

5 Port Solenoid Valve

Series VQ4000

Metal seal

Rubber Seal

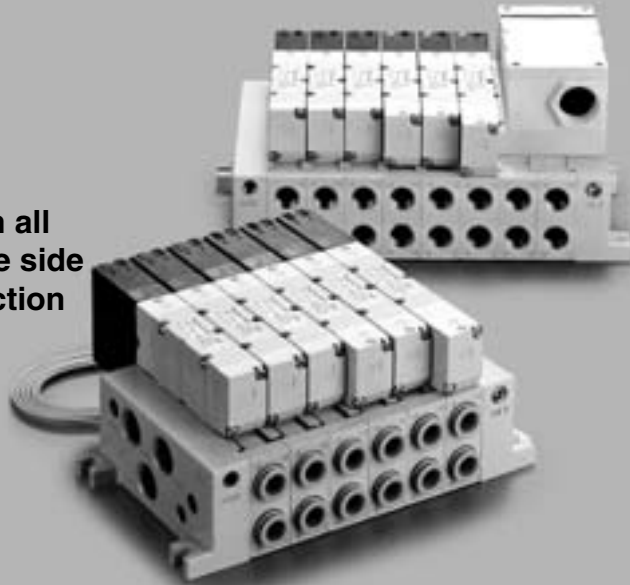
Space-saving profile

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

Space-saving — 40% less

Capacity-saving — 50% less

(In-house comparison)



Compact with large flow capacity

(Ideal for driving cylinders up to ø140)

Built-in One-touch fittings for easier piping

Outstanding response times and long service life

(Metal seal with indicator light/surge suppressor)

VQ4100 17 mS (Single)

VQ4200 12 mS (Double)

Accuracy ±3 mS

100 million cycles

* According to SMC life test conditions

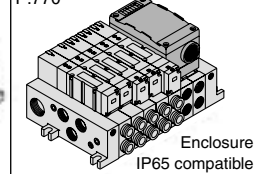
A variety of common wiring methods are standardized.

<Plug-in type>

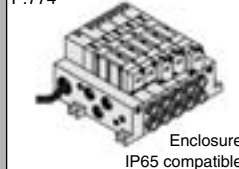
F kit (D-sub connector)
P.766



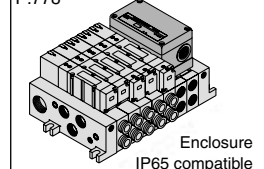
T kit (Terminal block box)
P.770



L kit (Lead wire)
P.774



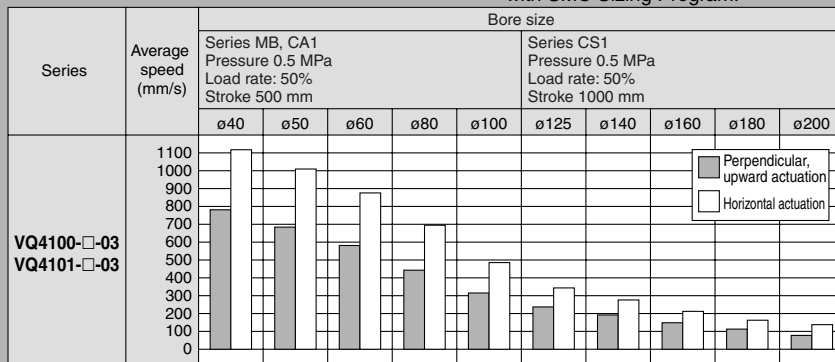
S kit (Serial transmission)
P.778



Enclosure IP65 compliant Dusttight/Low jetproof type

Cylinder Speed Chart

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.



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

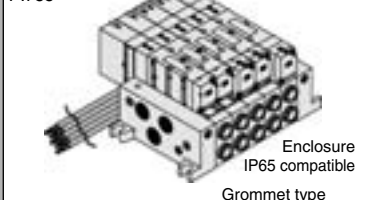
System Components

Speed controller	Silencer	SPG (Steel pipe) dia. x Length
AS420-03	AN300-03	10A x 1m

Individual wiring type

<Plug lead type>

C kit (Connector)
P.788



Base Mounted

Plug-in/Plug Lead Single Unit

Series VQ4000



Model

Series	Configuration		Model		Port size	Flow characteristics						Response time (ms)			Mass (kg)
						1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			Standard 1 W	Low wattage 0.5 W	AC	
						C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv				
VQ4000	2 position	Single	Metal seal	VQ41 ⁰ ₅ 0	Rc 3/8	6.2	0.19	1.5	6.9	0.17	1.7	20 or less	22 or less	22 or less	0.23 (0.29)
			Rubber seal	VQ41 ⁰ ₅ 1		7.2	0.43	2.1	7.3	0.38	2.0	25 or less	27 or less	27 or less	
		Double	Metal seal	VQ42 ⁰ ₅ 0		6.2	0.19	1.5	6.9	0.17	1.7	12 or less	14 or less	14 or less	0.26 (0.32)
			Rubber seal	VQ42 ⁰ ₅ 1		7.2	0.43	2.1	7.3	0.38	2.0	15 or less	17 or less	17 or less	
	3 position	Closed center	Metal seal	VQ43 ⁰ ₅ 0		5.9	0.23	1.5	6.3	0.18	1.6	45 or less	47 or less	47 or less	0.28 (0.34)
			Rubber seal	VQ43 ⁰ ₅ 1		7.0	0.34	1.9	6.4	0.42	1.9	50 or less	52 or less	52 or less	
		Exhaust center	Metal seal	VQ44 ⁰ ₅ 0		6.2	0.18	1.5	6.9	0.17	1.7	45 or less	47 or less	47 or less	0.28 (0.34)
			Rubber seal	VQ44 ⁰ ₅ 1		7.0	0.38	1.9	7.3	0.38	2.0	50 or less	52 or less	52 or less	
		Pressure center	Metal seal	VQ45 ⁰ ₅ 0		6.2	0.18	1.6	6.4	0.18	1.6	45 or less	47 or less	47 or less	0.28 (0.34)
			Rubber seal	VQ45 ⁰ ₅ 1		7.0	0.38	1.9	7.1	0.38	2.0	50 or less	52 or less	52 or less	
		Double check	Metal seal	VQ46 ⁰ ₅ 0		2.7	—	—	3.7	—	—	55 or less	57 or less	57 or less	0.50 (0.56)
			Rubber seal	VQ46 ⁰ ₅ 1		2.8	—	—	3.9	—	—	62 or less	64 or less	64 or less	

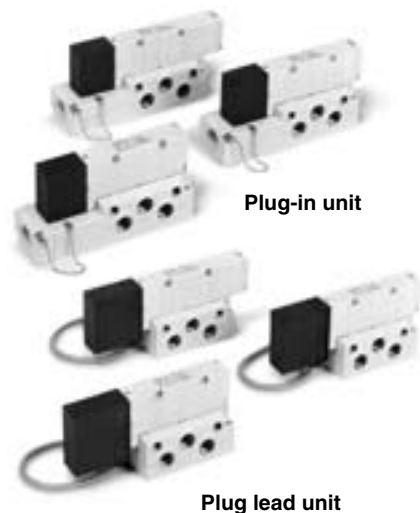


Note 1) Value for valve on sub-plate and cylinder port Rc 3/8

Note 2) Based on JIS B 8375-1981 Supply pressure: 0.5 MPa, with indicator light and surge voltage suppressor, clean air. This will change depending on pressure and air quality.) The value when ON for the double type.

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

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

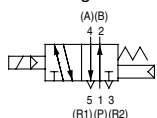


Plug-in unit

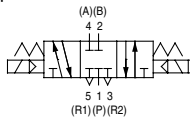
Plug lead unit

JIS Symbol

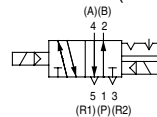
2 position single



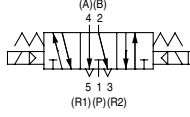
3 position closed center



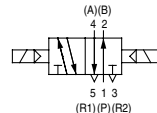
2 position double (Metal)



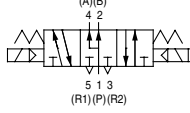
3 position exhaust center



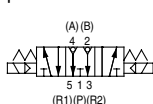
2 position double (Rubber)



3 position pressure center



3 position double check



Standard Specifications

Valve specifications	Valve construction		Metal seal	Rubber seal
	Fluid		Air/Inert gas	Air/Inert gas
	Maximum operating pressure ⁽³⁾		1.0 MPa (0.7 MPa)	
	Min. operating pressure	Single	0.15 MPa	0.20 MPa
		Double	0.15 MPa	0.15 MPa
		3 position	0.15 MPa	0.20 MPa
	Ambient and fluid temperature		−10 to 50°C ⁽¹⁾	−5 to 50°C ⁽¹⁾
	Lubrication		Not required	
	Manual override		Push type/Locking type (Tool required) Option	
	Shock/Vibration resistance		150/30 m/s ²	
Solenoid specifications	Enclosure		Dust tight (IP65 compatible)	
	Coil rated voltage		12, 24 VDC, 100, 110, 200, 220 VAC (50/60 Hz)	
	Allowable voltage fluctuation		±10% of rated voltage	
	Coil insulation type		Class B or equivalent	
	Power consumption (Current)	24 VDC	1 W DC (42 mA), 0.5 W DC (21 mA)	
		12 VDC	1 W DC (83 mA), 0.5 W DC (42 mA)	
		100 VAC	Inrush 1.2 VA (12 mA), Holding 1.2 VA (12 mA)	
		110 VAC	Inrush 1.3 VA (11.7 mA), Holding 1.3 VA (11.7 mA)	
		200 VAC	Inrush 2.4 VA (12 mA), Holding 2.4 VA (12 mA)	
		220 VAC	Inrush 2.6 VA (11.7 mA), Holding 2.6 VA (11.7 mA)	



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

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

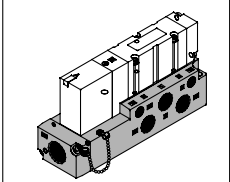
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

Note 3) Values inside () denote the low wattage (0.5 W) specifications.

How to Order Valves

Body

0: Plug-in sub-plate



Port size

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

Note) For thread standard, refer to page 795.

Porting specifications

Nil	Side ported
B	Bottom ported

Plug-in VQ4 1 0 0 - - - - -

Plug lead VQ4 2 5 1 - - - - -

Type of actuation

1	2 position single	3	3 position closed center
	2 position double		3 position exhaust center
2	2 position double	4	3 position pressure center
	2 position double		3 position double check
		6	Note) For double check style, refer to page 792.

Enclosure

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

CE-compliant

Nil	—
Q	CE-compliant

Manual override

Nil: Non-locking push type (Tool required)	B: Slotted locking type (Tool required)
--	--

Light/Surge voltage suppressor

Nil	Yes
E	Without light, with surge voltage suppressor

Coil voltage

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

Electrical entry

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

Seal

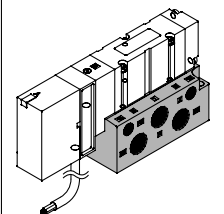
0	Metal seal
1	Rubber seal

Function

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

Body

5: Plug lead sub-plate



How to Order Sub-plates

VQ4000 - - - - -

Electrical entry

P	Plug-in conduit terminal
S	Plug lead

Enclosure

Nil	Dust-protected
W ^{Note)}	Dusttight/Low jetproof type

Note) It is not necessary for plug lead type.

CE-compliant

Nil	—
Q	CE-compliant

Port size

02	Rc 1/4
03	Rc 3/8

Porting specifications

Nil	Side ported
B	Bottom ported ⁽¹⁾

Note 1) For bottom ported port size is RC 1/4 only.
Note 2) For thread standard, refer to page 795.



Note 1) Applicable to DC specifications. Please select when you expect to energize the unit for extended periods of time. Refer to page 3 for details.

Note 2) For external pilot specifications, refer to page 795. Combination of external pilot and perfect interface is not possible.

Note 3) When two or more symbols are specified, indicate them alphabetically.

Replacement of pilot valve assembly (Voltage)

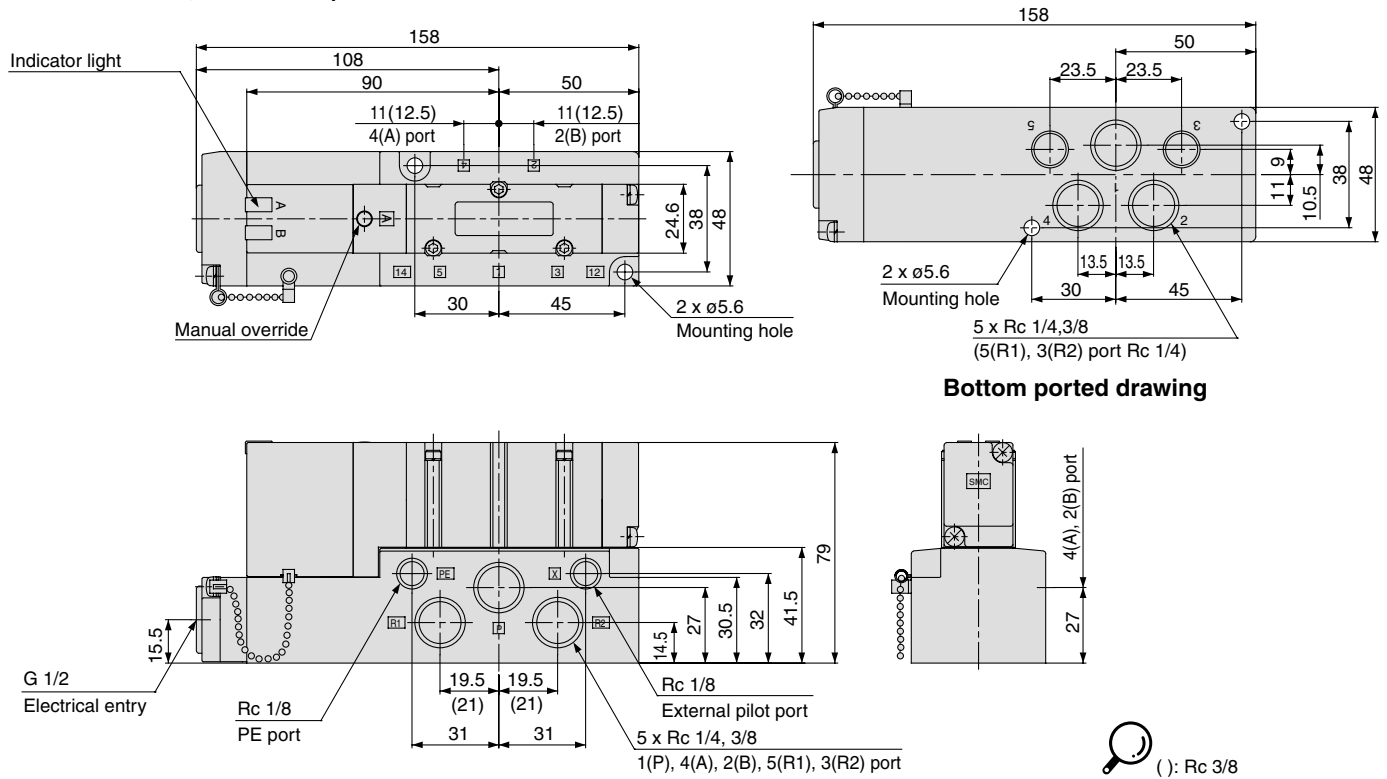
- Refer to pages 800 and 801 for pilot valve assembly part numbers.
- For "How to Replace", refer to page 805.

Series VQ4000

Plug-in Type

Conduit terminal

2 position single: VQ410⁰-□

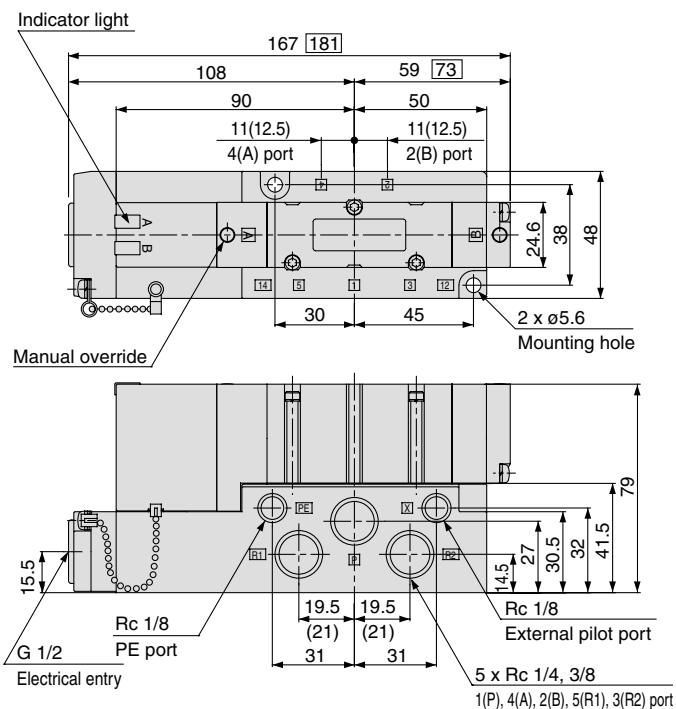


2 position double: VQ420⁰-□

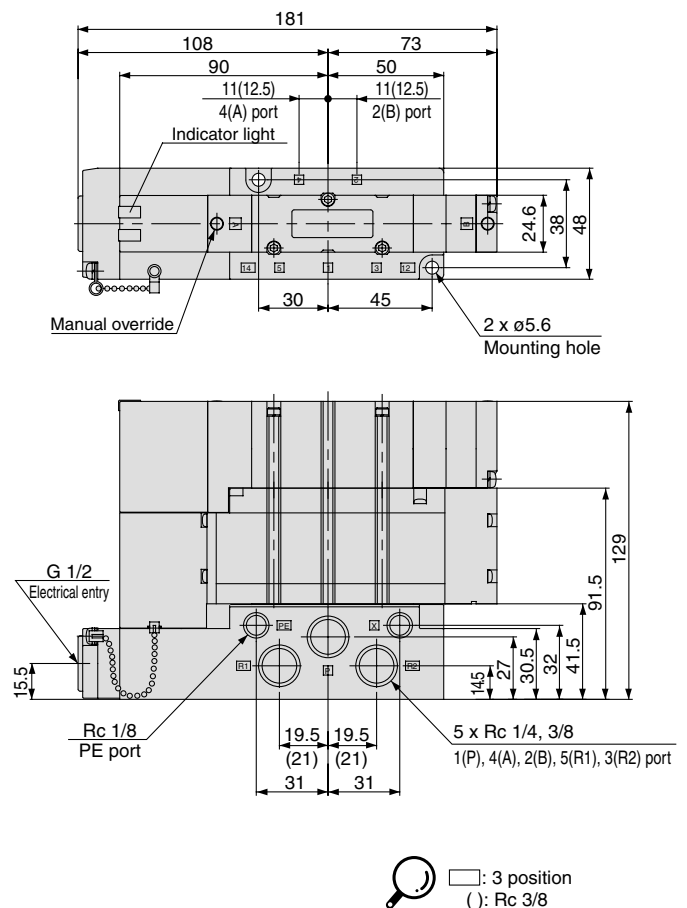
3 position closed center: VQ430⁰-□

3 position exhaust center: VQ440⁰-□

3 position pressure center: VQ450⁰-□



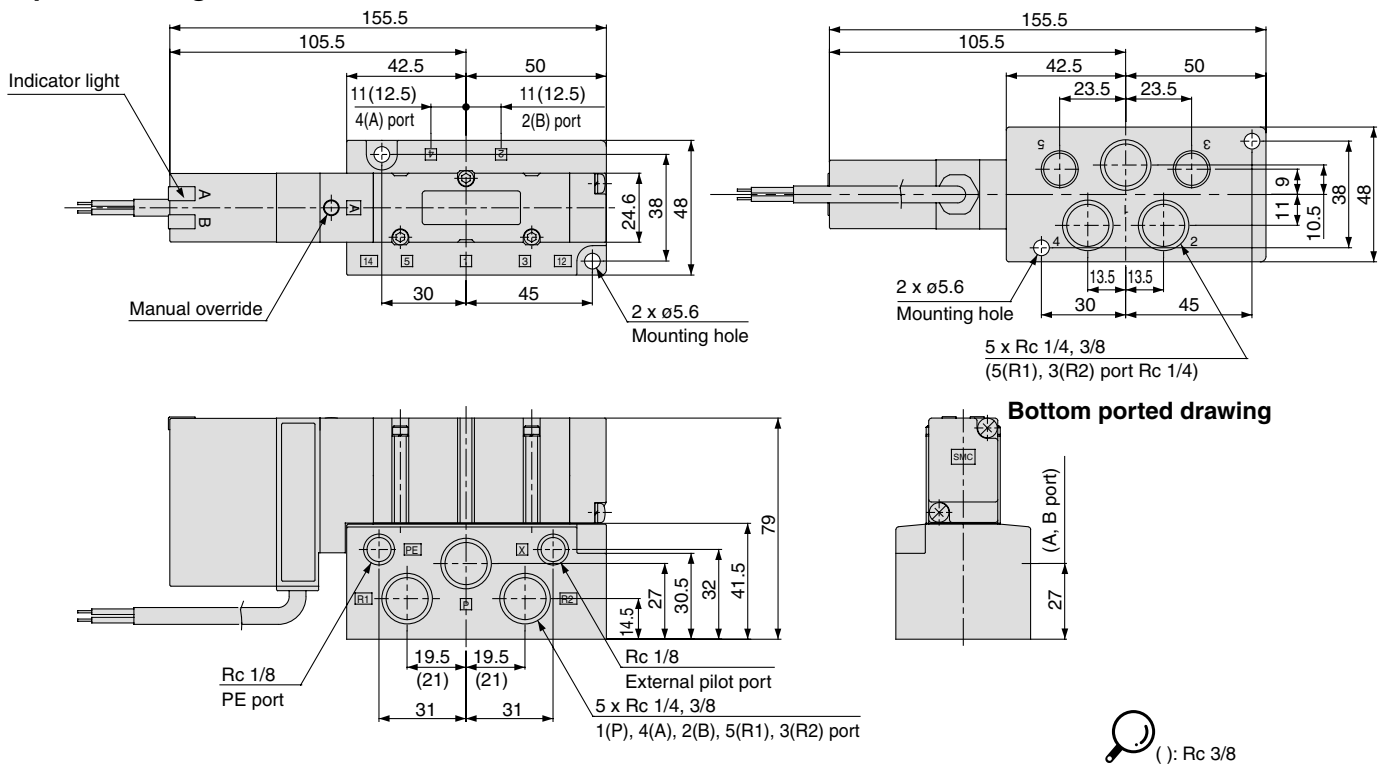
3 position double check: VQ460⁰-□



Plug Lead Type

Grommet

2 position single: VQ415 $\frac{0}{1}-\square \frac{G}{H}$

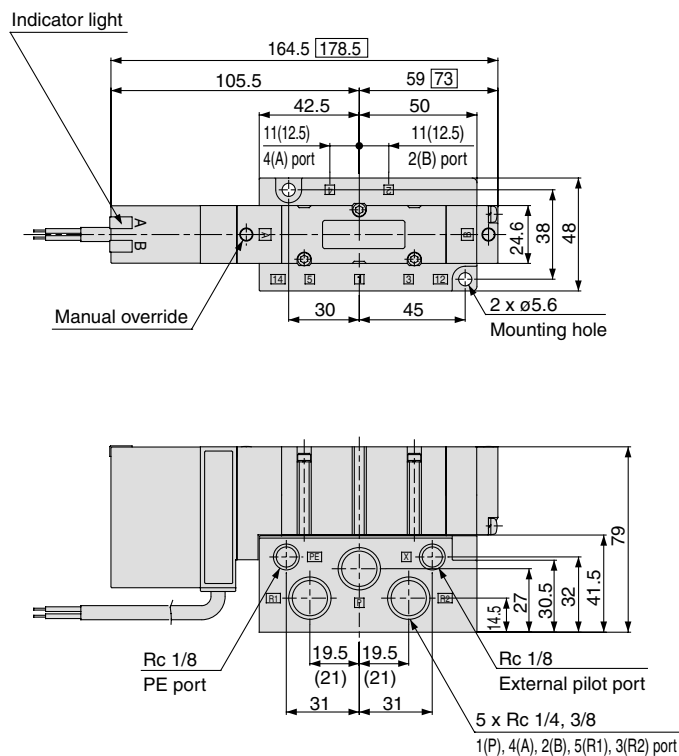


2 position double: VQ425 $\frac{0}{1}-\square \frac{G}{H}$

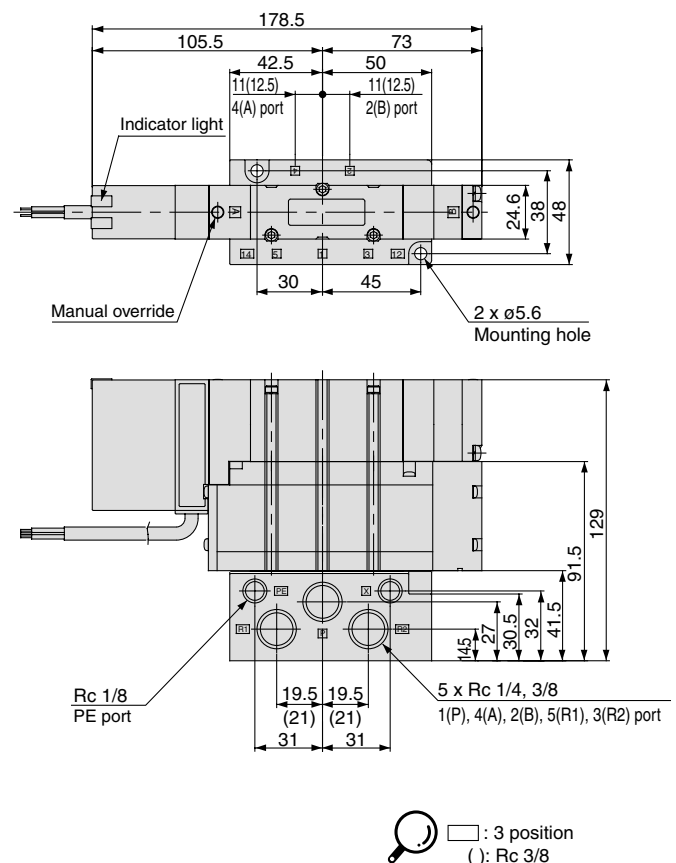
3 position closed center: VQ435 $\frac{0}{1}-\square \frac{G}{H}$

3 position exhaust center: VQ445 $\frac{0}{1}-\square \frac{G}{H}$

3 position pressure center: VQ455 $\frac{0}{1}-\square \frac{G}{H}$



3 position double check: VQ465 $\frac{0}{1}$



Base Mounted Plug-in Unit Series VQ4000



How to Order Manifold

VV5Q 4 1 - 08 C8 F U1 - K -

Series
4 VQ4000

Manifold
1 Plug-in unit

Stations
01 1 station
: :
: :
: :
The maximum and minimum number of stations are varied depending on kit. (Refer to the table below.)

Kit type
08 C8 F U1

Control unit
Refer to pages 796 to 799.

Kit/Electrical entry/Cable length

Cylinder port

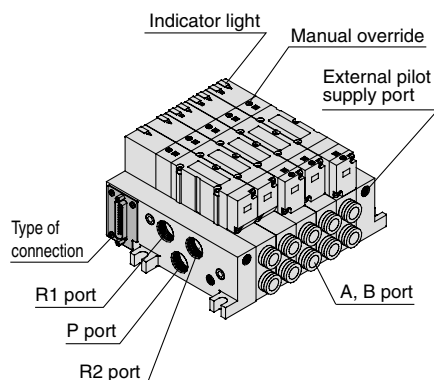
C6	With One-touch fitting for ø6
C8	With One-touch fitting for ø8
C10	With One-touch fitting for ø10
C12	With One-touch fitting for ø12
02	Rc 1/4
03	Rc 3/8
B	Bottom ported Rc 1/4
CM	Mixed

CE-compliant
Nil —
Q CE-compliant

Option

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

Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -CDK
Note 2) Combination of [C₆⁰²] and [S₀⁰³] is not possible.
Note 3) Specify the wiring specifications on the manifold specification sheet. (Except L kit)



Note) Shown VV5Q41-05C12FD0

F kit (D-sub connector)

Connector entry direction

D side		U side		1 to 18 stations
Kit	D0	Kit	U0	
F	D1	F	U1	Without cable
	D2		U2	Cable length 1.5 m
	D3		U3	Cable length 3 m
				Cable length 5 m

T kit (Terminal block box kit)

Terminal block mounting position

D side		U side	
TD	TO	Terminal block box	3 to 18 stations

IP65 compatible

L kit (Lead wire cable)

Electrical entry

D side		U side		1 to 16 stations
Kit	D0	Kit	U0	
L	D1	L	U1	Cable length 0.6 m
	D2		U2	Cable length 1.5 m
				Cable length 3 m

IP65 compatible

S kit (Serial transmission unit)

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

IP65 compatible
* Applicable to INPUT and OUTPUT type.

Unit mounting position		CE-compliant	3 to 18 stations (Note)
D side	U side		
0	Without SI unit	●	
F1	NKE Corp.: Uni-wire System	—	
H	NKE Corp.: Uni-wire H System	—	
J1	SUNX Corp.: S-LINK System (16 output points)	—	
J2	SUNX Corp.: S-LINK System (8 output points)	—	
Q	DeviceNet	●	
R1	OMRON Corp.: CompoBus/S System (16 output points)	●	
R2	OMRON Corp.: CompoBus/S System (8 output points)	●	
V	CC-Link	●	

Simple specials are available with SMC Simple Special System. For details about applicable models, refer to front matter 53.



Note) Add 2 stations for SI unit mounting. Maximum stations are 18. 2 stations are used for SI unit mounting.



* For INPUT and OUTPUT type, refer to pages 782 to 785.

Manifold Specifications

Series	Base model	Type of connection	Porting specifications		Maximum applicable stations	Applicable solenoid valve	Mass (kg) (Formula)
			4(A), 2(B) port location	Port size ^{Note)}			
				1(P), 5(R1), 3(R2)	4(A), 2(B)		
VQ4000	VV5Q41-□□□	■ F kit—D-sub connector ■ T kit—Terminal block box ■ L kit—Lead wire ■ S kit—Serial transmission	Side	Rc 1/2 Option (Direct exhaust with silencer box)	C6 (For ø6) C8 (For ø8) C10 (For ø10) C12 (For ø12) Rc 1/4 Rc 3/8	F, T kit 18 stations L kit 16 stations S kit 18 stations	F, L kit: 0.32n+0.75 S, T kit: 0.32(n-2) +1.8 • Except solenoid valve weight
			Bottom		Rc 1/4		



Note) For details about inch-size One-touch fittings and other thread standards, refer to page 795.

n: Stations

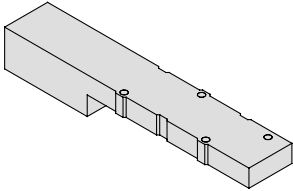
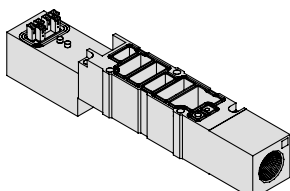
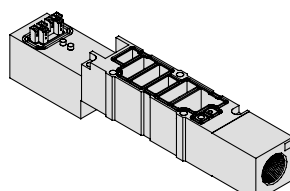

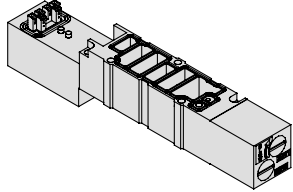
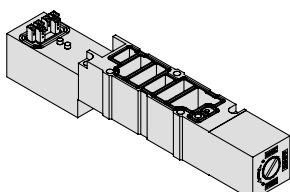
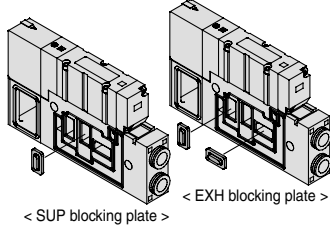
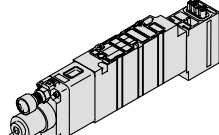
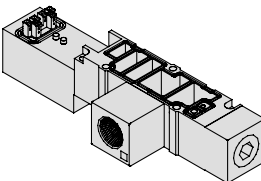
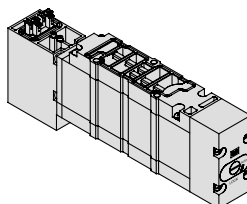
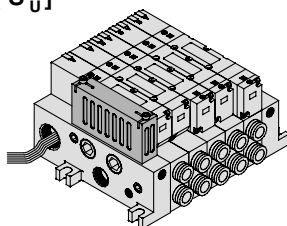
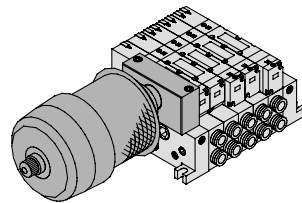
Flow Characteristics at the Number of Manifold Stations (Operated individually)

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



Note) Port size: Rc 3/8

Manifold Option

Blanking plate assembly VVQ4000-10A-1 	Individual SUP spacer VVQ4000-P-1-₀₂₀₃ 	Individual EXH spacer VVQ4000-R-1-₀₂₀₃ 	 <ul style="list-style-type: none"> Refer to pages 790 to 794 for detailed dimensions of each option. For replacement parts, refer to page 803. Refer to pages 796 to 799 for control unit.
Throttle valve spacer VVQ4000-20A-1 	SUP stop valve spacer VVQ4000-37A-1 	SUP/EXH block plate VVQ4000-16A  <p>< SUP blocking plate > < EXH blocking plate ></p>	Interface regulator ARBQ4000-00-_A_B-1_P 
Release valve spacer VVQ4000-24A-1D^(1, 2) 	Double check spacer with residual pressure exhaust VVQ4000-25A-1⁽¹⁾ 	Direct exhaust with silencer box [-S_D^D]⁽¹⁾ 	For exhaust cleaner mounting [-C_D^D]⁽¹⁾ 



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

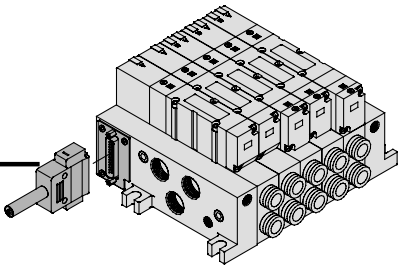
Note 2) Can be mounted on L kit only. For other kits, order E type control unit.

(Refer to pages 796 to 799.)



Series VQ4000

F Kit (D-sub connector kit)



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

Manifold Specifications

Series	Porting specifications			Applicable stations
	4(A), 2(B) port location	Port size		
		1(P), 5(R1), 3(R2)	4(A), 2(B)	
VQ4000	Side	Rc 1/2	C 8, 10, 12 Rc 1/4, 3/8	Max. 18 stations
	Bottom		Rc 1/4	

D-Sub Connector Kit (25 pins)

Cable assembly ●

015
AXT100-DS25-030
050
(D-sub connector cable assemblies can be ordered by with manifolds.)
(Refer to How to Order Manifold.)

D-sub Connector Cable Assembly Terminal No.

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

D-sub Connector Cable Assembly

Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-DS25-015	Cable 25 cores x 24AWG
3 m	AXT100-DS25-030	
5 m	AXT100-DS25-050	

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

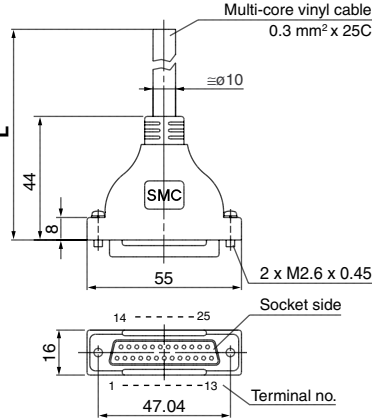
Connector manufacturers' example

- Fujitsu, Ltd.
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.
- Hirose Electric Co., Ltd.

Electric Characteristics

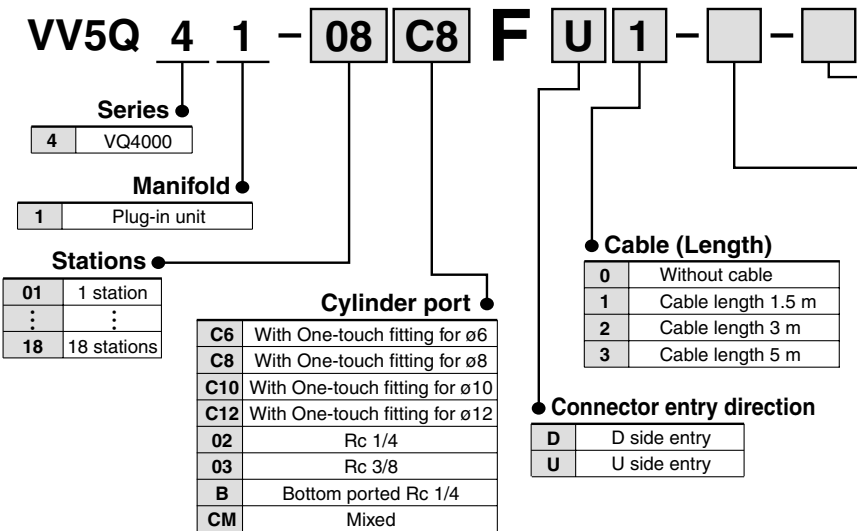
Item	Characteristics
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit VAC, 1 min.	1000
Insulation resistance MΩkm, 20°C	5 or less

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



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

How to Order Manifold



CE-compliant	
Nil	—
Q	CE-compliant

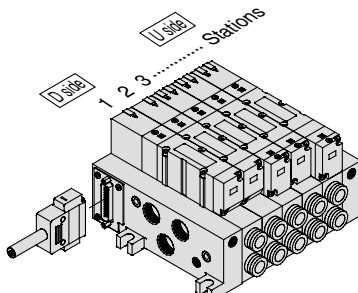
Option	
Symbol	Option
Nil	None
CD ⁽²⁾	Exhaust cleaner: For D side mounting
CU ⁽²⁾	Exhaust cleaner: For U side mounting
K ⁽³⁾	Special wiring specifications (Except double wiring)
SB	Direct exhaust with silencer box: Exhaust from both sides
SD ⁽²⁾	Direct exhaust with silencer box: D side exhaust
SU ⁽²⁾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

- Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -CDK
- Note 2) Combination of [C_D^U] and [S_D^U] is not possible.
- Note 3) Specify the wiring specifications on the manifold specification sheet.
- Note 4) Refer to pages 796 to 799 for with control unit.

Note) As an option, the maximum number of stations can be increased by special wiring specifications.
For details, refer to page 767.

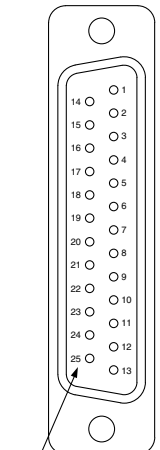


● Electrical wiring specifications



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

D-sub connector



Connector terminal no.

	Standard wiring	Wiring with control unit	D-sub connector assembly
	Terminal no.	Terminal no.	Polarity
1 station	SOL. A 1	Release valve 1 (-)	(+)
	SOL. B 14	Pressure switch 14 (+)	(-)
2 stations	SOL. A 2	SOL. A 15 (+)	(-)
	SOL. B 15	SOL. B 16 (-)	(+)
3 stations	SOL. A 3	SOL. A 4 (-)	(+)
	SOL. B 4	SOL. B 17 (-)	(+)
4 stations	SOL. A 5	SOL. A 18 (-)	(+)
	SOL. B 6	SOL. A 19 (-)	(+)
5 stations	SOL. A 7	SOL. A 20 (-)	(+)
	SOL. B 8	SOL. A 21 (-)	(+)
6 stations	SOL. A 9	SOL. A 22 (-)	(+)
	SOL. B 10	SOL. A 23 (-)	(+)
7 stations	SOL. A 11	SOL. A 24 (-)	(+)
	SOL. B 12	SOL. A 25 (-)	(+)
8 stations	SOL. A 13	SOL. B 13 (+)	(-) (Note)
	SOL. B 14	COM. 13	

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

SJ
SY
SV
SYJ
SZ
VP4
S0700
VQ
VQ4
VQ5
VQC
VQZ
SQ
VFS
VFR
VQ7

Special Wiring Specifications

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

1. How to order

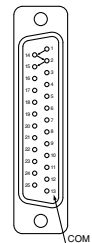
Indicate option symbol "K" in the manifold part number and be sure to specify station positions for single or double wiring on the manifold specification sheet.

2. Wiring specifications

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



[Option]



D-sub connector

How to Order Valves

VQ 4 1 0 0 - 5 - -

Series
4 VQ4000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
6	3 position double check

Seal

0	Metal seal
1	Rubber seal

Function

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

Manual override

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

Light/Surge voltage suppressor

Nil	Yes
E	Without light, with surge voltage suppressor

Coil voltage

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

CE-compliant

Nil	—
Q	CE-compliant



Note 1) Applicable to DC specifications. Please select when you expect to energize the unit for extended periods of time. Refer to page 3 for details.
Note 2) Refer to page 795 for external pilot specification. Combination of external pilot and perfect interface is not possible.
Note 3) When two or more symbols are specified, indicate them alphabetically.

How to Order Manifold Assembly

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

<Example>

D-sub connector kit with cable (3 m)

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

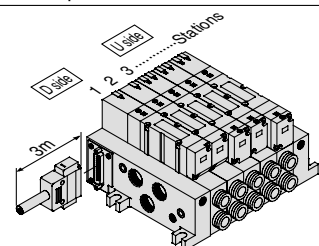
*VQ4100-5(-Q).....2 sets —Valve part no. (Stations 1 and 2)

*VQ4200-5(-Q).....2 sets —Valve part no. (Stations 3 and 4)

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

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

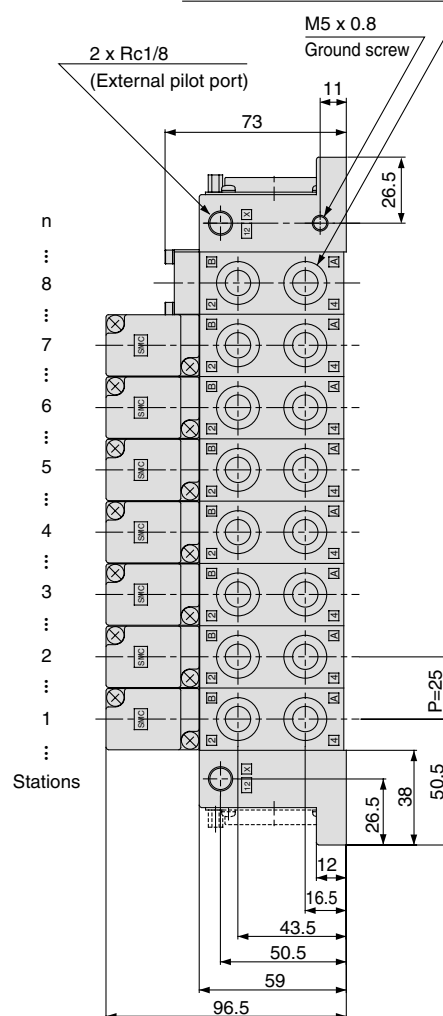
Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



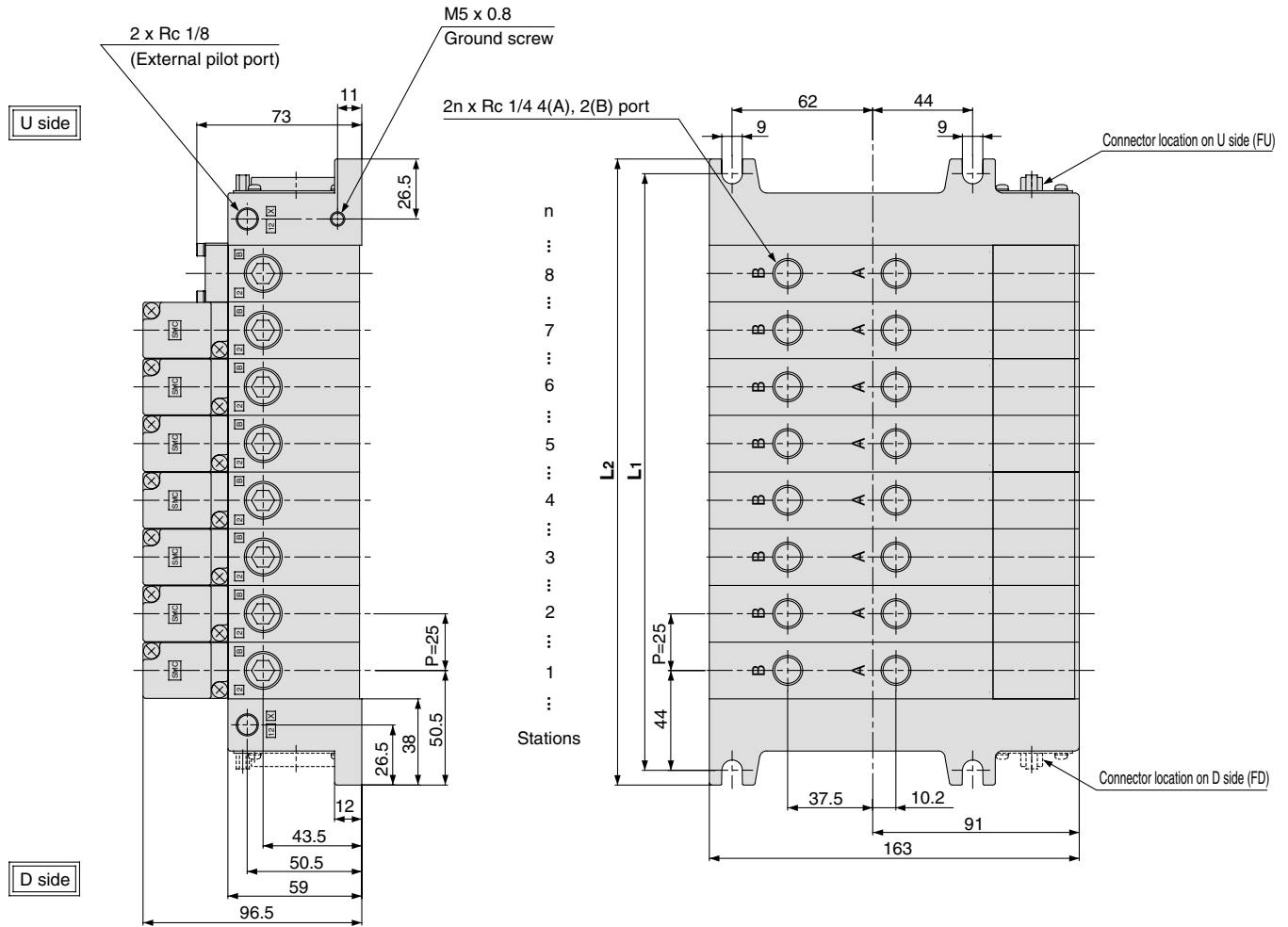
F

[illegible]

C12: One-touch fitting for ø12



Bottom ported drawing



SJ
SY
SV
SYJ
SZ
VP4
S0700
VQ
VQ4
VQ5
VQC
VQZ
SQ
VFS
VFR
VQ7

Dimensions

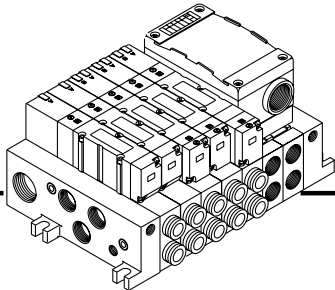
Formula $L1 = 25n + 63$, $L2 = 25n + 76$ n: Station (Maximum standard 18 stations)

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 block box kit)

IP65 compliant



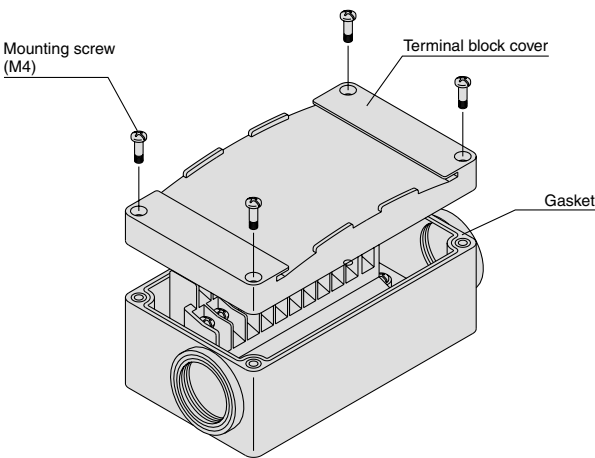
- Enclosure IP65 compliant
- This type has a small terminal block inside a junction box.
The provision of a G 3/4 electrical entry allows connection of conduit fittings.
- Maximum stations are 18.
- 2 stations are used for terminal box mounting.

Manifold Specifications

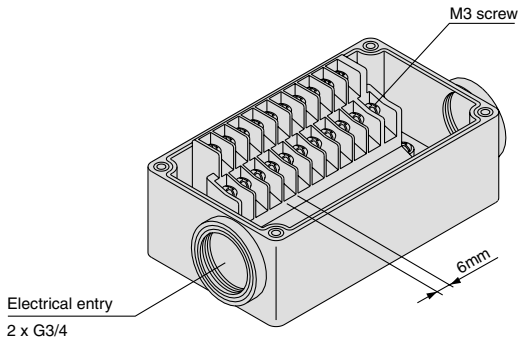
Series	Porting specifications			Applicable stations
	4(A), 2(B) port location	Port size		
		1(P), 5(R1), 3(R2)	4(A), 2(B)	
VQ4000	Side	Rc 1/2	C8, 10, 12 Rc 1/4, 3/8	Max. 18 stations
	Bottom		Rc 1/4	

Terminal Block Connections

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



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



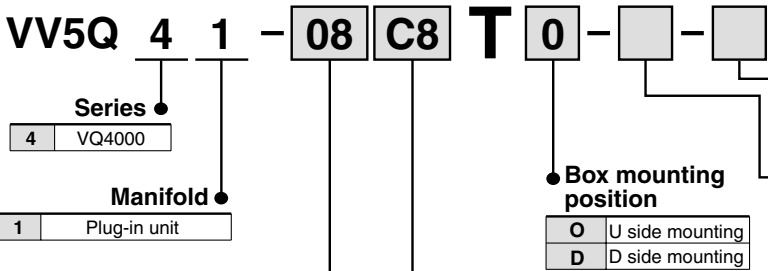
Step 3. How to attach the terminal block cover
Securely tighten the screws with the torque shown in the table below, after confirming that the gasket is installed correctly.

Proper tightening torque (N·m)
0.7 to 1.2

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



How to Order Manifold

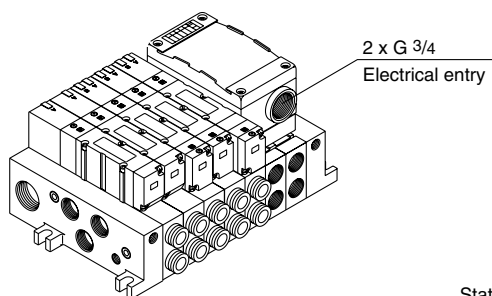


Note) Add 2 stations for terminal block box mounting.

Cylinder port	
C6	With One-touch fitting for ø6
C8	With One-touch fitting for ø8
C10	With One-touch fitting for ø10
C12	With One-touch fitting for ø12
02	Rc 1/4
03	Rc 3/8
B	Bottom ported Rc 1/4
CM	Mixed

Note) As an option, the maximum number of stations can be increased by special wiring specifications. For details, refer to page 771.

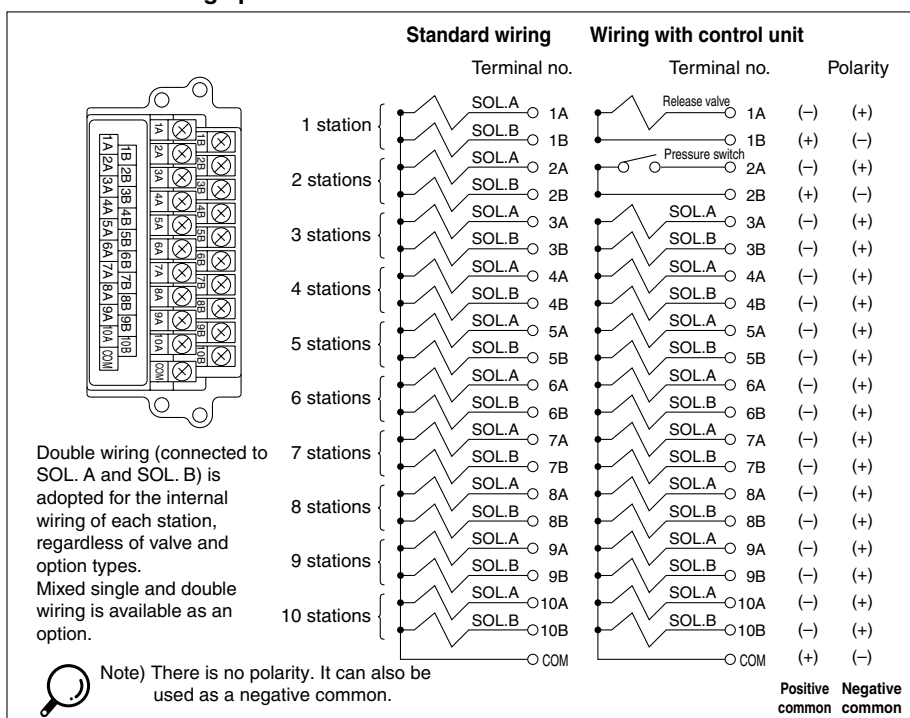
- Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -CDK
- Note 2) Combination of [CD] and [SD] is not possible.
- Note 3) Specify the wiring specifications on the manifold specification sheet.
- Note 4) Name plate is inlaid in the terminal block cover.
- Note 5) Refer to pages 796 to 799 for with control unit.



2 x G 3/4
Electrical entry

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

Electrical wiring specifications



Special Wiring Specifications

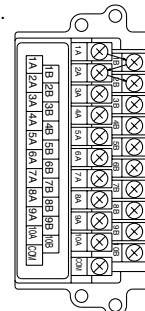
Double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types. The optional specification permits mixture of single and double wiring. However, the maximum number of stations is 16.

1. How to Order

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

2. Wiring specifications

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



How to Order Valves

VQ 4 1 0 0 - 5

Series
4 VQ4000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
6	3 position double check

Seal

0	Metal seal
1	Rubber seal

Function

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

CE-compliant

Nil	—
Q	CE-compliant

Enclosure

Nil	Dust tight
W	Dust tight/Low jetproof type (IP65)

Manual override

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

Light/Surge voltage suppressor

Nil	Yes
E	Without light, with surge voltage suppressor

Coil voltage

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

Note 1) Applicable to DC specifications. Please select when you expect to energize the unit for extended periods of time. Refer to page 3 for details.

Note 2) Refer to page 795 for external pilot specification. Combination of external pilot and perfect interface is not possible.

Note 3) When two or more symbols are specified, indicate them alphabetically.

How to Order Manifold Assembly

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

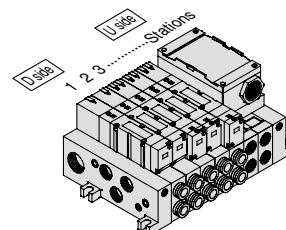
<Example>

Terminal block box kit

VV5Q41-07C8T0(-Q).....1 set—Manifold base part no.
*VQ4100-5(-Q).....2 sets—Valve part no. (Stations 1 and 2)
*VQ4200-5(-Q).....2 sets—Valve part no. (Stations 3 and 4)
*VQ4300-5(-Q).....1 set—Valve part no. (Station 5)

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

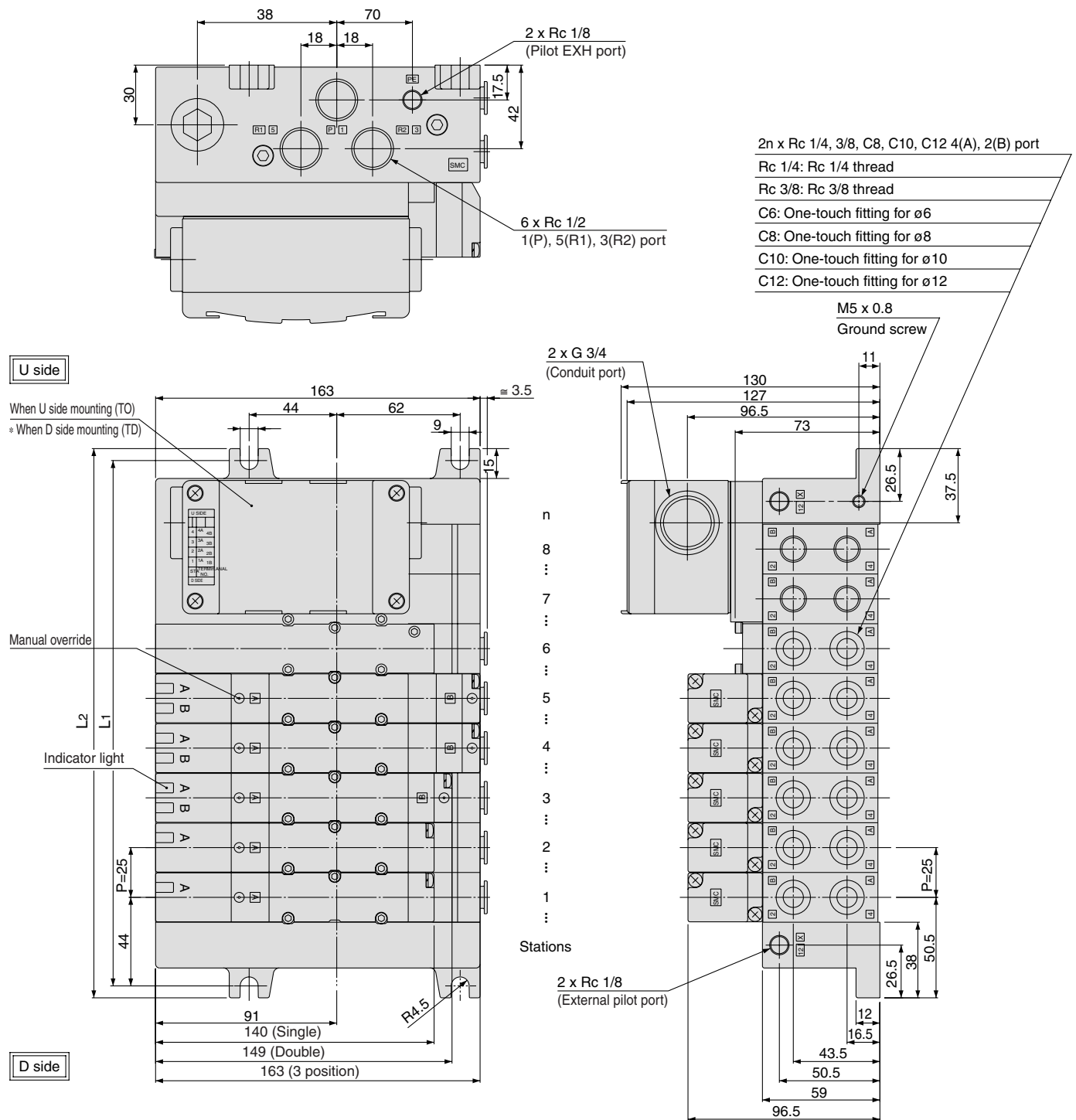
Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



Series VQ4000

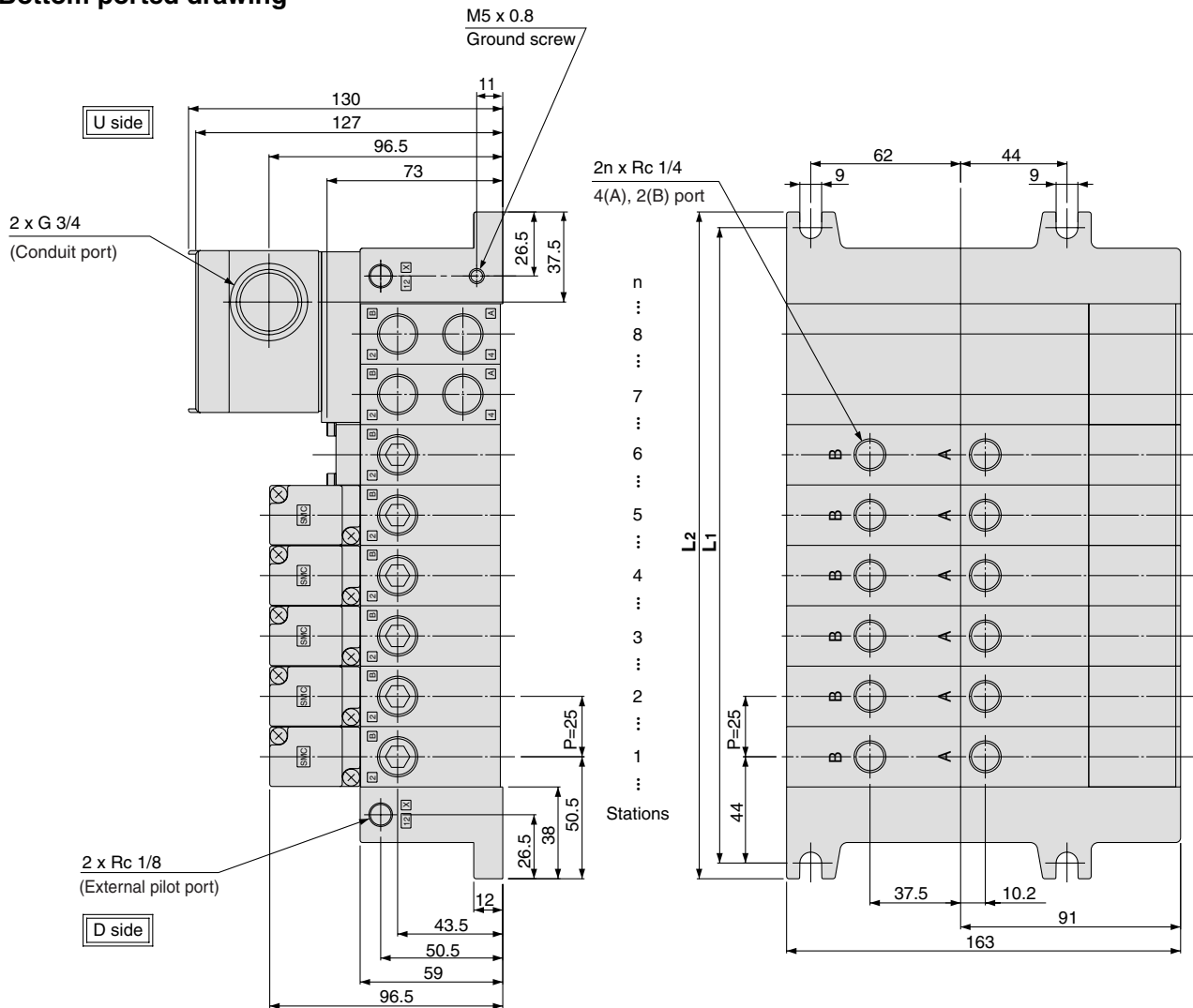
T

Kit (Terminal block box kit)



Note) Shown VV5Q41-08C12TO-W

Bottom ported drawing



SJ
SY
SV
SYJ
SZ
VP4
S0700
VQ
VQ4
VQ5
VQC
VQZ
SQ
VFS
VFR
VQ7

Dimensions

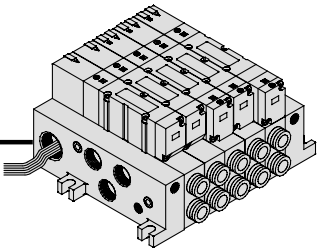
Formula $L1 = 25n + 63$, $L2 = 25n + 76$ n: Station (Maximum standard 18 stations)
* Including 2 stations for terminal box.

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

Series VQ4000

L Kit (Lead wire cable)

IP65 compliant



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

Manifold Specifications

Series	Porting specifications			Applicable stations
	4(A), 2(B) port location	Port size		
		1(P), 5(R1), 3(R2)	4(A), 2(B)	
VQ4000	Side	Rc 1/2	C 8, 10, 12 Rc 1/4, 3/8	Max. 16 stations
	Bottom		Rc 1/4	

Wiring Specifications

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

Lead wire color

SOL.A	(-)	(+)	Black
COM	(+)	(-)	Red
SOL.B	(-)	(+)	White

Positive common Negative common

Lead wire color

SOL.A	(-)	(+)	Black
COM	(+)	(-)	Red
SOL.B	(-)	(+)	White

Positive common Negative common

Single solenoid Double solenoid

Black: A side solenoid (-)
Red: COM (+)
White: B side solenoid (-)
(Not used for single solenoid)

Station number

Cable: 3 core 24 x AWG

Lead Wire Assembly with Connector

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

□: Number of stations 1 to 16.

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

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

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

How to Order Manifold



VV5Q 4 1 - 08 C8 L U - - -

Series
4 VQ4000

Manifold
1 Plug-in unit

Stations
01 1 station
...
16 16 stations

Cylinder port

C6	With One-touch fitting for ø6
C8	With One-touch fitting for ø8
C10	With One-touch fitting for ø10
C12	With One-touch fitting for ø12
02	Rc 1/4
03	Rc 3/8
B	Bottom ported Rc 1/4
CM	Mixed

CE-compliant

Nil	—
Q	CE-compliant

Option

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

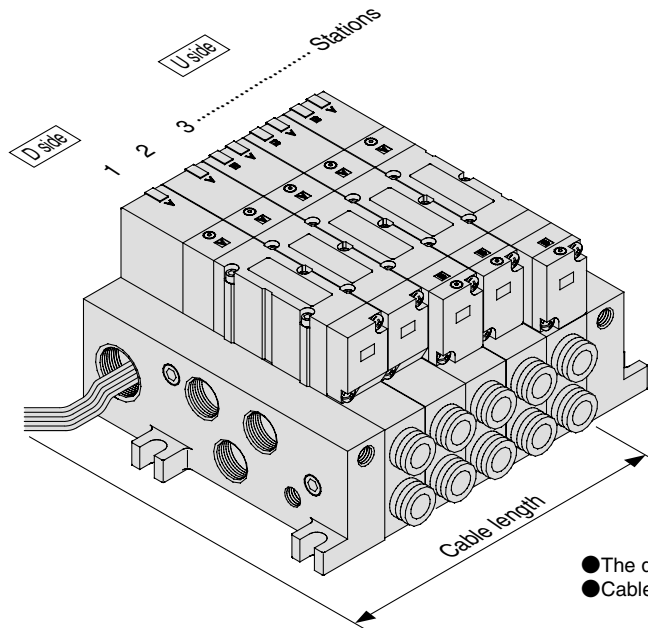
Note) When two or more symbols are specified, indicate them alphabetically.
Example) -CDW

Cable (Length)

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

Connector locations

D	D side entry
U	U side entry



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



How to Order Valves

VQ 4 1 0 0 - 5

Series

4	VQ4000
---	--------

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
6	3 position double check

Seal

0	Metal seal
1	Rubber seal

CE-compliant

Nil	—
Q	CE-compliant

Enclosure

Nil	Dust tight
W	Dust tight/Low jetproof type (IP65)

Manual override

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

Light /Surge voltage suppressor

Nil	Yes
E	Without light, with surge voltage suppressor

Coil voltage

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

Function

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



Note 1) Applicable to DC specification. Please select when you expect to energize the unit for extended periods of time. Refer to page 3 for details.



Note 2) Refer to page 795 for external pilot specification. Combination of external pilot and perfect interface is not possible.

Note 3) When two or more symbols are specified, indicate them alphabetically.

How to Order Manifold Assembly

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

<Example>

Lead wire kit with cable (3 m)

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

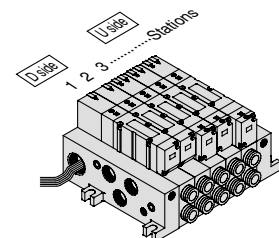
*VQ4100-5(-Q).....2 sets—Valve part no. (Stations 1 and 2)

*VQ4200-5(-Q).....2 sets—Valve part no. (Stations 3 and 4)

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

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

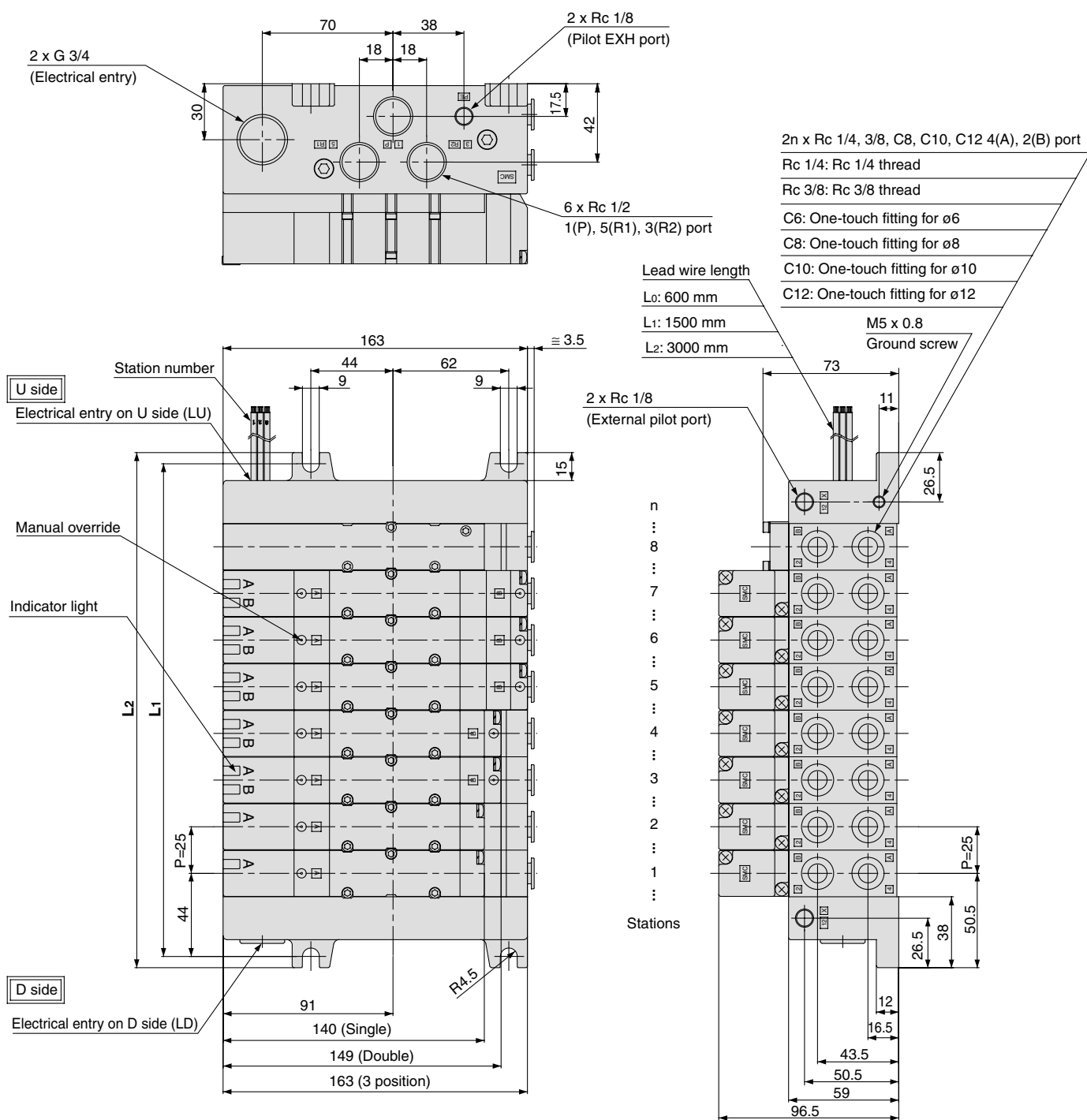
Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



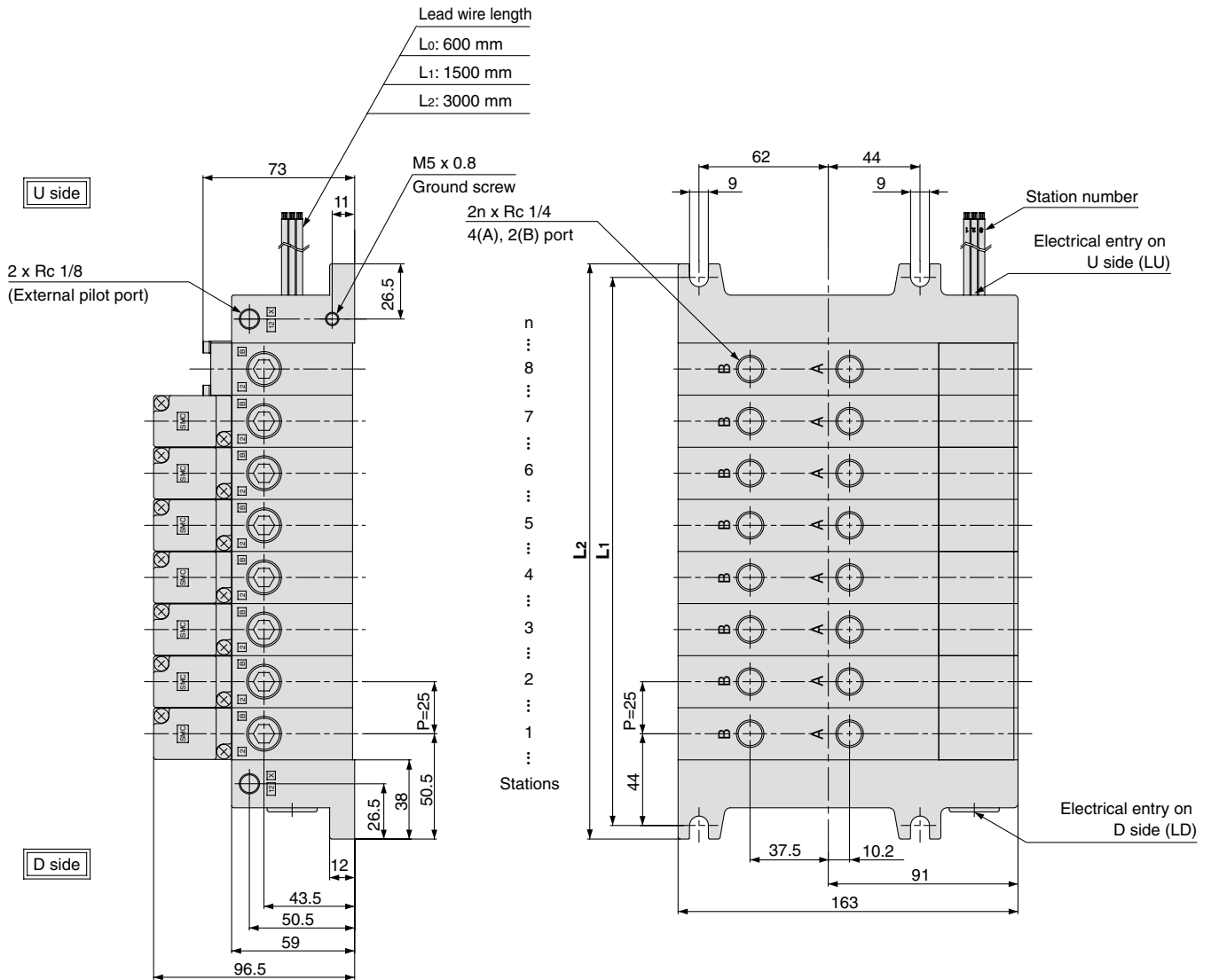
SJ
SY
SV
SYJ
SZ
VP4
S0700
VQ
VQ4
VQ5
VQC
VQZ
SQ
VFS
VFR
VQ7

Series VQ4000

L Kit (Lead wire cable)



Bottom ported drawing



Dimensions

Formula L1 = 25n + 63, L2 = 25n + 76

n: Station (Maximum 16 stations)

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

Series VQ4000

S

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

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

- Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types.

Manifold Specifications

Series	Porting specifications	Applicable stations
VQ4000	4(A), 2(B) port port location	Port size
	Side	1(P), 5(R1), 3(R2)
Bottom	Rc 1/2	4(A), 2(B)
		C8, 10, 12 Rc 1/4, 3/8
	Rc 1/4	Max. 18 stations

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

- Drip proof plug assembly (for G 1/2): AXT100-B04A



[Option]

How to Order Manifold

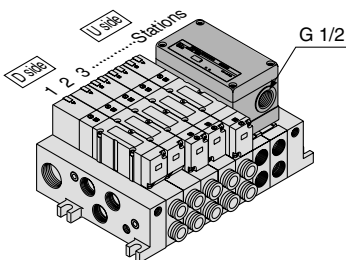
VV5Q 4 1 - 08 C8 S V - -

Series
4 VQ4000

Manifold
1 Plug-in unit

Stations
03 3 stations
18 18 stations

Note) Add 2 stations for SI unit mounting. Maximum stations are 18. 2 stations are used for SI unit mounting.



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

Cylinder ports

C6	With One-touch fitting for ø6
C8	With One-touch fitting for ø8
C10	With One-touch fitting for ø10
C12	With One-touch fitting for ø12
02	Rc 1/4
03	Rc 3/8
B	Bottom ported Rc 1/4
CM	Mixed

SI unit mounting position

Nil	U side mounting
D	D side mounting

CE-compliant

Nil	—
Q	CE-compliant

Option

Symbol	Option
Nil	None
CD ⁽²⁾	Exhaust cleaner: D side mounting
CU ⁽²⁾	Exhaust cleaner for Rc 1: U side exhaust
K ⁽³⁾	Special wiring specifications (Except double wiring)
SD ⁽²⁾	Direct exhaust with silencer box: D side exhaust
SU ⁽²⁾	Direct exhaust with silencer box: U side exhaust
W ⁽²⁾	IP65 enclosure



Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -CDK

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

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

Note 4) Refer to pages 796 to 799 for with control unit.consumption of AC type.

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

SI unit

		CE-compliant
0	Without SI unit	●
F1	NKE Corp.: Uni-wire System	—
H	NKE Corp.: Uni-wire H System	—
J1	SUNX Corp.: S-LINK System (16 output points)	—
J2	SUNX Corp.: S-LINK System (8 output points)	—
Q	DeviceNet	●
R1	OMRON Corp.: CompoBus/S System (16 output points)	●
R2	OMRON Corp.: CompoBus/S System (8 output points)	●
V	CC-Link	●

SI Unit Part No.

Symbol	Protocol type	SI unit part no.	Page
F1	NKE Corp.: Uni-wire System	D side: EX123D-SUW1 U side: EX123U-SUW1	P.1653
H	NKE Corp.: Uni-wire H System	D side: EX123D-SUH1 U side: EX123U-SUH1	
J1	SUNX Corp.: S-LINK System (16 output points)	D side: EX123D-SSL1 U side: EX123U-SSL1	
J2	SUNX Corp.: S-LINK System (8 output points)	D side: EX123D-SSL2 U side: EX123U-SSL2	
Q	DeviceNet	D side: EX124D-SDN1 U side: EX124U-SDN1	
R1	OMRON Corp.: CompoBus/S System (16 output points)	D side: EX124D-SCS1 U side: EX124U-SCS1	
R2	OMRON Corp.: CompoBus/S System (8 output points)	D side: EX124D-SCS2 U side: EX124U-SCS2	
V	CC-Link	D side: EX124D-SMJ1 U side: EX124U-SMJ1	

Refer to pages 1653 to 1655 for EX123/124 integrated type (for output) serial transmission system.

How to Order Valves



VQ 4 1 0 0 **- 5** **-** **-**

Series

4	VQ4000
---	--------

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
6	3 position double check

Seal

0	Metal seal
1	Rubber seal

CE-compliant

Nil	—
Q	CE-compliant

Enclosure

Nil	Dusttight
W	Dusttight/Low jetproof type (IP65)

Manual override

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

Coil voltage

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

Function

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



Note 1) Applicable to DC specifications. Please select when you expect to energize the unit for extended periods of time. Refer to page 3 for details.



Note 2) For external pilot specifications, refer to page 795. Combination of the external pilot and perfect interface is not possible.

Note 3) When two or more symbols are specified, indicate them alphabetically.

How to Order Manifold Assembly [Order example]

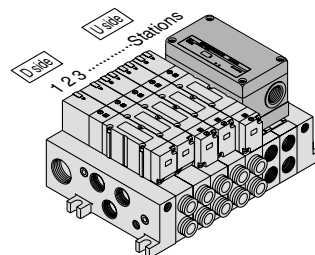
Specify the part numbers for valves and options together beneath the manifold base part number.

<Example>

VV5Q41-07C8SV(-Q) ...1 set—Manifold base part no.
 *VQ4100-5(-Q).....2 sets—Valve part no. (Stations 1 and 2)
 *VQ4200-5(-Q).....2 sets—Valve part no. (Stations 3 and 4)
 *VQ4300-5(-Q).....1 set—Valve part no. (Station 5)

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

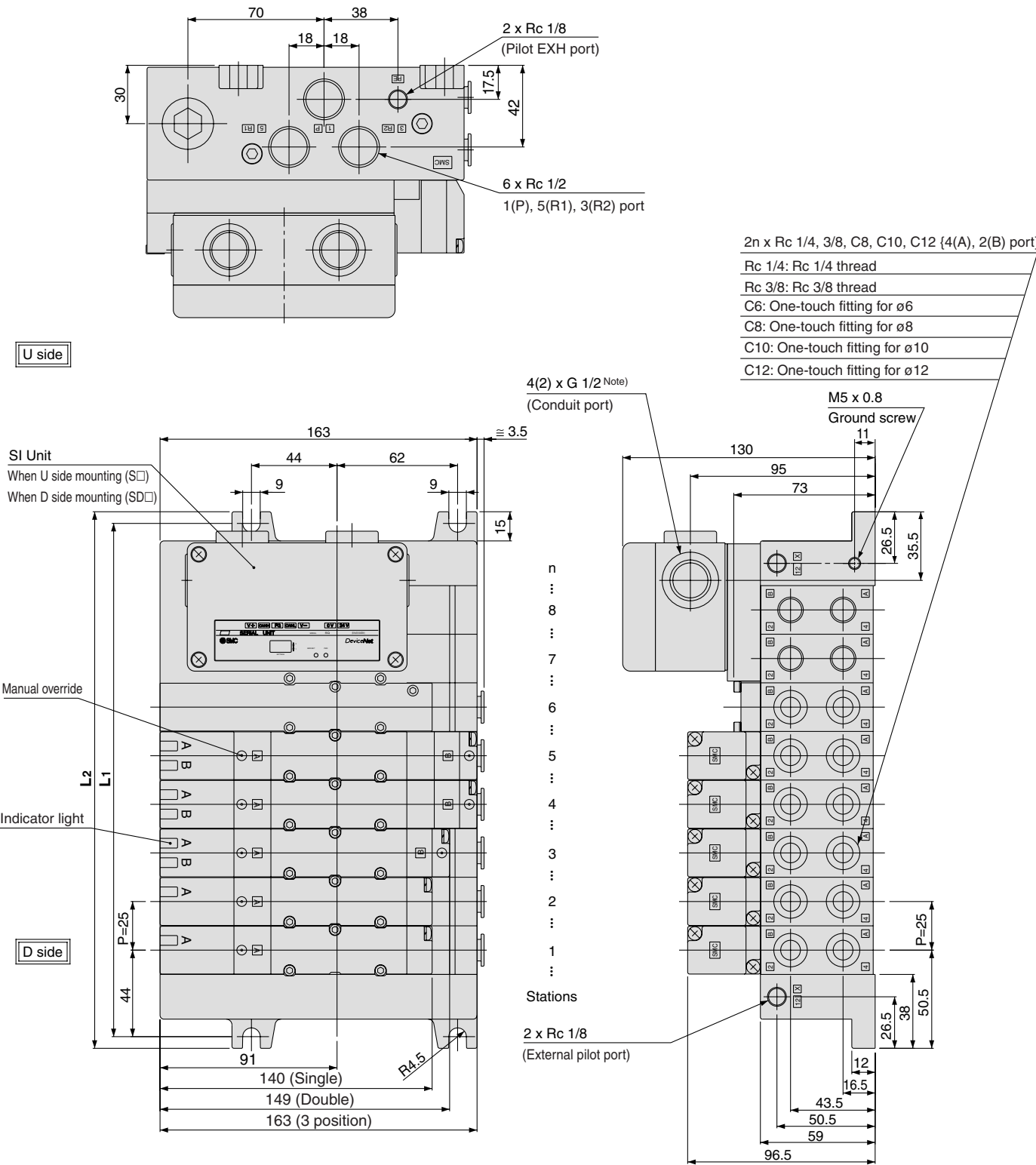
Enter in order starting from the first station on the D side.
 When entry of part numbers becomes complicated, indicate in the manifold specification sheet.



- SJ
- SY
- SV
- SYJ
- SZ
- VP4
- S0700
- VQ
- VQ4**
- VQ5
- VQC
- VQZ
- SQ
- VFS
- VFR
- VQ7

Series VQ4000

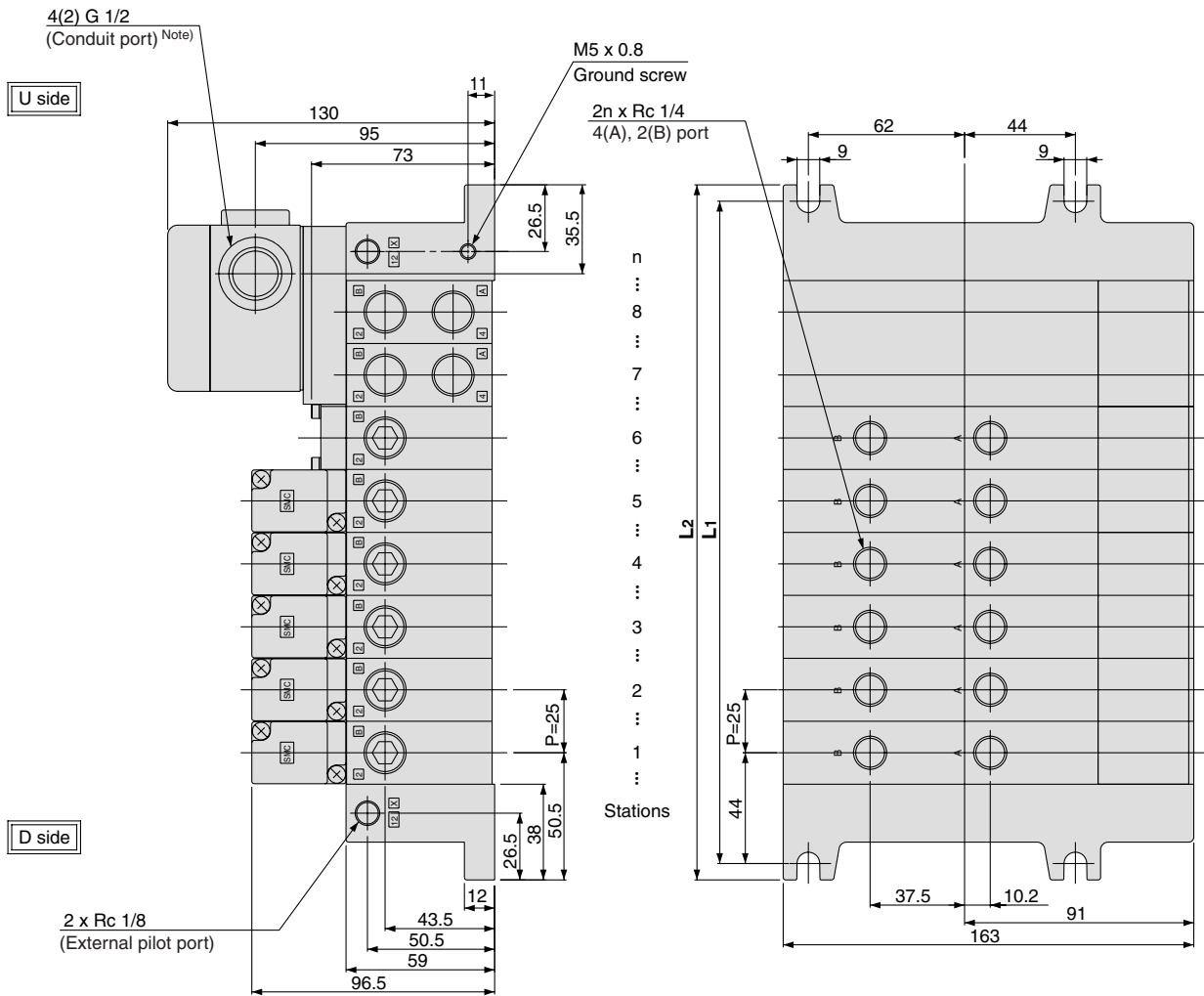
S Kit (Serial transmission unit): EX123/124 Integrated Type (for Output) Serial Transmission System



Formula L1 = 25n + 63, L2 = 25n + 76 n: Station (Maximum standard 18 stations)
* Including 2 stations for mounting SI unit box.

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

Note) Shown VV5Q41-08C12SQ-W



SJ
SY
SV
SYJ
SZ
VP4
S0700
VQ
VQ4
VQ5
VQC
VQZ
SQ
VFS
VFR
VQ7

Formula $L1 = 25n + 63$, $L2 = 25n + 76$ n: Station (Maximum standard 18 stations)
* Including 2 stations for mounting SI unit box.

Dimensions

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

Series VQ4000

S

Kit (Serial transmission kit): EX240 Integrated Type (for I/O) Serial Transmission System

IP65 compliant



How to Order Manifold

VV5Q 4 1 - 08 C8 S D QW 1 - W -

Series

4	VQ4000
---	--------

Manifold

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

Stations

01	1 station
⋮	⋮
16	16 stations

Cylinder ports

Symbol	Port size
C6	With One-touch fitting for ø6
C8	With One-touch fitting for ø8
C10	With One-touch fitting for ø10
C12	With One-touch fitting for ø12
02	Rc 1/4
03	Rc 3/8
B	Bottom ported Rc 1/4
CM	Mixed

Mounting SI unit

D	D side mounting
U	U side mounting

SI unit

OW	Without SI unit
QW	DeviceNet
NW	PROFIBUS DP

CE-compliant

Nil	—
Q	CE-compliant

Enclosure IP65 (Dusttight/Low jetproof type)

Option

Symbol	Option
Nil	None
K	Special wiring specification (Except double wiring)

DI unit specifications

Nil	PNP sensor input (+COM) or no SI unit or DI unit
N	NPN sensor input (–COM)

DI unit

Nil	Without SI unit
0	Without DI unit
1	With 1 DI unit
2	With 2 DI units
3	With 3 DI units
4	With 4 DI units

SI unit COM

Nil	With no SI/Input unit	
N	+COM.	DeviceNet
	–COM.	PROFIBUS DP

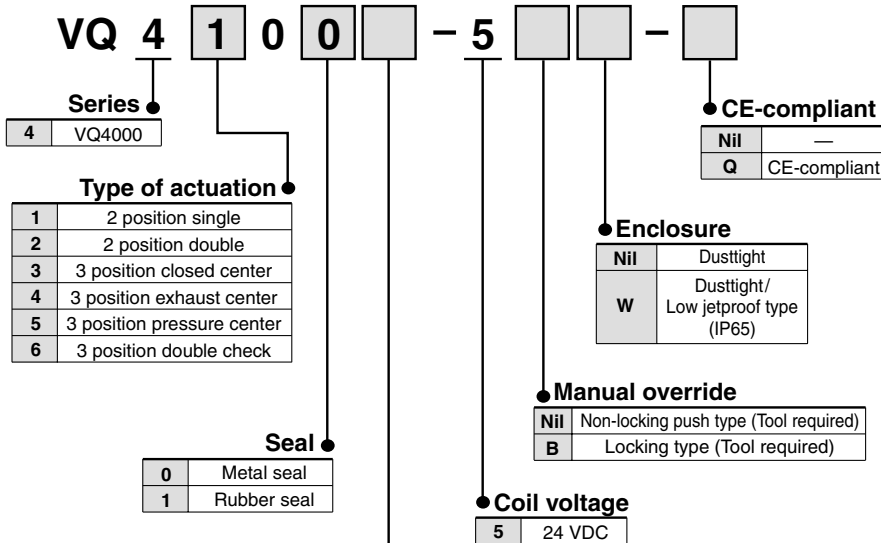
Note)

Only +COM is available for SI unit compatible with DeviceNet, while only -COM for the unit compatible with PROFIBUS DP.

SI Unit Part No.			
Symbol	Protocol type	SI unit part no.	Page
QW	DeviceNet	EX240-SDN2	P.1661
NW	PROFIBUS DP	EX240-SPR1	

Refer to pages 1661 to 1663 for EX240 integrated type (for I/O) serial transmission system.

How to Order Valves



Function

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



Note 1) Applicable to DC specifications. Please select when you expect to energize the unit for extended periods of time. Refer to page 3 for details.



Note 2) For external pilot specifications, refer to page 795. Combination of the external pilot and perfect interface is not possible.

Note 3) When two or more symbols are specified, indicate them alphabetically.

How to Order Manifold Assembly [Order example]

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

<Example>

VV5Q41-05C8SDQW1-W(-Q)....1 set—Manifold base part no.

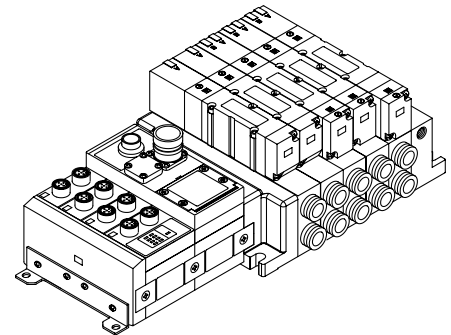
*VQ4100-5W(-Q).....2 sets—Valve part no. (Stations 1 and 2)

*VQ4200-5W(-Q).....2 sets—Valve part no. (Stations 3 and 4)

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

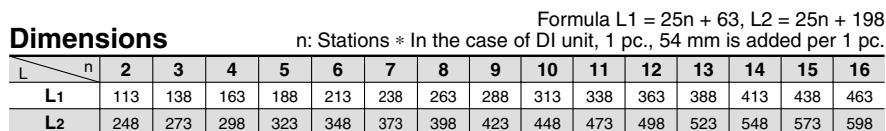
Prefix the asterisk to the part nos. of the solenoid valve, etc.

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



SJ
SY
SV
SYJ
SZ
VP4
S0700
VQ
VQ4
VQ5
VQC
VQZ
SQ
VFS
VFR
VQ7

S Kit (Serial transmission unit): EX240 Integrated Type (for I/O) Serial Transmission System



Series VQ4000



$L \backslash n$	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L ₁	113	138	163	188	213	238	263	288	313	338	363	388	413	438	463
L ₂	302	327	352	377	402	427	452	477	502	527	552	577	602	627	652

Base Mounted

Plug Lead Unit: C Kit (Connector kit)

Series VQ4000



How to Order Manifold

VV5Q 4 5 - 08 C8 C - W -

Series
4 VQ4000

Manifold
5 Plug lead unit

Stations

01	1 station
...	...
16	16 stations

Cylinder port

C6	With One-touch fitting for ø6
C8	With One-touch fitting for ø8
C10	With One-touch fitting for ø10
C12	With One-touch fitting for ø12
02	Rc 1/4
03	Rc 3/8
B	Bottom ported Rc 1/4
CM	Mixed

Kit type
C kit (Connector)

Control unit
Refer to pages 796 to 799.

CE-compliant

Nil	—
Q	CE-compliant

Option

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

Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -CDW

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

Refer to page 804 (Grommet type) for wiring specifications.

C Connector kit Max. 16 stations



How to Order Valves

VQ 4 1 5 0 - 5 G -

Series
4 VQ4000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
6	3 position double check

Seal

0	Metal seal
1	Rubber seal

Function

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

Note 1) Applicable to DC specifications. Please select when you expect to energize the unit for extended periods of time. Refer to page 3 for details.

Note 2) For external pilot specifications, refer to page 795. Combination of the external pilot and perfect interface is not possible.

Note 3) When two or more symbols are specified, indicate them alphabetically.

Coil voltage

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

CE-compliant

Nil	—
Q	CE-compliant

Enclosure

Nil	Dusttight
W	Dusttight/Low jetproof type (IP65)

Manual override

Nil: Non-locking push type (Tool required)

B: Locking type (Tool required)

Light/Surge voltage suppressor

Nil	Yes
E	Without light, with surge voltage suppressor

Electrical entry

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

How to Order Manifold Assembly

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

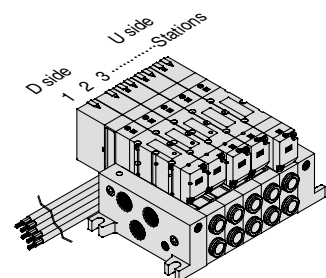
<Example>

Connector kit

VV5Q45-05C12C(-Q)...1 set—Manifold base part no.
 *VQ4150-5G(-Q).....2 sets—Valve part no. (Stations 1 and 2)
 *VQ4250-5G(-Q).....2 sets—Valve part no. (Stations 3 and 4)
 *VQ4350-5G(-Q)...1 set—Valve part no. (Station 5)

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

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



Simple specials are available with SMC Simple Special System.
For details about applicable models, refer to front matter 53.

Manifold Specifications

Series	Base model	Type of connection	Porting specifications		Maximum applicable stations	Applicable solenoid valve	Mass (kg) (Formula)
			4(A), (B) port location	Port size <small>Note</small>			
				1(P), 5(R1), 3(R2) 4(A), 2(B)			
VQ4000	VV5Q45-□□□	■ C kit-Grommet	Side	Rc 1/2 Option (Direct exhaust with silencer box)	C8 (For ø8) C10 (For ø10) C12 (For ø12) Rc 1/4 Rc 3/8	2 to 16 stations	VQ4□50 VQ4□51
			Bottom		Rc 1/4		



Note) For details about inch-size One-touch fittings and other thread standards, refer to page 795.

n: Stations

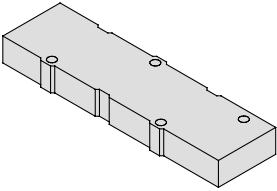
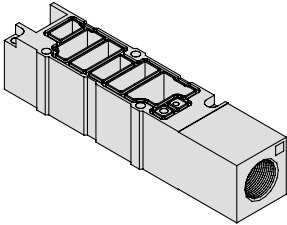
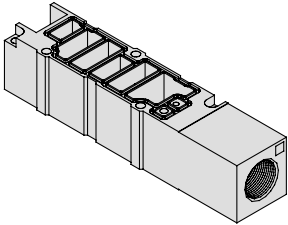
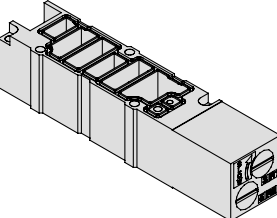
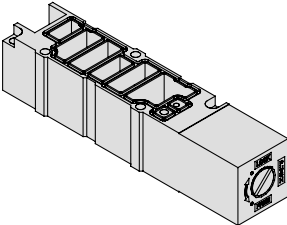
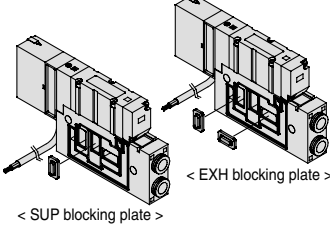
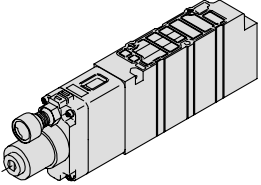
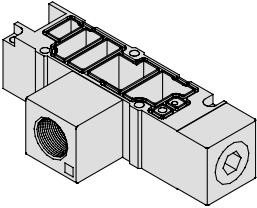
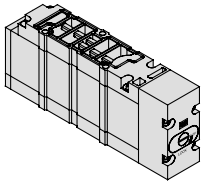
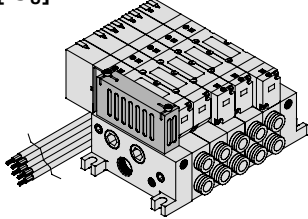
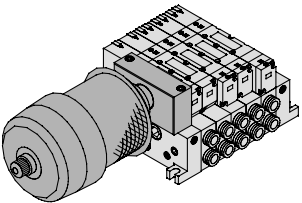
Flow Characteristics at the Number of Manifold Stations (Operated individually)

Model	Passage/Stations		Station 1	Station 5	Station 10	Station 15
2 position metal seal VQ4 ¹ ₂₅₀	1 → 4/2 (P → A/B)	C [dm ³ /(s·bar)]	5.9	5.9	5.9	5.9
		b	0.23	0.23	0.23	0.23
		Cv	1.5	1.5	1.5	1.5
	4/2 → 5/3 (A/B → EA/EB)	C [dm ³ /(s·bar)]	6.2	6.2	6.2	6.2
		b	0.19	0.19	0.19	0.19
		Cv	1.5	1.5	1.5	1.5
2 position rubber seal VQ4 ¹ ₂₅₁	1 → 4/2 (P → A/B)	C [dm ³ /(s·bar)]	6.8	6.8	6.8	6.8
		b	0.31	0.31	0.31	0.31
		Cv	1.8	1.8	1.8	1.8
	4/2 → 5/3 (A/B → EA/EB)	C [dm ³ /(s·bar)]	7.0	7.0	7.0	7.0
		b	0.38	0.38	0.38	0.38
		Cv	1.9	1.9	1.9	1.9



Note) Port size: Rc 3/8

Manifold Option

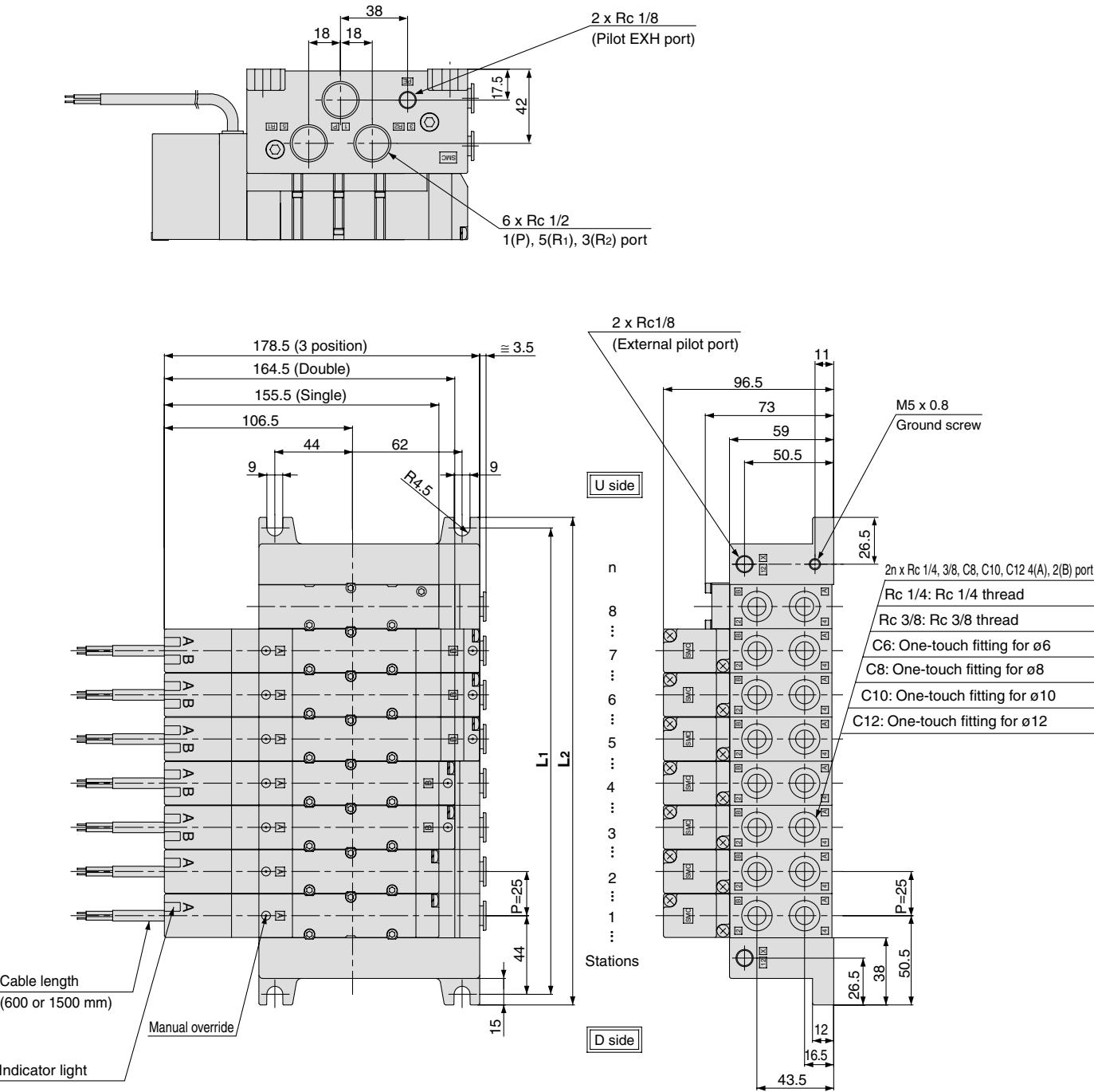
Blanking plate assembly VVQ4000-10A-5 	Individual SUP spacer VVQ4000-P-5- ⁰² ₀₃ 	Individual EXH spacer VVQ4000-R-5- ⁰² ₀₃ 	<ul style="list-style-type: none"> Refer to pages 790 to 794 for detail dimensions of each option. For replacement parts, refer to page 803. Refer to pages 796 to 799 for control unit.
Throttle valve spacer VVQ4000-20A-5 	SUP stop valve spacer VVQ4000-37A-5 	SUP/EXH block plate VVQ4000-16A 	Interface regulator ARBQ4000-00- ^A _{B-5} ^P 
Release valve spacer VVQ4000-24A-5D <small>Note)</small> 	Double check spacer with residual pressure exhaust VVQ4000-25A-5 <small>Note)</small> 	Direct exhaust with silencer box [-S ^D ₁] <small>Note)</small> 	For exhaust cleaner mounting [-C ^D ₁] <small>Note)</small> 



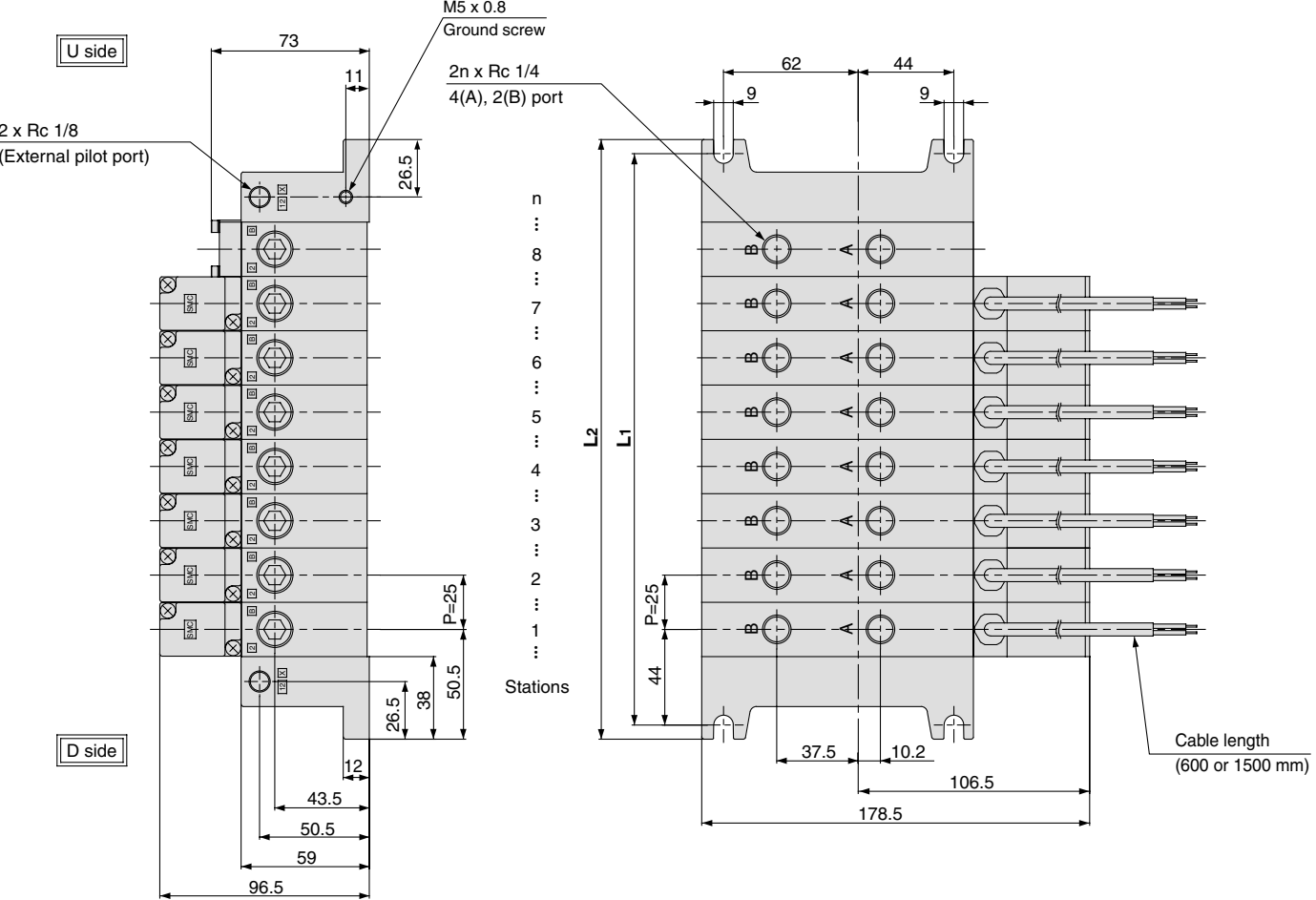
Note) Release valve spacer, built-in silencer (direct exhaust), exhaust cleaner mounting style and perfect double check spacer for residual pressure exhaust cannot be combined with external pilot.

Series **VQ4000**

C Kit (Connector kit)



Bottom ported drawing



- SJ
- SY
- SV
- SYJ
- SZ
- VP4
- S0700
- VQ
- VQ4**
- VQ5
- VQC
- VQZ
- SQ
- VFS
- VFR
- VQ7

Dimensions		Formula L1 = 25n + 63, L2 = 25n + 76 n: Station (Maximum 16 stations)															
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
L1	88	113	138	163	188	213	238	263	288	313	338	363	388	413	438	463	
L2	101	126	151	176	201	226	251	276	301	326	351	376	401	426	451	476	

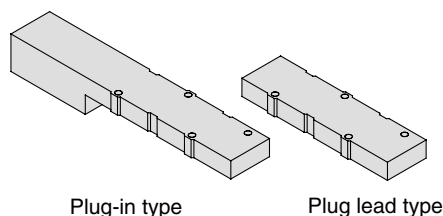
Series VQ4000

Manifold Option Parts

Blanking plate assembly

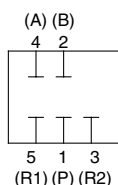
VVQ4000-10A-1 (Plug-in type) VVQ4000-10A-5 (Plug lead type)

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

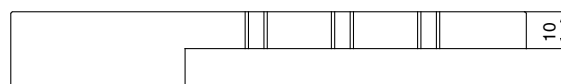
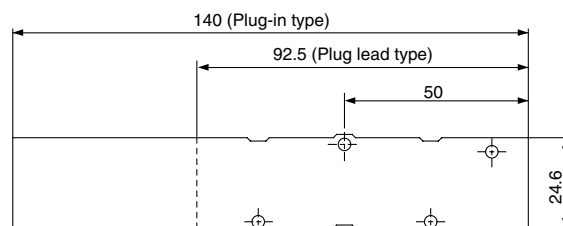


Plug-in type

Plug lead type



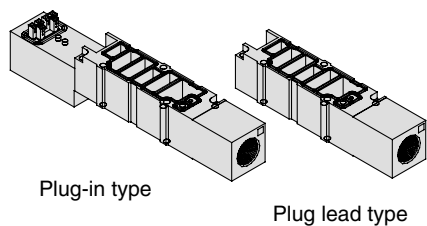
Circuit diagram



Individual SUP spacer

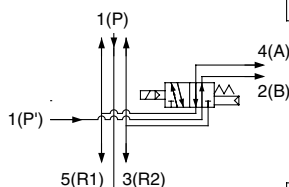
VVQ4000-P-1- $\frac{02}{03}$ (Plug-in type) VVQ4000-P-5- $\frac{02}{03}$ (Plug lead type)

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

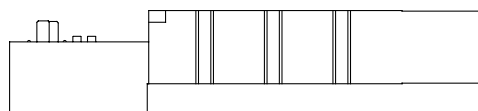
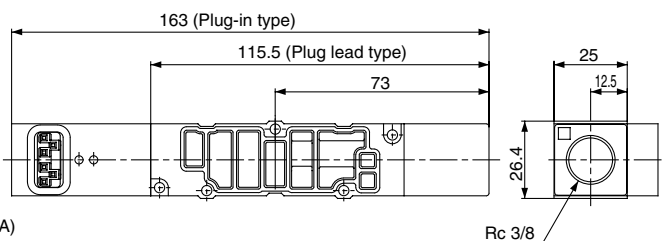


Plug-in type

Plug lead type



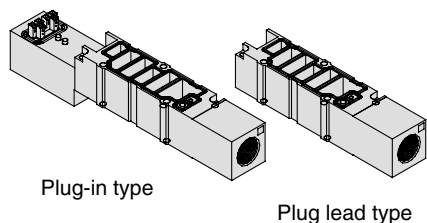
Circuit diagram



Individual EXH spacer

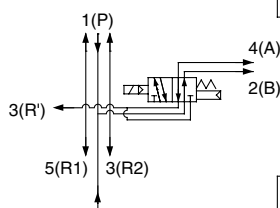
VVQ4000-R-1- $\frac{02}{03}$ (Plug-in type) VVQ4000-R-5- $\frac{02}{03}$ (Plug lead type)

By mounting individual EXH spacers on a manifold block, exhaust ports can be provided individually for each valve. (Common EXH type)

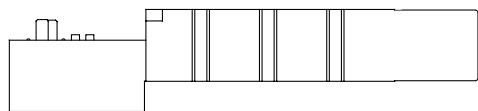
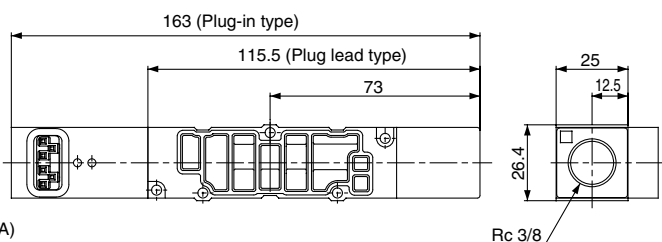


Plug-in type

Plug lead type



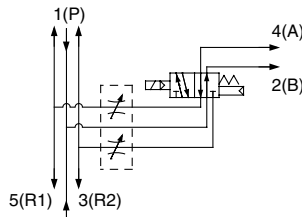
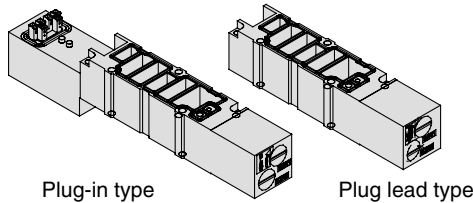
Circuit diagram



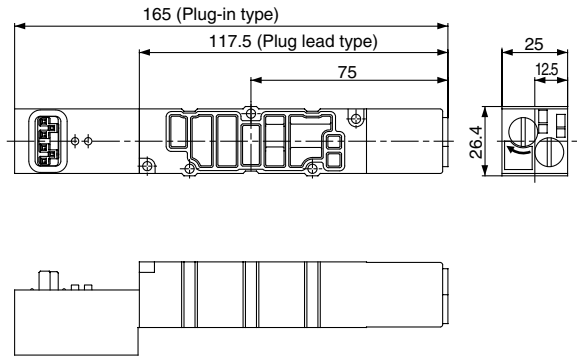
Throttle valve spacer

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

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



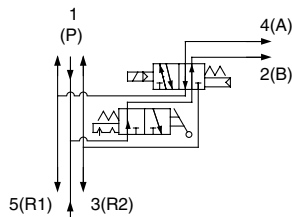
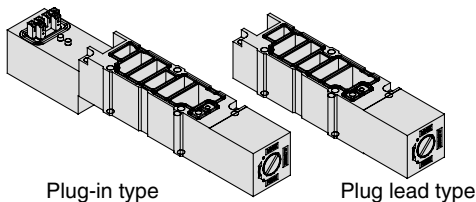
Circuit diagram



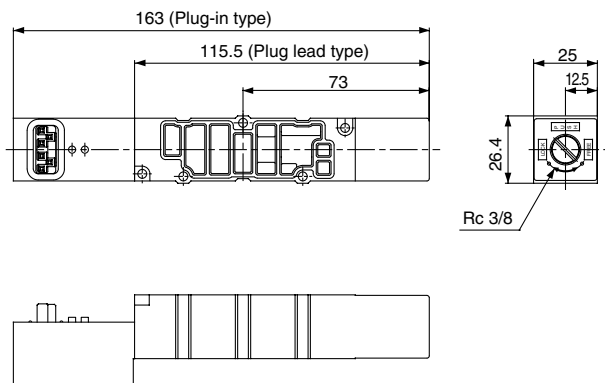
SUP stop valve spacer

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

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



Circuit diagram

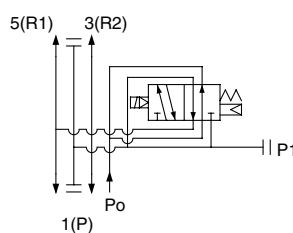
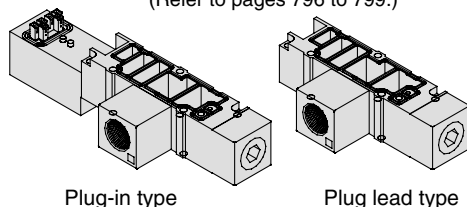


Release valve spacer: For D side mounting

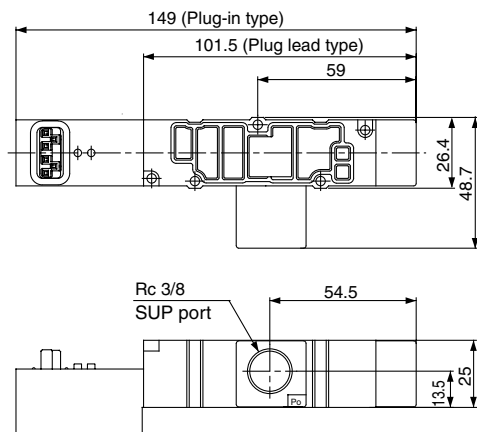
VVQ4000-24A-1D (Plug-in type)
VVQ4000-24A-5D (Plug lead type)

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

Note 1) Mounting on 2 position double and 3 position valve is not possible.
 Note 2) Can be mounted on L kit only. For other kits, order E type control unit. (Refer to pages 796 to 799.)



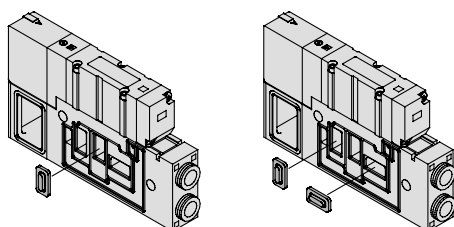
Circuit diagram



SUP/EXH block plate

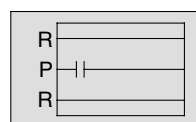
VVQ4000-16A

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

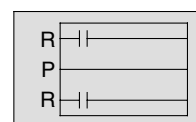


<SUP blocking plate>

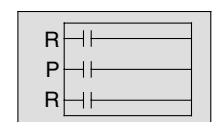
<EXH blocking plate>



SUP passage blocked



EXH passage blocked



SUP/EXH passage blocked

SJ
 SY
 SV
 SYJ
 SZ
 VP4
 S0700
 VQ
VQ4
 VQ5
 VQC
 VQZ
 SQ
 VFS
 VFR
 VQ7

Manifold Option Parts

Direct exhaust with silencer box

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

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

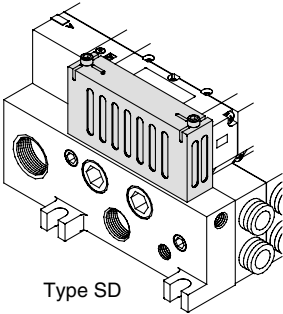
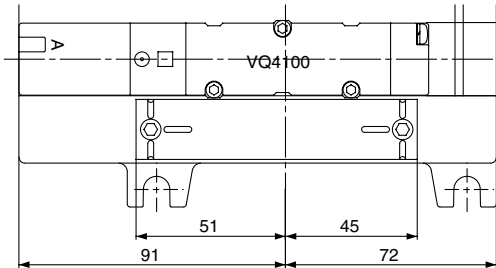
VV5Q4 $\frac{1}{2}$ -□□□-SU (U side exhaust)

The EXH outlet is placed on the top side of the manifold end plate. The built-in silencer provides highly effective noise reduction.

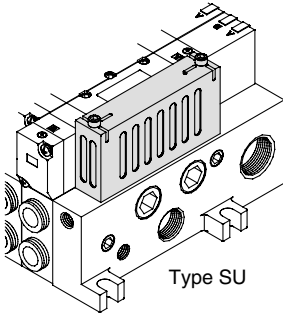
(Noise reduction of 35 dB or more)

Effective area: 60.2 mm²

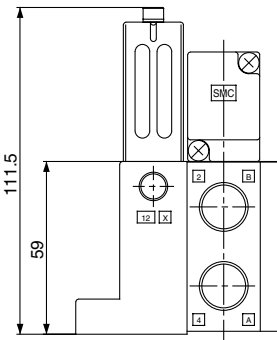
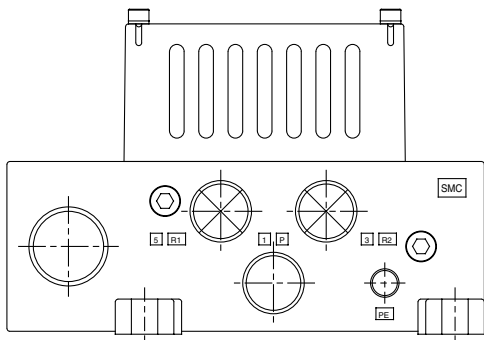
Note) If a lot of drainage is generated at air supply source, both of exhaust air and drainage are exhausted.



Type SD



Type SU



Note) Figure shows VV5Q41-□□□-SD.

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

Double check spacer with residual pressure exhaust

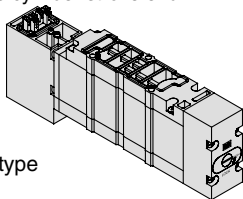
VVQ4000-25A-1 (Plug-in type)

VVQ4000-25A-5 (Plug lead type)

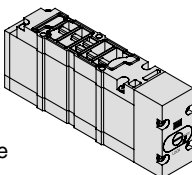
Can hold an intermediate cylinder position for an extended time.

If the double check spacer with a built-in double check valve is combined, it will enable the cylinder to stop in the intermediate stroke and maintain its position for a long time without being affected by the leakage between the spools.

Besides, combination between 2 position solenoid valve (VQ4 $\frac{1}{2}$ □□) and double check spacer can't hold an intermediate position, but can prevent dropping at the cylinder stroke end.



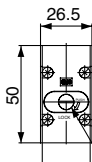
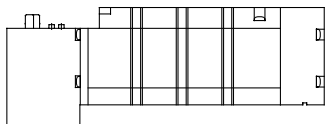
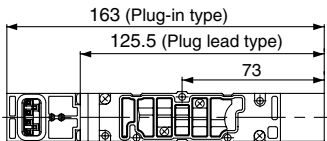
Plug-in type



Plug lead type

Specifications

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



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

Caution

Handling Precautions

- 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 leakage using a 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 $\frac{3}{8}$ □□" will not work.
- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.
- Combining double check spacer with external pilot will not work.

Manifold mounted exhaust cleaner

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

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

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

Applicable exhaust cleaners

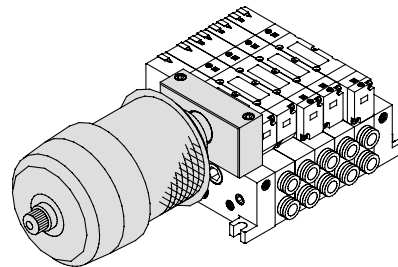
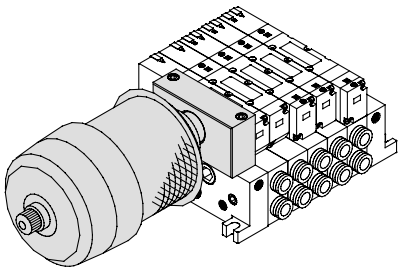
AMC610-10 (Port size Rc 1)



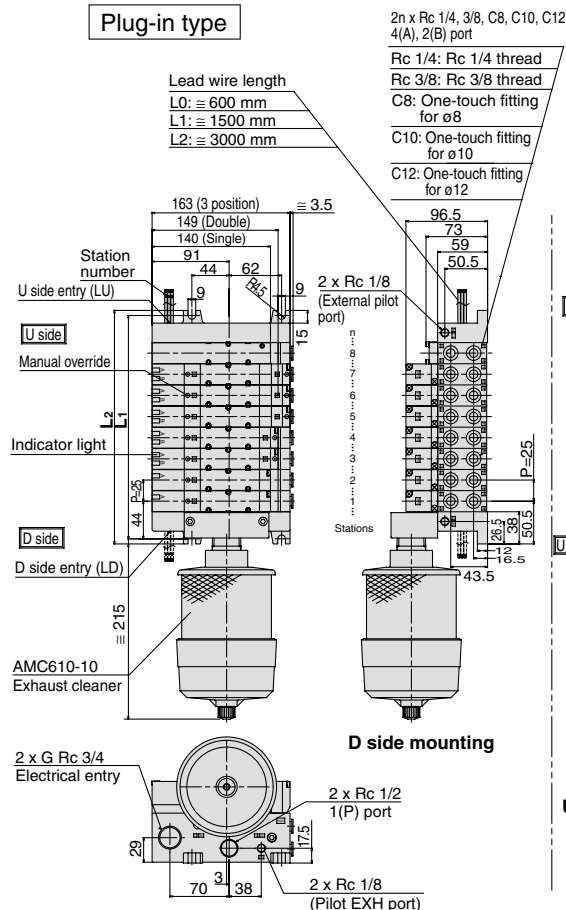
Note 1) Exhaust cleaner AMC610-10 is not attached. (Order it separately.)



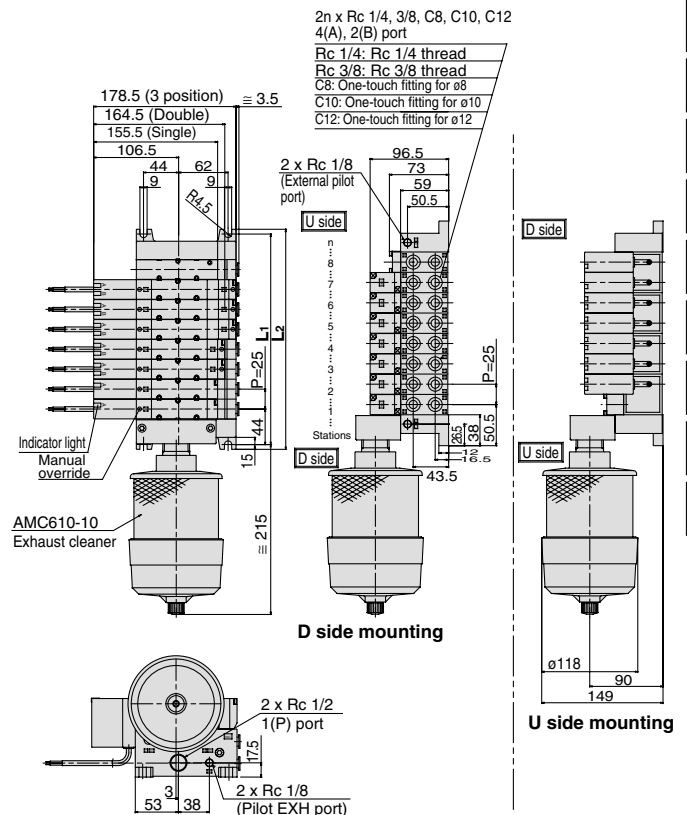
Note 2) Mount so that the exhaust cleaner is at the lower side.
Note 3) For details about the exhaust cleaner, refer to Best Pneumatics No. 6.



Plug-in type



Plug lead type



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

Dimensions

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

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

Dimensions

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

SJ
SY
SV
SYJ
SZ
VP4
S0700
VQ
VQ4
VQ5
VQC
VQZ
SQ
VFS
VFR
VQ7

Series VQ4000

Manifold Option Parts

Interface regulator (P, A, B port regulation)

ARBQ4000-00-□-1 (Plug-in type)

ARBQ4000-00-□-5 (Plug lead type)

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

Specifications

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

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

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

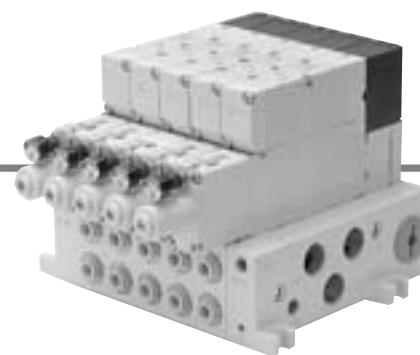
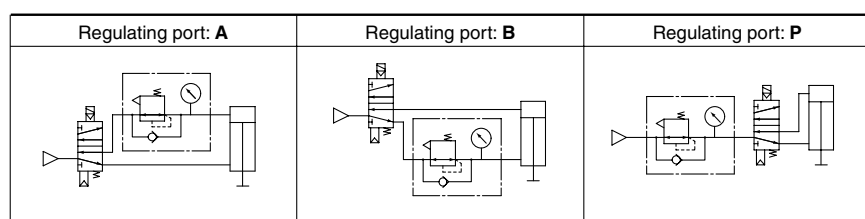
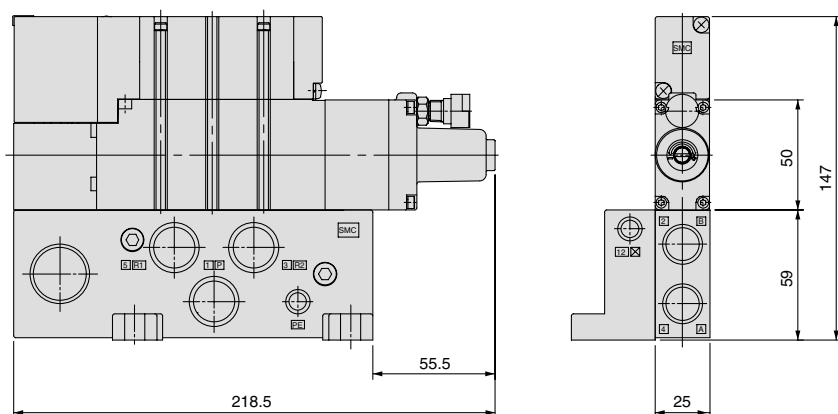
Note 3) When using a perfect spacer, assemble a valve, a spacer regulator and a perfect spacer in this order to use it.

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

Note 5) Dust tight/Low jetproof enclosure (IP65) is not available with interface regulator.

How to Order

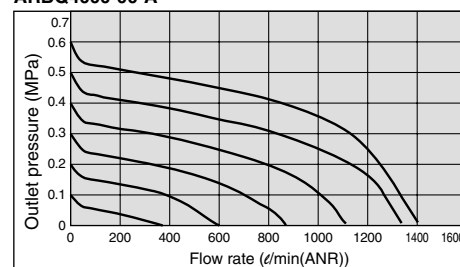
Solenoid Valve	Interface regulator	Regulating port
VQ4□0□ (Plug-in type)	ARBQ4000-00-A-1	A
	ARBQ4000-00-B-1	B
	ARBQ4000-00-P-1	P
VQ4□5□ (Plug lead type)	ARBQ4000-00-A-5	A
	ARBQ4000-00-B-5	B
	ARBQ4000-00-P-5	P



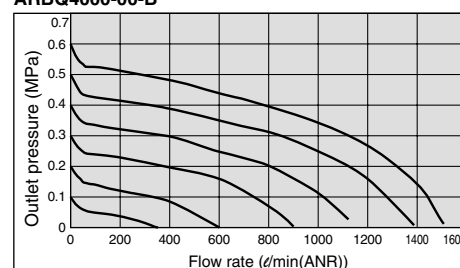
Flow Characteristics

Conditions Inlet pressure: 0.7 MPa

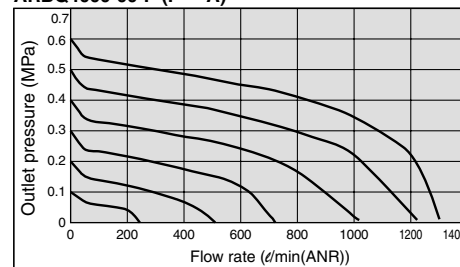
ARBQ4000-00-A



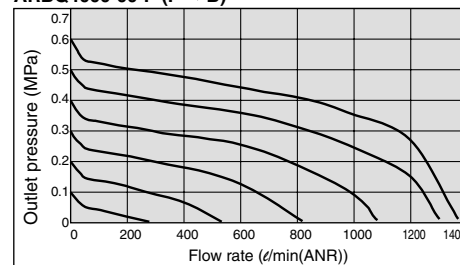
ARBQ4000-00-B



ARBQ4000-00-P (P → A)



ARBQ4000-00-P (P → B)



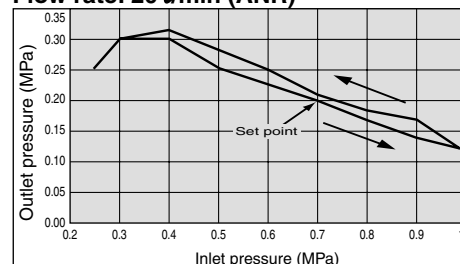
Pressure Characteristics

Conditions

Inlet pressure: 0.7 MPa

Outlet pressure: 0.2 MPa

Flow rate: 20 l/min (ANR)



Option

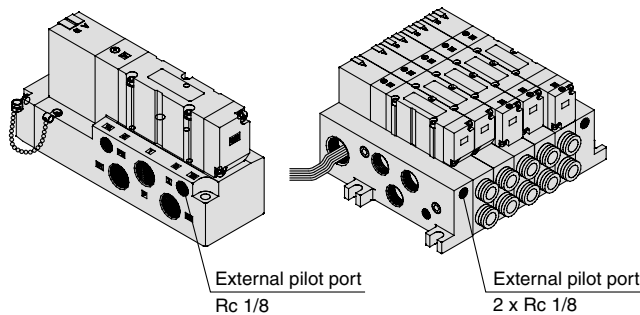
External Pilot Specifications

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

How to Order Manifold

VQ4100 **R** - 5 - 03

● External pilot specifications



<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 1.0 MPa	
External pilot ^{Note)} pressure range	Single	0.15 to 1.0 MPa (0.15 to 0.7 MPa)	0.2 to 1.0 MPa (0.2 to 0.7 MPa)
	Double		0.15 to 1.0 MPa (0.15 to 0.7 MPa)
	3 position		0.2 to 1.0 MPa (0.2 to 0.7 MPa)



Note) Values inside () denote the low wattage (0.5 W) specifications.



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

Release valve spacer	VVQ4000-24A-□□
Direct exhaust with silencer box	VV5Q4□-□□□-S□
For exhaust cleaner mounting	VV5Q4□-□□□-C _D
Manifold with control unit	VV5Q4□-□□□ Control unit model no.
Double check spacer with residual pressure exhaust	VVQ4000-25A- ₅

Inch-size One-touch Fittings

Valve with inch size One-touch fittings is shown below.

How to Order Single Valves

VV5Q41 - 06 **N11** SA - K

● Cylinder port

N7	ø1/4"
N9	ø5/16"
N11	ø3/8"

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)

VQ4100 - 5 - 03 **T**

Cylinder port
Port size

● Thread type (P, R and A, B port)

Nil	Rc
N	NPT
T	NPTF
F	G

How to Order Manifold

VV5Q41 - 08 03 **T** FU1

Cylinder port
Port size

● Thread type (P, R and A, B port)

Nil	Rc
N	NPT
T	NPTF
F	G

VV5Q41 - 08 **C8** **T** FU1

Cylinder port
Port size

● Thread type (P, R port)

Nil	Rc
N	NPT
T	NPTF
F	G

How to Order Sub-plates and Options (Example)

VQ4000 - P - B 02 **N** (Sub-plate)

VVQ4000 - P - 1 - 03 **T** (Option)

Port size

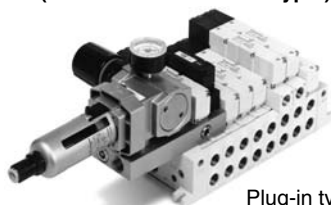
● Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

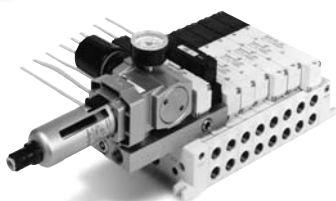
Series VQ4000

Manifold with Control Unit

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



Plug-in type



Plug Lead Type

Caution

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

Manifold Specifications

Base model	Type of connection	Porting specifications	Applicable max. stations	Applicable solenoid valve
VV5Q41 -□□□	F kit – D-sub connector T kit – Terminal block box L kit – Lead wire	Side	C8 (For ø8) C10 (For ø10) C12 (For ø12) Rc 1/4, Rc 3/8	F, T kit 14 stations (13 stations)
VV5Q45 -□□□	C kit – Connector	Bottom	(Direct exhaust with silencer box) Rc 1/4	L, C kit 18 stations (17 stations)

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

Control Unit Specifications

Air filter (With auto-drain/With manual drain)	
Filtration	5 µm
Regulator	
Set pressure (Outlet pressure)	0.05 to 0.85 MPa
Pressure switch Note)	
Set pressure range: OFF	0.1 to 0.6 MPa
Differential	0.08 MPa or less
Contact	1a
Light	LED (RED)
Max. switch capacity	2 VA (AC), 2 W (DC)
Max. operating current	50 mA at 24 VAC, DC or less 20 mA at 100 VAC, DC
Air release valve (Single only)	
Operating pressure range	0.15 to 1 MPa (0.15 to 0.7 MPa)

Note) Values inside () denote the low wattage (0.5 W) specifications.

Control Unit/Option

Air release valve spacer	<Plug-in type> VVQ4000-24A-1D	
	<Plug lead type> VVQ4000-24A-5D	
Pressure switch	IS1000P-2-1	
Blanking plate	Regulator with filter	MP2-3
	Pressure switch	MP3-2
	Release valve	Plug-in VVQ4000-24A-10 Plug lead VVQ4000-24A-15
Filter element	INA-13-854-12-5B	

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



[Option]

How to Order Manifold

VV5Q 4 1 - 08 C8 F U1 - - -

Series
4 VQ4000

Manifold
1 Plug-in unit
5 Plug Lead unit

Stations
02 2 stations
Maximum and minimum number of stations depend on the kit.

Cylinder port

C6	One-touch fitting for ø6
C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
02	Rc 1/4
03	Rc 3/8
B	Bottom ported Rc 1/4
CM	Mixed

Kit (5)

Air release valve coil rating

Nil	Without air release valve (Only F.G type)
1	100 VAC, 50/60 Hz
5	24 VDC
9	Other

Control unit type

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

Option

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

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

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

Use of Control Unit

<Construction and piping>

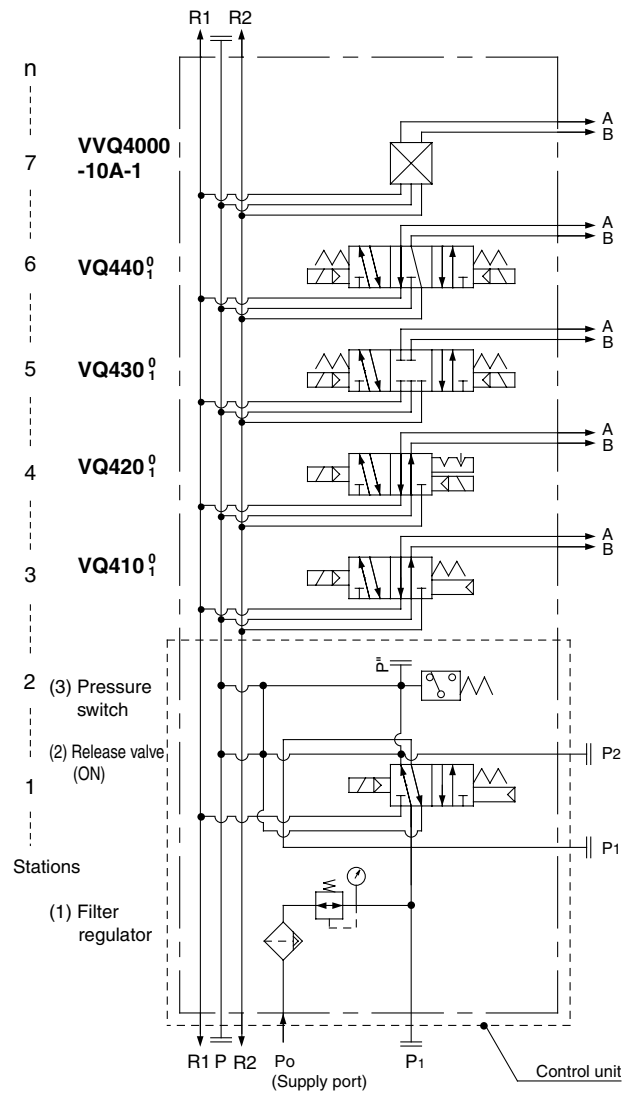
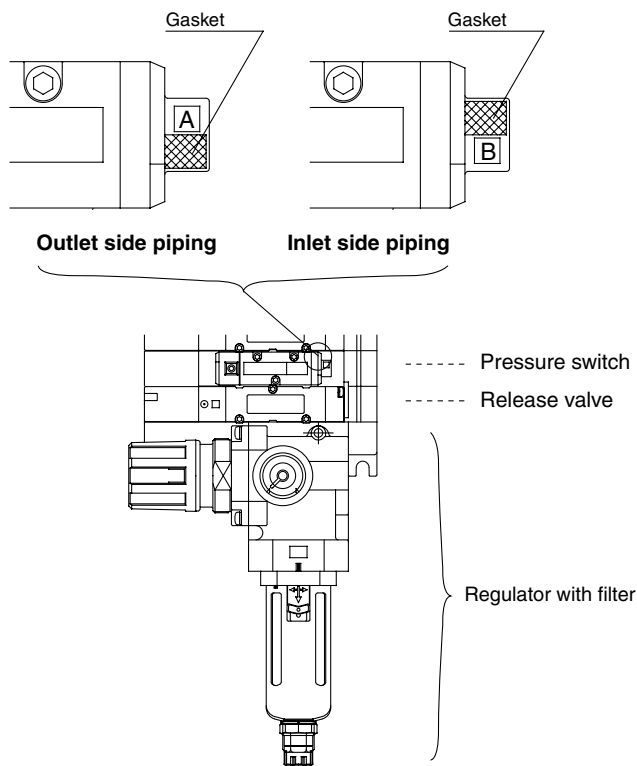
1. The supply pressure (P_o) passes through the filter regulator (1) and is adjusted to the prescribed pressure. Next, it goes through the release valve (2) (outlet residual pressure switching function used as normally ON) and is supplied to the manifold base side (P).
2. Supply pressure from P_o port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

<Wiring>

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

<Change of pressure switch piping>

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

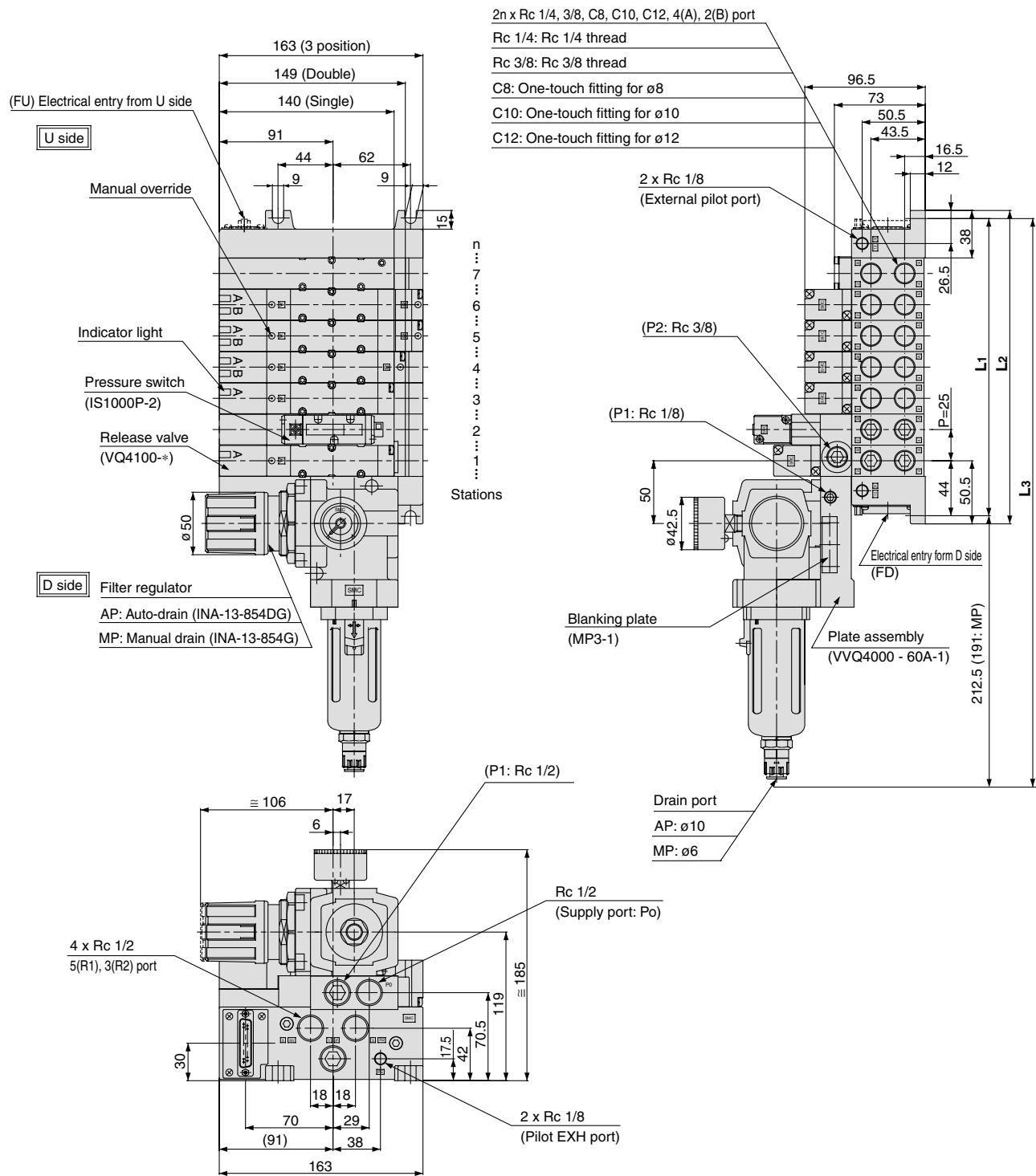


Circuit of control unit manifold

Series VQ4000

Manifold with Control Unit

Plug-in type

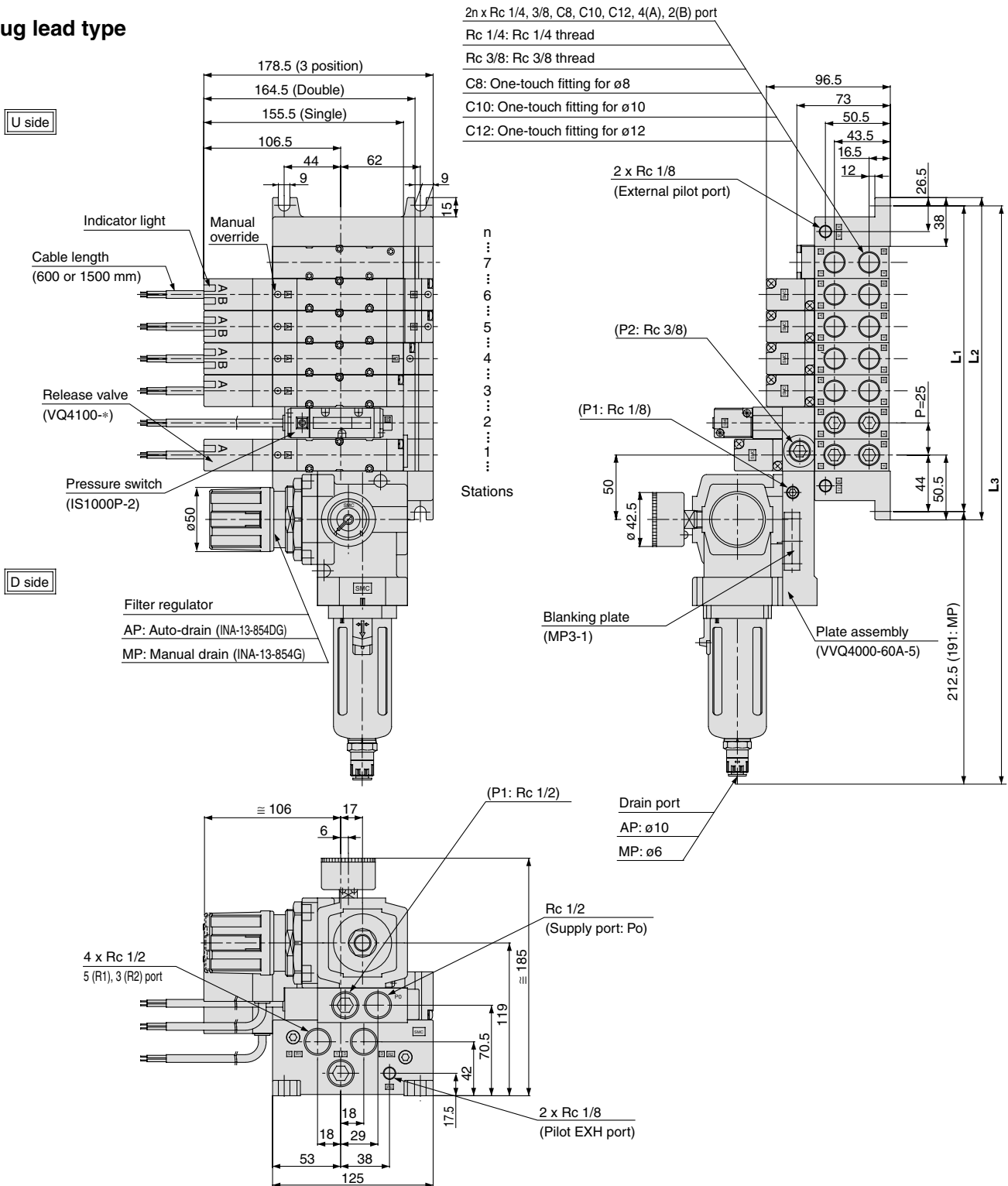


Dimensions		Formula L1 = 25n + 63, L2 = 25n + 76, L3 = 25n + 282 (260.5) n: Stations										
L \ n		2	3	4	5	6	7	8	9	10	11	12
L1		113	138	163	188	213	238	263	288	313	338	363
L2		126	151	176	201	226	251	276	301	326	351	376
L3		332	357	382	407	432	457	482	507	532	557	582
		(310.5)	(335.5)	(360.5)	(385.5)	(410.5)	(435.5)	(460.5)	(485.5)	(510.5)	(535.5)	(560.5)

* L3 (): Type MP

* L3 (): Type MP

Plug lead type



Dimensions

Formula L1 = 25n + 63, L2 = 25n + 76, L3 = 25n + 282 (260.5) n: Stations

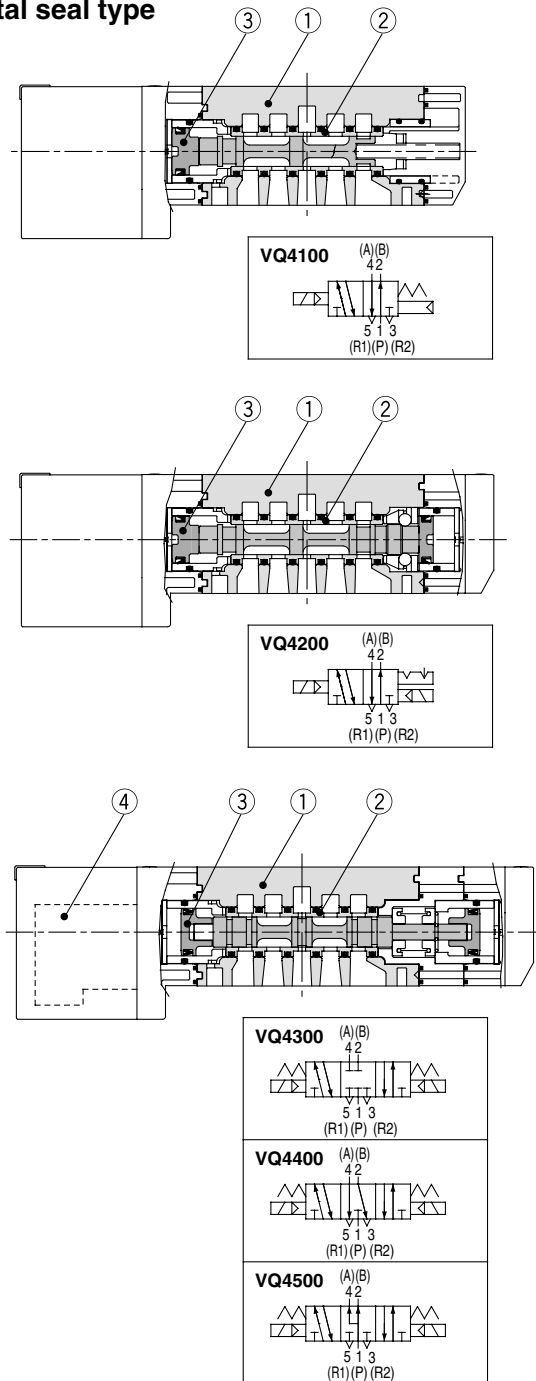
L \ n	2	3	4	5	6	7	8	9	10	11	12
L1	113	138	163	188	213	238	263	288	313	338	363
L2	126	151	176	201	226	251	276	301	326	351	376
L3	332 (310.5)	357 (335.5)	382 (360.5)	407 (385.5)	432 (410.5)	457 (435.5)	482 (460.5)	507 (485.5)	532 (510.5)	557 (535.5)	582 (560.5)

* L3 (): Type MP

Series VQ4000 Construction

Plug-in Unit

Metal seal type



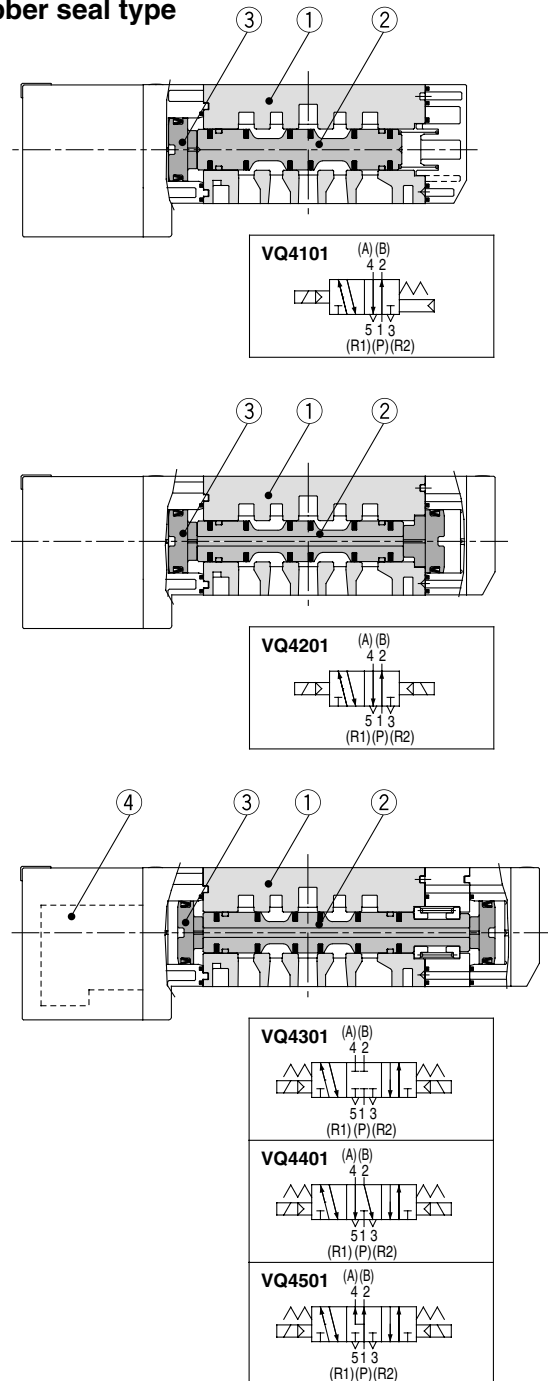
Component Parts

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

Replacement Parts

④	Pilot valve assembly	VQZ111P-□- A B E	□: Coil rated voltage Example) 24 VDC: 5 A: With A side light B: With B side light E: Without a light (Common for A and B)
---	----------------------	---------------------------	---

Rubber seal type



Component Parts

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

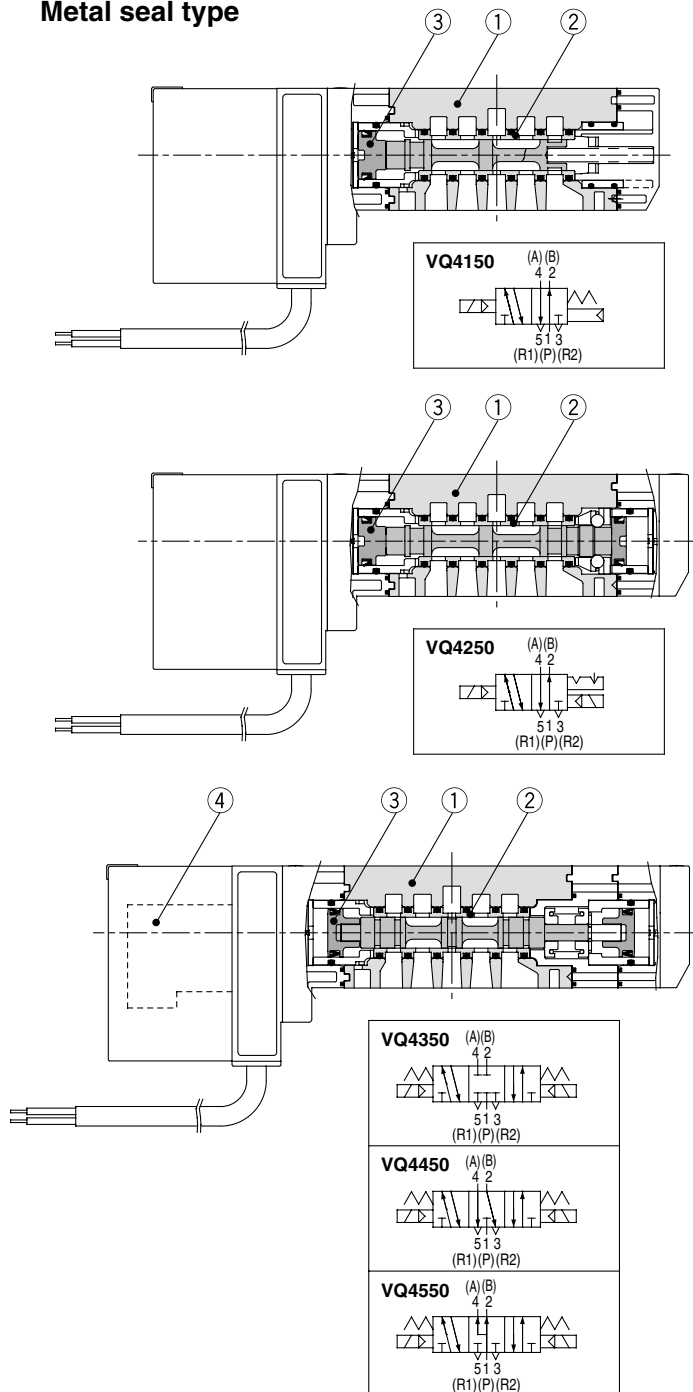
Replacement Parts

④	Pilot valve assembly	VQZ111P-□- A B E	□: Coil rated voltage Example) 24 VDC: 5 A: With A side light B: With B side light E: Without a light (Common for A and B)
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Series VQ4000 Construction

Plug Lead Unit

Metal seal type



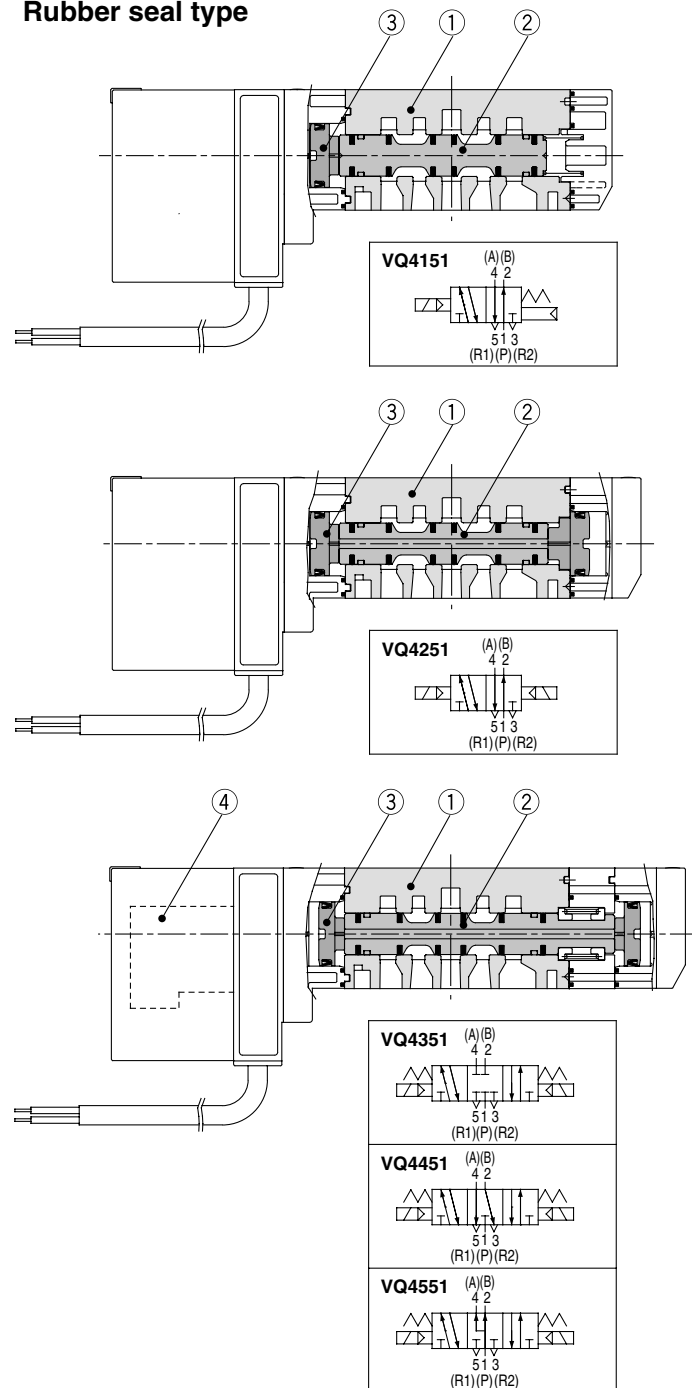
Component Parts

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

Replacement Parts

④	Pilot valve assembly	VQZ111P-□- A B E	□: Coil rated voltage Example) 24 VDC: 5 A: With A side light B: With B side light E: Without a light (Common for A and B)
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Rubber seal type



Component Parts

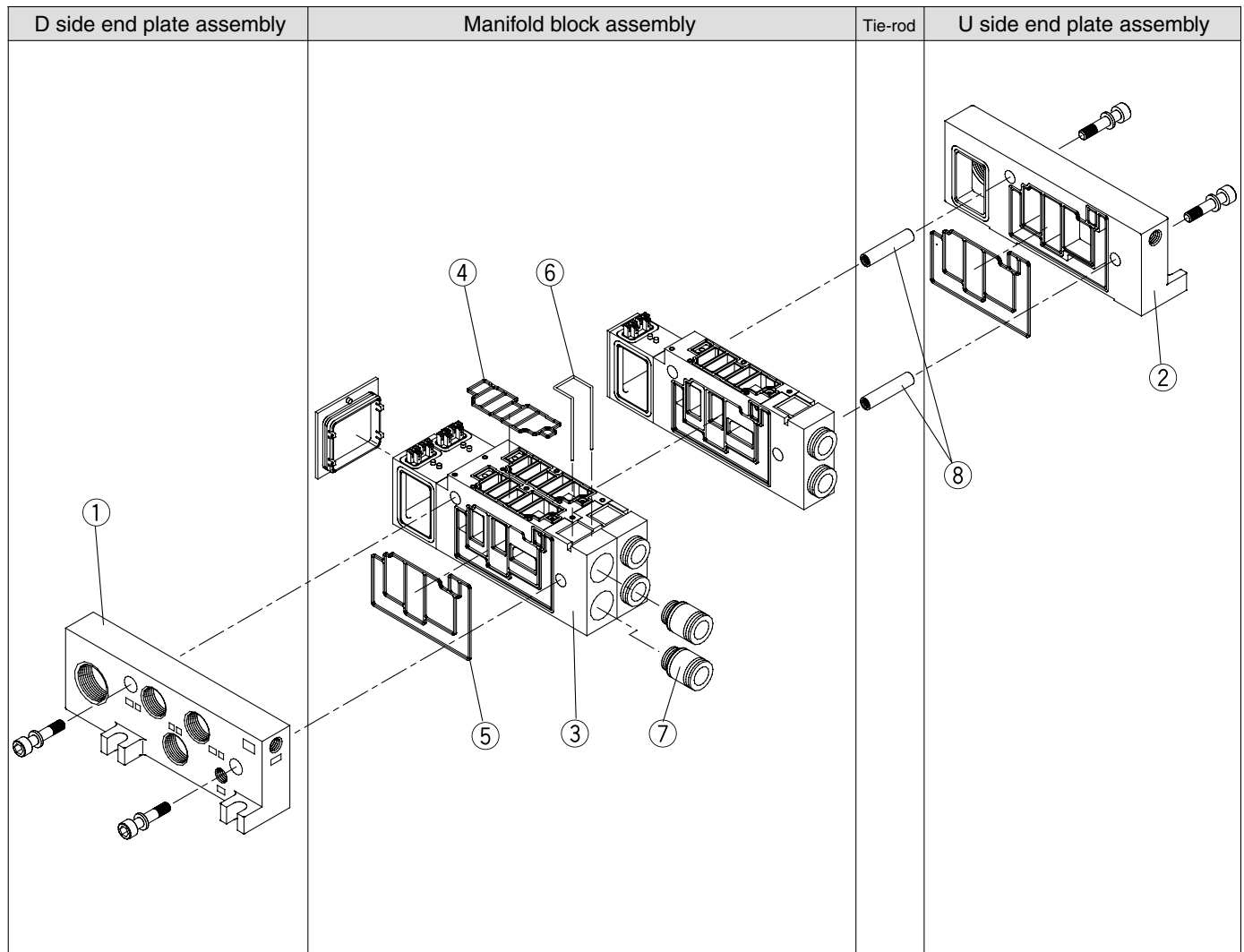
Number	Description	Material	Note
①	Body	Aluminum die-casted	
②	Spool valve	Aluminum, HNBR	
③	Piston	Resin	

Replacement Parts

④	Pilot valve assembly	VQZ111P-□- A B E	□: Coil rated voltage Example) 24 VDC: 5 A: With A side light B: With B side light E: Without a light (Common for A and B)
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SJ
SY
SV
SYJ
SZ
VP4
S0700
VQ
VQ4
VQ5
VQC
VQZ
SQ
VFS
VFR
VQ7

Exploded View of Manifold



Note 1) The electrical entry cannot be changed.

Note 2) Manifold block used is 2-station integrated type. 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.

The drawing shows a plug-in type.

D side

U side

Example)

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

5 stations (Odd number)

2 stations	2 stations	1 station
------------	------------	-----------

6 stations (Even number)

2 stations	2 stations	1 station	1 station
------------	------------	-----------	-----------

Exploded View of Manifold

<D Side End Plate Assembly>

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

VVQ4000-3A-1-□-□-□

Thread type		Electrical entry		Option
Nil	Rc	L	F, L, T, S kit	
N	NPT	F ⁽¹⁾	F kit (Connector side)	
T	NPTF	C	C kit (Plug lead type)	
F	G			

Nil	Standard
W ⁽²⁾	IP65 enclosure
CD	For exhaust cleaner mounting
SD	Direct exhaust with silencer box

Note 1) D-sub connector assembly for D side: VVQ4000-19A-D is not included. (Order separately)
Note 2) Drip proof type for F kit is not available.

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

VVQ4000-3A-12

* With connector on the SI unit

<Manifold Block Assembly>

3. Manifold block assembly part no.

VVQ4000-1-□-□-□-□-□

Type	Thread type	Option
A For 1 station	Nil Rc	
C For 2 stations ⁽³⁾	N NPT	
	T NPTF	
	F G	

Electrical entry		Port size	
F1	F kit Double wiring	02	Rc 1/4
F2	F kit Single wiring	03	Rc 3/8
T1	T kit Double wiring	B	Bottom ported Rc 1/4 ⁽⁴⁾
T2	T kit Single wiring	C6	With One-touch fitting for ø6
S1	S kit Double wiring	C8	With One-touch fitting for ø8
S2	S kit Single wiring	C10	With One-touch fitting for ø10
L0□	L0 kit □: Stations (1 to 16)	C12	With One-touch fitting for ø12
L1□	L1 kit □: Stations (1 to 16)	N7	With One-touch fitting for ø1/4
L2□	L2 kit □: Stations (1 to 16)	N9	With One-touch fitting for ø5/16
C	C kit (Plug lead type)	N11	With One-touch fitting for ø3/8

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

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

VVQ4000-TR-□

Stations: 02 to 18

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

<SI Unit>

SI Unit Part No.

Type	Model symbol	SI unit part no.	Description
Dedicated output model	O	—	Without SI unit
	F1	EX123 ^U _D -SUW1	16 output points Uni-wire System (NKE)
	H	EX123 ^U _D -SUH1	SI unit for 16 output points Uni-wire H System (NKE)
	J1	EX123 ^U _D -SSL1	16 output points S-LINK System (Sunx)
	J2	EX123 ^U _D -SSL2	8 output points S-LINK System (Sunx)
	Q	EX124 ^U _D -SDN1	SI unit for DeviceNet (2 power supply systems)
	R1	EX124 ^U _D -SCS1	SI unit for 16 output points CompoBus/S (2 power supply systems) (OMRON)
	R2	EX124 ^U _D -SCS2	SI unit for 8 output points CompoBus/S (2 power supply systems) (OMRON)
For in/output model	V	EX124 ^U _D -SMJ1	SI unit for CC-LINK System (2 power supply systems)
	QW	EX240-SDN2	DeviceNet (+COM)
	NW	EX240-SPR1	PROFIBUS DP (-COM)
		EX240-IE1	DI unit (For input) M12 8 number of inputs

<U Side End Plate Assembly Part No.>

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

VVQ4000-2A-1-□-□-□

Electrical entry		Option
L	F, L, T, S kit	
F ⁽¹⁾	F kit (Connector side)	
C	C kit (Plug lead type)	

Thread type		Option
Nil	Rc	
N	NPT	
T	NPTF	
F	G	

Note 1) D-sub connector assembly for D side: VVQ4000-19A-D is not included. (Order separately)
Note 2) Drip proof type for F kit is not available.

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

VVQ4000-2A-12

* With connector on the SI unit

<Manifold Block Replacement Parts>

Replacement Parts

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

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

<Fitting Assembly>

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

VVQ4000-50B-□

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

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

<D-sub connector assembly>

VVQ4000-19A-□

D	For D side entry
U	For U side entry

SJ

SY

SV

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

VFR

VQ7



Series VQ4000

Specific Product Precautions 1

Be sure to read before handling.

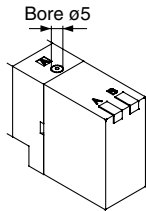
Refer to front matter 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Manual Override Operation

Warning

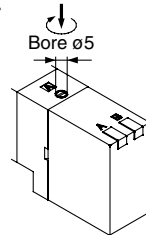
Since connected equipment will be actuated when the manual override is operated, first confirm that conditions are safe. Non-locking push type (tool required) is standard. As an option, slotted locking type (tool required) is available.

Push type (Tool required)

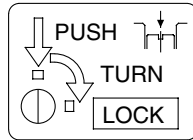


Push down on the manual override button with a small screwdriver until it stops. Release the screwdriver and the manual override will return.

Locking type (Tool required) <Option>



Push down completely on the manual override button with a small screwdriver. While down, turn clockwise 90° to lock it. Turn it counterclockwise to release it.

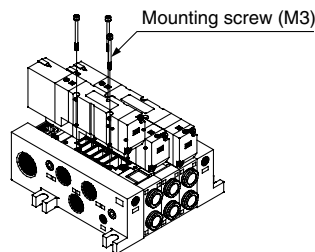


Mounting of Valves

Caution

After confirming the gasket is correctly placed under the valve, securely tighten the bolts with the proper torque shown in the table below.

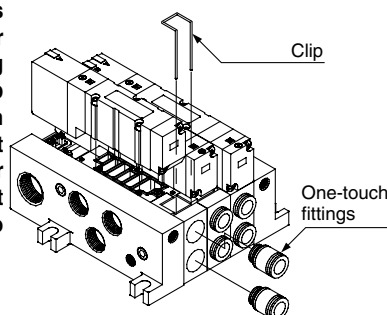
Proper tightening torque
0.8 to 1.2



Changing the One-touch Fittings

Caution

The built-in One-touch fittings on the cylinder port side are easily replaceable because of the cassette type. Clip prevents the fittings to come off. After removing the corresponding valve and take out the clip with a screwdriver, etc., then replace the fittings. About mounting the fittings, after inserting the fitting until it stops, then put the clip into the prescribed position.

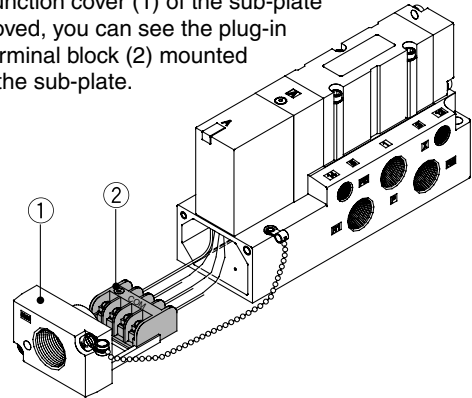


Lead Wire Connection

Caution

Plug-in sub-plate (With terminal block)

- If the junction cover (1) of the sub-plate is removed, you can see the plug-in type terminal block (2) mounted inside the sub-plate.



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

Model	Terminal block marking	A	COM	B	T
VQ410 ⁰ ₁		A side	COM	—	—
VQ420 ⁰ ₁		A side	COM	B side	—
VQ4 ³ ₅₀₁		A side	COM	B side	—

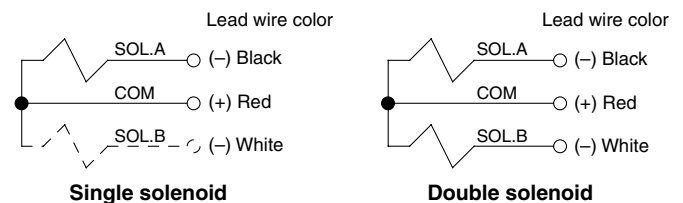
Note 1) There is no polarity. It can also be used as -COM.

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

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

Plug lead: Grommet type

Make connections to 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 compliant	Black: A side solenoid (-) Red: COM (+) White: B side solenoid (-) (Not used for single solenoid) Green: (Not used for single or double.)	

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



Series VQ4000

Specific Product Precautions 2

Be sure to read before handling.

Refer to front matter 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Installation and Removal of Light Cover

⚠ Caution

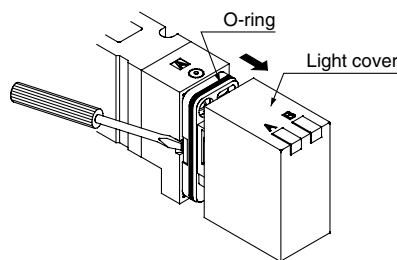
Installation/Removal of light cover

● Removal

Open the cover by inserting a small flat head screwdriver into the slot on the side of the pilot assembly (see drawing below), lift the cover out about 1 mm and then pull off. If it is pulled off at an angle, the pilot valve may be damaged or the protective O-ring may be scratched.

● Installation

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



Replacement of Pilot Valve

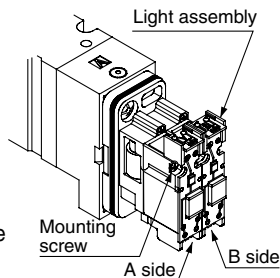
⚠ Caution

● Removal

- 1) Remove the mounting screw that holds the pilot valve using a small screwdriver.

● Installation

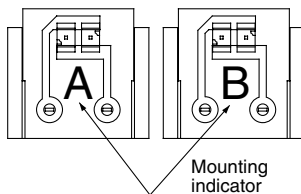
- 1) After confirming the gasket is correctly placed under the valve, securely tighten the bolts with the proper torque shown in the table below.



Proper tightening torque (N·m)

0.1 to 0.13

Note) The light circuit boards: A side is orange and the B side is green. It must be mounted on the pilot valve in accordance with the mounting indicators.

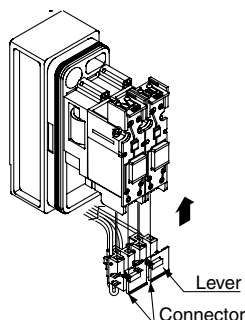


For Plug Lead Type

Attaching and detaching connectors

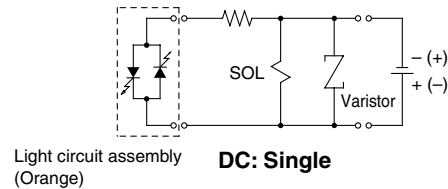
- To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.
- To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb, and pull the connector straight out.

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



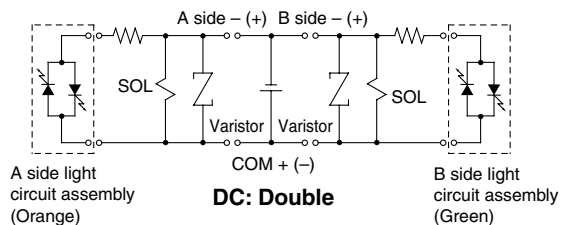
Internal Wiring Specifications

⚠ Caution



Light circuit assembly (Orange)

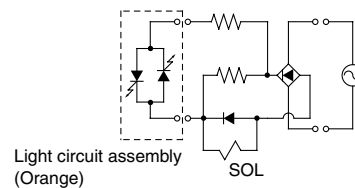
DC: Single



A side light circuit assembly (Orange)

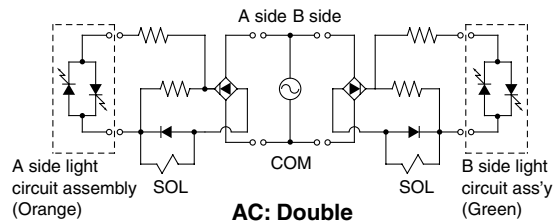
DC: Double

B side light circuit assembly (Green)



Light circuit assembly (Orange)

AC: Single



A side light circuit assembly (Orange)

AC: Double

B side light circuit ass'y (Green)

Note) For DC, coil surge voltage generated when OFF is about -60V. Contact SMC separately for further suppression of the coil surge voltage.

Enclosure IP65

⚠ Caution

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

How to Calculate the Flow Rate

For obtaining the flow rate, refer to pages 44 to 47.

SJ

SY

SV

SYJ

SZ

VP4

S0700

VQ

VQ4

VQ5

VQC

VQZ

SQ

VFS

VFR

VQ7

