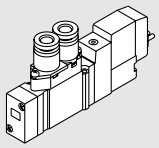
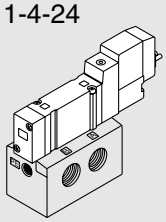
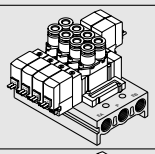
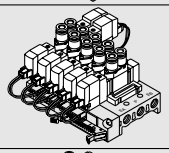
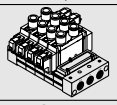
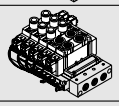
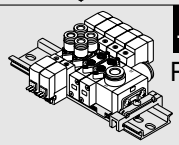
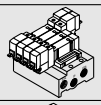
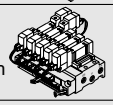
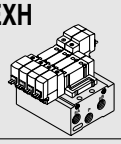
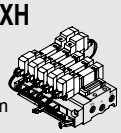
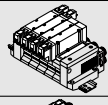
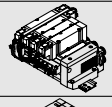
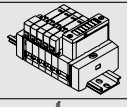
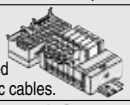
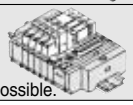
Series Variations

	Series		Sonic conductance C [dm³/(s·bar)] {4/2→5/3 (A/B→EA/EB)}	Type of actuation					Voltage		Electrical entry						Note 1)
				2 position		3 position			DC	AC							
				Single	Double	Closed center	Exhaust center	Pressure center	24 V 12 V 6 V 5 V 3 V	100 V 50/60 Hz 110 V 50/60 Hz 200 V 50/60 Hz 220 V 50/60 Hz	Grommet	L plug connector	M plug connector	DIN terminal	M8 Connector	Light/Surge voltage suppressor
Body Ported	P. 1-4-6 	**SY3□20**	0.65	●	●	●	●	●	●	●	●	●	●	—	●	●
		SY5□20	2.4	●	●	●	●	●	●	●	●	●	●	●	●	●
		SY7□20	3.3	●	●	●	●	●	●	●	●	●	●	●	●	●
		SY9□20	8.6	●	●	●	●	●	●	●	●	●	●	●	●	●
Base Mounted	P. 1-4-24 	**SY3□40**	1.1	●	●	●	●	●	●	●	●	●	●	—	●	●
		SY5□40	2.8	●	●	●	●	●	●	●	●	●	●	●	●	●
		SY7□40	4.5	●	●	●	●	●	●	●	●	●	●	●	●	●
		SY9□40	10	●	●	●	●	●	●	●	●	●	●	●	●	●

	Series	Manual override			Bracket	P, EA, EB port size					A, B port size														Valve option						
		Non-locking push type	Push-turn locking slotted type	Push-turn locking lever type		M5	1/8	1/4	3/8	1/2	M5	1/8	1/4	3/8	1/2	One-touch fitting									Exhaust throttle	Oil resistant, Other than designated turbine oil	Vacuum specifications	Low pressure specifications	External pilot	Enclosure IP65 Note 3)	Interface regulator
																C4	C6	C8	C10	C12	N3	N7	N9	N11							
Body Ported	**SY3□20**	●	●	●	●	●	—	—	—	—	●	—	—	—	—	●	●	—	—	—	●	●	—	—	●	▲	▲	▲	▲	●	—
	SY5□20	●	●	●	●	—	●	—	—	—	—	●	—	—	—	●	●	●	—	—	●	●	●	—							
	SY7□20	●	●	●	●	—	● (EA, EB)	● (P)	—	—	—	—	●	—	—	—	—	●	●	—	—	—	●	●			External Pilot (Note 2)	External Pilot (Note 2)	External Pilot (Note 2)	DIN terminal M8 connector	
	SY9□20	●	●	●	—	—	—	●	—	—	—	—	●	●	—	—	—	●	●	●	—	—	●	●							
Base Mounted	**SY3□40**	●	●	●	—	—	●	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—	—	●	▲	●	●	●	●	●
	SY5□40	●	●	●	—	—	—	●	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—							●
	SY7□40	●	●	●	—	—	—	●	●	—	—	—	●	●	—	—	—	—	—	—	—	—	—	—	Sub-plate		External pilot	External pilot	External pilot	DIN terminal M8 connector	●
	SY9□40	●	●	●	—	—	—	—	●	●	—	—	—	●	●	—	—	—	—	—	—	—	—	—							—

Note 1) All AC voltage models have built-in surge voltage suppressor.
Note 2) Body ported external pilot style (made to order) is not available for DIN terminal.
Note 3) Only available for DIN terminal and M8 connector.

Manifold Variations

	Manifold variations		Valve series	Wiring: Connection — Individual wiring	Flat ribbon cable (26 pins)	Flat ribbon cable (20 pins) connector box	Plug-in type D-sub connector (25 pins)	Plug-in type flat ribbon cable (26, 20, 10 pins)	Plug-in type terminal block (9, 18 pins)	PC wiring system	Serial transmission unit	Common specifications: Positive common	Common specifications: Negative common
			5 port										
Body Ported	**Bar stock type** **Individual wiring** ■ Direct piping to the main unit of a valve. Combination of different fittings is possible.		Type 20 P.1-4-42	SY3□20 SY5□20 SY7□20	●	—	—	—	—	—	—	—	—	—
	Bar stock type **Flat ribbon cable** ■ A 26 pins MIL connector permits One-touch wiring of external cables in a bundle.		Type 20P P.1-4-52	SY3□20 SY5□20 SY7□20	—	●	—	—	—	—	—	—	In common	
	Stacking type **Individual wiring** ■ Manifold stations can be increased.		Type 23 P.1-4-43	SY9□20	●	—	—	—	—	—	—	—	—	—
	Stacking type **Flat ribbon cable** ■ Manifold stations can be increased.		Type 23P P.1-4-58	SY9□20	—	●	—	—	—	—	—	—	In common	
	Cassette type **Individual wiring** ■ Size and weight reduced by eliminating the manifold base		Type 60 P.1-4-64	SY3□60 SY5□60 SY7□60	● ● ●	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —
Base Mounted	**Compact bar stock type** **Individual wiring** ■ The base mounting facilitates maintenance after valves are changed.		Type 41 P.1-4-74	SY3□40 SY5□40	●	—	—	—	—	—	—	—	—	—
	Compact bar stock type **Flat ribbon cable** ■ A 26 pins MIL connector permits one-touch wiring of external cables in a bundle.		Type 41P P.1-4-100	SY3□40 SY5□40	—	●	—	—	—	—	—	—	In common	
	Bar stock type/Common external EXH **Individual wiring** ■ The base mounting facilitates maintenance after valves are changed. ■ Vacuum/low pressure combination system is possible.		Type 42 P.1-4-74	SY3□40 SY5□40 SY7□40	●	—	—	—	—	—	—	—	—	—
	Bar stock type/Common external EXH **Flat ribbon cable** ■ A 26 pins MIL connector permits one-touch wiring of external cables in a bundle. ■ Vacuum/low pressure combination system is possible.		Type 42P P.1-4-100	SY3□40 SY5□40 SY7□40	—	●	—	—	—	—	—	—	In common	
	Stacking type **Individual wiring** ■ Manifold stations can be increased.		Type 43 P.1-4-94	SY9□40	●	—	—	—	—	—	—	—	—	—
	Stacking type **Flat ribbon cable** ■ Manifold stations can be increased.		Type 43P P.1-4-108	SY9□40	—	●	—	—	—	—	—	—	In common	
	Stacking type/DIN rail mounted **Individual wiring** ■ Stations can be increased on the DIN rail. Integral mounting of other electric parts is possible, too.		Type 45 P.1-4-120	SY3□40 SY5□40	●	—	—	—	—	—	—	—	—	—
	Stacking type/DIN rail mounted **Connector box** ■ Stations can be increased on the DIN rail. The provided connector box permits one-touch connection of electric cables.		Type 45A/NA P.1-4-132	SY3□40 SY5□40	—	—	●	—	—	—	●	—	●	●
	Stacking type/DIN rail mounted **Plug-in** ■ Stations can be increased on the DIN rail. ■ A variety of centralized wiring methods are possible.		Type 45□ P.1-4-140	SY3□40 SY5□40	—	—	—	●	●	●	●	●	●	●

● Standard ● Option ▲ Made-to-order (Refer to page "Made to Order".)

Manifold Variations

Manifold option								A, B port size												Valve option										
												One-touch fitting																		
Blanking plate	Individual SUP spacer	Individual EXH spacer	SUP block disk	EXH block disk	Label for block disk	Silencer for One-touch fitting	Built-in silencer	M5	1/8	1/4	3/8	C4	C6	C8	C10	C12	N3	N7	N9	N11	Mixed mounting SY3000 SY5000	Oil resistant (Other than designated turbine oil)	Vacuum specifications	Low pressure specifications	Different pressure	External pilot	Exhaust throttle	Bundle wiring	Mixed fitting sizes	IP65 enclosure	Interface regulator
●	●	●	—	—	—	—	—	●	—	—	—	●	●	—	—	—	●	●	—	—	—	▲	—	—	Individual SUP interface	—	Individual EXH interface	—	—	Note) ●	—
								—	●	—	—	●	●	●	—	—	●	●	●	—										Note) ●	
								—	—	●	—	—	—	●	●	—	—	—	●	●										Note) ●	
●	●	●	—	—	—	—	—	●	—	—	—	●	●	—	—	—	●	●	—	—	—	▲	—	—	Individual SUP interface	—	Individual EXH interface	●	—	—	
								—	●	—	—	●	●	●	—	—	●	●	●	—											
								—	—	●	—	—	—	●	●	—	—	—	●	●											
●	●	●	●	●	●	—	—	—	—	●	●	—	—	●	●	●	—	—	●	●	—	▲	● External pilot	● External pilot	Individual SUP block disk	● External pilot	Individual EXH	—	—	Note) ●	—
●	●	●	●	●	●	—	—	—	—	●	●	—	—	●	●	●	—	—	●	●	—	▲	● External pilot	● External pilot	Individual SUP block disk	● External pilot	Individual EXH	●	—	—	
●	—	—	●	●	●	●	—	●	—	—	—	●	●	—	—	—	●	●	—	—	—	▲	● External pilot	● External pilot	Individual SUP block disk	Individual SUP block disk	—	—	—	Note) ●	—
●	—	—	●	●	●	●	—	—	●	—	—	●	●	●	—	—	●	●	●	—	—	▲	● External pilot	● External pilot	Individual SUP block disk	Individual SUP block disk	—	—	—	Note) ●	—
●	—	—	●	●	●	●	—	—	—	●	—	—	—	●	●	—	—	—	●	●	—	▲	● External pilot	● External pilot	Individual SUP block disk	Individual SUP block disk	—	—	—	Note) ●	—
●	●	●	—	—	—	—	—	●	—	—	—	●	●	—	—	—	●	●	—	—	—	▲	—	—	Individual SUP interface	—	—	—	—	Note) ●	●
								—	●	—	—	—	●	●	—	—	—	●	●	—										Note) ●	
●	●	●	●	●	●	●	●	—	—	●	●	—	—	●	●	●	—	—	●	●	—	▲	● External pilot	● External pilot	Individual SUP block disk	● External pilot	Individual EXH	—	●	Note) ●	●
●	●	●	●	●	●	●	●	—	—	●	●	—	—	●	●	●	—	—	●	●	—	▲	● External pilot	● External pilot	Individual SUP block disk	● External pilot	Individual EXH	●	●	—	—
●	●	●	●	●	●	●	▲	—	—	—	—	●	●	—	—	—	●	●	—	—	▲	▲	▲ External pilot	▲ External pilot	Individual SUP spacer or block disk	—	—	—	—	Note) ●	●
								—	—	—	—	●	●	●	—	—	●	●	●	—										Note) ●	
●	●	●	●	●	●	●	▲	—	—	—	—	●	●	—	—	—	●	●	—	—	▲	▲	▲ External pilot	▲ External pilot	Individual SUP spacer or block disk	—	—	●	●	—	●
								—	—	—	—	●	●	●	—	—	●	●	●	—											
●	●	●	●	●	●	●	▲	—	—	—	—	●	●	—	—	—	●	●	—	—	▲	▲	▲ External pilot	▲ External pilot	Individual SUP spacer or block disk	—	—	●	●	—	—
								—	—	—	—	●	●	●	—	—	●	●	●	—											

Note) When using DIN terminal or M8 connector.
There is no DIN terminal available for SY3000.

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)

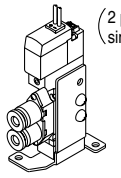
Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	SY3000
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	SY5000
C8	One-touch fitting for ø8	SY5000
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	SY7000
C8	One-touch fitting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

One-touch fitting (Inch size)

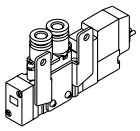
Symbol	Port size	Applicable series
N3	One-touch fitting for ø 5/32"	SY3000
N7	One-touch fitting for ø 1/	SY3000
N3	One-touch fitting for ø 5/32"	SY5000
N7	One-touch fitting for ø 1/	SY5000
N9	One-touch fitting for ø 5/16"	SY5000
N9	One-touch fitting for ø 5/16"	SY7000
N11	One-touch fitting for ø 3/	SY7000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



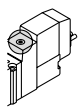
∗ SY9000 has no bracket.

Thread type

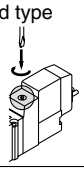
Nil	Rc
F	G
N	NPT
T	NPTF

Manual override

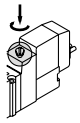
Nil: Non-locking push type



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)

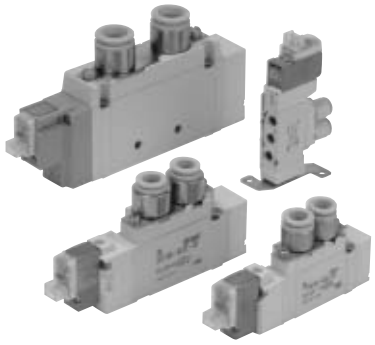
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

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	M5 x 0.8	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	M5 x 0.8	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	1/8	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	1/8	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	1/8	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

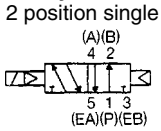
Valve model	Type of actuation		Port size 1, 5, 3 (P, EA, EB)	Port size 4, 2 (A, B)	Flow characteristics 1→4/2 (P→A/B) C (dm³/(s·bar))	b	Cv	Flow characteristics 4/2→5/3 (A/B→EA/EB) C (dm³/(s·bar))	b	Cv	Weight (g) Grom-met	L, M plug connector	DIN terminal	W M8 connector
SY9□20 -□-02	2 position	Single	1/4	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	1/4	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	1/4	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	1/4	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	1/4	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.

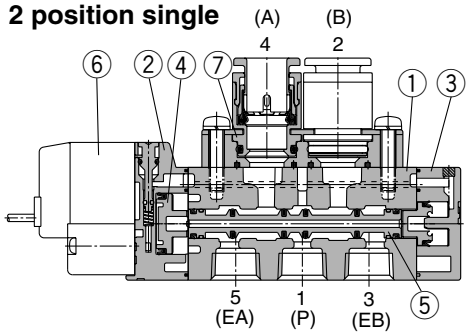
Construction

Series SY

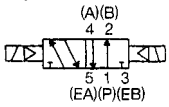
JIS Symbol
2 position single



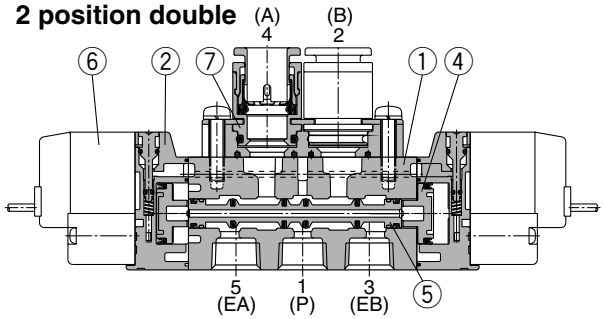
2 position single



JIS Symbol
2 position double

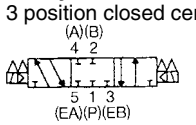


2 position double

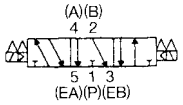


3 position closed center/exhaust center/pressure center

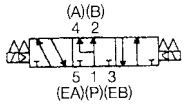
JIS Symbol
3 position closed center

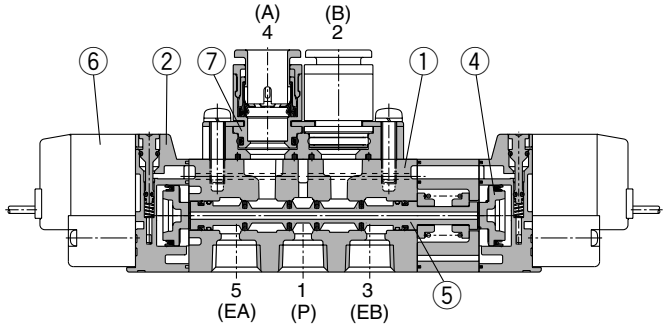


3 position exhaust center



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.

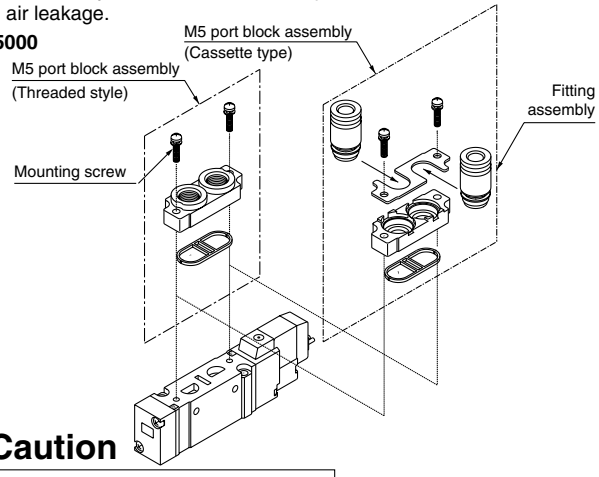
Description	part no.
Bracket (For F1)	SX$^{3}_{7}$000-16-2A (with mounting screw)
Bracket (For F2)	SX$^{3}_{7}$000-16-1A (with mounting screw)

∗ 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

