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SY3000/5000/7000/9000
Body Ported Type
Single Valve

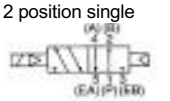
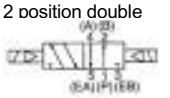
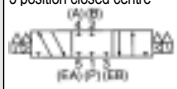
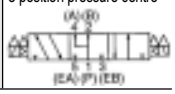
How to Order

SY [5] [1] 20 – [5] [L] [ ] [ ] – [01] [ ] – [ ] – Q

Series

3	SY3000
5	SY5000
7	SY7000
9	SY9000

Type of actuation

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

Rated voltage

DC specifications

5	24VDC
6	12VDC
V	6VDC
S	5VDC
R	3VDC
9	Less than 50 VDC

AC specifications (50/60Hz)

1	100VAC
2	200VAC
3	110VAC [115VAC]
4	220VAC [230VAC]
9	Less than 250 VAC

Note 1) "D", "DO", "Y" and "YO" are only available in 24VDC and 12VDC in case of DC.
Note 2) "D", "DO", "Y" and "YO" are not available for SY3000.

Order Made: Contact SMC for other voltages (9)

Protective class class I (Mark: ⏚)..... DIN terminal type

Protective class class III (Mark: ◇)..... Grommet, L and M plug connector

Note) When single body ported solenoid valves are ordered, manifold mounting bolts and gaskets are not included. Order them separately, if necessary. (Refer to page 1.2-65 for details.)

A/B port size

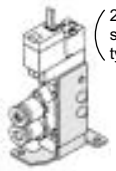
Symbol	Port size	Applicable series
M5	M5	SY3000
C4	ø4 One-touch fitting	
C6	ø6 One-touch fitting	
01	1/8	SY5000
C4	ø4 One-touch fitting	
C6	ø6 One-touch fitting	
C8	ø8 One-touch fitting	
02	1/4	SY7000
C8	ø8 One-touch fitting	
C10	ø10 One-touch fitting	
02	1/4	SY9000
03	3/8	
C8	ø8 One-touch fitting	
C10	ø10 One-touch fitting	
C12	ø12 One-touch fitting	

Thread

—	Rc (PT)
N	NPT
T	NPTF
F	G (PF)

Bracket

Nil: Without bracket
F1: With foot bracket



(2 position single type only)

F2: With side bracket

∗ SY9000 does not use brackets.

Manual override

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

Indicator light/Surge voltage suppressor

For electrical entry G, H, L, M

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

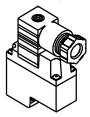
Note 1) "U" is available for DC only.

For electrical entry D

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

Note 1) "DOZ" is not available.
Note 2) For AC, there is no "S" specification, since it is integrated with the rectifier.

Electrical entry

24V, 12V, 6V, 5V, 3VDC				24V, 12VDC 100V, 110V, 200V, 220VAC
Grommet	**L type plug connector**	**M type plug connector**		**DIN terminal**
G: Lead wire length 300mm	**L:** With lead wire (length 300mm)	**M:** With lead wire (length 300mm)	**MN:** Without lead wire	**(Except SY3000)** **D:** With connector **Y:** With connector (DIN 43650C) 
H: Lead wire length 600mm	**LN:** Without lead wire	**LO:** Without connector	**MO:** Without connector	**DO:** Without connector **YO:** Without connector (DIN 43650C)

Note 1) "LN" and "MN" include 2 sockets.
Note 2) "D" and "DO" are not available for SY3000.

Order Made Pages 1.2-168 to 1.2-177

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		Maximum 50			
Maximum operating frequency Hz	2 position single, double	10	5	5	5
	3 position	3	3	3	3
Manual override		Non-locking push type, Push-turn locking slotted type, Push-turn locking lever type			
Pilot exhaust method		Common exhaust for main and pilot valves			
Lubrication		Not required			
Mounting orientation		Unrestricted			
Impact resistance/Vibration resistance m/s^2 Note)		150/30			
Enclosure		Dust proof (IP65 for DIN terminal*)			

* In compliance with IEC529 standard.
Note) **Impact resistance:** No malfunction resulted from the impact test using a drop impact tester. The test was performed one time each in the axial and right angle directions of the main valve and armature, for both energized and de-energized states. (Value in the initial stage)
Vibration resistance: No malfunction occurred in a one-sweep test between 8.3 and 2000Hz. Test was performed for both energized and de-energized states in the axial and right angle directions of the main valve and armature. (Value in the initial stage)

Solenoid specifications

Electrical entry			Grommet (G)/(H), L type plug connector (L), M type plug connector (M), DIN terminal (D) Note 1)
Rated coil voltage V	DC		24, 12, 6, 5, 3
	AC 50/60Hz		100, 110, 200, 220 Note 2)
Allowable voltage fluctuation			±10% of rated voltage
Current consumption W	DC		0.5 [With indicator light: 0.55 (0.6 for DIN terminal with indicator light)] Note 3)
Apparent power VA	AC	100V	0.9 (With indicator light: 1.0)
		110V [115V]	1.0 (With indicator light: 1.1) [1.1 (With indicator light: 1.2)]
		200V	1.8 (With indicator light: 1.9)
		220V [230V]	1.9 (With indicator light: 2.0) [2.2 (With indicator light: 2.3)]
Surge voltage suppressor			Diodes (ZNR for DIN terminal, Zener diode for G, L or M non-polar type)
Indicator light			LED (Neon bulb for AC type DIN terminal)

Note 1) DIN terminal (D) is not available for SY3000.
Note 2) 110 and 115VAC are common, as are 220 and 230VAC.
Note 3) Energy saving [0.22W] type is also available. Refer to page 1.2-177 for details.
Note 4) AC specifications are only for the DIN terminal type.

Response time

Note) Based on dynamic performance test JISB8375-1981 (at coil temperature of 20°C with rated voltage)

SY3000

Type of actuation	Response time ms (at 0.5MPa)		
	Without indicator light/ surge voltage suppressor	With indicator light/surge voltage suppressor	
		S, Z types	U types
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 0.5MPa)		
	Without indicator light/ surge voltage suppressor	With indicator light/surge voltage suppressor	
		S, Z types	U types
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 0.5MPa)		
	Without indicator light/ surge voltage suppressor	With indicator light/surge voltage suppressor	
		S, Z types	U types
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 0.5MPa)		
	Without indicator light/ surge voltage suppressor	With indicator light/surge voltage suppressor	
		S, Z types	U types
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

Models/Series SY3000

Valve model	Type of actuation		Port size P, EA, EB	Port size A, B	Effective area mm² (N/min) P to A/B	Effective area mm² (N/min) A/B to EA/EB	Weight g Grommet	Weight g L/M type plug connector
SY3□20-□-M5	2 pos.	Single	M5	M5	3.6 (196.3)	3.78 (206)	48	51
		Double					62	70
	3 position	Closed centre			3.6 (196.3)	3.42 (186.5)	65	72
		Exhaust centre			3.6 (196.3)	3.78 (206) [2.7 (147.2)]		
		Pressure centre			3.96 (216) [2.88 (157)]	3.6 (196.3)		
SY3□20-□-C4	2 pos.	Single		C4 ø4 (One-touch fitting)	3.42 (186.5)	3.6 (196.3)	57	61
		Double					72	79
	3 position	Closed centre			3.42 (186.5)	3.42 (186.5)	75	82
		Exhaust centre			3.42 (186.5)	3.78 (206) [2.7 (147.2)]		
		Pressure centre			3.6 (196.3) [2.16 (117.8)]	3.6 (196.3)		
SY3□20-□-C6	2 pos.	Single		C6 ø6 (One-touch fitting)	3.6 (196.3)	4.14 (225.7)	53	57
		Double					68	75
	3 position	Closed centre			3.6 (196.3)	3.96 (216)	71	78
		Exhaust centre			3.78 (206)	4.5 (245.4) [3.06 (166.9)]		
		Pressure centre			3.96 (216) [2.88 (157)]	3.96 (216)		

Note) Values inside [ ] are for normal position.

Models/Series SY7000

Valve model	Type of actuation		Port size P, EA, EB	Port size A, B	Effective area mm² (N/min) P to A/B	Effective area mm² (N/min) A/B to EA/EB	Weight g Grommet	Weight g L/M type plug connector	Weight g DIN terminal
SY7□20-□-02	2 pos.	Single	P port: 1/4 EA, EB ports: 1/8	1/4	16.2 (883.4)	15.66 (854)	98	102	125
		Double					114	121	167
	3 position	Closed centre			12.06 (657.6)	11.34 (618.3)	122	129	175
		Exhaust centre			11.88 (647.8)	16.74 (912.8) [11.7 (638)]			
		Pressure centre			17.1 (932.4) [11.16 (608.5)]	11.34 (618.3)			
SY7□20-□-C8	2 pos.	Single		C8 ø8 (One-touch fitting)	13.86 (755.8)	13.68 (746)	104	108	131
		Double					120	128	174
	3 position	Closed centre			11.52 (402)	10.44 (569.3)	128	136	182
		Exhaust centre			11.16 (608.5)	14.4 (785.2) [10.8 (353.3)]			
		Pressure centre			14.58 (795) [10.62 (579)]	10.44 (569.3)			
SY7□20-□-C10	2 pos.	Single		C10 ø10 (One-touch fitting)	15.84 (863.7)	14.94 (814.6)	100	103	126
		Double					116	123	169
	3 position	Closed centre			12.24 (453.8)	11.16 (608.5)	124	131	177
		Exhaust centre			11.88 (647.8)	16.2 (873.5) [11.34 (618.3)]			
		Pressure centre			16.74 (912.8) [11.16 (608.5)]	11.34 (618.3)			

Note) Values inside [ ] are for normal position.

Models/Series SY5000

Valve model	Type of actuation		Port size P, EA, EB	Port size A, B	Effective area mm² (N/min) P to A/B	Effective area mm² (N/min) A/B to EA/EB	Weight g Grommet	Weight g L/M type plug connector	Weight g DIN terminal
SY5□20-□-01	2 pos.	Single	1/8	1/8	9.18 (500.5)	10.6 (579)	67	70	93
		Double					82	89	135
	3 position	Closed centre			7.38 (402.4)	7.92 (431.9)	87	94	140
		Exhaust centre			7.56 (402.4)	12.06 (341.7) [8.28 (451.5)]			
		Pressure centre			10.62 (341.7) [4.32 (235.6)]	8.46 (451.5)			
SY5□20-□-C4	2 pos.	Single		C4 ø4 (One-touch fitting)	5.5 (304.3)	3.9 (216)	91	94	117
		Double					105	113	159
	3 position	Closed centre			5.3 (284.6)	3.9 (216)	111	118	164
		Exhaust centre			5.3 (284.6)	3.9 (216)			
		Pressure centre			5.7 (314)	3.9 (216)			
SY5□20-□-C6	2 pos.	Single		C6 ø6 (One-touch fitting)	9 (500.5)	9 (500.5)	85	89	112
		Double					100	107	153
	3 position	Closed centre			7.2 (402.4)	7.38 (402.4)	105	112	158
		Exhaust centre			7.38 (402.4)	9.72 (530) [7.2 (402.4)]			
		Pressure centre			10.62 (579) [4.32 (235.6)]	7.2 (402.4)			
SY5□20-□-C8	2 pos.	Single		C8 ø8 (One-touch fitting)	9.18 (500.5)	9.9 (530)	77	80	103
		Double					92	99	145
	3 position	Closed centre			7.38 (402.4)	7.92 (431.9)	97	104	150
		Exhaust centre			7.38 (402.4)	11.88 (341.7) [7.74 (431.9)]			
		Pressure centre			10.62 (579) [4.32 (235.6)]	7.92 (431.9)			

Note) Values inside [ ] are for normal position.

Models/Series SY9000

Valve model	Type of actuation		Port size P, EA, EB	Port size A, B	Effective area mm² (N/min) P to A/B	Effective area mm² (N/min) A/B to EA/EB	Weight g Grommet	Weight g L/M type plug connector	Weight g DIN terminal
SY9□20-□-02	2 pos.	Single	1/4	1/4	35.76 (1953.2)	37.43 (2041.5)	238	242	265
		Double					254	262	308
	3 position	Closed centre			34.69 (1894.3)	30.51 (1678.4)	278	286	332
		Exhaust centre			33.63 (1835.4)	41.09 (2238) [18.96 (1030.6)]			
		Pressure centre			37.99 (2071)	31.62 (1727.4) [15.22 (834.3)]			
SY9□20-□-03	2 pos.	Single		3/8	37.90 (2071)	38.23 (2071)	233	237	260
		Double					249	257	303
	3 position	Closed centre			35.98 (1963)	32.37 (1757)	273	281	327
		Exhaust centre			34.17 (1865)	44.76 (2444) [24.92 (1354.5)]			
		Pressure centre			39.94 (2179)	32.97 (1796) [14.67 (660)]			
SY9□20-□-C8	2 pos.	Single		C8 ø8 (One-touch fitting)	27.34 (1492)	16.23 (795)	290	294	317
		Double					306	314	360
	3 position	Closed centre			26.75 (1462.4)	16.55 (795)	330	338	384
		Exhaust centre			26.17 (1423.2)	16.42 (795) [15.68 (854)]			
		Pressure centre			27.49 (1492)	16.28 (795) [16.28 (795)]			
SY9□20-□-C10	2 pos.	Single		C10 ø10 (One-touch fitting)	31.16 (1698)	27.40 (1492)	276	280	303
		Double					292	300	346
	3 position	Closed centre			30.74 (1678.4)	26.08 (1423.2)	316	324	370
		Exhaust centre			30.02 (1639)	27.13 (1492) [18.26 (991.3)]			
		Pressure centre			32.28 (1757)	26.36 (1423.2) [15.10 (660)]			
SY9□20-□-C12	2 pos.	Single		C12 ø12 (One-touch fitting)	33.45 (1835.4)	35.81 (1953.2)	262	266	289
		Double					278	286	332
	3 position	Closed centre			32.96 (1796)	29.62 (1619.5)	302	310	356
		Exhaust centre			32.38 (1767)	37.77 (2071) [18.83 (1030.6)]			
		Pressure centre			35.41 (1933.5)	30.55 (1678.4) [15.23 (834.3)]			

Note) Values inside [ ] are for normal position.