4/5 Port Air Operated Valve
Series SYJA3000

How to Order

Bracket

-	Without bracket
F	With bracket

Body ported SYJA3 [1] 20 – M3 – [ ]

Base mounted (4 port) SYJA3 [2] 30 (Manifold use only)

Base mounted (5 port) SYJA3 [2] 40 – [ ]

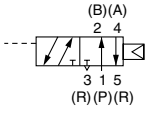
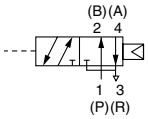
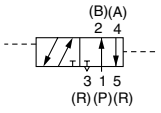
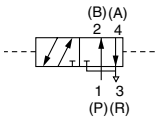
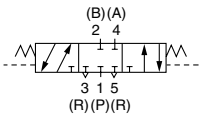
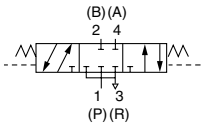
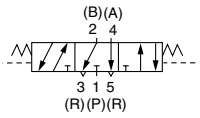
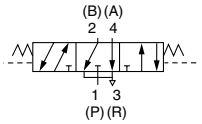
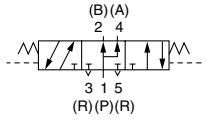
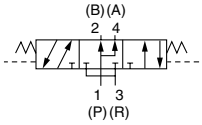
Port size

-	Without sub-plate
M5	M5 port With sub-plate

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

JIS Symbol

5 port	4 port
2 position single	2 position single
	
2 position double	2 position double
	
3 position closed center	3 position closed center
	
3 position exhaust center	3 position exhaust center
	
3 position pressure center	3 position pressure center
	

How to Order Manifold Base

Same manifolds as series SYJ3000 are prepared.

SS5YJA3 – Fill the same as SS5YJ3

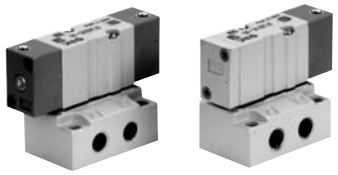
Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

(Example)
SS5YJA3-41-03-M5 ..... 1 pc.
∗SYJA3140 ..... 1 pc.
∗SYJA3240 ..... 1 pc.
∗SYJ3000-21-2A ..... 1 pc.

∗ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

⚠ Caution

Refer to back page 1 through to 5 for Safety Instructions and Common Precautions.



Base mounted

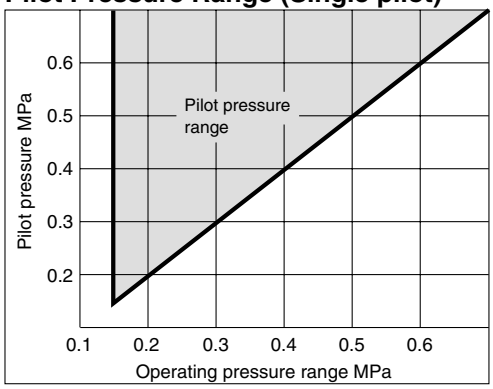
Body ported

Specifications

Fluid		Air
Operating pressure range (MPa)	2 position single	0.15 to 0.7
	2 position double	0.1 to 0.7
	3 position	0.2 to 0.7
Pilot pressure range (MPa) Note 1)	2 position single	Operating pressure 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 back page 3.)
Lubrication		Not required
Mounting orientation		Unrestricted
Impact/Vibration resistance (m/s²) Note 2)		300/50

Note 1) In case of single type, be certain that pressure within operating pressure range be supplied to supply port, because return pressure is introduced from supply port {1(P)} for activation.
Note 2) Impact resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle directions of the main valve, when pilot signal is ON and OFF. (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 when pilot signal is ON and OFF. (Value in the initial state)

Pilot Pressure Range (Single pilot)



With Bracket

Air operated valve	SYJA3□20-M3-F

The mounting bracket for the 2 position double solenoid and 3 position is supplied unattached.

Flow Characteristics/Weight

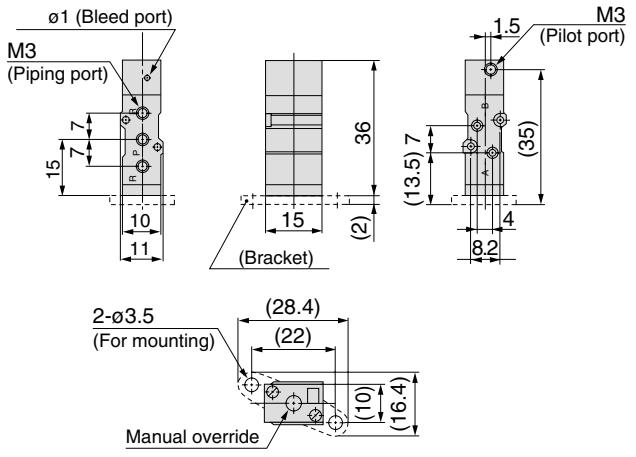
∗ Refer to the memo for changed contents.

Valve model		Type of actuation		Port size	Pilot port size	Weight (g) Note 3) Grommet	Effective area mm²	Flow characteristics Note 2) 1→4/2 (P→A/B) C [dm³/(s•bar)]	b	Cv	Q[ℓ/min(ANR)]*	4/2→5/3 (A/B→EA/EB) C [dm³/(s•bar)]	b	Cv	Q[ℓ/min(ANR)]*
5 port Base mounted (with sub-plate)	SYJA3□40-M5	2 position	Single	M5	M3	48 (22)	–	0.46	0.36	0.12	122	0.46	0.35	0.12	121
			Double			51 (25)									
		3 position	Closed center			54 (28)		0.47	0.33	0.12	122	0.47	0.31	0.12	120
			Exhaust center					0.36	0.39	0.10	97	0.59 [0.40]	0.43 [0.33]	0.16 [0.11]	164
			Pressure center					0.58 [0.32]	0.42 [0.33]	0.16 [0.080]	160 [83]	0.46	0.32	0.11	[104] 118
Body ported	SYJA3□20-M3	2 position	Single	M3	M3	22	0.9								
			Double			25									
		3 position	Closed center			28									
			Exhaust center												
			Pressure center												
4 Port Base Mounted (For manifold) Note 1)	SYJA3□30	2 position	Single	–	M3	22									
			Double			25									
		3 position	Closed center			28									
			Exhaust center												
			Pressure center												

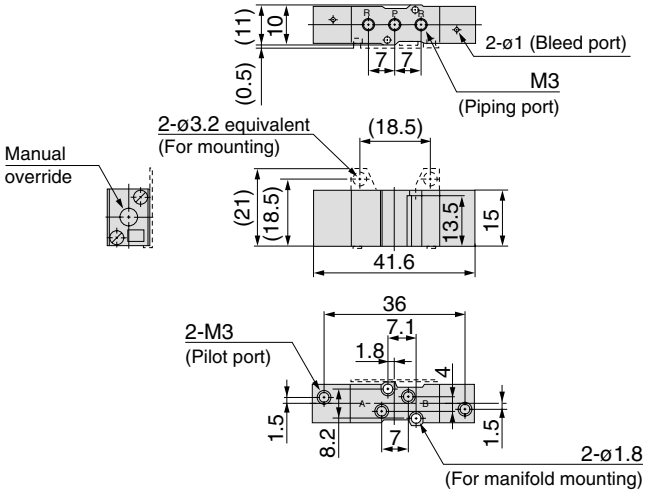
Note 1) Value when used on a manifold. Refer to page 69 for details.
Note 2) [ ]: denotes normal position.
Note 3) ( ): Without sub-plate.
Note 4) 5 port, base mounted without sub-plate: SYJA3□40
* These values have been calculated according to ISO6358 and represent the flow rate measured in standard conditions at an upstream of 0.6MPa (relative pressure) and a differential pressure of 0.1MPa.

Dimensions/Body Ported

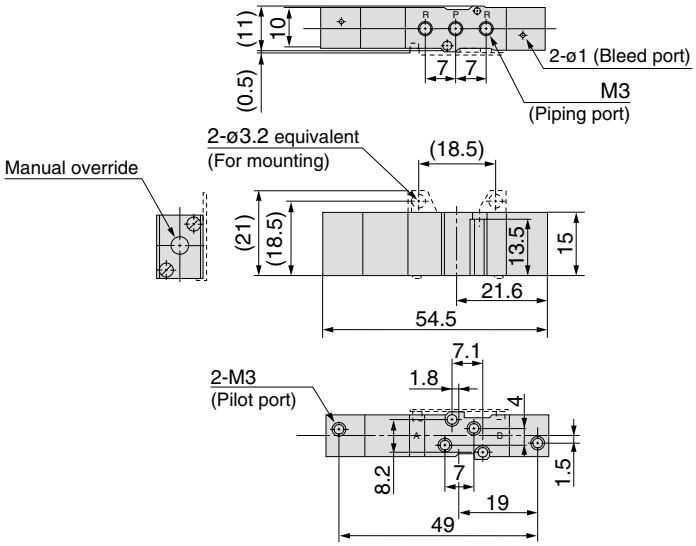
2 position single: SYJA3120-M3(-F)



2 position double: SYJA3220-M3(-F)

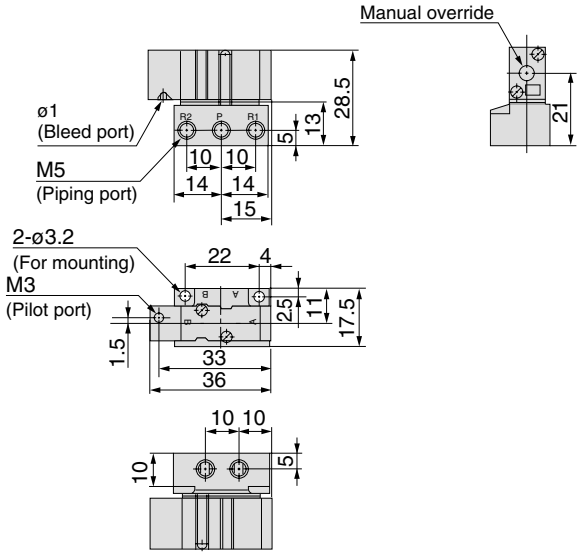


3 position closed center/exhaust center/pressure center SYJA3$^{3}_{4}_{5}$20-M3(-F)

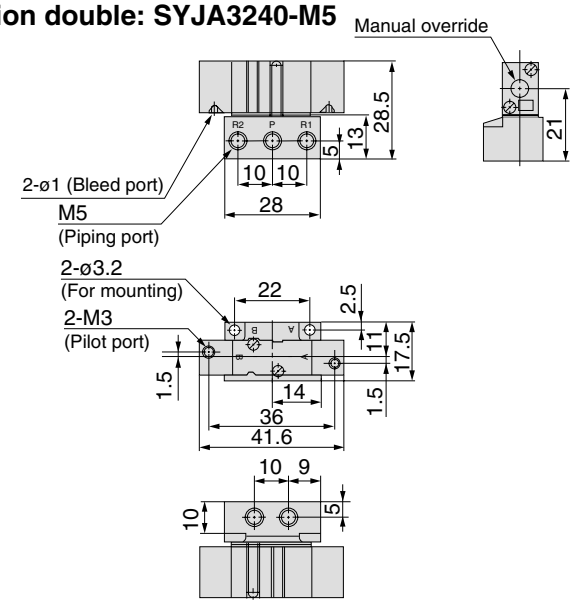


Dimensions/Base Mounted

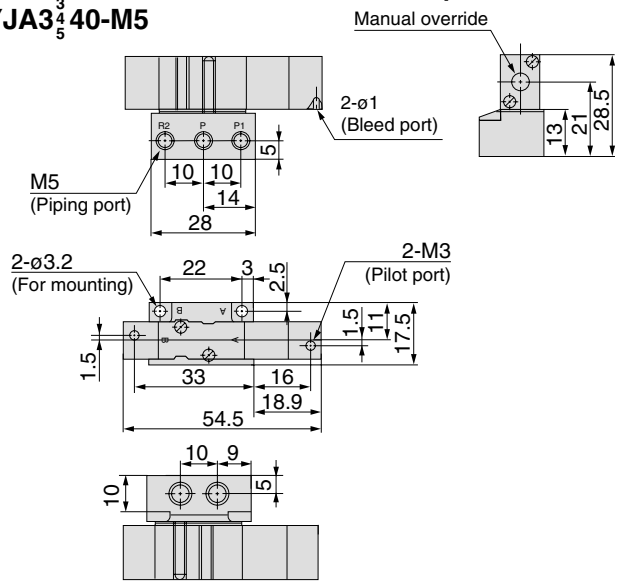
2 position single: SYJA3140-M5



2 position double: SYJA3240-M5



3 position closed center/exhaust center/pressure center SYJA3$^{3}_{4}_{5}$40-M5



4/5 Port Air Operated Valve
Series SYJA5000

How to Order

A, B port size

M5	M5
C4	One-touch fitting for ø4
C6	One-touch fitting for ø6

Bracket

-	Without bracket
F	With bracket

Body ported SYJA5 **1** 20 – **M5** – □

Base mounted SYJA5 **2** 40 – □ □

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

Port size

-	Without sub-plate
01	1/8 With sub-plate

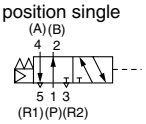
Thread type

-	Rc
F	G
N	NPT
T	NPTF

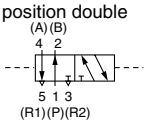
JIS Symbol

Body ported

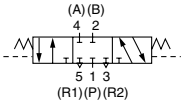
2 position single



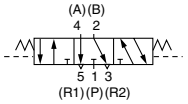
2 position double



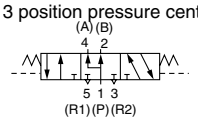
3 position closed center



3 position exhaust center

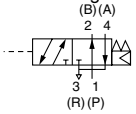


3 position pressure center

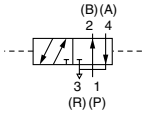


Base mounted

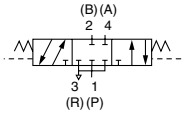
2 position single



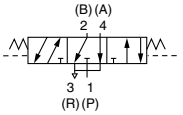
2 position double



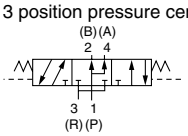
3 position closed center



3 position exhaust center



3 position pressure center



How to Order Manifold Base

Same manifolds as series SYJ5000 are prepared.

SS5YJA5 – Fill the same as SS5YJ5.

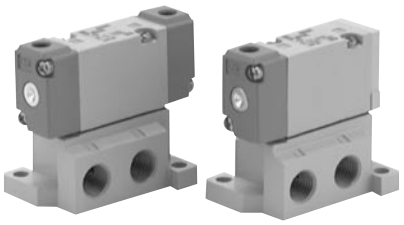
Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

(Ex.)
SS5YJA5-42-03-01 ..... 1 set
∗ SYJA5140 ..... 1 set
∗ SYJA5240 ..... 1 set
∗ SYJ5000-21-1A ..... 1 set

→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

⚠ Caution

Refer to back page 1 through to 5 for Safety Instructions and Common Precautions.



Base mounted

Body ported

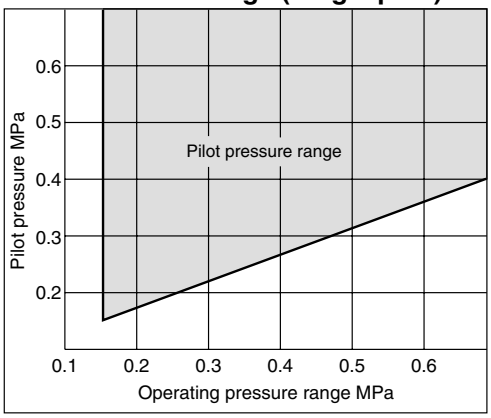
Specifications

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
Pilot pressure range (MPa) Note 1)	2 position single	(0.4 x P+0.1) to 0.7 P: Operating pressure
	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.)
Lubrication		Not required
Mounting orientation		Unrestricted
Impact/Vibration resistance (m/s²) Note 2)		300/50

Note 1) In case of single type, be certain that pressure within operating pressure range be supplied to supply port, because return pressure is introduced from supply port {1(P)} for activation.

Note 2) Impact resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle directions of the main valve, when pilot signal is ON and OFF. (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 when pilot signal is ON and OFF. (Value in the initial state)

Pilot Pressure Range (Single pilot)



With Bracket

Air operated valve	SYJA5120-M5-F

The mounting brcket is supplied unttached.

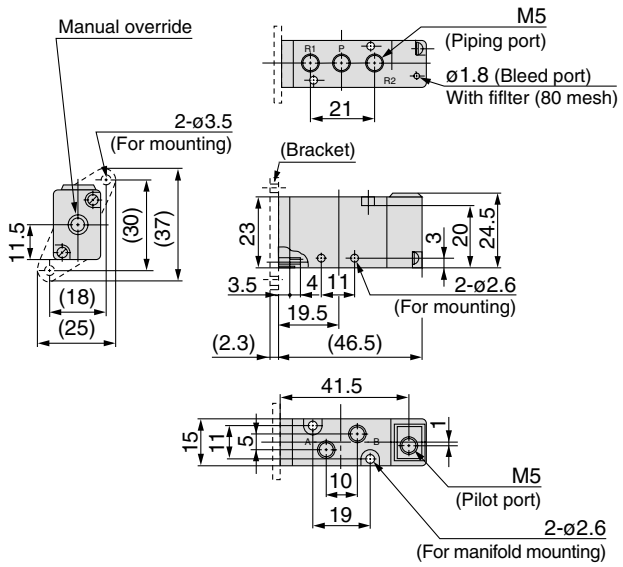
Flow Characteristics/Weight

Valve model		Type of actuation		Port size	Flow characteristics Note 1) 1→4/2 (P→A/B) C [dm³/(s·bar)]	b	Cv	Q[ℓ/min(ANR)]*	4/2→5/3 (A/B→EA/EB) C [dm³/(s·bar)]	b	Cv	Q[ℓ/min(ANR)]*	Pilot port size	Note 2) Weight (g)
Body ported	SYJA5□20-M5	2 position	Single	M5	0.47	0.41	0.13	129	0.47	0.41	0.13	129	M5	45
			Double											60
		3 position	Closed center		0.49	0.44	0.13	137	0.44	0.40	0.12	120		70
			Exhaust center		0.46	0.37	0.12	123	0.47 [0.39]	0.43 [0.35]	0.13 [0.10]	131 [102]		
			Pressure center		0.49 [0.39]	0.51 [0.38]	0.14 [0.10]	145 [105]	0.45	0.42	0.12	124		
	SYJA5□20-C4	2 position	Single	A, B port: C4 (One-touch fitting for ø4) P, R port: M5	0.69	0.39	0.18	186	0.44	0.39	0.12	119		52
			Double											67
		3 position	Closed center		0.69	0.40	0.19	188	0.43	0.40	0.12	117		77
			Exhaust center		0.56	0.40	0.15	152	0.41 [0.41]	0.37 [0.37]	0.10 [0.11]	109 [109]		
			Pressure center		0.57 [0.41]	0.40 [0.37]	0.15 [0.10]	155 [109]	0.41	0.37	0.10	109		
	SYJA5□20-C6	2 position	Single	A, B port: C6 (One-touch fitting for ø6) P, R port: M5	0.70	0.36	0.19	185	0.47	0.40	0.12	128		52
			Double											67
		3 position	Closed center		0.72	0.37	0.19	192	0.44	0.34	0.12	115		77
			Exhaust center		0.67	0.54	0.19	204	0.41 [0.41]	0.38 [0.38]	0.11 [0.11]	110 [110]		
			Pressure center		0.82 [0.44]	0.41 [0.39]	0.23 [0.12]	225 [119]	0.41	0.36	0.11	108		
Base mounted (with sub-plate)	SYJA5□40-01	2 position	Single	1/8	0.79	0.21	0.19	190	0.83	0.32	0.21	214	M5	79 (45)
			Double											94 (60)
		3 position	Closed center		0.80	0.28	0.18	201	0.86	0.34	0.20	224		104(70)
			Exhaust center		0.71	0.26	0.18	176	1.1 [0.60]	0.24 [0.44]	0.26 [0.18]	270 [168]		
			Pressure center		0.99 [0.47]	0.29 [0.38]	0.24 [0.12]	250 [126]	0.72	0.38	0.18	193		

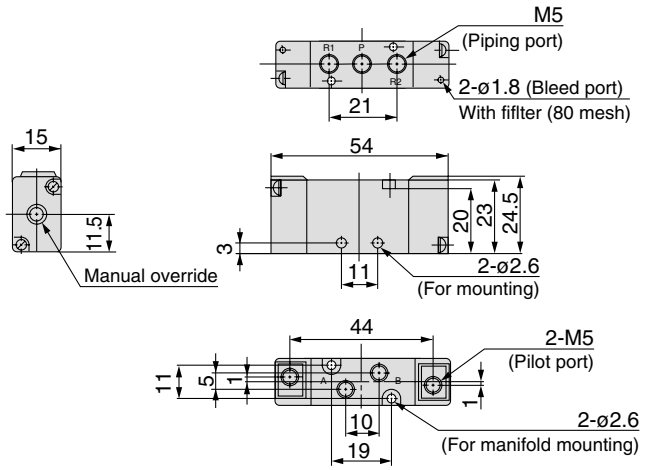
Note 1) [ ]: denotes normal position.
Note 2) ( ): Without sub-plate.
Note 3) Model No. for 5 port base mounted style without sub-plate is SYJA5□40.
* These values have been calculated according to ISO6358 and represent the flow rate measured in standard conditions at an upstream of 0.6MPa (relative pressure) and a differential pressure of 0.1MPa.

Dimensions/Body Ported

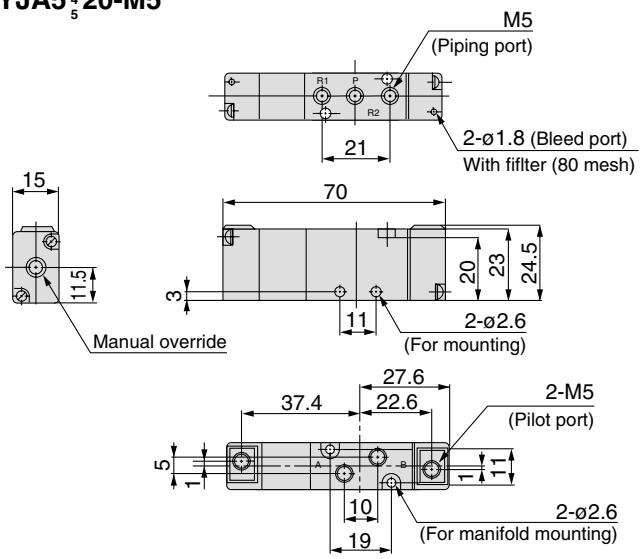
2 position single: SYJA5120-M5(-F)



2 position double: SYJA5220-M5

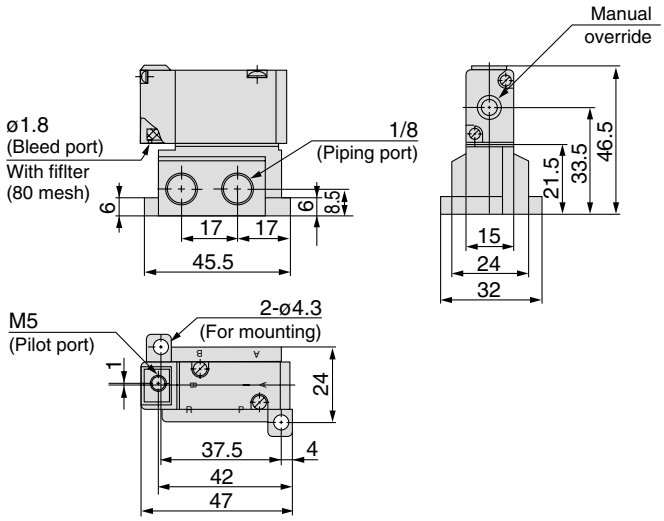


3 position closed center/exhaust center/pressure center SYJA5$^{3}_{4}_{5}$20-M5

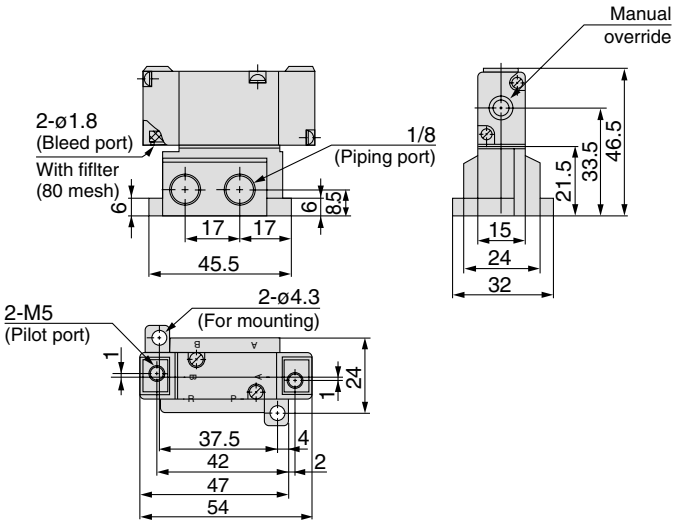


Dimensions/Base Mounted

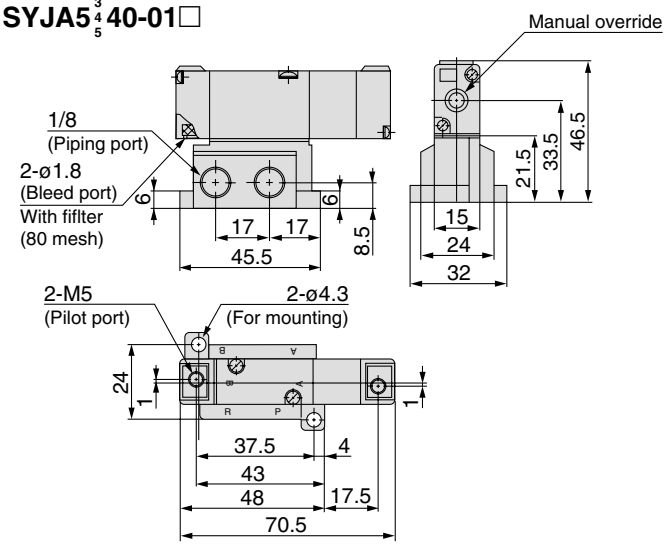
2 position single: SYJA5140-01□



2 position double: SYJA5240-01□



3 position closed center/exhaust center/pressure center SYJA5$^{3}_{4}_{5}$40-01□



4/5 Port Air Operated Valve
Series SYJA7000

How to Order

A, B port size

01	1/8
C6	One-touch fitting for ø6
C8	One-touch fitting for ø8

Bracket

-	Without bracket
F	With bracket

Body ported SYJA7 **1** 20 – **01** □ – □

Base mounted SYJA7 **2** 40 – □ □

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

Port size

-	Without sub-plate
01	1/8 With sub-plate
02	1/4 With sub-plate

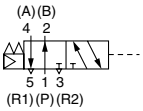
Thread type

-	Rc
F	G
N	NPT
T	NPTF

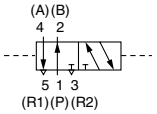
JIS Symbol

Body ported

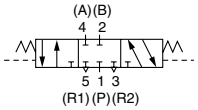
2 position single



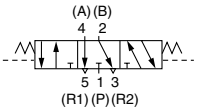
2 position double



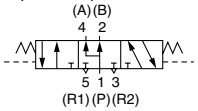
3 position closed center



3 position exhaust center

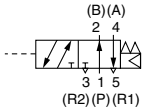


3 position pressure center

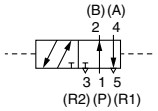


Base mounted

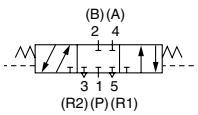
2 position single



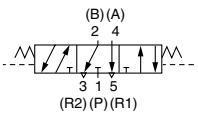
2 position double



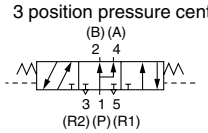
3 position closed center



3 position exhaust center



3 position pressure center



How to Order Manifold Base

Same manifolds as series SYJ7000 are prepared.

SS5YJA7 – Fill the same as SS5YJ7.

Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

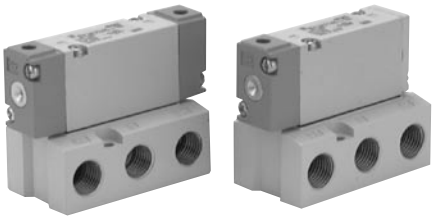
(Ex.)
SS5YJA7-41-03-01 ..... 1 pc.
* SYJA7140 ..... 1 pc.
* SYJA7240 ..... 1 pc.
* SYJ7000-21-1A ..... 1 pc.

→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

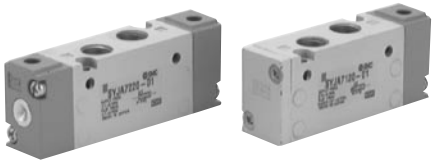
⚠ Caution

Refer to back page 1 through to 5 for Safety Instructions and Common Precautions.

Specifications



Base mounted



Body ported

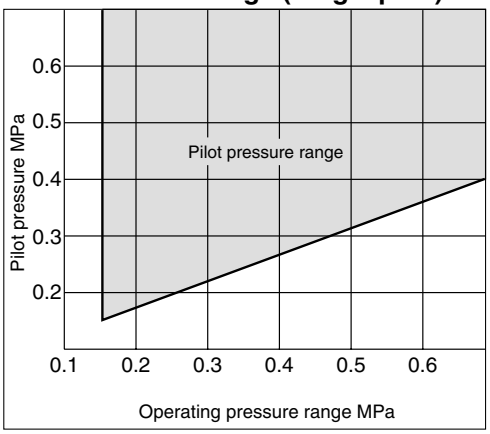
Fluid		Air
Operating pressure range (MPa)	2 position single	0.15 to 0.7
	2 position double	0.1 to 0.7
	3 position	0.15 to 0.7
Pilot pressure range (MPa) Note 1)	2 position single	(0.4 x P+0.1) to 0.7 P: Operating pressure
	2 position double	0.1 to 0.7
	3 position	0.15 to 0.7
Ambient and fluid temperature (°C)		–10 to 50 (No freezing. Refer to back page 3.)
Lubrication		Not required
Mounting orientation		Unrestricted
Impact/Vibration resistance (m/s²) Note 2)		300/50

Note 1) In case of single type, be certain that pressure within operating pressure range be supplied to supply port, because return pressure is introduced from supply port {1(P)} for activation.

Note 2) Impact resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle directions of the main valve, when pilot signal is ON and OFF. (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 when pilot signal is ON and OFF. (Value in the initial state)

Pilot Pressure Range (Single pilot)



With Bracket

Air operated valve	SYJA7120-01-F

As a bracket is designed for a body, be sure that a bracket is attached when ordering and operating.

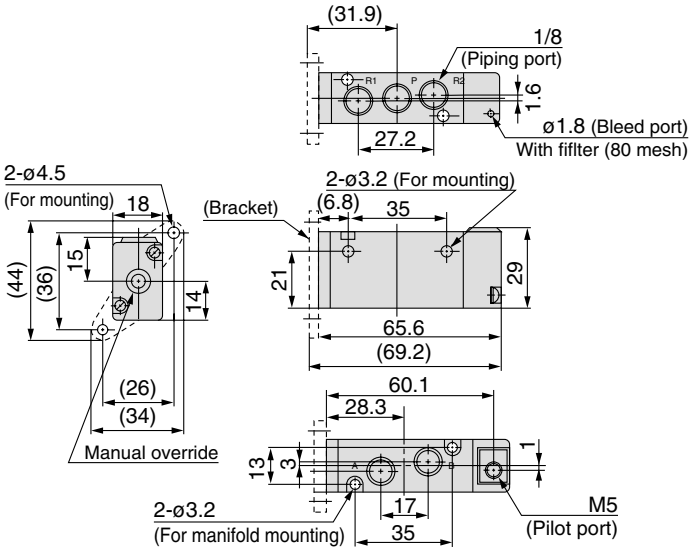
Flow Characteristics/Weight

Valve model		Type of actuation		Port size	Flow characteristics Note 2)								Pilot port size	Weight Note 3) (g)
					1→4/2 (P→A/B)				4/2→5/3 (A/B→EA/EB)					
					C [dm³/(s•bar)]	b	Cv	Q[ℓ/min(ANR)]*	C [dm³/(s•bar)]	b	Cv	Q[ℓ/min(ANR)]*		
Body ported	SYJA7□20-01	2 position	Single	1/8	2.2	0.36	0.58	582	2.4	0.34	0.63	626	M5	90
			Double											110
		3 position	Closed center		1.8	0.37	0.45	479	2.0	0.35	0.49	525		120
			Exhaust center		1.2	0.50	0.34	353	3.0 [1.3]	0.35 [0.52]	0.73 [0.39]	788 [389]		
			Pressure center		3.0 [0.83]	0.37 [0.50]	0.78 [0.25]	799 [244]	1.8	0.37	0.45	479		
	SYJA7□20-C6	2 position	Single	A, B port: C6 (One-touch fitting for ø6) P, R port: 1/8	1.6	0.33	0.4	415	2.2	0.32	0.53	567		101
			Double											121
		3 position	Closed center		1.4	0.27	0.35	349	1.9	0.33	0.49	493		131
			Exhaust center		1.1	0.37	0.27	293	2.5 [1.3]	0.32 [0.54]	0.61 [0.38]	644 [395]		
			Pressure center		1.8 [0.78]	0.36 [0.40]	0.45 [0.22]	476 [212]	1.6	0.30	0.39	407		
	SYJA7□20-C8	2 position	Single	A, B port: C8 (One-touch fitting for ø8) P, R port: 1/8	2.0	0.39	0.52	540	2.3	0.34	0.61	600		101
			Double											121
		3 position	Closed center		1.7	0.35	0.42	447	2.0	0.29	0.49	505		131
			Exhaust center		1.2	0.38	0.33	322	2.6 [1.3]	0.35 [0.49]	0.67 [0.38]	683 [379]		
			Pressure center		1.9 [0.86]	0.57 [0.46]	0.59 [0.25]	594 [245]	1.7	0.39	0.42	459		
Base mounted (with sub-plate)	SYJA7□40-01	2 position	Single	1/8 Note 1)	2.3	0.45	0.57	649	2.8	0.37	0.71	746	M5	170 (90)
			Double											190 (110)
		3 position	Closed center		1.9	0.36	0.48	503	2.1	0.46	0.57	598		200 (120)
			Exhaust center		1.2	0.48	0.35	347	3.4 [1.3]	0.36 [0.57]	0.86 [0.41]	899 [406]		
			Pressure center		3.3 [0.85]	0.43 [0.54]	0.78 [0.25]	918 [259]	2.1	0.45	0.56	593		
	SYJA7□40-02	2 position	Single	1/4 Note 1)	2.3	0.41	0.61	630	2.9	0.35	0.74	762	M5	170 (90)
			Double											190 (110)
		3 position	Closed center		1.9	0.46	0.50	541	2.2	0.44	0.60	616		200 (120)
			Exhaust center		1.3	0.45	0.35	367	3.7 [1.4]	0.27 [0.56]	0.87 [0.43]	923 [434]		
			Pressure center		3.6 [0.83]	0.23 [0.55]	0.84 [0.25]	877 [255]	2.1	0.47	0.58	602		

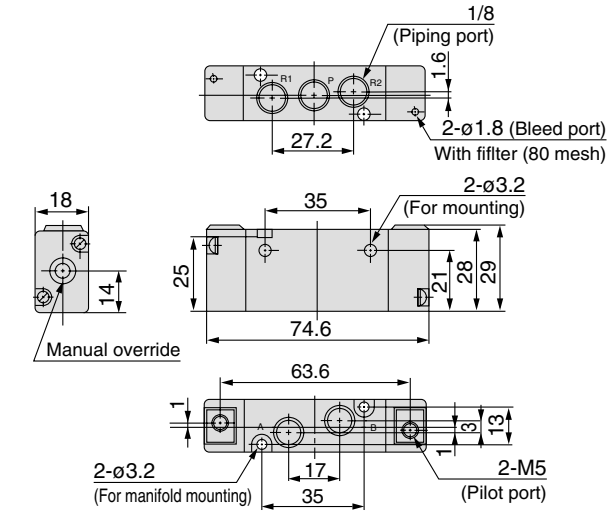
Note1) P, A, B port: Rc1/8 is R1, R2 port: Rc (PT) 1/4
Note2) [ ]: for nomal position
Note3) ( ): without sub-plate
Note4) Model No. for base mounted style without sub-plate is SYJA□40.
* These values have been calculated according to ISO6358 and represent the flow rate measured in standard conditions at an upstream of 0.6MPa (relative pressure) and a differential pressure of 0.1MPa.

Dimensions/Body Ported

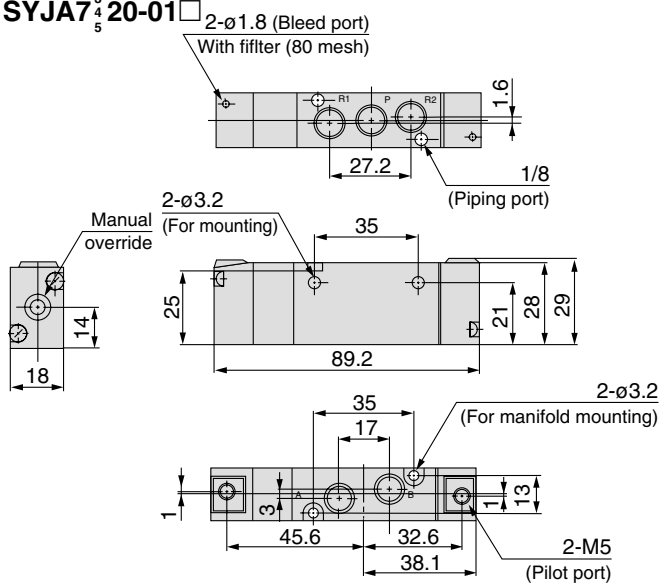
2 position single: SYJA7120-01□(-F)



2 position double: SYJA7220-01□

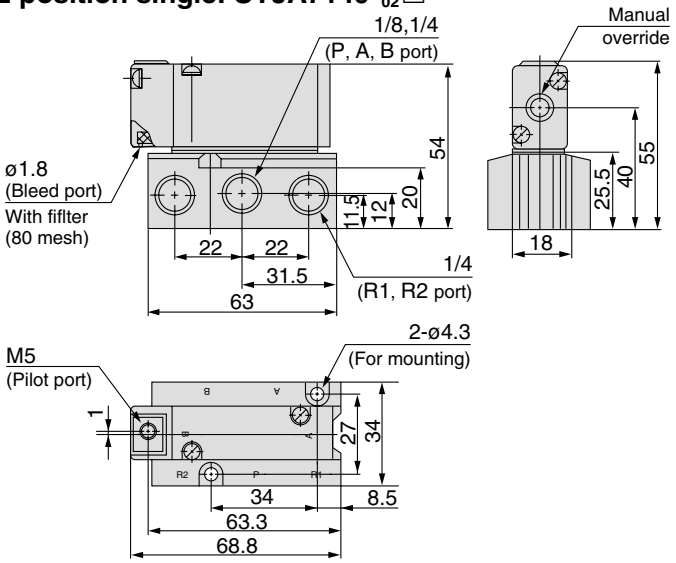


3 position closed center/exhaust center/pressure center SYJA7$^{3}_{5}$20-01□

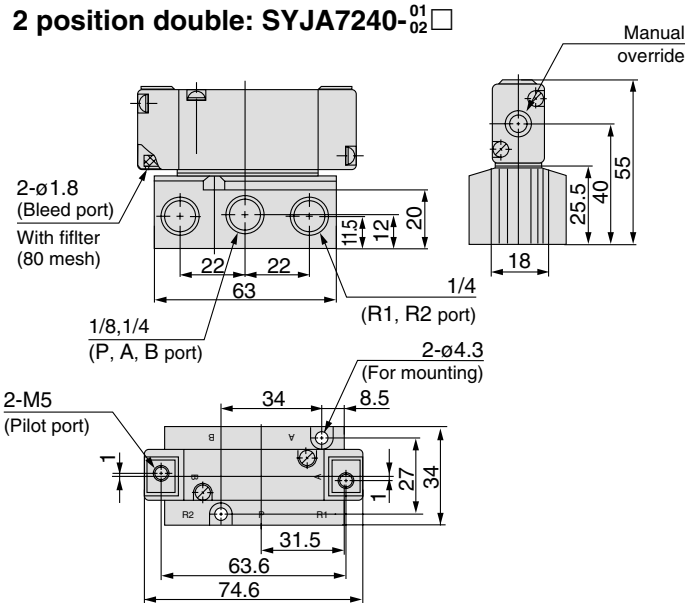


Dimensions/Base Mounted

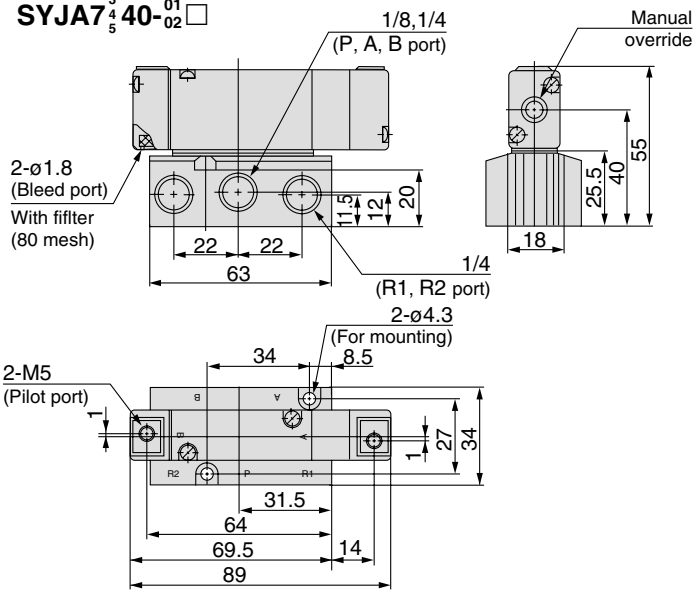
2 position single: SYJA7140-$^{01}_{02}$□



2 position double: SYJA7240-$^{01}_{02}$□



3 position closed center/exhaust center/pressure center SYJA7$^{3}_{5}$40-$^{01}_{02}$□



Series ***SYJ5000/7000***
Made to Order

(For detailed specifications, delivery and pricing, please contact SMC.)

Body Ported External Pilot

Applicable solenoid valve series SYJ5□20R, SYJ7□20R

SYJ5/7 □ 20R □ – □□□□ – □ – □ – X20 – Q

● **Entry is the same as standard products.**

Operating Pressure Range MPa

Operating pressure range	-100 kPa to 0.7
Pilot pressure range	0.15 to 0.7

External Pilot Port

Series	Port size
SYJ5000, SYJ7000	M5

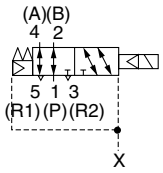
Dimensions

SYJ5000: 8 mm
SYJ7000: 8 mm } **longer in total length.**

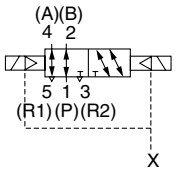
JIS Symbol

Body ported

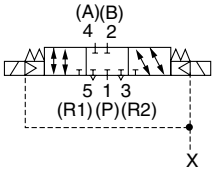
2 position single



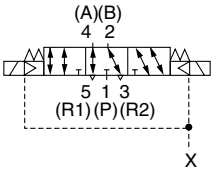
2 position double



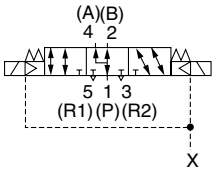
3 position closed center



3 position exhaust center



3 position pressure center



Series SYJ5000/7000
Made to Order
DIN Connector Conforming to EN-175301-803C (former DIN 43650C)

DIN connector type that conforms to the 8 mm pitch standards between DIN terminals.

How to Order Valve

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

-	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor

∗ YOZ is not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Bracket

-	Without bracket
F	With bracket

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

Rated voltage

DC

5	24 VDC
6	12 VDC

AC (50/60 Hz)

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

A, B port size

M5	M5
01	1/8 (SYJ7000 only)
C4	One-touch fitting for ø4
C6	One-touch fitting for ø6
N3	One-touch fitting for ø5/32"
N7	One-touch fitting for ø1/4"

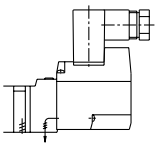
Body ported	SYJ	5	1	2	0	–	5	Y			M5			– Q
Base mounted	SYJ	5	2	4	0	–	5	Y						– Q

Series

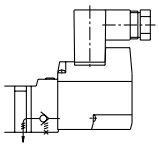
5	SYJ5000
7	SYJ7000

Body option

0: Pilot valve individual exhaust for the pilot valve

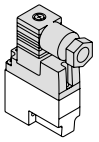


3: Common exhaust type for main and pilot valve

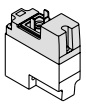


Electrical entry

Y: With connector



YO: Without connector



Thread type

-	Rc
F	G
N	NPT
T	NPTF

Port size

-	Without sub-plate	
01	1/8	SYJ5000
		SYJ7000
02	1/4	SYJ7000

Manual override

-	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

How to Order Pilot Valve Assembly

V115 – 5 Y □

Rated voltage

DC

5	24 VDC
6	12 VDC

AC (50/60 Hz)

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

Light/surge voltage suppressor

-	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor

∗ YOZ is not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Electrical entry

Y	DIN terminal	With connector
YO		Without connector

DIN Connector Part No.

Without light	SY100-82-1

With light

Rated voltage	Voltage symbol	No.
24 VDC	24 VN	SY100-82-3-05
12 VDC	12 VN	SY100-82-3-06
100 VAC	100 VN	SY100-82-3-01
200 VAC	200 VN	SY100-82-3-02
110 VAC (115 VAC)	110 VN	SY100-82-3-03
220 VAC (230 VAC)	220 VN	SY100-82-3-04

⚠ Caution

1. Use caution in wiring because it won't meet the IP65 (enclosure) standard if you use the other cord than prescribed heavy-duty cord of size (ø3.5 to ø7.5). Also be sure to tighten the ground nut and holding screw with the prescribed torque range.Tighten the ground nut and set screw within the specified range of torque. For how to use DIN terminal (wiring procedures, procedures for changing electrical entries, precautions, applicable cable, circuit diagram), refer to back page 8.
2. D type DIN connector with 9.4 mm pitch between terminals is not interchangeable.
3. DIN connector except D type has the "N" indication in the end of voltage symbol. In case of DIN connector without light, "N" is not indicated. Please refer to the name plate to distinguish.
4. Dimensions are completely the same as D type connector.
5. When exchanging the pilot valve assembly only, "V115-□D" is interchangeable with "V115-□Y". Do not replace V114 (G, H, L, M, W) to V115-□D/□Y (DIN terminal), and vice versa.

Series SYJ3000/5000/7000
Made to Order
M8 Connector Conforming to IEC60947-5-2

M8 Connector type conforming to **IEC60947-5-2** standard.

How to Order Valve

Type of actuation

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

Light/surge voltage suppressor

-	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)

Bracket

-	Without bracket
F	With bracket

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

A, B port size

M3	M3 (SYJ3000 only)
M5	M5
01	1/8 (SYJ7000 only)
C4	One-touch fitting for ¯4
C6	One-touch fitting for ¯6
N3	One-touch fitting for ¯5/32"
N7	One-touch fitting for ¯1/4"

Rated voltage

DC

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

Body ported	SYJ	3	1	2	0	–	5	WAO				M3			– Q
Base mounted (4 port)	SYJ	3	2	3	0	–	5	WAO							– Q (For SYJ3000 manifold use only)
Base mounted (5 port)	SYJ	3	2	4	0	–	5	WAO							– Q

Series

3	SYJ3000
5	SYJ5000
7	SYJ7000

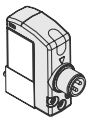
Body option

0: Pilot valve individual exhaust for the pilot valve

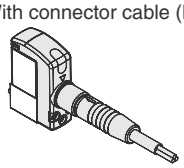
3: Common exhaust type for main and pilot valve

Electrical entry

WAO: Without connector cable



WA1: With connector cable (Length 0,3 m)
WA2: With connector cable (Length 0,5 m)
WA3: With connector cable (Length 1 m)
WA4: With connector cable (Length 2 m)
WA7: With connector cable (Length 5 m)



Thread type

-	Rc
F	G
N	NPT
T	NPTF

Port size

-	Without sub-plate	
M5	SYJ3000	
01	1/8	SYJ5000
		SYJ7000
02	1/4	SYJ7000

Manual override

-	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

How to Order Pilot Valve Assembly

V115 – 5 WAO ☐

Rated voltage

DC

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

Light/surge voltage suppressor

-	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)

Electrical entry

WAO	Without connector cable
WA☐	With connector cable

Note: ☐ is for cable length. Please refer to specific Product Precautions 5.

Series SYJ
Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of **"Caution", "Warning"** or **"Danger"**. To ensure safety, be sure to observe ISO 4414 Note 1), JIS B 8370 Note 2) and other safety practices.

⚠ **Caution :** Operator error could result in injury or equipment damage.

⚠ **Warning :** Operator error could result in serious injury or loss of life.

⚠ **Danger :** In extreme conditions, there is a possible result of serious injury or loss of life.

Note 1) ISO 4414: Pneumatic fluid power--General rules relating to systems.
Note 2) JIS B 8370: General Rules for Pneumatic Equipment

⚠Warning

1. The compatibility of pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements. The expected performance and safety assurance will be the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalogue information with a view to giving due consideration to any possibility of equipment failure when configuring a system.

2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if an operator is unfamiliar with it. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.

3. Do not service machinery/equipment or attempt to remove components until safety is confirmed.

1. Inspection and maintenance of machinery/equipment should only be performed once measures to prevent falling or runaway of the driver objects have been confirmed.
2. When equipment is to be removed, confirm the safety process as mentioned above. Cut the supply pressure for this equipment and exhaust all residual compressed air in the system.
3. Before machinery/equipment is restarted, take measures to prevent shooting-out of cylinder piston rod, etc.

4. Contact SMC if the product is to be used in any of the following conditions:

1. Conditions and environments beyond the given specifications, or if product is used outdoors.
2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuits in press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.

4/5 Port Solenoid Valves/Common Precautions 1

Be sure to read before handling.

Design

⚠ Warning

1. Actuator drive

When an actuator, such as a cylinder, is to be driven using a valve, take appropriate measures to prevent potential danger caused by actuator operation.

2. Intermediate stopping

When a 3 position closed center valve is used to stop a cylinder at an intermediate position, accurate stopping of the piston in a predetermined position is not possible due to the compressibility of air. Furthermore, since valves and cylinders are not guaranteed for zero air leakage, it may not be possible to hold a stopped position for an extended length of time. Contact SMC if it is necessary to hold a stopped position for an extended time.

3. Effect of back pressure when using a manifold

Use caution when valves are used on a manifold, as actuator malfunction due to back-pressure may occur. In case of 3 position closed exhaust center valve or single acting cylinder, take appropriate measures to prevent the malfunction using with individual EXH interface assembly or individual exhaust manifold.

4. Holding of pressure (including vacuum)

Since valves are subject to air leakage, they cannot be used for applications such as holding pressure (including vacuum) in a pressure vessel.

5. Cannot be used as an emergency shut off valve, etc.

The valves presented in this catalogue are not designed for safety applications such as an emergency shut off valve. If the valves are used in this type of system, other reliable safety assurance measures should also be adopted.

6. Maintenance space

The installation should allow sufficient space for maintenance activities (removal of valve, etc.).

7. Release of residual pressure

Provide a residual pressure release function for maintenance purpose. Especially in case of 3 position closed center valve, ensure the release of residual pressure between valve and cylinder.

8. Vacuum applications

When a valve is used for vacuum switching, etc., take measures against the suction of external dust or other contaminants from vacuum pads and exhaust ports, etc. Moreover, an external pilot type valve should be used in this case. Contact SMC in case of an internal pilot type or air operated valve, etc.

9. About using the double solenoid type

When using the double solenoid type for the first time, actuators may travel in an unexpected direction depending on the switching position of a valve. Implement countermeasures not to occur any danger by the actuator's operation.

10. Ventilation

When a valve is used inside a sealed control panel, etc., provide ventilation to prevent a pressure increase caused by exhausted air inside the control panel or temperature rise caused by the heat generated by the valve.

Selection

⚠ Warning

1. Confirm the specification

The products presented in this catalogue are designed only for use in compressed air systems (including vacuum). Do not operate at pressures or temperatures, etc., beyond the range of specifications, as this can cause damage or malfunction. (Refer to specifications.)

Contact SMC when using a fluid other than compressed air (including vacuum).

2. Extended periods of continuous energisation

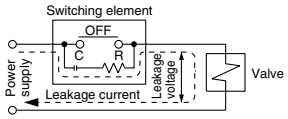
- Continuous energisation of the valve for extended periods of time may have an adverse effect on the solenoid valve performance and the peripheral equipment due to temperature rises caused by the heat generation of the coil. Consult with SMC if valves will be continuously energised for extended periods of time or the energised period per day will be longer than the de-energised period. It is also possible to shorten the energisation period by using valves of the N.O. (normally open) type.
- When solenoid valves are mounted in a control panel, employ measures to radiate excess heat, so that temperatures remain within the valve specification range. Use special caution when three or more stations sequentially aligned on the manifold are continuously energised since this will cause a drastic temperature rise.
  (As for AC specifications, since the applicable products are ready to provide separately, contact SMC.)

⚠ Caution

1. Momentary energisation

If a double solenoid valve will be operated with momentary energisation, it should be energised for at least 0.1 second. However, depending on the secondary load conditions, it should be energised until the cylinder reaches the stroke end position, as there is a possibility of malfunction otherwise.

2. Leakage voltage



When using a resistor in parallel with the switching element or using a C-R element (surge voltage suppressor) for protection of the switching element, note that leakage voltage will increase due to leakage current flowing through the resistor or C-R element. Limit the amount of residual leakage voltage to the following value:

With DC coil : 3% or less of rated voltage

With AC coil : 8% or less of rated voltage

4/5 Port Solenoid Valves/Common Precautions 2

Be sure to read before handling.

Selection

⚠Caution

3. Solenoid valve drive for AC with solid state output (SSR, TRIAC output, etc.)

1) Current leakage
When using a snubber circuit (C-R element) for surge protection of the output element, a very small electric current will still continue to flow in spite of the OFF state. This results in the valve not returning. In the cases when exceeding the tolerance as shown above, take measures to install a bleeder resistor.

2) Minimum load allowable amount (Min. load current)
When the consumption current of a valve is less than the output element's minimum load allowable volume or the margin is small, the output element may not be switched normally. Please confirm SMC.

4. Surge voltage suppressor

If a surge protection circuit contains non-ordinary diodes such as Varistor, a residual voltage that is in proportion to the protective elements and the rated voltage will remain. Therefore, give consideration to surge voltage protection of the controller. In the case of diodes, the residual voltage is approximately 1 V.

5. Use in low temperature environments

Unless otherwise indicated in the specifications for each valve, operation is possible to –10°C, but appropriate measures should be taken to avoid solidification or freezing of drainage and moisture, etc.

6. Operation for air blowing

When using a solenoid valve for air blow, use an external pilot type.
Take note that when internal pilots and external pilots are used on the same manifold, the pressure drop caused by the air blowing can have an effect on the internal pilot type valves.
Moreover, when compressed air within the pressure range of the established specifications is supplied to the external pilot port, and a double solenoid valve is used for air blowing, the solenoids should normally be energised when air is being blown.

7. Mounting orientation

Rubber seal: Refer to the specifications of each series.

Mounting

⚠Warning

1. If air leakage increases or equipment does not operate properly, stop operation.

Check mounting conditions when air and power supplies are connected. Initial function and leakage tests should be performed after installation.

2. Instruction manual

Mount and operate the product after reading the manual carefully and understanding its contents.
Also keep the manual where it can be referred to as necessary.

3. Painting and coating

Warnings or specifications printed or pasted on the product should not be erased, removed or covered up. Consult with SMC if paint is to be applied to resinous parts, as this may have an adverse effect due to the paint solvent.

Port Direction

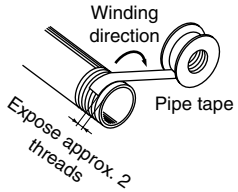
⚠Caution

1. Preparation before piping

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

2. Wrapping of sealant tape

When connecting pipes and fittings, etc., be sure that chips from the pipe thread and sealing materials do not get inside the valve. Furthermore, when pipe tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.



3. Closed center valves

When using closed center type valves, carefully check to ascertain that there is no air leakage from the piping between the valves and cylinders.

4. Screwing in fittings

When connecting fittings to valves, tighten as indicated below.

1) For M3 and M5 type
(1) When using SMC fittings, follow the guidelines below.
After tightening by hand, tighten an additional M3: 1/4, M5: 1/6 turn with a tightening tool. However, if miniature fittings are used, tighten an additional 1/4 turn with a tightening tool after tightening by hand. For fittings with gaskets in 2 locations, e.g., universal elbow or universal tee, tighten an additional 1/2 turn.

Note) If fittings are over-tightened, air leakage may result due to breaking of fitting threads or deformation of the gaskets. However, if fittings are not tightened sufficiently, loosening of the threads and air leakage and may occur.

(2) When fittings other than SMC fittings are used, follow the instructions of the respective fitting manufacturer.

2) For Rc (PT)
When installing fitting, etc., follow the given torque levels below.

Tightening Torque for Piping

Connection threads	Applicable tightening torque N·m
1/8	7 to 9
1/4	12 to 14
3/8	22 to 24
1/2	28 to 30
3/4	28 to 30
1	36 to 38
11/4	40 to 42
11/2	48 to 50
2	48 to 50

5. Connection of piping to products

When connecting piping to a product, refer to its instruction manual to avoid mistakes regarding the supply port, etc.

Back page 3

4/5 Port Solenoid Valves/Common Precautions 3

Be sure to read before handling.

Wiring

⚠ Caution

1. Polarity

When connecting power to a DC specification solenoid valve equipped with (indicator light) surge voltage suppressor, confirm whether or not there is polarity.

If there is polarity, take note of the following points.

Without built-in diode to protect polarity (including any power saving circuit):

If a mistake is made regarding polarity, the diode in the valve, the control device switching element or power supply equipment, etc., may burn out.

With diode to protect polarity:

If a mistake is made regarding polarity, it will not be possible to switch the valve.

2. Applied voltage

When electric power is connected to a solenoid valve, be careful to apply the proper voltage. Improper voltage may cause malfunction or coil damage.

3. Confirm the connections.

After completing the wiring, confirm that the connections are correct.

Lubrication

⚠ Caution

1. Lubrication

[Rubber seal]

1) The valve has been lubricated for life at the factory, and does not require any further lubrication.

2) In the event that it is lubricated, use class 1 turbine oil (without additives), ISO VG32.
However, once lubrication is applied it must be continued, as loss of the original lubricant may lead to malfunction.
Contact SMC regarding class 2 turbine oil (with additives), ISO VG32.

Air Supply

⚠ Warning

1. Use clean air.

Do not use compressed air which contains chemicals, synthetic oils containing organic solvents, salts or corrosive gases, etc., as this can cause damage or malfunction.

Air Supply

⚠ Caution

1. Install air filters.

Install air filters close to valves at their upstream side. A filtration degree of 5 μm or less should be selected.

2. Install an air dryer, after cooler or Drain Catch (water separator), etc.

Air that includes excessive drainage may cause malfunction of valves and other pneumatic equipment. To prevent this, install an air dryer, after-cooler or Drain Catch (water separator), etc.

3. If excessive carbon dust is generated, eliminate it by installing mist separators at the upstream side of valves.

If excessive carbon dust is generated by the compressor, it may adhere to the inside of valves and cause malfunction.

Refer to “SMC Best Pneumatics” catalogue for compressed air quality.

Operating Environment

⚠ Warning

1. Do not use valves in atmospheres of corrosive gases, chemicals, salt water, water or steam or where there is direct contact with any of these.

2. Products with IP65 enclosures (based on IEC60529) are protected against dust and water, however, these products cannot be used in water.
Take measures to prevent water and dust from coming from the exhaust port.

3. Products compliant to IP65 satisfy the specifications by mounting each product properly. Be sure to read the Specific Product Precautions for each product.

4. Do not use in an explosive atmosphere.

5. Do not use in locations subject to vibration or impact. Confirm the specifications in the main section of the catalogue.

6. A protective cover, etc., should be used to shield valves from direct sunlight.

7. Shield valves from radiated heat generated by nearby heat sources.

8. Employ suitable protective measures in locations where there is contact with water droplets, oil or welding spatter, etc.

9. When solenoid valves are mounted in a control panel or are energised for extended periods of time, employ measures to radiate excess heat, so that temperatures remain within the valve specification range.

Maintenance

⚠ Warning

1. Perform maintenance procedures as shown in the instruction manual.

If handled improperly, malfunction or damage of machinery or equipment may occur.

2. Equipment removal and supply/exhaust of compressed air

When equipment is removed, first confirm that measures are in place to prevent dropping of work pieces and run-away of equipment, etc. Then cut the supply pressure and power, and exhaust all compressed air from the system using its residual pressure release function.

In the case of 3 position closed center style, exhaust the residual pressure between valve and cylinder.

When the equipment is to be started again after remounting or replacement, first confirm that measures are in place to prevent lurching of actuators, etc., and then confirm that the equipment is operating normally.

3. Low frequency operation

Valves should be switched at least once every 30 days to prevent malfunction. (Use caution regarding the air supply.)

4. Manual override operation

When the manual override is operated, connected equipment will be actuated. Confirm safety before operating.

⚠ Caution

1. Drain flushing

Remove drainage from air filters regularly.

Series SYJ3000/5000/7000
Specific Product Precautions 1

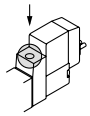
Be sure to read before handling.
Refer to back page 1 through to 5 for Safety Instruction and Common Precautions.

Manual Override Operation

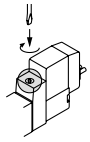
⚠ Warning

When the manual override is operated, connected equipment will be actuated. Confirm safety before operating.

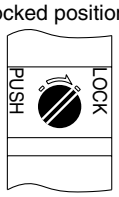
■ **Non-locking push type [Standard]**
Press in the direction of the arrow



■ **Push-turn locking slotted type [Type D]**
While pressing, turn in the direction of the arrow.
If it is not turned, it can be operated the same way as the non-locking type.



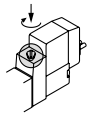
Locked position



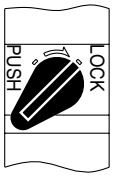
⚠ Caution

When operating the locking type D with a screw driver, turn it gently using a watchmakers screw driver.
[Torque: Less than 0.1 N·m]

■ **Push-turn locking lever type [Type E]**
While pressing, turn in the direction of the arrow.
If it is not turned, it can be operated the same way as the non-locking type.



Locked position



⚠ Caution

When locking the manual override on the push-turn locking types (D, E), be sure to push it down before turning.
Turning without first pushing it down can cause damage to the manual override and trouble such as air leakage, etc.

Solenoid Valve for 200 V, 220 VAC Specifications

⚠ Warning

Solenoid valves with DIN terminal connector AC specifications have a built-in rectifier circuit in the pilot section to operate the DC coil.
With 200 V, 220 VAC specification pilot valves, this built-in rectifier generates heat when energised. The surface may become hot depending on the energised condition; therefore, do not touch the solenoid valves.

Common Exhaust Type for Main and Pilot Valve

⚠ Caution

Pilot air is exhausted through the main valve body rather than directly to atmosphere.
- Suitable for applications where exhausting the pilot valve to atmosphere would be detrimental to the surrounding working environment.
- For use in extremely dirty environments where there is the possibility that dust could enter the pilot exhaust and damage the valve.

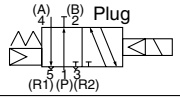
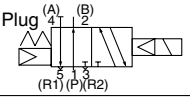
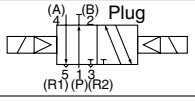
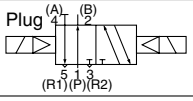
Ensure that the piping of exhaust air is not too restrictive.

Series SYJ3000/5000/7000 Mixed Installation of 3 Port and 5 Port Valves on Same Manifold.

⚠ Caution

Series SYJ3000/5000/7000 and Series SYJ300/500/700 can be mounted on the same manifold. How to mount on the same manifold is shown on the following pages.

If 4 or 5 port valve is used as a 3 port valve
Series SYJ3000, 5000, 7000 may be used as a N.C.or N.O. 3 port valve by plugging one of the A,B ports. Be sure not to plug the exhaust ports (R). Can be used when a double solenoid, 3 port valve is required.

Plug position		B port	A port
Type of actuation		N.C.	N.O.
Number of solenoids	Single		
	Double		

(JIS symbols above: Series SYJ5000)

Series SYJ3000/5000/7000
Specific Product Precautions 2

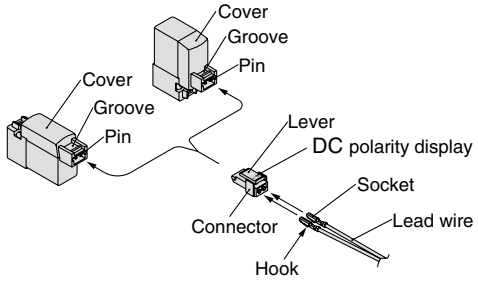
Be sure to read before handling.
Refer to back page 1 through to 5 for Safety Instruction and Common Precautions.

How to Use Plug Connector

⚠ Caution

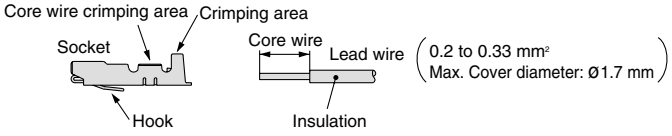
1. Attaching and detaching connectors

- To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.
- To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb, and pull the connector straight out.



2. Crimping of lead wires and sockets

Strip 3.2 to 3.7 mm at the end of the lead wires, insert the ends of the core wires evenly into the sockets, and then crimp with a crimping tool. When this is done, take care that the coverings of the lead wires do not enter the core wire crimping area.
Use an exclusive crimping tool for crimping.
(Contact SMC for special crimping tools.)



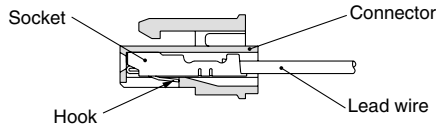
3. Attaching and detaching sockets with lead wires

• Attaching

Insert the sockets into the square holes of the connector (+, – indication), and continue to push the sockets all the way in until they lock by hooking into the seats in the connector. (When they are pushed in, their hooks open and they are locked automatically.) Then confirm that they are locked by pulling lightly on the lead wires.

• Detaching

To detach a socket from a connector, pull out the lead wire while pressing the socket's hook with a stick having a thin tip (approx. 1 mm). If the socket will be used again, first spread the hook outward.



Plug Connector Lead Wire Length

⚠ Caution

Standard length is 300 mm, but the following lengths are also available.

How to Order Connector Assembly

For DC: **SY100 – 30 – 4A –** □

Without lead wire: **SY100 – 30 – A**
(with connector and 2 of sockets only)

• Lead wire length

-	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

Include the connector assembly part number together with the part number for the plug connector's solenoid valve without connector.

Ex.) In case of 2000 mm of lead wire
For DC
SYJ3120-5LO-M3
SY100-30-4A-20

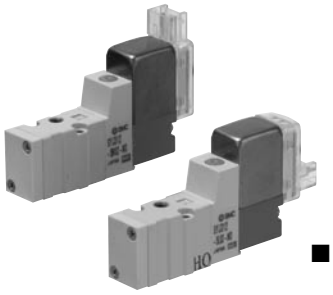
Series SYJ3000/5000/7000
Specific Product Precautions 3

Be sure to read before handling.
Refer to back page 1 through to 5 for Safety Instruction and Common Precautions.

Surge Voltage Suppressor

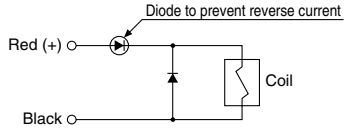
⚠ Caution

<For DC>
Grommet, L/M Plug Connector

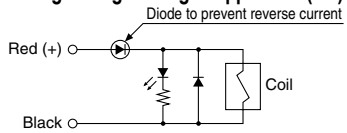


■ Standard type (with polarity)

Surge voltage suppressor (□S)

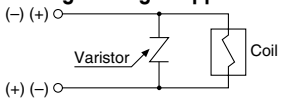


With light/surge voltage suppressor (□Z)

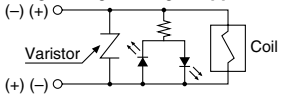


■ Non-polar type

With surge voltage suppressor (□R)



With light/surge voltage suppressor (□U)

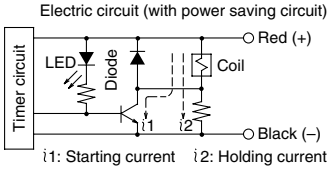


- Connect the standard type in accordance with the +, – polarity indication. (The non-polar type can be used with the connections made either way.)
- Since voltage specifications other than standard 24 V and 12 VDC do not have diodes for polarity protection, be careful not to make errors in the polarity.
- Please use caution regarding the allowable voltage fluctuation because there is about a 1 volt drop for a valve with polarity protection. (For details, refer to the solenoid specifications for the individual valve.)
- When wiring is done at the factory, positive (+) is red and negative (–) is black.

■ With power saving circuit

Power consumption is decreased by 1/4 by reducing the wattage required to hold the valve in an energised state. (Effective energising time is over 62 ms at 24 VDC.)

Electric circuit (with power saving circuit)



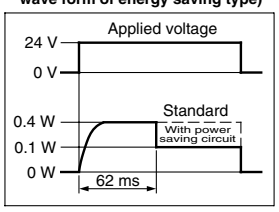
i1: Starting current i2: Holding current

Operating Principle

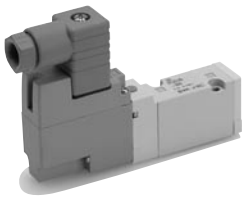
With the above circuit, the current consumption when holding is reduced to save energy. Please refer to the electric wave data to the right.

- Please be careful not to reverse the polarity, since a diode to prevent the reversed current is not provided for the power saving circuit.
- Please use caution regarding the allowable voltage fluctuation because there is about a 0.5 volt drop due to the transistor. (For details, refer to the solenoid specifications for the individual valve.)

(In the case of SYJ$^{3}_{5}$/7□□T, the electric wave form of energy saving type)

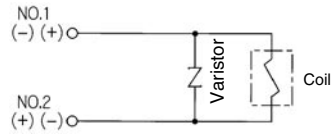


DIN Terminal

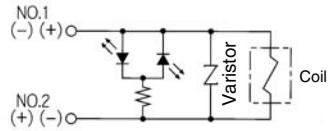


DIN terminal has no polarity.

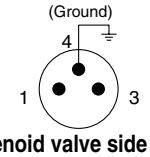
With surge voltage suppressor (DS)



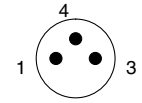
With light/surge voltage suppressor (DZ)



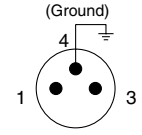
M8 Connector



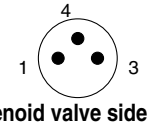
Solenoid valve side pin wiring diagram (For W type)



Solenoid valve side pin wiring diagram (For WA type)



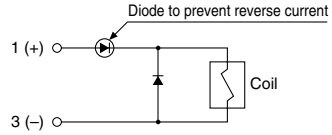
Solenoid valve side pin wiring diagram (For W type)



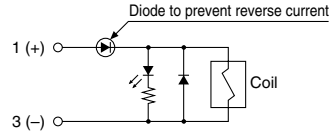
Solenoid valve side pin wiring diagram (For WA type)

■ Standard type (with polarity)

With light/surge voltage suppressor (□S)

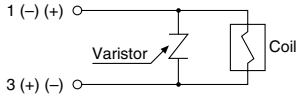


With light/surge voltage suppressor (□Z)

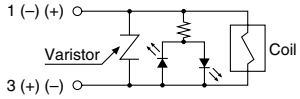


■ Non-polar type

With surge voltage suppressor (□R)



With light/surge voltage suppressor (□U)



- In the case of standard type, connect + to 1 and – to 3 for W type, and connect + to 4 and - to 3 for WA type, according the polarity.
- For DC voltages other than 12 V and 24 V, incorrect wiring will case damage to the surge suppressor circuit.
- Please use caution regarding the allowable voltage fluctuation because there is about a 1 volt drop for a valve with polarity protection. (For details, refer to the solenoid specifications for the individual valve.)

Series SYJ3000/5000/7000
Specific Product Precautions 4

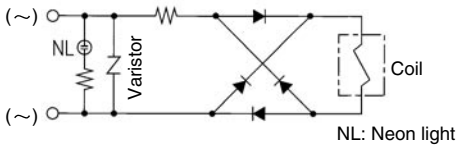
Be sure to read before handling.
Refer to back page 1 through to 5 for Safety Instruction and Common Precautions.

Surge Voltage Suppressor

<For AC>
(There is no "S" type because the generation of surge voltage is prevented by a rectifier.)

DIN Terminal

With light (DZ)



Note) Surge voltage suppressor of varistor has residual voltage corresponding to the protective element and rated voltage; therefore, protect the controller side from the surge. The residual voltage of the diode is approximately 1 V.

How to Use DIN Terminal

⚠Caution

Connection

1. Loosen the holding screw and pull the connector out of the solenoid valve terminal block.
2. After removing the holding screw, insert a flat head screwdriver, etc. into the notch on the bottom of the terminal block and pry it open, separating the terminal block and the housing.
3. Loosen the terminal screws (slotted screws) on the terminal block, insert the cores of the lead wires into the terminals according to the connection method, and fasten them securely with the terminal screws.
4. Secure the cord by fastening the ground nut.

⚠Caution

When making connections, take note that using other than the supported size (ø3.5 to ø7) heavy duty cord will not satisfy IP65 (enclosure) standards. Also, be sure to tighten the ground nut and holding screw within their specified torque ranges.

⚠Caution

Changing the entry direction

After separating the terminal block and housing, the cord entry can be changed by attaching the housing in the desired direction (4 directions at 90° intervals).

* When equipped with a light, be careful not to damage the light with the cord's lead wires.

Precautions

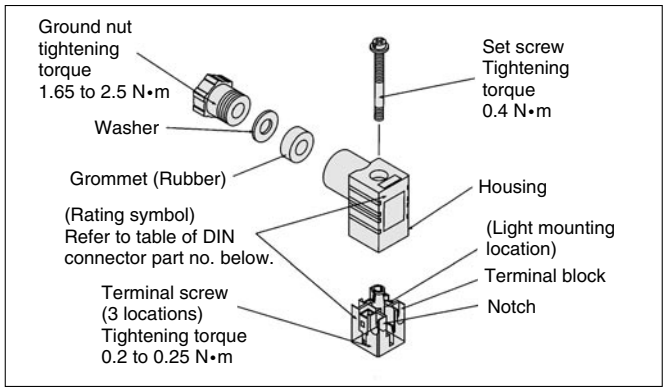
Plug in and pull out the connector vertically without tilting to one side.

Compatible cable

Cord O.D.: ø3.5 to ø7

(Reference) 0.5 mm², 2-core or 3-core, equivalent to JIS C 3306

How to Use DIN Terminal



DIN Connector Part No.

⚠Caution

Without light	SY100-61-1

With light

Rated voltage	Voltage symbol	Model no.
24 VDC	24 V	SY100-61-3-05
12 VDC	12 V	SY100-61-3-06
100 VAC	100 V	SY100-61-2-01
200 VAC	200 V	SY100-61-2-02
110 VAC	110 V	SY100-61-2-03
220 VAC	220 V	SY100-61-2-04

Circuit Diagram with Light

Note) Refer to page 80 for DIN connector (Y) conforming to EN-175301-803C (former DIN 43650C).

Series SYJ3000/5000/7000
Specific Product Precautions 5

Be sure to read before handling.
Refer to back page 1 through to 5 for Safety Instruction and Common Precautions.

Connector Assembly with Cover

⚠ Caution

Connector assembly with dust proof protective cover.

- Effective to prevention of short circuit failure due to the entry of foreign matter into the connector.
- Chloroprene rubber for electrical use, which provides outstanding weather resistance and electrical insulation, is used for the cover material. However, do not allow contact with cutting oil, etc.
- Simple and unencumbered appearance by adopting round-shaped cord.

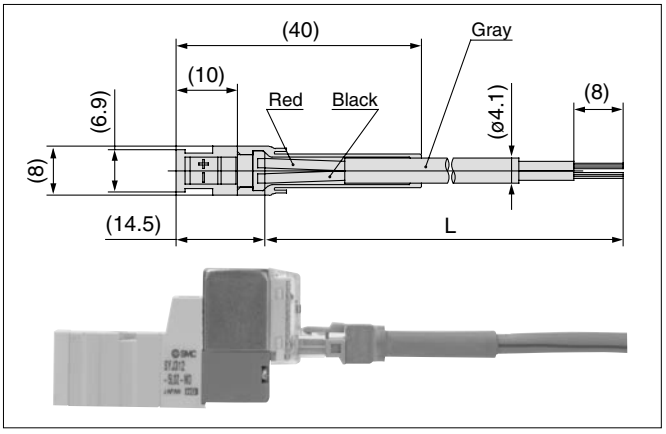
How to Order

SY100−68−A−□

• Lead wire length

-	300 mm
6	600 mm
10	1000 mm
15	1500 mm
20	2000 mm
25	2500 mm
30	3000 mm
50	5000 mm

Connector Assembly with Cover: Dimensions



How to Order

Enter the part number for a plug connector solenoid valve without connector together with the part number for a connector assembly with cover.

Ex. 1) Lead wire length of 2000 mm
SYJ3120-5LOZ-M3-Q
SY100-68-A-20

Ex. 2) Lead wire length of 300 mm (standard)
SYJ3120-5LPZ-M3-Q
Symbol for connector assembly with cover

∗ In this case, the part number for the connector assembly with cover is not required.

M8 Connector

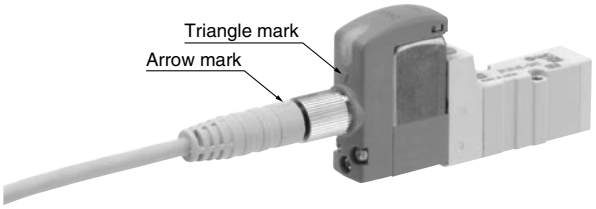
⚠ Caution

1. M8 connector types have an IP65 (enclosure) rating, offering protection from dust and water. However please note: these products are not intended for use in water.
Select a SMC connector cable (V100-49-1-□) or a FA sensor type connector, with M8 threaded 3 pin specifications conforming to Nippon Electric Control Equipment Association Standard, NECA4202 (IEC60947-5-2). Make sure the connector O.D. is 10.5 mm or less when used with the Series SYJ3000 manifold. If more than 10.5 mm, it cannot be mounted due to the size.
2. Do not use a tool to mount the connector, as this may cause damage. Only tighten by hand. (0.4 to 0.6 Nm)
3. The excessive stress on the cable connector will not be able to satisfy the IP65 rating. Please use caution and do not apply a stress of 30 N or greater.

⚠ Caution

Failure to meet IP65 performance may result if using alternative connectors than those shown above, or when insufficiently tightened.

• Connector cable mounting



Note) Connector cable should be mounted in the correct direction. Make sure that the arrow symbol on the connector is facing the triangle symbol on the valve when using SMC connector cable (V100-49-1-□). Be careful not to squeeze it in the wrong direction, as problems such as pin damage may occur.

■ Connector cable

• M8 connector cable for M8 can be ordered as follows:

How to Order

1. To order solenoid valve and connector cable at the same time. (Connector cable will be included in the shipment of the solenoid valve.)

SYJ$\frac{3}{5}$□□□−□□□□−□□-Q

• Electrical entry
W1, WA1: Cable length 300 mm
W2, WA2: Cable length 500 mm
W3, WA3: Cable length 1000 mm
W4, WA4: Cable length 2000 mm
W7, WA7: Cable length 5000 mm

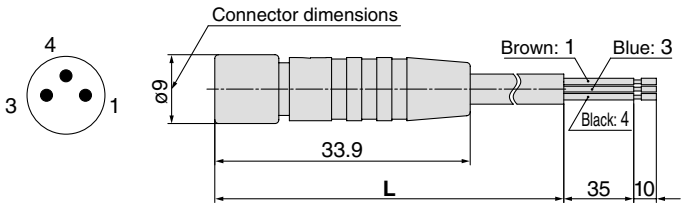
Ex. 1) Cable length: 300 mm
SYJ3120-5W1ZE-M3-Q
• Symbol for electrical entry

Series SYJ3000/5000/7000
Specific Product Precautions 6

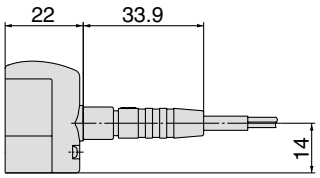
Be sure to read before handling.
Refer to back page 1 through to 5 for Safety Instruction and Common Precautions.

M8 Connector

2. To order connector cable only



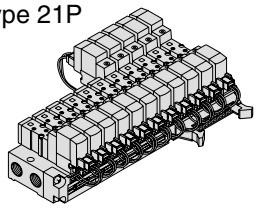
Cable length (L)	No.
300 mm	V100-49-1-1
500 mm	V100-49-1-2
1000 mm	V100-49-1-3
2000 mm	V100-49-1-4
5000 mm	V100-49-1-7



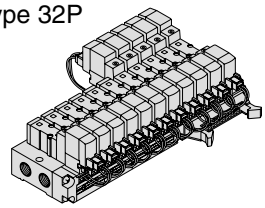
Flat Ribbon Cable Manifold

⚠Caution

Type 21P



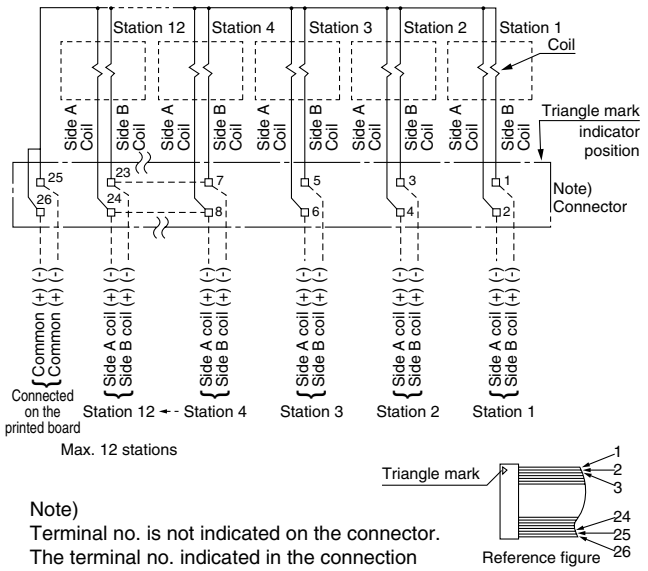
Type 32P



- In the manifold valves, the wiring to the individual valves is provided on a printed circuit board, and the connection to the external wires is consolidated through the use of a flat cable.
- A single MIL flat cable connects the entire manifold to your power source. This greatly reduces installation time.

Flat Ribbon Cable Manifold

Manifold Internal Wiring



Note)
Terminal no. is not indicated on the connector. The terminal no. indicated in the connection schematic of connector, as shown in the reference, means a correlation of 1, 2, 3····26 from the triangle mark side on the flat ribbon cable of connector.

- For more than 10 stations, both poles of the common should be wired.
- For single solenoid, connect to the solenoid B side.
- The maximum number of stations that can be accommodated is 12. For more stations, contact SMC.
- Only non-polar valves are available for the DC flat cable manifold, therefore negative COM or positive COM wiring of the manifold is possible. The valve does not switch with negative COM if a Z type is used. Be sure to use a positive COM.

Bracket

⚠Caution

For bracket attached styles of SYJ3000 (Single) and SYJ7000, do not use it without bracket.

Replacement of Pilot Valve

⚠Caution

Mount it so that there is no slippage or deformation in gaskets, and tighten with the tightening torque as shown below.

Model	Thread size	Tightening torque
SYJ3000	M1.7	0.12 N·m
SYJ5000	M2.5	0.45 N·m
SYJ7000	M3	0.8 N·m

Series SYJ3000/5000/7000
Specific Product Precautions 7

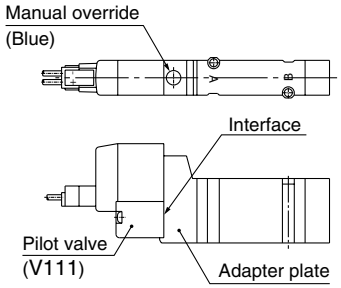
Be sure to read before handling.
Refer to back page 1 through to 5 for Safety Instruction and Common Precautions.

Replacement of Pilot Valve

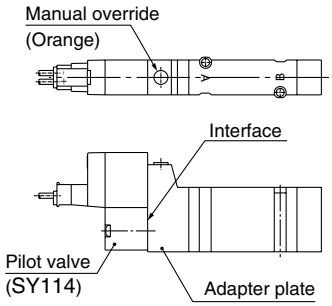
⚠Caution

Pilot valves in this series are improved to provide excellent energy saving results. However following this improvement, these new valves are no longer compatible with the conventional pilot valve used at the interface. Consult with SMC when you need to exchange these pilot valves, in the case of manual override (marked in orange) of the adapter plate.

New type

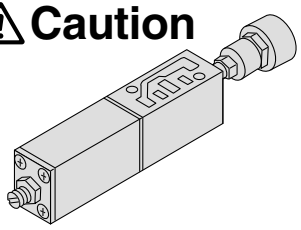


Conventional type



Interface Regulator

⚠Caution



Spacer type regulating valve on manifold block can regulate the pressure to the valve individually.

Specifications

Interface regulator		ARBYJ5000	ARBYJ7000
Applicable solenoid valve model		SYJ5000	SYJ7000
Regulating port		P	P
Proof pressure		1.5 MPa	
Maximum operating pressure		1.0 MPa	
Set pressure range		0.05 to 0.7 MPa Note 1)	
Ambient and fluid temperature		-5 to 60°C (No freezing) Note 2)	
Thread size for connection of pressure gauge		M5	
Weight (kg)		0.06	0.09
Effective area at exhaust side (mm^2) Note 3) S at P_1 = 0.7 MPa, P_2 = 0.5 MPa	P→A	1.9	5.1
	P→B	2.1	5.8
Effective area at supply side (mm^2) Note 3) S at P_1 = 0.7 MPa, P_2 = 0.5 MPa	A→EA	4.5	12.6
	B→EB	4.5	12.6

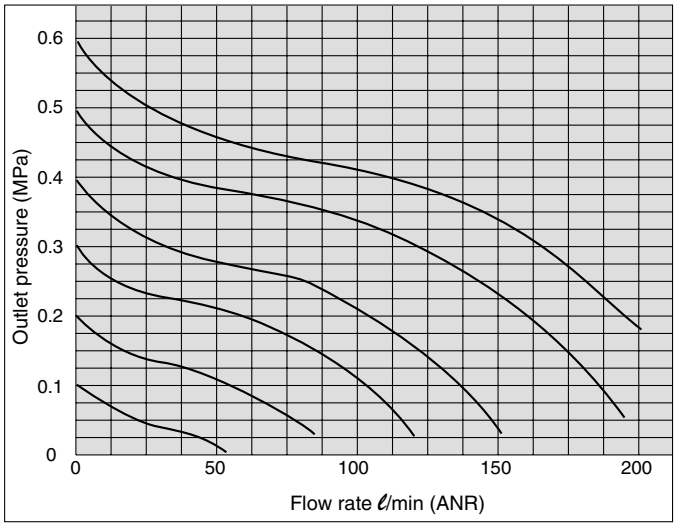
Interface Regulator

Note 1) Set the pressure within the operating pressure range of the solenoid valve.
Note 2) The maximum operating temperature for the solenoid valve is 50°C.
Note 3) The effective area listed is for a single solenoid 2 position valve mounted on a sub-plate.
Note 4) Apply pressure from P port in the base for interface regulator.

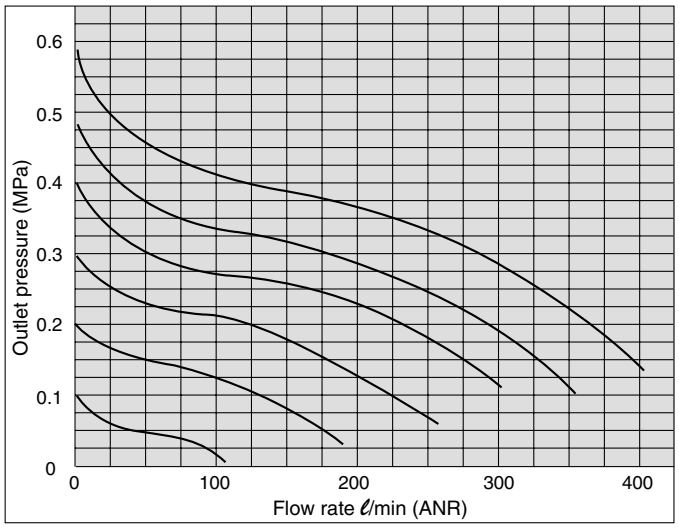
Flow Characteristics

(P → A) Condition: Inlet pressure 0.7 MPa

● ARBYJ5000-00-P-Q



● ARBYJ7000-00-P-Q



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