5 Port Solenoid Valve

New

Metal Seal | Rubber Seal

■Compact and large flow capacity

VQC4000 Possible to drive cylinders up to ø160

VQC5000 Possible to drive cylinders up to ø180

* When the average speed is 200 mm/s. Refer to page 5 for actual conditions.

VQC4000: 25 mm pitch

C[dm³/(s·bar)]: 7.3*

VQC5000: 41 mm pitch

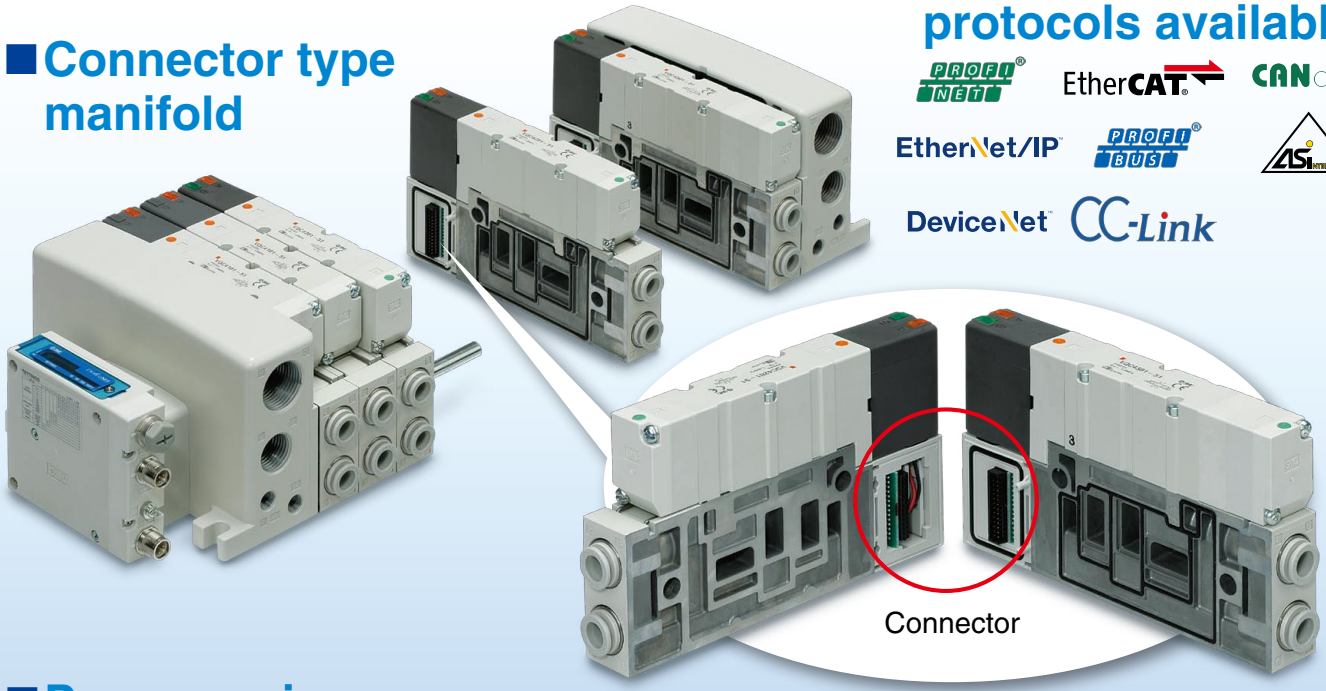
C[dm³/(s·bar)]: 17*

* 2-position single, rubber seal: 4/2 → 5/3 (A/B → R1/R2)

■Extensive range of protocols available

PROFINET, EtherCAT, CANopen, EtherNet/IP, PROFIBUS, AS-i, DeviceNet, CC-Link

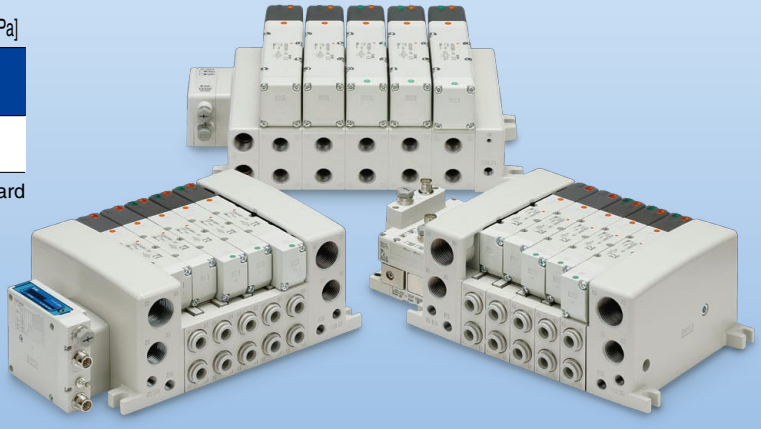
■Connector type manifold



■Power saving

	Power consumption [W]	Maximum operating pressure [MPa]
New VQC	0.4 (0.95)	1.0
Current product	0.5 (1.0)	0.7

* Low wattage type ( ): Standard



■Long service life

100 million cycles

* According to SMC life test conditions

■Enclosure IP67 compliant

* Except F and P kits

Series VQC4000/5000

SMC

CAT.ES11-108A

■ Compact and large flow

Model (Series)	Valve pitch [mm]	Flow-rate characteristics Note)					
		Metal seal			Rubber seal		
		C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv
VQC4000	25	6.9	0.17	1.7	7.3	0.38	2.0
VQC5000	41	14	0.18	3.4	17	0.31	4.7

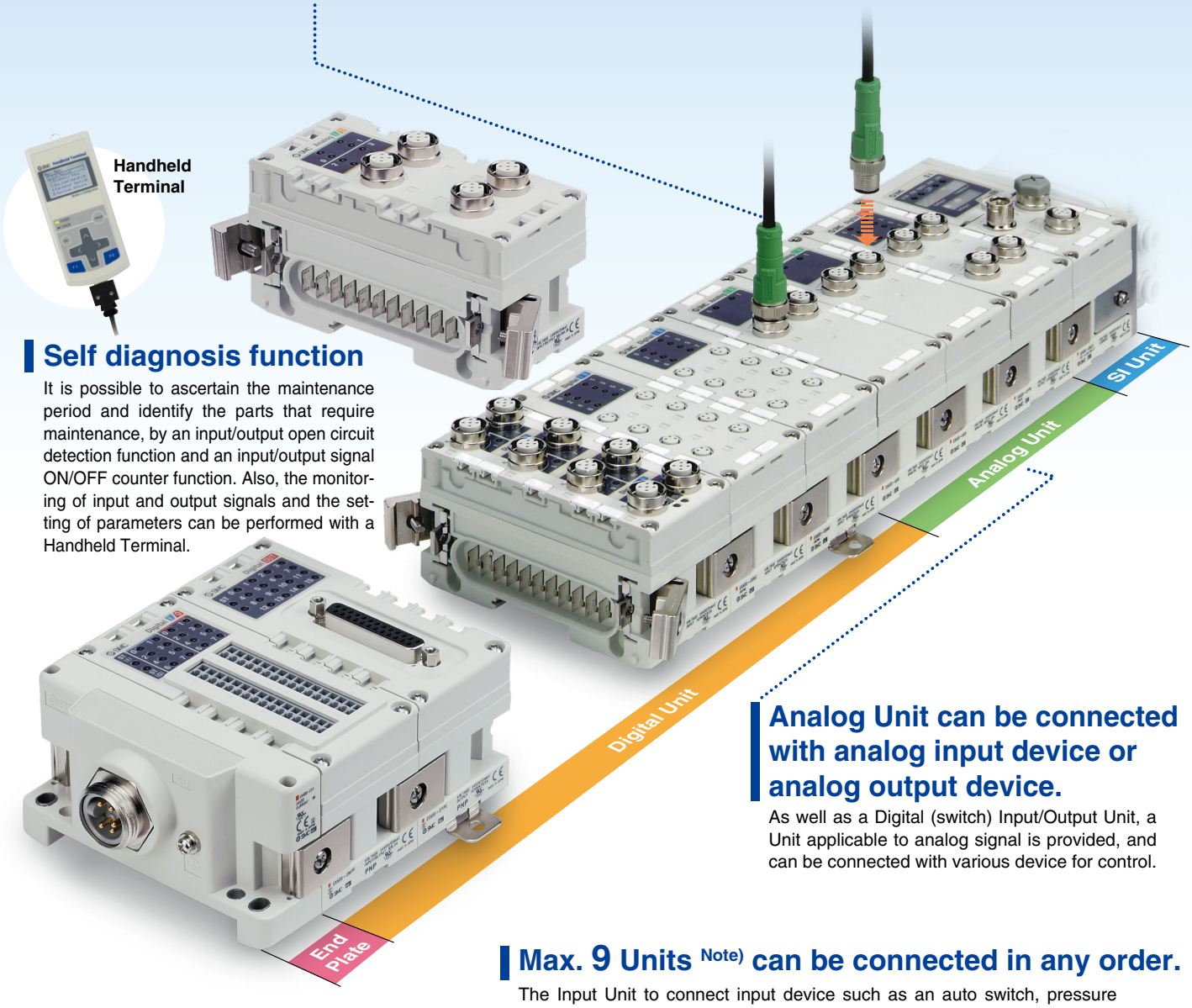
Note) Flow-rate characteristics: 2-position single, 4/2 → 5/3 (A/B → R1/R2)

■ Applicable to EX600 (Input/Output) serial transmission system (Fieldbus system)

Compatible Protocols

CC-Link V2 DeviceNet PROFIBUS EtherNet/IP EtherCAT PROFINET

Reduction in wiring time with SPEEDCON (Phoenix Contact). Just insert and make 1/2 rotation!



Self diagnosis function

It is possible to ascertain the maintenance period and identify the parts that require maintenance, by an input/output open circuit detection function and an input/output signal ON/OFF counter function. Also, the monitoring of input and output signals and the setting of parameters can be performed with a Handheld Terminal.

Analog Unit can be connected with analog input device or analog output device.

As well as a Digital (switch) Input/Output Unit, a Unit applicable to analog signal is provided, and can be connected with various device for control.

Max. 9 Units Note) can be connected in any order.

The Input Unit to connect input device such as an auto switch, pressure switch and flow switch, and the Output Unit to connect output device such as a solenoid valve, relay and indicator light can be connected in any order.

Note) Except SI Unit

SMC

EX260 (Output device for driving 5 port solenoid valves)

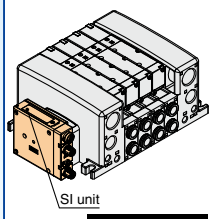
Compatible Protocols

PROFIBUS® DeviceNet CC-Link
PROFINET® EtherNet/IP EtherCAT®

Number of outputs	Each 32/16 digital output type available in the series
Output polarity	Each negative common (PNP)/positive common (NPN) type available in the series
Enclosure	IP67 (For Units with D-sub connector, and when connected with S0700 manifolds, it is IP40.)
Internal terminating resistor	ON/OFF switching is possible with an internal terminating resistor for communication. (Only for Units compatible with M12 PROFIBUS DP, CC-Link communication connectors)

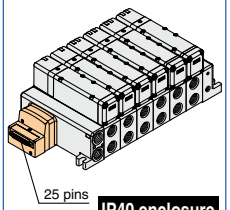
A wide variety of prepackaged wiring configurations

S Kit (Serial transmission)



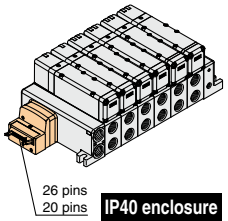
IP67 enclosure compliant

F Kit (D-sub connector)



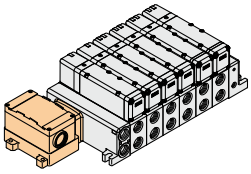
IP40 enclosure compliant

P Kit (Flat ribbon cable)



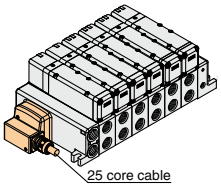
IP40 enclosure compliant

T Kit (Terminal block box)



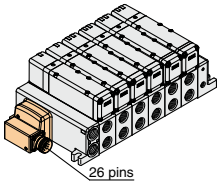
IP67 enclosure compliant

L Kit (Lead wire)



IP67 enclosure compliant

M Kit (Circular connector)

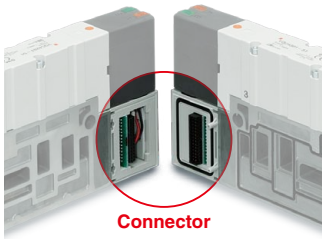


IP67 enclosure compliant

- Our six standard wiring packages bring a world of ease to wiring and maintenance work, while the protective enclosures of four of them conform to IP67 standards.
- The S kit is compatible with a combined I/O Unit. (Not applicable to Gateway Unit)

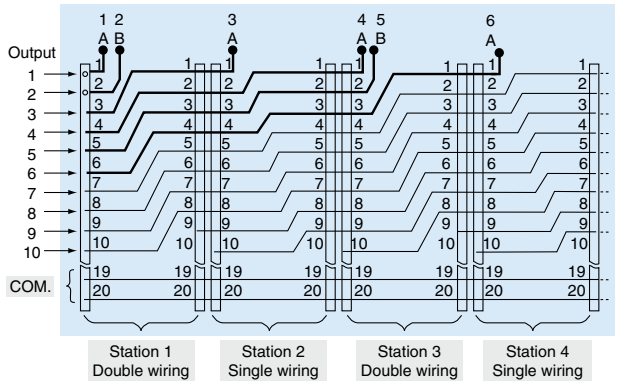
Connector type manifold

- The use of multi-pin connectors to replace wiring inside manifold blocks provides flexibility when adding stations or changing manifold configuration.
- All kits use multi-pin connectors, so switching from the F kit (D-sub connector) to the S kit (serial transmission) can be done simply by changing the kit section.



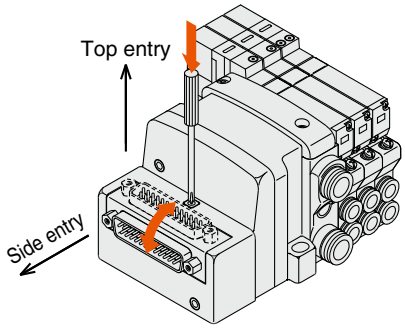
(Refer to the connector wiring diagram.) Printed circuit board patterns between connectors are shifted at every station. This allows for viable connections to take place without necessarily specifying whether the manifold station is double, single, or mixed wiring.

Connector Wiring Diagram (Mixed wiring)

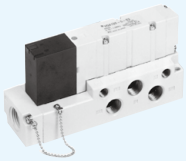


Connector entry direction can be changed with a single push. (F/P kit)

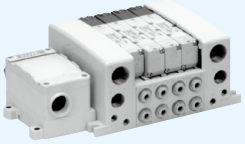
The connector entry direction can be changed from the top to the side by simply pressing the manual release button.
It is not necessary to use the manual release button when switching from the side to the top.



Sub-plate/Base Mounted: Variations



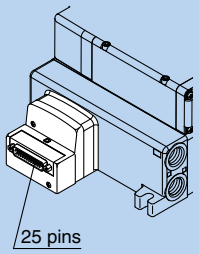
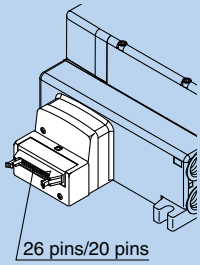
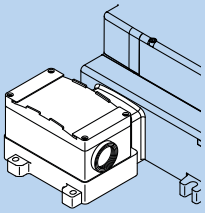
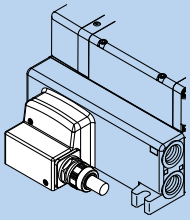
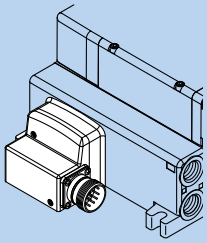
Sub-plate



Base mounted

				Sonic conductance C [dm³/(s·bar)] Values: CYL → EXH (4/2 → 5/3)		S Kit				
						Serial transmission				
						EX600	EX500	EX260	EX250	EX126
						Compatible protocol · PROFINET · EtherCAT® · EtherNet/IP™ · PROFIBUS DP · DeviceNet™ · CC-Link I/O	Compatible protocol · EtherNet/IP™ · PROFIBUS DP · DeviceNet™ Gateway decentralized type Note) I/O	Compatible protocol · PROFINET · EtherCAT® · EtherNet/IP™ · PROFIBUS DP · DeviceNet™ · CC-Link Output	Compatible protocol · EtherNet/IP™ · PROFIBUS DP · DeviceNet™ · CC-Link · AS-Interface · CANopen I/O	Compatible protocol · CC-Link Output
										
						IP67 compliant	IP67 compliant	IP40 compliant IP67 compliant	IP67 compliant	IP67 compliant
Sub-plate	Series VQC 4000	Metal seal	VQC4□00	6.9	6.3	—	—	—	—	—
		Rubber seal	VQC4□01	7.3	6.4					
	Series VQC 5000	Metal seal	VQC5□00	14	11					
		Rubber seal	VQC5□01	17	13					
Base Mounted	Series VQC 4000	Metal seal	VQC4□00	6.9	6.3	● Page 11	● Page 11	● Page 11	● Page 11	● Page 11
		Rubber seal	VQC4□01	7.3	6.4					
	Series VQC 5000	Metal seal	VQC5□00	14	11	● Page 47	● Page 47	● Page 47	● Page 47	● Page 47
		Rubber seal	VQC5□01	17	13					

Note) A separate GW Unit and communication cable are required. For details, refer to the EX500 series catalog (CAT.E02-26).

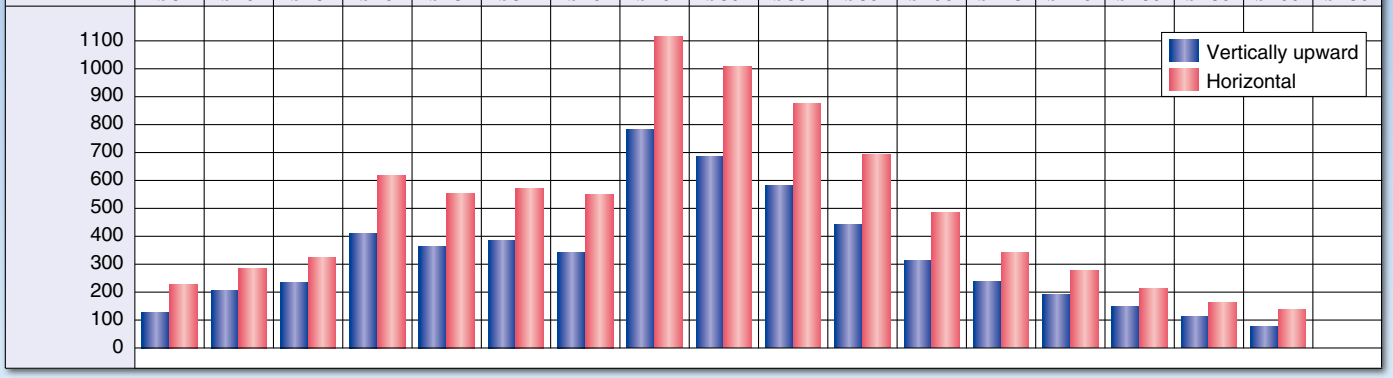
	F Kit	P Kit	T Kit	L Kit	M Kit	Port size	
	D-sub connector	Flat ribbon cable	Terminal block box	Electrical entry	Circular connector	SUP EXH port	Cylinder port
	D-sub connector (Compatible with D-sub connector that complies with MIL standard.)  25 pins IP40 compliant	**Flat ribbon cable** (Compatible with flat ribbon cable connector that complies with MIL standard.)  26 pins/20 pins IP40 compliant	**Terminal block box** (Terminal blocks) Terminals are concentrated in compact clusters within the terminal block box.  IP67 compliant	**Lead wire** (IP67 enclosure with use of multiple wire cable with sheath and waterproof connector)  IP67 compliant	**Circular connector** (IP67 enclosure with use of waterproof multiple connector)  IP67 compliant	1, 3 (P, R)	2, 4 (A, B)
	—	—	—	—	—	1/4 3/8 (Rc, NPT, NPTF, G)	1/4 3/8 (Rc, NPT, NPTF, G)
						1/2 (Rc, NPT, NPTF, G)	1/2 (Rc, NPT, NPTF, G)
	● Page 21	● Page 23	● Page 25	● Page 27	● Page 29	<SUP port> 1/2 (Rc, NPT, NPTF, G)	C6 (for ø6) C8 (for ø8) C10 (for ø10) C12 (for ø12) N7 (ø1/4") N9 (ø5/16") N11 (ø3/8")
						<EXH port> 3/4 (Rc, NPT, NPTF, G)	1/4 3/8 1/4 (Bottom ported) (Rc, NPT, NPTF, G)
	● Page 57	● Page 59	● Page 61	● Page 63	● Page 65	<SUP port> D side 1/2 (Rc, NPT, NPTF, G) U side 3/8 (Rc, NPT, NPTF, G) <EXH port> D side 1/2 (Rc, NPT, NPTF, G) U side 3/8 (Rc, NPT, NPTF, G)	3/8 1/2 1/2 (Bottom ported) (Rc, NPT, NPTF, G)

Cylinder Speed Chart

VQC4000

This chart is provided as guidelines only.
For performance under various conditions, use SMC's Model Selection Software before making a judgment.

Average speed [mm/s]	Bore size																	
	Series CJ2 Pressure 0.5 MPa Load ratio 50% Stroke 60 mm			Series CM2 Pressure 0.5 MPa Load ratio 50% Stroke 300 mm				Series MB, CA2 Pressure 0.5 MPa Load ratio 50% Stroke 500 mm					Series CS1, CS2 Pressure 0.5 MPa Load ratio 50% Stroke 1000 mm					
	ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160	ø180	ø200	ø250



∗ Values at extension of a directly coupled cylinder when meter-out speed controllers are used with the needle full open.
∗ The average speed of the cylinder is obtained by dividing the stroke by the total stroke time.
∗ The load ratio is obtained by the following formula: ((Load mass x 9.8)/Theoretical output) x 100%

Conditions

Base mounted	Series CJ2	Series CM2	Series MB, CA2	Series CS1, CS2
Tube x Length	T0604 x 1 m	T1075 x 1 m	T1209 x 1 m	
Speed controller	AS3002F-06	AS4002F-10	AS4002F-12	
Silencer	AN40-04			AN40-04

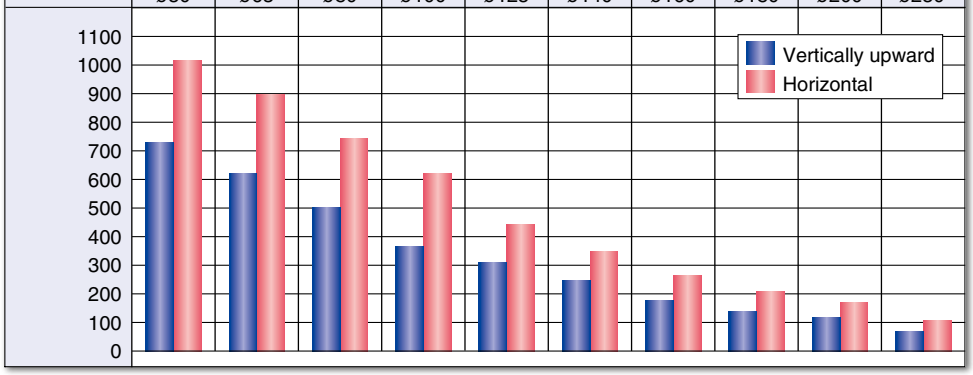
Conditions [With SGP (Steel Pipe)]

Body ported	Series MB, CA2	Series CS1, CS2
Tube x Length	SGP10A x 1 m	
Speed controller	AS420-03	
Silencer	AN40-04	

VQC5000

This chart is provided as guidelines only.
For performance under various conditions, use SMC's Model Selection Software before making a judgment.

Average speed [mm/s]	Bore size									
	Series MB, CA1 Pressure 0.5 MPa Load ratio 50% Stroke 500 mm				Series CS1 Pressure 0.5 MPa Load ratio 50% Stroke 1000 mm					
	ø50	ø63	ø80	ø100	ø125	ø140	ø160	ø180	ø200	ø250



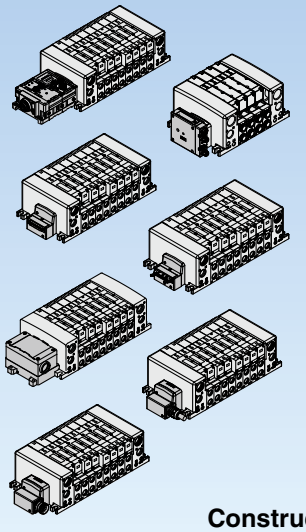
∗ Values at extension of a directly coupled cylinder when meter-out speed controllers are used with the needle full open.
∗ The average speed of the cylinder is obtained by dividing the stroke by the total stroke time.
∗ The load ratio is obtained by the following formula: ((Load mass x 9.8)/Theoretical output) x 100%

Conditions

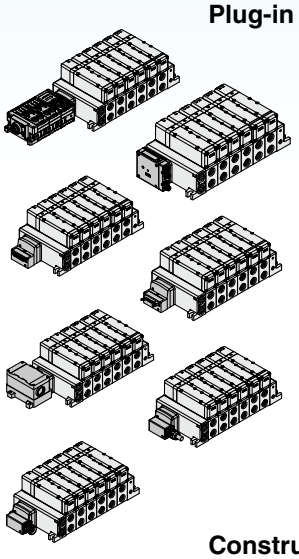
Speed controller	Silencer	SPG (Steel pipe) dia. x Length
AS420-04	AN40-04	10A x 1 m

INDEX

Series VQC4000



Series VQC5000



Base Mounted

Plug-in: Single Unit

Series VQC4000

Model

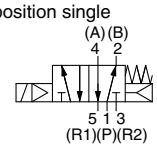
Series	Configuration		Model		Port size	Flow-rate characteristics						Response time [ms]		Weight [kg]
						1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			Standard: 0.95 W	Low wattage type: 0.4 W	
						C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv			
VQC4000	2-position	Single	Metal seal	VQC4100	3/8	6.2	0.19	1.5	6.9	0.17	1.7	20	22	0.23
			Rubber seal	VQC4101		7.2	0.43	2.1	7.3	0.38	2.0	25	27	
		Double	Metal seal	VQC4200		6.2	0.19	1.5	6.9	0.17	1.7	12	16	0.26
			Rubber seal	VQC4201		7.2	0.43	2.1	7.3	0.38	2.0	15	17	
	3-position	Closed center	Metal seal	VQC4300		5.9	0.23	1.5	6.3	0.18	1.6	45	47	0.28
			Rubber seal	VQC4301		7.0	0.34	1.9	6.4	0.42	1.9	50	52	
		Exhaust center	Metal seal	VQC4400		6.2	0.18	1.5	6.9	0.17	1.7	45	47	0.28
			Rubber seal	VQC4401		7.0	0.38	1.9	7.3	0.38	2.0	50	52	
		Pressure center	Metal seal	VQC4500		6.2	0.18	1.6	6.4	0.18	1.6	45	47	0.28
			Rubber seal	VQC4501		7.0	0.38	1.9	7.1	0.38	2.0	50	52	
		Double check	Metal seal	VQC4600		2.7	—	—	3.7	—	—	55	57	0.50
			Rubber seal	VQC4601		2.8	—	—	3.9	—	—	62	64	

Note 1) Cylinder port 3/8: Value for valve on sub-plate
Note 2) Based on JIS B 8375-1981. (Supply pressure: 0.5 MPa, with indicator light and surge voltage suppressor, clean air. This will change depending on pressure and air quality.) The value when ON for the double type.
Note 3) Table: Without sub-plate, With sub-plate: Add 0.41 kg.

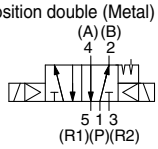
Plug-in unit

Symbol

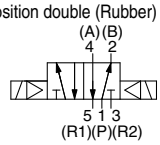
2-position single



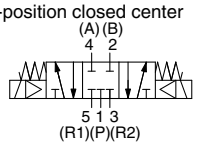
2-position double (Metal)



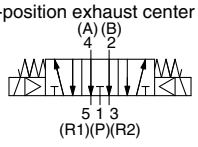
2-position double (Rubber)



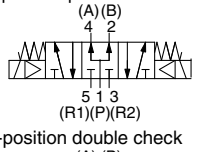
3-position closed center



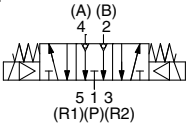
3-position exhaust center



3-position pressure center



3-position double check



Standard Specifications

Valve specifications	Valve construction		Metal seal	Rubber seal
	Fluid		Air/Inert gas	
	Max. operating pressure	Standard (DC and AC)	1.0 MPa	
		Low wattage type (DC)		
	Min. operating pressure	Single	0.15 MPa	0.20 MPa
		Double	0.15 MPa	
		3-position	0.15 MPa	0.20 MPa
	Proof pressure		1.5 MPa	
	Ambient and fluid temperature		−10 to 50°C Note 1)	
	Lubrication		Not required	
	Manual override		Push type/Locking type (Tool required)/Locking type (Manual)	
	Impact/Vibration resistance		150/30 m/s² Note 2)	
	Enclosure		Dust-tight (IP67 compatible) Note 3)	
Electrical specifications	Coil rated voltage		12, 24 VDC	
	Allowable voltage fluctuation		±10% of rated voltage	
	Coil insulation type		Class B or equivalent	
	Power consumption [W]	24 VDC	0.95, 0.4	
		12 VDC	0.95, 0.4	

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) Only applicable to S, T, L and M kits

How to Order Valves

Plug-in **VQC4** [1] [0] [0] [ ] – [ ] [ ] [ ] 1 – [ ] [ ] [ ]

Type of actuation

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

Note) For double check type, refer to the **WEB catalog** or the VQ4000/5000 series catalog (CAT.ES11-104).

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

Port size

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

Porting specifications

Nil	Side ported
B	Bottom ported

Manual override

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

Light/Surge voltage suppressor

Nil	Yes
E	Without light, with surge voltage suppressor

Coil voltage

5	24 VDC
6	12 VDC

Body

0: Plug-in sub-plate

Seal

0	Metal seal
1	Rubber seal

Function

Nil Note 1)	Standard (0.95 W)
Y	Low wattage type (0.4 W)
R Note 2)	External pilot

Note 1) When the power is energized continuously, refer to "Specific Product Precautions 1" on page 37.

Note 2) For details about external pilot type, refer to the **WEB catalog** or the VQ4000/5000 series catalog (CAT.ES11-104). In addition, external pilot type cannot be combined with a double check spacer.

Note 3) When multiple symbols are specified, indicate them alphabetically.

How to Order Sub-plates

[Option]

VQ4000 – PW – [ ] [02] [ ] – [ ]

Porting specifications

Nil	Side ported
B	Bottom ported Note)

Port size

02	1/4
03	3/8

Note) For bottom ported, port size is 1/4 only.

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

CE-compliant

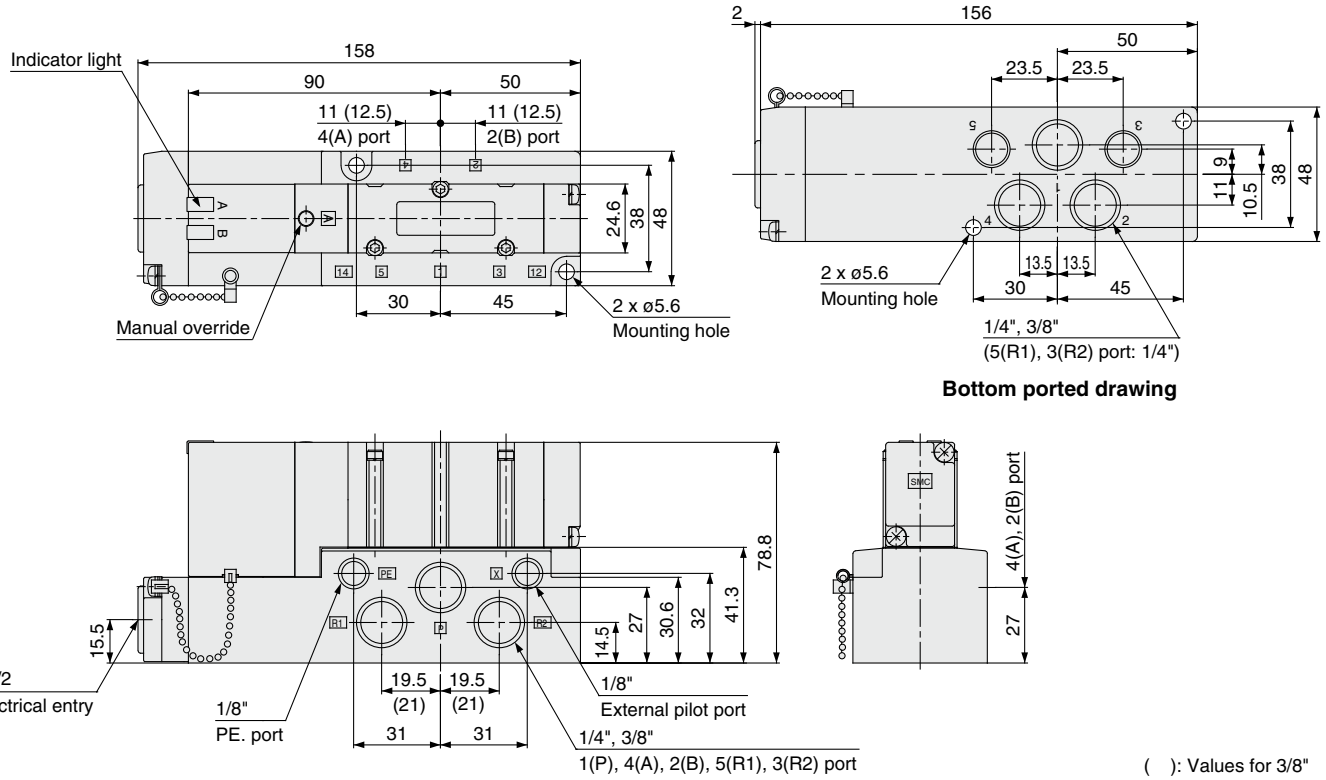
Nil	—
Q	CE-compliant

Replacement of pilot valve assembly (Voltage)
- Refer to page 35 for pilot valve assembly part numbers.
- Refer to page 38 for replacement method.

Dimensions: Plug-in Type

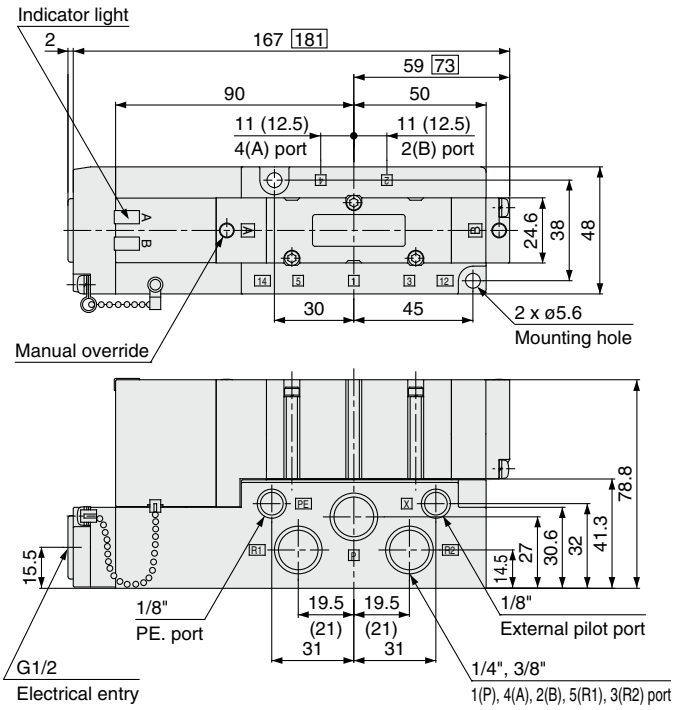
Conduit terminal

2-position single: VQC410$^{0}_{1}$-□

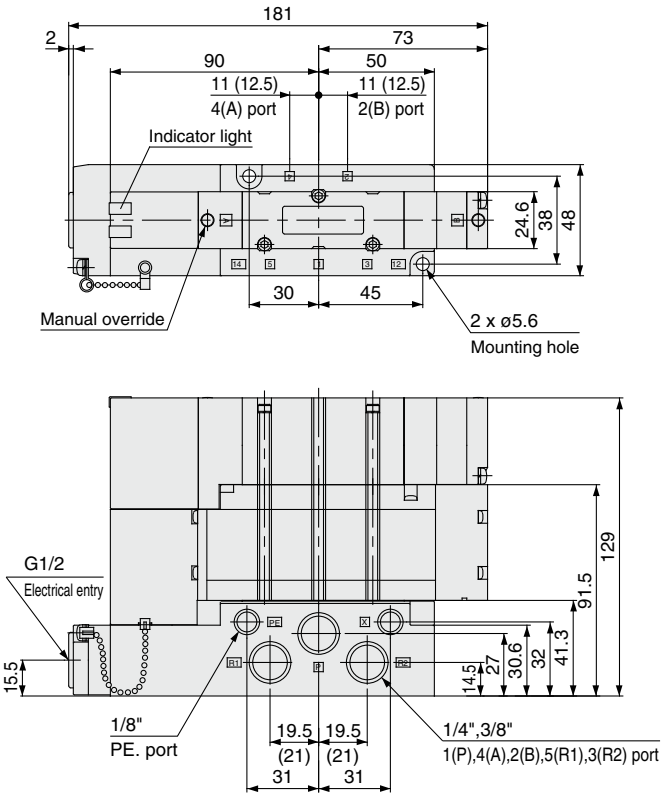


( ): Values for 3/8"

2-position double: VQC420$^{0}_{1}$-□
3-position closed center: VQC430$^{0}_{1}$-□
3-position exhaust center: VQC440$^{0}_{1}$-□
3-position pressure center: VQC450$^{0}_{1}$-□



3-position double check: VQC460$^{0}_{1}$-□



□: Values for 3-position
( ): Values for 3/8"

Base Mounted
Plug-in Unit
Series VQC4000

How to Order Manifold

VV5QC 4 1 – 08 02 ☐ TD0 ☐ .... F·L·M / P·T Kit

VV5QC 4 1 – 16 02 ☐ SDQ ☐ ☐ ☐ ☐ ☐ ☐ – ☐ .... S Kit

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

Series VQC4000

Base mounted plug-in

Enter only for EX600-compliant S kit

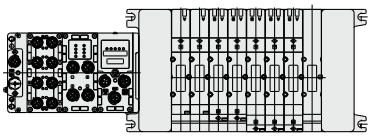
Enter only for EX250-compliant S kit

❶ Valve stations

01	1 station
⋮	⋮
16	16 stations

The minimum or maximum number of stations differs depending on the electrical entry. (Refer to ❹)

Note) In the case of compatibility with the S kit/As-Interface, the maximum number of solenoids is as shown below, so please be careful of the number of stations.
8 in/8 out: Maximum 8 solenoids
4 in/4 out: Maximum 4 solenoids



D side Stations···1···2···3···4···5···6···7···8···n U side

∗ Stations are counted from station 1 on the D-side.

❷ Cylinder port size

C6	With ø6 One-touch fitting
C8	With ø8 One-touch fitting
C10	With ø10 One-touch fitting
C12	With ø12 One-touch fitting
N7	For ø1/4"
N9	For ø5/16"
N11	For ø3/8"
02	1/4
03	3/8
B	Bottom ported 1/4
CM	Mixed

❸ Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

❻ SI Unit output polarity

SI Unit output polarity		EX250 integrated-type (for I/O) serial transmission system					
		DeviceNet™	PROFIBUS DP	CC-Link	AS-Interface	CANopen	EtherNet/IP™
Nil	+ COM	—	—	○	—	—	—
N	– COM	○	○	—	○	○	○

SI Unit output polarity		EX260 integrated-type (for output) serial transmission system					
		DeviceNet™	PROFIBUS DP	CC-Link	EtherCAT®	PROFINET	EtherNet/IP™
Nil	+ COM	○	○	○	○	○	○
N	– COM	○	○	○	○	○	○

SI Unit output polarity		EX500 Gateway Decentralized System 2 (128 points)	EX500 Gateway Decentralized System (64 points)		
		EtherNet/IP™	DeviceNet™	PROFIBUS DP	EtherNet/IP™
Nil	+ COM	—	○	○	○
N	– COM	○	○	○	○

SI Unit output polarity		EX600 integrated-type (for I/O) serial transmission system (Fieldbus system)					
		DeviceNet™	PROFIBUS DP	CC-Link	EtherCAT®	PROFINET	EtherNet/IP™
Nil	+ COM	○	○	○	○	○	○
N	– COM	○	○	○	○	○	○

∗ Leave the box blank for without SI Unit (SD0☐, SD60).

❺ End plate type

(Enter only for EX600-compliant S kit.)

Nil	Without end plate
2	M12 connector power supply (Max. supply current 2A)
3	7/8 inch connector power supply (Max. supply current 8A)

Note) Without SI Unit, the symbol is nil.

❼ I/O Unit stations

(Enter only for EX600-compliant S kit.)

Nil	None
1	1 station
⋮	⋮
9	9 stations

Note 1) Without SI Unit, the symbol is nil.
Note 2) SI Unit is not included in I/O Unit stations.
Note 3) When I/O Unit is selected, it is shipped separately, and assembled by customer. Refer to the attached operation manual for mounting method.
Note 4) Refer to page 41 for details about the enclosure.

❽ Input block type

(Enter only for S kit compliant with EX250.)

Nil	Without SI Unit (SD0)
0	Without input block
1	With 1 input block
⋮	⋮
4	With 4 input blocks
⋮	⋮
8	With 8 input blocks

❾ Number of input blocks

(Enter only for S kit compliant with EX250.)

Nil	Without input block
1	M12, 2 inputs
2	M12, 4 inputs
3	M8, 4 inputs

❿ Input block COM

(Enter only for S kit compliant with EX250.)

Nil	PNP sensor input or without input block
N	NPN sensor input

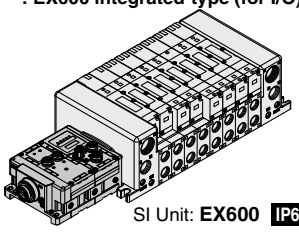
⓫ Option

Nil	None
K	Special wiring specifications (except for double wiring)
N	With name plate (available for T kit only)

❹ Kit type/Electrical entry/Cable length

∗ Numbers in parentheses represent the maximum number of solenoids in the case of mixed single and double wiring. The total number of solenoids determines the maximum number of stations. When ordering mixed wiring, please add the option symbol "-K".

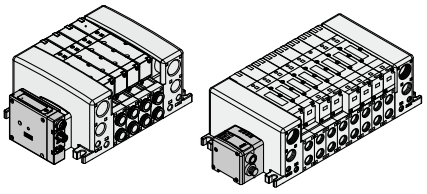
S Kit (Serial transmission kit (Fieldbus system) : EX600 integrated-type (for I/O))



SI Unit: **EX600** IP67 compliant

SD60	Serial kit without SI Unit	1 to 16 stations (24)
SD6Q	DeviceNet™	
SD6N	PROFIBUS DP	
SD6V	CC-Link	
SD6ZE	EtherNet/IP™ (1 port)	
SD6EA	EtherNet/IP™ (2 port)	
SD6D	EtherCAT®	
SD6F	PROFINET	

S Kit (Serial transmission kit: EX500 gateway-type)

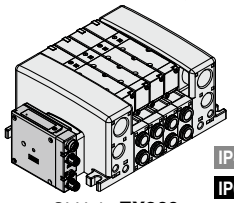


SI Unit: **EX500**

Note) A separate Gateway Unit and communication cable are required. IP67 compliant

SD0A	Serial kit without SI Unit	—	—
SDA3	EX500 Gateway Decentralized System 2 (128 points) EtherNet/IP™	32 outputs Note 1)	1 to 16 stations (24)
SDA2	EX500 Gateway Decentralized System (64 points) DeviceNet™, PROFIBUS DP, EtherNet/IP™	16 outputs	1 to 16 stations (24)

S Kit (Serial transmission kit: EX260 integrated-type (for output))

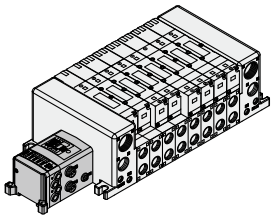


IP40 compliant
IP67 compliant

SI Unit: **EX260**

Symbol	Protocol	Number of outputs	Communication connector	Stations
SD0A	Serial kit without SI Unit			1 to 16 stations (24)
SQA	DeviceNet™	32	M12	
SQB		16		1 to 16 stations (16)
SNA	PROFIBUS DP	32	M12	1 to 16 stations (24)
SNB		16		1 to 16 stations (16)
SNC		32	D-sub Note 3)	1 to 16 stations (24)
SND		16		1 to 16 stations (16)
SVA	CC-Link	32	M12	1 to 16 stations (24)
SVB		16		1 to 16 stations (16)
SDA	EtherCAT®	32	M12	1 to 16 stations (24)
SDB		16		1 to 16 stations (16)
SFA	PROFINET	32	M12	1 to 16 stations (24)
SFB		16		1 to 16 stations (16)
SEA	EtherNet/IP™	32	M12	1 to 16 stations (24)
SEB		16		1 to 16 stations (16)

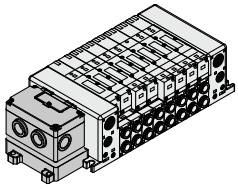
S Kit (Serial transmission kit: EX250 integrated-type (for I/O))



SI Unit: **EX250** IP67 compliant

SD0	Serial kit without SI Unit	1 to 16 stations (24)
SDQ	DeviceNet™	
SDN	PROFIBUS DP	
SDV	CC-Link	
SDTA	AS-Interface, 8 in/out, 31 slave modes, 2 power supply systems	1 to 8 stations (8)
SDTB	AS-Interface, 4 in/out, 31 slave modes, 2 power supply systems	1 to 4 stations (4)
SDTC Note 2)	AS-Interface, 8 in/out, 31 slave modes, 1 power supply system	1 to 8 stations (8)
SDTD Note 2)	AS-Interface, 4 in/out, 31 slave modes, 1 power supply system	1 to 4 stations (4)
SDY	CANopen	1 to 16 stations (24)
SDZEN	EtherNet/IP™	

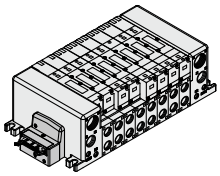
S Kit (Serial transmission kit: EX126 integrated-type (for output))



SI Unit: **EX126** IP67 compliant

SDVB	Serial kit for CC-Link	1 to 16 stations (16)

P Kit (Flat ribbon cable kit)

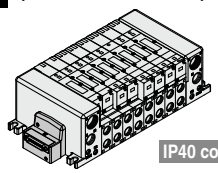


IP40 compliant

Note) For a 20P flat ribbon cable, the cable assembly must be ordered separately.

PD0	Flat ribbon cable kit (26P) without cable	1 to 16 stations (24)
PD1	Flat ribbon cable kit (26P) with 1.5 m cable	
PD2	Flat ribbon cable kit (26P) with 3.0 m cable	
PD3	Flat ribbon cable kit (26P) with 5.0 m cable	
PDC	Flat ribbon cable kit (20P) without cable Note)	1 to 16 stations (18)

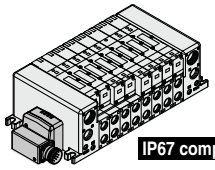
F Kit (D-sub connector kit)



IP40 compliant

FD0	D-sub connector kit (25P) without cable	1 to 16 stations (24)
FD1	D-sub connector kit (25P) with 1.5 m cable	
FD2	D-sub connector kit (25P) with 3.0 m cable	
FD3	D-sub connector kit (25P) with 5.0 m cable	

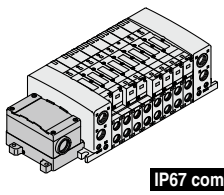
M Kit (Circular connector kit)



IP67 compliant

MD0	Circular connector kit (26P) without cable	1 to 16 stations (24)
MD1	Circular connector kit (26P) with 1.5 m cable	
MD2	Circular connector kit (26P) with 3.0 m cable	
MD3	Circular connector kit (26P) with 5.0 m cable	

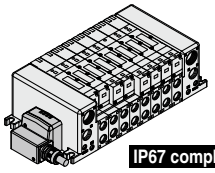
T Kit (Terminal block box kit)



IP67 compliant

TD0	Terminal block box kit	1 to 16 stations (20)

L Kit (Lead wire kit)



IP67 compliant

LD0	Lead wire kit, 0.6 m lead wire	1 to 16 stations (24)
LD1	Lead wire kit, 1.5 m lead wire	
LD2	Lead wire kit, 3.0 m lead wire	

∗ The maximum number of solenoids displayed in parentheses is applied to the special wiring specification (Option "-K").

Note 1) When using the SI Unit with 32 outputs, use the GW Unit compatible with the EX500 Gateway Decentralized System 2 (128 points).

Note 2) When selecting SI Units with SDTC or SDTD specifications, there are limits to the supply current from the SI Unit to the input block or valve. For details, refer to the **WEB catalog** or the Best Pneumatics No. 1.

Note 3) When selecting D-sub S kit specifications only, IP40 is compatible. (All other SI Units are IP67 compliant.)

Note 4) For the SI Unit part no., refer to page 14.

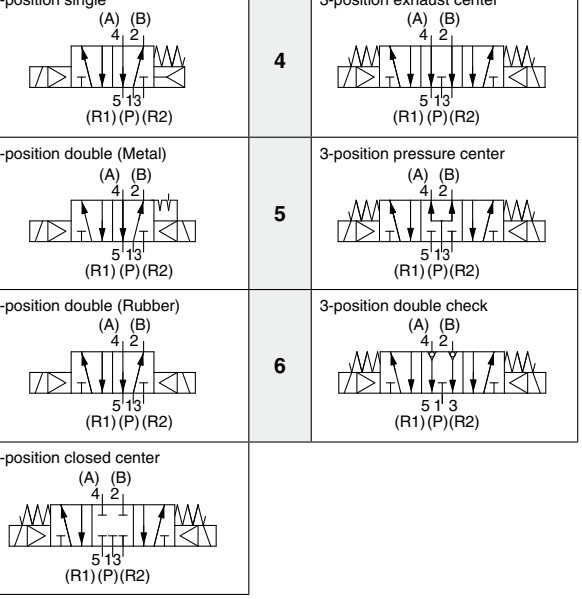
How to Order Valves

VQC 4 1 0 0 ☐ – 5 ☐ ☐ 1

Series VQC4000 — Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ

Ⓐ Type of actuation

1	2-position single	4	3-position exhaust center
2	2-position double (Metal)	5	3-position pressure center
	2-position double (Rubber)	6	3-position double check
3	3-position closed center		



Ⓑ Seal type

0	Metal seal
1	Rubber seal

Ⓒ Function

Nil Note 1)	Standard (0.95 W)
Y	Low wattage type (0.4 W)
R Note 2)	External pilot

Note 1) When the power is energized continuously, refer to "Specific Product Precautions 1" on page 37.

Note 2) For details about external pilot type, refer to the **WEB catalog** or the VQ4000/5000 series catalog (CAT. ES11-104). In addition, external pilot type cannot be combined with a double check spacer.

∗ When multiple symbols are specified, indicate them alphabetically.

Ⓓ Coil voltage

5	24 VDC Note)
6	12 VDC

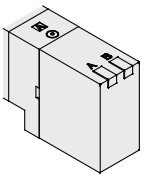
Note) S kit is only available for 24 VDC.

Ⓔ Light/Surge voltage suppressor

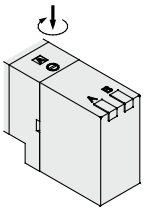
Nil	Yes
E	Without light, with surge voltage suppressor

Ⓕ Manual override

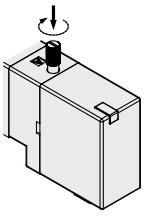
Nil — Non-locking push type (Tool required)



B — Push-turn locking type (Tool required)

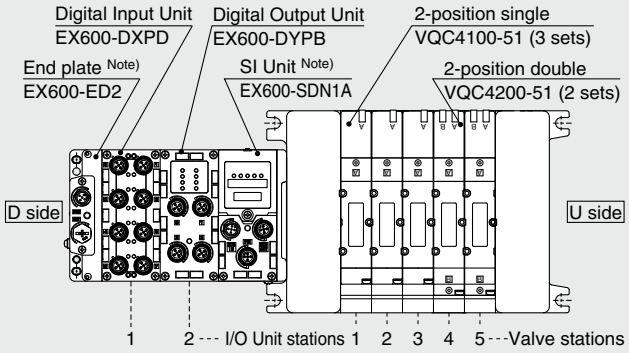


C — Turn locking type (Manual)



How to Order Manifold Assembly

Example (VV5QC41-☐SD6☐)



VV5QC41-0502SD6Q2N2···1 set (S kit 5-station manifold base part number)
∗VQC4100-51·····3 sets (2-position single part number)
∗VQC4200-51·····2 sets (2-position double part number)
∗EX600-DXPD·····1 set I/O Unit part number (Station 1)
∗EX600-DYPB·····1 set I/O Unit part number (Station 2)
∗ The asterisk denotes the symbol for assembly.
∗ Prefix it to the part numbers of the valve etc.

· The valve arrangement is numbered as the 1st station from the D side.
· Under the manifold part number, state the valves to be mounted, then the I/O Units in order from the 1st station as shown in the figure above. If the arrangement becomes complicated, specify on a manifold specification sheet.

Note) Do not enter the SI Unit part number and the end plate part number together.

Manifold Specifications

Series	Base model	Connection type	Piping specifications: Port direction	Piping specifications: Port size Note 1) 1, 3 (P, R)	Piping specifications: Port size Note 1) 2, 4 (A, B)	Note 2) Applicable stations	Applicable solenoid valve	5-station weight [g]
VQC4000	VV5QC41-☐☐☐	■F kit: D-sub connector ■P kit: Flat ribbon cable ■T kit: Terminal block box ■S kit: Serial transmission ■L kit: Lead wire ■M kit: Circular connector	Side	P: 1/2 (Rc, G, NPT/NPTF) R: 3/4 (Rc, G, NPT/NPTF)	C6 (for ø6) C8 (for ø8) C10 (for ø10) C12 (for ø12) 1/4 (Rc,G,NPT/NPTF) 3/8 (Rc,G,NPT/NPTF)	F, L, M, P kit (1 to 16 stations) T kit (1 to 16 stations) S kit (1 to 16 stations: EX250, 1 to 16 stations: EX500)	VQC4☐00-51 VQC4☐01-51	4150 · S kit (Without Unit) · Not including valve weight.
			Bottom		1/4 (Rc,G,NPT/NPTF)			

Note 1) One-touch fittings in inch sizes are also available.
Note 2) An optional specification for special wiring is available to increase the maximum number of stations.

SI Unit Part Number Table

EX600 Integrated type (For Input/Output)

Symbol	Applicable protocol	SI Unit part no.		Page
		Negative common (PNP)	Positive common (NPN)	
SD6Q	DeviceNet™	EX600-SDN1A	EX600-SDN2A	33
SD6V	CC-Link	EX600-SMJ1	EX600-SMJ2	
SD6N	PROFIBUS DP	EX600-SPR1A	EX600-SPR2A	
SD6ZE	EtherNet/IP™ (1 port)	EX600-SEN1	EX600-SEN2	
SD6EA	EtherNet/IP™ (2 port)	EX600-SEN3	EX600-SEN4	
SD6D	EtherCAT®	EX600-SEC1	EX600-SEC2	
SD6F	PROFINET	EX600-SPN1	EX600-SPN2	

EX260 Integrated type (For Output)

Symbol	Applicable protocol	Number of outputs	SI Unit part no.		Communication connector	Page
			Negative common (PNP)	Positive common (NPN)		
SQA	DeviceNet™	32	EX260-SDN1	EX260-SDN2	M12	33
SQB		16	EX260-SDN3	EX260-SDN4		
SNA	PROFIBUS DP	32	EX260-SPR1	EX260-SPR2		
SNB		16	EX260-SPR3	EX260-SPR4		
SNC		32	EX260-SPR5	EX260-SPR6	D-sub	
SND		16	EX260-SPR7	EX260-SPR8		
SVA	CC-Link	32	EX260-SMJ1	EX260-SMJ2	M12	
SVB		16	EX260-SMJ3	EX260-SMJ4		
SDA	EtherCAT®	32	EX260-SEC1	EX260-SEC2	M12	
SDB		16	EX260-SEC3	EX260-SEC4		
SFA	PROFINET	32	EX260-SPN1	EX260-SPN2	M12	
SFB		16	EX260-SPN3	EX260-SPN4		
SEA	EtherNet/IP™	32	EX260-SEN1	EX260-SEN2	M12	
SEB		16	EX260-SEN3	EX260-SEN4		

EX126 Integrated type (For Output)

Symbol	Applicable protocol	SI Unit part no.	Page
SDVB	CC-Link, Positive common (NPN)	EX126D-SMJ1	34

EX500 Gateway Decentralized System 2 (128 points)

Symbol	Applicable protocol	SI Unit part no.	Page
		Negative common (PNP)	
SDA3	EtherNet/IP™	EX500-S103	33

EX500 Gateway Decentralized System (64 points)

Symbol	Applicable protocol	SI Unit part no.		Page
		Positive common (NPN)	Negative common (PNP)	
SDA2	DeviceNet™	EX500-Q001	EX500-Q101	33
	PROFIBUS DP			
	EtherNet/IP™			

EX250 Integrated type (For Input/Output)

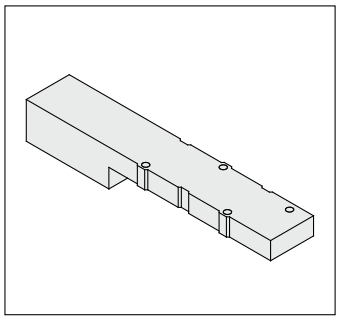
Symbol	Applicable protocol	SI Unit part no.	Page
SDQ	DeviceNet™, Negative common (PNP)	EX250-SDN1	34
SDN	PROFIBUS DP, Negative common (PNP)	EX250-SPR1	
SDV	CC-Link, Positive common (NPN)	EX250-SMJ2	
SDTA	AS-Interface, Negative common (PNP), (8 in/8 out, 31 slave modes, 2 power supply systems)	EX250-SAS3	
SDTB	AS-Interface, Negative common (PNP), (4 in/4 out, 31 slave modes, 2 power supply systems)	EX250-SAS5	
SDTC	AS-Interface, Negative common (PNP), (8 in/8 out, 31 slave modes, 1 power supply system)	EX250-SAS7	
SDTD	AS-Interface, Negative common (PNP), (4 in/4 out, 31 slave modes, 1 power supply system)	EX250-SAS9	
SDY	CANopen, Negative common (PNP)	EX250-SCA1A	
SDZEN	EtherNet/IP™, Negative common (PNP)	EX250-SEN1	

For details about the EX series (Serial Transmission System), refer to the **WEB catalog** or the Best Pneumatics No. 1 and the Operation Manual. Please download the Operation Manual via SMC website, http://www.smcworld.com

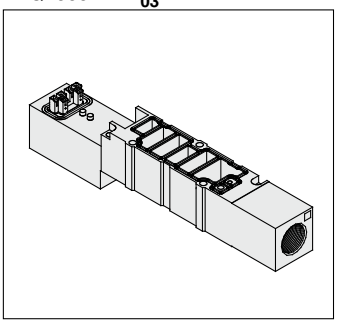
Manifold Options

For details about options, refer to the **WEB catalog** or the VQ4000/5000 series catalog (CAT.ES11-104).

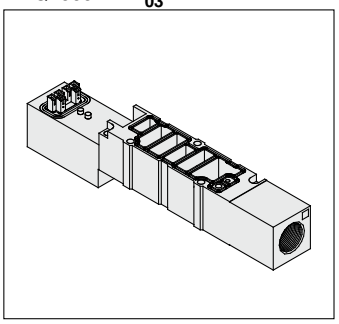
Blanking plate assembly
VVQ4000-10A-1



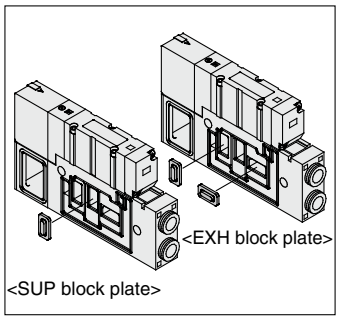
Individual SUP spacer
VVQ4000-P-1- 02 / 03



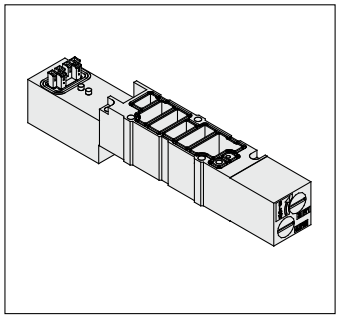
Individual EXH spacer
VVQ4000-R-1- 02 / 03



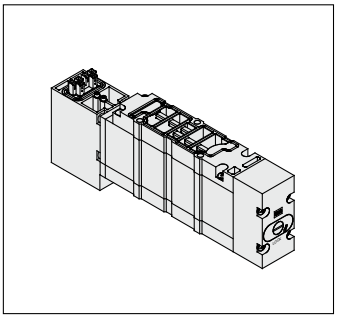
SUP/EXH block plate
VVQ4000-16A



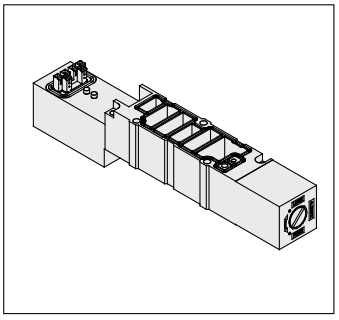
Restrictor spacer
VVQ4000-20A-1



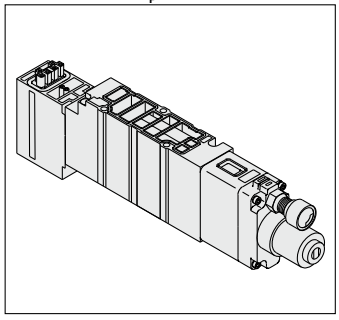
Double check spacer with residual pressure exhaust
VVQ4000-25A-1 Note)



SUP stop valve spacer
VVQ4000-37A-1



Interface regulator (P, A, B port regulation)
ARBQ4000-00- A / B / P **-1**



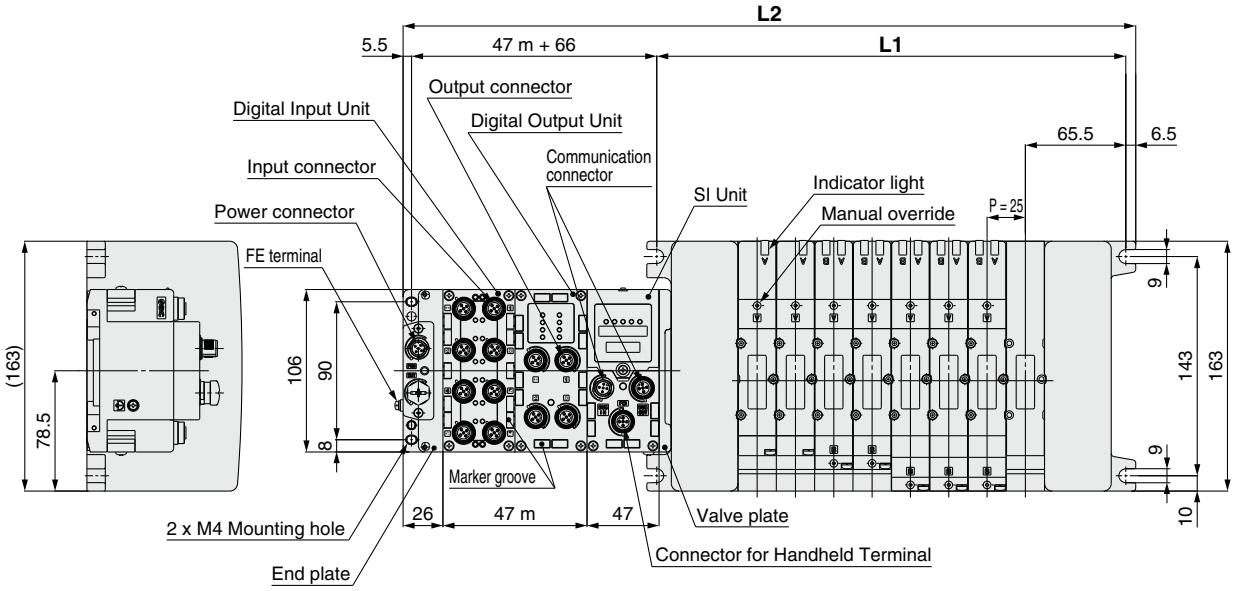
Note) The double check spacer with residual pressure release valve cannot be combined with external pilot type.

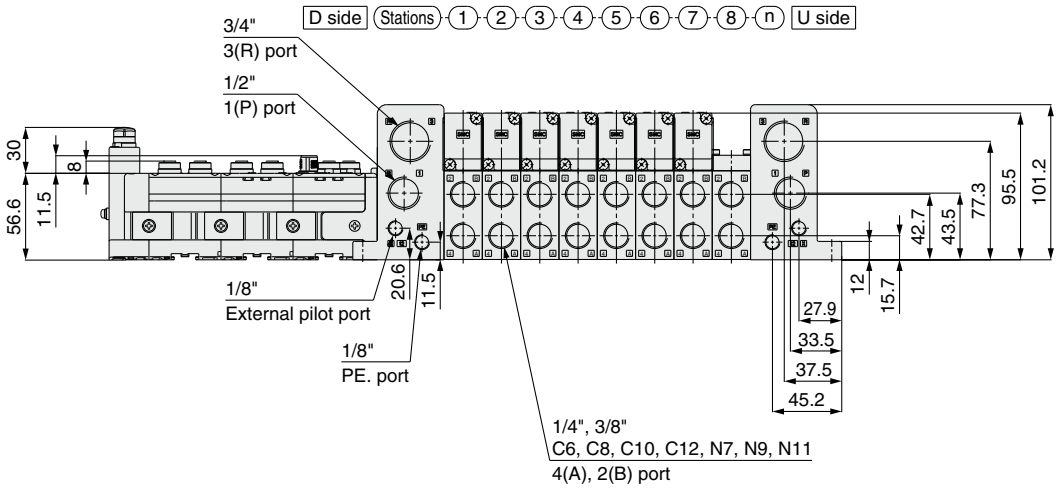
· For replacement parts, refer to page 35.

S VQC4000

Kit (Serial transmission kit): For EX600 Integrated-type (I/O) Serial Transmission System IP67 compliant

VV5QC41
S kit (Serial transmission kit: EX600)
Power supply with M12 connector





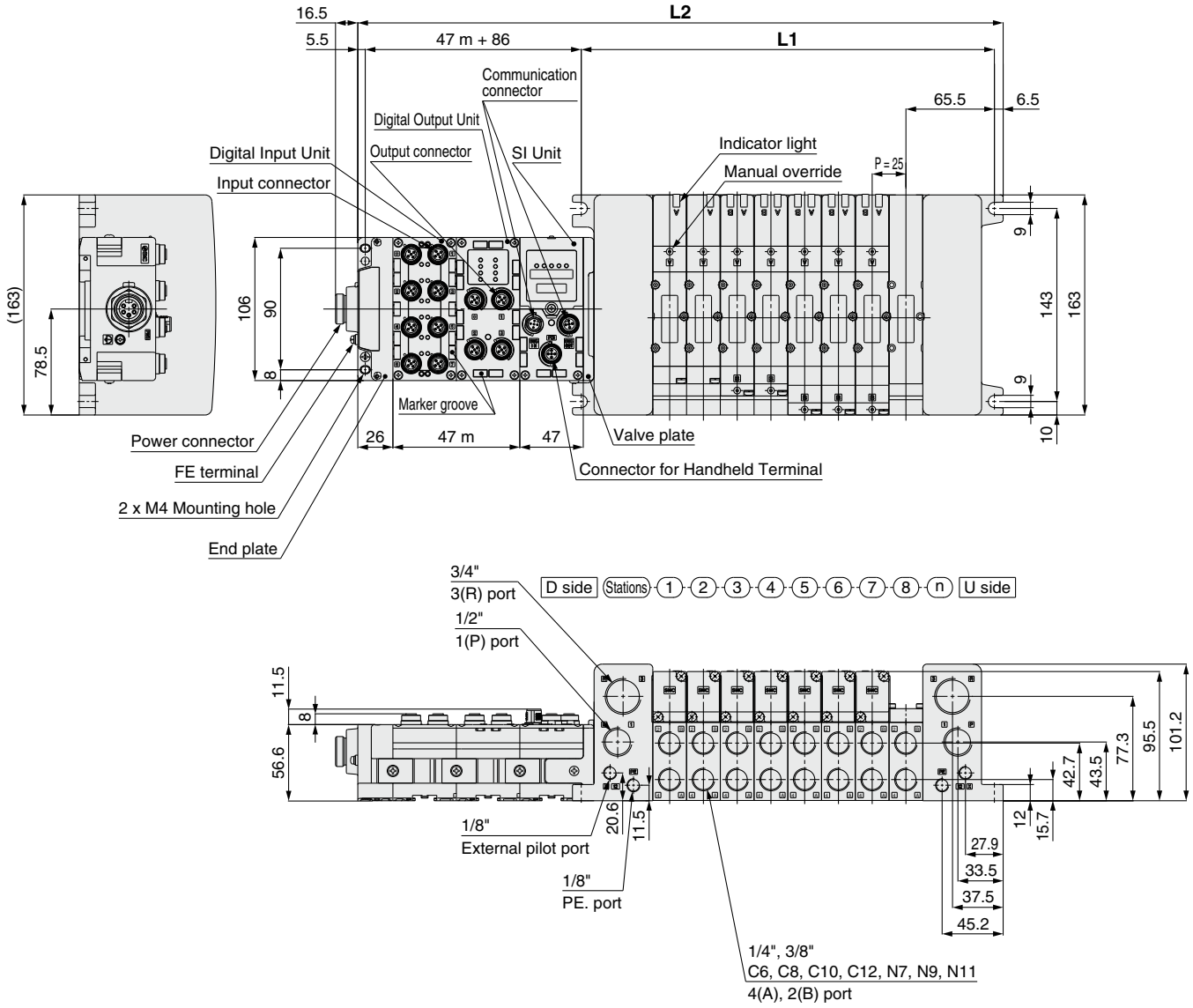
Dimensions Formula: L1 = 25n + 106, L2 = 25n + 184 ∗ L2 is the dimension without I/O Unit. Add 47 mm for each additional I/O Units. ∗ "m" is number of I/O Units. n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	209	234	259	284	309	334	359	384	409	434	459	484	509	534	559	584

S *VQC4000*

Kit (Serial transmission kit): For EX600 Integrated-type (I/O) Serial Transmission System **IP67 compliant**

VV5QC41
S kit (Serial transmission kit: EX600)
Power supply with 7/8 inch connector



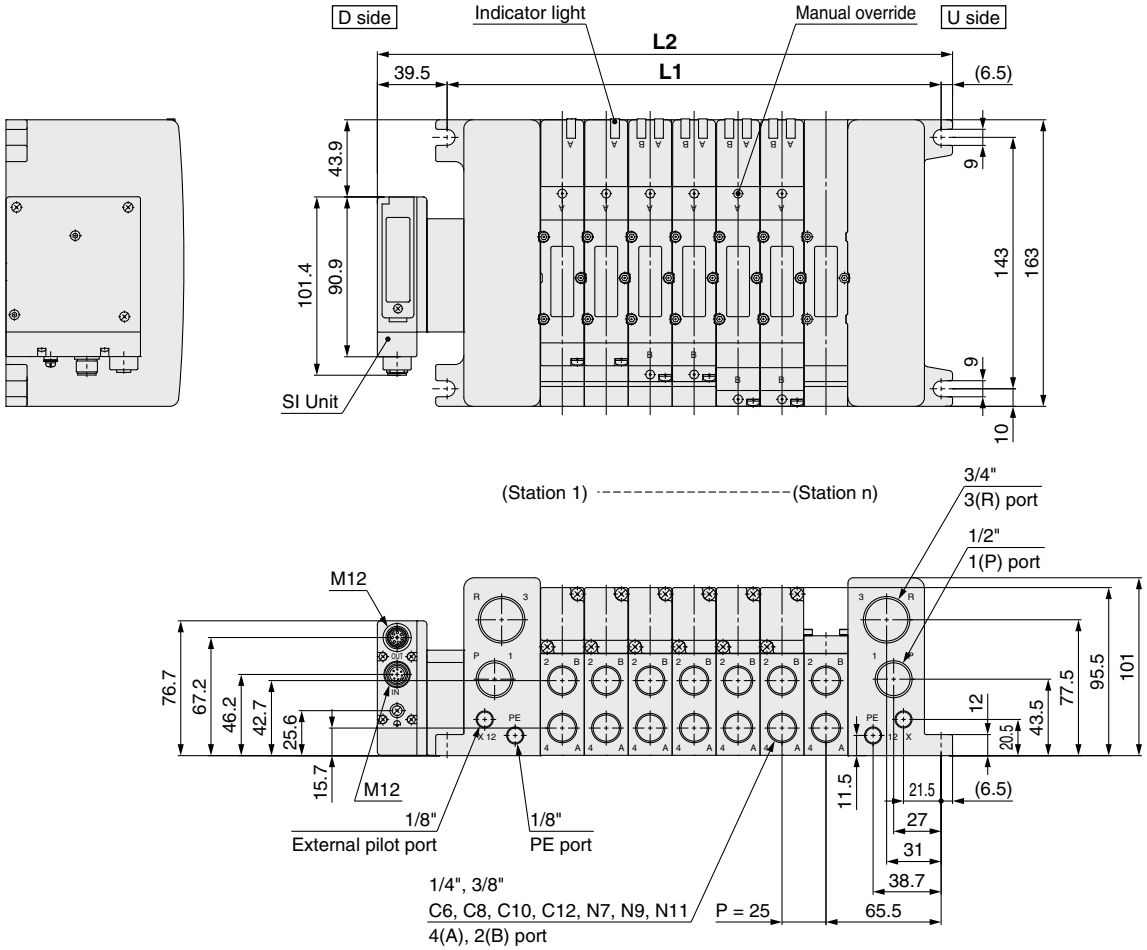
Dimensions Formula: L1 = 25n + 106, L2 = 25n + 184 ∗ L2 is the dimension without I/O Unit. Add 47 mm for each additional I/O Units. ∗ "m" is number of I/O Units. n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	209	234	259	284	309	334	359	384	409	434	459	484	509	534	559	584

S VQC4000

Kit (Serial transmission kit): For EX500 Gateway Decentralized System 2 (128 points) IP67 compliant

VV5QC41
S kit (Serial transmission kit: EX500)



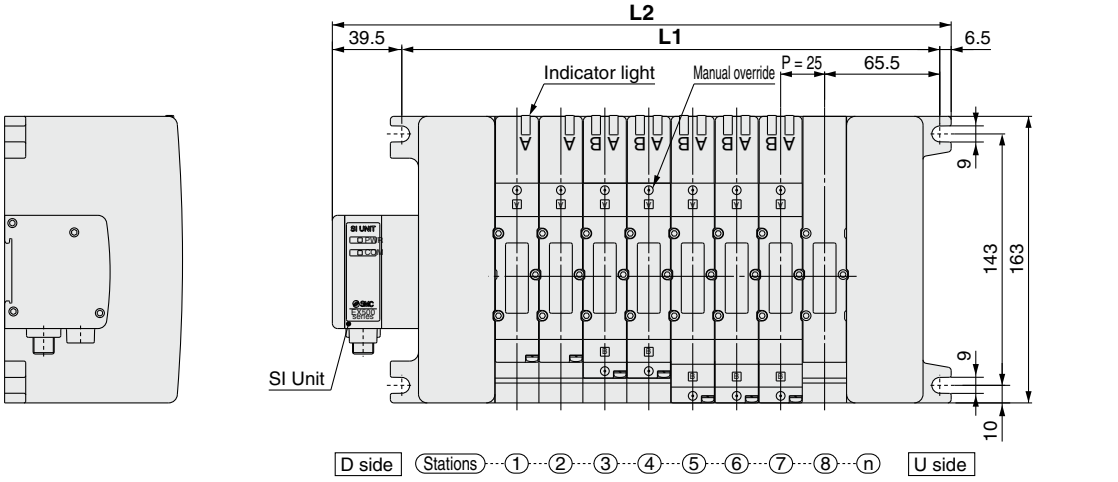
Formula: L1 = 25n + 106, L2 = 25n + 152 n: Stations (Maximum 16 stations)

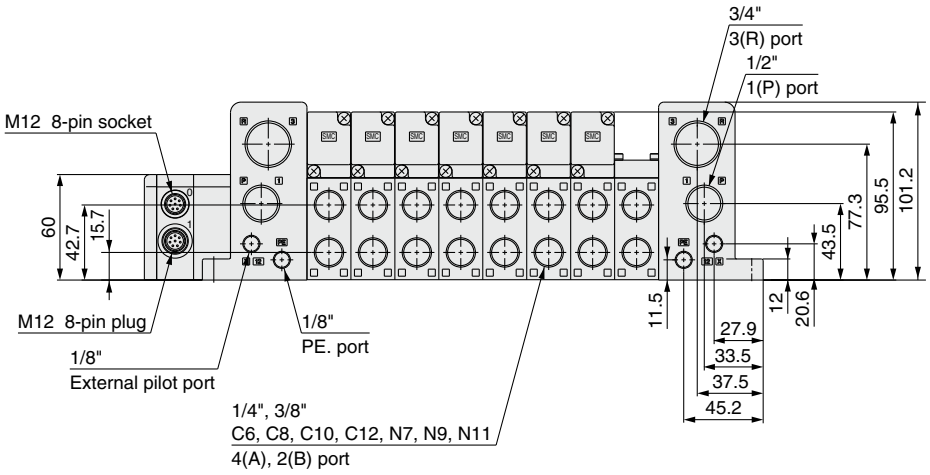
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	177	202	227	252	277	302	327	352	377	402	427	452	477	502	527	552

S VQC4000

Kit (Serial transmission kit): For EX500 Gateway Decentralized System (64 points) IP67 compliant

VV5QC41
S kit (Serial transmission kit: EX500)





Dimensions

Formula: L1 = 25n + 106, L2 = 25n + 152 n: Stations (Maximum 16 stations)

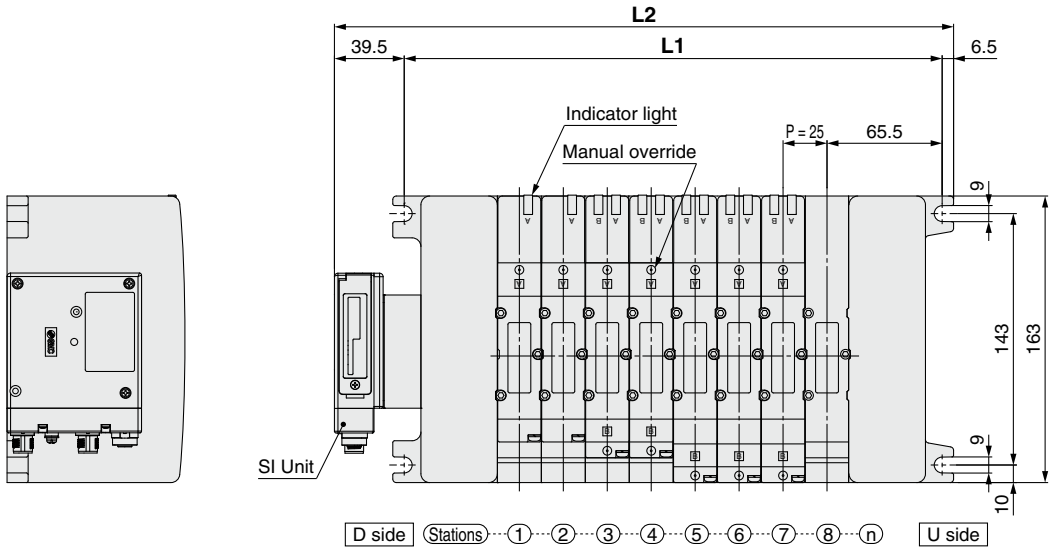
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	177	202	227	252	277	302	327	352	377	402	427	452	477	502	527	552

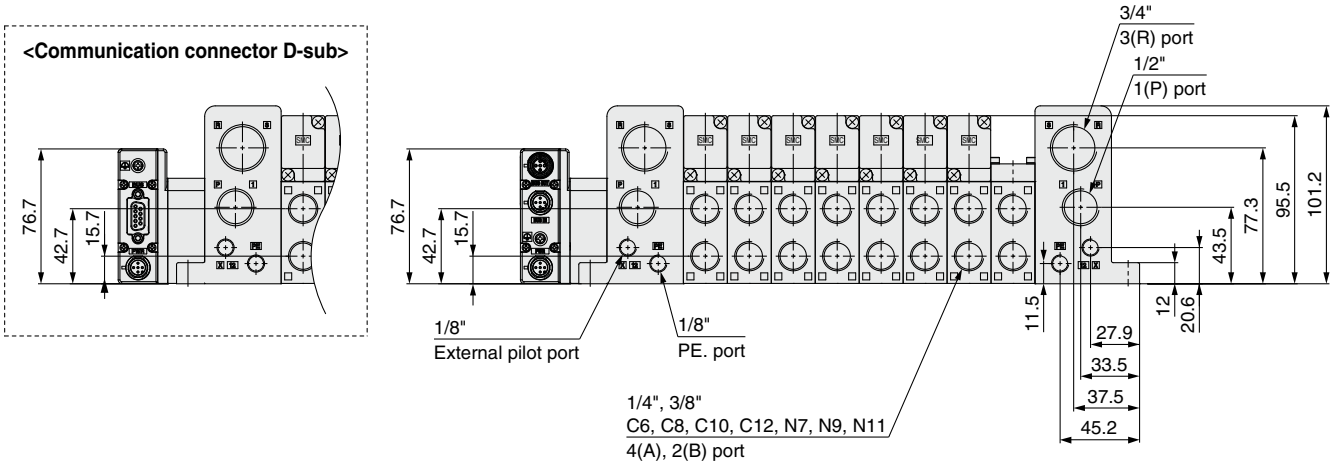
S *VQC4000*

Kit (Serial transmission kit): For EX260 Integrated-type (Output) Serial Transmission System

IP40 compliant
IP67 compliant

VV5QC41
S kit (Serial transmission kit: EX260)





Dimensions

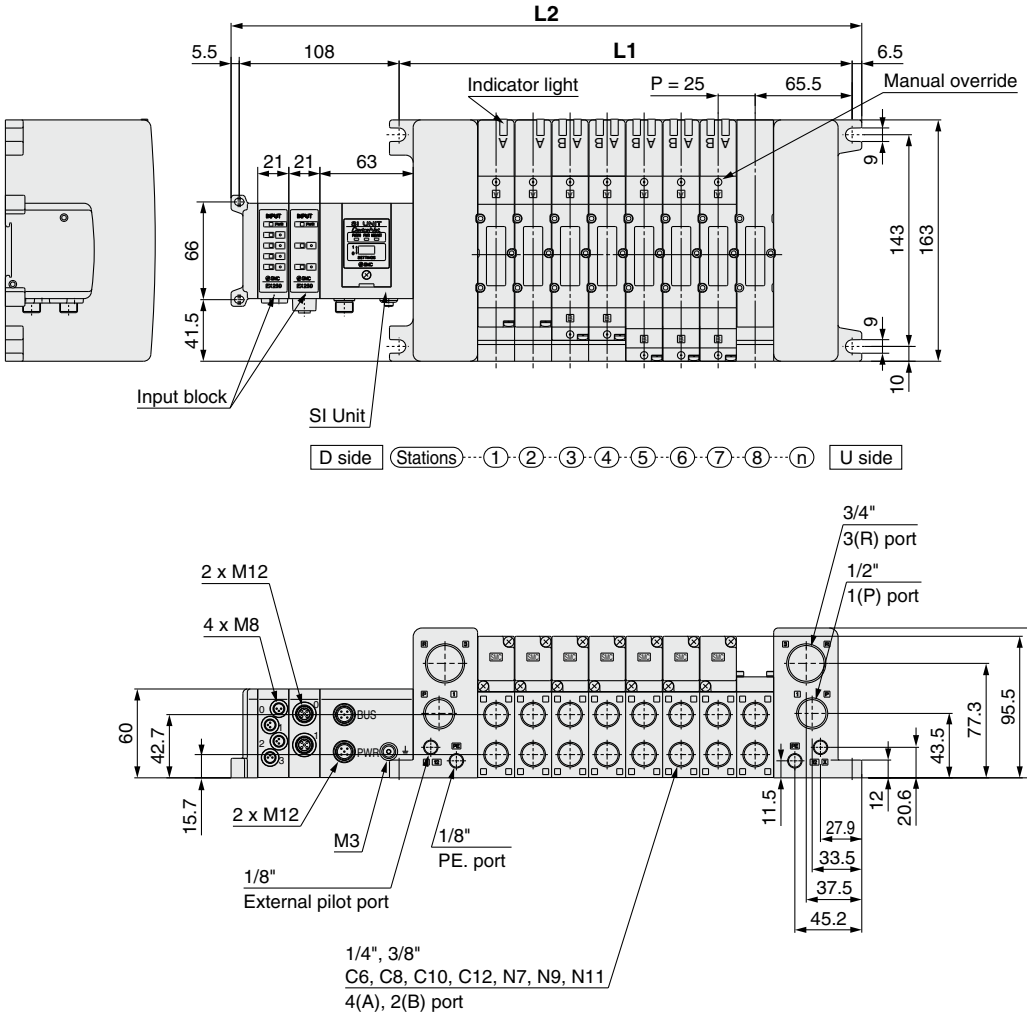
n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	177	202	227	252	277	302	327	352	377	402	427	452	477	502	527	552

S VQC4000

Kit (Serial transmission kit): For EX250 Integrated-type (I/O) Serial Transmission System IP67 compliant

VV5QC41
S kit
(Serial transmission kit: EX250)



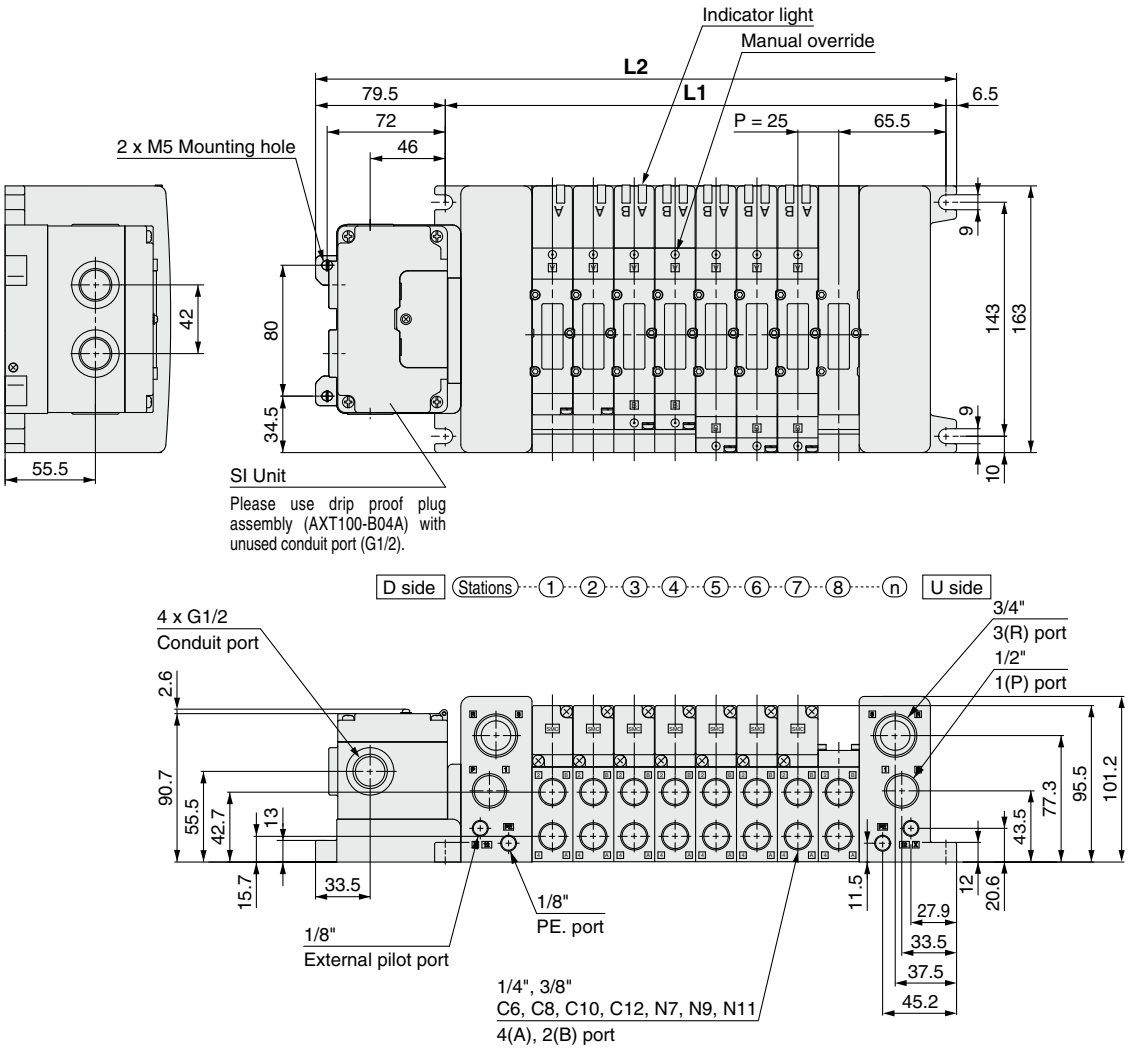
Dimensions Formula: L1 = 25n + 106, L2 = 25n + 205 (For one input block. Add 21 mm for each additional input block.) n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	230	255	280	305	330	355	380	405	430	455	480	505	530	555	580	605

S *VQC4000*

Kit (Serial transmission kit): For EX126 Integrated-type (Output) Serial Transmission System IP67 compliant

VV5QC41
S kit (Serial transmission kit: EX126)



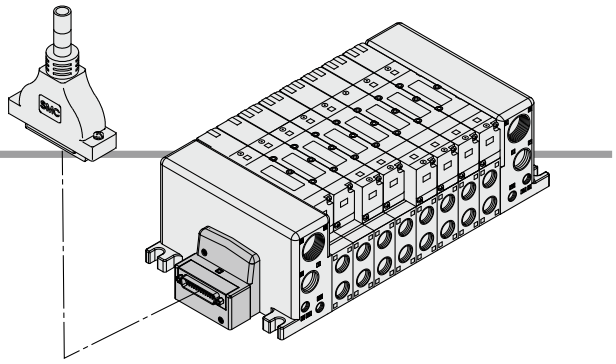
Dimensions

Formula: L1 = 25n + 106, L2 = 25n + 192 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	217	242	267	292	317	342	367	392	417	442	467	492	517	542	567	592

F VQC4000

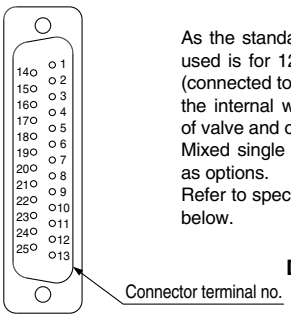
Kit (D-sub connector kit) IP40 compliant



- **Using our D-sub connector for electrical connections greatly reduces labor, while it also minimizes wiring and saves space.**
- **We use a D-sub connector (25P) that conforms to MIL standards and is therefore widely compatible with many standard commercial models.**
- **Top or side entry for the connector can be changed freely, allowing for changes even after mounting, to meet any changing needs for space.**

Electrical Wiring Specifications

D-sub connector



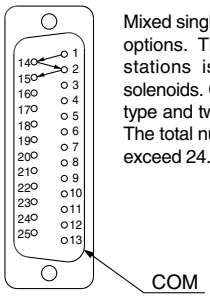
As the standard electrical wiring specification used is for 12 stations or less, double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types.
Mixed single and double wiring are available as options.
Refer to special wiring specifications (options) below.

Lead wire colors for D-sub connector assemblies (AXT100-DS25-$^{015}_{030}_{050}$)

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

Special Wiring Specifications (Options)

(For 25P)

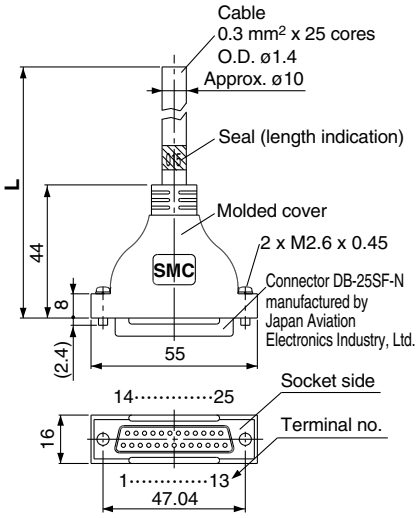


Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

Cable Assembly

AXT100-DS25-$^{015}_{030}_{050}$

(D-sub connector cable assemblies can be ordered with manifolds. Refer to manifold ordering.)



Lead wire colors for D-sub connector cable assembly terminal numbers

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 assemblies

Cable length [L]	Part no.	Note
1.5 m	AXT100-DS25-015	Cable 0.3 mm² x 25 cores
3 m	AXT100-DS25-030	
5 m	AXT100-DS25-050	

∗ When using a standard commercial connector, use a type 25P female connector conforming to MIL-C-24308.
∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

Electrical characteristics

Item	Characteristic
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

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

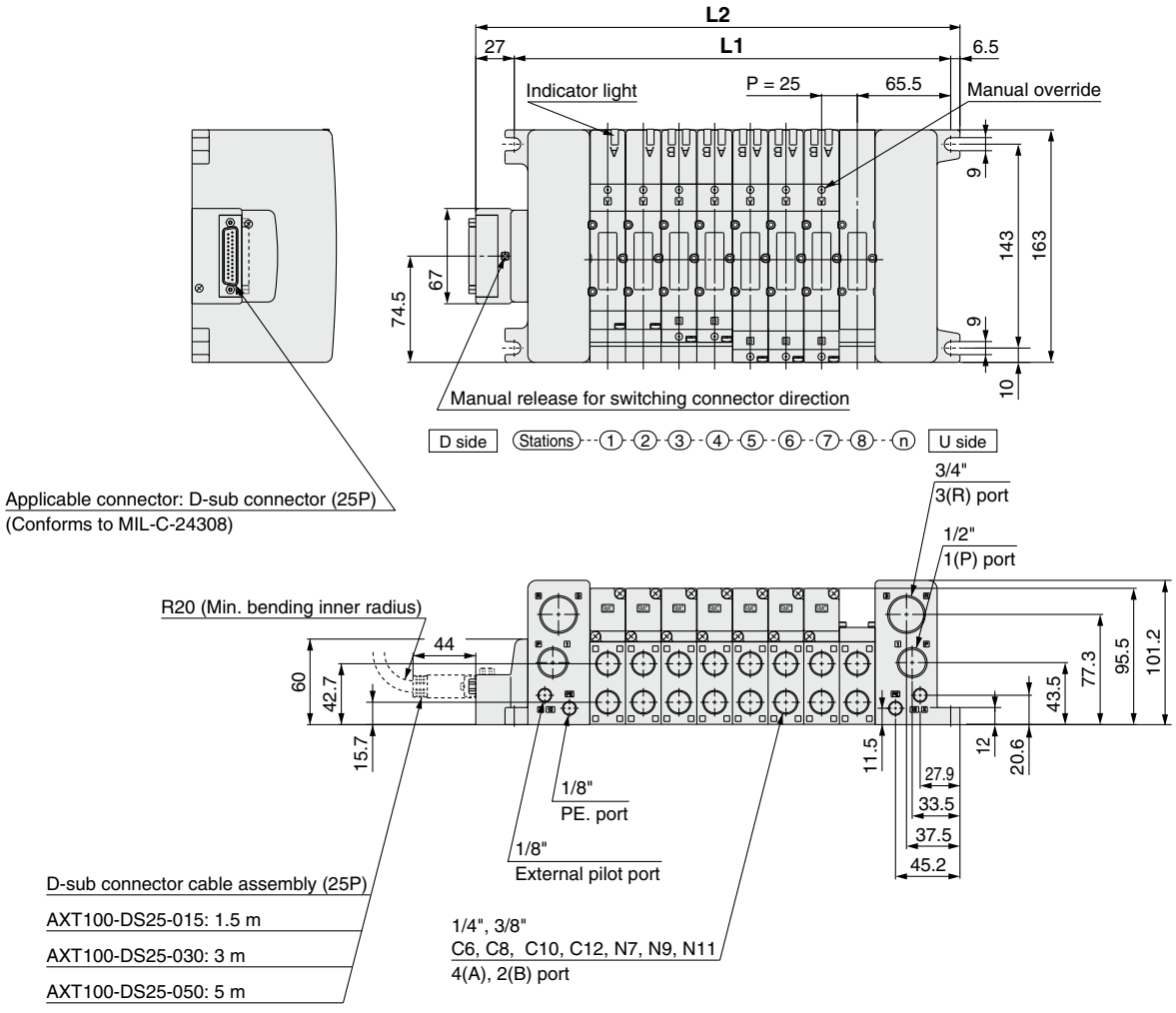
Connector Manufacturers Example

· Fujitsu, Ltd.
· Japan Aviation Electronics Industry, Ltd.
· J.S.T. Mfg. Co., Ltd.
· HIROSE ELECTRIC CO., LTD.

F VQC4000

Kit (D-sub connector kit) IP40 compliant

VV5QC41



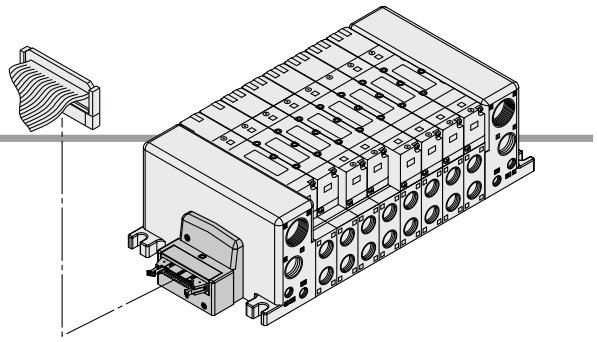
Dimensions

Formula: L1= 25n + 106, L2 = 25n + 139.5 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	164.5	189.5	214.5	239.5	264.5	289.5	314.5	339.5	364.5	389.5	414.5	439.5	464.5	489.5	514.5	539.5

P VQC4000

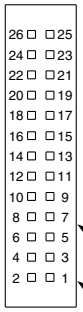
Kit (Flat ribbon cable kit) IP40 compliant



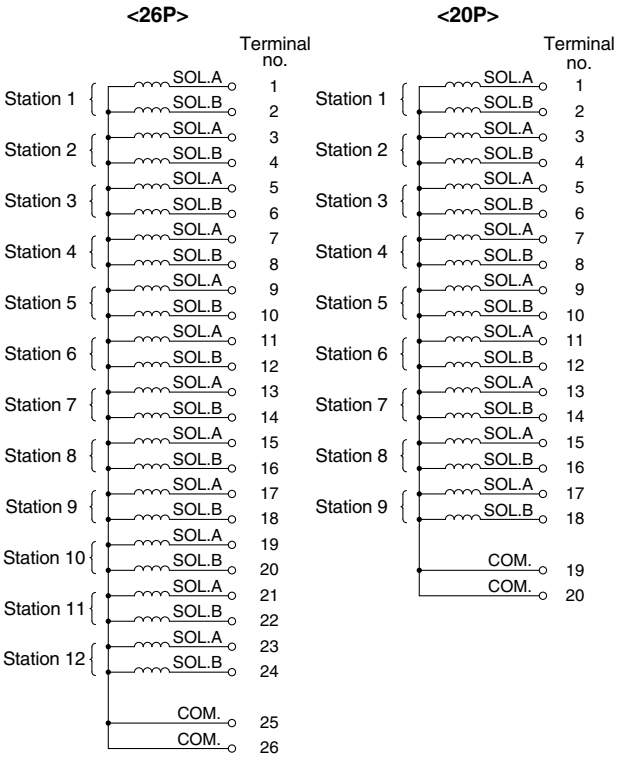
- **Using our flat ribbon cable for electrical connections greatly reduces labour, while it also minimizes wiring and saves space.**
- **We use flat ribbon cables whose connectors (26P and 20P) conform to MIL standards, and are therefore widely compatible with many standard commercial models.**
- **Top or side entry for the connector can be changed freely, allowing for changes even after mounting, to meet any changing needs for space.**

Electrical Wiring Specifications

Flat ribbon cable connector



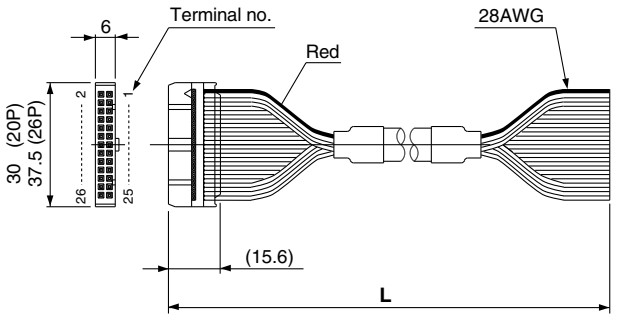
Double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types.
Mixed single and double wiring are available as options.
Refer to special wiring specifications (options) below.



Cable Assembly

AXT100-FC $\begin{matrix}20\\26\end{matrix}$ **-** $\begin{matrix}1\\2\\3\end{matrix}$

(Type 26P flat ribbon cable connector assemblies can be ordered with manifolds. Refer to manifold ordering.)



Flat ribbon cable connector assemblies

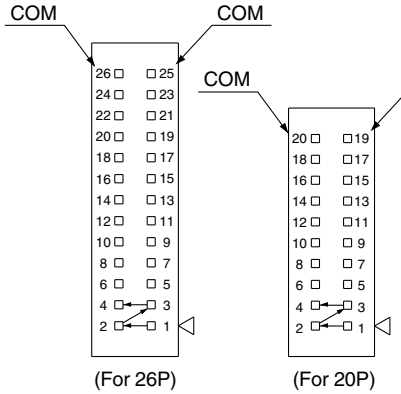
Cable length [L]	Part no.	
	26P	20P
1.5 m	AXT100-FC26-1	AXT100-FC20-1
3 m	AXT100-FC26-2	AXT100-FC20-2
5 m	AXT100-FC26-3	AXT100-FC20-3

∗ When using a standard commercial connector, use a type 26P connector conforming to MIL-C-83503 or a type 20P with strain relief.
∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

Connector Manufacturers Example

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

Special Wiring Specifications (Option)

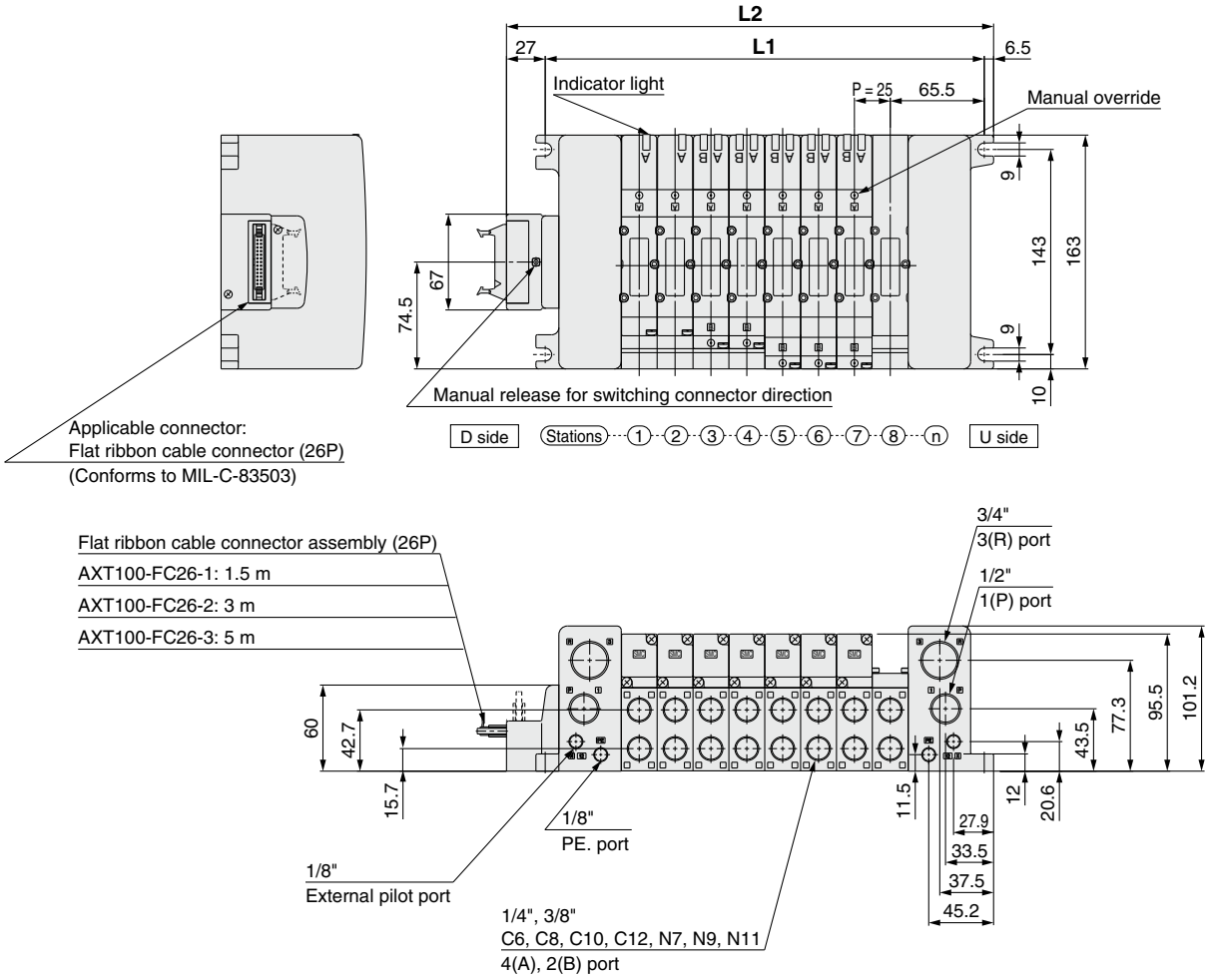


Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

P *VQC4000*

Kit (Flat ribbon cable kit) IP40 compliant

VV5QC41

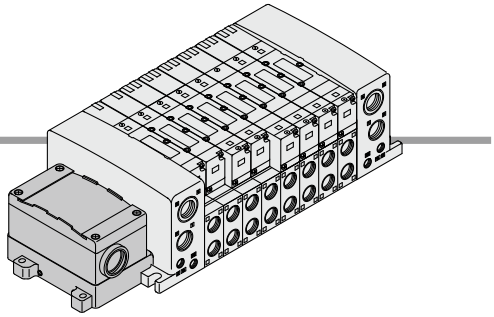


Dimensions

Formula: L1 = 25n + 106, L2 = 25n + 139.5 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	164.5	189.5	214.5	239.5	264.5	289.5	314.5	339.5	364.5	389.5	414.5	439.5	464.5	489.5	514.5	539.5

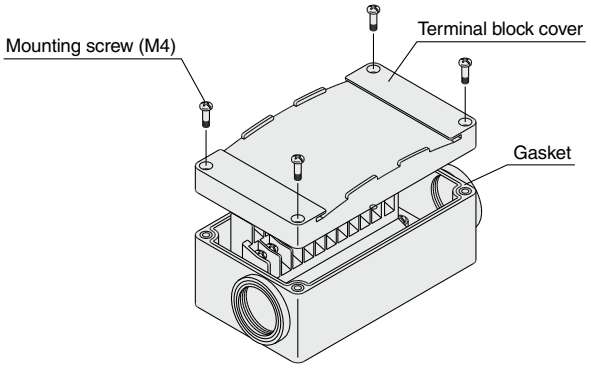
T VQC4000
Kit (Terminal block box kit) IP67 compliant



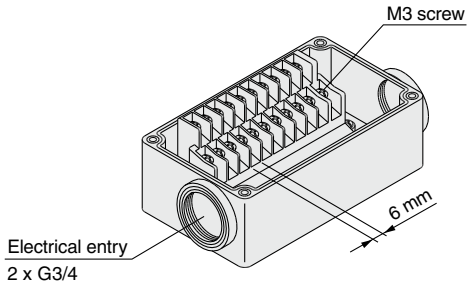
- **This kit has a small terminal block inside a junction box. The provision of a G3/4 electrical entry allows connection of conduit fittings.**

Terminal Block Connection

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



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

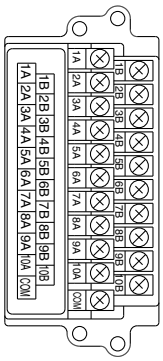


Step 3. How to replace the terminal block cover
Securely tighten the screws to the torque shown in the table below, after confirming that the gasket is installed correctly.

Proper tightening torque [N·m]
0.7 to 1.2

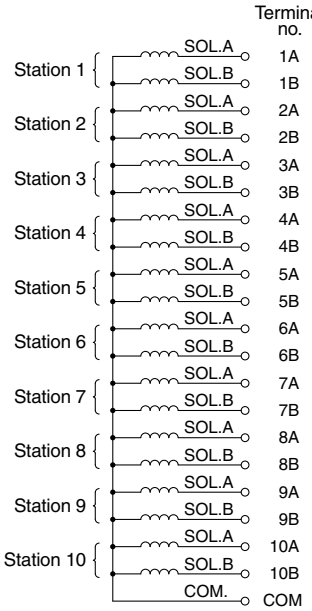
- Applicable crimped terminal: 1.25-3S,1.25Y-3,1.25Y-3N,1.25Y-3.5
- Name plate: VVQ5000-N-T
- Drip proof plug assembly (for G3/4): AXT100-B06A

Electrical Wiring Specifications (Conforms to IP67)



The internal wiring is double (connected to SOL. A and SOL. B) for all stations regardless of the type of valve or options.
Mixed single and double wiring are available as options.

Standard wiring

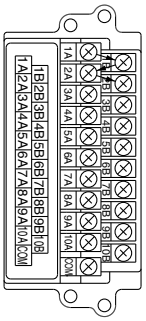


Special Wiring Specifications (Option)

Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 20.

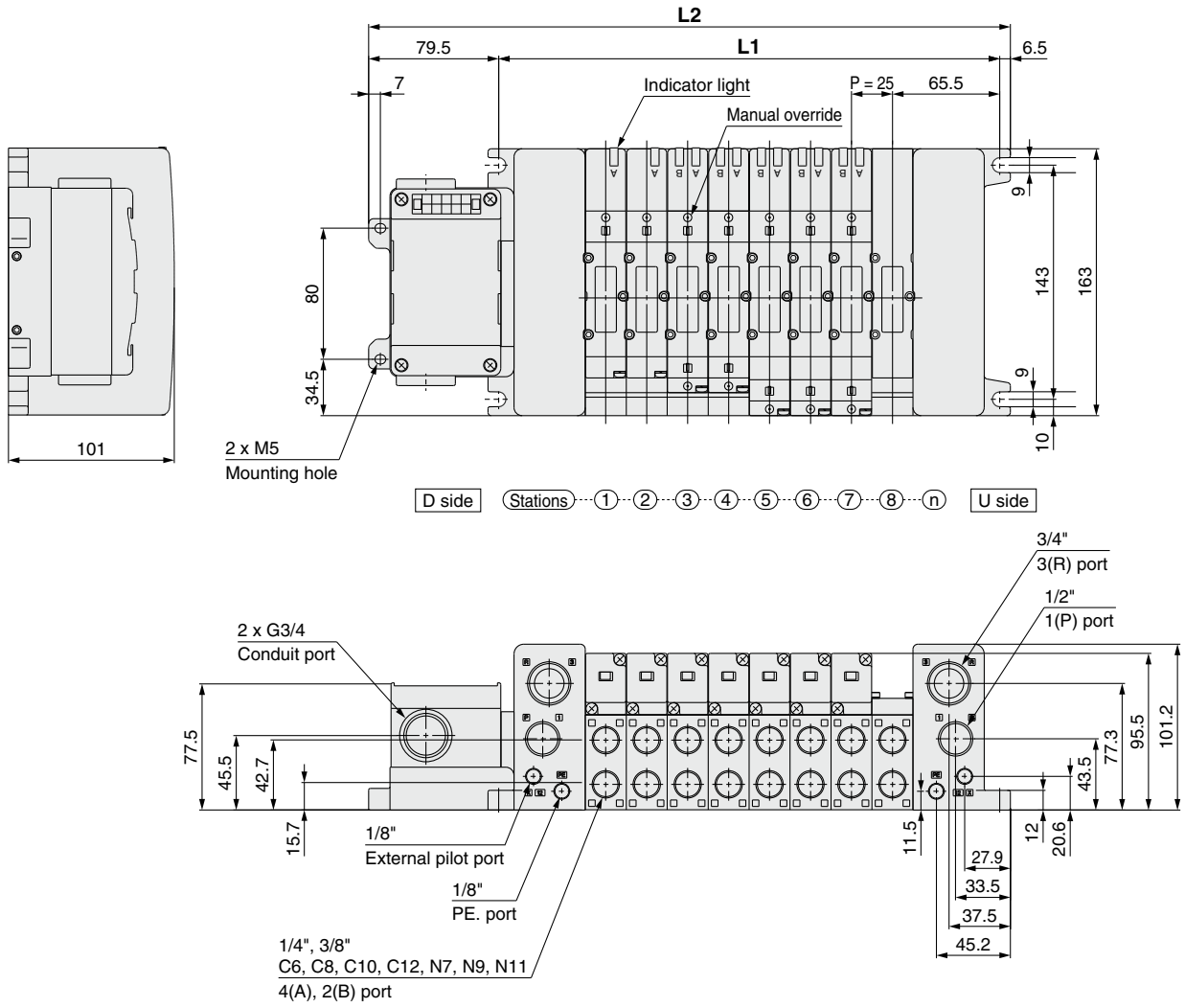
1. How to Order
Indicate option symbol "-K" in the manifold part number and be sure to specify station positions for single or double wiring on the manifold specification sheet.

2. Wiring specifications
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.



T VQC4000
Kit (Terminal block box kit) IP67 compliant

VV5QC41

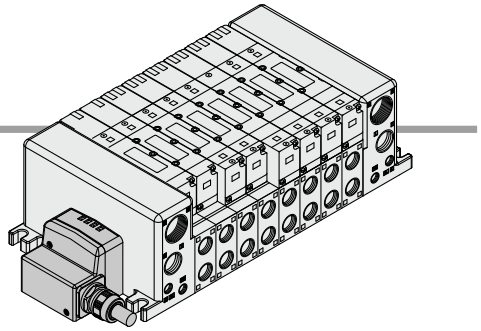


Dimensions

Formula: L1 = 25n + 106, L2 = 25n + 192 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	217	242	267	292	317	342	367	392	417	442	467	492	517	542	567	592

L VQC4000
Kit (Lead wire kit) IP67 compliant

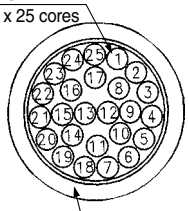


- **Direct electrical entry type**
- **IP67 enclosure is available with use of cables with sheath and waterproof connectors.**

Electrical Wiring Specifications

Lead wire specifications

Lead wire
0.3 mm² x 25 cores



Sheath
Color: Urban white

As the standard electrical wiring specification used is for 12 stations or less, double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types.
Mixed single and double wiring are available as options.
Refer to special wiring specifications (options) below.

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

Lead wire length

VV5QC41−08 C12 LD [0]

Lead wire length

0	0.6 m
1	1.5 m
2	3.0 m

Electrical characteristics

Item	Characteristic
Conductor resistance Ω/km, 20°C	65 or less
Withstand pressure V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

Note) Cannot be used for transfer wiring.
The minimum bending radius for cables is 20 mm.

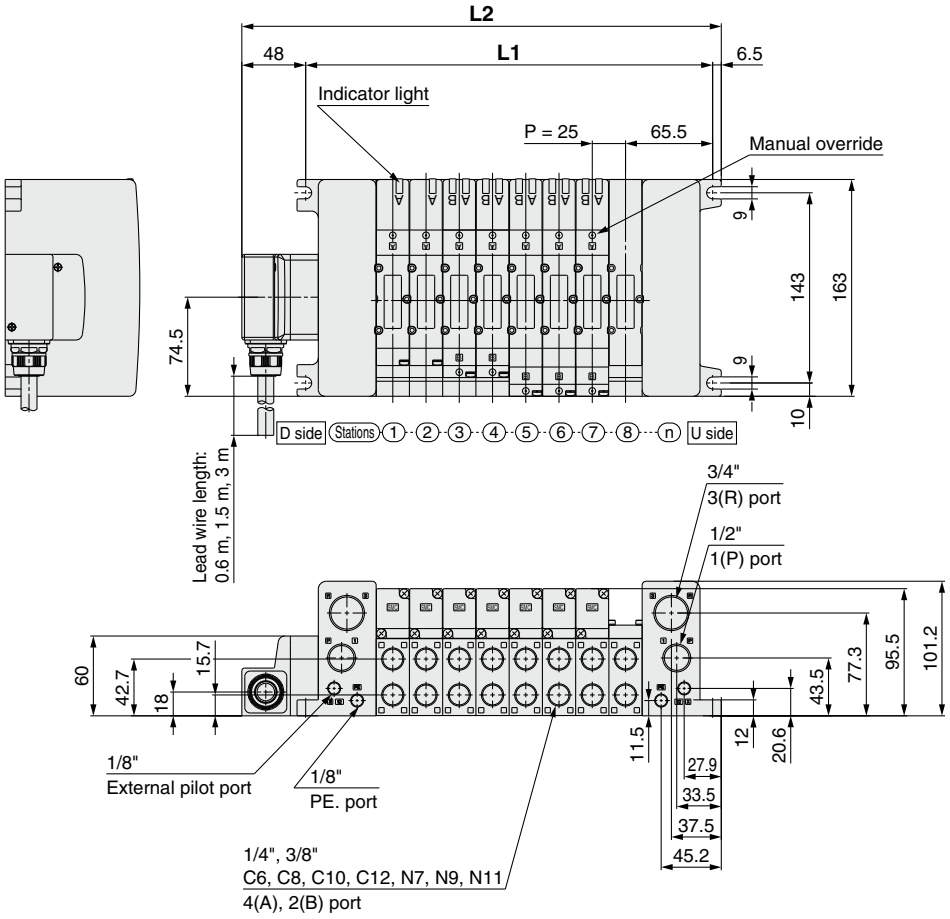
Special Wiring Specifications (Option)

Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

L *VQC4000*

Kit (Lead wire kit) IP67 compliant

VV5QC41



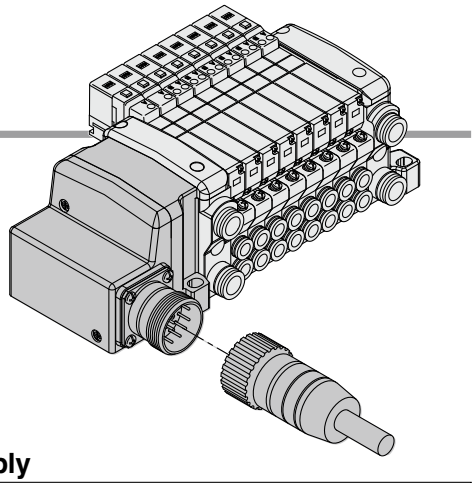
Dimensions

Formula: L1 = 25n + 106, L2 = 25n + 160.5 n: Stations (Maximum 16 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	185.5	210.5	235.5	260.5	285.5	310.5	335.5	360.5	385.5	410.5	435.5	460.5	485.5	510.5	535.5	560.5

M VQC4000

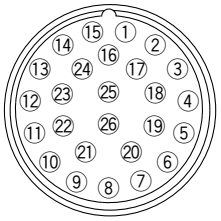
Kit (Circular connector kit) IP67 compliant



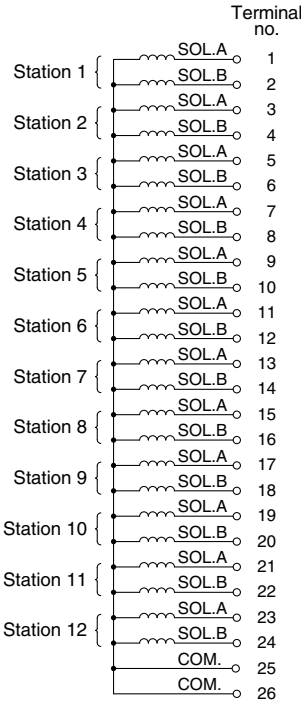
- **Use of circular connectors helps streamline wiring procedure to save labor.**
- **IP67 enclosure is available with use of waterproof multiple connectors.**

Electrical Wiring Specifications

Multiple connector



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



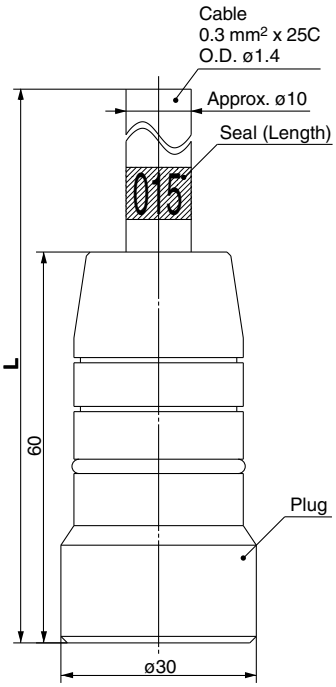
Special Wiring Specifications (Option)

Mixed single and double wiring are available as an option. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

Cable Assembly

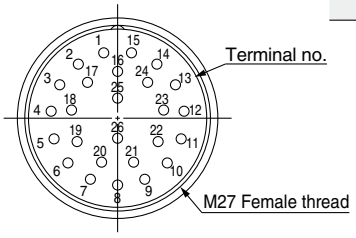
AXT100-MC26- 015 / 030 / 050

(Type 26P circular connector cable assemblies can be ordered with manifolds. Refer to manifolds ordering.)



Lead wire colors for circular connector cable assembly terminal numbers

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
26	White	None



Electric characteristics

Item	Property
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

Note) The minimum bending radius of the multiple connector cable is 20 mm.

Circular connector cable assemblies

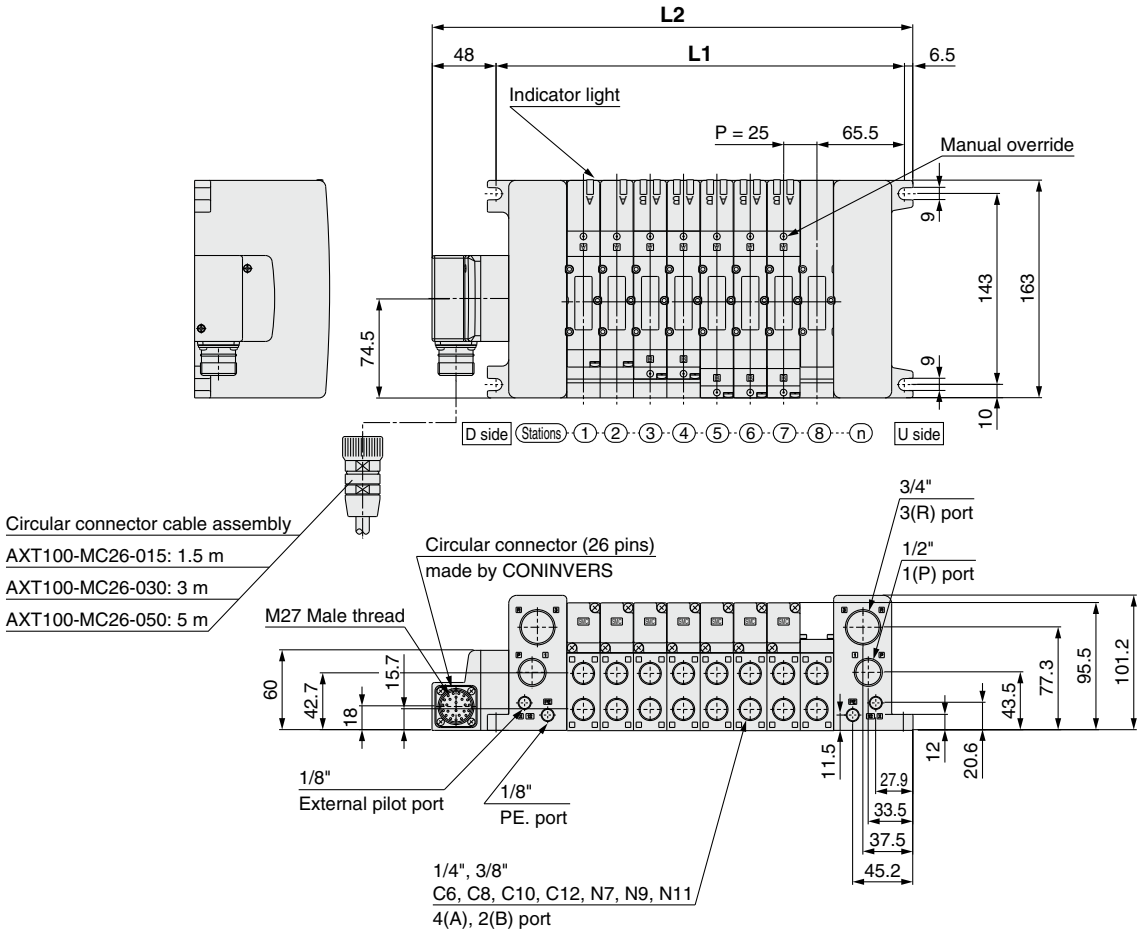
Cable length [L]	Assembly part no.
	26P
1.5 m	AXT100-MC26-015
3 m	AXT100-MC26-030
5 m	AXT100-MC26-050

∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

M *VQC4000*

Kit (Circular connector kit) IP67 compliant

VV5QC41



Dimensions

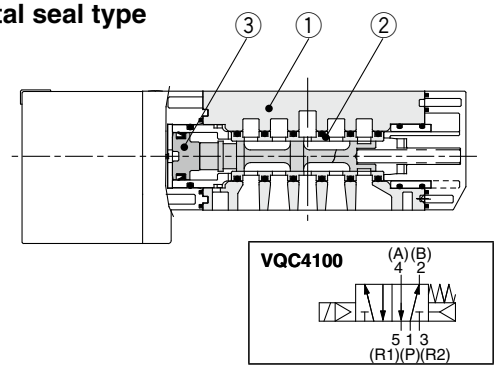
Formula: L1 = 25n + 106, L2 = 25n +150.5 n: Stations (Maximum 16 stations)

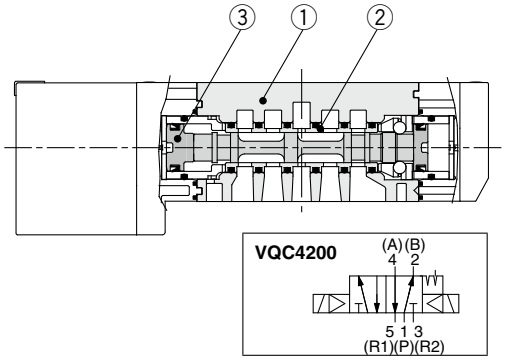
L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	131	156	181	206	231	256	281	306	331	356	381	406	431	456	481	506
L2	185.5	210.5	235.5	260.5	285.5	310.5	335.5	360.5	385.5	410.5	435.5	460.5	485.5	510.5	535.5	560.5

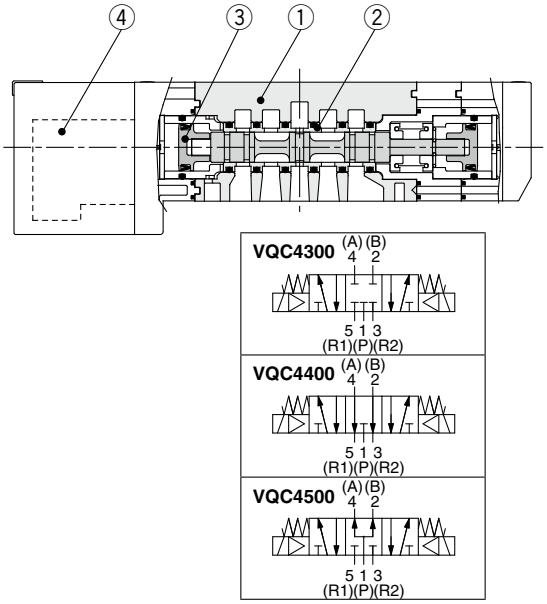
Construction

Plug-in Unit

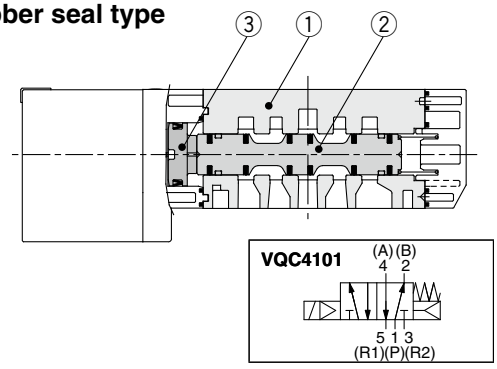
Metal seal type

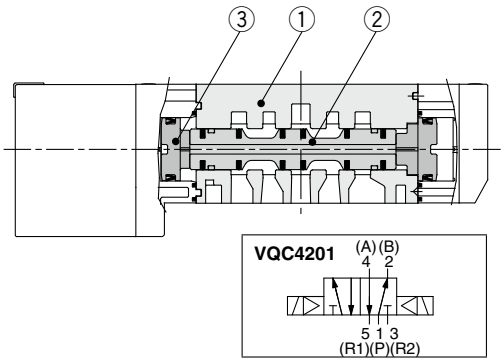


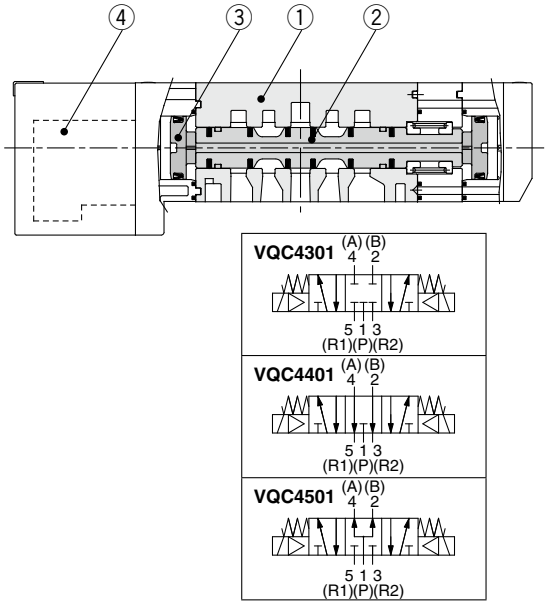




Rubber seal type







Component Parts

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

Replacement Parts

4	Pilot valve assembly	V118□-□-A/B/E •Coil type Nil: Standard (0.95 W) Y: Low wattage type (0.4 W)	□: Coil rated voltage Example) 24 VDC: 5 A: Single/With light (For A side) B: Double, 3-position/With light (For B side) E: Single, Double, 3-position/Without light (A/B side common)

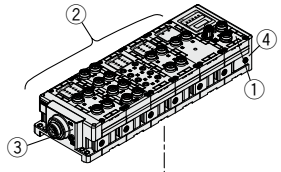
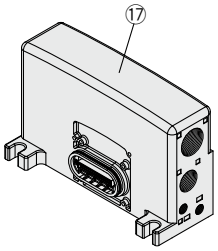
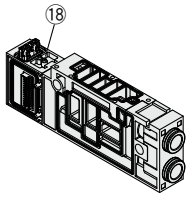
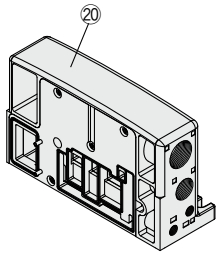
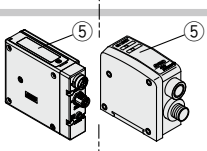
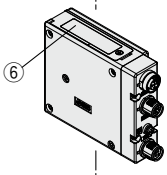
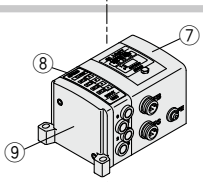
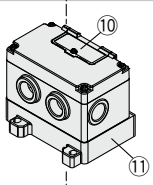
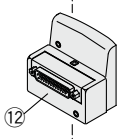
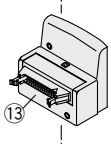
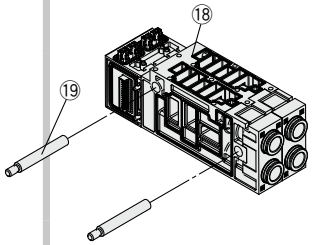
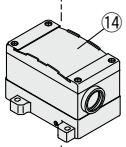
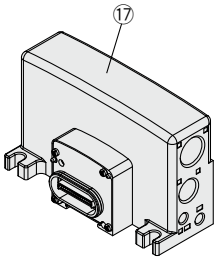
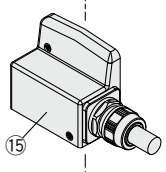
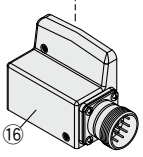
Component Parts

No.	Description	Material	Note
1	Body	Aluminum die-casted	
2	Spool valve	Aluminum, HNBR	
3	Piston	Resin	

Replacement Parts

4	Pilot valve assembly	V118□-□-A/B/E •Coil type Nil: Standard (0.95 W) Y: Low wattage type (0.4 W)	□: Coil rated voltage Example) 24 VDC: 5 A: Single/With light (For A side) B: Double, 3-position/With light (For B side) E: Single, Double, 3-position/Without light (A/B side common)

Exploded View of Manifold

	Housing assembly and SI Unit	D-side end plate assembly	Manifold block assembly	U-side end plate assembly
S Kit (Serial transmission) EX600		Corresponding kit S(EX600, EX250, EX126), F, P, T 		
S Kit (Serial transmission) EX500				
S Kit (Serial transmission) EX260				
S Kit (Serial transmission) EX250				
S Kit (Serial transmission) EX126				
F Kit (D-sub connector)				
P Kit (Flat ribbon cable)				
T Kit (Terminal block)				
L Kit (Lead wire)		Corresponding kit S(EX500, EX260), L, M		
M Kit (Circular connector)				

Note) There are two kinds of manifold blocks available, 2 stations integrated type and 1 station type. 2 stations integrated type is used for even stations while 2 stations integrated type and 1 station type are combined for odd stations.

D side — U side

1·····2·····3·····4·····5·····6·····

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

6 stations (Even number) | 2 stations | 2 stations | 2 stations |

Manifold Assembly Part No.

Housing Assembly and SI Unit/Input Block

No.	Description	Part no.	Note
①	**SI Unit**	**EX600-SDN1A**	DeviceNet™, Negative common (PNP)
		EX600-SDN2A	DeviceNet™, Positive common (NPN)
		EX600-SMJ1	CC-Link, Negative common (PNP)
		EX600-SMJ2	CC-Link, Positive common (NPN)
		EX600-SPR1A	PROFIBUS DP, Negative common (PNP)
		EX600-SPR2A	PROFIBUS DP, Positive common (NPN)
		EX600-SEN1	EtherNet/IP™ (1 port), Negative common (PNP)
		EX600-SEN2	EtherNet/IP™ (1 port), Positive common (NPN)
		EX600-SEN3	EtherNet/IP™ (2 port), Negative common (PNP)
		EX600-SEN4	EtherNet/IP™ (2 port), Positive common (NPN)
		EX600-SEC1	EtherCAT®, Negative common (PNP)
		EX600-SEC2	EtherCAT®, Positive common (NPN)
		EX600-SPN1	PROFINET, Negative common (PNP)
		EX600-SPN2	PROFINET, Positive common (NPN)
②	**Digital Input Unit**	**EX600-DXNB**	NPN input, M12 connector, 5 pins (4 pcs.), 8 inputs
		EX600-DXPB	PNP input, M12 connector, 5 pins (4 pcs.), 8 inputs
		EX600-DXNC	NPN input, M8 connector, 3 pins (8 pcs.), 8 inputs
		EX600-DXNC1	NPN input, M8 connector, 3 pins (8 pcs.), 8 inputs, with open circuit detection
		EX600-DXPC	PNP input, M8 connector, 3 pins (8 pcs.), 8 inputs
		EX600-DXPC1	PNP input, M8 connector, 3 pins (8 pcs.), 8 inputs, with open circuit detection
		EX600-DXND	NPN input, M12 connector, 5 pins (8 pcs.), 16 inputs
		EX600-DXPD	PNP input, M12 connector, 5 pins (8 pcs.), 16 inputs
		EX600-DXNE	NPN input, D-sub connector, 25 pins, 16 inputs
		EX600-DXPE	PNP input, D-sub connector, 25 pins, 16 inputs
		EX600-DXNF	NPN input, Spring type terminal box, 32 pins, 16 inputs
		EX600-DXPF	PNP input, Spring type terminal box, 32 pins, 16 inputs
	Digital Output Unit	**EX600-DYNB**	NPN output, M12 connector, 5 pins (4 pcs.), 8 outputs
		EX600-DYPB	PNP output, M12 connector, 5 pins (4 pcs.), 8 outputs
		EX600-DYNE	NPN output, D-sub connector, 25 pins, 16 outputs
		EX600-DYPE	PNP output, D-sub connector, 25 pins, 16 outputs
		EX600-DYNF	NPN output, Spring type terminal box, 32 pins, 16 outputs
		EX600-DYPF	PNP output, Spring type terminal box, 32 pins, 16 outputs
	Digital Input/Output Unit	**EX600-DMNE**	NPN input/output, D-sub connector, 25 pins, 8 inputs/outputs
		EX600-DMPE	PNP input/output, D-sub connector, 25 pins, 8 inputs/outputs
		EX600-DMNF	NPN input/output, Spring type terminal box, 32 pins, 8 inputs/outputs
		EX600-DMPF	PNP input/output, Spring type terminal box, 32 pins, 8 inputs/outputs
	Analog Input Unit	**EX600-AXA**	M12 connector, 5 pins (2 pcs.), 2-channel input
	Analog Output Unit	**EX600-AYA**	M12 connector, 5 pins (2 pcs.), 2-channel output
	Analog Input/Output Unit	**EX600-AMB**	M12 connector, 5 pins (4 pcs.), 2-channel input/output
③	**End plate**	**EX600-ED2**	M12 connector, 5 pins, Max. supply current 2 A
		EX600-ED2-2	M12 connector, 5 pins, Max. supply current 2 A, with DIN rail mounting bracket
		EX600-ED3	7/8 inch connector, 5 pins, Max. supply current 8 A
		EX600-ED3-2	7/8 inch connector, 5 pins, Max. supply current 8 A, with DIN rail mounting bracket
④	**Valve plate**	**EX600-ZMV1**	Enclosed parts: Round head screws (M4 x 6) 2 pcs., Round head screws (M3 x 8) 4 pcs.
⑤	**SI Unit**	**EX500-S103**	EtherNet/IP™, Negative common (PNP)
		EX500-Q001	DeviceNet™, PROFIBUS DP, EtherNet/IP™, Positive common (NPN)
		EX500-Q101	DeviceNet™, PROFIBUS DP, EtherNet/IP™, Negative common (PNP)

Manifold Assembly Part No.

Housing Assembly and SI Unit/Input Block

No.	Description	Part no.	Note
6	**SI Unit**	**EX260-SDN1**	DeviceNet™, M12 connector, 32 outputs, Negative common (PNP)
		EX260-SDN2	DeviceNet™, M12 connector, 32 outputs, Positive common (NPN)
		EX260-SDN3	DeviceNet™, M12 connector, 16 outputs, Negative common (PNP)
		EX260-SDN4	DeviceNet™, M12 connector, 16 outputs, Positive common (NPN)
		EX260-SRP1	PROFIBUS DP, M12 connector, 32 outputs, Negative common (PNP)
		EX260-SRP2	PROFIBUS DP, M12 connector, 32 outputs, Positive common (NPN)
		EX260-SRP3	PROFIBUS DP, M12 connector, 16 outputs, Negative common (PNP)
		EX260-SRP4	PROFIBUS DP, M12 connector, 16 outputs, Positive common (NPN)
		EX260-SRP5	PROFIBUS DP, D-sub connector, 32 outputs, Negative common (PNP)
		EX260-SRP6	PROFIBUS DP, D-sub connector, 32 outputs, Positive common (NPN)
		EX260-SRP7	PROFIBUS DP, D-sub connector, 16 outputs, Negative common (PNP)
		EX260-SRP8	PROFIBUS DP, D-sub connector, 16 outputs, Positive common (NPN)
		EX260-SMJ1	CC-Link, M12 connector, 32 outputs, Negative common (PNP)
		EX260-SMJ2	CC-Link, M12 connector, 32 outputs, Positive common (NPN)
		EX260-SMJ3	CC-Link, M12 connector, 16 outputs, Negative common (PNP)
		EX260-SMJ4	CC-Link, M12 connector, 16 outputs, Positive common (NPN)
		EX260-SEC1	EtherCAT®, M12 connector, 32 outputs, Negative common (PNP)
		EX260-SEC2	EtherCAT®, M12 connector, 32 outputs, Positive common (NPN)
		EX260-SEC3	EtherCAT®, M12 connector, 16 outputs, Negative common (PNP)
		EX260-SEC4	EtherCAT®, M12 connector, 16 outputs, Positive common (NPN)
		EX260-SPN1	PROFINET, M12 connector, 32 outputs, Negative common (PNP)
		EX260-SPN2	PROFINET, M12 connector, 32 outputs, Positive common (NPN)
		EX260-SPN3	PROFINET, M12 connector, 16 outputs, Negative common (PNP)
		EX260-SPN4	PROFINET, M12 connector, 16 outputs, Positive common (NPN)
		EX260-SEN1	EtherNet/IP™, M12 connector, 32 outputs, Negative common (PNP)
		EX260-SEN2	EtherNet/IP™, M12 connector, 32 outputs, Positive common (NPN)
		EX260-SEN3	EtherNet/IP™, M12 connector, 16 outputs, Negative common (PNP)
		EX260-SEN4	EtherNet/IP™, M12 connector, 16 outputs, Positive common (NPN)
7	**SI Unit**	**EX250-SPR1**	PROFIBUS DP, Negative common (PNP)
		EX250-SMJ2	CC-Link, Positive common (NPN)
		EX250-SAS3	AS-Interface, 8 in/8 out, 31 slave modes, 2 power supply systems, Negative common (PNP)
		EX250-SAS5	AS-Interface, 4 in/4 out, 31 slave modes, 2 power supply systems, Negative common (PNP)
		EX250-SAS7	AS-Interface, 8 in/8 out, 31 slave modes, 1 power supply system, Negative common (PNP)
		EX250-SAS9	AS-Interface, 4 in/4 out, 31 slave modes, 1 power supply system, Negative common (PNP)
		EX250-SCA1A	CANopen, Negative common (PNP)
		EX250-SDN1	DeviceNet™, Negative common (PNP)
		EX250-SEN1	EtherNet/IP™, Negative common (PNP)
8	**Input block**	**EX250-IE1**	M12, 2 inputs
		EX250-IE2	M12, 4 inputs
		EX250-IE3	M8, 4 inputs
9	**End plate assembly**	**EX250-EA1**	Direct mounting
		EX250-EA2	DIN rail mounting
10	**SII Unit**	**EX126D-SMJ1**	CC-Link, Positive common (NPN)
11	**Terminal block plate**	**VVQC1000-74A-2**	For EX126 SI Unit mounting
12	**D-sub connector housing assembly**	**VVQC1000-F25-1**	F kit, 25 pins
13	**Flat ribbon cable housing assembly**	**VVQC1000-P26-1**	P kit, 26 pins
		VVQC1000-P20-1	P kit, 20 pins
14	**Terminal block box housing assembly**	**VVQC1000-T0-1**	T kit
15	**Lead wire housing assembly**	**VVQC1000-L25-0-1**	L kit with 0.6 m lead wire
		VVQC1000-L25-1-1	L kit with 1.5 m lead wire
		VVQC1000-L25-2-1	L kit with 3.0 m lead wire
16	**Circular connector housing assembly**	**VVQC1000-M26-1**	M kit, 26 pins

Manifold Assembly Part No.

D-side end plate assembly

⑰ **D-side end plate assembly part no.**

VVQC4000-3A-2 □-□

Option

Nil	Standard
S	Built-in silencer, Direct exhaust

Thread type

Nil	Rc
F	G
T	NPTF
N	NPT

Kit type

2	F, P, T, S (EX126, EX250, EX600) kit
3	L, M, S (EX260, EX500) kit

U-side end plate assembly

⑳ **U-side end plate assembly part no.**

VVQC4000-2A-1 □-□

Option

Nil	Standard
S	Built-in silencer, Direct exhaust

Thread type

Nil	Rc
F	G
T	NPTF
N	NPT

Manifold block assembly

⑱ **Manifold block assembly part no.**

VVQC4000-1 A-D-C6 □

Type

A	For 1 station
C	For 2 stations Note 2)

Note 1) Tie-rods (2 pcs.) for additional stations included.
Note 2) Bottom ported type is available only for 1 station.

Wiring specifications

D	Double wiring
S	Single wiring Note 3)

Note 3) Single wiring is available only for 1 station.

Thread type (Thread port only)

Nil	Rc
F	G
T	NPTF
N	NPT

Port size

Symbol	Port size
C6	ø6
C8	ø8
C10	ø10
C12	ø12
N7	ø1/4"
N9	ø5/16"
N11	ø3/8"
02	1/4"
03	3/8"
B	1/4" bottom ported

Replacement Parts

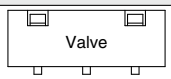
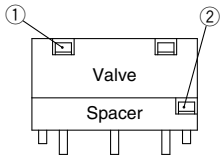
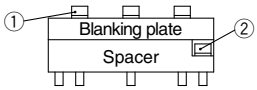
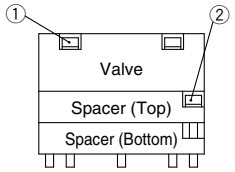
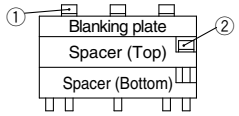
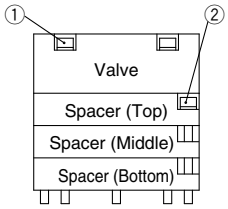
VQC4000	Pilot valve assembly	V118□-□ (A, B, E) **Coil type** **Nil** Standard (0.95 W) **Y** Low wattage type (0.4 W)	□: Coil rated voltage Example) 24 VDC: 5 A: Single/With light B: Double, 3-position/With light E: Single, Double, 3-position/ Without light

⑲ **Tie-rod assembly part no. (2 units)**

VQC4000	VVQC4000-TR-□

Note 1) Please order when reducing the number of manifold stations. When increasing the number of stations, additional orders are not required since they are included in the manifold block assembly.
Note 2) Number of stations, 02 to 16

List of Valves, Options, and Mounting Bolts

Number of options	Valve and options	Bolt part no.	Q'ty (pcs.)	Note	Option mounting diagram
0	Single valve	AXT632-17-4 (M3 x 37)	3		
	Blanking plate (VVQ4000-10A-$\frac{1}{5}$)	AXT632-38-1 (M3 x 14)	4	For manifold	
1	Valve + Individual SUP spacer (VVQ4000-P-$\frac{1}{5}$-$\frac{02}{03}$)	① AXT632-17-10 (M3 x 62)	3	For manifold	
		② AXT632-17-19 (M3 x 26)	2		
	Valve + Individual EXH spacer (VVQ4000-R-$\frac{1}{5}$-$\frac{02}{03}$)	① AXT632-17-10 (M3 x 62)	3	For manifold	
		② AXT632-17-19 (M3 x 26)	2		
	Valve + Restrictor spacer (VVQ4000-20A-$\frac{1}{5}$)	① AXT632-17-10 (M3 x 62)	3		
		② AXT632-17-19 (M3 x 26)	2	Not necessary when mounting the sub-plate.	
	Valve + Release valve spacer (VVQ4000-24A-$\frac{1}{5}$D)	① AXT632-17-10 (M3 x 62)	3	For manifold	
		② AXT632-17-19 (M3 x 26)	2		
	Valve + SUP stop valve spacer (VVQ4000-37A-$\frac{1}{5}$)	① AXT632-17-10 (M3 x 62)	3		
		② AXT632-17-19 (M3 x 26)	2	Not necessary when mounting the sub-plate.	
	Valve + Double check spacer with residual pressure exhaust (VVQ4000-25A-$\frac{1}{5}$)	① AXT632-17-11 (M3 x 87)	3		
		② AXT632-41-1 (M3 x 54)	2	Not necessary when mounting the sub-plate.	
	Valve + Interface regulator (ARBQ4000-00$\frac{A}{B}$-$\frac{1}{5}$)	① AXT632-17-11 (M3 x 87)	3		
		② AXT632-17-8 (M3 x 52)	2	Not necessary when mounting the sub-plate.	
	Blanking plate + SUP stop valve (Top) (Bottom)	① AXT632-41-4 (M3 x 42)	3	For manifold	
		② AXT632-17-19 (M3 x 26)	2		
2	Valve + Individual SUP + Individual EXH (Top) (Bottom) (Bottom) (Top)	① AXT632-17-11 (M3 x 87)	3	For manifold	
		② AXT632-17-8 (M3 x 52)	2		
	Valve + Restrictor + Individual SUP or Individual EXH (Top) (Bottom) (Top) (Bottom)	① AXT632-17-11 (M3 x 87)	3	For manifold The individual EXH cannot be mounted on the top.	
		② AXT632-17-8 (M3 x 52)	2		
	Valve + SUP stop valve + Individual SUP, Individual EXH or Restrictor (Top) (Bottom)	① AXT632-17-11 (M3 x 87)	3	For manifold	
		② AXT632-17-8 (M3 x 52)	2		
	Valve + Double check spacer with residual pressure exhaust + Individual SUP or Individual EXH (Top) (Bottom)	① AXT632-17-14 (M3 x 112)	3	For manifold	
		② AXT632-41-2 (M3 x 78)	2		
	Valve + Interface regulator + Individual SUP, Individual EXH or Restrictor (Top) (Bottom)	① AXT632-17-14 (M3 x 112)	3	For manifold The individual EXH and restrictor can be mounted on the top.	
		② AXT632-41-2 (M3 x 78)	2		
	Valve + Restrictor + Double check spacer with residual pressure exhaust (Top) (Bottom)	① AXT632-17-14 (M3 x 112)	3	For manifold	
		② AXT632-41-2 (M3 x 78)	2		
	Valve + Double check spacer with residual pressure exhaust + Interface regulator (Bottom) (Top)	① AXT632-17-16 (M3 x 137)	3	For manifold	
		② AXT632-41-3 (M3 x 103)	2		
	Blanking plate + SUP stop valve + Individual SUP (Top) (Bottom)	① AXT632-17-17 (M3 x 66)	3	For manifold	
		② AXT632-17-8 (M3 x 52)	2		
3	Valve + SUP stop valve (Top) + Individual SUP (Middle, Bottom) + Individual EXH (Middle, Bottom)	① AXT632-17-14 (M3 x 112)	3	For manifold	
		② AXT632-17-13 (M3 x 77)	2		
	Valve + Double check spacer with residual pressure exhaust (Top) + Individual SUP (Middle, Bottom) + Individual EXH (Middle, Bottom)	① AXT632-17-16 (M3 x 137)	3	For manifold	
		② AXT632-41-3 (M3 x 103)	2		
	Valve + Spacer (Top): Interface regulator Spacer (Middle): "Individual SUP or Individual EXH"/"Restrictor" Spacer (Bottom): "Restrictor"/"Individual SUP or Individual EXH"	① AXT632-17-16 (M3 x 137)	3	For manifold The individual EXH and restrictor can be mounted on the top.	
		② AXT632-41-3 (M3 x 103)	2		
	Valve + Double check spacer with residual pressure exhaust (Top) + SUP stop valve (Middle) + Individual SUP (EXH) (Bottom)	① AXT632-17-16 (M3 x 137)	3	For manifold	
		② AXT632-41-3 (M3 x 103)	2		
	Valve + Interface regulator (Top) + Double check spacer with residual pressure exhaust (Middle) + Individual SUP (EXH) (Bottom)	① AXT632-17-20 (M3 x 162)	3	For manifold available as special order	
		② AXT632-41-5 (M3 x 128)	2		

Note) When the SUP stop valve and individual SUP are mounted, the stop valve is mounted on the top of the individual SUP.

Series VQC4000
Specific Product Precautions 1

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For 3/4/5 Port Solenoid Valve Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on the SMC website, http://www.smcworld.com

Continuous Duty

⚠Warning

When the product is continuously energized for a long period of time (10 minutes or longer), select the low wattage type (DC specification). The AC type cannot be continuously energized for 10 minutes or longer. If anything is unclear, please contact SMC.

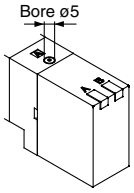
Manual Override

⚠Warning

Since connected equipment will operate when the manual override is activated, confirm that conditions are safe prior to activation.

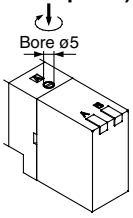
■ VQC4000

Push type (Tool required)

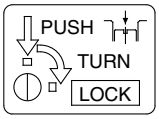


Push down the manual override button with a small screwdriver, etc., until it stops.
The manual override will return when released.

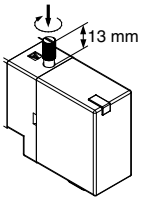
Locking type (Tool required)



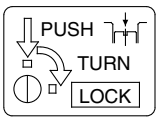
Push down the manual override button with a small flat head screwdriver until it stops, and turn it clockwise 90° to lock it.
Turn it counterclockwise to release it.



Locking type (Manual)



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



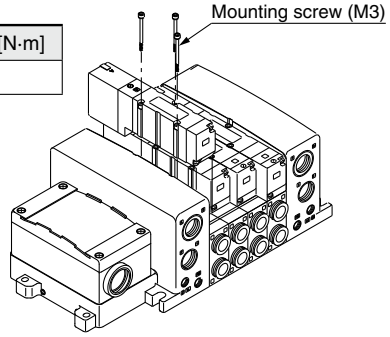
⚠ Caution
Do not apply excessive torque when turning the locking type manual override. (0.1 N·m or less)

Valve Mounting

⚠Caution

After confirming that the gasket is installed correctly, securely tighten the mounting screws according to the tightening torque shown below.

Proper tightening torque [N·m]
0.8 to 1.2

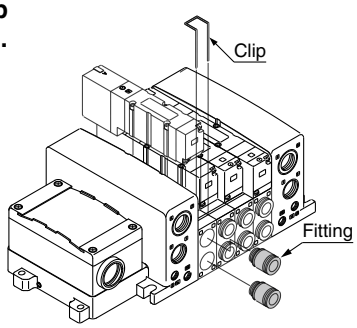


Replacement of One-touch Fittings

⚠Caution

Cylinder port fittings are available in cassette type and can be replaced easily. Fittings are secured with a retaining clip that is inserted from the top side of the valve. After removing the valve, remove the clip with a flat head screwdriver to replace the fittings. To mount a fitting, insert the fitting assembly until it stops and reinsert the retaining clip to its designated position.

Applicable tube O.D.	Fitting assembly part no.
	VQC4000
ø6	VVQ4000-50B-C6
ø8	VVQ4000-50B-C8
ø10	VVQ4000-50B-C10
ø12	VVQ4000-50B-C12
ø1/4"	VVQ4000-50B-N7
ø5/16"	VVQ4000-50B-N9
ø3/8"	VVQ4000-50B-N11

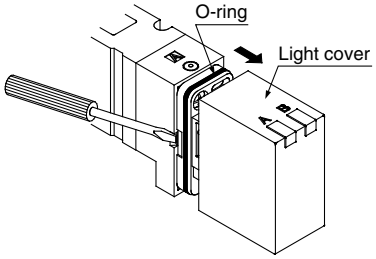


Installation and Removal of Light Cover

⚠Caution

Installation/Removal of light cover

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



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

Specific Product Precautions 2

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For 3/4/5 Port Solenoid Valve Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on the SMC website, http://www.smcworld.com

Replacement of Pilot Valve

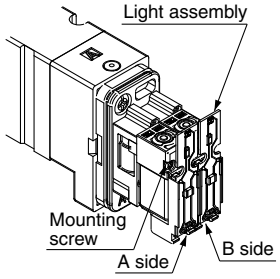
⚠Caution

• Removal

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

• Installation

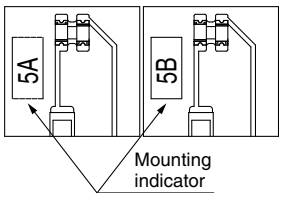
1) After confirming the gasket is correctly placed under the valve, securely tighten the bolts with the proper torque shown in the table below.



∗ Refer to page 31 for pilot valve assembly part number.

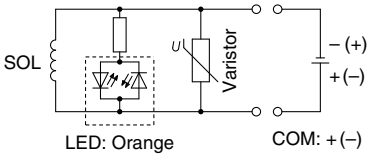
Proper tightening torque [N·m]
0.1 to 0.13

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

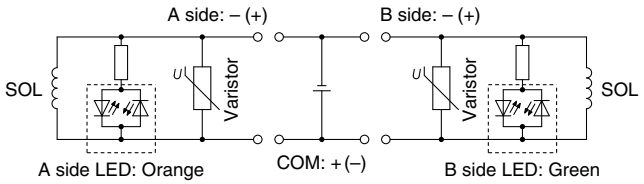


Internal Wiring Specifications

⚠Caution



DC: Single



DC: Double

Note) Coil surge voltage generated when OFF is about –60 V. Please contact SMC separately for further suppression of the coil surge voltage.

How to Calculate the Flow Rate

For obtaining the flow rate, refer to the **WEB catalog** or the Best Pneumatics No. 1.

Series VQC4000
Specific Product Precautions 3

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For 3/4/5 Port Solenoid Valve Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on the SMC website, http://www.smcworld.com

Serial Wiring EX500/EX260/EX250/EX126 Precautions

⚠ Warning

1. **These products are intended for use in general factory automation equipment.**
   Avoid using these products in machinery/equipment which affects human safety, and in cases where malfunction or failure can result in extensive damage.
2. **Do not use in explosive environments, in the presence of inflammable gases, or in corrosive environments. This can cause injury or fire.**
3. **Work such as transporting, installing, piping, wiring, operation, control and maintenance should be performed by knowledgeable and qualified personnel only. As handling involves the risk of a danger of electrocution, injury or fire.**
4. **Install an external emergency stop circuit that can promptly stop operation and shut off the power supply.**
5. **Do not modify these products. Modifications done to these products carry the risk of injury and damage.**

⚠ Caution

1. **Read the Operation Manual carefully, strictly observe the precautions and operate within the range of the specifications.**
2. **Do not drop these products or submit them to strong impacts. This can cause damage, failure or malfunction.**
3. **In locations with poor electrical conditions, take steps to ensure a steady flow of the rated power supply. Use of a voltage outside of the specifications can cause a malfunction, damage to the Unit, electrocution or fire.**
4. **Do not touch connector terminals or internal circuit elements when current is being supplied. There is a danger of malfunction, damage to the Unit or electrocution if connector terminals or internal circuit elements are touched when current is being supplied.**
   Be sure that the power supply is OFF when adding or removing manifold valves or input blocks or when connecting or disconnecting connectors.
5. **Operate at an ambient temperature that is within the specifications. Even when the ambient temperature range is within the specifications, do not use in locations where there are rapid temperature changes.**
6. **Keep wire scraps and other extraneous materials from getting inside these products. This can cause fire, failure or malfunction.**
7. **Give consideration to the operating environment depending on the type of enclosure being used.**
   To achieve IP67 protection, provide appropriate wiring between all Units using electrical wiring cables, communication connectors and cables with M12 connectors. Also, provide waterproof caps when there are unused ports, and perform proper mounting of Input Units, input blocks, SI Units and manifold valves. Provide a cover or other protection for applications in which there is constant exposure to water.
8. **Use the proper tightening torques.**
   There is a possibility of damaging threads if tightening exceeds the tightening torque range.
9. **Provide adequate protection when operating in locations such as the following:**
   · Where noise is generated by static electricity
   · Where there is a strong electric field
   · Where there is a danger of exposure to radiation
   · When in close proximity to power supply lines

⚠ Caution

10. **When these products are installed in equipment, provide adequate protection against noise by using noise filters.**
11. **Since these products are components whose end usage is obtained after installation in other equipment, the customer should confirm conformity to EMC directives for the finished product.**
12. **Do not remove the name plate.**
13. **Perform periodic inspections and confirm normal operation, otherwise it may be impossible to guarantee safety due to unexpected malfunction or erroneous operation.**
14. **Take great care since the SI Unit side surface of the EX260-SPN□ may become hot, causing burn hazard.**
15. **Do not use in places where there are cyclic temperature changes.**
    In case that the cyclic temperature is beyond normal temperature changes, the inside product unit is likely to be adversely effected.
16. **Do not use in direct sunlight.**
    Do not use in direct sunlight. It may cause malfunction or damage.
17. **Do not use in places where there is radiated heat around it.**
    Such a place is likely to cause malfunction.

Power Supply Safety Instructions

⚠ Caution

1. **Operation is possible with a single power supply or a separate power supply. However, be sure to provide two wiring systems (one for solenoid valves, and one for Input and Control Units). When it is UL compliant, use a class 2 power supply unit in accordance with UL1310 for a combined direct current power supply.**
2. **Select the proper type of enclosure according to the environment of operation.**
   IP65/67 protection class is achieved when the following conditions are met.
   1) The Units are connected properly with wiring cable for power supply, communication connector, and cable with M12 connector.
   2) Suitable mounting of each Unit and manifold valve.
   3) Be sure to mount a seal cap on any unused connectors.
   If using in an environment that is exposed to water splashes, please take measures such as using a cover.
   For IP40 protection class, do not use in atmospheres with corrosive gas, chemicals, sea water, water, steam, or where there is direct contact with any of these.
   When EX260-SPR5/6/7/8 are connected, the enclosure of the manifold should be IP40.

Cable Safety Instructions

⚠ Caution

1. **Avoid miswiring, as this can cause a malfunction, damage and fire in the Unit.**
2. **To prevent noise and surge in signal lines, keep all wiring separate from power lines and high voltage lines. Otherwise, this can cause a malfunction.**
3. **Check wiring insulation, as defective insulation can cause damage to the Unit when excessive voltage or current is applied.**
4. **Do not bend or pull cables repeatedly, and do not place heavy objects on them or allow them to be pinched. This can cause broken lines.**

Specific Product Precautions 4

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For 3/4/5 Port Solenoid Valve Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on the SMC website, http://www.smcworld.com

EX600 Precautions

Design / Selection

⚠Warning

1. Do not use beyond the specification range.
Using beyond the specification range can cause a fire, malfunction, or damage to the system.
Check the specifications before operation.

2. When using for an interlock circuit:
- **Provide a multiple interlock system which is operated by another system (such as mechanical protection function).**
- **Perform an inspection to confirm that it is working properly.**

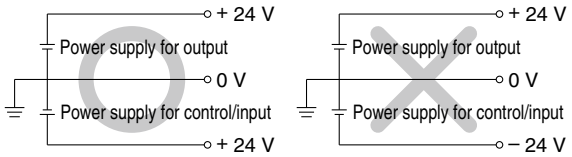
Otherwise, this may cause possible injuries due to malfunction.

⚠Caution

1. When applicable to UL, use a Class 2 power supply unit conforming to UL1310 for direct current power supply.

2. Use within the specified voltage range.
Using beyond the specified voltage range is likely to cause the product to be damaged or to malfunction.

3. The power supply for the unit should be 0 V as the standard for both power supply for output as well as power supply for control/input.



4. Do not install in places where it can be used as a foothold.
Applying any excessive load such as stepping on the product by mistake or placing a foot on it, will cause it to break.

5. Keep the surrounding space free for maintenance.
When designing a system, take into consideration the amount of free space needed for performing maintenance.

6. Do not remove the name plate.
Improper maintenance or incorrect use of Operation Manual can cause equipment failure or malfunction. Also, there is a risk of losing conformity with safety standards.

7. Beware of inrush current when the power supply is turned on.
Some connected loads can apply an initial charge current which will trigger the over current protection function, causing the Unit to malfunction.

Mounting

⚠Caution

1. When handling and assembling Units:
- **Do not touch the sharp metal parts of the connector or plug.**
- **Do not apply excessive force to the Unit when disassembling.**
  The connecting portions of the Unit are firmly joined with seals.
- **When joining Units, take care not to get fingers caught between Units.**
  Injury can result.

2. Do not drop, bump, or apply excessive impact.
Otherwise, this can cause damage, equipment failure or malfunction.

3. Observe the tightening torque range.
Tightening outside of the allowable torque range will likely damage the screw.
IP67 cannot be guaranteed if the screws are not tightened to the specified torque.

4. When lifting a large size Manifold Solenoid Valve Unit, take care to avoid causing stress to the valve connection joint.
The connection joint with the Unit may be damaged.
Because the product may be heavy, carrying and installation should be performed by more than one operator to avoid strain or injury.

5. When placing a manifold, mount it on a flat surface.
Torsion in the whole manifold can lead to trouble such as air leakage or contact failure.

Wiring

⚠Caution

1. Provide the grounding to maintain the safety of the reduced wiring system and to improve the noise immunity.
Provide a specific grounding as close to the Unit as possible to minimize the distance to grounding.

2. Avoid repeatedly bending or stretching the cable and applying a heavy object or force to it.
Wiring applying repeated bending and tensile stress to the cable can break the circuit.

3. Avoid miswiring.
If miswired, there is a danger of malfunction or damage to the reduced wiring system.

Series VQC4000
Specific Product Precautions 5

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For 3/4/5 Port Solenoid Valve Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on the SMC website, http://www.smcworld.com

EX600 Precautions

Wiring

⚠Caution

4. Do not wire while energizing the product.

There is a danger of malfunction or damage to the reduced wiring system or input/output device.

5. Avoid wiring the power line and high pressure line in parallel.

Noise or surge produced by signal line resulting from the power line or high pressure line could cause a malfunction.
Wiring of the reduced wiring system or input/output device and the power line or high pressure line should be separated from each other.

6. Check for the wiring insulation.

Defective insulation (contact with other circuits, improper insulation between terminals, etc.) may cause damage to the reduced wiring system or input/output device due to excessive voltage or current.

7. When the reduced wiring system is installed in machinery/equipment, provide adequate protection against noise by using noise filters etc.

Noise in signal lines may cause a malfunction.

8. When connecting wires of input/output device or Handheld Terminal, prevent water, solvent or oil from entering inside from the connecter section.

Otherwise, this can cause damage, equipment failure or malfunction.

9. Avoid wiring patterns in which excessive stress is applied to the connector.

This may cause equipment failure or malfunction due to contact failure.

Operating Environment

⚠Warning

1. Do not use in an atmosphere containing an inflammable gas or explosive gas.

Use in such an atmosphere is likely to cause a fire or explosion. This system is not explosion-proof.

⚠Caution

1. Select the proper type of enclosure according to the environment of operation.

IP65/67 is achieved when the following conditions are met.

1) Provide appropriate wiring between Units using electrical wiring cables, communication connectors and cables with M12 connectors.
2) Suitable mounting of each Unit and manifold valve.
3) Be sure to mount a seal cap on any unused connectors.

If using in an environment that is exposed to water splashes, please take measures such as using a cover.
When the enclosure is IP40, do not use in an operating environment or atmosphere where it may come in contact with corrosive gas, chemical agents, seawater, water, or water vapor. When connected to the EX600-D□□E or EX600-D□□F, manifold enclosure is IP40.
Also, the Handheld Terminal conforms to IP20, so prevent foreign matter from entering inside, and water, solvent or oil from coming in direct contact with it.

Operating Environment

⚠Caution

2. Provide adequate protection when operating in locations such as the following.

Failure to do so may cause a malfunction or equipment failure. The effect of countermeasures should be checked in individual equipment and machine.

1) Where noise is generated by static electricity etc.
2) Where there is a strong electric field
3) Where there is a danger of exposure to radiation
4) When in close proximity to power supply lines

3. Do not use in an environment where oil and chemicals are used.

Operating in environments with coolants, cleaning solvents, various oils or chemicals may cause adverse effects (damage, malfunction) to the Unit even in a short period of time.

4. Do not use in an environment where the product could be exposed to corrosive gas or liquid.

This may damage the Unit and cause it to malfunction.

5. Do not use in locations with sources of surge generation.

Installation of the Unit in an area around the equipment (electromagnetic lifters, high frequency induction furnaces, welding machine, motors, etc.), which generates the large surge voltage could cause to deteriorate an internal circuitry element of the Unit or result in damage. Implement countermeasures against the surge from the generating source, and avoid touching the lines with each other.

6. Use the product type that has an integrated surge absorption element when directly driving a load which generates surge voltage by relay, solenoid valves or lamp.

When a surge generating load is directly driven, the Unit may be damaged.

7. The product is CE marked, but not immune to lightning strikes. Take measures against lightning strikes in your system.

8. Keep dust, wire scraps and other foreign matter from entering inside the product.

This may cause equipment failure or malfunction.

9. Mount the Unit in such locations, where no vibration or shock is affected.

This may cause equipment failure or malfunction.

10. Do not use in places where there are cyclic temperature changes.

In case that the cyclic temperature is beyond normal temperature changes, the internal Unit is likely to be adversely affected.

11. Do not use in direct sunlight.

This may cause equipment failure or malfunction.

12. Observe the ambient temperature range.

This may cause a malfunction.

13. Do not use in places where there is radiated heat around it.

Such places are likely to cause a malfunction.

Series VQC4000
Specific Product Precautions 6

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For 3/4/5 Port Solenoid Valve Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on the SMC website, http://www.smcworld.com

EX600 Precautions

Adjustment / Operation

⚠Warning

1. Do not perform operation or setting with wet hands.
There is a risk of electrical shock.

<Handheld Terminal>

2. Do not apply pressure to the LCD.
There is a possibility of the crack of LCD and injuring.

3. The forced input/output function is used to change the signal status forcibly. When operating this function, be sure to check the safety of the surroundings and installation.
This may cause, injuries or equipment damage.

4. Incorrect setting of parameters can cause a malfunction. Be sure to check the settings before use.
This may cause injuries or equipment damage.

⚠Caution

1. Use a watchmakers' screwdriver with thin blade for the setting of each switch of the SI Unit.
When setting the switch, do not touch other unrelated parts.
This may cause parts damage or malfunction due to a short circuit.

2. Provide adequate setting for the operating conditions.
Failure to do so could result in malfunction.
Refer to the Operation Manual for setting of the switches.

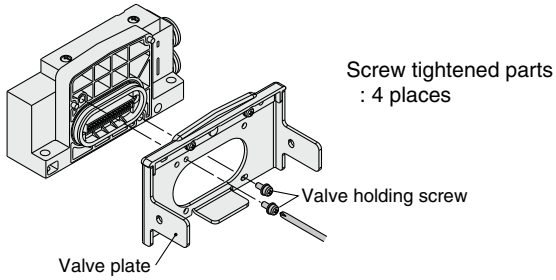
3. For details on programming and address setting, refer to the manual from the PLC manufacturer.
The content of programming related to protocol is designed by the manufacturer of the PLC used.

<Handheld Terminal>

4. Do not press the setting buttons with a sharp pointed object.
This may cause damage or equipment failure.

5. Do not apply excessive load and impact to the setting buttons.
This may cause damage, equipment failure or malfunction.

When the order does not include the SI Unit, a valve plate which connects the manifold and SI Unit, is not mounted. Use attached valve holding screws and mount the valve plate.
(Tightening torque: 0.6 to 0.7 N·m)



Maintenance

⚠Warning

1. Do not disassemble, modify (including circuit board replacement) or repair this product.
Such actions are likely to cause injuries or equipment failure.

2. When an inspection is performed,
- **Turn off the power supply.**
- **Stop the air supply, exhaust the residual pressure in piping and verify that the air is released before performing maintenance work.**

Unexpected malfunction of system components and injury can result.

⚠Caution

1. When handling and replacing Units:
- **Do not touch the sharp metal parts of the connector or plug.**
- **Do not apply excessive force to the Unit when disassembling.**
The connecting portions of the Unit are firmly joined with seals.
- **When joining Units, take care not to get fingers caught between Units.**
Injury can result.

2. Perform periodic inspection.
Unexpected malfunction in the system composition devices is likely to occur due to malfunction of machinery or equipment.

3. After maintenance, make sure to perform an appropriate functionality inspection.
In cases of abnormality such as faulty operation, stop operation. Unexpected malfunction in the system composition devices is likely to occur.

4. Do not use benzine and thinner for cleaning Units.
Damage to the surface or erasure of the display can result. Wipe off any stains with a soft cloth.
If the stain is persistent, wipe off with a cloth soaked in a dilute solution of neutral detergent and wrung out tightly, and then finish with a dry cloth.

Other

⚠Caution

1. Refer to the catalog of each series for Common Precautions and Specific Product Precautions on manifold solenoid valves.

Base Mounted
Plug-in: Single Unit
Series VQC5000

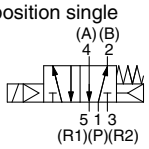
Model

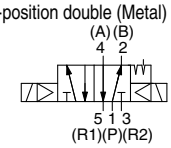
Series	Configuration		Model		Port size	Flow-rate characteristics						Response time [ms]		Weight [kg]
						1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			Standard: 0.95 W	Low wattage type: 0.4 W	
						C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv			
VQC5000	2-position	Single	Metal seal	VQC5100	1/2	12	0.14	2.9	14	0.18	3.4	35	38	0.59
			Rubber seal	VQC5101		16	0.33	4.4	17	0.31	4.7	40	43	0.58
		Double	Metal seal	VQC5200		12	0.14	2.9	14	0.18	3.4	20	23	0.62
			Rubber seal	VQC5201		16	0.33	4.4	17	0.31	4.7	25	28	0.60
	3-position	Closed center	Metal seal	VQC5300		11	0.24	2.6	11	0.23	2.8	50	53	0.65
			Rubber seal	VQC5301		12	0.33	3.4	13	0.37	3.7	60	63	0.58
		Exhaust center	Metal seal	VQC5400		12	0.13	2.9	14	0.18	3.4	50	53	0.65
			Rubber seal	VQC5401		14	0.39	3.9	16	0.35	4.5	60	63	0.58
		Pressure center	Metal seal	VQC5500		12	0.23	2.9	13	0.24	3.3	50	53	0.65
			Rubber seal	VQC5501		13	0.32	3.4	14	0.40	3.9	60	63	0.58
		Double check	Metal seal	VQC5600		8.0	—	—	8.5	—	—	62	65	1.17
			Rubber seal	VQC5601		8.3	—	—	9.0	—	—	75	78	1.10

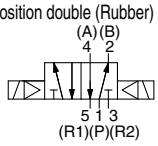
Note 1) Value for valve on sub-plate
Note 2) Cylinder port 1/2: Value for valve on sub-plate
Note 3) Based on JIS B 8375-1981. (Supply pressure: 0.5 MPa {5.1 kgf/cm²}, with indicator light and surge voltage suppressor, clean air. This will change depending on pressure and air quality.) The value when ON for the double type.
Note 4) Table: Without sub-plate, With sub-plate: Add 0.65 kg.

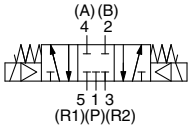
Plug-in unit

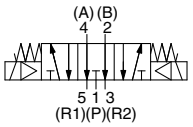
Symbol

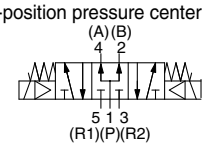
2-position single


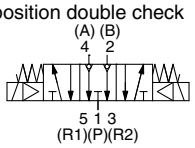
2-position double (Metal)


2-position double (Rubber)


3-position closed center


3-position exhaust center


3-position pressure center


3-position double check


Standard Specifications

Valve specifications	Valve construction		Metal seal	Rubber seal
	Fluid		Air/Inert gas	
	Max. operating pressure	Standard (DC and AC)	1.0 MPa	
		Low wattage type (DC)		
	Min. operating pressure	Single	0.10 MPa	0.20 MPa
		Double	0.10 MPa	0.15 MPa
		3-position	0.15 MPa	0.20 MPa
	Proof pressure		1.5 MPa	
	Ambient and fluid temperature		–5 to 50°C Note 1)	
	Lubrication		Not required	
	Manual override		Push type/Locking type (Tool required) Option/Locking type (Manual)	
	Impact/Vibration resistance		150/30 m/s² Note 2)	
	Enclosure		Dust-tight (IP67 compatible) Note 3)	
Electrical specifications	Coil rated voltage		12, 24 VDC	
	Allowable voltage fluctuation		±10% of rated voltage	
	Coil insulation type		Class B or equivalent	
	Power consumption [W]	24 VDC	0.95, 0.4	
		12 VDC	0.95, 0.4	

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) Only applicable to S, T, L and M kits

How to Order Valves

Plug-in **VQC5 1 0 0 □ – 5 □ □ 1 – □ □ □**

Type of actuation

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

Note) For double check type, refer to the **WEB catalog** or the VQ4000/5000 series catalog (CAT.ES11-104).

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

Port size

Nil	Without sub-plate (For manifold)
04	1/2

Porting specifications

Nil	Side ported
B	Bottom ported

Manual override

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

Body

0: Plug-in sub-plate

Seal

0	Metal seal
1	Rubber seal

Light/Surge voltage suppressor

Nil	Yes
E	Without light, with surge voltage suppressor

Function

Nil Note 1)	Standard (0.95 W)
Y	Low wattage type (0.4 W)
R Note 2)	External pilot

Coil voltage

5	24 VDC
6	12 VDC

Note 1) When the power is energized continuously, refer to "Specific Product Precautions 1" on page 71.
Note 2) For details about external pilot type, refer to the **WEB catalog** or the VQ4000/5000 series catalog (CAT.ES11-104).
Note 3) When multiple symbols are specified, indicate them alphabetically.

How to Order Sub-plates

[Option]

VQ5000 – PW – □ 04 □ – □

Porting specifications

Nil	Side ported
B	Bottom ported

Port size

04	1/2

Note) For bottom ported, port size is 1/2 only.

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

CE-compliant

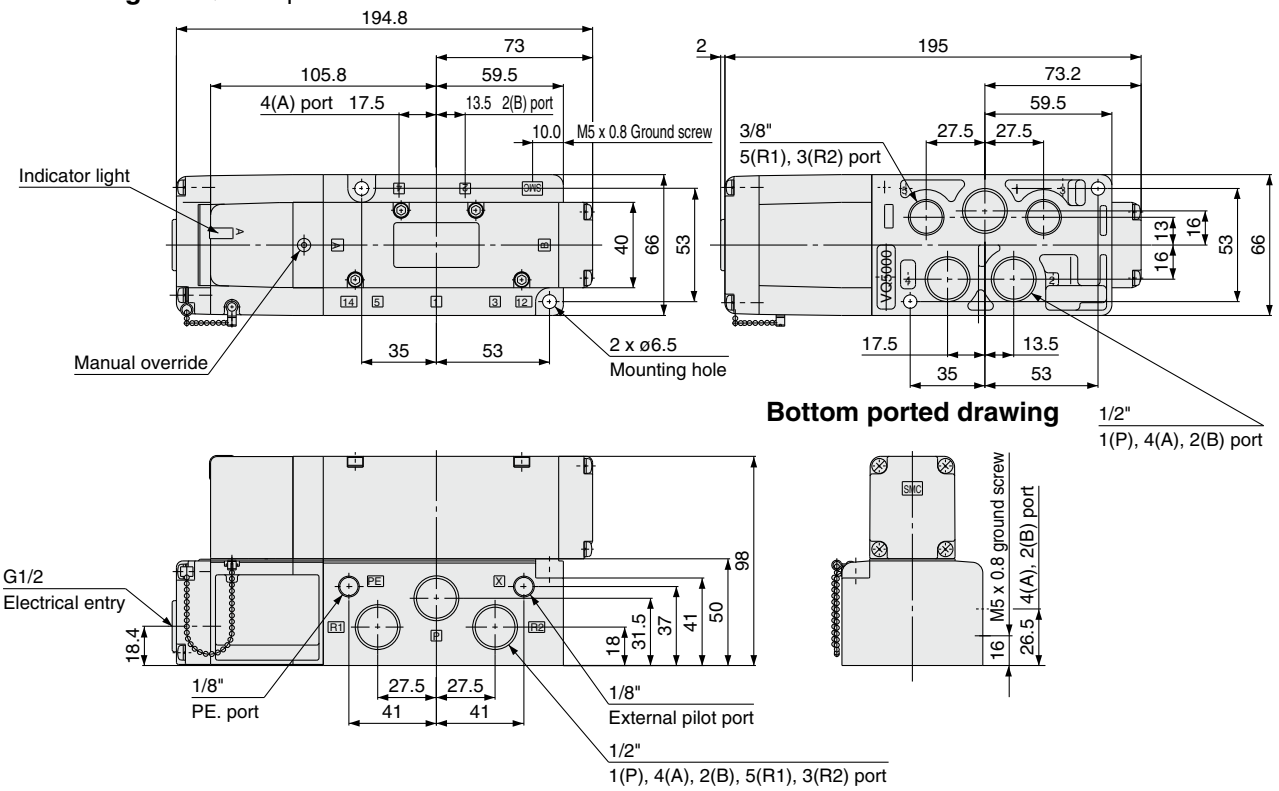
Nil	—
Q	CE-compliant

Replacement of pilot valve assembly (Voltage)
- Refer to page 69 for pilot valve assembly part numbers.
- Refer to page 72 for replacement method.

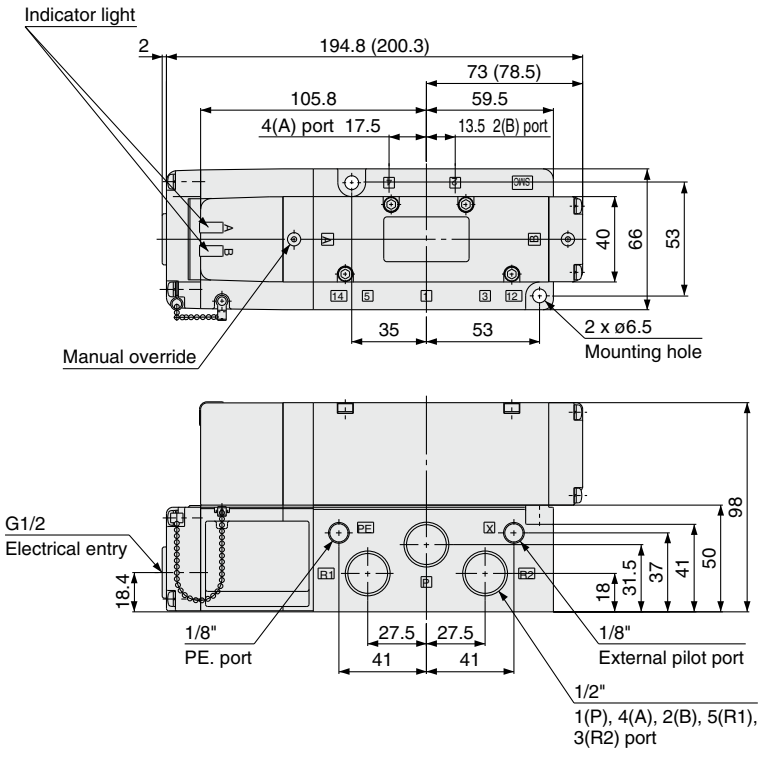
Plug-in Type

Conduit terminal

2-position single: VQC510$^{0}_{1}$

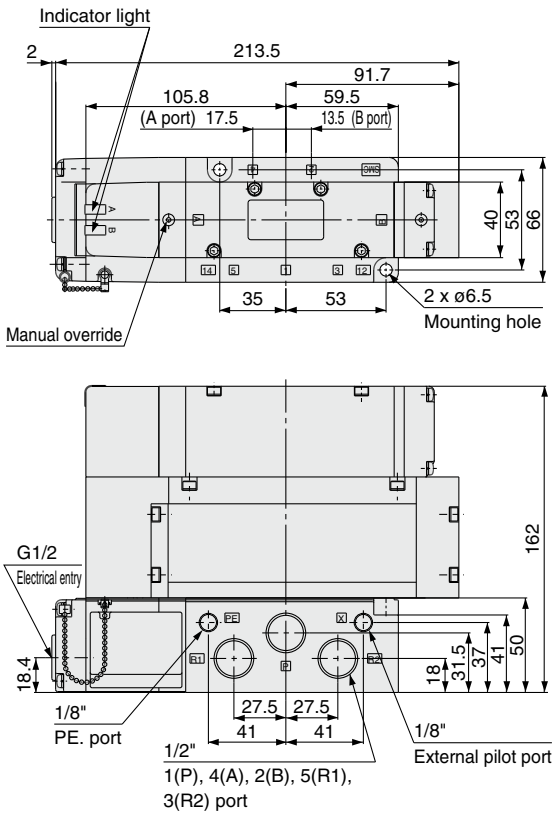


2-position double: VQC520$^{0}_{1}$
3-position closed center: VQC530$^{0}_{1}$
3-position exhaust center: VQC540$^{0}_{1}$
3-position pressure center: VQC550$^{0}_{1}$



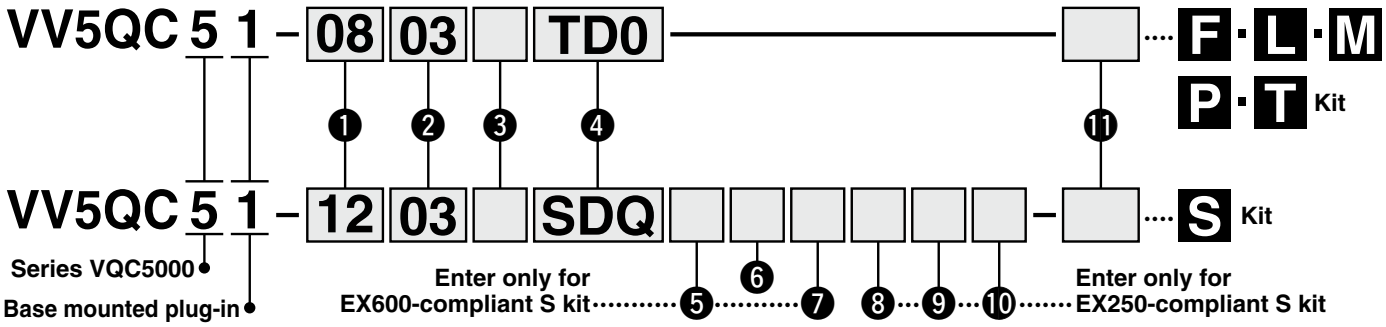
Numbers inside ( ) are for metal seal 3-position type.

3-position double check: VQC560$^{0}_{1}$



Base Mounted
Plug-in Unit
Series VQC5000

How to Order Manifold

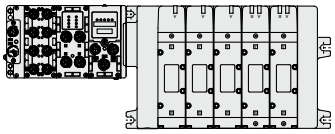


❶ Valve stations

01	1 station
⋮	⋮
12	12 stations

The minimum or maximum number of stations differs depending on the electrical entry. (Refer to ❹)

Note) In the case of compatibility with the S kit/As-Interface, the maximum number of solenoids is as shown below, so please be careful of the number of stations.
8 in/8 out: Maximum 8 solenoids
4 in/4 out: Maximum 4 solenoids



D side Stations ····· 1 ····· 2 ····· 3 ····· 4 ····· 5 ····· n U side

∗ Stations are counted from station 1 on the D-side.

❷ Cylinder port size

03	3/8
04	1/2
B	Bottom ported 1/4
CM	Mixed

❸ Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

❺ End plate type

(Enter only for EX600-compliant S kit.)

Nil	Without end plate
2	M12 connector power supply (Max. supply current 2A)
3	7/8 inch connector power supply (Max. supply current 8A)

Note) Without SI Unit, the symbol is nil.

❻ SI Unit output polarity

SI Unit output polarity		EX250 integrated-type (for I/O) serial transmission system					
		DeviceNet™	PROFIBUS DP	CC-Link	AS-Interface	CANopen	EtherNet/IP™
Nil	+ COM	—	—	○	—	—	—
N	– COM	○	○	—	○	○	○

SI Unit output polarity		EX260 integrated-type (for output) serial transmission system					
		DeviceNet™	PROFIBUS DP	CC-Link	EtherCAT®	PROFINET	EtherNet/IP™
Nil	+ COM	○	○	○	○	○	○
N	– COM	○	○	○	○	○	○

SI Unit output polarity		EX500 Gateway Decentralized System 2 (128 points)	EX500 Gateway Decentralized System (64 points)		
		EtherNet/IP™	DeviceNet™	PROFIBUS DP	EtherNet/IP™
Nil	+ COM	—	○	○	○
N	– COM	○	○	○	○

SI Unit output polarity		EX600 integrated-type (for I/O) serial transmission system (Fieldbus system)					
		DeviceNet™	PROFIBUS DP	CC-Link	EtherCAT®	PROFINET	EtherNet/IP™
Nil	+ COM	○	○	○	○	○	○
N	– COM	○	○	○	○	○	○

∗ Leave the box blank for without SI Unit (SD0□, SD60).

❼ I/O Unit stations

(Enter only for EX600-compliant S kit.)

Nil	None
1	1 station
⋮	⋮
9	9 stations

Note 1) Without SI Unit, the symbol is nil.
Note 2) SI Unit is not included in I/O Unit stations.
Note 3) When I/O Unit is selected, it is shipped separately, and assembled by customer. Refer to the attached operation manual for mounting method.
Note 4) Refer to page 41 for details about the enclosure.

❽ Number of input blocks

(Enter only for S kit compliant with EX250.)

Nil	Without SI Unit (SD0)
0	Without input block
1	With 1 input block
⋮	⋮
4	With 4 input blocks
⋮	⋮
8	With 8 input blocks

❾ Input block type

(Enter only for S kit compliant with EX250.)

Nil	Without input block
1	M12, 2 inputs
2	M12, 4 inputs
3	M8, 4 inputs

❿ Input block COM

(Enter only for S kit compliant with EX250.)

Nil	PNP sensor input or without input block
N	NPN sensor input

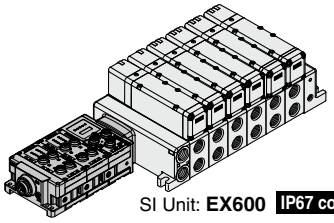
⓫ Option

Nil	None
K	Special wiring specifications (except for double wiring)
N	With name plate (available for T kit only)

❹ Kit type/Electrical entry/Cable length

∗ Numbers in parentheses represent the maximum number of solenoids in the case of mixed single and double wiring. The total number of solenoids determines the maximum number of stations. When ordering mixed wiring, please add the option symbol "-K".

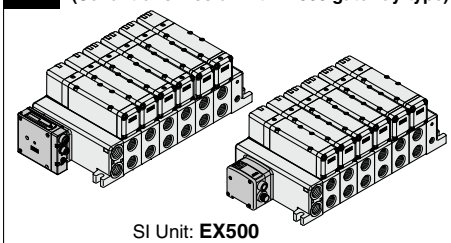
S Kit (Serial transmission kit (Fieldbus system) : EX600 integrated-type (for I/O))



SI Unit: **EX600** IP67 compliant

SD60	Serial kit without SI Unit	1 to 12 stations (24)
SD6Q	DeviceNet™	
SD6N	PROFIBUS DP	
SD6V	CC-Link	
SD6ZE	EtherNet/IP™ (1 port)	
SD6EA	EtherNet/IP™ (2 port)	
SD6D	EtherCAT®	
SD6F	PROFINET	

S Kit (Serial transmission kit: EX500 gateway-type)

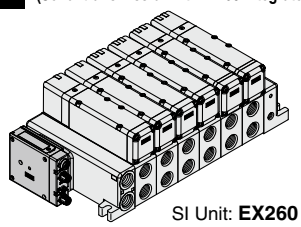


SI Unit: **EX500**

Note) A separate Gateway Unit and communication cable are required. IP67 compliant

SD0	Serial kit without SI Unit	—	—
SDA3	EX500 Gateway Decentralized System 2 (128 points) EtherNet/IP™	32 outputs Note 1)	1 to 12 stations (24)
SDA2	EX500 Gateway Decentralized System (64 points) DeviceNet™, PROFIBUS DP, EtherNet/IP™	16 outputs	1 to 12 stations (24)

S Kit (Serial transmission kit: EX260 integrated-type (for output))

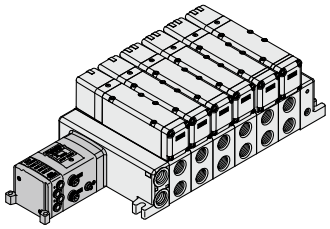


IP40 compliant
IP67 compliant

SI Unit: **EX260**

Symbol	Protocol	Number of outputs	Communication connector	Stations
SD0	Serial kit without SI Unit			1 to 12 stations (24)
SQA	DeviceNet™	32	M12	
SQB		16		1 to 12 stations (16)
SNA	PROFIBUS DP	32	M12	1 to 12 stations (24)
SNB		16		1 to 12 stations (16)
SNC		32	D-sub Note 3)	1 to 12 stations (24)
SND		16		1 to 12 stations (16)
SVA	CC-Link	32	M12	1 to 12 stations (24)
SVB		16		1 to 12 stations (16)
SDA	EtherCAT®	32	M12	1 to 12 stations (24)
SDB		16		1 to 12 stations (16)
SFA	PROFINET	32	M12	1 to 12 stations (24)
SFB		16		1 to 12 stations (16)
SEA	EtherNet/IP™	32	M12	1 to 12 stations (24)
SEB		16		1 to 12 stations (16)

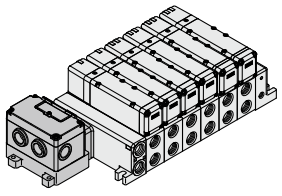
S Kit (Serial transmission kit: EX250 integrated-type (for I/O))



SI Unit: **EX250** IP67 compliant

SD0	Serial kit without SI Unit	1 to 12 stations (24)
SDQ	DeviceNet™	
SDN	PROFIBUS DP	
SDV	CC-Link	
SDTA	AS-Interface, 8 in/out, 31 slave modes, 2 power supply systems	1 to 8 stations (8)
SDTB	AS-Interface, 4 in/out, 31 slave modes, 2 power supply systems	1 to 4 stations (4)
SDTC Note 2)	AS-Interface, 8 in/out, 31 slave modes, 1 power supply system	1 to 8 stations (8)
SDTD Note 2)	AS-Interface, 4 in/out, 31 slave modes, 1 power supply system	1 to 4 stations (4)
SDY	CANopen	1 to 12 stations (24)
SDZEN	EtherNet/IP™	

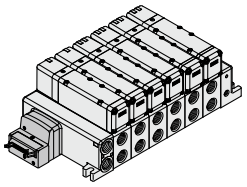
S Kit (Serial transmission kit: EX126 integrated-type (for output))



SI Unit: **EX126** IP67 compliant

SDVB	Serial kit for CC-Link	1 to 12 stations (16)

P Kit (Flat ribbon cable kit)

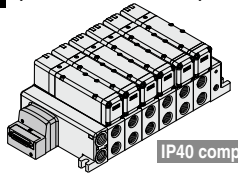


IP40 compliant

Note) For a 20P flat ribbon cable, the cable assembly must be ordered separately.

PD0	Flat ribbon cable kit (26P) without cable	1 to 12 stations (24)
PD1	Flat ribbon cable kit (26P) with 1.5 m cable	
PD2	Flat ribbon cable kit (26P) with 3.0 m cable	
PD3	Flat ribbon cable kit (26P) with 5.0 m cable	
PDC	Flat ribbon cable kit (20P) without cable Note)	1 to 12 stations (18)

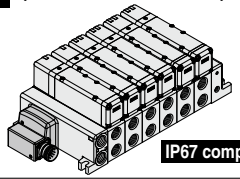
F Kit (D-sub connector kit)



IP40 compliant

FD0	D-sub connector kit (25P) without cable	1 to 12 stations (24)
FD1	D-sub connector kit (25P) with 1.5 m cable	
FD2	D-sub connector kit (25P) with 3.0 m cable	
FD3	D-sub connector kit (25P) with 5.0 m cable	

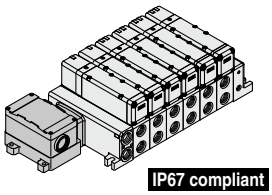
M Kit (Circular connector kit)



IP67 compliant

MD0	Circular connector kit (26P) without cable	1 to 12 stations (24)
MD1	Circular connector kit (26P) with 1.5 m cable	
MD2	Circular connector kit (26P) with 3.0 m cable	
MD3	Circular connector kit (26P) with 5.0 m cable	

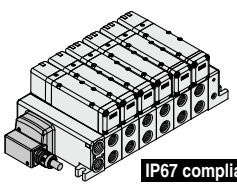
T Kit (Terminal block box kit)



IP67 compliant

TD0	Terminal block box kit	1 to 12 stations (20)

L Kit (Lead wire kit)



IP67 compliant

LD0	Lead wire kit, 0.6 m lead wire	1 to 12 stations (24)
LD1	Lead wire kit, 1.5 m lead wire	
LD2	Lead wire kit, 3.0 m lead wire	

∗ The maximum number of solenoids displayed in parentheses is applied to the special wiring specification (Option "-K").

Note 1) When using the SI Unit with 32 outputs, use the GW Unit compatible with the EX500 Gateway Decentralized System 2 (128 points).

Note 2) When selecting SI Units with SDTC or SDTD specifications, there are limits to the supply current from the SI Unit to the input block or valve. For details, refer to the **WEB catalog** or the Best Pneumatics No. 1.

Note 3) When selecting D-sub S kit specifications only, IP40 is compatible. (All other SI Units are IP67 compliant.)

Note 4) For the SI Unit part no., refer to page 50.

How to Order Valves

VQC 5 1 0 0 – 5 1

Series VQC5000 — Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ

Ⓐ Type of actuation

1	2-position single (A) (B) 4 2 / 5 1 3 / (R1) (P) (R2)	4	3-position exhaust center (A) (B) 4 2 / 5 1 3 / (R1) (P) (R2)
2	2-position double (Metal) (A) (B) 4 2 / 5 1 3 / (R1) (P) (R2)	5	3-position pressure center (A) (B) 4 2 / 5 1 3 / (R1) (P) (R2)
	2-position double (Rubber) (A) (B) 4 2 / 5 1 3 / (R1) (P) (R2)	6	3-position double check (A) (B) 4 2 / 5 1 3 / (R1) (P) (R2)
3	3-position closed center (A) (B) 4 2 / 5 1 3 / (R1) (P) (R2)		

Ⓑ Seal type

0	Metal seal
1	Rubber seal

Ⓒ Function

Nil Note 1)	Standard (0.95 W)
Y	Low wattage type (0.4 W)
R Note 2)	External pilot

Note 1) When the power is energized continuously, refer to "Specific Product Precautions 1" on page 71.

Note 2) For details about external pilot type, refer to the **WEB catalog** or the VQ4000/5000 series catalog (CAT. ES11-104). In addition, external pilot type cannot be combined with a double check spacer.

∗ When multiple symbols are specified, indicate them alphabetically.

Ⓓ Coil voltage

5	24 VDC Note)
6	12 VDC

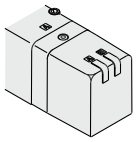
Note) S kit is only available for 24 VDC.

Ⓔ Light/Surge voltage suppressor

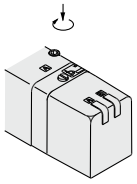
Nil	Yes
E	Without light, with surge voltage suppressor

Ⓕ Manual override

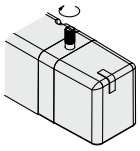
Nil — Non-locking push type (Tool required)



B — Push-turn locking type (Tool required)

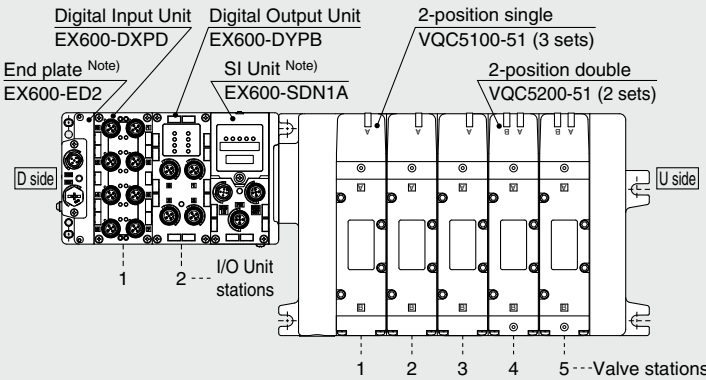


C — Turn locking type (Manual)



How to Order Manifold Assembly

Example (VV5QC51-□SD6□)



VV5QC51-0503SD6Q2N2···1 set (S kit 5-station manifold base part number)
∗VQC5100-51·····3 sets (2-position single part number)
∗VQC5200-51·····2 sets (2-position double part number)
∗EX600-DXPD·····1 set I/O Unit part number (Station 1)
∗EX600-DYPB·····1 set I/O Unit part number (Station 2)

∗ The asterisk denotes the symbol for assembly.
∗ Prefix it to the part numbers of the valve etc.

· The valve arrangement is numbered as the 1st station from the D side.
· Under the manifold part number, state the valves to be mounted, then the I/O Units in order from the 1st station as shown in the figure above. If the arrangement becomes complicated, specify on a manifold specification sheet.

Note) Do not enter the SI Unit part number and the end plate part number together.

Manifold Specifications

Series	Base model	Connection type	Piping specifications: Port direction	Piping specifications: Port size Note 1) 1, 3 (P, R)	Piping specifications: Port size Note 1) 2, 4 (A, B)	Applicable stations Note 2)	Applicable solenoid valve	5-station weight [g]
VQC5000	VV5QC51-□□□	■F kit: D-sub connector ■P kit: Flat ribbon cable ■T kit: Terminal block box ■S kit: Serial transmission ■L kit: Lead wire ■M kit: Circular connector	Side	D side P: 1/2 R: 1/2 (Rc, G, NPT/NPTF) U side P: 3/8 R: 3/8 (Rc, G, NPT/NPTF)	3/8,1/2 (Rc, G, NPT/NPTF)	F,L,M,P kit (1 to 12 stations) T kit (1 to 12 stations) S kit (1 to 12 stations: EX250, EX260; 1 to 12 stations: EX500, EX600)	VQC5□00-51 VQC5□01-51	4150 · S kit (Without Unit) · Not including valve weight.
			Bottom		1/2 (Rc, G, NPT/NPTF)			

Note 1) One-touch fittings in inch sizes are also available.
Note 2) As an optional specification, the maximum number of stations can be increased by special wiring specifications.

SI Unit Part Number Table

EX600

Symbol	Applicable protocol	SI Unit part no.		Page
		Negative common (PNP)	Positive common (NPN)	
SD6Q	DeviceNet™	EX600-SDN1A	EX600-SDN2A	33
SD6V	CC-Link	EX600-SMJ1	EX600-SMJ2	
SD6N	PROFIBUS DP	EX600-SPR1A	EX600-SPR2A	
SD6ZE	EtherNet/IP™ (1 port)	EX600-SEN1	EX600-SEN2	
SD6EA	EtherNet/IP™ (2 port)	EX600-SEN3	EX600-SEN4	
SD6D	EtherCAT®	EX600-SEC1	EX600-SEC2	
SD6F	PROFINET	EX600-SPN1	EX600-SPN2	

EX260

Symbol	Applicable protocol	Number of outputs	SI Unit part no.		Communication connector	Page
			Negative common (PNP)	Positive common (NPN)		
SQA	DeviceNet™	32	EX260-SDN1	EX260-SDN2	M12	33
SQB		16	EX260-SDN3	EX260-SDN4		
SNA	PROFIBUS DP	32	EX260-SPR1	EX260-SPR2		
SNB		16	EX260-SPR3	EX260-SPR4		
SNC		32	EX260-SPR5	EX260-SPR6	D-sub	
SND		16	EX260-SPR7	EX260-SPR8		
SVA	CC-Link	32	EX260-SMJ1	EX260-SMJ2	M12	
SVB		16	EX260-SMJ3	EX260-SMJ4		
SDA	EtherCAT®	32	EX260-SEC1	EX260-SEC2	M12	
SDB		16	EX260-SEC3	EX260-SEC4		
SFA	PROFINET	32	EX260-SPN1	EX260-SPN2	M12	
SFB		16	EX260-SPN3	EX260-SPN4		
SEA	EtherNet/IP™	32	EX260-SEN1	EX260-SEN2	M12	
SEB		16	EX260-SEN3	EX260-SEN4		

EX126

Symbol	Applicable protocol	SI Unit part no.	Page
SDVB	CC-Link, Positive common (NPN)	EX126D-SMJ1	34

EX500 Gateway Decentralized System 2 (128 points)

Symbol	Applicable protocol	SI Unit part no.	Page
		Negative common (PNP)	
SDA3	EtherNet/IP™	EX500-S103	33

EX500 Gateway Decentralized System (64 points)

Symbol	Applicable protocol	SI Unit part no.		Page
		Positive common (NPN)	Negative common (PNP)	
SDA2	DeviceNet™	EX500-Q001	EX500-Q101	33
	PROFIBUS DP			
	EtherNet/IP™			

EX250

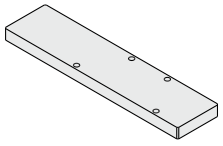
Symbol	Applicable protocol	SI Unit part no.	Page
SDQ	DeviceNet™, Negative common (PNP)	EX250-SDN1	34
SDN	PROFIBUS DP, Negative common (PNP)	EX250-SPR1	
SDV	CC-Link, Positive common (NPN)	EX250-SMJ2	
SDTA	AS-Interface, Negative common (PNP), (8 in/8 out, 31 slave modes, 2 power supply systems)	EX250-SAS3	
SDTB	AS-Interface, Negative common (PNP), (4 in/4 out, 31 slave modes, 2 power supply systems)	EX250-SAS5	
SDTC	AS-Interface, Negative common (PNP), (8 in/8 out, 31 slave modes, 1 power supply system)	EX250-SAS7	
SDTD	AS-Interface, Negative common (PNP), (4 in/4 out, 31 slave modes, 1 power supply system)	EX250-SAS9	
SDY	CANopen, Negative common (PNP)	EX250-SCA1A	
SDZEN	EtherNet/IP™, Negative common (PNP)	EX250-SEN1	

For details about the EX series (Serial Transmission System), refer to the **WEB catalog** or the Best Pneumatics No. 1 and the Operation Manual. Please download the Operation Manual via SMC website, http://www.smcworld.com

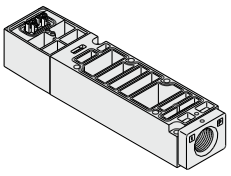
Manifold Options

For details about options, refer to the **WEB catalog** or the VQ4000/5000 series catalog (CAT.ES11-104).

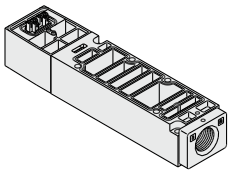
Blanking plate assembly
VVQ5000-10A-1



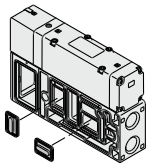
Individual SUP spacer
VVQ5000-P-1-$^{03}_{04}$



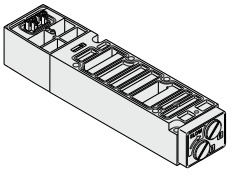
Individual EXH spacer
VVQ5000-R-1-$^{03}_{04}$



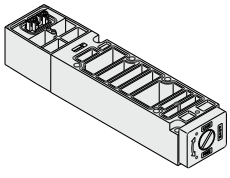
EXH block plate
VVQ5000-16A-2



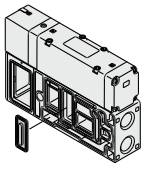
Restrictor spacer
VVQ5000-20A-1



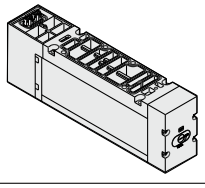
SUP stop valve spacer
VVQ5000-37A-1



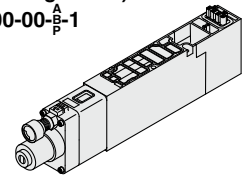
SUP block plate
VVQ5000-16A-1



Double check spacer with residual pressure exhaust
VVQ5000-25A-1



Interface regulator
(P, A, B port regulation)
ARBQ5000-00-$^{A}_{B}$-1

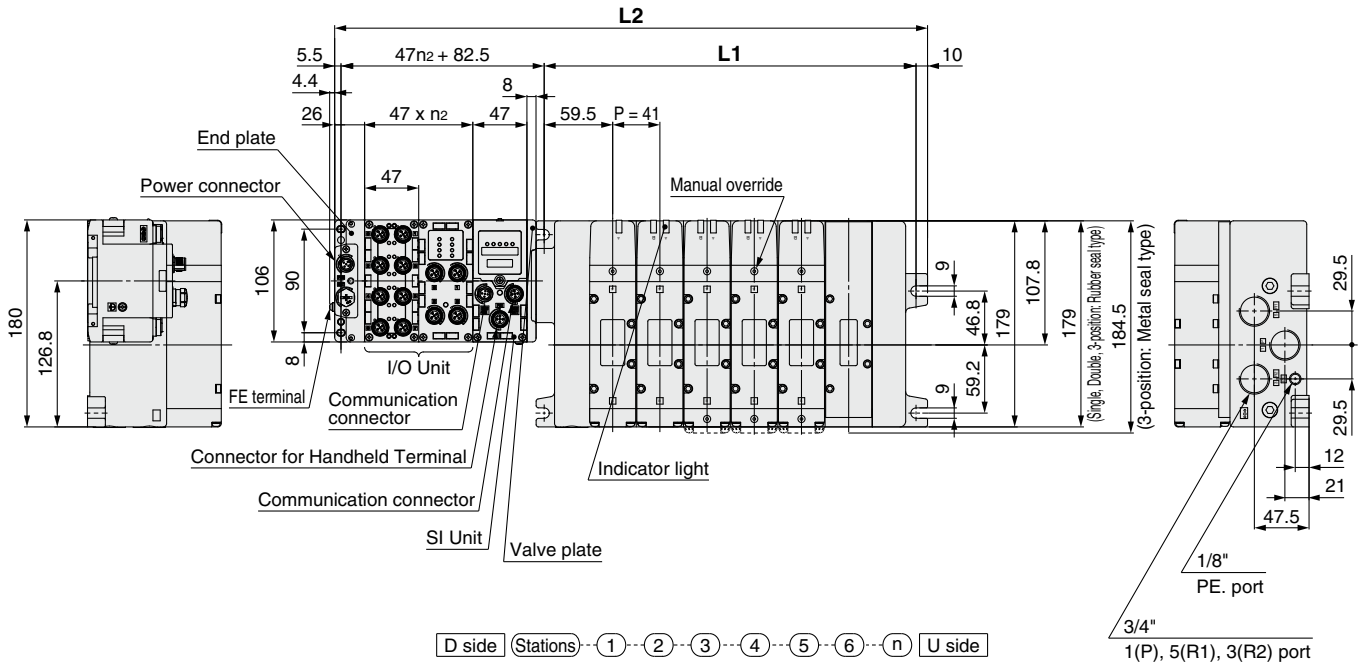


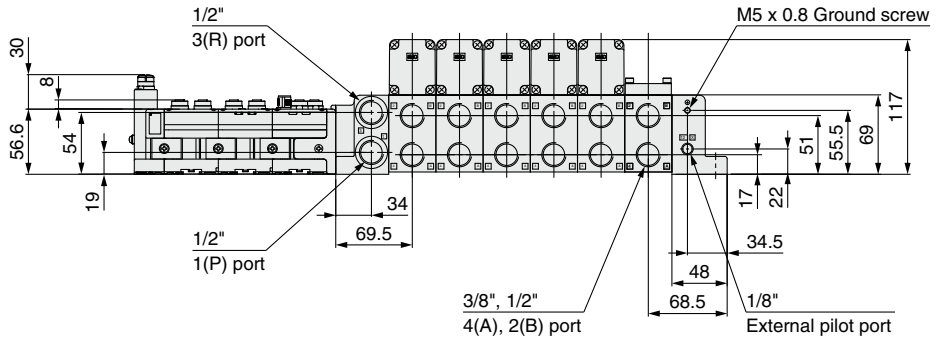
· For replacement parts, refer to page 69.

S VQC5000

Kit (Serial transmission kit): For EX600 Integrated-type (I/O) Serial Transmission System IP67 compliant

VV5QC51
S kit (Serial transmission kit: EX600)
Power supply with M12 connector





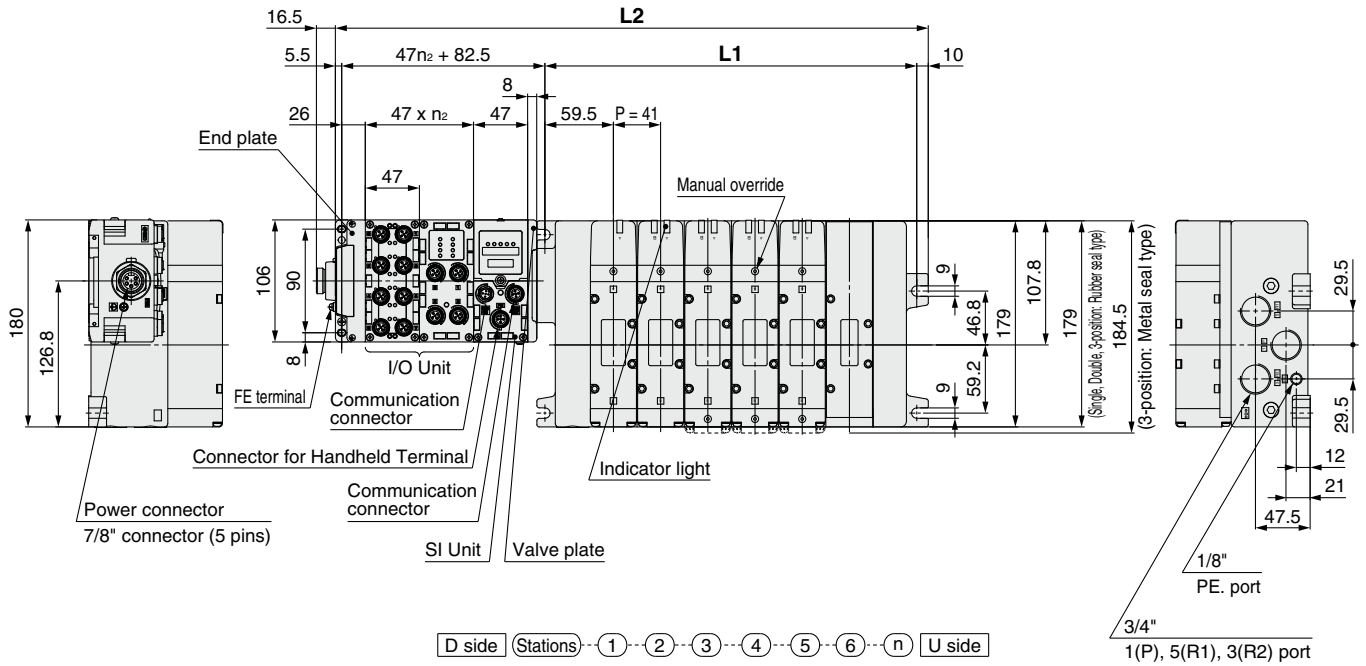
Dimensions Formula: L1 = 41n + 77, L2 = 41n + 175 ∗ L2 is the dimension without I/O Unit. Add 47 mm for each additional I/O Units. ∗ "n2" is number of I/O Units. n: Stations (Maximum 12 stations)

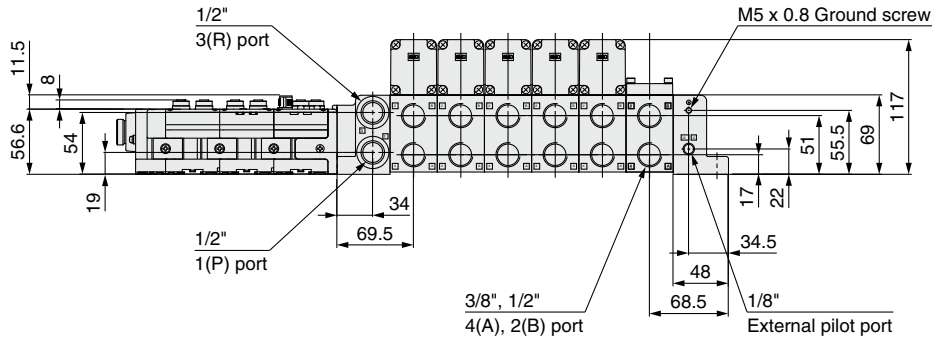
L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	118	159	200	241	282	323	364	405	446	487	528	569
L2	216	257	298	339	380	421	462	503	544	585	626	667

S *VQC5000*

Kit (Serial transmission kit): For EX600 Integrated-type (I/O) Serial Transmission System IP67 compliant

VV5QC51
S kit (Serial transmission kit: EX600)
Power supply with 7/8 inch connector





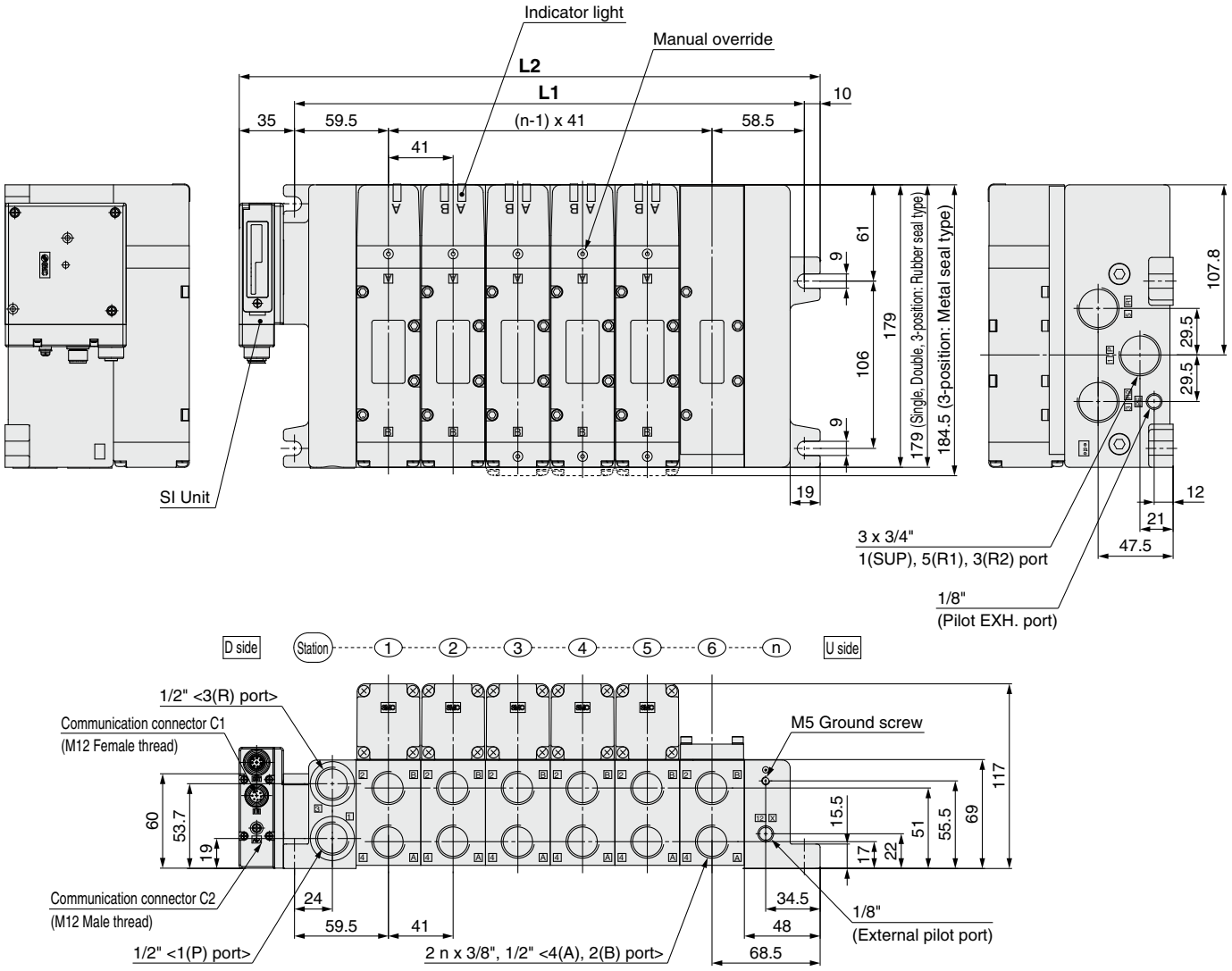
Dimensions Formula: L1 = 41n + 77, L2 = 41n + 175 * L2 is the dimension without I/O Unit. Add 47 mm for each additional I/O Units. * "n2" is number of I/O Units. n: Stations (Maximum 12 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	118	159	200	241	282	323	364	405	446	487	528	569
L2	216	257	298	339	380	421	462	503	544	585	626	667

S VQC5000

Kit (Serial transmission kit): For EX500 Gateway Decentralized System 2 (128 points) IP67 compliant

VV5QC51
S kit (Serial transmission kit: EX500)



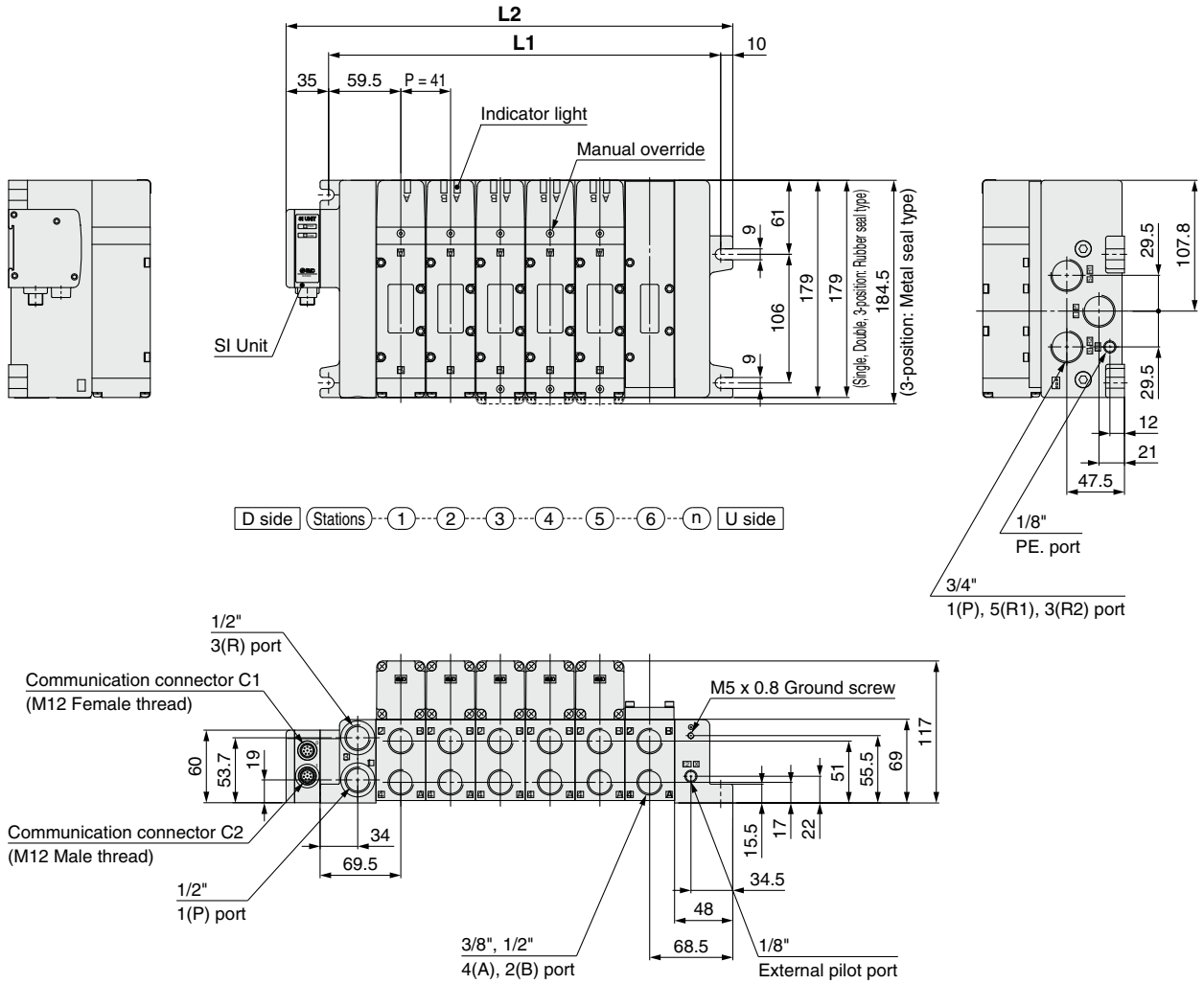
Formula: L1 = 41n + 77, L2 = 41n + 122 n: Stations (Maximum 12 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	118	159	200	241	282	323	364	405	446	487	528	569
L2	163	204	245	286	327	368	409	450	491	532	573	614

S VQC5000

Kit (Serial transmission kit): For EX500 Gateway Decentralized System (64 points) IP67 compliant

VV5QC51
S kit (Serial transmission kit: EX500)



Dimensions

Formula: L1 = 41n + 77, L2 = 41n + 122 n: Stations (Maximum 12 stations)

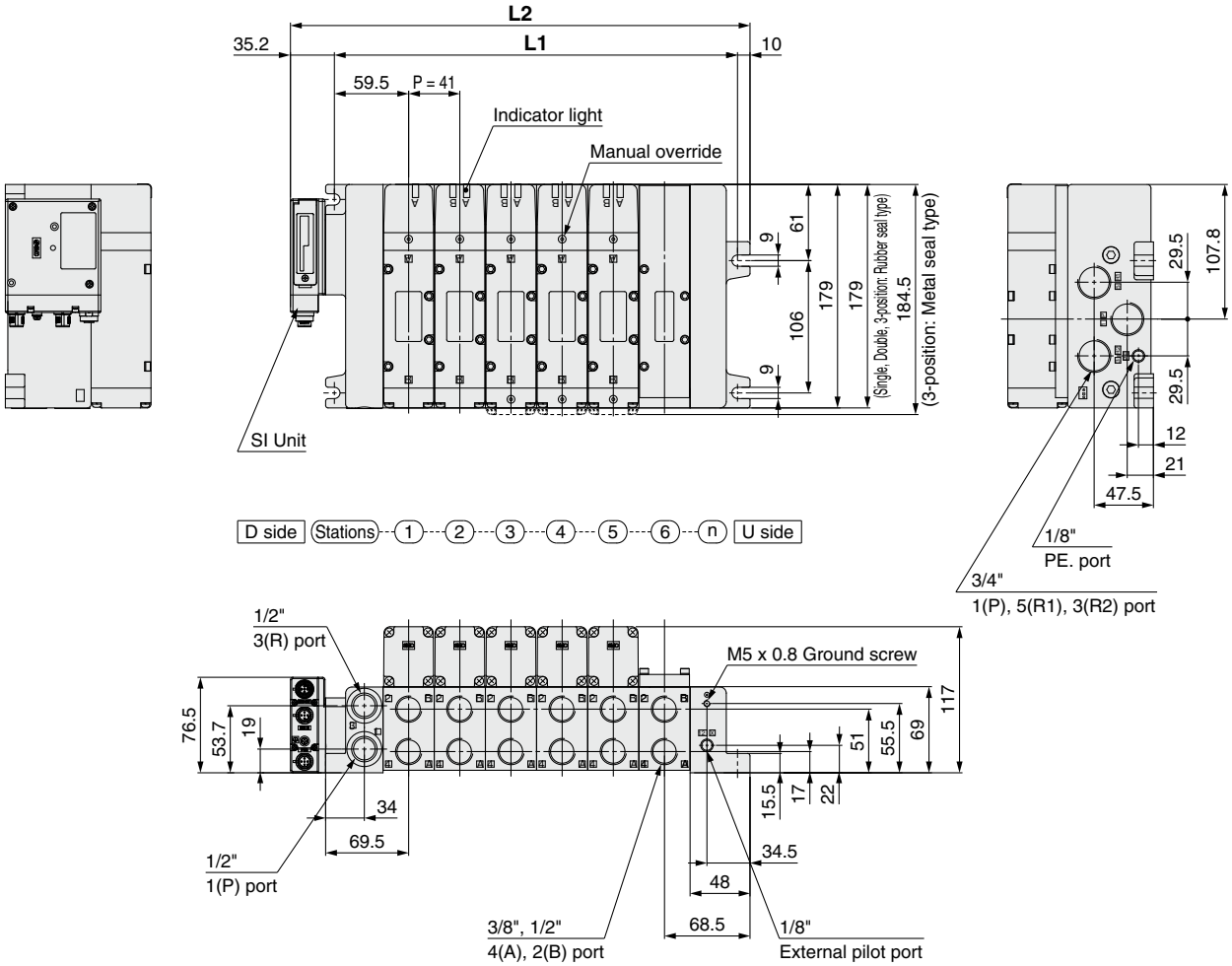
L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	118	159	200	241	282	323	364	405	446	487	528	569
L2	163	204	245	286	327	368	409	450	491	532	573	614

S *VQC5000*

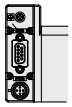
Kit (Serial transmission kit): For EX260 Integrated-type (Output) Serial Transmission System

IP40 compliant
IP67 compliant

VV5QC51
S kit (Serial transmission kit: EX260)



<Communication connector D-sub>



Dimensions

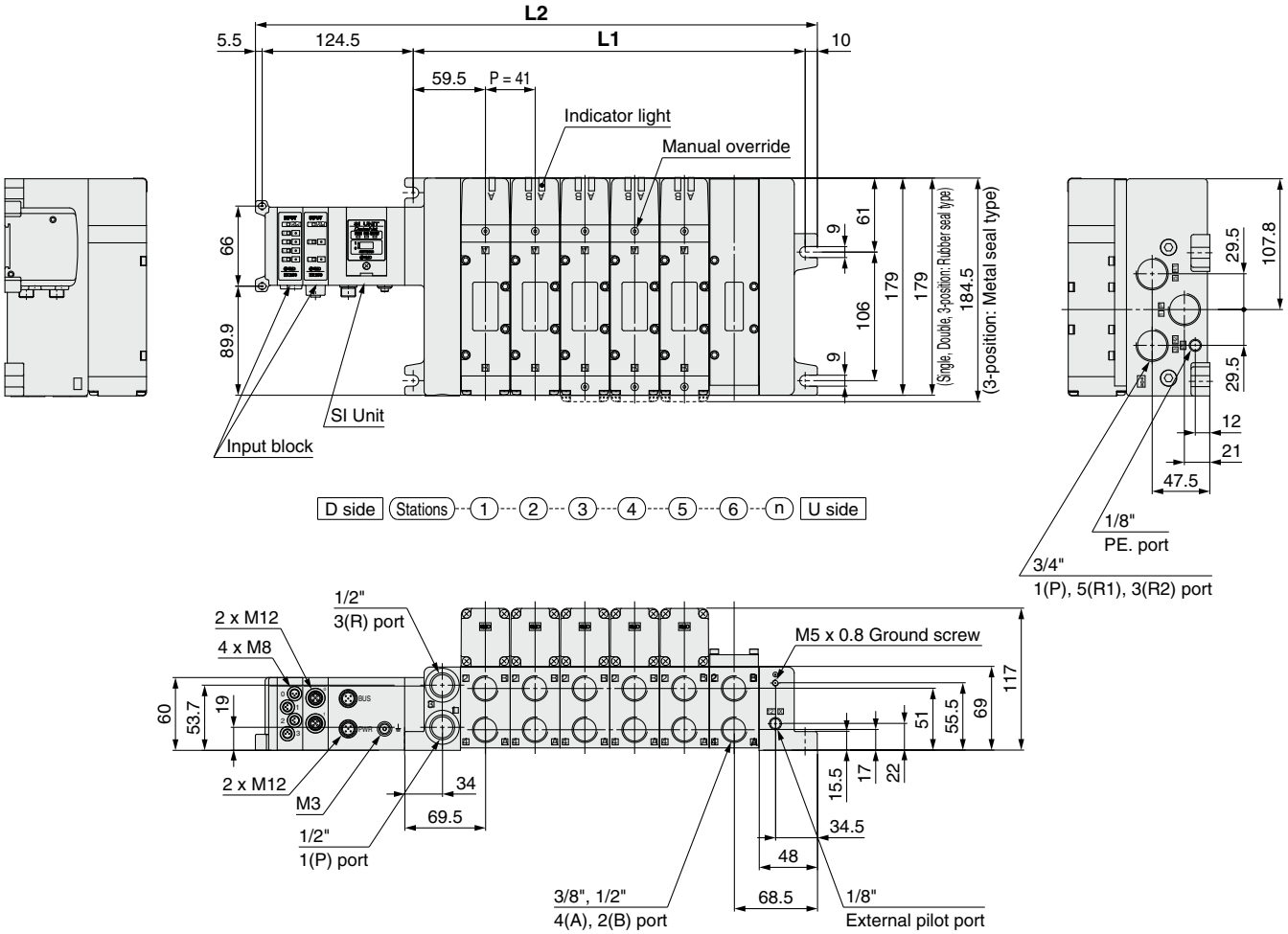
Formula: L1 = 41n + 77, L2 = 41n + 122.2 n: Stations (Maximum 12 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	118	159	200	241	282	323	364	405	446	487	528	569
L2	163.2	204.2	245.2	286.2	327.2	368.2	409.2	450.2	491.2	532.2	573.2	614.2

S VQC5000

Kit (Serial transmission kit): For EX250 Integrated-type (I/O) Serial Transmission System IP67 compliant

VV5QC51
S kit (Serial transmission kit: EX250)



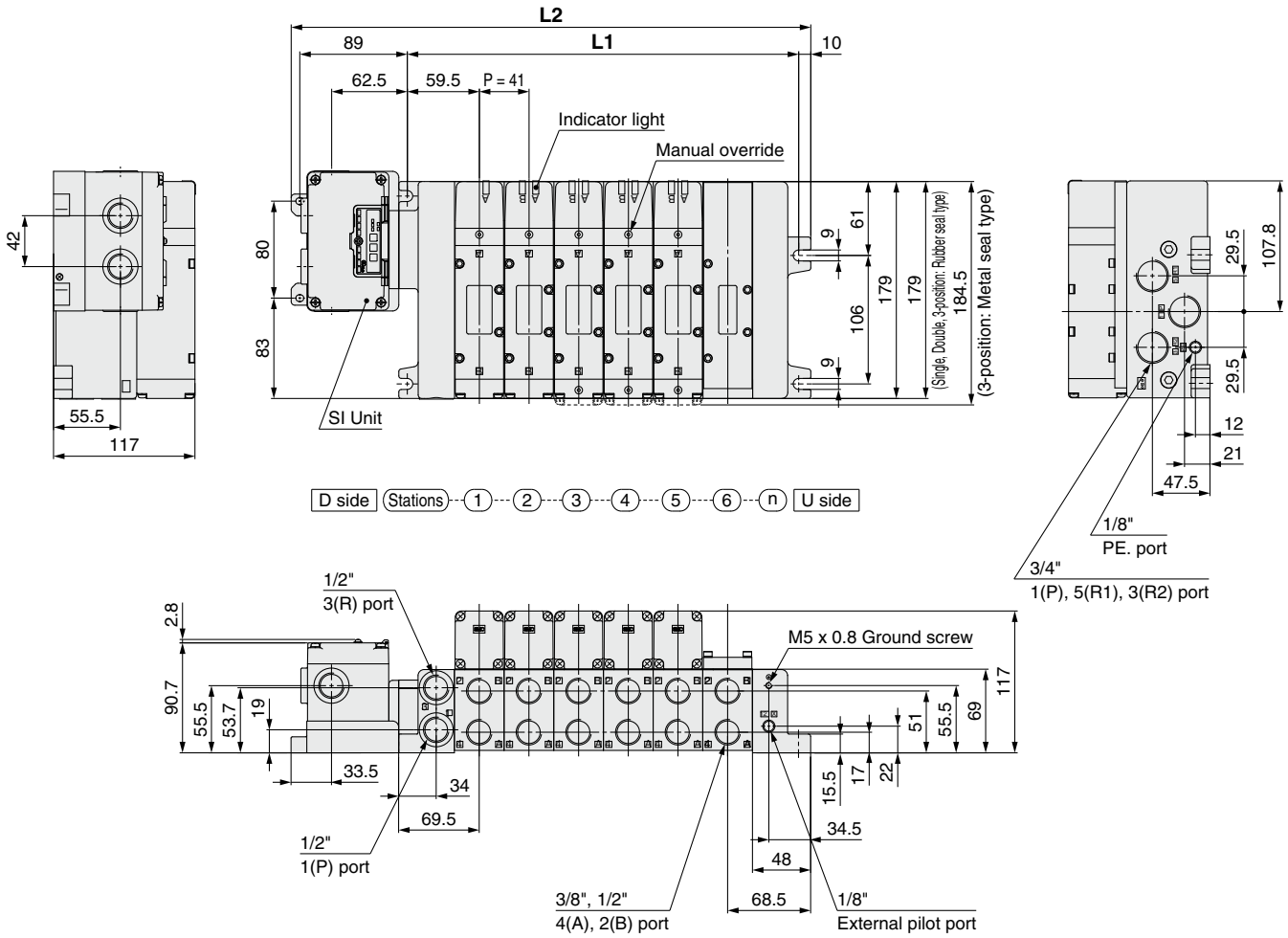
Dimensions Formula: L1 = 41n + 77, L2 = 41n + 196 (For one input block. Add 21 mm for each additional input block.) n: Stations (Maximum 12 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	118	159	200	241	282	323	364	405	446	487	528	569
L2	237	278	319	360	401	442	483	524	565	606	647	688

S *VQC5000*

Kit (Serial transmission kit): For EX126 Integrated-type (Output) Serial Transmission System IP67 compliant

VV5QC51
S kit (Serial transmission kit: EX126)



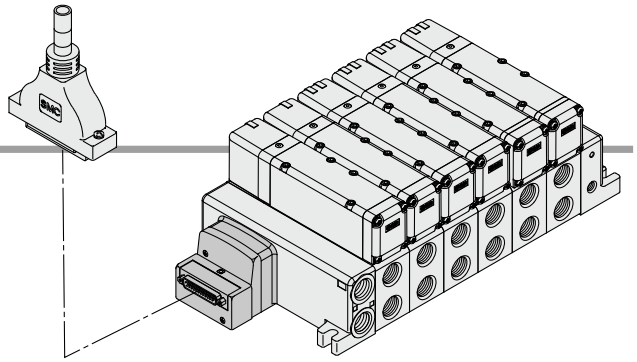
Dimensions

Formula: L1 = 41n + 77, L2 = 41n + 182.8 n: Stations (Maximum 12 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	118	159	200	241	282	323	364	405	446	487	528	569
L2	223.8	264.8	305.8	346.8	387.8	428.8	469.8	510.8	551.8	592.8	633.8	674.8

F VQC5000

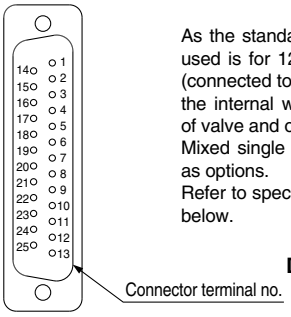
Kit (D-sub connector kit) IP40 compliant



- **Using our D-sub connector for electrical connections greatly reduces labor, while it also minimizes wiring and saves space.**
- **We use a D-sub connector (25P) that conforms to MIL standards and is therefore widely compatible with many standard commercial models.**
- **Top or side entry for the connector can be changed freely, allowing for changes even after mounting, to meet any changing needs for space.**

Electrical Wiring Specifications

D-sub connector



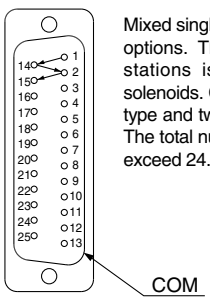
As the standard electrical wiring specification used is for 12 stations or less, double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types.
Mixed single and double wiring are available as options.
Refer to special wiring specifications (options) below.

Lead wire colors for D-sub connector assemblies (AXT100-DS25-$^{015}_{030}_{050}$)

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

Special Wiring Specifications (Options)

(For 25P)

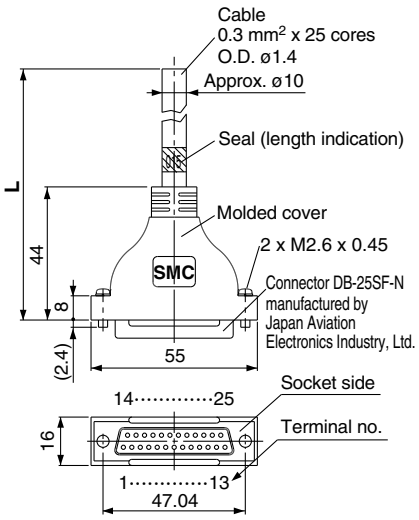


Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

Cable Assembly

AXT100-DS25-$^{015}_{030}_{050}$

(D-sub connector cable assemblies can be ordered with manifolds. Refer to manifold ordering.)



Lead wire colors for D-sub connector cable assembly terminal numbers

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 assemblies

Cable length [L]	Part no.	Note
1.5 m	AXT100-DS25-015	Cable 0.3 mm² x 25 cores
3 m	AXT100-DS25-030	
5 m	AXT100-DS25-050	

∗ When using a standard commercial connector, use a type 25P female connector conforming to MIL-C-24308.
∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

Electrical characteristics

Item	Characteristic
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

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

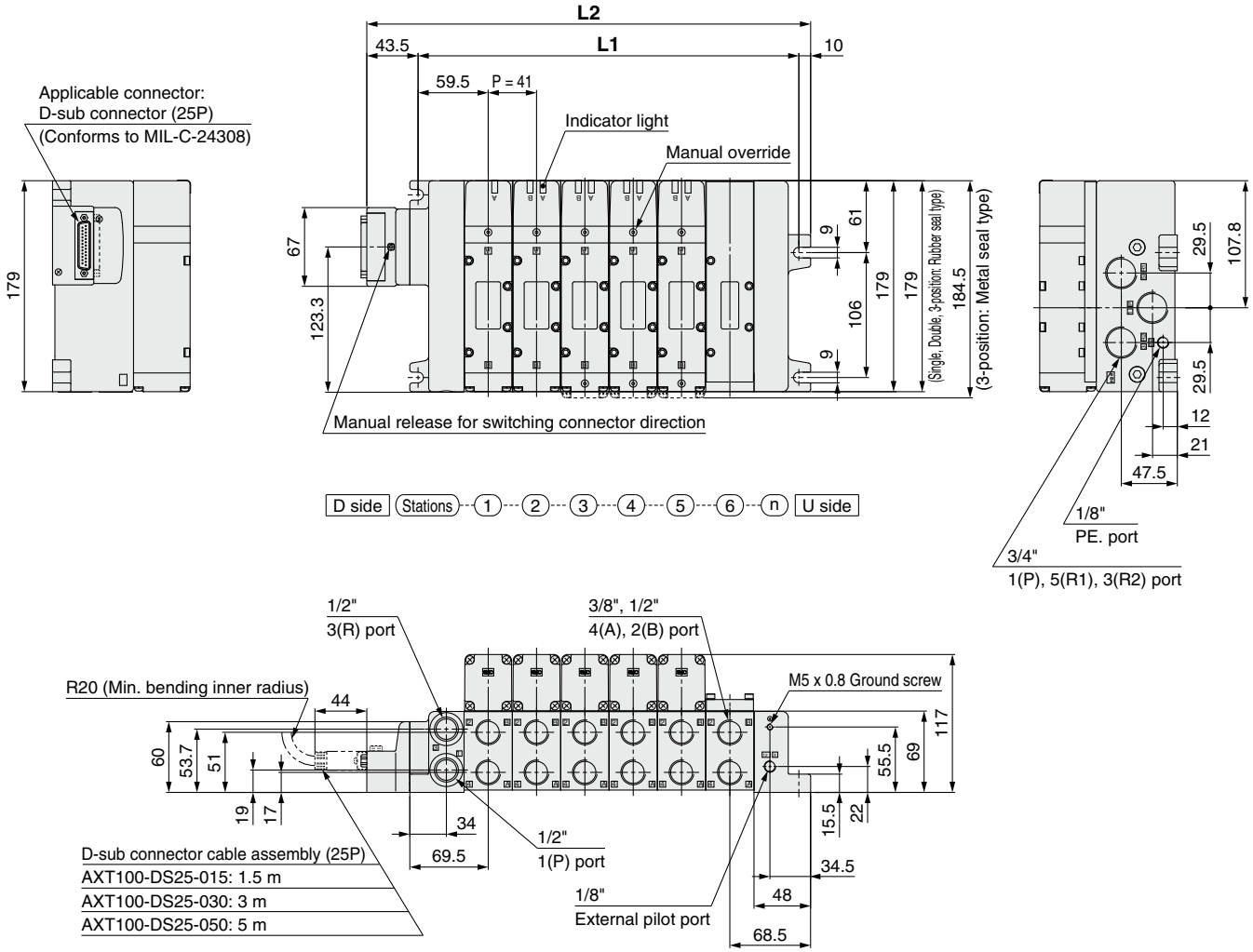
Connector Manufacturers Example

· Fujitsu, Ltd.
· Japan Aviation Electronics Industry, Ltd.
· J.S.T. Mfg. Co., Ltd.
· HIROSE ELECTRIC CO., LTD.

F VQC5000

Kit (D-sub connector kit) IP40 compliant

VV5QC51



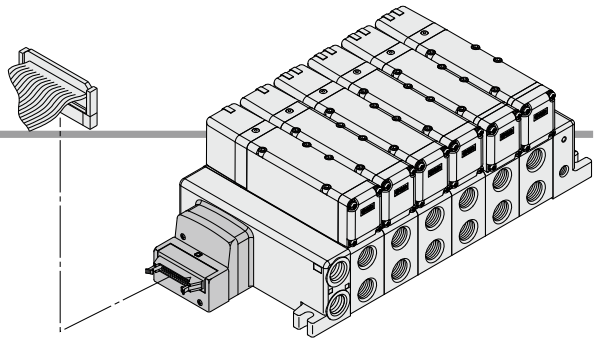
Dimensions

Formula: L1 = 41n +77, L2 = 41n + 130.5 n: Stations (Maximum 12 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	118	159	200	241	282	323	364	405	446	487	528	569
L2	171.5	212.5	253.5	294.5	335.5	376.5	417.5	458.5	499.5	540.5	581.5	622.5

P VQC5000

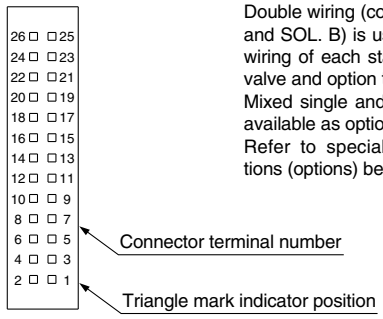
Kit (Flat ribbon cable kit) IP40 compliant



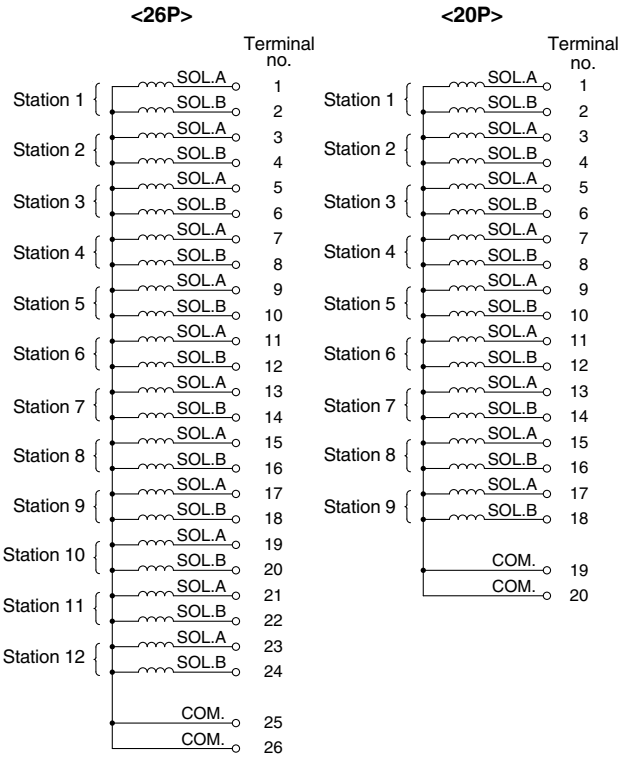
- **Using our flat ribbon cable for electrical connections greatly reduces labor, while it also minimizes wiring and saves space.**
- **We use flat ribbon cables whose connectors (26P and 20P) conform to MIL standards, and are therefore widely compatible with many standard commercial models.**
- **Top or side entry for the connector can be changed freely, allowing for changes even after mounting, to meet any changing needs for space.**

Electrical Wiring Specifications

Flat ribbon cable connector



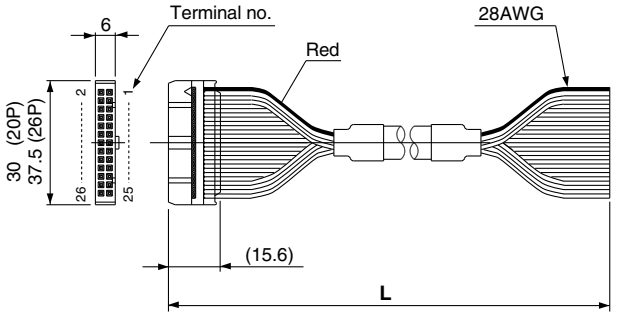
Double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types.
Mixed single and double wiring are available as options.
Refer to special wiring specifications (options) below.



Cable Assembly

AXT100-FC $\begin{matrix}20\\26\end{matrix}$ **-** $\begin{matrix}1\\2\\3\end{matrix}$

(Type 26P flat ribbon cable connector assemblies can be ordered with manifolds. Refer to manifold ordering.)



Flat ribbon cable connector assemblies

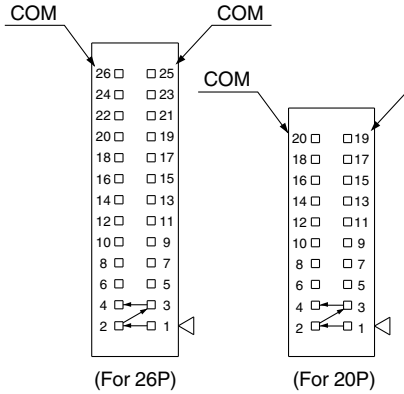
Cable length [L]	Part no.	
	26P	20P
1.5 m	AXT100-FC26-1	AXT100-FC20-1
3 m	AXT100-FC26-2	AXT100-FC20-2
5 m	AXT100-FC26-3	AXT100-FC20-3

∗ When using a standard commercial connector, use a type 26P connector conforming to MIL-C-83503 or a type 20P with strain relief.
∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

Connector Manufacturers Example

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

Special Wiring Specifications (Option)

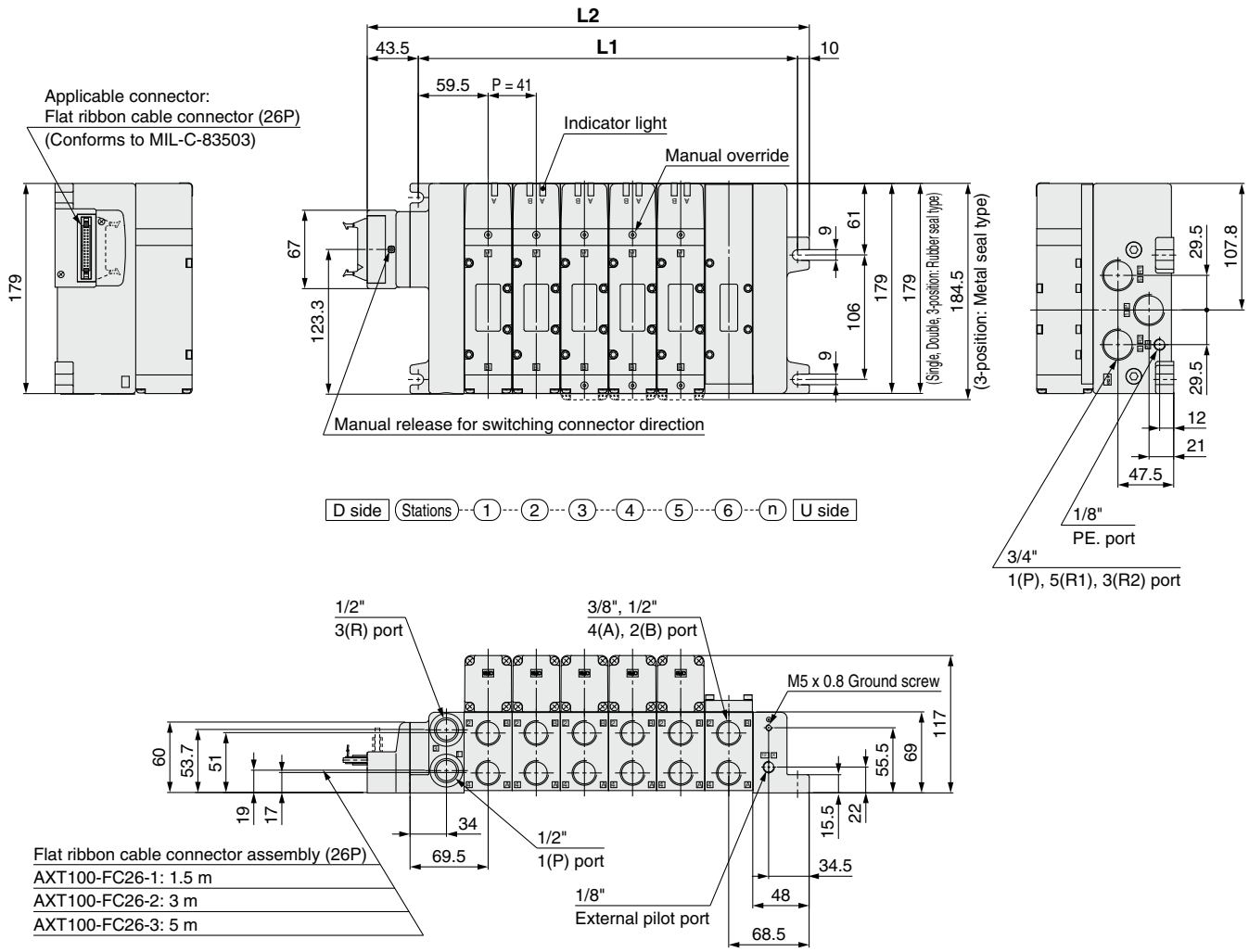


Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

P *VQC5000*

Kit (Flat ribbon cable kit) IP40 compliant

VV5QC51

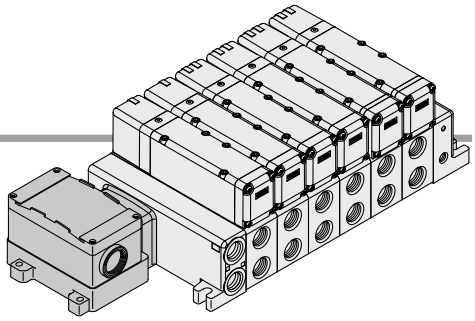


Dimensions

Formula: L1 = 41n + 77, L2 = 41n + 130.5 n: Stations (Maximum 12 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	118	159	200	241	282	323	364	405	446	487	528	569
L2	171.5	212.5	253.5	294.5	335.5	376.5	417.5	458.5	499.5	540.5	581.5	622.5

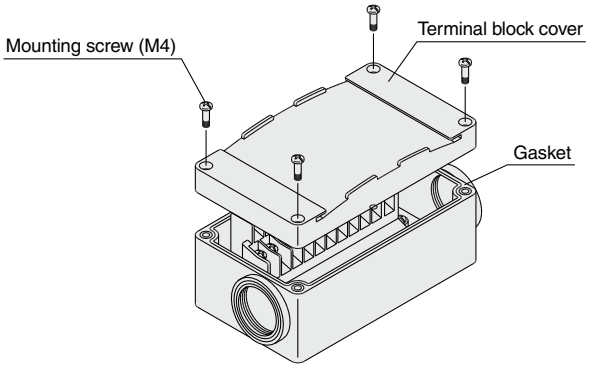
T VQC5000
Kit (Terminal block box kit) IP67 compliant



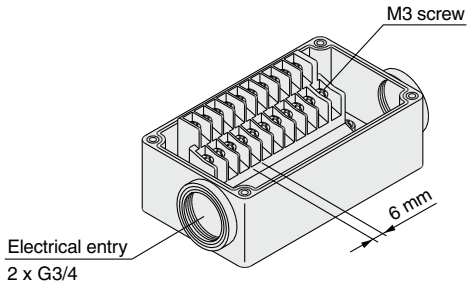
- **This kit has a small terminal block inside a junction box. The provision of a G3/4 electrical entry allows connection of conduit fittings.**

Terminal Block Connection

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



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

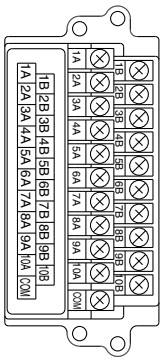


Step 3. How to replace the terminal block cover
Securely tighten the screws to the torque shown in the table below, after confirming that the gasket is installed correctly.

Proper tightening torque [N·m]
0.7 to 1.2

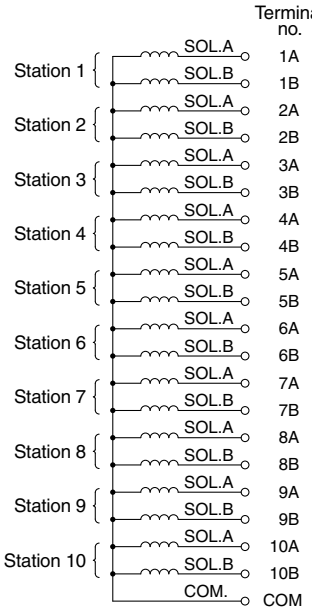
- Applicable crimped terminal: 1.25-3S,1.25Y-3,1.25Y-3N,1.25Y-3.5
- Name plate: VVQ5000-N-T
- Drip proof plug assembly (for G3/4): AXT100-B06A

Electrical Wiring Specifications (Conforms to IP67)



The internal wiring is double (connected to SOL. A and SOL. B) for all stations regardless of the type of valve or options.
Mixed single and double wiring are available as options.

Standard wiring

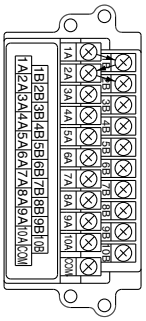


Special Wiring Specifications (Option)

Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 20.

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

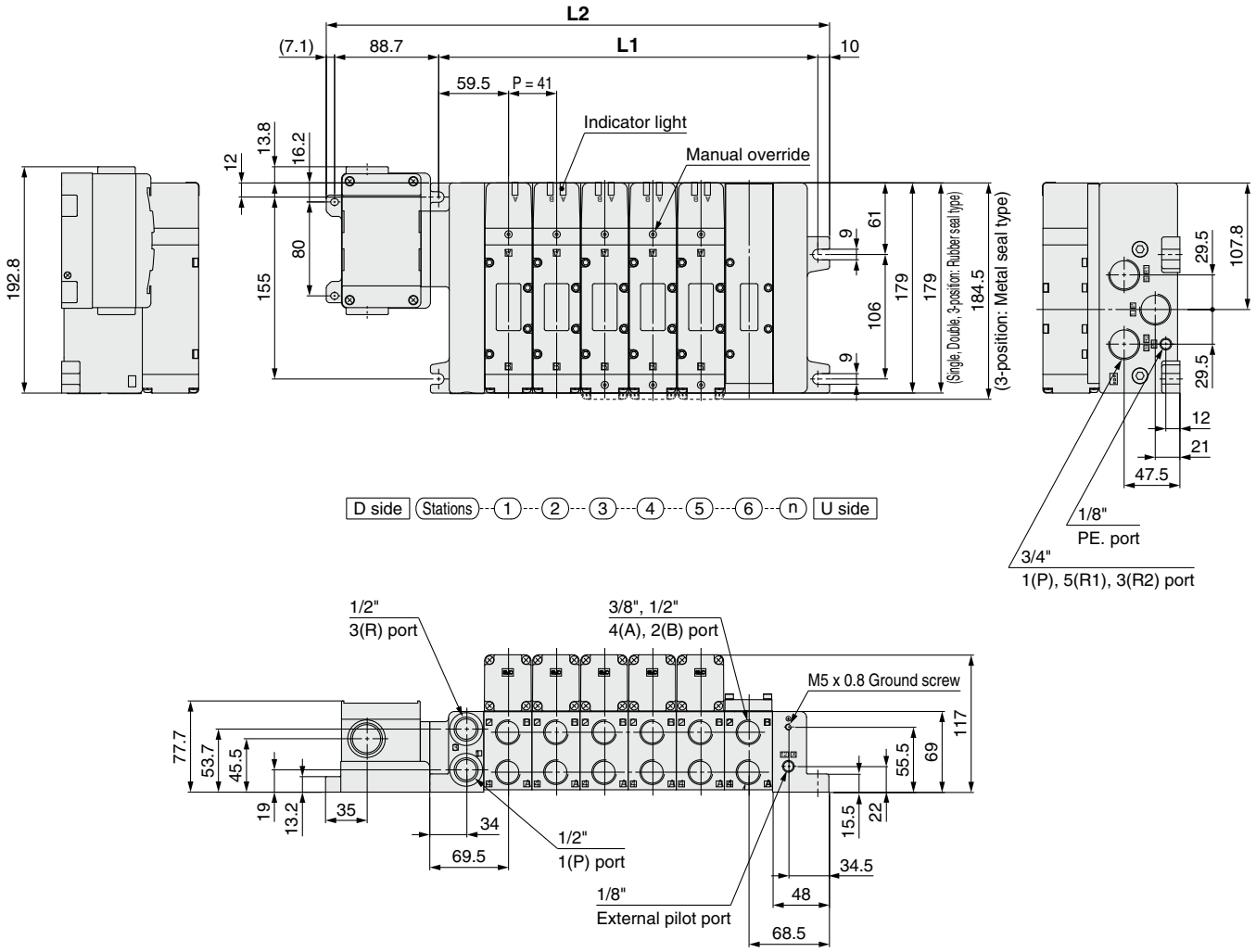
2. Wiring specifications
Connector terminal numbers are connected from solenoid station 1 on the A side in the order indicated by the arrows without skipping any terminal numbers.



T *VQC5000*

Kit (Terminal block box kit) IP67 compliant

VV5QC51

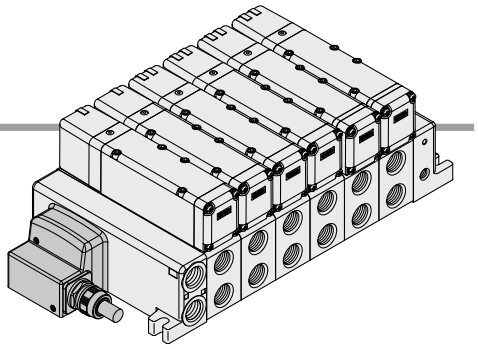


Dimensions

Formula: L1 = 41n + 77, L2 = 41n + 182.8 n: Stations (Maximum 12 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	118	159	200	241	282	323	364	405	446	487	528	569
L2	223.8	264.8	305.8	346.8	387.8	428.8	469.8	510.8	551.8	555.8	596.8	637.8

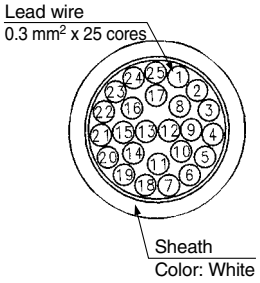
L VQC5000
Kit (Lead wire kit) IP67 compliant



- **Direct electrical entry type**
- **IP67 enclosure is available with use of cables with sheath and waterproof connectors.**

Electrical Wiring Specifications

Lead wire specifications



As the standard electrical wiring specification used is for 12 stations or less, double wiring (connected to SOL. A and SOL. B) is used for the internal wiring of each station regardless of valve and option types.
Mixed single and double wiring are available as options.
Refer to special wiring specifications (options) below.

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

Lead wire length

VV5QC51−08 C12 LD [0]

Lead wire length

0	0.6 m
1	1.5 m
2	3.0 m

Electrical characteristics

Item	Characteristic
Conductor resistance Ω/km, 20°C	65 or less
Withstand pressure V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

Note) Cannot be used for transfer wiring.
The minimum bending radius for cables is 20 mm.

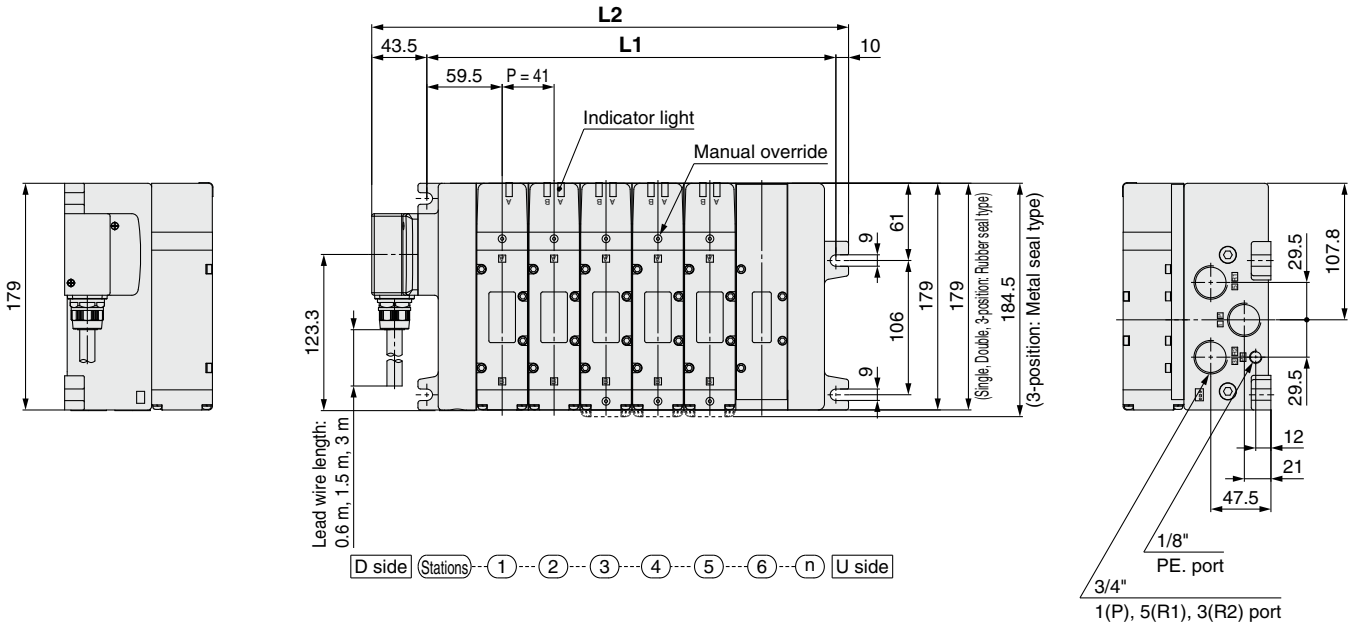
Special Wiring Specifications (Option)

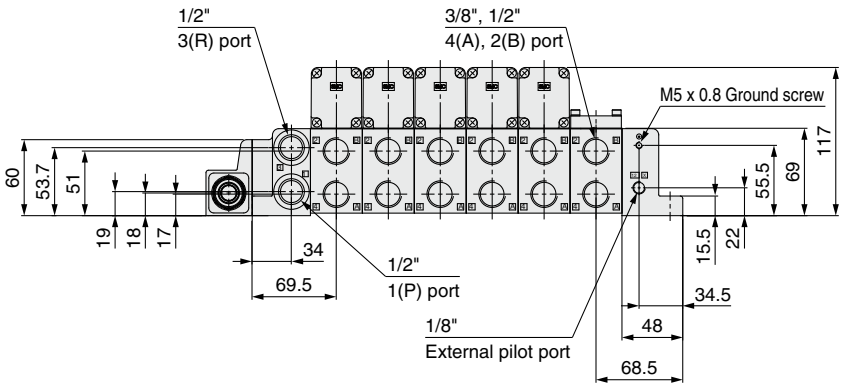
Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

L *VQC5000*

Kit (Lead wire kit) IP67 compliant

VV5QC51



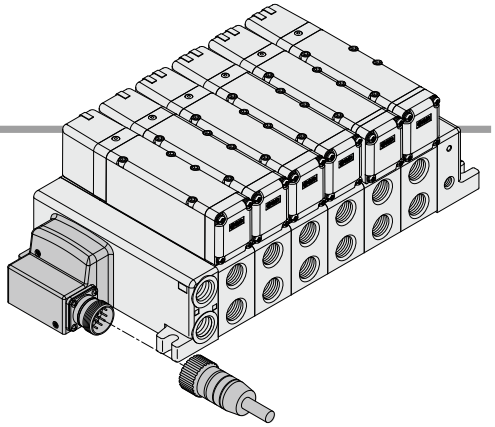


Dimensions

Formula: L1 = 41n + 77, L2 = 41n + 130.5 n: Stations (Maximum 12 stations)

L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	118	159	200	241	282	323	364	405	446	487	528	569
L2	171.5	212.5	253.5	294.5	335.5	376.5	417.5	458.5	499.5	540.5	581.5	622.5

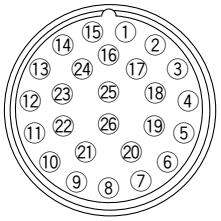
M VQC5000
Kit (Circular connector kit) IP67 compliant



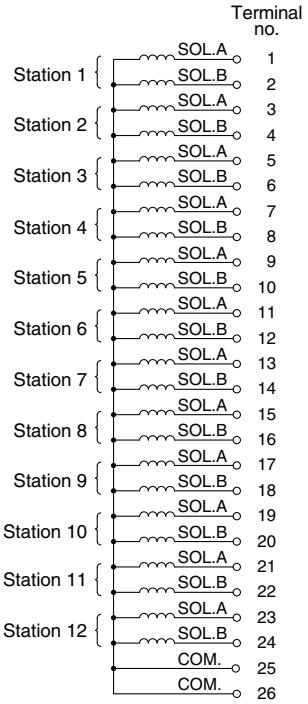
- **Use of circular connectors helps streamline wiring procedure to save labor.**
- **IP67 enclosure is available with use of waterproof multiple connectors.**

Electrical Wiring Specifications

Multiple connector



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



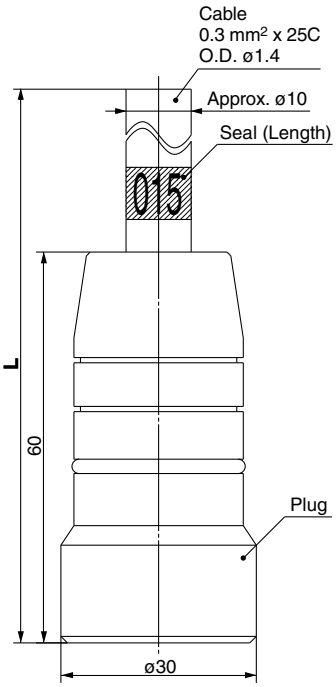
Special Wiring Specifications (Option)

Mixed single and double wiring are available as options. The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. The total number of solenoids (points) must not exceed 24.

Cable Assembly

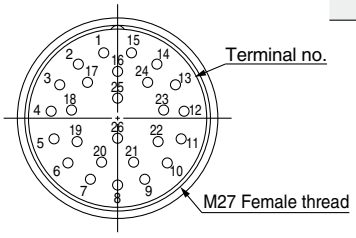
AXT100-MC26- 015 / 030 / 050

(Type 26P circular connector cable assemblies can be ordered with manifolds. Refer to manifolds ordering.)



Lead wire colors for circular connector cable assembly terminal numbers

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
26	White	None



Electric characteristics

Item	Property
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 minute, AC	1000
Insulation resistance MΩ/km, 20°C	5 or more

Note) The minimum bending radius of the multiple connector cable is 20 mm.

Circular connector cable assemblies

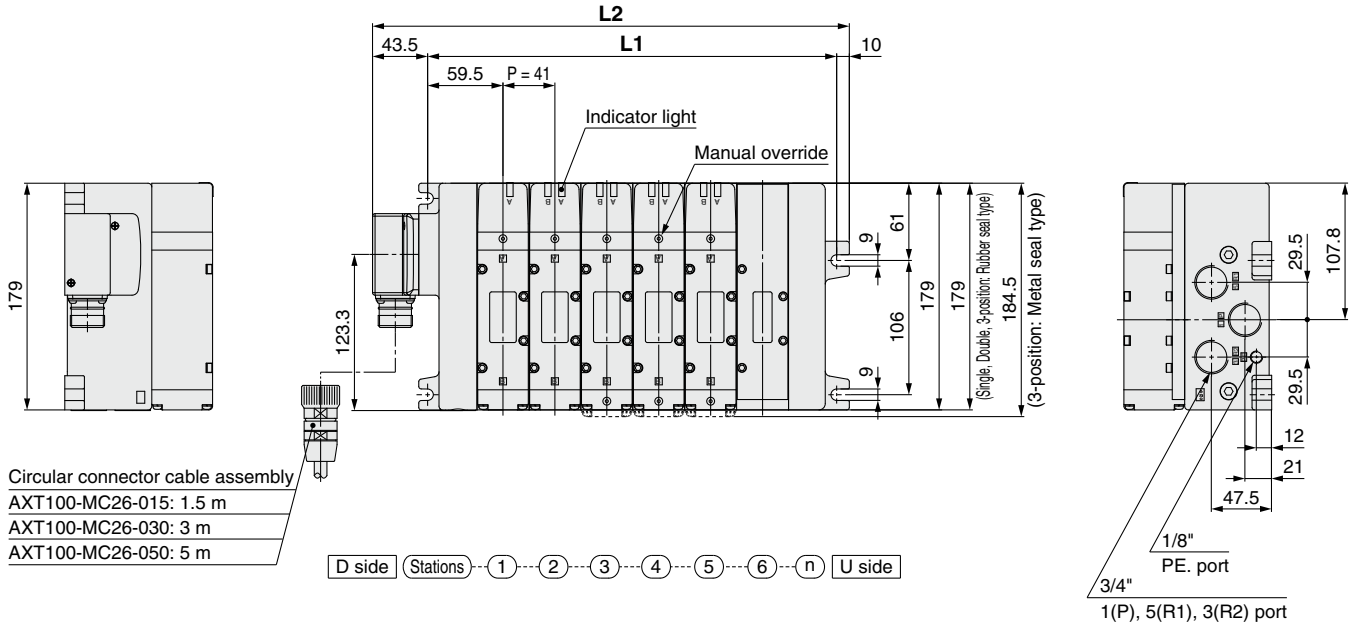
Cable length [L]	Assembly part no.
	26P
1.5 m	AXT100-MC26-015
3 m	AXT100-MC26-030
5 m	AXT100-MC26-050

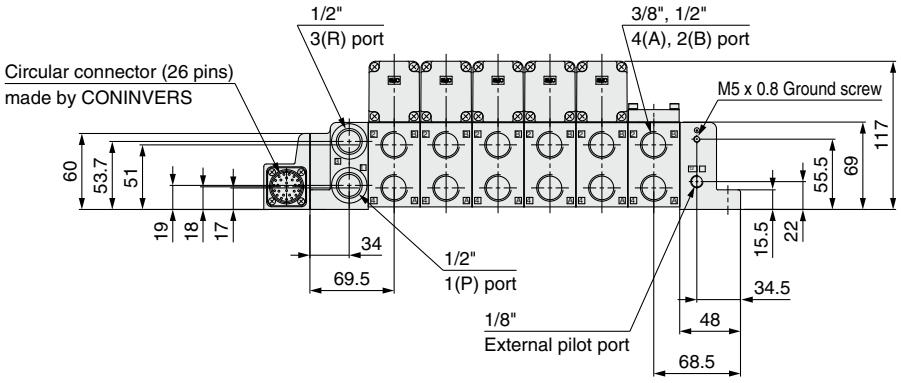
∗ Cannot be used for transfer wiring.
∗ Lengths other than the above is also available. Please contact SMC for details.

M *VQC5000*

Kit (Circular connector kit) IP67 compliant

VV5QC51





Dimensions

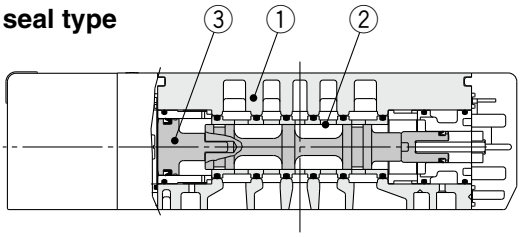
Formula: L1 = 41n + 77, L2 = 41n + 130.5 n: Stations (Maximum 12 stations)

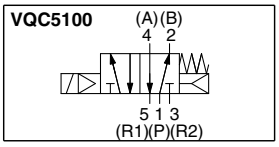
L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L1	118	159	200	241	282	323	364	405	446	487	528	569
L2	171.5	212.5	253.5	294.5	335.5	376.5	417.5	458.5	499.5	540.5	581.5	622.5

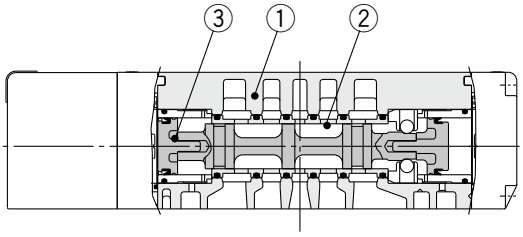
Construction

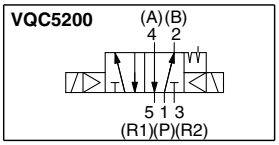
Plug-in Unit

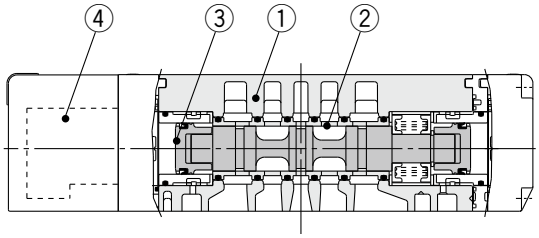
Metal seal type

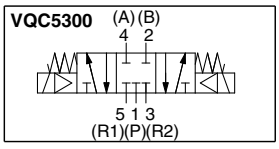


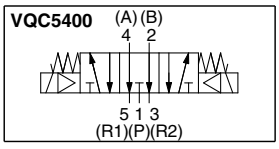


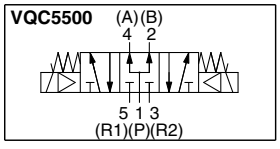




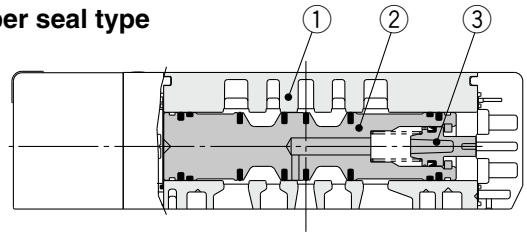


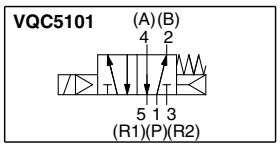


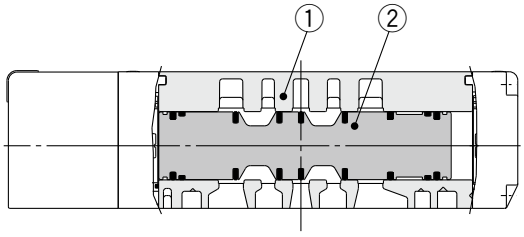


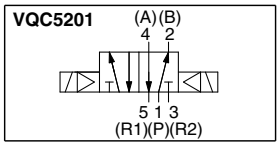


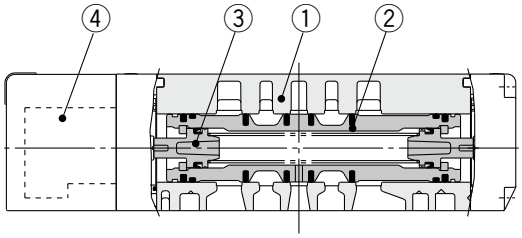
Rubber seal type

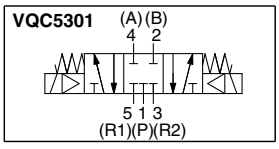


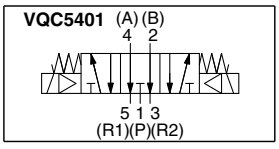


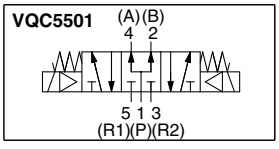












Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted	
2	**Spool/Sleeve**	Stainless steel	
3	**Piston**	Resin	

Replacement Parts

4	Pilot valve assembly	V118□-□-A/B/E •Coil type Nil: Standard (0.95 W) Y: Low wattage type (0.4 W)	□: Coil rated voltage Example) 24 VDC: 5 A: Single/With light (For A side) B: Double, 3-position/With light (For B side) E: Single, Double, 3-position/Without light (A/B side common)

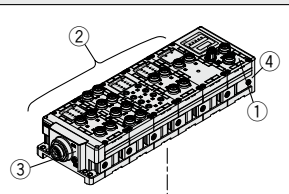
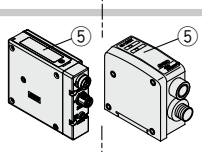
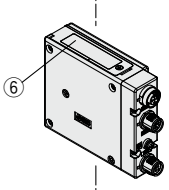
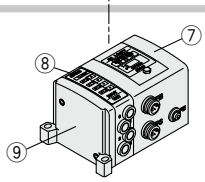
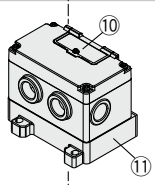
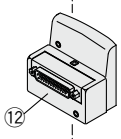
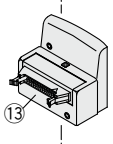
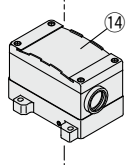
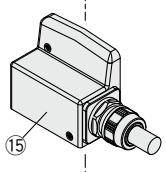
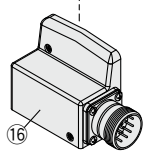
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted	
2	**Spool valve**	Aluminum, HNBR	
3	**Piston**	Resin	

Replacement Parts

4	Pilot valve assembly	V118□-□-A/B/E •Coil type Nil: Standard (0.95 W) Y: Low wattage type (0.4 W)	□: Coil rated voltage Example) 24 VDC: 5 A: Single/With light (For A side) B: Double, 3-position/With light (For B side) E: Single, Double, 3-position/Without light (A/B side common)

Exploded View of Manifold

	Housing assembly and SI Unit	D-side end plate assembly	Manifold block assembly	U-side end plate assembly
S Kit (Serial transmission) EX600				
S Kit (Serial transmission) EX500				
S Kit (Serial transmission) EX260				
S Kit (Serial transmission) EX250				
S Kit (Serial transmission) EX126				
F Kit (D-sub connector)				
P Kit (Flat ribbon cable)				
T Kit (Terminal block)				
L Kit (Lead wire)				
M Kit (Circular connector)				

Manifold Assembly Part No.

Housing Assembly and SI Unit/Input Block

No.	Description	Part no.	Note
①	**SI Unit**	**EX600-SDN1A**	DeviceNet™, Negative common (PNP)
		EX600-SDN2A	DeviceNet™, Positive common (NPN)
		EX600-SMJ1	CC-Link, Negative common (PNP)
		EX600-SMJ2	CC-Link, Positive common (NPN)
		EX600-SPR1A	PROFIBUS DP, Negative common (PNP)
		EX600-SPR2A	PROFIBUS DP, Positive common (NPN)
		EX600-SEN1	EtherNet/IP™ (1 port), Negative common (PNP)
		EX600-SEN2	EtherNet/IP™ (1 port), Positive common (NPN)
		EX600-SEN3	EtherNet/IP™ (2 port), Negative common (PNP)
		EX600-SEN4	EtherNet/IP™ (2 port), Positive common (NPN)
		EX600-SEC1	EtherCAT®, Negative common (PNP)
		EX600-SEC2	EtherCAT®, Positive common (NPN)
		EX600-SPN1	PROFINET, Negative common (PNP)
		EX600-SPN2	PROFINET, Positive common (NPN)
②	**Digital Input Unit**	**EX600-DXNB**	NPN input, M12 connector, 5 pins (4 pcs.), 8 inputs
		EX600-DXPB	PNP input, M12 connector, 5 pins (4 pcs.), 8 inputs
		EX600-DXNC	NPN input, M8 connector, 3 pins (8 pcs.), 8 inputs
		EX600-DXNC1	NPN input, M8 connector, 3 pins (8 pcs.), 8 inputs, with open circuit detection
		EX600-DXPC	PNP input, M8 connector, 3 pins (8 pcs.), 8 inputs
		EX600-DXPC1	PNP input, M8 connector, 3 pins (8 pcs.), 8 inputs, with open circuit detection
		EX600-DXND	NPN input, M12 connector, 5 pins (8 pcs.), 16 inputs
		EX600-DXPD	PNP input, M12 connector, 5 pins (8 pcs.), 16 inputs
		EX600-DXNE	NPN input, D-sub connector, 25 pins, 16 inputs
		EX600-DXPE	PNP input, D-sub connector, 25 pins, 16 inputs
		EX600-DXNF	NPN input, Spring type terminal box, 32 pins, 16 inputs
		EX600-DXPF	PNP input, Spring type terminal box, 32 pins, 16 inputs
	Digital Output Unit	**EX600-DYNB**	NPN output, M12 connector, 5 pins (4 pcs.), 8 outputs
		EX600-DYPB	PNP output, M12 connector, 5 pins (4 pcs.), 8 outputs
		EX600-DYNE	NPN output, D-sub connector, 25 pins, 16 outputs
		EX600-DYPE	PNP output, D-sub connector, 25 pins, 16 outputs
		EX600-DYNF	NPN output, Spring type terminal box, 32 pins, 16 outputs
		EX600-DYPF	PNP output, Spring type terminal box, 32 pins, 16 outputs
	Digital Input/Output Unit	**EX600-DMNE**	NPN input/output, D-sub connector, 25 pins, 8 inputs/outputs
		EX600-DMPE	PNP input/output, D-sub connector, 25 pins, 8 inputs/outputs
		EX600-DMNF	NPN input/output, Spring type terminal box, 32 pins, 8 inputs/outputs
		EX600-DMPF	PNP input/output, Spring type terminal box, 32 pins, 8 inputs/outputs
	Analog Input Unit	**EX600-AXA**	M12 connector, 5 pins (2 pcs.), 2-channel input
	Analog Output Unit	**EX600-AYA**	M12 connector, 5 pins (2 pcs.), 2-channel output
	Analog Input/Output Unit	**EX600-AMB**	M12 connector, 5 pins (4 pcs.), 2-channel input/output
③	**End plate**	**EX600-ED2**	M12 connector, 5 pins, Max. supply current 2 A
		EX600-ED2-2	M12 connector, 5 pins, Max. supply current 2 A, with DIN rail mounting bracket
		EX600-ED3	7/8 inch connector, 5 pins, Max. supply current 8 A
		EX600-ED3-2	7/8 inch connector, 5 pins, Max. supply current 8 A, with DIN rail mounting bracket
④	**Valve plate**	**EX600-ZMV1**	Enclosed parts: Round head screws (M4 x 6) 2 pcs., Round head screws (M3 x 8) 4 pcs.
⑤	**SI Unit**	**EX500-S103**	EtherNet/IP™, Negative common (PNP)
		EX500-Q001	DeviceNet™, PROFIBUS DP, EtherNet/IP™, Positive common (NPN)
		EX500-Q101	DeviceNet™, PROFIBUS DP, EtherNet/IP™, Negative common (PNP)

Manifold Assembly Part No.

Housing Assembly and SI Unit/Input Block

No.	Description	Part no.	Note
⑥	**SI Unit**	**EX260-SDN1**	DeviceNet™, M12 connector, 32 outputs, Negative common (PNP)
		EX260-SDN2	DeviceNet™, M12 connector, 32 outputs, Positive common (NPN)
		EX260-SDN3	DeviceNet™, M12 connector, 16 outputs, Negative common (PNP)
		EX260-SDN4	DeviceNet™, M12 connector, 16 outputs, Positive common (NPN)
		EX260-SRP1	PROFIBUS DP, M12 connector, 32 outputs, Negative common (PNP)
		EX260-SRP2	PROFIBUS DP, M12 connector, 32 outputs, Positive common (NPN)
		EX260-SRP3	PROFIBUS DP, M12 connector, 16 outputs, Negative common (PNP)
		EX260-SRP4	PROFIBUS DP, M12 connector, 16 outputs, Positive common (NPN)
		EX260-SRP5	PROFIBUS DP, D-sub connector, 32 outputs, Negative common (PNP)
		EX260-SRP6	PROFIBUS DP, D-sub connector, 32 outputs, Positive common (NPN)
		EX260-SRP7	PROFIBUS DP, D-sub connector, 16 outputs, Negative common (PNP)
		EX260-SRP8	PROFIBUS DP, D-sub connector, 16 outputs, Positive common (NPN)
		EX260-SMJ1	CC-Link, M12 connector, 32 outputs, Negative common (PNP)
		EX260-SMJ2	CC-Link, M12 connector, 32 outputs, Positive common (NPN)
		EX260-SMJ3	CC-Link, M12 connector, 16 outputs, Negative common (PNP)
		EX260-SMJ4	CC-Link, M12 connector, 16 outputs, Positive common (NPN)
		EX260-SEC1	EtherCAT®, M12 connector, 32 outputs, Negative common (PNP)
		EX260-SEC2	EtherCAT®, M12 connector, 32 outputs, Positive common (NPN)
		EX260-SEC3	EtherCAT®, M12 connector, 16 outputs, Negative common (PNP)
		EX260-SEC4	EtherCAT®, M12 connector, 16 outputs, Positive common (NPN)
		EX260-SPN1	PROFINET, M12 connector, 32 outputs, Negative common (PNP)
		EX260-SPN2	PROFINET, M12 connector, 32 outputs, Positive common (NPN)
		EX260-SPN3	PROFINET, M12 connector, 16 outputs, Negative common (PNP)
		EX260-SPN4	PROFINET, M12 connector, 16 outputs, Positive common (NPN)
		EX260-SEN1	EtherNet/IP™, M12 connector, 32 outputs, Negative common (PNP)
		EX260-SEN2	EtherNet/IP™, M12 connector, 32 outputs, Positive common (NPN)
		EX260-SEN3	EtherNet/IP™, M12 connector, 16 outputs, Negative common (PNP)
		EX260-SEN4	EtherNet/IP™, M12 connector, 16 outputs, Positive common (NPN)
⑦	**SI Unit**	**EX250-SPR1**	PROFIBUS DP, Negative common (PNP)
		EX250-SMJ2	CC-Link, Positive common (NPN)
		EX250-SAS3	AS-Interface, 8 in/8 out, 31 slave modes, 2 power supply systems, Negative common (PNP)
		EX250-SAS5	AS-Interface, 4 in/4 out, 31 slave modes, 2 power supply systems, Negative common (PNP)
		EX250-SAS7	AS-Interface, 8 in/8 out, 31 slave modes, 1 power supply system, Negative common (PNP)
		EX250-SAS9	AS-Interface, 4 in/4 out, 31 slave modes, 1 power supply system, Negative common (PNP)
		EX250-SCA1A	CANopen, Negative common (PNP)
		EX250-SDN1	DeviceNet™, Negative common (PNP)
		EX250-SEN1	EtherNet/IP™, Negative common (PNP)
⑧	**Input block**	**EX250-IE1**	M12, 2 inputs
		EX250-IE2	M12, 4 inputs
		EX250-IE3	M8, 4 inputs
⑨	**End plate assembly**	**EX250-EA1**	Direct mounting
		EX250-EA2	DIN rail mounting
⑩	**SII Unit**	**EX126D-SMJ1**	CC-Link, Positive common (NPN)
⑪	**Terminal block plate**	**VVQC1000-74A-2**	For EX126 SI Unit mounting
⑫	**D-sub connector housing assembly**	**VVQC1000-F25-1**	F kit, 25 pins
⑬	**Flat ribbon cable housing assembly**	**VVQC1000-P26-1**	P kit, 26 pins
		VVQC1000-P20-1	P kit, 20 pins
⑭	**Terminal block box housing assembly**	**VVQC1000-T0-1**	T kit
⑮	**Lead wire housing assembly**	**VVQC1000-L25-0-1**	L kit with 0.6 m lead wire
		VVQC1000-L25-1-1	L kit with 1.5 m lead wire
		VVQC1000-L25-2-1	L kit with 3.0 m lead wire
⑯	**Circular connector housing assembly**	**VVQC1000-M26-1**	M kit, 26 pins

Manifold Assembly Part No.

D-side end plate assembly

⑰ **D-side end plate assembly part no.**

VVQC5000-3A-2 □

Thread type

Nil	Rc
F	G
T	NPTF
N	NPT

U-side end plate assembly

⑳ **U-side end plate assembly part no.**

VVQ5000-2A-1 □ **-L-W**

Thread type

Nil	Rc
F	G
T	NPTF
N	NPT

Manifold block assembly

⑱ **Manifold block assembly part no.**

VVQC5000-1 **A**-**D**-**C6** □

Type

A	For 1 station

Note) Tie-rods (2 pcs.) for additional stations included.

Thread type (Thread port only)

Nil	Rc
F	G
T	NPTF
N	NPT

Wiring specifications

D	Double wiring
S	Single wiring

Port size

Symbol	Port size
03	3/8"
04	1/2"
B	1/2" bottom ported

Replacement Parts

VQC5000	Pilot valve assembly	V118□-□ (A, B, E) **Coil type** **Nil** Standard (0.95 W) **Y** Low wattage type (0.4 W)	□: Coil rated voltage Example) 24 VDC: 5 A: Single/With light B: Double, 3-position/With light E: Single, Double, 3-position/ Without light

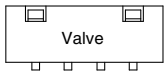
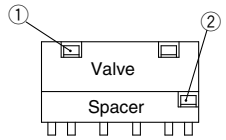
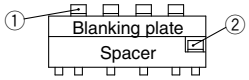
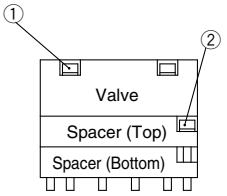
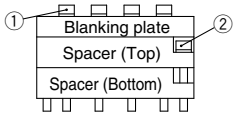
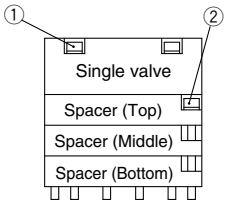
⑲ **Tie-rod assembly part no. (2 units)**

VQC5000	VVQC5000-TR-□

Note 1) Please order when reducing the number of manifold stations. When increasing the number of stations, additional orders are not required since they are included in the manifold block assembly.

Note 2) Number of stations, 02 to 16

List of Valves, Options, and Mounting Bolts

Number of options	Valve and options	Bolt part no.	Q'ty (pcs.)	Note	Option mounting diagram
0	Single valve	AXT632-25-4 (M4 x 50)	4		
	Blanking plate (VVQ5000-10A-$\frac{1}{5}$)	AXT632-25-8 (M4 x 17)	4	For manifold	
1	Valve + Individual SUP spacer (VVQ5000-P-$\frac{1}{5}$ - $\frac{03}{04}$)	① AXT632-25-5 (M4 x 82)	4	For manifold	
		② AXT632-25-10 (M4 x 34)	2		
	Valve + Individual EXH spacer (VVQ5000-R-$\frac{1}{5}$ - $\frac{03}{04}$)	① AXT632-25-5 (M4 x 82)	4	For manifold	
		② AXT632-25-10 (M4 x 34)	2		
	Valve + Restrictor spacer (VVQ5000-20A-$\frac{1}{5}$)	① AXT632-25-5 (M4 x 82)	4		
		② AXT632-25-10 (M4 x 34)	2	Not necessary when mounting the sub-plate.	
	Valve + Release valve spacer (VVQ5000-24A-$\frac{1}{5}$ D)	① AXT632-25-5 (M4 x 82)	4	For manifold	
		② AXT632-25-10 (M4 x 34)	2		
	Valve + Double check spacer with residual pressure exhaust (VVQ5000-25A-$\frac{1}{5}$)	① AXT632-25-6 (M4 x 114)	4		
		② AXT632-66-1 (M4 x 64)	2	Not necessary when mounting the sub-plate.	
	Valve + SUP stop valve spacer (VVQ5000-37A-$\frac{1}{5}$)	① AXT632-25-5 (M4 x 82)	4		
		② AXT632-25-10 (M4 x 34)	2	Not necessary when mounting the sub-plate.	
	Valve + Interface regulator (ARBQ5000-00 $\frac{A}{B}$ - $\frac{1}{5}$)	① AXT632-25-6 (M4 x 114)	4		
		② AXT632-66-1 (M4 x 64)	2	Not necessary when mounting the sub-plate.	
	Blanking plate + SUP stop valve (Top) (Bottom)	① AXT632-25-4 (M4 x 50)	4	For manifold	
		② AXT632-25-10 (M4 x 34)	2		
2	Valve + Individual SUP + Individual EXH (Top) (Bottom) (Bottom) (Top)	① AXT632-25-6 (M4 x 114)	4	For manifold	
		② AXT632-25-11 (M4 x 66)	2		
	Valve + Restrictor + Individual SUP or Individual EXH (Top) (Top) (Bottom) (Bottom)	① AXT632-25-6 (M4 x 114)	4	For manifold ∗ The individual EXH cannot be mounted on the top.	
		② AXT632-25-11 (M4 x 66)	2		
	Valve + SUP stop valve + Individual SUP, (Top) Individual EXH or Restrictor (Bottom)	① AXT632-25-6 (M4 x 114)	4	For manifold	
		② AXT632-25-11 (M4 x 66)	2		
	Valve + Double check spacer with residual pressure exhaust (Top) + Individual SUP or Individual EXH (Bottom)	① AXT632-25-7 (M4 x 146)	4	For manifold	
		② AXT632-66-2 (M4 x 96)	2		
	Valve + Interface regulator + Double check spacer with (Top) residual pressure exhaust (Bottom)	① AXT632-25-14 (M4 x 178)	4	For manifold	
		② AXT632-66-3 (M4 x 128)	2		
	Valve + Interface regulator + Individual SUP, (Top) Individual EXH or Restrictor (Bottom)	① AXT632-25-7 (M4 x 146)	4	For manifold ∗ The individual EXH and restrictor can be mounted on the top.	
		② AXT632-66-2 (M4 x 96)	2		
	Blanking plate + SUP stop valve (Top) + Individual SUP (Bottom)	① AXT632-25-5 (M4 x 82)	4	For manifold	
		② AXT632-25-11 (M4 x 66)	2		
3	Valve + SUP stop valve (Top) + Individual SUP (Middle, Bottom) + Individual EXH (Middle, Bottom)	① AXT632-25-7 (M4 x 146)	4	For manifold	
		② AXT632-25-12 (M4 x 98)	2		
	Valve + Double check spacer with residual pressure exhaust (Top) + Individual SUP (Middle, Bottom) + Individual EXH (Middle, Bottom)	① AXT632-25-14 (M4 x 178)	4	For manifold	
		② AXT632-66-3 (M4 x 128)	2		
	Valve + Spacer (Top): Interface regulator Spacer (Middle): "Individual SUP or Individual EXH"/"Restrictor" Spacer (Bottom): "Restrictor"/"Individual SUP or Individual EXH"	① AXT632-25-14 (M4 x 178)	4	For manifold ∗ The individual EXH and restrictor can be mounted on the top.	
		② AXT632-66-3 (M4 x 128)	2		

Note) When the SUP stop valve and individual SUP are mounted, the stop valve is mounted on the top of the individual SUP.

Series VQC5000
Specific Product Precautions 1

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For 3/4/5 Port Solenoid Valve Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on the SMC website, http://www.smcworld.com

Continuous Duty

⚠Warning

When the product is continuously energized for a long period of time (10 minutes or longer), select the low wattage type (DC specification). The AC type cannot be continuously energized for 10 minutes or longer. If anything is unclear, please contact SMC.

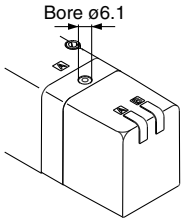
Manual Override

⚠Warning

Since connected equipment will operate when the manual override is activated, confirm that conditions are safe prior to activation.

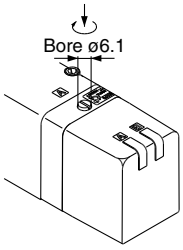
■ VQC5000

Push type (Tool required)

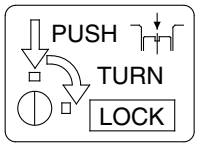


Push down the manual override button with a small screwdriver, etc., until it stops.
The manual override will return when released.

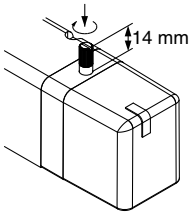
Locking type (Tool required)



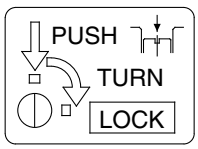
Push down the manual override button with a small flat head screwdriver until it stops, and turn it clockwise 90° to lock it. Turn it counterclockwise to release it.



Locking type (Manual)



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



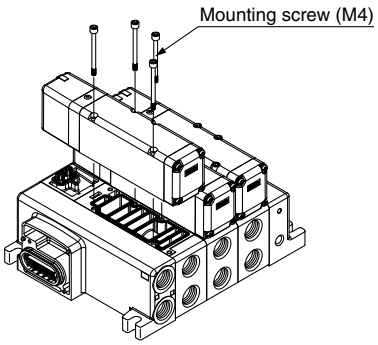
⚠ Caution
Do not apply excessive torque when turning the locking type manual override. (0.1 N·m or less)

Valve Mounting

⚠Caution

After confirming that the gasket is installed correctly, securely tighten the mounting screws according to the tightening torque shown below.

Proper tightening torque [N·m]
1 to 1.8

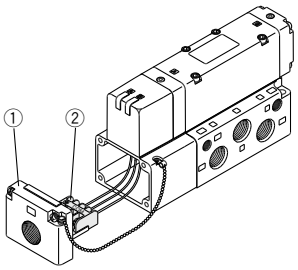


Lead Wire Connection

⚠Caution

Plug-in sub-plate (With terminal block)

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



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

Terminal block marking / Model	A	COM	B	⏚
VQC510$^{0}_{1}$	A side	COM	—	—
VQC520$^{0}_{1}$	A side	COM	B side	—
VQC5$^{3}_{4}_{5}_{6}$0$^{0}_{1}$	A side	COM	B side	—

Note 1) There is no polarity. It can also be used as –COM.
Note 2) The sub-plate is double wired even for the VQC510$^{0}_{1}$.

- Applicable terminal: 1.25-3s, 1.25Y-3, 1.25Y-3N, 1.25Y-3.5

Series VQC5000
Specific Product Precautions 2

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For 3/4/5 Port Solenoid Valve Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on the SMC website, http://www.smcworld.com

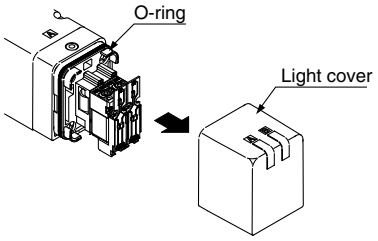
Installation and Removal of Light Cover

⚠Caution

Installation/Removal of light cover

- **Removal**

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



- **Installation**

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

Replacement of Pilot Valve

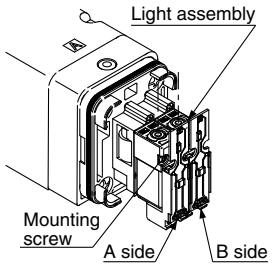
⚠Caution

- **Removal**

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

- **Installation**

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

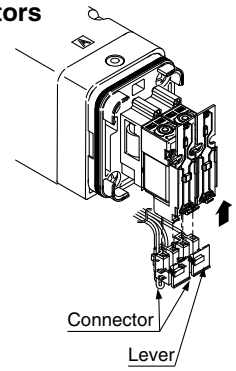


Proper tightening torque [N·m]
0.1 to 0.13

Plug Lead Type

Attaching and detaching connectors

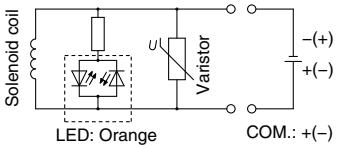
- To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.
- To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb,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



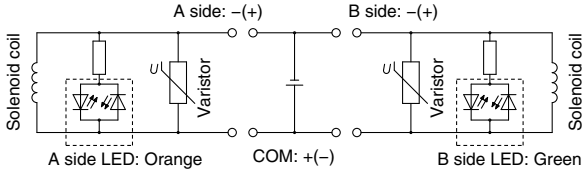
Note) Do not pull on the lead wires with excessive force. This can cause faulty and/or broken contacts.

Internal Wiring Specifications

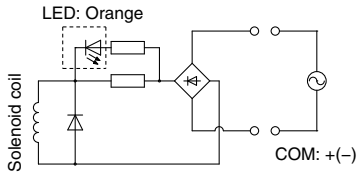
⚠Caution



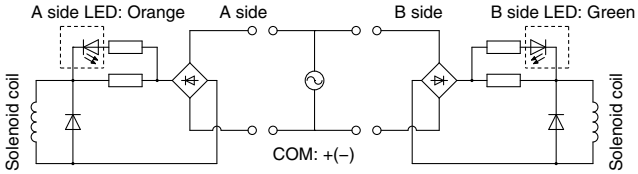
DC: Single



DC: Double



AC: Single



AC: Double

How to Calculate the Flow Rate

For obtaining the flow rate, refer to the **WEB catalog** or the Best Pneumatics No. 1.

⚠ Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines.
(Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots – Safety.
etc.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/ equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

⚠ Caution

1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".
Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
   Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
   This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*2) **Vacuum pads are excluded from this 1 year warranty.**
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

⚠ Caution

SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.