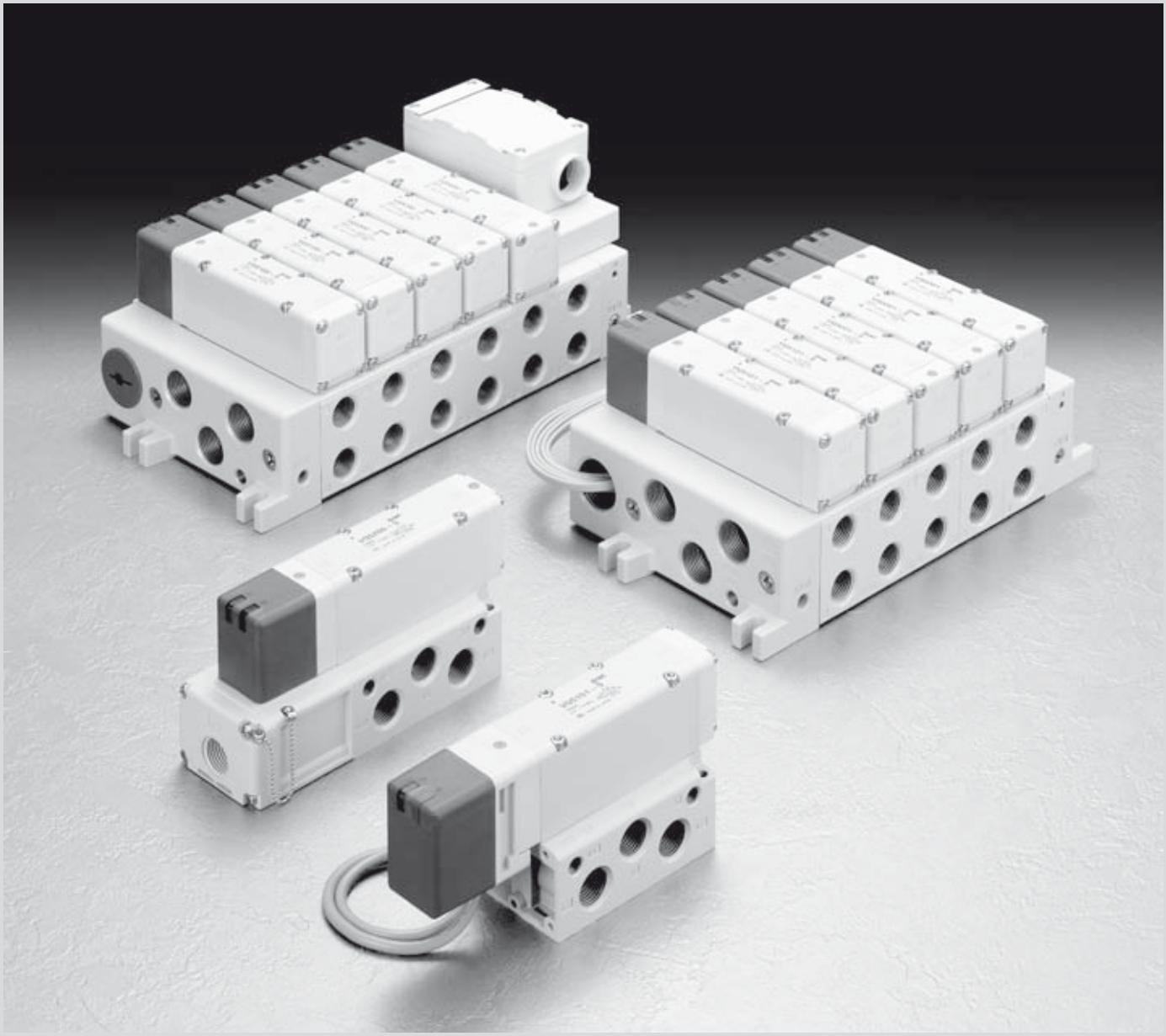
Base Mounted Type

Series VQ5000

5 Port Metal Seal/Rubber Seal Solenoid Valve



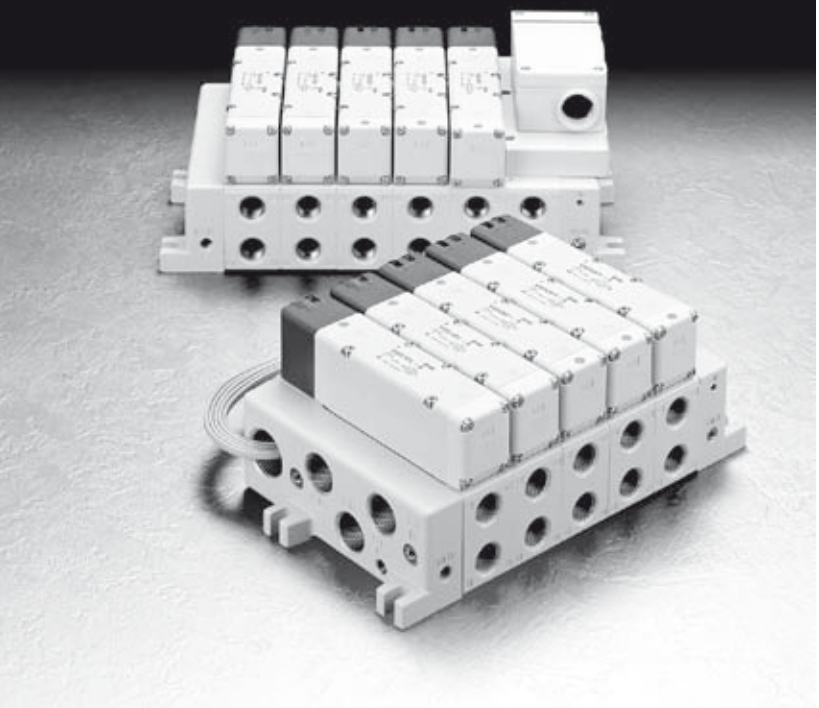
Advanced manifo
the new age of facto

Base Mounted Type *Series VQ5000*

Space saving profile

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

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



Compact with large flow capacity

(Ideal for driving cylinders up to ø180)

Body width: 40mm
N*l*/min: 4318
(rubber seal, single unit)

High speed response and long life

(Metal seal type with light/surge voltage suppressor)

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

Accuracy ±3mS

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

Optional IP65 enclosure is dust tight and splash proof

Cylinder speed chart

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

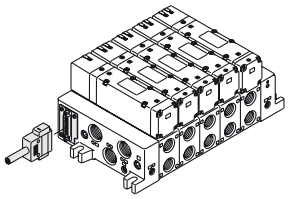
Pressure: 0.5MPa, Load factor: 50%

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

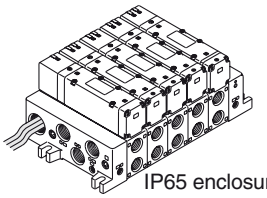
ld valve for
ry automation!

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

F Kit
(D sub connector)

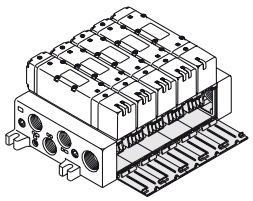


L Kit
(Lead wires)

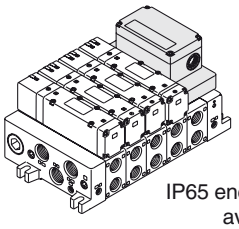


IP65 enclosure available

T1 Kit
(With individual terminal blocks)

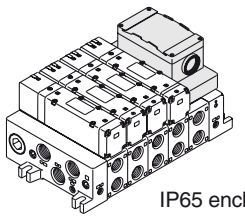


S Kit
(Serial transmission)



IP65 enclosure available

T Kit
(Terminal block box)

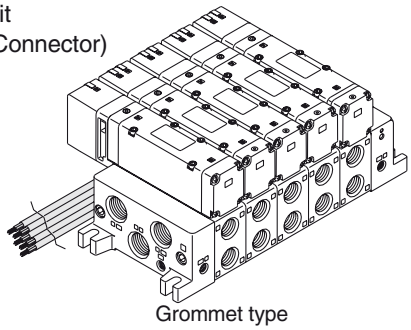


IP65 enclosure available

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

Individual wiring type
<Plug lead type>

C Kit
(Connector)



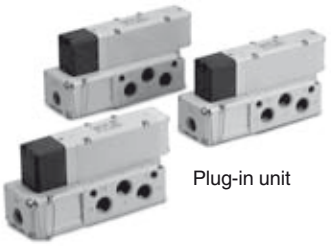
Grommet type

IP65 enclosure available

Series VQ5000

Base Mounted Type

Plug-in, Plug Lead/Single Unit



Plug-in unit



Plug lead unit

Models

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

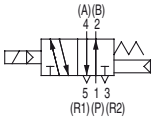
Note 1) Cylinder port size 1/2: Value for valve on sub plate

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

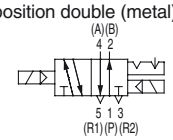
Note 3) Values inside ( ) indicate the weight of plug lead units.
The table weights are without sub plate. With sub plate, add 0.65kg for plug-in type and 0.55kg for plug lead type.

Symbols

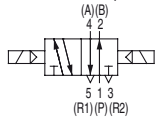
2 position single



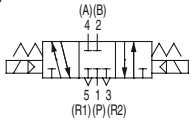
2 position double (metal)



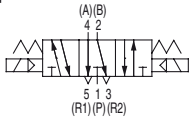
2 position double (rubber)



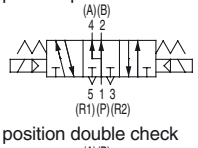
3 position closed centre



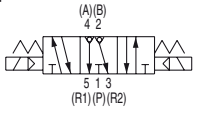
3 position exhaust centre



3 position pressure centre



3 position double check



Standard Specifications

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

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

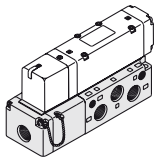
Note 2) Impact resistance ..... No malfunction when tested with a drop tester in the axial direction and at a right angle to the main valve and armature, one time each in both energized and denergized states. (initial value)
Vibration resistance ... No malfunction when tested with one sweep of 8.3 to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

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

How to Order Valves

Body type

0: Plug-in sub plate



Port size

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

Note) See page 1-894 for thread standards.

Piping specifications

Nil	Side ported
B	Bottom ported

Plug-in	VQ5	1	0	0		—	5										Q
Plug lead	VQ5	2	5	1		—	5	G									Q

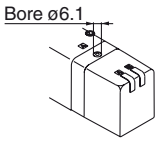
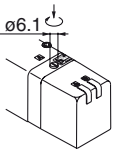
Thread

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Enclosure

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

Manual override

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

Light/Surge voltage suppressor

Nil	With
E	Without light/With surge voltage suppressor

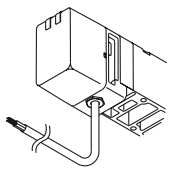
Type of actuation

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

Note) See page 1-892 for details on the double check type.

Electrical entry

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



Coil voltage

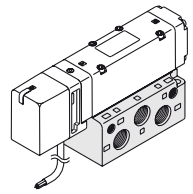
1	100VAC (50/60Hz)
2	200VAC (50/60Hz)
3	110VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC
9	Other, 240V or less

Order Made Contact SMC for other voltages (9)

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

Body type

5: Plug lead sub plate



Function

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

Note 1) Applicable to DC specifications.

Note 2) See page 1-894 for details on external pilot specifications.

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

Seal type

0	Metal seal
1	Rubber seal

How to Order Sub Plates

VQ5000	P			04		Q	

Electrical entry

P	Plug-in conduit terminal
S	Plug lead

Enclosure

Nil	Dust proof
W	Dust tight, Splash proof

Piping specifications

Nil	Side ported
B	Bottom ported

Port size

04	1/2

Note 1) Bottom ports are 1/2.

Note 2) See page 1-894 for thread standards.

Thread

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

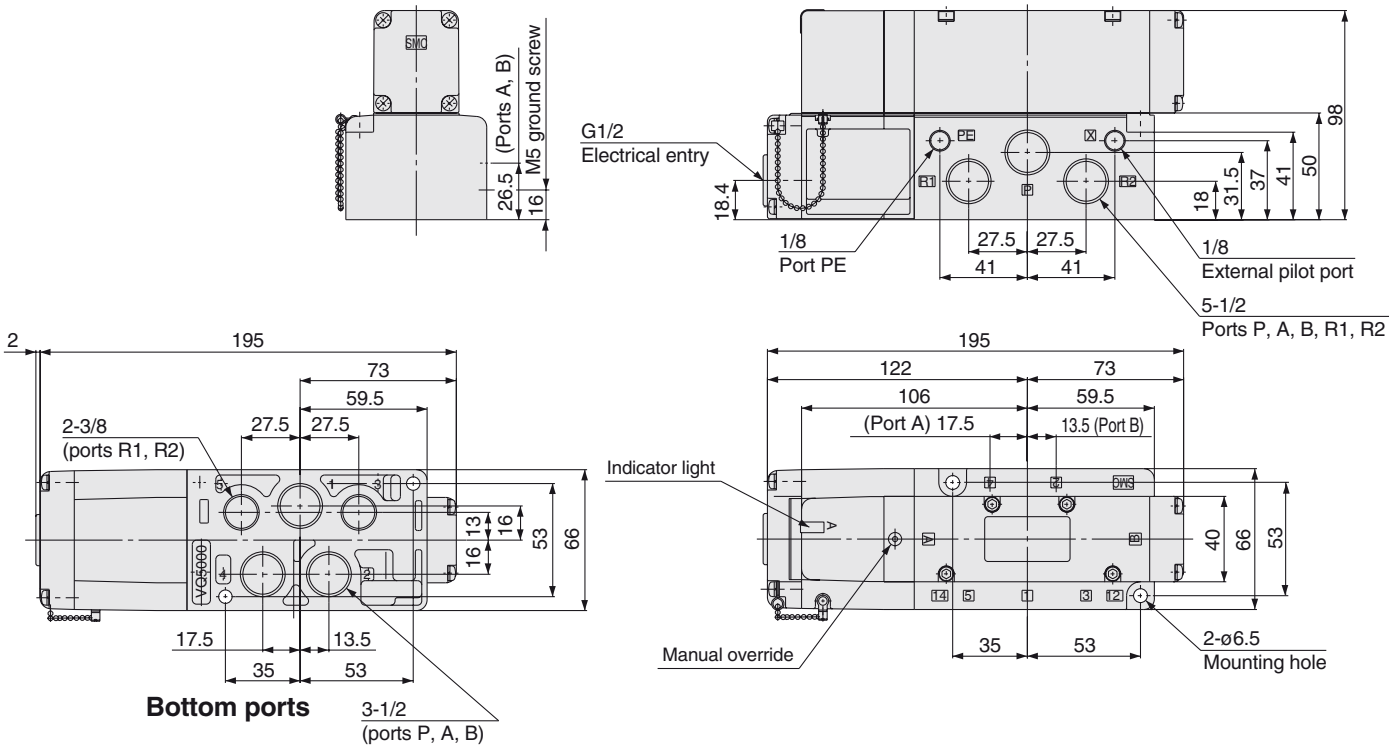
Replacement of pilot valve assembly (Voltage)

- See pages 1-895 and 1-896 for pilot valve assembly part numbers.
- See page 1-900 for the replacement method.

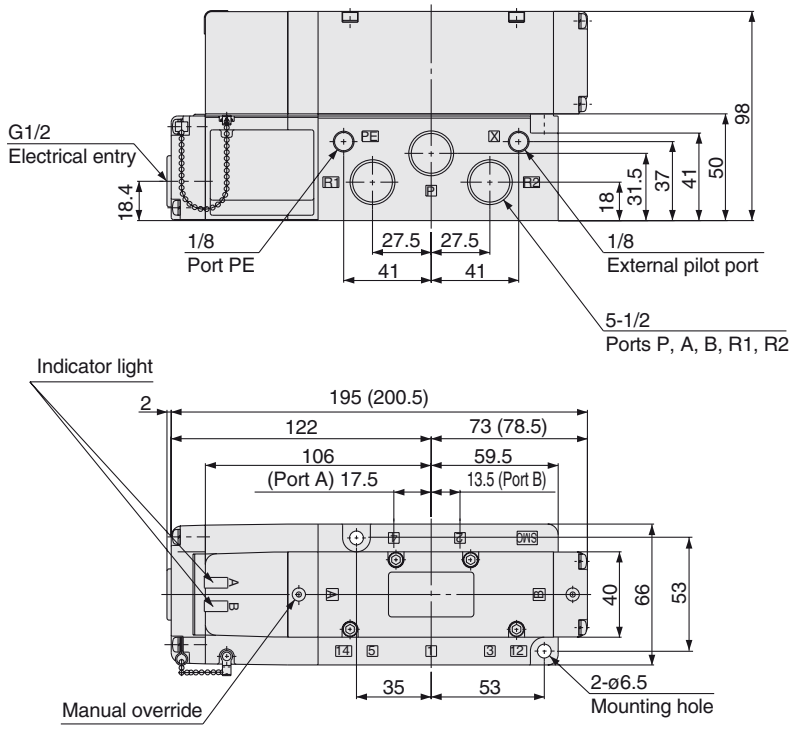
Plug-in Type

Conduit terminal

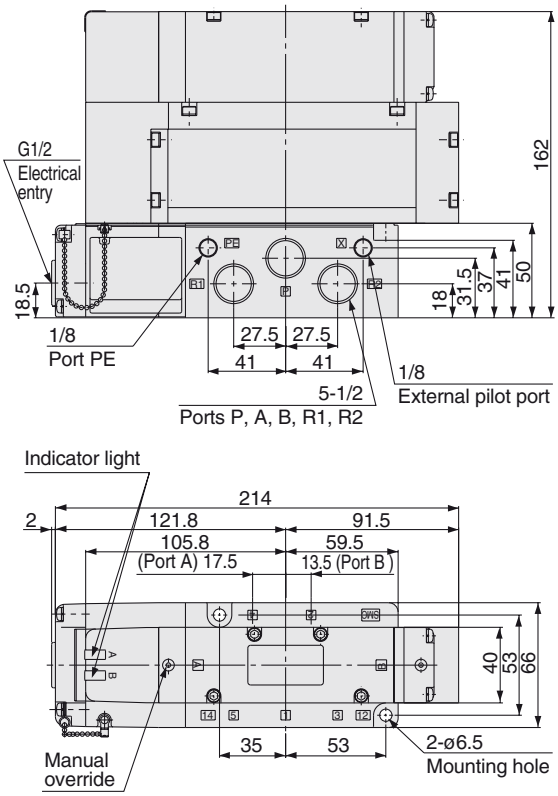
2 position single: VQ510$^{0}_{1}$



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



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

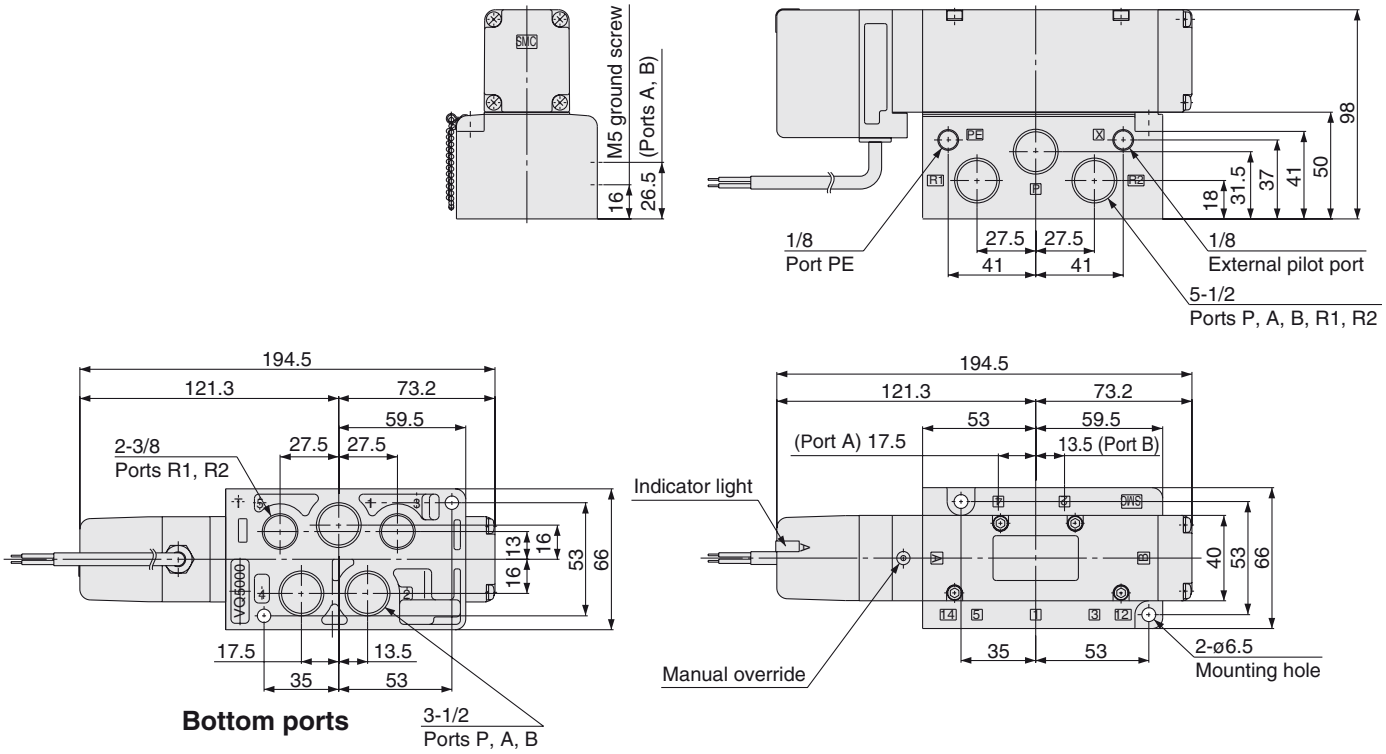


Numbers inside ( ) are for metal seal 3 position type

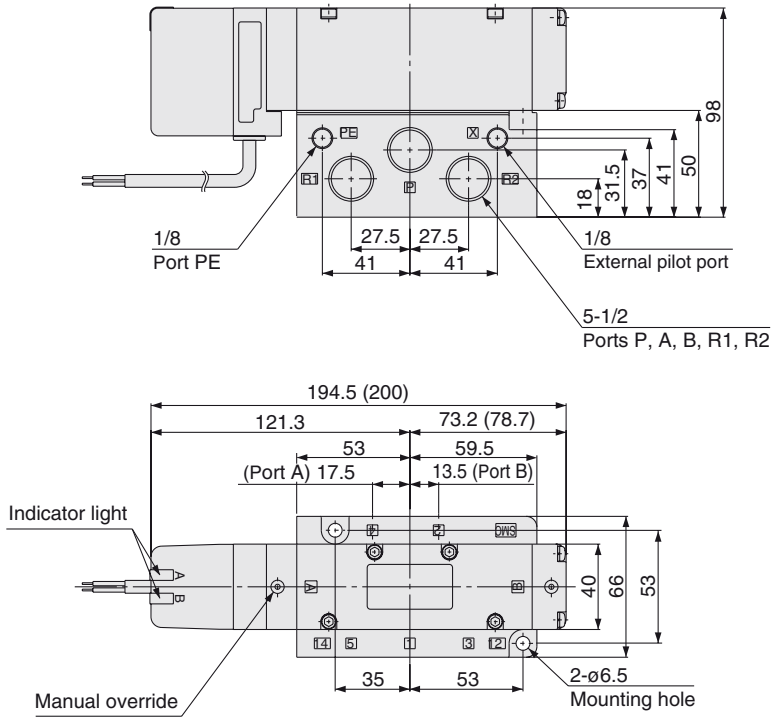
Plug Lead Type

Grommet

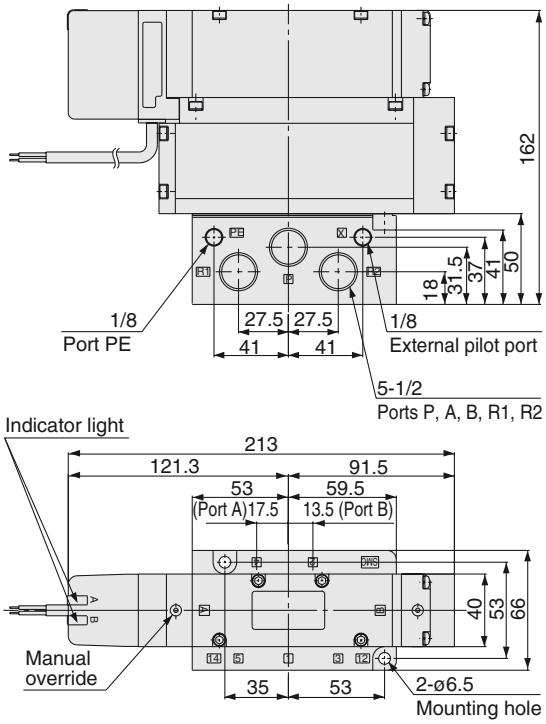
2 position single: VQ515 $^{0}_{1}$-□ $^{G}_{H}$



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



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



Numbers inside ( ) are for metal seal 3 position type

Series VQ5000

Base Mounted Type

Plug-in Unit



How to Order Manifolds

VV5Q 5 1 – 08 03 [ ] F U1 – K – Q

Series

5	VQ5000

Manifold Type

1	Plug-in unit

Number of stations

02	2 stations
⋮	⋮

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

Cylinder port size

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

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

Kit designation

Thread

–	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Option

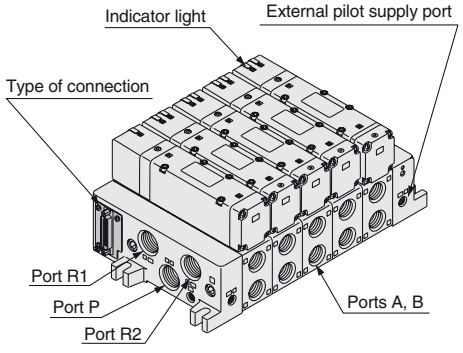
Symbol	Option
Nil	None
CD1 Note 2)	Exhaust cleaner for Rc1: D side exhaust
CD2 Note 2)	Exhaust cleaner for Rc1 1/2: D side exhaust
CU1 Note 2)	Exhaust cleaner for Rc1: U side exhaust
CU2 Note 2)	Exhaust cleaner for Rc1 1/2: U side exhaust
K Note 4)	Special wiring specifications (other than double wiring)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

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

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

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

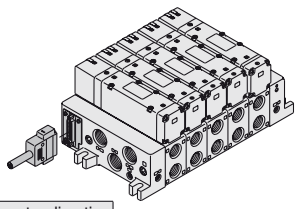
Note 4) Indicate wiring specifications on a manifold specification sheet. (except L kit)



Note) The drawing shows a VV5Q51-0504FDO.

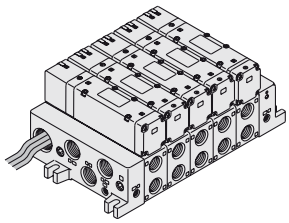
Kit designation/Electrical entry/Cable length

F Kit (D sub connector kit)



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

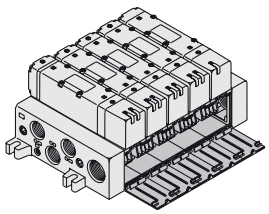
L Kit (Lead wire kit)



IP65 available

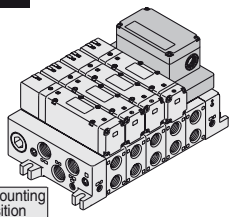
Electrical entry					
D side		U side			
Kit L	D0	Kit L	U0	Cable length 0.6m	2 to 12 stations
	D1		U1	Cable length 1.5m	
	D2		U2	Cable length 3m	

T1 Kit (Individual terminal block kit)



Kit T1	With terminal blocks	1 to 12 stations

S Kit (Serial transmission kit)

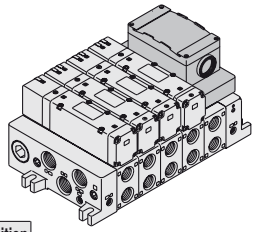


The valve voltage is 24VDC and it is equipped with light/surge voltage suppressor.

IP65 available

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

T Kit (Terminal block box kit)



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

Manifold Specifications

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

Note) See options on page 1-894 for details on international standard threads other than Rc threads.

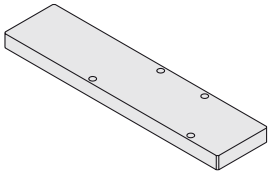
Manifold Stations and Effective area mm² (N*l*/min) for Individual Operation

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

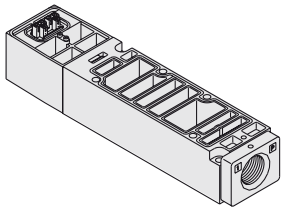
Note) For port size Rc1/2

Manifold Options

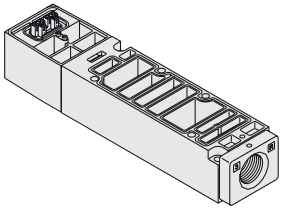
Blank plate Assembly
VVQ5000-10A-1



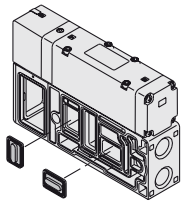
Individual SUP spacer
VVQ5000-P-1-$^{03}_{04}$



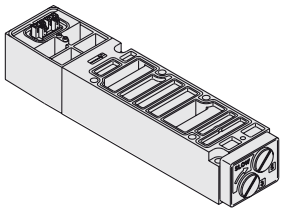
Individual EXH spacer
VVQ5000-R-1-$^{03}_{04}$



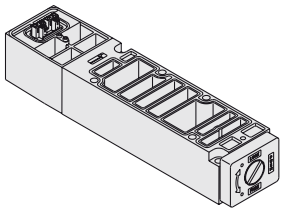
EXH blocking plate
VVQ5000-16A-2



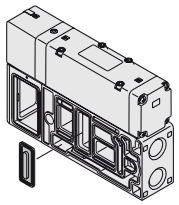
Throttle valve spacer
VVQ5000-20A-1



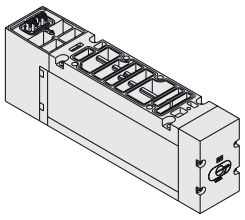
SUP stop valve spacer
VVQ5000-37A-1



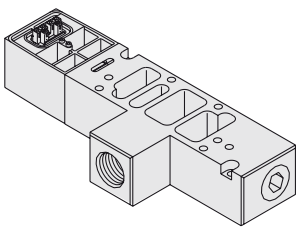
SUP blocking plate
VVQ5000-16A-1



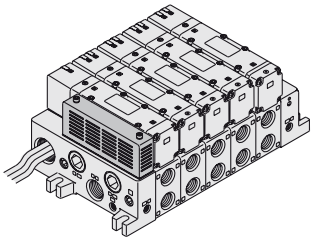
Double check spacer with residual pressure release valve
VVQ5000-25A-1



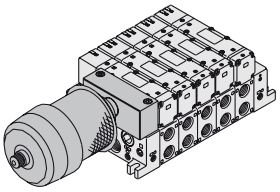
Release valve spacer
VVQ5000-24A-1D



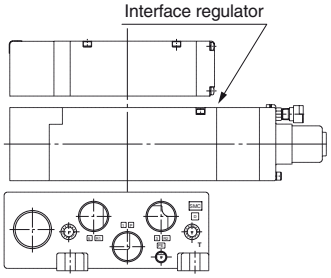
Direct exhaust with silencer box
[-S$^{D}_{U}$]



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



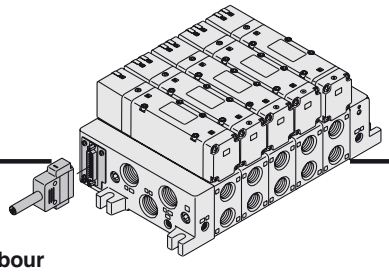
Interface regulator for series VQ5000



• See pages 1-888 through 1-893 for detailed dimensions of each option.
• See page 1-899 regarding part numbers for spare parts.

Series VQ5000

F Kit (D Sub Connector Kit)



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

Manifold specifications

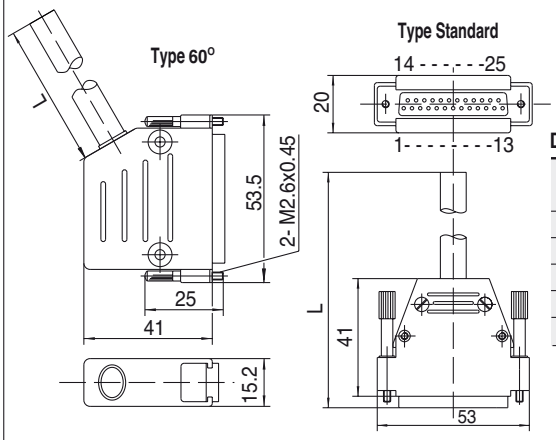
Series	Piping specifications			Applicable stations
	A, B port location	Port size		
		P, R	A, B	
VQ5000	Side	3/4	3/8 1/2	12 stations max.
	Bottom		1/2	

D Sub Connector (25 Pin)

Cable Assembly●

GVVZS3000-21A- 1 2 3 4 5 **-** S 60

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



D-sub connector cable ass'y

Cable length (L)	Ass'y No.
1m	GVVZS3000-21A-1□
3m	GVVZS3000-21A-2□
5m	GVVZS3000-21A-3□
8m	GVVZS3000-21A-4□
20m	GVVZS3000-21A-5S

Model●

Standard	—
Shielded	S
60°	60

Electric characteristics

Item	Characteristics
Conductor resistance /km, 20°C	57 or less
Voltage limit V, 5min, AC	1500
Insulation resistance M/km	20

Wire color table by terminal number of D-sub connector cable assembly

Terminal No.	Lead wire colour	Dot marking
1	White	–
2	Brown	–
3	Green	–
4	Yellow	–
5	Grey	–
6	Pink	–
7	Blue	–
8	Red	–
9	Black	–
10	Violet	–
11	Grey	Pink
12	Red	Blue
13	White	Green
14	Brown	Green
15	White	Yelow
16	Yelow	Brown
17	White	Grey
18	Grey	Brown
19	White	Pink
20	Pink	Brown
21	White	Blue
22	Brown	Blue
23	White	Red
24	Brown	Red
25	White	Black

* Connector made in conformity with DIN47100.

How to Order Manifolds

VV5Q 5 1 – 08 03 □ F U 1 – K – Q

Series●

5	VQ5000

Manifold type●

1	Plug-in unit

Stations●

02	2 stations
⋮	⋮
12	12 stations

Cylinder port size●

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

Thread●

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Connector entry●

D	D side entry
U	U side entry

Cable length●

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

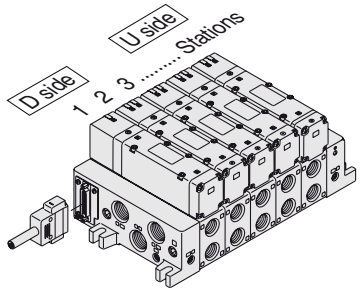
Option●

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

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

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

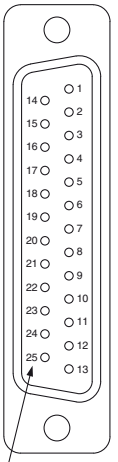
Note 3) Indicate wiring specifications on a manifold specification sheet.



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

• Electrical wiring specifications

D sub connector



Connector terminal No.

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

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

Standard wiring

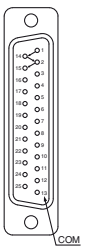
	Terminal No.		Polarity		D sub connector assembly (AXT100-DS25-$^{015}_{030}_{050}$) wire colours: Lead wire colour	Dot marking
1 station	SOL.A	1	(−)	(+)	White	—
	SOL.B	14	(−)	(+)	Brown	Green
2 stations	SOL.A	2	(−)	(+)	Brown	—
	SOL.B	15	(−)	(+)	White	Yellow
3 stations	SOL.A	3	(−)	(+)	Green	—
	SOL.B	16	(−)	(+)	Yellow	Brown
4 stations	SOL.A	4	(−)	(+)	Yellow	—
	SOL.B	17	(−)	(+)	White	Grey
5 stations	SOL.A	5	(−)	(+)	Grey	—
	SOL.B	18	(−)	(+)	Grey	Brown
6 stations	SOL.A	6	(−)	(+)	Pink	—
	SOL.B	19	(−)	(+)	White	Pink
7 stations	SOL.A	7	(−)	(+)	Blue	—
	SOL.B	20	(−)	(+)	Pink	Brown
8 stations	SOL.A	8	(−)	(+)	Red	—
	SOL.B	21	(−)	(+)	White	Blue
9 stations	SOL.A	9	(−)	(+)	Black	—
	SOL.B	22	(−)	(+)	Brown	Blue
10 stations	SOL.A	10	(−)	(+)	Violet	—
	SOL.B	23	(−)	(+)	White	Red
11 stations	SOL.A	11	(−)	(+)	Grey	Pink
	SOL.B	24	(−)	(+)	Brown	Red
12 stations	SOL.A	12	(−)	(+)	Red	Blue
	SOL.B	25	(−)	(+)	White	Black
	COM.	13	(+)	Note) (−)	White(1)	Green
			Positive common	**Negative common**		

Special Wiring Specifications

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

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

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



D sub connector

How to Order Valves

VQ 5 1 0 0 □ — 5 □ □ — Q

Series

5	VQ5000

Type of action

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

Seal type

0	Metal seal
1	Rubber seal

Function (1, 2)

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

Note1) See page 1-894 for details on external pilot specifications.
Note2) When specifying more than one option, enter symbols in alphabetical order.

Light/Surge voltage suppressor

Nil	With
E	Without light, with surge voltage suppressor

Coil voltage

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

Order Made Contact SMC for other voltages (9)

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

Manual override

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

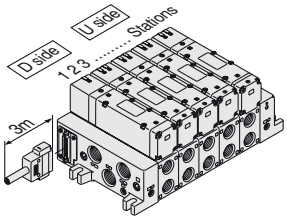
How to Order Manifold Assemblies (Example)

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

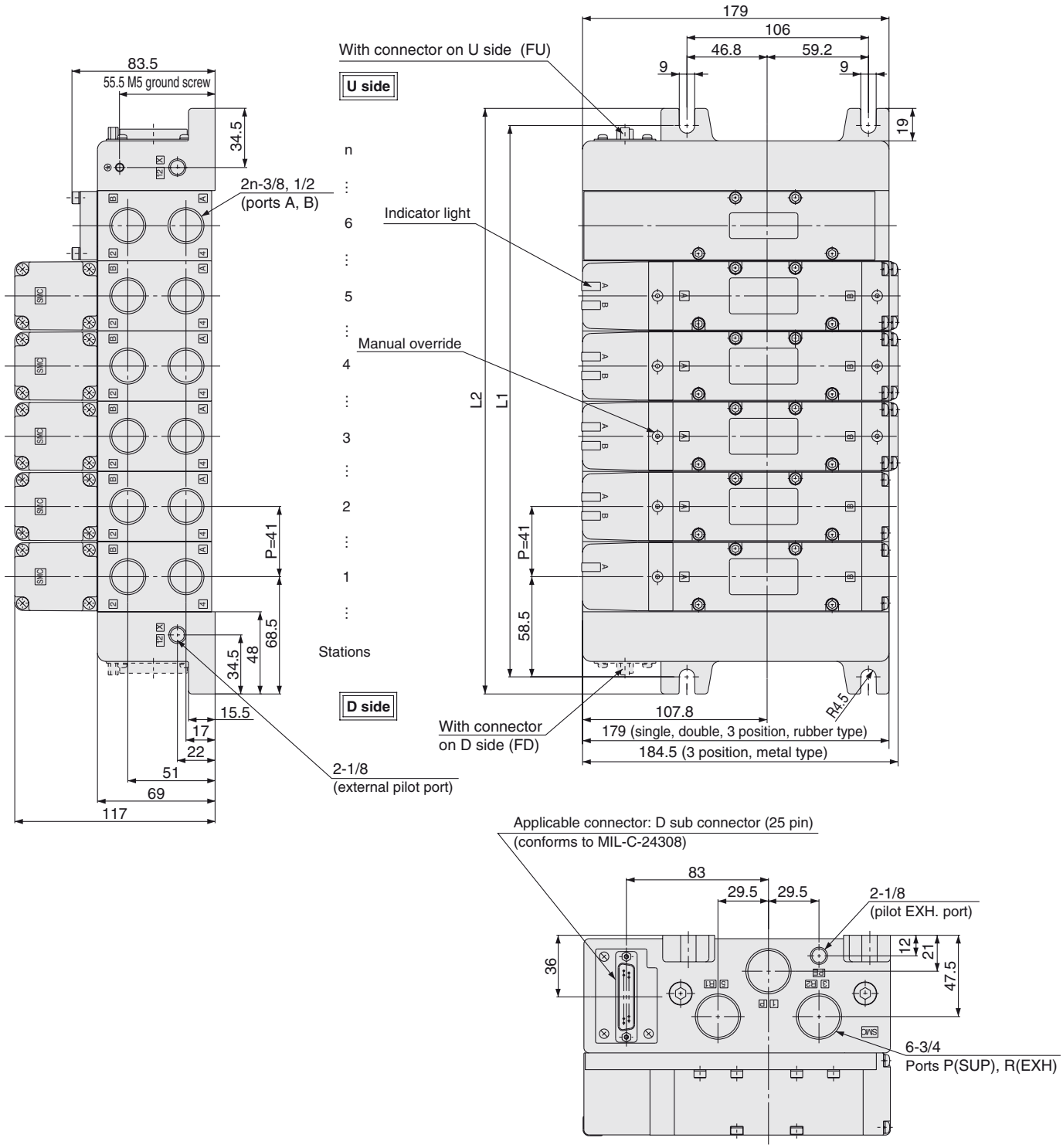
< Example>
D sub connector kit with cable (3m)

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

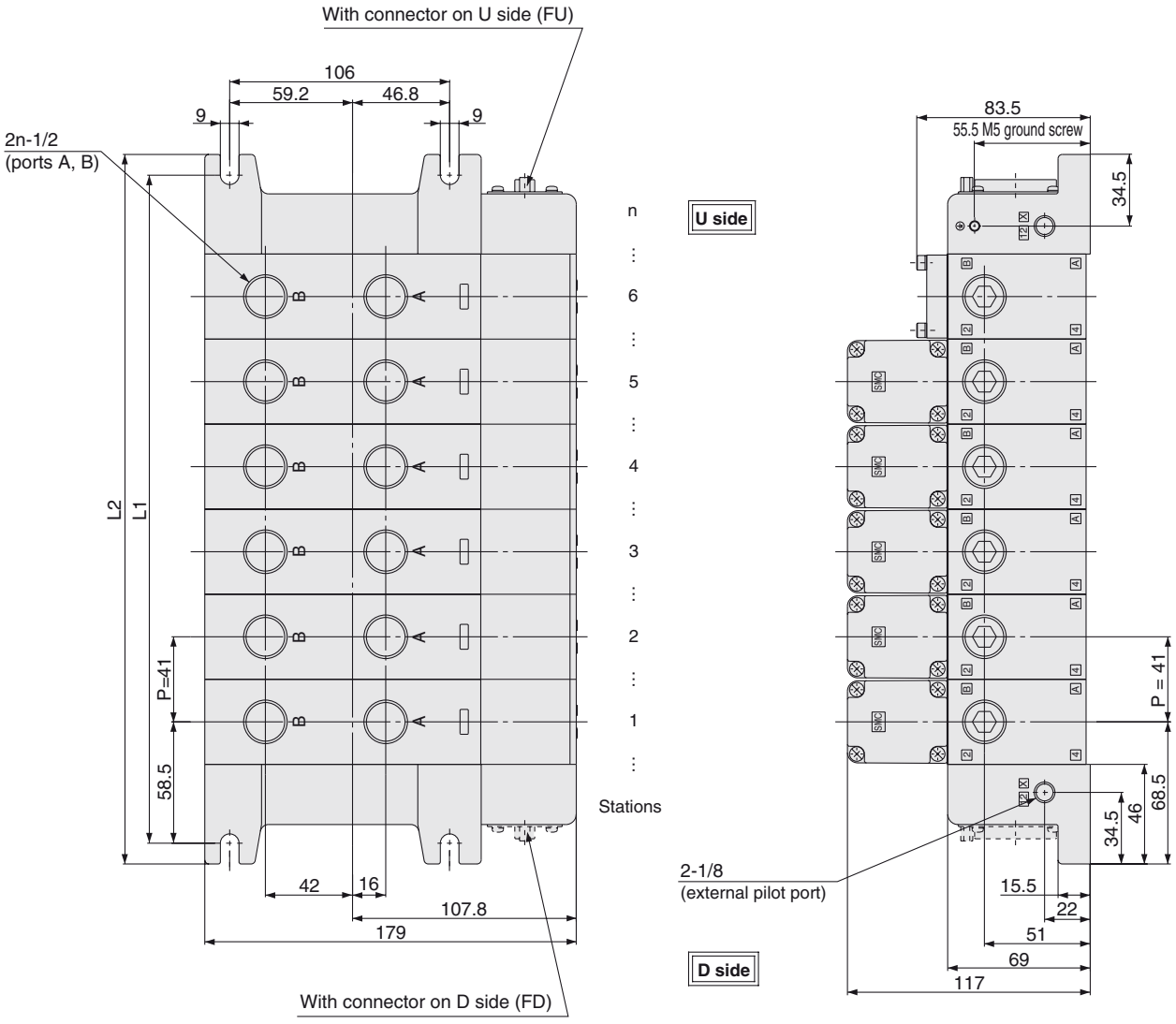
Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate on a manifold specification sheet.



F Kit (D Sub Connector Kit)



Bottom port diagram



Dimensions

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

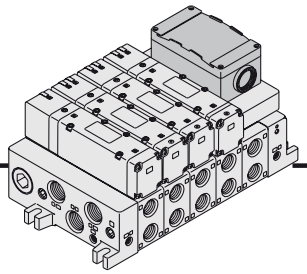
L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L_1	117	158	199	240	281	322	363	404	445	486	527	568
L_2	137	178	219	260	301	342	383	424	465	506	547	588

n: Stations (12 stations max.)

Series VQ5000

T Kit (Terminal Block Box Kit)

IP65 available



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

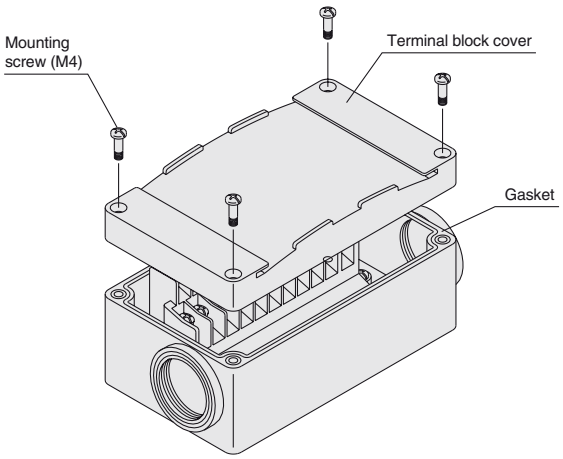
Manifold specifications

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

Terminal Block Connection

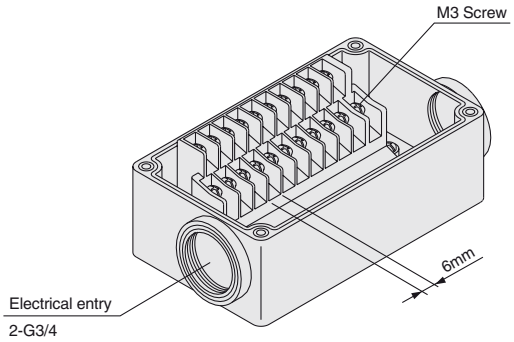
Step 1. How to remove terminal block cover

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



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

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



Step 3. How to attach the terminal block cover

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

Proper tightening torque N·m
0.7 to 1.2

How to Order Manifolds

VV5Q 5 1 – 08 03 □ T □ – K – Q

Series

5	VQ5000

Manifold type

1	Plug-in unit

Stations

02	2 stations
⋮	⋮
11	11 stations

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

Note 2) The maximum number of stations can be expanded with optional special wiring specifications. See page 1-869 for details.

Thread

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Cylinder port size

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

Box mounting position

D	D side mounting
U	U side mounting

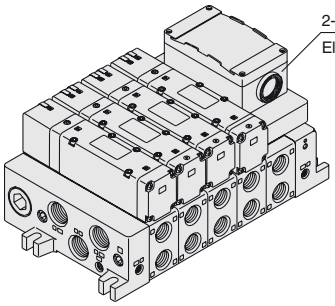
Option

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

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

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

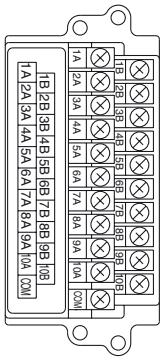
Note 3) Indicate wiring specifications on a manifold specification sheet.



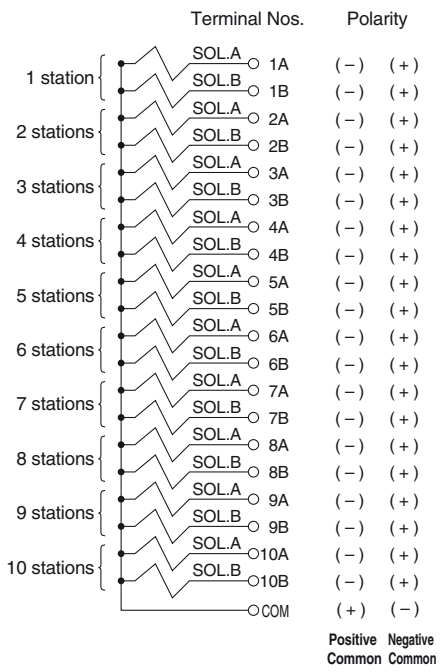
Stations are counted starting from the first station on the D side.

• Electrical wiring specifications (IP65 available)

Standard wiring



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



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

Special Wiring Specifications

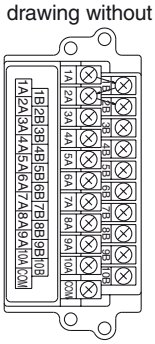
The internal wiring is double (connected to SOL. A and SOL. B) for all stations regardless of the type of valve or options. Optional specifications permit single and double wiring to be mixed. However, the maximum number of stations is 12.

1. How to order

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

2. Wiring specifications

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



How to Order Valves

VQ 5 1 0 0 □ — 5 □ □ □ — Q

Series

5	VQ5000

Type of actuation

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

Seal type

0	Metal seal
1	Rubber seal

Function (1, 2)

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

Note1) See page 1-894 for details on external pilot specifications.

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

Coil voltage

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

Order Made Contact SMC for other voltages (9)

Light/Surge voltage suppressor

Nil	With
E	Without light, with surge voltage suppressor

Manual override

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

Enclosure

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

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

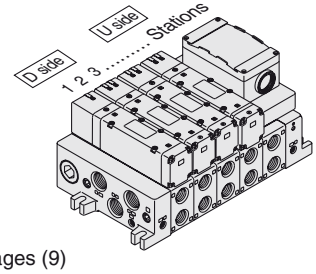
How to Order Manifold Assemblies (Example)

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

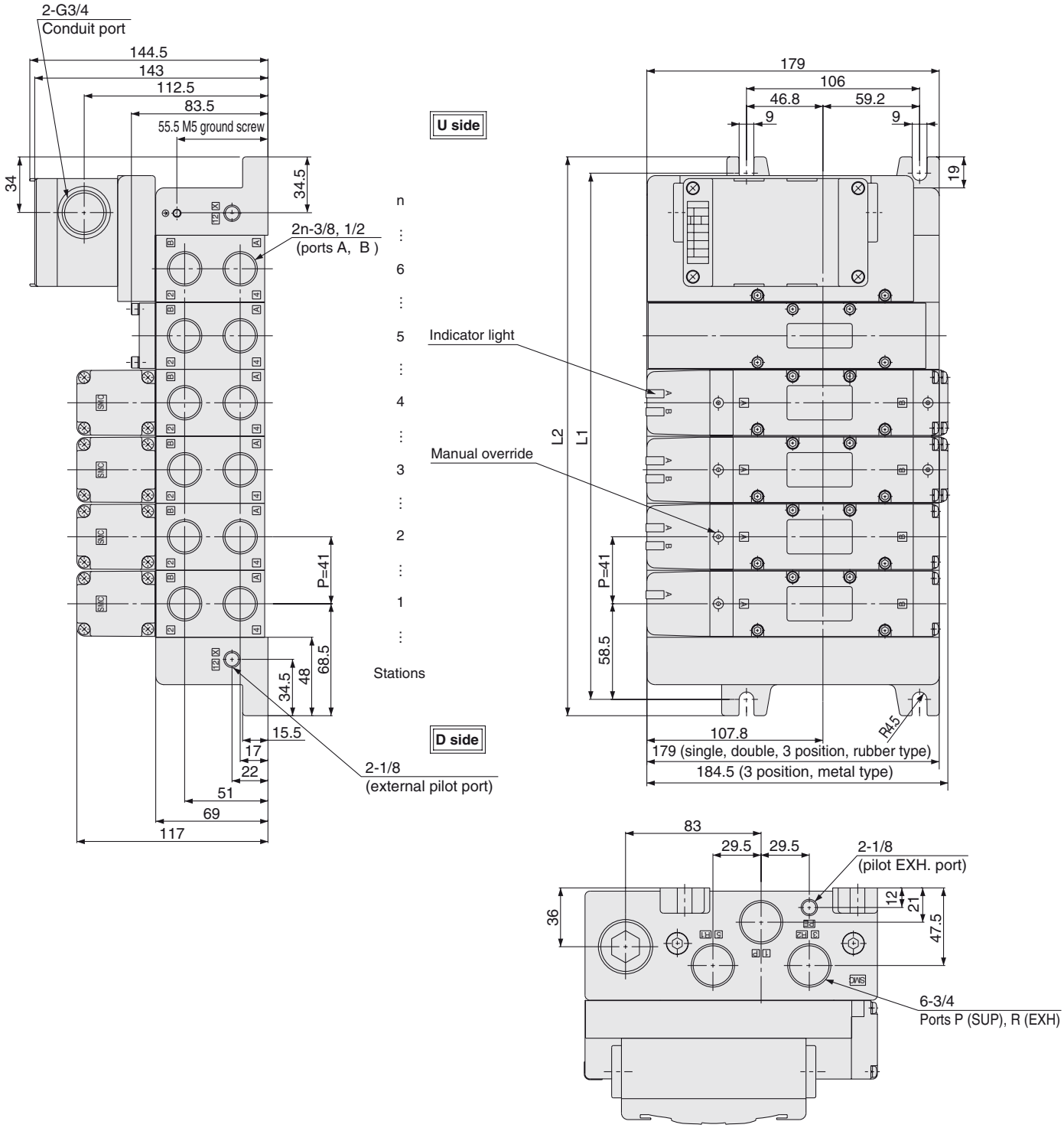
<Example>
Terminal block box kit

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

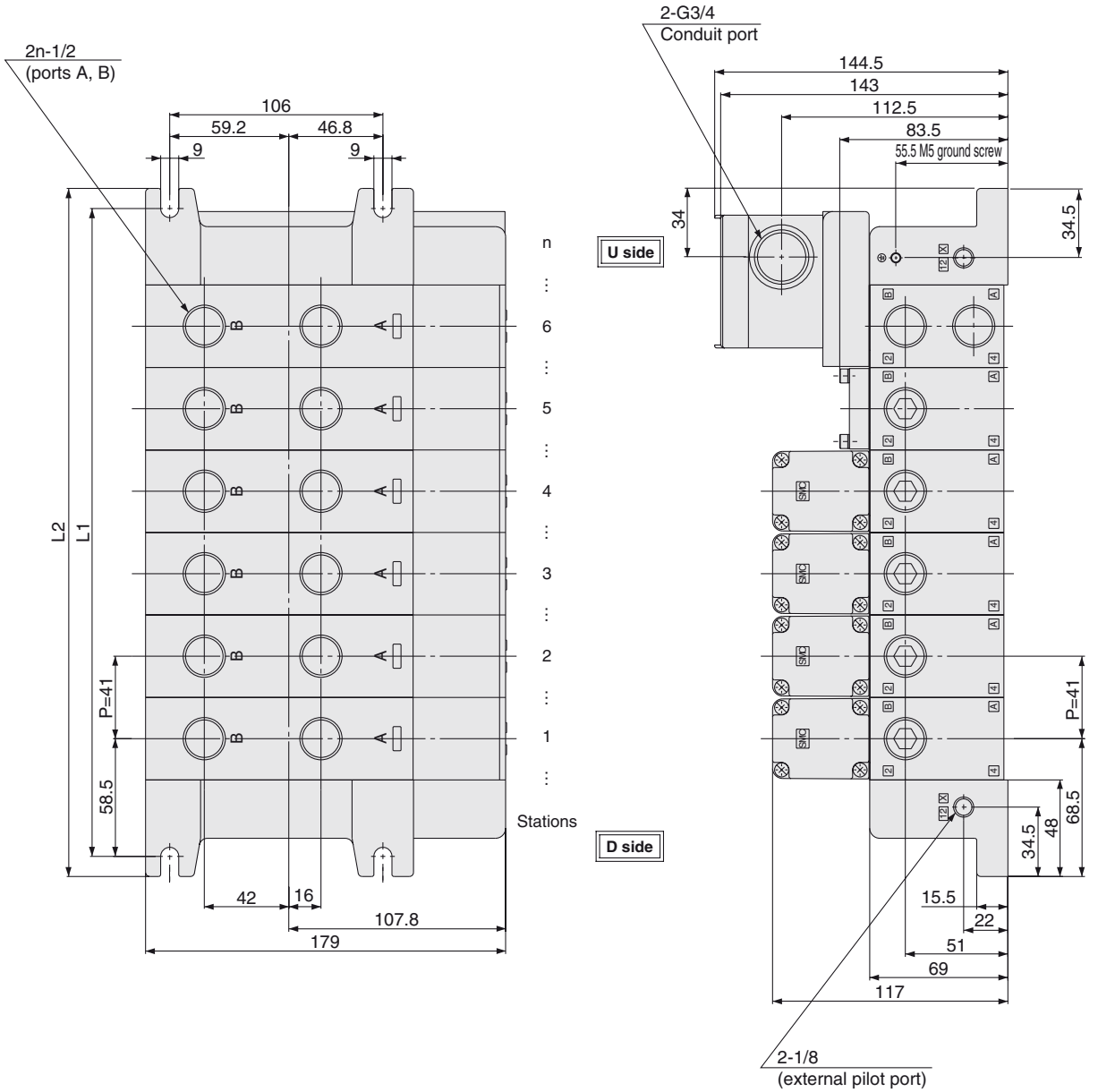
Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate on a manifold specification sheet.



T Kit (Terminal Block Box Kit)



Bottom port diagram

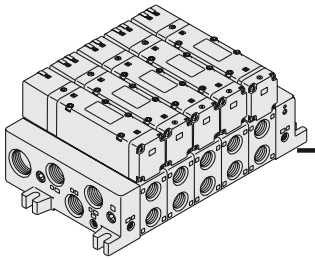


Dimensions Formulas: L1 = 41n + 76, L2 = 41n + 96

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

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

T1 Kit (Individual Terminal Block Kit)



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

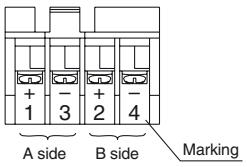
Manifold specifications

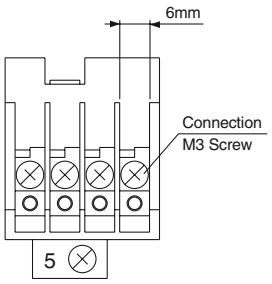
Series	Piping specifications			Applicable stations
	A, B port location	Port size		
		P, R	A, B	
VQ5000	Side	3/4	3/8,1/2	12 stations max.
	Bottom		1/2	

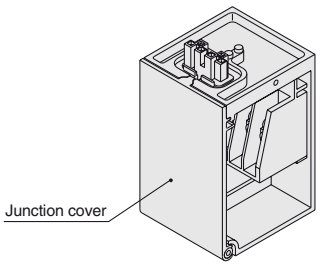
Terminal Block Connections

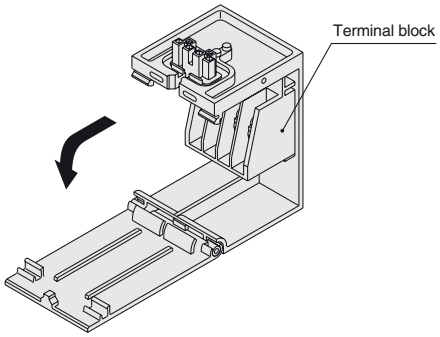
Model \ Terminal block marking	1	3	2	4
VQ510 0 1	A side +	A side –		
VQ520 0 1	A side +	A side –	B side +	B side –
VQ5 3 4 5 0 0 1	A side +	A side –	B side +	B side –

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









How to Order Manifolds

VV5Q 5 1 – 08 03 □ T1 – SD – Q

Series

5	VQ5000

Manifold type

1	Plug-in unit

Stations

1	1 station
⋮	⋮
12	12 stations

Cylinder port size

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

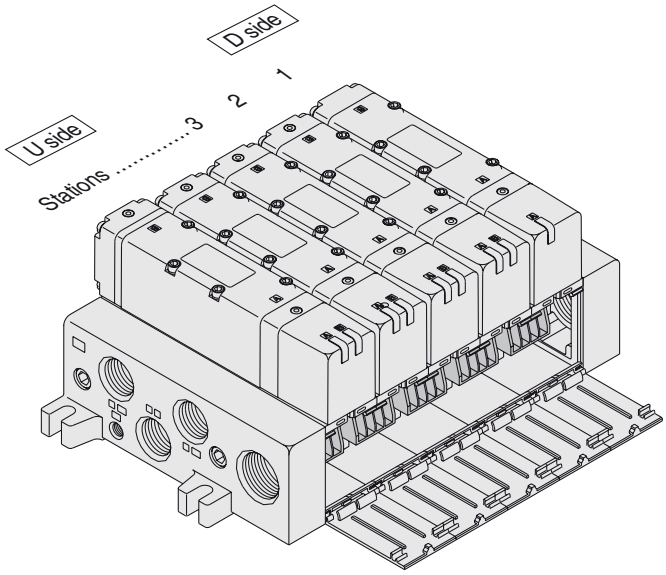
Thread

–	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Option

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

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



How to Order Valves

VQ 5 1 0 0 □ — 5 □ □ — Q

Series

5	VQ5000

Type of actuation

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

Seal type

0	Metal seal
1	Rubber seal

Function (1, 2)

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

Note1) See page 1-894 for details on external pilot specifications.

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

Coil voltage

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

Order Made — Contact SMC for other voltages (9)

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

Light/Surge voltage suppressor

Nil	With
E	Without light, with surge voltage suppressor

Manual override

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

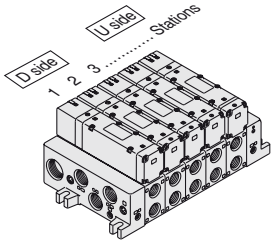
How to Order Manifold Assemblies (Example)

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

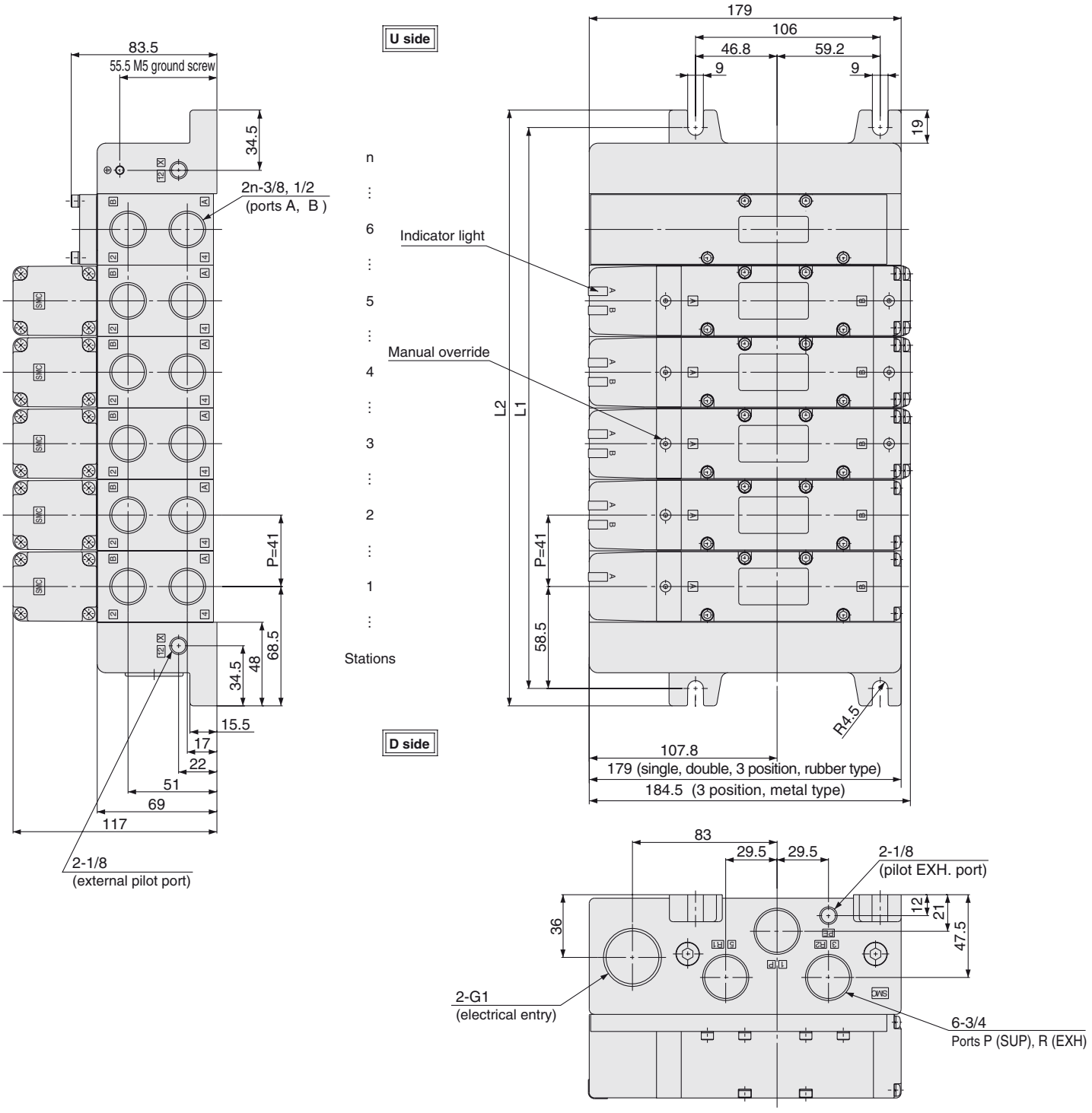
<Example>
Individual terminal block kit

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

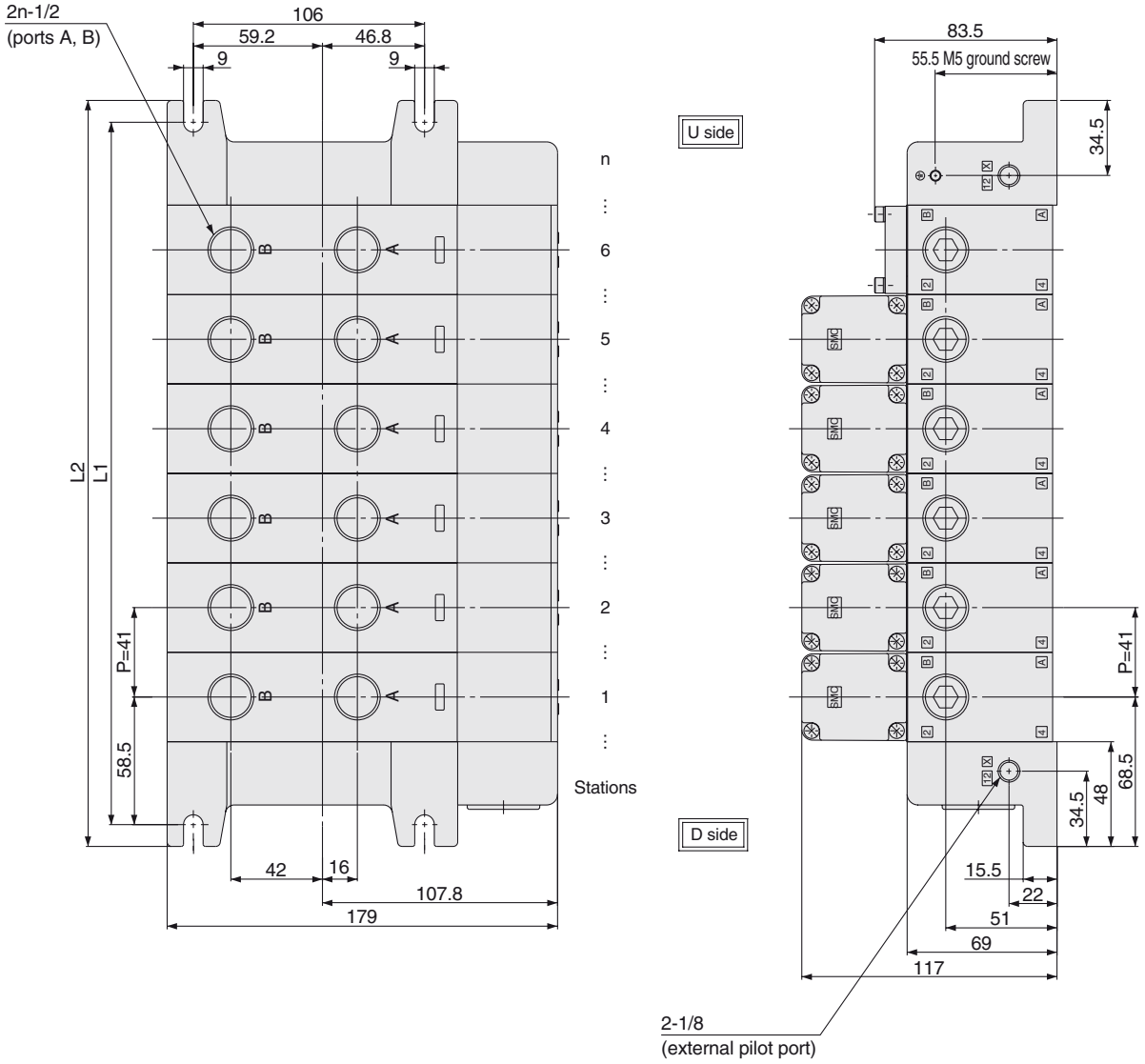
Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate on a manifold specification sheet.



T1 Kit (Individual Terminal Block Kit)



Bottom port diagram



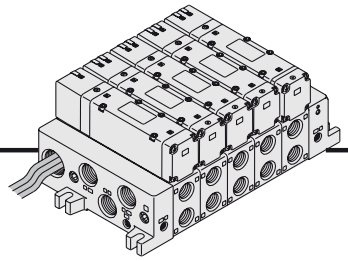
Dimensions Formulas: $L_1 = 41n + 76$, $L_2 = 41n + 96$

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

n: Stations (12 stations max.)

Series VQ5000

L Kit (Lead Wire Kit)



IP65 available

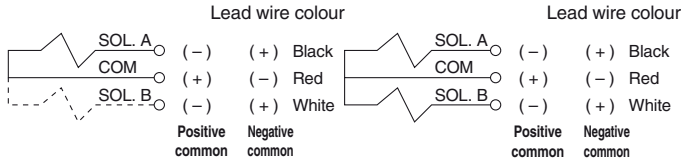
- **IP65 enclosure available.**
- **Direct electrical entry type available with two or more stations.**
- **Electrical entry can be selected on either the U side or the D side according to the mounting orientation.**
- **12 stations maximum**

Manifold specifications

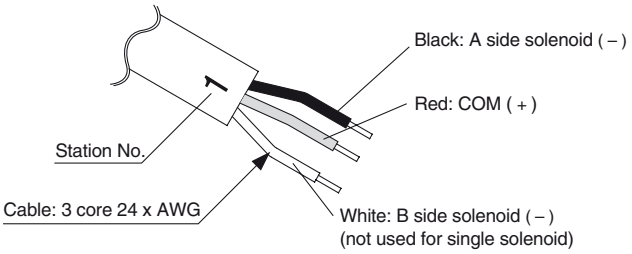
Series	Piping specifications			Applicable stations
	A, B port location	Port size		
		P, R	A, B	
VQ5000	Side	3/4	3/8 1/2	12 stations max.
	Bottom		1/2	

Wiring specifications

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



Single solenoid type　　Double solenoid type



Lead wire assembly with connector

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

□: Number of stations 1 to 12

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

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

How to Order Manifolds

VV5Q 5 1 – 08 03 □ L U □ – W – Q

Series

5	VQ5000

Manifold type

1	Plug-in unit

Stations

02	2 stations
⋮	⋮
12	12 stations

Cylinder port size

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

Electrical entry

D	D side entry
U	U side entry

Cable length

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

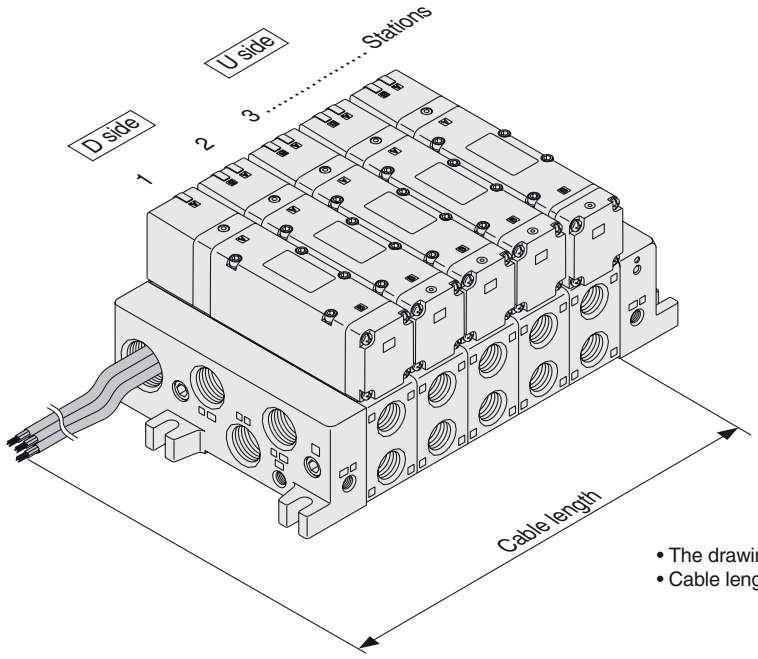
Thread

–	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Option

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

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



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

How to Order Valves

VQ 5 1 0 0 □ — 5 □ □ □ — Q

Series

5	VQ5000

Type of actuation

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

Seal type

0	Metal seal
1	Rubber seal

Function (1, 2)

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

Note1) See page 1-894 for details on external pilot specifications.

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

Coil voltage

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

Order Made Contact SMC for other voltages (9)

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

Light/Surge voltage suppressor

Nil	With
E	Without light, with surge voltage suppressor

Manual override

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

Enclosure

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

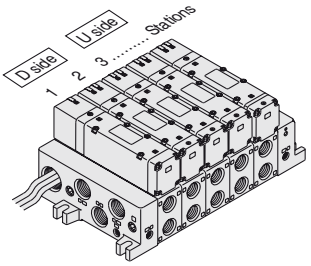
How to Order Manifold Assemblies (Example)

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

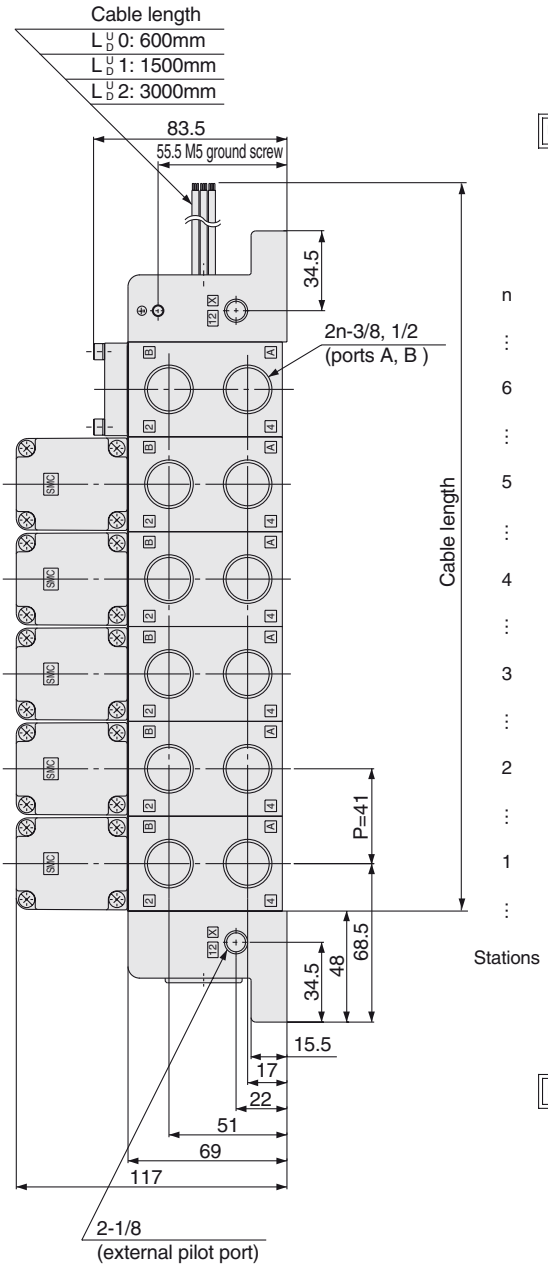
<Example>
Lead wire kit with cable (3m)

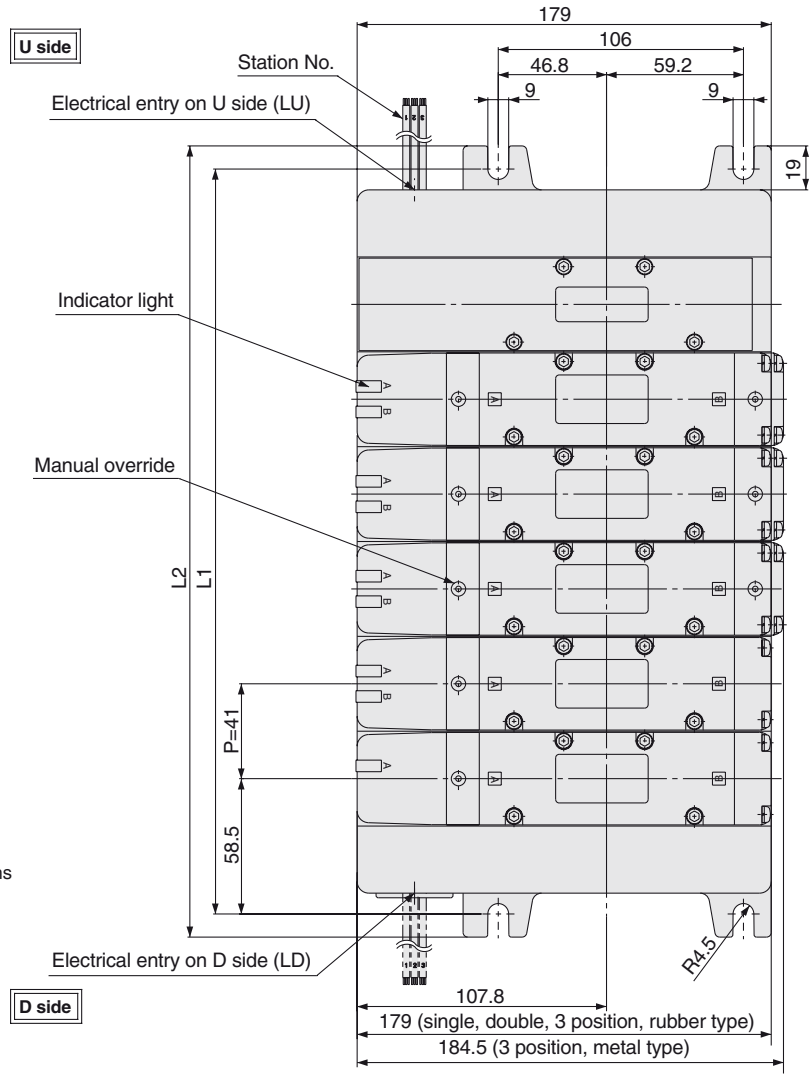
VV5Q51-0503LD2-Q ... 1 set — Manifold base part number
VQ5100-5-Q ..... 2 sets — Valve part number (Stations 1 and 2)
VQ5200-5-Q ..... 2 sets — Valve part number (Stations 3 and 4)
VQ5300-5-Q ..... 1 set — Valve part number (Station 5)

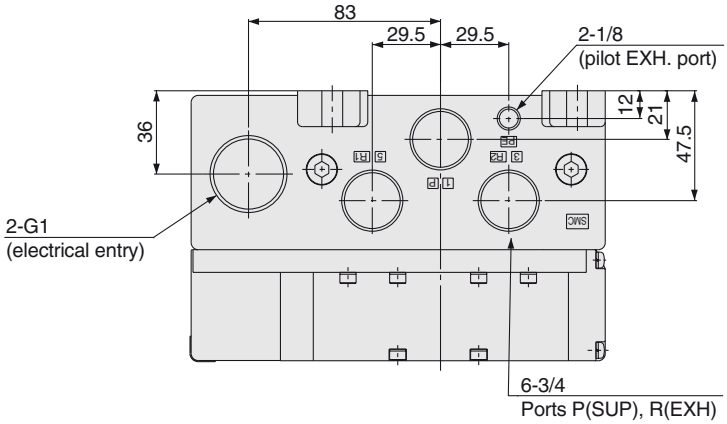
Enter in order starting from the first station on the D side. When entry of part numbers becomes complicated, indicate on a manifold specification sheet.



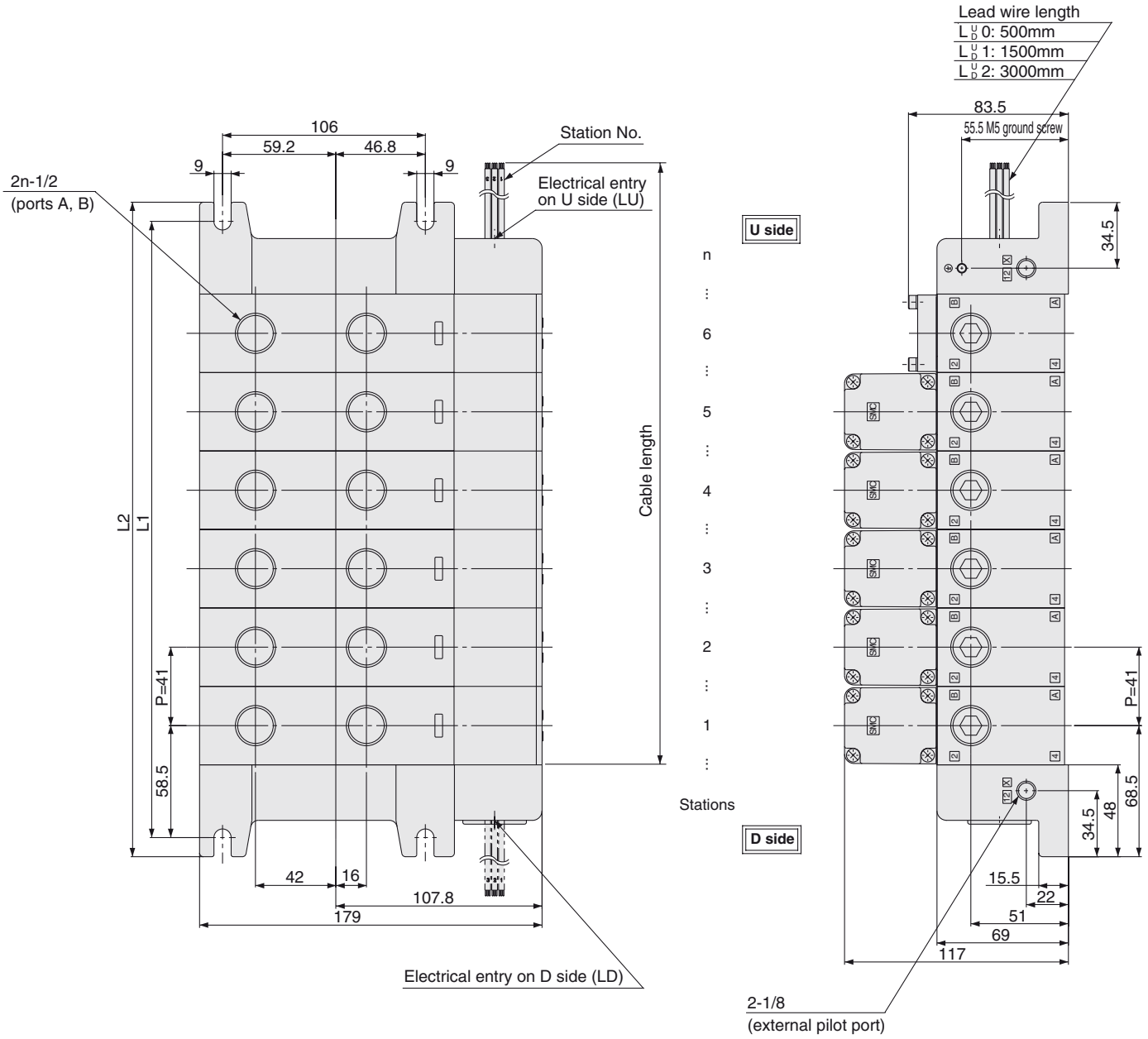
L Kit (Lead Wire Kit)







Bottom port diagram



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

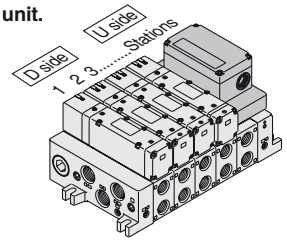
L \ n	1	2	3	4	5	6	7	8	9	10	11	12
L_1	117	158	199	240	281	322	363	404	445	486	527	568
L_2	137	178	219	260	301	342	383	424	465	506	547	588

n: Stations (12 stations max.)

S Kit (Serial Transmission Kit)

IP65 available

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

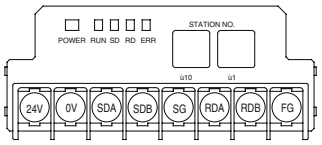


- **Stations are counted from station 1 on the D side.**
- **The internal wiring is double (connected to SOL. A and SOL. B) for all stations regardless of the type of valve or options. Optional specifications permit single and double wiring to be mixed.**

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

Manifold specifications

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

	SB type Mitsubishi Electric MELSECNET/MINI-S3 data link compatible
Terminal block (LED) nomenclature	
Note	• Master station Sequencer made by Mitsubishi Electric MELSEC-A series AJ71PT32-S3, AJ71T32-S3 A1SJ71PT32-S3 ∗ 64 stations max., connected to remote I/O station (512 points max.) • 16 output points, 2 stations occupied

LED name	Contents
POWER	Lights when power is turned ON
RUN	Lights when data traffic with the master station is normal
RD	Lights when sending data
SD	Lights when receiving data
ERR	Lights for error in received data, off when normal

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

How to Order Manifolds

VV5Q 5 1 – 08 03 S □ □ – □ – Q

Series

5	VQ5000

Manifold type

1	Plug-in unit

Stations

02	2 stations
⋮	⋮
09	9 stations

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

Type

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

Option

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

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

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

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

Cylinder port size

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

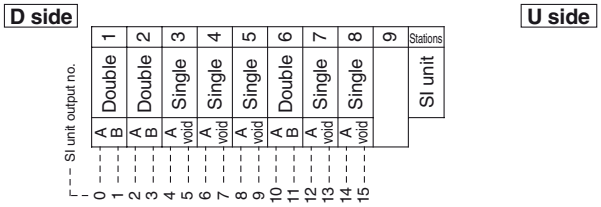
SI unit mounting position

D	D side mounting
U	U side mounting

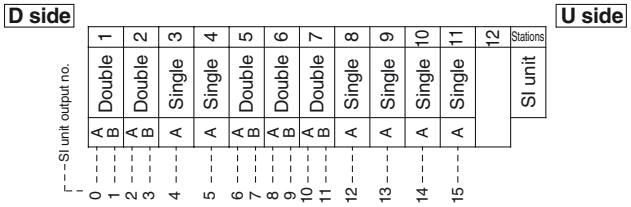
• Correspondence of SI unit output numbers and solenoid valve coils

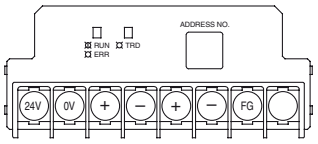
Since mixed wiring is optional, use a manifold specifiction sheet.

<Wiring example 1> Double wiring (standard)



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



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

How to Order Valves

VQ 5 1 0 0 ☐ — 5 ☐ ☐ — Q

Series

5	VQ5000

Type of actuation

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

Seal type

0	Metal seal
1	Rubber seal

Function (1, 2)

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

Note1) See page 1-894 for details on external pilot specifications.

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

Coil voltage

5	24VDC

Manual override

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

Enclosure

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

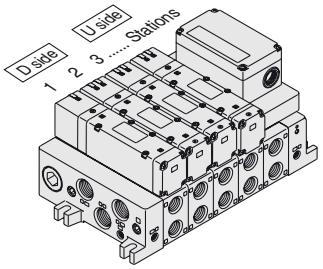
How to Order Manifold Assemblies (Example)

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

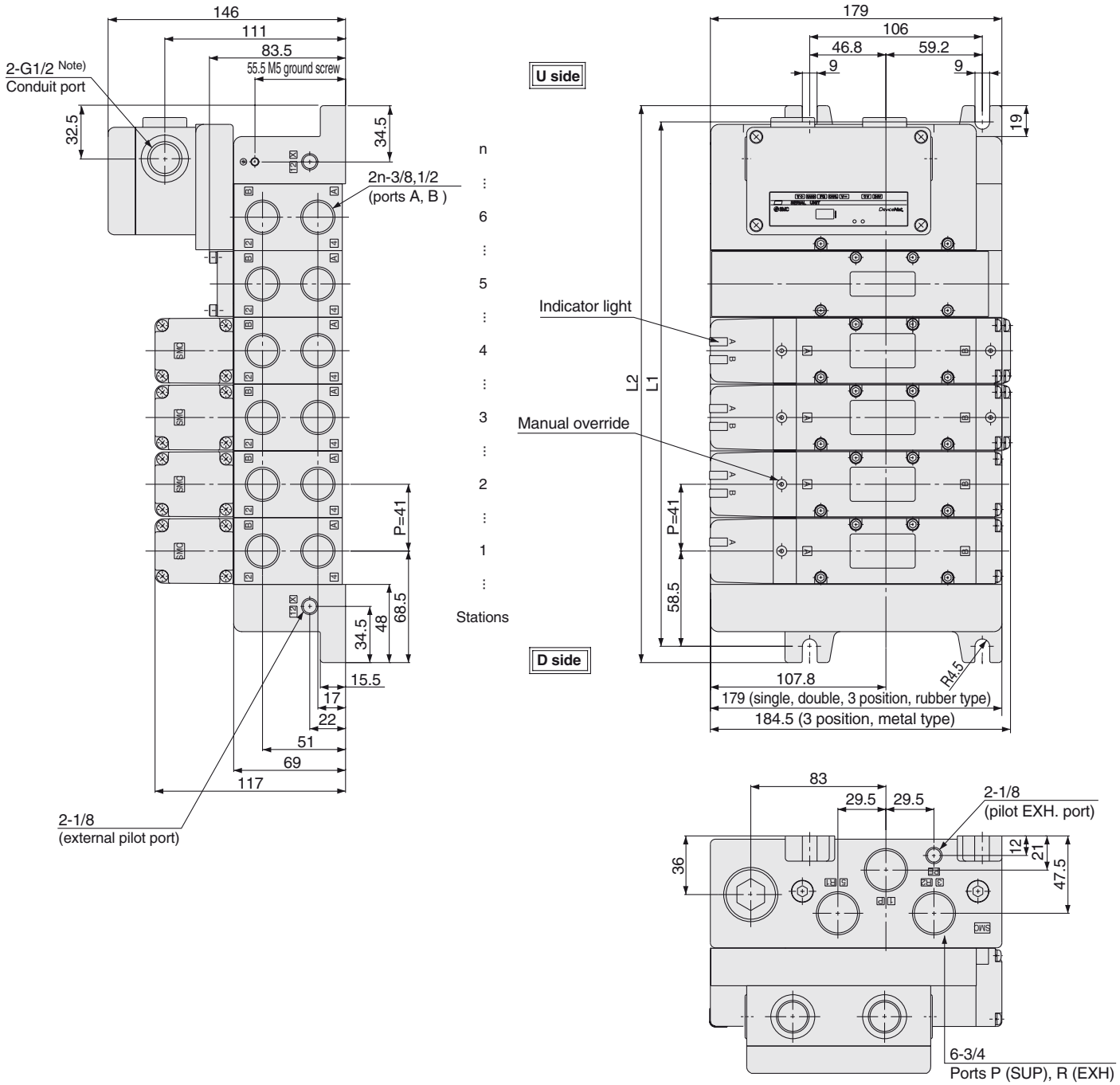
<Example>
Serial transmission unit

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

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

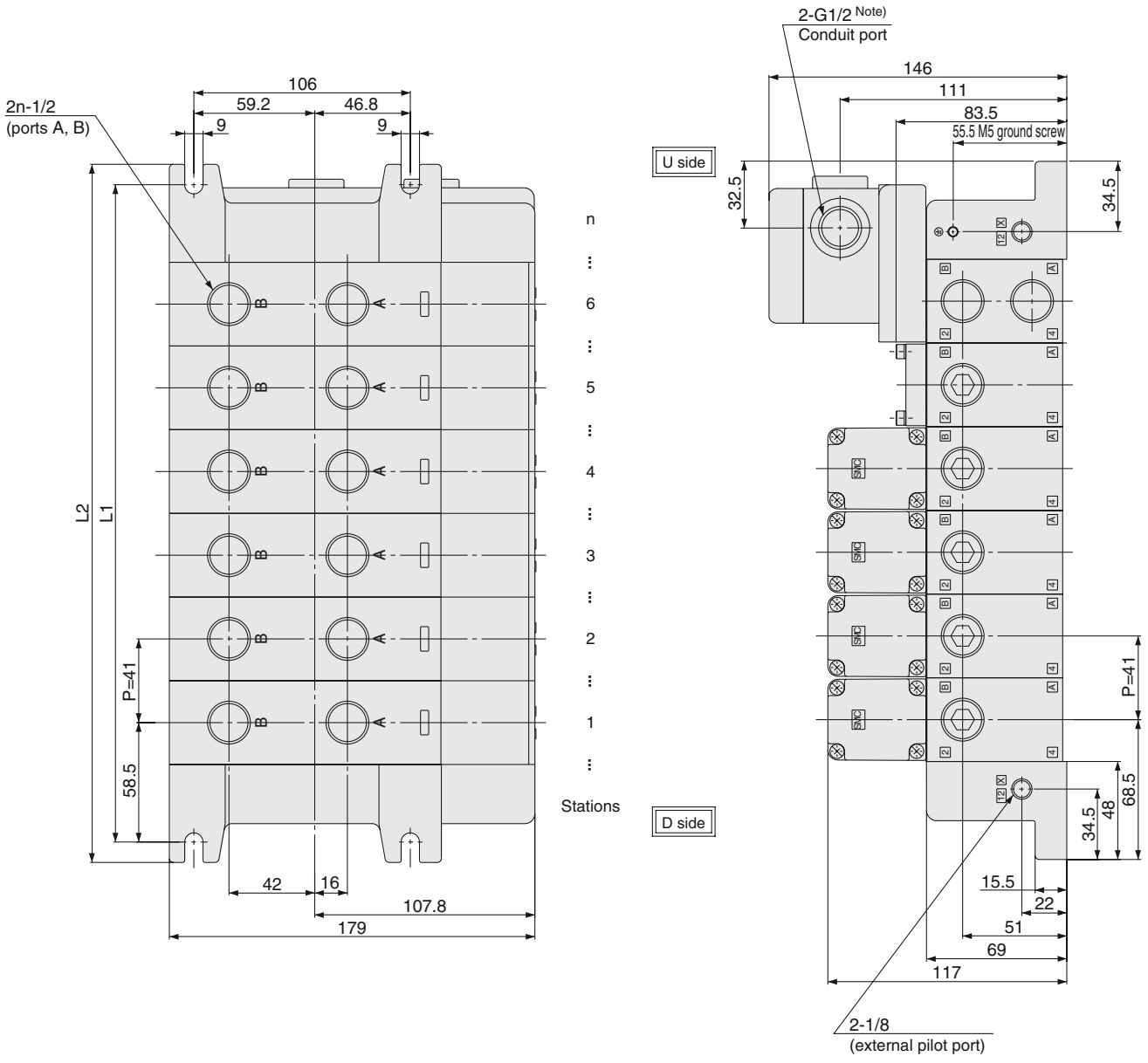


S Kit (Serial Transmission Kit)



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

Bottom port diagram



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

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

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

Series VQ5000
Base Mounted Type
Plug Lead Unit: C Kit (Connector kit)



How to Order Manifolds

VV5Q 5 5 – 08 03 C – W – Q

Series

5	VQ5000

Manifold type

5	Plug lead unit

Stations

02	2 stations
⋮	⋮
12	12 stations

Cylinder port size

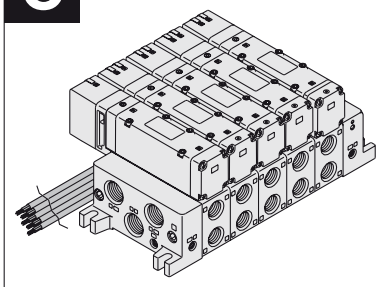
03	3/8
04	1/2
B	Bottom ported 1/2
CM	Mixed sizes

Thread

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Kit designation

C Kit (connector)



C	Connector kit	12 stations max.

Option

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

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

See page 1-900 (grommet type) for wiring specifications.

How to Order Valves

VQ 5 1 5 0 – 5 G – Q

Series

5	VQ5000

Type of actuation

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

Seal type

0	Metal seal
1	Rubber seal

Function

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

Note 1) Applicable to DC specifications.
Note 2) See page 1-894 for details on external pilot specifications.
Note 3) When specifying more than one option, enter symbols in alphabetical order.

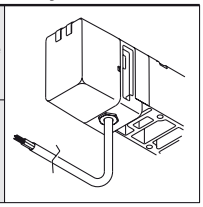
Coil voltage

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

Order Made Contact SMC for other voltages (9)

Electrical entry

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

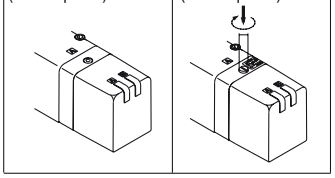


Light/Surge voltage suppressor

Nil	With
E	Without light, with surge voltage suppressor

Manual override

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



Enclosure

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

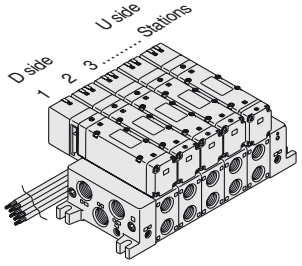
How to Order Manifold Assemblies (Example)

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

<Example>
Connector kit

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

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



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

Manifold Specifications

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

Note) See options on page 1-892 for details on international thread standards other than Rc threads.

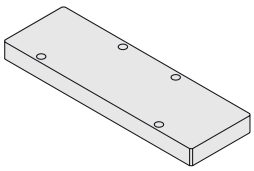
Manifold Stations and Effective area mm² (N*l*/min) for Individual Operation

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

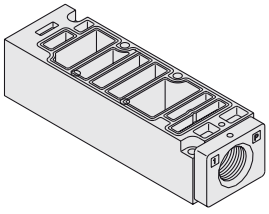
Note) For port size 1/ 2

Manifold Options

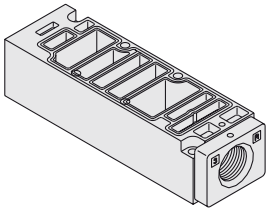
Blank plate assembly
VVQ5000-10A-5



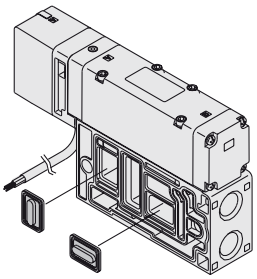
Individual SUP spacer
VVQ5000-P-5-$^{03}_{04}$



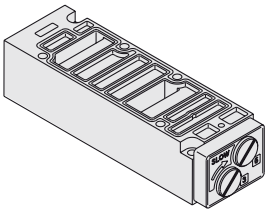
Individual EXH spacer
VVQ5000-R-5-$^{03}_{04}$



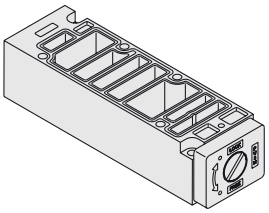
EXH blocking plate
VVQ5000-16A-2



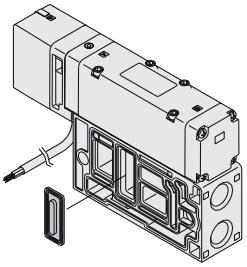
Throttle valve spacer
VVQ5000-20A-5



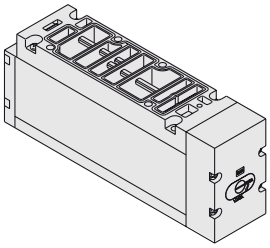
SUP stop valve spacer
VVQ5000-37A-5



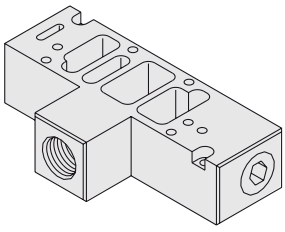
SUP blocking plate
VVQ5000-16A-1



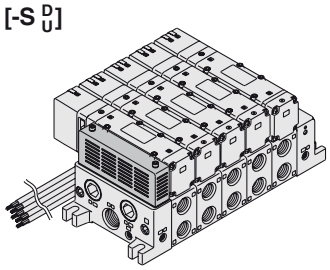
Double check spacer with residual pressure release valve
VVQ5000-25A-5



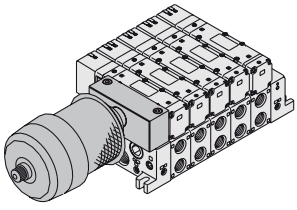
Release valve spacer
VVQ5000-24A-5D



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

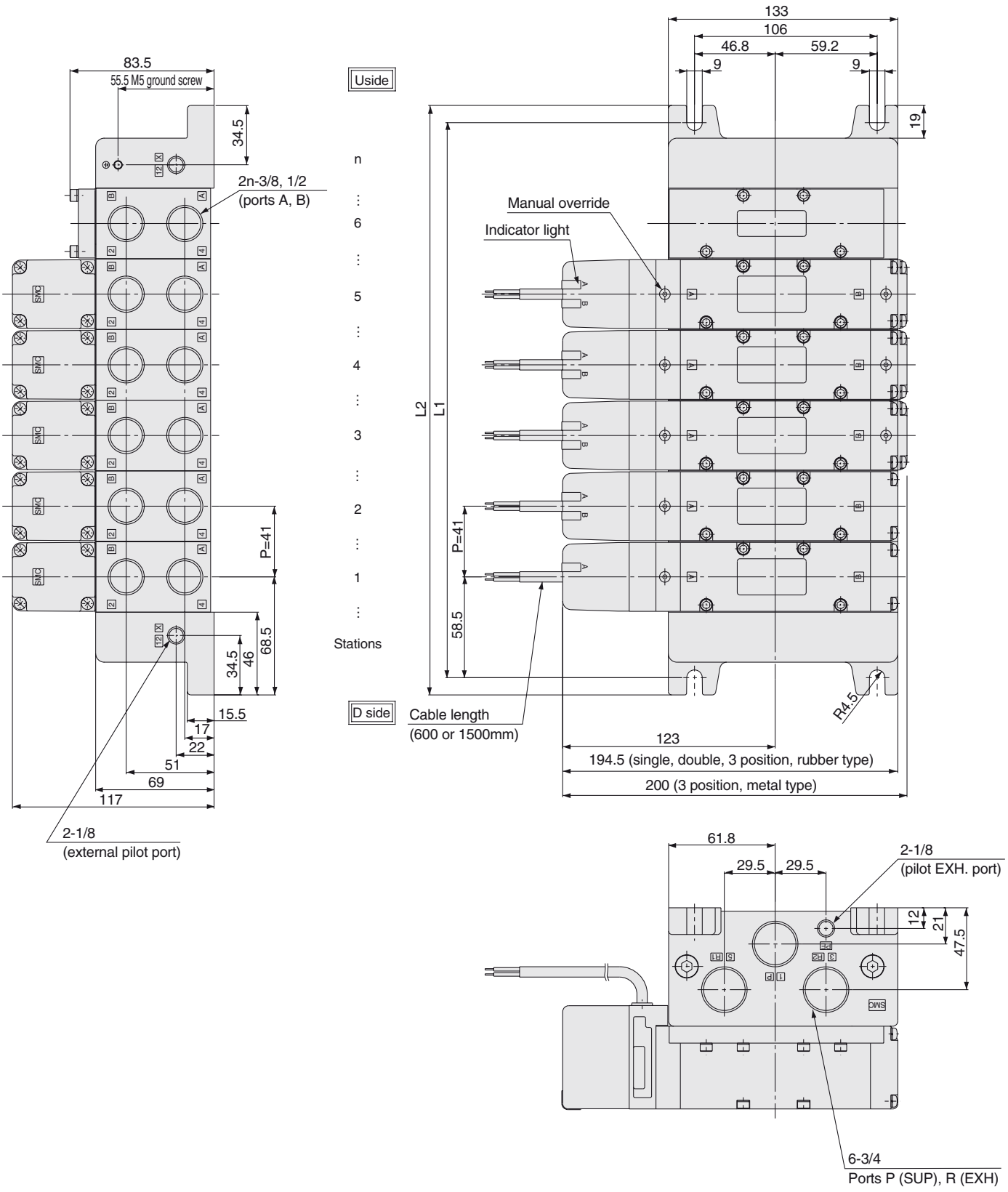


For exhaust cleaner mounting
[-C $^{D}_{U}$ □]

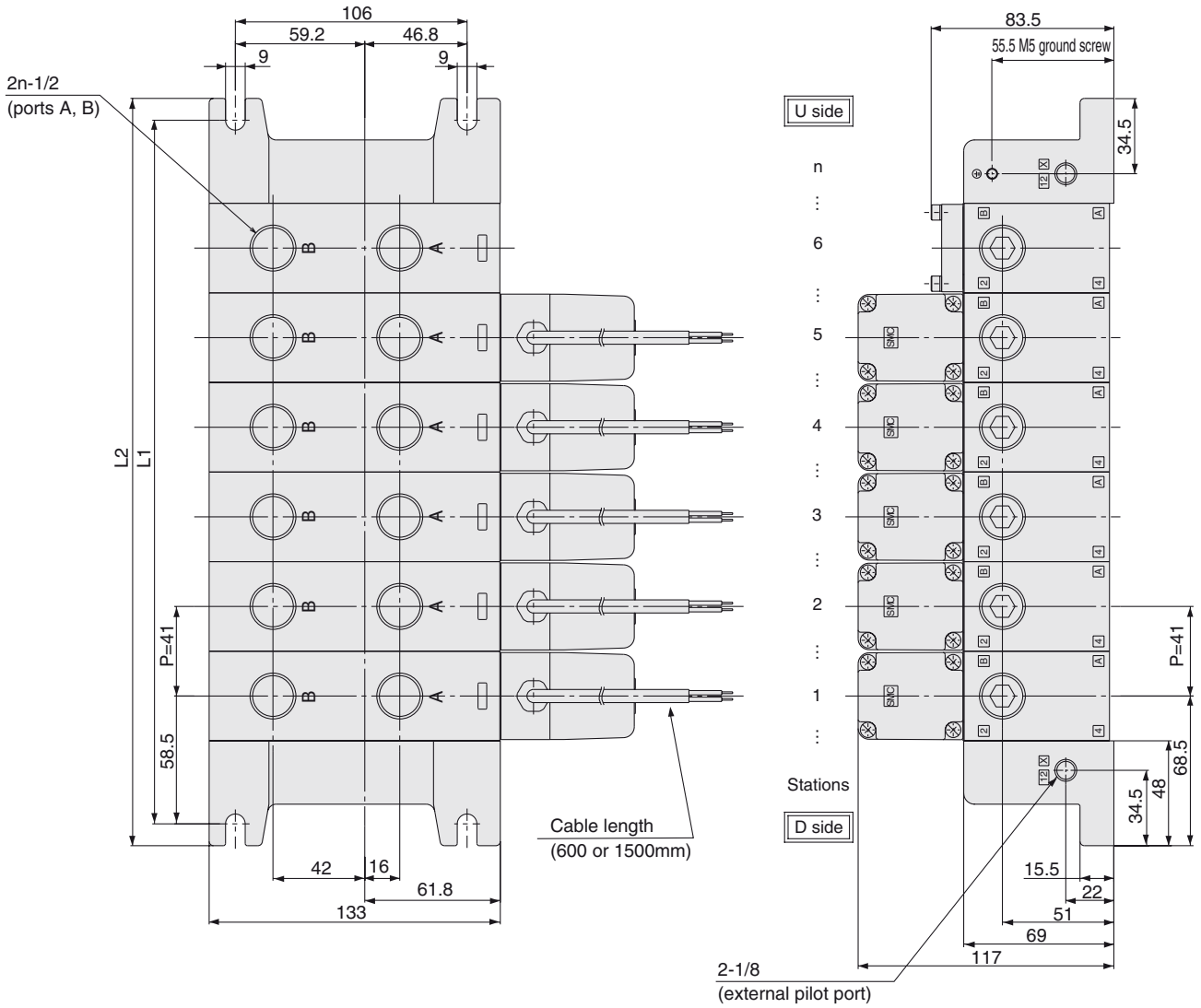


• See pages 1-888 through 1-893 for detailed dimensions of each option.

C Kit (Connector Kit)



Bottom port diagram



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

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

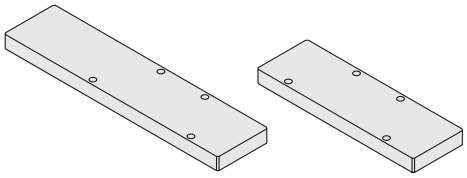
n: Stations (12 stations max.)

Optional Manifold Parts

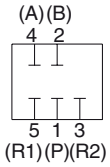
Blank plate assembly

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

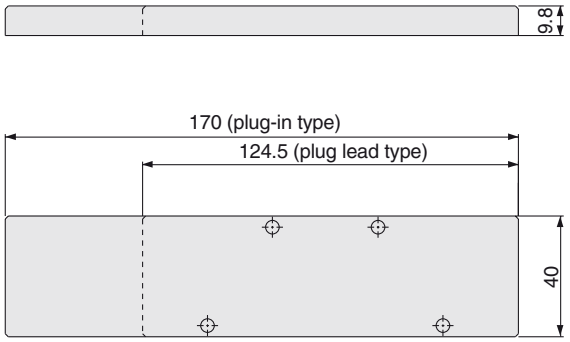
This is mounted on a manifold block when a valve is removed for maintenance or when installation of an additional valve is planned for the future, etc.



Plug-in type　　Plug lead type



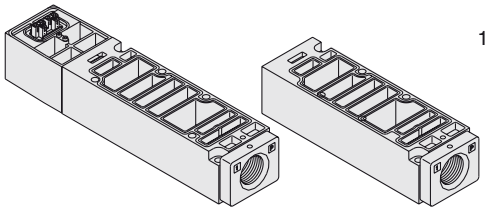
Circuit diagram



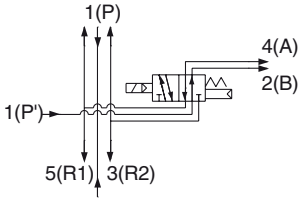
Individual SUP spacer

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

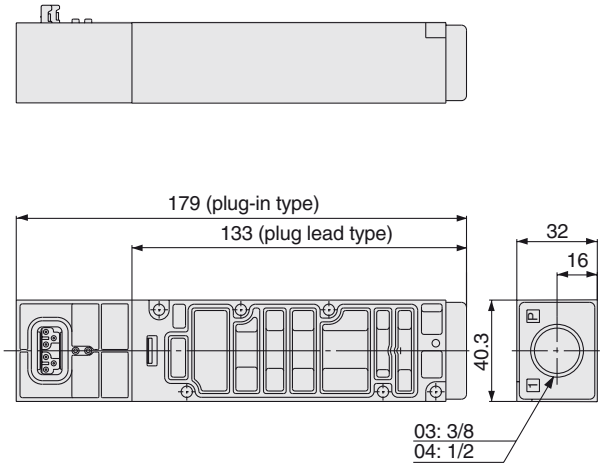
By mounting individual SUP spacers on a manifold block, it is possible to provide individual supply ports for each valve.



Plug-in type　　Plug lead type



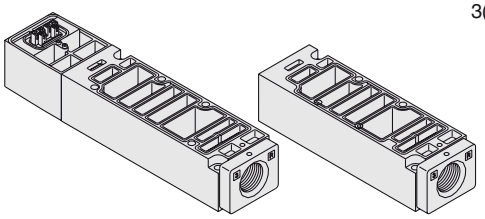
Circuit diagram



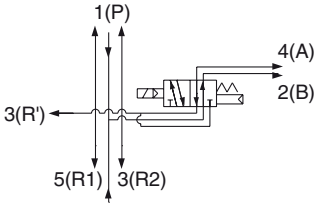
Individual EXH spacer

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

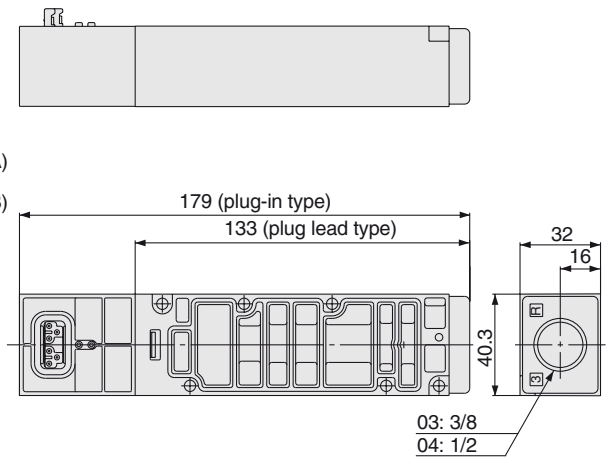
By mounting individual EXH spacers on a manifold block, it is possible to provide individual exhaust ports for each valve. (common EXH type)



Plug-in type　　Plug lead type



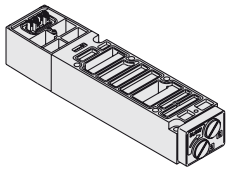
Circuit diagram



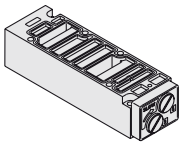
Throttle valve spacer

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

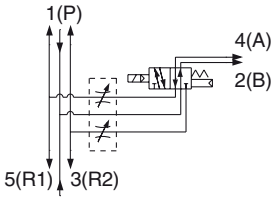
A throttle valve spacer is mounted on a manifold block to control cylinder speed by throttling exhaust air flow.



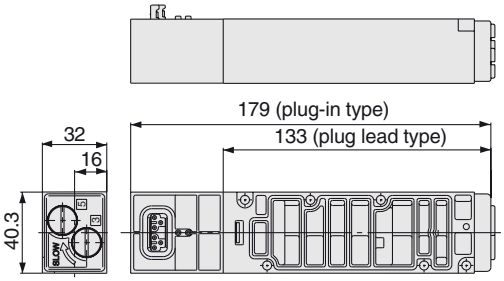
Plug-in type



Plug lead type



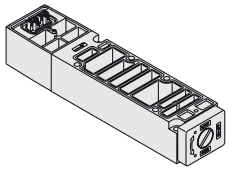
Circuit diagram



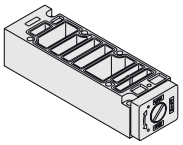
SUP stop valve spacer

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

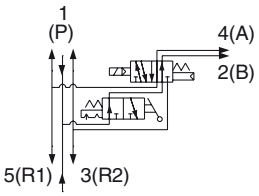
A SUP stop valve spacer is mounted on a manifold block, making it possible to individually shut off supply air to each valve.



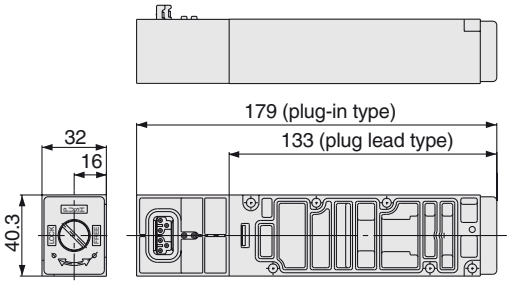
Plug-in type



Plug lead type



Circuit diagram

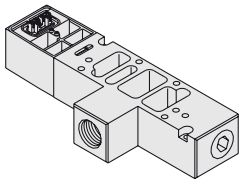


Release valve spacer: For D side mounting

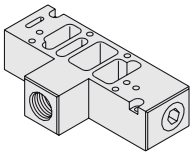
VVQ5000-24A-1D (plug-in type)
VVQ5000-24A-5D (plug lead type)

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

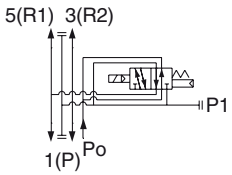
Note) 2 position double and 3 position cannot be mounted.



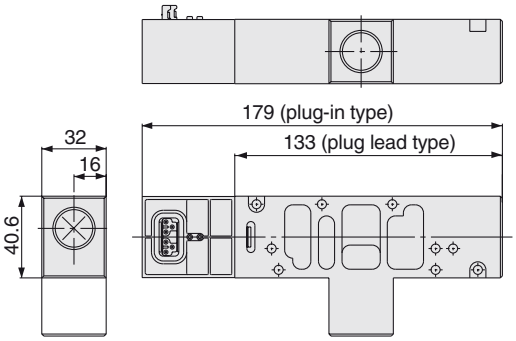
Plug-in type



Plug lead type



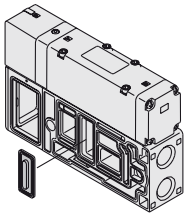
Circuit diagram



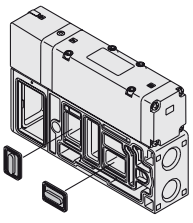
SUP blocking plate — VVQ5000-16A-1

EXH blocking plate — VVQ5000-16A-2

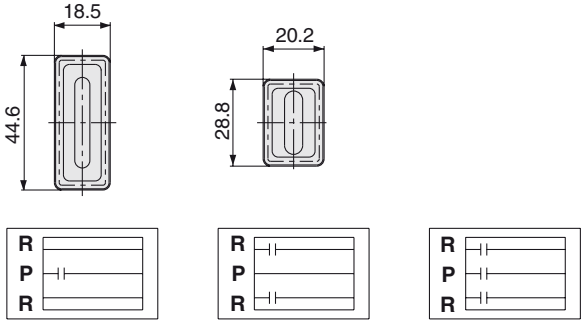
When 2 or more different pressures are supplied to one manifold, blocking plates are installed between stations under different pressures.



< SUP blocking plate >



< EXH blocking plate >



SUP passage blocked

EXH passages blocked

SUP/EXH passages blocked

Optional Manifold Parts

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

Piping work is unnecessary

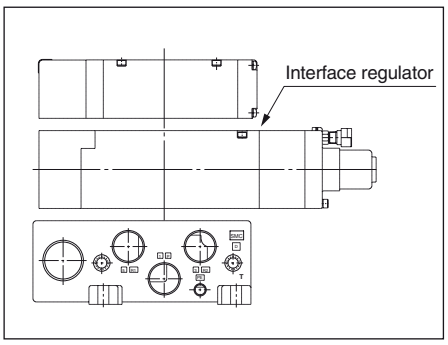
Ideal pressures can be supplied by simply installing interface regulators on a manifold base.

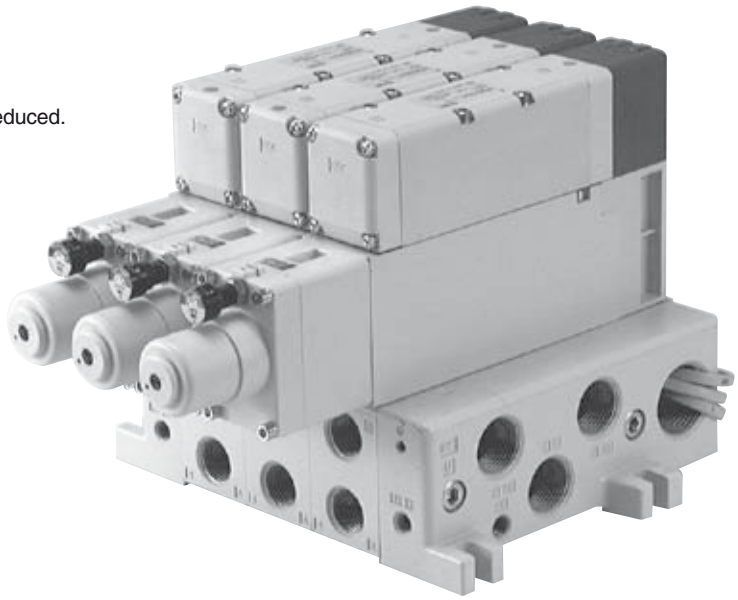
Space savings

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

Simplified dual pressure control

Dual pressure actuator control can be easily performed.

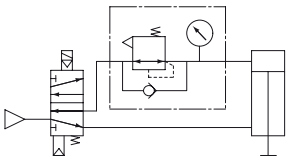
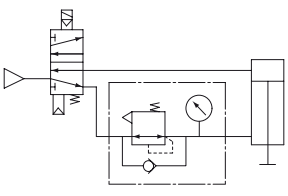
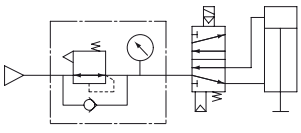




How to Order

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

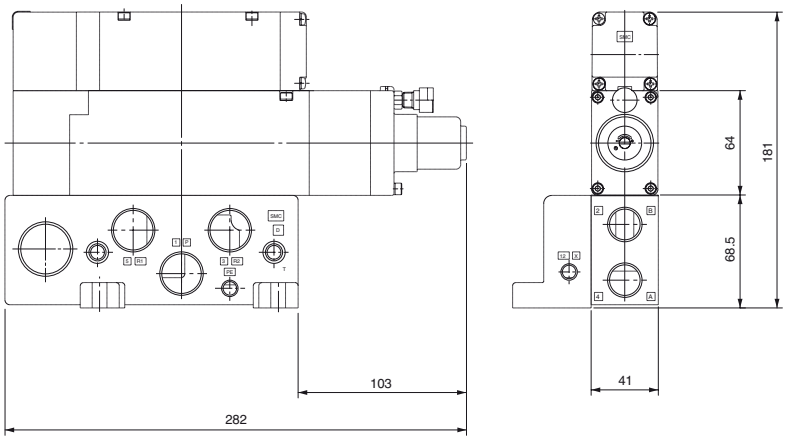
Circuit Diagrams

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

Specifications

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

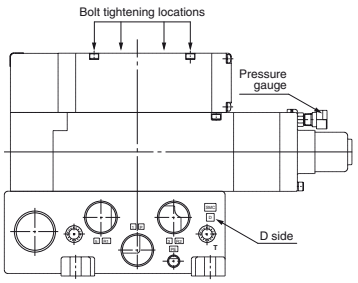
Dimensions



Mounting

⚠ Caution

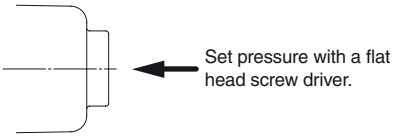
1. With the P port on the manifold's D side in front, mount the interface regulator so that the position of its pressure gauge is as shown in the figure to the right.
2. When mounting an interface regulator, tighten the bolts with a torque of 1 to 1.8 N·m.



Pressure Setting

⚠ Caution

1. Set the pressure of an interface regulator using a flat head screw driver.
2. The pressure adjustment is increased by turning to the right and decreased by turning to the left. Perform pressure setting by increasing from a lower pressure to the desired setting.
3. Perform the setting after carefully confirming the upstream pressure.
4. Set the downstream pressure to no more than 85% of the upstream pressure.



Optional Manifold Parts

Double check spacer with residual pressure release valve

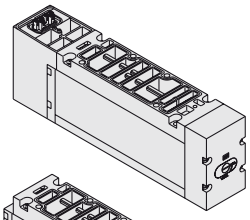
VVQ5000-25A-1 (plug-in type)
VVQ5000-25A-5 (plug lead type)

Can hold an intermediate cylinder position for an extended time

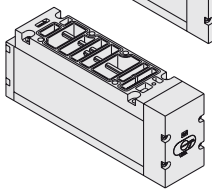
When combined with a double check spacer with built-in double check valve, it is unaffected by air leakage between the spool valves, making it possible to hold a cylinder intermediate stopping position for an extended time.

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

Plug-in type



Plug lead type



Specifications

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

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

∗ Supply pressure: 0.5MPa

Handling Precautions

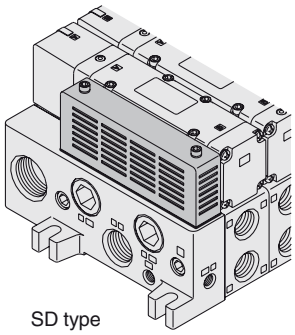
- In the case of a 3 position double check valve (VQ56$\frac{00}{51}$0), check to be sure there are no leaks in the piping and fittings, etc., between the valve and cylinder using a solution such as a neutral detergent. Also check for leakage from the cylinder and piston seal areas. If there is leakage,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

Direct exhaust with silencer box

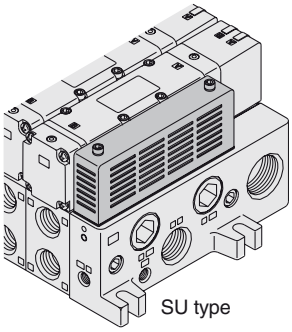
VV5Q5$\frac{1}{5}$-□□□-SD (D side exhaust)
VV5Q5$\frac{1}{5}$-□□□-SU (U side exhaust)
VV5Q5$\frac{1}{5}$-□□□-SB (double side exhaust)

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

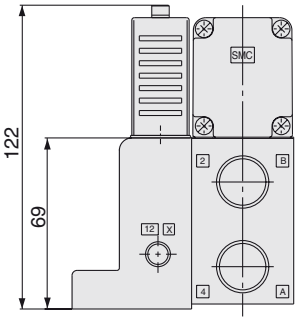
Note) If a large amount of drainage is generated at the air supply, note that drainage will be discharged together with the exhaust air.

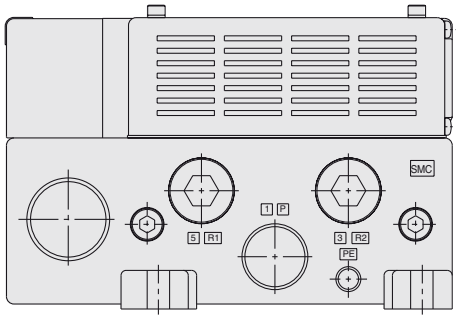


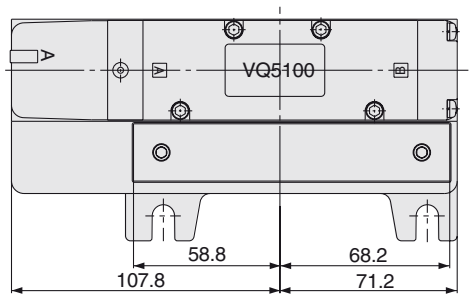
SD type



SU type







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

Manifold mounted exhaust cleaner

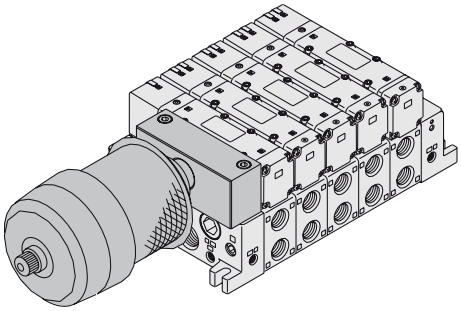
VV5Q5 1/5-□□□-CD (D side mounting)

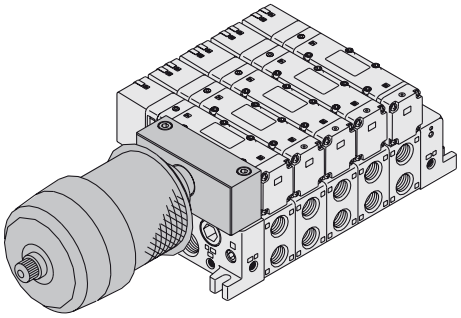
VV5Q5 1/5-□□□-CU (U side mounting)

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

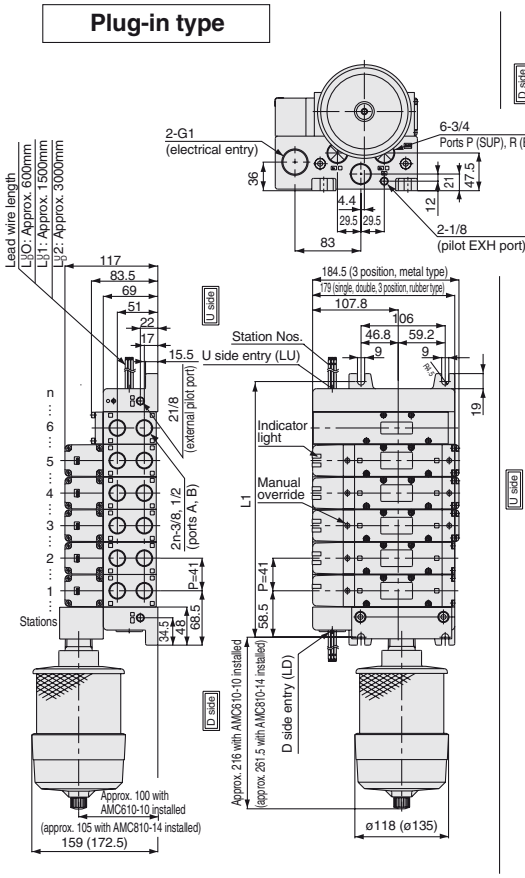
Applicable exhaust cleaners
AMC610-10 (port size Rc1), AMC810-14 (port size Rc1 1/2)

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

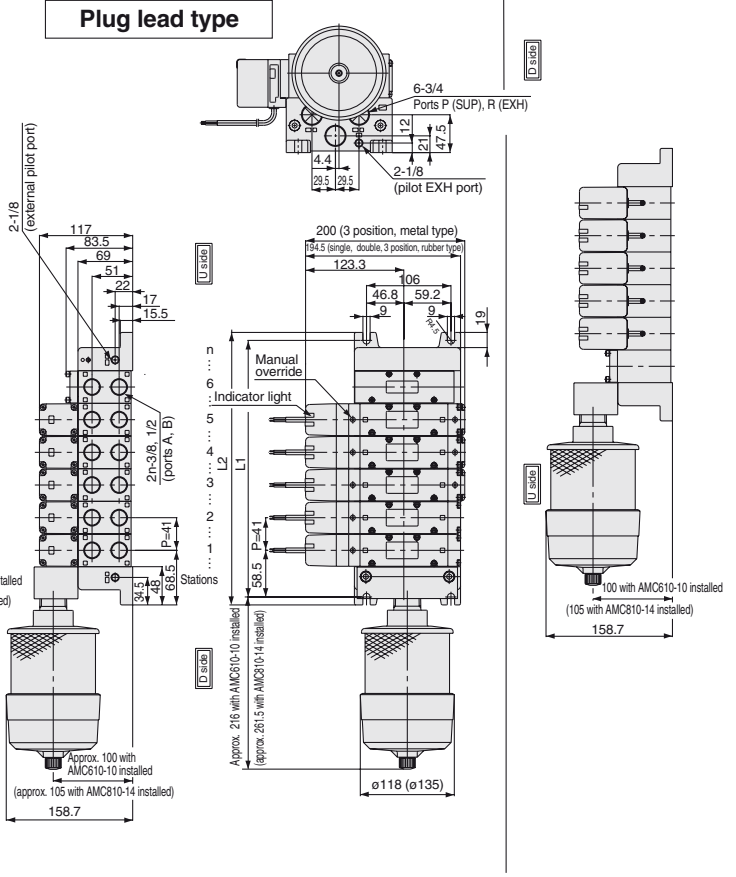




Plug-in type



Plug lead type



Dimensions

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

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

n: Stations (12 stations max.)

Dimensions

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

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

n: Stations (12 stations max.)

Option Specifications

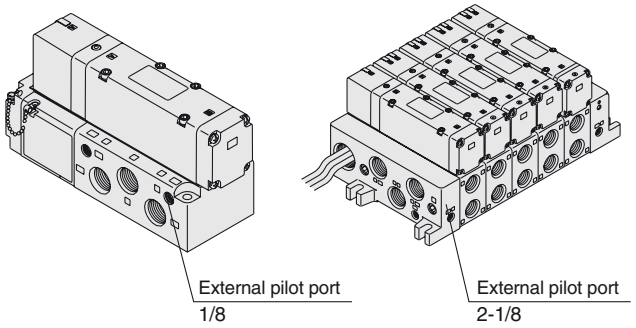
External pilot specifications

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

How to order valves (example)

VQ5100 R — 5 — 04 — Q

External pilot specification



<Sub plate> **<Manifold>**

Note) Mixed mounting of internal and external pilots is possible

Pressure specifications

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

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

International thread standards other than Rc

Rc specifications are standard for all ports, however, NPT, NPTF and G are available for international markets.

Add the appropriate symbol following the port size in the standard part number.

How to order single valves (example)

VQ5100 — 5 — 04 T — Q

Cylinder port size

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

Nil	Rc
N	NPT
T	NPTF
F	G

How to order manifolds (example)

VV5Q51 — 08 03 T FU1 — Q

Cylinder port size

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

Nil	Rc
N	NPT
T	NPTF
F	G

How to order sub plates and options (example)

VQ5000 — P — B 04 N (Sub plate)

VVQ5000 — P — 1 — 04 T (Option)

Port size

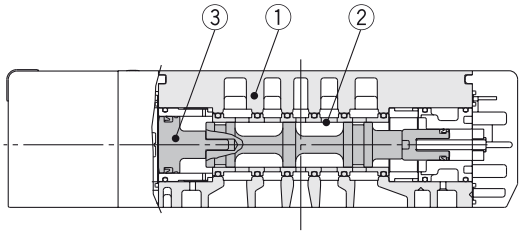
Thread type

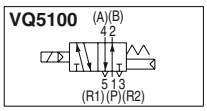
Nil	Rc
N	NPT
T	NPTF
F	G

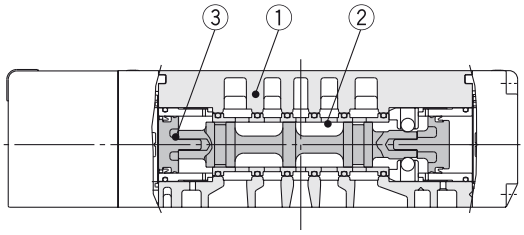
Construction

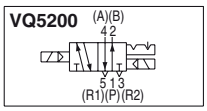
Plug-in Unit

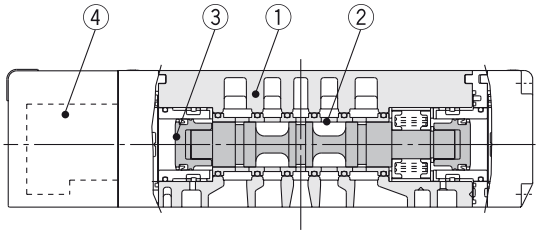
Metal seal type

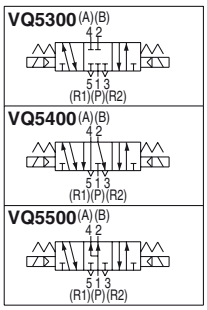




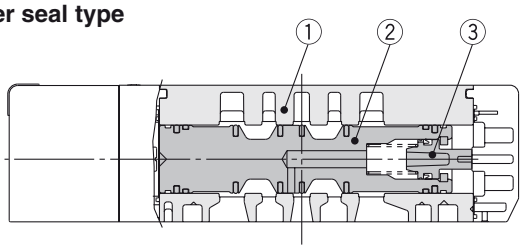


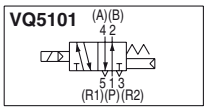


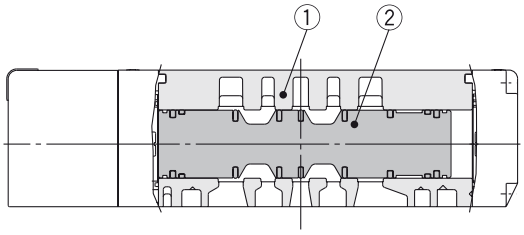


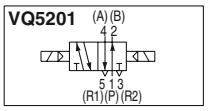


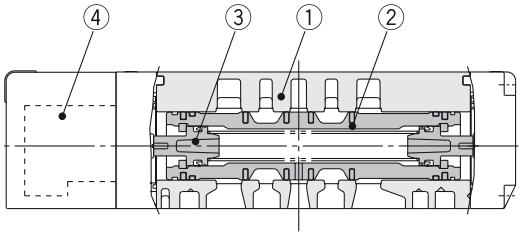
Rubber seal type

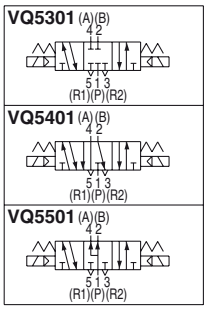












Parts list

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

Replacement parts

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

Parts list

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

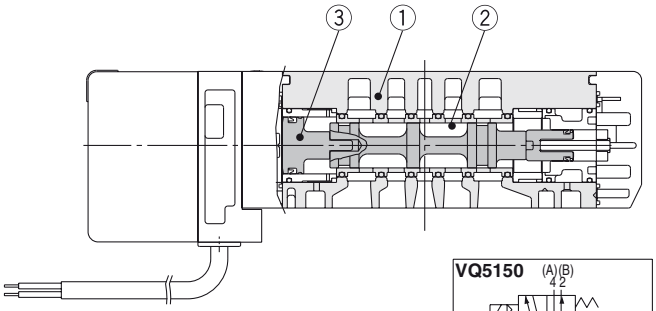
Replacement parts

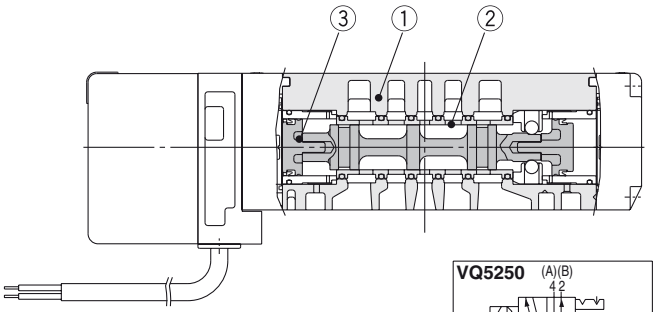
4	**Pilot valve assembly**	**VQZ111P-□-Q**	∗: Rated coil voltage Example) 24VDC: 5

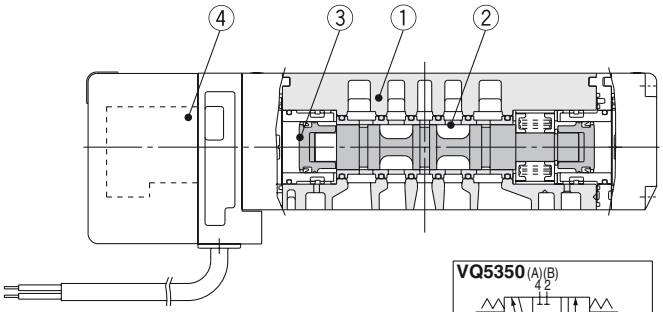
Construction

Plug Lead Unit

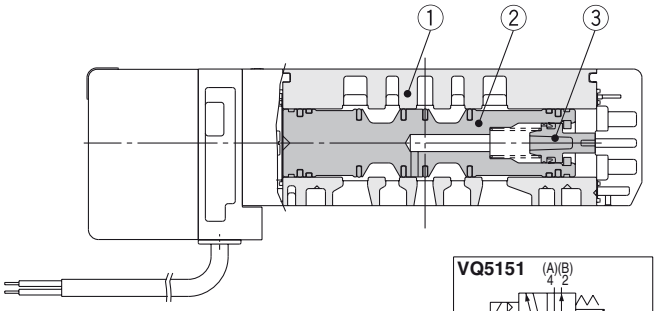
Metal seal type

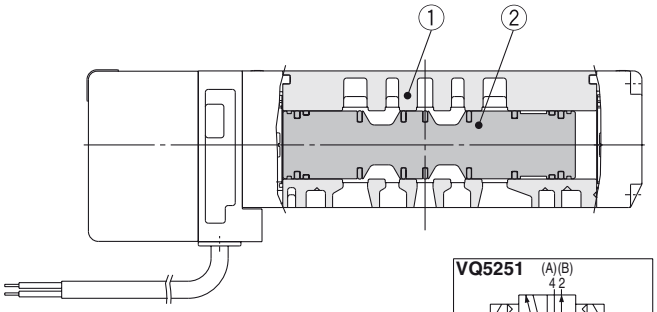


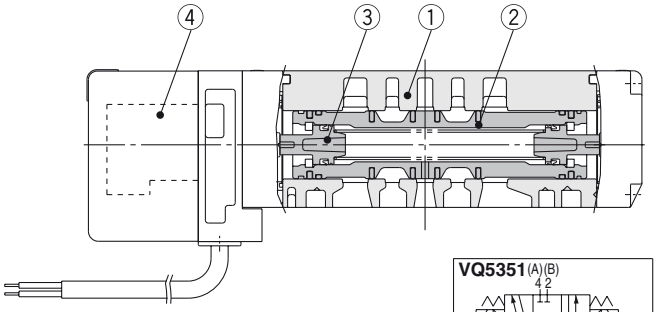




Rubber seal type







Parts list

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

Replacement parts

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

Parts list

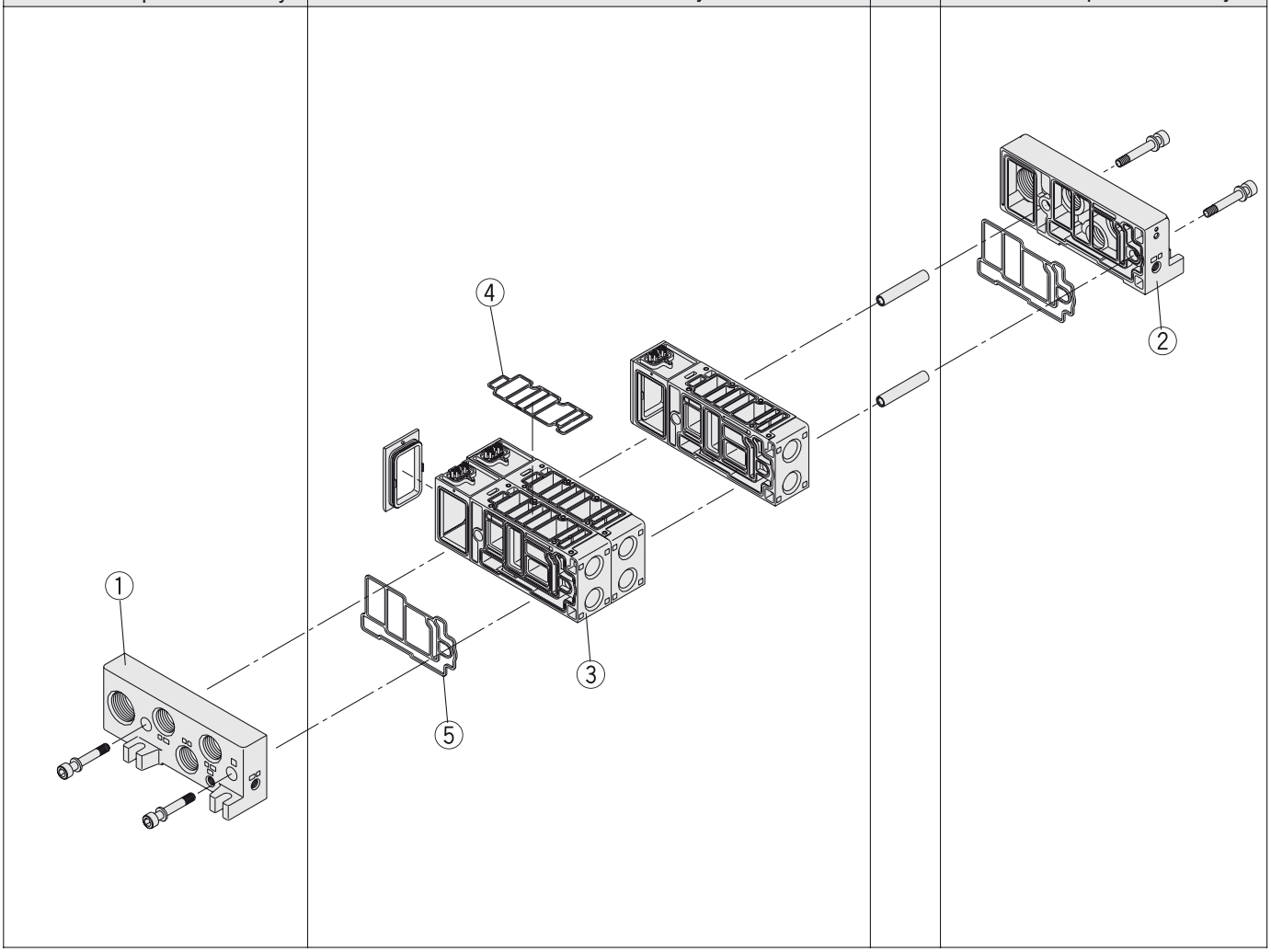
No.	Description	Material	Note
1	**Body**	Die cast aluminium	
2	**Spool valve**	Aluminium, NBR	
3	**Piston**	Resin	

Replacement parts

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

Manifold Exploded View

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



The drawing shows a plug-in type.

Note 1) The electrical entry cannot be changed.

<D side end plate assembly>

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

VVQ5000 — 3A — 1 □ □

Electrical entry

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

Option

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

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

<U side end plate assembly part no.>

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

VVQ5000 — 2A — 1 □ □

Electrical entry

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

Option

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

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

<Manifold block assembly>

3. Manifold block assembly part no.

VVQ5000 — 1 □ □ □ □

Type

A	1 station

Option

Nil	Standard
W Note 2)	IP65 enclosure

Electrical entry

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

Port size

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

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

<Manifold block replacement parts>

Replacement parts

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

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

<SI unit>

SI unit part numbers

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

Series VQ5000
Specific Product Precautions 1

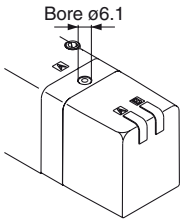
Be sure to read before handling.

⚠ Warning

Manual Override

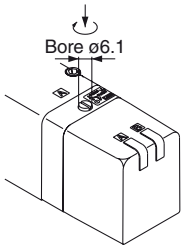
Since connected equipment will operate when the manual override is activated, first confirm that conditions are safe.
The non-locking push type (tool required) is standard, and the slotted locking type (tool required) is optional.

Non-locking push type (tool required)

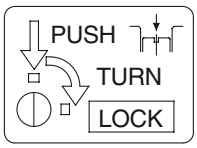


Push down the manual override button with a small screwdriver, etc., until it stops.
The manual override will return when released.

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



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

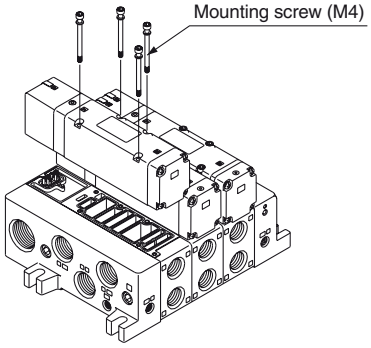


⚠ Caution

Valve Mounting

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

Proper tightening torque N·m
1 to 1.8

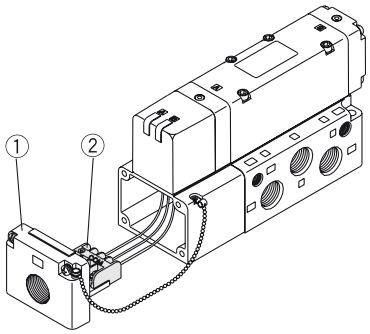


⚠ Caution

Lead Wire Connection

Plug-in sub plate (with terminal block)

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



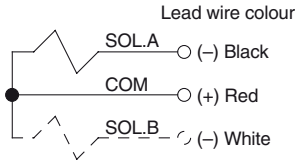
- The terminal block is marked as follows. Connect wiring to each of the power supply terminals.

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

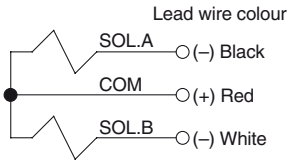
Note 1) There is no polarity. It can also be used as −COM.
Note 2) The sub plate is double wired even for the VQ510$^{0}_{1}$.

Plug lead : Grommet type

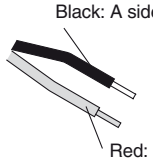
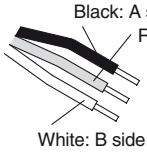
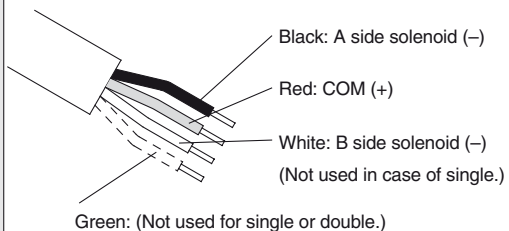
Make connections to each corresponding wire.



Single solenoid type



Double solenoid type

	Single solenoid type	Double solenoid type
Standard		
Enclosure IP65		

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

Series VQ5000
Specific Product Precautions 2

Be sure to read before handling.

⚠ Caution

Installation and Removal of Light Cover

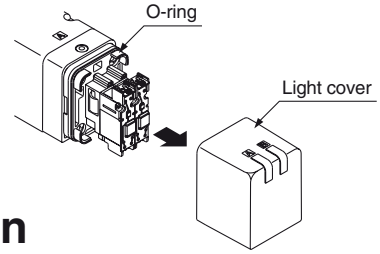
Installation/Removal of light cover

• Removal

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

• Installation

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



⚠ Caution

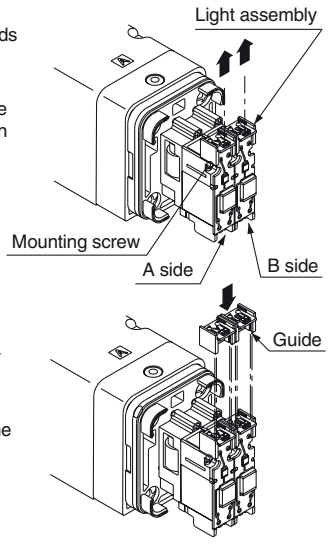
Changing the Pilot Valve

• Removal

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

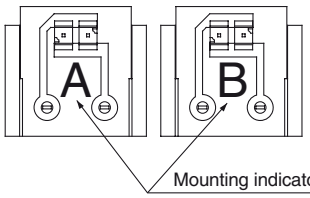
• Installation

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



Proper tightening torque N·m
0.1 to 0.13

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



Light circuit board no.

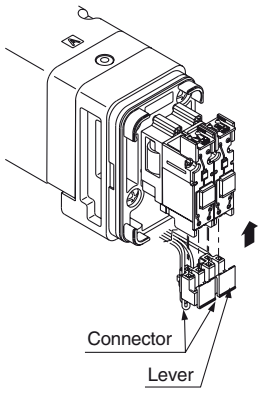
SOL.A	VQZ100-47-A
SOL.B	VQZ100-47-B

Note) It can be used with all voltages.

Plug Lead Type

Installation/Removal of plug connector

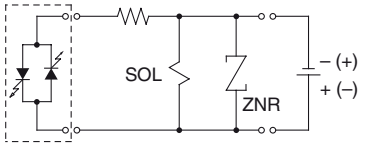
- To install the connector, hold the lever and connector between your fingers and insert it straight onto the pins. Then push the lever's hook into the cover's groove and lock it into place.
- To remove the connector, pull it straight off while pushing down on the lever with your thumb to remove the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



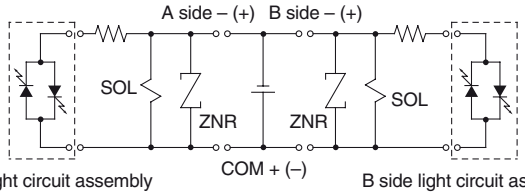
Note) Do not pull on the lead wires with excessive force. This can cause faulty contacts and/or broken wires.

⚠ Caution

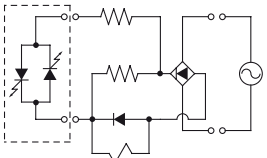
Internal Wiring Specifications



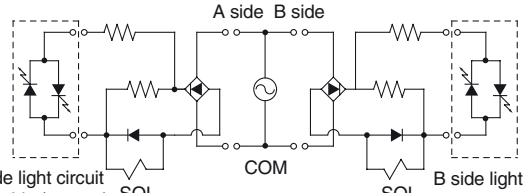
Light circuit assembly (orange) **DC: Single**



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



AC: Single



AC: Double