

# SY5000/7000 Series

# 4-Position Dual 3-Port Valve

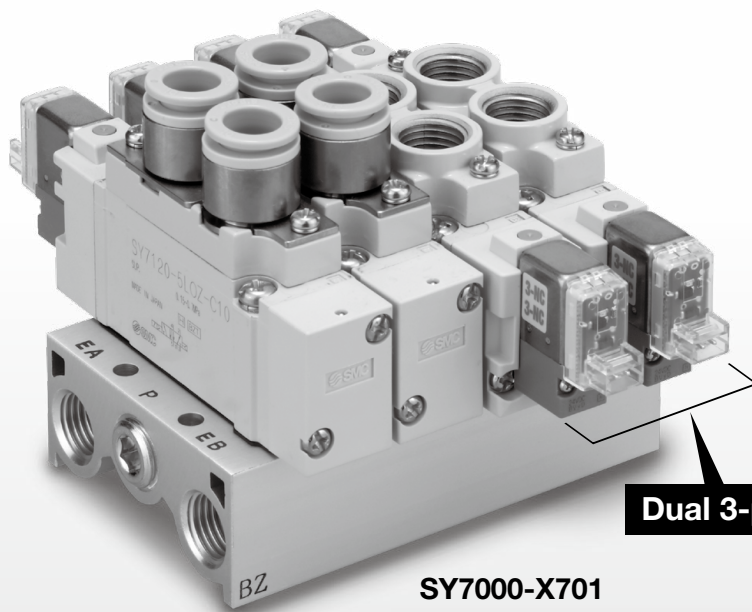
## Body Ported/Base Mounted

### ■ Features two 3-port valves built into one body

- The dimensions are the same as those of the double solenoid.
- The 3-port valves on the A and B sides can be operated independently.
- When used as a 3-port valve, only half the number of stations are required.
- Mixed mounting on the standard SY5000/7000 series 5-port solenoid valve manifold base is possible.

• Combination examples

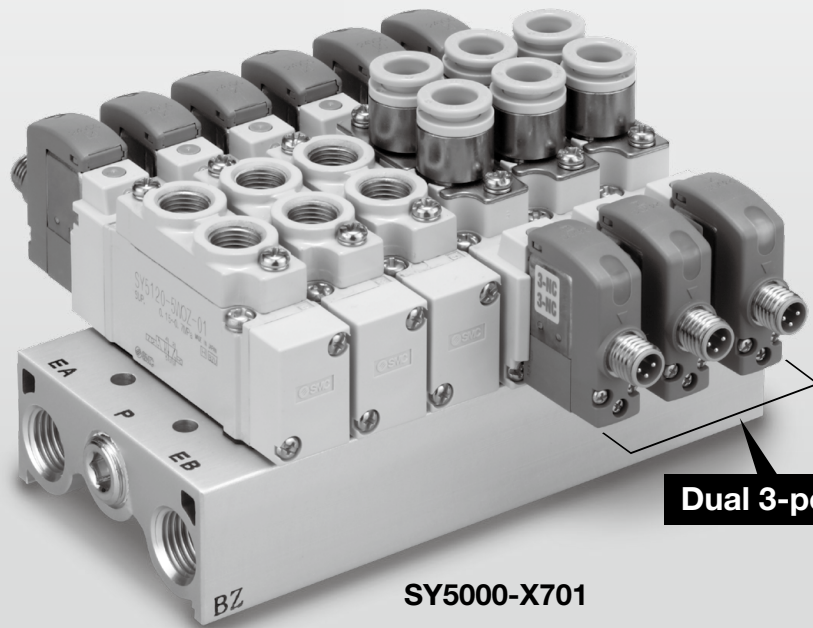
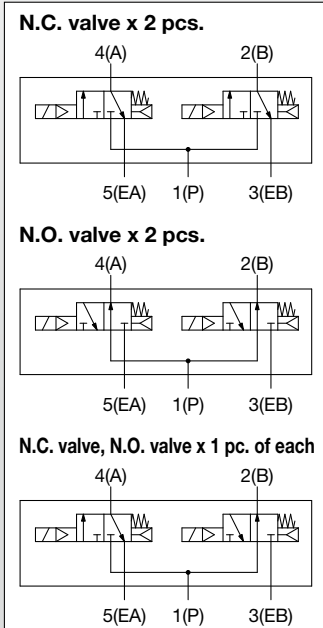
Piping type	Series	A side	B side
Body ported	SY□A20	N.C. valve	N.C. valve
	SY□B20	N.O. valve	N.O. valve
	SY□C20	N.C. valve	N.O. valve
Base mounted	SY□A40	N.C. valve	N.C. valve
	SY□B40	N.O. valve	N.O. valve
	SY□C40	N.C. valve	N.O. valve



Dual 3-port valve

SY7000-X701

Symbol



Dual 3-port valve

SY5000-X701

# SY5000/7000-X701

# 4-Position Dual 3-Port Valve



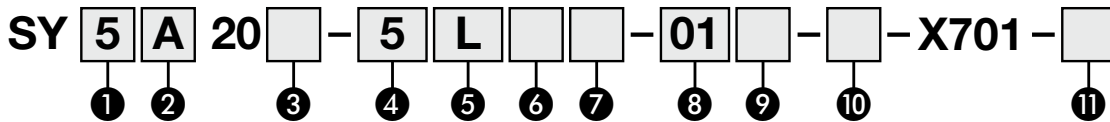
## Body Ported

[Option]

\* AC-type models that are CE/UKCA-compliant have DIN terminals only.

# SY5000/7000-X701

### How to Order



#### 1 Series

5	SY5000
7	SY7000

#### 2 Type of actuation

A	4-position	N.C./N.C.
B	dual 3-port	N.O./N.O.
C	valve	N.C./N.O.

#### 3 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, Y, YO or W□ type.

#### 4 Rated voltage

##### For DC

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

##### For 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, Y, DO and YO is only available with 12 and 24 VDC.

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

\* AC-type models that are CE/UKCA-compliant have DIN terminals only.

#### 5 Electrical entry

CE/ UKCA- compliant	DC	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
		<b>G:</b> Lead wire length 300 mm 	<b>L:</b> With lead wire (Length 300 mm) 	<b>M:</b> With lead wire (Length 300 mm) 	<b>MN:</b> Without lead wire 	<b>D,Y:</b> With connector 	<b>WO:</b> Without connector cable 
		<b>H:</b> Lead wire length 600 mm 	<b>LN:</b> Without lead wire 	<b>LO:</b> Without connector 	<b>MO:</b> Without connector 	<b>DO,YO:</b> Without connector 	<b>W□:</b> With connector cable 
		●	●	●	●	●	●
	AC	—	—	—	●	—	—

\* LN, MN type: with 2 sockets.

#### 6 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, Y

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

\* DOZ and YOZ are not available.

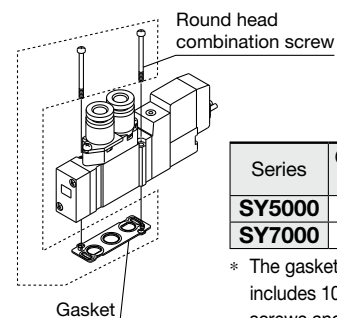
\* For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

#### 7 Manual override

<b>Nil:</b> Non-locking push type 	<b>D:</b> Push-turn locking slotted type 	<b>E:</b> Push-turn locking lever type 
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⚠ When placing an order for body ported solenoid valve as a single unit, mounting screw for manifold and gasket are not attached. Order them separately, if necessary.

#### ■ Gasket assembly part no.



Series	Gasket assembly part no.
SY5000	SY5000-GS-1
SY7000	SY7000-GS-1

\* The gasket assembly includes 10 sets of mounting screws and a gasket.

#### 8 A, B port size

##### Thread piping

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

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

Symbol	Port size	Applicable series
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"	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"	

#### 9 Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

\* Except for M5

#### 11 CE/UKCA-compliant

Nil	—
Q	CE/UKCA-compliant

\* AC-type models that are CE/UKCA-compliant have DIN terminals only.

#### 10 Bracket

Nil:	Without bracket
F2:	With side bracket 

Mounting on 20(P) and 20SA type manifold bases is possible.

# 4-Position Dual 3-Port Valve



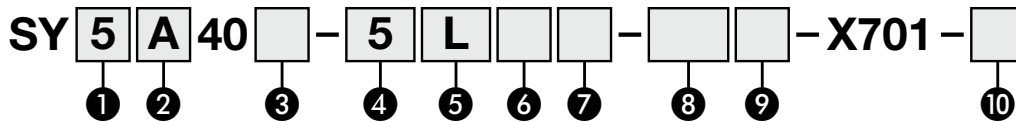
[Option]

\* AC-type models that are CE/UKCA-compliant have DIN terminals only.

## Base Mounted

# SY5000/7000-X701

### How to Order



#### 1 Series

5	SY5000
7	SY7000

#### 2 Type of actuation

A	4-position	N.C./N.C.
B	dual 3-port valve	N.O./N.O.
C		N.C./N.O.

#### 3 Coil specifications

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

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

#### 4 Rated voltage

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

\* DC specifications of type D, Y, DO and YO is only available with 12 and 24 VDC.  
 \* For type W□, DC voltage is only available.  
 \* AC-type models that are CE/UKCA-compliant have DIN terminals only.

#### 5 Electrical entry

CE/UKCA-compliant	DC	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
		<b>G:</b> Lead wire length 300 mm	<b>L:</b> With lead wire (Length 300 mm)	<b>M:</b> With lead wire (Length 300 mm)	<b>MN:</b> Without lead wire	<b>D,Y:</b> With connector	<b>WO:</b> Without connector cable
		<b>H:</b> Lead wire length 600 mm	<b>LN:</b> Without lead wire	<b>LO:</b> Without connector	<b>MO:</b> Without connector	<b>DO,YO:</b> Without connector	<b>W□:</b> With connector cable
	DC	●	●	●	●	●	●
	AC	—	—	—	●	—	—

\* LN, MN type: with 2 sockets.

#### 6 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, Y

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

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

#### 7 Manual override

<b>Nil:</b> Non-locking push type	<b>D:</b> Push-turn locking slotted type	<b>E:</b> Push-turn locking lever type

#### 8 Port size

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

#### 9 Thread type

Nil	Rc
F	G

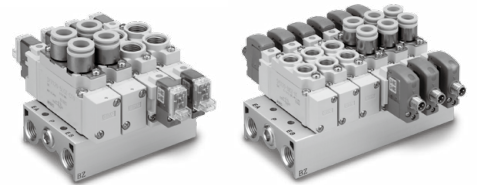
#### 10 CE/UKCA-compliant

Nil	—
Q	CE/UKCA-compliant

\* AC-type models that are CE/UKCA-compliant have DIN terminals only.

Mounting on 41(P), 42(P), and 42SA type manifold bases is possible.  
 Mounting on 45, 45-(N)A, and 45S6A type manifold bases is possible (only for the SY5000).

# SY5000/7000-X701



## Specifications

Series		SY5000	SY7000
Fluid		Air	
Internal pilot		0.15 to 0.7	
Operating pressure range [MPa]	4-position dual		
Ambient and fluid temperature [°C]		-10 to 50 (No freezing)	
Max. operating frequency [Hz]	4-position dual	5	5
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/s <sup>2</sup> ]*1		150/30	
Enclosure		Dust proof (* DIN terminal and M8 connector: IP65)	

\*1 Impact resistance: No malfunction occurred when it is tested 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)

\* Based on IEC60529

## Solenoid Specifications

Electrical entry	Grommet (G), (H) L plug connector (L) M plug connector (M)		DIN terminal (D), (Y) M8 connector (W)
	G, H, L, M, W		D, Y
Coil rated voltage [V]	DC	24, 12, 6, 5, 3	24, 12
	AC 50/60 Hz	100, 110, 200, 220	
Allowable voltage fluctuation	±10% of rated voltage*2		
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)*3 [Starting 0.4, Holding 0.1]
Apparent power [VA]*1	AC	100 V	0.78 (With indicator light: 0.81) 0.78 (With indicator light: 0.87)
		110 V [115 V]	0.86 (With indicator light: 0.89) 0.86 (With indicator light: 0.97) [0.94 (With indicator light: 0.97)] [0.94 (With indicator light: 1.07)]
		200 V	1.18 (With indicator light: 1.22) 1.15 (With indicator light: 1.30)
		220 V [230 V]	1.30 (With indicator light: 1.34) 1.27 (With indicator light: 1.46) [1.42 (With indicator light: 1.46)] [1.39 (With indicator light: 1.60)]
Surge voltage suppressor	Diode (Varistor is for DIN terminal and Non-polar type.)		
Indicator light	LED (AC of DIN connector is neon light.)		

\*1 In common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.

\*2 For 115 VAC and 230 VAC, the allowable voltage is -15% to +5% of rated voltage.

\*3 DIN terminal and M8 connector with power saving circuit are not available.

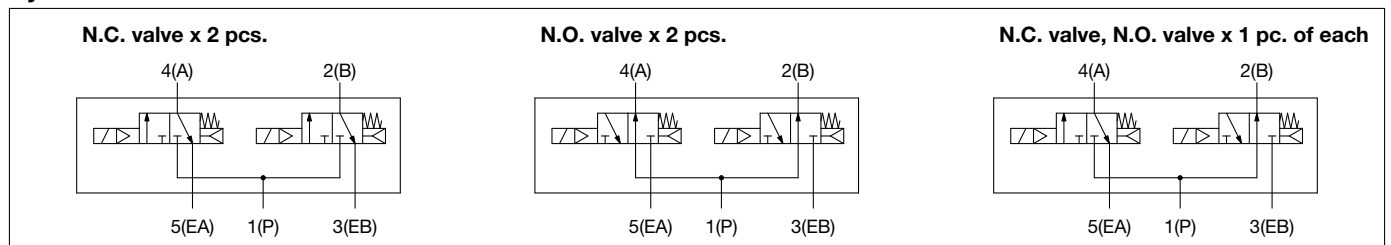
## Flow Rate Characteristics

Series	Type of actuation	Port size		Flow rate characteristics				
		1, 5, 3(P, EA, EB)	4, 2(A, B)	1→4/2(P→A/B)		4/2→5/3(A/B→EA/EB)		
		C [dm <sup>3</sup> /(s·bar)]	b	C [dm <sup>3</sup> /(s·bar)]	b			
Body ported	SY5A/B/C20-X701	N.C./N.C.	1/8	C6	1.4	0.35	1.4	0.34
		N.O./N.O.			1.3	0.36	1.2	0.32
Body ported	SY7A/B/C20-X701	N.C./N.C.	1(P) port: 1/4 5, 3(EA, EB) port: 1/8	C10	3.5	0.25	2.3	0.40
		N.O./N.O.			3.0	0.31	2.6	0.42
Base mounted	SY5A/B/C40-X701	N.C./N.C.	1/4		1.4	0.36	1.6	0.40
		N.O./N.O.			1.6	0.37	1.6	0.41
Base mounted	SY7A/B/C40-X701	N.C./N.C.	3/8		3.8	0.30	3.6	0.27
		N.O./N.O.			3.9	0.26	3.9	0.32

## Response Time

Series	Response time [ms] (at the pressure of 0.5 MPa)		
	Without surge voltage suppressor	S, Z type	R, U type
SY5A/B/C□0-X701	26 or less	35 or less	26 or less
SY7A/B/C□0-X701	41 or less	51 or less	44 or less

## Symbol



**⚠ Safety Instructions** Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" before use.