# 5 Port Solenoid Valve Series SY





#### Improved pilot valve

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

#### Flow Characteristics

Corios	Flow char	acteristics	
Series	C [dm³/(s·bar)]	b	Cv
SY3000	1.1	0.28	0.29
SY5000	2.8	0.37	0.90
SY7000	4.5	0.28	1.4
SY9000	10	0.29	2.5

**SMC** 

SV

SZ

SY

SYJ

SX

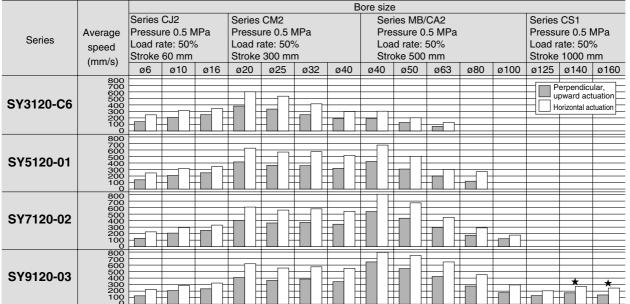
### **Cylinder Speed Chart**

Use as a guide for selection.

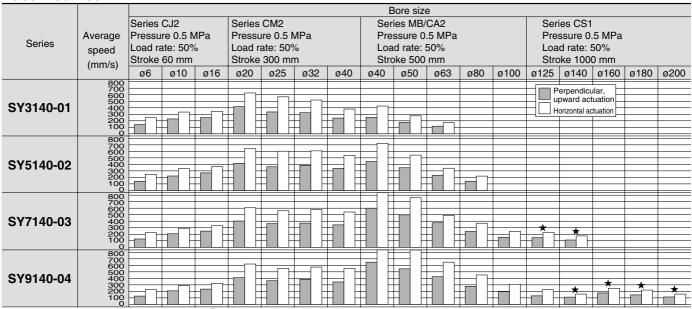
Please confirm the actual conditions with SMC Sizing

Program.





#### **Base Mounted**



Cylinder is in extending. Speed controller is meter-out, which is directly connected with cylinder and its needle is fully opened Average speed of cylinder is obtained by dividing the full stroke time by the stroke. Load factor: ((Load weight x 9.8) Theoretical force) x 100%. The histograms with ★ marked are the case when piping is done by using steel.

#### **Conditions**

Body	ported	Series CJ2	Series CM2	Series MB/CA2	Series CS1
	Tubing bore x Length	T	70604 x 1 r	n	_
SY3120-C6	Speed controller	Α	S2051F-0	6	_
	Silencer		AN120-M5	j	_
	Tubing bore x Length	T0604 x 1 m	T0806	3 x 1 m	_
SY5120-01	Speed controller	AS3001F-06	AS300	01F-08	_
	Silencer		_		
	Tubing bore x Length	T0604 x 1 m	T1075	x 1 m	_
SY7120-02	Speed controller	AS3001F-06	AS400	01F-10	_
	Silencer		AN110-01		_
	Tubing bore x Length	T0604 x 1 m	T1075 x 1 m	T1209	) x 1 m
SY9120-03	Speed controller	AS3001F-06	AS4001F-10	AS400	01F-12
	Silencer		AN200-02		AN202-02

#### Conditions [When using SGP (steel pipe)]

Body	/ ported	Series CS1
	Tubing bore x Length	SGP10A x 1 m
SY9120-03	Speed controller	AS420-03
	Silencer	AN200-02

#### **Conditions**

Base	mounted	Series CJ2	Series CM2	Series MB/CA2	Series CS1					
	Tubing bore x Length	T	0604 x 1 r	n	_					
SY3140-01	Speed controller	Α	S3001F-0	6	_					
	Silencer		AN110-01		_					
	Tubing bore x Length	T0604 x 1 m	T0806	3 x 1 m	_					
SY5140-02	Speed controller	AS3001F-06	AS3001F-06   AS3001F-08							
	Silencer		_							
	Tubing bore x Length	T0604 x 1 m	T1075 x 1 m	T1209 x 1 m						
SY7140-03	Speed controller	AS3001F-06	AS400	01F-10	_					
	Silencer		AN200-02		_					
	Tubing bore x Length	T0604 x 1 m	T1075 x 1 m	T1209	x 1 m					
SY9140-04	Speed controller	AS3001F-06	AS4001F-10	AS400	)1F-12					
	Silencer		AN2	00-02						

#### Conditions [When using SGP (steel pipe)]

Base	mounted	Series CS1
	Tubing bore x Length	SGP10A x 1 m
SY7140-03	Speed controller	AS420-03
	Silencer	AN300-03
	Tubing bore x Length	SGP15A x 1 m
SY9140-04	Speed controller	AS420-04
	Silencer	AN400-04



### **Series Variations**

				Ту	pe c	of ac	tuati	on	V	oltage	I	Elec	trica	l ent	ry	Note 1)
		Sonic	2 pos	sition	3 p	osit	ion	DC 24 V	AC 100 V 50/60 Hz						e suppre	
	Series	6	conductance C [dm <sup>3</sup> /(s·bar)] $4/2\rightarrow5/3$ $(A/B\rightarrow EA/EB)$	Single	Double	Closed center	Exhaust center	Pressure center	12 V 6 V 5 V 3 V	50/60 Hz 110 V 50/60 Hz 200 V 50/60 Hz 220 V 50/60 Hz	Grommet	L plug connector	M plug connector	DIN terminal	M8 Connector	Light/Surge voltage suppressor
Þ	P. 1-4-6	SY3□20	0.65	•	•	•	•	•	•	•	•	•	•		•	•
Porte		SY5□20	2.4		•	•	•	•	•	•	•	•	•	•	•	•
Body Ported		SY7□20	3.3	•		•	•	•	•	•	•	•	•	•	•	•
ш		SY9□20	8.6	•	•	•	•	•	•	•	•	•	•	•	•	•
þ	P. 1-4-24	SY3□40	1.1	•	•	•	•	•	•	•	•	•	•	_	•	•
ounte		SY5□40	2.8	•	•	•	•	•	•	•	•	•	•	•	•	•
Base Mounted		SY7□40	4.5	•	•	•	•	•	•	•	•	•	•	•	•	•
Ва		SY9□40	10	•	•	•	•	•	•	•	•	•	•	•	•	•

		1	anu erri					ΞΑ, t siz		3					A	١, Ε	3 ро	ort	siz	Э						V	alv	e o	ptic	n	
	Series	Non-locking soluted type and the state of th								ottle	Oil resistant, Other than designated turbine oil,	cifications	Low pressure specifications	±	Note 3)	julator															
		Non-locking	Push-turn lock	Push-turn loc	Bracket		70	/ 4	70	/ 2		70	/ 4	70		C4	C6	C8	C10	C12	N3	N7	N9	N11	Exhaust throttle	Oil resistant, Other than desi	Vacuum specifications	Low pressure	External pilot	Enclosure IP65 et general Enclosure IP65	Interface regulator
75	SY3□20	•	•	•	•	•	_	_	_	_	•	_	_	_	_	•	•	_	_	_	•	•	_	_							
orte	SY5□20	•	•	•	•	_	•		_		_	•	_	_	_	•	•	•		_	•	•	•								
Body Ported	SY7 <b>□20</b>	•	•	•	•	_	(EA, EB)	(P)	_	_	_	_	•	_	_	_								External Pilot (Note 2)	Pilot	External Pilot	terminal				
m	SY9□20	•	•	•	_	_	_		_	_	_	_	•	•	_		_	•	•	•	_	_	•	•			(Note 2)	(Note 2)	(Note 2)	connector	
pa	SY3□40	•	•	•	_	_	•	_	_	_	_	•	_	_	_	_	_	_	_	_	_	_	_	_							•
lount	SY5□40	•	•	•	_	_			_	_	_		•	_	_		_	_			_			_							•
Base Mounted	SY7□40	•	•	•					•			_	•	•						_			_		Sub-plate		External pilot	External pilot	External pilot	terminal	•
ñ	SY9□40	•	•	•	_	_	_	_	•	•	_	_	_	•	•	_	_			_	_		_							M8 connector	_

Note 1) All AC voltage models have built-in surge voltage suppressor.

Note 2) Body ported external pilot style (made to order) is not available for DIN terminal.

Note 3) Only available for DIN terminal and M8 connector.

SV

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## **Manifold Variations**

								Wir				Com	mon
	Manifold variations		Valve series	wiring	r cable	(St		Plug-in type flat ribbon is cable (26, 20, 10 pins)		system	smission		mon cations UOWWOO
			5 port	Individual wiring	Flat ribbon cable (26 pins)	Flat ribbon c connector	Plug-in type D-sub connector (25 pins)	Plug-in typ cable (26,	Plug-in typ block (9, 1	PC wiring system	Serial transmission unit	Positive common	Negative common
	Bar stock type Individual wiring  ■ Direct piping to the main unit of a valve. Combination of different fittings is possible.	Type <b>20</b> P.1-4-42	SY3 ☐ 20 SY5 ☐ 20 SY7 ☐ 20	•	_	_	_	_	_	_	_	_	_
rted	Bar stock type Flat ribbon cable  ■ A 26 pins MIL connector permits One-touch wiring of external cables in a bundle.	туре <b>20Р</b> Р.1-4-52	SY3 □ 20 SY5 □ 20 SY7 □ 20	_	•	_	_	_	_	_	_	In con	nmon
<b>Body Ported</b>	Stacking type Individual wiring  Manifold stations can be increased.	туре <b>23</b> Р.1-4-43	SY9□20	•	_	_	_	_	_	_	_	_	
Во	Stacking type Flat ribbon cable  Manifold stations can be increased.	Type 23P P.1-4-58	SY9□20	_	•	_			_	_	_	In con	nmon
	Cassette type Individual wiring ■ Size and weight reduced by eliminating the manifold base	туре <b>60</b> Р.1-4-64	SY3 ☐ 60 SY5 ☐ 60	•	_	_	_	_	_	_	_		_
	Compact bar stock type Individual wiring  The base mounting facilitates maintenance	Type <b>41</b> P.1-4-74	SY7 ☐ 60 SY3 ☐ 40 SY5 ☐ 40	•	_	_ _	_	_	_		_		
	after valves are changed.  Compact bar stock type Flat ribbon cable ■ A 26 pins MIL connector permits one-touch wiring of external cables in a bundle.	Type <b>41P</b> P.1-4-100	SY3 40 SY5 40		•				_	_		In con	nmon
	Bar stock type/Common external EXH Individual wiring  ■ The base mounting facilitates maintenance after valves are changed. ■ Vacuum/low pressure combination system is possible.	Type <b>42</b> P.1-4-74	SY3	•	_	_	_	_	_	_	_	_	_
Base Mounted	Bar stock type/Common external EXH Flat ribbon cable ■ A 26 pins MIL connector permits one-touch wiring of external cables in a bundle. ■ Vacuum/low pressure combination system is possible.	Type <b>42P</b> P.1-4-100	SY3	_	•	_	_	_	_	_	_	In con	nmon
se Mo		туре <b>43</b> Р.1-4-94	SY9□40	•	_	_		_	_	_	_	_	_
Ba	Stacking type Flat ribbon cable  Manifold stations can be increased.	Type 43P P.1-4-108	SY9□40	_	•	_		_	_	_	_	In con	nmon
	Stacking type/DIN rail mounted Individual wiring  Stations can be increased on the DIN rail. Integral mounting of other electric parts is possible, too.	туре <b>45</b> Р.1-4-120	SY3 ☐ 40 SY5 ☐ 40	•	_	_		_	_	_	_	_	<u> </u>
	Stacking type/DIN rail mounted Connector box  Stations can be increased on the DIN rail. The provided connector box permits one-touch connection of electric cables.	Type <b>45</b> •A P.1-4-132	SY3 ☐ 40 SY5 ☐ 40	_	_	•		_	_	•	_	•	•
	Stacking type/DIN rail mounted Plug-in  Stations can be increased on the DIN rail.  A variety of centralized wiring methods are possible.  Option  Made-to-order (Refer to page "	Type <b>45</b> P.1-4-140	SY3 40 SY5 40	_	_	_	•	•	•	•	•	•	•

<sup>●</sup> Standard ● Option ▲ Made-to-order (Refer to page "Made to Order".)



## **Manifold Variations**

		Mar	nifolo	d op	tion							Α	. B	port	t siz	:e								,	Valv	re oi	otior	1			
Blanking plate	Individual SUP spacer	Individual EXH spacer	SUP block disk	EXH block disk	Label for block disk	Silencer for One-touch fitting	Built-in silencer	M5	1/8	1/4	3/8	C4	C6	On C8	e-to	C12	n fitt	ting N7	N9	N11	Mixed mounting	il resistant (Other than esignated turbine oil)	Vacuum specifications	Low pressure specifications	Different pressure		Exhaust throttle	Bundle wiring	Mixed fitting sizes	IP65 enclosure	Interface regulator
	•	•			_	<u>S</u>	_	• -	•	_	_	•	•	•	_	_	•	•	•	_	SY5000	<u></u>	_	_	Individual SUP	_	Individual EXH		_	Note)	<u>-</u>
•	•	•		_	_	_	_	• —		_	_	•	•	-	_		•	•	•	_	_	•	_	_	Individual SUP	_	Individual EXH	•	_	_	
•	•	•		•	•				_	•	•			•	•	•	_		•	•		<b>A</b>	External pilot	External pilot	Individual SUP block disk	External pilot	Individual EXH	_		Note)	_
•	•	•	•	•	•	_	_	_	_	•	•	_	_	•	•	•	_	_	•	•	_	<b>A</b>	External pilot	External pilot		pilot	Individual EXH	•	_	Note)	
	_						_							_	_	_				_		<u> </u>	External pilot	External pilot			_	_	_	Note)	
					•																	<b>A</b>		External pilot				_		Note)	
																						_	External pilot	External pilot	Individual SUP block disk	Individual SUP block disk				Note)	
•	•	•	_		_		_	_	•	_	_	_	•	•	_	_	_	•	•	_	_	<b>A</b>	_	_	Individual SUP interface	_	_	_	_	Note)	
			_	_	_	_	_	•	_	_	_	• _	•	_	_	_	•	•	_	_		<b>A</b>	_	_	Individual SUP	_	_	•	_	_	
								_	•	_	_	•	•	_	_	_	•	•	_	_					interface					Note)	
			_		_		_	_	_	•	_	_	<u> </u>	<u> </u>	•	_	_	<u> </u>	_	•	-		External pilot	External pilot	Individual SUP interface	External pilot	_	_	_	Note)	
•	•	•	_	_	_	_	_	_ 	<ul><li></li></ul>	•	_ 	<ul><li></li></ul>	•	•	_	_	<ul><li></li></ul>	•	•	_	_	•	External pilot	External pilot	SUP	External pilot		•	_	_	
•	•				•	•	•		_	•	•		_	•	•	•	_	_	•	•	_	<b>A</b>	External pilot	External pilot	Individual SUP block disk	External pilot	Individual EXH	_	•	Note)	
•	•	•		•	•	•	•	_	_	•	•	_	_	•	•	•	_	_	•	•	_	<b>A</b>	External pilot	External pilot	Individual SUP block disk	External pilot	Individual EXH	•	•	_	
							•	_ _	_ _	_ _	 	•	•	_ •	_ _	_	•	•	_ •	_ 	•	•	External pilot	External pilot	Individual SUP spacer or block disk	_	_	_	•	Note)	
							<b>A</b>	_	_	_	_	•	•	_ •	_	_	•	•	_ •	_	<b>A</b>	•	External pilot	External pilot	Individual SUP spacer or block disk	_	_	•	•	_	
	•	•		•	•	•	<b>A</b>	_	_	_	_ _	•	•	_ •	_ _	_	•	•	_ •	_ _	<b>A</b>	•	<b>A</b>	External pilot	Individual SUP spacer or block disk		_	•	•	_	

SV

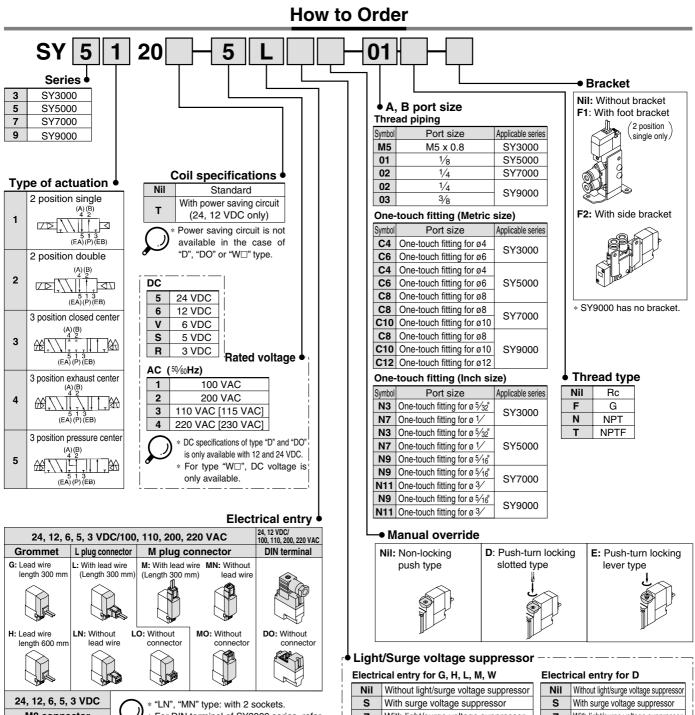
SZ

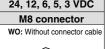
SYJ

SX

# Series SY3000/5000/7000/9000 **Body Ported Valve Single Unit**



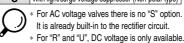






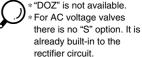
- For DIN terminal of SY3000 series, refer to page 1-4-207.
- \* DIN terminal type "Y" conforming to DIN 43650C is available, too. For details, refer to page 1-4-201.
- For connector cable of M8 connector. refer to page 1-4-209.

#### 7 With light/surge voltage suppressor With surge voltage suppressor (Non-polar type) With light/surge voltage suppressor (Non-polar type)



\* Power saving circuit is only available in the "Z" type.

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



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 catalog on page 1-4-61.)



SV

SYJ

SX

#### Series SY3000/5000/7000/9000

#### **Specifications**



Sei	ries	SY3000	SY5000	SY7000	SY9000						
Fluid			Д	ir							
Internal pilot	2 position single		0.15	to 0.7							
Operating pressure	2 position double		0.1 t	o 0.7							
range (MPa)	3 position		0.2 t	o 0.7							
Ambient and fluid temp	perature (°C)	-10 to	50 (No freezing	. Refer to page	1-7-5.)						
Max. operating	2 position single, double	10 5 5									
frequency (Hz)	3 position	3	3	3	3						
Manual override (Man	ual operation)	Push-turn lock	Non-locking slotted type		king lever type						
Pilot exhaust method		Common	exhaust type	for main and	pilot valve						
Lubrication			Not re	quired							
Mounting orientation		Unrestricted									
Impact/Vibration resist	ance (m/s²) Note)	150/30									
Enclosure		Dustproof (* DIN terminal, M8 connector comforms to IP65									



Based on IEC529)

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

at the initial period)

Vibration resistance:

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



#### **Solenoid Specifications**

			Grommet (G), (H)	DIN terminal (D)							
Electrical entry			L plug connector (L)	M8 connector (W)							
			M plug connector (M)								
Coil rated voltage (V)	DC		24, 12,	6, 5, 3							
Con rated voltage (v)	AC	<sup>50</sup> / <sub>60</sub> Hz	100, 110, 200, 220*								
Allowable voltage fluctua	tion (%	6)	±10% of rated voltage								
Power consumption (W)	DC	Standard	0.35 (With indicator light: 0.4 DIN t	erminal with indicator light: 0.45)							
Power consumption (vv)		With power saving circuit	0.1 (With indicator light only)								
		100 V	1.4 (With indicator light: 1.5)								
		110 V	1.6 (With indicate	ator light: 1.7)							
A () (A)	۸۵	[115 V]	[1.7 (With indicate	ator light: 1.8)]							
Apparent power (VA)	AC	200 V	2.3 (With indicate	ator light: 2.4)							
		220 V	2.5 (With indica	ator light: 2.6)							
		[230 V]	[2.7 (With indicate	ator light: 2.8)]							
Surge voltage suppresso	r		Diode (DIN terminal is ZNR. G, L	or M (Non-polar) is zener diode.)							
Indicator light			LE	D							



- \* 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.

#### **Response Time**



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

#### SY3000

Type of	Response time (ms) (at the pressure of 0.5 MPa)							
	Without light/surge	oltage suppressor						
actuation	voltage suppressor	Type S, Z	Type R, U					
2 position single	12 or less	15 or less	12 or less					
2 position double	10 or less	13 or less	10 or less					
3 position	15 or less	20 or less	16 or less					

#### SY5000

	Response time (ms) (at the pressure of 0.5 MPa)						
Type of	Without light/surge	With light/surge voltage suppressor					
actuation	voltage suppressor	Type S, Z	Type R, U				
2 position single	19 or less	26 or less	19 or less				
2 position double	18 or less	22 or less	18 or less				
3 position	32 or less	38 or less	32 or less				

#### SY7000

Type of	Response time (ms) (at the pressure of 0.5 MPa)						
	Without light/surge	With light/surge voltage suppressor					
actuation	voltage suppressor	Type S, Z	Type R, U				
2 position single	31 or less	38 or less	33 or less				
2 position double 27 or less		30 or less	28 or less				
3 position 50 or less		56 or less	50 or less				

#### SY9000

	Response time (ms) (at the pressure of 0.5 MPa)							
Type of	Without light/surge	With light/surge voltage suppressor						
actuation	voltage suppressor	Type S, Z	Type R, U					
2 position single	35 or less	41 or less	35 or less					
2 position double	35 or less	41 or less	35 or less					
3 position	62 or less	64 or less	62 or less					

#### Flow Characteristics/Weight

#### Series SY3000

			t size		Flow	char	acter	istics	3	We	eight	(g)
Valve	Type of		4, 2		2 (P→	A/B)	_	/3 (A/B—	→EA/EB)	Grom-	L, M	W
model	actuatio	(P, EA, EB)	(A, B)	C (kdm <sup>3</sup> / (s-bar))	b	Cv	C (kdm <sup>3</sup> / (s·bar))	b	Cv	met	plug  connector	M8 connector
	2 Singl	)		1						51	53	57
	position Doub			0.61	0.44	0.16	0.64	0.45	0.18	68	74	82
SY3□20	Close	·		0.48	0.46	0.13	0.47	0.43	0.13		76	
-□-M5	3 Exhau position center		M5 x 0.8	0.47	0.42	0.13	0.47 (0.44)	0.41 (0.37)	0.13 (0.12)	71		84
	Pressure center	r		0.50 (0.41)	0.48 (0.35)	0.15 (0.11)	0.47	0.43	0.13			
	2 Singl	_	C4 / One- \	0.72	0.29	0.18	0.64	0.34	0.17	60	63	67
	position Doub	_		0.72	0.23	0.10	0.04	0.04	0.17	78	83	101
SY3□20	Close			0.59	0.28	0.15	0.59	0.30	0.15	81	86	94
-□-C4	3 Exhau position center	st	touch fitting for ø4	0.63	0.35	0.16	0.42 (0.41)	0.34 (0.37)	0.11 (0.11)			
	Pressu cente		( 101 104 /	0.76 (0.46)	0.42 (0.34)	0.21 (0.12)	0.59	0.29	0.15			
	2 Singl			0.76	0.30	0.19	0.65	0.39	0.17	56	59	63
	position Doub			0.70	0.50	0.13	0.03	0.09	0.17	74	79	87
SY3□20	Close		C6 / One- \	0.76	0.55	0.24	0.60	0.33	0.16			
-□-C6	3 Exhau position cent		touch fitting	0.65	0.32	0.16	0.64 (0.42)	0.31 (0.36)	0.17 (0.11)	77	82	82 90
	Pressu cente		( 101 00 )	0.77 (0.49)	0.34 (0.43)	0.21 (0.15)	0.61	0.34	0.16			
	Note) []: Denotes normal position.											

#### Series SY7000

			Por	t size		Flow	char	acter	istics	}		Weig	ht (g)	
Valve		e of	1, 5, 3	4, 2		2 (P→	A/B)	4/2→5/	/3 (A/B—	EA/EB)	Grom-	L, M	DIN	W
model	P,EA	(P, EA, EB)	(A, B)	C (dm <sup>3</sup> / (s-bar))	b	Cv	C (dm <sup>3</sup> / (s·bar))	b	Cv	met	plug connector	DIN terminal	M8 connector	
	2 position	Single Double			4.1	0.23	0.93	3.3	0.33	0.81	101 120	104 125	125 167	129 175
SY7□20		Closed center			2.9	0.31	0.70	2.4	0.38	0.63				
-□-02	3 position	Exhaust center		1/4	2.5	0.39	0.65	3.4 (2.1)	0.35 (0.38)	0.82 (0.54)	128	133	175	183
		Pressure center			4.3 (2.4)	0.23 (0.32)	0.97 (0.61)	2.2	0.39	0.58				
	2	Single	1 (P)		3.2 0.26 0.77 3.2 0.37 0.82	0.26	06 077	7 32	2 037	0.82	107	110	131	135
	position	Double	Port			0.02	126	132	174	182				
SY7□20		Closed center	1/4	5, 3 A, EB) touch fitting for ø8	2.6	0.24	0.63	2.4	0.31	0.62		140	182	190
-□-C8	3 position	Exhaust center	5, 3 (EA, EB)		2.4	0.25	0.57	2.6 (1.9)	0.42 (0.46)	0.70 (0.56)	134			
		Pressure center	port 1/8		3.3 (2.4)	0.28 (0.22)	0.78 (0.57)	2.2	0.34	0.60				
	2	Single			3.8	0.26	0.86	3.2	0.34	0.82	103	105	126	130
	position	Double			0.0	0.20	0.00	0.2	0.04	0.02	122	127	169	177
SY7□20		Closed center		C10 / One- \	2.8	0.27	0.67	2.4	0.21	0.59				185
-□-C10	3 position	Exhaust center		touch fitting for Ø10	2.5	0.25	0.59	2.7 (2.0)	0.38 (0.38)	0.70 (0.56)	130	135	177	
		Pressure center			3.8 (2.4)	0.25 (0.31)	0.89 (0.61)	2.3	0.38	0.61				

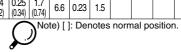
#### Note) []: Denotes normal position.

#### Series SY5000

			Por	Port size I			char	acter	istics		Weight (g)			
Valve	Тур	e of	1, 5, 3	4, 2		2 (P→	A/B)		/3 (A/B-	EA/EB)	Grom-	L, M	DIN	W
model	actu	ation	1, 5, 3 (P, EA, EB)	(A, B)	C (dm <sup>3</sup> /	b	Cv	C (dm³/	b	Cv	met	plug	DIN terminal	M8
	2	Single	,	,	(s·bar))			(s·bar))			70	72	93	connector 97
	position	Double			1.9	0.35	0.49	2.4	0.39	0.61	88	93	135	143
0.72=00		Closed		1/8	1.7	0.43	0.45	1.8	0.35	0.46				0
SY5□20 -□-01	,							2.5	0.32	0.59		98 14		
-U-U1	3 position	Exhaust center			1.5	0.44	0.41	(1.5)	(0.43)	(0.40)	93		140	148
		Pressure center			2.2 (0.91)	0.46 (0.58)	0.61 (0.28)	1.8	0.38	0.46				
	2	Single			0.75	0.43	3 0.20 0.85	0 OE	0.64	0.30	94	96	117	121
	position	Double			0.75	0.43	0.20	0.00	0.04	0.30	111	117	159	167
SY5□20		Closed center		C4 / One- \	0.74	0.40	0.19	0.84	0.57	0.28			164	172
-□-C4	3 position	Exhaust center		touch fitting for ø4	0.75	0.36	0.19	0.84	0.64 (0.53)	0.30 (0.27)	117	122		
		Pressure center			0.78	0.44 (0.37)	0.21 (0.18)	0.84	0.57	0.27				
	2	Single	1/8		V- /	. ,	. ,				88	91	112	116
	position				1.5	0.33	0.33	2.0	0.37	0.52	106	111	153	161
SY5□20		Closed center		C6	1.3	0.31	0.33	1.6	0.32	0.39		1		
-□-C6	3 position	Exhaust center		(touch fitting) for ø6	1.3	0.33	0.33	1.8	0.35 (0.37)	0.44 (0.35)	111	116	158	166
		Pressure center		\ 101.00 /	1.7	0.31 (0.47)	0.42 (0.23)	1.7	0.33	0.44				
	2	Single			4.0	0.04			0.00		80	82	103	107
	position	Double			1.9	0.21	0.45	2.3	0.29	0.57	98	103	145	153
SY5□20		Closed center		C8	1.6	0.29	0.39	1.7	0.38	0.46				
-□-C8	3 position	Exhaust center		(touch fitting)	1.4	0.38	0.39	2.0 (1.5)	0.37 (0.41)	0.52 (0.43)	103	108	150	158
		Pressure center		( 101 100 /	2.2 (1.6)	0.32 (0.44)	0.56 (0.44)	1.8	0.41	0.50				

#### Series SY9000

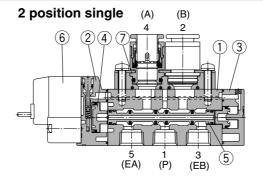
			Por	t size		Flow	char	acter	istics	3	,	Weigl	ht (g)	
Valve	Тур	e of	1 5 2	4, 2		2 (P-	A/B)	4/2→5/	/3 (A/B-	→EA/EB)	Grom-	L, M	DIN	W
model	actu	ation	(P. EA. EB)	(A. B)	C (dm <sup>3</sup> /	b	Cv	C (dm <sup>3</sup> /	b	Cv	met	plug	DIN	M8
	_		(-,-,-,	(, -,	(s-bar))	~	٠.	(s-bar))	~	٠.			terminal	connecto
	2 position	Single			7.0	0.33	1.7	7.6	0.35	2.0	241	244	265	269
	position	Double			_						260	266	308	316
SY9□20	Closed center		1/4	6.7	0.37	1.7	6.4	0.34	1.6					
-□-02	3 position	Exhaust center		'/4	6.4	0.36	1.6	8.3 (4.1)	0.41 (0.27)	2.2 (0.91)	284	290	332	340
		Pressure center			8.0 (3.2)	0.27 (0.34)	1.8 (0.76)	6.5	0.22	1.4				
	2	Single			8.0	0.29	1.9	8.0	0.33	2.0	236		260	264
	position	Double			0.0	0.20	1.0	0.0	0.00	2.0	255	261	303	311
SY9□20		Closed center		_,	7.9	0.33	1.9	6.6	0.27	1.6				
-□-03	3 position	Exhaust	3/8	8.0	0.33	1.9	8.7 (8.3)	0.34 (0.40)	2.2 (2.3)	279	285	327	335	
		Pressure center			8.9 (3.3)	0.34 (0.40)	2.2 (0.82)	6.5	0.25	1.5				
	2	Single			4.3	0.28	0.96	7.1	0.32	1.7	293	296	317	321
	position	Double			4.3	0.20	0.90	7.1	0.32	1.7	312	318	360	368
SY9□20	3 position	Closed center	1/4	1/4 C8 One- touch fitting for ø8	4.3	0.31	0.99	6.1	0.28	1.4		342	384	
-□-C8		Exhaust center	74		4.3	0.3	0.99	7.4 (3.8)	0.36 (0.29)	1.9 (0.86)	336			392
		Pressure center			4.4 (3.2)	0.35 (0.26)	1.0 (0.71)	2.1	0.41	0.53				
	2	Single			6.1	0.28	1.4	7.9	0.33	1.9	279		303	307
	position	Double			0.1	0.20	1.7	7.5	0.00	1.5	298	304	346	354
SY9□20		Closed center		C10 / One- \	5.9	0.30	1.4	6.5	0.26	1.5				
-□-C10	3 position	Exhaust center		touch fitting	5.8	0.25	1.3	8.4 (4.1)	0.33 (0.27)	2.0 (0.93)	322	328	370	378
		Pressure center		(101010)	6.3 (3.2)	0.29 (0.29)	1.5 (0.72)	6.4	0.25	1.5				
	2 position	Single Double			7.0	0.25	1.6	8.6	0.41	2.2	265 284	268 290	289 332	293 340
SY9□20	Pooluuli	Closed	C12		6.9	0.24	1.6	7.0	0.33	1.7	308	230	332	364
-□-C12	3 position	Exhaust center		One- touch fitting	6.6	0.23	1.4	9.4 (4.5)	0.48 (0.32)	2.6		314	356	
	' F	Pressure		\for ø12/	7.4 (3.2)	0.25	1.7	6.6	0.23	1.5				



#### Construction

#### **Series SY**





SV

SZ

SY

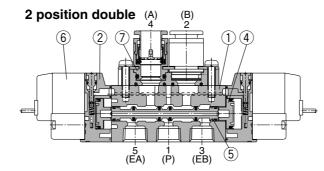
SYJ

SX

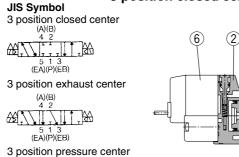


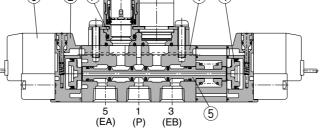
(A)(B)

5 1 3 (EA)(P)(EB)



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





(This figure shows a closed center type.)

#### **Component Parts**

$\overline{}$			
No.	Description	Material	Note
1	Body	Aluminum die-casted (SY3000: Zinc die-casted)	White
2	Adapter plate	Resin	White (SY9000: Gray)
3	End plate	Resin	White
4	Piston	Resin	_
(5)	Spool valve assembly	Aluminum, HNBR	_

**Replacement Parts** 

No.	Description	Part no.
6	Pilot valve assembly	Refer to "How to Order Pilot Valve Assembly" on page 1-4-10.
(7)	M5 port block assembly	Refer to "How to Order Port Block Assembly" on page 1-4-11.

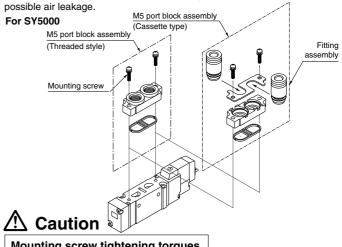
#### **Bracket Assembly Part No.**

Description	part no.
Bracket (For F1)	SX <sub>2</sub> <sup>3</sup> 000-16-2A (with mounting screw)
Bracket (For F2)	SX <sub>7</sub> <sup>3</sup> 000-16-1A (with mounting screw)

<sup>\*</sup> SY9000 has no bracket.

#### **How to Change Port Block Assembly**

If using body port type, both A and B port sizes can be changed by replacing the port block assembly mounted on the body. When changing this block assembly, the correct screw torque must be achieved to avoid possible air leakage



Mounting screw tightening torques

SY3000 (M2):  $0.12 \text{ N} \cdot \text{m}$  SY $_{7}^{5}$ 000 (M3):  $0.6 \text{ N} \cdot \text{m}$  SY9000 (M4):  $1.4 \text{ N} \cdot \text{m}$ 

\* Refer to "How to Order Port Block Assembly" on page 1-4-11 for part no.



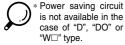
#### **How to Order Pilot Valve Assembly**

G

#### Coil specifications

V111

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



#### Rated voltage •

5	24 VDC	
6	12 VDC	
٧	6 VDC	
S	5 VDC	
R	3 VDC	
1	100 VDC <sup>50</sup> / <sub>60</sub> Hz	
2	200 VAC 50/60Hz	
3	110 VAC 50/60Hz	
3	[115 VAC 50/60Hz]	
4	220 VAC 50/60Hz	
4	[230 VAC 50/60Hz]	



#### **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			
Н	Grommet, 60	Grommet, 600 mm lead wire		
L	Lalua	With lead wire		
LN	L plug connector	Without lead wire		
LO	CONTIECTOR	Without connector		
M	M plug	With lead wire		
MN	connector	Without lead wire		
МО	COMINGCION	Without connector		
WO	M8 connector	Without connector cable		
_				

Note) For connector cable of M8 connector, refer to page 1-4-209.

#### **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

#### **How to Order M8 Connector Cable**

#### ■ Straight type

V100 - 49 - 1-

#### Cable length

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

#### **■** DIN terminal type

# V115

#### Rated voltage

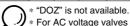
24 VDC
12 VDC
100 VAC 50/60 Hz
200 VAC 50/60 Hz
110 VAC 50/60 Hz
[115 VAC 50/60 Hz]
220 VAC 50/60 Hz
[230 VAC 50/60 Hz]



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

#### Light/Surge voltage suppressor

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
7	With light/curae voltage cuppressor (Non-polar type)



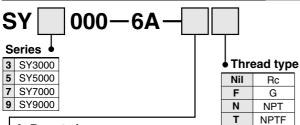
For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

#### Electrical entry

D	DIN	With connector	
DO	terminal	Without connector	
$\overline{}$			

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

#### **How to Order Port Block Assembly**



# • A, B port size Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000
02	1/4	SY7000
02	1/4	SY9000
03	3/8	519000

<u> </u>		
Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	313000
C4	One-touch fitting for ø4	
C6	One-touch fitting for ø6	SY5000
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	317000
C8	One-touch fitting for ø8	
C10	One-touch fitting for ø10	SY9000
C12	One-touch fitting for ø12	

One-touch fitting (Inch size)			
Symbol	Port size	Applicable series	
N3	One-touch fitting for ø 5/32"	SY3000	
N7	One-touch fitting for ø 1/4"	313000	
N3	One-touch fitting for ø 5/32"		
N7	One-touch fitting for ø 1/4"	SY5000	
N9	One-touch fitting for ø 5/16"		
N9	One-touch fitting for ø 5/16"	or ø 5/16" SY7000	
N11	One-touch fitting for ø 3/8"	317000	
N9	One-touch fitting for ø 5/16"	SY9000	
N11	One-touch fitting for ø 3/8"	519000	

\* Only replacement of the fittings assembly is possible.

• •		
Metric size		
SY3000	One-touch fitting for ø4	VVQ1000-50A-C4
013000	One-touch fitting for ø6	VVQ1000-50A-C6
	One-touch fitting for ø4	VVQ1000-51A-C4
SY5000	One-touch fitting for ø6	VVQ1000-51A-C6
	One-touch fitting for ø8	VVQ1000-51A-C8
SY7000	One-touch fitting for ø8	VVQ2000-51A-C8
	One-touch fitting for ø10	VVQ2000-51A-C10
SY9000	One-touch fitting for ø8	VVQ4000-50B-C8
	One-touch fitting for ø10	VVQ4000-50B-C10
	One-touch fitting for ø12	VVQ4000-50B-C12

	,		
	Inch s	ize	
1	SY3000	One-touch fitting for ø 5/32"	VVQ1000-50A-N3
ŝ	513000	One-touch fitting for ø 1/4"	VVQ1000-50A-N7
1		One-touch fitting for ø 5/32"	VVQ1000-51A-N3
ŝ	SY5000	One-touch fitting for ø 1/4"	VVQ1000-51A-N7
3		One-touch fitting for ø 5/16"	VVQ1000-51A-N9
3	SY7000	One-touch fitting for ø 5/16"	VVQ2000-51A-N9
0	317000	One-touch fitting for ø 3/8"	VVQ2000-51A-N11
3	SY9000	One-touch fitting for ø 5/16"	VVQ4000-50B-N9
)	519000	One-touch fitting for ø 3/8"	VVQ4000-50B-N11
2			

	One-touch fitting for ø12	VVQ4000-50B-C12		
	Mounting			
	screw		<u> </u>	Port block assembly (Cassette type)
Fittin	g assembly			
		8		

SV

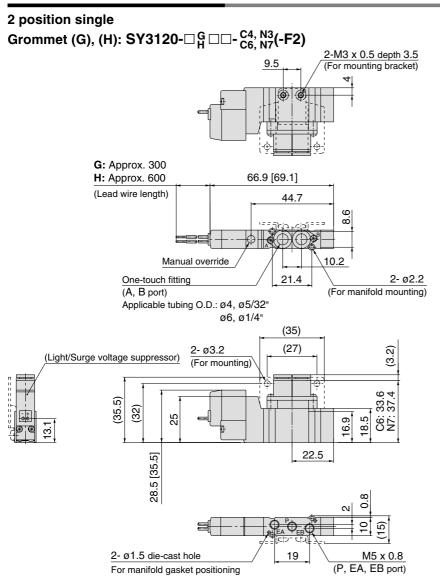
SZ



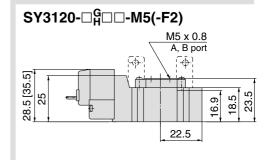


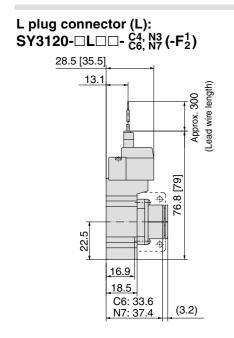
#### **Dimensions: Series SY3000**

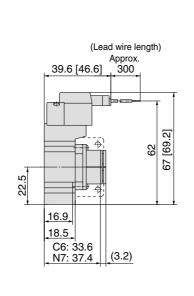




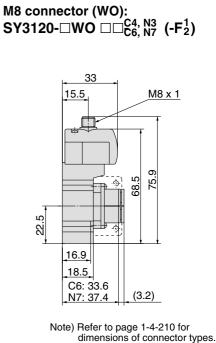
#### Foot bracket SY3120-□ G □ □ - C4, N3 -F1 31 13.1 ø. 2- ø3.2 28.5 [35.5] (For mounting) 25 69.4 [71.6] \* (#) C6: 33.6 (3.2)N7: 37.4 7.5







M plug connector (M): SY3120- $\square$ M $\square$ - $_{C6,\ N7}^{C4,\ N3}$ (-F $_2^1$ )



#### **Dimensions: Series SY3000**



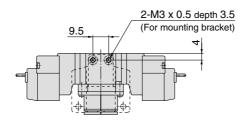
SV

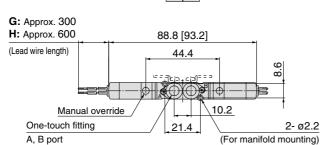
SZ

SYJ

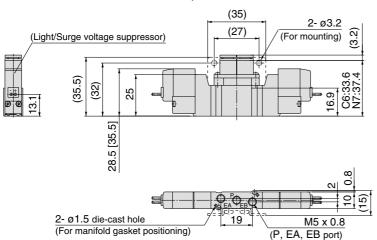
SX

2 position double Grommet (G), (H): SY3220- $\square_H^G\square\square$ -C4, N3(-F2)



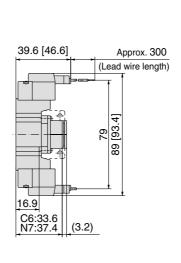


Applicable tubing O.D.: Ø4, Ø5/32" : Ø6, Ø1/4"

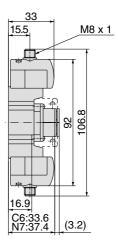


# SY3220-□H□□-M5(-F2) M5 x 0.8 (A, B port) 6.9 2.2 2.2 2.2 3.2 3.2 3.2 4.3 5.3 6.9 6.9 7.3 6.9

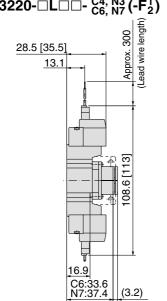
L plug connector (L): M plug connector (M): SY3220- $\square$ L $\square$ - $C_{6, N7}^{4, N3}(-F_2^1)$  SY3220- $\square$ M $\square$ - $C_{6, N7}^{4, N3}(-F_2^1)$ 



M8 connector (WO): SY3220-WO $\square$ - $_{C6, N7}^{C4, N3}$  (- $F_2^1$ )



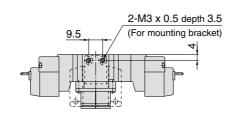
Note) Refer to page 1-4-210 for dimensions of connector types.

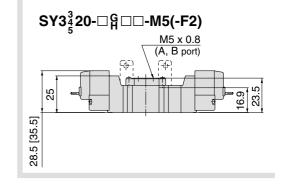


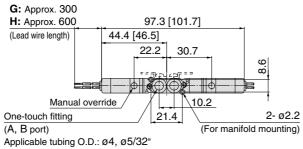
#### **Dimensions: Series SY3000**

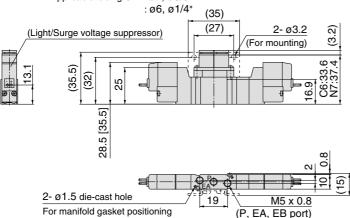


3 position closed center/exhaust center/pressure center Grommet (G), (H): SY3 $\frac{3}{5}$ 20- $\Box_H^G\Box\Box$ - $\overset{C4}{C6}$ ,  $\overset{N3}{N7}$ (-F2)

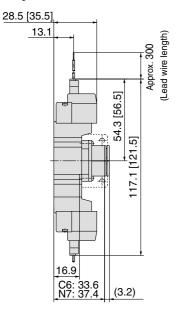




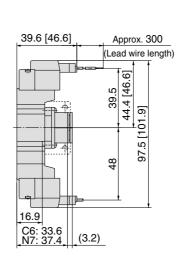




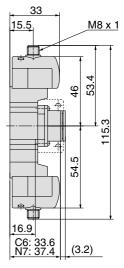
# L plug connector (L): $SY3\frac{3}{5}20-\Box L\Box \Box -\frac{C4}{C6}, \frac{N3}{N7}(-F2)$



#### M plug connector (M): SY3220-□M□□-C6, N7(-F2)



M8 connector (WO): SY3 $_5^3$ 20- $\square$ WO $\square$  $_{C6, N7}^{C4, N3}$  (-F2)



Note) Refer to page 1-4-210 for dimensions of connector types.



#### **Dimensions: Series SY5000**

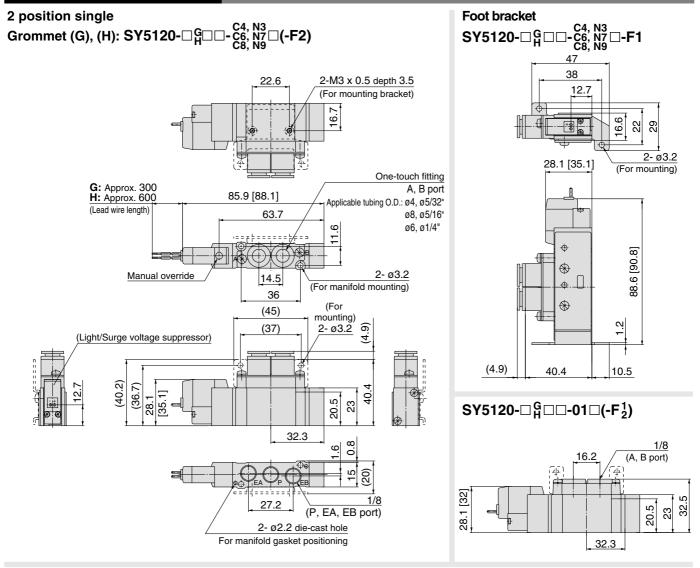


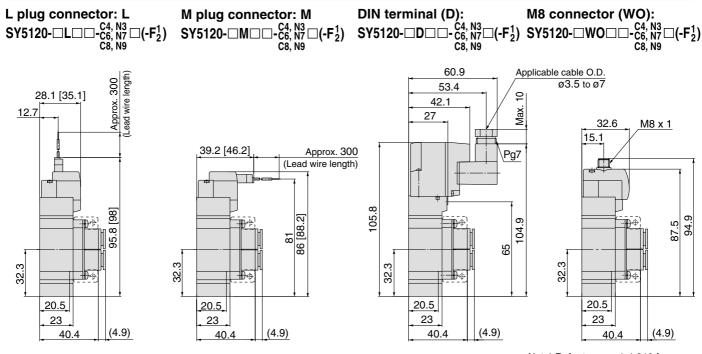
SV

SZ

SYJ

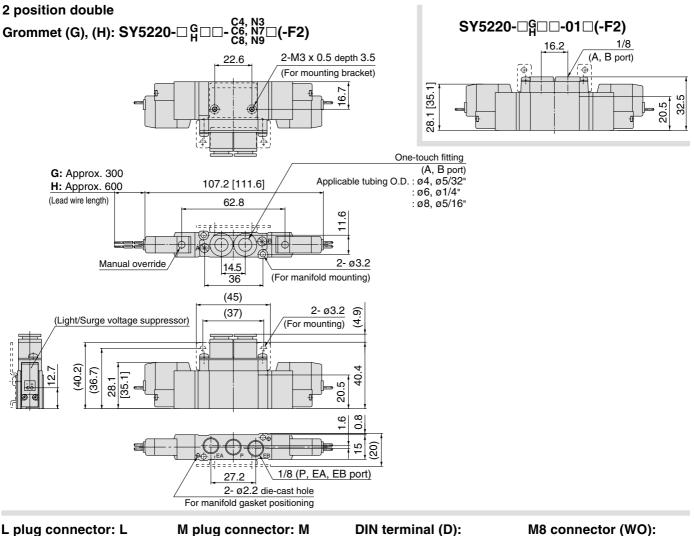
SX

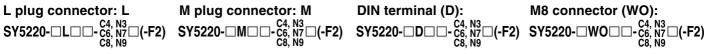


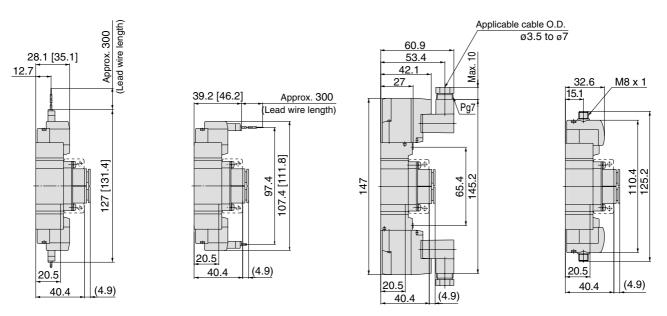


#### **Dimensions: Series SY5000**





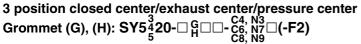


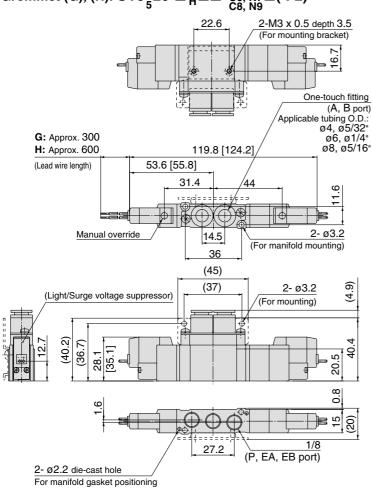


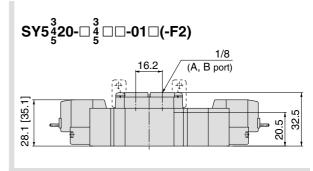
Note) Refer to page 1-4-210 for dimensions of connector types.

#### **Dimensions: Series SY5000**







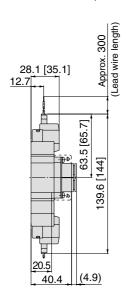


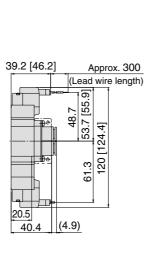
SZ

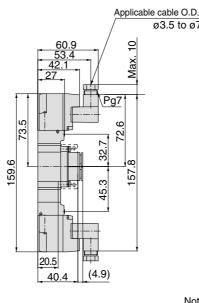
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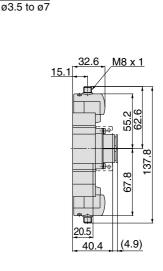
SYJ

SX





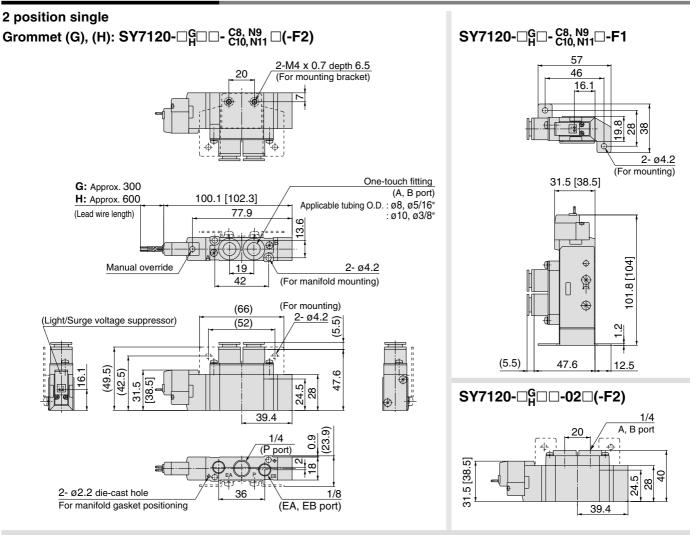


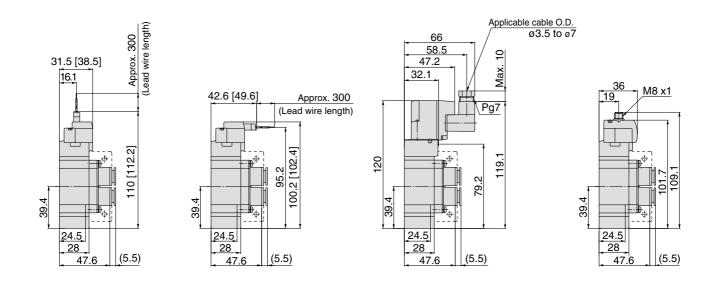


Note) Refer to page 1-4-210 for dimensions of connector types.

#### **Dimensions: Series SY7000**



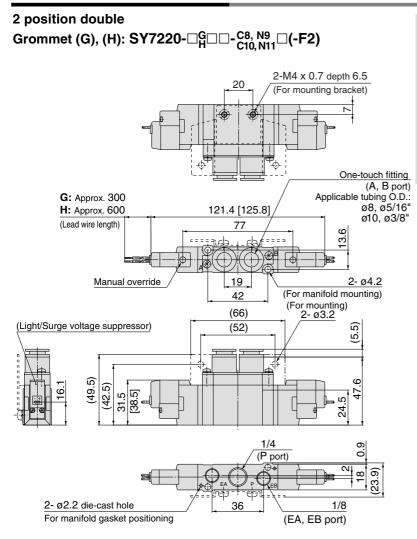






#### **Dimensions: Series SY7000**





# SY7220- G -02 (-F2)

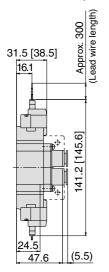
sv

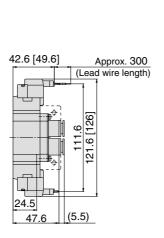
SZ

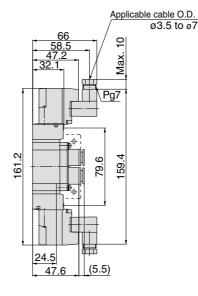
SY

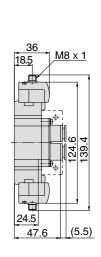
SYJ

SX





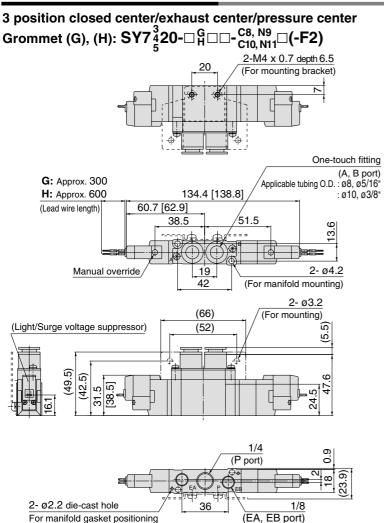


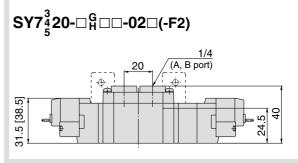




#### **Dimensions: Series SY7000**

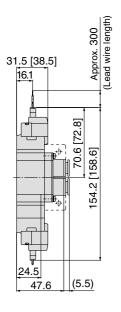


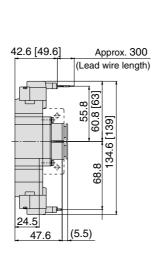


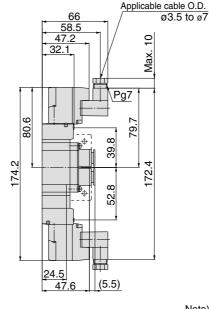


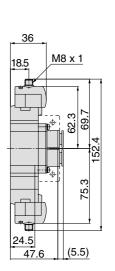
L plug connector (L): M plug connector (M):  $SY7\frac{3}{5}20-\Box L \Box \Box -\frac{C8}{C10}, \frac{N9}{N11}\Box (-F2)$   $SY7\frac{3}{5}20-\Box M \Box \Box -\frac{C8}{C10}, \frac{N9}{N11}\Box (-F2)$ 

DIN terminal (D): M8 connector (WO):  $SY7\frac{3}{4}20-\Box D\Box \Box -\frac{C8}{C10},\frac{N9}{N11}\Box (-F2)$   $SY7\frac{3}{4}20-\Box WO \Box -\frac{C8}{C10},\frac{N9}{N11}\Box (-F2)$ 





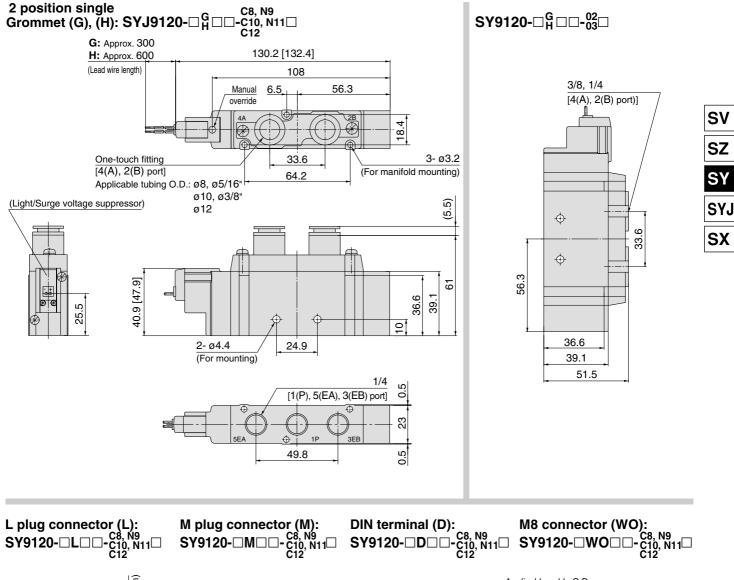


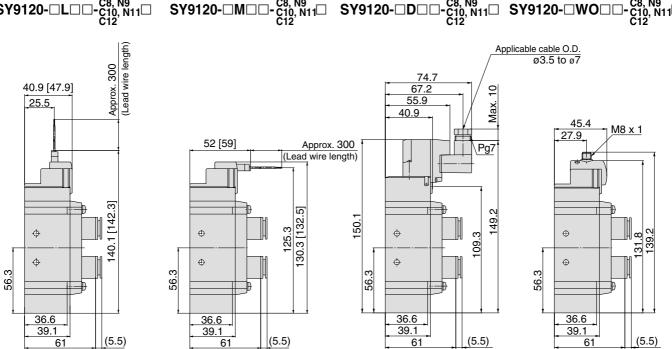


Note) Refer to page 1-4-210 for dimensions of connector types.

#### **Dimensions: Series SY9000**



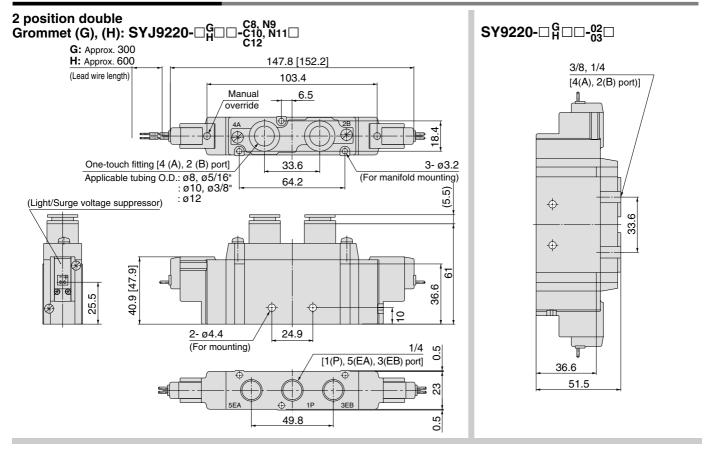




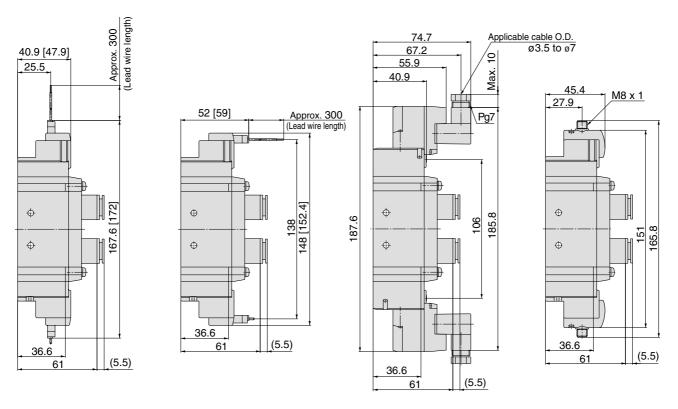
Note) Refer to page 1-4-210 for dimensions of connector types.

#### **Dimensions: Series SY9000**





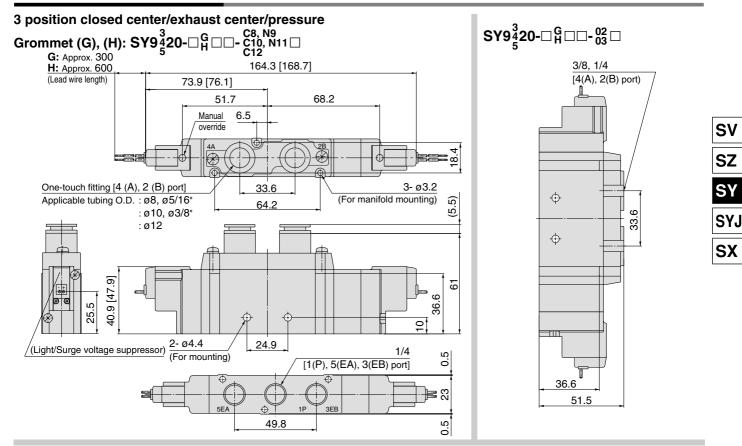
L plug connector (L): SY9220-□L□□-<sup>C8, N9</sup>
C12 M plug connector (M): SY9220-□M□□-C10, N11□ C12 DIN terminal (D): SY9220-□D□□-C10, N11□ C12 M8 connector (WO): SY9220-□WO□□-C10, N11□ C12



Note) Refer to page 1-4-210 for dimensions of connector types.

#### **Dimensions: Series SY9000**





L plug connector (L):

C8, N9

SY94

20-□L□□-C10, N11□

C12

M plug connector (M): C8, N9 SY9420-□M□□-c10, N11□ DIN terminal (D):

SY9<sup>3</sup>/<sub>5</sub>20-□D□□-C10, N11□

C12

M8 connector (WO):
SY9420-□WO□□-c10, N11□

45.4

27.9

0

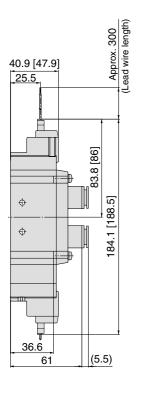
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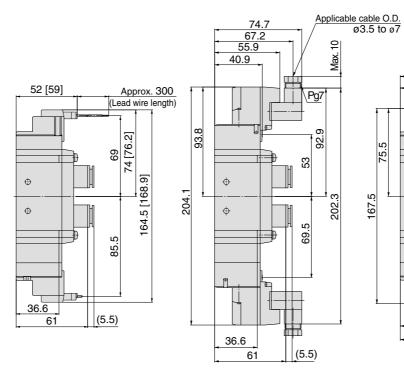
M8 x 1

82

82

(5.5)





Note) Refer to page 1-4-210 for dimensions of connector types.

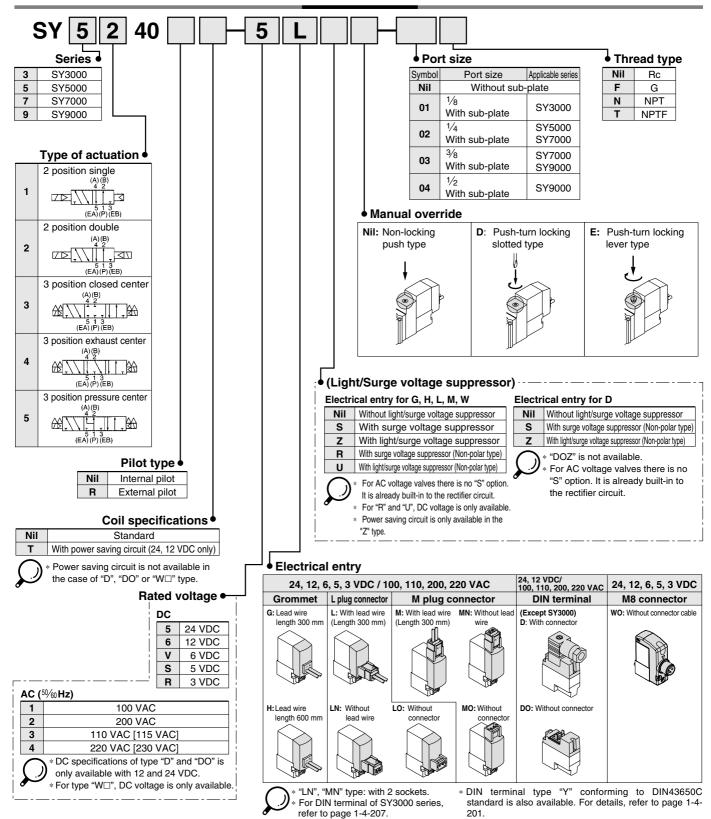
36.6

61

\* For connector cable of M8 connector, refer to page 1-4-

# Series SY3000/5000/7000/9000 Base Mounted Valve Single Unit

#### **How to Order**





# Made to Order Specification (For details, refer to pages 1-4-188 to 202.)

#### **Specifications**

Ser	ies		SY3000	SY5000	SY7000	SY9000			
Fluid			Air						
Internal pilot	2 position	single		0.15 to 0.7					
Operating pressure	2 position	double		0.1 t	o 0.7				
range (MPa)	3 position			0.2 t	o 0.7				
Fotomed wilet	Operating pre	essure range		–100 kF	a to 0.7				
External pilot Operating pressure	Pilot	2 position single		0.25	to 0.7				
range (MPa)	pressure	2 position double		0.25	to 0.7				
Tallye (IVII a)	range	3 position	0.25 to 0.7						
Ambient and fluid temp	erature (°C	)	-10 to 50 (No freezing. Refer to page 1-7-4.)						
Max. operating	2 position s	ingle, double	10	5 5					
frequency (Hz)	3 position		3 3 3 3						
Manual override			Non-locking push type,						
(Manual operation)			Push-turn lock	ing slotted type	e, Push-turn loc	king lever type			
Dilata and an attack	Internal pil	ot	Common	exhaust type	for main and	pilot valve			
Pilot exhaust method	External p	ilot	Pilot valve individual exhaust						
Lubrication			Not required						
Mounting orientation			Unrestricted						
Impact/Vibration resist	ance (m/s²) <sup>N</sup>	Note)		150	)/30				
Enclosure			Dustproof (* D	IN terminal, M8	3 connector cor	nforms to IP65)			

Based on IEC529)

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

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

#### **Response Time**



Note) Based on dynamic performance test, JIS B 8375-1981. (Coil temperature: 20°C, at rated voltage)

#### SY3000

	Response time (ms)											
Tuna of	(at the pressure of 0.5 MPa)											
Type of actuation	Without light/surge	With light/surge v	oltage suppressor									
actuation	voltage suppressor	Type S, Z	Type R, U									
2 position single	12 or less	15 or less	12 or less									
2 position double	10 or less	13 or less	10 or less									
3 position	15 or less	20 or less	16 or less									

#### SY5000

<b>-</b> ,	Response time (ms) (at the pressure of 0.5 MPa)									
Type of actuation	Without light/surge	With light/surge v	oltage suppressor							
actuation	voltage suppressor	Type S, Z	Type R, U							
2 position single	19 or less	26 or less	19 or less							
2 position double	18 or less	22 or less	18 or less							
3 position	32 or less	38 or less	32 or less							

#### SY7000

	Response time (ms) (at the pressure of 0.5 MPa)													
Tuno of	(at the pi	ressure of 0	.5 MPa)											
Type of actuation	Without light/surge	With light/surge v	oltage suppressor											
actuation	voltage suppressor	Type S, Z	Type R, U											
2 position single	31 or less	38 or less	33 or less											
2 position double	27 or less	30 or less	28 or less											
3 position	50 or less	56 or less	50 or less											

#### SY9000

	Response time (ms)													
T of	(at the pressure of 0.5 MPa)													
Type of actuation	Without light/surge	With light/surge v	oltage suppressor											
actuation	voltage suppressor	Type S, Z	Type R, U											
2 position single	35 or less	41 or less	35 or less											
2 position double	35 or less	41 or less	35 or less											
3 position	62 or less	64 or less	62 or less											

#### **Solenoid Specifications**

			Grommet (G), (H)					
			L plug connector: L					
Electrical entry			M plug connector: M					
			DIN terminal (D)					
			M8 connector (W)					
Coil rated voltage (V)		C	24, 12, 6, 5, 3					
Con rated voltage (v)	F	AC 50/60Hz	100, 110, 200, 220 *					
Allowable voltage fluctu	ation	(%)	±10% of rated voltage					
Power consumption (W)	DC	Standard	0.35 (with indicator light: 0.4 DIN terminal with indicator light: 0.45)					
Fower consumption (vv)		With power saving circuit	0.1 (With indicator light only)					
		100 V	1.4 (With indicator light: 1.5)					
		110 V	1.6 (With indicator light: 1.7)					
Apparent newer		[115 V]	1.7 (With indicator light: 1.8)					
Apparent power	AC	200 V	2.3 (With indicator light: 2.4)					
		220 V	2.5 (With indicator light: 2.6)					
		[230 V]	2.7 (With indicator light: 2.8)					
Surge voltage suppress	or		Diode (Varistor is for DIN terminal and Non-polar type.)					
Indicator light			LED (AC of DIN terminal is neon bulb.)					

\* In common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.  $\ast$  For 115 VAC and 230 VAC, the allowable voltage is –15% to 5% of rated voltage.



SZ

SV

SYJ

SX

#### Flow Characteristics/Weight

#### Series SY3000

	Tv	Type of			Flow	charact	eristics N	Weight (g) Note 2)				
Valve model	actuation		Port size	1 → 4	1/2 (P →	A/B)	$4/2 \rightarrow 5/3 \text{ (A/B} \rightarrow \text{EA/EB)}$			Grommet	L plug connector,	W
	uoi	actuation		C (dm3/(s·bar))	b	Cv	C (dm3/(s-bar))	b	Cv	Groninic	M plug connector	M8 connector
	2	Single	1/8	10	0.30	0.24		0.20	0.06	84 (50)	85 (53)	89 (57)
	position	Double		1.0	0.30	0.24	1.1	0.30	0.26	102 (68)	107 (73)	115 (81)
		Closed center		0.77	0.28	0.18	0.85	0.30	0.19			
SY3□40-□-01	_	Exhaust		0.73	0.31	0.18	1.1	0.26	0.24			
	position	center		0.73	0.51	0.16	(0.55)	(0.52)	(0.16)	104 (69)	109 (74)	117 (82)
		Pressure		1.2	0.24	0.29	0.89	89 0.47	0.24			
		center		(0.51)	(0.45)	(0.14)	0.69	0.47	0.24			



Note 1) [ ]: Denotes the normal position. Note 2) ( ): Denotes without sub-plate.

#### Series SY5000

	Tv	Type of			Flow	charact	eristics N	ote 1)	Weight (g) Note 2)				
Valve model	actuation		Port size	$1 \rightarrow 4/2 \ (P \rightarrow A/B)$			4/2 → 5/3 (A/B → EA/EB)			Grommet	L plug connector	DIN to making al	W
			SIZE	C (dm3/(s-bar))	b	Cv	C (dm3/(s-bar))	b	Cv	Grommet	M plug connector	DIN terminal	W M8 connector
	2	Single		0.4	0.41	0.64	2.8	0.29	0.00	121 (58)	123 (61)	154 (82)	127 (65)
	position	Double		2.4	0.41	0.04	2.0	0.29	0.66	139 (76)	144 (81)	186 (123)	152 (89)
		Closed center		1.8	0.47	0.50	1.8	0.40	0.47		150 (87) 192 (129)		
SY5□40-□-02		Exhaust	1/4	4.4	0.55	0.44	3.0	0.33	0.72	144 (82)			
	3 position	center		1.4	0.55		(1.2)	(0.48)	(0.37)			158 (95)	
		Pressure		3.3	0.36	0.85	1.8	0.40	0.48				
		center		(0.84)	(0.60)	(0.28)	1.0	0.40	0.46				



Note 1) [ ]: Denotes the normal position. Note 2) ( ): Denotes without sub-plate.

#### Series SY7000

	т	pe of	Port		Flow	charact	eristics N	ote 1)		Weight	(g) Note 2)		
Valve model	•	uation	size	$1 \rightarrow 4/2 \; (P \rightarrow A/B)$			4/2 → 5/	$4/2 \rightarrow 5/3 \text{ (A/B} \rightarrow \text{EA/EB)}$		Grommet	L plug connector,	DINI to medical	W
	actuation		SIZE	C (dm3/(s-bar))	b	Cv	C (dm3/(s-bar))	b	Cv	Grommet	M plug connector	Diin terminai	W M8 connector
	2	Single		4.1	0.41	1.1	4.4	0.29	1.0	218 (89)	221 (92)	242 (113)	225 (96)
	position	Double		4.1	0.41	1.1	4.1	0.29	1.0	237 (108)	242 (113)	284 (155)	250 (121)
		Closed center		3.0	0.43	0.80	2.6	0.41	0.72				
SY7□40-□-02	_	Exhaust	1/4	2.6 0.42	0.42	0.71	4.7	0.35	1.1				
	3 position	center			0.42	0.71	(1.7)	(0.48)	(0.49)	239 (110)	245 (116)	287 (158)	253 (124)
	position	Pressure		5.3	0.39	1.3	2.2	0.49	0.63				
		center		(2.3)	(0.49)	(0.65)	2.2	0.43	0.00				
	2	Single		4.9	0.29	1.2	4.5	0.27	1.1	218 (89)	221 (92)	242 (113)	225 (96)
	position	Double		4.9	0.29	1.2	4.5	0.27	1.1	237 (108)	242 (113)	284 (155)	250 (121)
		Closed center		3.0	0.40	0.80	2.6	0.45	0.73				
SY7□40-□-03		Exhaust	3/8	2.6	0.42	0.71	4.8	0.35	1.1				
	3 position	center		2.6	0.42	0.71	(1.7)	(0.48)	(0.49)	239 (110)	245 (116)	287 (158)	253 (124)
	Podition	Pressure		5.3	0.31	1.3	2.3	0.45	0.66				
		center		(2.3)	(0.51)	(0.64)	2.3	U. <del>†</del> 3	0.00				



Note 1) [ ]: Denotes the normal position. Note 2) ( ): Denotes without sub-plate.

#### Series SY9000

	Type of		Port		Flov	v charac	teristics N	lote1)			Weight (	(g) Note 2)	
Valve model	,	Type of actuation		$1 \rightarrow 4/2 \ (P \rightarrow A/B)$			$4/2 \rightarrow 5/3 \text{ (A/B} \rightarrow \text{EA/EB)}$			Grommet	L plug connector,	DIM terminal	W
	aci	ualion	size	C (dm3/(s-bar))	b	Cv	C (dm3/(s-bar))	b	Cv	Gioinnet	M plug connector	r Dily terminar	W M8 connector
	2	Single		7.9	0.34	2.0	9.6	0.43	2.6	469(172)	472(175)	493(196)	476(179)
	position	Double		7.9	0.34	2.0	9.0	0.43	2.0	488(191)	494(197)	535(239)	502(205)
		Closed center		7.5	0.33	1.8	7.3	0.30	1.7				
SY9□40-□-03		Exhaust	3/8	7.2	0.34	1.7	13	0.23	2.8				
	gosition	center		1.2	0.34	1.7	(4.0)	(0.41)	(0.95)	512(215)	518(221)	560(263)	526(229)
	position	Pressure		12	0.26	2.8	6.7	0.40	1.9				
		center		(3.3)	(0.41)	(0.84)	0.7	0.40	1.5				
	2	Single		8.0 0.48	0.48	2.2	10	0.29	2.5	448 (151)	453 (156)	472	457(160)
	position	Double		6.0	0.46	2.2	10	0.29	2.5	467 (170)	473 (176)	515	481(184)
		Closed center		7.6	0.32	1.8	7.3	0.32	1.8				
SY9□40-□-04		Exhaust	1/2	7.3	0.42	2.0	13	0.32	3.6				
	position	center		7.5	0.42	2.0	(4.7)	(0.54)	(1.5)	491 (194)	497 (200)	539	505(208)
	Poolition	Pressure		12	0.33	3.3	7.4	0.33	1.9				
		center		(3.3)	(0.51)	(0.94)	7.4	0.00	1.5				



Note 1) [ ]: Denotes the normal position. Note 2) ( ): Denotes without sub-plate.



SV

SZ

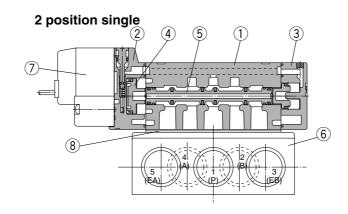
SYJ

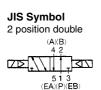
SX

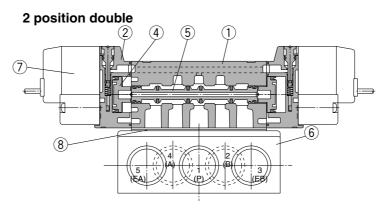
#### Construction

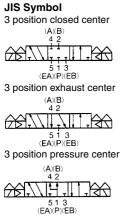
#### **Series SY**

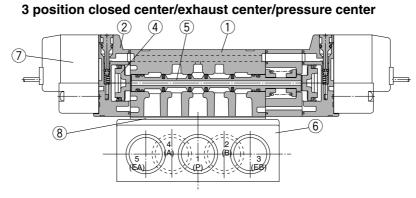












(This figure shows a closed center type.)
Component Parts

No.	Description	Material	Note		
1	Body	Aluminum die-casted (SY3000: Zinc die-casted)	White		
2	Adapter plate	Resin	White (SY9000: Gray)		
3	End plate	Resin	White		
4	Piston	Resin			
(5)	Spool valve assembly	Aluminum, HNBR	<u> </u>		

#### **Replacement Parts**

No.	Description	Part no.			Note	
INO.		SY3□40	SY5□40	SY7□40	SY9□40	Note
6	Sub-plate	SY3000-27-1®	SY5000-27-1*	1/4: SY7000-27-1 * 3/8: SY7000-27-2 *	%: SY9000-27-1	Aluminum die-casted
7	Pilot valve assembly	Refer to "How to Order Pilot Valve Assembly" on page 1-4-187.				87.
8	Gasket	SY3000-11-25	SY5000-11-15	SY7000-11-11	SY9000-11-2	HNBR
	Round head combination screw	SY3000-23-4 (M2 x 21)	M3 x 26	M4 x 31	SY9000-18-2 (M3 x 42)	For valve mounting (Matt nickel plated)

#### **⚠** Caution

Mounting screw tightening torques

M2: 0.16 N·m M3: 0.8 N·m M4: 1.4 N·m





#### **How to Order Pilot Valve Assembly**

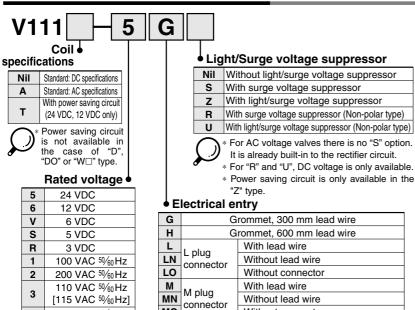
220 VAC 50/60 Hz

[230 VAC 50/60 Hz]

For type "W□", DC

voltage is only available.

4



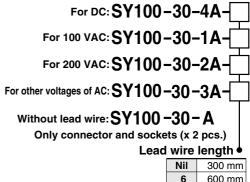
Without connector

Note) For connector cable of M8 connector, refer to

WO M8 connector Without connector cable

page 1-4-210.

How to Order Connector Assembly for L/M Plug Connector



_		
	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-

4

# Cable length 1 300 mm 2 500 mm 3 1000 mm

2000 mm 5000 mm

■ DIN terminal type					
V	<b>/</b> 115— 5	D			
_	Rated voltage •	Light/Surge voltage suppressor			
5	24 VDC	Nil Without light/surge voltage suppressor			
6	12 VDC	S With surge voltage suppressor (Non-polar type)			
1	100 VAC 50/60 Hz	Z With light/surge voltage suppressor (Non-polar type)			
2	200 VAC 50/60 Hz	* "DOZ" is not available.			
3	110 VAC <sup>50</sup> / <sub>60</sub> Hz [115 VAC <sup>50</sup> / <sub>60</sub> Hz]	For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.			
4	220 VAC 50/60Hz [230 VAC 50/60Hz]	• Electrical entry			
5	* DC specifications of type "D" and "DO" only available with 12 and 24 VDC.				

МО

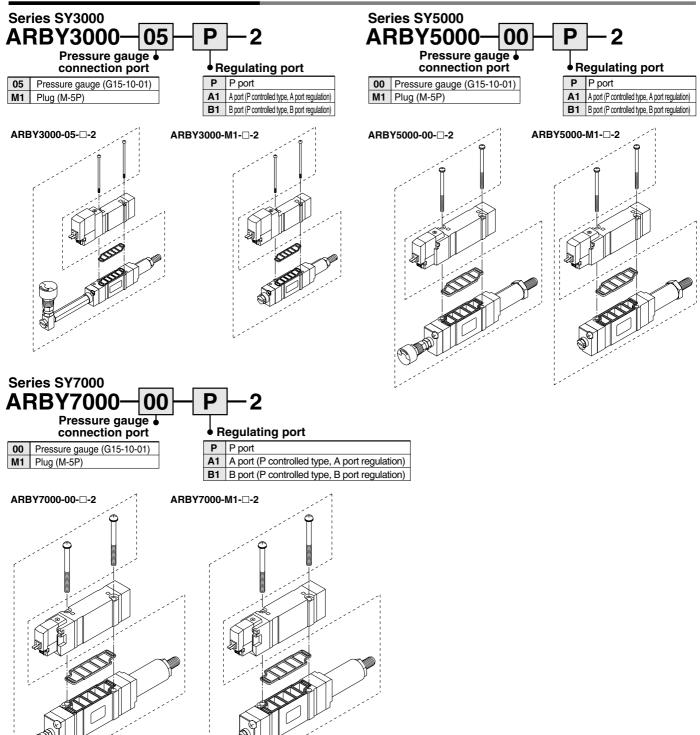
SV

SZ

SYJ

SX

#### **How to Order Interface Regulator**



#### **Accessory**

Series	Round head combination screw	Gasket
ARBY3000	SY3000-23-10 (M2 x 36)	SX3000-57-4
ARBY5000	M3 x 48.5, Matt nickel plated	SX5000-57-6
ARBY7000	M4 x 57, Matt nickel plated	SX7000-57-4



Mounting screw tightening torques

M2: 0.16 N·m M3: 0.8 N·m M4: 1.4 N·m

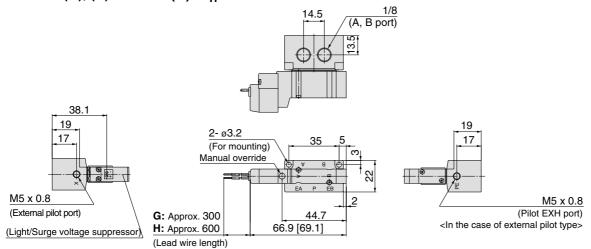


#### **Dimensions: Series SY3000**

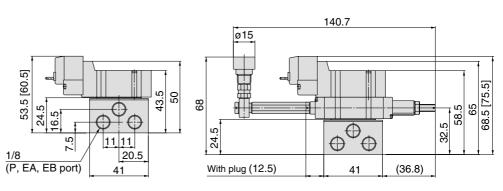


2 position single

Grommet (G), (H): SY3140(R)-□G□□-01□



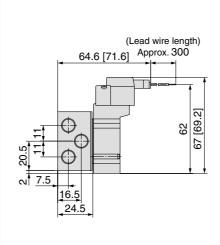
#### With interface regulator



#### L plug connector (L): SY3140(R)-□L□□-01□

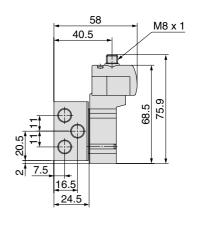
20.5 53.5 [60.5] 38.1 40.5 7.5 16.5 24.5 50 Yersel (Lose) (Lose)

#### M plug connector (M): SY3140(R)-□M□□-01□



#### M8 connector (WO):

**SY3140(R)-**□**WO**□□-01□



#### **Dimensions: Series SY3000**

[ ]: AC

SV

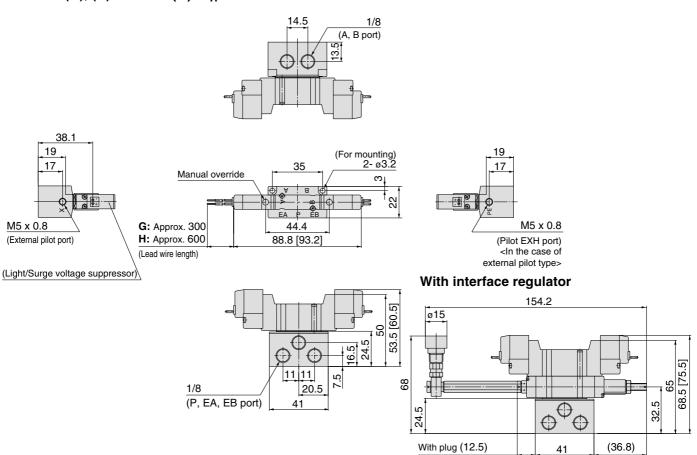
SZ

SYJ

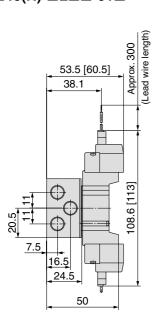
SX

2 position double

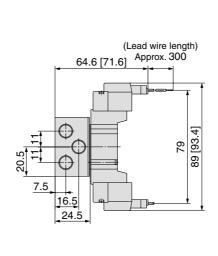
Grommet (G), (H): SY3240(R)-□<sup>G</sup><sub>H</sub>□□-01□



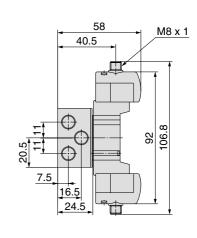
#### L plug connector (L): SY3240(R)-□L□□-01□



#### M plug connector (M): SY3240(R)-□M□□-01□



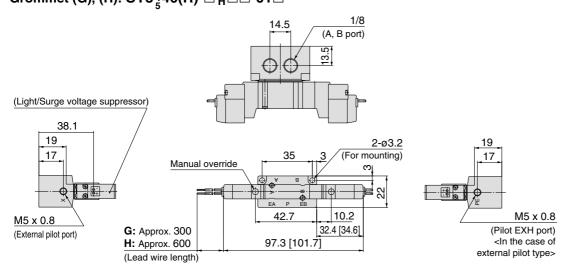
#### M8 connector (WO): SY3240(R)-□WO□□-01□



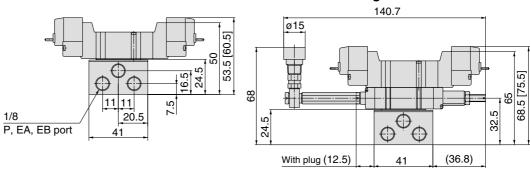
#### **Dimensions: Series SY3000**



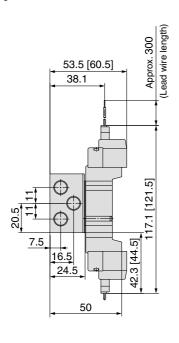
3 position closed center/exhaust center/pressure center Grommet (G), (H): SY3  $_5^340(R)-\Box _H^G\Box\Box$ -01 $\Box$ 



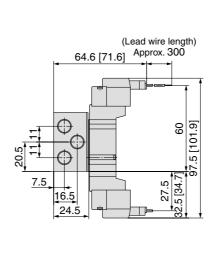
#### With interface regulator



#### L plug connector (L): SY3<sup>3</sup>/<sub>5</sub>40(R)-□L□□-01□

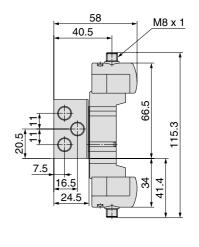


#### M plug connector (M): SY3<sup>3</sup>/<sub>5</sub>40(R)-□M□□-01□



#### M8 connector (WO):

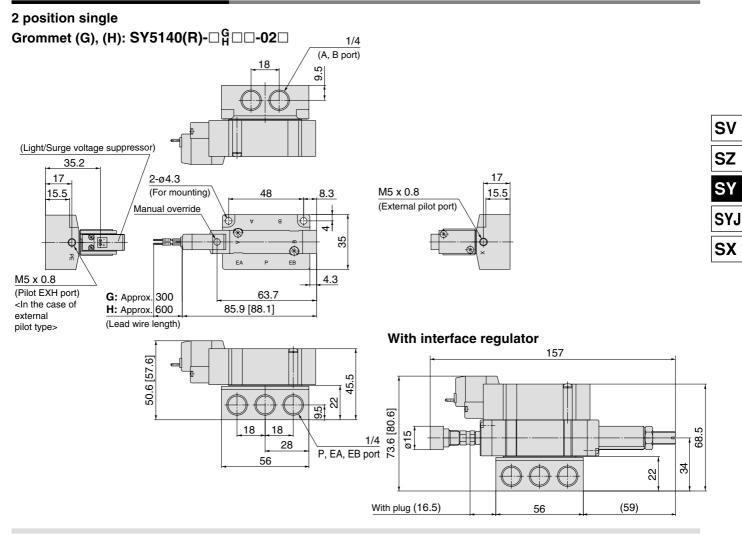
SY3<sup>3</sup>/<sub>5</sub>40(R)-□WO□□-01□

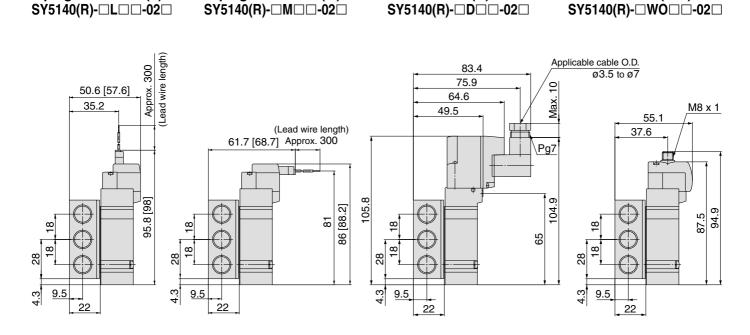


#### **Dimensions: Series SY5000**

L plug connector (L):







DIN terminal (D):

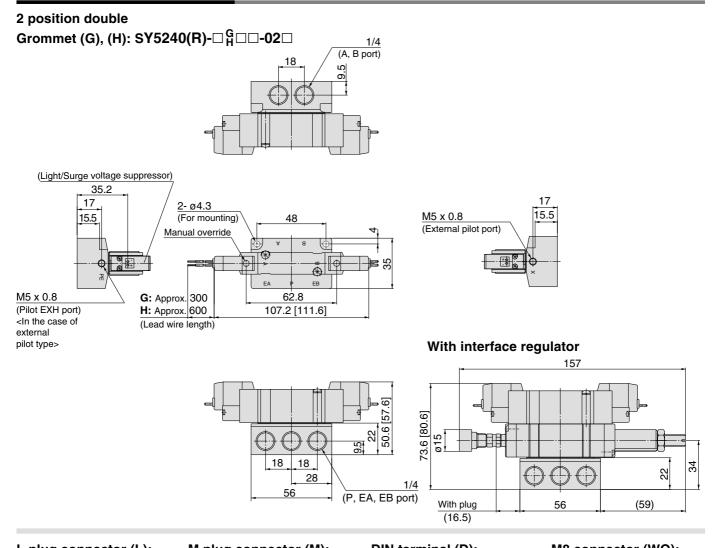
M plug connector (M):

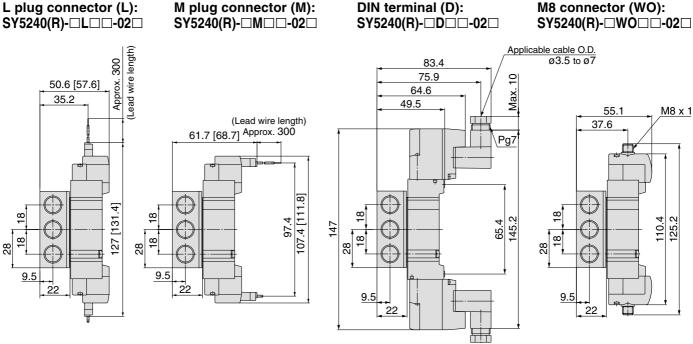
Note) Refer to page 1-4-210 for dimensions of connector types.

M8 connector (WO):

#### **Dimensions: Series SY5000**







Note) Refer to page 1-4-210 for dimensions of connector types.

#### **Dimensions: Series SY5000**



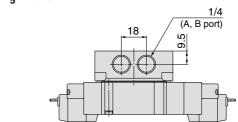
SV

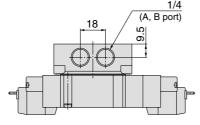
SZ

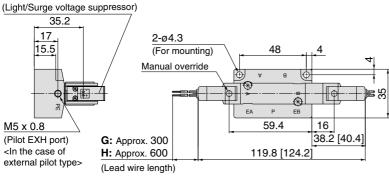
SYJ

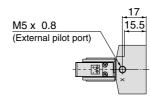
SX

3 position closed center/exhaust center/pressure center Grommet (G), (H): SY5<sup>3</sup>/<sub>5</sub>40(R)-□<sup>G</sup>/<sub>H</sub>□□-02□

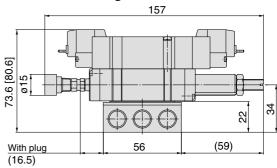








#### With interface regulator



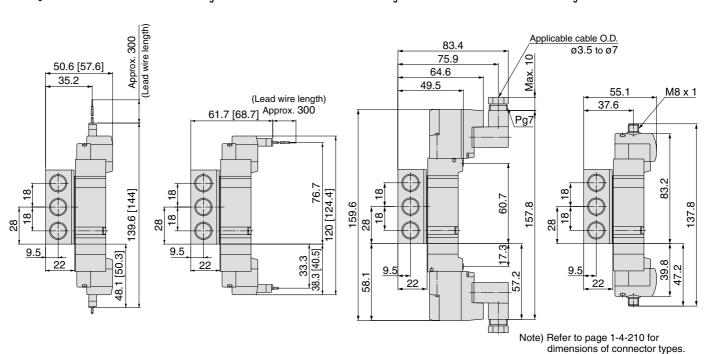
[57.6] 22 50.6 9.5 18 18 28 56 (P, EA, EB port)

L plug connector (L):  $SY5\frac{3}{5}40(R)-\Box L\Box \Box -02\Box$ 

M plug connector (M): SY5<sup>3</sup>/<sub>4</sub>40(R)-□M□□-02□

DIN terminal (D): SY5 <sup>3</sup>/<sub>4</sub>40(R)-□D□□-02□

M8 connector (WO): SY5 <sup>3</sup>/<sub>4</sub>40(R)-□WO□□-02□

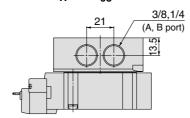


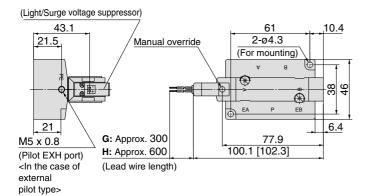
#### **Dimensions: Series SY7000**

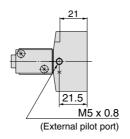


2 position single

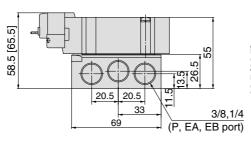
Grommet (G), (H): SY7140(R)- $\Box_{H}^{G}\Box\Box$ - $\frac{02}{03}\Box$ 

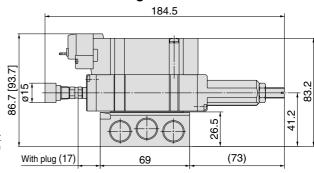






#### With interface regulator



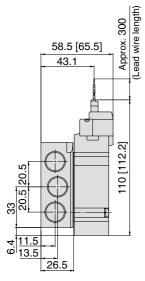


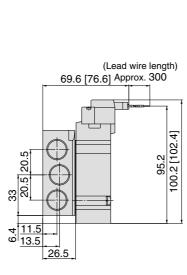
L plug connector (L): SY7140(R)- $\square$ L $\square$ - $\frac{02}{03}\square$ 

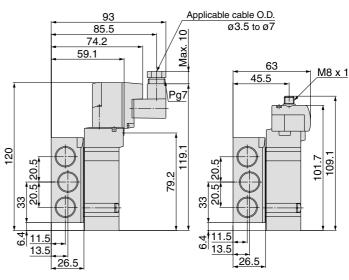
M plug connector (M): SY7140(R)- $\square$ M $\square$ - $^{02}_{03}\square$ 

DIN terminal (D): SY7140(R)- $\square$ D $\square$ - $\frac{02}{03}\square$ 

M8 connector (WO): SY7140(R)-□WO□□- 03 □







#### **Dimensions: Series SY7000**

[ ]: AC

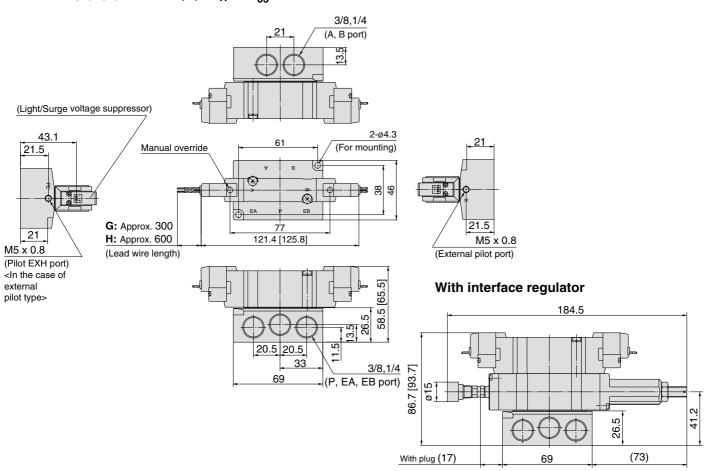
SV

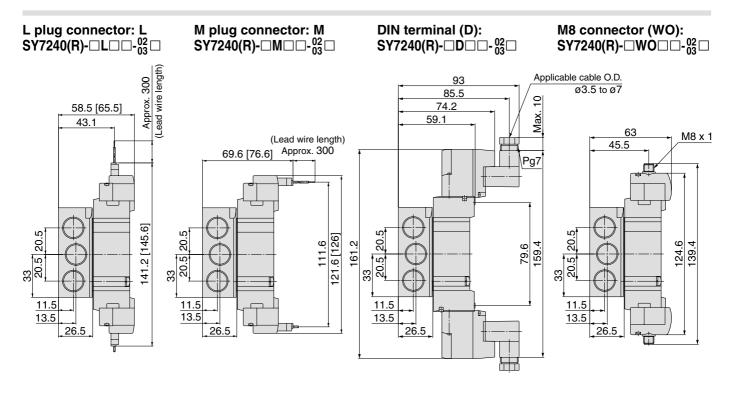
SZ

SYJ

SX

2 position double

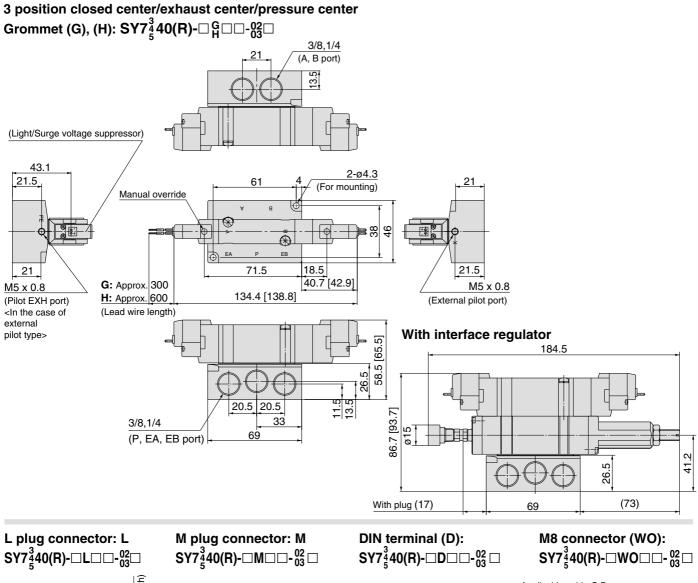


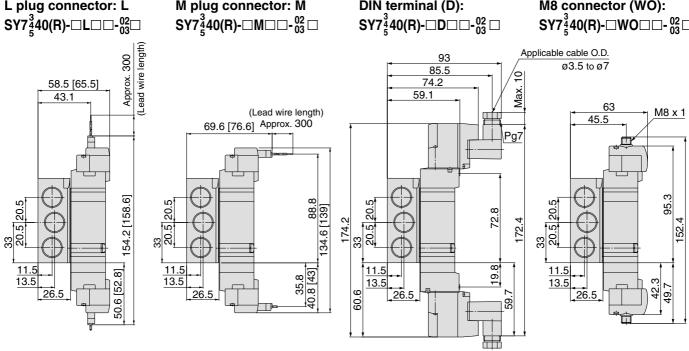


Note) Refer to page 1-4-210 for dimensions of connector types.

#### **Dimensions: Series SY7000**







Note) Refer to page 1-4-210 for dimensions of connector types.

2-ø5.4

(For mounting)

47

**Dimensions: Series SY9000** 

27



1/8

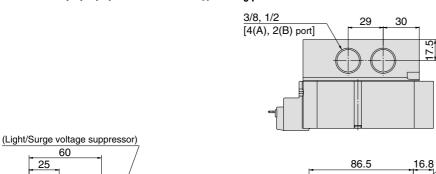
(External pilot port)

2 position single Grommet (G), (H): SYJ9140- $\Box_{\rm H}^{\rm G}\Box\Box$ -  $_{04}^{\rm O3}\Box$ 

(Pilot EXH port)

<In the case of

external pilot type>

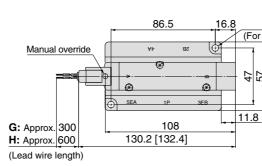


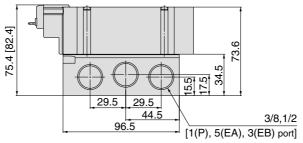
SV

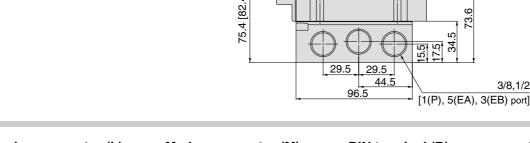
SZ

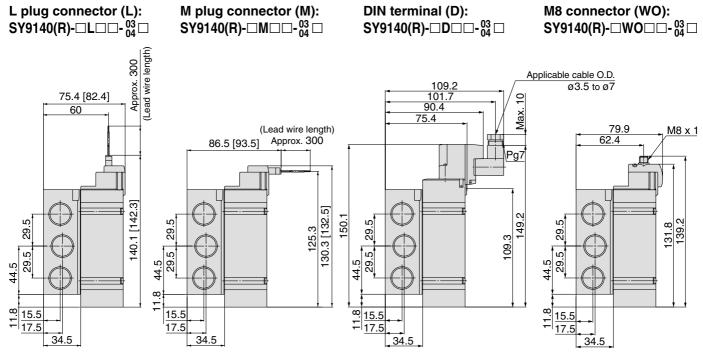
SYJ

SX









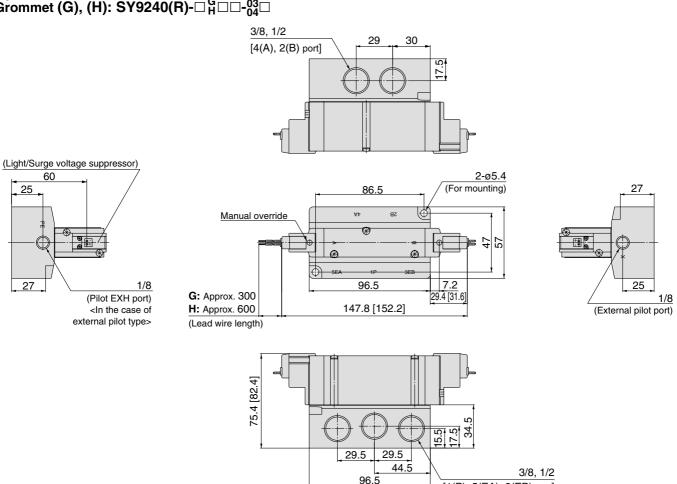
Note) Refer to page 1-4-210 for dimensions of connector types.

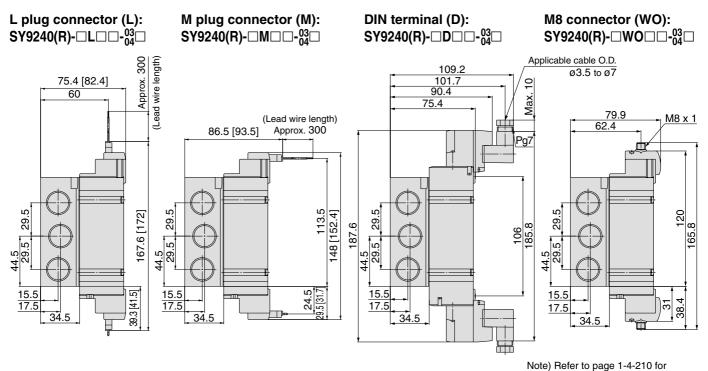


#### **Dimensions: Series SY9000**



2 position double Grommet (G), (H): SY9240(R)- $\Box_{H}^{G}\Box\Box_{04}^{-03}\Box$ 





dimensions of connector types.

[1(P), 5(EA), 3(EB) port]

3/8, 1/2

[1(P), 5(EA), 3(EB) port]

#### **Dimensions: Series SY9000**



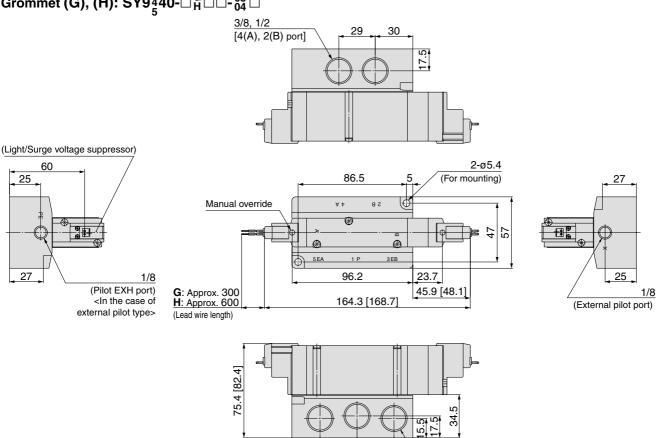
SV

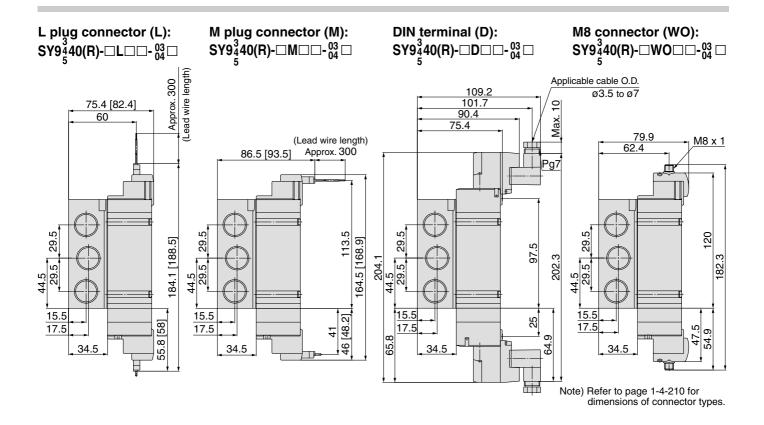
SZ

SYJ

SX

3 position closed center/exhaust center/pressure center Grommet (G), (H): SY9<sup>3</sup>/<sub>5</sub>40-□<sup>G</sup><sub>1</sub>□□-<sup>03</sup>/<sub>04</sub>□





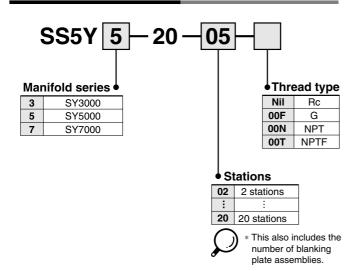
29.5 44.5

96.5

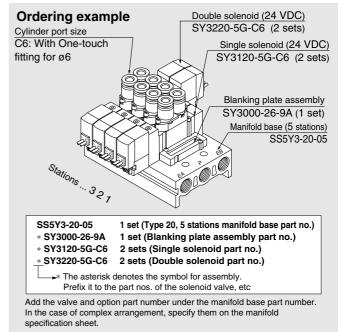


# Series SY3000/5000/7000 Body Ported Manifold Bar Stock Type Individual Wiring

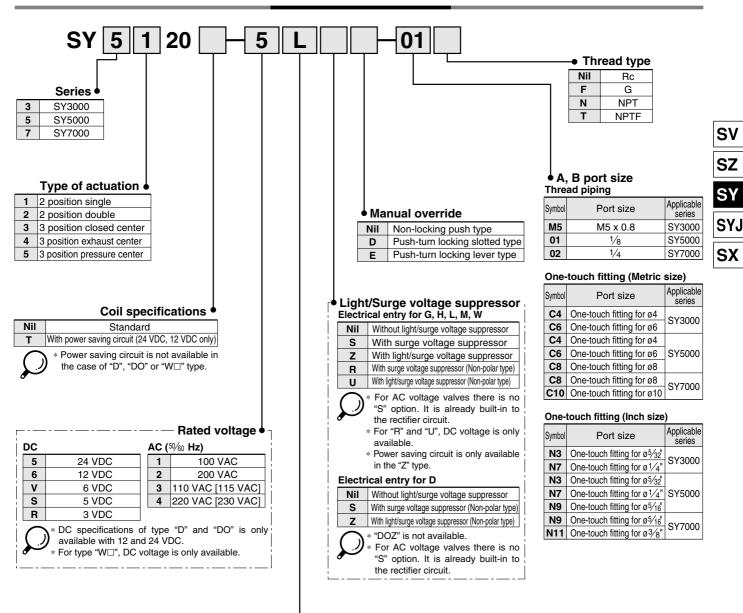
#### **How to Order Manifold**



#### **How to Order Valve Manifold Assembly**



#### **How to Order Valves**



Electrical entry

	, 12, 6, 5, 3 VDC/ 0, 110, 200, 220 V	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 H: Lead wire length 600 mm	L: With lead wire (Length 300 mm) LN: Without lead wire LO: Without connector	M: With lead wire (Length 300 mm) MN: Without lead wire MO: Without connector	D: With connector DO: Without connector	WO: Without connector cable

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

\* For DIN terminal of SY3000 series, refer to page 1-4-207.

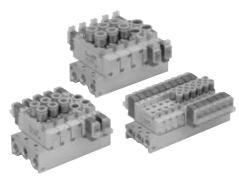
\* DIN terminal type "Y" conforming to DIN4365C standard is also available. For details, refer to catalog on page 1-4-201.

\* For connector cable of M8 connector, refer to page 1-4-209

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 catalog in page 1-4-61.)





#### **Manifold Specifications**

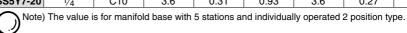
	Мо	del	SS5Y3-20	SS5Y7-20						
	Applicat	ole valve	SY3□20	SY7□20						
	Manifold type	е		Single base/B mount						
	P (SUP)/R (I	EXH)	Co	mmon SUP, Common E	XH					
	Valve station	าร		2 to 20 stations Note 1)						
1	A, B port loc	ation	Valve							
		P, EA, EB port	1/8 1/4		1/4					
	Port size A, B port		M5 x 0.8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)		1/4 C8 (One-touch fitting for Ø8) C10 (One-touch fitting for Ø10)					
	Manifold base v n: Stations	veight W (g)	W = 13n + 35	W = 36n + 64	W = 43n + 64					

Note 1) For more than 10 stations (more than 5 stations in the case of SS5Y7), supply pressure to P port on both sides and exhaust from EA/EB port on both sides.

Note 2) Refer to "Manifold Option" on page 1-4-61.

#### **Flow Characteristics**

	Port	size		Flow characteristics							
Model	1, 5, 3	4, 2	1 →	$4/2 (P \rightarrow A)$	VB)	$4/2 \rightarrow 5/3 \text{ (A/B} \rightarrow \text{EA/EB)}$					
	(P, EA, EB)	(A, B)	C (dm3/(s-bar))	b	Cv	C (dm3/(s-bar))	b	Cv			
SS5Y3-20	1/8	C6	0.72	0.29	0.18	0.80	0.36	0.21			
SS5Y5-20	1/4	C8	1.9	0.28	0.48	2.2	0.20	0.53			
SS5Y7-20	1/4	C10	3.6	0.31	0.93	3.6	0.27	0.88			



### SY3000/SS5Y3-20-Stations-

Stations n 2 stations

L2

48.5

30.5

3

59

41

69.5

51.5

5

80

62

90.5

72.5

101

83

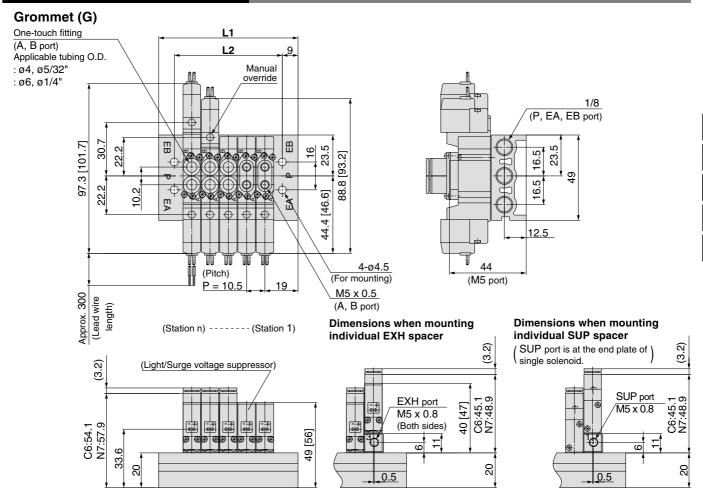


SV

SZ

SYJ

SX



#### L plug connector (L) M plug connector (M) M8 connector (WO) M8 x 1 € 117.1 [121.5] .5 [101.9] 108.6 [113] [93.4] 115.3 106.8 8 92 89 97. 44.5 [46.7] 54.3 [56.5] 46 53.4 Approx. 300 60.1 [67.1] (Lead wire length) 36 53.5 (Lead wire length) 33.6 300 49 [56] Approx. Note) Refer to page 1-4-210 for dimensions of connector types.

10

132.5

114.5

12

153.5

135.5

143

13

164

146

14

174.5

156.5

15

185

167

16

195.5

177.5

206

188

18

216.5

198.5

8

111.5

93.5

122

104

19 20 stations

237.5

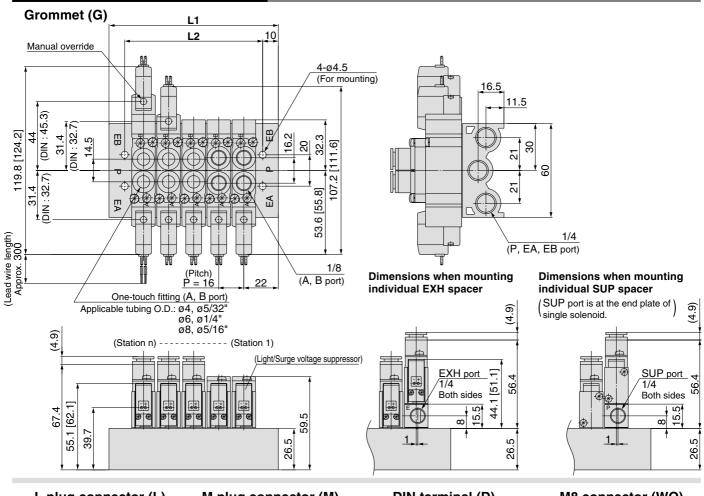
219.5

227

209

#### SY5000: SS5Y5-20- Stations -



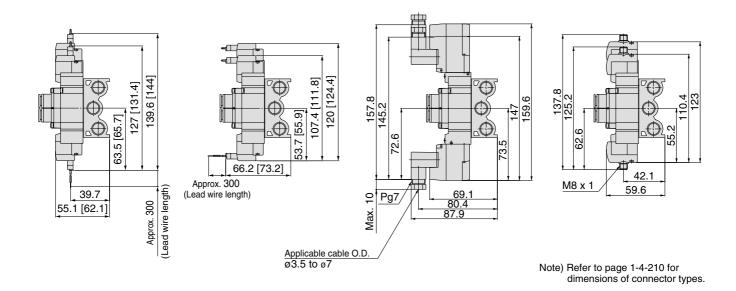


L plug connector (L)

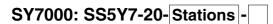
M plug connector (M)

DIN terminal (D)

M8 connector (WO)



Stations	n 2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	60	76	92	108	124	140	156	172	188	204	220	236	252	268	284	300	316	332	348
L2	40	56	72	88	104	120	136	152	168	184	200	216	232	248	264	280	296	312	328



L2

84

103

122

141

160

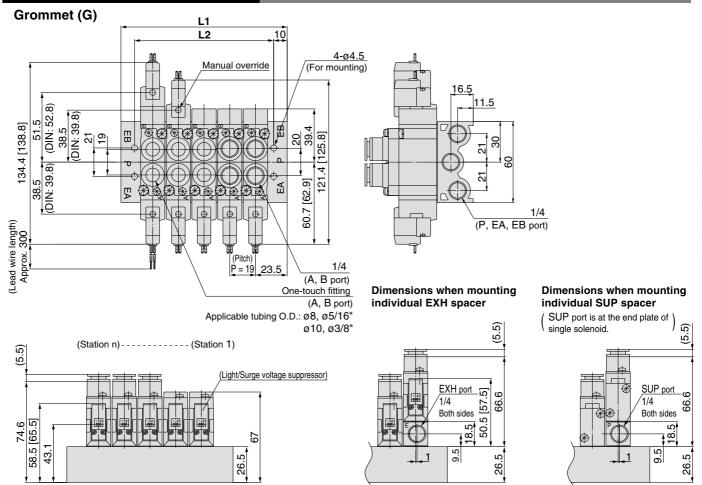


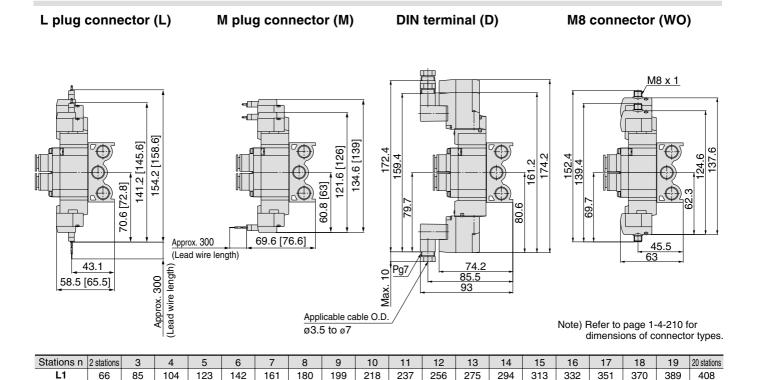
SV

SZ

SYJ

SX





255

274

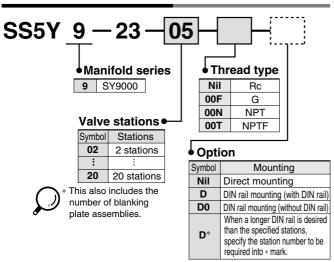
293

312

# Type 23

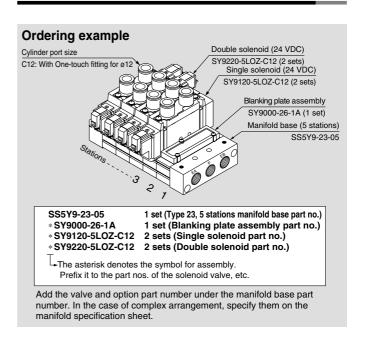
# Series SY9000 Body Ported Manifold Stacking Type Individual Wiring

#### **How to Order Manifold**

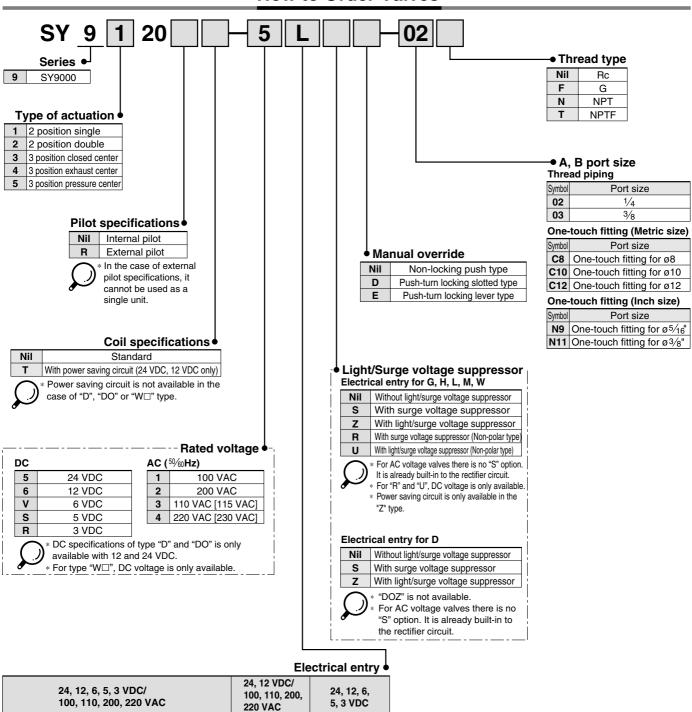


 Type 23 manifold of Series SY9000 is concurrently used for the internal and external pilot.

#### **How to Order Valve Manifold Assembly**



#### **How to Order Valves**



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

L: With lead wire

(Length 300 mm)

LN: Without lead wire

Grommet

length 300 mm

length 600 mm

G: Lead wire

H: Lead wire

 DIN terminal type "Y" conforming to DIN4365C standard is also available. For details, refer to catalog on page 1-4-201.

**DIN terminal** 

DO: Without connecto

D: With connector

\* For connector cable of M8 connector, refer to page 1-4-209.

L plug connector M plug connector

LO: Without connector MO: Without connector

M: With lead wire

(Length 300 mm)

MN: Without lead wire



M8 connector

WO: Without connector

cable

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 1-4-61.



SV

SZ

SYJ

SX

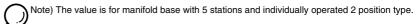
#### **Manifold Specifications**



Me	odel	SS5Y9-23
	ble valve	SY9□20
Manifold typ		Stacking type
P (SUP)/R (	(EXH)	Common SUP, Common EXH
Valve statio	ns	2 to 20 stations Note 1)
A, B port lo	cation	Valve
	P, EA, EB port	3/8
Port size	A, B port	1/4 3/8 C8 (One-touch fitting for ø8) C10 (One-touch fitting for ø10) C12 (One-touch fitting for ø12)
Manifold bas n: Stations	e weight W (g)	W = 66n + 246

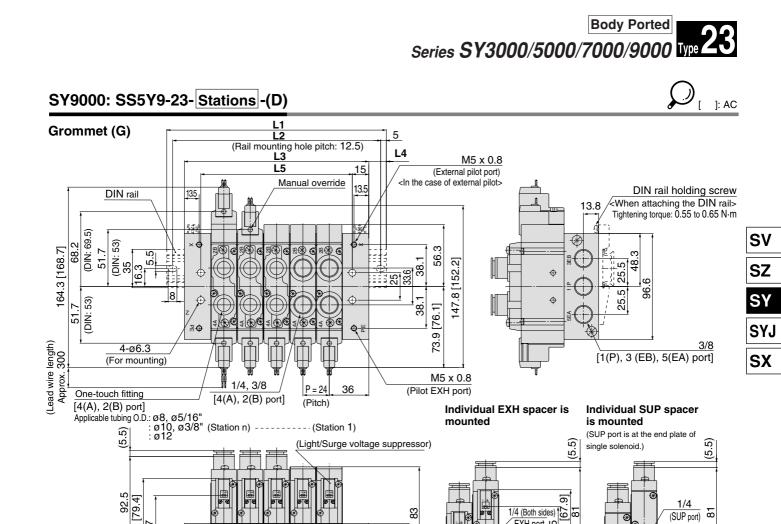
#### **Flow Characteristics**

	Port	size			Flow characteristics						
Model	1, 5, 3	4, 2	1	4/2 (P→A/	B)	4/2→5/3 (A/B→EA/EB)					
	(P, EA, EB)	(A, B)	C (dm3/(s-bar))	b	Cv	C (dm3/(s-bar))	b	Cv			
SS5Y9-23	3/8	C12	6.3	0.20	1.5	8.2	0.28	1.9			



Note 1) For more than 10 stations, supply pressure to P port on both sides and exhaust from EA/EB port on both sides.

Note 2) Refer to "Manifold Option" on page 1-4-61.



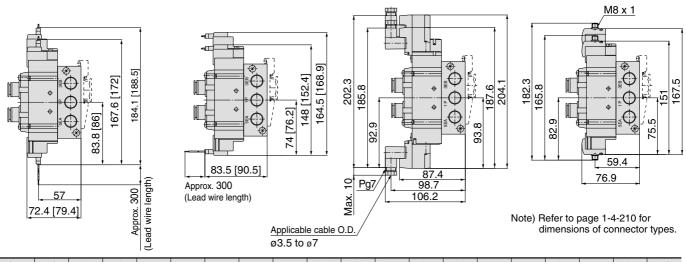
L plug connector (L) M plug connector (M) DIN terminal (D) M8 connector (WO)

S

31 when using DIN rail) (Height v

EXH port 49:

6.09



Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	123	148	173	198	223	248	273	298	323	335.5	360.5	385.5	410.5	435.5	460.5	485.5	510.5	535.5	560.5
L2	112.5	137.5	162.5	187.5	212.5	237.5	262.5	287.5	312.5	325	350	375	400	425	450	475	500	525	550
L3	96	120	144	168	192	216	240	264	288	312	336	360	384	408	432	456	480	504	528
L4	13.5	14	14.5	15	15.5	16	16.5	17	17.5	12	12.5	13	13.5	14	14.5	15	15.5	16	16.5
L5	66	90	114	138	162	186	210	234	258	282	306	330	354	378	402	426	450	474	498

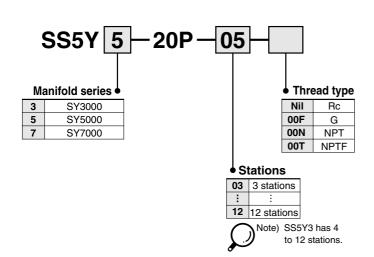
Note) In the case of direct mounting without DIN rail, total width of manifold is L3.

72.4

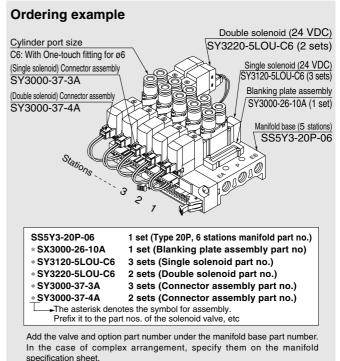


# Series SY3000/5000/7000 Body Ported Manifold Bar Stock Type Flat Ribbon Cable

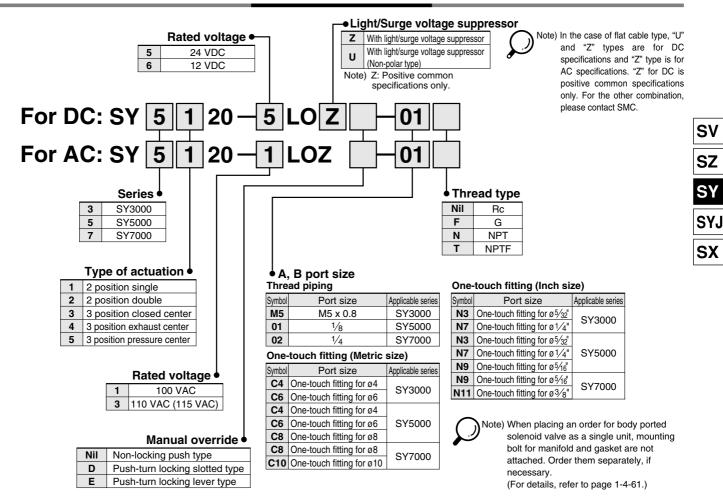
#### **How to Order Manifold**



#### **How to Order Valve Manifold Assembly**



#### **How to Order Valves**



#### Multiple valve wiring is simplified through the use of the flat cable connector

#### Clean appearance

In the case of a flat ribbon cable type, each valve is wired on the print board of manifold base to allow the external wiring to be piped all together with 26 pins MIL connector.



#### **Manifold Specifications**

Мо	del	SS5Y3-20P	SS5Y5-20P	SS5Y7-20P			
Applicat	ole valve	SY3□20	SY5□20	SY7□20			
Manifold typ	е		Single base/B mount				
P (SUP)/R (I	EXH)	Co	mmon SUP, Common E.	XH			
Valve station	าร	4 to 12 stations <sup>(1)</sup>	3 to 12 sta	ations Note 1)			
A, B port loc	ation		Valve				
	P, EA, EB port	1/8	1/4	1/4			
Port size	A, B port	M5 x 0.8, C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	1/8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)	1/4 C8 (One-touch fitting for ø8) C10 (One-touch fitting for ø10)			
Manifold base n: Stations	weight W (g)	W = 19n + 45	W = 19n + 45 W = 43n + 77				
Applicable flat ribb	on cable connector	Flat ribbon cable connector, Socket: 26 pins MIL type with strain relief, Conforming to MIL-C-83503					
Internal wirin	ng	In common between +COM and -COM (Z type: +COM only).					
Rated voltag	je	12, 24 VDC 100, 110 VAC					



- Note 1) For more than 10 stations (more than 5 stations in the case of SS5Y7), supply pressure to P port on both sides and exhaust from EA/EB port on both sides.
- Note 2) The withstand voltage specification for the wiring unit section is JIS C 0704, Grade 1 or its equivalent.
- Note 3) Refer to "Manifold Option" on page 1-4-61.

#### **Flow Characteristics**

	Port	size			Flow char	acteristics				
Model	1, 5, 3	4, 2	1 →	$4/2 (P \rightarrow P)$	VB)	$4/2 \rightarrow 5/3 \text{ (A/B} \rightarrow \text{EA/EB)}$				
	(P, EA, EB)	(A, B)	C [dm3/(s·bar)]	b	Cv	C [dm3/(s-bar)]	b	Cv		
SS5Y3-20P	1/8	C6	0.72	0.29	0.18	0.80	0.36	0.21		
SS5Y5-20P	1/4	C8	1.9	0.28	0.48	2.2	0.20	0.53		
SS5Y7-20P	1/4	C10	3.6	0.31	0.93	3.6	0.27	0.88		



Note) The value is for manifold base with 5 stations and individually operated 2 position type.

#### How to Order Connector Assembly

#### For 12, 24 VDC

For DC	For SY3000	For SY5000/7000
For single solenoid	SY3000-37-3A	SY5000-37-3A
Double solenoid, 3 position type	SY3000-37-4A	SY5000-37-4A
Single with spacer assembly	SY5000-37-3A	SY5000-37-5A
Double, 3 position with spacer assembly	SY3000-37-6A	SY5000-37-6A

#### For 100 VAC

For DC	For SY3000	For SY5000/7000
For single solenoid	SY3000-37-32A	SY5000-37-15A
Double solenoid, 3 position type	SY3000-37-33A	SY5000-37-16A
Single with spacer assembly	SY5000-37-15A	SY5000-37-17A
Double, 3 position with spacer assembly	SY3000-37-34A	SY5000-37-18A

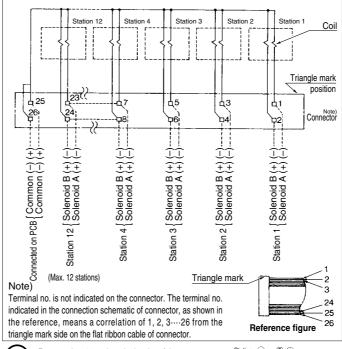
For 100 VAC (115 VAC)

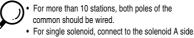
For DC	For SY3000	For SY5000/7000
For single solenoid	SY3000-37-35A	SY5000-37-19A
Double solenoid, 3 position type	SY3000-37-36A	SY5000-37-20A
Single with spacer assembly	SY5000-37-19A	SY5000-37-21A
Double, 3 position with spacer assembly	SY3000-37-37A	SY5000-37-22A

#### **∆** Caution

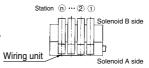
• For non-polar (U) valves, the electrical DC connections can be used with either positive and negative COM. For type (Z), only use with positive COM as the valve does not operate correctly when used with negative COM.

#### Internal Wiring of Manifold (Non-polar Type)



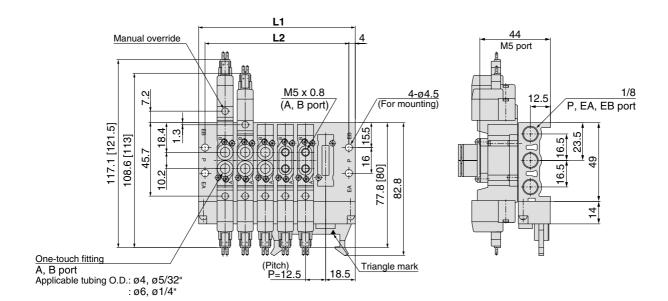


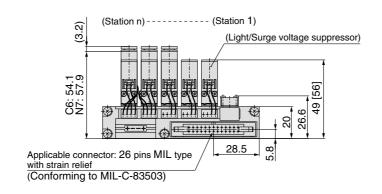
 The maximum number of stations that can be accommodated is 12. For more stations, please contact SMC.



SY3000: SS5Y3-20P- Stations







Stations n	4	5	6	7	8	9	10	11	12
L1	72.5	85	97.5	110	122.5	135	147.5	160	172.5
L2	64.5	77	89.5	102	114.5	127	139.5	152	164.5

SY

SV

SZ

SY

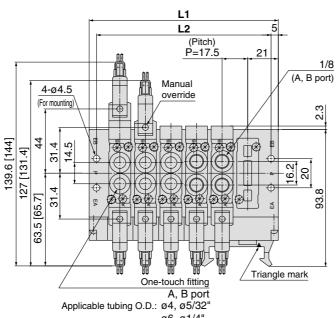
SYJ

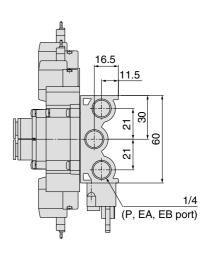
SX



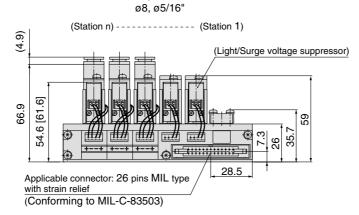
SY5000: SS5Y5-20P-Stations







ø6, ø1/4"



Stations n	3	4	5	6	7	8	9	10	11	12
L1	77	94.5	112	129.5	147	164.5	182	199.5	217	234.5
L2	67	84.5	102	119.5	137	154.5	172	189.5	207	224.5

SY7000: SS5Y7-20P-Stations

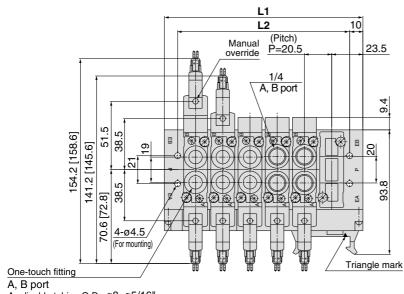


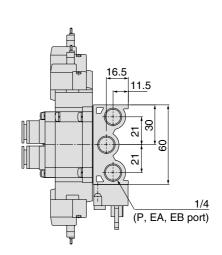
SV

SZ

SYJ

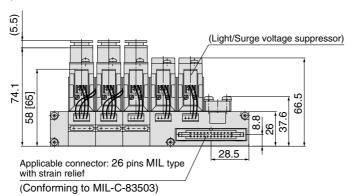
SX





A, B port Applicable tubing O.D.: Ø8, Ø5/16" Ø10, Ø3/8"

(Station n) ----- (Station 1)



Stations n	3	4	5	6	7	8	9	10	11	12
L1	88	108.5	129	149.5	170	190.5	211	231.5	252	272.5
12	68	88.5	109	129.5	150	170.5	191	211.5	232	252.5





# Series SY9000 **Body Ported Manifold Stacking Type** Flat Ribbon Cable

Rc

G

NPT

NPTF

Direct mounting

Mounting

DIN rail mounting (with DIN rail)

DIN rail mounting (without DIN rail)

When a longer DIN rail is

desired than the specified

stations, specify the station

number to be required into

Nil

00F

00N

00T

Option Symbol

Nil

D0

mark

#### SS5Y 9 - 23P05 Thread type Manifold series

**How to Order Manifold** 

**9** SY9000

Valve stations Symbol Stations

04 4 stations 12 12 stations This also includes the

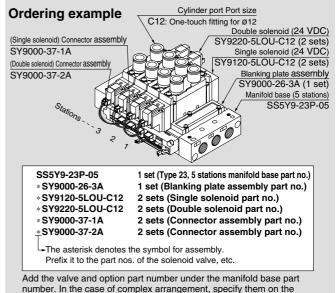
\* Type 23P manifold of Series SY9000 is concurrently used for

the internal and external pilot.

number of blanking

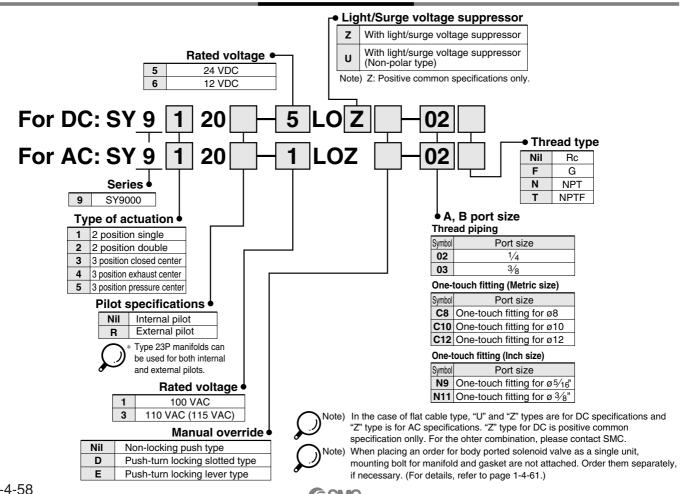
plate assemblies.

# **How to Order Valve Manifold Assembly**



#### **How to Order Valves**

manifold specification sheet.





#### Multiple valve wiring is simplified through the use of the flat cable connector.

#### Clean appearance

In the case of a flat ribbon cable type, each valve is wired on the print board of manifold base to allow the external wiring to be piped all together with 26 pins MIL connector.



#### **How to Order Connector Assembly**

#### For 12/24 VDC

Specifications	For SY9000
For single solenoid	SY9000-37-1A
Double solenoid 3 position	SY9000-37-2A
Single with spacer assembly	SY9000-37-3A
Double, 3 position with spacer assembly	SY9000-37-4A

#### For 100 VAC

Specifications	For SY9000
For single solenoid	SY9000-37-1B
Double solenoid 3 position	SY9000-37-2B
Single with spacer assembly	SY9000-37-3B
Double, 3 position with spacer assembly	SY9000-37-4B

#### For 110 VAC (115 VAC)

Specifications	For SY9000
For single solenoid	SY9000-37-1C
Double solenoid 3 position	SY9000-37-2C
Single with spacer assembly	SY9000-37-3C
Double, 3 position with spacer assembly	SY9000-37-4C

# **⚠** Caution

• For non-polar (U) valves, the electrical DC connections can be used with either positive and negative COM. For type (Z), only use with positive COM as the valve does not operate correctly when used with negative COM.

#### **Manifold Specifications**

Model		SS5Y9-23P			
Applicable valve		SY9□20			
Manifold type		Stacking type			
P (SUP)/R (EXH)		Common SUP, Common EXH			
Valve stations		4 to 12 stations Note 1)			
A, B port location		Valve			
P, EA, EB port		3/8			
		1/4 3/8			
Port size A	A, B port	C8 (One-touch fitting for Ø8)			
		C10 (One-touch fitting for ø10)			
		C12 (One-touch fitting for ø12)			
Manifold base weight W (g) n: Stations		W = 73n + 259			
Applicable flat ribbon cable connector		Flat ribbon cable connector, Socket: 26 pins MIL with strain relief, Conforming to MIL-C-83503			
Internal wiri	ng	In common between +COM and -COM (Z type: +COM only)			
Rated voltage	ge	12, 24 VDC, 100, 110 VAC			

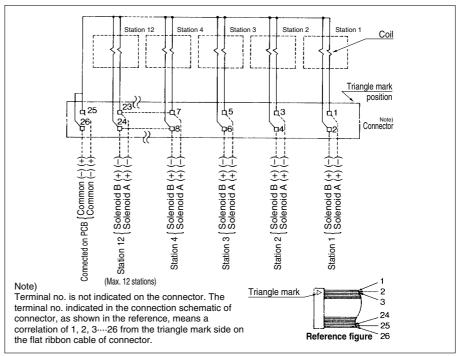
Note 1) For more than 10 stations, supply pressure to P port on both sides and exhaust from EA/EB port on both sides. Note 2) The withstand voltage specification for the wiring unit section is JIS C 0704, Grade 1 or its equivalent. Note 3) Refer to "Manifold Option" on page 1-4-61.

#### Flow Characteristics

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		Port	size			Flow char	acteristics		
(P, EA, EB) (A, B) C (dm <sup>3</sup> /(s-bar)) b Cv C (dm <sup>3</sup> /(s-bar)) b Cv	Model	1, 5, 3	4, 2	1 →	$4/2 (P \rightarrow A)$	VB)	4/2 →	5/3 (A/B →	EA/EB)
		(P, EA, EB)	(A, B)	C (dm3/(s·bar))	b	Cv	C (dm3/(s-bar))	b	Cv
<b>SS5Y9-23P</b> 3/8 C12 6.3 0.20 1.5 8.2 0.28 1.9	SS5Y9-23P	3/8	C12	6.3	0.20	1.5	8.2	0.28	1.9

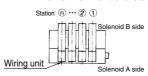
Note) The value is for manifold base with 5 stations and individually operated 2 position type.

#### Internal Wiring of Manifold (Non-polar type)



For more than 10 stations, both poles of the common should be wired. • For single solenoid, connect to the solenoid A side.

The maximum number of stations that can be accommodated is 12. For more stations, please contact SMC.





SYJ

SV

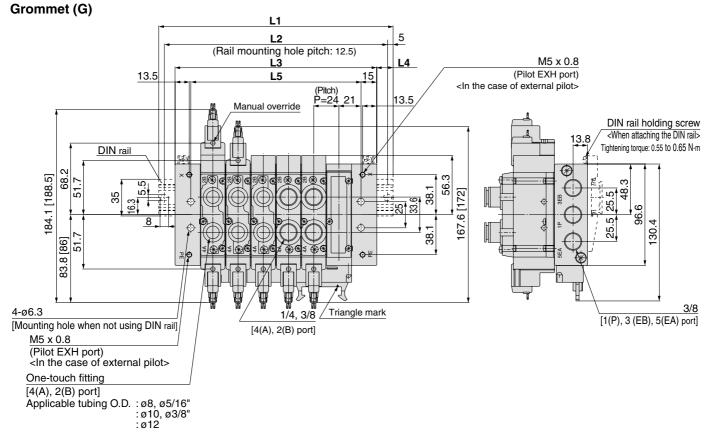
SZ

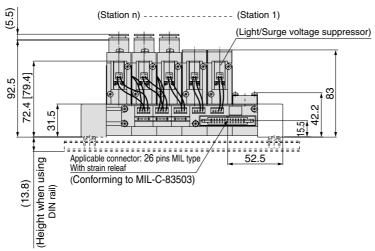
SX



#### SY9000: SS5Y9-23P- Stations -(D)





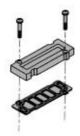


Stations n	4 stations	5	6	7	8	9	10	11	12 stations
L1	173	198	223	248	273	298	323	335.5	360.5
L2	162.5	187.5	212.5	237.5	262.5	287.5	312.5	325	350
L3	144	168	192	216	240	264	288	312	336
L4	14.5	15	15.5	16	16.5	17	17.5	12	12.5
L5	114	138	162	186	210	234	258	282	306

Note) In the case of direct mounting without DIN rail, total width of manifold is L3.

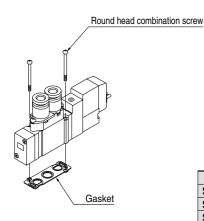
#### **Manifold Option**

#### ■ Type 20, 23 Blanking plate assembly



Series	Assembly part no.
SY3000	SY3000-26-9A
SY5000	SY5000-26-20A
SY7000	SY7000-26-22A
SY9000	SY9000-26-1A

#### ■ Gasket assembly part no.



Series	Gasket assembly
SY3000	SY3000-GS-1
SY5000	SY5000-GS-1
SY7000	SY7000-GS-1
SY9000	SY9000-GS-1



Note) Gasket assembly consists of mounting screws (2 pcs.) and a gasket.

# **⚠** Caution

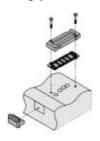
#### Mounting screw tightening torques

M2: 0.16 N·m M3: 0.8 N·m M4: 1.4 N·m

# **⚠** Warning

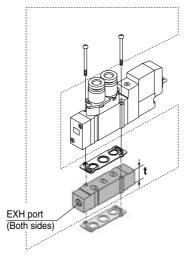
When mounting a valve or spacer on the manifold base or sub-plate, etc., those mounting directions are determined. If mounted in the wrong direction, the equipment to be connected may cause malfunction. Refer to external dimensions, and then mount it.

#### ■ Type 20P, 23P Blanking plate assembly



Assembly part no.
SY3000-26-10A
SY5000-26-21A
SY7000-26-23A
SY9000-26-3A

#### ■ Individual EXH spacer assembly



Series	Assembly part no.	Port size	t
SY3000	SY3000-39-20A	M5 x 0.8	10.5
SY5000	SY5000-39-1*A	1/8	15
SY7000	SY7000-39-1*A	1/4	18
SY9000	SY9000-39-1*A	1/4	20

Note)

Note) In case of 20P and 23P, for protection of the wiring unit section from drainage, piping at the EA port should be arranged so that it will not be directly exposed to exhaust from the valve.

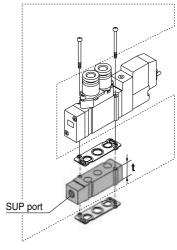
# ■ Individual SUP spacer assembly

SV

SZ

SYJ

SX



Series	Assembly part no.	Port size	t
SY3000	SY3000-38-20A	M5 x 0.8	10.5
SY5000	SY5000-38-1*A	1/8	15
SY7000	SY7000-38-1*A	1/4	18
SY9000	SY9000-38-1*A	1/4	20

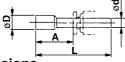
No

Note) The SUP port of SY3000/5000/7000 may be either on the lead wire side or on the end plate side. (An assembly is shipped under the conditions shown in the figure.)

The end plate side is only available to SY9000.

#### ■ Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports. Note) Purchasing order is available in units of 10 pieces.



#### **Dimensions**

Applicable fittings size ød	Model	Α	L	D
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10
10	KQ2P-10	22	43	12
12	KQ2P-12	24	44.5	14
1/8"	KQ2P-01	16	31.5	5
5/32"	KQ2P-03	16	32	6
1/4"	KQ2P-07	18	35	8.5
5/16"	KQ2P-09	20.5	39	10
3/8"	KQ2P-11	22	43	11.5

#### \* Thread type

Nil	Rc
F	G
N	NPT
Т	NPTF



#### **Manifold Option**

#### ■SUP block disk (For SY9000)

By installing a SUP block disk in the pressure supply passage of a manifold valve, it is possible to supply two or more different high and low pressures to one manifold.



Series	Part no.
SY9000	SY9000-61-2A

#### ■ EXH block disk (For SY9000)

By installing an EXH block disk in the exhaust passage of a manifold valve, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two blocking disks are needed to divide both exhausts.)



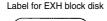
Series	Part no.
SY9000	SY9000-61-2A

#### ■ Label for block disk (For SY9000)

The labels shown below are used on manifold stations containing SUP/EXH blocking disk(s) to show their location. (3 pcs. each)

#### VZ3000-123-1A

Label for SUP block disk



Label for SUP/EXH block disk









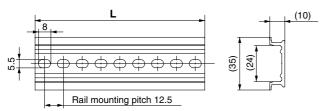
\* When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.

#### ■ DIN Rail Dimensions/Weight for SY9000

#### VZ1000-11-4-

#### Refer to L dimensions

\* Fill in □ with an appropriate no. listed on the table of DIN rail dimensions shown below.



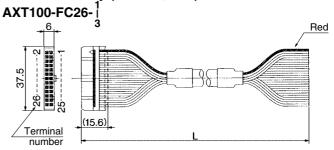
No.	0	1	2	3	4	5	6	7	8	9
L Dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5
Weight (g)	24.8	28	31.1	34.3	37.4	40.6	43.8	46.9	50.1	53.3
No.	10	11	12	13	14	15	16	17	18	19
L Dimension	223	235.5	248	260.5	273	285.5	298	310.5	323	335.5
Weight (g)	56.4	59.6	62.7	65.9	69.1	72.2	75.4	78.6	81.7	84.9
No.	20	21	22	23	24	25	26	27	28	29
L Dimension	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5
Weight (a)	88	912	944	97.5	100.7	103.9	107	110 2	1133	116 5



Note) For DIN rail, refer to page 1-4-207.

Refer to  $\pmb{L1}$  dimension on pages starting with page 1-4-60 for lengths that correspond to the number of manifold stations.

#### ■ Cable assembly (For 20P, 23P)



#### **Connector Assembly for Flat Ribbon Cable**

Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-FC26-1	Cable OC save v OO AMC
3 m	AXT100-FC26-2	Cable 26 core x 28 AWG
5 m	AXT100-FC26-3	



\* For other commercial connectors, use a 20 pins with strain relief conforming to MIL-C-83503.

#### Connector manufacturers' example

- Hirose Electric Co., Ltd.
- Japan Aviation Electronics Industry, Ltd.
- Sumitomo 3M Limited
- J.S.T. Mfg. Co., Ltd.
- Fujitsu Limited



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#### How to Increase Manifold Base (Series SY9000 only) Manifold case can be added at any location.

When a type 23 manifold base is added, tension bolts as well as manifold block assembly will be required. Order the tension bolt suitable for the stations after a station was increased (decreased), since the length of a tension bolt differs by the number of stations. (For changing the number of stations for a type 23P manifold, wiring unit for the stations and lead assembly will be required.)

1 Loosen the tension bolts 5 connecting the manifold base, and pull out both of 2 tension bolts.

(When equipped with a DIN rail, loosen one DIN rail holding screw on either U side or D side.)

Separate the blocks at the location where station expansion is desired.

Mount additional manifold block assembly.

4 Press block-to-block so that there's no gap. After connection, insert a tension bold for desired stations and then tighten it.

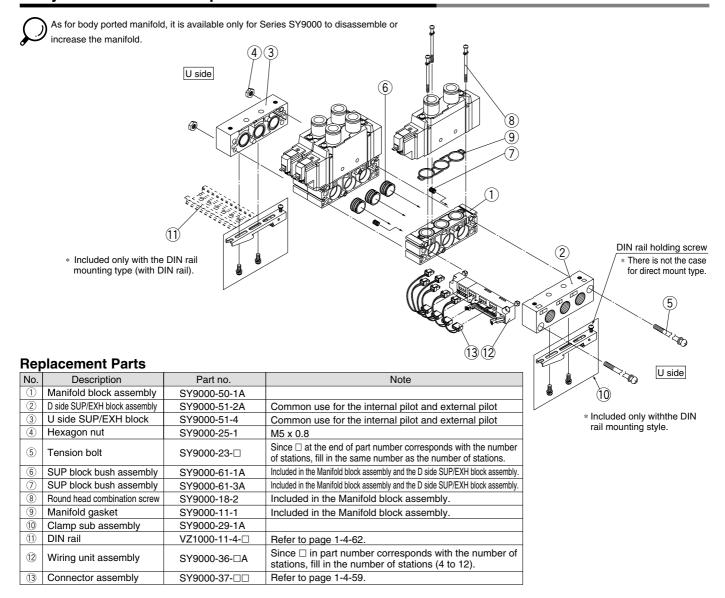
#### ▲ Caution (Tightening torque: 2.9 N·m)

(When equipped with a DIN rail, be sure to tighten the DIN rail holding screws after tightening the tension bolts. Tightening torque: 1.4 N·m)

### **⚠** Caution

- 1. Be sure to shut off the power and air supplies before disassembly. Furthermore, since air may remain inside the actuator, piping and manifold, confirm that the air is completely exhausted before performing any work.
- 2. When disassembly and assembly are performed, air leakage may result if connections between blocks and tightening of the end block's holding screw, is inadequate.
- 3. By adding wiring unit assembly to type 23 manifold, it can be changed to type 23P manifold, too.

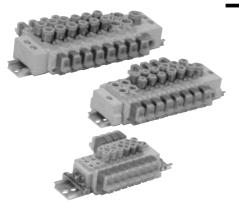
#### **Body Ported Manifold Exploded View: 23/23P Common**

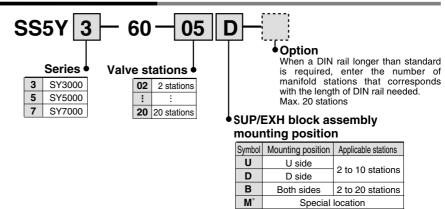




# Series SY3000/5000/7000 **Body Ported Manifold Cassette Type**

#### **How to Order Manifold**

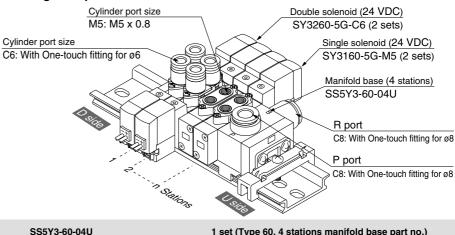




For special specifications, indicate separately on the manifold specification sheet.

#### **How to Order Valve Manifold Assembly**

#### Ordering example



- \* SY3260-5G-C6 \* SY3160-5G-M5
- 1 set (Type 60, 4 stations manifold base part no.)
- 2 sets (Double solenoid part no.) 2 sets (Single solenoid part no.)
- →The asterisk denotes the symbol for assembly. Prefix it to the part nos, of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number. In the case of complex arrangement, specify them on the manifold specification sheet.

#### **Manifold Specifications**

Model SS5Y3-60		SS5Y5-60	SS5Y7-60			
Applic	cable valve	SY3□60	SY5□60 SY7□60			
Manifold type		Stacking type/DIN rail mounted				
P (SUP)/R (EXH)		Common SUP/Common EXH				
Valve stations		2 to 20 stations Note 1)				
A, B port location		Valve				
	P, R port	C8 (One-touch fitting for ø8)	C10 (One-touch fitting for ø10)	C12 (One-touch fitting for ø12)		
Port size	A, B port	M5 x 0.8 C4 (One-touch fitting for Ø4) C6 (One-touch fitting for Ø6)	1/8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)	1/4 C8 (One-touch fitting for Ø8) C10 (One-touch fitting for Ø10)		
Manifold base weight W (g) <sup>Note 2)</sup> (n: Number of SUP/EXH blocks, m: Weight of DIN rail)		W = 13n + m + 36	W = 41.2n + m + 77.6	W = 65.4n + m + 128.2		



Note 1) In cases such as those where many valves are operated simultaneously, use "-[station]B (SUP/EXH block on both sides)" (both sides SUP/EXH), applying pressure to the P ports on both sides and exhausting from the R ports on both sides.

Note 2) For DIN rail weight, refer to page 1-4-72.

#### **Flow Characteristics**

	Port size		Flow characteristics						
Model	1, 5/3	4, 2	1	$1 \rightarrow 4/2(P \rightarrow A/B)$			$4/2 \rightarrow 5/3(A/B \rightarrow R)$		
	(P, R)	(A, B)	C (dm <sup>3</sup> /(s·bar))	b	Cv	C (dm <sup>3</sup> /(s·bar))	b	Cv	
		M5	0.55	0.29	0.14	0.72	0.24	0.18	
SS5Y3-60	<b>SS5Y3-60</b> C8	C4	0.57	0.24	0.14	0.71	0.20	0.17	
		C6	0.68	0.28	0.17	0.77	0.24	0.19	
	<b>SS5Y5-60</b> C10	1/8	1.8	0.24	0.44	2.1	0.17	0.47	
SS5Y5-60		C6	1.5	0.30	0.37	2.0	0.16	0.46	
		C8	1.8	0.20	0.45	2.2	0.17	0.50	
		1/4	3.7	0.25	0.96	3.8	0.19	0.94	
<b>SS5Y7-60</b> C12	C12	C8	3.2	0.26	0.81	4.0	0.18	0.96	
		C10	3.7	0.28	0.98	4.1	0.19	1.0	



Note) The value is for manifold base with 5 stations and individually operated 2 position type.



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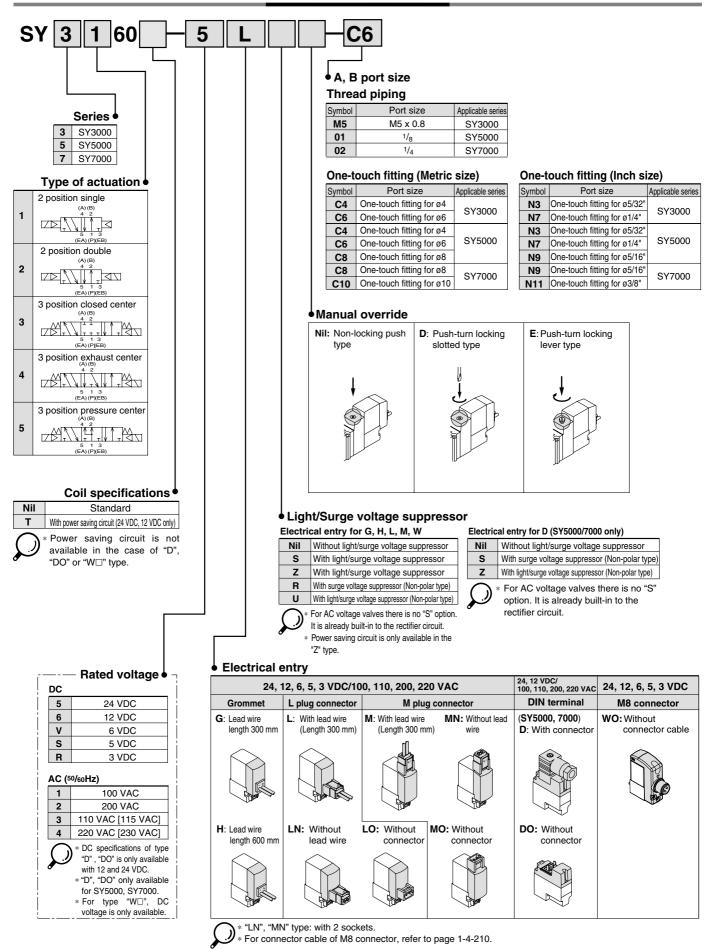
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#### **How to Order Valves**



#### **Specifications**

S	eries	SY3000	SY5000	SY7000
Fluid		Air		
Internal pilot	Internal pilot 2 position single		0.15 to 0.7	
Operating pressure	2 position double		0.1 to 0.7	
range (MPa)	3 position		0.2 to 0.7	
Ambient and flu	uid temperature (°C)		Max. 50	
Max. operating	2 position double	10	5	5
frequency (Hz)	3 position	3	3	3
Manual overr (Manual oper		Non-locking push type, Push-turn locking slotted type, Push-turn locking lever type		
Pilot exhaust	method	Common exhaust type for main and pilot valve		
Lubrication		Not required		
Mounting pos	sition	Unrestricted		
Impact/Vibrati	on resistance Note)	150/30		
Enclosure		Dustproof (* DIN terminal, M8 connector conforms to IP65)		

Note) 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.

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

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

\* Based on IEC529

#### Solenoid Specifications

Electrical entry			Grommet (G), (H) L plug connector (L) M plug connector (M) DIN terminal (D) M8 connector (W)												
Coil rated	DC		24 ,12 ,6 ,5 ,3												
voltage (V)	AC 5	50/60Hz	*220, 200, 110, 200												
Allowable vo	ltage 1	fluctuation (%)	±10% of rated voltage												
Power consumption	DC	Standard	0.35 [With indicator light: 0.4 (DIN terminal with indicator light: 0.45)]												
(W)		With power saving circuit	0.1 (With indicator light only)												
		100V	1.4 (With indicator light: 1.5)												
Apparent	Apparent power* VA AC	40	40					10					40	110V [115V]	1.6 (With indicator light: 1.7) [1.7 (With indicator light: 1.8)]
power vA		200V	2.3 (With indicator light: 2.4)												
		220V [230V]	2.5 (With indicator light: 2.6) [2.7 (With indicator light: 2.8)]												
Surge voltage suppressor			Diode (Varistor is for DIN terminal and non-polar)												
Indicator ligh	t		LED (AC of DIN connector is neon bulb.)												



- \* In common between 110 VAC and 115 VAC, and between 220 VAC
- \* For 115 VAC and 230 VAC, the allowable voltage is -15% to 5% of rated voltage.

#### **Response Time**

Note) Based on dynamic performance test, JIS B 8375-1981. (Coil temperature: 20°C, at rated voltage)

#### SY3000

_ ,	Response time (ms) (at the pressure of 0.5 MPa)				
Type of actuation	Without surge voltage	With surge voltage suppressor			
actuation	suppressor	S, Z type	R, U type		
2 position single	12 or less	15 or less	12 or less		
2 position double	10 or less	13 or less	10 or less		
3 position	15 or less	20 or less	16 or less		

#### SY5000

- ,	Response time (ms) (at the pressure of 0.5 MPa)				
Type of actuation	Without surge voltage	With surge voltage suppressor			
actuation	suppressor	S, Z type	R, U type		
2 position single	19 or less	26 or less	19 or less		
2 position double	18 or less	22 or less	18 or less		
3 position	32 or less	38 or less	32 or less		

#### SY7000

	Response time (ms) (at the pressure of 0.5 MPa)				
Type of actuation	Without light/surge	With light/surge voltage suppressor			
	voltage suppressor	S, Z type	R, U type		
2 position single	31 or less	38 or less	33 or less		
2 position double	27 or less	30 or less	28 or less		
3 position	50 or less	56 or less	50 or less		

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# Weight

#### Series SY3000

	Type of actuation		Port size	\	Weight (g)			
Valve model			A, B	Grom- met	L, M plug connector	M8 Connector		
	2	Single		49	51	55		
	position	Double		70	73	81		
SY3□60-□-M5		Closed center	M5 x 0.8					
	3 position	Exhaust center		73	76	84		
	μυσιιίθη	Pressure center						
	2	Single		62	61	65		
	position	Double	C4	80 83	91			
SY3□60-□-C4		Closed center	One-touch fitting for ø4					
	3 position	Exhaust center		82	86	94		
	position	Pressure center						
	2	Single		55	57	61		
SY3□60-□-C6	position	Double	C6	76	79	87		
		Closed center	/ One-touch \					
	3	Exhaust center	(fitting for ø6)	78	82	90		
	position	Pressure center						



Note) []: Denotes normal position.

#### Series SY5000

	Type of actuation		Port size		Weigh	nt (g)	
Valve model			A, B	Grom- met	L, M plug connector	DIN terminal	M8 Connec- tor
	2	Single		67	69	90	71
	position	Double	91 9	94	136	102	
SY5□60-□-01		Closed center	1/8				
	3 position	Exhaust center		97	100	142	108
	poomon	Pressure center					DIN Connector 90 71 136 102
	2	Single		91	93	114	97
	position	Double	C4	113	116	158	Connector  Connector
SY5□60-□-C4		Closed center	(One-touch fitting for ø4)				
	3 position	Exhaust center \ti		119	122	164	130
	<b>P</b> ************************************	Pressure center					
2	2	Single		86	88	109	92
	position	Double	C6	108	111	136 102  142 108  114 97  158 124  164 130  109 92  153 119  159 125  101 84  145 111	119
SY5□60-□-C6		Closed center	One-touch				
	3 position	Exhaust center	fitting for ø6	114	117	159	125
	position	Pressure center					
SY5□60-□-C8	2	Single		78	80	101	84
	position	Double	C8	100	103	145	111
		Closed center	/ One-touch \				
	3 position	Exhaust center	⊣()	109	151	117	
		Pressure center					

#### Series SY7000

			Port size		Weigh	nt (g)	
Valve model	Туре	e of actuation	A, B	Grom- met	L, M plug connector	DIN terminal	M8 Connec- tor
	2	Single		103	105	126	109
	position	Double		125	128	170	136
SY7□60-□-02		Closed center	1/4				
	3 position	Exhaust center		133	136	178	144
	position	Pressure center					
	2	Single		138	139	160	143
	position	Double	C8	160	163	205	171
SY7□60-□-C8	_	Closed center	One-touch				
	3 position	Exhaust center	fitting for ø8	168	171	213	179
	position	Pressure center					
	2	Single		123	125	146	129
	position	Double	C10	145	149	191	157
SY7□60-□-C10		Closed center	/ One-touch \				
	3 position	Exhaust center	fitting for ø10	153	157	199	165
	position	Pressure center					

#### **How to Order Pilot Valve Assembly**

V111

specifications

Nil

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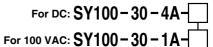
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#### **How to Order Connector Assembly** for L/M Plug Connector



For 200 VAC: SY100 - 30 - 2A-

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

Without lead wire: SY100-30-A Only connector and sockets (x 2 pcs.)

#### 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

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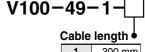
SYJ

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115	G				
Coil •		Light/	Surge voltage suppressor		
		Nil Wi	thout light/surge voltage suppressor		
Standard: DC specifications		S Wit	th surge voltage suppressor		
Standard: AC specifications		Z Wit	th light/surge voltage suppressor		
With power saving circuit		R Wit	h surge voltage suppressor (Non-polar type)		
(24 VDC, 12 VDC only)		U With	n light/surge voltage suppressor (Non-polar type)		
is not available in the case of "D", "DO" or "W\(\sigma\)" type.	case of "D", "DO" or aiready built-in to the rectifier circuit.				
Rated voltage	_	typ	oe.		
24 VDC	24 VDC • Electrical entry				
12 VDC	G		rommet, 300 mm lead wire		
6 VDC	H		rommet, 600 mm lead wire		
5 VDC		G	With lead wire		
3 VDC	LN	L plug	Without lead wire		
100 VAC 50/60 Hz		connector			
200 VAC 50/60 Hz	LO		Without connector		
110 VAC 50/60 Hz	M	M plug	With lead wire		
[115 VAC 50/60 Hz]	MN	connector	Without lead wire		
220 VAC 50/60 Hz	МО		Without connector		
[230 VAC 50/60 Hz]	W0	M8 connector	Without connector cable		
* For type "W□", Do	$\tilde{c}$		nnector cable of M8 connector, refer to 1-4-210.		

# **How to Order M8 Connector Cable**

#### ■ Straight type

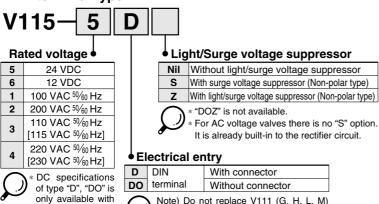


Dubic	iciigiii •
1	300 mm
2	500 mm
3	1000 mm
4	2000 mm
7	5000 mm

#### **■** DIN terminal type

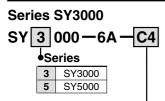
voltage is only available.

12 and 24 VDC.



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

#### **How to Order Port Block Assembly**



# A, B port size • Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000

#### One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	313000
C4	One-touch fitting for ø4	
C6	One-touch fitting for ø6	SY5000
C8	One-touch fitting for ø8	

#### One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	313000
N3	One-touch fitting for ø5/32"	
N7	One-touch fitting for ø1/4"	SY5000
N9	One-touch fitting for ø5/16"	

# Series SY7000 SY7000 —13A — C8

# A, B port size • Thread piping

Symbol	Port size	Applicable series
02	1/4	SY7000

#### One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	317000

#### One-touch fitting (Inch size)

	<u> </u>	
Symbol	Port size	Applicable series
N9	One-touch fitting for ø5/16"	SY7000
N11	One-touch fitting for ø3/8"	317000

#### **How to Change Port Block Assembly**

Connecting port size of A and B can be changed by replacing port block assembly mounted on body. When changing block assembly, correct screw torque must be achieved to avoid trouble; e.g. air leakage.

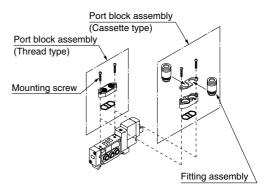
With the one-touch fitting port block assembly, it is only necessary to change the fitting and not the whole block. Refer to following part numbers.

#### One-touch fitting (Metric size)

Port size	Fitting assembly part no.	Applicable series
One-touch fitting for ø4	VVQ1000-50A-C4	SY3000
One-touch fitting for ø6	VVQ1000-50A-C6	313000
One-touch fitting for ø4	VVQ1000-51A-C4	
One-touch fitting for ø6	VVQ1000-51A-C6	SY5000
One-touch fitting for ø8	VVQ1000-51A-C8	
One-touch fitting for ø8	VVQ2000-51A-C8	SY7000
One-touch fitting for ø10	VVQ2000-51A-C10	317000

#### One-touch fitting (Inch size)

<u> </u>			
Port size	Fitting assembly part no.	Applicable series	
One-touch fitting for ø5/32"	VVQ1000-50A-N3	SY3000	
One-touch fitting for ø1/4"	VVQ1000-50A-N7	313000	
One-touch fitting for ø5/32"	VVQ1000-51A-N3		
One-touch fitting for ø1/4"	VVQ1000-51A-N7	SY5000	
One-touch fitting for ø5/16"	VVQ1000-51A-N9		
One-touch fitting for ø1/4"	VVQ2000-51A-N9	SY7000	
One-touch fitting for ø3/8"	VVQ2000-51A-N11	517000	



#### **⚠** Caution

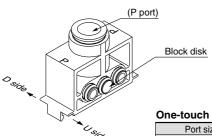
#### Mounting screw tightening torques

SY3000(M2): 0.12 N·m SY5000, 7000 (M3): 0.6 N·m

\* Refer to "How to Change Port Block Assembly" for part numbers.

#### **Manifold Option**

#### ■ Individual SUP block assembly

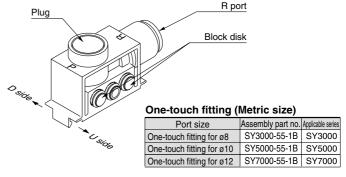


Port size	Assembly part no.	Applicable series
One-touch fitting for ø6	SY3000-54-2C	SY3000
One-touch fitting for ø8	SY3000-54-1C	313000
One-touch fitting for ø10	SY5000-54-1C	
One-touch fitting for ø12	SY7000-54-1C	SY7000

#### One-touch fitting (Inch size)

<u> </u>					
Port size	Assembly part no.	Applicable series			
One-touch fitting for ø5/16"	SY3000-54-3C	SY3000			
One-touch fitting for ø3/8"	SY5000-54-2C	SY5000			
One-touch fitting for ø3/8"	SY7000-54-3C	SY7000			

#### ■ Individual EXH block assembly



#### One-touch fitting (Inch size)

One-touch fitting (inch size)				
Port size	Assembly part no.	Applicable series		
One-touch fitting for ø5/16"	SY3000-55-2B	SY3000		
One-touch fitting for ø3/8"	SY5000-55-2B	SY5000		
One-touch fitting for ø3/8"	SY7000-55-3B	SY7000		

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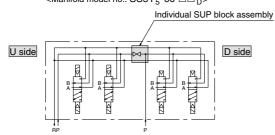
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#### [When supplying the manifold with 2 different supply pressures.]

Specify arrangement of individual SUP block assembly on the manifold specification sheet. (When using SS5Y $\square$ -60- $\square$ D, block disk is assembled on D side.)

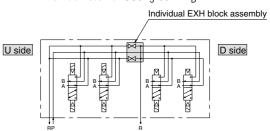
<Manifold model no.: SS5Y<sub>5</sub>-60-□□<sub>D</sub>>



#### [When 2 different EXH passages are required.]

Specify arrangement of individual EXH block assembly on the manifold specification sheet. (When using SS5Y□-60-□□D, block disk is assembled on D side.)

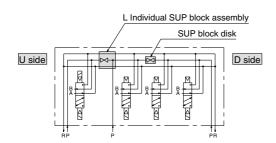
<Manifold model no.: SS5Y<sub>5</sub><sup>3</sup>-60-□□<sub>D</sub><sup>U</sup>>



#### [When a different supply pressure is required for only a middle valve.]

Specify arrangement of individual SUP block assembly and SUP block disk on the manifold specification sheet.

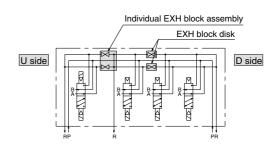
(Applicable manifold model no.: SS5Y□-60-□□B)



#### [When a separate exhaust passage is needed on only a middle valve.]

Specify arrangement of individual EXH block assembly and EXH block disk on the manifold specification sheet.

(Applicable manifold model no.: SS5Y□-60-□□B)



#### **Manifold Option**

#### ■ SUP block disk

By installing a SUP block disk in the pressure supply passage of a manifold valve, it is possible to supply two or more different high and low pressures to one manifold. (This is the same block disk used with the individual SUP block assembly.)



Series	Part no.	
SY3000	SY3000-52-2A	
SY5000	SY5000-52-4A	
SY7000	SY7000-70-2A	

#### **■ EXH block disk**

By installing an EXH block disk in the exhaust passage of a manifold valve, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two blocking disks are needed to separate both EXH passages. It is the same block disk that is used in the individual EXH block assembly.)



Series	Part no.	
SY3000	SY3000-52-2A	
SY5000	SY5000-52-4A	
SY7000	SY7000-70-2A	

#### ■ Label for block disk

The labels shown below are used on manifold stations containing SUP/EXH block disk(s) to show their location. (3 pcs. each)

#### VZ3000-123-1A

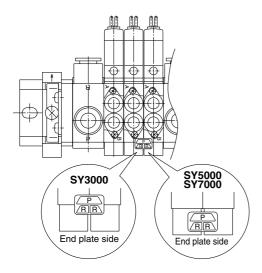
Label for SUP block disk Label for EXH block disk Label for SUP/EXH block disk





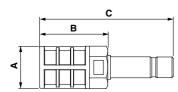


\* When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.



#### ■ Silencer with One-touch fitting

The silencer plugs directly into the One-touch fittings of the manifold.

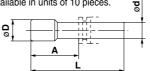


Series	Model	Effective area	Α	В	С
<b>SY3000</b> (for ø8)	AN203-KM8	14 mm <sup>2</sup>	ø16	26	51
<b>SY5000</b> (for ø10)	AN200-KM10	26 mm <sup>2</sup>	ø22	54	80.8
	AN300-KM10	30 mm <sup>2</sup>	ø25	70	97
<b>SY7000</b> (for ø12)	AN300-KM12	41 mm <sup>2</sup>	ø25	70	98

#### ■ Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports.

Purchasing order is available in units of 10 pieces.



#### **Dimensions**

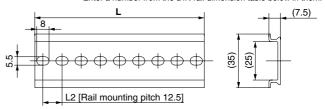
Applicable fittings size ød	Model	Α	L	D
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10
10	KQ2P-10	22	43	12
12	KQ2P-12	24	45.5	14
5/32"	KQ2P-03	16	32	6
1/4"	KQ2P-07	18	35	8.5
5/16"	KQ2P-09	20.5	39	10
3/8"	KQ2P-11	22	43	11.5

#### ■ DIN Rail Dimensions/Weight for SY3000/5000

#### VZ1000-11-1-

#### Refer to the L dimension tables

\* Enter a number from the DIN rail dimension table below in them.



No.	0	1	2	3	4	5	6	7	8	9
L dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5
Weight (g)	17.6	19.9	22.1	24.4	26.6	28.9	31.1	33.4	35.6	37.9
No.	10	11	12	13	14	15	16	17	18	19

L dimension	223	235.5	248	260.5	273	285.5	298	310.5	323	335.5
Weight (g)	40.1	42.4	44.6	46.9	49.1	51.4	53.6	55.9	58.1	60.4
No	20	21	22	23	24	25	26	27	28	29

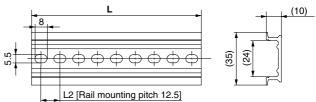
No.	20	21	22	23	24	25	26	27	28	29
L dimension	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5
Weight (g)	62.6	64.9	67.1	69.4	71.6	73.9	76.1	78.4	80.6	82.9

#### ■ DIN Rail Dimensions/Weight for SY7000

#### VZ1000-11-4-

#### • Refer to the L dimension tables

\* Enter a number from the DIN rail dimension table below in them



No.	0	1	2	3	4	5	6	7	8	9
L dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5
Weight (g)	24.8	28	31.1	34.3	37.4	40.6	43.8	46.9	50.1	53.3
No.	10	11	12	13	14	15	16	17	18	19

No.	10	11	12	13	14	15	16	17	18	19
L dimension	223	235.5	248	260.5	273	285.5	298	310.5	323	335.5
Weight (g)	56.4	59.6	62.7	65.9	69.1	72.2	75.4	78.6	81.7	84.9

No.	20	21	22	23	24	25	26	27	28	29
L dimension	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5
Weight (g)	88	91.2	94.4	97.5	100.7	103.9	107	110.2	113.3	116.5

Note) For DIN rail mounting, refer to page 1-4-210.



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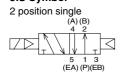
SYJ

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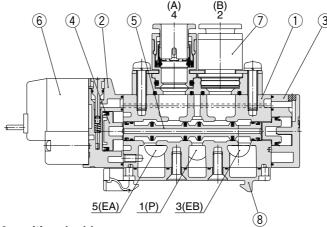
### Construction

### **Series SY**

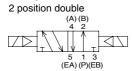
### JIS Symbol



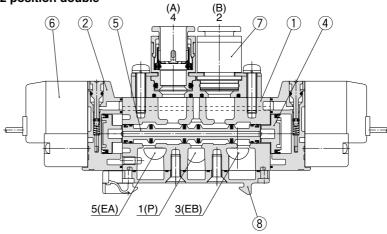
### 2 position single



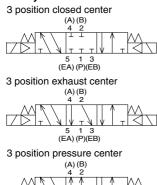
### JIS Symbol



### 2 position double

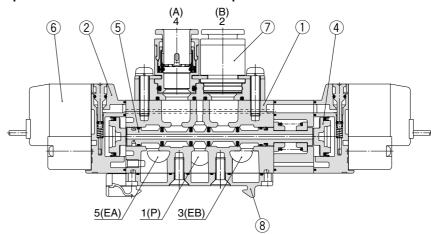


### JIS Symbol



5 1 3 (EA) (P)(EB)

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



(This figure shows a closed center type.)

### **Component Parts**

Com	Component Parts								
No.	Description	Material	Note						
1	Body	Aluminum die-casted SY3000: Zinc die-casted	White						
2	Adapter plate	Resin	White						
3	End plate	Resin	White						
4	Piston	Resin	_						
(5)	Spool valve assembly	Aluminum/NBR	_						

### **Replacement Parts**

	No.	Description	Part no.			
	6	Pilot valve assembly	Refer to "How to Order Pilot Valve Assembly" on page 1-4-6			
	7	Port block assembly	Refer to "How to Order Port Block Assembly" on page1-4-70			
	8	Bottom cover	SY3000-41-2A (with screw, gasket)			
		assembly Note)	SY5000-41-2A (with screw, gasket)			

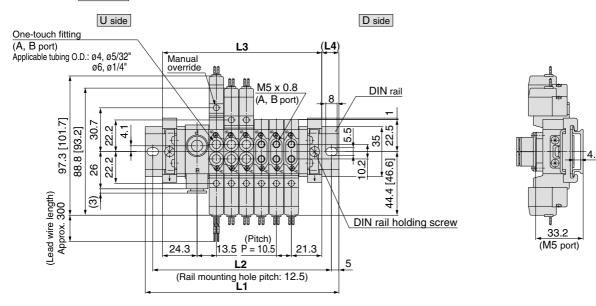
Note) There is no bottom cover assembly available for SY7000.

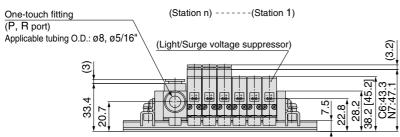


### **Dimensions**



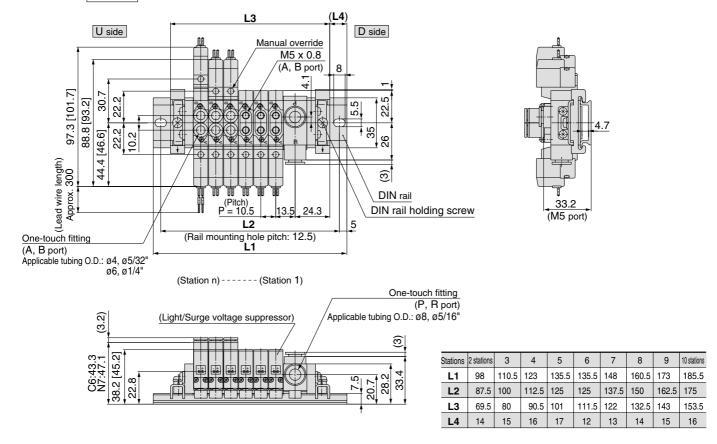
### SS5Y3-60- Stations U





Stations	2 stations	3	4	5	6	7	8	9	10 stations
L1	98	110.5	123	135.5	135.5	148	160.5	173	185.5
L2	87.5	100	112.5	125	125	137.5	150	162.5	175
L3	69.5	80	90.5	101	111.5	122	132.5	143	153.5
L4	14	15	16	17	12	13	14	15	16

### SS5Y3-60-Stations D





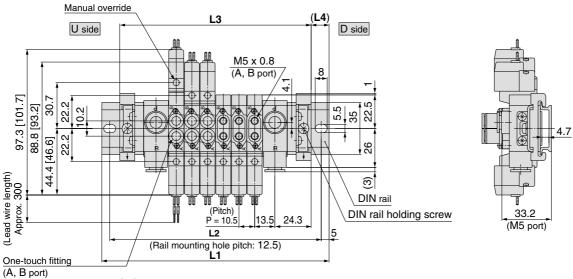
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### SS5Y3-60- Stations B



(A, b port)
Applicable tubing O.D.: Ø4, Ø5/32"
Ø6, Ø1/4" (Station n)-----(Station 1)

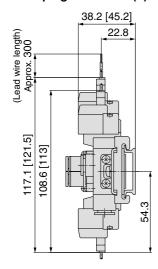
> Applicable tubing O.D.: Ø8, Ø5/16" (3.2)(Light/Surge voltage suppressor) 38.2 [45.2] 20.7 33.4

,	Stations	2 stations	3	4	5	6	7	8	9	10 stations
	L1	110.5	123	135.5	148	160.5	173	173	185.5	198
Ī	L2	100	112.5	125	137.5	150	162.5	162.5	175	187.5
	L3	86	96.5	107	117.5	128	138.5	149	159.5	170
	L4	12	13	14	15	16	17	12	13	14

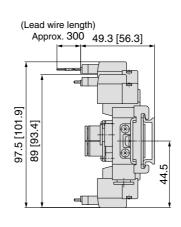
One-touch fitting (P, R port)

Stations	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	210.5	223	235.5	235.5	248	260.5	273	285.5	298	310.5
L2	200	212.5	225	225	237.5	250	262.5	275	287.5	300
L3	180.5	191	201.5	212	222.5	233	243.5	254	264.5	275
L4	15	16	17	11.5	12.5	13.5	14.5	15.5	16.5	17.5

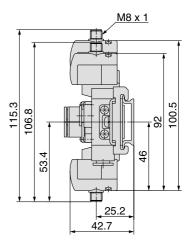
### L plug connector (L)



### M plug connector (M)



### M8 connector (WO)



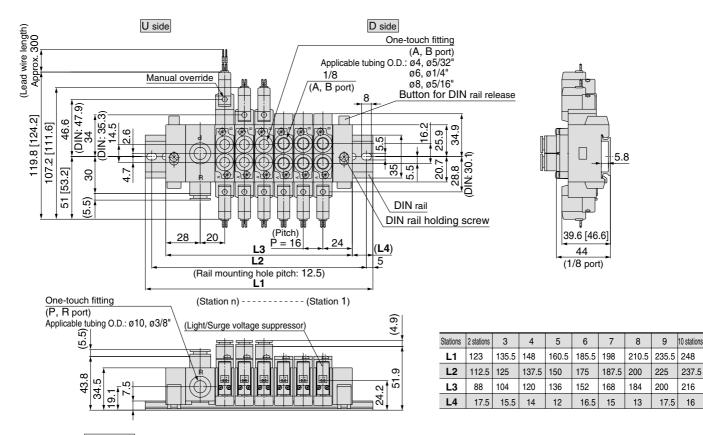
Note) Refer to page 1-4-210 for dimensions of connector types.



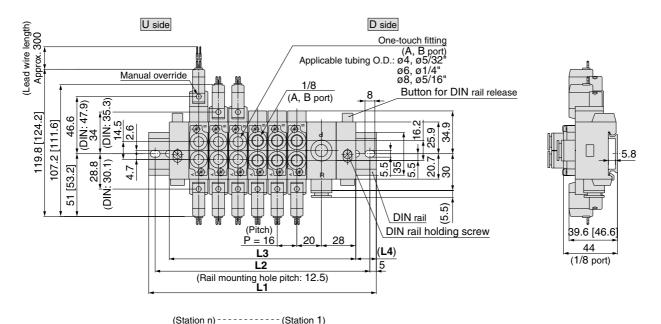
### **Dimensions (mm)**

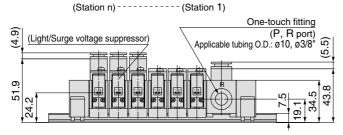
# **₽**[ ]: AC

### SS5Y5-60- Stations U



### SS5Y5-60- Stations D





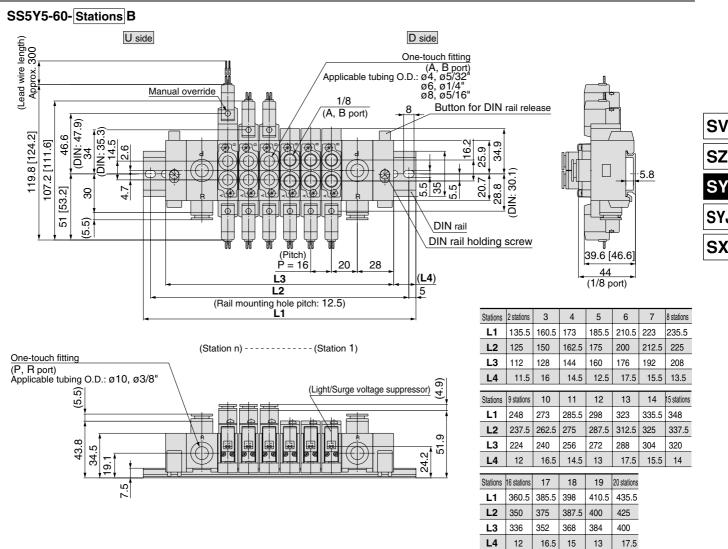
Stations	2 stations	3	4	5	6	7	8	9	10 stations
L1	123	135.5	148	160.5	185.5	198	210.5	235.5	248
L2	112.5	125	137.5	150	175	187.5	200	225	237.5
L3	88	104	120	136	152	168	184	200	216
L4	17.5	15.5	14	12	16.5	15	13	17.5	16

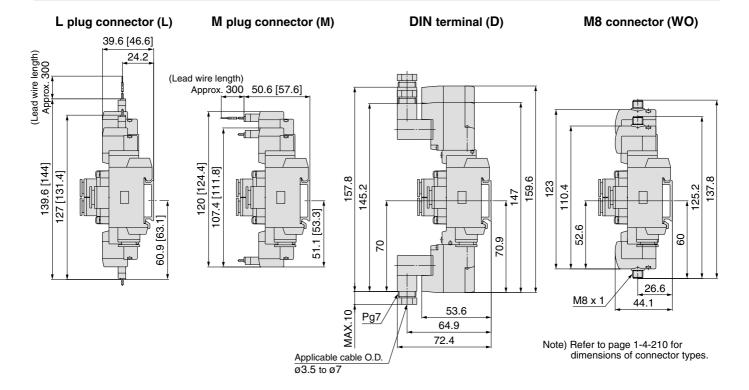


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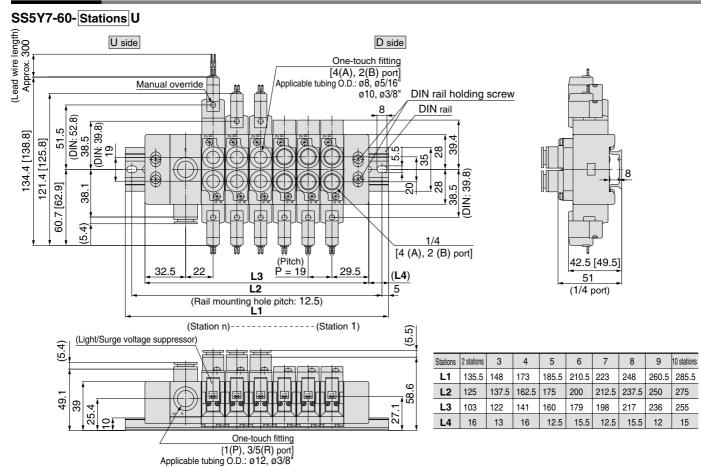


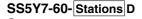


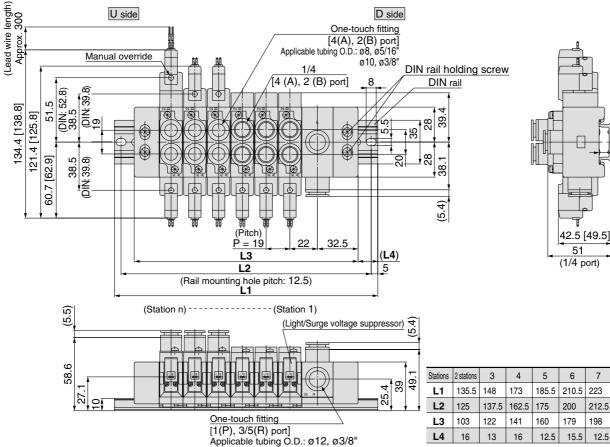
# **Body Ported** Series SY3000/5000/7000 Type

### **Dimensions**









Stations	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	173	185.5	210.5	223	248	260.5	285.5
L2	125	137.5	162.5	175	200	212.5	237.5	250	275
L3	103	122	141	160	179	198	217	236	255
L4	16	13	16	12.5	15.5	12.5	15.5	12	15

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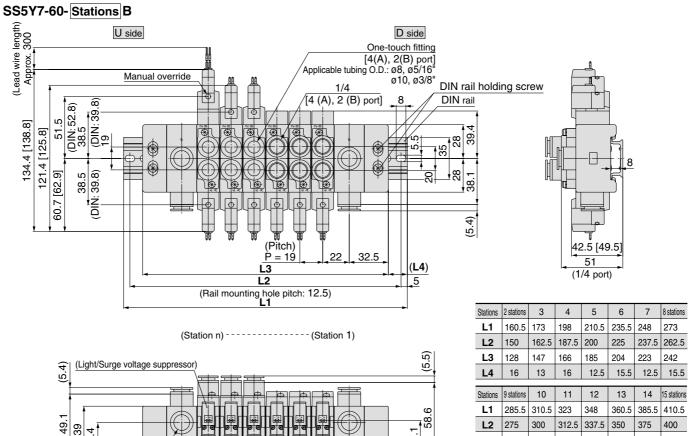


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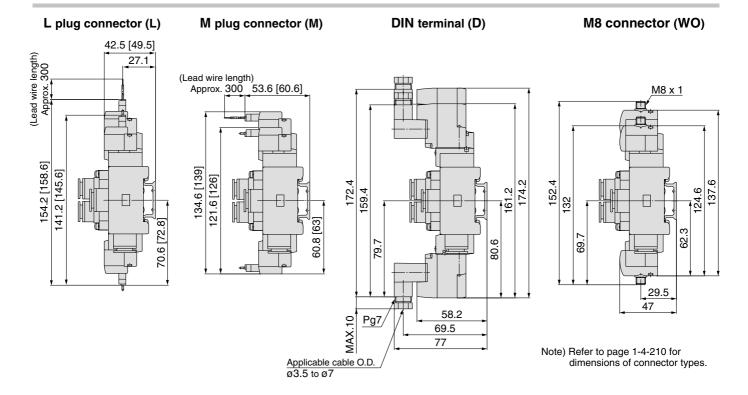
SX



33 25.4

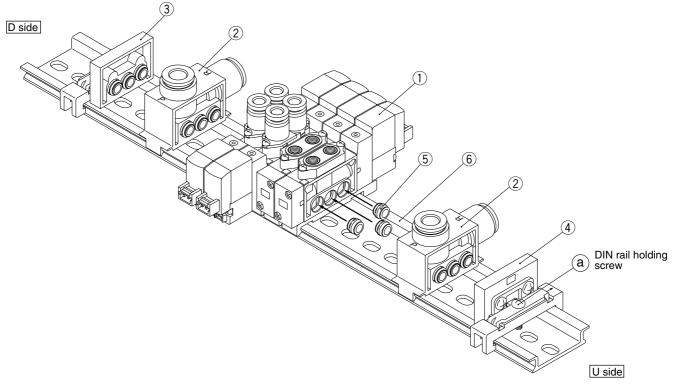
[1(P), 3/5(R) port] Applicable tubing O.D.: Ø12, Ø3/8"

9	Stations	2 stations	3	4	5	6	7	8 stations
	L1	160.5	173	198	210.5	235.5	248	273
	L2	150	162.5	187.5	200	225	237.5	262.5
	L3	128	147	166	185	204	223	242
	L4	16	13	16	12.5	15.5	12.5	15.5
9	Stations	9 stations	10	11	12	13	14	15 station
	L1	285.5	310.5	323	348	360.5	385.5	410.5
	L2	275	300	312.5	337.5	350	375	400
	L3	261	280	299	318	337	356	375
	L4	12	15	12	15	11.5	14.5	17.5
9	Stations	16 stations	17	18	19	20 stations		
	L1	423	448	460.5	485.5	498		
	L2	412.5	437.5	450	475	487.5		
	L3	394	413	432	451	470		
Π	L4	14.5	17.5	14	17	14		



# **DIN Rail Manifold Exploded View**

### SY3000 Type 60



### **Replacement Parts**

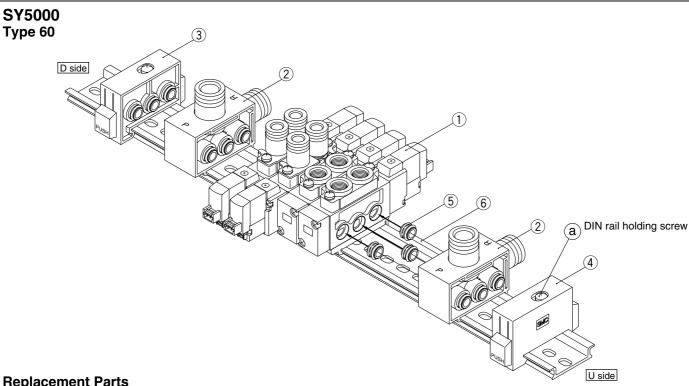
No.	Description Part no.		Note
1	Valve	SY3□60-□□-□	□ at the end of part number denotes A. B port size: M5, C4, C6, N3, N7. Includes bushing assembly (SY3000-52-1A) 3 pcs.
2	SUP/EXH block assembly SY3000-55-1A		P, R port (1: One-touch fitting for ø8, 2: One-touch fitting for ø5/16") Includes bushing assembly (SY3000-52-1A) 3 pcs.
3	End block assembly	SY3000-56-1A	For D side (Bushing assembly: Not available for SY3000-52-1A)
4	End block assembly SY3000-56-1B		For U side (Bushing assembly: Not available for SY3000-52-1A)
(5)	Bushing assembly	SY3000-52-1A	
6	DIN rail	VZ1000-11-1-□	Refer to page 1-4-72.

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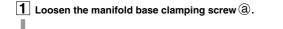
SYJ

SX



ııcp	replacement i alto									
No.	Description Part no.		Note							
1	Valve	SY5□60-□□-□	□ at the end of part number denotes A. B port size: 01, C4, C6, C8, N3, N7, N9. Includes bushing assembly (SY5000-52-1A) 3 pcs.							
2	SUP/EXH block assembly	SY5000-55-1A	P, R port (1: One-touch fitting for ø10, 2: One-touch fitting for ø3/8") Includes bushing assembly (SY5000-52-1A) 3 pcs.							
3	End block assembly	SY5000-56-1A	For D side (Bushing assembly: Not available for SY5000-52-1A)							
4	End block assembly SY5000-56-1B		For U side (Bushing assembly: Not available for SY5000-52-1A)							
(5)	Bushing assembly	SY5000-52-1A								
6	DIN rail	VZ1000-11-1-□	Refer to page 1-4-72.							

### How to Increase Additional Valves to the DIN Rail Valves can be added at any station on the rail.



- 2 Separate the valves at the point where more valves are to be added.
- 3 Mount the additional valves on the DIN rail as shown in Fig. (1).
- 4 Connect them together while pressing the block assemblies toward each others, and tighten the holding screw (a) to fix them to the DIN rail.

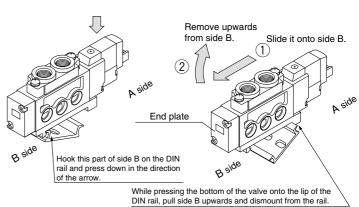
### **⚠** Caution

**Tightening torque** SY3000: 1 N·m SY5000: 1.4 N·m

(While lightly holding the blocks after fixing an end block on one side, tighten the other end block for better sealing after no gap between valves is confirmed.)

- Bushing assembly must be seated properly to each valve block in order to prevent air leaks from occurring.
- Refer to the Fig. (2) when dismounting the valve from the DIN rail.



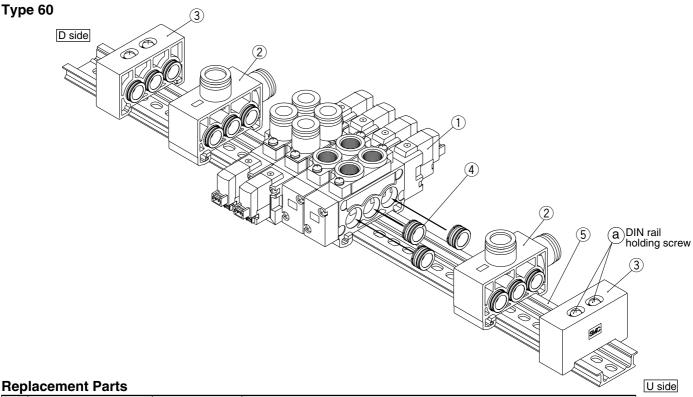


 $\triangle$  Caution When clamping screw (a) of the end block is not sufficiently tightened during reassembly, air leakage may result. Before supplying air, check that there are no gaps between valves and that the end block is firmly secured to the DIN rain in order to ensure air supply without leakage.



### **DIN Rail Manifold Exploded View**





No.	Description Part no.		Note
1	Valve	SY7□60-□□-□	□ at the end of part number denotes A. B port size: 02, C8, C10, N9, N11. Includes bushing assembly (SY5000-52-1A) 3 pcs.
2	SUP/EXH block assembly	SY7000-75-1A	
3	End block assembly	SY7000-56-1A	In common for D side and U side (Bushing assembly: Not available for SY7000-70-1A.)
4	Bushing assembly	SY7000-70-1A	
(5)	DIN rail	VZ1000-11-4-□	Refer to page 1-4-72.

### How to Increase Additional Valves to the DIN Rail Valves can be added at any station on the rail.

1 Loosen the rail holding screw (a) at both of 2 locations which holds the manifold base either in the U side or D side. When removing the end block assembly from the DIN rail, loosen the holding screws for DIN rail at first, then slide it to the edge of the rail. 2 Separate the valves at the point where more valves are to 3 Mount the additional valves on the DIN rail as shown in Fig. (1). 4 Connect them together while pressing the block assemblies toward each others, and tighten the 2 holding screws (a) for DIN rail alternately (2 to 3

times) with the prescribed torque (1.4 N·m) to fix them to the DIN rail.

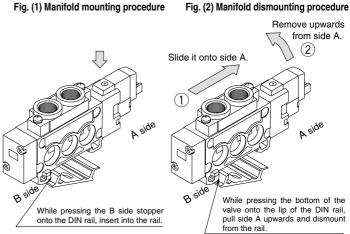
**⚠** Caution

**Tightening torque** 

SY7000: 1.4 N·m

(While lightly holding the blocks after fixing an end block on one side, tighten the other end block for better sealing after no gap between valves is confirmed.)

- Bushing assembly must be seated properly to each valve block in order to prevent air leaks from occurring.
- Refer to the Fig. (2) when dismounting the valve from the DIN rail.



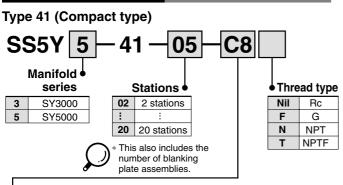
tightened during reassembly, air leakage may result. Before supplying air, check that there are no gaps between valves and that the end block is firmly secured to the DIN rain in order to ensure air supply without leakage.





# Series SY3000/5000/7000 Base Mounted Monifold Bar Stock Type Individual Wiring

### **How to Order Manifold**



### • A, B port size Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000

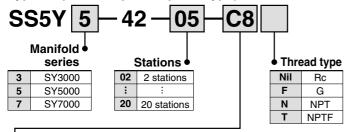
### One-touch fitting (Metric size)

	· · · · · · · · · · · · · · · · · · ·	· · · ,				
Symbol	Port size	Applicable series				
C4	One-touch fitting for ø4	SY3000				
C6	One-touch fitting for ø6	SY3000				
C6	One-touch fitting for ø6	SY5000				
C8	One-touch fitting for ø8	313000				

### One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø 5/32"	SY3000
N7	One-touch fitting for ø 1/4"	313000
N7	One-touch fitting for ø 1/4"	SY5000
N9	One-touch fitting for ø5/16"	313000

### Type 42 (External pilot capable type)



# A, B port size Thread piping

Symbol	Port size	Applicable series
01	1/8	SY3000
02	1/4	SY5000
02	1/4	SY7000

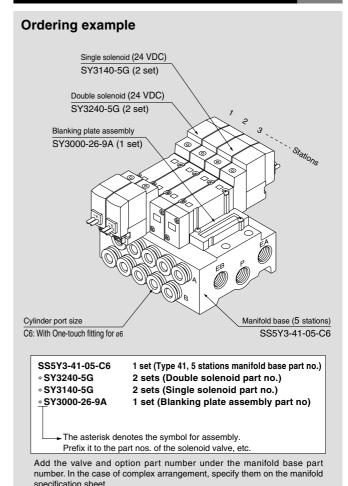
### One-touch fitting (Metric size)

••	touch manny (mount	· · · · · ·
Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	513000
C6	One-touch fitting for ø6	SY5000
C8	One-touch fitting for ø8	515000
C10	One-touch fitting for ø10	SY7000

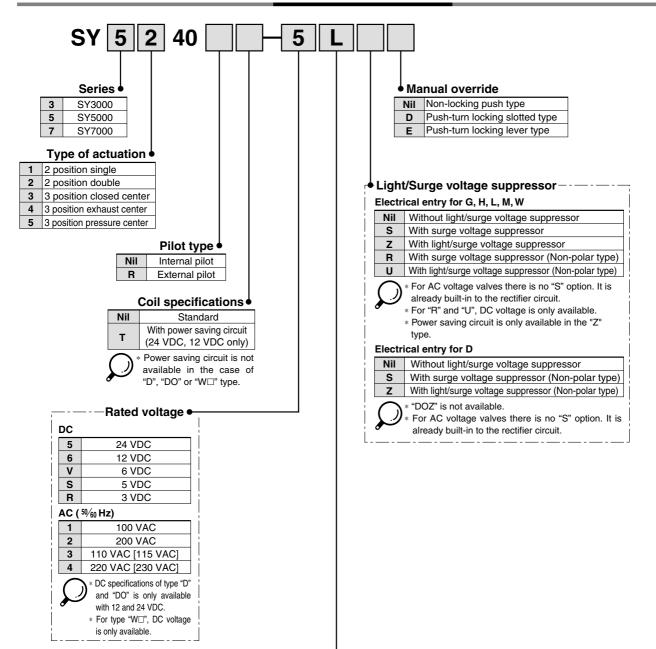
### One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	313000
N7	One-touch fitting for ø1/4"	SY5000
N9	One-touch fitting for ø5/16"	313000
N9	One-touch fitting for $\emptyset \frac{5}{16}$	SY7000

### **How to Order Valve Manifold Assembly**



### **How to Order Valves**



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 lead H: Lead wire length 600 mm	L: With lead wire (Length 300 mm) LN: Without lead wire LO: Without		D: With connector DO: Without connector	WO: Without connector cable

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

\* DIN terminal type "Y" conforming to DIN43650C standard is also available. For details, refer to catalog on page 1-4-201.

SZ

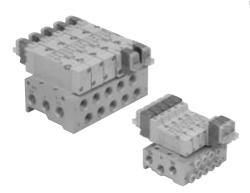
SV

SYJ

SX

<sup>\*</sup> For connector cable of M8 connector, refer to page 1-4-210.





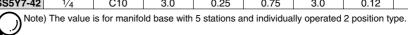
l N	Mode	el	SS5Y3-41	SS5Y3-42	SS5Y5-41	SS5Y5-42	SS5Y7-42							
Applic	able	valve	SY3	□40	SY5	□40	SY7□40							
Manifo	ld ty	ре		Si	ngle base/B mou	ınt								
P(SUP	)/R(I	EXH)		Comm	on SUP, Commo	on EXH								
Valve s	statio	ons		2	to 20 stations Not	e 1)								
A, B po	ort	Location	Base											
Porting specif	fications	Direction	Side											
	P, E	A, EB port	1/	, 8	1/.	4	1/4							
Port size A, B port		B port	M5 x 0.8, C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	1/8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	1/8 C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)	1/4 C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)	1/4 C10 (One-touch fitting for ø10)							
Manifold W (g) n:		e weight ions	W = 30n + 50	W = 37n + 63	W = 61n + 101	W = 79n + 127	W = 100n + 151							

Note 1) For more than 10 stations (more than 5 stations in the case of SS5Y7), supply pressure to P port on both sides and exhaust from EA/EB port on both sides.

Refer to "Manifold Option" on page 1-4-114.

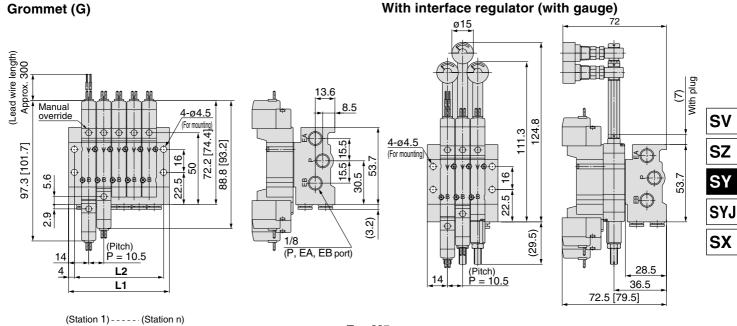
### **Flow Characteristics**

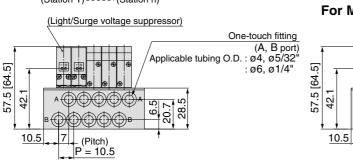
	Port	size			Flow char	acteristics						
Model	1, 5, 3	4, 2	1 →	$4/2 (P \rightarrow P)$	/B)	$4/2 \rightarrow 5/3 \text{ (A/B} \rightarrow \text{EA/EB)}$						
	(P, EA, EB)	(A, B)	C (dm3/(s-bar))	b	Cv	C (dm3/(s-bar))	b	Cv				
SS5Y3-41	1/8	C6	0.75	0.19	0.18	0.81	0.23	0.20				
SS5Y3-42	1/8	C6	0.75	0.20	0.18	0.82	0.20	0.20				
SS5Y5-41	1/4	C8	1.8	0.23	0.44	1.9	0.16	0.45				
SS5Y5-42	1/4	C8	1.9	0.20	0.46	1.9	0.12	0.43				
SS5Y7-42	1/4	C10	3.0	0.25	0.75	3.0	0.12	0.66				

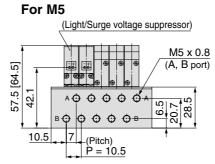


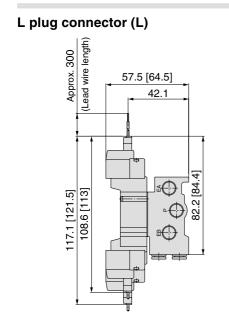
SY3000: SS5Y3-41- Stations -M5, C4, N3 C6, N7

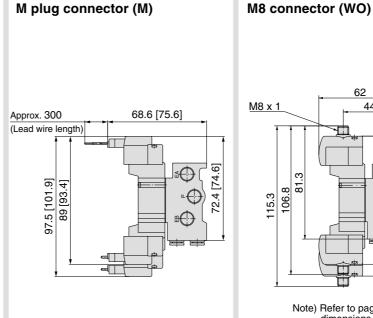


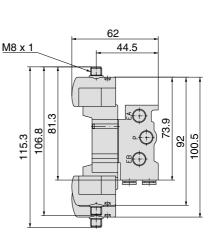












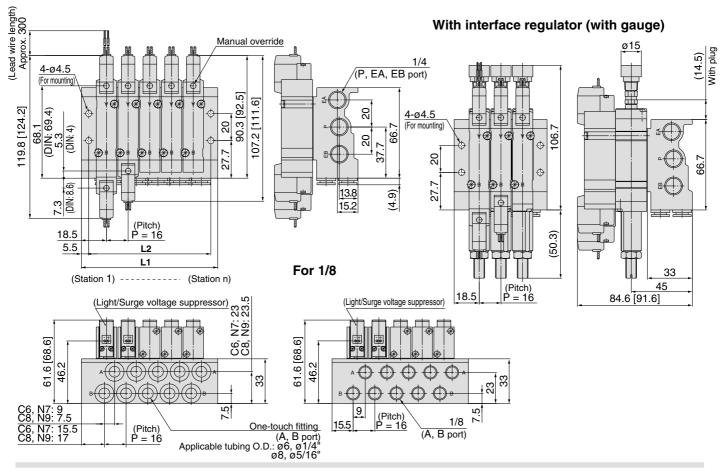
Note) Refer to page 1-4-20 for dimensions of connector types.

Stations	n 2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	38.5	49	59.5	70	80.5	91	101.5	112	122.5	133	143.5	154	164.5	175	185.5	196	206.5	217	227.5
L2	30.5	41	51.5	62	72.5	83	93.5	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5

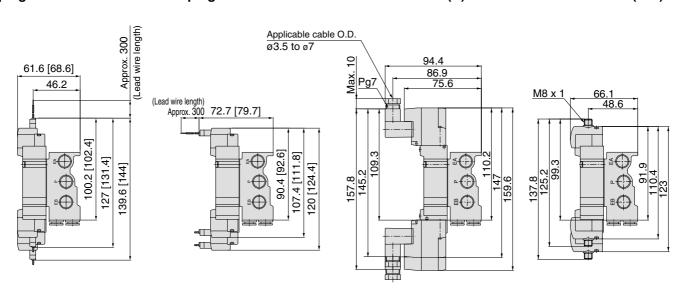
SY5000: SS5Y5-41- Stations -01, C6, N7 (C8, N9)



### Grommet (G)



L plug connector: L M plug connector: M DIN terminal (D) M8 connector (WO)



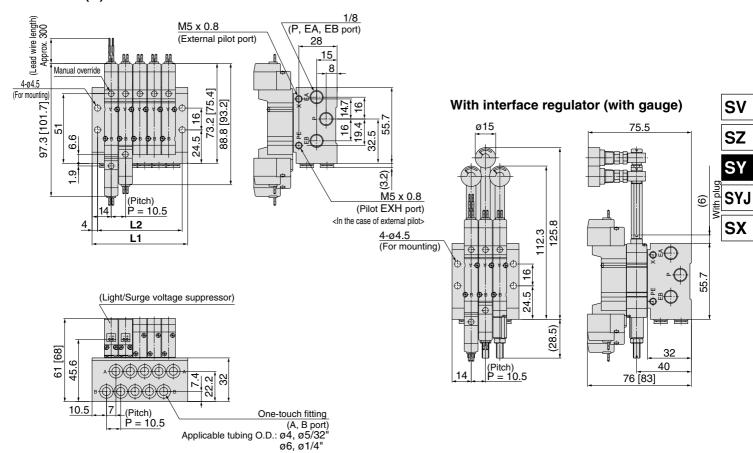
Note) Refer to page 1-4-210 for dimensions of connector types.

Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	52.5	68.5	84.5	100.5	116.5	132.5	148.5	164.5	180.5	196.5	212.5	228.5	244.5	260.5	276.5	292.5	308.5	324.5	340.5
L2	42	58	74	90	106	122	138	154	170	186	202	218	234	250	266	282	298	314	330

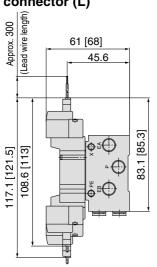
SY3000: SS5Y3-42- Stations - C4, N3 C6, N7



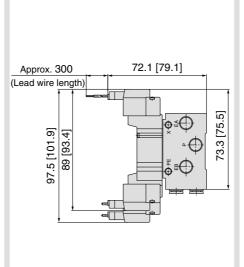
### **Grommet (G)**



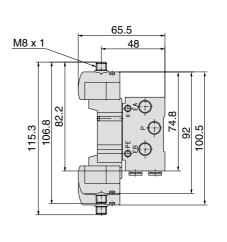
### L plug connector (L)



### M plug connector (M)



### M8 connector (WO)



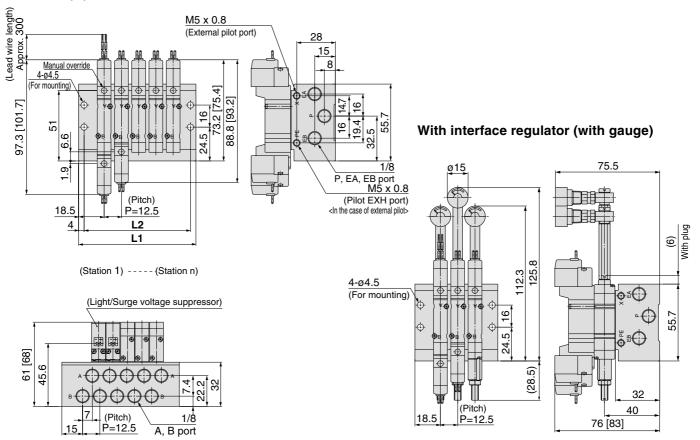
Note) Refer to page 1-4-210 for dimensions of connector types.

Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	38.5	49	59.5	70	80.5	91	101.5	112	122.5	133	143.5	154	164.5	175	185.5	196	206.5	217	227.5
L2	30.5	41	51.5	62	72.5	83	93.5	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5

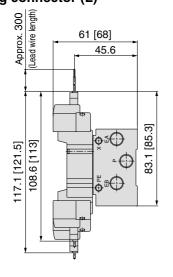
### SY3000: SS5Y3-42- Stations -01



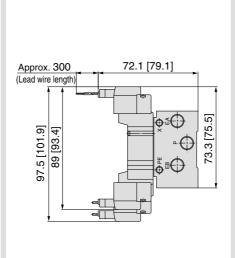
### Grommet (G)



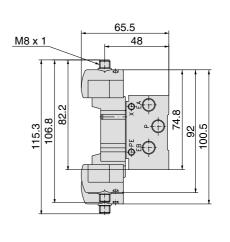
### L plug connector (L)



### M plug connector (M)

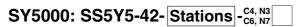


### M8 connector (WO)

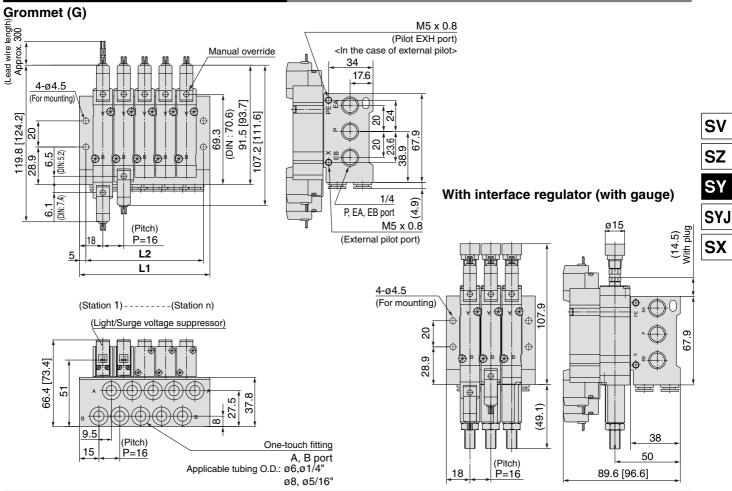


Note) Refer to page 1-4-210 for dimensions of connector types.

Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	47.5	60	72.5	85	97.5	110	122.5	135	147.5	160	172.5	185	197.5	210	222.5	235	247.5	260	272.5
L2	39.5	52	64.5	77	89.5	102	114.5	127	139.5	152	164.5	177	189.5	202	214.5	227	239.5	252	264.5





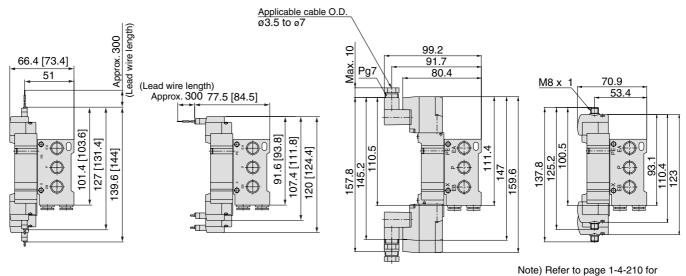


L plug connector (L)

M plug connector (M)

**DIN terminal (D)** 

M8 connector (WO)

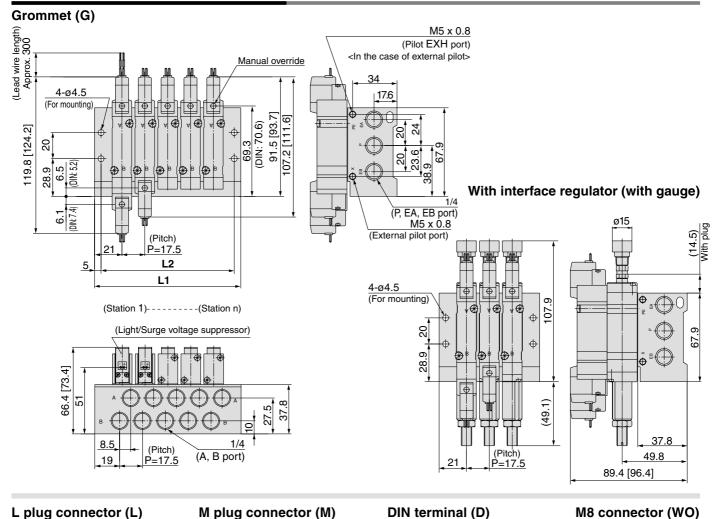


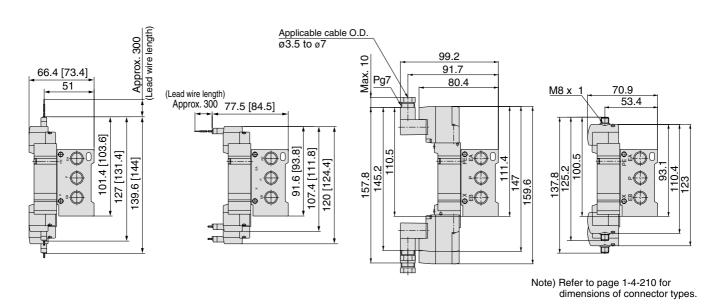
dimensions of connector types.

Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	52	68	84	100	116	132	148	164	180	196	212	228	244	260	276	292	308	324	340
L2	42	58	74	90	106	122	138	154	170	186	202	218	234	250	266	282	298	314	330

SY5000: SS5Y5-42- Stations -02





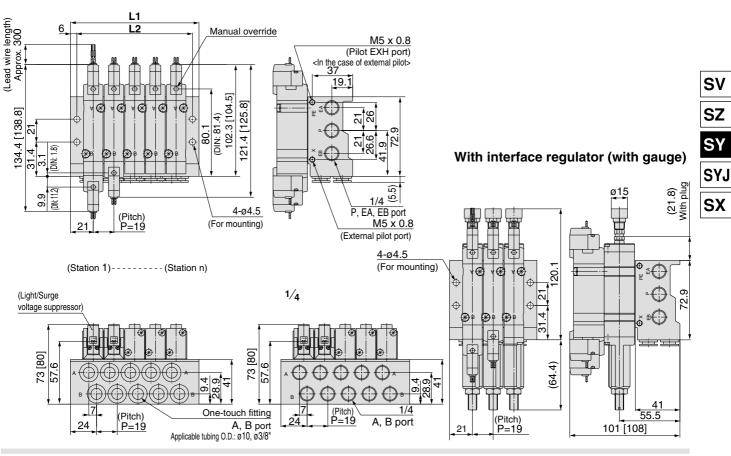


Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	59.5	77	94.5	112	129.5	147	164.5	182	199.5	217	234.5	252	269.5	287	304.5	322	339.5	357	374.5
L2	49.5	67	84.5	102	119.5	137	154.5	172	189.5	207	224.5	242	259.5	277	294.5	312	329.5	347	364.5

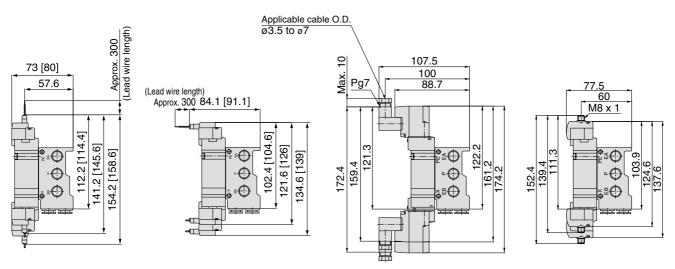
SY7000: SS5Y7-42- Stations -02, C10, N11

# [ ]: AC

### Grommet (G)



L plug connector (L) M plug connector (M) DIN terminal (D) M8 connector (WO)

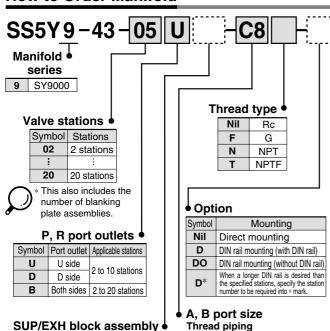


Note) Refer to page 1-4-210 for dimensions of connector types.

Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
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 SY9000 **Base Mounted Manifold Stacking Type Individual Wiring**

### **How to Order Manifold**



Symbol

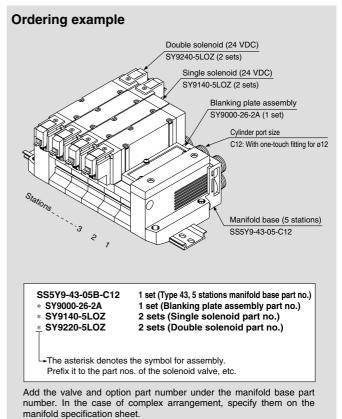
02 03

Symbol

# specifications

Symbol	Specifications
Nil	Standard/Internal pilot
R	External pilot
S	Internal pilot/Built-in silencer
RS	External pilot/Built-in silencer

# **How to Order Valve Manifold Assembly**



### М Mixed One-touch fitting (Inch size)

Port size

3/8

One-touch fitting for ø8

One-touch fitting (Metric size) Port size

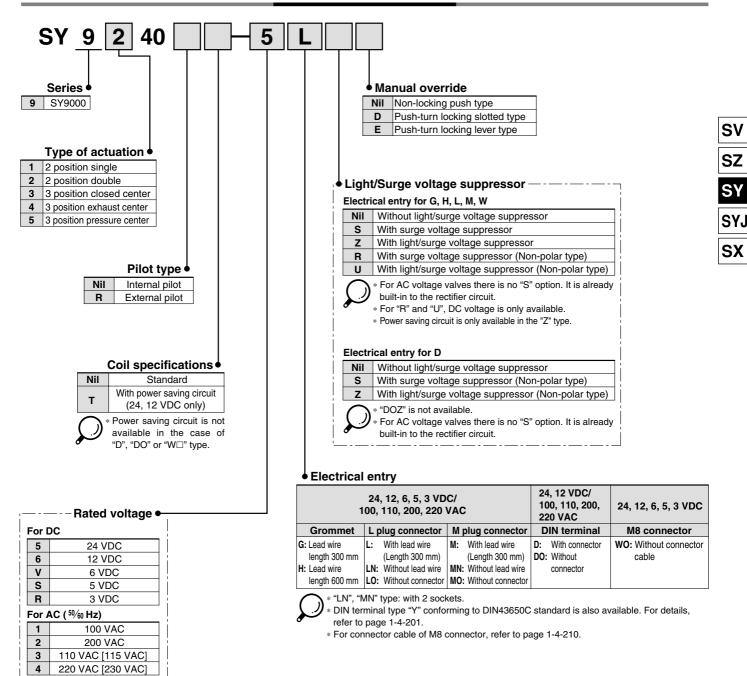
C10 One-touch fitting for ø10

C12 One-touch fitting for ø12

	(
Symbo	Port size
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"
M	Mixed

\* In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

### **How to Order Valves**



\* DC specifications of type "D" and "DO" is only available with

12 and 24 VDC.

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







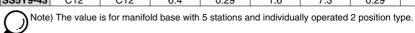
	Model		SS5Y9-43
	Applicable valve		SY9□40
Manifold type			Stacking type
P(SUF	P)/R(EXH)		Common SUP, Common EXH
Valve	stations		2 to 20 stations (1)
A, B p	ort	Location	Base
Porting	g specifications	Direction	Side
	P, EA, EB po	rt	C12 (One-touch fitting for ø12)
Port size A, B port			1/4 3/8 C8 (One-touch fitting for Ø8) C10 (One-touch fitting for Ø10) C12 (One-touch fitting for Ø12)
	Manifold base weight W (g), n: Stations		W = 107n + 330

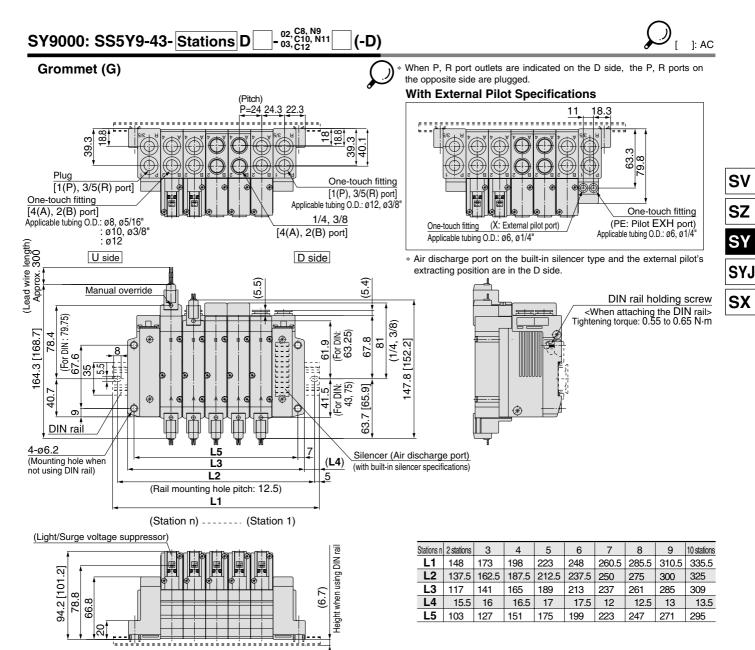
Note 1) For more than 10 stations, supply pressure to P port on both sides and exhaust from EA/EB port on both sides.

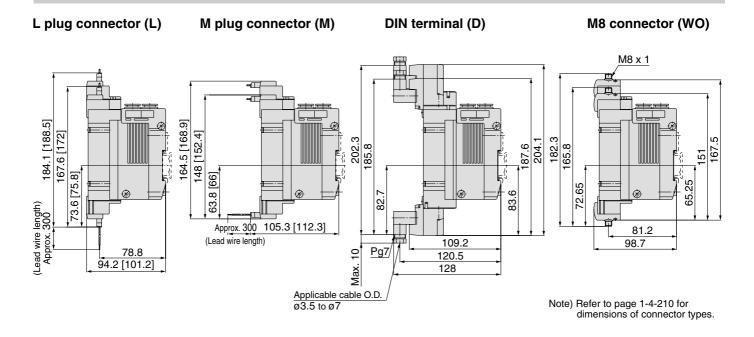
Note 2) Refer to "Manifold Option" on page 1-4-114.

### Flow Characteristics

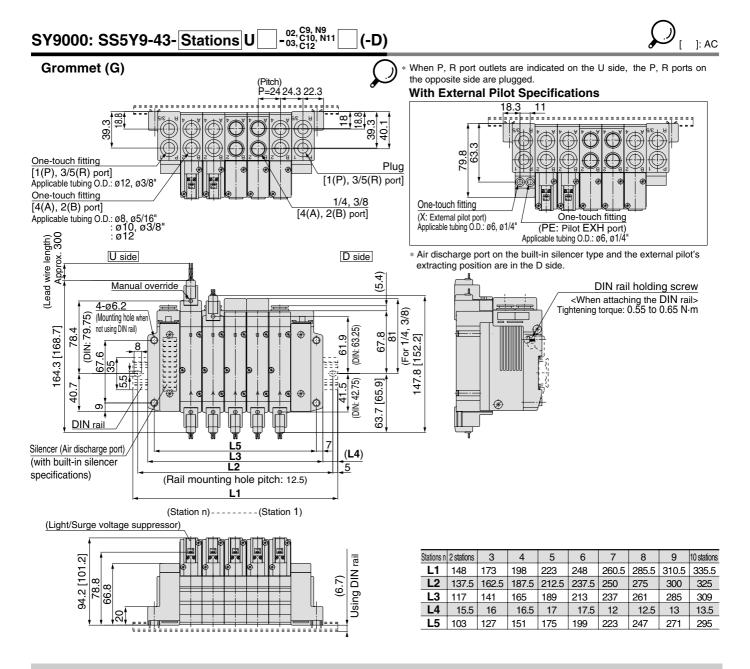
	Port	size			Flow char	acteristics			
Model	Model 1, 5, 3 4, 2			4/2 (P→A/	B)	4/2→5/3 (A/B→EA/EB)			
	(P, EA, EB)	(A, B)	C (dm3/(s-bar))	b	Cv	C (dm3/(s-bar))	b	Cv	
SS5Y9-43	C12	C12	6.4	0.29	1.6	7.3	0.29	1.8	

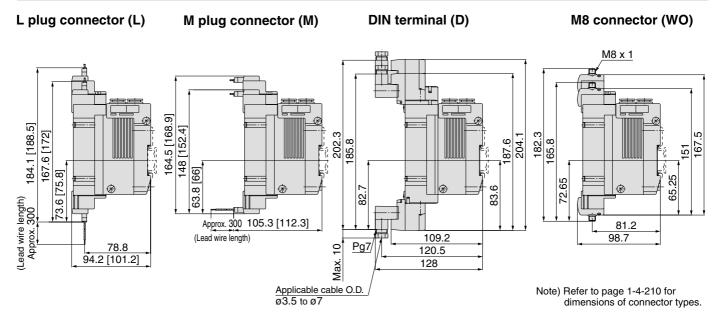


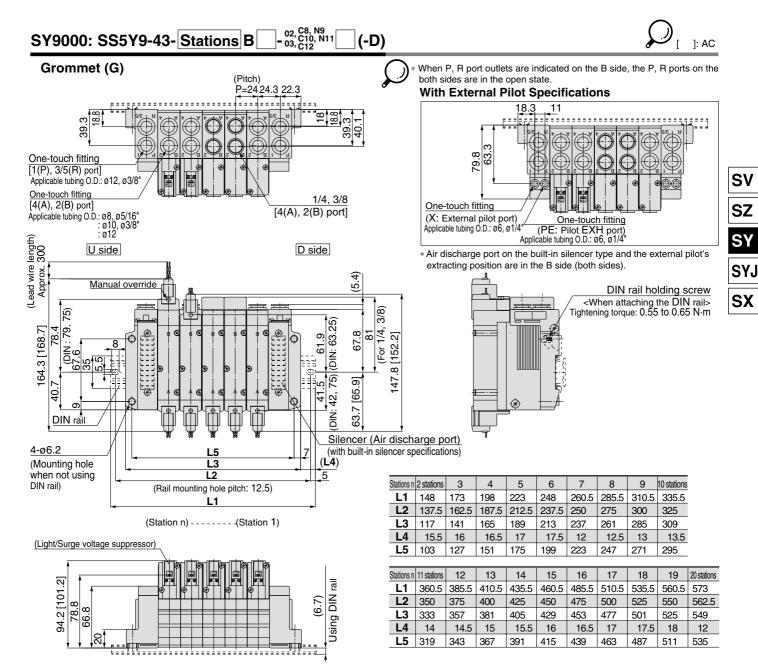










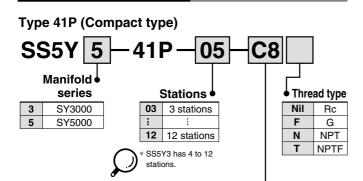


### L plug connector (L) M plug connector (M) DIN terminal (D) M8 connector (WO) M8 x 1 184.1 [188.5] 164.5 [168.9] 167.6 [172] 148 [152.4] 202.3 182.3 82.8 204.1 165.8 9 151 87 [75.8] [99] 72.65 25 83.6 \* 82. 73.6 (Lead wire length) Approx. 300 Approx. 300 105.3 [112.3] 81.2 (Lead wire length) 109.2 98.7 Pg7 78.8 120.5 94.2 [101.2] Max. 128 Applicable cable O.D. Note) Refer to page 1-4-210 for ø3.5 to ø7 dimensions of connector types.



# Series SY3000/5000/7000 **Base Mounted Monifold Bar Stock Type** Flat Ribbon Cable

### **How to Order Manifold**



### A, B port size Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000

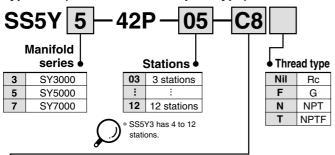
### One-touch fitting (Metric size)

	· · · · · · · · · · · · · · · · · · ·			
Symbol	Port size	Applicable series		
C4	One-touch fitting for ø4	SY3000		
C6	One-touch fitting for ø6			
C6	One-touch fitting for ø6	SY5000		
C8	One-touch fitting for ø8	313000		

### One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø 1/4"	313000
N7	One-touch fitting for ø 1/4"	SY5000
N9	One-touch fitting for ø5/16"	313000

### Type 42P (Common external pilot type)



### A, B port size Thread piping

	6-63	
Symbol	Port size	Applicable series
01	1/8	SY3000
02	1/4	SY5000
02	1/4	SY7000

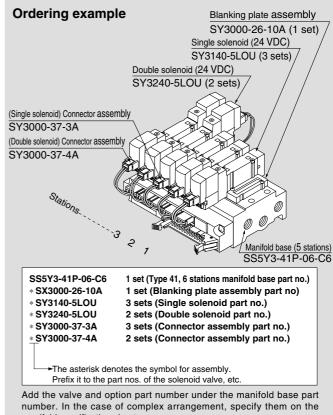
### One-touch fitting (Metric size)

	todon nitting (motin	0.20,
Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	313000
C6	One-touch fitting for ø6	SY5000
C8	One-touch fitting for ø8	515000
C10	One-touch fitting for ø10	SY7000

### One-touch fitting (Inch size)

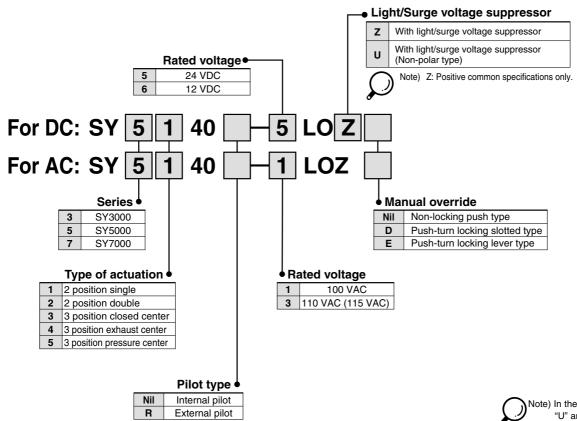
	(	··,			
Symbol	Port size	Applicable series			
N3	One-touch fitting for ø5/32" SY3000				
N7	One-touch fitting for ø1/4"	313000			
N7	One-touch fitting for ø1/4"	SY5000			
N9	One-touch fitting for ø5/16"	515000			
N9	One-touch fitting for ø5/16"	SY7000			

### **How to Order Valve Manifold Assembly**



manifold specification sheet.

### **How to Order Valves**



Note) In the case of flat cable type, "U" and "Z" types are for DC specifications and "Z" type is for AC specifications. "Z" type for DC is positive common specification only. For the other combination, please contact SMC. SV

SZ

SYJ

SX

# **How to Order Connector Assembly**

### For 12/24 VDC

For DC	For SY3000	For SY5000/7000
For single solenoid	SY3000-37-3A	SY5000-37-3A
Double solenoid, 3 position type	SY3000-37-4A	SY5000-37-4A
Single with spacer assembly	SY5000-37-3A	SY5000-37-5A
Double, 3 position with spacer assembly	SY3000-37-6A	SY5000-37-6A

### For 100 VAC

For DC	For SY3000	For SY5000/7000
For single solenoid	SY3000-37-32A	SY5000-37-15A
Double solenoid, 3 position type	SY3000-37-33A	SY5000-37-16A
Single with spacer assembly	SY5000-37-15A	SY5000-37-17A
Double, 3 position with spacer assembly	SY3000-37-34A	SY5000-37-18A

For 100 VAC (115 VAC)

TOT TOO THE (TTO THE)							
For DC	For SY3000	For SY5000/7000					
For single solenoid	SY3000-37-35A	SY5000-37-19A					
Double solenoid, 3 position type	SY3000-37-36A	SY5000-37-20A					
Single with spacer assembly	SY5000-37-19A	SY5000-37-21A					
Double, 3 position with spacer assembly	SY3000-37-37A	SY5000-37-22A					



### Multiple valve wiring is simplified through the use of the flat cable connector.

### Clean appearance

In the case of a flat ribbon cable type, each valve is wired on the print board of manifold base to allow the external wiring to be piped all together with 26 pins MIL connector.



### Flat Ribbon Cable Manifold Specifications

	Mode	el	SS5Y3-41P	SS5Y3-42P	SS5Y5-41P	SS5Y5-42P	SS5Y7-42P		
Applicable valve			SY3	□40	SY5	□40	SY7□40		
Manifo	old ty	γре		Si	ngle base/B mou	unt			
P(SUF	P)/R(	EXH)		Comm	on SUP, Commo	on EXH			
Valve	stati	ons	4 to 12 s	tations <sup>(1)</sup>	3	to 12 stations Not	e 1)		
A, B po	ort	Location			Base				
Porting specif	ications	Direction			Side				
	P, E	A, EB port	1,	/8	1,	1/4			
Port size	Α,	B port	M5 x 0.8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	1/8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	1/8 C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)	1/4 C6 (One-touch fitting for Ø6) C8 (One-touch fitting for Ø8)	1/ <sub>4</sub> C10 (One-touch fitting for ø10)		
Manifold base weight W (g), n: Stations		U	W = 39n + 83	W = 48n + 99	W = 67n + 118	W = 88n + 151	W = 109n + 174		
Applicable flat ribbon cable connector			Flat ribbon cable connector, Socket: 26 pins MIL type with strain relief, Conforming to MIL-C-83503						
Internal wiring			In common between +COM and -COM (Z type: +COM only)						
Rated voltage				12, 2	4 VDC, 100, 110	VAC			

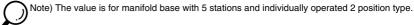
**N**o

- Note 1) For more than 10 stations (more than 5 stations in the case of SS5Y7), supply pressure to P port on both sides and exhaust from EA/EB port on both sides.
- Note 2) The withstand voltage specification for the wiring unit section is JIS C 0704, Grade 1 or its equivalent.

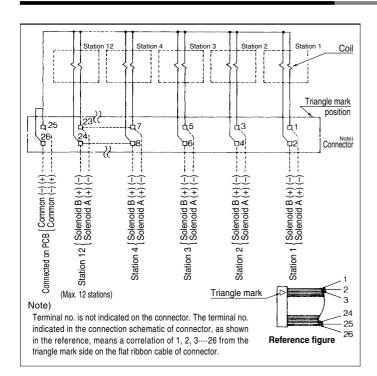
Note 3) Refer to "Manifold Option" on page 1-4-114.

### Flow Characteristics

	Port	Port size		Flow characteristics							
Model	1, 5, 3	4, 2	1 →	$1 \rightarrow 4/2 \ (P \rightarrow A/B)$			5/3 (A/B →	EA/EB)			
	(P, EA, EB)	(A, B)	C (dm3/(s-bar))	b	Cv	C (dm3/(s-bar))	b	Cv			
SS5Y3-41P	1/8	C6	0.75	0.19	0.18	0.81	0.23	0.20			
SS5Y3-42P	1/8	C6	0.75	0.20	0.18	0.82	0.20	0.20			
SS5Y5-41P	1/4	C8	1.8	0.23	0.44	1.9	0.16	0.45			
SS5Y5-42P	1/4	C8	1.9	0.20	0.46	1.9	0.12	0.43			
SS5Y7-42P	1/4	C10	3.0	0.25	0.75	3.0	0.12	0.66			

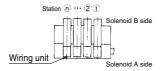


### Internal Wiring of Manifold (Non-polar type)





- For more than 10 stations, both poles of the common should be wired.
- For single solenoid, connect to the solenoid A side.
- The maximum number of stations that can be accommodated is 12. For more stations, please contact SMC.



### **∴** Caution

 For non-polar (U) valves, the electrical DC connections can be used with either positive and negative COM. For type (Z), only use with positive COM as the valve does not operate correctly when used with negative COM. **SY3000: SS5Y3-41P-** Stations -M5, C4, N3

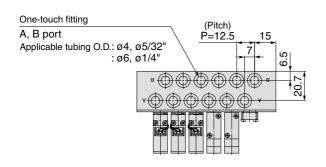


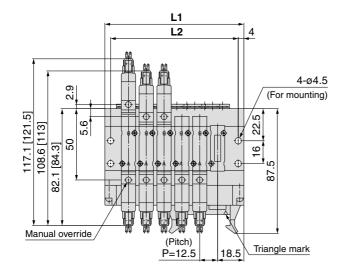
SV

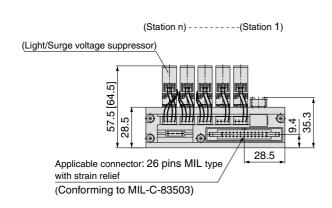
SZ

SYJ

SX

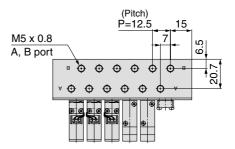


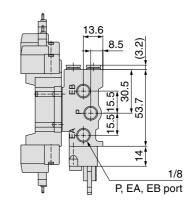




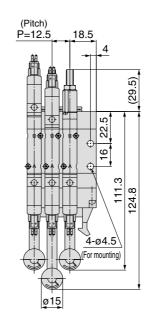
Stations n	4	5	6	7	8	9	10	11	12
L1	72.5	85	97.5	110	122.5	135	147.5	160	172.5
L2	64.5	77	89.5	102	114.5	127	139.5	152	164.5

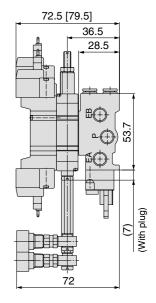
### For M5 x 0.8





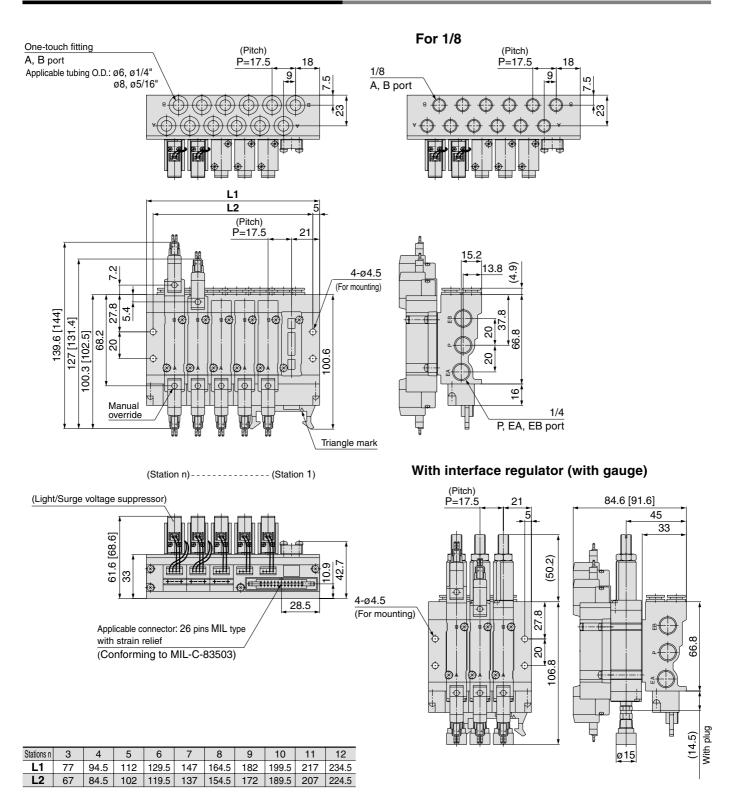
With interface regulator (with gauge)





SY5000: SS5Y5-41P- Stations -01, C6,N7 C8,N9





SY3000: SS5Y3-42P- Stations -01, C4, N3 C6, N7

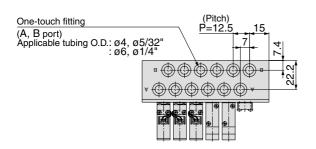


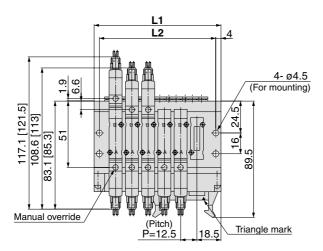
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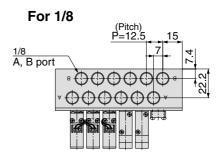
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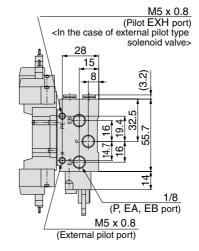
SYJ

SX





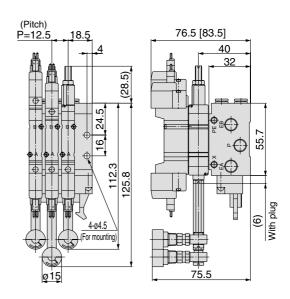




# (Station n) ------(Station 1) (Light/Surge voltage suppressor) Applicable connector: 26 pins MIL type With strain releaf (Conforming to MIL-C-83503)

Stations n	4	5	6	7	8	9	10	11	12
L1	72.5	85	97.5	110	122.5	135	147.5	160	172.5
L2	64.5	77	89.5	102	114.5	127	139.5	152	164.5

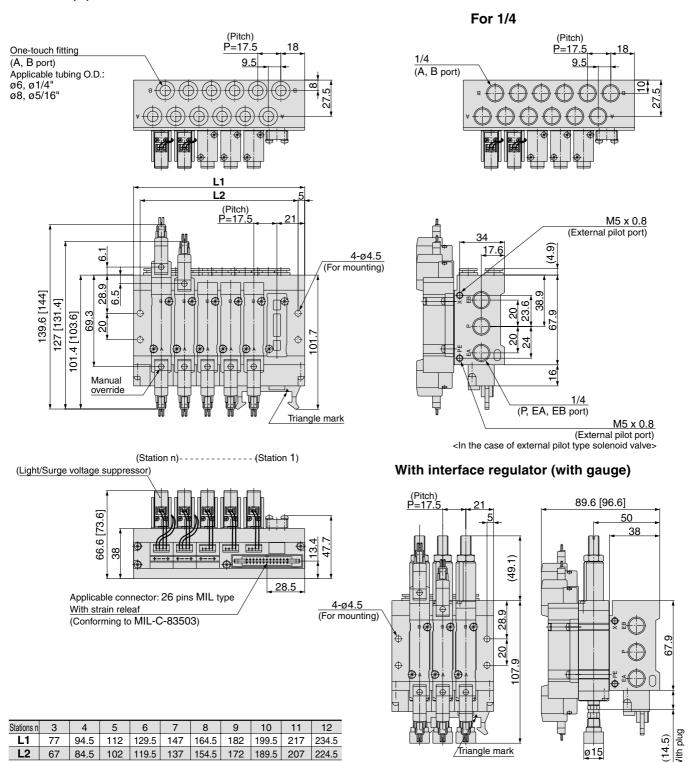
### With interface regulator (with gauge)



SY5000: SS5Y5-42P- Stations -02, C6, N7 (26, N9)

# [ ]: AC

### Grommet (G)



SY7000: SS5Y7-42P- Stations -02, C10, N11

# ]: AC

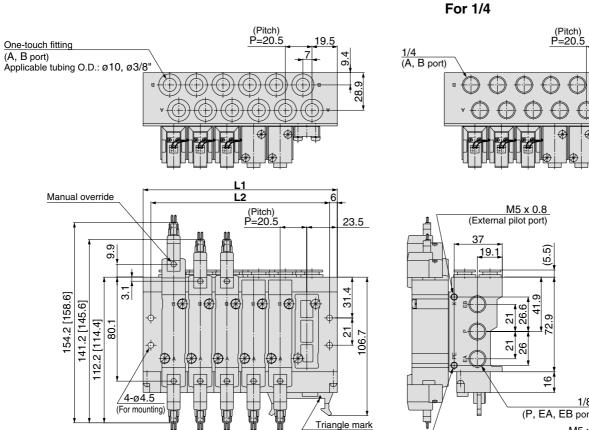
SV

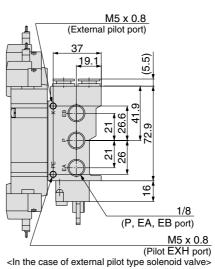
SZ

SYJ

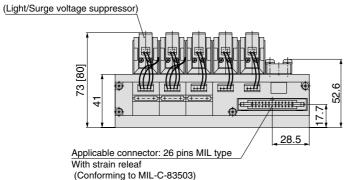
SX

### Grommet (G)



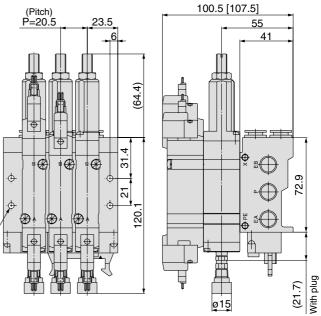


With interface regulator (with gauge)



(Station n)-----(Station 1)

Stations n	3	4	5	6	7	8	9	10	11	12
L1	88	108.5	129	149.5	170	190.5	211	231.5	252	272.5
L2	76	96.5	117	137.5	158	178.5	199	219.5	240	260.5



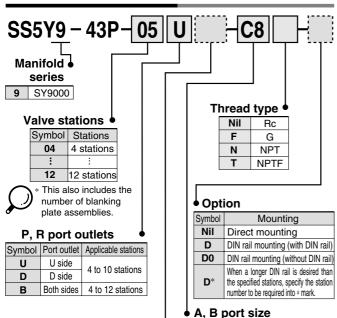
**SMC** 

4-ø4.5 (For mounting)



# Series SY9000 **Base Mounted Manifold Stacking Type** Flat Ribbon Cable

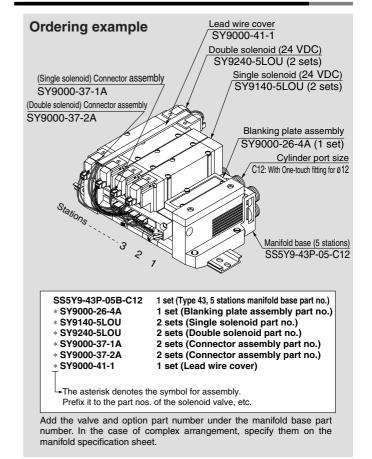
### **How to Order Manifold**



### SUP/EXH block assembly specifications

Symbol	Specifications
Nil	Standard/Internal pilot
R	External pilot
S	Internal pilot/Built-in silencer
RS	External pilot/Built-in silencer

### **How to Order Valve Manifold Assembly**



One-touch fitting (Inch size)

Port size

1/4

3/8

Port size

Mixed

One-touch fitting (Metric size)

C8 One-touch fitting for ø8

C10 One-touch fitting for Ø10

C12 One-touch fitting for Ø12

Thread piping

Symbol

02

03

Symbol

М

Symbol	Port size
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"
M	Mixed

<sup>\*</sup> In the case of mixed specifications (M), indicate separately on the manifold specification sheet.



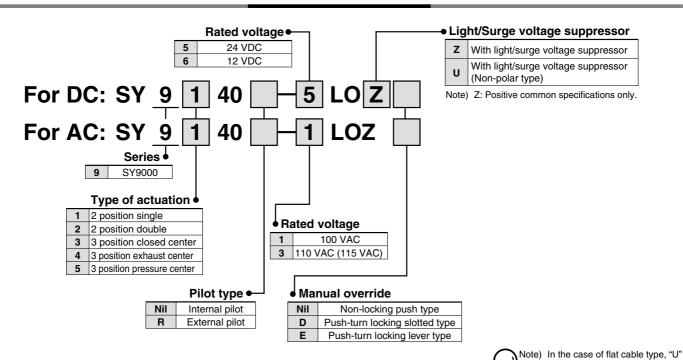
SV

SZ

SYJ

SX

# **How to Order Valves**



# **How to Order Connector Assembly**

#### For 12/24 VDC

For DC	For SY9000
For single solenoid	SY9000-37-1A
Double solenoid, 3 position type	SY9000-37-2A
Single with spacer assembly	SY9000-37-3A
Double, 3 position with spacer assembly	SY9000-37-4A

# For 100 VAC

For DC	For SY9000
For single solenoid	SY9000-37-1B
Double solenoid, 3 position type	SY9000-37-2B
Single with spacer assembly	SY9000-37-3B
Double, 3 position with spacer assembly	SY9000-37-4B

# For 110 VAC (115 VAC)

For DC	For SY9000
For single solenoid	SY9000-37-1C
Double solenoid, 3 position type	SY9000-37-2C
Single with spacer assembly	SY9000-37-3C
Double, 3 position with spacer assembly	SY9000-37-4C

and "Z" types are for DC specifications and "Z" type is for AC specifications. "Z" type for DC is positive common specification only. For the other combination, please contact SMC.





# Multiple valve wiring is simplified through the use of the flat cable connector.

# Clean appearance

In the case of a flat ribbon cable type, each valve is wired on the print board of manifold base to allow the external wiring to be piped all together with 26 pins MIL connector.



# Flat Ribbon Cable Manifold Specifications

Model		SS5Y9-43P		
Applicab	le valve	SY9□40		
Manifold typ	e	Stacking type		
P (SUP)/R (I	EXH)	Common SUP, Common EXH		
Valve station	าร	4 to 12 stations Note 1)		
A, B port	Location	Base		
Porting specifications   Direction		Side		
P, EA, EB port		C12 (One-touch fitting for ø12)		
Port size		1/ <sub>4</sub> 3/ <sub>8</sub>		
	A, B port	C8 (One-touch fitting for Ø8)		
		C10 (One-touch fitting for ø10) C12 (One-touch fitting for ø12)		
Manifold base weight W (g) n: Stations		W = 114n + 343		
Applicable flat ribbon cable connector		Flat ribbon cable connection, Socket: 26 pins MIL with strain relief, Conforming to MIL-C-83503		
Internal wirir	ng	In common between +COM and -COM (Z type: +COM only)		
Rated voltage		12, 24 VDC, 100, 110 VAC		

 $\bigcirc$ 

Note 1) For more than 10 stations, supply pressure to P port on both sides and exhaust from EA/EB port on both sides.

Note 2) The withstand voltage specification for the wiring unit section is JIS C 0704, Grade 1 or its equivalent.

Note 3) Refer to "Manifold Option" on page 1-4-114.

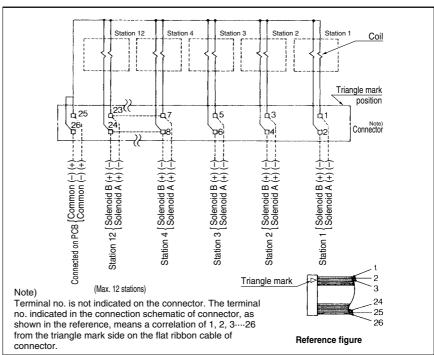
#### Flow Characteristics

	Port size		Flow characteristics						
Model	1, 5, 3	4, 2	1 →	$1 \rightarrow 4/2 \ (P \rightarrow A/B)$			B) $4/2 \rightarrow 5/3 \text{ (A/B} \rightarrow \text{EA/EB)}$		
	(P, EA, EB)	(A, B)	C (dm3/(s-bar))	b	Cv	C (dm3/(s-bar))	b	Cv	
SS5Y9-43P	C12	C12	6.4	0.29	1.6	7.3	0.29	1.8	



Note) The value is for manifold base with 5 stations and individually operated 2 position type.

# **Internal Wiring of Manifold (Non-polar type)**

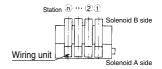




 For non-polar (U) valves, the electrical DC connections can be used with either positive and negative COM. For type (Z), only use with positive COM as the valve does not operate correctly when used with negative COM.



- For more than 10 stations, both poles of the common should be wired.
- For single solenoid, connect to the solenoid A side.
- The maximum number of stations that can be accommodated is 12. For more stations, please contact SMC.





02, C8, N9 03, C10, N11 03, C12 SY9000: SS5Y9-43P- Stations D (-D)



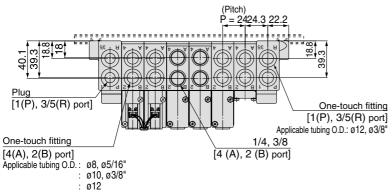
SV

SZ

SYJ

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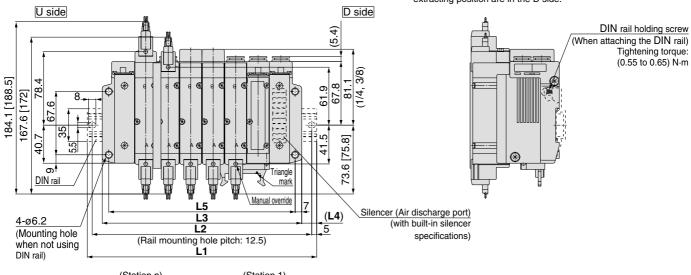
\* When P, R port outlets are indicated on the D side, the P, R ports on the opposite side are plugged.



With External Pilot Specifications 11 18.3 79.8 One-touch fitting One-touch fitting (X: External pilot port) (PE: Pilot EXH port) Applicable tubing O.D.: ø6, ø1/4"

\* Air discharge port on the built-in silencer type and the external pilot's extracting position are in the D side.

Applicable tubing O.D.: ø6, ø1/4"



(Station n)----- (Station 1) (Light/Surge voltage suppressor) S 94.2 [101. ω .99 27 (Height when using DIN rail) 63 Applicable connector: 26 pins MIL type with strain relief (Conforming to MIL-C-83503)

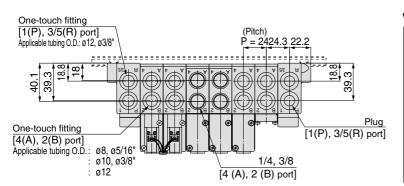
Stations n	4 stations	5	6	7	8	9	10 stations
L1	198	223	248	260.5	285.5	310.5	335.5
L2	187.5	212.5	237.5	250	275	300	325
L3	165	189	213	237	261	285	309
L4	16.5	17	17.5	12	12.5	13	13.5
1.5	151	175	199	223	247	271	295

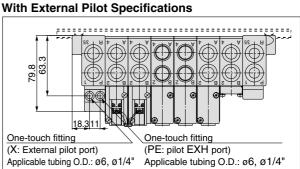


SY9000: SS5Y9-43P-Stations U -02,C10,N11 (-D)

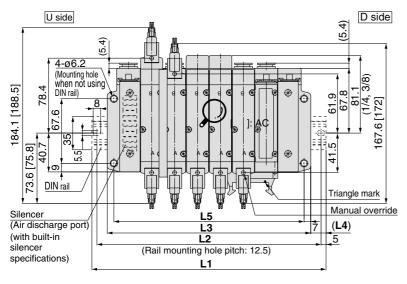


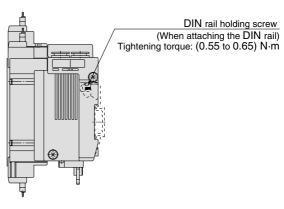
\* When P, R port outlets are indicated on the U side, the P, R ports on the opposite side are plugged.

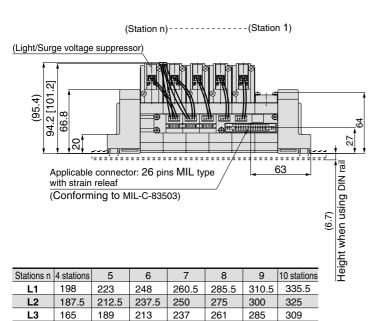




\* Air discharge port on the built-in silencer type and the external pilot's extracting position are in the U side.







12.5

247

13

271

13.5

295

L4

16.5

151

17

175

17.5

199

12

223

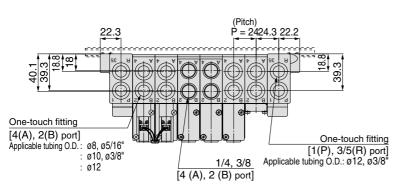


SY9000: SS5Y9-43P- Stations B -03, C10, N11 (-D)





\* When P, R port outlets are indicated on the B side, the P, R ports on the both sides are in the open state.



# With External Pilot Specifications 1118.3 1118.3 One-touch fitting (PE: pilot EXH port) Applicable tubing O.D.: ø6, ø1/4"

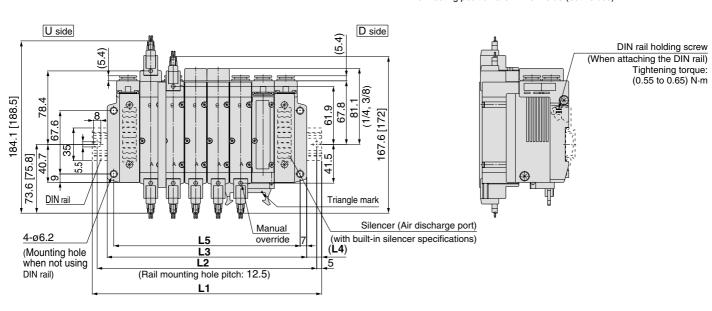
\* Air discharge port on the built-in silencer type and the external pilot's extracting position are in the B side (both sides).

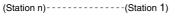
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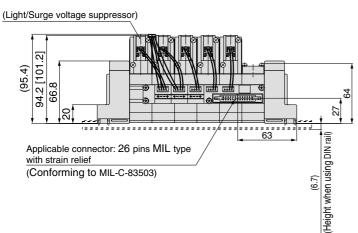
SZ

31

SYJ SX







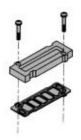
Stations n	4 stations	5	6	7	8	9	10	11	12 stations
L1	198	223	248	260.5	285.5	310.5	335.5	360.5	385.5
L2	187.5	212.5	237.5	250	275	300	325	350	375
L3	165	189	213	237	261	285	309	333	357
L4	16.5	17	17.5	12	12.5	13	13.5	14	14.5
L5	151	175	199	223	247	271	295	319	343

# Series SY3000/5000/7000/9000

# Type 41 Type 42 Type 43 Type 41P Type 42P Type 43P

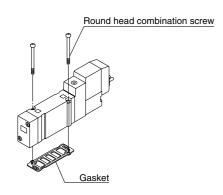
# **Manifold Option**

# ■ Type 41, 42, 43 Blanking plate assembly

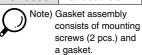


Series	Assembly part no.
SY3000	SY3000-26-9A
SY5000	SY5000-26-20A
SY7000	SY7000-26-22A
SY9000	SY9000-26-2A

# ■ Gasket assembly part no.



Series	Gasket assembly
SY3000	SY3000-GS-2
SY5000	SY5000-GS-2
SY7000	SY7000-GS-2
SY9000	SY9000-GS-2



# **⚠** Caution

# **Mounting screw tightening torques**

M2: 0.16 N·m M3: 0.8 N·m M4: 1.4 N·m

# **⚠** Warning

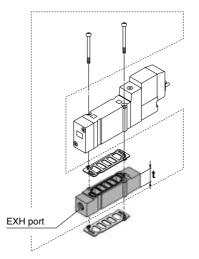
When mounting a valve or spacer on the manifold base or sub-plate, etc., those mounting directions are determined. If mounted in the wrong direction, the equipment to be connected may cause malfunction. Refer to external dimensions, and then mount it.

# ■ Type 41P, 42P, 43P Blanking plate assembly



Series	Assembly part no.
SY3000	SY3000-26-10A
SY5000	SY5000-26-21A
SY7000	SY7000-26-23A
SY9000	SY9000-26-4A

## ■ Individual EXH spacer assembly

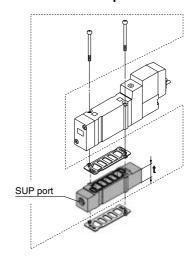


Series	Assembly part no.	Port size	t
SY3000	SY3000-39-2A	M5 x 0.8	11
SY5000	SY5000-39-16*A	1/8	15
SY7000	SY7000-39-16*A	1/4	18
SY9000	SY9000-39-2*A	1/4	20

Note) In case of 41P, 42P and 43P, for protection of the wiring unit section from drainage, piping at the EA port should be arranged so that it will not

be directly exposed to exhaust from the valve.

# ■ Individual SUP spacer assembly



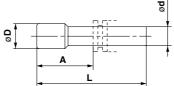
Series	Assembly part no.	Port size	t
SY3000	SY3000-38-2A	M5 x 0.8	11
SY5000	SY5000-38-16*A	1/8	15
SY7000	SY7000-38-16*A	1/4	18
SY9000	SY9000-38-2*A	1/4	20



- Note) The SUP port of SY3000, 5000 and 7000 may be either on the lead wire side or on the end plate side. (An assembly is shipped under the condition shown in the figure.)
  - The end plate side is only available to SY9000.

# ■ Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports. Purchasing order is available in units of 10 pieces.



## \* Thread type

Nil	Rc		
F	G		
N	NPT		
Т	NPTF		

Applicable fittings size ød	Model	Α	L	D
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10
10	KQ2P-10	22	43	12
12	KQ2P-12	24	44.5	14
1/8"	KQ2P-01	16	31.5	5
5/32"	KQ2P-03	16	32	6
1/4"	KQ2P-07	18	35	8.5
5/16"	KQ2P-09	20.5	39	10
3/8"	KQ2P-11	22	43	11.5



SV

SZ

SYJ

SX

# **Manifold Option**

#### ■SUP block disk (For SY9000)

By installing a SUP block disk in the pressure supply passage of a manifold valve, it is possible to supply two or more different high and low pressures to one manifold.



Series	Part no.
SY9000	SY9000-57-1A

#### ■ EXH block disk (For SY9000)

By installing an EXH block disk in the exhaust passage of a manifold valve, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two blocking disks are needed to divide both exhausts.)



Series	Part no.
SY9000	SY9000-57-1A

#### ■ Label for block disk (For SY9000)

The labels shown below are used on manifold stations containing SUP/EXH block disk(s) to show their location. (3 pcs. each)

#### VZ3000-123-1A

Label for SUP block disk Label for EXH block disk Label for SUP/EXH block disk







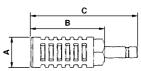


When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.

#### ■ Silencer with One-touch fitting (For SY9000)

The silencer plugs directly into the One-touch fittings of the manifold R (exhaust) port.

(exhaust) port.

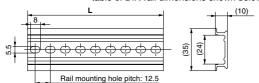


For Series	Model	Effective area	Α	В	С
SY9000 (ø12)	AN300-KM12	41 mm <sup>2</sup>	ø25	70	98

#### ■ DIN Rail Dimensions/Weight for SY9000



\* Fill in □ with an appropriate no. listed on the table of DIN rail dimensions shown below.

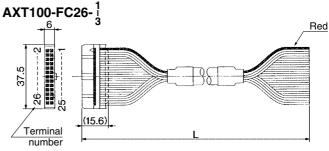


No.	0	1	2	3	4	5	6	7	8	9
L Dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5
Weight (g)	24.8	28	31.1	34.3	37.4	40.6	43.8	46.9	50.1	53.3
No.	10	11	12	13	14	15	16	17	18	19
L Dimension	223	235.5	248	260.5	273	285.5	298	310.5	323	335.5
Weight (g)	56.4	59.6	62.7	65.9	69.1	72.2	75.4	78.6	81.7	84.9
No.	20	21	22	23	24	25	26	27	28	29
L Dimension	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5
Weight (g)	88	91.2	94.4	97.5	100.7	103.9	107	110.2	113.3	116.5

Note) • For DIN rail, refer to page 1-4-208.

 Refer to L1 dimension on pages starting with pages 1-4-111 to 113 for lengths that correspond to the number of manifold stations.

# ■ Cable assembly



# Connector assembly for flat ribbon cables

Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-FC26-1	Cable OC save
3 m	AXT100-FC26-2	Cable 26 core x 28 AWG
5 m	AXT100-FC26-3	X 28 AWG



\* For other commercial connectors, use a 20 pins with strain relief conforming to MIL-C-83503.

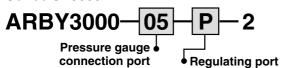
# Connector manufacturers' example

- Hirose Electric Co., Ltd.
- Japan Aviation Electronics Industry, Ltd.
- Sumitomo 3M Limited
- J.S.T. Mfg. Co., Ltd.
- Fujitsu Limited

# **Manifold Option**

■ How to Order Interface Regulator





**05** Pressure gauge (G15-10-01) M1 Plug (M-5P)

Note) In the case of Series ARBY3000 with a pressure gauge when mounting on the manifold, use caution that the part numbers are different between the odd no. stations and the even no. stations to avoid gauges from interfering

from each others. ARBY3000-05-□-2

(For odd number stations)

ARBY3000-06-□-2 (For even number stations)

P port

A port (P controlled type, A port regulation)

**B1** B port (P controlled type, B port regulation)

ARBY3000-M1-□-2

Series SY5000

**ARBY5000**-

M1 Plug (M-5P)

ARBY5000-00-□-2

Pressure gauge

connection port

**00** Pressure gauge (G15-10-01)

ARBY5000-M1-□-2

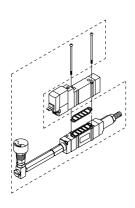
Regulating port

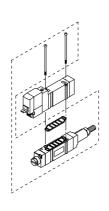
P port

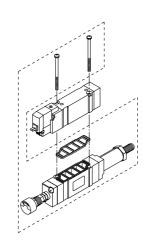
A port (P controlled type, A port regulation)

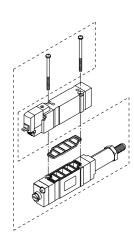
B port (P controlled type, B port regulation)











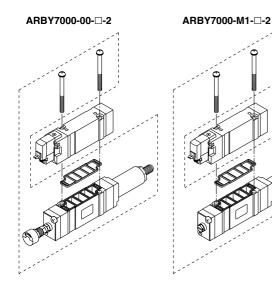
Series SY7000



connection port

**00** Pressure gauge (G15-10-01) M1 Plug (M-5P)

Regulating port				
Р	P port			
A1	A port (P controlled type, A port regulation)			
B1	B port (P controlled type, B port regulation)			



#### Accessory

Series	Round head combination screw	Gasket
ARBY3000	SY3000-23-10 (M2336)	SX3000-57-4
ARBY5000	M3 x 48.5, Matt nickel plated	SX5000-57-6
ARBY7000	M4 x 57, Matt nickel plated	SX7000-57-4



Mounting screw tightening torques

M2: 0.16 N·m M3: 0.8 N·m M4: 1.4 N·m



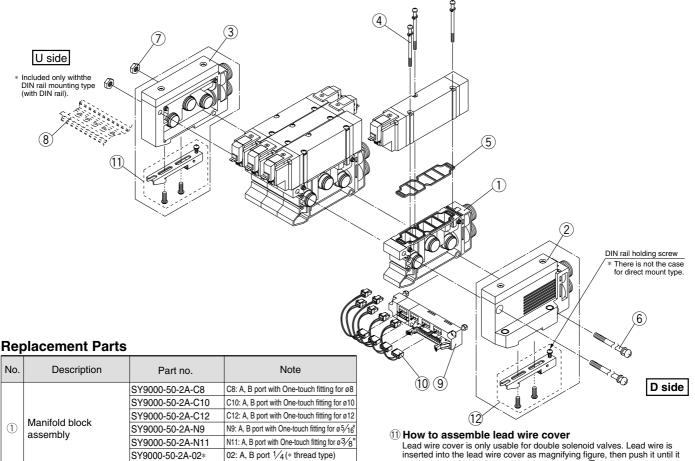
SV

SZ

SYJ

SX

# **Base Mounted Manifold Exploded View**



SY9000-50-2A-02\* 02: A, B port 1/4 (\* thread type) SY9000-50-2A-03\* 03: A, B port 3/8(\* thread type) Round head combination screw SY9000-18-2 M3 x 42, Matt nickel plated (4) Gasket SY9000-11-2 ☐ at the end of part number corresponds with the number of manifold station. Specify the same Tension bolt SY9000-23number as the number of stations 7 Hexagon nut SY9000-25-1 DIN rail VZ1000-11-4-□ Refer to page 1-4-115 at the end of part number corresponds with the number of manifold station. Specify the same SY9000-36-□A Wiring unit assembly number as the number of stations (4 to 12 stations (10) Refer to page 1-4-109. Connecter assembly SY9000-37-Lead wire cover SY9000-41-1 Included only with the DIN rail mounting type. Clamp sub assembly SY9000-30-1A

double solenoid valve, etc., order separately lead wire cover as well.

3 SUP/EXH block assembly no. (U side mounting)

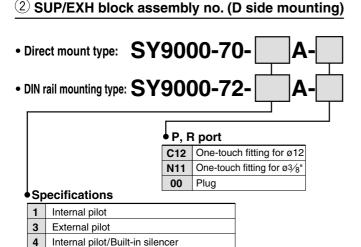
For type 43P (Flat cable manifold) of Series SY9000, the lead wire cover is

attached for bundling the lead wires for each solenoid. In case such as adding

touches the valve body.

4 Internal pilot/Built-in silencer

External pilot/Built-in silencer



External pilot/Built-in silencer

	et mount type:		00-71- A- 00-73- A-		
	• P, R port				
		C12	One-touch fitting for ø12		
		N11	One-touch fitting for ø3/8"		
		00	Plug		
• Sp	ecifications				
1	Internal pilot				
3	External pilot				



# How to Increase Manifold Base (Series SY9000 only) Manifold case can be added at any location.

When a type 43 manifold base is added, tension bolts as well as manifold block assembly will be required. Order the tension bolt suitable for the stations after a station was increased (decreased), since the length of a tension bolt differs by the number of stations. (For changing the number of stations for a type 43P manifold, wiring unit for the stations and lead assembly will be required.)

1 Loosen the tension bolts connecting the manifold base, and pull out both of 2 tension bolts.

(When equipped with a DIN rail, loosen one DIN rail holding screw on either U side or D side.)

Separate the blocks at the location where station expansion is desired.

3 Mount additional manifold block assembly.

Press block-to-block so that there's no gap. After connection, insert a tension bold for desired stations and then tighten it.

**^ Caution** (Tightening torque: 2.9 N⋅m)

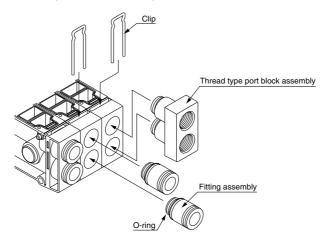
(When equipped with a DIN rail, be sure to tighten the DIN rail holding screws after tightening the tension bolts. Tightening torque: 1.4 N·m)

# 

- 1. Be sure to shut off the power and air supplies before disassembly. Furthermore, since air may remain inside the actuator, piping and manifold, confirm that the air is completely exhausted before performing any work.
- 2. When disassembly and assembly are performed, air leakage may result if connections between blocks and tightening of the end block's holding screw, is inadequate.
- 3. By adding wiring unit assembly to type 43 manifold, it can be changed to type 43P manifold, too.

# How to Replace A, B Port Fitting Assembly

By replacing manifold block fitting assemblies or the threaded port block assembly of a type 43(P) manifold, the port size of the A and B ports can be changed. To replace these parts, remove the clip with a flat head screwdriver after the valve has been removed. Insert the fitting assemblies or threaded port block assembly, and then reinsert the clip so that it does not protrude from the manifold block.



#### Fitting Assembly Part No.

Port size	Part no.	Note
One-touch fitting assembly for ø8	VVQ4000-50B-C8	
One-touch fitting assembly for ø10	VVQ4000-50B-C10	
One-touch fitting assembly for ø12	VVQ4000-50B-C12	
One-touch fitting for ø 5/16"	VVQ4000-50B-N9	
One-touch fitting for ø 3/8"	VVQ4000-50B-N11	
1/4 threaded type port block assembly	SY9000-58A-02*	-* at the end of part number denotes the thread type.
3/8 threaded type port block assembly	SY9000-58A-03*	-* at the end of part number denotes the thread type.
Plug assembly	SY9000-62-1A	

Note 1) Be careful to avoid damage or contamination of O-rings, as this can cause air leakage.

Note 2) Although replacing One-touch fittings of P, R port is also possible, use caution to the cases, etc. in which solenoid valves are often used at the same time by using the smaller sized fittings than the standard size (ø12). Because there may not be able to supply or exhaust air sufficiently in comparison with the valve performances. Besides, although fittings used for A, B port are the same, it is not possible to use the threaded type port block assembly.

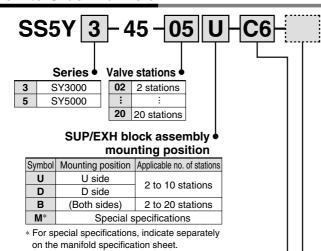






# Series **SY3000/5000 Base Mounted Monifold Stacking Type/DIN Rail Mounted Individual Wiring**

#### **How to Order Manifold**



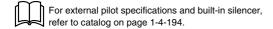
A, B port size

One-touch litting (Metric Size)							
Symbol	Port size	Applicable series					
C4	One-touch fitting for ø4						
C6	One-touch fitting for ø6	SY3000					
М	Mixed						
C4	One-touch fitting for ø4						
C6	One-touch fitting for ø6	SY5000					
C8	One-touch fitting for ø8	313000					
N/I	Mixad						

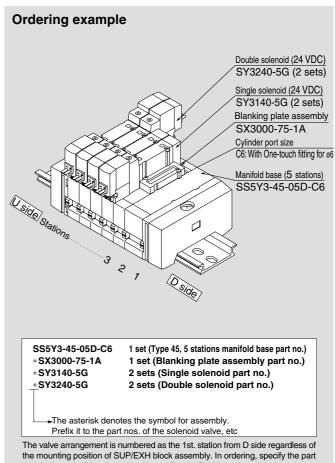
One-touch fitting (Inch size)						
Port size	Applicable series					
One-touch fitting for ø 5/32"						
One-touch fitting for ø 1/4"	SY3000					
Mixed						
One-touch fitting for ø 5/32"						
One-touch fitting for ø 1/4"	SY5000					
One-touch fitting for ø 5/16"	313000					
Mixed						
	Port size One-touch fitting for $\circ$ $5/32$ ' One-touch fitting for $\circ$ $1/4$ '' Mixed One-touch fitting for $\circ$ $5/32$ ' One-touch fitting for $\circ$ $1/4$ '' One-touch fitting for $\circ$ $5/16$ '' One-touch fitting for $\circ$ $5/16$ ''					

\* In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

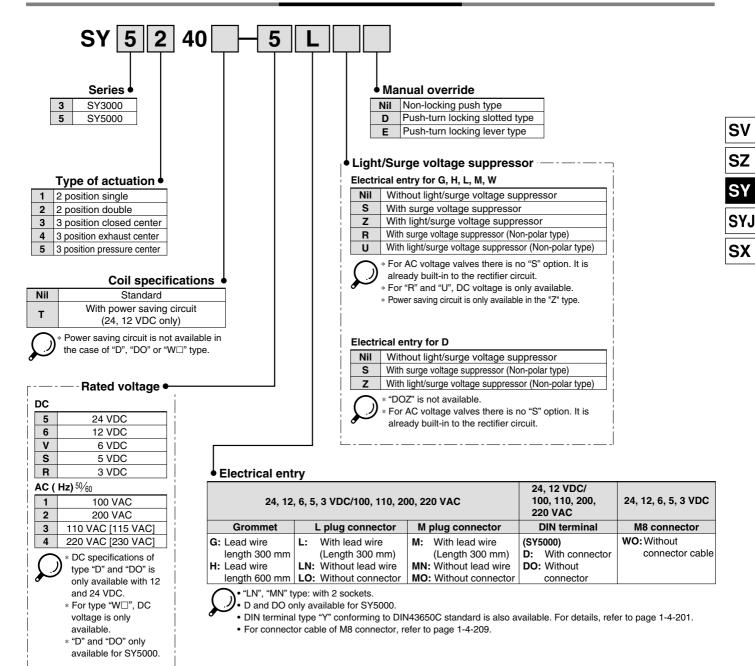


# **How to Order Valve Manifold Assembly**



nos. in the order from the 1st. station on D side. Besides, when the arrangement will be complicated, fill out the manifold specification sheet to instruct us.

# **How to Order Valves**





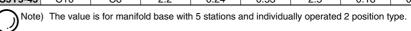
# **Manifold Specifications**

Mod	del	SS5Y3-45	SS5Y5-45			
Applicable valve		SY3□40	SY5□40			
Manifold type		Stacking type/D	IN rail mounted			
P (SUP)/R (EXH	)	Common SUP,	Common EXH			
Valve stations		2 to 20 sta	ations Note 1)			
A, B port	Location	Base				
Porting specifications	Direction	Side				
	P, R port	C8 (One-touch fitting for ø8)	C10 (One-touch fitting for ø10)			
Port size	A, B port	C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	C4 (One-touch fitting for Ø4) C6 (One-touch fitting for Ø6) C8 (One-touch fitting for Ø8)			
Manifold base we	eight	2 to 10 stations: W = 22n + 118	2 to 10 stations: W = 47n + 156			
W (g), n: Stations	3	11 to 20 stations: W = 22n + 140	11 to 20 stations: W = 47n + 190			

Note 1) For more than 11 stations, supply pressure to P port on both sides and exhaust from R port on both sides.

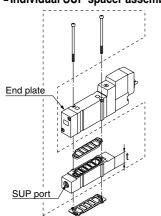
# **Flow Characteristics**

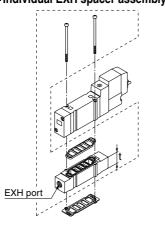
	Port size		Flow characteristics						
Model	1, 5, 3	4, 2	$1 \rightarrow 4/2 \ (P \rightarrow A/B)$			$4/2 \rightarrow 5/3 \text{ (A/B} \rightarrow \text{EA/EB)}$			
	(P, EA, EB)	(A, B)	C (dm3/(s-bar))	b	Cv	C (dm3/(s·bar))	b	Cv	
SS5Y3-45	C8	C6	0.88	0.21	0.22	0.95	0.18	0.22	
SS5Y5-45	C10	C8	2.2	0.24	0.53	2.5	0.18	0.58	



# **Manifold Option**

# ■Individual SUP spacer assembly ■Individual EXH spacer assembly





	Assembly part no.		
SY3000	SY3000-38-2A	M5 x 0.8	11
SY5000	SY5000-38-16*A	1/8	15

Blanking plate assembly



Note) The SUP port may be either on the lead wire side or on the end plate side.

#### Series | Assembly part no. | SY3000 SY3000-39-2A M5 x 0.8 11 SY5000 SY5000-39-16\*A



Note) The EXH port may be either on the lead wire side or on the end plate side.

#### \* Thread type

Nil	Rc		
F	G		
N	NPT		
Т	NPTF		



Series	Assembly part no.
SY3000	SX3000-75-1A
SY5000	SX5000-76-1A

# Caution

Mounting screw tightening torques

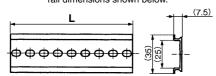
M2: 0.16 N·m M3: 0.8 N·m M4: 1.4 N·m

#### ■ Dimensions/DIN rail

VZ1000-11-1-[

# 

\* Fill in  $\square$  with an appropriate no. listed on the table of DIN rail dimensions shown below.



No.	0	1	2	3	4	5	6	7	8	9	10
L Dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223
No.	11	12	13	14	15	16	17	18	19	20	21
L Dimension	235.5	248	260.5	273	285.5	298	310.5	323	335.5	348	360.5
No.	22	23	24	25	26	27	28	29	30	31	32
L Dimension	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498
No.	33	34	35	36	37	38	39	40	41	42	43
L Dimension	510.5	523	535.5	548	560.5	573	585.5	598	610.5	623	635.5
No.	44	45	46	47	48	49	50	51	52	53	54
L Dimension	648	660.5	673	685.5	698	710.5	723	735.5	748	760.5	773
No.	55	56	57	58	59	60	61	62	63	64	65
L Dimension	785.5	798	810.5	823	835.5	848	860.5	873	885.5	898	910.5
No.	66	67	68	69	70	71					
L Dimension	923	935.5	948	960.5	973	985.5					

\* Refer to L1 dimension on pages starting with page 1-4-126 for lengths that correspond to the number of manifold stations.

#### ■SUP block disk

By installing a SUP block disk in the pressure supply passage of a manifold valve, it is possible to supply two or more different high and low pressures to one manifold.



Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

#### ■SUP block disk

By installing an EXH block disk in the exhaust passage of a manifold valve, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two block disks are needed to divide both exhausts.)



Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

SV

SZ

SYJ

SX

# Label for block disk

The labels shown below are used on manifold stations containing SUP/EXH block disk(s) to show their location. (3 pcs. each)

#### VZ3000-123-1A

Label for SUP block disk Label for EXH block disk Label for SUP/EXH block disk





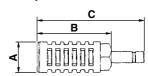




When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.

#### Silencer with One-touch fitting

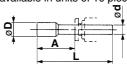
The silencer plugs directly into the One-touch fittings of the manifold.



Series	Model	Effective area	Α	В	С
For SY3000 (Ø8)	AN203-KM8	14 mm <sup>2</sup>	ø16	26	51
For SY5000 (Ø10)	AN200-KM10	26 mm <sup>2</sup>	ø22	53.8	80.8
	AN300-KM10	30 mm <sup>2</sup>	ø25	70	97

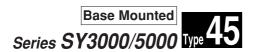
# L Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports. Purchasing order is available in units of 10 pieces.



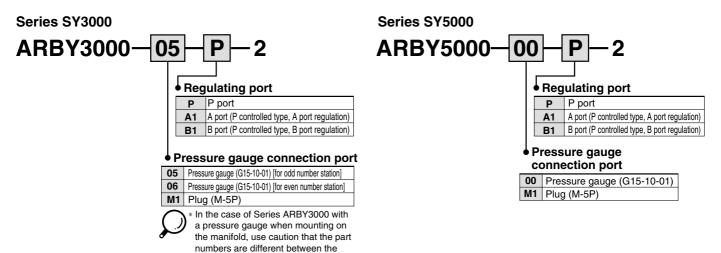
#### **Dimensions**

Applicable fittings size ød	Model	Α	L	D
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10
10	KQ2P-10	22	43	12
1/8"	KQ2P-01	16	31.5	5
5/32"	KQ2P-03	16	32	6
1/4"	KQ2P-07	18	35	8.5
5/16"	KQ2P-09	20.5	39	10

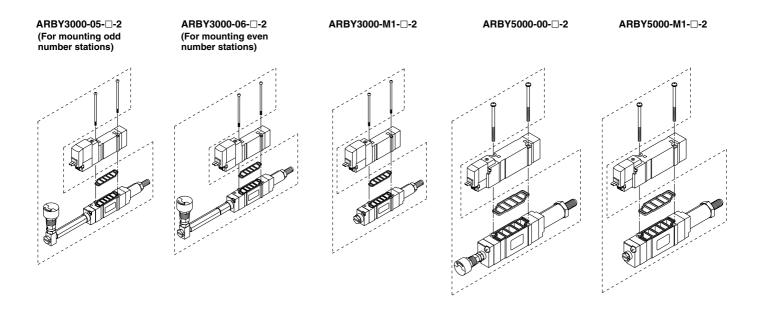


# **Manifold Option**

■ How to Order Interface Regulator (SY3000/5000 only)



odd no. stations and the even no.



#### **Accessory**

Series	Round head combination screw	Gasket
<b>ARBY3000</b>	SY3000-23-10 (M2336)	SX3000-57-4
ARBY5000	M3 x 48.5, Matt nickel plated	SX5000-57-6



Mounting screw tightening torques

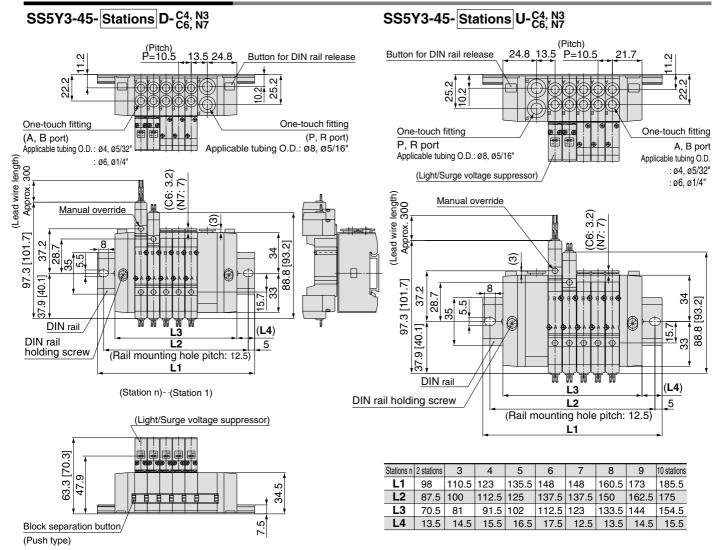
M2: 0.17 N·m M3: 0.8 N·m



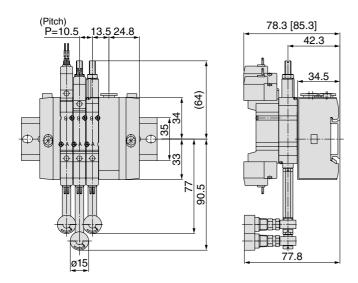
# Base Mounted Series SY3000/5000 Type 45

# **Dimensions: Series SY3000**





#### With interface regulator (with gauge)

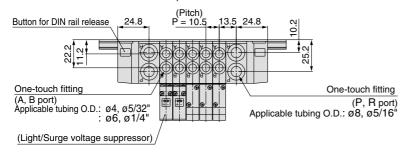


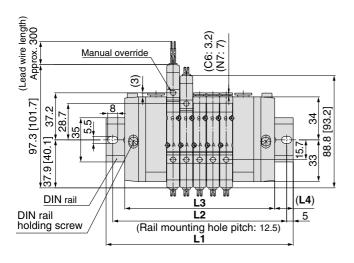


# **Dimensions: Series SY3000**



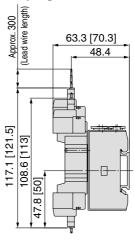
# SS5Y3-45- Stations B- C4, N3 C6, N7



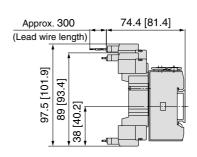


Stations n	2 stations	3	4	5	6	7	8	9	10 stations	
L1	110.5	123	135.5	148	160.5	173	185.5	185.5	198	
L2	100	112.5	125	137.5	150	162.5	175	175	187.5	
L3	87	97.5	108	118.5	129	139.5	150	160.5	171	
L4	11.5	12.5	13.5	14.5	15.5	16.5	17.5	12.5	13.5	
Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	210.5	223	235.5	248	248	260.5	273	285.5	298	310.5
L2	200	212.5	225	237.5	237.5	250	262.5	275	287.5	300
L3	181.5	192	202.5	213	223.5	234	244.5	255	265.5	276
L4	14.5	15.5	16.5	17.5	12	13	14	15	16	17

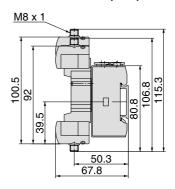
# L plug connector



# M plug connector



# M8 connector (WO)



Note) Refer to page 1-4-210 for dimensions of connector types.

SY

SV

SZ

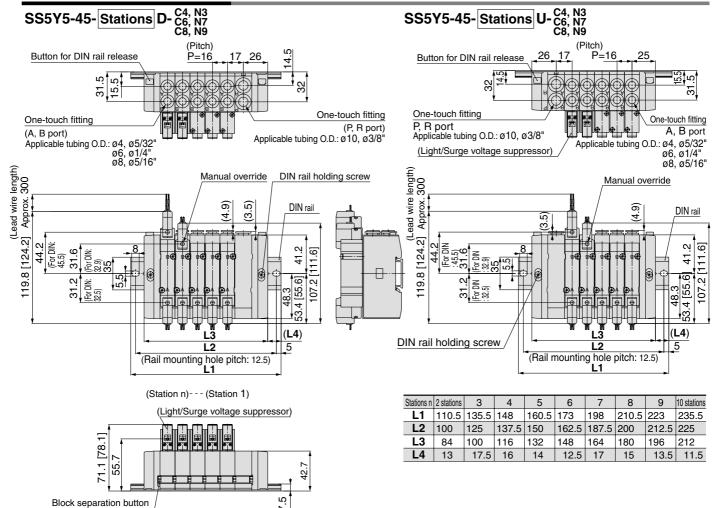
SYJ

SX

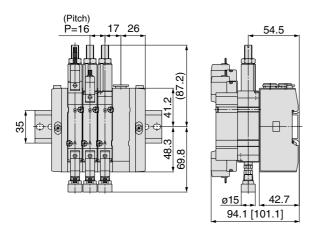
# Base Mounted Type 45

# **Dimensions: Series SY5000**

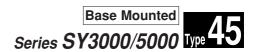




# With interface regulator (with gauge)



(Push type)



# **Dimensions: Series SY5000**



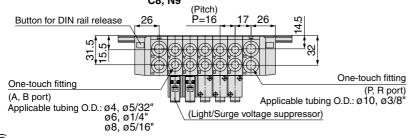
SV

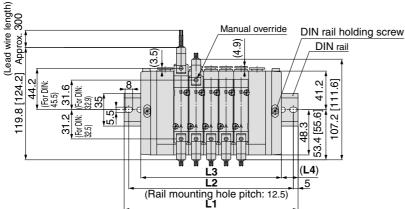
SZ

SYJ

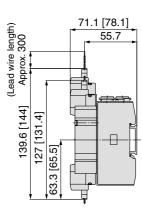
SX





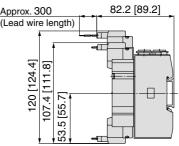


# L plug connector

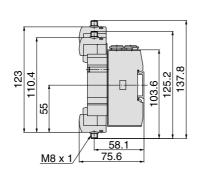


# M plug connector

Stations n	2 stations	3	4	5	6	7	8	9	10 stations	3
L1	135.5	148	160.5	185.5	198	210.5	223	248	260.5	
L2	125	137.5	150	175	187.5	200	212.5	237.5	250	
L3	102	118	134	150	166	182	198	214	230	
L4	16.5	15	13	17.5	16	14	12.5	17	15	
Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	273	285.5	310.5	323	335.5	360.5	373	385.5	398	423
L2	262.5	275	300	312.5	325	350	362.5	375	387.5	412.5
L3	246	262	278	294	310	326	342	358	374	390
L4	13.5	11.5	16	14.5	12.5	17	15.5	13.5	12	16.5

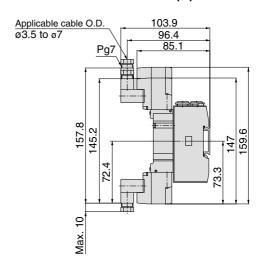


# M8 connector (WO)



Note) Refer to page 1-4-210 for dimensions of connector types.

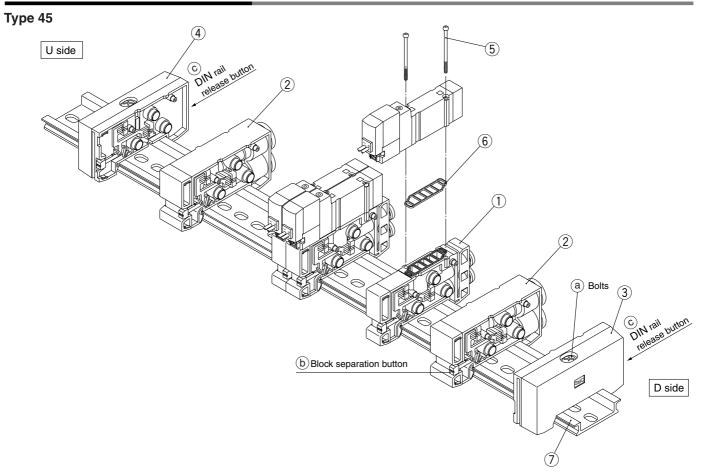
# DIN terminal (D)







# **DIN Rail Manifold Exploded View**



# **Replacement Parts**

NIa	Description	Part	no.	Note
No.	Description	SY3000	SY5000	IVOIE
1	Manifold block assembly	SX3000-50-1A-□□	SX5000-50-1A-□□	□□: SY3000 (Metric size) C4: With One-touch fitting for ø4 (Inch size) N3: With One-touch fitting for ø 5/32"  C6: With One-touch fitting for ø6 N7: With One-touch fitting for ø 1/4"  SY5000 (Metric size) C4: With One-touch fitting for ø4 (Inch size) N3: With One-touch fitting for ø 5/32"  C6: With One-touch fitting for ø6 N7: With One-touch fitting for ø 1/4"  C8: With One-touch fitting for ø8 N9: With One-touch fitting for ø 5/16"  (Gasket 6 is supplied as an accessory.)
2	SUP/EXH block assembly	(Metric size) SX3000-51-1A (Inch size) SX3000-51-15A	(Metric size) SX3000-51-1A (Inch size) SX5000-51-15A	P, R port SY3000 (Metric size) With One-touch fitting for ø8 (Inch size) With One-touch fitting for ø5/16" P, R port SY5000 (Metric size) With One-touch fitting for ø10 (Inch size) With One-touch fitting for ø3∕8"
3	End block assembly R	SX3000-52-1A	SX5000-52-1A	For D side
4	End block assembly R	SX3000-53-1A	SX5000-53-1A	For U side
(5)	Round head combination screw	SY3000-23-4	M3 x 26 (Matt nickel plated)	
6	Gasket	SX3000-57-4	SX5000-57-6	
7	DIN rail	VZ1000	-11-1-□	Refer to page 1-4-123.

# **DIN Rail Manifold Exploded View**

#### How to Increase Manifold Base Station expansion is possible at any position.

- Loosen bolt (a) fixing the manifold base until it begins to turn idly. (While pressing DIN rail releasing buttons (c), at two locations, separate the manifold base from the DIN rail.)
- Press manifold block assembly dividing button (b), that are at the location where manifold bases are to be added, until button (b) locks, and then separate the block assemblies.
- Mount additional manifold block assembly on the DIN rail as shown in the Fig. (1).
- Press the block assemblies until a click sound is produced, and tighten the bolts ⓐ to fix them to the DIN rail.

  ▲Caution (Tightening torque: 1.4 N·m)

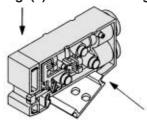
(While lightly holding the blocks after fixing an end block on one side, tighten the other end block for for better sealing.)

#### **⚠** Caution

Note 1) When there are 10 or fewer manifold block assemblies, and more are added to make a total of 11 or more, a supply/exhaust block assembly must also be added.

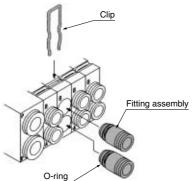
Note 2) When disassembly and assembly are performed, air leakage may result if connections between blocks and tightening of the end block's holding screw, is inadequate. Before supplying air, confirm that there are no gaps, etc. between blocks, and that manifold blocks are securely fastened to the DIN rail. Then supply air and confirm that there is no air leakage before operating.

#### Fig. (1) Block mounting procedure



Hook the DIN rail here and press down in the direction of the arrow until a click sound is heard.

# **How to Change Fitting Assembly**



Type 45 manifold permits change in the A and B port sizes by changing the manifold block fitting assembly.

After removing the valve, remove the clip with a screwdriver, etc. For mounting a new fitting assembly, insert it and then insert a clip until it will not come out of the manifold block.

SV

SZ

SY

SYJ

SX

# Fitting Assembly Part No.

#### Metric size

SY3000	One-touch fitting for ø4	VVQ1000-50A-C4
	One-touch fitting for ø6	VVQ1000-50A-C6
SY5000	One-touch fitting for ø4	VVQ1000-51A-C4
	One-touch fitting for ø6	VVQ1000-51A-C6
	One-touch fitting for ø8	VVQ1000-51A-C8

#### Inch size

	CV2000	One-touch fitting for ø5/32"	VVQ1000-50A-N3
	SY3000	One-touch fitting for ø 1/4"	VVQ1000-50A-N7
		One-touch fitting for ø5/32"	VVQ1000-51A-N3
	SY5000	One-touch fitting for ø 1/4"	VVQ1000-51A-N7
		One-touch fitting for ø5/16"	VVQ1000-51A-N9

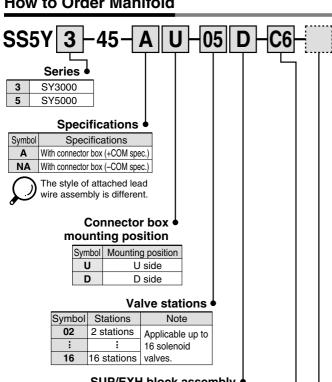
Note 1) P and R ports cannot be changed.

Note 2) Use caution that O-rings must be free from scratches and dust.
Otherwise, air leakage may result.



# Series SY3000/5000 **Base Mounted Manifold Stacking Type/DIN Rail Mounted Connector Box**

#### **How to Order Manifold**



# SUP/EXH block assembly mounting position

Symbol	Mounting position	Applicable stations			
U	U side	2 to 10 stations			
D	D side	2 to 10 stations			
В	Both sides	2 to 16 stations			
M*	Special specifications				

<sup>\*</sup> For special specifications, indicate separately on the manifold specification sheet.

#### A/B port size One-touch fitting (Metric size)

One	One-touch fitting (wethe size)							
Symbol	Port size	Applicable series						
C4	One-touch fitting for ø4							
C6	One-touch fitting for ø6	SY3000						
M	Mixed							
C4	One-touch fitting for ø4							
C6	One-touch fitting for ø6	SY5000						
C8	One-touch fitting for ø8	515000						
M	Mixed							

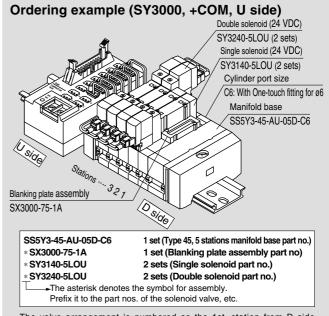
One-touch litting (inch size)						
Symbol	Port size	Applicable series				
N3	One-touch fitting for ø <sup>5</sup> /32"					
N7	One-touch fitting for ø <sup>1</sup> /4"	SY3000				
M	Mixed					
N3	One-touch fitting for ø <sup>5</sup> /32"					
N7	One-touch fitting for ø <sup>1</sup> /4"	CVEOOO				
N9	One-touch fitting for ø 1/4"  One-touch fitting for ø 5/32"	315000				
M	Mixed					

Option

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (Max. 20 stations)

For external pilot specifications and built-in silencer, refer to page 1-4-194.

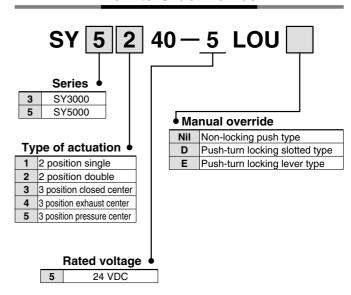
# **How to Order Valve Manifold Assembly**



The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of connector box. In ordering, specify the part nos. in the order from the 1st. station on D side. Besides, when the arrangement will be complicated, fill out the manifold specification sheet to

 $SS5Y_5^3\text{-}45\text{-}A_D^0\text{-} \square \square\text{-}C\square$  is assembled with solenoid valve and lead wire assembly when shipping. When ordering manifold only (without valves/wires/options), refer to how to order on page 1-4-120 and list the connector box (VZ3000-106-1A) and the rail stopper (TXE1-SMC) below the manifold to allow for the connector box mounting at U side. (Be sure to order DIN rail 3 station longer than number of the manifold stations.) In this case, please note that dimensions, L1 and L2 on pages 1-4-136 and 1-4-137 may vary slightly.) For other components, refer to page 1-4-138.

#### **How to Order Valves**



<sup>\*</sup> In the case of mixed specifications, indicate separately on the manifold specification sheet.

# **Manifold Specifications**



Mod	del	SS5Y3-45-A	SS5Y5-45-A		
Applicab	le valve	SY3□40	SY5□40		
Manifold type		Stacking type/D	IN rail mounted		
P (SUP)/R (EXH	)	Common SUP,	Common EXH		
Valve stations		2 to 16 sta	tions Note 1, 2)		
A, B port	Location	Ba	se		
Porting specifications Direction		Side			
	P, R port	C8 (One-touch fitting for ø8)	C10 (One-touch fitting for ø10)		
Port size	A, B port	C4 (One-touch fitting for Ø4) C6 (One-touch fitting for Ø6)	C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)		
Manifold base weight W (g)		2 to 10 stations: W = 26n + 207 2 to 10 stations: W = 52 11 to 20 stations: W = 26n + 229 11 to 16 stations: W = 52			
Applicable flat ribbon cable connector		Flat ribbon cable connector Socket: 20 pins MIL type with strain relief conforming to MIL-C-83503			
Wiring specificati	ions	+COM specifications (Type 45-A), -COM specifications (Type 45-NA)			

Note 1) For more than 11 stations, supply pressure to P port on both sides and exhaust from R port on both sides.

Note 2) There is a limit depending on the number of solenoids. Refer to "How to Order".

## Flow Characteristics

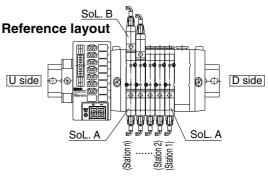
	Port	size	Flow characteristics					
Model	1, 5, 3	4, 2	$1 \rightarrow 4/2 \ (P \rightarrow A/B)$			$4/2 \rightarrow 5/3 \text{ (A/B} \rightarrow \text{EA/EB)}$		
	(P, EA, EB)	(A, B)	C (dm3/(s.bar))	b	Cv	C (dm3/(s-bar))	b	Cv
SS5Y3-45-□	C8	C6	0.88	0.21	0.22	0.95	0.18	0.22
SS5Y5-45-□	C10	C8	2.2	0.24	0.53	2.5	0.18	0.58

Note) The value is for manifold base with 5 stations and individually operated 2 position type.

# Manifold Wiring Diagram (Circuit diagram for the reference layout)

#### +COM electric circuit diagram -COM electric circuit diagram Connector box Connector box (Wiring example) (Wiring example) SOLA Station 1 SOLA Station 1 SOL.A Station 2 SOLA Station 2 SOL.A Station 3 SOLA Station 3 SOL.A Station 4 Station 4 SOL.B Triangle mark Triangle mark SOL.B SOL.A SOL.A Station 5 Station 5 SOL.B SOL.B 24 VDC Power supply terminal 24 VDC Power supply terminal

- Connector box for +COM allows transmission until G71-OD16, manufactured by OMRON Corp., to be connected directly for serial transmission. Additionally, it can also be used for the PC wiring system.
- When an external power source must be supplied to the manifold, correct polarity must be observed, otherwise damage to PLC is possible.
- The wiring of solenoid valves, corresponds with the labeled connector box 0 to 15 from D side.
- If valves other than non-polar type are used, this may cause malfunction.



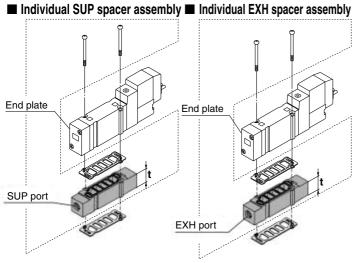


SZ

SYJ

SX

# **Manifold Option**



Series	Assembly part no.	Port size	t
SY3000	SY3000-38-2A	M5 x 0.8	11
SY5000	SY5000-38-16*A	1/8	15



The SUP port may be either on the lead wire side or on the end plate side. (An assembly is shipped under the condition shown in the figure.)

#### Series Assembly part no. SY3000 SY3000-39-2A M5 x 0.8 11 SY5000 SY5000-39-16\*A

The EXH port may be either on the lead wire side or on the end plate side. (An assembly is shipped under the condition shown in the \* Thread type

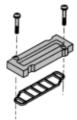
Rc

G

NPT

NPTF

#### ■ Blanking plate assembly



Series	Assembly part no.
SY3000	SX3000-75-1A
SY5000	SX5000-76-1A



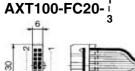
Nil

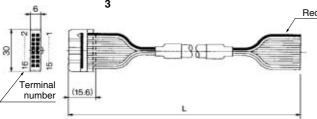
N

Mounting screw tightening torques

M2: 0.16 N·m M3: 0.8 N·m M4: 1.4 N·m

# ■ Cable assembly





# Connector Assembly for Flat Ribbon Cable

Connector Accembly for Flat Hisson Casic				
Cable length (L)	Assembly part no.	Note		
1.5 m	AXT100-FC20-1	Cable 00 save		
3 m	AXT100-FC20-2	Cable 20 core		
5 m	AXT100-FC20-3	7 22 AWG		

For other commercial connectors, use a 20 pins with strain relief conforming to MIL-C-83503.

# Connector manufacturers' example

- Sumitomo 3M Limited
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.

#### ■ SUP block disk

By installing a SUP block disk in the pressure supply passage of a manifold valve, it is possible to supply two or more different high and low pressures to one manifold.



Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

#### **■ EXH block disk**

By installing an EXH block disk in the exhaust passage of a manifold valve, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two block disks are needed to divide both exhausts.)



Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

#### ■ Label for block disk

The labels shown below are used on manifold stations containing SUP/EXH block disk(s) to show their location. (3 pcs. each)

#### VZ3000-123-1A

Label for SUP block disk





Label for EXH block disk

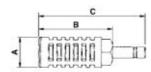




When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.

## ■ Silencer with One-touch fitting

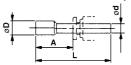
The silencer plugs directly into the One-touch fittings of the manifold.



Series	Model	Effective area	Α	В	C
For SY3000 (Ø8)	AN203-KM8	14 mm <sup>2</sup>	ø16	26	51
Ear CVE000 (~10)	AN200-KM10	26 mm <sup>2</sup>	ø22	53.8	80.8
For SY5000 (Ø10)	AN300-KM10	30 mm <sup>2</sup>	ø25	70	97

#### ■ Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports. Purchasing order is available in units of 10 pieces.



## **Dimensions**

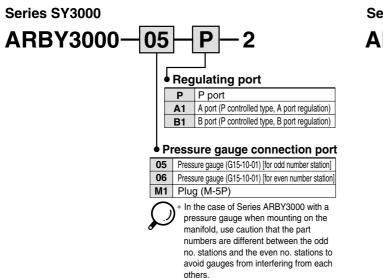
Applicable fittings size ød	Model	Α	L	D
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10
10	KQ2P-10	22	43	12
1/8"	KQ2P-01	16	31.5	5
5/32"	KQ2P-03	16	32	6
1/4"	KQ2P-07	18	35	8.5
5/16"	KQ2P-09	20.5	39	10

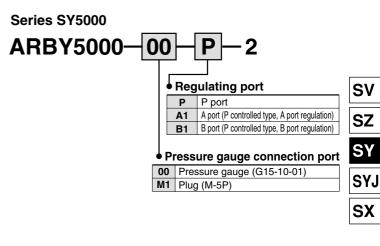


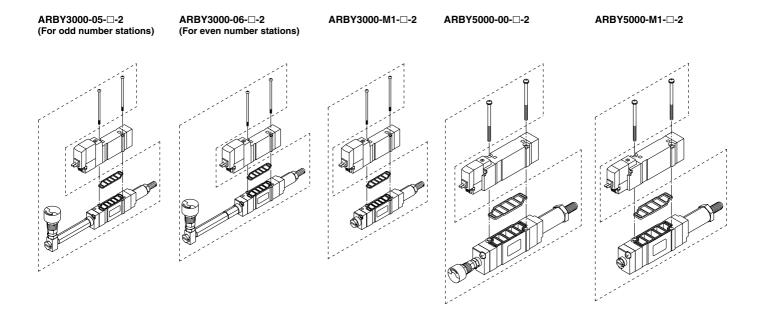
When mounting a valve or spacer on the manifold base or sub-plate, etc., those mounting directions are determined. If mounted in the wrong direction, the equipment to be connected may cause malfunction. Refer to external dimensions, and then mount it.

# **Manifold Option**

## ■ How to Order Interface regulator (SY3000, 5000 only)







## Accessory

Series	Round head combination screw	Gasket
ARBY3000	SY3000-23-10 (M2 x 36)	SX3000-57-4
ARBY5000	M3 x 48.5, Matt nickel plated	SX5000-57-6



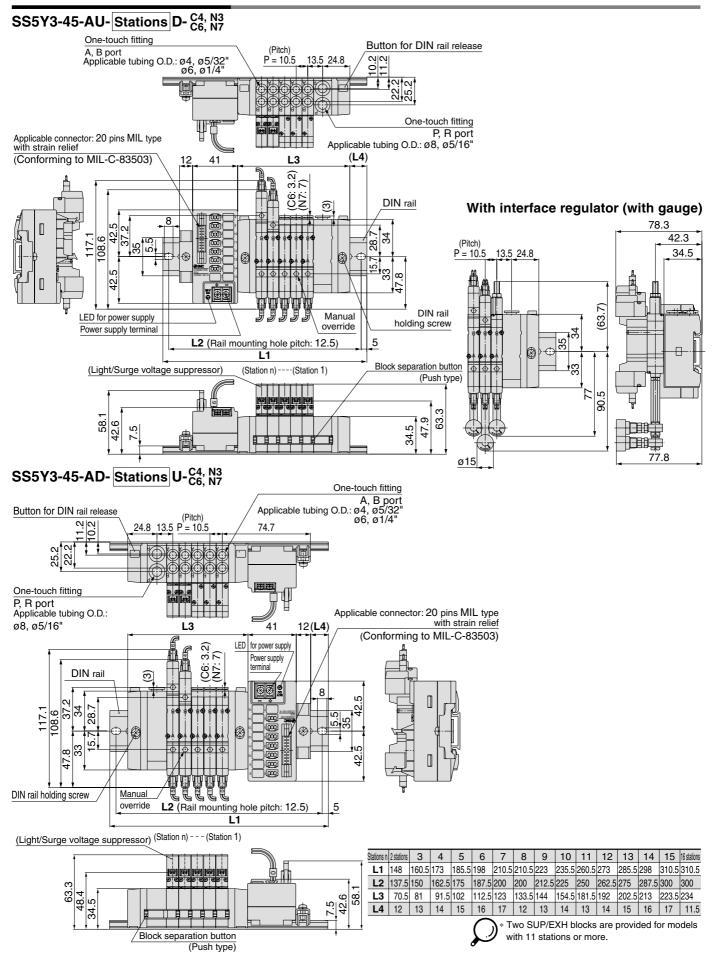
Mounting screw tightening torques

M2: 0.16 N·m M3: 0.8 N·m



# Base Mounted Type 45

# **Dimensions: Series SY3000**



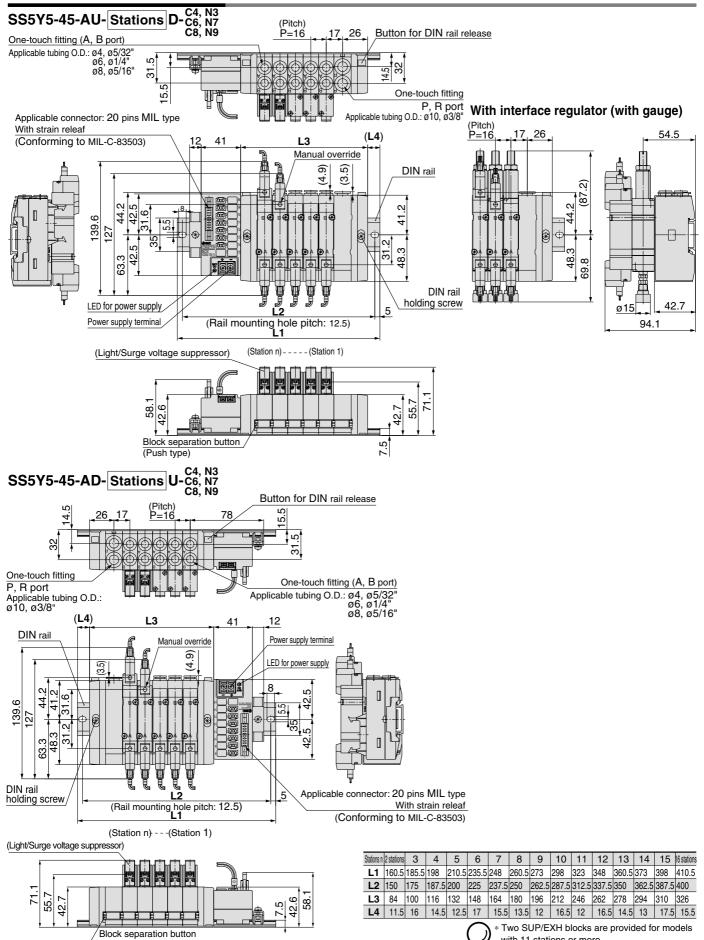
SV

SZ

SYJ

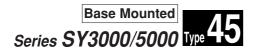
SX

# **Dimensions: Series SY5000**

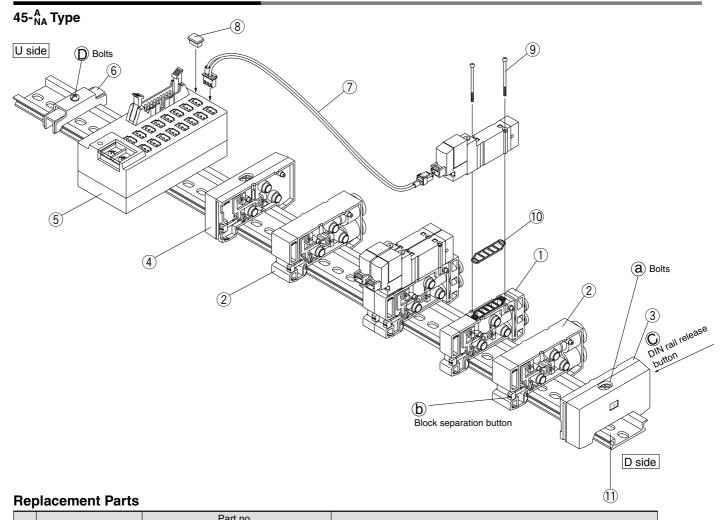


(Push type)

with 11 stations or more.



# **DIN Rail Manifold Exploded View**



No.	Description	Part no.		Note	
INO.	Description	SY3000	SY5000	Note	
1	Manifold block assembly	SX3000-50-1A-□□	SX5000-50-1A-□□	•SY3000 (Metric size)  C4: With One-touch fitting for ø4 C6: With One-touch fitting for ø6 For SY5000 (Metric size)  C4: With One-touch fitting for ø6 For SY5000 (Metric size)  C4: With One-touch fitting for ø4 C6: With One-touch fitting for ø6 C8: With One-touch fitting for ø8 (Gasket 10 is supplied as an accessory.)	
2	SUP/EXH block assembly	(Metric size) SX3000-51-1A (Inch size) SX3000-51-15A	(Metric size) SX3000-51-1A (Inch size) SX5000-51-15A	P, R port SY3000 (Metric size) With One-touch fitting for Ø8 (Inch size) With One-touch fitting for Ø $5/16$ " P, R port SY5000 (Metric size) With One-touch fitting for Ø $10$ (Inch size) With One-touch fitting for Ø $3/8$ "	
3	End block assembly R	SX3000-52-1A	SX5000-52-1A	For D side	
4	End block assembly L	SX3000-53-1A	SX5000-53-1A	For U side	
(5)	Connector box	VZ3000	-106-1A	For 24 VDC only	
6	Rail stopper	TXE1	-SMC	Made by Kasuga Electric Works, Ltd.	
		SY3000-43-1A-□	SY3000-43-2A-□	+COM Type D, 2 to 8 stations Type U, 9 to 16 stations	
(7)	Compositor	SY3000-43-2A-□	SY3000-43-3A-□	+COM Type D, 9 to 16 stations Type U, 2 to 8 stations	
	Connector assembly	SY3000-43-1NA-	SY3000-43-2NA-	-COM Type D, 2 to 8 stations Type U, 9 to 16 stations	
		SY3000-43-2NA-□	SY3000-43-3NA-□	-COM Type D, 9 to 16 stations Type U, 2 to 8 stations	
8	Dust cap	VZ300	0-63-2		
9	Round head combination screw	SY3000-23-4	M3 x 26, Matt nickel plated		
10	Gasket	SX3000-57-4	SX5000-57-6		
11)	DIN rail	VZ1000	-11-1-□	Refer to page 1-4-123.	

#### **How to Increase Manifold Base**

Station expansion is possible at any position.

- Loosen bolt (a) fixing the manifold base until it begins to turn idly. (While pressing DIN rail releasing buttons ©, at two locations, separate the manifold base from the DIN rail.)
- Press manifold block assembly dividing button (b), that are at the location where manifold bases are to be added, until button (b) locks, and then separate the block assemblies.
- Mount additional manifold block assembly on the DIN rail as shown in the Fig. (1).
- Press the block assemblies until a click sound is produced, and tighten the bolts (a) to fix them to the DIN rail.

**△Caution** (Tightening torque: 1.4 N⋅m)

(While lightly holding the blocks after fixing an end block on one side, tighten the other end block for better sealing.)

Untighten the rail stopper bolt (d) to demount the connector box from the DIN rail, and when remounting it, tighten the bolt while pressing it against the rail.

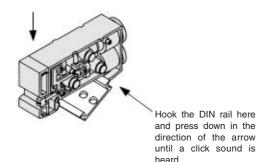
#### **∆**Caution

- Note 1) When there are 10 or fewer manifold block assemblies, and more are added to make a total of 11 or more, a supply/exhaust block assembly must also be added.
- Note 2) When disassembly and assembly are performed, air leakage may result if connections between blocks and tightening of the end block's holding screw, is inadequate. Before supplying air, confirm that there are no gaps, etc. between blocks, and that manifold blocks are securely fastened to the DIN rail. Then supply air and confirm that there is no air leakage before operating.
- Note 3) One connector assembly is necessary for one solenoid.

  When a number is necessary for the connector assembly mark tube, suffix the number to the part no. (0 to 15 are provided as mark tube numbers.)

Ex) +COM spec.: D type for 2 to 8 stations: No. 10 SY3000-43-1A-10

#### Fig. (1) Block mounting procedure



SV

SZ

SY

SYJ

SX

# **How to Change Fitting Assembly**

Type 45 manifold permits change in the A and B port sizes by changing the manifold block fitting assembly.

After removing the valve, remove the clip with a screwdriver, etc. For mounting a new fitting assembly, insert it and then insert a clip until it will not come out of the manifold block.

#### Fitting Assembly Part No.

#### Metric size

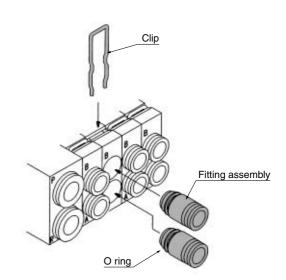
SY3000	One-touch fitting for ø4	VVQ1000-50A-C4
	One-touch fitting for ø6	VVQ1000-50A-C6
SY5000	One-touch fitting for ø4	VVQ1000-51A-C4
	One-touch fitting for ø6	VVQ1000-51A-C6
	One-touch fitting for ø8	VVQ1000-51A-C8

#### Inch size

SY3000	One-touch fitting for ø5/32"	VVQ1000-50A-N3
313000	One-touch fitting for ø 1/4"	VVQ1000-50A-N7
	One-touch fitting for ø5/32"	VVQ1000-51A-N3
SY5000	One-touch fitting for ø 1/4"	VVQ1000-51A-N7
	One-touch fitting for ø5/16"	VVQ1000-51A-N9

Note 1) P and R ports cannot be changed.

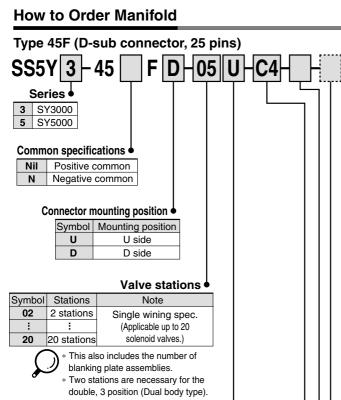
Note 2) Use caution that O-rings must be free from scratches and dust.
Otherwise, air leakage may result.







# Series SY3000/5000 Base Mounted Monifold Stacking Type/DIN Rail Mounted Plug-in



# SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations
U	U side	2 to 10 stations
D	D side	2 to 10 stations
В	(Both sides)	2 to 20 stations
М	Special specifications	

 For special specifications, indicate separately on the manifold specification sheet.

# A, B port size •

one teach numg (means ones)		
Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	
C6	One-touch fitting for ø6	SY3000
М	Mixed	
C4	One-touch fitting for ø4	
C6	One-touch fitting for ø6	SY5000
C8	One-touch fitting for ø8	313000
М	Mixed	

One-touch fitting (Inch size)				
Symbol	Port size	Applicable series		
N3	One-touch fitting for ø5/32"			
N7	One-touch fitting for ø 1/4"	SY3000		
M Mixed				
N3	One-touch fitting for ø 5/32"			
N7	One-touch fitting for ø 1/4"	SY5000		
N9 One-touch fitting for ø 5/16"		315000		
M	Mixed			

\* In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

# Voltage •

#### Option

12 VDC

When a longer DIN rail is desired than the specified stations, specify the station number to be required.

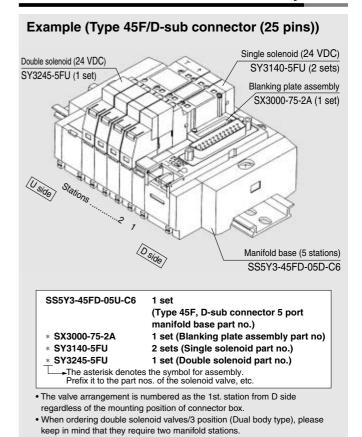
(20 stations at maximum)

12V

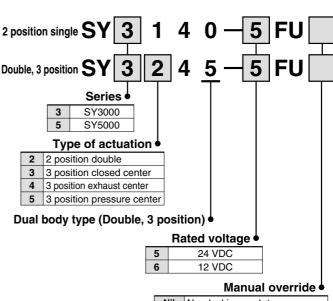


For external pilot and built-in silencer, refer to page 1-4-197.

# **How to Order Valve Manifold Assembly**







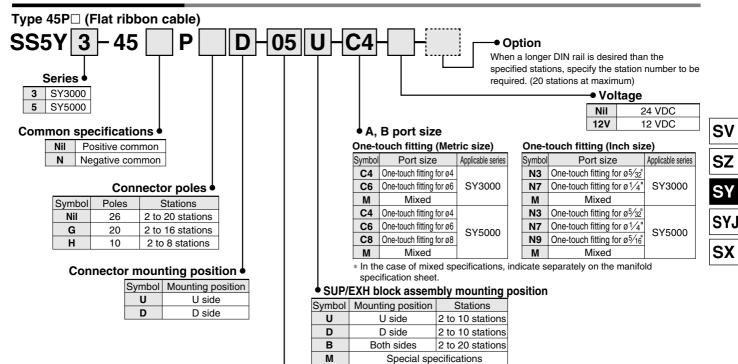
Nil Non-locking push type

D Push-turn locking slotted type

E Push-turn locking lever type



# **How to Order Manifold**



#### 26 pins (P) connector

Symbol	Stations	Note
02	2 stations	Single wiring spec.
:		(Applicable up to 20
20	20 stations	solenoid valves.)

# 20 pins (PG) connector

Symbol	Stations	Note	
02	2 stations	Single wiring spec.	
:	:	(Applicable up to 16	
16	16 stations	solenoid valves.)	

### 10 pins (PH) connector

Symbol	Stations	Note
02	2 stations	Single wiring spec.
:	:	(Applicable up to 8
08	8 stations	solenoid valves)

Two stations are necessary for the double, 3 position (Dual body type).



Valve stations (Blanking plate assemblies are included.)

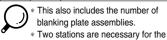
**Series 3** SY3000 **5** SY5000

#### Terminal block mounting position

nook incuming poolition -		
Symbol	Mounting position	
U	U side	
D	D side	

#### Valve stations

Symbol	Stations	Note
02	2 stations	Cinale wiring once
:	- :	Single wiring spec. (Applicable up to 8 solenoid valves)
08	8 stations	(Applicable up to 6 Soletiola valve



#### double, 3 position (Dual body type). SUP/EXH block assembly mounting position •

	· , · , · , · , · , · , · , · , · , · , · , · , · , · , · , ·			
Symbol	Mounting position	Stations		
U	U side	2 to 8 stations		
D	D side	2 to 8 stations		
В	Both sides	2 to 8 stations		
M	Special specifications			

\* For special specifications, indicate separately \* In the case of mixed specifications (M). by the manifold specification sheet.

Symbol	Stations	Note
02	2 stations	Single wiring spec.
	:	(Applicable up to 16
16	16 stations	solenoid valves.)

•		(Applicable up to 16	
16	16 stations	solenoid valves.)	
this 2 position (Dual body type)			

# Option •

When a longer DIN rail is desired than the specified stations, specify the station number to be required.

# A, B port size

#### One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	
C6	One-touch fitting for ø6	SY3000
М	Mixed	
C4	One-touch fitting for ø4	
C6	One-touch fitting for ø6	SY5000
C8	One-touch fitting for ø8	
М	Mixed	

#### One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø 5/32"	
N7	One-touch fitting for ø 1/4"	SY3000
M	Mixed	
N3	One-touch fitting for ø 5/32"	
N7	One-touch fitting for ø1/4"	SY5000
N9	One-touch fitting for ø5/16"	313000
M	Mixed	

indicate separately on the manifold specification sheet.

Note) The terminal block (45T□) manifold has no common polarity. It can be used for both positive and negative common.

Symbol	Stations	Note
02	2 stations	Single wiring spec.
	:	(Applicable up to 8
80	8 stations	solenoid valves)



# Series **3** SY3000 **5** SY5000

\* For special specifications, indicate separately by the manifold specification sheet.

# Terminal block mounting position

	<u> </u>
Symbol	Mounting position
U	U side
D	D side

# Valve stations

Symbol	Stations	Note				
02	2 stations	Cinale mining ones				
:	:	Single wining spec. (Applicable up to 17 solenoid valves.)				
17	17 stations	(Applicable up to 17 soletiola valves.)				

This also includes the number of blanking plate assemblies. Two stations are necessary for the

# SUP/EXH block assembly mounting position •

double, 3 position (Dual body type).

Symbol	Mounting position	Stations	
U	U side	2 to 10 stations	
D	D side	2 to 10 stations	
В	Both sides 2 to 17 stations		
M	Special specifications		
141	Орсска ор	Comoations	

\* For special specifications, indicate separately by the manifold specification sheet.

# Option • When a longer DIN rail is desired than the specified stations, specify the station number to be required.

# A, B port size

# One-touch fitting (Metric size)

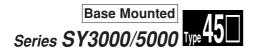
Symbol	Port size	Applicable series	
C4	One-touch fitting for ø4		
C6	One-touch fitting for ø6 SY300		
М	Mixed		
C4	One-touch fitting for ø4		
C6	One-touch fitting for ø6	SY5000	
C8	One-touch fitting for ø8	515000	
NA	Miyed		

#### One-touch fitting (Inch size)

Symbol Port size		Applicable series	
N3	One-touch fitting for ø 5/32"		
N7	One-touch fitting for ø 1/4"	SY3000	
М	Mixed		
N3	One-touch fitting for ø 5/32"		
Ν7	One-touch fitting for ø 1/4"	SY5000	
N9	One-touch fitting for ø 5/16"	315000	
М	Mixed		

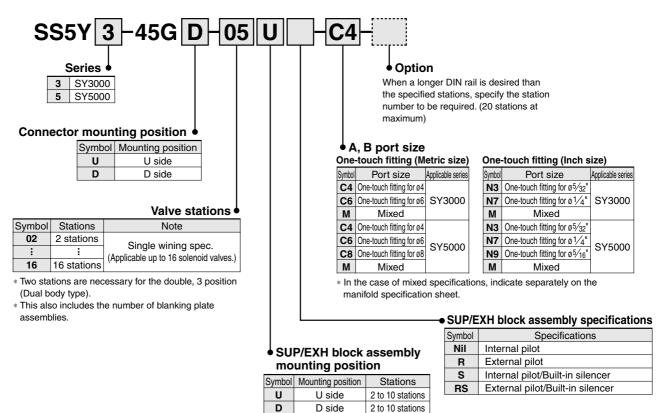
 In the case of mixed specifications (M). indicate separately on the manifold specification sheet





# **How to Order Manifold**

# Type 45G (Flat cable, PC wiring system compatible)



For special specifications, indicate separately on the manifold specification sheet.

Both sides

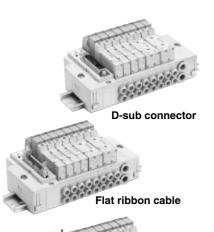
2 to 16 stations

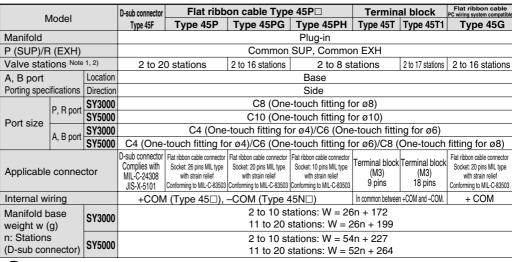
Special specifications

В

M

# **Manifold Specifications**





Note 1) For more than 11 stations, supply pressure to P port on both sides and exhaust from R port on both sides. Note 2) There is a limit depending on the number of solenoids. Refer to "How to Order".

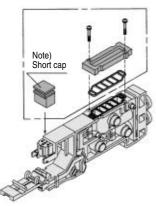
# Flow Characteristics

	Port	size	Flow chara		acteristics			
Model	1, 5, 3	4, 2	$1 \rightarrow 4/2 \ (P \rightarrow A/B)$		$4/2 \rightarrow 5/3 \text{ (A/B} \rightarrow \text{EA/EB)}$			
	(P, EA, EB)	(A, B)	C (dm3/(s·bar))	b	Cv	C (dm3/(s·bar))	b	Cv
SS5Y3-45□	C8	C6	0.88	0.21	0.22	0.95	0.18	0.22
SS5Y5-45□	C10	C8	2.2	0.24	0.53	2.5	0.18	0.58

# **Manifold Option**

# Blanking plate assembly

**Terminal block** 



Series	Assembly part no.			
SY3000	SX3000-75-2A			
SY5000	SX5000-76-2A			
Note) • When mounting				

blanking plate, be sure to mount a short cap.

 Two stations are necessary for the double, 3 position (Dual body type).

#### ■SUP block disk

By installing a SUP block disk in the pressure supply passage of a manifold valve, it is possible to supply two or more different high and low pressures to one manifold.



Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

# ■ EXH block disk

By installing an EXH block disk in the exhaust passage of a manifold valve, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two block disks are needed to divide both exhausts.)



Series	Part no.			
SY3000	SX3000-77-1A			
SY5000	SX5000-77-1A			



Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

# **∕!**\ Caution

Mounting screw tightening torques

M2: 0.17 N·m M3: 0.8 N·m M4: 1.4 N·m

#### Label for block disk

The labels shown below are used on manifold stations containing SUP/EXH block disk(s) to show their location. (3 pcs. each)

**VZ3000-123-1A** (In common with SY3000/5000)

Label for SUP block disk Label for EXH block disk Label for SUP/EXH block disk



Note) The value is for manifold base with 5 stations and individually operated 2 position type.





SV

SZ

SYJ

SX

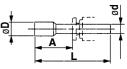
Note) When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.



Series	Model	Effective area	Α	В	С
For SY3000 (Ø8)	AN203-KM8	14 mm²	ø16	26	51
For SY5000 (ø10)	AN200-KM10	26 mm <sup>2</sup>	ø22	53.8	80.8
FOI 313000 (Ø 10)	AN300-KM10	30 mm <sup>2</sup>	ø25	70	97

#### ■ Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports. Purchasing order is available in units of 10 pieces.

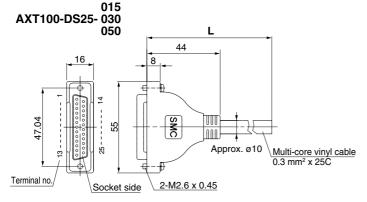


#### **Dimensions**

Applicable fittings size ød	Model	Α	L	D
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10
10	KQ2P-10	22	43	12
1/8"	KQ2P-01	16	31.5	5
5/32"	KQ2P-03	16	32	6
1/4"	KQ2P-07	18	35	8.5
5/16"	KQ2P-09	20.5	39	10

# **Manifold Option**

# ■ D-sub connector (25 pins)/Cable assembly



#### **D-sub Connector Cable**

Cable length ( <b>L</b> )	Assembly part no.	Note
1.5 m	AXT100-DS25-015	Cable 25 core
3 m		x 24 AWG
5 m	AXT100-DS25-050	X 24 AVVG



When a commercially available connector is required, use a 25 pin female connector conforming to MIL-C24308.

#### **Electric Characteristics**

Item	Characteristics
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 min, AC	1000
Insulation resistance MΩkm, 20°C	5 or more

Note) The min. bending radius of D-sub cable assembly is 20 mm.

# D-sub Connector Cable Assembly Terminal No.

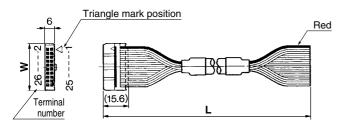
Terminal no.	Lead wire color	Dot marking		
1	Black	None		
2	Brown	None		
3	Red	None		
4	Orange	None		
5	Yellow	None		
6	Pink	None		
7	Blue	None		
8	Purple	White		
9	Gray	Black		
10	White	Black		
11	White	Red		
12	Yellow	Red		
13	Orange	Red		
14	Yellow	Black		
15	Pink	Black		
16	Blue	White		
17	Purple	None		
18	Gray	None		
19	Orange	Black		
20	Red	White		
21	Brown	White		
22	Pink	Red		
23	Gray	Red		
24	Black	White		
25	White	None		
25	vville	None		

#### Connector manufacturers' example

- Hirose Electric Co., Ltd.
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.

# ■ Flat Ribbon Cable Connector/Cable assembly





#### Flat Ribbon Cable Assembly

Cable length (L)	10 pins	20 pins	26 pins
1.5 m	AXT100-FC10-1	AXT100-FC20-1	AXT100-FC26-1
3 m	AXT100-FC10-2	AXT100-FC20-2	AXT100-FC26-2
5 m	AXT100-FC10-3	AXT100-FC20-3	AXT100-FC26-3
Connector width (W)	17.2	30	37.5



\* For other commercial connectors, use a type with strain relief that conform to MIL-C-83503.

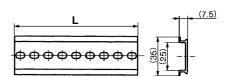
## Connector manufacturers' example

- Hirose Electric Co., Ltd.
- Sumitomo 3M Limited
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.

#### ■ Dimensions/DIN rail

VZ1000 − 11 − 1 − ☐ • Refer to L dimensions

 $\ast$  Fill in  $\square$  with an appropriate no. listed on the table of DIN rail dimensions shown below.



No.	0	1	2	3	4	5	6	7	8	9	10
L Dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223
No.	11	12	13	14	15	16	17	18	19	20	21
L Dimension	235.5	248	260.5	273	285.5	298	310.5	323	335.5	348	360.5
No.	22	23	24	25	26	27	28	29	30	31	32
L Dimension	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498
No.	33	34	35	36	37	38	39	40	41	42	43
L Dimension	510.5	523	535.5	548	560.5	573	585.5	598	610.5	623	635.5
No.	44	45	46	47	48	49	50	51	52	53	54
L Dimension	648	660.5	673	685.5	698	710.5	723	735.5	748	760.5	773
No.	55	56	57	58	59	60	61	62	63	64	65
L Dimension	785.5	798	810.5	823	835.5	848	860.5	873	885.5	898	910.5
No.	66	67	68	69	70	71					
L Dimension	923	935.5	948	960.5	973	985.5					



Refer to L1 dimension on pages starting with page 1-4-150 for lengths that correspond to the number of manifold stations.

SZ

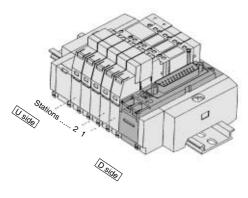
SYJ

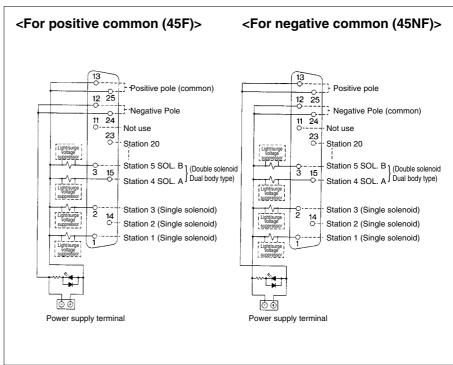
SX

# **Manifold Internal Wiring**

#### Type 45(N)F: D-sub Connector

A D-sub connector used for electric wiring reduces labor during wiring operation. Connectors conforming to MIL are used for interchangeability.

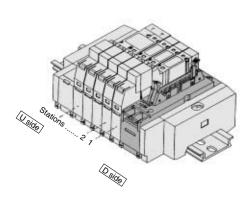


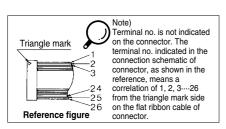


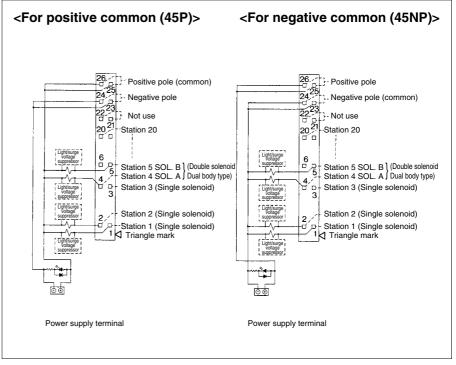
- The power source terminal is used for connecting to an external power source.
- The maximum number of stations that can be accommodated is 20 manifold stations, with up to 22 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.

## Type 45(N)P: Flat Ribbon Cable (26 pins)

A flat cable connector used for electric wiring reduces labor during wiring operation. Connectors conforming to MIL are used for interchangeability.







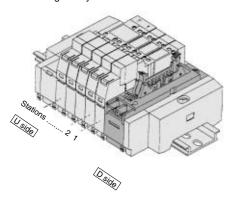
- The power source terminal is used for connecting to an external power source.
- The maximum number of stations that can be accommodated is 20 manifold stations, with up to 20 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.

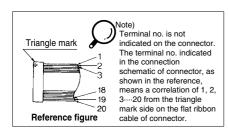
#### **Manifold Internal Wiring**

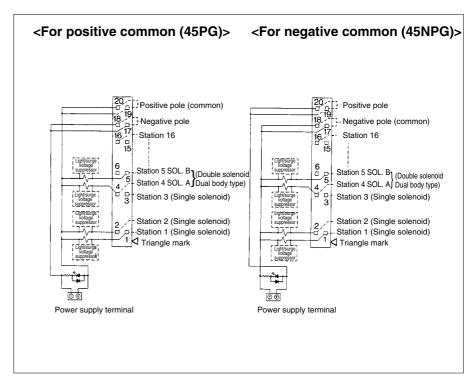
#### Type 45(N)PG: Flat Ribbon Cable (20 pins)

A flat cable connector used for electric wiring reduces labor during wiring operation.

Connectors conforming to MIL are used for interchangeability.



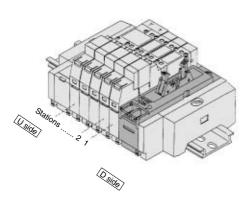


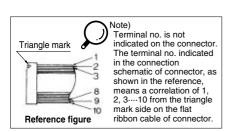


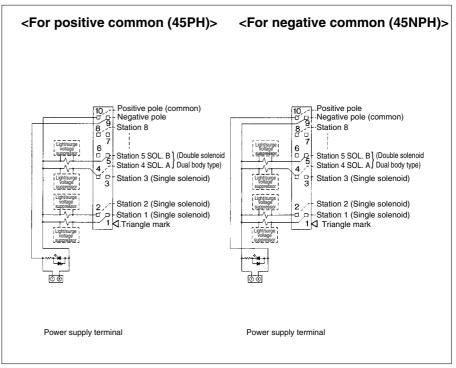
- The power source terminal is used for connecting to an external power source.
- The maximum number of stations that can be accommodated is 16 manifold stations, with up to 16 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.

#### Type 45(N)PH: Flat Ribbon Cable (10 pins)

A flat cable connector used for electric wiring reduces labor during wiring operation. Connectors conforming to MIL are used for interchangeability.







- The power source terminal is used for connecting to an external power source.
- The maximum number of stations that can be accommodated is 8 manifold stations, with up to 8 solenoids.
   (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.

SZ

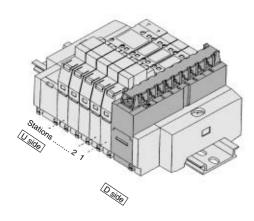
SYJ

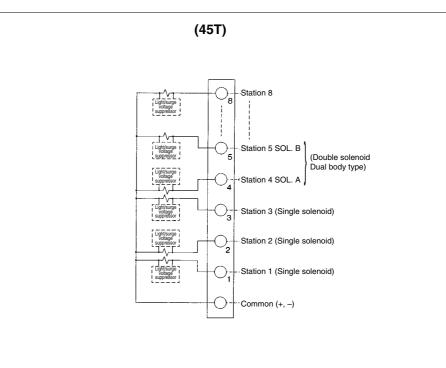
SX

## **Manifold Internal Wiring**

# Type 45T: Terminal Block

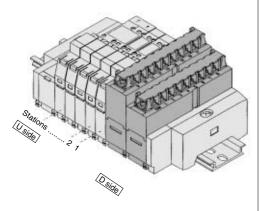
A terminal block style permits direct cable connection without treatment of lead wires.

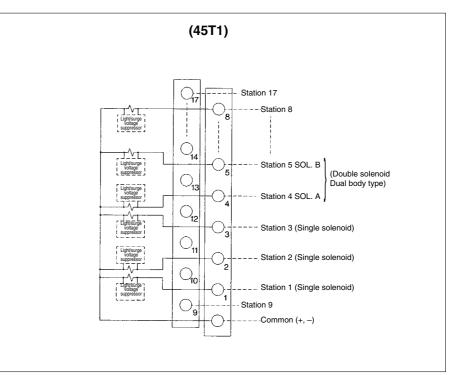




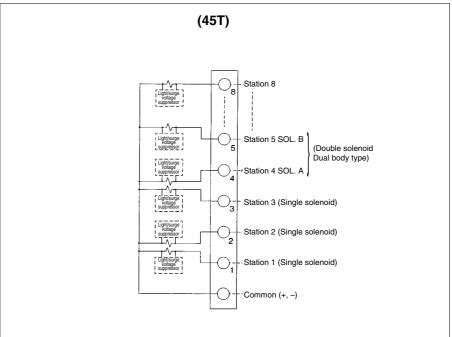
- The maximum number of stations that can be accommodated is 8 manifold stations, with up to 8 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.
- There is no polarity in the COM wiring. Supply positive power for +COM spec. and negative power for -COM spec.

#### Type 45T1: Terminal Block





- The maximum number of stations that can be accommodated is 17 manifold stations, with up to 17 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.
- There is no polarity in the COM wiring. Supply positive power for +COM spec. and negative power for -COM spec.

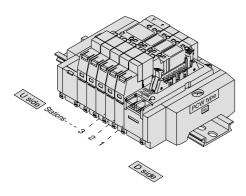


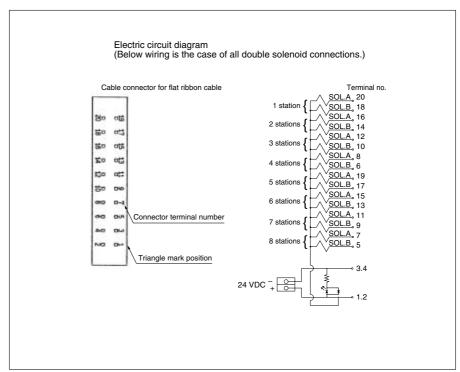


# **Manifold Internal Wiring**

# Type 45G: Flat Ribbon Cable (PC Wiring System compatible)

It's the manifold for 20 pins flat ribbon cable connector which is compliant for PC wiring system.





- The maximum number of stations that can be accommodated is 16 manifold stations, with up to 16 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.

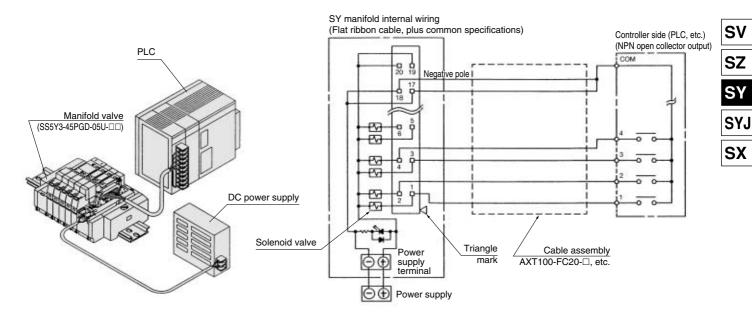
For details about the PC wiring system, refer to catalog CAT.ES02-20 separately.



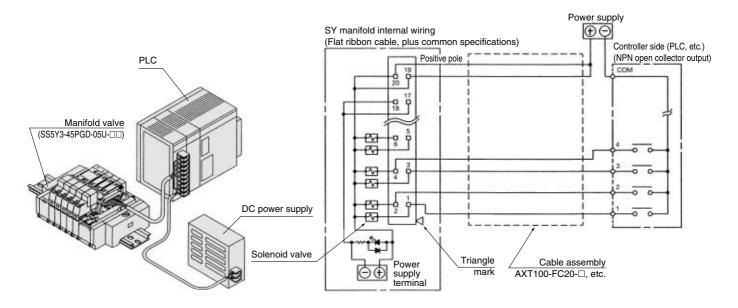
# How to Connect SS5Y□-45□ (Plug-in)

Power terminal is equipped with plug-in manifold of Series SY as standard. Power terminal enables the power supply to valve from either of manifold or controller side.

#### 1. Wiring example when using manifold power supply terminals



2. Wiring example when not using manifold power supply terminals (Power is supplied to the controller side or along the wiring, etc.)

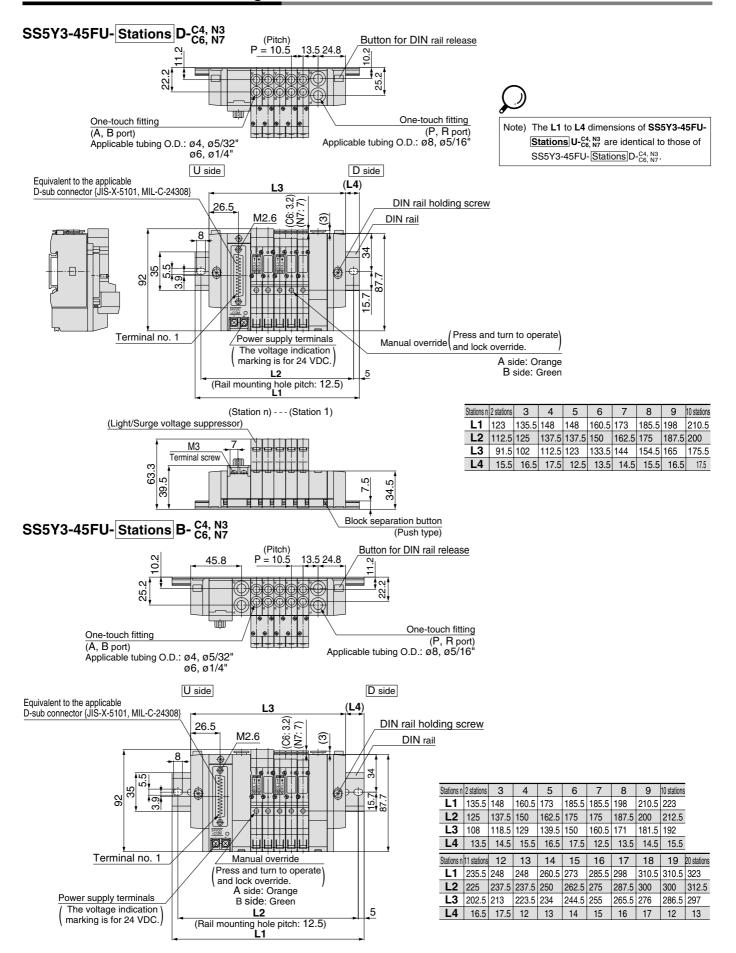


# **⚠** Caution

Single wire, COM position, etc. of PLC are different from each manufacturer. When
connecting with PLC, read the specifications carefully and understand the electrical
circuit. Poor wiring could cause damage to PLC, power source, etc. as well as manifold
and valve.



# SY3000: D-sub Connector/Plug-in



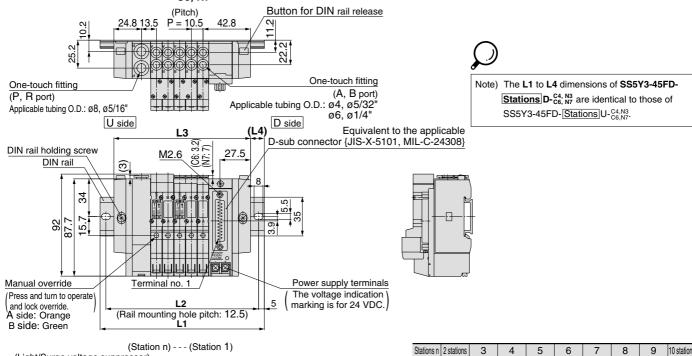
SZ

SYJ

SX

# SY3000: D-sub Connector/Plug-in





**L1** 123

112.5 125

91.5 102

L2

135.5 148

148

137.5 137.5

112.5 123

16.5 17.5 12.5

160.5 173

162.5 175

150

13.5

185.5 198

133.5 144 154.5 165 175.5

14.5 15.5

210.5

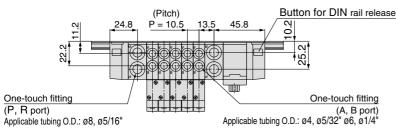
187.5 200

# SS5Y3-45FD-Stations B-C4, N3 C6, N7

(Light/Surge voltage suppressor

83

34



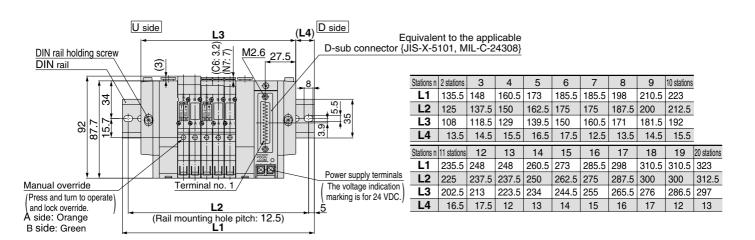
МЗ

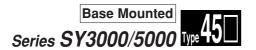
Terminal screw

39

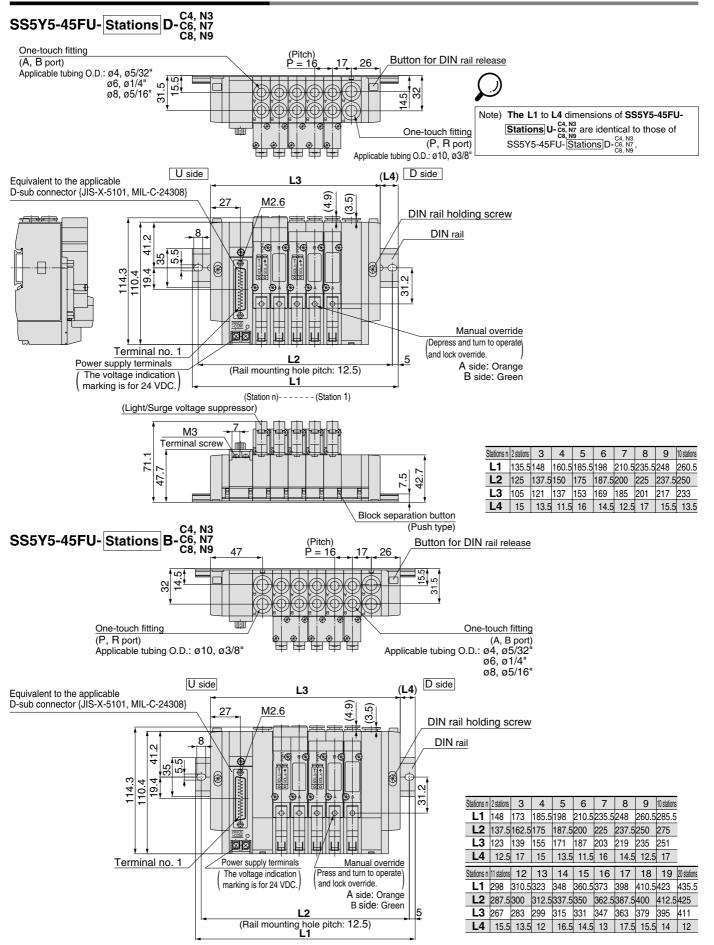
Block separation button

(Push type)





# SY5000: D-sub Connector/Plug-in



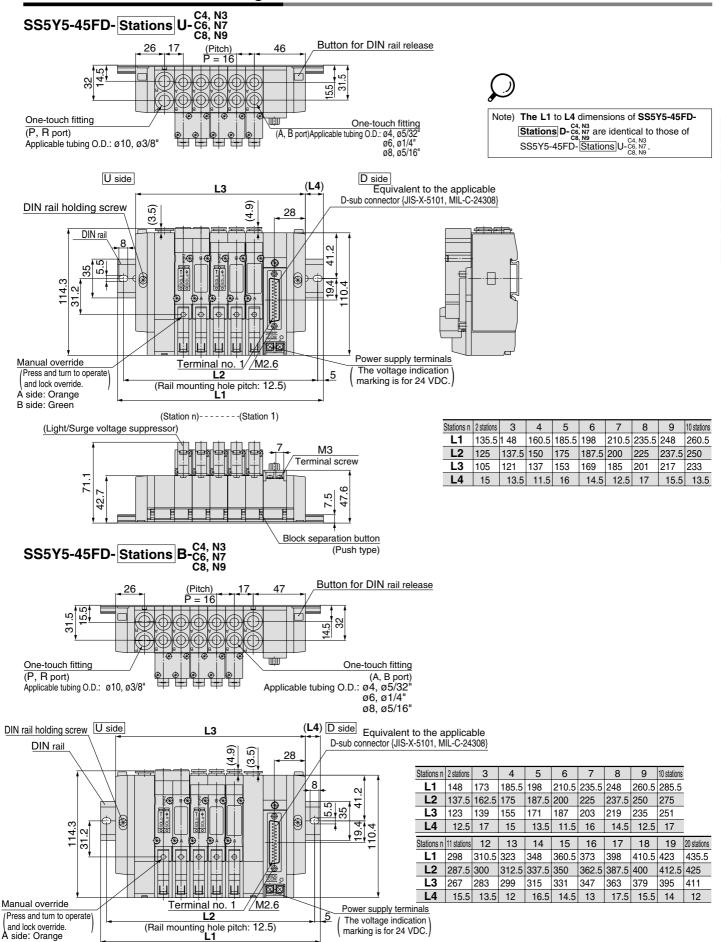
SZ

SYJ

SX

# SY5000: D-sub Connector/Plug-in

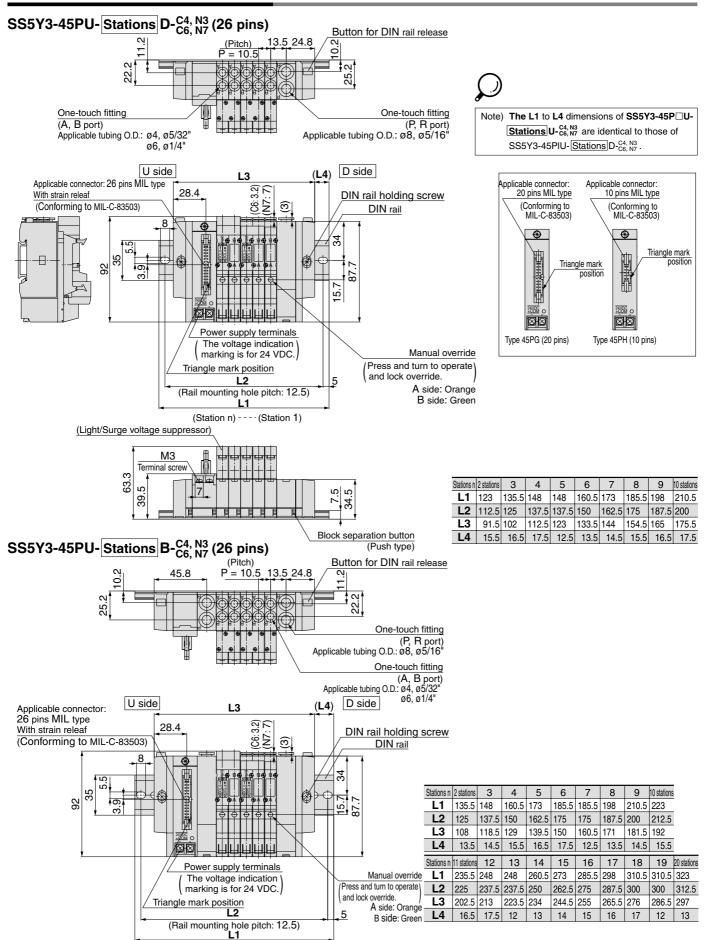
B side: Green



marking is for 24 VDC.

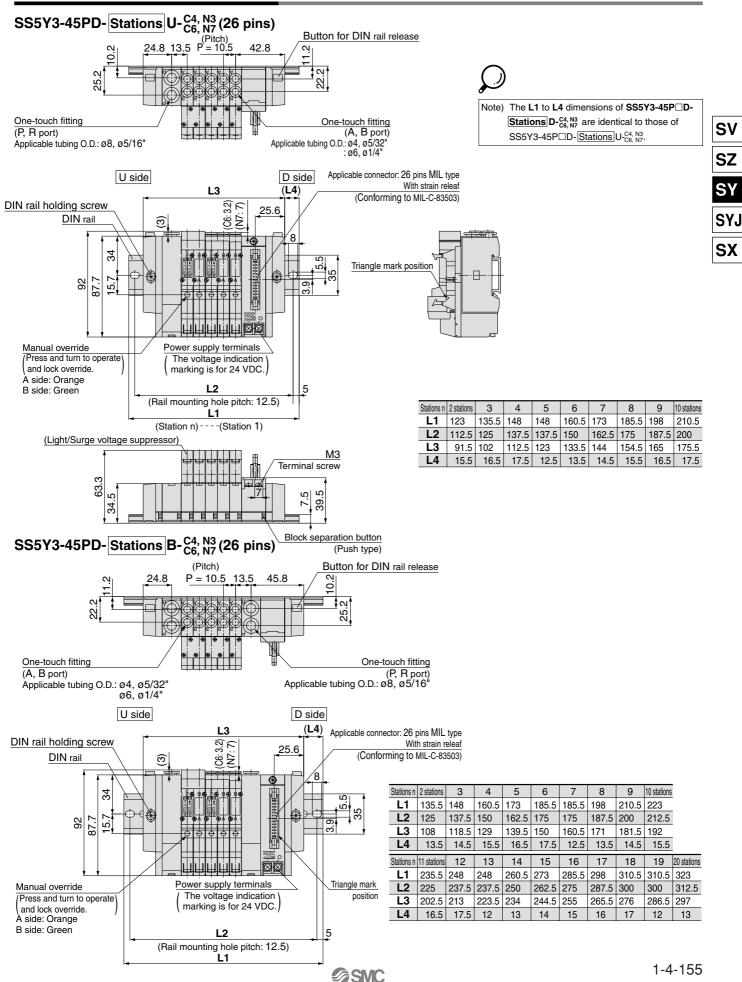


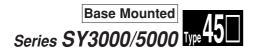
# SY3000: Flat Ribbon Cable/Plug-in



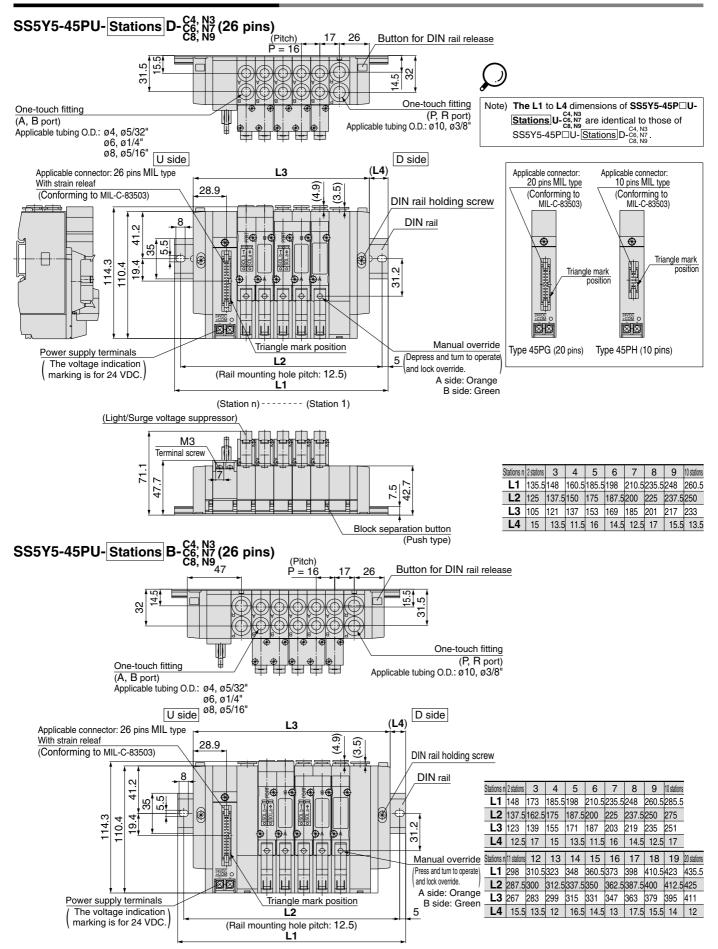


# SY3000: Flat Ribbon Cable/Plug-in





# SY5000: Flat Ribbon Cable/Plug-in





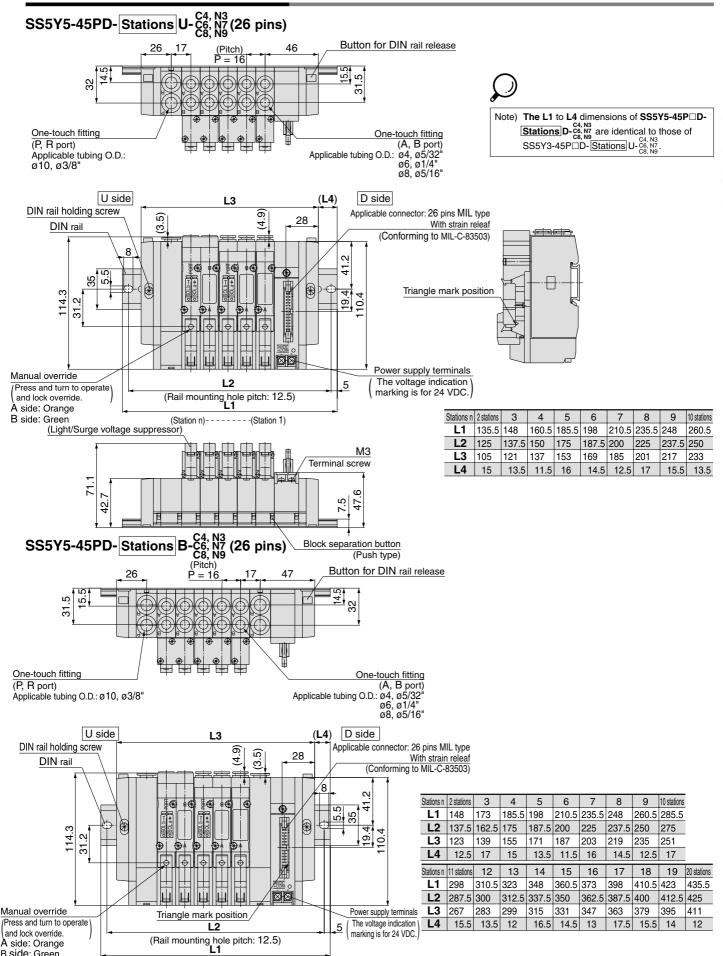
SZ

SYJ

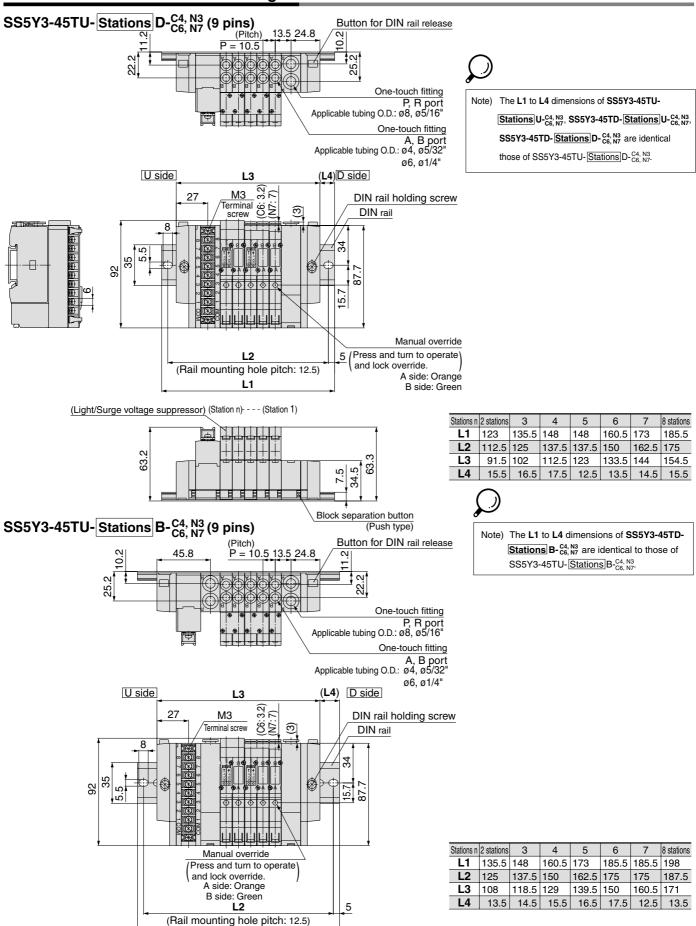
SX

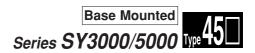
# SY5000: Flat Ribbon Cable/Plug-in

B side: Green

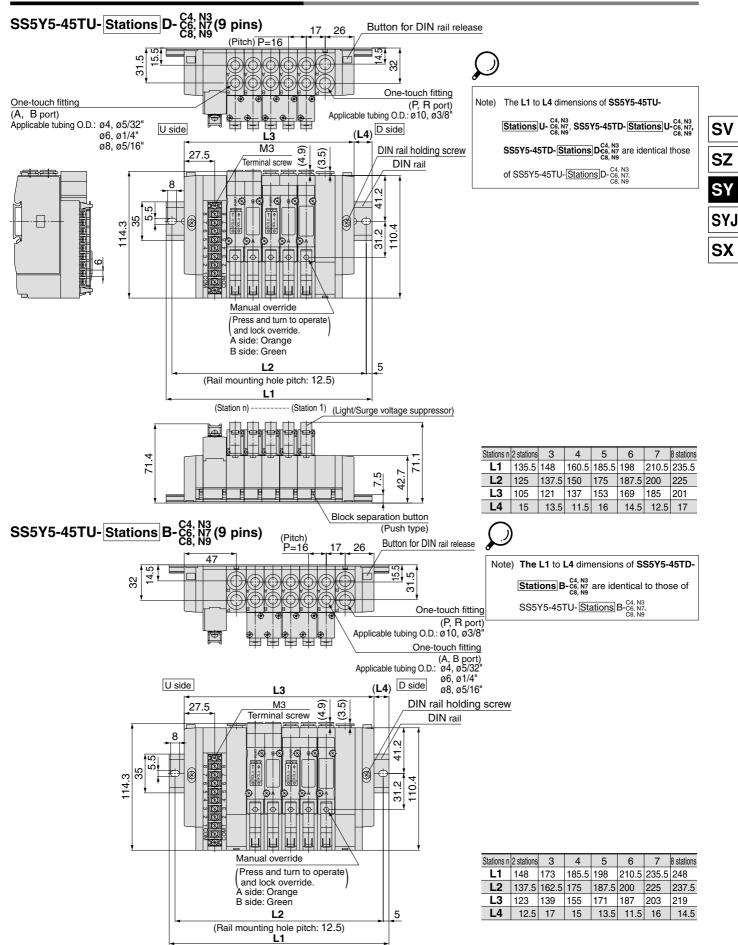


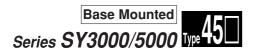
# SY3000: 9 Pins Terminal Block/Plug-in



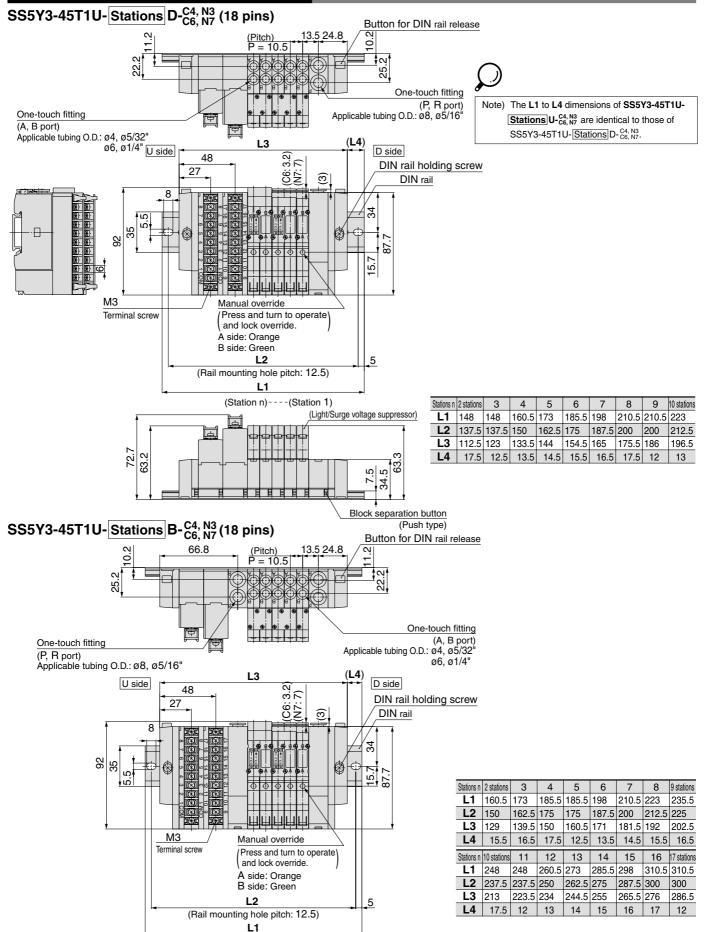


# SY5000: 9 Pins Terminal Block/Plug-in





# SY3000: 18 Pins Terminal Block/Plug-in



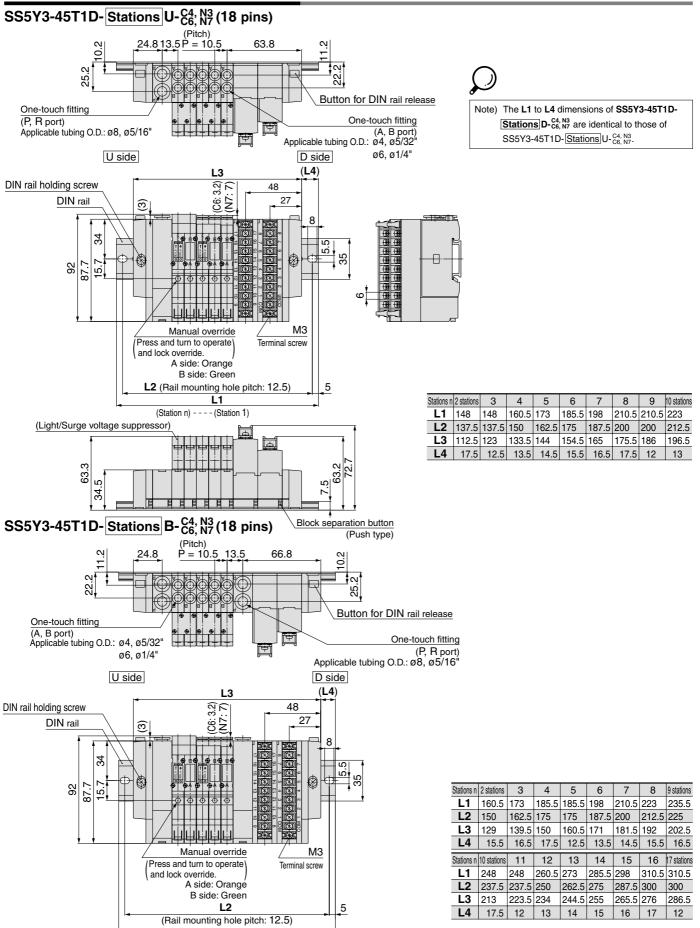


SZ

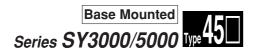
SYJ

SX

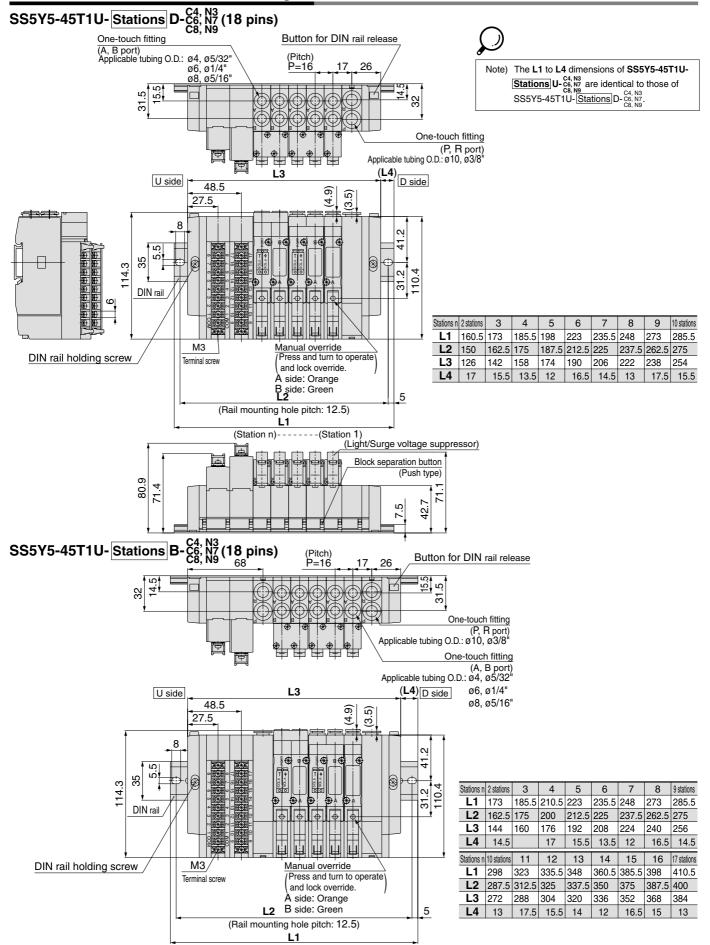
# SY3000: 9 Pins Terminal Block/Plug-in



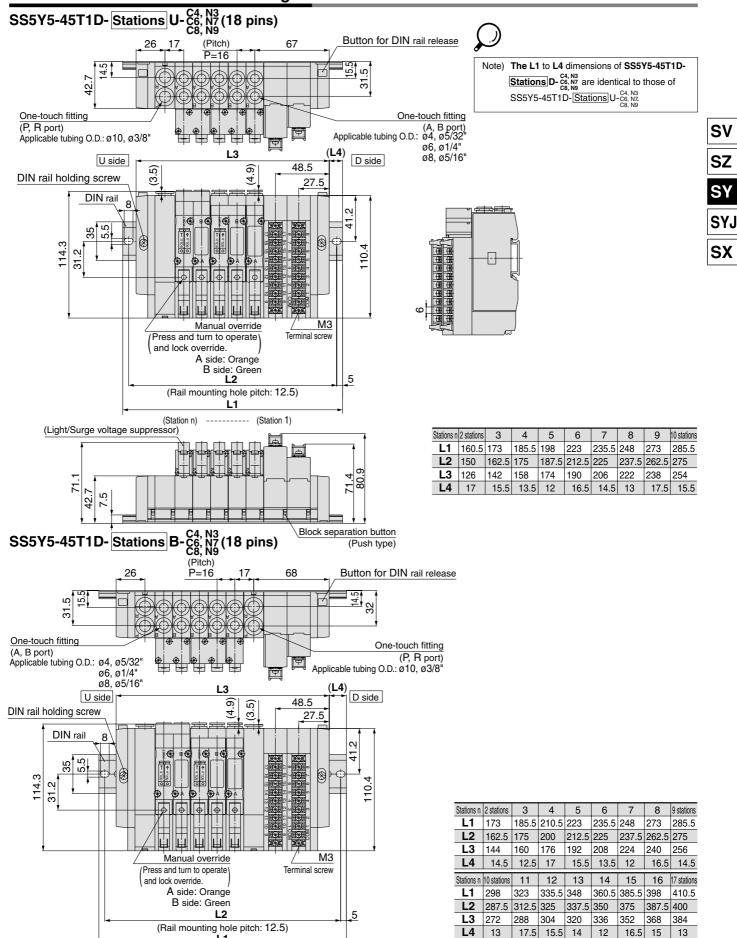
L1

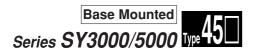


# SY5000: 18 Pins Terminal Block/Plug-in

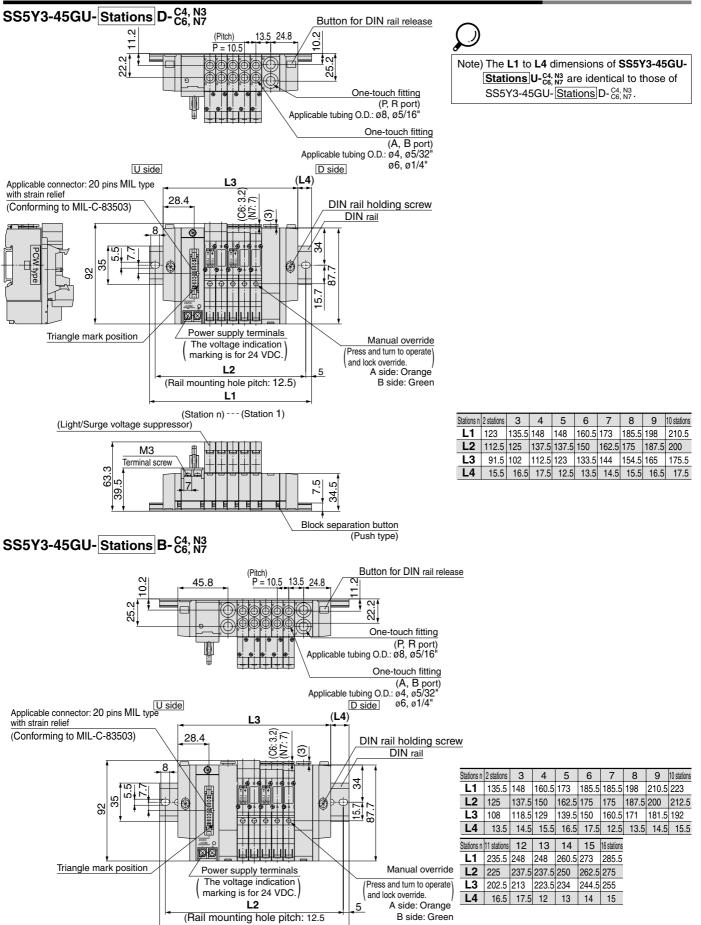




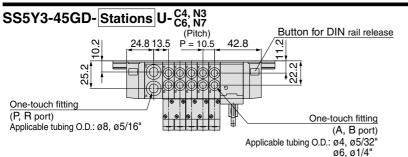




# SY3000: PC Wiring System Compatible (Flat ribbon cable/Plug-in)



# SY3000: PC Wiring System Compatible (Flat ribbon cable/Plug-in)



Note) The **L1** to **L4** dimensions of **SS5Y3-45GD-**Stations D-C<sub>6</sub>, N<sub>7</sub> are identical to those of SS5Y3-45GD-Stations U-C<sub>6</sub>, N<sub>7</sub>.

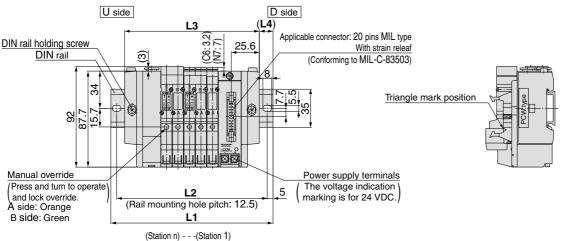
SV

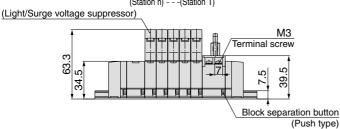
SZ

SY

SYJ

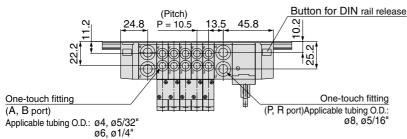
SX

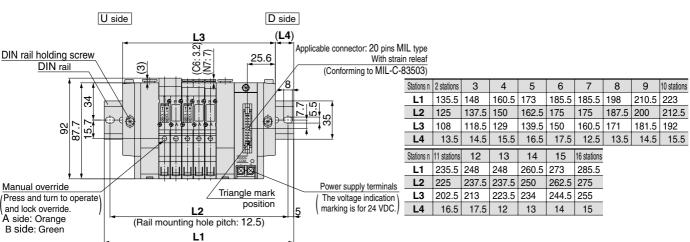


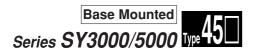


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	123	135.5	148	148	160.5	173	185.5	198	210.5
L2	112.5	125	137.5	137.5	150	162.5	175	187.5	200
L3	91.5	102	112.5	123	133.5	144	154.5	165	175.5
L4	15.5	16.5	17.5	12.5	13.5	14.5	15.5	16.5	17.5

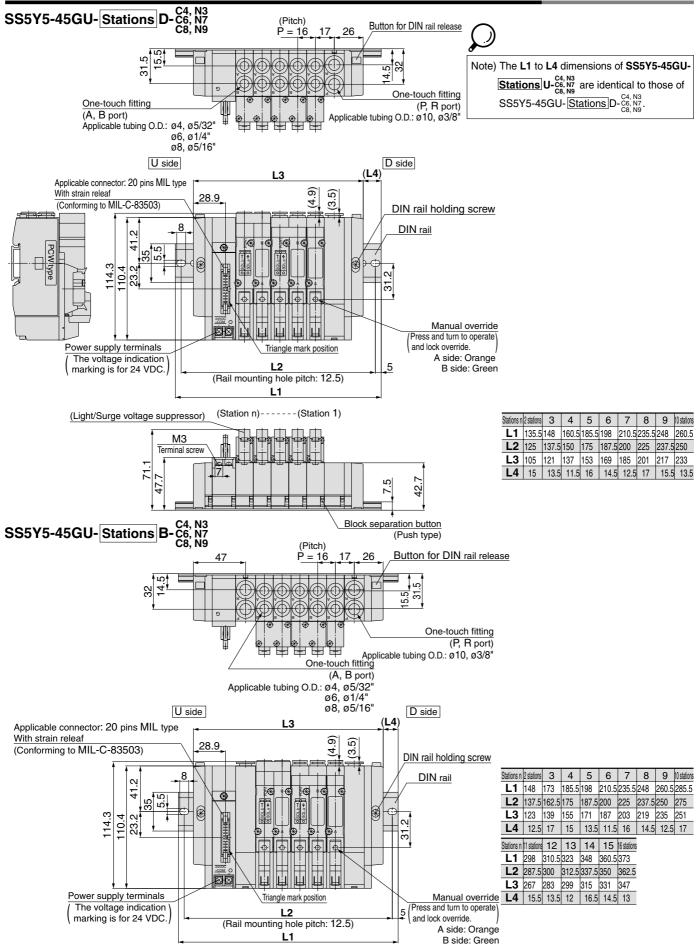
# SS5Y3-45GD-Stations B-C4, N3







# SY5000: PC Wiring System Compatible (Flat ribbon cable/Plug-in)

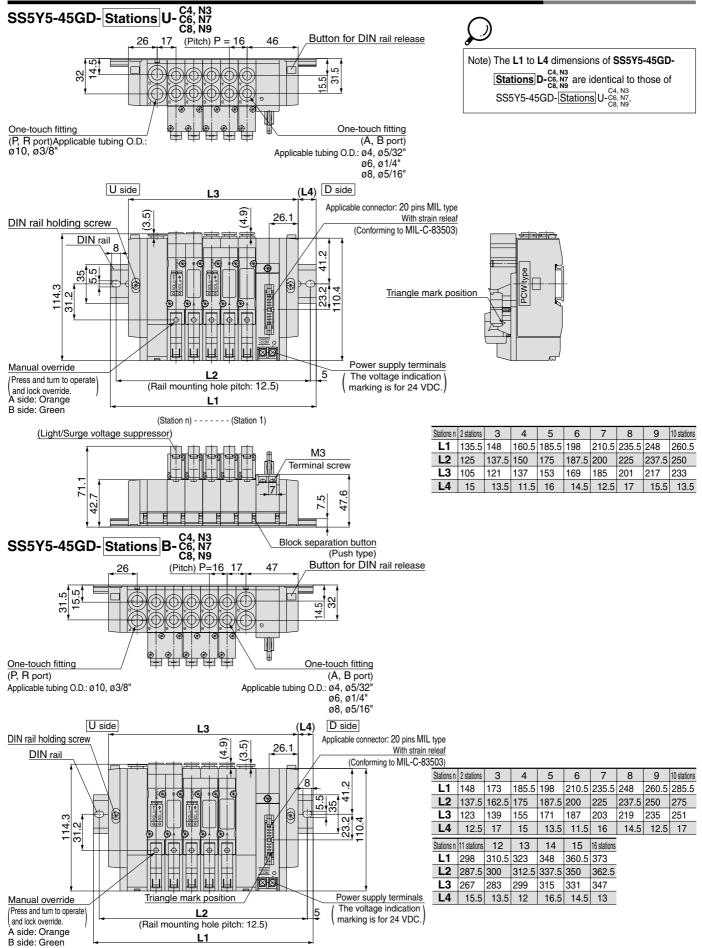


SZ

SYJ

SX

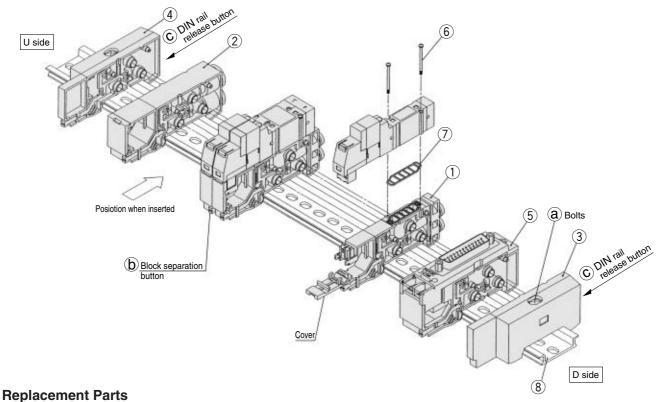
# SY5000: PC Wiring System Compatible (Flat ribbon cable/Plug-in)





# **DIN Rail Manifold Exploded View**

# Type 45F (D-sub Connector) Manifold



	<b>5</b>	Part	no.	N.			
No.	Description	SY3000	SY5000	Not	ie		
1	Manifold block assembly				ccording to an attached lead wire assembly based on the connector spec. Select an ifold block assembly part number shown below. (Gasket 7 is supplied as an accessory.		
2	SUP/EXH block assembly	(Metric size) SX3000-51-2A (Inch size) SX3000-51-16A	(Metric size) SX3000-51-2A (Inch size) SX5000-51-16A	Metric size SY3000: P, R port with One-touch fitting for SY5000: P			
3	End block assembly	SX3000-52-2A	SX5000-52-2A	For D	side		
4	End block assembly	SX3000-53-2A	SX5000-53-2A	For U side			
<b>⑤-1</b>	Connector block assembly (for D-sub connector)	SX3000-64-1A	SX5000-64-1A	-1A: +COM -1NA: -COM			
⑤-2	Connector block assembly (for 26 pins flat cable)	SX3000-64- <sup>2A</sup> <sub>2NA</sub> -26	SX5000-64- <sup>2A</sup> <sub>2NA</sub> -26		Note)		
⑤-3	Connector block assembly (for 20 pins flat cable)	SX3000-64- <sup>2A</sup> <sub>2NA</sub> -20	SX5000-64- <sup>2A</sup> <sub>2NA</sub> -20	-2A: +COM -2NA: -COM	For 24 VDC		
⑤-4	Connector block assembly (for 10 pins flat cable)	SX3000-64- <sup>2A</sup> <sub>2NA</sub> -10	SX5000-64- <sup>2A</sup> <sub>2NA</sub> -10				
⑤-5	Connector block assembly (for 2 to 8 stations (T, T1) terminal block)	SX3000-64-3A	SX5000-64-3A				
⑤-6	Connector block assembly (for 9 to 17 stations (T1) terminal block)	SX3000-64-8A	SX5000-64-8A	In common between +COM and -COM.			
6	Round head combination screw	SY3000-23-4	M3 x 26, Matt nickel plated				
7	Gasket	SX3000-57-4	SX5000-57-6				
8	DIN rail	VZ1000-11-1-I			e 1-4-123.		

Note 1) The numbers 5-1 to 4 are for 24 VDC. For 12 VDC, suffix "-12V" to the end of parts number. (Example) SX3000-64-1A-12 V Note 2) Two manifold block assemblies are necessary for the double, 3 position (Dual body type).

Style of manifold	Manifold block assembly part no.	Note
For 45(N)F (D-sub connector)	SX₅ <sup>3</sup> 000-50-3A-□□	□□: AB port SY3000 (metric size) C4: With One-touch fitting for ø4 C6: With One-touch fitting for ø6
For 45(N) PG (Flat ribbon cable)	OV <sup>3</sup> 000 50 54 55	(inch size) N3: With One-touch fittign for $\sigma$ 5/32" N7: With One-touch fitting for $\sigma$ $1/4$ "
For 45G PC Wiring System compatible	SX <sub>5</sub> <sup>3</sup> 000-50-5A-□□	A, B port SY5000 (metric size) C4: With One-touch fitting for ø4 C6: With One-touch fitting for ø6 C8: With One-touch fitting for ø8
For $45^{T}_{11}$ (Terminal block)	SX <sub>5</sub> <sup>3</sup> 000-50-7A-□□	(inch size) N3: WIth One-touch fitting for $\sigma$ $5^{\circ}/3^{\circ}$ N7: With One-touch fitting for $\sigma$ $1^{\circ}/16^{\circ}$ N9: With One-touch fitting for $\sigma$ $1^{\circ}/16^{\circ}$



#### How to Increase Manifold Base

Loosen bolt (a) fixing the manifold base until it begins to turn idly. (While pressing DIN rail releasing buttons ©, at two locations, separate the manifold base from the DIN rail.)

Additional bases are to be added to the U side. Press splitting button (b) of the manifold block assembly on the U side until button (b) locks, and then separate the block assemblies.

Separate the connector block assembly in the same manner as 2, and remove the connector mounting screw shown in Fig. (1).

4 Loosen the valve mounting screw on the U side, remove the valve, and take out the receptacle housing. (Refer to Fig. (2).)

Insert the common wire (red) of the manifold block assembly to be added into the pin insertion section (N mark) of the receptacle housing that was taken out in 4, mount it on the manifold block, and mount the removed valve.

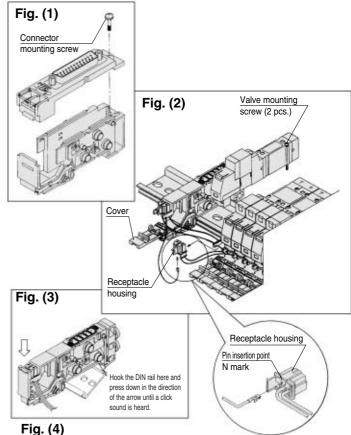
As shown in Fig. (3), mount the additional manifold block assembly on the DIN rail on the U side. Refer to the circuit diagram, and insert the lead wire (black) as shown in Fig. (4).

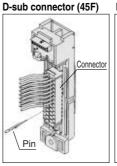
Press the blocks against each other until a click sound is produced, place the lead wire in the manifold block, and close the lid without pinching the lead wire.

8 While lightly holding the blocks together so that there are no gaps between them, secure them to the DIN rail by tightening 

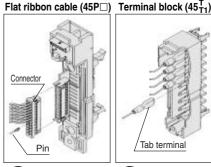
#### 

- 1. Depending on the connector, there is a limit to the number of solenoids that can be used. Manifold bases that can be added cannot exceed the number of usable solenoids.
- 2. The manifold block assembly mounting position for additional manifold bases is always on the U side, because wires are connected to respective connectors sequentially from the D side.
- 3. When bolt a for the end block is not sufficiently tightened during reassembly, air leakage may result. Before supplying air, check that there is no gap between blocks and that the manifold block is firmly fixed to the DIN rail in order to ensure air supply without leakage

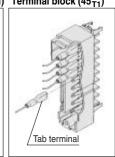








Insert pins after removing the connectorfrom the main unit. After inserting pins, lightly pull lead wires to check that the pins are locked.



SV

SZ

SYJ

SX

Note) Insert tab terminals completely.

#### Fitting Assembly

Type 45 manifold permits change in the A and B port sizes by changing the manifold block fitting assembly.

After removing the valve, remove the clip with a screwdriver, etc. For mounting a new fitting assembly, insert it and then insert a clip until it will not come out of the manifold block.

#### Fitting Assembly Part No.

#### Metric size

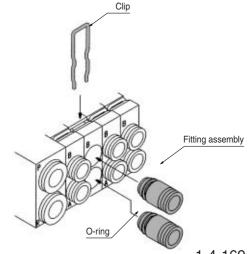
SY3000	One-touch fitting for ø4	VVQ1000-50A-C4
513000	One-touch fitting for ø6	VVQ1000-50A-C6
	One-touch fitting for ø4	VVQ1000-51A-C4
SY5000	One-touch fitting for ø6	VVQ1000-51A-C6
	One-touch fitting for ø8	VVQ1000-51A-C8

#### Inch size

evanno	One-touch fitting for ø5/32"	VVQ1000-50A-N3
513000	One-touch fitting for ø <sup>5</sup> / <sub>32</sub> " One-touch fitting for ø <sup>1</sup> / <sub>4</sub> "	VVQ1000-50A-N7
	One-touch fitting for ø5/32"	VVQ1000-51A-N3
SY5000	One-touch fitting for ø 1/4"	VVQ1000-51A-N7
	One-touch fitting for ø5/16"	VVQ1000-51A-N9

Note 1) P and R ports cannot be changed.

Note 2) Use caution that O-rings must be free from scratches and dust. Otherwise, air leakage may result.

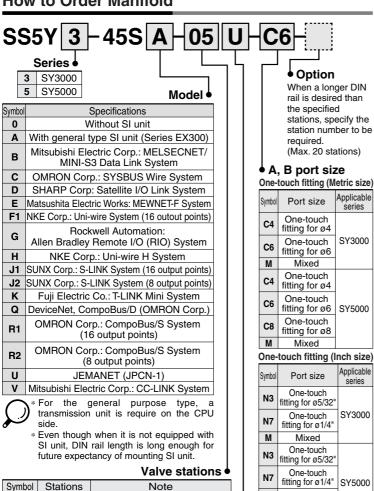






# Series **SY3000/5000 Base Mounted Monifold Stacking Type/DIN Rail Mounted Serial Transmission (Integrated)**

#### **How to Order Manifold**



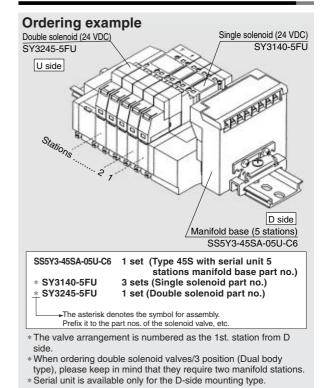
#### \* In the case of mixed specifications, indicate separately on the manifold specification

One-touch

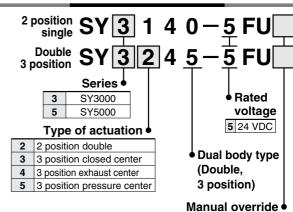
fitting for ø5/16'

Mixed

## **How to Order Valve Manifold Assembly**



#### **How to Order Valves**



N	lil	Non-locking push type
ı	D	Push-turn locking slotted type
	E	Push-turn locking lever type

#### SUP/EXH block assembly mounting position

This also includes the number of blanking

Two stations are necessary for the double, 3

Single wining spec.

(Applicable up to 16 solenoid valves.)

Symbol	Mounting position	Stations				
U	U side	2 to 10 stations				
D	D side	2 to 10 stations				
В	(Both sides)	2 to 16 stations				
М	Special specifications					

<sup>\*</sup> For special specifications, indicate separately on the manifold specification sheet.

2 stations

16 stations

plate assemblies.

position (Dual body type).

16

SI U	ill Part No.				
Symbol	Specifications	For SS5Y□-45S	Symbol	Specifications:	For SS5Y□-45S
Α	With general type SI unit (Series EX300)	EX322-S001	J1	SUNX Corp.: S-LINK System (16 output points)	EX122-SSL1
В	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System	EX122-SMB1	J2	SUNX Corp.: S-LINK System (8 output points)	EX122-SSL2
С	OMRON Corp.: SYSBUS Wire System	EX122-STA1	K	Fuji Electric Co.: T-LINK Mini System	EX122-SFU1
D	SHARP Corp.: Satellite I/O Link System	EX122-SSH1	Q	Device Net: CompoBus/D (OMRON Corp.)	EX122-SDN1
E	Matsushita Electric Works: MEWNET-F System	EX122-SPA1	R1	OMRON Corp.: CompoBus/S (16 output points)	EX122-SCS1
F1	NKE Corp.: Uni-wire System (16 output points)	EX122-SUW1	R2	OMRON Corp.: CompoBus/S (8 output points)	EX122-SCS2
G	Rockwell Automation: Allen Bradley Remote I/O (RIO) System	EX122-SAB1	U	JEMANET (JPCN-1)	EX122-SJN1
Н	NKE Corp.: Uni-wire H System	EX122-SUH1	V	Mitsubishi Electric Corp.: CC-LINK System	EX122-SMJ1

Type SB

SV

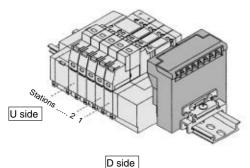
SZ

SYJ

SX

- The serial transmission system reduces wiring work, while minimizing wiring and saving space.
- 16 stations max. (Specify a model with more than 8 stations by using a manifold specification sheet.)

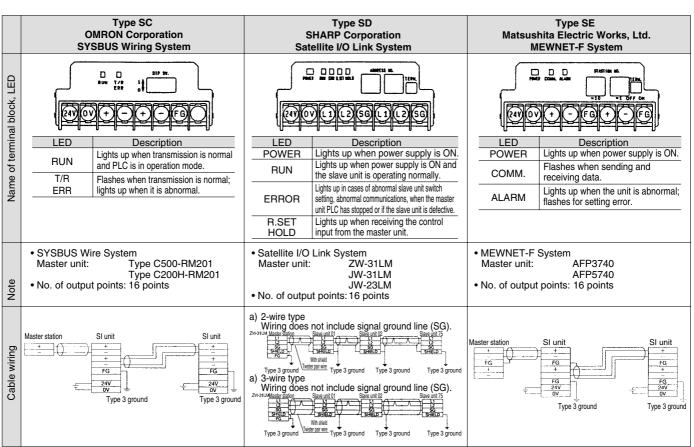
Type SA



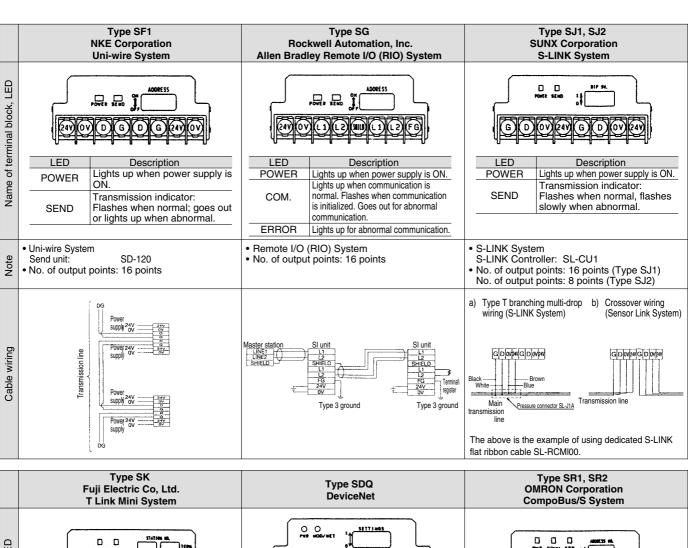
- The total number of stations is tabulated starting from station one on the D side.
- Maximum station: Up to 16 solenoids (16 single solenoids).

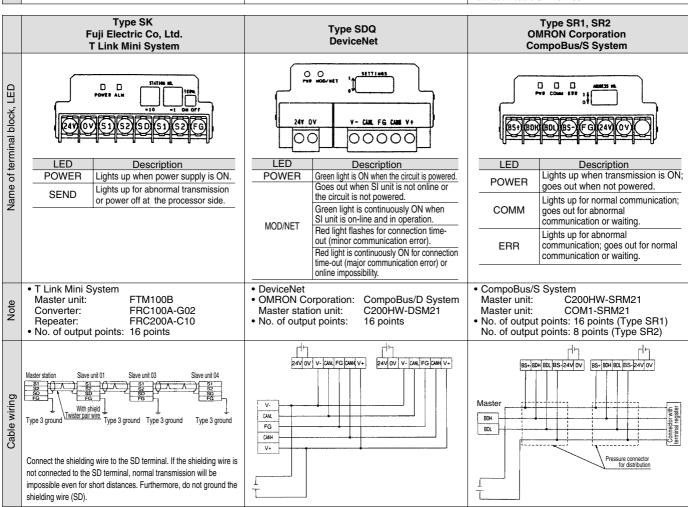
		Applicable to Series EX300	Mitsubishi Electric Corporation MELSECNET/MINI-S3 Data Link System		
	Name of terminal block, LED	ADDRESS NO.  [24) (0V) (S1) (S2) (S6) (R1) (R2) (F6)	PROE IN SO DO DE STATION NO.  -10 -1  (24) (OV SDA) (SDB) (SG (CDA) (CDB) (FG)		
	ter	LED Description TRD Lights up when receiving data.	POWER Lights up when power supply is ON.		
	ıme of	TRD Lights up when receiving data.  Flashes when received data is normal; lights up when abnormal.	RUN Lights up when the data transmission with the master station is normal.		
	ž		RD Lights up when receiving data.		
			SD Lights up when sending data.  Lights up when data reception error occurs;		
			goes off when the error is corrected.		
	Note	Connection to T unit PLC manufacturer's I/O card enables serial transmission.     EX300-TMB1 For models of Mitsubishi Electric Corporation EX300-TTA1 For models of OMRON Corporation EX300-TFU1 For models of Fuji Electric Co., Ltd. EX300-T001 For general models     Up to 32 points per unit.     No. of output points: 16 points	MELSECNET/MINI-S3 Data Link System Master unit:		
			SI manifold solenoid valve		
	Cable wiring	T unit OB unit SI unit SI unit SS unit	Master unit Remote I/O unit Remote I/O unit		
		* Ground either the reception side or the	* Ground either the reception side or the		
L		transmission side of the shielding wire shield.	transmission side of the shielding wire shield.		

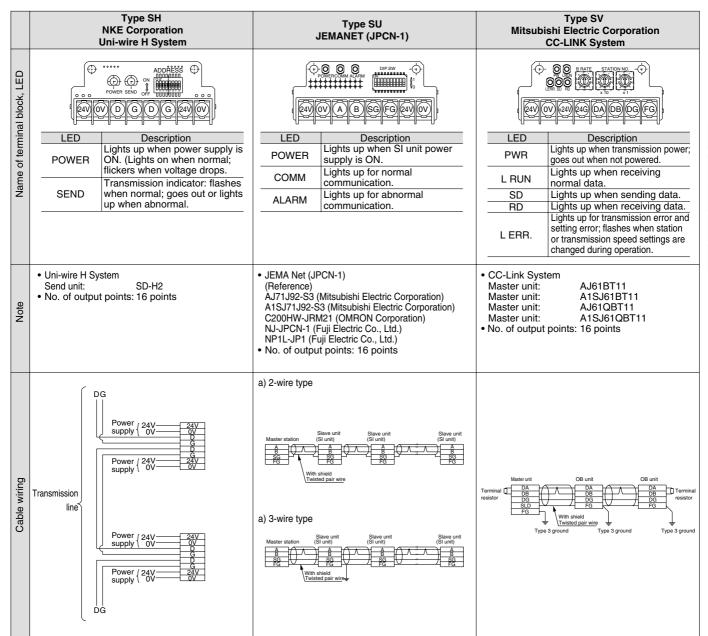
Item	Specifications		
External power supply	24 VDC +10%/-5%		
Current consumption	0.1A	SA, SB, SD, SE, SF1, SG, SJ1, SJ2, SK, SR1, SR2, SH, SU, SV	
(Internal unit)	0.3A	SC, SQ	



# Base Mounted Series \$Y3000/5000





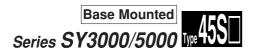


SZ

SY

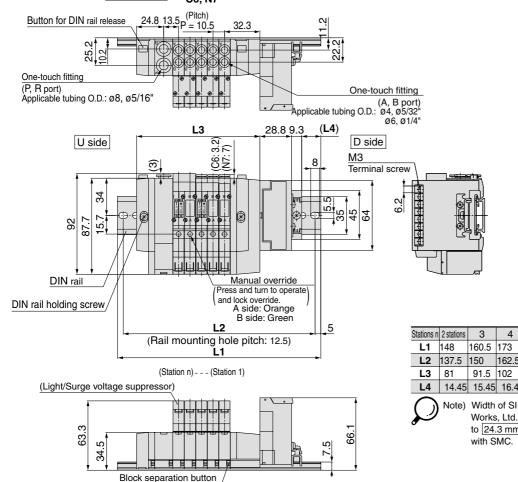
SYJ

SX



# Series SY3000: Serial Transmission Unit/Plug-in

#### SS5Y3-45S□-Stations U-C4, N3 C6, N7

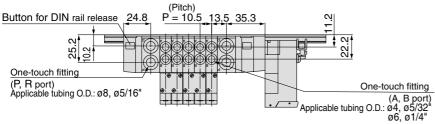


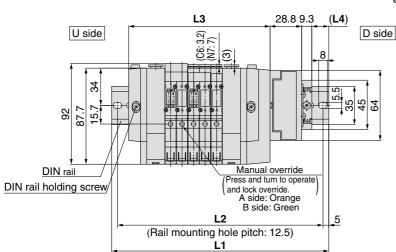
5 6 8 185.5 185.5 198 210.5 223 235.5 175 187.5 200 212.5 225 112.5 | 123 154.5 165 133.5 144 **L4** 14.45 15.45 16.45 17.45 12.2 13.2 14.2 16.2

> e) Width of SI unit applicable to "E": Matsushita Electric Works, Ltd. and "G": Rockwell Automation, Inc. widens to 24.3 mm. For further information, please consult with SMC.

# SS5Y3-45S□-Stations B-C4, N3

(Push type)





Stations n	2 stations	З	4	5	6	7	8	9	10 stations
L1	160.5	173	185.5	198	210.5	223	223	235.5	248
L2	150	162.5	175	187.5	200	212.5	212.5	225	237.5
L3	97.5	108	118.5	129	139.5	150	160.5	171	181.5
L4	12.45	13.45	14.45	15.45	16.45	17.45	12.2	13.2	14.2
Stations n	11 stations	12	13	14	15	16 stations			
L1	260.5	273	285.5	285.5	298	310.5			
L2	250	262.5	275	275	287.5	300			
L3	192	202.5	213	223.5	234	244.5			
L4	15.2	16.2	17.2	11.95	12.95	13.95			

Note) Width of SI unit applicable to "E": Matsushita Electric Works Ltd. and "G": Rockwell Automation, Inc. widens to 24.3 mm. For further information, please consult with SMC



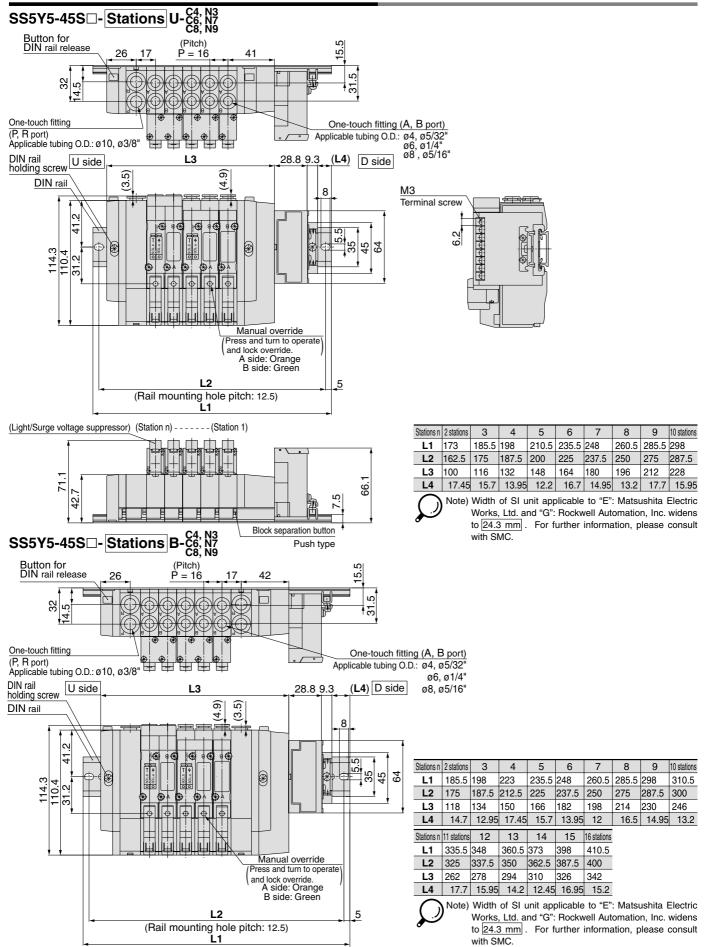


SZ

SYJ

SX

# Series SY5000: Serial Transmission Unit/Plug-in





0

Α

В

C

Ε

G

Н

K Q

R2

# Series SY3000/5000 Base Mounted Monifold Stacking Type/DIN Rail Mounted



#### **How to Order Manifold**

Specifications

Without SI unit

With general type SI unit (Series EX300)

Mitsubishi Electric Corp.: MELSECNET/

MINI-S3 Data Link System

OMRON Corp.: SYSBUS Wire System

SHARP Corp: Satellite I/O Link System

Matsushita Electric Works: MEWNET-F System

Rockwell Automation:

Allen Bradley Remote I/O (RIO) System

NKE Corp.: Uni-wire H System
SUNX Corp.: S-LINK System (16 output points)

Fuji Electric Co.: T-LINK Mini System

DeviceNet, CompoBus/D (OMRON Corp.)
OMRON Corp.: CompoBus/S System
(16 output points)
OMRON Corp.: CompoBus/S System

(8 output points)

JEMANET (JPCN-1)

Mitsubishi Electric Corp.: CC-LINK System

• For the general purpose type, a transmission unit is require on the CPU

· Even though when it is not equipped with

SI unit, DIN rail length is long enough for

future expectancy of mounting SI unit.

When a shorter rail is required (same as

type 45□), suffix "0" in the optional blank at

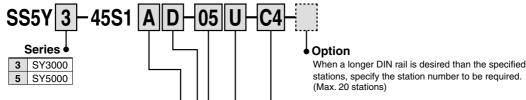
• For SI unit specifications, Refer to pages 1-

the end of part number.

4-171 to 1-4-173.

J2 SUNX Corp.: S-LINK System (8 output points)

F1 NKE Corp.: Uni-wire System (16 outout points)



Model • A, B port size

One-touch fitting (Metric size)							
Symbol	Port size	Applicable series					
C4	One-touch fitting for ø4						
C6	One-touch fitting for ø6	SY3000					
M	Mixed						
C4	One-touch fitting for ø4						
C6	One-touch fitting for ø6	SY5000					
C8	One-touch fitting for ø8	313000					
M	M Mixed						
* In the	* In the case of mixed specifications, indicat						

One-touch fitting (Inch size) Symbol Port size Applicable series One-touch fitting for ø 5/32 N3 One-touch fitting for ø 1/4' SY3000 N7 Mixed One-touch fitting for ø 5/32 N7 One-touch fitting for ø 1/4" SY5000 One-touch fitting for ø 5/16 Mixed

#### SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations			
U	U side	2 to 10 stations			
D	D side	2 to 10 stations			
В	Both sides	2 to 16 stations			
M	Special specifications				

For special specifications, indicate separately on the manifold specification sheet.

# SI unit

mounting positio						
Symbol	Mounting position					
U	U side					
D	D side					

# Oute Symbol Stations Note 02 2 stations Single wiring spec. ⋮ ⋮ (Applicable up to 16 16 16 stations solenoid valves.)



- \* This also includes the number of blanking plate assemblies.
- Two stations are necessary for the double, 3 position (Dual body type).

#### SI Unit Part No.

<u></u>							
Symbol	Specifications	For SS5Y□-45S1	Symbol	Specifications:	For SS5Y□-45S1		
Α	With general type SI unit (Series EX300)	EX321-S001	J1	SUNX Corp.: S-LINK System (16 output points)	EX121-SSL1		
В	Mitsubishi Electric Corp.: MELSECNET/MINI-S3 Data Link System	EX121-SMB1	J2	SUNX Corp.: S-LINK System (8 output points)	EX121-SSL2		
С	OMRON Corp.: SYSBUS Wire System	EX121-STA1	K	Fuji Electric Co.: T-LINK Mini System	EX121-SFU1		
D	SHARP Corp.: Satellite I/O Link System	EX121-SSH1	Q	Device Net: CompoBus/D (OMRON Corp.)	EX121-SDN1		
E	Matsushita Electric Works: MEWNET-F System	EX121-SPA1	R1	OMRON Corp.: CompoBus/S (16 output points)	EX121-SCS1		
F1	NKE Corp.: Uni-wire System (16 output points)	EX121-SUW1	R2	OMRON Corp.: CompoBus/S (8 output points)	EX121-SCS2		
G	Rockwell Automation: Allen Bradley Remote I/O (RIO) System	EX121-SAB1	U	JEMANET (JPCN-1)	EX121-SJN1		
Н	NKE Corp.: Uni-wire H System	(E Corp.: Uni-wire H System EX121-SUH1 V Mitsubishi Electric Corp.: CC-LINK Sys		Mitsubishi Electric Corp.: CC-LINK System	EX121-SMJ1		



\* For terminal LED descriptions and cable wiring, etc. for each SI unit, refer to pages 1-4-171 to 1-4-173.



For external pilot specifications and built-in silencer, refer to catalog on page 1-4-196.

In the case of mixed specifications, indicate separately on the manifold specification sheet.



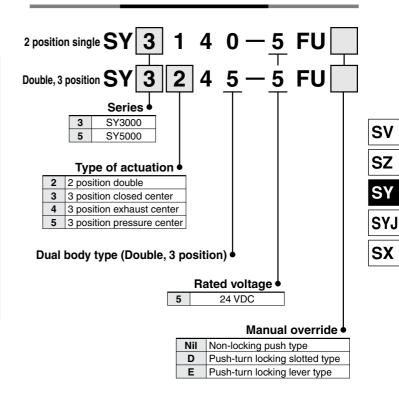
## **How to Order Valve Manifold Assembly**

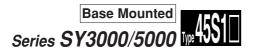
# Ordering example Double solenoid (24 VDC) Single solenoid (24 VDC) SY3245-5FU SY3140-5FU U side D side Manifold base (5 stations) SS5Y3-45S1AD-05U-C6 S5Y3-45S1AD-05U-C6 (Type 45S1 with serial unit 5 station manifold base part no.) \* SY3140-5FU 3 sets (Single solenoid part no.) \* SY3245-5FU (Double solenoid part no.) 1 set The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc • The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of SI unit.

When ordering double solenoid valves/3 position (Dual body type), please

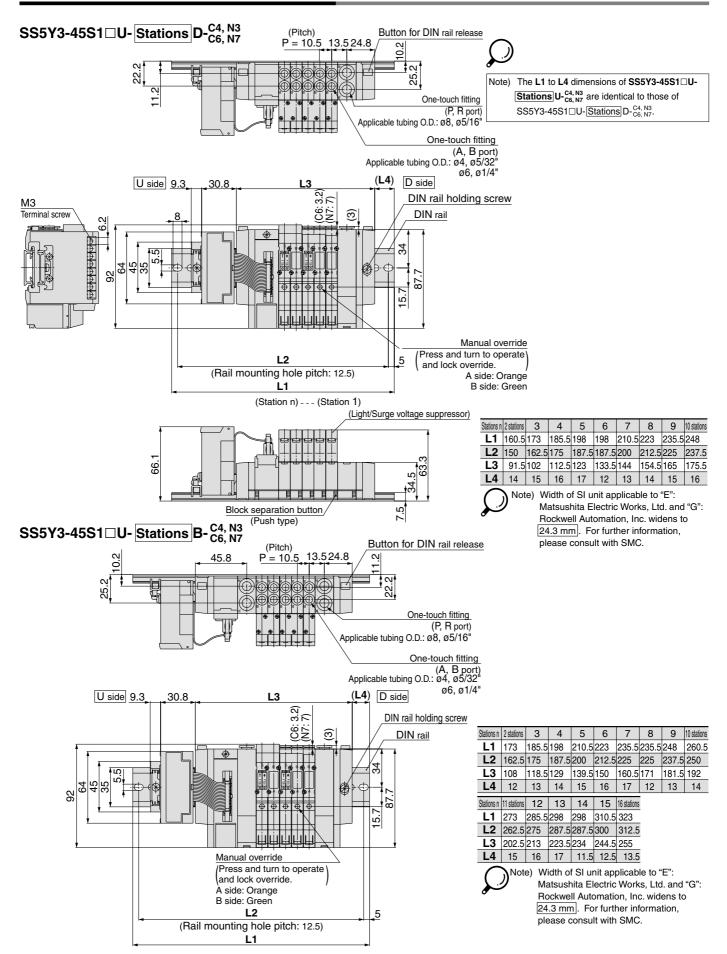
keep in mind that they require two manifold stations.

#### **How to Order Valves**





# SY3000: Serial Transmission Unit/Plug-in



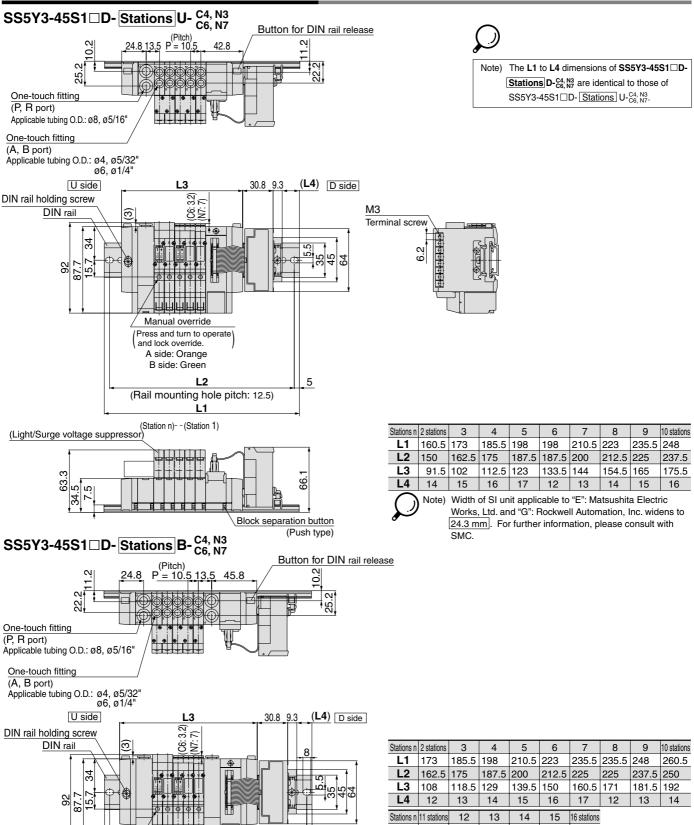


SZ

SYJ

SX

# SY3000: Serial Transmission Unit/Plug-in



		. 02.0	1	107.0	00				,.0		
	L3	108	118.5	129	139.5	150	160.5	171	181.5	192	
	L4	12	13	14	15	16	17	12	13	14	
	Stations n	11 stations	12	13	14	15	16 stations				
	L1	273	285.5	298	298	310.5	323				
	L2	262.5	275	287.5	287.5	300	312.5				
	L3	202.5	213	223.5	234	244.5	255				
	L4	15	16	17	11.5	12.5	13.5				
Note) Width of Stunit applicable to "F": Mateushita Flootric											

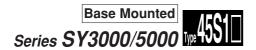
Note) Width of SI unit applicable to "E": Matsushita Electric Works, Ltd. and "G": Rockwell Automation, Inc. widens to 24.3 mm. For further information, please consult with SMC.



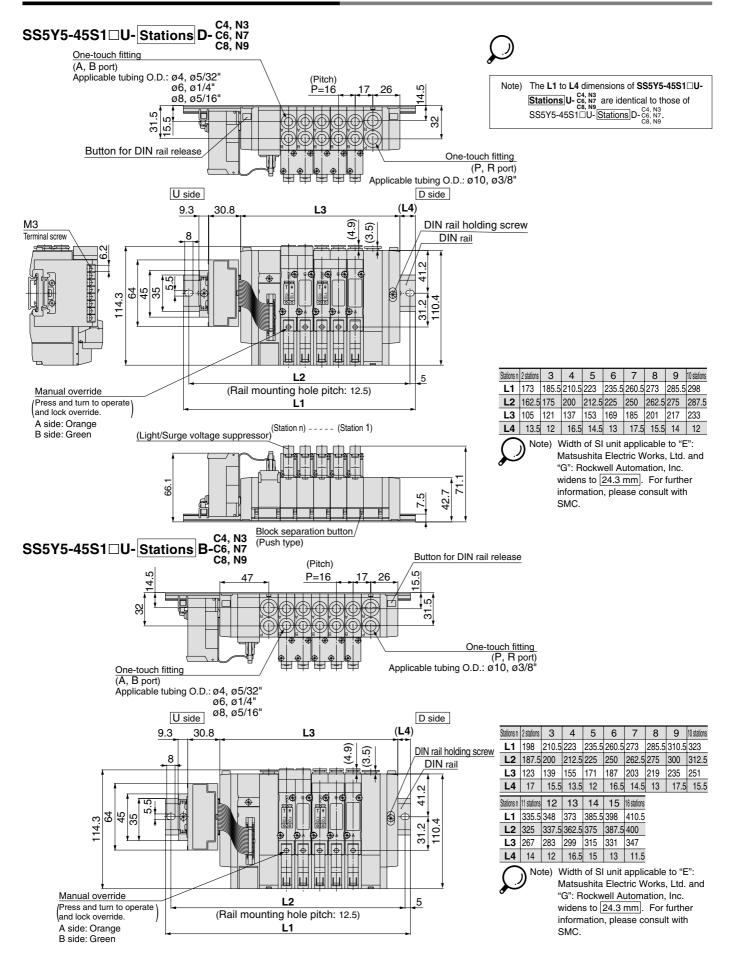
\_5

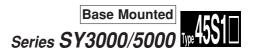
Manual override
(Press and turn to operate)
and lock override.
A side: Orange
B side: Green

(Rail mounting hole pitch: 12.5)

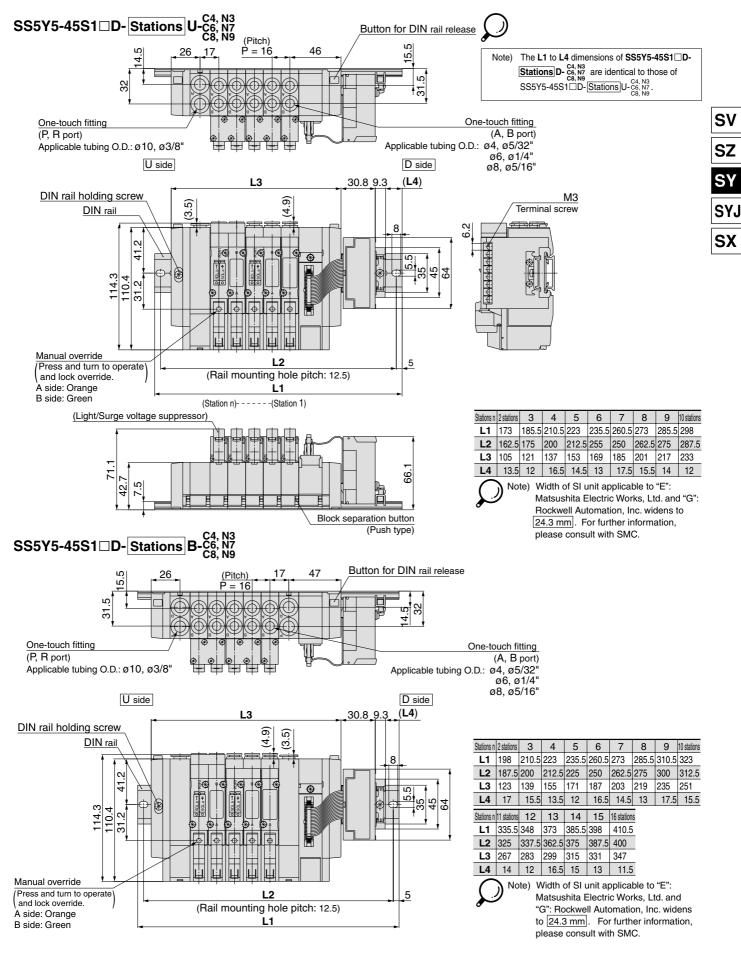


# SY5000: Serial Transmission Unit/Plug-in





### SY5000: Serial Transmission Unit/Plug-in



### 3 Port Valve Series SY300/500 Mixed Mounting Type on 5 Port Valve Manifold

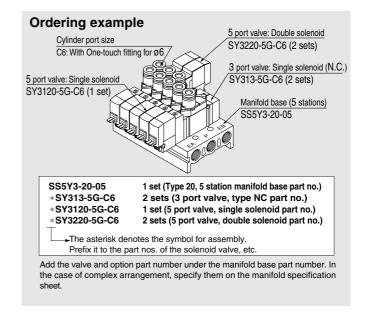
3 port valve can be mounted on manifold for 5 port valve.

### **Application**

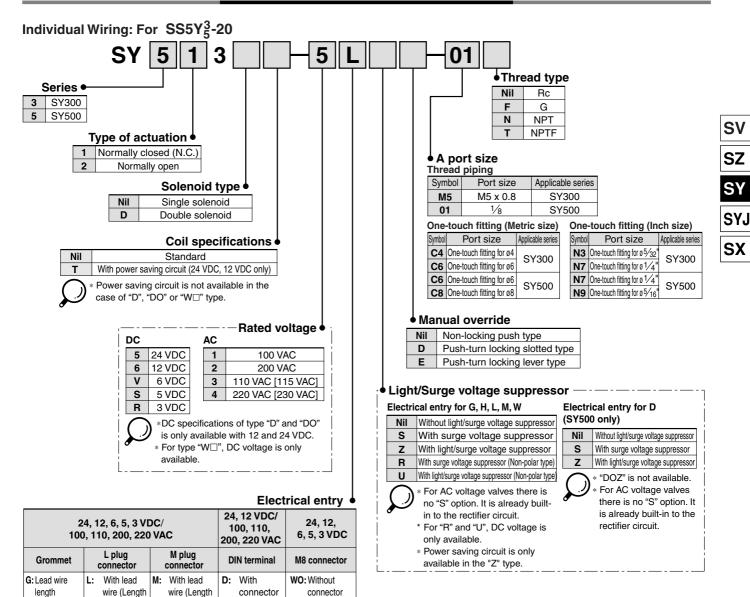
Possible to be mounted on all kinds of manifolds for Series SY3000/5000.

Refer to "How to Order Manifold" for details.

### **How to Order Valve Manifold Assembly**



### **Body Ported/How to Order Valves**



- \* "LN", "MN" type: with 2 sockets.
- \* For DIN terminal of SY300 series, refer to page 1-4-207.

300 mm)

connector

wire

LO: Without

LN: Without lead MN: Without lead

\* DIN terminal type "Y" conforming to DIN 43650C is also available. For details, refer to page 1-4-201.

 For connector cable of M8 connector, refer to page 1-4-209.

cable

DO: Without

connector

 $\bigcirc^{N}$ 

300 mm

H: Lead wire

length

600 mm

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 catalog on page 1-4-61.)

300 mm)

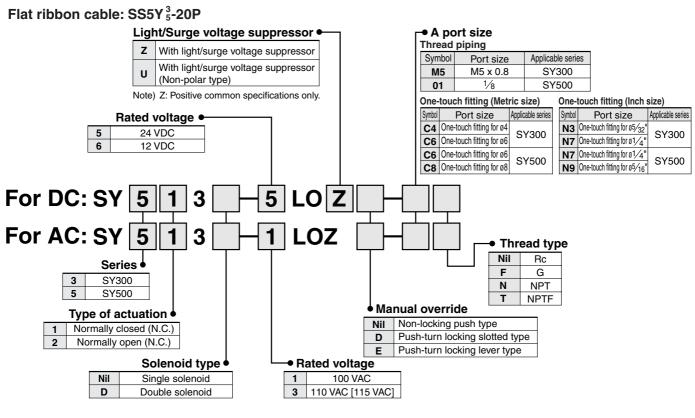
connector

wire

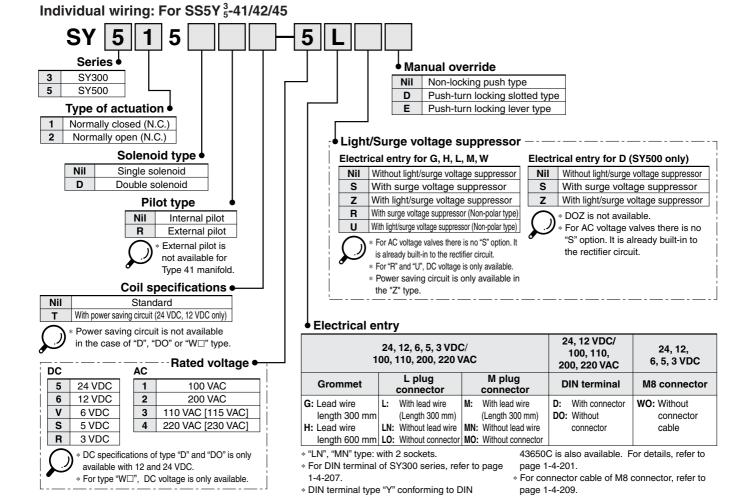
MO: Without

**SMC** 

### **Body Ported/How to Order Valves**



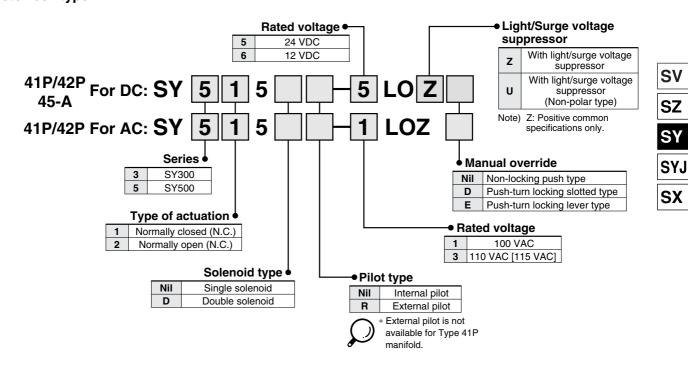
### **Base Mounted/How to Order Valves**



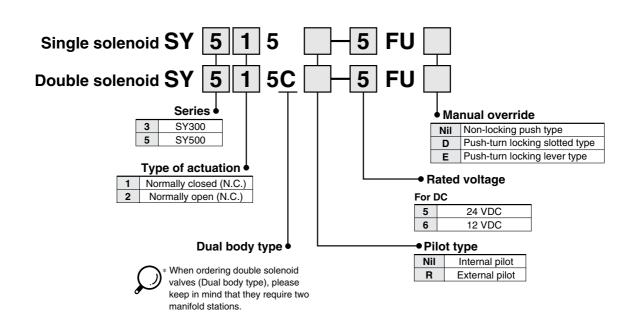


### **Base Mounted/How to Order Valves**

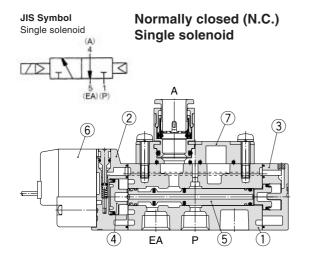
Flat ribbon cable: For SS5Y<sub>5</sub>-41P/42P/45-A

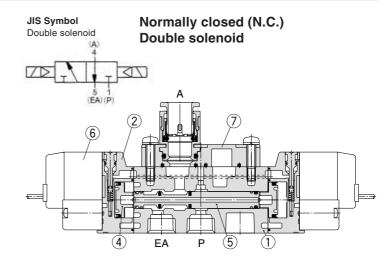


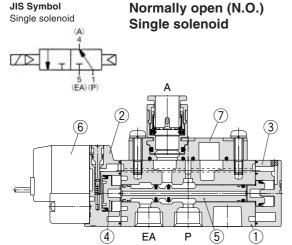
Plug-in: For SS5Y<sup>3</sup><sub>5</sub>-45□

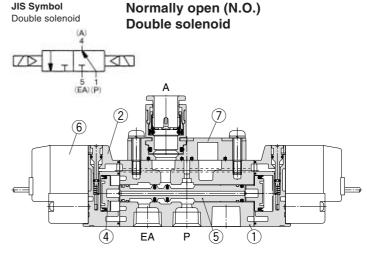


### Construction









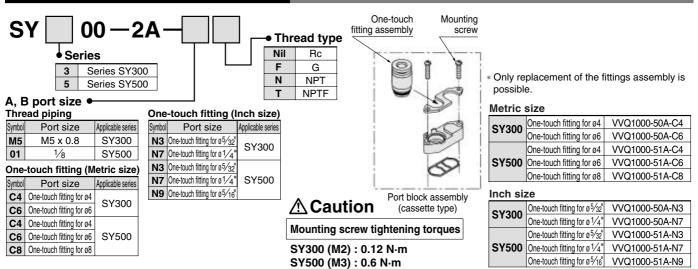
### **Component Parts**

No.	Description	Material	Note
1	Body	Aluminum die-casted (SY3000: Zinc die-casted)	White
2	Adapter plate	Resin	White
3	End plate	Resin	White
4	Piston	Resin	
(5)	Spool valve assembly	Aluminum, HNBR	_

### **Replacement Parts**

No.	Description	No.
6	Pilot valve assembly	Refer to "How to Order Pilot Valve Assembly" on page 1-4-10.
7	M5 port block assembly	Refer to "How to Order Port Block Assembly" below.

### **How to Order M5 Port Block Assembly**



### **Specifications**

Dimensions, specifications, solenoid specifications, response time and effective area are the same as 5 port valve.

### Weight

### Series SY300

Valve model	Type of	Weight (g)		
valve model	actuation	Grommet	L, M plug connector	
SY3□3-□□-M5	Single	51	53	
313U3-UU-W3	Double	68	74	
SY3□3-□□- <sup>C4</sup> N3	Single	56	59	
513 L3-LL-N3	Double	74	79	
SY3□3-□□- <sup>C6</sup>	Single	54	57	
313U3-UU-N7	Double	72	77	
SY3□5-□□	Single	47	50	
31305-00	Double	65	70	

### Series SY500

Valve model	Type of	Weight (g)				
valve model	actuation	Grommet	L, M plug connector	DIN terminal		
SY5□3-□-01□	Single	69	72	93		
31303-0-010	Double	87	93	135		
SY5□3-□- <sup>C4</sup>	Single	82	82	103		
313 🗆 3 - 🗆 - N3	Double	100	102	144		
SY5□3-□- <sup>C6</sup>	Single	79	77	98		
313 - 3- N7	Double	97	98	140		
SY5□3-□- <sup>C8</sup>	Single	75	84	105		
313-3N9	Double	93	105	147		
SY5□5-□□	Single	55	58	79		
31303-00	Double	73	78	120		

SV

SZ

SY

SYJ







### **Made to Order Specifications:**

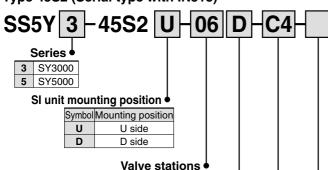
Series SX3000/5000 Serial Transmission Type

### With SMC's IN313



**How to Order Manifold** 

Type 45S2 (Serial type with IN313)



Symbol	Stations	Note
02	2 stations	Single wining spec.
:		(Applicable up to
16	16 stations	16 solenoid valves.)



- \* This also includes the number of blanking plate assemblies
- Two stations are necessary for the double, 3 position (Dual body type).

#### SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations				
U	U side	2 to 10 stations				
D	D side	2 to 10 stations				
В	Both sides	2 to 16 stations				
М	Special specifications					

\* For special specifications, indicate separately on the manifold specification

#### A, B port size One-touch fitting (Metric size)

00	one teach many (means ones)						
Symbol	Port size	Applicable series					
C4	One-touch fitting for ø4						
C6	One-touch fitting for ø6	SY3000					
M	Mixed						
C4	One-touch fitting for ø4						
C6	One-touch fitting for ø6	SY5000					
C8	One-touch fitting for ø8	315000					
М	Mixed						

#### One-touch fitting (Inch size)

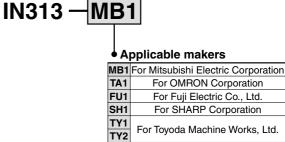
Syı	mbol	Port size	Applicable series
N	13	One-touch fitting for ø 5/32"	
N	17	One-touch fitting for ø 1/4"	SY3000
	M Mixed		
N	13	One-touch fitting for ø5/32"	
ı	17	One-touch fitting for ø 1/4"	SY5000
N	19	One-touch fitting for ø5/16"	515000
	M	Mixed	

\* In the case of mixed specifications, indicate separately on the manifold specification sheet. Option •

> When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

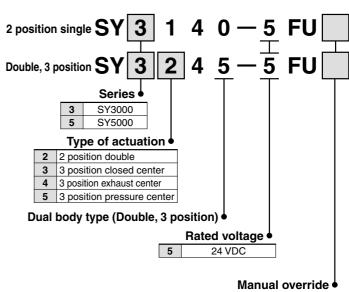
For external pilot specifications and built-in silencer, refer to page 1-4-196.

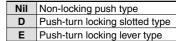
### **How to Order Applicable SI Unit**



For Toyoda Machine Works, Ltd. PA1 For Matsushita Electric Works Ltd. HT1 For Hitachi, Ltd. AB1 For Rockwell Automation, Inc. TS1 For TOSHIBA Corporation

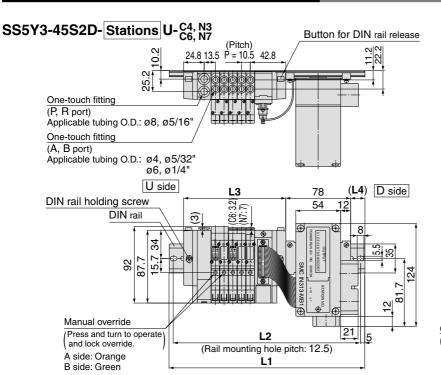
### **How to Order Valves**







### SY3000: Serial Transmission Unit/Plug-in





Note) The L1 to L4 dimensions of SS5Y3-45S2D
Stations D-C4, N3, SS5Y3-45S2U-Stations D-C6, N7, SS5Y3-45S2D-Stations U-C4, N3 are identical to those of SS5Y3-45S2D-Stations U-C4, N3.

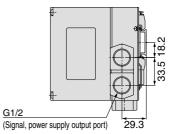
SV

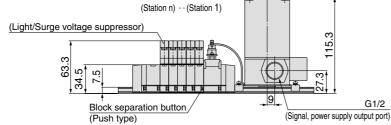
SZ

SY

SYJ

SX

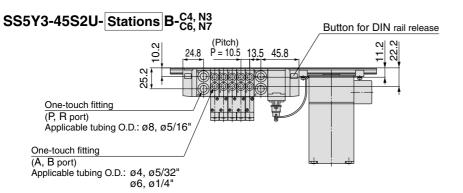




Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	198	210.5	223	235.5	235.5	248	260.5	273	285.5
L2	187.5	200	212.5	225	225	237.5	250	262.5	275
L3	91.5	102	112.5	123	133.5	144	154.5	165	175.5
L4	14	15	16	17	12	13	14	15	16



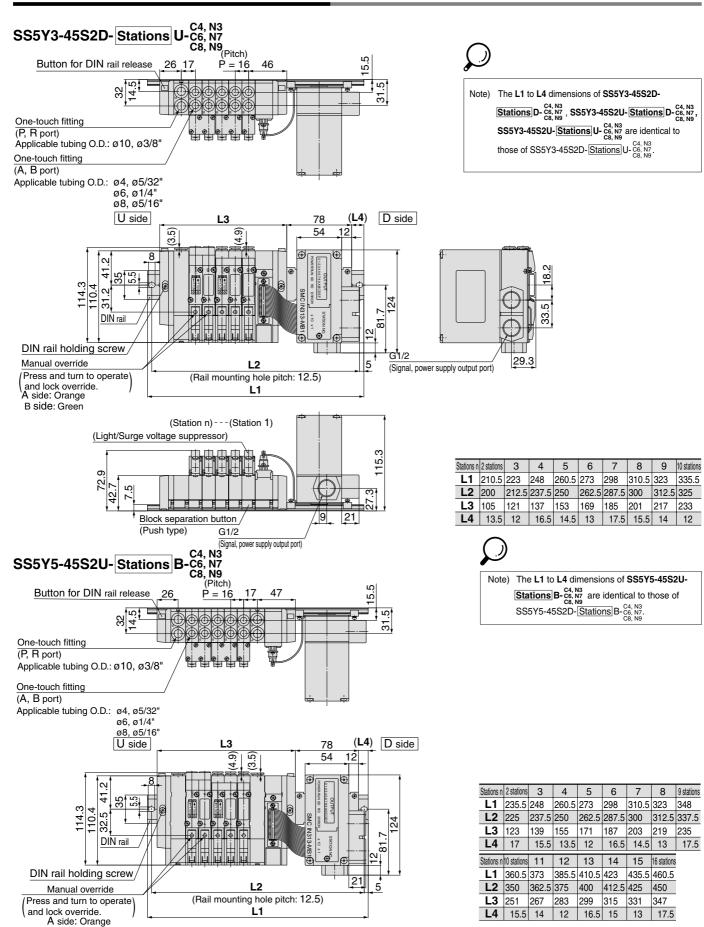
Note) The L1 to L4 dimensions of SS5Y3-45SU-Stations B-C4, N3 are identical to those of S5Y3-45SD-Stations B-C4, N3.



U side  DIN rail holding screw  DIN rail	L3 (7: 6: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7:	78 54	12	D side
92 87.7 17 34		OUTPUT  0123456789ABCCEF  OMBRIUM SD RD BIRCH X10 X1  SMC IN313-MB1	* "	81.7
Manual override (Press and turn to operate and lock override.  A side: Orange B side: Green	L2 (Rail mounting hole pito L1		21 5	1

Stations n	2 stations	3	4	5	6	7	8	9 stations
L1	210.5	223	235.5	248	260.5	273	273	285.5
L2	200	212.5	225	237.5	250	262.5	262.5	275
L3	108	118.5	129	139.5	150	160.5	171	181.5
L4	12	13	14	15	16	17	12	13
Stations n	10 stations	11	12	13	14	15	16 stations	
L1	298	310.5	323	335.5	335.5	348	360.5	
L2	287.5	300	312.5	325	325	337.5	350	
L3	192	202.5	213	223.5	234	244.5	255	
L4	14	15	16	17	11.5	12.5	13.5	

### SY5000: Serial Transmission Unit/Plug-in



B side: Green



SV



### **Made to Order Specifications:** Series SX3000/5000 Serial Transmission Type

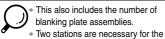
With OMRON Corp's G71-OD16

### Serial Transmission Manifold Equipped with OMRON Corp's Transmission Unit G71-OD16 **How to Order Manifold** Type 45S3 (Serial type with transmission unit) -45S3 Series **3** SY3000 **5** SY5000 Specifications • Specifications Symbol **Nil** With transmission unit **0**Note) Without transmission unit Note) Even though when it is not equipped with transmission unit, DIN rail length is long enough for future expectancy of mounting transmission unit. When a shorter rail is required (same as type 45□), suffix "0" in the optional blank at the end of part number Transmission unit mounting position

#### Valve stations

Symbol	Stations	Note
02	2 stations	Single wiring spec.
	:	(Applicable up to
16	16 stations	16 solenoid valves.)

Symbol Mounting position U side D side



### double, 3 position (Dual body type). SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations		
U	U side	2 to 10 stations		
D	D side	2 to 10 stations		
В	(Both sides)	2 to 16 stations		
M	Special specifications			

\* For special specifications, indicate separately on the manifold specification sheet

### A, B port size

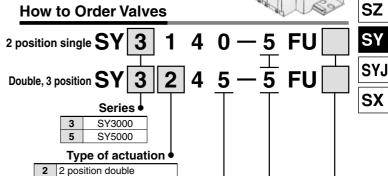
One-touch fitting (Metric size)				
Symbol	Port size	Applicable series		
C4	One-touch fitting for ø4			
C6	One-touch fitting for ø6	SY3000		
M	Mixed			
C4	One-touch fitting for ø4			
C6	One-touch fitting for ø6	SY5000		
C8	One-touch fitting for ø8	313000		
M	Mixed			

One	-touch fitting (inch s	size)	
Symbol	Port size	Applicable series	
N3	One-touch fitting for ø5/32"		
N7	One-touch fitting for ø 1/4"	SY3000	
M	Mixed		
N3	One-touch fitting for ø5/32"		
N7	One-touch fitting for ø 1/4"	SY5000	
N9	One-touch fitting for ø5/16"	313000	
M	Mixed		

\* In the case of mixed specifications, indicate separately on the manifold specification sheet

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

For external pilot specifications and built-in silencer, refer to page 1-4-196.



			Rated	voltage		
Dual body type (Double, 3 position)						
	5	3 position pressure center				
	4	3 position exhaust center				
	3	3 position closed center				

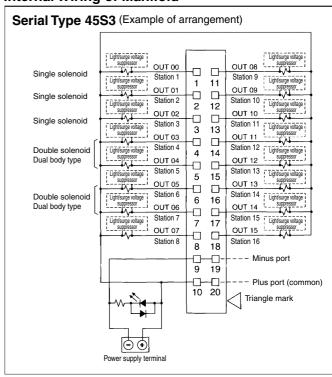
5

### Manual override

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

24 VDC

#### **Internal Wiring of Manifold**



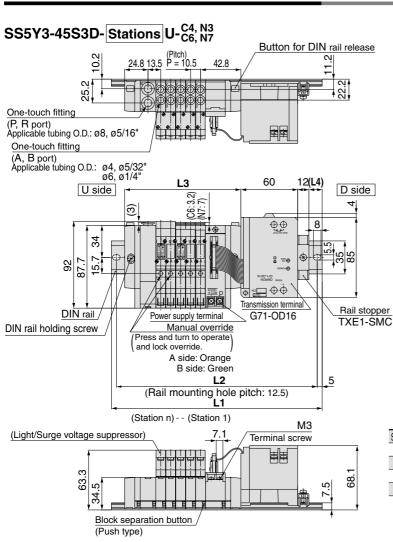
- For specifications on OMRON Corp's transmitter terminals, refer to the instruction manual or the catalog of transmitter terminals, etc.
- Max. 16 solenoids are applicable. Please consult with SMC for more solenoids.

### 

• The wiring specifications for SS5Y<sub>5</sub><sup>3</sup>-45S30 are different from those for SS5Y<sub>5</sub><sup>3</sup>-45PG.

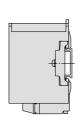


### SY3000: Serial Transmission Unit/Plug-in





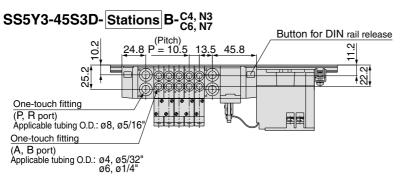
Note) The L1 to L4 dimensions of SS5Y3-45S3D
| Stations | D-C<sub>6</sub>, N<sub>7</sub>, SS5Y3-45S3U-| Stations | D-C<sub>6</sub>, N<sub>7</sub>, SS5Y3-45S3U-| Stations | U-C<sub>6</sub>, N<sub>7</sub> are identical to those of SS5Y3-45S3D-| Stations | U-C<sub>6</sub>, N<sub>7</sub>.



Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	198	198	210.5	223	235.5	248	260.5	260.5	273
L2	187.5	187.5	200	212.5	225	237.5	250	250	262.5
L3	91.5	102	112.5	123	133.5	144	154.5	165	175.5
L4	17	12	13	14	15	16	17	11.5	12.5



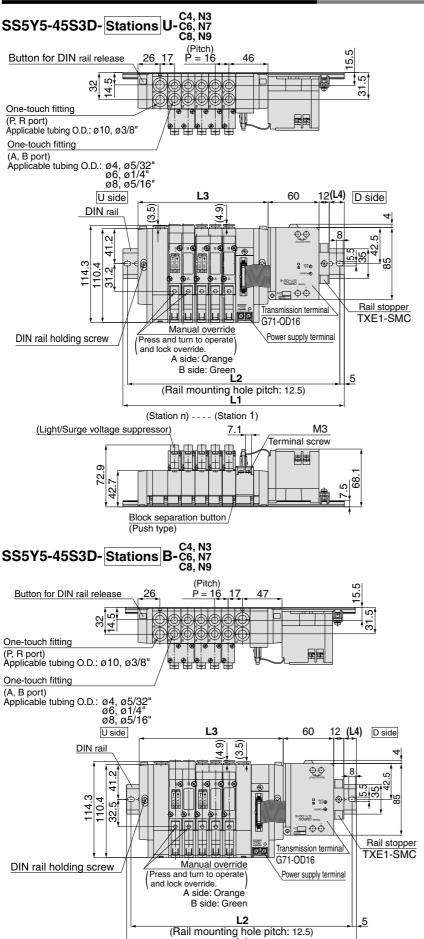
Note) The L1 to L4 dimensions of SS5Y3-45S3U-Stations  $B^{-C4, N3}_{-C6, N7}$  are identical to those of SS5Y3-45S3D-Stations  $B^{-C4, N3}_{-C6, N7}$ .



	L3	60	12(L4)
U side	(G6:3.2) (N7:7)		D side
	950		
† <del>† †</del>			18 1
34			١٥١
92		2 100	<b>⊕ ₩</b> ₩ ₩
0) [8] [-+		NORMO sessis 8100-110 sawos €	
			$\downarrow$
$\downarrow \downarrow / \chi$		Power supply	Rail stopper
DIN rail /	Manual override		TXE1-SMC
DIN rail holding screw /	1. 1000 and tam to operate	Transmission term	inal \
	A side: Orange	G71-OD16	
	B side: Green		
	L2		5
	(Rail mounting hole p	itch: 12.5)	-
ļ.	<u> </u>		

Stations n	2 stations	3	4	5	6	7	8	9 stations
L1	210.5	223	235.5	235.5	248	260.5	273	285.5
L2	200	212.5	225	225	237.5	250	262.5	275
L3	108	118.5	129	139.5	150	160.5	171	181.5
L4	15	16	17	12	13	14	15	16
Stations n	10 stations	11	12	13	14	15	16 stations	
L1	298	298	310.5	323	335.5	348	360.5	-
L2	287.5	287.5	300	312.5	325	337.5	350	
L3	192	202.5	213	223.5	234	244.5	255	_
L4	17	11.5	12.5	13.5	14.5	15.5	16.5	

### SY5000: Serial Transmission Unit/Plug-in





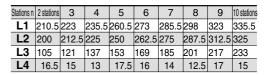
SV

SZ

SY

SYJ

SX





Note) The **L1** to **L4** dimensions of **SS5Y5- 45S3U-<u>Stations</u> B-<sup>C4</sup><sub>C8</sub>, N3</sup> are identical to those of SS5Y5-45S3D-<u>Stations</u> B-<sup>C4</sup><sub>C8</sub>, N3</sup>** 

			_					
Stations n	2 stations	3	4	5	6	7	8	9 stations
L1	223	235.5	260.5	273	285.5	310.5	323	335.5
L2	212.5	225	250	262.5	275	300	312.5	325
L3	123	139	155	171	187	203	219	235
L4	14	12	16.5	15	13	17.5	16	14
Stations n	10 stations	11	12	13	14	15	16 stations	
L1	348	373	385.5	398	410.5	435.5	448	
L2	337.5	362.5	375	387.5	400	425	437.5	
L3	251	267	283	299	315	331	347	
L4	12.5	17	15	13.5	11.5	16	14.5	
_	_						_	

### **Made to Order Specifications:** Series SY3000/5000

specified stations, specify the station number to be required. (Max.

20 stations)

### **External Pilot/Built-in Silencer**

External pilot manifold bases for low-pressure/vacuum use are added to split style/DIN rail manifolds. The built-in silencer has materialized a clear-cut appearance.

### **Individual Wiring/Connector Box Type**

### **How to Order Manifold**

#### Type 45 SS5Y<sub>5</sub>-45(-A)-05||U||R-Series 3 SY3000 **5** SY5000 Option Valve • When a longer stations SUP/EXH block assembly DIN rail is desired than the

Symbol	Stations				
02	2 stations				
:					
20	20 stations				
The number of					
blanking plate					
assembly is					
included	included.				

mounting position

Symbol	Mounting position	Stations		
U	U side			
D	D side	2 to 10 stations		
В	Both sides	2 to 20 stations		
M	Special specifications			
* For special specifications				

indicate separately on the manifold specification sheet.

### SUP/EXH block assembly specifications •

Symbol	Specifications
R	External pilot
S	Internal pilot/Built-in silencer
RS	External pilot/Built-in silencer

#### One touch fitting (Matric cize)

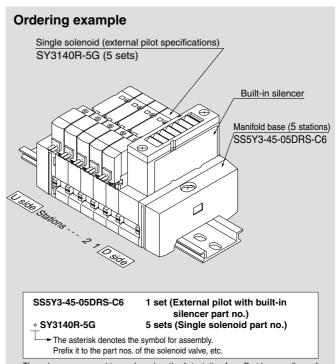
One-touch fitting (Metric size)			
Symbol	Port size Applicable serie		
C4	One-touch fitting for ø4		
C6	One-touch fitting for ø6	e-touch fitting for ø6 SY3000	
М	Mixed		
C4	One-touch fitting for ø4		
C6	One-touch fitting for ø6	- SY5000	
C8	One-touch fitting for ø8		
М	Mixed		

A, B port size One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	
N7	One-touch fitting for ø 1/4"	SY3000
M	Mixed	
N3	One-touch fitting for ø5/32"	
N7	One-touch fitting for ø 1/4"	SY5000
N9	One-touch fitting for ø5/16"	315000
M	Mixed	

\* In the case of mixed specifications, indicate separately on the manifold specification sheet

### **How to Order Valve Manifold Assembly**



The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of SUP/EXH block assembly. In ordering, specify the part nos. in the order from the 1st. station on D side. Besides, when the arrangement will be complicated, fill out the manifold specification sheet to instruct us.

For manifolds with SUP/EXH block assembly at each end of the manifold, external

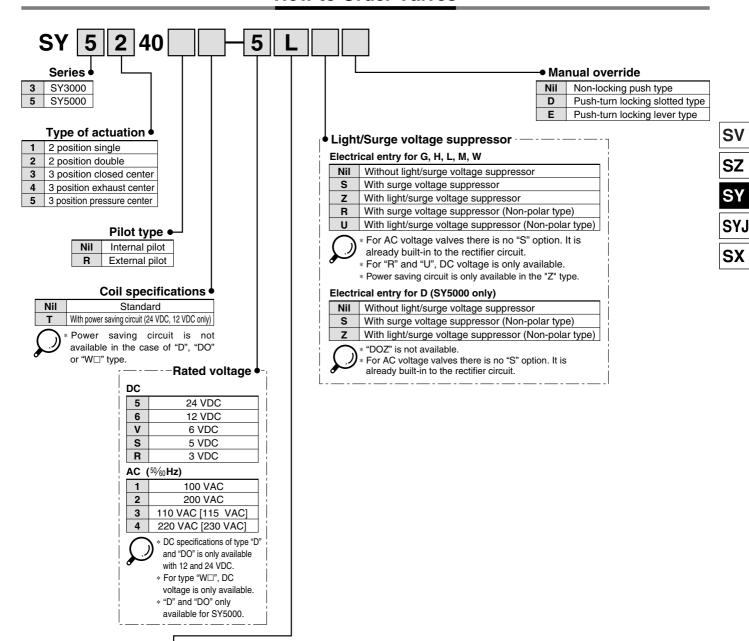
pilot ports and silencers will be also located at each end of the manifold.

The SUP/EXH block assembly (SX3/5000-51-1A), for special usage, as shown on page 1-4-130, can also be mounted. Please specify the mounting position, by correctly filling in the blank space on the manifold specification sheet.





### **How to Order Valves**



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 H: Lead wire length 600 mm	L: With lead wire (Length 300 mm) LN: Without lead wire LO: Without connector	M: With lead wire (Length 300 mm) MN: Without lead wire MO: Without connector	(SY5000 only) D: With connector DO: Without connector	WO: Without connector cable

\* "LN", "MN" type: with 2 sockets. \* "D" and "DO" only available for SY5000.

\* DIN terminal type "Y" conforming to DIN43650C standard is also available. For details, refer to page 1-4-201.

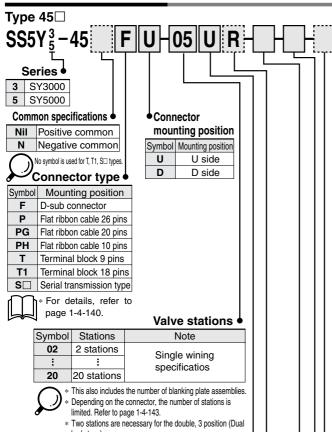
\* Setting "-5LOU" is available only for connector box type.

\* For connector cable of M8 connector, refer to pages 1-4-209 to 210.



### Plug-in

### **How to Order Manifold**



body type)

### SUP/EXH block assembly mounting position

Symbol Mounting position		Stations	
U	U side	0.4- 40 -4-4:	
D	D side	2 to 10 stations	
В	(Both sides) 2 to 20 station		
M	Special specifications		

\* For special specifications, indicate separately on the manifold specification sheet.

### SUP/EXH block assembly specifications

	Symbol	Specifications	
	R	External pilot	
	S	Internal pilot/Built-in silencer	
ı	RS	External pilot/Built-in silencer	

#### One-touch fitting (Metric size)

One	one-touch fitting (wethe size)		
Symbol	Port size	Applicable series	
C4	One-touch fitting for ø4		
C6	One-touch fitting for ø6	SY3000	
М	Mixed		
C4	One-touch fitting for ø4		
C6	One-touch fitting for ø6	SY5000	
C8	One-touch fitting for ø8		
М	Mixed		

#### A, B port size One-touch fitting (Inch size)

Symbol	Port size Applicable	
N3	One-touch fitting for ø5/32"	
N7	One-touch fitting for ø1/4" SY3000	
M	Mixed	
N3	One-touch fitting for ø5/32"	
N7	One-touch fitting for ø1/4"	SY5000
N9	One-touch fitting for ø5/16"	313000
M	Mixed	

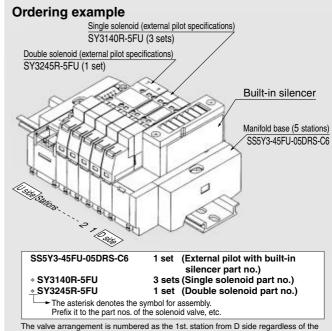
\* In the case of mixed specifications, indicate separately on the manifold specification sheet

Voltage • Nil 24 VDC 12V **12 VDC** 

No symbol is used for T, T1, S□ types.

Option • When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

### **How to Order Valve Manifold Assembly**



mounting position of SUP/EXH block assembly. In ordering, specify the part nos. in the order from the 1st. station on D side. Besides, when the arrangement will be complicated, fill out the manifold specification sheet to instruct us.

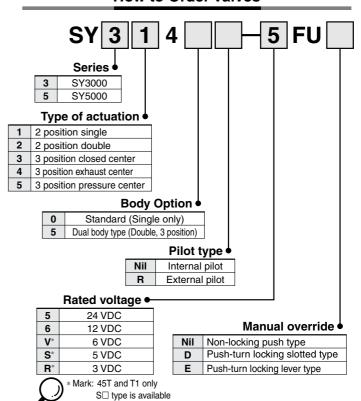
For manifolds with SUP/EXH block at each end of the manifold, external pilot ports and silencers will be also located at each end of the manifold.

The SUP/EXH block assembly (SX3/5000-51-1A), for special usage, as shown on page 1-4-130, can also be mounted. Please specify the mounting position, by correctly filling in the blank space on the manifold specification sheet.

Two stations of the manifold base are necessary for the double, 3 position (Dual

body type). Use caution when specifying the number of stations required for the

### **How to Order Valves**



for 24 VDC only.





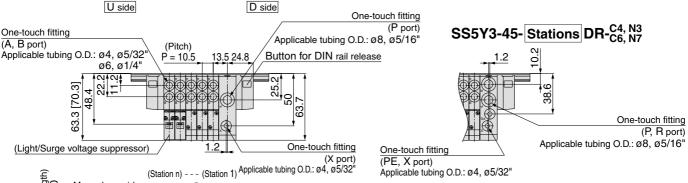
SV

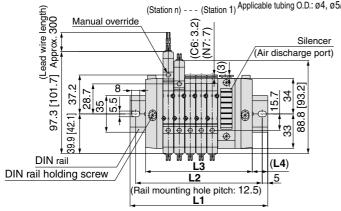
SZ

SYJ

SX

### **SY3000**: **SS5Y3-45- Stations DRS-**<sup>C4, N3</sup><sub>C6, N7</sub>

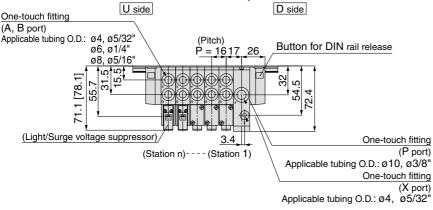


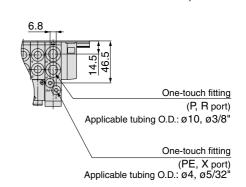


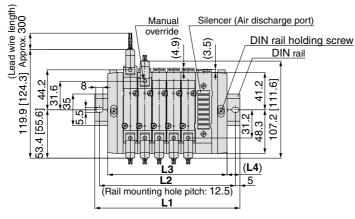
\* The dimensions L1 to L4 are identical to those of SS5Y3-45-Stations D B - C4, N3 - C6, N7 .

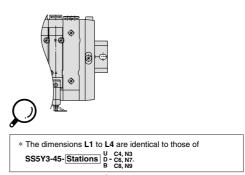
SS5Y5-45-Stations D

### SY5000: SS5Y5-45- Stations DRS-C6, N3 C8, N9



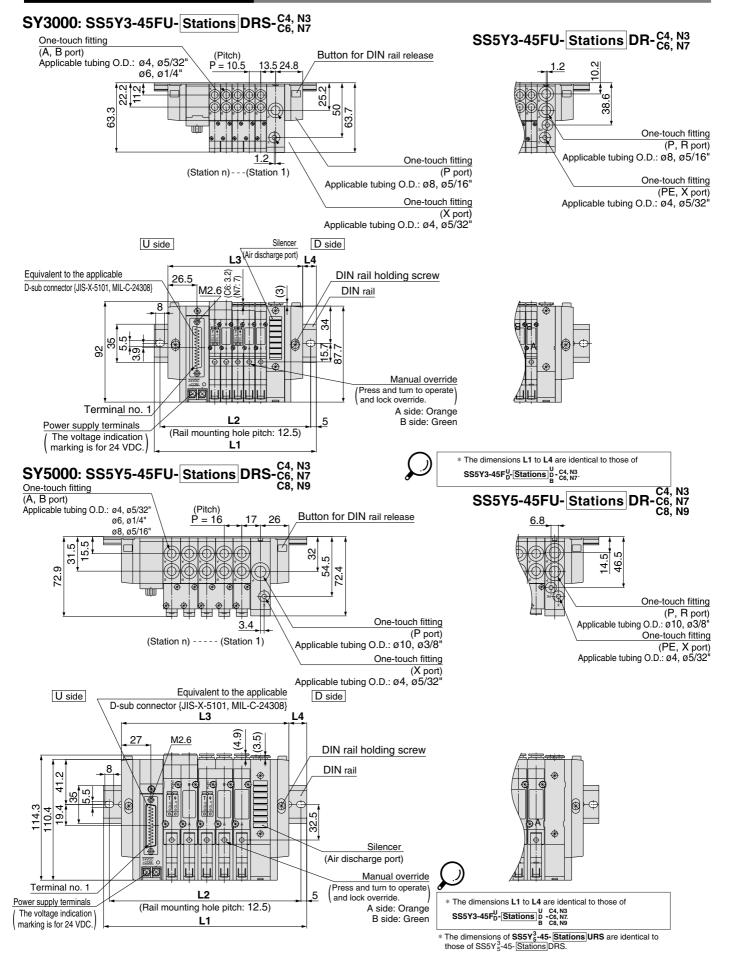






<sup>\*</sup> The dimensions of  $SS5Y_5^3$ -45- Stations URS are identical to those of  $SS5Y_5^3$ -45F- Stations DRS.

### **External Pilot/Built-in Silencer**



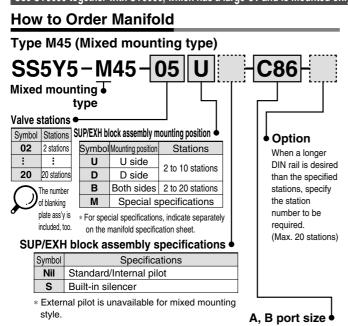


# Made to Order Specifications: Series SY3000/5000 Mixed Mounting



Non plug-in

Use SY3000 together with SY5000, which has a large Cv and is mounted only in a place where it is needed, permits a selection of economic manifold bases.



### One-touch fitting (Metric size)

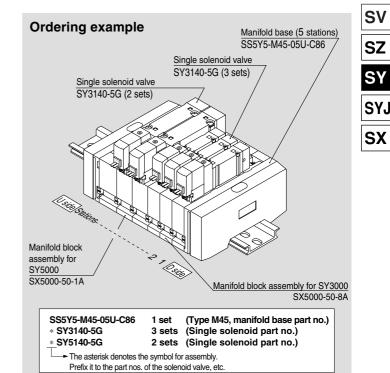
One	One-touch fitting (wethe size)		
Symbol	Port size		
C44	SY5000: One-touch fitting for ø4 SY3000: One-touch fitting for ø4		
C46	SY5000: One-touch fitting for ø4 SY3000: One-touch fitting for ø6		
C64	SY5000: One-touch fitting for ø6 SY3000: One-touch fitting for ø4		
C66	SY5000: One-touch fitting for ø6 SY3000: One-touch fitting for ø6		
C84	SY5000: One-touch fitting for ø8 SY3000: One-touch fitting for ø4		
C86	SY5000: One-touch fitting for Ø8 SY3000: One-touch fitting for Ø6		
M	Mixed		

### One-touch fitting (Inch size)

Symbo	Port size	
N33	SY5000: One-touch fitting for ø5/32" SY3000: One-touch fitting for ø5/32"	
N37		
N73	SY5000: One-touch fitting for ø1/4" SY3000: One-touch fitting for ø5/32"	
N77	SY5000: One-touch fitting for ø1/4" SY3000: One-touch fitting for ø1/4"	
N93	SY5000: One-touch fitting for ø5/16" SY3000: One-touch fitting for ø5/32"	
N97	SY5000: One-touch fitting for ø5/16" SY3000: One-touch fitting for ø1/4"	
M	Mixed	

\* In the case of mixed specifications, indicate separately on the manifold specification sheet.

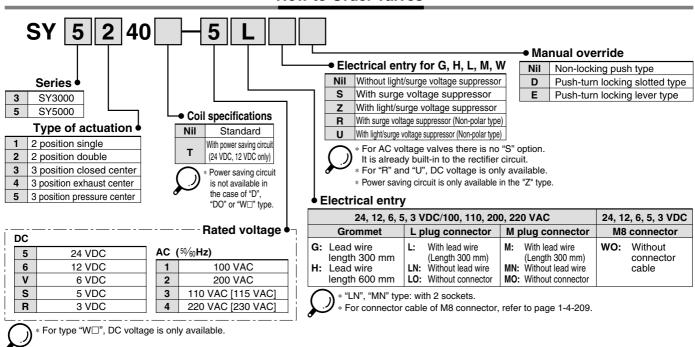
### **How to Order Valve Manifold Assembly**



The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of SUP/EXH block assembly. In ordering, specify the part nos. in the order from the 1st. station on D side. Besides, when the arrangement will be

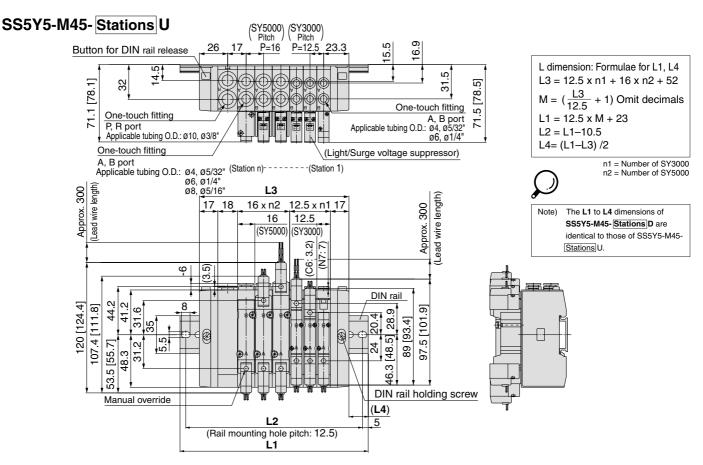
complicated, fill out the manifold specification sheet to instruct us

**How to Order Valves** 

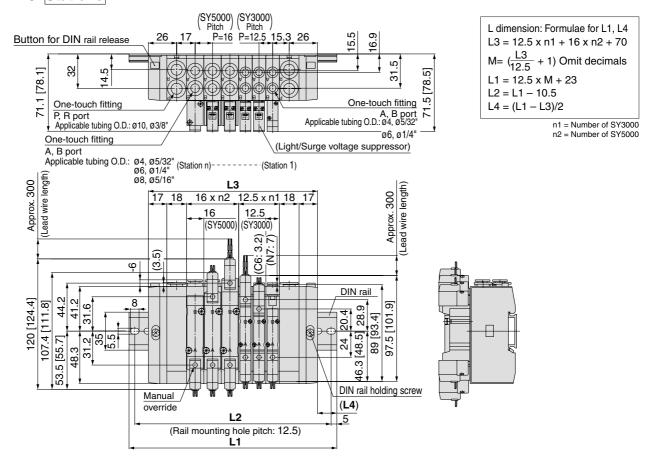


### **Dimensions: Mixed Mounting**





### SS5Y5-M45- Stations B



### **Made to Order Spcifications:** Series SY5000/7000/9000, SY500 DIN Terminal\* (DIN 43650C)



SV

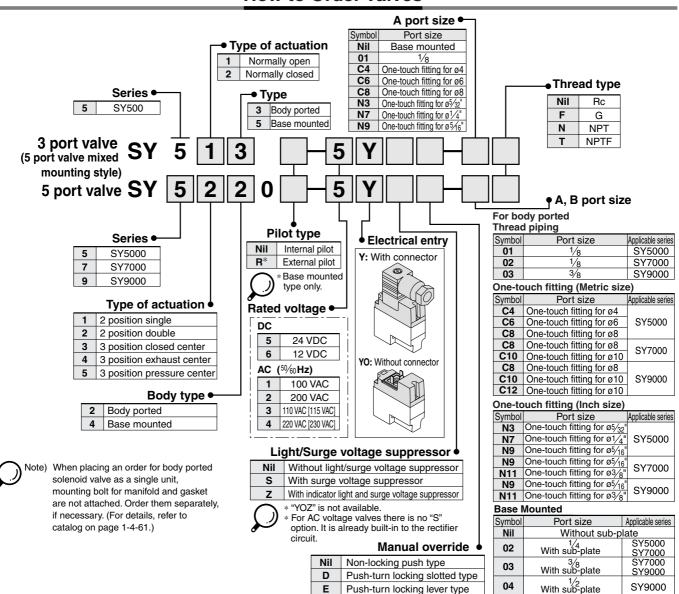
SZ

SYJ

SX

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

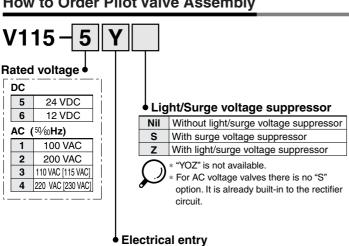
### **How to Order Valves**



### **How to Order Pilot Valve Assembly**

Y DIN

YO terminal



With connector

Without connector

### **DIN Terminal Part No.**

2			
Without light SY100-82-1			
With indicator light			
Rated voltage	Voltage symbol	No.	
24 VDC	24VN	SY100-82-3-05	
12 VDC	12VN	SY100-82-3-06	
100 VAC	100VN	SY100-82-3-01	
200 VAC	200VN	SY100-82-3-02	
110 VAC (115 VAC)	110VN	SY100-82-3-03	
220 VAC (230 VAC)	220VN	SY100-82-3-04	
^ - ::			

### **∠**!\Caution

- 1. 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. Tighten the ground nut and set screw within the specified range of torque. For how to use DIN terminal. (wiring procedures, procedures for changing electrical entries, precautions, applicable cable circuit diagram), refer to page 1-4-207
- Type D, DIN terminal with 9.4 mm pitch between terminals if not interchangeable.
   To distinguish from the Type D, DIN connector, "N" is listed at the end of voltage symbol. (For
- connector parts without lights, "N" is not indicated. Please refer to the name plate to distinguish.)
  4. Dimensions are completely the same as type D DIN terminal.
- 5. When exchanging the pilot valve assembly only, "SY115-□D" is interchangeable with "SY115-□Y". Do not replace SY114 (G, L, M) to SY115 (DIN terminal), and vice versa



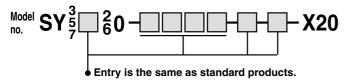
# Made to Order Specifications: Series SY3000/5000/7000/9000 Body Ported External Pilot/Fluoro Rubber



\* for Main Value

### **Body Ported External Pilot**

Applicable solenoid valves: Series SY3□<sup>2</sup><sub>6</sub>0, SY5□<sup>2</sup><sub>6</sub>0, SY7□<sup>2</sup><sub>6</sub>0



### **Operating Pressure Pange MPa**

Operating pressure range	-100 kPa to 0.7
Pilot pressure range	0.25 to 0.7

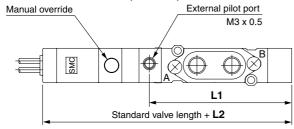
### Dimensions: For SY3 $\Box_{60}^{20}$ 60, SY5 $\Box_{60}^{20}$ 60, SY7 $\Box_{60}^{20}$ 60

Dimensions SY3000 becomes 6.5 mm longer. SY5000 and SY7000 becomes 10 mm longer.

#### **External Pilot Port**

Series	Port size
SY3000	M3 x 0.5
SY <sup>5</sup> 7000	M5 x 0.8

#### Dimensions: For SY3□60, SY5□60, SY7□60

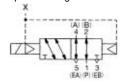


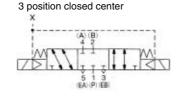
### **Dimentions/External Pilot Port Position**

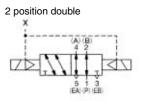
Series	L1 dimensions	L2 dimensions			
SY3000	41.5	6.5			
SY5000	60.4	9			
SY7000	71.9	9			

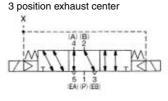
### JIS Symbol

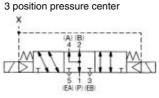
Body ported 2 position single









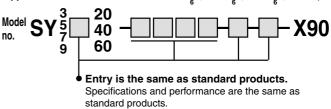


### **Main Valve Fluoro Rubber Specifications**

Fluoro rubber is used for rubber parts of the main valve to allow use in applications such as the following.

 When using a lubricant other than the recommended turbine oil, and there is a possibility of malfunction due to swelling of the spool valve seals.

Applicable solenoid valves: Series  $SY3 = \frac{2}{4}0$ ,  $SY5 = \frac{2}{4}0$ ,  $SY7 = \frac{2}{4}0$ ,  $SY9 = \frac{2}{4}0$ 



## $\triangle$

### Series SY3000/5000/7000/9000

### **Specific Product Precautions 1**

Be sure to read before handling.

### **Manual Override Operation**

### **∆**Warning

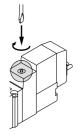
### ■ Non-locking push type [Standard]

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.







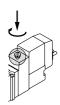
### **⚠** Caution

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



Locked position



### **△Caution**

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

### Solenoid Valve for 200/220 VAC Specifications

### **Marning**

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.

SV

SZ

SY

SYJ

### **Exhaust Throttle**

### **⚠** Caution

With series SY, the pilot valve and main valve share a common exhaust inside the valve. Therefore, do not block the exhaust port when arranging the piping.

### Series SY3000/5000/7000 Used as a 3 Port Valve

### **⚠** Caution

In the case of using a 5 port valve as a 3 port valve Series SY3000/5000/7000/9000 can be used as normally closed

(N.C.) or normally open (N.O.) 3 port port valves by closing one of the cylinder ports (A or B) with a plug. However, they should be used with the exhaust ports kept open. (Refer to pages 1-4-122 to 1-4-187 for dedicated 3 port solenoid valve.)

Plug	Plug position B port		A port		
Confi	guration	N.C.	N.O.		
solenoids	Single	Plug (A) (B) (E) (C) (EB)	Plug (A) (B) (A) (B) (A) (B) (A) (C) (EA) (EA)(P) (EB)		
Number of	Double	Plug (A) (B) (EA)(P) (EB)	Plug (A) (B) (A) 2 (B) (A) 2 (B) (B) (A) (B) (B) (B) (B) (B) (B) (B) (B) (B) (B		



### Series **SY3000/5000/7000/9000**



### **Specific Product Precautions 2**

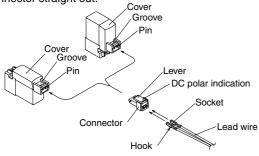
Be sure to read before handling.

### **How to Use Plug Connector**

### 

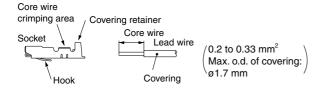
### 1. Attaching and detaching connectors

- 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 connection of lead wire and socket

Strip 3.2 to 3.7 mm at the end of lead wires, insert the end of the core wires evenly into the sockets, and then crimp it by a crimping tool. When this is done, take care that the coverings of the lead wires do not enter the core wire crimping area. (Crimping tool: Model no. DXT170-75-1)



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

#### Attaching

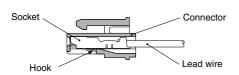
Insert the sockets into the square holes of the connector (+, – indication), and continue to push the sockets all the way in until they lock by hooking into the seats in the connector.

(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.



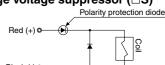
### **Surge Voltage Suppressor**

### 

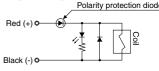
<For DC>
Grommet, L/M Plug Connector

### ■ Standard type (With polarity) With surge voltage suppressor (□S)





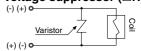
### With light/surge voltage suppressor (□Z)



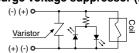


### ■ Non-polar type

With surge voltage suppressor (□R)



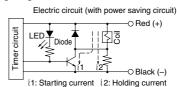
#### With light/surge voltage suppressor (□U)



- 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

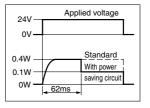
Power consumption is decreased by 1/4 by reducing the wattage required to hold the valve in an energized state. (Effective energizing time is over 62 ms at 24 VDC.)



### **Working Principle**

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

(In the case of SY  $_{q}^{\frac{5}{5}}{**}0T,$  the electric wave form of energy saving type)



## $\triangle$

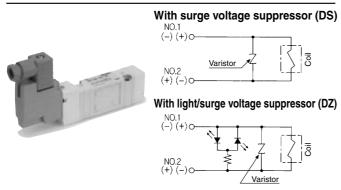
### Series **SY3000/5000/7000/9000**

### **Specific Product Precautions 3**

Be sure to read before handling.

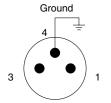
### **Surge Voltage Suppressor**

#### **DIN Terminal**



DIN terminal has no polarity.

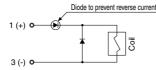
#### **M8 Connector**



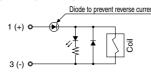
Solenoid valve side pin wiring diagram

Ground

■ Standard type (with polarity)
With surge voltage suppressor (□S)

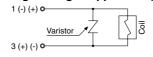


With light/surge voltage suppressor (□Z)



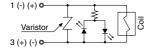
■ Non-polar type

With surge voltage suppressor (□R)



Solenoid valve side pin wiring diagram

With light/surge voltage suppressor ( $\Box$ U)



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

### Plug-in



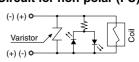
### Circuit for non-polar (FU)

SV

SZ

SYJ

SX

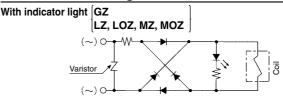


Plug-in valve has no polarity, so its possible to use for both manifold bases for positive (SS5Y $_5^3$ -45 $\square$ ) and negative its common (SS5Y $_5^3$ -45N $\square$ ) types.

#### <For AC>

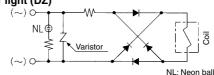
(There is no "S" option, because the generation of surge voltage is prevented by a rectifier.)

### Grommet, L/M Plug Connector



### **DIN Terminal**

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 voltage. The residual voltage of the diode is approximately



## $\triangle$

### Series SY3000/5000/7000/9000

### **Specific Product Precautions 4**

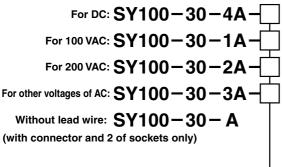
Be sure to read before handling.

### **Plug Connector Lead Wire Length**

### **⚠** Caution

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

### **How to Order Connector Assembly**



#### How to Order

Specify the part numbers of the solenoid valve without connector and the connector assembly with protective cover separately.

<Example> Lead wire length 2000 mm

For DC	For AC
SY3120-5LO-M5	SY3120-1LO-M5
SY100-30-4A-20	SY100-30-1A-20

Loud	Loud Wile 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					

I ead wire length

### **How to Use DIN Terminal**

### **⚠** Caution

#### Connection

- Loosen the holding screw and pull the connector out of the solenoid valve terminal block.
- 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  $90^{\circ}$  intervals).

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

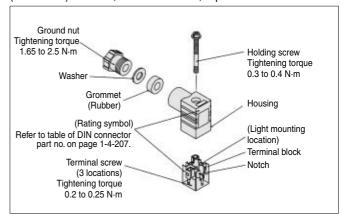
#### **Precautions**

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

### Compatible cable

Cord O.D.: ø3.5 to ø7

(Reference) 0.5 mm2, 2 core or 3 core, equivalent to JIS C 3306





### Series SY3000/5000/7000/9000

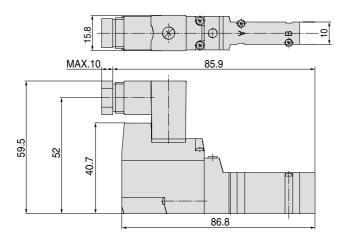
### **Specific Product Precautions 5**

Be sure to read before handling.

### Series SY300, SY3000 How to Use DIN Terminal

### **⚠**Caution

 SMC can provide a DIN style terminal connector (body ported type, sub-plate type) for the series SY300 and SY3000. This cannot be assembled to a standard manifold since the DIN connector width (15.8 mm) exceeds that of the valve body (10 mm). Please contact SMC if you wish to use with a manifold. Please also note: that brackets F1, F2 cannot be mounted.



### **DIN Terminal Part No.**

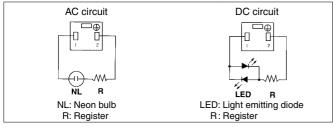
### **⚠** Caution

Without Indicator light	SY100-61-1

### With Indicator light

Rated voltage	Voltage symbol	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 1-4-201 for DIN terminal (Y) conforming to DIN 43650C.

### **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 roundshaped cord.

### SV

SZ

SYJ

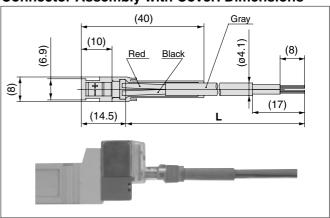
SX

### **How to Order**

### SY100-68-A

- Lead Wile 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.

<Example 1> Lead wire length of 2000 mm

SY3120-5LOZ-M5 SY100-68-A-20

<Example 2> Lead wire length of 300 mm (standard)

SY3120-5LPZ-M5

Symbol for connector assembly with cover

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



## $\wedge$

### Series SY3000/5000/7000/9000

### **Specific Product Precautions 6**

Be sure to read before handling.

### Plug-in

### **∕**Caution

■ When using a double solenoid valve (Dual body type: SY \$3245-□FU) on the plug-in style manifold (SS5Y \$3.45(N)□), two manifold stations are required per valve.

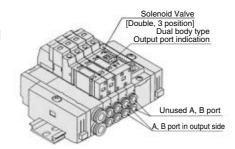
Output to A/B ports will be made through the manifold block on the side indicated by an arrow on the top of the solenoid valve. Therefore, arrange the piping on the side indicated by the arrow.

Although the "T" side will not be used, plugs will not be necessary since it is sealed with the valve.

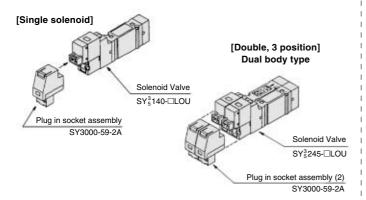
(However, insert a plug into the A/B ports if dust intrusion is possible. Refer to page 1-4-143.)

### Manifold valve SS5Y <sup>3</sup> -45 (N)□

1-4-208



Plug-in type solenoid valves consist of a non-polar solenoid valve and a plug-in socket. When ordering them separately, refer to the following part numbers.



Note) Using a valve other than a non-polar type may cause trouble.

### **DIN rail for Series SY9000**

### **⚠**Caution

The DIN rail used with Series SY9000 is stronger than that used with Series SY3000 and SY5000. Use this exclusive DIN rail with Series SY9000. Furthermore, if using a DIN rail other than that supplied by SMC, refer to the manifold mounting section below, and mount using the same method as prescribed for side facing and rear facing, regardless of the mounting orientation.

### **Manifold Mounting**

### **⚠**Caution

For Type 23, 43, 45 and 45□ DIN rail mounting, when attaching a manifold to a mounting surface, etc., with bolts, if the entire bottom surface of the DIN rail contacts the mounting surface in a horizontal mounting, it can be used by simply securing both ends of the DIN rail. However, for any other mounting method or for side facing and rear facing, etc., secure the DIN rail with bolts at uniform intervals using the following as a guide: 2 to 5 stations at 2 locations, 6 to 10 stations at 3 locations, 11 to 15 stations at 4 locations, and 16 to 20 stations at 5 locations. In addition, even in the case of a horizontal mounting, if the mounting surface is subject to vibration, etc., take the same measures indicated above. If secured at fewer than the specified number of locations, warping or twisting may occur in the DIN rail and manifold, causing trouble such as air leakage.

### **One-touch Fittings**

### **^**Caution

The pitch determined for each of the series SY piping ports (P, A, B, etc.) is based on the assumption that series KJ one-touch fittings will be used. For this reason, other pipe fittings may interfere with each other depending on their type and size. Dimensions should be confirmed in a pipe fitting catalog before they are used.



## $\triangle$

### Series SY3000/5000/7000/9000

### **Specific Product Precautions 7**

Be sure to read before handling.

### **One-touch Fittings**

### **∕**Caution

### Tubing attachment/detachment for One-touch fittings 1) Attaching of tubing

- 1. Take a tubing having no flaws on its periphery and cut it off at a right angle. When cutting the tubing, use tubing cutters TK-1, 2 or 3. Do not use pinchers, nippers or scissors, etc. If cutting is done with tools other than tubing cutters, the tubing may be cut diagonally or become flattened, etc., making a secure installation impossible, and causing problems such as the tubing pulling out after installation or air leakage. Allow some extra length in the tubing.
- 2. Grasp the tubing and push it in slowly, inserting it securely all the way into the fitting.
- After inserting the tubing, pull on it lightly to confirm that it will not come out. If it is not installed securely all the way into the fitting, this can cause problems such as air leakage or the tubing pulling out.

#### 2) Detaching of tubing

- Push in the release button sufficiently, pushing its collar equally around the circumference.
- Pull out the tubing while holding down the release button so that it does not come out. If the release button is not pressed down sufficiently, there will be increased bite on the tubing and it will become more difficult to pull it out.
- 3. When the removed tubing is to be used again, cut off the portion which has been chewed before reusing it. If the chewed portion of the tubing is used as is, this can cause trouble such as air leakage or difficulty in removing the tubing.
- The pitch determined for each of the series SY piping ports (A, B, etc.) is based on the assumption that series KJ One-touch fittings will be used. For this reason, other pipe fittings may interfere with each other depending on their type and size. Dimensions should be confirmed in a pipe fitting catalog before they are used.

### **Other Tubing Brands**

### **⚠**Caution

1. When using other than SMC brand tubing, confirm that the following specifications are satisfied with respect to the outside diameter tolerance of the tubing.

1) Nylon tubing within  $\pm 0.1$  mm 2) Soft nylon tubing within  $\pm 0.1$  mm

3) Polyurethane tubing within +0.15 mm, within -0.2 mm.

Do not use tubing which do not meet these outside diameter tolerances. It may not be possible to connect them, or they may cause other trouble, such as air leakage or the tubing pulling out after connection.

### SY

SYJ

SX

### **M8 Connector**

### **∧**Caution

 M8 connector types have an IP65 (enclosure) rating, offering protection from dust and water. However please note: these products are not intended for use in water.

Select a SMC connector cable (V100-49-1-□) or a FA sensor type connector, with M8 threaded 3 pin specifications conforming to Nippon Electric Control Equipment Association Standard, NECA4202 (IEC60947-5-2). Make sure the connector O.D. is 10.5mm or less when used with the Series SY3000 manifold. If more than 10.5mm, 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)

#### 

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.



## M

### Series **SY3000/5000/7000/9000**

### **Specific Product Precautions 8**

Be sure to read before handling.

### **M8 Connector**

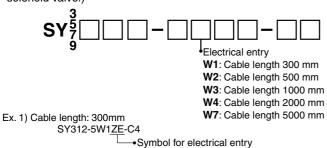
### **⚠** Caution

#### **■** Connector cable

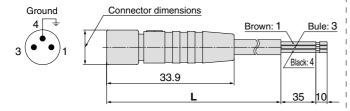
• Connector cable for M8 can be ordered as follows:

#### **How to Order**

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

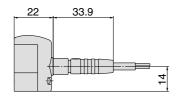


2. To order connector cable only



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

### [Dimensions when installed]



### **Solenoid Valve Mounting**

### **⚠** Caution

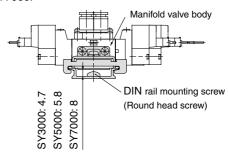
Mount it so that there is no slippage or deformation in gaskets, and tighten with the tightening torque as shown below.

Model	Thread size	Tightening torque			
SY3000	M2	0.16 N·m			
SY5000	М3	0.8 N·m			
SY7000	M4	1.4 N⋅m			
SY9000	М3	0.8 N·m			

### **Mounting of Cassette Manifolds to DIN Rail**

### **⚠** Caution

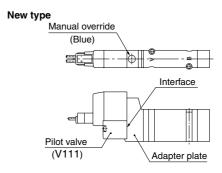
When using a DIN rail mounting screw beneath the manifold valve (within the dimension of L3, as shown in the printed dimension/contents section), the head size of the screw must be 4.7mm or less for SY3000, 5.8mm or less for SY5000, and 8mm or less for SY7000.



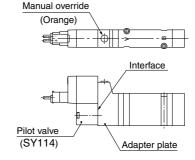
### **Replacement of Pilot Valve**

### **⚠** 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.



#### Conventional type



### Series SY3000/5000/7000/9000

### **Specific Product Precautions 9**

Be sure to read before handling.

### **Interface Regulator**

### **⚠** Caution

### **Specifications**

Interface regulator n	model	ARBY3000-□-P-2	ARBY300	0-□- <sup>A1</sup> -2	ARBY5000-□-P-2	ARBY500	0-□- <sup>A1</sup> -2	ARBY7000-□-P-2	ARBY700	0-□- <sup>A1</sup> -2
Applicable solenoid valve model SY3□40(R) SY5□40(R)					SY7□	340(R)				
Regulated port		Р	Α	В	Р	Α	В	Р	Α	В
Set pressure range		0.1 to 0.7 MPa								
Maximum operating p	ressure		0.7 MPa							
Fluid		Air								
Ambient and fluid temp	perature	Max. 50°C								
Connection port of pressu	ure gauge	M5 x 0.8								
Weight W (g) With pressure gauge		46 g (05),	46 g (05), 50 g (06) 66.8 g 110.8 g							
Wi	ith plug	20 g		60.4 g		103.2 g				
	→A,B	<u> </u>	2.45 ו	mm²	_	7.61	mm <sup>2</sup>	_	13.54	mm <sup>2</sup>
Exhaust side effective area Note 3 A,B-	→EA,EB	4.05 mm <sup>2</sup>	3.91 ו	mm²	11.1 mm <sup>2</sup>	10.1	mm <sup>2</sup>	15.71 mm <sup>2</sup>	15.71	mm <sup>2</sup>

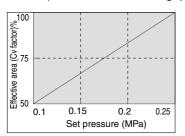
Note 1) Pressurize the interface regulator from P port on the base.

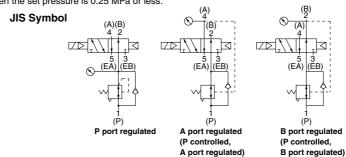
Note 2) With closed center and pressure center valves, the pressure can be regulated through P port only.

Note 3) Effective area, excluding the regulated port, when a primary pressure of 0.5 MPa is supplied with regulators mounted on the solenoid valves (2 positions) and sub-plate. Refer to "Flow Characteristics" regarding the regulated port.

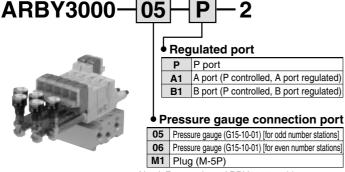
Note 4) Valves for weight include gasket and mounting screws.

Note 5) With A, B ports regulated (P port controlled A, B ports regulated), the effective area (Cv factor) for the regulated port and unregulated passage (P to B or P to A) decreases as shown in the graph below when the set pressure is 0.25 MPa or less.

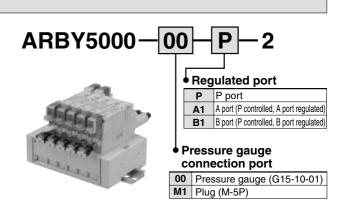


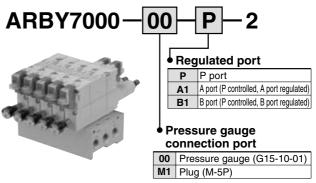


### **How to Order Interface Regulator**



Note) For series ARBY3000 with pressure gauge, note that the part numbers for odd number and even number stations differ to prevent interference between the pressure gauges when installing on the manifold.







1-4-211

SV

SZ

SYJ

SX

## $\triangle$

### Series SY3000/5000/7000/9000

### **Specific Product Precautions 10**

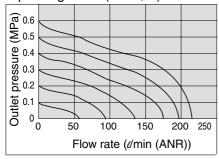
Be sure to read before handling.

### Flow Characteristics

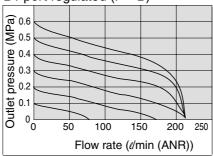
(Conditions: Inlet pressure 0.7 MPa when 2 position solenoid valve is mounted.)

#### **ARBY3000**

P port regulated (P→A, B)

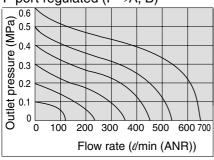


A1 port regulated ( $P\rightarrow A$ ), B1 port regulated ( $P\rightarrow B$ )

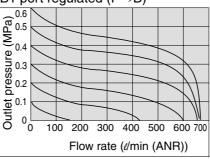


### **ARBY5000**

P port regulated (P→A, B)

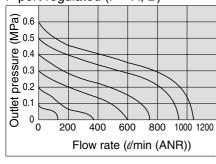


A1 port regulated ( $P\rightarrow A$ ), B1 port regulated ( $P\rightarrow B$ )



### **ARBY7000**

P port regulated (P→A, B)



A1 port regulated ( $P\rightarrow A$ ), B1 port regulated ( $P\rightarrow B$ )

