

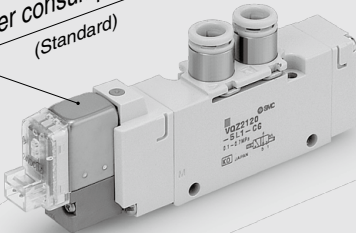
# 5 Port Solenoid Valve

Series **VQZ1000/2000/3000**

**Metal Seal**

**Rubber Seal**

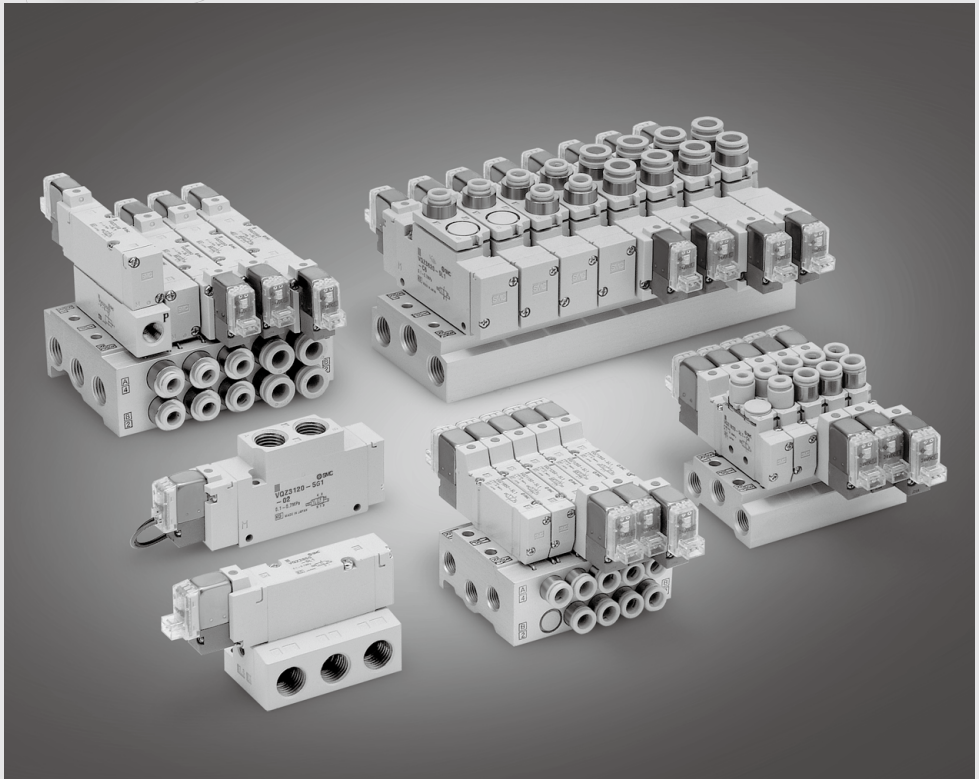
Power consumption: **0.35 w / 0.9 w**  
(Standard)  
(High pressure type,  
High speed response type)



## Compact, High Flow

	Series	Valve width (mm)	Flow characteristics		Cylinder size
			Metal seal C [dm <sup>3</sup> /(s·bar)]	Rubber seal C [dm <sup>3</sup> /(s·bar)]	
Body ported	<b>VQZ1□2□</b>	10	0.54	0.71	to ø63
	<b>VQZ2□2□</b>	15	1.4	1.6	to ø80
	<b>VQZ3□2□</b>	18	2.4	3.2	to ø100
Base mounted	<b>VQZ1□5□</b>	10	0.70	1.3	to ø63
	<b>VQZ2□5□</b>	15	1.9	2.3	to ø80
	<b>VQZ3□5□</b>	18	3.0	4.6	to ø100

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



SJ  
SY  
SV  
SYJ  
SZ  
VF  
VP4  
S0700  
VQ  
VQ4  
VQ5  
VQC  
VQC4  
VQZ  
SQ  
VFS  
VFR  
VQ7

Metal Seal / Rubber Seal

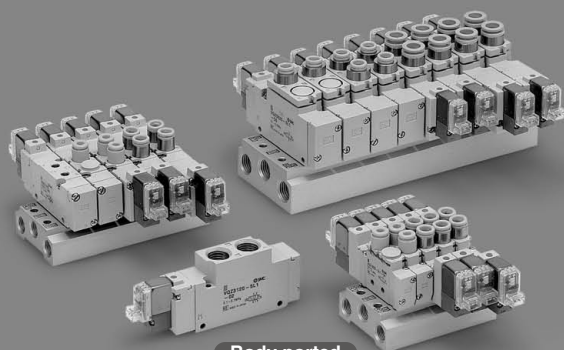
# 5 Port Solenoid Valve

Series VQZ1000/2000/3000

**High Speed Response  
and Long Service Life**

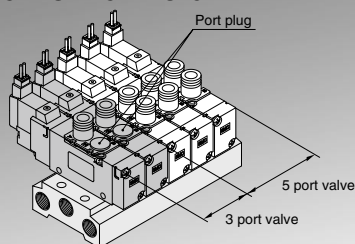
Series	Response speed	Service life	Accuracy
VQZ1000	17 ms	200 million cycles	±2 ms
VQZ2000	18 ms		
VQZ3000	21 ms		

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

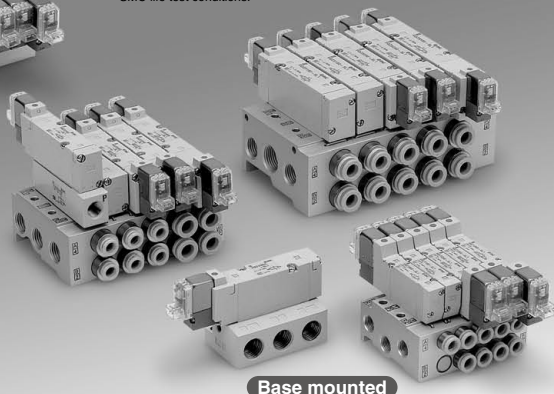
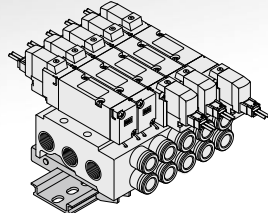


Body ported

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



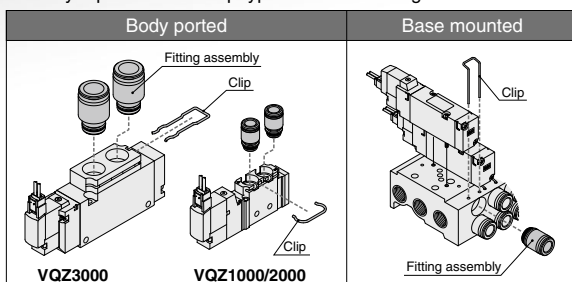
- **DIN rail mounting is available.**



Base mounted

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

Easy replacement of clip type One-touch fitting.

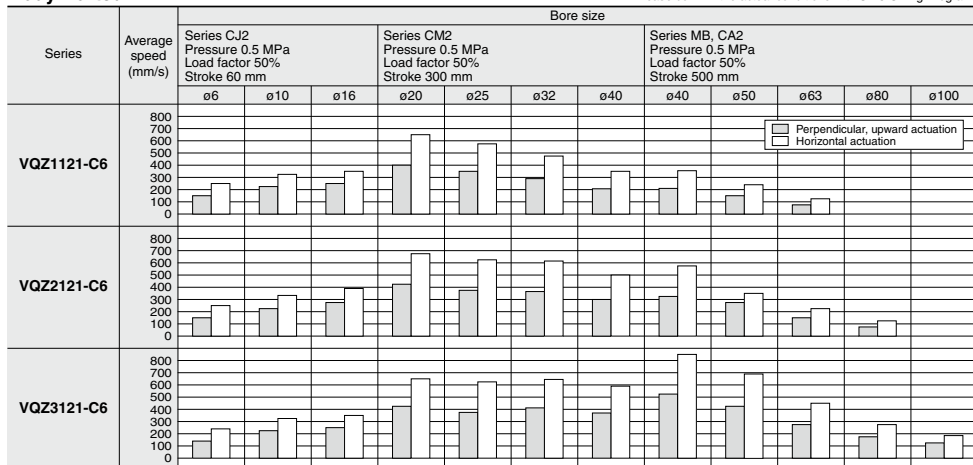


- **Enclosure IP65 compliant (DIN terminal, Common exhaust)**
- **Choice of metal or rubber seal for main valve construction**

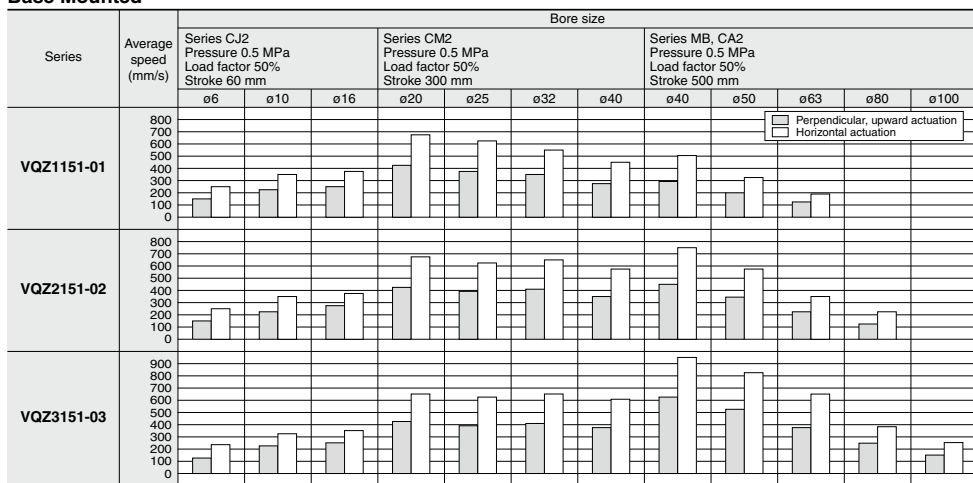
# Cylinder Speed Chart

## Body Ported

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



## 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 mass x 9.8)/Theoretical output) x 100%

## Conditions

Body ported		Series CJ2	Series CM2	Series MB, CA2
VQZ1121-C6	Tube x Length	T0604 x 1 m		
	Speed controller	AS2052F-06		
	Silencer	AN120-M5		
VQZ2121-C6	Tube x Length	T0604 x 1 m		
	Speed controller	AS3002F-06		
	Silencer	INA-25-46		
VQZ3121-C6	Tube x Length	T1075 x 1 m		
	Speed controller	AS4002F-10		
	Silencer	AN101-01		

Base mounted		Series CJ2	Series CM2	Series MB, CA2
VQZ1151-01	Tube x Length	T0604 x 1 m		
	Speed controller	AS3002F-06		
	Silencer	AN110-01		
VQZ2151-02	Tube x Length	T0604 x 1 m	T0806 x 1 m	
	Speed controller	AS3002F-06	AS3002F-08	
	Silencer	AN20-02		
VQZ3151-03	Tube x Length	T0604 x 1 m	T1075 x 1 m	T1209 x 1 m
	Speed controller	AS3002F-06	AS4002F-10	AS4002F-12
	Silencer	AN30-03		



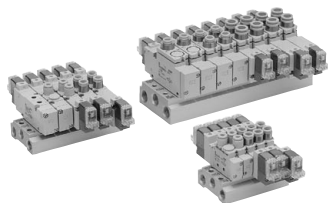


# Series VQZ Manifold

## Manifold

### Body Ported

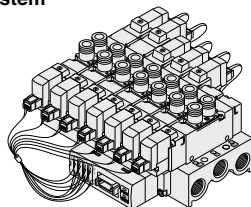
P.1271



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

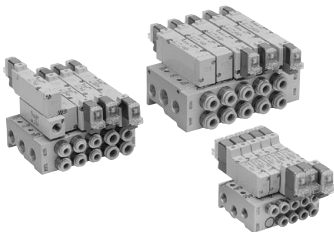
### Serial Transmission System

P.1282



### Base Mounted

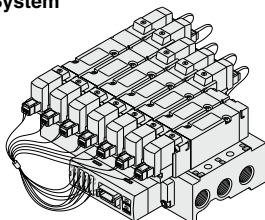
P.1300



Series	Base model	Piping direction	Piping specifications		Applicable solenoid valve	Applicable stations
			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

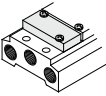
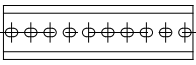
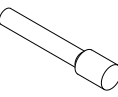
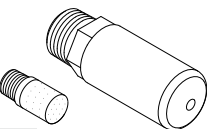

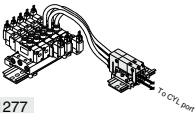
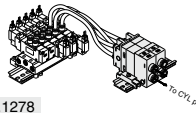



P.1315



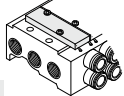
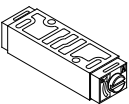
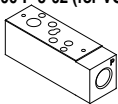
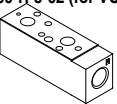

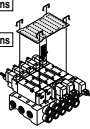
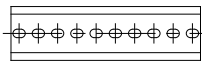
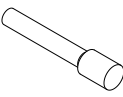
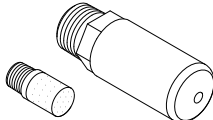
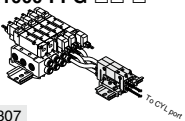
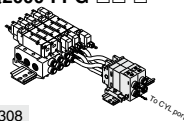



SJ  
SY  
SY  
SV  
SYJ  
SZ  
VF  
VP4  
S0700  
VQ  
VQ4  
VQ5  
VQC  
VQC4  
VQZ  
SQ  
VFS  
VFR  
VQ7

**Manifold Options**

**Body Ported**

<p>Blanking plate assembly VVQZ1000-10A-2 (for VQZ1000) VVQZ2000-10A-2 (for VQZ2000) VVQZ3000-10A-2 (for VQZ3000)</p>  <p>P.1276</p>	<p>DIN rail AXT100-DR-□</p>  <p>P.1276</p>	<p>Blanking plug KQ2P-23 KQ2P-04 KQ2P-06 KQ2P-08 KQ2P-10</p>  <p>P.1276</p>	<p>Silencer (for EXH port)</p>  <p>P.1276</p>
<p>Port plug VVQZ100-CP (for VQZ1000/2000) VVQZ2000-CP (for VQZ3000)</p>  <p>P.1276</p>	<p>Perfect block (Separated) for VQZ1000 VQ1000-FPG-□-□-□</p>  <p>P.1277</p>	<p>Perfect block (Separated) for VQZ2000/3000 VQ2000-FPG-□-□-□</p>  <p>P.1278</p>	<p>Connector assembly for single solenoid SY3000-37-81A-□-N for double solenoid SY3000-37-81A-□-□</p>  <p>P.1287</p>
<p>Connector assembly SY3000-37-80A-□</p>  <p>P.1287</p>	<p>Housing (1 set: 8 pcs.) SY3000-44-3A</p>  <p>P.1287</p>		

**Base Mounted**

<p>Blanking plate assembly VVQZ1000-10A-5 (for VQZ1000) VVQZ2000-10A-5 (for VQZ2000) VVQZ3000-10A-5 (for VQZ3000)</p>  <p>P.1305</p>	<p>Restrictor spacer (Applicable to VQZ2000) VVQZ2000-20A-5</p>  <p>P.1305</p>	<p>Individual SUP spacer VVQZ1000-P-5-M5 (for VQZ1000) VVQZ2000-P-5-01 (for VQZ2000) VVQZ3000-P-5-02 (for VQZ3000)</p>  <p>P.1305</p>	<p>Individual EXH spacer VVQZ1000-R-5-M5 (for VQZ1000) VVQZ2000-R-5-01 (for VQZ2000) VVQZ3000-R-5-02 (for VQZ3000)</p>  <p>P.1305</p>
<p>Port plug VVQZ1000-CP (for VQZ1000) VVQZ2000-CP (for VQZ2000) VVQZ3000-CP (for VQZ3000)</p>  <p>P.1305</p>	<p>Name plate [-N] (Applicable to VQZ2000/3000) VVQZ2000-N5-<sup>Stations</sup> (for VQZ2000) VVQZ3000-N5-<sup>Stations</sup> (for VQZ3000)</p>  <p>P.1306</p>	<p>DIN rail AXT100-DR-□</p>  <p>P.1306</p>	<p>Blanking plug KQ2P-23 KQ2P-04 KQ2P-06 KQ2P-08 KQ2P-10</p>  <p>P.1306</p>
<p>Silencer (for EXH port)</p>  <p>P.1306</p>	<p>Perfect block (Separated) for VQZ1000 VQ1000-FPG-□-□-□</p>  <p>P.1307</p>	<p>Perfect block (Separated) for VQZ2000/3000 VQ2000-FPG-□-□-□</p>  <p>P.1308</p>	<p>Connector assembly for single solenoid SY3000-37-81A-□-N for double solenoid SY3000-37-81A-□-□</p>  <p>P.1320</p>
<p>Connector assembly SY3000-37-80A-□</p>  <p>P.1320</p>	<p>Housing (1 set: 8 pcs.) SY3000-44-3A</p>  <p>P.1320</p>		

Body Ported

Plug Lead Unit

# 5 Port Solenoid Valve

# Series VQZ1000/2000/3000

# Single Unit



[Option]

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

## How to Order Valve



Made to Order

(For details, refer to page 1321.)

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

### Body type

2	Body ported
---	-------------

### Seal type

0	Metal seal
1	Rubber seal

### Type of actuation

1	2 position single (A4 2(B) (R1) 1 3(R2) (P)
2	2 position double (A4 2(B) (R1) 1 3(R2) (P)
3	3 position closed center (A4 2(B) (R1) 1 3(R2) (P)
4	3 position exhaust center (A4 2(B) (R1) 1 3(R2) (P)
5	3 position pressure center (A4 2(B) (R1) 1 3(R2) (P)

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

### 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) Semi-standard

Note 2) For details on external pilot type, refer to page 1279.

Note 3) There is no VQZ1000 setting.

Note 4) For AC specification power consumption, refer to page 1260.

### 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

### 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 1279.

### CE-compliant

Nil	—
Q	CE-compliant

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	—	—	—
Ø2	Rc 1/4	—	—	—

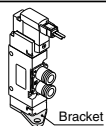
Note) For inch size One-touch fittings and optional thread type, refer to page 1279.

### Manual override











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

Nil: None	F: With bracket (2 position single only)
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### 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
						
CE- compliant	AC	—	—	—	—	—
	DC	●	●	●	●	●
		Y: DIN <small>Note 1)</small> terminal	YO: DIN <small>Note 1)</small> terminal without connector	YZ: DIN <small>Note 1)</small> terminal	YOS: DIN <small>Note 1)</small> terminal with- out connector (DC specifi- cation)	YS: DIN <small>Note 1)</small> terminal (DC specifi- cation)
				With light/surge voltage suppressor	With surge voltage suppressor	With surge voltage suppressor
						
CE- compliant	AC	●	●	●	—	—
	DC	●	●	●	—	●

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

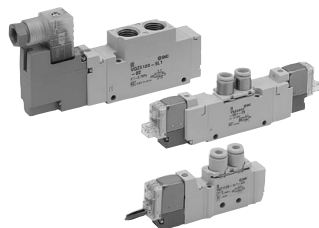


Caution

Use standard (DC) specification for continuous duty.

Note) For applicable one-touch fitting and silencer models for this valve series, refer to page 1324.

# 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)	
Min. operating pressure (MPa)	2 position	Single	0.1
		Double	0.15
	3 position	VQZ3000, 3 position only	0.1
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/s <sup>2</sup> )		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□□21□-□Y□□□W1-□-□

## Semi-standard

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 1279.



## Made to Order

(For details, refer to page 1321.)

Symbol	Description
X30	Pilot valve common exhaust
X90	Main valve fluororubber
X113	All fluororubber

## 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	0.86 (With light: 0.89)	0.86 (With light: 0.87)
		[115V]	[0.94 (With light: 0.97)]	[0.94 (With light: 1.07)]
		200V	1.18 (With light: 1.22)	1.15 (With light: 1.30)
		220V	1.30 (With light: 1.34)	1.27 (With light: 1.46)
		[230V]	[1.42 (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						Response time (ms) <small>Note 1)</small>				Note 2) Weight (g)	
				1→4/2 (P→A/B)			4/2→5/3 (A/B→EA/EB)			Standard: 0.35 W	High speed: 0.9 W	High pressure: 0.9 W	AC		
				C [dm <sup>3</sup> /s·bar]	b	Cv	C [dm <sup>3</sup> /s·bar]	b	Cv						
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	
			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	
			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	
			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	
VQZ2000	2 position	Single	Rubber seal	VQZ1521	0.91	0.41	0.26	0.68	0.39	0.18	30 or less	25 or less	—	47 or less	
			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	
		Double	Rubber seal	VQZ2121	1.7	0.39	0.45	1.6	0.35	0.44	20 or less	15 or less	—	36 or less	
			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	
		Closed center	Rubber seal	VQZ2221	1.7	0.39	0.45	1.6	0.35	0.44	12 or less	12 or less	—	15 or less	
			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	
	3 position	Exhaust center	Rubber seal	VQZ2321	1.4	0.33	0.35	1.4	0.37	0.36	30 or less	25 or less	—	47 or less	
			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	
		Pressure center	Rubber seal	VQZ2421	1.4	0.33	0.35	1.6	0.35	0.44	30 or less	25 or less	—	47 or less	
			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	
	VQZ3000	2 position	Single	Rubber seal	VQZ2521	1.7	0.34	0.44	1.4	0.37	0.36	30 or less	25 or less	—	47 or less
				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
Double			Rubber seal	VQZ3121	3.1	0.34	0.79	3.2	0.38	0.81	33 or less	25 or less	—	57 or less	
			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	
3 position		Closed center	Rubber seal	VQZ3221	3.1	0.34	0.79	3.2	0.38	0.81	15 or less	15 or less	—	20 or less	
			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	
	Exhaust center	Rubber seal	VQZ3321	2.7	0.30	0.66	2.4	0.33	0.62	35 or less	30 or less	—	59 or less		
		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		
Pressure center	Rubber seal	VQZ3421	2.7	0.30	0.66	3.2	0.38	0.81	35 or less	30 or less	—	59 or less			
	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				

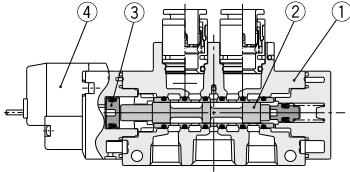
Note 1) Based on JIS B 8375-1981 (Supply pressure: 0.5 MPa; with light/surge voltage suppressor: clean air)

Response time values will change depending on pressure and air quality.

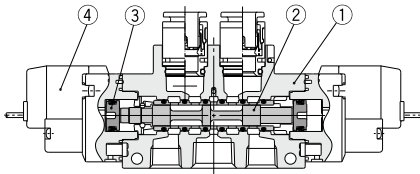
Note 2) Weight for threaded connection

## Construction: VQZ1000/2000/3000

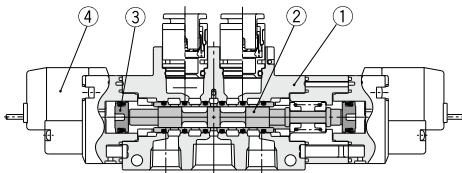
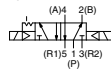
### Metal seal type



2 position single



2 position double



3 position closed center



3 position exhaust center

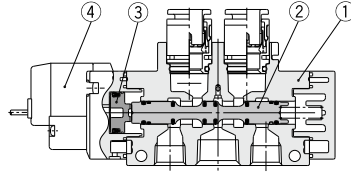


3 position pressure center

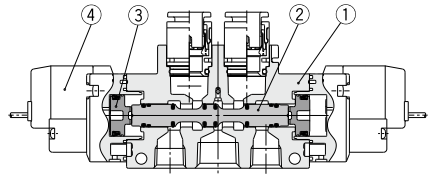
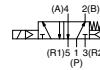


Note) Except metal seal type of the VQZ1000.

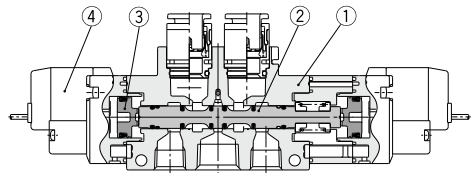
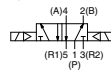
### Rubber seal type



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 1280.

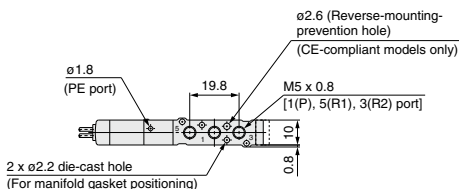
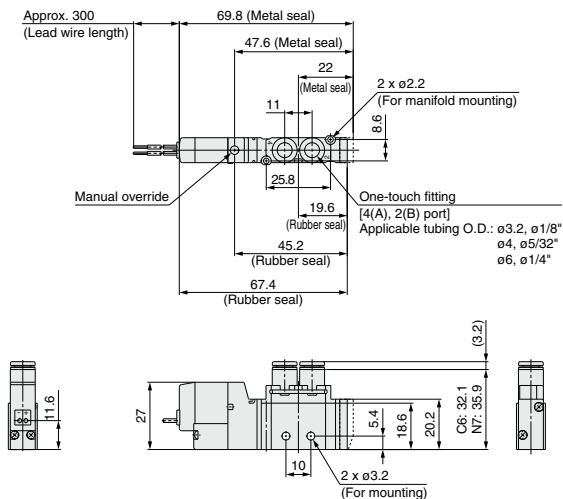
SJ  
SY  
SY  
SV  
SYJ  
SZ  
VF  
VP4  
S0700  
VQ  
VQ4  
VQ5  
VQC  
VQC4  
VQZ  
SQ  
VFS  
VFR  
VQ7

# Series VQZ1000/2000/3000

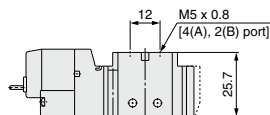
## Dimensions: VQZ1000

### 2 Position Single

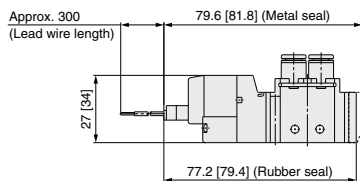
Grommet (G): VQZ112<sup>0</sup> - □G□1-C3, C4, C6



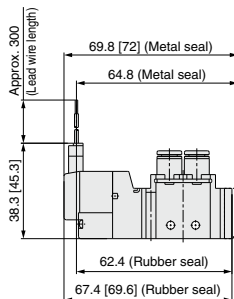
VQZ112<sup>0</sup> - □G□1-M5



L-type plug connector (L): VQZ112<sup>0</sup> - □L□1-C3, C4, C6



M-type plug connector (M): VQZ112<sup>0</sup> - □M□1-C3, C4, C6



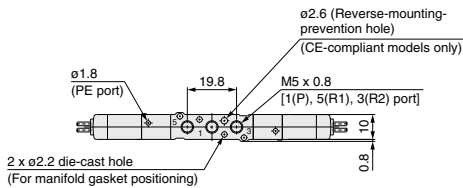
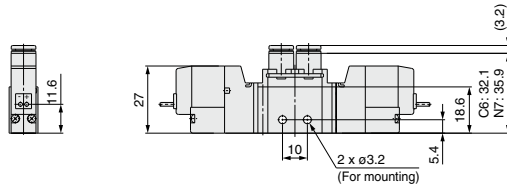
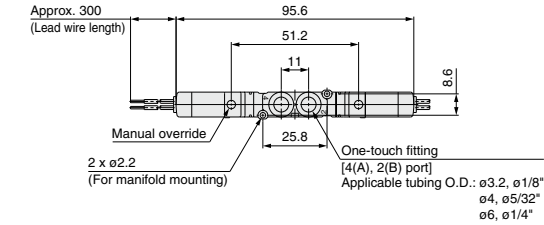
Unless otherwise indicated, dimensions are the same as Grommet (G).  
 [ ] : AC

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 [ ] : AC

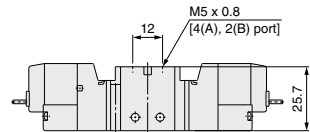
## Dimensions: VQZ1000

### 2 Position Double

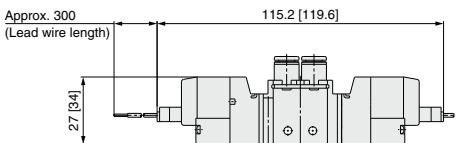
Grommet (G): VQZ122<sup>0</sup> - □G□1-C3, C4, C6



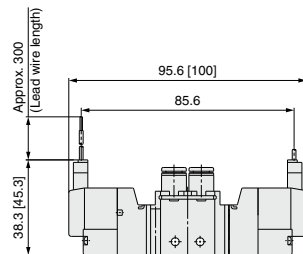
VQZ122<sup>0</sup> - □G□1-M5



L-type plug connector (L): VQZ122<sup>0</sup> - □L□1-C3, C4, C6



M-type plug connector (M): VQZ122<sup>0</sup> - □M□1-C3, C4, C6



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

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

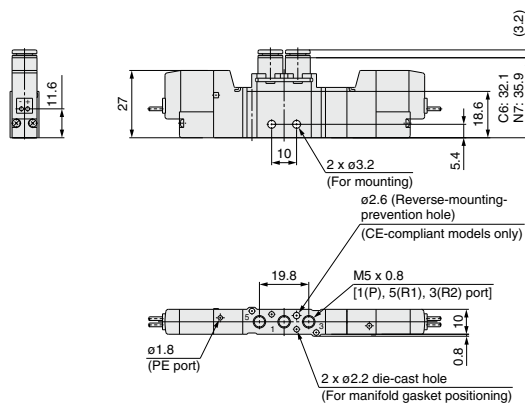
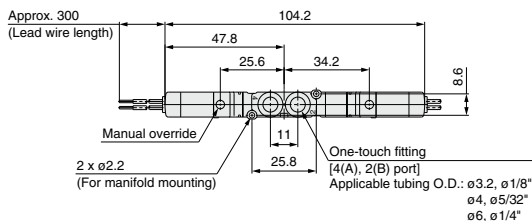


# Series VQZ1000/2000/3000

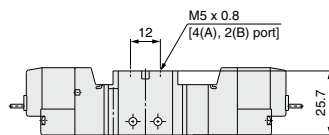
## Dimensions: VQZ1000

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

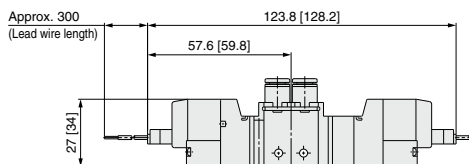
Grommet (G): VQZ1  $\frac{3}{5}$   $\frac{2}{1}$  -□G□1-C3, C4, C6



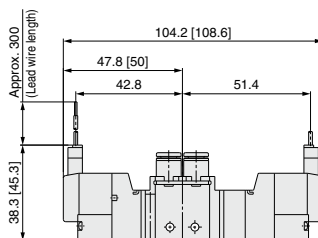
VQZ1  $\frac{3}{5}$   $\frac{2}{1}$  -□G□1-M5



L-type plug connector (L): VQZ1  $\frac{3}{5}$   $\frac{2}{1}$  -□L□1-C3, C4, C6



M-type plug connector (M): VQZ1  $\frac{3}{5}$   $\frac{2}{1}$  -□M□1-C3, C4, C6



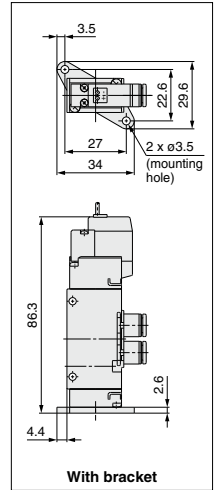
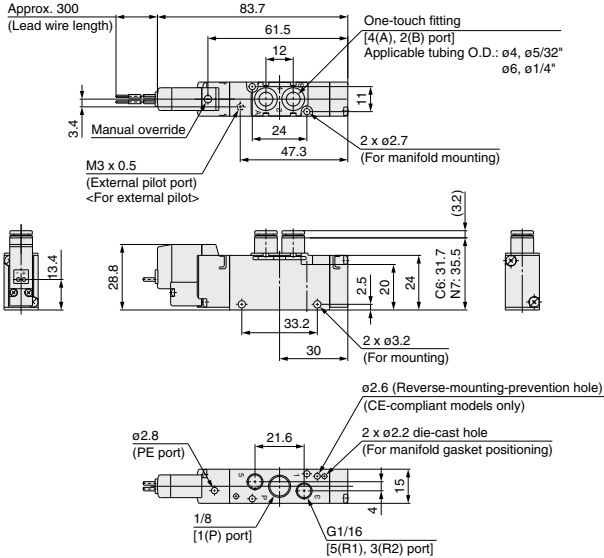
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ]: AC

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

## Dimensions: VQZ2000

### 2 Position Single

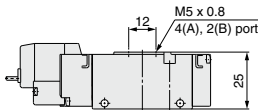
Grommet (G): VQZ212<sup>0</sup> (R)-□G□1-C4, C6



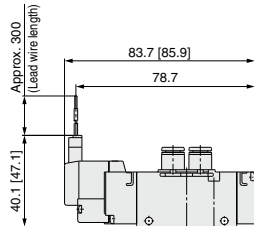
Note 1) For bracket assembly part no., refer to page 1280.

Note 2) For One-touch fittings for P/R port and silencer part no., refer to page 1324.

VQZ212<sup>0</sup> (R)-□G□1-M5



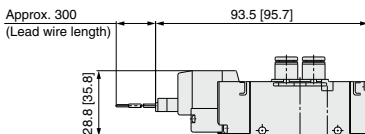
M-type plug connector (M): VQZ212<sup>0</sup> (R)-□M□1-C4, C6



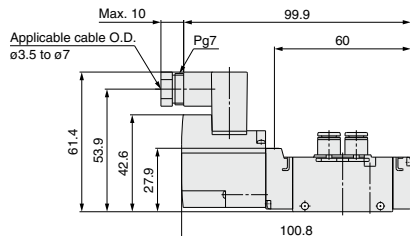
Unless otherwise indicated, dimensions are the same as Grommet (G).

[ ] : AC

L-type plug connector (L): VQZ212<sup>0</sup> (R)-□L□1-C4, C6



DIN terminal (Y): VQZ212<sup>0</sup> (R)-□Y□1-C4, C6



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

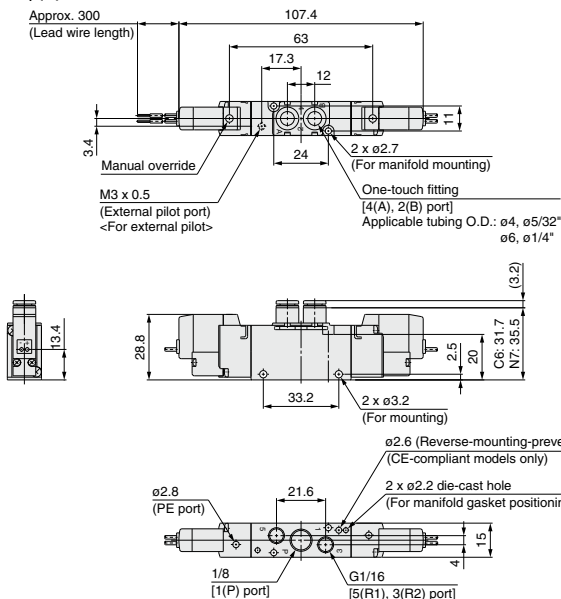
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ] : AC

# Series VQZ1000/2000/3000

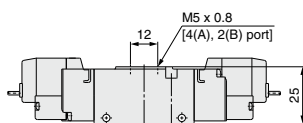
## Dimensions: VQZ2000

### 2 Position Double

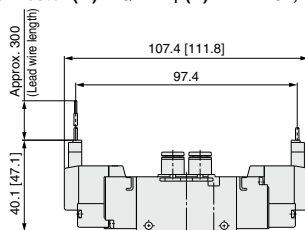
Grommet (G): VQZ222<sup>0</sup> (R)-□G□1-C4, C6



VQZ222<sup>0</sup> (R)-□G□1-M5

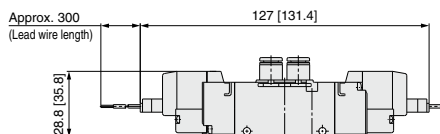


M-type plug connector (M): VQZ222<sup>0</sup> (R)-□M□1-C4, C6



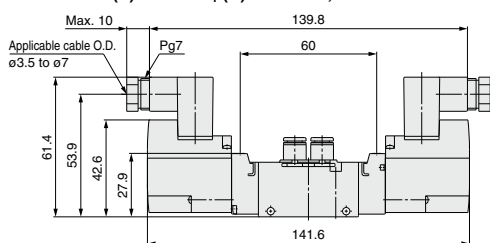
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ] : AC

L-type plug connector (L): VQZ222<sup>0</sup> (R)-□L□1-C4, C6



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

DIN terminal (Y): VQZ222<sup>0</sup> (R)-□Y□1-C4, C6

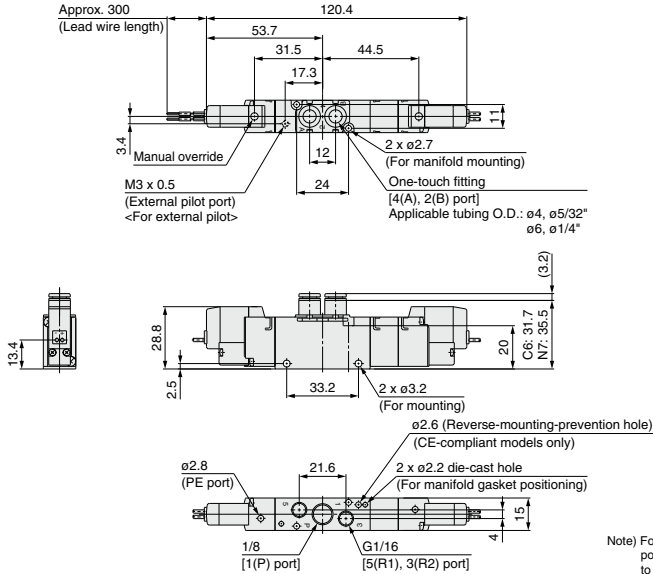


Unless otherwise indicated, dimensions are the same as Grommet (G).

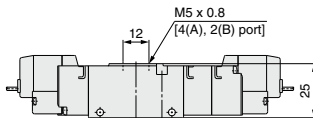
## Dimensions: VQZ2000

### 3 Position Closed Center/Exhaust Center/Pressure Center

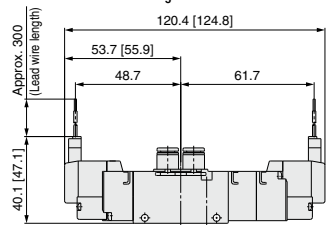
Grommet (G): VQZ2 $\frac{3}{4}$  2 $\frac{0}{1}$  (R)-□G□1-C4, C6



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

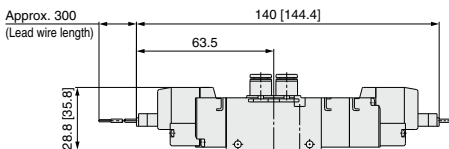


M-type plug connector (M): VQZ2 $\frac{3}{4}$  2 $\frac{0}{1}$  (R)-□M□1-C4, C6



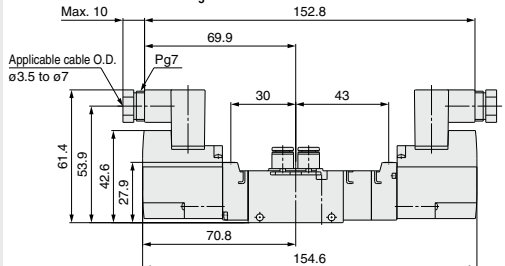
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ] : AC

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



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

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



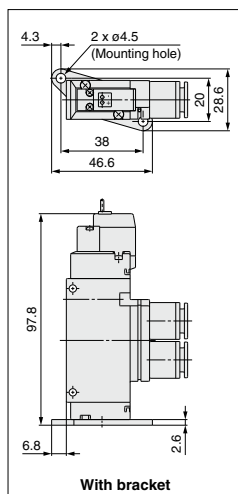
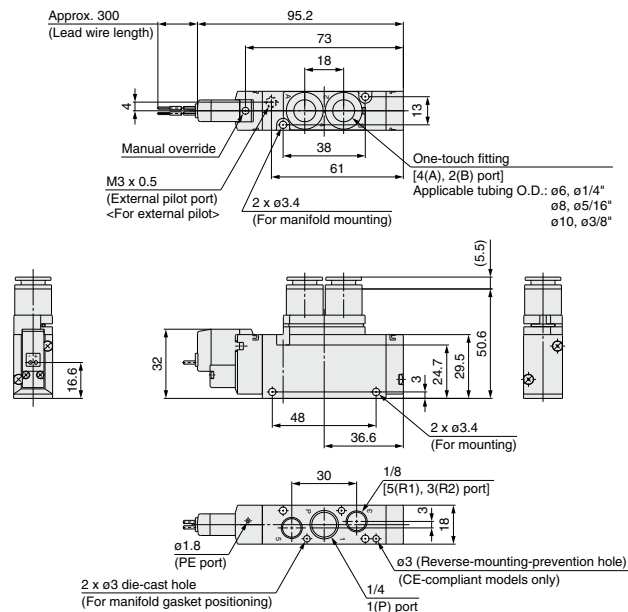
Unless otherwise indicated, dimensions are the same as Grommet (G).

# Series VQZ1000/2000/3000

## Dimensions: VQZ3000

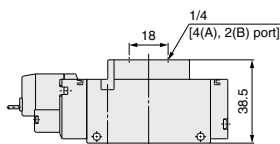
### 2 Position Single

Grommet (G): VQZ312<sup>0</sup> (R) □G□1-C6, C8, C10

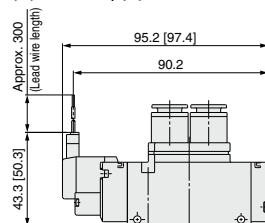


Note) For bracket assembly part no., refer to page 1280.

VQZ312<sup>0</sup> (R) □G□1-02

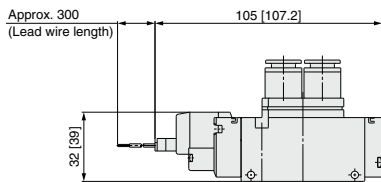


M-type plug connector (M): VQZ312<sup>0</sup> (R) □M□1-C6, C8, C10



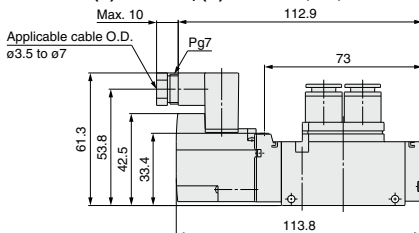
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ] : AC

L-type plug connector (L): VQZ312<sup>0</sup> (R) □L□1-C6, C8, C10



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

DIN terminal (Y): VQZ312<sup>0</sup> (R) □Y□1-C6, C8, C10

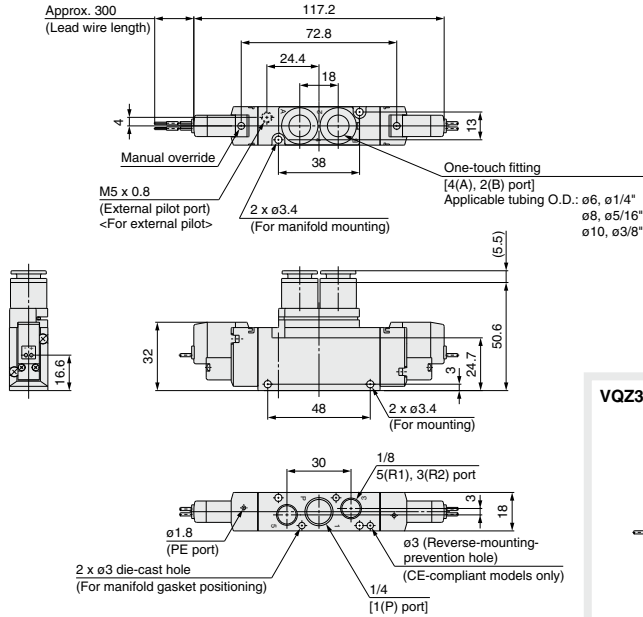


Unless otherwise indicated, dimensions are the same as Grommet (G).

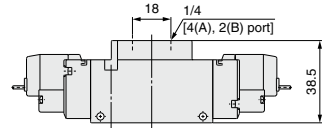
## Dimensions: VQZ3000

### 2 Position Double

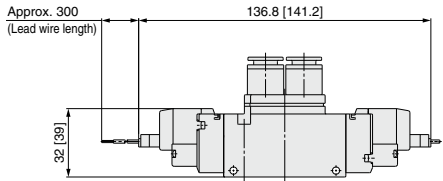
Grommet (G): VQZ322  $\frac{1}{2}$  (R)-□G□1-C6, C8, C10



VQZ322  $\frac{1}{2}$  (R)-□G□1-02

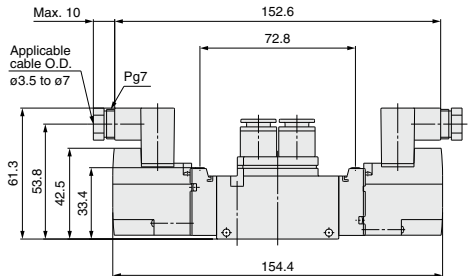


L-type plug connector (L): VQZ322  $\frac{1}{2}$  (R)-□L□1-C6, C8, C10

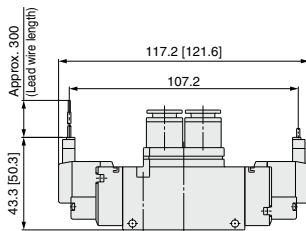


Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ] : AC

DIN terminal (Y): VQZ322  $\frac{1}{2}$  (R)-□Y□1-C6, C8, C10



M-type plug connector (M): VQZ322  $\frac{1}{2}$  (R)-□M□1-C6, C8, C10



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

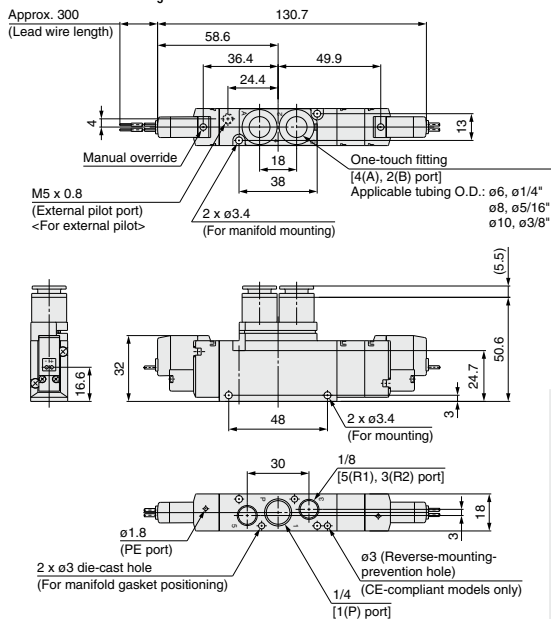
Unless otherwise indicated, dimensions are the same as Grommet (G).

# Series VQZ1000/2000/3000

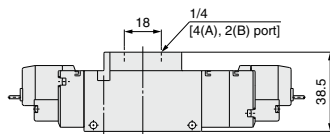
## Dimensions: VQZ3000

### 3 Position Closed Center/Exhaust Center/Pressure Center

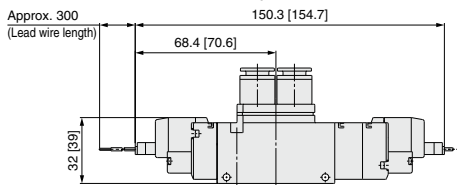
Grommet (G): VQZ3  $\frac{3}{4}$  2  $\frac{0}{1}$  (R)-□G□1-C6, C8, C10



VQZ3  $\frac{3}{4}$  2  $\frac{0}{1}$  (R)-□G□1-02



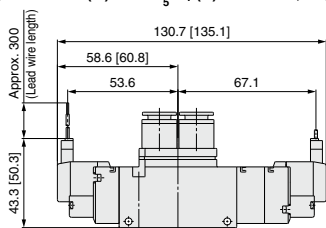
L-type plug connector (L): VQZ3  $\frac{3}{4}$  2  $\frac{0}{1}$  (R)-□L□1-C6, C8, C10



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

[ ] : AC

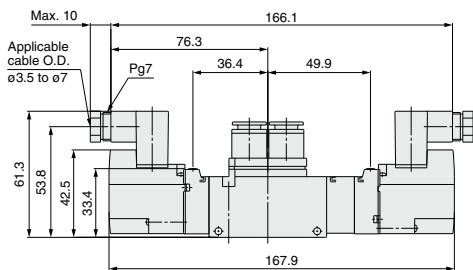
M-type plug connector (M): VQZ3  $\frac{3}{4}$  2  $\frac{0}{1}$  (R)-□M□1-C6, C8, C10



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

[ ] : AC

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



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



Body Ported

Plug Lead Unit

## 5 Port Solenoid Valve

# Series VQZ1000/2000/3000

## Manifold Connector Kit



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

### How to Order Manifold

**VV5QZ** **1** **2** — **08** **C** — —

**Series**

1	VQZ1000
2	VQZ2000
3	VQZ3000

**Manifold type**

2	Body ported
---	-------------

**Stations**

02	2 stations
20	20 stations

**Option**

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

Note) Order DIN rail part no., refer to page 1276.

**CE-compliant**

Nil	—
Q	CE-compliant

**Kit type**

C	Connector
---	-----------

Note) For optional thread type of 1(P), 3(R2) and 5(R1) port, refer to page 1279.

### 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	3 position pressure center
8	3 port for mixture mounting N.C.
9	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 1320.)

**Body type**

2	Body ported
---	-------------

**Seal type**

0	Metal seal
1	Rubber seal

**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 1279.

**IP65 compliant**

Nil	—
W	Compliant

Note) VQZ2000/3000 DIN terminal rubber seal only (except external pilot). For details on IP65 enclosure, refer to page 1279.

**Manual override**

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

**Electrical entry**

Nil	—
-----	---

**CE-compliant**

Nil	—
Q	CE-compliant

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

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

Note 1) Semi-standard

Note 2) For details on external pilot type, refer to page 1279.

Note 3) There is no VQZ1000 setting.

Note 4) For AC specification power consumption, refer to page 1260.



Use standard (DC) specification for continuous duty.

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

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.

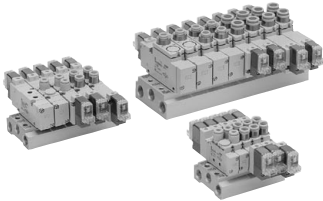
Note 2) Standard lead wire length: 300 mm

#### 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



Manifold Specifications



Series	Base model	Piping direction	Piping specifications		Applicable solenoid valve	Applicable stations	Manifold base weight (g)
			1(P), 3(R)	Port size 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**

Labels in diagram:  
- D side  
- U side  
- Stations  
- VQZ2120-5M1-C6  
- VQZ2220-5M1-C6  
- VQZ2320-5M1-C6  
- VVQZ2000-10A-2  
- C6: One-touch fitting for ø6  
- VV5QZ22-05C

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)**

### One-touch fitting

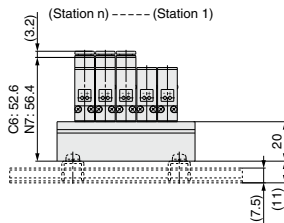
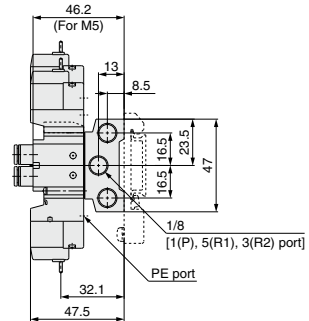
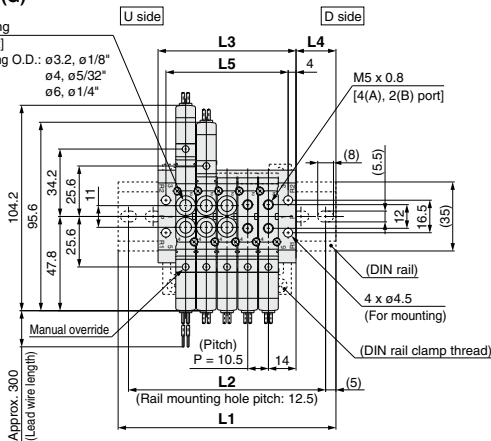
[4(A), 2(B) port]

Applicable tubing O.D.:  $\varnothing 3.2$ ,  $\varnothing 1/8"$

ø4, ø5/32"

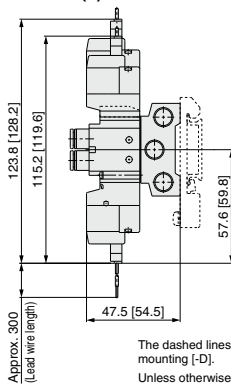
ø6, ø1/4"

Year	United States (%)	Japan (%)	Germany (%)
1950	7	7	15
1960	8	8	16
1970	9	10	17
1980	10	13	17
1990	11	16	17
2000	12	18	17
2010	13	19	17
2020	14	20	17
2030	14.5	20	17.5
2040	15	20	18
2050	15	20	18



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

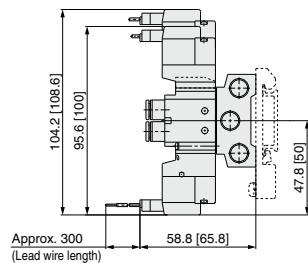
### L-type plug connector (L)



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

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

**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

$n$	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

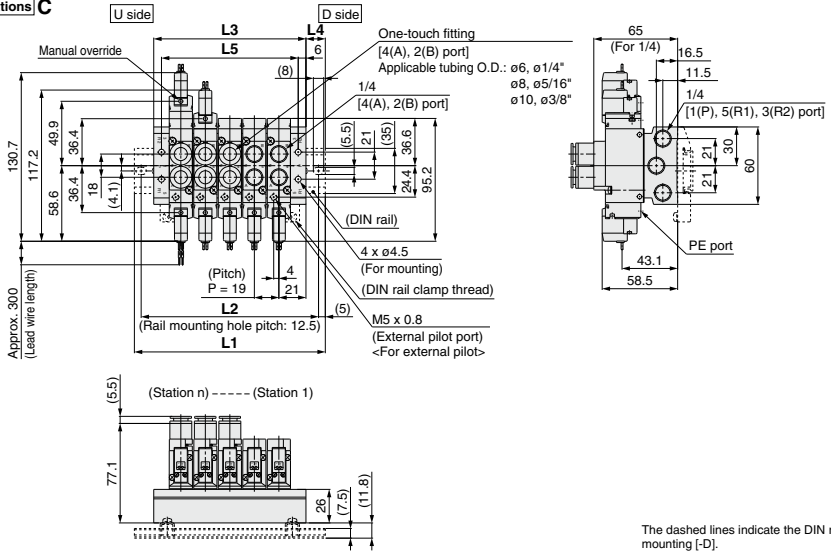
SJ
SY
SY
SV
SYJ
SZ
VF
VP4
S0700
VQ
VQ4
VQ5
VQC
VQC4
VQZ
SQ
VFS
VFR
VQ7



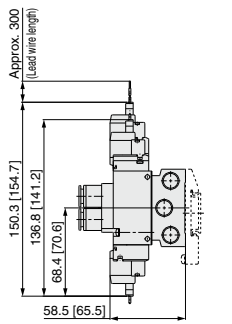
## Dimensions: VQZ3000

### VV5QZ32- Stations C

#### Grommet (G)



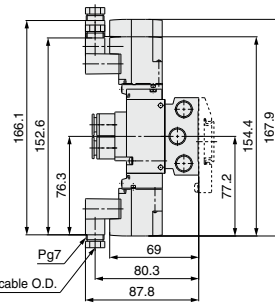
#### L-type plug connector (L)



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

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

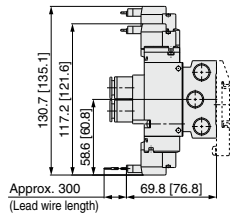
#### DIN terminal (Y)



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

	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	

n: Stations (Max. 20 stations)

# Series VQZ1000/2000/3000

## Manifold Options

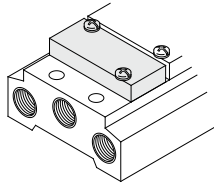
### Blanking plate assembly

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

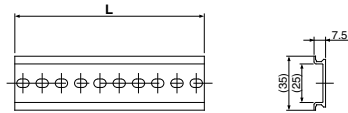
AXT100-DR-□

\* 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

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

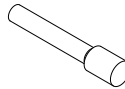
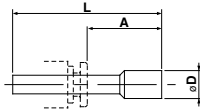
KQ2P-23

KQ2P-04

KQ2P-06

KQ2P-08

KQ2P-10

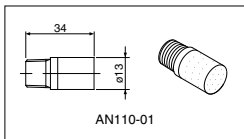


#### Dimensions

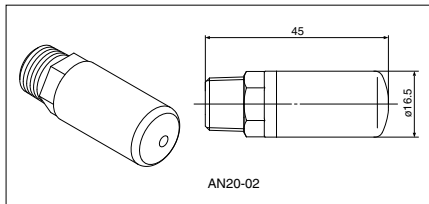
Applicable fitting size øD	Model	A	L	D
3.2	KQ2P-23	16	31.5	5
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10
10	KQ2P-10	22	43	12

### Silencer (for manifold EXH port)

Silencer is installed in the manifold EXH port.



AN110-01



AN20-02

#### Dimensions

Model	Silencer part no.
VQZ1000	AN110-01
VQZ2000	AN110-01
VQZ3000	AN20-02

For a silencer to be mounted in a single valve unit, refer to page 1324.

### 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-□□□

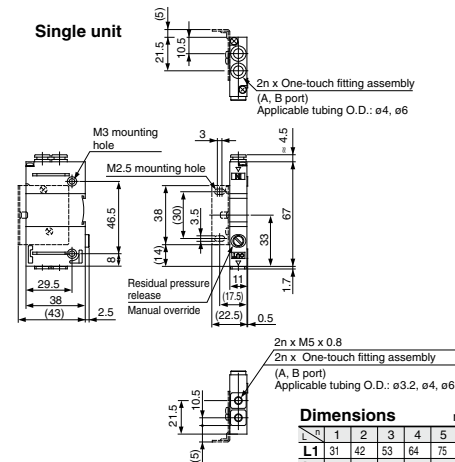
It is used on the outlet side piping to keep the cylinder in the intermediate position for a long time. Combining the perfect block with a built-in pilot type perfect valve and a 3 position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for a long 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.

#### 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 dm <sup>3</sup> /(s-bar)
Max. operating frequency	180 c.p.m

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

#### Dimensions



Dimensions		n: Station (Maximum 24 stations)																							
	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	137.5	150	162.5	175														
L3	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5														
	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	262.5	275	287.5	300														
L3	198	198	210.5	223	235.5	248	260.5	273	285.5	298	310.5														

#### How to Order

##### Perfect block

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

##### IN side port size

<b>C4</b>	ø4 One-touch fitting
<b>C6</b>	ø6 One-touch fitting

##### OUT side port size

<b>M5</b>	M5 thread
<b>C3</b>	ø3.2 One-touch fitting
<b>C4</b>	ø4 One-touch fitting
<b>C6</b>	ø6 One-touch fitting

##### Option

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

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

##### Manifold (DIN rail mounting style)

VVQ1000-FPG-**06**

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

##### Stations

<b>01</b>	1 station
<b>...</b>	...
<b>16</b>	16 stations

<Ordering Example>

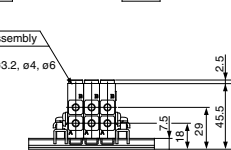
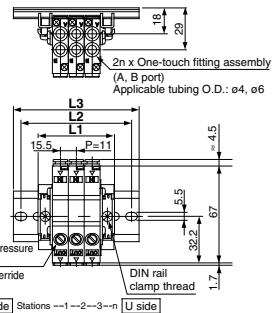
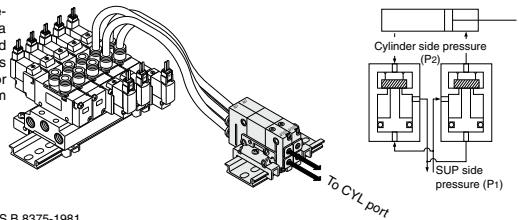
VVQ1000-FPG-06 .... 6 stations of manifold

\* VQ1000-FPG-C4M5-D, 3 sets

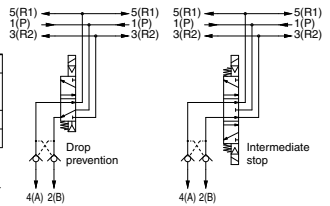
\* VQ1000-FPG-C6M5-D, 3 sets

Perfect block

#### <Check valve operating principle>



#### <Example>



#### <Bracket assembly>

Part no.	Tightening torque <sup>Note)</sup>
<b>VQ1000-FPG-FB</b>	0.22 to 0.25 N·m

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



# Series VQZ1000/2000/3000

## Manifold Options

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

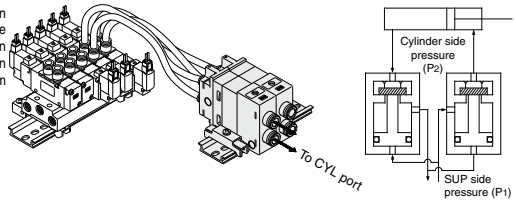
It is used on the outlet side piping to keep the cylinder in the intermediate position for a long time. Combining the perfect block with a built-in pilot type perfect valve and a 3 position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for a long 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.

#### Specifications

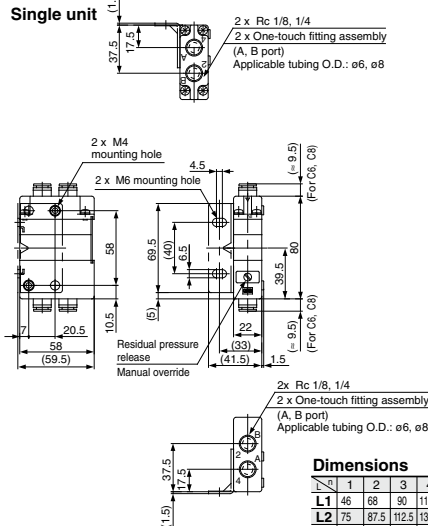
Maximum operating pressure	0.8 MPa
Minimum operating pressure	0.15 MPa
Ambient and fluid temperature	-5 to 50°C
Flow characteristics: C	3.0 dm³/(s·bar)
Max. operating frequency	180 c.p.m

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

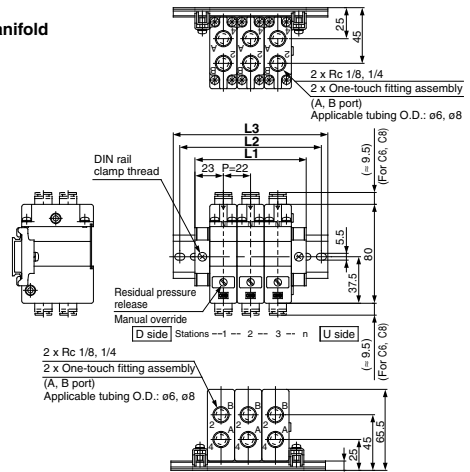
#### <Check valve operating principle>



#### Dimensions



#### Manifold



#### Dimensions

	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	100	112.5	125	137.5	150	162.5	175	187.5	200	212.5	225	237.5	250	262.5
L3	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5	273

#### 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

##### Manifold (DIN rail mounting style)

VVQ2000-FPG-06

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

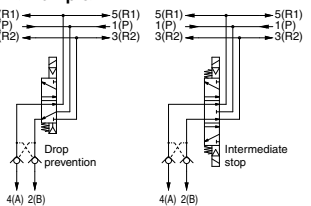
##### Stations

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 }

#### <Example>



#### 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.
- 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.

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

#### <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.

# Semi-standard Specifications

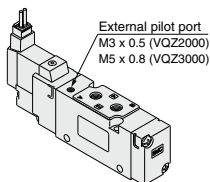
## External Pilot Specification (Except VQZ1000)

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.



• Entry is the same as standard products.



### Pressure Specifications

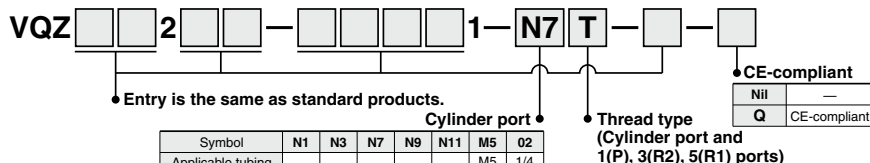
Series	VQZ2000/3000		
	2 position single	2 position double	3 position
External pilot pressure range	0.1 to 0.7 MPa (VQZ3000, 3 position only) 0.15 to 0.7 MPa		
	0.15 to 0.7 MPa	0.1 to 0.7 MPa	0.2 to 0.7 MPa
Operating pressure range	-100 kPa to 0.7 MPa		

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.



• Entry is the same as standard products.

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.

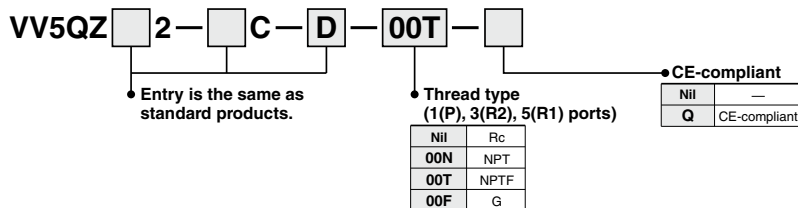
• Thread type (Cylinder port and 1(P), 3(R2), 5(R1) ports)

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.



• 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)



• 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)

Fitting size	C3	C4	C6	C8	C10
Model					
<b>VQZ1000/2000</b>	VVQ1000-50A-C3	VVQ1000-50A-C4	VVQ1000-50A-C6	—	—
<b>VQZ3000</b>	—	—	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

### 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	AC
VQZ1120-5LO1-M5	VQZ1120-1LO1-M5
SY100-30-4A-20	SY100-30-1A-20

### <Pilot valve assembly>

V111

#### Function

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

Note) Semi-standard

#### 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

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

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

#### Electrical entry

Symbol	Electrical entry	Light/surge voltage suppressor
DC	AC	
<b>G</b>	—	Grommet (DC specification)
<b>LU</b>	<b>LZ</b>	L-type plug connector with lead wire
<b>LOU</b>	<b>LOZ</b>	L-type plug connector without connector
<b>MU</b>	<b>MZ</b>	M-type plug connector with lead wire
<b>MOU</b>	<b>MOZ</b>	M-type plug connector without connector
		Yes

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

V115

#### Function

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

Note) Semi-standard

#### 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

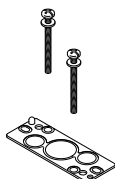
Symbol	Electrical entry	Light/surge voltage suppressor
<b>Y</b>	DIN terminal	None
<b>YO</b>	DIN terminal without connector	None
<b>YZ</b>	DIN terminal with light/surge voltage suppressor	Yes
<b>YS</b>	DIN terminal with surge voltage suppressor (DC specification)	Yes (With indicator light)
<b>YOS</b>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

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

### <Gasket and screw assembly>

	Part no.
<b>VQZ1000</b>	VQZ1000-GS-2
<b>VQZ2000</b>	VQZ2000-GS-2
<b>VQZ3000</b>	VQZ3000-GS-2

Note) The above part numbers are for 10 valves (a set of 10 gaskets and 20 screws).



### <Bracket assembly>

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

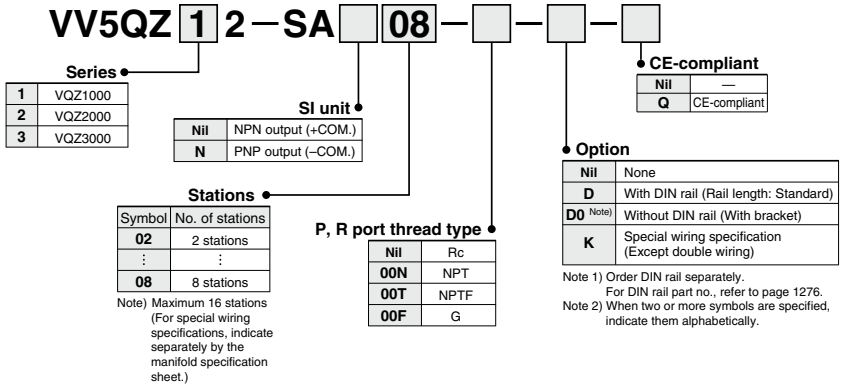
<b>SJ</b>
<b>SY</b>
<b>SY</b>
<b>SV</b>
<b>SYJ</b>
<b>SZ</b>
<b>VF</b>
<b>VP4</b>
<b>S0700</b>
<b>VQ</b>
<b>VQ4</b>
<b>VQ5</b>
<b>VQC</b>
<b>VQC4</b>
<b>VQZ</b>
<b>SQ</b>
<b>VFS</b>
<b>VFR</b>
<b>VQ7</b>

# EX510 Gateway-type Serial Transmission System

## Series **VQZ1000/2000/3000** Body Ported Manifold

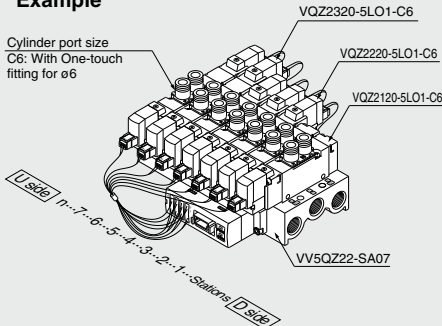


### How to Order Manifold



### 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

Refer to page 2124 and the Operation Manual for the details of EX510 Gateway-type Serial Transmission System. Please download the Operation Manual via our website, <http://www.smcworld.com>

**How to Order Valve****VQZ** **1** **1** **2** **1** **—** **5** **MO** **—** **1** **—** **C6** **—** **—**● **Series**

<b>1</b>	VQZ1000
<b>2</b>	VQZ2000
<b>3</b>	VQZ3000

● **Type of actuation**

<b>1</b>	2 position single
<b>2</b>	2 position double
<b>3</b>	3 position closed center
<b>4</b>	3 position exhaust center
<b>5</b> Note 1)	3 position pressure center
<b>8</b> Note 2)	3 port for mixture mounting N.C.
<b>9</b> 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 1324.)

● **Seal type**

<b>0</b>	Metal seal
<b>1</b>	Rubber seal

● **Function**

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

Note 1) Semi-standard

Note 2) For details on external pilot type, refer to page 1279.

Note 3) There is no VQZ1000 setting.

● **Rated voltage: 24 VDC**● **CE-compliant**

<b>Nil</b>	—
<b>Q</b>	CE-compliant

● **Thread type**

<b>Nil</b>	Rc
<b>N</b>	NPT
<b>T</b>	NPTF
<b>F</b>	G

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

Note 2) Except VQZ1000

● **Manual override**

<b>Nil</b>	Non-locking push type (Tool required)
<b>B</b>	Locking type (Tool required)

● **Electrical entry**

<b>LO</b>	L-type plug connector without connector
<b>MO</b>	M-type plug connector without connector

(Note) With light/surge voltage suppressor

● **A, B port size****Thread piping**

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

**One-touch fitting (Metric size)**

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
<b>C3</b>	ø3.2 One-touch fitting	○	—	—
<b>C4</b>	ø4 One-touch fitting	○	○	—
<b>C6</b>	ø6 One-touch fitting	○	○	○
<b>C8</b>	ø8 One-touch fitting	—	—	○
<b>C10</b>	ø10 One-touch fitting	—	—	○

**One-touch fitting (Inch size)**

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

**Made to Order**

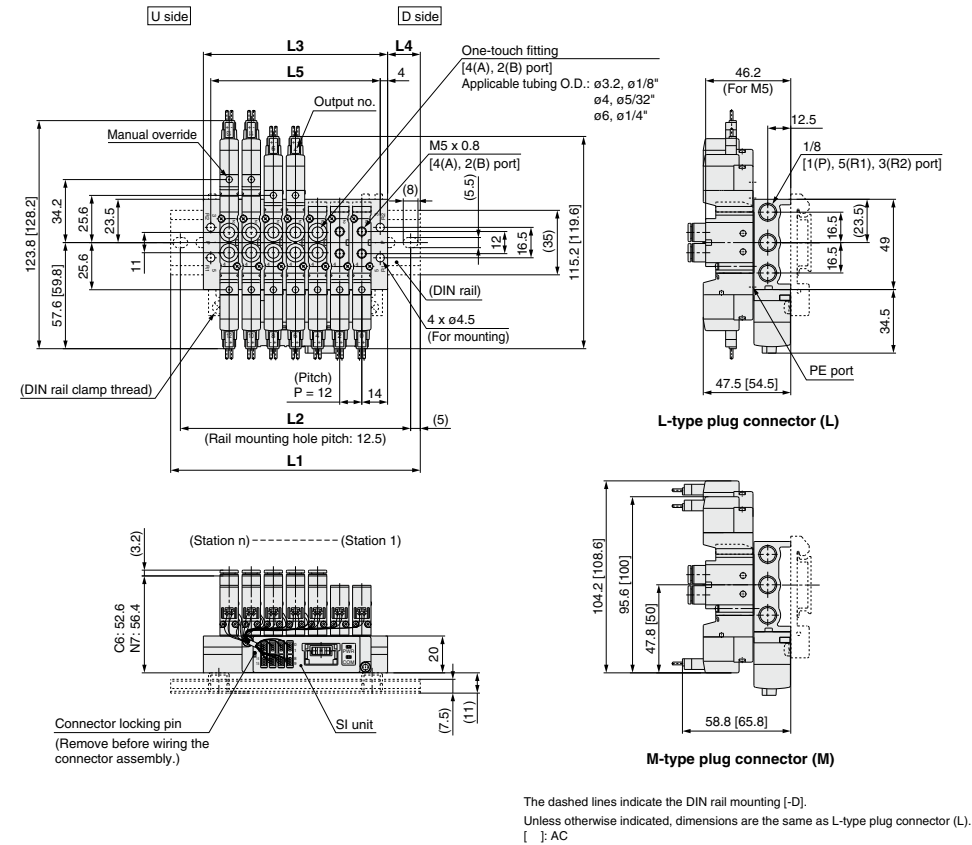
(For details, refer to page 1321.)

Symbol	Description
<b>X30</b>	Pilot valve common exhaust
<b>X90</b>	Main valve fluororubber
<b>X113</b>	All fluororubber

**SJ****SY****SY****SV****SYJ****SZ****VF****VP4****S0700****VQ****VQ4****VQ5****VQC****VQC4****VQZ****SQ****VFS****VFR****VQ7**

Series **VQZ1000/2000/3000**

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

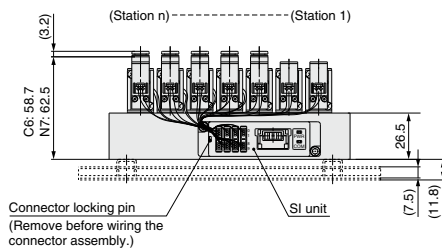
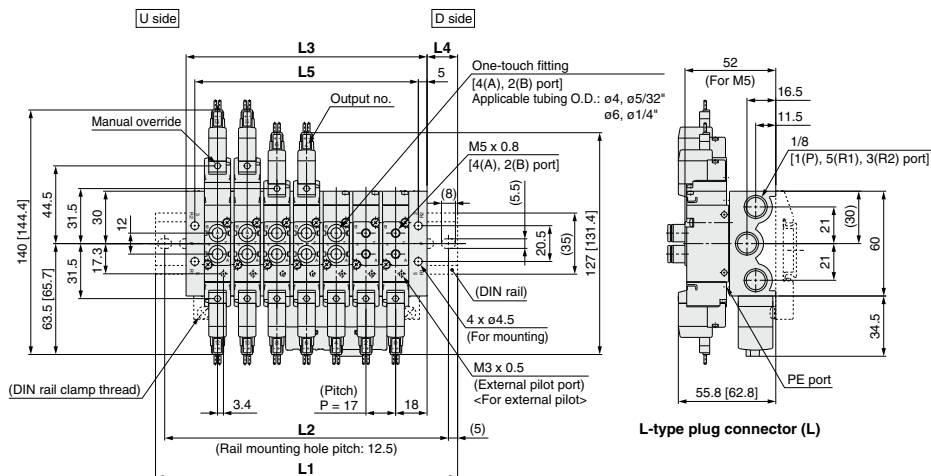


Dimensions															Max. 16 stations	
L	n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1		123	123	123	123	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248
L2		112.5	112.5	112.5	112.5	112.5	125	137.5	150	162.5	175	187.5	200	212.5	225	237.5
L3		88	88	88	88	88	100	112	124	136	148	160	172	184	196	208
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-type Serial Transmission System**



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

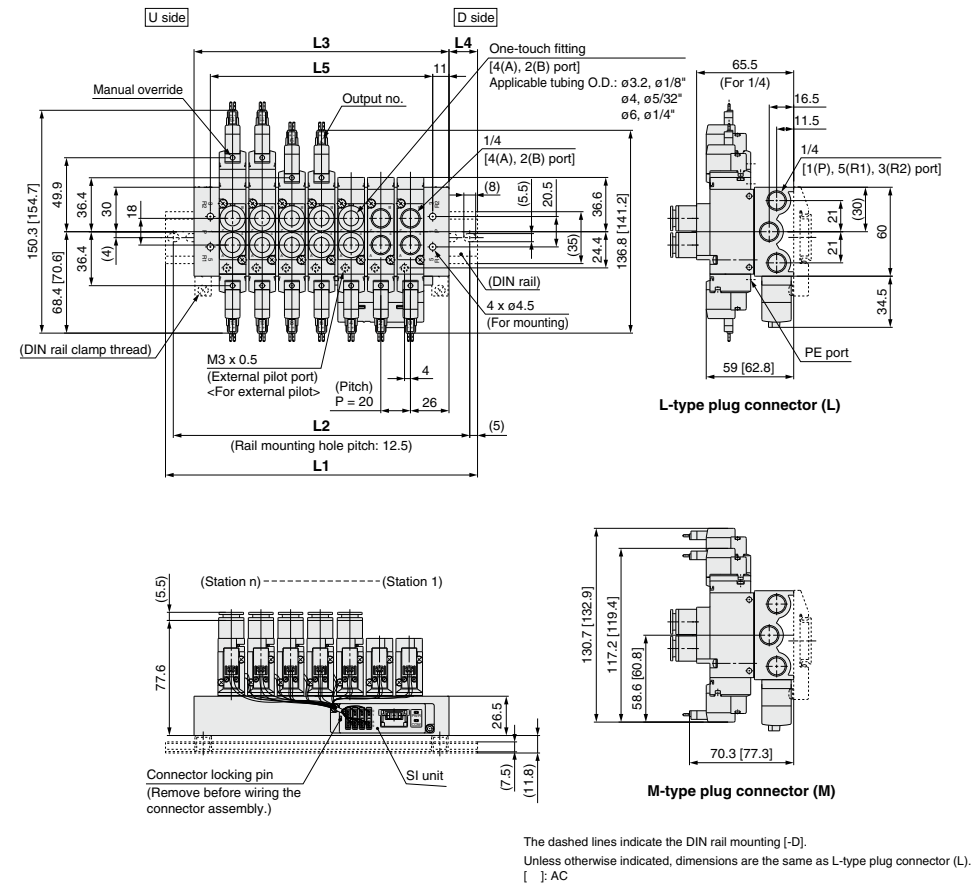
**Dimensions**

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.

Series **VQZ1000/2000/3000**

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



Dimensions

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	270	290	310	330

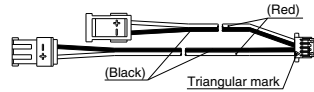
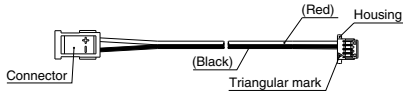
Note) The L dimension of 2 to 6 stations is the same. Valves are numbered from the D side according up to the number of stations.

## Manifold Options

### Connector assembly

Single solenoid (SY3000-37-81A-□-□)

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
VV5QZ22	SY3000-37-81A-3-6	Double/3 position: for 5 to 8 stations
	SY3000-37-81A-3-N	Single: for 1 to 8 stations
VV5QZ32	SY3000-37-81A-3-6	Double/3 position: for 1 to 8 stations
	SY3000-37-81A-3-N	Single: 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

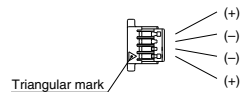
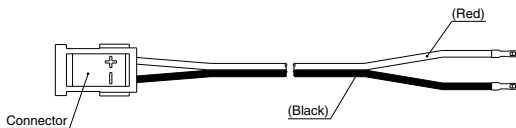
Note) There are no part nos. on the connectors of connector assemblies.

### 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



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

### How to Order Valve

Made to Order  
Made to Order  
(For details, refer to page 1321.)

VQZ 1 1 5 1 — 5 M — 1 — 01 —

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  (A/4 2/8) (R/15 1 3/R2) (P)	4	3 position exhaust center  (A/4 2/8) (R/15 1 3/R2) (P)
2	2 position double  (A/4 2/8) (R/15 1 3/R2) (P) Metal seal Rubber seal	5	3 position pressure center  (A/4 2/8) (R/15 1 3/R2) (P) Note) There is no 3 position pressure center for the metal seal type of the VQZ1000 series.
3	3 position closed center  (A/4 2/8) (R/15 1 3/R2) (P)		

#### 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)	(0.9 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) Semi-standard  
Note 2) For details on external pilot type, refer to page 1312.  
Note 3) For AC specification power consumption, refer to page 1289.

#### 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 1312.

#### 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 1312.

#### 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	With light/surge voltage suppressor
CE-Compliant	—	—	—	—	—
AC	—	—	—	—	—
DC	—	—	—	—	—
Y: DIN terminal Note 1)	YO: DIN terminal without connector Note 1)	YZ: DIN terminal Note 1)	YOS: DIN terminal with out connector (DC specification) Note 1)	YS: DIN terminal (DC specification) Note 1)	
	With light/surge voltage suppressor	With light/surge voltage suppressor	With surge voltage suppressor	With surge voltage suppressor	
CE-Compliant	—	—	—	—	—
AC	—	—	—	—	—
DC	—	—	—	—	—

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 1313.

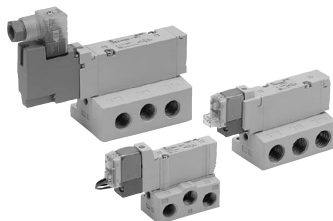


#### Caution

Use standard (DC) specification for continuous duty.

# Base Mounted *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)	
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.	
Impact/Vibration resistance (m/s <sup>2</sup> ) <sup>Note 1)</sup>			150/30	
Enclosure*			Dustproof (DIN terminal: IP65 <sup>Note 2)</sup> )	

\* 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□□51□-□Y□□□W1-□□

## Solenoid Specifications

Electrical entry		Grommet (G) L-type plug connector (L) G, L, M	M-type plug connector (M) DIN terminal (Y) 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	0.86 (With light: 0.89)	0.86 (With light: 0.87)
		[115V]	[0.94 (With light: 0.97)]	[0.94 (With light: 1.07)]
		200V	1.18 (With light: 1.22)	1.15 (With light: 1.30)
		220V	1.30 (With light: 1.34)	1.27 (With light: 1.46)
		[230V]	[1.42 (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.

## Semi-standard

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

\* For details on external pilot type, refer to page 1312.



## Made to Order

(For details, refer to page 1321.)

Symbol	Description
X30	Pilot valve common exhaust
X90	Main valve fluororubber
X113	All fluororubber

## Flow Characteristics

Series	Configuration		Model	Flow characteristics						Response time (ms) <sup>Note 1)</sup>				Note 2 Weight (g)	
				1→4/2 (P→A/B)			4/2→5/3 (A/B→EA/EB)			Standard 0.35 W	High speed response: 0.9 W	High pressure 0.9 W	AC		
				C [dm <sup>3</sup> /s(bar)]	b	Cv	C [dm <sup>3</sup> /s(bar)]	b	Cv						
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	Metal seal	VQZ1551	1.4	0.20	0.34	1.0	0.38	0.27	30 or less	25 or less	—	47 or less	
			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.

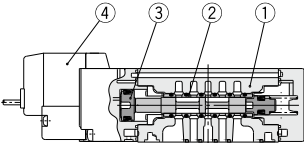
Note 2) Weight without sub-plate



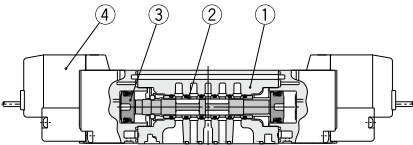
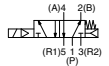
Series **VQZ1000/2000/3000**

**Construction: VQZ1000/2000/3000**

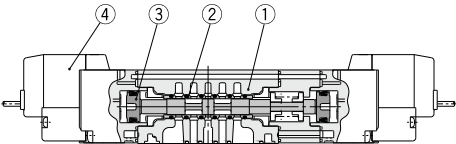
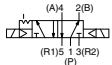
**Metal seal type**



2 position single



2 position double



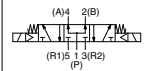
3 position closed center



3 position exhaust center

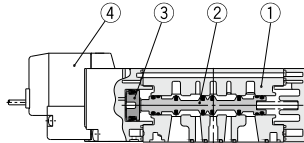


3 position pressure center

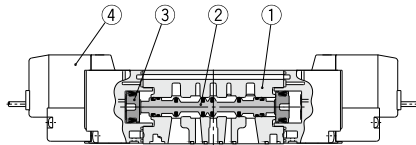
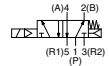


Note) Except metal seal type of the VQZ1000.

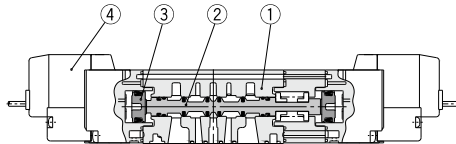
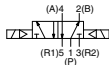
**Rubber seal type**



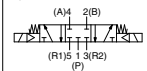
2 position single



2 position double



3 position closed center



3 position exhaust center



3 position pressure center



**Component Parts**

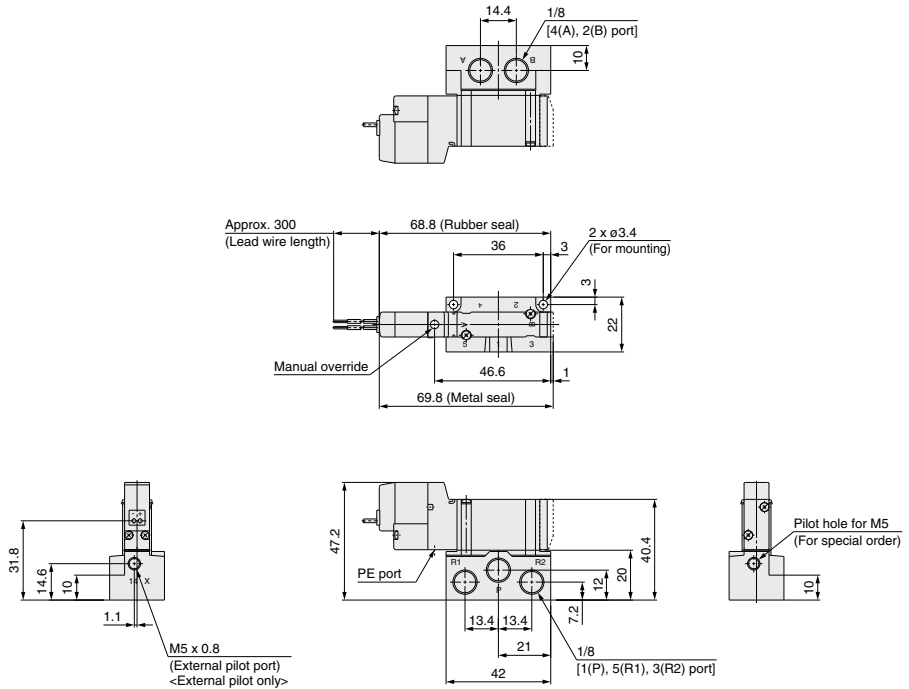
No.	Description	Material	Note
1	Body	Aluminum die-casted	
2	Spool, Sleeve	Stainless steel	Metal seal
	Spool valve	Aluminum/HNBR	Rubber seal
3	Piston	Resin	
4	Pilot valve assembly	—	

Note) For "How to Order Pilot Valve Assembly", refer to page 1313.

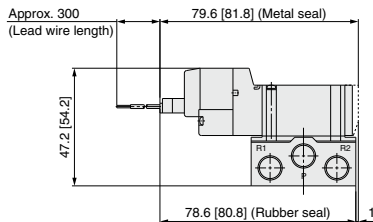
## Dimensions: VQZ1000

### 2 Position Single

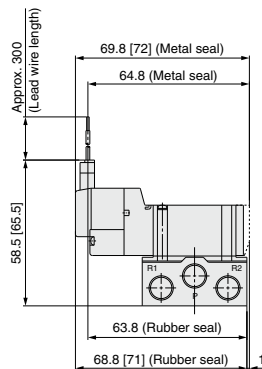
Grommet (G): VQZ115<sup>9</sup>(R)-□G□1-01



L-type plug connector (L): VQZ115<sup>9</sup>(R)-□L□1-01



M-type plug connector (M): VQZ115<sup>9</sup>(R)-□M□1-01



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

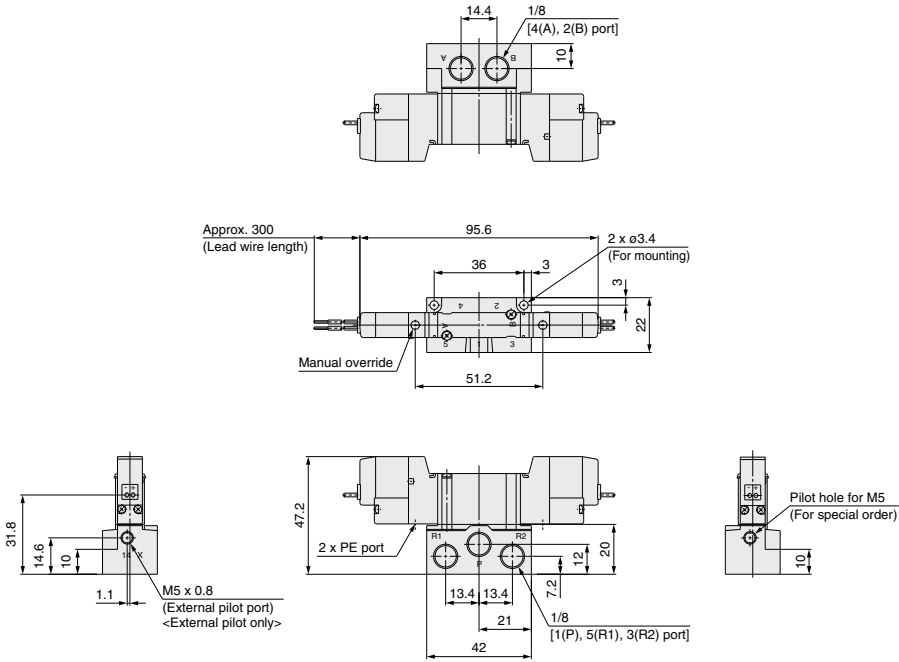
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ] : AC

Series **VQZ1000/2000/3000**

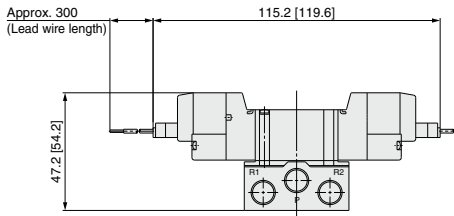
**Dimensions: VQZ1000**

**2 Position Double**

Grommet (G): VQZ125 <sup>9</sup> (R)-□G□1-01

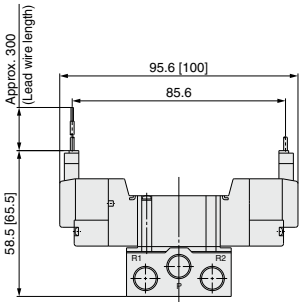


**L-type plug connector (L): VQZ125 <sup>9</sup> (R)-□L□1-01**



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

**M-type plug connector (M): VQZ125 <sup>9</sup> (R)-□M□1-01**



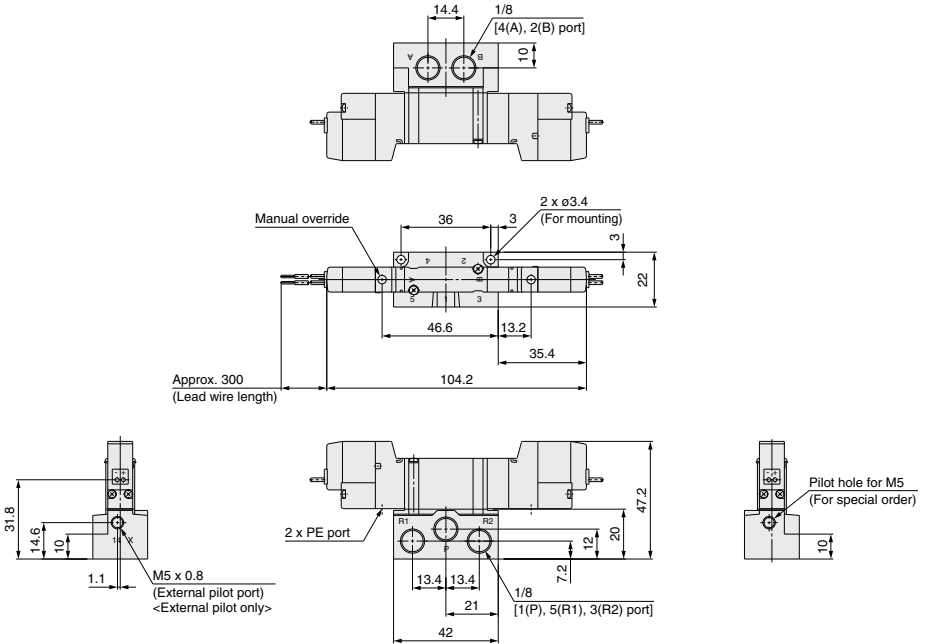
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ] : AC



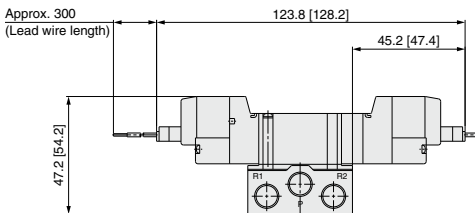
## Dimensions: VQZ1000

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

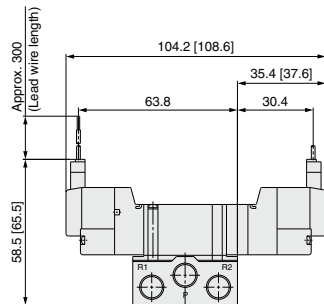
Grommet (G): VQZ1  $\frac{3}{5}$  5  $\frac{0}{1}$  (R)-□G□1-01



L-type plug connector (L): VQZ1  $\frac{3}{5}$  5  $\frac{0}{1}$  (R)-□L□1-01



M-type plug connector (M): VQZ1  $\frac{3}{5}$  5  $\frac{0}{1}$  (R)-□M□1-01



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

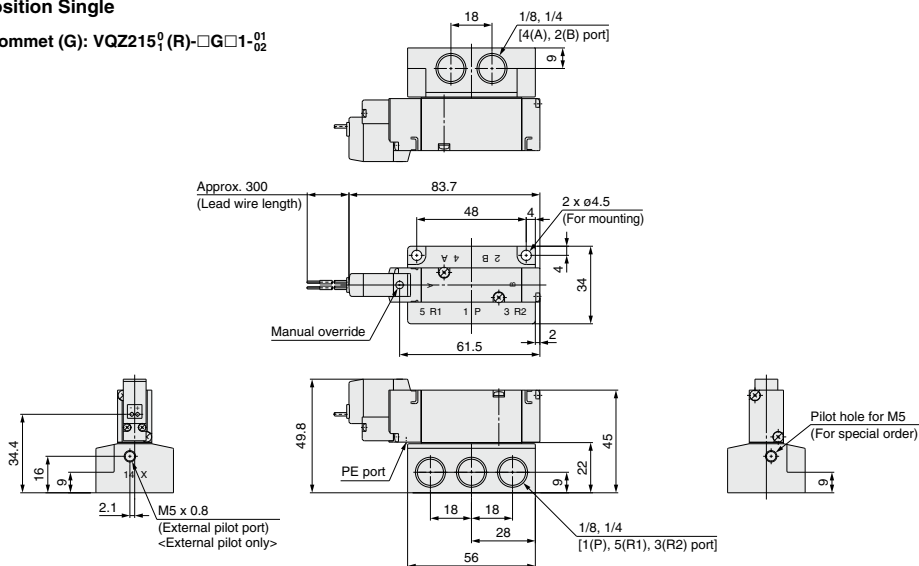
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ] : AC

# Series VQZ1000/2000/3000

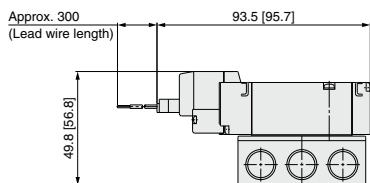
## Dimensions: VQZ2000

### 2 Position Single

Grommet (G): VQZ215<sup>0</sup><sub>1</sub> (R)-□□1-<sup>01</sup><sub>02</sub>

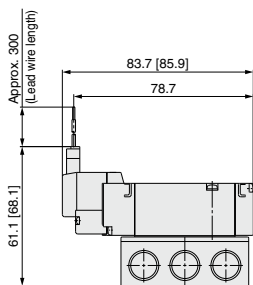


L-type plug connector (L): VQZ215<sup>0</sup><sub>1</sub> (R)-□□1-<sup>01</sup><sub>02</sub>



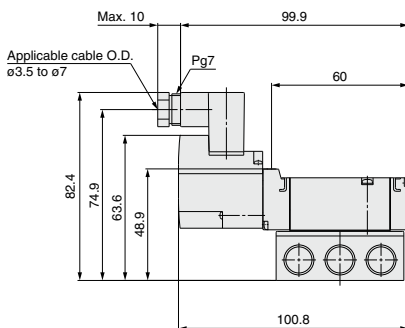
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ] : AC

M-type plug connector (M): VQZ215<sup>0</sup><sub>1</sub> (R)-□□1-<sup>01</sup><sub>02</sub>



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

DIN terminal (Y): VQZ215<sup>0</sup><sub>1</sub> (R)-□Y□1-<sup>01</sup><sub>02</sub>

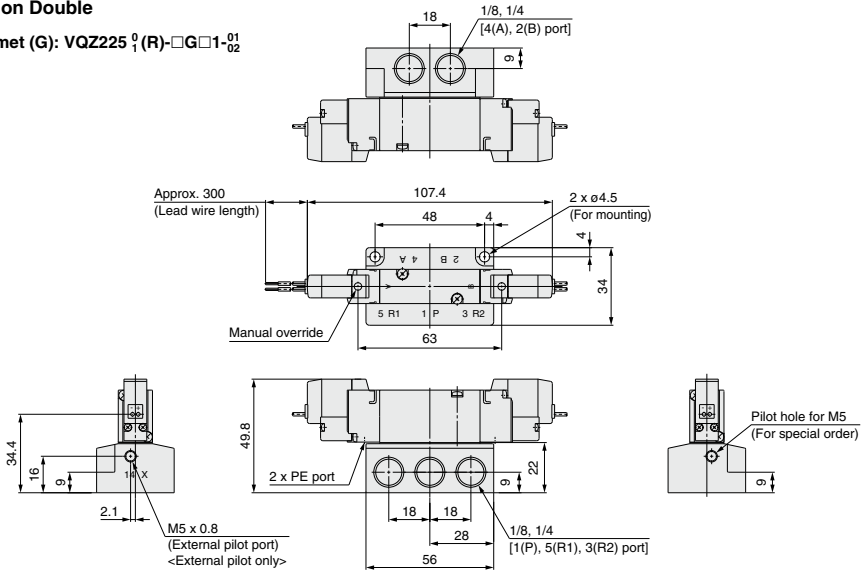


Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ] : AC

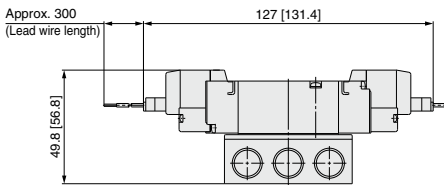
## Dimensions: VQZ2000

### 2 Position Double

Grommet (G): VQZ225 <sup>0</sup>/<sub>1</sub> (R)-□G□1-<sup>01</sup>/<sub>02</sub>

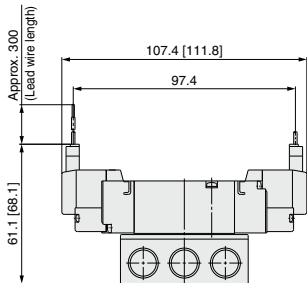


L-type plug connector (L): VQZ225 <sup>0</sup>/<sub>1</sub> (R)-□L□1-<sup>01</sup>/<sub>02</sub>



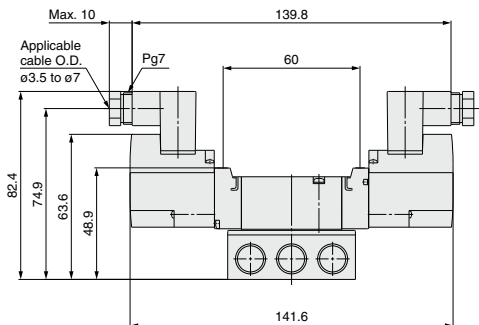
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ] : AC

M-type plug connector (M): VQZ225 <sup>0</sup>/<sub>1</sub> (R)-□M□1-<sup>01</sup>/<sub>02</sub>



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

DIN terminal (Y): VQZ225 <sup>0</sup>/<sub>1</sub> (R)-□Y□1-<sup>01</sup>/<sub>02</sub>



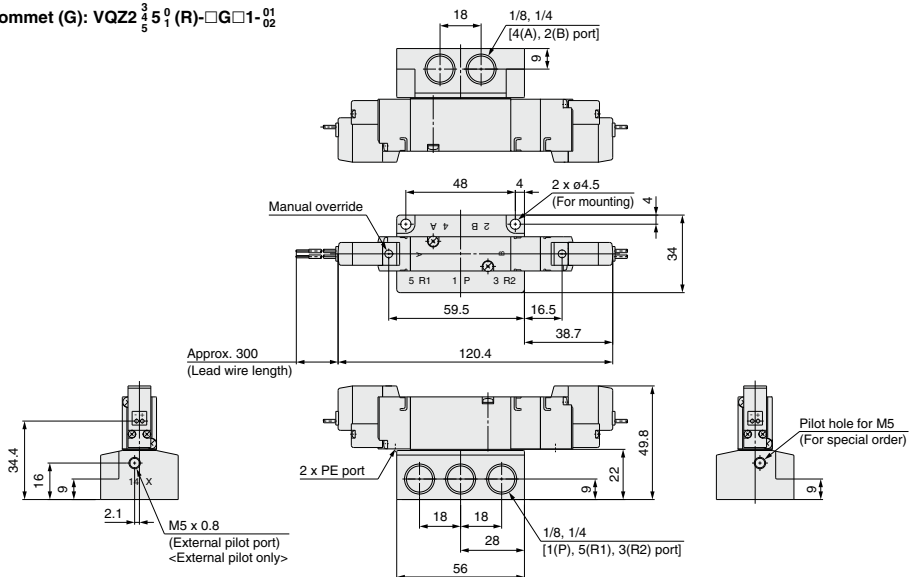
Unless otherwise indicated, dimensions are the same as Grommet (G).

# Series VQZ1000/2000/3000

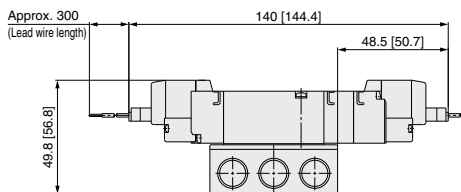
## Dimensions: VQZ2000

### 3 Position Closed Center/Exhaust Center/Pressure Center

Grommet (G): VQZ2  $\frac{3}{5}$  5  $\frac{0}{1}$  (R)-□G□1- $\frac{01}{02}$

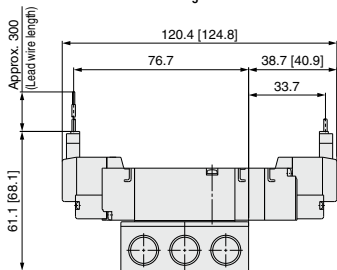


L-type plug connector (L): VQZ2  $\frac{3}{5}$  5  $\frac{0}{1}$  (R)-□L□1- $\frac{01}{02}$



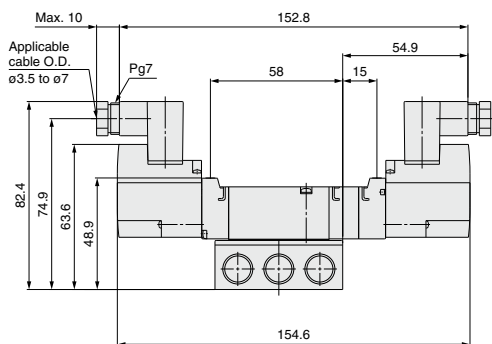
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ] : AC

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



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

DIN terminal (Y): VQZ2  $\frac{3}{5}$  5  $\frac{0}{1}$  (R)-□Y□1- $\frac{01}{02}$

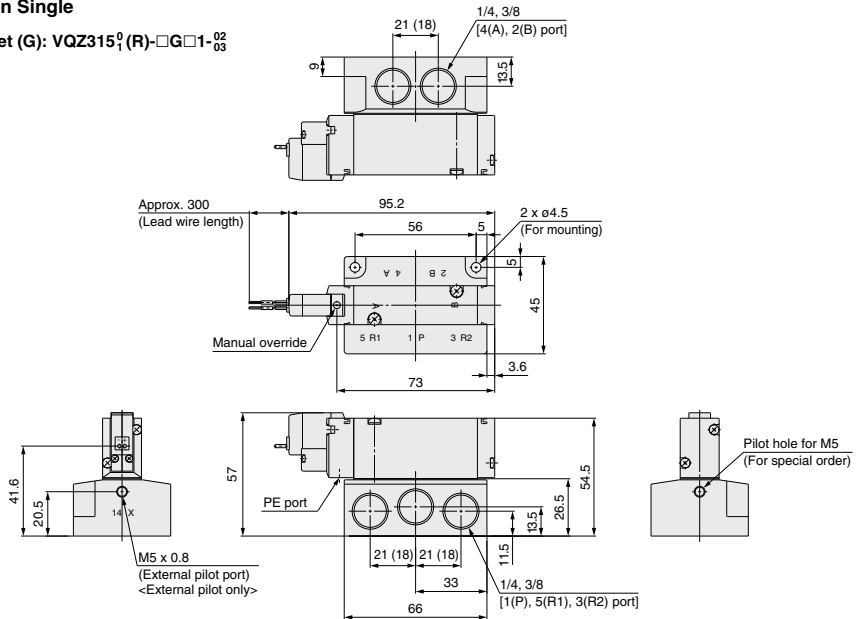


Unless otherwise indicated, dimensions are the same as Grommet (G).

## Dimensions: VQZ3000

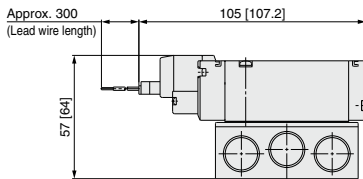
### 2 Position Single

Grommet (G): VQZ315<sup>0</sup> (R)-□G□1-<sup>02</sup><sub>03</sub>



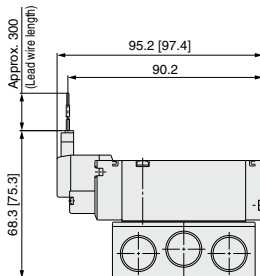
( ): VQZ315□-□G□1-02

L-type plug connector (L): VQZ315<sup>0</sup> (R)-□L□1-<sup>02</sup><sub>03</sub>



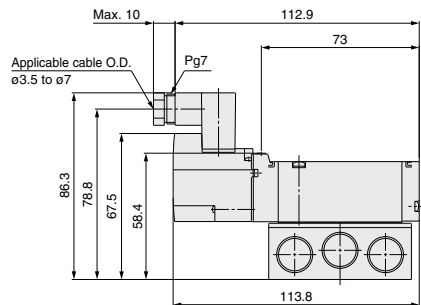
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ]: AC

M-type plug connector (M): VQZ315<sup>0</sup> (R)-□M□1-<sup>02</sup><sub>03</sub>



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

DIN terminal (Y): VQZ315<sup>0</sup> (R)-□Y□1-<sup>02</sup><sub>03</sub>

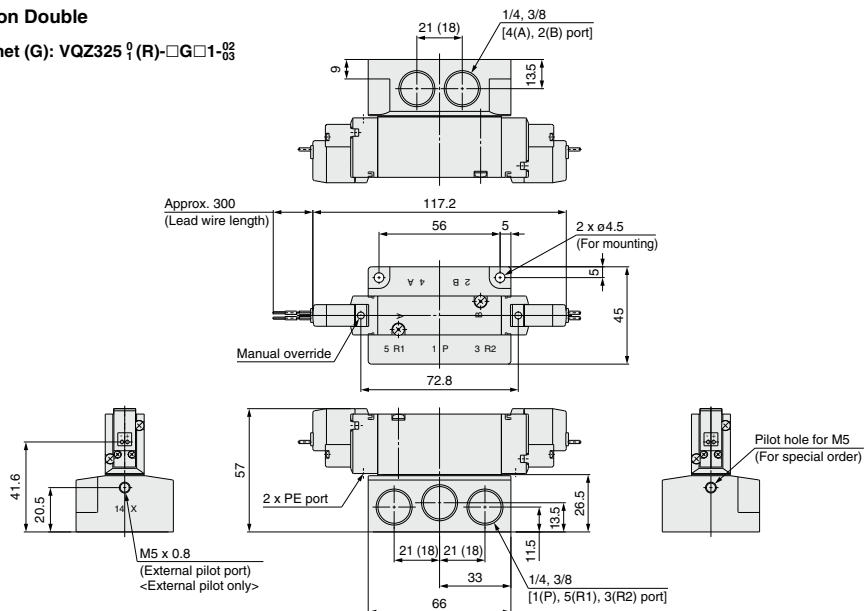


Unless otherwise indicated, dimensions are the same as Grommet (G).

### Dimensions: VQZ3000

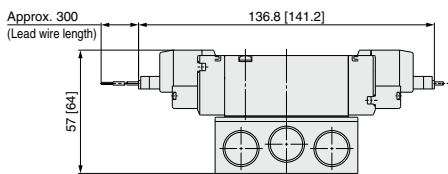
## 2 Position Double

**Grommet (G):** VQZ325 <sup>0</sup><sub>1</sub> (R)-□G□1-<sup>02</sup><sub>03</sub>



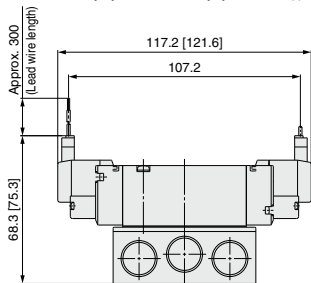
( ): VQZ325□-□G□1-02

**L-type plug connector (L):** VQZ325<sup>0</sup><sub>1</sub> (R)-□L□1-<sup>02</sup><sub>03</sub>



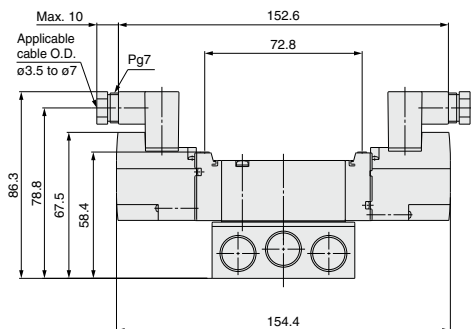
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ]: AC

M-type plug connector (M): VQZ325<sup>0</sup><sub>1</sub> (R)-□M□1-<sup>02</sup><sub>03</sub>



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

DIN terminal (Y): VQZ325<sup>0</sup><sub>1</sub> (R)-□Y□1-<sup>02</sup><sub>03</sub>



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



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

#### How to Order Manifold



**Made to Order**  
(For details, refer to page 1321.)

VV5QZ 1 5 - 08 C6 C - N -

**Series**

1	VQZ1000
2	VQZ2000
3	VQZ3000

**Stations**

02	2 stations
20	20 stations

**Manifold type**

5	Base mounted
---	--------------

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

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
<b>C3</b>	ø3.2 One-touch fitting	○	—	—
<b>C4</b>	ø4 One-touch fitting	○	○	○
<b>C6</b>	ø6 One-touch fitting	○	○	○
<b>C8</b>	ø8 One-touch fitting	—	○	○
<b>C10</b>	ø10 One-touch fitting	—	—	○
<b>M5</b>	M5 thread	○	—	—
<b>01</b>	Rc 1/8	—	○	—
<b>02</b>	Rc 1/4	—	—	○
<b>CM</b> <small>Note 1)</small>	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 1312.

**CE-compliant**

Nil	—
Q	CE-compliant

**Option** Note 1)

Nil	None
<b>D</b>	DIN rail mounting (With standard DIN rail length)
<b>D0</b> <small>Note 1)</small>	DIN rail mounting (Without DIN rail)
<b>N</b> <small>Note 4)</small>	Name plate (Except VQZ1000)
<b>R</b> <small>Note 1)</small>	External pilot type

Note 1) Order DIN rail separately.

For DIN rail part no., refer to page 1306.

Note 2) For details on options and external pilot type, refer to page 1312.

Note 3) When two or more symbols are specified, indicate them alphabetically.

Note 4) When mounting the blanking plate at the end of the manifold, the name plate cannot be mounted. In this case, the name plate comes with the manifold. When mounting the name plate on only the mounted solenoid valve, please order the name plate separately. (Refer to page 1306.)

**Kit type**

C	Connector
---	-----------

#### 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 <small>Note)</small>	3 position pressure center
8	3 port for mixture mounting N.C.
9	3 port for mixture mounting N.O.

**Body type**

5	Base mounted
---	--------------

**Seal type**

0	Metal seal
1	Rubber seal

**Function**

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

Note 1) Semi-standard

Note 2) For details on external pilot type, refer to page 1312.

Note 3) For AC specification power consumption, refer to page 1289.

**Manual override**

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

**Electrical entry**

Symbol	Electrical entry	Light/surge voltage suppressor	CE-compliant
<b>G</b>	Grommet (DC specification)	None	AC DC
<b>L</b>	L-type plug connector with lead wire	—	—
<b>LO</b>	L-type plug connector without connector	—	—
<b>M</b>	M-type plug connector with lead wire	Yes	—
<b>MO</b>	M-type plug connector without connector	—	—
<b>Y</b> <small>Note 1)</small>	DIN terminal	None	—
<b>Y0</b> <small>Note 1)</small>	DIN terminal without connector	—	—
<b>Y1</b> <small>Note 1)</small>	DIN terminal	Yes	—
<b>YS</b> <small>Note 1)</small>	DIN terminal (DC specification)	Yes	—
<b>Y0S</b> <small>Note 1)</small>	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

**IP65 compliant**

Nil	—
W <small>Note)</small>	Compliant

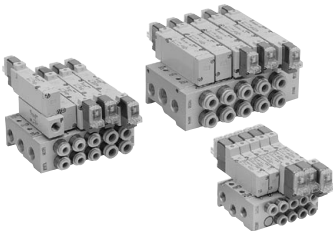
Note) VQZ2000/3000 DIN terminal rubber seal only (except external pilot). For details on IP65 enclosure, refer to page 1312.



**Caution**  
Use standard (DC) specification for continuous duty.



Manifold Specifications



Series	Base model	Piping direction	Piping specifications		Applicable solenoid valve	Applicable stations	Note) Manifold base weight (g)
				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**

VQZ2150-5L1  
VQZ2250-5L1  
VQZ2350-5L1  
VVQZ2000-10A-5  
C6: One-touch fitting for ø6

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.

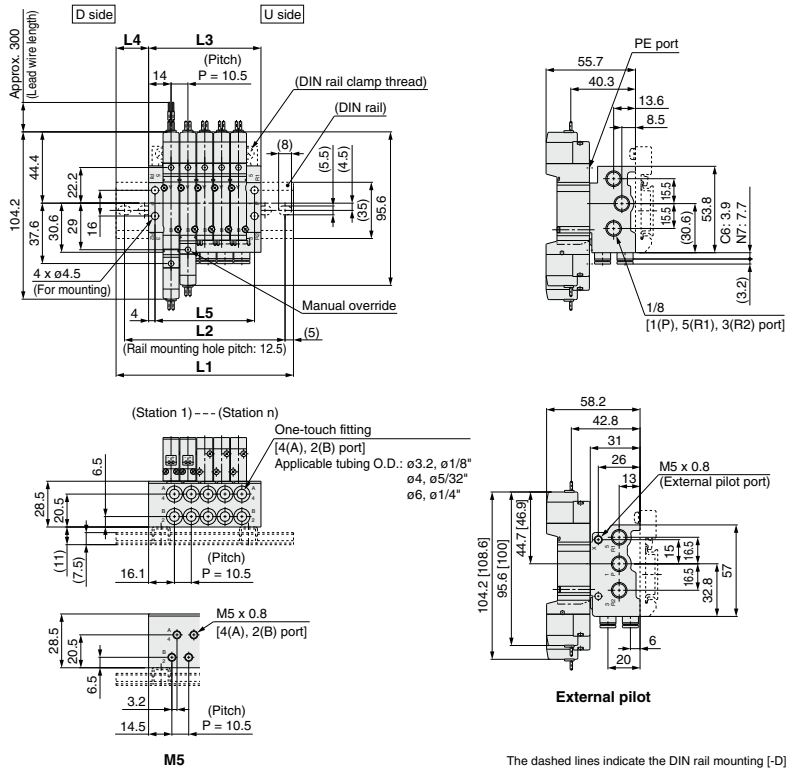
SJ  
SY  
SY  
SV  
SYJ  
SZ  
VF  
VP4  
S0700  
VQ  
VQ4  
VQ5  
VQC  
VQC4  
VQZ  
SQ  
VFS  
VFR  
VQ7

Series VQZ1000/2000/3000

Dimensions: VQZ1000

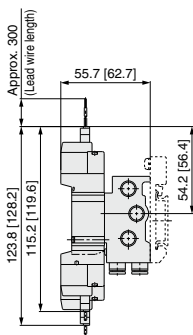
VV5QZ15- Stations Port size C

Grommet (G)



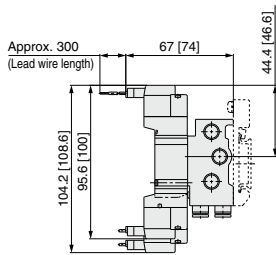
The dashed lines indicate the DIN rail mounting [-D].

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

	1	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	

n: Stations (Max. 20 stations)





## Manifold Options

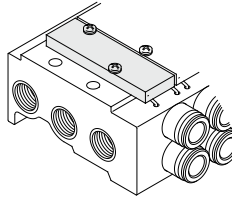
### Blanking plate assembly

**VVQZ1000-10A-5 (for VQZ1000)**

**VVQZ2000-10A-5 (for VQZ2000)**

**VVQZ3000-10A-5 (for VQZ3000)**

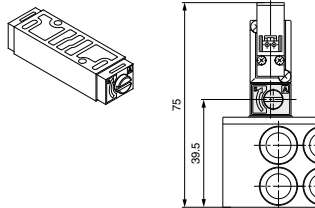
It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.



### 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.



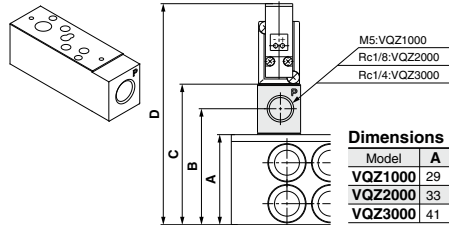
### Individual SUP spacer

**VVQZ1000-P-5-M5 (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.



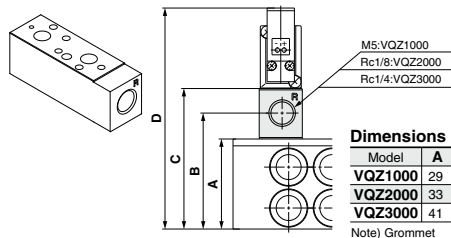
### Individual EXH spacer

**VVQZ1000-R-5-M5 (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.



### 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.



SJ
SY
SY
SV
SYJ
SZ
VF
VP4
S0700
VQ
VQ4
VQ5
VQC
VQC4
VQZ
SQ
VFS
VFR
VQ7

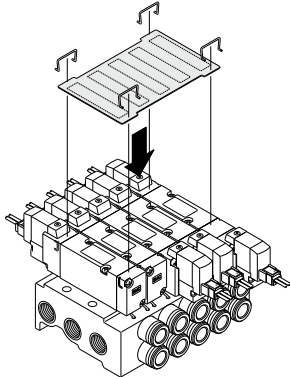
Manifold Options

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.

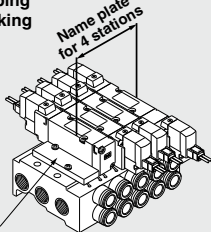
- To order a manifold with nameplate already attached, insert "N" at the end of the manifold number.

\* 4 clips are attached for name plate mounting.



When shipping the manifold with the name plate attached, please order using the manifold option symbol [-N]. However, when mounting the blanking plate at the end of the manifold, the name plate cannot be mounted. In this case, the name plate comes with the manifold. If you want to ship the manifold with the name plate attached to only the mounted solenoid valve, do not order using the manifold option symbol [-N]. Put an asterisk (\*) mark at the top of the name plate part no. for necessary stations and write the manifold part no. along with it to place your order. (\*VVQZ2000-N5-4, etc.)

Order example when shipping the manifold with the blanking plate mounted at the end and the name plate attached



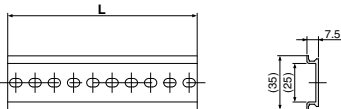
- VV5QZ25-05C6C .....1set (C kit 5-station manifold base part no.)  
\* VVQZ2000-10A-5 .....1set (Blanking plate assembly part no.)  
\* VQZ2150-5L1 .....1set (Single type part no.)  
\* VQZ2250-5L1 .....2set (Double type part no.)  
\* VQZ2350-5L1 .....1set (3 position type part no.)  
\* VVQZ2000-N5-4

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.

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.

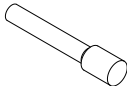
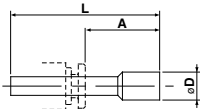
Each manifold can be mounted on a DIN rail. Order it by indicating an option symbol for DIN rail mounting, -D. The DIN rail is approximately 30 mm longer than the length of manifold.



L Dimension

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

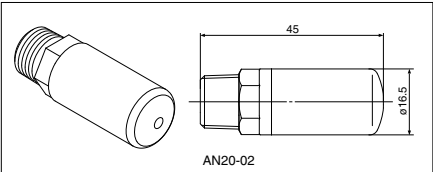
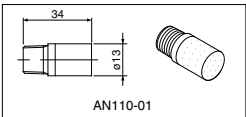
Blanking plug  
KQ2P-23  
KQ2P-04  
KQ2P-06  
KQ2P-08  
KQ2P-10



Dimensions (mm)				
Applicable fitting size øD	Model	A	L	D
3.2	KQ2P-23	16	31.5	5
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.



Model	Silencer part no.
VQZ1000	AN110-01
VQZ2000	AN20-02
VQZ3000	AN20-02

## Manifold Options

### Perfect block (Separated): For VQZ1000

#### VQ1000-FPG-□□

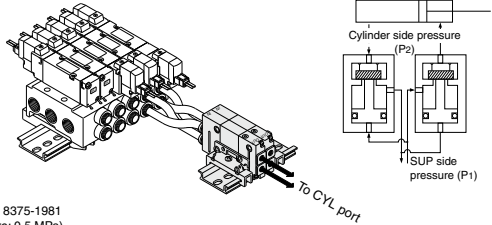
It is used on the outlet side piping to keep the cylinder in the intermediate position for a long time. Combining the perfect block with a built-in pilot type perfect valve and a 3 position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for a long 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.

#### Specifications

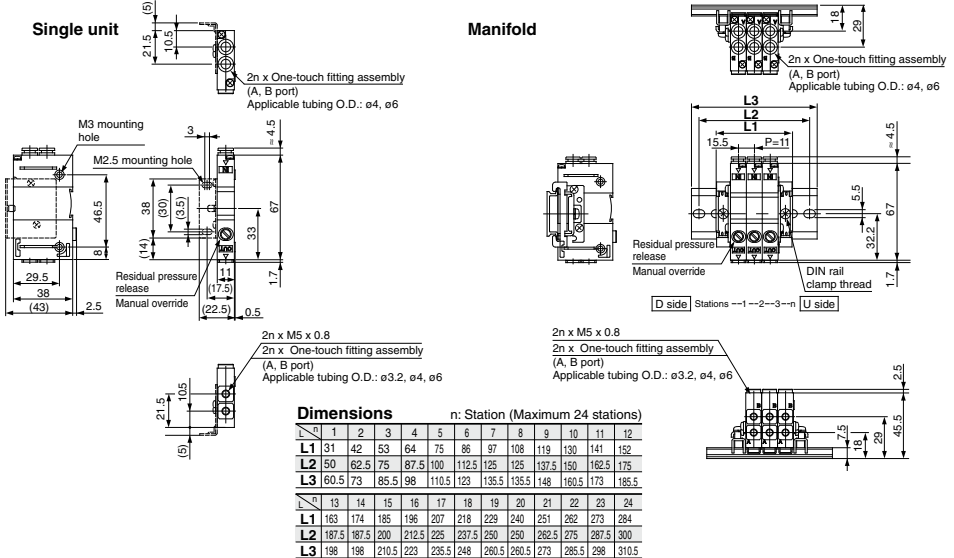
Maximum operating pressure	0.8 MPa
Minimum operating pressure	0.15 MPa
Ambient and fluid temperature	-5 to 50°C
Flow characteristics: C	0.60 dm <sup>3</sup> /(s-bar)
Max. operating frequency	180 c.p.m

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

#### <Check valve operating principle>



## Dimensions



## 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

### 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

#### Option

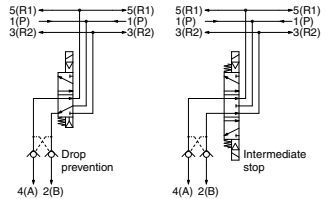
Nil	None
D	DIN rail mounting (For manifold)
F	With bracket
N	Name plate

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

#### 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.

#### <Example>



#### <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.

# Series VQZ1000/2000/3000

## Manifold Options

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

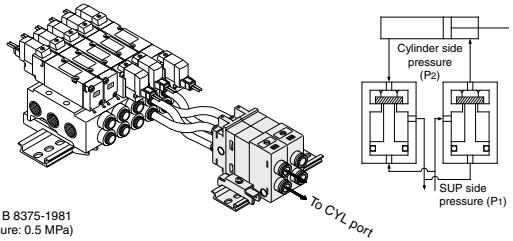
It is used on the outlet side piping to keep the cylinder in the intermediate position for a long time. Combining the perfect block with a built-in pilot type perfect valve and a 3 position exhaust center solenoid valve will enable the cylinder to stop in the middle or maintain its position for a long 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.

#### Specifications

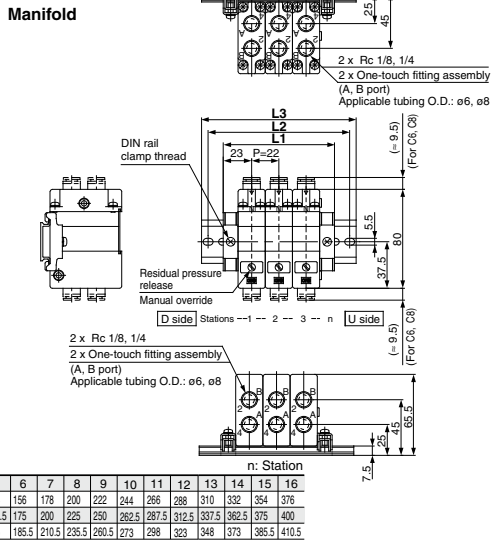
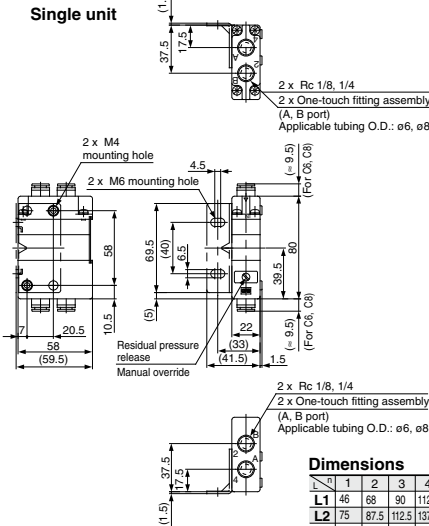
Maximum operating pressure	0.8 MPa
Minimum operating pressure	0.15 MPa
Ambient and fluid temperature	-5 to 50°C
Flow characteristics: C	3.0 dm³/(s·bar)
Max. operating frequency	180 c.p.m

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

#### <Check valve operating principle>



## Dimensions



#### Dimensions

	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

### 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

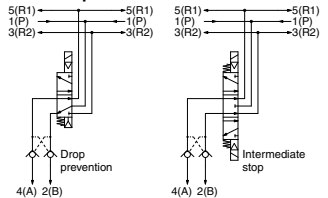
\* VQ2000-FPG-C6-C6-D, 3 sets } Perfect block  
\* VQ2000-FPG-C8-C8-D, 3 sets } block

#### 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.
- 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.

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

#### <Example>



#### <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.

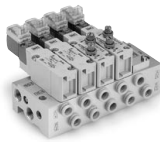




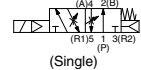
## Compact Body Type with Restrictor: For VQZ2000

Note) For CE-compliant models, DC-type only. **[Option]**

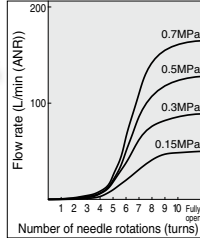
- Restrictors are built into the valve body, making it easier to adjust cylinder speed.
- Needle valve is equipped with a retainer to prevent accidental needle loss.



### Symbol



### 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						Response time (ms)		New 3 Weight (g)			
		1→4/2 (P→A/B)		4/2→5/3 (A/B→E/E/B)		Standard: 0.35 W	High pressure: 0.9 W						
		C (cm <sup>3</sup> /bar)	b Cv	C (cm <sup>3</sup> /bar)	b Cv								
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	
	Double	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
		Metal (Without restrictor)	VQZ2250-□-C	0.74	0.19	0.17	0.63	0.19	0.16	10 or less	10 or less	13 or less	54
3 position	Double	Rubber seal (Without restrictor)	VQZ2251-□-C	1.2	0.17	0.26	1.0	0.20	0.24	15 or less	15 or less	20 or less	54
		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
	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	
	Exhaust center	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
		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
3 position	Exhaust center	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	54
		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	

- 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-05C4C-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

**Option**  
Nil None  
D DIN rail mounting (With standard DIN rail length)  
D0<sup>Note)</sup> DIN rail mounting (Without DIN rail)

**CE-compliant**  
Nil —  
Q CE-compliant

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 1312.

Note) Order DIN rail separately. For DIN rail part no., refer to page 1306.

### Valve Part No.

**VQZ2 1 5 1 - 5 M 1 - C -**

**Type of actuation**  
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<sup>Note)</sup> With

**Function**  
Symbol Specifications DC AC  
Nil Standard (0.35 W) Note 2) —  
K<sup>Note 1)</sup> High pressure type (Metal seal type only) (0.9 W) —

**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 L-type plug connector with lead wire  
LO<sup>Note)</sup> L-type plug connector without connector  
M<sup>Note)</sup> M-type plug connector with lead wire  
MO<sup>Note)</sup> M-type plug connector without connector

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

**CE-compliant**  
Nil —  
Q CE-compliant

Note) For CE-compliant models, DC type only.

Note 1) Semi-standard

Note 2) For AC specification power consumption, refer to page 1289.

### Sub-plate Part No.

VQZ2000C-S-01(-Q)

\* Thread type

### Blanking Plate Assembly

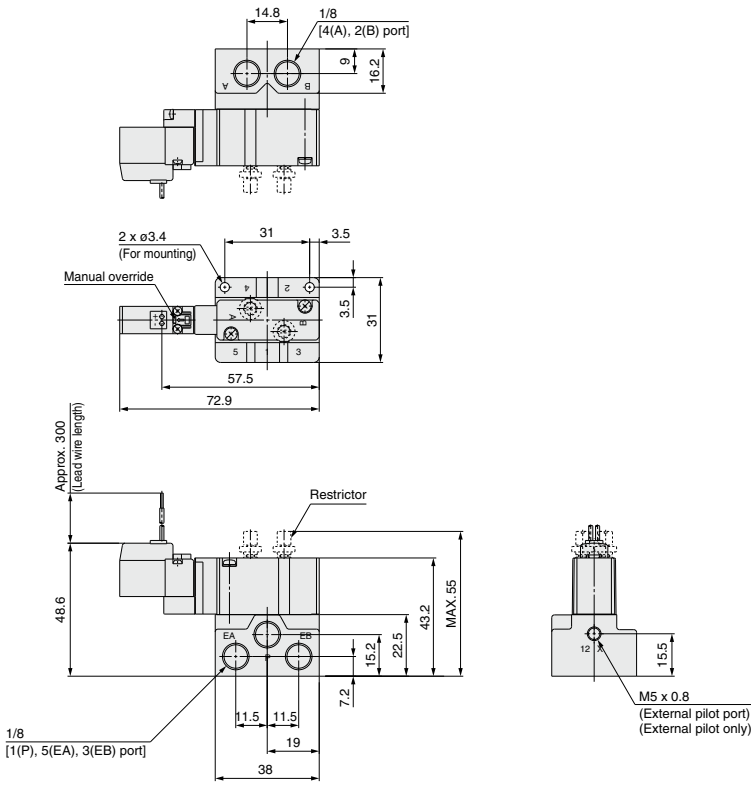
VVQZ2000C-10A-5

Series **VQZ1000/2000/3000**

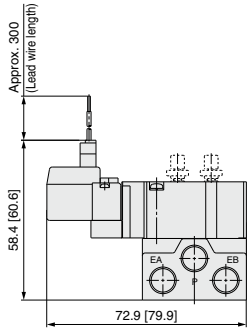
**Dimensions: VQZ2000 (Compact Body Type: Single Unit)**

VQZ2□5□□□-□G□1-01-C-□

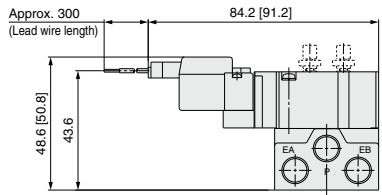
Grommet (G)



**L-type plug connector (L)**



**M-type plug connector (M)**



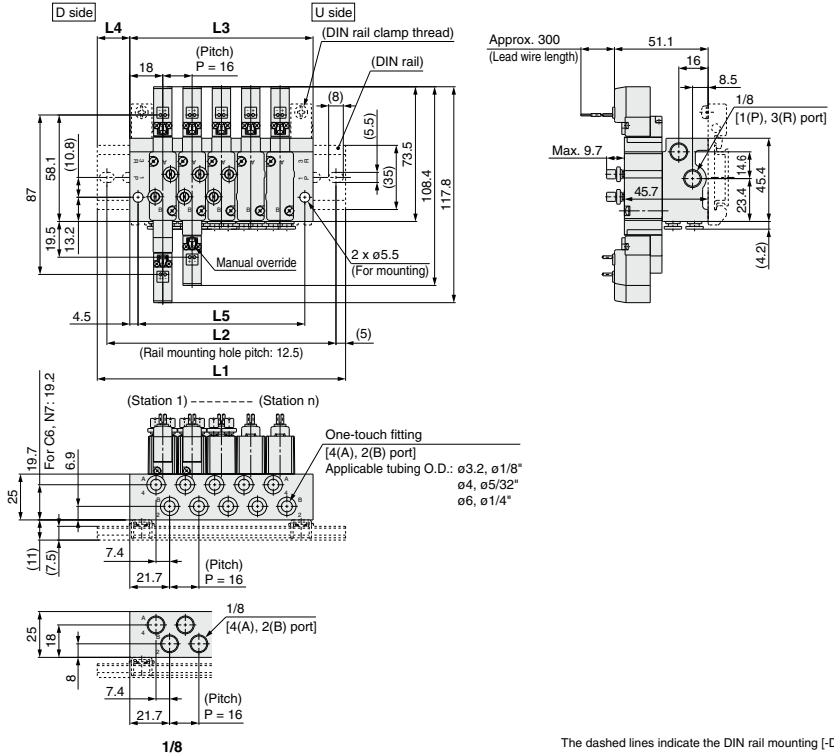
Unless otherwise indicated, dimensions are the same as Grommet (G).  
[ ] : AC

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

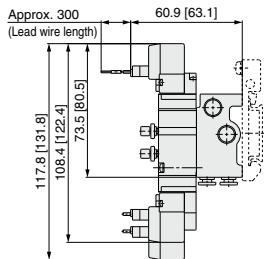
## Dimensions: VQZ2000 (Compact Body Type: Manifold)

VV5QZ25C- Stations Port size C

Grommet (G)



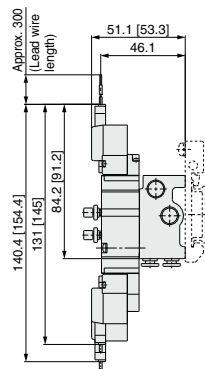
### L-type plug connector (L)



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

n: Stations (Max. 20 stations)

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

# Semi-standard Specifications

## 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.

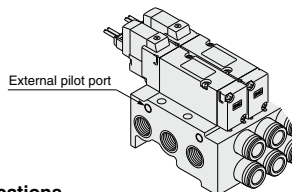
### Valve Part No.

VQZ   5   R     1

• Entry is the same as standard products.

CE-compliant

Nil	—
Q	CE-compliant



### 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	0.1 to 0.7 MPa (VQZ3000, 3 position only) 0.15 to 0.7 MPa		
Operating pressure range	0.15 to 0.7 MPa	0.1 to 0.7 MPa	0.2 to 0.7 MPa
	-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	Nil	M5	O1	O2
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.

CE-compliant

Nil	—
Q	CE-compliant

• 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.

CE-compliant

Nil	—
Q	CE-compliant

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)

Fitting size	C3	C4	C6	C8	C10
<b>VQZ1000</b>	VVQ1000-50A-C3	VVQ1000-50A-C4	VVQ1000-50A-C6	—	—
<b>VQZ2000</b>	—	VVQ1000-51A-C4	VVQ1000-51A-C6	VVQ1000-51A-C8	—
<b>VQZ3000</b>	—	—	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

#### How to Order

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

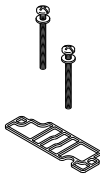
Example) In case of 2000 mm of lead wire

DC	AC
VQZ1150-5LO1-M5	VQZ1150-1LO1-M5
SY100-30-4A-20	SY100-30-1A-20

#### <Gasket and screw assembly>

	Part no.
<b>VQZ1000</b>	VQZ1000-GS-5
<b>VQZ2000</b>	VQZ2000-GS-5
<b>VQZ3000</b>	VQZ3000-GS-5

Note) The above part numbers are for 10 valves (a set of 10 gaskets and 20 screws).



#### <Sub-plate>

Model	Sub-plate part no.	
	For internal pilot	For external pilot
<b>VQZ1000</b>	VQZ1000-S-01□ (-Q)	VQZ1000-S-01□ (-R (-Q)
<b>VQZ2000</b>	VQZ2000-S-02□ (-Q)	VQZ2000-S-02□ (-R (-Q)
<b>VQZ3000</b>	VQZ3000-S-03□ (-Q)	VQZ3000-S-03□ (-R (-Q)

\* Thread type

#### <Pilot valve assembly>

V111 □ □ — 5 G □ □ — □

##### ● Function

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

Note) Semi-standard

##### With or without manual override ●

<b>Nil</b>	Without manual override (For VQZ1000, 2000, 3000 standard type)
<b>M</b>	With manual override (For VQZ2000 compact body type)

##### 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 (For VQZ2000 compact body type)

<b>Nil</b>	Non-locking push type
<b>B</b>	Locking type

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

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

##### Electrical entry ●

Symbol	Electrical entry	Light/surge voltage suppressor
DC AC		
<b>G</b>	—	Grommet (DC specification)
<b>LU LZ</b>	—	L-type plug connector with lead wire
<b>LOU LOZ</b>	—	L-type plug connector without connector
<b>MU MZ</b>	—	M-type plug connector with lead wire
<b>MOU MOZ</b>	—	M-type plug connector without connector

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

V115 □ — 5 Y — X110

##### ● Function

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

Note) Semi-standard

##### 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
<b>Y</b>	DIN terminal	
<b>YO</b>	DIN terminal without connector	
<b>YZ</b>	DIN terminal with light/surge voltage suppressor	Yes
<b>YS</b>	DIN terminal with surge voltage suppressor (DC specification)	Yes (Without light)
<b>YOS</b>	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.



#### 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-type Serial Transmission System

## Series VQZ1000/2000/3000 Base Mounted Manifold



### 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.)

**CE-compliant**

Nil	—
Q	CE-compliant

**Option** (Note 3)

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

Note 1) Order DIN rail separately.  
For DIN rail part no., refer to page 1306.  
Note 2) For details on options and external pilot type, refer to page 1312.  
Note 3) When two or more symbols are specified, indicate them alphabetically.  
Note 4) When mounting the blanking plate at the end of the manifold, the name plate cannot be mounted. In this case, the name plate comes with the manifold. When mounting the name plate on only the mounted solenoid valve, please order the name plate separately.  
(Refer to page 1306.)

**Thread type**

Nil	Rc
N	NPT
T	NPTF
F	G

**A, B port size**

**Thread piping**

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

### 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.

### A, B port size

#### 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

Refer to page 2124 and the Operation Manual for the details of EX510 Gateway-type Serial Transmission System. Please download the Operation Manual via our website, <http://www.smcworld.com>

## How to Order Valve

VQZ 1 1 5 1 — 5 MO 1 —

### Series

1	VQZ1000
2	VQZ2000
3	VQZ3000

### CE-compliant

Nil	—
Q	CE-compliant

### Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5 <small>Note)</small>	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.

### 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

### Seal type

0	Metal seal
1	Rubber seal

### Rated voltage: 24 VDC

### Function

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

Note 1) Semi-standard

Note 2) For details on external pilot type, refer to page 1312.



### Made to Order

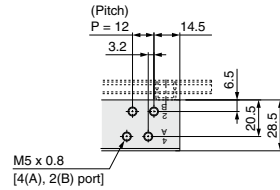
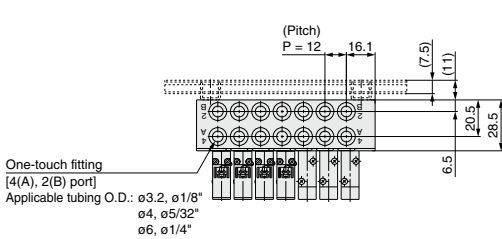
(For details, refer to page 1321.)

Symbol	Description
X30	Pilot valve common exhaust
X90	Main valve fluororubber
X113	All fluororubber

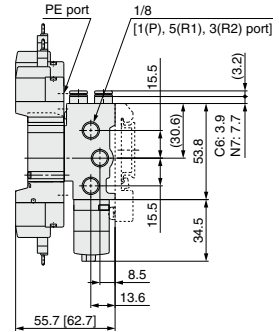
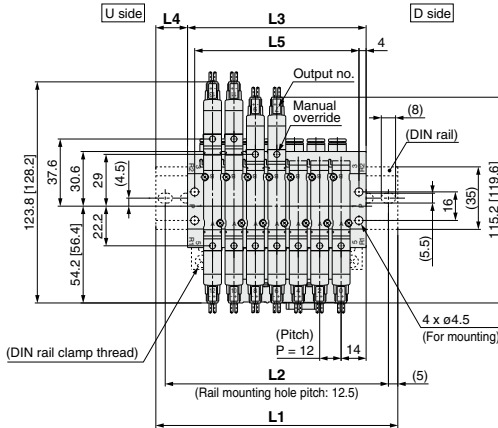


# EX510 Gateway-type Serial Transmission System *Series VQZ1000/2000/3000*

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

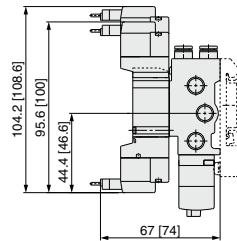
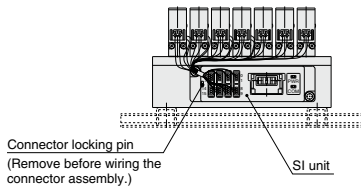


**M5**



**L-type plug connector (L)**

(Station n) ----- (Station 1)



**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

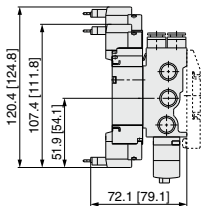
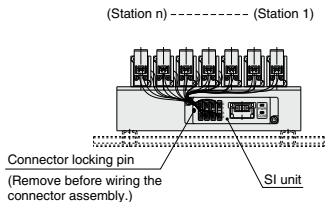
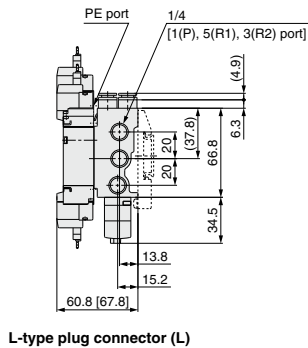
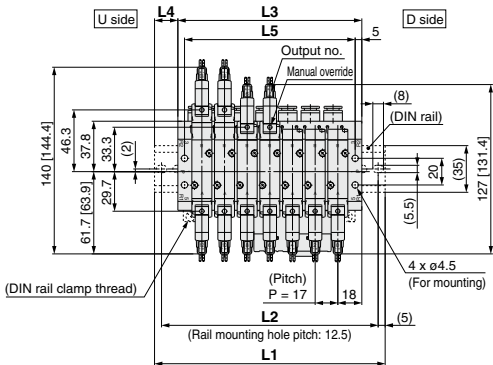
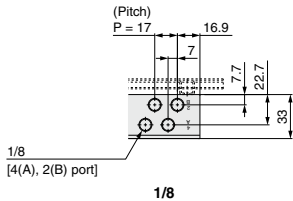
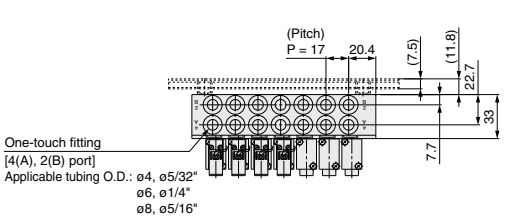
### Dimensions

L		Max. 16 stations														
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	

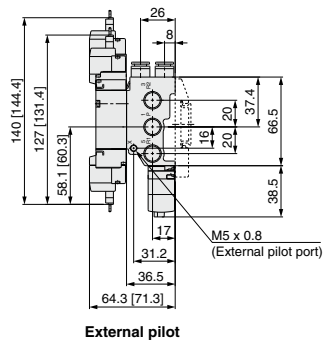
Note) The L dimension of 2 to 6 stations is the same. Valves are numbered from the D side according up to the number of stations.

Series **VQZ1000/2000/3000**

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



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

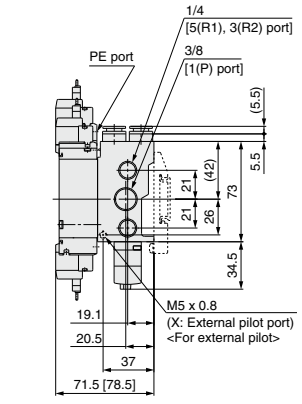
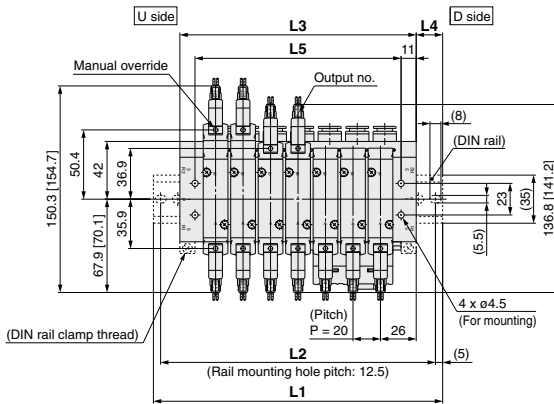
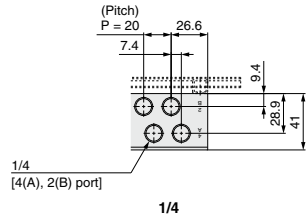
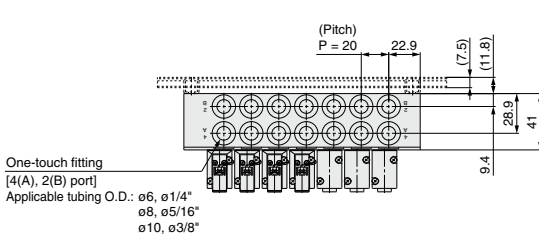
Dimensions

L		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	135.5	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 to the number of stations.

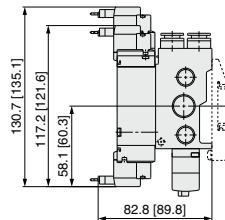
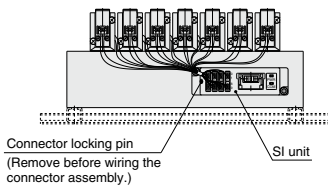
# EX510 Gateway-type Serial Transmission System *Series VQZ1000/2000/3000*

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



L-type plug connector (L)

(Station n) ----- (Station 1)



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

L	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	270	290	310	330

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

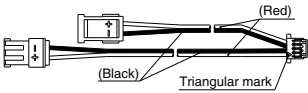
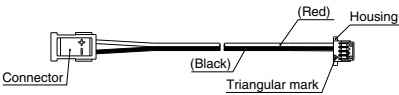
# Series VQZ1000/2000/3000

## Manifold Options

### Connector assembly

Single solenoid (SY3000-37-81A-□-N)

Double solenoid (SY3000-37-81A-□-□)



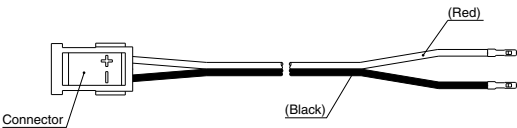
### Connector Assembly Part No. (for a manifold with 8 stations or less with an unspecified layout) Bar Stock Type

Model	Part no.	Connector mounting position
VV5QZ15	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
VV5QZ25	SY3000-37-81A-3-N	Single: for 1 to 8 stations
	SY3000-37-81A-3-6	Double/3 position: for 1 to 8 stations
VV5QZ35	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.

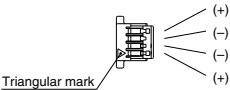
### Connector assembly

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	
VV5QZ15	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	
VV5QZ25	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	
VV5QZ35	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.

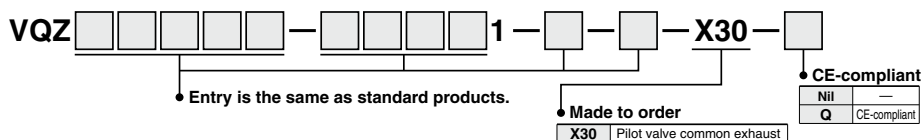
### 1 Pilot Valve Common Exhaust Specification

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



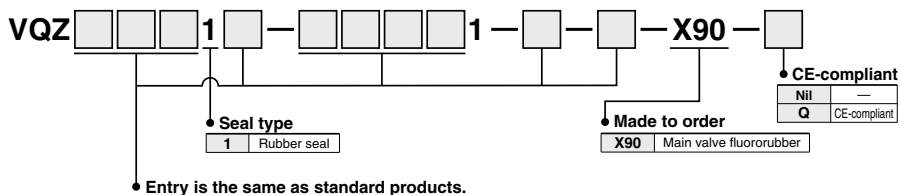
### 2 Main Valve Fluororubber Specification

The seal material, the part of the main valve in contact with fluid, is made of fluororubber.

- \* "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



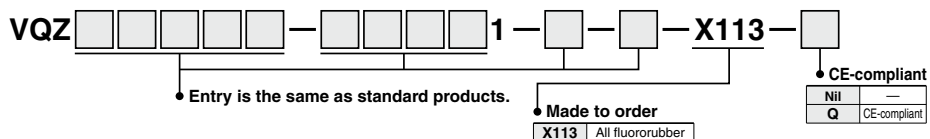
### 3 All Fluororubber Specification

The rubber material of the part in contact with fluid, is made of fluororubber.

- \* "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





# Series VQZ Specific Product Precautions 1

Be sure to read before handling.

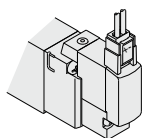
Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valve Precautions.

## Manual Override

### ⚠ Caution

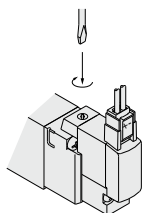
Without an electric signal for the solenoid valve the manual override is used for switching the main valve. Push type is standard. Locking type (Tool required) is available as an option.

#### Push type (Tool required)



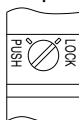
Push down on the manual override button with a small screwdriver until it stops. Release the screwdriver and the manual override will return.

#### 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

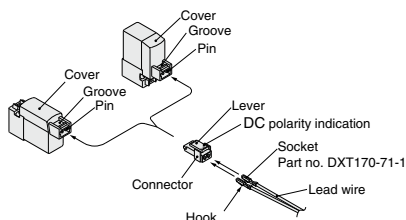
When operating with a screwdriver, turn it gently using a watchmaker's screwdriver. (Torque: less than 0.1 N·m)

## 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.

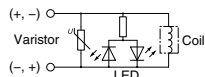


## Light/Surge Voltage Suppressor

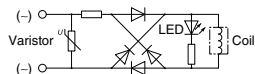
### ⚠ Caution

#### 1. L/M-type plug connector

<DC>



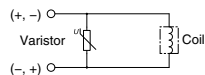
<AC>



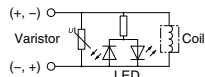
#### 2. DIN terminal

<DC>

With light/surge voltage suppressor (YS, YOS)

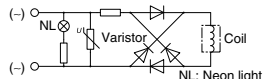


#### Light/surge voltage suppressor (YZ)



<AC>

With light (YZ)



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.



# Series VQZ

## Specific Product Precautions 2

Be sure to read before handling.

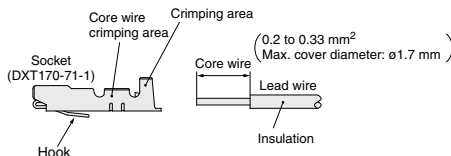
Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valve Precautions.

### 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.



Please contact SMC for the dedicated crimping tools.

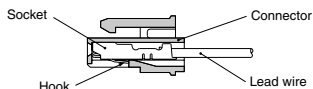
##### 2. Attaching and detaching sockets with lead wires

###### 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 tightly 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.



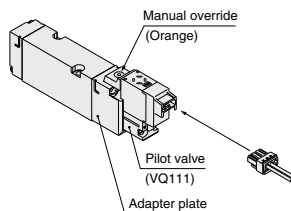
### Valve and Pilot Valve Replacement

#### ⚠ Caution

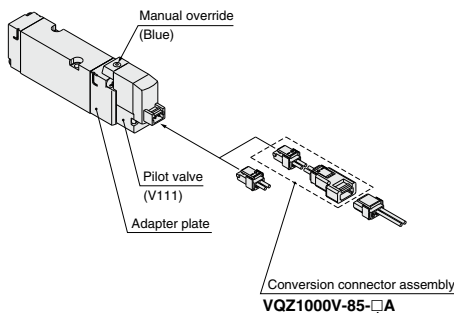
##### 1. When replacing a conventional type valve with a new type for maintenance or other reasons, a "conversion connector assembly" is necessary to convert the connector from 3 terminals to 2 terminals and must be ordered separately. (When ordering, refer to the below part nos.)

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]



###### Coil voltage

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

SJ

SY

SY

SV

SYJ

SZ

VF

VP4

S0700

VQ

VQ4

VQ5

VQC

VQC4

VQZ

SQ

VFS

VFR

VQ7



## Series VQZ

# Specific Product Precautions 3

Be sure to read before handling.

Refer to front matter 53 for Safety Instructions and pages 3 to 8 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

- Loosen the holding screw and pull the connector out of the solenoid valve terminal block.
- 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.
- 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.
- 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).

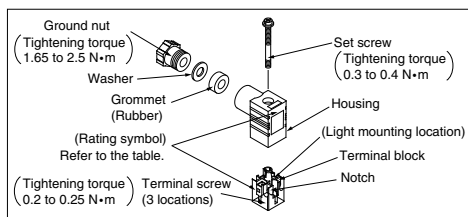
\* When equipped with a light, be careful not to damage the light with the cord's lead wires.

#### 4. Precautions

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

#### 5. Compatible cable

Cable O.D.:  $\phi 3.5$  to  $\phi 7$   
(Reference) 0.5 mm<sup>2</sup>, 2-core or 3-core, equivalent to JIS C 3306



### DIN Connector Part No.

#### Without light

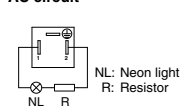
Rated voltage	Voltage symbol	Part no.
All voltages	None	SY100-82-1

#### With light

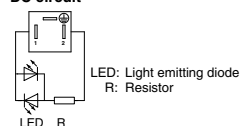
Rated voltage	Voltage symbol	Part no.
24 VDC	24 V	SY100-82-3-05
12 VDC	12 V	SY100-82-3-06
100 VAC	100 V	SY100-82-2-01
200 VAC	200 V	SY100-82-2-02
110 VAC (115 VAC)	110 V	SY100-82-2-03
220 VAC (230 VAC)	220 V	SY100-82-2-04

#### Circuit diagram with light

##### AC circuit



##### DC circuit

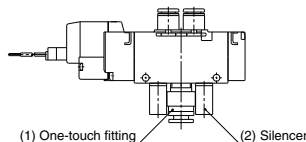


### Fitting and Silencer Part No. for P, R Ports When Using Valve as an Individual Unit

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-M5A	AN120-M5	KQ2S04-M5A
VQZ2000	KQ2S06-01AS	INA-25-46	IN-457-32L (for ø6)
VQZ3000	KQ2H08-02AS	AN101-01	KQ2H06-01AS

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







# Series VQZ

## Specific Product Precautions 4

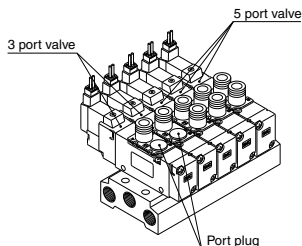
Be sure to read before handling.

Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valve Precautions.

### 3 Port Valve for Mixture Mounting

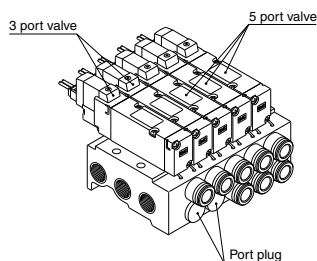
#### 1. Body ported (VQZ $\frac{1}{2}$ 82 $\frac{1}{2}$ , N.C./VQZ $\frac{1}{2}$ 92 $\frac{1}{2}$ , N.O.)

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 $\frac{1}{2}$ 85 $\frac{1}{2}$ , N.C./VQZ $\frac{1}{2}$ 95 $\frac{1}{2}$ , 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.



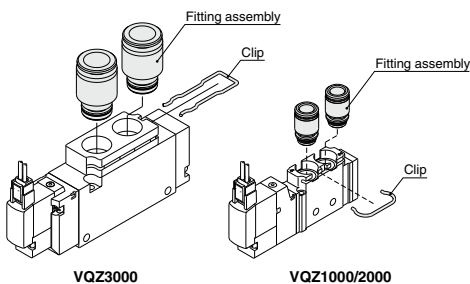
When port plug is used on 2 (B) port, indicate CM in manifold part no. and port size, and specify the port plug location by the manifold specification sheet.

### One-touch Fittings Replacement

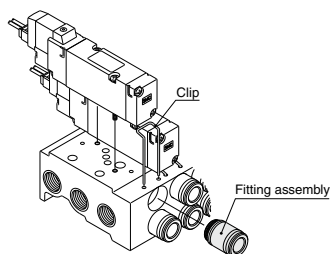
#### ⚠ Caution

**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.

SJ

SY

SY

SV

SYJ

SZ

VF

VP4

S0700

VQ

VQ4

VQ5

VQC

VQC4

VQZ

SQ

VFS

VFR

VQ7



# Series VQZ

## Specific Product Precautions 5

Be sure to read before handling.

Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valve Precautions.

### DIN Rail Removal/Mounting

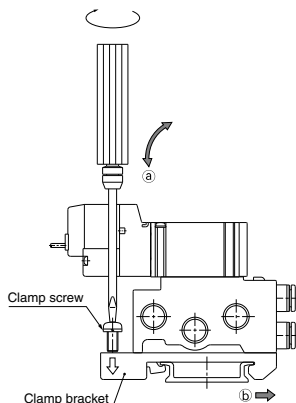
#### ⚠ Caution

##### 1. Removing

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

##### 2. Mounting

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

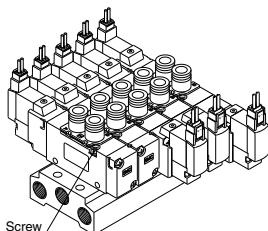


### Valve Mounting

#### ⚠ 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.



## Series VQZ

# Specific Product Precautions 6

Be sure to read before handling.

Refer to front matter 53 for Safety Instructions and pages 3 to 8 for 3/4/5 Port Solenoid Valve Precautions.

### Serial Wiring EX510 Precautions

#### Design and Selection

#### Caution

##### 1. Keep the surrounding space free for maintenance.

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.

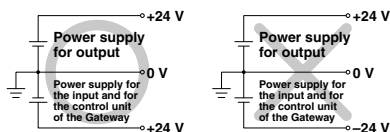
- Controlled voltage current circuit conforming to UL508  
Circuit uses the secondary coil of an isolated transformer as the power supply, satisfying the following conditions.
  - Max. voltage (with no load): 30 Vrms (42.4 V peak) or less
  - Max. current: (1) 8 A or less (including shorts), and (2) 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]	100
	Peak voltage value

- 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 conforming to UL1310, or a class 2 transformer conforming 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.

##### 5. Do not use in direct sunlight.

Do not use in direct sunlight. It may cause malfunction or damage.

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

Such a place is likely to cause malfunction.

#### 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.

SJ

SY

SY

SV

SYJ

SZ

VF

VP4

S0700

VQ

VQ4

VQ5

VQC

VQC4

VQZ

SQ

VFS

VFR

VQ7



## Series VQZ

# Specific Product Precautions 7

Be sure to read before handling.

Refer to front matter 53 for Safety Instructions and pages 3 to 8 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 injuries.

##### Caution

1. **Do not wipe this product with chemicals such as benzine or thinner.**

Using such chemicals is likely to cause damage.