

3 Port Solenoid Valve

Series VQ100

How to Order Valves

VQ1 **1** **0** **5** **F**

Series VQ
Compact 3 port valve

Type of actuation

1	N.C. (Normally closed)
2 ^{Note)}	N.O. (Normally open)

Note) Normally open type is available only with standard type. (1 W)

Function

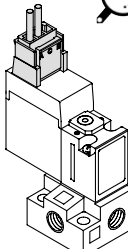
Nil	Standard type (1 W)
H	High pressure type (1.5W)
Y ^{Note)}	Low wattage type (0.5 W)
L*	Latching type, Positive COM
N*	Latching type, Negative COM
U*	Large flow type

* Option
Note) Except latching and large flow type.

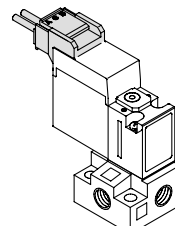
Coil rated voltage

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	Other

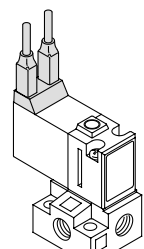
* Option
Note) For the special volt-ages, please consult with SMC.



L plug connector



M plug connector



Grommet

Port size







Nil	Without sub-plate
M3	With sub-plate
M5	With sub-plate

Manual override

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

* Option
Note) Latching manual override: Push-locking type only.

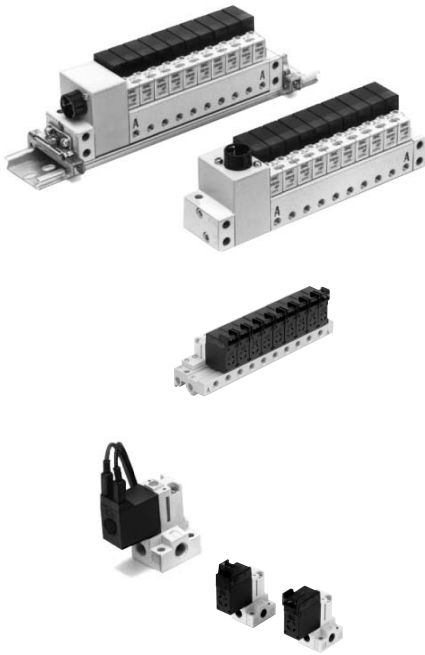
Electrical entry

F	Plug-in, With light/surge voltage suppressor (Only for plug-in manifold)	
L	L plug connector, With lead wire With light/surge voltage suppressor	
LO	L plug connector, Without connector With light/surge voltage suppressor	
M	M plug connector, With lead wire With light/surge voltage suppressor	
MO	M plug connector, Without connector With light/surge voltage suppressor	
G	Grommet	

* Option
Note) Grommet: No latching type, AC and large flow

3 Port Solenoid Valve Series VQ100

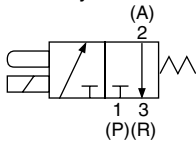
Standard Specifications



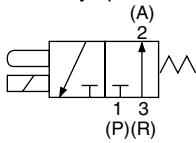
Item		Type	Standard type (1 W)	High pressure type (1.5W)	Low wattage type (0.5 W)	
Valve specifications	Valve construction		3 port direct operated poppet (NC)			
	Fluid		Air/Inert gas			
	Maximum operating pressure		0.7 MPa	0.8 MPa	0.7 MPa	
	Minimum operating pressure		0 MPa (-0.1 MPa ⁽⁵⁾)			
	Flow characteristics	1 → 2	C[dm ³ /(s·bar)]	0.055	0.042	
			b	0.22	0.27	
			Cv	0.014	0.011	
		2 → 3	C[dm ³ /(s·bar)]	0.083	0.045	
			b	0.28	0.28	
		Cv	0.021	0.012		
	Response time ⁽¹⁾		ON: 3.5 ms, OFF: 2 ms		ON: 3.5 ms, OFF: 2.5 ms	
	Ambient and fluid temperature		-10 to 50°C ⁽²⁾			
	Lubrication		Not required			
Manual override		Non-locking push type/Locking type (Tool required) ⁽³⁾				
Mounting orientation		Unrestricted				
Shock/Vibration resistance ⁽⁴⁾		150/30 m/s ²				
Enclosure		Dustproof				
Weight		12.6 g (L/M plug connector, Without sub-plate)				
Electricity specifications	Coil rated voltage		DC	24 V, 12 V		
	Allowable voltage fluctuation		±10% of rated voltage			
	Coil insulation type		Class B or equivalent			
	Power consumption (Current)		DC	1 W (42 mA)	1.5 W (63 mA)	0.5 W (21 mA)
	Electrical entry		Grommet Plug-in, L plug connector, M plug connector (With light/surge voltage suppressor)			

JIS Symbol

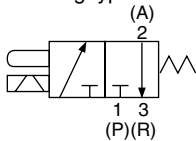
Normally closed



Normally open



Latching type



Note 1) Based on JIS B 8374-1993. With light/surge voltage suppressor (Use clean air), Dispersion accuracy ±1 ms

Note 2) Use dry air to prevent condensation when operating at low temperatures.

Note 3) Locking style: Option

Note 4) 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)

Note 5) In vacuum applications, use 10- Clean Series which can use with 3 (R) port vacuum and 1 (P) port vacuum release pressure. (Differential pressure between 3 (P) and 1 (P) is up to the maximum operating pressure for each type.)

V100

SY

SYJ

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

VFN

Clean Series

Clean series is available for both standard and option specifications.

How to order manifold

10-VQ110□□

● Clean Series

Series VQ100

Option

Item		Type	Latching type	AC type	Large flow type	Normally open type	
Valve specifications	Model		VQ110L-□	VQ110- $\frac{1}{2}$ □	VQ110U-□	VQ120-□	
	Maximum operating pressure		0.7 MPa		0.6 MPa	0.5 MPa	
	Ambient and fluid temperature		0 MPa(—100 MPa ⁽⁴⁾⁽⁵⁾)				
	Flow characteristics	1 → 2 (3 → 2)	C[dm ³ /(s·bar)]	0.042		0.14	0.04
			b	0.27		0.26	0.11
			Cv	0.011		0.036	0.009
		2 → 3 (2 → 1)	C[dm ³ /(s·bar)]	0.045		0.14	0.044
			b	0.28		0.25	0.3
Cv			0.012		0.036	0.011	
Response time ⁽²⁾		5 ms or less	15 ms or less	5 ms or less	5 ms or less		
Electricity specifications	Power consumption (Current)	24 VDC	1 W (42 mA)	—	0.7 W (29 mA) ⁽³⁾	1 W (42 mA)	
		12 VDC	1 W (83 mA)	—	0.7 W (58 mA) ⁽³⁾	1 W (83 mA)	
		100 VAC	0.6 VA (6 mA)	0.5 VA (5 mA)	—		
		110 VAC	0.65 VA (5.9 mA)	0.55 VA (5 mA)	—		
		200 VAC	1.2 VA (6 mA)	1.0 VA (5 mA)	—		
		220 VAC	1.3 VA (5.9 mA)	1.1 VA (5 mA)	—		
	Electrical entry ⁽¹⁾		Plug-in, L plug connector, M plug connector (With light/surge voltage suppressor)				



Note 1) Grommet is available only for normally open type (without light/surge voltage suppressor).
Normally open type is available only with 1 W DC specifications.

Note 2) With light/surge voltage suppressor based on JIS B 8374-1993 (clean air).

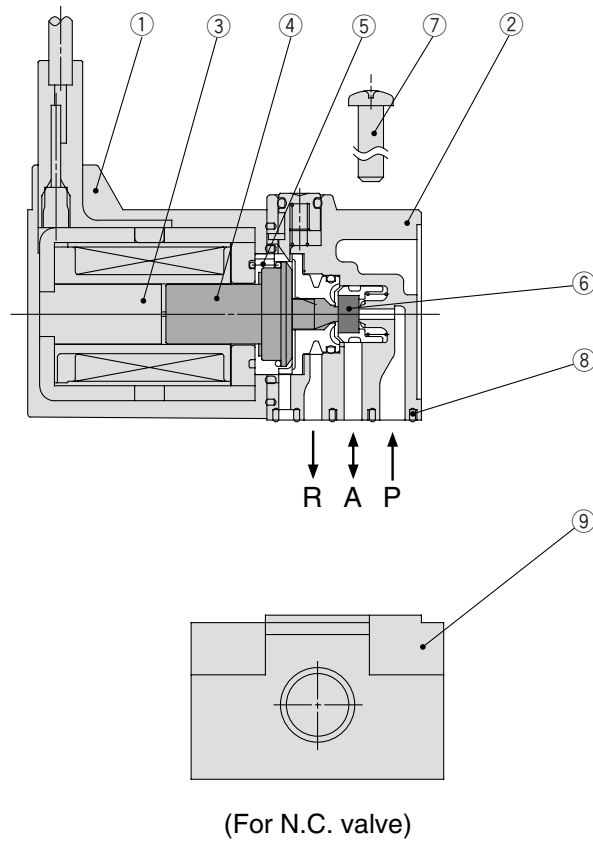
Note 3) Inrush: 3.1 W (10 ms after energized.), Holding: 0.7 W

Note 4) In vacuum applications, use 10- Clean Series which can use with 3 (R) port vacuum and 1 (P) port vacuum release pressure. (Differential pressure between 3 (P) and 1 (P) is up to the maximum operating pressure for each type.)

Note 5) In the case of 1 (P) port vacuum, and 3 (R) port vacuum release, use VQ120 (Normally open type). In this case, 10- is not required.

Note 6) () values insides denote the air passage for normally open type.

Construction



V100
SY
SYJ
VK
VZ
VT
VP
VG
VP
S070
VQ
VKF
VQZ
VZ
VS
VFN

Component Parts

No.	Description	Material
①	Solenoid coil	—
②	Body	Resin
③	Fixed iron core	Stainless steel
④	Movable iron core assembly	Stainless steel, Resin
⑤	Return spring	Stainless steel
⑥	Poppet	NBR
⑦	Round head combination screw	Carbon steel
⑧	Interface gasket	NBR

Replacement Parts

No.	Description	Material	Part no.
⑨	Sub-plate	ZDC	AXT662-1- $\frac{1}{2}$ (1: M5, 2: M3)

Optional parts

- Gasket, screw: VQ100-GS-5



Note) 1 set includes: 1 gasket and 2 screws.
Purchasing order is available in units of 10 pieces.

Series VQ100

How to Order Valves

VQ1 1 0 [] 5 L [] M5

Series VQ
Compact 3 port valve

Type of actuation

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2 ^(Note)	N.O. (Normally open)

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* Option
(Note) Except latching and large flow type.

Coil rated voltage

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6	12 VDC
9	Other

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

Port size

Nil	Without sub-plate
M3	With sub-plate
M5	With sub-plate

Manual override

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

* Option
(Note) Latching manual override: Push-locking type only.

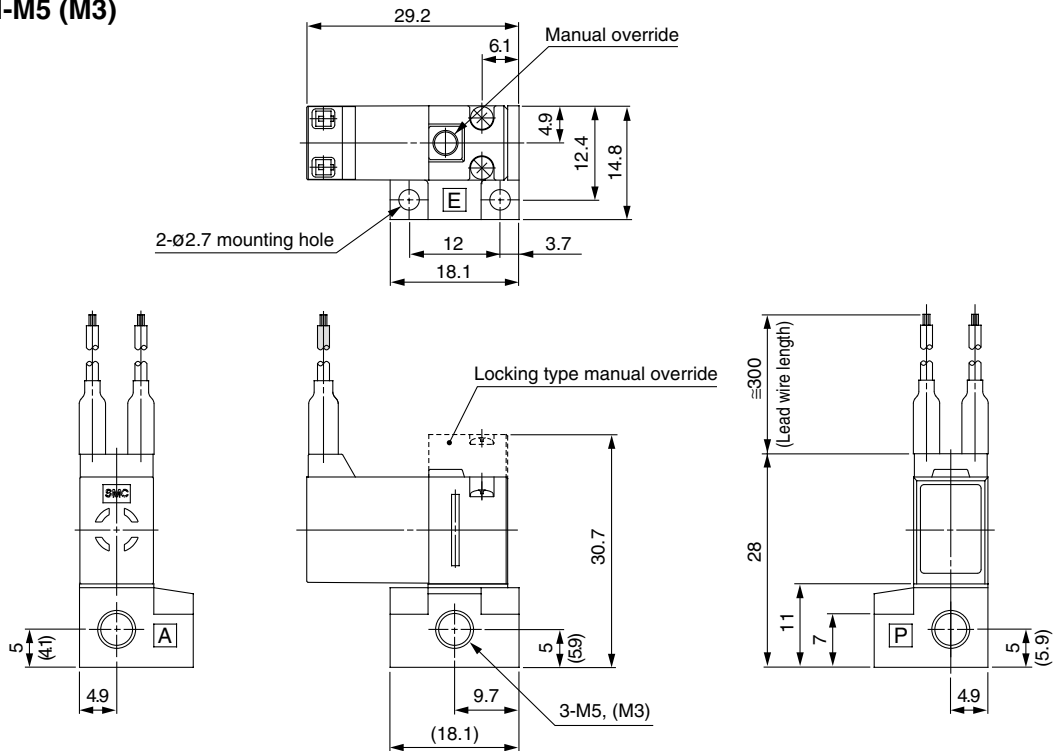
Electrical entry

L	L plug connector, With lead wire With light/surge voltage suppressor
LO	L plug connector, Without connector With light/surge voltage suppressor
M	M plug connector, With lead wire With light/surge voltage suppressor
MO	M plug connector, Without connector, With light/surge voltage suppressor
G	Grommet

* Option
(Note) Grommet: No latching type, AC and large flow

Dimensions

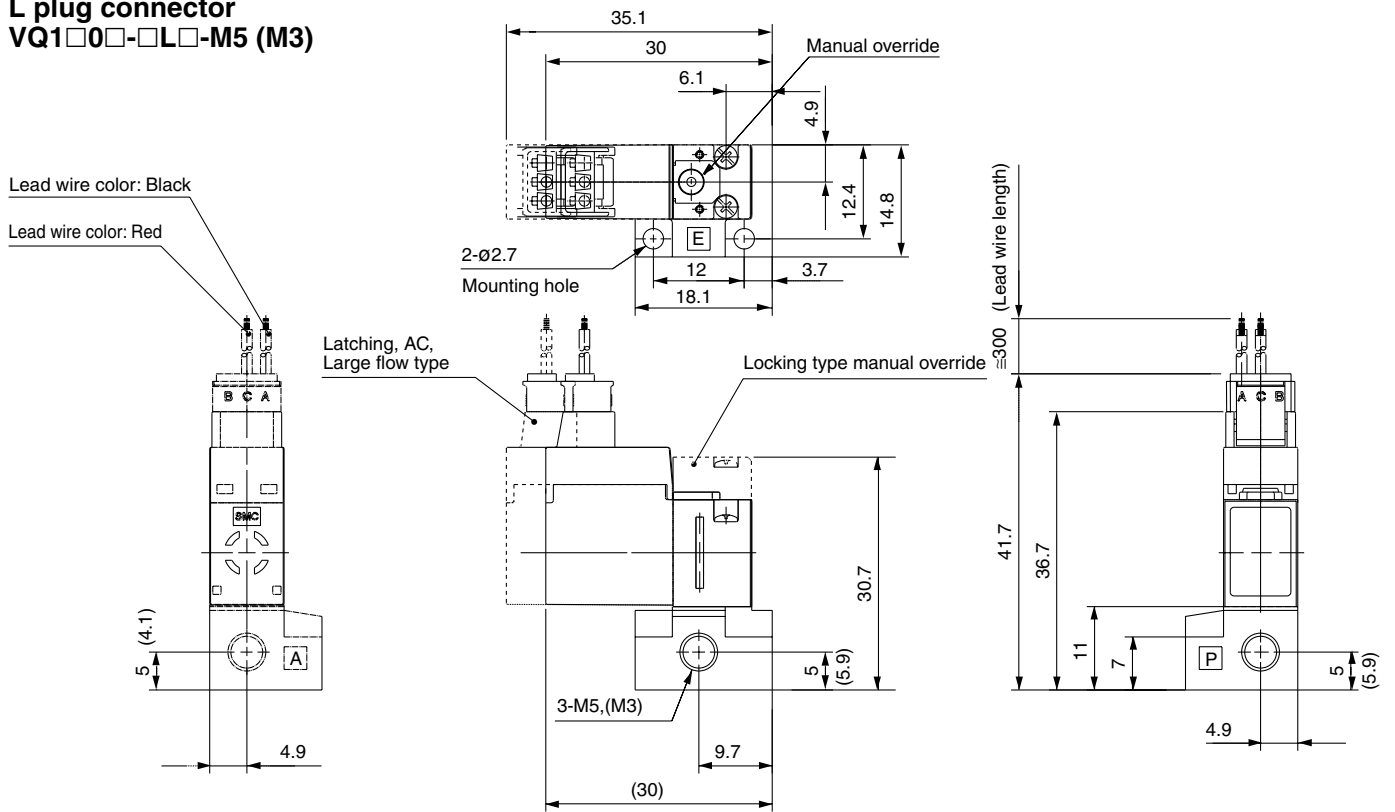
Grommet VQ1□0□-□G□-M5 (M3)



• (): M3
• Broken line: Locking type manual override

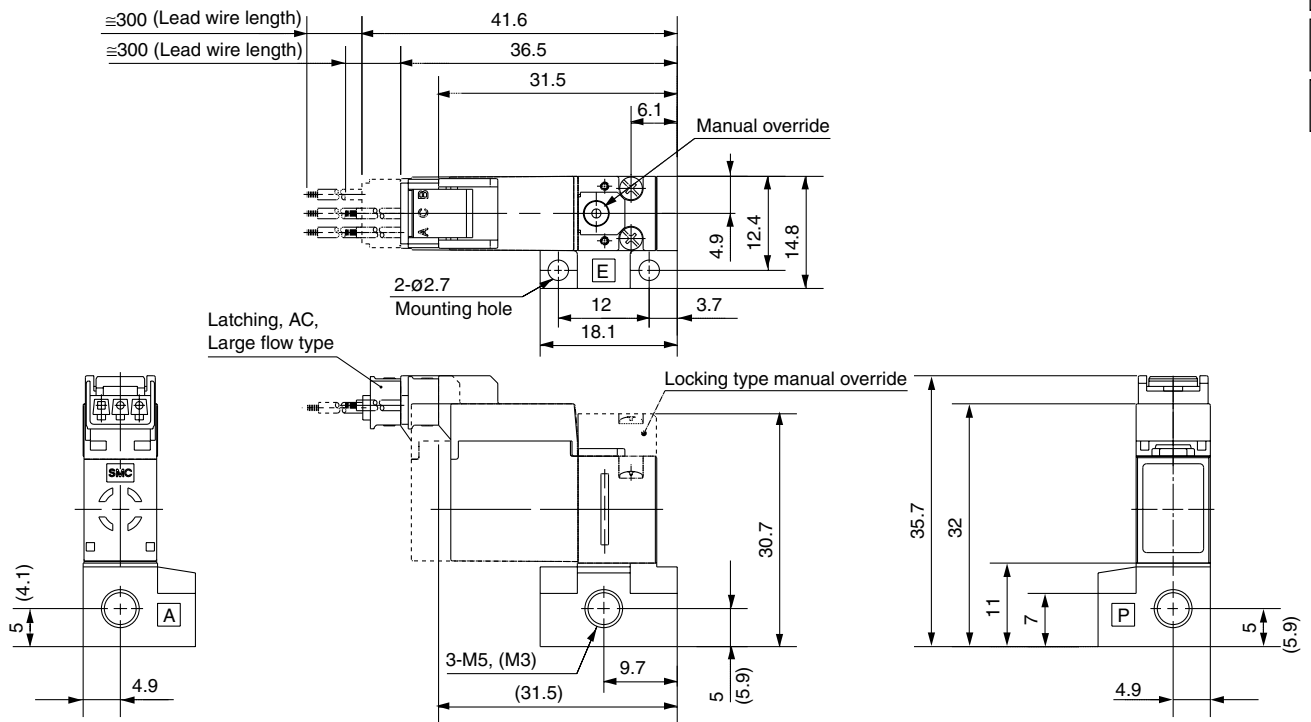
Dimensions

L plug connector VQ1□0□-□L□-M5 (M3)



- (): M3
- Broken line: Latching, AC and large flow capacity
- One dot chain line: Locking type manual override and push-locking type manual override (latching)

M plug connector VQ1□0□-□M□-M5 (M3)



- (): M3
- Broken line: Latching, AC and large flow capacity
- One dot chain line: Locking type manual override and push-locking type manual override (latching)

V100
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