

Body Ported

Plug Lead Unit

5 Port Solenoid Valve

Series VQZ1000/2000/3000

Single Unit

CE [Option]

How to Order Valve



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

VQZ 1 1 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 (A) (B) 5 1 3 (R1) (P) (R2)	5	3 position pressure center (A) (B) 5 1 3 (R1) (P) (R2)
2	2 position double (A) (B) (A) (B) 5 1 3 5 1 3 (R1) (P) (R2) (R1) (P) (R2) Metal seal Rubber seal	8	3 port for mixture mounting (N.C.) (A) (B) 5 1 3 (R1) (P) (R2)
3	3 position closed center (A) (B) 5 1 3 (R1) (P) (R2)	9	3 port for mixture mounting (N.O.) (A) (B) 5 1 3 (R1) (P) (R2)
4	3 position exhaust center (A) (B) 5 1 3 (R1) (P) (R2)		

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

Body type

2	Body ported
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Seal type

0	Metal seal
1	Rubber seal

Function

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

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



Caution
Use standard (DC) specification for continuous duty.

IP65 compliant

Nil	—
W Note)	Compliant

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

CE compliant

Nil	—
Q	CE marked

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

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

Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
C3	ø3.2 one-touch fitting	○	—	—
C4	ø4 one-touch fitting	○	○	—
C6	ø6 one-touch fitting	○	○	○
C8	ø8 one-touch fitting	—	—	○
C10	ø10 one-touch fitting	—	—	○
M5	M5 thread	○	○	—
O2	Rc 1/4	—	—	○

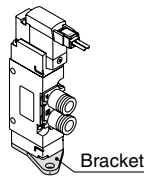
Note) For inch size one-touch fittings and optional thread type, refer to page 933.

Manual override

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

Nil: None	F: With bracket (2 position single type 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
Y: DIN terminal Note 1)	YO: DIN terminal without connector Note 1)	YZ: DIN terminal Note 1)	YOS: DIN terminal without connector (DC specification) Note 1)	YS: DIN terminal (DC specification) Note 1)
		With light/surge voltage suppressor	With surge voltage suppressor	With surge voltage suppressor

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

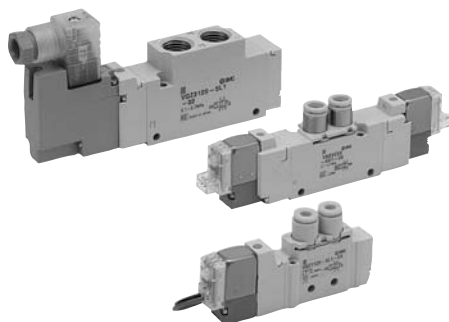
Coil voltage

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

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



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.	Free
Impact/Vibration resistance (m/s²) ^{Note 1)}			150/30	
Enclosure*			Dustproof (DIN terminal: IP65 ^{Note 2)})	



* Based on IEC60529

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

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

Note 2) When IP65 compliant DIN terminals are selected: VQZ₃□21□-□Y□□W1-□-□

Options

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

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



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

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

Solenoid Specifications

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	0.35 [(With light: 0.4 (DIN terminal with light: 0.45))]	
	Standard 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) ^{Note 1)}				Mass (g) ^{Note 2)}
					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 [dm³/(s·bar)]	b	Cv	C [dm³/(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	45
			Rubber seal	VQZ1121	0.90	0.40	0.26	0.71	0.40	0.19	17 or less	12 or less	—	34 or less	
		Double	Metal seal	VQZ1220	0.54	0.20	0.13	0.54	0.26	0.13	10 or less	10 or less	13 or less	13 or less	62
			Rubber seal	VQZ1221	0.90	0.40	0.26	0.71	0.40	0.19	10 or less	10 or less	—	13 or less	
	3 position	Closed center	Metal seal	VQZ1320	0.55	0.29	0.13	0.50	0.25	0.08	25 or less	20 or less	26 or less	40 or less	65
			Rubber seal	VQZ1321	0.87	0.38	0.23	0.68	0.39	0.18	30 or less	25 or less	—	47 or less	
		Exhaust center	Metal seal	VQZ1420	0.55	0.28	0.13	0.54	0.26	0.13	25 or less	20 or less	26 or less	40 or less	
			Rubber seal	VQZ1421	0.87	0.38	0.23	0.71	0.40	0.19	30 or less	25 or less	—	47 or less	
		Pressure center	Rubber seal	VQZ1521	0.91	0.41	0.26	0.68	0.39	0.18	30 or less	25 or less	—	47 or less	
			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	
VQZ2000	2 position	Single	Rubber seal	VQZ2121	1.7	0.39	0.45	1.6	0.35	0.44	20 or less	15 or less	—	36 or less	65
			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	
		Double	Rubber seal	VQZ2221	1.7	0.39	0.45	1.6	0.35	0.44	12 or less	12 or less	—	15 or less	84
			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	Closed 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	91
			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	
		Exhaust 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	
		Pressure center	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	
VQZ3000	2 position	Single	Rubber seal	VQZ3121	3.1	0.34	0.79	3.2	0.38	0.81	33 or less	25 or less	—	57 or less	108
			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	
		Double	Rubber seal	VQZ3221	3.1	0.34	0.79	3.2	0.38	0.81	15 or less	15 or less	—	20 or less	125
			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	
	3 position	Closed 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	136
			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	
		Exhaust 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	
		Pressure center	Rubber seal	VQZ3521	3.2	0.38	0.82	2.4	0.33	0.62	35 or less	30 or less	—	59 or less	
			Metal 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