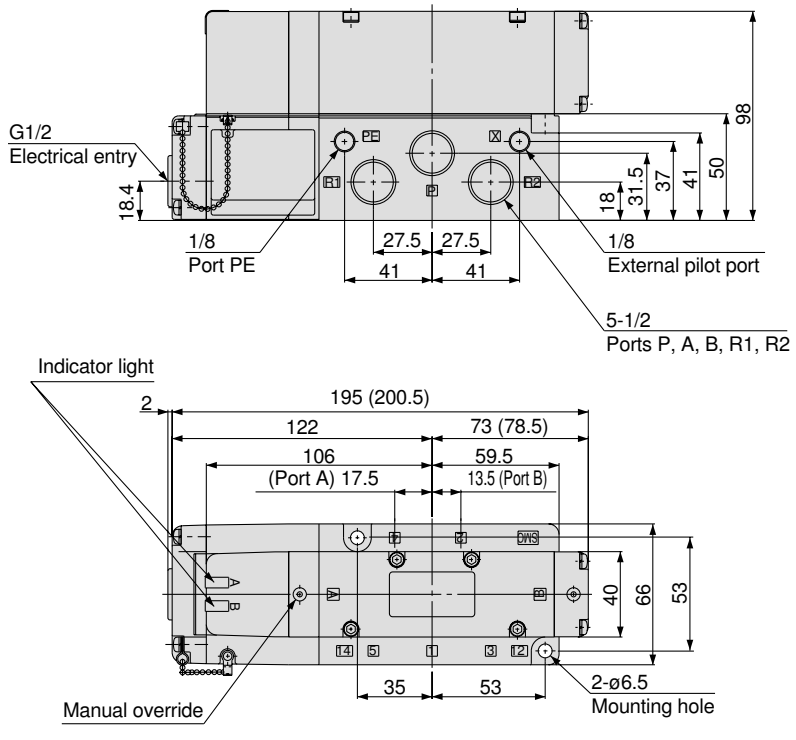
Plug-in Type

Conduit terminal

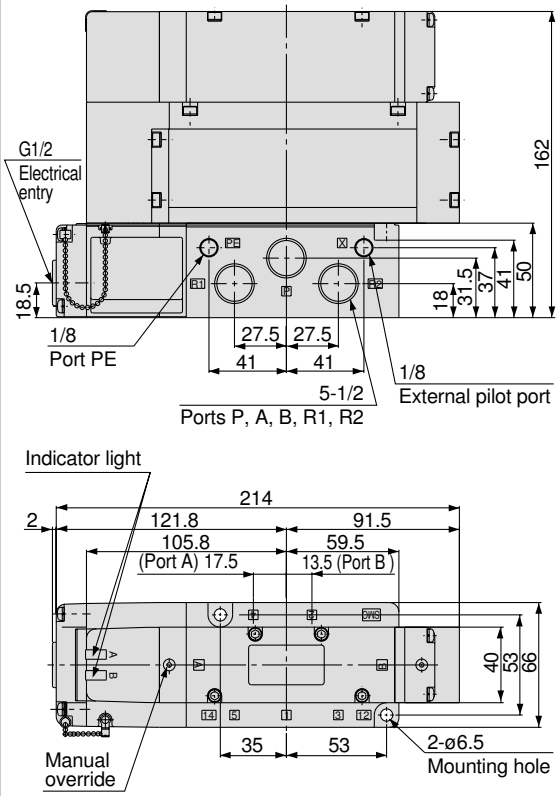
2 position single: VQ510$^{0}_{1}$



2 position double: VQ520$^{0}_{1}$
3 position closed centre: VQ530$^{0}_{1}$
3 position exhaust centre: VQ540$^{0}_{1}$
3 position pressure centre: VQ550$^{0}_{1}$



3 position double check: VQ560$^{0}_{1}$

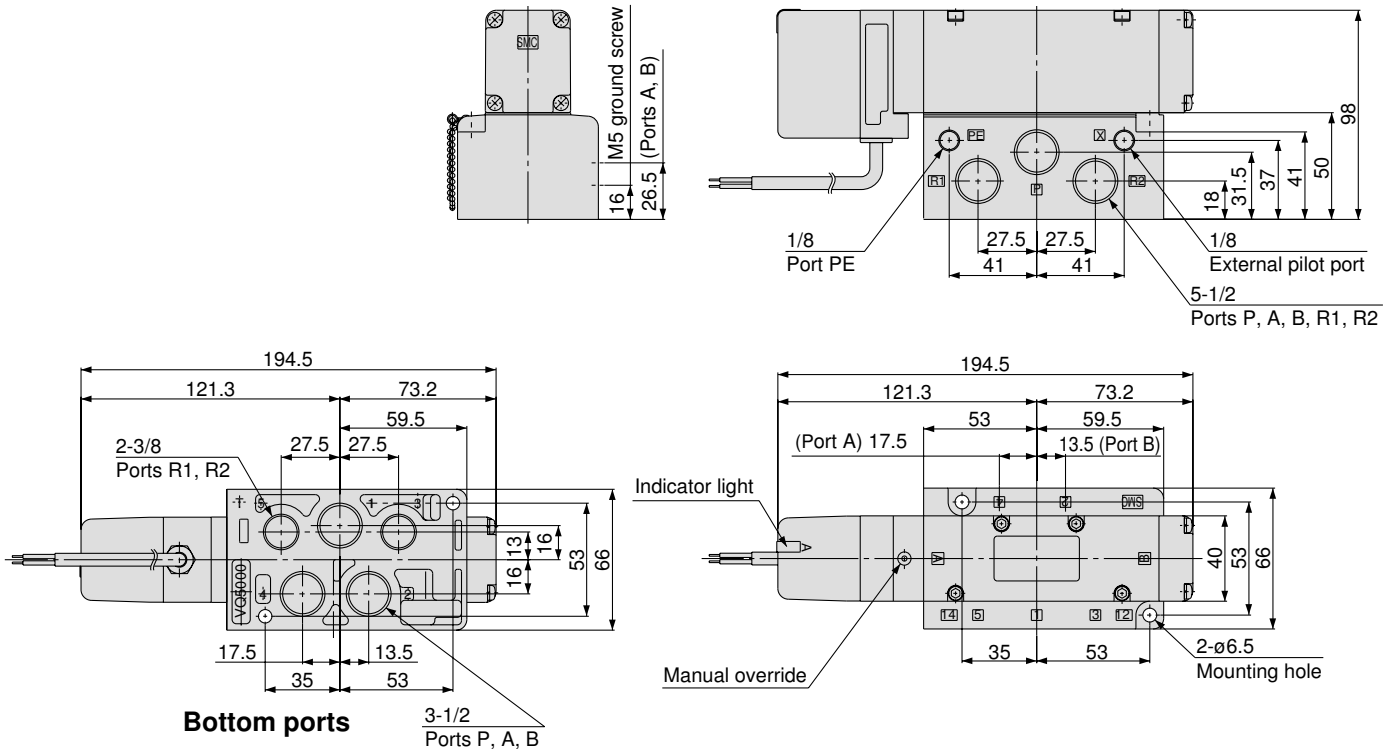


Numbers inside ( ) are for metal seal 3 position type

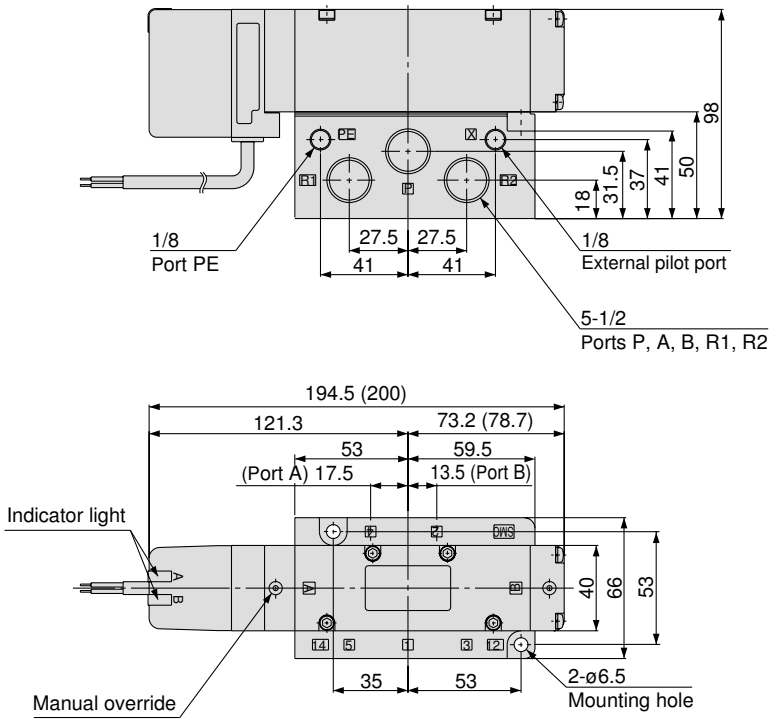
Plug Lead Type

Grommet

2 position single: VQ515 $^{0}_{1}$-□$^{G}_{H}$

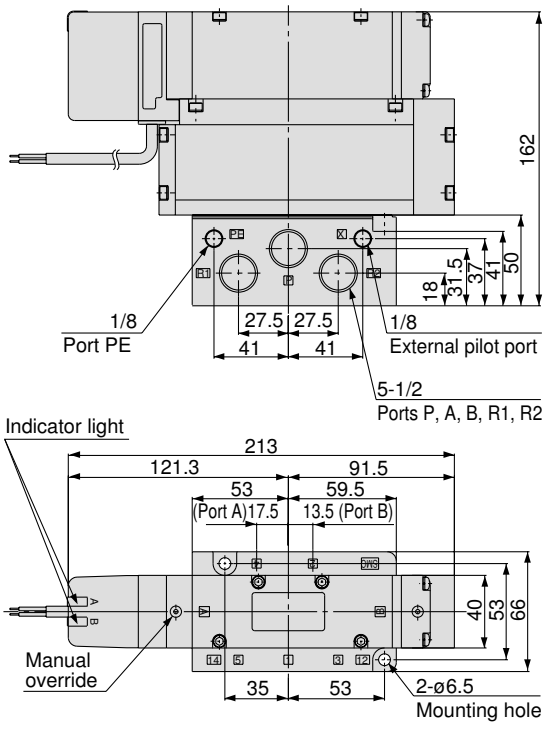


2 position double: VQ525 $^{0}_{1}$-□$^{G}_{H}$
3 position closed centre: VQ535 $^{0}_{1}$-□$^{G}_{H}$
3 position exhaust centre: VQ545 $^{0}_{1}$-□$^{G}_{H}$
3 position pressure centre: VQ555 $^{0}_{1}$-□$^{G}_{H}$



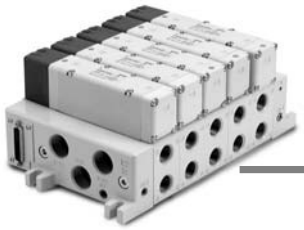
Numbers inside ( ) are for metal seal 3 position type

3 position double check: VQ565 $^{0}_{1}$-□$^{G}_{H}$



Series VQ5000

Base Mounted Type



How to Order Manifolds

VV5Q 5 1 – 08 03 [ ] F U1 – K – Q

Series

5	VQ5000

Manifold Type

1	Plug-in unit

Number of stations

02	2 stations
⋮	⋮

Maximum and minimum number of stations depends on the kit. (Refer to the table below)

Cylinder port size

03	3/8
04	1/2
B	Bottom ported 1/2
CM	Mixed sizes Note)

Note) Indicate on a manifold specification sheet in case of mixed sizes.

Thread

–	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Kit designation

Option

Symbol	Option
Nil	None
CD1 Note 2)	Exhaust cleaner for Rc1: D side exhaust
CD2 Note 2)	Exhaust cleaner for Rc1 1/2: D side exhaust
CU1 Note 2)	Exhaust cleaner for Rc1: U side exhaust
CU2 Note 2)	Exhaust cleaner for Rc1 1/2: U side exhaust
K Note 4)	Special wiring specifications (other than double wiring)
N	Name plate (T kit only)
SB Note 3)	Direct exhaust with silencer box: Both D and U side exhausts
SD Note 2)	Direct exhaust with silencer box: D side exhaust
SU Note 2)	Direct exhaust with silencer box: U side exhaust
W	IP65 enclosure (except F and T1 kits)

Note 1) When specifying more than one option, enter symbols in alphabetical order.
Example) -CD1K

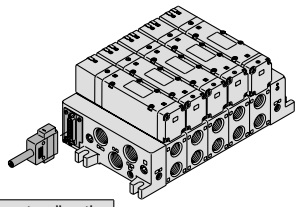
Note 2) Combination of [C$^{U}_{D}$□ and [S$^{U}_{D}$] is not possible.

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

Note 4) Indicate wiring specifications on a manifold specification sheet. (except L kit)

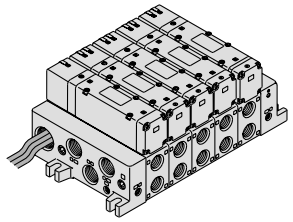
Kit designation/Electrical entry/Cable length

F Kit (D sub connector kit)



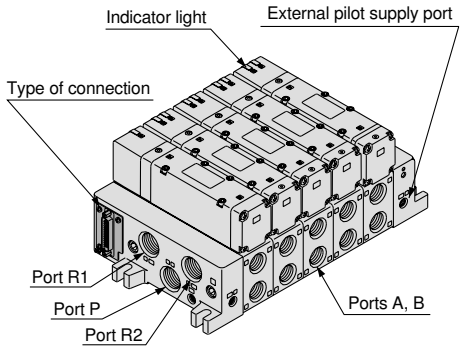
Connector entry direction						
D side		U side				
Kit F	D0	Kit F	U0	Without cable	2 to 12 stations
	D1		U1	Cable length 1.5m	
	D2		U2	Cable length 3m	
	D3		U3	Cable length 5m	

L Kit (Lead wire kit)



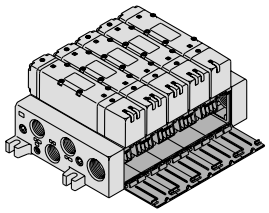
IP65 available

Electrical entry					
D side		U side			
Kit L	D0	Kit L	U0	Cable length 0.6m	2 to 12 stations
	D1		U1	Cable length 1.5m	
	D2		U2	Cable length 3m	



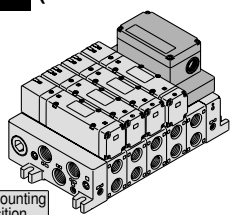
Note) The drawing shows a VV5Q51-0504FDO.

T1 Kit (Individual terminal block kit)



Kit T1	With terminal blocks	1 to 12 stations

S Kit (Serial transmission kit)

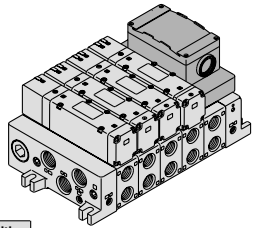


The valve voltage is 24VDC and it is equipped with light/surge voltage suppressor.

IP65 available

Unit mounting position				
D side	U side			
SD	SU	B	Mitsubishi: MELSECNET/MINI-S3 data link system	2 to 9 stations
		BB	Mitsubishi: MELSECNET/MINI-S3 data link system (2 power supply systems)	
		C	OMRON: SYSBUS wire system	

T Kit (Terminal block box kit)



Box mounting position			
D side	U side	IP65 available	
TD	TU	Terminal block box	2 to 11 stations

Manifold Specifications

Series	Base model	Connection type	Piping specifications			Max. applicable number of stations	Applicable solenoid valve	5 station weight kg
			A, B port location	Port size Note)				
				P, R	A, B			
VQ5000	VV5Q51-□□□	■ F kit-D sub connector ■ T kit-Terminal block box ■ T1 kit-Individual terminal block kit ■ L kit-Lead wire ■ S kit-Serial transmission	Side	3/4 Option Direct exhaust with silencer box	3/8 1/2	F, L, T1 kits 12 stations T kit 11 stations S kit 9 stations	VQ5□00 VQ5□01	4.1 • L kit • Not including solenoid valve weight
			Bottom		1/2			

Note) See options on page 1.14-40 for details on international standard threads other than Rc threads.

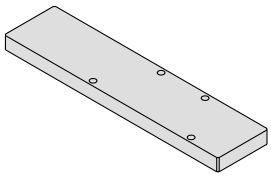
Manifold Stations and Effective area mm² (Nℓ/min) for Individual Operation

Type	Passage/Stations	1 station	5 stations	10 stations
2 position metal seal **VQ5 $^{1}_{2}$ 00**	P→ A or B	60.7 (3307)	60.3 (3288)	59.4 (3238)
	A→ R1, B→R2	74.7 (4073)	74.7 (4073)	74.7 (4070)
2 position rubber seal **VQ5 $^{1}_{2}$ 01**	P→ A or B	67.7 (3670)	67.0 (3651)	66.6 (3631)
	A→ R1, B→ R2	80.1 (4367)	80.1 (4367)	80.1 (4367)

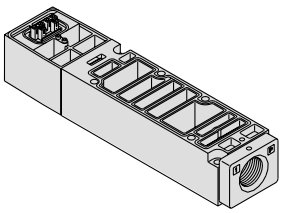
Note) For port size Rc1/2

Manifold Options

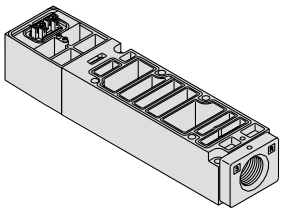
Blank plate Assembly
VVQ5000-10A-1



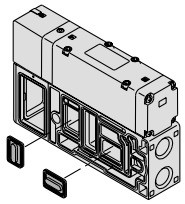
Individual SUP spacer
VVQ5000-P-1-$^{03}_{04}$



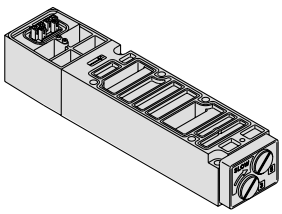
Individual EXH spacer
VVQ5000-R-1-$^{03}_{04}$



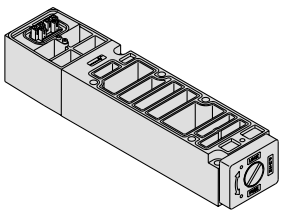
EXH blocking plate
VVQ5000-16A-2



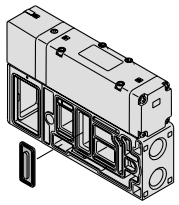
Throttle valve spacer
VVQ5000-20A-1



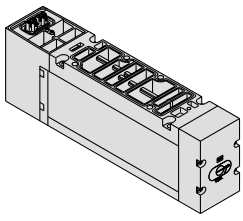
SUP stop valve spacer
VVQ5000-37A-1



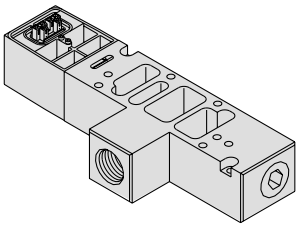
SUP blocking plate
VVQ5000-16A-1



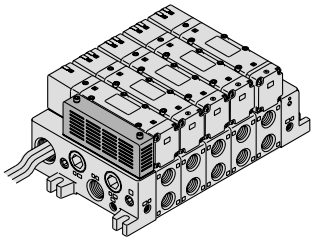
Double check spacer with residual pressure release valve
VVQ5000-25A-1



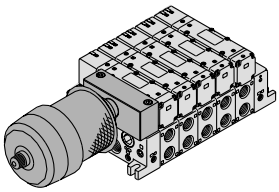
Release valve spacer
VVQ5000-24A-1D



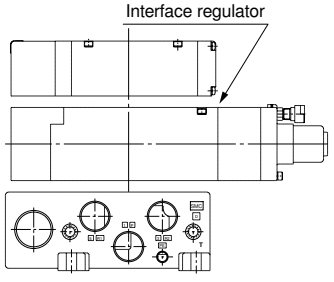
Direct exhaust with silencer box
[-S$^{D}_{U}$]



For exhaust cleaner mounting
[-C$^{D}_{U}$□]

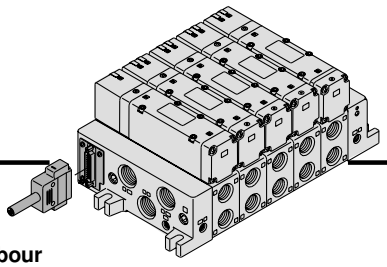


Interface regulator for series VQ5000



• See pages 1.14-34 through 1.14-39 for detailed dimensions of each option.
• See page 1.14-45 regarding part numbers for spare parts.

F Kit (D Sub Connector Kit)



- **Use of the D sub connector permits rationalization and labour savings in making electrical connections.**
- **The D sub connector (25 pin) conforms with MIL standards, permitting use of commercially available connectors with wide interchangeability.**
- **Connector entry can be selected on either the U side or the D side according to the mounting orientation.**
- **12 stations maximum**

Manifold specifications

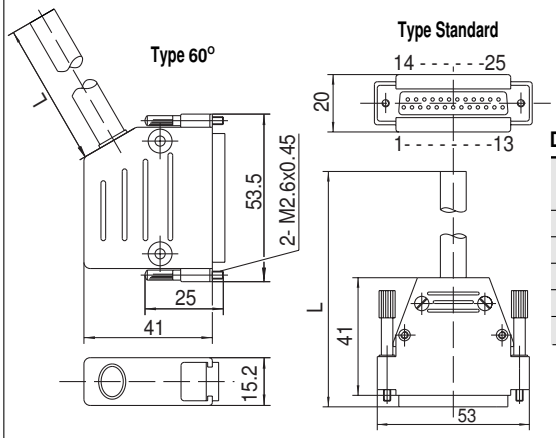
Series	Piping specifications			Applicable stations
	A, B port location	Port size		
		P, R	A, B	
VQ5000	Side	3/4	3/8 1/2	12 stations max.
	Bottom		1/2	

D Sub Connector (25 Pin)

Cable Assembly

GVVZS3000-21A- 1 2 3 4 5 **-** S 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".)



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

Standard	S
60°	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 color 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	Yelow
16	Yelow	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 Manifolds

VV5Q 5 1 – 08 03 [ ] F U 1 – K – Q

Series

5	VQ5000

Manifold type

1	Plug-in unit

Stations

02	2 stations
⋮	⋮
12	12 stations

Cylinder port size

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

Thread

–	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Connector entry

D	D side entry
U	U side entry

Cable length

0	Without cable
1	Cable length 1.5m
2	Cable length 3m
3	Cable length 5m

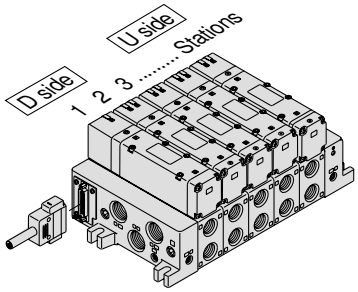
Option

Symbol	Option
Nil	None
CD1	Exhaust cleaner for 1: D side exhaust
CD2	Exhaust cleaner for 1 1/2: D side exhaust
CU1	Exhaust cleaner for 1: U side exhaust
CU2	Exhaust cleaner for 1 1/2: U side exhaust
K Note3)	Special wiring specifications (other than double wiring)
SB	Direct exhaust with silencer box: For D and U side mounting
SD	Direct exhaust with silencer box: D side exhaust
SU	Direct exhaust with silencer box: U side exhaust

Note 1) When specifying more than one option, enter symbols in alphabetical order. Example) -CD1K

Note 2) Combination of [C^{U}_{D}□] and [S^{U}_{D}] is not possible.

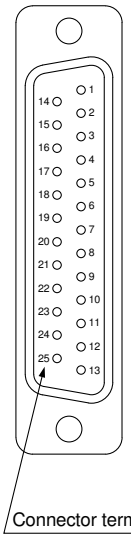
Note 3) Indicate wiring specifications on a manifold specification sheet.



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

• Electrical wiring specifications

D sub connector



The internal wiring is double (connected to SOL. A and SOL. B) for all stations regardless of the type of valve or options.
Optional specifications permit single and double wiring to be mixed.
See below for details.

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

Standard wiring

D sub connector assembly (AXT100-DS25- 015 030 050) wire colours

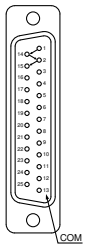
	Terminal No.	Polarity		Lead wire colour	Dot marking
1 station	SOL.A 1	(−)	(+)	White	—
	SOL.B 14	(−)	(+)	Brown	Green
2 stations	SOL.A 2	(−)	(+)	Brown	—
	SOL.B 15	(−)	(+)	White	Yellow
3 stations	SOL.A 3	(−)	(+)	Green	—
	SOL.B 16	(−)	(+)	Yellow	Brown
4 stations	SOL.A 4	(−)	(+)	Yellow	—
	SOL.B 17	(−)	(+)	White	Grey
5 stations	SOL.A 5	(−)	(+)	Grey	—
	SOL.B 18	(−)	(+)	Grey	Brown
6 stations	SOL.A 6	(−)	(+)	Pink	—
	SOL.B 19	(−)	(+)	White	Pink
7 stations	SOL.A 7	(−)	(+)	Blue	—
	SOL.B 20	(−)	(+)	Pink	Brown
8 stations	SOL.A 8	(−)	(+)	Red	—
	SOL.B 21	(−)	(+)	White	Blue
9 stations	SOL.A 9	(−)	(+)	Black	—
	SOL.B 22	(−)	(+)	Brown	Blue
10 stations	SOL.A 10	(−)	(+)	Violet	—
	SOL.B 23	(−)	(+)	White	Red
11 stations	SOL.A 11	(−)	(+)	Grey	Pink
	SOL.B 24	(−)	(+)	Brown	Red
12 stations	SOL.A 12	(−)	(+)	Red	Blue
	SOL.B 25	(−)	(+)	White	Black
	COM. 13	(+)	Note) (−)	White(1)	Green
		Positive common		Negative common	

Special Wiring Specifications

The internal wiring is double (connected to SOL. A and SOL. B) for all stations regardless of the type of valve or options.
Optional specifications permit single and double wiring to be mixed.

1. How to Order
Add the option symbol "-K" to the manifold part number, and be sure to indicate the station positions for single and double wiring on a manifold specification sheet.

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



D sub connector

How to Order Valves

VQ 5 1 0 0 ☐ — 5 ☐ ☐ — Q

Series

5	VQ5000

Type of action

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 double check

Seal type

0	Metal seal
1	Rubber seal

Function (1, 2)

Nil	Standard type (1W)
Y	Energy saving type (0.5W)
R	External pilot

Note1) See page 1.14-40 for details on external pilot specifications.

Note2) When specifying more than one option, enter symbols in alphabetical order.

Coil voltage

1	100VAC (50/60Hz)
2	200VAC (50/60Hz)
3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC
9	Other, 240V or less

Order Made Contact SMC for other voltages (9)

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

Light/Surge voltage suppressor

Nil	With
E	Without light, with surge voltage suppressor

Manual override

Nil	Non-locking push type (tool required)
B	Slotted locking type (tool required)

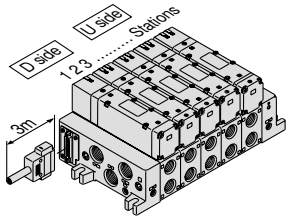
How to Order Manifold Assemblies (Example)

Enter part numbers for valves and options to be mounted below the manifold base part number.

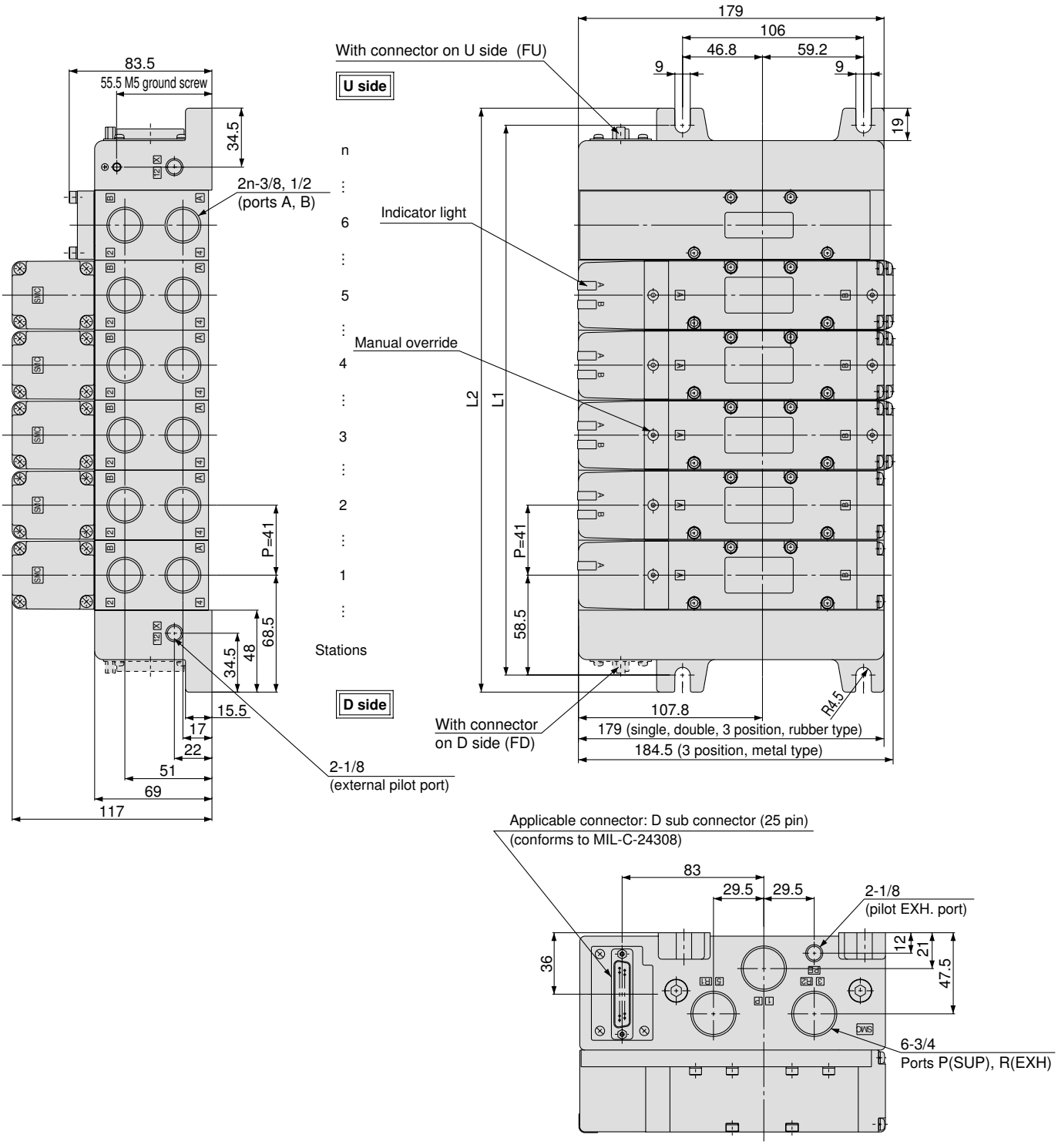
< Example>
D sub connector kit with cable (3m)

VV5Q51-0503FD2...1 set-Q — Manifold base part number
VQ5100-5 ..... 2 sets-Q — Valve part number (Stations 1 and 2)
VQ5200-5 ..... 2 sets-Q — Valve part number (Stations 3 and 4)
VQ5300-5 ..... 1 set-Q — Valve part number (Station 5)

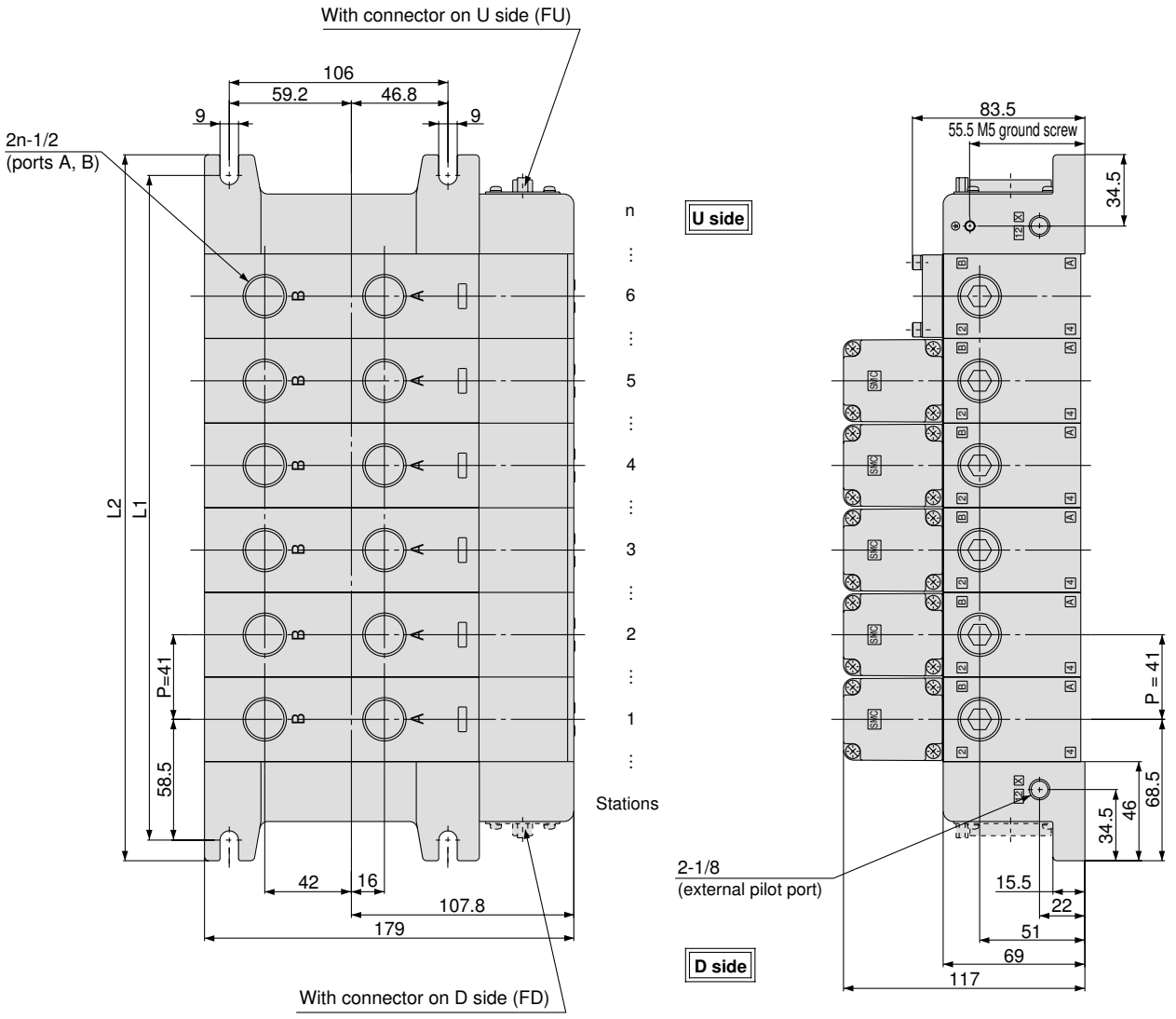
Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate on a manifold specification sheet.



F Kit (D Sub Connector Kit)



Bottom port diagram



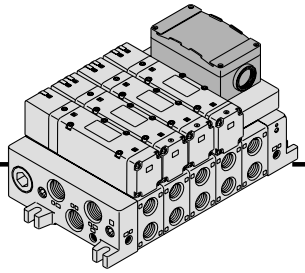
Dimensions Formulas: $L_1 = 41n + 76$, $L_2 = 41n + 96$

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L_1	117	158	199	240	281	322	363	404	445	486	527	568
L_2	137	178	219	260	301	342	383	424	465	506	547	588

n: Stations (12 stations max.)

T Kit (Terminal Block Box Kit)

IP65 available



- Enclosure: IP65 available
- This type has a small terminal block inside a junction box. The provision of a G3/4 electrical entry allows connection of conduit fittings.
- 11 stations maximum (optional 12 stations)
- 1 station is used for terminal block box mounting.

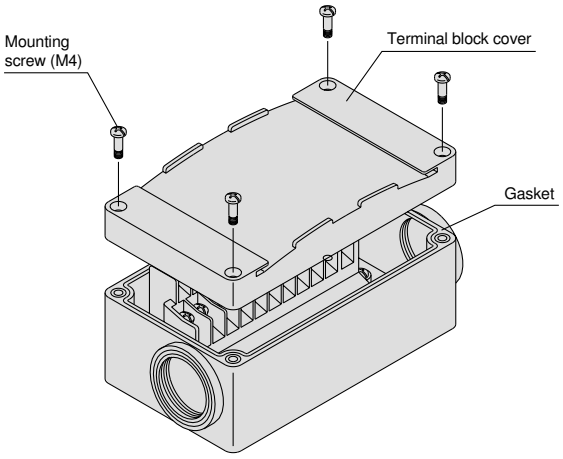
Manifold specifications

Series	Piping specifications			Applicable stations
	Port A, B location	Port size		
		P, R	A, B	
VQ5000	Side	3/4	3/8 1/2	11 stations maximum
	Bottom		1/2	

Terminal Block Connection

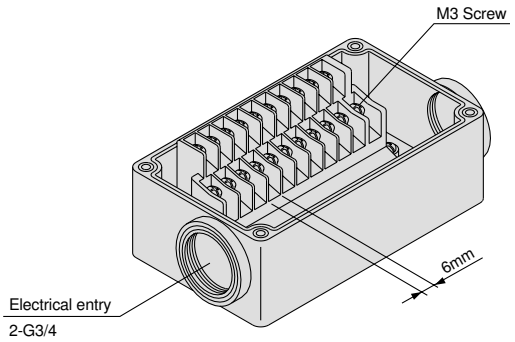
Step 1. How to remove terminal block cover

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



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

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



Step 3. How to attach the terminal block cover

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

Proper tightening torque N·m
0.7 to 1.2

How to Order Manifolds

VV5Q 5 1 – 08 03 □ T □ – K – Q

Series

5	VQ5000

Manifold type

1	Plug-in unit

Stations

02	2 stations
⋮	⋮
11	11 stations

Note 1) Add 1 station for terminal block box mounting.

Note 2) The maximum number of stations can be expanded with optional special wiring specifications. See page 1.14-15 for details.

Cylinder port size

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

Thread

–	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Box mounting position

D	D side mounting
U	U side mounting

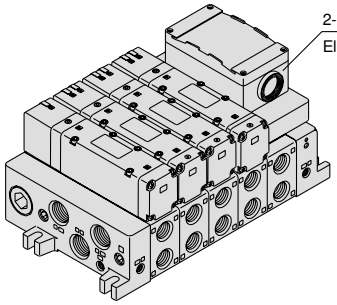
Option

Symbol	Option
Nil	None
CD1 Note 2)	Exhaust cleaner for Rc1: D side exhaust
CD2 Note 2)	Exhaust cleaner for Rc1 1/2: D side exhaust
CU1 Note 2)	Exhaust cleaner for Rc1: U side exhaust
CU2 Note 2)	Exhaust cleaner for Rc1 1/2: U side exhaust
K Note 4)	Special wiring specifications (other than double wiring)
N	Name plate
SD Note 2)	Direct exhaust with silencer box: D side exhaust
SU Note 2)	Direct exhaust with silencer box: U side exhaust
W	IP65 enclosure

Note 1) When specifying more than one option, enter in alphabetical order. Example) -CD1K

Note 2) Combination of [C$^{D}_{U}$□] and [S$^{D}_{U}$] is not possible.

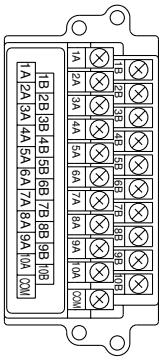
Note 3) Indicate wiring specifications on a manifold specification sheet.



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

• Electrical wiring specifications (IP65 available)

Standard wiring



The internal wiring is double (connected to SOL. A and SOL. B) for all stations regardless of the type of valve or options. Optional specifications permit single and double wiring to be mixed.

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

	Terminal Nos.	Polarity (−)	Polarity (+)
1 station	SOL.A 1A	(−)	(+)
	SOL.B 1B	(−)	(+)
2 stations	SOL.A 2A	(−)	(+)
	SOL.B 2B	(−)	(+)
3 stations	SOL.A 3A	(−)	(+)
	SOL.B 3B	(−)	(+)
4 stations	SOL.A 4A	(−)	(+)
	SOL.B 4B	(−)	(+)
5 stations	SOL.A 5A	(−)	(+)
	SOL.B 5B	(−)	(+)
6 stations	SOL.A 6A	(−)	(+)
	SOL.B 6B	(−)	(+)
7 stations	SOL.A 7A	(−)	(+)
	SOL.B 7B	(−)	(+)
8 stations	SOL.A 8A	(−)	(+)
	SOL.B 8B	(−)	(+)
9 stations	SOL.A 9A	(−)	(+)
	SOL.B 9B	(−)	(+)
10 stations	SOL.A 10A	(−)	(+)
	SOL.B 10B	(−)	(+)
	COM	(+)	(−)
		Positive Common	**Negative Common**

Special Wiring Specifications

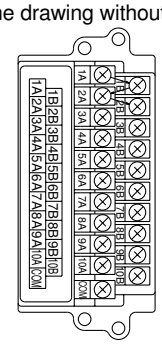
The internal wiring is double (connected to SOL. A and SOL. B) for all stations regardless of the type of valve or options. Optional specifications permit single and double wiring to be mixed. However, the maximum number of stations is 12.

1. How to order

Add the option symbol "-K" to the manifold part number, and be sure to indicate the station positions for single and double wiring on a manifold specification sheet.

2. Wiring specifications

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



How to Order Valves

VQ 5 1 0 0 — 5 — Q

Series

5	VQ5000

Type of actuation

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 double check

Seal type

0	Metal seal
1	Rubber seal

Function (1, 2)

Nil	Standard type (1W)
Y	Energy saving type (0.5W)
R	External pilot

Note1) See page 1.14-40 for details on external pilot specifications.

Note2) When specifying more than one option, enter symbols in alphabetical order.

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	Other, 240V or less

Order Made Contact SMC for other voltages (9)

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

Light/Surge voltage suppressor

Nil	With
E	Without light, with surge voltage suppressor

Manual override

Nil	Non-locking push type (tool required)
B	Slotted locking type (tool required)

Enclosure

Nil	Dust proof
W	Dust tight, Splash proof (IP65)

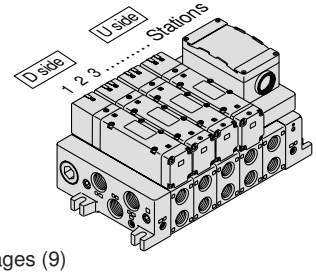
How to Order Manifold Assemblies (Example)

Enter part numbers for valves and options to be mounted below the manifold base part number.

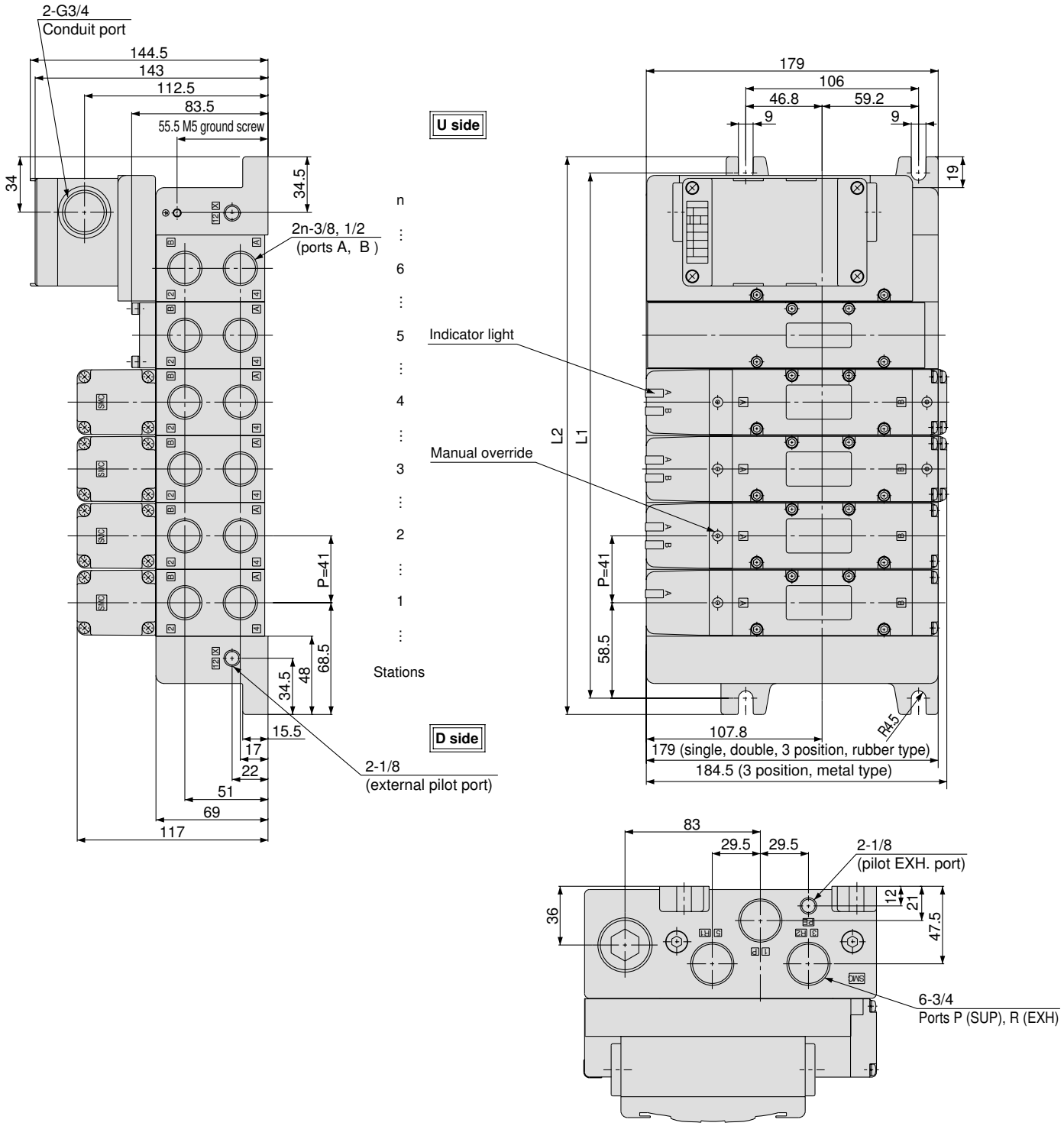
<Example>
Terminal block box kit

VV5Q51-0603TU ... 1 set-Q — Manifold base part number
VQ5100-5 ..... 2 sets-Q — Valve part number (Stations 1 and 2)
VQ5200-5 ..... 2 sets-Q — Valve part number (Stations 3 and 4)
VQ5300-5 ..... 1 set-Q — Valve part number (Station 5)

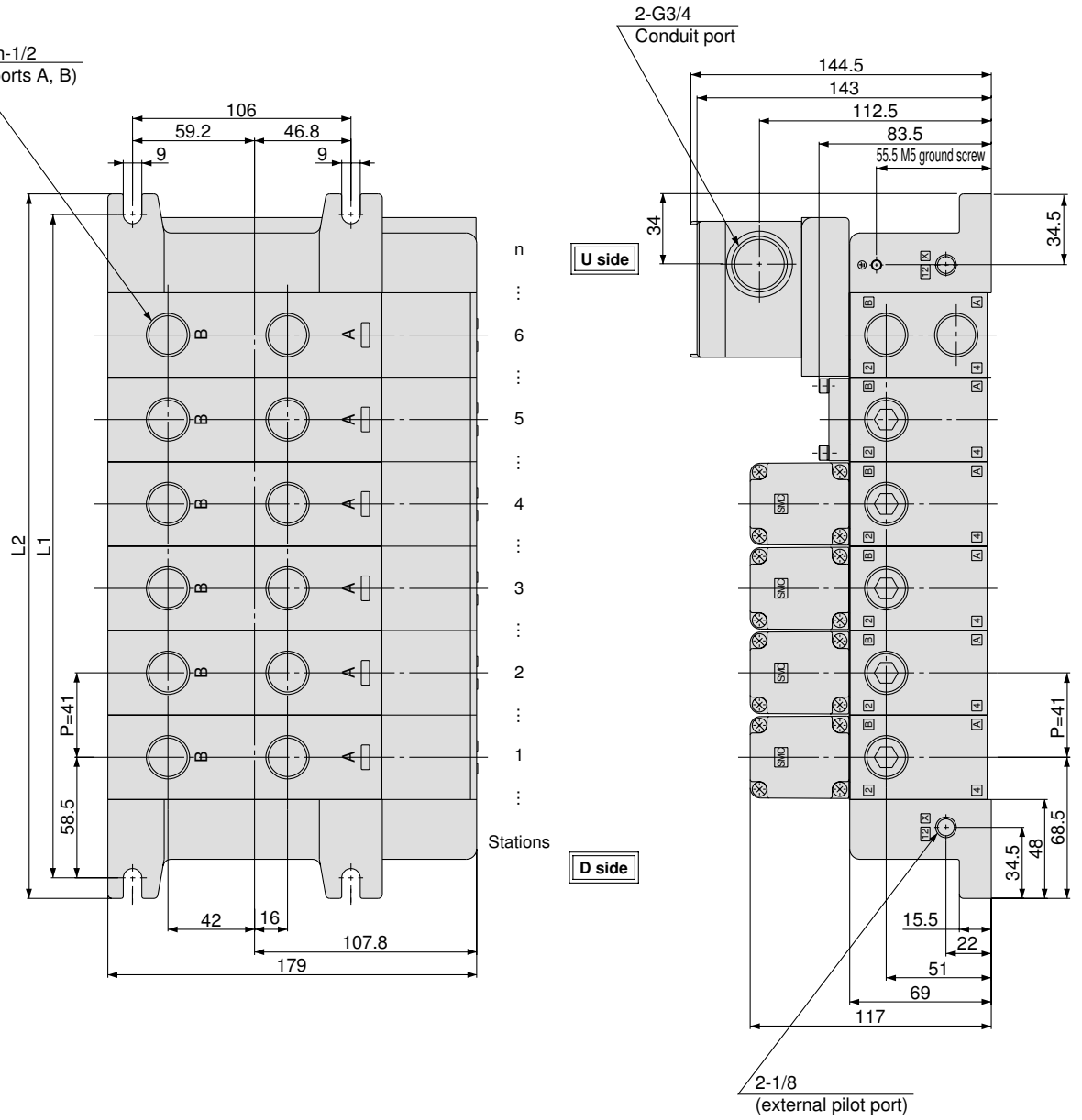
Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate on a manifold specification sheet.



T Kit (Terminal Block Box Kit)



Bottom port diagram

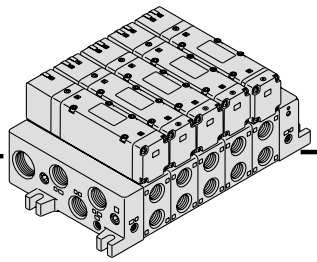


Dimensions Formulas: L1 = 41n + 76, L2 = 41n + 96

L \ n	1	2	3	4	5	6	7	8	9	10	11
L_1	117	158	199	240	281	322	363	404	445	486	527
L_2	137	178	219	260	301	342	383	424	465	506	547

n: Stations (11 stations max.)
∗ Including 1 station for terminal box mounting.

T1 Kit (Individual Terminal Block Kit)



- **When the manifold junction cover is opened, terminal blocks are found mounted on the manifold block. Lead wires from the solenoids are connected to the terminals on the bottom side of the terminal blocks. (On a terminal block, lead wires are connected to both the solenoid A and solenoid B sides, and correspond to the terminal block markings 1, 2, 3 and 4. Refer to the terminal block connection instructions.)**
- **12 stations maximum**

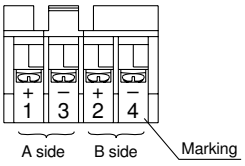
Manifold specifications

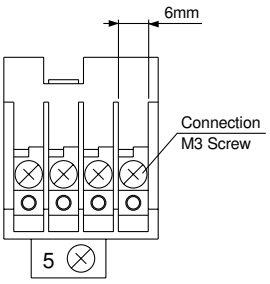
Series	Piping specifications			Applicable stations
	A, B port location	Port size		
		P, R	A, B	
VQ5000	Side	3/4	3/8,1/2	12 stations max.
	Bottom		1/2	

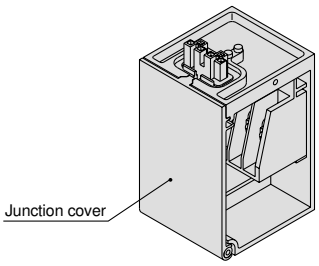
Terminal Block Connections

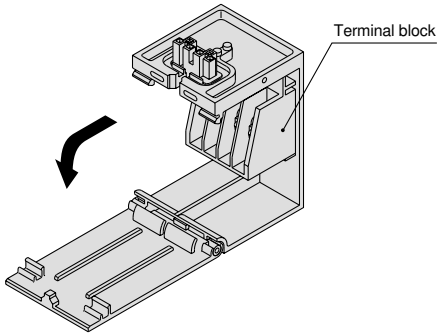
Model \ Terminal block marking	1	3	2	4
VQ510 0 1	A side +	A side –		
VQ520 0 1	A side +	A side –	B side +	B side –
VQ5 3 4 5 0 0 1	A side +	A side –	B side +	B side –

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









How to Order Manifolds

VV5Q 5 1 – 08 03 T1 – SD – Q

Series

5	VQ5000

Manifold type

1	Plug-in unit

Stations

1	1 station
⋮	⋮
12	12 stations

Cylinder port size

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

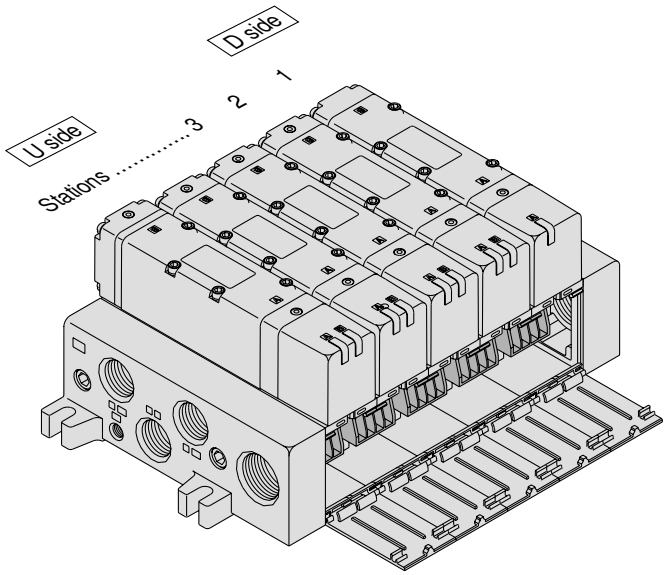
Thread

–	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Option

Symbol	Option
Nil	None
CD1 Note 1)	Exhaust cleaner for Rc1: D side exhaust
CD2 Note 1)	Exhaust cleaner for Rc1 1/2: D side exhaust
CU1 Note 1)	Exhaust cleaner for Rc1: U side exhaust
CU2 Note 1)	Exhaust cleaner for Rc1 1/2: U side exhaust
SB	Direct exhaust with silencer box: U and D side exhausts
SD Note 1)	Direct exhaust with silencer box: D side exhaust
SU Note 1)	Direct exhaust with silencer box: U side exhaust

Note 1) Combination of [C D/U □] and [S D/U] is not possible.



How to Order Valves

VQ 5 1 0 0 □ — 5 □ □ — Q

Series

5	VQ5000

Type of actuation

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 double check

Seal type

0	Metal seal
1	Rubber seal

Function (1, 2)

Nil	Standard type (1W)
Y	Energy saving type (0.5W)
R	External pilot

Note1) See page 1.14-40 for details on external pilot specifications.

Note2) When specifying more than one option, enter symbols in alphabetical order.

Coil voltage

1	100VAC (50/60Hz)
2	200VAC (50/60Hz)
3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC
9	Other, 240V or less

Order Made Contact SMC for other voltages (9)

⚠ Protective class
class I (Mark ⏚)..... DIN terminal type

Light/Surge voltage suppressor

Nil	With
E	Without light, with surge voltage suppressor

Manual override

Nil	Non-locking push type (tool required)
B	Slotted locking type (tool required)

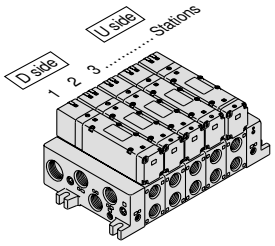
How to Order Manifold Assemblies (Example)

Enter part numbers for valves and options to be mounted below the manifold base part number.

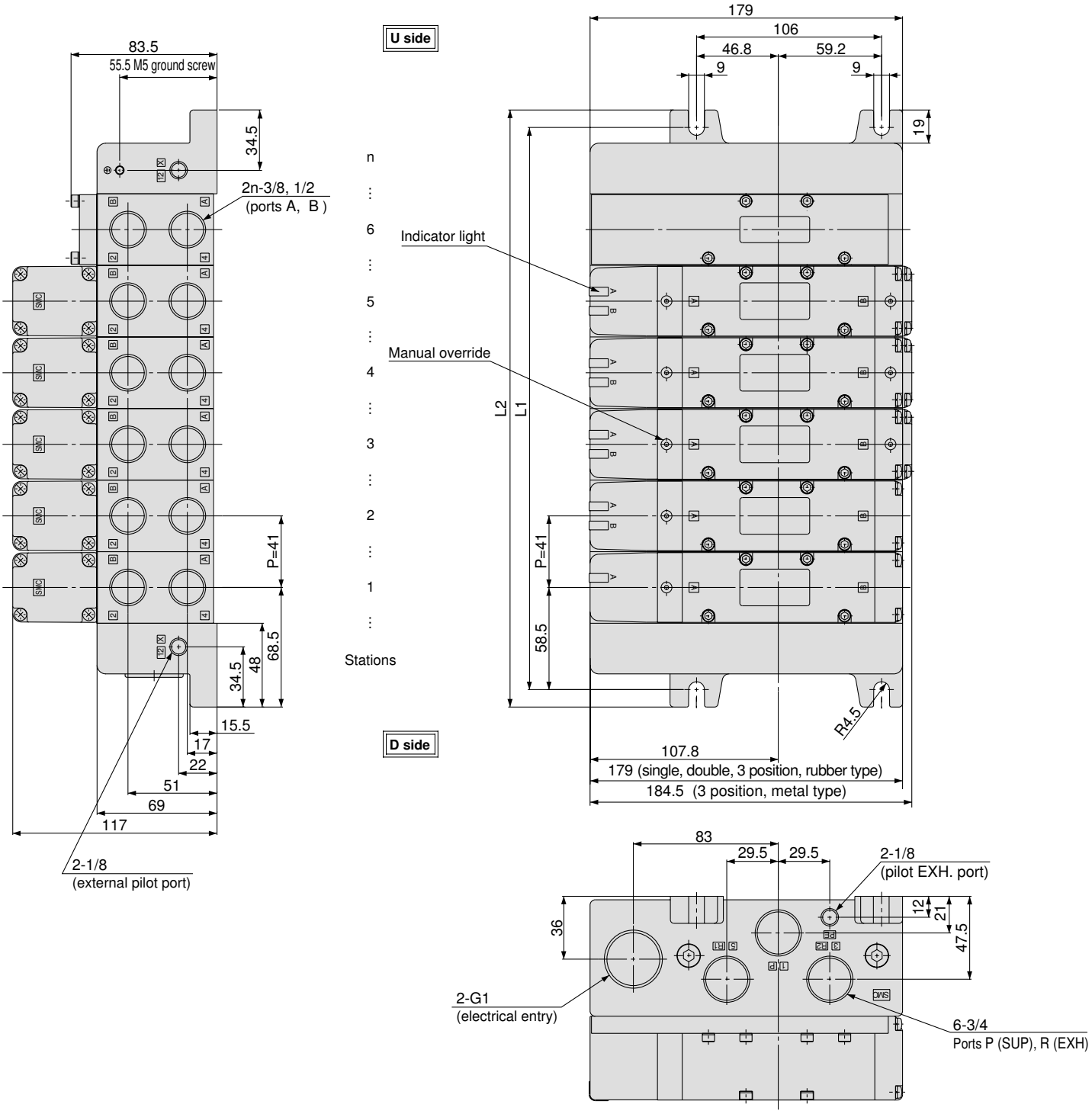
<Example>
Individual terminal block kit

VV5Q51-0503T1-Q..... 1 set — Manifold base part number
VQ5100-5-Q ..... 2 sets — Valve part number (Stations 1 and 2)
VQ5200-5-Q ..... 2 sets — Valve part number (Stations 3 and 4)
VQ5300-5-Q ..... 1 set — Valve part number (Station 5)

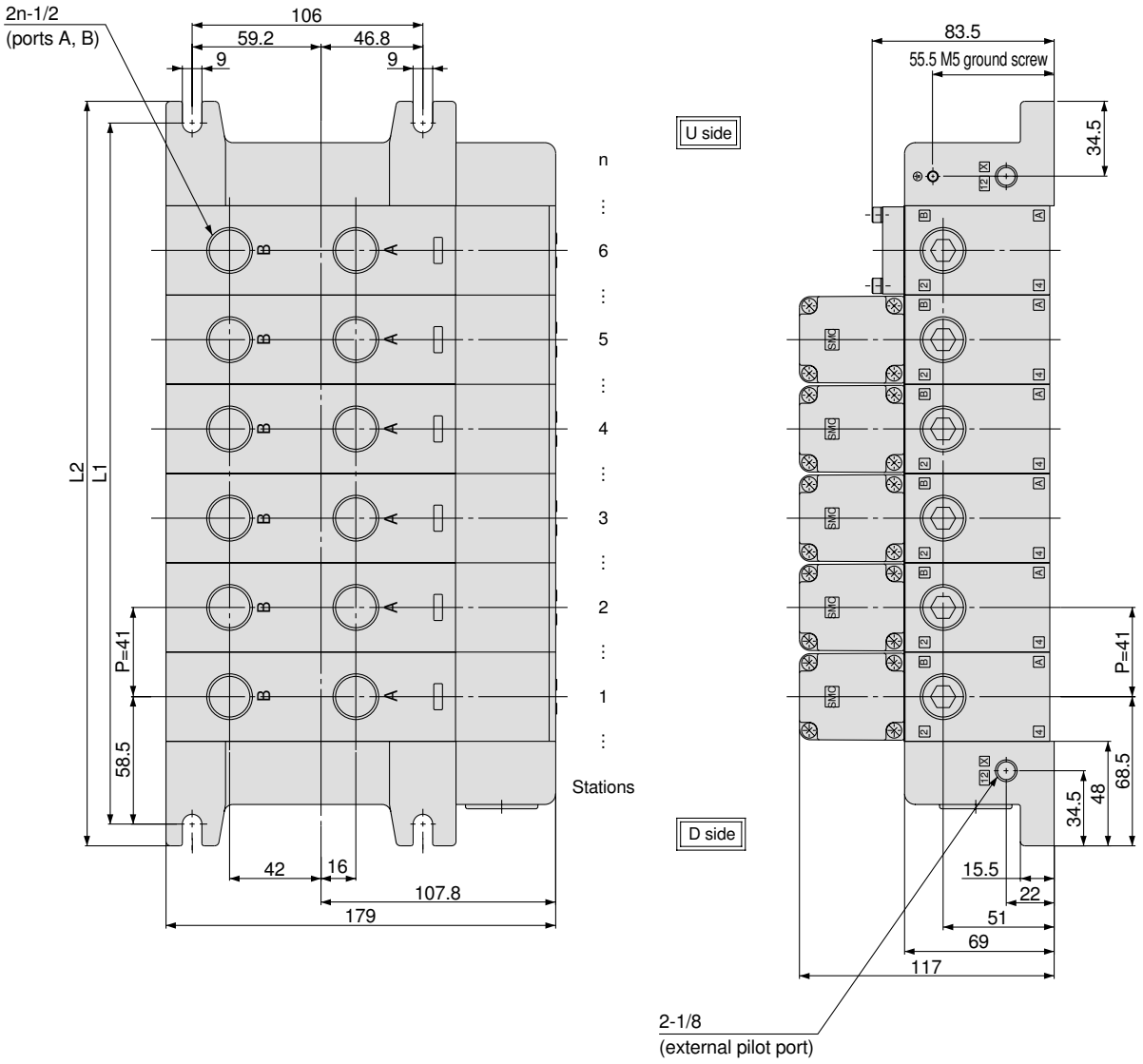
Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate on a manifold specification sheet.



T1 Kit (Individual Terminal Block Kit)



Bottom port diagram

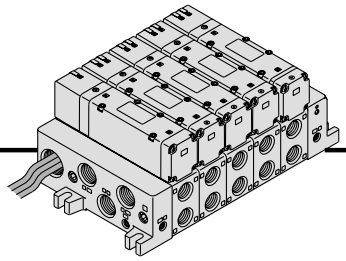


Dimensions Formulas: $L_1 = 41n + 76$, $L_2 = 41n + 96$

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L_1	117	158	199	240	281	322	363	404	445	486	527	568
L_2	137	178	219	260	301	342	383	424	465	506	547	588

n: Stations (12 stations max.)

L Kit (Lead Wire Kit)



IP65 available

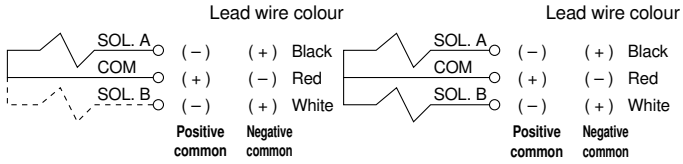
- **IP65 enclosure available.**
- **Direct electrical entry type available with two or more stations.**
- **Electrical entry can be selected on either the U side or the D side according to the mounting orientation.**
- **12 stations maximum**

Manifold specifications

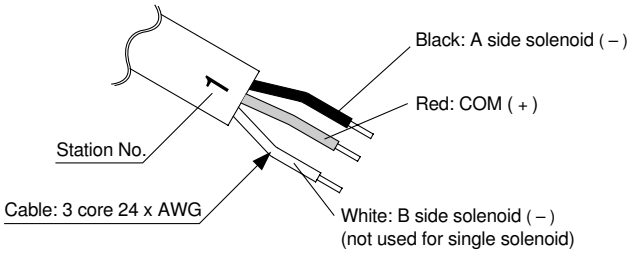
Series	Piping specifications			Applicable stations
	A, B port location	Port size		
		P, R	A, B	
VQ5000	Side	3/4	3/8 1/2	12 stations max.
	Bottom		1/2	

Wiring specifications

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



Single solenoid type　　Double solenoid type



Lead wire assembly with connector

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

□: Number of stations 1 to 12

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

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

How to Order Manifolds

VV5Q 5 1 – 08 03 □ L U □ – W – Q

Series

5	VQ5000

Manifold type

1	Plug-in unit

Stations

02	2 stations
⋮	⋮
12	12 stations

Cylinder port size

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

Thread

–	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Electrical entry

D	D side entry
U	U side entry

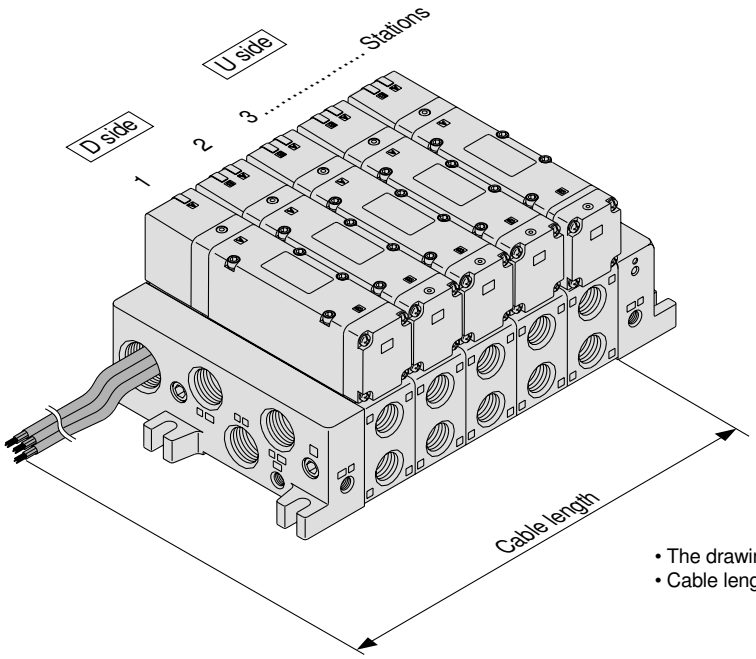
Cable length

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

Option

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

Note 1) Combination of [C$^{D}_{U}$□] and [S$^{D}_{U}$] is not possible.



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

SV
SY
SYJ
SX
VK
VZ
VF
VFR
VP7

How to Order Valves

VQ 5 1 0 0 □ — 5 □ □ □ — Q

Series

5	VQ5000

Type of actuation

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 double check

Seal type

0	Metal seal
1	Rubber seal

Function (1, 2)

Nil	Standard type (1W)
Y	Energy saving type (0.5W)
R	External pilot

Note1) See page 1.14-40 for details on external pilot specifications.
Note2) When specifying more than one option, enter symbols in alphabetical order.

Coil voltage

1	100VAC (50/60Hz)
2	200VAC (50/60Hz)
3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC
9	Other, 240V or less

Order Made Contact SMC for other voltages (9)

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

Light/Surge voltage suppressor

Nil	With
E	Without light, with surge voltage suppressor

Manual override

Nil	Non-locking push type (tool required)
B	Slotted locking type (tool required)

Enclosure

Nil	Dust proof
W	Dust tight, Splash proof (IP65)

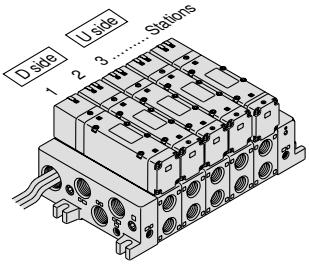
How to Order Manifold Assemblies (Example)

Enter part numbers for valves and options to be mounted below the manifold base part number.

<Example>
Lead wire kit with cable (3m)

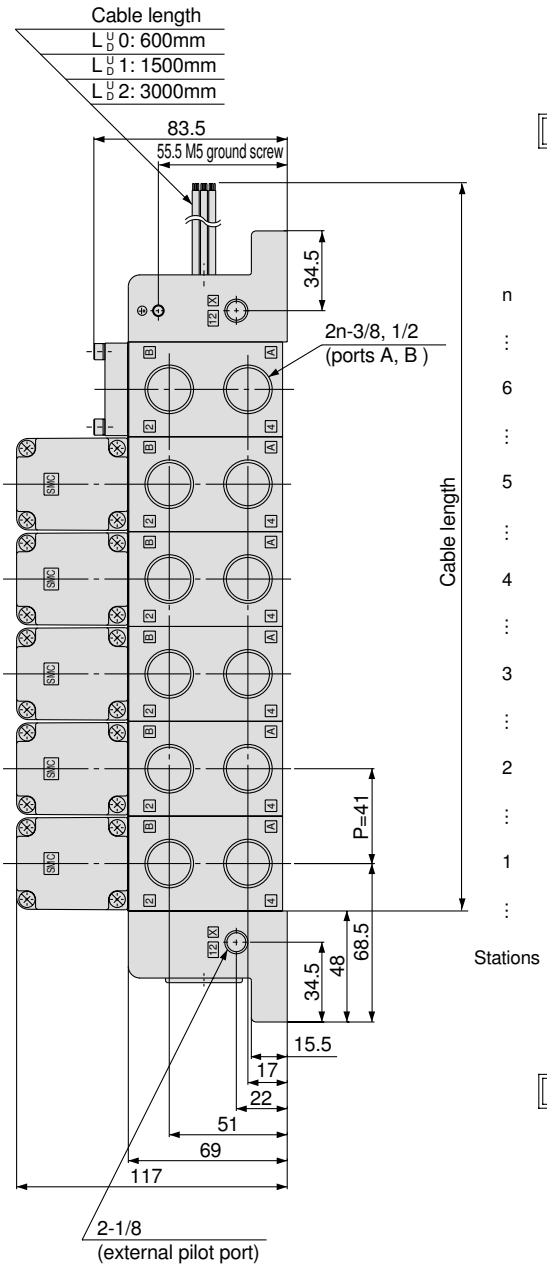
VV5Q51-0503LD2-Q ... 1 set — Manifold base part number
VQ5100-5-Q ..... 2 sets — Valve part number (Stations 1 and 2)
VQ5200-5-Q ..... 2 sets — Valve part number (Stations 3 and 4)
VQ5300-5-Q ..... 1 set — Valve part number (Station 5)

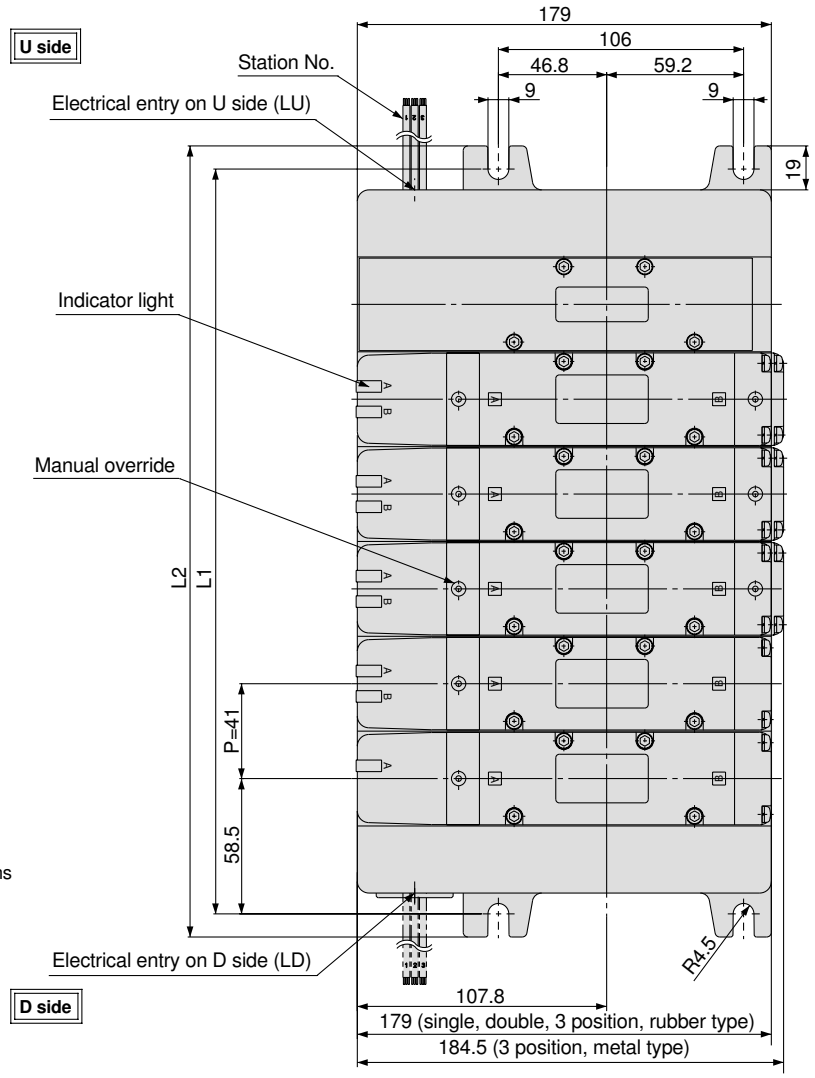
Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate on a manifold specification sheet.

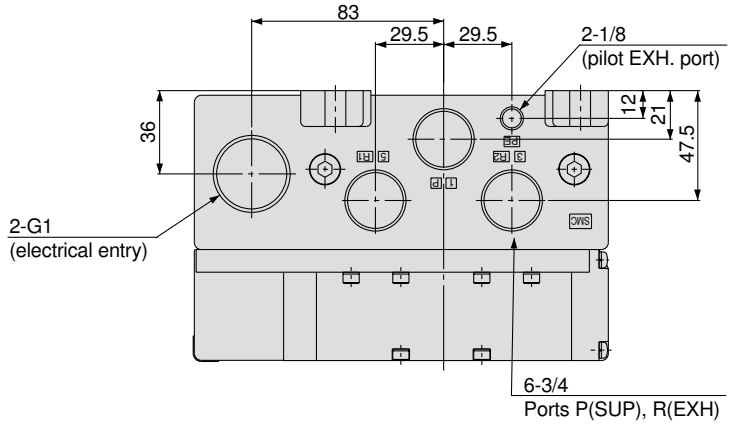


VQC
SQ
VQ
VQ4
VQ5
VQZ
VQD
VFS
VS
VS7

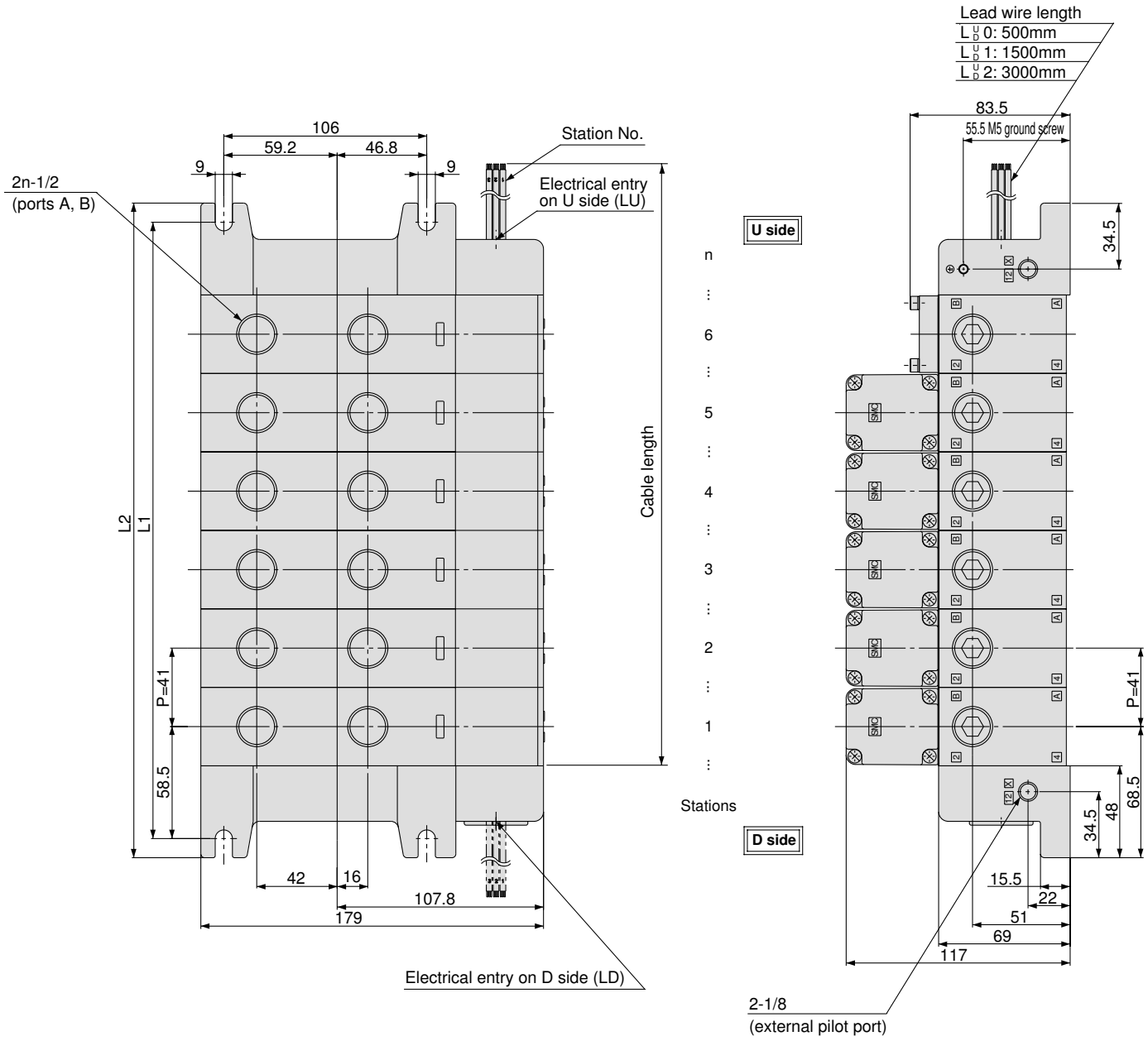
L Kit (Lead Wire Kit)







Bottom port diagram



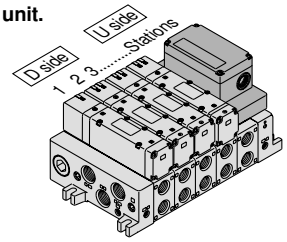
Dimensions Formulas: $L_1 = 41n + 76$, $L_2 = 41n + 96$

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L_1	117	158	199	240	281	322	363	404	445	486	527	568
L_2	137	178	219	260	301	342	383	424	465	506	547	588

n: Stations (12 stations max.)

S Kit (Serial Transmission Kit) IP65 available

- **The serial transmission system minimizes wiring and saves space, while also reducing labour for wiring connections.**
- **The system is available in types such as the SA type for equipment with a maximum of 32 input/output points (a general purpose type for small scale systems), the SB type capable of controlling up to 512 points of input/output (Mitsubishi Electric compatible), the SC type (OMRON compatible), the SD type (Sharp compatible, 504 points max.), the SF type (NKE compatible, 128 points max.), the SJ type (Sanks compatible), the SK type (Fuji Electric compatible), the SQ type (OMRON Compo Bus/D compatible), and the SR type (OMRON Compo Bus/S compatible).**
- **9 stations max. (optional 12 stations, indicate 10 to 12 stations on a manifold specification sheet)**
- **One station is used for mounting the serial unit.**

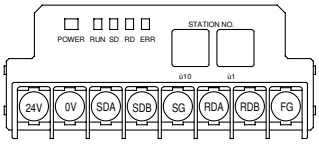


- **Stations are counted from station 1 on the D side.**
- **The internal wiring is double (connected to SOL. A and SOL. B) for all stations regardless of the type of valve or options. Optional specifications permit single and double wiring to be mixed.**

Item	Specifications
External power supply	24VDC + 10%, – 5%
Current consumption (inside unit)	SA, SB, SBB, SD, SF, SJ, SK, SQ, SR, SV: 0.1A SC: 0.3A

Manifold specifications

Series	Piping specifications			Applicable stations
	A, B port location	Port size		
		P, R	A, B	
VQ5000	Side	3/4	3/8 1/2	9 stations max.
	Bottom		1/2	

	SB type Mitsubishi Electric MELSECNET/MINI-S3 data link compatible
Terminal block (LED) nomenclature	 LED name / Contents: POWER: Lights when power is turned ON RUN: Lights when data traffic with the master station is normal RD: Lights when sending data SD: Lights when receiving data ERR: Lights for error in received data, off when normal
Note	• Master station Sequencer made by Mitsubishi Electric MELSEC-A series AJ71PT32-S3, AJ71T32-S3 A1SJ71PT32-S3 ∗ 64 stations max., connected to remote I/O station (512 points max.) • 16 output points, 2 stations occupied

∗ Refer to the separate technical instruction manual for details on specifications and handling.

How to Order Manifolds

VV5Q 5 1 – 08 03 S □ □ – □ – Q

Series

5	VQ5000

Manifold type

1	Plug-in unit

Stations

02	2 stations
⋮	⋮
09	9 stations

Note) Add one station for mounting of the serial unit.

Type

B	Mitsubishi Electric MELSECNET/MINI-S3 data link system
BB	Mitsubishi Electric MELSECNET/MINI-S3 data link system (2 power supply systems)
C	OMRON SYSBUS wire system

Option

Symbol	Option
Nil	None
CD1 Note 2)	Exhaust cleaner for 1: D side exhaust
CD2 Note 2)	Exhaust cleaner for 11/2: D side exhaust
CU1 Note 2)	Exhaust cleaner for 1: U side exhaust
CU2 Note 2)	Exhaust cleaner for 11/2: U side exhaust
K Note 3)	Special wiring specifications (other than double wiring)
SD Note 2)	Direct exhaust with silencer box: D side exhaust
SU Note 2)	Direct exhaust with silencer box: U side exhaust
W	IP65 enclosure

Note 1) When specifying more than one option, enter symbols in alphabetical order. Example) -CD1K

Note 2) Combination of [C^{D}_{U}□] and [S^{D}_{U}] is not possible.

Note 3) Indicate wiring specifications on a manifold specification sheet.

Cylinder port size

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

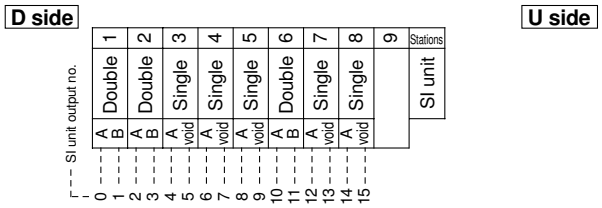
SI unit mounting position

D	D side mounting
U	U side mounting

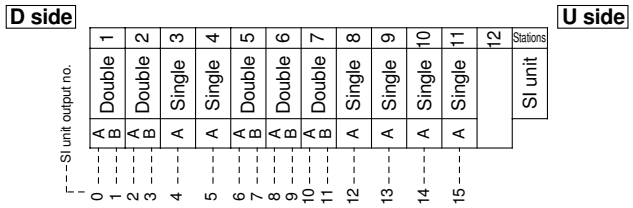
• Correspondence of SI unit output numbers and solenoid valve coils

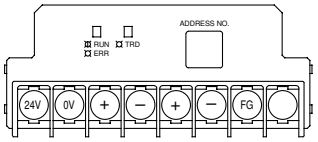
Since mixed wiring is optional, use a manifold specifiction sheet.

<Wiring example 1> Double wiring (standard)



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



	SC type OMRON SYSBUS wire system compatible
Terminal block (LED) nomenclature	 LED name / Contents RUN: Lights when transmission is normal and PLC is in operation mode T/R ERR: Blinks when transmission is normal / Lights when transmission is abnormal
Note	• Master station unit OMRON PLC SYSMACC (CV) series Types C500-RM201 and C200H-RM201 * 32 units max., transmission terminal connection (512 points max.) • 16 output points

How to Order Valves

VQ 5 1 0 0 ☐ — 5 ☐ ☐ — Q

Series

5	VQ5000

Type of actuation

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 double check

Seal type

0	Metal seal
1	Rubber seal

Function (1, 2)

Nil	Standard type (1W)
Y	Energy saving type (0.5W)
R	External pilot

Note1) See page 1.14-40 for details on external pilot specifications.

Note2) When specifying more than one option, enter symbols in alphabetical order.

Coil voltage

5	24VDC

Manual override

Nil	Non-locking push type (tool required)
B	Slotted locking type (tool required)

Enclosure

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

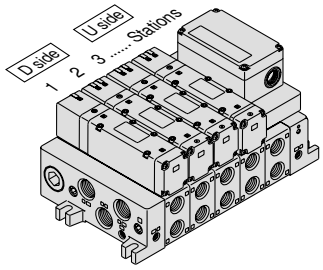
How to Order Manifold Assemblies (Example)

Enter part numbers for valves and options to be mounted below the manifold base part number.

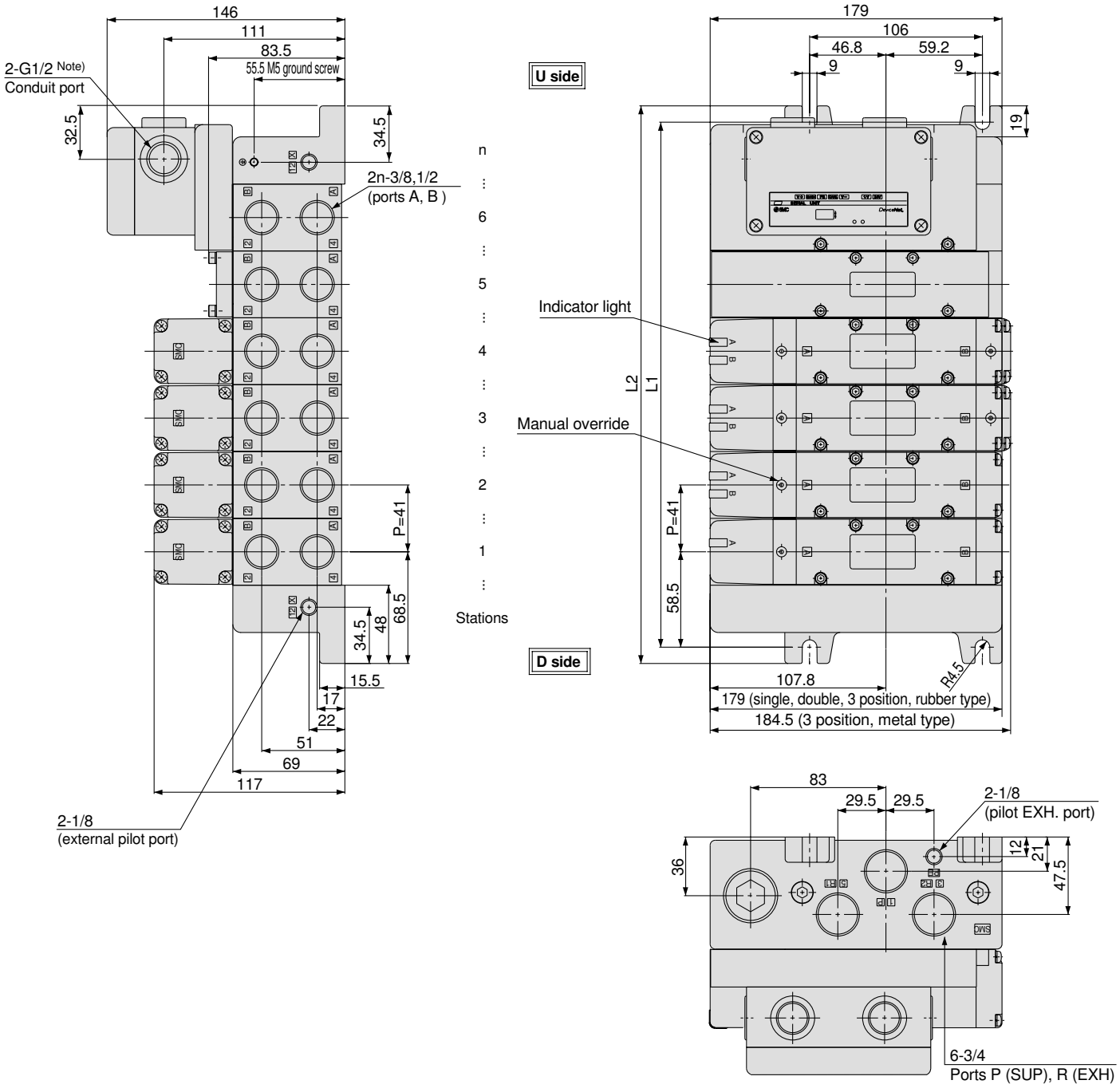
<Example>
Serial transmission unit

VV5Q51-0603SUA-Q ... 1 set — Manifold base part number
VQ5100-5-Q ..... 2 sets — Valve part number (Stations 1 and 2)
VQ5200-5-Q ..... 2 sets — Valve part number (Stations 3 and 4)
VQ5300-5-Q ..... 1 set — Valve part number (Station 5)

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

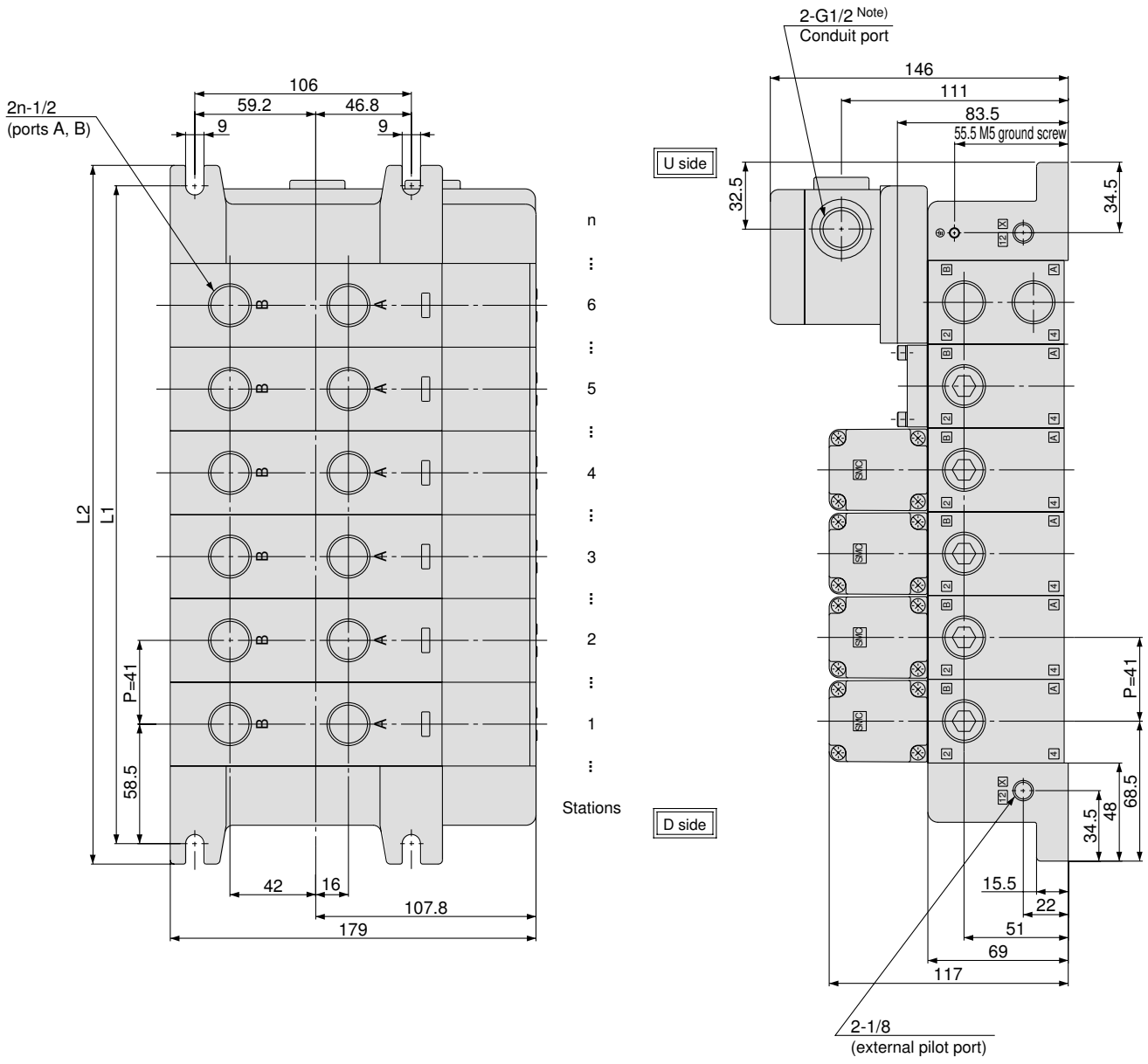


S Kit (Serial Transmission Kit)



Note) In case of two power supply systems (separate SI unit and solenoid drive power supplies), there are conduit ports (G1/2) in four locations. Other models have conduit ports in two locations.

Bottom port diagram



Dimensions Formulas: $L_1 = 41n + 76$, $L_2 = 41n + 96$

L \ n	1	2	3	4	5	6	7	8	9
L_1	117	158	199	240	281	322	363	404	445
L_2	137	178	219	260	301	342	383	424	465

n: Stations (9 stations max.)
∗ Including 1 station for SI unit box mounting

Plug Lead

Series VQ5000

Base Mounted Type

Plug Lead Unit: C Kit (Connector kit)

How to Order Manifolds

VV5Q 5 5 – 08 03 □ C – W – Q

Series

5	VQ5000

Manifold type

5	Plug lead unit

Stations

02	2 stations
⋮	⋮
12	12 stations

Cylinder port size

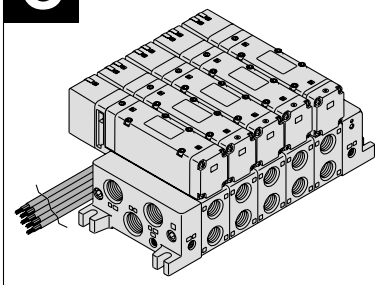
03	3/8
04	1/2
B	Bottom ported 1/2
CM	Mixed sizes

Thread

–	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Kit designation

C Kit (connector)



C	Connector kit	12 stations max.

Option

Symbol	Option
Nil	None
CD1 Note 1)	Exhaust cleaner for 1: D side exhaust
CD2 Note 1)	Exhaust cleaner for 1 1/2: D side exhaust
CU1 Note 1)	Exhaust cleaner for 1: U side exhaust
CU2 Note 1)	Exhaust cleaner for 1 1/2: U side exhaust
SB	Direct exhaust with silencer box: D and U side exhausts
SD Note 1)	Direct exhaust with silencer box: D side exhaust
SU Note 1)	Direct exhaust with silencer box: U side exhaust
W	P65 enclosure

Note) Combination of [C$^{U}_{D}$□] and [S$^{U}_{D}$] is not possible.

See page 1.14-46 (grommet type) for wiring specifications.

How to Order Valves

VQ 5 1 5 0 □ – 5 G □ □ □ – Q

Series

5	VQ5000

Type of actuation

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 double check

Seal type

0	Metal seal
1	Rubber seal

Function

Nil	Standard type (1W)
Y Note 1)	Energy saving type (0.5W)
R Note 2)	External pilot

Note 1) Applicable to DC specifications.

Note 2) See page 1.14-40 for details on external pilot specifications.

Note 3) When specifying more than one option, enter symbols in alphabetical order.

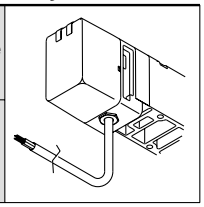
Coil voltage

1	100VAC (50/60Hz)
2	200VAC (50/60Hz)
3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC
9	Other, 240V or less

Order Made Contact SMC for other voltages (9)

Electrical entry

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

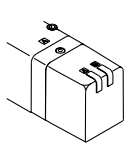


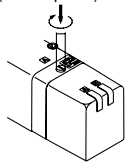
Light/Surge voltage suppressor

Nil	With
E	Without light, with surge voltage suppressor

Manual override

Nil-	B-
Non-locking push type (tool required)	Slotted locking type (tool required)





Enclosure

Nil	Dust proof
W	Dust tight, Splash proof (IP65)

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

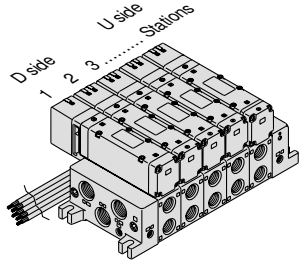
How to Order Manifold Assemblies (Example)

Enter part numbers for valves and options to be mounted below the manifold base part number.

<Example>
Connector kit

W5Q55-05042C-Q.... 1 set — Manifold base part number
VQ5150-5G-Q ..... 2 sets — Valve part number (Stations 1 and 2)
VQ5250-5G-Q ..... 2 sets — Valve part number (Stations 3 and 4)
VQ5350-5G-Q ..... 1 set — Valve part number (Station 5)

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



Manifold Specifications

Series	Base model	Type of connection	Piping specifications			Max. applicable stations	Applicable solenoid valve	5 station weight kg
			Ports A, B location	Port size Note)				
				P, R	A, B			
VQ5000	VV5Q55□□□	■ C kit-Grommet	Side	3/ 4 Optional Direct exhaust with silencer box	3/ 8 1/ 2	2 to 12 stations	VQ5□50 VQ5□51	3.7 • Not including solenoid valve weight
			Bottom		1/ 2			

Note) See options on page 1.14-38 for details on international thread standards other than Rc threads.

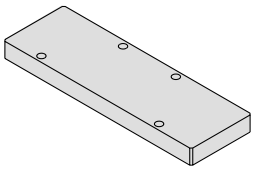
Manifold Stations and Effective area mm² (Nℓ/min) for Individual Operation

Model	Passage/Stations	Station 1	Station 5	Station 10
2 position metal seal VQ5 $\frac{1}{2}$ 50	P→A or B	60.7 (3307)	60.3 (3288)	59.4 (3238)
	A→R1, B→R2	74.7 (4073)	74.7 (4073)	74.7 (4070)
2 position rubber seal VQ5 $\frac{1}{2}$ 51	P→A or B	67.7 (3670)	67.0 (3651)	66.6 (3631)
	A→ R1, B→R2	80.1 (4367)	80.1 (4367)	80.1 (4367)

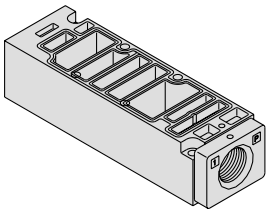
Note) For port size 1/ 2

Manifold Options

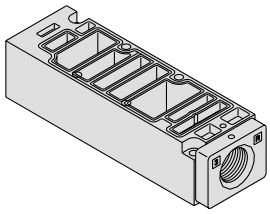
Blank plate assembly
VVQ5000-10A-5



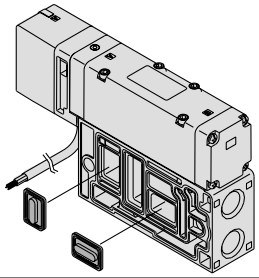
Individual SUP spacer
VVQ5000-P-5-$\frac{03}{04}$



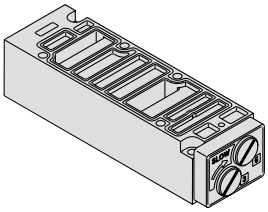
Individual EXH spacer
VVQ5000-R-5-$\frac{03}{04}$



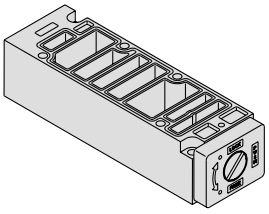
EXH blocking plate
VVQ5000-16A-2



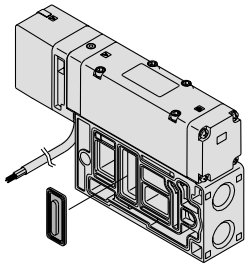
Throttle valve spacer
VVQ5000-20A-5



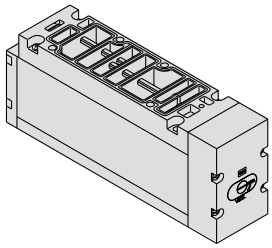
SUP stop valve spacer
VVQ5000-37A-5



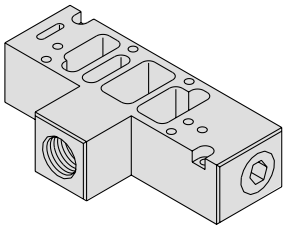
SUP blocking plate
VVQ5000-16A-1



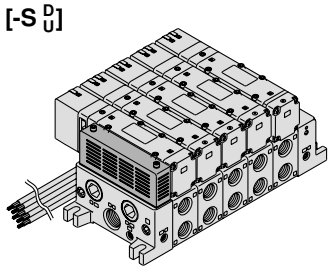
Double check spacer with residual pressure release valve
VVQ5000-25A-5



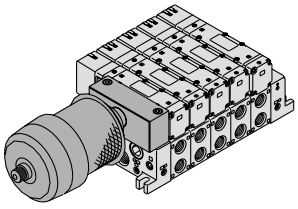
Release valve spacer
VVQ5000-24A-5D



Direct exhaust with silencer box
[-S $\frac{D}{U}$]

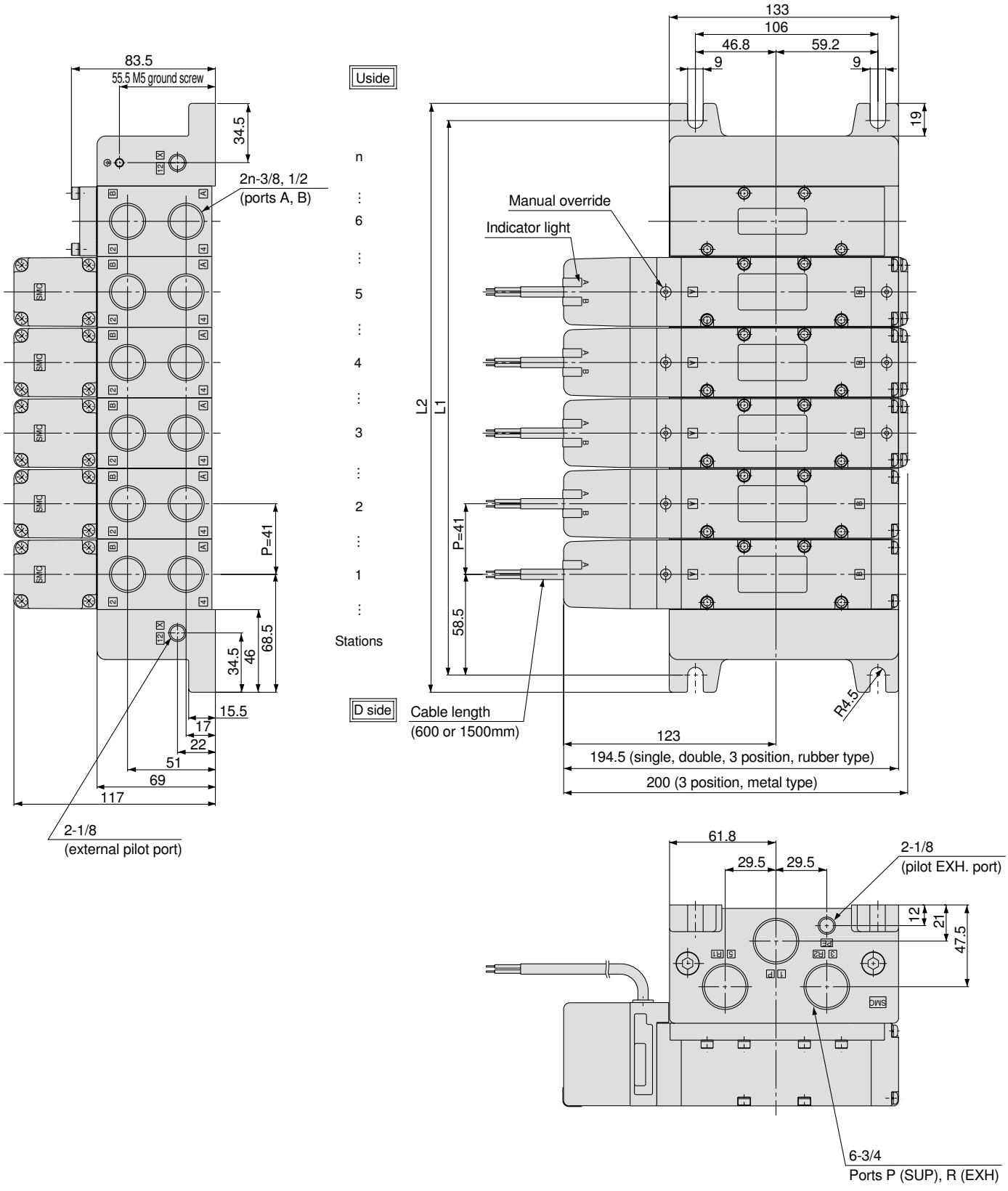


For exhaust cleaner mounting
[-C $\frac{D}{U}$ □]

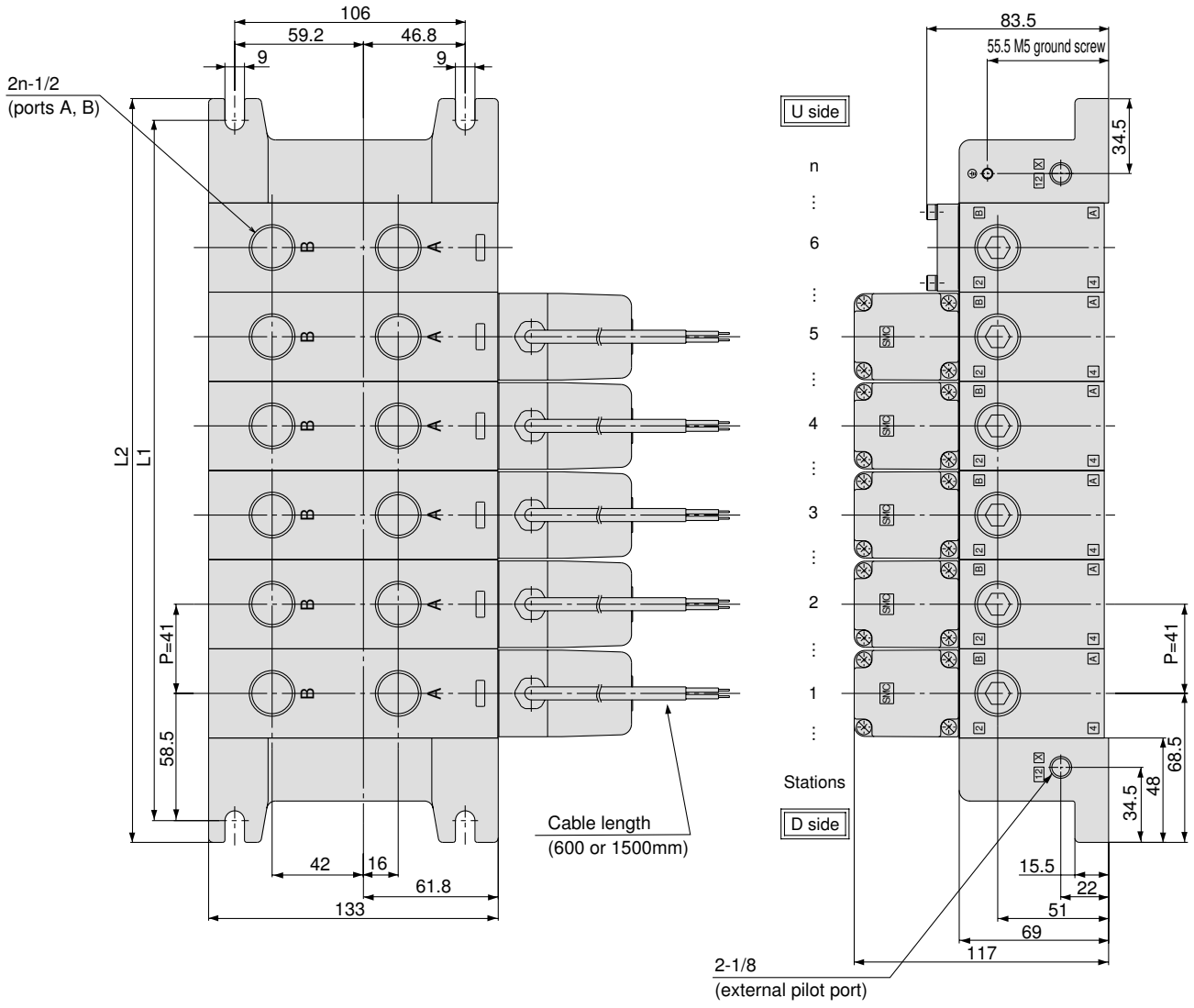


• See pages 1.14-34 through 1.14-39 for detailed dimensions of each option.

C Kit (Connector Kit)



Bottom port diagram



Dimensions Formulas: $L_1 = 41n + 76$, $L_2 = 41n + 96$

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L_1	117	158	199	240	281	322	363	404	445	486	527	568
L_2	137	178	219	260	301	342	383	424	465	506	547	588

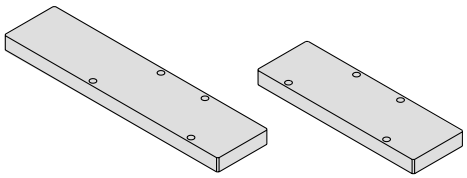
n: Stations (12 stations max.)

Optional Manifold Parts

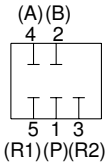
Blank plate assembly

VVQ5000-10A-1 (Plug-in type)
VVQ5000-10A-5 (Plug lead type)

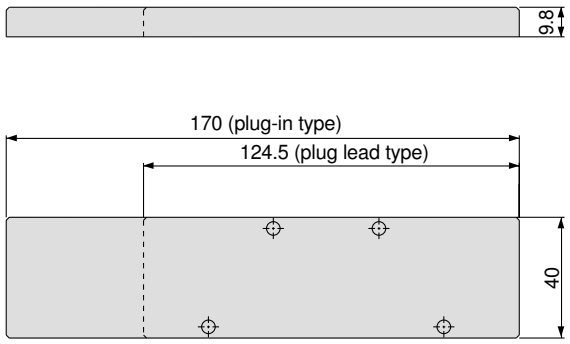
This is mounted on a manifold block when a valve is removed for maintenance or when installation of an additional valve is planned for the future, etc.



Plug-in type　　Plug lead type



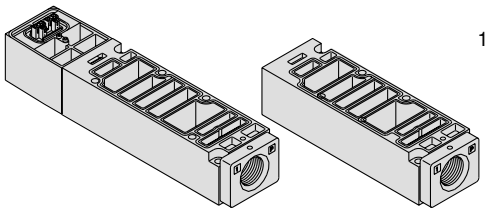
Circuit diagram



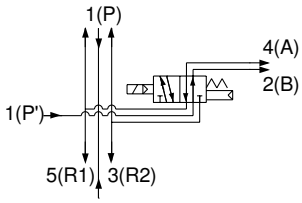
Individual SUP spacer

VVQ5000-P-1-$^{03}_{04}$ (Plug-in type)
VVQ5000-P-5-$^{03}_{04}$ (Plug lead type)

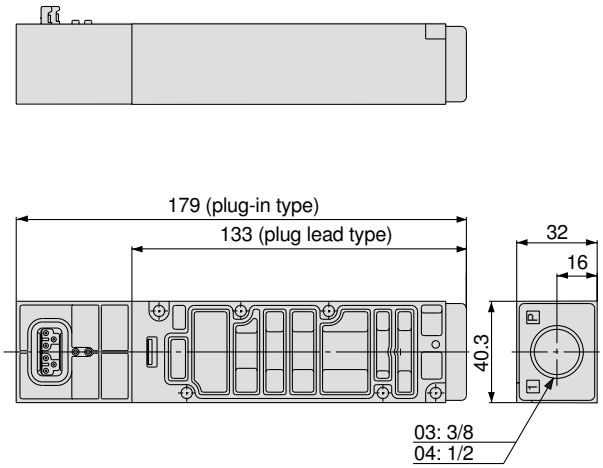
By mounting individual SUP spacers on a manifold block, it is possible to provide individual supply ports for each valve.



Plug-in type　　Plug lead type



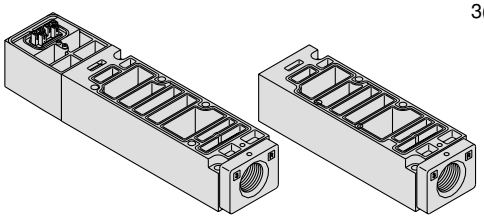
Circuit diagram



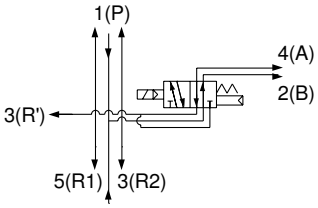
Individual EXH spacer

VVQ5000-R-1-$^{03}_{04}$ (Plug-in type)
VVQ5000-R-5-$^{03}_{04}$ (Plug lead type)

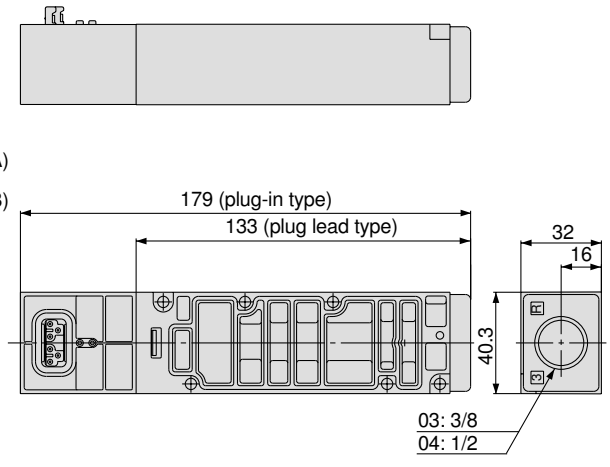
By mounting individual EXH spacers on a manifold block, it is possible to provide individual exhaust ports for each valve. (common EXH type)



Plug-in type　　Plug lead type



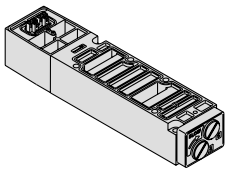
Circuit diagram



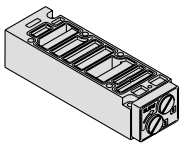
Throttle valve spacer

VVQ5000-20A-1 (plug-in type)
VVQ5000-20A-5 (plug lead type)

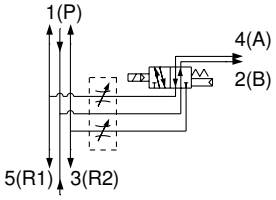
A throttle valve spacer is mounted on a manifold block to control cylinder speed by throttling exhaust air flow.



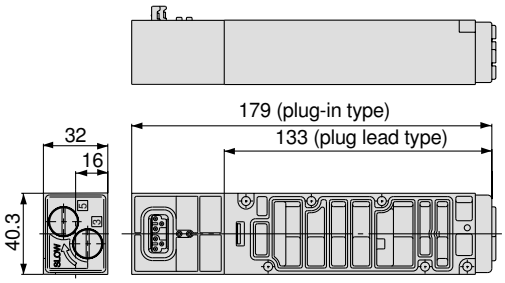
Plug-in type



Plug lead type



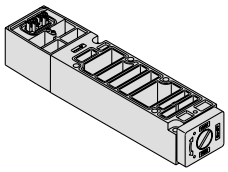
Circuit diagram



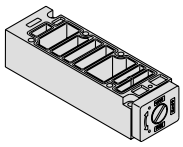
SUP stop valve spacer

VVQ5000-37A-1 (plug-in type)
VVQ5000-37A-5 (plug lead type)

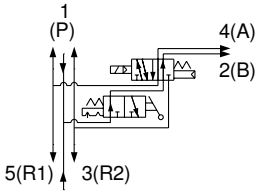
A SUP stop valve spacer is mounted on a manifold block, making it possible to individually shut off supply air to each valve.



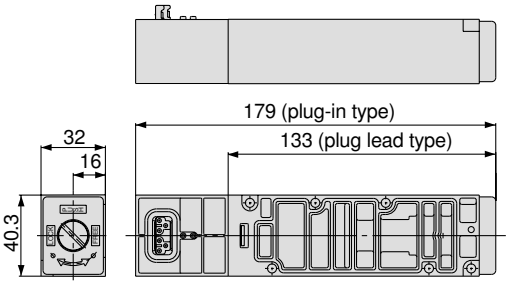
Plug-in type



Plug lead type



Circuit diagram

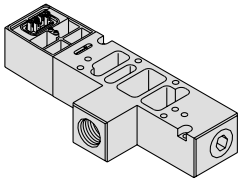


Release valve spacer: For D side mounting

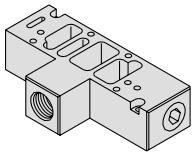
VVQ5000-24A-1D (plug-in type)
VVQ5000-24A-5D (plug lead type)

A VQ51□□ (single) valve can be used as an air release valve by combining it with a release valve spacer.

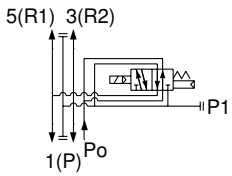
Note) 2 position double and 3 position cannot be mounted.



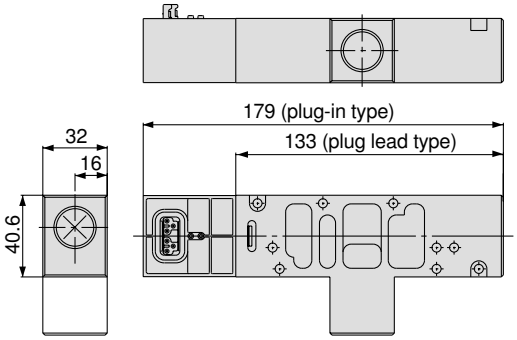
Plug-in type



Plug lead type



Circuit diagram



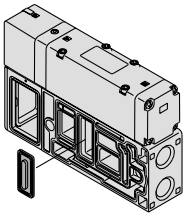
SUP blocking plate

VVQ5000-16A-1

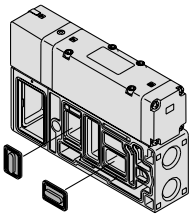
EXH blocking plate

VVQ5000-16A-2

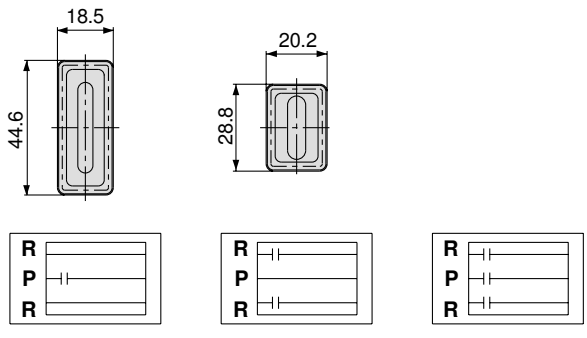
When 2 or more different pressures are supplied to one manifold, blocking plates are installed between stations under different pressures.



< SUP blocking plate >



< EXH blocking plate >



SUP passage blocked

EXH passages blocked

SUP/EXH passages blocked

Optional Manifold Parts

Interface regulator for series VQ5000 5 port solenoid valve: Series ARBQ

Piping work is unnecessary

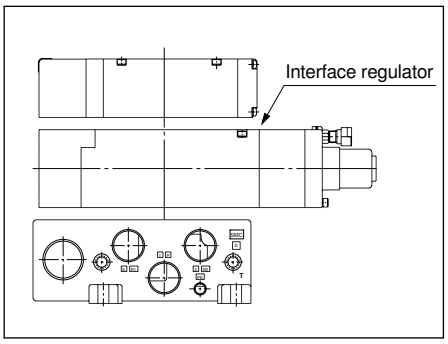
Ideal pressures can be supplied by simply installing interface regulators on a manifold base.

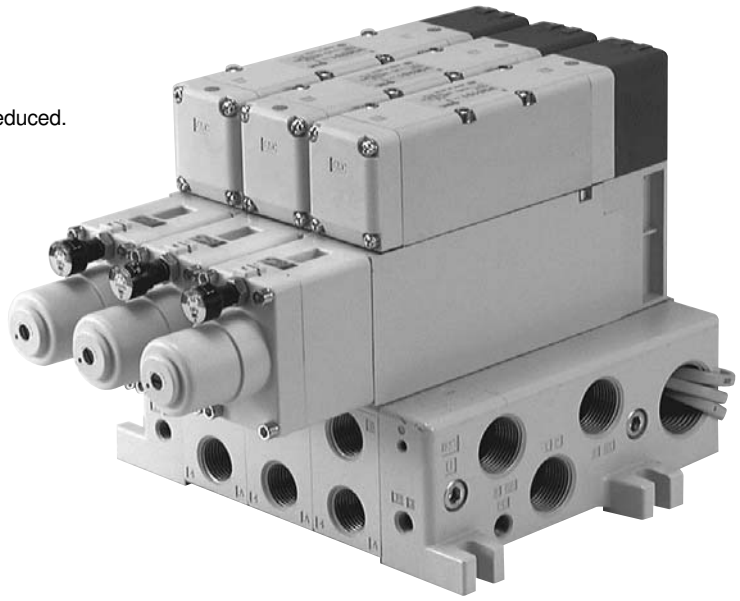
Space savings

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

Simplified dual pressure control

Dual pressure actuator control can be easily performed.

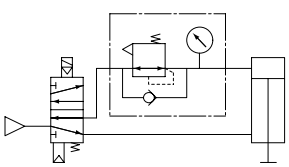
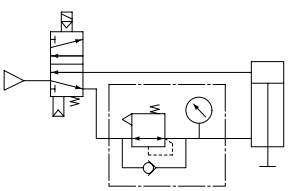
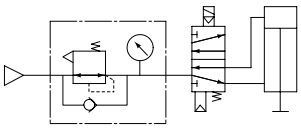




How to Order

Solenoid valve model	Applicable interface regulator model	Reduced pressure port
VQ5□0□ (plug-in type)	ARBQ5000-00-A-1	A
	ARBQ5000-00-B-1	B
	ARBQ5000-00-P-1	P
VQ5□5□ (plug lead type)	ARBQ5000-00-A-5	A
	ARBQ5000-00-B-5	B
	ARBQ5000-00-P-5	P

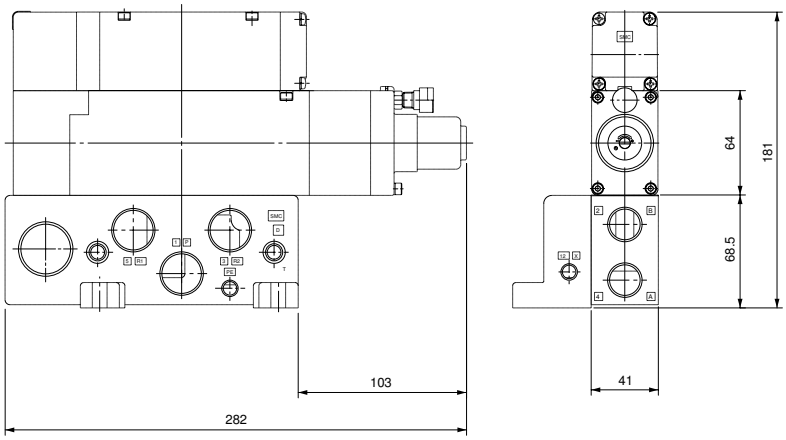
Circuit Diagrams

Reduced pressure port: A	Reduced pressure port: B	Reduced pressure port: P
		

Specifications

Interface regulator model		ARBQ5000						
Reduced pressure port		A		B		P		
Applicable solenoid valve		Plug-in	Plug lead	Plug-in	Plug lead	Plug-in	Plug lead	
Proof pressure		1.5MPa						
Maximum operating pressure		1.0MPa						
Regulating pressure range		0.05 to 0.85MPa						
Fluid		Air						
Ambient and fluid temperature		–5 to 60°C (with no freezing)						
Pressure gauge port size		M5						
Weight (kg)		0.79	0.74	0.78	0.73	0.79	0.74	
Supply side effective area (mm^2) when P_1 = 0.7MPa, P_2 = 0.5MPa	**P→A**	33		75		29		
	P→B	64		33		28		
Exhaust side effective area (mm^2) when P_2 = 0.5MPa	**A→EA**	36		75		78		
	B→EB	68		38		69		

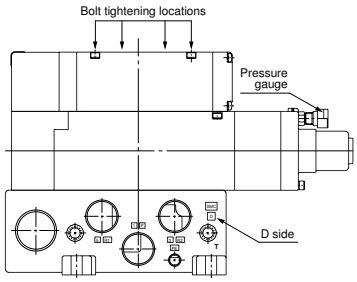
Dimensions



Mounting

⚠ Caution

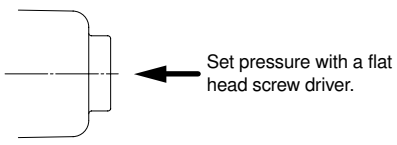
1. **With the P port on the manifold's D side in front, mount the interface regulator so that the position of its pressure gauge is as shown in the figure to the right.**
2. **When mounting an interface regulator, tighten the bolts with a torque of 1 to 1.8 N·m.**



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 a lower 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.**



Optional Manifold Parts

Double check spacer with residual pressure release valve

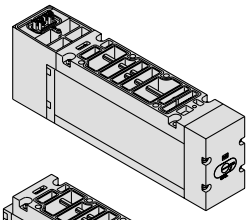
VVQ5000-25A-1 (plug-in type)
VVQ5000-25A-5 (plug lead type)

Can hold an intermediate cylinder position for an extended time

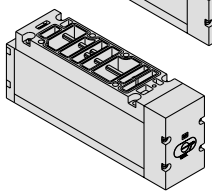
When combined with a double check spacer with built-in double check valve, it is unaffected by air leakage between the spool valves, making it possible to hold a cylinder intermediate stopping position for an extended time.

Further, a combination of a 2 position type (VQ5$\frac{1}{2}$□□) and a double check spacer can be used for drop prevention.

Plug-in type



Plug lead type



Specifications

Double check spacer part no.	VVQ5000-25A-$\frac{1}{5}$	
	Intermediate stop	Drop prevention
Applicable solenoid valve	VQ54□□	VQ5$\frac{1}{2}$□□

Leakage N cm³/min	One solenoid energized	P	EA	320 or less
			EB	
	Both solenoids unenergized	P	EA	320 or less
			EB	
		A	EA	0
		B	EB	

∗ Supply pressure: 0.5MPa

Handling Precautions

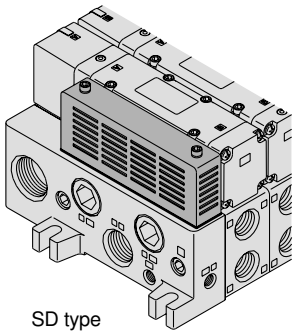
- In the case of a 3 position double check valve (VQ56$\frac{00}{51}$0), check to be sure there are no leaks in the piping and fittings, etc., between the valve and cylinder using a solution such as a neutral detergent. Also check for leakage from the cylinder and piston seal areas. If there is leakage, the cylinder may move immediately without stopping at the intermediate position when the valve is denergized.
- Use caution, as excessive throttling of the perfect check spacer exhaust can cause a loss of intermediate stopping accuracy and malfunction.
- Combination with a 3 position VQ5$\frac{3}{5}$□□ is not possible.
- Operate in a range such that the cylinder pressure is less than two times the supply pressure.

Direct exhaust with silencer box

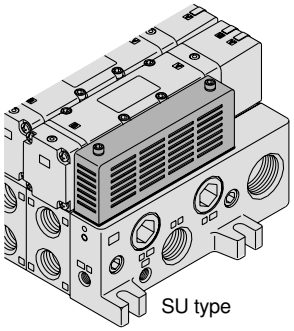
VV5Q5$\frac{1}{5}$-□□□-SD (D side exhaust)
VV5Q5$\frac{1}{5}$-□□□-SU (U side exhaust)
VV5Q5$\frac{1}{5}$-□□□-SB (double side exhaust)

Exhaust ports are located on the top side of the manifold end plate.The built-in silencer is highly effective for noise reduction. (Noise reduction of 35dB or more)

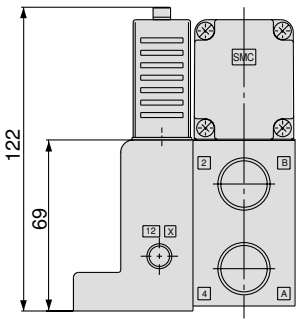
Note) If a large amount of drainage is generated at the air supply, note that drainage will be discharged together with the exhaust air.

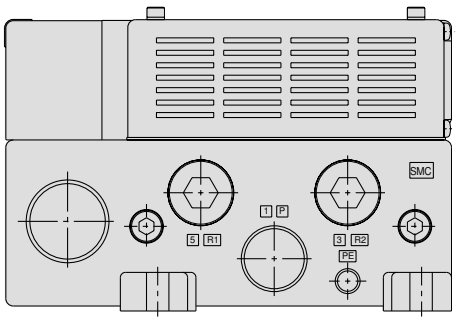


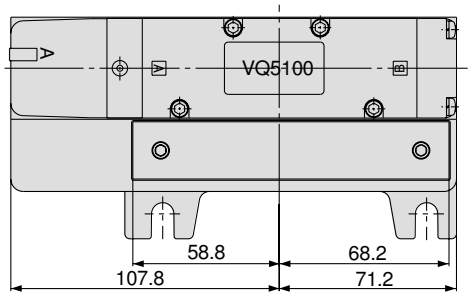
SD type



SU type







Note) The drawing shows a VV5Q51-□□□-SD

Manifold mounted exhaust cleaner

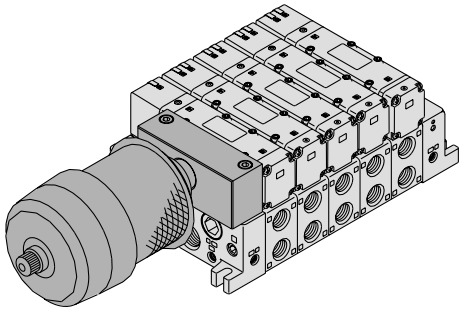
VV5Q5 $\frac{1}{5}$-□□□-CD (D side mounting)

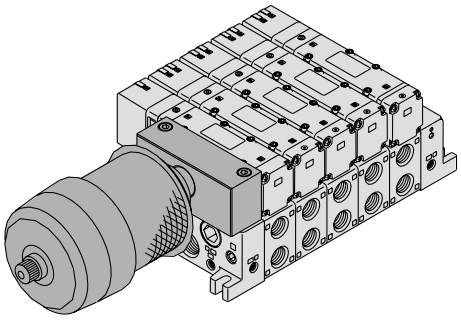
VV5Q5 $\frac{1}{5}$-□□□-CU (U side mounting)

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

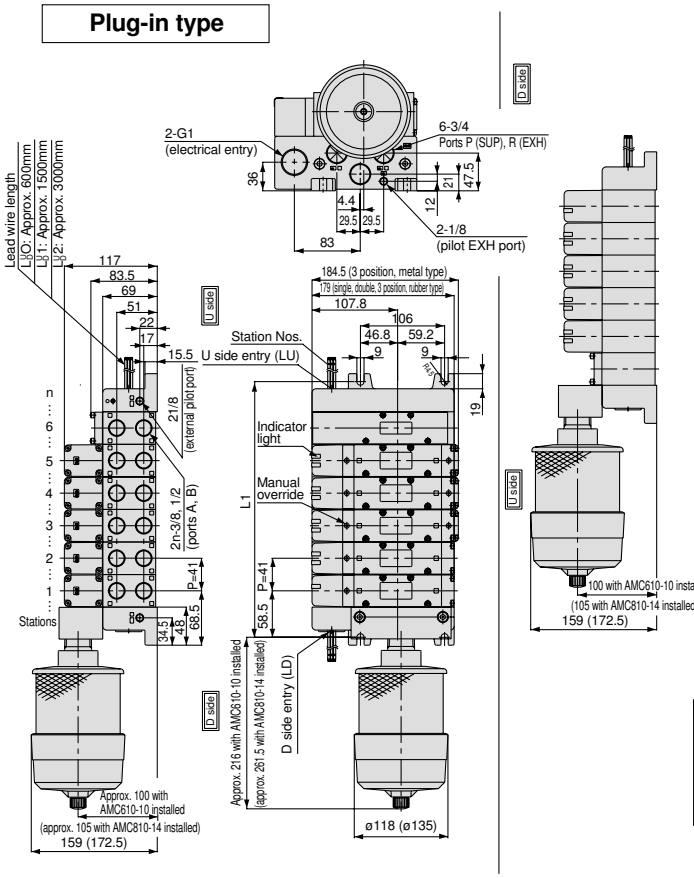
Applicable exhaust cleaners
AMC610-10 (port size Rc1), AMC810-14 (port size Rc1 1/2)

Note 1) Exhaust cleaner: AMC610-10 and MC810-14 are not included. (Order separately)
Note 2) Mount so that the exhaust cleaner is at the lower side.
Note 3) Pages 5.3-1 and 5.3-2 for details on the exhaust cleaner.

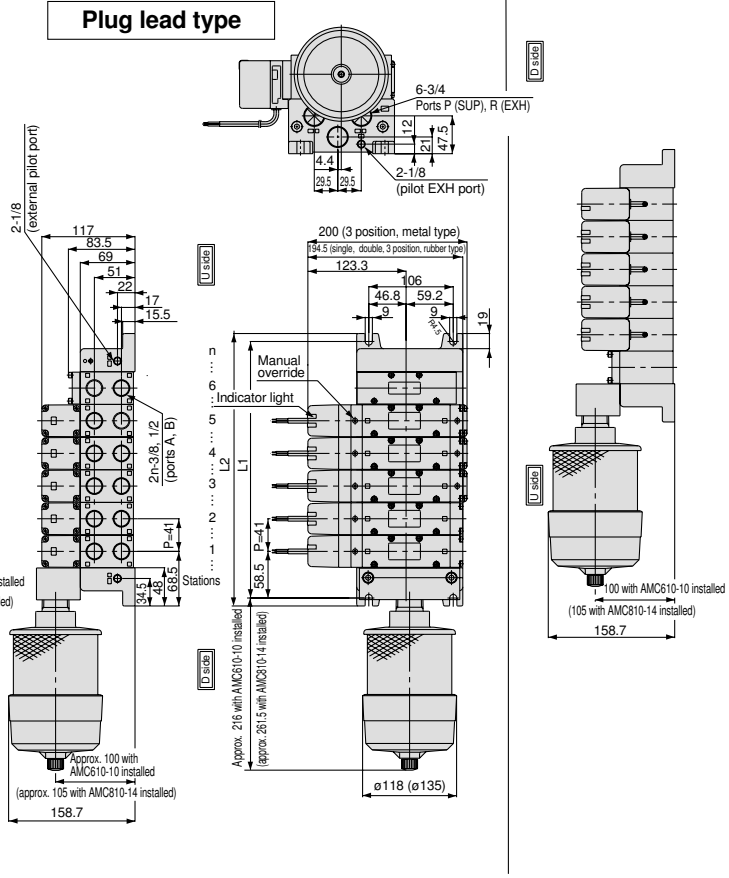




Plug-in type



Plug lead type



Dimensions

Formulas: L1 = 41n + 76, L2 = 41n + 96

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	117	158	199	240	281	322	363	404	445	486	527	568
L2	137	178	219	260	301	342	383	424	465	506	547	588

n: Stations (12 stations max.)

Dimensions

Formulas: L1 = 41n + 76, L2 = 41n + 96

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	117	158	199	240	281	322	363	404	445	486	527	568
L2	137	178	219	260	301	342	383	424	465	506	547	588

n: Stations (12 stations max.)

Option Specifications

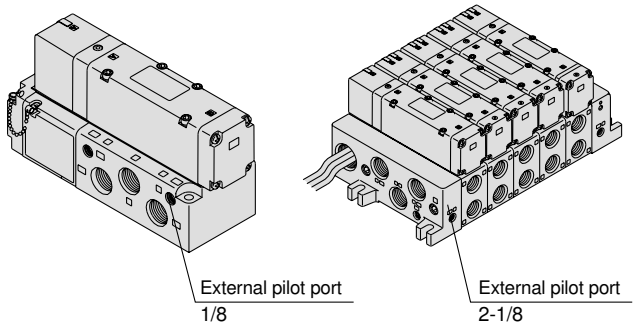
External pilot specifications

When the supply pressure is
- lower than the minimum solenoid valve operating pressure of 0.1 to 0.2MPa, or when it drops below this level
- used for reverse pressure (R port pressure) or cylinder pressure (A, B port pressure)
- used for vacuum specifications (contact SMC), it can be used for external pilot specifications.
  Order a valve by adding the external pilot specfication [R] to the part number.
  External pilot is available as standard for manifolds and options.

How to order valves (example)

VQ5100 R — 5 — 04 — Q

External pilot specification



<Sub plate> **<Manifold>**

Note) Mixed mounting of internal and external pilots is possible

Pressure specifications

Valve construction		Metal seal	Rubber seal
Operating pressure range		Vacuum to 1.0MPa	
External pilot pressure range Note)	Single	0.1 to 1.0MPa (0.1 to 0.7MPa)	0.2 to 1.0MPa (0.2 to 0.7MPa)
	Double		0.15 to 1.0MPa (0.15 to 0.7MPa)
	3 position	0.15 to 1.0MPa (0.15 to 0.7MPa)	0.2 to 1.0MPa (0.2 to 0.7MPa)

Note) Values inside ( ) are for the energy saving (0.5W) specification

International thread standards other than Rc

Rc specifications are standard for all ports, however, NPT, NPTF and G are available for international markets.
Add the appropriate symbol following the port size in the standard part number.

How to order single valves (example)

VQ5100 — 5 — 04 T — Q

Cylinder port size

Thread type (ports P, R and A, B)

Nil	Rc
N	NPT
T	NPTF
F	G

How to order manifolds (example)

VV5Q51 — 08 03 T FU1 — Q

Cylinder port size

Thread type (ports P, R and A, B)

Nil	Rc
N	NPT
T	NPTF
F	G

How to order sub plates and options (example)

VQ5000 — P — B 04 N (Sub plate)

VVQ5000 — P — 1 — 04 T (Option)

Port size

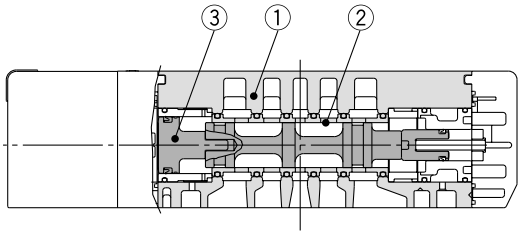
Thread type

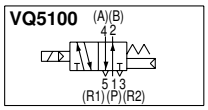
Nil	Rc
N	NPT
T	NPTF
F	G

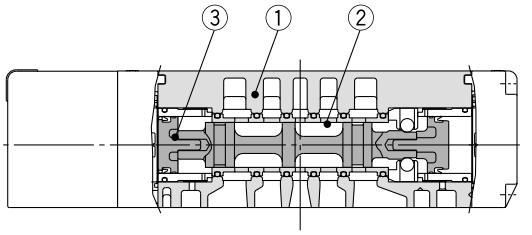
Construction

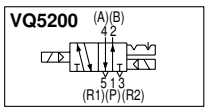
Plug-in Unit

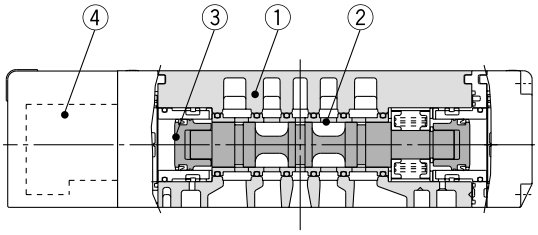
Metal seal type

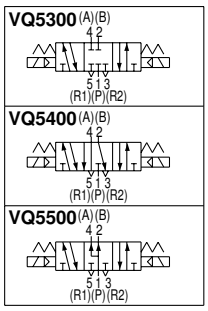




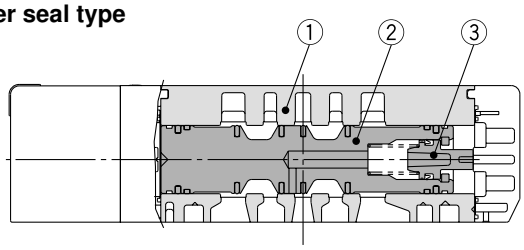


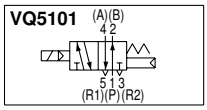


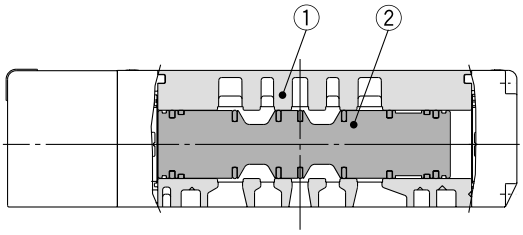


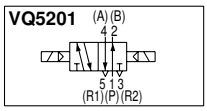


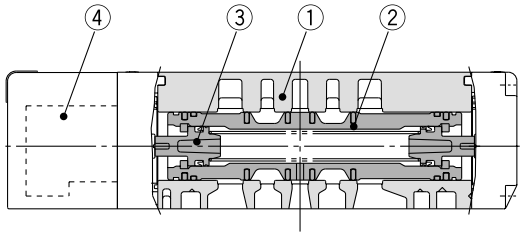
Rubber seal type

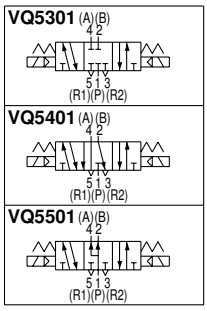












Parts list

No.	Description	Material	Note
1	**Body**	Die cast aluminium	
2	**Spool/Sleeve**	Stainless steel	
3	**Piston**	Resin	

Replacement parts

4	**Pilot valve assembly**	**VQZ111P-□-Q**	∗: Rated coil voltage Example) 24VDC: 5

Parts list

No.	Description	Material	Note
1	**Body**	Die cast aluminium	
2	**Spool valve**	Aluminium, NBR	
3	**Piston**	Resin	

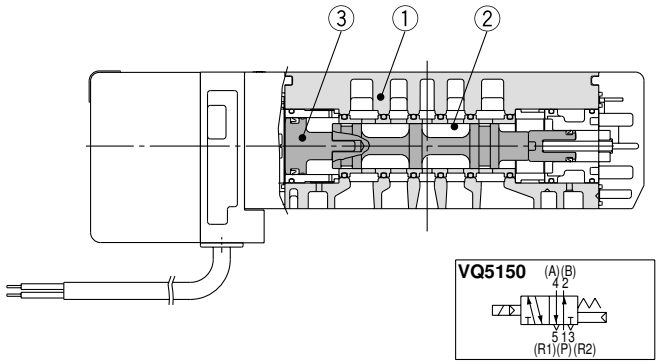
Replacement parts

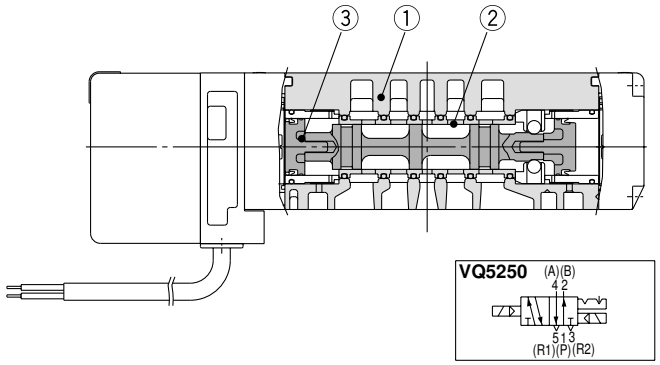
4	**Pilot valve assembly**	**VQZ111P-□-Q**	∗: Rated coil voltage Example) 24VDC: 5

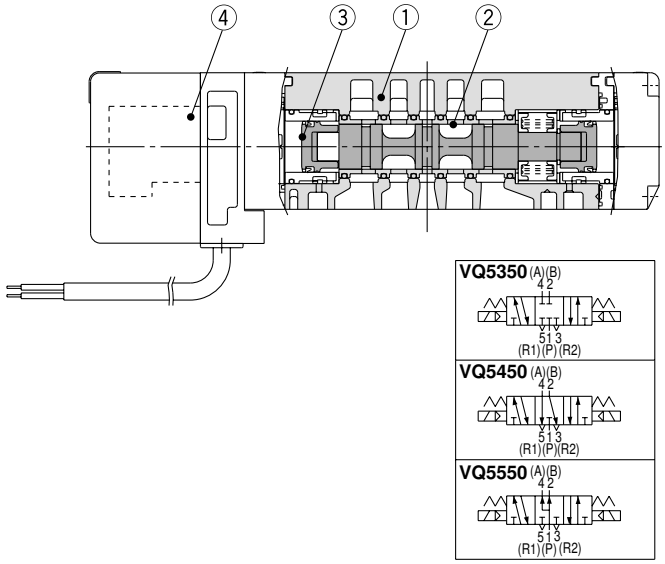
Construction

Plug Lead Unit

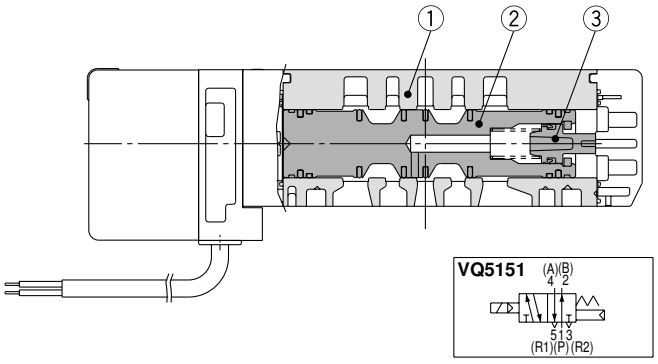
Metal seal type

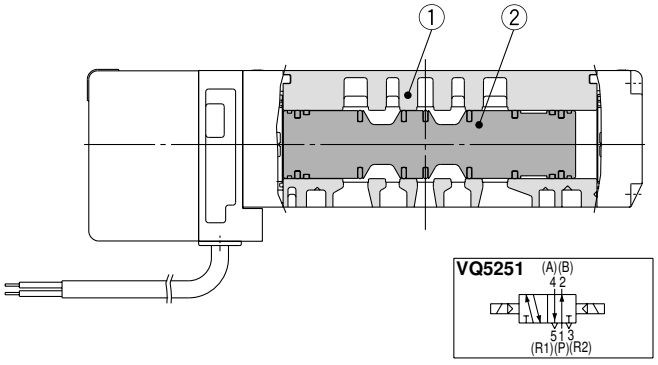


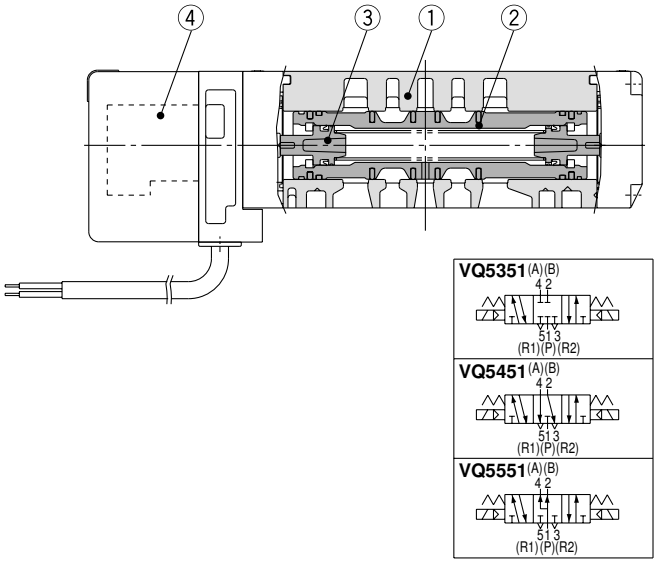




Rubber seal type







Parts list

No.	Description	Material	Note
1	**Body**	Die cast aluminium	
2	**Spool/Sleeve**	Stainless steel	
3	**Piston**	Resin	

Replacement parts

4	**Pilot valve assembly**	**VQZ111P-□-Q**	∗: Rated coil voltage Example) 24VDC: 5

Parts list

No.	Description	Material	Note
1	**Body**	Die cast aluminium	
2	**Spool valve**	Aluminium, NBR	
3	**Piston**	Resin	

Replacement parts

4	**Pilot valve assembly**	**VQZ111P-□-Q**	∗: Rated coil voltage Example) 24VDC: 5

<D side end plate assembly>

1. D side end plate assembly part no. (for F, L, S & T1 kits)

VVQ5000 — 3A — 1 — □ — □

Electrical entry

L	T1, F, L, T, S kits
F Note1)	F kit (connector side)
C	C kit (plug lead type)

Option

Nil	Standard
W Note 2)	IP65 enclosure
CD1	Exhaust cleaner mounting 1
CD2	Exhaust cleaner mounting 1 1/2
SD	Direct exhaust with silencer box

Note 1) D sub connector is not included.
Note 2) Splash proof specification is not available for F and T1.

<U side end plate assembly part no.>

2. U side end plate assembly part no. (for F, L, S & T1 kits)

VVQ5000 — 2A — 1 — □ — □

Electrical entry

L	T1, F, L, T, S kits
F Note1)	F kit (connector side)
C	C kit (plug lead type)

Option

Nil	Standard
W Note 2)	IP65 enclosure
CU1	Exhaust cleaner mounting Rc1
CU2	Exhaust cleaner mounting Rc1 1/2
SU	Direct exhaust with silencer box

Note 1) D sub connector is not included.
Note 2) Splash proof specification is not available for F and T1.

<Manifold block assembly>

3. Manifold block assembly part no.

VVQ5000 — 1 — □ — □ — □ — □

Type

A	1 station

Option

Nil	Standard
W Note 2)	IP65 enclosure

Electrical entry

F1	F kit Double wiring
F2	F kit Single wiring
T0	T1 kit (individual terminal block) Double wiring
T1	T kit (terminal box) Double wiring
T2	T kit (terminal box) Single wiring
S1	S kit Double wiring
S2	S kit Single wiring
L0□	L0 kit □: Stations (1 to 12)
L1□	L1 kit □: Stations (1 to 12)
L2□	L2 kit □: Stations (1 to 12)
C	C kit (plug lead type)

Port size

03	3/8
04	1/2
B	Bottom ported 1/2

Note 1) Tie-rods (2 pcs.) and lead wire assembly for station addition included.
Note 2) Splash proof specification is not available for F and T1.

<Manifold block replacement parts>

Replacement parts

No.	Part number	Description	Material	Qty.
4	VVQ5000-80A-1	Gasket	NBR	10
5	VVQ5000-80A-2	Gasket	NBR	10

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

<SI unit>

SI unit part numbers

Type	Model symbol	SI unit part number		Description
		For U side mounting	For D side mounting	
Dedicated output type	B	EX123U-SMB1	EX123D-SMB1	Mitsubishi Electric: MELSECNET/MINI-S3 data link system
	BB	EX124U-SMB1	EX124D-SMB1	Mitsubishi Electric: MELSECNET/MINI-S3 data link system (2 power supply systems)
	C	EX123U-STA1	EX123D-STA1	OMRON: SYSBUS wire system

Specific Product Precautions 1

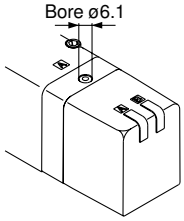
Be sure to read before handling.

⚠ Warning

Manual Override

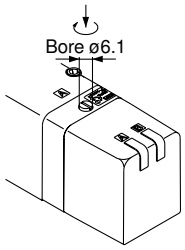
Since connected equipment will operate when the manual override is activated, first confirm that conditions are safe.
The non-locking push type (tool required) is standard, and the slotted locking type (tool required) is optional.

Non-locking push type (tool required)

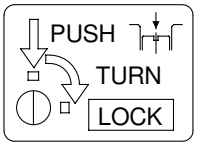


Push down the manual override button with a small screwdriver, etc., until it stops.
The manual override will return when released.

Slotted locking type (tool required) **<Optional>**



Push down the manual override button with a small flat head screwdriver until it stops, and turn it clockwise 90° to lock it. Turn it counter clockwise to release it.

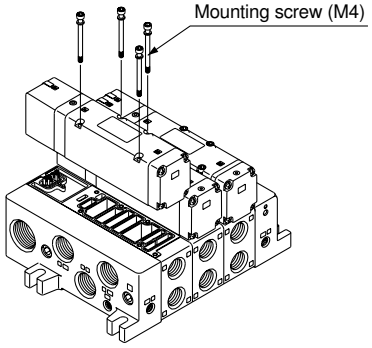


⚠ Caution

Valve Mounting

After confirming that the gasket is installed correctly, securely tighten the mounting screws with the tightening torque shown in the table below.

Proper tightening torque N·m
1 to 1.8

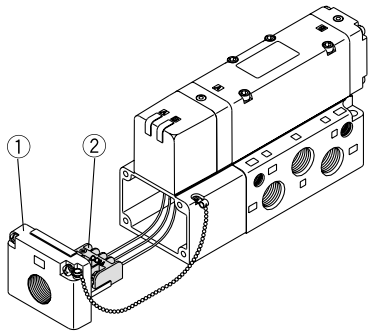


⚠ Caution

Lead Wire Connection

Plug-in sub plate (with terminal block)

• When the sub plate junction cover (1) is removed, the terminal block (2) is found attached inside.



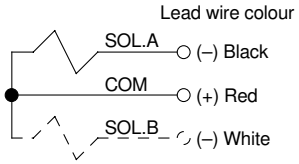
• The terminal block is marked as follows. Connect wiring to each of the power supply terminals.

Model \ Terminal block marking	A	COM	B	⏚
VQ510 $^{0}_{1}$	A side	COM	—	—
VQ520 $^{0}_{1}$	A side	COM	B side	—
VQ5 $^{3}_{4}_{5}_{6}$ 0 $^{0}_{1}$	A side	COM	B side	—

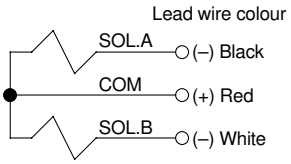
Note 1) There is no polarity. It can also be used as −COM.
Note 2) The sub plate is double wired even for the VQ510$^{0}_{1}$.

Plug lead : Grommet type

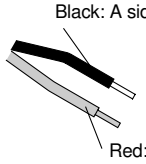
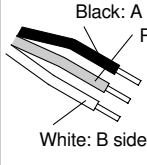
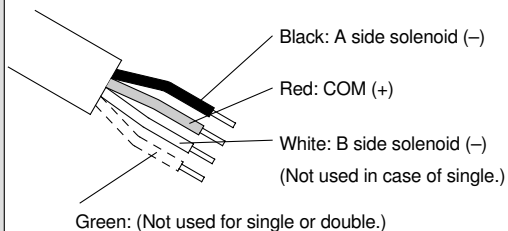
Make connections to each corresponding wire.



Single solenoid type



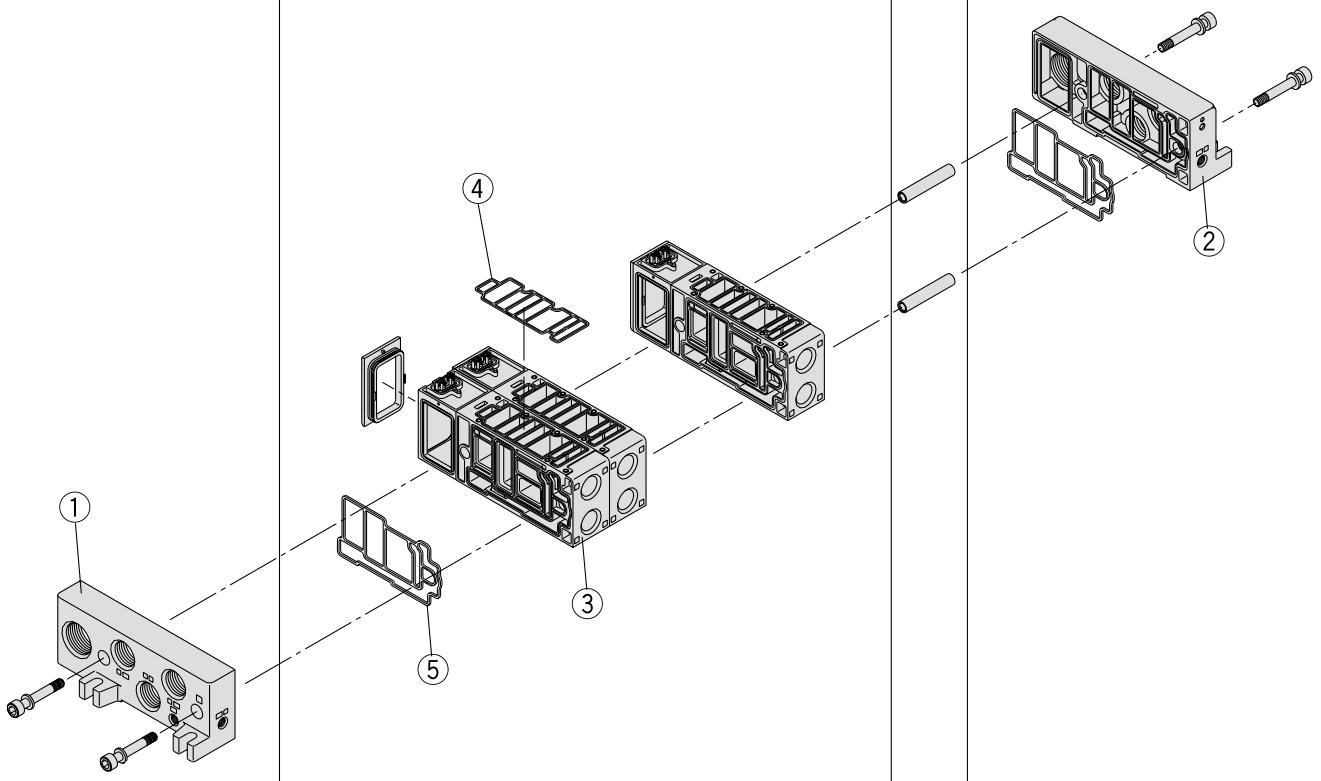
Double solenoid type

	Single solenoid type	Double solenoid type
Standard		
Enclosure IP65		

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

Manifold Exploded View

D side end plate assembly	Manifold block assembly	Tie-rod	U side end plate assembly



The drawing shows a plug-in type.

Note 1) The electrical entry cannot be changed.

Series VQ5000
Specific Product Precautions 2

Be sure to read before handling.

⚠ Caution

Installation and Removal of Light Cover

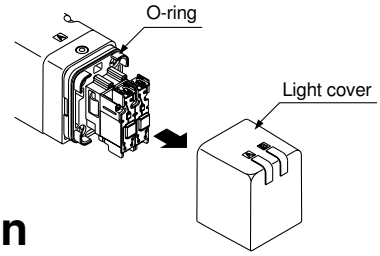
Installation/Removal of light cover

- **Removal**

To remove the pilot cover pull it straight off. If it is pulled off at an angle, the pilot valve may be damaged and/or the protective O-ring may be scratched.

- **Installation**

Place the cover straight over the pilot assembly so that the pilot valve is not touched, and push it until the cover hook locks without twisting the protective O-ring. (When pushed in, the hook opens and locks automatically.)



⚠ Caution

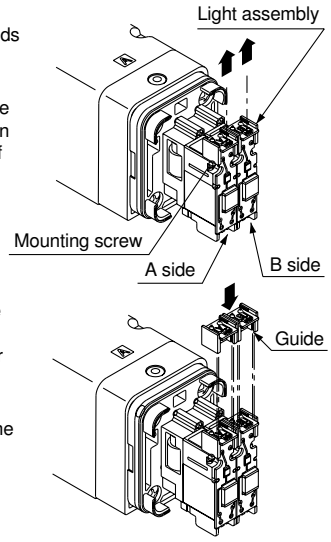
Changing the Pilot Valve

- **Removal**

1. Remove the mounting screw that holds the pilot valve using a small screwdriver.
2. When equipped with light, remove the light circuit board which is installed on the pilot valve by pulling it straight off the connector pins.

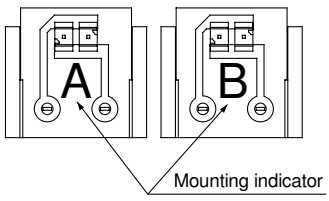
- **Installation**

1. Insert the light circuit board straight onto the connector pins following the guide. If it is pushed in without following the guide, there is a danger of bending the board contacts.
2. After confirming that the gasket is installed correctly, securely tighten the mounting screws with the torque shown in the table below.



Proper tightening torque N·m
0.1 to 0.13

Note) The mounting of pilot valves is not directional with respect to the A and B sides. However, the light circuit board's A side is orange and B side is green, and it must be mounted on the pilot valve in accordance with the mounting indicators. The light will not go on if the mounting is reversed.



Light circuit board no.

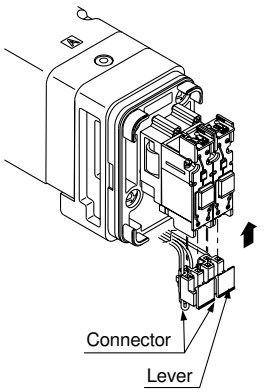
SOL.A	VQZ100-47-A
SOL.B	VQZ100-47-B

Note) It can be used with all voltages.

Plug Lead Type

Installation/Removal of plug connector

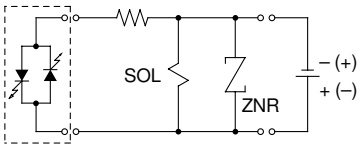
- To install the connector, hold the lever and connector between your fingers and insert it straight onto the pins. Then push the lever's hook into the cover's groove and lock it into place.
- To remove the connector, pull it straight off while pushing down on the lever with your thumb to remove the hook from the groove.



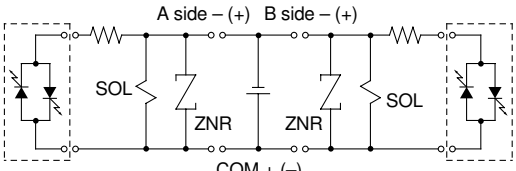
Note) Do not pull on the lead wires with excessive force. This can cause faulty contacts and/or broken wires.

⚠ Caution

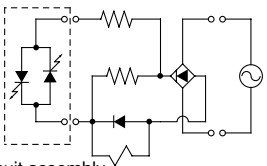
Internal Wiring Specifications



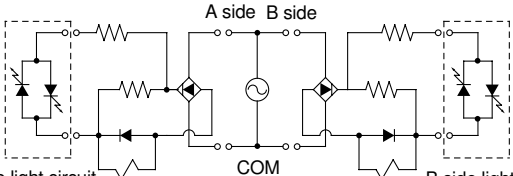
Light circuit assembly (orange) **DC: Single**



A side light circuit assembly (orange) **DC: Double** B side light circuit assembly (green)



AC: Single



AC: Double