Series VQ4000

Base Mounted

Plug-in/Plug Lead Single Unit

Model

Series	Configuration		Model		Port size	Flow characteristics						Response time (ms)			Weight (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}$0		2.7	—	—	3.7	—	—	55 or less	57 or les	57 or les	0.50 (0.56)
			Rubber seal	VQ46$^{0}_{5}$1		2.8	—	—	3.9	—	—	62 or less	64 or less	64 or less	

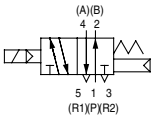
Note 1) Value for valve on sub-plate and cylinder port Rc 3/8
Note 2) Based on JIS B 8375-1981 Supply pressure: 0.5 MPa, with indicator light and surge voltage suppressor, clean air. This will change depending on pressure and air quality.) The value when ON for the double type.
Note 3) Values inside ( ) 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

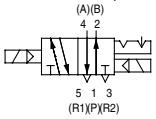
Plug lead unit

JIS Symbol

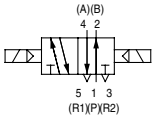
2 position single



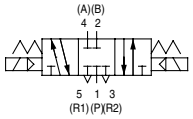
2 position double (Metal)



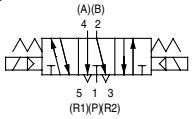
2 position double (Rubber)



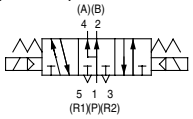
3 position closed center



3 position exhaust center



3 position pressure center



3 position double check

Standard Specifications

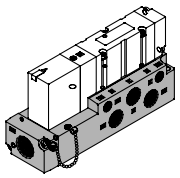
			Metal seal	Rubber seal
Valve specifications	Valve construction		Metal seal	Rubber seal
	Fluid		Air/Inert gas	Air/Inert gas
	Maximum operating pressure(3)		1.0 MPa (0.7 MPa)	
	Min. operating pressure	Single	0.15 MPa	0.20 MPa
		Double	0.15 MPa	0.15 MPa
		3 position	0.15 MPa	0.20 MPa
	Ambient and fluid 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/s²	
	Enclosure		Dust tight (IP65 compatible)	
Solenoid specifications	Coil rated voltage		12, 24 VDC, 100, 110, 200, 220 VAC (50/60 Hz)	
	Allowable voltage fluctuation		±10% of rated voltage	
	Coil insulation type		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 2-5-39.

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
2	Metal	2 position double
	Rubber	2 position double
3		3 position closed center
4		3 position exhaust center
5		3 position pressure center
Note) **6**		3 position double check

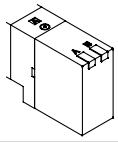
Note) For double check style, refer to page 2-5-36.

Enclosure

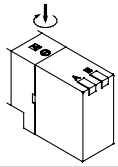
Nil	Dust-protected
W	Dusttight/Low jetproof type (IP65)

Manual override

Nil: Non-locking push type (Tool required)



B: Slotted locking type (Tool required)

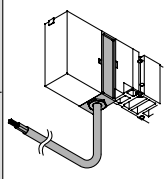


Light/Surge voltage suppressor

Nil	Yes
E	Without light, with surge voltage suppressor

Electrical entry

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

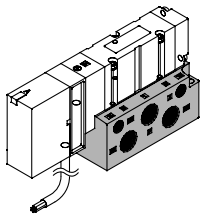


Coil voltage

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

Body

5: Plug lead sub-plate



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.
Note 2) For external pilot specifications, refer to page 2-5-39. 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 2-5-44 and 2-5-45 for pilot valve assembly part numbers.
- For "How to Replace", refer to page 2-5-3.

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.

Porting specifications

Nil	Side ported
B	Bottom ported(1)

Port size

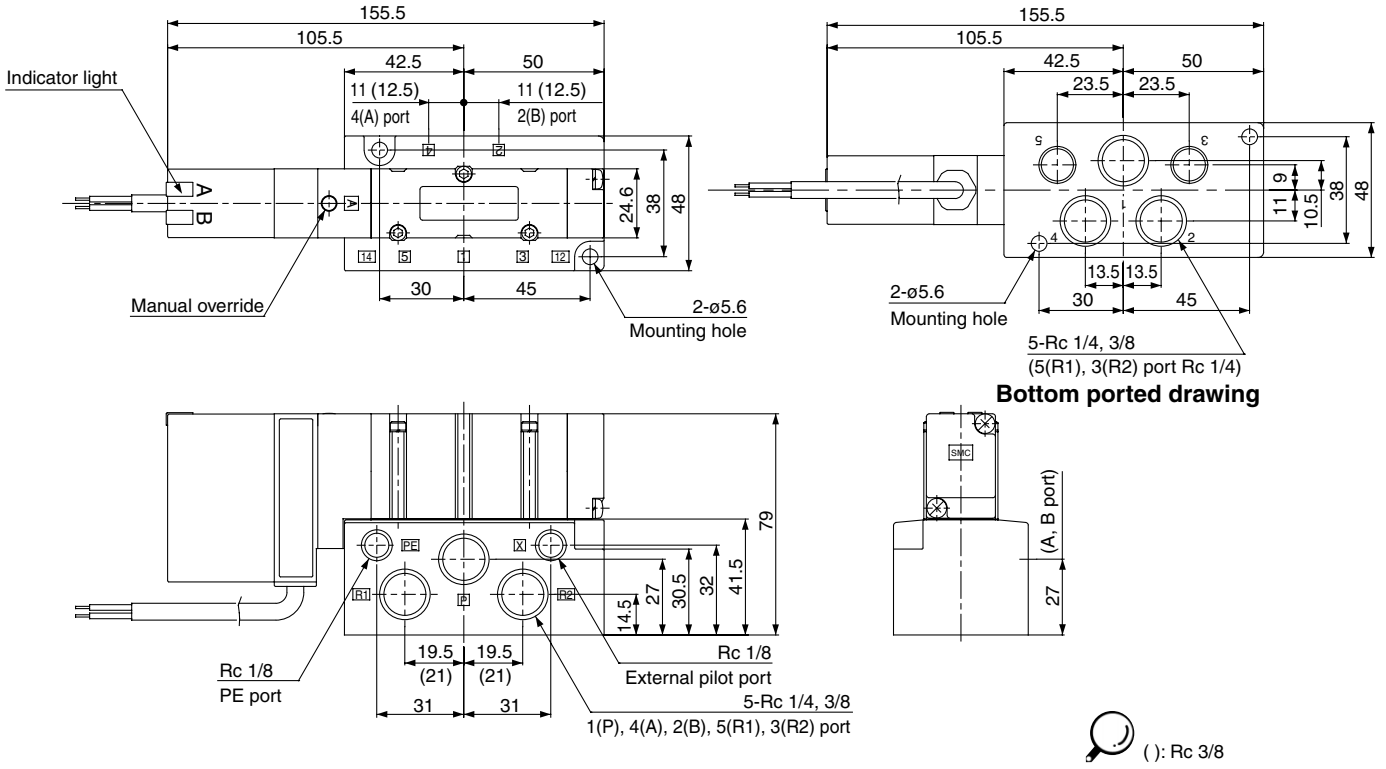
02	Rc 1/4
03	Rc 3/8

Note 1) For bottom ported port size is RC 1/4 only.
Note 2) For thread standard, refer to page 2-5-39.

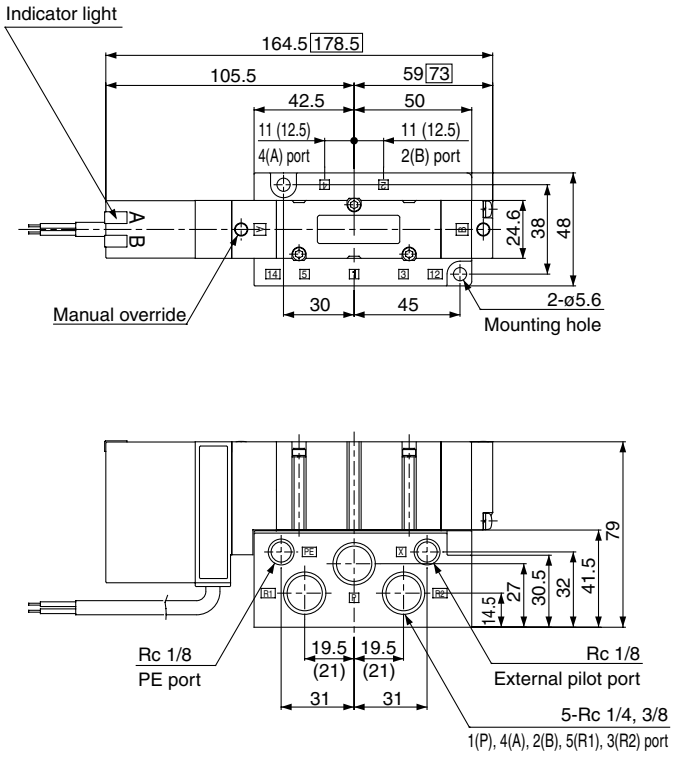
Plug Lead Type

Grommet

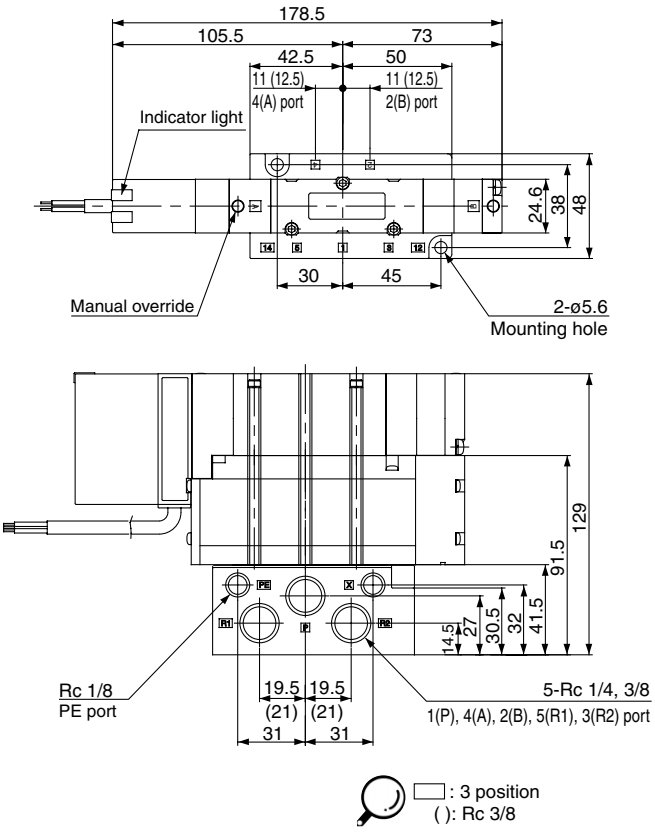
2 position single: VQ415$^{0}_{1}$-□$^{G}_{H}$



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

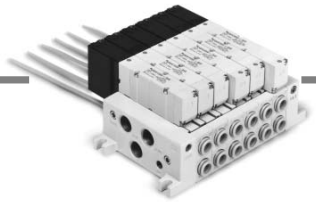


3 position double check: VQ465$^{0}_{1}$



Series VQ4000
Base Mounted
Plug Lead Unit: C Kit (Connector kit)

How to Order Manifold



VV5Q 4 5 — 08 C8 C □□ — W

Series

4	VQ4000

Manifold

5	Plug lead unit

Stations

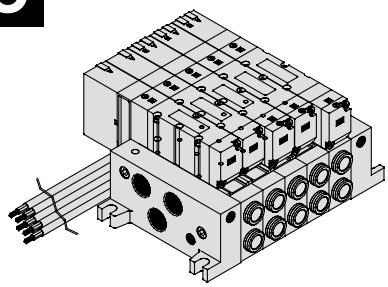
01	1 station
⋮	⋮
16	16 stations

Cylinder port

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)



C	Connector kit	Max. 16 stations

Control unit

Refer to pages 2-5-40 to 2-5-43.

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^{U}_{D}] and [S^{U}_{D}] is not available.

Refer to page 2-5-2 (Grommet type) for wiring specifications.

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

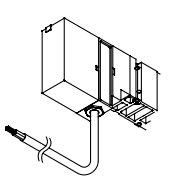
Note 1) Applicable to DC specifications.
Note 2) For external pilot specifications, refer to page 2-5-39. Combination of the external pilot and perfect interface is not possible.
Note 3) When two or more symbols are specified, indicate them alphabetically.

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

Electrical entry

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

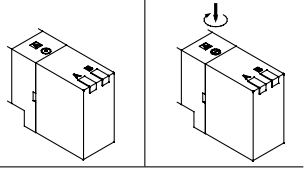


Light/Surge voltage suppressor

Nil	Yes
E	Without light, with surge voltage suppressor

Manual override

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



Enclosure

Nil	Dusttight
W	Dusttight/Low jetproof type (IP65)

How to Order Manifold Assembly

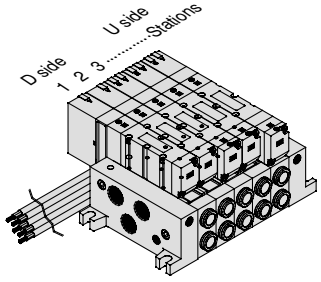
Specify the part numbers for valves and options together beneath the manifold base part number.

<Example>
Connector kit

VV5Q45-05C12C·····1 set — Manifold base part no.
∗VQ4150-5G·····2 sets — Valve part no. (Stations 1 and 2)
∗VQ4250-5G·····2 sets — Valve part no. (Stations 3 and 4)
∗VQ4350-5G·····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, please contact SMC.

Manifold Specifications

Series	Base model	Type of connection	Porting specifications			Maximum applicable stations	Applicable solenoid valve	5 station weight (kg)
			4(A), (B) port location	Port size Note)				
				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	2.0 • Except solenoid valve weight
			Bottom		Rc 1/4			

Note) For details about inch-size One-touch fittings and other thread standards, refer to page 2-5-39.

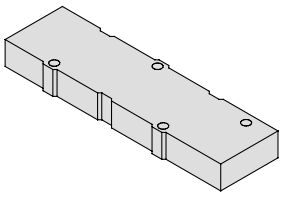
Flow Characteristics at the Number of Manifold Stations (Operated individually)

Model	Passage/Stations		Station 1	Station 5	Station 10	Station 15
2 position metal seal **VQ4$^{1}_{2}$50**	1 → 4/2 (P → A/B)	C [dm³/(s·bar)]	5.9	5.9	5.9	5.9
		b	0.23	0.23	0.23	0.23
		Cv	1.5	1.5	1.5	1.5
	4/2 → 5/3 (A/B → EA/EB)	C [dm³/(s·bar)]	6.2	6.2	6.2	6.2
		b	0.19	0.19	0.19	0.19
		Cv	1.5	1.5	1.5	1.5
2 position rubber seal **VQ4$^{1}_{2}$51**	1 → 4/2 (P → A/B)	C [dm³/(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 [dm³/(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

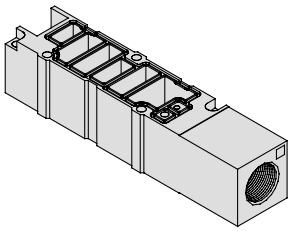
Note) Port size: Rc 3/8

Manifold Option

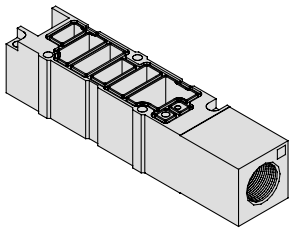
Blanking plate assembly
VVQ4000-10A-5



Individual SUP spacer
VVQ4000-P-5-$^{02}_{03}$

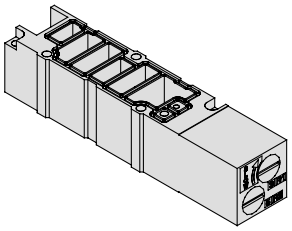


Individual EXH spacer
VVQ4000-R-5-$^{02}_{03}$

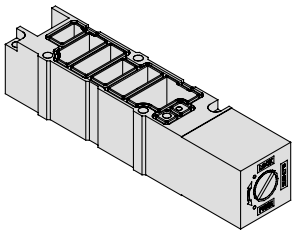


- Refer to pages 2-5-34 to 2-5-38 for detail dimensions of each option.
  For replacement parts, refer to page 2-5-47.
- Refer to pages 2-5-40 to 2-5-43 for control unit.

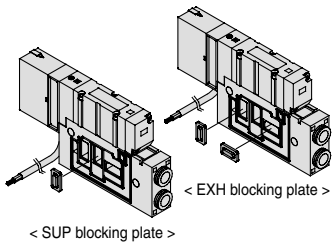
Throttle valve spacer
VVQ4000-20A-5



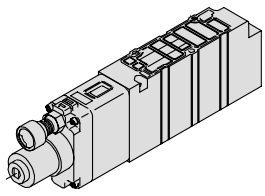
SUP stop valve spacer
VVQ4000-37A-5



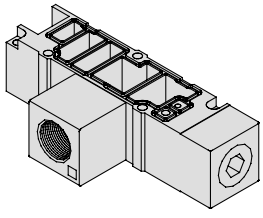
SUP/EXH block plate
VVQ4000-16A



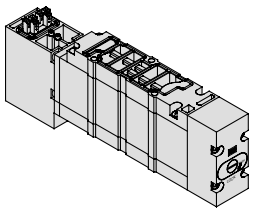
Interface regulator
ARBQ4000-00-$^{A}_{B}$$^{}_{P}$-5



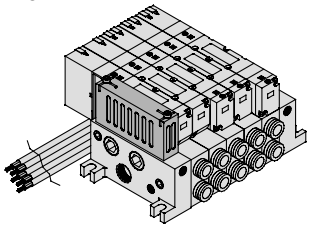
Release valve spacer
VVQ4000-24A-5D Note)



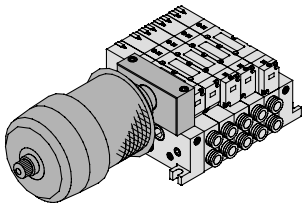
Double check spacer with residual pressure exhaust
VVQ4000-25A-5 Note)



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

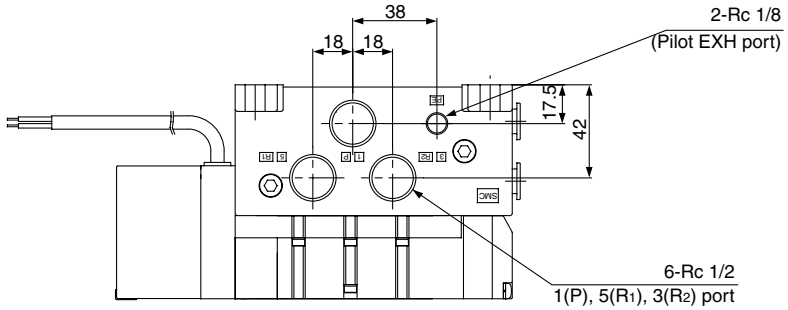


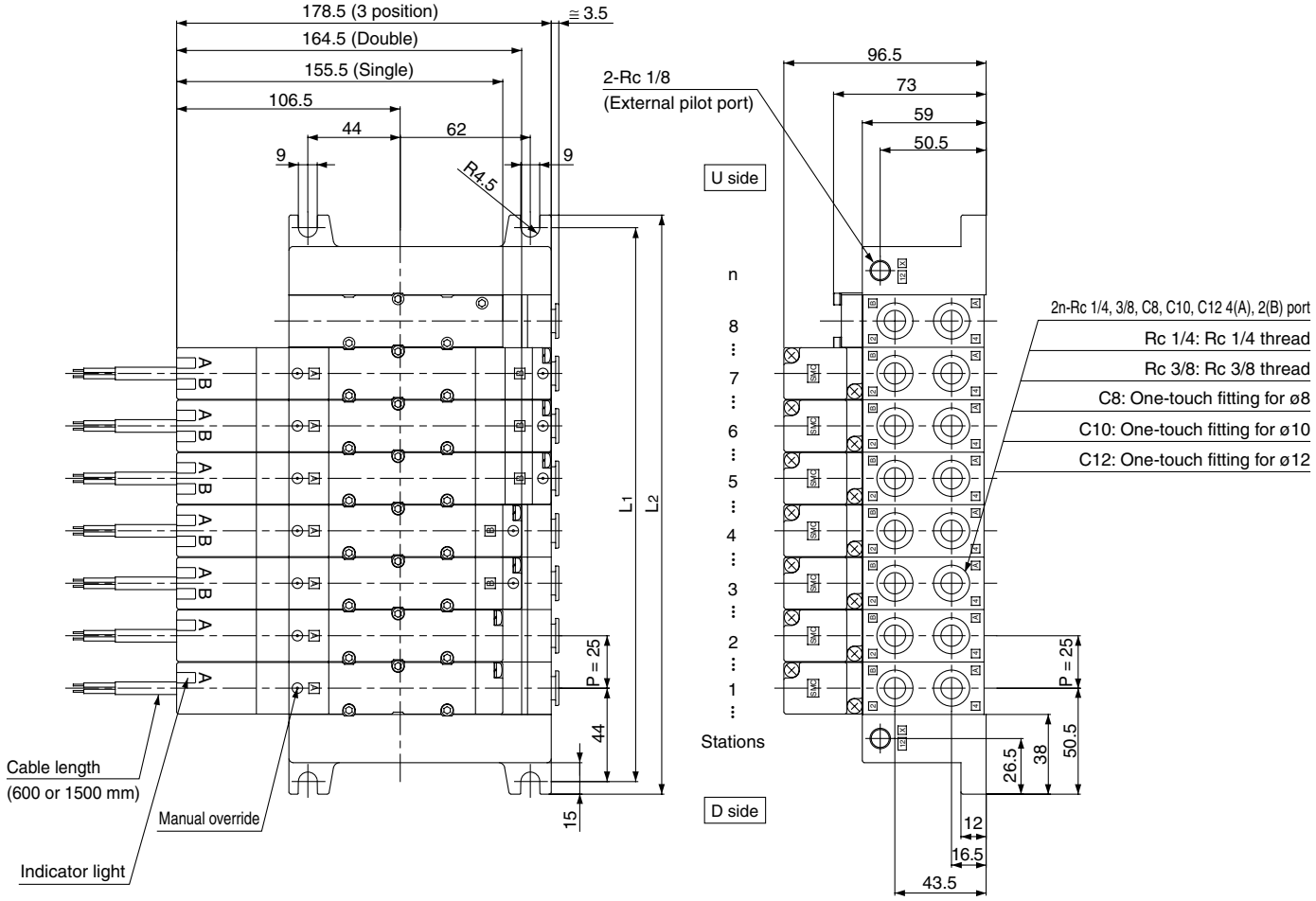
For exhaust cleaner mounting
[-C$^{D}_{U}$] Note)



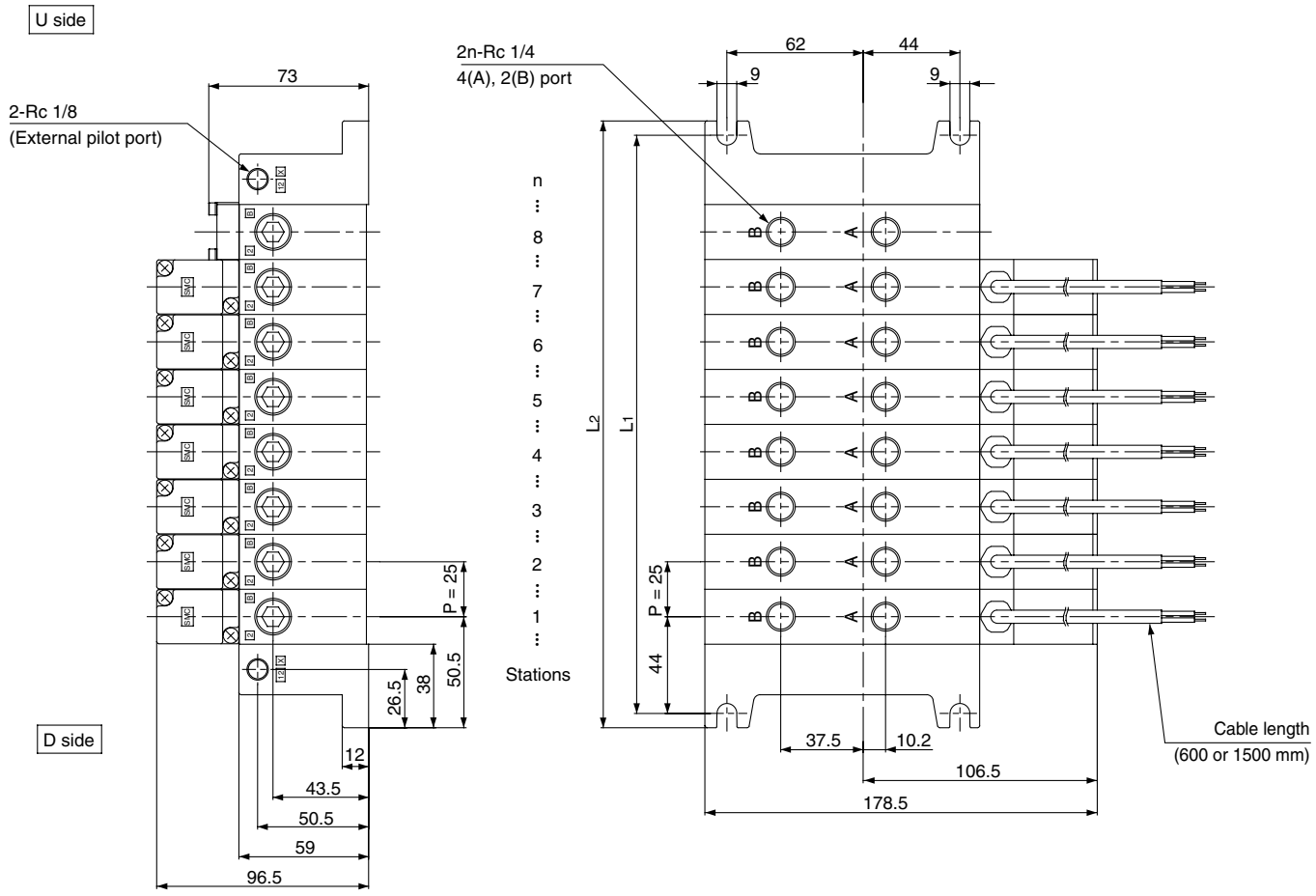
Note) Release valve spacer, built-in silencer (direct exhaust), exhaust cleaner mounting style and perfect double check spacer for residual pressure exhaust cannot be combined with external pilot.

C Kit (Connector kit)





Bottom ported drawing



Dimensions

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

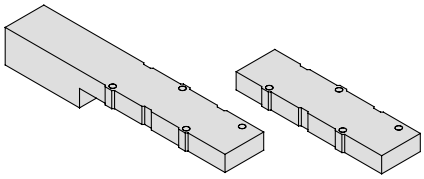
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	88	113	138	163	188	213	238	263	288	313	338	363	388	413	438	463
L2	101	126	151	176	201	226	251	276	301	326	351	376	401	426	451	476

Manifold Option Parts

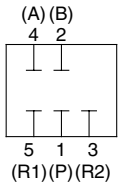
Blanking plate assembly

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

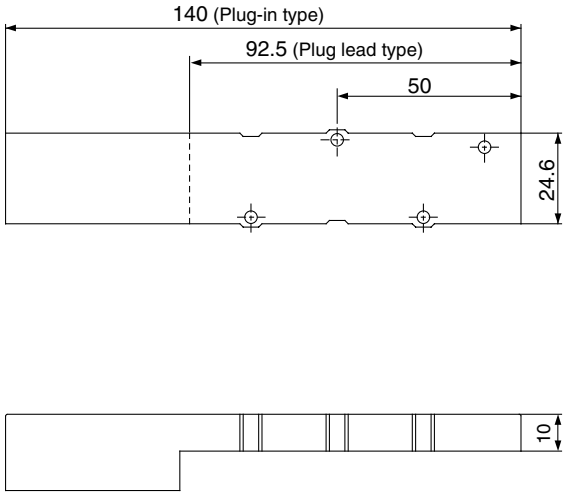
It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.



Plug-in type　　Plug lead type



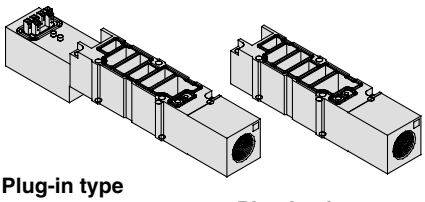
Circuit diagram



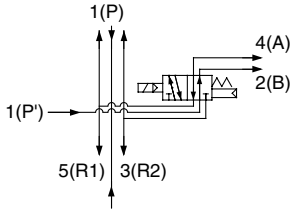
Individual SUP spacer

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

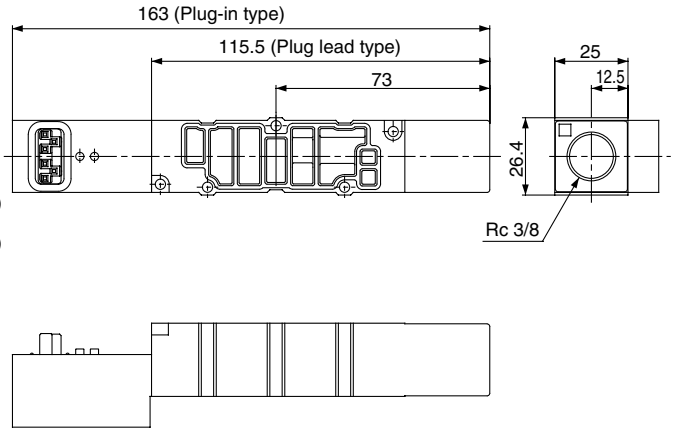
By mounting individual SUP spacers on a manifold block, it is possible to provide individual supply ports for each valve.



Plug-in type
Plug lead type



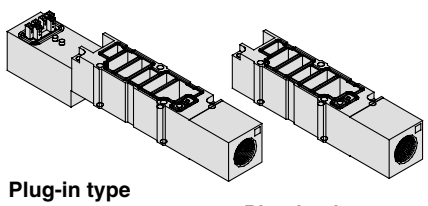
Circuit diagram



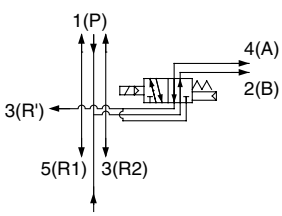
Individual EXH spacer

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

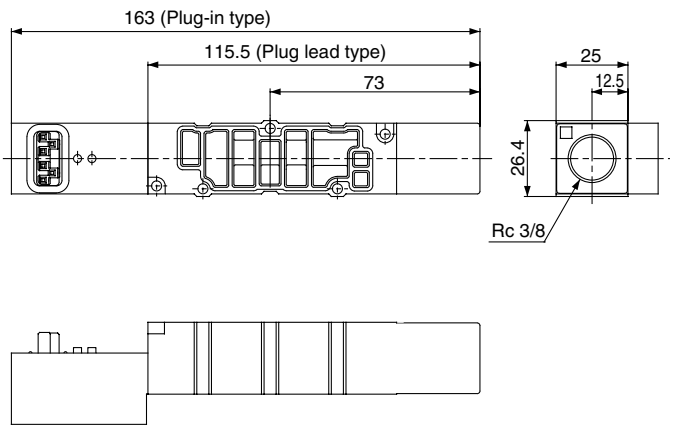
By mounting individual EXH spacers on a manifold block, exhaust ports can be provided individually for each valve. (Common EXH type)



Plug-in type
Plug lead type



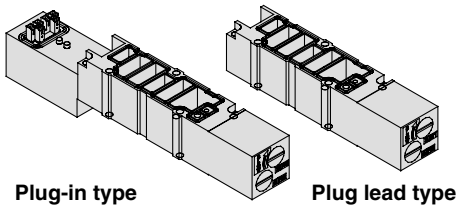
Circuit diagram



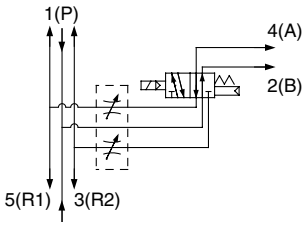
Throttle valve spacer

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

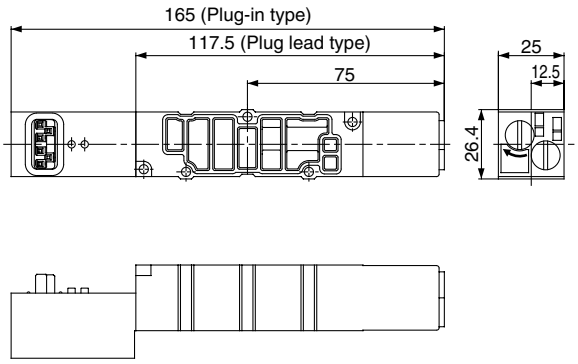
A throttle valve spacer is mounted on a manifold block to control cylinder speed by throttling exhaust air flow.



Plug-in type　　Plug lead type



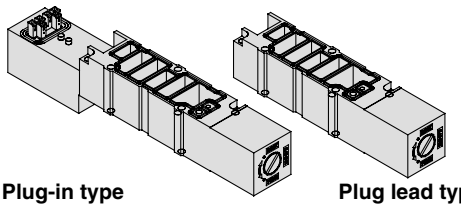
Circuit diagram



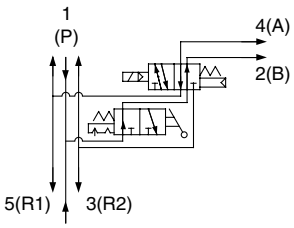
SUP stop valve spacer

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

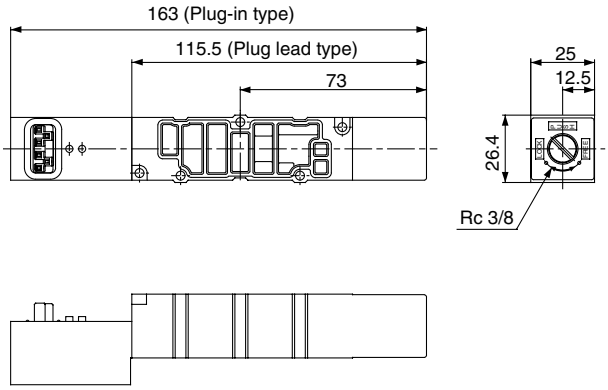
A SUP stop valve spacer is mounted on a manifold block, making it possible to individually shut off supply air to each valve.



Plug-in type　　Plug lead type



Circuit diagram



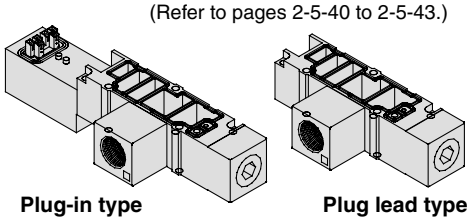
Release valve spacer: For D side mounting

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

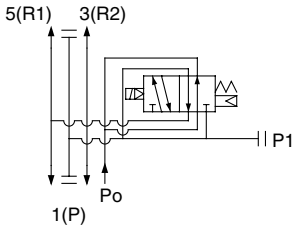
Combination of VQ41□□ (Single) and release valve spacer can be used as air release valve

Note 1) Mounting on 2 position double and 3 position valve is not possible.

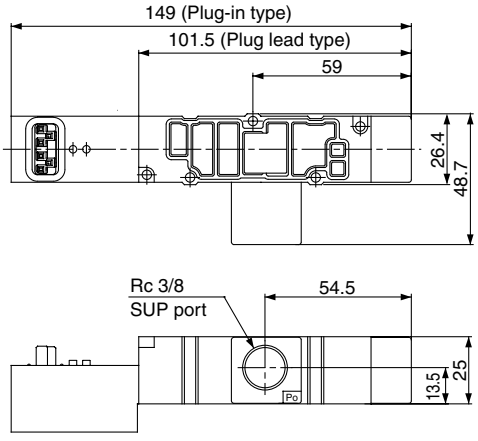
Note 2) Can be mounted on L kit only. For other kits, order E type control unit. (Refer to pages 2-5-40 to 2-5-43.)



Plug-in type　　Plug lead type



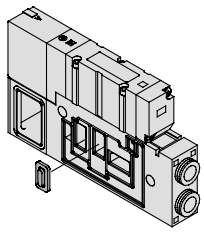
Circuit diagram



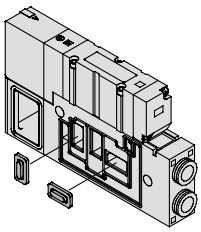
SUP/EXH block plate

VVQ4000-16A

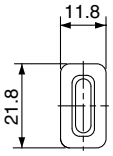
When different pressures, high and low, are supplied to manifold, a SUP block plate is inserted between the stations under different pressures.

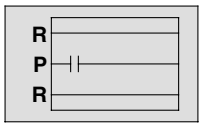


<SUP blocking plate>

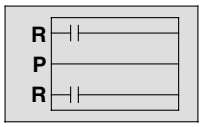


<EXH blocking plate>

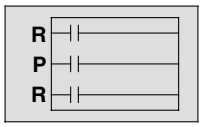




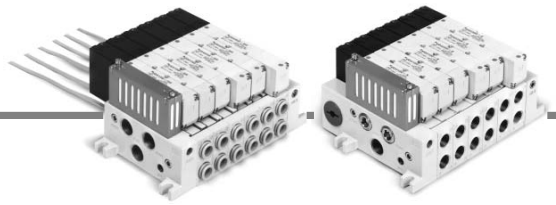
SUP passage blocked



EXH passage blocked



SUP/EXH passage blocked



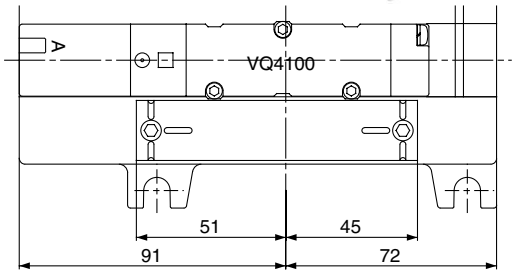
Manifold Option Parts

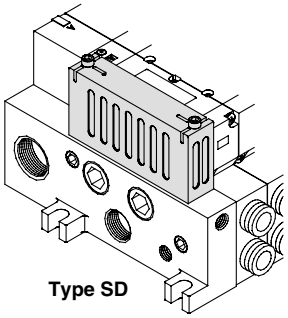
Direct exhaust with silencer box

VV5Q4$\frac{1}{5}$–□□□–SB (Exhaust from both sides)
VV5Q4$\frac{1}{5}$–□□□–SD (D side exhaust)
VV5Q4$\frac{1}{5}$–□□□–SU (U side exhaust)

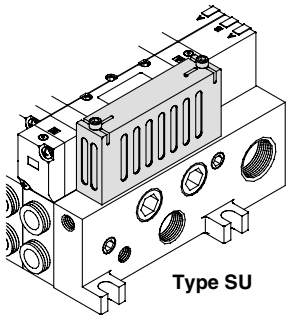
The EXH outlet is placed on the top side of the manifold end plate. The built-in silencer provides highly effective noise reduction.
(Noise reduction of 35 dB or more)

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

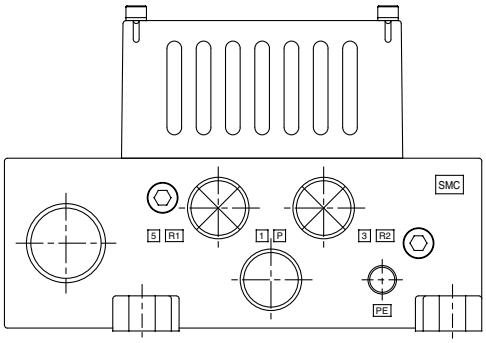


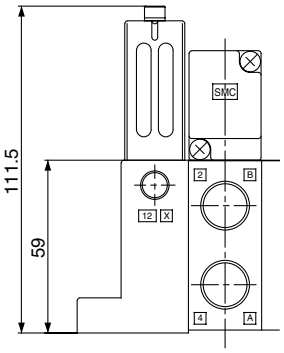


Type SD



Type SU





Note) Figure shows VV5Q41–□□□–SD.

Double check spacer with residual pressure exhaust

VVQ4000–25A–1 (Plug-in type)
VVQ4000–25A–5 (Plug lead type)

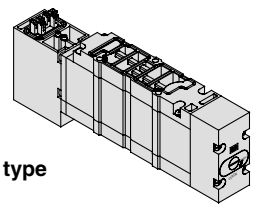
Can hold an intermediate cylinder position for an extended time.

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.

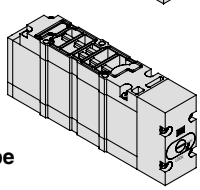
Specifications

Double check spacer part no.	VVQ4000-25A-1			
	Intermediate stop		Drop prevention	
Applicable solenoid valve	VQ44□□		VQ4$\frac{1}{2}$□□	
Leakage* N cm³/min	Solenoid one side energized	1(P)	5(R1)	230 or less
			3(R2)	
	Both solenoids unenergized	1(P)	5(R1)	230 or less
			3(R2)	
		4(A)	5(R1)	0
		2(B)	3(R2)	

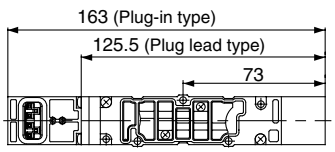
* Supply pressure: 0.5 MPa

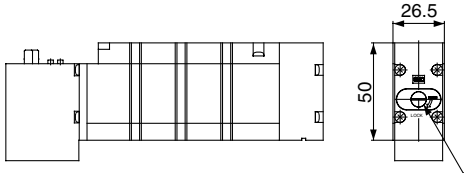


Plug-in type



Plug lead type



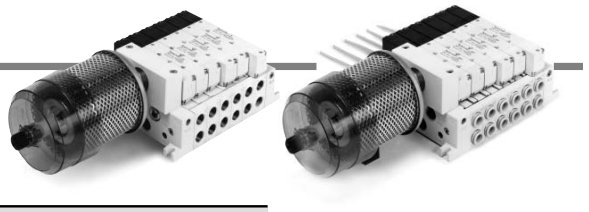


Manual override for residual pressure exhaust
Slotted locking type (Tool required)

⚠ 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$\frac{3}{5}$□□" will not work.
- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.
- Combining double check spacer with external pilot will not work.



Manifold mounted exhaust cleaner

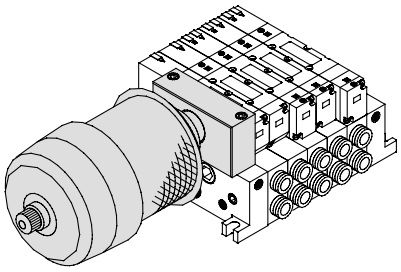
VV5Q4$\frac{1}{5}$-□□□-CD (D side mounting)
VV5Q4$\frac{1}{5}$-□□□-CU (U side mounting)

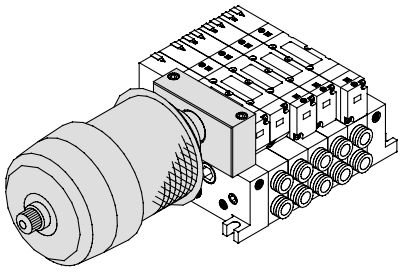
An adapter plate for exhaust cleaner mounting is provided on the top of the manifold end plate. The exhaust cleaner collects drainage and oil mist (99.9% or more) and is highly effective for noise reduction.
(Noise reduction of 35 dB or more)

Applicable exhaust cleaners

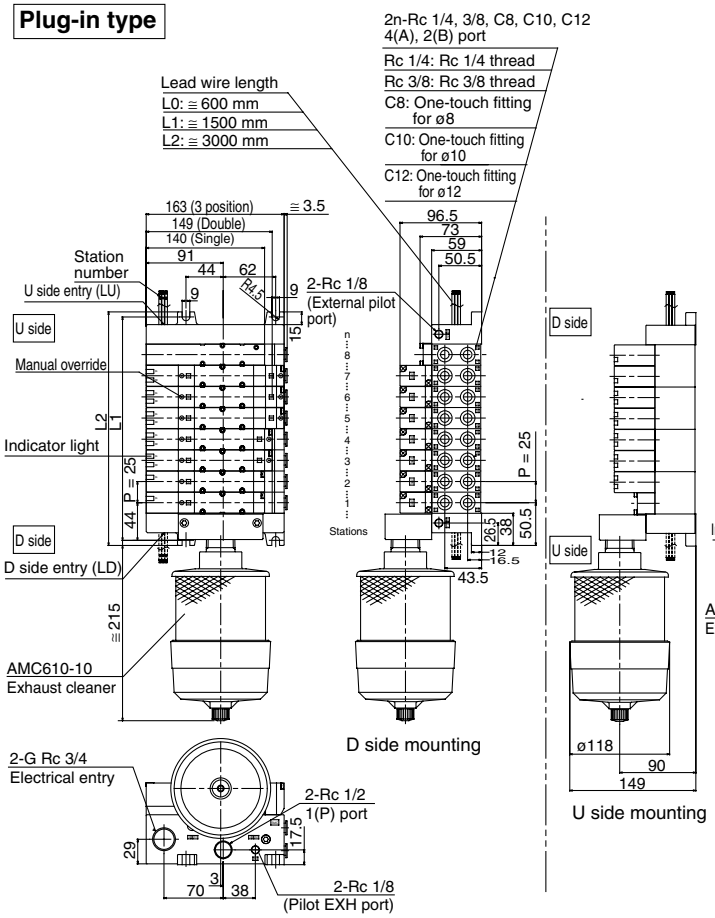
AMC610-10 (Port size Rc 1)

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 vol.5.

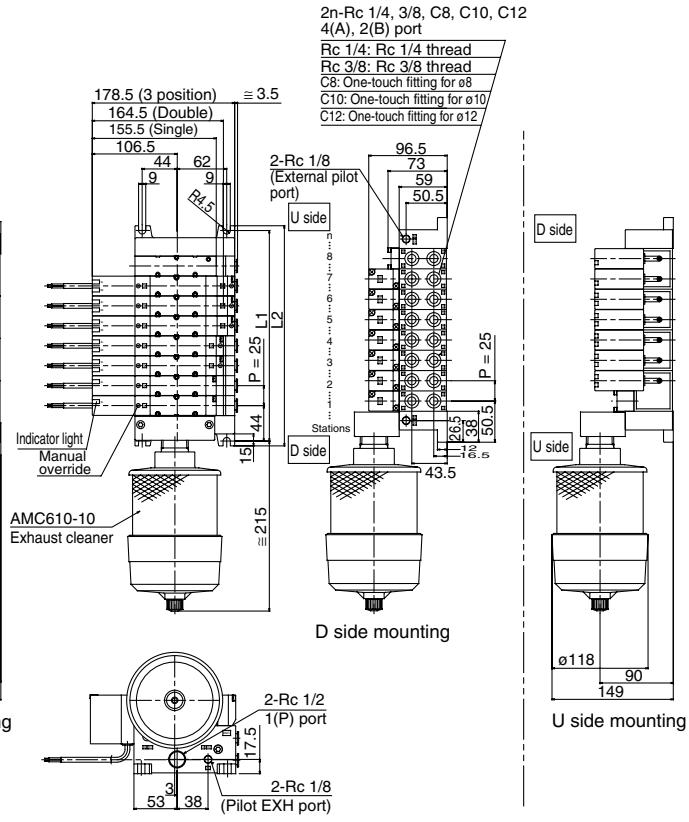




Plug-in type



Plug lead type



Dimensions

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

L \ n	1	2	3	4	5	6	7	8
L_1	88	113	138	163	188	213	238	263
L_2	101	126	151	176	201	226	251	276

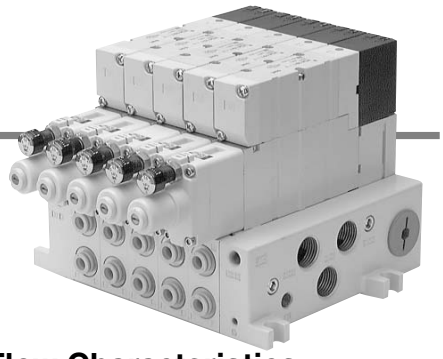
L \ n	9	10	11	12	13	14	15	16
L_1	288	313	338	363	388	413	463	463
L_2	301	326	351	376	401	426	476	476

Dimensions

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

L \ n	1	2	3	4	5	6	7	8
L_1	88	113	138	163	188	213	238	263
L_2	101	126	151	176	201	226	251	276

L \ n	9	10	11	12	13	14	15	16
L_1	288	313	338	363	388	413	463	463
L_2	301	326	351	376	401	426	476	476



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.

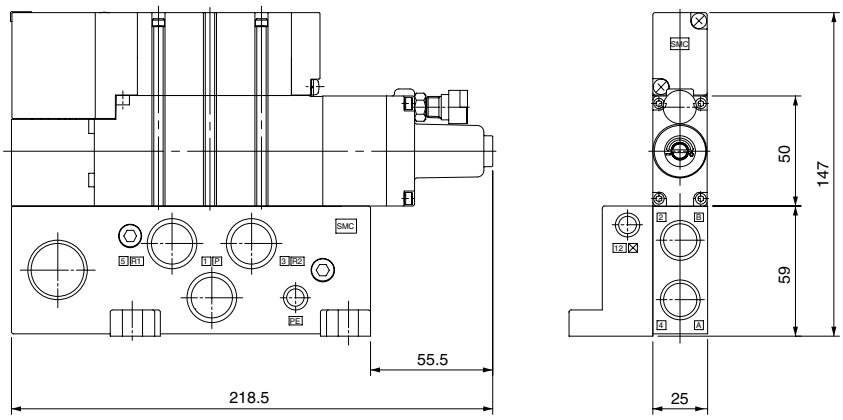
Specifications

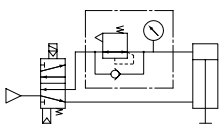
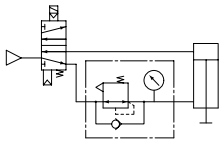
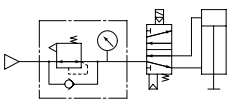
Interface regulator		ARBQ4000					
Regulating port		A		B		P	
Applicable solenoid valve		Plug-in	Plug lead	Plug-in	Plug lead	Plug-in	Plug lead
Maximum operating pressure		1.0 MPa					
Set pressure range		0.05 to 0.85 MPa					
Fluid		Air					
Ambient and fluid temperature		–5 to 60°C (No freezing)					
Port size for connection of pressure gauge		M5 x 0.8					
Weight (kg)		0.33	0.30	0.33	0.30	0.33	0.30
Effective area at supply side (mm^2) S at P_1 = 0.7 MPa/P_2 = 0.5 MPa	P→ A	15		31		14	
	P→ B	35		16		15	
Effective area at exhaust side (mm^2) S at P_2 = 0.5 MPa	A → EA	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. Further, it cannot be used with reduced pressure at port P.
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

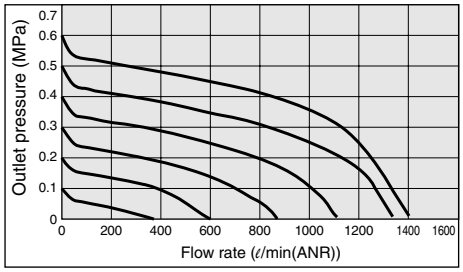


Regulating port: A	Regulating port: B	Regulating port: P
		

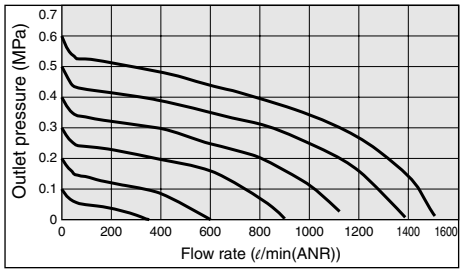
Flow Characteristics

Conditions Inlet pressure: 0.7 MPa

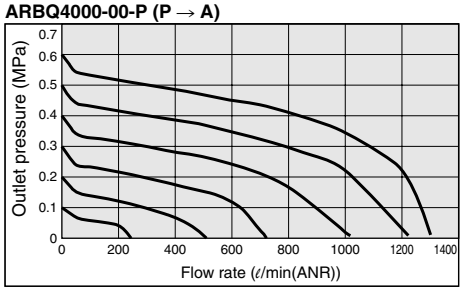
ARBQ4000-00-A



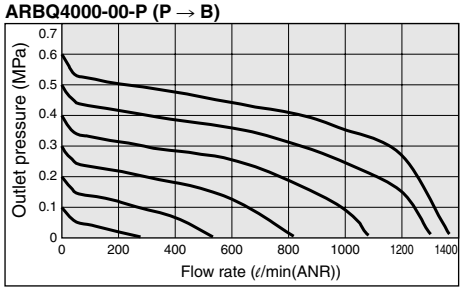
ARBQ4000-00-B



ARBQ4000-00-P (P → A)

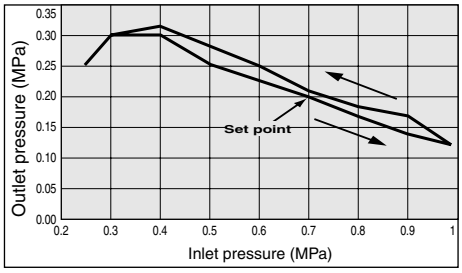


ARBQ4000-00-P (P → B)



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),

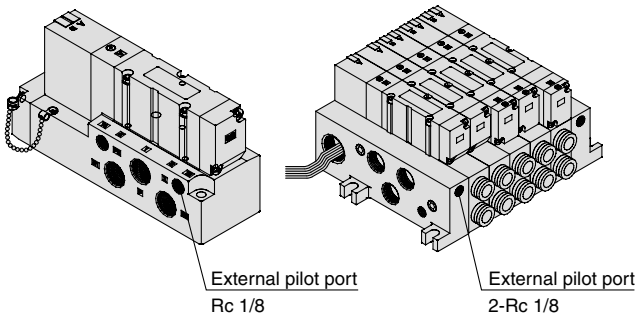
it can be used for external pilot specifications.
Order a valve by adding the external pilot specification [R] to the part number.
External pilot is available as standard for manifolds and options.

● Internal/external pilot can be mounted in a manifold.

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 pressure range Note)	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-□D
Direct exhaust with silencer box	VV5Q4□–□□□–S□
For exhaust cleaner mounting	VV5Q4□–□□□–C$^{U}_{D}$
Manifold with control unit	VV5Q4□–□□□ Control unit model no.
Double check spacer with residual pressure exhaust	VVQ4000–25A–$\frac{1}{5}$

Inch-size One-touch Fittings

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

How to Order Manifold

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)

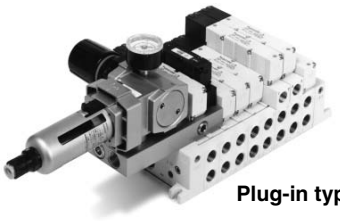
Port size

Thread type

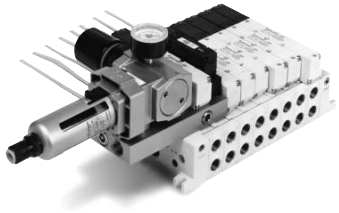
Nil	Rc
N	NPT
T	NPTF
F	G

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 Note)	Applicable solenoid valve
		4(A), 2(B) port location	Port size			
			1(P), 5(R1), 3(R2)	4(A), 2(B)		
VV5Q41 -□□□	F kit – D-sub connector T kit – Terminal block box L kit – Lead wire	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	F, T kit 14 stations (13 stations) L, C kit 18 stations (17 stations)	VQ4□00 VQ4□01
VV5Q45 -□□□	C kit – Connector	Bottom		Rc 1/4		VQ4□50 VQ4□51

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

Control Unit Specifications

Air filter (With auto-drain/With manual drain)	
Filtration	5 μm
Regulator	
Set pressure (Outlet pressure)	0.05 to 0.85 MPa
Pressure switch Note)	
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 (2)	<Plug-in type> VVQ4000-24A-1D	
	<Plug lead type> VVQ4000-24A-5D	
Pressure switch	IS1000P-2-1	
Blanking plate (3)	Regulator with filter	MP2-3
	Pressure switch	MP3-2
	Release valve: Plug-in	VVQ4000-24A-10
	Release valve: Plug lead	VVQ4000-24A-15
Filter element	INA-13-854-12-5B	

Note1) Rated voltage: 24 VDC to 100 VAC
Internal voltage drop: 4 V
Note 2) Combination of VQ41□□ (Single) and release valve spacer can be used as air release valve.
Note 3) Plug lead type can not be mounted later.

How to Order 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

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 / Control equipment	Nil	A	AP	M	MP	F	G	C	E
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	1 station

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

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.

Use of Control Unit

<Construction and piping >

1. The supply pressure (Po) 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 Po port is blocked when release valve (2) is OFF. Air supplied to manifold side P port is exhausted to R1 port through release valve (2).

3. Pressure switch is piped at 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.

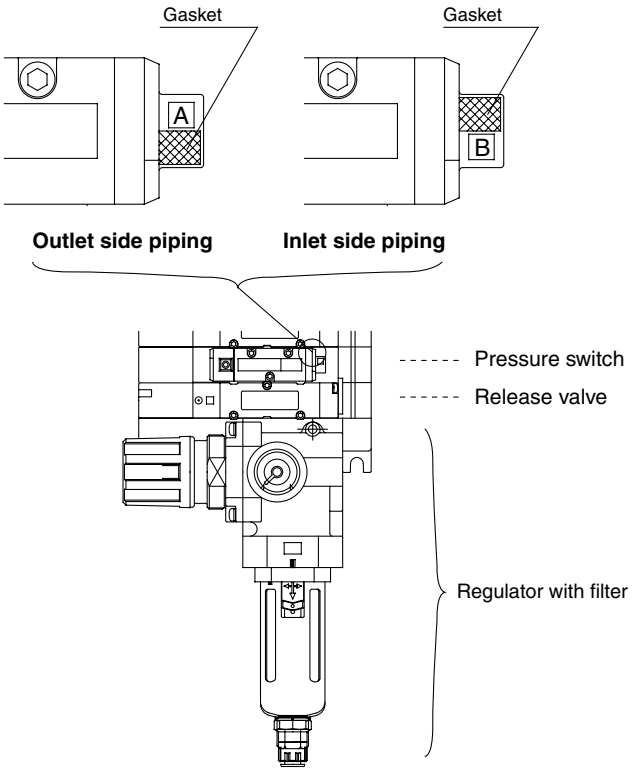
<Wiring>

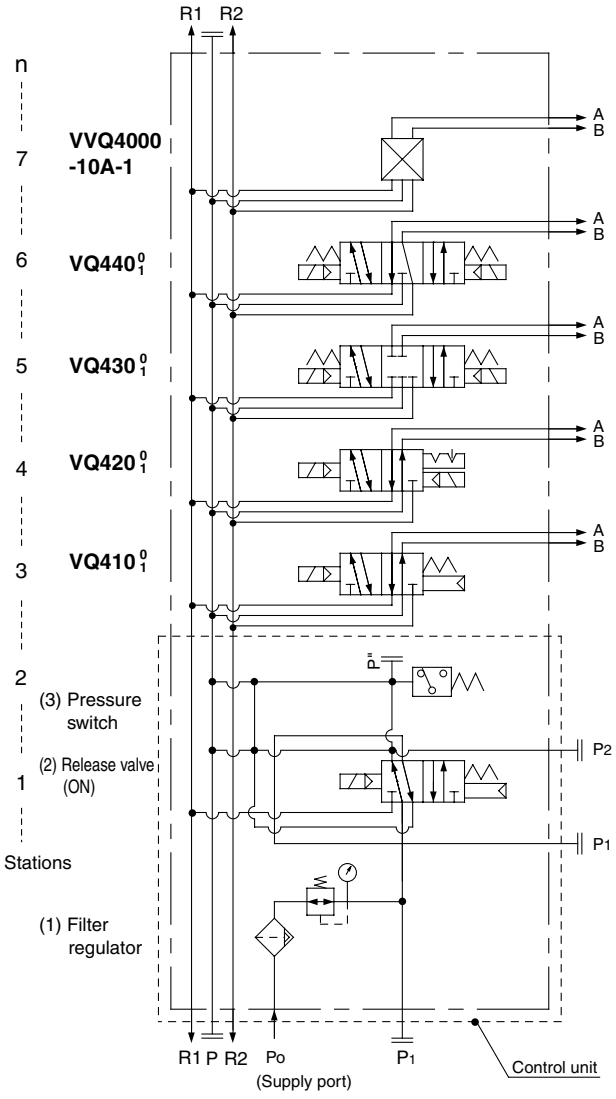
1. Electrical entry of manifold (except L and C kit) is individual wiring. For details, refer to internal wiring figure of each kit. Cable length is 0.6 m for L kit.

<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.

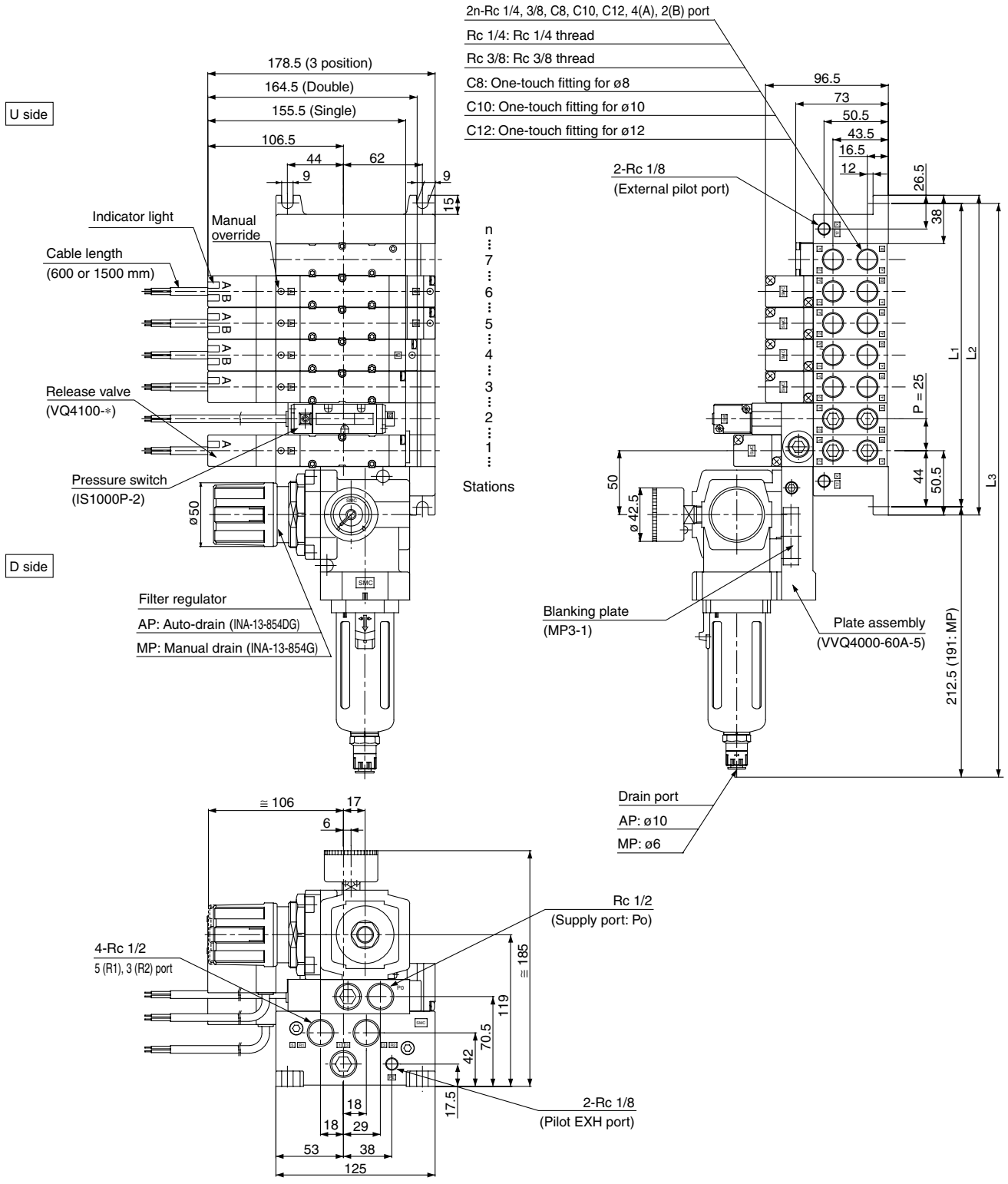
2. When pressure switch is mounted, tightening torque of bolt is 0.8 to 1.2 N·m.





Circuit of control unit manifold

Plug lead type



Dimensions

Formula L1 = 25n + 63, L2 = 25n + 76, L3 = 25n + 269.5 (262.5) n: Stations

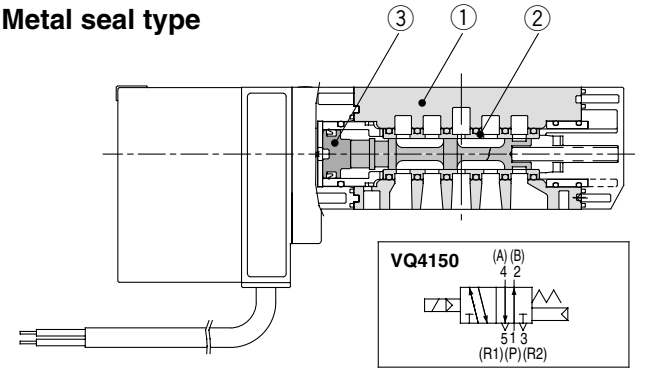
L \ n	2	3	4	5	6	7	8	9	10	11	12
L1	113	138	163	188	213	238	263	288	313	338	363
L2	126	151	176	201	226	251	276	301	326	351	376
L3	332	357	382	407	432	457	482	507	532	557	582
	(310.5)	(335.5)	(360.5)	(385.5)	(410.5)	(435.5)	(460.5)	(485.5)	(510.5)	(535.5)	(560.5)

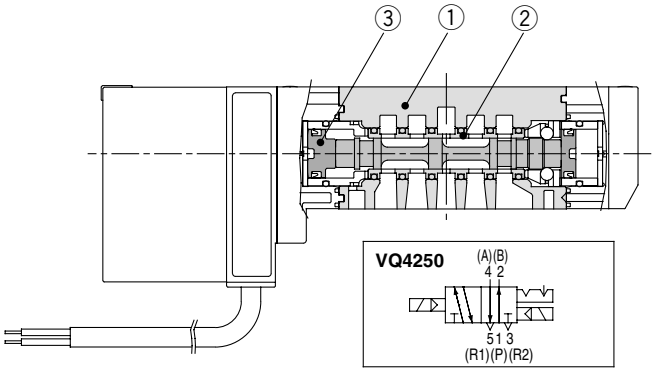
∗ L3 ( ): Type MP

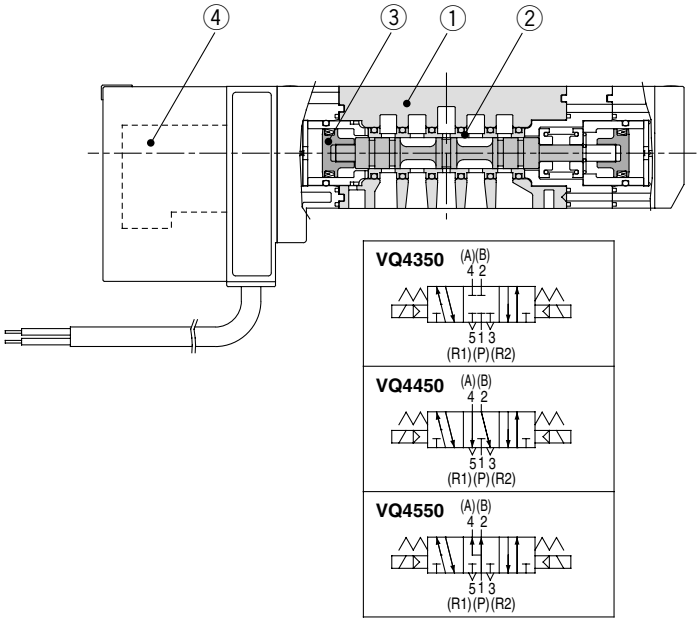
Construction

Plug Lead Unit

Metal seal type







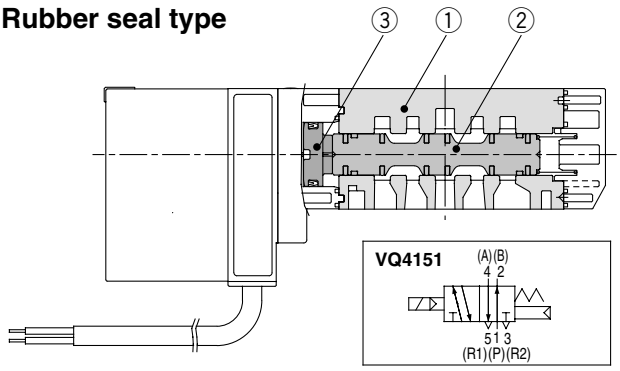
Component Parts

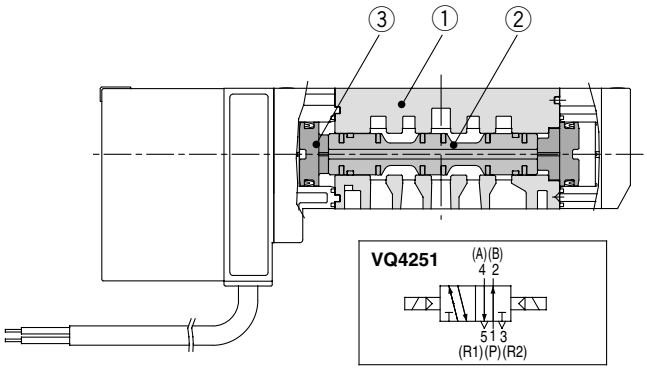
Number	Description	Material	Note
①	Body	Aluminum die-casted	
②	Spool/Sleeve	Stainless steel	
③	Piston	Resin	

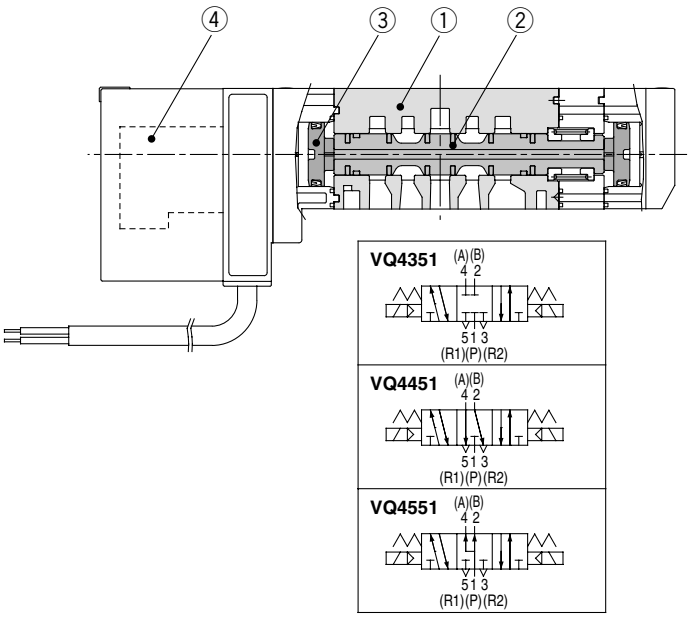
Replacement Parts

④	Pilot valve assembly	VQZ111P-□	∗: Coil rated voltage Example) 24 VDC: 5

Rubber seal type







Component Parts

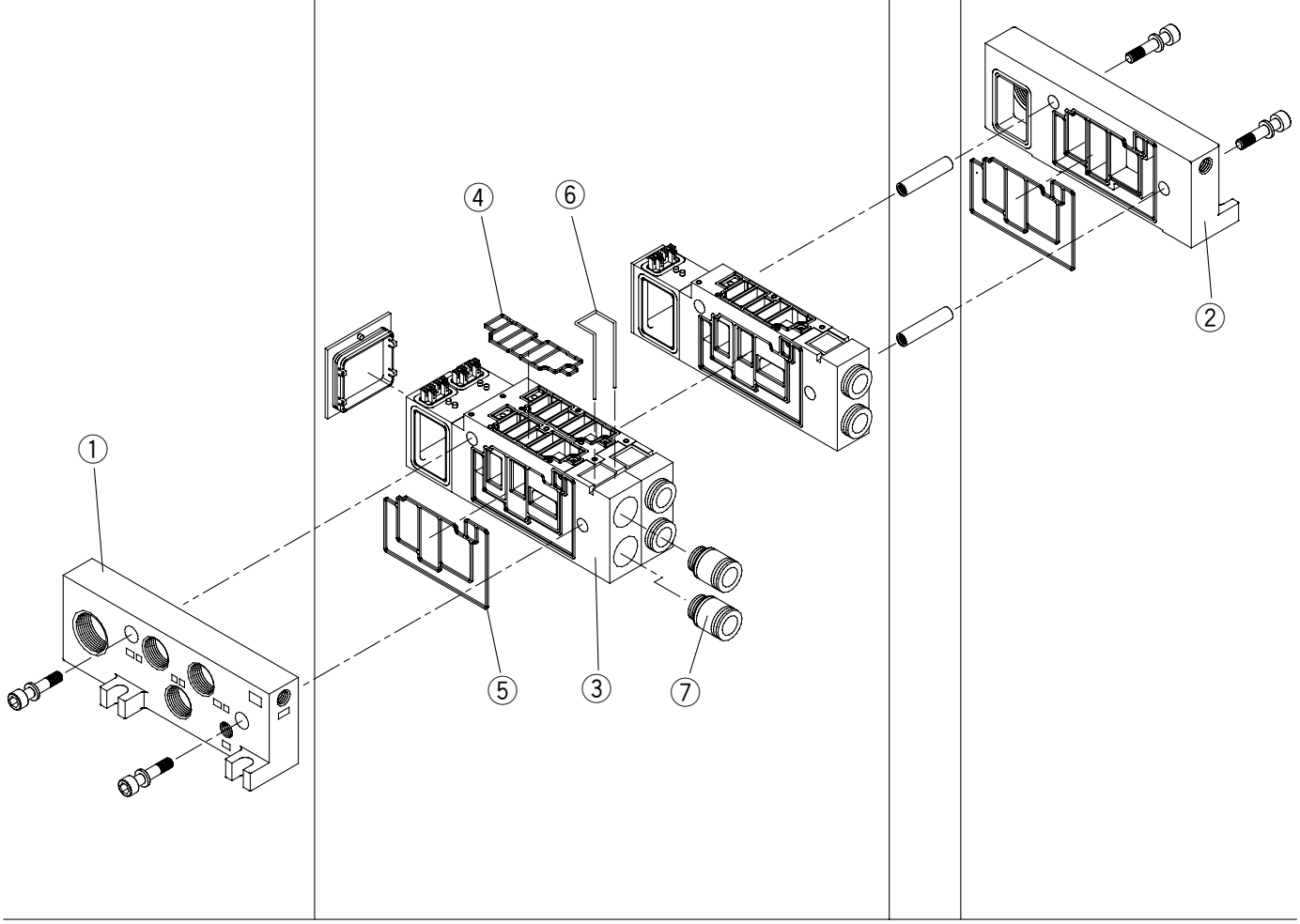
Number	Description	Material	Note
①	Body	Aluminum die-casted	
②	Spool valve	Aluminum, NBR	
③	Piston	Resin	

Replacement Parts

④	Pilot valve assembly	VQZ111P-□	∗: Coil rated voltage Example) 24 VDC: 5

Exploded View of Manifold

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



Note 1) The electrical entry cannot be changed. The drawing shows a plug-in type.
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.

	D side					U side	
Example)	1	2	3	4	5	6	Stations
5 stations (Odd number)	2 stations		2 stations		1 station		
6 stations (Even number)	2 stations		2 stations		1 station	1 station	

<D Side End Plate Assembly>

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

VVQ4000 — 3A — 1 — □ — □

Electrical entry

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

Option

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

Note 1) D-sub connector is not included.
Note 2) Dripproof F kit is not available.

<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

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

Option

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

Note 1) D-sub connector is not included.
Note 2) Dripproof 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

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 Assembly>

3. Manifold block assembly part no.

VVQ4000 — 1 — □ — □ — □ — □

A	For 1 station
C	For 2 stations (3)

Option

Nil	Standard
W (2)	IP65 enclosure is dust

Electrical entry

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

Port size

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

Note 1) Tie-rods (2 pcs.) and lead wire assembly for station addition included.
Note 2) 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).

<Manifold Block Replacement Parts>

Replacement Parts

No.	Part no.	Description	Material	Number
④	VVQ4000-80A-1	Gasket	NBR	10
⑤	VVQ4000-80A-2	Gasket	NBR	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

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.

<SI Unit>

SI Unit Part No.

Type	Model symbol	SI unit part no.	Description	Note
Dedicated output model	O	—	Without SI unit	
	A	EX323$^{U}_{D}$-S001	General type SI unit (Series EX300)	
	B	EX123$^{U}_{D}$-SMB1	Mitsubishi Electric Corporation: MELSECNET/MINI-S3 Data Link System	
	BB	EX124$^{U}_{D}$-SMB1	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System (2 power supply systems)	
	C	EX123$^{U}_{D}$-STA1	OMRON Corporation: SYSBUS Wire System	
	D	EX123$^{U}_{D}$-SSH1	SHARP Corporation: Satellite I/O Link System	
	F1	EX123$^{U}_{D}$-SUW1	16 output points Uni-wire System (NKE Corporation)	
	G	EX124$^{U}_{D}$-SAB1	Allen Bradley Remote I/O (RIO) System (2 power supply systems) (Rockwell Automation, Inc.)	
	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)	
	K	EX123$^{U}_{D}$-SFU1	T-LINK Mini System (Fuji Electric Co.)	
	Q	EX124$^{U}_{D}$-SDN1	SI unit for DeviceNet and CompoBus/D (OMRON)	
	R1	EX124$^{U}_{D}$-SCS1	SI unit for 16 output points CompoBus/S (OMRON)	
	R2	EX124$^{U}_{D}$-SCS2	SI unit for 8 output points CompoBus/S (OMRON)	
	U	EX124$^{U}_{D}$-SJN1	JEMANET (2 power supply systems)	
	V	EX124$^{U}_{D}$-SMJ1	SI unit for CC-LINK System (2 power supply systems) (Mitsubishi Electric Corp.)	
For in/output model	QW	EX240-SDN2	CC-LINK System	
	NW	EX240-SPR1	PROFIBUS-DP (–COM)	
		EX240-IE1	DI unit (For input) M12 8 number of inputs	