

3 Port Solenoid Valve

Series VQZ100/200/300

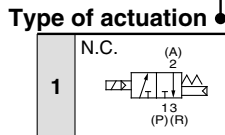
Single Unit



VQZ100 / How to Order Valve

VQZ 1 1 5 [] - 5 M [] 1 - C6 - PR [] - []

Series
1 VQZ100 body width 10 mm



Body type

Function

Symbol	Specifications	DC (0.35 W)	AC (Note 3)
Nil	Standard	○	○
K Note 1)	High pressure type	○	—
R Note 1, 2)	External pilot type	○	○
KR Note 1, 2)	High pressure/External pilot type	○	—

Note 1) Option
Note 2) For details on external pilot type, refer to page 15.
Note 3) For AC specification power consumption, refer to page 3.

Caution

Use standard (DC) specification for continuous duty.

Coil voltage

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

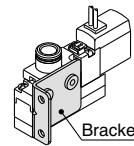
CE compliant

Nil	—
Q	CE marked

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

Option

Nil: None
F: With bracket



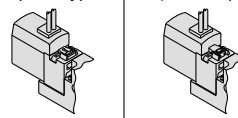
Port size [2(A) port]

C3	ø3.2 one-touch fitting
C4	ø4 one-touch fitting
C6	ø6 one-touch fitting
M5	M5 thread (Replaceable type)

Note) For inch size one-touch fittings, refer to page 15.

Manual override

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



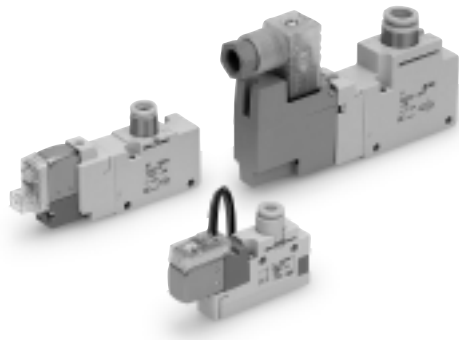
Electrical entry

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

Note) Standard lead wire length: 300 mm

Note) For applicable one-touch fitting and silencer models for this valve series, refer to back page 4.

Series VQZ100/200/300



Specifications

Valve construction	Metal seal	Rubber seal	VQZ100 (Poppet seal)
Fluid	Air, Inert gas		
Max. operating pressure (MPa)	0.7 (High pressure type: 1.0)	0.7	0.7 (High pressure type: 1.0)
Min. operating pressure (MPa)	0.1	0.15	0.15
Ambient and fluid temperature (°C)	-10 to 50 (No freezing)		
Max. operating frequency (Hz)	20	5	20
Pilot exhaust method	Individual exhaust		Common exhaust
Lubrication	Not required		
Manual override	Push type, Locking type (Tool required)		
Mounting orientation	Free		
Impact/Vibration resistance (m/s²) <small>Note 1)</small>	150/30		
Enclosure	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: VQZ₃□2□-□Y□□W1-□□

Options

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

* For details on external pilot type, refer to page 15.



Made to Order
(For details, refer to page 34.)

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	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	100 V	0.78 (With light: 0.81) 0.78 (With light: 0.87)
		110 V [115 V]	0.86 (With light: 0.89) [0.94 (With light: 0.97)] 0.86 (With light: 0.87) [0.94 (With light: 1.07)]
		200 V	1.18 (With light: 1.22) 1.15 (With light: 1.30)
		220 V [230 V]	1.30 (With light: 1.34) [1.42 (With light: 1.46)] 1.27 (With light: 1.46) [1.39 (With light: 1.60)]
Surge voltage suppressor		Varistor	
Indicator light		LED (Neon light when AC with DIN terminal)	



* In common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.

* For 115 VAC and 230 VAC, the allowable voltage is -15% to +5% of rated voltage.

Flow Characteristics

Series	Valve construction	Model		Flow characteristics						Response time (ms) <small>Note 1)</small>				<small>Note 2)</small> Weight (g)
				1→2 (P→A)			2→3 (A→R)			Standard: 0.35 W	High speed response: 0.9 W	High pressure: 0.9 W	AC	
				C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv					
VQZ100	N.C. valve	Poppet	VQZ115	0.59	0.44	0.17	0.56	0.30	0.14	10 or less	—	13 or less	22 or less	24
VQZ200	N.C. valve	Metal seal	VQZ212	1.2	0.21	0.30	1.3	0.24	0.33	22 or less	14 or less	18 or less	34 or less	57
		Rubber seal	VQZ232	1.6	0.33	0.39	1.7	0.37	0.45	22 or less	15 or less	—	36 or less	
	N.O. valve	Metal seal	VQZ222	1.2	0.25	0.31	1.3	0.20	0.31	22 or less	14 or less	18 or less	34 or less	
		Rubber seal	VQZ242	1.6	0.36	0.40	1.7	0.36	0.45	22 or less	15 or less	—	36 or less	
VQZ300	N.C. valve	Metal seal	VQZ312	2.7	0.18	0.62	2.4	0.28	0.56	22 or less	17 or less	22 or less	34 or less	93
		Rubber seal	VQZ332	3.5	0.34	0.87	3.0	0.33	0.72	33 or less	25 or less	—	57 or less	
	N.O. valve	Metal seal	VQZ322	2.6	0.21	0.59	2.2	0.16	0.49	22 or less	17 or less	22 or less	34 or less	
		Rubber seal	VQZ342	3.5	0.38	0.88	2.9	0.27	0.69	33 or less	25 or less	—	57 or less	



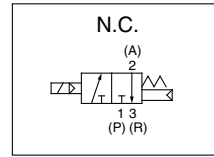
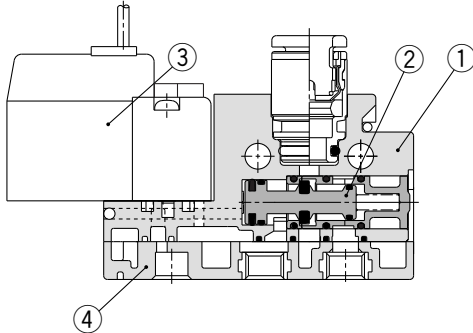
Note 1) Based on JIS B 8375-1981 (Supply pressure: 0.5 MPa; with light/surge voltage suppressor: clean air)

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

Note 2) Weight for threaded connection

Construction

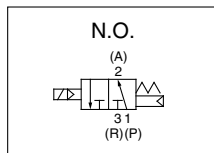
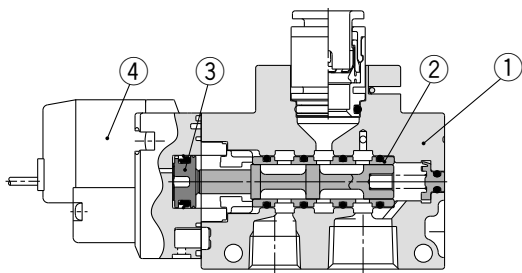
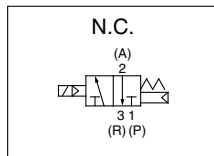
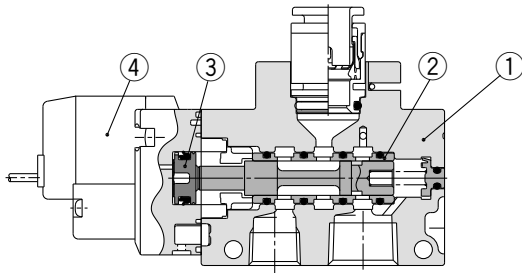
VQZ100 Poppet type



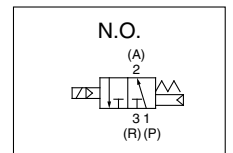
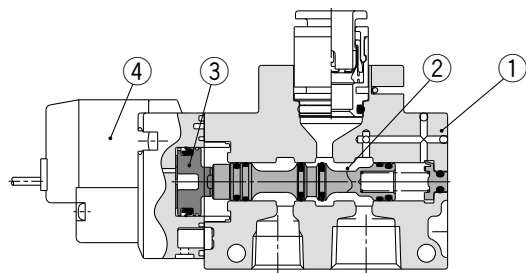
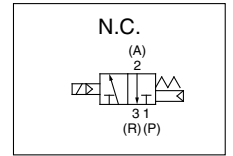
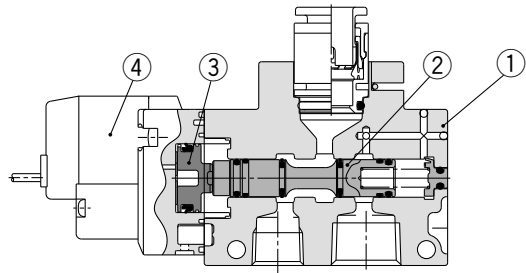
Component Parts

No.	Description	Material	Note
1	Body	Resin	
2	Spool valve	Aluminum/HNBR	
3	Pilot valve assembly	—	
4	P, R port	Resin/Aluminum	VQZ100-12A (Standard) VQZ100-12B (External pilot type)

VQZ200/300 Metal seal type



Rubber seal type



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	—	

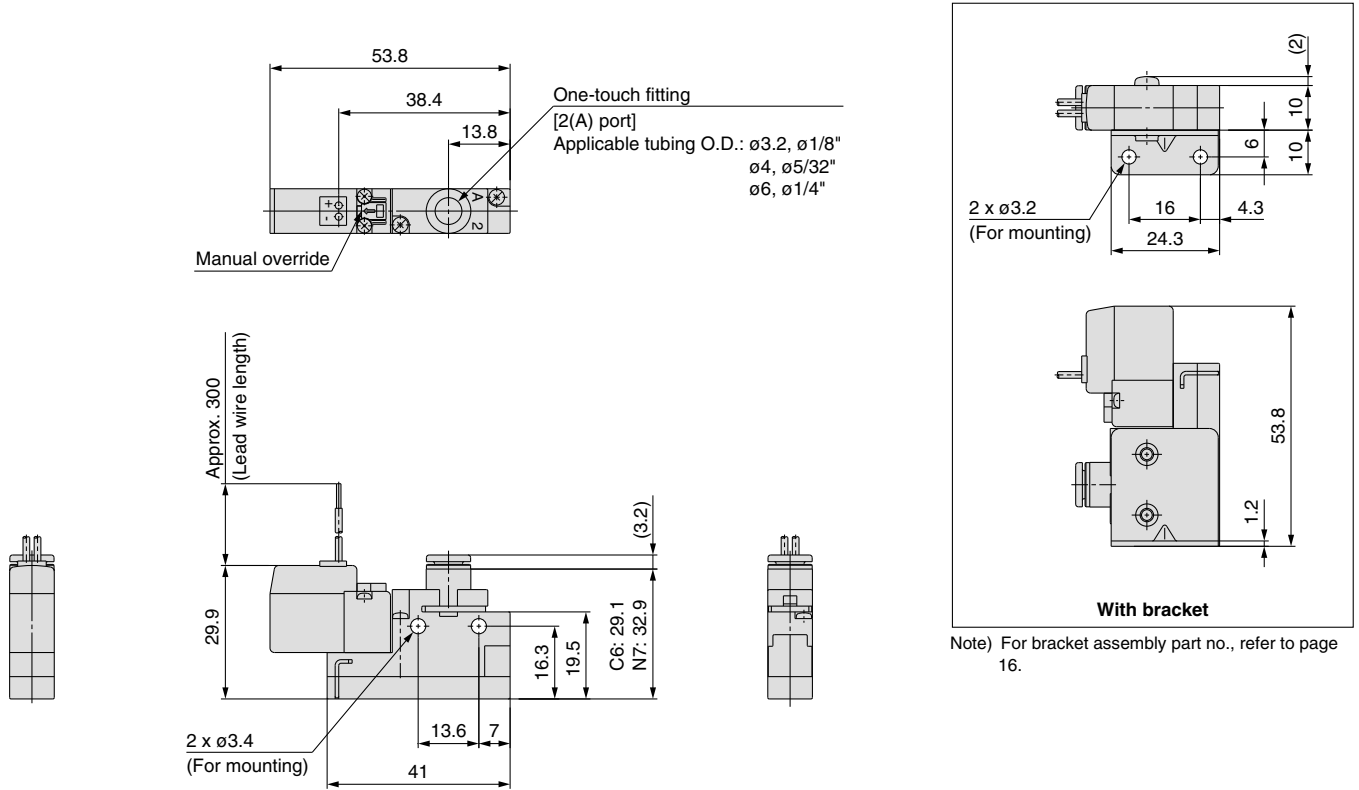
Note) For "How to Order Pilot Valve Assembly", refer to page 16.

Series VQZ100/200/300

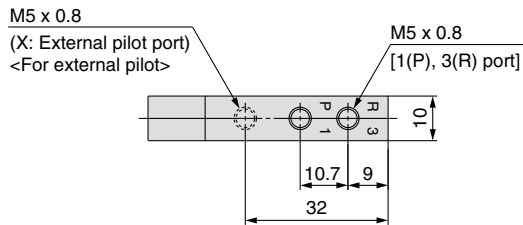
Dimensions: VQZ100

Single Unit

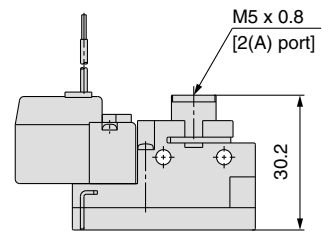
Grommet (G): VQZ115□-□G□1-C3, C4, C6-PR



Note) For bracket assembly part no., refer to page 16.

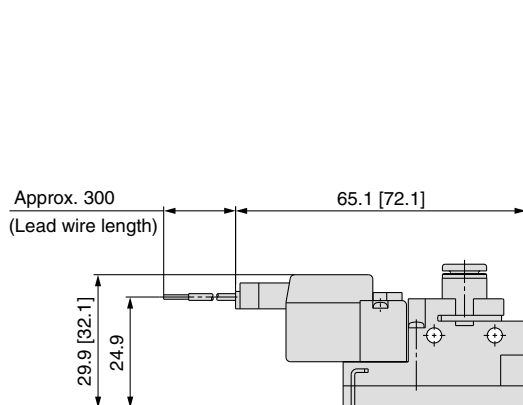


VQZ115□-□G□1-M5-PR



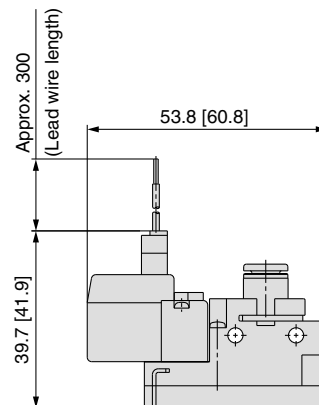
Note) For one-touch fittings for P/R port and silencer part no., refer to back page 4.

L-type plug connector (L): VQZ115□-□L□1-C3, C4, C6-PR



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

M-type plug connector (M): VQZ115□-□M□1-C3, C4, C6-PR



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

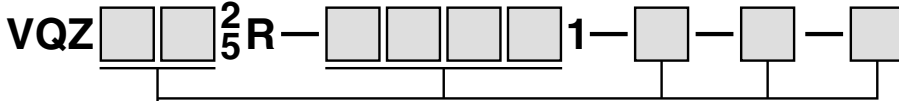
Series VQZ Body Ported

Options

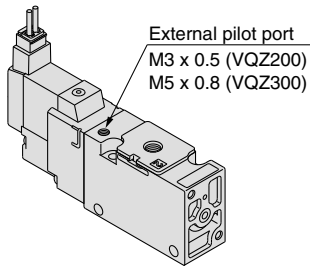
External Pilot Specification

The external pilot specification is used when the operating pressure is below the minimum operating pressure 0.1 to 0.15 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

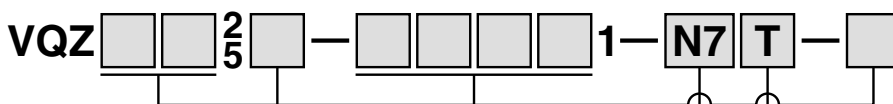
Series		VQZ100 ^{Note 2)}	VQZ200/300
^{Note 1)} External pilot pressure range	Metal seal	—	0.1 to 0.7 MPa
	Rubber seal (VQZ100: poppet)	0.2 to 0.7 MPa	0.15 to 0.7 MPa
Operating pressure range ^{Note 1)}		-100 kPa to 0.7 MPa	

Note 1) In case of the high pressure type, upper limit of max. operating pressure and external pilot pressure range is 1 MPa.
Note 2) Pump down from 1(P) port when VQZ100 series vacuum type is specified. Apply pressure from 3(R) port to relieve vacuum pressure. Set the release pressure at 50% of external pilot pressure or less.

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.

		Cylinder port						
Symbol		N1	N3	N7	N9	N11	M5	O2
Applicable tubing O.D. (Inch)		ø1/8"	ø5/32"	ø1/4"	ø5/16"	ø3/8"	M5 thread	1/4 thread
2(A) port	VQZ100	●	●	●	—	—	●	—
	VQZ200	—	●	●	—	—	●	—
	VQZ300	—	—	●	●	●	—	●

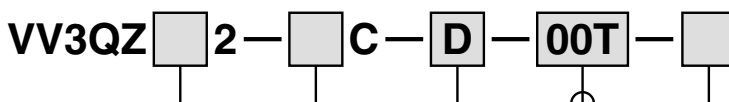
• Thread type (Cylinder port and 1(P), 3(R) ports)

Nil	Rc
N	NPT
T	NPTF
F	G

Note 1) 3(R) port of the VQZ200 is only G1/16.
Note 2) Except VQZ100

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

Manifold Part No.



• Entry is the same as standard products.

• Thread type (1(P), 3(R) ports)

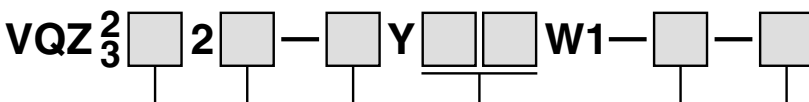
Nil	Rc
00N	NPT
00T	NPTF
00F	G

IP65 Enclosure (Based on IEC529)

DIN terminal is available with IP65 enclosure.

Valve Part No.

(Applicable to the VQZ200/300 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	M5 (VQZ100 only)
VQZ100/200	VVQ1000-50A-C3	VVQ1000-50A-C4	VVQ1000-50A-C6	—	—	VVQ1000-50A-M5
VQZ300	—	—	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

Symbol	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.

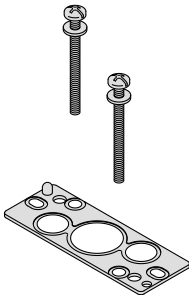
Example) In case of 2000 mm of lead wire

DC VQZ115-5LO1-M5-PR SY100-30-4A-20
AC VQZ115-1LO1-M5-PR SY100-30-1A-20

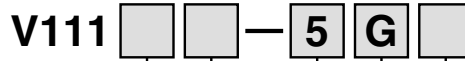
<Gasket and screw assembly>

Model	Part no.
VQZ100	VQZ100-GS-2
VQZ200	VQZ200-GS-2
VQZ300	VQZ300-GS-2

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



<Pilot valve assembly>



Symbol	Specifications	DC	AC
Nil	Standard	(0.35 W) ○	○
B Note)	High speed response type (Applicable to VQZ200/300)	(0.9 W) ○	—
K Note)	High pressure type (Applicable to Metal seal type, Poppet seal type)	(0.9 W) ○	—

Note) Option

Manual override

Nil	None (Applicable to VQZ200/300)
M	Yes (Applicable to VQZ100)

Manual override (Applicable to the VQZ100)

Nil	Non-locking push type
B	Locking slotted type

Coil voltage

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

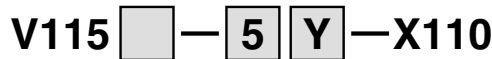
Electrical entry

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

Note) VQZ pilot valve electrical entry (L, M) is the opposite of the how to order of valve body.

Valve model	Pilot valve model
VQZ115□-□L□1	V111□M-□M□
VQZ115□-□M□1	V111□M-□L□

<DIN terminal type (Applicable to the VQZ200/300)>



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

Note) Option

Coil voltage

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

Electrical entry

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

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

<Bracket assembly>

Model	Part no.	Tightening torque (N·m) Note)
VQZ100	VQZ100-FB	0.45 to 0.55
VQZ200	VQZ200-FB	0.25 to 0.35
VQZ300	VQZ300-FB	0.25 to 0.35

Note) Tightening torque when mounting a bracket on the valve.

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.