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5 Port Solenoid Valve
Body Ported
Plug Lead Unit: Single Unit
VQZ1000/2000/3000

How to Order Valves

VQZ [1] [1] [2] [1] [ ] — [5] [M] [ ] — [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 (Metal seal / Rubber seal)
3	3 position closed center
4	3 position exhaust center
Note) 5	3 position pressure center

Note) Except VQZ1000 and metal seal type.

Body

2	Body ported

Seal

0	Metal seal
1	Rubber seal

Function

Symbol	Specifications	DC	AC
Nil	Standard	(1.0 W) ○	(3) ○
K(1)	High pressure (Metal seal only)	(1.0 W) ○	—
Y	Low wattage type	(0.5 W) ○	—
R(2)	External pilot	○	○

Note 1) Option
Note 2) For details about external pilot specifications except VQZ1000, refer to page 2-7-27.
Note 3) For power consumption of AC type, refer to page 2-7-7.
Note 4) When two or more symbols are specified, indicate them alphabetically.

For One-touch fittings to be mounted on this valve and the silencer part no., refer to page 2-7-5.

Bracket

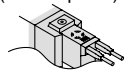
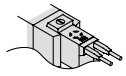
Nil	None
F	With bracket (Applicable to single)

Port size {4(A), 2(B) port}

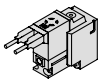
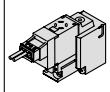
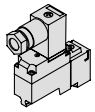
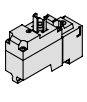
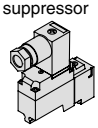
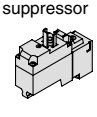
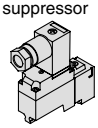
Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
C3	One-touch fitting for ø3.2	○	—	—
C4	One-touch fitting for ø4	○	○	—
C6	One-touch fitting for ø6	○	○	○
C8	One-touch fitting for ø8	—	—	○
C10	One-touch fitting for ø10	—	—	○
M5	M5 thread	○	○	—
02	Rc 1/4	—	—	○

Note) For inch size and One-touch fittings, refer to page 2-7-27.

Manual override

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

Electrical entry

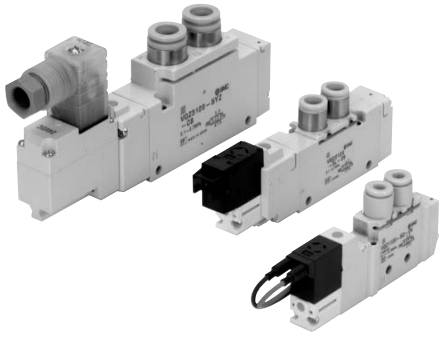
G: Grommet (DC specification)	L: L plug connector with lead wire	LO: L plug connector without connector	M: M plug connector with lead wire	MO: M plug connector without connector
	With light/ surge voltage suppressor	With light/ surge voltage suppressor	With light/ surge voltage suppressor	With light/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

Note 1) Applicable to VQZ2000 and 3000.
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 (50/60 Hz)
4	220 VAC (50/60 Hz)
5	24 VDC
6	12 VDC
9 Note)	Other

Note) For the special voltages, please consult with SMC.



Standard Specifications

Valve specifications	Valve construction			Metal seal	Rubber seal
	Fluid			Air/Inert gas	Air/Inert gas
	Maximum operating pressure			0.7 MPa (High pressure type: 1.0 MPa)	0.7 MPa
	Min. operating pressure	2 position	Single	0.1 MPa Only for VQZ3000, 3 position 0.15 MPa	0.15 MPa
			Double		0.1 MPa
		3 position			0.2 MPa
	Ambient and fluid temperaure			–10 to 50°C (1)	–10 to 50°C (1)
	Max. operating frequency	2 position	Single	20 Hz	5 Hz
			Double		
		3 position		10 Hz	3 Hz
	Pilot valve EXH			Individual EXH	
	Lubrication			Not required	
	Pilot valve manual override			Push type/Locking type (Tool required) Option	
	Shock/Vibration resistance (2)			150/30 m/s^2	
	Enclosure			Dustproof	
Electricity specifications	Coil rated voltage			12, 24 VDC and 100, 110, 200, 220 VAC	
	Allowable voltage fluctuation			±10% of rated voltage	
	Coil insulation type			Equivalent to class B	
	Power consumption (Current)	24 VDC		1 W DC (42 mA), 0.5 W DC (21 mA)	
		12 VDC		1 W DC (83 mA), 0.5 W DC (42 mA)	
		100 VAC		Inrush 0.5 VA (5 mA), Holding 0.5 VA (5 mA)	
		110 VAC		Inrush 0.55 VA (5 mA), Holding 0.55 VA (5 mA)	
		200 VAC		Inrush 1.0 VA (5 mA), Holding 1.0 VA (5 mA)	
		220 VAC		Inrush 1.1 VA (5 mA), Holding 1.1 VA (5 mA)	

Note 1) Use dry air to prevent condensation when operating at low temperatures.
Note 2) 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. (Values at the initial period)
Vibration resistance:
No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

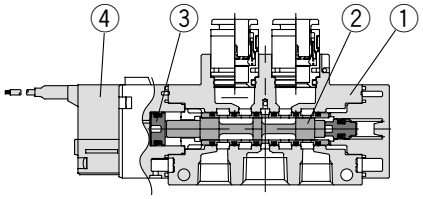
Model

Series	Configuration		Model		Flow characteristics						Response time (ms) (1)			Weight (g) (2)
					1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			Standard:	High pressure: 1W Low wattage: 0.5 W	AC	
					C [dm^3/(s·bar)]	b	Cv	C [dm^3/(s·bar)]	b	Cv	1W			
VQZ1000	2 position	Single	Metal seal	VQZ1120	0.54	0.20	0.13	0.54	0.26	0.13	12 or less	15 or less	29 or less	42
			Rubber seal	VQZ1121	0.90	0.40	0.26	0.71	0.40	0.19	12 or less	15 or less	34 or less	
		Double	Metal seal	VQZ1220	0.54	0.20	0.13	0.54	0.26	0.13	10 or less	13 or less	13 or less	61
			Rubber seal	VQZ1221	0.90	0.40	0.26	0.71	0.40	0.19	10 or less	13 or less	13 or less	
	3 position	Closed center	Metal seal	VQZ1320	0.55	0.29	0.13	0.50	0.25	0.08	20 or less	26 or less	40 or less	
			Rubber seal	VQZ1321	0.87	0.38	0.23	0.68	0.39	0.18	25 or less	33 or less	47 or less	
		Exhaust center	Metal seal	VQZ1420	0.55	0.28	0.13	0.54	0.26	0.13	20 or less	26 or less	40 or less	
			Rubber seal	VQZ1421	0.87	0.38	0.23	0.71	0.40	0.19	25 or less	33 or less	47 or less	
		Pressure center	Rubber seal	VQZ1521	0.91	0.41	0.26	0.68	0.39	0.18	25 or less	33 or less	47 or less	
VQZ2000	2 position	Single	Metal seal	VQZ2120	1.2	0.21	0.30	1.4	0.20	0.32	14 or less	18 or less	34 or less	64
			Rubber seal	VQZ2121	1.7	0.39	0.45	1.6	0.35	0.44	15 or less	20 or less	36 or less	
		Double	Metal seal	VQZ2220	1.2	0.21	0.30	1.4	0.20	0.32	10 or less	13 or less	13 or less	88
			Rubber seal	VQZ2221	1.7	0.39	0.45	1.6	0.35	0.44	12 or less	15 or less	15 or less	
	3 position	Closed center	Metal seal	VQZ2320	1.1	0.21	0.26	1.1	0.24	0.26	23 or less	30 or less	44 or less	
			Rubber seal	VQZ2321	1.4	0.33	0.35	1.4	0.37	0.36	25 or less	33 or less	47 or less	
		Exhaust center	Metal seal	VQZ2420	1.1	0.23	0.28	1.4	0.20	0.32	23 or less	30 or less	44 or less	
			Rubber seal	VQZ2421	1.4	0.33	0.35	1.6	0.35	0.44	25 or less	33 or less	47 or less	
		Pressure center	Metal seal	VQZ2520	1.3	0.28	0.34	1.2	0.27	0.30	23 or less	30 or less	44 or less	
			Rubber seal	VQZ2521	1.7	0.34	0.44	1.4	0.37	0.36	25 or less	33 or less	47 or less	
VQZ3000	2 position	Single	Metal seal	VQZ3120	2.4	0.23	0.56	2.4	0.19	0.54	17 or less	22 or less	34 or less	109
			Rubber seal	VQZ3121	3.1	0.34	0.79	3.2	0.38	0.81	25 or less	33 or less	57 or less	
		Double	Metal seal	VQZ3220	2.4	0.23	0.56	2.4	0.19	0.54	10 or less	13 or less	13 or less	134
			Rubber seal	VQZ3221	3.1	0.34	0.79	3.2	0.38	0.81	15 or less	20 or less	20 or less	
	3 position	Closed center	Metal seal	VQZ3320	2.3	0.19	0.54	2.1	0.21	0.54	25 or less	33 or less	53 or less	
			Rubber seal	VQZ3321	2.7	0.30	0.66	2.4	0.33	0.62	30 or less	39 or less	59 or less	
		Exhaust center	Metal seal	VQZ3420	2.3	0.19	0.54	2.4	0.19	0.54	25 or less	33 or less	53 or less	
			Rubber seal	VQZ3421	2.7	0.30	0.66	3.2	0.38	0.81	30 or less	39 or less	59 or less	
		Pressure center	Metal seal	VQZ3520	2.5	0.25	0.60	2.1	0.18	0.47	25 or less	33 or less	53 or less	
			Rubber seal	VQZ3521	3.2	0.38	0.82	2.4	0.33	0.62	30 or less	39 or less	59 or less	

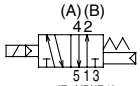
Note 1) Based on JIS B 8375-1981 (Supply pressure; 0.5 MPa; with light/surge voltage suppressor; clean air)
Response time values will change depending on pressure and air quality. The values at the time of ON are given for double types.
Note 2) Weight without sub-plate

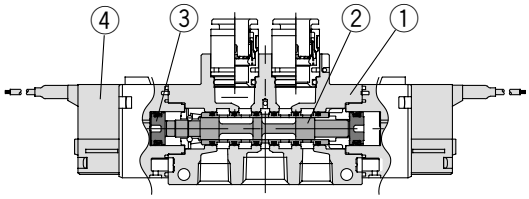
Construction: VQZ1000/2000/3000

Metal seal type

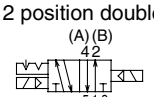


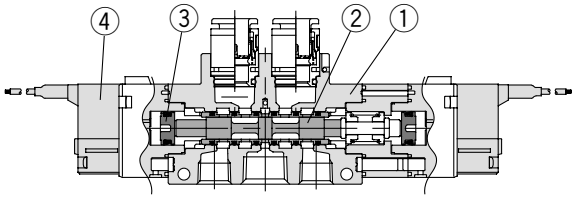
2 position single



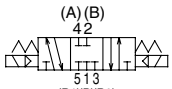


2 position double

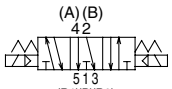




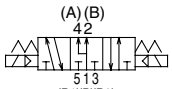
3 position closed center



3 position exhaust center

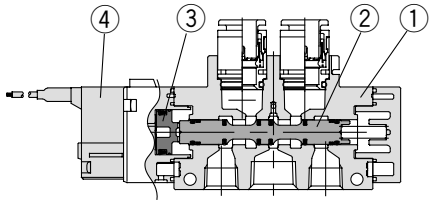


3 position pressure center Note)

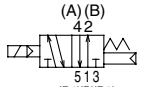


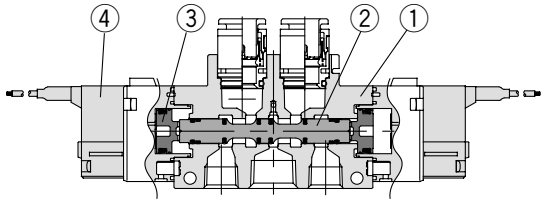
Note) Except VQZ1000 and metal seal type.

Rubber seal type

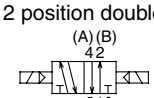


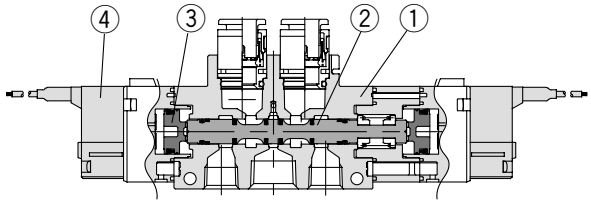
2 position single



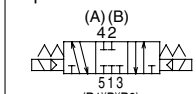


2 position double

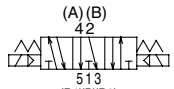




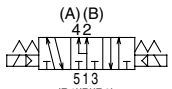
3 position closed center



3 position exhaust center



3 position pressure center



Component Parts

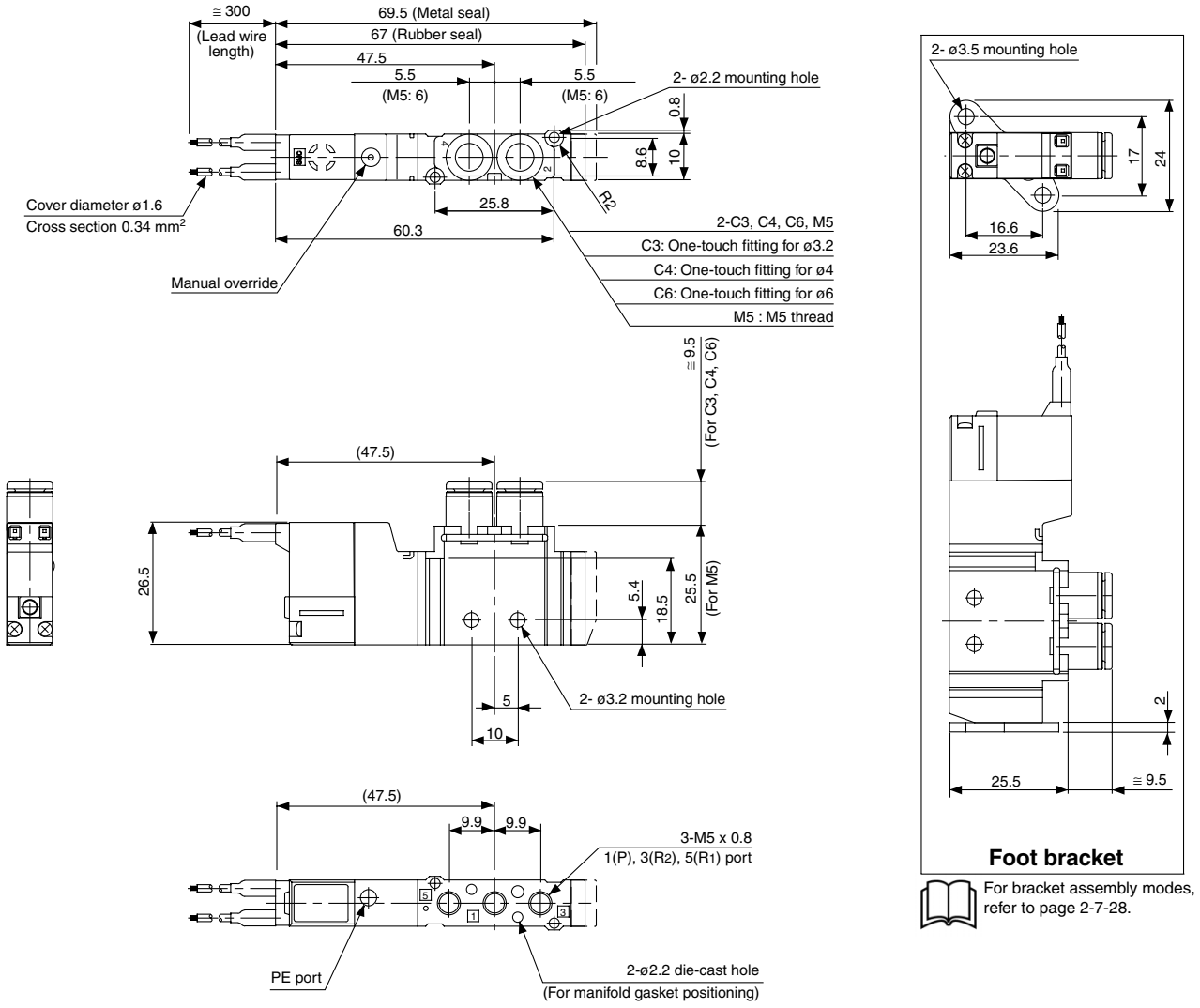
No.	Description	Material	Note
①	Body	Aluminum die-casted	
②	Spool/Sleeve	Stainless steel	Metal seal
	Spool valve	Aluminum/HNBR	Rubber seal
③	Piston	Resin	
④	Pilot valve assembly	—	

Refer to page 2-7-28 for Pilot Valve Assembly.

Dimensions: VQZ1000

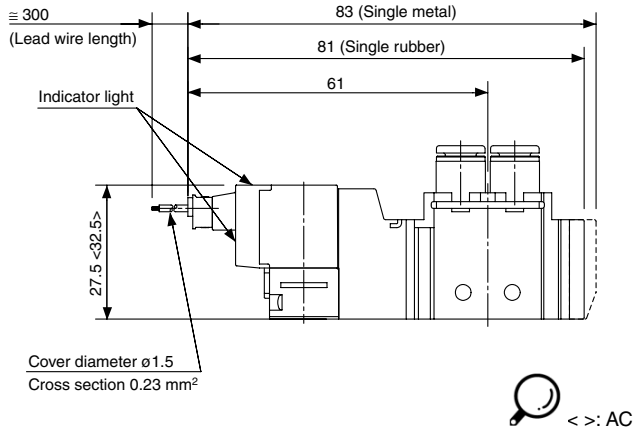
2 position single

Grommet (G): VQZ112$^{0}_{1}$-□G□-C3/C4/C6/M5

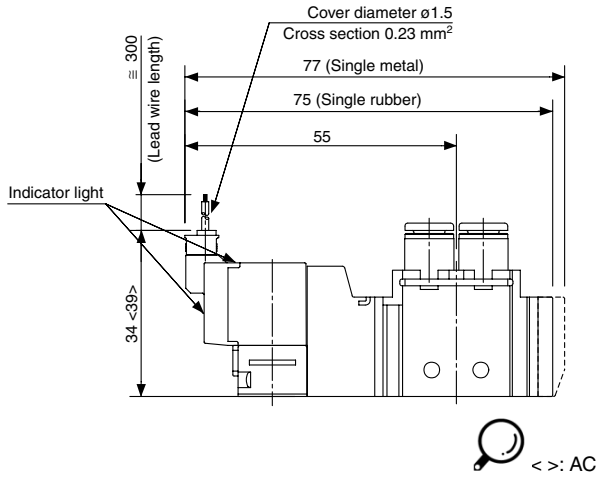


For bracket assembly modes, refer to page 2-7-28.

L plug connector (L): VQZ112$^{0}_{1}$-□L□-C3/C4/C6/M5



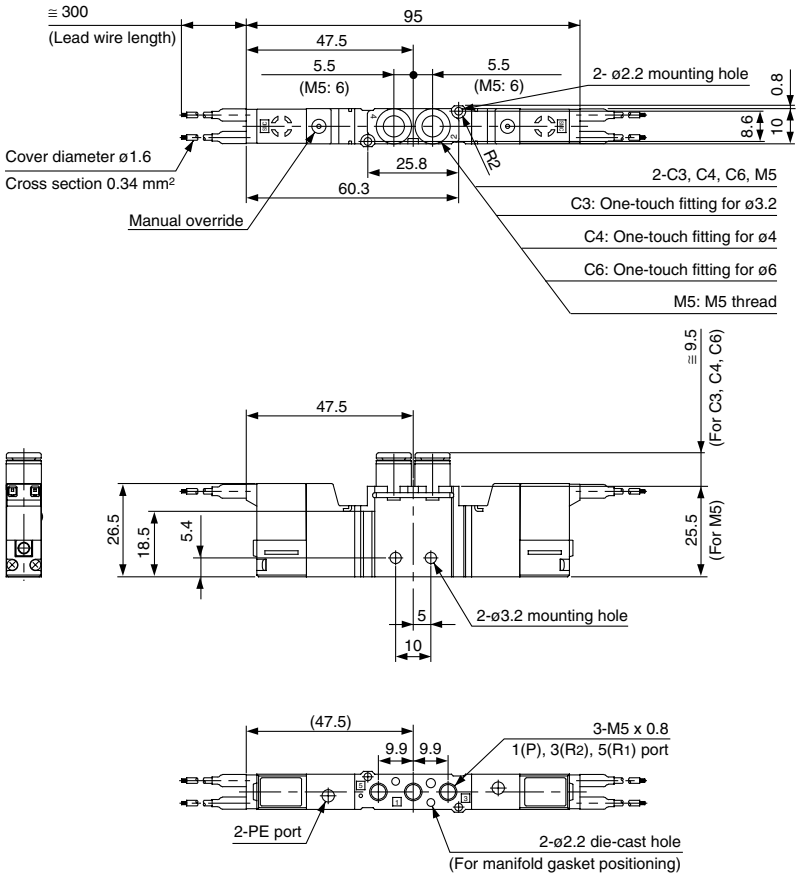
M plug connector (M): VQZ112$^{0}_{1}$-□M□-C3/C4/C6/M5



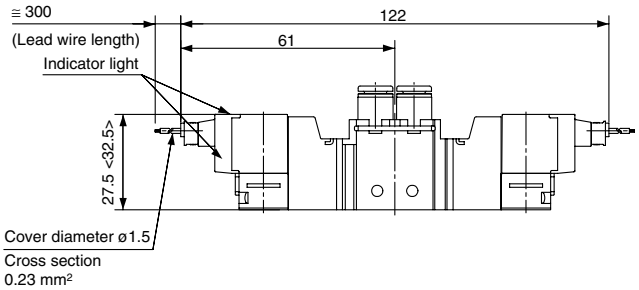
Dimensions: VQZ1000

2 position double

Grommet (G): VQZ122$^{0}_{1}$-□G□-C3/C4/C6/M5



L plug connector (L): VQZ122$^{0}_{1}$-□L□-C3/C4/C6/M5



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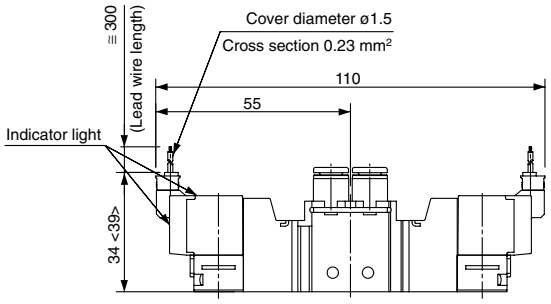
M plug connector (M): VQZ122$^{0}_{1}$-□M□-C3/C4/C6/M5

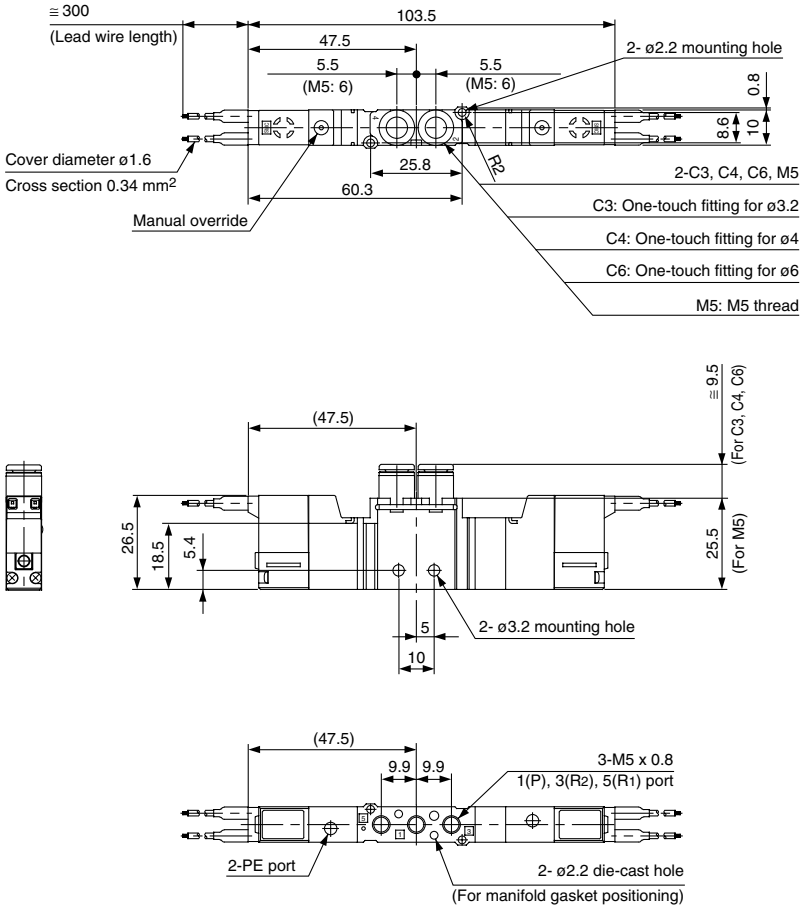


< >: AC

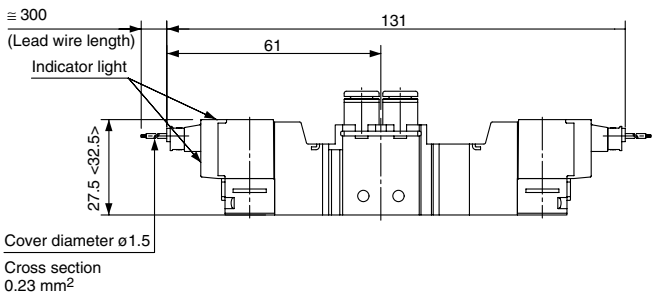
VQZ1000

3 position closed center/exhaust center/pressure center (Except metal seal type)

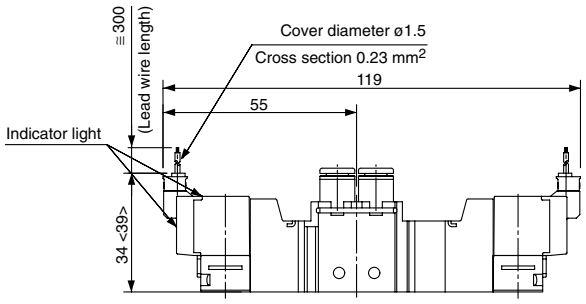
Grommet (G): VQZ1$^{3}_{4}_{5}$ 2$^{0}_{1}$-□G□-C3/C4/C6/M5



L plug connector (L): VQZ1$^{3}_{4}_{5}$ 2$^{0}_{1}$-□L□-C3/C4/C6/M5



M plug connector (M): VQZ1$^{3}_{4}_{5}$ 2$^{0}_{1}$-□M□-C3/C4/C6/M5



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