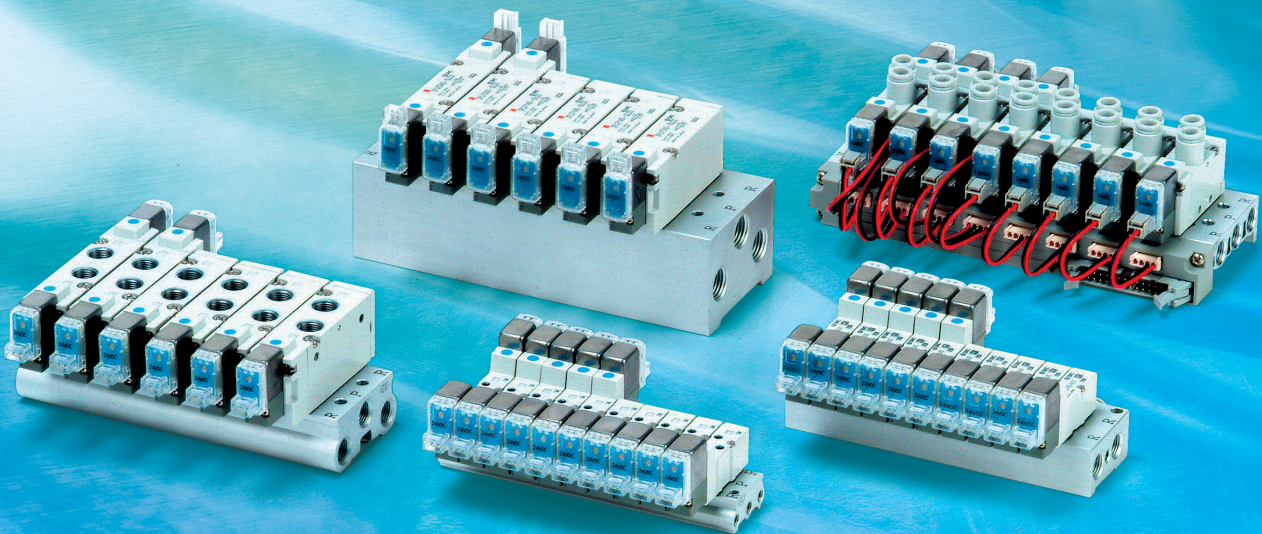
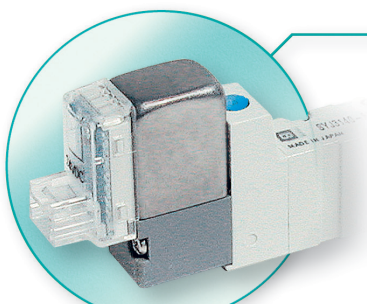


# 4/5 Port Solenoid Valve

Power Consumption  
**0.1 W**  
 With Power Saving Circuit



Series **SYJ3000/5000/7000**



Cover (stainless steel)

### ● Improved pilot valve

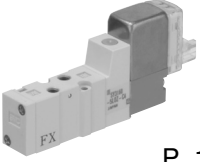
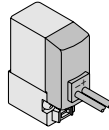
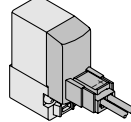
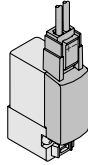
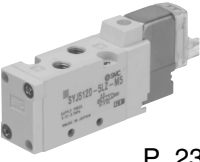
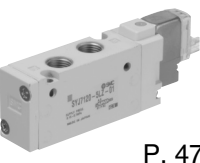
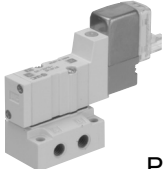
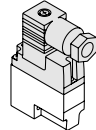
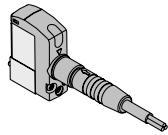
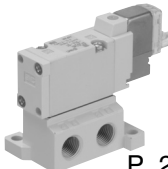
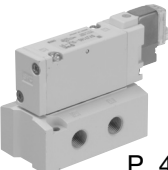
Pilot valve cover is stronger using stainless steel.  
 Mounting thread is also reinforced from size M1.7 to M2.


### ● Flow Characteristics

Series	Flow characteristics		
	C [(dm <sup>3</sup> /s·bar)]	b	Cv
SYJ3000	0.46	0.36	0.12
SYJ5000	0.83	0.32	0.21
SYJ7000	2.9	0.35	0.74

# Rubber Seal 4/5 Port Solenoid Valve Series *SYJ3000/5000/7000*

## Variations

	Series	Sonic conductance: C [dm <sup>3</sup> /(s·bar)]	Type of actuation	Voltage	Electrical entry	Option	Manual override
						With light/surge voltage suppressor	
Body ported	<b>SYJ3000</b>  P. 1	Effective area 0.9 mm <sup>2</sup> { 4/2 → 5/3 } { (A/B → EA/EB) }		<b>For DC</b>  ■ 24 VDC 12 VDC 6 VDC 5 VDC 3 VDC	Grommet    L plug connector    M plug connector  	<b>For DC</b>  ■ With surge voltage suppressor	
	<b>SYJ5000</b>  P. 23	0.47 { 4/2 → 5/3 } { (A/B → EA/EB) }				■ With light/ surge voltage suppressor	
	<b>SYJ7000</b>  P. 47	2.4 { 4/2 → 5/3 } { (A/B → EA/EB) }				2 Position ● Single ● Double	
Base mounted	<b>SYJ3000</b>  P. 1	0.46 { 4/2 → 5/3 } { (A/B → EA/EB) }	3 Position ● Closed center ● Exhaust center ● Pressure center	■ 100 VAC <sup>50/60</sup> Hz 110 VAC <sup>50/60</sup> Hz 200 VAC <sup>50/60</sup> Hz 220 VAC <sup>50/60</sup> Hz	DIN terminal   (SYJ5000, 7000 only)  M8 connector  	<b>For AC</b>  ■ Non-locking push type	■ Push-turn locking slotted type  ■ Push-turn locking lever type
	<b>SYJ5000</b>  P. 23	0.83 { 4/2 → 5/3 } { (A/B → EA/EB) }				■ With light/surge voltage suppressor	
	<b>SYJ7000</b>  P. 47	2.9 { 4/2 → 5/3 } { (A/B → EA/EB) }				<b>For AC</b> <sup>Note)</sup>	

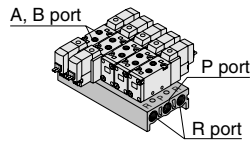
 Note) All AC voltage models have built-in surge voltage suppressor.

# Series SYJ3000/5000/7000

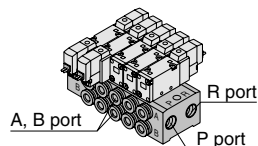
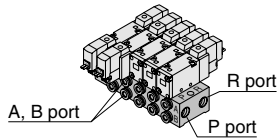
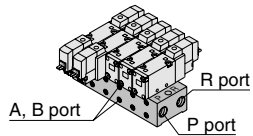
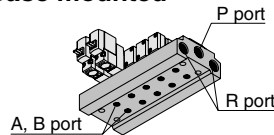
## Manifold Variations

Valve series	A, B port location	A, B port size									Manifold option			Flat ribbon cable manifold		
		M3	M5	1/8	With one-touch fitting						Individual SUP spacer assembly	Individual EXH spacer assembly	Interface regulator			
					Applicable tubing O.D.											
						ø4	ø6	ø8	N3	N7	N9					
Body ported	SYJ3000	●	—	—	—	—	—	—	—	—	—	—	—	—	●	
	SYJ5000	—	●	—	●	●	—	●	●	—	—	●	●	—	●	
	SYJ7000	—	—	●	—	●	●	—	●	●	—	—	—	—	●	
Base mounted	SYJ3000	Side	●	●	—	●	—	—	●	—	—	—	—	—	●	
		Bottom	—	—	—	—	—	—	—	—	—	—	—	—	—	
	SYJ5000	Side	—	●	—	●	●	—	●	●	—	—	—	●	●	●
		Bottom	—	●	—	—	—	—	—	—	—	—	—	—	—	—
	SYJ7000	Side	—	—	●	—	●	●	—	●	●	—	—	—	—	—
		Bottom	—	—	●	—	—	—	—	—	—	—	—	—	—	—

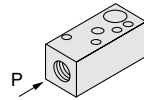
### Body ported



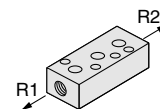
### Base mounted



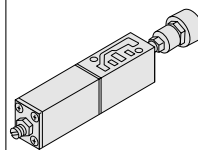
### Individual SUP spacer assembly



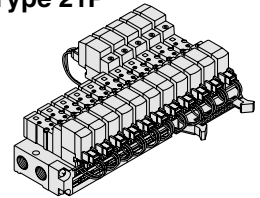
### Individual EXH spacer assembly



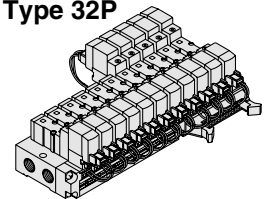
### Interface regulator



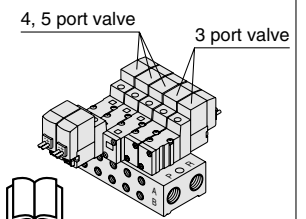
### Type 21P



### Type 32P



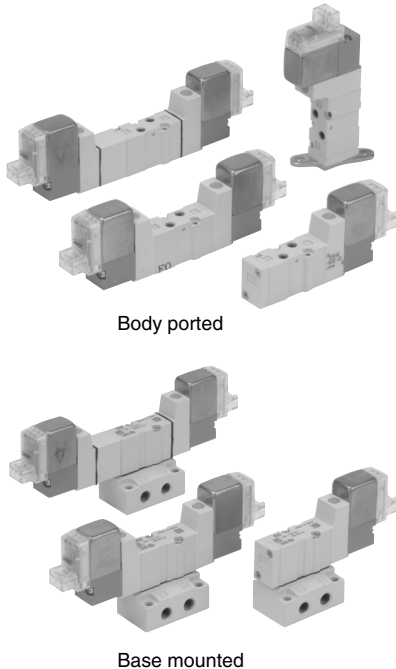
### Mixed mounting of 3 port valves and 4, 5 port valves



For detailed specifications about SYJ3000, refer to page 14. For SYJ5000, refer to page 38, and for SYJ7000, refer to page 61.

# Rubber Seal 4/5 Port Solenoid Valve Series SYJ3000

For details about certified products conforming to international standards, visit us at [www.smcworld.com](http://www.smcworld.com).



## Specifications

Fluid	Air	
Operating pressure range MPa	2 position single	0.15 to 0.7
	2 position double	0.1 to 0.7
	3 position	0.2 to 0.7
Ambient and fluid temperature (°C)	-10 to 50 (No freezing. Refer to back page 3.)	
Response time (ms) (at 0.5 MPa) <sup>Note 1)</sup>	2 position single, double	15 or less
	3 position	30 or less
Max. operating frequency (Hz)	2 position single, double	10
	3 position	3
Manual override (Manual operation)	Non-locking push type, Push-turn locking slotted type, Push-turn locking lever type	
Pilot exhaust method	Individual exhaust for the pilot valve, Common exhaust for the pilot and main valve	
Lubrication	Not required	
Mounting orientation	Unrestricted	
Shock/Vibration resistance (m/s <sup>2</sup> ) <sup>Note 2)</sup>	150/30	
Enclosure	Dust proof (* M8 connector conforms to IP65.)	



\* Based on IEC60529

Note 1) Based on dynamic performance test, JIS B 8375-1981. (Coil temperature: 20°C, at rated voltage, without surge voltage suppressor)

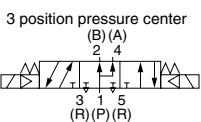
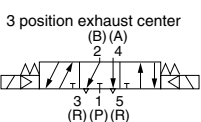
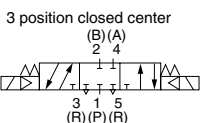
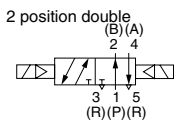
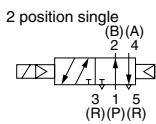
Note 2) Impact resistance:

No malfunction occurred when it is tested 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)

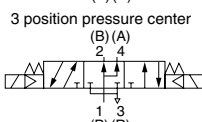
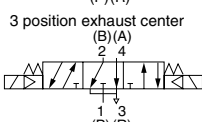
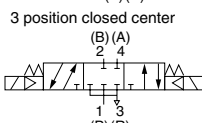
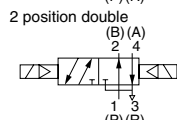
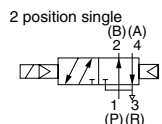
Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz. Test was performed to axis and right angle directions of the main valve when pilot signal is ON and OFF. (Value in the initial state)

## Solenoid Specifications

### JIS Symbol 5 port



### 4 port (manifold)



Electrical entry	Gromet (G), (H), L plug connector (L), M plug connector (M), M8 connector (W)	
Coil rated voltage (V)	DC	24, 12, 6, 5, 3
	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) With power saving circuit: 0.1 (With light only)
	AC	100 V
110 V [115 V]		0.86 (With light: 0.89) [0.94 (With light: 0.97)]
200 V		1.18 (With light: 1.22)
220 V [230 V]		1.30 (With light: 1.34) [1.42 (With light: 1.46)]
Surge voltage suppressor	Diode (Non-polarity type: Valistor)	
Indicator light	LED	



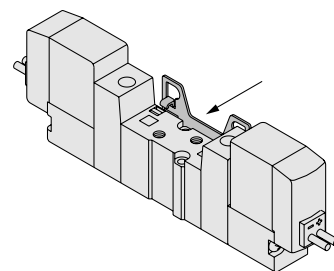
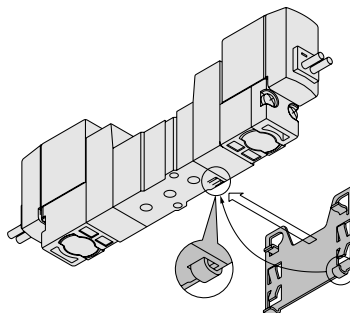
\* In common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.

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

\* S, Z and T type (with power saving circuit) should be used within the following allowable voltage fluctuation range due to a voltage drop caused by the internal circuit. S and Z type: 24 VDC: -7% to +10%, 12 VDC: -4% to +10%  
T type: 24 VDC: -8% to +10%, 12 VDC: -6% to +10%

## Bracket Mounting

- Insert the lower hook of the mounting bracket into the groove on the bottom of the valve as shown.
- Press the valve and mounting bracket together until the upper hook of the bracket snaps into place in the groove on top of the valve.



**Made to Order**  
(For details, refer to page 79.)



## Flow Characteristics/Weight

Valve model		Type of actuation		Port size		Weight (g) <sup>Note 3, 4)</sup>			Effective area (mm <sup>2</sup> )	Flow characteristics <sup>Note 2)</sup>																		
				1, 5, 3 (P, EA, EB)	4, 2 (A, B)	Grommet	L/M plug connector	M8 connector		1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)															
				C [dm <sup>3</sup> /(s·bar)]	b	Cv	C [dm <sup>3</sup> /(s·bar)]	b		Cv																		
5 port Base mounted (with sub-plate)	SYJ314□	2 position	Single	M5 x 0.8	M5 x 0.8	62 (36)	63 (37)	67 (41)	—	0.46	0.36	0.12	0.46	0.35	0.12													
	SYJ324□		Double			79 (53)	81 (55)	89 (63)																				
	SYJ334□	3 position	Closed center			M3 x 0.5	M3 x 0.5	82 (56)								84 (58)	92 (66)	—	0.47	0.33	0.12	0.47	0.31	0.12				
	SYJ344□		Exhaust center																									
SYJ354□	Pressure center	—	0.58 [0.32]	0.42 [0.33]	0.16 [0.080]				0.46	0.32	0.11																	
SYJ312□	2 position	Single	M3 x 0.5	M3 x 0.5	36				37	41	0.9	—	—	—	—										—	—	—	
SYJ322□		Double				53	55	63																				
SYJ332□	3 position	Closed center				1/8	M5 x 0.8	56								58	66	—	—	—	—	—	—	—				—
SYJ342□		Exhaust center																										
SYJ352□	Pressure center	—	—	—																								
SYJ313□	2 position	Single	1/8	M5 x 0.8	36				37	41	—	—	—	—	—										—	—	—	
SYJ323□		Double				53	55	63																				
SYJ333□	3 position	Closed center				—	—	56								58	66	—	—	—	—	—	—	—				—
SYJ343□		Exhaust center																										
SYJ353□	Pressure center	—	—	—																								



Note 1) Dedicated for manifold base. For details, refer to page 11.

Note 2) [ ] denotes the normal position. Exhaust center: 4/2 → 5/3, Pressure center: 1 → 4/2

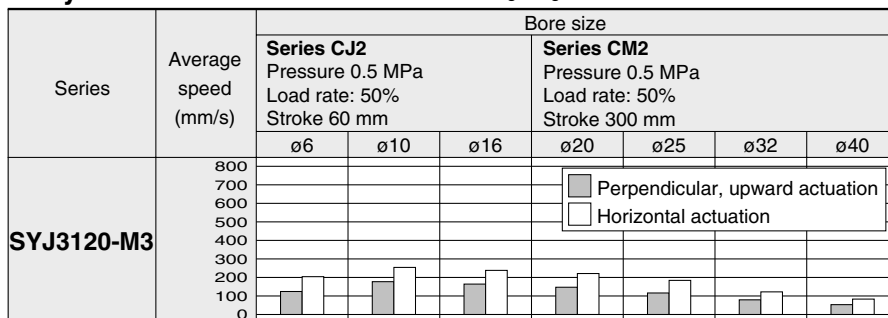
Note 3) ( ): Without sub-plate.

Note 4) For DC voltages. For AC voltages add 3 g to the weight of the single solenoid and 6 g to the weight of the double solenoid and 3 position types.

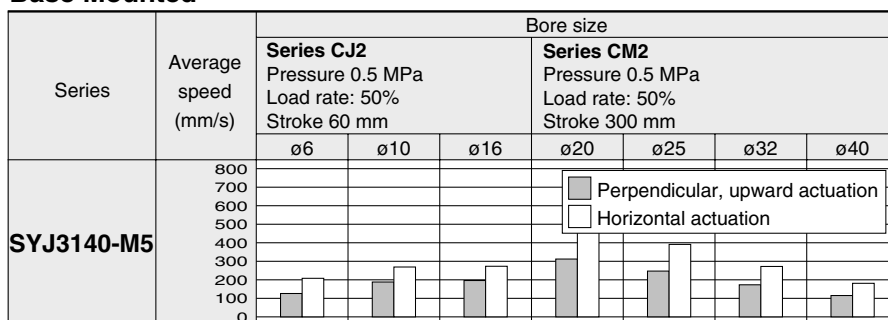
## Cylinder Speed Chart

Use as a guide for selection.  
Please confirm the actual conditions with SMC Sizing Program.

### Body Ported



### Base Mounted



\* Cylinder is in extending. Speed controller is meter-out, which is directly connected with cylinder and its needle is fully opened.

\* Average speed of cylinder is obtained by dividing the full stroke time by the stroke.

\* Load factor: ((Load weight x 9.8) / Theoretical force) x 100%

## Conditions

Body ported		Series CJ2	Series CM2
SYJ3120-M3	Tubing bore x Length	ø4 x 1 m	
	Speed controller	AS1301F-04	
	Silencer	AN120-M5	

Base mounted		Series CJ2	Series CM2
SYJ3140-M5	Tubing bore x Length	ø6 x 1 m	
	Speed controller	AS2001F-06	AS2301F-06
	Silencer	AN120-M5	

## How to Order

**Type of actuation**

1	2 position single solenoid
2	2 position double solenoid
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

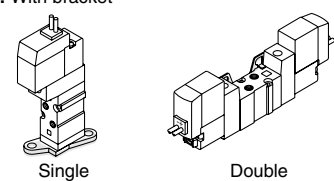
**Light/surge voltage suppressor**

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

\* For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.  
 \* For type "R" and "U", DC voltage is only available.  
 \* Power saving circuit is only available in the "Z" type.

**Bracket**

Nil: Without bracket  
F: With bracket



Single  
Double

\* Brackets cannot be retrofitted.

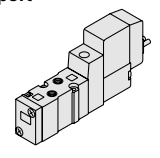
Note) • The double solenoid mounting bracket is supplied unattached.  
 • To order the double solenoid bracket for use with a single solenoid valve, order the single solenoid valve without a bracket and order the bracket (VJ3000-13-1) separately.  
 (Example) SYJ3120-5M-M3 VJ3000-13-1

**Rated voltage**

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

\* For type W□, DC voltage is only available.

**5 port**



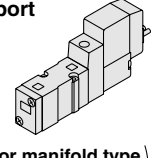
(Type 20 Manifold)

**Body ported** SYJ3 1 2 0 □ — 5 M □ □ — M3 □

**Base mounted (4 port)** SYJ3 2 3 0 □ — 5 M □ □ (Manifold use only)

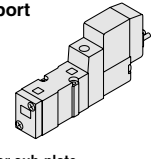
**Base mounted (5 port)** SYJ3 2 4 0 □ — 5 M □ □ □

**4 port**



(For manifold type 31, S31, 32, S32)

**5 port**



(For sub-plate, manifold type 41, S41, 46, S46)

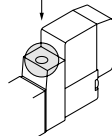
**Coil specifications**

Nil	Standard
T	With power saving circuit (24, 12 VDC only)

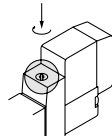
\* Power saving circuit is not available in the case of W□ type.

**Manual override**

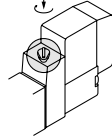
Nil: Non-locking push type



D: Push-turn locking slotted type

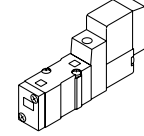


E: Push-turn locking lever type



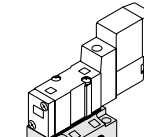
**Port size**

Nil: Without sub-plate



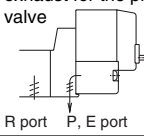
(With gasket and screws)

M5: With M5 port sub-plate



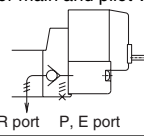
**Body option**

**0:** Pilot valve individual exhaust for the pilot valve



R port P, E port

**3:** Common exhaust type for main and pilot valve



R port P, E port

**Electrical entry**

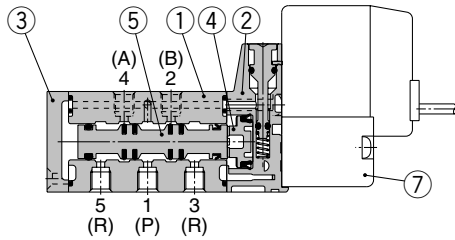
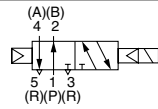
24, 12, 6, 5, 3 VDC 100, 110, 200, 220 VAC		24, 12, 6, 5, 3 VDC	
Grommet	L plug connector	M plug connector	M8 connector
<b>G:</b> Lead wire length 300 mm	<b>L:</b> With lead wire (Length 300 mm)	<b>M:</b> With lead wire (Length 300 mm)	<b>MN:</b> Without lead wire
<b>H:</b> Lead wire length 600 mm	<b>LN:</b> Without lead wire	<b>LO:</b> Without connector	<b>MO:</b> Without connector
			<b>W□:</b> With connector cable (Note 1)

\* LN, MN type: with 2 sockets.  
 \* For connector cable of M8 connector, refer to back page 10.  
 Note 1) Enter the cable length symbols in □. Please be sure to fill in the blank referring to back page 10.

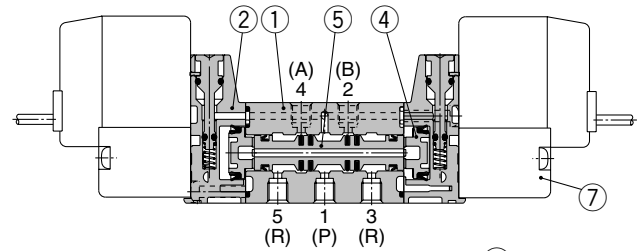
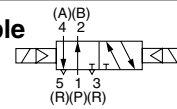
Note) When placing an order for body ported solenoid valve as a single unit, mounting bolt for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to page 15.)

## Construction

### 2 position single

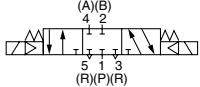


### 2 position double

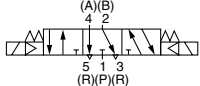


### 3 position closed center/exhaust center/pressure center

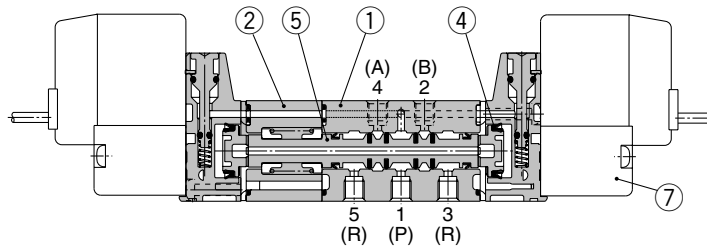
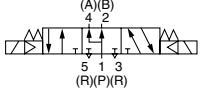
#### 3 position closed center



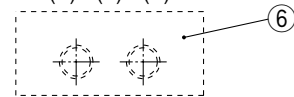
#### 3 position exhaust center



#### 3 position pressure center



(This figure shows a closed center type.)



## Component Parts

No.	Description	Material	Note
1	Body	Zinc die-casted	White
2	Piston plate	Resin	White
3	End cover	Resin	White
4	Piston	Resin	
5	Spool valve assembly	Aluminum, H-NBR	

## Replacement Parts

No.	Description	No.	Note
6	Sub-plate	SYJ3000-22-1	Zinc die-casted
7	Pilot valve	V111 (T) - □□□	

## How to Order Pilot Valve Assembly

V111 □ — 5 G □

### Coil specifications

Nil	Standard
T	With power saving circuit (24, 12 VDC only)

\* Power saving circuit is not available in the case of W□ type.

### Rated voltage

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

\* For type W□, DC voltage is only available.

### Light/surge voltage suppressor

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

\* For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.  
 \* For type "R" and "U", DC voltage is only available.  
 \* Power saving circuit is only available in the "Z" type.

### Electrical entry

G	Grommet, 300 mm lead wire
H	Grommet, 600 mm lead wire
L	L plug connector
LN	With lead wire
LO	Without lead wire
M	M plug connector
MN	With lead wire
MO	Without lead wire
WO	Without connector
W□	M8 connector
	Without connector cable
	With connector cable (Note 1)

\* For connector cable of M8 connector, refer to back page 10.  
 Note 1) Enter the cable length symbols in □. Please be sure to fill in the blank referring to back page 10.

## How to Order Connector Assembly for L/M Plug Connector

For DC : SY100-30-4A- □  
 For 100 VAC : SY100-30-1A- □  
 For 200 VAC : SY100-30-2A- □  
 For other voltages of AC : SY100-30-3A- □  
 Without lead wire : SY100-30-A

(with connector and 2 of sockets only)

### Lead wire 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 M8 Connector Cable

V100-49-1- □

### Cable length

1	300 mm
2	500 mm
3	1000 mm
4	2000 mm
7	5000 mm

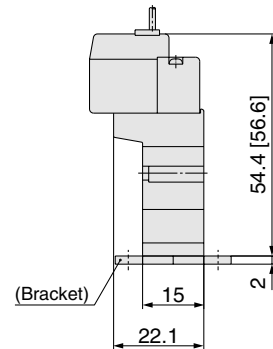
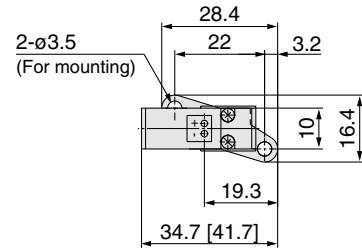
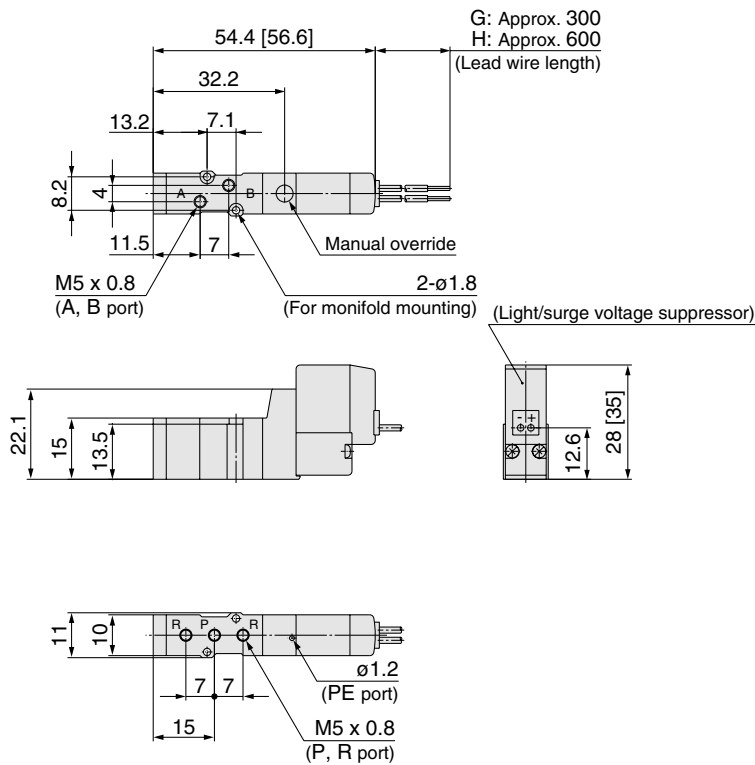
# Series SYJ3000

## 2 Position Single



Grommet (G), (H): SYJ3120-□<sup>G</sup>□□-M3

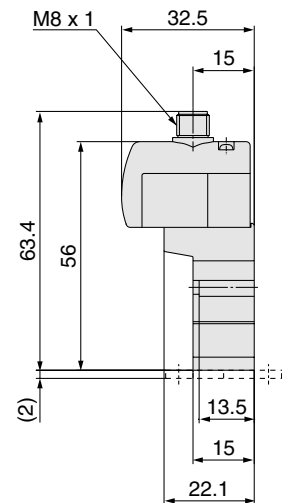
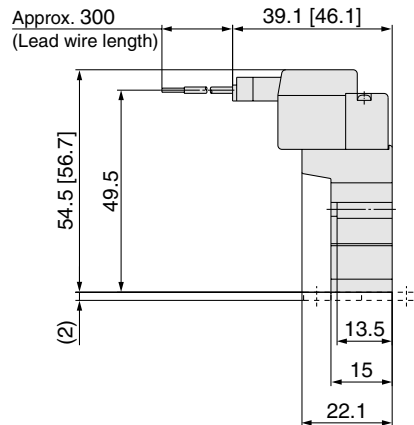
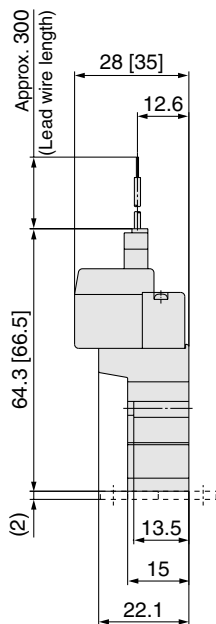
With bracket:  
SYJ3120-□<sup>G</sup>□□-M3-F



L plug connector (L):  
SYJ3120-□L□□-M3 (-F)

M plug connector (M):  
SYJ3120-□M□□-M3 (-F)

M8 connector (WO):  
SYJ3120-□WO□□-M3 (-F)

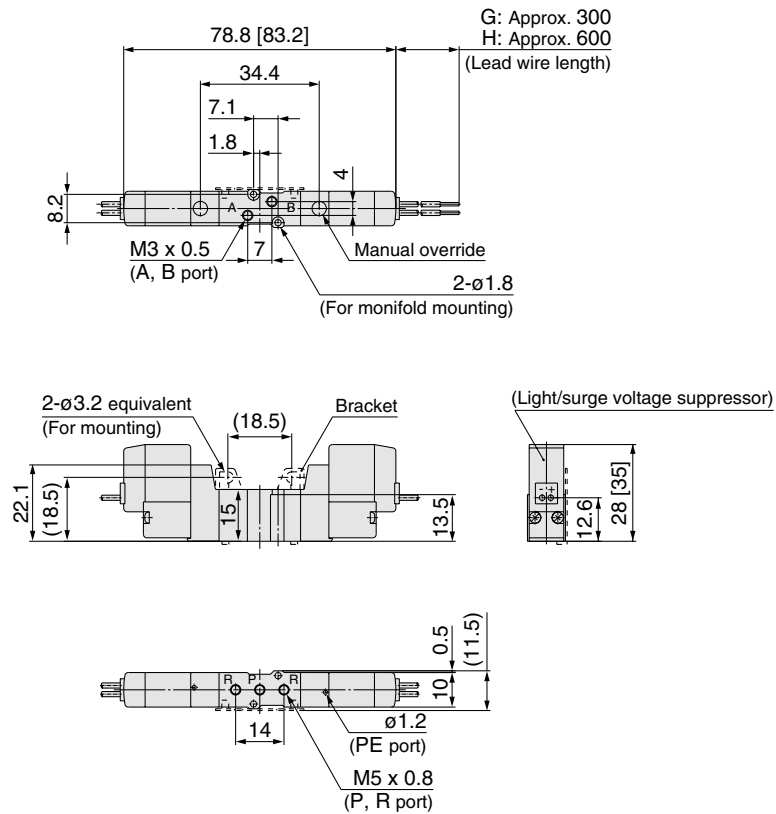


Refer to back page 11 for dimensions with connector cable.



## 2 Position Double

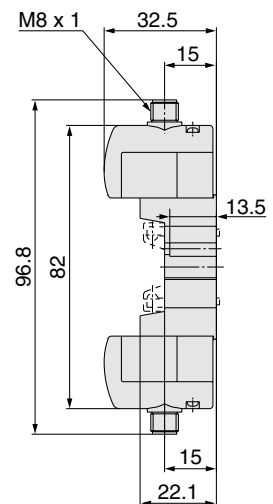
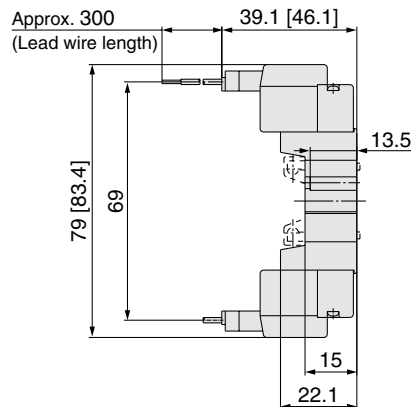
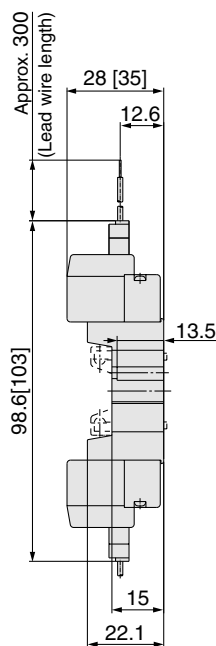
Grommet (G), (H): SYJ3220-□<sup>G</sup>□□-M3 (-F)




**L plug connector (L):**  
SYJ3220-□L□□-M3 (-F)

**M plug connector (M):**  
SYJ3220-□M□□-M3 (-F)

**M8 connector (WO):**  
SYJ3220-□WO□□-M3 (-F)



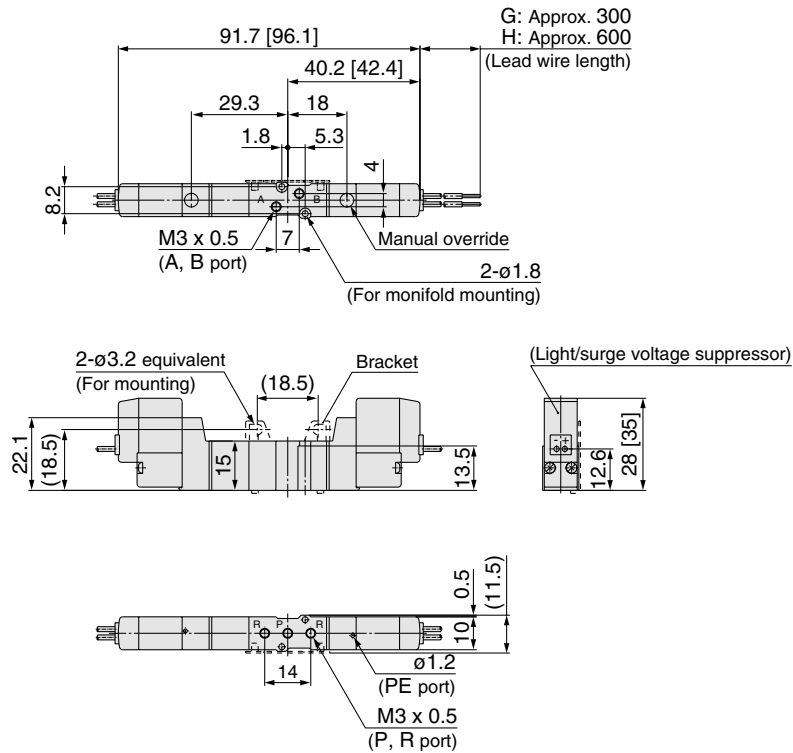
 Refer to back page 11 for dimensions with connector cable.

# Series SYJ3000

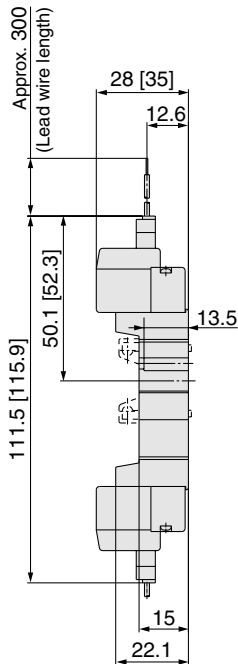
## 3 Position Closed Center/Exhaust Center/Pressure Center



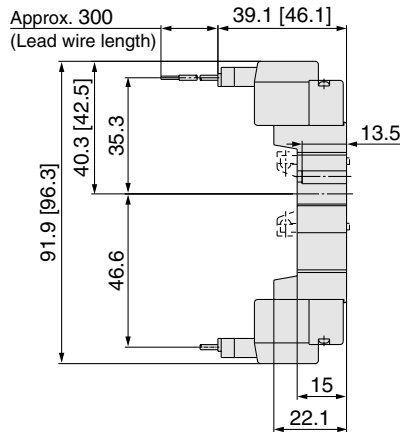
Grommet (G), (H): SYJ3<sub>0.2</sub><sup>3</sup>20-□□□□-M3 (-F)



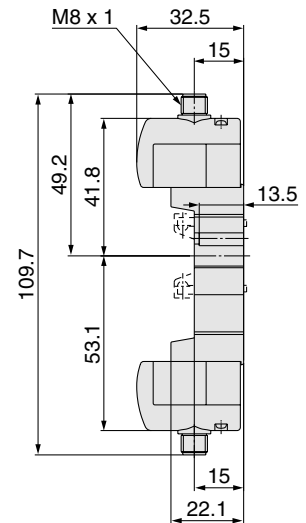
**L plug connector (L):**  
SYJ3<sub>0.2</sub><sup>3</sup>20-□□□□-M3 (-F)



**M plug connector (M):**  
SYJ3<sub>0.2</sub><sup>3</sup>20-□□□□-M3 (-F)



**M8 connector (WO):**  
SYJ3<sub>0.2</sub><sup>3</sup>20-□□□□-M3 (-F)



Refer to back page 11 for dimensions with connector cable.