High Capacity & Simple Choices

5 Port Solenoid Valves
SY3000/5000/7000/9000

Low power consumption: 0.5W

(Current value: 21mA at 24VDC)

Low power consumption enables direct operation by a PLC, and cost savings are realized through the use of a smaller power supply and switching elements and the elimination of relay cards.

[An energy saving type [0.22W] is also available. Refer to page 1.2-177 for details.]

Compact design with high flow capacity of 1668.6 to 2944.5 Nℓ/min with the same body width

The same size cylinder can be driven with a valve one physical size smaller than a conventional type, contributing greatly to both space and cost savings.

Valves to drive cylinders of sizes ø6 to ø200   Pressure: 0.5MPa, Load factor: 50%

Base mounted (sub-plate)	Nℓ/min	Cylinder speed mm/s	Series CJ2			Series CM2				Series MB/CA1					Series CS1				
			ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160	ø180	ø200
SY3000	294.5	150																	
		300																	
		450																	
		600																	
		750																	
SY5000	687	150																	
		300																	
		450																	
		600																	
		750																	
SY7000	1177.8	150													※	※			
		300											※	※					
		450										※	※						
		600										※							
		750									※	※							
SY9000	2748.2	150														※	※	※	
		300												※	※	※			
		450											※	※					
		600										※	※	※					
		750										※	※						

The speed of CJ2 and CM2 cylinders is controlled by a fixed orifice built into the cylinder.
∗ Cylinder speeds are for extension of the cylinder.
∗ The "※" symbol indicates conditions with SGP (steel piping).
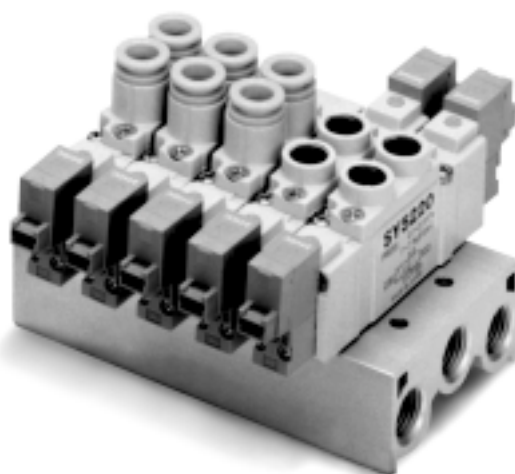
Long life exceeding 50 million cycles

(Based on SMC life test conditions.)

Long life is achieved by a new pilot design, guide rings that prevent main valve eccentricity, and a stronger return force.

SMC

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

How to Order

Thread

—	Rc (PT)
N	NPT
T	NPTF
F	G (PF)

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
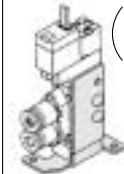class III (Mark: ◁▷)........ Grommet, L and M plug connector

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

Manual override

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

Bracket

Nil: Without bracket
F1: With foot bracket

(2 position single type only)

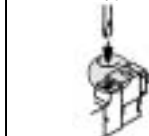**F2:** With side bracket

∗ SY9000 does not use brackets.
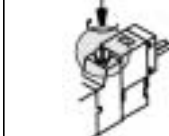
Indicator light/Surge voltage suppressor

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.

⊘SMC

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/s² 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

Order Made Pages 1.2-168 to 1.2-177

SV
SY
SYJ
SX
VK
VZ
VF
VFR
VP7

VQC
SQ
VQ
VQ4
VQ5
VQZ
VQD
VFS
VS
VS7
VQ7