

# 3 Port Solenoid Valve

## Series SYJ300/500/700



V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

VFN



**Cover** (stainless steel)

### Improved pilot valve

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


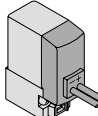
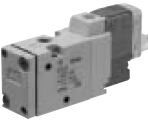
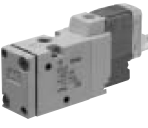




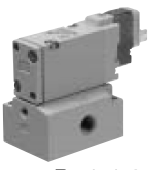
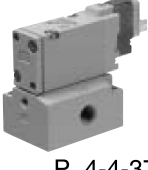
### Flow Characteristics


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

# 3 Port Solenoid Valve Rubber Seal

# Series 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
							With light/surge voltage suppressor	
<b>Body Ported</b>	<b>SYJ300</b>  P. 4-4-4	M3 x 0.5	Effective area 0.9 mm <sup>2</sup> { 2 → 3 } {(A → R)}	• N.C. • N.O.	<b>For DC</b> ■ 24 VDC 12 VDC 6 VDC 5 VDC 3 VDC  <b>For AC</b> ■ 100 VAC <sup>50/60</sup> Hz 110 VAC <sup>50/60</sup> Hz 200 VAC <sup>50/60</sup> Hz 220 VAC <sup>50/60</sup> Hz	Grommet   L plug connector 	<b>For DC</b> ■ With surge voltage suppressor ■ With light/surge voltage suppressor  <b>For AC</b> (Note) ■ With light/surge voltage suppressor	■ Non-locking push type  ■ Push-turn locking slotted type  ■ Push-turn locking lever type
	<b>SYJ500</b>  P. 4-4-18	M5 x 0.8	0.66 { 2 → 3 } {(A → R)}					
	<b>SYJ700</b>  P. 4-4-37	1/8	2.5 { 2 → 3 } {(A → R)}					
<b>Base Mounted</b>	<b>SYJ300</b>  P. 4-4-4	M5 x 0.8	0.36 { 2 → 3 } {(A → R)}					
	<b>SYJ500</b>  P. 4-4-18	1/8	1.2 { 2 → 3 } {(A → R)}			DIN terminal  (SYJ500, 700 only)		
	<b>SYJ700</b>  P. 4-4-37	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>	Top	M5 x 0.8	● <sup>Note 1)</sup>	—	—	—	—	—	—	—
		Top	1/8	● <sup>Note 2)</sup>	—	—	—	—	—	—	—
	<b>SYJ500</b>	Top	1/8	—	●	—	—	—	—	—	—
		<b>SYJ700</b>	Top	1/8	—	—	● <sup>Note 1)</sup>	—	—	—	—
Top	1/4		—	—	●	—	—	—	—	—	
<b>Base Mounted</b>	<b>SYJ300</b>	Side	M5 x 0.8	● <sup>Note 1)</sup>	—	—	—	—	—	—	—
		Side	1/8	—	●	—	●	—	—	●	—
	<b>SYJ500</b>	Bottom	1/8	—	●	●	—	—	—	—	—
		Side		—	●	●	●	●	—	●	●
	<b>SYJ700</b>	Bottom	1/8	—	—	● <sup>Note 1)</sup>	—	—	—	—	—
		Bottom	1/4	—	—	●	—	—	—	—	—
		Side	1/4	—	—	●	—	●	●	—	●



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

V100

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VQ

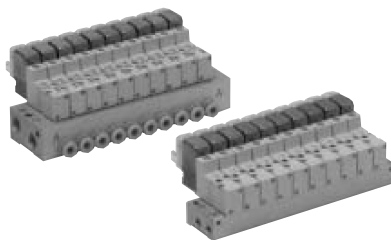
VKF

VQZ

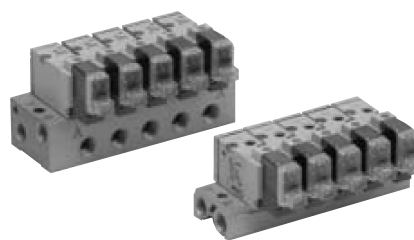
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VS

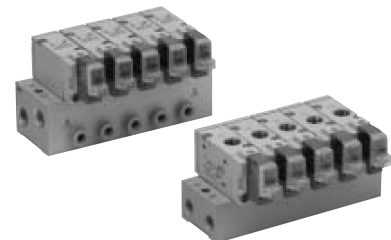
VFN



Series SYJ300



Series SYJ500

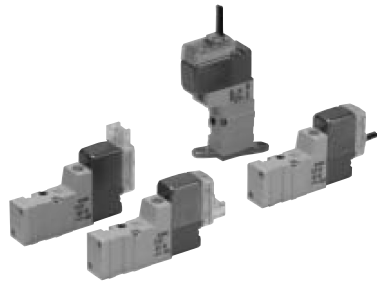


Series SYJ700

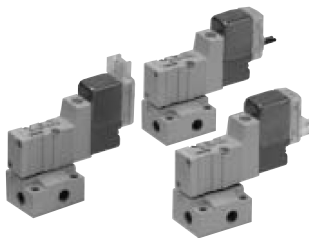


# 3 Port Pilot Operated Solenoid Valve Rubber Seal

## Series SYJ300



Body ported



Base mounted

### Specifications

Fluid		Air
Operating pressure range MPa	Internal pilot	0.15 to 0.7
Ambient and fluid temperature (°C)		-10 to 50 (No freezing. Refer to page 4-18-4.)
Response time ms (at 0.5 MPa) <sup>Note 1)</sup>		15 or less
Max. operating frequency (Hz)		10
Manual override (Manual operation)		Non-locking push type, push-turn locking slotted type, push-turn locking lever type
Pilot exhaust method		Individual exhaust for the pilot valve, common exhaust for the pilot and main valve
Lubrication		Not required
Mounting orientation		Unrestricted
Shock/Vibration resistance (m/s <sup>2</sup> ) <sup>Note 2)</sup>		150/30
Enclosure		Dustproof (* M8 connector conforms to IP65.)



\* Based on IEC529

Note 1) Based on dynamic performance test, JIS B 8374-1981. (Coil temperature: 20°C, at rated voltage, without surge voltage suppressor.)

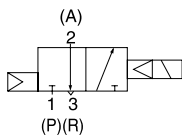
Note 2) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Value in the initial state)

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

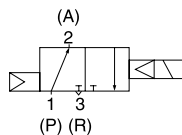
### JIS Symbol

Internal pilot

SYJ31 $\frac{2}{4}$

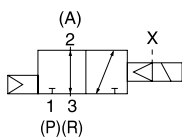


SYJ32 $\frac{2}{4}$

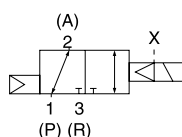


External pilot

SYJ31 $\frac{2}{4}$ R



SYJ32 $\frac{2}{4}$ R



### Solenoid Specifications

Electrical entry		Grommet (G), (H), L plug connector (L), M plug connector (M), M8 connector (W)	
Coil rated voltage (V)	DC	24, 12, 6, 5, 3	
	AC <sup>50/60</sup> Hz	100, 110, 200, 220	
Allowable voltage fluctuation		±10% of rated voltage	
Power consumption (W)	DC	Standard	0.35 (With indicator light: 0.4)
		With power saving circuit	0.1 (With indicator light only)
Apparent power (VA)	AC	100 V	1.4 (With indicator light: 1.5)
		110 V [115 V]	1.6 (With indicator light: 1.7) [1.7 (With indicator light: 1.8)]
		200 V	2.3 (With indicator light: 2.4)
		220 V [230 V]	2.5 (With indicator light: 2.6) [2.7 (With indicator light: 2.8)]
Surge voltage suppressor		Diode (varistor when non-polar types)	
Indicator light		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.



**Made to Order Specifications**  
(For details, refer to pages 4-4-54 to 55.)

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ300

## Flow Characteristics/Weight

Valve model		Type of actuation	Port size	Flow 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
				C [dm <sup>3</sup> /(s bar)]	b	Cv	C [dm <sup>3</sup> /(s bar)]	b	Cv				
Body ported	SYJ312	N.C.	M3 x 0.5	—	—	—	—	—	—	0.9	32	33	37
	SYJ322	N.O.		—	—	—	—	—	—				
Base mounted (with sub-plate)	SYJ314	N.C.	M5 x 0.8	0.41	0.18	0.086	0.35	0.33	0.086	—	53 (32)	54 (33)	58 (37)
	SYJ324	N.O.		0.36	0.31	0.089	0.36	0.31	0.089				



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

V100

SY

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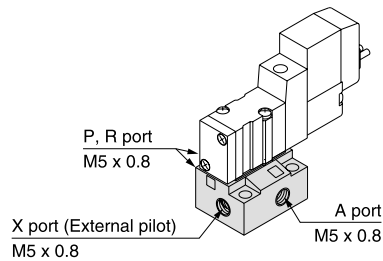
## External Pilot

### 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

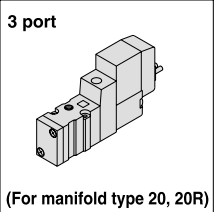


Note 1) For manifold base, refer to page 4-4-10.

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

## How to Order

**3 port**



(For manifold type 20, 20R)

**Type of actuation**

1	Normally closed
2	Normally open

**Rated voltage**

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

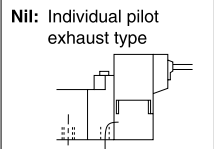
**Light/Surge voltage suppressor**

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.

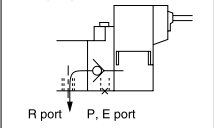
**Body option**

Nil: Individual pilot exhaust type



R port P, E port

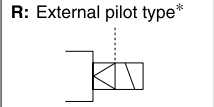
M: Common exhaust for the pilot and main valve



R port P, E port

(Pilot valve exhaust is centralized to main valve.)

R: External pilot type\*



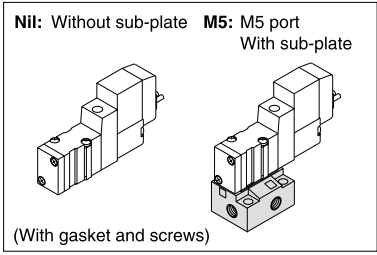
**Coil specifications**

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

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

**Port size**

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

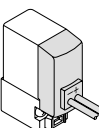
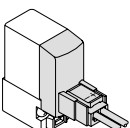
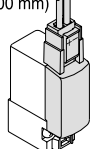
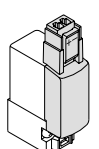
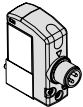
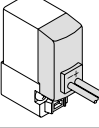
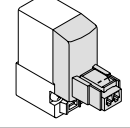
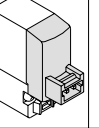
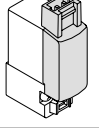


(With gasket and screws)

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

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

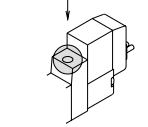
**Electrical entry**

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		
					

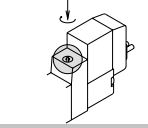
\* "LN," "MN" type: with 2 sockets.  
\* For connector cable of M8 connector, refer to page 4-4-60.

**Manual override**

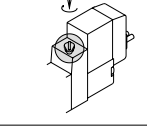
Nil: Non-locking push type



D: Push-turn locking slotted type



E: Push-turn locking lever type

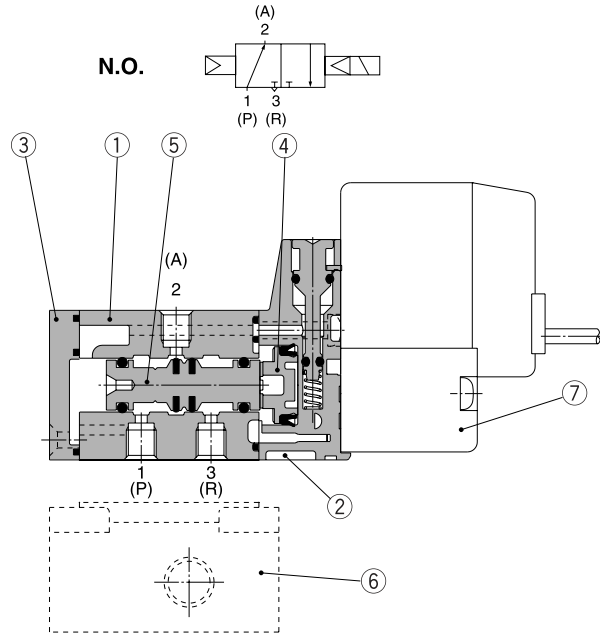
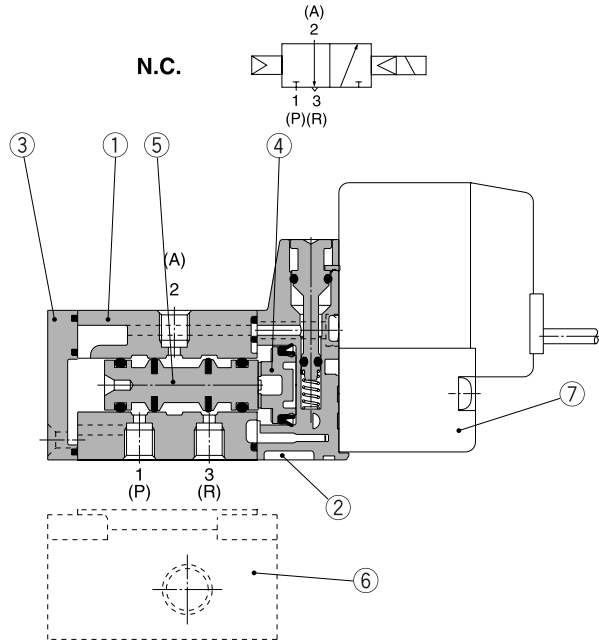


\* SYJ3□2R is only for manifold use.

Note) When placing an order for body ported solenoid valve as a single unit, mounting bolt for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to page 4-4-11.)

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ300

## Construction



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

### 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, HNBR	—

### Replacement Parts

No.	Description	Part no.	Note
⑥	Sub-plate	SYJ300-9-1	Zinc die-casted
⑦	Pilot valve	V111(T)-□□□□	

## How to Order Pilot Valve Assembly

V111 □ — 5 G □

### Coil specifications

Nil	Standard: DC specifications
A	Standard: AC specifications
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.

### Electrical entry

G	Grommet, 300 mm lead wire	
H	Grommet, 600 mm lead wire	
L	L plug connector	With lead wire
LN	L plug connector	Without lead wire
LO	L plug connector	Without connector
M	M plug connector	With lead wire
MN	M plug connector	Without lead wire
MO	M plug connector	Without connector
WO	M8 connector	Without connector cable

\* For connector cable of M8 connector, refer to page 4-4-60.

### 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.

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

For DC: SY100-30-4A-□

For 100 VAC: SY100-30-1A-□

For 200 VAC: SY100-30-2A-□

For other voltages of AC: SY100-30-3A-□

Without lead wire: SY100-30-A  
 (with connector and 2 of sockets only)

### Lead wire length

Nil	300 mm
6	600 mm
10	1000 mm
15	1500 mm
20	2000 mm
25	2500 mm
30	3000 mm
50	5000 mm

## How to Order M8 Connector Cable


V100-49-1-□

### Cable length

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

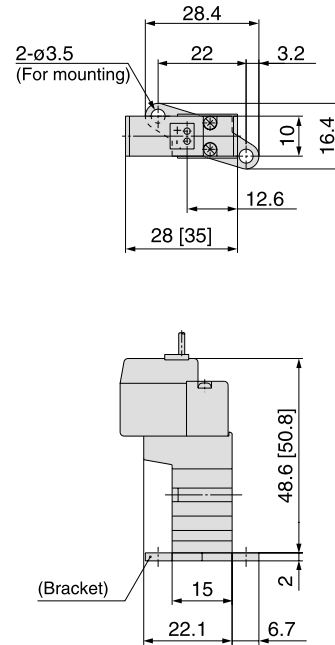
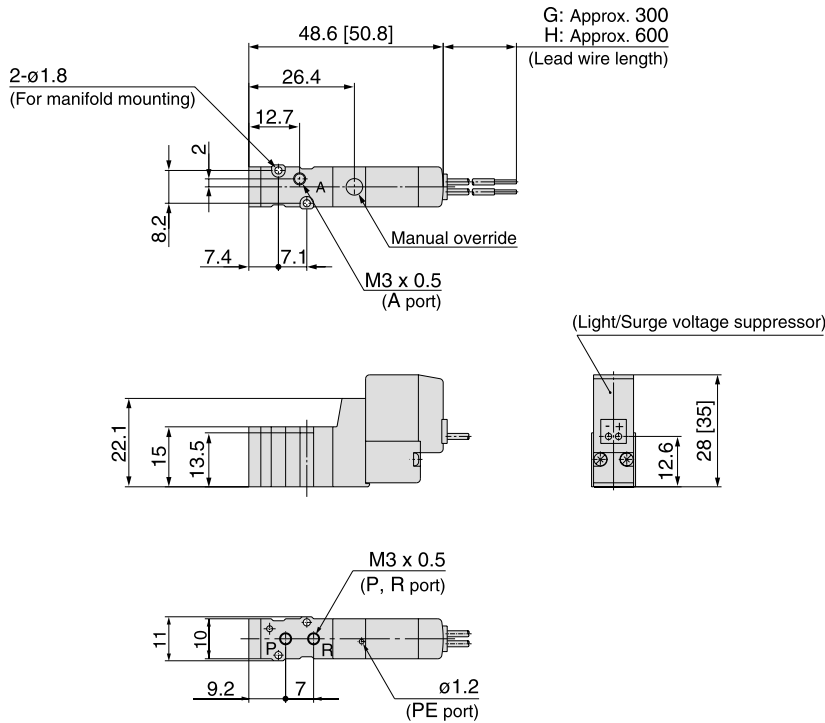
# Series SYJ300

## Body Ported

 \* [ ] for AC

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

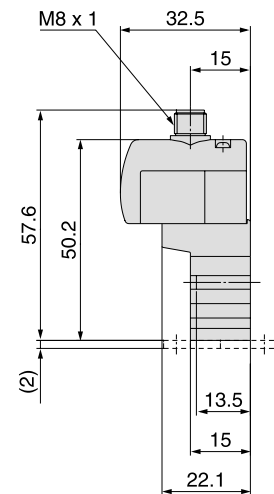
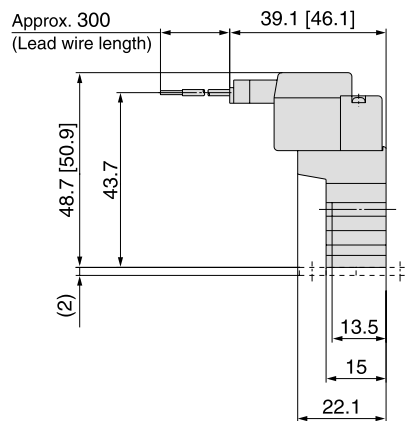
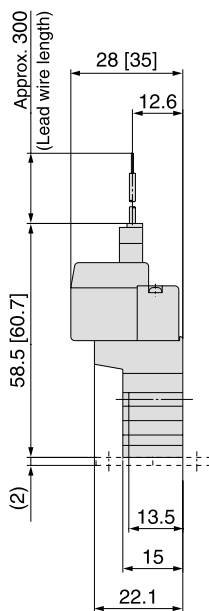
With bracket:  
SYJ3□2-□<sup>G</sup>□□-M3-F




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

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

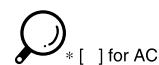
M8 connector (WO):  
SYJ3□2-□WO□□-M3



 \* Refer to page 4-4-61 for dimensions with connector cable.

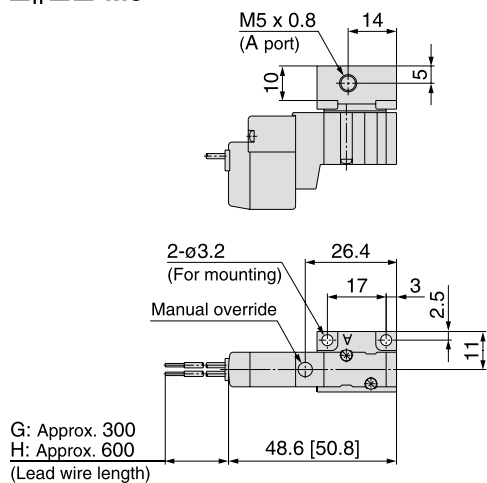


# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ300

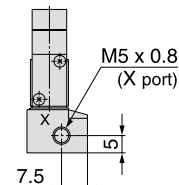
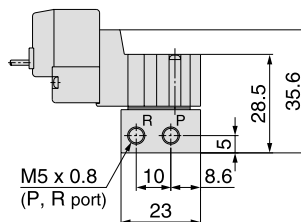
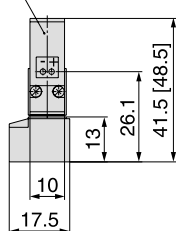


## Base Mounted (With sub-plate)

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



(Light/Surge voltage suppressor)



V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

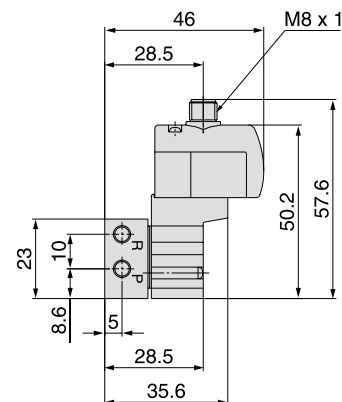
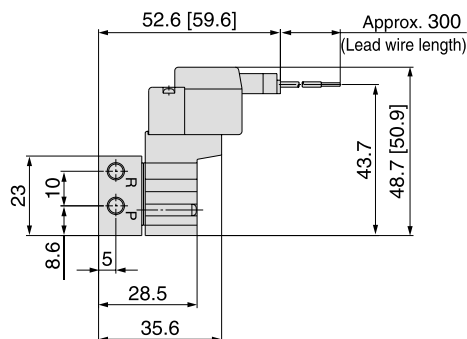
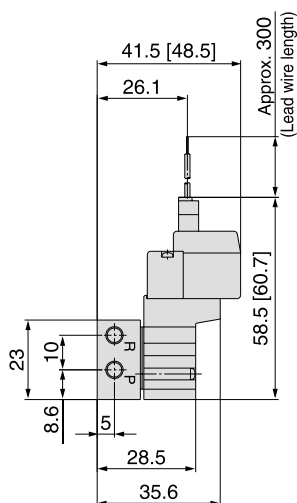
VS

VFN

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

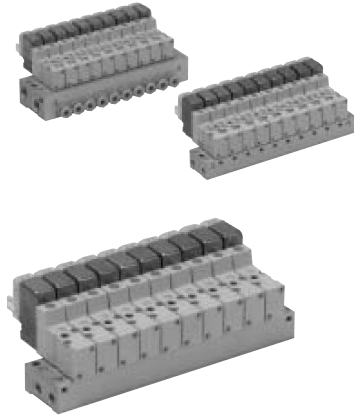
M plug connector (M):  
SYJ3□4-□M□□-M5

M8 connector (WO):  
SYJ3□4-□WO□□-M5



\* Refer to page 4-4-61 for dimensions with connector cable.

# Series SYJ300 Manifold Specifications



## Manifold Specifications

Model	For internal pilot	Type 20	Type 41, S41	Type 42, S42
	For external pilot	Type 20R	—	Type 42R, S42R
Manifold type	Single base/B mount			
P (SUP), R (EXH)	Common SUP/Common EXH			
Valve stations	2 to 20 stations			
A port Porting specifications	Location	Valve	Base	
	Direction	Top	Side	
Port size	P, R port	M5 x 0.8 1/8	M5 x 0.8	1/8
		A port	M3 x 0.5	M3 x 0.5 C4 (One-touch fitting ø4)
	X port <sup>Note)</sup>	M5 x 0.8	—	M5 x 0.8

Note) Only for external pilot

## Flow Characteristics

Manifold			Port size		Flow 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	—
	Type SS3YJ3-42-C4			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	—
	Type SS3YJ3-S42-C4			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
Base mounted for external pilot	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	SYJ3□4R	1/8	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:

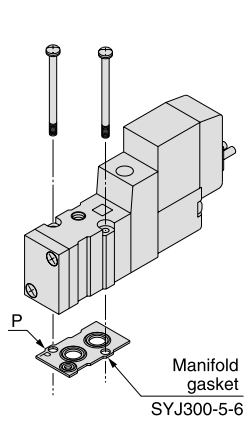
- SS3YJ3-20-03.....1 set (Manifold base)
- SS3YJ3-42R-03-C4 .....1 set (Manifold base)
- \* SYJ312-5LZ-M3.....2 sets (Valve)
- \* SYJ314R-5G.....2 sets (Valve)
- \* SYJ300-10-1A.....1 set (Blanking plate assembly)
- \* SYJ300-10-2A.....1 set (Blanking plate assembly)

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

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ300

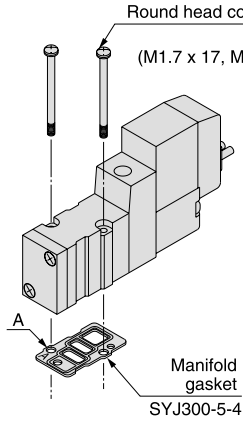
## Combinations of Solenoid Valve, Manifold Gasket and Manifold Base

**Body ported**  
(Type SYJ3□2(R))



**Applicable base**  
SS3YJ3-20 | Manifold  
SS3YJ3-20R | base

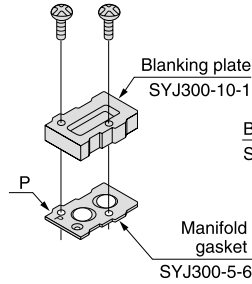
**Base mounted**  
(Type SYJ3□4(R))



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

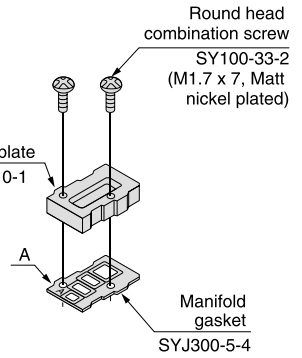
## Blanking Plate Assembly

Part no.: SYJ300-10-1A



**Applicable base**  
SS3YJ3-20 | Manifold  
SS3YJ3-20R | base

Part no.: SYJ300-10-2A



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

V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

VFN

### ⚠ Caution

**Mounting Screw Tightening Torques**

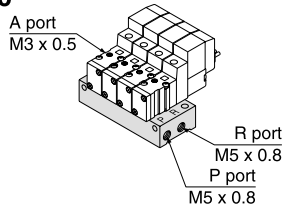
**M1.7: 0.12 N·m**

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

# Series SYJ300

## Manifold for Internal Pilot Type

### Type 20



#### How to Order

SS3YJ3-20-05

Stations	
02	2 stations
:	:
20	20 stations

Bracket	
Nil	Without bracket
F	With bracket

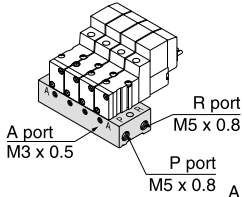
**Applicable solenoid valve**  
 SYJ312-□□□□-M3  
 SYJ312M-□□□□-M3  
 SYJ322-□□□□-M3  
 SYJ322M-□□□□-M3

**Applicable blanking plate assembly**  
 SYJ300-10-1A

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

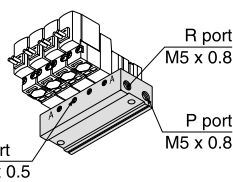
### Type 41

#### 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

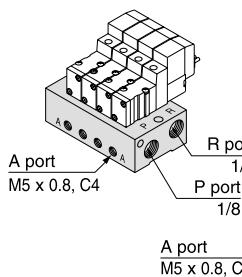
**Applicable solenoid valve**  
 SYJ314-□□□□  
 SYJ314M-□□□□  
 SYJ324-□□□□  
 SYJ324M-□□□□

**Applicable blanking plate assembly**  
 SYJ300-10-2A

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

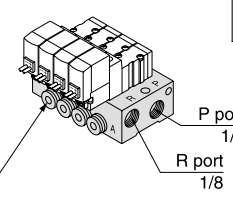
### Type 42

#### 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

#### A port size

M5	M5 x 0.8
C4	ø4 One-touch fitting
N3	ø5/32" One-touch fitting

**Applicable solenoid valve**  
 SYJ314-□□□□  
 SYJ314M-□□□□  
 SYJ324-□□□□  
 SYJ324M-□□□□

**Applicable blanking plate assembly**  
 SYJ300-10-2A

#### P, R port thread type

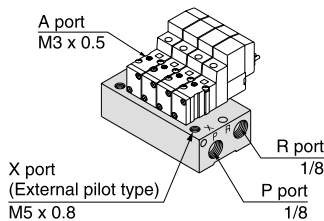
Nil	Rc
F	G
N	NPT
T	NPTF

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

**Applicable solenoid valve**  
 SYJ312R-□□□□  
 SYJ322R-□□□□

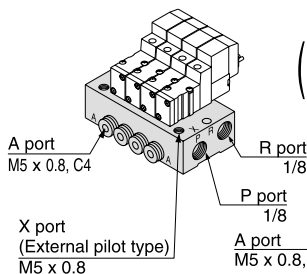
**Applicable blanking plate assembly**  
 SYJ300-10-1A

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

### Type 42R

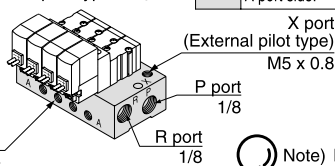
#### Type 42R

(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

#### A port size

M5	M5 x 0.8
C4	ø4 One-touch fitting
N3	ø5/32" One-touch fitting

**Applicable solenoid valve**  
 SYJ314R-□□□□  
 SYJ324R-□□□□

**Applicable blanking plate assembly**  
 SYJ300-10-2A

#### P, R port thread type

Nil	Rc
F	G
N	NPT
T	NPTF

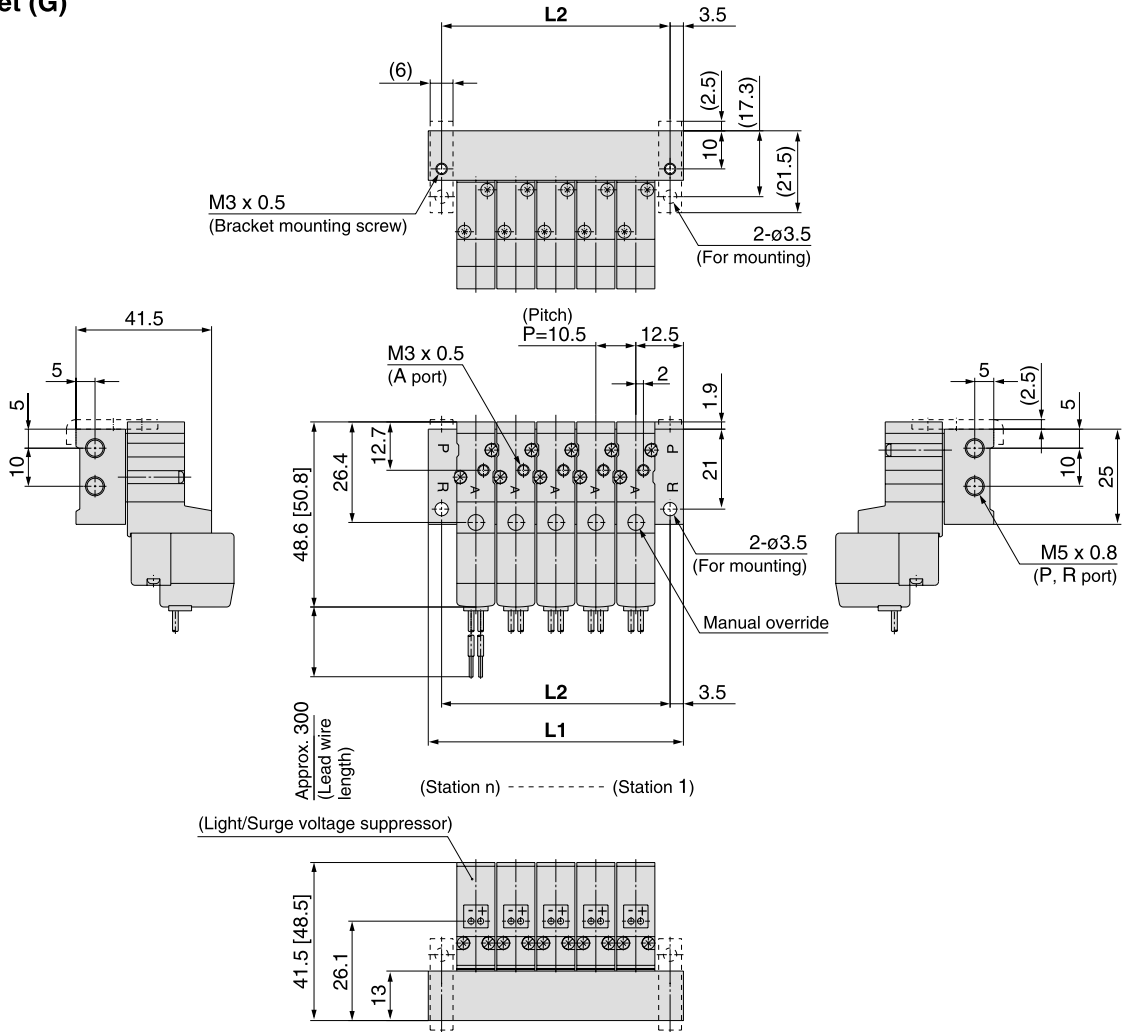
Note) For more than 8 stations, supply/exhaust air to/from both sides of P port and R port.

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ300

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

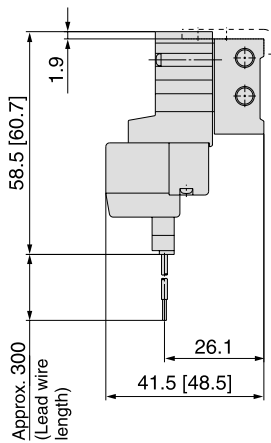


## Grommet (G)

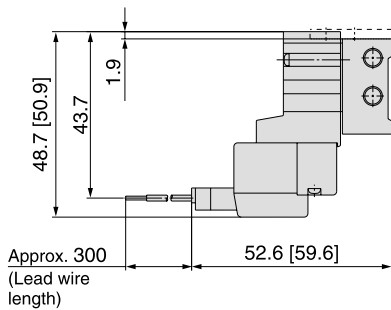


- V100
- SY
- SYJ**
- VK
- VZ
- VT
- VP
- VG
- VP
- S070
- VQ
- VKF
- VQZ
- VZ
- VS
- VFN

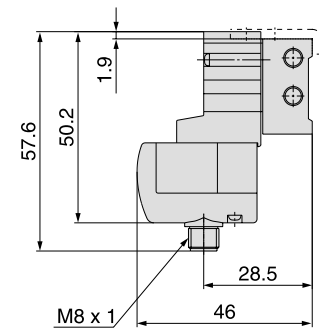
## L plug connector (L)



## M plug connector (M)



## M8 connector (WO)



\* Refer to page 4-4-61 for dimensions with connector cable.

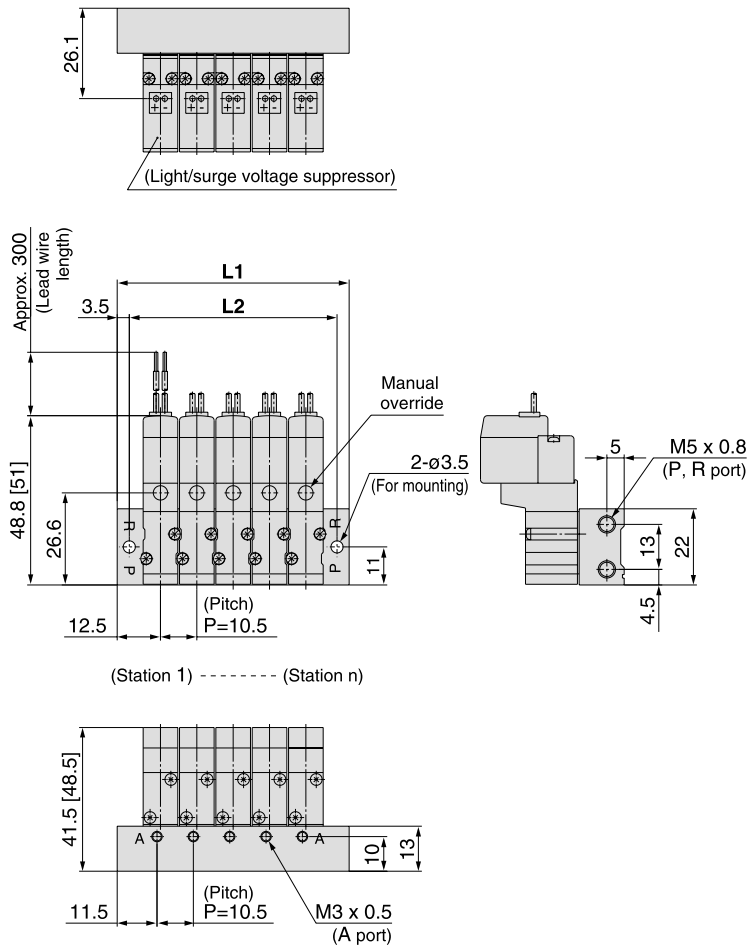
Station n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	35.5	46	56.5	67	77.5	88	98.5	109	119.5	130	140.5	151	161.5	172	182.5	193	203.5	214	224.5
L2	28.5	39	49.5	60	70.5	81	91.5	102	112.5	123	133.5	144	154.5	165	175.5	186	196.5	207	217.5

# Series SYJ300

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



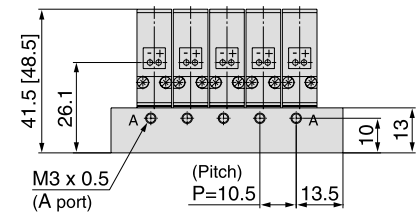
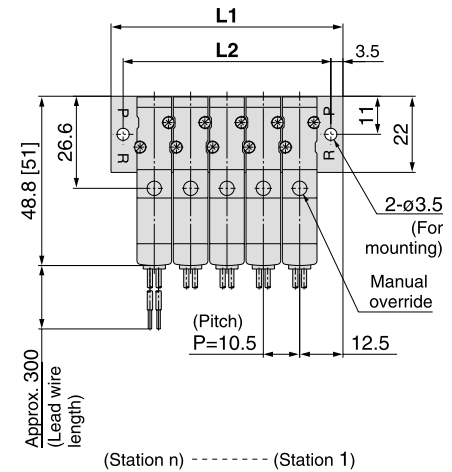
### Grommet (G)



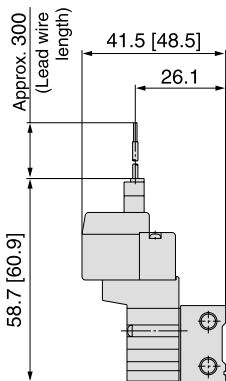
### Type 41 Manifold: Side Ported

(Pilot valve is on the A port side) /

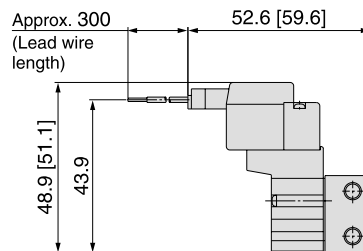
### SS3YJ3-S41- Stations -M3



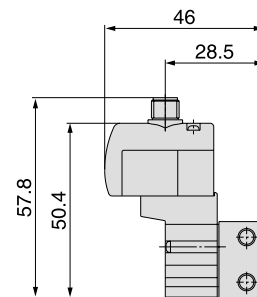
### L plug connector (L)



### M plug connector (M)



### M8 connector (WO)



\* Refer to page 4-4-61 for dimensions with connector cable.

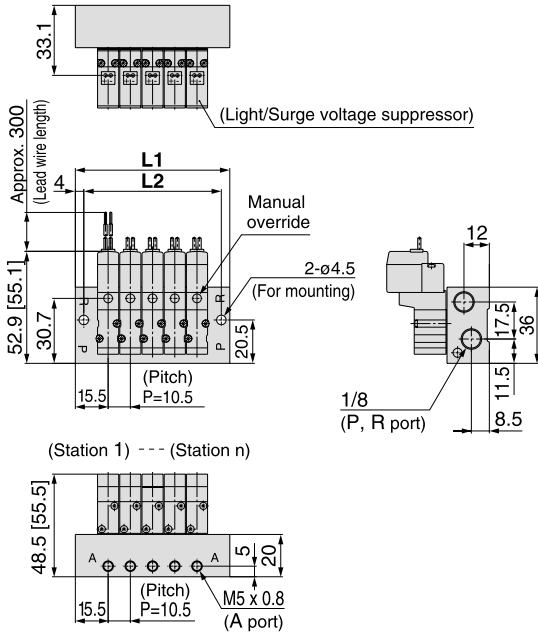
Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
<b>L1</b>	35.5	46	56.5	67	77.5	88	98.5	109	119.5	130	140.5	151	161.5	172	182.5	193	203.5	214	224.5
<b>L2</b>	28.5	39	49.5	60	70.5	81	91.5	102	112.5	123	133.5	144	154.5	165	175.5	186	196.5	207	217.5

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ300

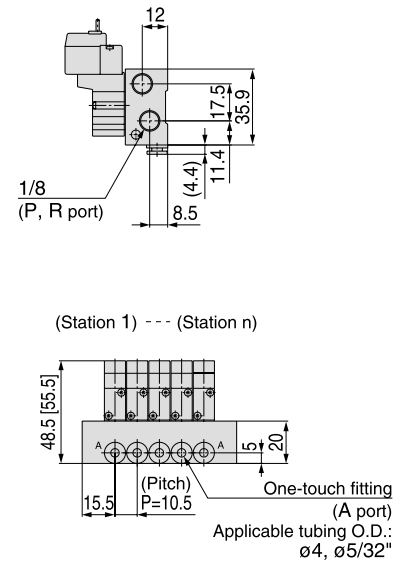
Type 42 Manifold: Side Ported/SS3YJ3-42- Stations -M5, **C4**  **N3**

\* [ ] for AC

**Grommet (G)**  
For M5



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



V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

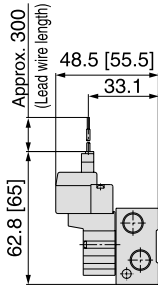
VQZ

VZ

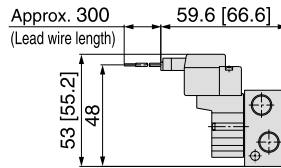
VS

VFN

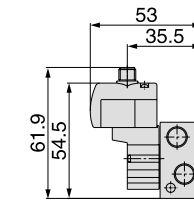
**L plug connector (L)**



**M plug connector (M)**



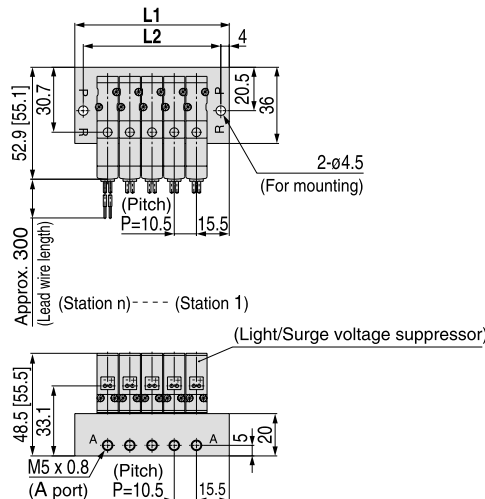
**M8 connector (WO)**



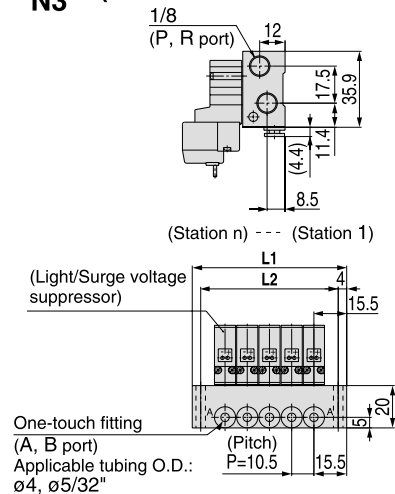
\* Refer to page 4-4-61 for dimensions with connector cable.

Type 42 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)



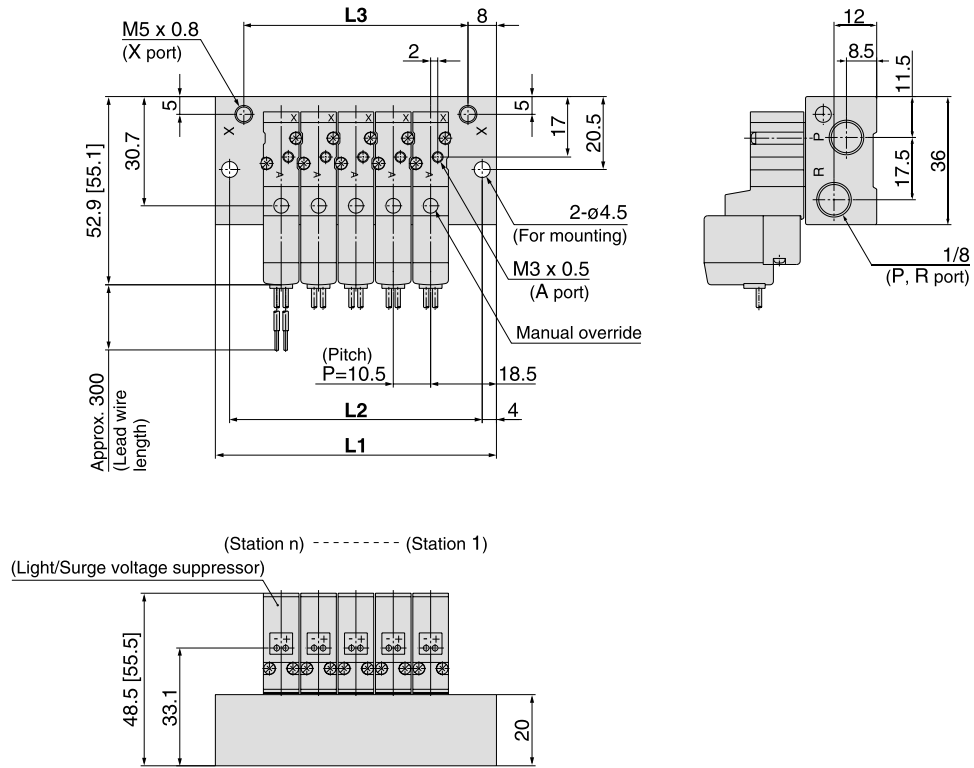
Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
<b>L1</b>	41.5	52	62.5	73	83.5	94	104.5	115	125.5	136	146.5	157	167.5	178	188.5	199	209.5	220	230.5
<b>L2</b>	33.5	44	54.5	65	75.5	86	96.5	107	117.5	128	138.5	149	159.5	170	180.5	191	201.5	212	222.5

# Series SYJ300

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



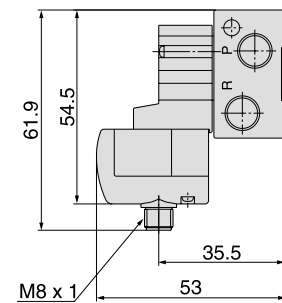
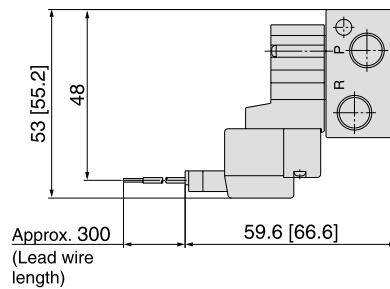
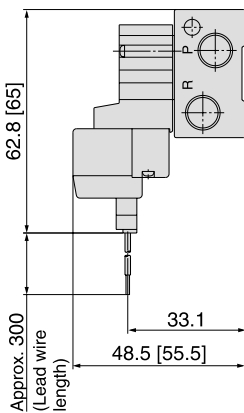
## Grommet (G)



## L plug connector (L)

## M plug connector (M)

## M8 connector (WO)



\* Refer to page 4-4-61 for dimensions with connector cable.

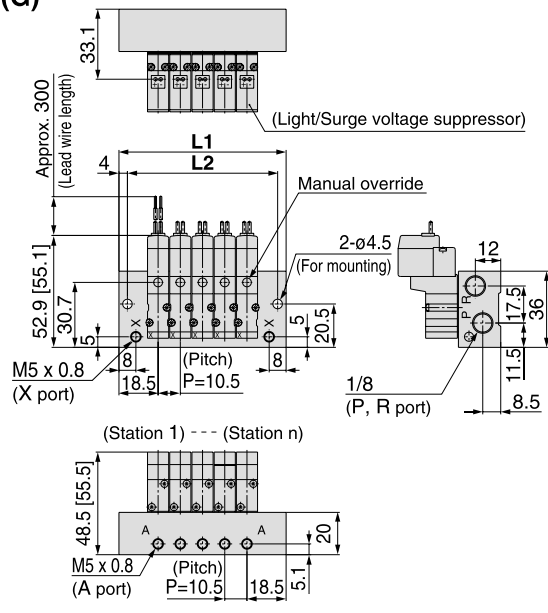
Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
<b>L1</b>	47.5	58	68.5	79	89.5	100	110.5	121	131.5	142	152.5	163	173.5	184	194.5	205	215.5	226	236.5
<b>L2</b>	39.5	50	60.5	71	81.5	92	102.5	113	123.5	134	144.5	155	165.5	176	186.5	197	207.5	218	228.5
<b>L3</b>	31.5	42	52.5	63	73.5	84	94.5	105	115.5	126	136.5	147	157.5	168	178.5	189	199.5	210	220.5



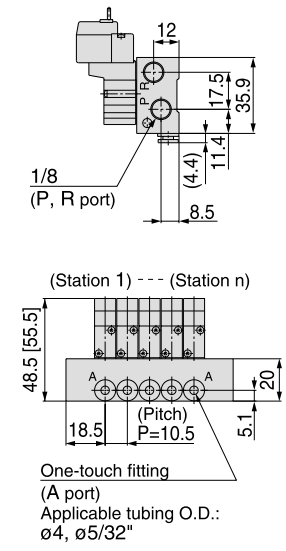
# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ300

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

**Grommet (G)**  
For M5

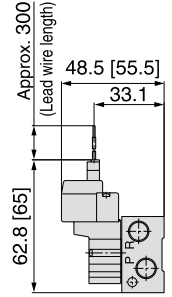


For **C4** **N3** □ (Built-in One-touch fitting)

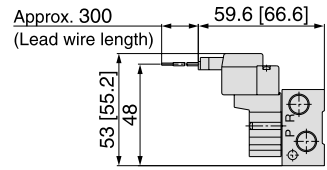


- V100
- SY
- SYJ**
- VK
- VZ
- VT
- VP
- VG
- VP
- S070
- VQ
- VKF
- VQZ
- VZ
- VS
- VFN

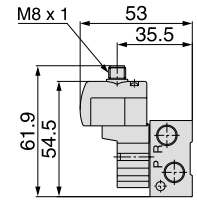
**L plug connector (L)**



**M plug connector (M)**



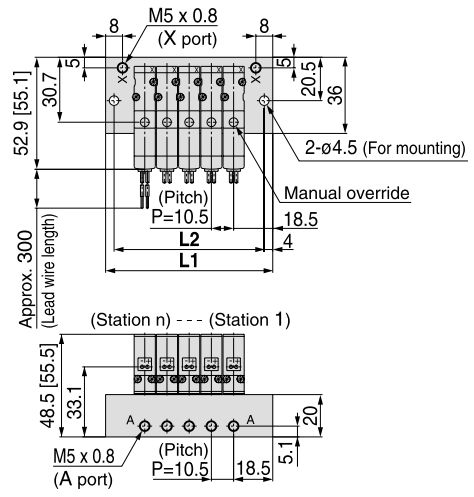
**M8 connector (WO)**



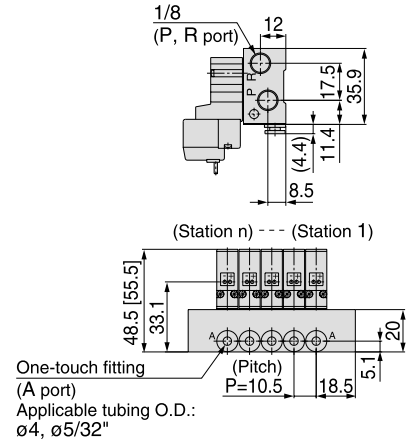
\* Refer to page 4-4-61 for dimensions with connector cable.

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

**Grommet (G)**  
For M5



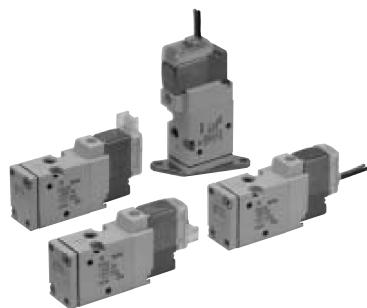
For **C4** **N3** □ (Built-in One-touch fitting)



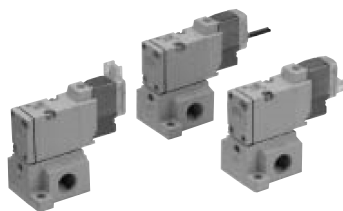
Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
<b>L1</b>	47.5	58	68.5	79	89.5	100	110.5	121	131.5	142	152.5	163	173.5	184	194.5	205	215.5	226	236.5
<b>L2</b>	39.5	50	60.5	71	81.5	92	102.5	113	123.5	134	144.5	155	165.5	176	186.5	197	207.5	218	228.5



# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ500



Body ported



Base mounted

## Specifications

Fluid		Air
Operating pressure range MPa	Internal pilot	0.15 to 0.7
Ambient and fluid temperature (°C)		-10 to 50 (No freezing. Refer to page 4-18-4.)
Response time ms (at 0.5 MPa) <sup>Note 1)</sup>		25 or less
Max. operating frequency (Hz)		5
Manual override (Manual operation)		Non-locking push type, push-turn locking slotted type, push-turn locking lever type
Pilot exhaust method		Individual exhaust for the pilot valve, common exhaust for the pilot and main valve
Lubrication		Not required
Mounting orientation		Unrestricted
Shock/Vibration resistance (m/s <sup>2</sup> ) <sup>Note 2)</sup>		150/30
Enclosure		Dustproof (* DIN terminal, M8 connector conforms to IP65.)



\* Based on IEC529

Note 1) Based on dynamic performance test, JIS B 8374-1981. (Coil temperature: 20°C, at rated voltage, without surge voltage suppressor.)

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

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

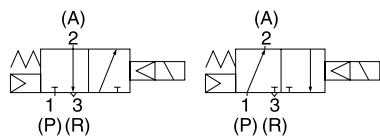
## Solenoid Specifications

### JIS Symbol

Internal pilot

SYJ51<sub>4</sub><sup>2</sup>

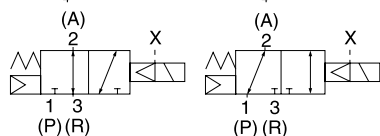
SYJ52<sub>4</sub><sup>2</sup>



External pilot

SYJ51<sub>4</sub><sup>2</sup>R

SYJ52<sub>4</sub><sup>2</sup>R



Electrical entry		Grommet (G), (H), L plug connector (L), M plug connector (M), DIN terminal (D), M8 connector (W)	
Coil rated voltage (V)	DC	24, 12, 6, 5, 3	
	AC 50/60 Hz	100, 110, 200, 220	
Allowable voltage fluctuation		±10% of rated voltage	
Power consumption (W)	DC	Standard	0.35 (With indicator light: 0.4 (DIN terminal with indicator light: 0.45))
		With power saving circuit	0.1 (With indicator light only)
Apparent power (VA)	AC	100 V	1.4 (With indicator light: 1.5)
		110 V [115 V]	1.6 (With indicator light: 1.7) [1.7 (With indicator light: 1.8)]
		200 V	2.3 (With indicator light: 2.4)
		220 V [230 V]	2.5 (With indicator light: 2.6) [2.7 (With indicator light: 2.8)]
Surge voltage suppressor		Diode (DIN terminal, varistor when non-polar types)	
Indicator light		LED (Neon bulb 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.




**Made to Order Specifications**

(For details, refer to pages 4-4-54 to 55.)

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ500

## Flow Characteristics/Weight

Valve model		Type of actuation	Port size	Flow 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	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 1 g for AC. ( ): Without sub-plate.

V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

VFN

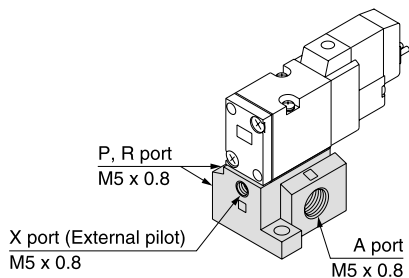
## External Pilot

### 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 4-4-24.

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 4-4-55.

## 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 and DO 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.

**Type of actuation**

1	Normally closed
2	Normally open

**Light/Surge voltage suppressor**

**Electrical entry for G, H, L, 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**

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

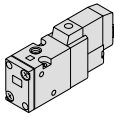
\* "DOZ" is not available.  
\* For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

**Bracket**

Nil: Without bracket  
F: With bracket

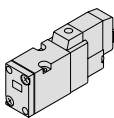
\* Bracket is mounted.  
\* External pilot type is not available.

**3 port**



(For manifold type 20, 21R)

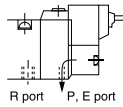
**3 port**



(For sub-plate type, manifold type 40, 40R, 41, 41R)

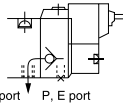
**Body option**

Nil: Individual pilot exhaust type




R port, P, E port

M: Common exhaust for the pilot and main valve



R port, P, E port

R: External pilot type\*



\* SYJ5□2R is only for manifold use.


**Coil specifications**

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


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

**Manual override**


Nil: Non-locking push type



D: Push-turn locking slotted type

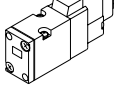
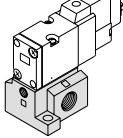


E: Push-turn locking lever type



**Port size**

Nil: Without sub-plate  
01: 1/8 port With sub-plate



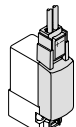
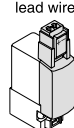
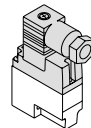









(With gasket and screws)

**Thread type**

Nil	Rc
F	G
N	NPT
T	NPTF

**Electrical entry**

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)	MN: Without lead wire	D: With connector	WO: Without connector cable
					
H: Lead wire length 600 mm	LN: Without lead wire	LO: Without connector	MO: Without connector	DO: Without connector	
					

Note) When placing an order for body ported solenoid valve as a single unit, mounting bolt for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to page 4-4-25.)

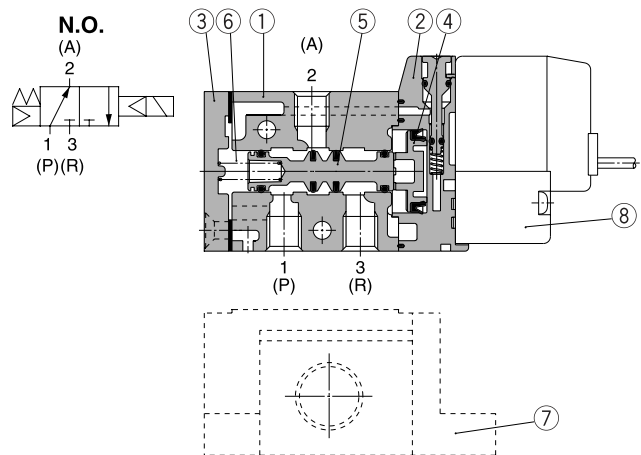
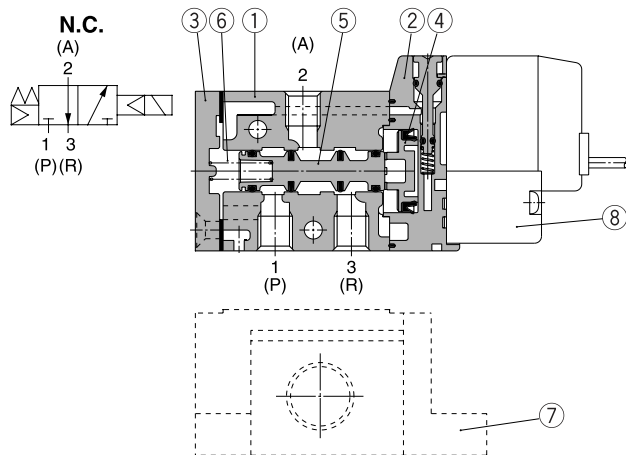
\* "LN", "MN" type: with 2 sockets.  
\* DIN terminal "Type Y" conforming to DIN43650C standard is also available. For details, refer to page 4-4-54.  
\* For connector cable of M8 connector, refer to page 4-4-60.

**Body ported** SYJ5 1 2 □ □ — 5 M □ □ — M5 □ □

**Base mounted** SYJ5 1 4 □ □ — 5 M □ □ — 01 □ □

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ500

## 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	SYJ500-9-1	Zinc die-casted
⑧	Pilot valve	V111(T)-□□□□	

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

## How to Order Pilot Valve Assembly

**V111** □ **5** **G** □

### Coil specifications

<b>Nil</b>	Standard: DC specifications
<b>A</b>	Standard: AC specifications
<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.

### Light/Surge voltage suppressor

<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 "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>	L plug connector With lead wire
<b>LN</b>	L plug connector Without lead wire
<b>LO</b>	L plug connector Without connector
<b>M</b>	M plug connector With lead wire
<b>MN</b>	M plug connector Without lead wire
<b>MO</b>	M plug connector Without connector
<b>WO</b>	M8 connector Without connector cable

\* For connector cable of M8 connector, refer to page 4-4-60.

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

For DC: **SY100-30-4A**-□

For 100 VAC: **SY100-30-1A**-□

For 200 VAC: **SY100-30-2A**-□

For other voltages of AC: **SY100-30-3A**-□

Without lead wire: **SY100-30-A**

(with connector and 2 of sockets only)

### Lead wire length

<b>Nil</b>	300 mm
<b>6</b>	600 mm
<b>10</b>	1000 mm
<b>15</b>	1500 mm
<b>20</b>	2000 mm
<b>25</b>	2500 mm
<b>30</b>	3000 mm
<b>50</b>	5000 mm

**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" or "DO" type.

### Light/Surge voltage suppressor

<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" is 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 With connector
<b>DO</b>	terminal Without connector

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

## How to Order M8 Connector Cable

**V100-49-1**-□

### Cable length

<b>1</b>	300 mm
<b>2</b>	500 mm
<b>3</b>	1000 mm
<b>4</b>	2000 mm
<b>7</b>	5000 mm

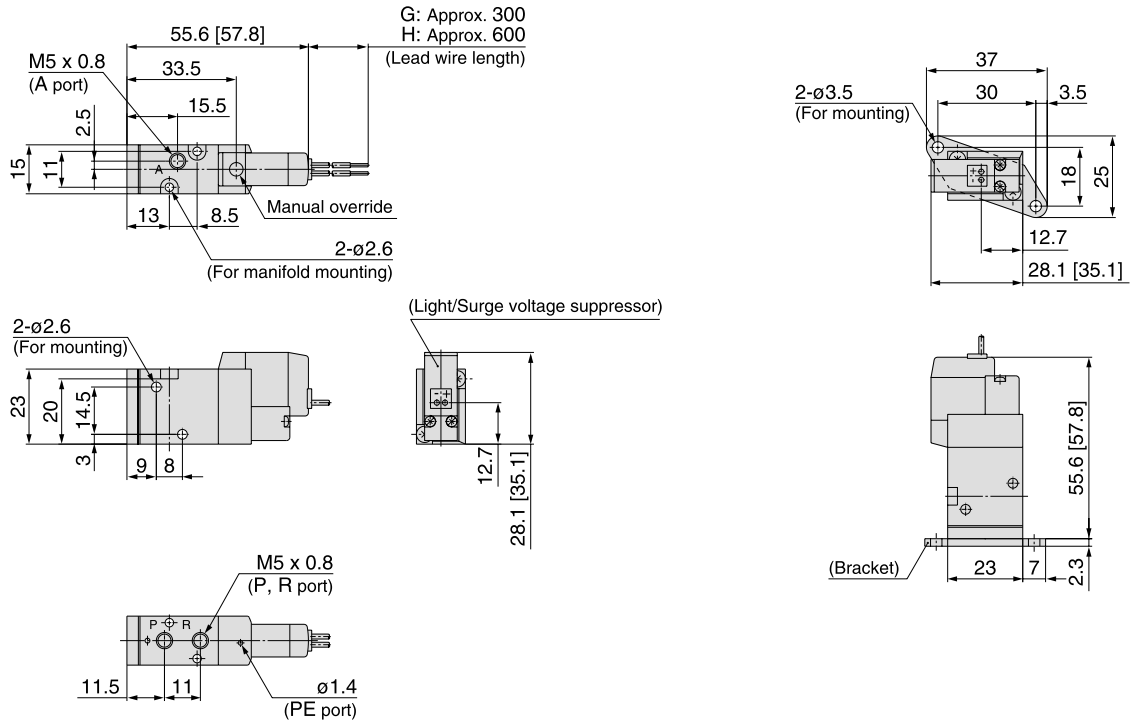
# Series SYJ500

## Body Ported



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

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

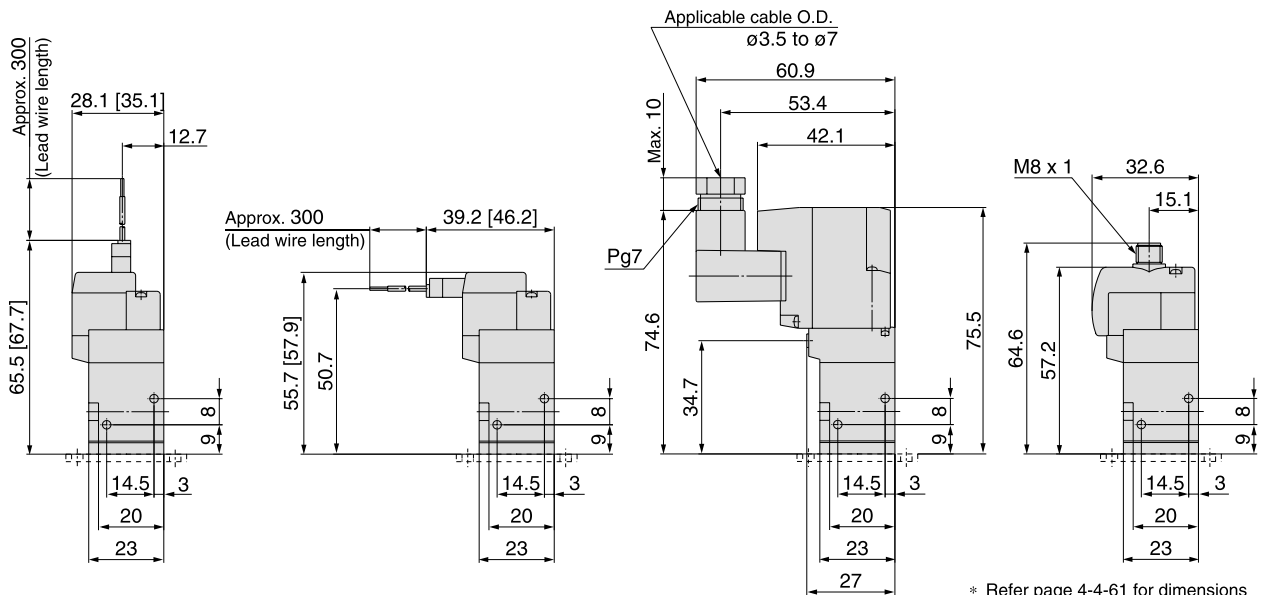


L plug connector (L):  
SYJ5□2-□L□□-M5 (-F)

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

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

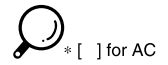
M8 connector (MO):  
SYJ5□2-□WO□□-M5 (-F)



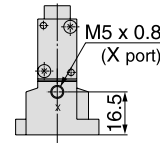
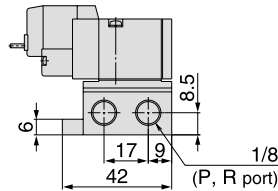
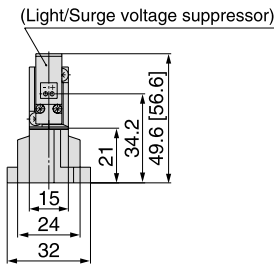
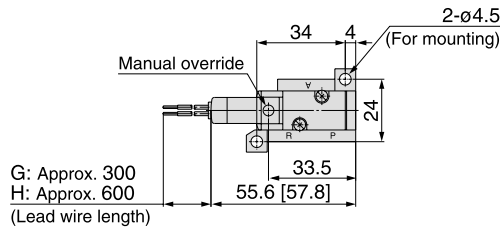
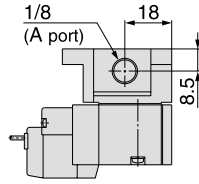
\* Refer page 4-4-61 for dimensions with connector cable.

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ500

## Base Mounted (With sub-plate)



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



V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

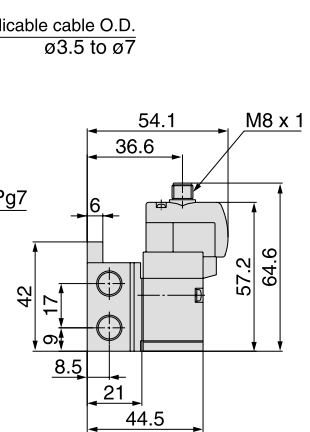
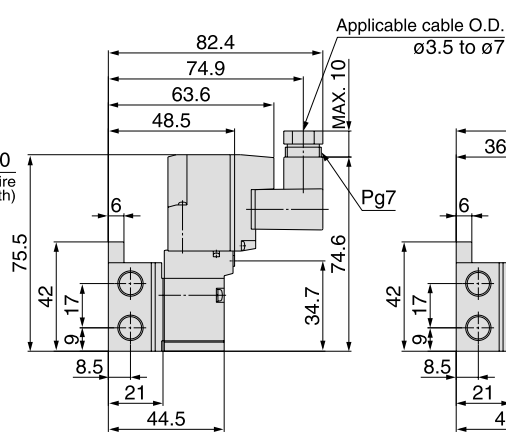
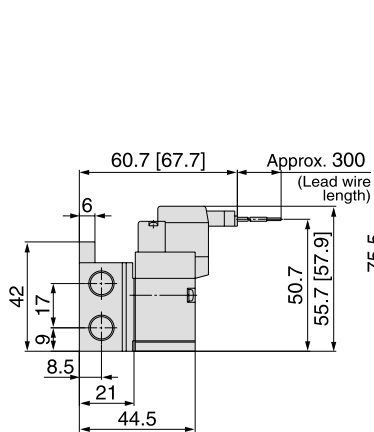
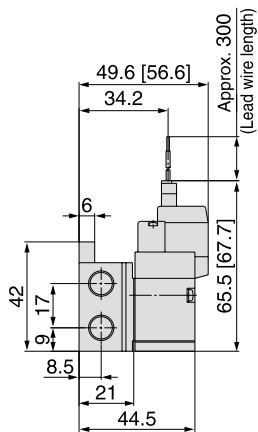
VFN

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

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

**DIN terminal (D):**  
SYJ5□4-□D□□-01□

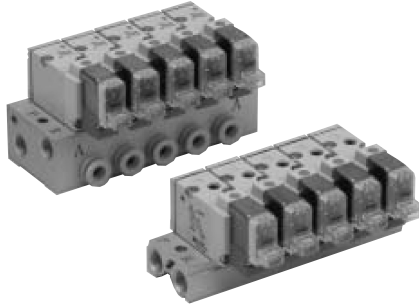
**M8 connector (WO):**  
SYJ5□4-□WO□□-01□



\* Refe page 4-4-61 for dimensions with connector cable.

# Series SYJ500

# Manifold Specifications



## Manifold Specifications

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

Note) Only for external pilot

## Flow Characteristics

Manifold			Port size		Flow 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 SS3YJ5-40-01	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 SS3YJ5-41-01	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-01		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-01		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)

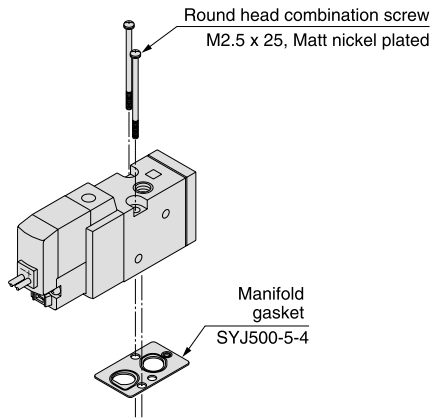
The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.



# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ500

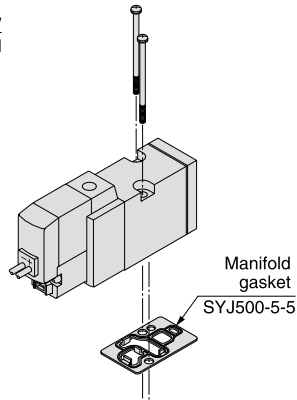
## Combinations of Solenoid Valve, Manifold Gasket and Manifold Base

### Body ported (Type SYJ5□2(R))



**Applicable base**  
SS3YJ5-21R } Manifold  
SS3YJ5-20 } base  
Manifold base

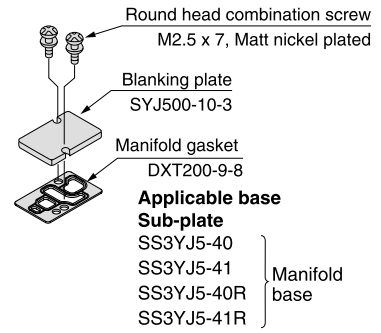
### Base mounted (Type SYJ5□4(R))



**Applicable base**  
Sub-plate  
SS3YJ5-40 } Manifold  
SS3YJ5-41 } base  
SS3YJ5-40R }  
SS3YJ5-41R }

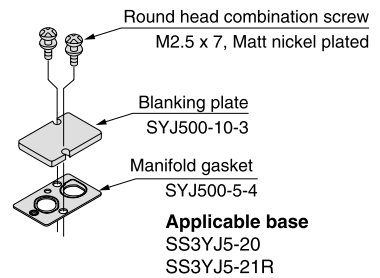
## Blanking Plate Assembly

### Part no.: SYJ500-10-3A



**Applicable base**  
Sub-plate  
SS3YJ5-40 } Manifold  
SS3YJ5-41 } base  
SS3YJ5-40R }  
SS3YJ5-41R }

### Part no.: SYJ500-10-1A



**Applicable base**  
SS3YJ5-20  
SS3YJ5-21R

### **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.**

V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

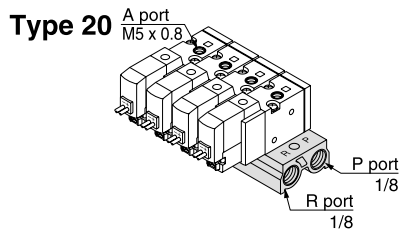
VZ

VS

VFN

# Series SYJ500

## Manifold for Internal Pilot Type



### How to Order

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

Stations		P, R port thread type		Bracket	
02	2 stations	Nil	Rc	Nil	Without bracket
:	:	00F	G	F	With bracket
20	20 stations	00N	NPT		
		00T	NPTF		

### Applicable solenoid valve

SYJ512-□□□□-M5  
SYJ512M-□□□□-M5  
SYJ522-□□□□-M5  
SYJ522M-□□□□-M5

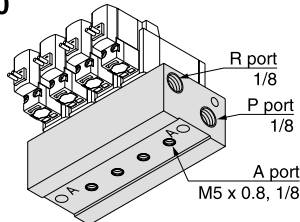
### Applicable blanking plate assembly

SYJ500-10-1A



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		A port size		P, R port thread type	
02	2 stations	M5	M5 x 0.8	Nil	Rc
:	:	01	1/8	F	G
20	20 stations			N	NPT
				T	NPTF

### Applicable solenoid valve

SYJ514-□□□□  
SYJ514M-□□□□  
SYJ524-□□□□  
SYJ524M-□□□□

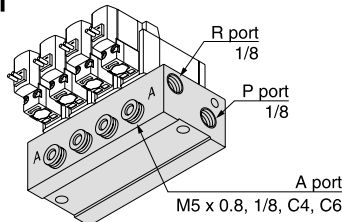
### Applicable blanking plate assembly

SYJ500-10-3A



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		A port size		P, R port thread type	
02	2 stations	M5	M5 x 0.8	Nil	Rc
:	:	01	1/8	F	G
20	20 stations	C4	ø4 One-touch fitting	N	NPT
		C6	ø6 One-touch fitting	T	NPTF
		N3	ø5/32" One-touch fitting		
		N7	ø1/4" One-touch fitting		

### Applicable solenoid valve

SYJ514-□□□□  
SYJ514M-□□□□  
SYJ524-□□□□  
SYJ524M-□□□□

### Applicable blanking plate assembly

SYJ500-10-3A

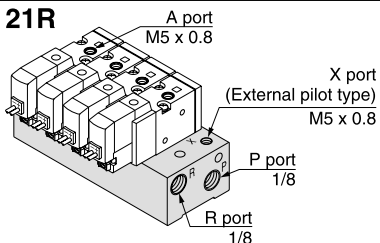


Note) For more than 9 stations, supply air to both sides of P port and exhaust air from both sides of R port.

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

### Applicable solenoid valve

SYJ512R-□□□□-M5  
SYJ522R-□□□□-M5

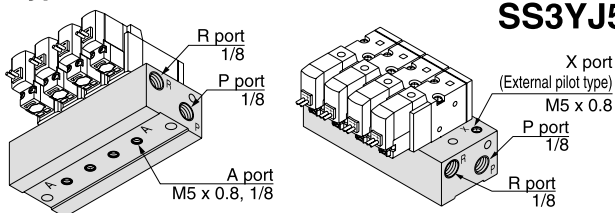
### Applicable blanking plate assembly

SYJ500-10-1A



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		A port size		P, R port thread type	
02	2 stations	M5	M5 x 0.8	Nil	Rc
:	:	01	1/8	F	G
20	20 stations			N	NPT
				T	NPTF

### Applicable solenoid valve

SYJ514R-□□□□  
SYJ524R-□□□□

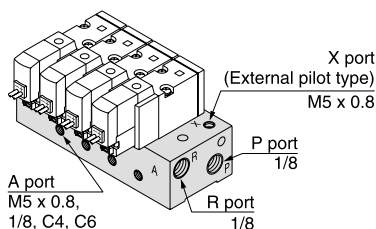
### Applicable blanking plate assembly

SYJ500-10-3A



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		A port size		P, R port thread type	
02	2 stations	M5	M5 x 0.8	Nil	Rc
:	:	01	1/8	F	G
20	20 stations	C4	ø4 One-touch fitting	N	NPT
		C6	ø6 One-touch fitting	T	NPTF
		N3	ø5/32" One-touch fitting		
		N7	ø1/4" One-touch fitting		

### Applicable solenoid valve

SYJ514R-□□□□  
SYJ524R-□□□□

### Applicable blanking plate assembly

SYJ500-10-3A



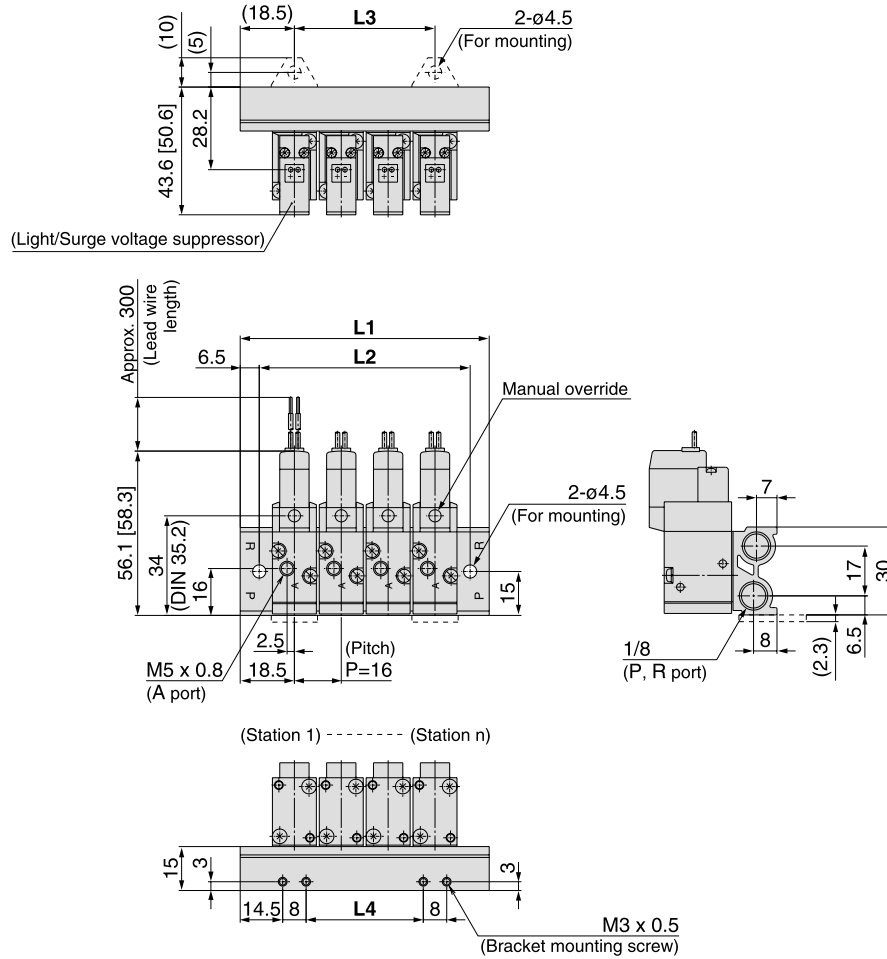
Note) For more than 9 stations, supply/exhaust air to/from both sides of P and R port

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ500

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



### Grommet (G)



V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

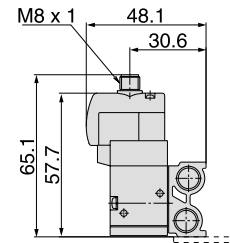
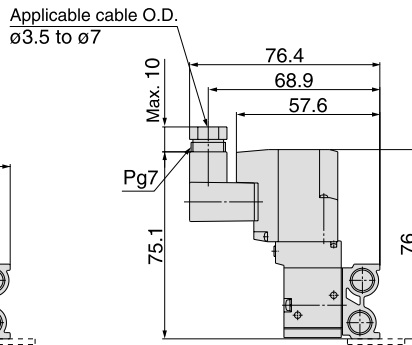
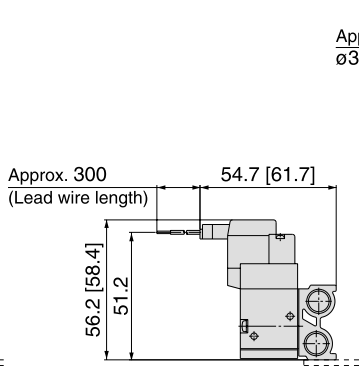
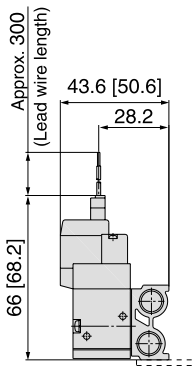
VZ

### L plug connector (L)

### M plug connector (M)

### DIN terminal (D)

### M8 connector (WO)



VS

VFN

\* Refer to page 4-4-61 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>	53	69	85	101	117	133	149	165	181	197	213	229	245	261	277	293	309	325	341
<b>L2</b>	40	56	72	88	104	120	136	152	168	184	200	216	232	248	264	280	296	312	328
<b>L3</b>	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304
<b>L4</b>	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248	264	280	296

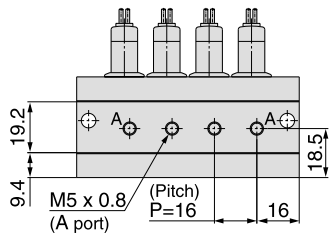
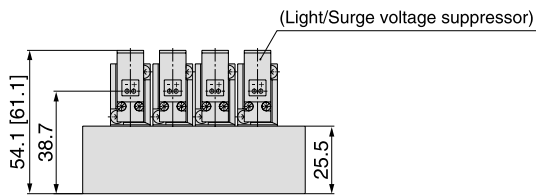
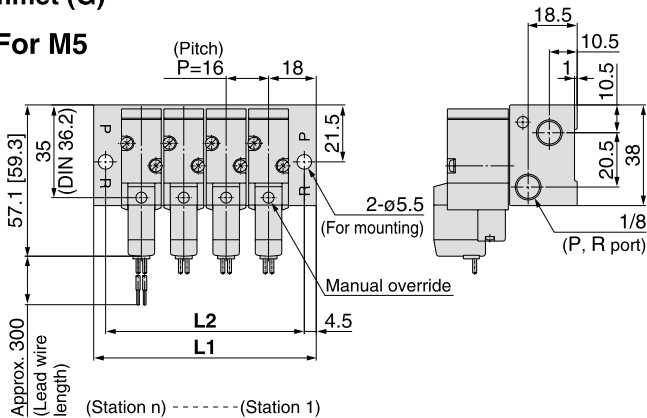
# Series SYJ500

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

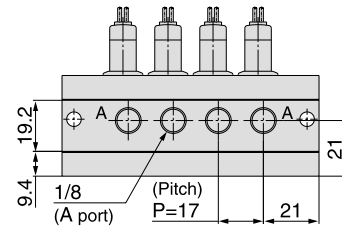
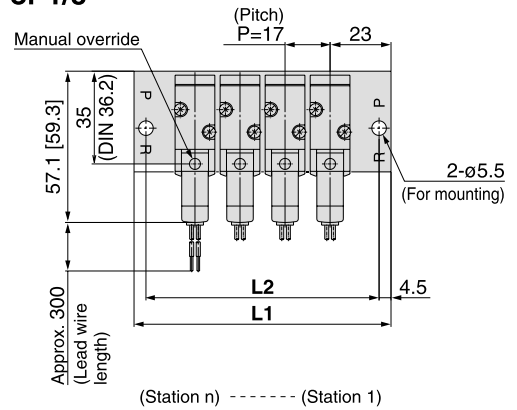


### Grommet (G)

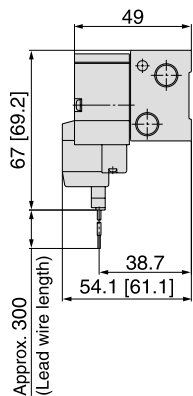
#### For M5



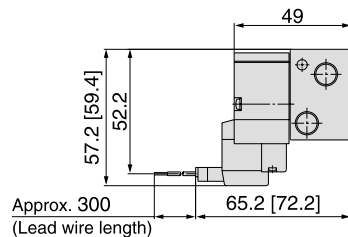
#### For 1/8



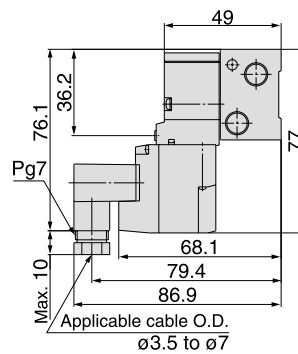
### L plug connector (L)



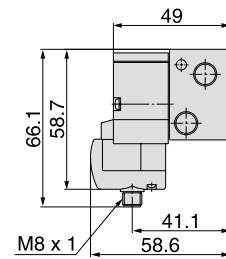
### M plug connector (M)



### DIN terminal (D)



### M8 connector (WO)



\* Refer to page 4-4-61 for dimensions with connector cable.

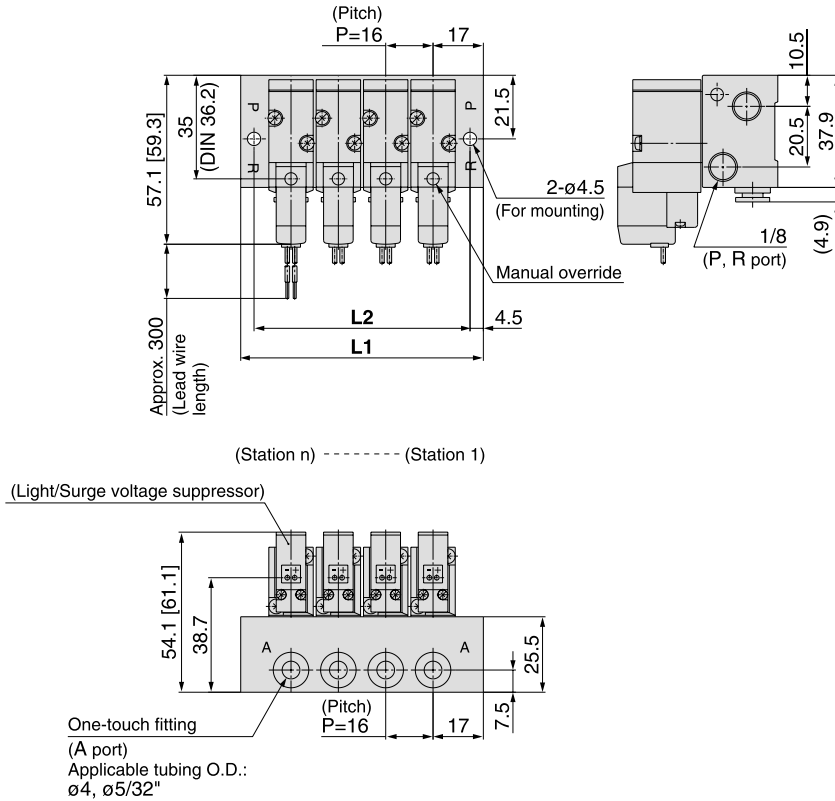
Port size	Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
M5	L1	52	68	84	100	116	132	148	164	180	196	212	228	244	260	276	292	308	324	340
	L2	43	59	75	91	107	123	139	155	171	187	203	219	235	251	267	283	299	315	331
1/8	L1	63	80	97	114	131	148	165	182	199	216	233	250	267	284	301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

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ500

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

\* [ ] for AC

## Grommet (G)



V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

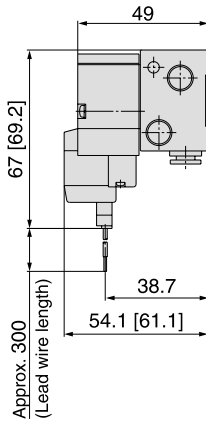
VQZ

VZ

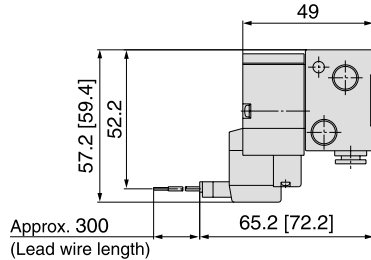
VS

VFN

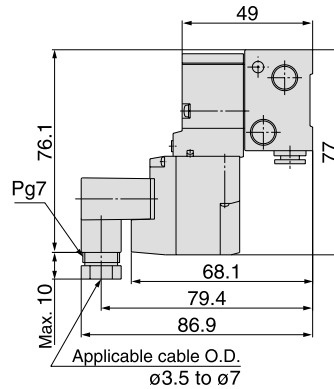
## L plug connector (L)



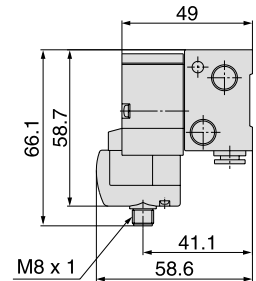
## M plug connector (M)



## DIN terminal (D)



## M8 connector (WO)



\* Refer to page 4-4-61 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	50	66	82	98	114	130	146	162	178	194	210	226	242	258	274	290	306	322	338
	L2	41	57	73	89	105	121	137	153	169	185	201	217	233	249	265	281	297	313	329

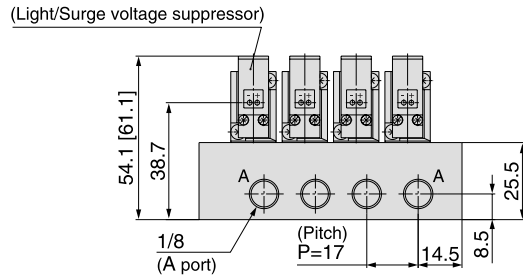
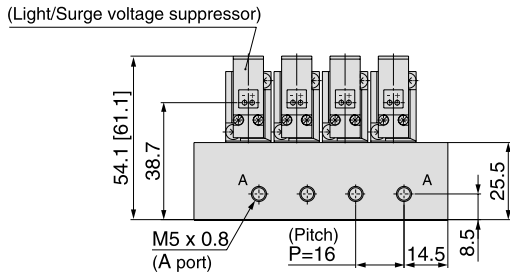
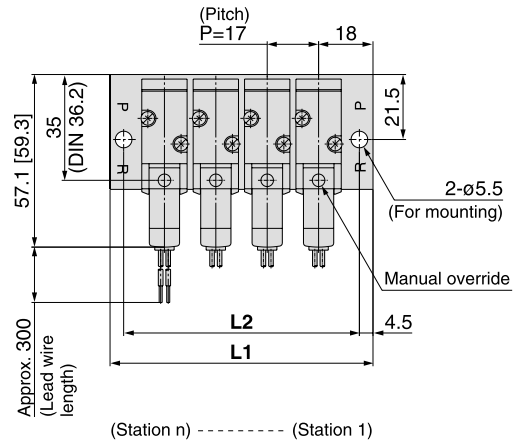
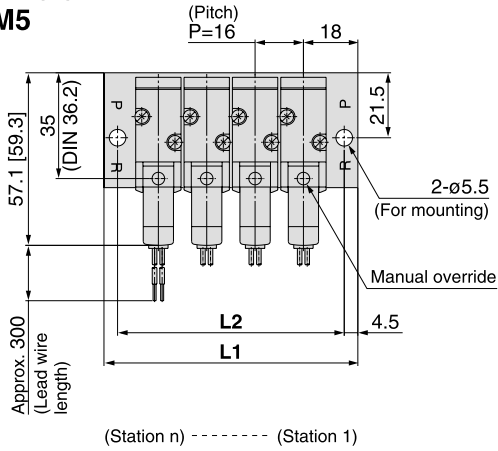
# Series SYJ500

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



**Grommet (G)**  
**For M5**

**For 1/8**



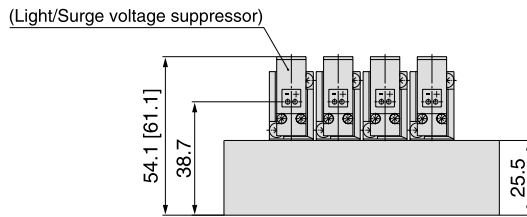
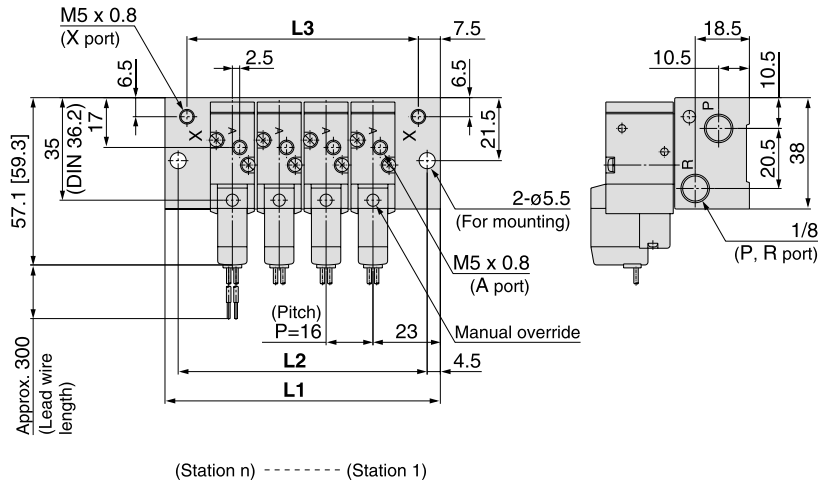
Port size	Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
M5	L1	52	68	84	100	116	132	148	164	180	196	212	228	244	260	276	292	308	324	340
	L2	43	59	75	91	107	123	139	155	171	187	203	219	235	251	267	283	299	315	331
1/8	L1	53	70	87	104	121	138	155	172	189	206	223	240	257	274	291	308	325	342	359
	L2	44	61	78	95	112	129	146	163	180	197	214	231	248	265	282	299	316	333	350

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ500

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



## Grommet (G)



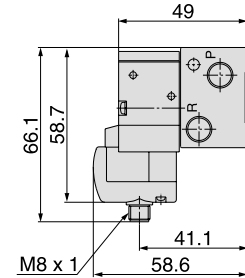
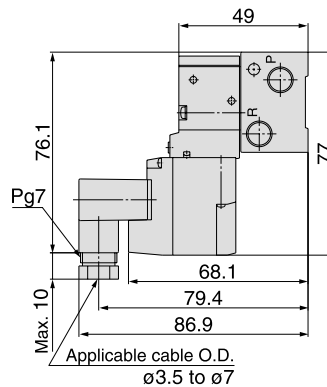
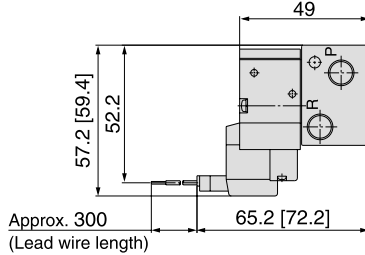
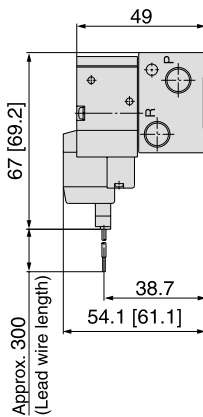
- V100
- SY
- SYJ**
- VK
- VZ
- VT
- VP
- VG
- VP
- S070
- VQ
- VKF
- VQZ
- VZ
- VS
- VFN

### L plug connector (L)

### M plug connector (M)

### DIN terminal (D)

### M8 connector (WO)



\* Refer to page 4-4-61 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>	62	78	94	110	126	142	158	174	190	206	222	238	254	270	286	302	318	334	350
<b>L2</b>	53	69	85	101	117	133	149	165	181	197	213	229	245	261	277	293	309	325	341
<b>L3</b>	47	63	79	95	111	127	143	159	175	191	207	223	239	255	271	287	303	319	335

# Series SYJ500

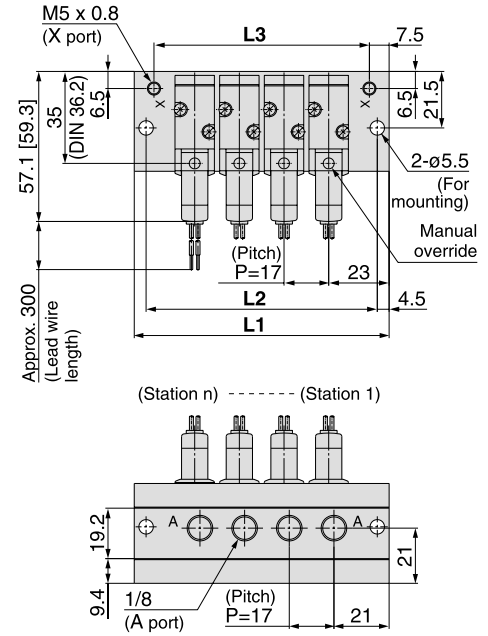
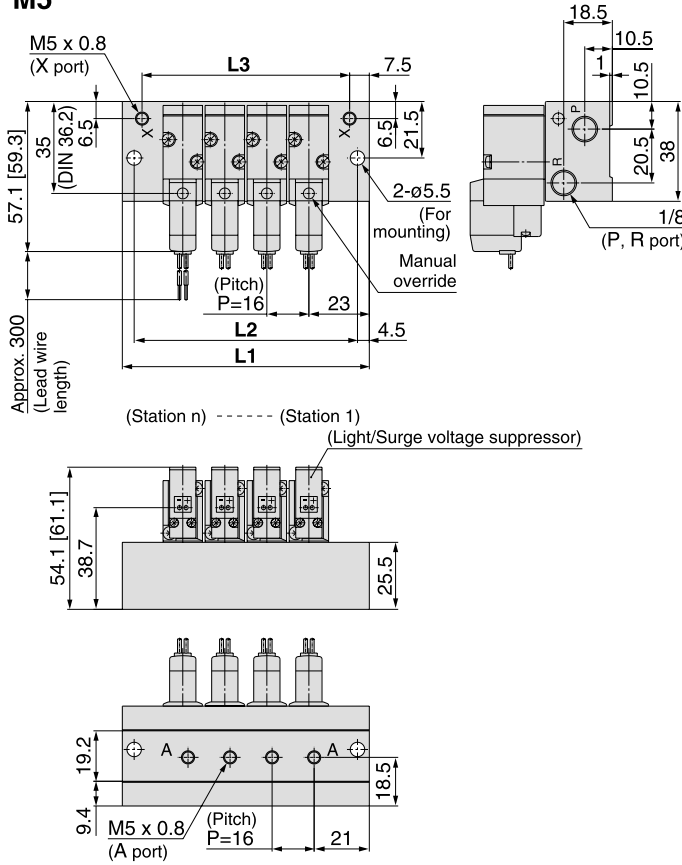
Type 40R Manifold: Bottom Ported (External Pilot Type)/SS3YJ5-40R-**Stations**-M5, 01□



Grommet (G)

For 1/8

For M5

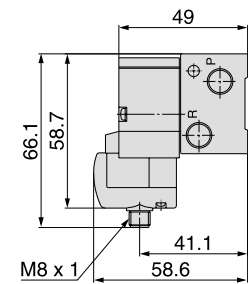
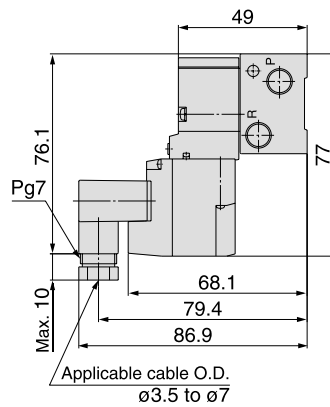
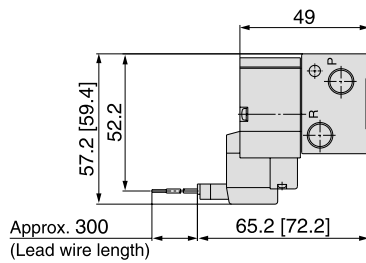
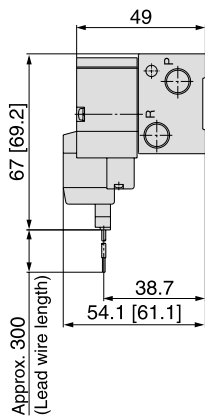


L plug connector (L)

M plug connector (M)

DIN terminal (D)

M8 connector (WO)



\* Refer to page 4-4-61 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

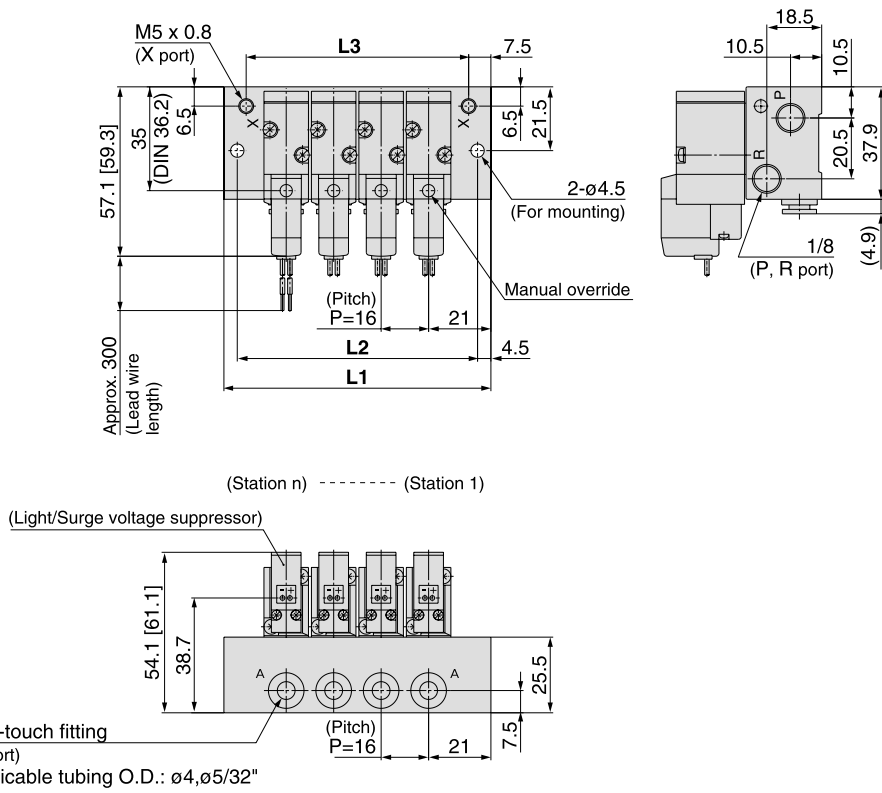


# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ500

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

\* [ ] for AC

## Grommet (G)



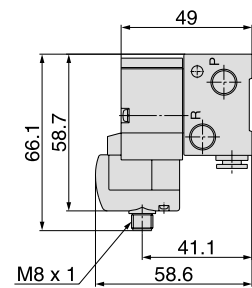
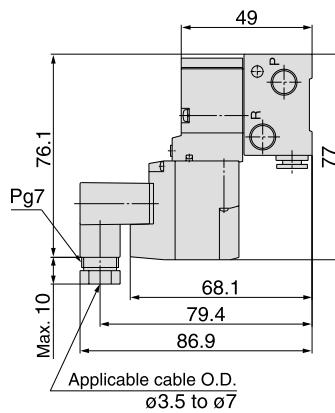
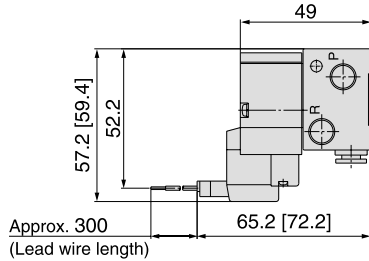
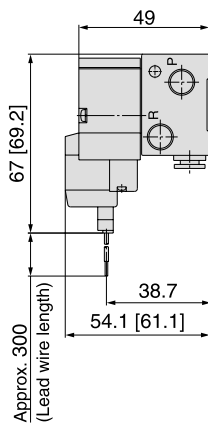
- V100
- SY
- SYJ**
- VK
- VZ
- VT
- VP
- VG
- VP
- S070
- VQ
- VKF
- VQZ
- VZ
- VS
- VFN

## L plug connector (L)

## M plug connector (M)

## DIN terminal (D)

## M8 connector (WO)



\* Refer to page 4-4-61 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>	58	74	90	106	122	138	154	170	186	202	218	234	250	266	282	298	314	330	346
	<b>L2</b>	49	65	81	97	113	129	145	161	177	193	209	225	241	257	273	289	305	321	337
	<b>L3</b>	43	59	75	91	107	123	139	155	171	187	203	219	235	251	267	283	299	315	331

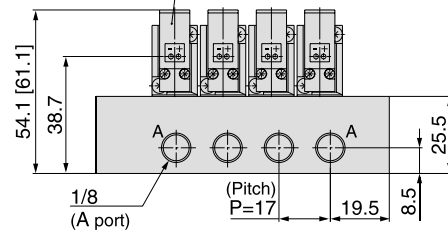
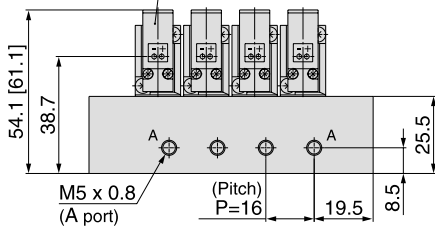
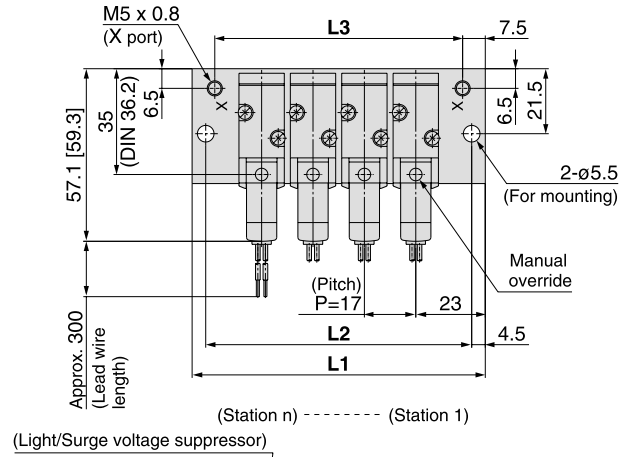
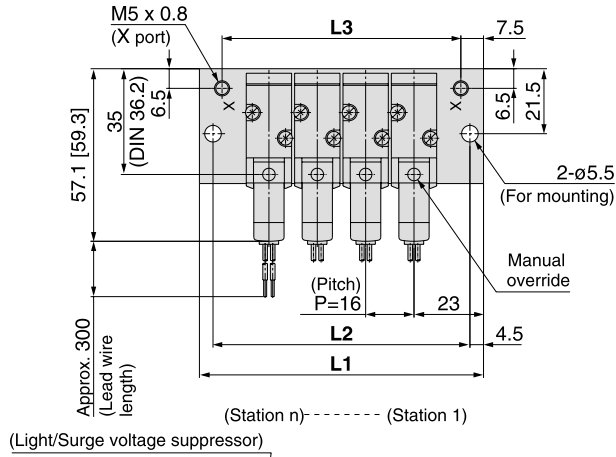
# Series SYJ500

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



For M5

For 1/8

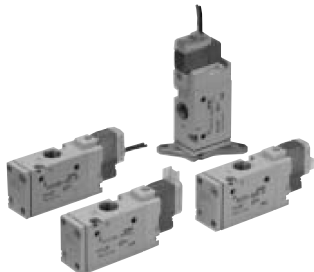


Port size	Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
M5	L1	62	78	94	110	126	142	158	174	190	206	222	238	254	270	286	302	318	334	350
	L2	53	69	85	101	117	133	149	165	181	197	213	229	245	261	277	293	309	325	341
	L3	47	63	79	95	111	127	143	159	175	191	207	223	239	255	271	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

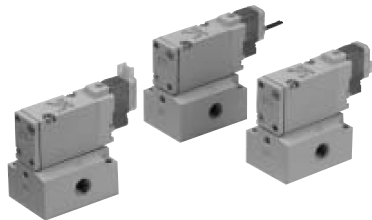


# 3 Port Pilot Operated Solenoid Valve Rubber Seal

## Series SYJ700



Body ported

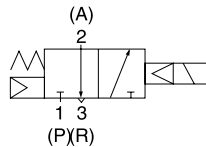


Base mounted

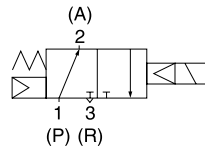
### JIS Symbol

Internal pilot

SYJ71 $\frac{2}{4}$

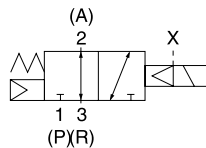


SYJ72 $\frac{2}{4}$

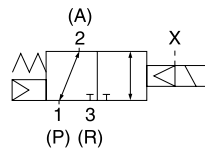


External pilot

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



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



### Specifications

Fluid	Air	
Operating pressure range MPa	Internal pilot	0.15 to 0.7
Ambient and fluid temperature (°C)	-10 to 50 (No freezing. Refer to page 4-18-4.)	
Response time ms (at 0.5 MPa) <sup>Note 1)</sup>	30 or less	
Max. operating frequency (Hz)	5	
Manual override (Manual operation)	Non-locking push type, push-turn locking slotted type, push-turn locking lever type	
Pilot exhaust method	Individual exhaust for the pilot valve, common exhaust for the pilot and main valve	
Lubrication	Not required	
Mounting orientation	Unrestricted	
Shock/Vibration resistance (m/s <sup>2</sup> ) <sup>Note 2)</sup>	150/30	
Enclosure	Dustproof (* DIN terminal, M8 connector conforms to IP65)	



\* Based on IEC529

Note 1) Based on dynamic performance test, JIS B 8374-1981. (Coil temperature: 20°C, at rated voltage, without surge voltage suppressor.)

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

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

### Solenoid Specifications

Electrical entry	Grommet (G), (H), L plug connector (L), M plug connector (M), DIN terminal (D), M8 connector (W)		
Coil rated voltage (V)	DC	24, 12, 6, 5, 3	
	AC <sup>50/60</sup> Hz	100, 110, 200, 220	
Allowable voltage fluctuation	±10% of rated voltage		
Power consumption (W)	DC	Standard	0.35 (With indicator light: 0.4 (DIN terminal with indicator light: 0.45))
		With power saving circuit	0.1 (With indicator light only)
Apparent power (VA)	AC	100 V	1.4 (With indicator light: 1.5)
		110 V [115 V]	1.6 (With indicator light: 1.7) [1.7 (With indicator light: 1.8)]
		200 V	2.3 (With indicator light: 2.4)
		220 V [230 V]	2.5 (With indicator light: 2.6) [2.7 (With indicator light: 2.8)]
Surge voltage suppressor	Diode (DIN terminal, varistor when non-polar types)		
Indicator light	LED (Neon bulb 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.




**Made to Order Specifications**  
(For details, refer to pages 4-4-54 to 55.)

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ700

## Flow Characteristics/Weight

Valve model		Type of actuation	Port size	Flow 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.		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.

V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

VFN

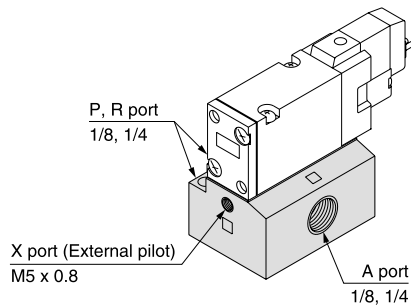
## External Pilot

### 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 4-4-42.  
 Note 2) External pilot type body ported valves (SYJ7□2R) can only be used on the manifold.  
 For body ported models with the external pilot option, please refer to page 4-4-55.

## How to Order

**Rated voltage**

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

**Type of actuation**

1	Normally closed
2	Normally open

**AC (50/60 Hz)**

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

**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)

**Electrical entry for D**

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

**Thread type**

Nil	Rc
F	G
N	NPT
T	NPTF

**Bracket**

Nil	Without bracket
F	With bracket

**Coil specifications**

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

**Manual override**

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

**Thread type**

Nil	Rc
F	G
N	NPT
T	NPTF

**Port size**

Nil	Without sub-plate	01: 1/8 port With sub-plate	02: 1/4 port With sub-plate
-----	-------------------	-----------------------------	-----------------------------

**Body option**

Nil: Individual pilot exhaust type

M: Common exhaust for the pilot and main valve

R: External pilot type\*

**Electrical entry**

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	WO: Without connector cable		
H: Lead wire length 600 mm	LN: Without lead wire	LO: Without connector	DO: Without connector			
		MN: Without lead wire				
		MO: Without connector				

**Body ported** SYJ7 1 2 [ ] [ ] 5 M [ ] [ ] 01 [ ] [ ]

**Base mounted** SYJ7 1 4 [ ] [ ] 5 M [ ] [ ] 01 [ ] [ ]

**3 port** (For manifold type 20, 21R)

**3 port** (For sub-plate style, manifold type 40, 41, 41R, 42, 42R)

**Note** When placing an order for body ported solenoid valve as a single unit, mounting bolt for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to page 4-4-43.)

\* SYJ7□2R is only for manifold use.

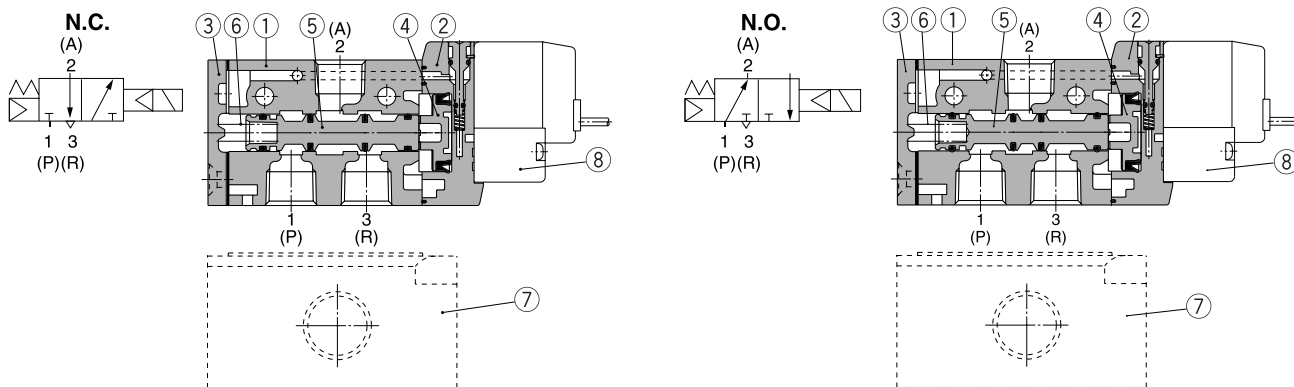
\* "LN", "MN" type: with 2 sockets.

\* DIN terminal "Type Y" conforming to DIN43650C standard is also available. For details, refer to page 4-4-54.

\* For connector cable of M8 connector, refer to page 4-4-60.

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ700

## Construction



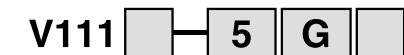
### Component Parts

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	SYJ700-9-1	1/8 Aluminum die-casted
		SYJ700-9-2	1/4
⑧	Pilot valve	V111(T)-□□□□	

### How to Order Pilot Valve Assembly



#### Coil specifications

Nil	Standard: DC specifications
A	Standard: AC specifications
T	With power saving circuit (24, 12 VDC only)

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

#### Rated voltage

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

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

#### Light/Surge voltage suppressor

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

\* For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.  
\* For "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 connector Without connector cable

\* For connector cable of M8 connector, refer to page 4-4-60.

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

For DC: SY100-30-4A-□

For 100 VAC: SY100-30-1A-□

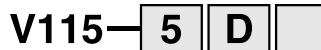
For 200 VAC: SY100-30-2A-□

For other voltages of AC: SY100-30-3A-□

Without lead wire: SY100-30-A  
(with connector and 2 of sockets only)

#### Lead wire length

Nil	300 mm
6	600 mm
10	1000 mm
15	1500 mm
20	2000 mm
25	2500 mm
30	3000 mm
50	5000 mm



#### 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.

#### Light/Surge voltage suppressor

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

\* "DOZ" is 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	terminal	Without connector

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



#### Cable length

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

V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

VFN

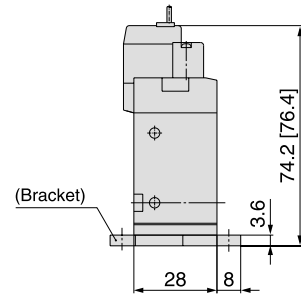
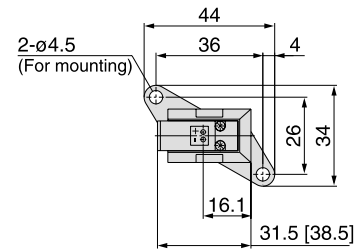
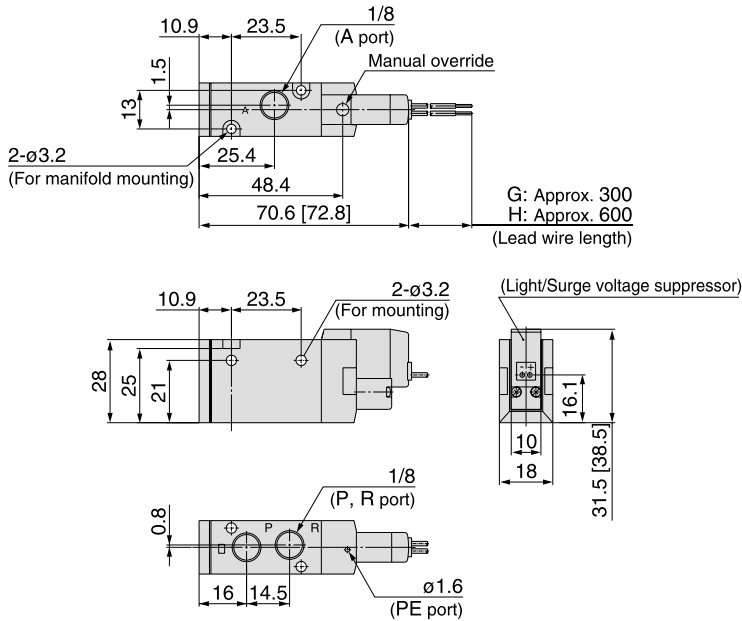
# Series SYJ700

## Body Ported



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

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

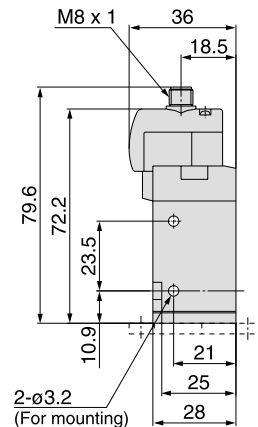
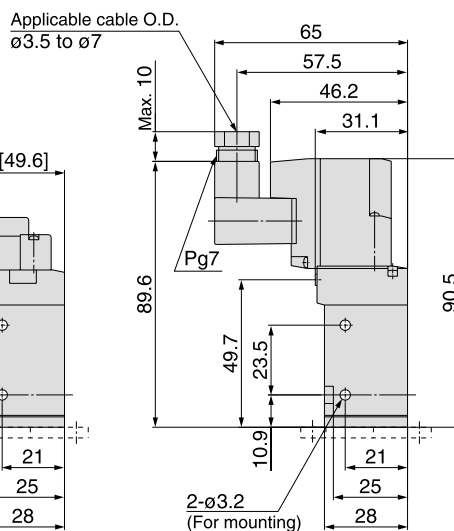
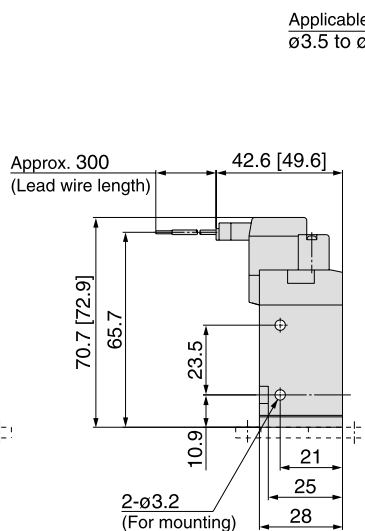
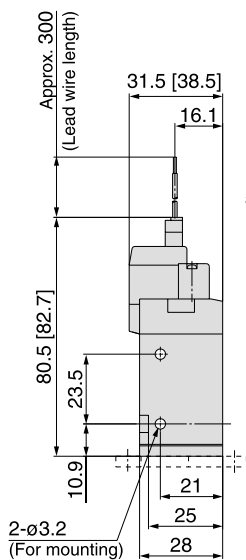


L plug connector (L):  
SYJ7□2-□L□□-01□ (-F)

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

DIN terminal (D):  
SYJ7□2-□D□□-01□ (-F)

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



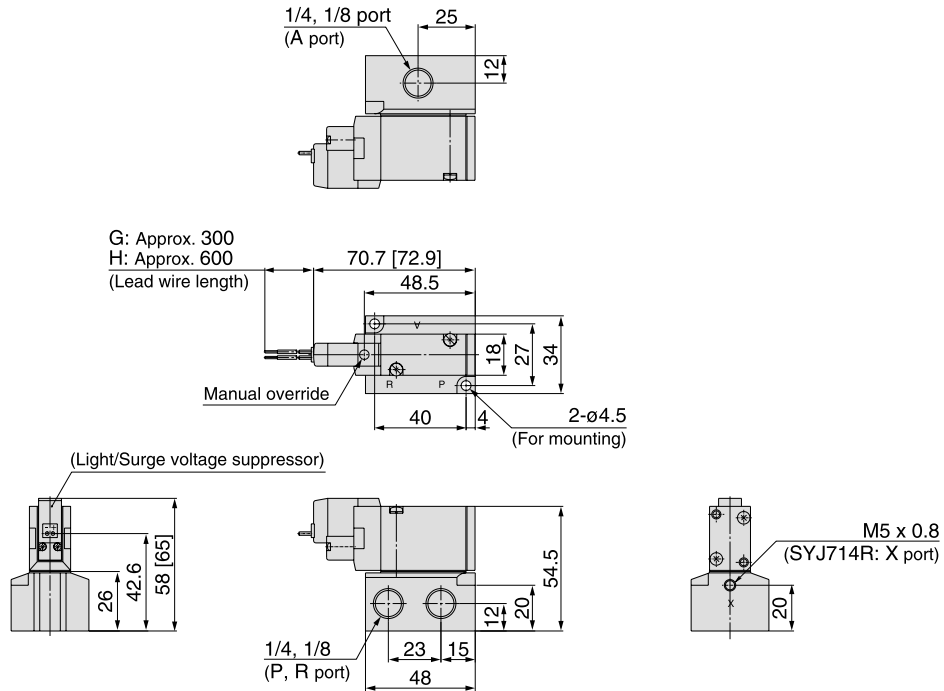
\* Refer to page 4-4-61 for dimensions with connector cable.

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ700

## Base Mounted (With Sub-plate)



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



V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

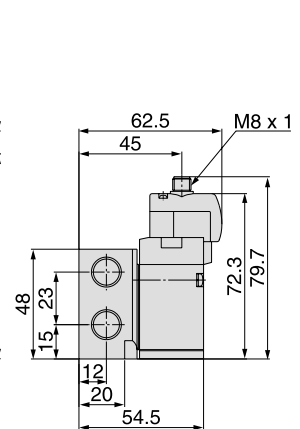
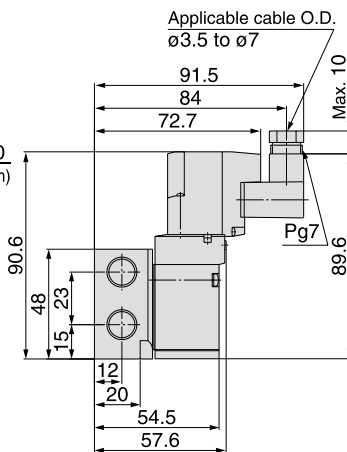
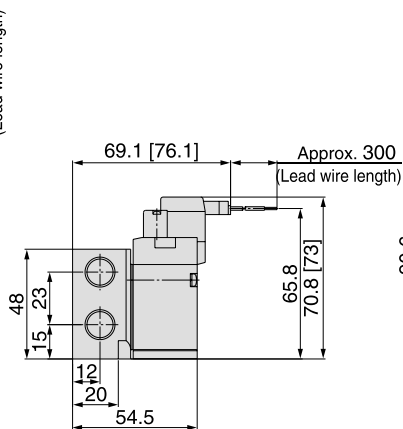
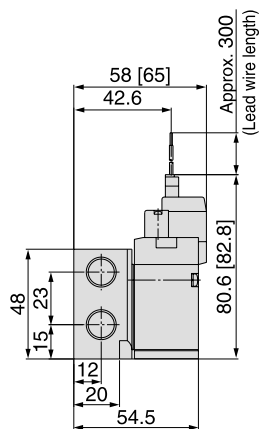
VFN

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

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

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

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

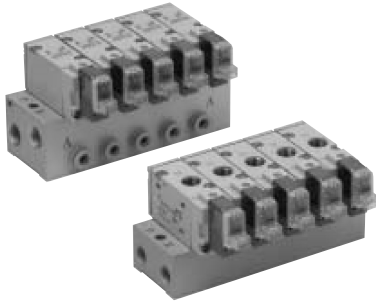


\* Refer to page 4-4-61 for dimensions with connector cable.



# Series SYJ700

# 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
Manifold type	Single base/B mount					
P (SUP), R (EXH)	Common SUP, common EXH					
Valve stations	2 to 20 stations					
A port Porting specifications	Location	Valve	Valve	Base	Base	Base
	Direction	Top	Top	Bottom	Bottom	Side
	P, R port	1/8	1/4	1/8	1/4	1/4
Port size	A port	1/8	1/8	1/8	1/8	1/8 C6 (ø6 one-touch fitting) C8 (ø8 one-touch fitting)
	X port <sup>Note)</sup>	—	M3 x 0.8	—	M5 x 0.8	M5 x 0.8



Note) Only for external pilot

## Flow Characteristics

Manifold			Port size		Flow characteristics					
					1 → 2 (P → A)			2 → 3 (A → R)		
			1(P), 3(R) port	2(A) port	C [dm <sup>3</sup> /(s·bar)]	b	Cv	C [dm <sup>3</sup> /(s·bar)]	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
Base mounted for internal pilot	Type SS3YJ7-40	SYJ7□4	1/8	1/8	2.1	0.35	0.59	2.3	0.27	0.54
	Type SS3YJ7-41		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
Base mounted for external pilot	Type SS3YJ7-41R	SYJ7□4R	1/4	1/8	2.2	0.35	0.59	2.4	0.36	0.66
	Type SS3YJ7-42R-01		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)

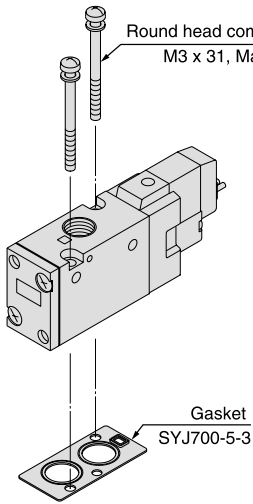
↳ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ700

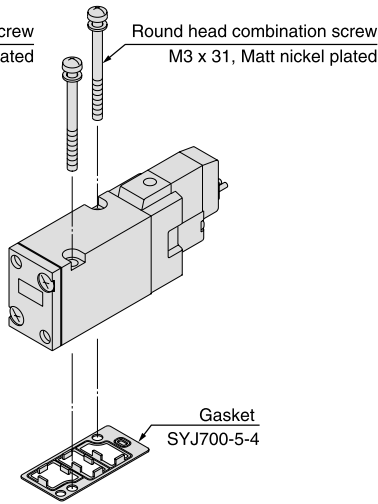
## Combinations of Solenoid Valve, Manifold Gasket and Manifold Base

Body ported (Type SYJ7□2)

Base mounted (Type SYJ7□4)



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

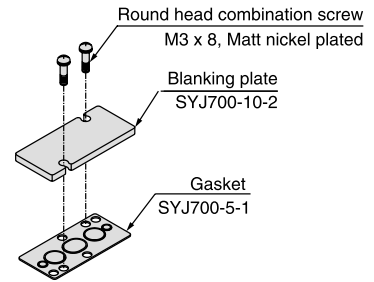


**Applicable base**  
**Sub-plate**  
 SS3YJ7-40 } Manifold  
 SS3YJ7-41 } base  
 SS3YJ7-42 }  
 SS3YJ7-41R }  
 SS3YJ7-42R }

## Blanking Plate Assembly

Part no.: SYJ700-10-2A

(In common for body ported type and base mounted type)



V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

VFN

### **Caution**

**Mounting screw tightening torques**

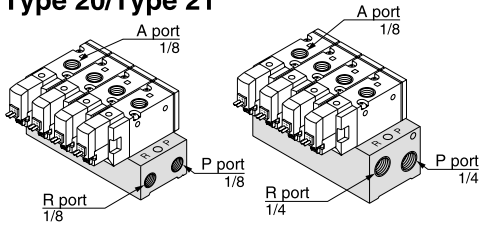
**M3: 0.8 N·m**

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

# Series SYJ700

## 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

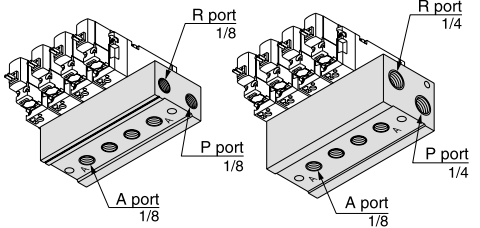
**Applicable solenoid valve**  
 SYJ712-□□□□-01  
 SYJ712M-□□□□-01  
 SYJ722-□□□□-01  
 SYJ722M-□□□□-01

**Applicable blanking plate assembly**  
 SYJ700-10-2A



Note) If there are more than 6 stations for type 20, or more than 9 stations for type 21 type, 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

A port size	
01	1/8

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

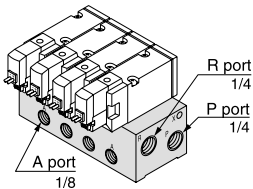
**Applicable solenoid valve**  
 SYJ714-□□□□  
 SYJ714M-□□□□  
 SYJ724-□□□□  
 SYJ724M-□□□□

**Applicable blanking plate assembly**  
 SYJ700-10-2A



Note) If there are more than 6 stations for type 40, or more than 9 stations for type 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

**Applicable solenoid valve**  
 SYJ714-□□□□  
 SYJ714M-□□□□  
 SYJ724-□□□□  
 SYJ724M-□□□□

**Applicable blanking plate assembly**  
 SYJ700-10-2A

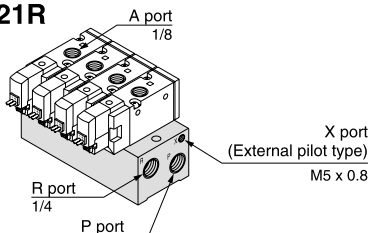


Note) For more than 9 stations, supply air to both sides of P port and exhaust air from both sides of R port.

## 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

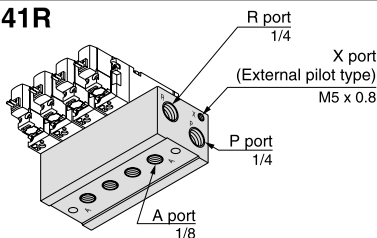
**Applicable solenoid valve**  
 SYJ712R-□□□□-01  
 SYJ722R-□□□□-01

**Applicable blanking plate assembly**  
 SYJ700-10-2A



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

A port size	
01	1/8

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

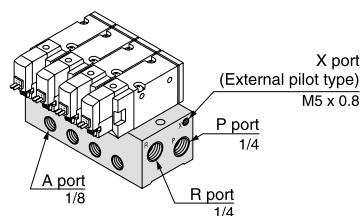
**Applicable solenoid valve**  
 SYJ714R-□□□□  
 SYJ724R-□□□□

**Applicable blanking plate assembly**  
 SYJ700-10-2A



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

**Applicable solenoid valve**  
 SYJ714R-□□□□  
 SYJ724R-□□□□

**Applicable blanking plate assembly**  
 SYJ700-10-2A



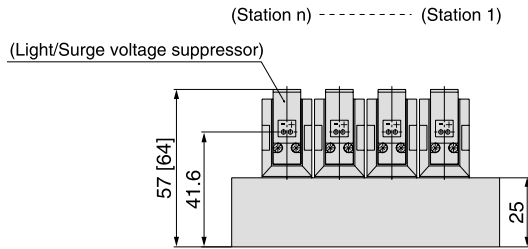
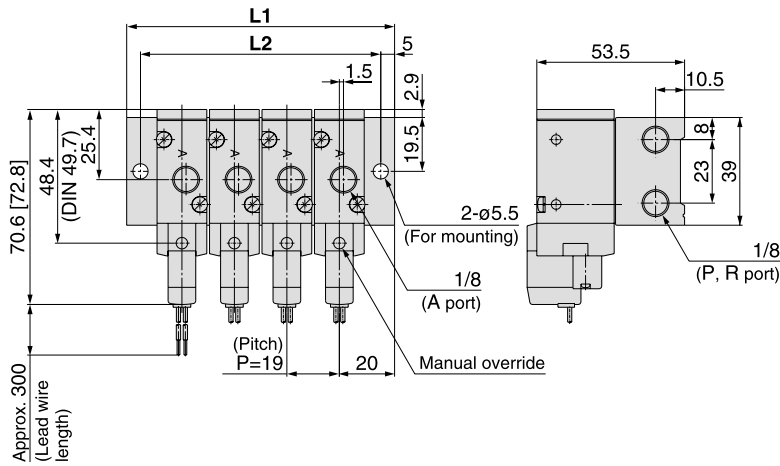
Note) For more than 9 stations, supply/exhaust air to/from both sides of P and R port.

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ700

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



### Grommet (G)



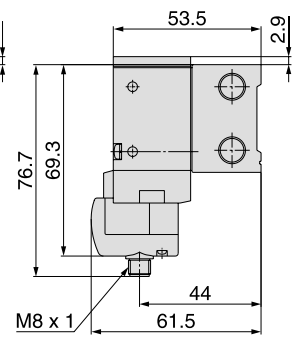
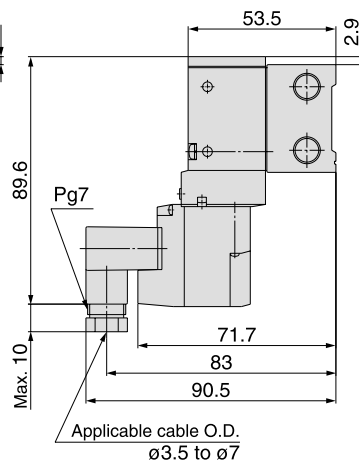
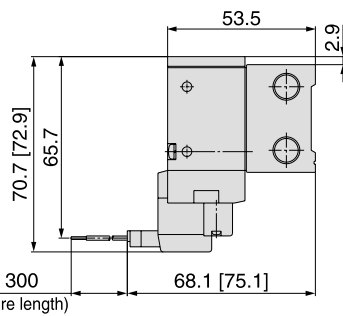
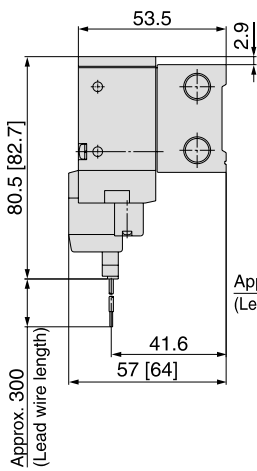
- V100
- SY
- SYJ**
- VK
- VZ
- VT
- VP
- VG
- VP
- S070
- VQ
- VKF
- VQZ
- VZ
- VS
- VFN

### L plug connector (L)

### M plug connector (M)

### DIN terminal (D)

### M8 connector (WO)



\* Refer to page 4-4-61 for dimensions with connector cable.

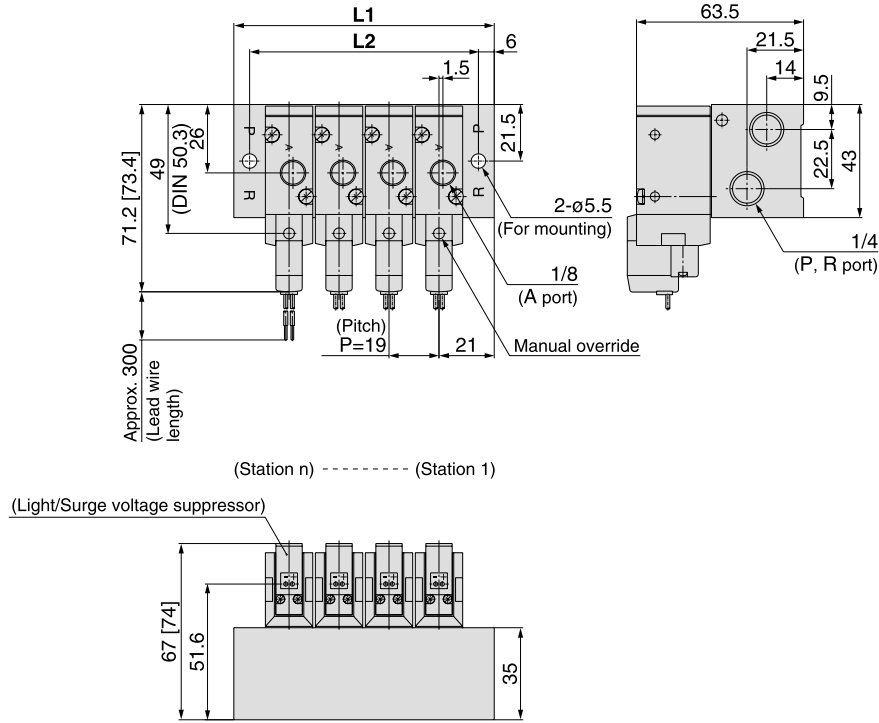
Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
<b>L1</b>	59	78	97	116	135	154	173	192	211	230	249	268	287	306	325	344	363	382	401
<b>L2</b>	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

# Series SYJ700

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



### Grommet (G)

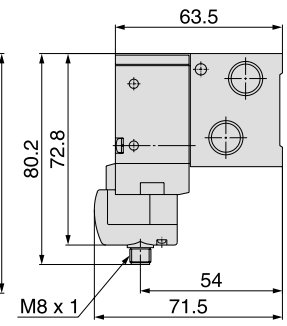
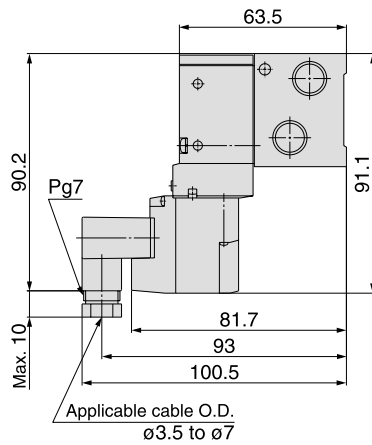
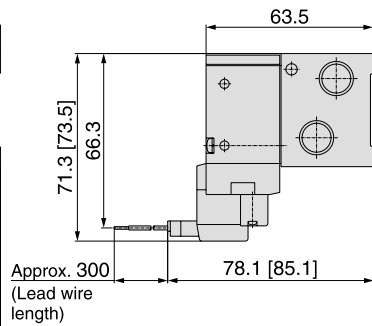
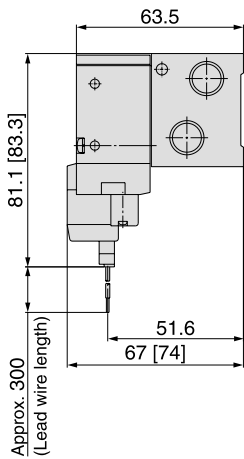


### L plug connector (L)

### M plug connector (M)

### DIN terminal (D)

### M8 connector (WO)



\* Refer to page 4-4-61 for dimensions with connector cable.

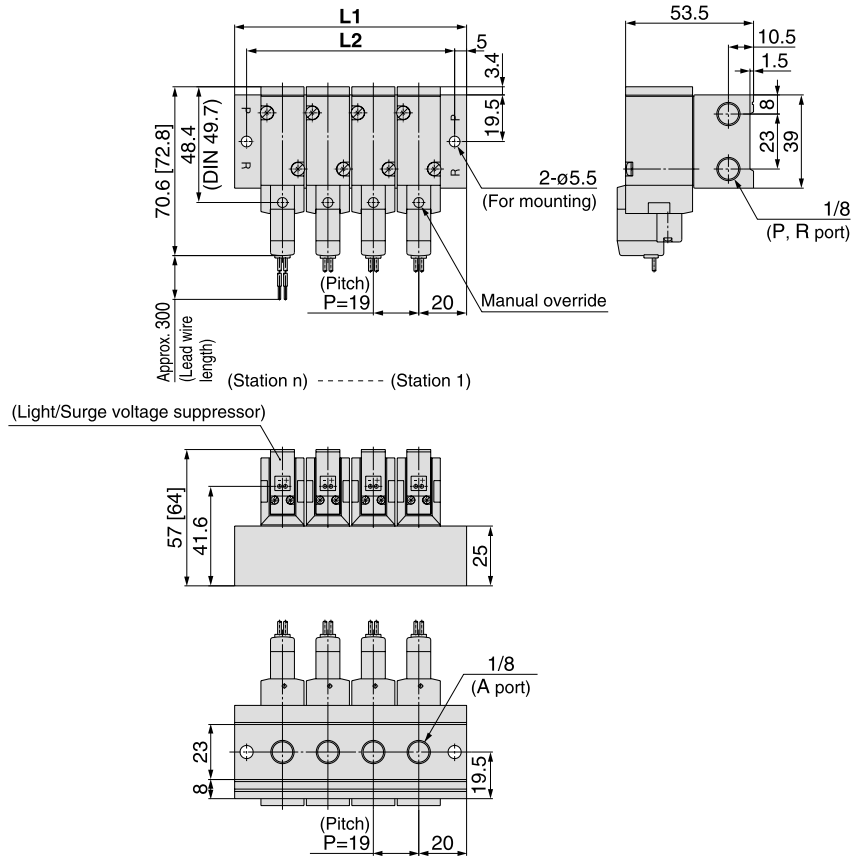
Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
L1	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
L2	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ700

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



## Grommet (G)



V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

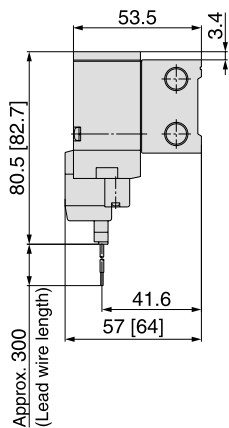
VQZ

VZ

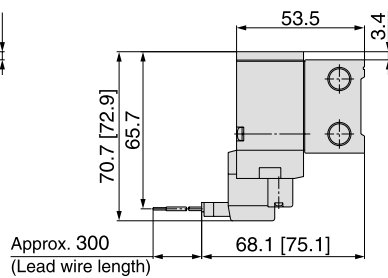
VS

VFN

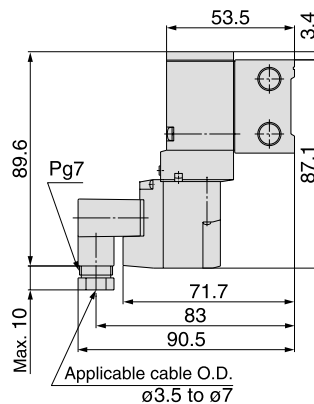
### L plug connector (L)



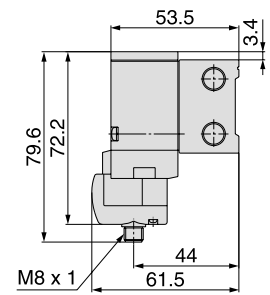
### M plug connector (M)



### DIN terminal (D)



### M8 connector (WO)



\* Refer to page 4-4-61 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

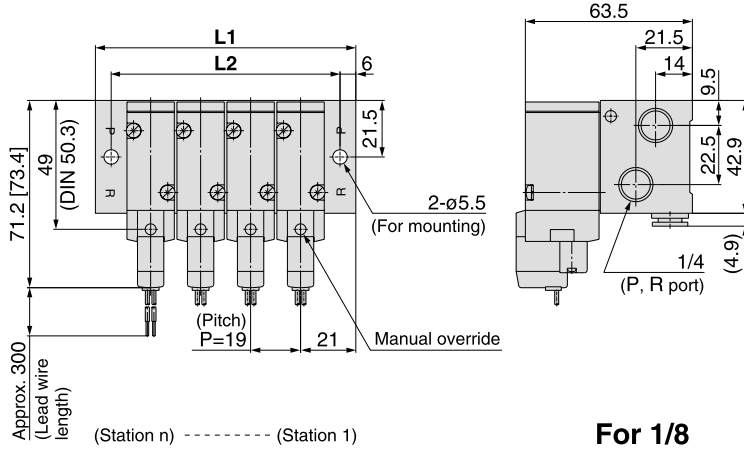
# Series SYJ700

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

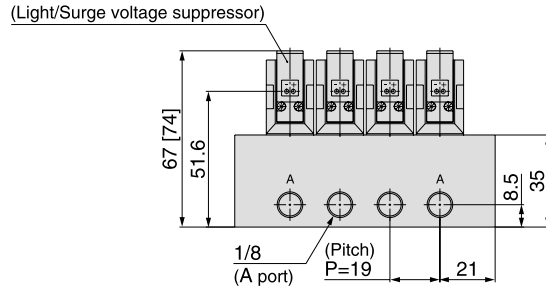
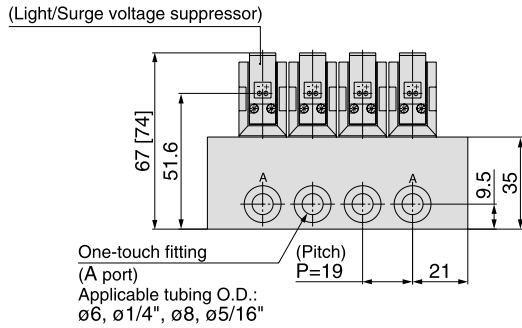


## Grommet (G)

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



For 1/8

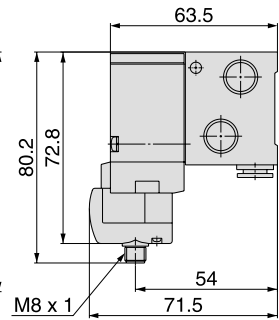
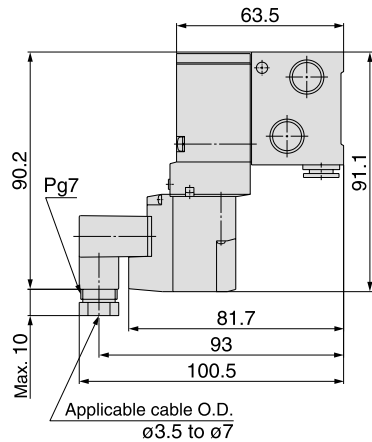
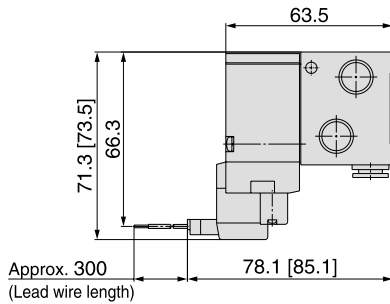
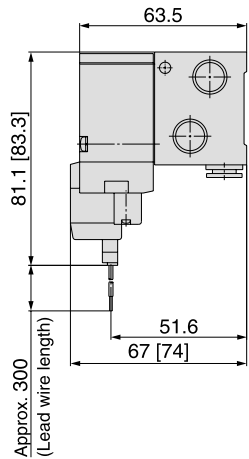


## L plug connector (L)

## M plug connector (M)

## DIN terminal (D)

## M8 connector (WO)



\* Refer to page 4-4-61 for dimensions with connector cable.

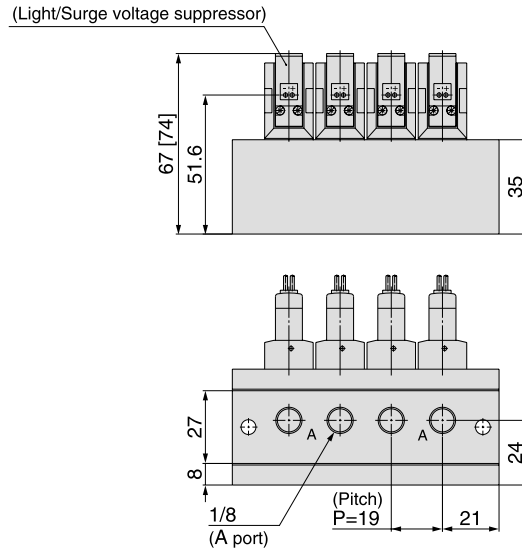
Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
L1	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
L2	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series **SYJ700**

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



Grommet (G)



V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

VFN

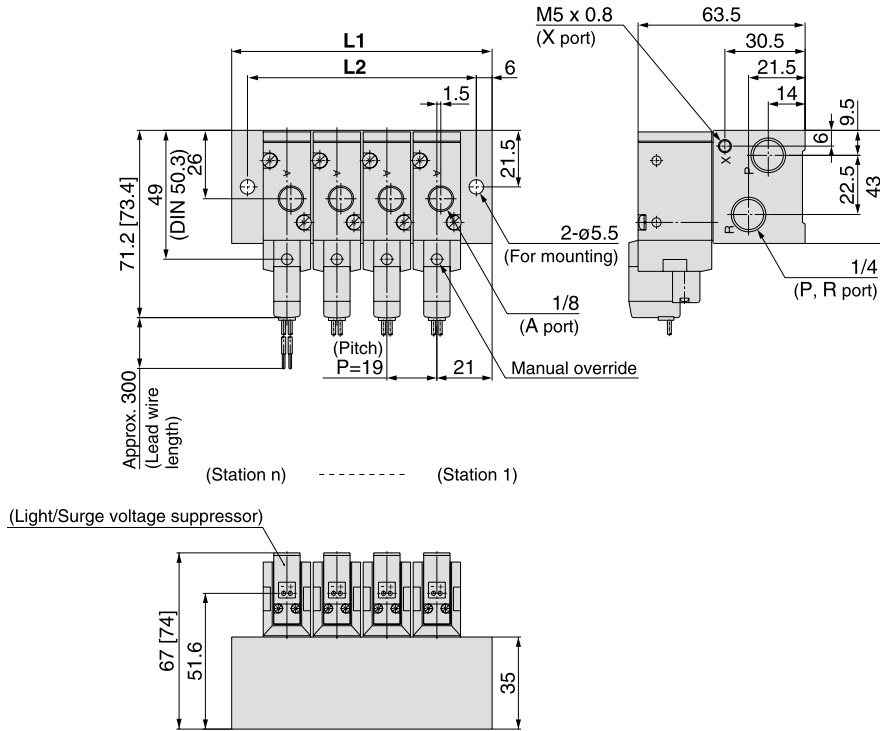


# Series SYJ700

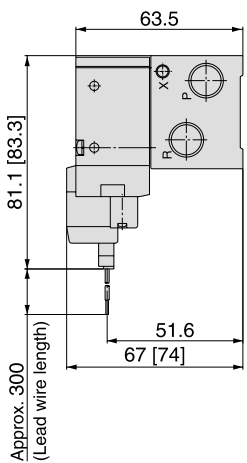
## Type 21R Manifold: Top Ported (External Pilot Type)/SS3YJ7-21R- Stations (-00□)



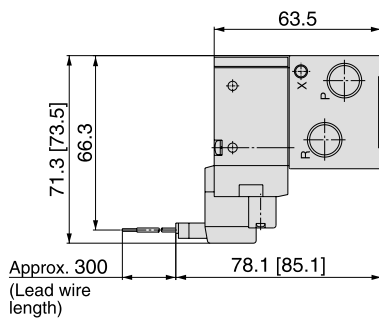
### Grommet (G)



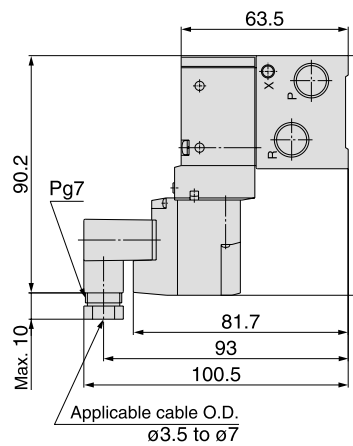
### L plug connector (L)



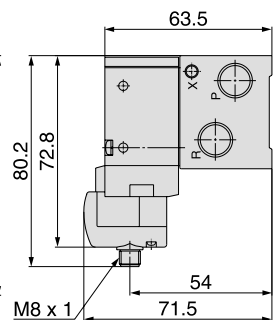
### M plug connector (M)



### DIN terminal (D)



### M8 connector (WO)



\* Refer to page 4-4-61 for dimensions with connector cable.

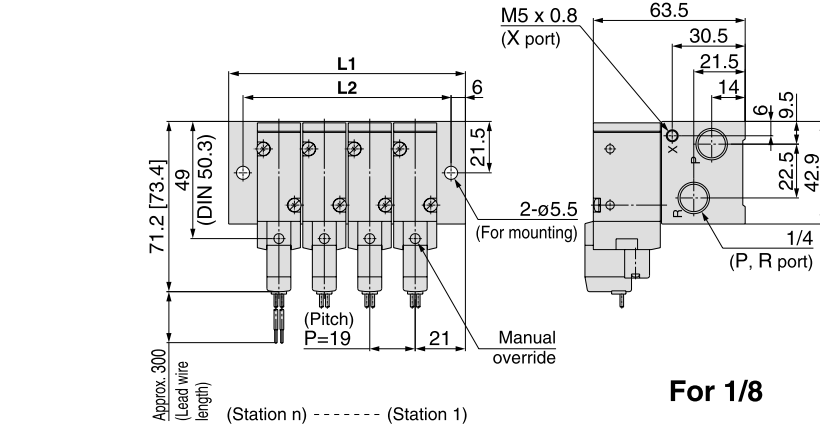
Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
<b>L1</b>	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
<b>L2</b>	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

# 3 Port Pilot Operated Solenoid Valve Rubber Seal Series SYJ700

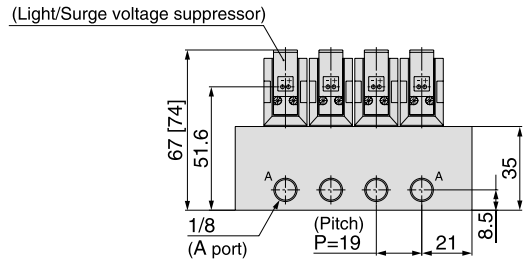
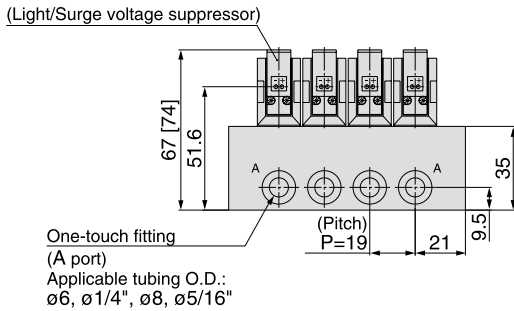
Type 42R Manifold: Side Ported/SS3YJ7-42R- Stations -01,  C6 N7   
 C8  N9



## Grommet (G)



**For 1/8**



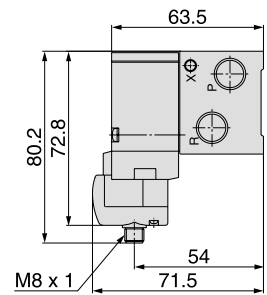
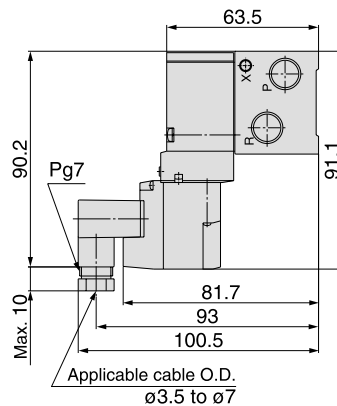
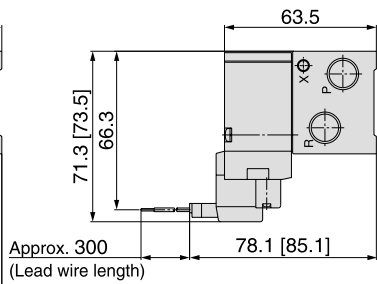
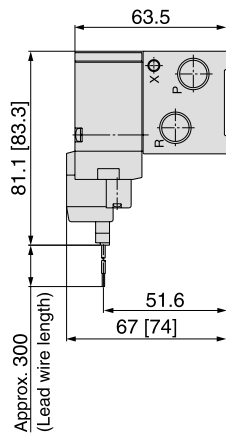
- V100
- SY
- SYJ**
- VK
- VZ
- VT
- VP
- VG
- VP
- S070
- VQ
- VKF
- VQZ
- VZ
- VS
- VFN

## L plug connector (L)

## M plug connector (M)

## DIN terminal (D)

## M8 connector (WO)

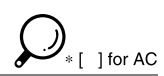


\* Refer to page 4-4-61 for dimensions with connector cable.

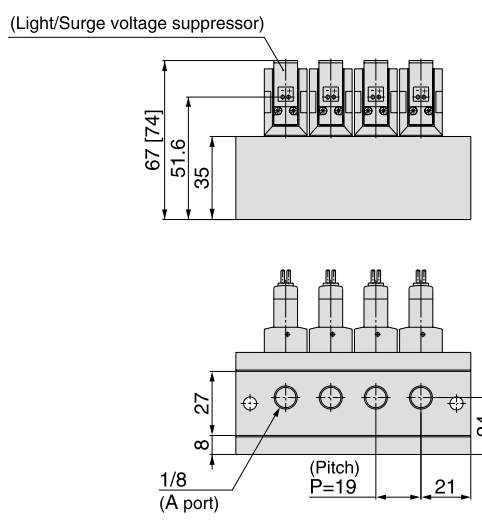
Station n	Station 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Station 20
L1	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
L2	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

# Series SYJ700

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



## Grommet (G)





# Series SYJ500/700

## Made to Order Specifications: DIN Terminal Conformed to DIN 43650C

DIN terminal type conforming to DIN 43650C (DIN pitch 8 mm) standard.

### How to Order Valves

**Rated voltage**

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

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

**Light/Surge voltage suppressor**

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor

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

**Bracket**

Nil	Without bracket
F	(With bracket)

\* Bracket is not mounted.  
\* External pilot type does not exist.

**Series**

5	SYJ500
7	SYJ700

**Type of actuation**

1	Normally closed
2	Normally open

**Port size**

M5	M5 x 0.8
01	1/8 (SYJ700 only)

**Body option**

Nil	Pilot valve individual exhaust
M	Common exhaust type for main and pilot valve
R	External pilot*

\* SYJ5□2R is only for manifold use.

**Electrical entry**

Y: With connector  
YO: Without connector

**Port size**

Nil	Without sub-plate
01	1/8 port With sub-plate
02	1/4 port With sub-plate (SYJ700 only)

**Thread type**

Nil	Rc
F	G
N	NPT
T	NPTF

**Manual override**

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

**Body ported** SYJ 5 1 2 □ 5 Y □ □ M5 □

**Base mounted** SYJ 5 1 4 □ 5 Y □ □ 01 □

3 port (For manifold type 20, 21R)

3 port (For sub-plate style, manifold type 40, 40R, 41, 41R)

### How to Order Pilot Valve Assembly

V115—5 Y □

**Rated voltage**

DC	
5	24 VDC
6	12 VDC

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

**Light/Surge voltage suppressor**

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor

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

**Electrical entry**

Y	DIN	With connector
YO	terminal	Without connector

### DIN Terminal Part No.

Without indicator light SY100-82-1

### With indicator light

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

### ⚠ Caution

- Use caution in wiring because it won't meet the IP65 (enclosure) standard if you use the other cord than prescribed heavy-duty cord of size (ø3.5 to ø7.5). Also be sure to tighten the ground nut and holding screw with the prescribed torque range. For how to use DIN terminal (wiring procedures, procedures for changing electrical entries, precautions, applicable cable, circuit diagram), refer to page 4-4-59.
- Type D, DIN terminal with 9.4 mm pitch between terminals is not interchangeable.
- DIN terminal except D type has the "N" indication in the end of voltage symbol. In case of DIN terminal without light, "N" is not indicated. Please refer to the name plate to distinguish.
- Dimensions are completely the same as D type terminal.
- When exchanging the pilot valve assembly only, "V115-□D" is interchangeable with "V115-□Y". Do not replace V111 (G, H, L, M, W) to V115-□D/□Y (DIN terminal), and vice versa.



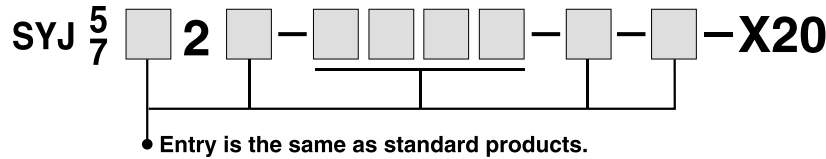
# Series SYJ300/500/700

# Made to Order Specifications:

Please contact SMC for detailed specifications, delivery and pricing.

## Body Ported External Pilot

Applicable solenoid valve series SYJ5□2, SYJ7□2



### Operating Pressure Range MPa

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

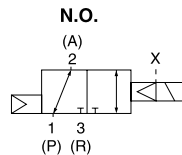
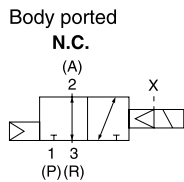
### Dimensions

SYJ500: 8 mm } longer in total length.  
 SYJ700: 8 mm }

### External Pilot Port

Series	Port size
SYJ500/700	M5 x 0.8

### JIS Symbol



V100

SY

**SYJ**

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

VFN



# Specific Product Precautions 1

Be sure to read before handling.

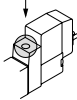
## Manual Override Operation

### **Warning**

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

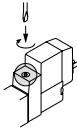
#### ■ **Non-locking push type [Standard]**

Press in the direction of the arrow

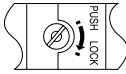


#### ■ **Push-turn slotted locking type [Type D]**

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

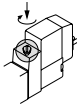


### **Caution**

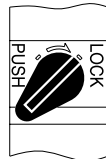
When operating the locking type D with a screw driver, turn it gently using a watchmakers' screwdriver.  
[Torque: Less than 0.1 N·m]

#### ■ **Push-turn lever locking 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 V, 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 V, 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 styles of SYJ300, do not use it without bracket.



# Specific Product Precautions 2

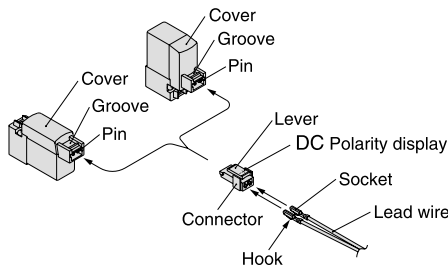
Be sure to read before handling.

## How to Use Plug Connector

### ⚠ Caution

#### 1. Attaching and detaching connectors

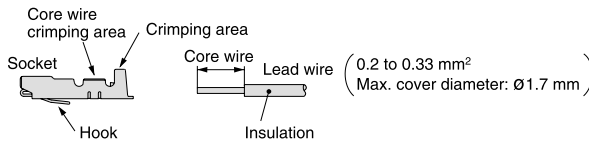
- To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.
- To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb, 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.  
(Please contact SMC for special crimping tools.)



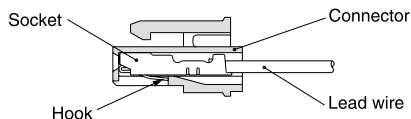
#### 3. Attaching and detaching sockets with lead wires

##### • 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 the case of 2000 mm of lead wire

For DC SYJ312-5LO-M3 SY100-30-4A-20  
For AC SYJ312-1LO-M3 SY100-30-1A-20

V100

SY

SYJ

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

VFN



# Series SYJ300/500/700

# Specific Product Precautions 3

Be sure to read before handling.

## Surge Voltage Suppressor

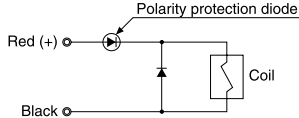
### Caution

<For DC>

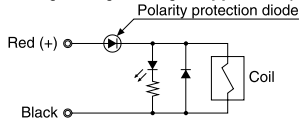
Grommet, L/M Plug Connector Type

#### Standard type (with polarity)

With surge voltage suppressor (□S)

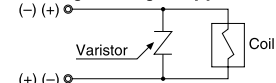


With light/surge voltage suppressor (□Z)

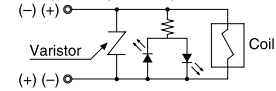


#### Non-polar type

With surge voltage suppressor (□R)



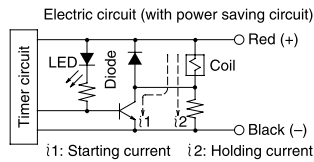
With light/surge voltage suppressor (□U)



- 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 V 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

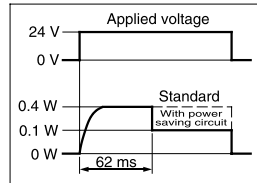
Power consumption is decreased by 1/4 by reducing the wattage required to hold the valve in an energized state. (Effective energizing time is over 62 ms at 24 VDC.)



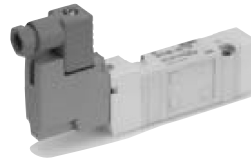
#### Working Principle

With the above circuit, the current consumption when holding is reduced to save energy. Please refer to the electric wave data to the right.

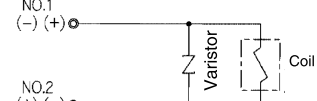
(In the case of SYJ<sup>3</sup>□□□□, the electric wave form of energy saving type)



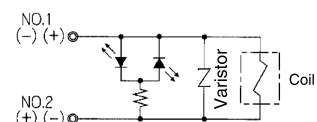
#### DIN Terminal Type



With surge voltage suppressor (DS)

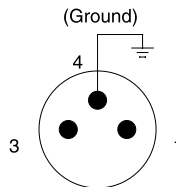


With light/surge voltage suppressor (DZ)



DIN terminal has no polarity.

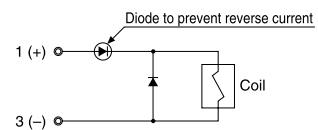
#### M8 Connector Type



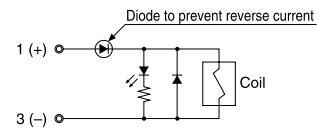
Solenoid valve side pin wiring diagram

#### Standard type (with polarity)

With light/surge voltage suppressor (□S)

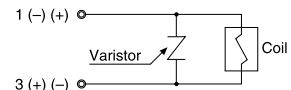


With light/surge voltage suppressor (□Z)

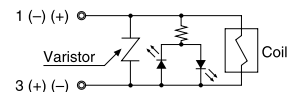


#### Non-polar type

With surge voltage suppressor (□R)



With light/surge voltage suppressor (□U)



Solenoid valve side pin wiring diagram

- In the case of standard type, connect + to 1 and - to 3 according to the polarity.
- For DC voltages other than 12 V and 24 V, incorrect wiring will cause damage to the surge suppressor circuit.





# Series SYJ300/500/700

# Specific Product Precautions 4

Be sure to read before handling.

## Surge Voltage Suppressor

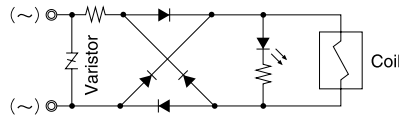
<For AC>

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

### Caution

#### Grommet, L/M Plug Connector Type

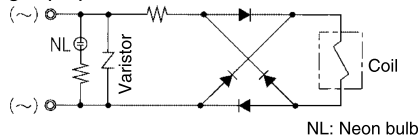
With indicator light (□Z)



Note) Surge voltage suppressor other than diode 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

With indicator 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.

## 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.
4. Secure the cord by fastening the ground nut.

### Caution

When making connections, take note that using other than the supported size (ø3.5 to ø7) 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.

## How to Use DIN Terminal

### Caution

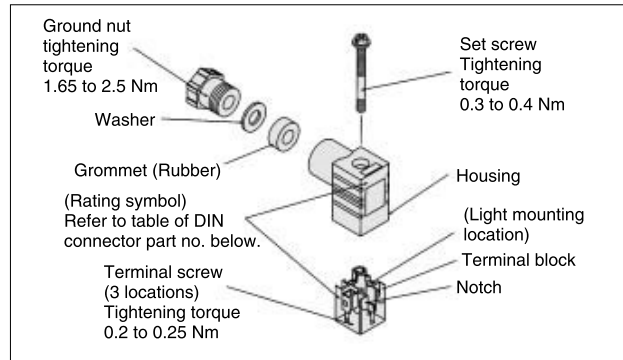
#### Precautions

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

#### Compatible cable

Cord O.D.: ø3.5 to ø7

(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 Nm
SYJ500	M2.5	0.45 Nm
SYJ700	M3	0.8 Nm

## DIN Terminal Part No.

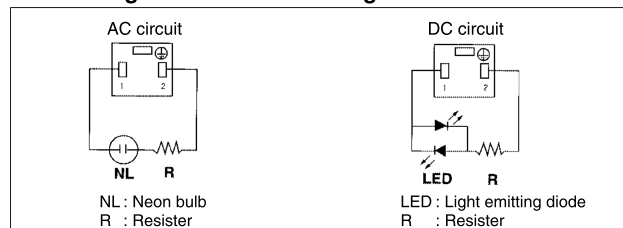
### Caution

Without indicator light SY100-61-1

#### With indicator light

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

#### Circuit Diagram with Indicator Light



Note) Refer to page 4-4-54 for DIN terminal (Y) conforming to DIN 43650C.

V100

SY

SYJ

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

VFN



## Series SYJ300/500/700

# Specific Product Precautions 5

Be sure to read before handling.

### 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, etc.
- Simple and unencumbered appearance by adopting round-shaped cord.

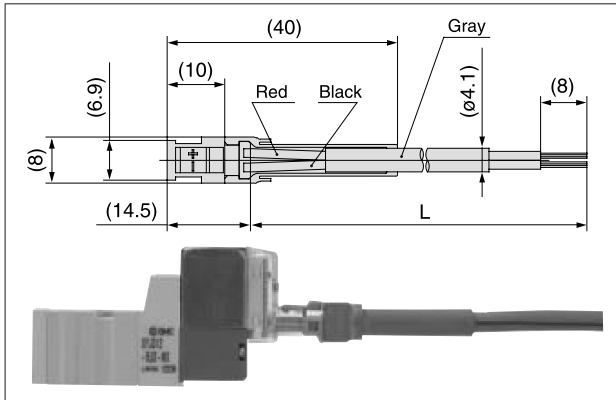
#### How to Order

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.

### M8 Connector

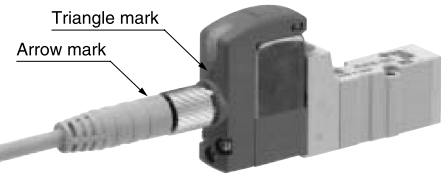
#### ⚠ Caution

1. 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 Series SYJ300 manifold. If more than 10.5 mm, it cannot be mounted due to the size.
2. 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)

#### ⚠ 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.



# Series SYJ300/500/700

# Specific Product Precautions 6

Be sure to read before handling.

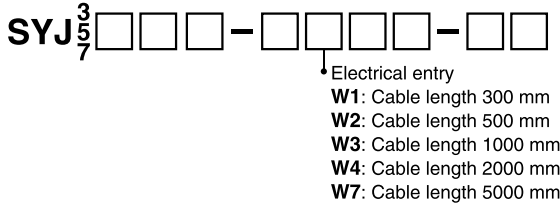
## M8 Connector

### ■ Connector cable

- M8 connector cable for M8 can be ordered as follows:

### How to Order

1. To order solenoid valve and connector cable at the same time.  
(Connector cable will be included in the shipment of the solenoid valve.)

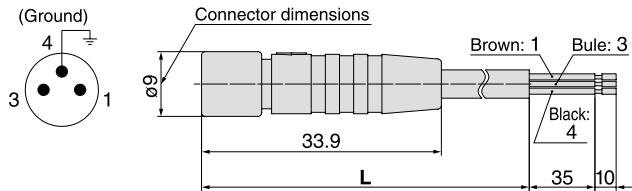


Ex. 1) Cable length: 300 mm

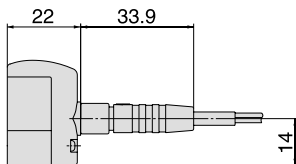
SYJ312-5W1ZE-M3

Symbol for electrical entry

2. 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



## How to Calculate the Flow Rate

### ⚠ Caution

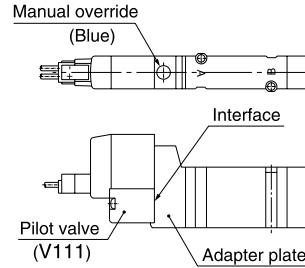
Refer to pages 4-1-32 to 35: How to calculate the flow rate.

## Replacement of Pilot Valve

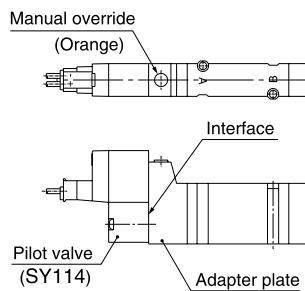
### ⚠ Caution

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 conventional pilot valve used at the interface. Please 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



#### Conventional type



V100

SY

SYJ

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

VFN