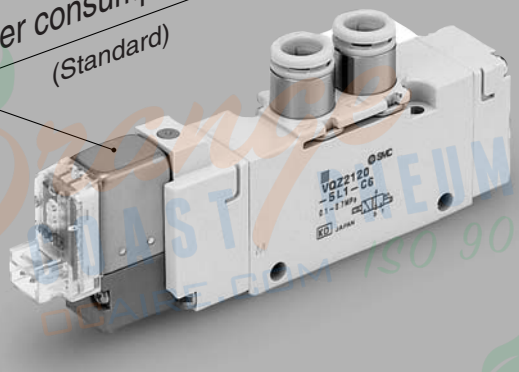
5 Port Solenoid Valve

Series VQZ1000/2000/3000

Metal Seal **Rubber Seal**

CE [Option]

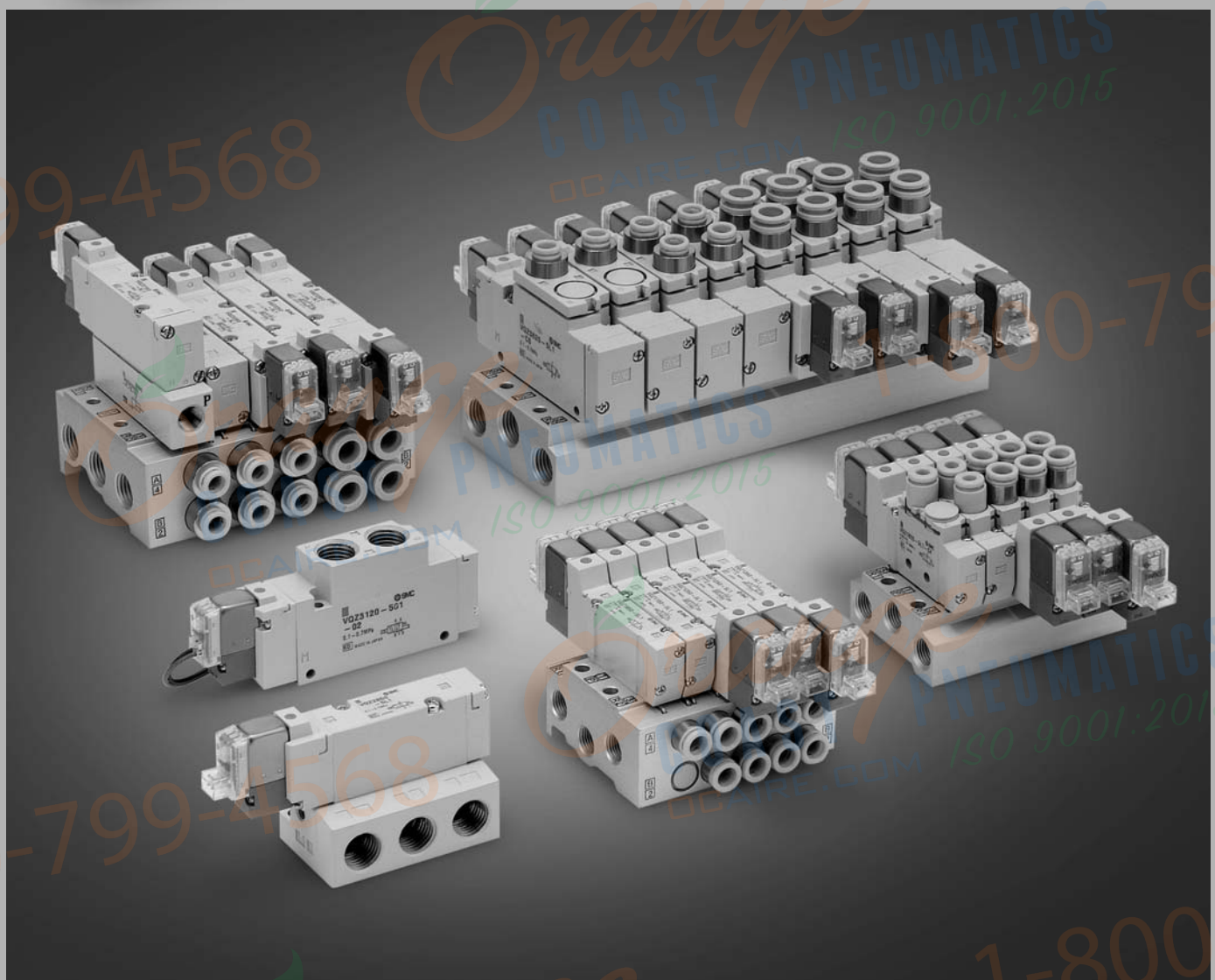
Power consumption: **0.35 W / 0.9 W**
(Standard) (High pressure type, High speed response type)



Compact, High Flow

Series		Valve width (mm)	Flow characteristics		Cylinder size
			Metal seal	Rubber seal	
			C [dm³/(s·bar)]	C [dm³/(s·bar)]	
Body ported	**VQZ1□2□**	10	0.54	0.71	to ø63
	VQZ2□2□	15	1.4	1.6	to ø80
	VQZ3□2□	18	2.4	3.2	to ø100
Base mounted	**VQZ1□5□**	10	0.70	1.3	to ø63
	VQZ2□5□	15	1.9	2.3	to ø80
	VQZ3□5□	18	3.0	4.6	to ø100

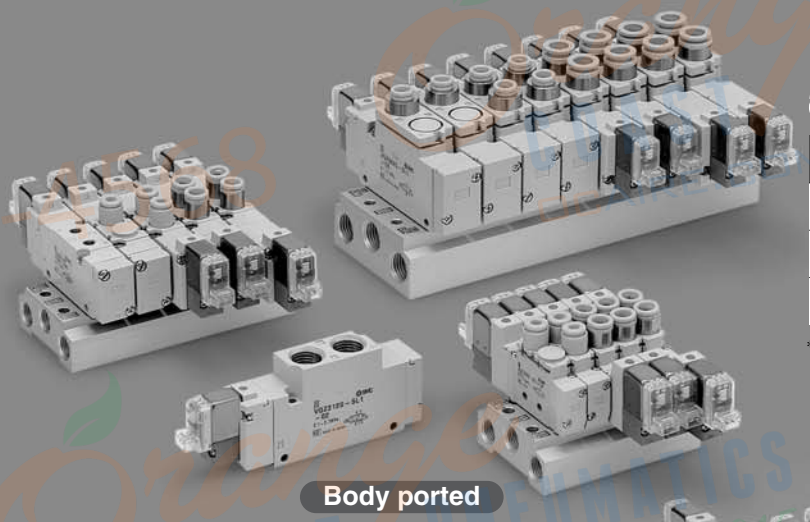
∗ Flow characteristics: 4/2→5/3 (A/B→R1/R2)



Metal Seal / Rubber Seal

5 Port Solenoid Valve

Series VQZ1000/2000/3000

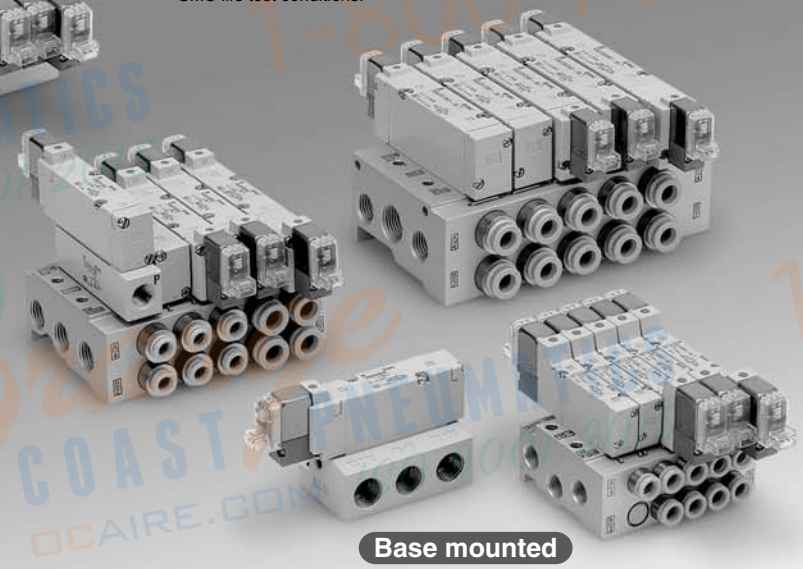


Body ported

High Speed Response and Long Service Life

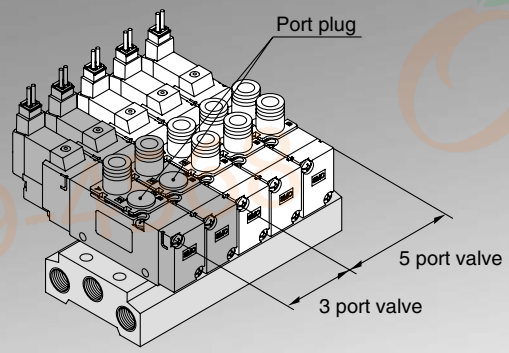
Series	Response speed	Service life	Accuracy
VQZ1000	17 ms	200 million cycles	±2 ms
VQZ2000	18 ms		
VQZ3000	21 ms		

∗ Metal seal, single solenoid with light/surge voltage suppressor, according to SMC life test conditions.

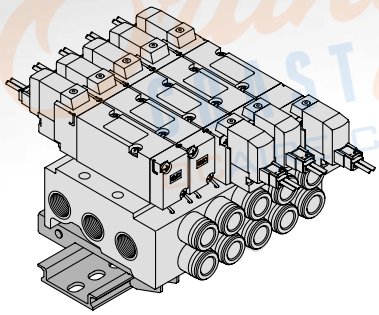


Base mounted

- **Both 3 and 5 port valves can be mounted on the same manifold.**

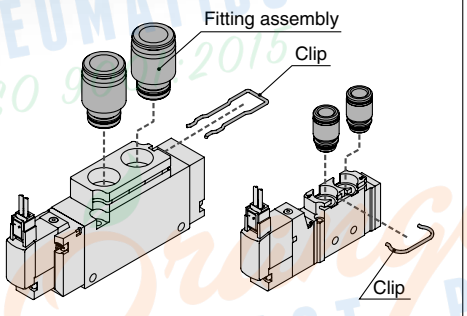
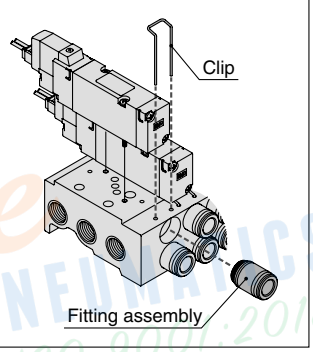


- **DIN rail mounting is available.**



- **Built-in one-touch fittings for easier piping**

Easy replacement of clip type one-touch fitting.

Body ported	Base mounted
	

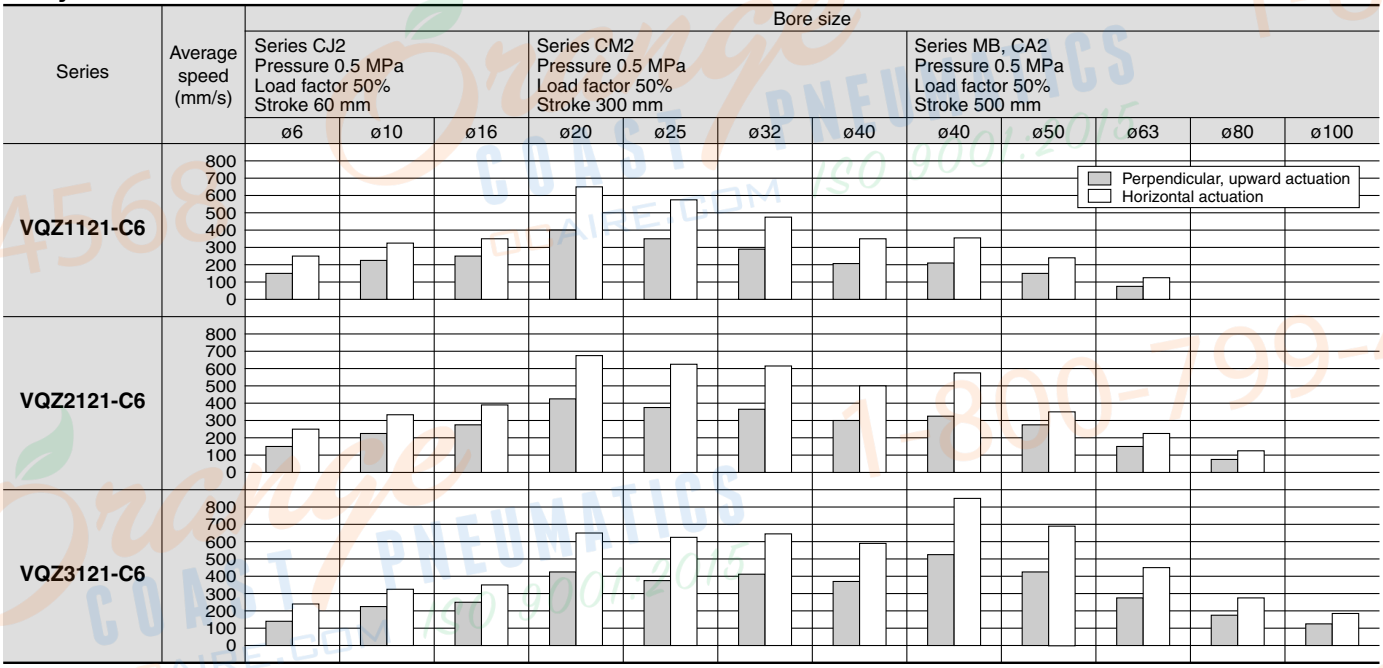
- **Enclosure IP65 compliant (DIN terminal, Common exhaust)**
- **Choice of metal or rubber seal for main valve construction**

SMC

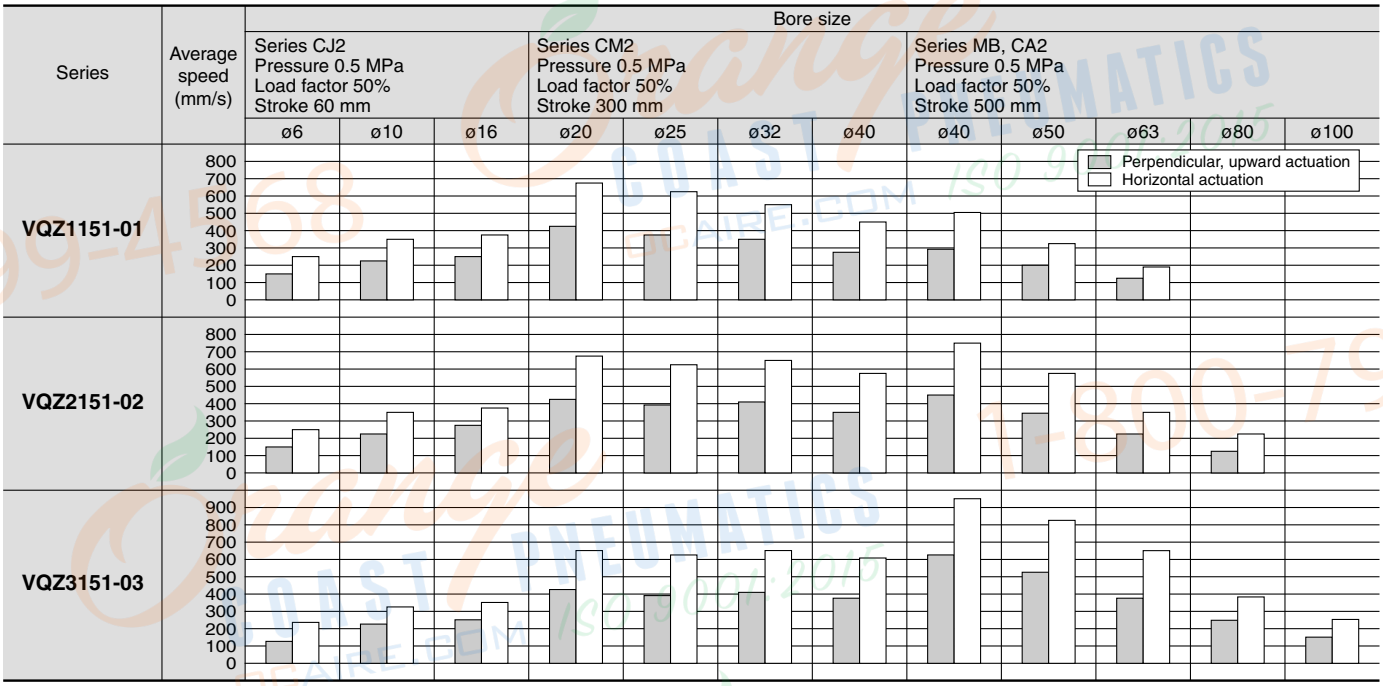
Cylinder Speed Chart

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

Body Ported



Base Mounted



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

Conditions

Body ported		Series CJ2	Series CM2	Series MB, CA2
VQZ1121-C6	Tube x Length	T0604 x 1m		
	Speed controller	AS2051F-06		
	Silencer	AN120-M5		
VQZ2121-C6	Tube x Length	T0604 x 1m		
	Speed controller	AS3001F-06		
	Silencer	INA-25-46		
VQZ3121-C6	Tube x Length	T1075 x 1m		
	Speed controller	AS4001F-10		
	Silencer	AN101-01		

Base mounted		Series CJ2	Series CM2	Series MB, CA2
VQZ1151-01	Tube x Length	T0604 x 1 m		
	Speed controller	AS3001F-06		
	Silencer	AN110-01		
VQZ2151-02	Tube x Length	T0604 x 1 m	T0806 x 1 m	
	Speed controller	AS3001F-06	AS3001F-08	
	Silencer	AN200-02		
VQZ3151-03	Tube x Length	T0604 x 1 m	T1075 x 1 m	T1209 x 1 m
	Speed controller	AS3001F-06	AS4001F-10	AS4001F-12
	Silencer	AN300-03		

Series VQZ
Model Selection

			Sonic conductance C [dm³/(s•bar)]		Type of actuation	Voltage	Electrical entry	Light/surge voltage suppressor	Manual override
Body ported	5 port	VQZ1000	0.54	0.71	2 position single, 2 position double, 3 position closed center, 3 position exhaust center, 3 position pressure center	(Standard) 12 VDC, 24 VDC; (Option) 100 VAC, 200 VAC, 110 VAC, 220 VAC	Grommet (G), L-type plug connector (L), M-type plug connector (M), DIN terminal (Y) (Except VQZ1000)	With light/surge voltage suppressor: L-type plug connector (L), M-type plug connector (M), DIN terminal (YZ) (Except VQZ1000)	Non-locking push type (Tool required), Locking type (Tool required)
		VQZ2000	1.4	1.6					
		VQZ3000	2.4	3.2					
	3 port for mixture mounting	VQZ1000	0.54	0.71	N.C., N.O.				
		VQZ2000	1.4	1.6					
		VQZ3000	2.4	3.2					
Base mounted	5 port	VQZ1000	Metal 0.70	Rubber 1.3	2 position single, 2 position double, 3 position closed center, 3 position exhaust center, 3 position pressure center				
		VQZ2000	1.9	2.3					
		VQZ3000	3.0	4.6					
	3 port for mixture mounting	VQZ1000	0.90	1.3	N.C., N.O.				
		VQZ2000	1.9	2.3					
		VQZ3000	3.0	4.6					

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

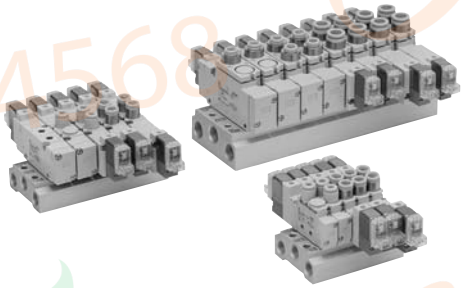
SMC

Series VQZ
Manifold

Manifold

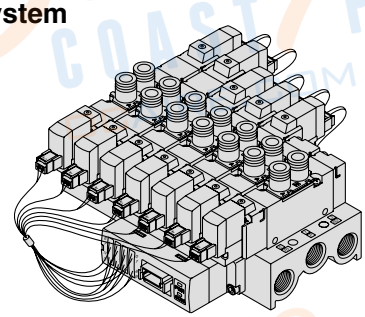
Body Ported

P.925



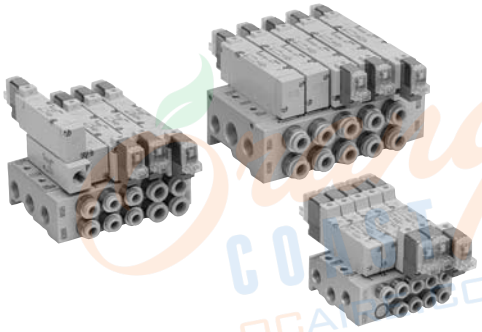
Series	Base model	Piping specifications			Applicable solenoid valve	Applicable stations
		Piping direction	Port size			
			1(P), 3·5(R)	4(A), 2(B)		
VQZ1000	**VV5QZ12-□□□**	Top	Rc 1/8	C3 (for ø3.2) C4 (for ø4) C6 (for ø6) M5 (M5 thread)	**VQZ1□20** **VQZ1□21**	2 to 20 stations
VQZ2000	**VV5QZ22-□□□**	Top	Rc 1/8	C4 (for ø4) C6 (for ø6) M5 (M5 thread)	**VQZ2□20** **VQZ2□21**	2 to 20 stations
VQZ3000	**VV5QZ32-□□□**	Top	Rc 1/4	C6 (for ø6) C8 (for ø8) C10 (for ø10) Rc 1/4	**VQZ3□20** **VQZ3□21**	2 to 20 stations

Serial Transmission System P.936



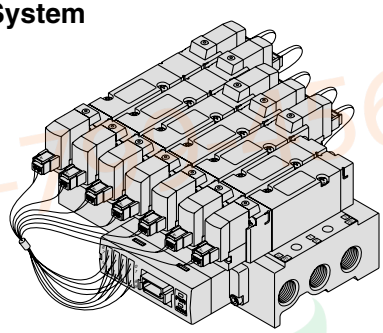
Base Mounted

P.954



Series	Base model	Piping specifications			Applicable solenoid valve	Applicable stations
		Piping direction	Port size			
			1(P), 3·5(R)	4(A), 2(B)		
VQZ1000	**VV5QZ15-□□□**	Side	Rc 1/8	C3 (for ø3.2) C4 (for ø4) C6 (for ø6) M5 (M5 thread)	**VQZ1□50** **VQZ1□51**	2 to 20 stations
VQZ2000	**VV5QZ25-□□□**	Side	Rc 1/4	C4 (for ø4) C6 (for ø6) C8 (for ø8) Rc 1/8	**VQZ2□50** **VQZ2□51**	2 to 20 stations
VQZ3000	**VV5QZ35-□□□**	Side	1(P) port Rc 3/8 3·5(R) port Rc 1/4	C6 (for ø6) C8 (for ø8) C10 (for ø10) Rc 1/4	**VQZ3□50** **VQZ3□51**	2 to 20 stations

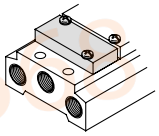
Serial Transmission System P.969



Manifold Options

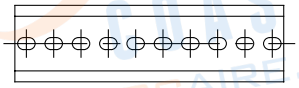
Body Ported

Blanking plate assembly
VVQZ1000-10A-2 (for VQZ1000)
VVQZ2000-10A-2 (for VQZ2000)
VVQZ3000-10A-2 (for VQZ3000)



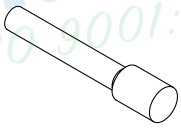
P.930

DIN rail
AXT100-DR-□



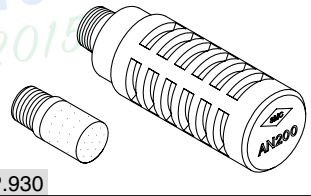
P.930

Blanking plug
KQ2P-23
KQ2P-04
KQ2P-06
KQ2P-08
KQ2P-10



P.930

Silencer (for EXH port)

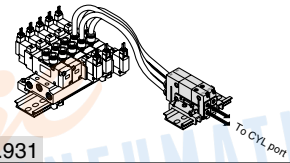


P.930

Port plug
VVQZ100-CP (for VQZ1000/2000)
VVQZ2000-CP (for VQZ3000)

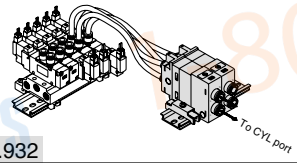
P.930

Perfect block (Separated)
for VQZ1000
VQ1000-FPG-□□-□



P.931

Perfect block (Separated)
for VQZ2000/3000
VQ2000-FPG-□□-□



P.932

Connector assembly
for single solenoid
SY3000-37-81A-□-N
for double solenoid
SY3000-37-81A-□-□

P.941

Connector assembly
SY3000-37-80A-□

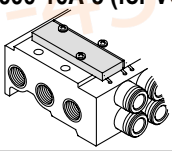
P.941

Housing (1 set: 8 pcs.)
SY3000-44-3A

P.941

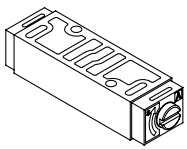
Base Mounted

Blanking plate assembly
VVQZ1000-10A-5 (for VQZ1000)
VVQZ2000-10A-5 (for VQZ2000)
VVQZ3000-10A-5 (for VQZ3000)



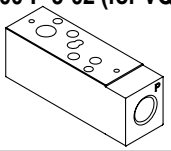
P.959

Restrictor spacer
(Applicable to VQZ2000)
VVQZ2000-20A-5



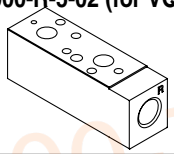
P.959

Individual SUP spacer
VVQZ1000-P-5-M5 (for VQZ1000)
VVQZ2000-P-5-01 (for VQZ2000)
VVQZ3000-P-5-02 (for VQZ3000)



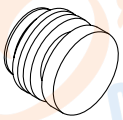
P.959

Individual EXH spacer
VVQZ1000-R-5-M5 (for VQZ1000)
VVQZ2000-R-5-01 (for VQZ2000)
VVQZ3000-R-5-02 (for VQZ3000)



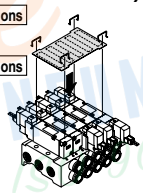
P.959

Port plug
VVQZ1000-CP (for VQZ1000)
VVQZ2000-CP (for VQZ2000)
VVQZ3000-CP (for VQZ3000)



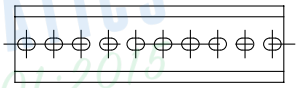
P.959

Name plate [-N]
(Applicable to VQZ2000/3000)
VVQZ2000-N5- Stations
(for VQZ2000)
VVQZ3000-N5- Stations
(for VQZ3000)



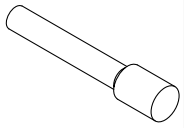
P.960

DIN rail
AXT100-DR-□



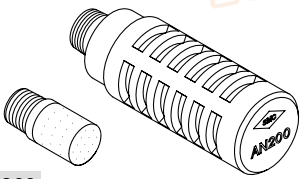
P.960

Blanking plug
KQ2P-23
KQ2P-04
KQ2P-06
KQ2P-08
KQ2P-10



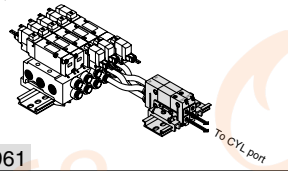
P.960

Silencer (for EXH port)



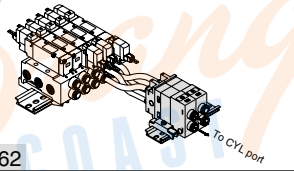
P.960

Perfect block (Separated)
for VQZ1000
VQ1000-FPG-□□-□



P.961

Perfect block (Separated)
for VQZ2000/3000
VQ2000-FPG-□□-□



P.962

Connector assembly
for single solenoid
SY3000-37-81A-□-N
for double solenoid
SY3000-37-81A-□-□

P.974

Connector assembly
SY3000-37-80A-□

P.974

Housing (1 set: 8 pcs.)
SY3000-44-3A

P.974

5 Port Solenoid Valve
Series VQZ1000/2000/3000
Single Unit

CE [Option]

How to Order Valve

Made to Order (For details, refer to page 975.)

VQZ 1 1 2 1 ☐ – 5 M ☐ ☐ 1 – C6 – ☐ – ☐

Series

1	VQZ1000 body width 10 mm
2	VQZ2000 body width 15 mm
3	VQZ3000 body width 18 mm

Type of actuation

1	2 position single	Note 1) 5	3 position pressure center
2	2 position double (Metal seal / Rubber seal)	Note 2) 8	3 port for mixture mounting (N.C.)
3	3 position closed center	Note 2) 9	3 port for mixture mounting (N.O.)
4	3 position exhaust center		

Note 1) There is no 3 position pressure center for the metal seal type of the VQZ1000 series.
Note 2) The port plug of the 3 port mixing valve can be replaced with a fitting and the valve used as a 5 port single type valve. (Refer to page 979.)

Body type

2	Body ported

Seal type

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC	AC
Nil	Standard	(0.35 W) ○	Note 4) ○
B Note 1)	High speed response type	(0.9 W) ○	—
K Note 1)	High pressure type (Metal seal type only)	(0.9 W) ○	—
R Note 1, 2, 3)	External pilot type	○	○
BR Note 1, 2, 3)	High speed response/External pilot type	(0.9 W) ○	—
KR Note 1, 2, 3)	High pressure/External pilot type (Metal seal type only)	(0.9 W) ○	—

Note 1) Option
Note 2) For details on external pilot type, refer to page 933.
Note 3) There is no VQZ1000 setting.
Note 4) For AC specification power consumption, refer to page 914.

IP65 compliant

Nil	—
W Note)	Compliant

Note) VQZ2000/3000 DIN terminal rubber seal only (except external pilot). For details on IP65 enclosure, refer to page 933.

CE compliant

Nil	—
Q	CE marked

Note) AC-type models that are CE compliant have DIN terminals only.

Port size [4(A), 2(B) port]

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
C3	ø3.2 one-touch fitting	○	—	—
C4	ø4 one-touch fitting	○	○	—
C6	ø6 one-touch fitting	○	○	○
C8	ø8 one-touch fitting	—	—	○
C10	ø10 one-touch fitting	—	—	○
M5	M5 thread	○	○	—
02	Rc 1/4	—	—	○

Note) For inch size one-touch fittings and optional thread type, refer to page 933.

Manual override

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

Option

Nil: None
F: With bracket (2 position single type only)

Bracket

Electrical entry

G: Grommet (DC specification)	**L:** L-type plug connector with lead wire	**LO:** L-type plug connector without connector	**M:** M-type plug connector with lead wire	**MO:** M-type plug connector without connector
	With light/surge voltage suppressor	With light/surge voltage suppressor	With light/surge voltage suppressor	With light/surge voltage suppressor
Y: DIN terminal Note 1)	**YO:** DIN terminal without connector Note 1)	**YZ:** DIN terminal Note 1)	**YOS:** DIN terminal without connector (DC specification) Note 1)	**YS:** DIN terminal (DC specification) Note 1)
		With light/surge voltage suppressor	With surge voltage suppressor	With surge voltage suppressor

Note 1) Applicable to the VQZ2000/3000 for DIN terminal type. For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
Note 2) Standard lead wire length: 300 mm

Coil voltage

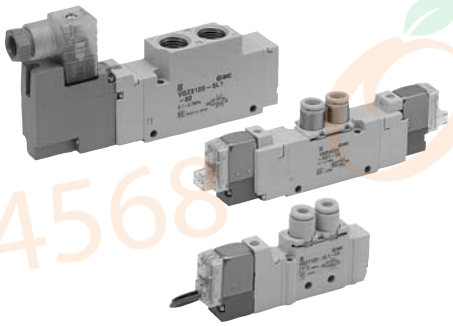
1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3	110 VAC [115 VAC] (50/60 Hz)
4	220 VAC [230 VAC] (50/60 Hz)
5	24 VDC
6	12 VDC

Note) For applicable one-touch fitting and silencer models for this valve series, refer to page 978.

⚠ Caution

Use standard (DC) specification for continuous duty.

Series VQZ1000/2000/3000



Specifications

Type			Metal seal	Rubber seal
Fluid			Air, Inert gas	
Max. operating pressure (MPa)			0.7 (High pressure type: 1.0)	0.7
Min. operating pressure (MPa)	2 position	Single	0.1	0.15
		Double	VQZ3000, 3 position only	0.1
	3 position		0.15	0.2
Ambient and fluid temperature (°C)			–10 to 50 (No freezing)	
Max. operating frequency (Hz)	2 position single, double		20	5
	3 position		10	3
Manual override			Non-locking push type, Locking type (Tool required)	
Pilot exhaust method			Individual exhaust	
Lubrication			Not required	
Mounting orientation			Single: Free Double, 3 position: Main valve must be horizontal.	Free
Impact/Vibration resistance (m/s²) Note 1)			150/30	
Enclosure*			Dustproof (DIN terminal: IP65 Note 2))	

* Based on IEC60529

Note 1) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Value in the initial state)

Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz. Test was performed to axis and right angle directions of the main valve and armature when pilot signal is ON and OFF. (Value in the initial state)

Note 2) When IP65 compliant DIN terminals are selected: VQZ$^{2}_{3}$□21□-□Y□□W1-□-□

Options

High speed response type
High pressure type (Metal seal type only)
External pilot type (Except VQZ1000)*

* For details on external pilot type, refer to page 933.

Solenoid Specifications

Electrical entry			Grommet (G) L-type plug connector (L)	M-type plug connector (M) DIN terminal (Y)
			G, L, M	Y
Coil rated voltage (V)	DC		24, 12	
	AC 50/60 Hz		100, 110, 200, 220*	
Allowable voltage fluctuation			±10% of rated voltage	
Power consumption (W)	DC	Standard	0.35 [(With light: 0.4 (DIN terminal with light: 0.45)]	
		High speed response, high pressure	0.9 [(With light: 0.95 (DIN terminal with light: 1.0)]	
Apparent power (VA)*	AC	100V	0.78 (With light: 0.81)	0.78 (With light: 0.87)
		110V [115V]	0.86 (With light: 0.89) [0.94 (With light: 0.97)]	0.86 (With light: 0.87) [0.94 (With light: 1.07)]
		200V	1.18 (With light: 1.22)	1.15 (With light: 1.30)
		220V [230V]	1.30 (With light: 1.34) [1.42 (With light: 1.46)]	1.27 (With light: 1.46) [1.39 (With light: 1.60)]
Surge voltage suppressor			Varistor	
Indicator light			LED (Neon light when AC with DIN terminal)	

* In common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.
* For 115 VAC and 230 VAC, the allowable voltage is –15% to +5% of rated voltage.

Made to Order

(For details, refer to page 975.)

Symbol	Description
X30	Pilot valve common exhaust
X90	Main valve fluoro-rubber
X113	All fluoro-rubber

Flow Characteristics

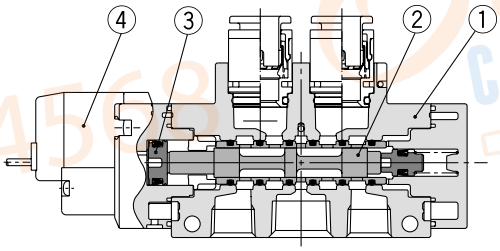
Series	Configuration		Model		Flow characteristics 1→4/2 (P→A/B) C [dm³/(s•bar)]	b	Cv	Flow characteristics 4/2→5/3 (A/B→EA/EB) C [dm³/(s•bar)]	b	Cv	Response time (ms) Note 1) Standard: 0.35 W	High speed response: 0.9 W	High pressure: 0.9 W	AC	Note 2) Mass (g)
VQZ1000	2 position	Single	Metal seal	VQZ1120	0.54	0.20	0.13	0.54	0.26	0.13	17 or less	12 or less	15 or less	29 or less	45
			Rubber seal	VQZ1121	0.90	0.40	0.26	0.71	0.40	0.19	17 or less	12 or less	—	34 or less	
		Double	Metal seal	VQZ1220	0.54	0.20	0.13	0.54	0.26	0.13	10 or less	10 or less	13 or less	13 or less	62
			Rubber seal	VQZ1221	0.90	0.40	0.26	0.71	0.40	0.19	10 or less	10 or less	—	13 or less	
	3 position	Closed center	Metal seal	VQZ1320	0.55	0.29	0.13	0.50	0.25	0.08	25 or less	20 or less	26 or less	40 or less	65
			Rubber seal	VQZ1321	0.87	0.38	0.23	0.68	0.39	0.18	30 or less	25 or less	—	47 or less	
		Exhaust center	Metal seal	VQZ1420	0.55	0.28	0.13	0.54	0.26	0.13	25 or less	20 or less	26 or less	40 or less	
			Rubber seal	VQZ1421	0.87	0.38	0.23	0.71	0.40	0.19	30 or less	25 or less	—	47 or less	
		Pressure center	Rubber seal	VQZ1521	0.91	0.41	0.26	0.68	0.39	0.18	30 or less	25 or less	—	47 or less	
VQZ2000	2 position	Single	Metal seal	VQZ2120	1.2	0.21	0.30	1.4	0.20	0.32	18 or less	14 or less	18 or less	34 or less	65
			Rubber seal	VQZ2121	1.7	0.39	0.45	1.6	0.35	0.44	20 or less	15 or less	—	36 or less	
		Double	Metal seal	VQZ2220	1.2	0.21	0.30	1.4	0.20	0.32	10 or less	10 or less	13 or less	13 or less	84
			Rubber seal	VQZ2221	1.7	0.39	0.45	1.6	0.35	0.44	12 or less	12 or less	—	15 or less	
	3 position	Closed center	Metal seal	VQZ2320	1.1	0.21	0.26	1.1	0.24	0.26	28 or less	23 or less	30 or less	44 or less	91
			Rubber seal	VQZ2321	1.4	0.33	0.35	1.4	0.37	0.36	30 or less	25 or less	—	47 or less	
		Exhaust center	Metal seal	VQZ2420	1.1	0.23	0.28	1.4	0.20	0.32	28 or less	23 or less	30 or less	44 or less	
			Rubber seal	VQZ2421	1.4	0.33	0.35	1.6	0.35	0.44	30 or less	25 or less	—	47 or less	
		Pressure center	Metal seal	VQZ2520	1.3	0.28	0.34	1.2	0.27	0.30	28 or less	23 or less	30 or less	44 or less	
			Rubber seal	VQZ2521	1.7	0.34	0.44	1.4	0.37	0.36	30 or less	25 or less	—	47 or less	
VQZ3000	2 position	Single	Metal seal	VQZ3120	2.4	0.23	0.56	2.4	0.19	0.54	21 or less	17 or less	22 or less	34 or less	108
			Rubber seal	VQZ3121	3.1	0.34	0.79	3.2	0.38	0.81	33 or less	25 or less	—	57 or less	
		Double	Metal seal	VQZ3220	2.4	0.23	0.56	2.4	0.19	0.54	10 or less	10 or less	13 or less	13 or less	125
			Rubber seal	VQZ3221	3.1	0.34	0.79	3.2	0.38	0.81	15 or less	15 or less	—	20 or less	
	3 position	Closed center	Metal seal	VQZ3320	2.3	0.19	0.54	2.1	0.21	0.54	33 or less	25 or less	33 or less	53 or less	136
			Rubber seal	VQZ3321	2.7	0.30	0.66	2.4	0.33	0.62	35 or less	30 or less	—	59 or less	
		Exhaust center	Metal seal	VQZ3420	2.3	0.19	0.54	2.4	0.19	0.54	33 or less	25 or less	33 or less	53 or less	
			Rubber seal	VQZ3421	2.7	0.30	0.66	3.2	0.38	0.81	35 or less	30 or less	—	59 or less	
		Pressure center	Metal seal	VQZ3520	2.5	0.25	0.60	2.1	0.18	0.47	33 or less	25 or less	33 or less	53 or less	
			Rubber seal	VQZ3521	3.2	0.38	0.82	2.4	0.33	0.62	35 or less	30 or less	—	59 or less	

Note 1) Based on JIS B 8375-1981 (Supply pressure: 0.5 MPa; with light/surge voltage suppressor: clean air)
Response time values will change depending on pressure and air quality.

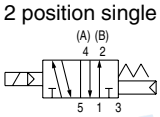
Note 2) Weight for threaded connection

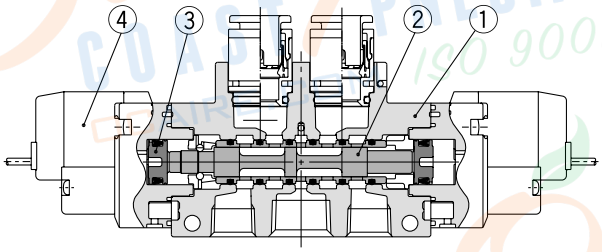
Construction: VQZ1000/2000/3000

Metal seal type

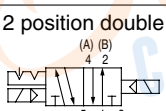


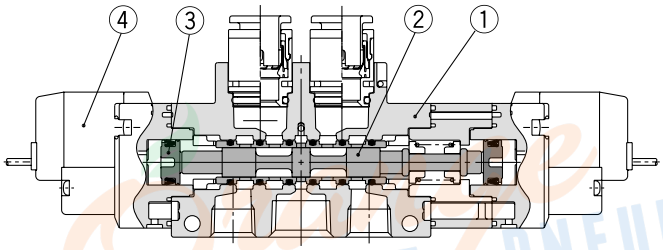
2 position single



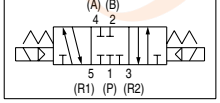


2 position double

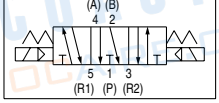




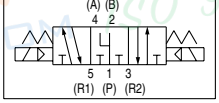
3 position closed center



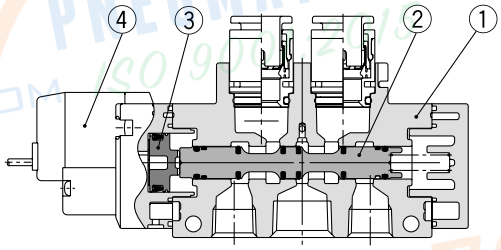
3 position exhaust center



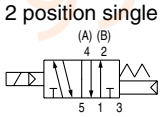
3 position pressure center

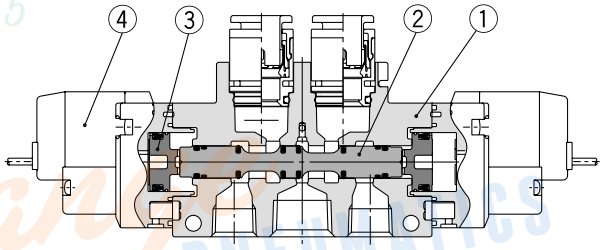


Rubber seal type

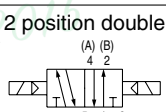


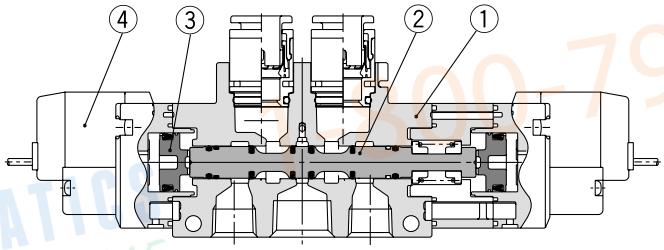
2 position single



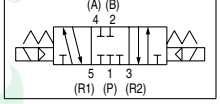


2 position double

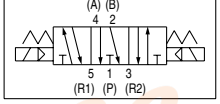




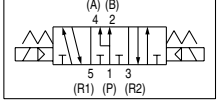
3 position closed center



3 position exhaust center



3 position pressure center



Note) Except metal seal type of the VQZ1000.

Component Parts

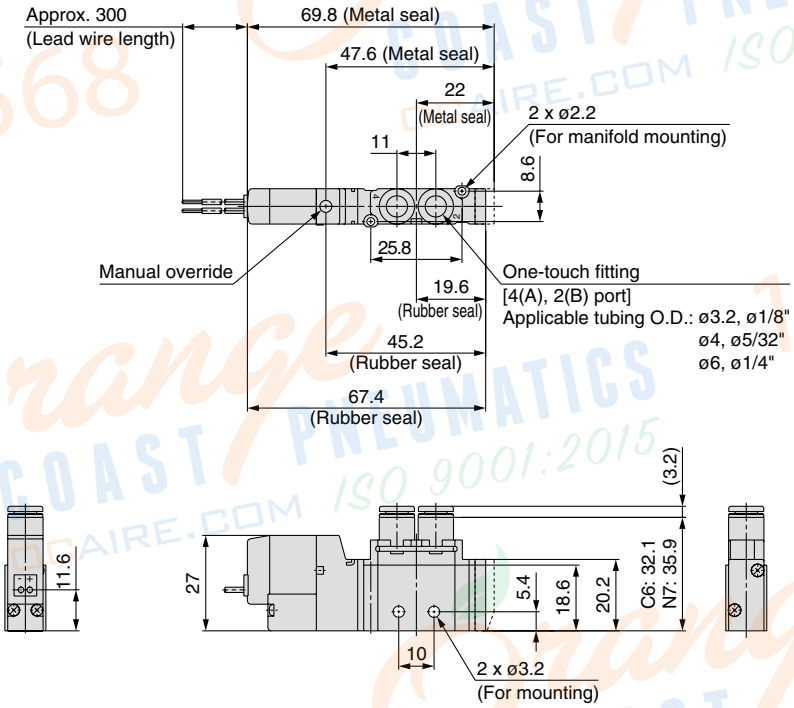
No.	Description	Material	Note
1	**Body**	Aluminum die-casted	
2	**Spool, Sleeve**	Stainless steel	Metal seal
	Spool valve	Aluminum/HNBR	Rubber seal
3	**Piston**	Resin	
4	**Pilot valve assembly**	—	

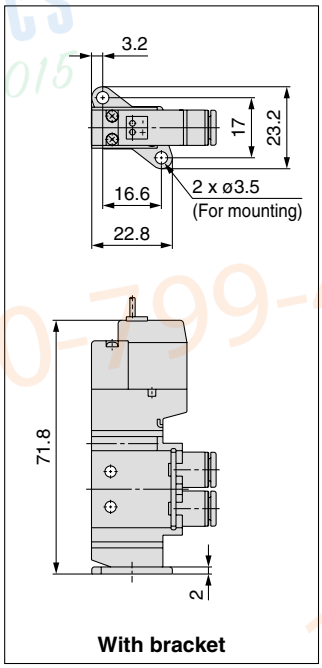
Note) For “How to Order Pilot Valve Assembly”, refer to page 934.

Dimensions: VQZ1000

2 Position Single/3 Port for Mixture Mounting

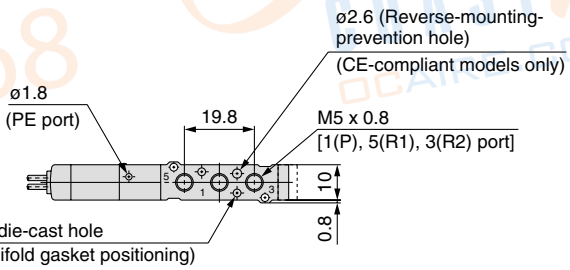
Grommet (G): VQZ1$^{1}_{8}$ 2$^{0}_{1}$-□G□1-C3, C4, C6



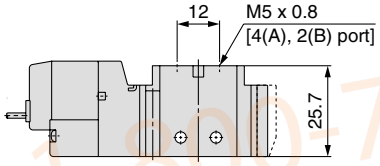


With bracket

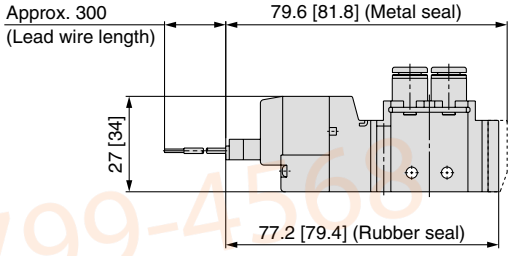
Note) For bracket assembly part no., refer to page 934.



VQZ1$^{1}_{8}$ 2$^{0}_{1}$-□G□1-M5

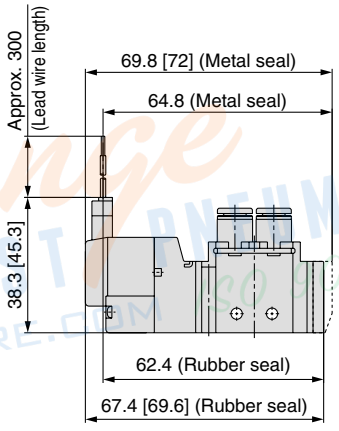


L-type plug connector (L): VQZ1$^{1}_{8}$ 2$^{0}_{1}$-□L□1-C3, C4, C6



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M): VQZ1$^{1}_{8}$ 2$^{0}_{1}$-□M□1-C3, C4, C6

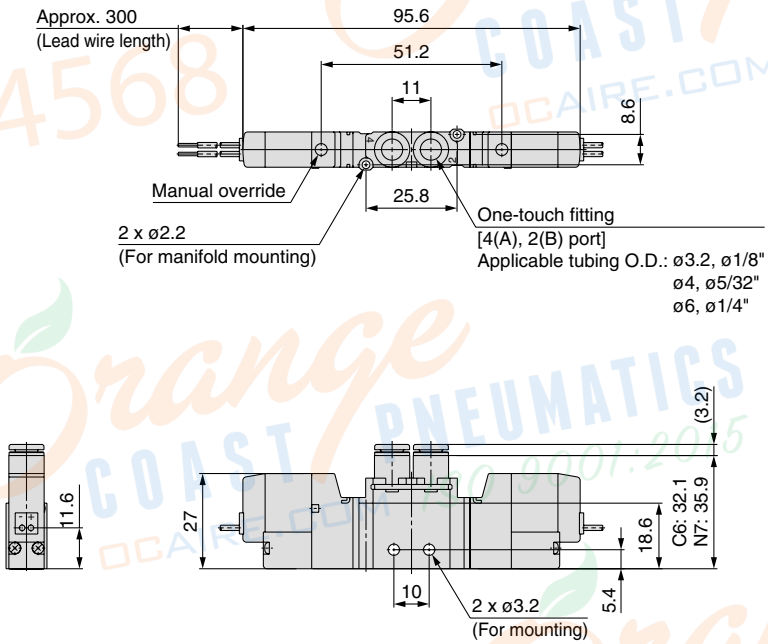


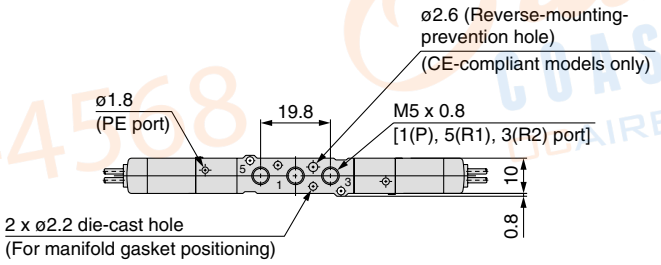
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

Dimensions: VQZ1000

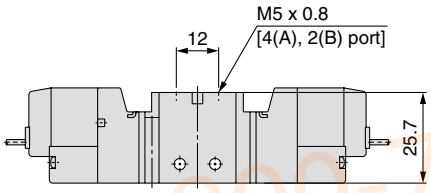
2 Position Double

Grommet (G): VQZ122$^{0}_{1}$-□G□1-C3, C4, C6

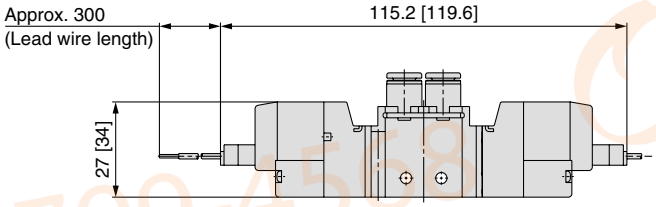




VQZ122$^{0}_{1}$-□G□1-M5

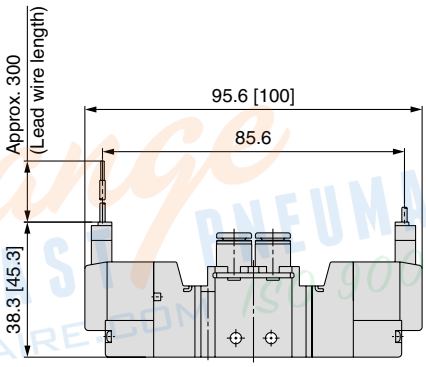


L-type plug connector (L): VQZ122$^{0}_{1}$-□L□1-C3, C4, C6



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M): VQZ122$^{0}_{1}$-□M□1-C3, C4, C6

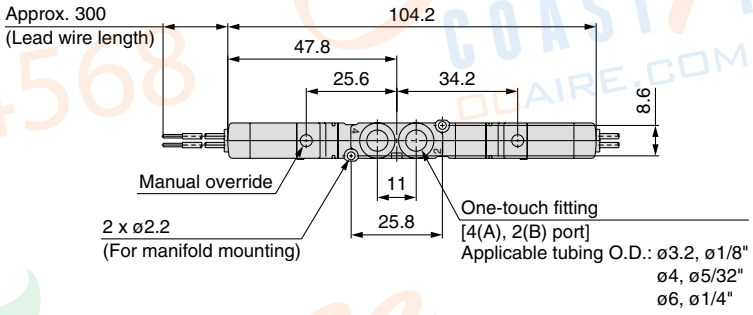


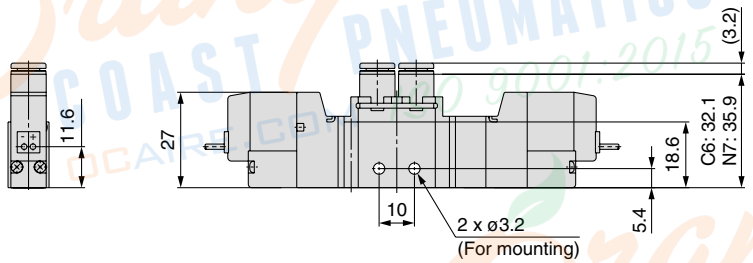
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

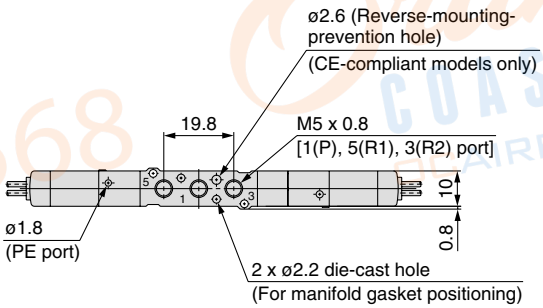
Dimensions: VQZ1000

3 Position Closed Center/Exhaust Center/Pressure Center (Except Metal seal type)

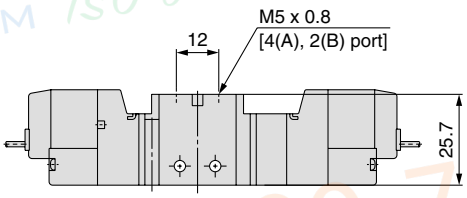
Grommet (G): VQZ1$^{3}_{4}_{5}$2$^{0}_{1}$-□G□1-C3, C4, C6



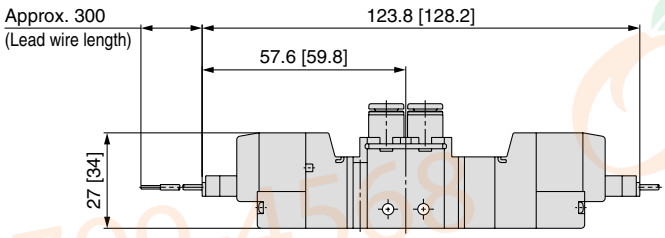




VQZ1$^{3}_{4}_{5}$2$^{0}_{1}$-□G□1-M5

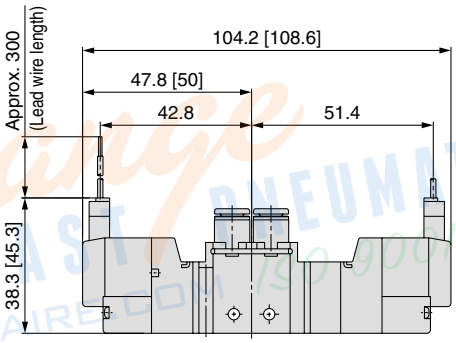


L-type plug connector (L): VQZ1$^{3}_{4}_{5}$2$^{0}_{1}$-□L□1-C3, C4, C6



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M): VQZ1$^{3}_{4}_{5}$2$^{0}_{1}$-□M□1-C3, C4, C6

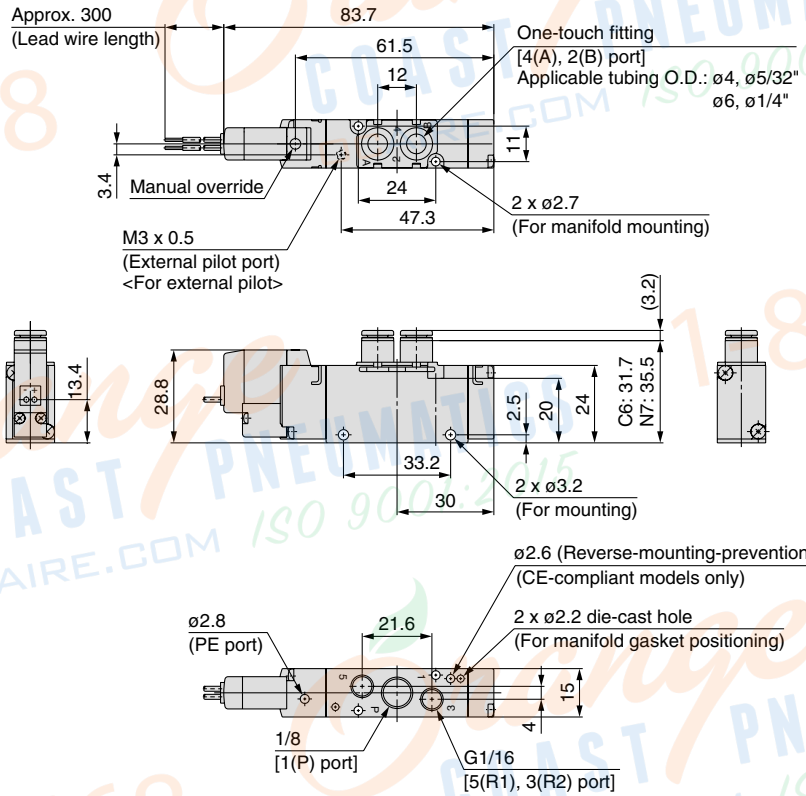


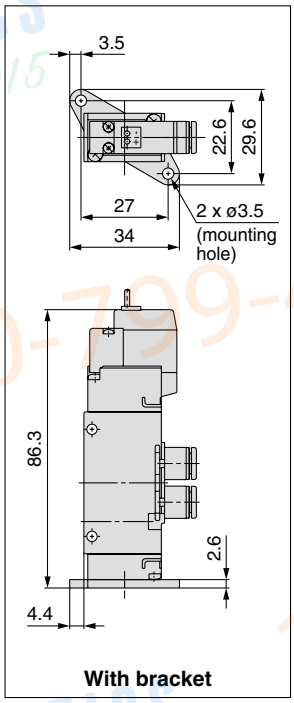
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

Dimensions: VQZ2000

2 Position Single/3 Port for Mixture Mounting

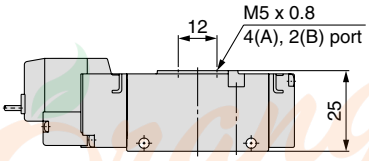
Grommet (G): VQZ2[1/8/9]Z[0/1](R)-□G□1-C4, C6



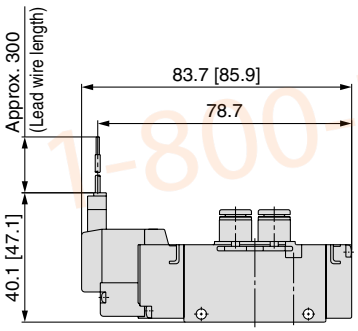


Note 1) For bracket assembly part no., refer to page 934.
Note 2) For one-touch fittings for P/R port and silencer part no., refer to page 978.

VQZ2[1/8/9]2[0/1](R)-□G□1-M5

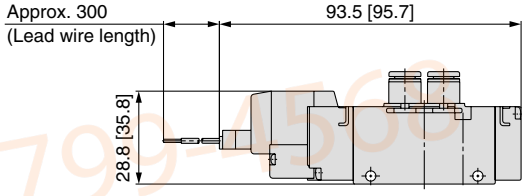


M-type plug connector (M): VQZ2[1/8/9]2[0/1](R)-□M□1-C4, C6



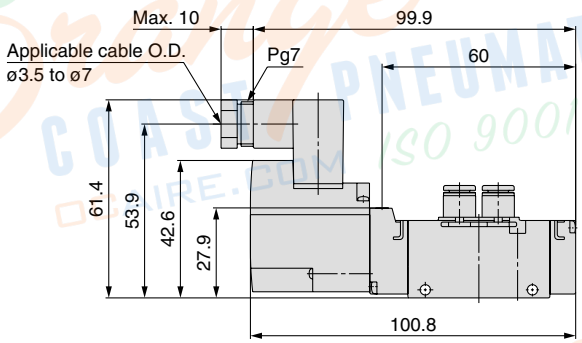
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

L-type plug connector (L): VQZ2[1/8/9]2[0/1](R)-□L□1-C4, C6



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y): VQZ2[1/8/9]2[0/1](R)-□Y□1-C4, C6

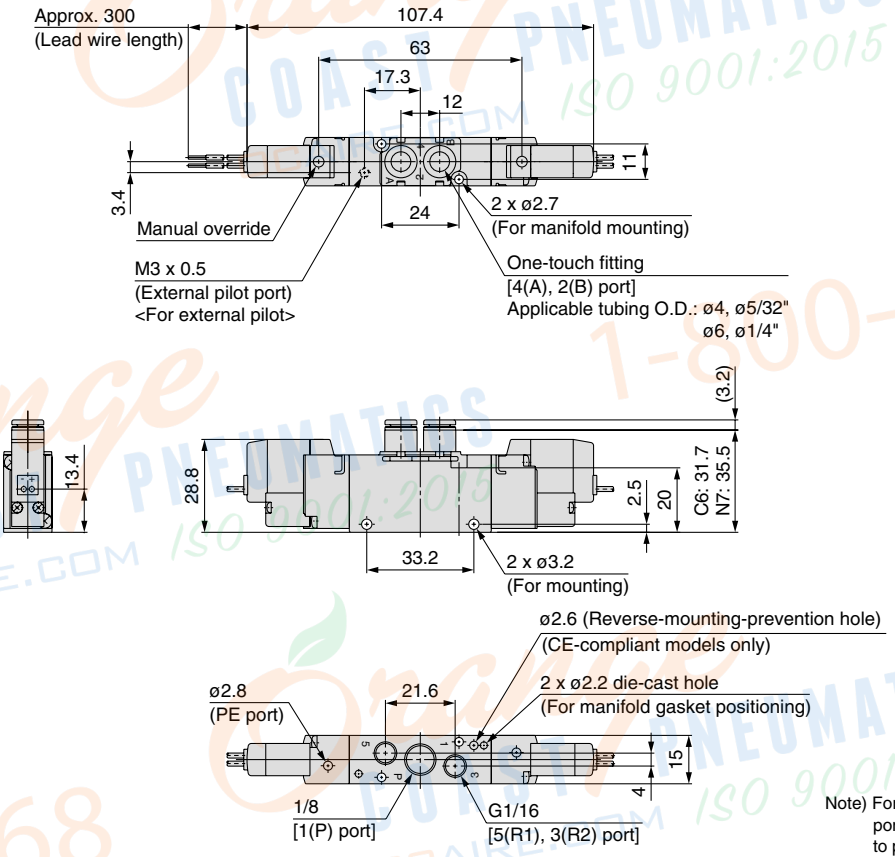


Unless otherwise indicated, dimensions are the same as Grommet (G).

Dimensions: VQZ2000

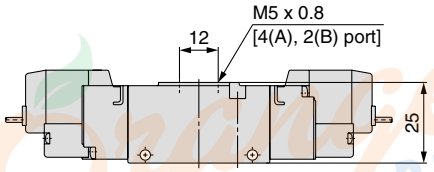
2 Position Double

Grommet (G): VQZ222⁰₁ (R)-□G□1-C4, C6

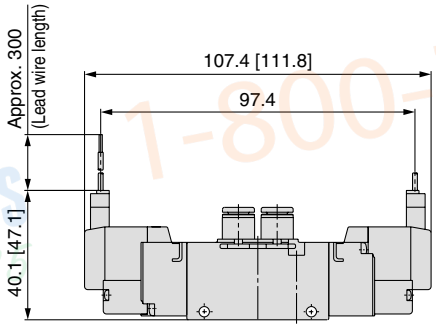


Note) For one-touch fittings for P/R port and silencer part no., refer to page 978.

VQZ222⁰₁ (R)-□G□1-M5

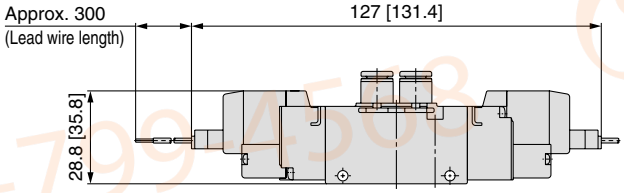


M-type plug connector (M): VQZ222⁰₁ (R)-□M□1-C4, C6



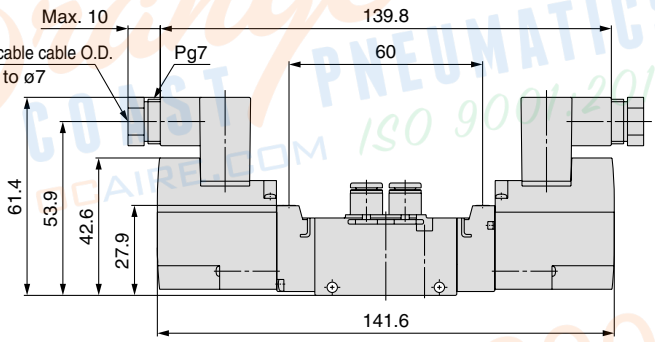
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

L-type plug connector (L): VQZ222⁰₁ (R)-□L□1-C4, C6



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y): VQZ222⁰₁ (R)-□Y□1-C4, C6

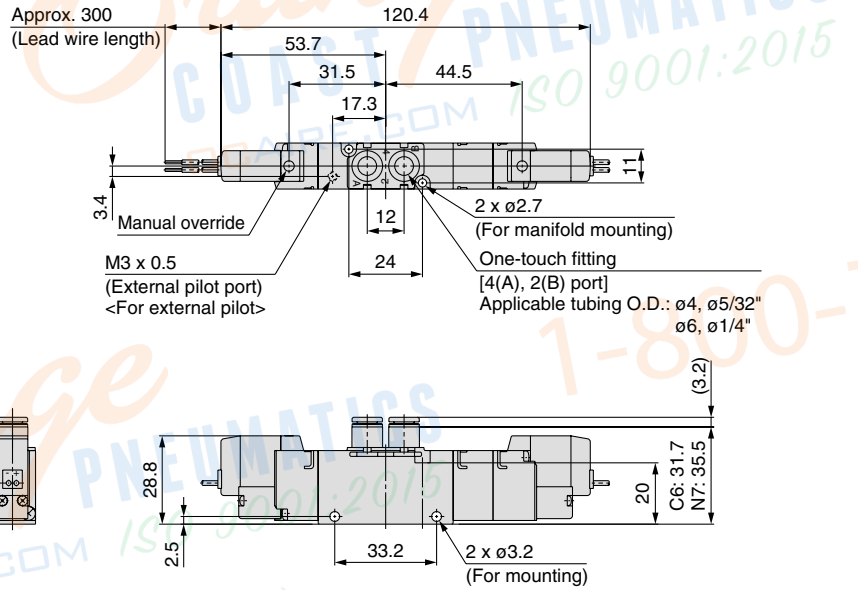


Unless otherwise indicated, dimensions are the same as Grommet (G).

Dimensions: VQZ2000

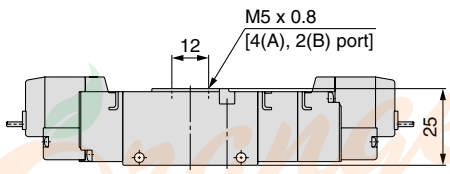
3 Position Closed Center/Exhaust Center/Pressure Center

Grommet (G): VQZ2$^{3}_{4}_{5}$ 2$^{0}_{1}$ (R)-□G□1-C4, C6

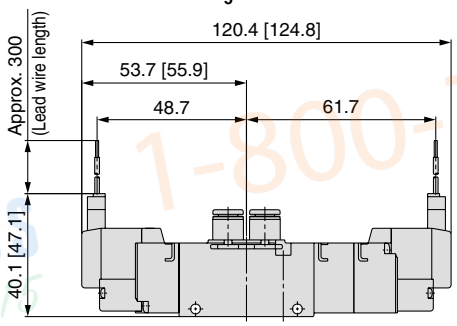


Note) For one-touch fittings for P/R port and silencer part no., refer to page 978.

VQZ2$^{3}_{4}_{5}$ 2$^{0}_{1}$ (R)-□G□1-M5

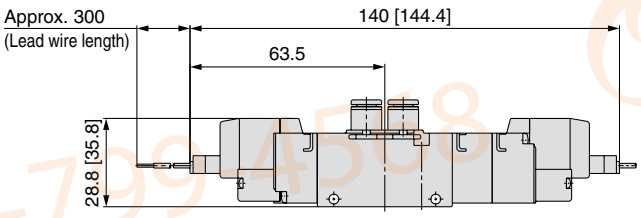


M-type plug connector (M): VQZ2$^{3}_{4}_{5}$ 2$^{0}_{1}$ (R)-□M□1-C4, C6



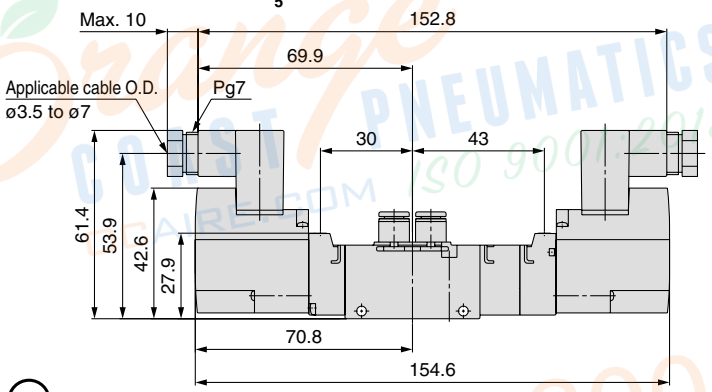
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

L-type plug connector (L): VQZ2$^{3}_{4}_{5}$ 2$^{0}_{1}$ (R)-□L□1-C4, C6



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y): VQZ2$^{3}_{4}_{5}$ 2$^{0}_{1}$ (R)-□Y□1-C4, C6

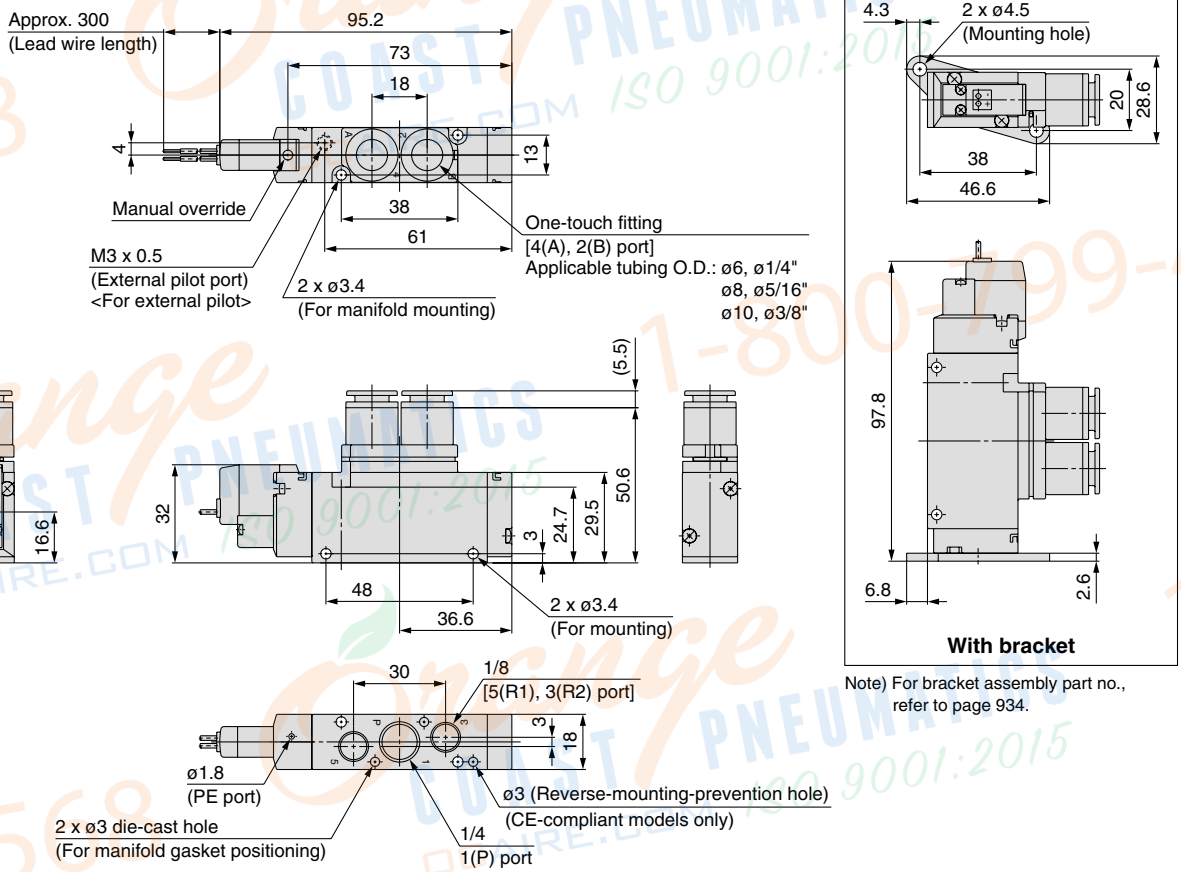


Unless otherwise indicated, dimensions are the same as Grommet (G).

Dimensions: VQZ3000

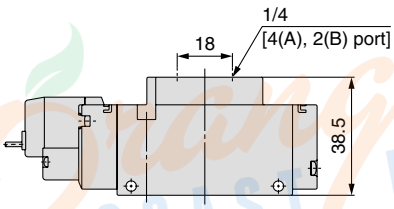
2 Position Single/3 Port for Mixture Mounting

Grommet (G): VQZ3$^{1}_{9}$2$^{0}_{1}$(R)-□G□1-C6, C8, C10

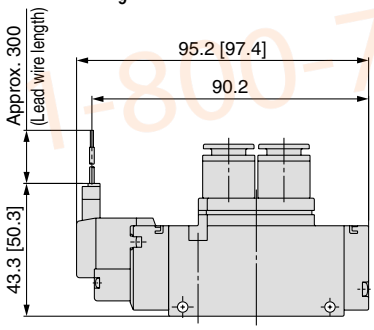


Note) For bracket assembly part no., refer to page 934.

VQZ3$^{1}_{9}$2$^{0}_{1}$(R)-□G□1-02

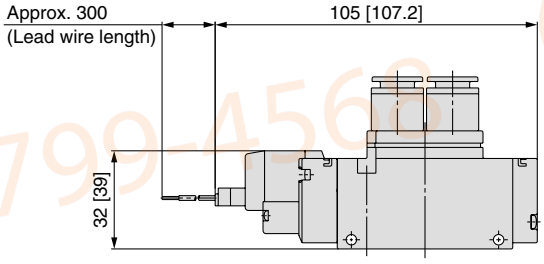


M-type plug connector (M): VQZ3$^{1}_{9}$2$^{0}_{1}$(R)-□M□1-C6, C8, C10



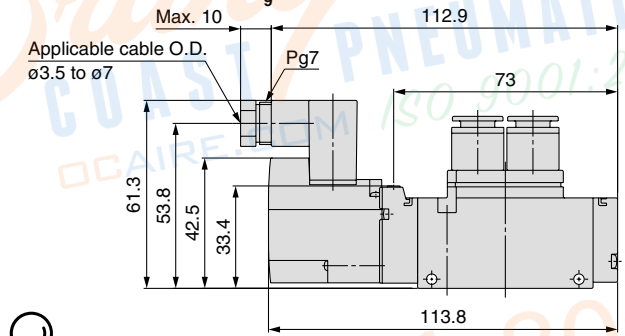
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

L-type plug connector (L): VQZ3$^{1}_{9}$2$^{0}_{1}$(R)-□L□1-C6, C8, C10



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y): VQZ3$^{1}_{9}$2$^{0}_{1}$(R)-□Y□1-C6, C8, C10

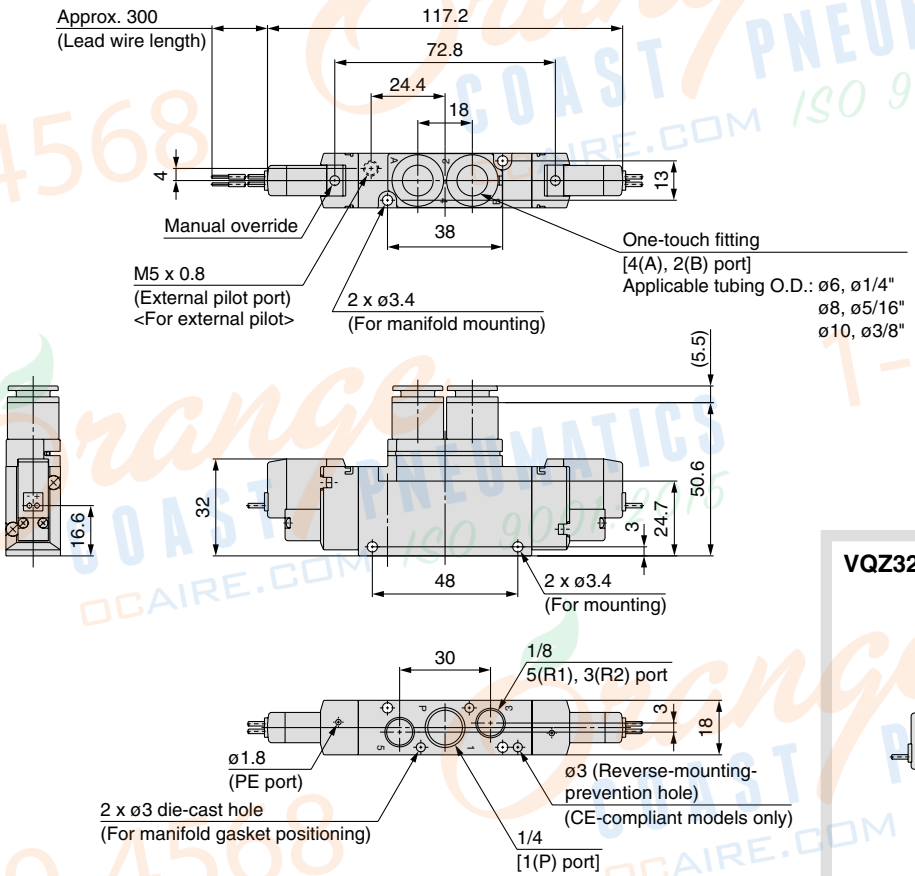


Unless otherwise indicated, dimensions are the same as Grommet (G).

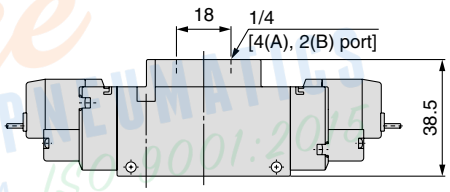
Dimensions: VQZ3000

2 Position Double

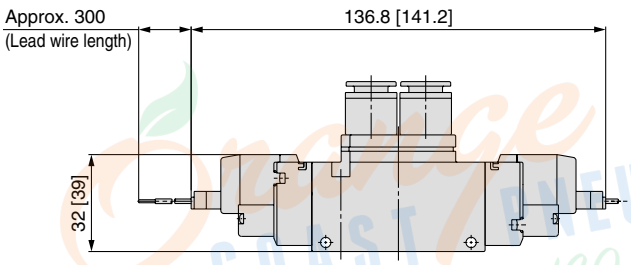
Grommet (G): VQZ322⁰₁ (R)-□G□1-C6, C8, C10



VQZ322⁰₁ (R)-□G□1-02

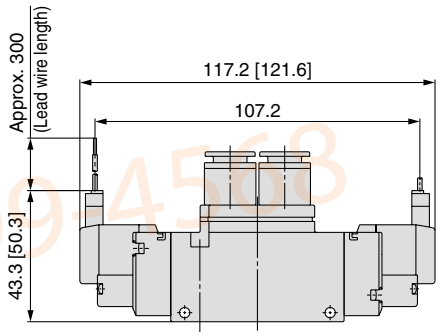


L-type plug connector (L): VQZ322⁰₁ (R)-□L□1-C6, C8, C10



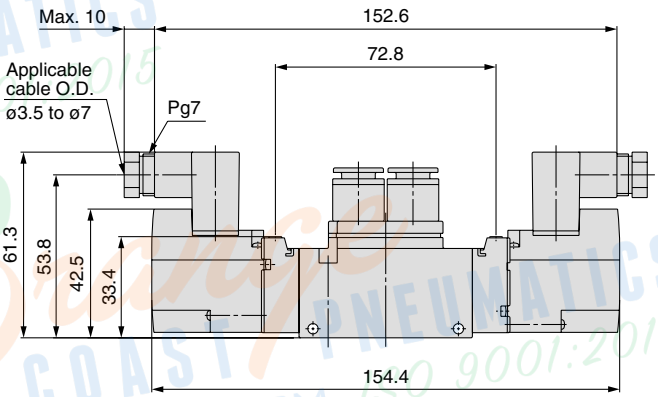
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M): VQZ322⁰₁ (R)-□M□1-C6, C8, C10



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y): VQZ322⁰₁ (R)-□Y□1-C6, C8, C10

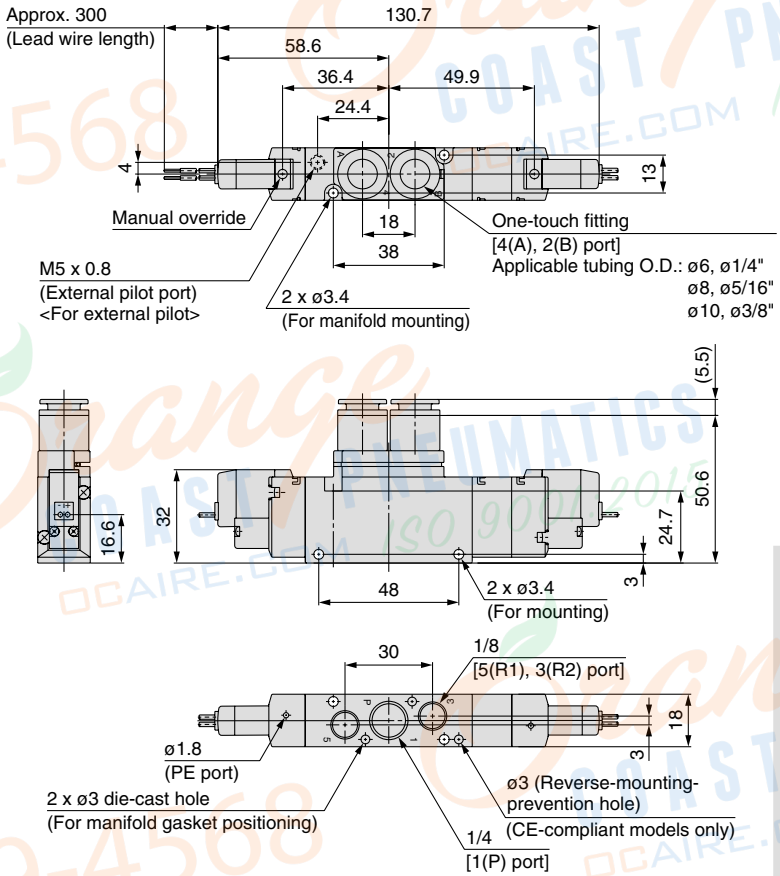


Unless otherwise indicated, dimensions are the same as Grommet (G).

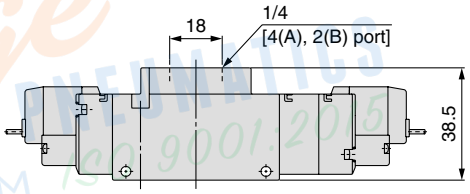
Dimensions: VQZ3000

3 Position Closed Center/Exhaust Center/Pressure Center

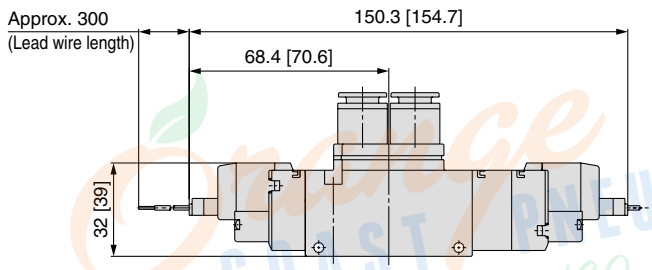
Grommet (G): VQZ3$^{3}_{4}$2$^{0}_{1}$(R)-□G□1-C6, C8, C10



VQZ3$^{3}_{4}$2$^{0}_{1}$(R)-□G□1-02

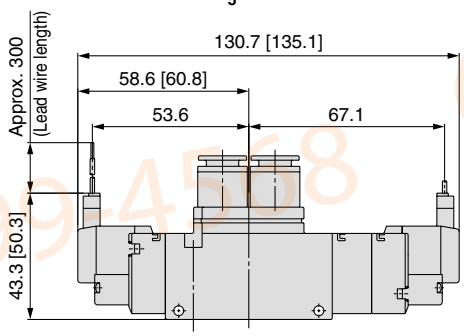


L-type plug connector (L): VQZ3$^{3}_{4}$2$^{0}_{1}$(R)-□L□1-C6, C8, C10



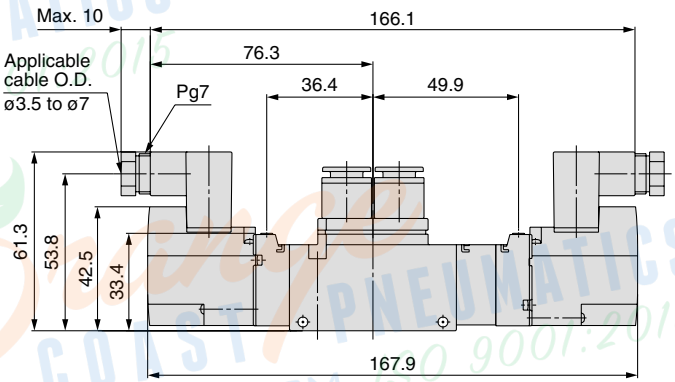
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M): VQZ3$^{3}_{4}$2$^{0}_{1}$(R)-□M□1-C6, C8, C10



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y): VQZ3$^{3}_{4}$2$^{0}_{1}$(R)-□Y□1-C6, C8, C10



Unless otherwise indicated, dimensions are the same as Grommet (G).

5 Port Solenoid Valve
Series VQZ1000/2000/3000
Manifold Connector Kit [Option]

How to Order Manifold

Made to Order (For details, refer to page 975.)

VV5QZ 1 2 — 08 C — □ — □

Series

1	VQZ1000
2	VQZ2000
3	VQZ3000

Manifold type

2	Body ported

Stations

02	2 stations
⋮	⋮
20	20 stations

Kit type

C	Connector

Option

Nil	None
D	DIN rail mounting (With standard DIN rail length)
D0 Note)	DIN rail mounting (Without DIN rail)

Note) Order DIN rail separately.
For DIN rail part no., refer to page 930.

CE compliant

Nil	—
Q	CE marked

Note) For optional thread type of 1(P), 3(R2) and 5(R1) port, refer to page 933.

How to Order Valve

VQZ 1 1 2 1 □ — 5 M □ □ 1 — C6 — □

Series

1	VQZ1000 body width 10 mm
2	VQZ2000 body width 15 mm
3	VQZ3000 body width 18 mm

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5 Note 1)	3 position pressure center
8 Note 2)	3 port for mixture mounting N.C.
9 Note 2)	3 port for mixture mounting N.O.

Note 1) There is no 3 position pressure center for the metal seal type of the VQZ1000 series.
Note 2) The port plug of the 3 port mixing valve can be replaced with a fitting and the valve used as a 5 port single type valve. (Refer to page 979.)

Body type

2	Body ported

Seal type

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC	AC
Nil	Standard	(0.35 W) ○	Note 4) ○
B Note 1)	High speed response type	(0.9 W) ○	—
K Note 1)	High pressure type (Metal seal type only)	(0.9 W) ○	—
R Note 1, 2, 3)	External pilot type	○	○
BR Note 1, 2, 3)	High speed response/External pilot type	(0.9 W) ○	—
KR Note 1, 2, 3)	High pressure/External pilot type (Metal seal type only)	(0.9 W) ○	—

Note 1) Option
Note 2) For details on external pilot type, refer to page 933.
Note 3) There is no VQZ1000 setting.
Note 4) For AC specification power consumption, refer to page 914.

IP65 compliant

Nil	—
W Note)	Compliant

Note) VQZ2000/3000 DIN terminal rubber seal only (except external pilot). For details on IP65 enclosure, refer to page 933.

Port size [4(A), 2(B) port]

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
C3	ø3.2 one-touch fitting	○	—	—
C4	ø4 one-touch fitting	○	○	—
C6	ø6 one-touch fitting	○	○	○
C8	ø8 one-touch fitting	—	—	○
C10	ø10 one-touch fitting	—	—	○
M5	M5 thread	○	○	—
02	Rc 1/4	—	—	○

Note) For inch size one-touch fittings and optional thread type, refer to page 933.

Manual override

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

CE compliant

Nil	—
Q	CE marked

Note) AC-type models that are CE compliant have DIN terminals only.

Electrical entry

Symbol	Electrical entry	Light/surge voltage suppressor
G	Grommet (DC specification)	None
L	L-type plug connector with lead wire	Yes
LO	L-type plug connector without connector	
M	M-type plug connector with lead wire	
MO	M-type plug connector without connector	
Y Note 1)	DIN terminal	None
YO Note 1)	DIN terminal without connector	
YZ Note 1)	DIN terminal	Yes
YS Note 1)	DIN terminal (DC specification)	Yes (Without light)
YOS Note 1)	DIN terminal without connector (DC specification)	

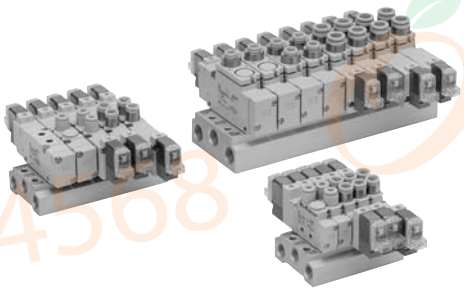
Note 1) Applicable to the VQZ2000/3000 for DIN terminal type. For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
Note 2) Standard lead wire length: 300 mm

Coil voltage

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3	110 VAC [115 VAC] (50/60 Hz)
4	220 VAC [230 VAC] (50/60 Hz)
5	24 VDC
6	12 VDC

⚠ Caution

Use standard (DC) specification for continuous duty.

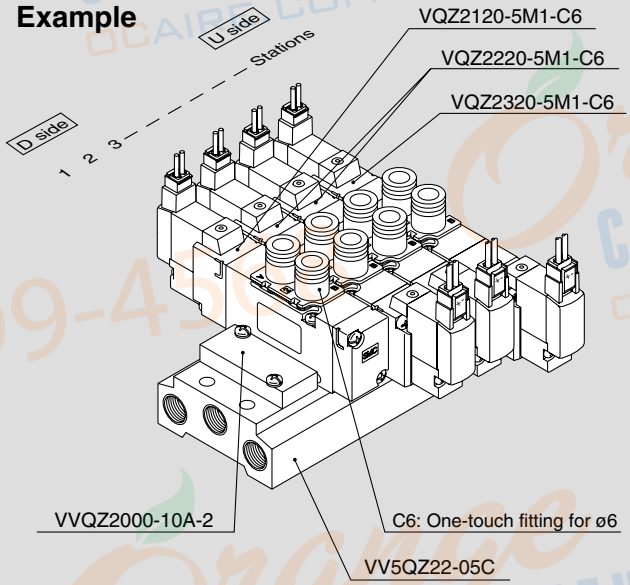


Manifold Specifications

Series	Base model	Piping specifications			Applicable solenoid valve	Applicable stations	Manifold base mass (g)
		Piping direction	Port size				
			1(P), 3/5(R)	4(A), 2(B)			
VQZ1000	**VV5QZ12-□□□**	Top	Rc 1/8	C3 (for ø3.2) C4 (for ø4) C6 (for ø6) M5 (M5 thread)	**VQZ1□20** **VQZ1□21**	2 to 20 stations	2 stations: 64 Addition per station: 18
VQZ2000	**VV5QZ22-□□□**	Top	Rc 1/8	C4 (for ø4) C6 (for ø6) M5 (M5 thread)	**VQZ2□20** **VQZ2□21**	2 to 20 stations	2 stations: 86 Addition per station: 26
VQZ3000	**VV5QZ32-□□□**	Top	Rc 1/4	C6 (for ø6) C8 (for ø8) C10 (for ø10) Rc 1/4	**VQZ3□20** **VQZ3□21**	2 to 20 stations	2 stations: 181 Addition per station: 53

How to Order Manifold Assembly (Example)

Example



VV5QZ22-05C ····· 1 set (C kit 5-station manifold base part no.)
- ∗ **VVQZ2000-10A-2 ··· 1 set (Blanking plate assembly part no.)**
- ∗ **VQZ2120-5M1-C6 ··· 1 set (Single type part no.)**
- ∗ **VQZ2220-5M1-C6 ··· 2 sets (Double type part no.)**
- ∗ **VQZ2320-5M1-C6 ··· 1 set (3 position type part no.)**

The asterisk denotes the symbol for assembly.
Prefix it to the part nos. of the solenoid valve, etc.

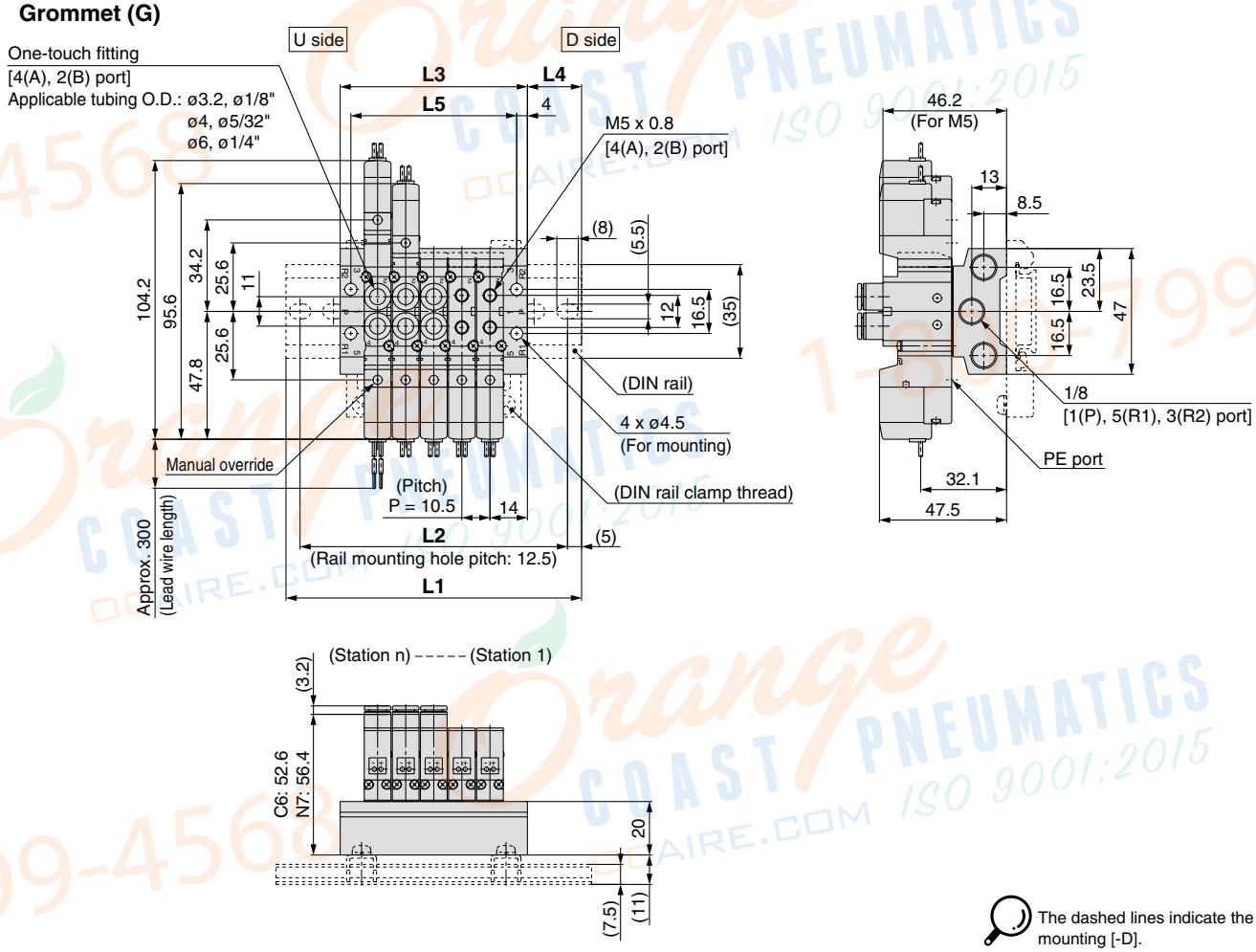
Enter in order starting from the first station on the D side.

Add the valve and option part number under the manifold base part number.
When entry of part numbers becomes complicated, indicate by the manifold specification sheet.

Dimensions: VQZ1000

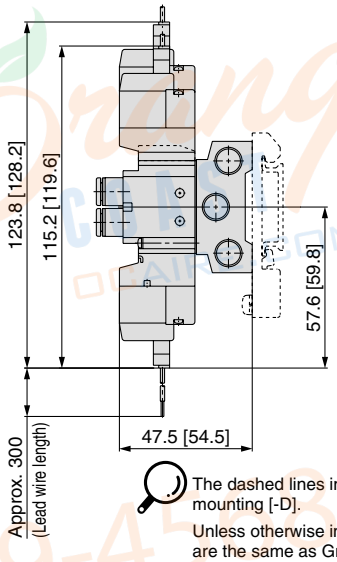
VV5QZ12- Stations C

Grommet (G)



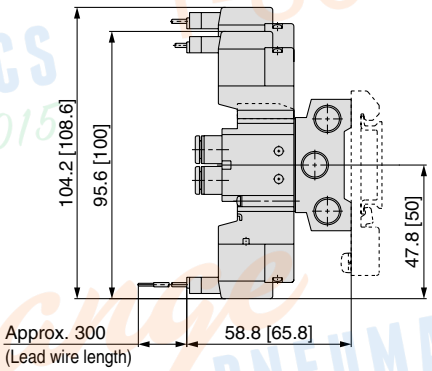
The dashed lines indicate the DIN rail mounting [-D].

L-type plug connector (L)



The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M)



The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

Dimensions

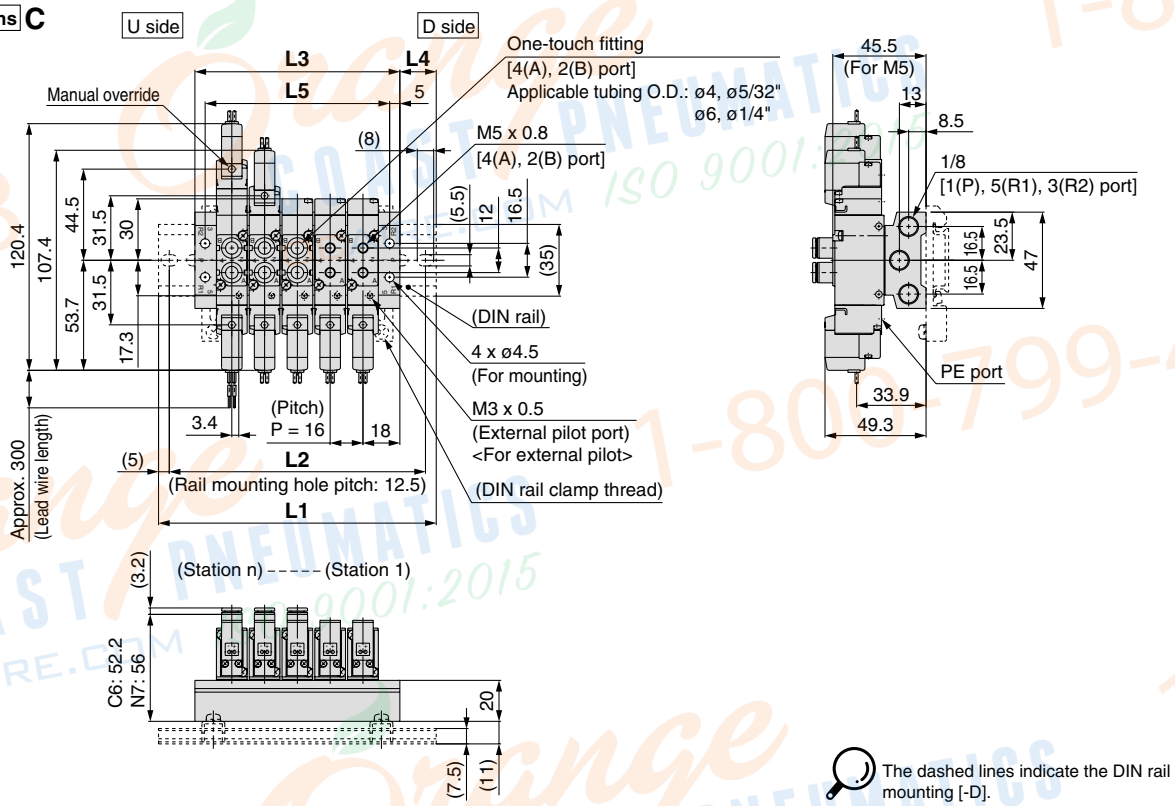
Formula: L5 = 10.5n + 9.5 L3 = 10.5n + 17.5 n: Stations (Max. 20 stations)

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	73	85.5	98	110.5	110.5	123	135.5	148	160.5	173	185.5	185.5	198	210.5	223	235.5	248	248	260.5
L2	62.5	75	87.5	100	100	112.5	125	137.5	150	162.5	175	175	187.5	200	212.5	225	237.5	237.5	250
L3	38.5	49	59.5	70	80.5	91	101.5	112	122.5	133	143.5	154	164.5	175	185.5	196	206.5	217	227.5
L4	17.5	18.5	19.5	20.5	15	16	17	18	19	20	21	16	17	18	19	20	21	15.5	16.5
L5	30.5	41	51.5	62	72.5	83	93.5	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5

Dimensions: VQZ2000

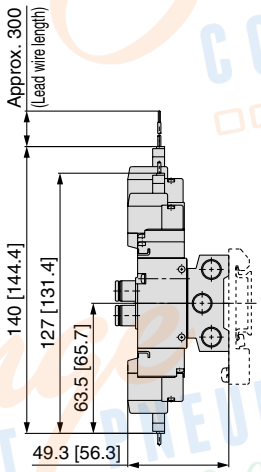
VV5QZ22-[Stations]C

Grommet (G)



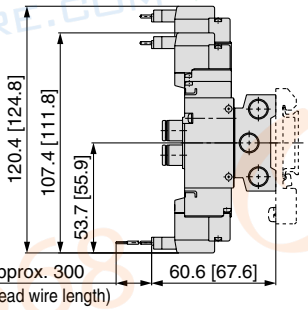
The dashed lines indicate the DIN rail mounting [-D].

L-type plug connector (L)



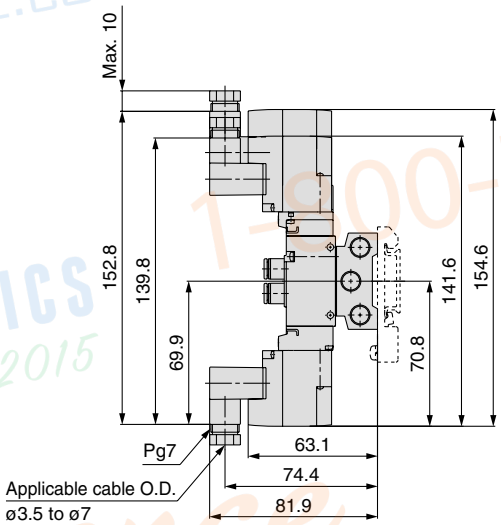
The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M)



The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y)



The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

Dimensions

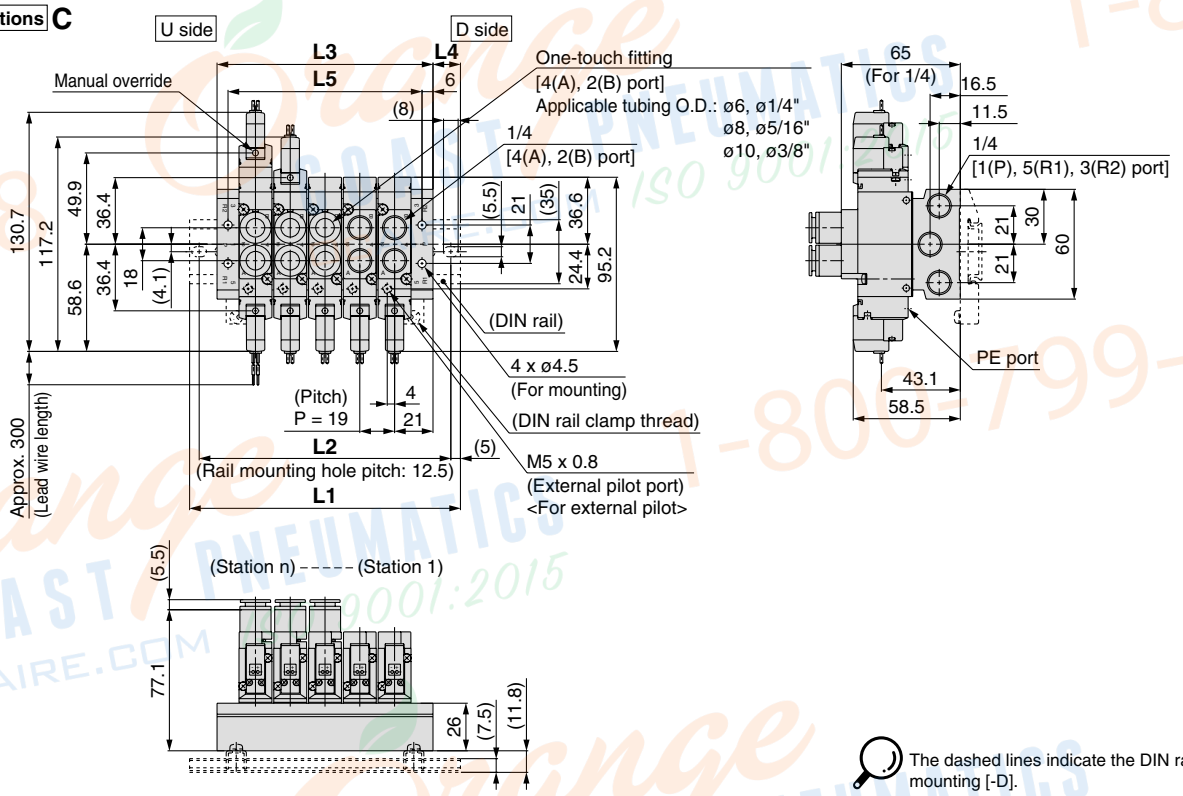
Formula: L5 = 16n + 10 L3 = 16n + 20 n: Stations (Max. 20 stations)

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	85.5	98	123	135.5	148	173	185.5	198	210.5	235.5	248	260.5	285.5	298	310.5	323	348	360.5	373
L2	75	87.5	112.5	125	137.5	162.5	175	187.5	200	225	237.5	250	275	287.5	300	312.5	337.5	350	362.5
L3	52	68	84	100	116	132	148	164	180	196	212	228	244	260	276	292	308	324	340
L4	17	15	19.5	18	16	20.5	19	17	15.5	20	18	16.5	21	19	17.5	15.5	20	18.5	16.5
L5	42	58	74	90	106	122	138	154	170	186	202	218	234	250	266	282	298	314	330

Dimensions: VQZ3000

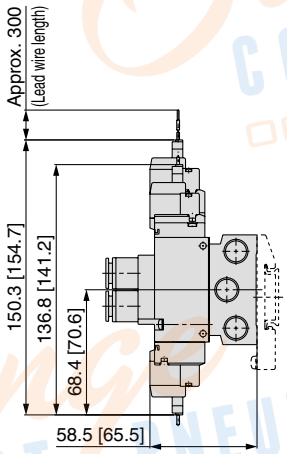
VV5QZ32-Stations C

Grommet (G)



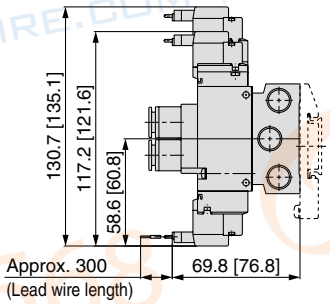
The dashed lines indicate the DIN rail mounting [-D].

L-type plug connector (L)



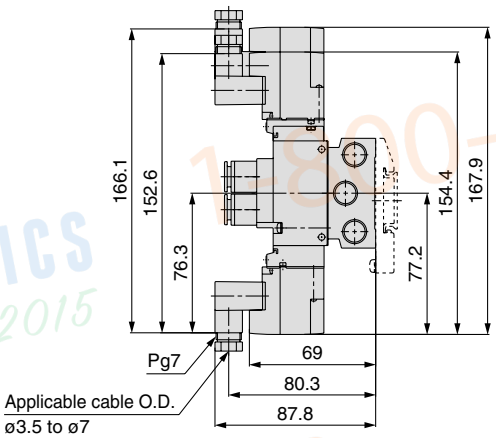
The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M)



The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y)



The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

Dimensions

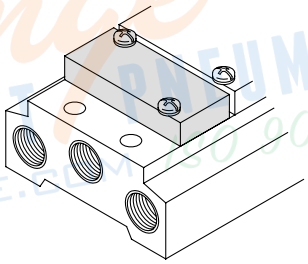
Formula: L1 = 19n + 11 L2 = 19n + 23 n: Stations (Max. 20 stations)

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	98	110.5	135.5	148	173	198	210.5	235.5	248	273	285.5	310.5	323	348	360.5	385.5	398	423	435.5
L2	87.5	100	125	137.5	162.5	187.5	200	225	237.5	262.5	275	300	312.5	337.5	350	375	387.5	412.5	425
L3	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
L4	18.5	15.5	18.5	15	18	21	18	21	17.5	20.5	17.5	20.5	17	20	17	20	16.5	19.5	16.5
L5	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

Manifold Options

Blanking plate assembly
VVQZ1000-10A-2 (for VQZ1000)
VVQZ2000-10A-2 (for VQZ2000)
VVQZ3000-10A-2 (for VQZ3000)

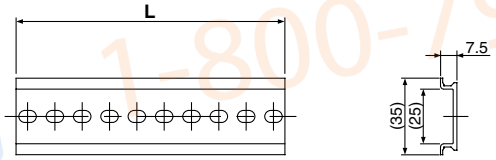
It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.



DIN rail
AXT100-DR-□

∗ As for □, enter the number from the DIN rail dimensions table.
For L dimension, refer to the dimensions of each kit.

Each manifold can be mounted on a DIN rail.
Insert "D" at the end of the manifold part number.
The DIN rail is approximately 30 mm longer than the length of manifold.

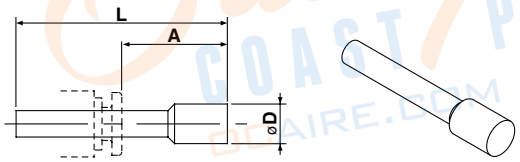


L Dimension L = 12.5n + 10.5

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L dimension	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5

No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L dimension	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

Blanking plug
KQ2P-23
KQ2P-04
KQ2P-06
KQ2P-08
KQ2P-10

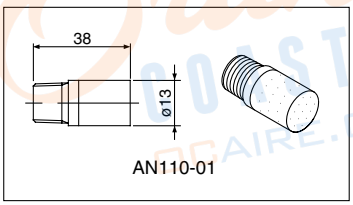


Dimensions

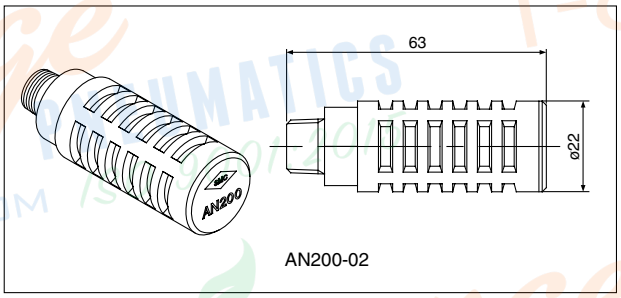
Applicable fitting size ød	Model	A	L	D
3.2	**KQ2P-23**	16	31.5	3.2
4	**KQ2P-04**	16	32	6
6	**KQ2P-06**	18	35	8
8	**KQ2P-08**	20.5	39	10
10	**KQ2P-10**	22	43	12

Silencer (for manifold EXH port)

Silencer is installed in the manifold EXH port.



AN110-01



AN200-02

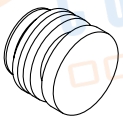
For a silencer to be mounted in a single valve unit, refer to page 978.

Dimensions

Model	Silencer part no.
VQZ1000	AN110-01
VQZ2000	AN110-01
VQZ3000	AN200-02

Port plug
VVQZ100-CP (for VQZ1000/2000)
VVQZ2000-CP (for VQZ3000)

Used to block a cylinder port when changing 5 port valves into 3 port valves, etc.

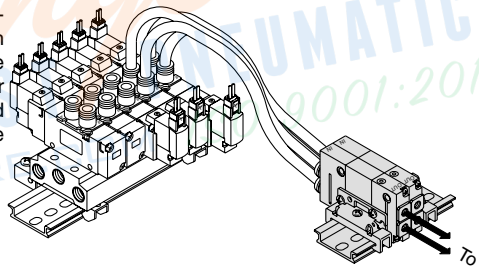


Manifold Options

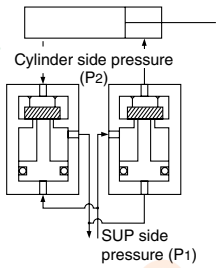
Perfect block (Separated): For VQZ1000

VQ1000-FPG-□□

It is used on the outlet side piping to keep the cylinder in the intermediate position for a long time. Combining the perfect block with a built-in pilot type perfect valve and a 3 position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for a long time. The combination of a 2 position single or double solenoid with a perfect block will prevent the cylinder from "dropping" at stroke end when residual supply pressure is released.



<Check valve operating principle>



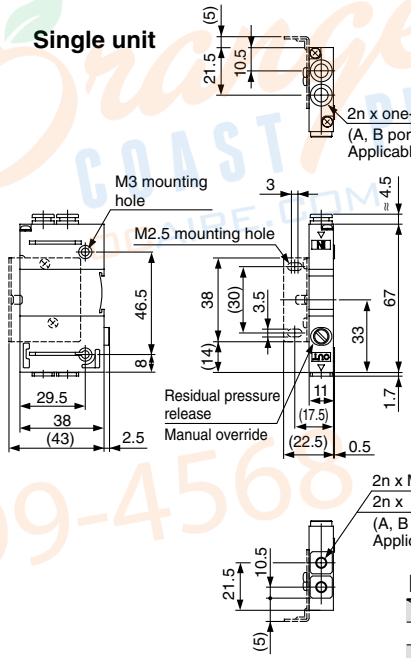
Specifications

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

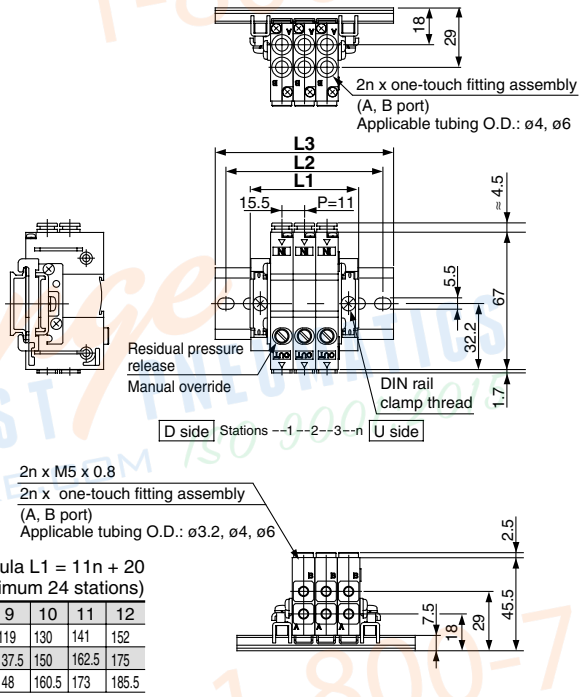
Note) Based on JIS B 8375-1981 (Supply pressure: 0.5 MPa)

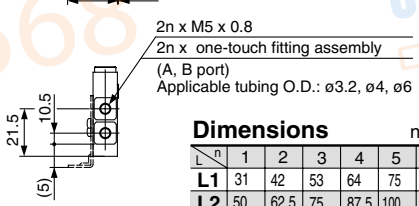
Dimensions

Single unit



Manifold





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

Dimensions

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

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

How to Order

Perfect block

VQ1000-FPG- **C4** **M5** **-** **F**

IN side port size

C4	ø4 one-touch fitting
C6	ø6 one-touch fitting

OUT side port size

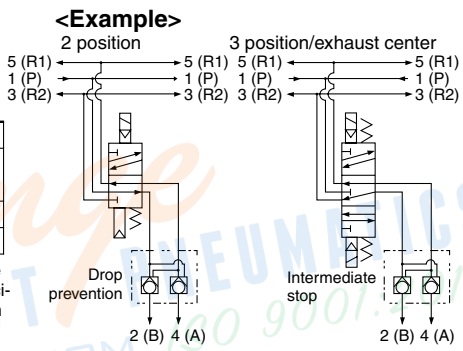
M5	M5 thread
C3	ø3.2 one-touch fitting
C4	ø4 one-touch fitting
C6	ø6 one-touch fitting

Option

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

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

<Example>



Manifold (DIN rail mounting style)

VVQ1000-FPG- **06**

Order DIN rail mounting style [-D] for perfect block.

Stations

01	1 station
⋮	⋮
16	16 stations

<Ordering Example>
VVQ1000-FPG-06 ···· 6 stations of manifold
* VQ1000-FPG-C4M5-D, 3 sets
* VQ1000-FPG-C6M5-D, 3 sets
} Perfect block

⚠Caution

- Since air leakage from the pipe between the valve and cylinder or the fittings will prevent the cylinder from stopping for a long time. Check for air leakage using neutral household detergent, such as dish washing soap. Also check the cylinder's tube gasket, piston packing and rod packing for air leakage.
- Since one-touch fittings allow slight air leakage, screw piping (with M5 thread) is recommended when stopping the cylinder in the middle for a long time.
- Combining perfect block with 3 position closed center or pressure center solenoid valve will not work.
- A M5 fitting assembly is attached, without being incorporated in the perfect block. After screwing in the fittings, mount the assembly on the perfect block. (Tightening torque: 0.8 to 1.2 N·m)
- If exhaust side of perfect block is narrowed down too much, intermediate stopping accuracy will be decreased.

<Bracket assembly>

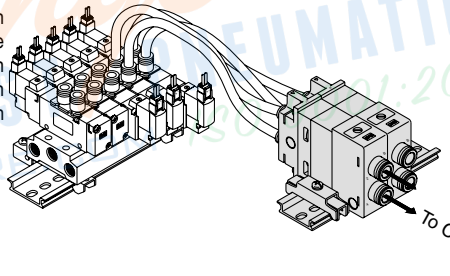
Part no.	Tightening torque Note)
VQ1000-FPG-FB	0.22 to 0.25 N•m

Note) It is the tightening torque for mounting a bracket for the perfect block.

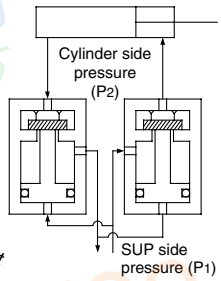
Manifold Options

Perfect block (Separated): For VQZ2000/3000
VQ2000-FPG-□□-□

It is used on the outlet side piping to keep the cylinder in the intermediate position for a long time. Combining the perfect block with a built-in pilot type perfect valve and a 3 position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for a long time. The combination of a 2 position single or double solenoid with a perfect block will prevent the cylinder from "dropping" at stroke end when residual supply pressure is released.



<Check valve operating principle>



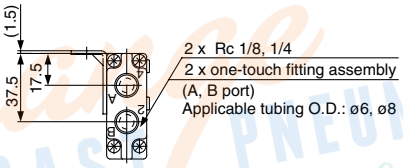
Specifications

Maximum operating pressure	0.8 MPa
Minimum operating pressure	0.15 MPa
Ambient and fluid temperature	–5 to 50°C
Flow characteristics: C	3.0 dm³/(s·bar)
Max. operating frequency	180 c.p.m

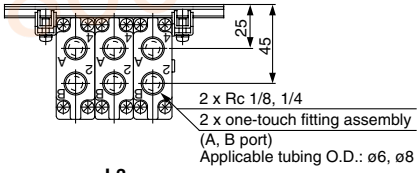
Note) Based on JIS B 8375-1981 (Supply pressure: 0.5 MPa)

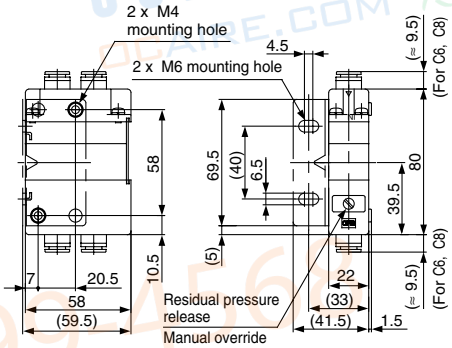
Dimensions

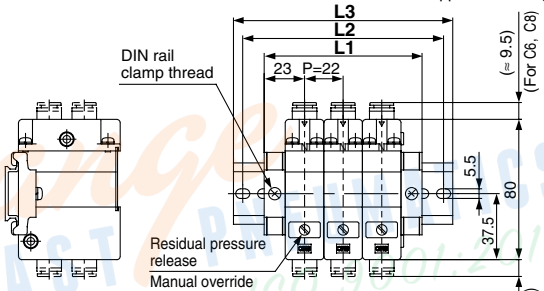
Single unit

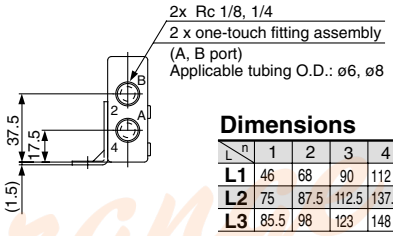


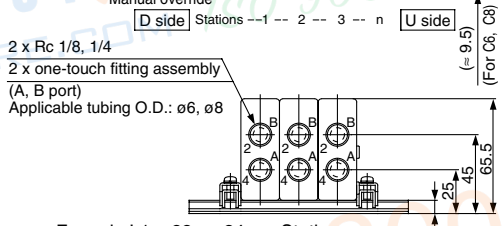
Manifold











Dimensions

Formula L1 = 22n + 24 n: Station

n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	46	68	90	112	134	156	178	200	222	244	266	288	310	332	354	376
L2	75	87.5	112.5	137.5	162.5	175	200	225	250	262.5	287.5	312.5	337.5	362.5	375	400
L3	85.5	98	123	148	173	185.5	210.5	235.5	260.5	273	298	323	348	373	385.5	410.5

How to Order

Perfect block

VQ2000-FPG- 01 01 - F

IN side port size

01	Rc 1/8
02	Rc 1/4
C6	ø6 one-touch fitting
C8	ø8 one-touch fitting

OUT side port size

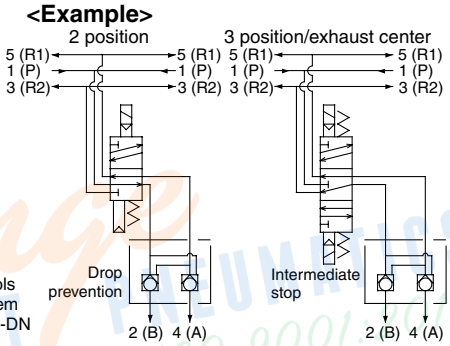
01	Rc 1/8
02	Rc 1/4
C6	ø6 one-touch fitting
C8	ø8 one-touch fitting

Option

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

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

<Example>



Manifold (DIN rail mounting style)

VVQ2000-FPG- 06

Order DIN rail mounting style [-D] for perfect block.

Stations

01	1 station
⋮	⋮
16	16 stations

<Ordering Example>
VVQ2000-FPG-06 ···· 6 stations of manifold
* VQ2000-FPG-C6C6-D, 3 sets
* VQ2000-FPG-C8C8-D, 3 sets
} Perfect block

⚠Caution

- Since air leakage from the pipe between the valve and cylinder or the fittings will prevent the cylinder from stopping for a long time. Check for air leakage using neutral household detergent, such as dish washing soap. Also check the cylinder's tube gasket, piston packing and rod packing for air leakage.
- Since one-touch fittings allow slight air leakage, screw piping is recommended when stopping the cylinder in the middle for a long time.
- Combining perfect block with 3 position closed center or pressure center solenoid valve will not work.
- When screwing the fittings in the perfect block, proper tightening torque for screws is as shown at the right.

Connection thread	Proper tightening torque (N•m)
Rc 1/8	7 to 9
Rc 1/4	12 to 14

- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.
- If exhaust side of perfect block is narrowed down too much, intermediate stopping accuracy will be decreased.

<Bracket assembly>

Part no.	Tightening torque Note)
VQ2000-FPG-FB	0.8 to 1.0 N•m

Note) It is the tightening torque for mounting a bracket for the perfect block.

Options

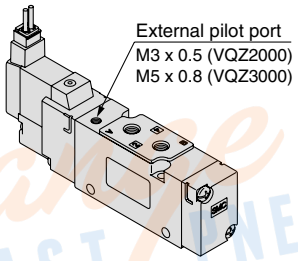
External Pilot Specification (Except VQZ1000)

The external pilot specification is used when the operating pressure is below the minimum operating pressure 0.1 to 0.2 MPa or when valve is used for a vacuum application. Order a valve by adding the external pilot specification [R] to the part number.

Valve Part No.

VQZ □□2□□R—□□□□1—□—□

● **Entry is the same as standard products.**



Pressure Specifications

Series		VQZ2000/3000		
		2 position single	2 position double	3 position
External pilot pressure range Note)	Metal seal	0.1 to 0.7 MPa (VQZ3000, 3 position only 0.15 to 0.7 MPa)		
	Rubber seal	0.15 to 0.7 MPa	0.1 to 0.7 MPa	0.2 to 0.7 MPa
Operating pressure range Note)		–100 kPa to 0.7 MPa		

Note) In case of the high pressure type, upper limit of max. operating pressure and external pilot pressure range is 1 MPa.

Inch Size One-touch Fittings and Optional Threads

Inch size one-touch fittings and NPT, NPTF and G thread are available.

Valve Part No.

VQZ□□2□□—□□□□1—N7T—□—□

● **Entry is the same as standard products.**

Cylinder port

Symbol		N1	N3	N7	N9	N11	M5	02
Applicable tubing O.D. (Inch)		ø1/8"	ø5/32"	ø1/4"	ø5/16"	ø3/8"	M5 thread	1/4 thread
A, B port	VQZ1000	●	●	●	—	—	●	—
	VQZ2000	—	●	●	—	—	●	—
	VQZ3000	—	—	●	●	●	—	●

Note) Metric size one-touch fittings (C□) are also available.

Thread type (Cylinder port and 1(P), 3(R2), 5(R1) ports)

Nil	Rc
N	NPT
T	NPTF
F	G

Note 1) 3(R2), 5(R1) port of the VQZ2000 is only G1/16.
Note 2) Except VQZ1000.

Manifold Part No.

VV5QZ□2—□C—D—00T—□

● **Entry is the same as standard products.**

● **Thread type (1(P), 3(R2), 5(R1) ports)**

Nil	Rc
00N	NPT
00T	NPTF
00F	G

IP65 Enclosure (Based on IEC60529)

DIN terminal is available with IP65 enclosure.

Valve Part No.
(Applicable to the VQZ2000/3000 rubber seal with the exception of the external pilot type)

VQZ $\frac{2}{3}$□21□—□Y□□W1—□—□

● **Entry is the same as standard products.**

Note) The pilot exhaust IP65 valves is common with main valve exhaust. (The standard valve has an individual exhaust for the pilot valve.)

Series VQZ Body Ported
Replacement Parts

One-touch Fitting Assembly (for Cylinder port)

Model \ Fitting size	C3	C4	C6	C8	C10
VQZ1000/2000	VVQ1000-50A-C3	VVQ1000-50A-C4	VVQ1000-50A-C6	—	—
VQZ3000	—	—	VVQ1000-51A-C6	VVQ1000-51A-C8	VVQ1000-51A-C10

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

<Plug connector assembly>

DC: SY100-30-4A- □

100 VAC: SY100-30-1A- □

200 VAC: SY100-30-2A- □

Other AC voltages: SY100-30-3A- □

Without lead wire: SY100-30-A
(with connector and 2 sockets only)

Lead wire length

Nil	300 mm
6	600 mm
10	1000 mm
15	1500 mm
20	2000 mm
25	2500 mm
30	3000 mm
50	5000 mm

<Pilot valve assembly>

V111 □ — 5 G — □

Function

Symbol	Specifications	DC	AC
Nil	Standard	(0.35 W) ○	○
B Note)	High speed response type	(0.9 W) ○	—
K Note)	High pressure type (Metal seal type only)	(0.9 W) ○	—

Note) Option

Applicable model (Length of screws attached is different from each other.)

Nil	VQZ2000/3000
4	A and B side of VQZ1000 single, double solenoid type A side of VQZ1000 3 position
5	B side of VQZ1000 3 position

Coil voltage

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3	110 VAC [115 VAC] (50/60 Hz)
4	220 VAC [230 VAC] (50/60 Hz)
5	24 VDC
6	12 VDC

Electrical entry

Symbol DC	Symbol AC	Electrical entry	Light/surge voltage suppressor
G	—	Grommet (DC specification)	None
LU	**LZ**	L-type plug connector with lead wire	Yes
LOU	**LOZ**	L-type plug connector without connector	
MU	**MZ**	M-type plug connector with lead wire	
MOU	**MOZ**	M-type plug connector without connector	

How to Order
Include the connector assembly part number together with the part number for the plug connector's solenoid valve without connector.

Example) In case of 2000 mm of lead wire

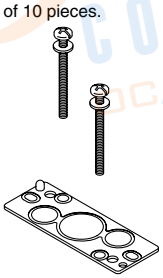
DC
VQZ1120-5LO1-M5
SY100-30-4A-20

AC
VQZ1120-1LO1-M5
SY100-30-1A-20

<Gasket and screw assembly>

	Part no.
VQZ1000	VQZ1000-GS-2
VQZ2000	VQZ2000-GS-2
VQZ3000	VQZ3000-GS-2

Note) Above part number consists of 10 units. Each unit has one gasket and two screws. Purchasing order is available in units of 10 pieces.



<DIN terminal type (Applicable to the VQZ2000/3000)>

V115 □ — 5 Y — X110

Function

Symbol	Specifications	DC	AC
Nil	Standard	(0.35 W) ○	○
B Note)	High speed response type	(0.9 W) ○	—
K Note)	High pressure type (Metal seal type only)	(0.9 W) ○	—

Note) Option

Coil voltage

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3	110 VAC [115 VAC] (50/60 Hz)
4	220 VAC [230 VAC] (50/60 Hz)
5	24 VDC
6	12 VDC

Electrical entry

Symbol	Electrical entry	Light/surge voltage suppressor
Y	DIN terminal	None
YO	DIN terminal without connector	
YZ	DIN terminal with light/surge voltage suppressor	Yes
YS	DIN terminal with surge voltage suppressor (DC specification)	Yes (With indicator light)
YOS	DIN terminal with surge voltage suppressor, without connector (DC specification)	

Note) For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

<Bracket assembly>

		Part no.	Tightening torque (N•m) Note)
VQZ1000	Metal seal	VQZ1000V-FB-M	0.2 to 0.26
	Rubber seal	VQZ1000V-FB-R	
VQZ2000		VQZ2000-FB	0.25 to 0.35
VQZ3000		VQZ3000-FB	0.25 to 0.35

Note) When adding a bracket assembly later, remove the end plate screws and fasten the end plate and bracket at the tightening torque shown in the table, using the screws attached to the bracket assembly. Place the spring inside the end plate in its original position so that it does not get lost.

⚠ Caution

When replacing only the pilot valve assembly, use caution because it is not possible to convert to a V115 (DIN terminal) from a V111 (Grommet, L-type, M-type), or vice versa.

EX510 Gateway System
Serial Transmission System
Series VQZ1000/2000/3000
Body Ported Manifold

CE [Option]

How to Order Manifold

VV5QZ 1 2 – SA ☐ 08 – ☐ – ☐ – ☐

Series

1	VQZ1000
2	VQZ2000
3	VQZ3000

SI unit

Nil	NPN output (+COM.)
N	PNP output (–COM.)

Stations

Symbol	No. of stations
02	2 stations
⋮	⋮
08	8 stations

Note) Maximum 16 stations (For special wiring specifications, indicate separately by the manifold specification sheet.)

P, R port thread type

Nil	Rc
00N	NPT
00T	NPTF
00F	G

Option

Nil	None
D	With DIN rail (Rail length: Standard)
D0 Note)	Without DIN rail (With bracket)
K	Special wiring specification (Except double wiring)

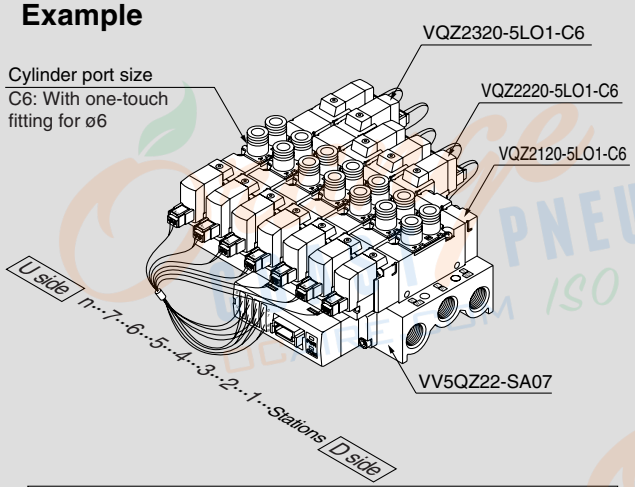
Note 1) Order DIN rail separately. For DIN rail part no., refer to page 930.
Note 2) When two or more symbols are specified, indicate them alphabetically.

CE compliant

Nil	—
Q	CE marked

How to Order Valve Manifold Assembly (Example)

Example



VV5QZ22-SA07 ····· 1 set (Type SA, 7-station manifold base part no.)
*** VQZ2120-5LO1-C6 ··· 2 sets (Single solenoid part no.)**
*** VQZ2220-5LO1-C6 ··· 3 sets (Double solenoid part no.)**
*** VQZ2320-5LO1-C6 ··· 2 sets (3 position type no.)**

→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.
→ Enter in order starting from the first station on the D side.

Add the valve and option part number under the manifold base part number. When entry of part numbers becomes complicated, indicate by the manifold specification sheet. For a manifold for an EX510, the length of the lead wire for a connector assembly depends on the number of stations. Therefore, the manifold assembly is shipped with the valves (including blanking plates) and connector assembly mounted on it, as the standard specification. Be sure to specify the part nos. of the solenoid valves to be mounted.

SI Unit Part No.

Symbol	SI unit spec.	SI unit part no.
Nil	NPN output (+COM.)	EX510-S001
N	PNP output (–COM.)	EX510-S101

For details of "Gateway System Serial Transmission System, Series EX510", refer to pages 1696 to 1724.

SMC

How to Order Valve

VQZ [1] [1] 2 [1] [ ] – 5 [MO] [ ] 1 – [C6] [ ] – [ ]

Series

1	VQZ1000
2	VQZ2000
3	VQZ3000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5 Note 1)	3 position pressure center
8 Note 2)	3 port for mixture mounting N.C.
9 Note 2)	3 port for mixture mounting N.O.

Note 1) There is no 3 position pressure center for the metal seal type of the VQZ1000 series.
Note 2) The port plug of the 3 port mixing valve can be replaced with a fitting and the valve used as a 5 port single type valve. (Refer to page 979.)

Seal type

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC
Nil	Standard	(0.35 W) ○
B Note 1)	High speed response type	(0.9 W) ○
K Note 1)	High pressure type (Metal seal type only)	(0.9 W) ○
R Note 1, 2, 3)	External pilot type	○
BR Note 1, 2, 3)	High speed response/External pilot type	(0.9 W) ○
KR Note 1, 2, 3)	High pressure/External pilot type (Metal seal type only)	(0.9 W) ○

Note 1) Option
Note 2) For details on external pilot type, refer to page 933.
Note 3) There is no VQZ1000 setting.

Rated voltage: 24 VDC

Manual override

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

Electrical entry

LO	L-type plug connector without connector
MO	M-type plug connector without connector

Note) With light/surge voltage suppressor

A, B port size

Thread piping

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
M5	M5 x 0.8	○	○	—
02	1/4	—	—	○

One-touch fitting (Metric size)

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
C3	ø3.2 one-touch fitting	○	—	—
C4	ø4 one-touch fitting	○	○	—
C6	ø6 one-touch fitting	○	○	○
C8	ø8 one-touch fitting	—	—	○
C10	ø10 one-touch fitting	—	—	○

One-touch fitting (Inch size)

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
N1	ø1/8" one-touch fitting	○	—	—
N3	ø5/32" one-touch fitting	○	○	—
N7	ø1/4" one-touch fitting	○	○	○
N9	ø5/16" one-touch fitting	—	—	○
N11	ø3/8" one-touch fitting	—	—	○

CE compliant

Nil	—
Q	CE marked

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

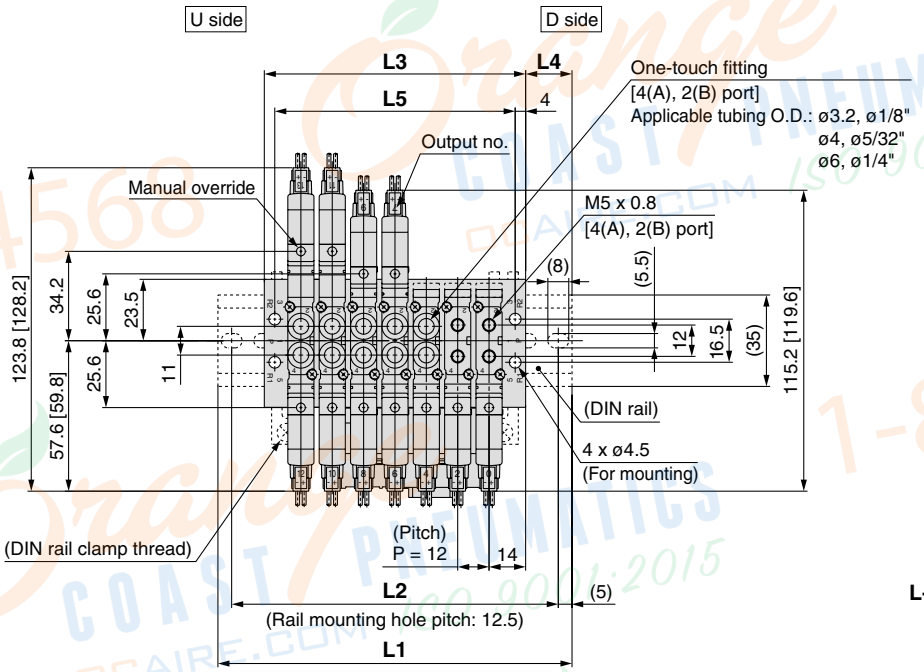
Note 1) For 3(R2), 5(R1) port of the VQZ2000 is only G1/16.
Note 2) Except VQZ1000

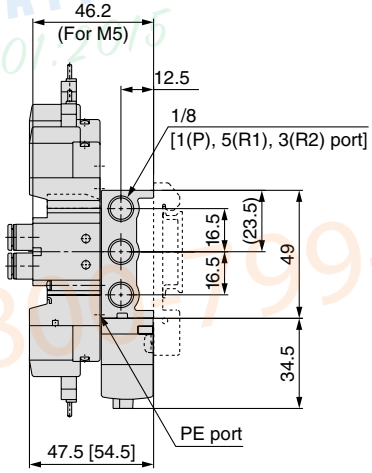
Made to Order

(For details, refer to page 975.)

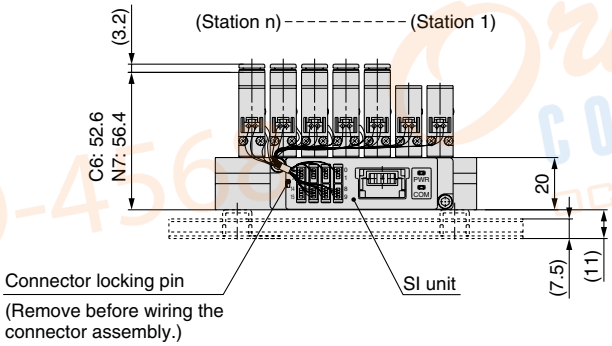
Symbol	Description
X30	Pilot valve common exhaust
X90	Main valve fluoro-rubber
X113	All fluoro-rubber

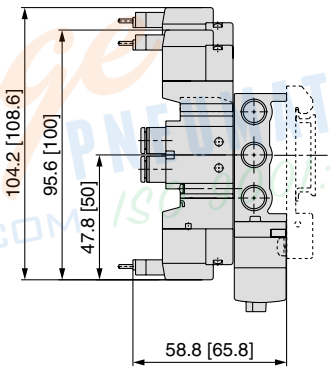
Dimensions: VQZ1000-SA□: EX510 Gateway System Serial Transmission System





L-type plug connector (L)





M-type plug connector (M)

The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as L-type plug connector (L).
[ ]: AC

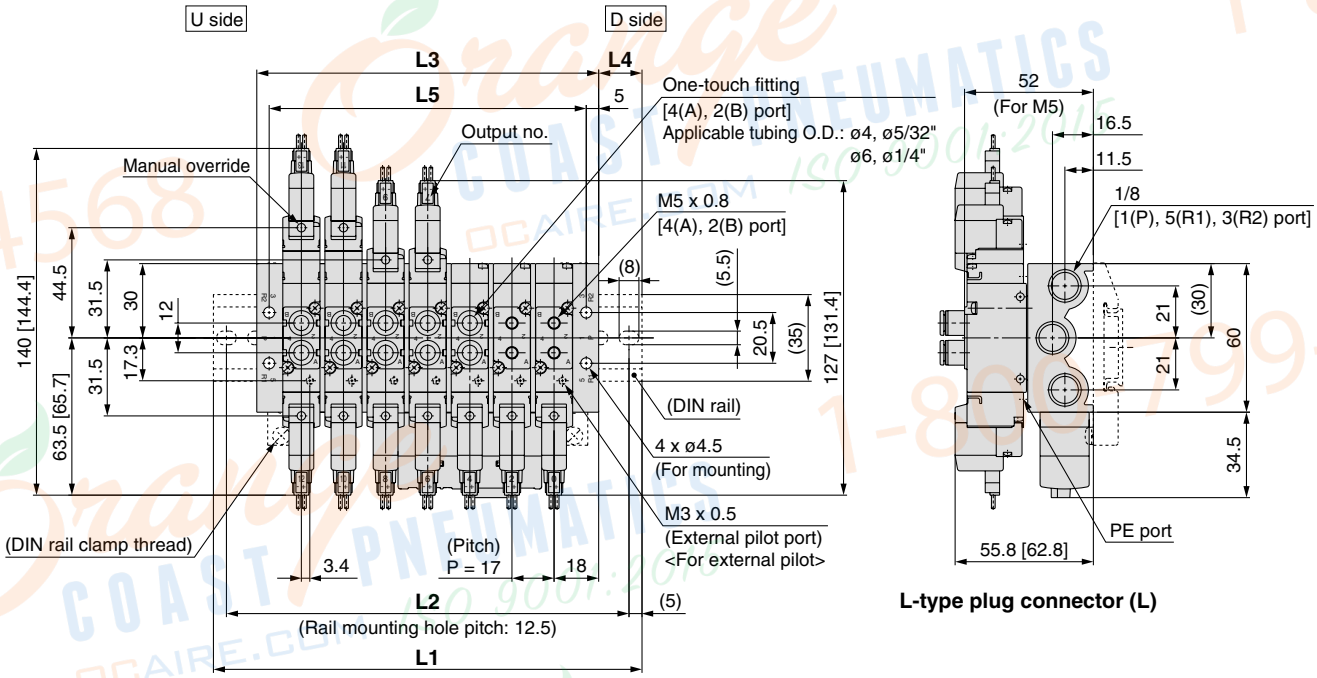
Dimensions

Max. 16 stations

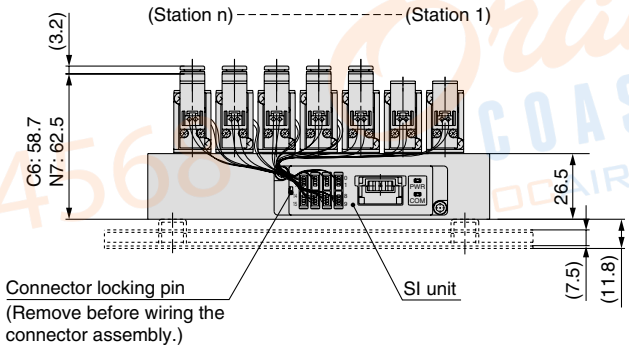
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	123	123	123	123	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248
L2	112.5	112.5	112.5	112.5	112.5	125	137.5	150	162.5	175	187.5	200	212.5	225	237.5
L3	88	88	88	88	88	100	112	124	136	148	160	172	184	196	208
L4	17.5	17.5	17.5	17.5	17.5	18	18.5	18.5	19	19	19	19.5	19.5	20	20
L5	80	80	80	80	80	92	104	116	128	140	152	164	176	188	200

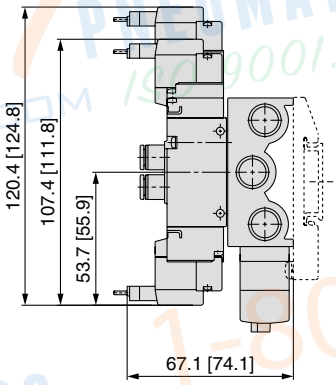
Note) The L dimension of 2 to 6 stations is the same. Valves are numbered from the D side according up to the number of stations.

Dimensions: VQZ2000-SA□: EX510 Gateway System Serial Transmission System



L-type plug connector (L)





M-type plug connector (M)

The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as L-type plug connector (L).
[ ]: AC

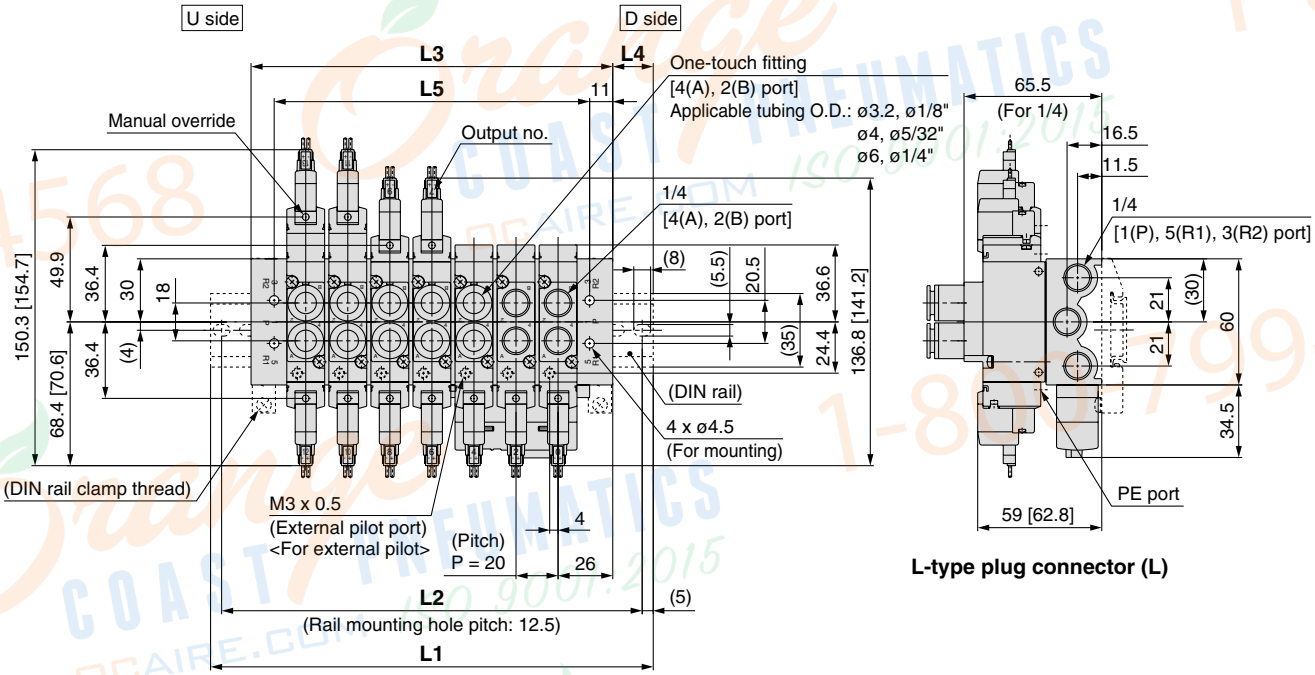
Dimensions

Max. 16 stations

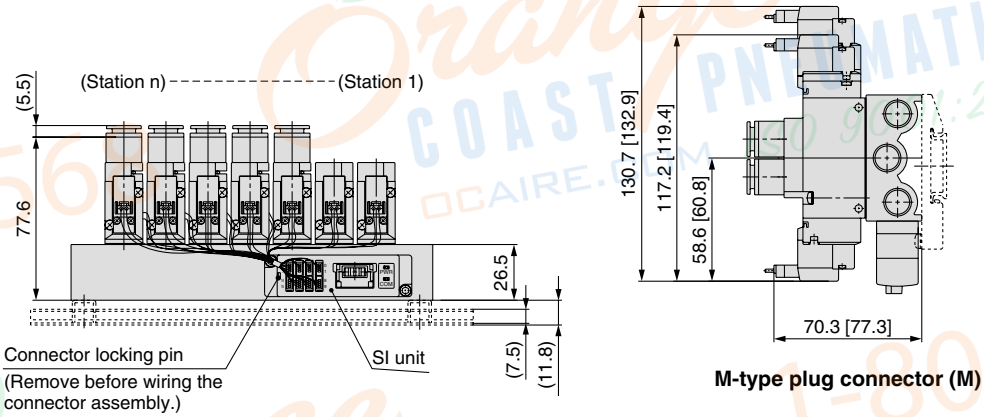
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	135.5	135.5	135.5	135.5	160.5	173	185.5	210.5	223	248	260.5	273	298	310.5	323
L2	125	125	125	125	150	162.5	175	200	212.5	237.5	250	262.5	287.5	300	312.5
L3	104	104	104	104	121	138	155	172	189	206	223	240	257	274	291
L4	16	16	16	16	20	17.5	15.5	19.5	17	21	19	16.5	20.5	18.5	16
L5	94	94	94	94	111	128	145	162	179	196	213	230	247	264	281

Note) The L dimension of 2 to 6 stations is the same. Valves are numbered from the D side according up to the number of stations.

Dimensions: VQZ3000-SA□: EX510 Gateway System Serial Transmission System



L-type plug connector (L)



M-type plug connector (M)

The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as L-type plug connector (L).
[ ]: AC

Dimensions

Max. 16 stations

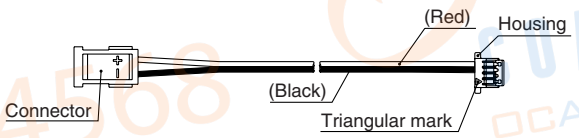
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	123	123	148	173	185.5	210.5	223	248	273	285.5	310.5	323	348	373	385.5
L2	112.5	112.5	137.5	162.5	175	200	212.5	237.5	262.5	275	300	312.5	337.5	362.5	375
L3	92	92	112	132	152	172	192	212	232	252	272	292	312	332	352
L4	15.5	15.5	18	20.5	17	19.5	15.5	18	20.5	17	19.5	15.5	18	20.5	17
L5	70	70	90	110	130	150	170	190	210	230	250	170	290	310	330

Note) The L dimension of 2 to 6 stations is the same. Valves are numbered from the D side according up to the number of stations.

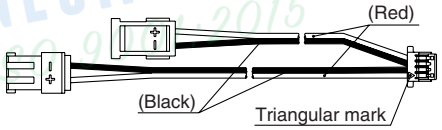
Manifold Options

Connector assembly

Single solenoid (SY3000-37-81A-□-N)



Double solenoid (SY3000-37-81A-□-□)



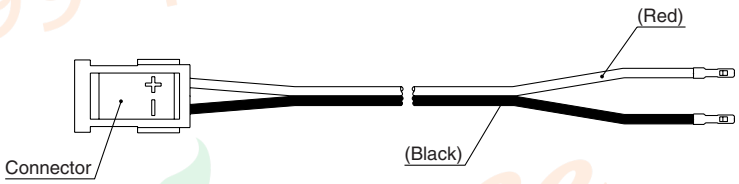
Connector Assembly Part No. (for a manifold with 8 stations or less with an unspecified layout)
Bar Stock Type

Model	Part no.	Connector mounting position
VV5QZ12	SY3000-37-81A-3-N	Single: for 1 to 4 stations
	SY3000-37-81A-3-6	Double/3 position: for 1 to 4 stations
	SY3000-37-81A-2-N	Single: for 5 to 8 stations
	SY3000-37-81A-3-6	Double/3 position: for 5 to 8 stations
VV5QZ22	SY3000-37-81A-3-N	Single: for 1 to 8 stations
	SY3000-37-81A-3-6	Double/3 position: for 1 to 8 stations
VV5QZ32	SY3000-37-81A-3-N	Single: for 1 to 4 stations
	SY3000-37-81A-3-6	Double/3 position: for 1 to 4 stations
	SY3000-37-81A-4-N	Single: for 5 to 8 stations
	SY3000-37-81A-4-7	Double/3 position: for 5 to 8 stations

Note) There are no part nos. on the connectors of connector assemblies.

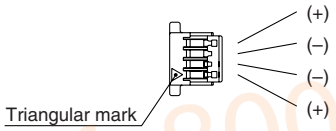
Connector assembly

SY3000-37-80A-□



Housing (1 set: 8 pieces)

SY3000-44-3A



Connector Assembly Part No. (for a manifold with a specified layout)

Model	Assembly part no.	Connector mounting position	
VV5QZ12	SY3000-37-80A-3	A side	For 1 to 8 stations
	SY3000-37-80A-6	B side	
	SY3000-37-80A-4	A side	For 9 to 16 stations
	SY3000-37-80A-7	B side	
VV5QZ22	SY3000-37-80A-3	A side	For 1 to 8 stations
	SY3000-37-80A-6	B side	
	SY3000-37-80A-7	A side	For 9 to 16 stations
	SY3000-37-80A-9	B side	
VV5QZ32	SY3000-37-80A-4	A side	For 1 to 8 stations
	SY3000-37-80A-7	B side	
	SY3000-37-80A-8	A side	For 9 to 16 stations
	SY3000-37-80A-11	B side	

Note 1) Since these connector assemblies are used when adding stations or for maintenance, there are no part nos. on them.
Note 2) After inserting the connector assembly into the housing, slightly pull the lead wire to make sure it does not pull out. Do not reuse the lead wire once it has been inserted.
Note 3) Please note that the wires are longer than the actual wiring distance.

Base Mounted

Plug Lead Unit

5 Port Solenoid Valve

Series VQZ1000/2000/3000

Single Unit

CE [Option]

How to Order Valve

Made to Order (For details, refer to page 975.)

VQZ 1 1 5 1 ☐ – 5 M ☐ ☐ 1 – 01 – ☐

Series

1	VQZ1000 body width 10 mm
2	VQZ2000 body width 15 mm
3	VQZ3000 body width 18 mm

Type of actuation

1	2 position single	5 Note)	3 position pressure center
2	2 position double (Metal seal / Rubber seal)	8	3 port for mixture mounting (N.C.)
3	3 position closed center	9	3 port for mixture mounting (N.O.)
4	3 position exhaust center		

Note) There is no 3 position pressure center for the metal seal type of the VQZ1000 series.

Body type

5	Base mounted

Seal type

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC	AC
Nil	Standard	(0.35 W) ○	Note 3) ○
B Note 1)	High speed response type	(0.9 W) ○	—
K Note 1)	High pressure type (Metal seal type only)	(0.9 W) ○	—
R Note 1, 2)	External pilot type	○	○
BR Note 1, 2)	High speed response/External pilot type	(0.9 W) ○	—
KR Note 1, 2)	High pressure/External pilot type (Metal seal type only)	(0.9 W) ○	—

Note 1) Option
Note 2) For details on external pilot type, refer to page 966.
Note 3) For AC specification power consumption, refer to page 943.

⚠ Caution

Use standard (DC) specification for continuous duty.

IP65 compliant

Nil	—
W Note)	Compliant

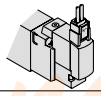
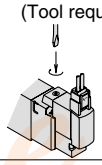
Note) VQZ2000/3000 DIN terminal rubber seal only (except external pilot). For details on IP65 enclosure, refer to page 966.

CE compliant

Nil	—
Q	CE marked

Note) AC-type models that are CE compliant have DIN terminals only.

Manual override

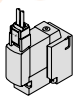
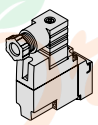
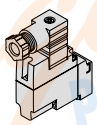
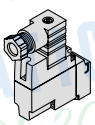
Nil: Non-locking push type (Tool required)	B: Locking type (Tool required)
	

Port size

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
Nil	Without sub-plate	○	○	○
01	Rc 1/8	○	○	—
02	Rc 1/4	—	○	○
03	Rc 3/8	—	—	○

Note) For inch sizes, refer to page 966.

Electrical entry

G: Grommet (DC specification)	L: L-type plug connector with lead wire	LO: L-type plug connector without connector	M: M-type plug connector with lead wire	MO: M-type plug connector without connector
	With light/surge voltage suppressor	With light/surge voltage suppressor	With light/surge voltage suppressor	With light/surge voltage suppressor
				
Y: DIN terminal Note 1)	YO: DIN terminal without connector Note 1)	YZ: DIN terminal Note 1)	Y0S: DIN terminal without connector (DC specification) Note 1)	YS: DIN terminal (DC specification) Note 1)
		With light/surge voltage suppressor	With surge voltage suppressor	With surge voltage suppressor
				

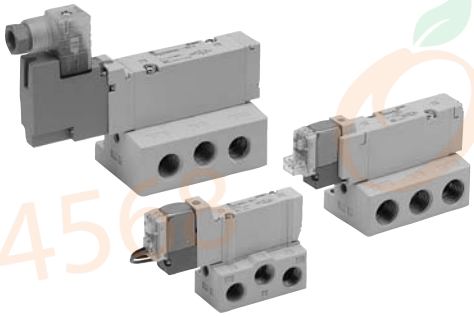
Note 1) Applicable to the VQZ2000/3000 for DIN terminal type. For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
Note 2) Standard lead wire length: 300 mm

Coil voltage

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3	110 VAC [115 VAC] (50/60 Hz)
4	220 VAC [230 VAC] (50/60 Hz)
5	24 VDC
6	12 VDC

Note) For sub-plate part no., refer to page 967.

SMC



Specifications

Type			Metal seal	Rubber seal
Fluid			Air, Inert gas	
Max. operating pressure (MPa)			0.7 (High pressure type: 1.0)	0.7
Min. operating pressure (MPa)	**2 position**	**Single**	0.1	0.15
		Double	VQZ3000, 3 position only	0.1
	3 position		0.15	0.2
Ambient and fluid temperature (°C)			–10 to 50 (No freezing)	
Max. operating frequency (Hz)	**2 position single, double**		20	5
	3 position		10	3
Manual override			Non-locking push type, Locking type (Tool required)	
Pilot exhaust method			Individual exhaust	
Lubrication			Not required	
Mounting orientation			Single: Free Double, 3 position: Main valve must be horizontal.	Free
Impact/Vibration resistance (m/s²) Note 1)			150/30	
Enclosure*			Dustproof (DIN terminal: IP65 Note 2))	

* Based on IEC60529

Note 1) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Value in the initial state)

Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz. Test was performed to axis and right angle directions of the main valve and armature when pilot signal is ON and OFF. (Value in the initial state)

Note 2) When IP65 compliant DIN terminals are selected: VQZ$^{2}_{3}$□51□-□Y□□W1-□-□

Options

High speed response type
High pressure type (Metal seal type only)
External pilot type*

* For details on external pilot type, refer to page 966.

Made to Order

(For details, refer to page 975.)

Symbol	Description
X30	Pilot valve common exhaust
X90	Main valve fluoro-rubber
X113	All fluoro-rubber

Solenoid Specifications

			Grommet (G) L-type plug connector (L)	M-type plug connector (M) DIN terminal (Y)
Electrical entry			G, L, M	Y
Coil rated voltage (V)	**DC**		24, 12	
	AC 50/60 Hz		100, 110, 200, 220*	
Allowable voltage fluctuation			±10% of rated voltage	
Power consumption (W)	**DC**	**Standard**	0.35 [(With light: 0.4 (DIN terminal with light: 0.45)]	
		High speed response, high pressure	0.9 [(With light: 0.95 (DIN terminal with light: 1.0)]	
Apparent power (VA)*	**AC**	**100V**	0.78 (With light: 0.81)	0.78 (With light: 0.87)
		110V [115V]	0.86 (With light: 0.89) [0.94 (With light: 0.97)]	0.86 (With light: 0.87) [0.94 (With light: 1.07)]
		200V	1.18 (With light: 1.22)	1.15 (With light: 1.30)
		220V [230V]	1.30 (With light: 1.34) [1.42 (With light: 1.46)]	1.27 (With light: 1.46) [1.39 (With light: 1.60)]
Surge voltage suppressor			Varistor	
Indicator light			LED (Neon light when AC with DIN terminal)	

* In common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.
* For 115 VAC and 230 VAC, the allowable voltage is –15% to +5% of rated voltage.

Flow Characteristics

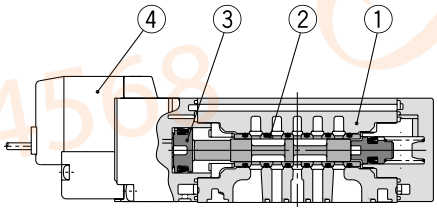
Series	Configuration		Model		Flow characteristics 1→4/2 (P→A/B) C [dm³/(s•bar)]	b	Cv	Flow characteristics 4/2→5/3 (A/B→EA/EB) C [dm³/(s•bar)]	b	Cv	Response time (ms) Note 1) Standard: 0.35 W	High speed response: 0.9 W	High pressure: 0.9 W	AC	Note 2) Mass (g)
VQZ1000	2 position	Single	Metal seal	**VQZ1150**	0.70	0.21	0.17	0.70	0.21	0.17	17 or less	12 or less	15 or less	29 or less	40
			Rubber seal	**VQZ1151**	1.2	0.35	0.30	1.3	0.24	0.32	17 or less	12 or less	—	34 or less	
		Double	Metal seal	**VQZ1250**	0.70	0.21	0.17	0.70	0.21	0.17	10 or less	10 or less	13 or less	13 or less	57
			Rubber seal	**VQZ1251**	1.2	0.35	0.30	1.3	0.24	0.32	10 or less	10 or less	—	13 or less	
	3 position	Closed center	Metal seal	**VQZ1350**	0.56	0.20	0.13	0.57	0.22	0.14	25 or less	20 or less	26 or less	40 or less	60
			Rubber seal	**VQZ1351**	1.1	0.33	0.27	1.0	0.38	0.27	30 or less	25 or less	—	47 or less	
		Exhaust center	Metal seal	**VQZ1450**	0.56	0.20	0.13	0.70	0.21	0.17	25 or less	20 or less	26 or less	40 or less	
			Rubber seal	**VQZ1451**	1.1	0.33	0.27	1.3	0.24	0.32	30 or less	25 or less	—	47 or less	
		Pressure center	Rubber seal	**VQZ1551**	1.4	0.20	0.34	1.0	0.38	0.27	30 or less	25 or less	—	47 or less	
VQZ2000	2 position	Single	Metal seal	**VQZ2150**	1.6	0.13	0.36	1.9	0.16	0.40	18 or less	14 or less	18 or less	34 or less	61
			Rubber seal	**VQZ2151**	2.0	0.35	0.51	2.3	0.29	0.53	20 or less	15 or less	—	36 or less	
		Double	Metal seal	**VQZ2250**	1.6	0.13	0.36	1.9	0.16	0.40	10 or less	10 or less	13 or less	13 or less	80
			Rubber seal	**VQZ2251**	2.0	0.35	0.51	2.3	0.29	0.53	12 or less	12 or less	—	15 or less	
	3 position	Closed center	Metal seal	**VQZ2350**	1.5	0.16	0.35	1.3	0.26	0.32	28 or less	23 or less	30 or less	44 or less	87
			Rubber seal	**VQZ2351**	1.7	0.27	0.39	1.7	0.28	0.39	30 or less	25 or less	—	47 or less	
		Exhaust center	Metal seal	**VQZ2450**	1.5	0.16	0.35	1.9	0.16	0.40	28 or less	23 or less	30 or less	44 or less	
			Rubber seal	**VQZ2451**	1.7	0.27	0.39	2.3	0.29	0.53	30 or less	25 or less	—	47 or less	
		Pressure center	Metal seal	**VQZ2550**	1.8	0.13	0.39	1.5	0.26	0.36	28 or less	23 or less	30 or less	44 or less	
			Rubber seal	**VQZ2551**	2.0	0.35	0.50	1.7	0.28	0.39	30 or less	25 or less	—	47 or less	
VQZ3000	2 position	Single	Metal seal	**VQZ3150**	2.6	0.12	0.60	3.0	0.15	0.74	21 or less	17 or less	22 or less	34 or less	93
			Rubber seal	**VQZ3151**	3.9	0.29	1.0	4.6	0.26	1.2	33 or less	25 or less	—	57 or less	
		Double	Metal seal	**VQZ3250**	2.6	0.12	0.60	3.0	0.15	0.74	10 or less	10 or less	13 or less	13 or less	110
			Rubber seal	**VQZ3251**	3.9	0.29	1.0	4.6	0.26	1.2	15 or less	15 or less	—	20 or less	
	3 position	Closed center	Metal seal	**VQZ3350**	2.4	0.12	0.58	2.8	0.16	0.65	33 or less	25 or less	33 or less	53 or less	121
			Rubber seal	**VQZ3351**	3.1	0.33	0.82	3.6	0.35	0.97	35 or less	30 or less	—	59 or less	
		Exhaust center	Metal seal	**VQZ3450**	2.4	0.12	0.58	3.0	0.15	0.74	33 or less	25 or less	33 or less	53 or less	
			Rubber seal	**VQZ3451**	3.9	0.33	0.82	4.6	0.26	1.2	35 or less	30 or less	—	59 or less	
		Pressure center	Metal seal	**VQZ3550**	3.0	0.12	0.69	2.9	0.16	0.65	33 or less	25 or less	33 or less	53 or less	
			Rubber seal	**VQZ3551**	4.4	0.27	1.1	3.6	0.35	0.97	35 or less	30 or less	—	59 or less	

Note 1) Based on JIS B 8375-1981 (Supply pressure: 0.5 MPa; with light/surge voltage suppressor: clean air)
Response time values will change depending on pressure and air quality. The values at the time of ON are given for double types.

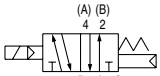
Note 2) Weight without sub-plate

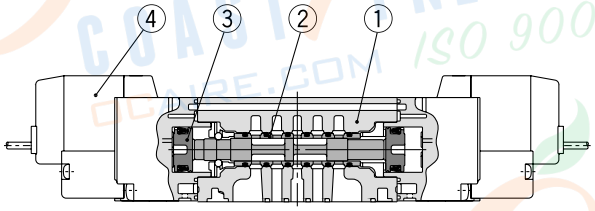
Construction: VQZ1000/2000/3000

Metal seal type

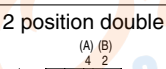


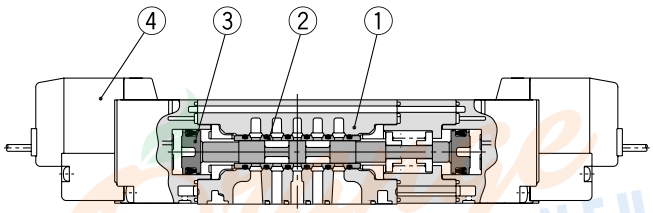
2 position single



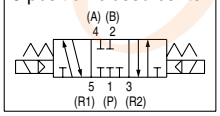


2 position double

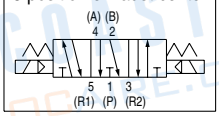




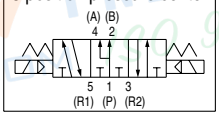
3 position closed center



3 position exhaust center

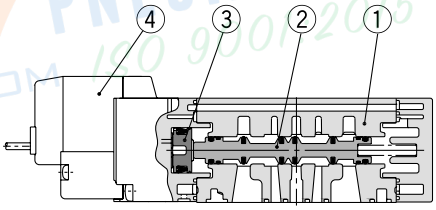


3 position pressure center

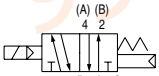


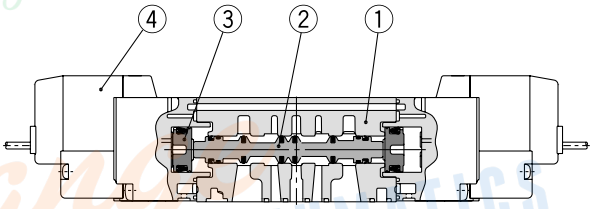
Note) Except metal seal type of the VQZ1000.

Rubber seal type

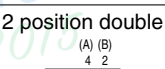


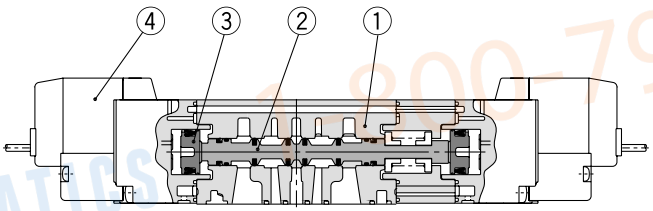
2 position single



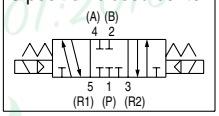


2 position double

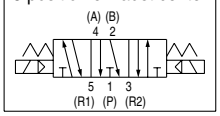




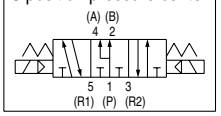
3 position closed center



3 position exhaust center



3 position pressure center



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted	
2	**Spool, Sleeve**	Stainless steel	Metal seal
	Spool valve	Aluminum/HNBR	Rubber seal
3	**Piston**	Resin	
4	**Pilot valve assembly**	—	

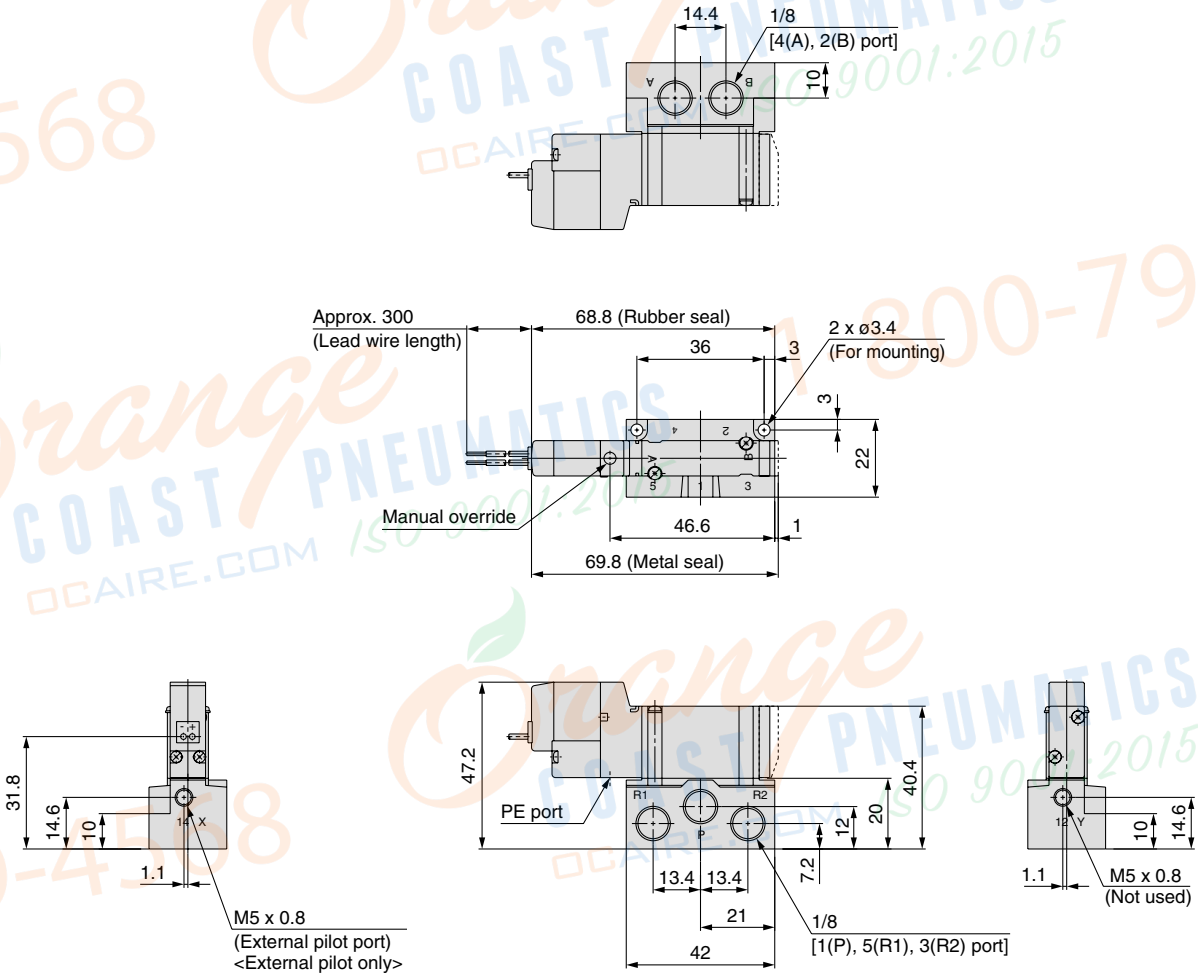
Note) For “How to Order Pilot Valve Assembly”, refer to page 967.

SMC

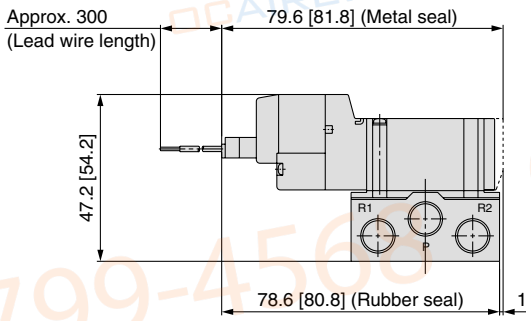
Dimensions: VQZ1000

2 Position Single/3 Port for Mixture Mounting

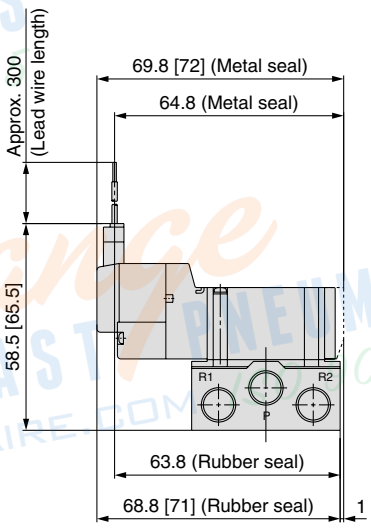
Grommet (G): VQZ1$^{1}_{9}$5$^{0}_{1}$(R)-□G□1-01



L-type plug connector (L): VQZ1$^{1}_{9}$5$^{0}_{1}$(R)-□L□1-01



M-type plug connector (M): VQZ1$^{1}_{9}$5$^{0}_{1}$(R)-□M□1-01



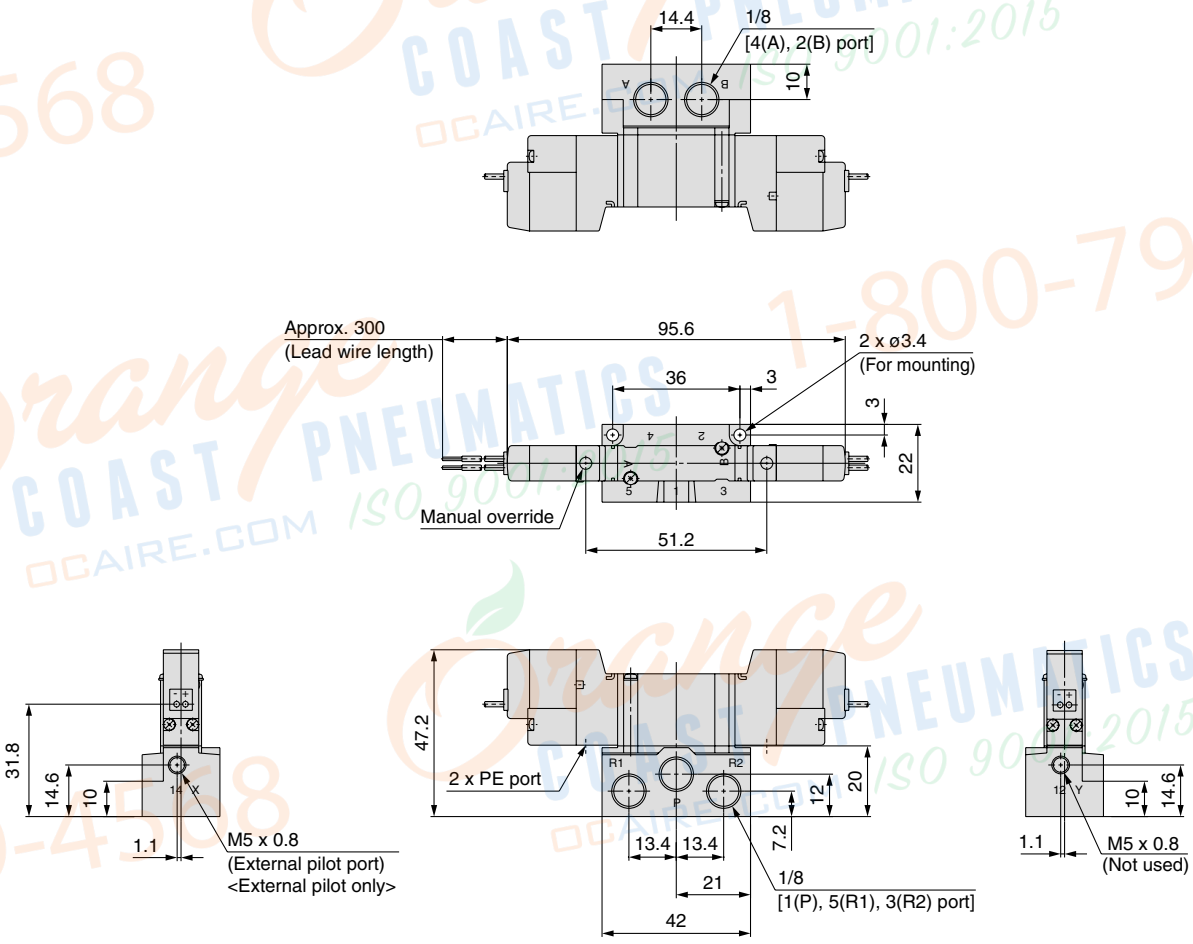
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

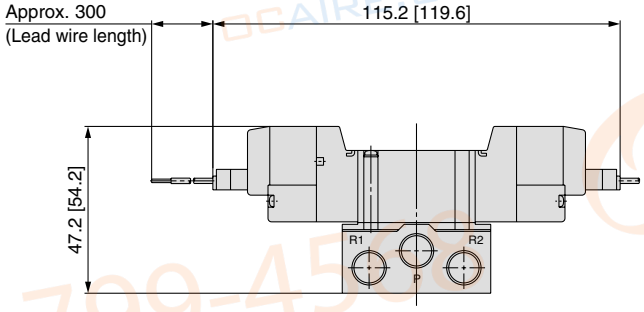
Dimensions: VQZ1000

2 Position Double

Grommet (G): VQZ125⁰₁(R)-□G□1-01

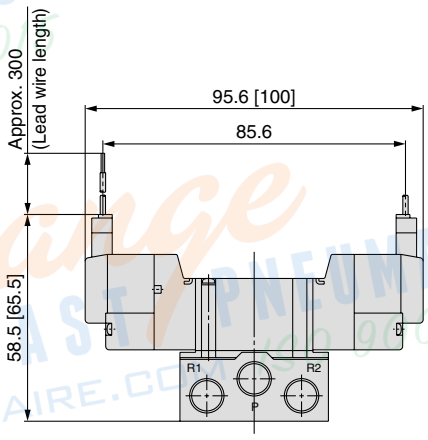


L-type plug connector (L): VQZ125⁰₁(R)-□L□1-01



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M): VQZ125⁰₁(R)-□M□1-01

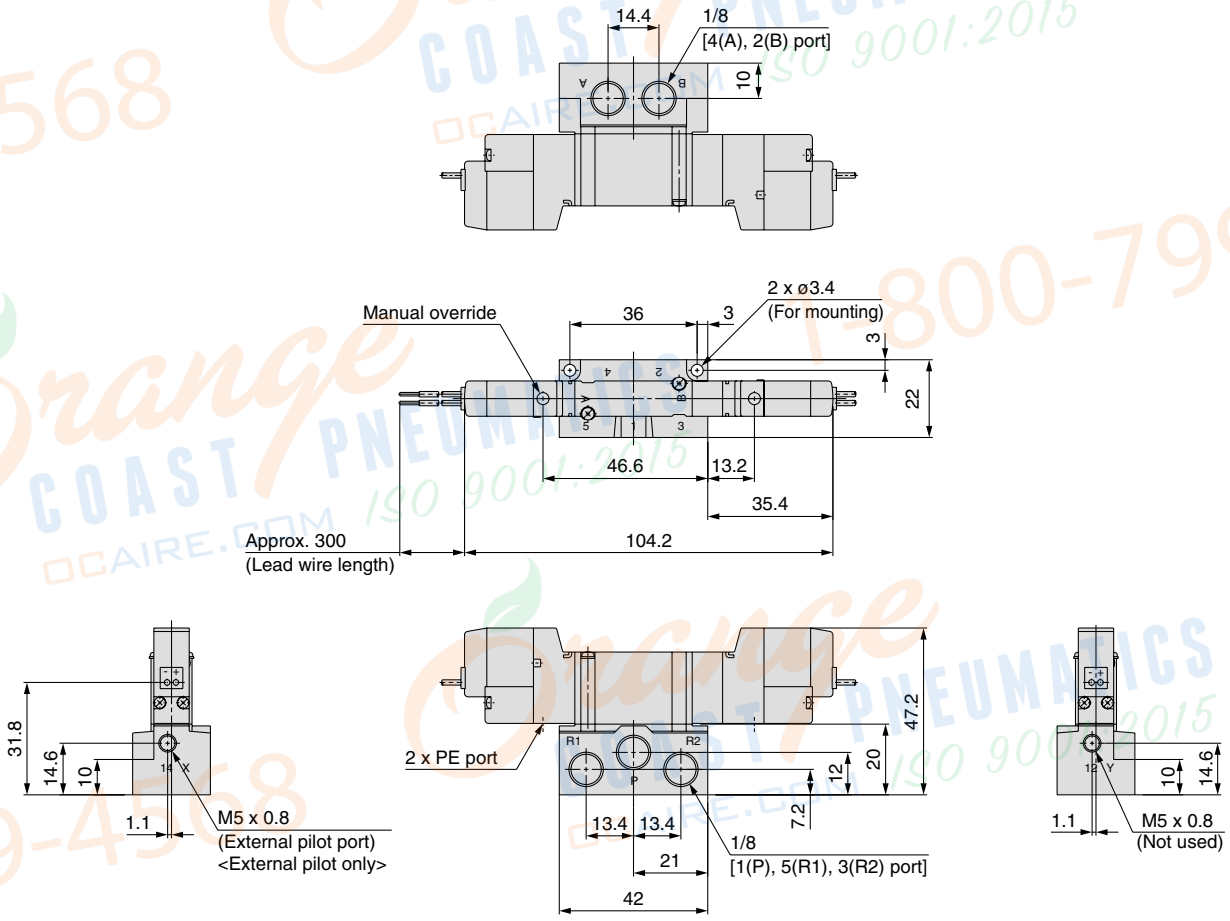


Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

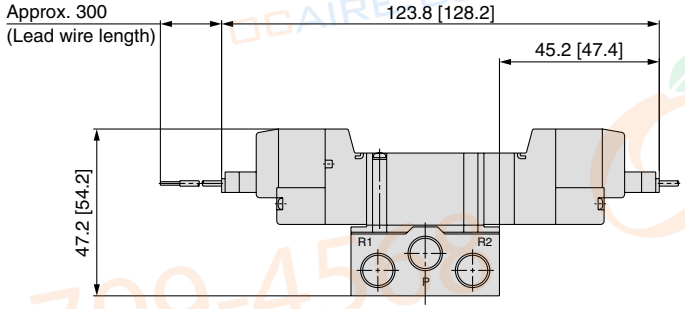
Dimensions: VQZ1000

3 Position Closed Center/Exhaust Center/Pressure Center (Except metal seal type)

Grommet (G): VQZ1$^{3}_{4}_{5}$5$^{0}_{1}$(R)-□G□1-01

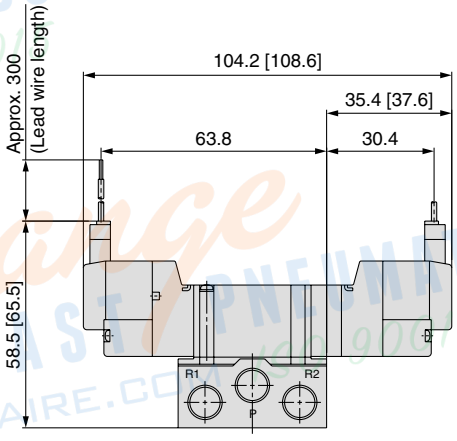


L-type plug connector (L): VQZ1$^{3}_{4}_{5}$5$^{0}_{1}$(R)-□L□1-01



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M): VQZ1$^{3}_{4}_{5}$5$^{0}_{1}$(R)-□M□1-01

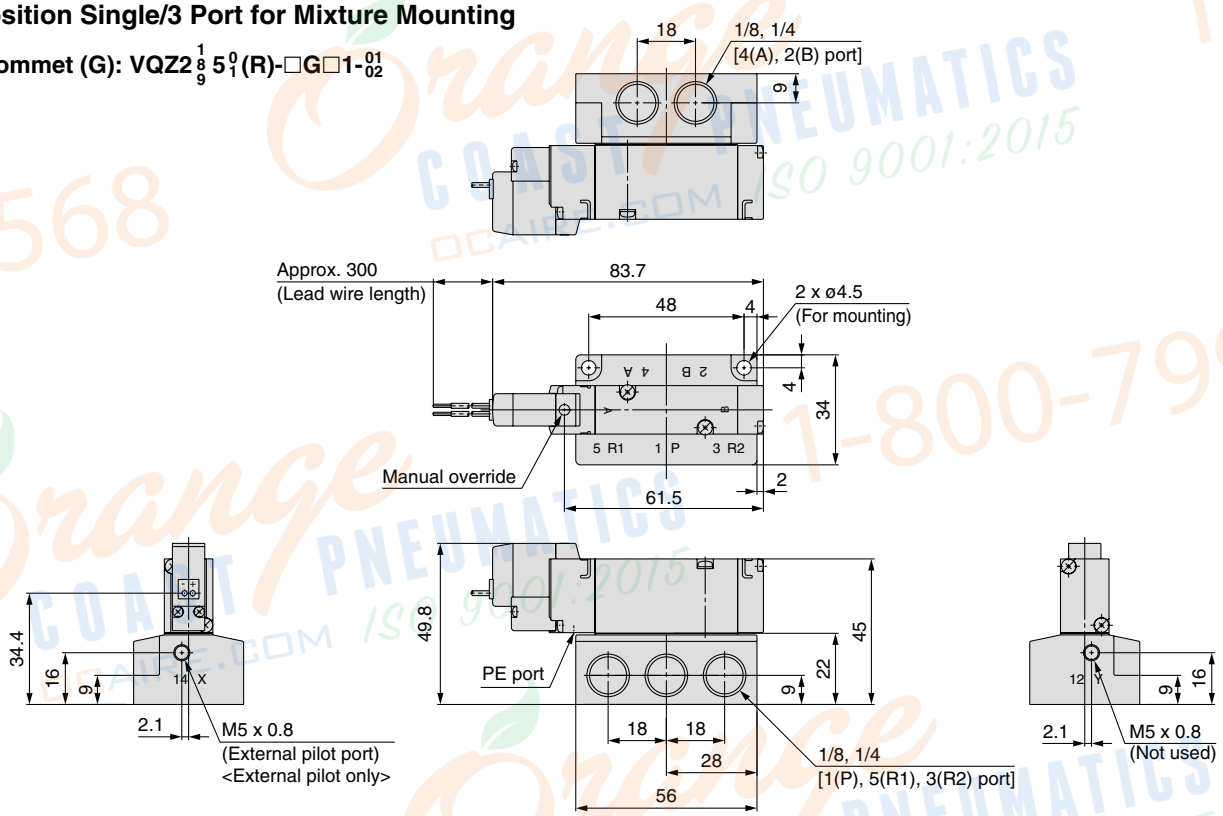


Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

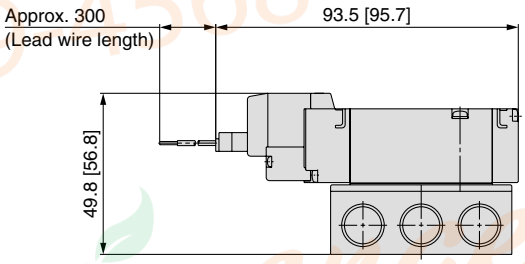
Dimensions: VQZ2000

2 Position Single/3 Port for Mixture Mounting

Grommet (G): VQZ2$^{1}_{9}$5$^{0}_{1}$(R)-□G□1-$^{01}_{02}$

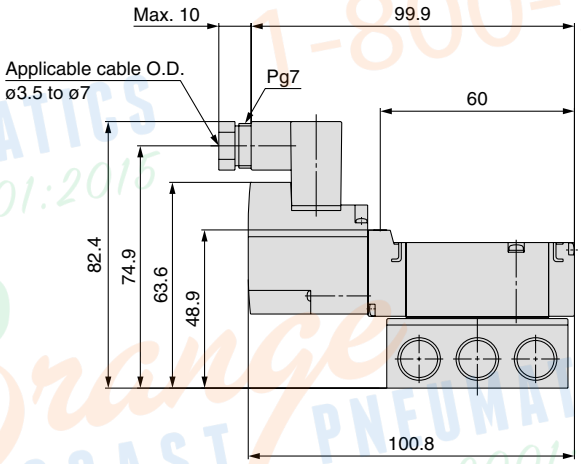


L-type plug connector (L): VQZ2$^{1}_{9}$5$^{0}_{1}$(R)-□L□1-$^{01}_{02}$



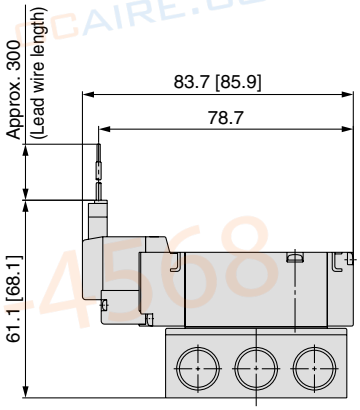
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y): VQZ2$^{1}_{9}$5$^{0}_{1}$(R)-□Y□1-$^{01}_{02}$



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M): VQZ2$^{1}_{9}$5$^{0}_{1}$(R)-□M□1-$^{01}_{02}$

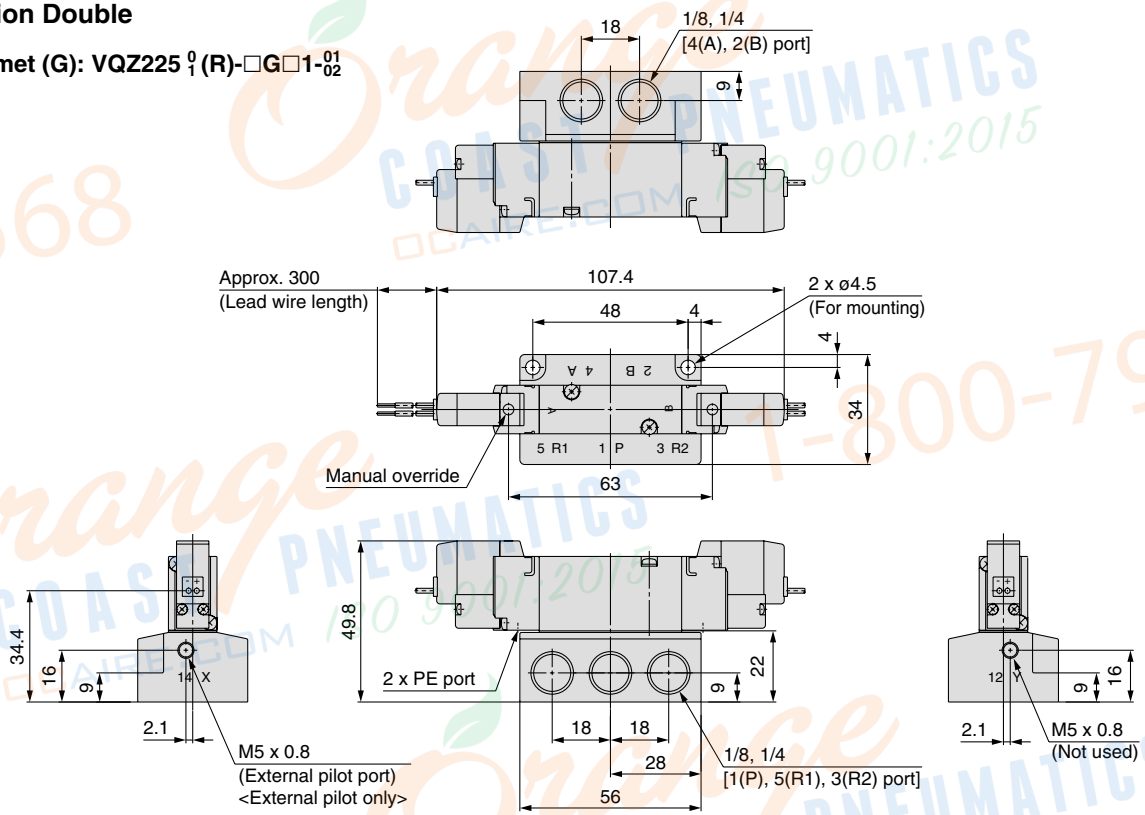


Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

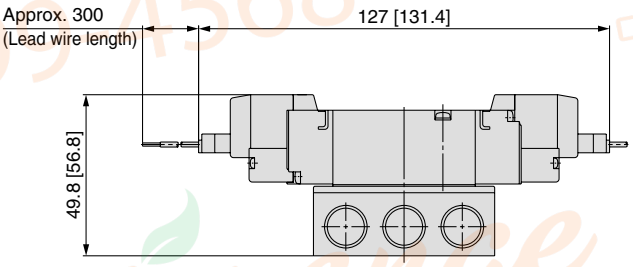
Dimensions: VQZ2000

2 Position Double

Grommet (G): VQZ225$^{0}_{1}$(R)-□G□1-$^{01}_{02}$

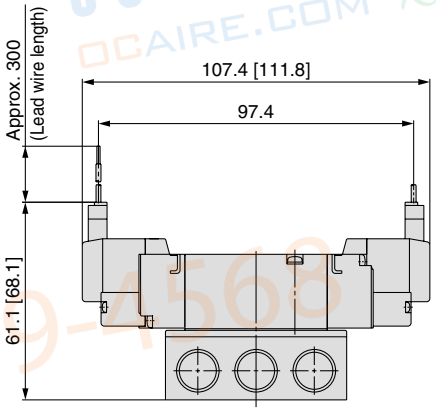


L-type plug connector (L): VQZ225$^{0}_{1}$(R)-□L□1-$^{01}_{02}$



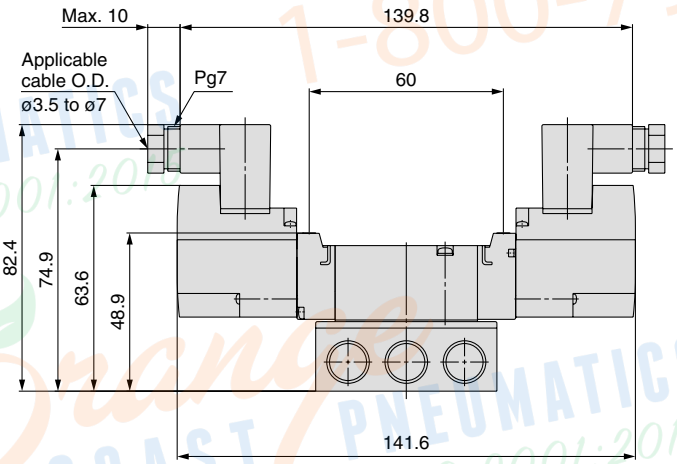
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M): VQZ225$^{0}_{1}$(R)-□M□1-$^{01}_{02}$



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y): VQZ225$^{0}_{1}$(R)-□Y□1-$^{01}_{02}$

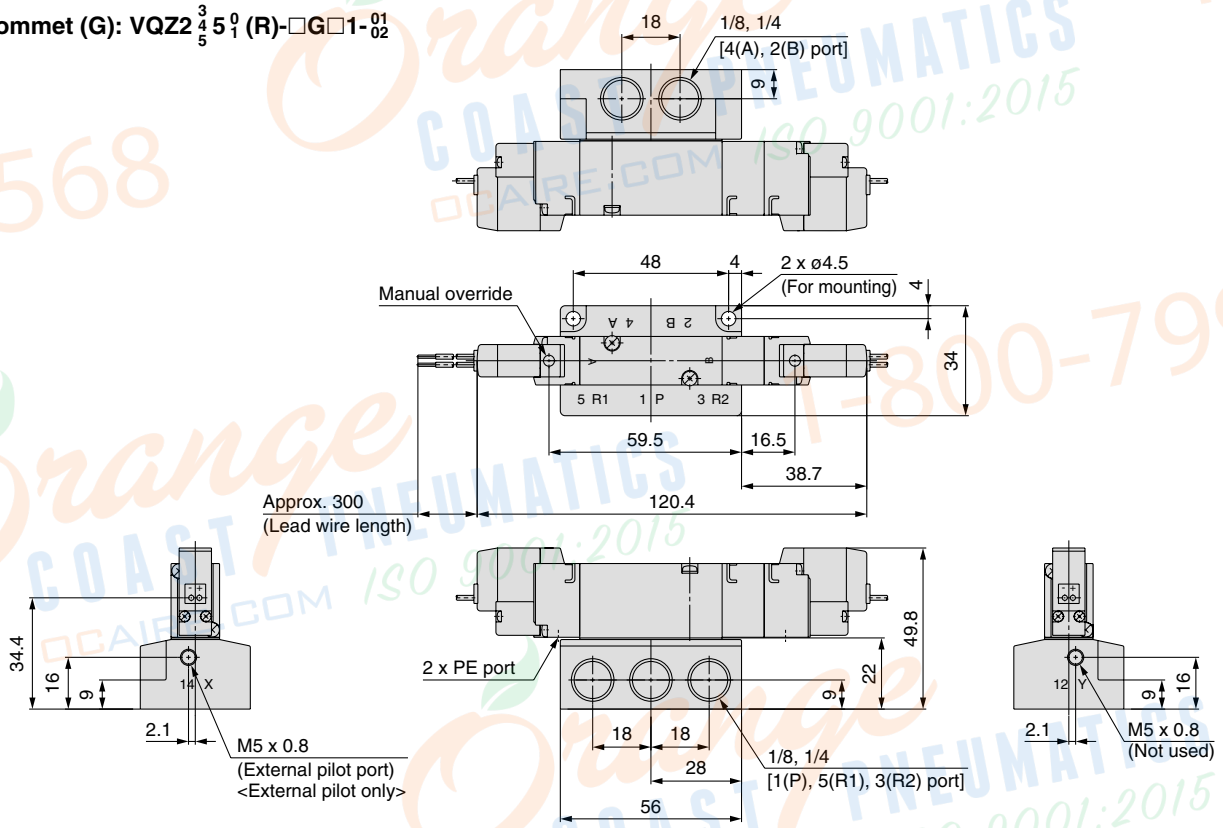


Unless otherwise indicated, dimensions are the same as Grommet (G).

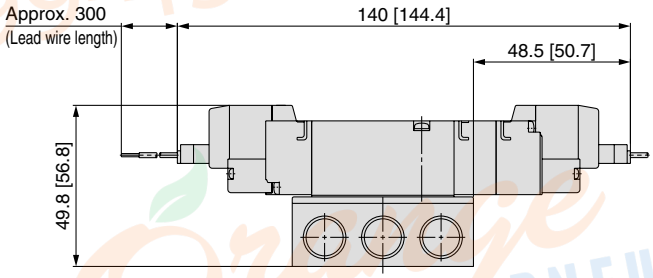
Dimensions: VQZ2000

3 Position Closed Center/Exhaust Center/Pressure Center

Grommet (G): VQZ2$^{3}_{4}_{5}$5$^{0}_{1}$ (R)-□G□1-$^{01}_{02}$

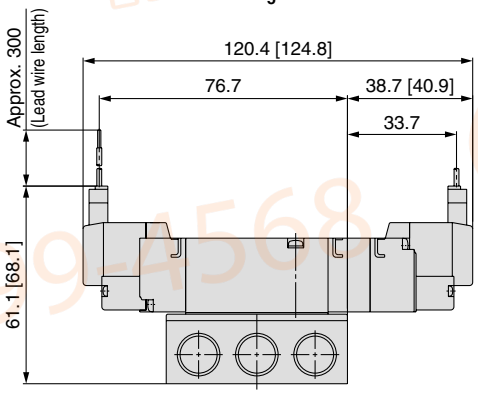


L-type plug connector (L): VQZ2$^{3}_{4}_{5}$5$^{0}_{1}$ (R)-□L□1-$^{01}_{02}$



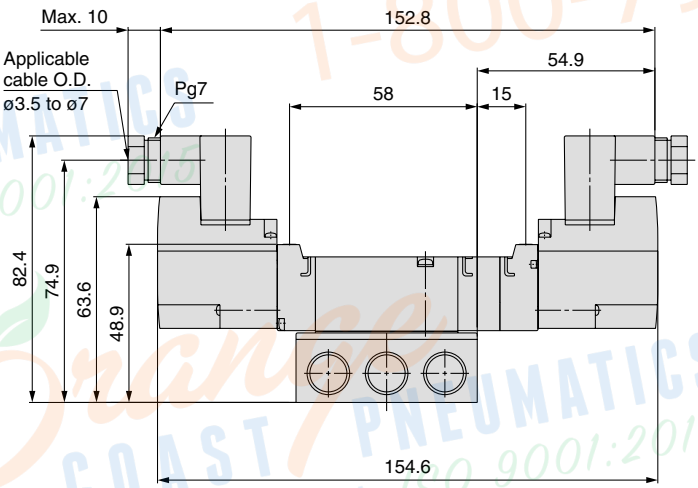
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M): VQZ2$^{3}_{4}_{5}$5$^{0}_{1}$ (R)-□M□1-$^{01}_{02}$



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y): VQZ2$^{3}_{4}_{5}$5$^{0}_{1}$ (R)-□Y□1-$^{01}_{02}$

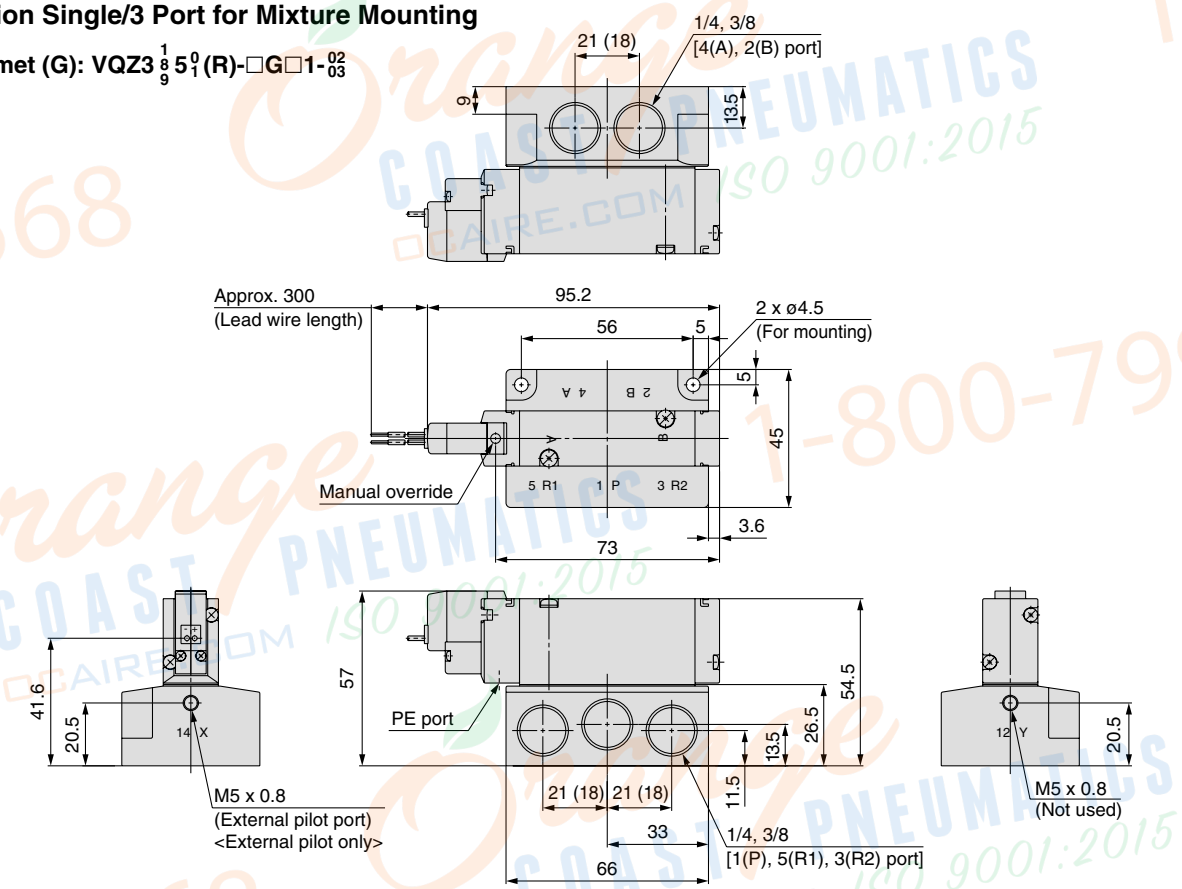


Unless otherwise indicated, dimensions are the same as Grommet (G).

Dimensions: VQZ3000

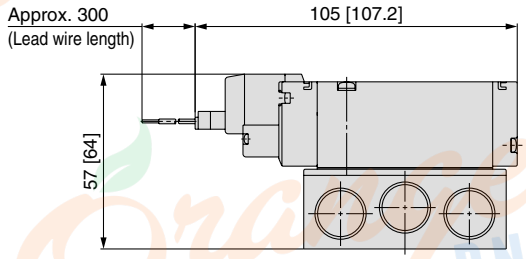
2 Position Single/3 Port for Mixture Mounting

Grommet (G): VQZ3$^{1}_{8}$$^{}_{9}5^{0}_{1}$(R)-□G□1-$^{02}_{03}$



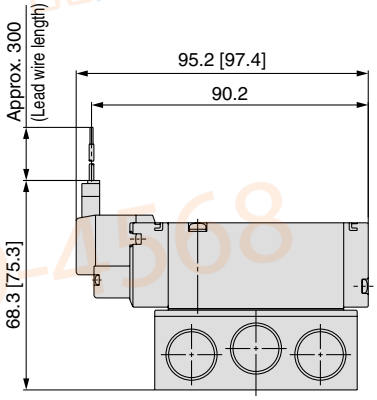
( ): VQZ315□-□G□1-02

L-type plug connector (L): VQZ3$^{1}_{8}$$^{}_{9}5^{0}_{1}$(R)-□L□1-$^{02}_{03}$



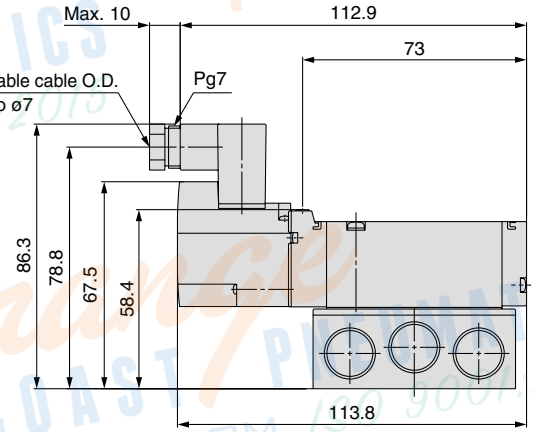
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M): VQZ3$^{1}_{8}$$^{}_{9}5^{0}_{1}$(R)-□M□1-$^{02}_{03}$



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y): VQZ3$^{1}_{8}$$^{}_{9}5^{0}_{1}$(R)-□Y□1-$^{02}_{03}$

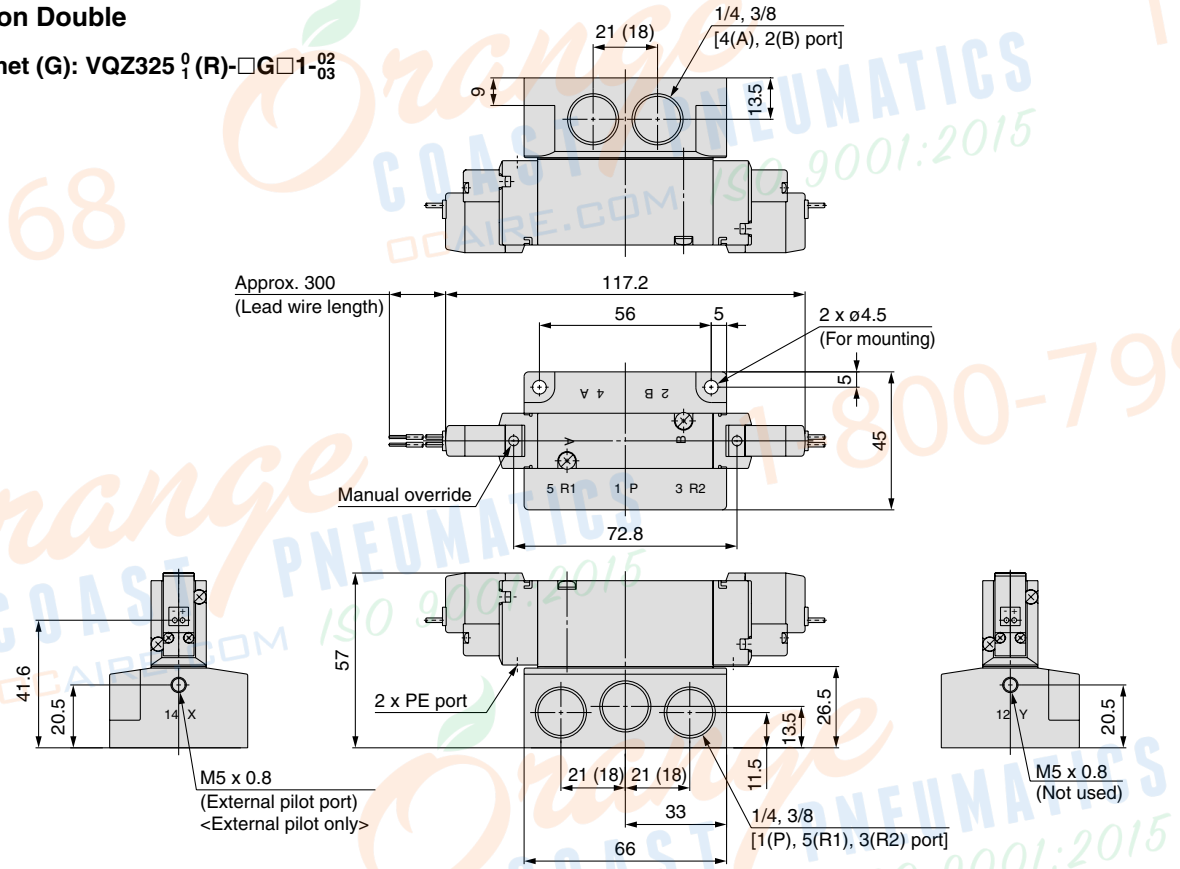


Unless otherwise indicated, dimensions are the same as Grommet (G).

Dimensions: VQZ3000

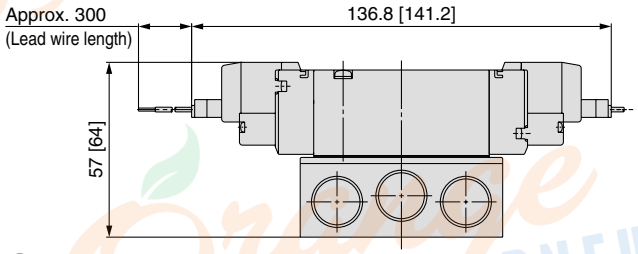
2 Position Double

Grommet (G): VQZ325$^{0}_{1}$(R)-□G□1-$^{02}_{03}$



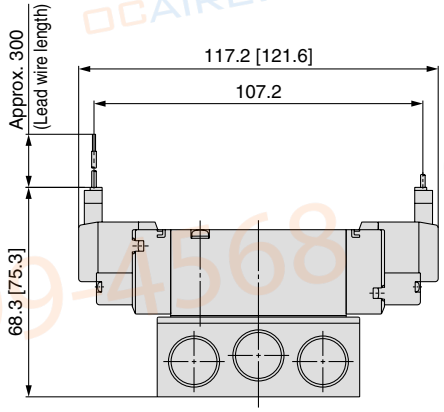
( ): VQZ325□-□G□1-02

L-type plug connector (L): VQZ325$^{0}_{1}$(R)-□L□1-$^{02}_{03}$



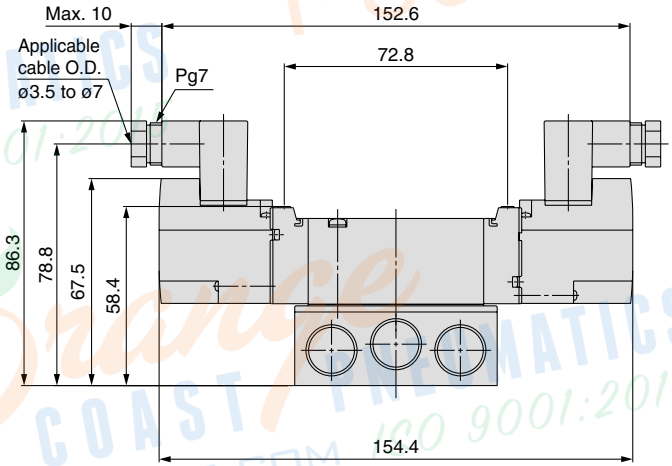
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M): VQZ325$^{0}_{1}$(R)-□M□1-$^{02}_{03}$



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y): VQZ325$^{0}_{1}$(R)-□Y□1-$^{02}_{03}$

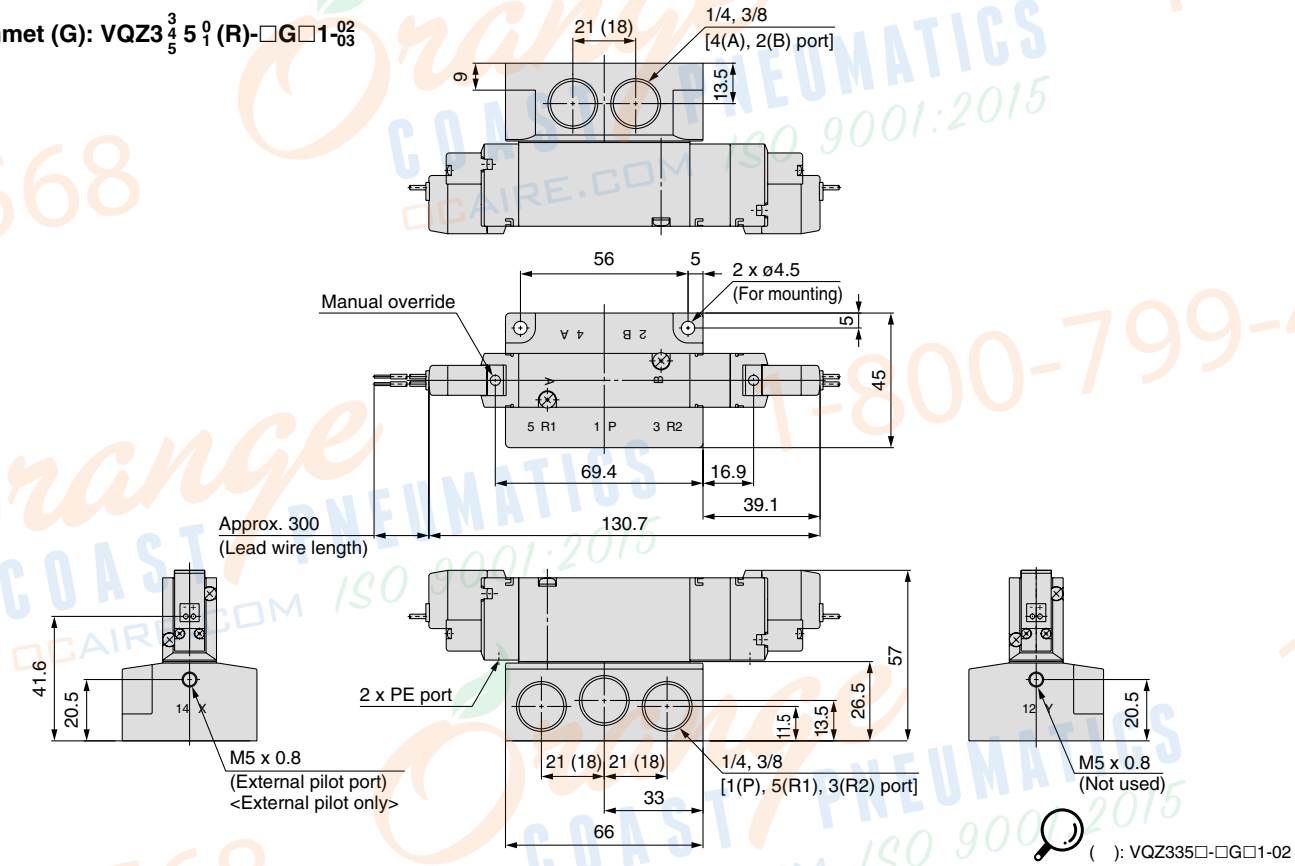


Unless otherwise indicated, dimensions are the same as Grommet (G).

Dimensions: VQZ3000

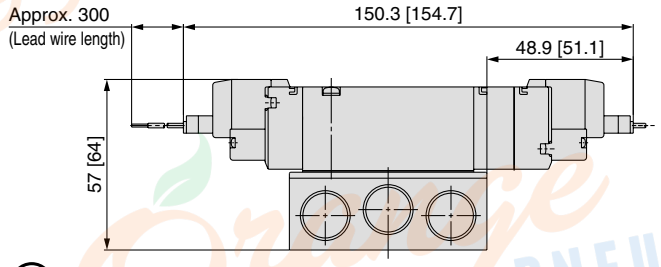
3 Position Closed Center/Exhaust Center/Pressure Center

Grommet (G): VQZ3$^{3}_{4}$5$^{0}_{1}$ (R)-□G□1-$^{02}_{03}$



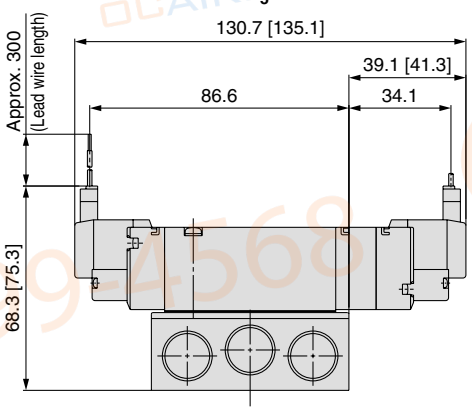
( ): VQZ335□-□G□1-02

L-type plug connector (L): VQZ3$^{3}_{4}$5$^{0}_{1}$ (R)-□L□1-$^{02}_{03}$



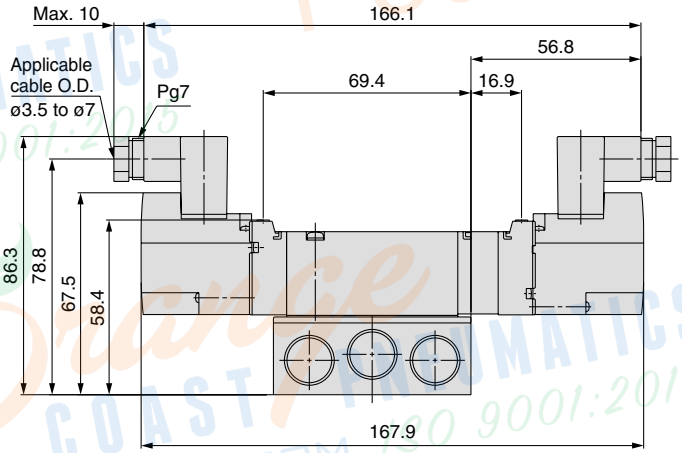
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M): VQZ3$^{3}_{4}$5$^{0}_{1}$ (R)-□M□1-$^{02}_{03}$



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y): VQZ3$^{3}_{4}$5$^{0}_{1}$ (R)-□Y□1-$^{02}_{03}$



Unless otherwise indicated, dimensions are the same as Grommet (G).

Base Mounted

Plug Lead Unit

5 Port Solenoid Valve

Series VQZ1000/2000/3000

Manifold Connector Kit

CE [Option]

How to Order Manifold

Made to Order (For details, refer to page 975.)

VV5QZ 1 5 — 08 C6 C — N — ☐

Series

1	VQZ1000
2	VQZ2000
3	VQZ3000

Manifold type

5	Base mounted

Stations

02	2 stations
⋮	⋮
20	20 stations

Port size [4(A), 2(B) port]

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
C3	ø3.2 one-touch fitting	○	—	—
C4	ø4 one-touch fitting	○	○	—
C6	ø6 one-touch fitting	○	○	○
C8	ø8 one-touch fitting	—	○	○
C10	ø10 one-touch fitting	—	—	○
M5	M5 thread	○	—	—
01	Rc 1/8	—	○	—
02	Rc 1/4	—	—	○
CM Note 1)	Mixture of port sizes	○	○	○

Note 1) Specify port mixture/with port plug by the manifold specification sheet. Port mixture and port plug are available only for one-touch fitting type.
Note 2) For inch size one-touch fittings, refer to page 966.

Kit type

C	Connector

CE compliant

Nil	—
Q	CE marked

Option

Nil	None
D	DIN rail mounting (With standard DIN rail length)
D0 Note 1)	DIN rail mounting (Without DIN rail)
N	Name plate (Except VQZ1000)
R Note 1)	External pilot type

Note 1) Order DIN rail separately. For DIN rail part no., refer to page 960.
Note 2) For details on options and external pilot type, refer to page 966.
Note 3) When two or more symbols are specified, indicate them alphabetically.

How to Order Valve

VQZ 1 1 5 1 ☐ — 5 M ☐ ☐ 1 — ☐

Series

1	VQZ1000 body width 10 mm
2	VQZ2000 body width 15 mm
3	VQZ3000 body width 18 mm

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5 Note)	3 position pressure center
8	3 port for mixture mounting N.C.
9	3 port for mixture mounting N.O.

Note) There is no 3 position pressure center for the metal seal type of the VQZ1000 series.

Body type

5	Mase mounted

Seal type

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC	AC
Nil	Standard	(0.35 W) ○	Note 3) ○
B Note 1)	High speed response type	(0.9 W) ○	—
K Note 1)	High pressure type (Metal seal type only)	(0.9 W) ○	—
R Note 1, 2)	External pilot type	○	○
BR Note 1, 2)	High speed response/ External pilot type	(0.9 W) ○	—
KR Note 1, 2)	High pressure/External pilot type (Metal seal type only)	(0.9 W) ○	—

Note 1) Option
Note 2) For details on external pilot type, refer to page 966.
Note 3) For AC specification power consumption, refer to page 943.

Manual override

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

Electrical entry

Symbol	Electrical entry	Light/surge voltage suppressor
G	Grommet (DC specification)	None
L	L-type plug connector with lead wire	Yes
LO	L-type plug connector without connector	
M	M-type plug connector with lead wire	
MO	M-type plug connector without connector	
Y Note 1)	DIN terminal	None
YO Note 1)	DIN terminal without connector	
YZ Note 1)	DIN terminal	Yes
YS Note 1)	DIN terminal (DC specification)	Yes
YOS Note 1)	DIN terminal without connector (DC specification)	(Without light)

Note 1) Applicable to the VQZ2000/3000. For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
Note 2) Standard lead wire length: 300 mm

Coil voltage

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3	110 VAC [115 VAC] (50/60 Hz)
4	220 VAC [230 VAC] (50/60 Hz)
5	24 VDC
6	12 VDC

CE compliant

Nil	—
Q	CE marked

Note) AC-type models that are CE compliant have DIN terminals only.

IP65 compliant

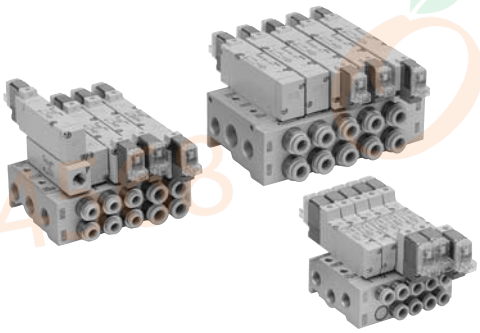
Nil	—
W Note)	Compliant

Note) VQZ2000/3000 DIN terminal rubber seal only (except external pilot). For details on IP65 enclosure, refer to page 966.

⚠ Caution

Use standard (DC) specification for continuous duty.

SMC



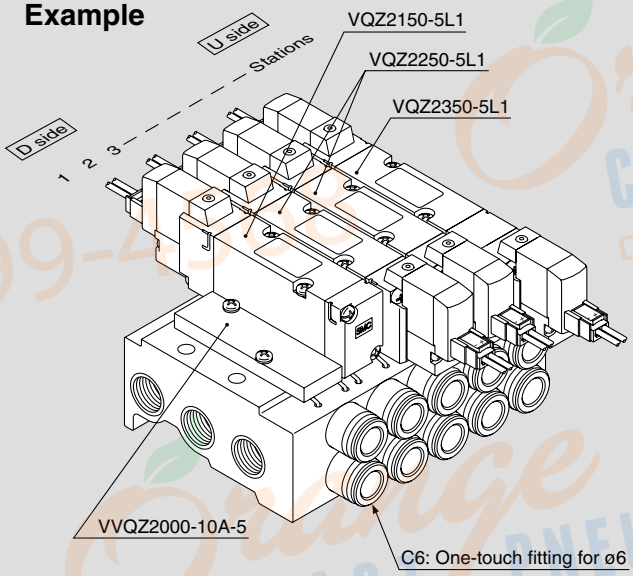
Manifold Specifications

Series	Base model	Piping specifications			Applicable solenoid valve	Applicable stations	Note) Manifold base mass (g)
		Piping direction	Port size				
			1(P), 3/5(R)	4(A), 2(B)			
VQZ1000	**VV5QZ15-□□□**	Side	Rc1/8	C3 (for ø3.2) C4 (for ø4) C6 (for ø6) M5 (M5 thread)	**VQZ1□50** **VQZ1□51**	2 to 20 stations	2 stations: 105 Addition per station: 27
VQZ2000	**VV5QZ25-□□□**	Side	Rc1/4	C4 (for ø4) C6 (for ø6) C8 (for ø8) Rc 1/8	**VQZ2□50** **VQZ2□51**	2 to 20 stations	2 stations: 193 Addition per station: 54
VQZ3000	**VV5QZ35-□□□**	Side	1(P) port Rc 3/8 3/5(R) port Rc 1/4	C6 (for ø6) C8 (for ø8) C10 (for ø10) Rc 1/4	**VQZ3□50** **VQZ3□51**	2 to 20 stations	2 stations: 398 Addition per station: 102

Note) Weight without sub-plate.

How to Order Manifold Assembly (Example)

Example



VV5QZ25-05C6C ··· **1 set (C kit 5-station manifold base part no.)**
* **VVQZ2000-10A-5** ··· **1 set (Blanking plate assembly part no.)**
* **VQZ2150-5L1** ····· **1 set (Single type part no.)**
* **VQZ2250-5L1** ····· **2 sets (Double type part no.)**
* **VQZ2350-5L1** ····· **1 set (3 position type part no.)**

→ **The asterisk denotes the symbol for assembly.**
Prefix it to the part nos. of the solenoid valve, etc.

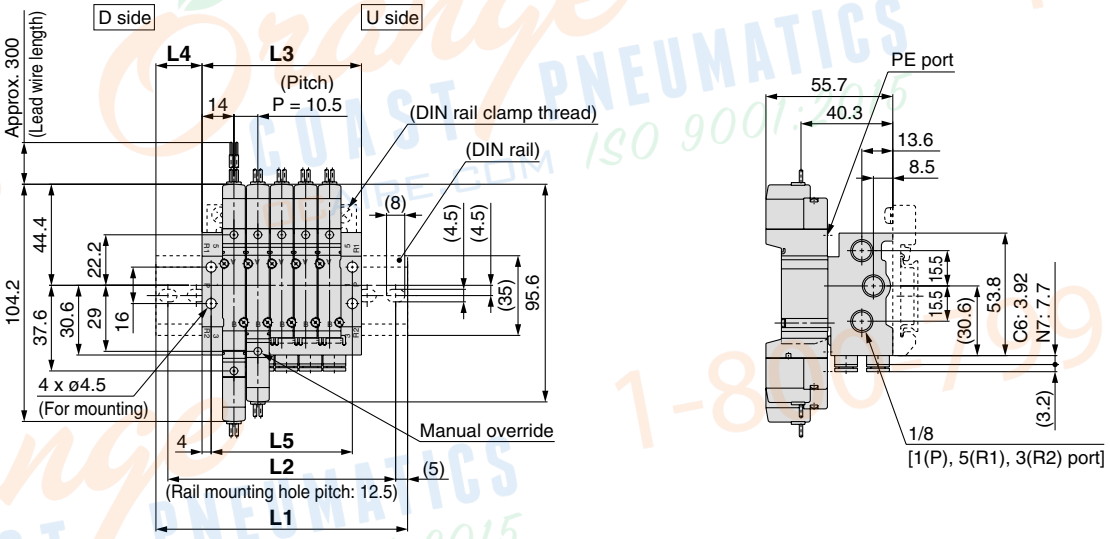
→ **Enter in order starting from the first station on the D side.**

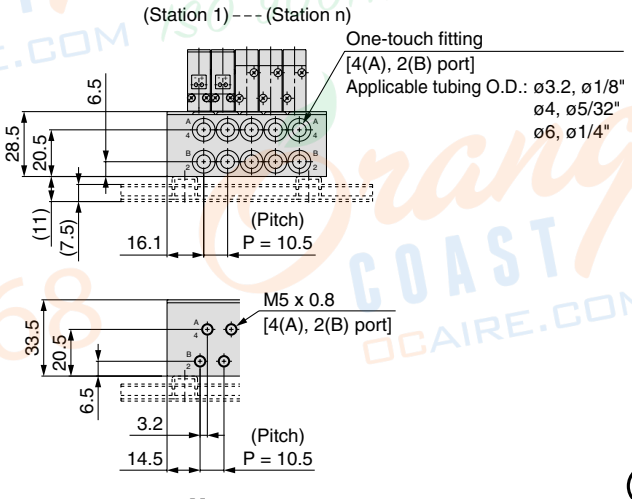
Add the valve and option part number under the manifold base part number.
When entry of part numbers becomes complicated, indicate by the manifold specification sheet.

Dimensions: VQZ1000

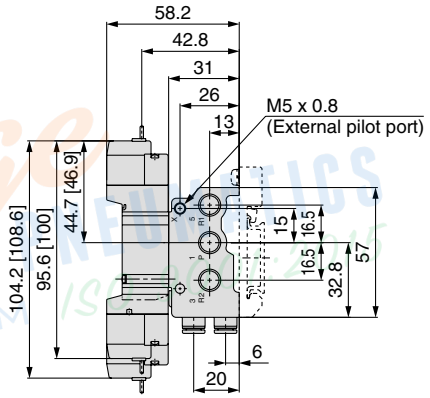
VV5QZ15-[Stations][Port size]C

Grommet (G)





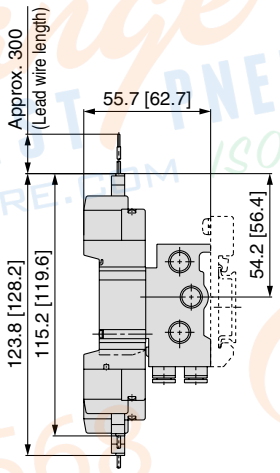
M5



External pilot

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

L-type plug connector (L)

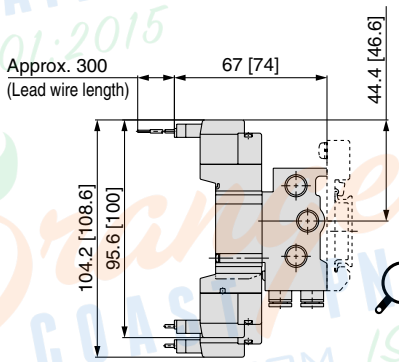


The dashed lines indicate the DIN rail mounting [-D].

Unless otherwise indicated, dimensions are the same as Gormmet (G).

[ ]: AC

M-type plug connector (M)



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

Unless otherwise indicated, dimensions are the same as Grommet (G).

[ ]: AC

Dimensions

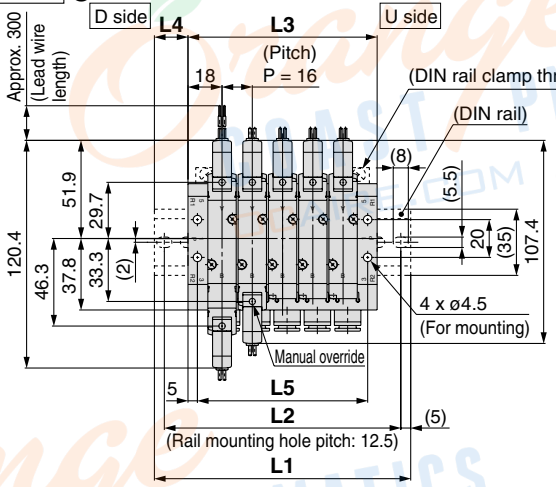
Formula: L1 = 10.5n + 9.5 L2 = 10.5n + 17.5 n: Stations (Max. 20 stations)

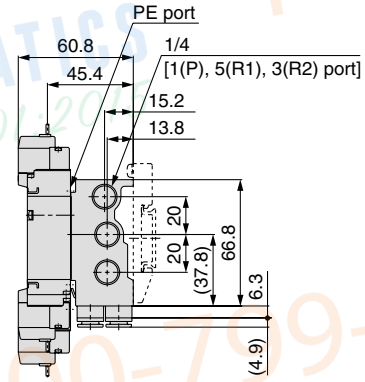
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	73	85.5	98	110.5	110.5	123	135.5	148	160.5	173	185.5	185.5	198	210.5	223	235.5	248	248	260.5
L2	62.5	75	87.5	100	100	112.5	125	137.5	150	162.5	175	175	187.5	200	212.5	225	237.5	237.5	250
L3	38.5	49	59.5	70	80.5	91	101.5	112	122.5	133	143.5	154	164.5	175	185.5	196	206.5	217	227.5
L4	17.5	18.5	19.5	20.5	15	16	17	18	19	20	21	16	17	18	19	20	21	15.5	16.5
L5	30.5	41	51.5	62	72.5	83	93.5	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5

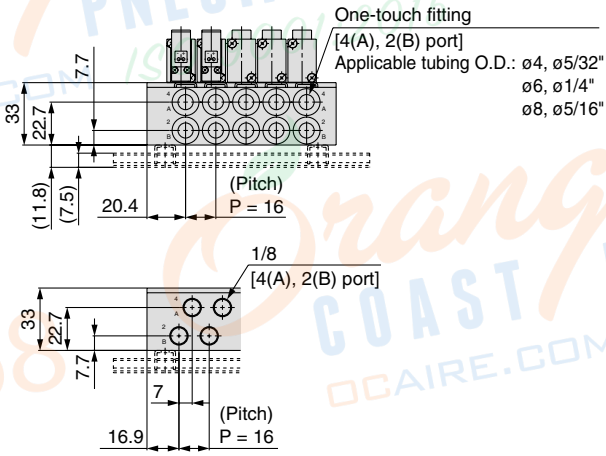
Dimensions: VQZ2000

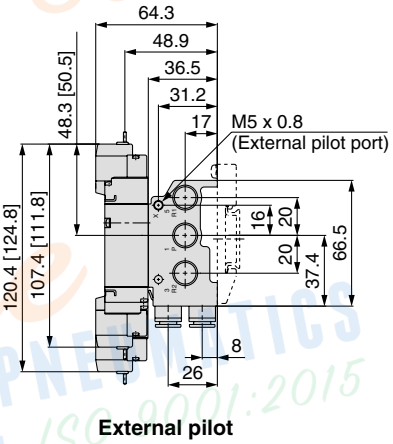
VV5QZ25- Stations Port size C

Grommet (G)







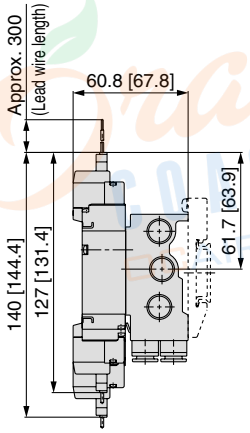


External pilot

1/8

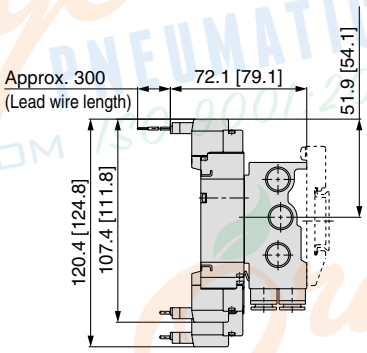
The dashed lines indicate the DIN rail mounting [-D].

L-type plug connector (L)



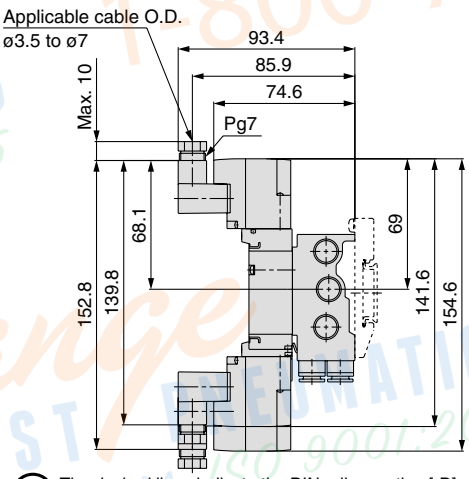
The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M)



The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y)



The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).

Dimensions

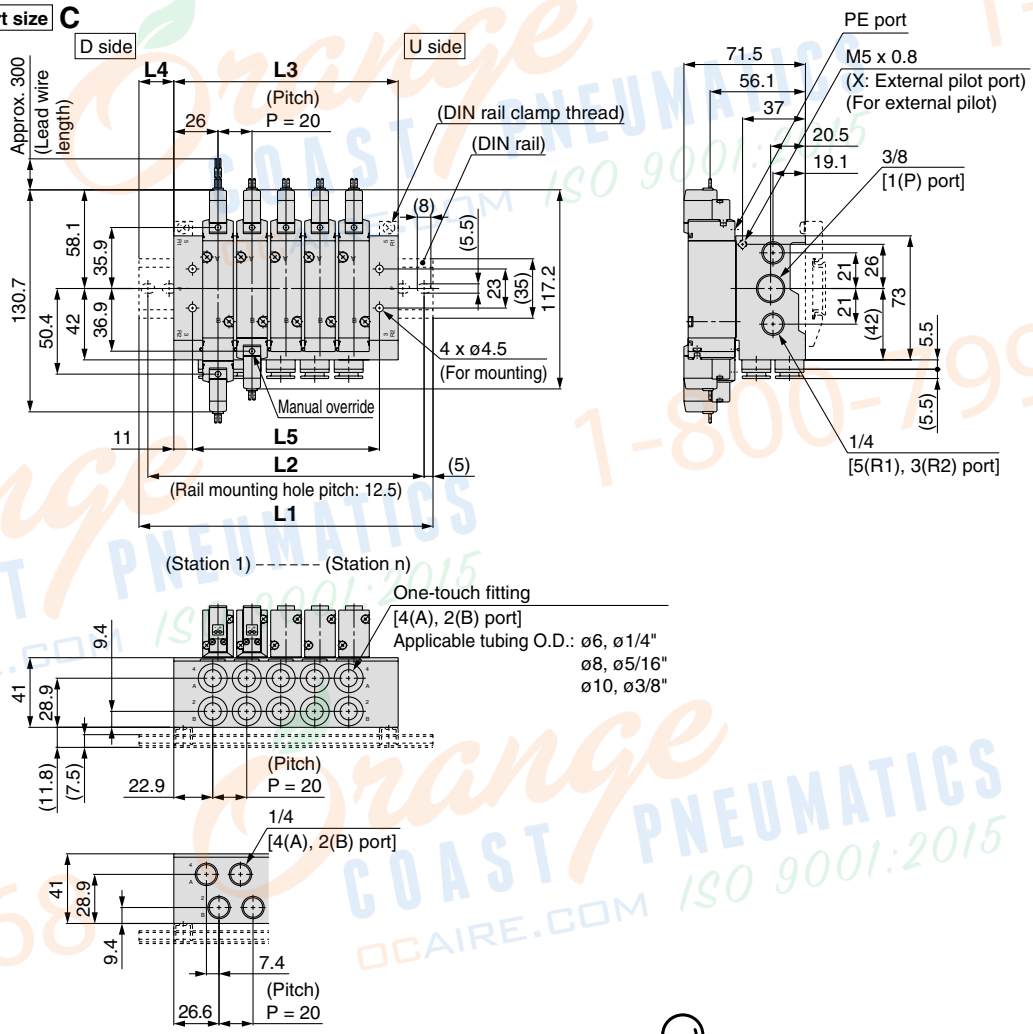
Formula: L1 = 16n + 10 L2 = 16n + 20 n: Stations (Max. 20 stations)

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	85.5	98	123	135.5	148	173	185.5	198	210.5	235.5	248	260.5	285.5	298	310.5	323	348	360.5	373
L2	75	87.5	112.5	125	137.5	162.5	175	187.5	200	225	237.5	250	275	287.5	300	312.5	337.5	350	362.5
L3	52	68	84	100	116	132	148	164	180	196	212	228	244	260	276	292	308	324	340
L4	17	15	19.5	18	16	20.5	19	17	15.5	20	18	16.5	21	19	17.5	15.5	20	18.5	16.5
L5	42	58	74	90	106	122	138	154	170	186	202	218	234	250	266	282	298	314	330

Dimensions: VQZ3000

VV5QZ35- Stations Port size C

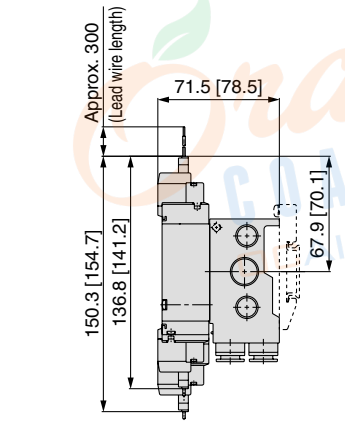
Grommet (G)



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

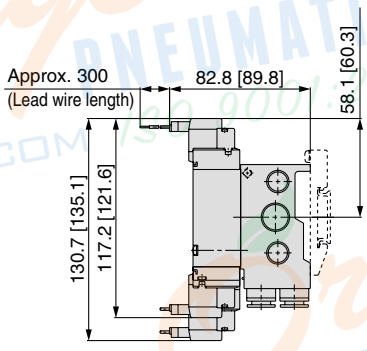
1/4

L-type plug connector (L)



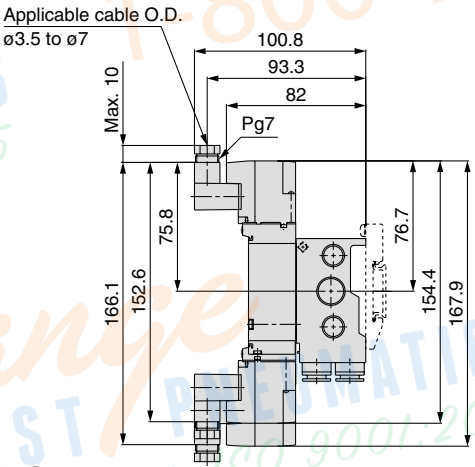
The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M)



The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

DIN terminal (Y)



The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as Grommet (G).

Dimensions

Formula: L1 = 20n + 10 L2 = 20n + 32 n: Stations (Max. 20 stations)

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	110.5	123	148	173	185.5	210.5	223	248	273	285.5	310.5	323	348	373	385.5	410.5	423	448	473
L2	100	112.5	137.5	162.5	175	200	212.5	237.5	262.5	275	300	312.5	337.5	362.5	375	400	412.5	437.5	462.5
L3	72	92	112	132	152	172	192	212	232	252	272	292	312	332	352	372	392	412	432
L4	19.5	15.5	18	20.5	17	19.5	15.5	18	20.5	17	19.5	15.5	18	20.5	17	19.5	15.5	18	20.5
L5	50	70	90	110	130	150	170	190	210	230	250	270	290	310	330	350	370	390	410

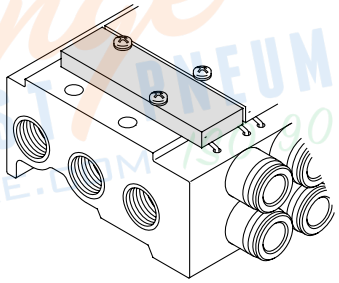
SMC

Manifold Options

Blanking plate assembly

VVQZ1000-10A-5 (for VQZ1000)
VVQZ2000-10A-5 (for VQZ2000)
VVQZ3000-10A-5 (for VQZ3000)

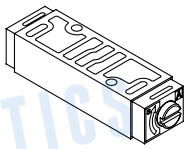
It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.

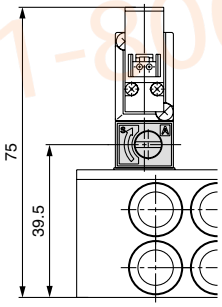


Restrictor spacer (Applicable to VQZ2000)

VVQZ2000-20A-5

Mount a restrictor spacer between manifold base and valve, and thus making it possible to control cylinder speed by meter-out.

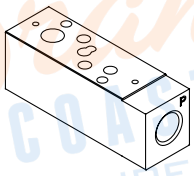


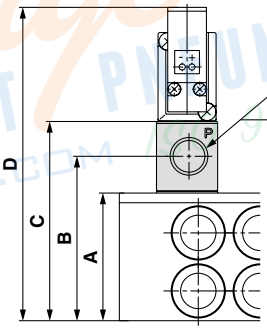


Individual SUP spacer

VVQZ1000-P-5-M5 (-Q) (for VQZ1000)
VVQZ2000-P-5-01 (-Q) (for VQZ2000)
VVQZ3000-P-5-02 (-Q) (for VQZ3000)

Supply port can be installed individually by mounting an individual supply spacer onto the manifold block. It's used for such cases that the different pressure should be supplied into each valve, etc.





Dimensions

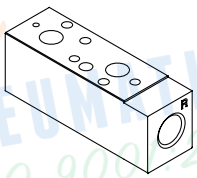
Model	A	B	C	D Note)
VQZ1000	29	35	40	67
VQZ2000	33	43	52	81
VQZ3000	41	52	63	93

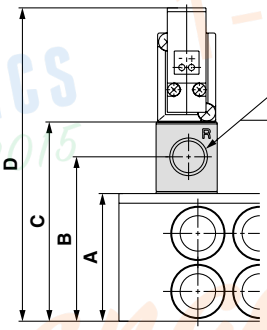
Note) Grommet

Individual EXH spacer

VVQZ1000-R-5-M5 (-Q) (for VQZ1000)
VVQZ2000-R-5-01 (-Q) (for VQZ2000)
VVQZ3000-R-5-02 (-Q) (for VQZ3000)

Exhaust port can be installed individually by mounting an individual exhaust spacer on to the manifold block. It's used for such cases that the valve exhaust is likely to affect other stations due to circuit, etc.





Dimensions

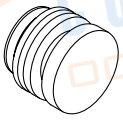
Model	A	B	C	D Note)
VQZ1000	29	35	40	67
VQZ2000	33	43	52	81
VQZ3000	41	52	63	93

Note) Grommet

Port plug

VVQZ1000-CP (for VQZ1000)
VVQZ2000-CP (for VQZ2000)
VVQZ3000-CP (for VQZ3000)

Used to block a cylinder port when changing 5 port valves into 3 port valves, etc.

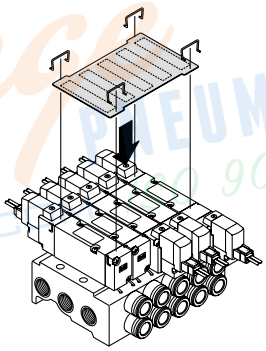


Manifold Options

Name plate [-N] (Applicable to VQZ2000/3000)

VVQZ2000-N5- Stations (for VQZ2000)

VVQZ3000-N5- Stations (for VQZ3000)



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

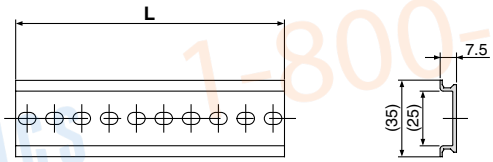
- To order a manifold with nameplate already attached, insert "N" at the end of the manifold number.

∗ 4 clips are attached for name plate mounting.

DIN rail

AXT100-DR-□

∗ As for □, enter the number from the DIN rail dimensions table. For L dimension, refer to the dimensions of each kit.



Each manifold can be mounted on a DIN rail.
Order it by indicating an option symbol for DIN rail mounting, -D.
The DIN rail is approximately 30 mm longer than the length of manifold.

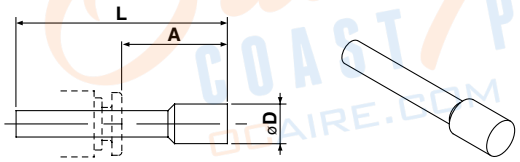
L Dimension L = 12.5n + 10.5

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L dimension	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5

No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L dimension	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

Blanking plug

KQ2P-23
KQ2P-04
KQ2P-06
KQ2P-08
KQ2P-10

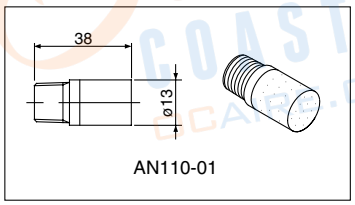


Dimensions (mm)

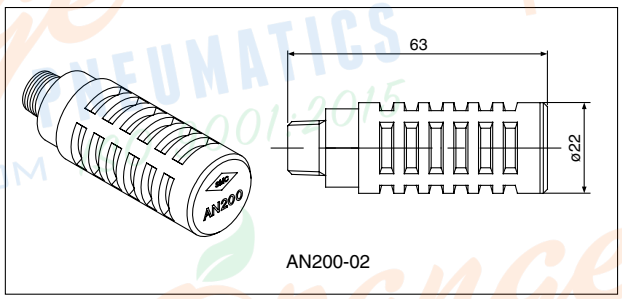
Applicable fitting size ød	Model	A	L	D
3.2	**KQ2P-23**	16	31.5	3.2
4	**KQ2P-04**	16	32	6
6	**KQ2P-06**	18	35	8
8	**KQ2P-08**	20.5	39	10
10	**KQ2P-10**	22	43	12

Silencer (for manifold EXH port)

Silencer is installed in the manifold EXH port.



AN110-01



AN200-02

Model	Silencer part no.
VQZ1000	AN110-01
VQZ2000	AN200-02
VQZ3000	AN200-02

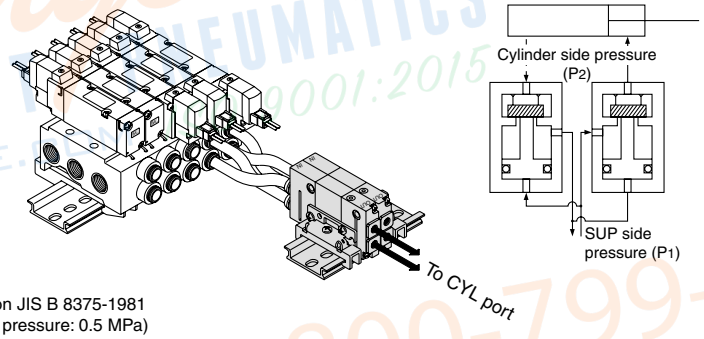
Manifold Options

Perfect block (Separated): For VQZ1000

VQ1000-FPG-□□

It is used on the outlet side piping to keep the cylinder in the intermediate position for a long time. Combining the perfect block with a built-in pilot type perfect valve and a 3 position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for a long time. The combination of a 2 position single or double solenoid with a perfect block will prevent the cylinder from "dropping" at stroke end when residual supply pressure is released.

<Check valve operating principle>



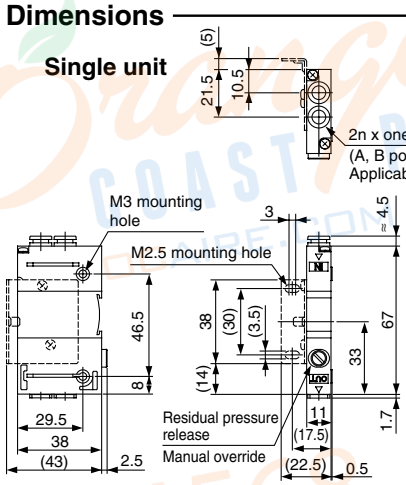
Specifications

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

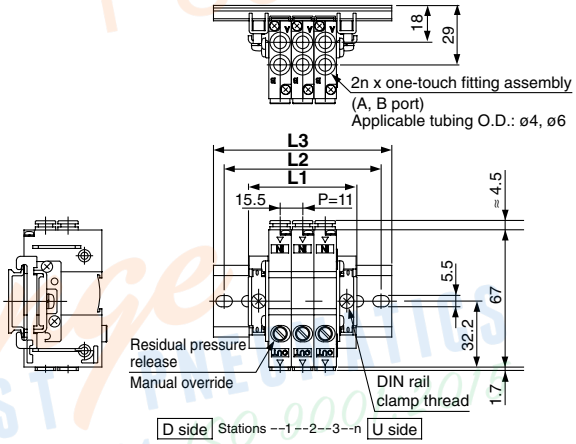
Note) Based on JIS B 8375-1981
(Supply pressure: 0.5 MPa)

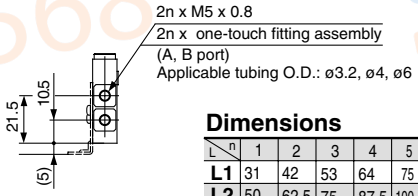
Dimensions

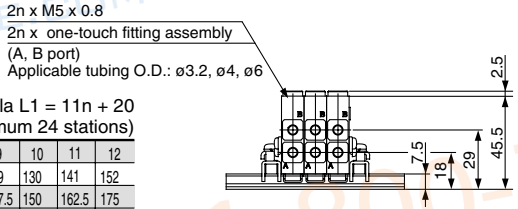
Single unit



Manifold







Dimensions

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

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

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

How to Order

Perfect block

VQ1000-FPG- **C4** **M5** **-** **F**

IN side port size

C4	ø4 one-touch fitting
C6	ø6 one-touch fitting

OUT side port size

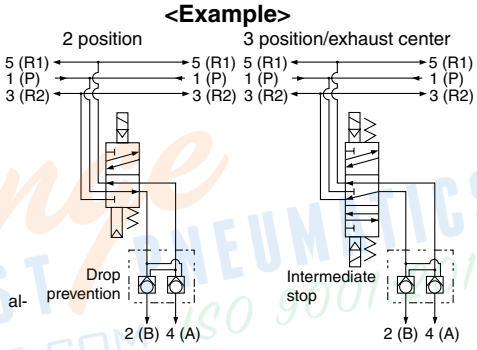
M5	M5 thread
C3	ø3.2 one-touch fitting
C4	ø4 one-touch fitting
C6	ø6 one-touch fitting

Option

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

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

<Example>



Manifold (DIN rail mounting style)

VVQ1000-FPG- **06**

Order DIN rail mounting style [-D] for perfect block.

Stations

01	1 station
⋮	⋮
16	16 stations

<Ordering Example>
VVQ1000-FPG-06 ···· 6 stations of manifold
* VQ1000-FPG-C4M5-D, 3 sets
* VQ1000-FPG-C6M5-D, 3 sets
} Perfect block

⚠Caution

- Since air leakage from the pipe between the valve and cylinder or the fittings will prevent the cylinder from stopping for a long time. Check for air leakage using neutral household detergent, such as dish washing soap. Also check the cylinder's tube gasket, piston packing and rod packing for air leakage.
- Since one-touch fittings allow slight air leakage, screw piping (with M5 thread) is recommended when stopping the cylinder in the middle for a long time.
- Combining perfect block with 3 position closed center or pressure center solenoid valve will not work.
- A M5 fitting assembly is attached, without being incorporated in the perfect block. After screwing in the fittings, mount the assembly on the perfect block. (Tightening torque: 0.8 to 1.2 N·m)
- If exhaust side of perfect block is narrowed down too much, intermediate stopping accuracy will be decreased.

<Bracket assembly>

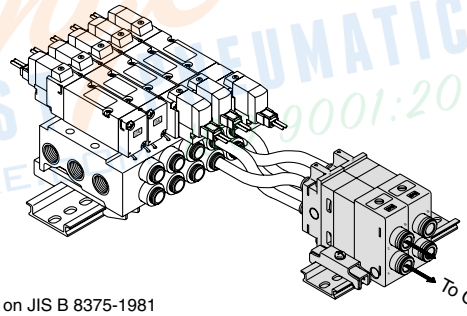
Part no.	Tightening torque Note)
VQ1000-FPG-FB	0.22 to 0.25 N•m

Note) It is the tightening torque for mounting a bracket for the perfect block.

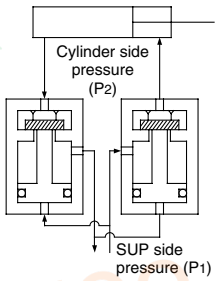
Manifold Options

Perfect block (Separated): For VQZ2000/3000
VQ2000-FPG-□□-□

It is used on the outlet side piping to keep the cylinder in the intermediate position for a long time. Combining the perfect block with a built-in pilot type perfect valve and a 3 position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for a long time. The combination of a 2 position single or double solenoid with a perfect block will prevent the cylinder from "dropping" at stroke end when residual supply pressure is released.



<Check valve operating principle>



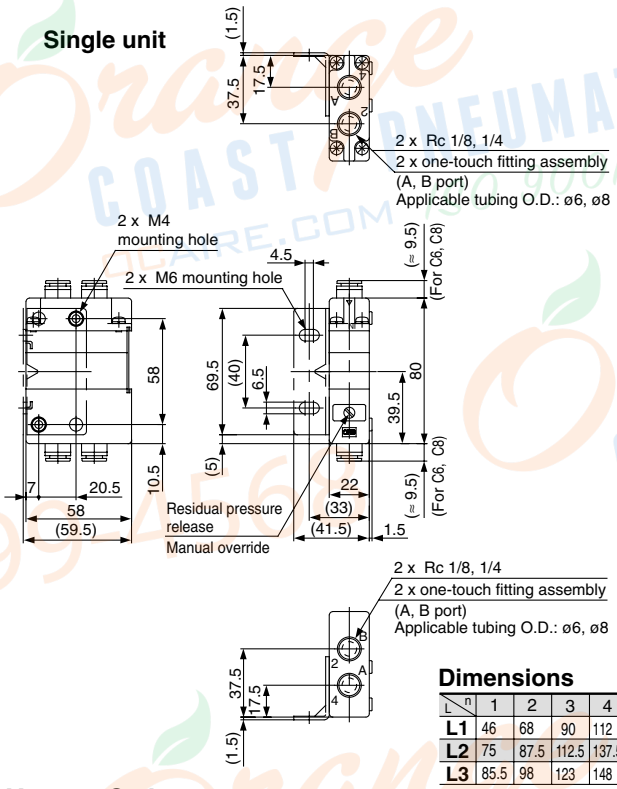
Specifications

Maximum operating pressure	0.8 MPa
Minimum operating pressure	0.15 MPa
Ambient and fluid temperature	–5 to 50°C
Flow characteristics: C	3.0 dm³/(s·bar)
Max. operating frequency	180 c.p.m

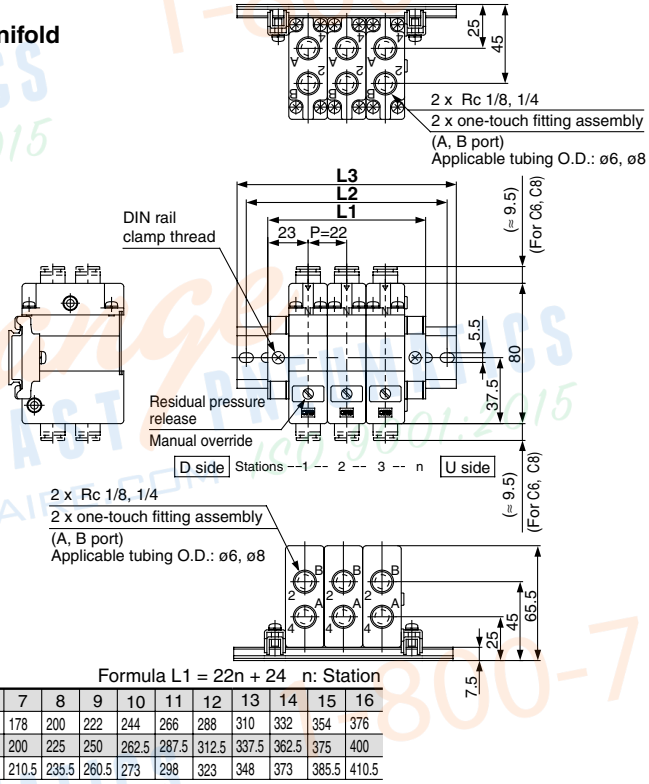
Note) Based on JIS B 8375-1981 (Supply pressure: 0.5 MPa)

Dimensions

Single unit



Manifold



Dimensions Formula L1 = 22n + 24 n: Station

L \ n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	46	68	90	112	134	156	178	200	222	244	266	288	310	332	354	376
L2	75	87.5	112.5	137.5	162.5	175	200	225	250	262.5	287.5	312.5	337.5	362.5	375	400
L3	85.5	98	123	148	173	185.5	210.5	235.5	260.5	273	298	323	348	373	385.5	410.5

How to Order

Perfect block

VQ2000-FPG- 01 01 - F

IN side port size

01	Rc 1/8
02	Rc 1/4
C6	ø6 one-touch fitting
C8	ø8 one-touch fitting

OUT side port size

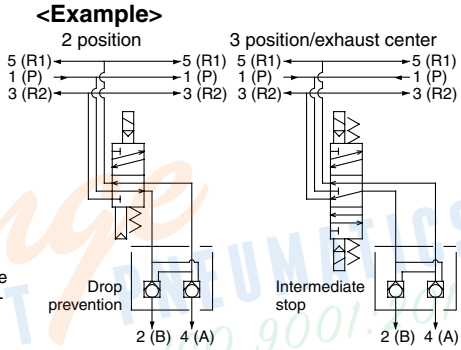
01	Rc 1/8
02	Rc 1/4
C6	ø6 one-touch fitting
C8	ø8 one-touch fitting

Option

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

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

<Example>



Manifold (DIN rail mounting style)

VVQ2000-FPG- 06

Order DIN rail mounting style [-D] for perfect block.

Stations

01	1 station
⋮	⋮
16	16 stations

<Ordering Example>
VVQ2000-FPG-06 ···· 6 stations of manifold
* VQ2000-FPG-C6C6-D, 3 sets } Perfect block
* VQ2000-FPG-C8C8-D, 3 sets

⚠Caution

- Since air leakage from the pipe between the valve and cylinder or the fittings will prevent the cylinder from stopping for a long time. Check for air leakage using neutral household detergent, such as dish washing soap. Also check the cylinder's tube gasket, piston packing and rod packing for air leakage.
- Since one-touch fittings allow slight air leakage, screw piping is recommended when stopping the cylinder in the middle for a long time.
- Combining perfect block with 3 position closed center or pressure center solenoid valve will not work.
- When screwing the fittings in the perfect block, proper tightening torque for screws is as shown at the right.

Connection thread	Proper tightening torque (N•m)
Rc 1/8	7 to 9
Rc 1/4	12 to 14

- Set the cylinder load so that the cylinder pressure will be within two times that of the supply pressure.
- If exhaust side of perfect block is narrowed down too much, intermediate stopping accuracy will be decreased.

<Bracket assembly>

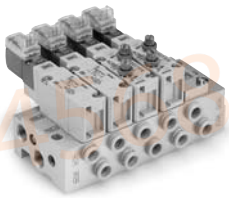
Part no.	Tightening torque Note)
VQ2000-FPG-FB	0.8 to 1.0 N•m

Note) It is the tightening torque for mounting a bracket for the perfect block.

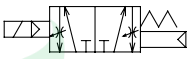
CE [Option]

Compact Body Type with Restrictor: For VQZ2000

- Restrictors are built into the valve body, making it easier to adjust cylinder speed.
- Needle valve is equipped with a retainer to prevent accidental needle loss.

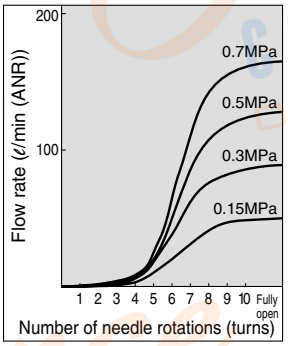


Symbol



(Single)

Flow Characteristics



Note 1) Valve with restrictors is available on rubber seal models only.
Note 2) Since the body (of this type) is made compact, there is no interchangeability with the standard VQZ2000.
Note 3) Tightening torque of needle valve lock nut should not exceed 0.3 N·m.

Specifications

Configuration		Model		Flow characteristics 1→4/2 (P→A/B) C [dm³/(s·bar)]	b	Cv	Flow characteristics 4/2→5/3 (A/B→EA/EB) C [dm³/(s·bar)]	b	Cv	Response time (ms) Note 1) Standard: 0.35 W	High pressure: 0.9 W	AC	Mass (g) Note 2)
2 position	Single	Metal (Without restrictor)	VQZ2150-□-C	0.74	0.19	0.17	0.63	0.19	0.16	16 or less	15 or less	29 or less	40
		Rubber seal (Without restrictor)	VQZ2151-□-C	1.2	0.17	0.26	1.0	0.20	0.24	20 or less	20 or less	36 or less	
		Rubber seal (With restrictor)	VQZ2151S-□-C	1.2	0.13	0.27	0.40	0.25	0.10	20 or less	20 or less	36 or less	44
	Double	Metal (Without restrictor)	VQZ2250-□-C	0.74	0.19	0.17	0.63	0.19	0.16	10 or less	13 or less	13 or less	54
		Rubber seal (Without restrictor)	VQZ2251-□-C	1.2	0.17	0.26	1.0	0.20	0.24	15 or less	20 or less	20 or less	
		Rubber seal (With restrictor)	VQZ2251S-□-C	1.2	0.13	0.27	0.40	0.25	0.10	15 or less	20 or less	20 or less	58
3 position	Closed center	Metal (Without restrictor)	VQZ2350-□-C	0.47	0.23	0.11	0.41	0.28	0.10	25 or less	26 or less	40 or less	54
		Rubber seal (Without restrictor)	VQZ2351-□-C	0.53	0.42	0.15	0.62	0.31	0.16	30 or less	33 or less	47 or less	
		Rubber seal (With restrictor)	VQZ2351S-□-C	0.59	0.33	0.15	0.35	0.28	0.09	30 or less	33 or less	47 or less	58
	Exhaust center	Metal (Without restrictor)	VQZ2450-□-C	0.50	0.29	0.12	0.65	0.13	0.15	25 or less	26 or less	40 or less	54
		Rubber seal (Without restrictor)	VQZ2451-□-C	0.53	0.42	0.15	1.1	0.16	0.24	30 or less	33 or less	47 or less	
		Rubber seal (With restrictor)	VQZ2451S-□-C	0.53	0.34	0.13	0.42	0.35	0.10	30 or less	33 or less	47 or less	58

Note 1) Based on JIS B 8375-1981 (Value for supply pressure of 0.5 MPa, with light/surge voltage suppressor, when using clean air). Response time values will change depending on pressure and air quality. The values at the time of ON are given for double styles.
Note 2) Weight without sub-plate

Manifold Part No.

VV5QZ25C – 05 C4 C – D – □

Series

2	VQZ2000

Compact body

Manifold type

5	Base mounted

Stations

02	2 stations
⋮	⋮
20	20 stations

Port size [4(A), 2(B) port]

C3	ø3.2 one-touch fitting
C4	ø4 one-touch fitting
C6	ø6 one-touch fitting
01	Rc 1/8

Note 1) The one-touch fittings on the compact manifold are pressed in and therefore cannot be changed out.
Note 2) For inch size one-touch fittings, refer to page 966.

Option

Nil	None
D	DIN rail mounting (With standard DIN rail length)
D0 Note)	DIN rail mounting (Without DIN rail)

Note) Order DIN rail separately. For DIN rail part no., refer to page 960.

CE compliant

Nil	—
Q	CE marked

Valve Part No.

VQZ2 1 5 1 □ □ – 5 M □ 1 – □ – C – □

Symbol

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center

Body type

5	Base mounted

Seal type

0	Metal seal
1	Rubber seal

Restrictor

Nil	None
S Note)	With

Note) Available with rubber seal valve only.

Function

Symbol	Specifications	DC	AC
Nil	Standard	(0.35 W) ○	Note 2) ○
K Note 1)	High pressure type (Metal seal type only)	(0.9 W) ○	—

Note 1) Option
Note 2) For AC specification power consumption, refer to page 943.

Coil voltage

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3	110 VAC [115 VAC] (50/60 Hz)
4	220 VAC [230 VAC] (50/60 Hz)
5	24 VDC
6	12 VDC

Manual override

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

Electrical entry

G	Grommet (DC specification)
L Note)	L-type plug connector with lead wire
LO Note)	L-type plug connector without connector
M Note)	M-type plug connector with lead wire
MO Note)	M-type plug connector without connector

Note) With light/surge voltage suppressor for L, LO, M, MO

Port size

Symbol	Port size
Nil	Without sub-plate
01	Rc 1/8

Note) For inch size one-touch fittings, refer to page 966.

Compact body

CE compliant

Nil	—
Q	CE marked

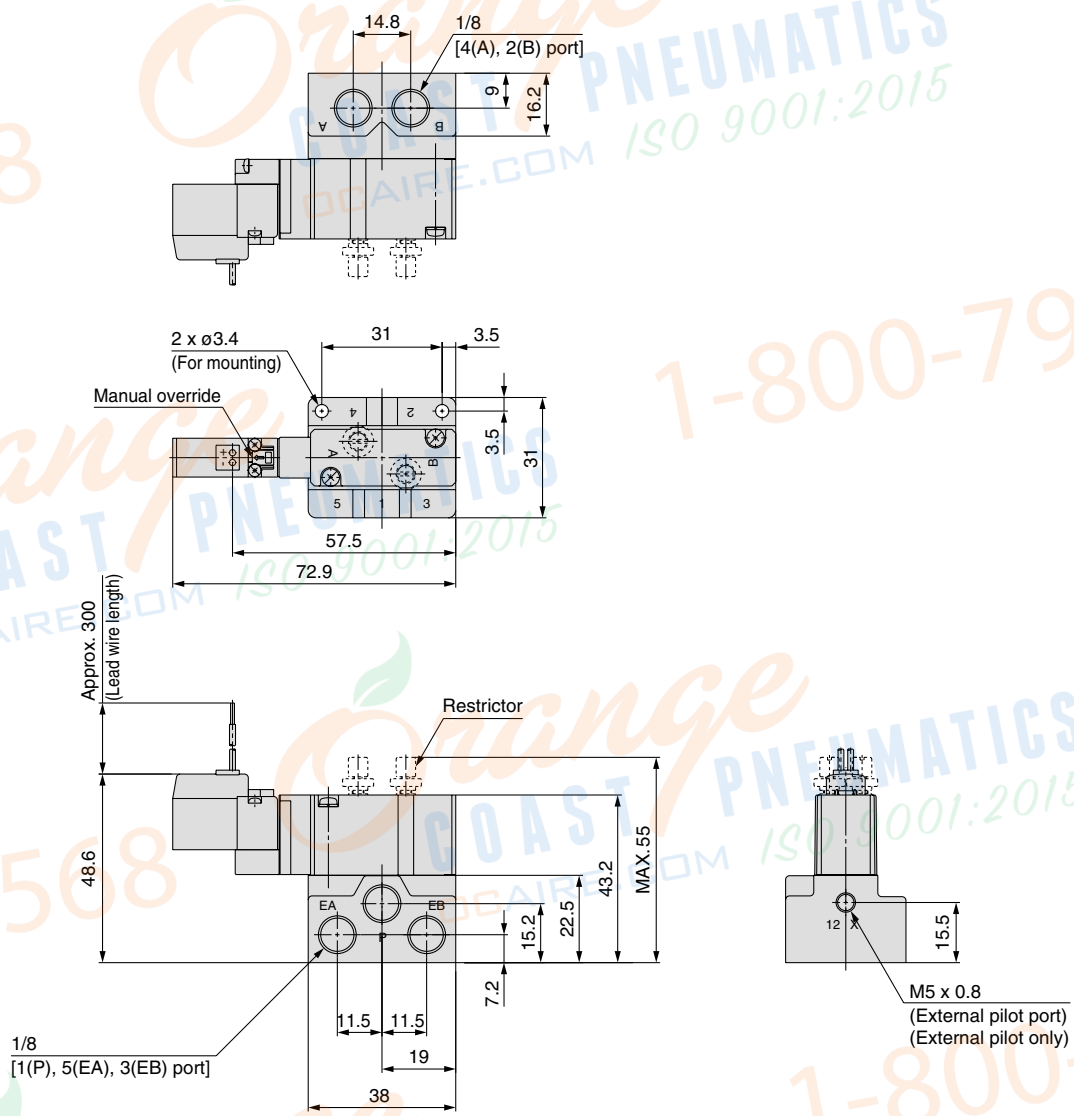
Sub-plate Part No.
VQZ2000C-S-01✳(-Q)
✳ Thread type

Blanking Plate Assembly
VVQZ2000C-10A-5

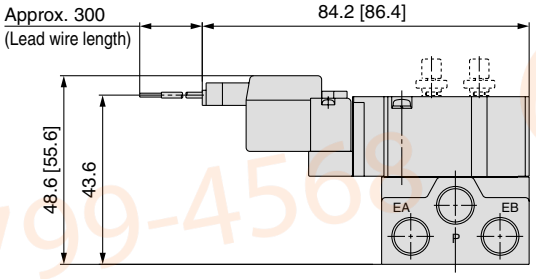
Dimensions: VQZ2000 (Compact Body Type: Single Unit)

VQZ2□5$^{0}_{1}$□□-□G□1-01-C-□

Grommet (G)

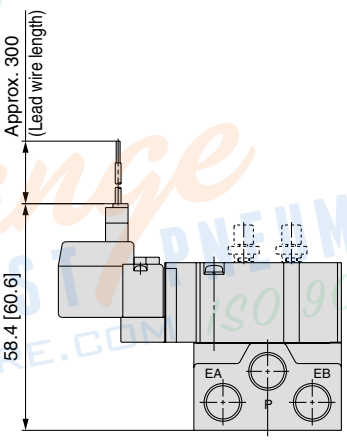


L-type plug connector (L)



Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

M-type plug connector (M)

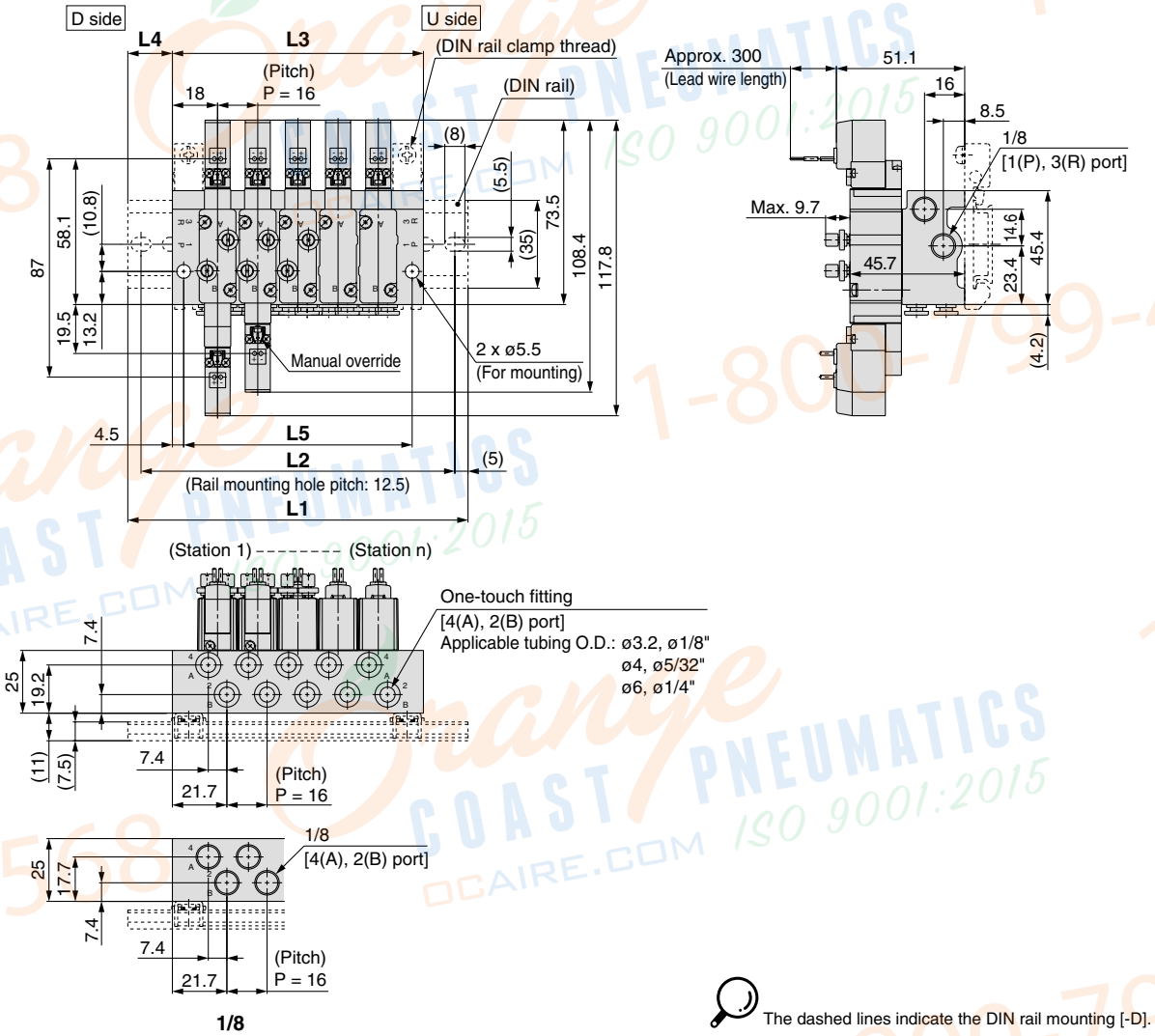


Unless otherwise indicated, dimensions are the same as Grommet (G).
[ ]: AC

Dimensions: VQZ2000 (Compact Body Type: Manifold)

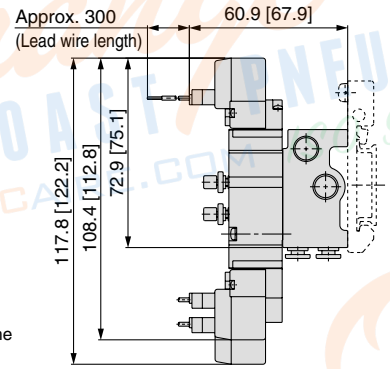
VV5QZ25C-Stations Port size C

Grommet (G)



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

L-type plug connector (L)

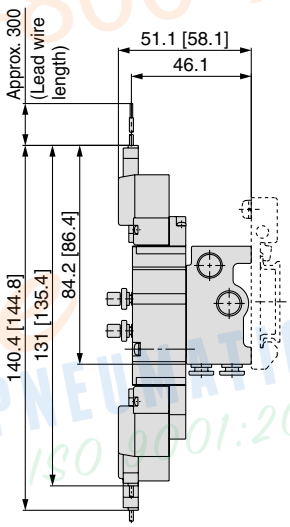


The dashed lines indicate the DIN rail mounting [-D].

Unless otherwise indicated, dimensions are the same as Grommet (G).

[ ]: AC

M-type plug connector (M)



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

Unless otherwise indicated, dimensions are the same as Grommet (G).

[ ]: AC

Dimensions

Formula: L1 = 16n + 11 L2 = 16n + 20 n: Stations (Max. 20 stations)

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	85.5	98	123	135.5	148	173	185.5	198	210.5	235.5	248	260.5	285.5	298	310.5	323	348	360.5	373
L2	75	87.5	112.5	125	137.5	162.5	175	187.5	200	225	237.5	250	275	287.5	300	312.5	337.5	350	362.5
L3	52	68	84	100	116	132	148	164	180	196	212	228	244	260	276	292	308	324	340
L4	17	15	19.5	18	16	20.5	19	17	15.5	20	18	16.5	21	19	17.5	15.5	20	18.5	16.5
L5	43	59	75	91	107	123	139	155	171	187	203	219	235	251	267	283	299	315	331

Options

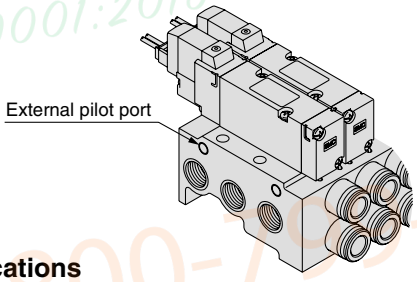
External Pilot Specification

The external pilot specification is used when the operating pressure is below the minimum operating pressure 0.1 to 0.2 MPa or when valve is used for a vacuum application. Order a valve by adding the external pilot specification [R] to the part number.

Valve Part No.

VQZ □□ 5 □□ R — □□□□ 1 — □ — □

● Entry is the same as standard products.



Manifold Part No.

VV5QZ □ 5 — □□ C — □ R — □

● Entry is the same as standard products.

Pressure Specifications

Series		VQZ1000/2000/3000		
		2 position single	2 position double	3 position
External pilot pressure range Note)	Metal seal	0.1 to 0.7 MPa (VQZ3000, 3 position only 0.15 to 0.7 MPa)		
	Rubber seal	0.15 to 0.7 MPa	0.1 to 0.7 MPa	0.2 to 0.7 MPa
Operating pressure range Note)		–100 kPa to 0.7 MPa		

Note) In case of the high pressure type, upper limit of max. operating pressure and external pilot pressure range is 1 MPa.

Inch Size One-touch Fittings and Optional Threads

Inch size one-touch fittings and NPT, NPTF and G thread are available.

Manifold Part No.

VV5QZ □ 5 — □ N7 T C — □ — □

● Entry is the same as standard products.

● Cylinder port

Symbol		N1	N3	N7	N9	N11	NM Note 1)	M5	01	02
Applicable tubing O.D.		ø1/8"	ø5/32"	ø1/4"	ø5/16"	ø3/8"	Mixed	M5 thread	1/8 thread	1/4 thread
Cylinder port	VQZ1000	●	●	●	—	—	●	●	—	—
	VQZ2000	—	●	●	●	—	●	—	●	—
	VQZ2000 (Compact)	●	●	●	—	—	—	—	●	—
	VQZ3000	—	—	●	●	●	●	—	—	●

Note 1) Mixing one-touch fittings and thread types is impossible.
Note 2) Metric size one-touch fittings (C□) are also available.

● Thread type (Cylinder port and 1(P), 3(R2), 5(R1) ports)

Nil	Rc
N	NPT
T	NPTF
F	G

Valve Part No.

VQZ □□ 5 □□ — □□□□ 1 — □ T — □

● Entry is the same as standard products.

● Thread type (Cylinder port and 1(P), 3(R2), 5(R1) ports)

Nil	Rc
N	NPT
T	NPTF
F	G

IP65 Enclosure (Based on IEC60529)

DIN terminal is available with IP65 enclosure.

How to Order Single Valve

(Applicable to the VQZ2000/3000 rubber seal with the exception of the external pilot type)

VQZ $\frac{2}{3}$ □ 51 □ — □ Y □□ W1 — □ — □

● Entry is the same as standard products.

Note) The pilot exhaust IP65 valves is common with main valve exhaust. (The standard valve has an individual exhaust for the pilot valve.)

Replacement Parts

One-touch Fitting Assembly (for Cylinder port)

Model \ Fitting size	C3	C4	C6	C8	C10
VQZ1000	VVQ1000-50A-C3	VVQ1000-50A-C4	VVQ1000-50A-C6	—	—
VQZ2000	—	VVQ1000-51A-C4	VVQ1000-51A-C6	VVQ1000-51A-C8	—
VQZ3000	—	—	VVQ2000-51A-C6	VVQ2000-51A-C8	VVQ2000-51A-C10

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

<Plug connector assembly>

DC: SY100-30-4A- □

100 VAC: SY100-30-1A- □

200 VAC: SY100-30-2A- □

Other AC voltages: SY100-30-3A- □

Without lead wire: SY100-30-A
(with connector and 2 sockets only)

Lead wire length

Nil	300 mm
6	600 mm
10	1000 mm
15	1500 mm
20	2000 mm
25	2500 mm
30	3000 mm
50	5000 mm

<Pilot valve assembly>

V111 □ **— 5 G —** □

Function

Symbol	Specifications	DC	AC
Nil	Standard	(0.35 W) ○	○
B Note)	High speed response type	(0.9 W) ○	—
K Note)	High pressure type (Metal seal type only)	(0.9 W) ○	—

Note) Option

Applicable model (Length of screws attached is different from each other.)

Nil	VQZ2000/3000
4	A and B side of VQZ1000 single, double solenoid type A side of VQZ1000 3 position
5	B side of VQZ1000 3 position

Coil voltage

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3	110 VAC [115 VAC] (50/60 Hz)
4	220 VAC [230 VAC] (50/60 Hz)
5	24 VDC
6	12 VDC

Electrical entry

Symbol DC	Symbol AC	Electrical entry	Light/surge voltage suppressor
G	—	Grommet (DC specification)	None
LU	**LZ**	L-type plug connector with lead wire	Yes
LOU	**LOZ**	L-type plug connector without connector	
MU	**MZ**	M-type plug connector with lead wire	
MOU	**MOZ**	M-type plug connector without connector	

How to Order
Include the connector assembly part number together with the part number for the plug connector's solenoid valve without connector.

Example) In case of 2000 mm of lead wire

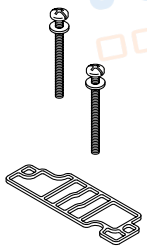
DC
VQZ1150-5LO1-M5
SY100-30-4A-20

AC
VQZ1150-1LO1-M5
SY100-30-1A-20

<Gasket and screw assembly>

	Part no.
VQZ1000	VQZ1000-GS-5
VQZ2000	VQZ2000-GS-5
VQZ3000	VQZ3000-GS-5

Note) Above part number consists of 10 units. Each unit has one gasket and two screws. Purchasing order is available in units of 10 pieces.



<DIN terminal type (Applicable to the VQZ2000/3000)>

V115 □ **— 5 Y —X110**

Function

Symbol	Specifications	DC	AC
Nil	Standard	(0.35 W) ○	○
B Note)	High speed response type	(0.9 W) ○	—
K Note)	High pressure type (Metal seal type only)	(0.9 W) ○	—

Note) Option

Coil voltage

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3	110 VAC [115 VAC] (50/60 Hz)
4	220 VAC [230 VAC] (50/60 Hz)
5	24 VDC
6	12 VDC

Electrical entry

Symbol	Electrical entry	Light/surge voltage suppressor
Y	DIN terminal	None
YO	DIN terminal without connector	
YZ	DIN terminal with light/surge voltage suppressor	Yes
YS	DIN terminal with surge voltage suppressor (DC specification)	Yes (Without light)
YOS	DIN terminal with surge voltage suppressor, without connector (DC specification)	

Note) For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

<Sub-plate>

Model	Sub-plate part no.
VQZ1000	VQZ1000-S-01 ✻ (-Q)
VQZ2000	VQZ2000-S-$^{01}_{02}$ ✻ (-Q)
VQZ3000	VQZ3000-S-$^{02}_{03}$ ✻ (-Q)

✻ Thread type

⚠ Caution

When replacing only the pilot valve assembly, use caution because it is not possible to convert to a V115 (DIN terminal) from a V111 (Grommet, L-type, M-type), or vice versa.

EX510 Gateway System
Serial Transmission System
Series VQZ1000/2000/3000
Base Mounted Manifold

CE [Option]

How to Order Manifold

VV5QZ 1 5 – SA □ 08 C4 □ – □ – □

Series

1	VQZ1000
2	VQZ2000
3	VQZ3000

SI unit

Nil	NPN output +COM.
N	PNP output –COM.

Stations

Symbol	No. of stations
02	2 stations
⋮	⋮
08	8 stations

Note) Maximum 16 stations (For special wiring specifications, indicate separately by the manifold specification sheet.)

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

A, B port size

Option

Nil	None
D	With DIN rail (Rail length: Standard)
D0 Note 1)	Without DIN rail (With bracket)
N Note 2)	Name plate (Except VQZ1000)
K	Special wiring specification (Except double wiring)
R Note 2)	External pilot type (Except VQZ1000)

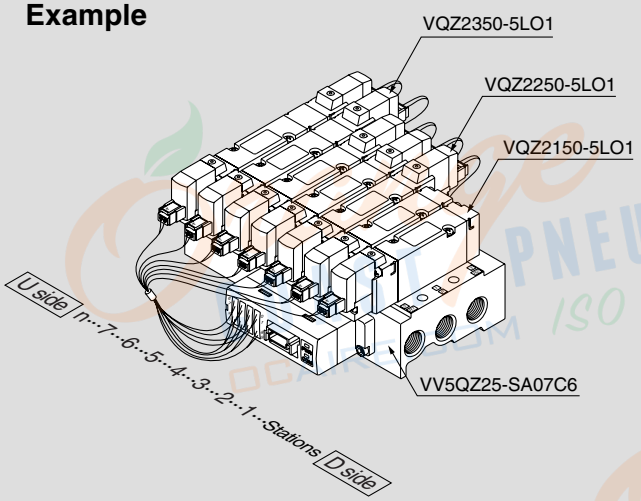
Note 1) Order DIN rail separately. For DIN rail part no., refer to page 960.
Note 2) For details on options and external pilot type, refer to page 966.
Note 3) When two or more symbols are specified, indicate them alphabetically.

CE compliant

Nil	—
Q	CE marked

How to Order Valve Manifold Assembly (Example)

Example



VV5QZ25-SA07C6 ··· 1 set (Type SA, 7-station manifold base part no.)
*** VQZ2150-5LO1 ····· 2 sets (Single solenoid part no.)**
*** VQZ2250-5LO1 ····· 3 sets (Double solenoid part no.)**
*** VQZ2350-5LO1 ····· 2 sets (3 position type no.)**
The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.
Enter in order starting from the first station on the D side.

Add the valve and option part number under the manifold base part number. When entry of part numbers becomes complicated, indicate by the manifold specification sheet. For a manifold for an EX510, the length of the lead wire for a connector assembly depends on the number of stations. Therefore, the manifold assembly is shipped with the valves (including blanking plates) and connector assembly mounted on it, as the standard specification. Be sure to specify the part nos. of the solenoid valves to be mounted.

Thread piping

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
M5	M5 x 0.8	○	—	—
01	1/8	—	○	—
02	1/4	—	—	○

One-touch fitting (Metric size)

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
C3	ø3.2 one-touch fitting	○	—	—
C4	ø4 one-touch fitting	○	○	—
C6	ø6 one-touch fitting	○	○	○
C8	ø8 one-touch fitting	—	○	○
C10	ø10 one-touch fitting	—	—	○
CM	Mixture of port sizes	○	○	○

One-touch fitting (Inch size)

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
N1	ø1/8" one-touch fitting	○	—	—
N3	ø5/32" one-touch fitting	○	○	—
N7	ø1/4" one-touch fitting	○	○	○
N9	ø5/16" one-touch fitting	—	○	○
N11	ø3/8" one-touch fitting	—	—	○
NM	Mixture of port sizes	○	○	○

SI Unit Part No.

Symbol	SI unit spec.	SI unit part no.
Nil	NPN output (+COM.)	EX510-S001
N	PNP output (–COM.)	EX510-S101

For details of "Gateway System Serial Transmission System, Series EX510", refer to pages 1696 through to 1724.

How to Order Valve

VQZ 1 1 5 1 ☐ – 5 MO ☐ 1 – ☐

Series

1	VQZ1000
2	VQZ2000
3	VQZ3000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5 Note)	3 position pressure center
8	3 port for mixture mounting N.C.
9	3 port for mixture mounting N.O.

Note) There is no 3 position pressure center for the metal seal type of the VQZ1000 series.

Seal type

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC
Nil	Standard	(0.35 W) ○
B Note 1)	High speed response type	(0.9 W) ○
K Note 1)	High pressure type (Metal seal type only)	(0.9 W) ○
R Note 1, 2)	External pilot type	○
BR Note 1, 2)	High speed response/External pilot type	(0.9 W) ○
KR Note 1, 2)	High pressure/External pilot type (Metal seal type only)	(0.9 W) ○

Note 1) Option
Note 2) For details on external pilot type, refer to page 966.

Rated voltage: 24 VDC

Electrical entry

LO	L-type plug connector without connector
MO	M-type plug connector without connector

Note) With light/surge voltage suppressor

Manual override

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

CE compliant

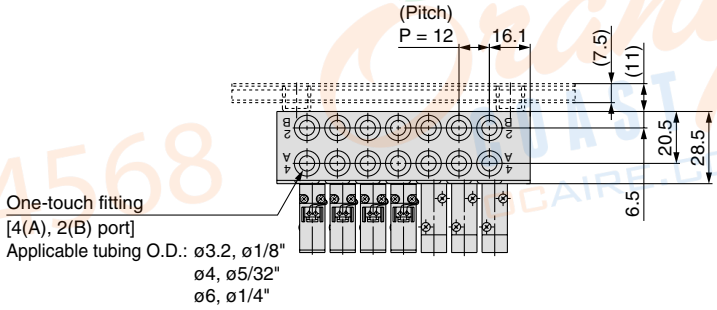
Nil	—
Q	CE marked

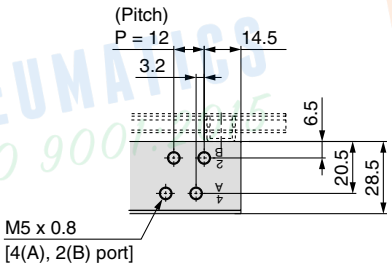
Made to Order

Made to Order
(For details, refer to page 975.)

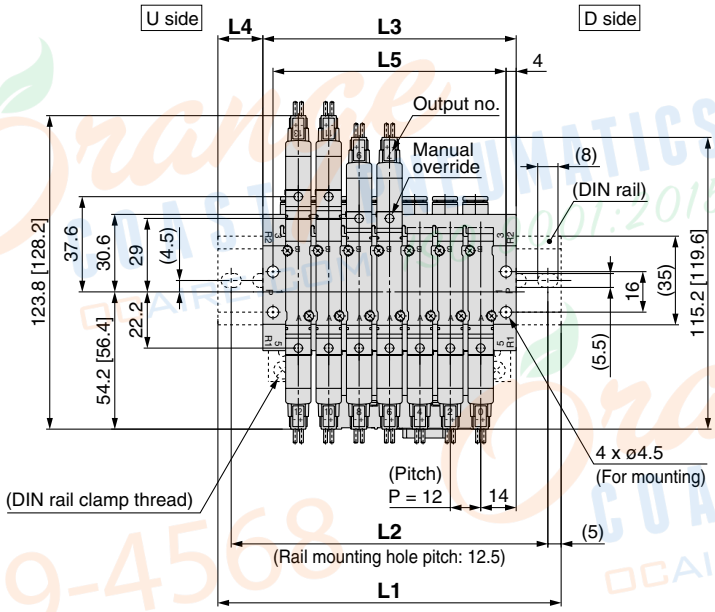
Symbol	Description
X30	Pilot valve common exhaust
X90	Main valve fluoro-rubber
X113	All fluoro-rubber

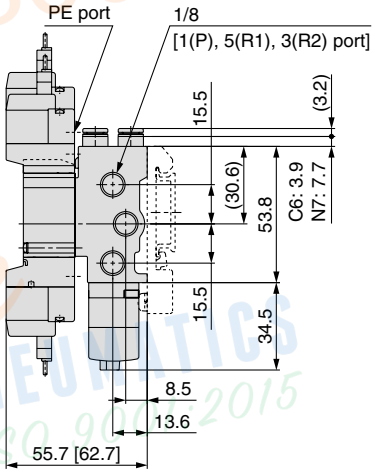
Dimensions: VQZ1000-SA□: EX510 Gateway System Serial Transmission System



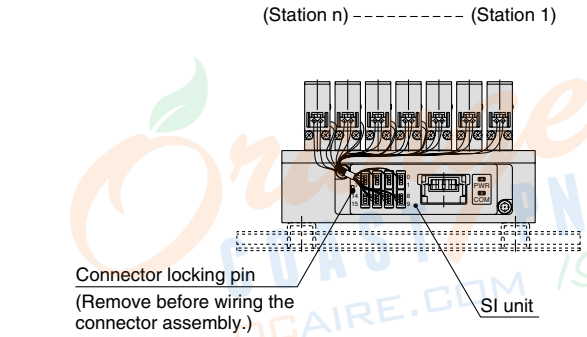


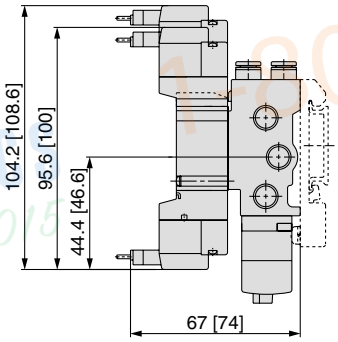
M5





L-type plug connector (L)





M-type plug connector (M)

The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as L-type plug connector (L).
[ ]: AC

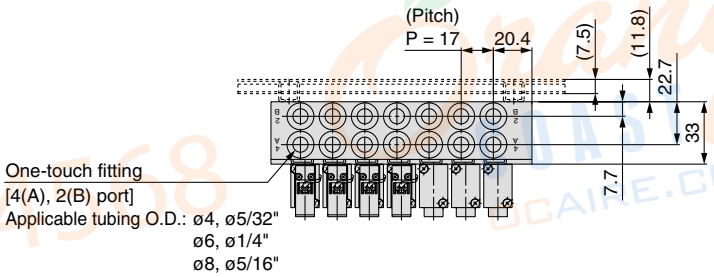
Dimensions

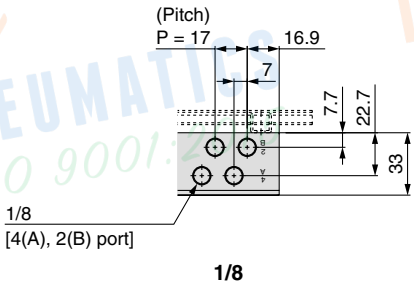
Max. 16 stations

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	123	123	123	123	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248
L2	112.5	112.5	112.5	112.5	112.5	125	137.5	150	162.5	175	187.5	200	212.5	225	237.5
L3	88	88	88	88	88	100	112	124	136	148	160	172	184	196	208
L4	17.5	17.5	17.5	17.5	17.5	17.5	18	18.5	18.5	19	19	19.5	19.5	20	20
L5	80	80	80	80	80	92	104	116	128	140	152	164	176	188	200

Note) The L dimension of 2 to 6 stations is the same. Valves are numbered from the D side according up to the number of stations.

Dimensions: VQZ2000-SA□: EX510 Gateway System Serial Transmission System





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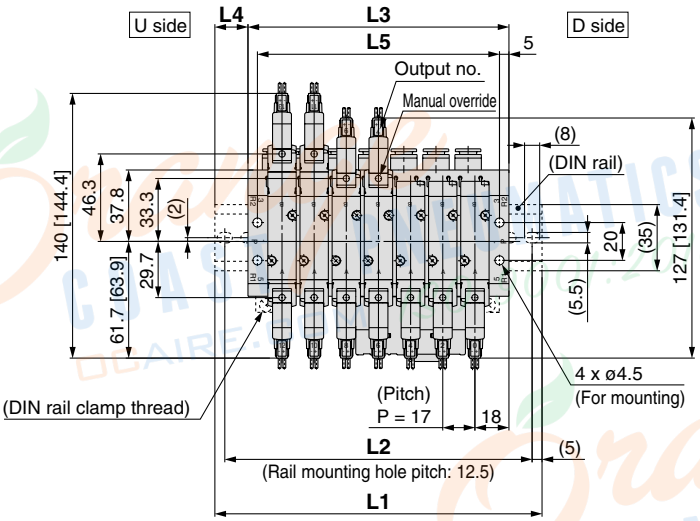
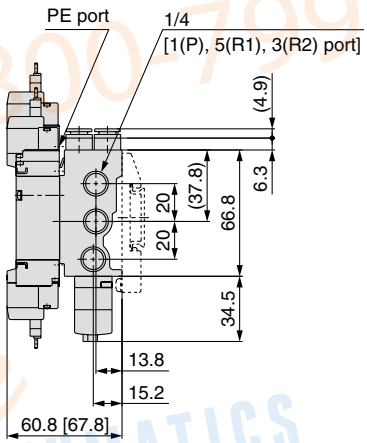
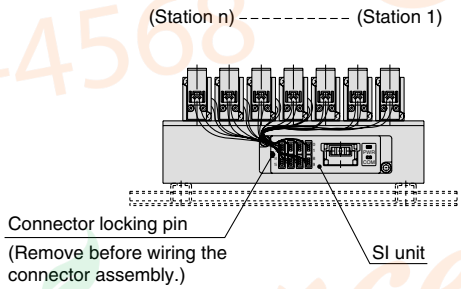
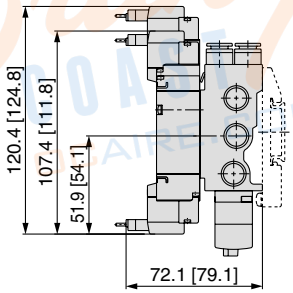


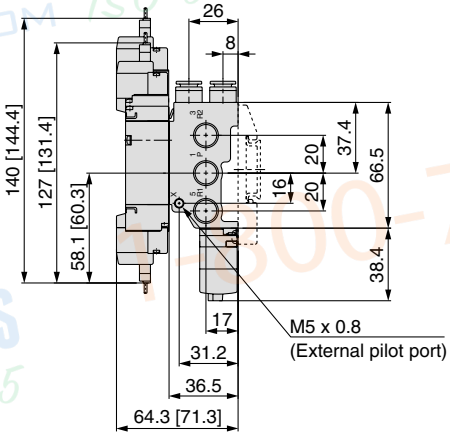


L-type plug connector (L)





M-type plug connector (M)



External pilot

The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as L-type plug connector (L).
[ ]: AC

Dimensions

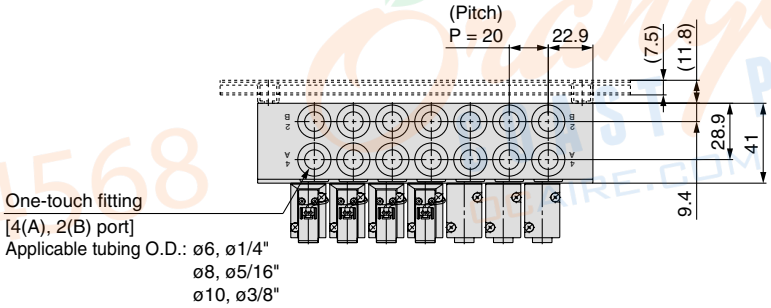
Max. 16 stations

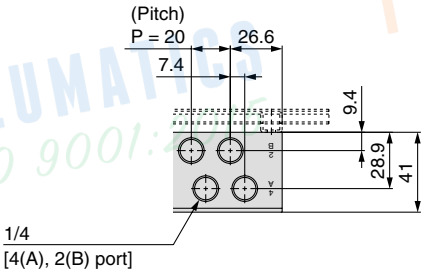
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	135.5	135.5	135.5	135.5	160.5	173	185.5	210.5	223	248	260.5	270	298	310.5	323
L2	125	125	125	125	150	162.5	175	200	212.5	237.5	250	259.5	287.5	300	312.5
L3	104	104	104	104	121	138	155	172	189	206	223	240	257	274	291
L4	16	16	16	16	20	17.5	15.5	19.5	17	21	19	16.5	20.5	18.5	16
L5	94	94	94	94	111	128	145	162	179	196	213	230	247	264	281

Note) The L dimension of 2 to 5 stations is the same. Valves are numbered from the D side according up to the number of stations.

SMC

Dimensions: VQZ3000-SA□: EX510 Gateway System Serial Transmission System





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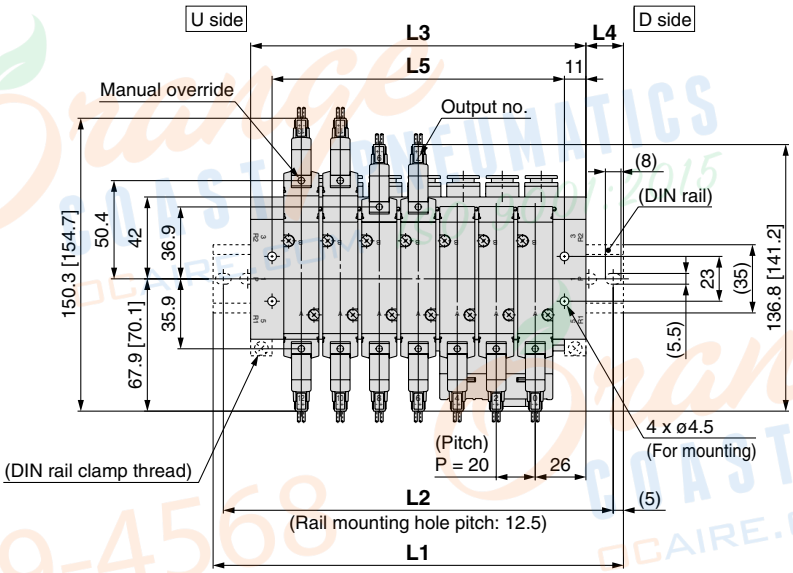
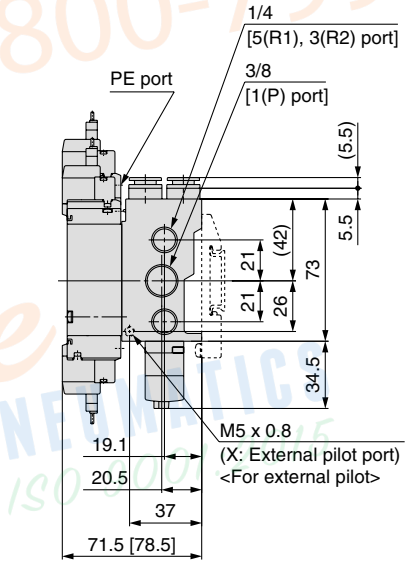
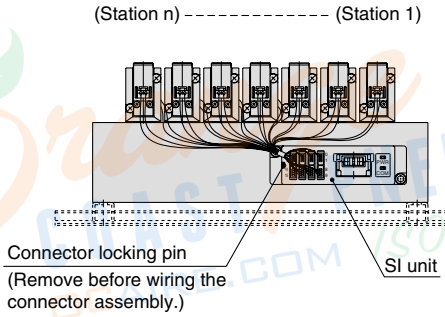
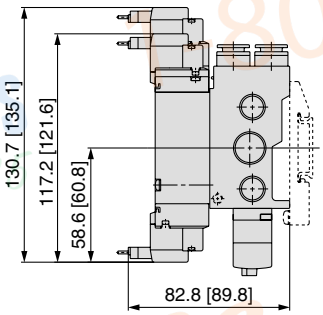




L-type plug connector (L)





M-type plug connector (M)

The dashed lines indicate the DIN rail mounting [-D].
Unless otherwise indicated, dimensions are the same as L-type plug connector (L).
[ ]: AC

Dimensions

Max. 16 stations

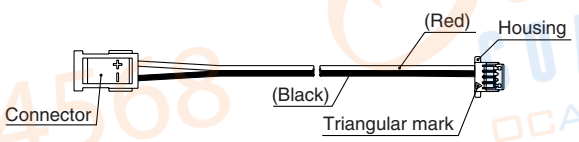
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	123	123	148	173	185.5	210.5	223	248	273	285.5	310.5	323	348	373	385.5
L2	112.5	112.5	137.5	162.5	175	200	212.5	237.5	262.5	275	300	312.5	337.5	362.5	375
L3	92	92	112	132	152	172	192	212	232	252	272	292	312	332	352
L4	15.5	15.5	18	20.5	17	19.5	15.5	18	20.5	17	19.5	15.5	18	20.5	17
L5	70	70	90	110	130	150	170	190	210	230	250	170	290	310	330

Note) The L dimension of 2 to 3 stations is the same. Valves are numbered from the D side according up to the number of stations.

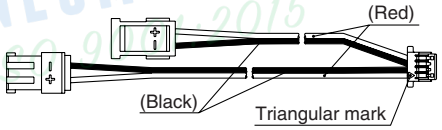
Manifold Options

Connector assembly

Single solenoid (SY3000-37-81A-□-N)



Double solenoid (SY3000-37-81A-□-□)



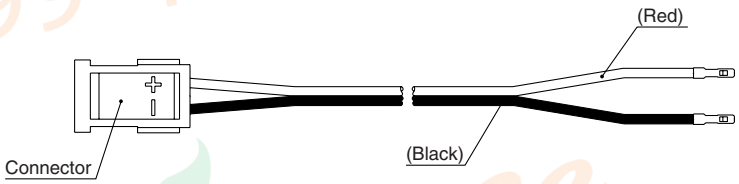
Connector Assembly Part No. (for a manifold with 8 stations or less with an unspecified layout)
Bar Stock Type

Model	Part no.	Connector mounting position
VV5QZ12	SY3000-37-81A-3-N	Single: for 1 to 4 stations
	SY3000-37-81A-3-6	Double/3 position: for 1 to 4 stations
	SY3000-37-81A-2-N	Single: for 5 to 8 stations
	SY3000-37-81A-3-6	Double/3 position: for 5 to 8 stations
VV5QZ22	SY3000-37-81A-3-N	Single: for 1 to 8 stations
	SY3000-37-81A-3-6	Double/3 position: for 1 to 8 stations
VV5QZ32	SY3000-37-81A-3-N	Single: for 1 to 4 stations
	SY3000-37-81A-3-6	Double/3 position: for 1 to 4 stations
	SY3000-37-81A-4-N	Single: for 5 to 8 stations
	SY3000-37-81A-4-7	Double/3 position: for 5 to 8 stations

Note) There are no part nos. on the connectors of connector assemblies.

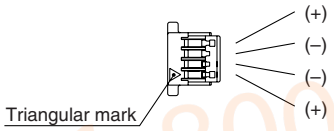
Connector assembly

SY3000-37-80A-□



Housing (1 set: 8 pieces)

SY3000-44-3A



Connector Assembly Part No. (for a manifold with a specified layout)

Model	Part no.	Connector mounting position	
VV5QZ12	SY3000-37-80A-3	A side	For 1 to 8 stations
	SY3000-37-80A-6	B side	
	SY3000-37-80A-4	A side	For 9 to 16 stations
	SY3000-37-80A-7	B side	
VV5QZ22	SY3000-37-80A-3	A side	For 1 to 8 stations
	SY3000-37-80A-6	B side	
	SY3000-37-80A-7	A side	For 9 to 16 stations
	SY3000-37-80A-9	B side	
VV5QZ32	SY3000-37-80A-4	A side	For 1 to 8 stations
	SY3000-37-80A-7	B side	
	SY3000-37-80A-8	A side	For 9 to 16 stations
	SY3000-37-80A-11	B side	

Note 1) Since these connector assemblies are used when adding stations or for maintenance, there are no part nos. on them.
Note 2) After inserting the connector assembly into the housing, slightly pull the lead wire to make sure it does not pull out. Do not reuse the lead wire once it has been inserted.
Note 3) Please note that the wires are longer than the actual wiring distance.

Series VQZ1000/2000/3000
Made to Order

Please contact SMC for detailed dimensions, specifications, and lead times.

Made to Order

1 Pilot Valve Common Exhaust Specification

Pilot exhaust is exhausted through the main R port.
* Not designed to prevent leakage to outside.
* A combination of external pilots is not available.
* A combination of metal seal and 2 position double is not available.
* "How to Order Manifold" is the same as standard products. Please specify this to "How to Order Valve."

Applicable solenoid valve series: VQZ1000/2000/3000

How to Order

Entry is the same as standard products.

Made to order

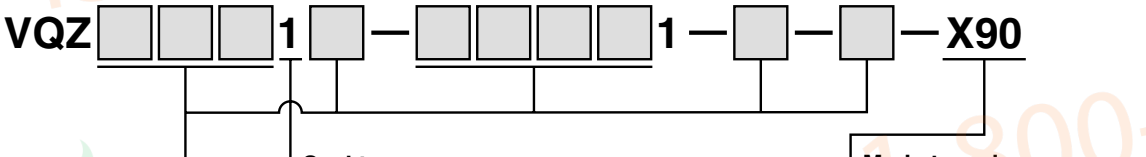
X30	Pilot valve common exhaust

2 Main Valve Fluoro-rubber Specification

The seal material, the part of the main valve in contact with fluid, is made of fluoro-rubber.
* "How to Order Manifold" is the same as standard products. Please specify this to "How to Order Valve."

Applicable solenoid valve series: VQZ1000/2000/3000

How to Order



Seal type

1	Rubber seal

Made to order

X90	Main valve fluoro-rubber

Entry is the same as standard products.

3 All Fluoro-rubber Specification

The rubber material of the part in contact with fluid, is made of fluoro-rubber.
* "How to Order Manifold" is the same as standard products. Please specify this to "How to Order Valve."

Applicable solenoid valve series: VQZ1000/2000/3000

How to Order

Entry is the same as standard products.

Made to order

X113	All fluoro-rubber

Series VQZ
Specific Product Precautions 1

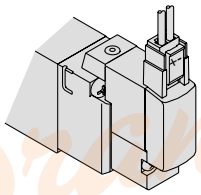
Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Manual Override

⚠ Caution

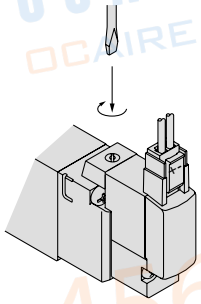
Without an electric signal for the solenoid valve the manual override is used for switching the main valve. Push type is standard. Locking type (Tool required) is available as an option.

Push type (Tool required)



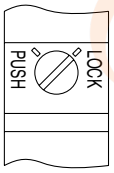
Push down on the manual override button with a small screwdriver until it stops. Release the screwdriver and the manual override will return.

Locking type (Tool required)



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

Locked position



Precautions

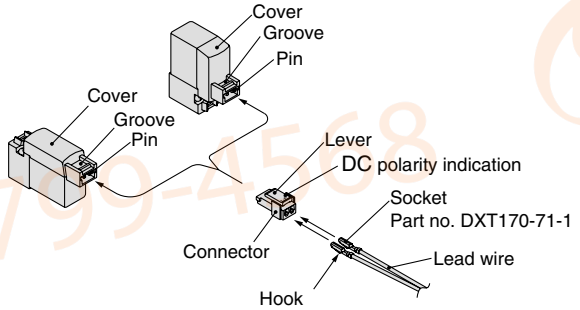
When operating with a screwdriver, turn it gently using a watchmaker's screwdriver. (Torque: less than 0.1 N•m)

How to Use L/M-Type Plug Connector

⚠ Caution

1. Attaching and detaching connectors

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

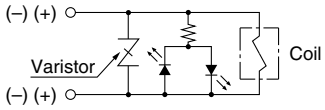


Light/Surge Voltage Suppressor

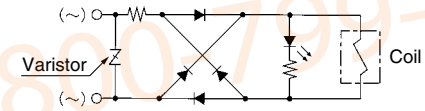
⚠ Caution

1. L/M-type plug connector

<DC>



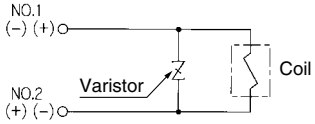
<AC>



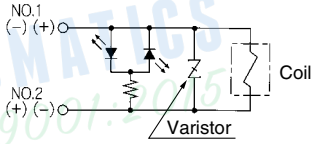
2. DIN terminal

<DC>

With light/surge voltage suppressor (YS, YOS)

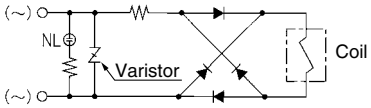


Light/surge voltage suppressor (YZ)



<AC>

With light (YZ)



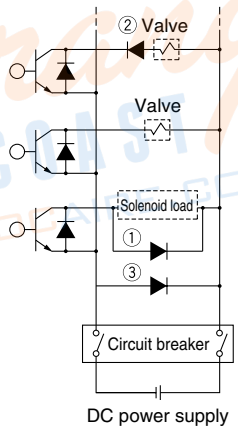
NL: Neon light

Note) Surge voltage suppressor of varistor has residual voltage corresponding to the protective element and rated voltage; therefore, protect the controller side from the surge.

3. Surge voltage countermeasures

When shutting off the DC power supply using an emergency circuit breaker, the valve may operate incorrectly due to surge voltage generated by other electric parts (e.g., the solenoid). To ensure that surge does not affect the valve, take anti-surge measures (diode for surge protection, etc.) or use a valve with diode to prevent reverse current. (Contact SMC for model numbers.)

Circuit example



①, ③: Examples of anti-surge measures
②: Valve equipped with diode to prevent reverse current

Series VQZ
Specific Product Precautions 2

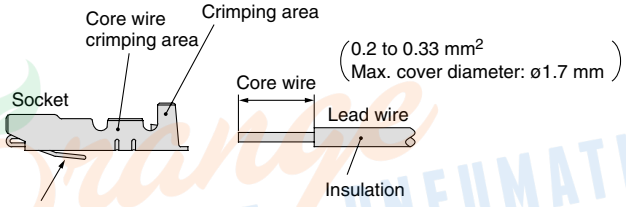
Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Lead Wire Connection

⚠ Caution

1. Crimping of lead wires and sockets

Not necessary if ordering the lead wire pre-connected model. Strip 3.2 to 3.7 mm at the end of the lead wires, insert the ends of the core wires evenly into the sockets, and then crimp with a crimping tool. When this is done, take care that the coverings of the lead wires do not enter the core wire crimping area.



Crimping tool part no. DXT170-75-1

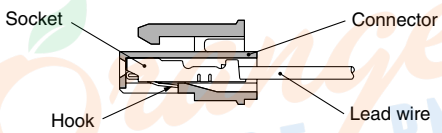
2. Attaching and detaching sockets with lead wires

Attaching

Insert the sockets into the square holes of the connector (⊕, ⊖ indication), and continue to push the sockets all the way in until they lock by hooking into the seats in the connector. (When they are pushed in, their hooks open and they are locked automatically.) Then, confirm that they are locked by pulling lightly on the lead wires.

Detaching

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



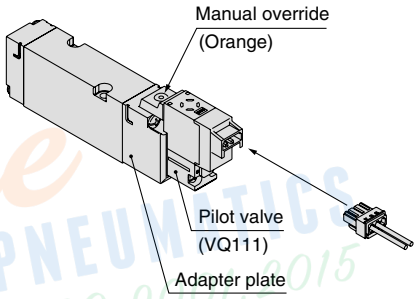
Valve and Pilot Valve Replacement

⚠ Caution

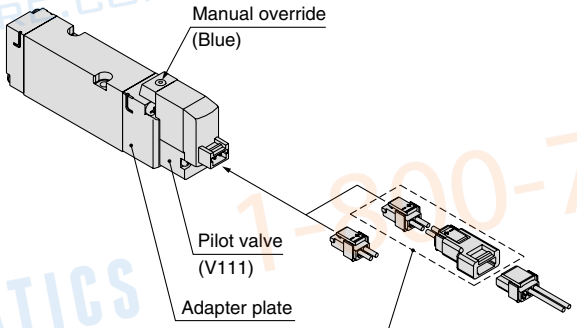
1. When replacing a conventional type valve with a new type for maintenance or other reasons, a "conversion connector assembly" is necessary to convert the connector from 3 terminals to 2 terminals and must be ordered separately. (When ordering, refer to the below part nos.)

For pilot valves, there is no compatibility between the conventional type and new type. When replacing a pilot valve, be sure to confirm whether it is the new type or the conventional type.

[Conventional]



[New]



Conversion connector assembly
VQZ1000V-85-□A

Coil voltage

1	24/12 VDC
2	100 VAC
3	200 VAC
4	Other AC voltages

Series VQZ
Specific Product Precautions 3

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

How to Use DIN Terminal

1. Conforming to ISO#: EN-175301-803C (Former DIN 43650C) (8 mm between pins)

The DIN terminal type with an IP65 enclosure is protected against dust and water, however, it must not be used in water.

2. Connection

1) Loosen the holding screw and pull the connector out of the solenoid valve terminal block.
2) After removing the holding screw, insert a flat head screwdriver, etc. into the notch on the bottom of the terminal block and pry it open, separating the terminal block and the housing.
3) Loosen the terminal screws (slotted screws) on the terminal block, insert the cores of the lead wires into the terminals according to the connection method, and fasten them securely with the terminal screws.
4) Secure the cord by fastening the ground nut.

3. Changing the entry direction

After separating the terminal block and housing, the cord entry can be changed by attaching the housing in the desired direction (4 directions at 90° intervals).

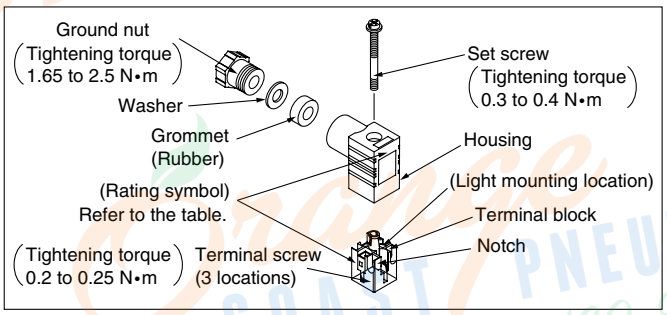
* When equipped with a light, be careful not to damage the light with the cord's lead wires.

4. Precautions

Plug in and pull out the connector vertically without tilting to one side.

5. Compatible cable

Cable O.D.: ø3.5 to ø7
(Reference) 0.5 mm², 2-core or 3-core, equivalent to JIS C 3306



DIN Connector Part No.

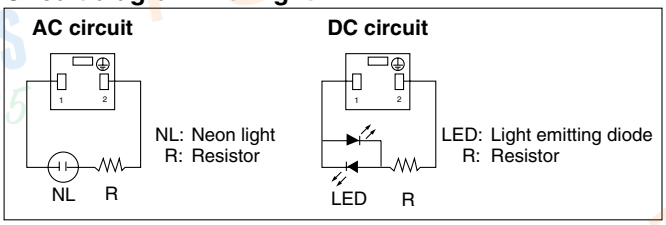
Without light

Rated voltage	Voltage symbol	Part no.
All voltages	None	SY100-82-1

With light

Rated voltage	Voltage symbol	Part no.
24 VDC	24 V	SY100-82-3-05
12 VDC	12 V	SY100-82-3-06
100 VAC	100 V	SY100-82-2-01
200 VAC	200 V	SY100-82-2-02
110 VAC (115 VAC)	110 V	SY100-82-2-03
220 VAC (230 VAC)	220 V	SY100-82-2-04

Circuit diagram with light

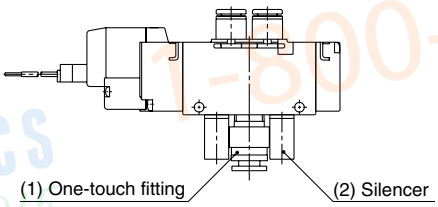


Fitting and Silencer Part No. for P, R Ports When Using Valve as an Individual Unit

Part no. for one-touch fitting for 1(P) port and silencer/one-touch fitting for 3(R2, R), 5(R1) port

Series	(1) One-touch fitting for 1(P) port	(2) For 3(R2, R) port, 5(R1) port	
		Silencer	One-touch fitting
VQZ1000	KQ2H06-M5	AN120-M5	KJS04-M5
VQZ2000	KQ2S06-01S	INA-25-46	IN-457-32L (for ø6)
VQZ3000	KQ2H08-02S	AN101-01	KQ2H06-01S

The diameter of the above fitting and silencer is the maximum diameter to in the EXH port.



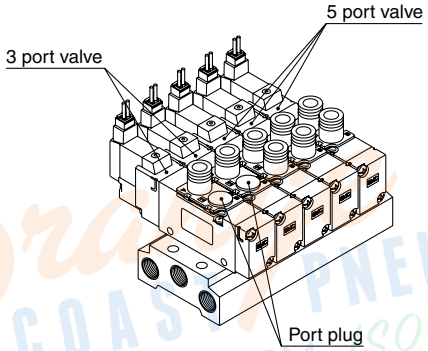
Series VQZ
Specific Product Precautions 4

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

3 Port Valve for Mixture Mounting

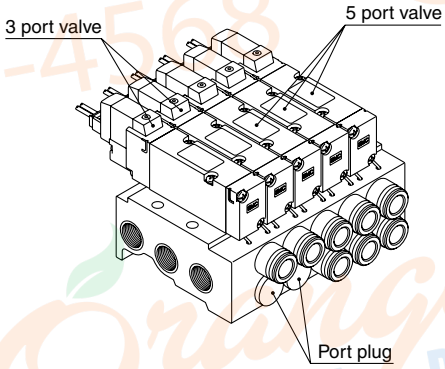
1. Body ported (VQZ$^{1}_{3}$82$^{0}_{1}$, N.C./VQZ$^{1}_{3}$92$^{0}_{1}$, N.O.)

Even though 3 port valves have the same construction as the 5 port single solenoid valves, the port plug is installed in the 2(B) port for N.C. type, and 4(A) port for N.O. type. By changing the port plug into a fitting, it can be used as the 5 port single solenoid valves, too.



2. Base mounted (VQZ$^{1}_{3}$85$^{0}_{1}$, N.C./VQZ$^{1}_{3}$95$^{0}_{1}$, N.O.)

3 port valves have the same external appearance as the 5 port valves. When using this type, 4(A) port on the 3 port valves can be used as 4(A) port on the 5 port valves' manifold, too. Besides, there's no problem, even though 2(B) port can be either plugged or unplugged.



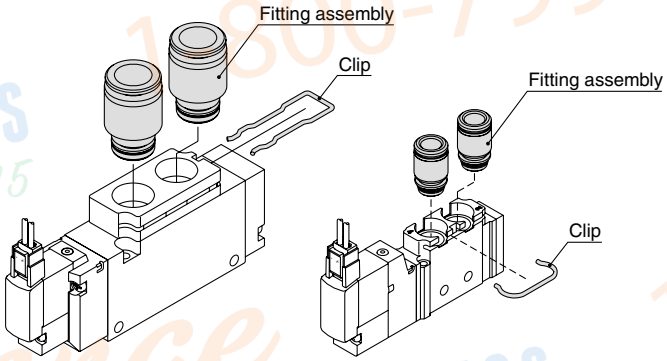
When port plug is used on 2 (B) port, indicate CM in manifold part no. and port size, and specify the port plug location by the manifold specification sheet.

One-touch Fittings Replacement

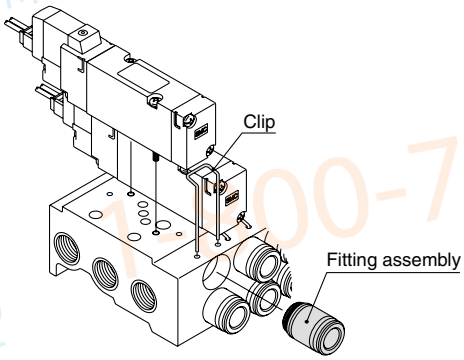
⚠ Caution

The built-in fittings on the manifold can be changed easily. Simply remove the corresponding valve and take out the fitting clip underneath.

Take out the clip with a screwdriver, etc., then replace the fittings. About mounting the fittings, after inserting the fitting until it stops, then put the clip into the prescribed position.



VQZ1000/2000: Horizontally clipped to the valve body
VQZ3000: Vertically clipped to the valve body



Precautions

When pulling the fitting assembly away from the valve base, remove the clip, then connect a tube or plug (KQP-□□) with the one-touch fitting and pull it out holding the tube or plug. Do not hold the release bushing to avoid damage.

Series VQZ
Specific Product Precautions 5

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

DIN Rail Removal/Mounting

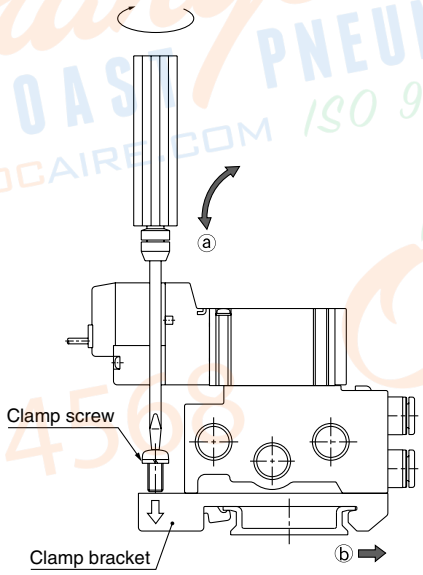
⚠ Caution

1. Removing

1) Loosen the clamp screw on the ⓐ side of both ends of the manifold.
2) Lift the ⓐ side ➡ of the manifold off the DIN rail and slide it in the direction of the ⓑ side.

2. Mounting

1) Catch the hook of the DIN rail bracket on the ⓑ side on the DIN rail.
2) Push side ⓐ onto the DIN rail and tighten the clamp screw. The proper tightening torque for screws is 0.3 to 0.4 N•m.

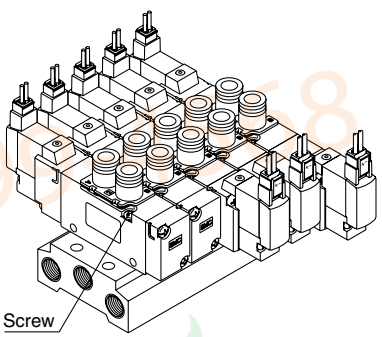


Valve Mounting

⚠ Caution

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

Model	Proper tightening torque
VQZ1000	0.18 to 0.25 N•m
VQZ2000	0.25 to 0.35 N•m
VQZ3000	0.5 to 0.7 N•m



Serial Wiring EX510 Precautions

Design and Selection

⚠ Warning

1. Use within the allowable voltage range.

Using beyond the allowable voltage range is likely to cause the units and connecting devices to be damaged or to malfunction.

2. Do not use beyond the specified range.

Using beyond the specified range is likely to cause a fire, malfunction, or breakdown in the units and connecting devices. Check the specifications before handling.

3. Establish a backup system beforehand, which employs fail-safe concepts such as multiple equipment and devices to prevent breakage or malfunction of this product.

4. Provide an external emergency stop circuit that will immediately stop an operation and cut off the power supply.

5. When using for an interlock circuit:

- Provide a double interlock which is operated by another system (such mechanical protection function).
- Perform an inspection to check that it is working properly because it can cause possible injuries.

Specific Product Precautions 6

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Serial Wiring EX510 Precautions

Design and Selection

⚠ Caution

1. Keep the surrounding space free for maintenace.

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

2. Use the following UL approved products for DC power supply combinations.

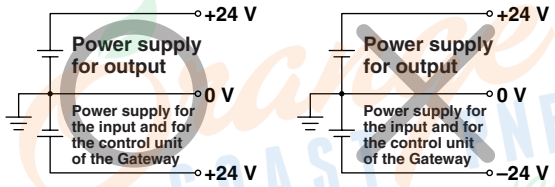
1) Controlled voltage current circuit conforming to UL508
Circuit uses the secondary coil of an isolated transformer as the power supply, satisfying the following conditions.
- Max. voltage (with no load): 30 Vrms (42.4 V peak) or less
- Max. current: (1) 8 A or less (including shorts), and
(2) When controlled by a circuit protector (fuse, etc.) with the following rating

No-load voltage (V peak)	Max. current rating
0 to 20 [V]	5.0
Over 20 [V] to 30 [V]	$\frac{100}{\text{Peak voltage value}}$

2) A circuit (class 2 circuit) with maximum 30 Vrms (42.4 V peak) or less, and a power supply consisting of a class 2 power supply unit confirming to UL1310, or a class 2 transformer confirming to UL1585

3. This product is one of the components to be equipped into a final equipment. Confirm the adaptability to the EMC directive as the whole equipment by customers themselves.

4. The power supply for the Gateway unit should be 0 V as the standard for both power supply for outputs as well as inputs and for the control unit of the Gateway.



Mounting

⚠ Caution

1. Do not drop, bump, or apply excessive impact.

Otherwise, the unit can become damaged, malfunction, or fail to function.

2. Hold the body while handling this product.

Otherwise, the unit can become damaged, malfunction, or fail to function.

3. Observe the tightening torque range.

Tightening outside of the allowable torque range will likely damage the product.

4. Do not install a unit in a place where it can be used as a scaffold.

Applying any excessive load such as stepping on the unit by mistake or placing a foot on it, will cause it to break.

Wiring

⚠ Warning

1. Avoid miswiring.

If miswired, there is a probability of damaging units or connecting devices.

2. Do not wire while energizing the product.

It is likely to damage the units or connecting devices.

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

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

4. Confirm the wiring insulation.

Inferior insulation (contact with other circuit, insulation between terminals, etc.) will likely cause damage to the units or connecting devices due to excessive voltage or the influx of current.

⚠ Caution

1. Take measures to avoid applying repeated bending force or pulling force to the cable.

Also, pay attention not to place any heavy matter on the cable or clipping. It is likely to cause a broken wire.

2. Confirm grounding to maintain the safety of the reduced-wiring system and for anti-noise performance.

Grounding should be close to units and keep the grounding distance short.

Specific Product Precautions 7

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Serial Wiring EX510 Precautions

Operating Environment

⚠ Warning

1. Do not use this product in the presence of dust, particles, water, chemicals, and oil.
Use with such materials is likely to cause a malfunction or breakage.

2. Do not use this product in the presence of a magnetic field.
Use in such an environment is likely to cause a malfunction.

3. Do not use this product in an atmosphere containing an inflammable gas, explosive gas, or corrosive gas.
Use in such an atmosphere is likely to cause a fire, explosion, or corrosion.
This reduced-wiring system is not explosion-proof.

4. Do not use this product in places where there are cyclic temperature changes.
In case that the cyclic temperature is beyond normal temperature changes, the internal unit is likely to be adversely effected.

5. Do not use this product in places where there is radiated heat around it.
Such a place is likely to cause a malfunction or breakage.

6. Do not use this product near sources that generate a surge which exceeds the benchmark test, even though this product is CE-marked certified.
The internal circuit components are likely to deteriorate or become damaged when there are equipment (solenoid type lifter, high frequency guided furnace, motor, etc.) which generate a large surge around the reduced wiring system. Take measures to prevent an electrical surge and avoid having the wires touch each other.

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

8. The reduced wiring system should be installed in places with no vibration or shock.
If installed in a place with vibration or shock, a malfunction or breakage is likely to occur.

Adjustment and Operation

⚠ Warning

1. Do not short-circuit a load.
If a load is short-circuited, excessive can cause damage to the connected devices. The fuse of the input unit will melt and below. The output and SI unit will activate its overcurrent protection function. However, they cannot cover all modes, so damage is likely to occur.

2. Do not manipulate or perform settings with wet hands.
Performing such activity will likely cause an electrical shock.

⚠ Caution

1. DIP switches and rotary switches should be set with a small watchmaker's screwdriver.

Maintenance

⚠ Warning

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

2. Perform periodic inspection.
Confirm that wiring or screws are not loose.
Otherwise, unpredicted malfunction in the system composition devices is likely to occur.

3. When an inspection is performed.
- Turn off the power supply.
- Stop the supplied fluid and discharge the fluid in the piping and confirm the release to the atmosphere before performing an inspection. It is likely to cause injuiries.

⚠ Caution

1. Do not wipe this product with chemicals such as benzine or thinner.
Using such chemicals is likely to cause damage.