

5 Port Solenoid Valve

Body Ported

Plug Lead Unit: Single Unit

VQZ1000/2000/3000

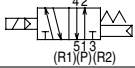
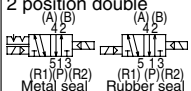


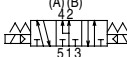
How to Order Valves

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 (A)(B)  (R1)(P)(R2)
2	2 position double (A)(B) (A)(B)  (R1)(P)(R2) (R1)(P)(R2) Metal seal Rubber seal
3	3 position closed center (A)(B)  (R1)(P)(R2)
4	3 position exhaust center  (R1)(P)(R2)
5	3 position pressure center (A)(B)  (R1)(P)(R2)

Note) Except VQZ1000 and metal seal type.

Body

2	Body ported
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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}






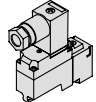
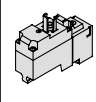
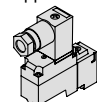
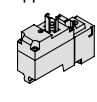
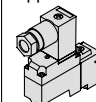
Symbol	Port size	VQZ1000	VQZ2000	VQZ3000
C3	One-touch fitting for ø3.2	○	—	—
C4	One-touch fitting for ø4	○	○	—
C6	One-touch fitting for ø6	○	○	○
C8	One-touch fitting for ø8	—	—	○
C10	One-touch fitting for ø10	—	—	○
M5	M5 thread	○	○	—
Ø2	Rc 1/4	—	—	○

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)
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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
				
Y: DIN terminal	YO: DIN terminal without connector	YZ: DIN terminal ⁽¹⁾	YOS: DIN terminal ⁽¹⁾ without connector	YS: DIN terminal ⁽¹⁾
				

Note 1) Applicable to VQZ2000 and 3000.
Note 2) Standard lead wire length: 300 mm

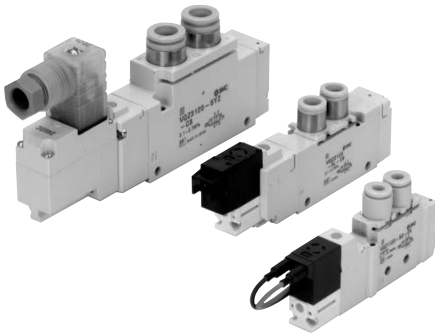
Coil voltage

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.

Plug Lead Unit: Single Unit Series VQZ1000/2000/3000

Standard Specifications



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)

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	0.1 MPa Only for VQZ3000, 3 position 0.15 MPa	0.15 MPa	
		3 position		0.1 MPa	
	Ambient and fluid temperature		-10 to 50°C ⁽¹⁾	-10 to 50°C ⁽¹⁾	
	Max. operating frequency	2 position	20 Hz	5 Hz	
		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)			

VQC
 SQ
 VQ0
 VQ4
 VQ5
 VQZ
 VQD

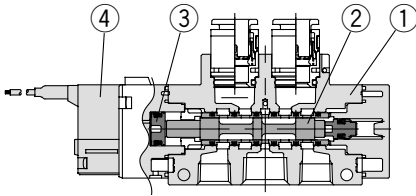
Model

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: 1W	High pressure: 1W Low wattage: 0.5 W	AC			
			C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv						
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	
	3 position	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	
			Rubber seal	VQZ1221	0.90	0.40	0.26	0.71	0.40	0.19	10 or less	13 or less	13 or less	
		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	
			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	
			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			

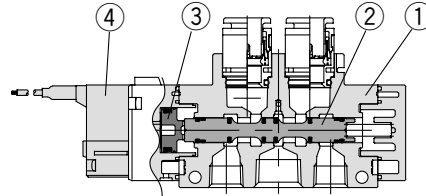
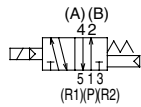
Note 1) Based on JIS B 8375-1981 (Supply pressure: 0.5 MPa; with light/surge voltage suppressor; clean air)
 Response time values will change depending on pressure and air quality. The values at the time of ON are given for double types.
 Note 2) Weight without sub-plate

Construction: VQZ1000/2000/3000

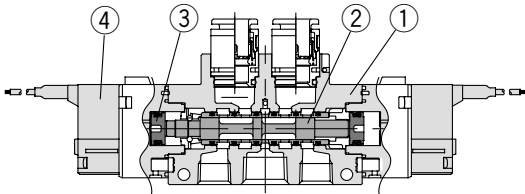
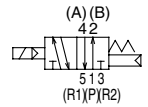
Metal seal type



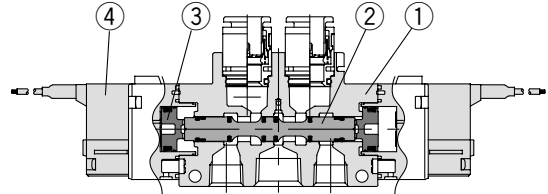
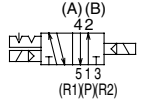
2 position single



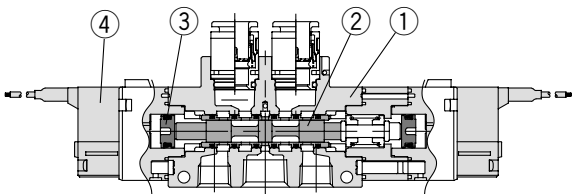
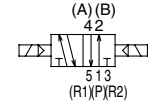
2 position single



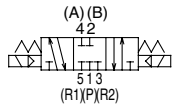
2 position double



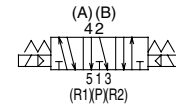
2 position double



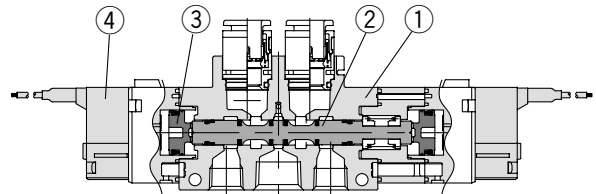
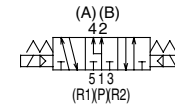
3 position closed center



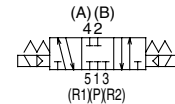
3 position exhaust center



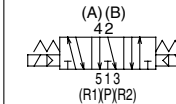
3 position pressure center ^{Note)}



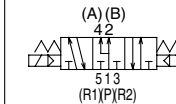
3 position closed center



3 position exhaust center



3 position pressure center



Note) Except VQZ1000 and metal seal type.

Component Parts

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

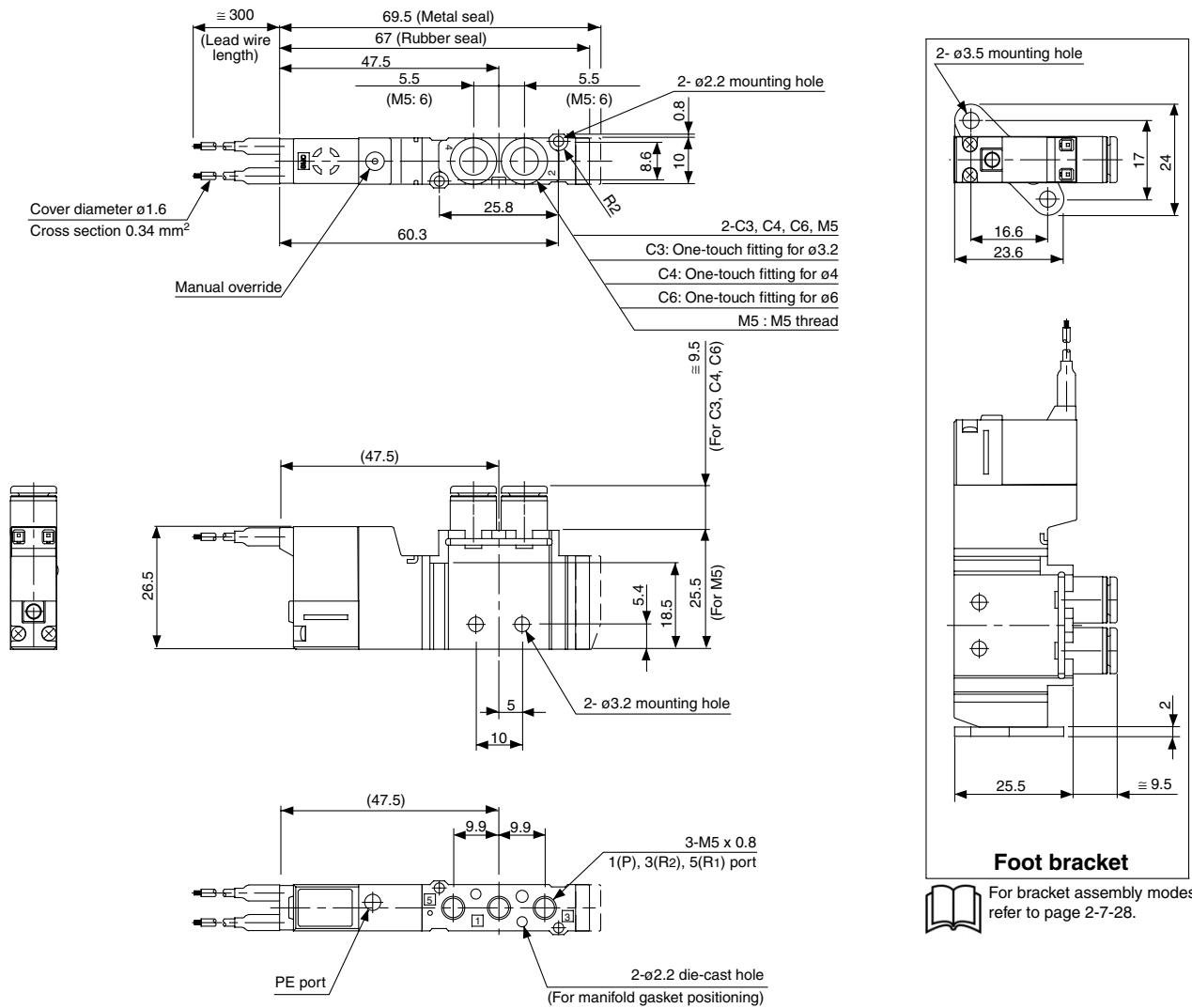
Refer to page 2-7-28 for Pilot Valve Assembly.

Plug Lead Unit: Single Unit Series VQZ1000/2000/3000

Dimensions: VQZ1000

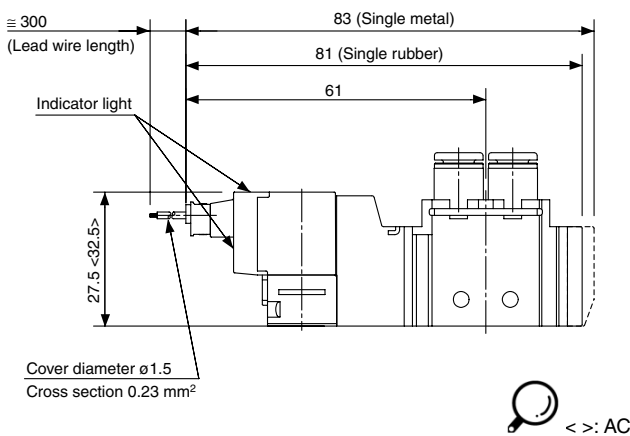
2 position single

Grommet (G): VQZ112⁰-□G□-C3/C4/C6/M5

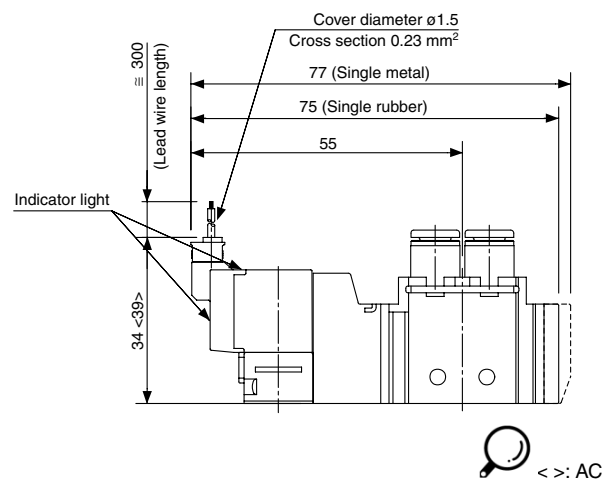


- VQC
- SQ
- VQ0
- VQ4
- VQ5
- VQZ
- VQD

L plug connector (L): VQZ112⁰-□L□-C3/C4/C6/M5



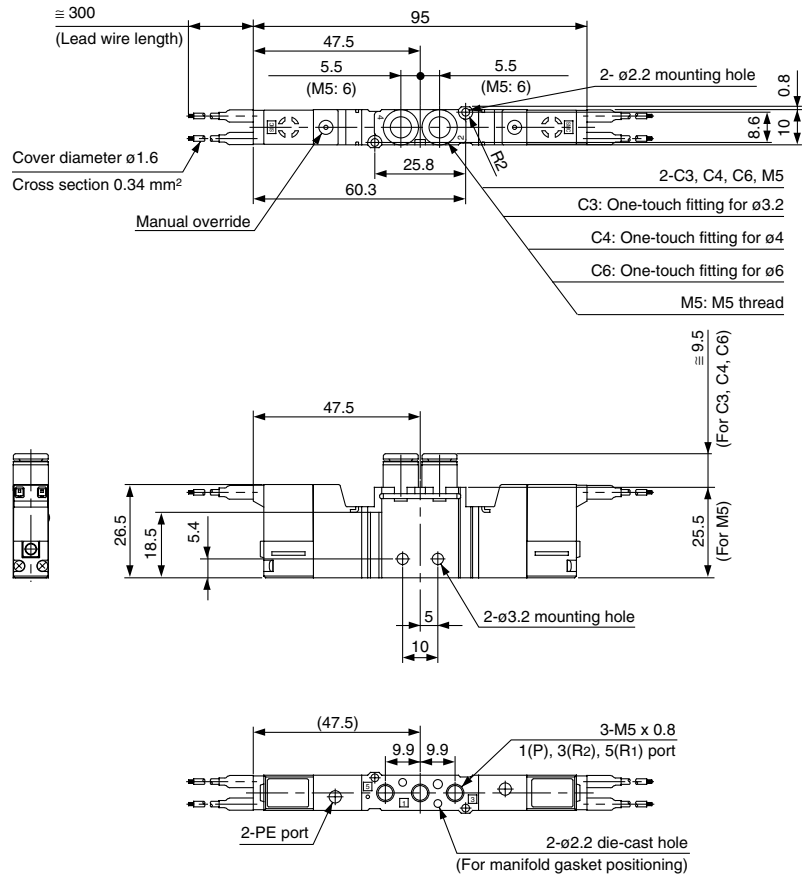
M plug connector (M): VQZ112⁰-□M□-C3/C4/C6/M5



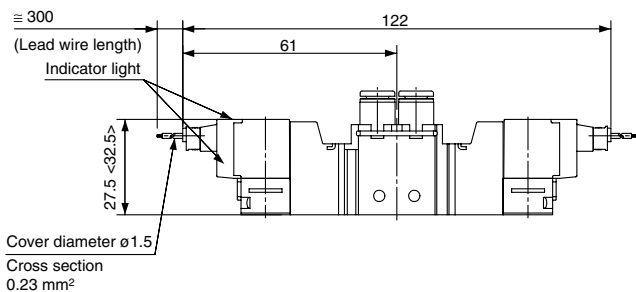
Dimensions: VQZ1000

2 position double

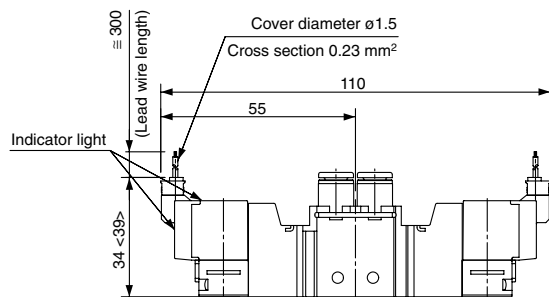
Grommet (G): VQZ122⁰-□G□-C3/C4/C6/M5



L plug connector (L): VQZ122⁰-□L□-C3/C4/C6/M5



M plug connector (M): VQZ122⁰-□M□-C3/C4/C6/M5

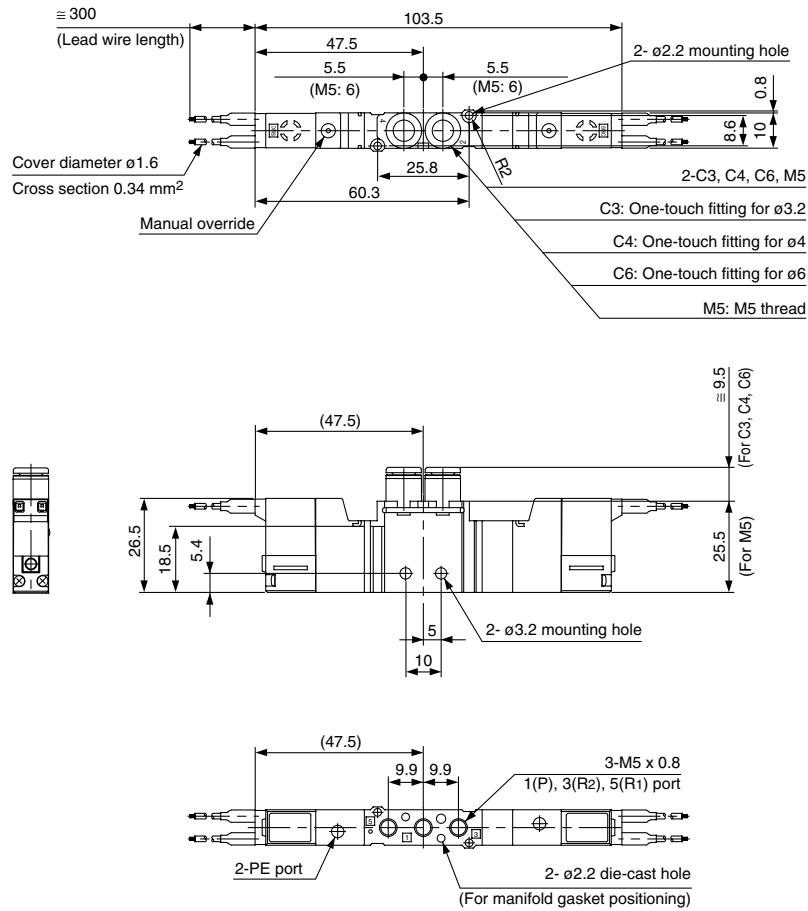


Plug Lead Unit: Single Unit Series VQZ1000/2000/3000

VQZ1000

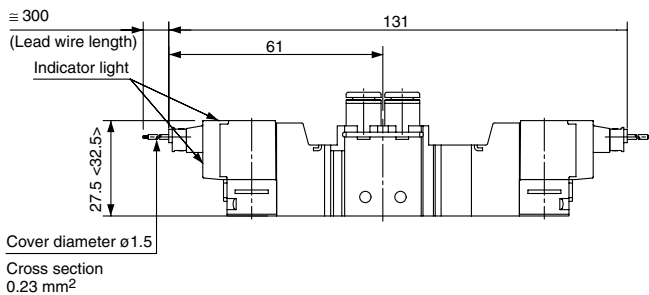
3 position closed center/exhaust center/pressure center (Except metal seal type)

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

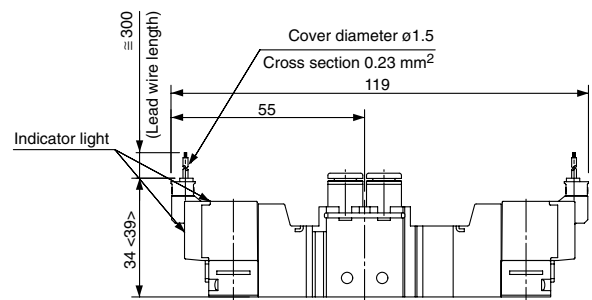


- VQC
- SQ
- VQ0
- VQ4
- VQ5
- VQZ
- VQD

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



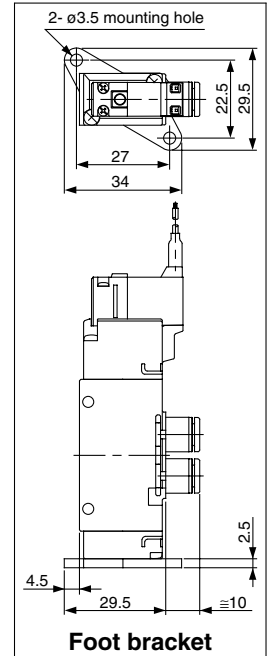
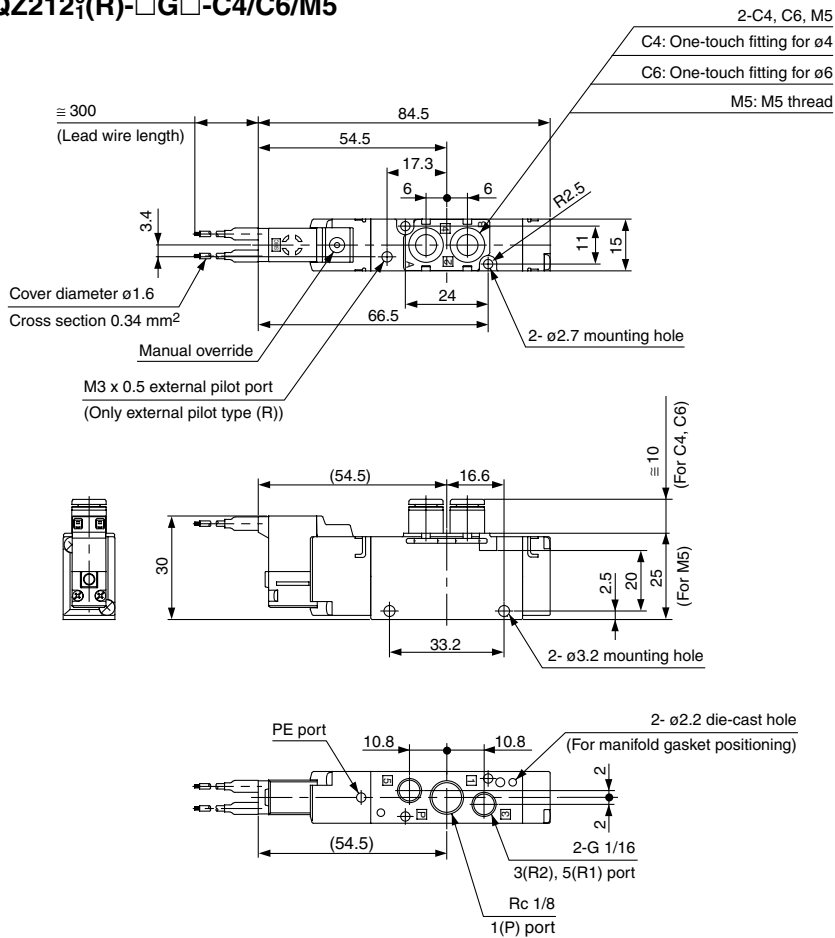
M plug connector (M): VQZ1 $\frac{3}{4}$ 2 $\frac{0}{5}$ -□M□-C3/C4/C6/M5



Dimensions: VQZ2000

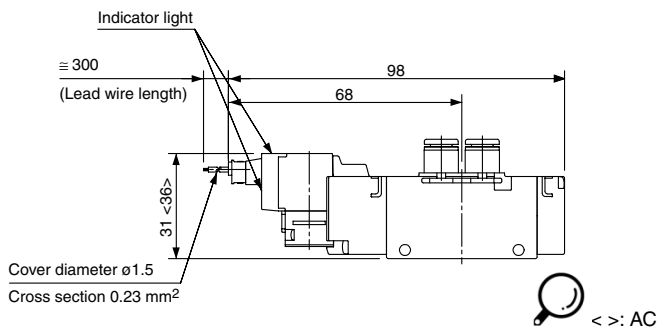
2 position single

Grommet (G): VQZ212⁰(R)-□G□-C4/C6/M5

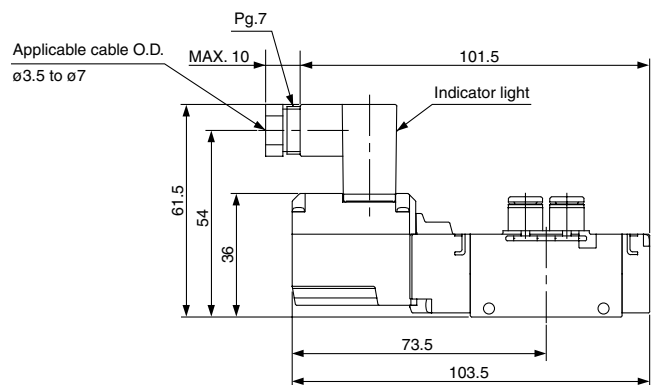


For bracket assembly modes, refer to page 2-7-28.
 For model no. for One-touch fittings for P, R port and silencer, refer to page 2-7-5.

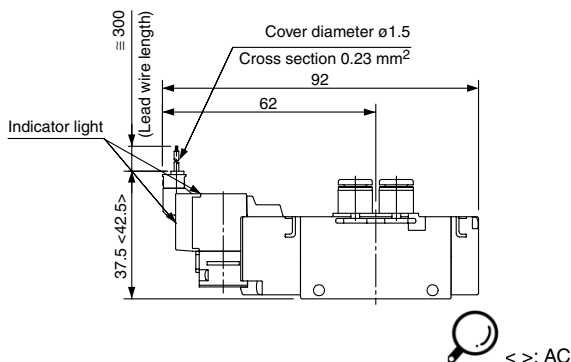
L plug connector (L): VQZ212⁰(R)-□L□-C4/C6/M5



DIN terminal (Y): VQZ212⁰(R)-□Y□-C4/C6/M5



M plug connector (M): VQZ212⁰(R)-□M□-C4/C6/M5

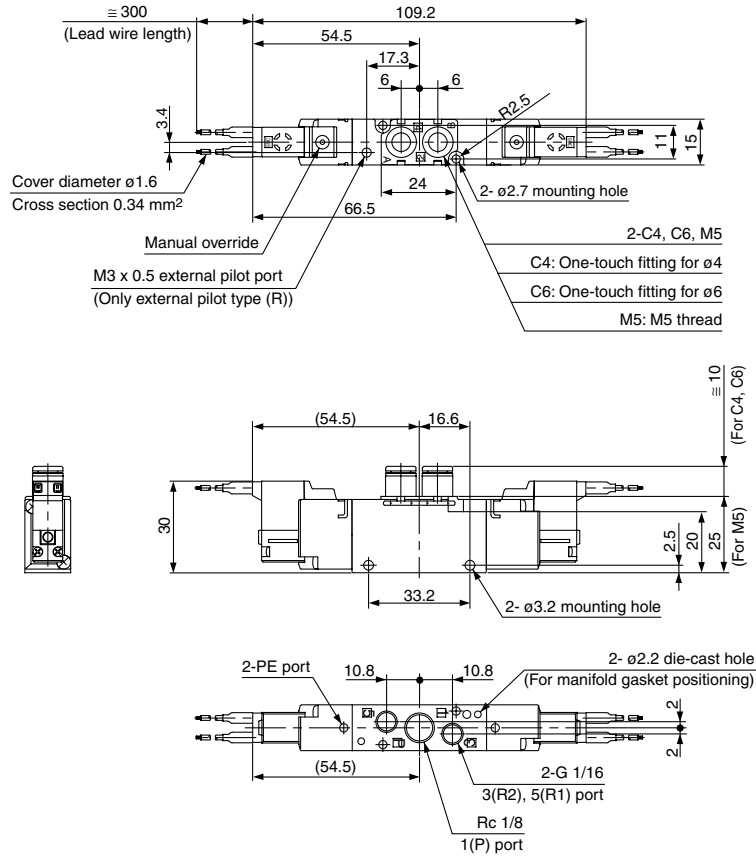


Plug Lead Unit: Single Unit Series VQZ1000/2000/3000

VQZ2000

2 position double

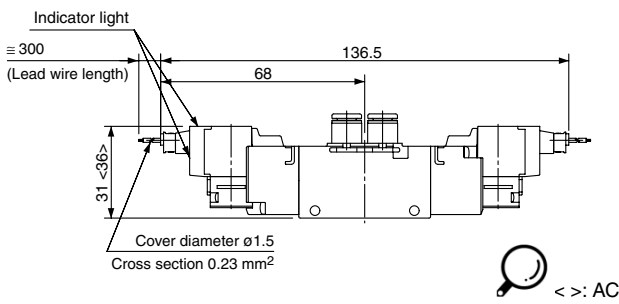
Grommet (G): VQZ222⁰(R)-□G□-C4/C6/M5



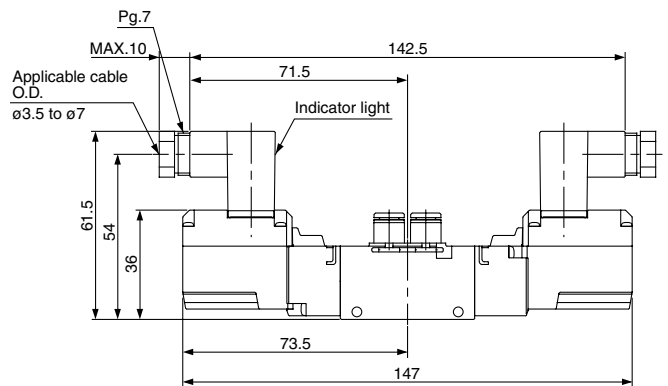
- VQC
- SQ
- VQ0
- VQ4
- VQ5
- VQZ
- VQD

For model no. for One-touch fittings for P, R port and silencer, refer to page 2-7-5.

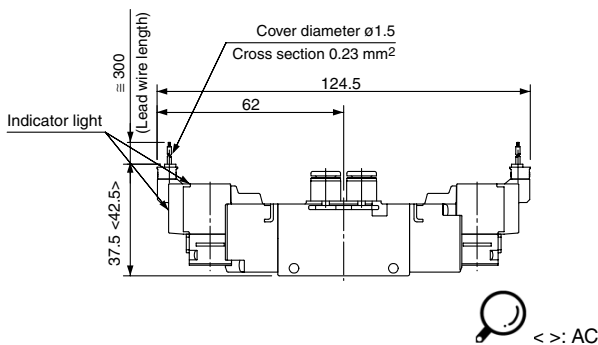
L plug connector (L): VQZ222⁰(R)-□L□-C4/C6/M5



DIN terminal (Y): VQZ222⁰(R)-□Y□-C4/C6/M5



M plug connector (M): VQZ222⁰(R)-□M□-C4/C6/M5

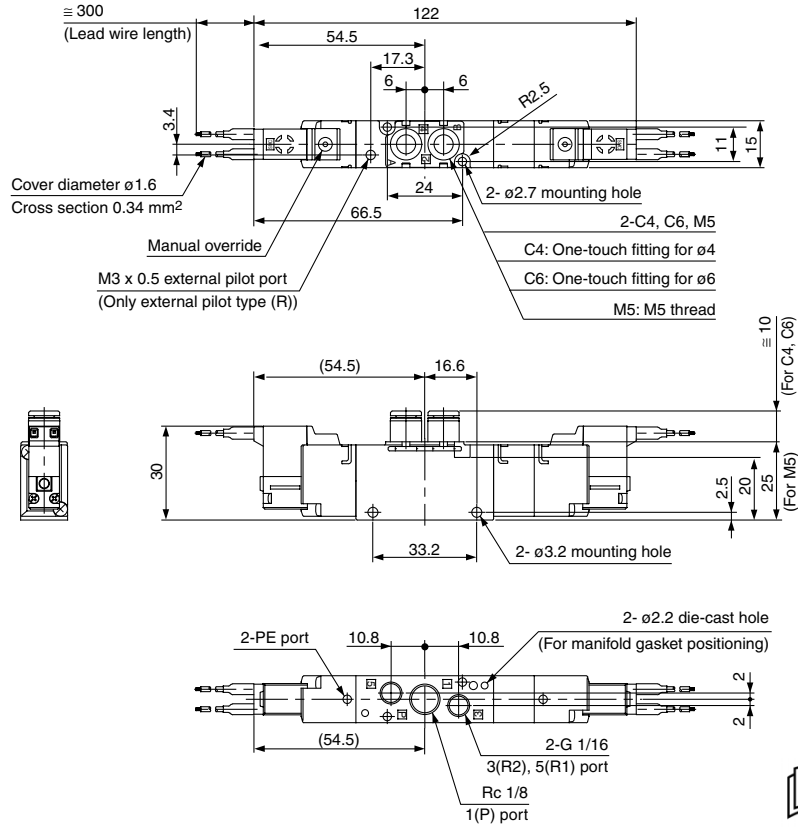


Series VQZ1000/2000/3000

Dimensions: VQZ2000

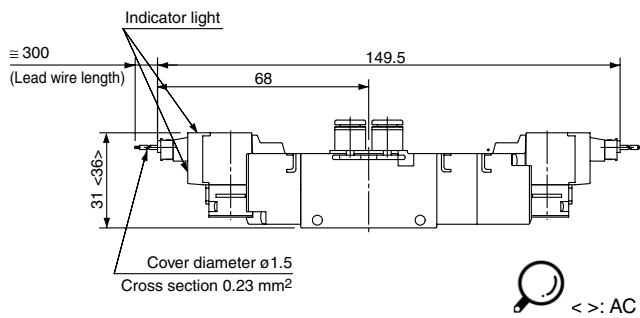
3 position closed center/exhaust center/pressure center

Grommet (G): VQZ2 $\frac{3}{4}$ 2 $\frac{0}{1}$ (R)-□G□-C4/C6/M5

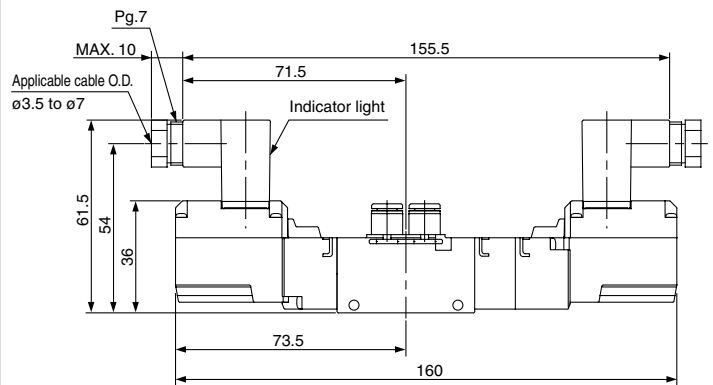


For model no. for One-touch fittings for P, R port and silencer, refer to page 2-7-5.

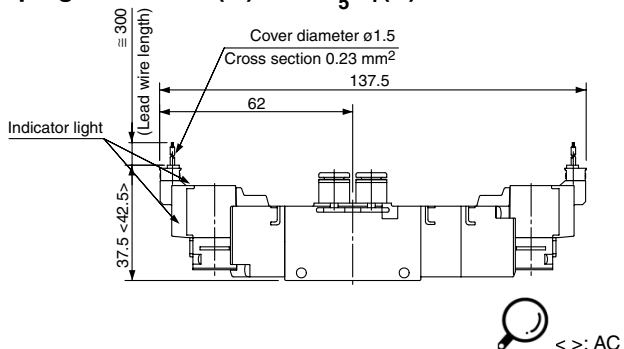
L plug connector (L): VQZ2 $\frac{3}{4}$ 2 $\frac{0}{1}$ (R)-□L□-C4/C6/M5



DIN terminal (Y): VQZ2 $\frac{3}{4}$ 2 $\frac{0}{1}$ (R)-□Y□-C4/C6/M5



M plug connector (M): VQZ2 $\frac{3}{4}$ 2 $\frac{0}{1}$ (R)-□M□-C4/C6/M5

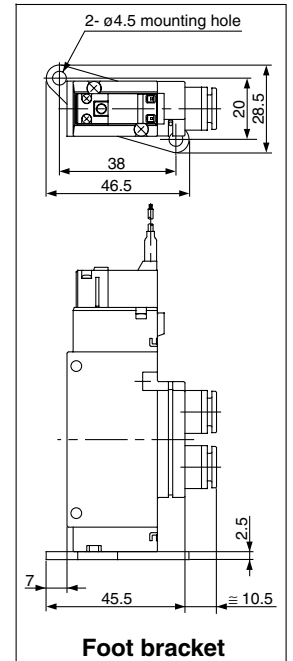
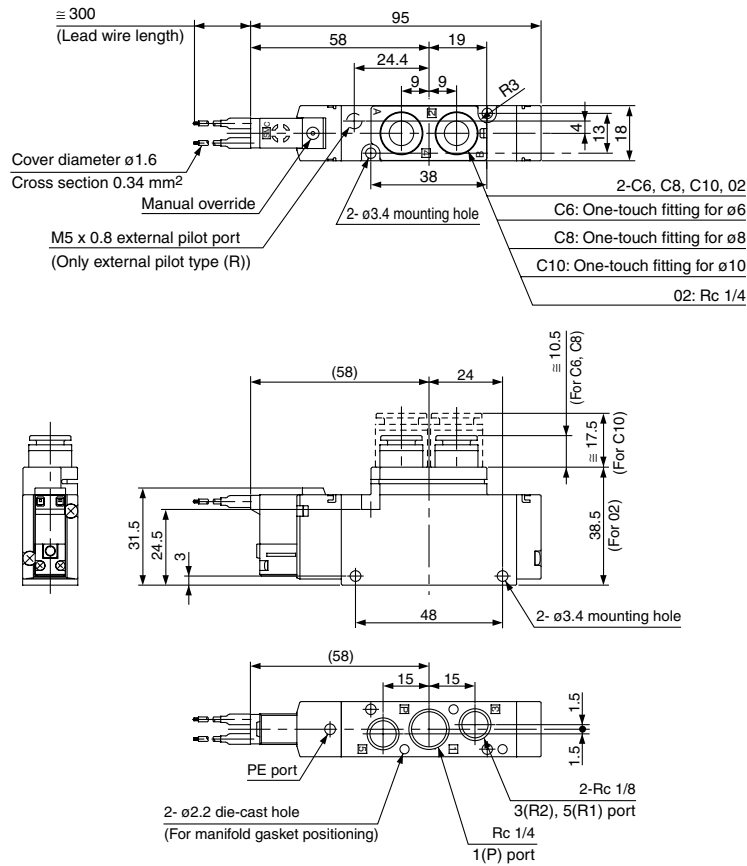


Plug Lead Unit: Single Unit Series VQZ1000/2000/3000

VQZ3000

2 position single

Grommet (G): VQZ312⁰(R)-□G□-C6/C/C10/02



Foot bracket

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

VQC

SQ

VQ0

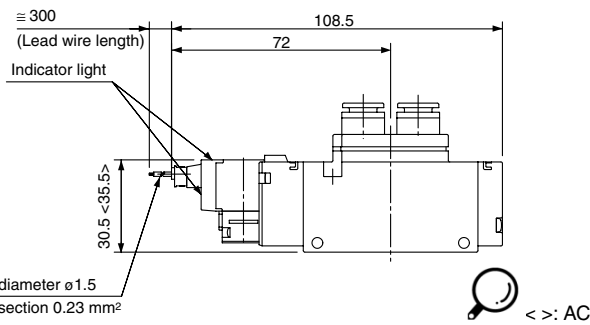
VQ4

VQ5

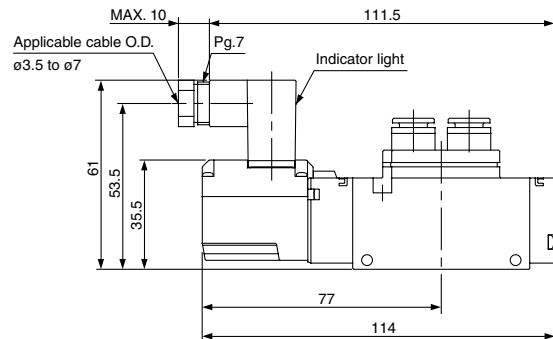
VQZ

VQD

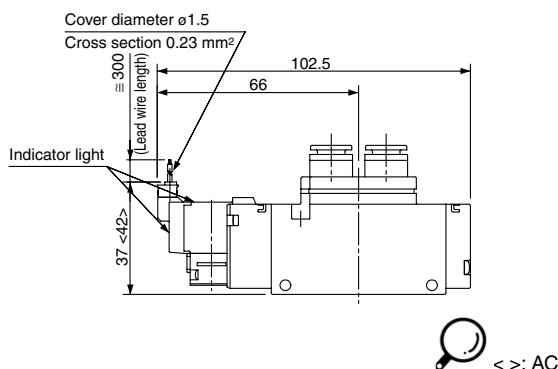
L plug connector (L): VQZ312⁰(R)-□L□-C6/C8/C10/02



DIN terminal (Y): VQZ312⁰(R)-□Y□-C6/C8/C10/02



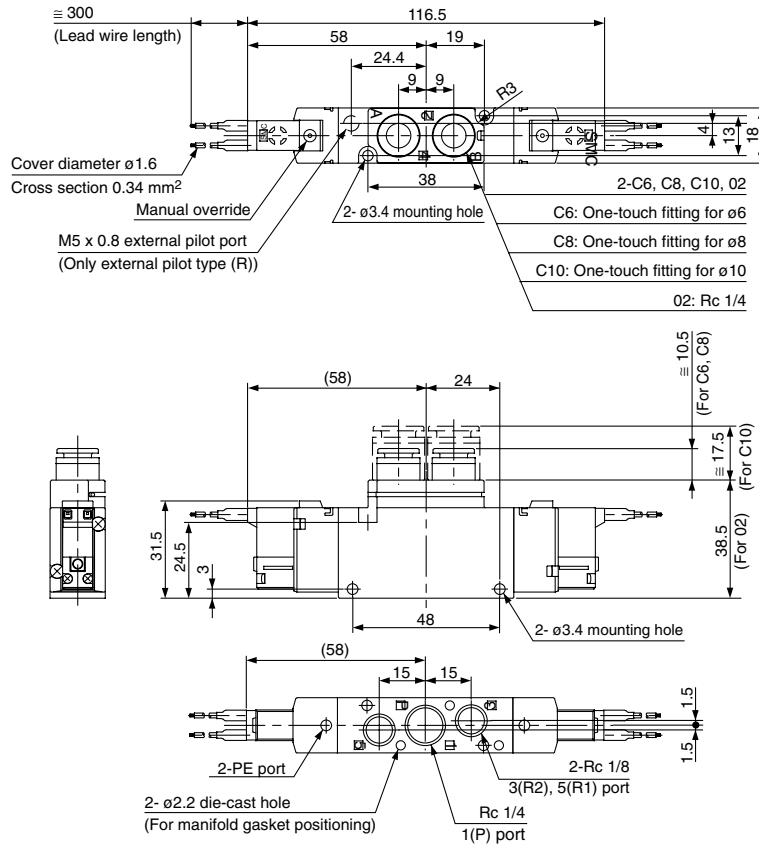
M plug connector (M): VQZ312⁰(R)-□M□-C6/C8/C10/02



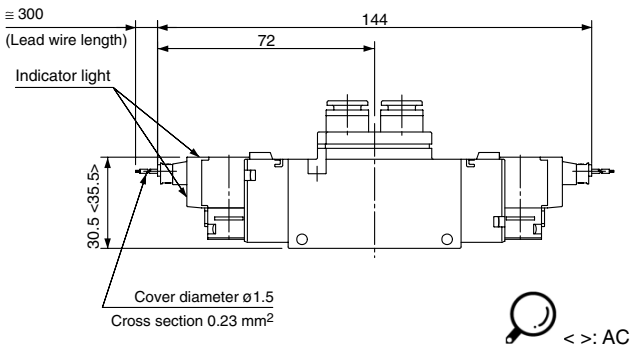
Dimensions: VQZ3000

2 position double

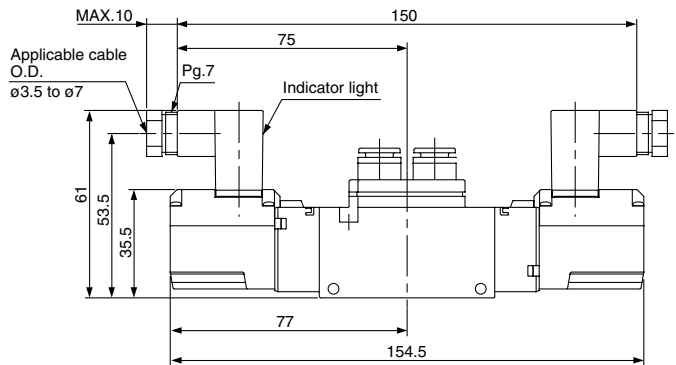
Grommet (G): VQZ322⁰(R)-□G□-C6/C8/C10/02



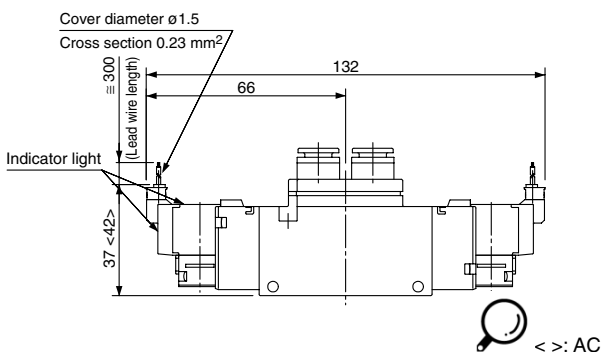
L plug connector (L): VQZ322⁰(R)-□L□-C6/C8/C10/02



DIN terminal (Y): VQZ322⁰(R)-□Y□-C6/C8/C10/02



M plug connector (M): VQZ322⁰(R)-□M□-C6/C8/C10/02

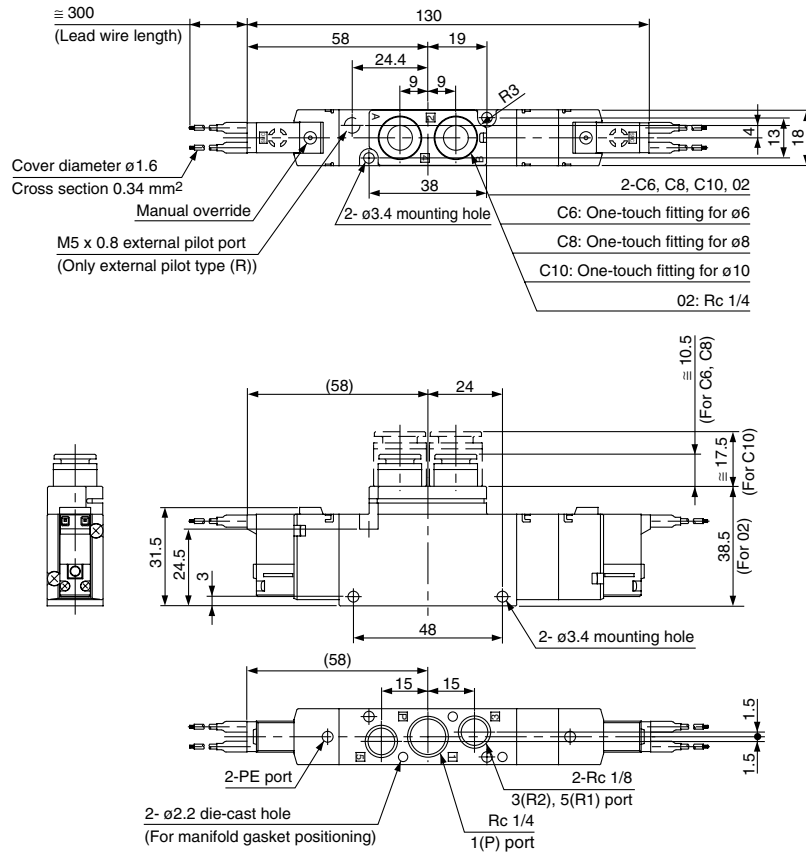


Plug Lead Unit: Single Unit Series VQZ1000/2000/3000

VQZ3000

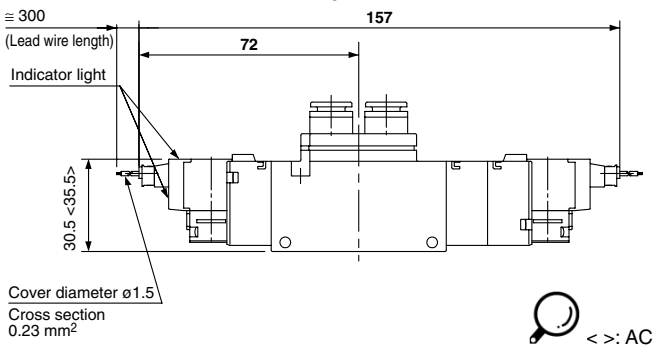
3 position closed center/exhaust center/pressure center

Grommet (G): VQZ3³/₄ 2⁰/₅(R)-□G□-C6/C8/C10/02

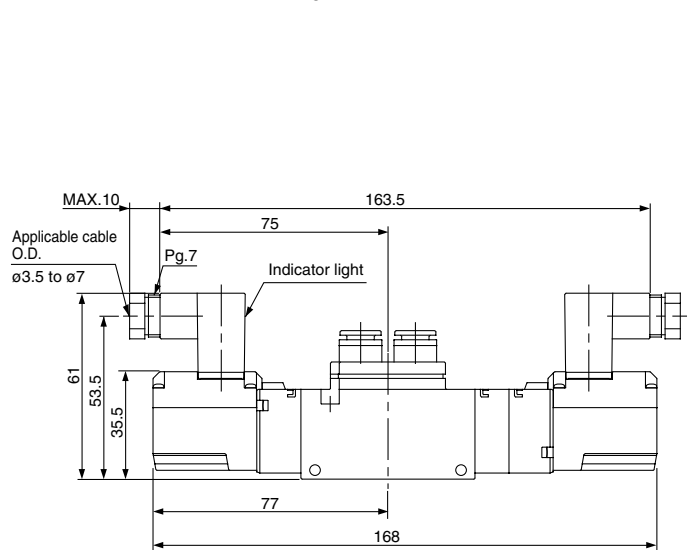


- VQC
- SQ
- VQ0
- VQ4
- VQ5
- VQZ
- VQD

L plug connector (L): VQZ3³/₄ 2⁰/₅(R)-□L□-C6/C8/C10/02



DIN terminal (Y): VQZ3³/₄ 2⁰/₅(R)-□Y□-C6/C8/C10/02



M plug connector (M): VQZ3³/₄ 2⁰/₅(R)-□M□-C6/C8/C10/02

