

# 3 Port Solenoid Valve

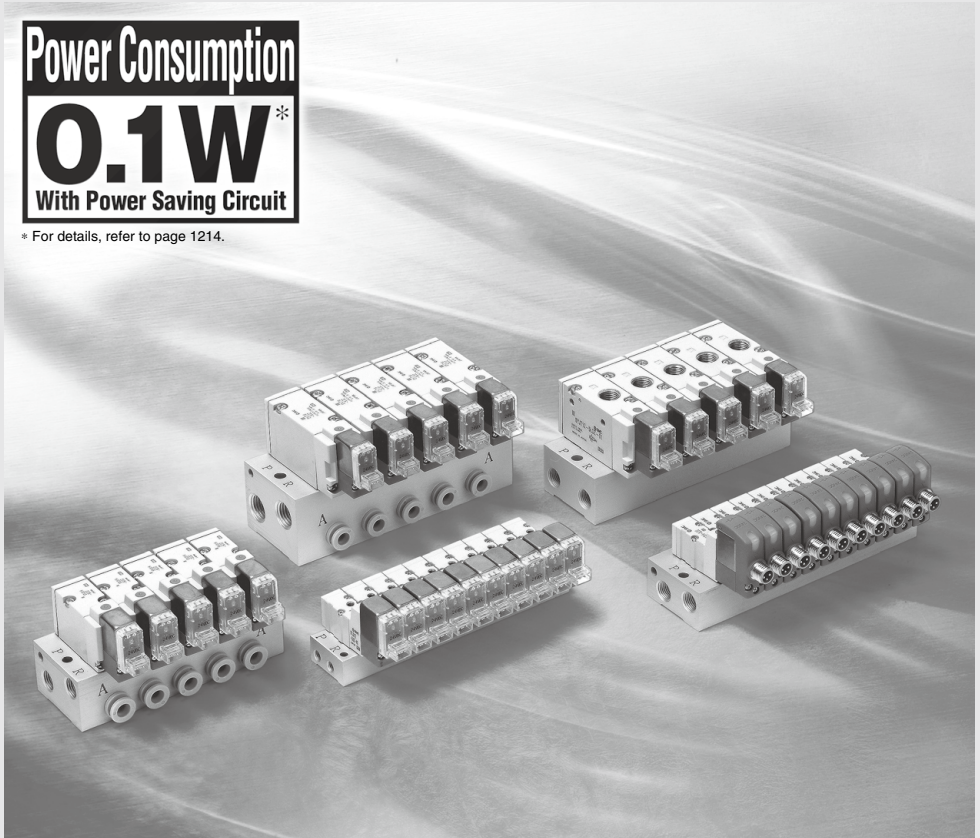
## SYJ300/500/700 Series

Rubber Seal



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

\* For details, refer to page 1214.



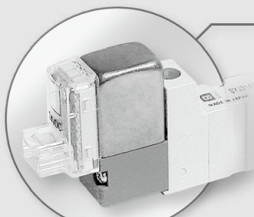
SYJ

VQZ

VP

VG

VP3



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.






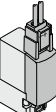




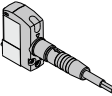
### Flow Rate Characteristics

Series	Flow rate characteristics		
	C [dm <sup>3</sup> /(s·bar)]	b	Cv
SYJ300	0.36	0.31	0.089
SYJ500	1.2	0.41	0.32
SYJ700	2.7	0.38	0.72



# Rubber Seal 3 Port Solenoid Valve **SYJ300/500/700 Series**

## Variations

	Series	Port size	Sonic conductance C [dm <sup>3</sup> /(s·bar)]	Type of actuation	Voltage	Electrical entry	Option	Manual override
							Light/Surge voltage suppressor	
Body ported	<b>SYJ300</b>  P.1160	M3 x 0.5	[Effective area 0.9 mm <sup>2</sup> { 2→3 } { (A→R) }]			Grommet 		
	<b>SYJ500</b>  P.1174	M5 x 0.8	0.66 { 2→3 } { (A→R) }			L plug connector 		
	<b>SYJ700</b>  P.1192	1/8	2.5 { 2→3 } { (A→R) }		For DC ■ 24 VDC 12 VDC 6 VDC 5 VDC 3 VDC	M plug connector 	For DC ■ With surge voltage suppressor ■ With light/surge voltage suppressor	■ Non-locking push type
Base mounted	<b>SYJ300</b>  P.1160	M5 x 0.8	0.36 { 2→3 } { (A→R) }	● N.C. ● N.O.	For AC ■ 100 VAC $\frac{\%}{\text{Hz}}$ 110 VAC $\frac{\%}{\text{Hz}}$ 200 VAC $\frac{\%}{\text{Hz}}$ 220 VAC $\frac{\%}{\text{Hz}}$		For AC (Note) ■ With light/surge voltage suppressor	■ Push-turn locking slotted type
	<b>SYJ500</b>  P.1174	1/8	1.2 { 2→3 } { (A→R) }			DIN terminal  (SYJ500, 700 only)		■ Push-turn locking lever type
	<b>SYJ700</b>  P.1192	1/8, 1/4	2.7 { 2→3 } { (A→R) }			M8 connector 		

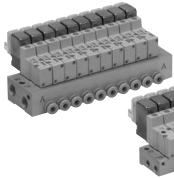
Note) All AC voltage models have built-in surge voltage suppressor.

## Manifold Variations

Valve series	A port location	P, R ports size	A port size								
			M3	M5	1/8	With One-touch fitting					
						Applicable tubing O.D.					
			ø4	ø6	ø8	N3	N7	N9			
<b>Body ported</b>	<b>SYJ300</b> P.1166	Top	M5 x 0.8	● <sup>Note 1)</sup>	—	—	—	—	—	—	—
		1/8	● <sup>Note 2)</sup>	—	—	—	—	—	—	—	
	<b>SYJ500</b> P.1180	Top	1/8	—	●	—	—	—	—	—	—
<b>Base mounted</b>	<b>SYJ700</b> P.1198	Top	1/8	—	—	● <sup>Note 1)</sup>	—	—	—	—	—
		1/4	—	—	●	—	—	—	—	—	
	<b>SYJ300</b> P.1166	Side	M5 x 0.8	● <sup>Note 1)</sup>	—	—	—	—	—	—	—
<b>Base mounted</b>	<b>SYJ500</b> P.1180	Bottom	1/8	—	●	●	—	—	—	—	—
		Side	1/8	—	●	●	●	●	—	●	—
	<b>SYJ700</b> P.1198	Bottom	1/8	—	—	● <sup>Note 1)</sup>	—	—	—	—	—
		Side	1/4	—	—	●	—	—	—	—	—
		1/4	—	—	●	—	●	●	—	●	

Note 1) Only for internal pilot  
 Note 2) Only for external pilot

**Base mounted**



SYJ300 series

**Body ported**

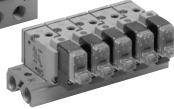


**Base mounted**



SYJ500 series

**Body ported**



**Base mounted**



SYJ700 series

**Body ported**



**SYJ**

**VQZ**

**VP**

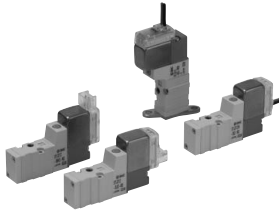
**VG**

**VP3**

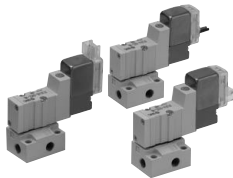
# Rubber Seal 3 Port Pilot Solenoid Valve **SYJ300 Series**



## Specifications



Body ported



Base mounted

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

\* Based on IEC60529

Note 1) Based on dynamic performance test, JIS B 8419: 2010. (Coil temperature: 20°C, at rated voltage, without surge voltage suppressor.)

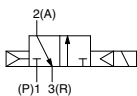
Note 2) Impact resistance: No malfunction occurred when it is tested in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Value in the initial state)

Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Value in the initial state)

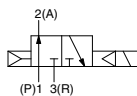
## Symbol

### Internal pilot

SYJ31<sup>2</sup>

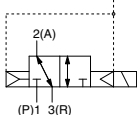


SYJ32<sup>2</sup>

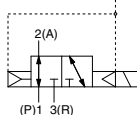


### External pilot

SYJ31<sup>2</sup>R



SYJ32<sup>2</sup>R



## Solenoid Specifications

<b>Electrical entry</b>		Grommet (G), (H), L plug connector (L), M plug connector (M), M8 connector (W)	
<b>Coil rated voltage (V)</b>	<b>DC</b>	24, 12, 6, 5, 3	
	<b>AC 50/60 Hz</b>	100, 110, 200, 220	
<b>Allowable voltage fluctuation</b>		±10% of rated voltage *	
<b>Power consumption (W)</b>	<b>DC</b>	<b>Standard</b>	
		<b>With power saving circuit</b>	
<b>Apparent power (VA) *</b>	<b>AC</b>	100 V	0.35 (With light: 0.4)
		110 V	0.86 (With light: 0.89)
		[115 V]	[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)]
<b>Surge voltage suppressor</b>		Diode (Varistor when non-polar types)	
<b>Indicator light</b>		LED	

\* 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.

\* For details, refer to page 1214.



**Made to Order**

(For details, refer to pages 1210 and 1211)

## Flow Rate Characteristics/Weight

Valve model		Type of actuation	Port size	Flow rate characteristics						Effective area (mm <sup>2</sup> )	Weight (g) <sup>(Note)</sup>		
				1→2 (P→A)			2→3 (A→R)				Grommet	L/M plug connector	M8 connector
Body ported	SYJ312 SYJ322	N.C. N.O.	M3 x 0.5	C [dm <sup>3</sup> /(s bar)]	b	Cv	C [dm <sup>3</sup> /(s bar)]	b	Cv	—			
Base mounted (with sub-plate)	SYJ314 SYJ324	N.C. N.O.	M5 x 0.8	0.41 0.36	0.18 0.31	0.086 0.089	0.35 0.36	0.33 0.31	0.086 0.089	—	53 (32)	54 (33)	58 (37)

Note) Value for DC. Add 1 g for AC. ( ) : Without sub-plate.

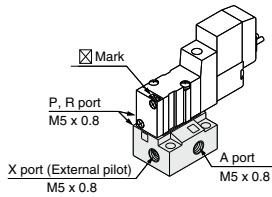
## External Pilot

### SYJ300R

Pilot valve pressure is supplied separately from the main valve pressure through the use of a separate supply port. It can be used in the vacuum (up to -100 kPa) or low pressure line with 0.15 MPa or less.

### Specifications

Applicable model	Base mounted (SYJ314R, SYJ324R)	
Operating pressure range MPa	Main pressure	-100 kPa to 0.7
	External pilot pressure	0.15 to 0.7



Note 1) For manifold base, refer to page 1166.

Note 2) External pilot type body ported valves (SYJ3□2R) can only be used on the manifold.

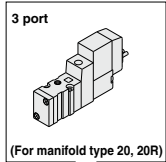
**SYJ**

**VQZ**

**VP**

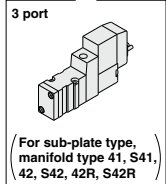
**VG**

**VP3**

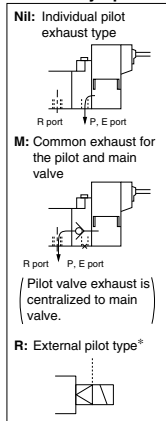


**Body ported** SYJ3 1 2 □ □ - 5 M □ □ - M3 - □ □

**Base mounted** SYJ3 1 4 □ □ - 5 M □ □ - □ □ - □ □



**Body option**



\* SYJ3□2R is only for manifold use.

### Rated voltage

DC	CE-compliant
5	24 VDC ●
6	12 VDC ●
V	6 VDC ●
S	5 VDC ●
R	3 VDC ●

AC (50/60 Hz)	CE-compliant
1	100 VAC —
2	200 VAC —
3	110 VAC [115 VAC] —
4	220 VAC [230 VAC] —

\* For type W□, DC voltage is only available.  
Note) CE-compliant: For DC only.

### Type of actuation

1	Normally closed
2	Normally open

### 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.

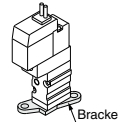
### Light/Surge voltage suppressor

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, U, DC voltage is only available.  
\* Power saving circuit is only available in the "Z" type.

### Bracket

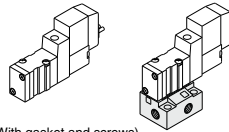
Nil: Without bracket  
F : With bracket



\* Bracket is mounted.  
\* Brackets cannot be retrofitted.  
\* External pilot type is not available.

### Port size

Nil: Without sub-plate M5: M5 port With sub-plate



### CE-compliant

Nil	—
Q	CE-compliant

Note) CE-compliant: For DC only.

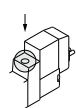
### Electrical entry

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>WO:</b> Without connector cable	
<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)	

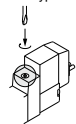
\* LN, MN type: with 2 sockets.  
\* Refer to page 1213 for the lead wire length of L and M plug connectors.  
\* Refer to page 1216 for the connector assembly with cover for L and M plug connectors.  
\* For connector cable of M8 connector, refer to page 1217.  
\* A M8 connector conforming to IEC60947-5-2 is also available. Refer to page 1210 for details.  
Note 1) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 1217.

### Manual override

Nil: Non-locking push type



D: Push-turn locking slotted type

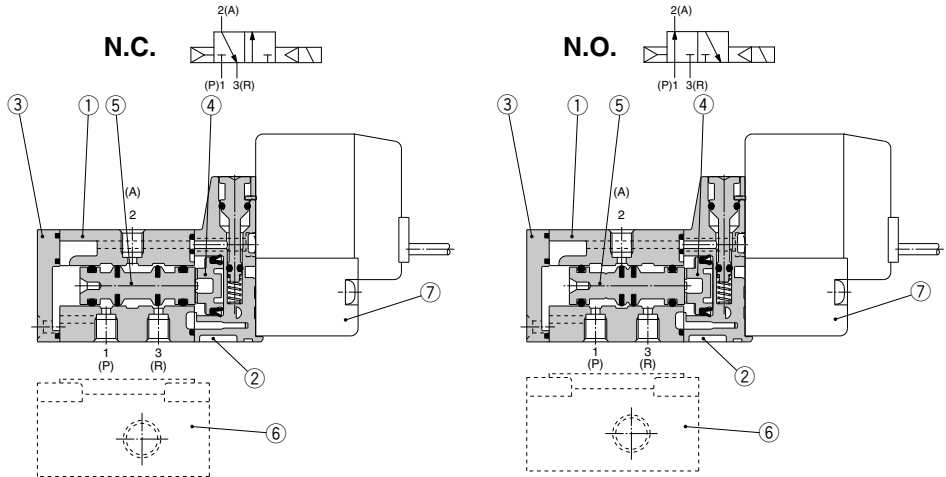


E: Push-turn locking lever type



Note) When placing an order for body ported solenoid valve as a single unit, mounting screws for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to page 1167.)

## Construction



### 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	Part no.	Note
6	Sub-plate <sup>Note)</sup>	SYJ300-9-1(-Q)	Zinc die-casted
7	Pilot valve	V111(T)-□□□□	

Note) Add suffix "Q" for the CE-compliant product.

## 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.

\* CE-compliant: For DC only.

### 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 "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	With lead wire
LN	L plug connector Without lead wire
LO	Without connector
M	With lead wire
MN	M plug connector Without lead wire
MO	Without connector
WO	M8 Without connector cable
W□	With connector cable <sup>Note 1)</sup>

\* For connector cable of M8 connector, refer to page 1217.

Note 1) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 1217.

Note) Since V111 is CE-compliant as standard, the suffix "Q" is not necessary.

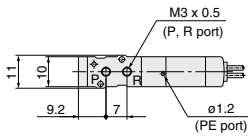
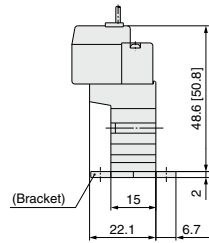
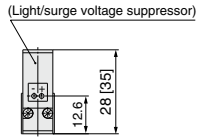
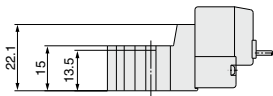
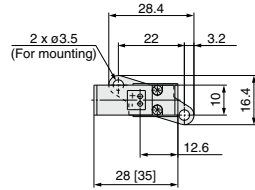
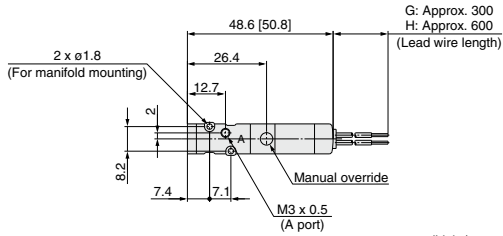
# SYJ300 Series

## Body Ported

\* [ ] for AC

Grommet (G), (H): SYJ3□2-□<sup>G</sup>□□-M3

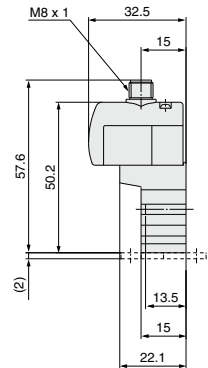
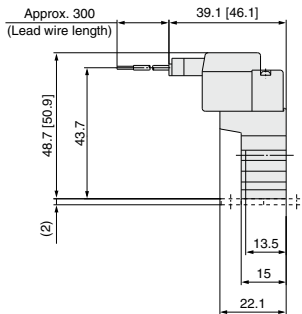
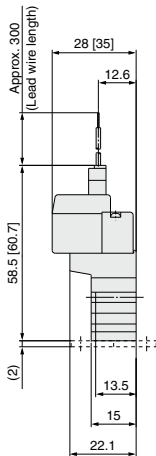
With bracket:  
SYJ3□2-□<sup>G</sup>□□-M3-F



L plug connector (L):  
SYJ3□2-□L□□-M3

M plug connector (M):  
SYJ3□2-□M□□-M3

M8 connector (WO):  
SYJ3□2-□WO□□-M3



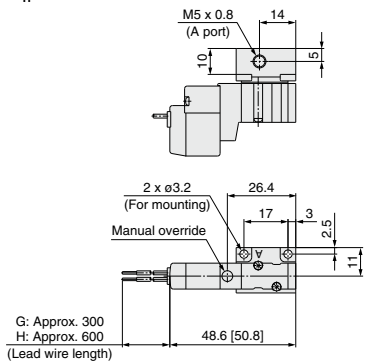
\* Refer to page 1217 for dimensions with connector cable.



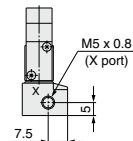
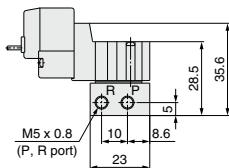
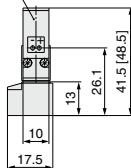
**Base Mounted (With Sub-plate)**

\* [ ] for AC

Grommet (G), (H): SYJ3□4-□<sup>G</sup>□□-M5



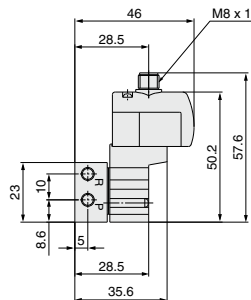
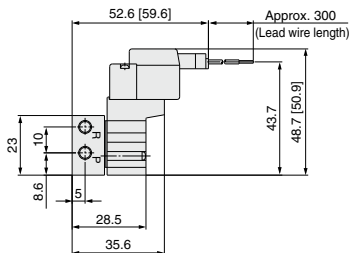
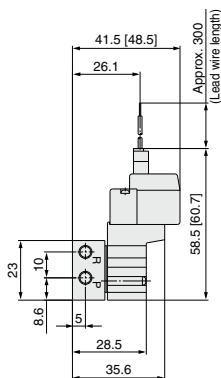
(Light/surge voltage suppressor)



**L plug connector (L):**  
SYJ3□4-□L□□-M5

**M plug connector (M):**  
SYJ3□4-□M□□-M5

**M8 connector (WO):**  
SYJ3□4-□WO□□-M5



\* Refer to page 1217 for dimensions with connector cable.

**SYJ**

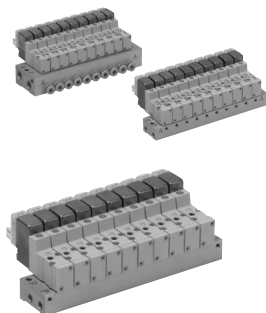
**VQZ**

**VP**

**VG**

**VP3**

# SYJ300 Series Manifold Specifications



## Manifold Specifications

Model	For internal pilot	Type 20	Type 41, S41	Type 42, S42
	For external pilot	Type 20R	—	Type 42R, S42R
<b>Manifold type</b>		Single base/B mount		
<b>P (SUP), R (EXH)</b>		Common SUP/Common EXH		
<b>Valve stations</b>		2 to 20 stations		
<b>A port</b>	<b>Location</b>	Valve	Base	
	<b>Direction</b>	Top	Side	
<b>Porting specifications</b>	<b>P, R port</b>	$\frac{M5 \times 0.8}{\varnothing}$	M5 x 0.8	$\frac{1}{8}$
		<b>A port</b>	M3 x 0.5	M3 x 0.5
	<b>X port</b> <small>Note)</small>	M5 x 0.8	—	M5 x 0.8

Note) Only for external pilot

## Flow Rate Characteristics

Manifold			Port size		Flow rate characteristics						Effective area (mm <sup>2</sup> )
					1→2 (P→A)			2→3 (A→R)			
					C [dm <sup>3</sup> /(s·bar)]	b	Cv	C [dm <sup>3</sup> /(s·bar)]	b	Cv	
Body ported for internal pilot	Type SS3YJ3-20	SYJ3□2	M5 x 0.8	M3 x 0.5	—	—	—	—	—	—	0.9
	Type SS3YJ3-41 S41	SYJ3□4	M5 x 0.8	M3 x 0.5	—	—	—	—	—	—	1.5
Base mounted for internal pilot	Type SS3YJ3-42-M5	SYJ3□4	1/8	M5 x 0.8	0.31	0.17	0.075	0.32	0.11	0.072	—
	C4			0.33	0.36	0.086	0.33	0.2	0.082	—	
	Type SS3YJ3-S42-M5	SYJ3□4	1/8	M5 x 0.8	0.32	0.3	0.079	0.33	0.35	0.086	—
	C4			0.35	0.17	0.082	0.35	0.26	0.086	—	
Body ported for external pilot	Type SS3YJ3-20R	SYJ3□2R	1/8	M3 x 0.5	—	—	—	—	—	—	0.9
	Type SS3YJ3-42R-M5	SYJ3□4R	1/8	M5 x 0.8	0.31	0.17	0.075	0.32	0.11	0.072	—
Type SS3YJ3-42R-C4	C4			0.33	0.36	0.086	0.33	0.20	0.082	—	
Type SS3YJ3-S42R-M5	M5 x 0.8			0.32	0.30	0.079	0.33	0.35	0.086	—	
Type SS3YJ3-S42R-C4	C4			0.35	0.17	0.082	0.35	0.26	0.086	—	

Note) Value at manifold base mounted, 2 position single acting

## How to Order Manifold (Example)

Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

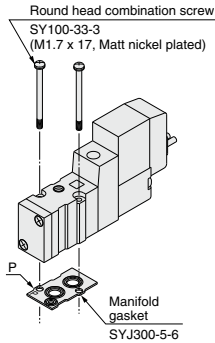
(Example)

SS3YJ3-20-03 ..... 1 set (manifold base)                      SS3YJ3-42R-03-C4 .... 1 set (manifold base)  
 \*SYJ312-5LZ-M3 ..... 2 sets (valve)                                \*SYJ314R-5G ..... 2 sets (valve)  
 \*SYJ300-10-7A ..... 1 set (blanking plate assembly)        \*SYJ300-10-7A ..... 1 set (blanking plate assembly)

↳ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

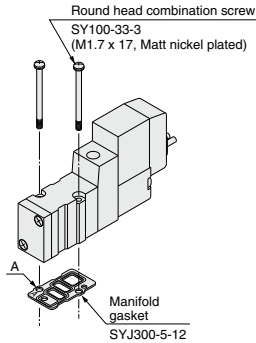
**Combinations of Solenoid Valve, Manifold Gasket and Manifold Base**

**Body ported (Type SYJ3□2(R)-(Q))**



**Applicable base**  
SS3YJ3-20(-Q) | Manifold  
SS3YJ3-20R(-Q) | base

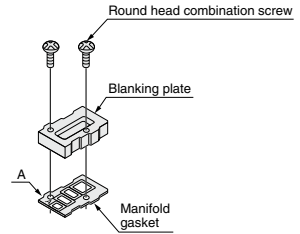
**Base mounted (Type SYJ3□4(R)-(Q))**



**Applicable base**  
**Sub-plate**  
SS3YJ3-41(-Q)  
SS3YJ3-S41(-Q)  
SS3YJ3-42(-Q) } Manifold  
SS3YJ3-S42(-Q) } base  
SS3YJ3-42R(-Q)  
SS3YJ3-S42R(-Q)

**Blanking Plate Assembly**

**Part no.: SYJ300-10-7A(-Q)**



**Applicable base**  
**Sub-plate**  
SS3YJ3-20(-Q)  
SS3YJ3-20R(-Q)  
SS3YJ3-41(-Q)  
SS3YJ3-S41(-Q) } Manifold  
SS3YJ3-42(-Q) } base  
SS3YJ3-S42(-Q)  
SS3YJ3-42R(-Q)  
SS3YJ3-S42R(-Q)

Note) Add suffix "-Q" for the CE-compliant product.

**Caution**

**Mounting screw tightening torques**

M1.7: 0.12 N·m

Use caution to the assembly orientation for solenoid valves, gasket and optional parts.

**SYJ**

**VQZ**

**VP**

**VG**

**VP3**

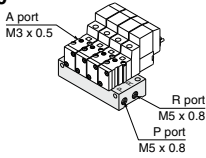
# SYJ300 Series



## Manifold for Internal Pilot Type

Note) CE-compliant:  
For DC only. [Option]

### Type 20



#### How to Order

SS3YJ3 - 20 - 05 - [ ] - [ ]

Stations	
02	2 stations
:	:
20	20 stations

#### Bracket

Nil	Without bracket
F	With bracket

#### CE-compliant

Nil	—
Q	CE-compliant

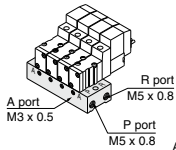
Applicable solenoid valve  
SYJ312-□□□□-M3(-Q)  
SYJ312M-□□□□-M3(-Q)  
SYJ322-□□□□-M3(-Q)  
SYJ322M-□□□□-M3(-Q)

Applicable blanking plate assembly  
Refer to page 1167.

Note) For more than 10 stations, supply air to both sides of P port and exhaust air from both sides of R port.

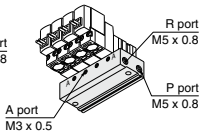
### Type 41

#### Type 41



#### Type S41

(Pilot valve is on the A port side.)



#### How to Order

SS3YJ3 - [ ] - 41 - 05 - M3 - [ ]

#### Valve mounting direction

Nil	Pilot valve is opposite the A port side.
S	Pilot valve is on the A port side.

Stations	
02	2 stations
:	:
20	20 stations

#### CE-compliant

Nil	—
Q	CE-compliant

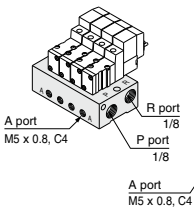
Applicable solenoid valve  
SYJ314-□□□□(-Q)  
SYJ314M-□□□□(-Q)  
SYJ324-□□□□(-Q)  
SYJ324M-□□□□(-Q)

Applicable blanking plate assembly  
Refer to page 1167.

Note) For more than 10 stations, supply air to both sides of P port and exhaust air from both sides of R port.

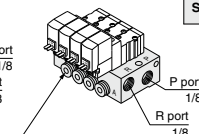
### Type 42

#### Type 42



#### Type S42

(Pilot valve is on the A port side.)



#### How to Order

SS3YJ3 - [ ] - 42 - 05 - M5 - [ ] - [ ]

#### Valve mounting direction

Nil	Pilot valve is opposite the A port side.
S	Pilot valve is on the A port side.

Stations	
02	2 stations
:	:
20	20 stations

#### P, R port thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Applicable solenoid valve  
SYJ314-□□□□(-Q)  
SYJ314M-□□□□(-Q)  
SYJ324-□□□□(-Q)  
SYJ324M-□□□□(-Q)

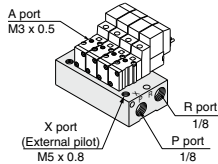
Applicable blanking plate assembly  
Refer to page 1167.

Note) For more than 8 stations, supply/exhaust air to/from both sides of P port and R port.

## Manifold for External Pilot Type

Pilot valve pressure is supplied separately from the main valve pressure through the use of a separate supply port. It can be used in the vacuum (up to -100 kPa) or low pressure line with 0.15 MPa or less.

### Type 20R



#### How to Order

SS3YJ3 - 20R - 05 - [ ] - [ ]

Stations	
02	2 stations
:	:
20	20 stations

#### P, R port thread type

Nil	Rc
00F	G
00N	NPT
00T	NPTF

#### CE-compliant

Nil	—
Q	CE-compliant

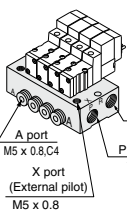
Applicable solenoid valve  
SYJ312R-□□□□-M3(-Q)  
SYJ322R-□□□□-M3(-Q)

Applicable blanking plate assembly  
Refer to page 1167.

Note) For more than 10 stations, supply/exhaust air to/from both sides of P port and R port.

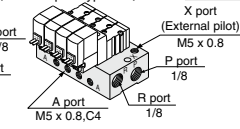
### Type 42R

Type 42R  
(External pilot type)



#### Type S42R

(Pilot valve is on the A port side and is of the external pilot type.)



#### How to Order

SS3YJ3 - [ ] - 42R - 05 - M5 - [ ] - [ ]

#### Valve mounting direction

Nil	Pilot valve is opposite the A port side.
S	Pilot valve is on the A port side.

Stations	
02	2 stations
:	:
20	20 stations

#### P, R port thread type

Nil	Rc
F	G
N	NPT
T	NPTF

#### CE-compliant

Nil	—
Q	CE-compliant

Applicable solenoid valve  
SYJ314R-□□□□(-Q)  
SYJ324R-□□□□(-Q)

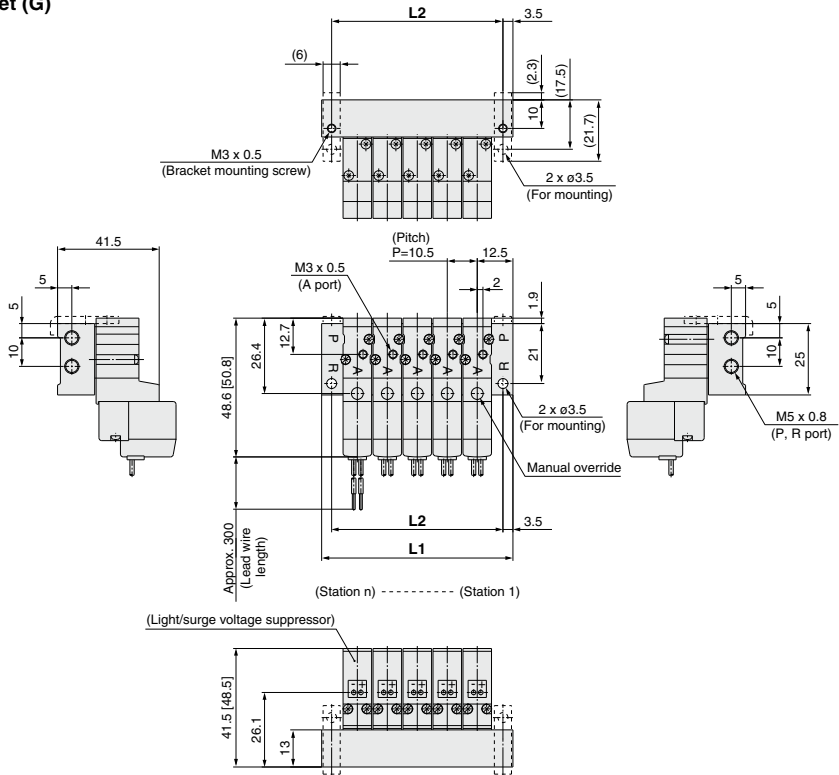
Applicable blanking plate assembly  
Refer to page 1167.

Note) For more than 8 stations, supply/exhaust air to/from both sides of P port and R port.

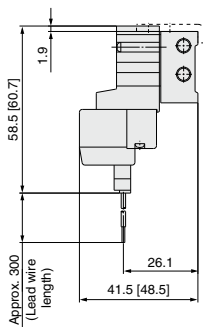
Type 20 Manifold: Top Ported/SS3YJ3-20-**Stations**-00□ (-F)

\* [ ] for AC

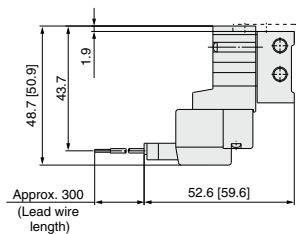
Grommet (G)



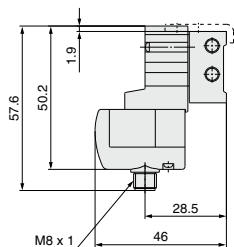
L plug connector (L)



M plug connector (M)



M8 connector (WO)



\* Refer to page 1217 for dimensions with connector cable.

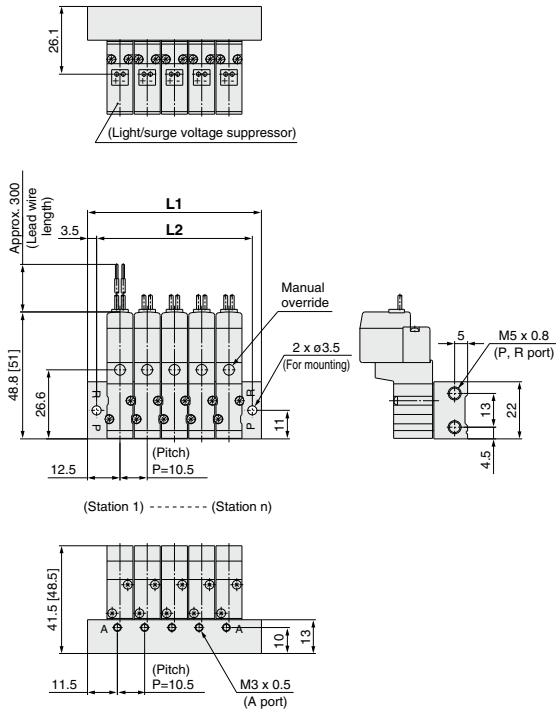
Station n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	35.5	46	56.5	67	77.5	88	98.5	109	119.5	130	140.5	151	161.5	172	182.5	193	203.5	214	224.5
L2	28.5	39	49.5	60	70.5	81	91.5	102	112.5	123	133.5	144	154.5	165	175.5	186	196.5	207	217.5

# SYJ300 Series

## Type 41 Manifold: Side Ported/SS3YJ3-41-Stations-M3

\* [ ] for AC

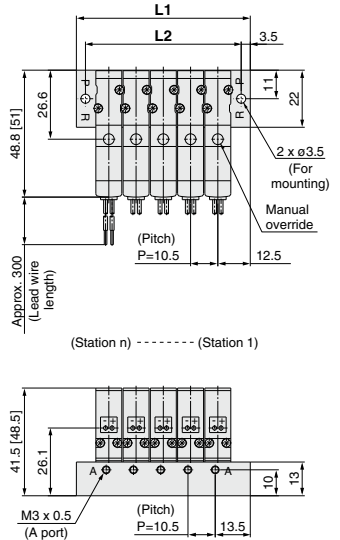
### Grommet (G)



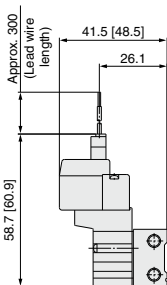
### Type S41 Manifold: Side Ported

(Pilot valve is on the A port side) /

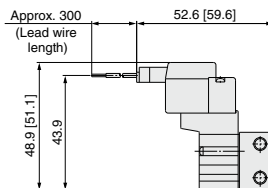
### SS3YJ3-S41-Stations-M3



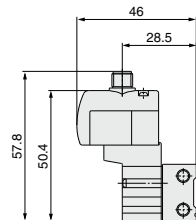
### L plug connector (L)



### M plug connector (M)



### M8 connector (WO)



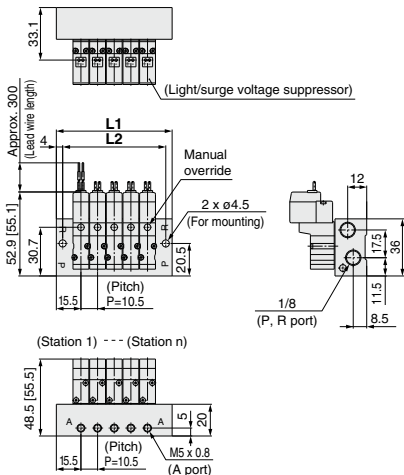
\* Refer to page 1217 for dimensions with connector cable.

Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
L1	35.5	46	56.5	67	77.5	88	98.5	109	119.5	130	140.5	151	161.5	172	182.5	193	203.5	214	224.5
L2	28.5	39	49.5	60	70.5	81	91.5	102	112.5	123	133.5	144	154.5	165	175.5	186	196.5	207	217.5

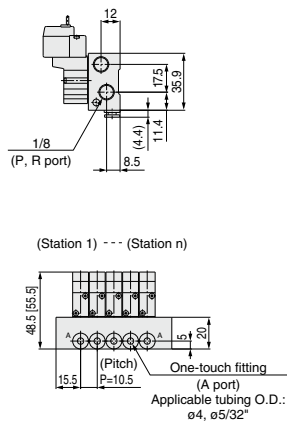
Type 42 Manifold: Side Ported/SS3YJ3-42- Stations -M5, **C4 N3** □

\* [ ] for AC

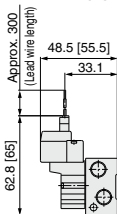
Grommet (G)  
For M5



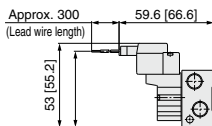
For **C4 N3** □ (Built-in One-touch fitting)



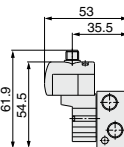
L plug connector (L)



M plug connector (M)



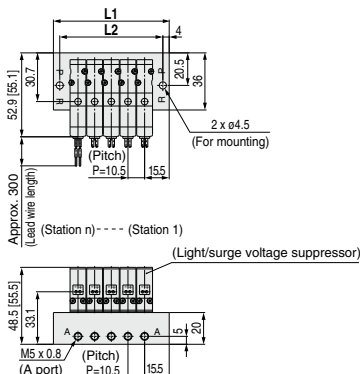
M8 connector (WO)



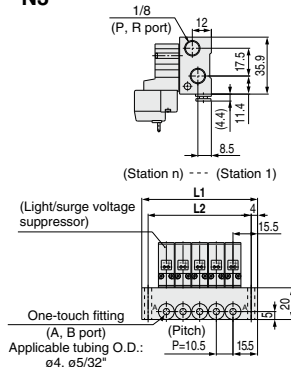
\* Refer to page 1217 for dimensions with connector cable.

Type S42 Manifold: Side Ported (Pilot valve is on the A port side) / SS3YJ3-S42- Stations -M5, **C4 N3** □

Grommet (G)  
For M5



For **C4 N3** □ (Built-in One-touch fitting)



Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
L1	41.5	52	62.5	73	83.5	94	104.5	115	125.5	136	146.5	157	167.5	178	188.5	199	209.5	220	230.5
L2	33.5	44	54.5	65	75.5	86	96.5	107	117.5	128	138.5	149	159.5	170	180.5	191	201.5	212	222.5

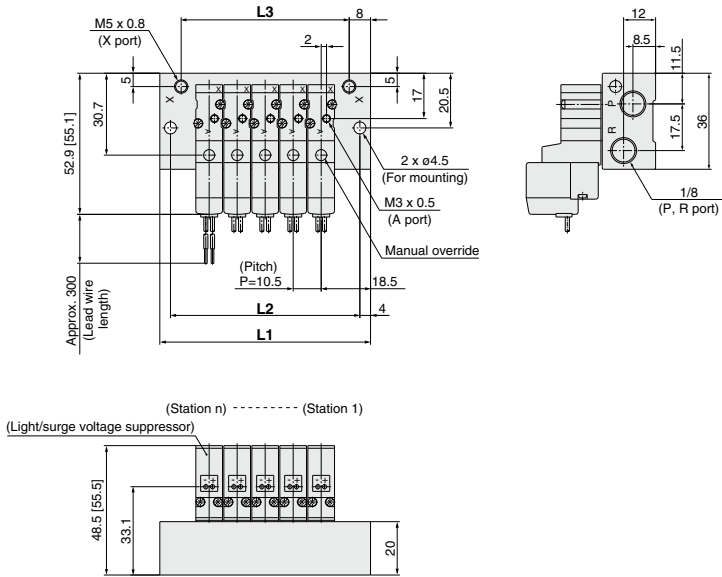
SYJ  
VQZ  
VP  
VG  
VP3

# SYJ300 Series

Type 20R Manifold: Top Ported (External Pilot Type)/SS3YJ3-20R- Stations -00 □

\* [ ] for AC

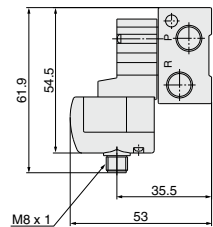
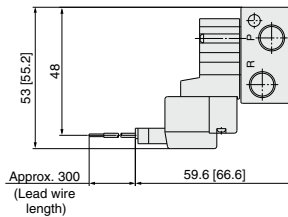
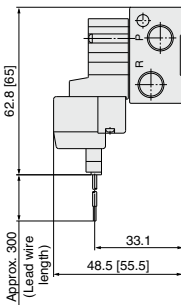
## Grommet (G)



## L plug connector (L)

## M plug connector (M)

## M8 connector (WO)



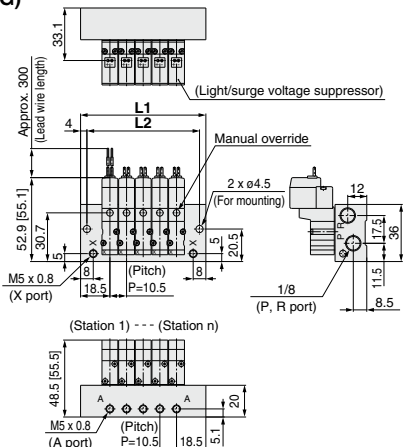
\* Refer to page 1217 for dimensions with connector cable.

Station n	Station 2	3	4	5	5	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
L1	47.5	58	68.5	79	89.5	100	110.5	121	131.5	142	152.5	163	173.5	184	194.5	205	215.5	226	236.5
L2	39.5	50	60.5	71	81.5	92	102.5	113	123.5	134	144.5	155	165.5	176	186.5	197	207.5	218	228.5
L3	31.5	42	52.5	63	73.5	84	94.5	105	115.5	126	136.5	147	157.5	168	178.5	189	199.5	210	220.5

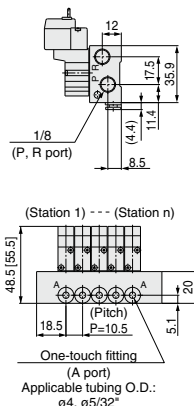


Type 42R Manifold: Side Ported (External Pilot Type)/SS3YJ3-42R-**Stations**-M5, **C4**  
**N3** □ \* [ ] for AC

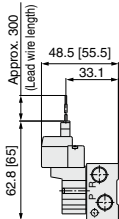
Grommet (G)  
For M5



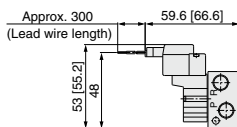
For **C4**  
**N3** □ (Built-in One-touch fitting)



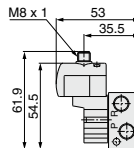
L plug connector (L)



M plug connector (M)



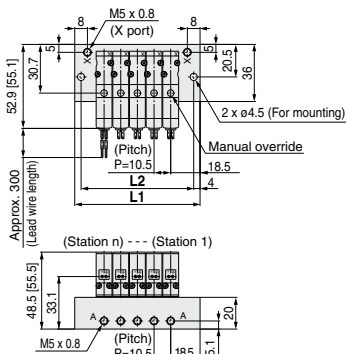
M8 connector (WO)



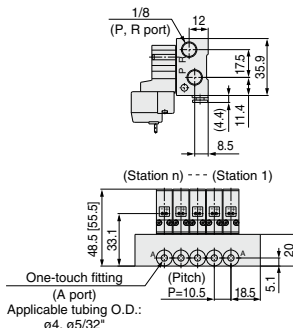
\* Refer to page 1217 for dimensions with connector cable.

Type S42R Manifold: Side Ported (Pilot valve is on the A port side) / SS3YJ3-S42R-**Stations**-M5, **C4**  
**N3** □

Grommet (G)  
For M5



For **C4**  
**N3** □ (Built-in One-touch fitting)



Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
L1	47.5	58	68.5	79	89.5	100	110.5	121	131.5	142	152.5	163	173.5	184	194.5	205	215.5	226	236.5
L2	39.5	50	60.5	71	81.5	92	102.5	113	123.5	134	144.5	155	165.5	176	186.5	197	207.5	218	228.5

SYJ  
VQZ  
VP  
VG  
VP3

# Rubber Seal 3 Port Pilot Solenoid Valve **SYJ500 Series**



## Specifications

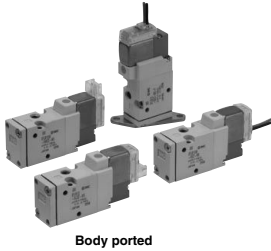
<b>Fluid</b>		Air
<b>Operating pressure range (MPa)</b>	<b>Internal pilot</b>	0.15 to 0.7
<b>Ambient and fluid temperature (°C)</b> -10 to 50 (No freezing.)		
<b>Response time ms (at 0.5 MPa)</b> <sup>Note 1)</sup> 25 or less		
<b>Max. operating frequency (Hz)</b> 5		
<b>Manual override (Manual operation)</b> Non-locking push type, push-turn locking slotted type, push-turn locking lever type		
<b>Pilot exhaust method</b> Individual exhaust for the pilot valve, common exhaust for the pilot and main valve		
<b>Lubrication</b> Not required		
<b>Mounting orientation</b> Unrestricted		
<b>Impact/Vibration resistance (m/s<sup>2</sup>)</b> <sup>Note 2)</sup> 150/30		
<b>Enclosure</b> Dust proof (* DIN terminal, M8 connector conforms to IP65.)		

\* Based on IEC60529

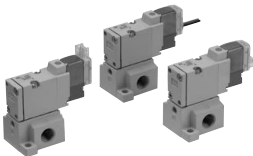
Note 1) Based on dynamic performance test, JIS B 8419: 2010. (Coil temperature: 20°C, at rated voltage, without surge voltage suppressor.)

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 at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Value in the initial state)



Body ported



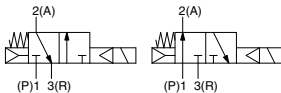
Base mounted

## Symbol

### Internal pilot

SYJ51<sup>2</sup>

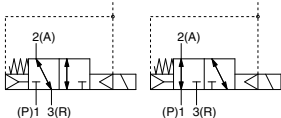
SYJ52<sup>2</sup>



### External pilot

SYJ51<sup>2</sup>R

SYJ52<sup>2</sup>R



## Solenoid Specifications

<b>Electrical entry</b>		Grommet (G), (H), L plug connector (L), M plug connector (M), DIN terminal (D), (Y), M8 connector (W)	
<b>Coil rated voltage (V)</b>	<b>DC</b>	G, H, L, M, W	D, Y
	<b>AC <sup>50/60</sup> Hz</b>	24, 12, 6, 5, 3	24, 12
<b>Allowable voltage fluctuation</b>		±10% of rated voltage *	
<b>Power consumption (W)</b>	<b>DC</b>	<b>Standard</b>	0.35 (With light: 0.4 (DIN terminal with light: 0.45))
		<b>With power saving circuit</b>	0.1 (With light only) * [Starting 0.4, Holding 0.1]
<b>Apparent power (VA) *</b>	<b>AC</b>	<b>100 V</b>	0.78 (With light: 0.81)    0.78 (With light: 0.87)
		<b>110 V [115 V]</b>	0.86 (With light: 0.89)    0.86 (With light: 0.97) [0.94 (With light: 0.97)]    [0.94 (With light: 1.07)]
		<b>200 V</b>	1.18 (With light: 1.22)    1.15 (With light: 1.30)
		<b>220 V [230 V]</b>	1.30 (With light: 1.34)    1.27 (With light: 1.46) [1.42 (With light: 1.46)]    [1.39 (With light: 1.60)]
		<b>Surge voltage suppressor</b>	Diode (DIN terminal, varistor when non-polar types)
<b>Indicator light</b>		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.

\* For details, refer to page 1214.



**Made to Order**

(For details, refer to pages 1210 and 1211.)

## Flow Rate Characteristics/Weight

Valve model		Type of actuation	Port size	Flow rate characteristics						Weight (g) <sup>Note)</sup>			
				1→2 (P→A)			2→3 (A→R)			Grommet	L/M plug connector	DIN terminal	M8 connector
Body ported			C [dm <sup>3</sup> /(s·bar)]	b	Cv	C [dm <sup>3</sup> /(s·bar)]	b	Cv					
Body ported	SYJ512	N.C.	M5 x 0.8	0.53	0.45	0.14	0.47	0.39	0.12	46	47	68	51
	SYJ522	N.O.		0.66	0.45	0.18	0.66	0.45	0.18				
Base mounted (with sub-plate)	SYJ514	N.C.	1/8	1.2	0.41	0.32	1.1	0.46	0.32	60 (46)	61 (47)	82 (68)	65 (51)
	SYJ524	N.O.		1.3	0.37	0.33	1.2	0.48	0.34				

Note) Value for DC. Add 3 g for AC. ( ): Without sub-plate.

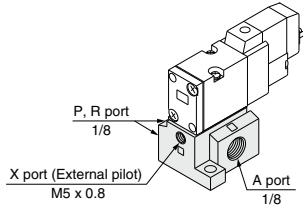
## External Pilot

### SYJ500R

Pilot valve pressure is supplied separately from the main valve pressure through the use of a separate supply port. It can be used in the vacuum (up to -100 kPa) or low pressure line with 0.15 MPa or less.

### Specifications

Applicable model	Base mounted (SYJ514R, SYJ524R)	
Operating pressure range MPa	Main pressure	-100 kPa to 0.7
	External pilot pressure	0.15 to 0.7



Note 1) For manifold base, refer to page 1180.

Note 2) External pilot type body ported valves (SYJ5□2R) can only be used on the manifold. For body ported models with the external pilot option, please refer to page 1211.

**SYJ**

**VQZ**

**VP**

**VG**

**VP3**

## How to Order

### Rated voltage

DC	
5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

\* DC specifications of type D, Y, DO and YO is only available with 12 and 24 VDC.

AC (50/60 Hz)	
1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

\* For type W□, DC voltage is only available.  
Note) AC-type models that are CE-compliant have DIN terminals only.

### Type of actuation

1	Normally closed
2	Normally open

### Light/Surge voltage suppressor

#### Electrical entry for G, H, L, M and W

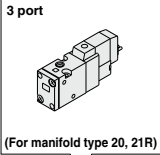
Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

\* 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 for D, Y

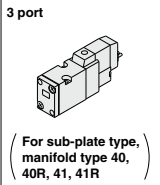
Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

\* DOZ and YOZ are not available.  
\* For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

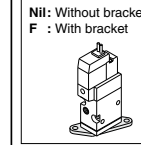


Body ported

Base mounted



### Bracket



\* Bracket is not mounted.



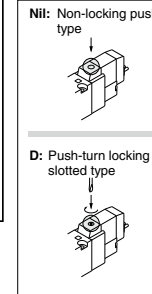
Made to Order  
(page 1211)  
Body ported external pilot

### Coil specifications

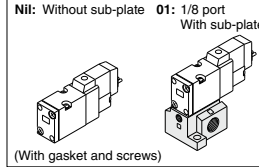
Nil	Standard
T	With power saving circuit (24, 12 VDC only)

\* Power saving circuit is not available in the case of D, Y, DO, YO or W□ type.

### Manual override



### Port size



### Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

### CE-compliant

Nil	-
Q	CE-compliant

Note) AC-type models that are CE-compliant have DIN terminals only.

### Electrical entry

CE-compliant	DC	24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC						24, 12 VDC/100, 110, 200, 220 VAC		24, 12, 6, 5, 3 VDC	
		Grommet	L plug connector	M plug connector		DIN terminal		M8 connector			
		G: Lead wire length 300 mm	L: With lead wire (Length 300 mm)	M: With lead wire (Length 300 mm)		D: With connector	Y: With connector	WO: Without connector cable			
		H: Lead wire length 600 mm	LN: Without lead wire	LO: Without connector	MN: Without lead wire	MO: Without connector	DO: Without connector	YO: Without connector	WI: With connector cable (Note 1)		

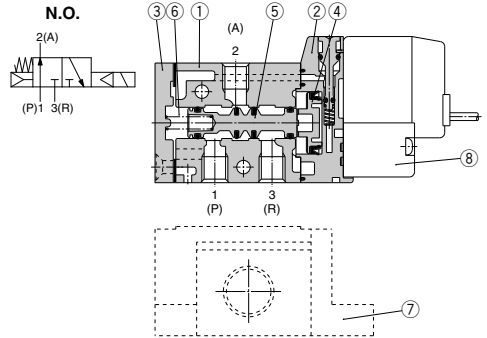
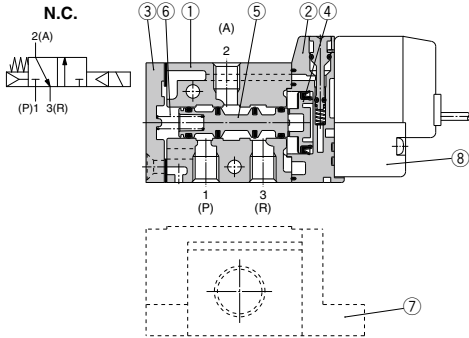
Note) When placing an order for body ported solenoid valve as a single unit, mounting screws for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to page 1181.)

\* DIN terminal type "Y" which conforms to EN-175301-803C (former DIN43650C) is also available. For details, refer to page 1215.  
\* For connector cable of M8 connector, refer to page 1217.  
\* A M8 connector conforming to IEC60947-5-2 is also available. Refer to page 1210 for details.  
Note 1) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 1217.

\* SYJ5□2R is only for manifold use.

\* LN, MN type: with 2 sockets.  
\* Refer to page 1213 for the lead wire length of L and M plug connectors.  
\* Refer to page 1216 for the connector assembly with cover for L and M plug connectors.

## Construction



### Component Parts

No.	Description	Material	Note
1	<b>Body</b>	Aluminum die-cast	White
2	<b>Piston plate</b>	Resin	White
3	<b>End cover</b>	Aluminum die-cast	White
4	<b>Piston</b>	Resin	—
5	<b>Spool valve assembly</b>	—	—
6	<b>Spool spring</b>	Stainless steel	—

### Replacement Parts

No.	Description	Part no.	Note
7	<b>Sub-plate</b> <sup>Note</sup>	SYJ500-9-1(-Q)	Aluminum die-cast
8	<b>Pilot valve</b>	V111(T)-□□□□	—
—	<b>Bracket assembly</b>	SYJ5000-13-3A	—

Note) Add suffix "-Q" for the CE-compliant product.

## How to Order Pilot Valve Assembly

V111 □ — 5 G □

### Coil specifications

Nii	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.  
\* CE-compliant: For DC only.

### Light/Surge voltage suppressor

Nii	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 "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	With lead wire
LN	Without lead wire
LO	Without connector
M	With lead wire
MN	Without lead wire
MO	Without connector
WO	Without connector cable
W□	With connector cable <sup>Note 1)</sup>

\* For connector cable of M8 connector, refer to page 1217.

Note 1) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 1217.

V115 — 5 D □

### Light/Surge voltage suppressor

Nii	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

\* DOZ and YOZ are not available.

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

### Electrical entry

D	DIN terminal	With connector
DO	(Type D)	Without connector
Y	DIN terminal	With connector
YO	(Type Y)	Without connector

\* Do not replace V111 (G, H, L, M, W) to V115 (DIN terminal) and vice versa when replacing pilot valve assembly only.

### Rated voltage

5	24 VDC
6	12 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]

\* DC specifications of type D and DO is only available with 12 and 24 VDC.

\* Power saving circuit is not available in the case of D or DO type.

Note) Since V111 and V115 are CE-compliant as standard, the suffix "-Q" is not necessary.

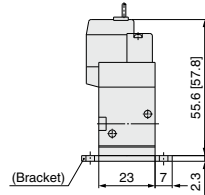
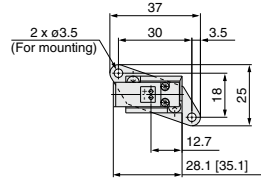
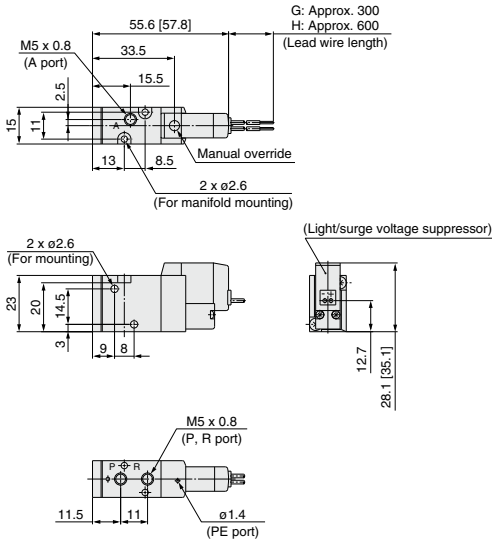
# SYJ500 Series

## Body Ported

\* [ ] for AC

Grommet (G), (H): SYJ5□2-□<sup>G</sup>□□-M5

With bracket:  
SYJ5□2-□<sup>G</sup>□□-M5-F

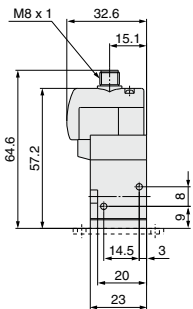
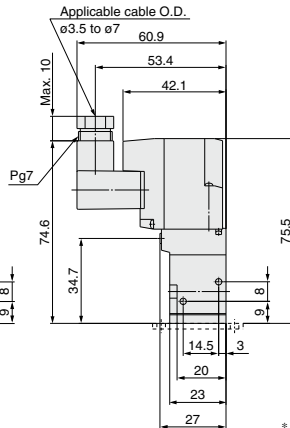
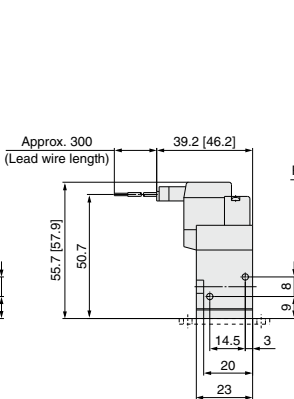
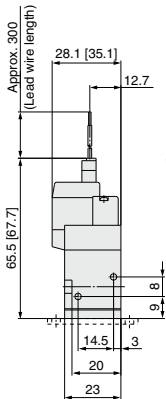


L plug connector (L):  
SYJ5□2-□L□□-M5 (-F)

M plug connector (M):  
SYJ5□2-□M□□-M5 (-F)

DIN terminal (D,Y):  
SYJ5□2-□Y□□-M5 (-F)

M8 connector (WO):  
SYJ5□2-□WO□□-M5 (-F)

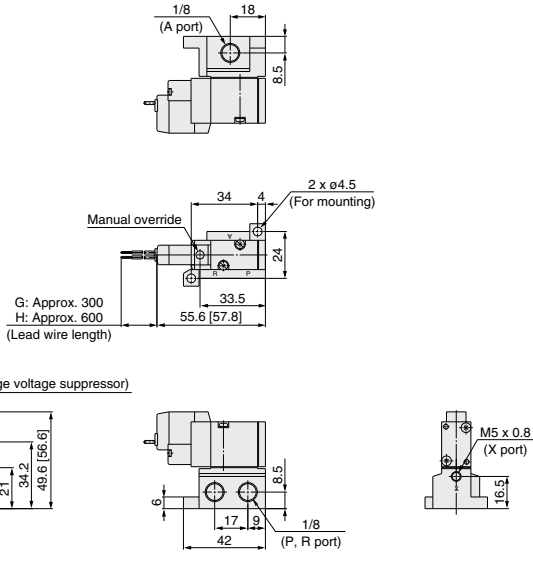


\* Refer to page 1217 for dimensions with connector cable.

**Base Mounted (With Sub-plate)**

\* [ ] for AC

Grommet (G), (H): SYJ5□4-□<sup>G</sup>□□-01□

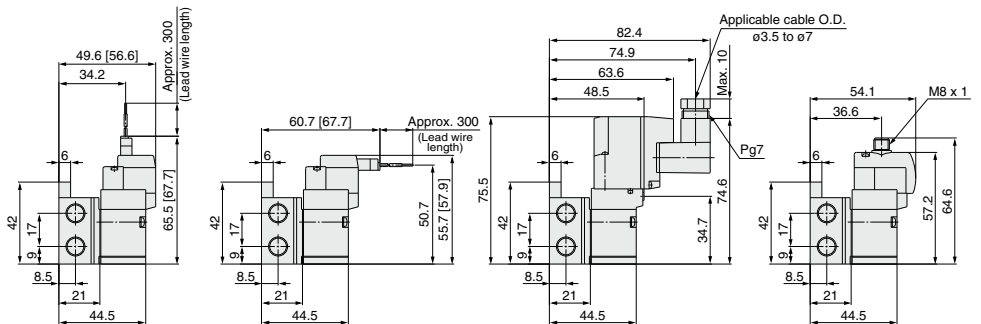


**L plug connector (L):**  
SYJ5□4-□L□□-01□

**M plug connector (M):**  
SYJ5□4-□M□□-01□

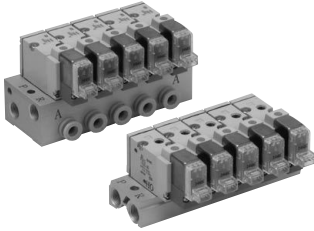
**DIN terminal (D, Y):**  
SYJ5□4-□<sup>D</sup>□□-01□

**M8 connector (WO):**  
SYJ5□4-□WO□□-01□



\* Refer to page 1217 for dimensions with connector cable.

# SYJ500 Series Manifold Specifications



## Manifold Specifications

Model	For internal pilot	Type 20	Type 40	Type 41
	For external pilot	Type 21R	Type 40R	Type 41R
<b>Manifold type</b>	Single base/B mount			
<b>P (SUP), R (EXH)</b>	Common SUP, common EXH			
<b>Valve stations</b>	2 to 20 stations			
<b>A port Porting specifications</b>	<b>Location</b>	Valve	Base	
	<b>Direction</b>	Top	Bottom	Side
<b>Port size</b>	<b>P, R port</b>	1/8	1/8	1/8
	<b>A port</b>	M5 x 0.8	M5 x 0.8 1/8	M5 x 0.8, 1/8, C4 (One-touch fitting for ø4), C6 (One-touch fitting for ø6)
	<b>X port</b> <small>(Note)</small>	M5 x 0.8	M5 x 0.8	M5 x 0.8

Note) Only for external pilot

## Flow Rate Characteristics

Manifold			Port size		Flow rate characteristics					
					1→2 (P→A)			2→3 (A→R)		
			1(P), 3(R) port	2(A) port	C [dm <sup>3</sup> /(sbar)]	b	Cv	C [dm <sup>3</sup> /(sbar)]	b	Cv
Body ported for internal pilot	Type SS3YJ5-20	SYJ5□2	1/8	M5 x 0.8	0.47	0.43	0.13	0.74	0.32	0.19
	Type SS3YJ5-40-M5	SYJ5□4	1/8	M5 x 0.8	0.71	0.52	0.21	0.81	0.28	0.20
Type SS3YJ5-40-Ø1	1/8		1/8	0.98	0.36	0.25	0.92	0.24	0.22	
Type SS3YJ5-41-M5	1/8		M5 x 0.8	0.71	0.49	0.20	0.80	0.23	0.19	
Type SS3YJ5-41-Ø1	1/8		1/8	1.0	0.37	0.26	0.96	0.25	0.24	
Type SS3YJ5-41-C4	1/8		C4	0.68	0.35	0.17	1.0	0.25	0.24	
Type SS3YJ5-41-C6	1/8		C6	1.0	0.27	0.25	1.0	0.30	0.26	
Body ported for external pilot	Type SS3YJ5-21R	SYJ5□2R	1/8	M5 x 0.8	0.47	0.43	0.13	0.74	0.32	0.19
Base mounted for external pilot	Type SS3YJ5-40R-M5	SYJ5□4R	1/8	M5 x 0.8	0.71	0.52	0.21	0.81	0.28	0.20
	Type SS3YJ5-40R-Ø1		1/8	1/8	0.98	0.36	0.25	0.92	0.24	0.22
	Type SS3YJ5-41R-M5		1/8	M5 x 0.8	0.71	0.49	0.20	0.80	0.23	0.19
	Type SS3YJ5-41R-Ø1		1/8	1/8	1.0	0.37	0.26	0.96	0.25	0.24
	Type SS3YJ5-41R-C4		1/8	C4	0.68	0.35	0.17	1.0	0.25	0.24
	Type SS3YJ5-41R-C6		1/8	C6	1.0	0.27	0.25	1.0	0.30	0.26

Note) Value at manifold base mounted, 2 position single operating

## How to Order Manifold (Example)

Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

(Example)

SS3YJ5-20-03 ..... 1 set (manifold base)                      SS3YJ5-41R-03-C6 ..... 1 set (manifold base)  
 \* SYJ512-5LZ-M5 ..... 2 sets (valve)                              \* SYJ514R-5G ..... 2 sets (valve)  
 \* SYJ500-10-1A ..... 1 set (blanking plate assembly)      \* SYJ500-10-3A ..... 1 set (blanking plate assembly)

↳ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.



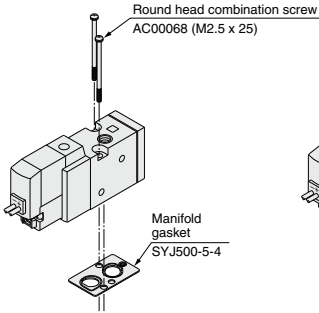
**Combinations of Solenoid Valve, Manifold Gasket and Manifold Base**

**Blanking Plate Assembly**

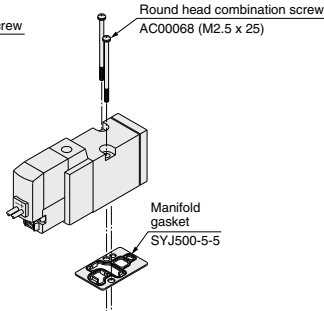
**Body ported (Type SYJ5□2(R)(-Q))**

**Base mounted (Type SYJ5□4(R)(-Q))**

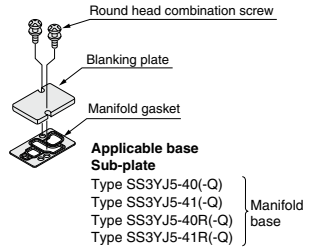
**Part no.: SYJ500-10-3A(-Q)**



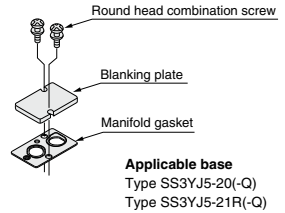
**Applicable base**  
Type SS3YJ5-21R(-Q)  
Type SS3YJ5-20(-Q)  
Manifold base



**Applicable base**  
**Sub-plate**  
Type SS3YJ5-40(-Q)  
Type SS3YJ5-41(-Q)  
Type SS3YJ5-40R(-Q)  
Type SS3YJ5-41R(-Q) } **Manifold base**



**Part no.: SYJ500-10-1A(-Q)**



(Note) Add suffix "Q" for the CE-compliant product.

**⚠ Caution**

**Mounting screw tightening torques**

**M2.5: 0.45 N·m**

**Use caution to the assembly orientation for solenoid valves (blanking plate) and manifold gasket.**

**SYJ**

**VQZ**

**VP**

**VG**

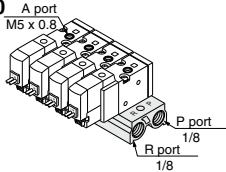
**VP3**

# SYJ500 Series

Note) AC-type models that are CE-compliant have DIN terminals only. **CE** [Option]

## Manifold for Internal Pilot Type

### Type 20



How to Order

**SS3YJ5 - 20 - 05** - [ ] - [ ] - [ ]

Stations	02 2 Stations	:	:	20 20 Stations
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P, R port thread type	Nil Rc	00F G	00N NPT	00T NPTF
-----------------------	--------	-------	---------	----------

Bracket	Nil Without bracket	F With bracket
---------	---------------------	----------------

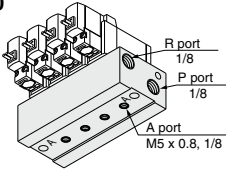
CE-compliant	Nil -	Q CE-compliant
--------------	-------	----------------

Applicable solenoid valve  
 SYJ512-□□□□-M5(-Q)  
 SYJ512M-□□□□-M5(-Q)  
 SYJ522-□□□□-M5(-Q)  
 SYJ522M-□□□□-M5(-Q)

Applicable blanking plate assembly  
 Refer to page 1181.

Note) For more than 6 stations, supply air to both sides of P port and exhaust air from both sides of R port.

### Type 40



How to Order

**SS3YJ5 - 40 - 05 M5** - [ ] - [ ] - [ ]

Stations	02 2 Stations	:	:	20 20 Stations
----------	---------------	---	---	----------------

A port size	M5 M5 x 0.8	01 1/8
-------------	-------------	--------

P, R port thread type	Nil Rc	F G	N NPT	T NPTF
-----------------------	--------	-----	-------	--------

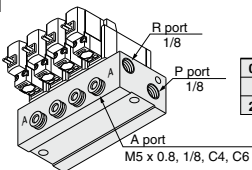
CE-compliant	Nil -	Q CE-compliant
--------------	-------	----------------

Applicable solenoid valve  
 SYJ514-□□□□(-Q)  
 SYJ514M-□□□□(-Q)  
 SYJ524-□□□□(-Q)  
 SYJ524M-□□□□(-Q)

Applicable blanking plate assembly  
 Refer to page 1181.

Note) For more than 9 stations, supply air to both sides of P port and exhaust air from both sides of R port.

### Type 41



How to Order

**SS3YJ5 - 41 - 05 - C6** - [ ] - [ ] - [ ]

Stations	02 2 Stations	:	:	20 20 Stations
----------	---------------	---	---	----------------

A port size	M5 M5 x 0.8	01 1/8
-------------	-------------	--------

P, R port thread type	Nil Rc	F G	N NPT	T NPTF
-----------------------	--------	-----	-------	--------

CE-compliant	Nil -	Q CE-compliant
--------------	-------	----------------

Applicable solenoid valve  
 SYJ514-□□□□(-Q)  
 SYJ514M-□□□□(-Q)  
 SYJ524-□□□□(-Q)  
 SYJ524M-□□□□(-Q)

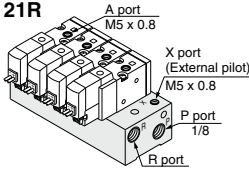
Applicable blanking plate assembly  
 Refer to page 1181.

Note) For more than 9 stations, supply air to both sides of P port and exhaust air from both sides of R port.

## Manifold for External Pilot Type

Pilot valve pressure is supplied separately from the main valve pressure through the use of a separate supply port. It can be used in the vacuum (up to -100 kPa) or low pressure line with 0.15 MPa or less.

### Type 21R



How to Order

**SS3YJ5 - 21R - 05** - [ ] - [ ] - [ ]

Stations	02 2 Stations	:	:	20 20 Stations
----------	---------------	---	---	----------------

P, R port thread type	Nil Rc	00F G	00N NPT	00T NPTF
-----------------------	--------	-------	---------	----------

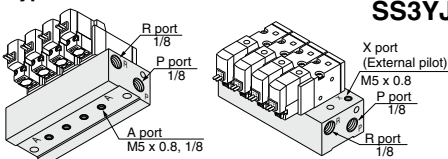
CE-compliant	Nil -	Q CE-compliant
--------------	-------	----------------

Applicable solenoid valve  
 SYJ512R-□□□□-M5(-Q)  
 SYJ522R-□□□□-M5(-Q)

Applicable blanking plate assembly  
 Refer to page 1181.

Note) For more than 9 stations, supply/exhaust air to/from both sides of P and R port.

### Type 40R



How to Order

**SS3YJ5 - 40R - 05 - 01** - [ ] - [ ] - [ ]

Stations	02 2 Stations	:	:	20 20 Stations
----------	---------------	---	---	----------------

A port size	M5 M5 x 0.8	01 1/8
-------------	-------------	--------

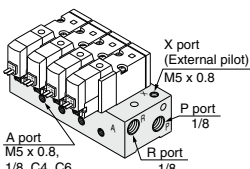
P, R port thread type	Nil Rc	F G	N NPT	T NPTF
-----------------------	--------	-----	-------	--------

Applicable solenoid valve  
 SYJ514R-□□□□(-Q)  
 SYJ524R-□□□□(-Q)

Applicable blanking plate assembly  
 Refer to page 1181.

Note) For more than 9 stations, supply/exhaust air to/from both sides of P and R port.

### Type 41R



How to Order

**SS3YJ5 - 41R - 05 - M5** - [ ] - [ ] - [ ]

Stations	02 2 Stations	:	:	20 20 Stations
----------	---------------	---	---	----------------

A port size	M5 M5 x 0.8	01 1/8
-------------	-------------	--------

P, R port thread type	Nil Rc	F G	N NPT	T NPTF
-----------------------	--------	-----	-------	--------

CE-compliant	Nil -	Q CE-compliant
--------------	-------	----------------

Applicable solenoid valve  
 SYJ514R-□□□□(-Q)  
 SYJ524R-□□□□(-Q)

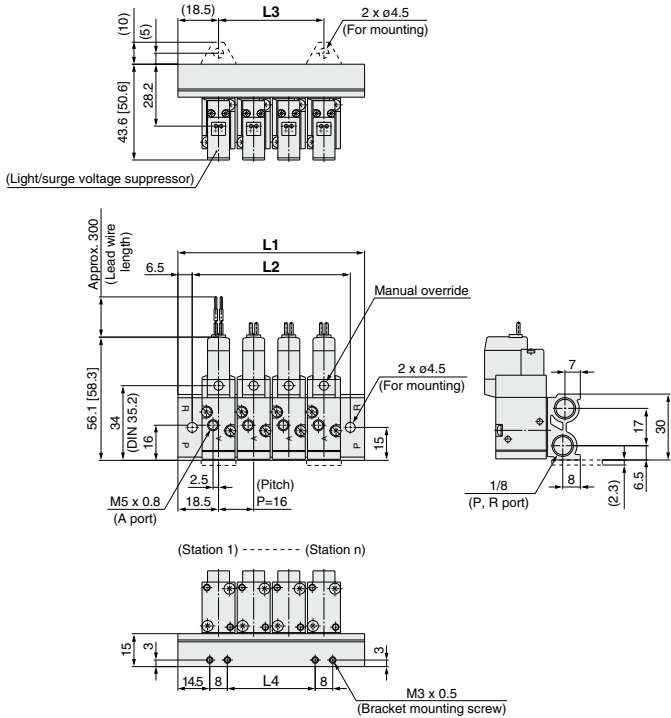
Applicable blanking plate assembly  
 Refer to page 1181.

Note) For more than 9 stations, supply/exhaust air to/from both sides of P and R port.

Type 20 Manifold: Top Ported/SS3YJ5-20-**Stations**-00 □ (-F)

\* [ ] for AC

Grommet (G)

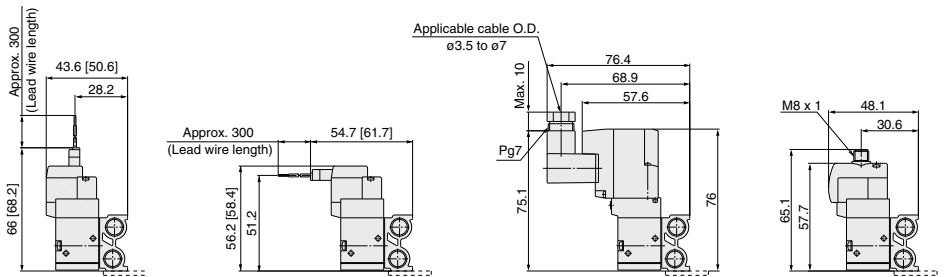


L plug connector (L)

M plug connector (M)

DIN terminal (D, Y)

M8 connector (WO)



\* Refer to page 1217 for dimensions with connector cable.

Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
L1	53	69	85	101	117	133	149	165	181	197	213	229	245	261	277	293	309	325	341
L2	40	56	72	88	104	120	136	152	168	184	200	216	232	248	264	280	296	312	328
L3	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304
L4	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248	264	280	296

# SYJ500 Series

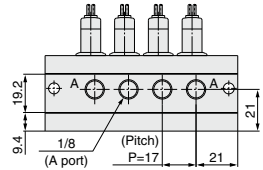
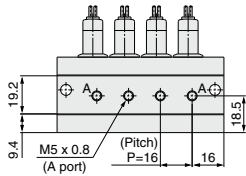
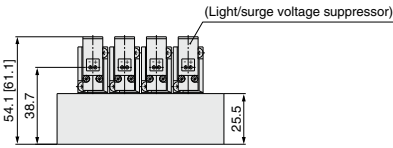
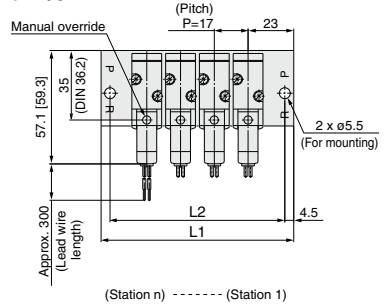
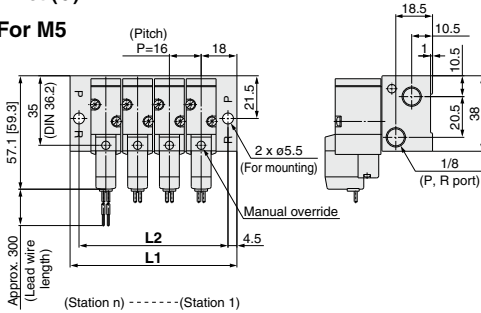
## Type 40 Manifold: Bottom Ported/SS3YJ5-40-Stations-M5, 01□

\* [ ] for AC

### Grommet (G)

### For 1/8

#### For M5

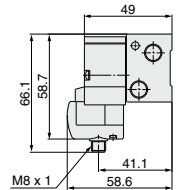
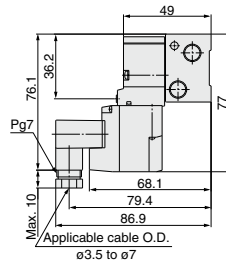
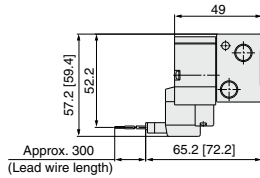
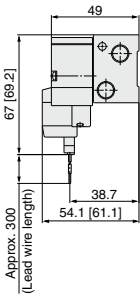


### L plug connector (L)

### M plug connector (M)

### DIN terminal (D, Y)

### M8 connector (WO)



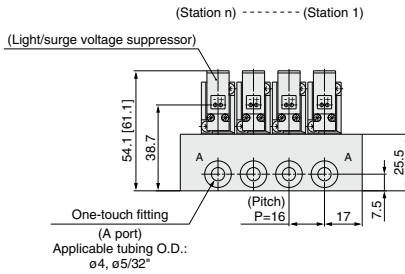
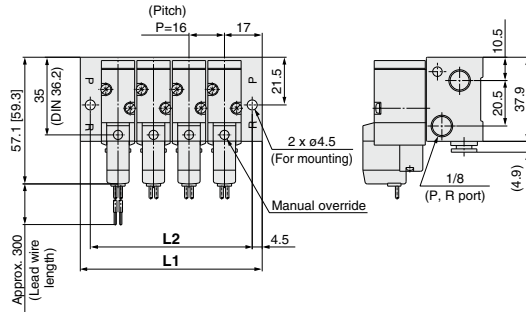
\* Refer to page 1217 for dimensions with connector cable.

Port size	Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
M5	L1	52	68	84	100	116	132	148	164	180	196	212	228	244	260	276	292	308	324	340
	L2	43	59	75	91	107	123	139	155	171	187	203	219	235	251	267	283	299	315	331
1/8	L1	63	80	97	114	131	148	165	182	199	216	233	250	267	284	301	318	335	352	369
	L2	54	71	88	105	122	139	156	173	190	207	224	241	258	275	292	309	326	343	360

Type 41 Manifold: Side Ported/SS3YJ5-41-**Stations** C4, N3  
C6, N7

\* [ ] for AC

**Grommet (G)**

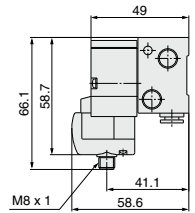
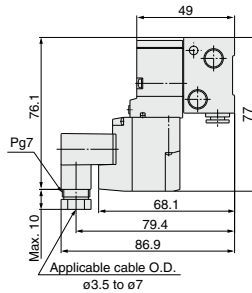
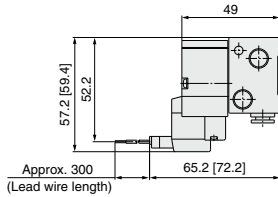
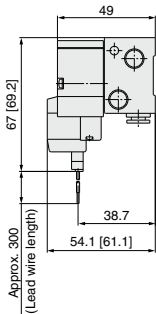


**L plug connector (L)**

**M plug connector (M)**

**DIN terminal (D, Y)**

**M8 connector (WO)**



\* Refer to page 1217 for dimensions with connector cable.

Port size	Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
One-touch fitting	<b>L1</b>	50	66	82	98	114	130	146	162	178	194	210	226	242	258	274	290	306	322	338
	<b>L2</b>	41	57	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313	329

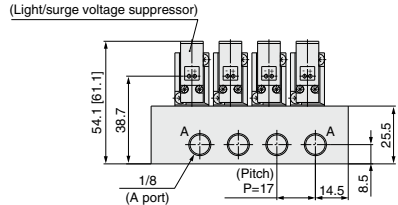
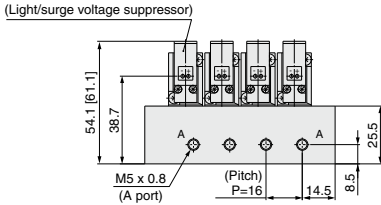
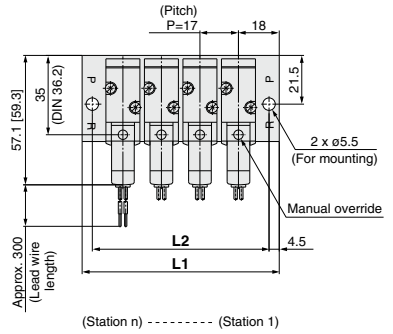
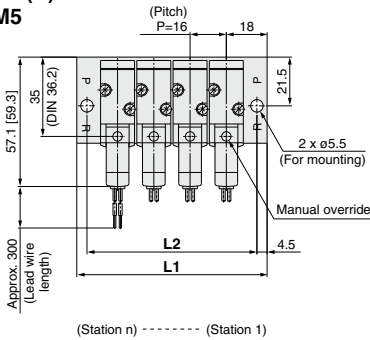
# SYJ500 Series

## Type 41 Manifold: Side Ported/SS3YJ5-41-**Stations**-M5, 01 □

\* [ ] for AC

### Grommet (G) For M5

### For 1/8

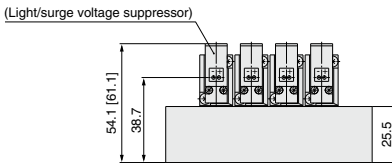
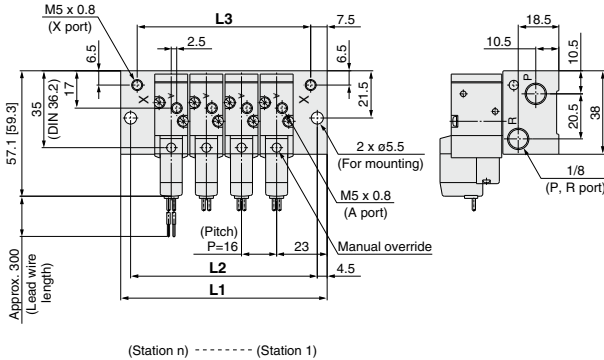


Port size	Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
	M5	L1	52	68	84	100	116	132	148	164	180	196	212	228	244	260	276	292	308	324
	L2	43	59	75	91	107	123	139	155	171	187	203	219	235	251	267	283	299	315	331
1/8	L1	53	70	87	104	121	138	155	172	189	206	223	240	257	274	291	308	325	342	359
	L2	44	61	78	95	112	129	146	163	180	197	214	231	248	265	282	299	316	333	350

Type 21R Manifold: Top Ported (External Pilot Type)/SS3YJ5-21R-**Stations**-00□

\* [ ] for AC

Grommet (G)

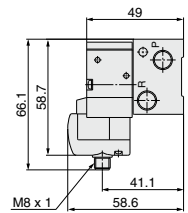
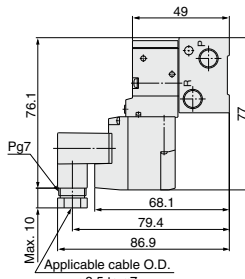
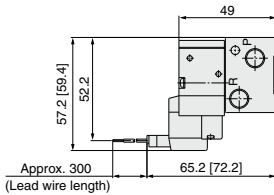
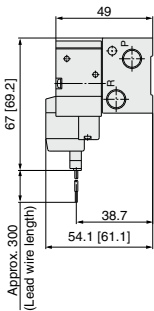


L plug connector (L)

M plug connector (M)

DIN terminal (D, Y)

M8 connector (WO)



\* Refer to page 1217 for dimensions with connector cable.

Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
L1	62	78	94	110	126	142	158	174	190	206	222	238	254	270	286	302	318	334	350
L2	53	69	85	101	117	133	149	165	181	197	213	229	245	261	277	293	309	325	341
L3	47	63	79	95	111	127	143	159	175	191	207	223	239	255	271	287	303	319	335

SYJ  
VQZ  
VP  
VG  
VP3

# SYJ500 Series

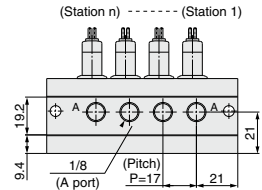
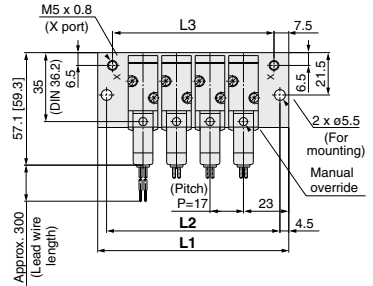
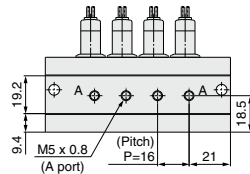
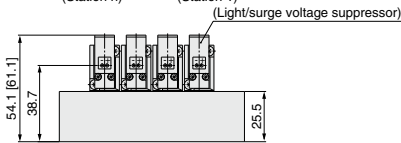
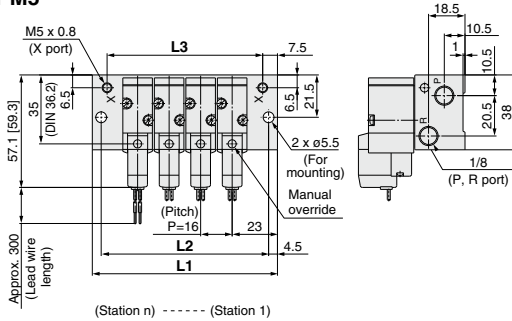
## Type 40R Manifold: Bottom Ported (External Pilot Type)/SS3YJ5-40R-**Stations**-M5, 01□

\* [ ] for AC

### Grommet (G)

### For 1/8

#### For M5

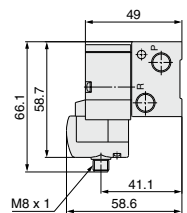
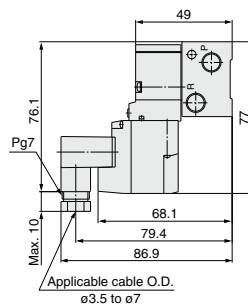
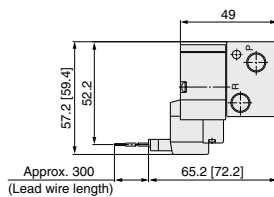
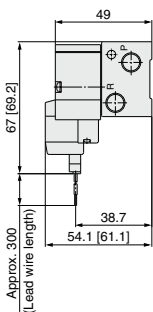


### L plug connector (L)

### M plug connector (M)

### DIN terminal (D, Y)

### M8 connector (WO)



\* Refer to page 1217 for dimensions with connector cable.

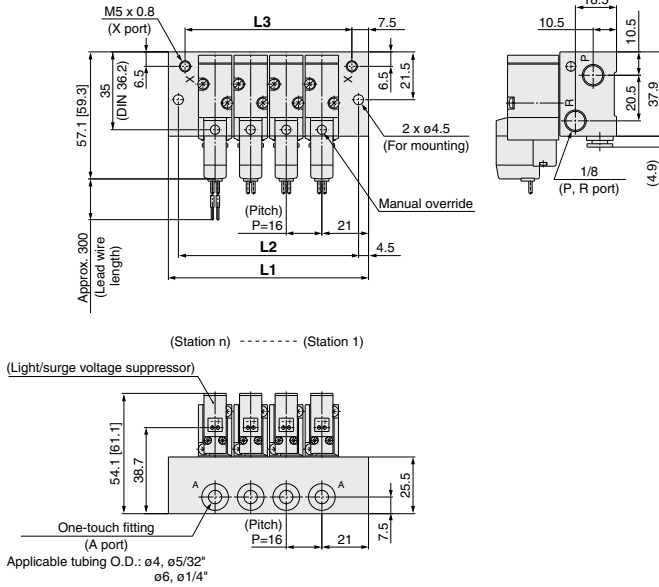
Port size	Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
M5	L1	62	78	94	110	126	142	158	174	190	206	222	238	254	270	286	302	318	334	350
	L2	53	69	85	101	117	133	149	165	181	197	213	229	245	261	277	293	309	325	341
	L3	47	63	79	95	111	127	143	159	175	191	207	223	239	255	271	287	303	319	335
1/8	L1	63	80	97	114	131	148	165	182	199	216	233	250	267	284	301	318	335	352	369
	L2	54	71	88	105	122	139	156	173	190	207	224	241	258	275	292	309	326	343	360
	L3	48	65	82	99	116	133	150	167	184	201	218	235	252	269	286	303	320	337	354



Type 41R Manifold: Side Ported (External Pilot Type)/SS3YJ5-41R-**Stations** - C4, N3   
C6, N7

\* [ ] for AC

**Grommet (G)**

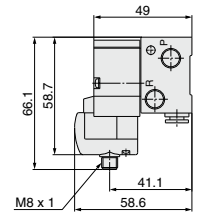
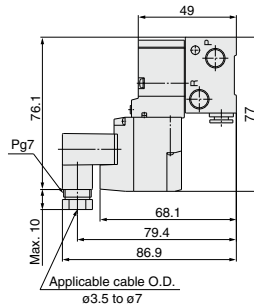
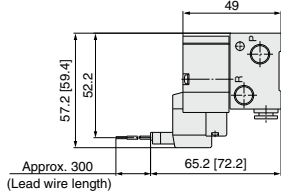
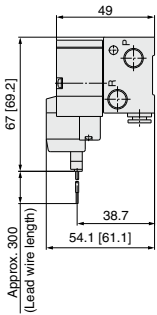


**L plug connector (L)**

**M plug connector (M)**

**DIN terminal (D, Y)**

**M8 connector (WO)**



\* Refer to page 1217 for dimensions with connector cable.

Port size	Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
One-touch fitting	L1	58	74	90	106	122	138	154	170	186	202	218	234	250	266	282	298	314	330	346
	L2	49	65	81	97	113	129	145	161	177	193	209	225	241	257	273	289	305	321	337
	L3	43	59	75	91	107	123	139	155	171	187	203	219	235	251	267	283	299	315	331

- SYJ**
- VQZ**
- VP**
- VG**
- VP3**

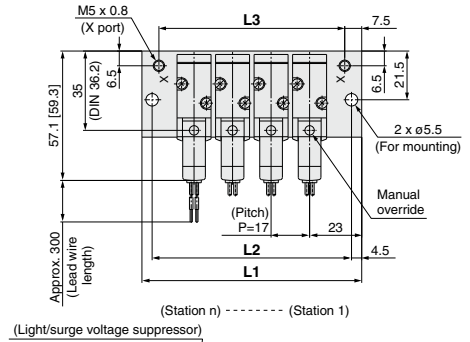
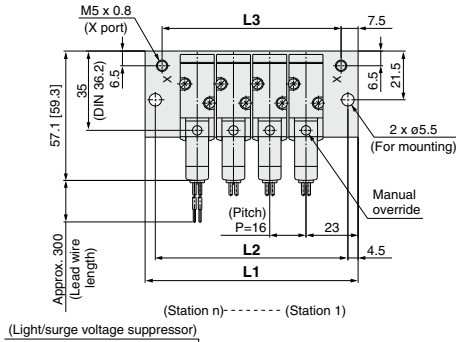
# SYJ500 Series

## Type 41R Manifold: Side Ported (External Pilot Type)/SS3YJ5-41R-Stations-M5, 01 □

\* [ ] for AC

### For M5

### For 1/8

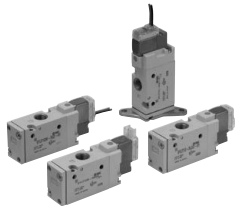


Port size	Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
M5	L1	62	78	94	110	126	142	158	174	190	206	222	238	254	270	286	302	318	334	350
	L2	53	69	85	101	117	133	149	165	181	197	213	229	245	261	277	293	309	325	341
	L3	47	63	79	95	111	127	143	159	175	191	207	223	239	255	271	287	303	319	335
1/8	L1	63	80	97	114	131	148	165	182	199	216	233	250	267	284	301	318	335	352	369
	L2	54	71	88	105	122	139	156	173	190	207	224	241	258	275	292	309	326	343	360
	L3	48	65	82	99	116	133	150	167	184	201	218	235	252	269	286	303	320	337	354

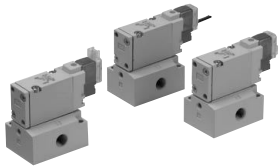
# Rubber Seal 3 Port Pilot Solenoid Valve SYJ700 Series



## Specifications



Body ported



Base mounted

<b>Fluid</b>		Air
<b>Operating pressure range (MPa)</b>	<b>Internal pilot</b>	0.15 to 0.7
<b>Ambient and fluid temperature (°C)</b>		-10 to 50 (No freezing.)
<b>Response time ms (at 0.5 MPa)</b> <sup>Note 1)</sup>		30 or less
<b>Max. operating frequency (Hz)</b>		5
<b>Manual override (Manual operation)</b>		Non-locking push type, push-turn locking slotted type, push-turn locking lever type
<b>Pilot exhaust method</b>		Individual exhaust for the pilot valve, common exhaust for the pilot and main valve
<b>Lubrication</b>		Not required
<b>Mounting orientation</b>		Unrestricted
<b>Impact/Vibration resistance (m/s<sup>2</sup>)</b> <sup>Note 2)</sup>		150/30
<b>Enclosure</b>		Dust proof (* DIN terminal, M8 connector: IP65)

\* Based on IEC60529

Note 1) Based on dynamic performance test, JIS B 8419: 2010. (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)

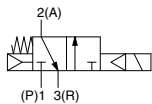
Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz.

Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Value in the initial state)

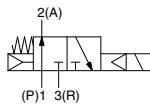
## Symbol

### Internal pilot

SYJ71 $\frac{2}{4}$

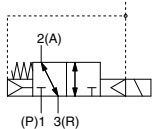


SYJ72 $\frac{2}{4}$

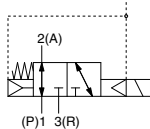


### External pilot

SYJ71 $\frac{2}{4}$ R



SYJ72 $\frac{2}{4}$ R



## Solenoid Specifications

<b>Electrical entry</b>		Grommet (G), (H), L plug connector (L), M plug connector (M), DIN terminal (D), (Y), M8 connector (W)	
		G, H, L, M, W	D, Y
<b>Coil rated voltage (V)</b>	<b>DC</b>	24, 12, 6, 5, 3	
	<b>AC</b> <sup>50/60 Hz</sup>	100, 110, 200, 220	
<b>Allowable voltage fluctuation</b>		±10% of rated voltage *	
<b>Power consumption (W)</b>	<b>DC</b>	Standard 0.35 (With light: 0.4 (DIN terminal with light: 0.45))	
	<b>With power saving circuit</b>	0.1 (With light only) * [Starting 0.4, Holding 0.1]	
<b>Apparent power (VA) *</b>	<b>AC</b>	<b>100 V</b>	0.78 (With light: 0.81)   0.78 (With light: 0.87)
		<b>110 V [115 V]</b>	0.86 (With light: 0.89)   0.86 (With light: 0.97)   0.86 (With light: 0.97)   0.86 (With light: 1.07)
		<b>200 V</b>	1.18 (With light: 1.22)   1.15 (With light: 1.30)
		<b>220 V [230 V]</b>	1.30 (With light: 1.34)   1.27 (With light: 1.46)   1.30 (With light: 1.46)   1.39 (With light: 1.60)
<b>Surge voltage suppressor</b>		Diode (DIN terminal, varistor when non-polar types)	
<b>Indicator light</b>		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.

\* For details, refer to page 1214.



**Made to Order**

(For details, refer to pages 1210 and 1211.)

### Flow Rate Characteristics/Weight

Valve model		Type of actuation	Port size	Flow rate characteristics						Weight (g) <sup>(Note)</sup>			
				1→2 (P→A)			2→3 (A→R)			Grommet	L/M plug connector	DIN terminal	M8 connector
				C [dm <sup>3</sup> /(s·bar)]	b	Cv	C [dm <sup>3</sup> /(s·bar)]	b	Cv				
Body ported	SYJ712	N.C.	1/8	2.8	0.43	0.77	2.5	0.51	0.76	75	76	97	80
	SYJ722	N.O.		2.7	0.38	0.72	2.4	0.42	0.69				
Base mounted (with sub-plate)	SYJ714	N.C.	1/8	2.9	0.32	0.71	2.7	0.34	0.69	135 (75)	136 (76)	157 (97)	140 (80)
	SYJ724	N.O.	1/8	2.8	0.21	0.70	2.3	0.45	0.63				
	SYJ714	N.C.	1/4	3.0	0.31	0.74	2.6	0.33	0.66				
	SYJ724	N.O.		2.7	0.31	0.68	2.3	0.48	0.64				

Note) Value for DC. Add 3 g for AC. ( ) : Without sub-plate.

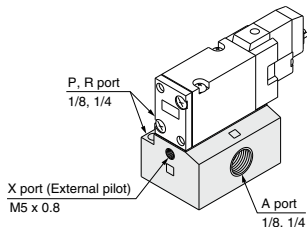
### External Pilot

#### SYJ700R

Pilot valve pressure is supplied separately from the main valve pressure through the use of a separate supply port. It can be used in the vacuum (up to -100 kPa) or low pressure line with 0.15 MPa or less.

#### Specifications

Applicable model	Base mounted (SYJ714R, SYJ724R)	
Operating pressure range MPa	Main pressure	-100 kPa to 0.7
	External pilot pressure	0.15 to 0.7



- Note 1) For manifold base, refer to page 1198.  
 Note 2) External pilot type body ported valves (SYJ□2R) can only be used on the manifold.  
 For body ported models with the external pilot option, please refer to page 1211.

**SYJ**

**VQZ**

**VP**

**VG**

**VP3**

## How to Order

### Rated voltage

DC	5	24 VDC
6	12 VDC	
V	6 VDC	
S	5 VDC	
R	3 VDC	

DC specifications of type D, Y, DO and YO is only available with 12 and 24 VDC.

AC (50/60 Hz)	1	100 VAC
2	200 VAC	
3	110 VAC [115 VAC]	
4	220 VAC [230 VAC]	

\* For type W□, DC voltage is only available.  
Note) AC-type models that are CE-compliant have DIN terminals only.

### Electrical entry for G, H, L, M and W

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

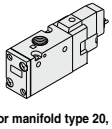
### Electrical entry for D, Y

<b>Nil</b>	Without light/surge voltage suppressor
<b>S</b>	With surge voltage suppressor (Non-polar type)
<b>Z</b>	With light/surge voltage suppressor (Non-polar type)

\* DOZ and YOZ are not available.  
\* For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

### Type of actuation

1	Normally closed
2	Normally open

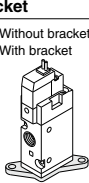


(For manifold type 20, 21R)

### Bracket

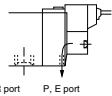
<b>Nil</b>	Without bracket
<b>F</b>	With bracket

\* Bracket is not mounted.

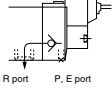


### Body option


**Nil**: Individual pilot exhaust type



**M**: Common exhaust for the pilot and main valve



**R**: External pilot type\*



\* SYJ□2R is only for manifold use.


### Coil specifications

<b>Nil</b>	Standard
<b>T</b>	With power saving circuit (24, 12 VDC only)


\* Power saving circuit is not available in the case of D, Y, DO, YO or W□ type.

### Manual override


**Nil**: Non-locking push type



**D**: Push-turn locking slotted type



**E**: Push-turn locking lever type

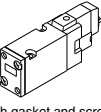
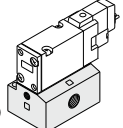


### Thread type

<b>Nil</b>	Rc
<b>F</b>	G
<b>N</b>	NPT
<b>T</b>	NPTF

### Port size

<b>Nil</b>	Without sub-plate
<b>01</b>	1/8 port With sub-plate
<b>02</b>	1/4 port With sub-plate

(With gasket and screws)

### CE-compliant

<b>Nil</b>	—
<b>Q</b>	CE-compliant

Note) AC-type models that are CE-compliant have DIN terminals only.

### Body ported

SYJ7 1 2 □ □ □ - 5 M □ □ □ - 01 □ □ □ - □ □ □

### Base mounted

SYJ7 1 4 □ □ □ - 5 M □ □ □ - 01 □ □ □ - □ □ □

### Electrical entry

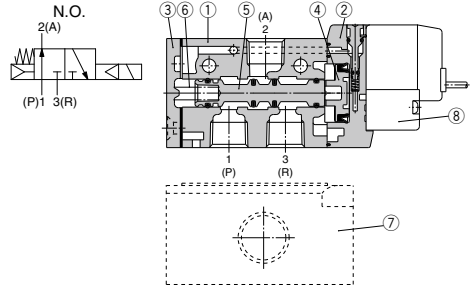
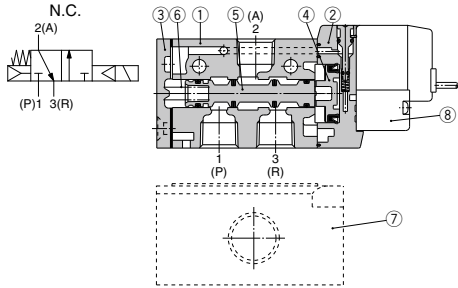
CE-compliant	DC	24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC			24, 12 VDC/100, 110, 200, 220 VAC		24, 12, 6, 5, 3 VDC	
		Grommet	L plug connector	M plug connector	DIN terminal	M8 connector		
		<b>G</b> : Lead wire length 300 mm	<b>L</b> : Lead wire (Length 300 mm)	<b>M</b> : With lead wire (Length 300 mm)	<b>D</b> : With connector	<b>Y</b> : With connector	<b>W0</b> : Without connector cable	
		<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>DO</b> : Without connector	<b>YO</b> : Without connector	<b>W1</b> : With connector cable (Note 1)

Note) When placing an order for body ported solenoid valve as a single unit, mounting screws for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to page 1199.)

\* LN, MN type: with 2 sockets.  
\* Refer to page 1213 for the lead wire length of L and M plug connectors.  
\* Refer to page 1216 for the connector assembly with cover for L and M plug connectors.

\* DIN terminal type "Y" which conforms to EN-175301-803C (former DIN4365C) is also available. For details, refer to page 1215.  
\* For connector cable of M8 connector, refer to page 1217.  
\* A M8 connector conforming to IEC60947-5-2 is also available. Refer to page 1210 for details.  
Note 1) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 1217.

## Construction



## Component Parts

No.	Description	Material	Note
1	Body	Aluminum die-casted	White
2	Piston plate	Resin	White
3	End cover	Aluminum die-casted	White
4	Piston	Resin	—
5	Spool valve assembly	—	—
6	Spool spring	Stainless steel	—

## Replacement Parts

No.	Description	Part no.	Note
7	Sub-plate <sup>(Note)</sup>	SYJ700-9-1(-Q)	1/8 Aluminum die-casted
		SYJ700-9-2(-Q)	1/4
8	Pilot valve	V111(T)-□□□□	
—	Bracket assembly	SYJ700-19-1A	

(Note) Add suffix "-Q" for the CE-compliant product.

## How to Order Pilot Valve Assembly

V111 □ — 5 G □

### Coil specifications

<b>NII</b>	Standard
<b>T</b>	With power saving circuit (24, 12 VDC only)

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

### Rated voltage

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

\* For type W□, DC voltage is only available.  
\* CE-compliant: For DC only.

### Light/Surge voltage suppressor

<b>NII</b>	Without light/surge voltage suppressor
<b>S</b>	With surge voltage suppressor
<b>Z</b>	With light/surge voltage suppressor
<b>R</b>	With surge voltage suppressor (Non-polar type)
<b>U</b>	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 "R" and "U", DC voltage is only available.  
\* Power saving circuit is only available in the "Z" type.

### Electrical entry

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

\* For connector cable of M8 connector, refer to page 1217.  
Note 1) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 1217.

V115 — 5 D □

### Rated voltage

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

\* DC specifications of type D and DO is only available with 12 and 24 VDC.  
\* Power saving circuit is not available in the case of D, Y, DO and YO type.

### Light/Surge voltage suppressor

<b>NII</b>	Without light/surge voltage suppressor
<b>S</b>	With surge voltage suppressor (Non-polar type)
<b>Z</b>	With light/surge voltage suppressor (Non-polar type)

\* DOZ and YOZ are not available.  
\* For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

### Electrical entry

<b>D</b>	DIN terminal	With connector
<b>DO</b>	(Type D)	Without connector
<b>Y</b>	DIN terminal	With connector
<b>YO</b>	(Type Y)	Without connector

\* Do not replace V111 (G, H, L, M, W) to V115 (DIN terminal) and vice versa when replacing pilot valve assembly only.

(Note) Since V111 and V115 are CE-compliant as standard, the suffix "-Q" is not necessary.

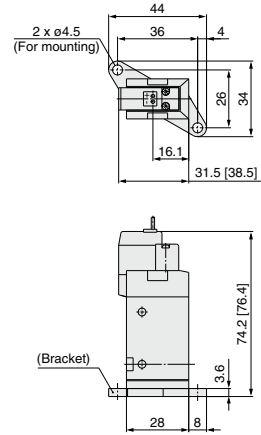
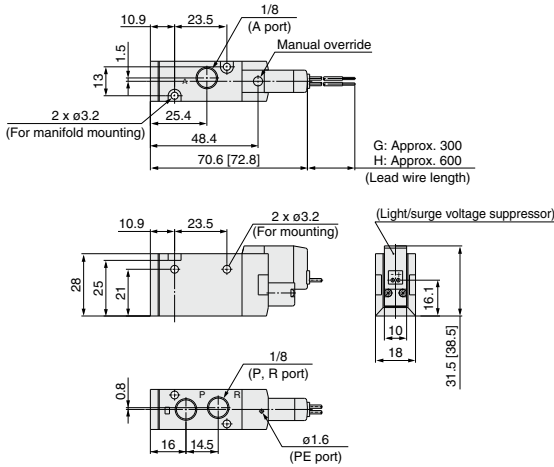
# SYJ700 Series

## Body Ported

\* [ ] for AC

Grommet (G), (H): SYJ7□2-□<sup>G</sup>□□-01□

With bracket:  
SYJ7□2-□<sup>G</sup>□□-01□-F

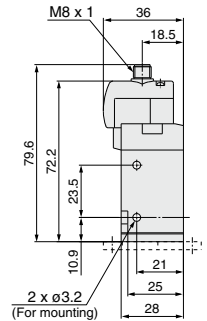
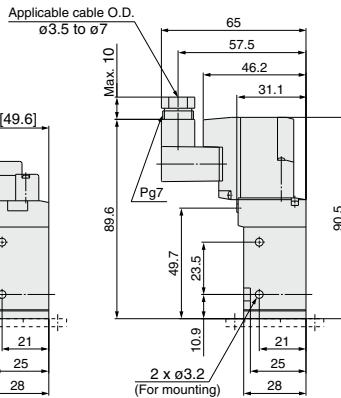
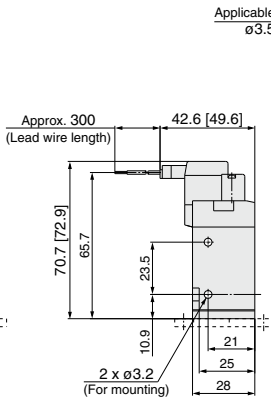
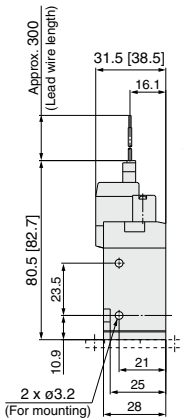


L plug connector (L):  
SYJ7□2-□L□□-01□ (-F)

M plug connector (M):  
SYJ7□2-□M□□-01□ (-F)

DIN terminal (D, Y):  
SYJ7□2-□<sup>D</sup>□□-01□ (-F)

M8 connector (WO):  
SYJ7□2-□WO□□-01□ (-F)

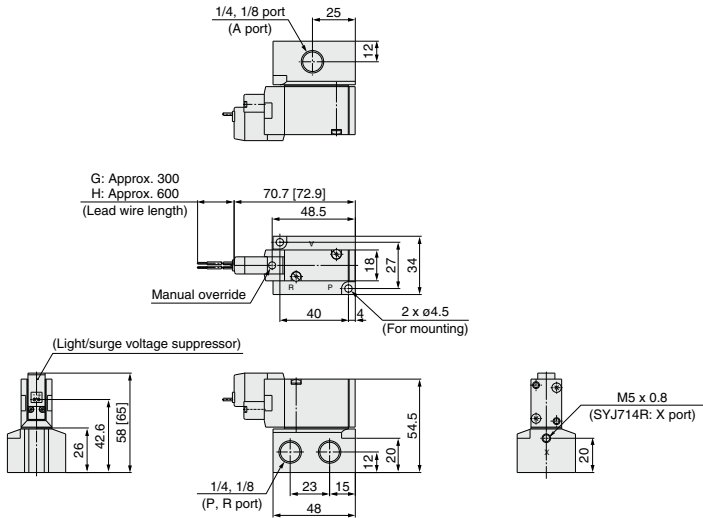


\* Refer to page 1217 for dimensions with connector cable.

**Base Mounted (With Sub-plate)**

\* [ ] for AC

Grommet (G), (H): SYJ7□4-□□<sup>G</sup>□□□□<sup>01</sup>□□<sup>02</sup>□

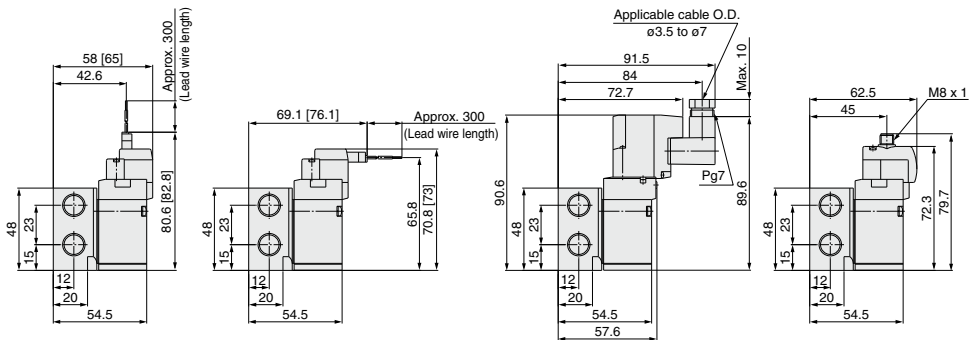


**L plug connector (L):**  
SYJ7□4-□□L□□□<sup>01</sup>□□<sup>02</sup>□

**M plug connector (M):**  
SYJ7□4-□□M□□□<sup>01</sup>□□<sup>02</sup>□

**DIN terminal (D, Y):**  
SYJ7□4-□□<sup>D</sup>□□□□<sup>01</sup>□□<sup>02</sup>□

**M8 connector (WO):**  
SYJ7□4-□□WO□□□□<sup>01</sup>□□<sup>02</sup>□



\* Refer to page 1217 for dimensions with connector cable.

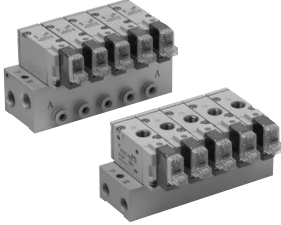
<b>SYJ</b>
<b>VQZ</b>
<b>VP</b>
<b>VG</b>
<b>VP3</b>



# SYJ700 Series Manifold Specifications



## Manifold Specifications



Model	For internal pilot	Type 20	Type 21	Type 40	Type 41	Type 42
	For external pilot	—	Type 21R	—	Type 41R	Type 42R
<b>Manifold type</b>		Single base/B mount				
<b>P (SUP), R (EXH)</b>		Common SUP, common EXH				
<b>Valve stations</b>		2 to 20 stations				
<b>A port Porting specifications</b>	<b>Location</b>	Valve	Valve	Base	Base	Base
	<b>Direction</b>	Top	Top	Bottom	Bottom	Side
<b>Port size</b>	<b>P, R port</b>	1/8	1/4	1/8	1/4	1/4
	<b>A port</b>	1/8	1/8	1/8	1/8	1/8 C6 (ø6 One-touch fitting) C8 (ø8 One-touch fitting)
	<b>X port</b> <small>Note)</small>	—	M3 x 0.8	—	M5 x 0.8	M5 x 0.8

Note) Only for external pilot

## Flow Rate Characteristics

Manifold			Port size		Flow rate characteristics					
					1→2 (P→A)			2→3 (A→R)		
			1(P), 3(R) port	2(A) port	C [dm <sup>3</sup> /(sbar)]	b	Cv	C [dm <sup>3</sup> /(sbar)]	b	Cv
Body ported for internal pilot	Type SS3YJ7-20	SYJ7□2	1/8	1/8	2.2	0.34	0.55	2.3	0.27	0.59
	Type SS3YJ7-21		1/4	1/8	2.2	0.39	0.59	2.4	0.32	0.62
	Type SS3YJ7-40		1/8	1/8	2.1	0.35	0.59	2.3	0.27	0.54
Base mounted for internal pilot	Type SS3YJ7-41	SYJ7□4	1/4	1/8	2.2	0.35	0.59	2.4	0.36	0.66
	Type SS3YJ7-42-01		1/4	1/8	2.0	0.27	0.47	2.2	0.32	0.56
	Type SS3YJ7-42-C6		1/4	C6	1.6	0.32	0.39	2.2	0.27	0.54
	Type SS3YJ7-42-C8		1/4	C8	2.1	0.24	0.51	2.3	0.31	0.59
Body ported for external pilot	Type SS3YJ7-21R	SYJ7□2R	1/4	1/8	2.2	0.34	0.55	2.4	0.32	0.62
	Type SS3YJ7-41R		1/4	1/8	2.2	0.35	0.59	2.4	0.36	0.66
Base mounted for external pilot	Type SS3YJ7-42R-01	SYJ7□4R	1/4	1/8	2.0	0.27	0.47	2.2	0.32	0.56
	Type SS3YJ7-42R-C6		1/4	C6	1.6	0.32	0.39	2.2	0.27	0.54
	Type SS3YJ7-42R-C8		1/4	C8	2.1	0.24	0.51	2.3	0.31	0.59

Note) Value at manifold base mounted, 2 position single operating

## How to Order Manifold (Example)

Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

(Example)

SS3YJ7-20-03 ..... 1 set (manifold base)                      SS3YJ7-42R-03-01 ..... 1 set (manifold base)

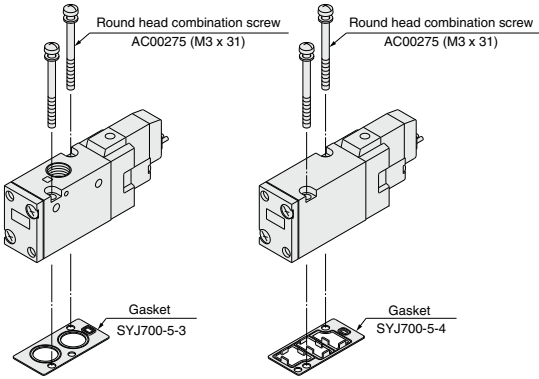
\* SYJ712-5LZ-01 ..... 2 sets (valve)                                      \* SYJ714R-5G ..... 2 sets (valve)

\* SYJ700-10-1A ..... 1 set (blanking plate assembly)                      \* SYJ700-10-2A ..... 1 set (blanking plate assembly)

↳ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

**Combinations of Solenoid Valve, Manifold Gasket and Manifold Base**

Body ported (Type SYJ7□2(-Q))    Base mounted (Type SYJ7□4(-Q))



**Applicable base**  
Type SS3YJ7-20(-Q)  
Type SS3YJ7-21(-Q)  
Type SS3YJ7-21R(-Q) } Manifold base

**Applicable base Sub-plate**  
Type SS3YJ7-40(-Q)  
Type SS3YJ7-41(-Q)  
Type SS3YJ7-42(-Q)  
Type SS3YJ7-41R(-Q)  
Type SS3YJ7-42R(-Q) } Manifold base

**Caution**

**Mounting screw tightening torques**

**M3: 0.8 N-m**

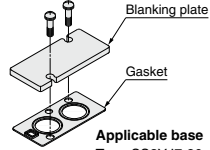
**Use caution to the assembly orientation for solenoid valves, gasket and optional parts.**

**Blanking Plate Assembly**

<Standard>

**Part no.: SYJ700-10-1A**

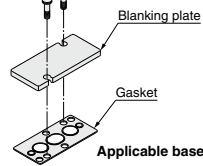
- For body ported
- For base mounted



**Applicable base**  
Type SS3YJ7-20  
Type SS3YJ7-21  
Type SS3YJ7-21R } Manifold base

**Part no.: SYJ700-10-2A**

- For base mounted



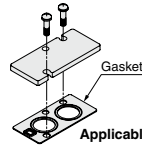
**Applicable base**  
Type SS3YJ7-40  
Type SS3YJ7-41  
Type SS3YJ7-42  
Type SS3YJ7-41R  
Type SS3YJ7-42R } Manifold base

Note) It can be mounted on a body ported manifold base. However, when mounting a blanking part to a valve, place an order for a separate gasket (SYJ700-5-3) when placing an order for the valve.

When using the SYJ700-10-1A, a gasket for this blanking plate assembly can be used as a gasket for the valve as well.

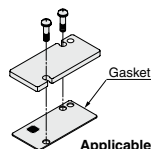
<CE-compliant>

**Part no.: SYJ700-10-2A-1-Q**



**Applicable base**  
Type SS3YJ7-20-Q  
Type SS3YJ7-21-Q  
Type SS3YJ7-21R-Q } Manifold base

**Part no.: SYJ700-10-2A-2-Q**



**Applicable base**  
Type SS3YJ7-40-Q  
Type SS3YJ7-41-Q  
Type SS3YJ7-42-Q  
Type SS3YJ7-41R-Q  
Type SS3YJ7-42R-Q } Manifold base

**SYJ**

**VQZ**

**VP**

**VG**

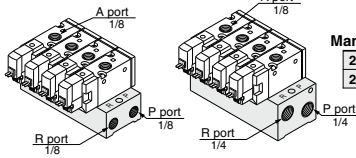
**VP3**

# SYJ700 Series

Note) AC-type models that are CE-compliant have DIN terminals only. [Option]

## Manifold for Internal Pilot Type

### Type 20/Type 21



How to Order

**SS3YJ7 - 20 - 05 - [ ] - [ ]**

Manifold type

20	Type 20
21	Type 21

Stations

02	2 stations
:	:
20	20 stations

P, R port thread type

Nil	Rc
00F	G
00N	NPT
00T	NPTF

CE-compliant

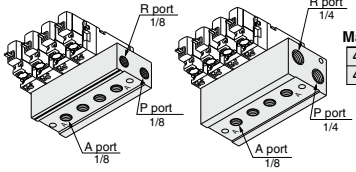
Nil	—
Q	CE-compliant

Applicable solenoid valve  
 SYJ712-□□□□-01(-Q)  
 SYJ712M-□□□□-01(-Q)  
 SYJ722-□□□□-01(-Q)  
 SYJ722M-□□□□-01(-Q)

Applicable blanking plate assembly  
 Refer to page 1199.

Note) If there are more than 6 stations for type 20, or more than 9 stations for type 21, supply air to both sides of P port and exhaust air from both sides of R port.

### Type 40/Type 41



How to Order

**SS3YJ7 - 40 - 05 - 01 - [ ] - [ ]**

Manifold type

40	Type 40
41	Type 41

Stations

02	2 stations
:	:
20	20 stations

P, R port thread type

Nil	Rc
F	G
N	NPT
T	NPTF

CE-compliant

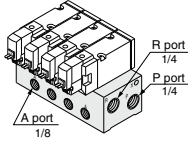
Nil	—
Q	CE-compliant

Applicable solenoid valve  
 SYJ714-□□□□(-Q)  
 SYJ714M-□□□□(-Q)  
 SYJ724-□□□□(-Q)  
 SYJ724M-□□□□(-Q)

Applicable blanking plate assembly  
 Refer to page 1199.

Note) If there are more than 6 stations for type 40, or more than 9 stations for 41 type, supply air to both sides of P port and exhaust air from both sides of R port.

### Type 42



How to Order

**SS3YJ7 - 42 - 05 - C6 - [ ] - [ ]**

Stations

02	2 stations
:	:
20	20 stations

A port size

01	1/8
C6	ø6 One-touch fitting
C8	ø8 One-touch fitting
N7	ø1/4" One-touch fitting
N9	ø5/16" One-touch fitting

P, R port thread type

Nil	Rc
F	G
N	NPT
T	NPTF

CE-compliant

Nil	—
Q	CE-compliant

Applicable solenoid valve  
 SYJ714-□□□□(-Q)  
 SYJ714M-□□□□(-Q)  
 SYJ724-□□□□(-Q)  
 SYJ724M-□□□□(-Q)

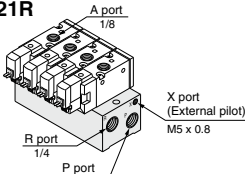
Applicable blanking plate assembly  
 Refer to page 1199.

Note) For more than 9 stations, supply air to both sides of P port and exhaust air from both sides of R port.

## Manifold for External Pilot Type

Pilot valve pressure is supplied separately from the main valve pressure through the use of a separate supply port. It can be used in the vacuum (up to -100 kPa) or low pressure line with 0.15 MPa or less.

### Type 21R



How to Order

**SS3YJ7 - 21R - 05 - [ ] - [ ]**

Stations

02	2 stations
:	:
20	20 stations

P, R port thread type

Nil	Rc
00F	G
00N	NPT
00T	NPTF

CE-compliant

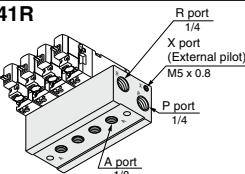
Nil	—
Q	CE-compliant

Applicable solenoid valve  
 SYJ712R-□□□□-01(-Q)  
 SYJ722R-□□□□-01(-Q)

Applicable blanking plate assembly  
 Refer to page 1199.

Note) For more than 9 stations, supply/exhaust air to/from both sides of P and R port.

### Type 41R



How to Order

**SS3YJ7 - 41R - 05 - 01 - [ ] - [ ]**

Stations

02	2 stations
:	:
20	20 stations

P, R port thread type

Nil	Rc
F	G
N	NPT
T	NPTF

CE-compliant

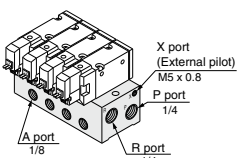
Nil	—
Q	CE-compliant

Applicable solenoid valve  
 SYJ714R-□□□□(-Q)  
 SYJ724R-□□□□(-Q)

Applicable blanking plate assembly  
 Refer to page 1199.

Note) For more than 9 stations, supply/exhaust air to/from both sides of P and R port.

### Type 42R



How to Order

**SS3YJ7 - 42R - 05 - 01 - [ ] - [ ]**

Stations

02	2 stations
:	:
20	20 stations

A port size

01	1/8
C6	ø6 One-touch fitting
C8	ø8 One-touch fitting
N7	ø1/4" One-touch fitting
N9	ø5/16" One-touch fitting

P, R port thread type

Nil	Rc
F	G
N	NPT
T	NPTF

CE-compliant

Nil	—
Q	CE-compliant

Applicable solenoid valve  
 SYJ714R-□□□□(-Q)  
 SYJ724R-□□□□(-Q)

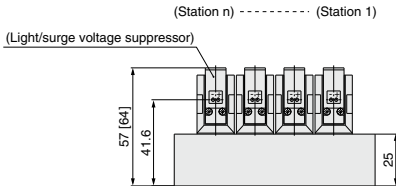
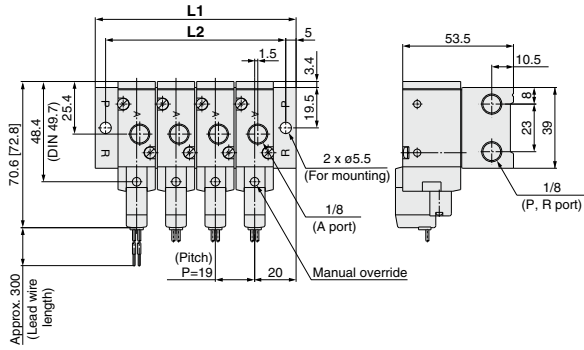
Applicable blanking plate assembly  
 Refer to page 1199.

Note) For more than 9 stations, supply/exhaust air to/from both sides of P and R port.

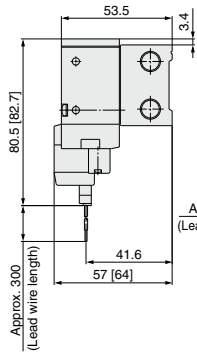
**Type 20 Manifold: Top Ported/SS3YJ7-20- Stations (-00□)**

\* [ ] for AC

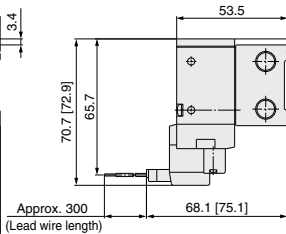
**Grommet (G)**



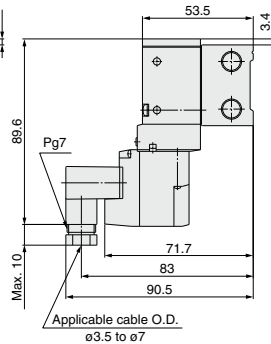
**L plug connector (L)**



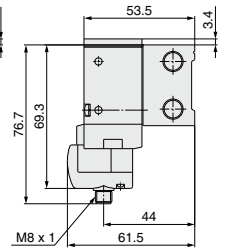
**M plug connector (M)**



**DIN terminal (D, Y)**



**M8 connector (WO)**



\* Refer to page 1217 for dimensions with connector cable.

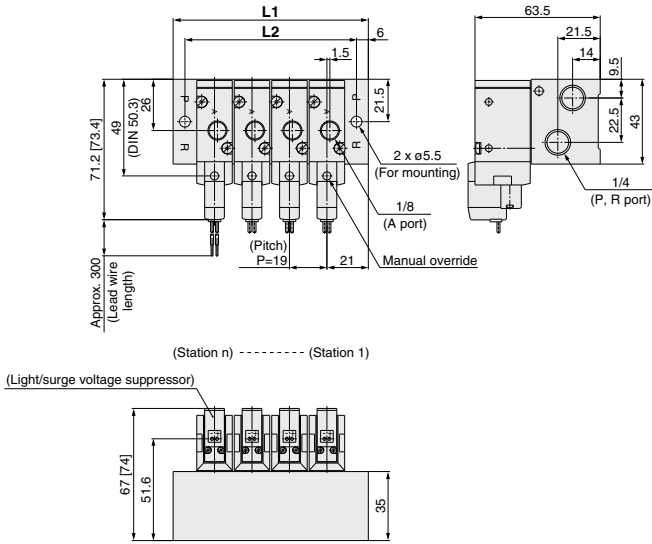
Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
<b>L1</b>	59	78	97	116	135	154	173	192	211	230	249	268	287	306	325	344	363	382	401
<b>L2</b>	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

# SYJ700 Series

## Type 21 Manifold: Top Ported/SS3YJ7-21-Stations (-00□)

\* [ ] for AC

### Grommet (G)

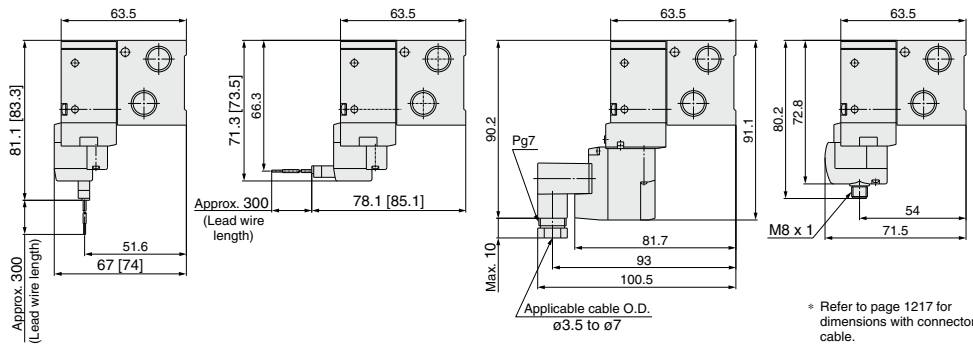


### L plug connector (L)

### M plug connector (M)

### DIN terminal (D, Y)

### M8 connector (WO)

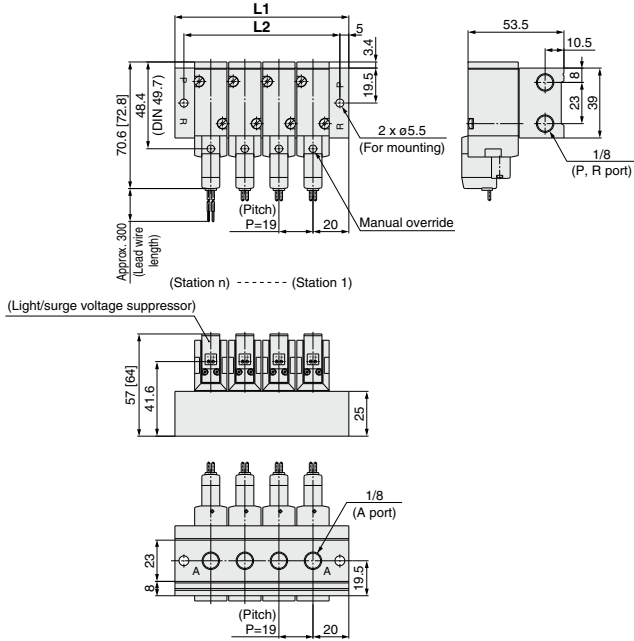


Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
L1	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
L2	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

Type 40 Manifold: Bottom Ported/SS3YJ7-40-Stations-01□

\* [ ] for AC

Grommet (G)

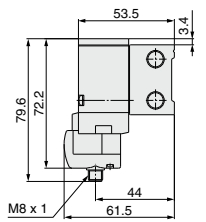
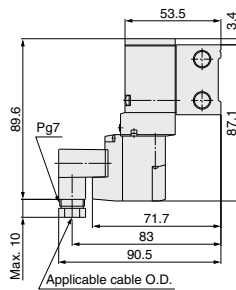
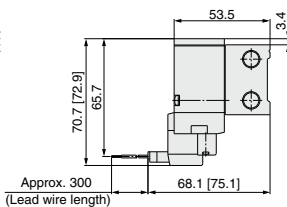
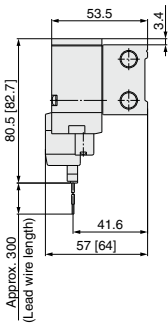


L plug connector (L)

M plug connector (M)

DIN terminal (D, Y)

M8 connector (WO)



\* Refer to page 1217 for dimensions with connector cable.

Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
L1	59	78	97	116	135	154	173	192	211	230	249	268	287	306	325	344	363	382	401
L2	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

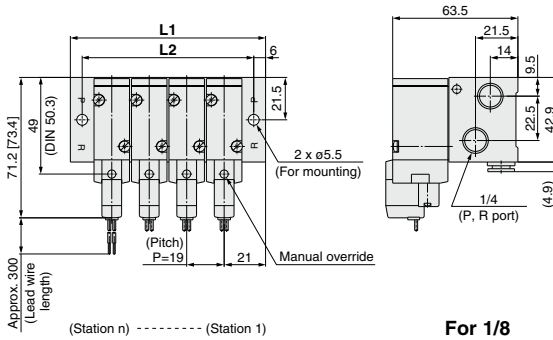
# SYJ700 Series

Type 42 Manifold: Side Ported/SS3YJ7-42-**Stations**-01,  C6,  N7,  C8,  N9

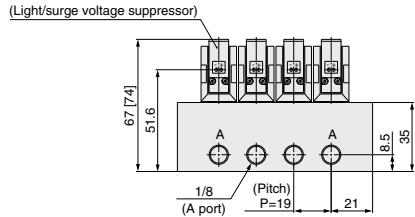
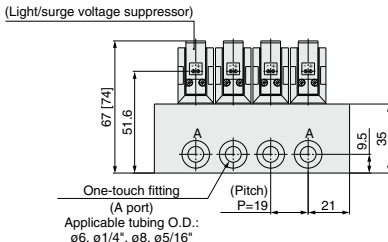
\* [ ] for AC

## Grommet (G)

For  C6,  N7,  C8,  N9 (Built-in One-touch fitting)



For 1/8

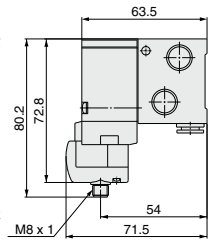
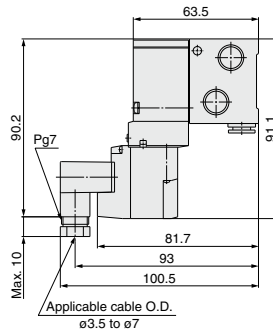
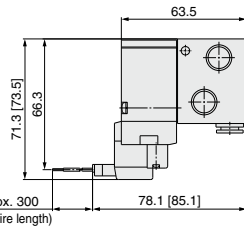
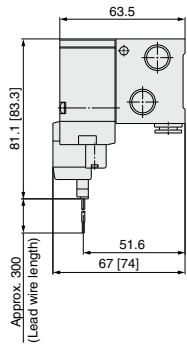


## L plug connector (L)

## M plug connector (M)

## DIN terminal (D, Y)

## M8 connector (WO)



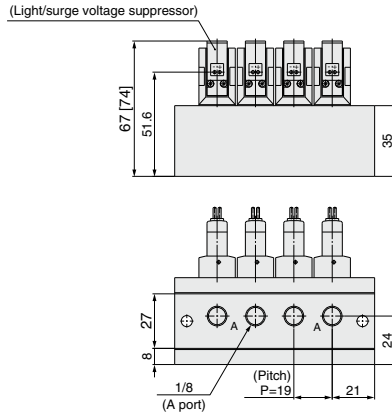
\* Refer to page 1217 for dimensions with connector cable.

Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
L1	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
L2	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

**Type 41 Manifold: Bottom Ported/SS3YJ7-41- Stations -01** □

\* [ ] for AC

**Grommet (G)**



\* Other dimensions are the same as type 42.  
For dimensions, refer to page 1204.

<b>SYJ</b>
<b>VQZ</b>
<b>VP</b>
<b>VG</b>
<b>VP3</b>

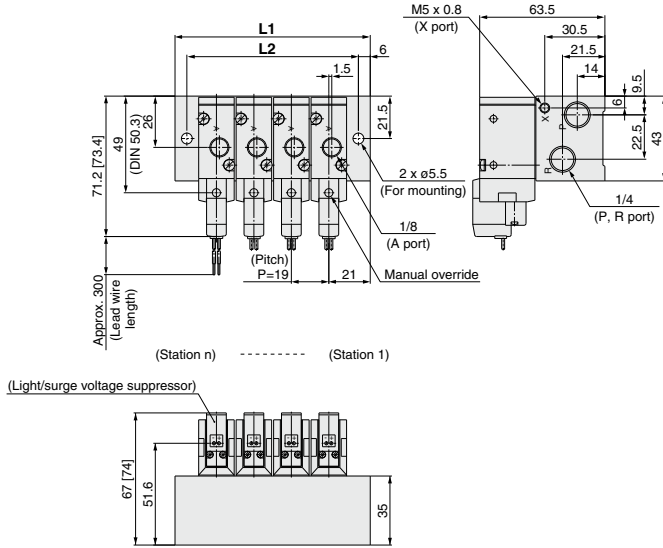


# SYJ700 Series

## Type 21R Manifold: Top Ported (External Pilot Type)/SS3YJ7-21R- Stations (-00□)

\* [ ] for AC

### Grommet (G)

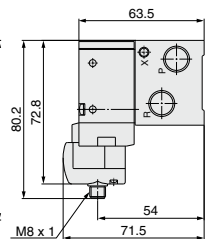
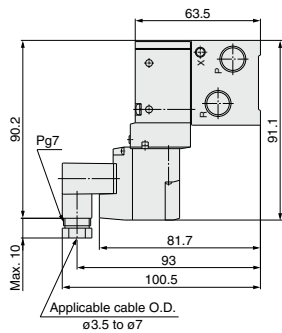
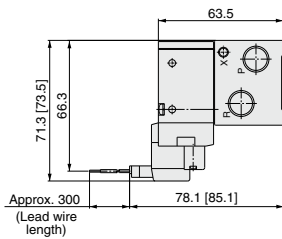
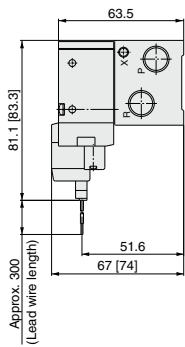


### L plug connector (L)

### M plug connector (M)

### DIN terminal (D)

### M8 connector (WO)



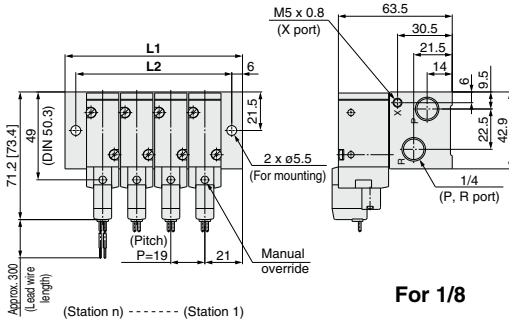
\* Refer to page 1217 for dimensions with connector cable.

Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
L1	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
L2	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

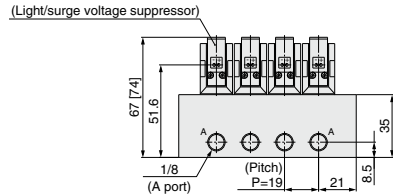
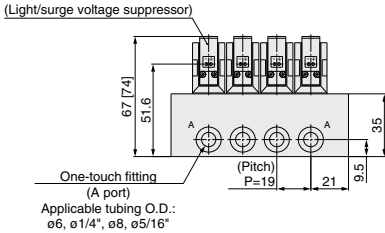
Type 42R Manifold: Side Ported/SS3YJ7-42R-**Stations**-01, C6 N7  
C8, N9

\* [ ] for AC

**Grommet (G)**



**For 1/8**

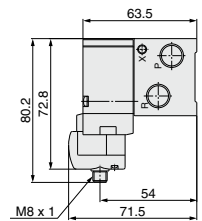
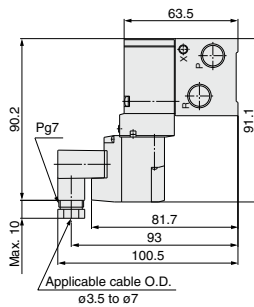
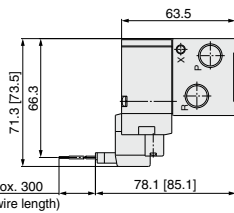
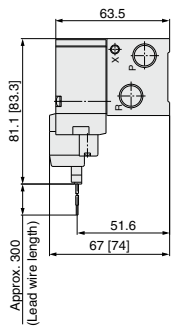


**L plug connector (L)**

**M plug connector (M)**

**DIN terminal (D)**

**M8 connector (WO)**



\* Refer to page 1217 for dimensions with connector cable.

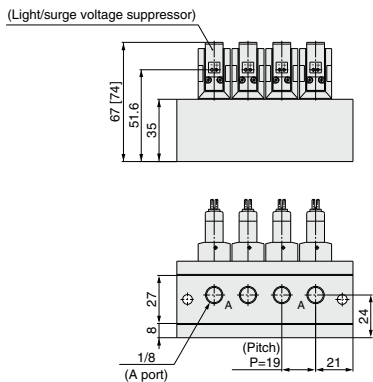
Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
<b>L1</b>	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
<b>L2</b>	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

# SYJ700 Series

## Type 41R Manifold: Bottom Ported (External Pilot Type)/SS3YJ7-41R-Stations-01□

\* [ ] for AC

### Grommet (G)



\* Other dimensions are the same as type 42R.  
For dimensions, refer to page 1207.

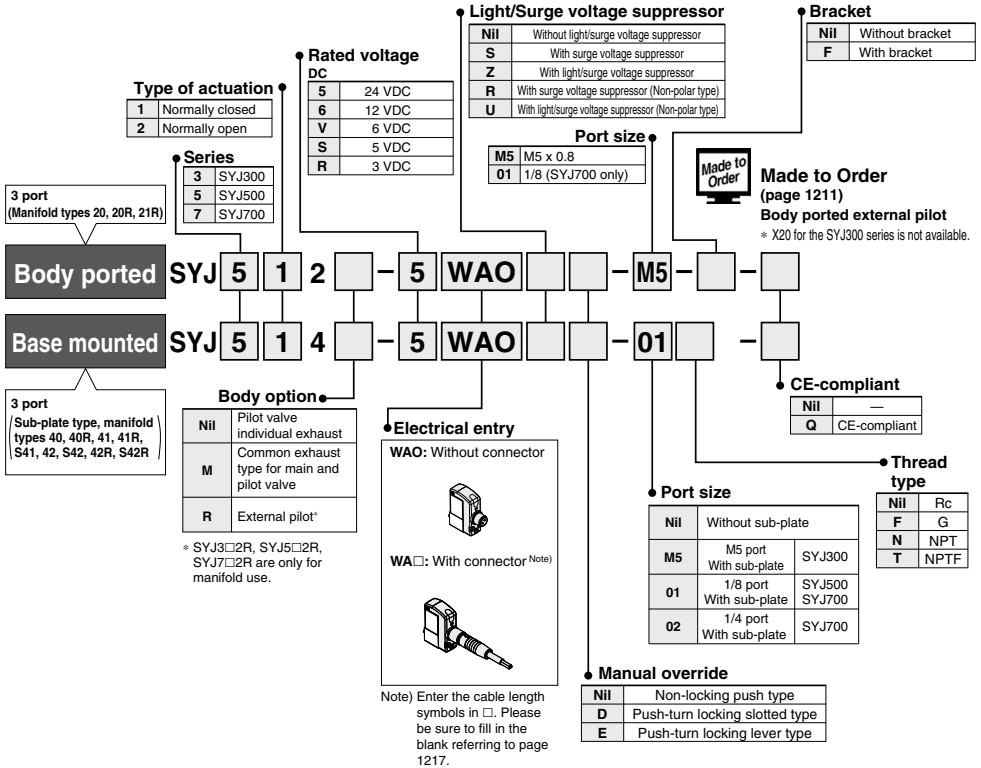
# M8 Connector Conforming to IEC60947-5-2

## SYJ300/500/700 Series

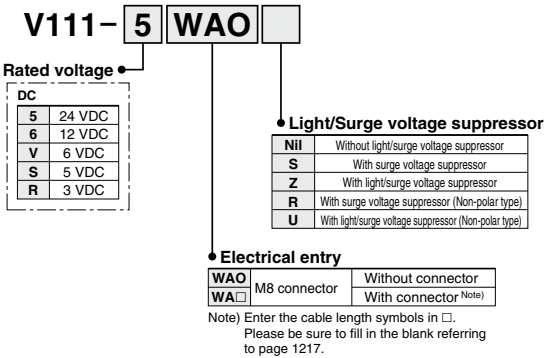
### Made to Order



### How to Order Valve



### How to Order Pilot Valve Assembly



Note) Since V111 is CE-compliant as standard, the suffix "Q" is not necessary.



# SYJ500/700 Series

## Made to Order

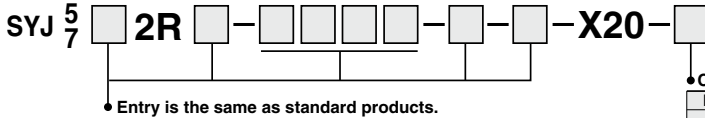
For detailed specifications, delivery and pricing, please contact SMC.



Note) AC-type models that are CE-compliant have DIN terminals only.

### Body Ported External Pilot

How to Order Applicable solenoid valve series/SYJ5□2R, SYJ7□2R



• CE-compliant

NII	—
Q	CE-compliant

Note) AC-type models that are CE-compliant have DIN terminals only.

#### Operating Pressure Range MPa

Operating pressure range	-100 kPa to 0.7
Pilot pressure range	0.15 to 0.7

#### Dimensions

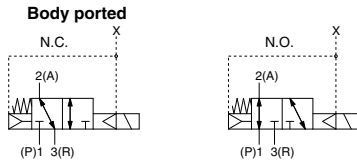
SYJ500: 8 mm longer in total length

SYJ700: 8 mm longer in total length

#### External Pilot Port

Series	Port size
SYJ500, SYJ700	M5 x 0.8

#### Symbol



SYJ

VQZ

VP

VG

VP3





# SYJ300/500/700 Series

## Specific Product Precautions 1

Be sure to read this before handling the products.

Refer to back page 50 for Safety Instructions and pages 3 to 9 for 3/4/5 Port Solenoid Valve Precautions.

### Manual Override Operation

#### Warning

When the manual override is operated, connected equipment will be actuated. Confirm safety before operating.

#### ■ Non-locking push type [Standard]

Press in the direction of the arrow



#### ■ Push-turn slotted locking type [Type D]

While pressing, turn in the direction of the arrow.

If it is not turned, it can be operated the same way as the non-locking type.



Locked position



#### Caution

When operating the locking type D with a screw driver, turn it gently using a watchmakers screw driver. [Torque: Less than 0.1 N·m]

#### ■ Push-turn locking lever type [Type E]

While pressing, turn in the direction of the arrow.

If it is not turned, it can be operated the same way as the non-locking type.



Locked position



#### Caution

When locking the manual override on the push-turn locking types (D, E), be sure to push it down before turning. Turning without first pushing it down can cause damage to the manual override and trouble such as air leakage, etc.

### Solenoid Valve for 200, 220 VAC Specifications

#### Warning

Solenoid valves with grommet and L/M type plug connector AC specifications have a built-in rectifier circuit in the pilot section to operate the DC coil.

With 200, 220 VAC specification pilot valves, this built-in rectifier generates heat when energized. The surface may become hot depending on the energized condition; therefore, do not touch the solenoid valves.

### Common Exhaust Type for Main and Pilot Valve

#### Caution

Pilot air is exhausted through the main valve body rather than directly to atmosphere.

- Suitable for applications where exhausting the pilot valve to atmosphere would be detrimental to the surrounding working environment.
- For use in extremely dirty environments where there is the possibility that dust could enter the pilot exhaust and damage the valve.

Ensure that the piping of exhaust air is not too restrictive.

### Bracket

#### Caution

For bracket attached types of SYJ300, do not use it without bracket.



# SYJ300/500/700 Series Specific Product Precautions 2

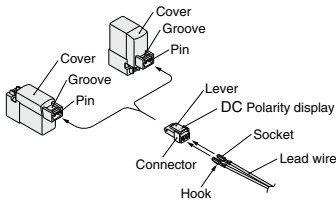
Be sure to read this before handling the products.  
Refer to back page 50 for Safety Instructions and pages 3 to 9 for 3/4/5 Port Solenoid Valve Precautions.

## How to Use Plug Connector

### ⚠ Caution

#### 1. Attaching and detaching connectors

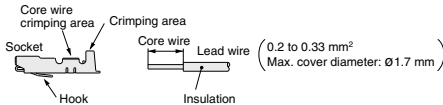
- To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.
- To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb, and pull the connector straight out.



#### 2. Crimping of lead wires and sockets

Strip 3.2 to 3.7 mm at the end of the lead wires, insert the ends of the core wires evenly into the sockets, and then crimp with a crimping tool. When this is done, take care that the coverings of the lead wires do not enter the core wire crimping area.

Use an exclusive crimping tool for crimping.  
(Contact SMC for special crimping tools.)



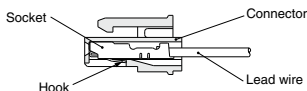
#### 3. Attaching and detaching sockets with lead wires

##### • Attaching

Insert the sockets into the square holes of the connector (+, - indication), and continue to push the sockets all the way in until they lock by hooking into the seats in the connector. (When they are pushed in, their hooks open and they are locked automatically.) Then confirm that they are locked by pulling lightly on the lead wires.

##### • Detaching

To detach a socket from a connector, pull out the lead wire while pressing the socket's hook with a stick having a thin tip (approx. 1 mm). If the socket will be used again, first spread the hook outward.



## Plug Connector Lead Wire Length

### ⚠ Caution

Standard length is 300 mm, but the following lengths are also available.

#### How to Order Connector Assembly

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

Include the connector assembly part number together with the part number for the plug connector's solenoid valve without connector.

EX.) In case of 2000 mm of lead wire

<b>For DC</b>	<b>For AC</b>
SYJ312-5LO-M3	SYJ312-1LO-M3
SY100-30-4A-20	SY100-30-1A-20

SYJ

VQZ

VP

VG

VP3



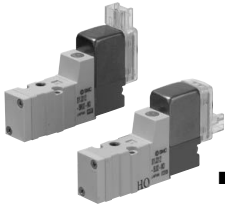
# SYJ300/500/700 Series Specific Product Precautions 3

Be sure to read this before handling the products.  
Refer to back page 50 for Safety Instructions and pages 3 to 9 for 3/4/5 Port Solenoid Valve Precautions.

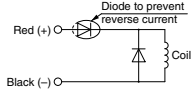
## Surge Voltage Suppressor

### Caution

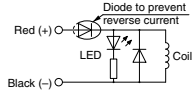
<For DC>  
Grommet, L/M Plug Connector



#### ■ Standard type (with polarity) Surge voltage suppressor (□S)

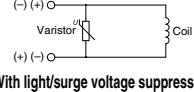


#### With light/surge voltage suppressor (□Z)

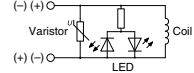


#### ■ Non-polar type

#### With surge voltage suppressor (□R)



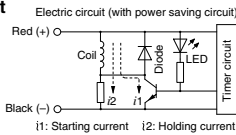
#### With light/surge voltage suppressor (□U)



- Connect the standard type in accordance with the +, - polarity indication. (The non-polar type can be used with the connections made either way.)
- Since voltage specifications other than standard 24 and 12 VDC do not have diodes for polarity protection, be careful not to make errors in the polarity.
- When wiring is done at the factory, positive (+) is red and negative (-) is black.

#### ■ With power saving circuit

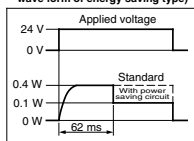
Power consumption is decreased by 1/4 by reducing the wattage required to hold the valve in an energized state. (Effective energizing time is over 62 ms at 24 VDC.)



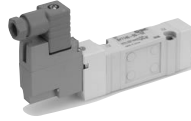
### Operating Principle

With the above circuit, the current consumption when holding is reduced to save energy. Please refer to the electric wave data to the right.  
• Please be careful not to reverse the polarity, since a diode to prevent the reversed current is not provided for the power saving circuit.

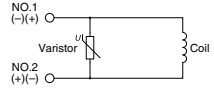
(In the case of SYJ□□□□□, the electric wave form of energy saving type)



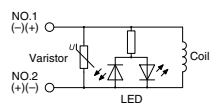
### DIN Terminal



#### With surge voltage suppressor (DS)



#### With light/surge voltage suppressor (DZ)

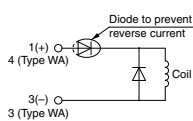


DIN terminal has no polarity.

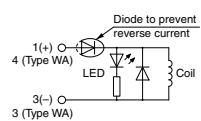
### M8 Connector

#### ■ Standard type (with polarity)

#### With light/surge voltage suppressor (□S)

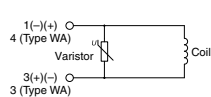


#### With light/surge voltage suppressor (□Z)

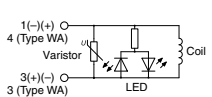


#### ■ Non-polar type

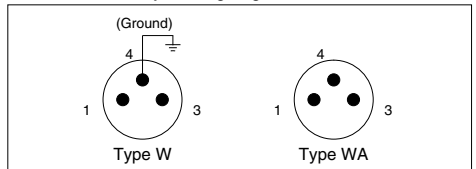
#### With surge voltage suppressor (□R)



#### With light/surge voltage suppressor (□U)



### Solenoid valve side pin wiring diagram



- For the standard type, connect + to 1 and - to 3 for Type W according to polarity, while + to 4 and - to 3 for Type WA.
- Please be careful not to reverse the polarity, since a diode to prevent the reversed current is not provided for DC voltages other than 24 and 12 VDC.
- The WA-type valve cannot be grounded.





# SYJ300/500/700 Series Specific Product Precautions 4

Be sure to read this before handling the products.  
Refer to back page 50 for Safety Instructions and pages 3 to 9 for 3/4/5 Port Solenoid Valve Precautions.

## Surge Voltage Suppressor

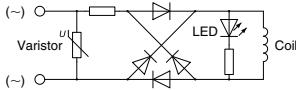
<For AC>

(There is no "S" type because the generation of surge voltage is prevented by a rectifier.)

### ⚠ Caution

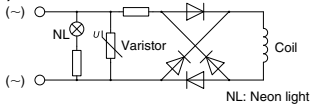
#### Grommet, L/M Plug Connector

With light (□Z)



#### DIN Terminal

With light (DZ)



Note) Surge voltage suppressor of varistor has residual voltage corresponding to the protective element and rated voltage; therefore, protect the controller side from the surge. The residual voltage of the diode is approximately 1 V.

## DIN Terminal Type Y

A type Y DIN connector is a DIN connector conforming to the 8-mm standard pitch between DIN terminals.

### ⚠ Caution

- Since a type D DIN connector has a 9.4-mm pitch between DIN terminals, it is not interchangeable.
- Type D DIN connectors have the "N" indication at the end of rated voltage symbol. (For DIN connectors without lights, "N" is not indicated. Please refer to the name plate to distinguish.)
- Dimensions are the same as type D DIN connector.
- When replacing only the pilot valve assembly, V115-□D is interchangeable with V115-□Y. Do not replace V111 (G, H, L, M, W) to V115-□Y (DIN terminal), or vice versa.

## How to Use DIN Terminal

### ⚠ Caution

#### Connection

1. Loosen the holding screw and pull the connector out of the solenoid valve terminal block.
2. After removing the holding screw, insert a flat head screwdriver, etc. into the notch on the bottom of the terminal block and pry it open, separating the terminal block and the housing.
3. Loosen the terminal screws (slotted screws) on the terminal block, insert the cores of the lead wires into the terminals according to the connection method, and fasten them securely with the terminal screws.

## How to Use DIN Terminal

### ⚠ Caution

4. Secure the cord by fastening the ground nut.

### ⚠ Caution

When making connections, take note that using other than the supported size ( $\phi 3.5$  to  $\phi 7$ ) heavy duty cord will not satisfy IP65 (enclosure) standards. Also, be sure to tighten the ground nut and holding screw within their specified torque ranges.

### Changing the entry direction

After separating the terminal block and housing, the cord entry can be changed by attaching the housing in the desired direction (4 directions at 90° intervals).

\* When equipped with a light, be careful not to damage the light with the cord's lead wires.

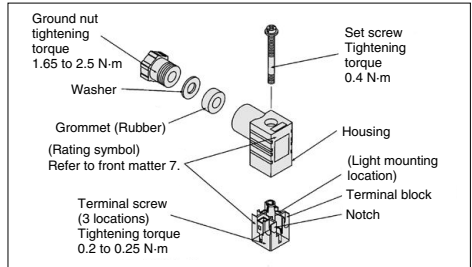
### Precautions

Plug in and pull out the connector vertically without tilting to one side.

### Compatible cable

Cord O.D.:  $\phi 3.5$  to  $\phi 7$

(Reference) 0.5 mm<sup>2</sup>, 2-core or 3-core, equivalent to JIS C 3306



## Solenoid Valve Mounting

### ⚠ Caution

Mount it so that there is no slippage or deformation in gaskets, and tighten with the tightening torque as shown below.

Model	Thread size	Tightening torque
SYJ300	M1.7	0.12 N-m
SYJ500	M2.5	0.45 N-m
SYJ700	M3	0.8 N-m

SYJ

VQZ

VP

VG

VP3



# SYJ300/500/700 Series Specific Product Precautions 5

Be sure to read this before handling the products.  
Refer to back page 50 for Safety Instructions and pages 3 to 9 for 3/4/5 Port Solenoid Valve Precautions.

## DIN Connector Part No.

### ⚠ Caution

#### <Type D>

Without light	SY100-61-1
---------------	------------

#### With light

Rated voltage	Voltage symbol	Part no.
24 VDC	24 V	SY100-61-3-05
12 VDC	12 V	SY100-61-3-06
100 VAC	100 V	SY100-61-2-01
200 VAC	200 V	SY100-61-2-02
110 VAC	110 V	SY100-61-2-03
220 VAC	220 V	SY100-61-2-04

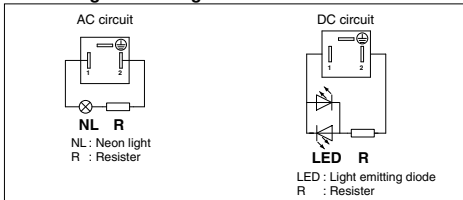
#### <Type Y>

Without light	SY100-82-1
---------------	------------

#### With light

Rated voltage	Voltage symbol	Part no.
DC24 V	24 VN	SY100-82-3-05
DC12 V	12 VN	SY100-82-3-06
100 VAC	100 VN	SY100-82-2-01
200 VAC	200 VN	SY100-82-2-02
110 VAC(115 VAC)	110 VN	SY100-82-2-03
220 VAC(230 VAC)	220 VN	SY100-82-2-04

#### Circuit Diagram with Light



## Connector Assembly with Cover

### ⚠ Caution

#### Connector assembly with dust proof protective cover.

- Effective to prevention of short circuit failure due to the entry of foreign matter into the connector.
- Chloroprene rubber for electrical use, which provides outstanding weather resistance and electrical insulation, is used for the cover material. However, do not allow contact with cutting oil oil, etc.
- Simple and unencumbered appearance by adopting round-shaped cord.

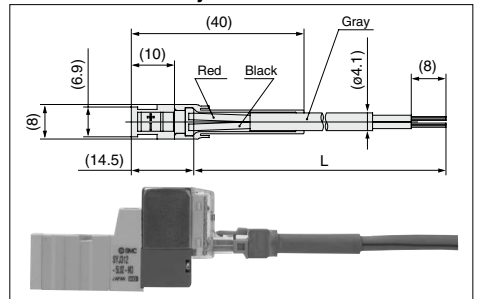
#### How to Order

SY100-68-A-

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

#### Connector Assembly with Cover: Dimensions



#### How to Order

Enter the part number for a plug connector solenoid valve without connector together with the part number for a connector assembly with cover.

- Ex. 1) Lead wire length of 2000 mm  
SYJ312-5LOZ-M3  
SY100-68-A-20
- Ex. 2) Lead wire length of 300 mm (standard)  
SYJ312-5LPZ-M3

Symbol for connector assembly with cover

\* In this case, the part number for the connector assembly with cover is not required.



# SYJ300/500/700 Series Specific Product Precautions 6

Be sure to read this before handling the products.  
Refer to back page 50 for Safety Instructions and pages 3 to 9 for 3/4/5 Port Solenoid Valve Precautions.

## M8 Connector

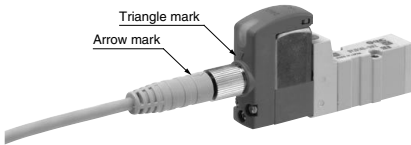
### ⚠ Caution

- M8 connector types have an IP65 (enclosure) rating, offering protection from dust and water. However please note: these products are not intended for use in water. Select a SMC connector cable (V100-49-1-□) or a FA sensor type connector, with M8 threaded 3 pin specifications conforming to Nippon Electric Control Equipment Association Standard, NECA4202 (IEC60947-5-2). Make sure the connector O.D. is 10.5 mm or less when used with the SYJ300 series manifold. If more than 10.5 mm, it cannot be mounted due to the size.
- Do not use a tool to mount the connector, as this may cause damage. Only tighten by hand. (0.4 to 0.6 N-m)
- The excessive stress on the cable connector will not be able to satisfy the IP65 rating. Please use caution and do not apply a stress of 30 N or greater.

### ⚠ Caution

Failure to meet IP65 performance may result if using alternative connectors than those shown above, or when insufficiently tightened.

#### • Connector cable mounting



Note) Connector cable should be mounted in the correct direction. Make sure that the arrow symbol on the connector is facing the triangle symbol on the valve when using SMC connector cable (V100-49-1-□). Be careful not to squeeze it in the wrong direction, as problems such as pin damage may occur.

#### ■ Connector cable

- Connector cable for M8 can be ordered as follows:

#### How to Order

- To order solenoid valve and connector cable at the same time.

(Connector cable will be included in the shipment of the solenoid valve.)

SYJ  $\frac{3}{5}$  □ □ □ - □ □ □ □ - □ □

#### Electrical entry

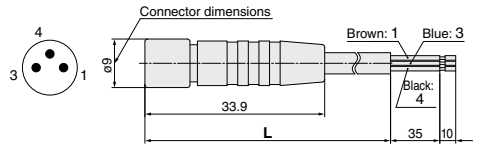
- W1, WA1: Cable length 300 mm
- W2, WA2: Cable length 500 mm
- W3, WA3: Cable length 1000 mm
- W4, WA4: Cable length 2000 mm
- W7, WA7: Cable length 5000 mm

- Ex. 1) Cable length: 300 mm

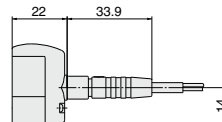
SYJ312-5W1ZE-M3

↳ Symbol for electrical entry

- To order connector cable only



Cable length (L)	Part no.
300 mm	V100-49-1-1
500 mm	V100-49-1-2
1000 mm	V100-49-1-3
2000 mm	V100-49-1-4
5000 mm	V100-49-1-7



SYJ

VQZ

VP

VG

VP3



# SYJ300/500/700 Series Specific Product Precautions 7

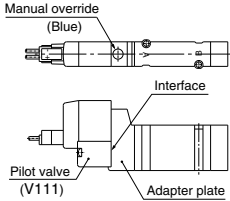
Be sure to read this before handling the products.  
Refer to back page 50 for Safety Instructions and pages 3 to 9 for 3/4/5 Port Solenoid Valve Precautions.

## Replacement of Pilot Valve

### Caution

Pilot valves in this series are improved to provide excellent energy saving results. However following this improvement, these new valves are no longer compatible with the current pilot valve used at the interface. Consult with SMC when you need to exchange these pilot valves, in the case of manual override (marked in orange) of the adapter plate.

#### New type



#### Current type

