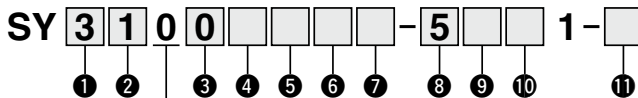


How to Order Valves (With mounting screw) Refer to page 404 for valve specifications.



• Base mounted

1 Series

3	SY3000
5	SY5000
7	SY7000

2 Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed center
4		Exhaust center
5		Pressure center
A*1	4-position dual 3-port	N.C./N.C.
B*1		N.O./N.O.
C*1		N.C./N.O.

*1 Only the rubber seal type is available for the 4-position dual 3-port valve.

3 Seal type

0	Rubber seal
1	Metal seal

4 Pilot type

Nii	Internal pilot
R	External pilot

5 Back pressure check valve (Built-in valve type)

Nii	None
H	Built-in

* Only the rubber seal type is available. A manifold installed type is available if a back pressure check valve with a metal seal is required. Refer to page 625 for ordering examples. However, it is not recommended to use the built-in valve type and the manifold installed type at the same time because it will reduce the flow.

* The built-in valve type back pressure check valve is not available for the 3-position type or the SY7000.

6 Pilot valve option

Nii	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)
K*1	High pressure type (1.0 MPa)

*1 Only the metal seal type is available for the high pressure type.

7 Coil type

Nii	Standard
T	With power saving circuit (Continuous duty type)

* Be sure to select the power saving circuit type if the valve is to be continuously energized for long periods of time.

* Be careful of the energizing time when the power saving circuit is selected. Refer to page 705 for details.

8 Rated voltage

5	24 VDC
6	12 VDC

9 Light/surge voltage suppressor and common specification

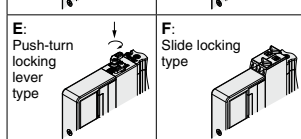
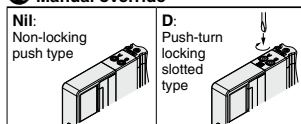
Symbol	With light	Surge voltage suppressor	Common specification
Nii	—	—	Non-polar
R	—	—	
U	●	—	
S	—	●	Positive common
Z	●	—	Negative common
NS	—	—	
NZ	●	—	

* For the non-polar type, be careful of surge voltage intrusion.

Refer to page 706 for details.

* Only "Z" and "NZ" types are available with a power saving circuit.

10 Manual override



* Refer to page 423 for the safety slide locking manual override.

11 Type of mounting screw

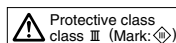
Nii	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

* For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.

* **When ordering a valve individually, the base gasket is not included.**

Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to page 611 for base gasket and mounting screw part numbers.

* "B" and "H" cannot be selected for the individual SUP/EXH spacer assembly, interface regulator, or double check spacer assembly with residual pressure release valve.



SY3000/5000/7000 Series Valve Specifications

Valve Specifications

Valve type		Rubber seal	Metal seal	
Fluid		Air		
Internal pilot operating pressure range [MPa]	2-position single	0.15 to 0.7	0.1 to 0.7 (High pressure type: 0.1 to 1)	
	2-position double	0.1 to 0.7		
	3-position	0.2 to 0.7		
	4-position dual 3-port valve	0.15 to 0.7		
External pilot operating pressure range [MPa]	Operating pressure range		-100 kPa to 0.7 (4-position: -100 kPa to 0.6) / -100 kPa to 0.7 (High pressure type: -100 kPa to 1)	
	Pilot pressure range	2-position single	0.25 to 0.7	
		2-position double		
		3-position		
4-position dual 3-port valve		Operating pressure + 0.1 or more (Min. 0.25) to 0.7	—	
Ambient and fluid temperatures [°C]		-10 to 50 (No freezing)		
Max. operating frequency [Hz]	SY3000 SY5000	2-position single/double	5	20 ^{*1}
		4-position dual 3-port valve		
	SY7000	3-position	3	10 ^{*1}
		2-position single/double	5	10 ^{*1}
		4-position dual 3-port valve	3	—
		3-position	3	10 ^{*1}
Manual override		Non-locking push type Push-turn locking slotted type Push-turn locking lever type Slide locking type		
Pilot exhaust type	Internal pilot	Main/Pilot valve common exhaust	Main/Pilot valve individual exhaust	
	External pilot	Pilot valve individual exhaust		
Lubrication		Not required		
Mounting orientation^{*2}		Unrestricted	Single: Unrestricted Double/3-position: Main valve is horizontal.	
Impact/Vibration resistance^{*2} [m/s²]		150/30		
Enclosure		IP67 (Based on IEC60529) ^{*3}		
Coil rated voltage [DC]		24, 12 V		
Allowable voltage fluctuation [V]		±10% of rated voltage ^{*4}		
Power consumption [W]	Standard		0.35 (With indicator light: 0.4)	
	High pressure type, Quick response type		0.9 (With indicator light: 0.95)	
	With power saving circuit		Standard: 0.1 ^{*5} (With indicator light only) [Inrush 0.4, Holding 0.1], High pressure type: 0.4 ^{*5} (With indicator light only) [Inrush 0.95, Holding 0.4]	
Surge voltage suppressor		Diode (Varistor for non-polar type)		
Indicator light		LED		

*1 Use below 5 Hz with the power saving circuit.

*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. (Values at the initial period)

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. The 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)

Refer to page 708 for the fixation of DIN rail mounting type manifold.

*3 In the case of a metal seal, there are restrictions in the operating environment. Refer to the "Specific Product Precautions" on page 703.

*4 Due to voltage drops by the internal circuit in S/Z type and T type (with power saving circuit), use within the allowable voltage fluctuation as follows.

S/Z type { 24 VDC: -7% to +10%
12 VDC: -4% to +10% } T type { 24 VDC: -8% to +10%
12 VDC: -6% to +10% }

*5 For details, refer to page 705.

Response Time

Series	Seal type	Model	Type of actuation	Response time [ms] (at 0.5 MPa)*1					
				Standard			Quick response type		
				Without light/ surge voltage suppressor	With light/surge voltage suppressor		Without light/ surge voltage suppressor	With light/surge voltage suppressor	
S/Z type	R/U type	S/Z type	R/U type						
SY3000	Rubber seal	SY31□0	2-position single	15 or less	20 or less	15 or less	12 or less	15 or less	12 or less
	Metal seal	SY31□1		15 or less	20 or less	15 or less	12 or less	15 or less	12 or less
	Rubber seal	SY32□0	2-position double	12 or less	15 or less	12 or less	10 or less	13 or less	10 or less
	Metal seal	SY32□1		12 or less	15 or less	12 or less	10 or less	13 or less	10 or less
	Rubber seal	SY33/4/5□0	3-position	18 or less	22 or less	18 or less	14 or less	18 or less	14 or less
	Metal seal	SY33/4/5□1		18 or less	22 or less	18 or less	14 or less	18 or less	14 or less
SY5000	Rubber seal	SY3A/B/C□0	4-position dual 3-port valve	18 or less	22 or less	18 or less	15 or less	19 or less	15 or less
	Rubber seal	SY51□0	2-position single	24 or less	31 or less	24 or less	18 or less	25 or less	18 or less
	Metal seal	SY51□1		24 or less	31 or less	24 or less	18 or less	25 or less	18 or less
	Rubber seal	SY52□0	2-position double	12 or less	15 or less	12 or less	10 or less	13 or less	10 or less
	Metal seal	SY52□1		12 or less	15 or less	12 or less	10 or less	13 or less	10 or less
	Rubber seal	SY53/4/5□0	3-position	30 or less	34 or less	30 or less	24 or less	28 or less	24 or less
Metal seal	SY53/4/5□1	28 or less		30 or less	28 or less	23 or less	25 or less	23 or less	
SY7000	Rubber seal	SY5A/B/C□0	4-position dual 3-port valve	35 or less	42 or less	35 or less	28 or less	35 or less	28 or less
	Rubber seal	SY71□0	2-position single	47 or less	58 or less	53 or less	42 or less	52 or less	44 or less
	Metal seal	SY71□1		39 or less	48 or less	39 or less	34 or less	43 or less	34 or less
	Rubber seal	SY72□0	2-position double	18 or less	19 or less	19 or less	18 or less	17 or less	17 or less
	Metal seal	SY72□1		17 or less	17 or less	16 or less	16 or less	16 or less	16 or less
	Rubber seal	SY73/4/5□0	3-position	52 or less	54 or less	47 or less	42 or less	46 or less	40 or less
Metal seal	SY73/4/5□1	38 or less		45 or less	39 or less	33 or less	38 or less	34 or less	
	Rubber seal	SY7A/B/C□0	4-position dual 3-port valve	52 or less	60 or less	54 or less	49 or less	53 or less	48 or less

*1 Based on dynamic performance test, JIS B 8419-2010 (Coil temperature: 20°C, at rated voltage)

Since the response time of the external pilot type of the 4-position dual 3-port valve differs from the above table, please contact SMC.

SY3000/5000/7000 Series

Valve Weight

SY3000 series

Valve model	Seal type	Type of actuation	Weight [g]	
SY3□00	Rubber seal	2-position	Single	74
			Double	83
		3-position	Closed center	87
			Exhaust center	
			Pressure center	
		4-position	Dual 3-port valve	83

Valve model	Seal type	Type of actuation	Weight [g]	
SY3□01	Metal seal	2-position	Single	76
			Double	86
		3-position	Closed center	90
			Exhaust center	
			Pressure center	

Valve model	Seal type	Type of actuation	Port size 4, 2 (A, B)	Weight [g]
SY3□30-M5		2-position	Single	74
			Double	83
		3-position	Closed center	M5 x 0.8
			Exhaust center	
			Pressure center	
4-position	Dual 3-port valve	83		
SY3□30-C2		2-position	Single	82
			Double	91
		3-position	Closed center	ø2 One-touch fitting
			Exhaust center	
			Pressure center	
4-position	Dual 3-port valve	91		
SY3□30-C3	Rubber seal	2-position	Single	85
			Double	94
		3-position	Closed center	ø3.2 One-touch fitting
			Exhaust center	
			Pressure center	
4-position	Dual 3-port valve	94		
SY3□30-C4		2-position	Single	77
			Double	86
		3-position	Closed center	ø4 One-touch fitting
			Exhaust center	
			Pressure center	
4-position	Dual 3-port valve	86		
SY3□30-C6		2-position	Single	80
			Double	89
		3-position	Closed center	ø6 One-touch fitting
			Exhaust center	
			Pressure center	
4-position	Dual 3-port valve	89		

Valve model	Seal type	Type of actuation	Port size 4, 2 (A, B)	Weight [g]
SY3□31-M5		2-position	Single	76
			Double	86
		3-position	Closed center	M5 x 0.8
			Exhaust center	
			Pressure center	
SY3□31-C2	Metal seal	2-position	Single	84
			Double	94
		3-position	Closed center	ø2 One-touch fitting
			Exhaust center	
			Pressure center	
SY3□31-C3		2-position	Single	87
			Double	97
		3-position	Closed center	ø3.2 One-touch fitting
			Exhaust center	
			Pressure center	
SY3□31-C4		2-position	Single	79
			Double	89
		3-position	Closed center	ø4 One-touch fitting
			Exhaust center	
			Pressure center	
SY3□31-C6		2-position	Single	82
			Double	92
		3-position	Closed center	ø6 One-touch fitting
			Exhaust center	
			Pressure center	

SY5000 series

Valve model	Seal type	Type of actuation	Weight [g]	
SY5□00	Rubber seal	2-position	Single	82
			Double	90
		3-position	Closed center	100
			Exhaust center	
			Pressure center	
		4-position	Dual 3-port valve	90

Valve model	Seal type	Type of actuation	Weight [g]	
SY5□01	Metal seal	2-position	Single	91
			Double	101
		3-position	Closed center	111
			Exhaust center	
			Pressure center	

Valve model	Seal type	Type of actuation	Port size 4, 2 (A, B)	Weight [g]
SY5□30-01		2-position	Single	102
			Double	110
		3-position	Closed center	1/8
			Exhaust center	
			Pressure center	
4-position	Dual 3-port valve	110		
SY5□30-C4	Rubber seal	2-position	Single	115
			Double	123
		3-position	Closed center	ø4 One-touch fitting
			Exhaust center	
			Pressure center	
4-position	Dual 3-port valve	123		
SY5□30-C6		2-position	Single	110
			Double	118
		3-position	Closed center	ø6 One-touch fitting
			Exhaust center	
			Pressure center	
4-position	Dual 3-port valve	118		
SY5□30-C8		2-position	Single	99
			Double	107
		3-position	Closed center	ø8 One-touch fitting
			Exhaust center	
			Pressure center	
4-position	Dual 3-port valve	107		

Valve model	Seal type	Type of actuation	Port size 4, 2 (A, B)	Weight [g]
SY5□31-01		2-position	Single	111
			Double	121
		3-position	Closed center	1/8
			Exhaust center	
			Pressure center	
SY5□31-C4	Metal seal	2-position	Single	124
			Double	134
		3-position	Closed center	ø4 One-touch fitting
			Exhaust center	
			Pressure center	
SY5□31-C6		2-position	Single	120
			Double	130
		3-position	Closed center	ø6 One-touch fitting
			Exhaust center	
			Pressure center	
SY5□31-C8		2-position	Single	108
			Double	118
		3-position	Closed center	ø8 One-touch fitting
			Exhaust center	
			Pressure center	

Valve Weight

SY7000 series

Valve model	Seal type	Type of actuation	Weight [g]	
SY7□00	Rubber seal	Single	110	
		2-position	Double	118
		3-position	Closed center	133
			Exhaust center	
			Pressure center	
		4-position	Dual 3-port valve	114

Valve model	Seal type	Type of actuation	Weight [g]	
SY7□01	Metal seal	Single	122	
		2-position	Double	133
		3-position	Closed center	150
			Exhaust center	
			Pressure center	

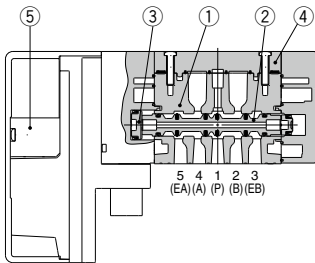
Valve model	Seal type	Type of actuation		Port size	Weight
				4, 2 (A, B)	[g]
SY7□30-02		2-position	Single	1/4	125
			Double		133
		3-position	Closed center		147
			Exhaust center		
		4-position	Dual 3-port valve		129
SY7□30-C6		2-position	Single	C6 ø6 One-touch fitting	163
			Double		171
		3-position	Closed center		186
			Exhaust center		
		4-position	Dual 3-port valve		167
SY7□30-C8	Rubber seal	2-position	Single	C8 ø8 One-touch fitting	151
			Double		159
		3-position	Closed center		174
			Exhaust center		
		4-position	Dual 3-port valve		155
SY7□30-C10		2-position	Single	C10 ø10 One-touch fitting	136
			Double		144
		3-position	Closed center		159
			Exhaust center		
		4-position	Dual 3-port valve		140
SY7□30-C12		2-position	Single	C12 ø12 One-touch fitting	146
			Double		154
		3-position	Closed center		169
			Exhaust center		
		4-position	Dual 3-port valve		150

Valve model	Seal type	Type of actuation		Port size	Weight
				4, 2 (A, B)	[g]
SY7□31-02		2-position	Single	1/4	136
			Double		148
		3-position	Closed center		164
			Exhaust center		
		4-position	Dual 3-port valve		129
SY7□31-C6		2-position	Single	C6 ø6 One-touch fitting	174
			Double		186
		3-position	Exhaust center		202
SY7□31-C8	Metal seal	2-position	Single	C8 ø8 One-touch fitting	162
			Double		174
		3-position	Exhaust center		190
SY7□31-C10		2-position	Single	C10 ø10 One-touch fitting	148
			Double		159
		3-position	Closed center		176
SY7□31-C12		2-position	Single	C12 ø12 One-touch fitting	157
			Double		169
		3-position	Closed center		185
			Exhaust center		
		4-position	Dual 3-port valve		150

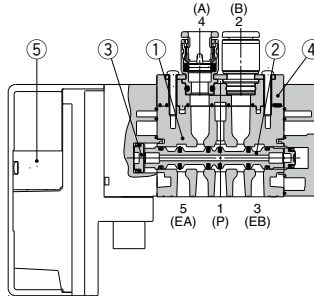
SY3000/5000/7000 Series Valve Construction

Rubber Seal

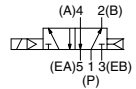
2-position single



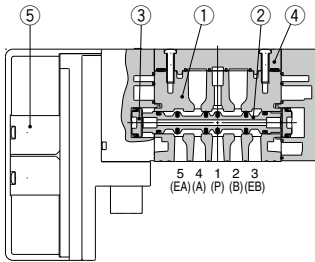
Top ported



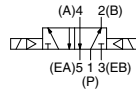
2-position single



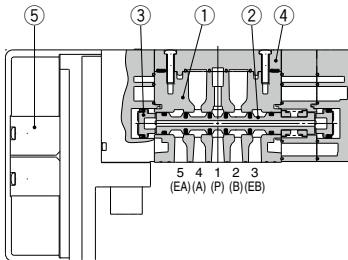
2-position double



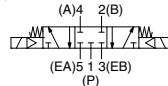
2-position double



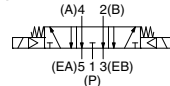
3-position closed center/exhaust center/pressure center



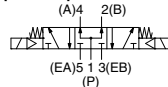
3-position closed center



3-position exhaust center



3-position pressure center

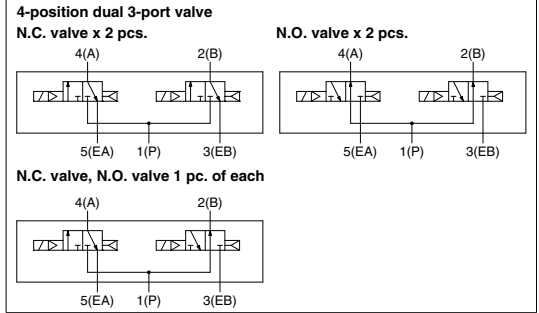
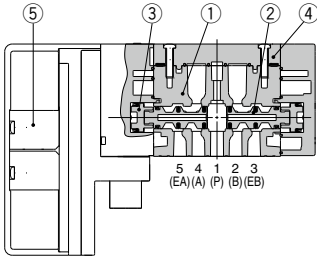


Component Parts

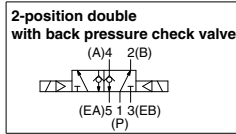
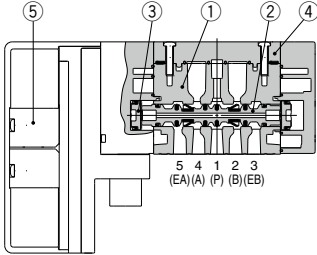
No.	Description	Material	Note
1	Body	SY3000: Zinc die-casted SY5000/SY7000: Aluminum die-casted	
2	Spool valve	Special resin/HNBR (3-position valve: Aluminum/HNBR)	
3	Piston	Resin	
	Body cover assembly	Resin	For the side/bottom-ported type
4	Port block assembly	SY3000: Resin SY5000: Zinc die-casted (Thread piping) SY5000: Resin (Fitting) SY7000: Aluminum die-casted	For the top-ported type
5	Pilot valve assembly	—	Refer to page 412.

Rubber Seal

4-position dual 3-port valve

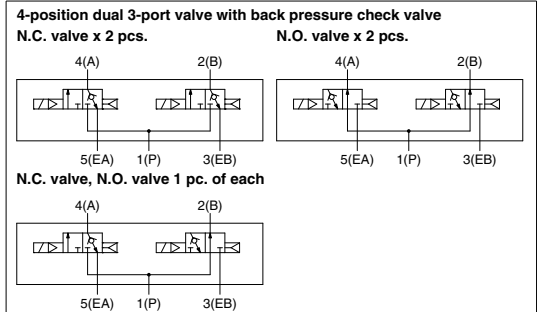
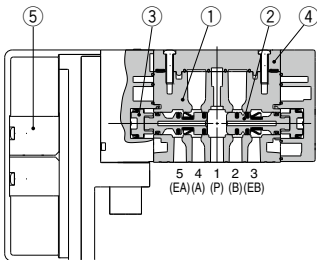


2-position double with back pressure check valve (Built-in valve type)



* The built-in valve type back pressure check valve is not available for the SY7000.

4-position dual 3-port valve with back pressure check valve (Built-in valve type)

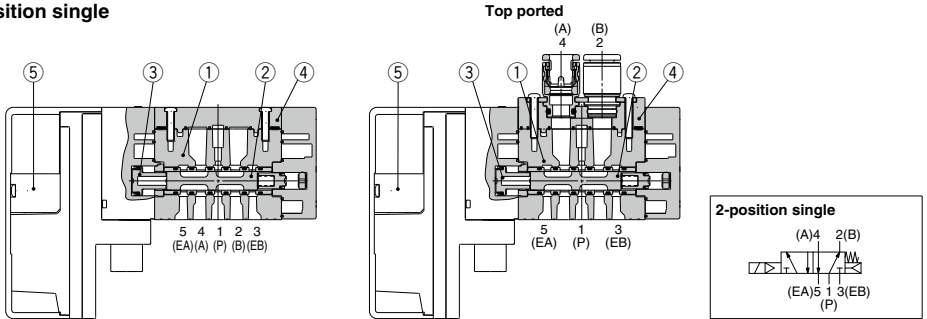


* The built-in valve type back pressure check valve is not available for the SY7000.

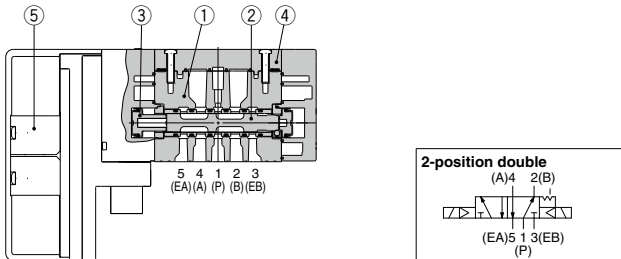
SY3000/5000/7000 Series

Metal Seal

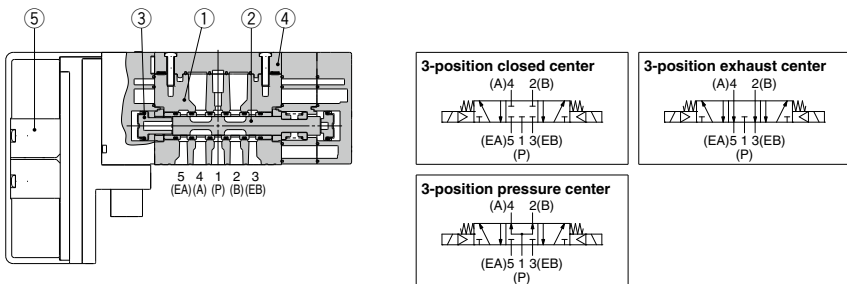
2-position single



2-position double



3-position closed center/exhaust center/pressure center



Component Parts

No.	Description	Material	Note
1	Body	SY3000: Zinc die-casted SY5000/7000: Aluminum die-casted	
2	Spool, Sleeve	Stainless steel/HNBR	
3	Piston	Resin	
	Body cover assembly	Resin	For the side/bottom-ported type
4	Port block assembly	SY3000: Resin SY5000: Zinc die-casted (Thread piping) SY5000: Resin (Fitting) SY7000: Aluminum die-casted	For the top-ported type
5	Pilot valve assembly	—	Refer to page 412.

SY3000/5000/7000 Series Valve Replacement Parts

How to Order Port Block Assembly

SY 0V-6A - - -

● **Series**

3	3000
5	5000
7	7000

● **Pilot type**

Nil	Internal pilot
R	External pilot

● **Option for mounting**

Nil	Standard (Valve mounting screw without drop prevention)
1	Drop prevention type valve mounting screw

● **Thread type**

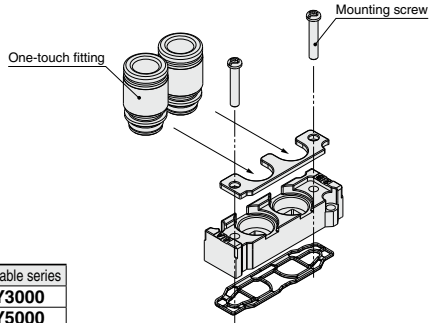
Nil	Rc
F	G
N	NPT
T	NPTF

* Except M5

● **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



● **Metric size (One-touch fitting)**

Symbol	Port size	Applicable series		
		SY3000	SY5000	SY7000
C2	ø2	●	—	—
C3	ø3.2	●	—	—
C4	ø4	●	●	—
C6	ø6	●	●	●
C8	ø8	—	●	●
C10	ø10	—	—	●
C12	ø12	—	—	●

● **Inch size (One-touch fitting)**

Symbol	Port size	Applicable series		
		SY3000	SY5000	SY7000
N1	ø1/8"	●	—	—
N3	ø5/32"	●	●	—
N7	ø1/4"	●	●	●
N9	ø5/16"	—	●	●
N11	ø3/8"	—	—	●

● **Possible to replace only the One-touch fitting**

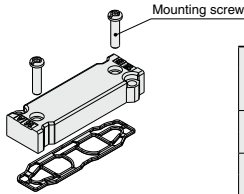
Port size		SY3000	SY5000	SY7000
Metric size	ø2	VVQ1000-50A-C2	—	—
	ø3.2	VVQ1000-50A-C3	—	—
	ø4	VVQ1000-50A-C4	VVQ1000-51A-C4	—
	ø6	VVQ1000-50A-C6	VVQ1000-51A-C6	VVQ2000-51A-C6
	ø8	—	VVQ1000-51A-C8	VVQ2000-51A-C8
	ø10	—	—	VVQ2000-51A-C10
Inch size	ø12	—	—	KQ2H12-17-X224
	ø1/8"	VVQ1000-50A-N1	—	—
	ø5/32"	VVQ1000-50A-N3	VVQ1000-51A-N3	—
	ø1/4"	VVQ1000-50A-N7	VVQ1000-51A-N7	VVQ2000-51A-N7
	ø5/16"	—	VVQ1000-51A-N9	VVQ2000-51A-N9
ø3/8"	—	—	VVQ2000-51A-N11	

Refer to pages 707 and 708 for how to replace the port block assembly, One-touch fitting, and body cover assembly.

SY3000/5000/7000 Series

Body Cover Assembly

* Used when the top-ported type is changed to the side or bottom-ported type



Series		Part no.	
		Standard (Valve mounting screw without drop prevention)	Drop prevention type valve mounting screw
SY3000	Internal pilot	SY30V-16A	SY30V-16A-1
	External pilot	SY30V-16AR	SY30V-16AR-1
SY5000	Internal pilot	SY50V-16A	SY50V-16A-1
	External pilot	SY50V-16AR	SY50V-16AR-1
SY7000	Internal pilot	SY70V-16A	SY70V-16A-1
	External pilot	SY70V-16AR	SY70V-16AR-1

* The part number is not indicated on the product.

How to Order Pilot Valve Assembly (With a gasket and two mounting screws)

V112 - A

Pilot valve option

Nil	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)
K	High pressure type (1.0 MPa) ^{*1}

*1 Only the metal seal type is available for the high pressure type. (1.0 MPa)

Coil type

Nil	Standard
T	With power saving circuit

Rated voltage

5	24 VDC
6	12 VDC

Caution

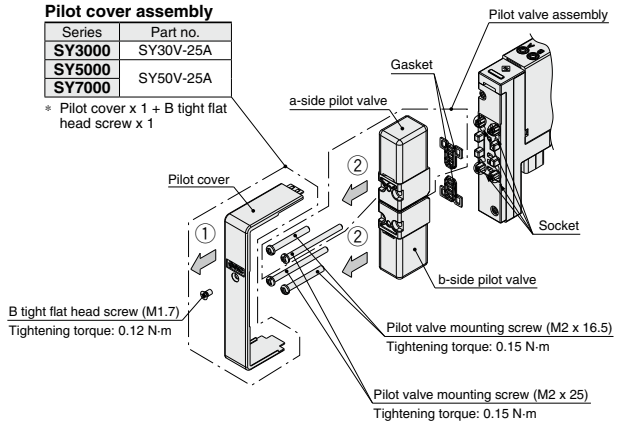
1. The coil specification and voltage (including light/surge voltage suppressor) cannot be changed by changing the pilot valve assembly.
2. When selecting the coil type with power saving circuit, it is not possible to change to high pressure/power saving circuit type.

How to replace pilot valves

Pilot cover assembly

Series	Part no.
SY3000	SY30V-25A
SY5000	SY50V-25A
SY7000	SY50V-25A

* Pilot cover x 1 + B tight flat head screw x 1



B tight flat head screw (M1.7)
Tightening torque: 0.12 N·m

Pilot valve mounting screw (M2 x 16.5)
Tightening torque: 0.15 N·m

Pilot valve mounting screw (M2 x 25)
Tightening torque: 0.15 N·m

- Loosen B tight flat head screw to remove the pilot cover in the direction indicated by the arrow ①.
- Remove the pilot valve mounting screws.
- Remove the pilot valve in the direction indicated by the arrow ②.

* Assemble by following the removal procedure in reverse.

- * Ensure the gasket is mounted, and take care not to bend the socket.
- * Be noted for mounting that there are two types of lengths for the pilot valve mounting screws.