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

How to Order

SY [5] [1] 20 [ ] — [5] [L] [ ] [ ] — [01] [ ] — [ ]

Series

3	SY3000
5	SY5000
7	SY7000
9	SY9000

Type of actuation

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

Coil specifications

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

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

Rated voltage

DC

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

AC (50/60Hz)

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

∗ DC specifications of type "D" and "DO" is only available with 12 and 24 VDC.
∗ For type "W□", DC voltage is only available.

Electrical entry

24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC				24, 12 VDC/ 100, 110, 200, 220 VAC
Grommet	L plug connector	M plug connector		DIN terminal
G: Lead wire length 300 mm	L: With lead wire (Length 300 mm)	M: With lead wire (Length 300 mm)	MN: Without lead wire	
H: Lead wire length 600 mm	LN: Without lead wire	LO: Without connector	MO: Without connector	DO: Without connector

24, 12, 6, 5, 3 VDC
M8 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 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.

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	SY9000

One-touch fitting (Metric size)

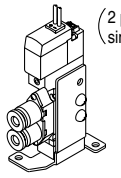
Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	SY3000
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	SY5000
C8	One-touch fitting for ø8	SY5000
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	SY7000
C8	One-touch fitting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

One-touch fitting (Inch size)

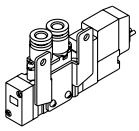
Symbol	Port size	Applicable series
N3	One-touch fitting for ø 5/32"	SY3000
N7	One-touch fitting for ø 1/	SY3000
N3	One-touch fitting for ø 5/32"	SY5000
N7	One-touch fitting for ø 1/	SY5000
N9	One-touch fitting for ø 5/16"	SY5000
N9	One-touch fitting for ø 5/16"	SY7000
N11	One-touch fitting for ø 3/	SY7000
N9	One-touch fitting for ø 5/16"	SY9000
N11	One-touch fitting for ø 3/	SY9000

Bracket

Nil: Without bracket
F1: With foot bracket (2 position single only)



F2: With side bracket



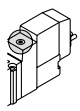
∗ SY9000 has no bracket.

Thread type

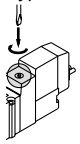
Nil	Rc
F	G
N	NPT
T	NPTF

Manual override

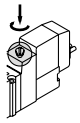
Nil: Non-locking push type



D: Push-turn locking slotted type



E: Push-turn locking lever type



Light/Surge voltage suppressor

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

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

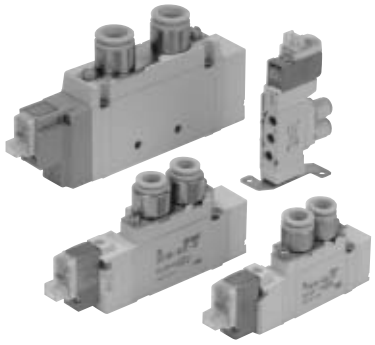
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D

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

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

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.)



Specifications

Series		SY3000	SY5000	SY7000	SY9000
Fluid		Air			
Internal pilot Operating pressure range (MPa)	2 position single	0.15 to 0.7			
	2 position double	0.1 to 0.7			
	3 position	0.2 to 0.7			
Ambient and fluid temperature (°C)		–10 to 50 (No freezing. Refer to page 1-7-5.)			
Max. operating frequency (Hz)	2 position single, double	10	5	5	5
	3 position	3	3	3	3
Manual override (Manual operation)		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 orientation		Unrestricted			
Impact/Vibration resistance (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)

SV
SZ
SY
SYJ
SX

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

Solenoid Specifications

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

∗ In common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.
∗ For 115 VAC and 230 VAC, the allowable voltage is –15% to +5% of rated voltage.

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 actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge 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

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge 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 actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge 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

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge 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

Valve model	Type of actuation		Port size 1, 5, 3 (P, EA, EB)	Port size 4, 2 (A, B)	Flow characteristics 1→4/2 (P→A/B) C (kdm³/(s·bar))	b	Cv	Flow characteristics 4/2→5/3 (A/B→EA/EB) C (kdm³/(s·bar))	b	Cv	Weight (g) Grom-met	L, M plug connector	W M8 connector
SY3□20 -□-M5	2 position	Single	M5 x 0.8	M5 x 0.8	0.61	0.44	0.16	0.64	0.45	0.18	51	53	57
		Double									68	74	82
	3 position	Closed center			0.48	0.46	0.13	0.47	0.43	0.13	71	76	84
		Exhaust center			0.47	0.42	0.13	0.47 (0.44)	0.41 (0.37)	0.13 (0.12)			
		Pressure center			0.50 (0.41)	0.48 (0.35)	0.15 (0.11)	0.47	0.43	0.13			
SY3□20 -□-C4	2 position	Single		C4 (One-touch fitting for ø4)	0.72	0.29	0.18	0.64	0.34	0.17	60	63	67
		Double									78	83	101
	3 position	Closed center			0.59	0.28	0.15	0.59	0.30	0.15	81	86	94
		Exhaust center			0.63	0.35	0.16	0.42 (0.41)	0.34 (0.37)	0.11 (0.11)			
		Pressure center			0.76 (0.46)	0.42 (0.34)	0.21 (0.12)	0.59	0.29	0.15			
SY3□20 -□-C6	2 position	Single		C6 (One-touch fitting for ø6)	0.76	0.30	0.19	0.65	0.39	0.17	56	59	63
		Double									74	79	87
	3 position	Closed center			0.76	0.55	0.24	0.60	0.33	0.16	77	82	90
		Exhaust center			0.65	0.32	0.16	0.64 (0.42)	0.31 (0.36)	0.17 (0.11)			
		Pressure center			0.77 (0.49)	0.34 (0.43)	0.21 (0.15)	0.61	0.34	0.16			

Note) [ ]: Denotes normal position.

Series SY7000

Valve model	Type of actuation		Port size 1, 5, 3 (P, EA, EB)	Port size 4, 2 (A, B)	Flow characteristics 1→4/2 (P→A/B) C (dm³/(s·bar))	b	Cv	Flow characteristics 4/2→5/3 (A/B→EA/EB) C (dm³/(s·bar))	b	Cv	Weight (g) Grom-met	L, M plug connector	DIN terminal	W M8 connector
SY7□20 -□-02	2 position	Single	1 (P) Port 1/4 5, 3 (EA, EB) port 1/8	1/4	4.1	0.23	0.93	3.3	0.33	0.81	101	104	125	129
		Double									120	125	167	175
	3 position	Closed center			2.9	0.31	0.70	2.4	0.38	0.63	128	133	175	183
		Exhaust center			2.5	0.39	0.65	3.4 (2.1)	0.35 (0.38)	0.82 (0.54)				
		Pressure center			4.3 (2.4)	0.23 (0.32)	0.97 (0.61)	2.2	0.39	0.58				
SY7□20 -□-C8	2 position	Single		C8 (One-touch fitting for ø8)	3.2	0.26	0.77	3.2	0.37	0.82	107	110	131	135
		Double									126	132	174	182
	3 position	Closed center			2.6	0.24	0.63	2.4	0.31	0.62	134	140	182	190
		Exhaust center			2.4	0.25	0.57	2.6 (1.9)	0.42 (0.46)	0.70 (0.56)				
		Pressure center			3.3 (2.4)	0.28 (0.22)	0.78 (0.57)	2.2	0.34	0.60				
SY7□20 -□-C10	2 position	Single		C10 (One-touch fitting for ø10)	3.8	0.26	0.86	3.2	0.34	0.82	103	105	126	130
		Double									122	127	169	177
	3 position	Closed center			2.8	0.27	0.67	2.4	0.21	0.59	130	135	177	185
		Exhaust center			2.5	0.25	0.59	2.7 (2.0)	0.38 (0.38)	0.70 (0.56)				
		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

Valve model	Type of actuation		Port size 1, 5, 3 (P, EA, EB)	Port size 4, 2 (A, B)	Flow characteristics 1→4/2 (P→A/B) C (dm³/(s·bar))	b	Cv	Flow characteristics 4/2→5/3 (A/B→EA/EB) C (dm³/(s·bar))	b	Cv	Weight (g) Grom-met	L, M plug connector	DIN terminal	W M8 connector
SY5□20 -□-01	2 position	Single	1/8	1/8	1.9	0.35	0.49	2.4	0.39	0.61	70	72	93	97
		Double									88	93	135	143
	3 position	Closed center			1.7	0.43	0.45	1.8	0.35	0.46	93	98	140	148
		Exhaust center			1.5	0.44	0.41	2.5 (1.5)	0.32 (0.43)	0.59 (0.40)				
		Pressure center			2.2 (0.91)	0.46 (0.58)	0.61 (0.28)	1.8	0.38	0.46				
SY5□20 -□-C4	2 position	Single		C4 (One-touch fitting for ø4)	0.75	0.43	0.20	0.85	0.64	0.30	94	96	117	121
		Double									111	117	159	167
	3 position	Closed center			0.74	0.40	0.19	0.84	0.57	0.28	117	122	164	172
		Exhaust center			0.75	0.36	0.19	0.84 (0.84)	0.64 (0.53)	0.30 (0.27)				
		Pressure center			0.78 (0.71)	0.44 (0.37)	0.21 (0.18)	0.84	0.57	0.27				
SY5□20 -□-C6	2 position	Single		C6 (One-touch fitting for ø6)	1.5	0.33	0.33	2.0	0.37	0.52	88	91	112	116
		Double									106	111	153	161
	3 position	Closed center			1.3	0.31	0.33	1.6	0.32	0.39	111	116	158	166
		Exhaust center			1.3	0.33	0.33	1.8 (1.4)	0.35 (0.37)	0.44 (0.35)				
		Pressure center			1.7 (0.80)	0.31 (0.47)	0.42 (0.23)	1.7	0.33	0.44				
SY5□20 -□-C8	2 position	Single		C8 (One-touch fitting for ø8)	1.9	0.21	0.45	2.3	0.29	0.57	80	82	103	107
		Double									98	103	145	153
	3 position	Closed center			1.6	0.29	0.39	1.7	0.38	0.46	103	108	150	158
		Exhaust center			1.4	0.38	0.39	2.0 (1.5)	0.37 (0.41)	0.52 (0.43)				
		Pressure center			2.2 (1.6)	0.32 (0.44)	0.56 (0.44)	1.8	0.41	0.50				

Note) [ ]: Denotes normal position.

Series SY9000

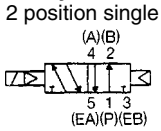
Valve model	Type of actuation		Port size 1, 5, 3 (P, EA, EB)	Port size 4, 2 (A, B)	Flow characteristics 1→4/2 (P→A/B) C (dm³/(s·bar))	b	Cv	Flow characteristics 4/2→5/3 (A/B→EA/EB) C (dm³/(s·bar))	b	Cv	Weight (g) Grom-met	L, M plug connector	DIN terminal	W M8 connector
SY9□20 -□-02	2 position	Single		1/4	7.0	0.33	1.7	7.6	0.35	2.0	241	244	265	269
		Double									260	266	308	316
	3 position	Closed center			6.7	0.37	1.7	6.4	0.34	1.6	284	290	332	340
		Exhaust center			6.4	0.36	1.6	8.3 (4.1)	0.41 (0.27)	2.2 (0.91)				
		Pressure center			8.0 (3.2)	0.27 (0.34)	1.8 (0.76)	6.5	0.22	1.4				
SY9□20 -□-03	2 position	Single		3/8	8.0	0.29	1.9	8.0	0.33	2.0	236	239	260	264
		Double									255	261	303	311
	3 position	Closed center			7.9	0.33	1.9	6.6	0.27	1.6	279	285	327	335
		Exhaust center			8.0	0.33	1.9	8.7 (8.3)	0.34 (0.40)	2.2 (2.3)				
		Pressure center			8.9 (3.3)	0.34 (0.40)	2.2 (0.82)	6.5	0.25	1.5				
SY9□20 -□-C8	2 position	Single		C8 (One-touch fitting for ø8)	4.3	0.28	0.96	7.1	0.32	1.7	293	296	317	321
		Double									312	318	360	368
	3 position	Closed center			4.3	0.31	0.99	6.1	0.28	1.4	336	342	384	392
		Exhaust center			4.3	0.3	0.99	7.4 (3.8)	0.36 (0.29)	1.9 (0.86)				
		Pressure center			4.4 (3.2)	0.35 (0.26)	1.0 (0.71)	2.1	0.41	0.53				
SY9□20 -□-C10	2 position	Single		C10 (One-touch fitting for ø10)	6.1	0.28	1.4	7.9	0.33	1.9	279	282	303	307
		Double									298	304	346	354
	3 position	Closed center			5.9	0.30	1.4	6.5	0.26	1.5	322	328	370	378
		Exhaust center			5.8	0.25	1.3	8.4 (4.1)	0.33 (0.27)	2.0 (0.93)				
		Pressure center			6.3 (3.2)	0.29 (0.29)	1.5 (0.72)	6.4	0.25	1.5				
SY9□20 -□-C12	2 position	Single		C12 (One-touch fitting for ø12)	7.0	0.25	1.6	8.6	0.41	2.2	265	268	289	293
		Double									284	290	332	340
	3 position	Closed center			6.9	0.24	1.6	7.0	0.33	1.7	308	314	356	364
		Exhaust center			6.6	0.23	1.4	9.4 (4.5)	0.48 (0.32)	2.6 (1.0)				
		Pressure center			7.4 (3.2)	0.25 (0.34)	1.7 (0.74)	6.6	0.23	1.5				

Note) [ ]: Denotes normal position.

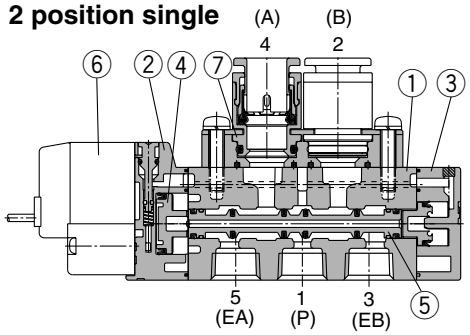
Construction

Series SY

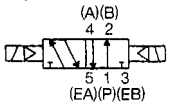
JIS Symbol
2 position single



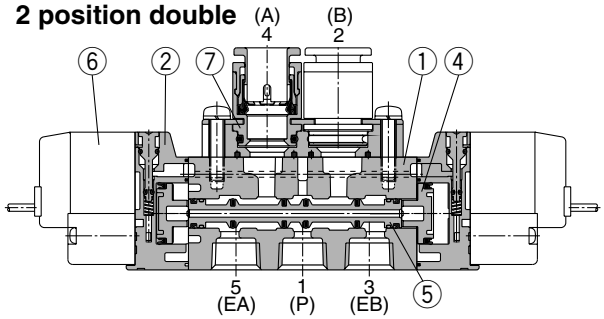
2 position single



JIS Symbol
2 position double

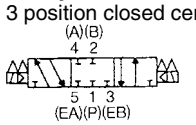


2 position double

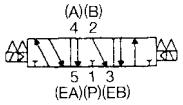


3 position closed center/exhaust center/pressure center

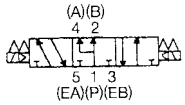
JIS Symbol
3 position closed center

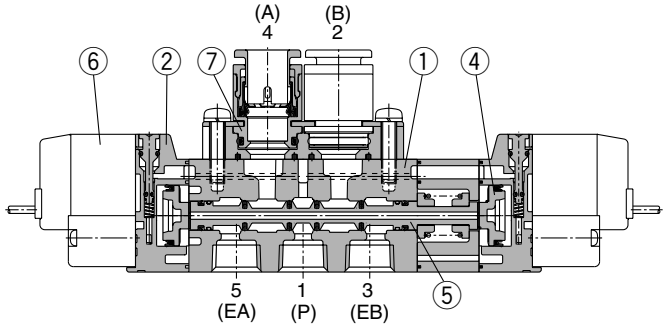


3 position exhaust center



3 position pressure center





(This figure shows a closed center type.)

Component Parts

No.	Description	Material	Note
①	Body	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.

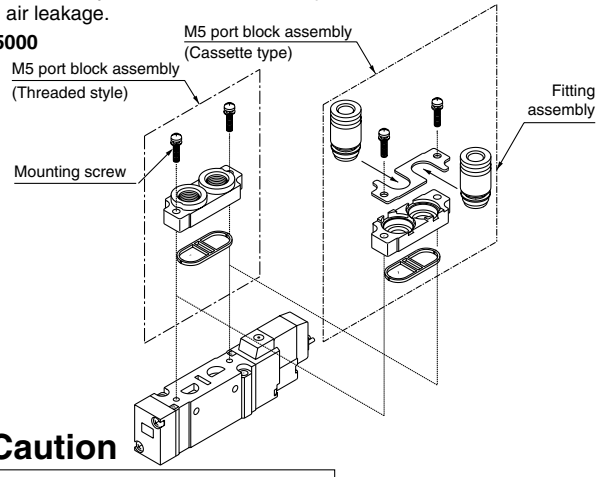
Description	part no.
Bracket (For F1)	SX$^{3}_{7}$000-16-2A (with mounting screw)
Bracket (For F2)	SX$^{3}_{7}$000-16-1A (with mounting screw)

∗ 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.

For SY5000



⚠ Caution

Mounting screw tightening torques

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

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

How to Order Pilot Valve Assembly

V111 □ — 5 G □

Coil specifications

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

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

Rated voltage

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

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

Light/Surge voltage suppressor

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

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

Electrical entry

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

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

■ DIN terminal type

V115 — 5 D □

Rated voltage

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

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

Light/Surge voltage suppressor

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

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

Electrical entry

D	DIN terminal	With connector
DO		Without connector

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 Connector Assembly for L/M Plug Connector

For DC: **SY100 −30−4A−** □
For 100 VAC: **SY100 −30−1A−** □
For 200 VAC: **SY100 −30−2A−** □
For other voltages of AC: **SY100 −30−3A−** □
Without lead wire: **SY100 −30− A**
(with connector and 2 of sockets only)

Lead wire length

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

How to Order M8 Connector Cable

■ Straight type

V100 − 49 −1− □

Cable length

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

How to Order Port Block Assembly

SY □ 000−6A− □ □

Series

3	SY3000
5	SY5000
7	SY7000
9	SY9000

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

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	

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	
C8	One-touch fitting for ø8	SY9000
C10	One-touch fitting for ø10	
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"	
N3	One-touch fitting for ø 5/32"	SY5000
N7	One-touch fitting for ø 1/4"	
N9	One-touch fitting for ø 5/16"	
N9	One-touch fitting for ø 5/16"	SY7000
N11	One-touch fitting for ø 3/8"	
N9	One-touch fitting for ø 5/16"	SY9000
N11	One-touch fitting for ø 3/8"	

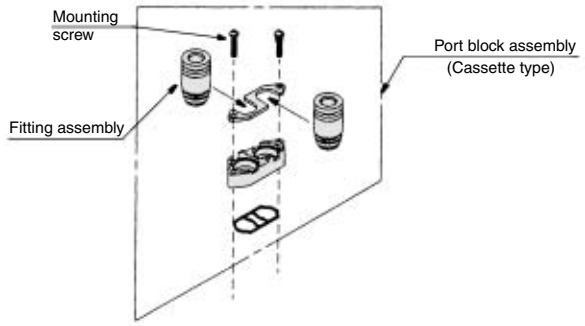
∗ Only replacement of the fittings assembly is possible.

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
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 size

SY3000	One-touch fitting for ø 5/32"	VVQ1000-50A-N3
	One-touch fitting for ø 1/4"	VVQ1000-50A-N7
SY5000	One-touch fitting for ø 5/32"	VVQ1000-51A-N3
	One-touch fitting for ø 1/4"	VVQ1000-51A-N7
	One-touch fitting for ø 5/16"	VVQ1000-51A-N9
SY7000	One-touch fitting for ø 5/16"	VVQ2000-51A-N9
	One-touch fitting for ø 3/8"	VVQ2000-51A-N11
SY9000	One-touch fitting for ø 5/16"	VVQ4000-50B-N9
	One-touch fitting for ø 3/8"	VVQ4000-50B-N11

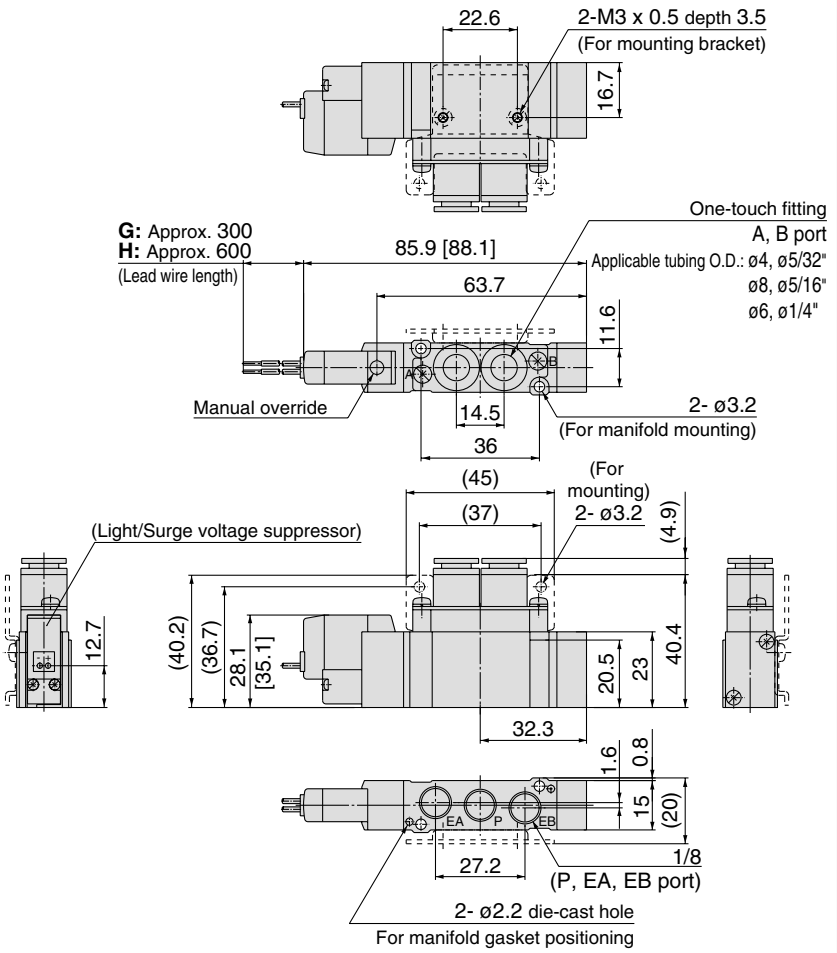


Dimensions: Series SY5000

[ ]: AC

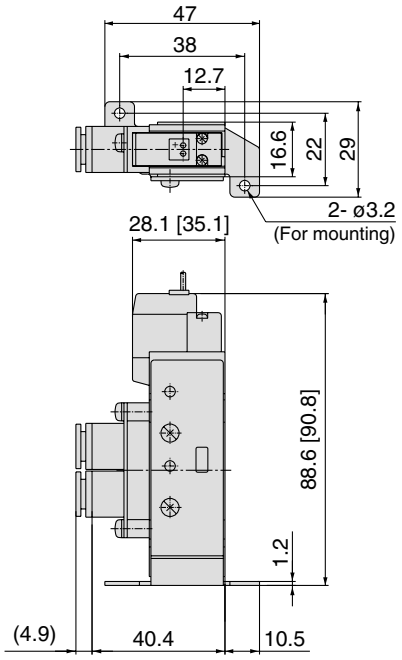
2 position single

Grommet (G), (H): SY5120-□$^{G}_{H}$□□-$^{C4, N3}_{C6, N7}$□(-F2)

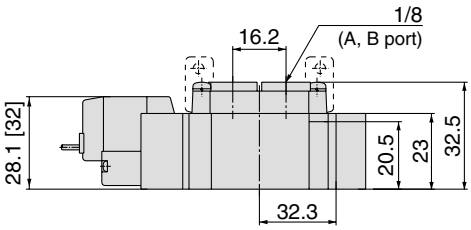


Foot bracket

SY5120-□$^{G}_{H}$□□-$^{C4, N3}_{C6, N7}$□-F1



SY5120-□$^{G}_{H}$□□-01□(-F$^{1}_{2}$)



L plug connector: L

SY5120-□L□□-$^{C4, N3}_{C6, N7}$□(-F$^{1}_{2}$)

M plug connector: M

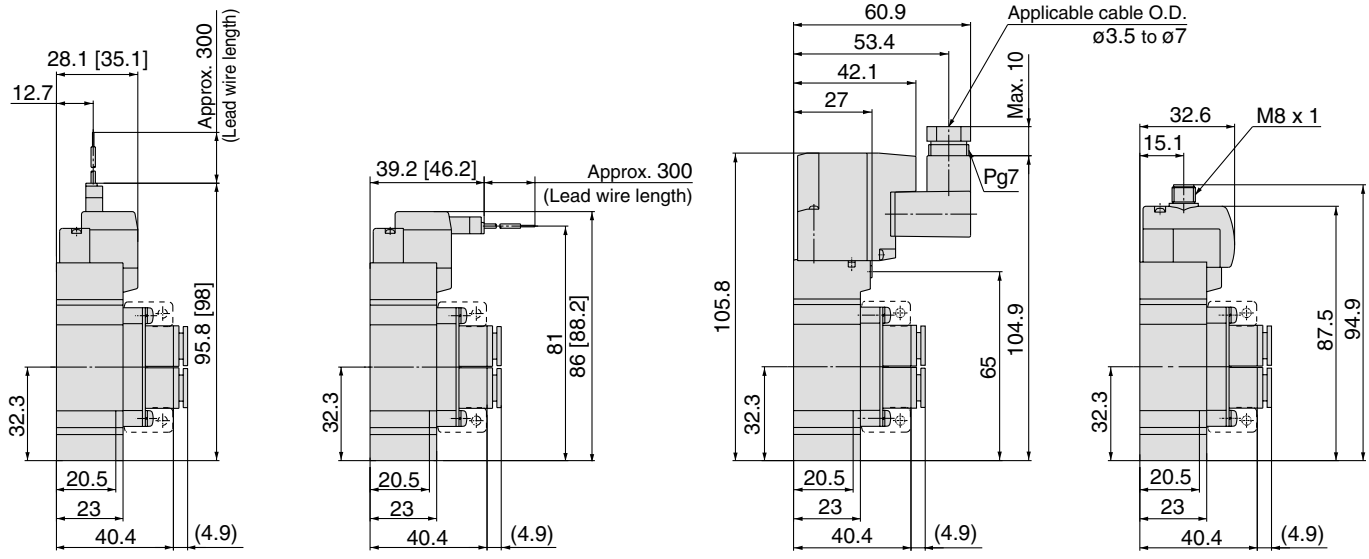
SY5120-□M□□-$^{C4, N3}_{C6, N7}$□(-F$^{1}_{2}$)

DIN terminal (D):

SY5120-□D□□-$^{C4, N3}_{C6, N7}$□(-F$^{1}_{2}$)

M8 connector (WO):

SY5120-□WO□□-$^{C4, N3}_{C6, N7}$□(-F$^{1}_{2}$)



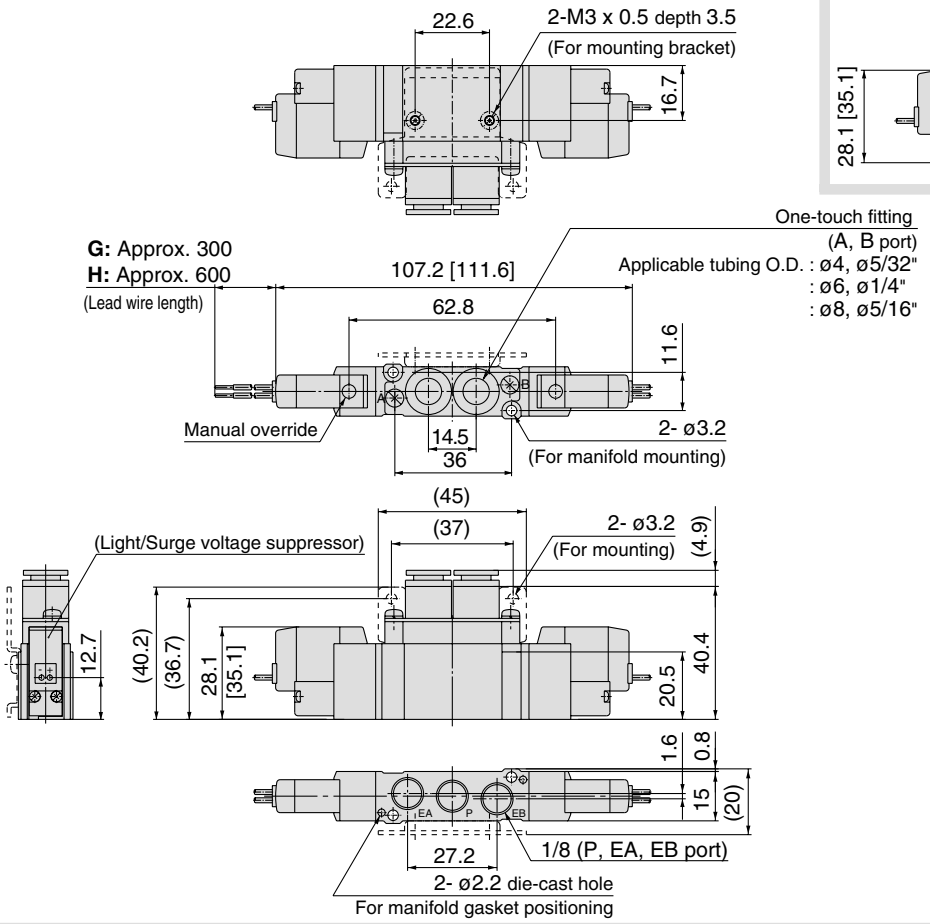
Note) Refer to page 1-4-210 for dimensions of connector types.

Dimensions: Series SY5000

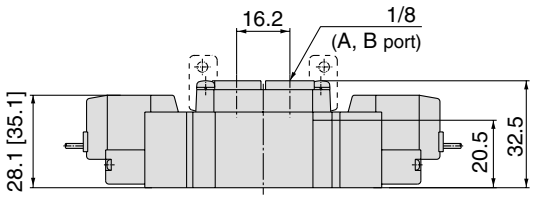
[ ]: AC

2 position double

Grommet (G), (H): SY5220-□ G/H □□- C4, N3 / C6, N7 / C8, N9 □(-F2)

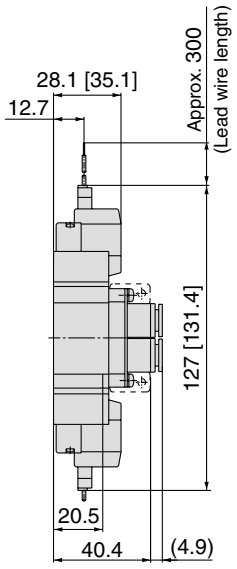


SY5220-□ G/H □□-01□(-F2)



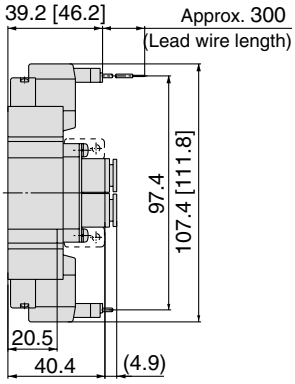
L plug connector: L

SY5220-□L□□- C4, N3 / C6, N7 / C8, N9 □(-F2)



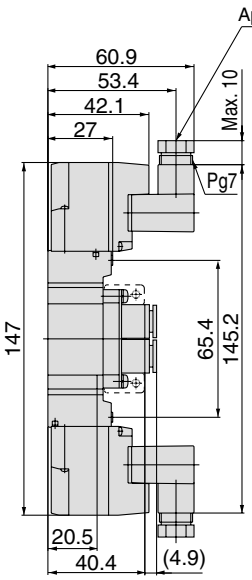
M plug connector: M

SY5220-□M□□- C4, N3 / C6, N7 / C8, N9 □(-F2)



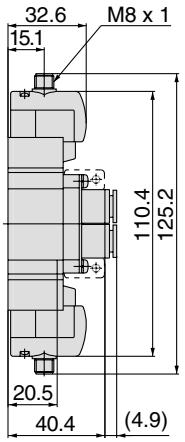
DIN terminal (D):

SY5220-□D□□- C4, N3 / C6, N7 / C8, N9 □(-F2)



M8 connector (WO):

SY5220-□WO□□- C4, N3 / C6, N7 / C8, N9 □(-F2)

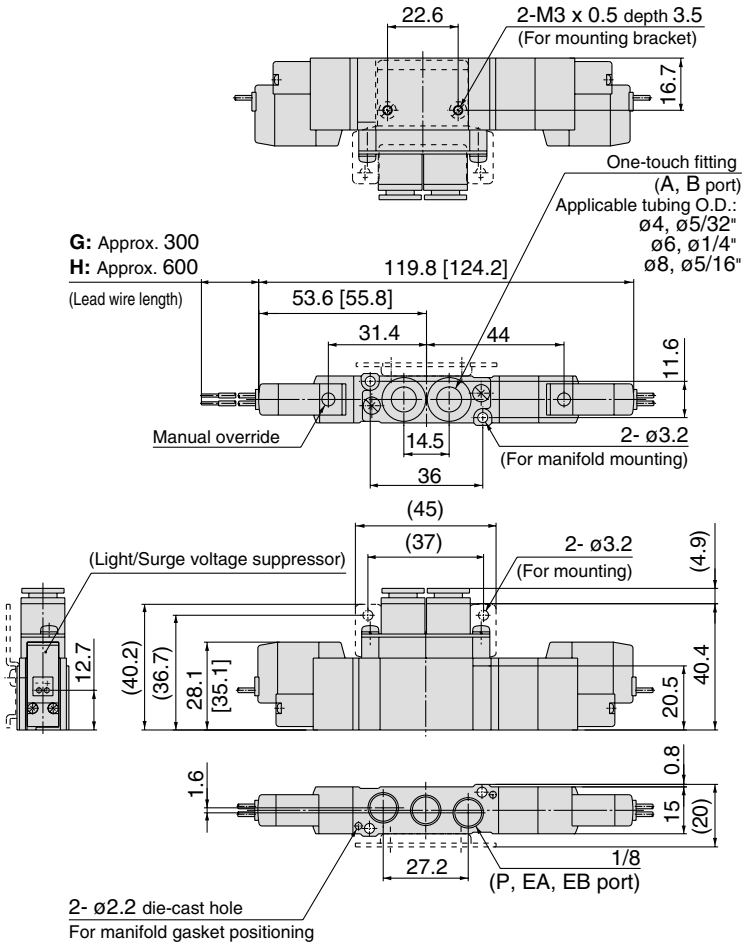


Note) Refer to page 1-4-210 for dimensions of connector types.

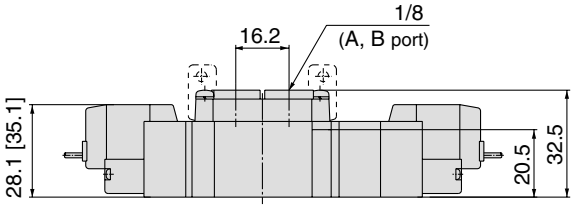
Dimensions: Series SY5000

[ ]: AC

3 position closed center/exhaust center/pressure center
Grommet (G), (H): SY5$^{3}_{5}$4$^{G}_{H}$20-□□□-$^{C4, N3}_{C6, N7}$□(-F2)



SY5$^{3}_{5}$4$^{3}_{5}$20-□□□-01□(-F2)

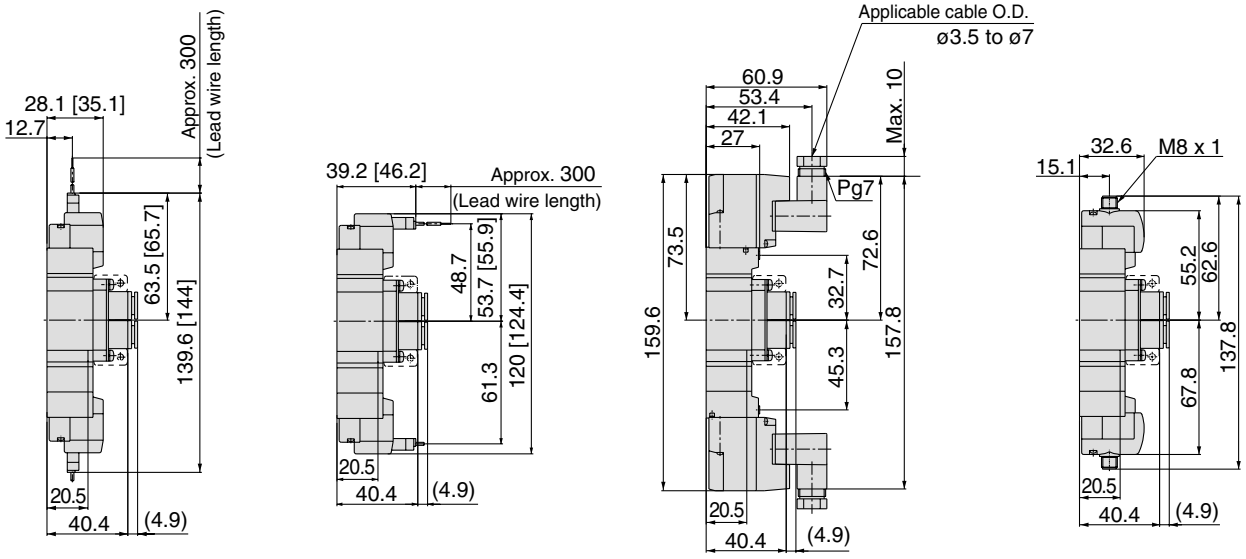


L plug connector: L
SY5$^{3}_{5}$4$^{3}_{5}$20-□L□□-$^{C4, N3}_{C6, N7}$□(-F2)

M plug connector: M
SY5$^{3}_{5}$4$^{3}_{5}$20-□M□□-$^{C4, N3}_{C6, N7}$□(-F2)

DIN terminal (D):
SY5$^{3}_{5}$4$^{3}_{5}$20-□D□□-$^{C4, N3}_{C6, N7}$□(-F2)

M8 connector (WO):
SY5$^{3}_{5}$4$^{3}_{5}$20-□WO□□-$^{C4, N3}_{C6, N7}$□(-F2)



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

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

How to Order

SY [5] [2] 40 [ ] [ ] – [5] [L] [ ] [ ] – [ ] [ ]

Series

3	SY3000
5	SY5000
7	SY7000
9	SY9000

Type of actuation

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

Pilot type

Nil	Internal pilot
R	External pilot

Coil specifications

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

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

Rated voltage

DC

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

AC (50/60Hz)

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

∗ DC specifications of type "D" and "DO" is only available with 12 and 24 VDC.
∗ For type "W□", DC voltage is only available.

Port size

Symbol	Port size	Applicable series
Nil	Without sub-plate	
01	1/8 With sub-plate	SY3000
02	1/4 With sub-plate	SY5000 SY7000
03	3/8 With sub-plate	SY7000 SY9000
04	1/2 With sub-plate	SY9000

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Manual override

Nil: Non-locking push type

D: Push-turn locking slotted type

E: Push-turn locking lever type

(Light/Surge voltage suppressor)

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

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

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

Electrical entry for D

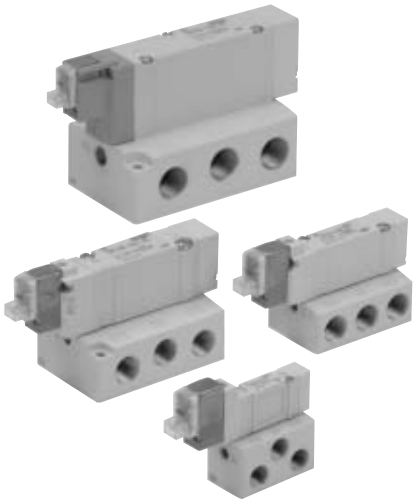
Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

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

Electrical entry

24, 12, 6, 5, 3 VDC / 100, 110, 200, 220 VAC				24, 12 VDC/ 100, 110, 200, 220 VAC	24, 12, 6, 5, 3 VDC
Grommet	L plug connector	M plug connector		DIN terminal	M8 connector
G: Lead wire length 300 mm	**L:** With lead wire (Length 300 mm)	**M:** With lead wire (Length 300 mm)	**MN:** Without lead wire	**(Except SY3000) D:** With connector	**WO:** Without connector cable
H: Lead wire length 600 mm	**LN:** Without lead wire	**LO:** Without connector	**MO:** Without connector	**DO:** Without connector	

∗ "LN", "MN" type: with 2 sockets.
∗ For DIN terminal of SY3000 series, refer to page 1-4-207.
∗ DIN terminal type "Y" conforming to DIN43650C standard is also available. For details, refer to page 1-4-201.
∗ For connector cable of M8 connector, refer to page 1-4-210.



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

Specifications

Series			SY3000	SY5000	SY7000	SY9000
Fluid			Air			
Internal pilot Operating pressure range (MPa)	2 position single		0.15 to 0.7			
	2 position double		0.1 to 0.7			
	3 position		0.2 to 0.7			
External pilot Operating pressure range (MPa)	Operating pressure range		–100 kPa to 0.7			
	Pilot pressure range	2 position single	0.25 to 0.7			
		2 position double	0.25 to 0.7			
		3 position	0.25 to 0.7			
Ambient and fluid temperature (°C)			–10 to 50 (No freezing. Refer to page 1-7-4.)			
Max. operating frequency (Hz)	2 position single, double		10	5	5	5
	3 position		3	3	3	3
Manual override (Manual operation)			Non-locking push type, Push-turn locking slotted type, Push-turn locking lever type			
Pilot exhaust method	Internal pilot		Common exhaust type for main and pilot valve			
	External pilot		Pilot valve individual exhaust			
Lubrication			Not required			
Mounting orientation			Unrestricted			
Impact/Vibration resistance (m/s²) Note)			150/30			
Enclosure			Dustproof (∗ DIN terminal, M8 connector conforms 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)

Response Time

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

SY3000

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge 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

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge 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 actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge 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

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge 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

Electrical entry			Grommet (G), (H) L plug connector: L M plug connector: M DIN terminal (D) M8 connector (W)
Coil rated voltage (V)	DC		24, 12, 6, 5, 3
	AC 50/60Hz		100, 110, 200, 220 ∗
Allowable voltage fluctuation (%)			±10% of rated voltage
Power consumption (W)	DC	Standard	0.35 (with indicator light: 0.4 DIN terminal with indicator light: 0.45)
		With power saving circuit	0.1 (With indicator light only)
Apparent power	AC	100 V	1.4 (With indicator light: 1.5)
		110 V [115 V]	1.6 (With indicator light: 1.7) 1.7 (With indicator light: 1.8)
		200 V	2.3 (With indicator light: 2.4)
		220 V [230 V]	2.5 (With indicator light: 2.6) 2.7 (With indicator light: 2.8)
Surge voltage suppressor			Diode (Varistor 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.
∗ For 115 VAC and 230 VAC, the allowable voltage is –15% to 5% of rated voltage.

Flow Characteristics/Weight

Series SY3000

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

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

Series SY5000

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

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

Series SY7000

Valve model	Type of actuation		Port size	Flow characteristics Note 1)						Weight (g) Note 2)			
				1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			Grommet	L plug connector, M plug connector	DIN terminal	W M8 connector
				C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv				
SY7□40-□-02	2 position	Single	1/4	4.1	0.41	1.1	4.1	0.29	1.0	218 (89)	221 (92)	242 (113)	225 (96)
		Double								237 (108)	242 (113)	284 (155)	250 (121)
	3 position	Closed center		3.0	0.43	0.80	2.6	0.41	0.72	239 (110)	245 (116)	287 (158)	253 (124)
		Exhaust center		2.6	0.42	0.71	4.7 (1.7)	0.35 (0.48)	1.1 (0.49)				
		Pressure center		5.3 (2.3)	0.39 (0.49)	1.3 (0.65)	2.2	0.49	0.63				
SY7□40-□-03	2 position	Single	3/8	4.9	0.29	1.2	4.5	0.27	1.1	218 (89)	221 (92)	242 (113)	225 (96)
		Double								237 (108)	242 (113)	284 (155)	250 (121)
	3 position	Closed center		3.0	0.40	0.80	2.6	0.45	0.73	239 (110)	245 (116)	287 (158)	253 (124)
		Exhaust center		2.6	0.42	0.71	4.8 (1.7)	0.35 (0.48)	1.1 (0.49)				
		Pressure center		5.3 (2.3)	0.31 (0.51)	1.3 (0.64)	2.3	0.45	0.66				

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

Series SY9000

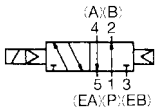
Valve model	Type of actuation		Port size	Flow characteristics Note1)						Weight (g) Note 2)			
				1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			Grommet	L plug connector, M plug connector	DIN terminal	W M8 connector
				C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv				
SY9□40-□-03	2 position	Single	3/8	7.9	0.34	2.0	9.6	0.43	2.6	469(172)	472(175)	493(196)	476(179)
		Double								488(191)	494(197)	535(239)	502(205)
	3 position	Closed center		7.5	0.33	1.8	7.3	0.30	1.7	512(215)	518(221)	560(263)	526(229)
		Exhaust center		7.2	0.34	1.7	13 (4.0)	0.23 (0.41)	2.8 (0.95)				
		Pressure center		12 (3.3)	0.26 (0.41)	2.8 (0.84)	6.7	0.40	1.9				
SY9□40-□-04	2 position	Single	1/2	8.0	0.48	2.2	10	0.29	2.5	448 (151)	453 (156)	472	457(160)
		Double								467 (170)	473 (176)	515	481(184)
	3 position	Closed center		7.6	0.32	1.8	7.3	0.32	1.8	491 (194)	497 (200)	539	505(208)
		Exhaust center		7.3	0.42	2.0	13 (4.7)	0.32 (0.54)	3.6 (1.5)				
		Pressure center		12 (3.3)	0.33 (0.51)	3.3 (0.94)	7.4	0.33	1.9				

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

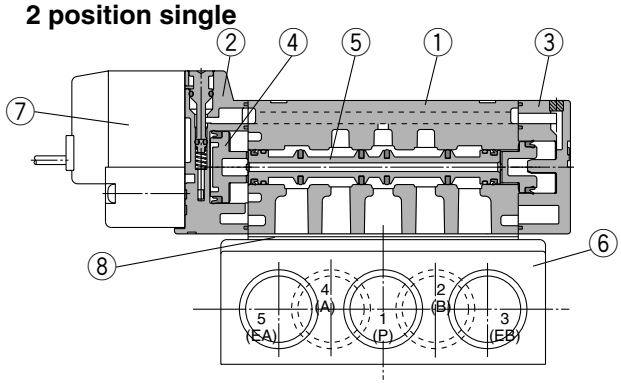
Construction

Series SY

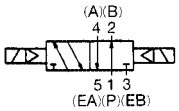
JIS Symbol
2 position single



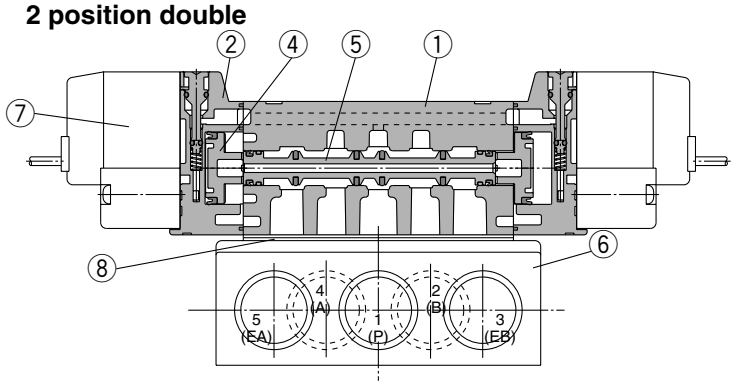
2 position single



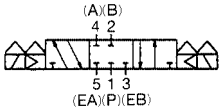
JIS Symbol
2 position double



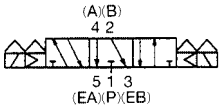
2 position double



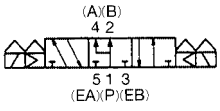
JIS Symbol
3 position closed center



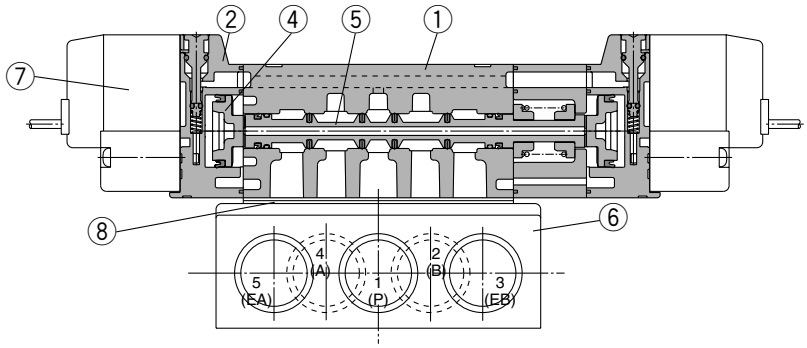
3 position exhaust center



3 position pressure center



3 position closed center/exhaust center/pressure center



(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	—

Replacement Parts

No.	Description	Part no.				Note
		SY3□40	**SY5□40**	**SY7□40**	**SY9□40**	
⑥	Sub-plate	SY3000-27-1✻	SY5000-27-1✻	1/4: SY7000-27-1✻ 3/8: SY7000-27-2✻	3/8: SY9000-27-1✻ 1/2: SY9000-27-2✻	Aluminum die-casted
⑦	Pilot valve assembly	Refer to "How to Order Pilot Valve Assembly" on page 1-4-187.				
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)

✻ Thread type

⚠ 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

V111 □ — 5 G □

Coil specifications

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

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

Rated voltage

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

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

Light/Surge voltage suppressor

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

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

Electrical entry

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

Note) For connector cable of M8 connector, refer to page 1-4-210.

■ DIN terminal type

V115 — 5 D □

Rated voltage

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

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

Light/Surge voltage suppressor

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

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

Electrical entry

D	DIN terminal	With connector
DO		Without connector

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 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**
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

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

How to Order Interface Regulator

Series SY3000

ARBY3000—05—P—2

Pressure gauge connection port

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

Regulating port

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

Series SY5000

ARBY5000—00—P—2

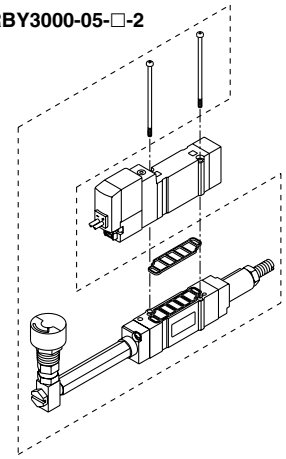
Pressure gauge connection port

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

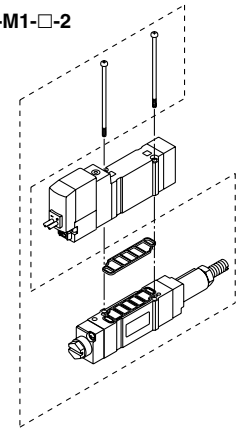
Regulating port

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

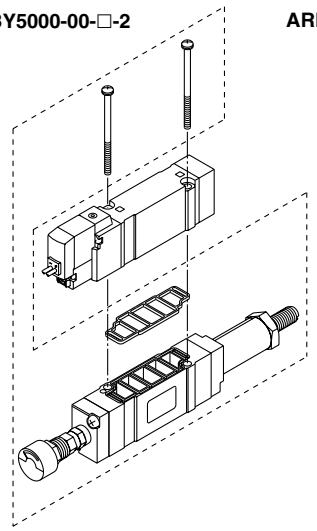
ARBY3000-05-□-2



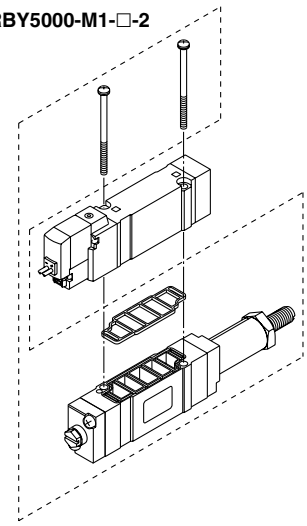
ARBY3000-M1-□-2



ARBY5000-00-□-2



ARBY5000-M1-□-2



Series SY7000

ARBY7000—00—P—2

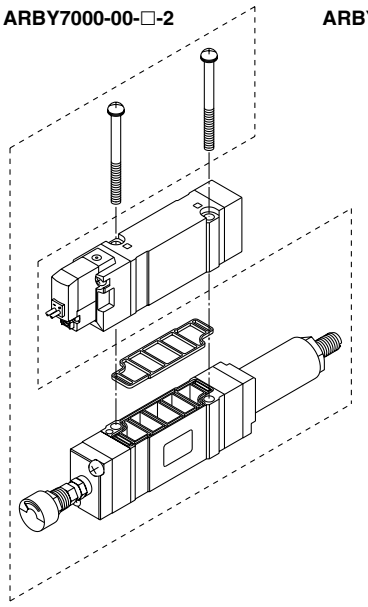
Pressure gauge connection port

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

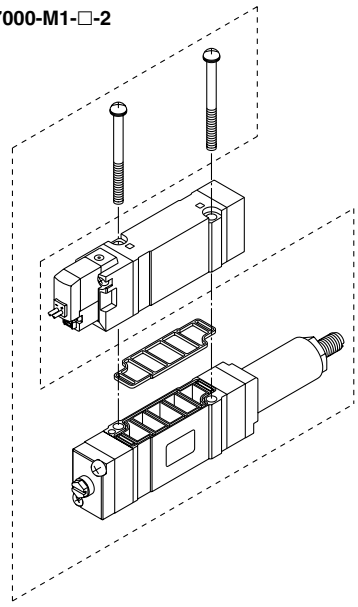
Regulating port

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

ARBY7000-00-□-2



ARBY7000-M1-□-2



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

⚠ Caution

Mounting screw tightening torques

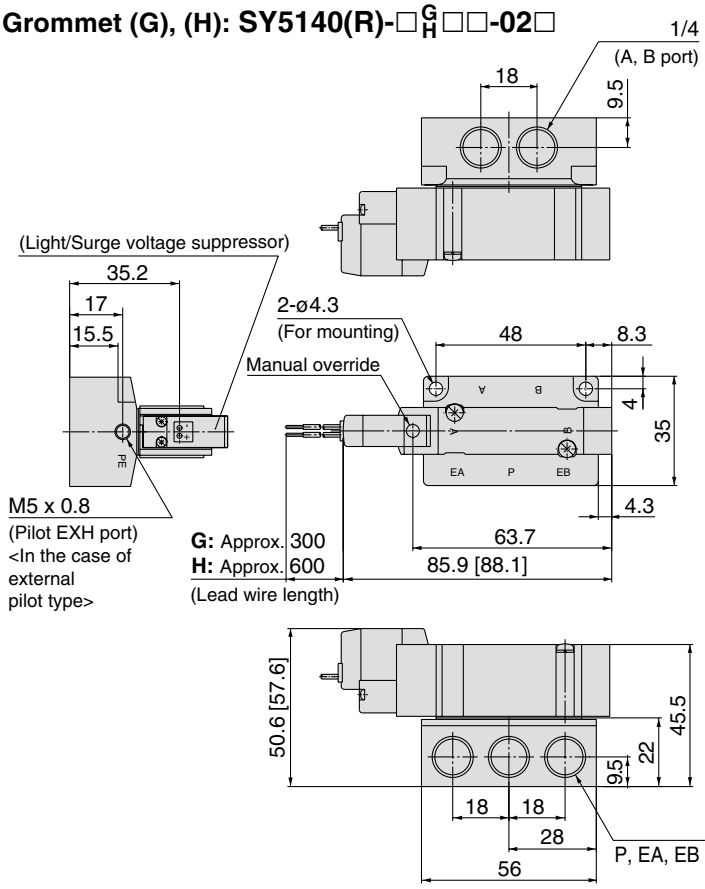
M2: 0.16 N·m
M3: 0.8 N·m
M4: 1.4 N·m

Dimensions: Series SY5000

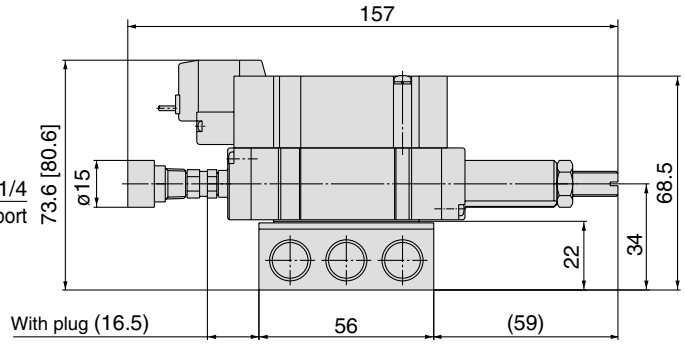
[ ]: AC

2 position single

Grommet (G), (H): SY5140(R)-□$^{G}_{H}$□□-02□



With interface regulator

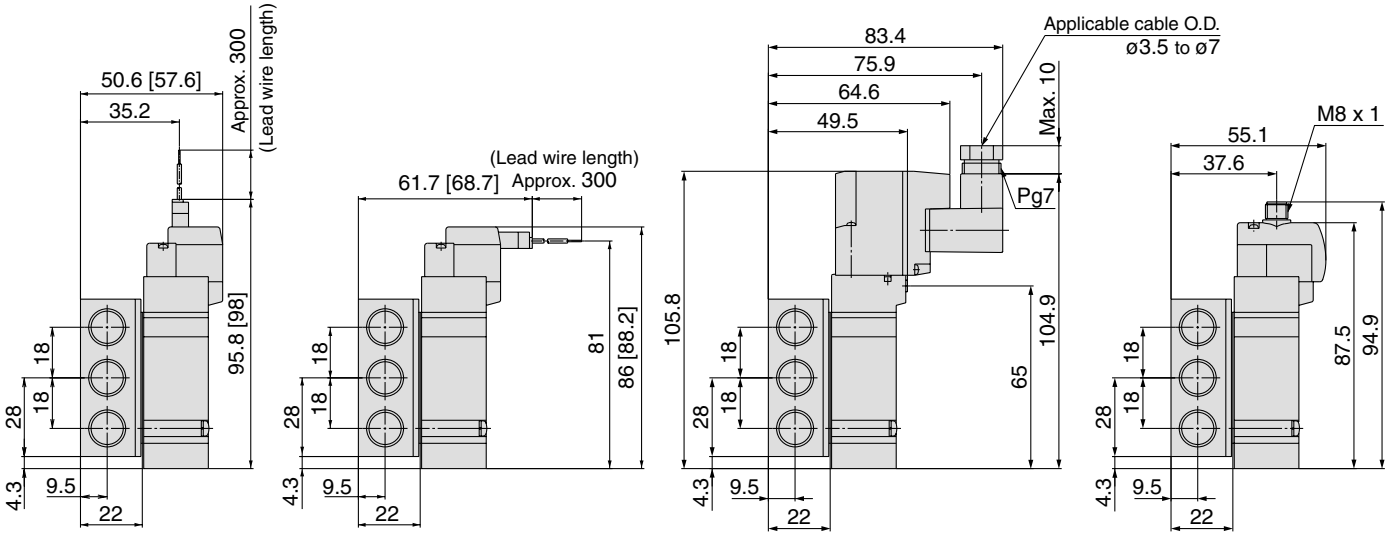


L plug connector (L): SY5140(R)-□L□□-02□

M plug connector (M): SY5140(R)-□M□□-02□

DIN terminal (D): SY5140(R)-□D□□-02□

M8 connector (WO): SY5140(R)-□WO□□-02□



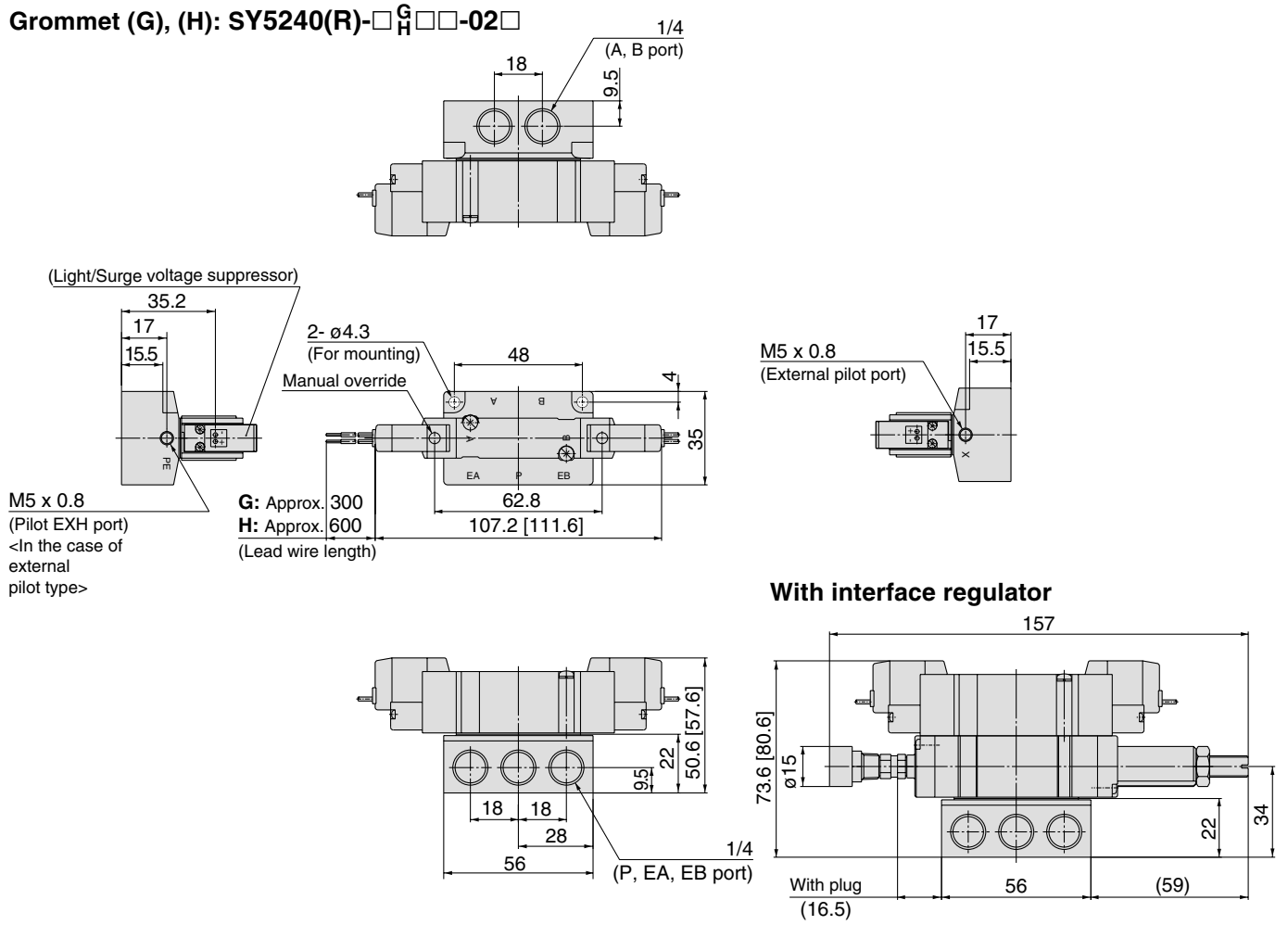
Note) Refer to page 1-4-210 for dimensions of connector types.

Dimensions: Series SY5000

[ ]: AC

2 position double

Grommet (G), (H): SY5240(R)-□$^{G}_{H}$□□-02□

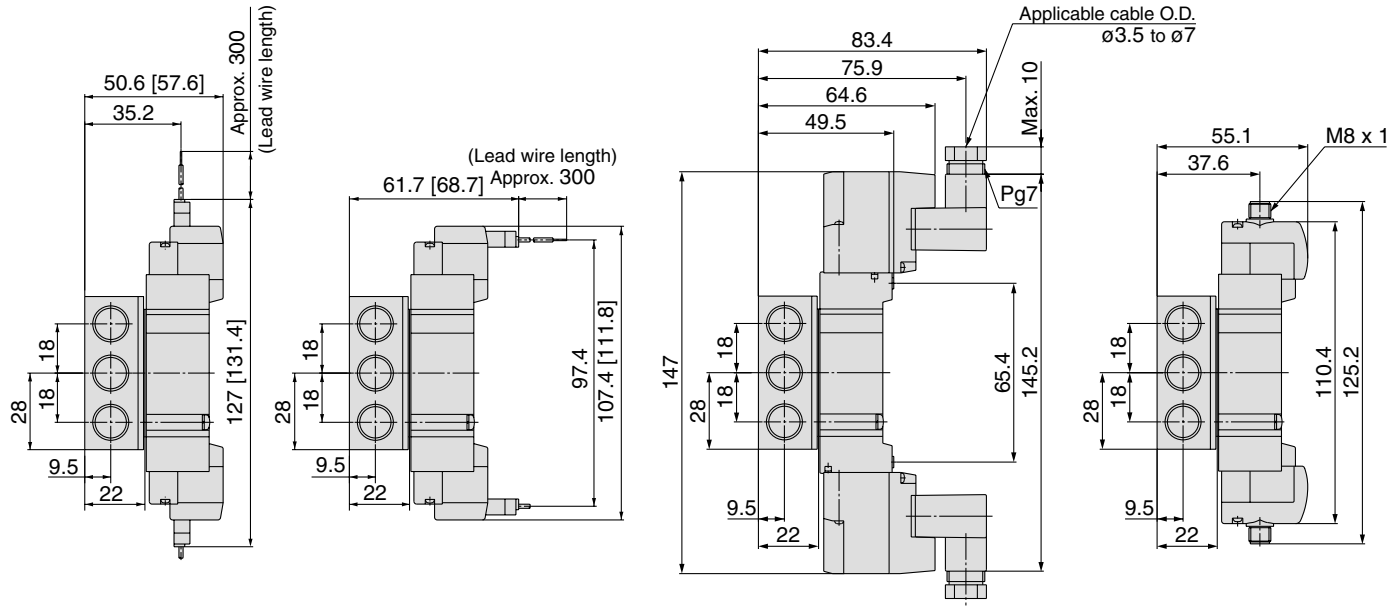


L plug connector (L): SY5240(R)-□L□□-02□

M plug connector (M): SY5240(R)-□M□□-02□

DIN terminal (D): SY5240(R)-□D□□-02□

M8 connector (WO): SY5240(R)-□WO□□-02□

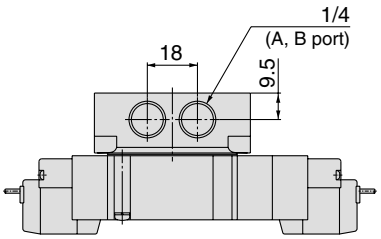


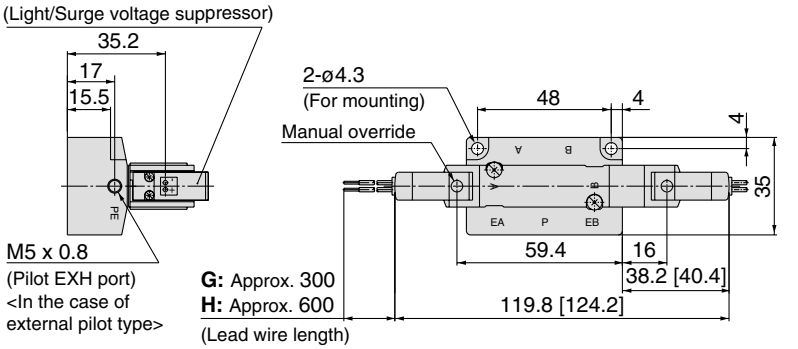
Note) Refer to page 1-4-210 for dimensions of connector types.

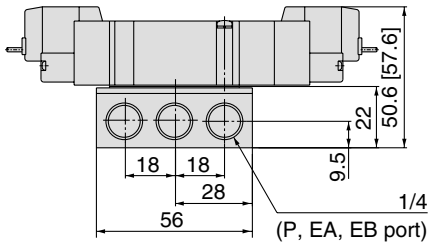
Dimensions: Series SY5000

[ ]: AC

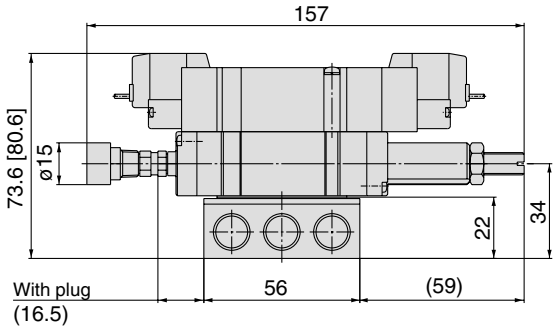
3 position closed center/exhaust center/pressure center
Grommet (G), (H): SY5$^{3}_{4}$40(R)-□$^{G}_{H}$□□-02□







With interface regulator

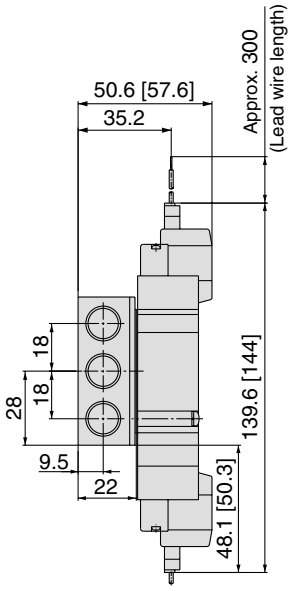


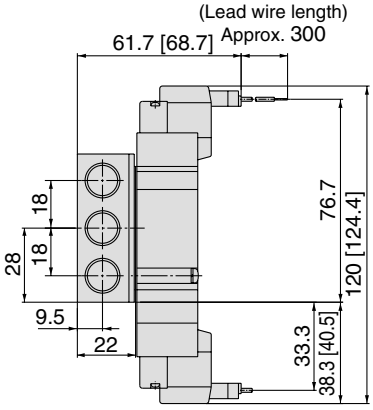
L plug connector (L):
SY5$^{3}_{4}$40(R)-□L□□-02□

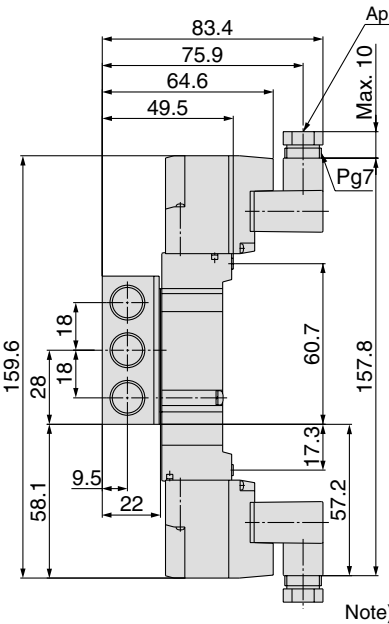
M plug connector (M):
SY5$^{3}_{4}$40(R)-□M□□-02□

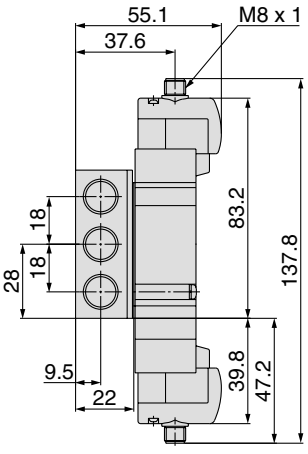
DIN terminal (D):
SY5$^{3}_{4}$40(R)-□D□□-02□

M8 connector (WO):
SY5$^{3}_{4}$40(R)-□WO□□-02□









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

How to Order Valves

SY [5] [1] **20** [ ] — [5] [L] [ ] [ ] — [01] [ ]

Series

3	SY3000
5	SY5000
7	SY7000

Type of actuation

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

Coil specifications

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

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

Rated voltage

DC

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

AC (50/60 Hz)

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

∗ DC specifications of type "D" and "DO" is only available with 12 and 24 VDC.
∗ For type "W□", DC voltage is only available.

Light/Surge voltage suppressor

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

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

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

Electrical entry for D

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

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

Manual override

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

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

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

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	

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"	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
N9	One-touch fitting for ø5/16"	SY7000
N11	One-touch fitting for ø3/8"	

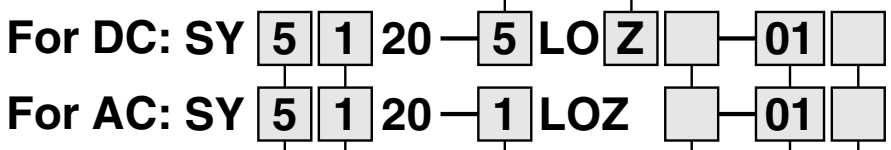
Electrical entry

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	**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.)

How to Order Valves



Rated voltage

5	24 VDC
6	12 VDC

Light/Surge voltage suppressor

Z	With light/surge voltage suppressor
U	With light/surge voltage suppressor (Non-polar type)

Note) Z: Positive common specifications only.

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

Series

3	SY3000
5	SY5000
7	SY7000

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Type of actuation

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

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

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	

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"	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
N9	One-touch fitting for ø5/16"	SY7000
N11	One-touch fitting for ø3/8"	

Rated voltage

1	100 VAC
3	110 VAC (115 VAC)

Manual override

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

Note) When placing an order for body ported solenoid valve as a single unit, mounting bolt for manifold and gasket are not attached. Order them separately, if necessary.
(For details, refer to page 1-4-61.)

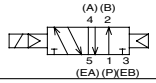
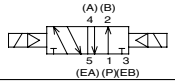
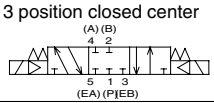
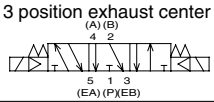
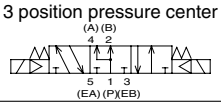
How to Order Valves

SY [3] [1] **60** [ ] — [5] [L] [ ] [ ] — [C6]

Series

3	SY3000
5	SY5000
7	SY7000

Type of actuation

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

Coil specifications

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

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

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

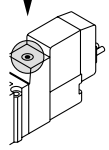
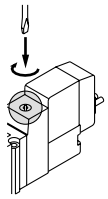
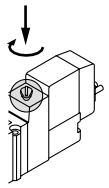
One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	

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"	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
N9	One-touch fitting for ø5/16"	SY7000
N11	One-touch fitting for ø3/8"	

Manual override

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

Light/Surge voltage suppressor

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

Nil	Without light/surge voltage suppressor
S	With light/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.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D (SY5000/7000 only)

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

Rated voltage

DC

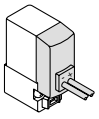
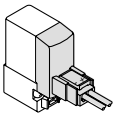
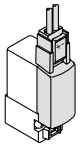
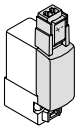
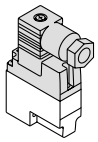
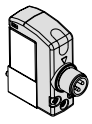
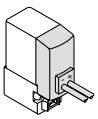
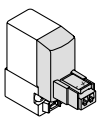
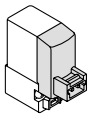
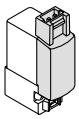
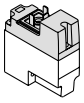
5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

AC (50/60Hz)

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

∗ DC specifications of type "D" , "DO" is only available with 12 and 24 VDC.
∗ "D", "DO" only available for SY5000, SY7000.
∗ For type "W□", DC voltage is only available.

Electrical entry

24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC				24, 12 VDC/ 100, 110, 200, 220 VAC	24, 12, 6, 5, 3 VDC
Grommet	L plug connector	M plug connector		DIN terminal	M8 connector
G: Lead wire length 300 mm 	**L**: With lead wire (Length 300 mm) 	**M**: With lead wire (Length 300 mm) 	**MN:** Without lead wire 	(**SY5000, 7000**) **D**: With connector 	**WO:** Without connector cable 
H: Lead wire length 600 mm 	**LN:** Without lead wire 	**LO:** Without connector 	**MO:** Without connector 	**DO:** Without connector 	

∗ "LN", "MN" type: with 2 sockets.
∗ For connector cable of M8 connector, refer to page 1-4-210.

Specifications

Series		SY3000	SY5000	SY7000
Fluid		Air		
Internal pilot Operating pressure range (MPa)	2 position single	0.15 to 0.7		
	2 position double	0.1 to 0.7		
	3 position	0.2 to 0.7		
Ambient and fluid temperature (°C)		Max. 50		
Max. operating frequency (Hz)	2 position double	10	5	5
	3 position	3	3	3
Manual override (Manual operation)		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 position		Unrestricted		
Impact/Vibration 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 voltage (V)	DC		24 ,12 ,6 ,5 ,3
	AC 50/60Hz		100 ,110 ,200 ,220∗
Allowable voltage fluctuation (%)			±10% of rated voltage
Power consumption (W)	DC	Standard	0.35 [With indicator light: 0.4 (DIN terminal with indicator light: 0.45)]
		With power saving circuit	0.1 (With indicator light only)
Apparent power∗ VA	AC	100V	1.4 (With indicator light: 1.5)
		110V [115V]	1.6 (With indicator light: 1.7) [1.7 (With indicator light: 1.8)]
		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 light			LED (AC of DIN connector is neon bulb.)

∗ 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)

SY3000

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without surge voltage suppressor	With surge voltage 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

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without surge voltage suppressor	With surge voltage 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

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge 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

Weight

Series SY3000

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

Note) [ ]: Denotes normal position.

Series SY5000

Valve model	Type of actuation		Port size	Weight (g)			
			A, B	Grom-met	L, M plug connector	DIN terminal	M8 Connec-tor
SY5□60-□-01	2 position	Single	1/8	67	69	90	71
		Double		91	94	136	102
	3 position	Closed center		97	100	142	108
		Exhaust center					
		Pressure center					
SY5□60-□-C4	2 position	Single	C4 (One-touch fitting for ø4)	91	93	114	97
		Double		113	116	158	124
	3 position	Closed center		119	122	164	130
		Exhaust center					
		Pressure center					
SY5□60-□-C6	2 position	Single	C6 (One-touch fitting for ø6)	86	88	109	92
		Double		108	111	153	119
	3 position	Closed center		114	117	159	125
		Exhaust center					
		Pressure center					
SY5□60-□-C8	2 position	Single	C8 (One-touch fitting for ø8)	78	80	101	84
		Double		100	103	145	111
	3 position	Closed center		106	109	151	117
		Exhaust center					
		Pressure center					

Series SY7000

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