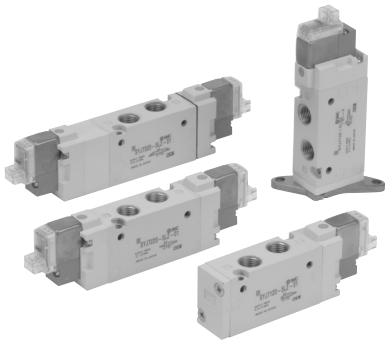
Rubber Seal
5 Port Solenoid Valve
Series SYJ7000



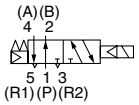
Body ported

Base mounted

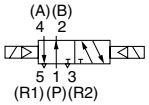
JIS Symbol

Body ported

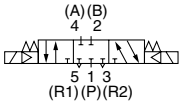
2 position single



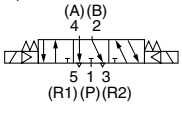
2 position double



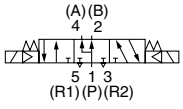
3 position closed center



3 position exhaust center

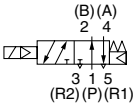


3 position pressure center

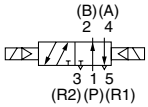


Base mounted

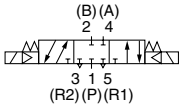
2 position single solenoid



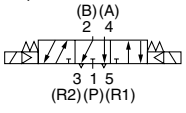
2 position double solenoid



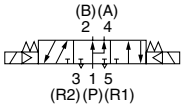
3 position closed center



3 position exhaust center



3 position pressure center



Made to Order
(For details, refer to pages 79 through to 80.)

Specifications

For details about certified products conforming to international standards, visit us at www.smcworld.com.

Fluid		Air
Operating pressure range MPa	**2 position single**	0.15 to 0.7
	2 position double	0.1 to 0.7
	3 position	0.15 to 0.7
Ambient and fluid temperature (°C)		–10 to 50 (No freezing. Refer to back page 3.)
Response time (ms) (at 0.5 MPa) Note 1)	**2 position single, double**	30 or less
	3 position	60 or less
Max. operating frequency (Hz)	**2 position single, double**	5
	3 position	3
Manual override (Manual operation)		Non-locking push type, Push-turn locking slotted type, Push-turn locking lever type
Pilot exhaust method		Individual exhaust for the pilot valve, Common exhaust for the pilot and main valve
Lubrication		Not required
Mounting orientation		Unrestricted
Shock/Vibration resistance (m/s²) Note 2)		150/30
Enclosure		Dust proof (∗ DIN terminal, M8 connector conforms to IP65.)

∗ Based on IEC60529
Note 1) Based on dynamic performance test, JIS B 8375-1981. (Coil temperature: 20°C, at rated voltage, without surge suppressor)
Note 2) 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. (Value in the initial state)
Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz. Test was performed to axis and right angle directions of the main valve and armature when pilot signal is ON and OFF. (Value in the initial state)

Solenoid Specifications

Electrical entry			Grommet (G), (H) L plug connector (L) M plug connector (M) DIN terminal (D) M8 connector (W)	
			G, H, L, M, W	D
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 ∗	
Power consumption (W)	**DC**	**Standard**	0.35 {With light: 0.4 (DIN terminal with light: 0.45)}	
		With power saving circuit	0.1 (With light only)	
Apparent power VA∗	**AC**	**100 V**	0.78 (With light: 0.81)	0.78 (With light: 0.87)
		110 V [115 V]	0.86 (With light: 0.89) [0.94 (With light: 0.97)]	0.86 (With light: 0.97) [0.94 (With light: 1.07)]
		200 V	1.18 (With light: 1.22)	1.15 (With light: 1.30)
		220 V [230 V]	1.30 (With light: 1.34) [1.42 (With light: 1.46)]	1.27 (With light: 1.46) [1.39 (With light: 1.60)]
Surge voltage suppressor			Diode (DIN terminal, Varistor when non-polar types)	
Indicator light			LED (Neon light when AC with DIN terminal)	

∗ 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.
∗ S, Z and T type (with power saving circuit) should be used within the following allowable voltage fluctuation range due to a voltage drop caused by the internal circuit.
S and Z type: 24 VDC: –7% to +10%, 12 VDC: –4% to +10%
T type: 24 VDC: –8% to +10%, 12 VDC: –6% to +10%

Flow Characteristics/Weight

Valve model		Type of actuation		Port size 1, 5, 3 (P, EA, EB)	Port size 4, 2 (A, B)	Flow characteristics Note 1) 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) Note 2, 3) Grommet	L/M plug connector	DIN terminal	M8 connector
Body ported	SYJ7□20-□-01	2 position	Single	1/8	1/8	2.2	0.36	0.58	2.4	0.34	0.63	85	86	107	90
			Double									98	100	142	108
		3 position	Closed center			1.8	0.37	0.45	2.0	0.35	0.49	108	110	152	118
			Exhaust center			1.2	0.50	0.34	3.0 [1.3]	0.35[0.52]	0.73 [0.39]				
			Pressure center			3.0 [0.83]	0.37 [0.50]	0.78 [0.25]	1.8	0.37	0.45				
	SYJ7□20-□-C6	2 position	Single	1/8	C6 (One-touch fitting for ø6)	1.6	0.33	0.4	2.2	0.32	0.53	96	97	98	101
			Double									109	111	153	119
		3 position	Closed center			1.4	0.27	0.35	1.9	0.33	0.49	119	121	163	129
			Exhaust center			1.1	0.37	0.27	2.5 [1.3]	0.32[0.54]	0.61 [0.38]				
			Pressure center			1.8 [0.78]	0.36 [0.40]	0.45 [0.22]	1.6	0.30	0.39				
	SYJ7□20-□-C8	2 position	Single	1/8	C8 (One-touch fitting for ø8)	2.0	0.39	0.52	2.3	0.34	0.61	96	97	98	101
			Double									109	111	153	119
		3 position	Closed center			1.7	0.35	0.42	2.0	0.29	0.49	119	121	163	129
			Exhaust center			1.2	0.38	0.33	2.6 [1.3]	0.35[0.49]	0.67 [0.38]				
			Pressure center			1.9 [0.86]	0.57 [0.46]	0.59 [0.25]	1.7	0.39	0.42				
Base mounted	SYJ7□40-□-01	2 position	Single	1/8	1/8	2.3	0.45	0.57	2.8	0.37	0.71	165 (85)	166 (86)	187 (107)	170 (90)
			Double									178 (98)	180 (100)	222 (142)	188 (108)
		3 position	Closed center			1.9	0.36	0.48	2.1	0.46	0.57	188 (108)	190 (110)	232 (152)	198 (118)
			Exhaust center			1.2	0.48	0.35	3.4 [1.3]	0.36[0.57]	0.86 [0.41]				
			Pressure center			3.3 [0.85]	0.43 [0.54]	0.78 [0.25]	2.1	0.45	0.56				
	SYJ7□40-□-02	2 position	Single	1/4	1/4	2.3	0.41	0.61	2.9	0.35	0.74	165 (85)	166 (86)	187 (107)	170 (90)
			Double									178 (98)	180 (100)	222 (142)	188 (108)
		3 position	Closed center			1.9	0.46	0.50	2.2	0.44	0.60	188 (108)	190 (110)	232 (152)	198 (118)
			Exhaust center			1.3	0.45	0.35	3.7 [1.4]	0.27[0.56]	0.87 [0.43]				
			Pressure center			3.6 [0.83]	0.23 [0.55]	0.84 [0.25]	2.1	0.47	0.58				

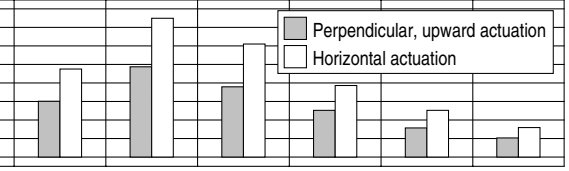
Note 1) [ ]: denotes the normal position. Exhaust center: 4/2 → 5/3, Pressure center: 1 → 4/2
Note 2) ( ): Without sub-plate.
Note 3) For DC voltages. For AC voltages add 3 g to the weight of the single solenoid and 6 g to the weight of the double solenoid and 3 position types.

Cylinder Speed Chart

Body Ported

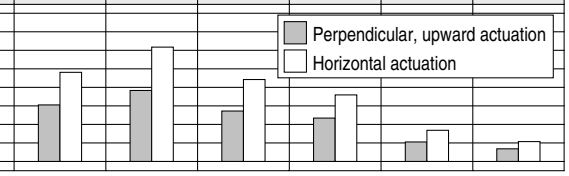
Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.

Series	Average speed (mm/s)	Bore size: Series CJ2 Pressure 0.5 MPa Load rate: 50% Stroke 60 mm			Series MB/CM2 Pressure 0.5 MPa Load rate: 50% Stroke 300 mm				Series MB/CA2 Pressure 0.5 MPa Load rate: 50% Stroke 500 mm				
		ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100
SYJ7120-01	800 700 600 500 400 300 200 100 0												



Base Mounted

Series	Average speed (mm/s)	Bore size: Series CJ2 Pressure 0.5 MPa Load rate: 50% Stroke 60 mm			Series MB/CM2 Pressure 0.5 MPa Load rate: 50% Stroke 300 mm				Series MB/CA2 Pressure 0.5 MPa Load rate: 50% Stroke 500 mm				
		ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100
SYJ7140-02	800 700 600 500 400 300 200 100 0												



∗ Cylinder is in extending. Speed controller is meter-out, which is directly connected with cylinder and its needle is fully opened.
∗ Average speed of cylinder is obtained by dividing the full stroke time by the stroke.
∗ Load factor: ((Load weight x 9.8) /Theoretical force) x 100%

Conditions

Body ported		Series CJ2	Series CM2	Series MB/CA2
SYJ7120-01	Tubing bore x Length	ø6 x 1 m		ø12 x 1 m
	Speed controller	AS2301F-06	AS3301F-06	AS4001F-12
	Silencer	AN110-01	AN200-02	

Base mounted		Series CJ2	Series CM2	Series MB/CA2
SYJ7140-02	Tubing bore x Length	ø6 x 1 m		
	Speed controller	AS1301F-06	AS3001F-06	
	Silencer	AN110-01	AN200-02	AN3301F-06

How to Order

Type of actuation

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

Light/surge voltage suppressor

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

Nil	Without light/surge voltage suppressor
S	With surge voltage suppresor
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 type "R" and "U", DC voltage is only available.
* Power saving circuit is only available in the "Z" type.

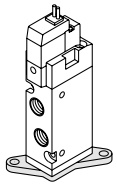
Electrical entry for D

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.

Bracket

Nil: Without bracket
F: With bracket



Note) Do not remove the factory installed bracket from models with the bracket option. Removal of the bracket will cause the valve to leak. Brackets cannot be retrofitted.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Rated voltage

DC

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

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

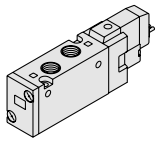
AC (50/60 Hz)

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

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

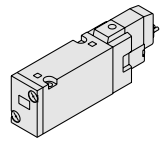
A, B port size

01	1/8
C6	One-touch fitting for ø6
C8	One-touch fitting for ø8
N7	One-touch fitting for ø1/4"
N9	One-touch fitting for ø5/16"



(For manifold type 20, 21)

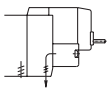
Body ported	SYJ7	1	2	0		5	M			01		
Base mounted	SYJ7	2	4	0		5	M					



(For sub-plate, manifold type 40, 41, 42)

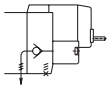
Body option

0: Pilot valve individual exhaust for the pilot valve



R port P, E port

3: Common exhaust type for main and pilot valve



R port P, E port

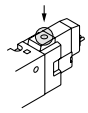
Coil specifications

Nil	Standard
T	With power saving circuit <24 V, 12 VDC only>

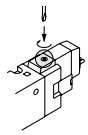
* Power saving circuit is not available in the case of D, DO or W□ type.

Manual override

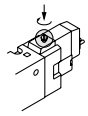
Nil: Non-locking push type



D: Push-turn locking slotted type



E: Push-turn locking lever type

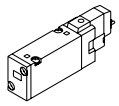


Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

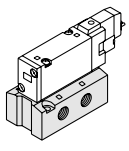
Port size

Nil: Without sub-plate

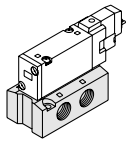


(With gasket and screws)

01: 1/8 With sub-plate Note)

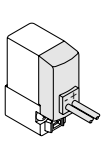
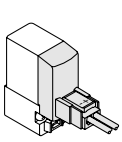
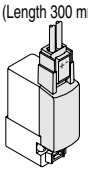
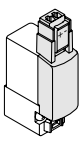
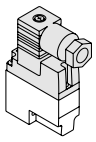
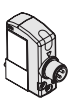
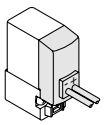
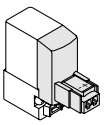
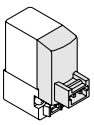
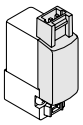
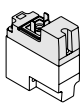
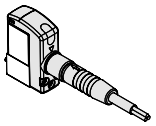


02: 1/4 With sub-plate



Note) R1, R2 port: 1/4

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	**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	**W□:** With connector cable Note 1)
					

Note 1) Enter the cable length symbols in □. Please be sure to fill in the blank referring to back page 10.

* LN, MN type: with 2 sockets.
* DIN terminal type "Y" which conforms to EN-175301-803C (former DIN43650C) is also available. For details, refer to page 80.
* For connector cable of M8 connector, refer to back page 10.