Body Ported
Metal Seal/Rubber Seal
Series VQ

Thin compact design with large flow capacity

(Flip type)

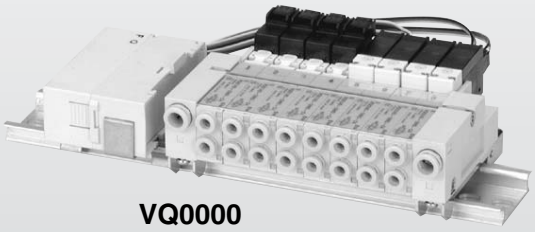
Model	Manifold pitch (mm)	Flow characteristics		Cylinder size
		Metal seal	Rubber seal	
		C [dm³/(s·bar)]	C [dm³/(s·bar)]	
VQ0000	10.5	0.50	0.59	Up to ø40
VQ1000	11	0.84	1.0	Up to ø50
VQ2000	16	2.3	2.7	Up to ø80

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

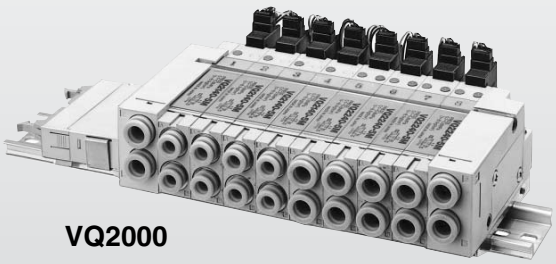
A variety of product groups meet all FA needs.

- **Flip type demonstrates space-saving effect.**
- **Cassette type enables flexible, speedy station increasing/decreasing.**

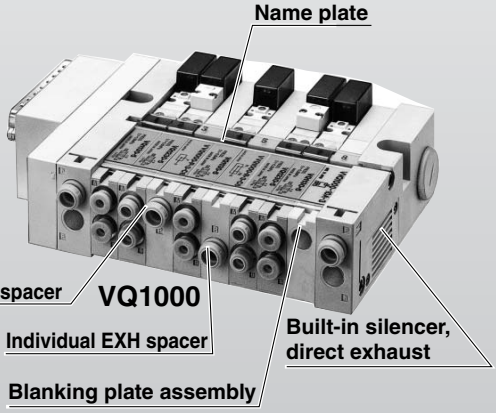
Flip type



VQ0000

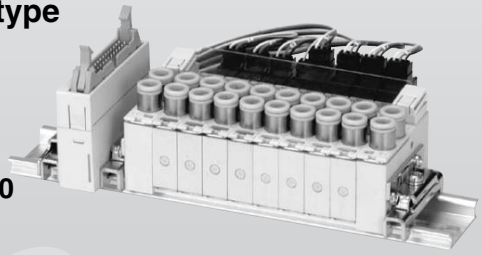


VQ2000



A variety of options

Cassette type



VQ1000

Unprecedented high speed response and long service life

(Metal seal, Single, With indicator light/surge voltage suppressor)

VQ0000	10 ms	200 million cycles
VQ1000	10 ms	
VQ2000	20 ms	

Dispersion accuracy ±2 ms

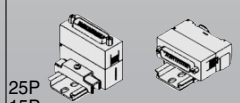
Innovative mounting methods

A valve can be changed without entirely disassembling the manifold.

Built-in One-touch fittings for easier piping.

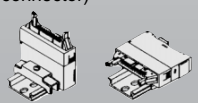
A variety of common wiring methods are standardized.

F kit (D-sub connector)



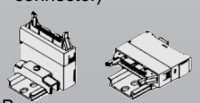
25P
15P

P kit (Flat ribbon cable connector)



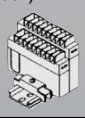
26P
20P
16P
10P

J kit (Flat ribbon cable connector)

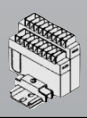


20P

T kit (Terminal block)



L kit (Lead wire)



S kit (Serial transmission unit)

Valve Specifications

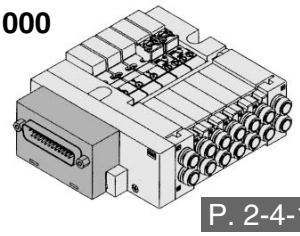
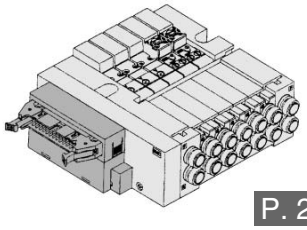
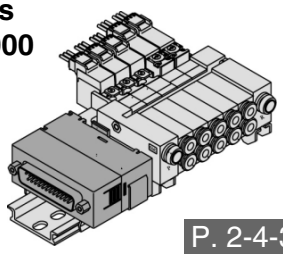
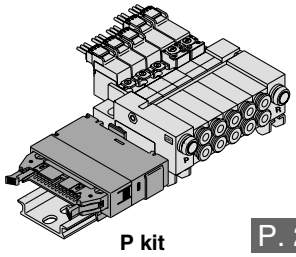
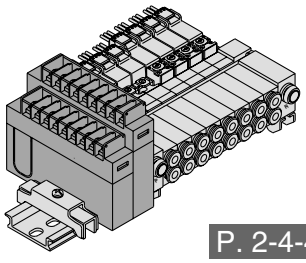
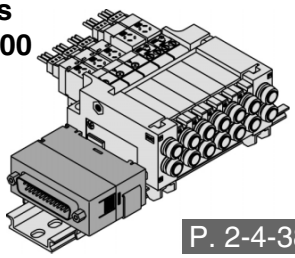
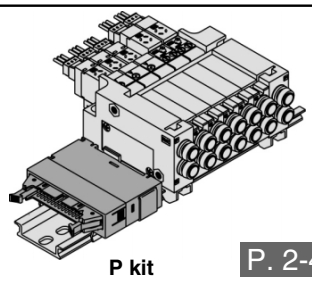
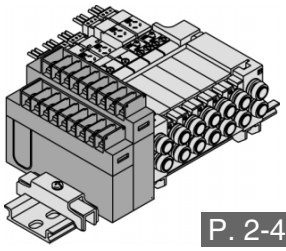
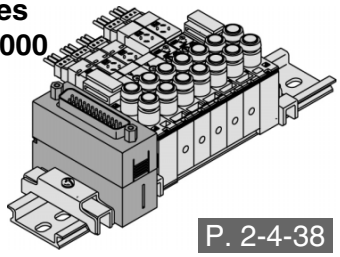
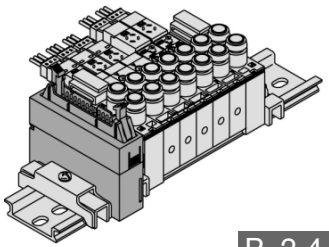
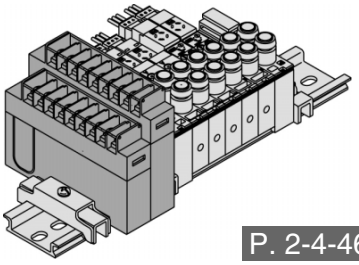
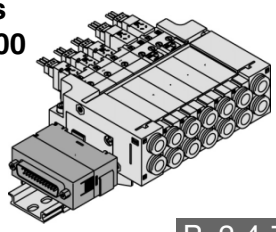
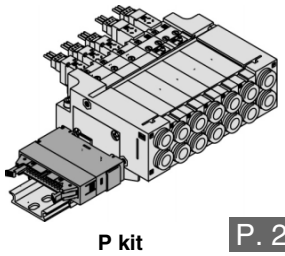
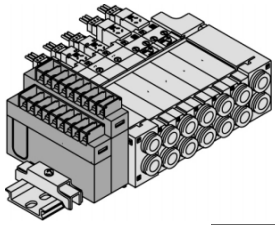
Body Ported

				Sonic conductance: C [dm³/(s·bar)] {4/2 → 5/3 (A/B → R1/R2)}		Type of actuation					Voltage			Electrical entry				Manual override		
				Double Single	3 position Closed center	Single	Double	Closed center	Exhaust center	Pressure center	12 V 24 V DC	100 V 110 V AC (50/60 Hz)	200 V 220 V AC (50/60 Hz)	Plug-in	Grommet	L plug connector	M plug connector	Push type, Tool required	Locking type	Locking type (Manual)
Plug-in	*Series VQ1000* P. 2-4-8	Rubber seal	**VQ1□30**	0.84	0.73	●	●	●	●	●	●	●	●	●				●	●	●
		Metal seal	**VQ1□31**	1.0	0.84		Latching													
				P. 2-4-10																
Plug lead	*Series VQ0000* P. 2-4-30	Rubber seal	**VQ0□40**	0.50	0.36	●	●	●	●		●	●	●		Single/ 3 position only	●	●	●	●	
		Metal seal	**VQ0□41**	0.59	0.42		Latching													
				P. 2-4-36																
	Series VQ1000 P. 2-4-30	Rubber seal	**VQ1□40**	0.84	0.73	●	●	●	●	●	●	●	●		Single/ 3 position only	●	●	●	●	●
		Metal seal	**VQ1□41**	1.0	0.84		Latching													
				P. 2-4-36																
	Series VQ2000 P. 2-4-30	Rubber seal	**VQ2□40**	2.3	—	●	●				●	●	●		Single only	●	●	●	●	●
		Metal seal	**VQ2□41**	2.7	—		Latching													
				P. 2-4-36																
Cassette	*Series VQ1000* P. 2-4-72	Rubber seal	**VQ1□70**	0.60	0.58	●	●	●	●	●	●	●	●		Single/ 3 position only	●	●	●	●	●
		Metal seal	**VQ1□71**	0.80	0.70		Latching													
				P. 2-4-74																

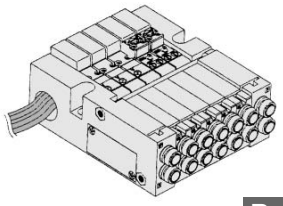
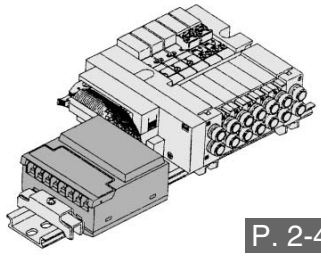
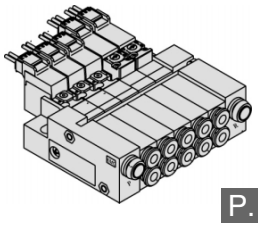
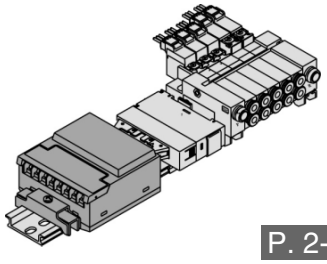
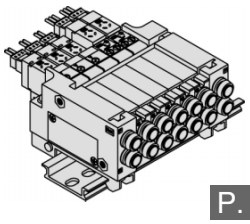
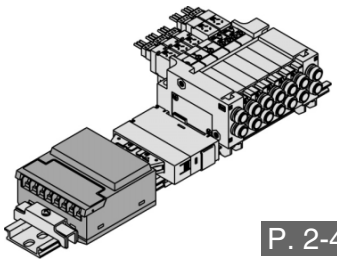
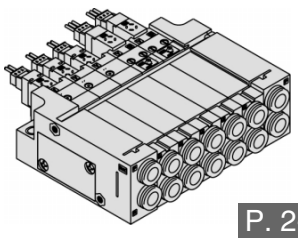
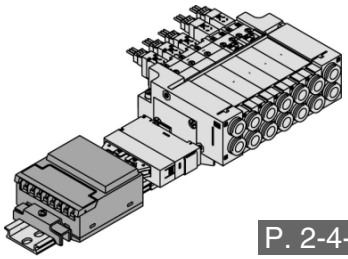
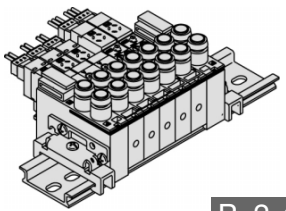
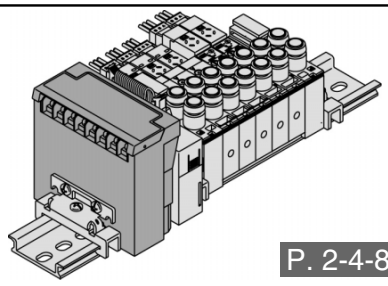
Option		P. 2-4-92	P. 2-4-68	P. 2-4-68	P. 2-4-68	P. 2-4-28
	D-sub connector 15P	●	●	●	●	●
	Flat ribbon cable 10P, 16P, 20P	●	●	●	●	●
	Negative common specifications	●	Except S kit ●	Except S kit ●	Except S kit ●	Except S kit ●
	One-touch fitting Inch size	●	●	●	●	●
	For special wiring spec.	●	Except L kit ●	Except L kit ●	Except L kit ●	Except L kit ●
Manifold Option		P. 2-4-87	P. 2-4-63	P. 2-4-60	P. 2-4-59	P. 2-4-23
	Blanking plate		●	●	●	●
	Individual SUP/EXH	●	●	●	●	●
	SUP/EXH passage spacer	●	●	●	●	●
	Name plate	●	●	●	●	●
	DIN rail mounting style	Standard ●	●	●	●	●
	Built-in silencer		●	●	●	●
	Silencer for EXH port	●	●	●	●	●
	Elbow fitting for cylinder port	●				
	Plug for cylinder port	●	●	●		●
	Double check block	●	●	●	●	●

Series VQ/Body Ported: Variations

Manifold Variations

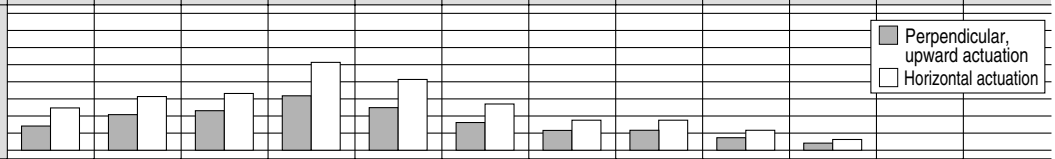
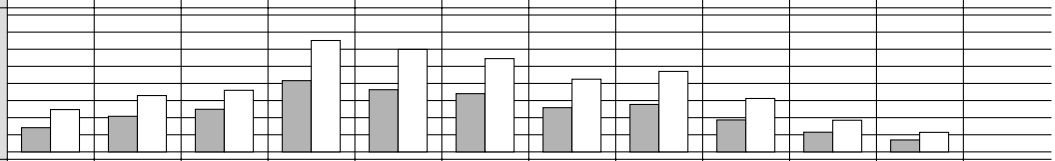
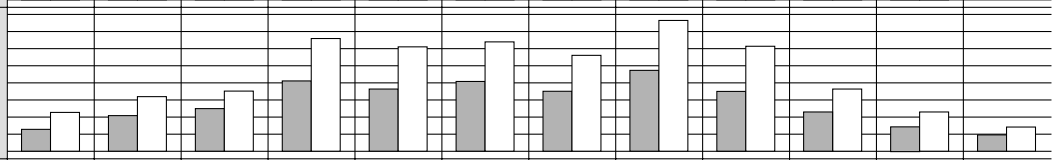
	F kit D-sub connector Conforming to MIL D-sub connector	P kit Flat ribbon cable connector (26, 20, 16, 10 pins) Conforming to MIL flat ribbon cable connector	J kit Flat ribbon cable connector (20 pins) Conforming to MIL flat. ribbon cable connector PC Wiring System compatible	T kit Terminal block Two kinds of terminal are available in accordance with the number of stations.
Plug-in	Series VQ1000  P. 2-4-12	 P/J kit P. 2-4-14		—
Plug Lead	Series VQ0000  P. 2-4-38	 P kit P. 2-4-42		 P. 2-4-46
	Series VQ1000  P. 2-4-38	 P kit P. 2-4-42		 P. 2-4-46
	Series VQ2000  P. 2-4-38	 P kit P. 2-4-42		 P. 2-4-46
Cassette	Series VQ1000  P. 2-4-76	 P kit P. 2-4-78		 P. 2-4-80

Manifold Variations

L C kit **Lead wire** Direct electrical entry type		S kit **Serial transmission unit** Enables single-wire solenoid valve-PLC operation		Port size SUP EXH port P, R	Port size Cylinder port A, B
L kit	 P. 2-4-18	 P. 2-4-20		C6 (ø6) N7 (ø1/4") <Option> Built-in silencer	C3 (ø3.2) C4 (ø4) C6 (ø6) M5 (M5 thread) N1 (ø1/8") N3 (ø5/32") N7 (ø1/4")
C kit	 P. 2-4-50	 P. 2-4-54		C6 (ø6) N7 (ø1/4") <Option> Built-in silencer	C3 (ø3.2) C4 (ø4) M5 (M5 thread) N1 (ø1/8") N3 (ø5/32")
C kit	 P. 2-4-50	 P. 2-4-54		C6 (ø6) N7 (ø1/4") <Option> Built-in silencer	C3 (ø3.2) C4 (ø4) C6 (ø6) M5 (M5 thread) N1 (ø1/8") N3 (ø5/32") N7 (ø1/4")
C kit	 P. 2-4-50	 P. 2-4-54		C8 (ø8) N9 (ø5/16") <Option> Built-in silencer	C6 (ø6) C8 (ø8) N7 (ø1/4") N9 (ø5/16")
C kit	 P. 2-4-82	 P. 2-4-84		C6 (ø6) N7 (ø1/4") <Option> Built-in silencer	C3 (ø3.2) C4 (ø4) C6 (ø6) M5 (M5 thread) N1 (ø1/8") N3 (ø5/32") N7 (ø1/4")

Cylinder Speed Chart

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

Series	Average speed (mm/s)	Bore size											
		Series CJ2 Pressure 0.5 MPa Load factor 50% Stroke 60 mm			Series CM2 Pressure 0.5 MPa Load factor 50% Stroke 300 mm				Series MB, CA1 Pressure 0.5 MPa Load factor 50% Stroke 500 mm				
		ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100
VQ0149-C4	800 700 600 500 400 300 200 100 0												
VQ014-$^{0}_{1}$C4 **VQ11$^{3}_{4}{}^{0}_{1}$-C6** **VQ214-$^{0}_{1}$C8**	800 700 600 500 400 300 200 100 0												
VQ2149-C8	800 700 600 500 400 300 200 100 0												

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

Conditions

Body ported		Series CJ2	Series CM2	Series MB, CA1
VQ0149-C4	Tube bore x Length	T0425 x 1 m		
	Speed controller	AS2001F-04		
	Silencer	AN103-X233		
VQ11$^{30}_{41}$-C6	Tube bore x Length	T0604 x 1 m		
	Speed controller	AS3001F-06		
	Silencer	AN103-X233		
VQ2149-C8	Tube bore x Length	T0806 x 1 m		
	Speed controller	AS3001F-08		
	Silencer	AN200-KM8		

Series VQ1000
Body Ported
Plug-in Unit: Flip Type

How to Order Manifold

VV5Q1 3 – 08 F S1 – N

Series VQ1000

Manifold

3	Plug-in unit/Flip

Stations

01	1 station
⋮	⋮

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

Kit type

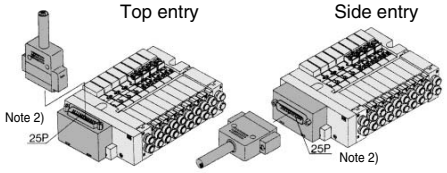
Option

Nil	None
D (2)	DIN rail mounting style
K (3)	Special wiring specifications (Except double wiring)
N	With name plate
S (4)	Built-in silencer, direct exhaust

Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -DNS
Note 2) All S kits are DIN rail mounting styles, so include suffix "D".
Note 3) Specify the wring specifications in the manifold specification sheet. (Except L kit)
Note 4) F, P and S kits are provided with an exhaust on one side, while L kits are with an exhaust on both sides.

Kit/Electrical entry/Cable length

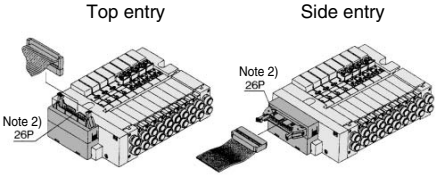
F kit (D-sub connector)



P. 2-4-12

Connector entry direction					
Top entry		Side entry			
Kit F	U0	Kit F	S0	Without cable	Max. 16 (2) stations
	U1		S1	With cable (1.5 m)	
	U2		S2	With cable (3 m)	
	U3		S3	With cable (5 m)	

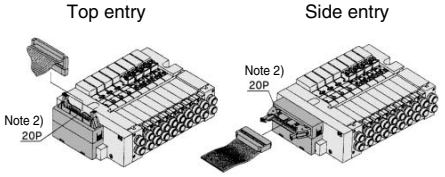
P kit (Flat ribbon cable connector)



P. 2-4-14

Connector entry direction					
Top entry		Side entry			
Kit P	U0	Kit P	S0	Without cable	Max. 16 (2) stations
	U1		S1	With cable (1.5 m)	
	U2		S2	With cable (3 m)	
	U3		S3	With cable (5 m)	

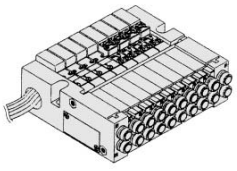
J kit (Flat ribbon cable connector)



P. 2-4-16

Connector entry direction					
Top entry		Side entry			
Kit J	U0	Kit J	S0	Without cable	Max. 16 (2) stations
	U1		S1	With cable (1.5 m)	
	U2		S2	With cable (3 m)	
	U3		S3	With cable (5 m)	

L kit (Lead wire cable)

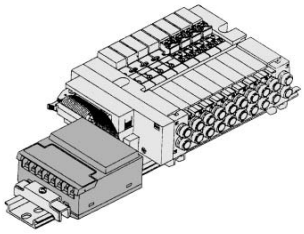


P. 2-4-18

Kit L	Lead wire entry direction		Cable length		Maximum number of stations
	Symbol	Direction	Symbol	Cable length	
	D	Entry on D side	0	With cable (0.6 m)	Max. 16 stations
			1	With cable (1.5 m)	
	U	Entry on U side	2	With cable (3.0 m)	

S kit (Serial transmission unit)

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



The dust-protected type SI unit is applicable, too. For details, please contact SMC.

P. 2-4-20

Kit S (3)			
	0	Without SI unit	Max. 16 (2) stations
	A	With general type SI unit (Series EX300)	
	B	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System	
	C	OMRON Corp.: SYSBUS Wire System	
	D	SHARP Corp.: Satellite I/O Link System	
	F1	NKE Corp.: Uni-wire System (16 output points)	
	H	NKE Corp.: Uni-wire H System	

Note 1) Besides the above, F and P kits with different number of pins are available. For details, refer to page 2-4-28.
Note 2) For details, refer to page 2-4-29.
Note 3) Please consult with SMC for the following serial transmission kits: Matsushita Electric Works, Ltd.; Rockwell Automation, Inc.; SUNX Corporation; Fuji Electric Co., Ltd.; OMRON Corporation.

How to Order Valves

VQ1 1 3 0 Y – 5 □ □ – C6

Series VQ1000
Type of actuation

1	2 position single
2	2 position double (Latching) Metal seal / Rubber seal
Note) 3	3 position closed center
Note) 4	3 position exhaust center
Note) 5	3 position pressure center

Note) 3 position occupies two stations.

Seal

0	Metal seal
1	Rubber seal

Note 1) For negative common specifications, refer to "Option" on page 2-4-29.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○(1)
H (2)	High pressure type	(1.5 W) ○	–
Y (2)	Low wattage type	(0.5 W) ○	–

Note 1) For power consumption of AC type, refer to page 2-4-10.
Note 2) Except double (latching).

Cylinder ports

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

Note) For inch-size One-touch fittings, refer to "Option" on page 2-4-29.

Manual override

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

Manual override on body side / Manual override for pilot valve

Note) A manual override for pilot valve is provided to the standard model for double type. (Refer to page 2-4-26.)

Light/Surge voltage suppressor

Nil	Yes
E	None

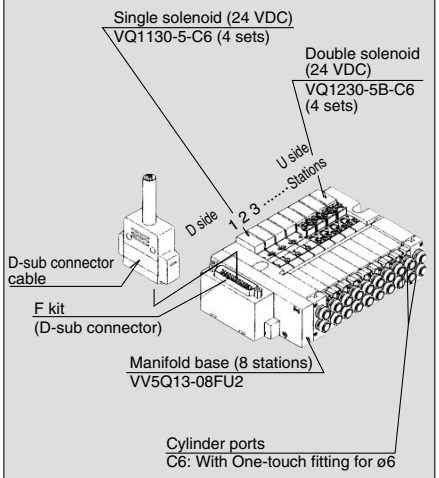
Coil voltage

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

Note) 200/220 VAC models are applicable to the F and L kits.

How to Order Manifold Assembly

Example



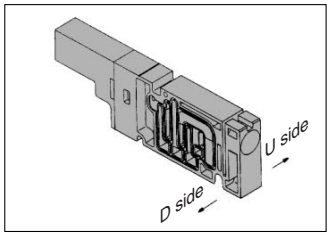
VV5Q13-08FU2 ··· 1 set (F kit 8 station manifold base no.)
∗VQ1130-5-C6 ·····4 sets (Single solenoid part no.)
∗VQ1230-5B-C6 ···4 sets (Double latching solenoid part no.)
→ The asterisk denotes the symbol for assembly.
Prefix it to the part nos. of the solenoid valve, etc.

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

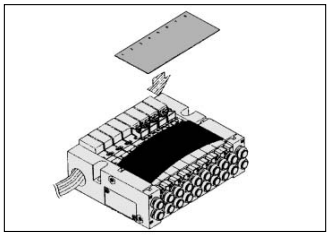
Manifold Option

P. 2-4-23

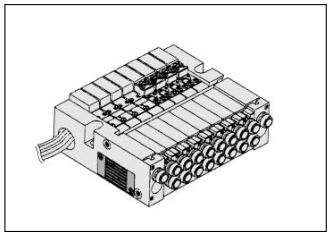
Blanking plate assembly
VVQ1000-10A-3



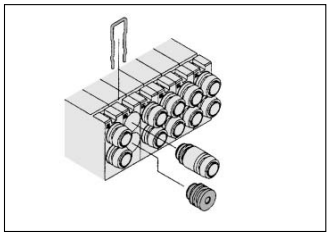
Name plate [-N3]
VQ1000-N3-Station (1 to Max. stations)



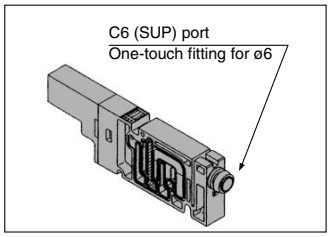
Built-in silencer, direct exhaust [-S]



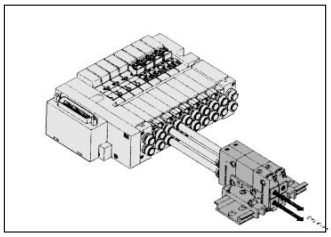
Port plug
VVQ0000-58A



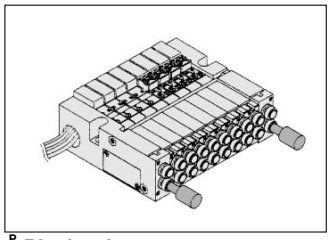
Individual SUP spacer
VVQ1000-P-3-C6



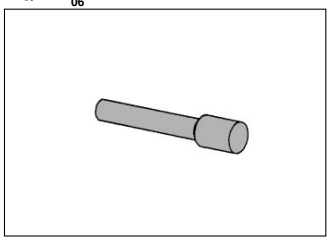
Double Check block
VQ1000-FPG-□□



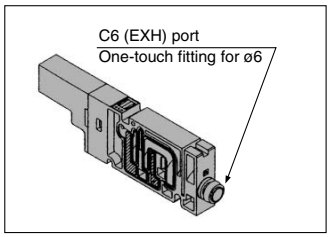
Silencer
AN103-X233



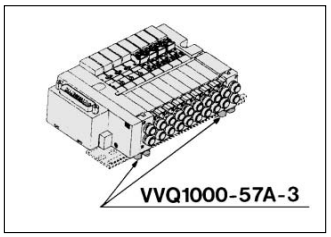
Blanking plug
KQ2P- $^{23}_{04}_{06}$



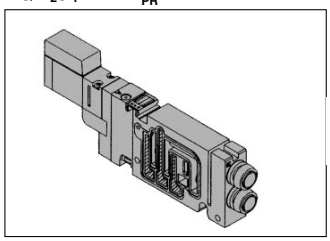
Individual EXH spacer
VVQ1000-R-3-C6



DIN rail mounting bracket [-D]
VVQ1000-57A-3



P, R, PR Block valve
VQ□ $^{1}_{2}$ 3 $^{0}_{1}$ -□ -□□ P, R, PR



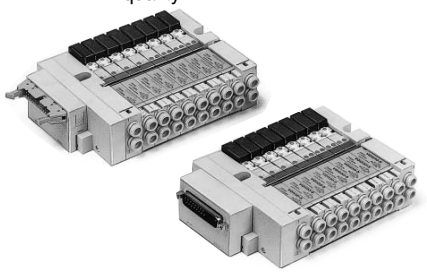
- Refer to page 2-4-27 for cylinder port fitting.
- For replacement parts, refer to page 2-4-103.

Series VQ1000
Body Ported
Plug-in Unit: Flip Type

Model

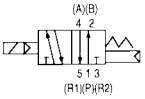
Series	Number of solenoids		Model		Flow characteristics						Response time (2)(ms)			Weight (g)
					1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → R1/R2)			Standard: 1 W H: 1.5 W	Low wattage: 0.5 W	AC	
					C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv				
VQ1000	2 position	Single	Metal seal	VQ1130	0.77	0.14	0.18	0.84	0.14	0.19	12 or less	15 or less	29 or less	57
			Rubber seal	VQ1131	0.91	0.19	0.21	1.0	0.21	0.25	15 or less	20 or less	34 or less	
		Double (Latching)	Metal seal	VQ1230	0.77	0.14	0.18	0.84	0.14	0.19	12 or less	15 or less	29 or less	
			Rubber seal	VQ1231	0.91	0.19	0.21	1.0	0.21	0.25	15 or less	20 or less	34 or less	
	3 position	Closed center	Metal seal	VQ1330	0.67	0.13	0.16	0.73	0.13	0.17	20 or less	26 or less	40 or less	105
			Rubber seal	VQ1331	0.78	0.22	0.18	0.84	0.21	0.20	25 or less	33 or less	47 or less	
		Exhaust center	Metal seal	VQ1430	0.74	0.14	0.17	0.84	0.16	0.20	20 or less	26 or less	40 or less	
			Rubber seal	VQ1431	0.78	0.28	0.19	1.0	0.21	0.24	25 or less	33 or less	47 or less	
		Pressure center	Metal seal	VQ1530	0.74	0.14	0.17	0.82	0.16	0.20	20 or less	26 or less	40 or less	
			Rubber seal	VQ1531	0.78	0.28	0.19	0.84	0.21	0.22	25 or less	33 or less	47 or less	

Note 1) Cylinder port size C6
Note 2) As per JIS B 8375-1981 (Supply pressure: 0.5 MPa; with indicator light/surge voltage suppressor; clean air). Subject to the pressure and air quality.

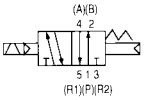


JIS Symbol

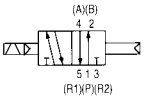
2 position single



2 position double (Latching)

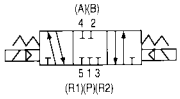


Metal seal

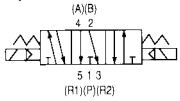


Rubber seal

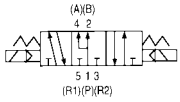
3 position closed center



3 position exhaust center



3 position pressure center



Standard Specifications

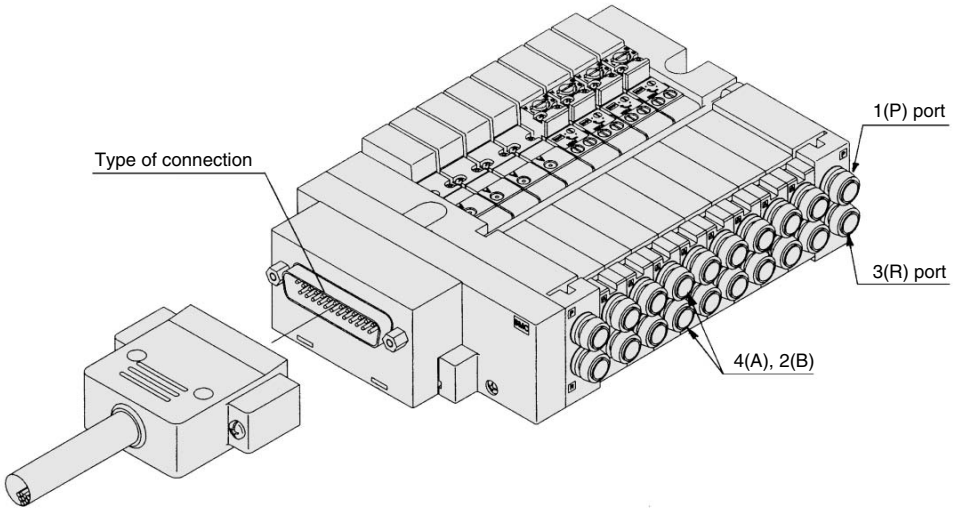
			Metal seal	Rubber seal
Valve specifications	Valve construction		Metal seal	Rubber seal
	Fluid		Air/Inert gas	Air/Inert gas
	Maximum operating pressure (3)		0.7 MPa (High pressure type: 0.8 MPa) (3)	
	Minimum operating pressure	Single	0.1 MPa	0.15 MPa
		Double (Latching)	0.1 MPa	0.15 MPa
		3 position	0.1 MPa	0.2 MPa
	Ambient and fluid temperature		–10 to 50°C (1)	
	Lubrication		Not required	
	Manual override		Push type/Locking type (Tool required, Manual) Option	
	Impact/Vibration resistance (2)		150/30 m/s²	
	Enclosure		Dust-protected	
Solenoid	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), 1.5 W DC (63 mA)(3), 0.5 W DC (21 mA)(4)	
		12 VDC	1 W DC (83 mA), 1.5 W DC (125 mA)(3), 0.5 W DC (42 mA)(4)	
		100 VAC	Inrush 0.75 VA (7.5 mA), Holding 0.75 VA (7.5 mA)	
		110 VAC	Inrush 0.83 VA (7.5 mA), Holding 0.83 VA (7.5 mA)	
		200 VAC	Inrush 1.0 VA (5 mA), Holding 1.0 VA (5 mA)	
		220 VAC	Inrush 1.1 VA (5 mA), Holding 1.1 VA (5 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 in the case of high pressure type (1.5 W).
Note 4) Values in the case of low wattage (0.5 W) specifications.

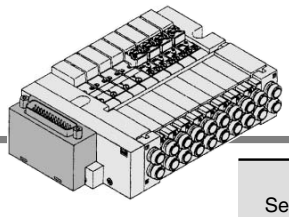
Manifold Specifications

Series	Base model	Type of connection	Porting specifications			Applicable stations [2]	Applicable solenoid valve	5 station weight (g)
			Port location	One-touch fitting/Port size [1]				
				1(P), 3(R)	4(A), 2(B)			
VQ1000	**VV5Q13-□□□**	■ F kit—D-sub connector ■ P kit—Flat ribbon cable connector ■ J kit—Flat ribbon cable connector (20P) ■ L kit—Lead wire cable ■ S kit—Serial transmission unit	Side	C6 (ø6) (Option Built-in silencer, Direct exhaust)	C3 (ø3.2) C4 (ø4) C6 (ø6) M5 (M5 thread)	1 to 16 stations	VQ1□30 VQ1□31	424

Note 1) Inch-size One-touch fittings are also available. For details, refer to page 2-4-29.
Note 2) For details, refer to page 2-4-29.



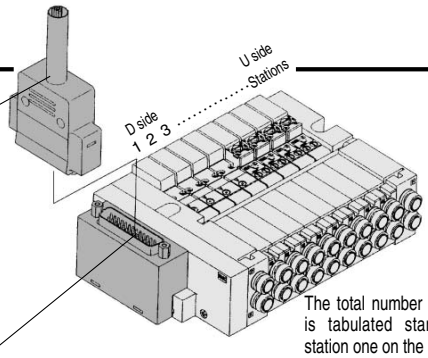
F VQ1000 Kit (D-sub connector)



Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ1000	Side	C6	C3, C4, C6, M5	Max. 16 stations

- The D-sub connector reduces installation labor for electrical connections.
- Using the D-sub connector (25P), (15P as an option) conforming to MIL standard permits the use of connectors put on the market and gives a wide interchangeability.
- Top or side receptacle position can be selected in accordance with the available mounting space.
- Maximum stations are 16.

D-sub Connector (25 pins)

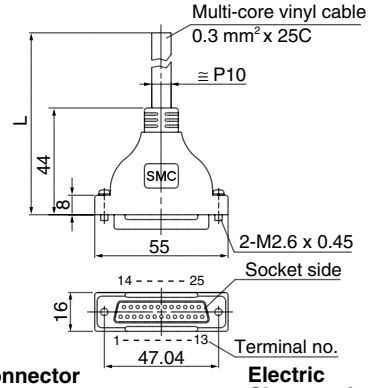


The total number of stations is tabulated starting from station one on the D side.

Cable assembly

AXT100-DS25- 015 / 030 / 050

The D-sub connector cable assembly can be ordered individually or included in a specific manifold model no. Refer to How to Order Manifold.



D-sub Connector Cable Assembly (Option)

Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-DS25-015	Cable 25 core 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.

Connector manufacturers' example
- Fujitsu Limited
- 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 V, 1 min, AC	1000
Insulation resistance MΩkm, 20°C	5 or more

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

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

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

Note) Types with 15 pin are also available. For details, refer to page 2-4-29.

Electrical wiring specifications

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

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

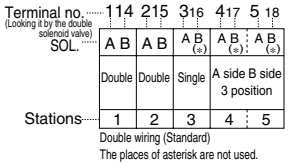
Connector terminal no.

Positive common specifications / Negative common specifications Note)

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

Mixed single and double wiring is available as an option.

For details, refer to page 2-4-29.



3 position uses two stations. The A side solenoid of a 3 position valve is connected to SOL.A at the station with the smaller number in the above figure and the B side solenoid to SOL.A at the next station.

Note) When using the negative common specifications, use valves for negative common. (Refer to page 2-4-29.)

How to Order Manifold

VV5Q1 3 – 08 F S 1 – N

Series VQ1000

Manifold

3	Plug-in unit/Flip

Stations

01	1 station
⋮	⋮
16	16 stations

Note) For details, refer to page 2-4-29.

Cable (Length)

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

Connector entry direction

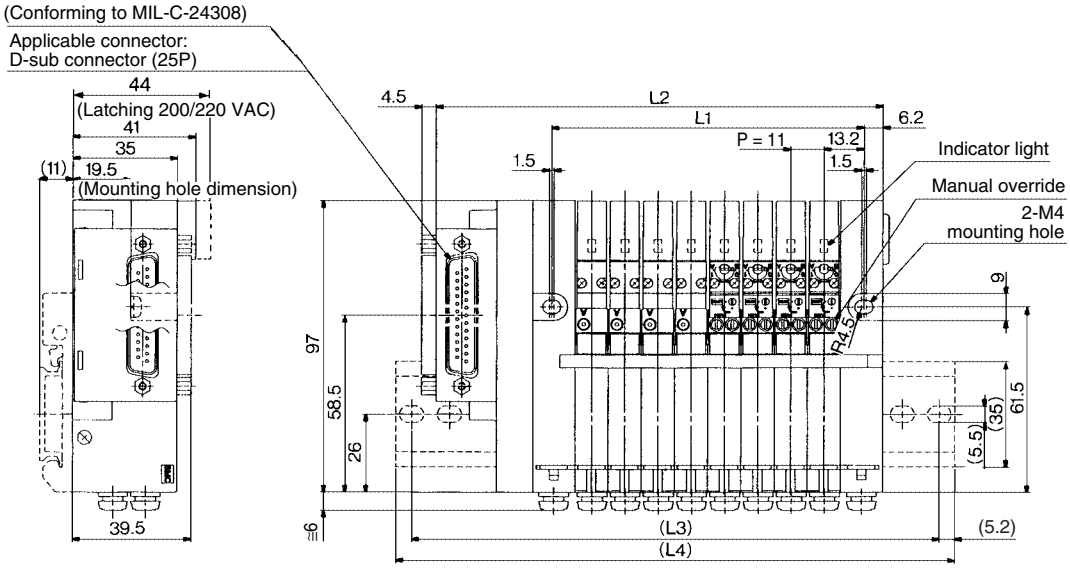
U	Top entry
S	Side entry

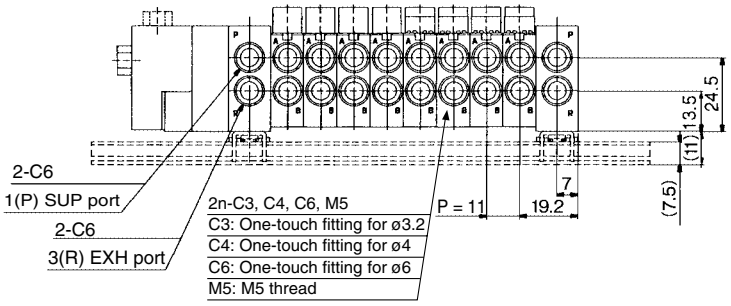
Option

Nil	None
D	DIN rail mounting style
K (2)	Special wiring specifications (Except double wiring)
N	With name plate
S	Built-in silencer, direct exhaust

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

Note 2) Specify the wiring specifications on the manifold specification sheet.





The broken lines indicate the DIN rail mounting style [-D] and the top entry connection [-FU].

Note) 3 position types need two stations.
Cylinder port is located at U side of body.

Dimensions

Formula L1 = 11n + 15.5, L2 = 11n + 60 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	26.5	37.5	48.5	59.5	70.5	81.5	92.5	103.5	114.5	125.5	136.5	147.5	158.5	169.5	180.5	191.5
L2	71	82	93	104	115	126	137	148	159	170	181	192	203	214	225	236
(L3)	100	100	112.5	125	137.5	150	162.5	175	187.5	200	212.5	212.5	225	237.5	250	262.5
(L4)	110.5	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	223	235.5	248	260.5	273

How to Order Valves

VQ1 1 3 0 Y 5 — C6

Series VQ1000

Type of actuation

1	2 position single
2	2 position double (Latching)
3 Note)	3 position closed center
4 Note)	3 position exhaust center
5 Note)	3 position pressure center

Note) 3 position types need two stations.

Seal

0	Metal seal
1	Rubber seal

Note) For negative common specifications, refer to "Option" on page 2-4-29.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	○ (1.0 W)	○(1)
H (2)	High pressure type	○ (1.5 W)	—
Y (2)	Low wattage type	○ (0.5 W)	—

Note 1) For power consumption of AC type, refer to page 2-4-10.

Note 2) Except double (latching).

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

Light/Surge voltage suppressor

Nil	Yes
E	None

Manual override

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

Note) A manual override for pilot valve is provided to the standard model for double type.

Cylinder port

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

Note) For inch-size One-touch fittings, refer to "Option" on page 2-4-29.

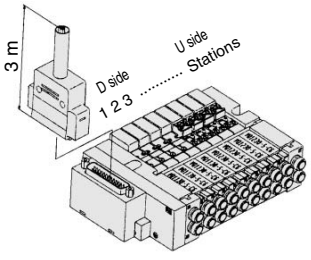
How to Order Manifold Assembly

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

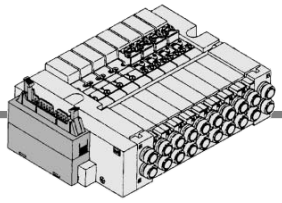
<Example>
D-sub connector kit with 3 m cable
VV5Q13-08FU2···· 1 set — Manifold base no.
∗VQ1130-5-C6····· 4 sets — Valve part no. (Stations 1 to 4)
∗VQ1230-5B-C6····4 sets — Valve part no. (Stations 5 to 8)

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

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



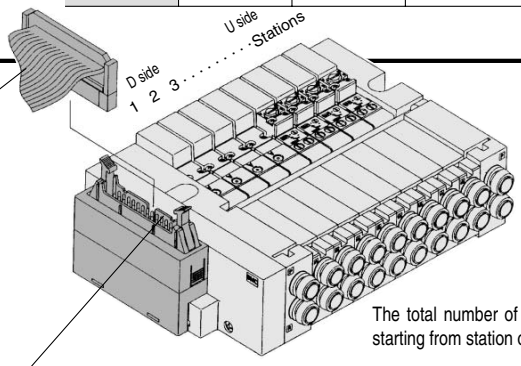
P VQ1000
Kit (Flat ribbon cable connector)



- MIL flat ribbon cable connector reduces installation labor for electrical connection.
- Using the connector for flat ribbon cable (26P), (10P, 16P, 20P as an option) conforming to MIL standard permits the use of connectors put on the market and gives a wide interchangeability.
- Top or side receptacle position can be selected in accordance with the available mounting space.
- Maximum stations are 16.

Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ1000	Side	C6	C3, C4, C6, M5	Max. 16 stations

Flat Ribbon Cable (26 pins)

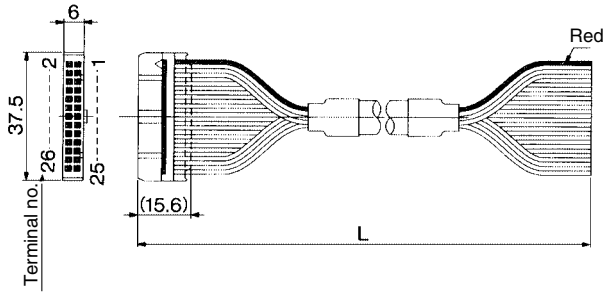


Cable assembly

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

AXT100-FC26-$\frac{1}{3}$ to

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



Flat Ribbon Cable Connector Assembly (Option)

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

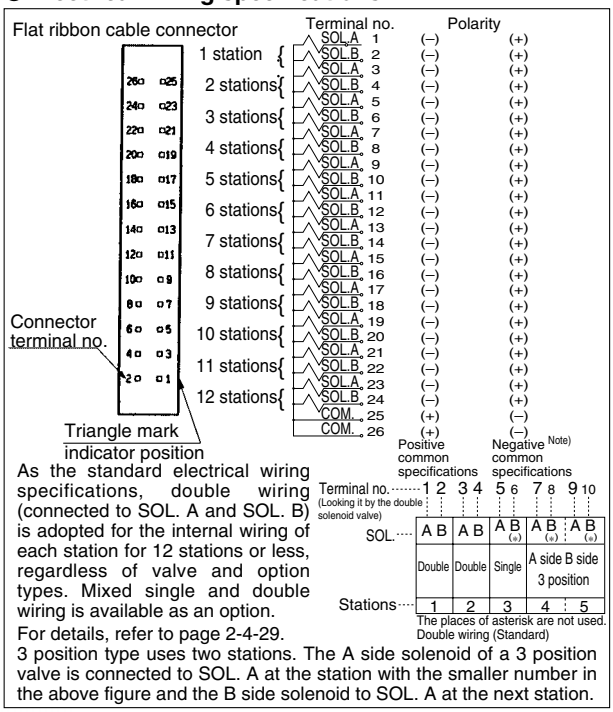
∗ For other commercial connectors, use a 26 pins type with strain relief conforming to MIL-C-83503.

Connector manufacturers' example

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

Note) Types with 10, 16, or 20 pin are also available. For details, refer to page 2-4-28.

Electrical wiring specifications



As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 12 stations or less, regardless of valve and option types. Mixed single and double wiring is available as an option.
For details, refer to page 2-4-29.
3 position type uses two stations. The A side solenoid of a 3 position valve is connected to SOL. A at the station with the smaller number in the above figure and the B side solenoid to SOL. A at the next station.

Note) When using the negative common specifications, use valves for negative common. (Refer to page 2-4-29.)

How to Order Manifold

VV5Q1 3 – 08 P S 1 – N

Series VQ1000

Manifold

3	Plug-in unit/Flip

Stations

01	1 station
⋮	⋮
16	16 stations

Note) For details, refer to page 2-4-29.

Connector entry direction

U	Top entry
S	Side entry

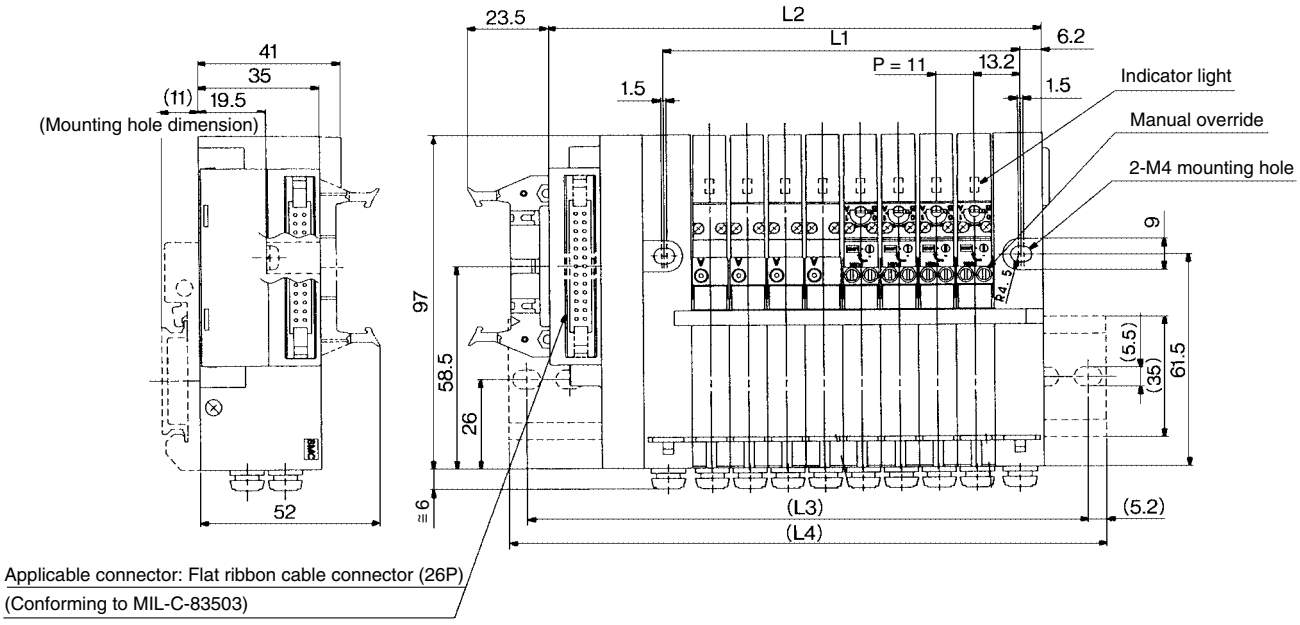
Cable (Length)

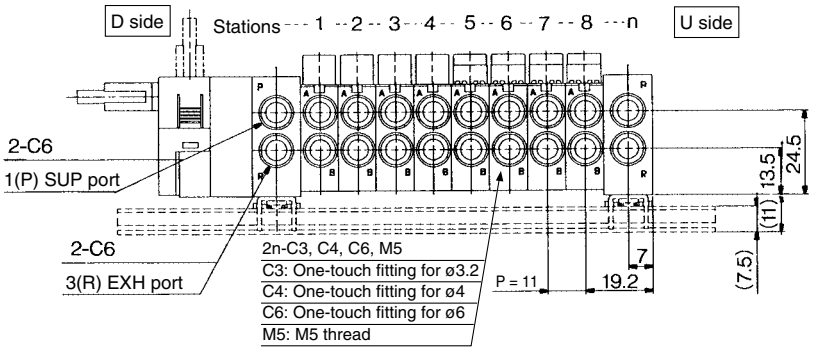
0	Without cable
1	With cable (1.5 m)
2	With cable (3 m)
3	With cable (5 m)

Option

Nil	None
D	DIN rail mounting style
K (2)	Special wiring specifications (Except double wiring)
N	With name plate
S	Built-in silencer, direct exhaust (U side only)

Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -DNS
Note 2) Specify the wiring specifications on the manifold specification sheet.





The broken lines indicate the DIN rail mounting style [-D] and the top entry connection [-PU].
Note) 3 position types need two stations.
Cylinder port is located at U side of body.

Dimensions

Formula L1 = 11n + 15.5, L2 = 11n + 55 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	26.5	37.5	48.5	59.5	70.5	81.5	92.5	103.5	114.5	125.5	136.5	147.5	158.5	169.5	180.5	191.5
L2	66	77	88	99	110	121	132	143	154	165	176	187	198	209	220	231
(L3)	87.5	100	112.5	125	137.5	150	162.5	162.5	175	187.5	200	212.5	225	237.5	250	262.5
(L4)	98	110.5	123	135.5	148	160.5	173	173	185.5	198	210.5	223	235.5	248	260.5	273

How to Order Valves

VQ1 1 3 0 Y – 5 – C6

Series VQ1000
Type of actuation

1	2 position single
2	2 position double (Latching)
3Note)	3 position closed center
4Note)	3 position exhaust center
5Note)	3 position pressure center

Note) 3 position types need two stations.

Seal

0	Metal seal
1	Rubber seal

Note) For negative common specifications, refer to "Option" on page 2-4-29.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ (1)
H (2)	High pressure type	(1.5 W) ○	—
Y (2)	Low wattage type	(0.5 W) ○	—

Note 1) For power consumption of AC type, refer to page 2-4-10.
Note 2) Except double (latching).

Coil voltage

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

Light/Surge voltage suppressor

Nil	Yes
E	None

Manual override

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

Note) A manual override for pilot valve is provided to the standard model for double type.

Cylinder port

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

Note) For inch-size One-touch fittings, refer to "Option" on page 2-4-29.

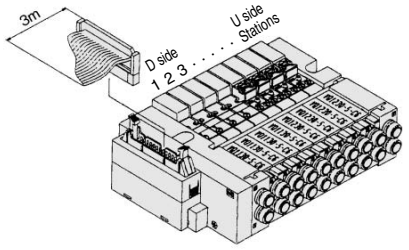
How to Order Manifold Assembly

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

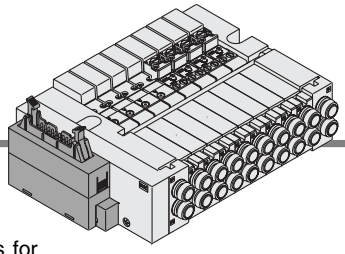
<Example>
Flat ribbon cable kit with 3 m cable
VV5Q13-08PU2···· 1 set — Manifold base no.
∗VQ1130-5-C6····· 4 sets — Valve part no. (Stations 1 to 4)
∗VQ1230-5B-C6··· 4 sets — Valve part no. (Stations 5 to 8)

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

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



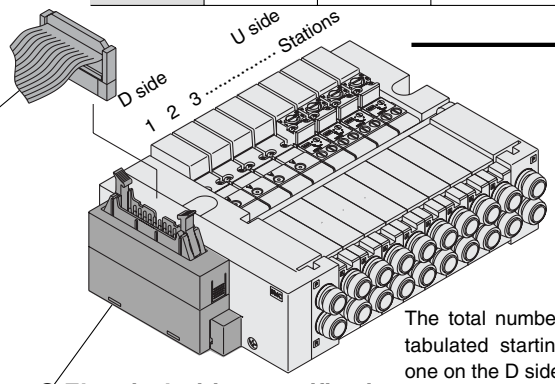
J VQ1000
Kit (Flat ribbon cable connector)



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

Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ1000	Side	C6	C3, C4, C6, M5	Max. 16 stations

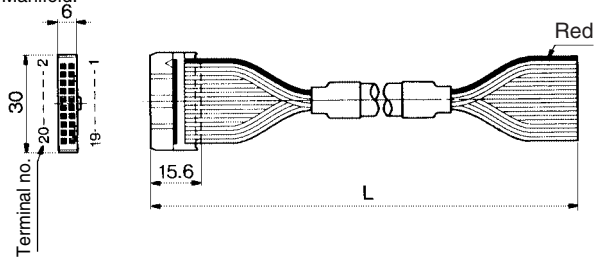
Flat Ribbon Cable (20 pins)



Cable assembly

AXT100-FC20-1 to 3

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



Flat Ribbon Cable Connector Assembly (Option)

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

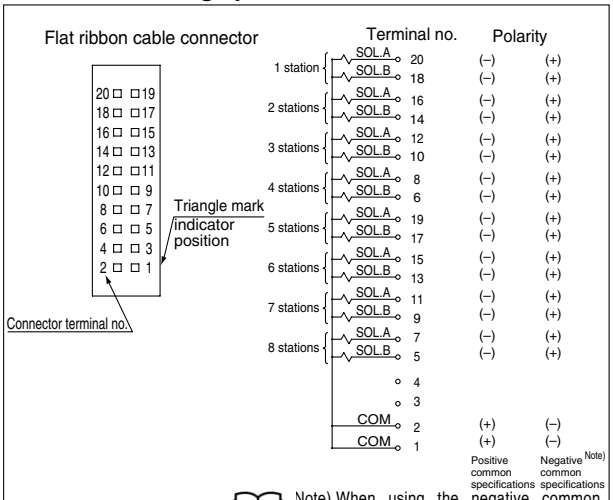
∗ For other commercial connectors, use a 20 pins with strain relief conforming to MIL-C-83503.

Connector manufacturers' example

- Hirose Electric Co., Ltd.
- Japan Aviation Electronics Industry, Ltd.
- Oki Electric Cable Co. Ltd.
- Sumitomo 3M Limited
- J.S.T. Mfg. Co., Ltd.
- Fujitsu Limited

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

Electrical wiring specifications



Note) When using the negative common specifications, use valves for negative common. (Refer to page 2-4-29.)

As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 8 stations or less, regardless of valve and option types. Mixed single and double wiring is available as an option. For details, refer to page 2-4-29.

Note) When using the negative common specifications, use valves for negative common. (Refer to page 2-4-29.)

How to Order Manifold

VV5Q1 3 – 08 J S 1 – N

Series VQ1000

Manifold

3	Plug-in unit/Flip

Stations

01	1 station
⋮	⋮
16	16 stations

Note) For details, refer to page 2-4-29.

Connector entry direction

U	Top entry
S	Side entry

Cable (Length)

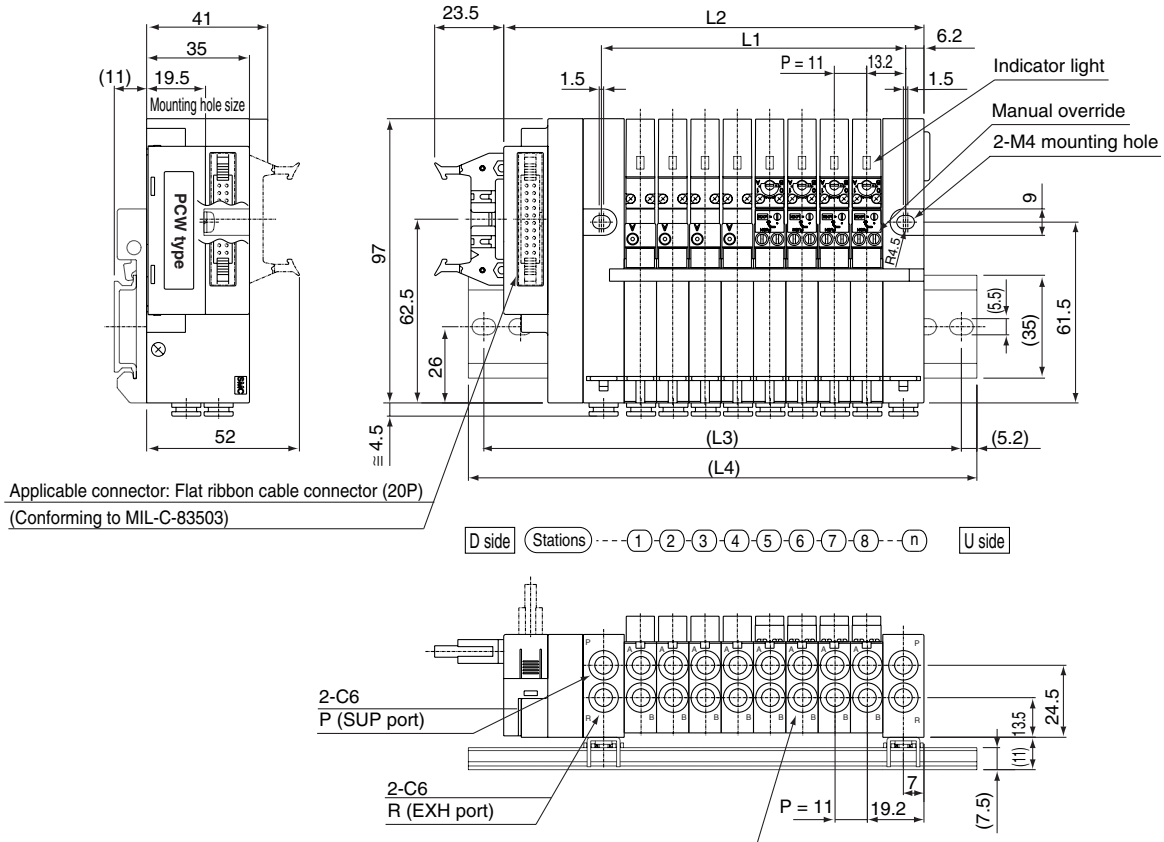
0	Without cable
1	With cable (1.5 m)
2	With cable (3 m)
3	With cable (5 m)

Option

Nil	None
D	DIN rail mounting style
K(2)	Special wiring specifications (Except double wiring)
N	With name plate
S	Built-in silencer, direct exhaust (U side only)

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

Note 2) Specify the wiring specifications on the manifold specification sheet.



The broken lines indicate the DIN rail mounting style [-D] and the top entry connection [-PU].

Note) 3 position types need two station.
Cylinder port is located at U side of body.

Dimensions

Formula L1 = 11n + 15.5, L2 = 11n + 55 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	26.5	37.5	48.5	59.5	70.5	81.5	92.5	103.5	114.5	125.5	136.5	147.5	158.5	169.5	180.5	191.5
L2	66	77	88	99	110	121	132	143	154	165	176	187	198	209	220	231
(L3)	87.5	100	112.5	125	137.5	150	162.5	162.5	175	187.5	200	212.5	225	237.5	250	262.5
(L4)	98	110.5	123	135.5	148	160.5	173	173	185.5	198	210.5	223	235.5	248	260.5	273

How to Order Valves

VQ1 1 3 0 Y 5 C6

Series VQ1000

Type of actuation

1	2 position single
2	2 position double (Latching)
3 Note)	3 position closed center
4 Note)	3 position exhaust center
5 Note)	3 position pressure center

Note) 3 position types need two station.

Seal

0	Metal seal
1	Rubber seal

Note) For negative common specifications, refer to "Option" on page 2-4-29.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○(1)
H (2)	High pressure type	(1.5 W) ○	—
Y (2)	Low wattage type	(0.5 W) ○	—

Note 1) For power consumption of AC type, refer to page 2-4-10.
Note 2) Except double (latching).

Coil voltage

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

Light/Surge voltage suppressor

Nil	Yes
E	None

Manual override

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

Note) A manual override for pilot valve is provided to the standard model for double type.

Cylinder port

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

For inch-size One-touch fittings, refer to "Option" on page 2-4-29.

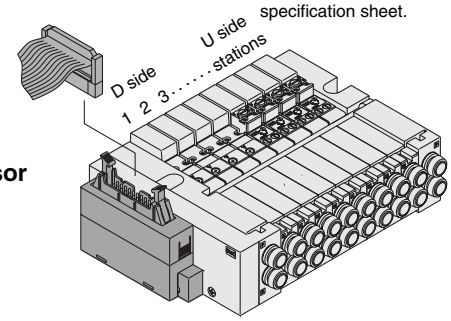
How to Order Manifold Assembly

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

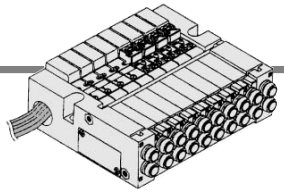
<Example>
Flat ribbon cable kit with 3 m cable
VV5Q13-08JU2···· 1 set — Manifold base no.
∗VQ1130-5-C6····· 4 sets — Valve part no. (Stations 1 to 4)
∗VQ1230-5B-C6··· 4 sets — Valve part no. (Stations 5 to 8)

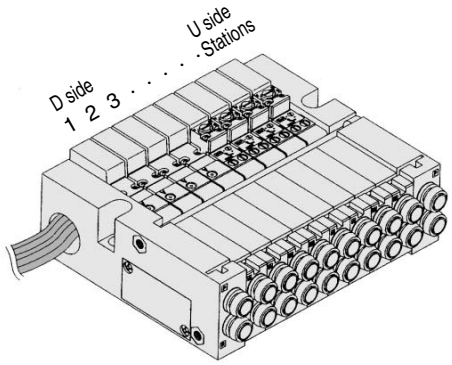
Prefix the asterisk to the part nos. of the solenoid valve, etc.

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



L VQ1000
Kit (Lead wire cable)



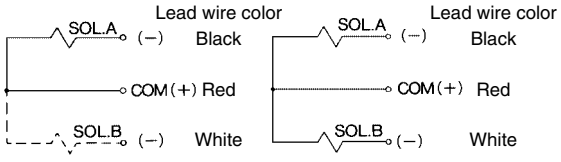


- It is the standard type which lead wire is extracted directly.
- Maximum stations are 16.

Series	Porting specifications			Applicable stations
	Port locaition	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ1000	Side	C6	C3, C4, C6, M5	Max. 16 stations

● Wiring specifications: Positive COM

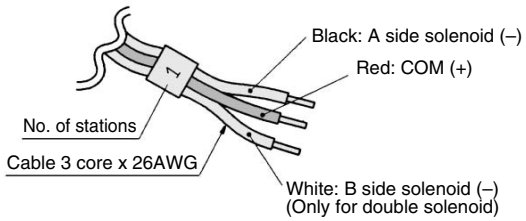
● Irrespective of the valve mounted, three lead wires are attached to each station.
The red wire is for COM connection.



3 position uses two stations. The A side solenoid of a 3 position valve is connected to SOL. A at the station with the smaller number in the above figure and the B side solenoid to SOL. A at the next station.

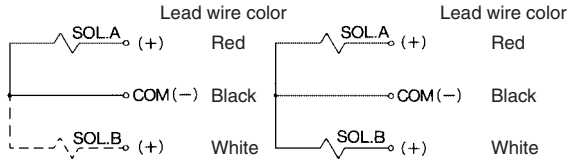
Lead wire color (Looking it by the doubl solenoid valve)	Black White	Black White	Black White	Black White	Black White
SOL.	A B	A B	A B (*)	A B (*)	A B (*)
	Double	Double	Single	A side B side 3 position	
Stations	1	2	3	4	5

The places of asterisk are not used.



● Wiring specifications: Negative COM (Option)

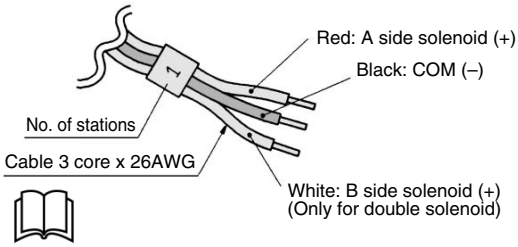
● Irrespective of the valve mounted, three lead wires are attached to each station.
The black wire is for COM connection.



3 position uses two stations. The A side solenoid of a 3 position valve is connected to SOL. A at the station with the smaller number in the above figure and the B side solenoid to SOL. A at the next station.

Lead wire color (Looking it by the double solenoid valve)	Red White	Red White	Red White	Red White	Red White
SOL.	A B	A B	A B (*)	A B (*)	A B (*)
	Double	Double	Single	A side B side 3 position	
Stations	1	2	3	4	5

The places of asterisk are not used.



Note) When using the negative common specifications, use valves for negative common. (Refer to page 2-4-29.)

How to Order Manifold

VV5Q1 3 – 06 L D 1 – N

Series VQ1000

Manifold

3	Plug-in unit/Flip

Stations

01	1 station
⋮	⋮
16	16 stations

Lead wire entry direction

D	Entry on D side	Max. 16 stations
U	Entry on U side	

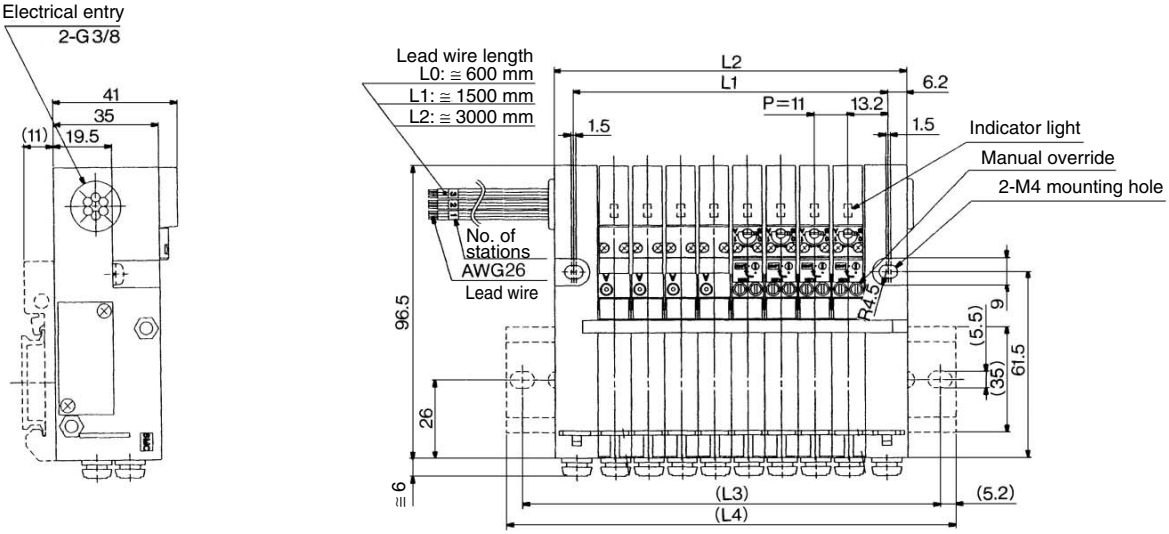
Cable (Length)

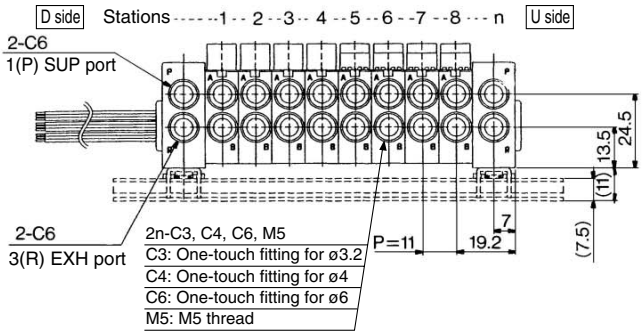
0	With cable (0.6 m)
1	With cable (1.5 m)
2	With cable (3 m)

Option

Nil	None
D	DIN rail mounting style
N	With name plate
S	Built-in silencer, direct exhaust

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





The broken lines indicate the DIN rail mounting style [-D].
The lead wire entry is on D side (LD□) in this case.

Note) 3 position types need two stations.
Cylinder port is located at U side of body.

Dimensions

Formula L1 = 11n + 15.5, L2 = 11n + 28 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	26.5	37.5	48.5	59.5	70.5	81.5	92.5	103.5	114.5	125.5	136.5	147.5	158.5	169.5	180.5	191.5
L2	39	50	61	72	83	94	105	116	127	138	149	160	171	182	193	204
(L3)	62.5	75	87.5	100	112.5	125	125	137.5	150	162.5	175	187.5	200	212.5	212.5	225
(L4)	73	85.5	98	110.5	123	135.5	135.5	148	160.5	173	185.5	198	210.5	223	223	235.5

How to Order Valves

VQ1 1 3 0 Y – 5 □ □ – C6

Series VQ1000

Type of actuation

1	2 position single
2	2 position double (Latching)
3 Note)	3 position closed center
4 Note)	3 position exhaust center
5 Note)	3 position pressure center

Note) 3 position types need two stations.

Seal

0	Metal seal
1	Rubber seal

Note) For negative common specifications, refer to "Option" on page 2-4-29.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ (1)
H (2)	High pressure type	(1.5 W) ○	—
Y (2)	Low wattage type	(0.5 W) ○	—

Note 1) For power consumption of AC type, refer to page 2-4-10.
Note 2) Except double (latching).

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

Light/Surge voltage suppressor

Nil	Yes
E	None

Manual override

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

Note) A manual override for pilot valve is provided to the standard model for double type.

Cylinder port

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

Note) For inch-size One-touch fittings, refer to "Option" on page 2-4-29.

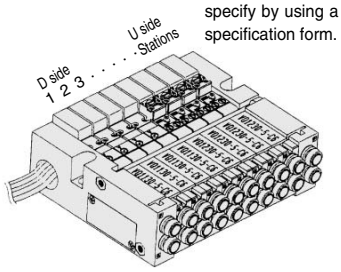
How to Order Manifold Assembly

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

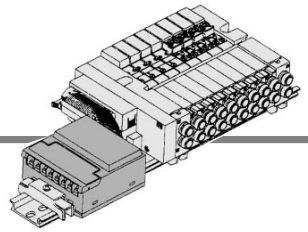
<Example>
Lead wire kit
VV5Q13-08LD2····1 set — Manifold base part no.
*VQ1230-5-C6·····4 sets — Valve part no. (Stations 1 to 4)
*VQ1230-5B-C6···4 sets — Valve part no. (Stations 5 to 8)

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

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

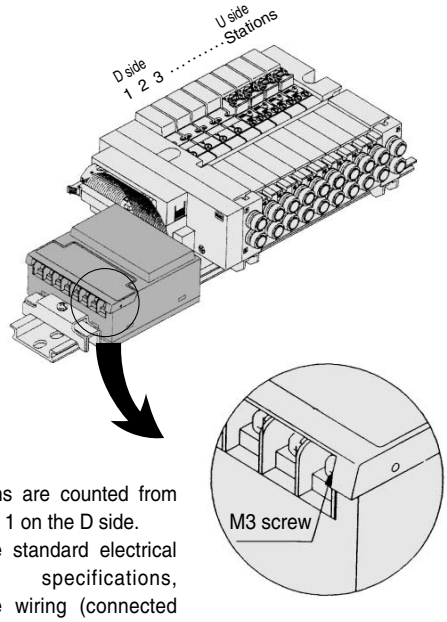


S VQ1000
Kit (Serial transmission unit)

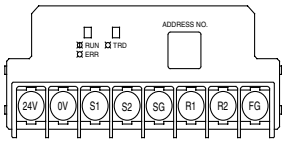
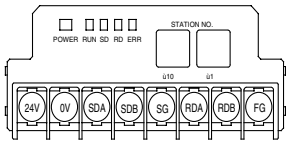


- The serial transmission system reduces wiring work, while minimizing wiring and saving space.
- The system comes in an type SA (generic for small scale systems) for equipment with a small number of I/O points, or 32 points max., type SB (applicable to Mitsubishi Electric models) for controlling 512 I/O points max., type SC (applicable to OMRON models), and type SD (applicable to SHARP models; 504 points max.).
- 16 stations max. (Specify a model with 9 to 16 stations by using the manifold specification sheet.)

Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ1000	Side	C6	C3, C4, C6, M5	Max. 16 stations



- Stations are counted from station 1 on the D side.
- As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 8 stations or less, regardless of valve and option types. Mixed single and double wiring is available as an option. For details, refer to page 2-4-29.

	Type SA With general type SI unit (Series EX300)	Type SB Mitsubishi Electric Corporation MELSECNET/MINI-S3 Data Link System
Name of terminal block (LED)	 LED / Description TRD — Lighting during data reception RUN/ERR — Blinking when received data is normal; Lighting when data reception	 LED / Description POWER — Lighting when power is turned ON RUN — Lighting when data transmission with the master station is normal RD — Lighting during data reception SD — Lighting during data transmission ERR. — Lighting when reception data error occurs. Light turns off when the error is corrected.
Note	• T unit Can be connected with PLC I/O card for serial transmission. EX300-TMB1···· For models of Mitsubishi Electric Corporation EX300-TTA1····· For models of OMRON Corporation EX300-TFU1···· For models of Fuji Electric Co., Ltd. EX300-T001··· For general models ∗ Up to 32 points per unit. • No. of output points, 16 points	• Master station: PLC made by Mitsubishi Electric Corporation Series MELSEC-A AJ71PT32-S3, AJ71T32-S3 A1SJ71PT32-S3 ∗ Max. 64 stations, connected to remote I/O stations (Max. 512 points). • No. of output points, 16 points. No. of sta. occupied, 2 stations

∗ For details on specifications and handling, refer to the separate technical instruction manual.

Item	Specifications
External power supply	24 VDC±10%
Current consumption (Internal unit)	SA, SB, SD, SFI, SH: 0.1 A/SC: 0.3 A

How to Order Manifold

VV5Q1 3 – 08 S A – D

Series VQ1000

Manifold

3	Plug-in unit/Flip

Stations

01	1 station
⋮	⋮
08 Note)	8 stations (Double)
16	16 stations (Single)

Note) For details, refer to page 2-4-29.

Model

O	Without SI unit
A	With general type SI unit (Series EX300)
B	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System
C	OMRON Corp.: SYSBUS Wire System
D	SHARP Corp.: Satellite I/O Link System
F1	NKE Corp.: Uni-wire System (16 output points)
H	NKE Corp.: Uni-wire H System

Note) Please consult with SMC for the following serial transmission kits: Matsushita Electric Works, Ltd.; Rockwell Automation, Inc.; SUNX Corporation, Fuji Electric Co., Ltd.; OMRON Corporation.

∗ The dust-protected type SI unit is applicable, too. For details, please contact SMC.

Option

D (2)	DIN rail mounting style
K (3)	Special wiring specifications (Except double wiring)
N	With name plate
S	Built-in silencer, direct exhaust (U side only)

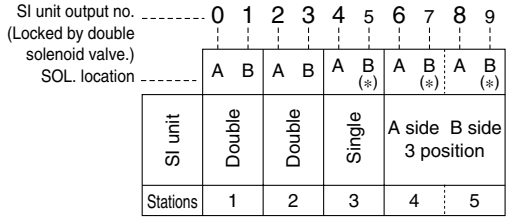
Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -DNS

Note 2) S kits are DIN rail mounting styles, so include suffix D.

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

● SI unit output and coil numbering

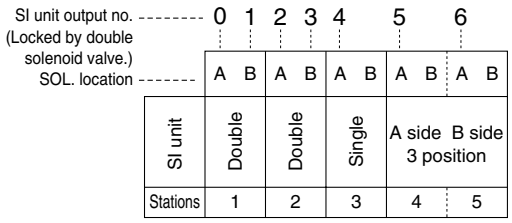
<Wiring example 1> Double wiring (Standard)

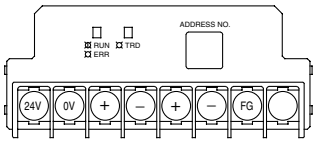
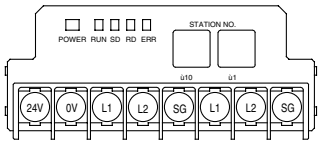


The places of asterisk are not used.

3 position uses two stations for wiring. The A side solenoid of 3 position valve is connected to A at the station with the smaller number in the above figure.

<Wiring example 2> Single/Double Mixed Wiring (Option)
Mixed wiring is available as an option.
Use the manifold specification sheet to specify.



	Type SC OMRON Corporation SYSBUS Wire System	Type SD SHARP Corporation Satellite I/O Link System
Name of terminal block (LED)	 LED: RUN — Lights when transmission is normal and PLC is in operation mode LED: T/R ERR — Blinks during data transmission/reception; ON when transmission is abnormal	 LED: POWER — ON when power supply is ON LED: RUN — Lights when power is ON and slave stations are operating normally LED: ERROR — Lights when slave station switch setting is abnormal, communication is abnormal, PLC stopped and defective slave unit LED: R.SET HOLD — ON for master unit control input
Note	• Master station unit: OMRON PLC SYSMAC C(CV) series Types C500-RM201 and C200H-RM201 * 32 units max., transmission terminal connection (512 points max.) • No. of output points, 16 points	• Master station unit: SHARP's PLC New Satellite Series W ZW-31LM New Satellite Series JW JW-23LM, JW-31LM * Max. 31 units, I/O slave stations connected (504 points max.) • No. of output points, 16 points

How to Order Valves

VQ1 1 3 0 Y − 5 − C6

Series VQ1000

Type of actuation

1	2 position single
2	2 position double (Latching)
3 Note)	3 position closed center
4 Note)	3 position exhaust center
5 Note)	3 position pressure center

Note) 3 position types need two stations.

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC
Nil	Standard type	(1.0 W) ○
H Note)	High pressure type	(1.5 W) ○
Y Note)	Low wattage type	(0.5 W) ○

Note) Except double (latching)

Coil voltage

5	24 VDC/With indicator light/surge voltage suppressor

Manual override

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

Note) A manual override for pilot valve is provided to the standard model for double type.

Cylinder port

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

Note) For inch-size One-touch fittings, refer to "Option" on page 2-4-29.

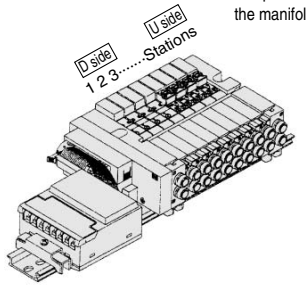
How to Order Manifold Assembly

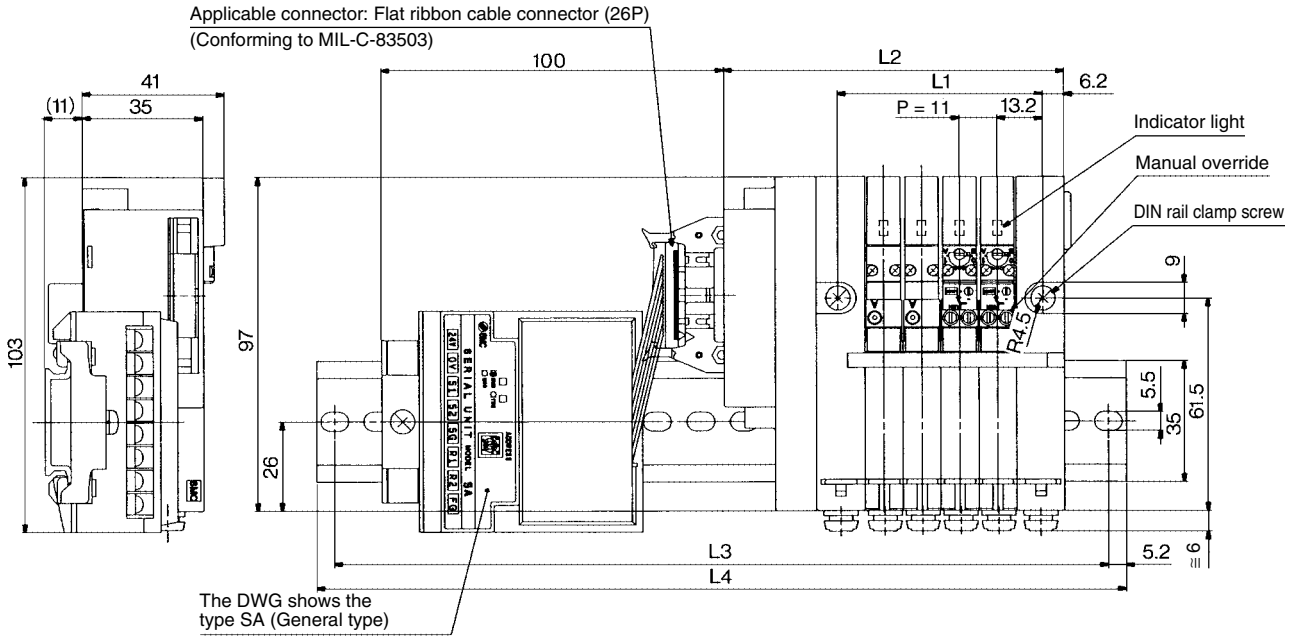
Specify the part numbers for valves and options together beneath the manifold base part number.

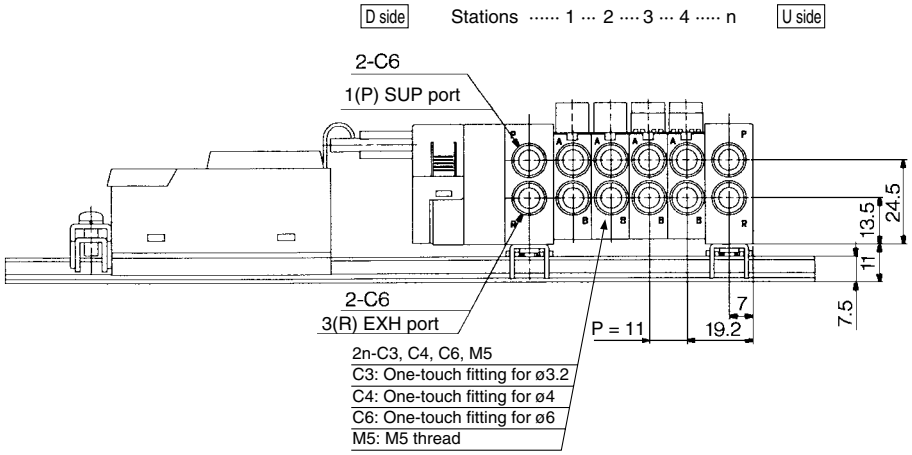
<Example>
Serial transmission kit
VV5Q13-08SA-D···1 set — Manifold base part no.
*VQ1230-5-C6·····4 sets — Valve part no. (Stations 1 to 4)
*VQ1230-5B-C6··· 4 sets — Valve part no. (Stations 5 to 8)

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

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







Note) 3 position types need two stations.
Cylinder port is located at U side body.

Dimensions

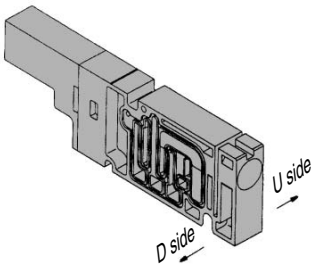
Formula L1 = 11n + 15.5, L2 = 11n + 55 n: Station (Maximum 16 stations)

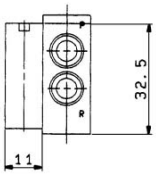
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	26.5	37.5	48.5	59.5	70.5	81.5	92.5	103.5	114.5	125.5	136.5	147.5	158.5	169.5	180.5	191.5
L2	66	77	88	99	110	121	132	143	154	165	176	187	198	209	220	231
L3	187.5	200	212.5	225	237.5	250	262.5	275	275	287.5	300	312.5	325	337.5	350	362.5
L4	198	210.5	223	235.5	248	260.5	273	285.5	285.5	298	310.5	323	335.5	348	360.5	373

Manifold Option Parts

Blanking plate assembly
VVQ1000-10A-3

It is used when a blanking plate is mounted to a manifold in advance for possible valve mounting, etc.

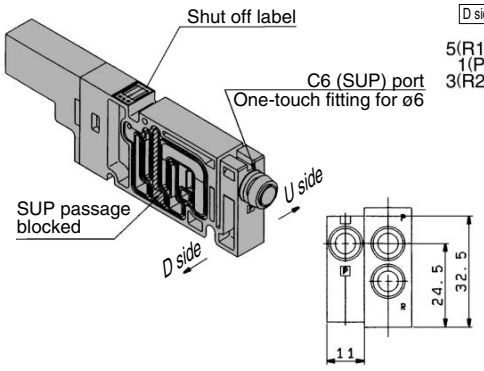


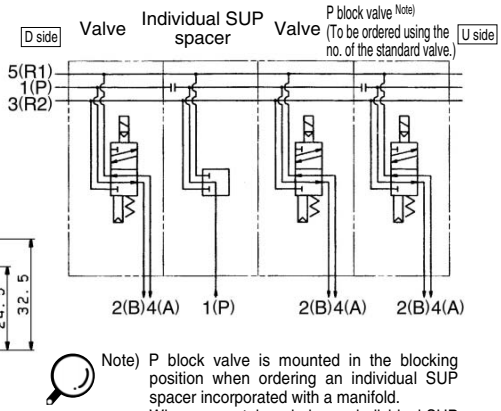


Individual SUP spacer
VVQ1000-P-3-C6

When the same manifold is to be used for different pressures, individual SUP spacers are used as SUP ports for different pressures. (One station space is occupied.)
Since the SUP passage on the spacer's D side is blocked in advance, it is mounted on the D side the valves U side. (Refer to the application example.)

* Specify the spacer mounting position and SUP block plate mounting position on the manifold specification sheet.
* Electric wiring is connected to the position of the manifold station where the individual SUP spacter is mounted.



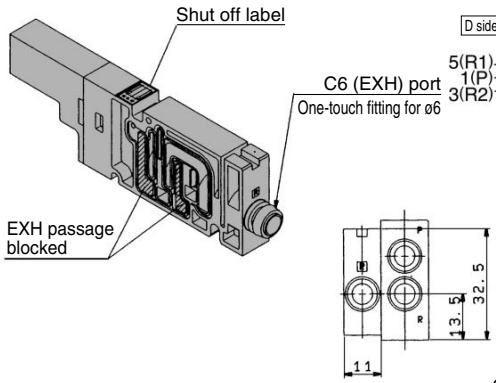


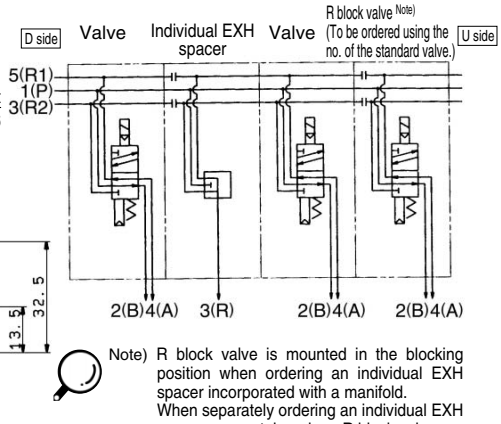
Note) P block valve is mounted in the blocking position when ordering an individual SUP spacer incorporated with a manifold.
When separately ordering an individual SUP spacer, separately order a R block valve.

Individual EXH spacer
VVQ1000-R-3-C6

When valve exhaust affects other stations due to the circuit configuration, this spacer is used for individual valve exhaust. (1 station space is occupied.)
Since the EXH passage on the spacer's D side is blocked in advance, it is mounted on the D side of the valve for individual supply while blocking the valves U side. (Refer to the application example.)

* Specify the spacer mounting position and EXH block plate mounting position on the manifold specification sheet.
* Electric wiring is connected to the position of the manifold station where the individual EXH spacer is mounted.





Note) R block valve is mounted in the blocking position when ordering an individual EXH spacer incorporated with a manifold.
When separately ordering an individual EXH spacer, separately order a R block valve.

P/R/PR Block valve
VQ1$_2^1$3$_1^0$-□-□□-P/R/PR

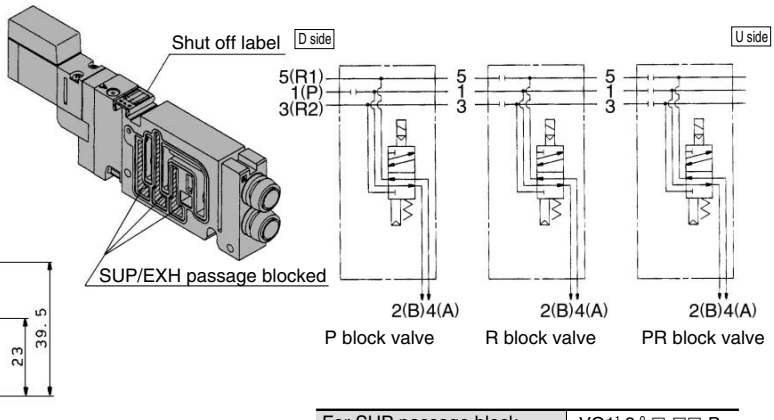
For a flip plug-in unit, block plate is built in the valve for blocking SUP and EXH passages. Since the no. is classified by the passage to be blocked, specify it by attaching the option no. to the valve no. The block valve is constructed so that D sides of SUP and EXH passages are blocked.

* Specify the number of stations on the manifold specification sheet.

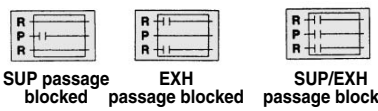
<Shut off label>

When using block plates for SUP, EXH passage, indication label for confirmation of the blocking positionfrom outside is attached. (One label for each)

* When ordering a block plate incorporated with the manifold no., a block indication label is attached to the manifold.



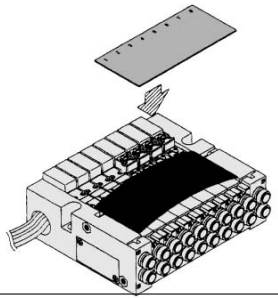
For SUP passage block	VQ1$_2^1$3$_1^0$-□-□□-P
For EXH passage block	VQ1$_2^1$3$_1^0$-□-□□-R
For SUP/EXH passage block	VQ1$_2^1$3$_1^0$-□-□□-PR

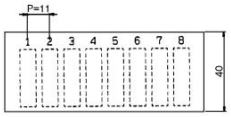


Manifold Option Parts

Name plate [-N3]
VVQ1000-N3-Station (1 to Max. stations)

It is a transparent resin plate for placing a label that indicates solenoid valve function, etc.
Insert it into the groove on the side of the end plate and bend it as shown in the figure.

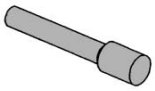


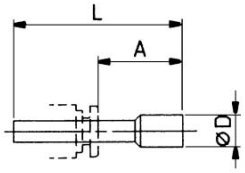


* When ordering assemblies incorporated with a manifold, add suffix N to the manifold no.

Blanking plug
KQ2P-$^{23}_{04}_{06}$

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



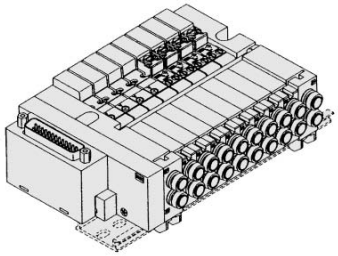


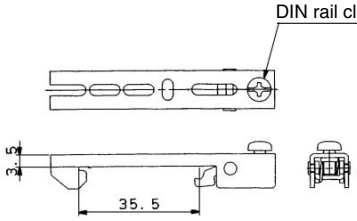
Dimensions

Applicable fittings size ød	Model	A	L	D
3.2	**KQ2P-23**	16	31.5	5
4	**KQ2P-04**	16	32	6
6	**KQ2P-06**	18	35	8

DIN rail mounting bracket
VVQ1000-57A-3

It is used for mounting a manifold on a DIN rail. The DIN rail mounted bracket is fixed to the manifold end. (The specification is the same as that for the option "-D".)
1 set of DIN rail mounting bracket is used for 1 manifold (2 DIN rail mounting brackets).



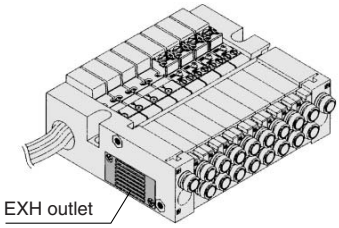


* When ordering assemblies incorporated with a manifold, add suffix -D to the manifold no.

Built-in silencer, Direct exhaust [-S]

This is an exhaust port on top of the manifold end plate. The built-in silencer exhibits an excellent noise suppression effect.
F, P and S kits are provided with single exhaust on U side.
Note) A large quantity of drainage generated in the air.

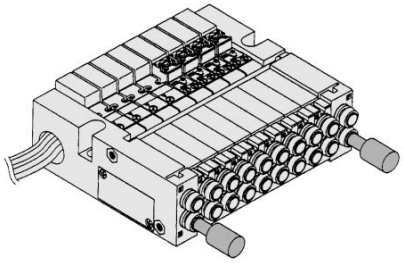
• For maintenance, refer to page 2-4-27.

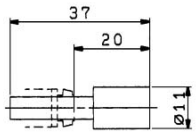


* When ordering assemblies incorporated with a manifold, add suffix -S to the manifold no.

Silencer
AN103-X233

This is inserted into the centralized type EXH port (One-touch fitting).





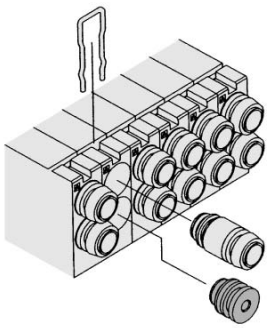
Dimensions

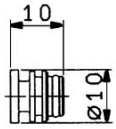
Series	Applicable fittings size ød	Model	A	L	D	Effective area (mm^2)	Noise reduction (dB)
VQ1000	6	AN103-X233	20	37	11	7	25

Port plug
VVQ0000-58A

The plug is used to block the cylinder port when using a 4 port valve as a 3 port valve.
When ordering it incorporated with a manifold, suffix A or B, the symbol of the plug port, to the valve no.

Example) **VQ1130-5L-C6-A**
A port, Plug





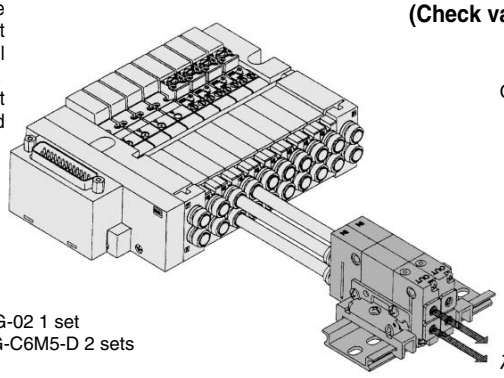
Double check block (Separated type)
VQ1000-FPG-□□

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

Specifications

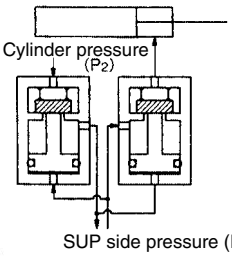
Max. operating pressure	0.8 MPa
Min. operating pressure	0.15 MPa
Ambient and fluid temperature	–5 to 50° C
Flow characteristics: C	0.60 dm³/(s·bar)
Max. operating frequency	180 CPM

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



VVQ1000-FPG-02 1 set
∗VQ1000-FPG-C6M5-D 2 sets

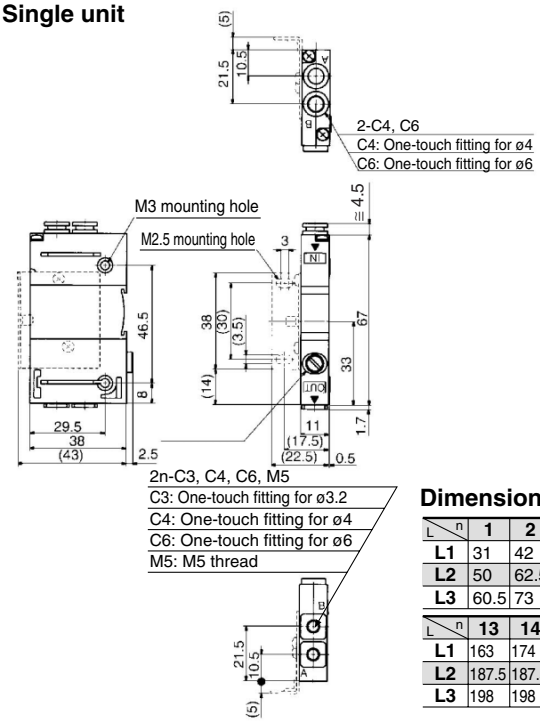
(Check valve operation principle)



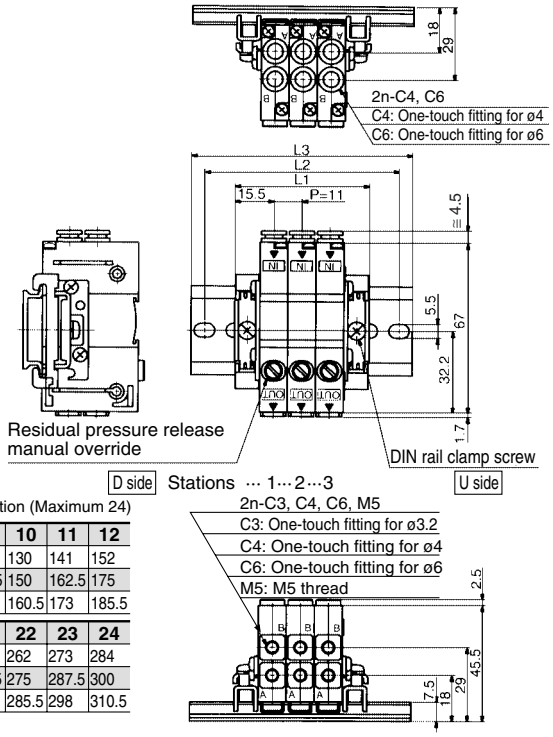
To CYL port

Dimensions

Single unit



Manifold



Dimensions

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

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

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

How to Order

Double check block

VQ1000-FPG- C4 M5 — F

IN side port size

C4	One-touch fitting for ø4
C6	One-touch fitting for ø6

OUT side port size

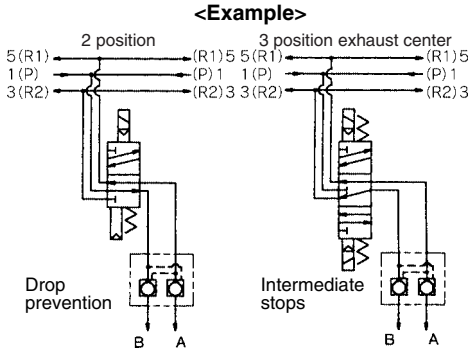
M5	M5 thread
C3	One-touch fitting for ø3.2
C4	One-touch fitting for ø4
C6	One-touch fitting for ø6

Option

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

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

<Example>



Manifold

VVQ1000-FPG- 06

Stations

01	1 station
⋮	⋮
16	16 stations

<Example>
VVQ1000-FPG-06··6 types of manifold
∗VQ1000-FPG-C4M5-D, 3 sets
∗VQ1000-FPG-C6M5-D, 3 sets
} Double Check block

⚠ Caution

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

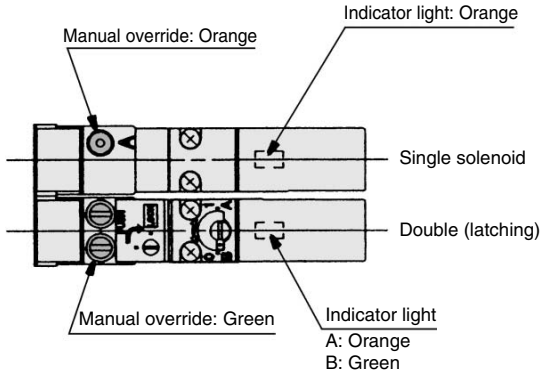
⚠Precautions

Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 2-9-2.

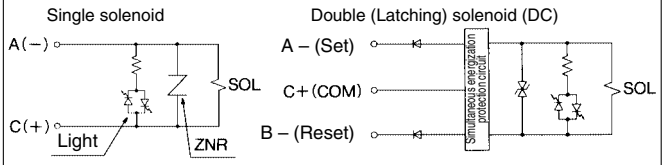
Light/Surge Voltage Suppressor

⚠Caution

The lighting positions are concentrated on one side for both single solenoid and double (latching) type. In the double (latching) type, A side and B side energization are indicated by two colors which match the colors of the manual overrides.



DC type circuit diagram



Single solenoid type | **Double (Latching)**

Note 1) • A side energization: A light (orange) illuminates.
• B side energization: B light (green) illuminates.
• Equipped with a wiring error prevention (stop diode) mechanism.
• Surge absorption (ZNR/surge absorption diode) mechanism.

Note 2) Applicable to negative COM specification models.

Note 3) In the case of double (latching), the electromagnetic valve channel is, A–(set): P → A, B → R
B–(reset): P → B, A → R

Double (Latching solenoid) Type

⚠Caution

Different from the conventional double solenoid, the double uses a latching (self-holding system) solenoid. Although the appearance is the same as the single solenoid, it is constructed so that the movable iron core in the solenoid is held in the ON position on A and B sides by instantaneous energization (20 ms or more). The usage and function is the same as the double solenoid.

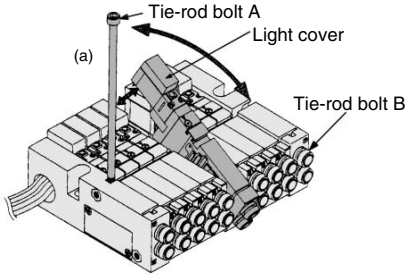
<Special Cautions for Latching Solenoid>

1. Select the circuit in which ON and OFF signals are not energized simultaneously.
2. 20 ms energization time is necessary for self-holding.
3. Avoid using the latching solenoid valves in environments where impact or collisions with the valve might occur. Also, do not use in places where strong magnetic fields are present.
4. Even though the armature in the solenoid of this valve is held on to B side, ON position (Reset), verify either A side, ON position or B side, ON position by energizing prior to use. After manual operation, the main valve will return to its original position.
5. Manual override on the pilot valve side can retain its switching position after manipulation.
6. Please contact SMC for long-term energization applications.
7. If the metal seal type goes down below the minimum operating pressure of supply air (0.1 MPa or less), the main valve will get back the home position (B side ON position). Therefore, in the event of shutting the supply air or applying the air with being A side ON position remained, cylinder may be pulsated. In the event of manipulating the supply air, the valve's switching position has to be set in the home position side (B side ON position side).

How to Mount/Remove Solenoid Valve

⚠Caution

<Procedure>



How to remove

1. Loosen tie-rod bolt B. (Two to four turns)
2. After fully loosening the tie-rod bolt, take off bold A upward as shown above.
3. Slide the valves aside to make a 1 mm clearance between the valve to betaken off and the others. As shown above, remove the whole valve while holding up the (a) side.

Mounting

Reverse the sequence of steps above to remount. Torque applied to tie-rod bolt should be 1.0 to 1.4 N·m. Tighten evenly.

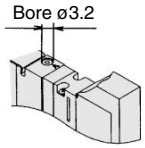
Note) Be careful not to push on the light cover while mounting/removing the valve.

Manual Override

⚠Warning

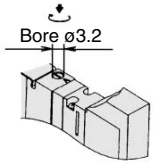
Without an electric signal for the solenoid valve the manual override is used for switching the main valve.

■ Push type (Tool required)



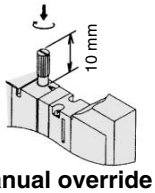
Push down on the manual override button with a small screwdriver until it stops. Release the screwdriver and the manual override will return.

■ Locking slotted type



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

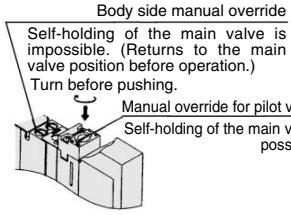
■ Locking lever type (Option)



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.

■ Manual override for double (latching) type

In the case of a double (latching) type, a manual override is provided not only on the body side but to the pilot as a standard. After manual operation, the main valve of the manual on the body side returns to the position before the manual operation, however, the pilot valve manual override maintains the change-over position.



- **If the manual override is turned by 180° clockwise and the ► mark is adjusted to A, then pushed in the direction of an arrow (⧫), it will be back to the reset condition. (passage P → A)**
- **If the manual override is turned by 180° counterclockwise and the ► mark is adjusted to B, then pushed in the direction of an arrow (⧫), it will be back to the reset condition. (passage P → B) (It is in the reset state at the time of shipment.)**

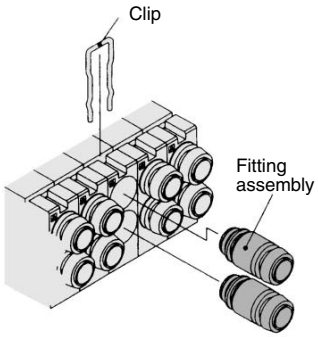
⚠Caution

Do not apply excessive torque when turning the locking type manual override. (0.1 N·m or less)

Replacement of Cylinder Port Fittings

⚠Caution

The cylinder port fittings are a cassette for easy replacement. The fittings are blocked by a clip inserted from the top of the valve.
Remove the clip with a screwdriverto remove fittings. For replacement, insert the fitting assembly until it strikes against the inside wall and then re-insert the clip to the specified position.



Applicable tubing O.D.	Fitting assemly part no.
	VQ1000
Applicable tubing ø3.2	VVQ1000-50A-C3
Applicable tubing ø4	VVQ1000-50A-C4
Applicable tubing ø6	VVQ1000-50A-C6

Purchasing order is available in units of 10 pieces.

Caution

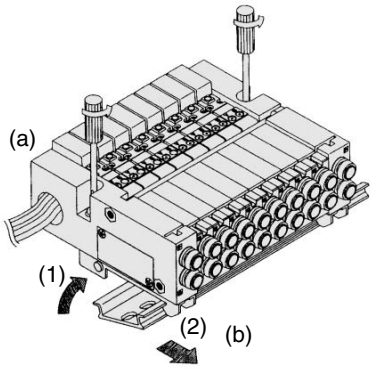
1. Use caution that O-rings must be free from scratches and dust. Otherwise, air leakage may result.
2. The tightening torque for inserting fittings to the M5 thread assembly should be 0.8 to 1.4 N·m.

Mounting/Removing from the DIN Rail

⚠Caution

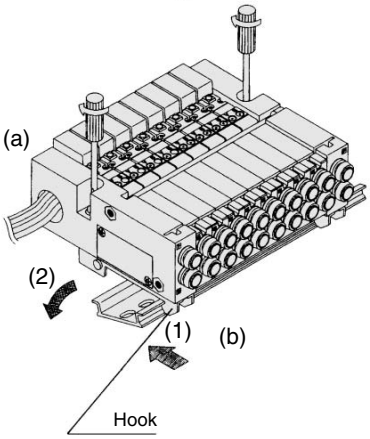
Removing

1. Loosen the clamp screw of the end plate on both sides.
2. Lift side (a) of the manifold base and side the end plate in the direction of (2) shown in the figure to remove.



Mounting

1. Hook side (b) of the manifold base on the DIN rail.
2. Press down side (a) and mount the end plate on the DIN rail. Tighten the clamp screw on side (a) of the end plate. The proper tightening torque for screws is 0.4 to 0.6 N·m.



Built-in Silencer Replacement Element

⚠Caution

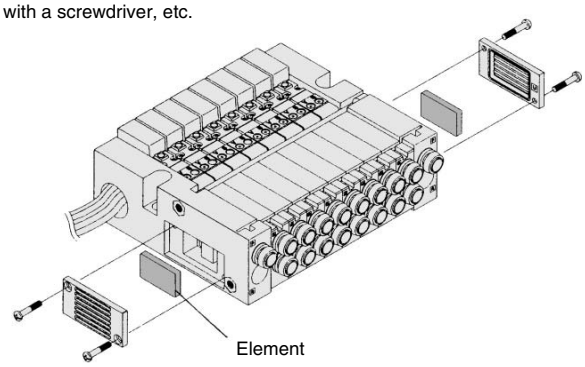
A silencer element is incorporated in the end plate on both sides of the base. A dirty and choked element may reduce cylinder speed or cause manifunction. Clean or replace the dirty element.

Element Part No.

Type	Element part no.
	VQ1000
Built-in silencer, direct exhaust (-S)	VVQ1000-82A-3

∗ The minimum order quantity is 10 pcs.

Remove the cover from the side of the end plate and remove the old element with a screwdriver, etc.



How to Calculate the Flow Rate

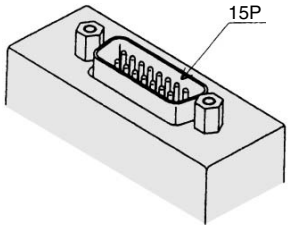
For obtaining the flow rate, refer to pages 2-1-8 to 2-1-11.

Option

Different Number of Connector Pins

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

F kit (D-sub connector) 15 pins



How to order manifold

VV5Q13 — 06 F SA — N

- 06 → Stations
- SA → Kit/Electrical entry
- N → Option

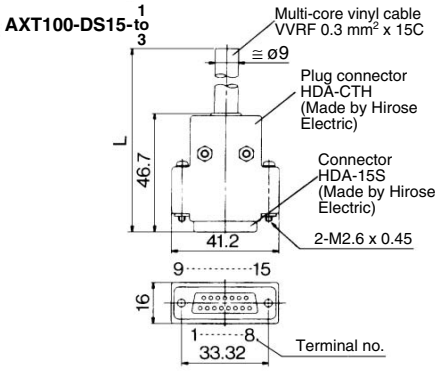
How to Order
D-sub connector, 15 pins
Connector location—Side (horizontal)
Without cable

Kit/Electrical entry

Pins \ Location	Top entry		Side entry	
15P (Max. 7 stations)	Kit F	UA	Kit F	SA

Wiring Specifications

∗ As in the case of 25-pin models (standard), terminal no. 1 is the first station SOL.A and the terminal no. 8 is COM.



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

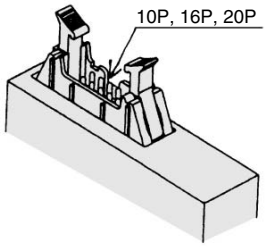
Terminal no.	Lead wire color	Dot marking
1	Black	None
2	Brown	None
3	Red	None
4	Orange	None
5	Yellow	None
6	Pink	None
7	Blue	None
8	Purple	White
9	Gray	Black
10	White	Black
11	White	Red
12	Yellow	Red
13	Orange	Red
14	Yellow	Black
15	Pink	Black

D-sub Connector Cable Assembly

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

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

P kit (Flat ribbon cable connector) 10 pins, 16 pins, 20 pins



How to order manifold

VV5Q13 — 06 P SC — N

- 06 → Stations
- SC → Kit/Electrical entry
- N → Option

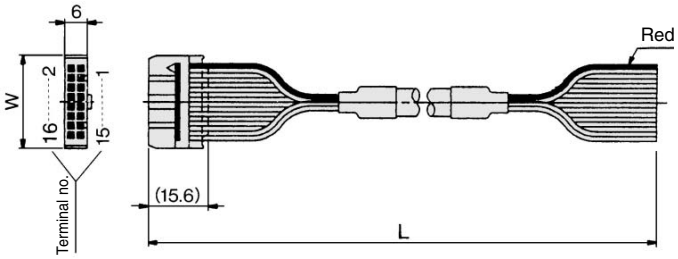
How to Order
Flat ribbon cable, 20 pins
Connector location—Side (horizontal)
Without cable

Kit/Electrical entry

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

Wiring Specifications

∗ As in the case of 26-pin models (standard), terminal no. 1 is the first station SOL.A and the last two terminal numbers are used for COM.



Flat Ribbon Cable Assembly

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

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

Option

Special Wiring Specifications

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

1. How to order valves

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

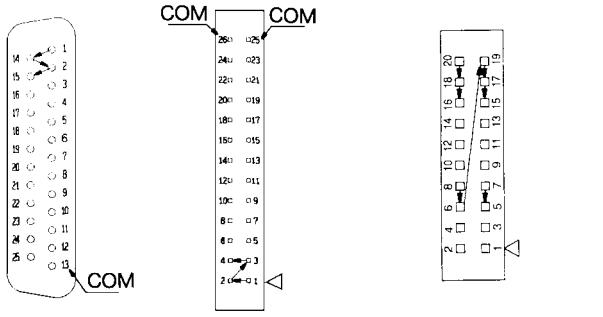
Example)

VV5Q13-09FS0-D K S

Others, option symbols: to be indicated alphabetically.

2. Wiring specifications

Connector terminal numbers are connected from solenoid station 1 on the A side in the order indicated by the arrows without shipping any terminal numbers.



F kit
D-sub connector (25P)

P kit
Flat ribbon cable connector (26P)

J kit
Flat ribbon cable connector (20P)

3. Max. number of stations

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

kit	F kit (D-sub connector)		P kit (Flat ribbon cable connector)				J kit (Flat ribbon cable connector)	S kit (Serial)
Type	F$^{U}_{S}$□ 25P	F$^{U}_{S}$A 15P	P$^{U}_{S}$□ 26P	P$^{U}_{S}$C 20P	P$^{U}_{S}$B 16P	P$^{U}_{S}$A 10P	J$^{U}_{S}$□ 20P	S□
Max. points	24 (16 stations)	14	24 (16 stations)	18 (16 stations)	14	8	16	16

Negative Common Specifications

Specify the valve model no. as shown below for negative COM specification. The manifold no. shown below is for the L kits. For other kits the standard manifold can be used. Please contact for negative COM S kit.

How to order negative COM valves

VQ1130 N − 5 − C6

Negative common specifications

How to order negative COM manifold

L kit:

VV5Q13 − 08 L N D 1 − N

Stations
Negative common specifications
Lead wire entry on D side
Cable length
Option

Inch-size One-touch Fittings

Refer to following model no. for inch-size One-touch fittings.

How to order manifold

VV5Q13 − 08FSO − DN − 00T

1(P), 3(R) port size: ø1/4

How to order valves

VQ1130 − 5 − N7

Cylinder ports

Symbol	N1	N3	N7
Applicable tube O.D. (Inch)	ø1/8"	ø5/32"	ø1/4"

DIN Rail Mounting

Each manifold can be mounted on a DIN rail.
Order it by indicating an option symbol for DIN rail mounting style, -D. In this case, a DIN rail which is approx. 30 mm longer than the manifold with the specified number of stations is attached. Besides, it is also available in the following cases.

● **When DIN rail is unnecessary (Except S kit)**

(DIN rail mounting brackets only are attached.)

Indicate the option symbol, -DO, for the manifold no.

Example)

VV5Q13-08LD1-DOS

Others, option symbols: to be indicated alphabetically.

● **When using DIN rail longer than the manifold with specified number of stations**

Clearly indicate the necessary number of stations next to the option symbol, -D, for the manifold no.

Example)

VV5Q13-08FS1-D09S

DIN rail for 9 stations
Others, option symbols: to be indicated alphabetically.

● **When changing the manifold style into a DIN rail mount**

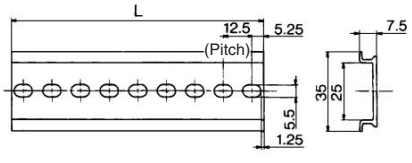
Order brackets for mounting a DIN rail. (Refer to "Option" on page 2-4-24.)

No. VVQ1000-57A-3 2 pcs. per one

● **When ordering DIN rail only**

DIN rail no.: AXT100-DR-n

∗ Refer to the DIN rail dimension table for determining the length.



L Dimension L = 12.5 x n + 10.5

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

Series VQ1000

Body Ported

Plug Lead Unit: Flip Type

How to Order Manifold

VV5Q 1 4 — 08 F S1 — D

Series

1	VQ1000

Manifold

4	Plug lead unit/Flip

Stations

01	1 station
⋮	⋮

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

Simple specials are available with SMC Simple Specials System. For details about applicable models, please contact SMC.

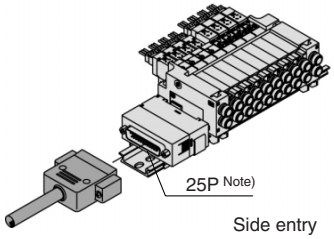
Option

Nil	None (C kit only)
D (2)	DIN rail mounting style
K (3)	Special wiring specifications (Except double wiring)
N	With name plate
S (4)	Built-in silencer, direct exhaust

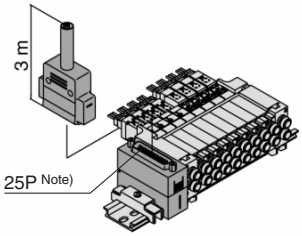
Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -DNS
Note 2) F, P, T, and S kits are DIN rail mounting styles, so include suffix -D.
Note 3) Specify the wiring specifications in the manifold specification sheet. (Except C kit)
Note 4) F, P, T and S kits are provided with an exhaust on one side, while C kits are with an exhaust on both sides.

Kit/Electrical entry/Cable length

F kit (D-sub connector)



Side entry

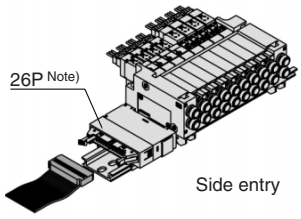


Top entry

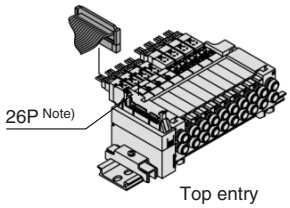
Connector entry direction					
Top entry		Side entry			
Kit F	U0	Kit F	S0	Without cable	Max. 16 (2) stations
	U1		S1	With cable (1.5 m)	
	U2		S2	With cable (3 m)	
	U3		S3	With cable (5 m)	

P. 2-4-38

P kit (Flat ribbon cable connector)



Side entry

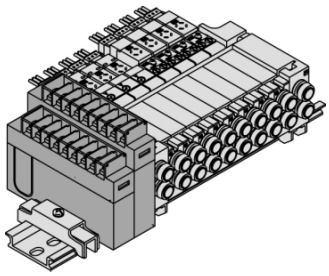


Top entry

Connector entry direction					
Top entry		Side entry			
Kit P	U0	Kit P	S0	Without cable	Max. 16 (2) stations
	U1		S1	With cable (1.5 m)	
	U2		S2	With cable (3 m)	
	U3		S3	With cable (5 m)	

P. 2-4-42

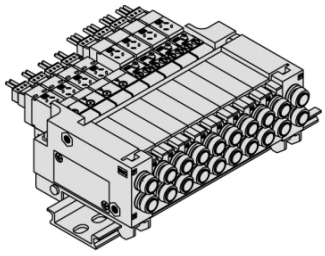
T kit (Terminal block)



P. 2-4-46

Kit T			
	1	No. of terminals: 8, 1 row	Applicable stations 1 to 8
	2	No. of terminals: 16, 2 rows	Applicable stations 5 to 16

C kit (Connector)

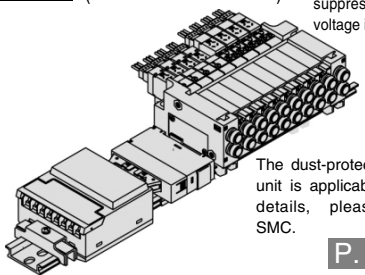


P. 2-4-50

C	Connector kit	Max. 16

S kit (Serial transmission unit)

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



The dust-protected type SI unit is applicable, too. For details, please contact SMC.

P. 2-4-54

Kit S (3)			
	0	Without SI unit	Max. 16 (2) stations
	A	With general type SI unit (Series EX300)	
	B	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System	
	C	OMRON Corp.: SYSBUS Wire System	
	D	SHARP Corp.: Satellite I/O Link System	
	F1	NKE Corp.: Uni-wire System (16 output points)	
	H	NKE Corp.: Uni-wire H System	

Note 1) Besides the above, F and P kits with different number of pins are available. For details, refer to page 2-4-68.
Note 2) See page 2-4-69 for details.
Note 3) Please consult with SMC for the following serial transmission kits: Matsushita Electric Works, Ltd.; Rockwell Automation, Inc.; SUNX Corporation; Fuji Electric Co., Ltd.; OMRON Corporation.

How to Order Valves

VQ 1 | 1 | 4 | 0 | Y | 5 | L | | C6

Series

1	VQ1000

Type of actuation

1	2 position single
2	2 position double (Latching)
3 Note)	3 position closed center
4 Note)	3 position exhaust center
5 Note)	3 position pressure center

Note) L type plug connector is used for 3 position AS.

Coil voltage

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

Note) The C kit is applicable to 200/220 VAC.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ (1)
H (2)	High pressure type	(1.5 W) ○	—
Y (2)	Low wattage type	(0.5 W) ○	—

Note 1) For power consumption of AC type, refer to page 2-4-36.
Note 2) Except double (latching).

Seal

0	Metal seal
1	Rubber seal

For negative common specifications, refer to "Option" on page 2-4-69.
Connector assembly will be required when the F, P, T, S kits add a valve.
For part nos., refer to "Option" on page 2-4-69.

Electrical entry

	VQ1000
G: Grommet C kit single only. (Except AC.)	
L: L plug connector With lead wire	With light/ surge voltage suppressor
LO: L plug connector Without connector	With light/ surge voltage suppressor
M: M plug connector With lead wire	With light/ surge voltage suppressor
MO: M plug connector Without connector	With light/ surge voltage suppressor

Note) LO and MO valves are used for F, P, Tand S kits. The plug connector and lead wire are attached to the manifold.

Cylinder port

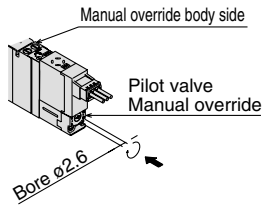
Symbol	Port size
C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

Note) For inch-size One-touch fittings, refer to "Option" on page 2-4-69.

Manual override

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

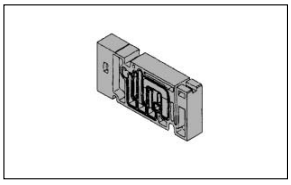
Note) A manual override for pilot valve is provided to the standard model for double type.



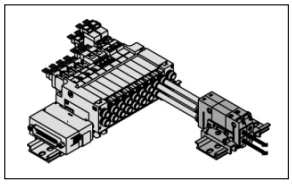
Manifold Option

P. 2-4-59

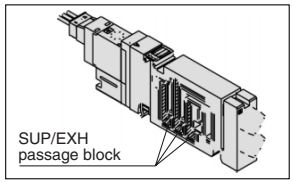
Blanking plate assembly
VVQ1000-10A-4



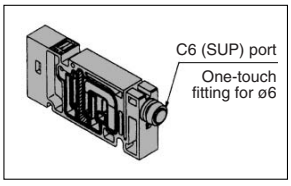
Double check block
VQ1000-FPG-□□



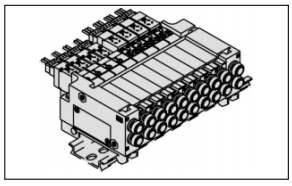
P, R, PR Block valve VQ1$^{1}_{2}$4$^{0}_{1}$-□-□□-P, R, PR



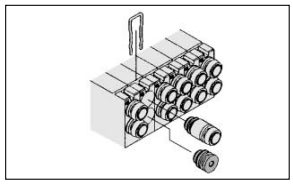
Individual SUP spacer
VVQ1000-P-4-C6



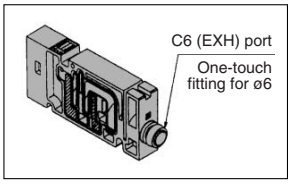
DIN rail mounting bracket
VVQ1000-57A-4



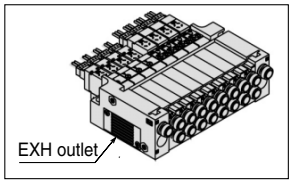
Port plug
VVQ0000-58A



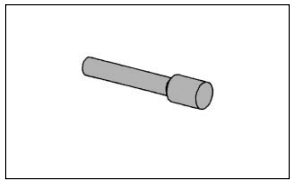
Individual EXH spacer
VVQ1000-R-4-C6



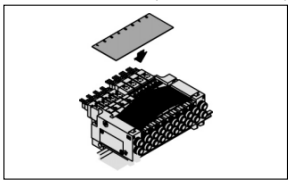
Built-in silencer, direct exhaust [-S]



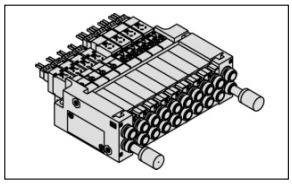
Blanking plug **KQ2P-** 23 04 06



Name plate [-N4]
VVQ1000-N4-Station (1 to Max. stations)

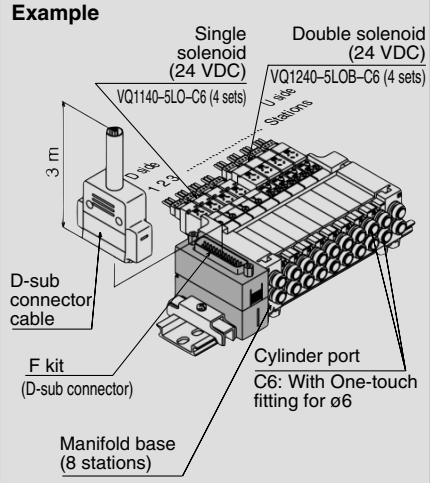


Silencer (For EXH port)
AN103-X233



How to Order Manifold Assembly

Example



VV5Q14-08FU2-D ···· 1 set (F kit 8 station manifold base no.)
∗VQ1140-5LO-C6 ···· 4 sets (Single solenoid part no.)
∗VQ1240-5LOB-C6 ···· 4 sets (Double solenoid part no.)
The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

Please indicate manifold base type, corresponding valve, and option parts. When entry of part numbers becomes complicated, indicate on the manifold specification sheet.

• For replacement parts, refer to page 2-4-107.

Series VQ0000/1000/2000
Body Ported
Plug Lead Unit: Flip Type

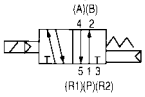
Model

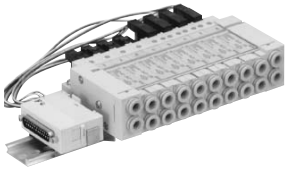
Series	Number of solenoids		Model		Flow characteristics						Response time [2] (ms)			Weight (g)
					1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → R1/R2)			Standard: 1 W H: 1.5 W	Low wattage: 0.5 W	AC	
					C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv				
VQ0000	2 position	Single	Metal seal	VQ0140	0.43	0.20	0.10	0.50	0.19	0.12	12 or less	15 or less	29 or less	57
			Rubber seal	VQ0141	0.49	0.34	0.13	0.59	0.19	0.14	15 or less	20 or less	34 or less	
		Double (Latching)	Metal seal	VQ0240	0.43	0.20	0.10	0.50	0.19	0.12	12 or less	15 or less	29 or less	
			Rubber seal	VQ0241	0.49	0.34	0.13	0.59	0.19	0.14	15 or less	20 or less	34 or less	
	3 position	Closed center	Metal seal	VQ0340	0.34	0.12	0.08	0.36	0.38	0.10	20 or less	26 or less	40 or less	105
			Rubber seal	VQ0341	0.37	0.25	0.09	0.42	0.45	0.12	25 or less	33 or less	47 or less	
		Exhaust center	Metal seal	VQ0440	0.36	0.21	0.09	0.48	0.18	0.12	20 or less	26 or less	40 or less	
			Rubber seal	VQ0441	0.37	0.31	0.11	0.59	0.24	0.14	25 or less	33 or less	47 or less	
VQ1000	2 position	Single	Metal seal	VQ1140	0.77	0.14	0.18	0.84	0.14	0.19	12 or less	15 or less	29 or less	57
			Rubber seal	VQ1141	0.91	0.19	0.21	1.0	0.21	0.25	15 or less	20 or less	34 or less	
		Double (Latching)	Metal seal	VQ1240	0.77	0.14	0.18	0.84	0.14	0.19	12 or less	15 or less	29 or less	
			Rubber seal	VQ1241	0.91	0.19	0.21	1.0	0.21	0.25	15 or less	20 or less	34 or less	
	3 position	Closed center	Metal seal	VQ1340	0.67	0.13	0.16	0.73	0.13	0.17	20 or less	26 or less	40 or less	72
			Rubber seal	VQ1341	0.78	0.22	0.18	0.84	0.21	0.20	25 or less	33 or less	47 or less	
		Exhaust center	Metal seal	VQ1440	0.74	0.14	0.17	0.84	0.16	0.20	20 or less	26 or less	40 or less	
			Rubber seal	VQ1441	0.78	0.28	0.19	1.0	0.21	0.24	25 or less	33 or less	47 or less	
		Pressure center	Metal seal	VQ1540	0.74	0.14	0.17	0.82	0.18	0.20	20 or less	26 or less	40 or less	
			Rubber seal	VQ1541	0.80	0.28	0.19	0.84	0.21	0.22	25 or less	33 or less	47 or less	
VQ2000	2 position	Single	Metal seal	VQ2140	2.0	0.13	0.43	2.3	0.15	0.58	22 or less	29 or less	49 or less	103
			Rubber seal	VQ2141	2.3	0.21	0.54	2.7	0.25	0.62	24 or less	31 or less	51 or less	
		Double (Latching)	Metal seal	VQ2240	2.0	0.13	0.43	2.3	0.15	0.58	22 or less	29 or less	49 or less	
			Rubber seal	VQ2241	2.3	0.21	0.54	2.7	0.25	0.62	24 or less	31 or less	51 or less	

Note 1) Cylinder port size C4: (VQ0000), C6: (VQ1000), C8: (VQ2000)
Note 2) As per JIS B 8375-1981 (Supply pressure: 0.5 MPa; with indicator ligh/surge voltage suppressor; clean air) Subject to the pressure and air quality.

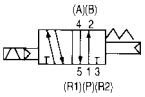
JIS Symbol

2 position single

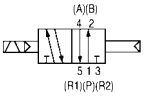




2 position double (Latching)

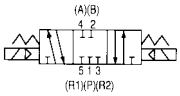


Metal seal

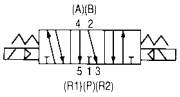


Rubber seal

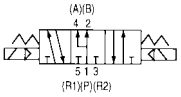
3 position closed center



3 position exhaust center



3 position pressure center



Standard Specifications

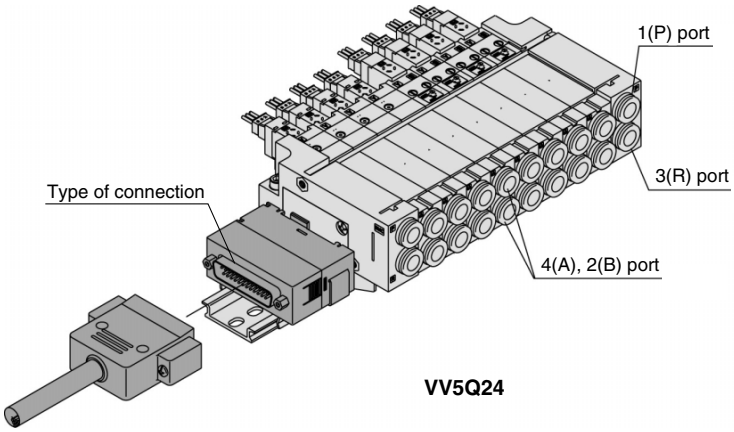
			Metal seal	Rubber seal
Valve specifications	Valve construction		Metal seal	Rubber seal
	Fluid		Air/Inert gas	Air/Inert gas
	Maximum operating pressure		0.7 MPa (High pressure type: 0.8 MPa) [3]	
	Min. operating pressure	Single	0.1 MPa	0.15 MPa
		Double (Latching)	0.1 MPa	0.15 MPa
		3 position	0.15 MPa	0.2 MPa
	Ambient and fluid temperature		−10 to 50°C [1]	
	Lubrication		Not required	
	Manual override		Push type/Locking type (Tool required, Manual type) Option	
	Impact resistance/Vibration resistance [2]		150/30 m/s²	
	Enclosure		Dust-protected	
Solenoid	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), 1.5 W DC (63 mA) [3], 0.5 W DC (21 mA) [4]	
		12 VDC	1 W DC (83 mA), 1.5 W DC (125 mA) [3], 0.5 W DC (42 mA) [4]	
		100 VAC	Inrush 0.5 VA (5 mA), Holding 0.5 VA (5 mA)	
		110 VAC	Inrush 0.55 VA (5 mA), Holding 0.55 VA (5 mA)	
		200 VAC	Inrush 1.0 VA(5 mA), Holding 1.0 VA (5 mA)	
		220 VAC	Inrush 1.1 VA (5 mA), Holding 1.1 VA (5 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 in the case of high pressure type (1.5 W) specifications.
Note 4) Values in the case of low wattage type (0.5 W) specifications.

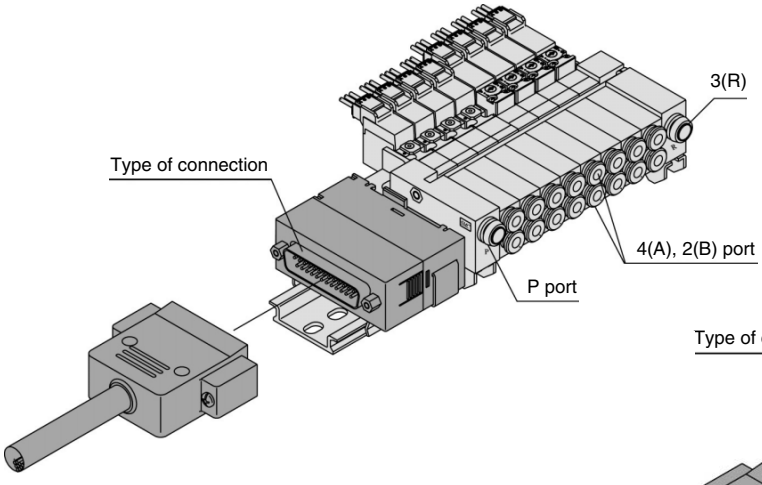
Manifold Specifications

Series	Base model	Type of connection	Porting specifications			Applicable stations (2)	Applicable solenoid valve	5 station weight (g)
			Port location	Port size (1)				
				1(P), 3(R)	4(A), 2(B)			
VQ0000	**VV5Q04-□□□**	■ F kit–D-sub connector ■ P kit–Flat cable connector ■ T kit–Terminal block ■ C kit–Individual connector ■ S kit–Serial transmission unit	Side	C6 (ø6) Option Built-in silencer, direct exhaust	C3 (ø3.2) C4 (ø4) M5 (M5 thread)	1 to 16 stations	VQ0□40 VQ0□41	225
VQ1000	**VV5Q14-□□□**	■ F kit–D-sub connector ■ P kit–Flat cable connector ■ T kit–Terminal block ■ C kit–Individual connector ■ S kit–Serial transmission unit	Side	C6 (ø6) Option Built-in silencer, direct exhaust	C3 (ø3.2) C4 (ø4) C6 (ø6) M5 (M5 thread)		VQ1□40 VQ1□41	380
VQ2000	**VV5Q24-□□□**	■ F kit–D-sub connector ■ P kit–Flat cable connector ■ T kit–Terminal block ■ C kit–Individual connector ■ S kit–Serial transmission unit	Side	C8 (ø8) Option Built-in silencer, direct exhaust	C4 (ø4) C6 (ø6) C8 (ø8)		VQ2□40 VQ2□41	671

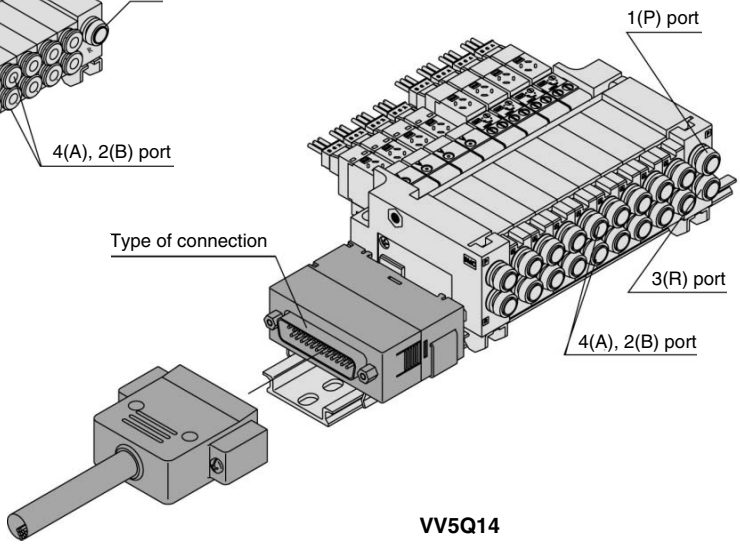
Note 1) Inch-size One-touch fittings are also available. For details, refer to page 2-4-69.
Note 2) See page 2-4-69 for details.



VV5Q24

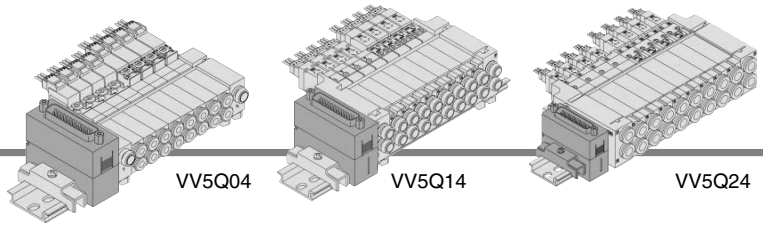


VV5Q04



VV5Q14

F VQ0000/1000/2000 Kit (D-sub connector)



- The D-sub connector reduces installation labor for electrical connections.
- Using the D-sub connector (25P), (15P as an option) conforming to MIL standard permits the use of connectors put on the market and gives a wide interchangeability.
- Top or side receptacle position can be selected in accordance with the available mounting space.
- Maximum stations are 16.

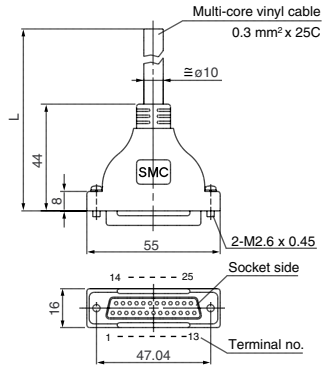
Manifold Specifications VV5Q14

Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ0000	Side	C6	C3, C4, M5	Max. 16 stations
VQ1000	Side	C6	C3, C4, C6, M5	Max. 16 stations
VQ2000	Side	C8	C4, C6, C8	Max. 16 stations

D-sub Connector (25 pins)

AXT100-DS25- 015 / 030 / 050

The D-sub connector cable assembly can be ordered individually or included in a specific manifold model no. Refer to How to Order Manifold.



D-sub Connector Cable Assembly (Option)

Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-DS25-015	Cable 25 core 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.

Connector manufacturers' example
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.

Electric Characteristics

Item	Characteristics
Conductor resistance Ω/km, 20°C	65 or less
Insulation resistance V, 1 min, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

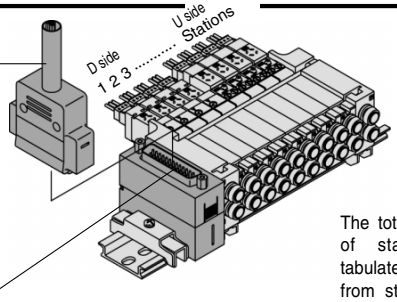
Note) The minimum bending radius of D-sub cable assembly is 20 mm.

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

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

Note) Types with 15 pin are also available. For details, refer to page 2-4-68.

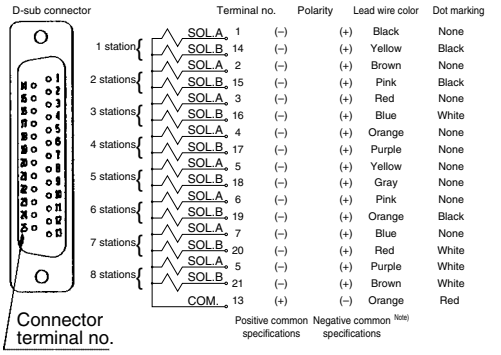
Cable assembly



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

Electrical wiring specifications

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



As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 8 stations or less, regardless of valve and option types. Mixed single and double wiring is available as an option. For details, refer to page 2-4-69.

Note) When using the negative common specifications, use valves for negative common. (Refer to page 2-4-69.)

How to Order Manifold

VV5Q 1 4 – 08 F S 1 – D

Series

0	VQ0000
1	VQ1000
2	VQ2000

Manifold

4	Plug lead unit/Flip

Stations

01	1 station
⋮	⋮
16	16 stations

Note) For details, refer to page 2-4-69.

Connector entry direction

U	Top entry
S	Side entry

Cable (Length)

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

Option

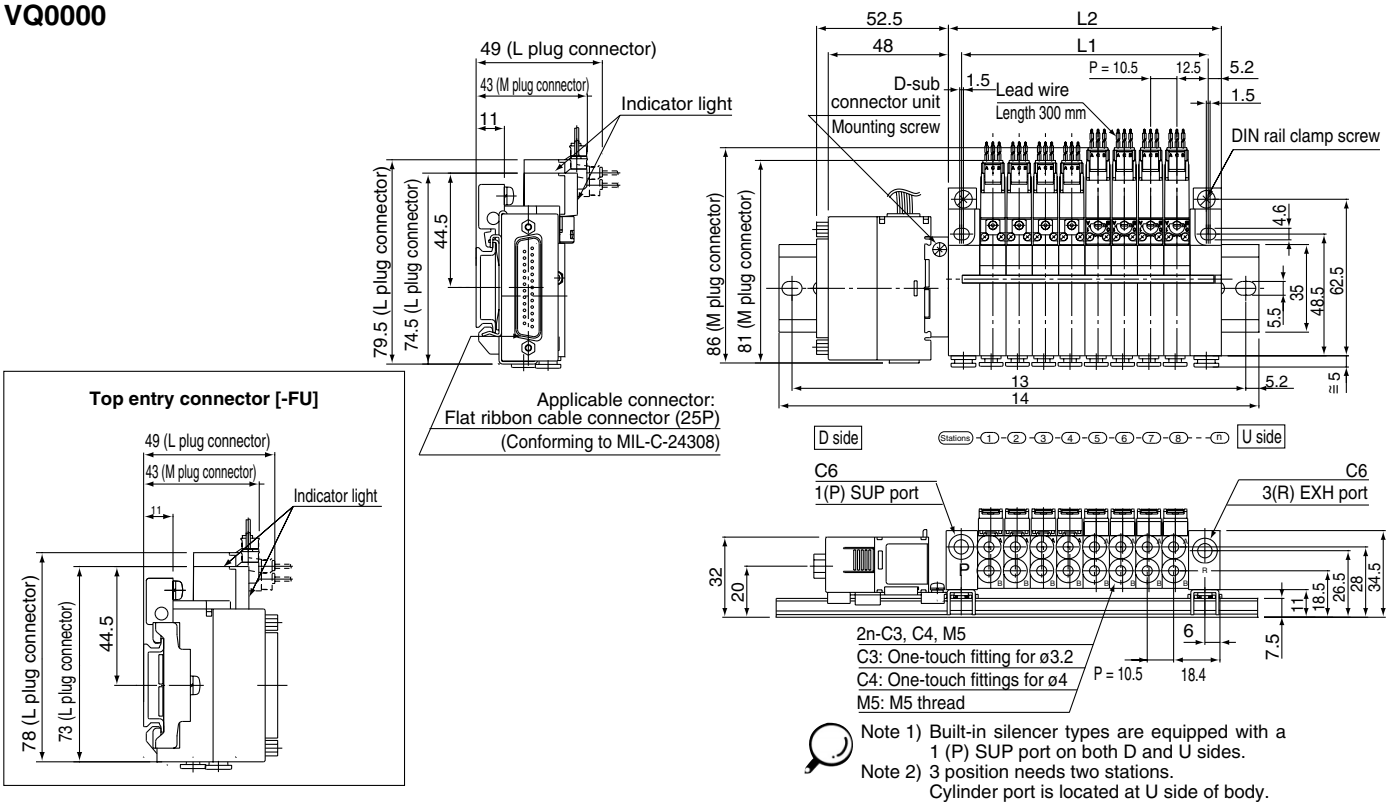
D (2)	DIN rail mounting style
K (3)	Special wiring specifications (Except double wiring)
N	With name plate
S	Built-in silencer, direct exhaust (U side only)

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

Note 2) F kits are DIN rail mounting styles, include suffix -D.

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

VQ0000



Note 1) Built-in silencer types are equipped with a 1 (P) SUP port on both D and U sides.
Note 2) 3 position needs two stations. Cylinder port is located at U side of body.

Dimensions: Side Entry Connector [-FS]

Formula L1 = 10.5n + 14.5, L2 = 10.5n + 25 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	25	35.5	46	56.5	67	77.5	88	98.5	109	119.5	130	140.5	151	161.5	172	182.5
L2	35.5	46	56.5	67	77.5	88	98.5	109	119.5	130	140.5	151	161.5	172	182.5	193
L3	112.5	125	137.5	150	150	162.5	175	187.5	200	212.5	212.5	225	237.5	250	262.5	275
L4	123	135.5	148	160.5	160.5	173	185.5	198	210.5	223	223	235.5	248	260.5	273	285.5

Dimensions: Top Entry Connector [-FU]

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L3	100	100	112.5	125	137.5	150	162.5	162.5	175	187.5	200	212.5	225	237.5	237.5	250
L4	110.5	110.5	123	135.5	148	160.5	173	173	185.5	198	210.5	223	235.5	248	248	260.5

How to Order Valves

VQ 1 1 4 0 Y – 5 LO [ ] – C6

Series

0	VQ0000
1	VQ1000
2	VQ2000

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ (1)
H (2)	High pressure type	(1.5 W) ○	—
Y (2)	Low wattage type	(0.5 W) ○	—

Note 1) For power consumption of AC type, refer to page 2-4-36.
Note 2) Except double (latching).

Type of actuation

		VQ0000	VQ1000	VQ2000
1	2 position single	●	●	●
2	2 position double (Latching)	●	●	●
3	3 position closed center	● (1)	● (2)	—
4	3 position exhaust center	● (1)	● (2)	—
5	3 position pressure center	—	● (2)	—

Note 1) (2 stations space are occupied.)
Note 2) L plug connector is used for AC.

Coil voltage

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

Cylinder port

Symbol	Port size	VQ0000	VQ1000	VQ2000
C3	With One-touch fitting for ø3.2	●	●	—
C4	With One-touch fitting for ø4	●	●	●
C6	With One-touch fitting for ø6	—	●	●
C8	With One-touch fitting for ø8	—	—	●
M5	M5 thread	●	●	—

Note) For inch-size One-touch fittings, refer to "Option" on page 2-4-69.

Manual override

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

Note 1) All double latching valves of VQ0000 are non-locking push type. (Refer to page 2-4-66.)
Note 2) A manual override for pilot valve is provided to the standard model for double type.

Electrical entry

LO	L plug connector without connector
MO	M plug connector without connector

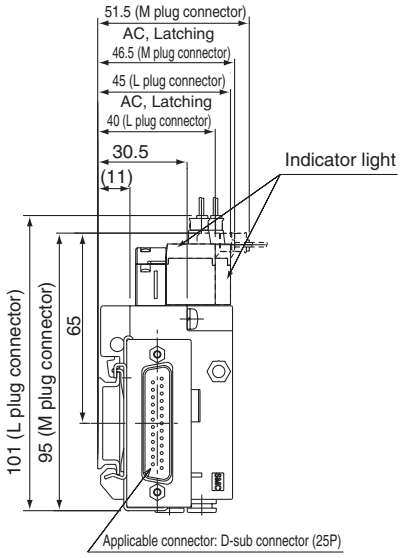
Note) Plug connector and lead wire layers are attached to the manifold.

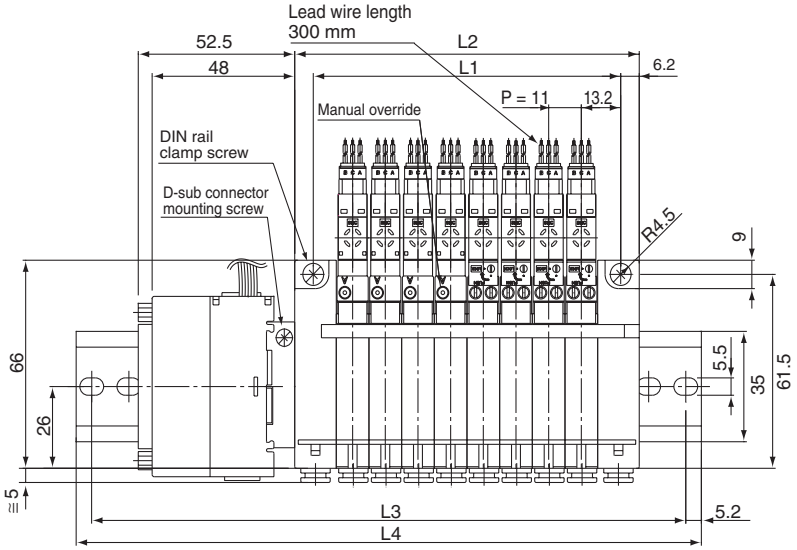
Note 1) For negative common specifications, refer to "Option" on page 2-4-69.
Note 2) Connector assembly will be required when the F kits add a valve. For part nos., refer to "Option" on page 2-4-69.

How to Order Manifold Assembly

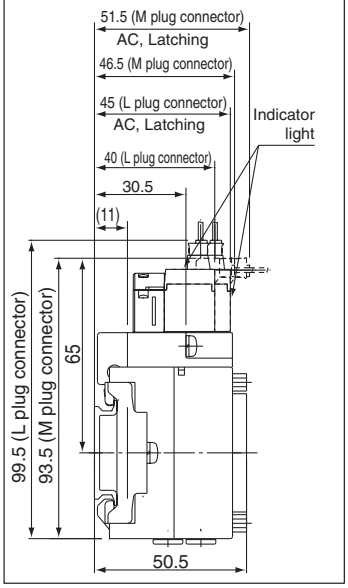
Specify the part numbers for valves and options together beneath the manifold base part number.

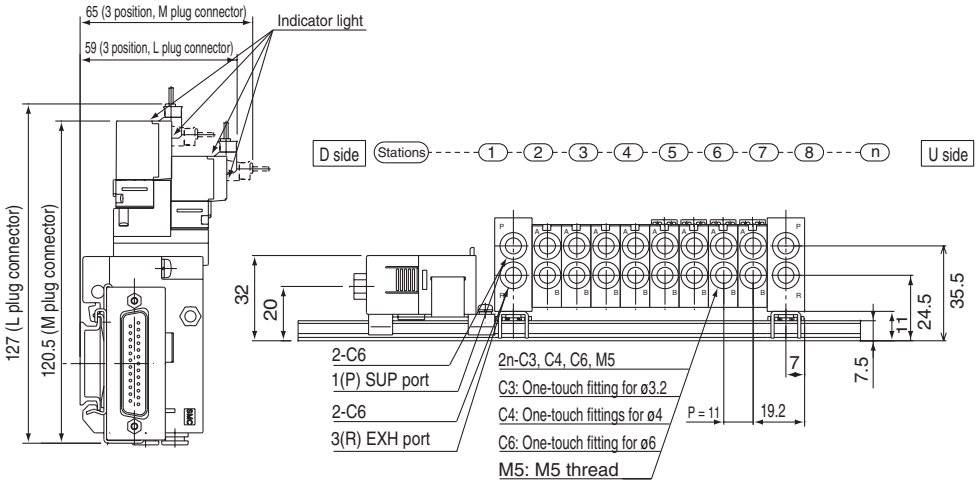
VQ1000





Top entry connector [-FU]





3 position

Dimensions: Side Entry Connector [-FS]

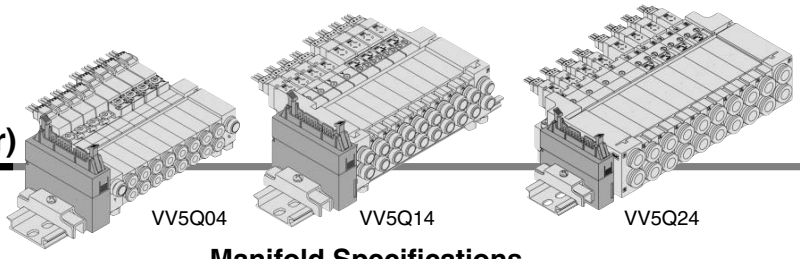
Formula $\frac{L1 = 11n + 15.5}{L2 = 11n + 28}$ n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	26.5	37.5	48.5	59.5	70.5	81.5	92.5	103.5	114.5	125.5	136.5	147.5	158.5	169.5	180.5	191.5
L2	39	50	61	72	83	94	105	116	127	138	149	160	171	182	193	204
L3	112.5	125	137.5	150	162.5	175	187.5	187.5	200	212.5	225	237.5	250	262.5	275	287.5
L4	123	135.5	148	160.5	173	185.5	198	198	210.5	223	235.5	248	260.5	273	285.5	298

Dimensions: Top Entry Connector [-FU]

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L3	100	112.5	125	137.5	137.5	150	162.5	175	187.5	200	212.5	225	225	237.5	250	262.5
L4	110.5	123	135.5	148	148	160.5	173	185.5	198	210.5	223	235.5	235.5	248	260.5	273

P VQ0000/1000/2000 Kit (Flat ribbon cable connector)

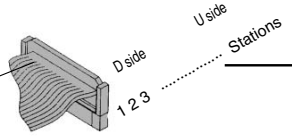


- MIL flat ribbon cable connector reduces installation labor savings for electrical connection.
- Using the connector for flat ribbon cable (26P), (10P, 16P, 20P as an option) conforming to MIL standard permits the use of connectors put on the market and gives a wide interchangeability.
- Top or side receptacle position can be selected in accordance with the available mounting space.
- Maximum stations are 16.

Manifold Specifications

Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ0000	Side	C6	C3, C4, M5	Max. 16 stations
VQ1000	Side	C6	C3, C4, C6, M5	Max. 16 stations
VQ2000	Side	C8	C4, C6, C8	Max. 16 stations

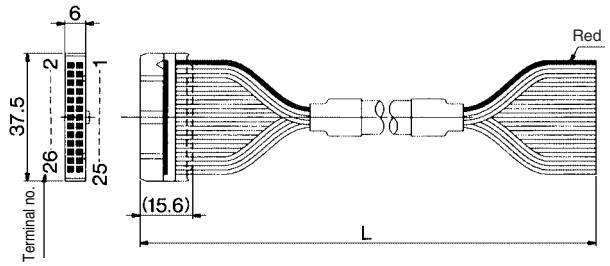
Flat Ribbon Cable (26 pins)



Cable assembly

AXT100-FC26-1 to 3

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



Flat Ribbon Cable Connector Assembly (Option)

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

∗ For other commercial connectors, use a 26 pins type with strain relief conforming to MIL-C-83503.

Connector manufacturers' example

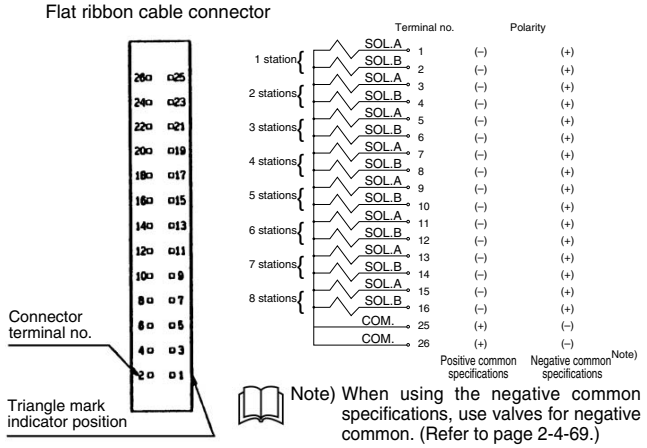
- Hirose Electric Co., Ltd.
- Sumitomo 3M Limited
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.
- Oki Electric Cable Co., Ltd.

Note) Types with 10, 16, or 20 pin are also available. For details, refer to page 2-4-69.

VV5Q14

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

Electrical wiring specifications



Note) When using the negative common specifications, use valves for negative common. (Refer to page 2-4-69.)

As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 8 stations or less, regardless of valve and option types. Mixed single and double wiring is available as an option. For details, refer to page 2-4-69.

How to Order Manifold

VV5Q 1 4 – 08 P S 1 – D

Series

0	VQ0000
1	VQ1000
2	VQ2000

Manifold

4	Plug lead unit/Flip

Stations

01	1 station
⋮	⋮
16	16 stations

Note) For details, refer to page 2-4-69.

Connector entry direction

U	Top entry
S	Side entry

Cable (Length)

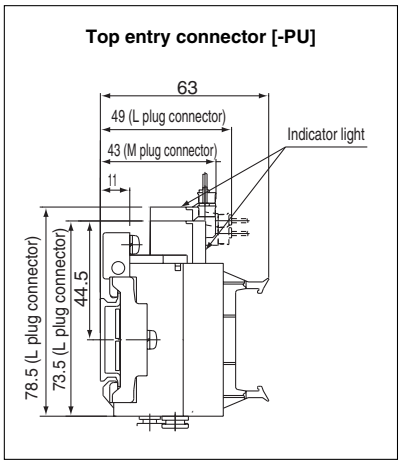
0	Without cable
1	With cable (1.5 m)
2	With cable (3 m)
3	With cable (5 m)

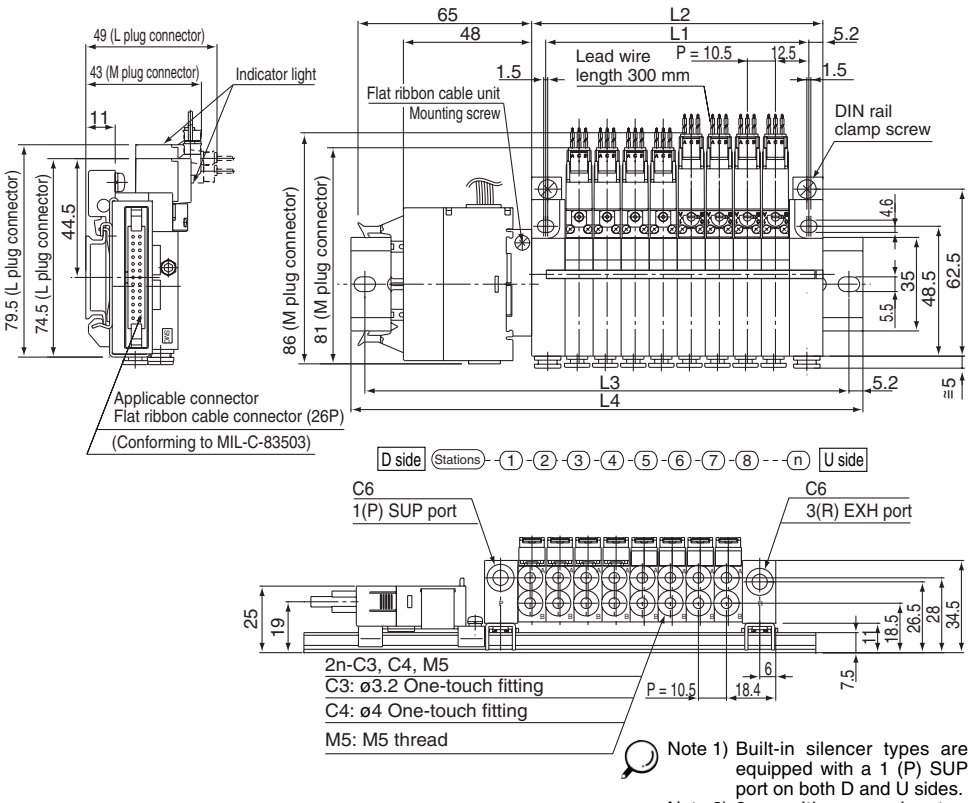
Option

D (2)	DIN rail mounting style
K (3)	Special wiring specifications (Except double wiring)
N	With name plate
S	Built-in silencer, direct exhaust (U side only)

Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -DNS
Note 2) P kits are DIN rail mounting styles, so include suffix -D.
Note 3) Specify the wiring specifications on the manifold specification sheet.

VQ0000





Note 1) Built-in silencer types are equipped with a 1 (P) SUP port on both D and U sides.
Note 2) 3 position needs two stations.
Cylinder port is located at U side of body.

Dimensions: Side Entry Connector [-PS]

Formula L1 = 10.5n + 14.5 L2 = 10.5n + 25 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	25	35.5	46	56.5	67	77.5	88	98.5	109	119.5	130	140.5	151	161.5	172	182.5
L2	35.5	46	56.5	67	77.5	88	98.5	109	119.5	130	140.5	151	161.5	172	182.5	193
(L3)	112.5	125	137.5	150	150	162.5	175	187.5	200	212.5	212.5	225	237.5	250	262.5	275
(L4)	123	135.5	148	160.5	160.5	173	185.5	198	210.5	223	223	235.5	248	260.5	273	285.5

Dimensions: Top Entry Connector [-PU]

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L3	87.5	100	112.5	125	125	137.5	150	162.5	175	187.5	187.5	200	212.5	225	237.5	250
L4	98	110.5	123	135.5	135.5	148	160.5	173	185.5	198	198	210.5	223	235.5	248	260.5

How to Order Valves

VQ 1 1 4 0 Y – 5 LO [ ] – C6

Series

0	VQ0000
1	VQ1000
2	VQ2000

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ (1)
H (2)	High pressure type	(1.5 W) ○	—
Y (2)	Low wattage type	(0.5 W) ○	—

Note 1) For power consumption of AC type, refer to page 2-4-36.
Note 2) Except double (latching).

Type of actuation

		VQ0000	VQ1000	VQ2000
1	2 position single	●	●	●
2	2 position double (Latching)	●	●	●
3	3 position closed center	● (1)	● (2)	—
4	3 position exhaust center	● (1)	● (2)	—
5	3 position pressure center	—	● (2)	—

Note 1) (2 stations space are occupied.)
Note 2) L plug connector is used for AC.

Coil voltage

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

Note 1) For negative common specifications, refer to "Option" on page 2-4-69.
Note 2) Connector assembly will be required when the P kits add a valve. For model no., refer to "Option" on page 2-4-69.

How to Order Manifold Assembly

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

Cylinder port

Symbol	Port size	VQ0000	VQ1000	VQ2000
C3	With One-touch fitting for ø3.2	●	●	—
C4	With One-touch fitting for ø4	●	●	●
C6	With One-touch fitting for ø6	—	●	●
C8	With One-touch fitting for ø8	—	—	●
M5	M5 thread	●	●	—

Note) For inch-size One-touch fittings, refer to "Option" on page 2-4-69.

Manual override

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

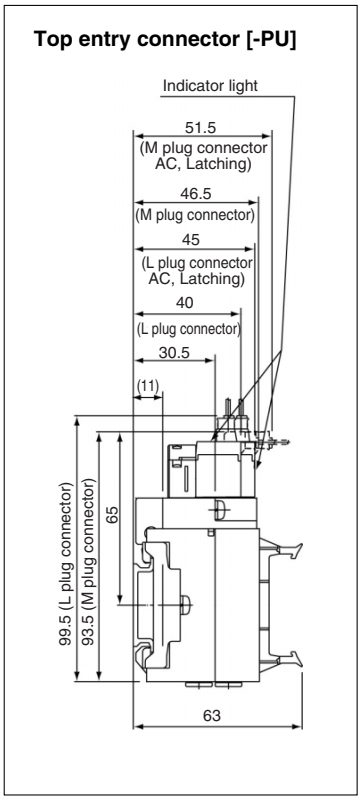
Note 1) All double latching valves of VQ0000 are non-locking push type.
Note 2) A manual override for pilot valve is provided to the standard model for double type.

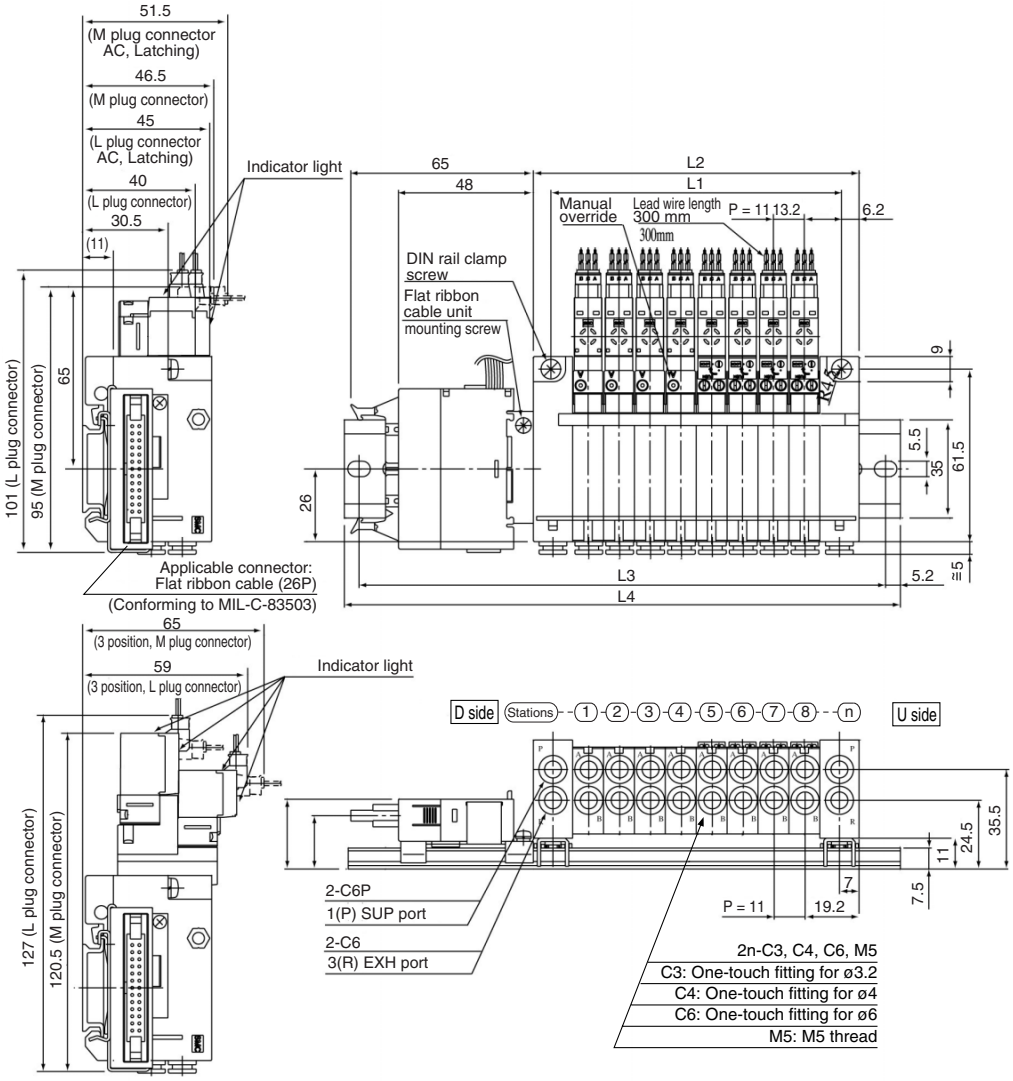
Electrical entry

LO	L plug connector without connector
MO	M plug connector without connector

Note) Plug connector and lead wire layers are attached to the manifold.

VQ1000





3 position

Dimensions: Side Entry Connector [-PS]

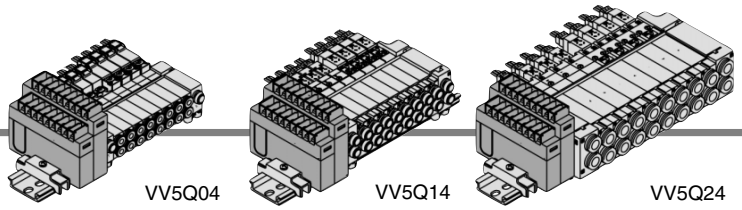
Formula L1 = 11n + 15.5, L2 = 11n + 28 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	26.5	37.5	48.5	59.5	70.5	81.5	92.5	103.5	114.5	125.5	136.5	147.5	158.5	169.5	180.5	191.5
L2	39	50	61	72	83	94	105	116	127	138	149	160	171	182	193	204
L3	112.5	125	137.5	150	162.5	175	187.5	187.5	200	212.5	225	237.5	250	262.5	275	287.5
L4	123	135.5	148	160.5	173	185.5	198	198	210.5	223	235.5	248	260.5	273	285.5	298

Dimensions: Top Entry Connector [-PU]

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L3	87.5	100	112.5	125	137.5	150	162.5	162.5	175	187.5	200	212.5	225	237.5	250	262.5
L4	98	110.5	123	135.5	148	160.5	173	173	185.5	198	210.5	223	235.5	248	260.5	273

T VQ0000/1000/2000 Kit (Terminal block)

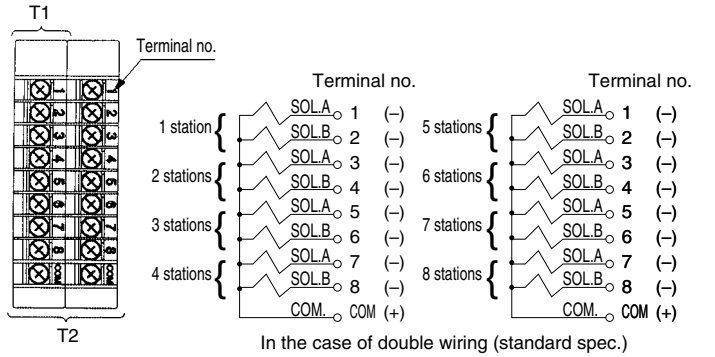


- It is a standard terminal block type.
- Two quantities of terminals can be selected in accordance with the number of stations.
  (8 terminals/16 terminals)
- Maximum stations are 16.

Manifold Specifications

Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ0000	Side	C6	C3, C4, M5	Max. 16 stations
VQ1000	Side	C6	C3, C4, C6, M5	Max. 16 stations
VQ2000	Side	C8	C4, C6, C8	Max. 16 stations

● Electrical wiring specifications



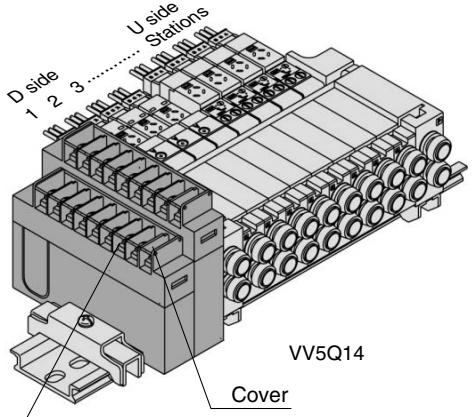
In the case of double wiring (standard spec.)
T1 (Terminal block of 1 row): 1 to 4 stations
T2 (Terminal block of 2 rows): 5 to 8 stations
T1 and T2 can be optionally chosen by adopting the combinations of single and double wiring (optional spec.), etc.

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

Manifold	No. of terminals
1 to 4 stations	1 row
5 to 8 stations	2 rows

Wiring other than those above is possible. See page 2-4-69 for details.

Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types. Mixed single and double wiring is available as an option.
For details, refer to page 2-4-69.



● How to connect wires to terminal block

Open the terminal block cover to connect the wires to the terminal block.
(With M3 thread)

How to Order Manifold

VV5Q 1 4 – 08 T 2 – D

Series

0	VQ0000
1	VQ1000
2	VQ2000

Manifold

4	Plug lead unit/Flip

Stations

01	1 station
⋮	⋮
16	16 stations

Note 1) For negative common specifications, refer to "Option" on page 2-4-69.
Note 2) As option, the maximum number of stations can be increased based on special wiring specifications. For details, refer to page 2-4-69.

Option

D (2)	DIN rail mounting style
K (3)	Special wiring specifications (Except double wiring)
N	With name plate
S	Built-in silencer, direct exhaust (U side only)

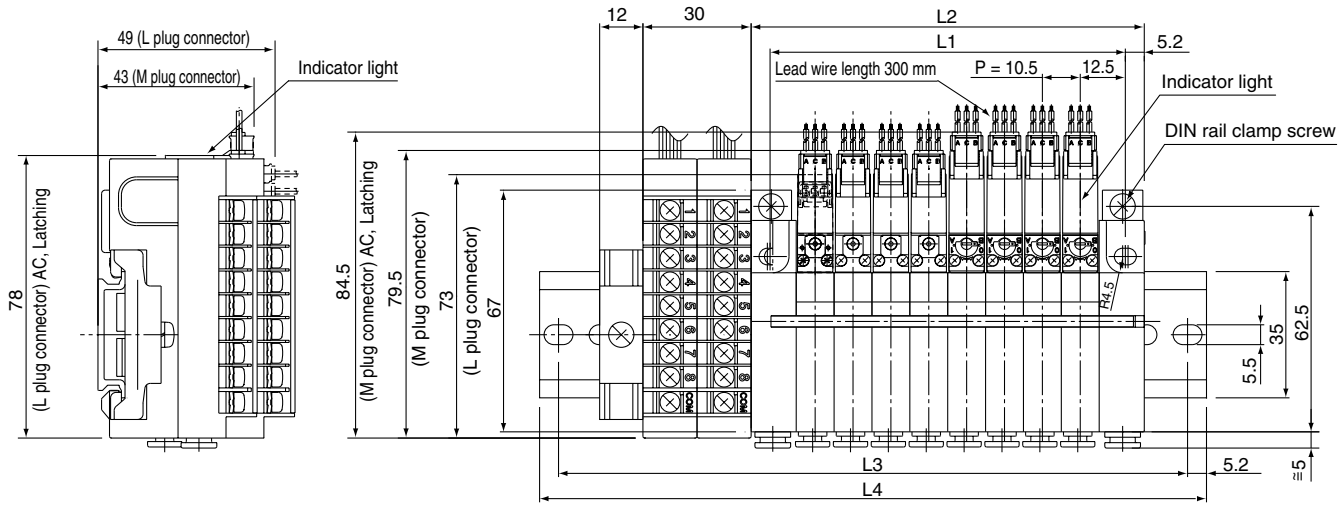
Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -DNS
Note 2) T kits are DIN rail mounted type, so include suffix -D.
Note 3) Specify the wiring specifications in the manifold specification sheet.

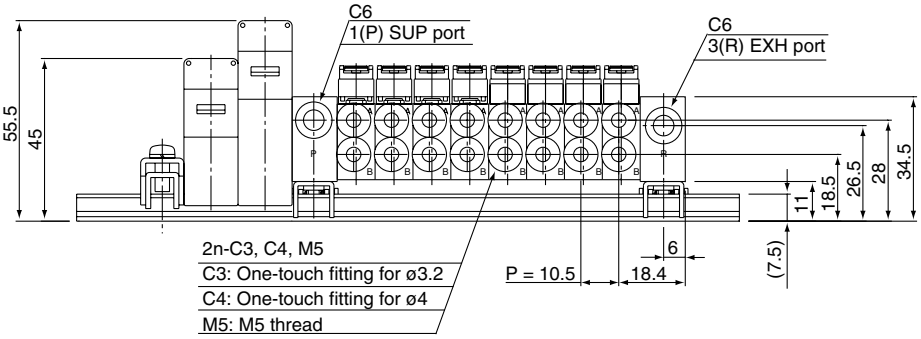
Number of terminals

1	8 terminals in 1 row	Applicable stations 1 to 4 stations (Double), 8 stations (Single)
2	16 terminals in 2 rows	Applicable stations 5 to 8 stations (Double), 16 stations (Single)

Note) The number of terminal blocks can be chosen regardless of station qty. Suffix the option symbol, K, when the wiring specification is special.

VQ0000





Note 1) Built-in silencer types are equipped with a 1 (P) SUP port on both D and U sides.
Note 2) 3 position needs two stations. Cylinder port is located at U side of body.

This drawing shows the case of VV5Q04-□T2-D□.

Dimensions

Equation L1 = 10.5n + 14.5, L2 = 10.5 n + 25 n: station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	25	35.5	46	56.5	67	77.5	88	98.5	109	119.5	130	140.5	151	161.5	172	182.5
L2	35.5	46	56.5	67	77.5	88	98.5	109	119.5	130	140.5	151	161.5	172	182.5	193
L3	100	112.5	125	137.5	150	150	162.5	175	187.5	200	212.5	212.5	225	237.5	250	262.5
L4	110.5	123	135.5	148	160.5	160.5	173	185.5	198	210.5	223	223	235.5	248	260.5	273

How to Order Valves

VQ 1 1 4 0 Y – 5 LO □ – C6

Series

0	VQ0000
1	VQ1000
2	VQ2000

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ (1)
H (1)	High pressure type	(1.5 W) ○	—
Y (2)	Low wattage type	(0.5 W) ○	—

Note 1) For power consumption of AC type, refer to page 2-4-36.
Note 2) Except double (latching).

Type of actuation

		VQ0000	VQ1000	VQ2000
1	2 position single	●	●	●
2	2 position double (Latching)	●	●	●
3	3 position closed center	● (1)	● (2)	—
4	3 position exhaust center	● (1)	● (2)	—
5	3 position pressure center	—	● (2)	—

Note 1) 2 stations space are occupied.
Note 2) L plug connector is used for AC.

Coil voltage

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

Note 1) For negative common specifications, refer to "Option" on page 2-4-69.
Note 2) Connector assembly will be required when the T kits add a valve. For model no., refer to "Option" on page 2-4-69.

How to Order Manifold Assembly

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

Cylinder port

Symbol	Port size	VQ0000	VQ1000	VQ2000
C3	With One-touch fitting for ø3.2	●	●	—
C4	With One-touch fitting for ø4	●	●	●
C6	With One-touch fitting for ø6	—	●	●
C8	With One-touch fitting for ø8	—	—	●
M5	M5 thread	●	●	—

Note) For inch-size One-touch fittings, refer to "Option" on page 2-4-69.

Manual override

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

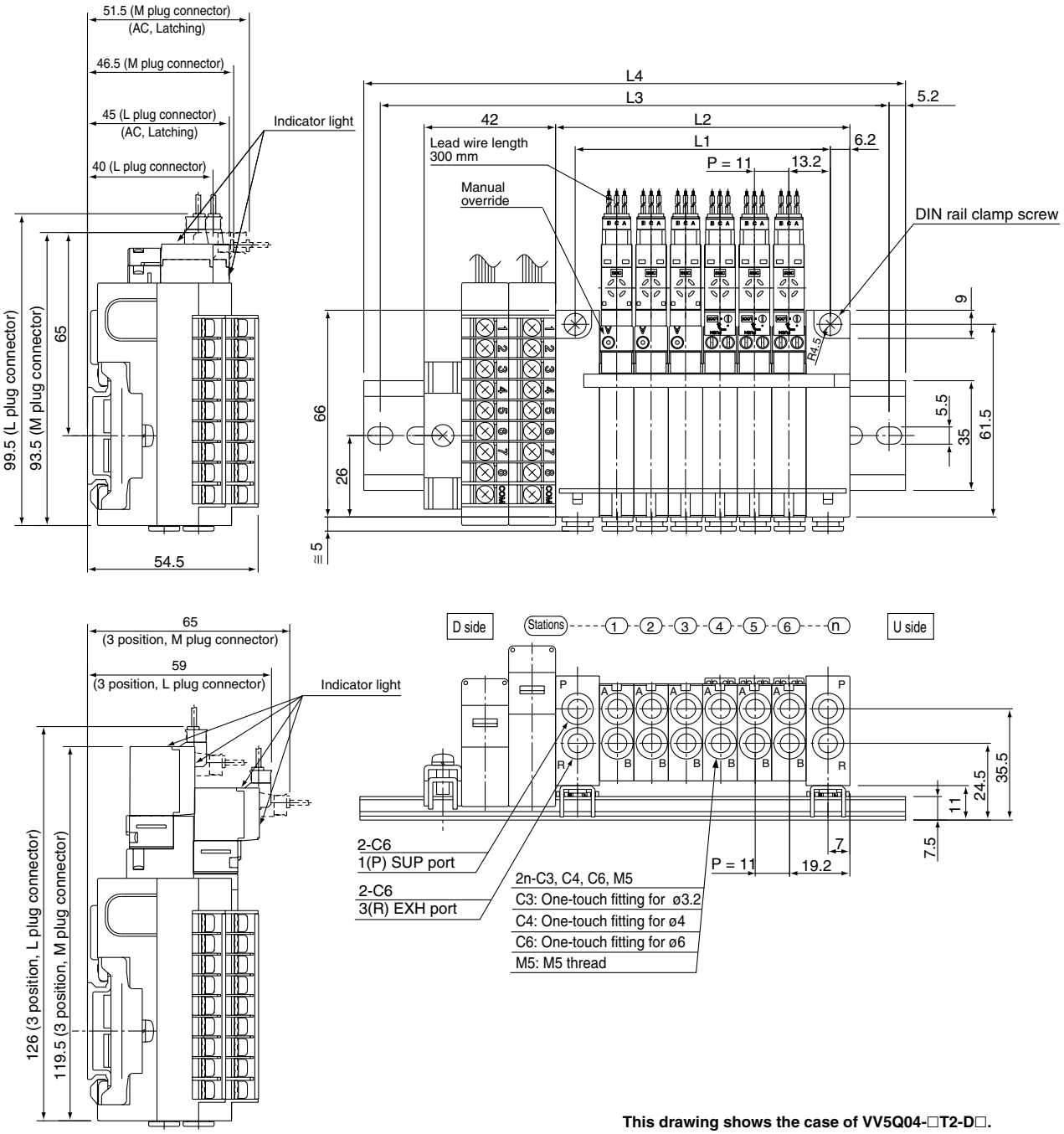
Note 1) All double latching valves of VQ0000 are non-locking push type. (Refer to page 2-4-66.)
Note 2) A manual override for pilot valve is provided to the standard model for double type.

Electrical entry

LO	L plug connector without connector
MO	M plug connector without connector

Note) Plug connector and lead wire layers are attached to the manifold.

VQ1000



This drawing shows the case of VV5Q04-□T2-D□.

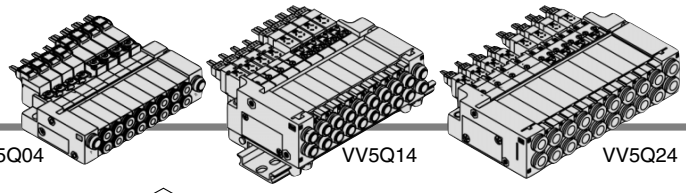
3 position

Dimensions

Formula L1 = 11n + 15.5, L2 = 11 n + 28 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	26.5	37.5	48.5	59.5	70.5	81.5	92.5	103.5	114.5	125.5	136.5	147.5	158.5	169.5	180.5	191.5
L2	39	50	61	72	83	94	105	116	127	138	149	160	171	182	193	204
L3	112.5	112.5	125	137.5	150	162.5	175	187.5	200	200	212.5	225	237.5	250	262.5	275
L4	123	123	135.5	148	160.5	173	185.5	198	210.5	210.5	223	235.5	248	260.5	273	285.5

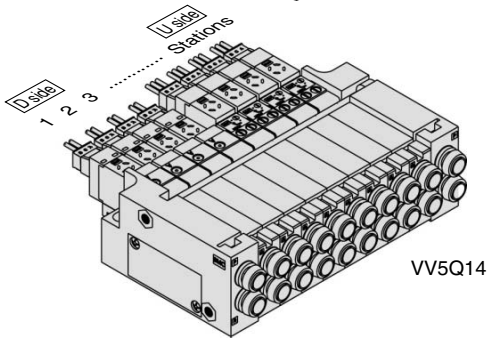
C VQ0000/1000/2000 Kit (Connector)



● Standard with lead wires connected to each valve individually.
● Maximum stations are 16.

Manifold Specifications

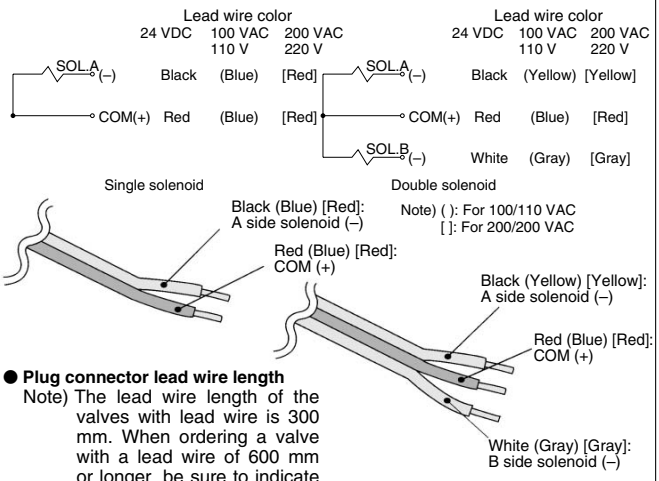
Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ0000	Side	C6	C3, C4, M5	Max. 16 stations
VQ1000	Side	C6	C3, C4, C6, M5	Max. 16 stations
VQ2000	Side	C8	C4, C6, C8	Max. 16 stations



VV5Q14

● Wiring specifications: Positive COM

● The lead wires are connected to the valve as shown below. Connect each to the power supply side.



● Plug connector lead wire length

Note) The lead wire length of the valves with lead wire is 300 mm. When ordering a valve with a lead wire of 600 mm or longer, be sure to indicate the model number of the valve without connector and connector assembly.

Example) Lead wire length 1000 mm
VQ1140-5LO-C6··· 3 pcs.
AXT661-14A-10 ··· 3 pcs.

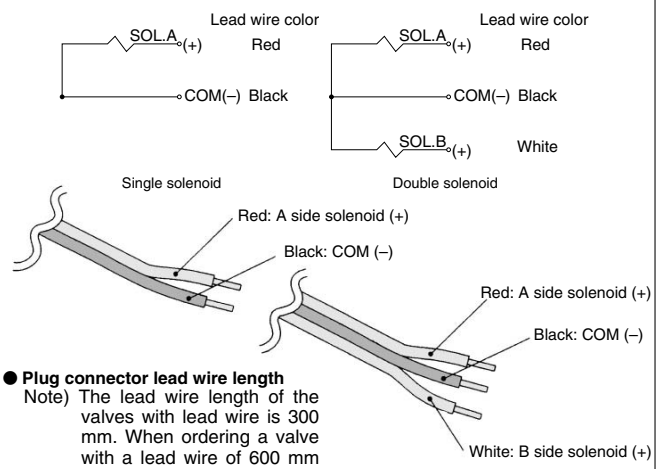
Connector Assembly Part No. (For DC)

Lead wire length	Single/3 position part no.	Double solenoid part no.
Socket only (3 pcs.)	AXT661-12A	
300 mm	AXT661-14A	AXT661-13A
600 mm	AXT661-14A-6	AXT661-13A-6
1000 mm	AXT661-14A-10	AXT661-13A-10
2000 mm	AXT661-14A-20	AXT661-13A-20
3000 mm	AXT661-14A-30	AXT661-13A-30

Note 1) 100/110 VAC for single: AXT661-31A-∗; for double: AXT661-32A-∗
200/220 VAC for single: AXT661-34A-∗; for double: AXT661-35A-∗
∗ are in accordance with the above table.
Note 2) 3 position type requires 2 sets for A side and B side.

● Wiring specifications: Negative COM (Option)

● The lead wires are connected to the valve as shown below. Connect each to the power supply side.



● Plug connector lead wire length

Note) The lead wire length of the valves with lead wire is 300 mm. When ordering a valve with a lead wire of 600 mm or longer, be sure to indicate the model number of the valve without connector and connector assembly.

Example) Lead wire length 1000 mm
VQ1140-5LO-C6···3 pcs.
AXT661-14A-10 ···3 pcs.

Connector Assembly Part No.

Lead wire length	Single/3 position part no.	Double solenoid part no.
Socket only (3 pcs.)	AXT661-12A	
300 mm	AXT661-14AN	AXT661-13AN
600 mm	AXT661-14AN-6	AXT661-13AN-6
1000 mm	AXT661-14AN-10	AXT661-13AN-10
2000 mm	AXT661-14AN-20	AXT661-13AN-20
3000 mm	AXT661-14AN-30	AXT661-13AN-30

Note 1) When using the negative common specifications, use valves for negative common.
Note 2) 3 position type requires 2 sets for A side and B side.

How to Order Manifold

VV5Q 1 4 – 08 C – N

Series

0	VQ0000
1	VQ1000
2	VQ2000

Manifold

4	Plug lead unit/Flip

Stations

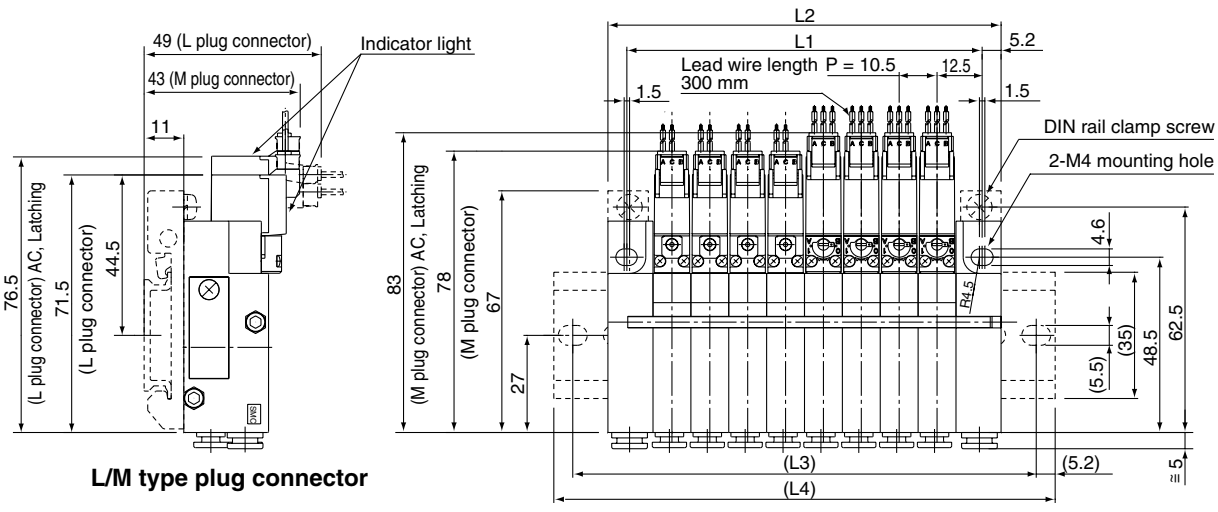
01	1 station
⋮	⋮
16	16 stations

Option

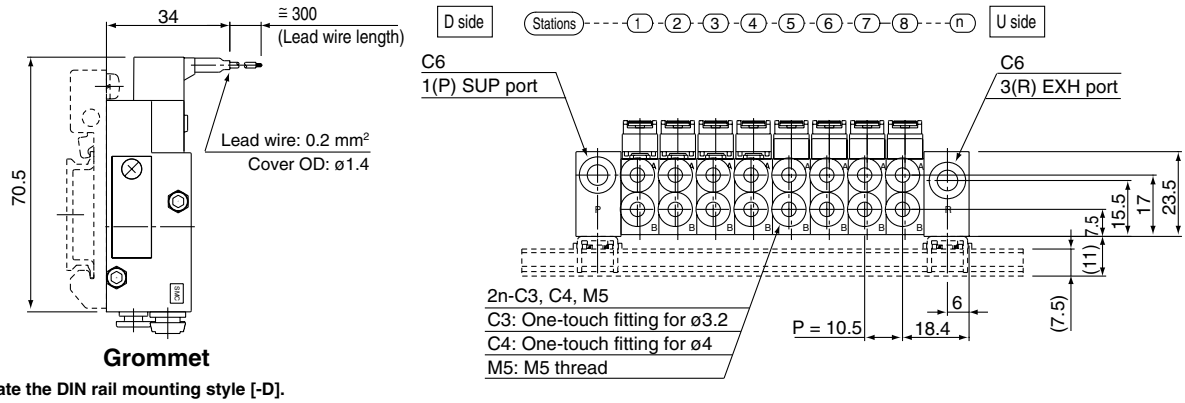
Nil	None
D	DIN rail mounting style
N	With name plate
S	Built-in silencer, direct exhaust

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

VQ0000



L/M type plug connector



Grommet

The broken lines indicate the DIN rail mounting style [-D].

Note 1) Built-in silencer types are equipped with a 1 (P) SUP port on both D and U sides.

Note 2) 3 position needs two stations.
Cylinder port is located at U side of body.

Dimensions

Formula L1 = 10.5n + 14.5, L2 = 10.5 n + 25 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	25	35.5	46	56.5	67	77.5	88	98.5	109	119.5	130	140.5	151	161.5	172	182.5
L2	35.5	46	56.5	67	77.5	88	98.5	109	119.5	130	140.5	151	161.5	172	182.5	193
(L3)	62.5	75	87.5	87.5	100	112.5	125	137.5	150	150	162.5	175	187.5	200	212.5	212.5
(L4)	73	85.5	98	98	110.5	123	135.5	148	160.5	160.5	173	185.5	198	210.5	223	223

How to Order Valves

VQ 1 1 4 0 Y – 5 L [ ] – C6

Series

0	VQ0000
1	VQ1000
2	VQ2000

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ (1)
H (2)	High pressure type	(1.5 W) ○	—
Y (2)	Low wattage type	(0.5 W) ○	—

Note 1) For power consumption of AC type, refer to page 2-4-36.

Note 2) Except double (latching)

Type of actuation

		VQ0000	VQ1000	VQ2000
1	2 position single	●	●	●
2	2 position double (Latching)	●	●	●
3	3 position closed center	● (1)	● (2)	—
4	3 position exhaust center	● (1)	● (2)	—
5	3 position pressure center	—	● (2)	—

Note 1) 2 stations space are occupied.
Note 2) L plug connector is used for AC.

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) For negative common specifications, refer to "Option" on page 2-4-69.

How to Order Manifold Assembly

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

Cylinder port

Symbol	Port size	VQ0000	VQ1000	VQ2000
C3	With One-touch fitting for ø3.2	●	●	—
C4	With One-touch fitting for ø4	●	●	●
C6	With One-touch fitting for ø6	—	●	●
C8	With One-touch fitting for ø8	—	—	●
M5	M5 thread	●	●	—

Note) For inch-size One-touch fittings, refer to "Option" on page 2-4-69.

Manual override

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

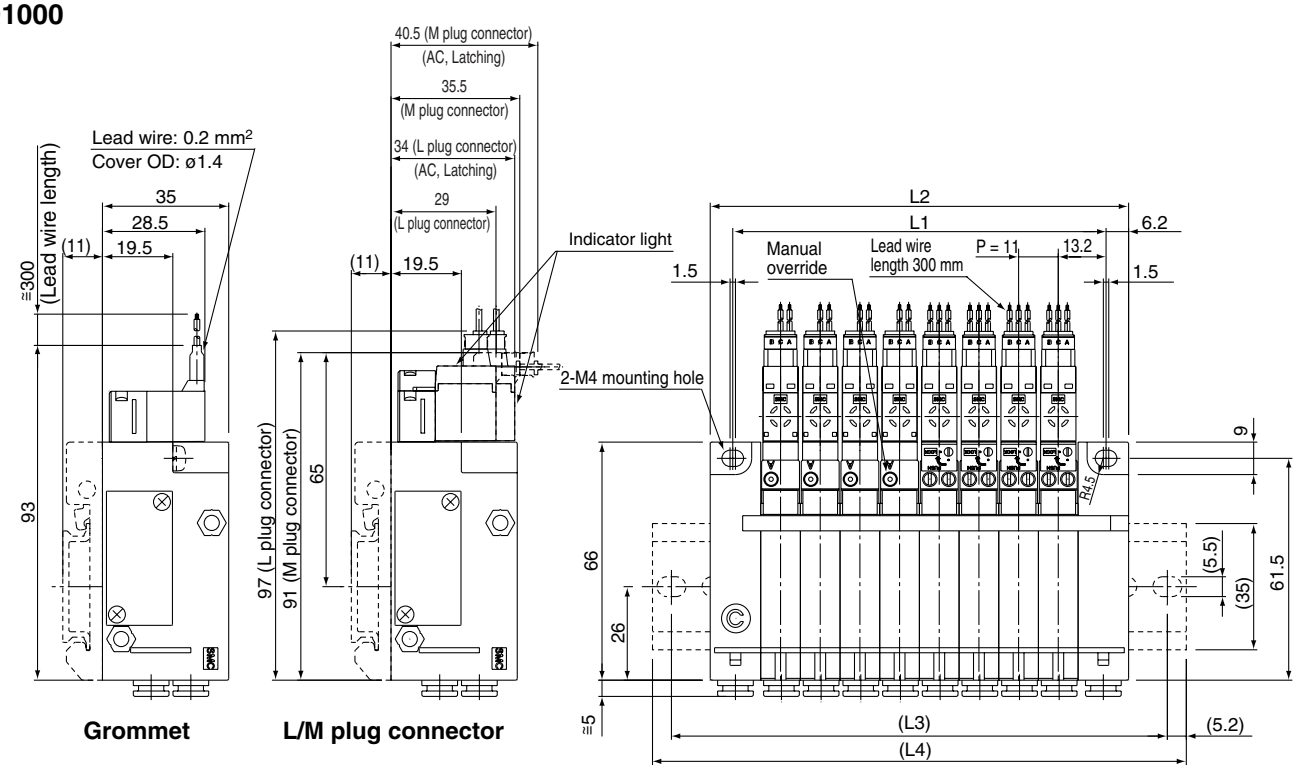
Note 1) All double latching valves of VQ0000 are non-locking push type.

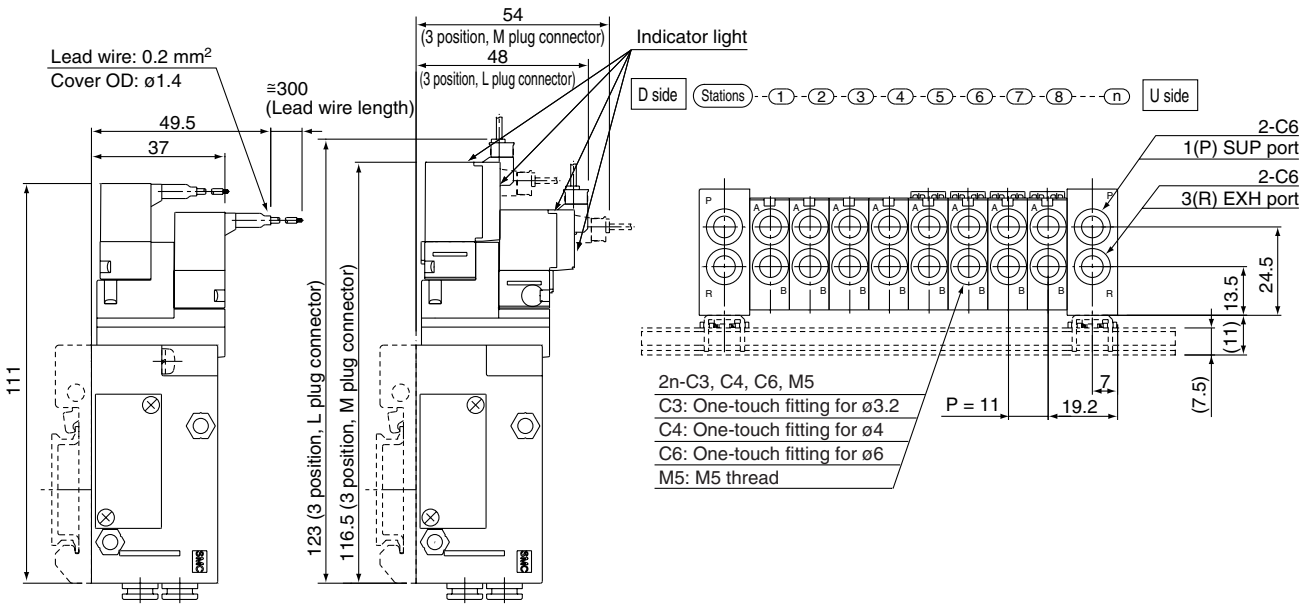
Note 2) A manual override for pilot valve is provided to the standard model for double type.

Electrical entry

G	Grommet (Except latching and 100/110 VAC type)
L	L plug connector with lead wire
LO	L plug connector without connector
M	M plug connector with lead wire
MO	M plug connector without connector

VQ1000



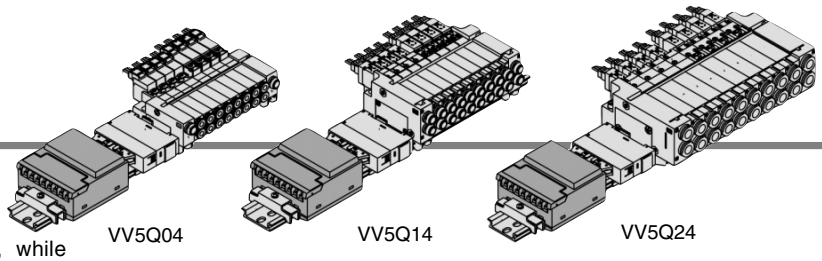


Dimensions

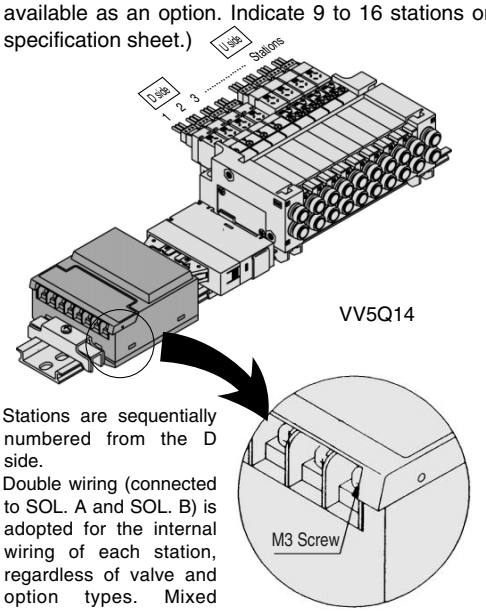
Formula L1 = 11n + 15.5, L2 = 11n + 28 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	26.5	37.5	48.5	59.5	70.5	81.5	92.5	103.5	114.5	125.5	136.5	147.5	158.5	169.5	180.5	191.5
L2	39	50	61	72	83	94	105	116	127	138	149	160	171	182	193	204
(L3)	62.5	75	87.5	100	112.5	125	125	137.5	150	162.5	175	187.5	200	212.5	212.5	225
(L4)	73	85.5	98	110.5	123	135.5	135.5	148	160.5	173	185.5	198	210.5	223	223	235.5

S VQ0000/1000/2000 Kit (Serial transmission unit)



- The serial transmission system reduces wiring work, while minimizing wiring and saving space.
- The system comes in an type SA (generic for small scale systems) for equipment with a small number of I/O points, or 32 points max., type SB (applicable to Mitsubishi Electric models) for controlling 512 I/O points max., type SC (applicable to OMRON models), and type SD (applicable to SHARP models; 504 points max.).
- Maximum 8 stations, optional 16 stations possible. (16 stations available as an option. Indicate 9 to 16 stations on the manifold specification sheet.)

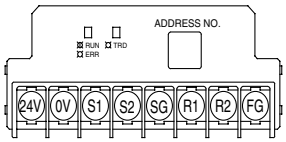
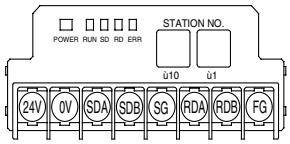


- Stations are sequentially numbered from the D side.
- Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types. Mixed single and double wiring is available as an option. For details, refer to page 2-4-69.

Item	Specifications
External power supply	24 VDC±10%
Current consumption (Internal unit)	SA, SB, SD, SFI, SH: 0.1 A/SC: 0.3 A

Manifold Specifications

Series	Porting specifications			Applicable stations
	Port location	Port size		
		P, R	A, B	
VQ0000	Side	C6	C3, C4, M5	Max. 16 stations
VQ1000	Side	C6	C3, C4, C6, M5	Max. 16 stations
VQ2000	Side	C10	C4, C6, C8	Max. 16 stations

	Type SA With general type SI unit (Series EX300)	Type SB Mitsubishi Electric Corporation MELSECNET/MINI-S3 Data Link System
Name of terminal block (LED)	 LED / Description TRD — Lighting during data reception RUN/ERR — Blinking when received data is normal; Lighting when data reception	 LED / Description POWER — Lighting when power is turned ON RUN — Lighting when data transmission with the master station is normal RD — Lighting during data reception SD — Lighting during data transmission ERR. — Lighting when reception data error occurs. Light turns off when the error is corrected.
Note	• T unit Can be connected with PLC I/O card for serial transmission. EX300-TMB1··· For models of Mitsubishi Electric Corporation EX300-TTA1··· For models of OMRON Corporation EX300-TFU1··· For models of Fuji Electric Co., Ltd. EX300-T001··· For general models ∗Up to 32 points per unit. • No. of output points, 16 points	• Master station: PLC made by Mitsubishi Electric Corporation Series MELSEC-A AJ71PT32-S3, AJ71T32-S3 A1SJ71PT32-S3 ∗Max. 64 stations, connected to remote I/O stations (Max. 512 points). • No. of output points, 16 points. No. of sta. occupied, 2 stations

∗ For details on specifications and handling, refer to the separate technical instruction manual.

How to Order Manifold

VV5Q 1 4 – 08 S A – D

Series

0	VQ0000
1	VQ1000
2	VQ2000

Manifold

4	Plug lead unit/Flip

Stations

01	1 station
⋮	⋮
08(Note)	8 station (Double)
16	16 stations (Single)

Note) As option, the max. number of stations can be increased based on special wiring specifications. For details, refer to page 2-4-69.

Model

0	Without SI unit
A	With general type SI unit (Series EX300)
B	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System
C	OMRON Corp.: SYSBUS Wire System
D	SHARP Corp.: Satellite I/O Link System
F1	NKE Corp.: Uni-wire System (16 output points)
H	NKE Corp.: Uni-wire H System

Note) Please consult with SMC for the following serial transmission kits: Matsushita Electric Works, Ltd.; Rockwell Automation, Inc.; SUNX Corporation; Fuji Electric Co., Ltd.; OMRON Corporation.

∗ The dust-protected type SI unit is applicable, too. For details, please contact SMC.

Option

D (2)	DIN rail mounting style
K (3)	Special wiring specifications (Except double wiring)
N	With name plate
S	Built-in silencer, direct exhaust (U side only)

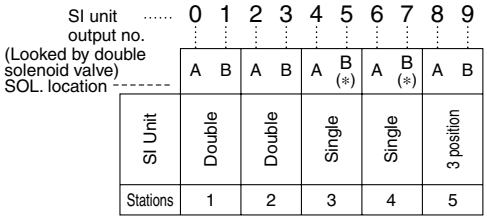
Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -DNS

Note 2) S kits are DIN rail mounting styles, so include suffix -D

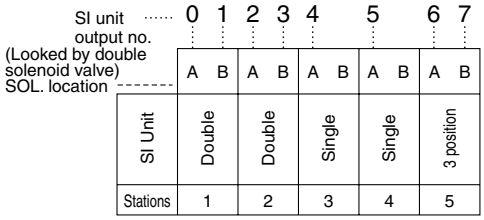
Note 3) Specify the wiring specifications in the manifold specification sheet.

● SI unit output and coil numbering

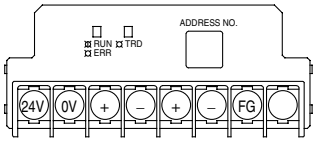
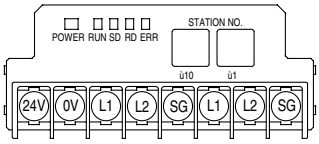
<Wiring example 1> Double wiring (Standard)



<Wiring example 2> Single/Double Mixed Wiring (Option)
Mixed wiring is available as an option.
Use the manifold specification sheet to specify.



The places of asterisk are not used.

	Type SC **OMRON Corporation** **SYSBUS Wire System**	**Type SD** **SHARP Corporation** **Satellite I/O Link System**
Name of terminal block (LED)		
	LED / Description RUN: Lights when transmission is normal and PLC is in operation mode T/R ERR: Blinks during data transmission/reception ON when transmission is abnormal.	LED / Description POWER: ON when power supply is ON RUN: Lights when power is ON and slave stations are operating normally ERROR: Lights when slave station switch setting is abnormal, communication is abnormal, PLC stopped and defective slave unit R.SET HOLD: ON for master unit control input
Note	• Master station unit: OMRON PLC SYSMAC C(CV) series Types C500-RM201 and C200H-RM201 ∗ 32 units max., transmission terminal connection (512 points max.) • No. of output points, 16 points	• Master station unit: SHARP's PLC New Satellite Series W ZW-31LM New Satellite Series JW JW-23LM, JW-31LM ∗ Max. 31 units, I/O slave stations connected (504 points max.) • No. of output points, 16 points

How to Order Valves

VQ 1 1 4 0 Y – 5 LO □ – C6

Series

0	VQ0000
1	VQ1000
2	VQ2000

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC
Nil	Standard type	(1.0 W) ○
H Note)	High pressure type	(1.5 W) ○
Y Note)	Low wattage type	(0.5 W) ○

Note) Except double (latching).

Coil voltage

5	24 VDC/With light/surge voltage suppressor

Note 1) Connector assembly will be required when the S kits add a valve.
For part nos., refer to "Option" on page 2-4-69.

Type of actuation

		VQ0000	VQ1000	VQ2000
1	2 position single	●	●	●
2	2 position double (Latching)	●	●	●
3	3 position closed center	● (1)	● (2)	—
4	3 position exhaust center	● (1)	● (2)	—
5	3 position pressure center	—	● (2)	—

Note 1) 2 stations space are occupied.
Note 2) L plug connector is used for AC.

Electrical entry

LO	L plug connector without connector
MO	M plug connector without connector

Note 1) Plug connector and lead wire layers are attached to the manifold.

How to Order Manifold Assembly

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

Cylinder port

Symbol	Port size	VQ0000	VQ1000	VQ2000
C3	With One-touch fitting for ø3.2	●	●	—
C4	With One-touch fitting for ø4	●	●	●
C6	With One-touch fitting for ø6	—	●	●
C8	With One-touch fitting for ø8	—	—	●
M5	M5 thread	●	●	—

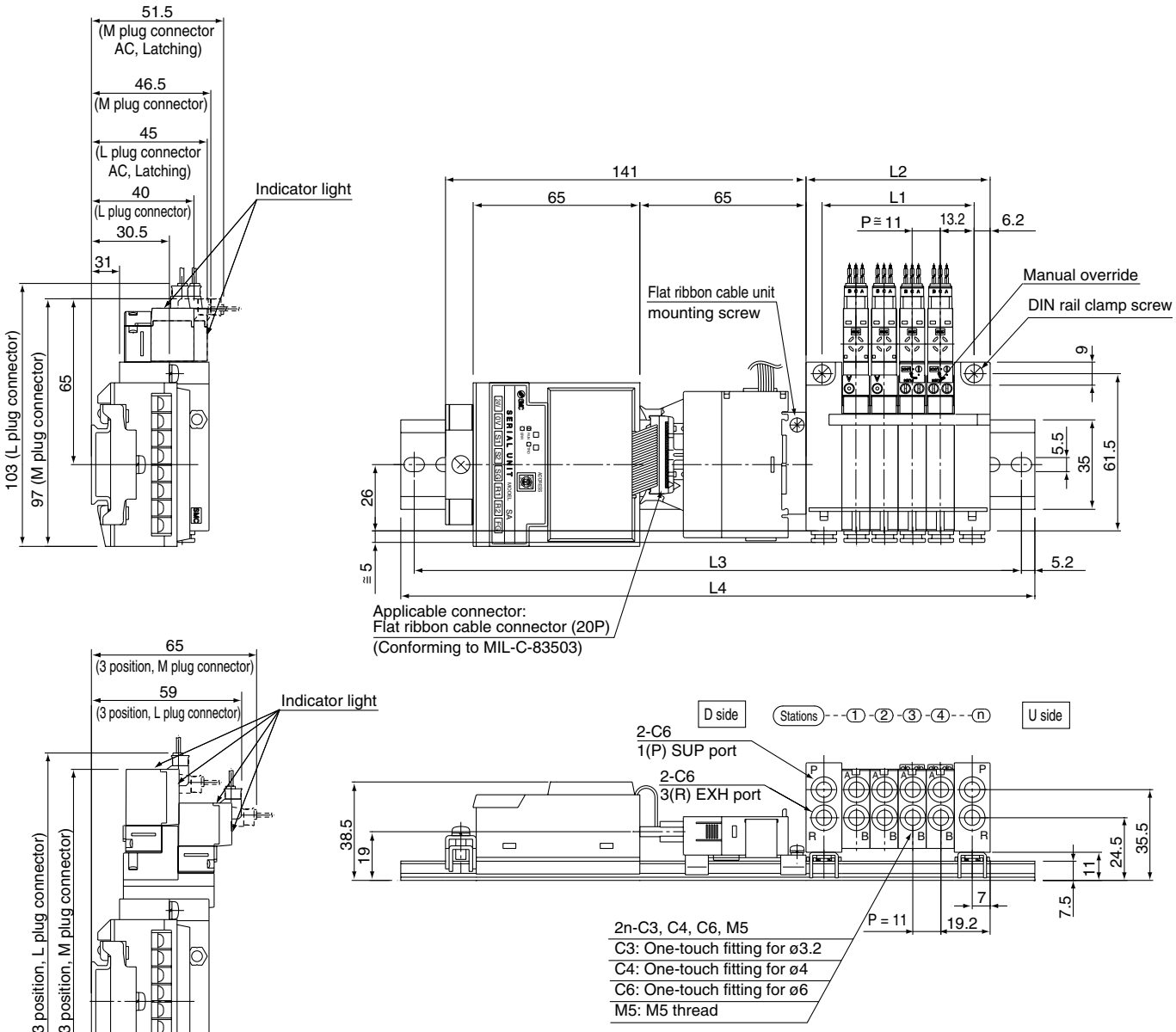
Note) For inch-size One-touch fittings, refer to "Option" on page 2-4-69.

Manual override

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

Note 1) All double latching valves of VQ0000 are non-locking push type. (Refer to page 2-4-66.)
Note 2) A manual override for pilot valve is provided to the standard model for double type.

VQ1000



3 position

Dimensions

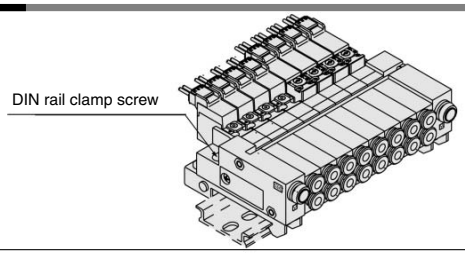
Formula L1 = 11n + 15.5, L2 = 11n + 28 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	26.5	37.5	48.5	59.5	70.5	81.5	92.5	103.5	114.5	125.5	136.5	147.5	158.5	169.5	180.5	191.5
L2	39	50	61	72	83	94	105	116	127	138	149	160	171	182	193	204
L3	212.5	212.5	225	237.5	250	262.5	275	287.5	300	300	312.5	325	337.5	350	362.5	375
L4	223	223	235.5	248	260.5	273	285.5	298	310.5	310.5	323	335.5	348	360.5	373	385.5

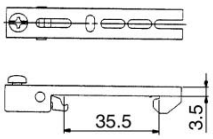
Manifold Option Parts for VQ0000

DIN rail mounting bracket
VVQ0000-57A-4

It is used for mounting a manifold on a DIN rail. The DIN rail mounted bracket is fixed to the manifold end plate.
(The specification is the same as that for the option -D.)
1 set of DIN rail mounting bracket is used for 1 manifold (2 DIN rail mounting brackets).



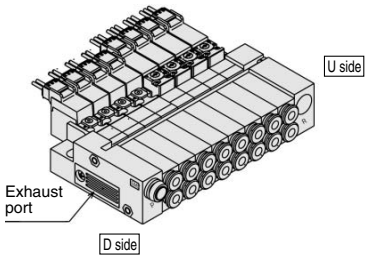
∗ When ordering assemblies incorporated with a manifold, add suffix -D to the manifold no.



Built-in silencer, Direct exhaust [-S]

This is a type with an exhaust port atop the manifold end plate. The built-in silencer exhibits an excellent noise suppression effect.
F, P, T and S kits are provided with exhaust on one side.
Note) A large quantity of drainage generated in the air source results in exhaust of air together with drainage.

• For maintenance, refer to page 2-4-67.

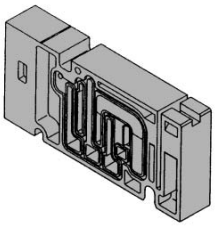


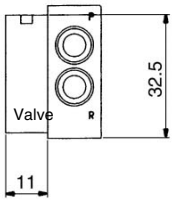
∗ When ordering assemblies incorporated with a manifold, add suffix -S to the manifold no.

Manifold Option Parts for VQ1000

Blanking plate assembly
VVQ1000-10A-4

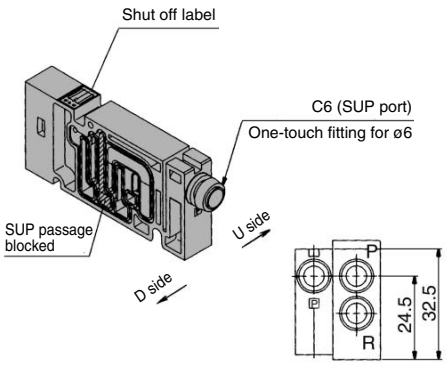
It is used when a blanking plate is mounted to a manifold in advance for possible valve mounting, etc.

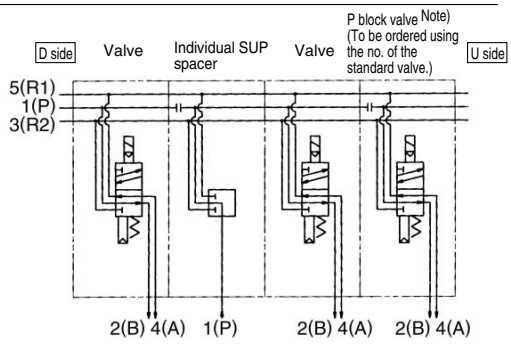




Individual SUP spacer
VVQ1000-P-4-C6

When the same manifold is to be used for different pressures, individual SUP spacers are used as SUP ports for different pressures. (One station space is occupied.) Since the SUP passage on the spacer's D side is blocked in advance, it is mounted on the D side of the valve for individual supply while blocking the valve's U side. (See the application ex.)
∗ Specify the spacer mounting position and SUP block plate mounting position on the manifold specification sheet.

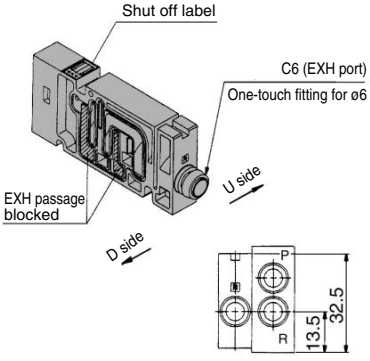


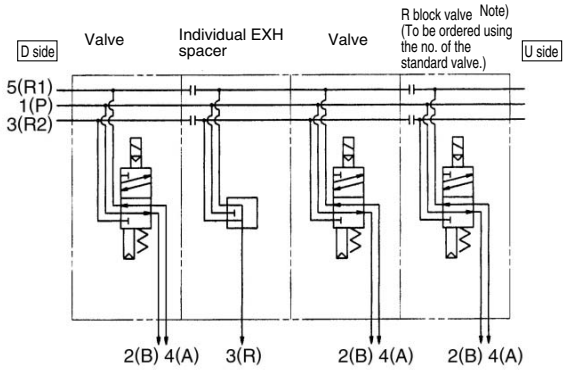


Note) P block valve is mounted in the blocking position when ordering an individual SUP spacer incorporated with a manifold.
When separately ordering an individual SUP spacer, separately order a P block valve.

Individual EXH spacer
VVQ1000-R-4-C6

When valve exhaust affects other stations due to the circuit configuration, this spacer is used for individual valve exhaust. (One station space is occupied.)
Since the EXH passage on the spacer's D side is blocked in advance, it is mounted on the D side of the valve for individual supply while blocking the valve's U side. (Refer to the application example.)
∗ Specify the spacer mounting position and EXH block plate mounting position on the manifold specification sheet.
∗ When the electrical entry is F, P, T, S kit, and if you choose the option with built-in silencer, no exhaust port will be supplied on the D side end plate.
In this case, install a spacer for individual EXH on the 1st station.





Note) R block valve is mounted in the blocking position when ordering an individual EXH spacer incorporated with a manifold.
When separately ordering an individual EXH spacer, separately order an R block valve.

Manifold Option Parts for VQ1000

P/R/PR Block valve
VQ1$^{1}_{2}$4$^{0}_{1}$-□-□□-P/R/PR

Valve no.

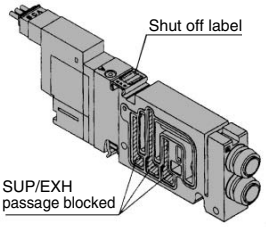
For a flip plug-in unit, block plate is built in the valve for blocking SUP and EXH passages. Since the no. is classified by the passage to be blocked, specify it by attaching the option no. to the valve no. The block valve is constructed so that D sides of SUPand EXH passages are blocked.

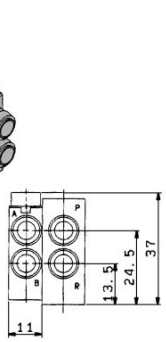
* Specify the number of stations on the manifold specification sheet.

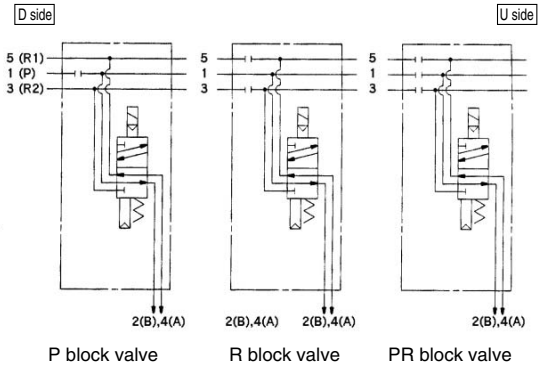
<Shut off label>

When using block plates for SUP, EXH passage, indication label for confirmation of the blocking position from outside is attached. (One label for each)

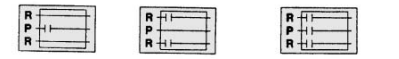
* When ordering a block plate incorporated with the manifold no., a block indication label is attached to the manifold.
* Caution on using R/PR block valve If the electrical entry is selected for an option for built-in silencer when F, P, T, S kit, there will not be the exhaust port on the D side end plate. In this case, mount an individual EXH spacer for the 1st station.







P block valve R block valve PR block valve

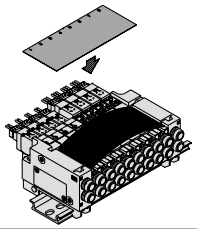


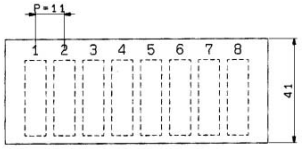
SUP passage blocked **EXH passage blocked** **SUP/EXH passage blocke**

For SUP passage block	VQ1$^{1}_{2}$4$^{0}_{1}$-□-□□-P
For EXH passage block	VQ1$^{1}_{2}$4$^{0}_{1}$-□-□□-R
For SUP/EXH passage block	VQ1$^{1}_{2}$4$^{0}_{1}$-□-□□-PR

Name plate [-N4]
VVQ1000-N4-Station (1 to Max. stations)

It is a transparent resin plate for placing a label that Indicates solenoid valve function, etc.
Insert it into the groove on the side of the end plate and bend it as shown in the figure.

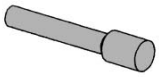


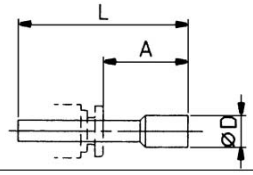


* When ordering assemblies incorporated with manifold, suffix [-N] to the manifold no.

Blanking plug
KQ2P- $^{23}_{04}_{06}$

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



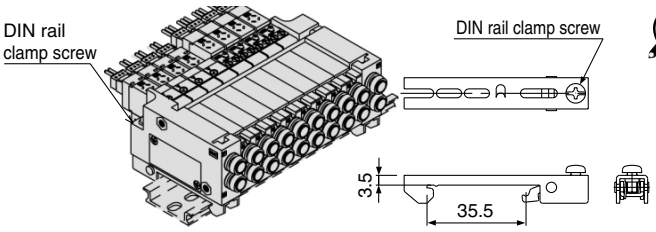


Dimensions

Applicable fittings size ød	Model	A	L	D
3.2	**KQ2P-23**	16	31.5	5
4	**KQ2P-04**	16	32	6
6	**KQ2P-06**	18	35	8

DIN rail mounting bracket
VVQ1000-57A-4

It is used for mounting a manifold on a DIN rail. The DIN rail mounted bracket is fixed to the manifold end plate. (The specification is the same as that for the option -D.)
1 set of DIN rail mounting bracket is used for 1 manifold (2 DIN rail mounting brackets).

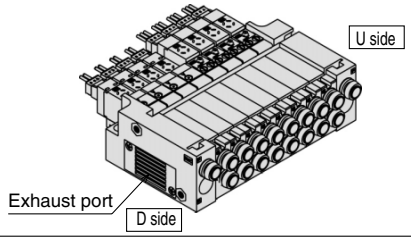


* When ordering assemblies incorporated with manifold, add suffix -D to the manifold no.

Built-in silencer, Direct exhaust [-S]

This is an exhaust port on top of the manifold end plate. The built-in silencer exhibits an excellent noise suppression effect. F, P, T and S kits are provided with exhaust on one side.
Note) A large quantity of drainage generated in the airsource results in exhaust of air together with drainage.

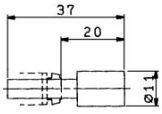
• For maintenance, refer to page 2-4-67.

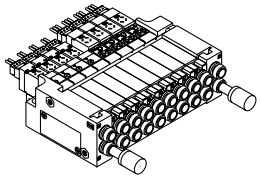


* When ordering assemblies incorporated with manifold, add suffix -S to the manifold no.

Silencer (For EXH port)

This is inserted into the centralized type EXH port (One-touch fitting).





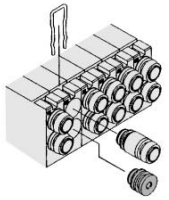
Dimensions

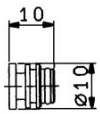
Series	Applicable fittings size ød	Model	A	L	D	Effective area (mm²)	Noise reduction (dB)
VQ1000	6	AN103-X233	20	37	11	7	25

Port plug
VVQ0000-58A

The plug is used to block the cylinder port when using a 4 port valve as a 3 port valve.
When ordering it incorporated with a manifold, suffix A or B, the symbol of the plug port, to the valve no.

Example) **VQ1140-5L-C6-A**
A port, Plug



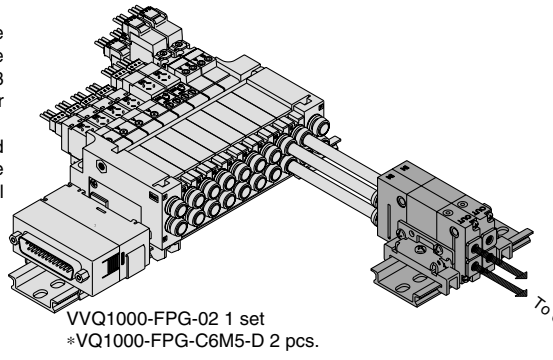


Manifold Option Parts

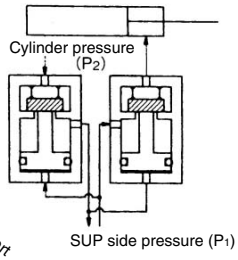
Double check block (Separated type): For VQ0000/1000

VQ1000-FPG-□□

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



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

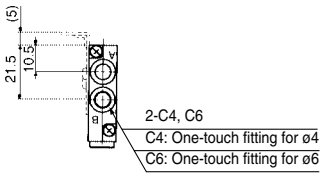


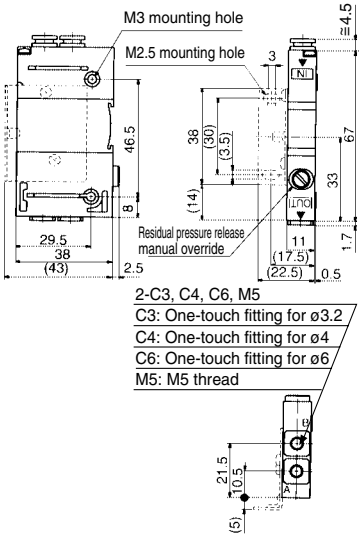
Specifications

Max. operating pressure	0.8 MPa
Min. operating pressure	0.15 MPa
Ambient and fluid temperature	–5 to 50° C
Flow characteristics: C	0.60 dm³/(s·bar)
Max. operating frequency	180 CPM

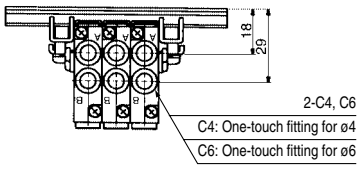
Note) Based on JIS B 8375-1981 (Supply pressure: 0.5 MPa)

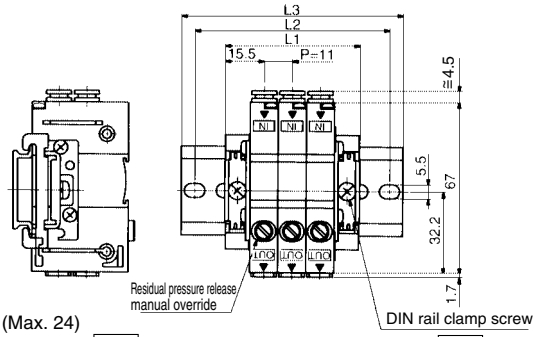
Dimensions





Manifold



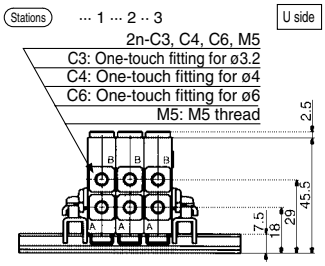


Dimensions Formula L1 = 11n + 20 n: Station (Max. 24)

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

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

D side Stations ··· 1 ·· 2 ·· 3 U side



How to Order

Double check block

VQ1000-FPG- C4 M5 F

IN side port size

C4	One-touch fitting for ø4
C6	One-touch fitting for ø6

OUT side port size

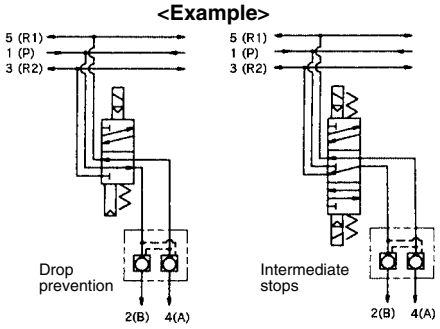
M5	M5 thread
C3	One-touch fitting for ø3.2
C4	One-touch fitting for ø4
C6	One-touch fitting for ø6

Option

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

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

<Example>



Manifold

VVQ1000-FPG- 06

Stations

01	1 station
⋮	⋮
16	16 stations

<Example>
VVQ1000-FPG-06····6 types of manifold
∗VQ1000-FPG-C4M5-D, 3 sets
∗VQ1000-FPG-C6M5-D, 3 sets } Double check block

⚠ Caution

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

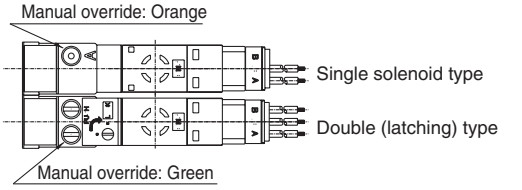
⚠ Precautions

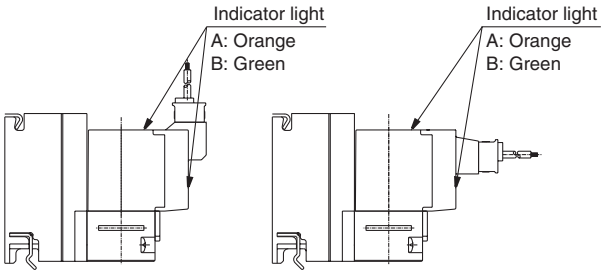
Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 2-9-2.

Light/Surge Voltage Suppressor

⚠ Caution

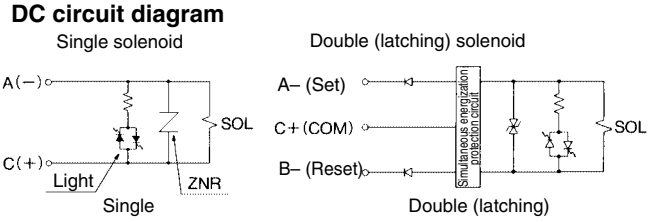
The lighting positions are concentrated on one side for both single solenoid and double (latching) type. In the double (latching) type, A side and B side energization are indicated by two colors which match the colors of the manual overrides.





M plug connector **L plug connector**

DC circuit diagram



Note 1) • A-side energization: A light (orange) illuminates.
• B-side energization: B light (green) illuminates.
• Equipped with a wiring error prevention (stop diode) mechanism and a surge absorption (ZNR/surge absorption diode) machanism.

Note 2) Applicable to negative COM specification models.

Note 3) In the case of double (latching), the electromagnetic valve channel is, A–(set): P → A, B → R, B–(reset): P → B, A → R.

Double (Latching solenoid) Type

⚠ Caution

Different from the conventional double solenoid, the double type uses a latching (self-holding system) solenoid. Although the appearance is the same as the single solenoid, it is constructed so that the movable iron core in the solenoid is held in the ON position on A and B sides by instantaneous energization (20 ms or more).

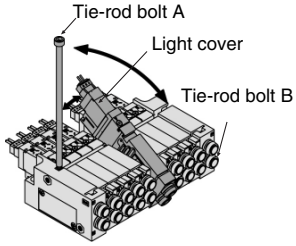
The usage and function is the same as the double solenoid.

<Special Cautions for Latching Solenoid>

1. Select the circuit in which ON and OFF signals are not energized simultaneously.
2. 20 ms energization time is necessary for self-holding.
3. Avoid using the latching solenoid valves in environments where impact or collisions with the valve might occur. Also, do not use in places where strong magnetic fields are present.
4. Even though the armature in the solenoid of this valve is held on to B side, ON position (Reset), verify either A side, ON position or B side, ON position by energizing prior to use.
5. After manual operation, the main valve will return to its original position. Manual override on the pilot valve side can retain its switching position after manipulation.
6. Please contact SMC for long-term energization applications.
7. If the metal seal type goes down below the minimum operating pressure of supply air (0.1 MPa or less), the main valve will get back the home position. (B side ON position) Therefore, in the event of shutting the supply air or applying the air with being A side ON position remained, cylinder may be pulsated. In the event of manipulating the supply air, the valve's switching position has to be set in the home position side (B side ON position side).

How to Mount/Remove Solenoid Valve

⚠ Caution



<Procedure>

How to Remove

1. Loosen tie-rod bolt B. (Two to four turns)
2. After fully loosening the tie-rod bolt, take off bolt A upward as shown above.
3. Slide the valves aside to make a 1 mm clearance between the valve to be taken off and the others. As shown above, remove the whole valve while holding up the (a) side. (Avoid rough handing of the connector.)

Mounting

Reverse the sequence of steps above to remount.

Tighten the tie-rod bolts with the tightening torque at the right table while using caution not to tighten the only one side unevenly.

Torque Applied to Tie-rod Bolt

VQ0000	0.5 to 0.7 N·m
VQ1000	1.0 to 1.4 N·m
VQ2000	1.0 to 1.4 N·m

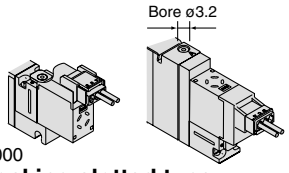
Note) Be careful not to push on the light cover while mounting/removing the valve.

Double (Latching solenoid) Type

⚠ Warning

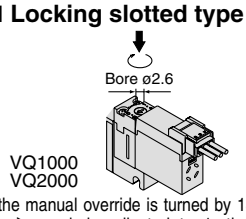
Without an electric signal for the solenoid valve the manual override is used for switching the main valve.

■ Push type (Tool required)

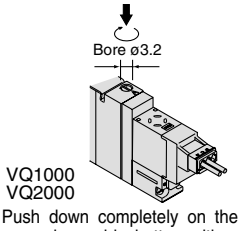


Push down on the manual override button with a small screwdriver until it stops. Release the screwdriver and the manual override will return.

■ Locking slotted type

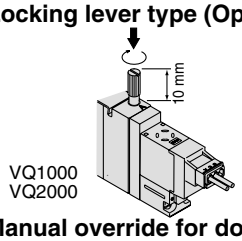


If the manual override is turned by 180° clockwise and the ▶ mark is adjusted to 1, then pushed in the direction of an arrow (↓), it will be locked in the ON state. If the manual override is turned by 180° counterclockwise and ▶ mark is adjusted to 0, locking will be released and the manual override will return.



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.

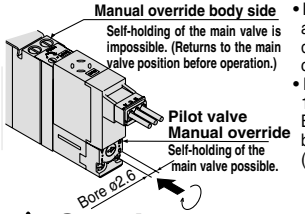
■ Locking lever type (Option)



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.

■ Manual override for double (latching) type

In the case of a double (latching) type, a manual override is provided not only on the body side but to the pilot as a standard. (VQ0000: Pilot valve only). After manual operation, the main valve of the manual on the body side returns to the position before the manual operation, however, the pilot valve manual override maintains the change-over position.



- If the manual override is turned by 180° clockwise and the ▶ mark is adjusted to A, then pushed in the direction of an arrow (⇕), it will be back to the reset condition. (passage P → A)
- If the manual override is turned by 180°counterclockwise and the ▶ mark is adjusted to B, then pushed in the direction of an arrow (⇕), it will be back to the reset condition. (passage P → B) (It is in the reset state at the time of shipment.)

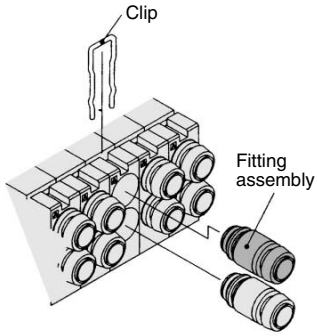
⚠ Caution

Do not apply excessive torque when turning the locking type manual override. (0.1 N·m or less)

Replacement of Cylinder Port Fittings

⚠ Caution

The cylinder port fittings are a cassette for easy replacement. (Except VQ1000)
The fittings are blocked by a clip inserted from the top of the valve. Remove the clip with a screwdriver to remove fittings. For replacement, insert the fitting assembly until it strikes against the inside wall and then re-insert the clip to the specified position.



Applicable tubing O.D	Fitting assembly part no.	
	VQ1000	**VQ2000**
Applicable tubing ø3.2	VVQ1000-50A-C3	—
Applicable tubing ø4	VVQ1000-50A-C4	VVQ1000-51A-C4
Applicable tubing ø6	VVQ1000-50A-C6	VVQ1000-51A-C6
Applicable tubing ø8	—	VVQ1000-51A-C8

Purchasing order is available in units of 10 pieces.

Caution

1. Protect O-rings from scratches and dust to prevent air leakage.
2. The tightening torque for inserting fittings to the M5 thread assembly should be 0.8 to 1.4 N·m

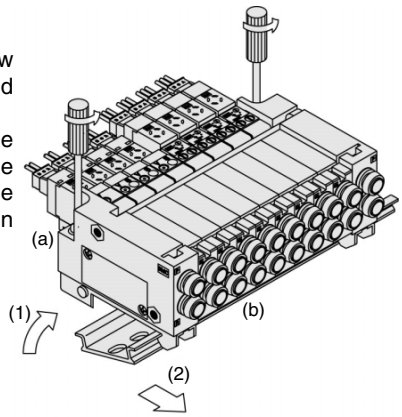
Mounting/Removing from the DIN Rail

⚠ Caution

<Procedure>

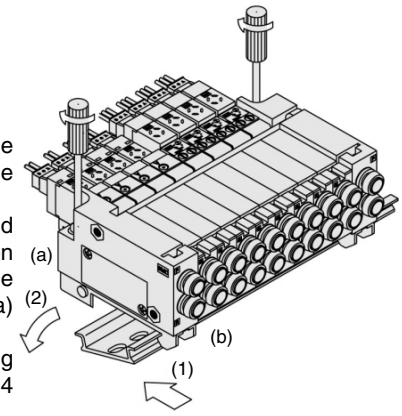
How to Remove

1. Loosen the clamp screw on side (a) of the end plate on both sides.
2. Lift side (a) of the manifold base and slide the end plate in the direction of (2) shown in the figure to remove.



Mounting

1. Hook side (b) of the manifold base on the DIN rail.
2. Press down side (a) and mount the end plate on the DIN rail. Tighten the clamp screw on side (a) of the end plate.
   The proper tightening torque for screws is 0.4 to 0.6 N·m.



How to Calculate the Flow Rate

For obtaining the flow rate, refer to pages 2-1-8 to 2-1-11.

Built-in Silencer Replacement Element

⚠ Caution

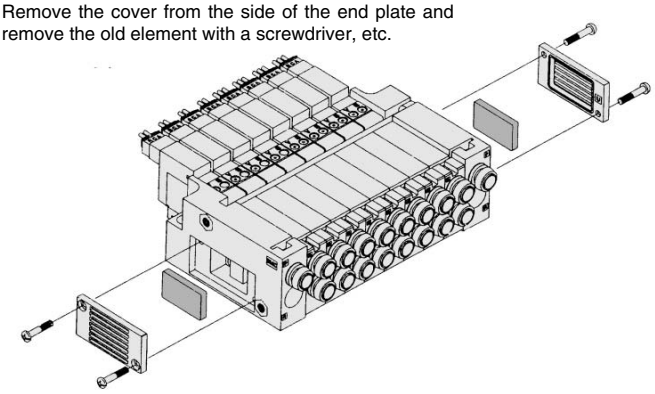
A silencer element is incorporated in the end plate on both sides of the manifold base. A dirty and choked element may reduce cylinder speed or cause malfunction. Clean or replace the dirty element.

Element Part No.

Type	Element part no.		
	VQ0000	**VQ1000**	**VQ2000**
Built-in silencer, direct exhaust (-S)	VVQ0000-82A-4	VVQ1000-82A-4	VVQ2000-82A-4

∗ The minimum order quantity is 10 pcs.

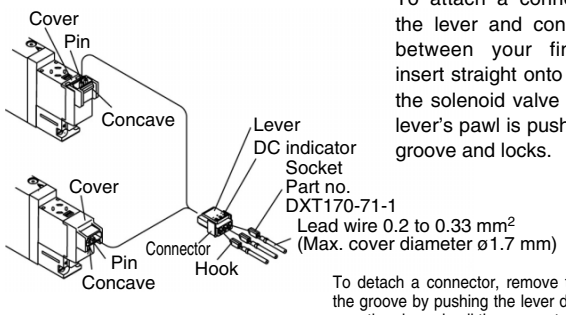
Remove the cover from the side of the end plate and remove the old element with a screwdriver, etc.



How to Use Plug Connector

⚠ Caution

Attaching and detaching connectors

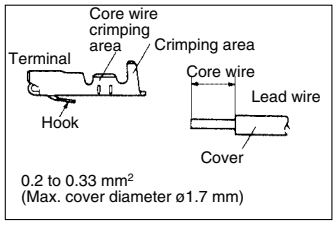


To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.

To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb, and pull the connector straight out.

Crimping the lead wire and socket

Peel 3.2 to 3.7 mm of the tip of lead wire, enter the core wires and press contact it by a press tool. Be careful so that the cover of lead wire does not enter into the core press contacting part.



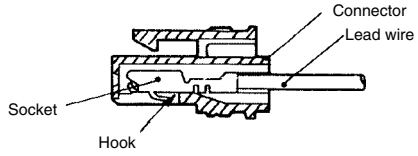
Attaching and detaching lead wires with sockets

Attaching

Insert a socket in the square hole (Indicated as +, –) of connector, push in the lead wire and lock by hanging the hook of socket to the seat of connector. (Pushing-in can open the hook and lock it automatically.) Then confirm the lock by lightly pulling on the lead wire.

Detaching

To detach a socket from a connector, pull out the lead wire while pressing the socket's hook with a stick having a thin tip (approx. 1 mm). If the socket will be used again, first spread the hook outward.

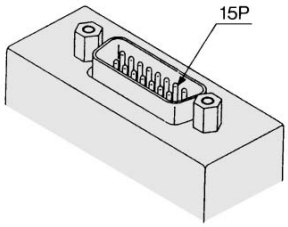


Option

Different Number of Connector Pins

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

F kit (D-sub connector) 15 pins



How to order manifold

VV5Q14 — 06 F SA — D

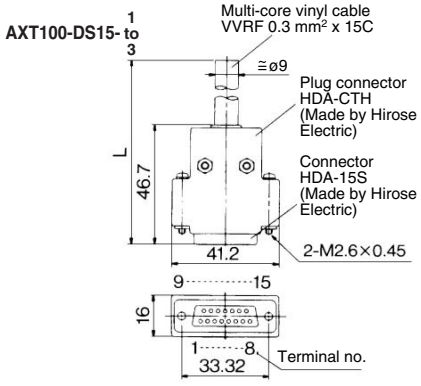
- 06 → Stations
- SA → Kit/Electrical entry
- D → Option

How to Order
D-sub connector, 15 pins
Connector location–Side (horizontal)
Without cable

Pins \ Location	Top entry		Side entry	
15P (Max. 7 stations)	Kit F	UA	Kit F	SA

Wiring specifications

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



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

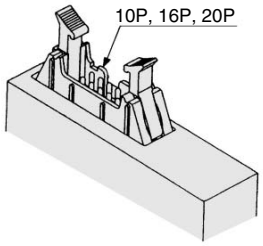
Terminal no.	Lead wire color	Dot marking
1	Black	None
2	Brown	None
3	Red	None
4	Orange	None
5	Yellow	None
6	Pink	None
7	Blue	None
8	Purple	White
9	Gray	Black
10	White	Black
11	White	Red
12	Yellow	Red
13	Orange	Red
14	Yellow	Black
15	Pink	Black

D-sub Connector Cable Assembly

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

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

P kit (Flat ribbon cable connector) 10 pins, 16 pins, 20 pins



How to order manifold

VV5Q14 — 06 P SC — D

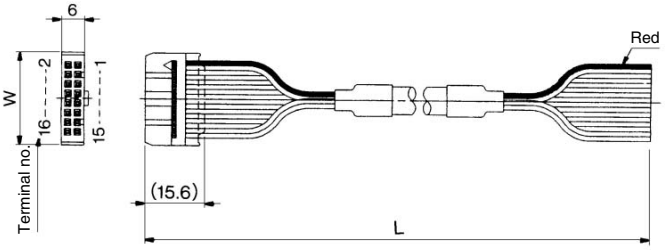
- 06 → Stations
- SC → Kit/Electrical entry
- D → Option

How to Order
Flat ribbon cable, 20 pins
Connector location–Side (Horizontal)
Without cable

Pins \ Location	Top entry		Side entry	
10P (Max. 4 stations)	Kit P	UA	Kit P	SA
16P (Max. 7 stations)		UB		SB
20P (Max. 8 stations)		UC		SC

Wiring Specifications

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



Flat Ribbon Cable Assembly

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

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

Special Wiring Specifications

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

1. How to order valves

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

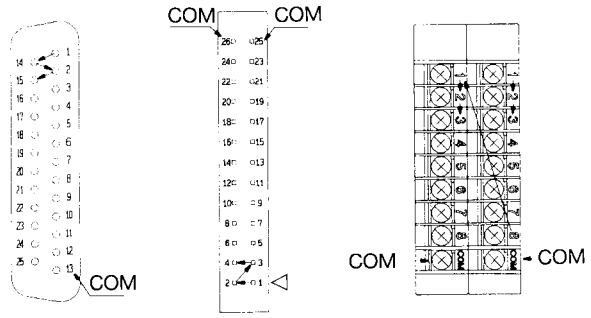
Example)

VV5Q14-09FS0-D K S

Others, option symbols: to be indicated alphabetically.

2. Wiring specifications

Connector terminal numbers are connected from solenoid station 1 on the A side in the order indicated by the arrows without skipping any terminal numbers.



F kit
D-sub connector (25P)

P kit
Flat ribbon cable connector (26P)

T kit
Terminal block (16 terminals)

3. Max. number of stations

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

kit	F kit (D-sub connector)		P kit (Flat ribbon cable connector)				T kit (Terminal block)		S kit (Serial)
Type	F⇅□ 25P	F⇅A 15P	P⇅□ 26P	P⇅C 20P	P⇅B 16P	P⇅A 10P	T1	T2	S□
Max. points	Note) 16	14	Note) 16	Note) 16	14	8	8	16	16

Note) Due to the limitation of internal wiring.

Negative Common Specifications

Specify the valve model no. as shown below for negative COM specification. The standard manifold no. can be used. Please contact SMC for negative COM S kit.

How to order negative COM valves

VQ1140 N − 5LO − C6

Negative common specifications

Inch-size One-touch Fittings

Refer to following model no. for inch-size One-touch fittings.

How to order manifold

VV5Q14 − 08FSO − DN − 00T

P, R port size

VQ0000	ø1/4"
VQ1000	ø1/4"
VQ2000	ø5/16"

How to order valves

VQ1140 − 5M − N7

Cylinder port

Symbol		N1	N3	N7	N9
Applicable tubing O.D. (Inch)		ø1/8"	ø5/32"	ø1/4"	ø5/16"
A, B port	**VQ0000**	○	○	—	—
	VQ1000	—	○	○	—
	VQ2000	—	○	○	○

Plug Connector Assembly Model

Connector assembly will be required when the F, P, T, S kits add a valve.
Specify the type of valve and connector assembly.

Connector Assembly Part No.

Specifications		Part no.
Single (2-wire)	Positive common	AXT661-14A-F
	Negative common	AXT661-14AN-F
Double (latching) (3-wire)	Positive common	AXT661-13A-F
	Negative common	AXT661-13AN-F

Note) Lead wire length: 300 mm
Note) The parts numbers above are applicable to VQ0000/1000 (2 to 16 stations) and VQ2000 (2 to 10 stations). VQ2000 (11 to 16 stations) uses AXT661-$^{13}_{14}$A(N) -F425.

Option

DIN Rail Mounting

Each manifold can be mounted on a DIN rail.
Order it by indicating an option symbol for DIN rail mounting style, -D. In this case, a DIN rail which is approx. 30 mm longer than the manifold with the specified number of stations is attached. Besides, it is also available in the following cases.

● **When DIN rail is unnecessary (C kit only.)**
(DIN rail mounting brackets only are attached.)
Indicate the option symbol, -DO, for the manifold no.

Example)

VV5Q14-08C-DOS

Others, option symbols: to be indicated alphabetically.

● **When using DIN rail longer than the manifold with specified number of stations**
Clearly indicate the necessary number of stations next to the option symbol, -D, for the manifold no.

Example)

VV5Q14-08FS1-D09S

DIN rail for 9 stations

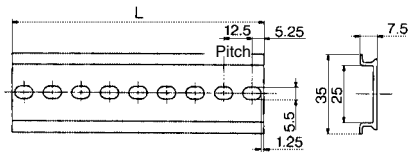
Others, option symbols: to be indicated alphabetically.

● **When changing the manifold style into a DIN rail mount**
Order brackets for mounting a DIN rail. (Refer to “Option” on pages 2-4-60, 61 and 64.)

No. VQ0000-57A4 (For VQ0000)
VQ1000-57A-4 (For VQ1000)
VQ2000-57A-4 (For VQ2000)
2 pcs. per one set

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

∗ Refer to the DIN rail dimension table for determining the length.



L Dimension

L = 12.5 x n + 10.5

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

Series VQ1000

Body Ported

Plug Lead Unit: Cassette Type

How to Order Manifold

VV5Q1 7 — 08 F U1 — D

Series VQ1000

Manifold

7	Plug lead unit/Cassette

Stations

01	1 station
⋮	⋮

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

Simple specials are available with SMC Simple Specials System. For details about applicable models, please contact SMC.

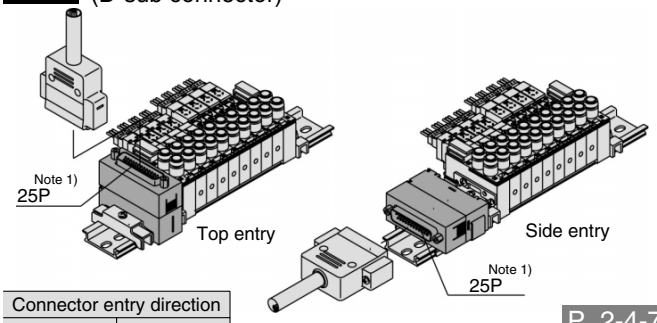
Option

D (1)	DIN rail mounting style
K (2)	Special wiring specifications (Except double wiring)
N (3)	With name plate

Note 1) Since the manifold is all with DIN rail, and so suffix -D to the part number.
Note 2) Specify the wiring specifications on the manifold specification sheet. (Except C kit)
Note 3) Unmountable when the valve's manual override is a locking lever type.
Note 4) When two or more symbols are specified, indicate them alphabetically.

Kit/Electrical entry/Cable length

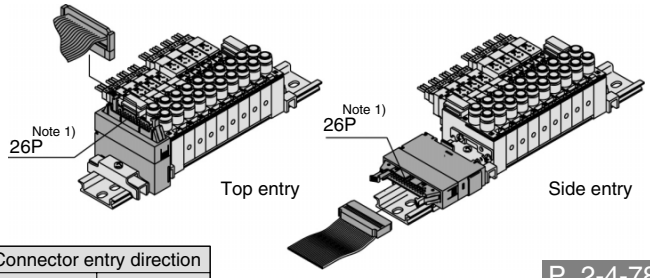
F kit (D-sub connector)



P. 2-4-76

Connector entry direction					
Top entry		Side entry			
Kit F	U0	Kit F	S0	Without cable	Max. 16 stations (2)
	U1		S1	With cable (1.5 m)	
	U2		S2	With cable (3 m)	
	U3		S3	With cable (5 m)	

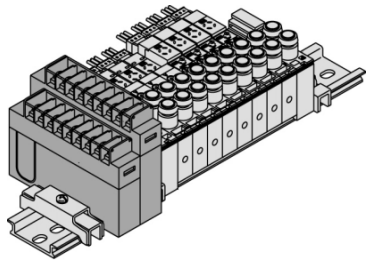
P kit (Flat ribbon cable connector)



P. 2-4-78

Connector entry direction					
Top entry		Side entry			
Kit P	U0	Kit P	S0	Without cable	Max. 16 stations (2)
	U1		S1	With cable (1.5 m)	
	U2		S2	With cable (3 m)	
	U3		S3	With cable (5 m)	

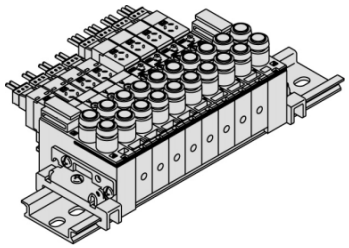
T kit (Terminal block)



P. 2-4-80

Kit T			
	1	No. of terminals: 8, 1 row	Applicable stations 1 to 8
	2	No. of terminals: 16, 2 rows	Applicable stations 5 to 16

C kit (Connector)

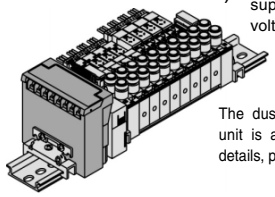


P. 2-4-82

C	Connector kit	Max. 16

S kit (Serial transmission unit)

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



The dust-protected type SI unit is applicable, too. For details, please contact SMC.

P. 2-4-84

Kit S			
	0	Without SI unit	Max. 16 stations (2)
	A	With general type SI unit (Series EX300)	
	B	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System	
	C	OMRON Corp.: SYSBUS Wire System	
	D	SHARP Corp.: Satellite I/O Link System	
	E	Matsushita Electric Works: MEWNET-F System	
	F1	NKE Corp.: Uni-wire System (16 output points)	
	G	Rockwell Automation: Allen Bradley Remote I/O (RIO) 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)	Max. 8
	K	Fuji Electric Co.: T-LINK Mini System	Max. 16 stations
	Q	DeviceNet, CompoBus/D (OMRON Corp.)	
	R1	OMRON Corp.: CompoBus/S System (16 output points)	
	R2	OMRON Corp.: CompoBus/S System (8 output points)	Max. 8
	V	Mitsubishi Electric Corp.: CC-LINK System	Max. 16

Note 1) Besides the above, F and P kits with different number of pins are available. For details, refer to page 2-4-92.
Note 2) See page 2-4-93 for details.

How to Order Valves

VQ 1 1 7 0 Y 5 M C6

Series VQ1000

Type of actuation

1	2 position single	
2	2 position double (Latching)	Metal seal / Rubber seal
3	3 position closed center	
4	3 position exhaust center	
5	3 position pressure center	

L type plug connector is used for 3 position AC.

Coil voltage

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

Note) 200/220 VAC models are applicable to the C kit.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ (1)
H (2)	High pressure type	(1.5 W) ○	—
Y (2)	Low wattage type	(0.5 W) ○	—

Note1) For power consumption of AC type, refer to page 2-4-74.
Note2) Except double (latching).

Seal

0	Metal seal
1	Rubber seal

Note 1) For negative common specifications, refer to "Option" on page 2-4-93.
Note 2) Connector assembly will be required when the F, P, T, S kits add a valve. For model no., refer to "Option" on page 2-4-93.

Manual override

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

Manual override body side
Bore ø3.2
Pilot valve manual override

Note) A manual override for pilot valve is provided to the standard model for double type.

Electrical entry

G: Grommet (C kit only. Except double (latching) and AC.)	L: L plug connector With lead wire	LO: L plug connector Without lead wire	M: M plug connector With lead wire	MO: M plug connector Without lead wire
	With light/surge voltage suppressor	With light/surge voltage suppressor	With light/surge voltage suppressor	With light/surge voltage suppressor

Note) LO and MO valves are used for F, P, T, and S kits. Plug connector and Lead wire layers are attached to the manifold.

Cylinder port

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

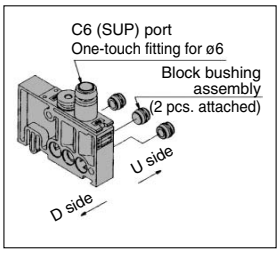
Note 1) The code is L for elbow piping for all manifold stations.
Example) L6: Elbow with One-touch fittings for ø6
Note 2) For inch-size One-touch fittings, refer to "Option" on page 2-4-93.

VQC
SQ
VQ0
VQ4
VQ5
VQZ
VQD

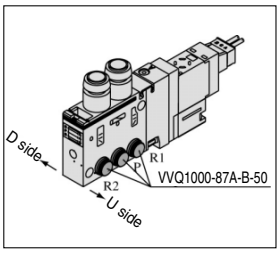
Manifold Option

P. 2-4-87

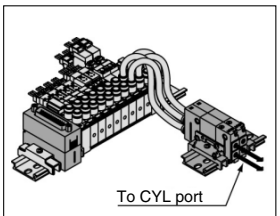
Individual SUP spacer
VVQ1000-P-7-C6



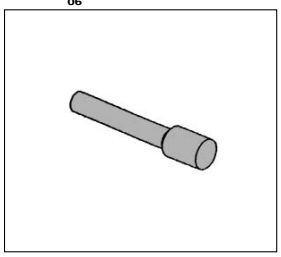
SUP/EXH block bush assembly
VVQ1000-87A-B-50



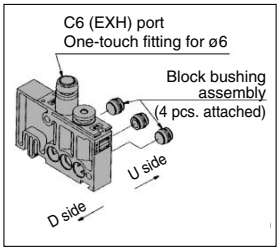
Double Check block
VQ1000-FPG-□□



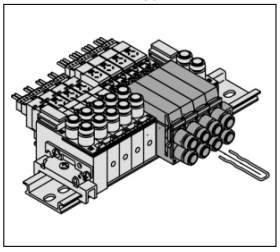
Blanking plug
KQ2P- $^{23}_{04}_{06}$



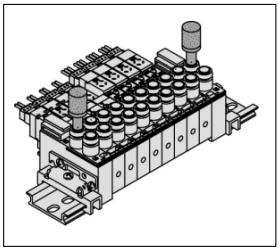
Individual EXH spacer
VVQ1000-R-7-C6



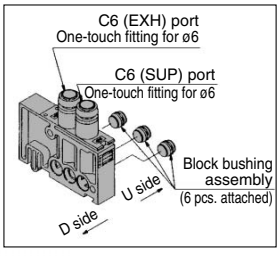
Elbow fitting assembly
VVQ1000-F7-L $^{C3}_{C4}_{C6}$



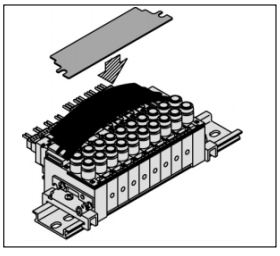
Silencer
AN103-X233



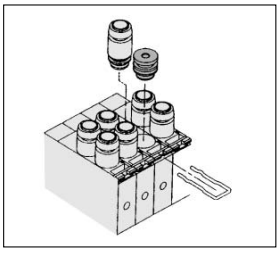
Individual SUP/EXH spacer
VVQ1000-PR-7-C6



Name plate [-N7]
VVQ1000-N7-station (1 to Max. stations)



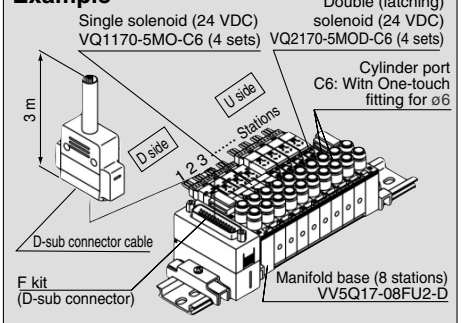
Port plug
VVQ0000-58A



• See page 2-4-91 for cylinder port fittings.
• For replacement parts, refer to page 2-4-111.

How to Order Manifold Assembly

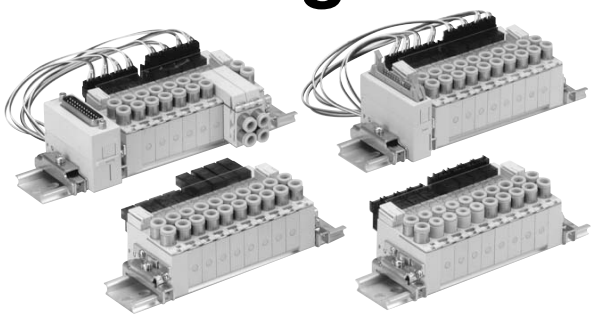
Example



VV5Q17-08FU2-D ····· 1 set (F kit 8 station manifold base no.)
*VQ1170-5MO-C6 ····· 4 sets (Single solenoid part no.)
*VQ1270-5MOB-C6 ··· 4 sets (Double latching solenoid part no.)
The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

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

Series VQ1000
Body Ported
Plug Lead Unit: Cassette Type



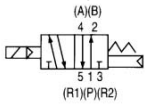
Model

Series	Number of solenoids		Model		Flow characteristics: 1 → 4/2 (P → A/B) C [dm³/(s·bar)]	b	Cv	Flow characteristics: 4/2 → 5/3 (A/B → R1/R2) C [dm³/(s·bar)]	b	Cv	Response time (2) (ms): Standard: 1 W H: 1.5 W	Response time (2) (ms): Low wattage: 0.5 W	AC	Weight (g)
VQ1000	2 position	Single	Metal seal	VQ1170	0.56	0.15	0.13	0.60	0.12	0.14	12 or less	15 or less	29 or less	67
			Rubber seal	VQ1171	0.71	0.20	0.17	0.80	0.16	0.19	15 or less	20 or less	34 or less	
		Double (Latching)	Metal seal	VQ1270	0.56	0.15	0.13	0.60	0.12	0.14	12 or less	15 or less	29 or less	
			Rubber seal	VQ1271	0.71	0.20	0.17	0.80	0.16	0.19	15 or less	20 or less	34 or less	
	3 position	Closed center	Metal seal	VQ1370	0.53	0.16	0.12	0.58	0.12	0.14	20 or less	26 or less	40 or less	82
			Rubber seal	VQ1371	0.65	0.23	0.16	0.70	0.20	0.17	25 or less	33 or less	47 or less	
		Exhaust center	Metal seal	VQ1470	0.54	0.16	0.12	0.60	0.12	0.14	20 or less	26 or less	40 or less	
			Rubber seal	VQ1471	0.65	0.23	0.16	0.80	0.16	0.19	25 or less	33 or less	47 or less	
		Pressure center	Metal seal	VQ1570	0.54	0.16	0.12	0.58	0.12	0.14	20 or less	26 or less	40 or less	
			Rubber seal	VQ1571	0.70	0.20	0.17	0.72	0.20	0.17	25 or less	33 or less	47 or less	

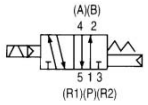
Note 1) Cylinder port size C6
Note 2) As per JIS B 8375-1981 (Supply pressure: 0.5 MPa; with indicator light/surge voltage suppressor; clean air. Subject to the pressure and air quality.)

JIS Symbol

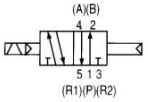
2 position single



2 position double (latching)

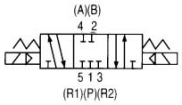


Metal seal

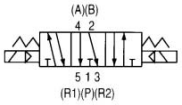


Rubber seal

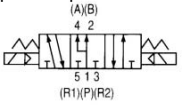
3 position closed center



3 position exhaust center



3 position pressure center



Standard Specifications

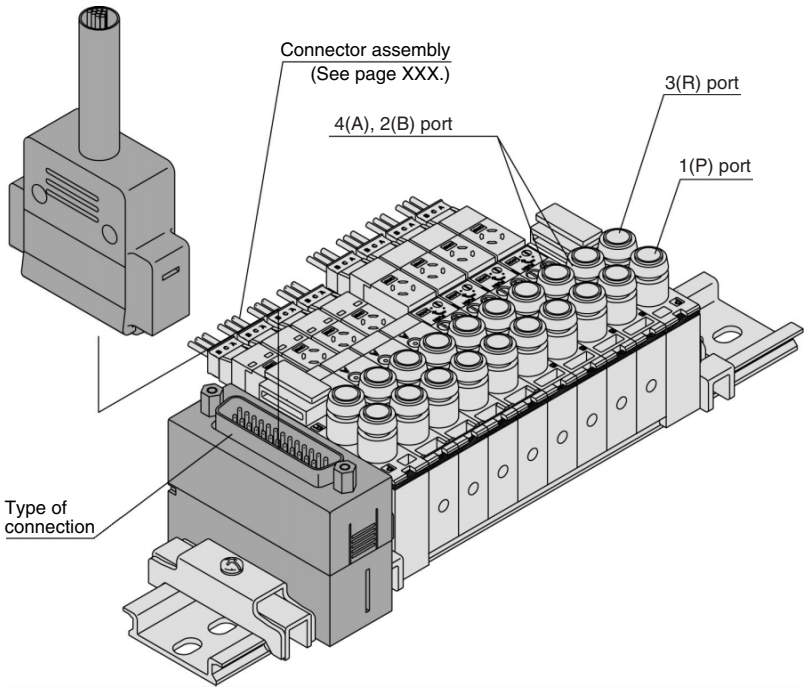
			Metal seal	Rubber seal
Valve specifications	Valve construction		Metal seal	Rubber seal
	Fluid		Air/Inert gas	Air/Inert gas
	Maximum operating pressure		0.7 MPa (High pressure type: 0.8 MPa) (3)	
	Minimum operating pressure	Single	0.1 MPa	0.15 MPa
		Double (Latching)	0.1 MPa	0.15 MPa
		3 position	0.15 MPa	0.2 MPa
	Ambient and fluid temperature		10 to 50°C (1)	
	Lubrication		Not required	
	Manual override		Push type/Locking type (Tool required, Manual) Option	
	Impact/Vibration resistance (2)		150/30 m/s²	
	Enclosure		Dust-protected	
Solenoid	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), 1.5 W DC (63 mA) (3), 0.5 W DC (21 mA) (4)	
		12 VDC	1 W DC (83 mA), 1.5 W DC (125 mA) (3), 0.5 W DC (42 mA) (4)	
		100 VAC	Inrush 0.5 VA (5 mA), Holding 0.5 VA (5 mA)	
		110 VAC	Start-up 0.55 VA (5 mA), Holding 0.55 VA (7.5 mA)	
		200 VAC	Inrush 1.0 VA(5 mA), Holding 1.0 VA (5 mA)	
		220 VAC	Inrush 1.1 VA (5 mA), Holding 1.1 VA (5 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 in the case of high pressure type (1.5 W).
Note 4) Values in the case of low wattage (0.5 W) specifications.

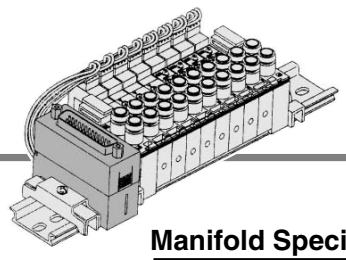
Manifold Specifications

Series	Base model	Type of connection	Porting specifications			Applicable stations (2)	Applicable solenoid valve	5 station weight (g)
			Port location	Port size (1)				
				1(P), 3(R)	4(A), 2(B)			
VQ1000	**VV5Q17-□□□-D**	■F kit–D-sub connector ■P kit–Flat ribbon cable connector ■T kit–Terminal block ■C kit–Individual connector ■S kit–Serial transmission unit	Top	C6 (ø6)	C3 (ø3.2) C4 (ø4) C6 (ø6) M5 (M5 thread)	1 to 16 stations	VQ1□70 VQ1□71	405

Note 1) Inch-size One-touch fittings are also available. For details, refer to page 2-4-93.
Note 2) For details, refer to page 2-4-93.



F VQ1000 Kit (D-sub connector)

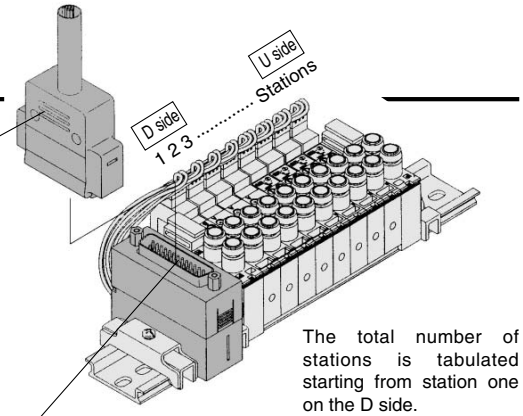


- The D-sub connector reduces installation labor for electrical connections.
- Using the D-sub connector (25P), (15P as an option) conforming to MIL standard permits the use of connectors put on the market and gives a wide interchangeability.
- Top or side receptacle position can be selected in accordance with the available mounting space.
- Maximum stations are 16.

Manifold Specifications

Series	Porting specifications			Applicable stations
	Port location	Port size 1(P), 3(R)	Port size 4(A), 2(B)	
VQ1000	Top	C6	C3, C4, C6, M5	Max. 16 stations

D-sub Connector (25 pins)

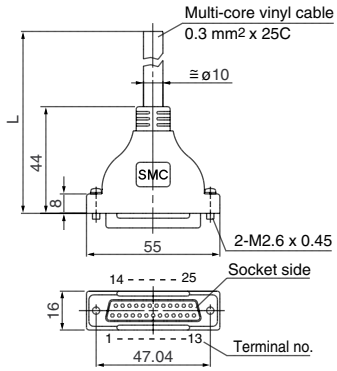


Cable assembly

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

AXT100-DS25- 015 / 030 / 050

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



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

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

D-sub Connector Cable Assembly (Option)

Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-DS25-015	Cable 25 core 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.

Electric Characteristics

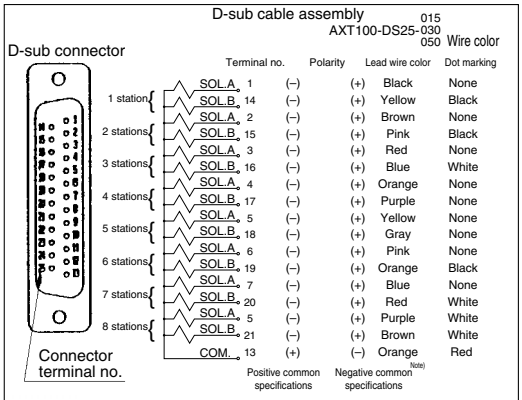
Item	Characteristics
Conductor resistance Ω/km, 20°C	65 or less
Insulation resistance V, 1 min, AC	1000
Insulation resistance MΩ/km, 20°C	5 or less

Note) The minimum bending radius of D-sub cable assembly is 20 mm.

Connector manufacturers' example
- Fujitsu Limited • J.S.T. Mfg. Co., Ltd.
- Japan Aviation Electronics Industry, Ltd.
- Hirose Electric Co., Ltd.

Note) Types with 15 pin are also available. Refer to page 2-4-92 for details.

Electrical wiring specifications



As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 8 stations or less, regardless of valve and option types.
Mixed single and double wiring is available as an option. For details, refer to page 2-4-93.
Note) When using the negative common specifications, use valves for negative common. (Refer to page 2-4-93.)

How to Order Manifold

VV5Q1 7 – 08 F U 1 – D

Series VQ1000

Manifold

7	Plug lead unit/Cassette

Stations

01	1 station
⋮	⋮
16	16 stations

Note) For details, refer to page 2-4-93.

Connector entry direction

U	Top entry
S	Side entry

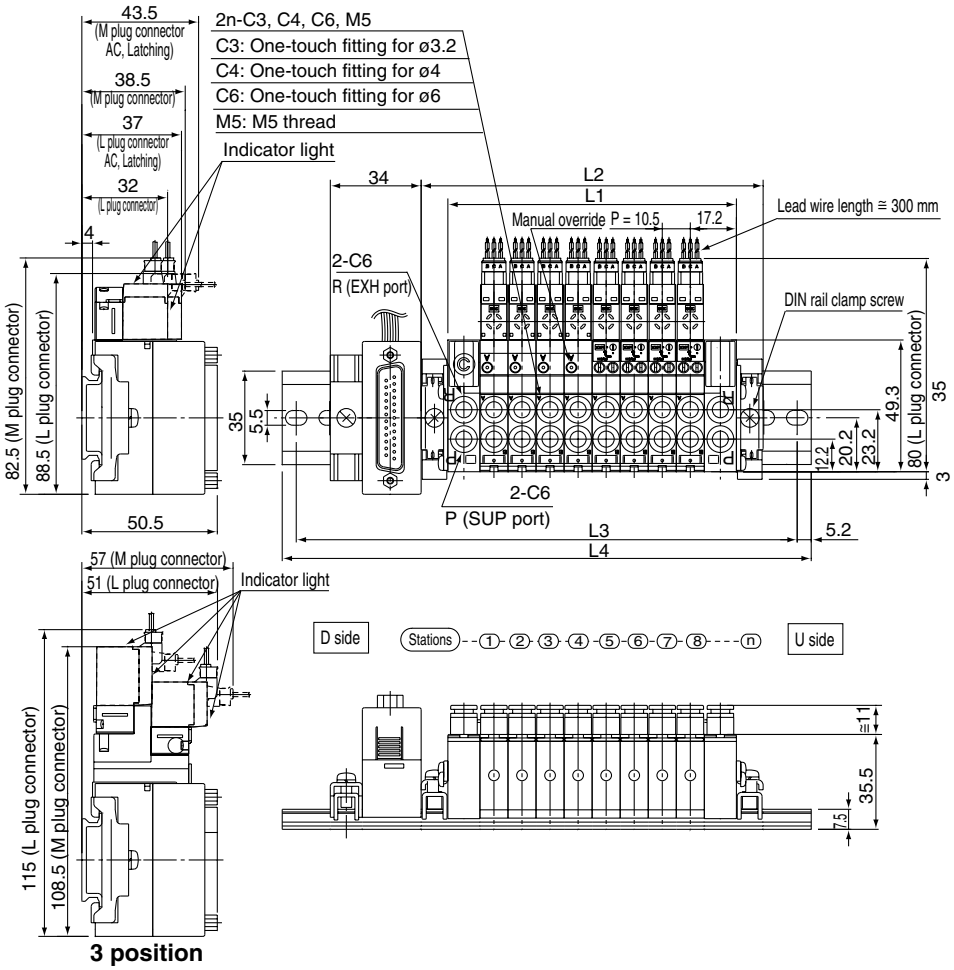
Cable (Length)

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

Option

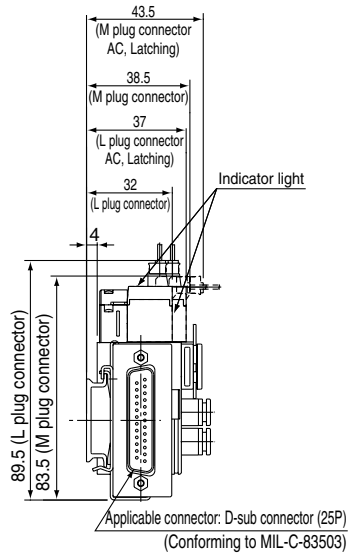
D (1)	DIN rail mounting style
K (2)	Special wiring specifications (Except double wiring)
N (3)	With name plate

Note 1) Since the manifold is all with DIN rail, and so suffix -D to the part number.
Note 2) Specify the wiring specifications in the manifold specification sheet.
Note 3) Unmountable when the valve's manual override is a locking lever type.
Note 4) When two or more symbols are specified, indicate them alphabetically.



3 position

Side entry connector [FS]



Dimensions: Top Entry Connector [-FU]

Formula L1 = 10.5n + 24, L2 = 10.5n + 44 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	34.5	45	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192
L2	54.5	65	75.5	86	96.5	107	117.5	128	138.5	149	159.5	170	180.5	191	201.5	212
L3	112.5	125	137.5	150	150	162.5	175	187.5	200	212.5	225	225	237.5	250	262.5	275
L4	123	135.5	148	160.5	160.5	173	185.5	198	210.5	223	232.5	235.5	248	260.5	273	285.5

Dimensions: Side Entry Connector [-FS]

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L3	137.5	137.5	150	162.5	175	187.5	200	200	212.5	225	237.5	250	262.5	262.5	275	287.5
L4	148	148	160.5	173	185.5	198	210.5	210.5	223	235.5	248	260.5	273	273	285.5	298

How to Order Valves

VQ1 1 7 0 Y – 5 MO ☐ – C6

Series VQ1000

Type of actuation

1	2 position single
2	2 position double (Latching)
3 Note	3 position closed center
4 Note	3 position exhaust center
5 Note	3 position pressure center

Note) L type plug connector is used for 3 position AC.

Seal

0	Metal seal
1	Rubber seal

Coil voltage

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

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ (1)
H (2)	High pressure type	(1.5 W) ○	—
Y (2)	Low wattage type	(0.5 W) ○	—

Note 1) For power consumption of AC type, refer to page 2-4-74.
Note 2) Except double (latching).

Note 1) For negative common specifications, refer to "Option" on page 2-4-93.
Note 2) Connector assembly will be required when the F kits add a valve. For part nos., refer to "Option" on page 2-4-93.

Cylinder port

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

Note1) The code is L for elbow piping for all manifold stations.
Example) L6: Elbow with One-touch fittings for ø6
Note 2) For One-touch fittings in inch sizes, refer to "Option" on page 2-4-93.

Manual override

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

Note) A manual override for pilot valve is provided to the standard mode for double type.

Electrical entry

LO	L plug connector without connector
MO	M plug connector without connector

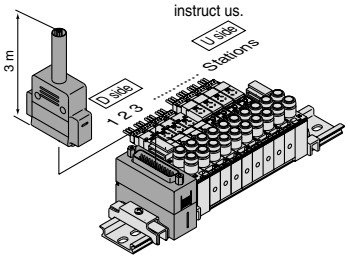
Note) Plug connector and lead wire layers are attached to the manifold.

How to Order Manifold Assembly

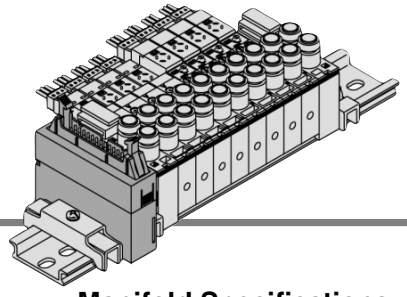
Specify the part numbers for valves and options together beneath the manifold base part number.
<Example>
D-sub connector kit with 3 m cable
VV5Q17-08FU2-D ··· 1 set Manifold base part no.
∗VQ1170-5MO-C6 ··· 4 sets Valve part no. (Stations 1 to 4)
∗VQ1270-5MOB-C6··· 4 sets Valve part no. (Stations 5 to 8)

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

Enter in order starting from the first station on the D side. Besides, when the arrangement will be complicated, fill out the Manifold Specification Sheet to instruct us.



P VQ1000
Kit (Flat ribbon cable connector)

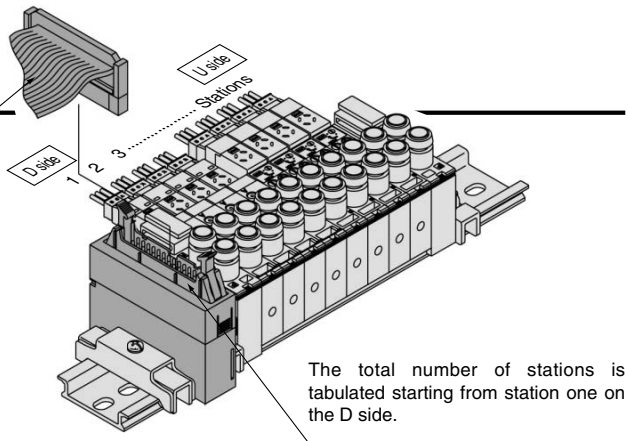


- MIL flat ribbon cable connector reduces installation labor savings for electrical connection.
- Using the connector for flat ribbon cable (26P), (10P, 16P, 20P as an option) conforming to MIL standard permits the use of connectors put on the market and gives a wide interchangeability.
- Top or side receptacle position can be selected in accordance with the available mounting space.
- Maximum stations are 16.

Manifold Specifications

Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ1000	Top	C6	C3, C4, C6, M5	Max. 16 stations

Flat Ribbon Cable (26 pins)

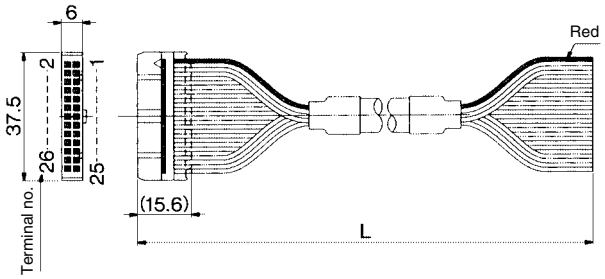


The total number of stations is tabulated starting from station one on the D side.

Cable assembly

AXT100-FC26-$\frac{1}{3}$ to

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



Flat Ribbon Cable Connector Assembly (Option)

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

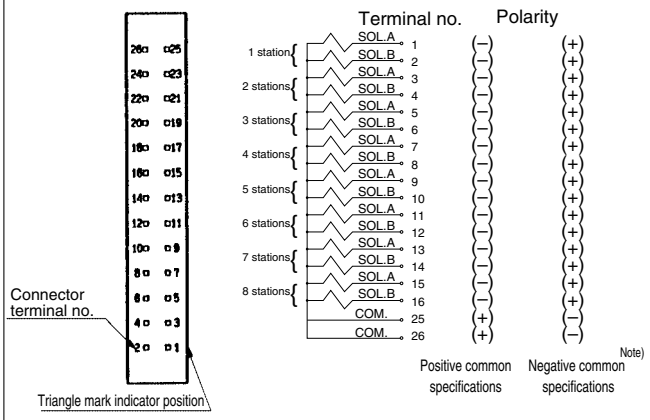
∗ For other commercial connectors, use a 26 pins type with strain relief conforming to MIL-C-83503.

Connector manufacturers' example

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

Note) Types with 10, 16, or 20 pin are also available. For details, refer to page 2-4-92.

Electrical wiring specifications



As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 8 stations or less, regardless of valve and option types. Mixed single and double wiring is available as an option. For details, refer to page 2-4-93.

Note) When using the negative common specifications, use valves for negative common. (Refer to page 2-4-93.)

How to Order Manifold

VV5Q1 7 – 08 P U 1 – D

Series VQ1000

Manifold

7	Plug lead unit/Cassette

Stations

01	1 station
⋮	⋮
16	16 stations

Note) For details, refer to page 2-4-93.

Connector entry direction

U	Top entry
S	Side entry

Cable (Length)

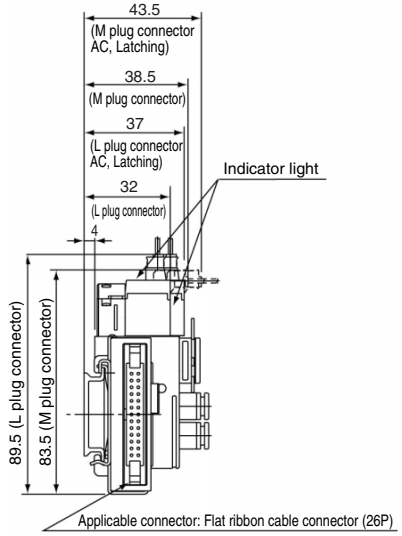
0	Without cable
1	With cable (1.5 m)
2	With cable (3 m)
3	With cable (5 m)

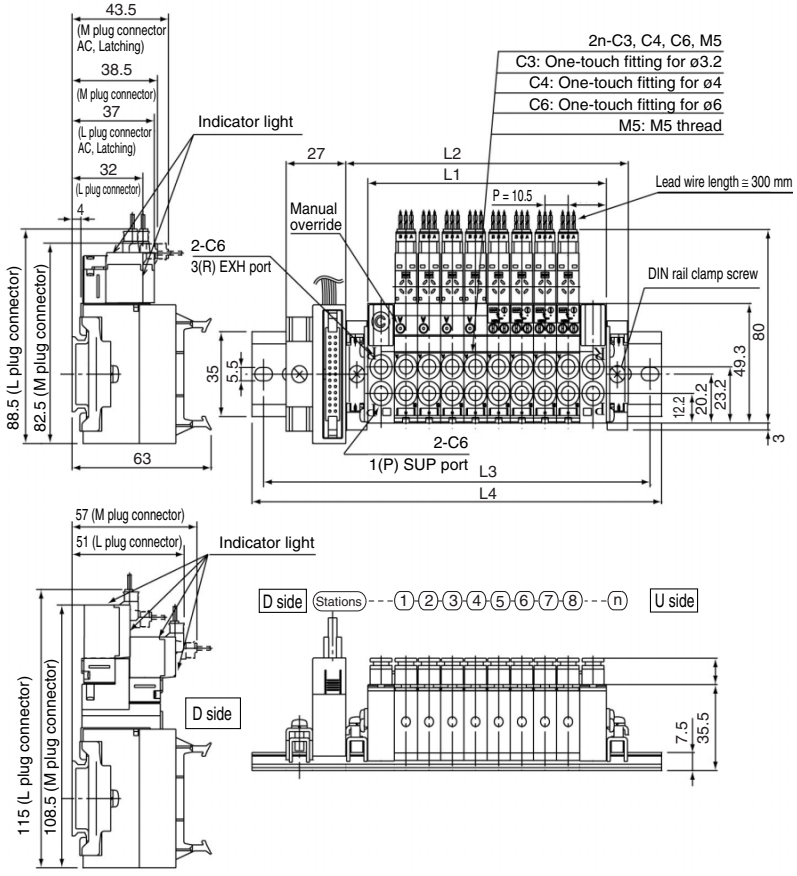
Option

D (1)	DIN rail mounting style
K (2)	Special wiring specifications (Except double wiring)
N (3)	With name plate

Note 1) Since the manifold is all with DIN rail, and so suffix -D to the part number.
Note 2) Specify the wiring specifications on the manifold specification sheet.
Note 3) Unmountable when the valve's manual override is a locking lever type.
Note 4) When two or more symbols are specified, indicate them alphabetically.

Side entry connector [-PS]





3 position

Dimensions: Top Entry Connector [-PU] L1 = 10.5n + 24, L2 = 10.5n + 44 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	34.5	45	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192
L2	54.5	65	75.5	86	96.5	107	117.5	128	138.5	149	159.5	170	180.5	191	201.5	212
L3	112.5	112.5	125	137.5	150	162.5	175	175	187.5	200	212.5	225	237.5	237.5	250	262.5
L4	123	123	135.5	148	60.5	173	185.5	185.5	198	210.5	223	235.5	248	248	260.5	273

Dimensions: Side Entry Connector [-PS]

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L3	137.5	137.5	150	162.5	175	187.5	200	200	212.5	225	237.5	250	262.5	262.5	275	287.5
L4	148	148	160.5	173	185.5	198	210.5	210.5	223	235.5	248	260.5	273	273	285.5	298

How to Order Valves

VQ1 1 7 0 Y – 5 MO – C6

Series VQ1000

Type of actuation

1	2 position single
2	2 position double (Latching)
3 Note)	3 position closed center
4 Note)	3 position exhaust center
5 Note)	3 position pressure center

Note) L type plug connector is used for 3 position AC.

Seal

0	Metal seal
1	Rubber seal

Coil voltage

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

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ (1)
H (2)	High pressure type	(1.5 W) ○	—
Y (2)	Low wattage type	(0.5 W) ○	—

Note 1) For power consumption of AC type, refer to page 2-4-74.
Note 2) Except double (latching).

Note 1) For negative common specifications, refer to "Option" on page 2-4-93.
Note 2) Connector assembly will be required when the P kits add a valve. For model no., refer to "Option" on page 2-4-93.

Manual override

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

Note) A manual override for pilot valve is provided to the standard model for double type.

Electrical entry

LO	L plug connector without connector
MO	M plug connector without connector

Note) Plug connector and lead wire layers are attached to the manifold.

Cylinder port

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

Note 1) The code is L for elbow piping for all manifold stations.
Example) L6: Elbow with One-touch fittings for ø6
Note 2) For inch-size One-touch fittings, refer to "Option" on page 2-4-93.

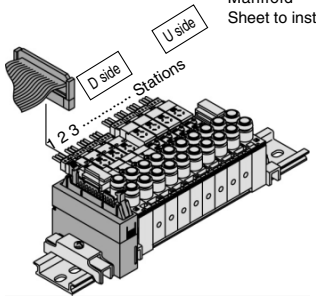
How to Order Manifold Assembly

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

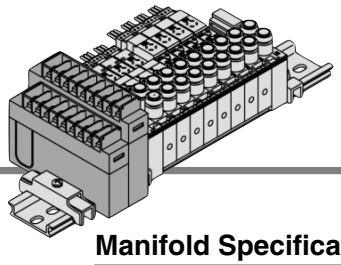
<Example>
Connector kit
VV5Q17-08PU2-D ··· 1 set –Manifold base part no.
∗VQ1170-5MO-C6 ··· 4 sets –Valve part no. (Stations 1 to 4)
∗VQ1270-5MOB-C6 ··· 4 sets –Valve part no. (Stations 5 to 8)

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

Enter in order starting from the first station on the D side. Besides, when the arrangement will be complicated, fill out the Manifold Specification Sheet to instruct us.



T VQ1000 Kit (Terminal block)

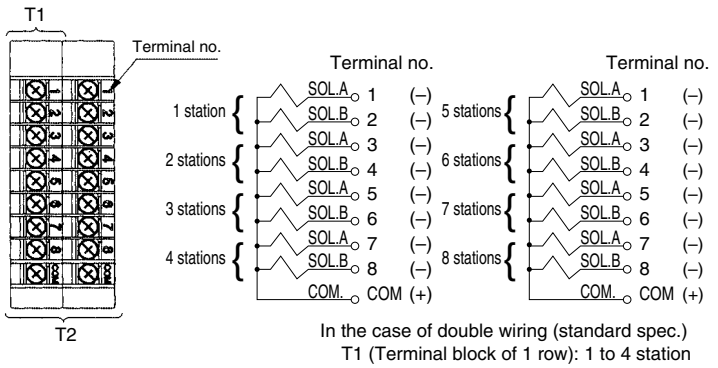


- It is a standard terminal block type.
- Two quantities of terminals can be selected in accordance with the number of stations.
  (8 terminals/16 terminals)
- Maximum stations are 16.

Manifold Specifications

Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P) , 3(R)	4(A), 2(B)	
VQ1000	Top	C6	C3, C4, C6, M5	Max. 16 stations

● Electrical wiring specifications



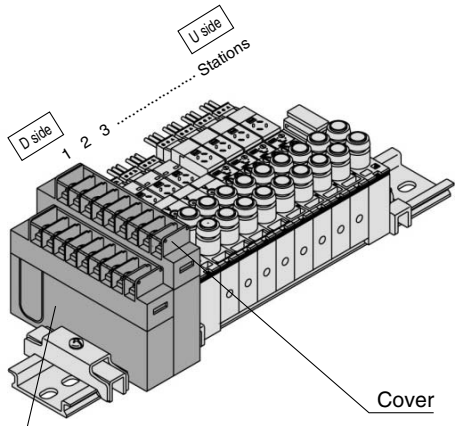
In the case of double wiring (standard spec.)
T1 (Terminal block of 1 row): 1 to 4 station
T2 (Terminal block of 2 rows): 5 to 8 stations
T1 and T2 can be optionally chosen by adopting the combinations of single and double wiring (optional spec.), etc.

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

Manifold	Number of terminals
1 to 4 stations	1 row
5 to 8 stations	2 rows

Wiring other than those above is possible.
For details, refer to page 2-4-93.

Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types. Mixed single and double wiring is available as an option. For details, refer to page 2-4-93.



● How to connect wires to terminal block

Open the terminal block cover to connect the wires to the terminal block.
(With M3 thread)

How to Order Manifold

VV5Q1 7 – 08 T 2 – D

Series VQ1000

Manifold

7	Plug lead unit/Cassette

Stations

01	1 station
⋮	⋮
16	16 stations

Note 1) For negative common specifications, refer to "Option" on page 2-4-93.
Note 2) For details, refer to page 2-4-93.

Number of terminals

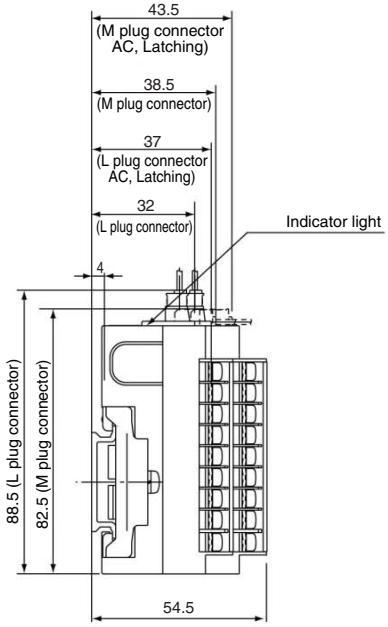
1	8 terminals in 1 row	Applicable stations 1 to 4 stations (Double)
2	16 terminals in 2 rows	Applicable stations 5 to 8 stations (Double)

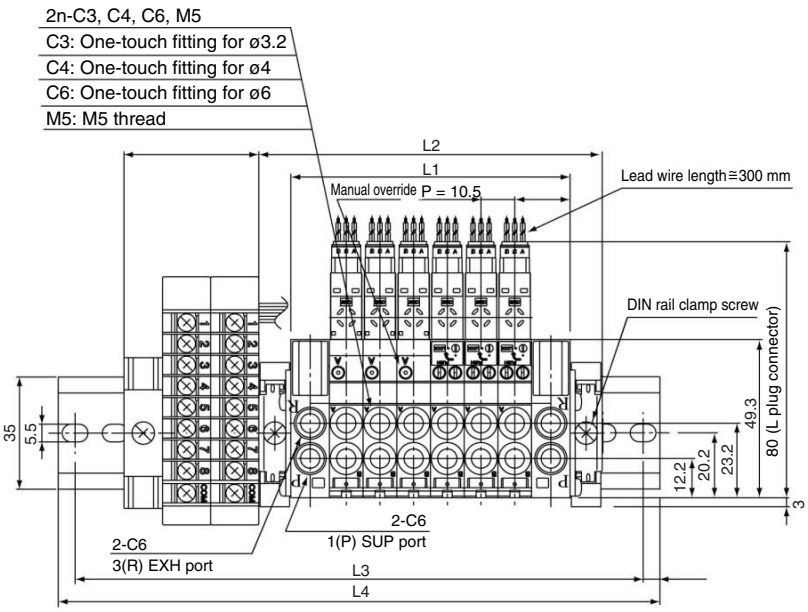
Note) The number of terminal blocks can be chosen regardless of station qty. Suffix the option symbol, K, when the wiring specification is special.

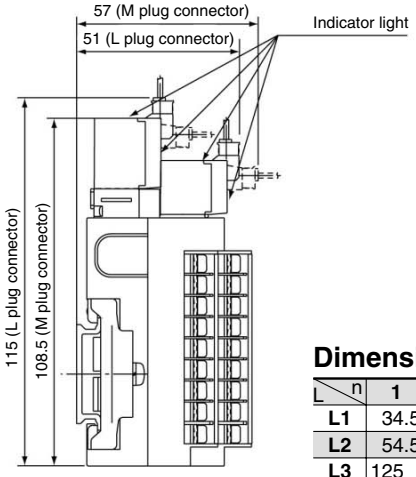
Option

D (1)	DIN rail mounting style
K (2)	Special wiring specifications (Except double wiring)
N (3)	With name plate

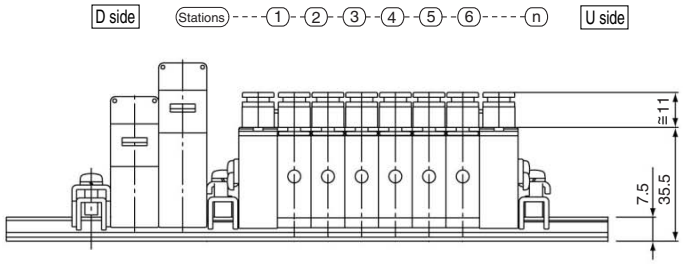
Note 1) Since the manifold is all with DIN rail, and so suffix -D to the part number.
Note 2) Specify the wiring specifications in the manifold specification sheet.
Note 3) Unmountable when the valve's manual override is a locking lever type.
Note 4) When two or more symbols are specified, indicate them alphabetically.







3 position



Dimensions

Formula L1 = 10.5n + 24, L2 = 10.5n + 44 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	34.5	45	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192
L2	54.5	65	75.5	86	96.5	107	117.5	128	138.5	149	159.5	170	180.5	191	201.5	212
L3	125	137.5	137.5	150	162.5	175	187.5	200	200	212.5	225	237.5	250	262.5	275	275
L4	135.5	148	148	160.5	173	185.5	198	210.5	210.5	223	235.5	248	260.5	273	285.5	285.5

How to Order Valves

VQ1 1 7 0 Y 5 MO C6

Series VQ1000

Type of actuation

1	2 position single
2	2 position double (Latching)
3 Note)	3 position closed center
4 Note)	3 position exhaust center
5 Note)	3 position pressure center

Note 1) L type plug connector is used for 3 position AC.

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ (1)
H (2)	High pressure type	(1.5 W) ○	—
Y (2)	Low wattage type	(0.5 W) ○	—

Coil voltage

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

Note 1) For power consumption of AC type, refer to page 2-4-74.
Note 2) Except double (latching).

Note 1) For negative common specifications, refer to "Option" on page 2-4-93.
Note 2) Connector assembly will be required when the T kits add a valve. For model no., refer to "Option" on page 2-4-93.

Cylinder port

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

Note 1) The code is L for elbow piping for all manifold stations.
Example) L6: Elbow with One-touch fittings for ø6
Note 2) For inch-size One-touch fittings, refer to "Option" on page 2-4-93.

Manual override

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

Note) A manual override for pilot valve is provided to the standard model for double type.

Electrical entry

LO	L plug connector without connector
MO	M plug connector without connector

Note) Plug connector and lead wire layers are attached to the manifold.

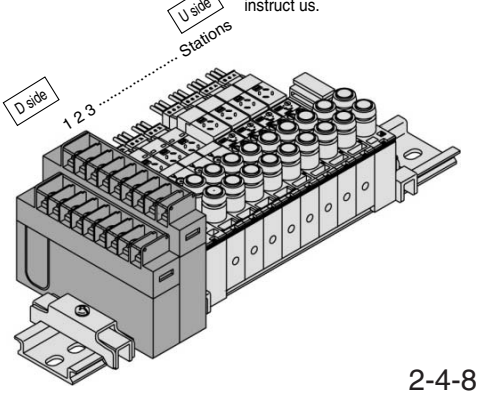
How to Order Manifold Assembly

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

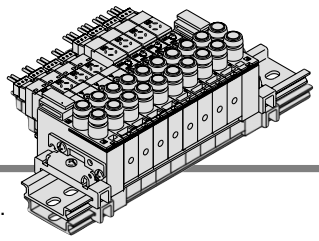
<Example>
Connector kit
VV5Q17-08T2-D ·····1 set–Manifold base part no.
*VQ1170-5MO-C6 ····4 sets–Valve part no. (Stations 1 to 4)
*VQ1270-5MOB-C6 ···4 sets–Valve part no. (Stations 5 to 8)

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

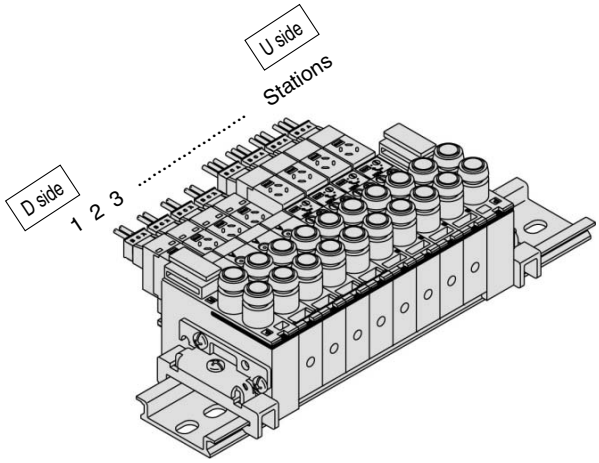
Enter in order starting from the first station on the D side. Besides, when the arrangement will be complicated, fill out the Manifold Specification Sheet to instruct us.



C VQ1000 Kit (Connector)



- Standard with lead wires connected to each valve individually.
- Maximum stations are 16.

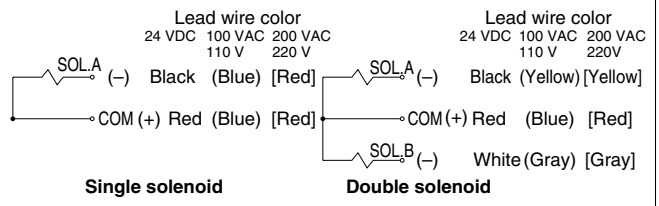


Manifold Specifications

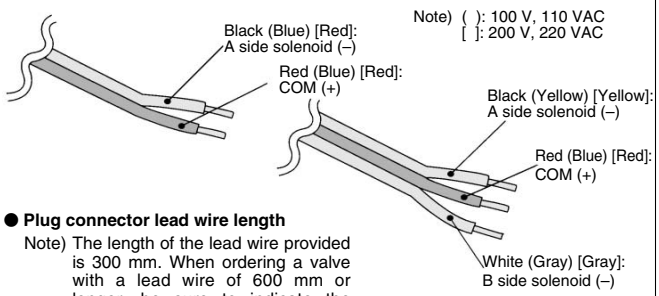
Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ1000	Top	C6	C3, C4, C6, M5	Max. 16 stations

● Wiring specifications: Positive COM

● The lead wires are connected to the valve as shown below. Connect each to the power supply side.



Single solenoid **Double solenoid**



● Plug connector lead wire length

Note) The length of the lead wire provided is 300 mm. When ordering a valve with a lead wire of 600 mm or longer, be sure to indicate the model number of the valve without connector and connector assembly.

Example) Lead wire length 1000 mm
VQ1170-5LO-C6····3 pcs.
AXT661-14A-10 ····3 pcs.

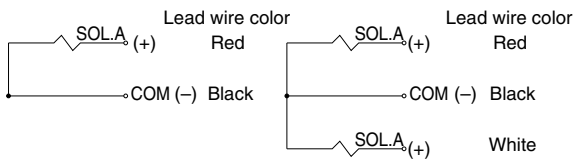
Connector Assembly Part No. (For DC)

Lead wire length	Single/3 position part no.	Double solenoid part no.
Socket only (3 pcs.)	AXT661-12A	
300A	AXT661-14A	AXT661-13A
600A	AXT661-14A-6	AXT661-13A-6
1000A	AXT661-14A-10	AXT661-13A-10
2000A	AXT661-14A-20	AXT661-13A-20
3000A	AXT661-14A-30	AXT661-13A-30

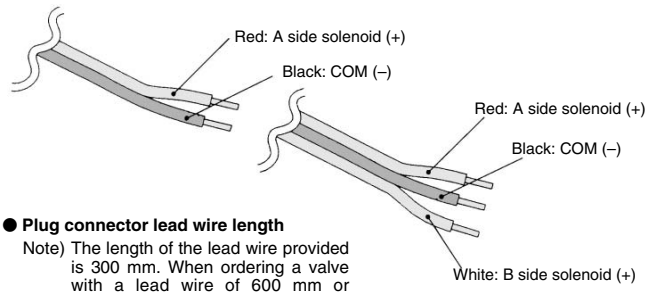
Note 1) 100/110 VAC for single: AXT661-31A-∗; for double: AXT661-32A-∗
200/220 VAC for single: AXT661-34A-∗; for double: AXT661-35A-∗
∗ are in accordance with the above table.
Note 2) 3 position type requires 2 sets for A side and B side.

● Wiring specifications: Negative COM (Option)

● The lead wires are connected to the valve as shown below. Connect each to the power supply side.



Single solenoid **Double solenoid**



● Plug connector lead wire length

Note) The length of the lead wire provided is 300 mm. When ordering a valve with a lead wire of 600 mm or longer, be sure to indicate the model number of the valve without connector and connector assembly.

Example) Lead wire length 1000 mm
VQ1170N-5LO-C6····3 pcs.
AXT661-14AN-10 ····3 pcs.

Connector Assembly Part No. (For DC)

Lead wire length	Single/3 position part no.	Double solenoid part no.
Socket only (3 pcs.)	AXT661-12A	
300A	AXT661-14AN	AXT661-13AN
600A	AXT661-14AN-6	AXT661-13AN-6
1000A	AXT661-14AN-10	AXT661-13AN-10
2000A	AXT661-14AN-20	AXT661-13AN-20
3000A	AXT661-14AN-30	AXT661-13AN-30

Note 1) When using the negative common specifications, use valves for negative common.
Note 2) 3 position type requires 2 sets for A side and B side.

How to Order Manifold

VV5Q1 7 – 08 C – D

Series VQ1000

Manifold

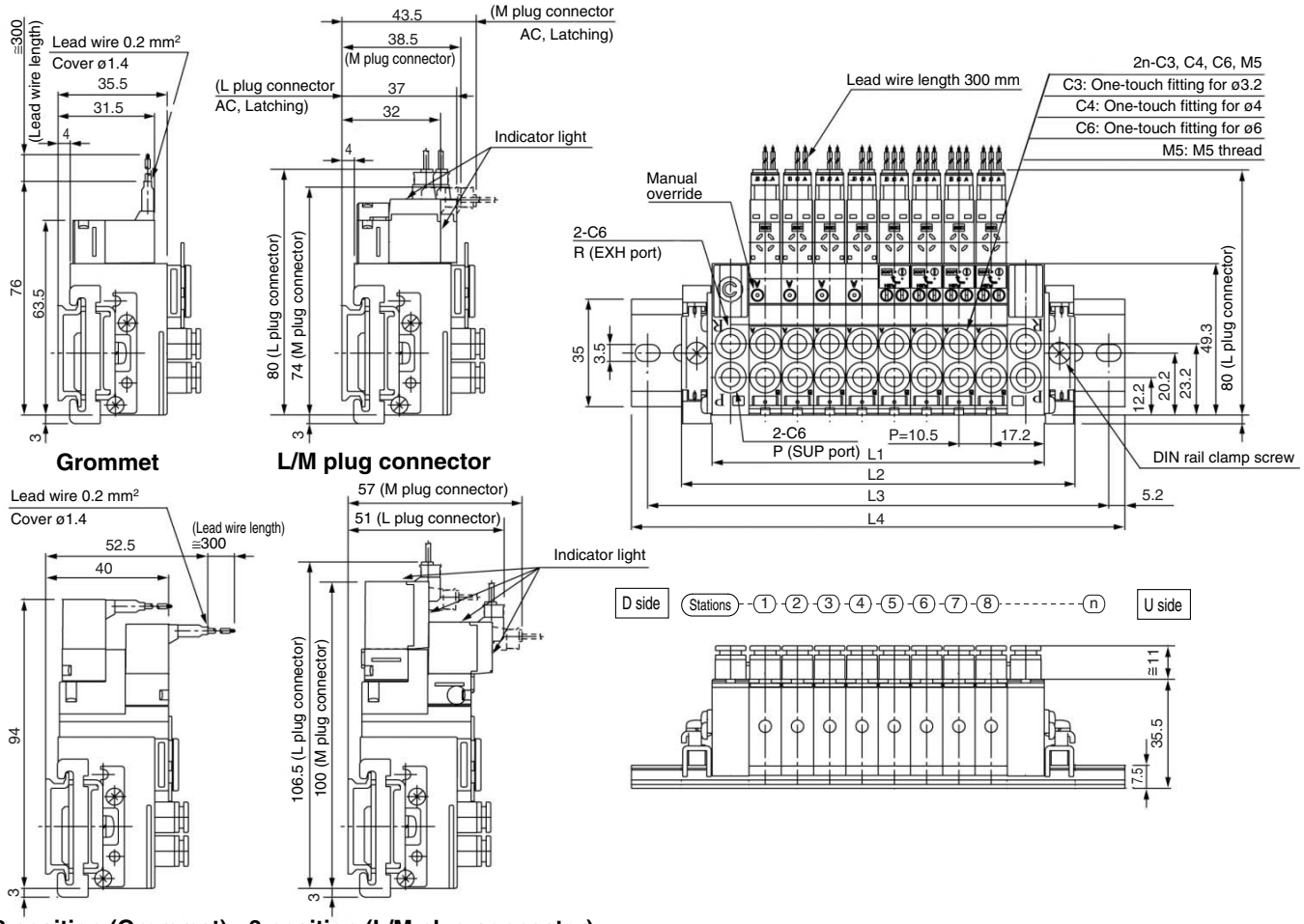
Stations

01	1 station
⋮	⋮
16	16 stations

Option

D (1)	DIN rail mounting style
N (2)	With name plate

Note 1) Manifolds are a DIN rail mounting style, and so suffix -D should be indicated.
Note 2) Unmountable when the valve's manual override is a locking lever type.
Note 3) When both options are specified, indicate as DN.



Dimensions

Formula L1 = 10.5n + 24, L2 = 10.5n + 44 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	34.5	45	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192
L2	54.5	65	75.5	86	96.5	107	117.5	128	138.5	149	159.5	170	180.5	191	201.5	212
L3	75	87.5	100	112.5	125	137.5	137.5	150	162.5	175	187.5	200	200	212.5	225	237.5
L4	85.5	98	110.5	123	135.5	148	148	160.5	173	185.5	198	210.5	210.5	223	235.5	248

How to Order Valves

VQ1 1 7 0 Y – 5 M ☐ – C6

Series VQ1000

Type of actuation

1	2 position single
2	2 position double (Latching)
3 Note	3 position closed center
4 Note	3 position exhaust center
5 Note	3 position pressure center

Note) L type plug connector is used for 3 position AC.

Seal

0	Metal seal
1	Rubber seal

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

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ (1)
H (2)	High pressure type	(1.5 W) ○	—
Y (3)	Low wattage type	(0.5 W) ○	—

Note 1) For power consumption of AC type, refer to page 2-4-74.
Note 2) Except double (latching).

Note 1) For negative common specifications, refer to "Option" on page 2-4-93.

Cylinder port

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

Note 1) The code is L for elbow piping for all manifold stations.
Note 2) Example) L6: Elbow with One-touch fittings for ø6
For inch-size One-touch fittings, refer to "Option" on page 2-4-93.

Manual override

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

Note) A manual override for pilot valve is provided to the standard model for double type.

Electrical entry

G	Grommet (Except double (latching) and AC)
L	L plug connector with lead wire
LO	L plug connector without connector
M	M plug connector with lead wire
MO	M plug connector without connector

How to Order Manifold Assembly

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

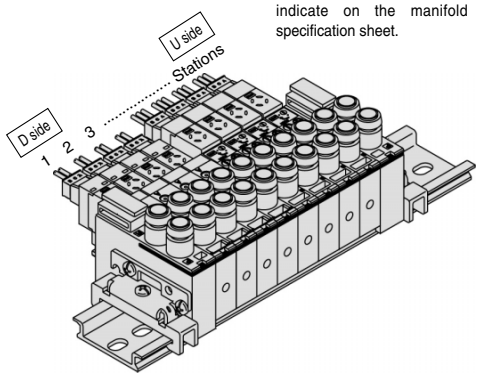
<Example>

Connector kit with 3 m cable

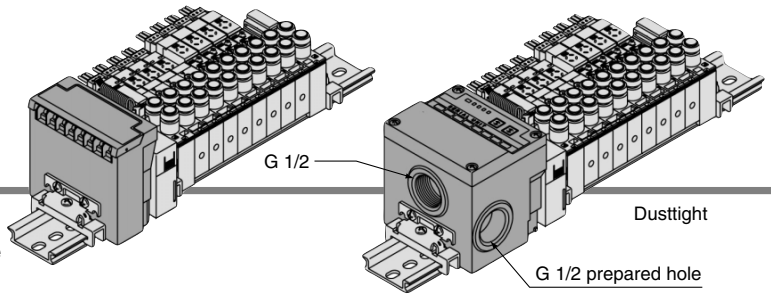
VV5Q17-08C-D ···1 set—Manifold base part no.
*VQ1170-5M-C6 ···4 sets—Valve part no. (Stations 1 to 4)
*VQ1270-5MB-C6 ···4 sets—Valve part no. (Stations 5 to 8)

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 on the manifold specification sheet.



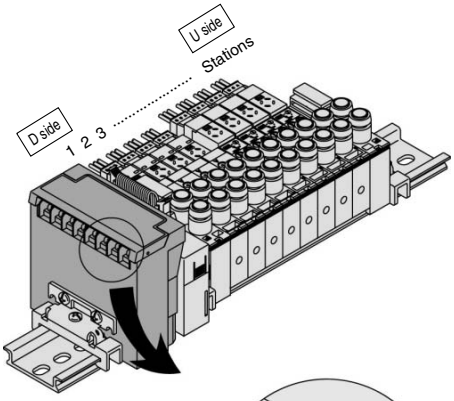
S VQ1000
Kit (Serial transmission unit)



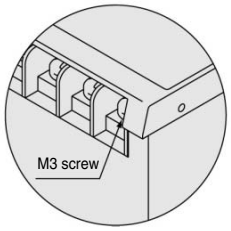
- The serial transmission system reduces wiring work, while minimizing wiring and saving space.
- The system comes in an type SA (generic for small scale systems) for equipment with a small number of I/O points, or 32 points max., type SB (applicable to Mitsubishi Electric models) for controlling 512 I/O points max., type SC (applicable to OMRON models), and type SD (applicable to SHARP models; 504 points max.).
- 16 stations max. (Specify a model with more than 8 stations by using a manifold specification sheet.)

Manifold Specifications

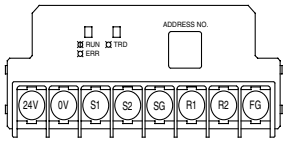
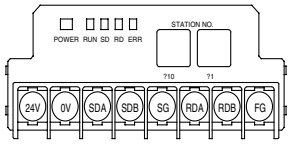
Series	Porting specifications			Applicable stations
	Port locaition	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ1000	Top	C6	C3, C4, C6, M5	Max. 16 stations



- Stations are counted from station 1 on the D side.
- As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 8 stations or less, regardless of valve and option types. Mixed single and double wiring is available as an option. For details, refer to page 2-4-93.



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

Name of terminal block (LED)	**Type SA** **With general type SI unit (Series EX300)**	**Type SB** **Mitsubishi Electric Corporation MELSECNET/MINI-S3 Data Link System**
		
	LED / Description TRD: Lighting during data reception RUN/ERR: Blinking when received data is normal; Lighting when data reception	LED / Description POWER: Lighting when power is turned ON RUN: Lighting when data transmission with the master station is normal RD: Lighting during data reception SD: Lighting during data transmission ERR.: Lighting when reception data error occurs. Light turns off when the error is corrected.
Note	• T unit Can be connected with PLC I/O card for serial transmission. EX300-TMB1 ···For models of Mitsubishi Electric Corporation EX300-TTA1 ···For models of OMRON Corporation EX300-TFU1 ···For models of Fuji Electric Co., Ltd. EX300-TOO1 ···For general models ∗ Up to 32 points per unit. • No. of output points, 16 points	• Master station: PLC made by Mitsubishi Electric Corporation Series MELSEC-A AJ71PT32-S3, AJ71T32-S3 A1SJ71PT32-S3 ∗ Max. 64 stations, connected to remote I/O stations (Max. 512 points). • No. of output points, 16 points. No. of sta. occupied, 2 stations

∗ For details on specifications and handling, refer to the separate technical instruction manual.

How to Order Manifold

VV5Q1 7 – 08 S A – D – XP

Dust-protected type (-XP)
Suffix "-XP" for the dust-protected SI units. (Except SE and SQ)

Series VQ1000

Manifold

7	Plug lead unit/Cassette

Stations

01	1 station
⋮	⋮
08	8 station (Double)
16 Note)	16 stations (Single)

Note) As an option, the maximum number of stations can be increased based on special wiring specifications. For details, refer to page 2-4-93.

Model

O	Without SI unit	Max. 16 stations
A	With general type SI unit (Series EX300)	
B	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System	
C	OMRON Corp.: SYSBUS Wire System	
D	SHARP Corp.: Satellite I/O Link System	
E	Matsushita Electric Works: MEWNET-F System	
F1	NKE Corp.: Uni-wire System (16 output points)	
G	Rockwell Automation: Allen Bradley Remote I/O (RIO) 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)	Max. 8
K	Fuji Electric Co.: T-LINK Mini System	Max. 16 stations
Q	DeviceNet, CompoBus/D (OMRON Corp.)	
R1	OMRON Corp.: CompoBus/S System (16 output points)	
R2	OMRON Corp.: CompoBus/S System (8 output points)	Max. 8
V	Mitsubishi Electric Corp.: CC-LINK System	Max. 16

• For the general purpose type, a transmission unit is required on the CPU side.

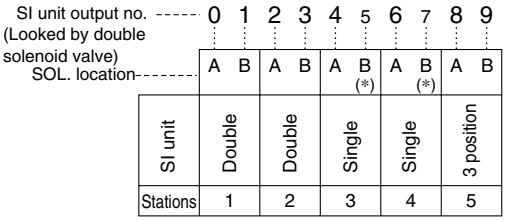
Option

D (1)	DIM rail mounting style
K (2)	Special wiring specifications (Except double wiring)
N (3)	With name plate

Note 1) Since the manifold is all with DIN rail, and so suffix -D to the part number.
Note 2) Specify the wiring specifications in the manifold specification sheet.
Note 3) Unmountable when the valve's manual override is a locking lever type.
Note 4) When two or more symbols are specified, indicate them alphabetically.

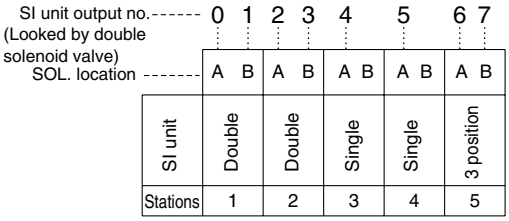
● SI unit output and coil numbering

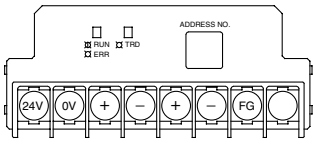
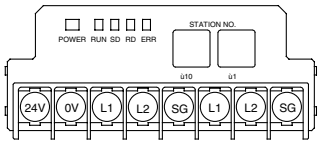
<Wiring example 1> Double wiring (Standard)



The places of asterisk are not used.

<Wiring example 2> Single/Double mixed wiring (Option)
Mixed wiring is available as an option.
Use the manifold specification sheet to specify.



	Type SC OMRON Corporation SYSBUS Wire System	Type SD SHARP Corporation Satellite I/O Link System
Name of terminal block (LED)	 LED / Description RUN: Lights when transmission is normal and PLC is in operation mode T/R ERR: Blinks during data transmission/reception; ON when transmission is abnormal	 LED / Description POWER: ON when power supply is ON RUN: Lights when power is ON and slave stations are operating normally ERROR: Lights when slave station switch setting is abnormal, communication is abnormal, PLC stopped and defective slave unit R.SET HOLD: ON for master unit control input
Note	• Master station unit: OMRON PLC SYSMAC C(CV) series Types C500-RM201 and C200H-RM201 ∗ 32 units max., transmission terminal connection (512 points max.) • No. of output points, 16 points	• Master station unit: SHARP's PLC New Satellite Series W ZW-31LM New Satellite Series JW JW-23LM, JW-31LM ∗ Max. 31 units, I/O slave stations connected (504 points max.) • No. of output points, 16 points

How to Order Valves

VQ1 1 7 0 Y − 5 MO □ − C6

Series VQ1000

Type of actuation

1	2 position single
2	2 position double (Latching)
3 Note)	3 position closed center
4 Note)	3 position exhaust center
5 Note)	3 position pressure center

Note) L type plug connector is used for 3 position AC.

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC
Nil	Standard type	(1.0 W) ○
H Note)	High pressure type	(1.5 W) ○
Y Note)	Low wattage type	(0.5 W) ○

Note) Except double (latching).

Coil voltage

5	24 VDC, With indicator light and surge voltage suppressor

Note) Connector assembly will be required when the S kits add a valve. For model no., refer to "Option" on page 2-4-93.

Cylinder ports

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

Note 1) The code is L for elbow piping for all manifold stations.
Example) L6: Elbow with One-touch fittings for ø6
Note 2) For inch-size One-touch fittings, refer to "Option" on page 2-4-93.

Manual override

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

Note) A manual override for pilot valve is provided to the standard model for double type.

Electrical entry

LO	L plug connector without connector
MO	M plug connector without connector

Note) Plug connector and lead wire layers are attached to the manifold.

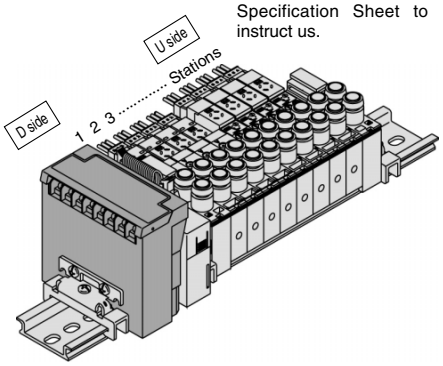
How to Order Manifold Assembly

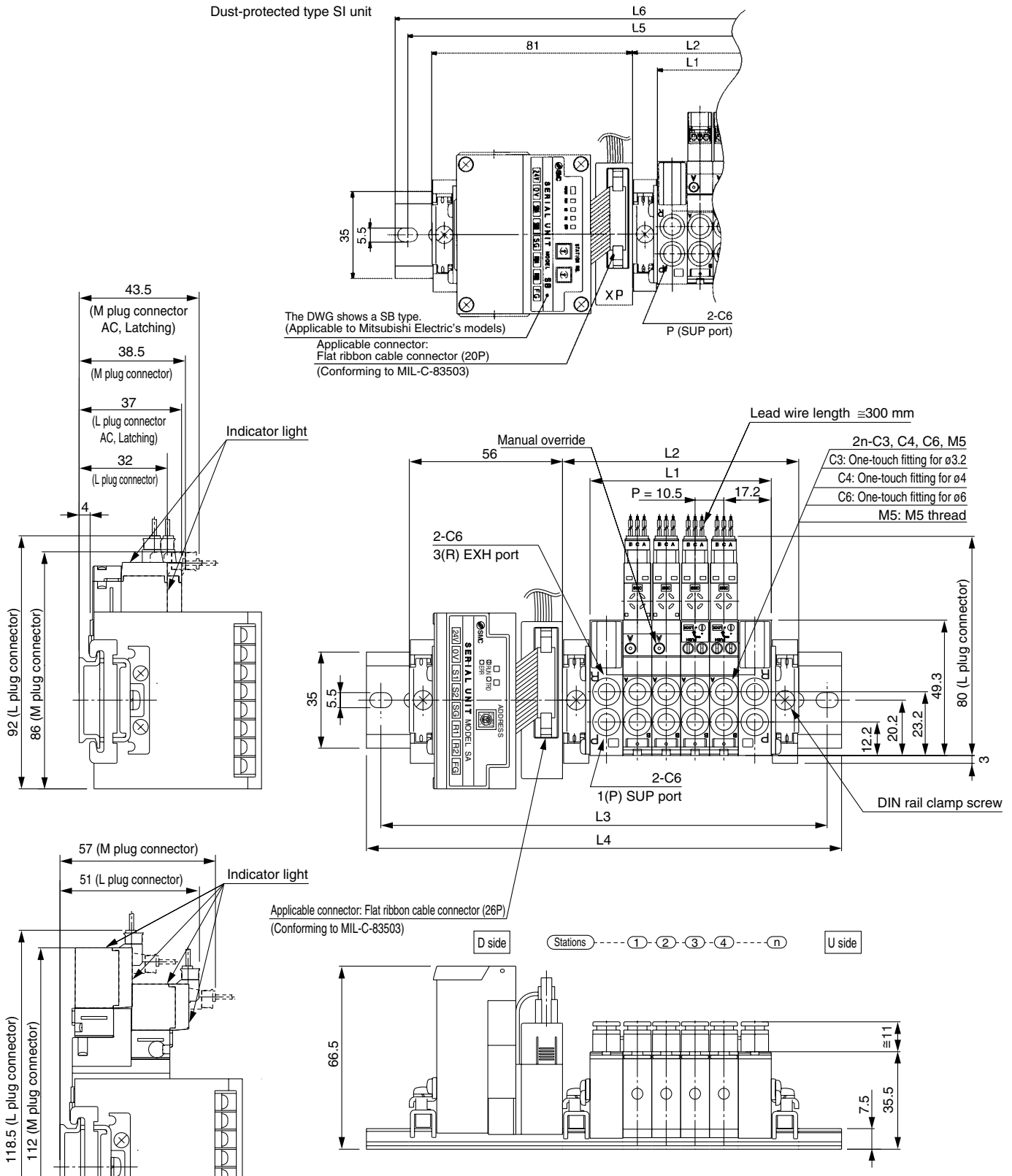
Specify the part numbers for valves and options together beneath the manifold base part number.

<Example>
Serial transmission unit kit
VV5Q17-08SA-D ··· 1 set–Manifold base part no.
∗VQ1170-5MO-C6 ··· 4 sets–Valve part no. (Stations 1 to 4)
∗VQ1270-5MOB-C6 ··· 4 sets–Valve part no. (Stations 5 to 8)

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

Enter in order starting from the first station on the D side. Besides, when the arrangement will be complicated, fill out the Manifold Specification Sheet to instruct us.





3 position

Dust-protected type SI unit: L5 = L3 + 25, L6 = L4 + 25

Dimensions

Formula L1 = 10.5n + 24, L2 = 10.5n + 44 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	34.5	45	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192
L2	54.5	65	75.5	86	96.5	107	117.5	128	138.5	149	159.5	170	180.5	191	201.5	212
L3	137.5	150	162.5	162.5	175	187.5	200	212.5	225	237.5	237.5	250	262.5	275	287.5	300
L4	148	160.5	173	173	185.5	198	210.5	223	235.5	248	248	260.5	273	285.5	298	310.5

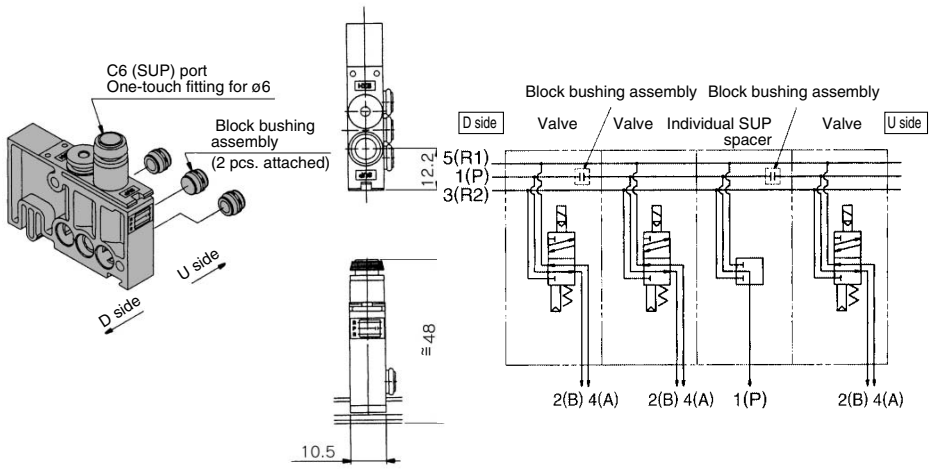
Manifolds with SI unit for Matsushita Electric Works' MEWNET FP and Rockwell Automation's model are the same with L5 and L6 dimensions of dust-protected type SI unit.

Manifold Option Parts

Individual SUP spacer
VVQ1000-P-7-C6

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

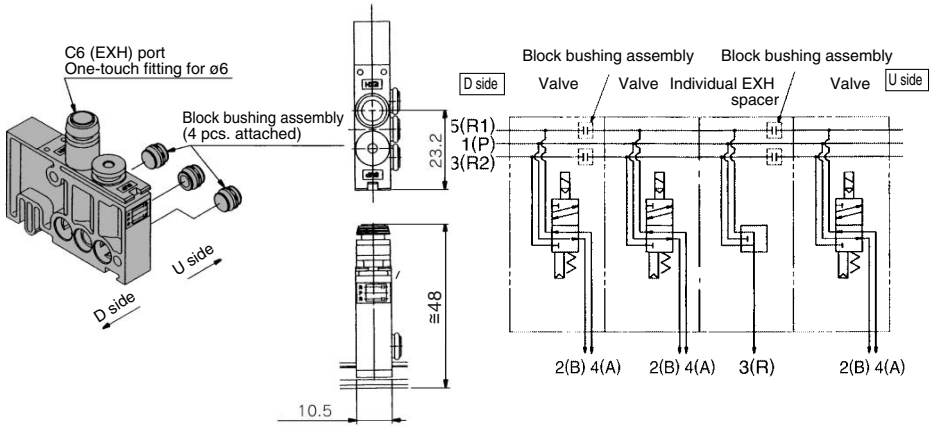
* Specify the spacer mounting position and SUP block plate mounting position on the manifold specification sheet. The block plate are used in two places for one set. (Two SUP block plates for blocking SUP station are attached to the individual SUP spacer.)
* The spacer's specification can be changed (from an individual SUP spacer to an individual EXH spacer) by changing the coupling of the fittings and bushing.



Individual EXH spacer
VVQ1000-R-7-C6

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

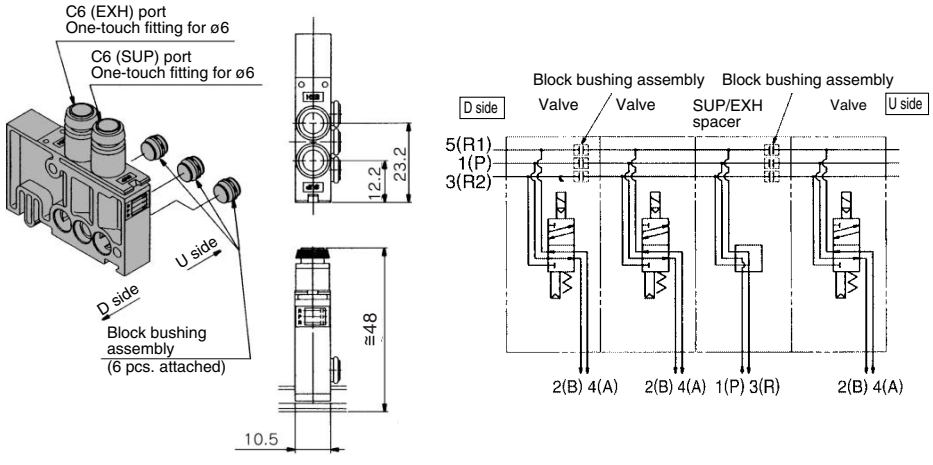
* Specify the spacer mounting position and EXH block plate mounting position on the manifold specification sheet. The block plate are used in two places for one set. (Four EXH block plates for blocking EXH station are attached to the individual EXH spacer.)
* The spacer's specification can be changed (from an individual EXH spacer to an individual SUP spacer) by changing the coupling of the fittings and bushing.



Individual SUP/EXH spacer
VVQ1000-PR-7-C6

This spacer has both functions of the above individual SUP and EXH spacers. (Refer to the application example.)

* Specify the spacer mounting position and SUP/EXH block plate mounting position on the manifold specification sheet. The blockplates are used in two places for one set.
  (A SUP/EXH block plates for blocking SUP/EXH station are attached to the individual SUP/EXH spacer.)
* When using the spacer not for individual SUP/EXH but for improving the ability to supply/exhaust air, it is unnecessary to block the SUP/EXH passage. In this case, place an order via VVQ1000-PRA-7-C6.
* The spacer's specification can be changed by changing the coupling of the fittings and bushing.



Manifold Option Parts

SUP EXH Block bushing assembly
VVQ1000-87A-B-50

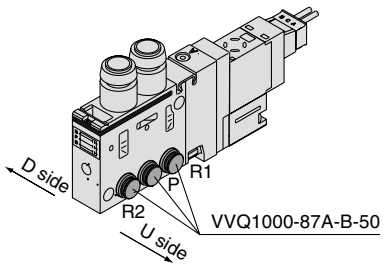
<For SUP>
When one manifold is to be used for different, high and low pressures, this block bushing assembly is used between the stations under a different pressure. The block assembly is mounted on the U side of the valve's SUP passage.

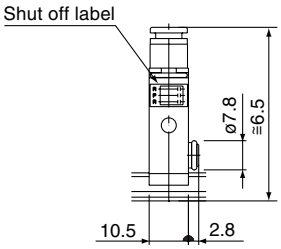
* Specify the number stations on the manifold specification sheet.

<For EXH>
When a valve exhaust affects other stations due to the circuit configuration, this block bushing assembly is used between the stations whose EXH passages are to be separated each other. Since the block bushing assembly is mounted on the U side of the valve's R1 and R2 passages, two assemblies are necessary for one station.

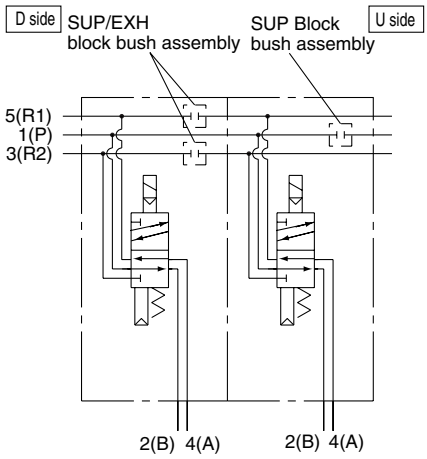
* Specify the number stations on the manifold specification sheet.

<Shut off label>
When using block bushing assembly for SUP, EXH passage, indication label for confirmation of the blocking position from outside is attached. (One label for each)





* Can be included in manifold model no.



<Example>

* When ordering a block bush incorporated with the manifold, a block indication label is attached to the manifold.

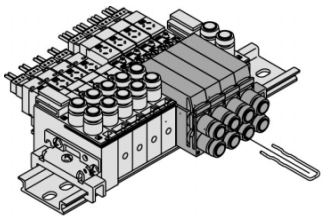
SUP passage blocked

EXH passage blocked

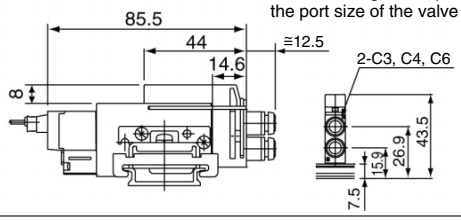
SUP/EXH passage blocked

Elbow fitting assembly
VVQ1000-F7-L (C3, C4, C6)

It is used in a side-valve-port application.



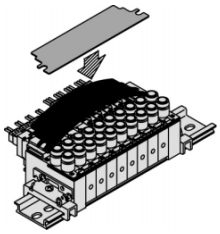
* When ordering it incorporated with a valve, the port size of the valve no. is L□.



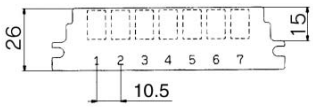
Name plate [-N7]
VVQ1000-N7-Station (1 to Max. stations)

It is a transparent resin plate for placing a label that indicates solenoid valve function, etc.
Insert it into the groove on the side of the end plate and bend it as shown in the figure.
Open the face plate seating when the manual override is operating.

* It is not applicable to locking manual override.

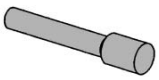


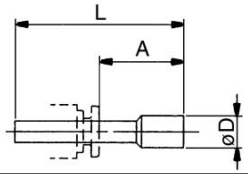
* When ordering assemblies incorporated with a manifold, suffix -N to the manifold no.



Blanking plug
KQ2P-$^{23}_{04}_{06}$

Used for unused cylinder port, SUP and EXH port. Purchasing order is available in units of 10 pieces.



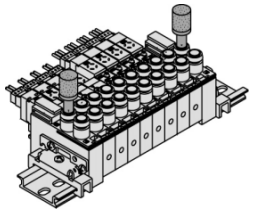


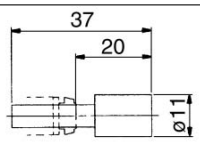
Dimensions

Applicable fittings size ød	Model	A	L	D
3.2	**KQ2P-23**	16	31.5	5
4	**KQ2P-04**	16	32	6
6	**KQ2P-06**	18	35	8

Silencer
AN103-X233

This silencer is to be inserted into the EXH port (One-touch fittings) of the common exhaust type.





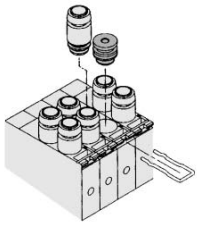
Dimensions

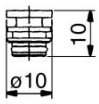
Series	Applicable fittings size ød	Model	A	L	D	Effective area (mm²)	Noise reduction (dB)
VQ1000	6	AN103-X233	20	37	11	7	25

Port plug
VVQ0000-58A

The plug is used to block the cylinder port when using a 4 port valve as a 3 port valve.
When ordering it incorporated with a manifold, suffix A or B, the symbol of the plug port, to the valve no.

Example) **VQ1170-5L-C6-A**
A port, Plug





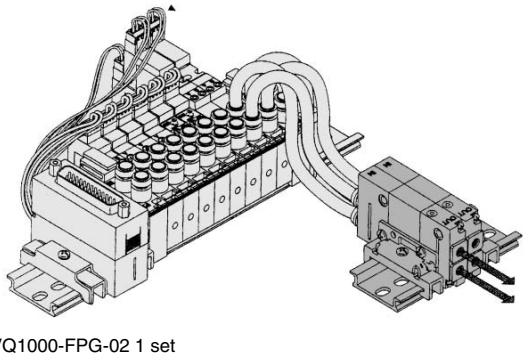
Double check block (Separated type)
VQ1000-FPG-□□

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

Specifications

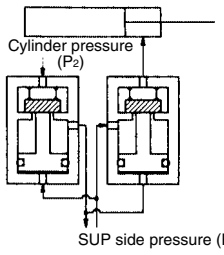
Max. operating pressure	0.8 MPa
Min. operating pressure	0.15 MPa
Ambient and fluid temperature	–5 to 50°C
Flow characteristics: C	0.60 dm³/(s·bar)
Max. operating frequency	180 CPM

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



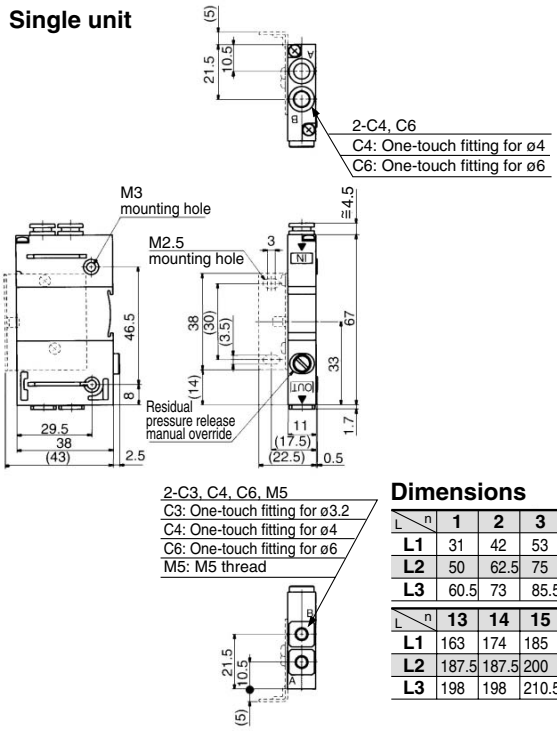
VVQ1000-FPG-02 1 set
∗ VQ1000-FPG-C6M5-D 2 pcs.

(Check valve operation principle)

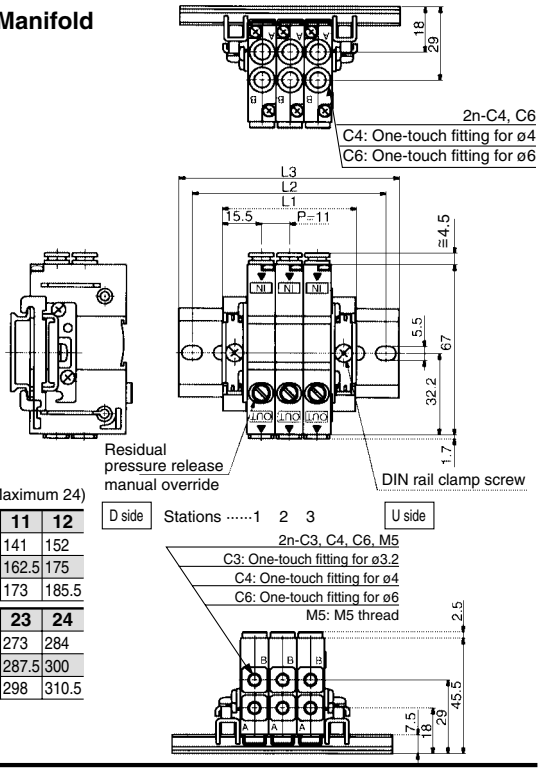


Dimensions

Single unit



Manifold



Dimensions

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

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

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

How to Order

Double check block

VQ1000-FPG- C4 M5 — F

IN side port size

C4	One-touch fitting for ø4
C6	One-touch fitting for ø6

OUT side port size

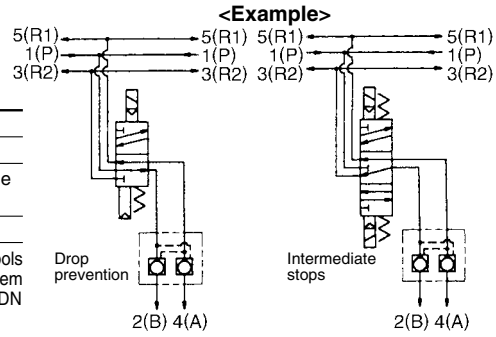
M5	M5 thread
C3	One-touch fitting for ø3.2
C4	One-touch fitting for ø4
C6	One-touch fitting for ø6

Option

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

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

<Example>



Manifold

VVQ1000-FPG- 06

Stations

01	1 station
⋮	⋮
16	16 stations

<Example>
VVQ1000-FPG-06··6 types of manifold
∗VQ1000-FPG-C4M5-D, 3 sets
∗VQ1000-FPG-C6M5-D, 3 sets } Double Check block

Bracket Assembly

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

⚠ Caution

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

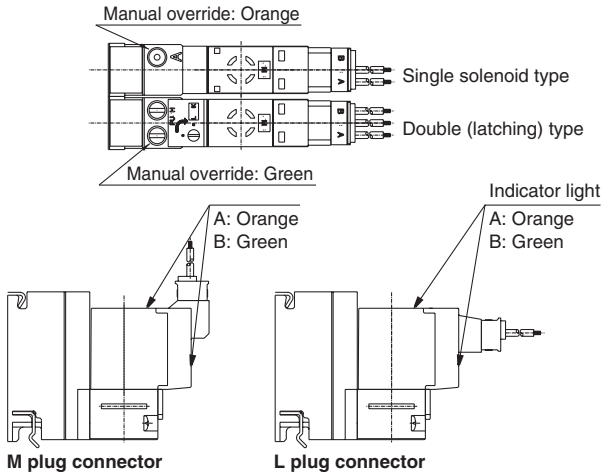
⚠ Precautions

Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 2-9-2.

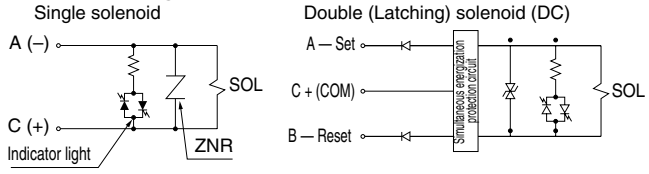
Light/Surge Voltage Suppressor

⚠ Caution

The standard model is equipped with an indicator light and surge voltage suppressor. The lighting positions are concentrated on one side for both single solenoid type and double (latching) type. In the double (latching) type, A side and B side energization are indicated by two colors which match the colors of the manual overrides.



DC circuit diagram



Single solenoid type | **Double (Latching)**

Note 1) • A-side energization: A light (orange) illuminates.
• B-side energization: B light (green) illuminates.
• Equipped with a wiring error prevention (stop diode) mechanism.
• Surge absorption (ZNR/surge absorption diode) mechanism.

Note 2) Applicable to negative COM specification models.

Note 3) In the case of double (latching), the electromagnetic valve channel is, A–(set):
P → A, B → R
B–(reset): P → B, A → R

Double (Latching solenoid) Type

⚠ Caution

Different from the conventional double solenoid, the double type uses a latching (self-holding system) solenoid. Although the appearance is the same as the single solenoid, it is constructed so that the movable iron core in the solenoid is held in the ON position on A and B sides by instantaneous energization (20 ms or more). The usage and function is the same as the double solenoid type.

<Special Cautions for Latching Solenoid>

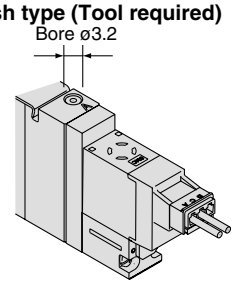
1. Select the circuit in which ON and OFF signals are not energized simultaneously.
2. 20 ms energization time is necessary for self-holding.
3. Avoid using the latching solenoid valves in environments where impact or collisions with the valve might occur.
Also, do not use in places where strong magnetic fields are present.
4. Even though the armature in the solenoid of this valve is held on to B side, ON position (Reset), verify either A side, ON position or B side, ON position by energizing prior to use.
After manual operation, the main valve will return to its original position.
5. Manual override on the pilot valve side can retain its switching position after manipulation.
6. Please contact SMC for long-term energization applications.
7. In the case of metal seal type, if the supply air goes down below the minimum operating pressure (0.1 MPa or less), the main valve will be back to the home position (B side ON position). Therefore, when the supply air is shut off or applied while leaving A side ON position, cylinder may be pulsated. The valve's switching position when the supply air is operated should be installed on the home position side (B side ON position).

Manual Override

⚠ Warning

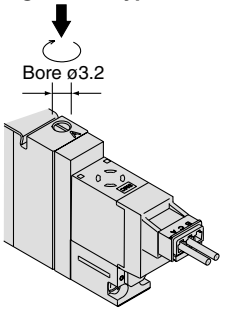
Without an electric signal for the solenoid valve the manual override is used for switching the main valve.

■ Push type (Tool required)



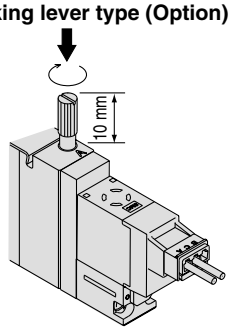
Push down on the manual override button with a small screwdriver until it stops. Release the screwdriver and the manual override will return.

■ Locking slotted type



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

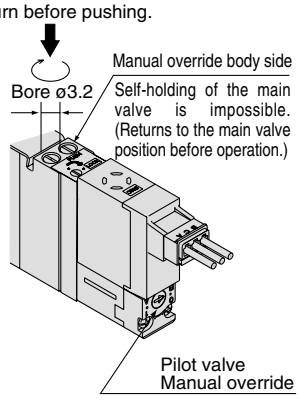
■ Locking lever type (Option)



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.

■ Manual override for double (latching) type

In case of a double (latching) type, a manual override is provided not only on the body side but to the pilot as a standard specification.
After manual operation, the main valve of the manual override on the body side returns to the position before the manual operation, however, the pilot valve manual override maintains the change-over position.



Self-holding of the main valve possible.

- If the manual override is turned by 180° clockwise and the ▶ mark is adjusted to A, then pushed in the direction of an arrow (⇳), it will be back to the reset condition. (passage P → A)
- If the manual override is turned by 180° counterclockwise and the ▶ mark is adjusted to B, then pushed in the direction of an arrow (⇳), it will be back to the reset condition. (passage P → B) (It is in the reset state at the time of shipment.)

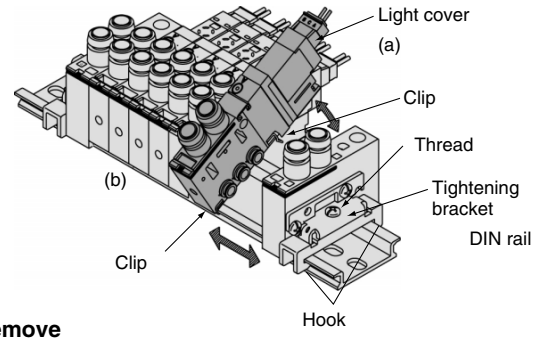
⚠ Caution

Do not apply excessive torque when turning the locking type manual override. (0.1 N·m or less)

How to Mount/Remove Solenoid Valve

⚠ Caution

<Procedure>



How to Remove

1. Loosen the clamp screw on one side.
2. Slightly slide a part the valve stations on both sides of the station to be removed.
3. Pull up side (a) of the valve station and remove it from the DIN rail.

How to mount

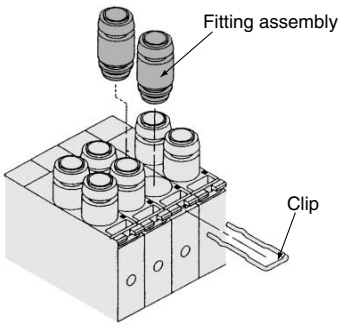
1. Take procedures 1 and 2 above to make an open space in the position for mounting a new valve station.
2. Diagonally insert the clip on the side (b) of the valve station to the DIN rail.
3. Press down on the valve station and insert the clip on the side (a) of the valve station to the DIN rail.
4. Slide the valve stations together so that there is no clearance between them. Position the clamp screw and tighten. (Proper tightening torque: 0.7 to 1.0 N·m)

Note) **Be careful to keep O-ring or gallery dust free since dirt may cause air leakage.**
Be sure both hooks of the bracket are fixed to the DIN rail.
Use caution not to apply force on the light cover when mounting or dismounting the valve.

Replacement of Cylinder Port Fittings

⚠ Caution

The cylinder port fittings are a cassette for easy replacement. The fittings are blocked by a clip inserted from the side of the valve. Remove the clip with a screwdriver and remove fittings. For replacement, insert the fitting assembly until it strikes against the inside wall and then reinsert the clip to the specified position.



Applicable tubing O.D	Fitting assembly part no.
Applicable tubing ø3.2	VVQ1000-50A-C3
Applicable tubing ø4	VVQ1000-50A-C4
Applicable tubing ø6	VVQ1000-50A-C6

∗ Purchasing order is available in units of 10 pieces.

⚠ Caution

1. Protect O-rings from scratches and dust to prevent air leakage.
2. The tightening torque for inserting fittings to the M5 thread ass'y should be 0.8 to 1.4 N·m.

How to Use Plug Connector

⚠ Caution

For details, refer to page 2-4-67.

How to Calculate the Flow Rate

⚠ Caution

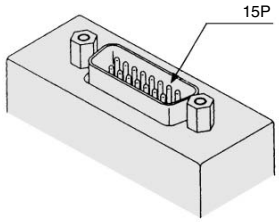
For obtaining the flow rate, refer to pages 2-1-8 to 2-1-11.

Option

Different Number of Connector Pins

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

F kit (D-sub connector) 15 pins



How to order manifold

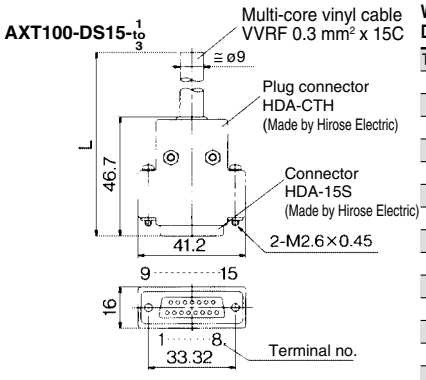
VV5Q17 — 06 F SA — D

- 06: Stations
- F: Kit/Electrical entry
- SA: How to Order — D-sub connector, 15 pins; Connector location–Side (horizontal); Without cable
- D: Option

Pins \ Location	Top entry		Side entry	
15 pins (Max. 14 stations)	Kit F	UA	Kit F	SA

Wiring Specifications

Like 25-pin models (standard), terminal no. 1 will be the 1st station SOL.A, and terminal no. 9 for the 1st station SOL.B. Then COM will be the terminal no. 8.



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

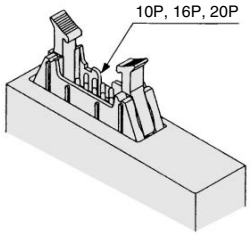
Terminal no.	Lead wire color	Dot marking
1	Black	None
2	Brown	None
3	Red	None
4	Orange	None
5	Yellow	None
6	Pink	None
7	Blue	None
8	Purple	White
9	Gray	Black
10	White	Black
11	White	Red
12	Yellow	Red
13	Orange	Red
14	Yellow	Black
15	Pink	Black

D-sub Connector Cable Assembly

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

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

P kit (Flat ribbon cable connector) 10 pins, 16 pins, 20 pins



How to order manifold

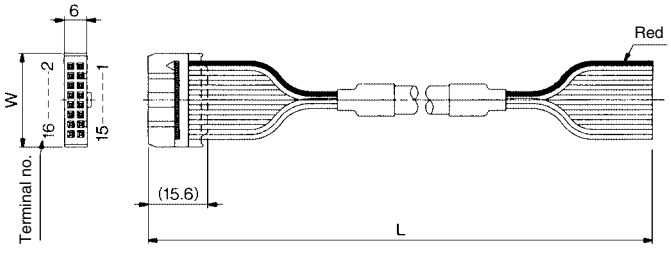
VV5Q17 — 06 P SC — D

- 06: Stations
- P: Kit/Electrical entry
- SC: How to Order — Flat ribbon cable, 20 pins; Connector location–Side (Horizontal); Without cable
- D: Option

Pins \ Location	Top entry		Side entry	
10 pins (Max. 8 stations)	Kit P	UA	Kit P	SA
16 pins (Max.14 stations)		UB		SB
20 pins (Max.16 stations)		UC		SC

Wiring Specifications

Similarly to 26-pin models (standard), the terminal no. 1 will be allocated to SOL.A of the 1st. station, and terminal no. 2 for SOL.B of the 1st. station. COM occupies 2 pins from the maximum no. of terminal.



Flat Ribbon Cable Assembly

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

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

Special Wiring Specifications

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

1. How to order valves

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

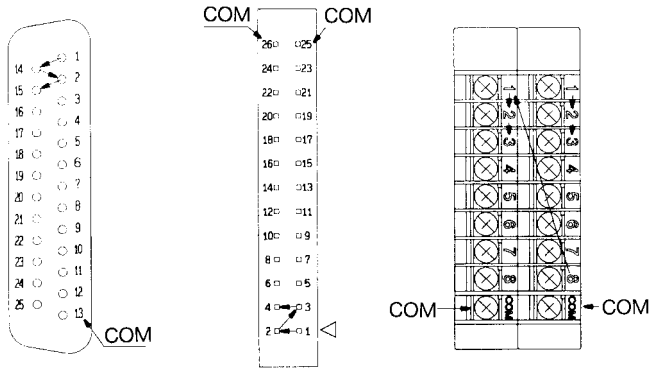
Example)

VV5Q17-09FU0-D K S

Others, option symbols: to be indicated alphabetically.

2. Wiring specifications

Connector terminal numbers are connected from solenoid station 1 on the A side in the order indicated by the arrows without shipping any terminal numbers.



F kit
D-sub connector (25P)

P kit
Flat ribbon cable connector (26P)

T kit
Terminal block (16 terminals)

3. Max. number of stations

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

kit	F kit (D-sub connector)		P kit (Flat ribbon cable connector)				T kit (Terminal block)		S kit (Serial)
Type	F S U □ 25P	F S U A 15P	P S U □ 26P	P S U C 20P	P S U B 16P	P S U A 10P	T1	T2	S□
Max. points	16 Note)	14	16 Note)	16 Note)	14	8	8	16	16

Note) Due to the limitation of internal wiring.

Negative Common Specifications

Specify the valve model no. as shown below for negative COM specification. The standard manifold no. can be used. Please contact SMC for negative COM S kit.

How to order negative COM valves

VQ1170 N − 5MO − C6

Negative common specifications

Inch-size One-touch Fittings

Refer to following model no. for inch-size One-touch fittings.

How to order manifold

VV5Q17 − 08FSO − DN − 00T

1(P), 3(R) port size ø1/4"

How to order valves

VQ1170 − 5M − N7

Cylinder port

Symbol	N1	N3	N7
Applicable tube O.D. (Inch)	ø1/8"	ø5/32"	ø1/4"

Plug Connector Assembly Model

Connector assembly will be required when the F, P, T, S kits add a valve.
Specify the valve and connector assembly.

Connector Assembly Part No.

Specifications		Part no.
Single (2-wire)	Positive common	AXT661-14A-F
	Negative common	AXT661-14AN-F
Double (latching) (3-wire)	Positive common	AXT661-13A-F
	Negative common	AXT661-13AN-F

Note) Lead wire length: 300 mm

DIN Rail Mounting

Each manifold can be mounted on a DIN rail.
Order it by indicating an option symbol for DIN rail mounting style, -D. In this case, a DIN rail which is approx. 30 mm longer than the manifold with the specified number of stations is attached. Besides, it is also available in the following cases.

● **When using DIN rail longer than the manifold with specified number of stations**
Clearly indicate the necessary number of stations next to the option symbol, -D, for the manifold no.

Example)

VV5Q17-08FU1-D09S

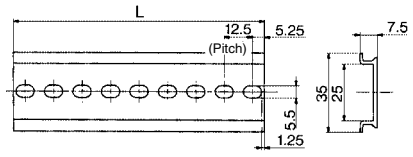
DIN rail for 9 stations

Others, option symbols: to be indicated alphabetically.

● **When ordering DIN rail only**

DIN rail no.: AXT100-DR-n

∗ Refer to the DIN rail dimension table for determining the length.

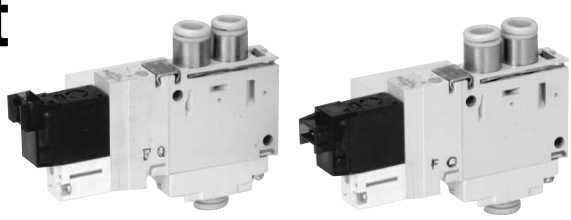


L Dimension L = 12.5 x n + 10.5

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

Series VQ
Single Unit

For individual use of a single valve.



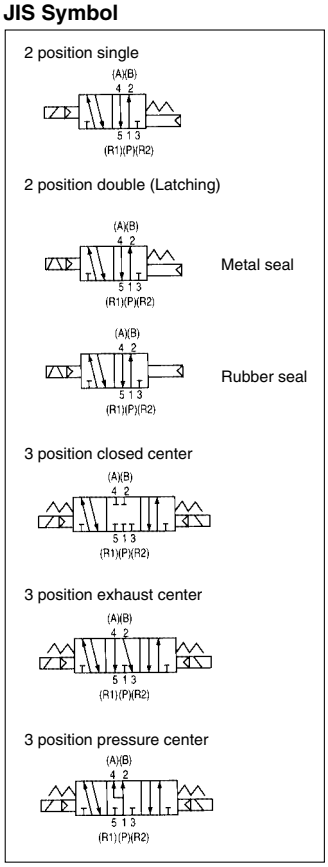
VQ1000

Model

Series		Number of solenoids		Model		Flow characteristics: 1 → 4/2 (P → A/B) C [dm³/(s·bar)]	b	Cv	Flow characteristics: 4/2 → 5/3 (A/B → R1/R2) C [dm³/(s·bar)]	b	Cv	Response time (ms) (2) Standard: 1 W H: 1.5 W	Low wattage: 0.5 W	AC	Weight (g)
Body ported	**VQ1000** Cassette Plug lead	2 position	Single	Metal seal	**VQ1160**	0.56	0.15	0.13	0.60	0.12	0.14	12 or less	15 or less	29 or less	50
				Rubber seal	**VQ1161**	0.71	0.20	0.17	0.80	0.16	0.19	15 or less	20 or less	34 or less	
			Double (Latching)	Metal seal	**VQ1260**	0.56	0.15	0.13	0.60	0.12	0.14	12 or less	15 or less	29 or less	
				Rubber seal	**VQ1261**	0.71	0.20	0.17	0.80	0.16	0.19	15 or less	20 or less	34 or less	
		3 position	Closed center	Metal seal	**VQ1360**	0.53	0.16	0.12	0.58	0.12	014	20 or less	26 or less	40 or less	65
				Rubber seal	**VQ1361**	0.65	0.23	0.16	0.70	0.20	0.17	25 or less	33 or less	47 or less	
			Exhaust center	Metal seal	**VQ1460**	0.54	0.16	0.12	0.60	0.12	014	20 or less	26 or less	40 or less	
				Rubber seal	**VQ1461**	0.65	0.23	0.16	0.80	0.16	0.19	25 or less	33 or less	47 or less	
			Pressure center	Metal seal	**VQ1560**	0.54	0.16	0.12	0.58	0.12	0.14	20 or less	26 or less	40 or less	
				Rubber seal	**VQ1561**	0.70	0.20	0.17	0.72	0.20	0.17	25 or less	33 or less	47 or less	

Note 1) Cylinder port size C6 (VQ1000)
Note 2) As per JIS B 8375-1981 (Supply pressure: 0.5 MPa; with indicator light/surge voltage suppressor; clean air. Subject to the pressure and air quality.)

JIS Symbol



Standard Specifications

Valve specifications	Valve construction		Metal seal	Rubber seal
	Fluid		Air/Inert gas	Air/Inert gas
	Maximum operating pressure		0.7 MPa (High pressure type: 0.8 MPa)	
	Min. operating pressure	Single	0.1 MPa	0.15 MPa
		Double (Latching)	0.1 MPa	0.15 MPa
		3 position	0.15 MPa	0.2 MPa
	Ambient and fluid temperature		–10 to 50°C (1)	
	Lubrication		Not required	
	Manual override (2)		Push type/Locking type (Tool required, Manual type) Option	
	Impact/Vibration resistance		150/30 m/s²	
	Enclosure		Dust tight	
Solenoid	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), 1.5 W DC (63 mA) (3) , 0.5 W DC (21 mA) (4)	
		12 VDC	1 W DC (83 mA), 1.5 W DC (125 mA) (3), 0.5 W DC (42 mA) (4)	
		100 VAC	Inrush 0.5 VA (5 mA), Holding 0.5 VA (5 mA)	
		110 VAC	Inrush 0.55 VA (5 mA), Holding 0.55 VA (5 mA)	
		200 VAC	Inrush 1.0 VA (5 mA), Holding 1.0 VA (5 mA)	
		220 VAC	Inrush 1.1 VA (5 mA), Holding 1.1 VA (5 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 in the case of high pressure type (1.5 W) specifications.
Note 4) Values in the case of low wattage type (0.5 W) specifications.

How to Order Valves

VQ1 [1] 6 [0] [Y] – [5] [L] [ ] – [C6]

Series VQ1000

Symbol

1	2 position single
2	2 position double (Latching)
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ (1)
H (2)	High pressure type	(1.5 W) ○	—
N	Negative common type	○	—
Y (2)	Low wattage type	(0.5 W) ○	—

Note 1) For power consumption of AC type, refer to page 2-4-94.
Note 2) Except double (latching).
Note 3) When two or more symbols are specified, indicate them alphabetically.

Coil rated 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	Grommet (Except double (latching) and AC)
L	L plug connector with lead wire
LO	L plug connector without connector
M	M plug connector with lead wire
MO	M plug connector without connector

Manual override

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

Note) A manual override for pilot valve is provided to the standard model for double type.

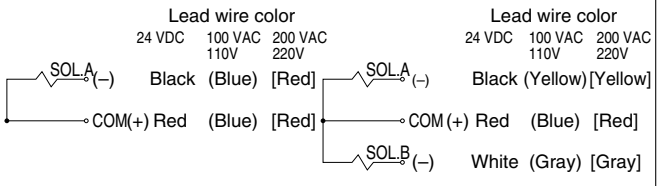
Sub-plate SUP, Cylinder port

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

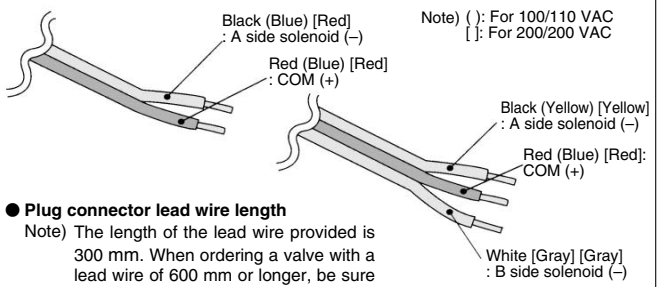
Note 1) For inch-size One-touch fittings, refer to "Option" on page 2-4-93.
Note 2) EXH port is a direct exhaust (with built-in silencer).

Wiring Specifications: Positive COM

● **The lead wires are connected to the valve as shown below. Connect each to the power supply side.**



Single solenoid **Double solenoid**



● **Plug connector lead wire length**

Note) The length of the lead wire provided is 300 mm. When ordering a valve with a lead wire of 600 mm or longer, be sure to indicate the model number of the valve without connector and connector assembly.

Example) Lead wire length 1000 mm
VQ1160-5LO-C6·····3 pcs.
AXT661-14A-10·····3 pcs.

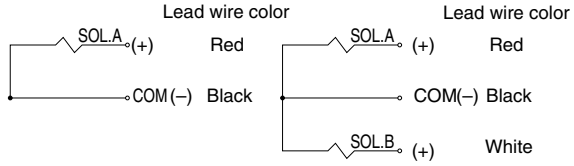
Connector Assembly Part No. (For DC)

Lead wire length	Single/3 position part no.	Double solenoid part no.
Socket only (3 pcs.)	AXT661-12A	
300 mm	AXT661-14A	AXT661-13A
600 mm	AXT661-14A-6	AXT661-13A-6
1000 mm	AXT661-14A-10	AXT661-13A-10
2000 mm	AXT661-14A-20	AXT661-13A-20
3000 mm	AXT661-14A-30	AXT661-13A-30

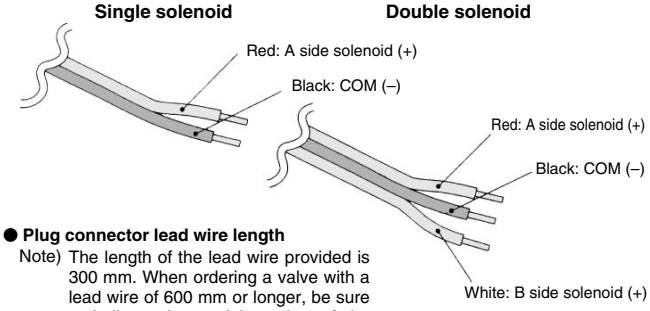
Note 1) 100/110 VAC for single: AXT661-31A-∗; for double: AXT661-32A-∗
200/220 VAC for single: AXT661-34A-∗; for double: AXT661-35A-∗
∗ are in accordance with the above table.
Note 2) 3 position type requires 2 sets for A side and B side.

Wiring Specifications: Negative COM (Option)

● **The lead wires are connected to the valve as shown below. Connect each to the power supply side.**



Single solenoid **Double solenoid**



● **Plug connector lead wire length**

Note) The length of the lead wire provided is 300 mm. When ordering a valve with a lead wire of 600 mm or longer, be sure to indicate the model number of the valve without connector and connector assembly.

Example) Lead wire length 1000 mm
VQ1160N-5LO-C6····3 pcs.
AXT661-14AN-10·····3 pcs.

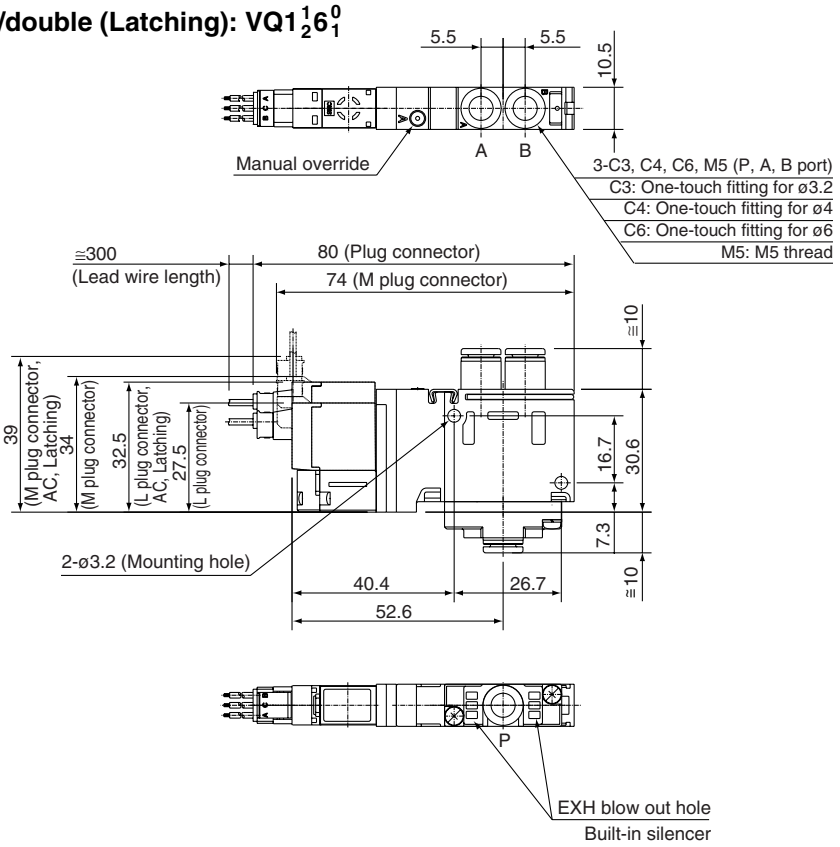
Connector Assembly Part No.

Lead wire length	Single/3 position part no.	Double solenoid part no.
Socket only (3 pcs.)	AXT661-12A	
300 mm	AXT661-14AN	AXT661-13AN
600 mm	AXT661-14AN-6	AXT661-13AN-6
1000 mm	AXT661-14AN-10	AXT661-13AN-10
2000 mm	AXT661-14AN-20	AXT661-13AN-20
3000 mm	AXT661-14AN-30	AXT661-13AN-30

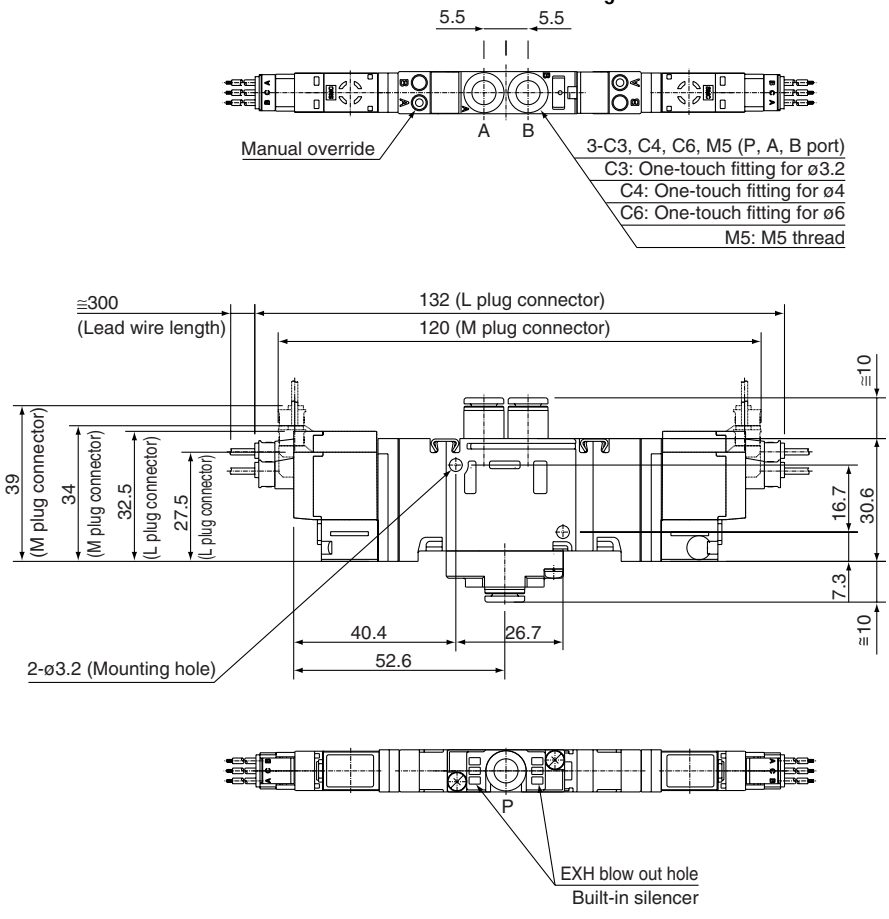
Note 1) When using the negative common specifications, use valves for negative common.
Note 2) 3 position type requires 2 sets for A side and B side.

Dimensions

2 position single/double (Latching): VQ1$^{1}_{2}$6$^{0}_{1}$



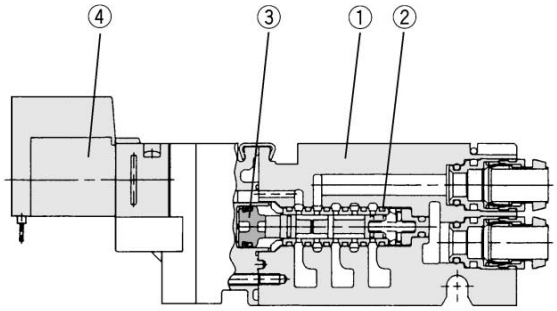
3 position closed center/exhaust center/pressure center: VQ1$^{3}_{5}$6$^{0}_{1}$

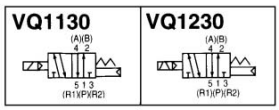


Construction
Main Parts, Replacement Parts

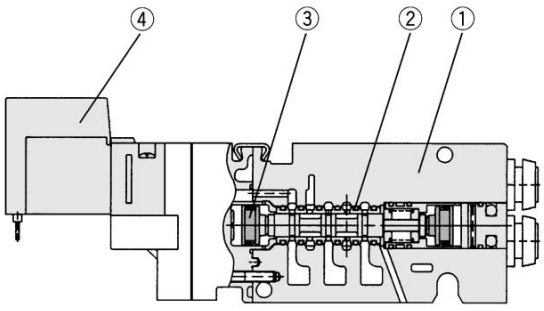
Construction: VQ1000/Plug-in Unit, Flip Type

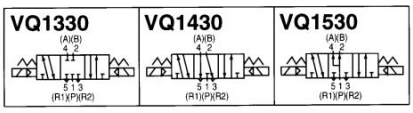
Metal seal
Single/Double (Latching)





3 position





Component Parts

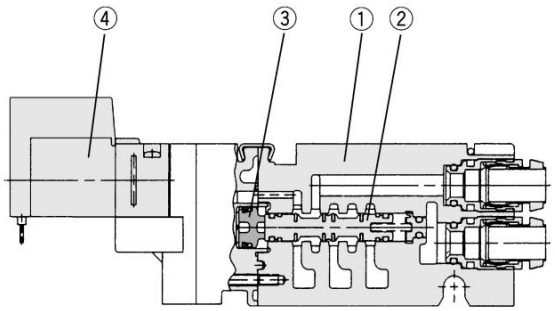
No.	Description	Material	Note
①	Body	Aluminum die-casted	
②	Spool/Sleeve	Stainless steel	
③	Piston	Resin	

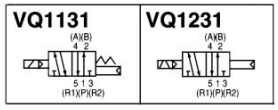
④ Pilot valve assembly

Single/3 position	VQ111(H/Y)-□F (Note) Voltage: 1 to 6	
Double (Latching)	VQ110L-□F Voltage: 1 to 6	

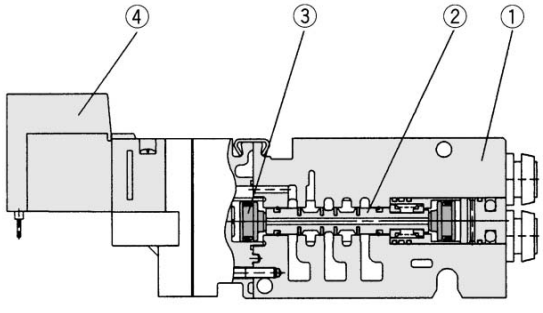
Note) (H): 1.5 W, (Y): 0.5 W

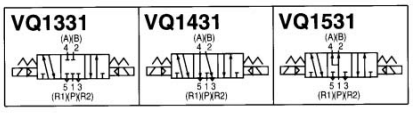
Rubber seal
Single/Double (Latching)





3 position





Component Parts

No.	Description	Material	Note
①	Body	Aluminum die-casted	
②	Spool valve	Aluminum/HNBR	
③	Piston	Resin	

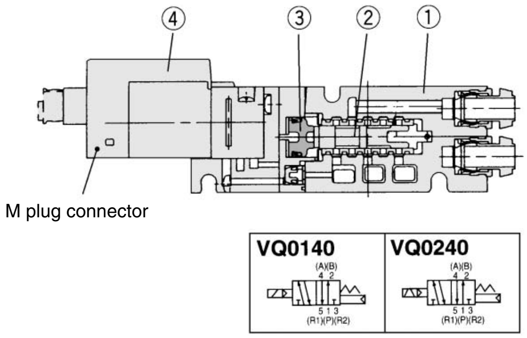
④ Pilot valve assembly

Single/3 position	VQ111(H/Y)-□F (Note) Voltage: 1 to 6	
Double (Latching)	VQ110L-□F Voltage: 1 to 6	

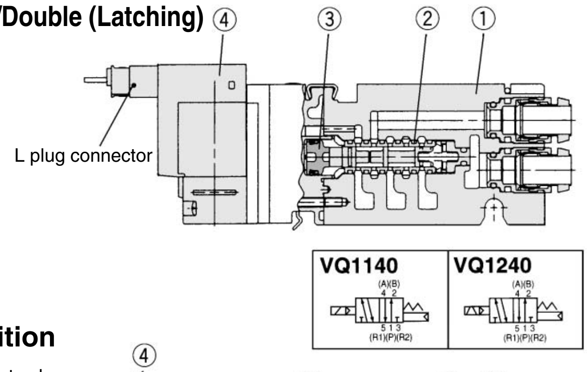
Note) (H): 1.5 W, (Y): 0.5 W

Construction: VQ0000, 1000, 2000/Plug Lead Unit, Flip Type

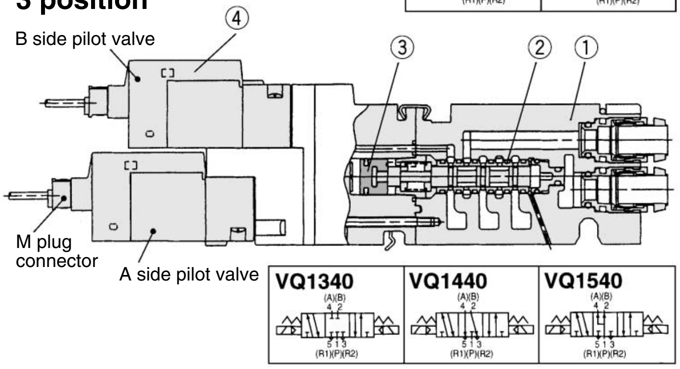
Metal seal
VQ0000



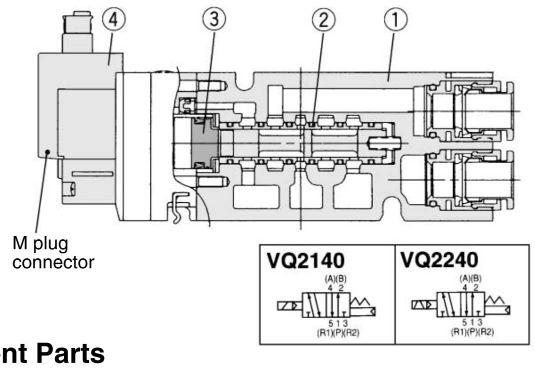
VQ1000
Single/Double (Latching)



3 position



VQ2000



Component Parts

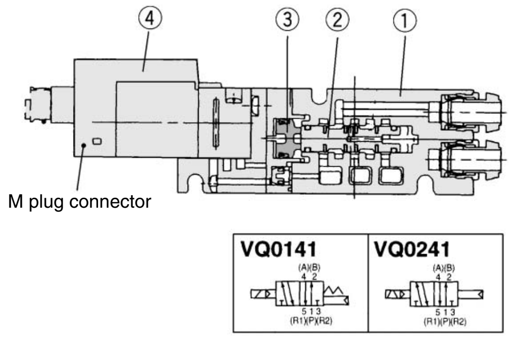
No.	Description	Material	Note
①	Body	Aluminum die-casted	
②	Spool/Sleeve	Stainless steel	
③	Piston	Resin	

④ Pilot valve assembly

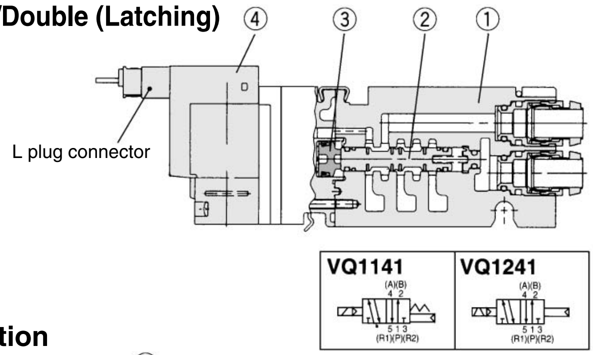
Single 3 position (VQ1000)	VQ111 (H)(Y) Note) -□ L Nil (VQ0000) / M -2 (VQ1000) / G 3 (VQ2000); 0: VQ0000, 1: VQ1000, VQ2000; Voltage 1 to 6	
Double (Latching)	VQ110L -□ L Nil (VQ0000) / M -2 (VQ1000) / 3 (VQ2000); Voltage 1 to 6	
3 position (VQ1000)	VQ111 (H)(Y) Note) -□ L / M / G - X18 {A side (Bottom side)} / Nil {B side (Top side)}; Voltage 1 to 6	The direction of the L and M connectors of a pilot valve is opposite to that of the single and double type.

Note 1) (H): 1.5 W, (Y): 0.5 W, G type: DC only

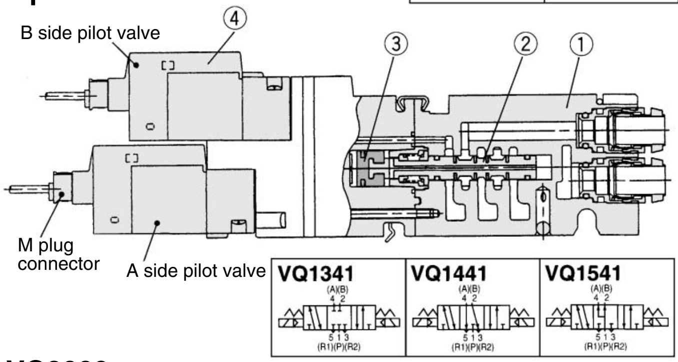
Rubber seal
VQ0000



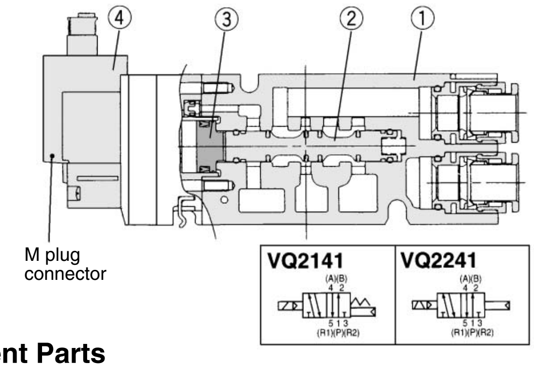
VQ1000
Single/Double (Latching)



3 position



VQ2000



Component Parts

No.	Description	Material	Note
①	Body	Aluminum die-casted	
②	Spool valve	Aluminum/HNBR	
③	Piston	Resin	

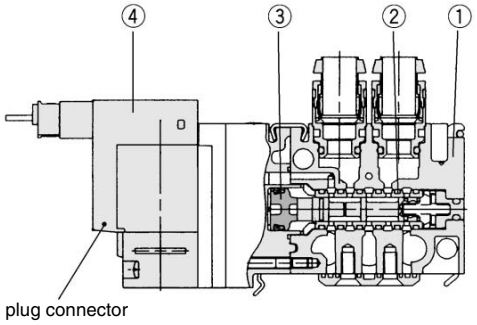
④ Pilot valve assembly

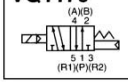
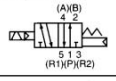
Single 3 position (VQ1000)	VQ111 (H)(Y) Note) -□ L Nil (VQ0000) / M -2 (VQ1000) / G 3 (VQ2000); 0: VQ0000, 1: VQ1000, VQ2000; Voltage 1 to 6	
Double (Latching)	VQ110L -□ L Nil (VQ0000) / M -2 (VQ1000) / 3 (VQ2000); Voltage 1 to 6	
3 position (VQ1000)	VQ111 (H)(Y) Note) -□ L / M / G - X18 {A side (Bottom side)} / Nil {B side (Top side)}; Voltage 1 to 6	The direction of the L and M connectors of a pilot valve is opposite to that of the single and double type.

Note 1) (H): 1.5 W, (Y): 0.5 W, G type: DC only

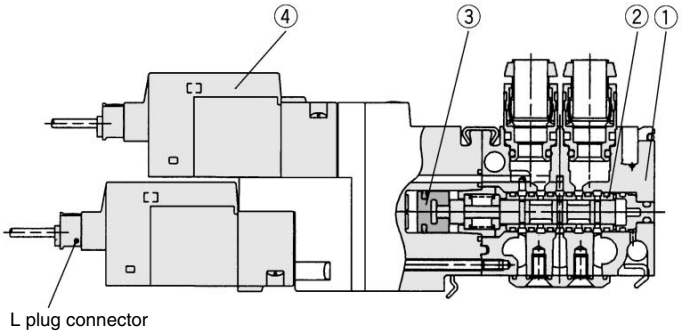
Construction: VQ1000/Plug Lead Unit, Cassette Type

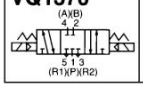
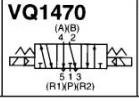
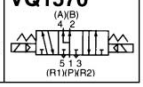
Metal seal
Single/Double (Latching)



VQ1170	VQ1270
	

3 position



VQ1370	VQ1470	VQ1570
		

Component Parts

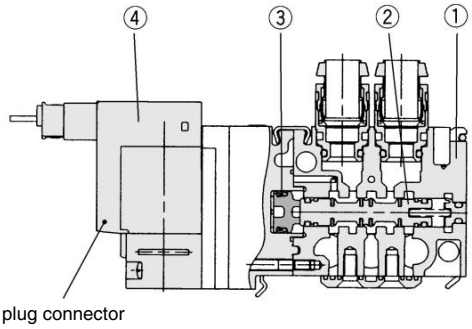
No.	Description	Material	Note
①	Body	Zinc die-casted	
②	Spool/Sleeve	Stainless steel	
③	Piston	Resin	

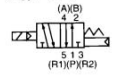
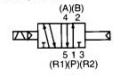
④ Pilot valve assembly

Single	Note) VQ111(H)(Y)-□L/M/G-2 Voltage: 1 to 6	
Double (Latching)	VQ110L-□L/M-2 Voltage: 1 to 6	
3 position	Note) VQ111(H)(Y)-□L/M/G-X18 {A side (Bottom side)} Nil {B side (Top side)} Voltage: 1 to 6	The direction of the L and Mconnectors of a pilot valve is opposite to that of the single and double type.

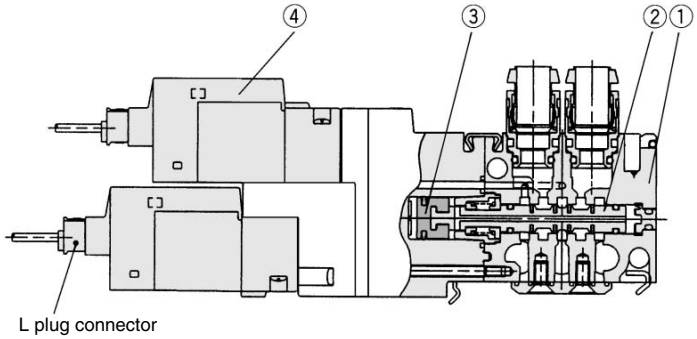
Note 1) (H): 1.5 W, (Y): 0.5 W, G type: DC only

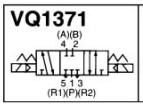
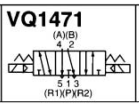
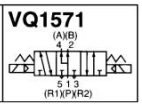
Rubber seal
Single/Double (Latching)



VQ1171	VQ1271
	

3 position



VQ1371	VQ1471	VQ1571
		

Component Parts

No.	Description	Material	Note
①	Body	Zinc die-casted	
②	Spool valve	Aluminum/HNBR	
③	Piston	Resin	

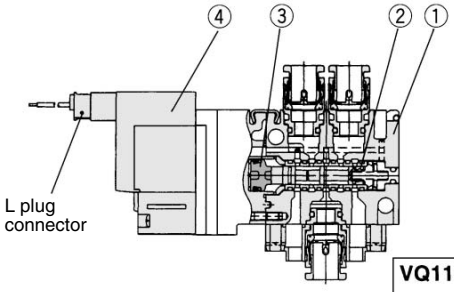
④ Pilot valve assembly

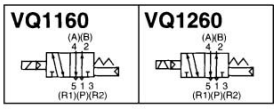
Single	Note) VQ111(H)(Y)-□L/M/G-2 Voltage: 1 to 6	
Double (Latching)	VQ110L-□L/M-2 Voltage: 1 to 6	
3 position	Note) VQ111(H)(Y)-□L/M/G-X18 {A side (Bottom side)} Nil {B side (Top side)} Voltage: 1 to 6	The direction of the L and Mconnectors of a pilot valve is opposite to that of the single and double type.

Note 1) (H): 1.5 W, (Y): 0.5 W, G type: DC only

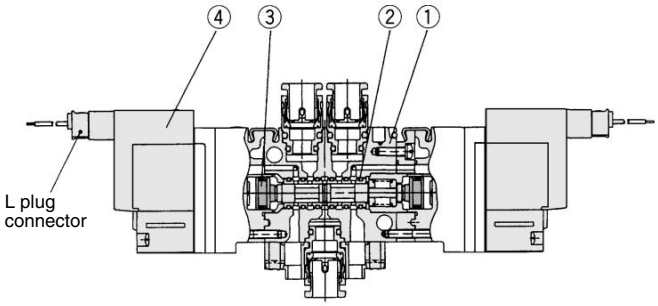
Construction: VQ1000/Single Unit

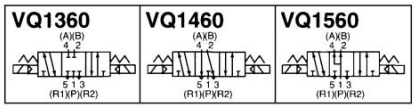
Metal seal
Single/Double (Latching)





3 position





Component Parts

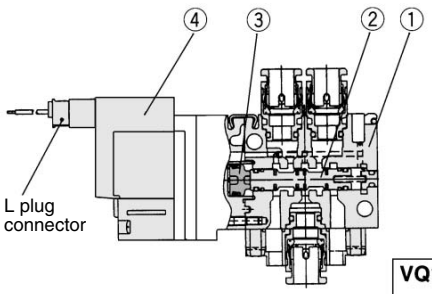
No.	Description	Material	Note
①	Body	Zinc die-casted	
②	Spool/Sleeve	Stainless steel	
③	Piston	Resin	

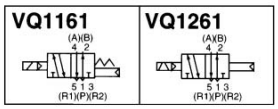
④ Pilot valve assembly

Single/3 position	Note) VQ111(H)(Y)-□LMG-2 Voltage: 1 to 6	
Double (Latching)	VQ110L-□LM-2 Voltage: 1 to 6	

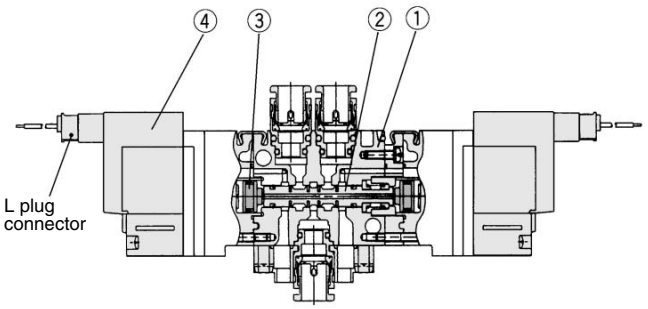
Note 1) (H): 1.5 W, (Y): 0.5 W, G type: DC only

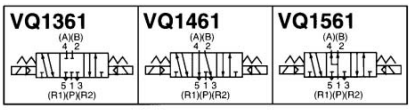
Rubber seal
Single/Double (Latching)





3 position





Component Parts

No.	Description	Material	Note
①	Body	Zinc die-casted	
②	Spool valve	Aluminum/HNBR	
③	Piston	Resin	

④ Pilot valve assembly

Single/3 position	Note) VQ111(H)(Y)-□LMG-2 Voltage: 1 to 6	
Double (Latching)	VQ110L-□LM-2 Voltage: 1 to 6	

Note 1) (H): 1.5 W, (Y): 0.5 W, G type: DC only

Exploded View of Manifold

VQ1000 (VV5Q13)/Plug-in Unit, Flip Type

(F, P, J, L, S kit)

∗ For how to increase the stations, refer to the instruction manual.

	Housing assembly and SI unit	U side end plate assembly	Valve and junction box assembly	D side end plate assembly	Station increase parts
S kit	Note 1) ② ①				
P/J kit	② PS (Side entry)				
F kit	③ PS (Side entry)	④	⑦ ⑨ ⑧ ⑩	⑥ ⑨ ⑩	⑫ ⑪
L kit		⑤			

Note 1) S kit is composed of a flat ribbon cable housing assembly (AXT100-1-PU20) of ① SI unit and ② P kit (20 pins).

<Housing Assembly and SI Unit>

Housing assembly and SI unit no.

No.	Manifold	Part no.	Description
①(1)	(SA kit)	EX330-S001	General type SI unit (Series EX300)
	(SB kit)	EX130-SMB1	SI unit for MELSECNET/MINI-S3 Data Link System (Mitsubishi Electric Corporation)
	(SC kit)	EX130-STA1	SI unit for SYSBUS Wire System (OMRON Corporation)
	(SD kit)	EX130-SSH1	SI unit for Satellite I/O Link System (SHARP Corporation)
	(SF1 kit)	EX130-SUW1	SI unit for 16 point Uni-wire System (NKE Corporation)
	(SH kit)	EX130-SUH1	SI unit for 16 point Uni-wire H System (NKE Corporation)
②	P_S^U kit	AXT100-1-P_S^U□ (2)	Flat cable housing assembly □ = Number of pins: 26, 20, 16, 10
	J_S^U kit	AXT100-1-J_S^U20 (2)	Flat cable housing assembly
③	F_S^U kit	AXT100-1-F_S^U□ (2)	D-sub connector housing assembly □ = Number of pins: 25, 15

Note 1) S kit is composed of a flat ribbon cable housing assembly (AXT100-1-PU20) of ① SI unit and ② P kit (20 pins). Place an order for AXT-100-1-PS20 separately.
Note 2) Top/vertical entry connector for FU and PU while side (horizontal) entry connector for FS and PS.

<D Side End Plate Assembly>

④⑤ D side end plate assembly no.

VVQ1000-3A-3-□-□

- **Option**
  - **Nil**: Common exhaust
  - **S:** Built-in silencer, direct exhaust (1)
- **Electrical entry**
  - **F**: For F kit
  - **P**: For P kit
  - **J**: For J kit
  - **L**: For L kit
  - **S**: For S kit

Note 1) Applicable for L kit only
Note 2) The housing assembly and SI unit of F/P/J/S kit are not included. Separately place an order for ①, ②, and ③.
Note 3) The ⑩'s fitting assembly is included.

<U Side End Plate Assembly No.>

⑥ U side end plate assembly no.

VVQ1000-2A-3-□

- **Option**
  - **Nil**: Common exhaust
  - **S:** Built-in silencer, direct exhaust

Note) The ⑩'s fitting assembly is included.

<Junction Box Assembly>

⑦ Junction box assembly no.

VVQ1000-1A-3-□

- **Electrical entry**
  - F1: For F kit
  - P1: P, G, T, S kit for 1 to 12 stations/Double wiring
  - P2: G, S kit for 13 to 16 stations/Double wiring
  - P3: G, S kit for 1 to 16 stations/Single wiring
  - L0□: L0 kit Note)
  - L1□: L1 kit Note)
  - L2□: L2 kit Note)

  } □: Stations (1 to 16)

Note) Lead wire assembly for extensions is attached.

<Replacement Parts>

No.	Part no.	Description	Material	Number
⑧	VVQ1000-80A-3-2	Seal	HNBR	12
⑨	VVQ1000-80A-4	Clip	Stainless steel	12

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

<Fittings Assembly>

⑩ Fittings assembly part no.

VVQ1000-50A-□

- **Port size**
  - **C3**: Applicable tubing ø3.2
  - **C4**: Applicable tubing ø4
  - **C6**: Applicable tubing ø6 (1)

Note 1) Standard SUP/EXH port is C6.
Note 2) Purchasing order is available in units of 10 pieces.

<Station Increase Parts>

∗ The station can be increased up to 2 stations.

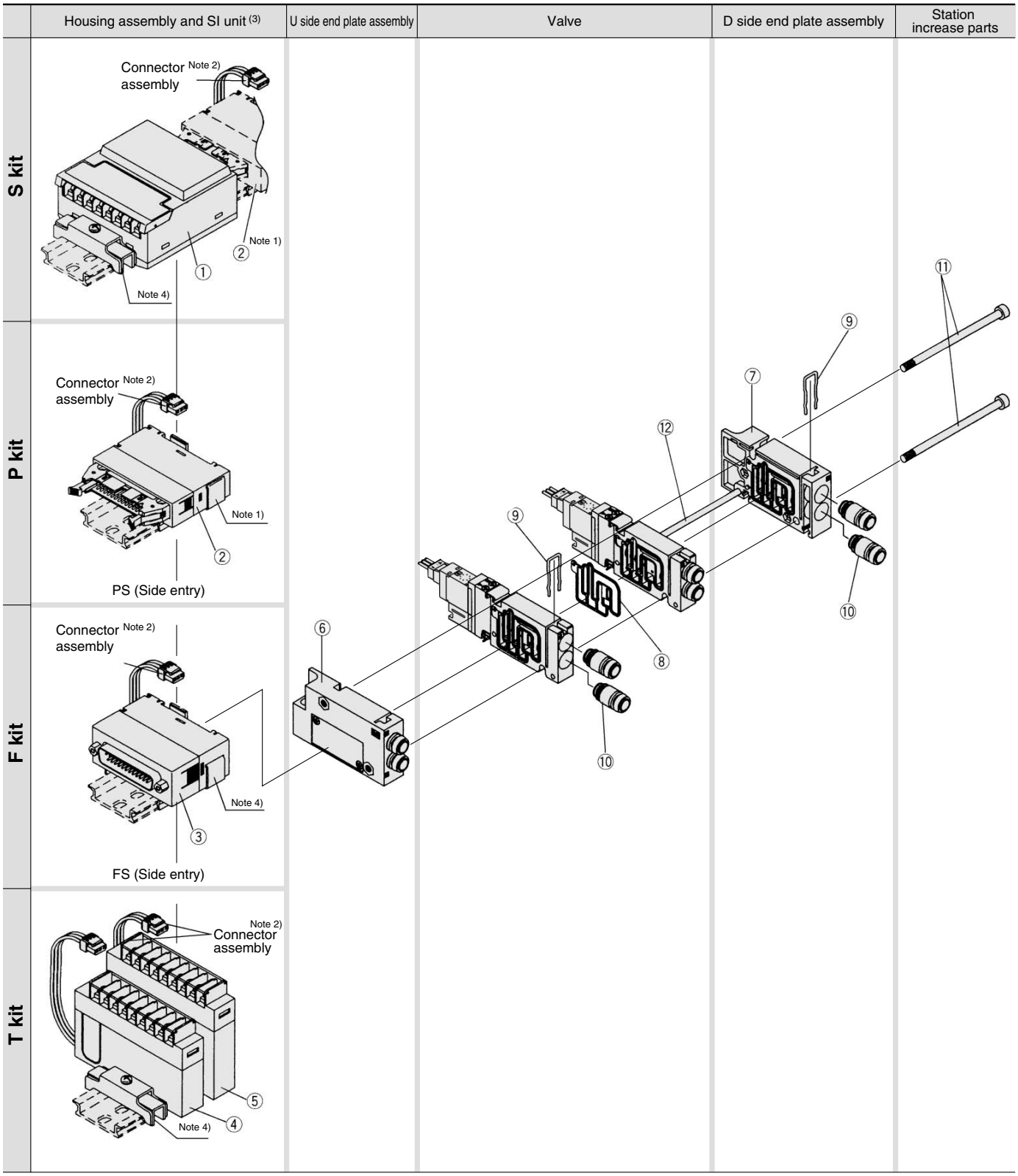
No.(3)	Part no.	Description	Material	Number(1)
⑪	VVQ1000-105A-3-□ (2)	Tie-rod bolt	Carbon steel	2
⑫		Junction cover	Stainless steel	1

Note 1) Each number of replacement parts are included in one set.
Note 2) □: Number of stations (01 to 16)
Note 3) ⑪ and ⑫ are in one set.

VQ1000 (VV5Q14)/Plug Lead Unit, Flip Type

(F, P, T, S kit)

∗ For how to increase the stations, refer to the instruction manual.



Note 1) S kit is composed of a flat ribbon cable housing assembly (AXT100-2-PU20) of ① SI unit and ② P kit (20 pins).
Note 2) Since no connector asswmbly is included, order it separately. (Refer to page 2-4-69.)
Note 3) A housing assembly is not used for a C kit.
Note 4) A DIN rail clamping bracket is attached to each.

<Housing Assembly and SI Unit>

Housing assembly and SI unit no.

No.	Manifold	Part no.	Description
①[1]	(SA kit)	EX330-S001	General type SI unit (Series EX300)
	(SB kit)	EX130-SMB1	SI unit for MELSECNET/MINI-S3 Data Link System (Mitsubishi Electric Corporation)
	(SC kit)	EX130-STA1	SI unit for SYSBUS Wire System (OMRON Corporation)
	(SD kit)	EX130-SSH1	SI unit for Satellite I/O Link System (SHARP Corporation)
	(SF1 kit)	EX130-SUW1	SI unit for 16 point Uni-wire System (NKE Corporation)
	(SH kit)	EX130-SUH1	SI unit for 16 point Uni-wire H System (NKE Corporation)
②	P^{U}_{S} kit	AXT100-2-P^{U}_{S} □ [2]	Flat ribbon cable housing assembly □ = Number of pins: 26, 20, 16, 10
③	F^{U}_{S} kit	AXT100-2-F^{U}_{S} □ [2]	D-sub connector housing assembly □ = Number of pins: 25, 15
④[3]	T kit	AXT100-2-TB1	Terminal block assembly (8 terminals)
⑤[3]	T kit	AXT100-2-TB2	Terminal block assembly (8 terminals)

Note 1) S kit is composed of a flat ribbon cable housing assembly (AXT100-2-PS20) of ① SI unit and ② P kit (20 pins). Place an order for AXT100-2-PS20 separately.
Note 2) Top/vertical entry connector for FU and PU while side (horizontal) entry connector for FS and PS.
Note 3) Since no connector assembly is included, order it separately. (Refer to page 2-4-69.)
Note 4) In the case of standard specifications and double wiring, ④ is for 1 to 4 stations and ⑤ is for 5 to 8 stations.

<D Side End Plate Assembly>

⑥ D side end plate assembly no.

VVQ1000-3A-4-□

Option
Nil: Common exhaust
S: Built-in silencer, direct exhaust (Applicable for C kit only)

Note) The ⑩'s fitting assembly is included.

<U Side End PlateAssembly No.>

⑦ U side end plate assembly no.

VVQ1000-2A-4-□

Option
Nil: Common exhaust
S: Built-in silencer, direct exhaust

Note) The ⑩'s fitting assembly is included.

<Replacement Parts>

No.	Part no.	Description	Material	Number
⑧	VVQ1000-80A-3-2	Seal	HNBR	12
⑨	VVQ1000-80A-4	Clip	Stainless steel	12

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

<Fittings Assembly>

⑩ Fittings assembly part no.

VVQ1000-50A-□

Port size
C3: Applicable tubing ø3.2
C4: Applicable tubing ø4
C6: Applicable tubing ø6 [1]

Note 1) Standard SUP/EXH port is C6.
Note 2) Purchasing order is available in units of 10 pieces.

<Station Increase Parts>

No. [3]	Part no.	Description	Material	Number [1]
⑪	VVQ1000-105A-4-□ [2]	Tie-rod bolt	Carbon steel	2
⑫		Guide rod	Stainless steel	1

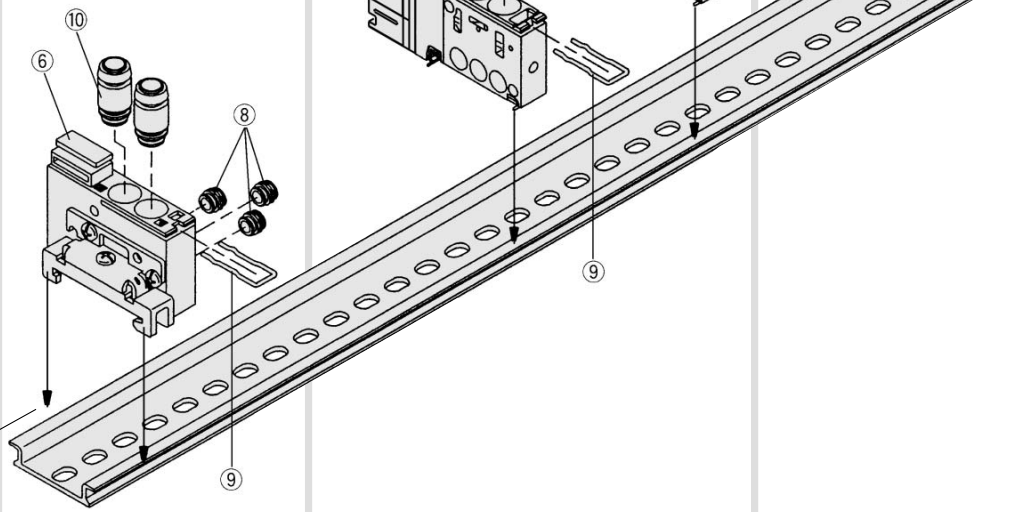
Note 1) Each number of replacement parts are included in one set.
Note 2) □: Number of stations (01 to 16)
Note 3) ⑪ and ⑫ are in one set.

VQ1000 (VV5Q17)/Plug Lead Unit, Cassette Type

(F, P, T, S kit)

∗ For how to increase the stations, refer to the instruction manual.

	Housing assembly and SI unit (3)	U side end plate assemblyy	Valve	D side end plate assembly
S kit	Connector assembly Note 2), ①, Note 4), Note 1), ②			
P kit	Note 2) Connector assembly, ②, Note 4) PU (Side entry)			
F kit	Note 2) Connector assembly, ③, Note 4) FU (Side entry)			
T kit	Note 4), ④, ⑤			



Note 1) S kit is composed of a flat ribbon cable housing assembly (AXT100-2-PU20) of ① SI unit and ② P kit (20 pins).
Note 2) Since no connector assembly is included, order it separately. (Refer to page 2-4-93.)
Note 3) A housing assembly is not used for a C kit.
Note 4) A DIN rail clamping bracket is attached to each.

<Housing Assemnly and SI Unit>

Housing assembly and SI unit no.

No.	Manifold	Part no.	Description
	(SA kit)	EX321-S001(-XP)	General type SI unit (Series EX300)
	(SB kit)	EX121-SMB1(-XP)	SI unit for MELSECNET/MINI-S3 Data Link System (Mitsubishi Electric Corporation)
	(SC kit)	EX121-STA1(-XP)	SI unit for SYSBUS Wire System (OMRON Corporation)
	(SD kit)	EX121-SSH1(-XP)	SI unit for Satellite I/O Link System (SHARP Corporation)
	(SE kit)	EX121-SPA1	SI unit for MEWNET-F System (Matsushita Electric Works Ltd.)
	(SF1kit)	EX121-SUW1(-XP)	SI unit for 16 point Uni-wire System (NKE Corporation)
	(SG kit)	EX121-SAB1(-XP)	SI unit for Allen Bradley Remote I/O (RIO) System (Rockwell Automation, Inc.)
① (1)	(SH kit)	EX121-SUH1(-XP)	SI unit for 16 point Uni-wire H System (NKE Corporation)
	(SJ1 kit)	EX121-SSL1(-XP)	SI unit for 16 point S-LINK System (SUNX Corporation)
	(SJ2 kit)	EX121-SSL2(-XP)	SI unit for 8 point S-LINK System (SUNX Corporation)
	(SK kit)	EX121-SFU1(-XP)	SI unit for T-LINK Mini System (Fuji Electric Co.,Ltd.)
	(SQ kit)	EX121-SDN1	SI unit for DeviceNet, CompoBus/D (OMRON Corporation)
	(SR1 kit)	EX121-SCS1(-XP)	SI unit for 16 point CompoBus/S System (OMRON Corporation)
	(SR2 kit)	EX121-SCS2(-XP)	SI unit for 8 point CompoBus/S System (OMRON Corporation)
	(SV kit)	EX121-SMJ1(-XP)	Mitsubishi Electric Corporation: CC-LINK System
②	P^{U}_{S} kit	AXT100-2-P^{U}_{S}□ (2)	Flat ribbon cable housing assembly □ = Number of pins: 26, 20, 16, 10
③	F^{U}_{S} kit	AXT100-2-F^{U}_{S}□ (2)	D-sub connector housing assembly □ = Number of pins: 25, 15
④ (3)	T kit	AXT100-2-TA1	Terminal block assembly (8 terminals)
⑤ (3)	T kit	AXT100-2-TA2	Terminal block assembly (8 terminals)

Note 1) A S kit is composed of a flat ribbon cable housing assembly (AXT100-2-PS20) of ① SI unit and ② P kit (20 pins). Place an order for AXT100-2-PS20 separately. Suffix -XP for dustproof type SI unit.
Note 2) Top/vertical entry connector for FU and PU while side (horizontal) entry connector for FS and PS.
Note 3) Since no connector assembly is included, order it separately. (Refer to page 2-4-93.)
Note 4) In the case of standard specifications and double wiring, ④ is for 1 to 4 stations and ⑤ is for 5 to 8 stations.

<D Side End Plate Assembly>

⑥ D side end plate assembly no.

VVQ1000-3A-7

Note) The ⑩'s fitting assembly is included.

<U Side End Plate Assembly No.>

⑦ U side end plate assembly no.

VVQ1000-2A-7

Note) The ⑩'s fitting assembly is included.

<Replacement Parts>

No.	Part no.	Description	Material	Number
⑧	VVQ1000-80A-7-2	Bushing assembly		3
⑨	VVQ1000-80A-7-4	Clip	Stainless steel	12

<Fittings Assembly>

⑩ Fittings assembly part no.

VVQ1000-50A-□

Port size
C3: Applicable tubing ø3.2
C4: Applicable tubing ø4
C6: Applicable tubing ø6 (1)

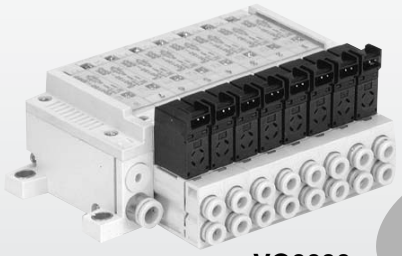
Note 1) Standard SUP/EXH port is C6.
Note 2) Purchasing order is available in units of 10 pieces.

Base Mounted
Metal Seal/Rubber Seal
Series VQ

Space-saving profile

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

Space-saving ····· 45% less
Capacity-saving ····· 50% less



VQ0000 (VV5Q05)

Unprecedented high speed response and long service life

(Metal seal, single, with indicator light/surge voltage suppressor)

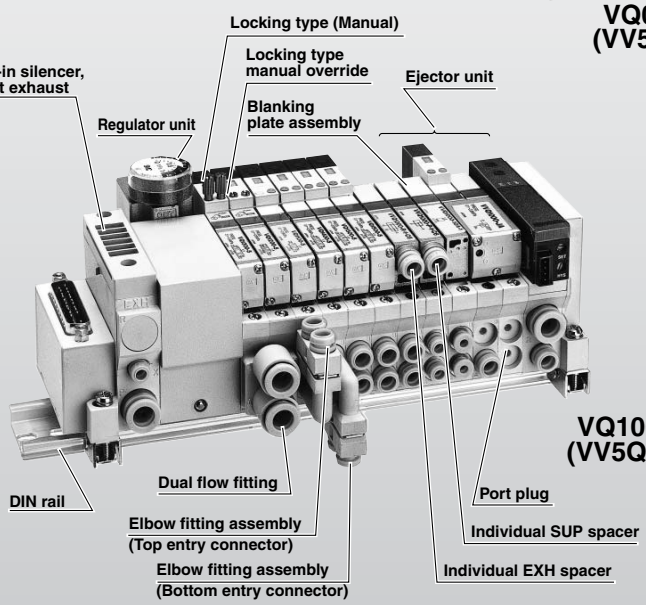
VQ0000	10 ms	200 million cycles
VQ1000	10 ms	
VQ2000	20 ms	

Dispersion accuracy ±2 ms

Thin compact design with large flow capacity

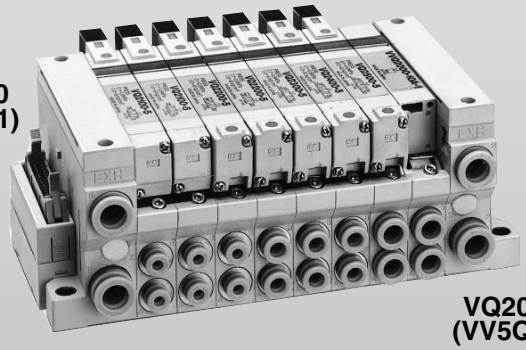
Model	Manifold pitch (mm)	Flow characteristics		Cylinder size
		Metal seal	Rubber seal	
		C [dm³/(s·bar)]	C [dm³/(s·bar)]	
VQ0000	10.7	0.44	0.53	Up to ø40
VQ1000	10.5	0.72	1.0	Up to ø50
VQ2000	16	2.6	3.2	Up to ø80

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



∗ The photo does not show an actual use example.

A variety of options



VQ1000 (VV5Q11)

VQ2000 (VV5Q21)

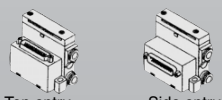
Innovative mounting methods

The non-bias, one-clamp structure permits easy valve replacement. (Plug-in unit)

Built-in One-touch fittings for easy piping.

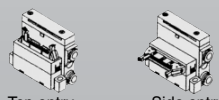
A variety of common wiring methods are standardized.

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



Top entry Side entry

P kit (Flat ribbon cable connector)
Number of pins: 10, 16, 20, 26

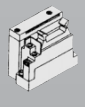


Top entry Side entry

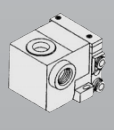
J kit (Flat ribbon cable connector)
Number of pins: 20
(PC Wiring System compliant)

Top entry Side entry

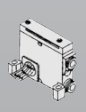
G kit (Flat ribbon cable with terminal block)
Number of pins: 20



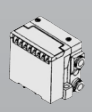
T kit (Terminal box)



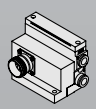
L kit (Lead wire)



S kit (Serial transmission unit)



M kit (Multi-connector kit)



(VQ2000 only)

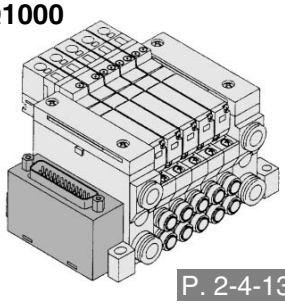
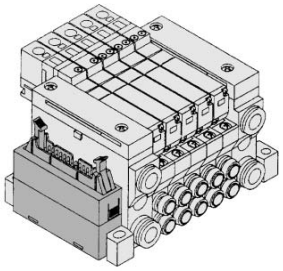
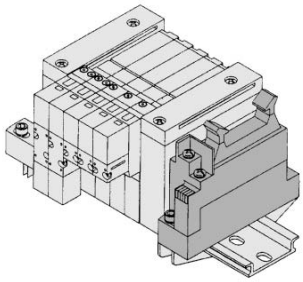
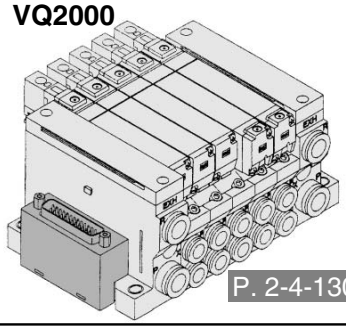
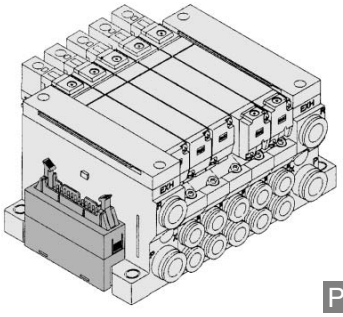
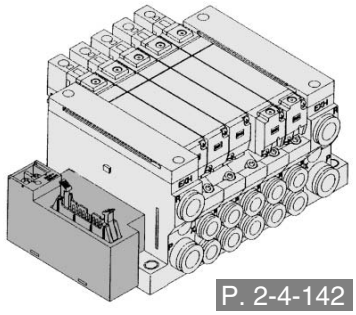
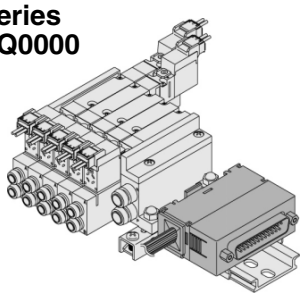
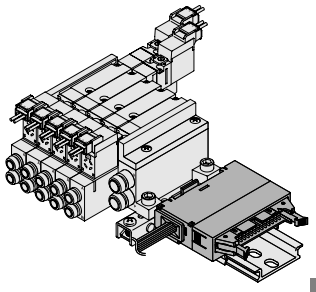
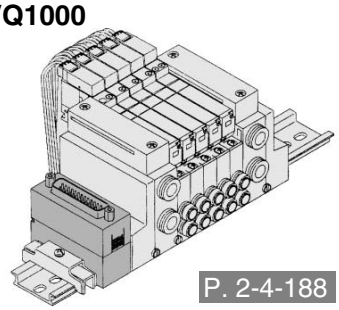
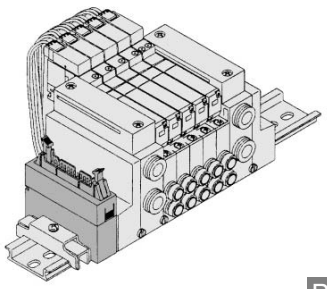
Valve Specifications

Base Mounted

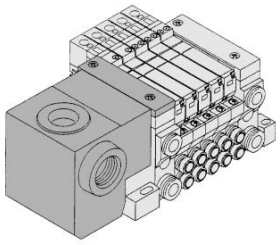
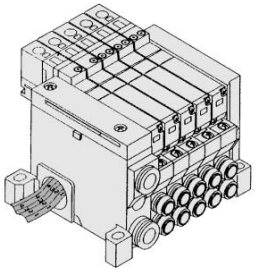
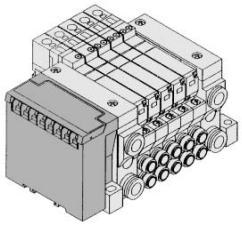
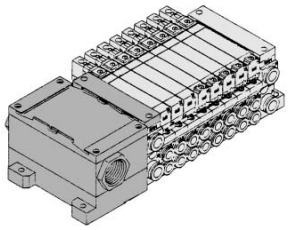
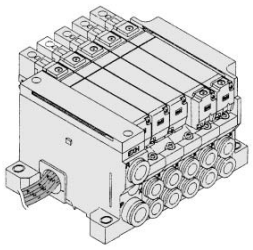
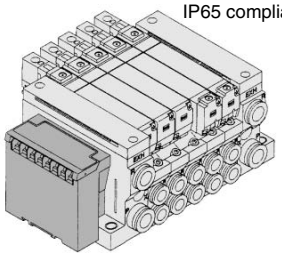
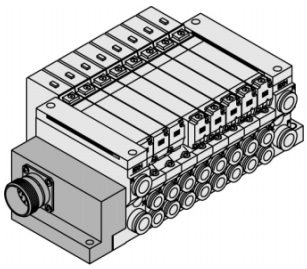
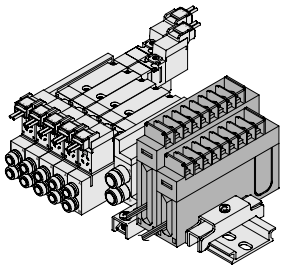
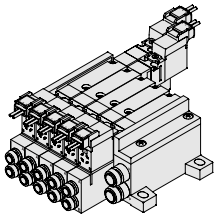
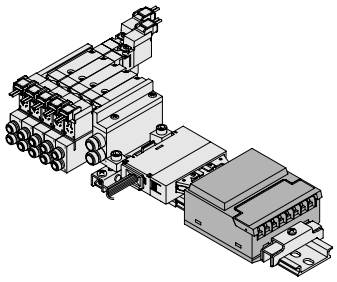
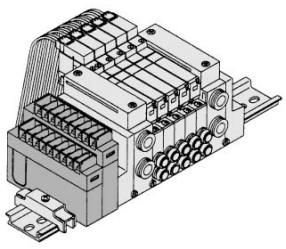
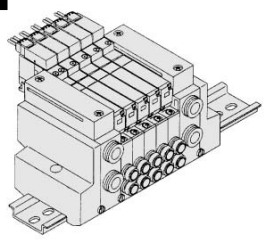
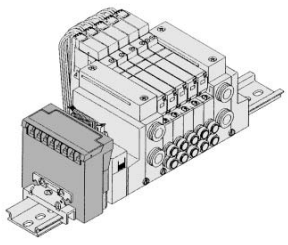
				Sonic conductance C [dm³/(s·bar)] 4/2 → 5/3 (A/B → R1/R2)		Type of actuation					Voltage			Electrical entry				Manual override		
				Double Single	3 position Closed center	Single	Double	Closed center	Exhaust center	Pressure center	12 V 24 V DC	100 V 110 V AC (50/60 Hz)	200 V 220 V AC (50/60 Hz)	Plug-in	Grommet	L plug connector	M plug connector	Push type, Tool required	Locking type	Locking type (Manual)
Plug-in	*Series VQ1000* P. 2-4-120	Rubber seal	**VQ□00**	0.72	0.72	●	●	●	●	●	●	●	● (F/L kit only)	●				●	●	●
		Metal seal	**VQ1□01**	1.0	0.65															
						P. 2-4-128														
	Series VQ2000 P. 2-4-124	Rubber seal	**VQ2□00**	2.6	2.0	●	●	●	●	●	●	●	● (F/L kit only)	●				●	●	●
		Metal seal	**VQ2□01**	3.2	2.2															
						P. 2-4-128														
Plug lead	*Series VQ0000* P. 2-4-182	Rubber seal	**VQ0□50**	0.44	0.32	●	●	●	●		●	●	●		●	●	●	●	●	
		Metal seal	**VQ0□51**	0.53	0.44															
						P. 2-4-186														
	Series VQ1000 P. 2-4-184	Rubber seal	**VQ1□10**	0.72	0.72	●	●	●	●	●	●					●		●	●	●
		Metal seal	**VQ1□11**	1.0	0.65															
						P. 2-4-186														

Option				
External pilot	●	●	●	
D-sub connector 15P	●	●	●	●
Flat ribbon cable 10P 16P 20P	●	●	●	●
Negative common specifications	For S, G kit, please contact SMC. ●	For S, G kit, please contact SMC. ●	For S, G kit, please contact SMC. ●	For S kit, please contact SMC. ●
One-touch fitting Inch size	●	●	●	●
For special wiring spec.	Except L kit ●	Except L kit ●	Except L kit ●	Except L kit ●
Manifold Option				
Blanking plate	●	●	●	●
Individual SUP/EXH	●	●	●	●
SUP/EXH passage spacer	●	●	●	●
Name plate	●	●	●	●
Back pressure check valve	●	●	●	
DIN rail mounting style	●	●	●	Standard ●
Built-in silencer	●	●	●	●
Silencer for EXH port	●	●	●	●
Elbow fitting for cylinder port	●	●	●	●
Two stations matching fittings for double flow rate	●	●	●	●
Plug for cylinder port	●	●	●	●
Regulator unit	●			
Ejector unit mounted	●			
Double check block	●	●	●	●
	P. 2-4-166	P. 2-4-172	P. 2-4-208	P. 2-4-210
	P. 2-4-177	P. 2-4-177	P. 2-4-215	P. 2-4-215

Manifold Variations

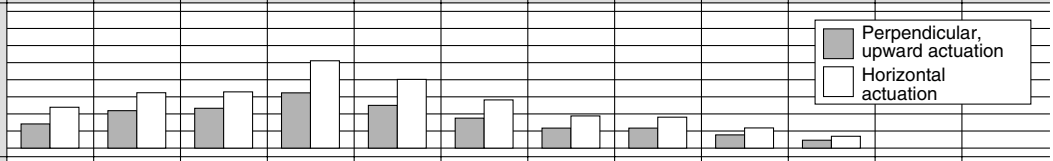
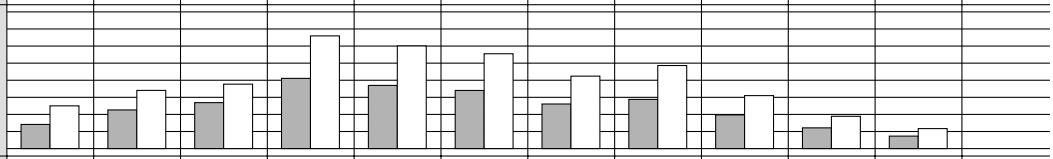
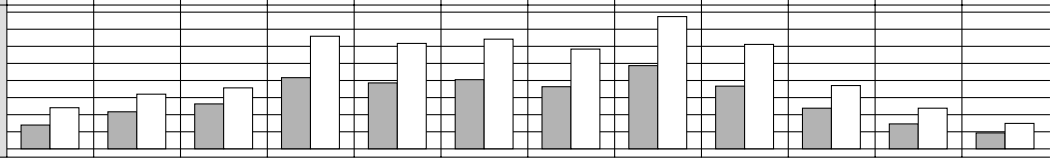
	F kit **D-sub connector** Conforming to MIL D-sub connector	**P** kit **Flat ribbon cable connector (26, 20, 16, 10 pins)** Conforming to MIL flat ribbon cable connector	**J** kit **Flat ribbon cable connector (20 pins)** Conforming to MIL flat ribbon cable connector PC Wiring System compatible	**G** kit **Flat ribbon cable with power supply terminal block** Conforming to MIL flat ribbon cable connector Applicable to OMRON's serial transmission unit PC Wiring System compatible
Plug-in	**Series VQ1000**  P. 2-4-130	P/J kit  P. 2-4-134		 P. 2-4-142
	Series VQ2000  P. 2-4-130	P/J kit  P. 2-4-134		 P. 2-4-142
Plug Lead	**Series VQ0000**  P. 2-4-188	P kit only  P. 2-4-192		—
	Series VQ1000  P. 2-4-188	P kit only  P. 2-4-192		—

Manifold Variations

T kit	L C kit	S kit	M kit
Terminal block box (Terminal block) Terminal blocks are compactly arranged on one side.	**Lead wire** Direct electrical entry type	**Serial transmission unit** Enables single-wire solenoid valve-PLC operation	**Circular connector** IP65 (Dusttight/Low jetproof type)
 Terminal block box P. 2-4-146	L kit  P. 2-4-150	 P. 2-4-154	—
 Enclosure IP65 compliant P. 2-4-146	L kit  Enclosure IP65 compliant P. 2-4-150	Enclosure IP65 compliant  P. 2-4-154	 W type only P. 2-4-158
 Terminal block P. 2-4-196	C kit  P. 2-4-200	 P. 2-4-204	—
 Terminal block P. 2-4-196	C kit  P. 2-4-200	 P. 2-4-204	—

Cylinder Speed Chart

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

Series	Average speed (mm/s)	Bore size											
		Series CJ2 Pressure 0.5 MPa Load factor 50% Stroke 60 mm			Series CM2 Pressure 0.5 MPa Load factor 50% Stroke 300 mm				Series MB, CA1 Pressure 0.5 MPa Load factor 50% Stroke 500 mm				
		ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100
VQ0151 Port size: One-touch fitting for ø4	800 700 600 500 400 300 200 100 0												
VQ1101 Port size: One-touch fitting for ø6	800 700 600 500 400 300 200 100 0												
VQ2101 Port size: One-touch fitting for ø8	800 700 600 500 400 300 200 100 0												

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

Conditions

Series	Conditions	Series CJ2	Series CM2	Series MB, CA1
VQ0151	Tube bore x Length	T0425 x 1 m		
	Speed controller	AS2001F-04		
	Silencer	AN103-X233		
VQ1101	Tube bore x Length	T0604 x 1 m		
	Speed controller	AS3001F-06		
	Silencer	AN103-X233		
VQ2101	Tube bore x Length	T0806 x 1 m		
	Speed controller	AS3001F-08		
	Silencer	AN200-KM8		

For details about certified products conforming to international standards, visit us at www.smcworld.com.

Series VQ1000
Base Mounted
Plug-in Unit

How to Order Manifold

VV5Q 1 1 – 08 C6 F U1 – ☐

Series

1	VQ1000

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.)

Cylinder port

Symbol	Port size
C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread
CM	With mixed size/with port plug (1)
L3	W/ elbow One-touch fitting ø3.2 for top piping
L4	W/ elbow One-touch fitting ø4 for top piping
L6	W/ elbow One-touch fitting ø6 for top piping
L5	Elbow M5 thread for top piping
B3	W/ elbow One-touch fitting ø3.2 for bottom piping
B4	W/ elbow One-touch fitting ø4 for bottom piping
B6	W/ elbow One-touch fitting ø6 for bottom piping
B5	Elbow M5 thread for bottom piping
LM	Mixed size for elbow piping

Note 1) Specify "Mixed size/with port plug" in the manifold specification sheet.
Note 2) Inch-size One-touch fittings are also available. For details, refer to page 2-4-179.
Note 3) M5 fittings for M5 thread are attached without being incorporated.

Simple specials are available with SMC Simple Specials System.
For details about applicable models, please contact SMC.

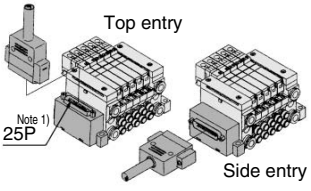
Option

Symbol	Option
Nil	None
2	200/220 VAC models (Applicable to F and L kits)
B	With back pressure check valve (2)
D	DIN rail mounting
G1	1 set of regulator unit (3)
G2	2 sets of regulator unit (3)
G3	3 sets of regulator unit (3)
J☐	With vacuum ejector unit (4)
K	Special wiring specifications (Not double wiring) (5)
N	With name plate
R	External pilot (6)
S	Built-in silencer, direct exhaust

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by using the manifold specification sheet.
Note 3) Specify the mounting position in the manifold specification sheet.
Note 4) Refer to page 2-4-170 for the details of ejector mounted styles. A combination of "J" and "N" is unavailable.
Note 5) Specify the wiring by means of the manifold specification sheet. (Except L kit)
Note 6) Indicate "R" for the valve with external pilot.

Kit/Electrical entry/Cable length

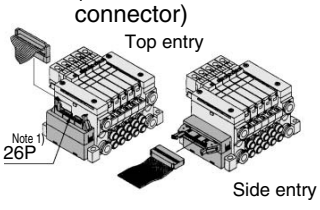
F kit (D-sub connector)



Connector entry direction: Top entry / Side entry — P. 2-4-130

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

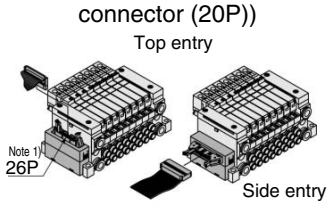
P kit (Flat ribbon cable connector)



Connector entry direction: Top entry / Side entry — P. 2-4-134

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

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

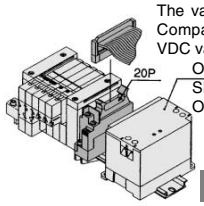


Connector entry direction: Top entry / Side entry — P. 2-4-138

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

G Kit (Flat ribbon cable connector with power supply terminal block)

The valve is equipped with Compatible only with 24 VDC valves.



P. 2-4-142

Kit G	U0	Without cable	2 to 16 (2) stations	
	U1	With cable (1.5 m)		
	U2	With cable (3 m)		
	U3	With cable (5 m)		

Note 1) Besides the above, F and P kits with different number of pins are available. Refer to page 2-4-177 for details.
Note 2) For details, refer to page 2-4-178.

How to Order Valves

VQ 1 [1] 0 [0] Y – 5 [ ] [ ]

Series

1	VQ1000

Type of actuation

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

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ Note)
H	High pressure type	(1.5 W) ○	—
Y	Low wattage type	(0.5 W) ○	—

Note) For power consumption of AC type, refer to page 2-4-129.

Note) For external pilot and negative COM specifications, refer to "Option" on pages 2-4-178 to 2-4-179.

Light/Surge voltage suppressor

Nil	Yes
E Note)	None

Note) Inapplicable to the S kit.

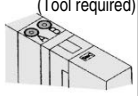
Coil voltage

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

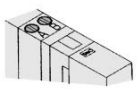
Note) 200/220 VAC models are applicable to F and L kits.

Manual override

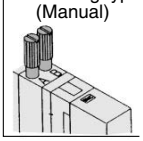
Nil: Non-locking push type (Tool required)



B: Push-locking slotted type



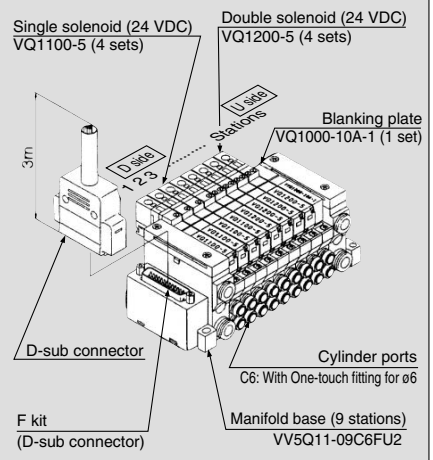
C: Locking type (Manual)



Note) Rubber seal type only.

How to Order Manifold Assembly

Example

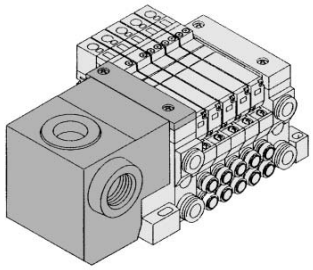


VV5Q11-09C6FU2 ···· 1 set (F kit 9 station manifold base no.)
∗VQ1100-5 ····· 4 sets (Single solenoid part no.)
∗VQ1200-5 ····· 4 sets (Double solenoid part no.)
∗VV1000-10A-1 ····· 1 set (Blanking plate part no.)
→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

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

VQC
SQ
VQ0
VQ4
VQ5
VQZ
VQD

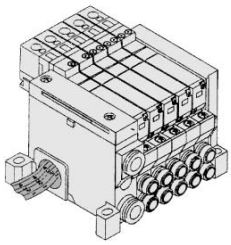
T kit (Terminal box)



P. 2-4-146

Kit T	O	Terminal block box	2 to 24 stations (2)

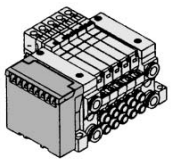
L kit (Lead wire cable)



P. 2-4-150

Kit L	0	With cable (0.6 m)	1 to 8 stations
	1	With cable (1.5 m)	
	2	With cable (3 m)	

S kit (Serial transmission unit)



The valve is equipped with an indicator light and surge voltage suppressor, and the voltage is 24 VDC. The dust proof SI unit is also available. Refer to page 2-4-154 for details.

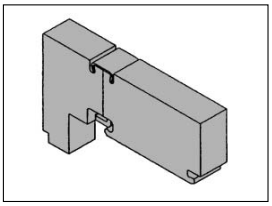
P. 2-4-154

Kit S	0	Without SI unit	Max.16 (2) stations
	A	With general type SI unit (Series EX300)	
	B	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System	
	C	OMRON Corp.: SYSBUS Wire System	
	D	SHARP Corp.: Satellite I/O Link System	
	E	Matsushita Electric Works: MEWNET-F System	
	F1	NKE Corp.: Uni-wire System (16 output points)	
	G	Rockwell Automation: Allen Bradley Remote I/O (RIO) 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)	Max. 8 stations
	K	Fuji Electric Co.: T-LINK Mini System	Max.16 stations
	Q	DeviceNet, CompoBus/D (OMRON Corp.)	
	R1	OMRON Corp.: CompoBus/S System (16 output points)	
	R2	OMRON Corp.: CompoBus/S System (8 output points)	Max. 8 stations
	V	Mitsubishi Electric Corp.: CC-LINK System	Max. 16 stations

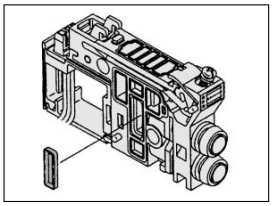
Manifold Option

P. 2-4-208

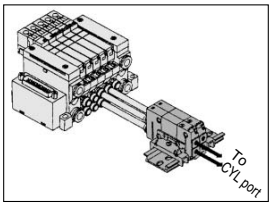
Blanking plate assembly
VVQ1000-10A-1



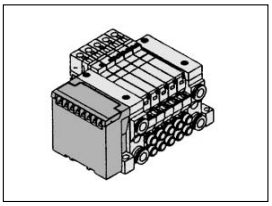
SUP block plate
VVQ1000-16A



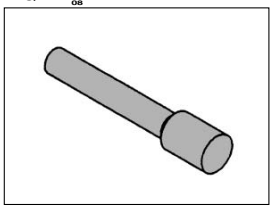
Double check block
VQ1000-FPG-□□



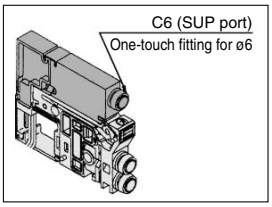
2 stations matching fitting assembly
VVQ1000-52A-C8



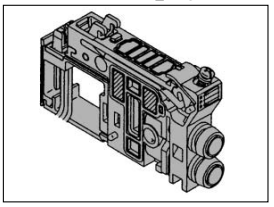
Blanking plate
KQ2P-$^{23}_{08}$



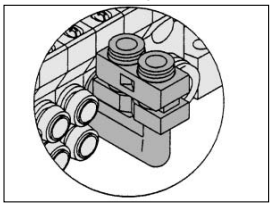
Individual SUP spacer
VVQ1000-P-1-C6



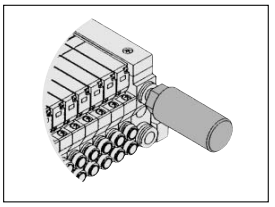
EXH block base assembly
VVQ1000-19A- $^{F\square}_{P\square}$ **-** $^{C3}_{C4}$ $^{C6}_{M5}$ $^{L\square}$



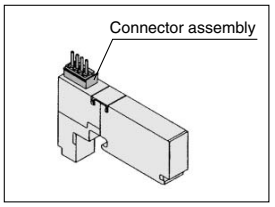
Elbow fitting assembly
VVQ1000-F-L $^{C3}_{C4}$ $^{C6}_{M5}$



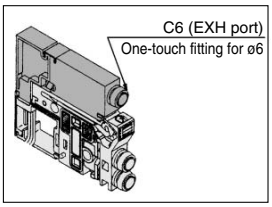
Silencer (For EXH port)
AN200-KM8/AN203-KM8



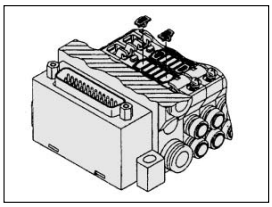
Blanking plate with connector
VVQ1000-1C□-□



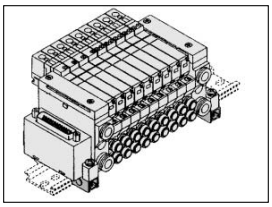
Individual EXH spacer
VVQ1000-R-1-C6



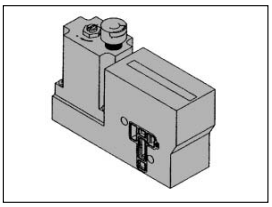
Back pressure check valve assembly [-B]
VVQ1000-18A



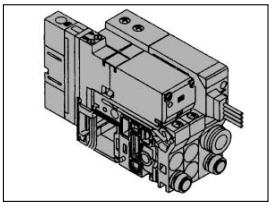
DIN rail mounting bracket [-D]
VVQ1000-57A



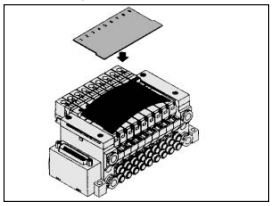
Regulator unit
VVQ1000-AR-1



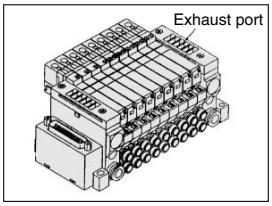
With vacuum ejector unit
[-J□]



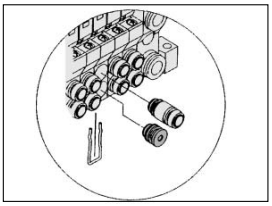
Name plate [-N]
VVQ1000- $^{N}_{NC}$ **-Station (1 to Max. stations)**



Built-in silencer,
direct exhaust [-S]



Port plug
VVQ0000-58A

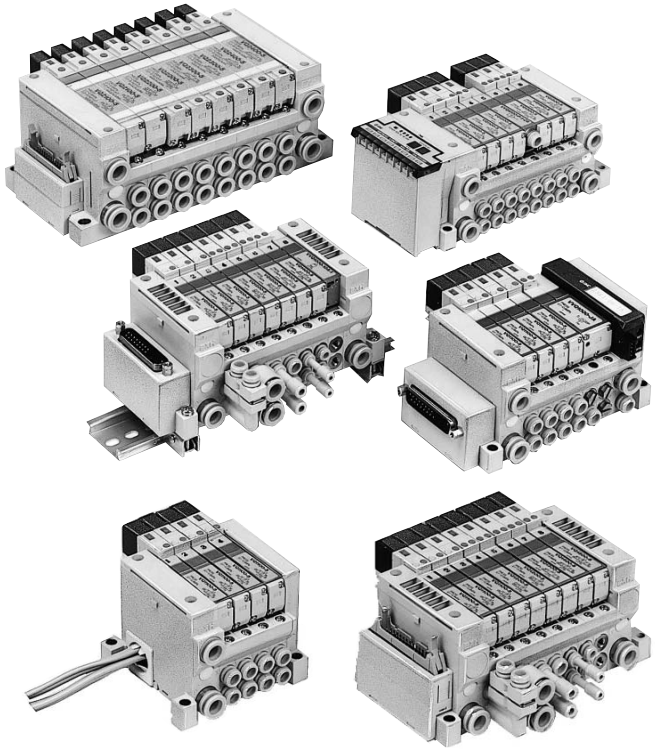


• For cylinder port fittings part no., refer to page 2-4-175.
• For replacement parts, refer to page 2-4-227.

Series VQ1000/2000

Base Mounted

Plug-in Unit



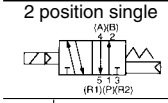
Model

Series	Number of solenoids		Model		Flow characteristics (1)						Response time (ms) (2)			Weight (g)
					1 → 2/4 (P → A/B)			2/4 → 3/5 (A/B → R1/R2)			Standard: 1 W H: 1.5 W	Low wattage: 0.5 W	AC	
					C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv				
VQ1000	2 position	Single	Metal seal	VQ1100	0.70	0.15	0.16	0.72	0.25	0.18	12 or less	15 or less	29 or less	64
			Rubber seal	VQ1101	0.85	0.20	0.21	1.0	0.30	0.25	15 or less	20 or less	34 or less	
		Double	Metal seal	VQ1200	0.70	0.15	0.16	0.72	0.25	0.18	10 or less	13 or less	13 or less	78
			Rubber seal	VQ1201	0.85	0.20	0.21	1.0	0.30	0.25	15 or less	20 or less	20 or less	
	3 position	Closed center	Metal seal	VQ1300	0.68	0.15	0.16	0.72	0.25	0.18	20 or less	26 or less	40 or less	
			Rubber seal	VQ1301	0.70	0.20	0.16	0.65	0.42	0.18	25 or less	33 or less	47 or less	
		Exhaust center	Metal seal	VQ1400	0.68	0.15	0.16	0.72	0.25	0.18	20 or less	26 or less	40 or less	
			Rubber seal	VQ1401	0.70	0.20	0.16	1.0	0.30	0.25	25 or less	33 or less	47 or less	
		Pressure center	Metal seal	VQ1500	0.70	0.15	0.16	0.72	0.25	0.18	20 or less	26 or less	40 or less	
			Rubber seal	VQ1501	0.85	0.20	0.21	0.65	0.42	0.18	25 or less	33 or less	47 or less	
	4 position	Dual 3 port valve	Rubber seal	VQ1A/B/C01	0.70	0.20	0.16	0.70	0.20	0.16	25 or less	33 or less	47 or less	
VQ2000	2 position	Single	Metal seal	VQ2100	2.0	0.15	0.46	2.6	0.15	0.60	22 or less	29 or less	49or less	90
			Rubber seal	VQ2101	2.2	0.28	0.55	3.2	0.30	0.80	24 or less	31 or less	51or less	
		Double	Metal seal	VQ2200	2.0	0.15	0.46	2.6	0.15	0.60	15 or less	20 or less	20 or less	110
			Rubber seal	VQ2201	2.2	0.28	0.55	3.2	0.30	0.80	20 or less	26 or less	26 or less	
	3 position	Closed center	Metal seal	VQ2300	2.0	0.15	0.46	2.0	0.18	0.46	29 or less	38 or less	58 or less	
			Rubber seal	VQ2301	2.0	0.28	0.49	2.2	0.31	0.60	34 or less	44 or less	64 or less	
		Exhaust center	Metal seal	VQ2400	2.0	0.15	0.46	2.6	0.15	0.60	29 or less	38 or less	58 or less	
			Rubber seal	VQ2401	2.0	0.28	0.49	3.2	0.30	0.80	34 or less	44 or less	64 or less	
		Pressure center	Metal seal	VQ2500	2.4	0.17	0.57	2.0	0.18	0.46	29 or less	38 or less	58 or less	
			Rubber seal	VQ2501	3.2	0.28	0.80	2.2	0.31	0.60	34 or less	44 or less	64 or less	
	4 position	Dual 3 port valve	Rubber seal	VQ2A/B/C01	1.8	0.28	0.46	1.8	0.28	0.46	34 or less	44 or less	64 or less	

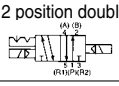
Note 1) Cylinder port size C6: (VQ1000), C8: (VQ2000) without check valve option for prevention of back pressure.
Note 2) As per JIS B 8375-1981 (Supply pressure; 0.5 MPa; with indicator light/surge voltage suppressor; clean air)
The response time is subject to the pressure and quality of the air. The values at the time of ON are given for double types.

JIS Symbol

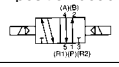
2 position single



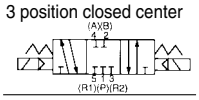
Metal — 2 position double



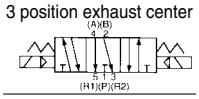
Rubber — 2 position double



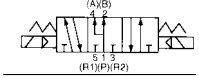
3 position closed center



3 position exhaust center



3 position pressure center



Standard Specifications

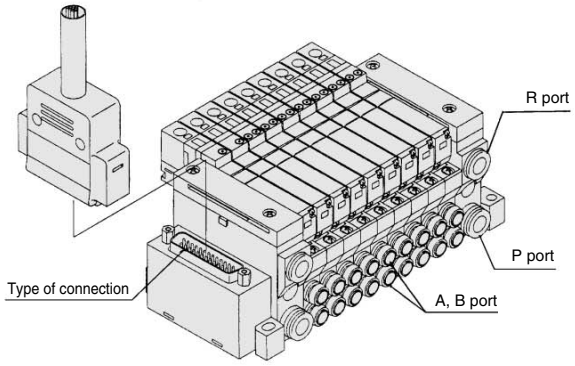
Valve specifications	Valve construction		Metal seal	Rubber seal
	Fluid		Air/Inert gas	Air/Inert gas
	Maximum operating pressure		0.7 MPa (High pressure type: 0.8 MPa)	
	Minimum operating pressure	Single	0.1 MPa	0.15 MPa
		Double	0.1 MPa	0.1 MPa
		3 position	0.1 MPa	0.2 MPa
	Ambient and fluid temperature		–10 to 50°C (1)	
	Lubrication		Not required	
	Manual override		Push type/Locking type (Tool required, Manual type) Option	
	Impact/Vibration resistance (2)		150/30 m/s²	
	Enclosure		Dust-protected, Dust tight/Low jetproof type (IP65) (5)	
Solenoid	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), 1.5 W DC (63 mA) (3), 0.5 W DC (21 mA) (4)	
		12 VDC	1 W DC (83 mA), 1.5 W DC (125 mA) (3), 0.5 W DC (42 mA) (4)	
		100 VAC	Inrush 1.2 VA (12 mA), Holding 1.2 VA (12 mA)	
		110 VAC	Inrush 1.3 VA (12 mA), Holding 1.3 VA (12 mA)	
		200 VAC	Inrush 2.4 VA (12 mA), Holding 2.4 VA (12 mA)	
		220 VAC	Inrush 2.6 VA (12 mA), Holding 2.6 VA (12 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) Value for high voltage type (1.5 W)
Note 4) Value for low voltage type (0.5 W)
Note 5) Dusttight/Low jetproof type (IP65) is available on T, L, S and M kits of VQ2000.

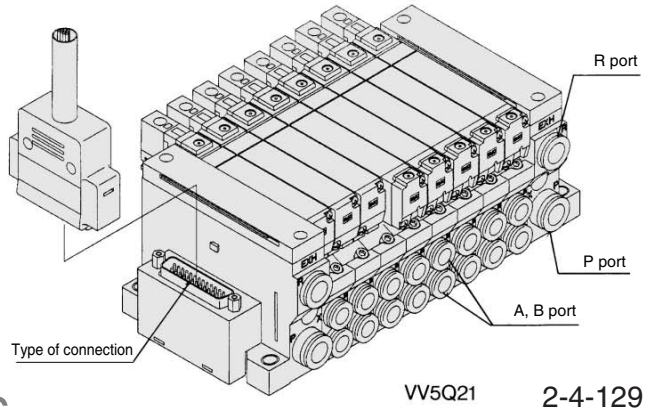
Manifold Specifications

Series	Base model	Type of connection	Porting specifications: Port location	Porting specifications: Port size (1) 1(P), 3(R)	Porting specifications: Port size (1) 4(A), 2(B)	Applicable stations (2)	Applicable solenoid valve	5 station weight (g)
VQ1000	**VV5Q11-□□□**	■ F kit–D-sub connector ■ P kit–Flat ribbon cable connector ■ J kit–Flat ribbon cable connector (20P) ■ G kit–Flat ribbon cable connector with terminal block ■ T kit–Terminal box ■ L kit–Lead wire cable ■ S kit–Serial transmission unit	Side	C8 (ø8) Option: Built-in silencer, direct exhaust	C3 (ø3.2) C4(ø4) C6 (ø6) M5 (M5 thread)	F, P, T kits: 2 to 24 stations J, G, S kit: 2 to 16 stations L kit: 1 to 8 stations	VQ1□00 VQ1□01	628 (Single) 759 (Double, 3 position)
VQ2000	**VV5Q21-□□□**	■ F kit–D-sub connector ■ P kit–Flat ribbon cable connector ■ J kit–Flat ribbon cable connector (20P) ■ G kit–Flat ribbon cable connector with terminal block ■ T kit–Terminal box ■ L kit–Lead wire cable ■ S kit–Serial transmission unit ■ M kit–Multi-connector	Side	C10 (ø10) Option: Built-in silencer, direct exhaust	C4 (ø4) C6 (ø6) C8 (ø8)	F, P kits: 2 to 24 stations J, G, S kit: 2 to 16 stations L kit: 1 to 8 stations T kit: 2 to 20 stations	VQ2□00 VQ2□01	1051 (Single) 1144 (Double, 3 position)

Note 1) Inch-size One-touch fittings are also available. For details, refer to page 2-4-179.
Note 2) For details, refer to page 2-4-178.

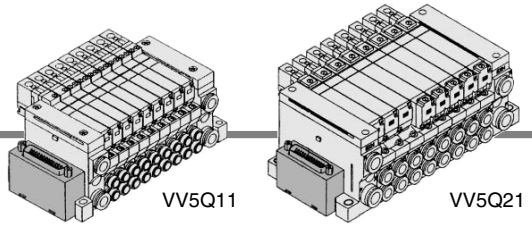


VV5Q11



VV5Q21

F VQ1000/2000 Kit (D-sub connector)



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

Manifold Specifications

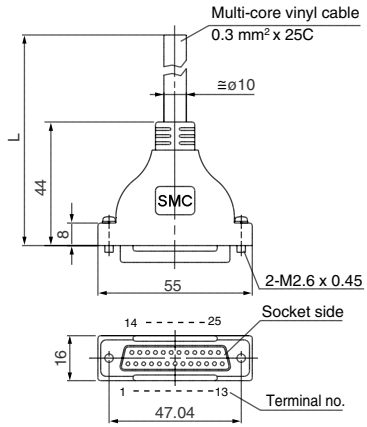
Series	Porting specifications			Applicable stations
	Port locaition	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ1000	Side	C8	C3, C4, C6, M5	Max. 24 stations
VQ2000	Side	C10	C4, C6, C8	Max. 24 stations

D-sub Connector (25 pins)

Cable Assembly ●

AXT100-DS25- 015 / 030 / 050

The D-sub connector cable assembly can be ordered individually or included in a specific manifold model no. Refer to How to Order Manifold.



D-sub Connector Cable Assembly (Option)

Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-DS25-015	Cable 25 core 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.

Connector manufacturers' example
- Fujitsu Limited
- 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 V, 1 min, AC	1000
Insulation resistance MΩkm, 20°C	5 or more

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

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

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

Note) Types with 15 pin are also available. Refer to page 2-4-177 for details.

How to Order Manifold

VV5Q 1 1 – 08 C6 F U 1 – N

Series

1	VQ1000
2	VQ2000

Manifold

1	Plug-in unit

Stations

02	2 stations
⋮	⋮
24	24 stations

Note) For details, refer to page 2-4-178.

Connector entry direction

U	Top entry
S	Side entry

Cylinder port

Symbol	Port size	VQ1000	VQ2000
C3	With One-touch fitting for ø3.2	●	
C4	With One-touch fitting for ø4	●	●
C6	With One-touch fitting for ø6	●	●
C8	With One-touch fitting for ø8		●
M5	M5 thread	●	
CM	With mixed size/with port plug	●	● (3)

Note 1) Insert "L" (top piping) or "B" (bottom piping) for elbow type. Example) B6 (Elbow One-touch fittings for ø6, bottom piping.)
Note 2) Indicate "LM" for models with elbow fittings and mixed cylinder port sizes.
Note 3) Specify "Mixed size/with port plug" in the manifold specification sheet.
Note 4) Inch-size One-touch fittings are available. For details, refer to page 2-4-179.

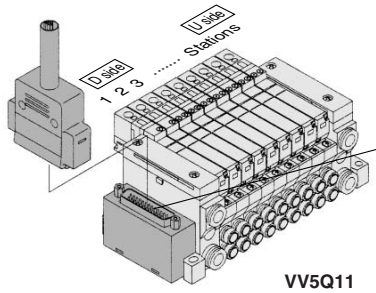
Cable (Length)

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

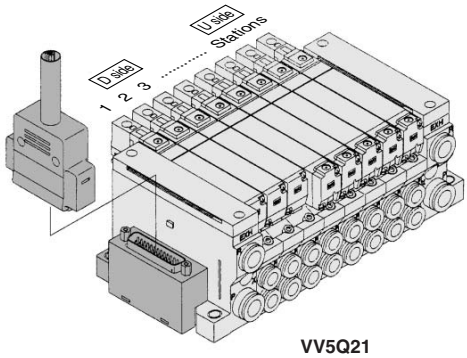
Option

Symbol	Option	VQ1000	VQ2000	Note
Nil	None	●	●	
B	With back pressure check valve	●	●	(2)
D	DIN rail mounting style	●	●	
G1	1 set of regulator unit	●		(3)
G2	2 sets of regulator unit			
G3	3 sets of regulator unit			
J□	With vacuum ejector unit	●		(4)
K	Special wiring specifications (Not double wiring)	●	●	(5)
N	With name plate	●	●	
R	External pilot	●	●	(6)
S	Built-in silencer, direct exhaust	●	●	

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by using the manifold specification sheet.
Note 3) Specify the mounting position in the manifold specification sheet.
Note 4) Refer to page 2-4-170 for the details of ejector mounted styles. A combination of "J" and "N" is unavailable.
Note 5) Specify the wiring by using of the manifold specification sheet.
Note 6) Indicate "R" for the valve with external pilot.



VV5Q11

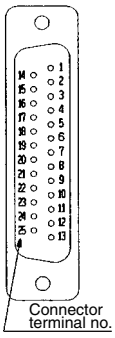


VV5Q21

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

Electrical wiring specifications

D-sub connector



D-sub connector assembly

AXT100-DS25- 015 / 030 / 050 Wire color

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

As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 12 stations or less, regardless of valve and option types.
Mixed single and double wiring is available as an option. For details, refer to page 2-4-178.

Note) When using the negative common specifications, use valves for negative common. (Refer to page 2-4-178.)
For details, refer to "Option" on page 2-4-178.

How to Order Valves

VQ 1 1 0 0 Y – 5 ☐ ☐

Series

1	VQ1000
2	VQ2000

Type of actuation

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

Seal

0	Metal seal
1	Rubber seal

Note) For external pilot and negative COM specifications, refer to "Option" on pages 2-4-178 to 2-4-179.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	Note) ○
H	High pressure type	(1.5 W) ○	—
Y	Low wattage type	(0.5 W) ○	—

Note) For power consumption of AC type, refer to page 2-4-129.

Light/Surge voltage suppressor

Nil	Yes
E	None

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

Manual override

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

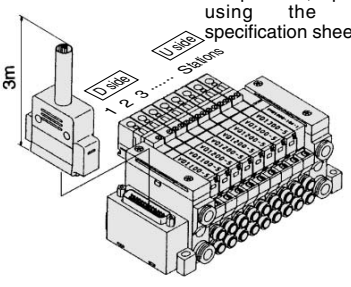
How to Order Manifold Assembly

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

<Example>
D-sub connector kit with cable (3 m)
VV5Q11-09C6FU2 ···· 1 set –Manifold base no.
*VQ1100-5 ····· 2 sets–Valve part no. (Stations 1 to 2)
*VQ1200-5 ····· 4 sets–Valve part no. (Stations 3 to 6)
*VQ1300-5 ····· 2 sets–Valve part no. (Stations 7 to 8)
*VVQ1000-10A-1 ····· 1 set–Blanking plate part no. (Station 9)

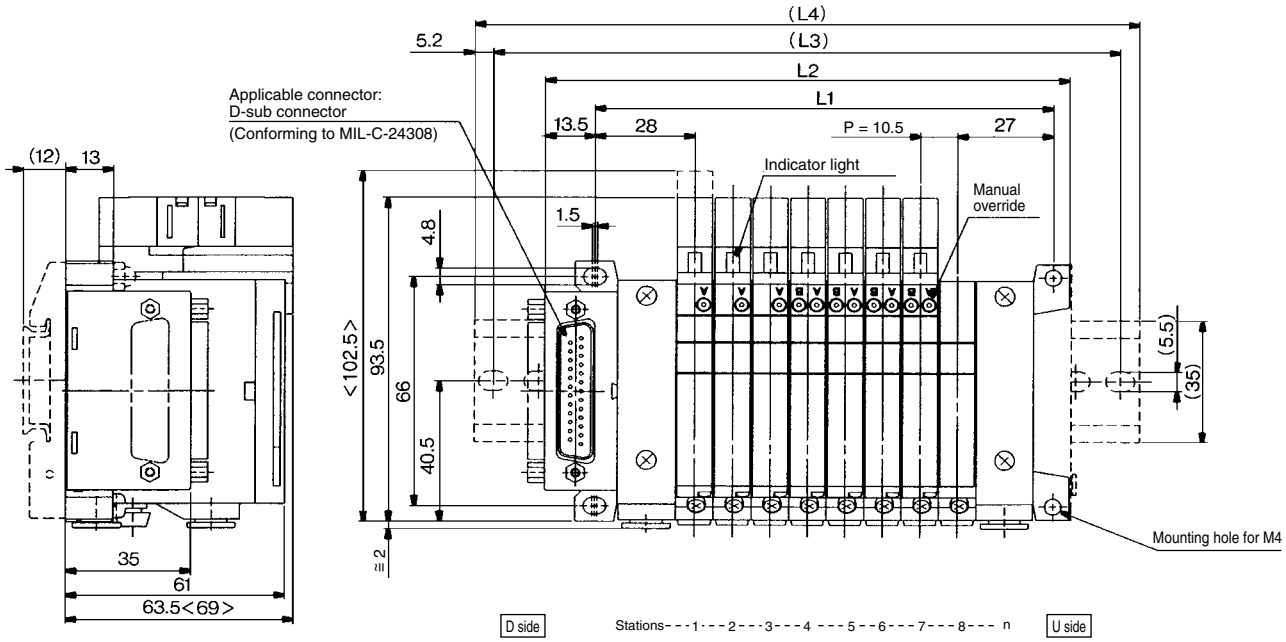
Prefix the asterisk to the part nos. of the solenoid valve, etc.

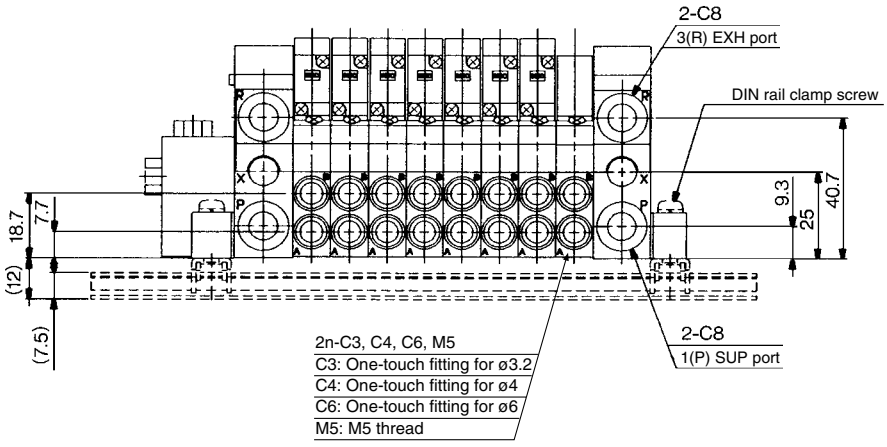
Write sequentially from the 1st station on the D side. When part nos. written collectively are complicated, specified by using the manifold specification sheet.



VQ1000

The broken lines indicate the DIN rail mounting style [-D] and the side entry connection [-FS].





< >: AC

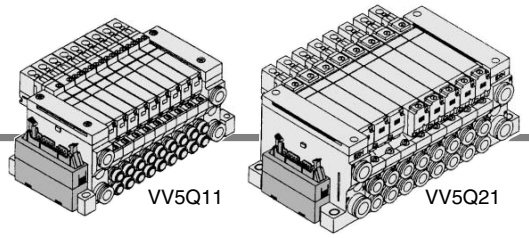
Dimensions

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

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

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

P VQ1000/2000 Kit (Flat ribbon cable connector)



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

Manifold Specifications

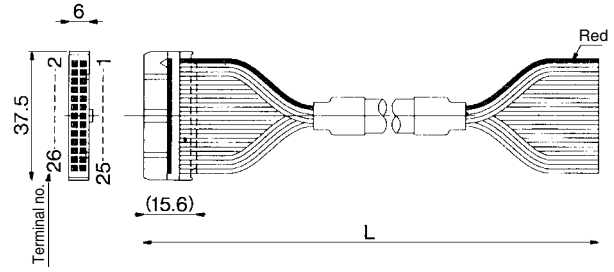
Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ1000	Side	C8	C3, C4, C6, M5	Max. 24 stations
VQ2000	Side	C10	C4, C6, C8	Max. 24 stations

Flat Ribbon Cable (26 pins)

Cable assembly

AXT100-FC26-$\frac{1}{3}$

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



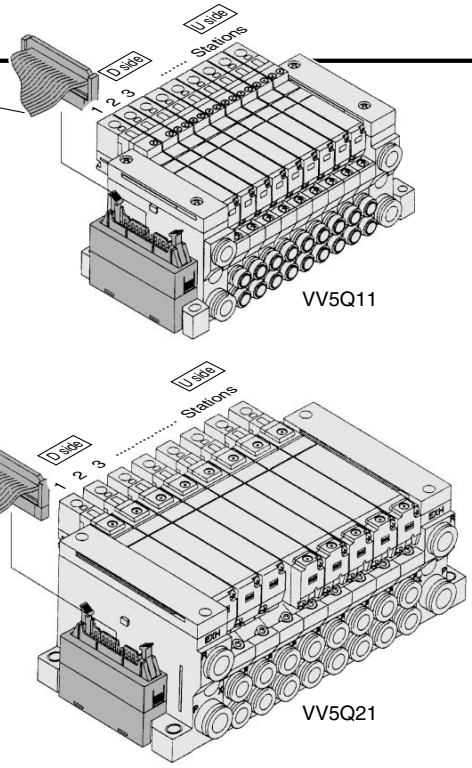
Flat Ribbon Cable Connector Assembly (Option)

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

∗ For other commercial connectors, use a 26 pins type with strain relief conforming to MIL-C-83503.

Connector manufacturers' example

- Hirose Electric Co., Ltd.
- Sumitomo 3M Limited
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.
- Oki Electric Cable Co., Ltd.



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

How to Order Manifold

VV5Q 1 1 – 08 C6 P U 1 – N

Series

1	VQ1000
2	VQ2000

Manifold

1	Plug-in unit

Stations

02	2 stations
⋮	⋮
24	24 stations

Note) For details, refer to page 2-4-178.

Connector entry direction

U	Top entry
S	Side entry

Cable (Length)

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

Cylinder port

Symbol	Port size	VQ1000	VQ2000
C3	With One-touch fitting for ø3.2	●	
C4	With One-touch fitting for ø4	●	●
C6	With One-touch fitting for ø6	●	●
C8	With One-touch fitting for ø8		●
M5	M5 thread	●	
CM	With mixed size/with port plug	●	●(3)

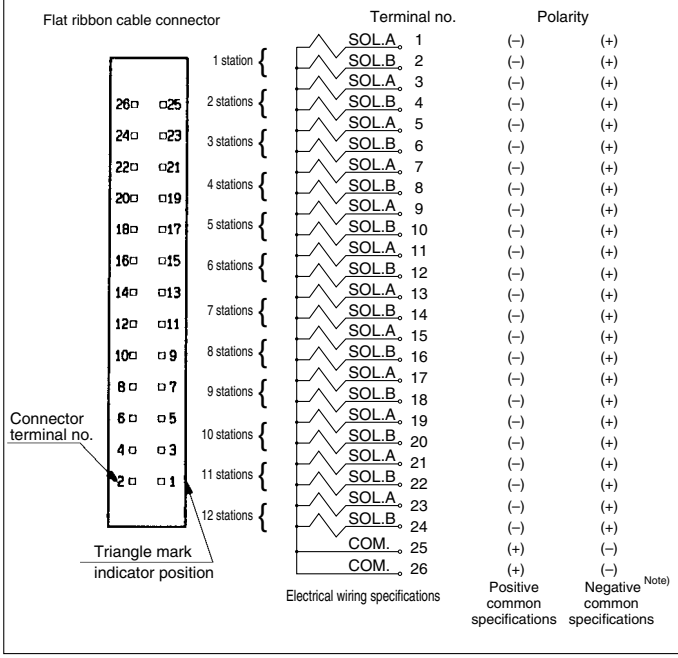
Note 1) Insert "L" (top piping) or "B" (bottom piping) for elbow type.
Example) B6 (Elbow One-touch fittings for ø6, bottom piping.)
Note 2) Indicate "LM" for models with elbow fittings and mixed cylinder port sizes.
Note 3) Specify "Mixed size/with port plug" in the manifold specification sheet.
Note 4) Inch-size One-touch fittings are available. For details, refer to page 2-4-179.

Option

Symbol	Option	VQ1000	VQ2000	Note
Nil	None	●	●	
B	Back pressure check valve	●	●	(2)
D	DIN rail mounting style	●	●	
G1	1 set of regulator unit	●		(3)
G2	2 sets of regulator unit			
G3	3 sets of regulator unit			
J□	With vacuum ejector unit	●		(4)
K	Special Wiring Specifications (Not double wiring)	●	●	(5)
N	With name plate	●	●	
R	External pilot	●	●	(6)
S	Built-in silencer, direct exhaust	●	●	

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by using the manifold specification sheet.
Note 3) Specify the mounting position in the manifold specification sheet.
Note 4) Refer to page 2-4-170 for the details of ejector mounted styles. A combination of "J" and "N" is unavailable.
Note 5) Specify the wiring specifications in the manifold specification sheet.
Note 6) Indicate "R" for the valve with external pilot.

● Electrical wiring specifications



As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 12 stations or less, regardless of valve and option types. Mixed single and double wiring is available as an option.
For details, refer to page 2-4-178.

Note) When using the negative common specifications, use valves for negative common. (Refer to page 2-4-178.)
For details, refer to "Option" on page 2-4-178.

How to Order Valves

VQ 1 1 0 0 Y — 5 ☐ ☐

Series

1	VQ1000
2	VQ2000

Type of actuation

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

Seal

0	Metal seal
1	Rubber seal

Note) For external pilot and negative COM specifications, refer to "Option" on pages 2-4-178 to 2-4-179.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	Note) ○
H	High pressure type	(1.5 W) ○	—
Y	Low wattage type	(0.5 W) ○	—

Note) For power consumption of AC type, refer to page 2-4-129.

Light/Surge voltage suppressor

Nil	Yes
E	None

Coil voltage

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

Manual override

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

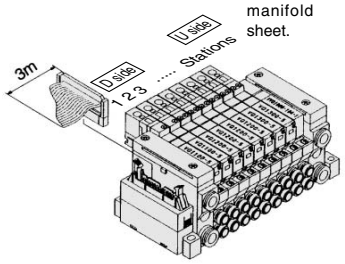
How to Order Manifold Assembly

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

<Example>
Flat ribbon cable kit with 3 m cable
VV5Q11-09C6PU2 ···1 set–Manifold base no.
∗VQ1100-5 ·····2 sets–Valve part no. (Stations 1 to 2)
∗VQ1200-5 ·····4 sets–Valve part no. (Stations 3 to 6)
∗VQ1300-5 ·····2 sets–Valve part no. (Stations 7 to 8)
∗VVQ1000-10A-1 ·····1 set–Blanking plate no. (Station 9)

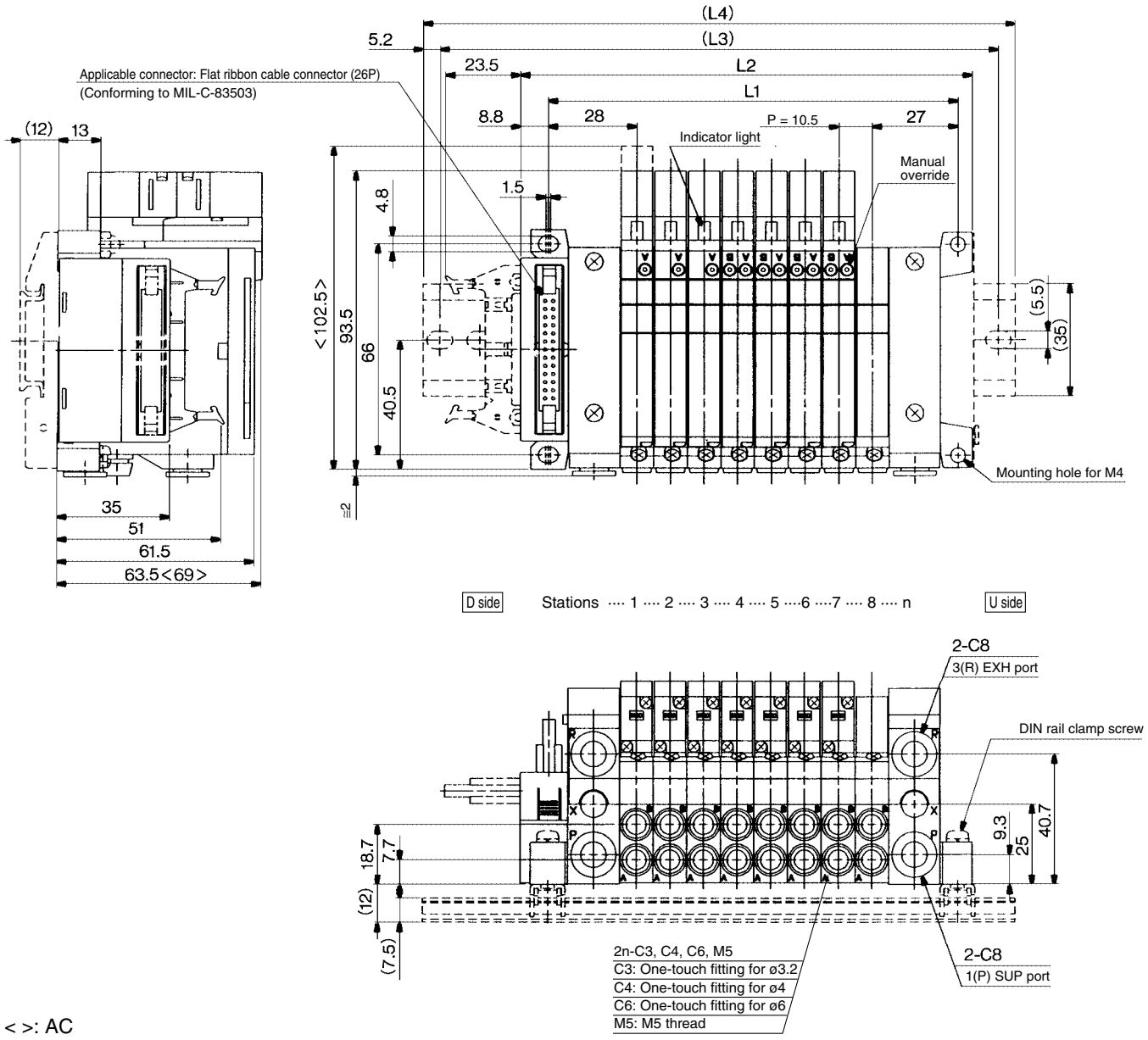
Prefix the asterisk to the part nos. of the solenoid valve, etc.

Write sequentially from the 1st station on the D side. When part nos. written collectively are complicated, specified by using the manifold specification sheet.



VQ1000

The broken lines indicate the DIN rail mounting style [-D] and the side entry connection [-PS].



< >: AC

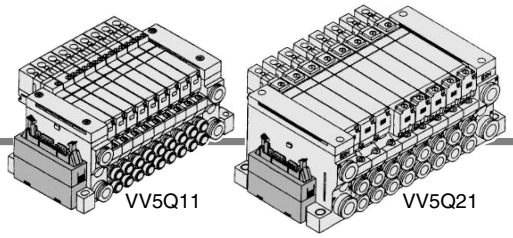
Dimensions

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

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

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

J VQ1000/2000 Kit (Flat ribbon cable connector)



- MIL flat ribbon cable connector reduces installation labor for electrical connection.
- The use of flat ribbon cable connectors (20P) conforming to MIL standards provides a wide range of compatibility with conventional connectors.
- Top or side receptacle position can be selected in accordance with the available mounting space.
- Maximum stations are 16.

Manifold Specifications

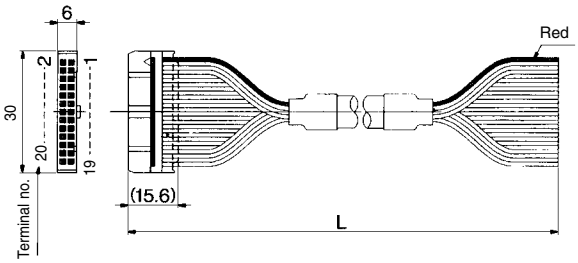
Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ1000	Side	C8	C3, C4, C6, M5	Max. 16 stations
VQ2000	Side	C10	C4, C6, C8	Max. 16 stations

Flat Ribbon Cable (26 pins)

Cable assembly

AXT100-FC20-$\frac{1}{3}$

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



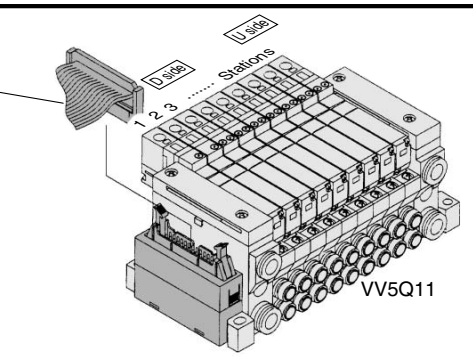
Flat Ribbon Cable Connector Assembly (Option)

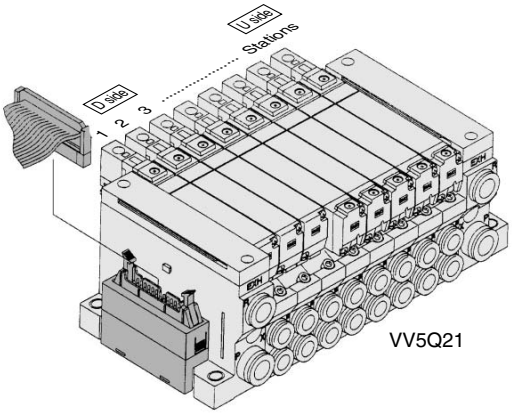
Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-FC20-1	Cable 20 core x 28AWG
3 m	AXT100-FC20-2	
5 m	AXT100-FC20-3	

∗ For other commercial connectors, use a 20 pins with strain relief conforming to MIL-C-83503.

Connector manufacturers' example

- Hirose Electric Co., Ltd.
- Sumitomo 3M Limited
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.
- Oki Electric Cable Co., Ltd.





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

How to Order Manifold

VV5Q 1 1 – 08 C6 J U 1 – N

Series

1	VQ1000
2	VQ2000

Manifold

1	Plug-in unit

Stations

02	2 stations
⋮	⋮
16	16 stations

Note) For details, refer to page 2-4-178.

Connector entry direction

U	Top entry
S	Side entry

Cylinder port

Symbol	Port size	VQ1000	VQ2000
C3	With One-touch fitting for ø3.2	●	
C4	With One-touch fitting for ø4	●	●
C6	With One-touch fitting for ø6	●	●
C8	With One-touch fitting for ø8		●
M5	M5 thread	●	
CM	With mixed size/with port plug	●	● (3)

Note 1) Insert "L" (top piping) or "B" (bottom piping) for elbow type.
Example) B6 (Elbow One-touch fittings for ø6, bottom piping.)
Note 2) Indicate "LM" for models with elbow fittings and mixed cylinder port sizes.
Note 3) Specify "Mixed size/with port plug" in the manifold specification sheet.
Note 4) Inch-size One-touch fittings are available. For details, refer to page 2-4-179.

Cable (Length)

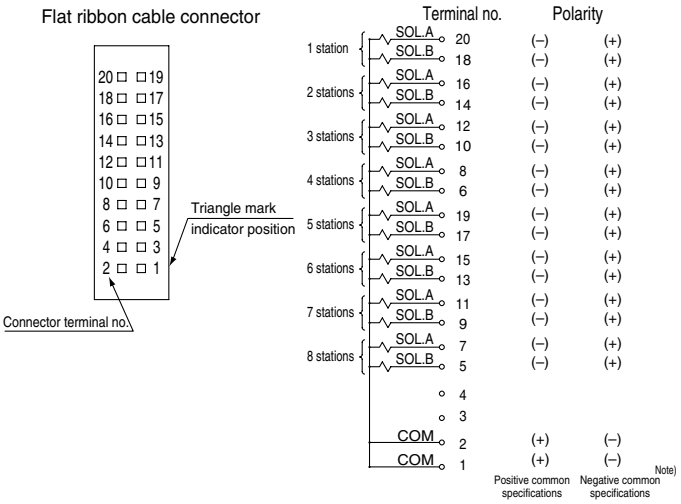
0	Without cable
1	With cable (1.5 m)
2	With cable (3 m)
3	With cable (5 m)

Option

Symbol	Option	VQ1000	VQ2000	Note
Nil	None	●	●	
B	Back pressure check valve	●	●	(2)
D	DIN rail mounting style	●	●	
G1	1 set of regulator unit	●		(3)
G2	2 sets of regulator unit			
G3	3 sets of regulator unit			
J□	With vacuum ejector unit	●		(4)
K	Special Wiring Specifications (Not double wiring)	●	●	(5)
N	With name plate	●	●	
R	External pilot	●	●	(6)
S	Built-in silencer, direct exhaust	●	●	

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by using the manifold specification sheet.
Note 3) Specify the mounting position in the manifold specification sheet.
Note 4) Refer to page 2-4-170 for the details of ejector mounted styles. A combination of "J" and "N" is unavailable.
Note 5) Specify the wiring specifications in the manifold specification sheet.
Note 6) Indicate "R" for the valve with external pilot.

• Electrical wiring specifications



As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 12 stations or less, regardless of valve and option types.
Mixed single and double wiring is available as an option.
For details, refer to page 2-4-178.

Note) When using the negative common specifications, use valves for negative common. (Refer to page 2-4-178.)
For details, refer to "Option" on page 2-4-178.

How to Order Valves

VQ 1 1 0 0 Y — 5 ☐ ☐

Series

1	VQ1000
2	VQ2000

Type of actuation

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

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC
Nil	Standard type	(1.0 W) ○
H	High pressure type	(1.5 W) ○
Y	Low wattage type	(0.5 W) ○

Coil voltage

5	24 VDC

Light/Surge voltage suppressor

Nil	Yes
E	None

Manual override

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

Note) For external pilot and negative COM specifications, refer to "Option" on pages 2-4-178 to 2-4-179.

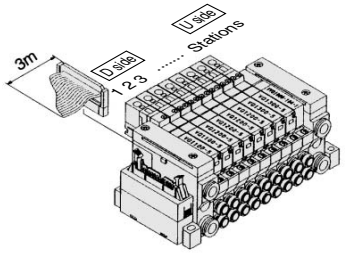
How to Order Manifold Assembly

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

<Example>
Flat ribbon cable kit with 3 m cable
VV5Q11-09C6PU2 ··· 1 set–Manifold base no.
∗VQ1100-5 ····· 2 sets–Valve part no. (Stations 1 to 2)
∗VQ1200-5 ····· 4 sets–Valve part no. (Stations 3 to 6)
∗VQ1300-5 ····· 2 sets–Valve part no. (Stations 7 to 8)
∗VVQ1000-10A-1 ···· 1 set–Blanking plate part no. (Station 9)

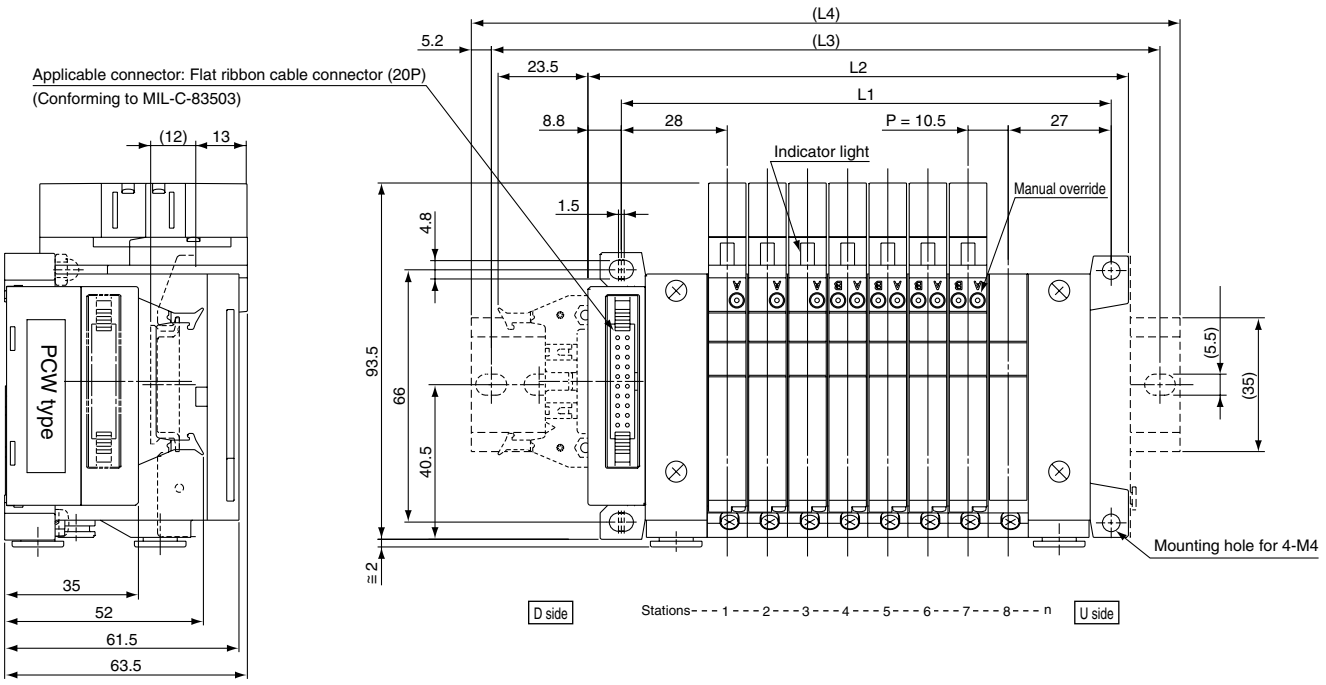
Prefix the asterisk to the part nos. of the solenoid valve, etc.

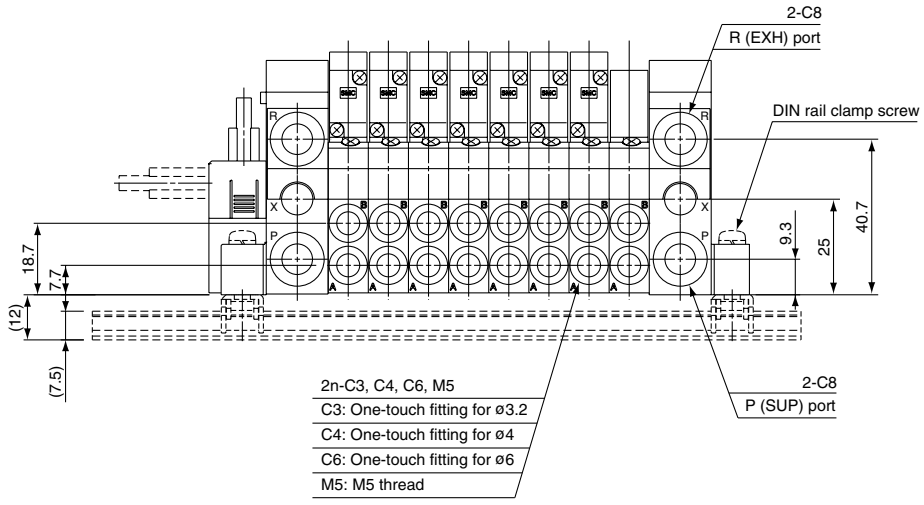
When ordering, specify the part nos. in order from the 1st. station in the D side. When part nos. written collectively are complicated, specify by using the manifold specification sheet.



VQ1000

The broken lines indicate the DIN rail mounting style [-D] and the side entry connection [-PS].



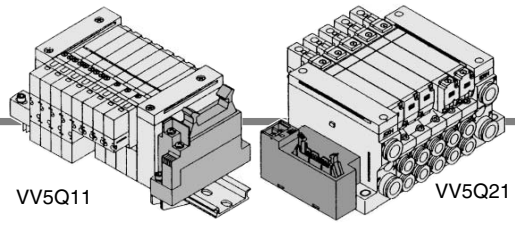


Dimensions

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

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

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



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

Manifold Specifications

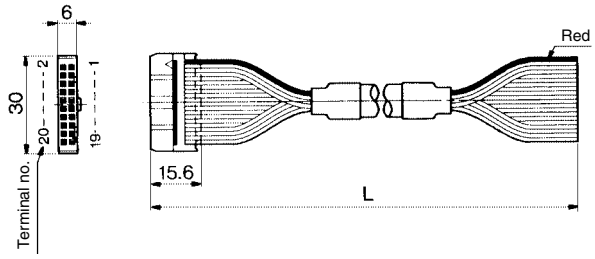
Series	Porting specifications			Applicable stations
	Port licaition	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ1000	Side	C8	C3, C4, C6, M5	Max. 16 stations
VQ2000	Side	C10	C4, C6, C8	Max. 16 stations

Flat Ribbon Cable (20 pins)

Cable assembly

AXT100-FC20-$\frac{1}{3}$

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



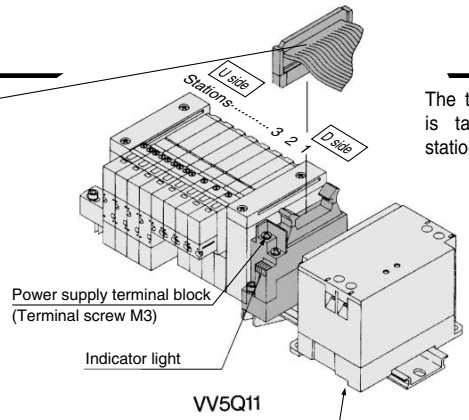
Flat Ribbon Cable Connector Assembly (Option)

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

∗ For other commercial connectors, use a 20 pins with strain relief conforming to MIL-C-83503.

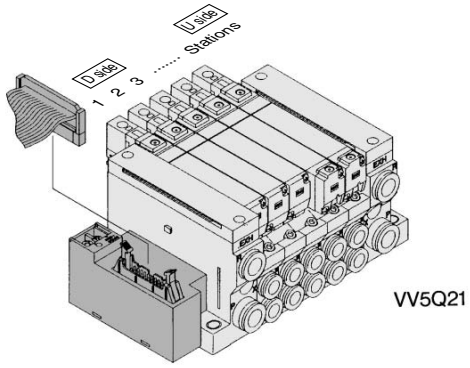
Connector manufacturers' example

- Hirose Electric Co., Ltd.
- Oki Electric Cable Co. Ltd.
- J.S.T. Mfg. Co., Ltd.
- Japan Aviation Electronics Industry, Ltd.
- Sumitomo 3M Limited
- Fujitsu Limited



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

SI unit made by OMRON Corp.
Mountable for G71-OD16 (Order separately)



How to Order Manifold

VV5Q 1 1 – 08 C6 G □ □ – N

Series

1	VQ1000
2	VQ2000

Manifold

1	Plug-in unit

Stations

02	2 stations
⋮	⋮
16 Note)	16 stations

Note) For details, refer to page 2-4-178.

Connector entry direction, Top entry

Nil	For VQ1000
U	For VQ2000

Cable (Length)

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

Cylinder port

Symbol	Port size	VQ1000	VQ2000
C3	With One-touch fitting for ø3.2	●	
C4	With One-touch fitting for ø4	●	●
C6	With One-touch fitting for ø6	●	●
C8	With One-touch fitting for ø8		●
M5	M5 thread	●	
CM	With mixed size/with port plug	●	●

Note 1) Insert "L" (top piping) or "B" (bottom piping) for elbow type.
Example) B6 (Elbow One-touch fittings for ø6, bottom piping.)
Note 2) Indicate "LM" for models with elbow fittings and mixed cylinder port sizes.
Note 3) Specify "Mixed size/with port plug" in the manifold specification sheet.
Note 4) Inch-size One-touch fittings are available. For details, refer to page 2-4-179.

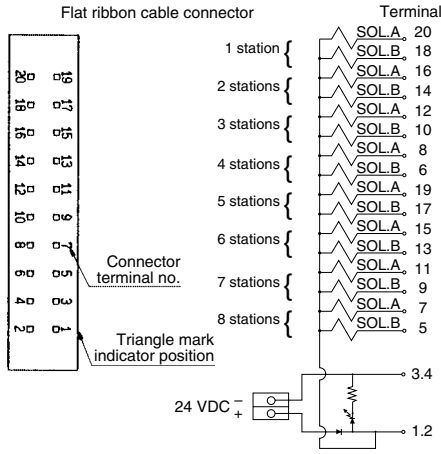
Option

Symbol	Option	VQ1000	VQ2000	Note
Nil	None	●	●	
B	Back pressure check valve	●	●	(2)
D	DIN rail mounting style	●	●	
G1	1 set of regulator unit	●		(3)
G2	2 sets of regulator unit			
G3	3 sets of regulator unit			
J□	With vacuum ejector unit	●		(4)
K	Special Wiring Specifications (Not double wiring)	●	●	(5)
N	With name plate	●	●	
R	External pilot	●	●	(6)
S	Built-in silencer, direct exhaust	●	●	

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by using the manifold specification sheet.
Note 3) Specify the mounting position in the manifold specification sheet.
Note 4) Refer to page 2-4-170 for the details of ejector mounted styles. A combination of "J" and "N" is unavailable.
Note 5) Specify the wiring specifications in the manifold specification sheet.
Note 6) Indicate "R" for the valve with external pilot.

● Connector assembly

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



As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 8 stations or less, regardless of valve and option types. Mixed single and double wiring is available as an option. For details, refer to page 2-4-178.

How to Order Valves

VQ 1 1 0 0 Y – 5 ☐ ☐

Series

1	VQ1000
2	VQ2000

Type of actuation

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

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC
Nil	Standard type	(1.0 W) ○
H	High pressure type	(1.5 W) ○
Y	Low wattage type	(0.5 W) ○

Coil voltage

5	24 VDC

Light/Surge voltage suppressor

Nil	Yes
E	None

Manual override

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

Note) For external pilot specifications, refer to "Option" on page 2-4-179.

How to Order Manifold Assembly

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

<Example>

Flat ribbon cable with power supply terminal block and 3 m cable

VV5Q11-08C6G2 ··· 1 set–Manifold base no.

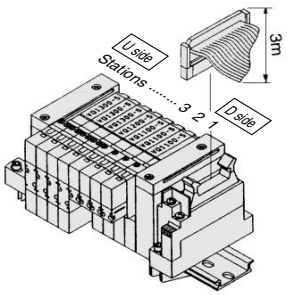
∗VQ1100-5 ····· 4 sets–Valve part no. (Stations 1 to 4)

∗VQ1200-5 ····· 1 set–Valve part no. (Station 5)

∗VQ1300-5 ····· 3 sets–Valve part no. (Stations 6 to 8)

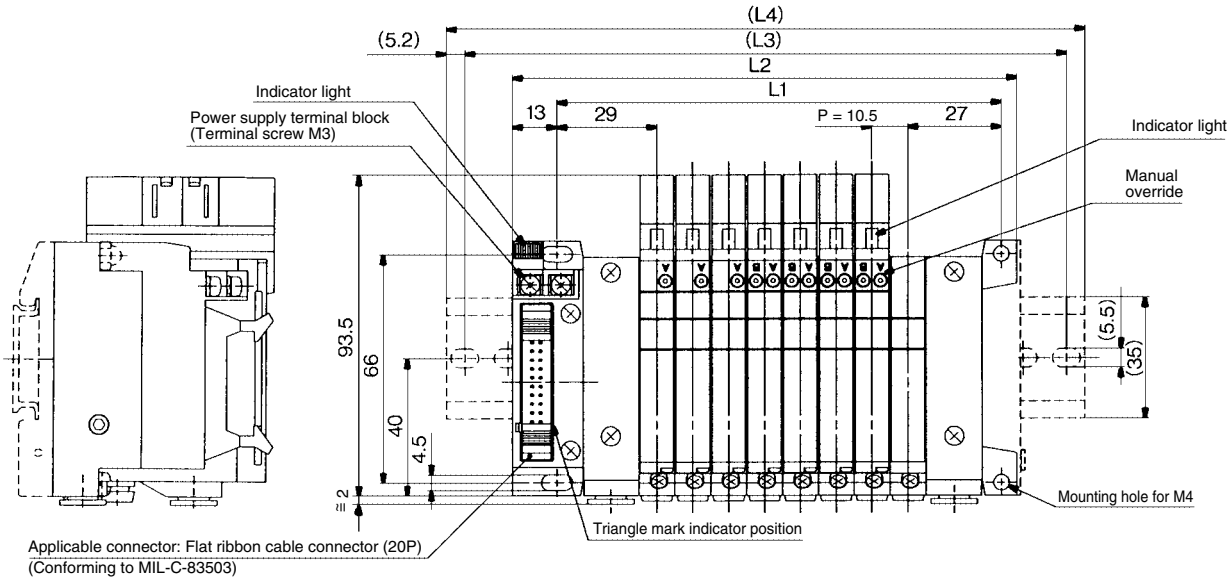
Prefix the asterisk to the part nos. of the solenoid valve, etc.

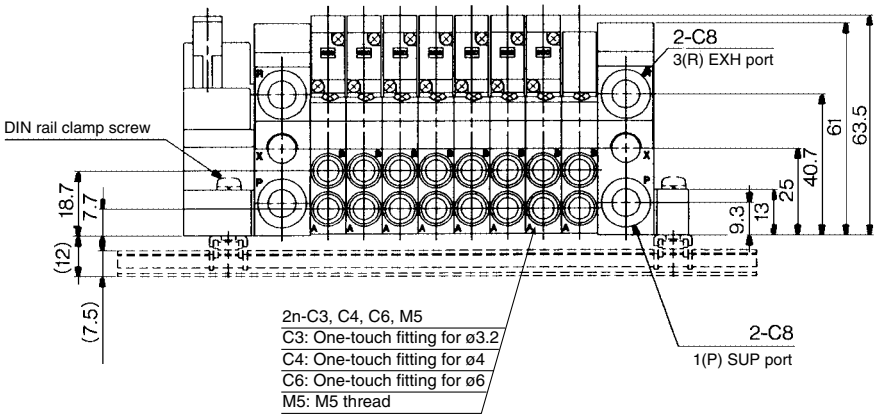
Write sequentially from the 1st station on the D side. When part nos. written collectively are complicated, specify by using the manifold specification sheet.



VQ1000

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





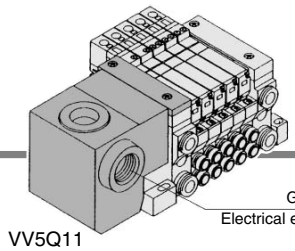
Dimensions

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

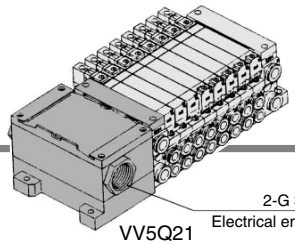
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	66.5	77	87.5	98	108.5	119	129.5	140	150.5	161	171.5	182	192.5	203	213.5
L2	84	94.5	105	115.5	126	136.5	147	157.5	168	178.5	189	199.5	210	220.5	231
(L3)	112.5	125	125	137.5	150	162.5	175	187.5	187.5	200	212.5	225	237.5	250	262.5
(L4)	123	135.5	135.5	148	160.5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

Vacuum ejector unit style: Formula L1 = 10.5n + 29.7 + (Number of ejector units x 26.7)
L2 = 10. 5n + 46.8 + (Number of ejector units x 26.7)
L4 is L2 plus about 30.

T VQ1000/2000 Kit (Terminal block box kit)



VV5Q11



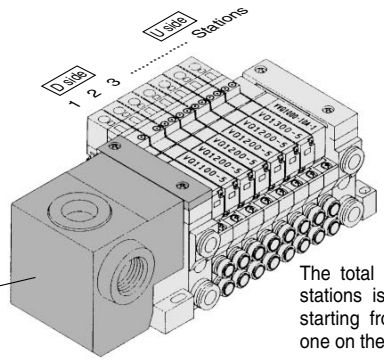
VV5Q21

IP65 compliant

- This kit has a small terminal box inside a junction box. The electrical entry port {VQ1000: G 1/2, VQ2000: G 3/4} permits connection of conduit fittings.
- Maximum stations are 24.
- Enclosure: Dusttight/Low jetproof type (IP65) compliant (Series VQ2000)

Manifold Specifications

Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ1000	Side	C8	C3, C4, C6, M5	Max. 24 stations
VQ2000	Side	C10	C4, C6, C8	Max. 20 stations



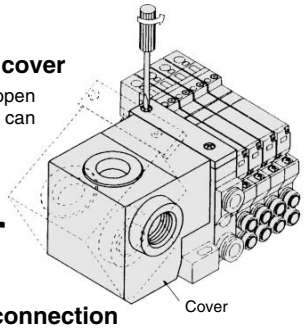
The total number of stations is tabulated starting from station one on the D side.

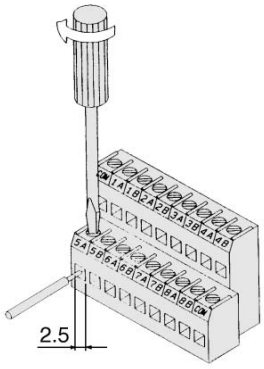
Terminal block connection

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

Step 1. How to remove terminal block cover

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



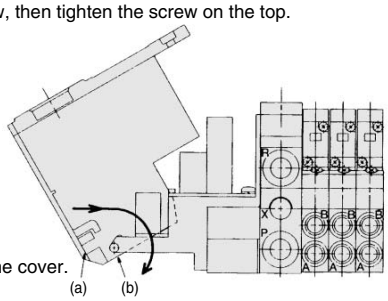


Step 2. Wire connection

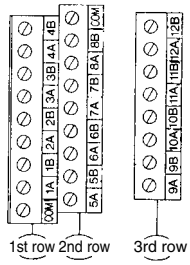
The diagram on the left shows the terminal block wiring schematic. All stations are provided with double solenoid wiring. Insert each lead wire into the terminal opening and tighten the screw directly above.
How to connect is inserting the lead wire into the terminal window, then tighten the screw on the top.

Step 3. How to replace terminal block cover

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



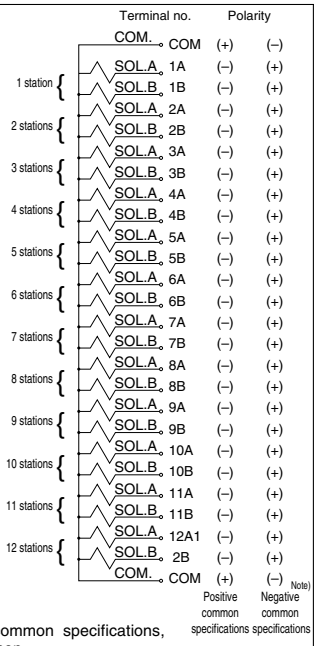
● Electrical wiring specifications: VQ1000



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

Manifold	Terminal blocks
2 to 8 stations	2 rows
9 to 12 stations	3 rows

As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 12 stations or less, regardless of valve and option types.
Mixed single and double wiring is available as an option. For details, refer to page 2-4-178.



Note) When using the negative common specifications, use valves for negative common.
For details, refer to "Option" on page 2-4-178.

How to Order Manifold

VV5Q 1 1 – 08 C6 T 0 – N

Series

1	VQ1000
2	VQ2000

Manifold

1	Plug-in unit

Stations

02	2 stations
⋮	⋮
24 Note)	24 stations

Note) VQ2000: Max. 20 stations
For details, refer to page 2-4-178.

For negative common specifications, refer to "Option" on page 2-4-178.

Cylinder port

Symbol	Port size	VQ1000	VQ2000
C3	With One-touch fitting for ø3.2	●	
C4	With One-touch fitting for ø4	●	●
C6	With One-touch fitting for ø6	●	●
C8	With One-touch fitting for ø8		●
M5	M5 thread	●	
CM	With mixed size/with port plug	●	● (3)

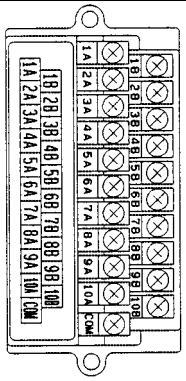
Note 1) Insert "L" (top piping) or "B" (bottom piping) for elbow type.
Example) B6 (Elbow One-touch fittings for ø6, bottom piping.)
Note 2) Indicate "LM" for models with elbow fittings and mixed cylinder port sizes.
Note 3) Specify "Mixed size/with port plug" in the manifold specification sheet.
Note 4) For One-touch fittings in inch size, refer to "Option" on page 2-4-179.

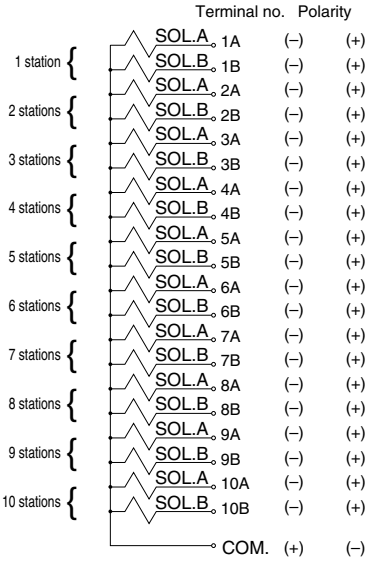
Option

Symbol	Option	VQ1000	VQ2000	Note
Nil	None	●	●	
B	With back pressure check valve	●	●	(2)
D	DIN rail mounting style	●	●	
G1	1 set of regulator unit	●		(3)
G2	2 sets of regulator unit			
G3	3 sets of regulator unit			
J□	With vacuum ejector unit	●		(4)
K	Special wiring specifications (Not double wiring)	●	●	(5)
N	With name plate	●	●	
R	External pilot	●	●	(6)
S	Built-in silencer, direct exhaust	●	●	
W	Enclosure: Dusttight/Low jetproof type (IP65)		●	

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by using the manifold specification sheet.
Note 3) Specify the mounting position in the manifold specification sheet.
Note 4) Refer to page 2-4-170 for the details of ejector mounted styles. A combination of "J" and "N" is unavailable.
Note 5) Specify the wiring specifications in the manifold specification sheet.
Note 6) Indicate "R" for the valve with external pilot.

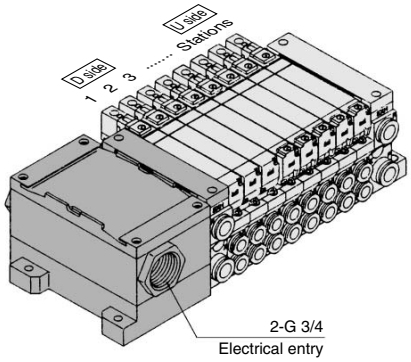
● Special wiring specifications: VQ2000



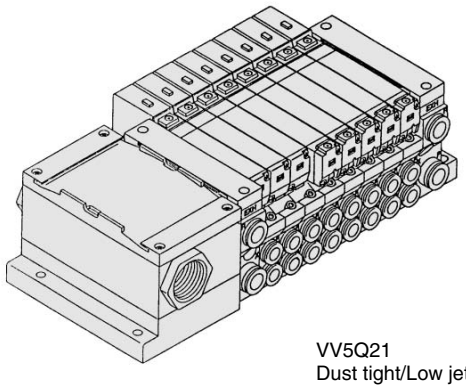


Irrespective of the valves or options, the internal wiring is made double (connected to SOL.A and SOL.B) for respective stations of the manifold.
Mixed single and double wiring is available as an option. For details, refer to page 2-4-178.

Note) When using the negative common specifications, use valves for negative common.
For details, refer to "Option" on page 2-4-178.



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



VV5Q21
Dust tight/Low jetproof type

How to Order Valves

VQ 1 1 0 0 Y – 5 □ □ □

Series

1	VQ1000
2	VQ2000

Type of actuation

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

Seal

0	Metal seal
1	Rubber seal

Note) For external pilot and negative COM specifications, refer to "Option" on pages 2-4-178 to 2-4-179.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	Note) ○
H	High pressure type	(1.5 W) ○	—
Y	Low wattage type	(0.5 W) ○	—

Coil voltage

1	100 VAC (50/60 Hz)
3	100 VAC (50/60 Hz)
5	24 VDC
6	12 VDC

Note) For power consumption of AC type, refer to page 2-4-179.

Light/Surge voltage suppressor

Nil	Yes
E	None

Manual override

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

Enclosure

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

Note) VQ2000 only.

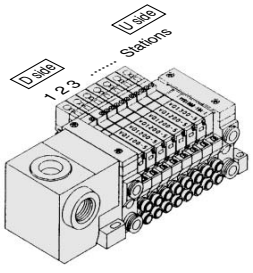
How to Order Manifold Assembly

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

<Example>
Terminal block box kit
VV5Q11-08C6T0 ··· 1 set–Manifold base no.
∗VQ1100-5 ····· 2 sets–Valve part no. (Stations 1 to 2)
∗VQ1200-5 ····· 4 sets–Valve part no. (Stations 3 to 6)
∗VQ1300-5 ····· 1 set–Valve part no. (Station 7)
∗VVQ1000-10A-1 ··· 1 set–Blanking plate part no. (Station 8)

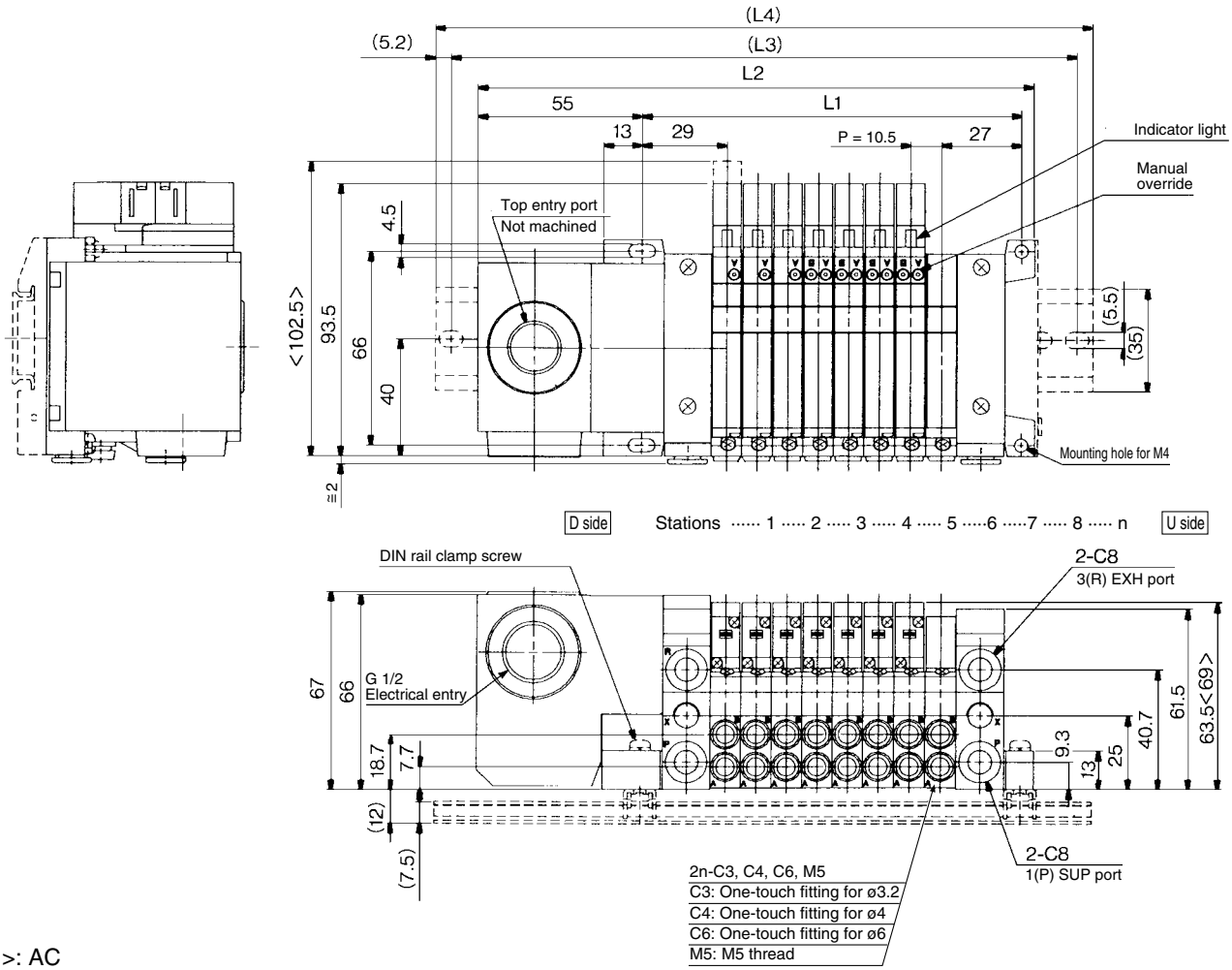
Prefix the asterisk to the part nos. of the solenoid valve, etc.

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



VQ1000

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



< >: AC

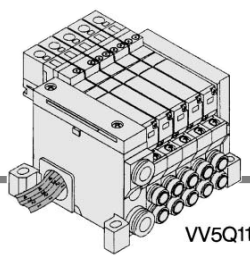
Dimensions

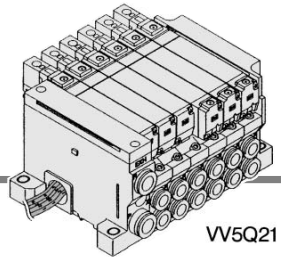
Formula L1 = 10.5n + 45.5, L2 = 10.5n + 105 n: Station (Maximum 24 stations)

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

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

L VQ1000/2000 Kit (Lead wire cable)


VV5Q11

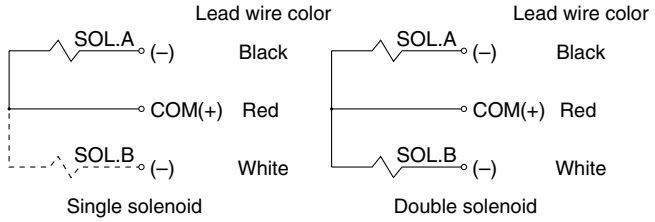

VV5Q21

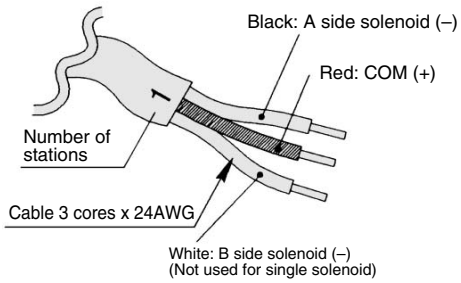
IP65 compliant

- Direct electrical entry. Models with one or more stations are available.
- (SUP) and R (EXH) ports are provided on one side for further space savings.
- Maximum stations are 8.
- Enclosure: Dusttight/Low jetproof type (IP65) compliant (Series VQ2000)

Wiring specifications: Positive COM ●

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





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

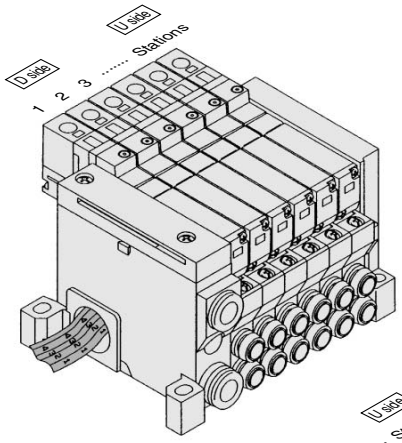
Lead Wire Assembly with Connector

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

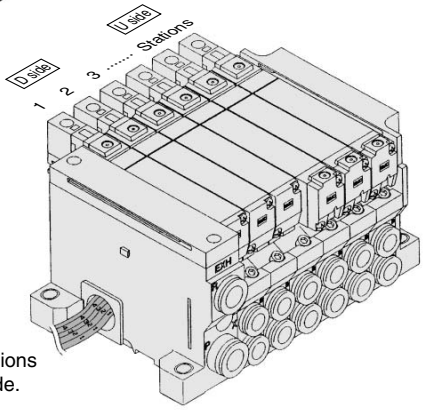
∗ No. of stations 1 to 8

Manifold Specifications

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



VV5Q11



VV5Q21

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

How to Order Manifold

VV5Q 1 1 – 06 C6 L 1 – N

Series

1	VQ1000
2	VQ2000

Manifold

1	Plug-in unit

Stations

01	1 station
⋮	⋮
08	8 stations

Note) For negative common specifications, refer to "Option" on page 2-4-178.

Cylinder port

Symbol	Port size	VQ1000	VQ2000
C3	With One-touch fitting for ø3.2	●	
C4	With One-touch fitting for ø4	●	●
C6	With One-touch fitting for ø6	●	●
C8	With One-touch fitting for ø8		●
M5	M5 thread	●	
CM	With mixed size/with port plug	●	● (3)

Note 1) Insert "L" (top piping) or "B" (bottom piping) for elbow type. (VQ1000 only)
Example) B6 (Elbow One-touch fittings for ø6, bottom piping.)
Note 2) Indicate "LM" for models with elbow fittings and mixed cylinder port sizes.
Note 3) Specify "Mixed size/with port plug" in the manifold specification sheet.
Note 4) Inch-size One-touch fittings are available. For details, refer to page 2-4-179.

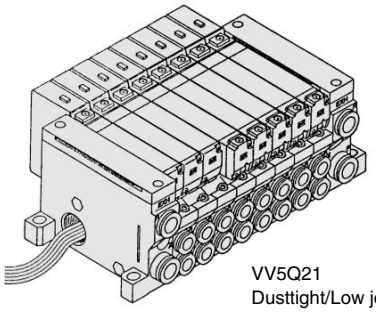
Cable (Length)

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

Option

Symbol	Option	VQ1000	VQ2000	Note
Nil	None	●	●	
B	With back pressure check valve	●	●	(2)
D	DIN rail mounting style	●	●	
G1	1 set of regulator unit	●		(3)
G2	2 sets of regulator units	●		(3)
G3	3 sets of regulator units	●		(3)
J□	With vacuum ejector unit	●		(4)
N	With name plate	●	●	
R	External pilot	●	●	(5)
S	Built-in silencer, direct exhaust	●	●	
W	Enclosure: Dusttight/Low jetproof type (IP65)		●	

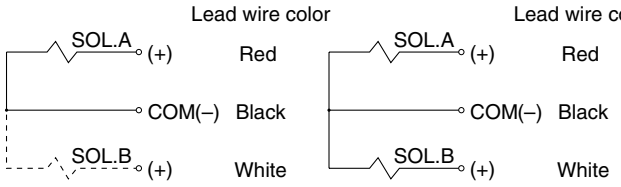
Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BRS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by the manifold specification sheet.
Note 3) Specify the mounting position in the manifold specification sheet.
Note 4) Refer to page 2-4-170 for the details of ejector mounted styles. A combination of "J" and "N" is unavailable.
Note 5) Indicate "R" for the valve with external pilot.

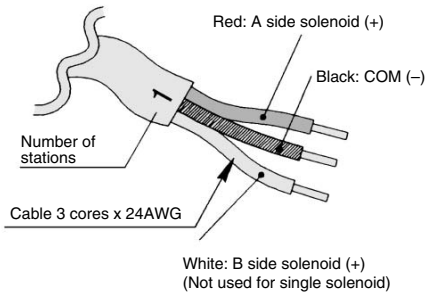


VV5Q21
Dusttight/Low jetproof type

● Wiring specifications: Negative COM (Option)

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





Lead Wire Assembly with Connector

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

∗ No. of stations 1 to 8

Note) When using the negative common specifications, use valves for negative common. For negative common specifications, refer to "Option" on page 2-4-178.

How to Order Valves

VQ 1 1 0 0 Y — 5 ☐ ☐ ☐

Series

1	VQ1000
2	VQ2000

Type of actuation

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

Seal

0	Metal seal
1	Rubber seal

Note) For external pilot and negative COM specifications, refer to "Option" on 2-4-178 to 2-4-179.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ Note)
H	High pressure type	(1.5 W) ○	—
Y	Low wattage type	(0.5 W) ○	—

Note) For power consumption of AC type, refer to page 2-4-129.

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

Light/Surge voltage suppressor

Nil	Yes
E	None

Manual override

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

Enclosure

Nil	Dusttight
W	Dusttight/Low jetproof Note) type (IP65)

Note) VQ2000 only.

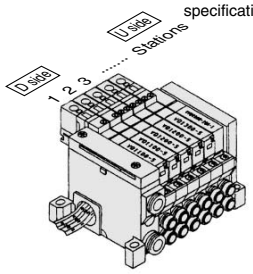
How to Order Manifold Assembly

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

<Example>
Lead wire kit with cable (3 m)
VV5Q11-06C6L2 ···· 1 set–Manifold base no.
∗VQ1100-5 ····· 2 sets–Valve part no. (Stations 1 to 2)
∗VQ1200-5 ····· 2 sets–Valve part no. (Stations 3 to 4)
∗VQ1300-5 ····· 1 set–Valve part no. (Station 5)
∗VVQ1000-10A-1 ··· 1 set–Blanking plate part no. (Station 6)

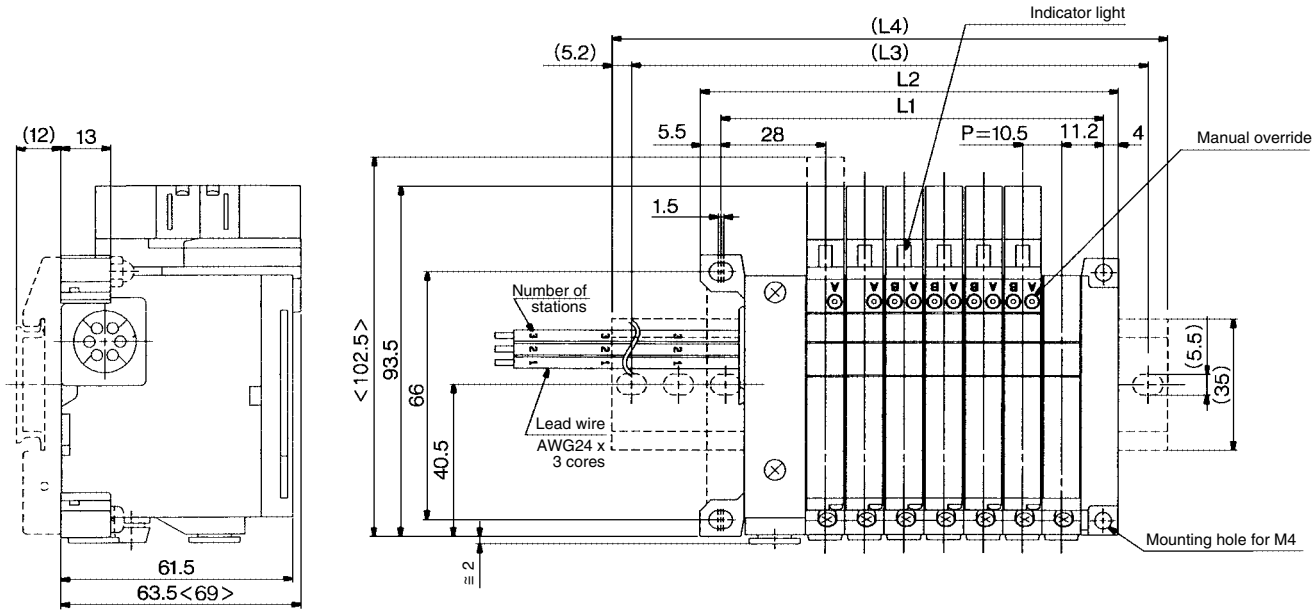
Prefix the asterisk to the part nos. of the solenoid valve, etc.

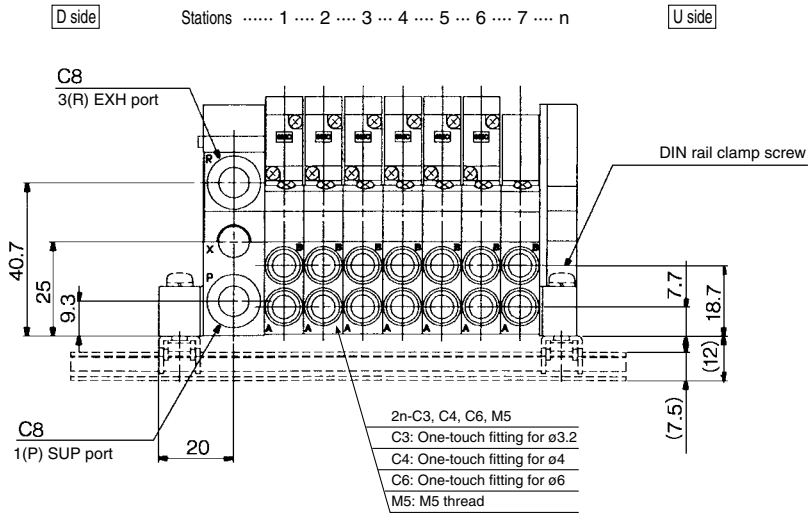
Write sequentially from the 1st station on the D side. When part nos. written collectively are complicated, specify by using the manifold specification sheet.



VQ1000

The broken lines indicate DIN rail mounting style [-D].





< >: AC

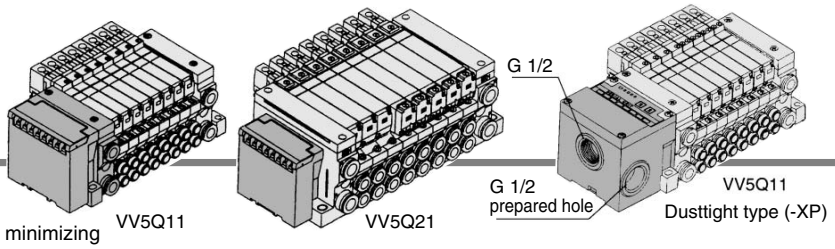
Dimensions

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

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

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

S VQ1000/2000 Kit (Serial transmission unit)

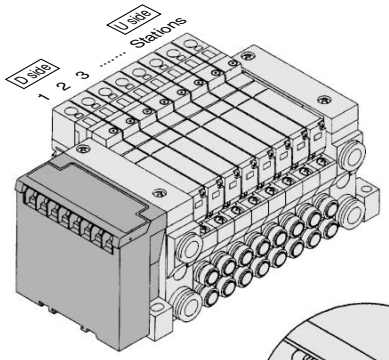


IP65 compliant

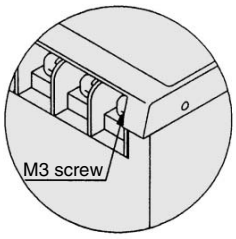
- The serial transmission system reduces wiring work, while minimizing wiring and saving space.
- The system comes in type SA (generic for small scale systems) for equipment with a small number of I/O points, or 32 points max., type SB (applicable to Mitsubishi Electric models) for controlling 512 I/O points max., type SC (applicable to OMRON models), type SD (applicable to SHARP models: 504 points max.), type SF (applicable to NKE models: 128 points max.), type SJ (applicable to SUNX models), type SK (applicable to Fuji Electric models), type SQ (applicable to OMRON's Compo Bus/D), and type SR (applicable to OMRON's Compo Bus/S).
- Max. 16 stations. (Specify a model with 9 to 16 stations by using the manifold specification sheet.)
- Enclosure: Dusttight, Low jetproof type (IP65) compliant (Series VQ2000)

Manifold Specifications

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



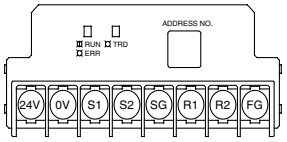
- Stations are counted from station 1 on the D side.
- Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types. The optional specification permits the mixture of single and double wiring. For details, refer to page 2-4-178.



Item	Specifications
External power supply	24 VDC +10%, –5%
Current consumption (Internal unit)	SA, SB, SBB, SD, SE, SF1, SH, SG, SJ½, SK, SQ, SR½, SU, SV: 0.1A SC: 0.3A

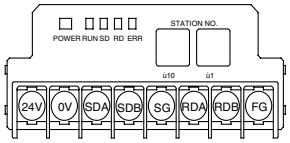
Name of terminal block (LED)

Type SA
With general type SI unit (Series EX300)



LED	Description
TRD	Lighting during data reception
RUN/ERR	Blinking when received data is normal; Lighting when data reception

Type SB
Mitsubishi Electric Corporation MELSECNET/MINI-S3 Data Link System



LED	Description
POWER	Lighting when power is turned ON
RUN	Lighting when data transmission with the master station is normal
RD	Lighting during data reception
SD	Lighting during data transmission
ERR.	Lighting when reception data error occurs. Light turns off when the error is corrected.

Note

- T unit
  Can be connected with PLC I/O card for serial transmission.
  EX300-TMB1···For models of Mitsubishi Electric Corporation
  EX300-TTA1···For models of OMRON Corporation
  EX300-TFU1···For models of Fuji Electri Co., Ltd.
  EX300-TOO1··· For general models
- ∗ Up to 32 points per unit.
- No. of output points, 16 points

- Master station:
  PLC made by Mitsubishi Electric Corporation
  Series MELSEC-A
  AJ71PT32-S3, AJ71T32-S3
  A1SJ71PT32-S3
- ∗ Max. 64 stations, connected to remote I/O stations (Max. 512 points).
- No. of output points, 16 points. No. of sta. occupied, 2 stations

∗ For details on specifications and handling, refer to the separate technical instruction manual.

How to Order Manifold

VV5Q 1 1 – 08 C6 S A – N – XP

Series

1	VQ1000
2	VQ2000

Manifold

1	Plug-in unit

Stations

02	2 stations
⋮	⋮
16 Note	16 stations

Note) For details, refer to page 2-4-178.

Cylinder port

Symbol	Port size	VQ1000	VQ2000
C3	With One-touch fitting for ø3.2	●	
C4	With One-touch fitting for ø4	●	●
C6	With One-touch fitting for ø6	●	●
C8	With One-touch fitting for ø8		●
M5	M5 thread	●	
CM	With mixed size/with port plug	●	● (3)

Note 1) Insert "L" (top piping) or "B" (bottom piping) for elbow type. (VQ1000 only).
Example) B6 (Elbow One-touch fittings for ø6, bottom piping.)
Note 2) Specify as "LM" for models with elbow fittings and mixed cylinder port sizes.
Note 3) Specify "Mixed size/with port plug" in the manifold specification sheet.
Note 4) For inch-size One-touch fittings, refer to "Option" on page 2-4-179.

Model

O	Without SI unit	Max.16 stations
A	With general type SI unit (Series EX300)	
B (2)	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System	
BB	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System (2 power supply lines)	
C	OMRON Corp.: SYSBUS Wire System	
D	SHARP Corp.: Satellite I/O Link System	
E	Matsushita Electric Works: MEWNET-F System	
F1	NKE Corp.: Uni-wire System (16 output points)	
G	Rockwell Automation: Allen Bradley Remote I/O (RIO) 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)	Max. 8 stations
K	Fuji Electric Co.: T-LINK Mini System	Max.16 stations
Q	DeviceNet, CompoBus/D (OMRON Corp.)	
R1	OMRON Corp.: CompoBus/S System (16 output points)	
R2	OMRON Corp.: CompoBus/S System (8 output points)	Max. 8 stations
U	JEMANET (JPCN-1)	Max. 16 stations
V	Mitsubishi Electric Corp.: CC-LINK System	Max. 16 stations

Note 1) The general type requires a transmission unit on CPU side.
Note 2) SBB kit is usable only for VQ2000 dusttight/low jetproof type (IP65).

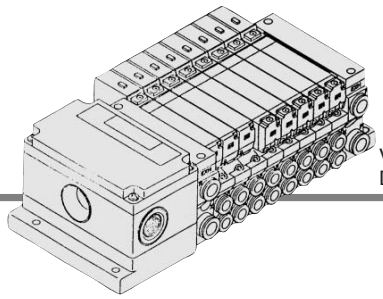
Dust-protected type (-XP)

Suffix "-XP" for the dust-protected type SI units. (Except SE and SQ)

Option

Symbol	Option	VQ1000	VQ2000	Note
Nil	None	●	●	
B	With back pressure check valve	●	●	(2)
D	DIN rail mounting style	●	●	
G1	1 set of regulator unit	●		(3)
G2	2 sets of regulator unit			
G3	3 sets of regulator unit			
J□	With vacuum ejector unit	●		(4)
K	Special wiring specifications (Not double wiring)	●	●	(5)
N	With name plate	●	●	
R	with external pilot	●	●	(6)
S	Built-in silencer, direct exhaust	●	●	
W	Enclosure: Dust tight/Low jetproof type (IP65) (Except SE)		●	(8)

Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -BRS.
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by manifold specification sheet.
Note 3) Specify the mounting position in the manifold specification sheet.
Note 4) Refer to page 2-4-170 for the details of ejector mounted styles. A combination of "J" and "N" is unavailable.
Note 5) Specify the wiring specifications in the manifold specification sheet.
Note 6) Indicate "R" for the valve with external pilot.
Note 7) A combination of "W" and "XP" is unavailable.
Note 8) Refer to "Dimensions" on page 2-4-157 for SI unit and valve, in case of W (dusttight/low jetproof type).



VV5Q21
Dust tight Low jetproof type (-W)

● SI unit output and coil numbering

<Wiring example 1>

SI unit output no. ····· 0 1 2 3 4 5 6 7 8 9

	A	B	A	B	A	Un-used	A	Un-used	A	B
SI unit	Double		Double		Single		Single		Single	
Stations	1		2		3		4		5	

Double wiring (Standard)

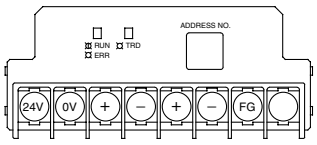
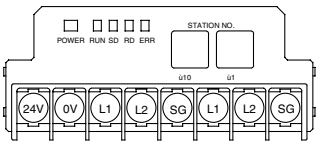
Mixed wiring is available as an option.
Use the manifold specification sheet to specify.

<Wiring example 2>

SI unit output no. ····· 0 1 2 3 4 5 6 7

	A	B	A	B	A	A	A	B
SI unit	Double		Double		Single	Single	Single	
Stations	1		2		3	4	5	

Single/Double mixed wiring (Option)

	Type SC OMRON Corporation SYSBUS Wire System	Type SD SHARP Corporation Satellite I/O Link System
Name of terminal block (LED)		
	LED / Description RUN: Lights when transmission is normal and PLC is in operation mode T/R ERR: Blinks during data transmission/reception ON when transmission is abnormal.	LED / Description POWER: ON when power supply is ON RUN: Lights when power is ON and slave stations are operating normally ERROR: Lights when slave station switch setting is abnormal, communication is abnormal, PLC stopped and defective slave unit R.SET HOLD: ON for master unit control input
Note	• Master station unit: OMRON PLC SYSMAC C (CV) series Types C500-RM201 and C200H-RM201 ∗ 32 units max., transmission terminal connection (512 points max.) • No. of output points, 16 points	• Master station unit: SHARP's PLC New Satellite Series W ZW-31LM New Satellite Series JW JW-23LM, JW 31LM ∗ Max. 31 units, I/O slave stations connected (504 points max.) • No. of output points, 16 points

How to Order Valves

VQ 1 1 0 0 Y — 5 ☐ ☐

Series

1	VQ1000
2	VQ2000

Type of actuation

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

Seal

0	Metal seal
1	Rubber seal

Note) For external pilot and negative COM specifications, refer to "Option" on pages 2-4-178 to 2-4-179.

Function

Symbol	Specifications	DC
Nil	Standard type	(1.0 W) ○
H	High pressure type	(1.5 W) ○
Y	Low wattage type	(0.5 W) ○

Coil voltage

5	24 VDC; With indicator light/surge voltage suppressor

Manual override

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

Enclosure

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

Note) VQ2000 only.

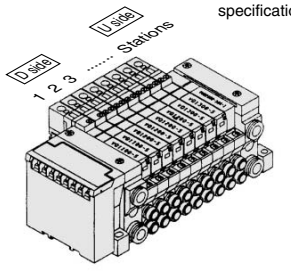
How to Order Manifold Assembly

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

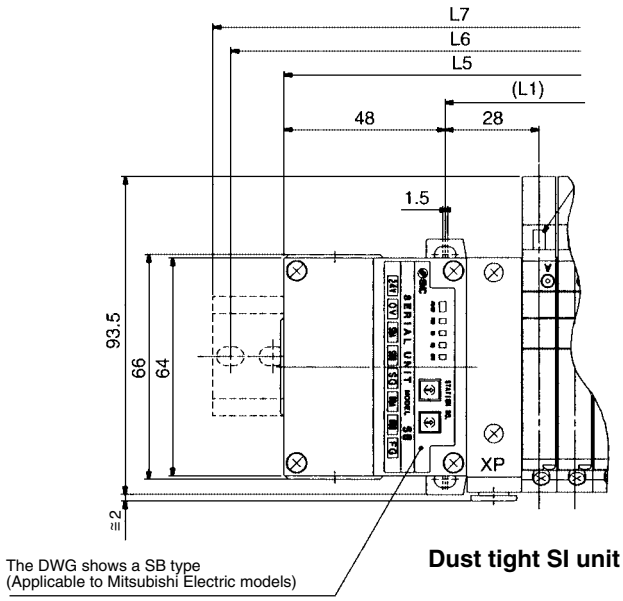
<Example>
Serial transmission kit
VV5Q11-08C6SA ··· 1 set–Manifold base no.
∗VQ1100-5 ····· 2 sets–Valve part no. (Stations 1 to 2)
∗VQ1200-5 ····· 4 sets–Valve part no. (Stations 3 to 6)
∗VQ1300-5 ····· 1 set–Valve part no. (Station 7)
∗VVQ1000-10A-1 ··· 1 set–Blanking plate part no. (Station 8)

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

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

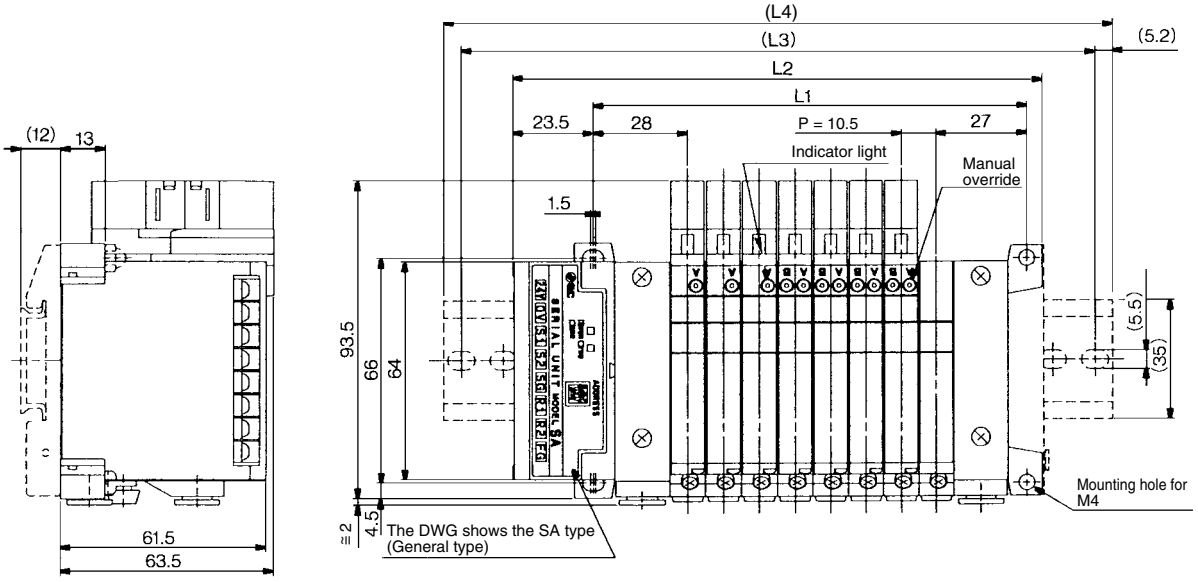


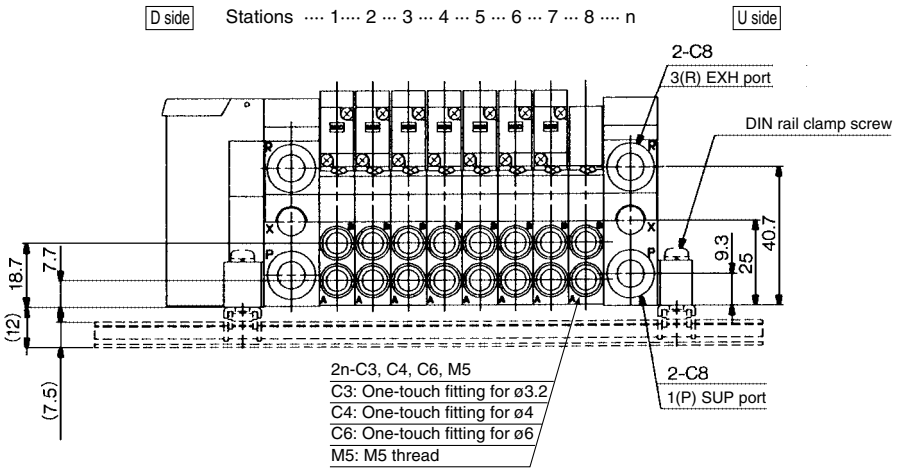
VQ1000



The broken lines indicate DIN rail mounting style [-D].

Dust tight SI unit





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

Note) Manifolds with SI unit for Matsushita Electric Works' MEWNET FP and Rockwell Automation's model are the same with L5, L6 and L7 dimensions of dustproof SI unit.

Dimensions

Dust-protected type SI unit: L5 = 10.5n + 97, L6 = L3 + 25, L7 = L4 + 25
Formula L1 = 10.5n + 44.5, L2 = 10.5n + 72.5 n: Station (Maximum16 stations)

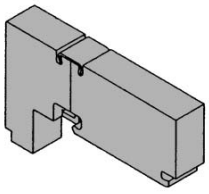
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	65.5	76	86.5	97	107.5	118	128.5	139	149.5	160	170.5	181	191.5	202	212.5
L2	93.5	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5	230	240.5
(L3)	125	125	137.5	150	162.5	175	187.5	187.5	200	212.5	225	237.5	250	250	262.5
(L4)	135.5	135.5	148	160.5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

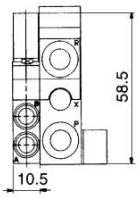
Manifold Option Parts for VQ1000

Blanking plate assembly
VVQ1000-10A-1

JIS Symbol

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

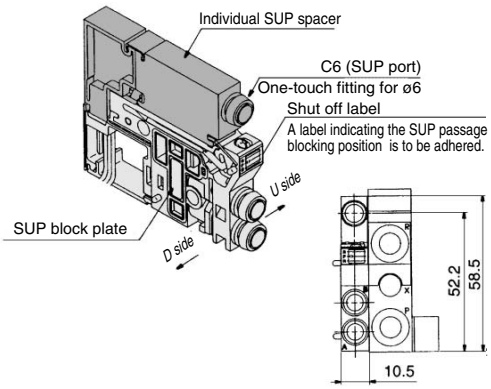


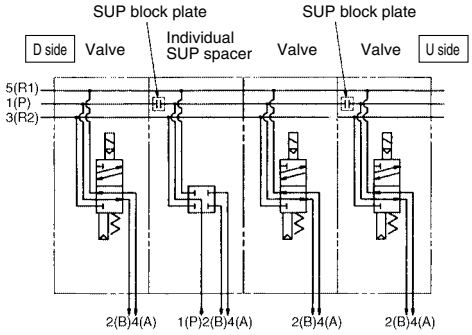


Individual SUP spacer
VVQ1000-P-1-C6

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

* Specify the spacer mounting position and SUP block plate position on the manifold specification sheet.
  The block plate are used in two places for one set. (Two SUP block plates for blocking SUP station are attached to the individual SUP spacer.)
* Electric wiring is connected to the position of the manifold station where the individual SUP spacer is mounted.

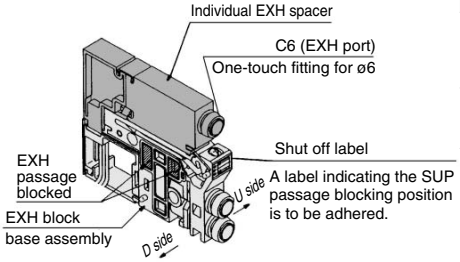


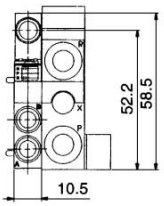


Individual EXH spacer
VVQ1000-R-1-C6

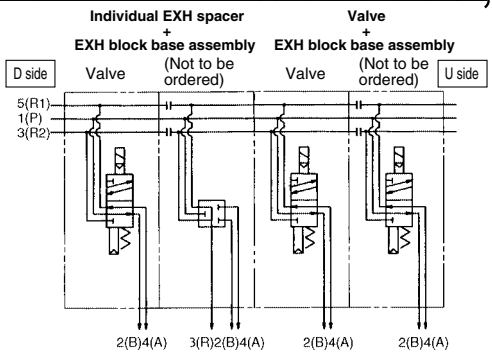
When valve exhaust affects other stations due to the circuit configuration, this spacer is used for individual valve exhaust. (One station space is occupied.)
Block both sides of the individual valve EXH station. (See example)

* Specify the mounting position, as well as the EXH block base or EXH block plate position on the manifold specification sheet. The block plate are used in two places for one set. (Two EXH block plates for blocking EXH station are attached to the individual EXH spacer.)
* An EXH block base assembly is used in the blocking position when ordering an EXH spacer incorporated with a manifold no. However, do not order an EXH block base assembly because it is attached to the spacer.
  When separately ordering an individual EXH spacer, separately order an EXH block base assembly because it is not attached to the spacer.
* Electric wiring is connected to the position of the manifold station where the individual EXH spacer is mounted.





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



SUP block plate
VVQ1000-16A

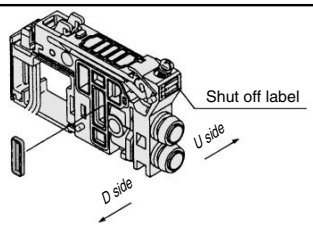
When different pressures, high and low, are supplied to one manifold, a SUP block plate is inserted between the stations under different pressures.

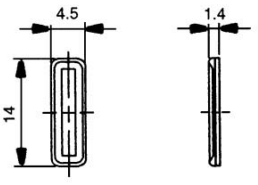
* Specify the number of stations on the manifold specification sheet.

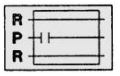
<Shut off label>

When using block plates for SUP passage, indication label for confirmation of the blocking position from outside is attached. (One label of each)

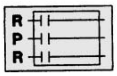
* When ordering a block plate incorporated with the manifold no., a block indication label is attached to the manifold.







SUP passage block



SUP/EXH passage blocked

Blanking plate with connector
VVQ1000-1C-□□

Style of manifold

1	VV5Q11

Connector

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

Lead wire length (mm)

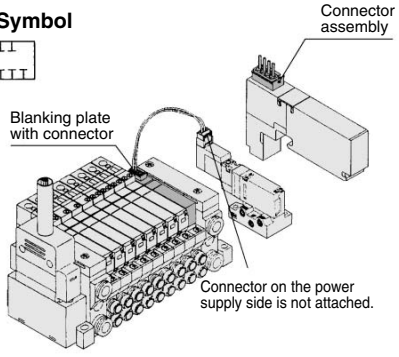
Nil	300	20	2000
6	600	25	2500
10	1000	30	3000
15	1500		

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

* When "N" is suffixed to the nameplate, the plate will be different from a standard shape.

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

JIS Symbol

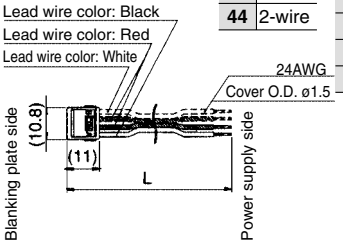


Connector assembly part no.
AXT661-43A-6

43	4-wire
44	2-wire

Lead wire length: L

Nil	300 mm
6	600 mm
10	1000 mm
20	2000 mm
30	3000 mm



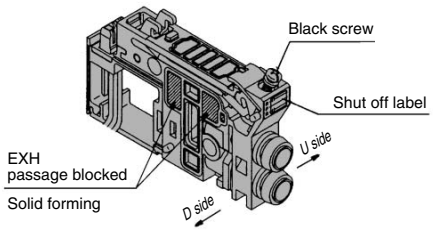
EXH block base assembly
VVQ1000-19A-F□P□L□ (C3, C4, C6, M5)

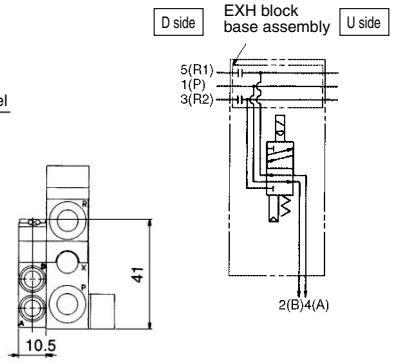
Manifold block assembly ●
Electrical entry

F1	For F kit (2 to 12 stations)/Double wiring
F2	For F kit (13 to 24 stations)/Double wiring
F3	For F kit (2 to 24 stations)/Single wiring
P1	For P, G, T, S kit (2 to 12 stations)/Double wiring
P2	For P, G, T, S kit (13 to 24 stations)/Double wiring
P3	For P, G, T, S kit (2 to 24 stations)/Single wiring
L0 *	L0 kit
L1 *	L1 kit ＊1 to 8 stations
L2 *	L2 kit

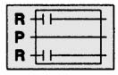
The manifold block assembly is used between stations for which exhaust is desired to be divided when valve exhaust affects other stations due to the circuit configuration. The EXH passage on the D-side is blocked in the EXH block base assembly. It is also used in combination with an individual EXH spacer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

<Blocking indication label>
When blocking the EXH passage with an EXH block base assembly, indication label for confirmation of the blocking position from outside is attached. (One label for each)
＊ When ordering a EXH block base incorporated with the manifold no., a block indication label is attached to the manifold.

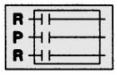




＊ Specify the number of stations on the manifold specification sheet.
＊ When ordering by using the manifold specification form, specify the EXH block base assembly no. by adding suffix "＊" below the manifold no.



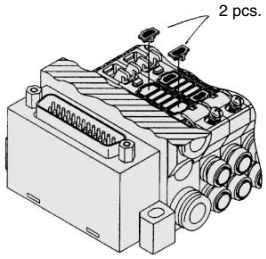
EXH passage blocked



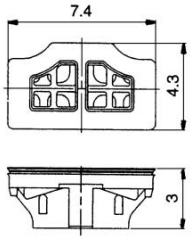
SUP/EXH passage blocked

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

It prevents cylinder malfunction caused by other valve exhaust. Insert it into R (EXH) port on the manifold side of a valve which is affected. It is effective when a single action cylinder is used or an exhaust center type solenoid valve is used.
Note) When a check valve for back pressure prevention is desired, and is to be installed only in certain manifold stations, write clearly the part no. and specify the number of stations by using the manifold specification sheet.



＊ When ordering assemblies incorporated with a manifold, add suffix "-B" to the manifold no.

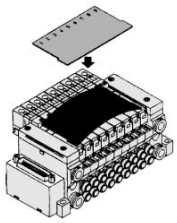


(Precautions)
1. The back pressure check valve assembly is assembly parts with a check valve structure. However, as slight air leakage is allowed for the back pressure, take care the exhaust air will not be throttled at the exhaust port.
2. When a back pressure check valve is mounted, the effective area of the valve will decrease, by about 20%.

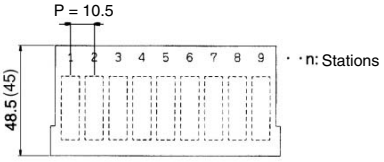
Name plate [-N]
VVQ1000-N/NC N-Station (1 to Max. stations)

N: Standard
NC: For mounting blanking plate with connector

It is a transparent resin plate for placing a label that indicates solenoid valve function, etc.
Insert it into the groove on the side of the end plate and bend it as shown in the figure.
＊ When the blanking plate with connector is mounted, it automatically will be "VVQ1000-NC-n" with an option symbol [-N]



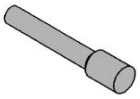
＊ When ordering assemblies incorporated with a manifold, add suffix "-N" to the manifold no.

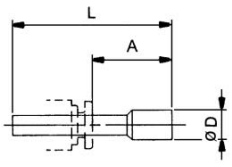


Note) ( ): For VVQ1000-NC-n

Blanking plug (For One-touch fittings)
KQ2P-23/04/06/08

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



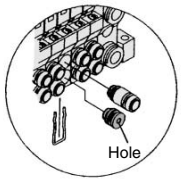


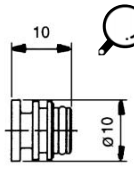
Dimensions

Applicable fittings size ød	Model	A	L	D
3.2	**KQ2P-23**	16	31.5	3.2
4	**KQ2P-04**	16	32	6
6	**KQ2P-06**	18	35	8
8	**KQ2P-08**	20.5	39	10

Port plug
VVQ0000-58A

The plug is used to block the cylinder port when using a 4 port valve as a 3 port valve.

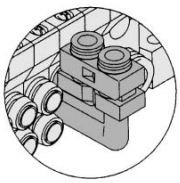


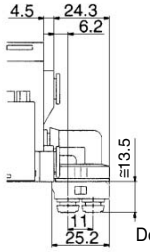


＊ When ordering a plug incorporated with a manifold, indicate "CM" for the port size in the manifold no., as well as, the mounting position and number of stations and cylinder port mounting positions, A and B, on the manifold specification sheet.
＊ Lightly screw an M3 screw in the port plug hole and pull it for removal.

Elbow fitting assembly
VVQ1000-F-L (C3, C4, C6, M5)

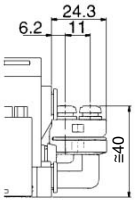
It is used for piping that extends upward or downward from the manifold.
When installing it in part of the manifold stations, specify the assembly no. and the mounting position and number of stations by means of the manifold specification sheet.
＊ When mounting elbow fittings assembly on the edge of manifold station and a silencer on EXH port, select a silencer, AN203-KM8.
Silencer (AN200-KB8) is interfered with fittings.





Downward

＊ When ordering assemblies incorporated with a manifold, indicate "L□" or "B□" for the manifold port size. (When installed in all stations.)

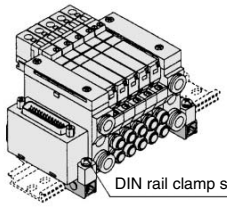


Upward

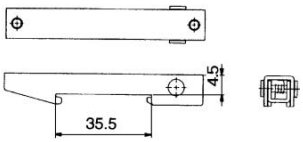
Manifold Option Parts for VQ1000

DIN rail mounting bracket
VVQ1000-57A

It is used for mounting a manifold on a DIN rail. The DIN rail mounted bracket is fixed to the manifold end plate. (The specification is the same as that for the option "-D".)
1 set of DIN rail mounting bracket is used for 1 manifold (2 DIN rail mounting brackets).



∗ When ordering assemblies incorporated with a manifold, add suffix "D" to the manifold no.

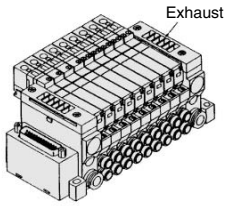


Mounting screws are attached

Built-in silencer, Direct exhaust [-S]

This is a type with an exhaust port a top the manifold end plate. The built-in silencer exhibits an excellent noise suppression effect. (Silencing effect: 30 dB)

Note) A large quantity of drainage generated in the air source results in exhaust of air together with drainage. For maintenance, refer to page 2-4-176.

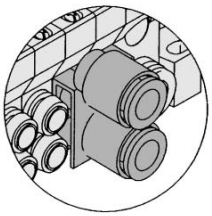


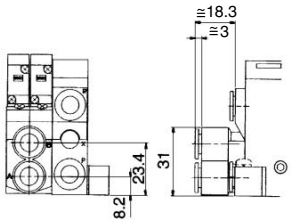
∗ When ordering assemblies incorporated with a manifold, add suffix "S" to the manifold no.

2 stations matching fitting assembly
VVQ1000-52A-C8

For driving a cylinder with a large bore, valves for two stations are operated to double the flow rate. This assembly for the cylinder port is used in that case. The assembly is equipped with One-touch fittings for a ø8 bore.

∗ The bore for the manifold no. is "CM". Clearly indicate the 2 station matching fitting assembly no., and specify the number of stations and positions by means of the manifold specifications.
∗ In 2 station matching fitting assembly, a special clip which is combined in one-piece of 2 stations is attached as a holding clip.

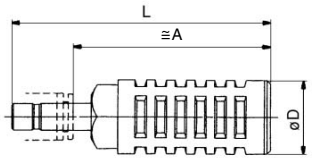




Silencer (For EXH port)

This silencer is to be inserted into the EXH port (One-touch fittings) of the common exhaust type

∗ When mounting elbow fittings assembly (VVQ1000-F-L□) on the edge of manifold station, select a silencer, AN203-KM8.
Silencer (AN200-KM8) is interfered with fittings.



Dimensions

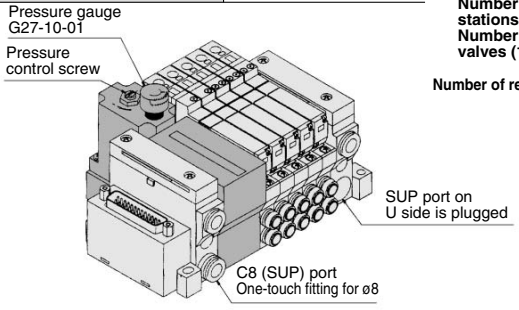
Series	Applicable fittings size ød	Model	A	L	D	Effective area (mm²)	Noise reduction (dB)
VQ1000	8	AN200-KM8	59	78	22	20	30
		AN203-KM8	32	51	16	14	25 ∗

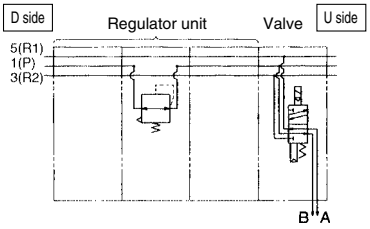
Regulator unit
VVQ1000-AR-1

The regulator controls the SUP air pressure in a manifold. Supply air from D side SUP port is regulated. SUP port on U side is plugged.

Specifications

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





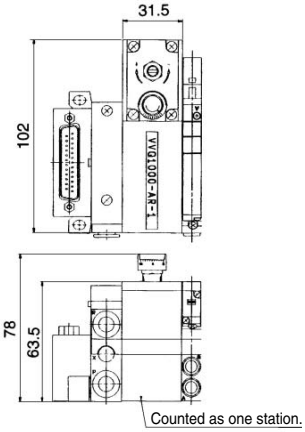
• How to Order

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

How to order manifold
VV5Q11-14C6FUO-DG2

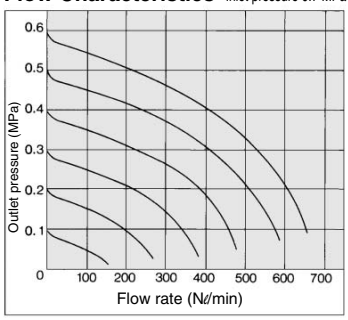
Number of manifold stations
Number of mounted valves (12)
+
Number of regulator units (2)

Number of regulator units (2) (Max. 3 units)
With regulator unit
Others, option symbols: to be indicated alphabetically.



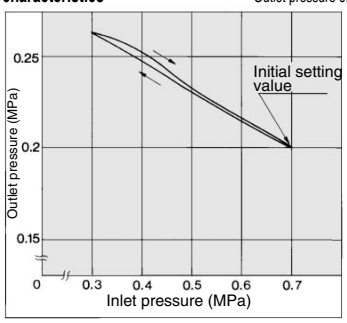
Flow Characteristics

Conditions: Inlet pressure 0.7 MPa



Pressure characteristics

Conditions (Initial setting) Inlet pressure 0.7 MPa
Outlet pressure 0.2 MPa



⚠ Caution

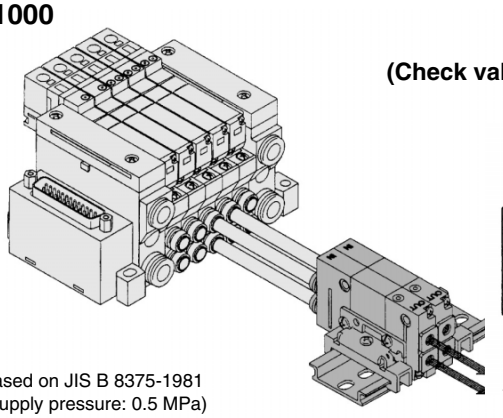
• Pressure setting
Check the supply pressure and then turn the pressure control screw to set the secondary pressure. Turning the screw clockwise will increase the secondary pressure while turning it counterclockwise decrease the pressure. (Set the pressure by turning the screw in the increase direction.)

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

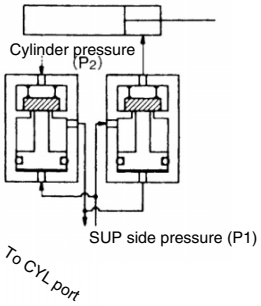
Double check block (Separated type): For VQ1000

VQ1000-FPG-□□

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



(Check valve operation principle)



Specifications

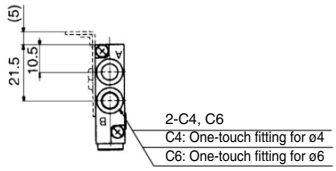
Max. operating pressure	0.8 MPa
Min. operating pressure	0.15 MPa
Ambient and fluid temp.	–5 to 50°C
Flow characteristics: C	0.60 dm³/(s·bar)
Max. operating frequency	180 CPM

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

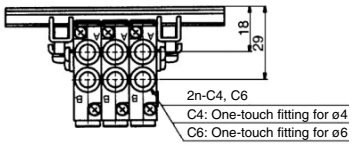
VVQ1000-FPG-02 1 set
∗ VQ1000-FPG-C6M5-D 2 pcs.

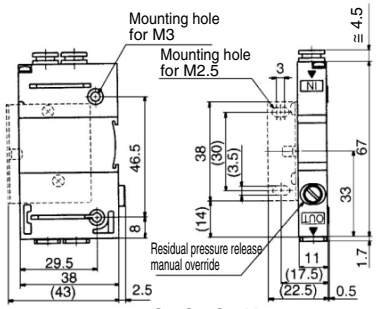
Dimensions

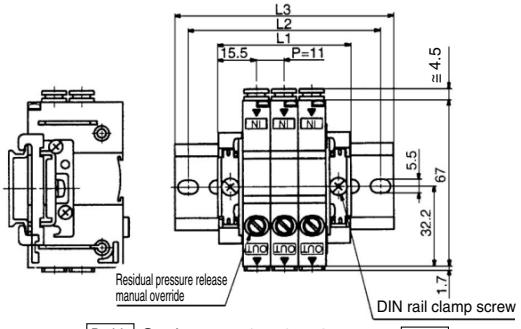
Single unit



Manifold



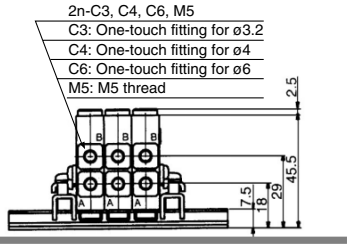




Dimensions Formula L1 = 11n + 20 n: Station (Maximum 24)

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

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



How to Order

Double check block

VQ1000-FPG- C4 M5 F

IN side port size

C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6

OUT side port size

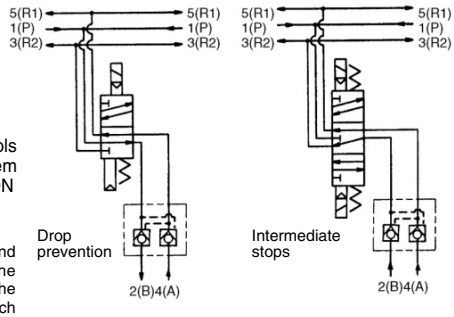
M5	M5 thread
C3	One-touch fitting for ø3.2
C4	One-touch fitting for ø4
C6	One-touch fitting for ø6

Option

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

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

2 position **<Example>** **3 position exhaust center**



Manifold

VVQ1000-FPG- 06

Stations

01	1 station
⋮	⋮
16	16 stations

<Example>
VVQ1000-FPG-06··6 types of manifold
∗VQ1000-FPG-C4M5-D, 3 sets
∗VQ1000-FPG-C6M5-D, 3 sets
} Double Check block

Bracket Assembly

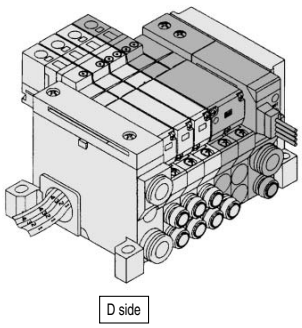
Part no.	Tightening torque
VQ1000-FPG-FB	0.22 to 0.25 N·m

⚠ Caution

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

Manifold Option/Vacuum Ejector Unit: VQ1000

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



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

Specifications

Unit no.	VVQ1000-J□-□□□-A	VVQ1000-J□-□□□-B
Nozzle diameter (mm)	0.7	1.0
Max. suction flow rate N (ℓ/min)	11	20
Max. vacuum pressure	–630 mmHg	
Max. operating pressure	0.8 MPa	
Standard supply pressure	0.5 MPa	
Operating temperature	5 to 50°C	

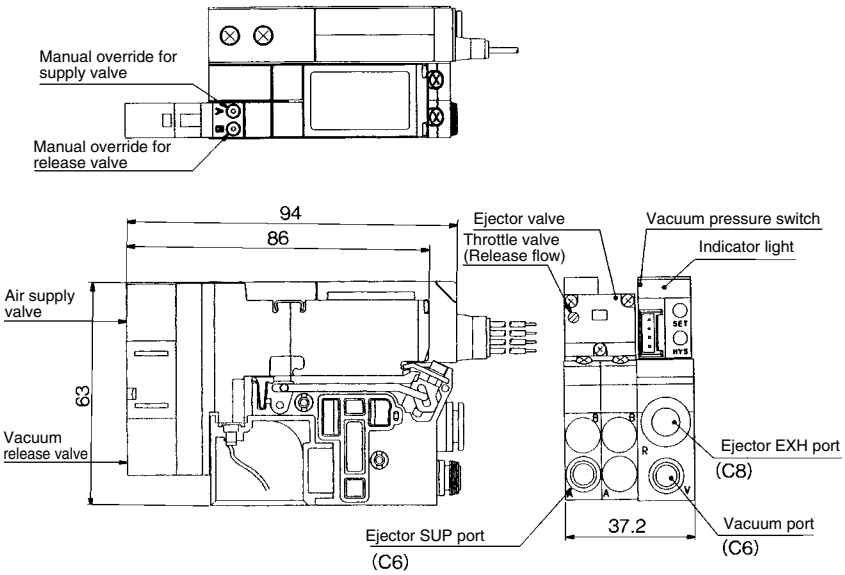
Maximum Number of Ejector Units

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

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

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

Dimensions



How to Order

VV5Q11-05C6FUO-J P 1 S

Vacuum switch

Nil	None
P	With

Ejection unit

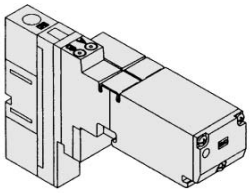
1 to 5

Others, option symbols: to be indicated alphabetically.

Example) VV5Q11-05C6FUO-JP1····1 set–Manifold part no.
*VQ1100-5 ·····2 sets–Valve part no. (Stations 1 to 2)
*VQ1200-5 ·····2 sets–Valve part no. (Stations 3 to 4)
*VVQ1000-J1-5-A ··· 1 set–Ejector valve part no.
*ZSE1-00-15-CL ····· 1 set–Vacuum switch part no.

Note 1) Count one ejector unit as one manifold station.
Note 2) The ejector unit is mounted next to the U-side end plate.
Note 3) The U-side end plate is used exclusively for ejector units. (Without P and R port)
Note 4) The dimension of manifold with an ejector unit is different from the standard dimension. See the formula for calculating the dimensions for each kit.

How to Order Vacuum Ejector Valves



VVQ1000 − J [1] − [5] [H] [C] − [A]

Manifold

1	Plug-in unit

Coil voltage

1	100 VAC (50/60 Hz)	5	24 VDC
2	200 VAC (50/60 Hz)	6	12 VDC
3	110 VAC (50/60 Hz)	9	Others
4	220 VAC (50/60 Hz)		

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0W) ○	○ (1)
H	High pressure type	(1.5 W) ○	—
Y	Low wattage type	(0.5W) ○	—
N	Negative COM	○	—

Specifications

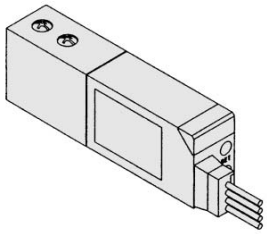
Symbol	Nozzle diameter	Vacuum release valve
A	ø0.7	With
B	ø1.0	

Manual override

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

Note 1) For power consumption of AC type, refer to page 2-4-129.
Note 2) When two or more symbols are specified, indicate them alphabetically.

How to Order Vacuum Pressure Switches



ZSE1 − 00 − [15] − [CL]

Switch/Voltage (Solid state: 12 to 24 VDC)

14	NPN/1 setting, 3 revolution adjustment
15	NPN/1 setting, 200° adjustment
16	NPN/2 setting, 3 revolution adjustment
17	NPN/2 setting, 200° adjustment
18	NPN/1 setting, 3 revolution adjustment, analog
19	NPN/1 setting, 200° adjustment, analog

Wiring specifications

Nil	Grommet type, Lead wire length 0.6 m
L	Grommet type, Lead wire length 3 m
C	Connector type, Lead wire length 0.6 m
CL	Connector type, Lead wire length 3 m
CN	Without connector Note)

Note) When ordering the switch with 5 m lead wire length, order separately the switch without connector and the connector. (Refer to below.) Besides, as for details, refer to the Vacuum Equipment catalog.

How to order connectors
- Without lead wire (Connector 1 pc., Socket 4 pcs.) ····· ZS-20-A
- With lead wire ····· ZS-20-5A-50

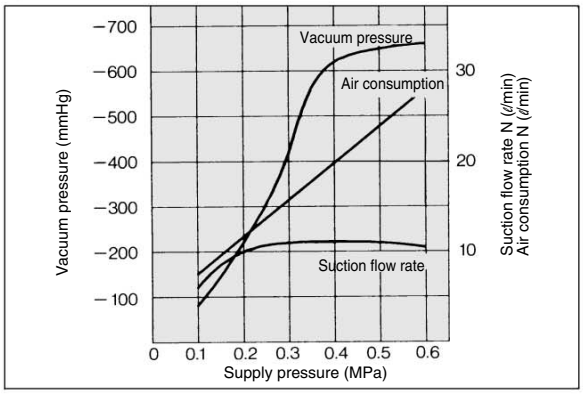
Lead wire length

Nil	0.6 m
30	3 m
50	5 m

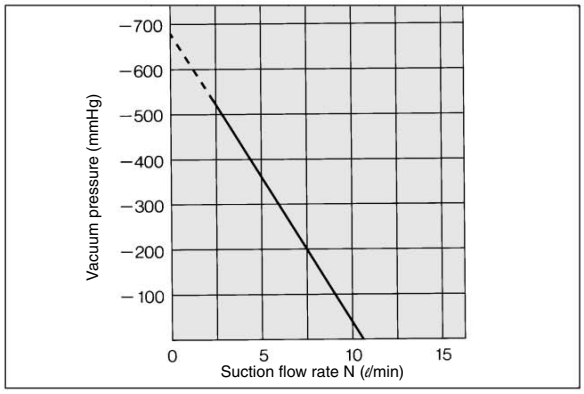
(The flow characteristics are for the supply pressure of 0.5 MPa.)

Flow/Exhaust Characteristics of Ejector Unit

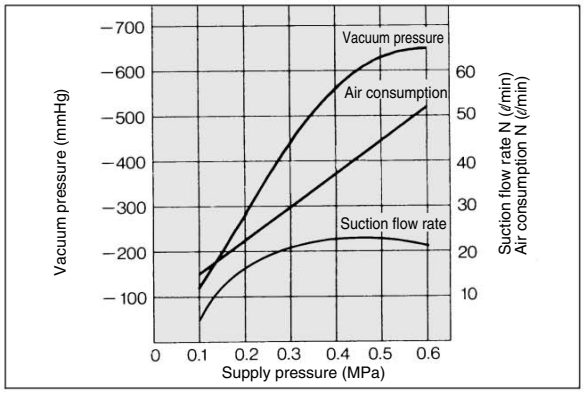
Nozzle Diameter ø0.7
Exhaust Characteristics



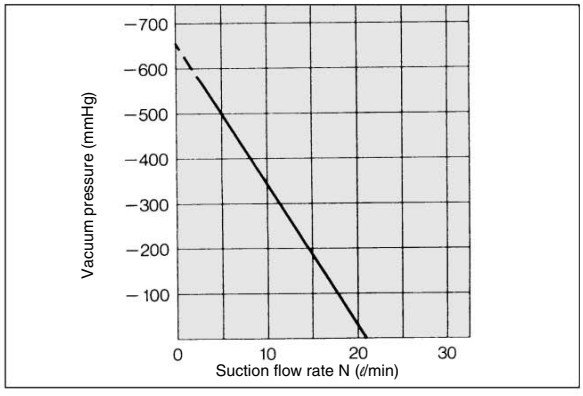
Flow Characteristics



Nozzle Diameter ø1.0



Flow Characteristics



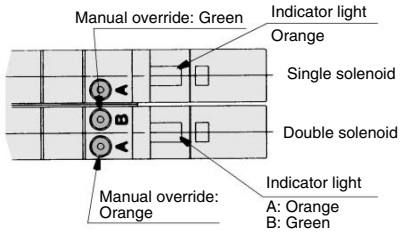
⚠ Precautions 1

Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 2-9-2.

Light/Surge Voltage Suppressor

⚠ Caution

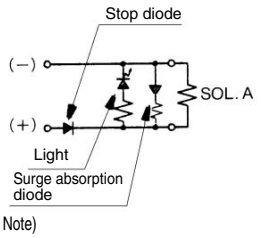
The lighting positions are concentrated on one side for both single solenoid type and double solenoid type. In the double solenoid type, A side and B side energization are indicated by two colors which match the colors of the manual overrides.



(DWG shows a VQ1000 case.)

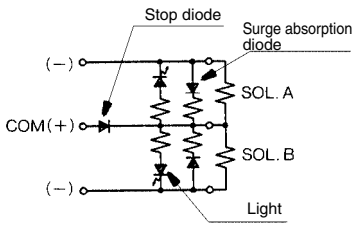
DC circuit diagram

Single solenoid



Note)
A side energization: A light (orange) illuminates.
B side energization: B light (green) illuminates.

Double solenoid



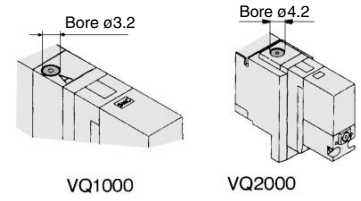
With wrong wiring preventing ability (stop dieode).
Equipped with a surge absorption
(surge absorption diode) mechanism.

Manual Override

⚠ Warning

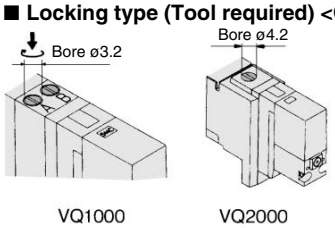
Without an electric signal for the solenoid valve the manual override is used for switching the main valve.
Push type is standard. (Tool required)
Option: Locking type (Tool required/Manual)

■ Push type (Tool required)



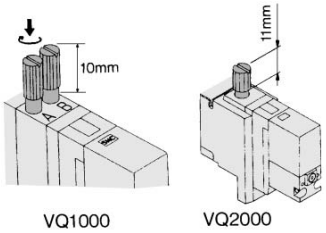
Push down on the manual override button with a small screwdriver until it stops. Release the screwdriver and the manual override will return.

■ Locking type (Tool required) <Option>



Push down on the manual override button with a small screwdriver or with your fingers until it stops. Turn clockwise by 90° to lock it. Turn it counterclockwise to release it.

■ Locking type (Manual) <Option>



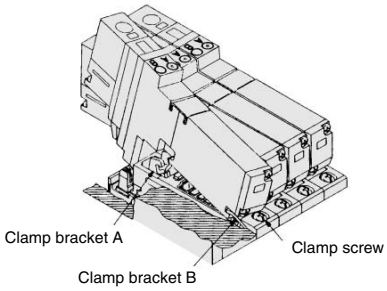
Push down on the manual override button with a small screwdriver or with your fingers until it stops. Turn clockwise by 90° to lock it. Turn it counterclockwise to release it.

⚠ Caution

Do not apply excessive torque when turning the locking type manual override.
(0.1 N·m or less)

How to Mount/Remove Solenoid Valve

⚠ Caution



Removing

1. Loosen the clamp screw until it turns freely. (The screw is captive.)
2. Lift the coil side of the valve body while pressing down slightly on the screw head and remove it from the clamp bracket B. When the screw head cannot be pressed easily, gently press the area near the manual override of the valve.

Mounting

1. Press down on the clamp screw. → Clamp bracket A opens. Diagonally insert the hook on the valve end plate side into clamp B.
2. Press the valve body downward. (When the screw is released, it will be locked by clamp bracket A.)
3. Tighten the clamp screw. (Proper tightening torque: VQ1000, 0.25 to 0.35 N·m; VQ2000, 0.5 to 0.7 N·m.)

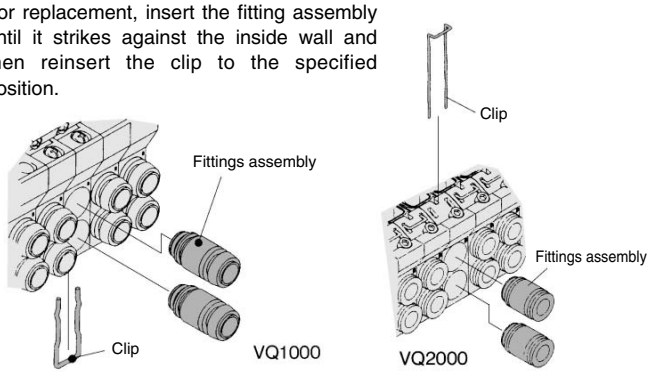
⚠ Caution

Dust on the sealing surface of the gasket or solenoid valve can cause air leakage.

Replacement of Cylinder Port Fittings

⚠ Caution

The cylinder port fittings are a cassette for easy replacement.
The fittings are blocked by a clip inserted from the top of manifold. Remove the clip with a screwdriver to remove fittings.
For replacement, insert the fitting assembly until it strikes against the inside wall and then reinsert the clip to the specified position.



Applicable tubing O.D.	Fitting assembly part no.	
	VQ1000	**VQ2000**
Applicable tubing ø3.2	VVQ1000-50A-C3	—
Applicable tubing ø4	VVQ1000-50A-C4	VVQ1000-51A-C4
Applicable tubing ø6	VVQ1000-50A-C6	VVQ1000-51A-C6
Applicable tubing ø8	—	VVQ1000-51A-C8
M5	VVQ1000-50A-M5	—

∗ Refer to "Option" on pages 2-4-172 to 2-4-173 for other types of fittings.

⚠ Caution

1. Use caution that O-rings must be free from scratches and dust. Otherwise, air leakage may result.
2. After screwing in the fittings, mount the M5 fitting assembly on the manifold base. {Tightening torque: 0.8 to 1.2 N·m}
3. Purchasing order is available in units of 10 pieces.

⚠ Precautions 2

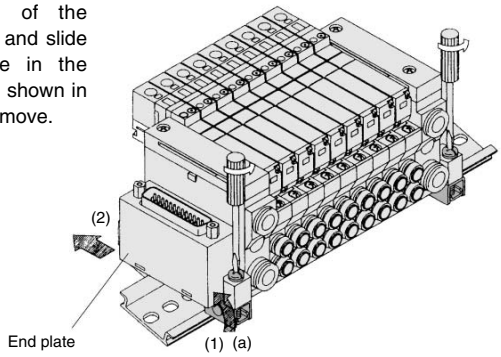
Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 2-9-2.

Mounting/Removing from the DIN Rail

⚠ Caution

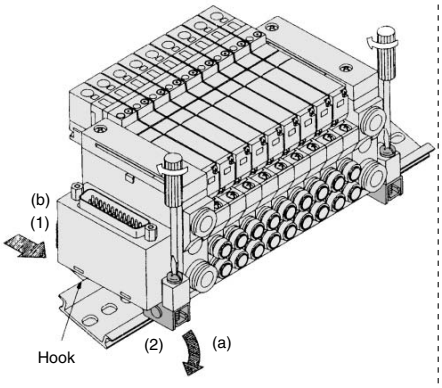
Removing

1. Loosen the clamp screw on side (a) of the end plate on both sides.
2. Lift side (a) of the manifold base and slide the end plate in the direction of (2) shown in the figure to remove.



Mounting

1. Hook side (b) of the manifold base on the DIN rail.
2. Press down side (a) and mount the end plate on the DIN rail.
   Tighten the clamp screw on side (a) of the end plate.
   The proper tightening torque for screws is 0.4 to 0.6 N·m.



Enclosure IP65

⚠ Caution

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

Built-in Silencer Replacement Element

⚠ Caution

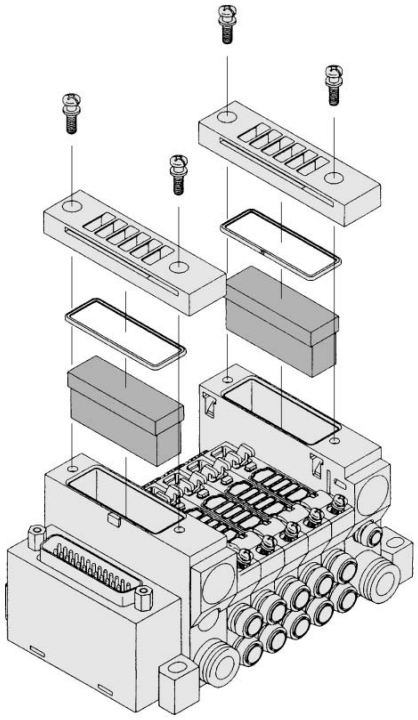
A silencer element is incorporated in the end plate on both sides of the A dirty and choked element may reduce cylinder speed or cause malfunction. Clean or replace the dirty element.

Element Part No.

Type	Element part no.	
	VQ1000	**VQ2000**
Built-in silencer, direct exhaust	VVQ1000-82A-1	VVQ2000-82A-1

∗ The minimum order quantity is 10 pcs.

Remove the cover from the top of the end plate and remove the old element with a screwdriver, etc.



How to Calculate the Flow Rate

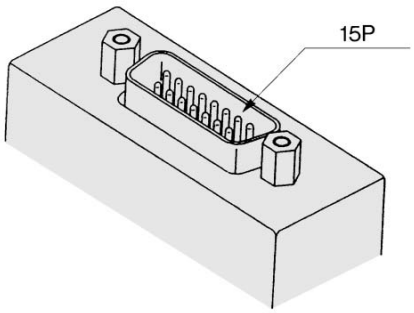
For obtaining the flow rate, refer to pages 2-1-8 to 2-1-11.

Option

Different Number of Connector Pins

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

F kit (D-sub connector) 15 pins



How to order manifold

VV5Q11 — 06 C6 F SA — N

- 06: Stations
- C6: Cylinder port
- SA: Kit/Electrical entry
- N: Option

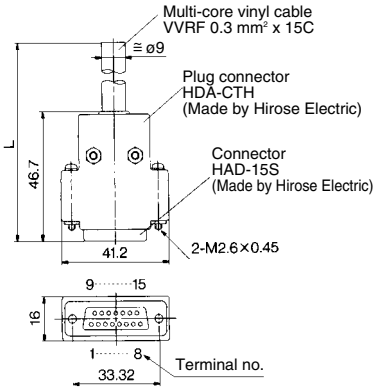
How to Order
D-sub connector, 15 pins
Connector location–Side (horizontal)
Without cable

Kit/Electrical entry

Pins \ Location	Top entry		Side entry	
15P (Max. 7 stations)	Kit F	UA	Kit F	SA

Wiring Specifications

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



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

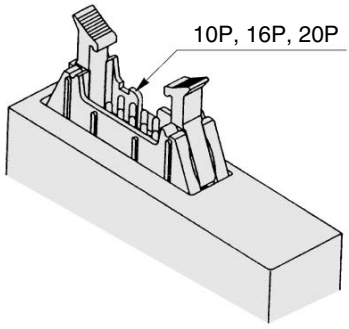
Terminal no.	Lead wire color	Dot marking
1	Black	None
2	Brown	None
3	Red	None
4	Orange	None
5	Yellow	None
6	Pink	None
7	Blue	None
8	Purple	White
9	Gray	Black
10	White	Black
11	White	Red
12	Yellow	Red
13	Orange	Red
14	Yellow	Black
15	Pink	Black

D-sub Connector Cable Assembly

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

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

P kit (Flat ribbon cable connector) 10 pins, 16 pins, 20 pins



How to order manifold

VV5Q11 — 06 C6 P SC — N

- 06: Stations
- C6: Cylinder port
- SC: Kit/Electrical entry
- N: Option

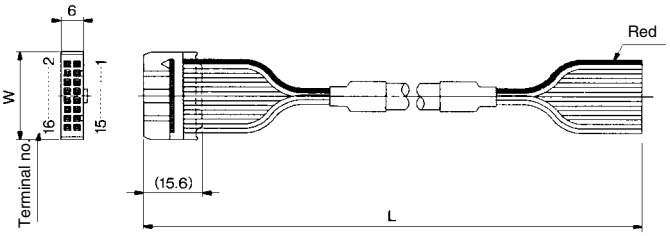
How to Order
Flat ribbon cable, 20 pins
Connector location–Side (Horizontal)
Without cable

Kit/Electrical entry

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

Wiring Specifications

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



Flat Ribbon Cable Assembly

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

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

Option

Special Wiring Specifications

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

1. How to Order

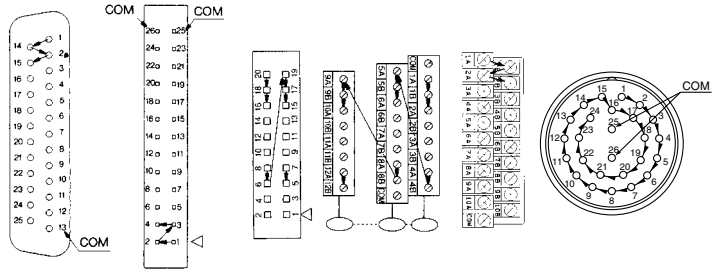
Indicate an option symbol "-K", for the manifold no. and be sure to specify the mounting position and number of stations of the single and double wiring by means of the manifold specification sheet.

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

Others, option symbols: to be indicated alphabetically.

2. Wiring specifications

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



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

3. Max. number of stations

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

Kit	F kit (D-sub connector)		P kit (Flat ribbon cable connector)				J kit (Flat ribbon cable connector)	G kit (Flat ribbon cable with terminal block)
Type	F S U □ 25P	F S U A 15P	P S U □ 26P	P S U C 20P	P S U B 16P	P S U A 10P	J S U □ 20P	G
Max. points	24	14	24	18	14	8	16	16

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

Negative Common Specifications

Specify the valve model no. as shown below for negative COM specification. The manifold no. shown below is for the T and L kits. For other kits the standard manifold can be used. For negative COM S or G kit, please contact SMC.

VQ1100 N − 5

Negative common specifications

How to order negative COM manifold

T kit:

VV5Q11 − 06 C6 T N − N

Option
Negative common specifications
Cylinder port
Stations

L kit:

VV5Q11 − 06 C6 L N 1 − N

Stations
Cylinder port
Negative common specifications
Option
Electrical entry
Cable length

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

External Pilot Specifications

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

How to order manifold

VV5Q11-08C6FU1-R S

Others, option symbols: to be indicated alphabetically.

How to order valves

VQ1100 R – 5

External pilot specifications

Note 1) When low wattage type is also desired, specify as "RY".
Note 2) In this valve pilot exhaust is connected to the EA passage of the manifold. Therefore, it is not possible to supply air from EXH port, nor vacuum from ports other than SUP port.

Inch-size One-touch Fittings

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

VV5Q11 – 06 N7 PS0 – N

Stations
Option
Kit/Electrical entry
Cylinder port

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

Note) When inch-size fittings are selected for the cylinder port, use inch size fittings for both P and R port.

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

Option

DIN Rail Mounting

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

● **When DIN rail is unnecessary**
(DIN rail mounting brackets only are attached.)
Indicate the option symbol, -DO, for the manifold no.

Example)

VV5Q11-08C6FU1-D0S

Others, option symbols: to be indicated alphabetically.

● **When using DIN rail longer than the manifold with specified number of stations**
Clearly indicate the necessary number of stations next to the option symbol "-D" for the manifold no.

Example)

VV5Q11-08C6FU1-D09S

DIN rail for 9 stations

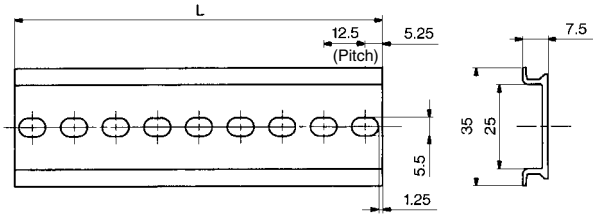
Others, option symbols: to be indicated alphabetically.

● **When changing the manifold style into a DIN rail mounting style.**
Order brackets for mounting a DIN rail. (Refer to "Option" on pages 2-4-168 and 2-4-173.)

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

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

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



L Dimension

L = 12.5 x n + 10.5

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

For details about certified products conforming to international standards, visit us at www.smcworld.com.

Series VQ1000
Base Mounted
Plug Lead Unit

How to Order Manifold

VV5Q 12 – 08 C6 F U1 – D

Series/Manifold

12	VQ1000

Stations

01	1 station
⋮	⋮

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

Cylinder port

Symbol	Port size
C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread
CM	With mixed size/with port plug
L3	With elbow One-touch fitting ø3.2 for top piping
L4	With elbow One-touch fitting ø4 for top piping
L6	With elbow One-touch fitting ø6 for top piping
L5	Elbow M5 thread for top piping
B3	With elbow One-touch fitting ø3.2 for bottom piping
B4	With elbow One-touch fitting ø4 for bottom piping
B6	With elbow One-touch fitting ø6 for bottom piping
B5	Elbow M5 thread for bottom piping
LM	Mixed size for elbow piping

Kit type

Option

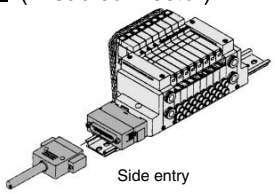
Symbol	Option
Nil	None
B	With back pressure check valve
D	DIN rail mounting style (3)
K	Special wiring specifications (Not double wiring) (4)
N	With name plate
S	Built-in silencer, direct exhaust

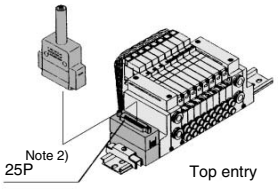
Note 1) Specify "Mixed size/with port plug" in the manifold specification sheet.
Note 2) For One-touch fittings in inch sizes, refer to "Option" on page 2-4-216.
Note 3) M5 fittings for M5 thread are attached without being incorporated.

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BNS
Note 2) Models with a suffix "-B" have check valves for prevention of back pressure at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by using manifold specification sheet.
Note 3) Manifold is a DIN rail mounting style, and so suffix -D should be indicated.
Note 4) Specify the wiring specifications in the manifold specification sheet. (Except C kit)

Kit/Electrical entry/Cable length

F kit (D-sub connector)

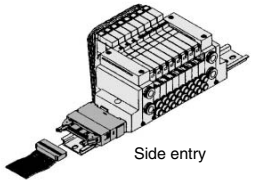


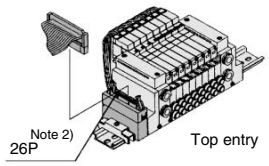


P. 2-4-188

Connector entry direction					
Top entry		Side entry			
Kit F	U0	Kit F	S0	Without cable	Max. 16 (2) stations
	U1		S1	With cable (1.5 m)	
	U2		S2	With cable (3 m)	
	U3		S3	With cable (5 m)	

P kit (Flat ribbon cable connector)

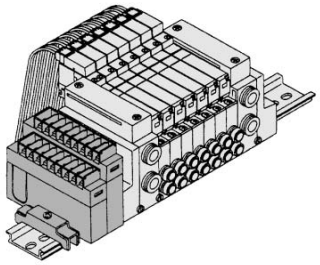




P. 2-4-192

Connector entry direction					
Top entry		Side entry			
Kit P	U0	Kit P	S0	Without cable	Max. 16 (2) stations
	U1		S1	With cable (1.5 m)	
	U2		S2	With cable (3 m)	
	U3		S3	With cable (5 m)	

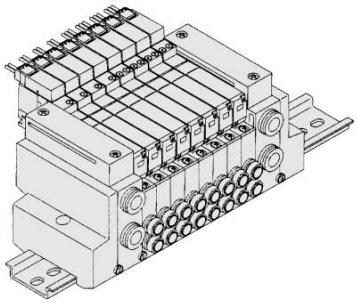
T kit (Terminal block)



P. 2-4-196

kit T	1	Number of terminals: 8, 1 row	Applicable stations 1 to 8 stations
	2	Number of terminals: 16, 2 rows	Applicable stations (2) 5 to 16 stations

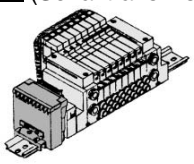
C kit (Connector)



P. 2-4-200

C	Connector kit	Max. 16 stations

S kit (Serial transmission unit)



The valve is equipped with an indicator light and surge voltage suppressor, and the voltage is 24 VDC.
The dust-protected type SI unit is available, too. For details, please contact SMC.

P. 2-4-204

Kit S	0	Without SI unit	Max.16 (2) stations
	A	With general type SI unit (Series EX300)	
	B	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System	
	C	OMRON Corp.: SYSBUS Wire System	
	D	SHARP Corp.: Satellite I/O Link System	
	E	Matsushita Electric Works: MEWNET-F System	
	F1	NKE Corp.: Uni-wire System (16 output points)	
	G	Rockwell Automation: Allen Bradley Remote I/O (RIO) 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)	Max. 8 stations
	K	Fuji Electric Co.: T-LINK Mini System	Max.16 stations
	Q	DeviceNet, CompoBus/D (OMRON Corp.)	
	R1	OMRON Corp.: CompoBus/S System (16 output points)	
	R2	OMRON Corp.: CompoBus/S System (8 output points)	Max. 8 stations
	V	Mitsubishi Electric Corp.: CC-LINK System	Max. 16 stations

Note 1) Besides the above, F and P kits with different number of pins are available. Refer to page 2-4-215 for details.
Note 2) For details, refer to page 2-4-216.

Simple specials are available with SMC Simple Specials System. For details about applicable models, please contact SMC.

SMC

How to Order Valves

VQ 1 [1] 1 [0] Y – 5 [LO] [ ]

Series

0	VQ0000

Type of actuation

1		2 position single
2	Metal	2 position double
	Rubber	2 position double
3		3 position closed center
4		3 position pressure center

Body type

1	VQ1000

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC
Nil	Standard type	(1.0 W) ○
H	High pressure type	(1.5 W) ○
Y	Low wattage type	(0.5 W) ○

Electrical entry

L: L plug connector With lead wire	LO: L plug connector Without connector
With light/surge voltage suppressor	With light/surge voltage suppressor

Note) LO type valve is used for F, P, T, and S kits. The plug connector and lead wire are attached to the manifold.

Manual override

Nil: Non-locking push type (Tool required)

B: Locking type (Tool required)

C: Locking type (Manual)

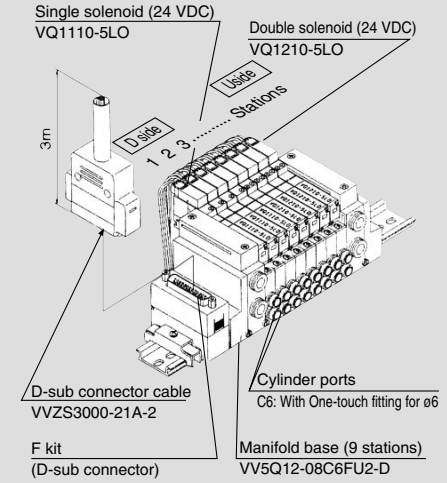
Coil voltage

5	24 VDC
6	12 VDC

Note 1) For negative common specifications, refer to "Option" on page 2-4-216.
Note 2) F, P, T and S kits requires connector assembly when increasing valve stations. For part nos., refer to "Option" on page 2-4-216.
For power consumption of AC type, refer to page 2-4-186.

How to Order Valve Manifold Assembly

Example



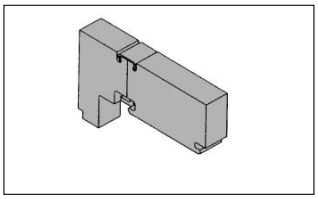
VV5Q12-08C6FU2-D ··· 1 set (F kit 8 station manifold base no.)
*VQ1110-5LO ····· 4 sets (Single solenoid part no.)
*VQ1210-5LO ····· 4 sets (Double solenoid part no.)
The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

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

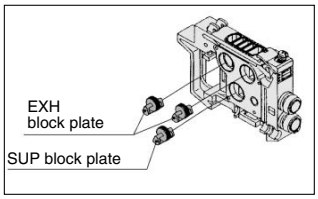
Manifold Option

P. 2-4-208

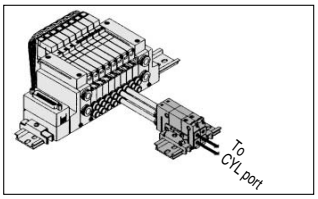
Blanking plate assembly
VVQ1000-10A-1



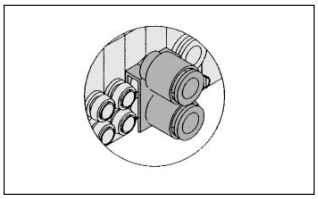
SUP/EXH block plate
VVQ1000-16A-2



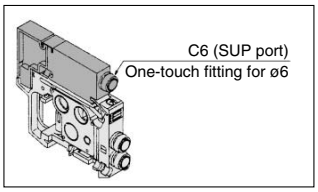
Double check block
VVQ1000-FPG-□□



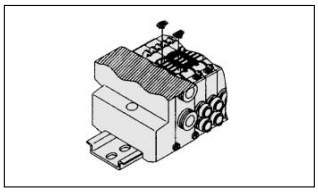
2 stations matching fitting assembly
VVQ1000-52A-C8



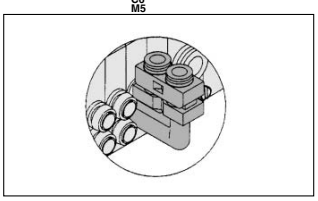
Individual SUP spacer
VVQ1000-P-1-C6



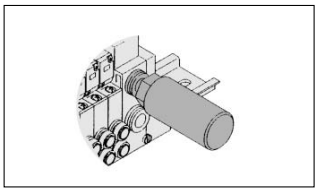
Back pressure check valve assembly [-B]
VVQ1000-18A



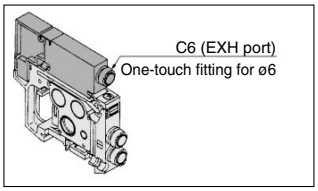
Elbow fitting assembly
VVQ1000-F-L C3 C4 C6 M5



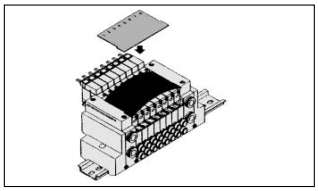
Silencer
AN200-KM8



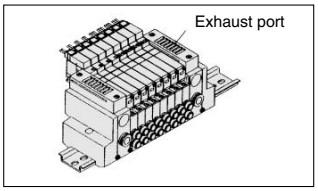
Individual EXH spacer
VVQ1000-R-1-C6



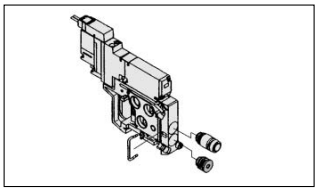
Name plate [-N∗]
VVQ1000-N2-Station (1 to Max. stations)



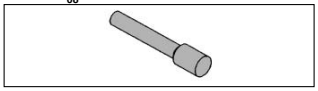
Built-in silencer, direct exhaust [-S]



Port plug
VVQ0000-58A

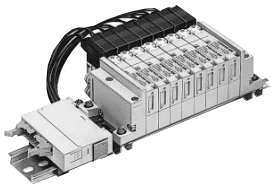
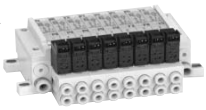


Blanking plug
KQ2P- 23 04 06 08



• For cylinder port fittings part no., refer to page 2-4-213.
• For replacement parts, refer to page 2-4-231.

Series VQ0000/1000
Base Mounted
Plug Lead Unit

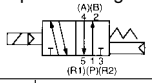

Model

Series	Number of solenoids		Model		Flow characteristic (1) 1 → 4/2 (P → A/B) C [dm³/(s·bar)]	b	Cv	Flow characteristic (1) 4/2 → 5/3 (A/B → R1/R2) C [dm³/(s·bar)]	b	Cv	Response time (ms) (2) Standard: 1 W H: 1.5 W	Low wattage: (3) 0.5 W	AC (3)	Weight (g)
VQ0000	2 position	Single	Metal seal	VQ0150	0.41	0.20	0.10	0.44	0.26	0.11	12 or less	15 or less	29 or less	36
			Rubber seal	VQ0151	0.53	0.20	0.12	0.53	0.22	0.13	15 or less	20 or less	34 or less	
		Double	Metal seal	VQ0250	0.41	0.20	0.10	0.44	0.26	0.11	10 or less	13 or less	13 or less	50
			Rubber seal	VQ0251	0.53	0.20	0.12	0.53	0.22	0.13	15 or less	20 or less	20 or less	
	3 position	Closed center	Metal seal	VQ0350	0.32	0.10	0.07	0.32	0.20	0.07	20 or less	26 or less	40 or less	
			Rubber seal	VQ0351	0.43	0.21	0.10	0.44	0.24	0.11	25 or less	33 or less	47 or less	
		Exhaust center	Metal seal	VQ0450	0.32	0.10	0.07	0.44	0.26	0.11	20 or less	26 or less	40 or less	
			Rubber seal	VQ0451	0.43	0.21	0.10	0.53	0.22	0.13	25 or less	33 or less	47 or less	
VQ1000	2 position	Single	Metal seal	VQ1110	0.70	0.15	0.16	0.72	0.25	0.18	12 or less	15 or less	29 or less	
			Rubber seal	VQ1111	0.85	0.20	0.21	1.0	0.30	0.25	15 or less	20 or less	34 or less	
		Double	Metal seal	VQ1210	0.70	0.15	0.16	0.72	0.25	0.18	10 or less	13 or less	13 or less	64
			Rubber seal	VQ1211	0.85	0.20	0.21	1.0	0.30	0.25	15 or less	20 or less	20 or less	
	3 position	Closed center	Metal seal	VQ1310	0.68	0.15	0.16	0.72	0.25	0.18	20 or less	26 or less	40 or less	78
			Rubber seal	VQ1311	0.70	0.20	0.16	0.65	0.42	0.18	25 or less	33 or less	47 or less	
		Exhaust center	Metal seal	VQ1410	0.68	0.15	0.16	0.72	0.25	0.18	20 or less	26 or less	40 or less	
			Rubber seal	VQ1411	0.70	0.20	0.16	1.0	0.30	0.25	25 or less	33 or less	47 or less	
		Pressure center	Metal seal	VQ1510	0.70	0.15	0.16	0.72	0.25	0.18	20 or less	26 or less	40 or less	
			Rubber seal	VQ1511	0.85	0.20	0.21	0.65	0.42	0.18	25 or less	33 or less	47 or less	

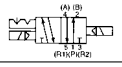
Note 1) Cylinder port size C4: (VQ0000), C6: (VQ1000) without check valve option for prevention of back pressure. As per JIS B 8375-1981 (Supply pressure: 0.5 MPa; with indicator light/surge voltage suppressor; clean air)
Note 2) The response time is subject to the pressure and quality of the air. The values at the time of ON are given for double types.
Note 3) AC type is only for VQ0000.

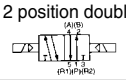
JIS Symbol

2 position single

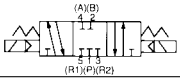


Metal / Rubber: 2 position double

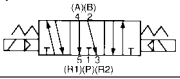




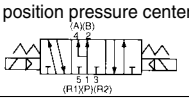
3 position closed center



3 position exhaust center



3 position pressure center



Standard Specifications

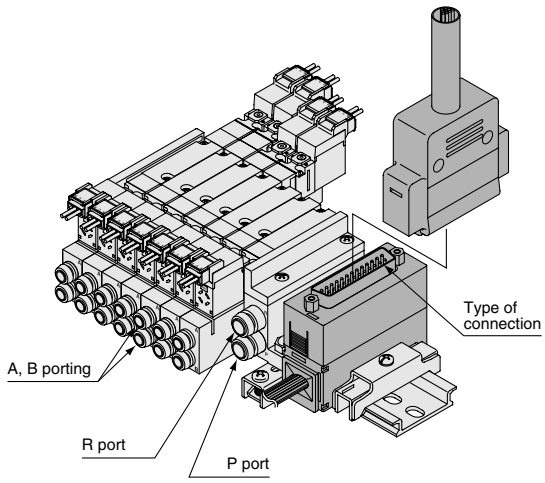
Valve specifications	Valve construction		Metal seal	Rubber seal
	Fluid		Air/Inert gas	
	Maximum operating pressure		0.7 MPa (High pressure type: 0.8 MPa)	
	Min. operating pressure	Single	0.1 MPa	0.15 MPa
		Double	0.1 MPa	
		3 position	0.1 MPa	0.2 MPa
	Ambient and fluid temperature		–10 to 50°C (1)	
	Lubrication		Not required	
	Manual override		Non-locking push type/Locking type (Tool required, Manually operated) Option	
	Impact/Vibration resistance (2)		150/30 m/s²	
	Enclosure		Dust tight	
Solenoid	Coil rated voltage		12, 24 VDC, 100, 110, 200, 220 VAC (50/60 Hz)	
	Allowable voltage fluctuation		±10% of rated voltage	
	Coil insulation type		Equivalent to class B	
	Power consumption (Current)	24 VDC	1 W DC (42 mA), 1.5 W DC (63 mA)(3), 0.5 W DC (21 mA)(4)	
		12 VDC	1 W DC (83 mA), 1.5 W DC (125 mA)(3), 0.5 W DC (42 mA)(4)	
		100 VAC	VQ0000	Inrush 0.5 VA (5 mA), Holding 0.5 VA (5 mA)
		110 VAC		Inrush 0.55 VA (5 mA), Holding 0.55 VA (5 mA)
		200 VAC		Inrush 1.0 VA (5 mA), Holding 1.0 VA (5 mA)
		220 VAC		Inrush 1.1 VA (5 mA), Holding 1.1 VA (5 mA)

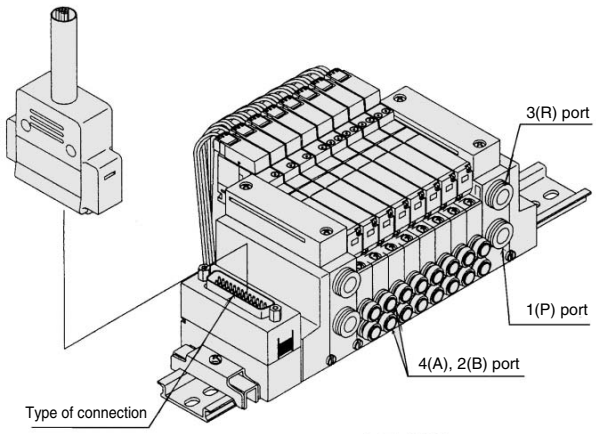
Note 1) Use dry air to prevent condensation when operating at low temperatures.
Note 2) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for 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) Value for high pressure type (1.5 W)
Note 4) Value for low pressure type (0.5 W)
Note 5) AC type is available only on VQ0000.

Manifold Specifications

Series	Base model	Type of connection	Porting specifications			Applicable stations (2)	Applicable solenoid valve	5 station weight (g)
			Port location	Port size (1)				
				1(P), 3(R)	4(A), 2(B)			
VQ0000	**VV5Q05-□□□**	■ F kit– D-sub connector ■ P kit–Flat ribbon cable connector ■ T kit–Terminal block ■ C kit–Individual connector ■ S kit–Serial transmission	Side	C6 (ø6) Option (Built-in silencer, direct exhaust)	C3 (ø3.2) C4 (ø4) M5 (M5 thread)	1 to 16 stations	VQ0□50 VQ0□51	330 (Single) 400 (Double, 3 position)
VQ1000	**VV5Q12-□□□**	■ F kit–D-sub connector ■ P kit–Flat ribbon cable connector ■ T kit–Terminal block ■ C kit–Individual connector ■ S kit–Serial transmission	Side	C8 (ø8) Option (Built-insilencer, direct exhaust)	C3 (ø3.2) C4 (ø4)C6 (ø6) M5 (M5 thread)	1 to 16 stations	VQ1□10 VQ1□11	818 (Single) 885 (Double, 3 position)

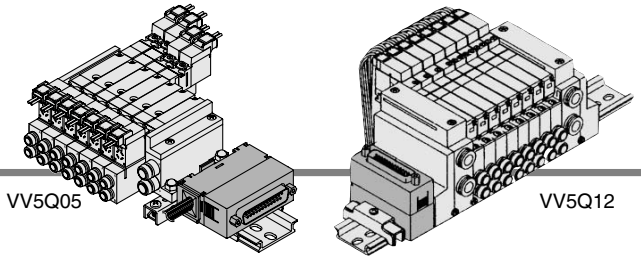
Note 1) Inch-size One-touch fittings are also available. For details, refer to page 2-4-216.
Note 2) For details, refer to page 2-4-216.





VV5Q12

F VQ0000/1000 Kit (D-sub connector)



- The D-sub connector reduces installation labor for electrical connections.
- Using the D-sub connector (25P), (15P as an option) conforming to MIL standard permits the use of connectors put on the market and gives a wide interchangeability.
  Top or side connector receptacle position can be selected in accordance with the available mounting space.
- Maximum stations are 16.

Manifold Specifications

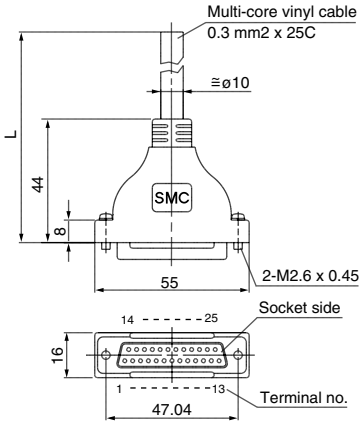
Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ0000	Side	C6	C3, C4, M5	Max. 16 stations
VQ1000	Side	C8	C3, C4, C6, M5	Max. 16 stations

D-sub Connector (25 pins)

Cable assembly ●

AXT100-DS25- 015 / 030 / 050

(The D-sub connector cable assembly can be ordered individually or included with manifold. Refer to How to Order Manifold.)



D-sub Connector Cable Assembly (Option)

Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-DS25-015	Cable 25-core 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.

Connector manufacturers' example

- Fujitsu Limited
- 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
Insulation resistance V, 1 min, AC	1000
Insulation resistance MΩD, 20°C	5 or more

Note) The minimum bending radius of D-sub cable assembly is 20 mm.

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

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

Note) Types with 15 pin are also available. Refer to page 2-4-215 for details.

How to Order Manifold

VV5Q 12 – 08 C6 F U 1 – D

Series/Manifold

05	VQ0000	Plug lead unit
12	VQ1000	

Stations

01	1 station
⋮	⋮
08	8 stations Note)

Note) As option, the maximum number of stations can be increased by special wiring specifications. For details, refer to page 2-4-216.

Cylinder port

Symbol	Port size	VQ0000	VQ1000
C3	With One-touch fitting for ø3.2	●	●
C4	With One-touch fitting for ø4	●	●
C6	With One-touch fitting for ø6		●
M5	M5 thread	●	●
CM	With mixed size/with port plug	●	●

Note 1) Specify "Mixed size/with port plug" on the manifold specification sheet.
Note 2) For inch-size One-touch fittings, refer to "Option" on page 2-4-216.

Connector entry direction

U	Top entry
S	Side entry

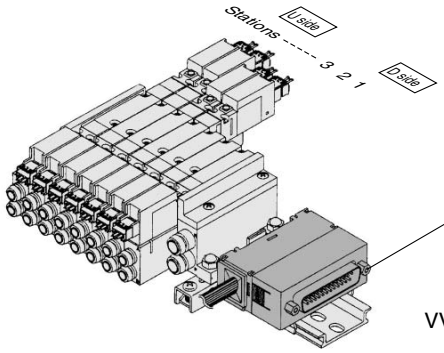
Cable (Length)

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

Option

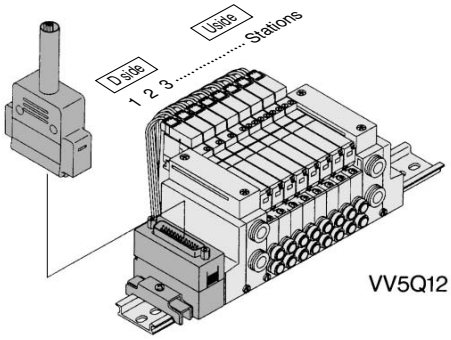
Symbol	Option	VQ0000	VQ1000
B	With back pussure check valve		● (2)
D	DIN rail mounting style	●	● (3)
K	Special wiring specifications (Not double wiring)	●	● (4)
N	With name plate	●	●
S	Built-in silencer, direct exhaust	●	●

Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -BNS
Note 2) Models with a suffix "-B" have the back pressure check valve at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by using the manifold specification sheet.
Note 3) F kit of VQ0000 and all of VQ1000 are equipped with a DIN rail, so indicate suffix "D".
Note 4) Specify the wiring specifications on the manifold specification sheet.



VV5Q05

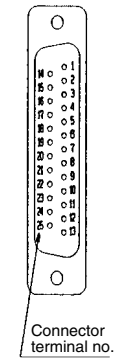
The total number of stations is tabulated starting from station one on the D side.



VV5Q12

Electrical wiring specifications

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



	Terminal no.	Polarity		Lead wire color	Dot marking
1 station	SOL.A	1	(–)	(+) Black	None
	SOL.B	14	(–)	(+) Yellow	Black
2 stations	SOL.A	2	(–)	(+) Brown	None
	SOL.B	15	(–)	(+) Pink	Black
3 stations	SOL.A	3	(–)	(+) Red	None
	SOL.B	16	(–)	(+) Blue	White
4 stations	SOL.A	4	(–)	(+) Orange	None
	SOL.B	17	(–)	(+) Purple	None
5 stations	SOL.A	5	(–)	(+) Yellow	None
	SOL.B	18	(–)	(+) Gray	None
6 stations	SOL.A	6	(–)	(+) Pink	None
	SOL.B	19	(–)	(+) Orange	Black
7 stations	SOL.A	7	(–)	(+) Blue	None
	SOL.B	20	(–)	(+) Red	White
8 stations	SOL.A	8	(–)	(+) Purple	White
	SOL.B	21	(–)	(+) Brown	White
	COM.	13	(+)	(–) Orange Note)	Red
				Positive common specifications	Negative common specifications

As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 8 stations or less, regardless of valve and option types.
Mixed single and double wiring is available as an option.
For details, refer to page 2-4-216.

Note) When using the negative common specifications, use valves for negative common. (Refer to page 2-4-216.)

How to Order Valves

VQ 1 1 1 0 Y – 5 LO

Series

0	VQ0000
1	VQ1000

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 (VQ1000 only)

Body type

5	VQ0000	Plug lead unit
1	VQ1000	

Seal

0	Metal seal
1	Rubber seal

Note 1) For negative common specifications, refer to "Option" on page 2-4-216.
Note 2) Connector assembly will be required when the F kits add a valve. For part nos., refer to "Option" on page 2-4-216.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	Note) ○
H	High pressure type	(1.5 W) ○	—
Y	Low wattage type	(0.5 W) ○	—

Note) For power consumption of AC type, refer to page 2-4-186.

Coil voltage

		VQ0000	VQ1000
1	100 VAC (50/60 Hz)	●	—
3	110 VAC (50/60 Hz)	●	—
5	24 VDC	●	●
6	12 VDC	●	●

Electrical entry

		VQ0000	VQ1000
LO	L plug connector without connector	●	●
MO	M plug terminal without connector	●	—

Note) Plug connector and lead wire layers are attached to the manifold.

Manual override

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

Note) VQ1000 only.

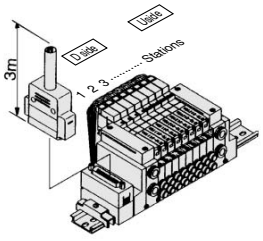
How to Order Manifold Assembly

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

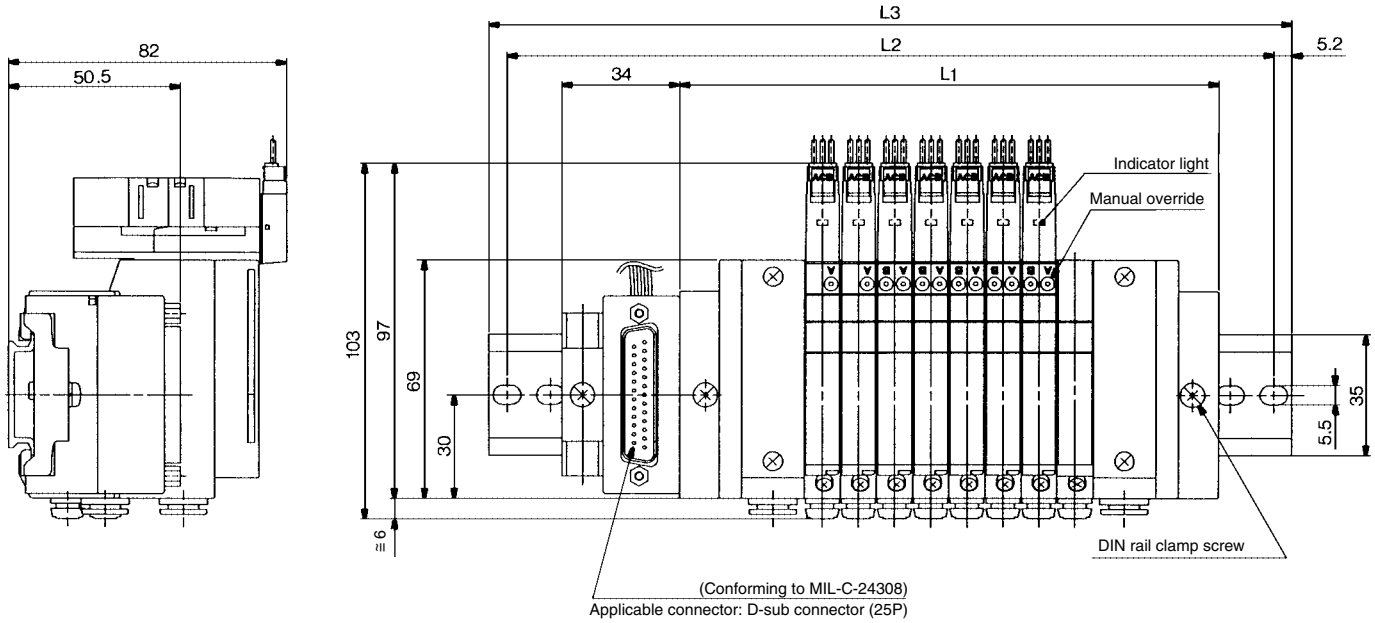
<Example>
D-sub connector kit with cable (3 m)
VV5Q12-08C6FU2-D ··· 1 set–Manifold base no.
∗VQ1110-5LO ····· 4 sets–Valve part no. (Stations 1 to 4)
∗VQ1210-5LO ····· 4 sets–Valve part no. (Stations 5 to 8)
∗VQ1310-5LO ····· 2 sets–Valve part no. (Stations 7 to 8)
∗VVQ1000-10A-1 ···· 1 set–Blanking plate part no. (Station 9)

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

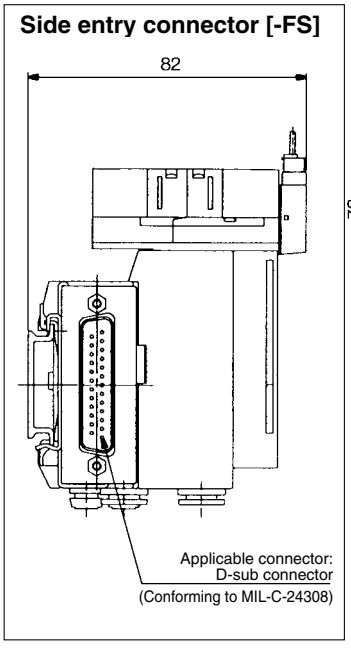
Write sequentially from the 1st station on the D side. When part nos. written collectively are complicated, specified by using the manifold specification sheet.

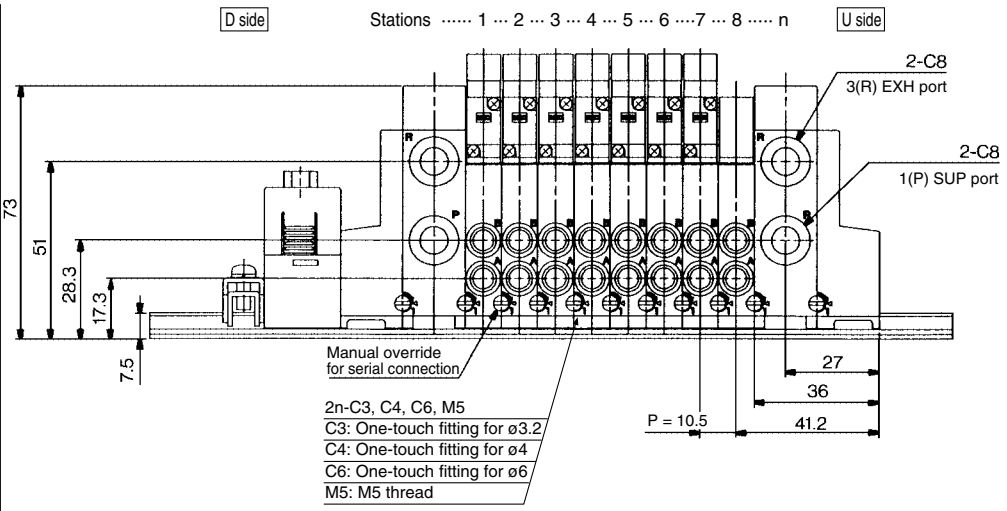


VQ1000



Side entry connector [-FS]





Dimensions: Top Entry Connector [-FU]

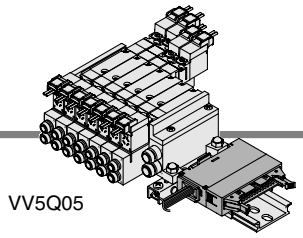
Formula L1 = 10.5n + 72 n: Station (Maximum 16 stations)

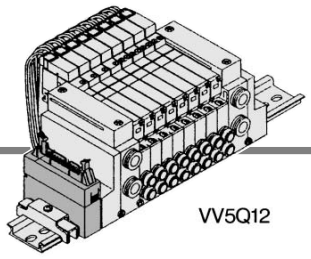
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	82.5	93	103.5	114	124.5	135	145.5	156	166.5	177	187.5	198	208.5	219	229.5	240
L2	137.5	150	162.5	175	187.5	200	200	212.5	225	237.5	250	262.5	262.5	275	287.5	300
L3	148	160.5	173	185.5	198	210.5	210.5	223	235.5	248	260.5	273	273	285.5	298	310.5

Dimensions: Side Entry Connector [-FS]

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L2	162.5	175	187.5	187.5	200	212.5	225	237.5	250	250	262.5	275	287.5	300	312.5	312.5
L3	173	185.5	198	198	210.5	223	235.5	248	260.5	260.5	273	285.5	298	310.5	323	323

P VQ0000/1000 Kit (Flat ribbon cable connector)


VV5Q05


VV5Q12

- MIL flat ribbon cable connector reduces installation labor savings for electrical connection.
- Using the connector for flat ribbon cable (26P), (10P, 16P, 20P as an option) conforming to MIL standard permits the use of connectors put on the market and gives a wide interchangeability.
  Top or side receptacle position can be selected in accordance with the available mounting space.
- Maximum stations are 16.

Manifold Specifications

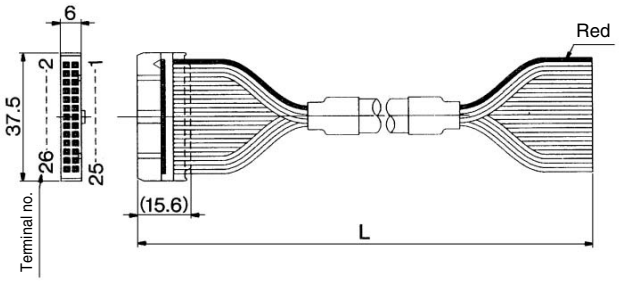
Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ0000	Side	C6	C3, C4, M5	Max.16 stations
VQ1000	Side	C8	C3, C4, C6, M5	Max.16 stations

Flat Ribbon Cable (26 pins)

Cable assembly ●

AXT100-FC26-$\frac{1}{3}^{\frac{1}{8}}$

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



Flat Ribbon Cable Connector Assembly (Option)

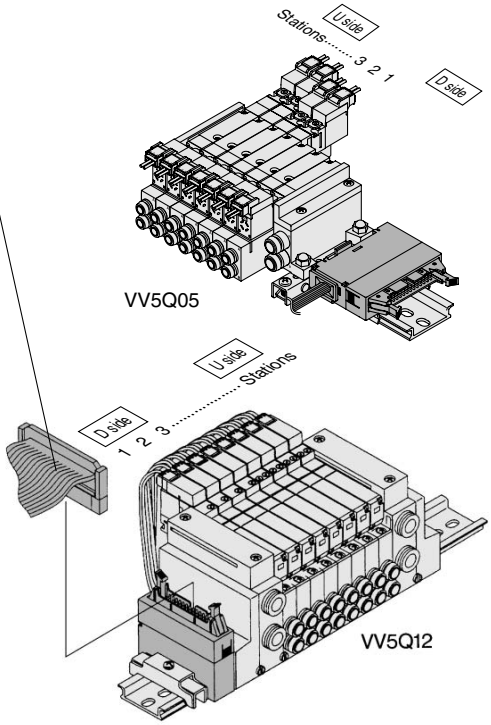
Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-FC26-1	Cable 26 cores x 28AWG
3 m	AXT100-FC26-2	
5 m	AXT100-FC26-3	

∗ For other commercial connectors, use a 26 pins type with strain relief conforming to MIL-C-83503.

Connector manufacturers' example

- Hirose Electric Co., Ltd.
- Sumitomo 3M Limited
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.
- Oki Electric Cable Co., Ltd.

Note) Types with 10, 16, or 20 pin are also available. Refer to page 2-4-215 for details.



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

How to Order Manifold

VV5Q **12** — **08** **C6** **P** **U** **1** — **D** ☐

Series/Manifold

05	VQ0000	Plug lead unit
12	VQ1000	

Stations

01	1 station
⋮	⋮
16	16 stations Note)

Note) As an option, the maximum number of stations can be increased by special wiring specifications. For details, refer to page 2-4-216.

Connector entry direction

U	Top (Vertical)
S	Side (Horizontal)

Cable (Length)

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

Cylinder port

Symbol	Port size	VQ0000	VQ1000
C3	With One-touch fitting for ø3.2	●	●
C4	With One-touch fitting for ø4	●	●
C6	With One-touch fitting for ø6		●
M5	M5 thread	●	●
CM	With mixed size/with port plug	●	●

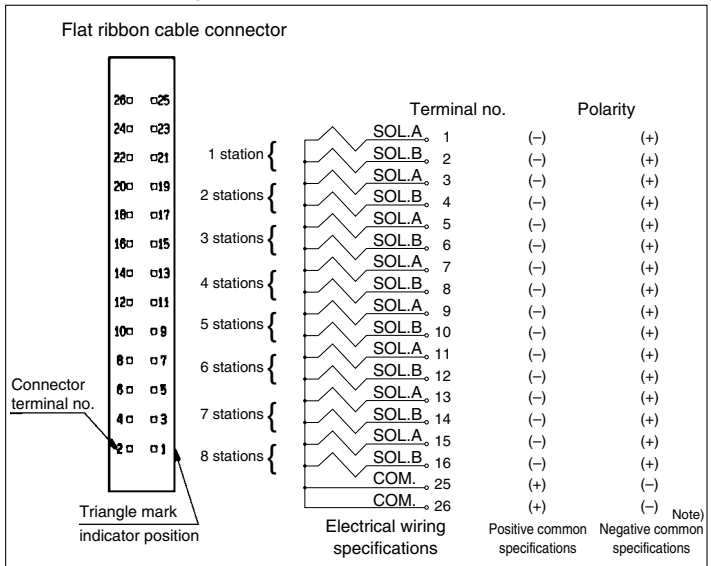
Note 1) Specify "Mixed size/with port plug" on the manifold specification sheet.
Note 2) For inch-size One-touch fittings, refer to "Option" on page 2-4-216.

Option

Symbol	Option	VQ0000	VQ1000
B	With back pressure check valve		● (2)
D	DIN rail mounting style	●	● (3)
K	Special wiring specification (Not double wiring)	●	● (4)
N	With name plate	●	●
S	Built-in silencer (Direct exhaust)	●	●

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BNS
Note 2) Models with a suffix "-B" have the back pressure check valve at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by using the manifold specification sheet.
Note 3) P kit of VQ0000 and all of VQ1000 are equipped with a DIN rail, so indicate suffix "D".
Note 4) Specify the wiring specifications on the manifold specification sheet.

● Electrical wiring specifications



As the standard electrical wiring specifications, double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station for 8 stations or less, regardless of valve and option types.
Mixed single and double wiring is available as an option.
For details, refer to page 2-4-216.

Note) When using the negative commons specifications, use valves for negative common. (Refer to page 2-4-216.)

How to Order Valves

VQ 1 1 1 0 Y – 5 LO

Series

0	VQ0000
1	VQ1000

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 (VQ1000 only)

Body type

5	VQ0000	Plug lead unit
1	VQ1000	

Seal

0	Metal seal
1	Rubber seal

Note 1) For negative common specifications, refer to "Option" on page 2-4-126.
Note 2) Connector assembly will be required when the P kits add a valve. For part nos., refer to "Option" on page 2-4-126.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	Note) ○
H	High pressure type	(1.5 W) ○	—
Y	Low wattage type	(0.5 W) ○	—

Note) For power consumption of AC type, refer to page 2-4-186.

Coil voltage

		VQ0000	VQ1000
1	100 VAC (50/60 Hz)	●	—
3	110 VAC (50/60 Hz)	●	—
5	24 VDC	●	●
6	12 VDC	●	●

Electrical entry

		VQ0000	VQ1000
LO	L plug connector without connector	●	●
MO	M plug terminal without connector	●	—

Note) Plug connector and lead wire are attached to the manifold.

Manual override

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

Note) VQ1000 only.

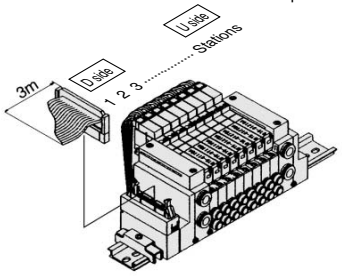
How to Order Manifold Assembly

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

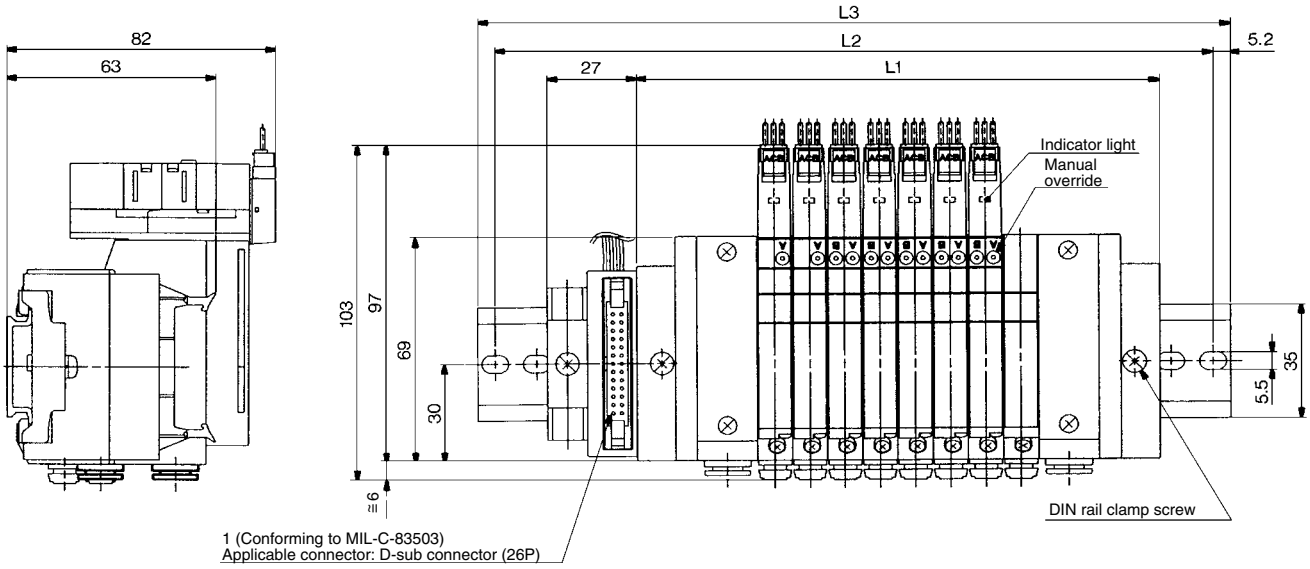
<Example>
Flat ribbon cable kit with 3 m cable
VV5Q12-08C6PU1-D ···1 set–Manifold base no.
∗VQ1110-5LO ·····4 sets–Valve part no. (Stations 1 to 4)
∗VQ1210-5LO ·····3 sets–Valve part no. (Stations 5 to 8)

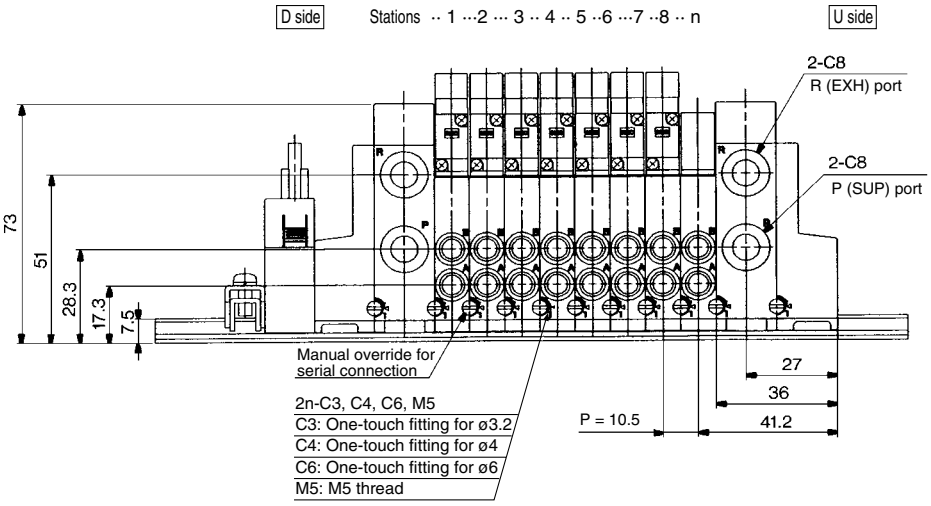
Prefix the asterisk to the part nos. of the solenoid valve, etc.

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

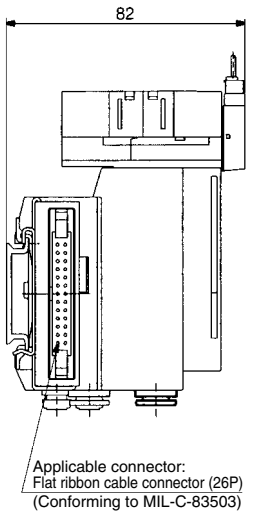


VQ1000





Side entry connector [-PS]



Dimensions: Top Entry Connector [-PU]

Formula L1 = 10.5n + 72 n: Station (Maximum 16 stations)

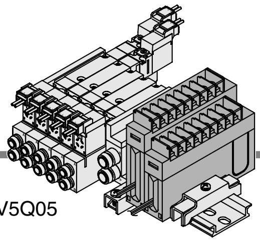
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	82.5	93	103.5	114	124.5	135	145.5	156	166.5	177	187.5	198	208.5	219	229.5	240
L2	137.5	150	150	162.5	175	187.5	200	212.5	225	225	237.5	250	262.5	275	287.5	287.5
L3	148	160.5	160.5	173	185.5	198	210.5	223	235.5	235.5	248	260.5	273	285.5	298	298

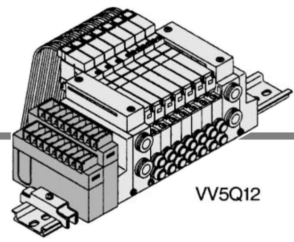
Dimensions: Side Entry Connector [-PS]

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L2	162.5	175	187.5	187.5	200	212.5	225	237.5	250	250	262.5	275	287.5	300	312.5	312.5
L3	173	185.5	198	198	210.5	223	235.5	248	260.5	260.5	273	285.5	298	310.5	323	323

T VQ0000/1000 Kit (Terminal block)

- It is a standard terminal block type.
- Two quantities of terminals can be selected in accordance with the number of stations. (8 terminals/16 terminals)
- Maximum stations are 8. (16 stations as an option)

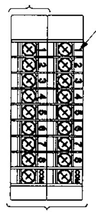


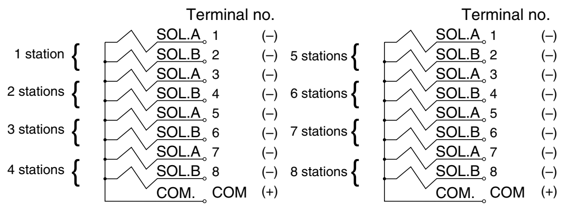


Manifold Specifications

Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ0000	Side	C6	C3, C4, M5	Max.16 stations
VQ1000	Side	C6	C3, C4, C6, M5	Max.16 stations

Electrical wiring specifications





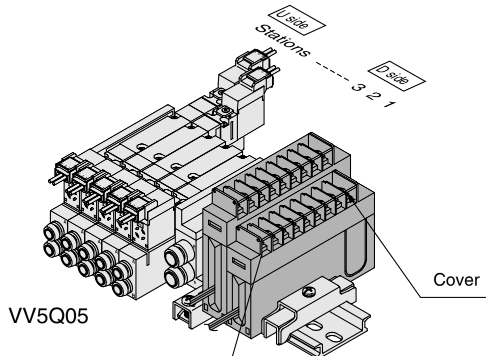
In the case of double wiring (standard spec.)
T1 (Terminal block of 1 row): 1-4 stations
T2 (Terminal block of 2 rows): 5-8 stations
T1 and T2 can be optionally chosen by adopting the combinations of single and double wiring (option spec.) etc.

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

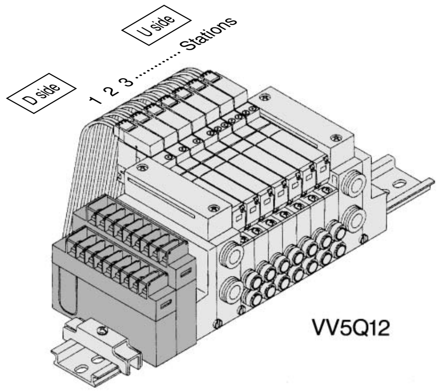
Manifold	Terminal blocks
1 to 4 stations	1 row
5 to 8 stations	2 rows

Note) Wiring other than those above is possible. For details, refer to page 2-4-216.

Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types. Mixed single and double wiring is available as an option. For details, refer to page 2-4-216.



Terminal block connections
Open the terminal block cover to connect the wires to the terminal block. (With M3 thread)



How to Order Manifold

VV5Q 12 – 08 C6 T 2 – D

Series/Manifold

05	VQ0000	Plug lead unit
12	VQ1000	

Stations

01	1 station
⋮	⋮
16	16 stations Note)

Note) Refer to page 2-4-216 for details.

Cylinder ports

Symbol	Port size
C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread
CM	With mixed size/with port plug Note)

Note 1) Specify "Mixed size/with port plug" on the manifold specification sheet.
Note 2) For inch-size One-touch fittings, refer to "Option" on page 2-4-216.

Number of terminals

		Applicable stations
1	8 terminals in 1 row	Applicable stations 1 to 4 stations (Double wiring), 8 stations (Single wiring)
2	16 terminals in 2 rows	Applicable stations 5 to 8 stations (Double wiring), 16 stations (Single wiring)

Note) The number of terminal blocks can be chosen regardless of station qty. Suffix the option symbol, "K" when the wiring specifications are special.

Option

Symbol	Option	VQ0000	VQ1000
B	With back pressure check valve		● (2)
D	DIN rail mounting style	●	● (3)
K	Special wiring specifications (Not double wiring)	●	● (4)
N	With name plate	●	●
S	Built-in silencer, direct exhaust	●	●

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BNS
Note 2) Models with a suffix "-B" have the back pressure check valve at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by using the manifold specification sheet.
Note 3) T kit of VQ0000 and all of VQ1000 are equipped with a DIN rail, so indicate suffix "-D".
Note 4) Specify the wiring specifications on the manifold specification sheet.

How to Order Valves

VQ 1 1 1 0 Y – 5 [ ] [ ]

Series

0	VQ0000
1	VQ1000

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 (VQ1000 only)

Body type

5	VQ0000	Plug lead unit
1	VQ1000	

Seal

0	Metal seal
1	Rubber seal

Note 1) For negative common specifications, refer to "Option" on page 2-4-216.
Note 2) Connector assembly will be required when the T kits add a valve.
For part nos., refer to "Option" on page 2-4-216.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	○ Note)
H	High pressure type	(1.5 W) ○	—
Y	Low wattage type	(0.5 W) ○	—

Note) For power consumption of AC type, refer to page 2-4-186.

Manual override

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

Note) Available only for VQ1000

Electrical entry

		VQ0000	VQ1000
LO	L plug connector without connector	●	●
MO	M plug connector without connector	●	—

Note) Plug connector and lead wire layers are attached to the manifold.

Coil voltage

		VQ0000	VQ1000
1	100 VAC (50/60 Hz)	●	—
3	110 VAC (50/60 Hz)	●	—
5	24 VDC	●	●
6	12 VDC	●	●

How to Order Manifold Assembly

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

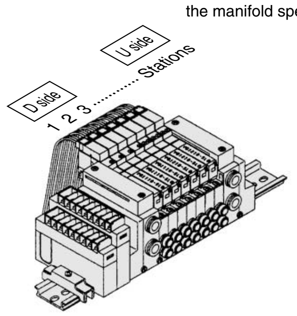
<Example>

Flat ribbon cable kit with 3 m cable

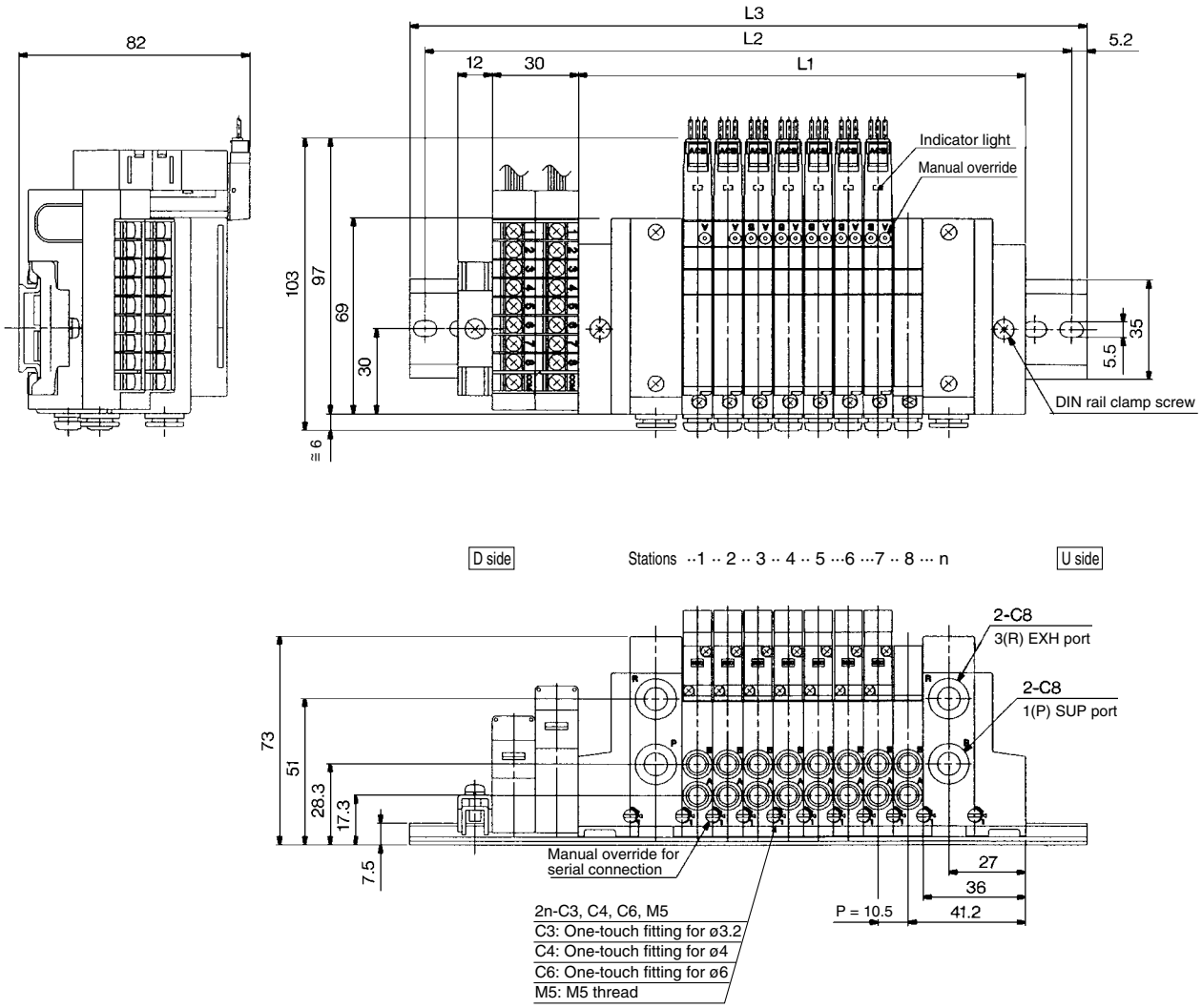
VV5Q12-07C6T2-D ··· 1 set–Manifold base no.
∗VQ1110-5LO ········ 4 sets–Valve part no. (Stations 1 to 4)
∗VQ1210-5LO ········ 3 sets–Valve part no. (Stations 5 to 8)

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

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



VQ1000



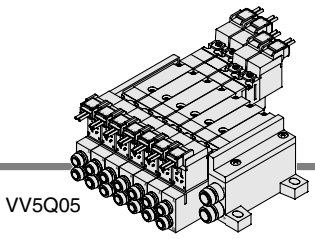
This drawing shows the case of VV5Q12-□□T2-D□.

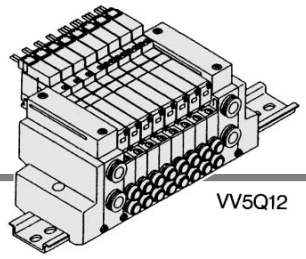
Dimensions

Formula L1 = 10.5n + 72 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	82.5	93	103.5	114	124.5	135	145.5	156	166.5	177	187.5	198	208.5	219	229.5	240
L2	150	162.5	175	187.5	187.5	200	212.5	225	237.5	250	250	262.5	275	287.5	300	312.5
L3	160.5	173	185.5	198	198	210.5	223	235.5	248	260.5	260.5	273	285.5	298	310.5	323

C VQ0000/1000 Kit (Connector)

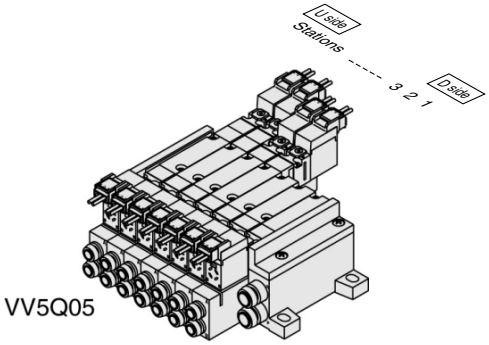

VV5Q05


VV5Q12

● Standard with lead wires plug-connected to each valve individually.
● Maximum stations are 16.

Manifold Specifications

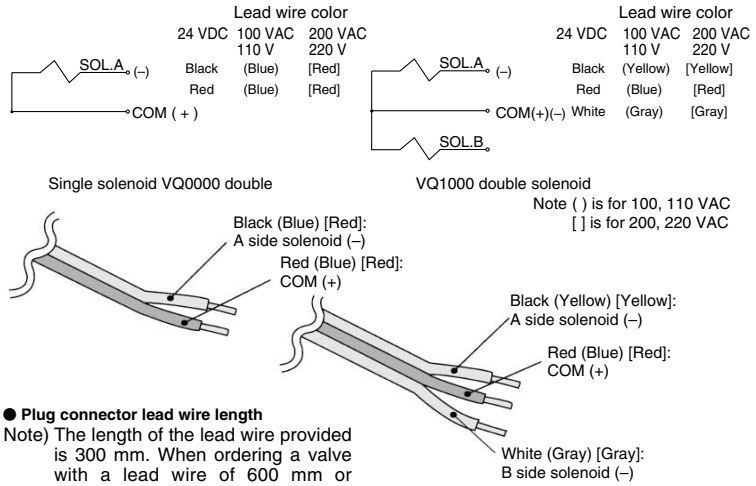
Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ0000	Side	C6	C3, C4, M5	Max. 16
VQ1000	Side	C8	C3, C4, C6, M5	Max.16 stations



VV5Q05

Wiring specifications: Positive COM ●

● **The lead wires are connected to the valve as shown below. Connect each to the power supply side.**



● **Plug connector lead wire length**

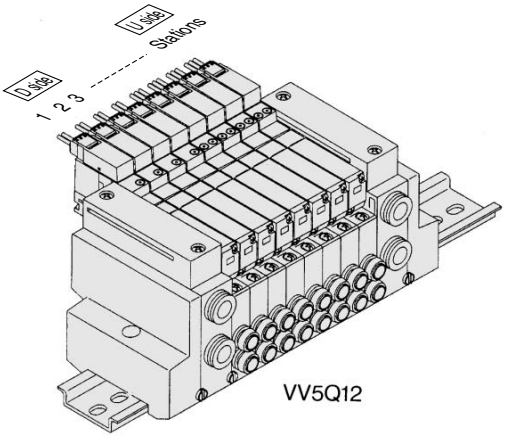
Note) The length of the lead wire provided is 300 mm. When ordering a valve with a lead wire of 600 mm or longer, be sure to indicate the model number of the valve without connector and connector assembly.

Example) Lead wire length 1000 mm
VQ1110-5LO····· 3 pcs.
AXT661-14A-10 ····· 3 pcs.

Connector Assembly (For DC)

Lead wire length	Part no. for single & VQ0000 double	Part no. for VQ1000 double
Socket (3 pcs.)	AXT661-12A	
300 mm	AXT661-14A	AXT661-13A
600 mm	AXT661-14A-6	AXT661-13A-6
1000 mm	AXT661-14A-10	AXT661-13A-10
2000 mm	AXT661-14A-20	AXT661-13A-20
3000 mm	AXT661-14A-30	AXT661-13A-30

Note) 100/110 VAC for single: AXT661-31A-□; for double: AXT661-32A-□
200/220 VAC for single: AXT661-34A-□; for double: AXT661-35A-□



VV5Q12

How to Order Manifold

VV5Q **12** — **08** **C6** **C** – **N**

Series/Manifold

05	VQ0000	Plug lead unit
12	VQ1000	

Stations

01	1 station
⋮	⋮
16	16 stations

Cylinder port

Symbol	Port size	VQ0000	VQ1000
C3	With One-touch fitting for ø3.2	●	●
C4	With One-touch fitting for ø4	●	●
C6	With One-touch fitting for ø6	—	●
M5	M5 thread	●	●
CM	With mixed size/with port plug	●	● Note)

Note 1) Specify "Mixed size/with port plug" on the manifold specification sheet.
Note 2) For One-touch fittings in inch sizes, refer to "Option" on page 2-4-216.

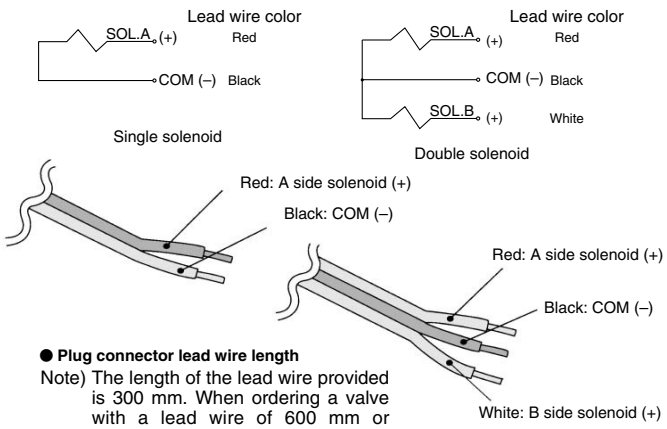
Option

Symbol	Option	VQ0000	VQ1000
Nil	None	●	—
B	With back pressure check valve	—	● (2)
D	DIN rail mounting style	●	● (3)
N	With name plate	●	●
S	Built-in silencer, direct exhaust	●	●

Note 1) When two or more symbols are specified, indicate them alphabetically. Example) -BNS
Note 2) Models with a suffix "-B" have the back pressure check valve at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by using the manifold specification sheet.
Note 3) VQ1000 are all equipped with a DIN rail, so indicate suffix "-D".

● Wiring specifications: Negative COM (Option) for VQ1000

● The lead wires are connected to the valve as shown below. Connect each to the power supply side.



● Plug connector lead wire length

Note) The length of the lead wire provided is 300 mm. When ordering a valve with a lead wire of 600 mm or longer, be sure to indicate the model number of the valve without connector and connector assembly.

Example) Lead wire length 1000 mm
VQ1110N-5LO·····3 pcs.
AXT661-14AN-10·····3 pcs.

Connector Assembly Part No.

Lead wire length	Single	Double solenoid part no.
Socket (3 pcs.)	AXT661-12A	
300 mm	AXT661-14AN	AXT661-13AN
600 mm	AXT661-14AN-6	AXT661-13AN-6
1000 mm	AXT661-14AN-10	AXT661-13AN-10
2000 mm	AXT661-14AN-20	AXT661-13AN-20
3000 mm	AXT661-14AN-30	AXT661-13AN-30

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

(Series VQ0□50 has no polarity, so the negative common is applicable to standard models.)

How to Order Valves

VQ 1 1 1 0 Y – 5 L □

Series

0	VQ0000
1	VQ1000

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 (VQ1000 only)

Body type

5	VQ0000	Plug lead unit
1	VQ1000	

Seal

0	Metal seal
1	Rubber seal

Note 1) For negative common specifications, refer to "Option" on page 2-4-216.

Function

Symbol	Specifications	DC	AC
Nil	Standard type	(1.0 W) ○	Note) ○
H	High pressure type	(1.5 W) ○	—
Y	Low wattage type	(0.5 W) ○	—

Note) For power consumption of AC type, refer to page 2-4-186.

Manual override

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

Note) Available only for VQ1000.

Electrical entry

		VQ0000	VQ1000
G	Grommet (Except AC)	●	—
L	L plug connector with lead wire	●	●
LO	L plug connector without connector	●	●
M	M plug connector with lead wire	●	—
MO	M plug terminal without connector	●	—

Coil voltage

		VQ0000	VQ1000
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	●	●

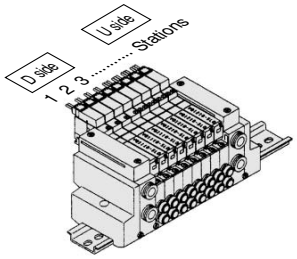
How to Order Manifold Assembly

Please indicate manifold base type, corresponding valve, and option parts.

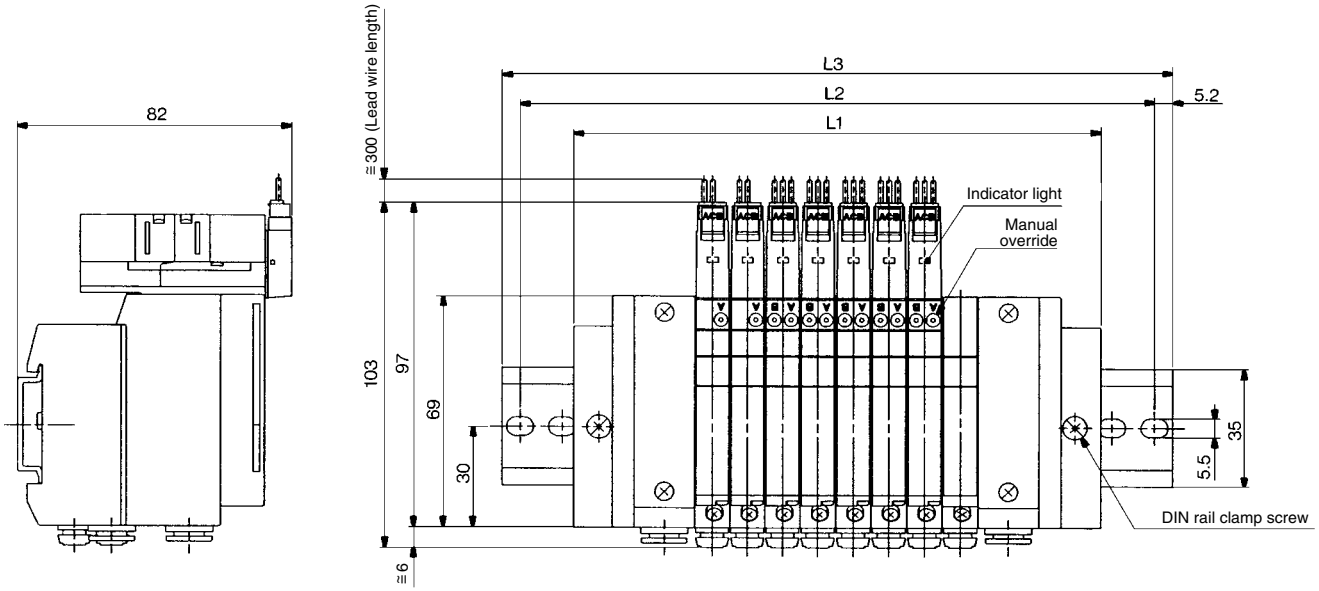
<Example>
Connector kit
VV5Q12-08C6C-D ····1 set–Manifold base no.
∗VQ1110-5 ·····3 sets–Valve part no. (Stations 1 to 3)
∗VQ1210-5 ·····4 sets–Valve part no. (Stations 4 to 7)
∗VVQ1000-10A-1···1 set–Blanking plate part no. (stations 8)

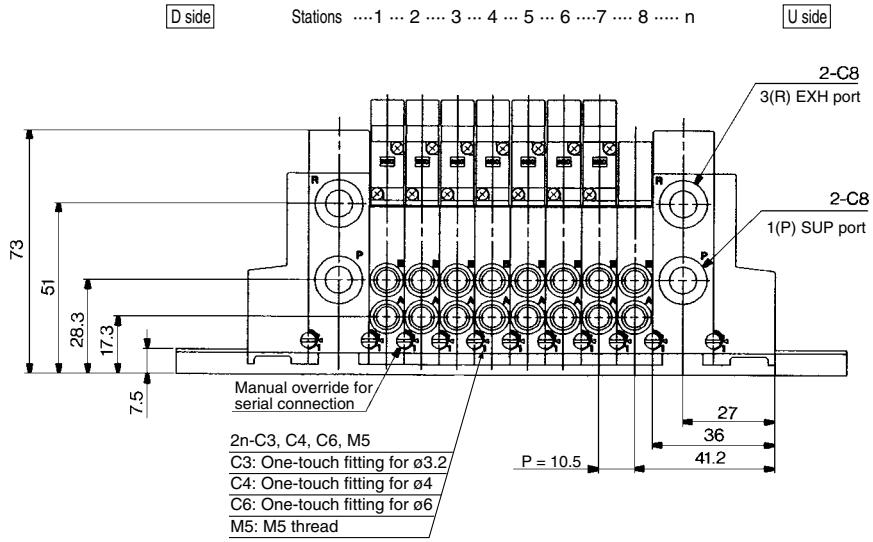
Prefix the asterisk to the part nos. of the solenoid valve, etc.

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



VQ1000



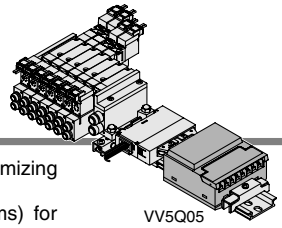


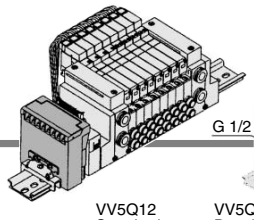
Dimensions

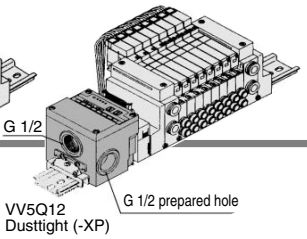
Formula L1 = 10.5n + 72 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	82.5	93	103.5	114	124.5	135	145.5	156	166.5	177	187.5	198	208.5	219	229.5	240
L2	112.5	112.5	125	137.5	150	162.5	175	187.5	187.5	200	212.5	225	237.5	250	250	262.5
L3	123	123	135.5	148	160.5	173	185.5	198	198	210.5	223	235.5	248	260.5	260.5	273

S VQ0000/1000 Kit (Serial transmission unit)



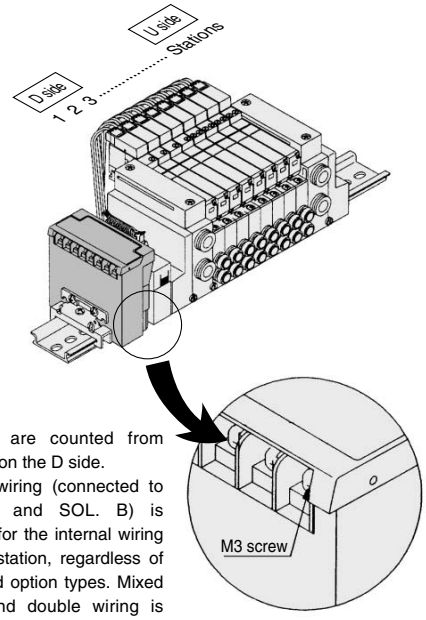




- The serial transmission system reduces wiring work, while minimizing wiring and saving space.
- The system comes in type SA (generic for small scale systems) for equipment with a small number of I/O points, or 32 points max., type SB (applicable to Mitsubishi Electric models) for controlling 512 I/O points max., type SC (applicable to OMRON models), type SD (applicable to SHARP models: 504 points max.), type SF (applicable to NKE models: 128 points max.), type SJ (applicable to SUNX models), type SK (applicable to Fuji Electric models), type SQ (applicable to OMRON's Compo Bus/D), and type SR (applicable to OMRON's Compo Bus/S).
- Max. 8 stations. (Specify a option model with 9 to 16 stations by using the manifold specification sheet.)

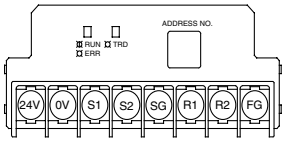
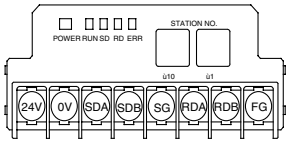
Manifold Specifications

Series	Porting specifications			Applicable stations
	Port location	Port size		
		1(P), 3(R)	4(A), 2(B)	
VQ0000	Side	C6	C3, C4, M5	Max.16 stations
VQ1000	Side	C8	C3, C4, C6, M5	Max.16 stations



- Stations are counted from station 1 on the D side.
- Double wiring (connected to SOL. A and SOL. B) is adopted for the internal wiring of each station, regardless of valve and option types. Mixed single and double wiring is available as an option. For details, refer to page 2-4-216.

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

	Type SA With general type SI unit (Series EX300)	Type SB Mitsubishi Electric Corporation MELSECNET/MINI-S3 Data Link System
Name of terminal block (LED)	 LED / Description TRD: Lighting during data reception RUN/ERR: Blinking when received data is normal; Lighting when data reception	 LED / Description POWER: Lighting when power is turned ON RUN: Lighting when data transmission with the master station is normal RD: Lighting during data reception SD: Lighting during data transmission ERR.: Lighting when reception data error occurs Light turns off when the error is corrected
Note	• T unit Can be connected with PLC I/O card for serial transmission. EX300-TMB1···· For models of Mitsubishi Electric Corporation EX300-TTA1···· For models of OMRON Corporation EX300-TFU1···· For models of Fuji Electric Co., Ltd. EX300-T001··· For general models ∗ Up to 32 points per unit. • No. of output points, 16 point	• Master station: PLC made by Mitsubishi Electric Corporation Series MELSEC-A AJ71PT32-S3, AJ71T32-S3 A1SJ71PT32-S3 ∗ Max. 64 stations, connected to remote I/O stations (Max. 512 points). • No. of output points, 16 points. No. of sta. occupied, 2 stations

∗ For details on specifications and handling, refer to the separate technical instruction manual.

How to Order Manifold

VV5Q 12 – 08 C6 S A – D – XP

Dust-protected type (-XP) (VQ1000 only)
Suffix "-XP" for the dust-protected type SI unit.
(Except SE and SQ.)

Series/Manifold

05	VQ0000	Plug lead unit
12	VQ1000	

Stations

01	1 station
⋮	⋮
16	16 stations Note)

Note) For details, refer to page 2-4-216.

Cylinder port

Symbol	Port size	VQ0000	VQ1000
C3	With One-touch fittings for ø3.2	●	●
C4	With One-touch fitting for ø4	●	●
C6	With One-touch fitting for ø6	—	●
M5	M5 thread	●	●
CM	With mixed size/with port plug	●	●

Note 1) Specify "Mixed size/with port plug" on the manifold specification sheet.
Note 2) For inch-size One-touch fittings, refer to "Option" on page 2-4-216.

Model

0	Without SI unit		
Note 1) **A**	With general type SI unit (Series EX300)		
B	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System		
C	OMRON Corp.: SYSBUS Wire System		
D	SHARP Corp.: Satellite I/O Link System		Max.16 stations
Note 2) **E**	Matsushita Electric Works: MEWNET-F System		
F1	NKE Corp.: Uni-wire System (16 output points)		
Note 2) **G**	Rockwell Automation: Allen Bradley Remote I/O (RIO) System		
H	NKE Corp.: Uni-wire H System		
Note 2) **J1**	SUNX Corp.: S-LINK System (16 output points)		
Note 2) **J2**	SUNX Corp.: S-LINK System (8 output points)	Max. 8 stations	
Note 2) **K**	Fuji Electric Co.: T-LINK Mini System		
Note 2) **Q**	DeviceNet, CompoBus/D (OMRON Corp.)		Max.16 stations
Note 2) **R1**	OMRON Corp.: CompoBus/S System (16 output points)		
Note 2) **R2**	OMRON Corp.: CompoBus/S System (8 output points)	Max. 8 stations	
Note 2) **V**	Mitsubishi Electric Corp.: CC-LINK System	Max. 16 stations	

Note 1) The general type requires a transmission unit on CPU side.
Note 2) Usable only for VQ1000

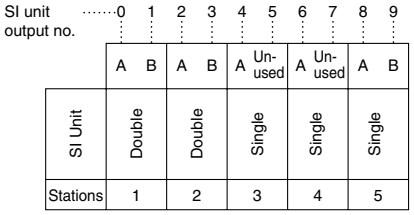
Option

Symbol	Option	VQ0000	VQ1000	Note
B	With back pressure check valve	—	●	(2)
D	DIN rail mounting	●	●	(3)
K	Special wiring specifications (Not double wiring)	●	●	(4)
N	With name plate	●	●	
S	Built-in silencer, direct exhaust	●	●	

Note 1) When two or more symbols are specified, indicate them alphabetically.
Example) -BNS
Note 2) Models with a suffix "-B" have the back pressure check valve at all manifold stations. If not all stations need this check valve, specify the stations where check valves are installed by using the manifold specification sheet.
Note 3) S kit of VQ0000 and all of VQ1000 are equipped with a DIN rail, so indicate suffix "-D".
Note 4) Specify the wiring specifications on the manifold specification sheet.

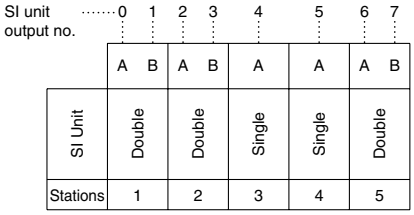
● SI unit output and coil numbering

<Wiring example 1>

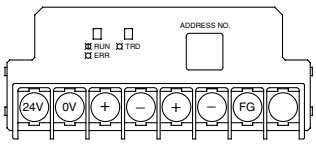
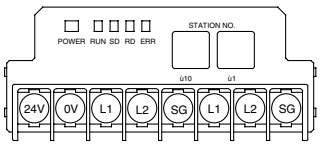


Double wiring (Standard)

<Wiring example 2> Mixed wiring is available as an option.
Use the manifold specification sheet to specify.



Single/Double Mixed Wiring (Option)

	Type SC OMRON Corporation SYSBUS Wire System	Type SD SHARP Corporation Satellite I/O Link System
Name of terminal block (LED)		
	LED / Description RUN: Lights when transmission is normal and PLC is in operation mode T/R ERR: Blinks during data transmission/reception ON when transmission is abnormal	LED / Description POWER: ON when power supply is ON RUN: Lights when power is ON and slave stations are operating normally ERROR: Lights when slave station switch setting is abnormal, communication is abnormal, PLC stopped and defective slave unit R.SET HOLD: ON for master unit control input
Note	• Master station unit: OMRON PLC SYSMAC C(CV) series Types C500-RM201 and C200H-RM201 ∗ 32 units max., transmission terminal connection (512 points max.) • No. of output points, 16 points	• Master station unit: SHARP's PLC New Satellite Series W ZW-31LM New Satellite Series JW JW-23LM, JW-31LM ∗ Max. 31 units, I/O slave stations connected (504 points max.) • No. of output points, 16 points

How to Order Valves

VQ 1 1 1 0 Y — 5 LO

Series

0	VQ0000
1	VQ1000

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 (VQ1000 only)

Body type

5	VQ0000	Plug lead unit
1	VQ1000	

Seal

0	Metal seal
1	Rubber seal

Note) Connector assembly will be required when the S kits add a valve.
For part nos., refer to "Option" on page 2-4-216.

Function

Symbol	Specifications	DC
Nil	Standard type	(1.0 W) ○
H	High pressure type	(1.5 W) ○
Y	Low wattage type	(0.5 W) ○

Coil voltage

5	24 VDC; With light/surge voltage suppressor

Electrical entry

		VQ0000	VQ1000
LO	L plug terminal without connector	●	●
MO	M plug terminal without connector	●	—

Note) Plug connector and lead wire layers are attached to the manifold.

Manual override

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

Note) Available only for VQ1000

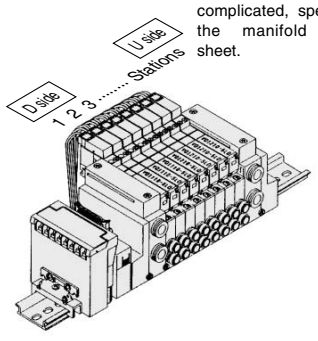
How to Order Manifold Assembly

Please indicate manifold base type, corresponding valve, and option parts.

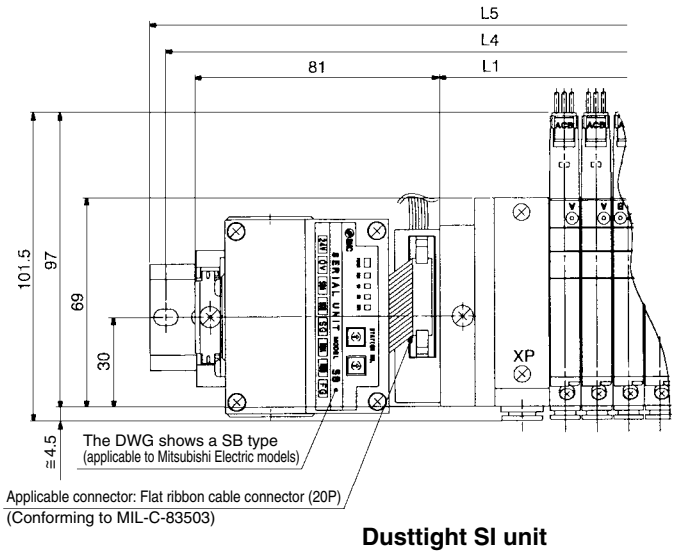
<Example>
Serial transmission kit
VV5Q12-08C6SA-D ····1 set-Manifold base no.
∗VQ1110-5LO ·····4 sets-Valve part no. (Stations 1 to 4)
∗VQ1210-5LO ·····3 sets-Valve part no. (Stations 5 to 8)

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

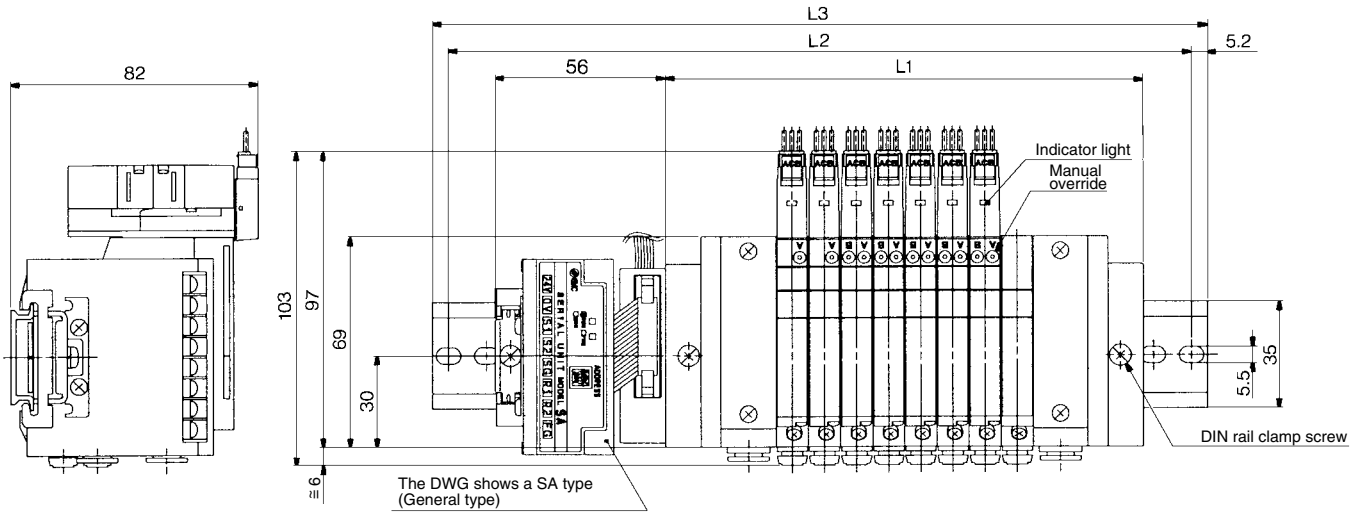
Write sequentially from the 1st station on the D side. When part nos. written collectively are complicated, specify by using the manifold specification sheet.

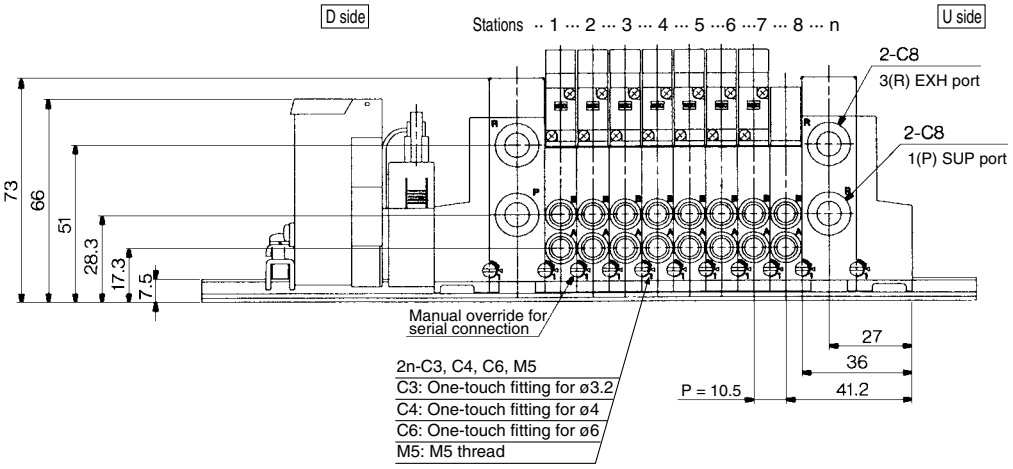


VQ1000



Dusttight SI unit





Dimensions

Dust-protected type SI unit: L4 = L3 + 25, L5 = L4 + 25
Formula L1 = 10.5n + 72 n: Station (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	82.5	93	103.5	114	124.5	135	145.5	156	166.5	177	187.5	198	208.5	219	229.5	240
L2	162.5	175	187.5	200	200	212.5	225	237.5	250	262.5	275	275	287.5	300	312.5	325
L3	173	185.5	198	210.5	210.5	223	235.5	248	260.5	273	285.5	285.5	298	310.5	323	335.5

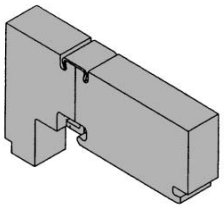
* Manifolds with SI unit for Matsushita Electric Works' MEWNET FP and Rockwell Automation's model are the same with L4 and L5 dimensions of dustproof SI unit.

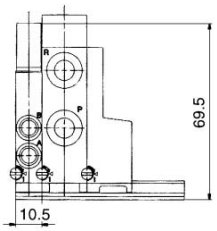
Manifold Option Parts for VQ1000

Blanking plate assembly
VVQ1000-10A-1

JIS Symbol

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

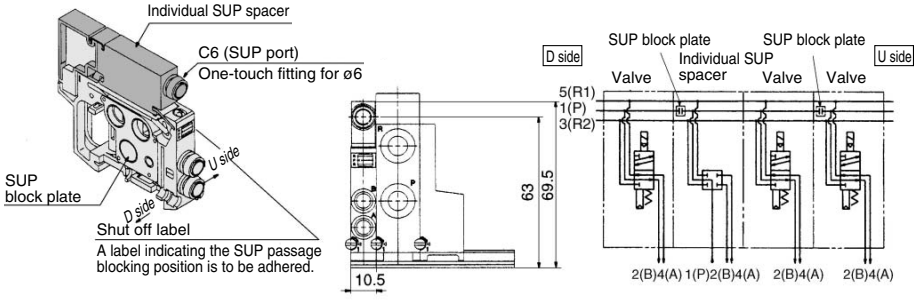




Individual SUP spacer
VVQ1000-P-2-C6

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

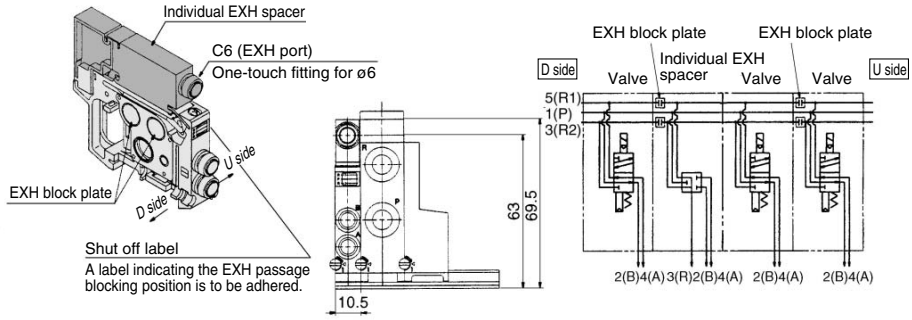
* Specify the spacer mounting position and SUP block plate position on the manifold specification sheet. The block plates are used in two places for one set. (Two SUP block plates forblocking SUP station are attached to the individual SUP spacer.)



Individual EXH spacer
VVQ1000-R-2-C6

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

* Specify the mounting position, as well as EXH block base or EXH block plate position on the manifold specification sheet. The block plates are used in two places for one set.



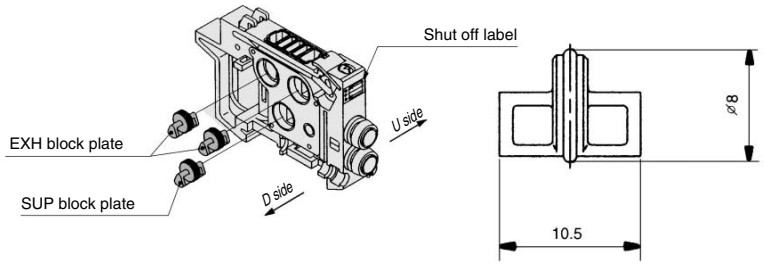
SUP/EXH block plate
VVQ1000-16A-2

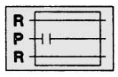
When different pressures, high and low, are supplied to one manifold, a SUP block plate is inserted between the stations under different pressures.
When a valve exhaust affects other stations due to the circuit configuration, this plate is also used between the stations where exhaust should be separated. It is also used for individual exhaust by combining an EXH block plate with an individual EXH spacer.
(2 EXH plates are necessary for 1 station.)
Note) The SUP/EXH block plate is common.

* Specify the number of stations on the manifold specification sheet.

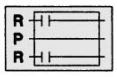
<Blocking indication label>
When using block plates for SUP/EXH passage, the indication label for confirmation of the blocking position from outside is attached. (One label for each)

* When ordering a block plate incorporated with the manifold no., a block indication label is attached to the manifold.

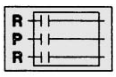




SUP passage blocked



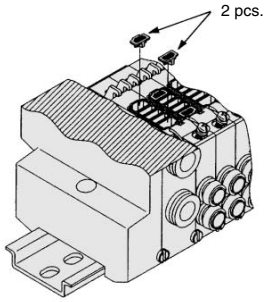
EXH passage blocked



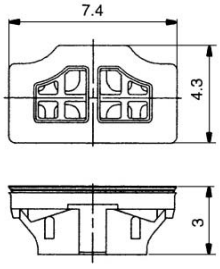
SUP/EXH passage blocked

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

It prevents cylinder malfunction caused by other valve exhaust. Insert it into R (EXH) port on the manifold side of a valve which is affected. It is effective when a single acting cylinder is used or an exhaust center type solenoid valve is used.
Note) When a check valve for back pressure prevention is desired to be installed only in certain manifold stations, write clearly the part no. and specify the station numbers by using the manifold specification sheet.



* When ordering assemblies incorporated with a manifold, add suffix "-B" to the manifold no.



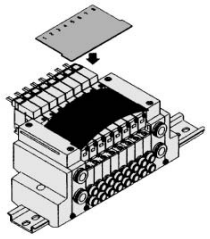
<Precautions>

1. Back pressure check valve assembly is assembled with a check valve structure. However, as slight air leakage is allowed for the back pressure, take note the exhaust air will not be throttled at the exhaust port.
2. When a back pressure check valve is mounted, the effective orifice of the valve will decrease by about 20%.

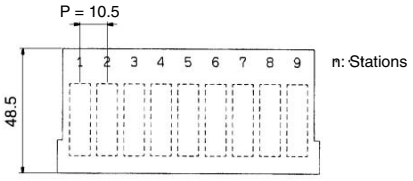
Name plate [-N∗]

VVQ1000-N2-Station (1 to Max. stations)

It is a transparent resin plate for placing a label that indicates solenoid valve function, etc.
Insert it into the groove on the side of the end plate and bend it as shown in the figure.



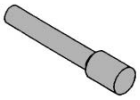
∗ When ordering assemblies incorporated with a manifold, add suffix "-N" to the manifold no.

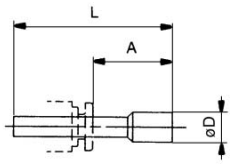


Blanking plug (For One-touch fittings)

KQ2P- $^{23}_{04}$ $^{06}_{08}$

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



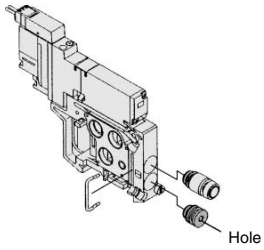


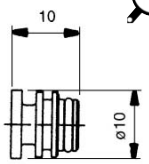
Dimensions

Applicable fitting size ød	Model	A	L	D
3.2	**KQ2P-23**	16	31.5	3.2
4	**KQP-04**	16	32	6
6	**KQP-06**	18	35	8
8	**KQP-08**	20.5	39	10

Port plug VVQ0000-58A

The plug is used to block the cylinder port when using a 4 port valve as a 3 port valve.



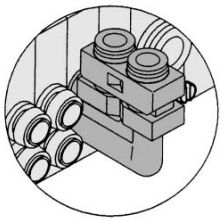


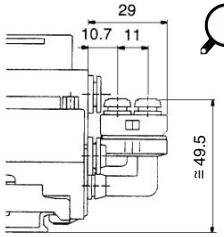
∗ When ordering a plug incorporated with a manifold, indicate "CM" for the port size in the manifold no., as well as, the mounting position and number of stations andcylinder port mounting positions, A and B, by means of the manifold specification sheet.
∗ Lightly screw an M3 screw in the port plug hole and pull it for removal.

Elbow fittings assembly

VVQ1000-F-L $^{C3}_{C4}$ $^{C6}_{M5}$

It is used for piping that extends upward or downward from the manifold.
When not mounting it to all manifold stations, clearly write the elbow type fitting assembly no. and specify the station's qty and position by manifold specifications.
∗ When mounting elbow fittings assembly on the edge of manifold station and a silencer on EXH port, select a silencer, AN203-KM8.
Silencer (AN200-KM8) is interfered with fittings.



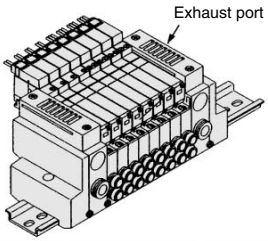


∗ When ordering assemblies incorporated with a manifold, indicate "L□" or "B□" for the manifold port size.

Built-in silencer, Direct exhaust [-S]

This is an exhaust port on the manifold end plate.
The built-in silencer exhibits an excellent noise suppression effect. (Silencing effect: 30 dB)
Note) A large quantity of drainage generated in the air source results in exhaust of air together with drainage.

• For maintenance, refer to page 2-4-214.

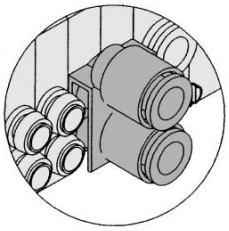


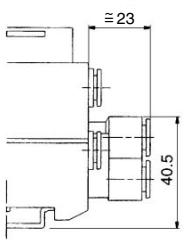
∗ When ordering assemblies incorporated with a manifold, add suffix "-S" to the manifold no.

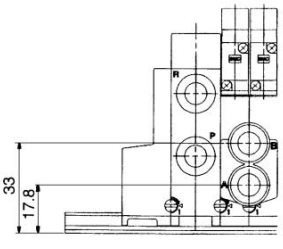
2 stations matching fitting assembly

VVQ1000-52A-C8

For driving a cylinder with a large bore, valves for two stations are operated to double the flow rate. This assembly for the cylinder port is used in that case. The assembly is equipped with One-touch fittings for a ø8 bore.
∗ The bore for the manifold no. is "CM".
Clearly indicate the 2 station matching fitting assembly no., and specify the number of stations and positions on the manifold specification sheet.

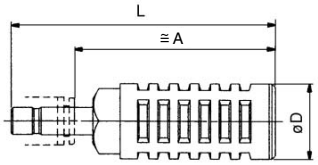






Silencer (For EXH port)

This is inserted into the centralized type EXH port (One-touch fitting).
∗ When mounting elbow fittings assembly (VVQ1000-F-L□) on the edge of manifold station, select a silencer, AN203-KM8.
Silencer (AN200-KM8) is interfered with fittings.



Dimensions

Series	Applicable fitting size ød	Model	A	L	D	Effective area (mm^2)	Noise reduction (dB)
VQ1000	8	AN200-KM8	59	78	22	20	30
		AN203-KM8	32	51	16	14	25 ∗

Manifold Option Parts for VQ0000/VQ1000

Double check block (Separated type)

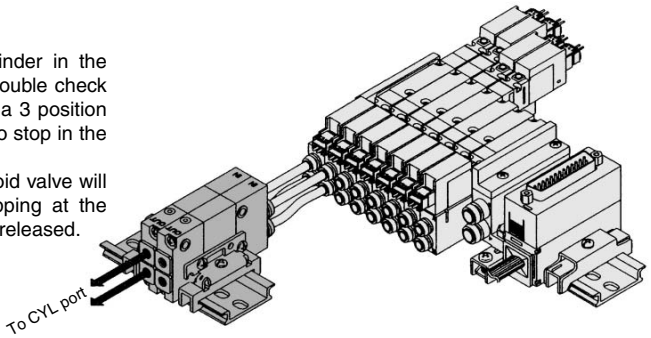
VQ1000-FPG-□□

It is used on the outlet side piping to keep the cylinder in the intermediate position for a long time. Combining the double check block with a built-in pilot type double check valve and a 3 position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for a long time.

The combination with a 2 position single/double solenoid valve will permit this block to be used for preventing the dropping at the cylinder stroke end when the SUP residual pressure is released.

Specifications

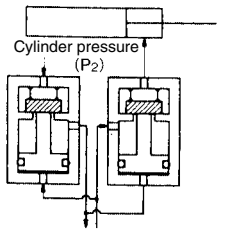
Max. operating pressure	0.8 MPa
Min. operating pressure	0.15 MPa
Ambient and fluid temperature	–5 to 50°C
Flow characteristics: C	0.60 dm³/(s·bar)
Max. operating frequency	180 CPM



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

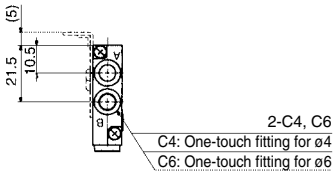
Note) Based on JIS B 8375-1981
(Supply pressure: 0.5 MPa)

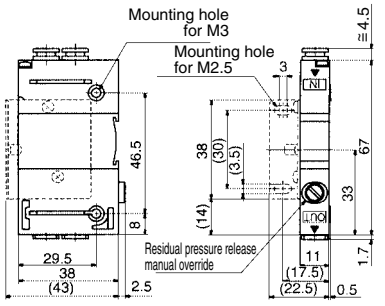
<Check valve operation principle>



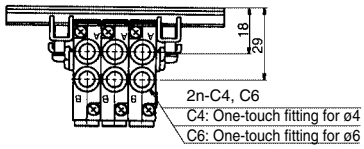
Dimensions

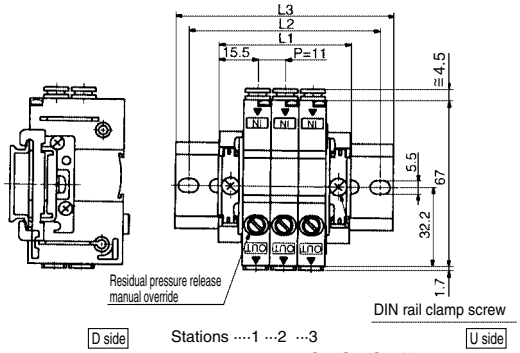
Single unit





Manifold





Dimensions

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

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

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

How to Order

Double check block

VQ1000-FPG- C4 M5 — F

IN side port size

C4	One-touch fitting for ø4
C6	One-touch fitting for ø6

OUT side port size

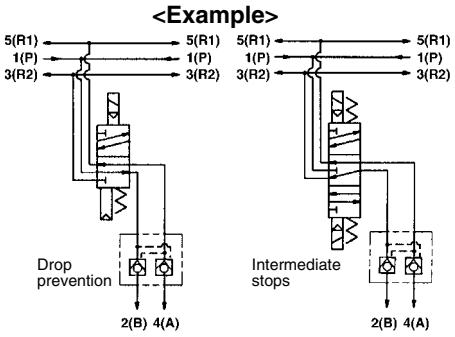
M5	M5 thread
C3	One-touch fitting for ø3.2
C4	One-touch fitting for ø4
C6	One-touch fitting for ø6

Option

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

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

<Example>



Manifold

VVQ1000-FPG- 06

Stations

01	1 station
⋮	⋮
16	16 stations

<Example>

VVQ1000-FPG-06 ··· 6 types of manifold
∗VQ1000-FPG-C4M5-D, 3 sets
∗VQ1000-FPG-C6M5-D, 3 sets
} Doublecheck block

Bracket Assembly

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

⚠ Caution

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

⚠ Precautions 1

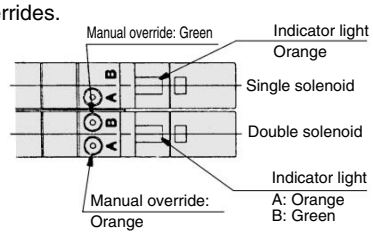
Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 2-9-2.

Light/Surge Voltage Suppressor

⚠ Caution

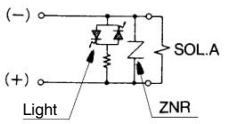
In the case of VQ1000, the standard model is equipped with an indicator light and surge voltage suppressor. The lighting positions are concentrated on one side for both single solenoid type and double solenoid type.

For the double solenoid type, A side and B side energization are indicated by two colors which match the colors of the manual overrides.



∗ In the case of VQ0000, solenoid and manual override on both sides.

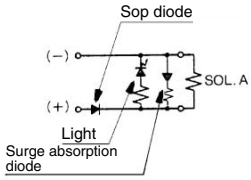
DC circuit diagram
VQ0000



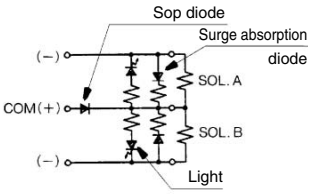
∗ In the case of VQ0000, solenoid and manual override on both sides.

Note) A side energization:
A light (orange) illuminates.
With wrong wiring preventing ability (stop diode)
B side energization:
B light (green) illuminates.
Equipped with a surge absorption (surge absorption diode) mechanism.

VQ1000 (DC)/Single solenoid



VQ1000/Double solenoid



Manual Override

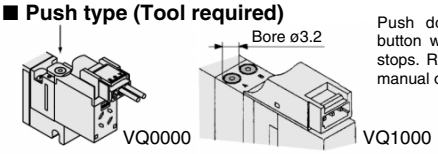
⚠ Warning

Without an electric signal for the solenoid valve the manual override is used for switching the main valve.

Push type is standard. (Tool required)

Option: Locking type (Tool required/Manual)

■ Push type (Tool required)

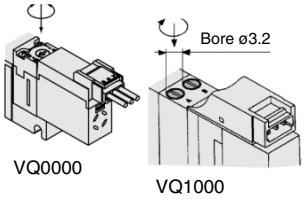


Push down on the manual override button with a small screwdriver until it stops. Release the screwdriver and the manual override will return.

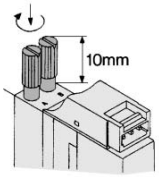
■ Locking type (Tool required) <Option>

If the manual override is turned by 180° clockwise and the ▶ mark is adjusted to 1, it will be locked in the ON state.
If the manual override is turned by 180° counterclockwise and the ▶ mark is adjusted to 0, locking will be released and the manual override will return.

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



■ Locking type (Manual) <Option>



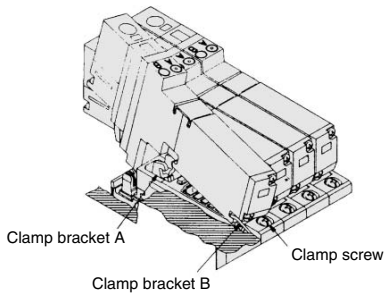
Push down on the manual override button with a small screwdriver or with your fingers until it stops. Turn clockwise by 90° to lock it. Turn it counterclockwise to release it.

⚠ Caution

Do not apply excessive torque when turning the locking type manual override. (0.1 N·m or less)

How to Mount/Remove Solenoid Valve

⚠ Caution



How to Remove

1. Loosen the clamp screw until it turns freely. (The screw is captive.)
2. Lift the coil side of the valve body while pressing down slightly on the screw head and remove it from the clamp bracket B. When the screw head cannot be pressed easily, gently press the area near the manual override of the valve.

How to Remove

1. Press down on the clamp screw. → Clamp bracket A opens. Diagonally insert the hook on the valve end plate side into clamp B.
2. Press the valve body downward. (When the screw is released, it will be locked by clamp bracket A.)
3. Tighten the clamp screw. (Proper tightening torque: 0.25 to 0.35 N·m)

Mounting

1. Dust on the sealing surface of the gasket or solenoid valve can cause air leakage.
2. In the case of VQ0000, valve mounting screw clamping torque is 0.18 to 0.25 N·m.

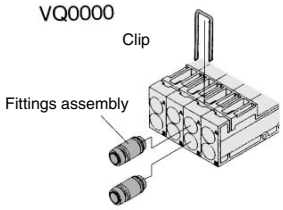
Replacement of Cylinder Port Fittings

⚠ Caution

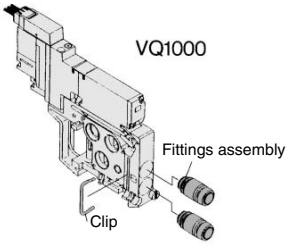
The cylinder port fittings are a cassette for easy replacement.

The fittings are blocked by a clip inserted from the top of manifold. Remove the clip with a screwdriver to remove fittings.

For replacement, insert the fitting assembly until it strikes against the inside walland then re-insert the clip to specified position.



Take off the valve and remove the clip.



Remove the clip after taking off the manifold.

Applicable tubing O.D.	Fitting assembly part no.	
	VQ0000	**VQ1000**
Applicable tubing ø3.2	VVQ1000-51A-C3	VVQ1000-50A-C3
Applicable tubing ø4	VVQ1000-51A-C4	VVQ1000-50A-C4
Applicable tubing ø6	—	VVQ1000-50A-C6
M5	—	VVQ1000-50A-M5

∗ Refer to “Option” on pages 2-4-208 to 2-4-211 for other types of fittings.

⚠ Caution

1. Use caution that O-rings must be free from scratches and dust. Otherwise, air leakage may result.
2. After screwing in the fittings, mount the M5 fitting assembly on the manifold base. (Tightening torque 0.8 to 1.2 N·m)
3. Purchasing order is available in units of 10 pieces.

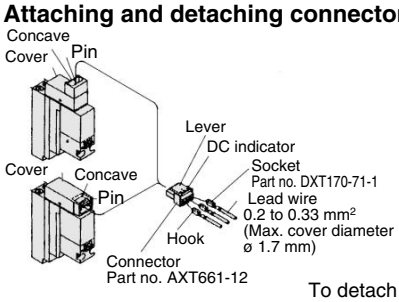
⚠ Precautions 2

Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 2-9-2.

How to Use Plug Connector

⚠ Caution

Attaching and detaching connectors

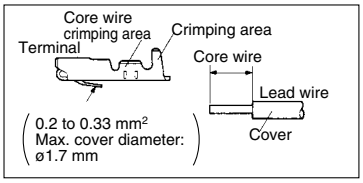


To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.

To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb, and pull the connector straight out.

Crimping the lead wire and socket

Peel 3.2 to 3.7 mm of the tip of lead wire, neatly into a socket and press contact it by a press tool.
Be careful so that the cover of lead wire does not enter into the core press contacting part.



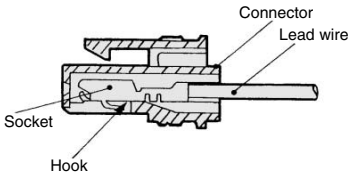
Attaching and detaching lead wires with sockets

Attaching

Insert a socket in the square hole (Indicated as ⊕ , ⊖) of connector, push in the lead wire and lock by hanging the hook of socket to the seat of connector. (Pushing-in can open the hook and lock it automatically.) Then confirm the lock by lightly pulling on the lead wire.

Detaching

For pulling-out the socket from the connector, pull out the lead wire while pushing the hook of the socket with a fine point (ca.1 mm) tool.
If the socket is to be re-used, spread the hook to the outside.

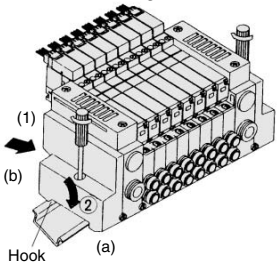


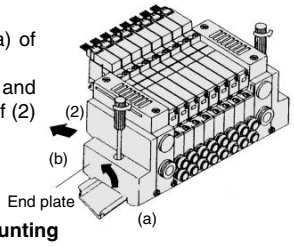
Mounting/Removing from the DIN Rail (VQ1000)

⚠ Caution

Removing

1. Loosen the clamp screw on side (a) of the end plate on both sides.
2. Lift side (a) of the manifold base and slide the end plate in the direction of (2) shown in the figure to remove.





Mounting

1. Hook side (b) of the manifold base on the DIN rail.
2. Press side (a) and mount the end plate on the DIN rail.
3. Tighten the clamp screw on side (a) of the end plate. The proper tightening torque for screws is 1.2 to 1.6 N·m.

Enclosure IP65

⚠ Caution

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

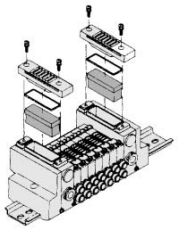
How to Calculate the Flow Rate

⚠ Caution

For obtaining the flow rate, refer to pages 2-1-8 to 2-1-11.

Built-in Silencer Replacement

⚠ Caution



A silencer element is incorporated in the end plate on both sides of the manifold base. A dirty and choked element may reduce cylinder speed and cause malfunction. Clean or replace the dirty element.

Remove the cover from the top of the end plate and remove the old element with a screwdriver, etc.

Element part no.

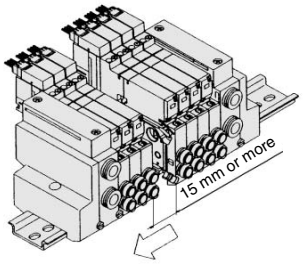
Type	Element part no.	
	VQ0000	**VQ1000**
Built-in silencer, direct exhaust (-S)	VVQ0000-82A-1	VVQ1000-82A-1

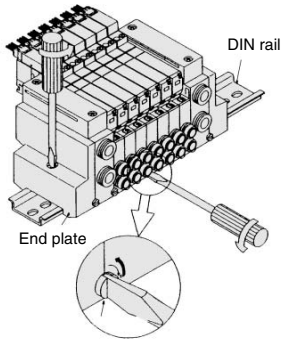
∗ The minimum order quantity is 10 pcs.

Manifold Base Station Increasing Procedure (VQ1000)

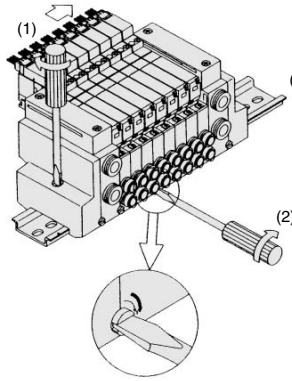
⚠ Caution

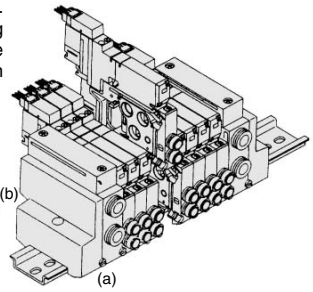
1. Loosen the clamp screw on the top surface of the end plate on one side.
2. Turn the manual override between the manifold blocks with a regular screwdriver, etc. in a couterclockwise direction.





3. Slide the manifold base to the side where the screw is loosened. Make a clearance of 15 mm or more.
4. Mount the station increasing manifold block assembly and solenoid valve on the DIN rail. Install it to the DIN rail by applying the hook on the (b) side of the manifold block and pushing down the (a) side.





5. Slide the manifold bases with a slight clearance in-between and lock them by turning the manual override between the manifold blocks clockwise.
6. Tighten the screw on the top surface of the end plate, and the station has been added.
(Proper tightening torque 1.2 to 1.6 N·m)

Manifold Block Assembly

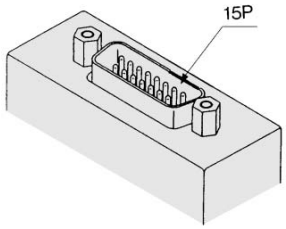
VQ1000	Port size
VVQ1000-1A-2-C3	With One-touch fitting for ø3.2
VVQ1000-1A-2-C4	With One-touch fitting for ø4
VVQ1000-1A-2-C6	With One-touch fitting for ø6
VVQ1000-1A-2-M5	M5 thread

Option

Different Number of Connector Pins

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

F kit (D-sub connector) 15 pins



How to order manifold

VV5Q12 — 06 | F | SA — D

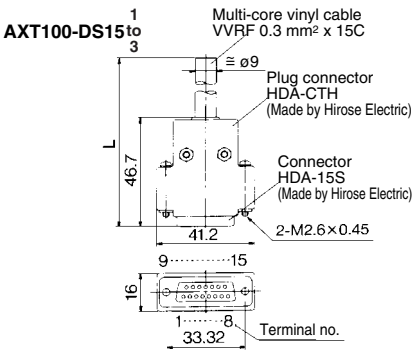
- 06 → Stations
- SA → Kit/Electrical entry
- D → Option

How to Order
D-sub connector, 15 pins
Connector location –
Side (horizontal)
Without cable

Pins \ Location	Top entry		Side entry	
15P (Max. 7 stations)	Kit F	UA	Kit F	SA

Wiring Specifications

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



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

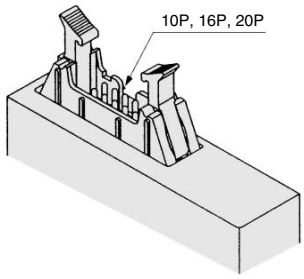
Terminal no.	Lead wire color	Dot marking
1	Black	None
2	Brown	None
3	Red	None
4	Orange	None
5	Yellow	None
6	Pink	None
7	Blue	None
8	Purple	White
9	Gray	Black
10	White	Black
11	White	Red
12	Yellow	Red
13	Orange	Red
14	Yellow	Black
15	Pink	Black

D-sub Connector Cable Assembly

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

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

P kit (Flat ribbon cable connector) 10 pins, 16 pins, 20 pins



How to order manifold

VV5Q12 — 06 | P | SC — D

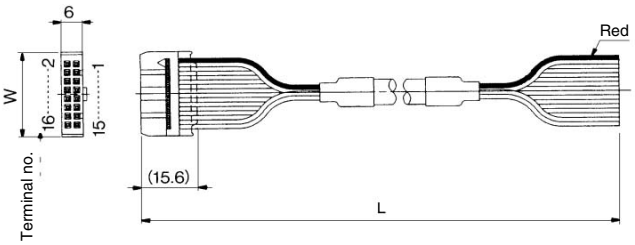
- 06 → Stations
- SC → Kit/Electrical entry
- D → Option

How to Order
Flat ribbon cable, 20 pins
Connector location –
Side (horizontal)
Without cable

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

Wiring Specifications

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



Flat Ribbon Cable Assembly

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

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

Option

Special Wiring Specifications

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

1. How to Order

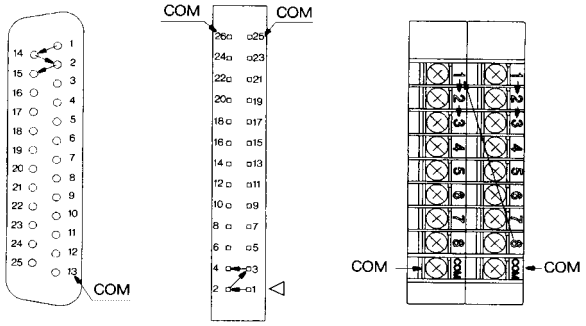
Indicate an option symbol "-K", for the manifold no. and be sure to specify the mounting position and number of stations of the single and double wiring by means of the manifold specification sheet.

Example) **VV5Q05-08C4FU1-D K S**

Others, option symbols: to be indicated alphabetically.

2. Wiring specifications

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



F kit
D-sub connector (25 P)

P kit
Flat ribbon cable connector (26 P)

T kit
Terminal block (16 terminals)

3. Max. number of stations

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

Kit	F kit (D-sub connector)		P kit (Flat ribbon cable connector)				T kit (Terminal block)		S kit (Serial transmission)
Type	F S U □ 25P	F S U A 15P	P S U □ 26P	P S U C 20P	P S U B 16P	P S U A 10P	T1	T2	S□
Max. points	16 Note)	14	16 Note)	16 Note)	14	8	8	16	16

Note) Due to the limitation of internal wiring.

Negative Common Specifications [Series VQ1□10]

The following valve part numbers are for negative COM specifications. Manifold model no. is the same as the standard products.

How to order negative COM valves

VQ1110 N — 5M

Negative common specifications

∗ Series VQ0□50 has no polarity, so the negative common is applicable to standard models.

Inch-size One-touch Fittings

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

VV5Q12 — 06 N7 PSO — D

Stations
Cylinder port
Kit/Electrical entry
Option

Symbol		N1	N3	N7	M5T	NM
Applicable tubing O.D. (Inch)		ø1/8"	ø5/32"	ø1/4"	10-32UNF (M5 thread)	Mixed
A, B port	VQ0000	○	○	—	○	○
	VQ1000	○	○	○	○	○

Note) When inch size fittings are selected for a cylinder port, use inch size fittings for both P and R port, too.

1(P), 3(R) port size
VQ0000 ·····ø1/4"
VQ1000 ·····ø5/16"

Plug Connector Assembly Model

Connector assembly will be required when the F, P, S kits add a valve. Specify the style of valve and connector assembly.

Connector Assembly Part No.

Specifications		Part no.
Single VQ0000 (2-wire)	Positive common	AXT661-14A-F
	Negative common	AXT661-14AN-F
Double (latching) (3-wire)	Positive common	AXT661-13A-F
	Negative common	AXT661-13AN-F

Note) Lead wire length: 300 mm
The part numbers above are applicable to 2 to 10 stations. 11 to 16 stations: "AXT661-$\frac{13}{14}$A(N)-F-425".

DIN Rail Mounting

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

● **When DIN rail is unnecessary (C kit VQ0000 only)**
Indicate the option symbol, -DO, for the manifold no.

Example)

VV5Q05-08C4C-DOS

Others, option symbols: to be indicated alphabetically.

● **When using DIN rail longer than the manifold with specified number of stations (VQ0000/VQ1000)**
Clearly indicate the necessary number of stations next to the option symbol. "D" for the manifold no.

Example)

VV5Q05-08C4FU1-D09S

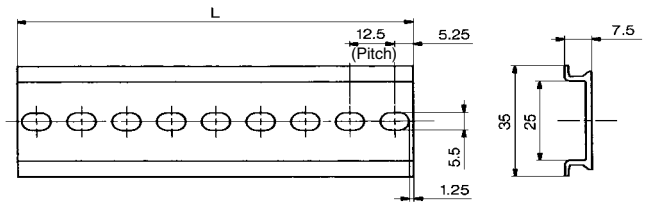
DIN rail for 9 stations

Others, option symbols: to be indicated alphabetically.

● **When changing the manifold style into a DIN rail mounting style (VQ0000 only)**
Order brackets for mounting a DIN rail. (Refer to "Option" on page 2-4-209.)
No. VVQ0000-57A-5 2 pcs. per one set.

● **When ordering DIN rail only (VQ0000 only)**
DIN rail no.: AXT100-DR-□

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



L Dimension

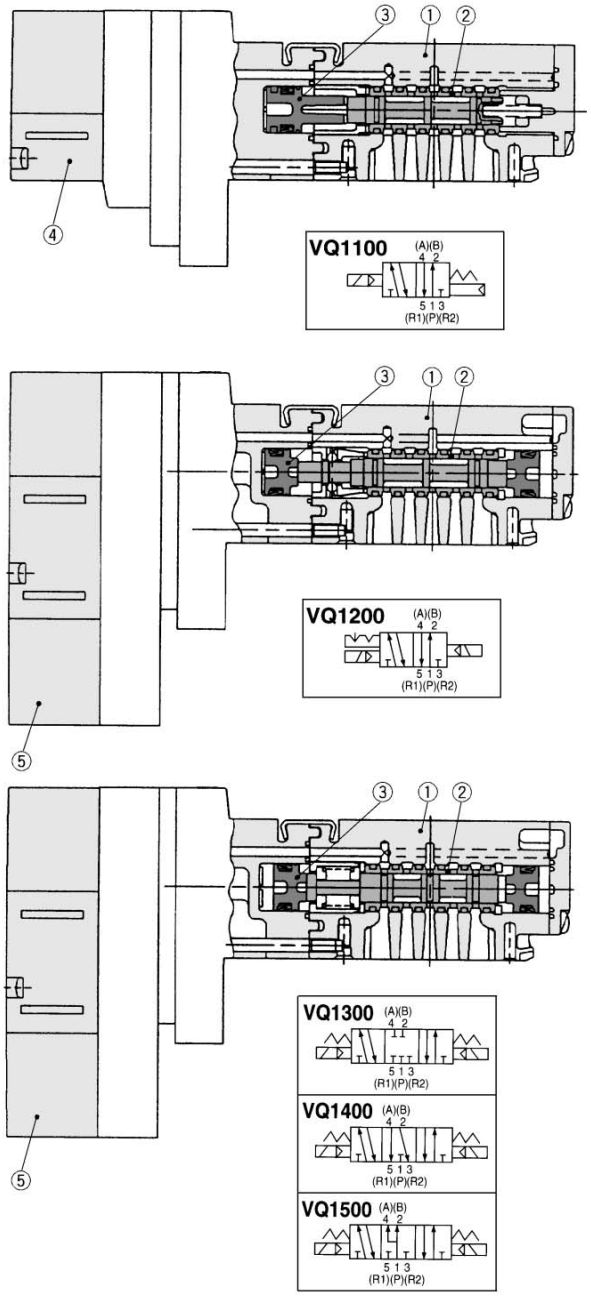
L = 12.5 x n + 10.5

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

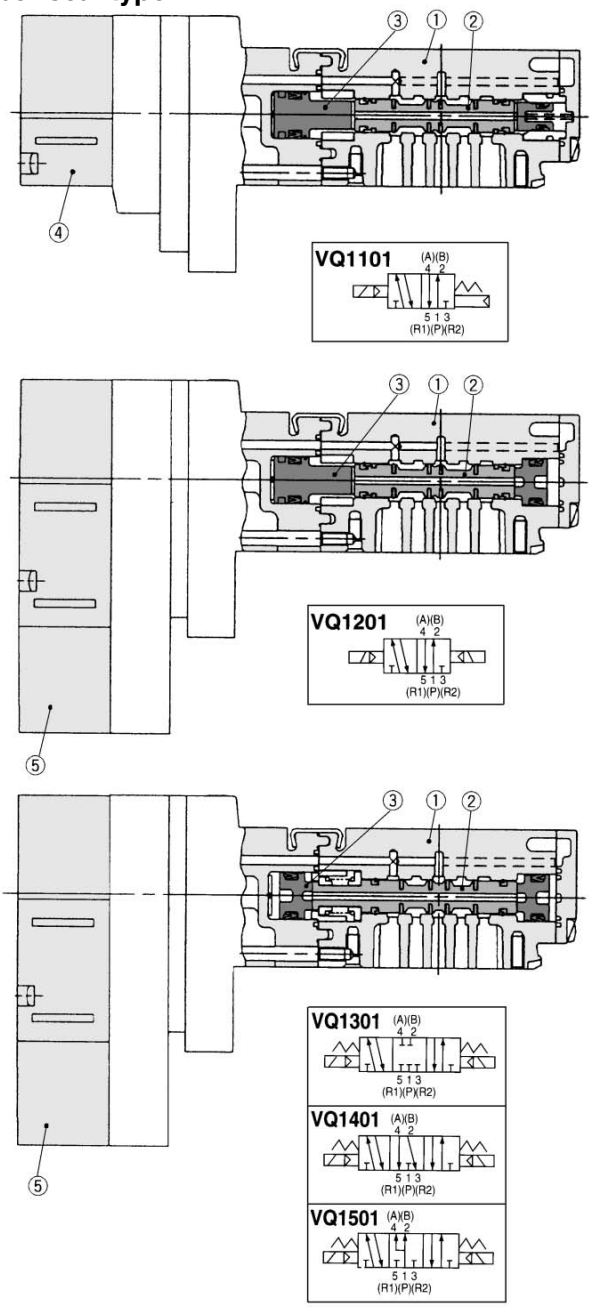
Construction
Main Parts, Replacement Parts

Construction: VQ1000/Plug-in Unit

Metal seal



Rubber seal type



Component Parts

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

Replacement Parts

④	Pilot valve assembly	VQ111(H)(Y)-□-1 Note) Voltage1 to 6	Single
⑤	Pilot valve assembly	VQ131(H)(Y)-□-1 Note) Voltage1 to 6	Double/3 position

Note) (H): 1.5 W, (Y): 0.5 W

Component Parts

No.	Description	Material	Note
①	Body	Zinc die-casted	
②	Spool valve	Aluminum/HNBR	
③	Piston	Resin	

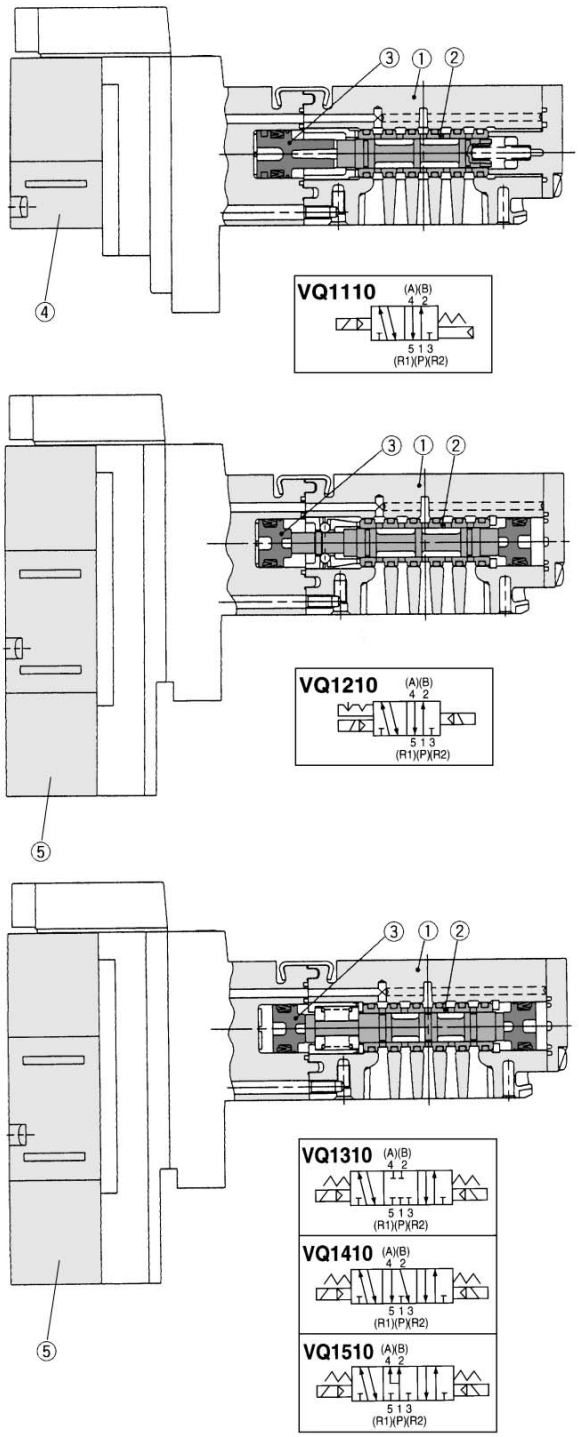
Replacement Parts

④	Pilot valve assembly	VQ111(H)(Y)-□-1 Note) Voltage1 to 6	Single
⑤	Pilot valve assembly	VQ131(H)(Y)-□-1 Note) Voltage1 to 6	Double/3 position

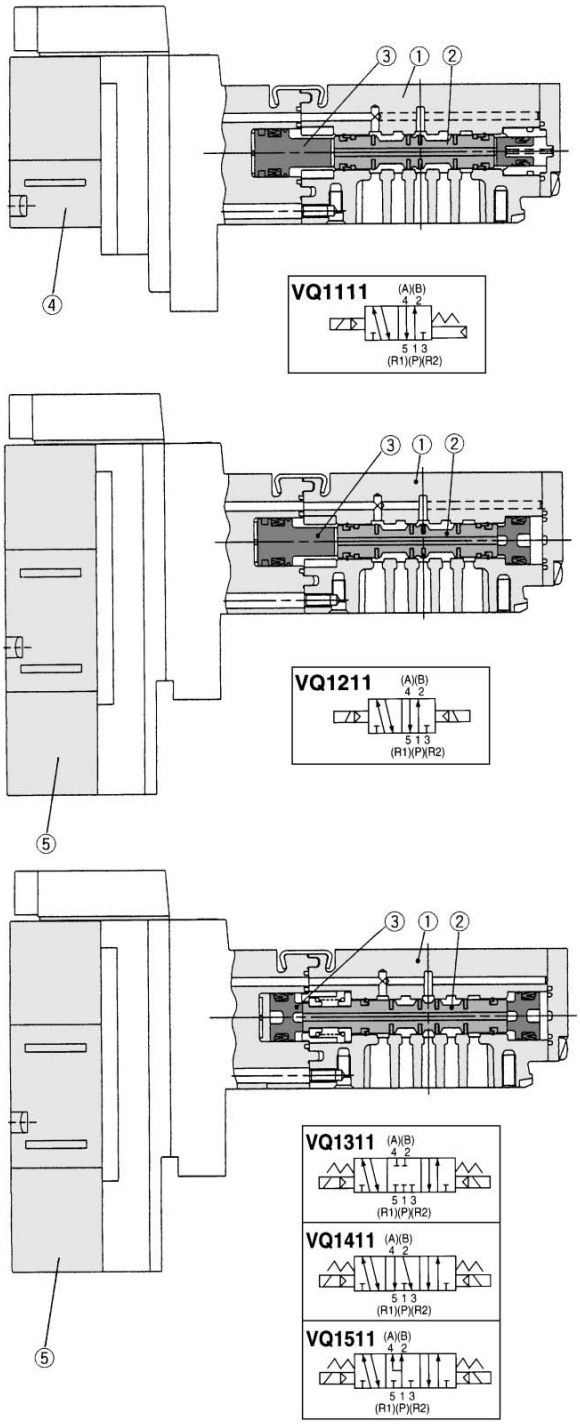
Note) (H): 1.5 W, (Y): 0.5 W

Construction: VQ1000/Plug Lead Unit

Metal seal



Rubber seal type



Component Parts

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

Replacement Parts

④	Pilot valve assembly	VQ111(H/Y)-□-1 Note) Voltage1 to 6	Single
⑤	Pilot valve assembly	VQ131(H/Y)-□-1 Note) Voltage1 to 6	Double/3 position

Note) (H): 1.5 W, (Y): 0.5 W

Component Parts

No.	Description	Material	Note
①	Body	Zinc die-casted	
②	Spool valve	Aluminum/HNBR	
③	Piston	Resin	

Replacement Parts

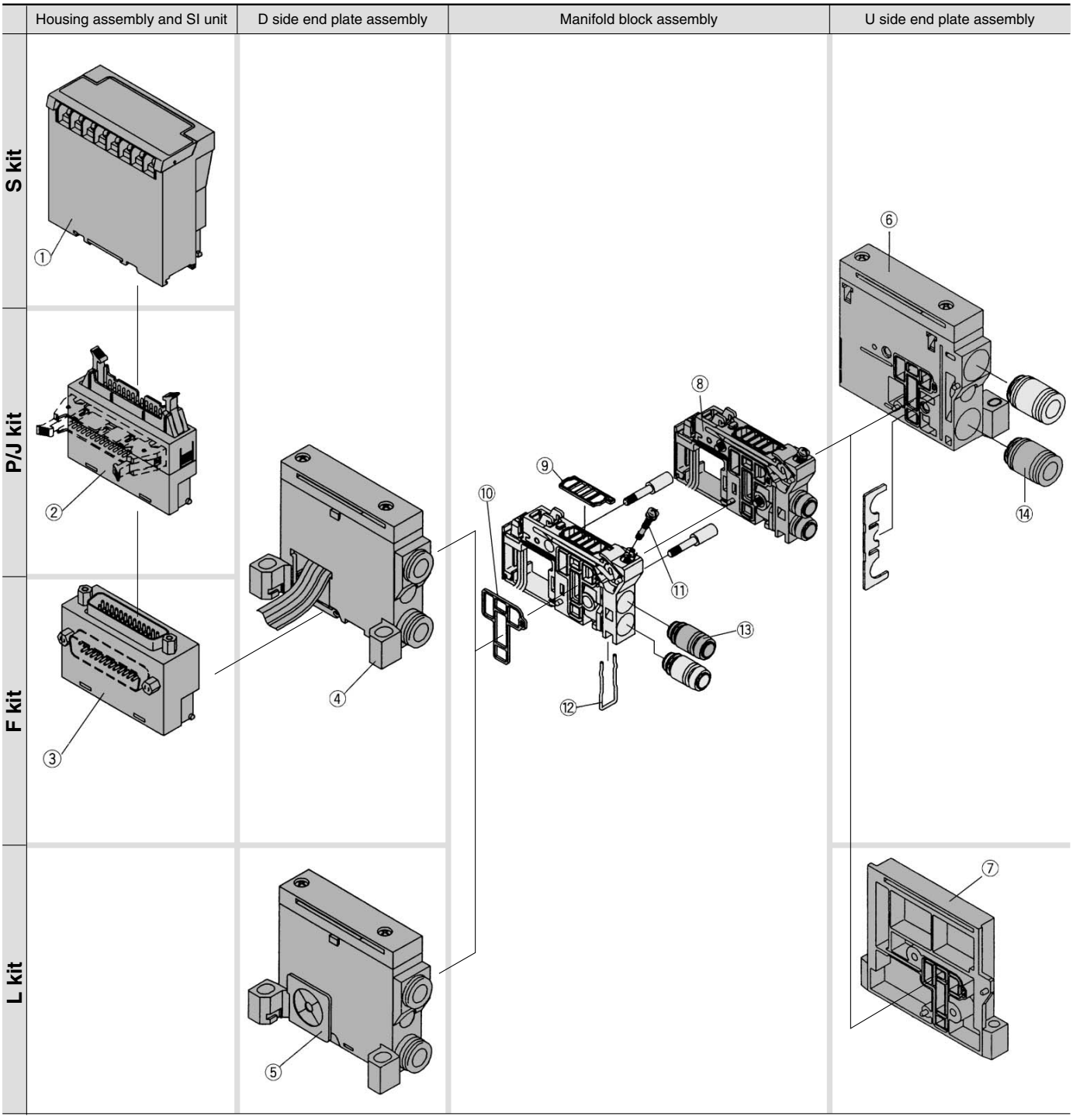
④	Pilot valve assembly	VQ111(H/Y)-□-1 Note) Voltage1 to 6	Single
⑤	Pilot valve assembly	VQ131(H/Y)-□-1 Note) Voltage1 to 6	Double/3 position

Note) (H): 1.5 W, (Y): 0.5 W

Exploded View of Manifold

Exploded view: VQ1000/Plug-in Unit

(F, P, J, L, Skit)



<Housing Assembly and SI Unit>

Housing assembly and SI unit no.

No.	Manifold	Part no.	Description
①	(SA kit)	EX320-S001(-XP) (2)	General type SI unit (Series EX300)
	(SB kit)	EX120-SMB1(-XP) (2)	SI unit for MELSECNET/MINI-S3 Data Link System (Mitsubishi Electric Corporation)
	(SC kit)	EX120-STA1(-XP) (2)	SI unit for SYSBUS Wire System (OMRON Corporation)
	(SD kit)	EX120-SSH1(-XP) (2)	SI unit for Satellite I/O Link System (SHARP Corporation)
	(SE kit)	EX120-SPA1	SI unit for MEWNET-F System (Matsushita Electric Works, Ltd.)
	(SF1kit)	EX120-SUW1(-XP) (2)	SI unit for 16 point Uni-wire System (NKE Corporation)
	(SG kit)	EX120-SAB1(-XP) (2)	SI unit for Allen Bradley Remote I/O (RIO) System (Rockwell Automation, Inc.)
	(SH kit)	EX120-SUH1(-XP) (2)	SI unit for 16 point Uni-wire H System (NKE Corporation)
	(SJ1 kit)	EX120-SSL1(-XP) (2)	16 point S-LINK System (SUNX Corporation)
	(SJ2 kit)	EX120-SSL2(-XP) (2)	8 point S-LINK System (SUNX Corporation)
	(SK kit)	EX120-SFU1(-XP) (2)	T-LINK Mini System (Fuji Electric Co.,Ltd.)
	(SQ kit)	EX120-SDN1	DeviceNet, CompoBus/D (OMRON Corporation)
	(SR1 kit)	EX120-SCS1(-XP) (2)	OMRON Corporation: CompoBus/S (16 output points)
	(SR2 kit)	EX120-SCS2(-XP) (2)	OMRON Corporation: CompoBus/S (8 output points)
	(SV kit)	EX120-SMJ1(-XP) (2)	Mitsubishi Electric Corporation: CC-LINK System
②	P $^{U}_{S}$ kit	AXT100-1-P $^{U}_{S}$ □ (1)	Flat cable housing assembly □ = Number of pins: 26, 20, 16, 10
	J $^{U}_{S}$ kit	AXT100-1-J $^{U}_{S}$ 20 (1)	Flat cable housing assembly
③	F $^{U}_{S}$ kit	AXT100-1-F $^{U}_{S}$ □ (1)	D-sub connector housing assembly □ = Number of pins: 25, 15

Note 1) Top (vertical) entry connector for FU, PU and JU while side (horizontal) entry connector for FS, JS and PS.
Note 2) Enter suffix "-XP" at the end of the part number for dust proof type SI unit.

<D Side End Plate Assembly>

④⑤ D side end plate assembly no.

VVQ1000-3A-1-□-□

Electrical entry

F	For F kit
P	For P kit
J	For J kit
L	For L kit
S	For S kit

Option

Nil	Common exhaust type
R (1)	External pilot
S (1)	Built-in silencer, direct exhaust

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

<U Side End Plate Assembly>

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

VVQ1000-2A-1-□

Option

Nil	Common exhaust type
R	External pilot
S	Built-in silencer, direct exhaust

Note) The ⑭'s fitting assembly is included.

<Manifold Block Assembly>

⑧ Manifold block assembly no.

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

VVQ1000-1A-□□

Electrical entry

F1	F kit for 2 to 12 stations/Double wiring
F2	F kit for 13 to 24 stations/Double wiring
F3	F kit for 2 to 24 stations/Single wiring
P1	P, J, S kit for 2 to 12 stations/Double wiring
P2	P, J, S kit for 13 to 24 stations/Double wiring
P3	P, J, S kit for 2 to 24 stations/Single wiring
L0□	L0 kit □Stations (1 to 8)
L1□	L1 kit □Stations (1 to 8)
L2□	L2 kit □Stations (1 to 8)

Port size

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

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

VVQ1000-2A-1-L

<Replacement Parts for Manifold Block>

Replacement Parts

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

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

<Fitting Assembly>

⑬ Fitting assembly part no. (For cylinder port)

VVQ1000-50A-□

Port size

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

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

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

VVQ1000-51A-C8

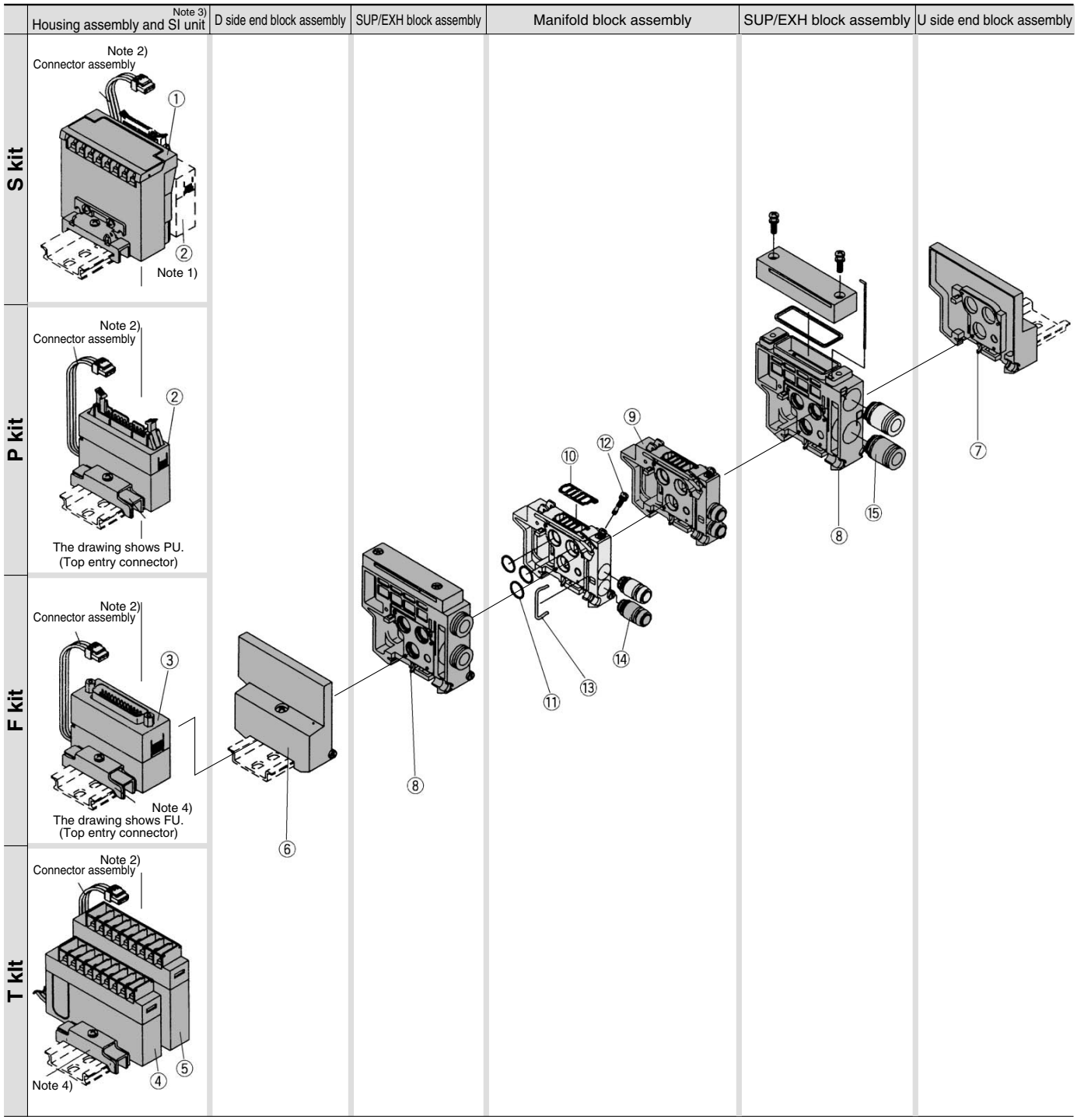
Applicable tubing ø8

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

Exploded View: VQ1000/Plug Lead Unit

(F, P, T, S kit)

∗ For how to increase the stations, refer to the instruction manual.



Note 1) S kit is composed of a flat ribbon cable housing assembly (AXT100-2-PU20) of ① SI unit and ② P kit (20 pins).
Note 2) Since no connector assembly is included, order it separately. (Refer to page 2-4-216.)
Note 3) A housing assembly is not used for a C kit.
Note 4) A DIN rail clamping bracket is attached to each.

<Housing Assembly and SI Unit>

Housing assembly and SI unit no.

No.	Manifold	Part no.	Description
①	(SA kit)	EX321-S001(-XP) (5)	General type SI unit (Series EX300)
	(SB kit)	EX121-SMB1(-XP) (5)	SI unit for MELSECNET/MINI-S3 Data Link System (Mitsubishi Electric Corporation)
	(SC kit)	EX121-STA1(-XP) (5)	SI unit for SYSBUS Wire System (OMRON Corporation)
	(SD kit)	EX121-SSH1(-XP) (5)	SI unit for Satellite I/O Link System (SHARP Corpoation)
	(SE kit)	EX121-SPA1	SI unit for MEWNET-F System (Matsushita Electric Works, Ltd.)
	(SF1kit)	EX121-SUW1(-XP) (5)	SI unit for 16 point Uni-wire System (NKE Corporation)
	(SG kit)	EX121-SAB1(-XP) (5)	SI unit for Allen Bradley Remote I/O (RIO) System (Rockwell Automation, Inc.)
	(SH kit)	EX120-SUH1(-XP) (5)	SI unit for 16 point Uni-wire H System (NKE Corporation)
	(SJ1 kit)	EX121-SSL1(-XP) (5)	16 point S-LINK System (SUNX Corporation)
	(SJ2 kit)	EX121-SSL2(-XP) (5)	8 point S-LINK System (SUNX Corporation)
	(SK kit)	EX121-SFU1(-XP) (5)	T-LINK Mini System (Fuji Electric Co., Ltd.)
	(SQ kit)	EX121-SDN1	DeviceNet, CompoBus/D (OMRON Corporation)
	(SR1 kit)	EX121-SCS1(-XP) (5)	OMRON Corporation: CompoBus/S System (16 output points)
	(SR2 kit)	EX121-SCS2(-XP) (5)	OMRON Corporation: CompoBus/S System (8 output points)
	(SV kit)	EX120-SMJ1(-XP) (5)	Mitsubishi Electric Corporation: CC-LINK System
②	P $^{U}_{S}$ kit	AXT100-2-P $^{U}_{S}$ □ (2)	Flat ribbon cable housing assembly □ = Number of pins: 26, 20, 16, 10
③	F $^{U}_{S}$ kit	AXT100-2-F $^{U}_{S}$ □ (2)	D-sub connector housing assembly □ = Number of pins: 25, 15
④	T kit	AXT100-2-TB1 (4)	Terminal block assembly (8 terminals)
⑤	T kit	AXT100-2-TB2 (4)	Terminal block assembly (8 terminals)

Note 1) A S kit is composed of a flat ribbon cable housing assembly (AXT100-2-PS20) of ① SI unit and ② P kit (20 pins).
Place an order for AXT100-2-PU20 separately.
Note 2) Top/vertical entry connector for FU and PU while side (horizontal) entry connector for FS and PS.
Note 3) Since no connector assembly is included, order it separately. (Refer to page 2-4-216.)
Note 4) In the case of standard specifications and double wring, ④ is for 1 to 4 stations and ⑤ is for 5 to 8 stations.
Note 5) Suffix "-XP" for dust-protected type SI unit.

<D Side End Plate Assembly>

⑥ D side end plate assembly no.

VVQ1000-3A-2

<U Side End Plate Assembly>

⑦ U side end plate assembly no.

VVQ1000-2A-2

<SUP/EXH block Assembly>

⑧ SUP/EXH block assembly no.

VVQ1000-PR-2-C8-□

Option

Nil	Common exhaust type
S	Built-in silencer, direct exhaust

Note) The ⑮'s fitting assembly is included.

<Manifold Block Assembly>

⑧ Manifold block assembly no.

VVQ1000-1A-2-□

Port size

C3	With One-touch fitting for ø3.2
C4	With One-touch fitting for ø4
C6	With One-touch fitting for ø6
M5	M5 thread

<Replacement Parts for Manifold Block>

Replaceable Parts

No.	Part no.	Description	Material	Number
⑩	VVQ1000-80A-1	Gasket	HNBR	12
⑪	VVQ1000-80A-2-2	O-ring	HNBR	12
⑫	VVQ1000-80A-3	Clamp screw	Carbon steel	12
⑬	VVQ1000-80A-2-4	Clip	Stainless steel	12

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

<Fitting Assembly>

⑭ Fitting assembly part no. (For cylinder port)

VVQ1000-50A-□

Port size

C3	Applicable tubing ø3.2
C4	Applicable tubing ø4
C6	Applicable tubing ø6
M5	With M5 thread

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

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

VVQ1000-51A-C8

Applicable tubing ø8

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