

Base Mounted  
Plug Lead Unit

# 5 Port Solenoid Valve

## Series VQZ1000/2000/3000

### Single Unit



### How to Order Valve

Made to Order  
(For details, refer to page 63.)

VQZ 1 1 5 1 — 5 M — 1 — 01 —

**Series**

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

**Type of actuation**

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

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

**Body type**

5	Base mounted
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**Seal type**

0	Metal seal
1	Rubber seal

**Function**

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

Note 1) Option  
Note 2) For details on external pilot type, refer to page 54.  
Note 3) For AC specification power consumption, refer to page 31.

**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 54.

**CE compliant**

Nil	—
Q	CE marked

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

**Manual override**

<b>Nil:</b> Non-locking push type (Tool required) 	<b>B:</b> Locking type (Tool required) 
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**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 54.

**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 	YO: DIN terminal without connector 	YZ: DIN terminal 	YOS: DIN terminal without connector (DC specification) 	YS: DIN terminal (DC specification) 
		With light/surge voltage suppressor 	With surge voltage suppressor 	With surge voltage suppressor 

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

Note) For sub-plate part no., refer to page 55.



# Base Mounted Series VQZ1000/2000/3000

## Specifications



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



\* 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□□□□□W1-□□□

## Options

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

\* For details on external pilot type, refer to page 54.



**Made to Order**  
(For details, refer to page 63.)

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

## Solenoid Specifications

Electrical entry	Grommet (G)		M-type plug connector (M)	
	L-type plug connector (L)		DIN terminal (Y)	
	G, L, M		Y	
<b>Coil rated voltage (V)</b>	DC		24, 12	
	AC 50/60 Hz		100, 110, 200, 220*	
<b>Allowable voltage fluctuation</b>				
±10% of rated voltage				
<b>Power consumption (W)</b>	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)]	
<b>Apparent power (VA)*</b>	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)]	
<b>Surge voltage suppressor</b>				
Varistor				
<b>Indicator light</b>				
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>				<small>Note 2)</small> 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	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